

4258

Diag. Ct. No. 5101-2

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey *Hydrographic*
Field No. _____ Office No. *4258*

LOCALITY

State *California*
General locality *Mexican Border*
Locality *to Point Loma off*
San Diego
1922-1923

CHIEF OF PARTY

H. A. Swan

LIBRARY & ARCHIVES

DATE _____

4258

4258

C. & G. SURVEY
L. & A.
JAN - 8 1923
Spec. No.

4258

Form 804

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

State: *California*

J1-6618

DESCRIPTIVE REPORT

Hyd Sheet No. *4258*

LOCALITY:

Mexican Border to Pt. Loma

Off San Diego

1922 + 1923

CHIEF OF PARTY:

H. A. Seran

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SHEET NO 4

APPROACHES TO SAN DIEGO BAY

CALIFORNIA

H. A. Seran, Chief of Party.

1. As the original survey of the region covered by this sheet was made a number of years ago, the present survey is in the nature of a revision and but little description is necessary to explain the sheet or add to the knowledge of this section of the coast.

2. The previous hydrography was transferred from copies of the original sheet to the boat sheet. Additional sounding lines were run to conform to the instructions for this work which called for a spacing of the sounding lines of $\frac{1}{4}$ miles out to the 50 fathom curve.

3. In general the present survey checked the previous survey inside the 20 fathom curve but outside that curve the old survey was not so accurate. The 100 fathom curve was changed considerably. The bank shown on chart 5102 is considerably larger and extends much farther north than the old survey shows.

4. Limits of sheet.

The sheet connects with the inshore hydrographic sheet of the party of the Pioneer on the north; with previous hydrography inshore; and with the current off shore sheet at the outer limits.

5. Dangers.

There are no especial dangers within the limits of the sheet unless the two kelp patches are termed such. One of these patches lies just west of Point Loma and extends northward parallel with the shore line well into the sheet of the Pioneer. The other patch lies about 7 miles southeast of the entrance to San Diego Bay.

b. Subsequent development on the off-shore sheet in the vicinity of the 173 fathom sounding shown in latitude $32^{\circ} 29\frac{1}{2}'$ and longitude $117^{\circ} 22'$ failed to verify this depth.

6. Depth curves.

The 20, 50 and 100 fathom curves are shown on the sheet in pencil.

7. Method of Survey.

The entire hydrography was controlled by fixed positions on shore objects. The irregular lines at the southwestern edge of the sheet were occasioned by the use of signal Char, the northern tangent of an orchard located on the high bluff south of the Mexican Border. Inside the 20 fathom curve the soundings were taken with hand lead; between the 20 and 100 fathom curves the soundings were taken with the Coast Survey sounding tubes, using 2 tubes at the same time and checking every fifth sounding with a vertical cast with the ship stopped; outside the 100 fathom curve the soundings were all vertical casts taken with the ship stopped.

A. Swan

List of signals used on Hydrographic Sheet No. 4.
U.S.S. Discoverer, 1922-23, H. A. Seran, Chief of Party.

- *Peak --- Northern peak on North Coronado Island.
- *North --- Highest peak on North Coronado Island.

- ** Rock -- Outlying rock, southern end North Coronado Island.
- ** Mid -- Highest point, Middle Coronado Island.
- ** Point -- Outlying rock, northern end South Coronado Island.
- ** New -- Point Loma Light House, New Tower.
- ** Old -- " " " " , Old Tower.
- ** W. Navy-- West wireless mast on Point Loma.
- ** E Navy East " " " " " " .
- ** Dome -- Dome on Theosophical Temple, Point Loma.
- ** Cor -- Hotel Coronado Tower.
- ** Cin -- Chimney on Incinerator.
- ** Dune -- Old triangulation station.
- ** Radio-- Radio Compass station.
- ** Mon -- Mexican Boundry monument.
- ** Tow -- Highest tower in exposition grounds.
- ** San -- San Miguel Mountain.

- * Tank -- Water tank on Point Loma.
- * Mast -- Northern wireless mast, East San Diego.

- *** Ho -- Chimney of house back from beach.
- *** Char -- Northern tangent of orchard on bluff south of border.

- * Triangulation location, present party.
- ** Old triangulation stations.
- *** Hydrographic location, present party.

4258

U. S. SURVEY
L & A
APR 5 1922
Rec. No.

STATISTICS - HYDROGRAPHIC SHEET # 4 .

Approaches to San Pedro Bay
California

U. S. S. Albatross

H. A. Swan, Chief of Party

DATE	Letter	Volume	Positions	Soundings	Stat.Miles	Vessel
Nov.21,1922	A	1	13	13	9.5	Discoverer
22	B		97	136	42.0	
23	C		71	113	31.8	
24	D	2	82	119	37.0	
27	E	1	67	99	33.0	
28	F	3	84	135	31.7	
29	G		37	66	17.3	
Dec. 5	H	2	59	82	28.1	
6	J		71	125	37.5	
7	K		42	55	24.2	
8	L	4	71	104	32.0	
9	M		22	34	8.3	
12	N	5	55	171	15.8	
14	P		98	215	27.9	
15	Q		93	328	28.0	
18	R		64	188	18.3	
19	S	6	110	365	34.1	
20	T		67	253	21.5	
21	U		95	457	29.6	
22	V		57	151	13.3	
		4	27	45	12.2	
26	W		69	107	33.6	
27	X		42	60	21.3	
28	Y	3	61	126	28.5	
Jan.15,1923	Z		63	91	34.0	
29	A'		10	24	3.5	
		2	11	23	5.4	
		7	11	11	7.0	
			<hr/>	<hr/>	<hr/>	
			1649	3696	666.4	

RLD

COPY TO FIELD RECORDS.

C. I. C.

April 17, 1923.

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
volumes of sounding records for

7
HYDROGRAPHIC SHEET

4238

Locality:

Mexican border - Point Loma, California

Chief of Party:

Plans of reference *H. A. Swan in 1922-1923*

ft. on tide staff *mean lower low water, reading*

3.6 *San Diego.*
auto. gauge

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.

Harrison

Chief, Division of Tides and Currents.

Acting

Report on Verification and Inking N. 4258.

The records and notes were complete. The field drafting was excellent, the protracting accurate, and time intervals observed in plotting soundings. The sheet itself was clean and in good condition.

Amended by letter of Dec. 6, 22 E.R.

On the reduction of soundings in the shoaler area, the reduced soundings were entered in the record in fathoms and tenths which is contrary to the "Instructions". In depths less than 7 fathoms reducers should have been entered to the nearest half foot instead of the nearest foot.

2. Since there is a chart published in feet, covering the inshore part of the work, the soundings involved were reduced in this section, with reducers taken to tenths of feet and leadline correction to tenths of feet also. The soundings were then plotted in fathoms and sixths of fathoms, even over 7 fathoms contrary to the General Instructions, in order to allow the soundings to be readily converted into feet.

3. On A day deep soundings, though not repeated in the record were not plotted on the sheet by the field party. As there appears to be in error they were not inked.

4. The method of using tube soundings seems illogical. The constant error of each tube was found by comparative readings of wire and tube on vertical casts. From these comparisons a curve was drawn with depths as ordinates and error of tube as abscissae. There was thus deduced a sliding scale of corrections, depending on the depth. Thus far the method is good. But after this constant correction had been determined and applied in the reduction of soundings, if a wire vertical cast sounding showed a greater depth than the tube, the former was disregarded and the shall depth plotted; the fact that the wire had been the standard in finding the tube error

Agreement between tube soundings in practically all cases is observed. The practice of using them when both tubes are present is not proper. The depth wire only is intended by G. L. S. 26.

apparently being of minor importance. The depths being great (over 20 fathoms), there is no danger in the above, but it certainly cannot be called accurate and logical.

5. Another point regarding tube soundings is that the method of survey used two tubes for each cast. If the disagreement between two tubes exceeded a certain per cent of the depth the sounding was called a miss. Yet when one tube failed to register or water lost, etc, the other tube was accepted in many instances, although there was no check.

not subject
for a known
contaminant.
E. P. S.

6. Referring to paragraph 5b of the descriptive report, the 173 fathom sounding was plotted in the office using the signals as originally recorded. This puts the sounding about $\frac{2}{3}$ mile N.W. of the field position which was plotted with Δ North as right object. This does not agree with the boat sheet but the boat sheet position did not fit either of the recorded angles and it is therefore assumed the position on the B.S. is wrong. Evidently the only purpose the officer who plotted the sheet had in using North as right object was to make the position fall closer the boat sheet position. Subsequent sounding does not verify this depth (see descrip. report and sheet). Therefore two conclusions may be drawn; 1. that the sounding is incorrect; or 2. that the subsequent development was too far to the S.E. to touch the shoal.

Frank M. Albert, Draftsman,
Section of Field Records.

May 8, 1923.

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

July 9, 1923.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4258

International Boundary to Pt. Loma.

Surveyed in 1922 - 23.

Instructions dated Oct. 18, 1922 and Dec. 6, 1922.

Chief of Party, H. A. Seran.

Surveyed by H. A. Seran, J. H. Peters, H. W. Hemple and R. W. Woodworth.

Protracted and soundings plotted by P. H. White.

Verified and inked by F. M. Albert.

1. The records conform to the General Instructions except that the tide reducers between 3 and 7 fathoms should have been to the nearest half foot. (See Circular No. 21. Sept. 30, 21). The data upon which tube corrections were based are unusually clear and complete.
2. The plan and character of development fulfill the requirements of the General Instructions.
3. The plan and extent of development satisfy the specific instructions. The work, as directed, extended over the area of the previous surveys. The inshore work of the latter checks well with the new survey, but the previous survey is out of position in the offshore areas. As all of H. 4258 is based on 3-point fixes, it should be given the preference where differences exist.
4. The sounding line crossings are adequate.
5. The information is sufficient for drawing the usual depth curves.
6. The field plotting was completed to the extent prescribed in the General Instructions, and none of it had to be done over by the office draftsman.

7. The junctions with adjacent sheets are satisfactory, except as noted in paragraph 3.
8. The correctness of the 173-fathom sounding in the southwestern portion of the survey is doubtful in view of the development in its vicinity. The development is not sufficiently close, however, to disprove it and it should be charted.

No further surveying within the area of the survey is required.

9. Both the surveying and field drafting are excellent.
10. The excellent results obtained by the use of sounding tubes on this survey deserves special mention.

The numerous cross sounding lines offer ample opportunity for checking the accuracy of the work by comparison of soundings at the crossings. Judged by this test this survey compares favorably with any results obtained by up and down casts.

This high degree of accuracy has been obtained by the application of correction factors to all tube depths. As those factors, which amount to 7 to 8% of the tube readings, are based upon comparison with up and down casts, and temperature and barometer observations, it is evident that the information on all these points must be systematically made and recorded.

It is noted that all corrections are additive. The corrections for temperature and barometer are very small, and if they be subtracted from the total corrections the remainders will represent the errors due to the scale. If the scales are modified to eliminate these scale errors, the depths obtained by the tubes will be nearer to the correct depths, and the tube readings will be correspondingly more accurate. While this higher degree of accuracy is not absolutely essential for surveying, where the errors can be corrected, the tubes will be more accurate when used by navigators.

It is recommended, therefore, that, as soon as data are received from the field for additional tubes the scale be modified to eliminate the errors.

11. Reviewed by E. P. Ellis, July, 1923.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

4258

HYDROGRAPHIC TITLE SHEET

The finished Hydrographic Sheet is to be accompanied by the following title sheet, filled in as completely as possible, when the sheet is forwarded to the Office.

U. S. Coast and Geodetic Survey.

Register No. 4258

State . . . California

General locality San Diego
~~off coast of Southern California~~

Locality International
~~Mexican~~ Boundary to Point Loma

Chief of party . H. A. Segan, Lt. Comm.

Surveyed by ~~H. A. Segan, Lt. Comm.~~ Party of str. Discoverer

Date of survey Nov. 21, 1922 - Jan. 29, 1923

Scale . 1/-40,000

Soundings in Fathoms

Plane of reference Mean lower low water

Protracted by P.H. White, D.O. Soundings in pencil by P.H. White, D.O.

Inked by F.M. Albert . . . Verified by F.M. Albert

Records accompanying sheet (check those forwarded):

Des. report, Tide books, Marigrams, Boat sheets,
 Sounding books, Wire-drag books, Photographs.

Data from other sources affecting sheet
Statistics sheet, Reel correction table, Temp. and Barom. Correction table, Constant error correction table, 4 Curves showing constant tube error, 4 Sheets showing comparisons of tube readings with up and down
Remarks: soundings.

Bromide copies of following hydrographic sheets 564, 567, 1888, 1889, 1905, 2185.

SOUNDINGS

Locality
S. Cal.

Sublocality
Off. La.

Year 19 22 Month Dec Day of Month 28

Boat used Ship

TIME Mer. 126 P.M.	SOUNDINGS		Lead Line Sigsbee	Rev. for Time	REDUCED SOUNDINGS				BOTTOM	HEADING BY COMPASS	ANGLES AND RANGES	WIRE Run Out Fath.
	Shot	Trawl			FIELD		OFFICE					
	Fathoms	Feet			Feet	Fathoms	Feet	Fathoms				
19. 22										33	Old 55-41 Yel Mar 61-49	88
X 20-00	23	0										
(252) 16	20	2	+4									
(251) 16	20	1	+4									
19. 48-45										38	Old 51-15 Yel Mar 64-16	
X 20-00	24	0										
(252) 1	22	8	+0.4									
(251) 2	23	3	+0.4				(24 0)					
19. 51-45												
(252) 1	30	0										
(251) 2	30	5					34 0					
19. 54-45												
1	33	9										
2	34	8					36 7					
19. 57-25												
1	38	7										
(251) 2	36	1	+4				(38 6)					
19. 03-10												
19. 04-00												
(252) 1	35	7										
(251) 2	36	9					38 0					
19. 07-00												
(252) 1	36	12										
(251) 2	35	7					37 7					
19. 10-00												
(252) 1	34	2-5										
(251) 2	33	0-4					35 0					

Clock and Sexton
Run to anchorage
Miles Hydrography 1
33 88

STATISTICS FOR

Boat used	Ship
No. of miles (shots)	33
No. of soundings	33
No. of positions	33
No. of fathoms	33

Locality
 St. Cal
 Dec Day of Month 27

Sublocality
 Off. Pt. Long
 Ship

Lath- ing Cm.	Res- pon- sive	REDUCED SOUNDINGS				BOTTOM	HEADING BY COMPASS	ANGLES AND RANGES	WIRE FUS- ION OUT FATHS.	REMARKS AND GENERAL DIRECTION (TRUE) OF LINES
		FIELD		OFFICE						
		Fathoms	Feet	Fathoms	Feet					
				58	3					See page 7 beginning of day statistics
							230 250	Old 76-34 Dome Cas 28-41		44-46 Dome to Sol
+4				(104	4)			Up & Down No fix		Recorder missed left L and sextant had been changed for out of first sdy for
								Old 70-26 Dome Cas 27-41		tube tube
							220	Old 63-31 Dome Cas 26-24		9 9
								Old 57-03 Dome Cas 24-27		Up and down
								Old 55-14 Dome Cas 25-12		Weather bc Sea smooth
								Old 53-57 Dome Cas 28-14		Wind
								Old 51-41 Dome Cas 32-08		

2. Likens
 3. Reading Machine 583
 4. Meyer 579
 5. Reading Protractor 440
 W. Taylor 226
 6. Sounding Machine
 Quarantine Sta
 Correct

Captain W. F. Parker
 K. T. Adams
 A. H. Wagner
 P. M.
 Sounding

SOUNDINGS

Locality
S. Cal.

Sublocality

Off. *[Handwritten]* Lo.

Year 19 22

Month Dec

Day of Month 28

Day of Month 28

Boat used *[Handwritten]*

Ship *[Handwritten]*

TIME	SOUNDINGS		Lead Line Co.	No. of Tide	REDUCED SOUNDINGS				BOTTOM	HEADING BY COMPASS	ANGLES AND RANGES	Wind Dir Out Force	
	M.	Fathoms			Tacks	FIELD		OFFICE					
						Fathoms	Fathoms	Fathoms					Fathoms
A. M. 13-00	35	2							24	Old 26-21			
2521 #1	35	2								Cas			
2511 #2	35	2				39	✓			Yel	67-55		
15-30									320				
4 18-55	35	-							335	Old 24-50	60		
(252) #1	33	0 +.4								Yel			
(251) #2	33	5 +.4				35	9			Yel	64-53		
16 20-10									320	Old 23-10	63		
17 23-10										Yel	61-16		
(253) #1	32	4											
(256) #2	32	2				35	✓		320	Old 19-23	67		
18 26-10										Yel			
(257) #1	32	6								Yel	45-55		
(254) #2	32	7				34	6		320	Tank 65-57	69		
19 29-10										Yel			
(11) (253)	33	2											
(12) (255)	33	2				35	✓						
20 32-10									315	Old 62-30			
(11) (252)	32	1								Yel			
(12) (251)	31	8				33	7			Mar	53-49		
21 34-10									315				
22 36-45	34	5							320	Old 64-36	70		
(11) (253)	32	7 +.4								Yel			
(12) (255)	32	3 +.4				34	9			Mar	56-12		
23 37-30									31	Old 59-06	80		
										Yel			
24 40-30										Mar	59-06		
(11) (252)	32	7 +.4											
(12) (251)	32	3 +.4				34	3						

Locality S. Cal. Sublocality Off Pt. Loma
 Dec. 28 Day of Month 28 Boat used Ship ; X day

SOUNDING NO.	REDUCED SOUNDINGS	BOTTOM	HEADING BY COMPASS	ANGLES AND RANGES	WIRE RUN OUT Faths.	REMARKS AND GENERAL DIRECTION (TRUE) OF LINES				
							FIELD		OFFICE	
							Feet	Fathoms	Feet	Fathoms
	5 39 ✓		24	Old 26-21 Cos Yel 67-55		Up and Down.				
			320							
4	35 9		25	Old 24-50 Cos Yel 64-53	60	See Remarks NW				
			26	Old 23-10 Cos Yel 61-16	63					
	35 ✓		27	Old 19-08 Yel Cos Yel 45-56	67					
	34 6		28	Tank 48-37 Yel Mar 50-15	67					
	35 ✓									
	33 7		29	Old 62-30 Yel Mar 53-44		Up and Down				
			315							
4	34 7		30	Old 64-36 Mar 56-12	75					
			31	Old 59-02 Yel Mar 59-03	83					
11	34 3									

Locality S. Cal. Sublocality Off Lamp
 Dec. 28 Day of Month Shi 103 day

No.	Red. Sounding	REDUCED SOUNDINGS					BOTTOM	HEADING BY COMPASS	ANGLES AND RANGES	WAS RUN OUT Faths.	REMARKS GENERAL DIRECTION (TRUE) OF LINES
		Fore		Aft							
		Fathoms	Feet	Fathoms	Feet	Fathoms					
							24	Old 26-21 Cas Yel 67-55		Up and Down	
			5	37	✓		320			Weather bc	
4							25	Old 24-50 Cas Yel 64-53	60	Sea Smooth Wind NW	
				35	9						
							26	Old 23-15 Cas Yel 61-16	63		
				35	✓						
							27	Old 19-09 Yel Cas Mar 45-56	67		
				34	6		28	Tank 68-37 Yel Mar 50-15	69		
				35	✓						
							29	Old 58-30 Yel Mar 53-49		Up and Down	
				33	7						
							315				
							30	Old 64-06 Mar	75		
6											
							31	Old 59-52 Yel Mar 59-06	83		
				31	0						

SOUNDINGS

Locality
S. Cal.

Locality
S. Cal.

Year 1922

Month Dec

Day of Month 28

Day of Month 28

11-28

Boat used

Sail

TIME	SOUNDINGS		LEAD LINE DOWN	RED. FOR TIDE	REDUCED SOUNDINGS				BOTTOM	READING BY S. COMPASS	ANGLES AND RANGES	WIND RUN OUT
	Shot	Tacks			FIELD		OFFER					
					Fathoms	Fathoms	Fathoms	Fathoms				
12-00									324	Old 26-21		
(251) #1	35	2								Cas		
(251) #2	35	2				39	✓			Yel 67-55		
15-30									320			
18-55	35	-							325	Old 24-50	60	
(252) #1	33	0	4.4							Cas		
(252) #2	33	5	4.4			35	9			Yel 64-53		
20-10									326	Old 23-10	63	
23-10										Cas		
(253) #1	32	4								Yel 61-16		
(253) #2	33	2				35	✓		327	Old 19-08	67	
26-10										Yel		
(254) #1	32	6								Yel Mar 45-56		
(254) #2	32	7				34	6		328	Tank 68-37	69	
29-10										Yel		
(11) (255)	33	2								Mar 52-15		
(12) (255)	33	2				35	✓					
32-10									329	Old 68-30		
(11) (256)	32	1								Yel		
(12) (256)	31	8				39	7			Mar 52-49		
34-10									315			
36-45	32	2							320	Old 64-36	75	
(11) (257)	32	4	4.4							Yel		
(12) (257)	32	3	4.4			34	7			Mar 56-12		
37-30									321	Old 59-52	83	
40-30										Yel		
(11) (258)	32	7	4.4							Mar 59-06		
(12) (258)	32	3	4.4			34	3					

Localities: S. Cal. Off. P. Lomo

Month: Dec. Date: 1922

TIME	BOUNDINGS		Elev. from Cor.	Run. from Time	REDUCED SOUNDINGS				BOTTOM	READING BY COMPASS	ANGLES AND RANGES	WIND FROM OUT
	Lead	Tide			FIELD							
					Fathoms	Fathoms	Fathoms	Fathoms				
11-20	40	0							S	Old 48-31	54	
(1) (253)	37	6	+4							Dome		
(2) (255)	37	4	+4							Cas 38-42		
12-30												
15-30										7	Old 43-28	
(1) (252)	42	0								Dome		
(2) (251)	40	2						NE		Cas 40-45		
18-30												
(1) (253)	40	3										
(2) (255)	40	1								10	Old 39-21	50
											Dome	
21-30											Cas 43-49	
(1) (252)	44	3										
(2) (251)	43	4								44	Old 37-37	
											Dome	
24-30											Cas 45-22	
(1) (253)	45	2										
(2) (255)	44	2								42	Old 30-01	51
											Dome	
26-30											Cas 45-23	
28-30												
(1) (252)	48	5								43	Old 26-11	48
(2) (251)	46	7	+4								Dome	
											Cas 44-46	
29-30												
(1) (253)	47	4								44	Old 23-50	
(2) (255)	47	5								32 obs.	Dome	
											Cas 41-58	
35-30												
(1) (252)	53	0	+6									
(2) (251)	52	0	+6							45	Old 21-24	40
											Dome	
										315 p.s.c.	Cas 38-54	

Applied to reconstruction of Ct 5107 2.7.4. 2ct 1936