6209

Form 504
Rev. Dec. 1933

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY
R. S. PATTON, DIRECTOR

DESCRIPTIVE REPORT

~~Topographic~~
Hydrographic } *Sheet No.* 201

State California

LOCALITY

Southern California Coast

Southwest of San Clemente Island

*193*6

CHIEF OF PARTY

H. B. Campbell

U. S. GOVERNMENT PRINTING OFFICE: 1934

6209

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. 201

REGISTER NO. H 6209

State California

General locality Southern California Coast

Locality Southwest of San Clemente Island

Scale 1:200,000 Date of survey July to November 19 36

Vessel PIONEER

Chief of Party H. B. Campbell

Surveyed by H. B. Campbell

Plotted ~~Protracted~~ by J. C. Sammons

Soundings penciled by J. C. Sammons

Soundings in fathoms ~~feet~~

Plane of reference M L L W

Subdivision of wire dragged areas by

Inked by

Verified by

Instructions dated June 23, 1934 and July 16, 1935 19

Remarks:

U. S. GOVERNMENT PRINTING OFFICE: 1929

6209

DESCRIPTIVE REPORT

To Accompany Hydrographic Sheet
Field No.
201

U.S.C. & G.S.S. PIONEER H. B . Campbell, Commanding.

DATE OF INSTRUCTIONS

The work on this sheet was accomplished in accordance with the Director's instructions for Project No. HT-187, dated June 23, 1934, and supplemented by instructions dated July 16, 1935.

SURVEY METHODS

This survey was controlled entirely by radio acoustic (sound) ranging and dead reckoning. Five hydrophone stations were used in controlling this survey. Station CHINA was located on China Point at the south end of San Clemente Island; station NICK was located off the south end of San Nicolas Island and station MIKE was located off the south end of San Miguel Island; Cortez-2 was a floating station on Cortez Bank, and station An-2 was a floating station north of Cortez Bank.

The positions of the hydrophone stations used in controlling this work are as follows:

China Point Hydrophone		Lat	32°	47'	996	meters
		Long	118	26	397	"
San Nicolas	"	Lat	33	12	650	"
		Long	119	26	964	"
San Miguel	"	Lat	34	00	1213	"
		Long	120	19	1355	"
Cortez-2	"	Lat	32	28	556	"
		Long	119	12	1227	"
An-2	"	Lat	32	40	830	"
		Long	119	35	1055	"

All positions are for NA 1927 Datum. The shore stations were located by sextant angles and plotted and scaled off. Station Cortez-2 was located by RAR and plotted on sheet No. 41, H-6206 station An-2 was located by RAR and plotted on sheet No. 83. H-6211

A velocity of 1482½ meters per second was used for both the assumed and final velocity. This value was determined by a great number of velocity tests made in 1935 (See report of Velocity Tests of Ship PIONEER, 1935), and was adopted for use as an assumed velocity for the present season. A few tests this season showed no change in the velocity from that of last year, hence it was adopted for the final velocity. The fact that no change was made in the location of the working grounds and that the serial temperatures this year were practically identical to those of last year gives additional support to the use of the same final

velocity.

All soundings were obtained by fathometer. Fathometer corrections were less than one percent of the depth and therefore were not applied. A table of fathometer corrections is attached to the first page of volume one of the sounding records. For detailed report on fathometer corrections see special report on fathometer corrections for 1936.

DISCREPANCIES

There are no crossings on this sheet which do not agree within the allowable limit. In many places on this sheet the bomb distances are questionable due to the interference caused by intervening shoal areas between bomb and hydrophone station and due to other water noises and static. Sounding lines were plotted giving due regard both to the bomb distances and to the dead reckoning.

DANGERS

All soundings on this sheet are in deep water and there are no dangers to navigations.

COMPARISON WITH PREVIOUS SURVEYS

Much of the area covered by this sheet never has been previously surveyed.

Hydrographic sheets Nos 4447 and 4549a overlap a portion of the work covered by the present survey but notes on these sheets state that the controls to the west of Cortes Bank is weak. C onsidering this fact the contours on these sheets check very well with those shown by the present survey. The sounding shown on Chart No. 5002 agree fairly well with the new survey. See Rev. for further details

GEOGRAPHIC NAMES

No new geographic names were determined.

Attached to and forming a part of this report are one hydrographic title sheet, one page of statistics for sheet Field No. 201, one page tidal notes and 67 pages RAR dead reckoning abstracts.

Filed in separate cahier

Jack C. Sammons

Jack C. Sammons,
H. & G. Engineer.
U.S.C. & G.S.S. PIONEER.

STATISTICS

Sheet Field No. 201.
1936

Date	Day Letter	No. of Echo Sndgs.	No. of V.C.'s	Total No. of Sndgs.	No. of Pos'ns	No. of Bombs	Stat. Miles Sndg. Lines
7/26	A	275	2	277	43	30	137
27	B	326	2	328	48	37	162
28	C	344	2	346	64	37	153
29	D	286	0	286	41	30	188
10/26	E	521	2	523	34	25	148
27	F	482	2	484	40	27	143
28	G	478	2	480	52	31	134
29	H	640	0	640	41	27	124
11/7	J	323	1	324	41	34	168
8	K	173	1	174	31	20	130.
9	L	193	1	194	39	25	130
10	M	233	0	233	55	33	205
11	N	125	0	125	23	18	78
TOTALS	13	4399	15	4414	552	374	1902

TABLE IV

FINAL FATHOMETER
CORRECTIONS
(Depths over 200 Fathoms)

Depth Range (Fms)	Velocity Corrn. (Fms)	Fast Disc Speed		Slow Disc Speed	
		Index Cor. (Fms)	Final Cor. (Fms)	*Index Cor. (Fms)	Final Cor. (Fms)
200-269	-2	+3	+1	+2	0
270-349	-3	"	0	"	-1
350-429	-4	"	-1	"	-2
430-509	-5	"	-2	"	-3
510-599	-6	"	-3	"	-4
600-679	-7	"		"	-5
680-769	-8	"		"	-6
770-869	-9	"		"	-7
870-999	-10	"		"	-8
1000-1140	-11	"		"	-9
1150-1689	-12	"		"	-10
1690-1819	-11	"		"	-9
1820-1929	-10	"		"	-8
1930-2019	-9	"		"	-7
2020-2089	-8	"		"	-6
2090-2159	-7	"		"	-5
2160-2219 +	-6	"		"	-4

No soundings taken in these depths by fast disc speed.

* Combination of fast disc speed Index correction and mean comparison between fast disc speed and slow disc speed in depths of 200 fathoms.

Fast speed Index error	+3.3 fms.
Mean of comparison (fast disc speed minus slow disc speed).	-1.2 "
Slow disc Index error	+2.1 "

FINAL FATHOMETER CORRECTIONS
UNDER 200 FATHOMS
(Season 1936)

Nos. 3 & 4 Hydrophone Big Oscillator		No. 1 Hydrophone Small Oscillator	
Depth	Cor'n	Depth	Cor'n
10.0 - 10.2	+ 0.6	30 - 39	+3.5
10.3 - 10.4	0.7	40 - 87	3.0
10.5 - 10.9	0.8	88 - 126	2.5
11.0 - 11.4	0.9	127 - 160	2.0
11.5 - 11.9	1.0	161 - 192	1.5
12.0 - 12.4	1.1	193 - 200	1.0
12.5 - 12.9	1.2		
13.0 - 13.4	1.3		
13.5 - 13.9	1.4		
14.0 - 14.9	1.5		
15.0 - 15.9	1.6		
16.0 - 16.9	1.7		
17.0 - 17.9	1.8		
18.0 - 18.9	1.9		
19.0 - 22.9	2.0		
23.0 - 108	2.5		
109 - 150	2.0		
151 - 183	1.5		
184 - 200	1.0		

Chief of Party's Report
of Inspection of Records and Sheet.

This sheet and the accompanying records for this survey have been examined and are approved by me.

Mr. Sammons, who plotted and pencilled soundings on this sheet also wrote the descriptive report.

No further work is recommended except as noted in Rev.

H B Campbell

H. B. Campbell, H. & G. Engr.,
Chief of Party, Commanding
Ship PIONEER.

(c) The junction with H-6211 (1936) on the northeast is satisfactory except that from Long. 119° 19.0' east there is a displacement between the line on H-6211 and line 5 to 10A on H-6209. The time arcs check with the records from 5A to 10A on H-6209. Overlap outside of the limits on H-6211 has been shown on H-6209. Accepted. H.W.M.

7. Field Plotting.
The field plotting is satisfactory except as noted in the Rev.

8. Remarks.
More sounding lines are necessary to develop the area in Latitudes 31° 52.5' and 31° 57.0', Long. 120° 0.0' where there are two submarine mountains. Noted in Rev.

Verified and inked by

Leo S. Straw

November 11, 1937.

CS

Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Ed. Feb. 1935

TIDE NOTE FOR HYDROGRAPHIC SHEET

June 22, 1937.

Division of Hydrography and Topography:

✓ Division of Charts: Attention: Mr. E. P. Ellis.

Plane of reference
~~Tide Reducers are~~ approved in
4 volumes of sounding records for

HYDROGRAPHIC SHEET 6209

Locality Southwest of San Clemente Island, So. Calif. Coast.

Chief of Party: H. B. Campbell in 1936.
Plane of reference is mean lower low water, reading
3.6 ft. on tide staff at Wilson Cove
16.2 ft. below B.M. 2

On account of the depths no tide reducers were necessary.

Condition of records satisfactory except as noted below:

Chief, Division of Tides and Currents.

U. S. GOVERNMENT PRINTING OFFICE

GEOGRAPHIC NAMES

Survey No. H6209

Name on Survey	A, On Chart No. 5102	B, On previous survey No.	C, On U. S. quadrangle Maps	D From local information	E On local Maps	F P. O. Guide or Map	G Rand McNally Atlas	H U. S. Light List	K	
San Clemente I.	✓									1
California	✓									2
										3
										4
										5
										6
										7
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										26
										27

Names underlined in red approved
by [illegible] on 6/17/37

M 234

	Remarks	Decisions
1		See T-6088
2		USGB decision
3		
4		
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M 234		

Field Records Section (Charts)

H6209

HYDROGRAPHIC SHEET NO. .....

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

Number of positions on sheet	552
Number of positions checked	10
Number of positions revised	0
Number of soundings recorded	4414
Number of soundings revised	5
Number of signals erroneously plotted or transferred	0

Date: Nov 14. 1937

Inked and Verification by [signature]

Drawing intermediate curves by " Time: 41 hr } 98 hrs.
57 "

Review by H. W. Murray

Checking intermediate curves by " Time: 16½ }
" 13 } 31 hrs.

Verifier's corrections by " " 1½ }

HYDROGRAPHIC SURVEY NO. H-6209

Smooth Sheet Yes

Boat Sheet Yes

Sounding Records 3 Vols.
Bombing Records One "

Descriptive Report Yes

Title Sheet Yes

List of Signals -----

Landmarks for Charts (Form 567) None

Statistics Yes

Approved by Chief of Party Yes

Recoverable Station Cards (Form 524) None

Special Chart for Lighthouse Service None
(Circular Nov. 30,1933)

HYDROGRAPHY

Total Days 13

Remarks Last Date Nov. 11, 1936

FORM M-238

MEMORANDUM

IMMEDIATE ATTENTION

SURVEY
DESCRIPTIVE REPORT
~~PHOTOSTAT OF~~

No. H -6209

~~No. H-T~~

received June 13, 1937
registered June 15, 1937
verified
reviewed
approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

ROUTE		Initial	Attention called to
20			
22			
24			
25			
26			
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62			
63			
82			
83			
88			
90			

RETURN TO

82	C. K. Green

V

Verification of Hydrographic Survey 6209 Field No.201.
Southwest of San Clemente Island,
Southern California Coast.

Chief of Party H. B. Campbell.

1. Records.

(a) Time arcs are shown in color on this sheet. accepted.

(b) Second marks and figures in color within the limits of the soundings have been removed, leaving those at the margin and outside the limits of the hydrography to identify the time arc. mentioned in Rev.

(c) Vertical casts were obtained generally at the beginning and end of lines and are only approximately in their correct location. The vertical casts located in Lat. 32° 46.4', Long. 119° 14.0' and Lat. 31° 55.4', Long. 119° 20.35' appear to be considerably out of position and they have been left in pencil on the smooth sheet. mentioned in Rev.

(d) Bottom characteristics were not obtained at all the vertical casts. Probably due to the great depths in much of the area covered by this sheet, few bottom characteristics and vertical casts were taken. mentioned in Rev.

(e) A few soundings were questioned by the officer reading the fathometer. They have been inked since all occur in depths of 800 fathoms or more.

(f) No fathometer corrections were applied-all depths over 200 fm. See page 2. Vol. I.

2. Shoreline and Control.

(a) There is no shoreline within the limits of this survey.

(b) See Descriptive Report page one for control.

3. Aids to Navigation.

There are no aids to navigation within the limits of this survey.

4. Sounding Line Crossings.

The sounding line crossings are satisfactory.

5. Depth Curves.

The depth curves have been drawn in pencil. They are to be inked when the interval and colors used have been decided upon by higher authority.

6. Junctions with Contemporary Surveys.

(a) The junction with H-6121 (1935) on the east is satisfactory.

(b) The junction with H-5775 (1933) on the north is satisfactory. Part of the junction is shown on H-6209.

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 6209 (1936) FIELD NO. 201

Southwest of San Clemente Island, Southern California Coast, Cal.
Surveyed in July - November 1936, Scale 1:200,000
Instructions dated November 18, 1932, June 23, 1934, and
July 16, 1935 (PIONEER), April 4, 1932 (GUIDE)

Fathometer Soundings. RAR control.

Chief of Party - H. B. Campbell.
Surveyed by - H. B. Campbell.
Protracted by - J. C. Sammons.
Soundings plotted by - J. C. Sammons.
Verified and inked by - Leo S. Straw.

1. Condition of Records.

The records are neat and legible and conform to the requirements of the Hydrographic Manual except as follows:

a. Two vertical cast comparisons, one in lat. 31° 46', long. 119° 14' (Pos. 64C) and one in lat. 31° 55', long. 119° 23' (Pos. 1E) were omitted in the office because of insufficient control, position 1E being obtained 53 minutes prior to the bombed position 3E and position 64C, 1 to 1-1/2 hours after the bombed position 63C.

b. Bottom characteristics obtained on ten vertical casts were recorded in the Serial Water Temperature records only and not transferred to the sounding records nor shown on the smooth sheet. These were transferred to the sounding records and plotted in their proper positions on the smooth sheet in the office. Additional bottom characteristics were also carried forward from H-4265b (1922-23), H-4447 (1924-25) and H-4549a (1925).

The Descriptive Report is clear and satisfactorily covers all items of importance.

2. Compliance with Instructions for the Project.

The plan, character and extent of the survey satisfy the Instructions for the Project. One or more cross lines, however, should have been run in the lower portion of the survey (approximate long. 120° 10') and in the upper portion. The submarine mountain and vicinity in lat. 31° 55', long. 120° 00', should also have been further developed.

3. Shoreline and Signals.

a. This is an offshore survey and no shoreline is shown.

b. The geographic positions of hydrophone stations "China Point, San Nicolas and San Miguel (Mike)" are listed in the Descriptive Report, page 1.

Hydrophone station "An-2" was located from bomb intersections at Pos. 1 to 4CC recorded in Vol. 8 of the sounding records for H-6211 (1936). (See Review, par. 3d of that survey).

Hydrophone station "Cortes - 2" was located from cuts at Pos. 1' - 3'B, Vol. 10 and Pos. 28M, Vol. 11 of the sounding records of H-6206 (1936) and Pos. 1, 7, 8 and 9F, Vol. 7 of the sounding records of H-6211 (1936). (See Review, par. 3b of H-6206 (1936).

4. Sounding Line Crossings.

Agreement of such cross lines as were run or result from the work are satisfactory.

5. Depth Curves.

The depth curves may be satisfactorily drawn, except in the vicinity of the submarine mountain in lat. 31° 55', long. 120° 00', where the development is not sufficiently close.

6. Junctions with Contemporary Surveys.

a. The junction on the northeast and eastward with H-6211 (1936) is satisfactory.

b. The junction on the east in the vicinity of long. 119° 00' with H-6121 (1935) is satisfactory.

c. The junction on the north with H-5775 (1933) is satisfactory.

d. No surveys have been made by this Bureau to the west and southward of the present survey limits.

7. Comparison with Prior Surveys.

a. H-4447 (1924-25) and Ad. Work (1925-26 and 28), Scale 1:120,000

Several sounding lines from this sparsely covered survey fall within the limits of the present survey in the vicinity of lat. 32° 45', long. 120° 15'. Soundings were obtained with the sonic depth finder and are controlled by Dead Reckoning and Astronomic sights. A comparison of depths with the present survey shows a general displacement in position, the present survey showing similar depths within 1 to 2 miles. The present survey although of smaller scale shows more detail particularly on the shoal area to the eastward and should supersede this survey in future charting.

b. H-4265b (1922-23) and Ad.Wk. (1928) Scale 1:120,000.

A few soundings from this sparsely covered survey fall within the limits of the present survey in the area eastward of long. 119° 42'. The 1922-23 work consisting of wire soundings controlled by Dead Reckoning and Astronomic Sights is generally displaced with relation to the present survey, the single 480 fathom sounding in lat. 31° 48', long. 119° 15' for example falling 3-1/2 miles N.W. of the shoal area with least depth of 415 fathoms shown on the present survey. The 1928 work consisting of a single line of fathometer soundings controlled by Dead Reckoning and Sun Azimuths in the vicinity of lat. 31° 54', long. 119° 03' is in general good agreement with the present survey. The present survey showing considerable more detail and adequately bearing out the essential features should supersede this survey in future charting.

c. H-4549a (1925) and Ad. Work (1928) and H-4561 (1926), Scale 1:140,000.

A few sounding lines from these surveys fall within the limits of the present survey in the area between lat. 31° 56' long. 119° 46' and lat. 32° 34', long. 120° 14'. The general character of these surveys is below that of the present survey, depths being obtained with the sonic depth finder and controlled by Dead Reckoning Astronomic Sights, early RAR or combinations thereof. Comparison with the present survey shows a general displacement in position, the present survey showing similar depths within a distance of 1 to 3 miles. The present survey adequately bears out the essential features on these surveys and should supersede them in future charting.

d. H-5512 (1929-33), Scale 1:4,500,000.

This survey consists of several track lines of sonic soundings (uncorrected for temperature and salinity) run by the U. S. Navy S.S. "RAMAPO" and is plotted on a copy of Chart 9000. A single sounding, 1739 fathoms in lat. 32° 57', long. 121° 06', falls within the limits of and is in fair agreement with the present survey depths. The larger scale present survey showing considerable more detail here should supersede this survey in future charting.

8. Comparison with Chart 5101 (New Print dated Oct. 23, 1937)
Chart 5002 (New Print dated June 2, 1937)
Chart 9000 (New Print dated May 7, 1937)

a. Hydrography.

Hydrography shown on the charts originates with surveys discussed in previous paragraphs of this review, except the 2134 fathom sounding (Charts 9000 and 5002) in lat. 32° 55'

long. 120° 43' and the 2104 fathoms (Chart 9000) in lat. 31° 36', long. 119° 46' which vary 50 and 100 fathoms deeper respectively than the present survey depths. The source of these soundings could not be definitely ascertained. The 2134 fathoms probably originates with work of the U.S.S. RANGER in 1881 in connection with an examination for a submarine cable route completed in 1891-92. (See Map attached to Senate Doc. of 1892, Section: Ex. Doc. No. 153 (Library No. 537.81, U58)). The 2104 fathoms is shown on H. O. Chart 526 (Edition of 1930).

b. Aids to Navigation.

There are no aids to navigation within the area of this sheet.

9. Field Plotting.

Field protracting and plotting were accurate and conform to the requirements of the Hydrographic Manual except that the least depths were not always plotted in the shoaler areas. These were added in the office.

10. Additional Field Work Recommended.

This survey is complete and no additional field work is required except as noted in par. 2, this review.

11. Superseded Prior Surveys.

Within the area covered the present survey, with the indicated additions from previous surveys, supersedes the following surveys for charting purposes:

H-4447 (1924-25) and Ad. Wk. (1925-26 and 28) in part
H-4265b (1922-23) and Ad. Wk. (1928) in part
H-4549a (1925) and Ad. Wk. (1928) in part
H-4561 (1926) in part
H-5512 (1929-33) in part

12. Reviewed by - Harold W. Murray, Nov. 26, 1937.

Inspected by - A. L. Shalowitz.

Examined and approved:

Thos. B. Reed
T. B. Reed,
~~Acting~~ Chief, Field Records Section.

K. T. Adams
Chief, Division of Charts.

Fred. L. Peacock
Chief, Section of Field Work.

~~Fred. L. Peacock~~
Chief, Division of H. & T.

Applied to drawing of Chart 5101 July 1938 SBM
" " Compilation of new chart 5020 Aug 1938 SBM