

5692

Form 504
Rev. Dec. 1933
DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY
R. S. PATTON, DIRECTOR

DESCRIPTIVE REPORT

~~Topographic~~
Hydrographic } Sheet No. 11 5692

State California

LOCALITY

California Coast

Rock
Morro to Cayicos

1934

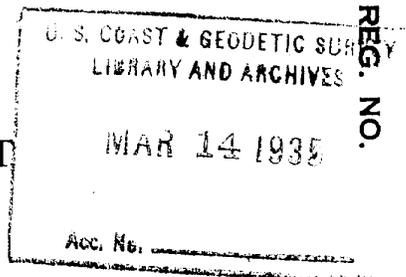
CHIEF OF PARTY

F.H. Hardy

5692

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. 11

REGISTER NO.

State California

General locality California Coast

Locality ~~Morro Rock to Cayucos~~ MORRO ROCK TO CAYUCOS
Pillar Rock to One Mile South of Cayucos.

(Wire Drag Jan. 12-25, 1935)

Scale 1:10,000 Date of survey Nov. 26-Dec. 9, 1934

Vessel GUIDE

Chief of Party F.H. Hardy
(Wire Drag by G.C. Jones)

Surveyed by R. F. A. Studds, I. T. Sanders, W. J. Chovan

Protracted by T.A. Renton

Soundings penciled by T.M. Means

Soundings in fathoms ~~###~~ Wire Drag Depths in Feet

Plane of reference M.L.L.W.

Subdivision of wire dragged areas by T.M. Means
(Wire Drag by T.M. Means)

Inked by A.H. Bissell

Verified by _____

Instructions dated April 4, 1932 and May 31, 1934, 19

Remarks: Visual Fix Hydrography, Soundings by Fathometer, Wire,
and Hand Lead, Wire Drag to Supplement Hydrography.

DESCRIPTIVE REPORT
to accompany

HYDROGRAPHIC SHEET FIELD NO. 13

PROJECT H.T. 184
COAST OF CALIFORNIA
U.S.C. & G.S.S. GUIDE
1934

INSTRUCTIONS:

Instructions for the hydrography on this sheet are dated April 4, 1932. The work was performed in accordance with the season's instructions dated May 31, 1934.

CHARACTER OF WORK:

The control for the hydrography on this sheet was by means of visual fixes. The soundings were obtained by the fathometer, by the wire, and by the hand lead. Six (6) wire soundings were taken by the ship for comparison with the fathometer.

The depth range is from less than 1 fathom to 23 fathoms. The 20 fathom curve is not developed on this sheet.

Sounding line spacing is approximately 100 meters inside the 20 fathom curve and 150 to 200 meters outside the 20 fathom curve. Added development was done in shoal areas.

The position interval was usually two to three minutes, with supplemental positions at all radical changes of course and speed.

The scale of the sheet is 1:10,000.

LIMITS:

The hydrography on this sheet covers an area of approximately 7.3 square statute miles, extending from ~~Pillar Rock~~ ^{Morro Rock} (Latitude 35° 22'.3) to approximately one mile south of Cayucos Landing (Latitude 35° 26')

The sheet is joined on the north by Launch Sheet Field
H-5708 (1934-5)
No. 10 and on the south by U.S.C. & G.S.S. PIONEER launch work
completed during the 1934 season, H-5750 (1934) and on the west by Ship Sheet Field
No. 43, completed during the 1933-34 seasons. H-5566 (1933-4)
CONTROL:

Control for the hydrography on this sheet consisted of
hydrographic signals over triangulation stations of the 1932-3
scheme executed by Lieutenant Charles Pierce, plotted on the 1927
North American Adjusted Datum, and topographic signals located by
the topographic unit of the party of the Ship GUIDE. ↙

DATES OF SURVEY:

Work on the sheet began on November 26 and was completed
on December 9, 1934.

A small area from Latitude $35^{\circ} 22'.7$ to Latitude $35^{\circ} 25'.1$
was dragged on January 12, 24 and 25, 1935. Five soundings were recorded,
on B day, one of which was plotted.

TIDAL REDUCERS:

Tidal reducers for the work were obtained from the San
Simeon Portable Automatic Tide Gage.

For further information on the subject of tides the reader is
referred to the Season's Tidal Report.

APPARATUS CORRECTIONS::

The apparatus corrections on this sheet were applied only
to fathometer soundings. These consisted of corrections for temperature,
salinity, and comparative vertical casts. ↙

The lead lines and wire sheaves were checked throughout the
season and found to be correct.

A report on the corrections to fathometer soundings has been
forwarded.

BOTTOM CHARACTERISTICS:

In general the bottom is fine grey sand throughout the area of this sheet, except where shoals have been developed, here the bottom is rocky. Surrounding the shoal in Latitude $35^{\circ} 23'.05$, Longitude $120^{\circ} 53'.1$, the bottom is broken shell and coarse gravel.

DANGERS AND SHOALS:

In Latitude $35^{\circ} 25'.3$, Longitude $120^{\circ} 53'.17$ a shoal was developed with a least depth of $2/6$ of a fathom. Plotted as rock awash at extreme low tides. Approximately 300 meters south of the shoal another with a depth of $2 \frac{2}{6}$ fathom was developed.

In Latitude $35^{\circ} 24'.7$, Longitude $120^{\circ} 53'.7$ a shoal was developed with a depth of 8 fathoms. This shoal was covered by wire drag with an effective depth of 39 feet.

In Latitude $35^{\circ} 23'.05$, Longitude $120^{\circ} 53'.1$ a shoal was developed by the wire drag party with a least depth of $5 \frac{1}{6}$ fathoms. Indications of this shoal were found by the hydrographic party. It is surrounded by depths of 14 fathoms.

In Latitude $35^{\circ} 22'.7$, Longitude $120^{\circ} 52'.7$ a shoal was developed with an depth of 8 fathoms found. It is the opinion of the hydrographer in this vicinity, that this area should be further developed with the wire drag or hand lead.

ANCHORAGES:

There are no suitable anchorages on this sheet.

The Standard Oil Company has two submarine oil-loading pipe lines. These lines are shown in detail by a local survey which will be forwarded together with Topographic Sheet Field Letter "L".

At the terminus of each submarine oil line there are five mooring buoys and a spar buoy. These buoys as located by the topographer are shown on the sheet in ink. The hydrographer also located these buoys by means of three point fixes, the positions of which have been plotted, as they check the work of the topographer within the scope of each buoy. ✓

JUNCTIONS:

The junctions with Launch Sheet Field No. 10 on the north, launch work by the Ship Pioneer on the south, completed during the 1934 season, and Ship Sheet Field No. 43, completed during the 1934 season are uniformly good.

DISCREPANCIES:

Comparisons with H-1607-B are generally good except for the following:

The shoal in Latitude $35^{\circ} 25'.3$, Longitude $120^{\circ} 53'.1$ shows a sunken rock with a least depth of 2 feet on this survey. This rock shows in slight swells. On H-1607-B it is shown with a depth of zero feet. ✓ (Plotted as rock awash extreme low tides)

The rock 300 meters south of the above has a least depth by this survey of $2 \frac{2}{6}$ fathoms; on H-1607-B it has $3 \frac{1}{2}$ fathoms. ✓

The following shoals are not shown on H-1607-B:

Latitude $35^{\circ} 24'.7$, Longitude $120^{\circ} 53'.7$, with a least depth of 8 fathoms. ✓

Latitude $35^{\circ} 23'$, Longitude $120^{\circ} 53'.1$, with a least depth of $5 \frac{1}{6}$ fathoms. ✓

Latitude $35^{\circ} 22'.7$, Longitude $120^{\circ} 52'.7$, with a depth of 8 fathoms. ✓ H-1607 showed 8 fms sdg but did not develop area.

This survey shows the breakers considerably farther

inshore than H-1607-B.

The depths in the southern inshore area north of ^{Morro} ~~Pillar~~ Rock do not agree within 1 to 2 fathoms. The channel shown on H-1607-B North and East of ^{Morro} ~~Pillar~~ Rock into Morro Bay no longer exists. ←

In comparing the present work with Chart 5302 the shoals located by this survey are not charted. Features of this survey inside the four fathom curve are not shown on the chart. ←

BOATS AND EQUIPMENT:

The inshore work was done by I.T.Sanders in charge of the motorsailer and W.J.Chovan in charge of the gig. In general, lines beyond the 20 fathom curve were run by the Ship, R.F.A.Studds in charge.

The large oscillator and the port hydrophone bank was used for all fathometer soundings.

The starboard sounding machine was used for all vertical casts taken for fathometer comparisons.

Angles were taken on the bridge of the ship on the inshore side.

Respectfully submitted,

A. W. Swenson

Jr. H.&.G.E.,
Coast and Geodetic Survey.

Forwarded,

Approved,

F. H. Hardy
F.H.Hardy,

H. & G.E.,

Coast and Geodetic Survey.

STATISTICS
to accompany
HYDROGRAPHIC SHEET FIELD NO. 11

Date	Day	No. of Sdgs.		No. of Pos.		Stat. Mi. Sdgs.		Stat. Mi.	Boat	V.C.
1934	Letter	Mach.	H.L.	Mach.	H.L.	Mach.	H.L.	To&From		
11-26	A	434RLD		81		18.8		2	Ship	6
12- 6	a	428		220		24.3		1	Gig	
12- 7	b	467		230		23.9			Gig	
	a		1093		224		27.5	5.5	M.S.	
12- 8	C	489		258		24.2		2.5	Gig.	
			866		202		26.8	2.5	M.S.	
12- 9	d	36		9 20		2.0		1	Gig	
	C		402		139		11.5	1.8	M.S.	
Total for Launches		1420	2370	728	574	74.4	65.8	14.3		
Total for Sheet		Soundings 4230		Positions 1383		Stat. Mi. 159		16.3		

Area of Sheet 7.3 Square Statute Miles.

LIST OF SIGNALS
to accompany
HYDROGRAPHIC SHEET FIELD NO. 11

TRIANGULATION

Hydrographic Name	Location	✓
Con	Concrete Tank Northwest of Cayucos, 1933	
West	Cayucos, West Gable of Warehouse, 1933	
Den	Wooden Water Tank 1 Mile South of Cayucos, 1933	
Whale	Whale Rock, 1933	
Hall	Hall, 1883, 1932	
Stan	Standard, 1932, 1933	
Chim	House South of Standard, Chimney, 1933	
Lu	Lu 2, 1932	
On	On 2, 1932	
Mor	Morro 2, 1919, 1932	
Hill	Hill, 1916, 1932	

TOPOGRAPHIC

Located on Topo Sheet Field Letter K ✓

Mill ✓

Located on Topo Sheet Field Letter L ✓

Bell	Cad	Joy
Pole ✓	Elk	Lit
One	Fun	Ma
Pip	Go	Nun
End	Hut	Old
Ax	Echo ✓	Pod
Ban	Ill ✓	Rat

SUPPLEMENTAL WIRE DRAG DATA
HYDROGRAPHIC SHEET FIELD NO. 11

Because of the importance of this area as an oil loading terminal it was felt that a wire drag examination was essential, as the bottom is irregular.

Three days of dragging was done on this sheet between Latitudes $35^{\circ} 22'.6$ and $35^{\circ} 25'.1$. The drag used was 3000 feet long, using six 500 ft. sections.

The shoal in Latitude $35^{\circ} 24'.7$, Longitude $120^{\circ} 53'.7$ was covered with a drag of an effective depth of 39 feet. ←

The shoal upon which the drag grounded in Latitude $35^{\circ} 23'$, Longitude $120^{\circ} 53'.1$ with a depth of $5 \frac{1}{6}$ fathoms was covered with the drag, having an effective depth of 28 feet. ←

Because this work was supplemental to the hydrographic survey, this work has been plotted on an insert, on the hydrographic sheet. The hydrographic boat sheets were used in the field for this work. Wire drag records were made in the usual manner and are forwarded with this sheet.

This work was done by the ship's complement, using the motorsailer and gig, Commander Jones in charge.

L. W. Swanson

L. W. Swanson,
Jr. H. & G. E.,
Coast and Geodetic Survey.

Forwarded,
Approved

F. H. Hardy

F. H. Hardy,
Chief of Party, C. & G. S.,

Commanding Ship GUIDE.

LIST OF SIGNALS
to accompany
WIRE DRAG WORK ON
HYDROGRAPHIC SHEET FIELD NO. 11

TRIANGULATION

Hydrographic Name	Location
Con	Concrete Tank Northwest of Cayucos, 1933
Den	Wooden Water Tank 1 Mile South of Cayucos, 1933
Stan	Standard, 1932, 1933
Chim	House South of Standard, Chimney, 1932
Lu	Lu 2, 1932
Mor	Morro 2, 1919, 1932

TOPOGRAPHIC

Located on Topo Field Sheet L

Cad
Elk
Fun
Echo
Ill
Joy

STATISTICS

Date 1935	Day	Miles of Drag	Positions	Soundings	Positions
Jan. 12	A	1.8	35		
24	B	.9	37	5	5
25	C	3.3	63		
		Total 6.0	135	5	5

One Volume

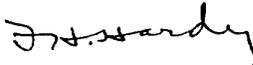
Length of Drag 3000 Ft.

STATEMENT
to accompany
HYDROGRAPHIC SHEET FIELD NO. 11

The smooth plotting on this sheet was done by T.A.Renton,
Draftsman, and the pencilling of the soundings by T.M.Means,
Draftsman, under the general supervision of Lieutenant (j.g.)
L.W. Swanson.

Lieutenant Swanson has drawn the depth curves.

The completed smooth sheet has been inspected and is
approved.



F.H. Hardy,

Chief of Party,
Coast and Geodetic Survey,
Commanding Ship GUIDE.

Verification Report H-5692 (1934)

I. Conformity to Hydrographic Manual.

The sounding records are neat and legible and conform to the general instructions as specified in the Manual. ✓

II. Depth Curves.

Depth curves complete except in congested areas, when line breaks around soundings, or intermediate curves are omitted. ✓

III. Field & Office Plotting.

Made comparison with the boat sheets, checked all questionable soundings. Found 325 soundings incorrectly copied from the records, of which 307 were fractions omitted from 10 fathom soundings. Checked with T-4916. Added Mono Rock and low water line; also all notes on rocks awash and islets. ✓

IV. Junctions.

This sheet joins H-5703 (1934-35) on the North and H-5750 (1934) on the South. Junctions have not been made as adjoining sheets were not verified. ✓

V. Remarks.

(a) Four sunken rocks at position 187a (red) were ^{inked with boat sheet as sole} ~~left in authority~~ pencil as no definite location was given in the Hydrographic manual. A note at this position (page 33 Vol #4) reads, "line turns left about in group of sunken Rks." ✓

(b) The wire drag work on this sheet has not been verified. However at the only place where the drag hung up, the shallowest sounding (5b, purple), a 5 1/2 fathom sounding has been plotted and inked (Lat. 35° 23' 1" Long 120° 53' 1") ✓

Respectfully submitted by.
Arthur H. Russell

Date - 5/20/35

Verifier's Report on Wire Drag on H-5692.

Records: Records were fairly good. ✓

Drafting: Drafting was very good. ✓

Remarks:

4 positions were checked in order to verify length of towline.

Position of least depth found when drag grounded at position 8B. was verified. This depth (5 1/2 fathoms) was found at position 5A. Drag had an effective depth of 51 feet when it grounded. Shoal was covered same day with an effective depth of 28 feet. ✓

There was some confusion of time between Guide and End launches on A day. Net result is the same however so no changes were made.

Tide change shown at position 29C ✓ should have been shown at 28C.

May 20, 1935. Submitted,

Jame McCormick.

Time: 1 hr.

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5692 (1934)
(Including Wire Drag)

Morro Rock to Cayucos, California
Surveyed in November - December, 1934
Instructions dated April 4, 1932, and May 31, 1934 (GUIDE)

Hand Lead, Machine and Fathometer Soundings - 3 Point Fixes on Shore
Signals.

Chief of Party - F. H. Hardy.
Surveyed by - R. F. Studds, I. T. Sanders, W. J. Chovan.
Protracted by - T. A. Renton.
Soundings penciled by - T. M. Means.
Verified and Inked by - A. H. Bissell.
Wire Drag Verified by - J. A. McCormick.

1. Condition of Records.

The records are neat and legible and conform to the requirements of the Hydrographic Manual and S. P. 118 except as follows:

- a. No copy of Landmarks for Charts on Form 567 accompanied this particular sheet. Landmarks for area submitted.
- b. No cut to grounding or cut to buoy nearest grounding was recorded.
- c. Position angles on shoals were not checked by taking an angle to a fourth object. This is especially important in locating shoals found by the drag, since they are isolated positions.
- d. The position number at time of grounding was not entered in the "Remarks" column opposite sounding position number in sounding record.
- e. No bottom characteristic was recorded on the shoal found by the drag. However, the Descriptive Report notes this as rocky, and this has been added to the sheet.

The Descriptive Report is clear and comprehensive and adequately covers all matters of importance.

2. Compliance with Instructions for the Project.

The plan, character, and extent of the survey satisfy the instructions for the project, except that no cross lines were run (par. 20, Instructions of 1932).

3. Sounding Line Crossings.

No regular system of cross lines was run, but the soundings are in good agreement where crossings occur, as well as on adjacent lines.

4. Depth Curves.

All the usual depth curves may be satisfactorily drawn, including a few portions of the one fathom curve, which is excellent in view of the open nature of the coast.

5. Junctions with Contemporary Surveys.

- a. Junctions with H-5708 (1934-35) on the north and H-5750 on the south will be considered in the reviews of those sheets.
- b. The junction with H-5566 (1933-34) on the west is excellent.
- c. This drag work overlaps H-5264 (1933) W. D. slightly inshore and to the north of the present survey and the junction is entirely satisfactory. The drag depths are consistent with the present hydrography.

6. Comparison with Prior Surveys.

a. H-290 (1851).

This survey, on a 1-375,000 scale, was a reconnaissance only, but considering the large difference in scale, the two soundings falling within the area of the present survey check well.

b. H-1607b (1884).

This survey, on a 1-10,000 scale, covered with fair development the area of the present survey.

The north end of the survey checks excellently with the present survey. Towards the south there is a gradual increase in depth near the shore until at the south end off Morro Rock, the bottom appears 1 to $1\frac{1}{2}$ fathoms deeper, this difference gradually disappearing farther offshore, and checking with the present survey outside the eight fathom curve.

The channel into Morro Bay north of Morro Rock has closed completely with breakers extending across the former passage.

The additional amount of development on H-5692 (1934), together with the wire drag examination, has disclosed several shoals not shown on H-1607b (1884). These are listed in the Descriptive Report, page 3.

The delineation of inshore rocks as shown on H-1607b (1884), but actually originating with T-1662 (1884) and T-1663 (1884), is somewhat different from that of the present survey. These rocks will be disposed of in the review of the contemporary topographic sheet, T-4916 (1934).

c. H-3899 (1916).

This survey, on a 1-10,000 scale, covers only a small strip in-shore just north of Morro Rock and is in good agreement with the present survey.

d. H-3900 (1916).

This survey, on a 1-10,000 scale, covers the area north of lat. $35^{\circ}25'$, with fair development. It was surveyed under adverse weather conditions and is not in close agreement with the present survey, the depths on H-3900 (1916) averaging 3 to 6 feet deeper.

The fact that the depths shown on H-3900 (1916) did not agree with the prior survey, H-1607b (1884), has been discussed in the report on H-3900 (1916). The area is adequately covered by the present survey which is believed to be more accurate and should supersede H-3900 (1916) within the common area.

e. H-5264 (1933).

This survey, which is practically contemporary, falls entirely within the limits of the present survey. It is in general good agreement and should be used in conjunction with the present survey for charting.

f. See Addenda attached to this review.

7. Comparison with Chart 5302.

a. Hydrography.

Within the area of the present survey the chart is based on surveys discussed in the foregoing paragraphs and contains no additional information that needs consideration in this review.

b. Aids to Navigation.

A number of mooring buoys and spar buoys marking the end of the submarine pipe line of the Standard Oil Company have been located at lat. $35^{\circ}24.7'$, long. $120^{\circ}53.0'$.

Bell buoy 10A, which is the only buoy charted within this area, was located in lat. $35^{\circ}24.5'$, long. $120^{\circ}53.0'$, about 150 meters east of its charted position.

8. Field Plotting.

Field protracting and plotting was good with the following exceptions:

- a. A few soundings were incorrectly copied from the records.
 - b. No elevations of offshore rocks were shown.
 - c. The notes "Lift," "D. C.," and "T. C." were inked on the smooth sheet. Such notes, if put on, should be left in pencil.
9. Additional Field Work Recommended.

This survey is complete and no additional hydrography is necessary, except that the 28 foot sounding brought forward from H-5264 (1933) in lat. $35^{\circ}24.77'$, long. $120^{\circ}52.86'$ should be further examined. This was requested in the review of H-5264 (1933) but was not accomplished.

In view of the fact that pinnacles are being found by the wire drag, even in well developed areas, as at lat. $35^{\circ}23.0'$, long. $120^{\circ}53.1'$, it is advisable to drag the entire area on this survey from its offshore limits to as close inshore as practicable.

10. Superseding Old Surveys.

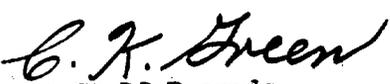
Within the area covered, the present survey supersedes the following surveys for charting purposes:

H-1607a	(1884)	in part.
H- 290	(1851)	in part.
H-1607b	(1884)	" "
H-3899	(1916)	" "
H-3900	(1916)	" "
H-4044	(1919)	" "

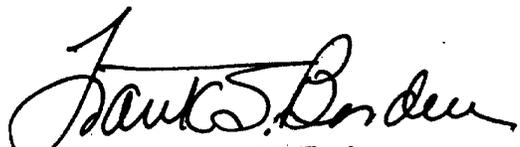
11. Reviewed by - Harry T. Kelsh and R. L. Johnston, May, 1935.

Inspected by - A. L. Shalowitz.

Examined and approved:

C. K. Green, 
Chief, Section of Field Records.


Chief, Division of Charts.


Chief, Section of Field Work.


Chief, Division of H. & T.

Addenda to Review of H-5692 (1935)

Paragraph 6. Comparison with Prior Surveys.f. H-1607a (1884) and H-4044 (1919).

Small portions of these surveys fall within the limits of the present survey in the area just north and northeastward of Morro Rock. There is no actual overlap of soundings but the present survey does show numerous breakers in the area covered by the older surveys. In view of these breakers and the fact that the jetty (under construction) connecting Morro Rock, with the mainland, will probably cause material changes in depths, continued charting of soundings from these old surveys in the area not sounded on the present survey will serve no useful cartographic purpose. The old surveys should be superseded by the present survey for charting purposes.

Reviewed by - Harold W. Murray, Dec. 4, 1935.

Inspected by - A. L. Shalowitz.

Applied to drawing of Chart 5302 - Mar. 5, 1936 - JFW.

" " " " " 5387 Jan. 6, 1937 J.G.L.

*18703 - ⊗ selected sounding for new inset
1/21/92*

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. .5692

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

Number of positions on sheet	1383
Number of positions checked	161
Number of positions revised	0
Number of soundings recorded	4230
Number of soundings revised	225
Number of signals erroneously plotted or transferred	0

Date: May 20th, 1935

Verification by Arthur H. Russell

Review by A. J. Kehr

Time: 55

Time: 18½ hrs

Rae

March 29, 1935.

F.E.

Division of Hydrography and Topography:

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

Tide Reducers are approved in
8 volumes of sounding ~~records~~ and wire drag records for

HYDROGRAPHIC SHEET 5692

Locality El Morro to Cayucas, California Coast

Chief of Party: F. H. Hardy in 1934
Plane of reference is mean lower low water, reading
1.3 ft. on tide staff at San Simeon
20.0 ft. below B.M. 1

Height of mean higher high water above plane of reference is 5.2 feet.

Condition of records satisfactory except as noted below:

Ham

Acting Chief, Division of Tides and Currents.

25 J-15, 1936
END