

4981

Diag. Cht. No. 5402-2 & 55304

Form 504 Ed. June, 1928	
DEPARTMENT OF COMMERCE U. S. COAST AND GEODETIC SURVEY R. S. Patton Director	
State: California	
DESCRIPTIVE REPORT	
Topographic Hydrographic	} Sheet No. ¹² 4981
LOCALITY	
Approaches to San Francisco Bay	
Pigeon Pt. to Pt. Montara	
1929	
CHIEF OF PARTY	
O. W. Swainson	

U. S. GOVERNMENT PRINTING OFFICE: 1928

4981

C. & G. SURVEY
U. S. A.
APR 2 1930
Acc. No.

DESCRIPTIVE REPORT

TO ACCOMPANY HYDROGRAPHIC SHEET NO. 12

SHIP HYDROGRAPHY COAST OF CALIFORNIA

APPROACHES TO SAN FRANCISCO BAY

1929

U.S.C. & G.S.S. PIONEER

O. W. SWAINSON COMMANDING

DESCRIPTIVE REPORT TO ACCOMPANY HYDROGRAPHIC

SHEET NO. 12.

AUTHORITY FOR WORK

The hydrography of this sheet was done by the party on the Surveying Vessel PIONEER, in accordance with instructions dated April 9, 1929. The work was started on the sheet on October 1, and finished on December 2, 1929,

SCALE AND LIMITS

The scale of the sheet is 1:80,000. The limits are:

from Lat. $37^{\circ} 10'$ to $37^{\circ} 32'$ and from
Long. $122^{\circ} 30'$ to $123^{\circ} 00'$.

It joins sheet 10 on the north and sheet 11 on the west.

CONTROL

The control for the lines was R. A. R.; two stations were used, one at S.E. Farallones and the other at Montara Point. Both hydrophones were of the suspended type. They were placed in 17 fathoms of water and suspended 11 fathoms under the surface 1 1/2 miles off shore. The hydrophones were of the Navy Type. At Montara Point three hydrophones were installed in the box, one horizontal, one point slightly upward and the other slightly downward in order that if the current tipped the box a little one of the hydrophones would be horizontal.

The hydrophones at Farallon Island was very sensitive. It would pick up the oscillator so well from a distance of forty miles as to trip the metronome. The hydrophone at Montara Point was not so good. Difficulty was experienced with its inability to catch the sound of the bombs fired beyond the 100 fathom curve.

VELOCITY OF SOUND

From several tests taken of this sheet and many on sheet 8 and 10 the velocity was determined as 1490 meters per second. The best tests were made from points directly between the two hydrophones

SURVEY METHODS

The fathometer was used throughout the sheet with the vessel running between 10 and eleven knots.

The red light method could be used out to 100 to 150 fathoms, but it was necessary to use the white light method beyond that. There might be some error, in these white light soundings but as they occurred where the slope of the bottom was very steep this error is unimportant.

FATHOMETER SOUNDING CORRECTION

Several vertical casts and temperatures and salinities of the water were taken each day. From this data and the tables given in the hydrographic manual a correction table was made for the fathometer soundings. For a complete description of this correction table and its derivation see the season's report or the report to accompany Hydrographic Sheet No. 8. (4479)

JUNCTION WITH OTHER SHEETS

The junction with sheet 11 on the west is not so good due to the steepness of the slope at this point causing a wide difference in the depth with only a small displacement of position. It is also effected by the two methods of sounding, fathometer white light on sheet 12 and sonic on sheet 11.

The following soundings appear to be in error and should not be given much weight, preference to be given to the surrounding soundings which check each other.

SHEET NO. 12.

The following is a list of soundings at sheet junctions
that appear to be doubtful.

Soundings from Position 43G to 44G.



accepted R

*Respectfully submitted
O. L. Swanson
Chief of Party*

STATISTICS - HYDROGRAPHIC

SHEET NO. XII.

Date	Day Ltr.	Sndg. Vol.	Bomb Pos.	Log Pos.	Vis. Pos.	Stat. Miles	F.R.	F.W.	Sonic	L.Line	Boat
Oct. 1	A	1	58	38		118.5	506	42			PIONEER
2	B	1	13	12		28.7	120	11			"
25	C	1	26	29		63.0	239	32			"
Nov. 1	D	1	37	48	3	84.0	359	7			"
4	E	2	36	37		82.8	361	30			"
5	F	2	39	43		86.0	347	51			"
8	G	2	34	33		107.0	441	18			"
18	H	2 & 3	29	36		55.2	308				"
19	J	3	53	65		154.0	643	59			"
20	K	3 & 4	53	60		140.0	596	43			"
21	L	4	34	41		115.0	461	24			"
22	M	4	35	68		78.0	363	1			"
Dec. 2	N	4	30	48		89.5	86	297			"
Totals			477	558	3	1201.7	4591	615			


 Records from
 5507 

Correction in Fathoms

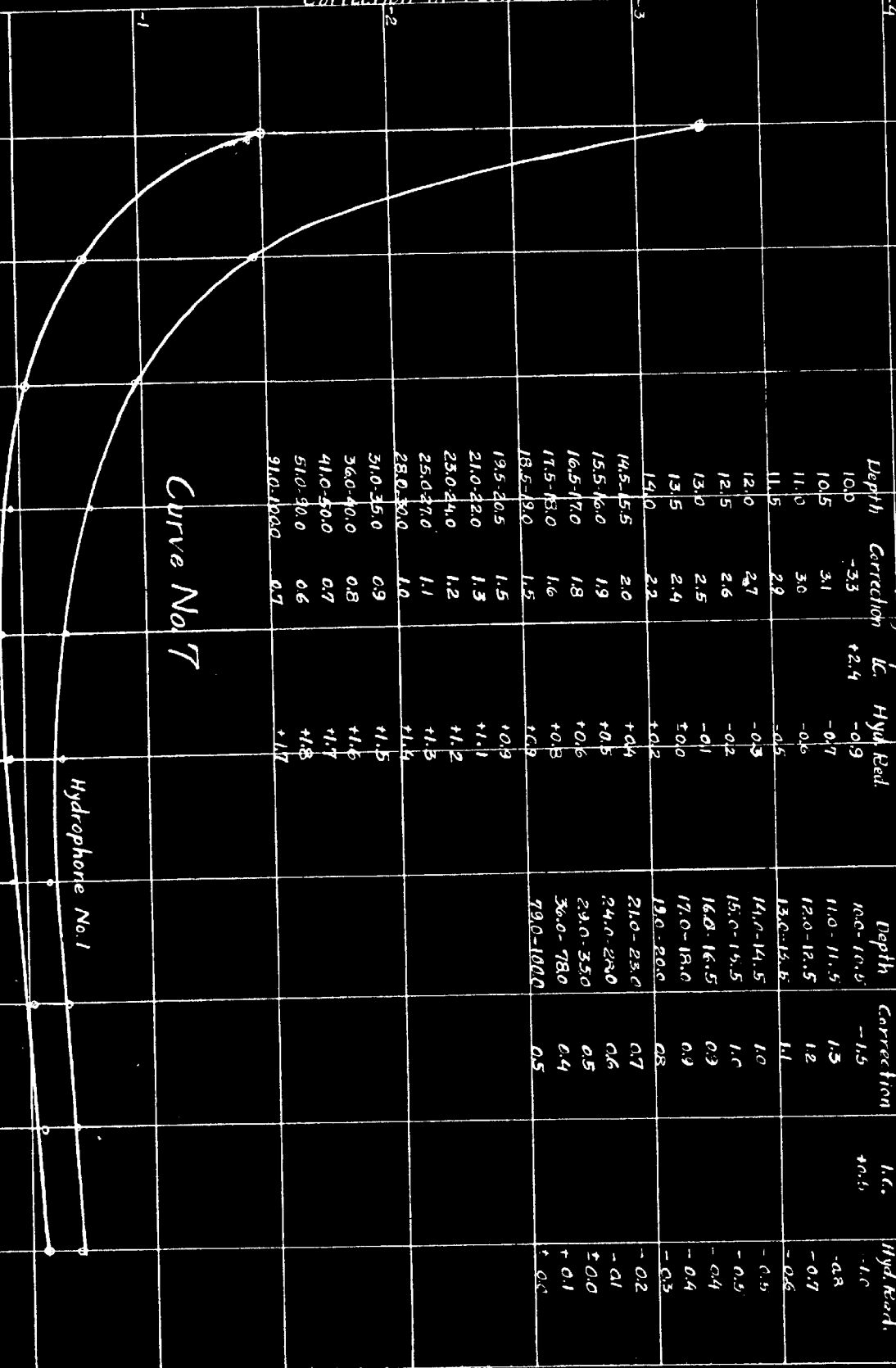
Final Table of Corrections "E"

No. 1 Hydrophone (sonic)		Nos. 2 & 3 Hydrophones (fathometer)	
Depth	Correction	Depth	Correction
10.0	-33	10.0-10.5	-1.5
10.5	31	11.0-11.5	1.5
11.0	30	12.0-12.5	1.2
11.5	29	13.0-13.5	1.1
12.0	27	14.0-14.5	1.0
12.5	26	15.0-15.5	1.0
13.0	25	16.0-16.5	0.9
13.5	24	17.0-18.0	0.9
14.0	22	19.0-20.0	0.8
14.5-15.5	20	21.0-25.0	0.7
15.5-16.0	19	24.0-25.0	0.6
16.5-17.0	18	24.0-35.0	0.5
17.5-18.0	16	36.0-78.0	0.4
18.5-19.0	15	79.0-100.0	0.5
19.5-20.5	1.5		
21.0-22.0	1.3		
23.0-24.0	1.2		
25.0-27.0	1.1		
28.0-30.0	1.0		
31.0-35.0	0.9		
36.0-40.0	0.8		
41.0-50.0	0.7		
51.0-90.0	0.6		
91.0-100.0	0.7		

Curve No. 7

Hydrophone No. 1

Hydrophone Nos. 2 & 3



Report on H. 4981.
Approaches to San Francisco Bay, Cal.

Chief of Party O. W. Swainson.

Surveyed by O. W. Swainson.

Protracted by H. J. Dealy.

Soundings plotted by J. C. Ellerke Jr.

Verified and Inked by G. Risegari.

1. The records conform to, and the plan and character of development fulfill the requirements of the General Instructions

2. The plan and ~~character~~^{character} extent of development satisfy the Specific Instructions.

3. The sounding line crossings sufficiently cover the surveyed area and are satisfactory.

4. The usual depth curves can be completely drawn within the scope of the survey.

5. The junction with H. 4980a (north) is satisfactory.

" " H. 5014 (west) " "

No other contemporary sheets joining H. 4981 have been received in the Office. The older surveys, which are mostly dead reckoning, contain no important soundings, and may be ignored in charting.

6. The adjoining work of H. 5014 showed several soundings which were considered too deep by Capt. S. Chief of Party and a decision was made in the Office to reject them, giving preference to the work on H. 4981 which in general

6 (cont.)

appears satisfactory. The resulting 200 fathom curve was very much improved and quite probable.

Attention might be called here to a 46 fathom sounding between 51 fathom soundings, lat. $37^{\circ}16'$, long. $122^{\circ}36'$. It appears that the sounding was not noted in ^{the} sounding record by the field party and no reference to it ^{was made} in the description report. If the sounding is correct it ~~may~~ ^{indicates} the possibility of a shoal in this area, which, if so, should have been developed.

~~In a number of cases of white light soundings in certain areas conflicted in depth with red light soundings. The latter~~

In a number of cases white light soundings in certain areas conflicted ~~in~~ with red light soundings in depths of about 100 fathoms. In such cases the red light soundings were given preference. This resulted in the improvement of the 100 fathom curve.

7. With the exception noted in paragraph 6 regarding the 46 fathom spot, the survey appears to have fully developed all important areas within its scope.

8. Character and scope of surveying - good.
Field drafting - good.

9. Reviews by E. Risgari.

Inspector E.P.R. Amos.
App.

Jan. 6, 1931.

ECM

(FOR FILES FIELD RECORDS SECTION)

April 18, 1930.

Division of Hydrography and Topography:

Division of Charts:

Tide Reducers are approved in
4 volumes of sounding records for

HYDROGRAPHIC SHEET
4981

Locality: California (South of Farallones)

Chief of Party:

Plane of reference ^{is} ^{W.} ^{Spainson} in 1929
ft. on tide staff at ^{mean lower lowwater, reading}
3.8 ft. below B. M. Point Reyes

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.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. 4981

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. 12

REGISTER NO. 4981

State California

General locality Approaches to San Francisco Bay
~~Northern California Coast~~

Locality Pigeon Pt. to ~~Montara Pt.~~ Montara

Scale 1:80,000 Date of survey, 19

Vessel PIONEER

Chief of Party O. W. Swainson

Surveyed by O. W. Swainson

Protracted by H. J. Healy

Soundings penciled by J. C. Ellerbe Jr

Soundings in fathoms ~~feet~~

Plane of reference Mean Lower Low Water

Subdivision of wire dragged areas by

Inked by

Verified by

Instructions dated April 9, 1929

Remarks:

4 1/2 sheets
3 1/2 sheets
1 sheet
1 sheet

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. *4981*

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

Number of positions on sheet	<i>1038</i>
Number of positions checked	<i>150</i>
Number of positions revised	<i>10</i>
Number of soundings recorded	<i>5506</i>
Number of soundings revised	<i>40</i>
Number of signals erroneously plotted or transferred

Date:..... *Jan. 6, 1931*

Cartographer:..... *S. Pregari*

A-4981 (1929)

Comp. appd to ^{New} chart 5072 of the V.R. - *Est. [unclear]*
4/1/64