

4280

Diag. Cht. No. 5530-4

4280

<p>Form 504 DEPARTMENT OF COMMERCE U. S. COAST AND GEODETIC SURVEY</p>
<p>State: <u>California</u></p>
<p>11-5613</p>
<p>DESCRIPTIVE REPORT.</p>
<p>Hydrog. Sheet No. <u>4280</u></p>
<p>LOCALITY:</p>
<p><u>San Pablo Bay and Carquinez Strait</u></p>
<p><u>Refugio Landing and Mare I. to Crockett</u></p>
<p><u>1922</u></p>
<p>CHIEF OF PARTY:</p>
<p><u>O. W. Swainson</u></p>

Statistics to accompany Hydrographic Sheet J.

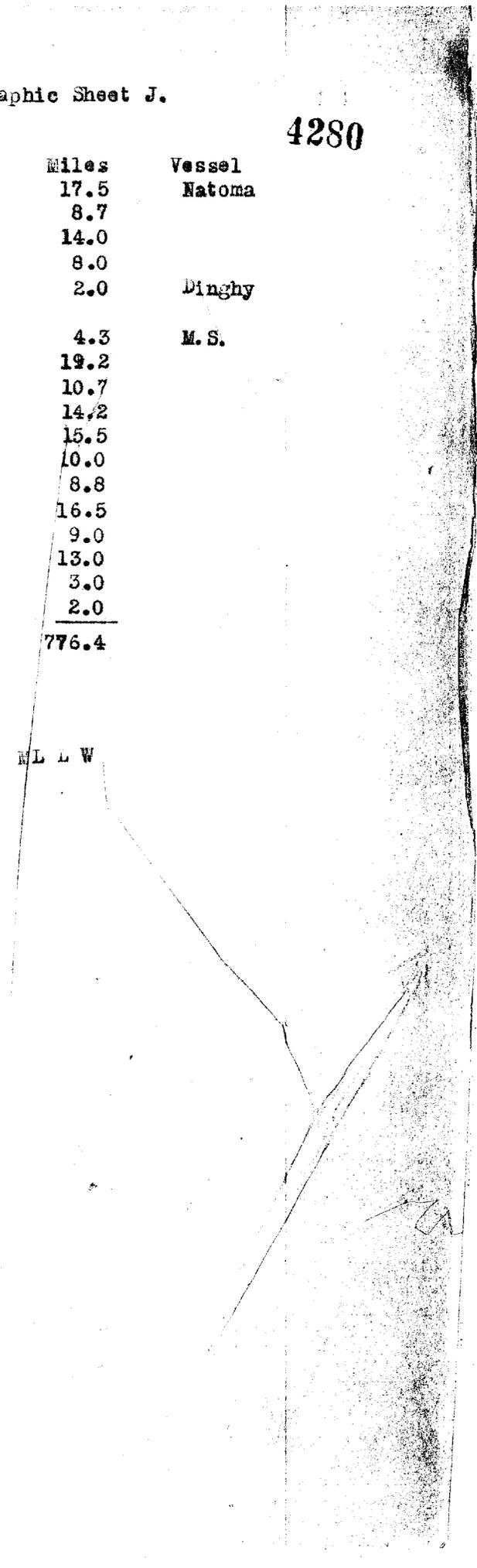
4280

Date 1922	Letter	Vol	Pos	Sound	Miles	Vessel
Apr. 20	A	1	107	501	17.5	Natoma
21	B	1	63	238	8.7	
22	C	1	98	290	14.0	
May 25	D	1	71	185	8.0	
26	a	1	13	131	2.0	Dinghy
Feb. 20	a	1	36	254	4.3	M. S.
21	b	1	151	1188	19.2	
23	c	1&2	103	751	10.7	
24	d	2	138	998	14.2	
27	e	2&3	148	1085	15.5	
28	f	3	100	681	10.0	
Mar. 13	G	3	76	518	8.8	
Apr. 20	h	3&4	155	1004	16.5	
21	i	4	75	554	9.0	
24	j	4	110	806	13.0	
25	k	4	41	169	3.0	
May 24	l	5	30	127	2.0	
			2350	9380	776.4	

Unit of Soundings
 Plane of Reference
 Tide gauge at
 Plane of Reference on gauge
 Lowest tide " " "
 Highest " " " "

ft.

R L L W



Angles taken at pile projecting 6" out of water.

Date; December, 12th, 1921.

Time; 9:45 A.M.

Depth; 2.5 fathoms.

1st angle.	35 Deg. 00 Min.	Refugio landing to outer end of dock.
2nd "	74 Deg. 30 Min.	Outer end of dock to Oleum dock.
3rd "	45 Deg. 13 Min.	Refugio landing to high tower.
4th "	50 Deg. 25 Min.	High tower to stack at Oleum.

June 26, 1925.

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
7 volumes of sounding records for

HYDROGRAPHIC SHEET 4280

Locality: San Pablo Bay, Calif.

Chief of Party: O. W. Swainson in 1922

Plane of reference is mean lower low water, reading

5.3 ft. on tide staff at Crockett

3.8 " " auto. gauge at Refugio

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.

W. H. Lude

Chief, Division of Tides and Currents.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
WASHINGTON

April 1, 1924.

Verification of Hydro. 4280

SAN PABLO BAY

Considerable difficulty was encountered in verifying the portion of the sheet in Carquinez Strait. There were sounding lines that differed with cross lines and with adjacent lines by as much as 22 feet. A careful analysis was made of the area and particular regard was paid to the strength of the current ^{at} the time of taking the sounding. _c

It was thus found that in most cases the stronger the current the greater the difference from those soundings taken at or near slack current. Hence the soundings on lines run around slack current were all accepted and those run when the current was strong were accepted only where the discrepancy did not exceed five per cent of the depth.

The protracting was good and the plotting of the soundings ^{was} ~~were~~ good. Where positions were taken along different wharves and docks, they were identified by the Chief of Party and accepted as such.

In protracting this sheet the launch positions and ships positions were all shown in the same color ink. This was changed indicating the ships positions in blue ink.

The records for the sheet were well kept.

A. L. Shalowitz

A. L. Shalowitz,
Cartographer, Field Records
Section.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

WASHINGTON

April 4, 1924.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4280

San Pablo Bay and Carquinez Strait

Surveyed in 1922

Instructions dated June 1, 1921.

Chief of Party, O. W. Swainson.

Surveyed by O. W. Swainson, M. O. Witherbee, and L. O. Mower.

Protracted and soundings plotted by G. Risegari.

Verified and inked by A. L. Shalowitz.

1. The records conform to the requirements of the General Instructions except that no descriptive report was submitted.
2. The plan and character of development fulfill the requirements of the General Instructions except that the main system of sounding lines in Carquinez Strait should have been parallel to the axis of the Strait as directed in paragraph 221 of the General Instructions, instead of normal to the axis.
3. The plan and extent of development satisfy the specific instructions.
4. The sounding line crossings on the flats west of Mare Island are adequate.

Serious defects exist in the sounding in Carquinez Strait where there are large differences in crossings of sounding lines, the maximum error being 22 feet in 60 foot depths. Mr. Shalowitz, who verified the sheet, made a careful study of this area noting particularly the strength of the current at the time each line was run. This study demonstrated that erroneous increases in depths were made, the amount of the errors being proportional to the strength of the currents at the time the soundings were taken.

See tracing attached.

As a result of this study, and with the concurrence of the Chief of the Field Records Section, all soundings taken around slack water were accepted and those taken when the current was strong were rejected when the differences exceeded 5%.

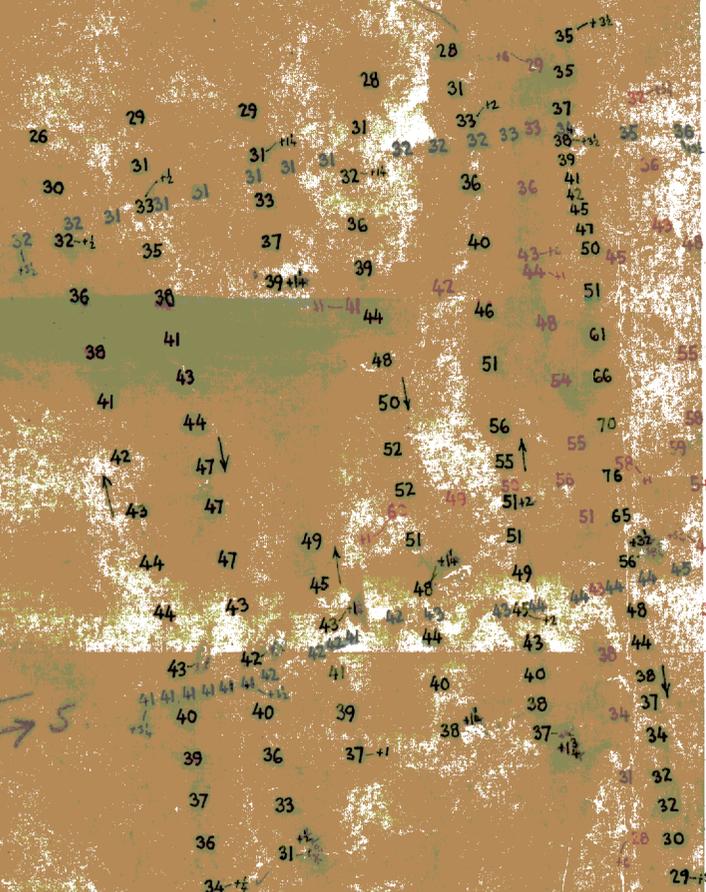
5. The excessive increases of the leadline were undoubtedly due to one of two causes, probably to a combination of the two.

First - By the time the lead had reached bottom the vessel would be swept to the right or left of the spot directly above the lead and hence the lead line would not be vertical.

Second - A swift current would bow the line.

6. The field plotting usually done by the field party was executed in the office.
7. The junctions with adjacent sheets are satisfactory.
8. No further surveying is required within the area of the sheet. On account of the rejection of soundings in the Strait the hydrography there is somewhat sparse in places, but there are no indications of shoaling, and the development is sufficient for charting.
9. The development west of Mare Island conforms to the specific instructions, but half as many sounding lines would have been ample.
10. The character of the surveying is fair.
11. Reviewed by E. P. Ellis, March, 1924.

38° 04'



Soundings in black are those taken on A day. (April 20, 1922)
 Soundings in blue are those taken on B day. (April 21, 1922)
 Soundings in red are those taken on D day. (May 25, 1922)
 Small fine numbers with + signs beside indicate the number of hours
 after slack water; the maximum strength of current occurring
 about 3 hrs. after slack.

TRACED FROM H-4280

38° 03'

122° 17'

38° 04'



Current ebbing for A day

Current flooding
dys. marked bet. +5 & 6

Current ebbing for
dys. marked bet. 7 & +1/4

38° 03'

122° 16'

122° 15'