

5247

U. S. COAST & GEODETIC SURVEY
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Form 504
Ed. June, 1928

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
R. S. Patton, Director

State: California

DESCRIPTIVE REPORT

~~Topographic~~ } Sheet No. 45 5247
Hydrographic }

LOCALITY

Monterey Bay

Northern Part.

19 32

CHIEF OF PARTY

Fred L. Peacock.

5247

DESCRIPTIVE REPORT
to accompany

HYDROGRAPHIC SHEET FIELD NO. 45
Coast of California

U.S.C. & G.S.S. GUIDE
1932-1933.

INSTRUCTIONS:

Instructions for the hydrography on this sheet are dated April 4, 1932.

CHARACTER OF WORK:

The hydrography on this sheet is all fixed position hydrography. The soundings were all obtained by the Fathometer, except for 45 vertical cast soundings for Fathometer comparison. The depth range is from fifteen to one hundred fathoms, with a little work outside the one hundred fathom curve on the south.

The line spacing is approximately 300 meters inside the 30 fathom curve, and 600 meters outside the 30 fathom curve.

Cross lines are spaced roughly four miles apart.

The position interval is in general three minutes, with supplemental positions at all radical changes of course or speed.

The scale of this sheet is 1:40,000.

LIMITS:

The hydrography on this sheet covers an area of seventy five square statute miles in the northeast part of Monterey Bay. It extends between the fifteen fathom curve on the north and northeast to deep water in the Monterey Bay submarine valley on the south. The western limit is approximately Meridian 122° 00' W.

⁵²⁷⁸ This sheet joins Ship Sheets Nos. 82 and 46 on the south, ⁵²⁷⁸ Ship Sheet 48 on the west, and Launch Sheets Nos. 8 and 9 on the north. The launch work on the northeast and east has not yet been executed.

CONTROL:

The control for the hydrography on this sheet consisted

mainly of hydrographic signals over triangulation stations of the 1931 scheme, executed by Lieutenant C. D. Meany, and extended in 1932 by Lieutenant Charles Pierce, and plotted on North American 1927 adjusted datum. In addition three signals, located by the 1932 topographic unit of the Ship GUIDE's party, were used. The location of two of these was fixed by topographic methods, the third by supplemental triangulation.

DATES OF SURVEY:

Work on this sheet began on October 25, 1932, and was concluded on November 12, 1932.

TIDAL REDUCERS:

Tidal reducers for the soundings on this sheet were obtained from the Santa Cruz portable automatic tide station. All the hydrography on this sheet is within fifteen miles of that station.

For further information on the subject of tidal reductions the reader is referred to the season's tidal report, which covers all the tidal work of the party on the Ship GUIDE from April 28, 1932, to February 28, 1933.

APPARATUS CORRECTIONS:

The apparatus correction for the soundings on this sheet, consisting of the constant Fathometer corrections, the dial speed corrections, and the velocity correction for the temperatures, salinities and densities of the water sounded, was obtained from an analysis of the temperatures, salinities, dial speed tests and comparative vertical casts throughout the season. Dial speed was approximately constant throughout the season and was a little fast. Temperature and salinity underwent a minor, seasonal variation. The index correction was approximately zero throughout the entire season with the exception of a few periods of short duration, when the Fathometer was not working satisfactorily, and was subject to a small variation dependent on the vessel being deep or light in the water.

For further information on this subject the reader is referred to the Season's Report on Temperature and Salinity Determinations, which also covers in complete detail dial speed tests, sounding sheave tests, and the results of comparative vertical casts.

BOTTOM CHARACTERISTICS:

Twenty bottom characteristics, distributed over the area of this sheet, were obtained. In the shoaler depths the bottom is fine gray sand, with some mud toward the northeastern and eastern limits. In the deeper depths the bottom merges from the sand into mud. It is noted that the previous chart shows a number of hard bottom characteristics along the northeast and eastern limit. One vertical cast in this vicinity was "rocky bottom and sand".

DANGERS:

There appears to be no dangers to navigation within the limits of the hydrography on this sheet.

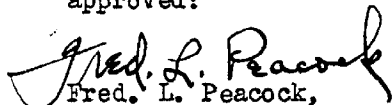
DISCREPANCIES:

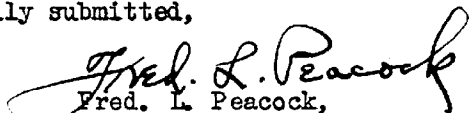
In general the soundings throughout this sheet check with previous surveys and crossings are good. However, the Fathometer soundings in the shoaler depths indicate considerable unevenness of bottom in certain localities in depths between fourteen and twenty-five fathoms. A few of these inequalities have been somewhat discredited by the overlapping launch work. The Ship GUIDE anchored in this area very frequently and the behaviour of the Fathometer in approaching anchorage throughout the season tends to confirm the existence of these inequalities. It is believed that most of them actually exist. The most doubtful ones have been questioned or rejected in the sounding volumes and have been omitted from the smooth plotting. A tracing of the smooth plotting of this part of the area of the sheet has been retained and it is respectfully recommended that next season's launch work extend fully to the sixteen fathom curve and that a number of these localities of uneven bottom be investigated in connection with this work, using the tracing for comparison. As an example of the inequalities referred to, the ~~seventeen~~ sixteen fathom soundings between Positions 94 and 95, and between 95 and 96, A day, in prevailing depths of fourteen and one-half and fifteen fathoms, are characteristic.


The twenty-eight fathom sounding immediately following the twenty-two fathom sounding on Position 95, B day, is considered somewhat questionable, but not impossible.

Respectfully submitted,

Respectfully forwarded,
approved:


Fred. L. Peacock,
Chief of Party,
U.S.C. & G.S.S. GUIDE.


Fred. L. Peacock,
Lieutenant-Commander, C. & G. S.


E. H. Sheridan,
Ensign, C. & G. S.

STATEMENT
to accompany

HYDROGRAPHIC SHEET FIELD NO. 45.

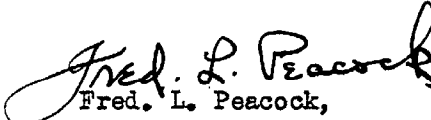
Coast of California
U.S.C. & G.S.S. GUIDE

1932-1933

The smooth plotting of this sheet and the penciling of soundings thereon was done by Mr. S. H. Van Gelder, civil engineering hand, under the general supervision of Lieutenant J. H. Brittain to March 14 and of Ensign E. H. Sheridan thereafter.

Ensign Sheridan has drawn the depth curves. The completed smooth sheet has been inspected, and is approved. However, in as much as the plotting of this sheet was done by a temporary employee, it is recommended that office verification be correspondingly rigid.

Oakland, California,
March 31, 1933.


Fred. L. Peacock,
Chief of Party, C. & G. S.,
Commanding Ship GUIDE.

LIST OF SIGNALS

to accompany

HYDROGRAPHIC SHEET FIELD NO. 45.

TRIANGULATION

Hydrographic Name:

Location

MOSS	Black smoke stack at Moss Beac, 1932.
TANK	Standard Oil Tank, 1932.
FLAG	Flagpole between Bluff and Lark, 1931.
DUNE	Dune, 1931
LEON	Leonard, 1910
RIO	Hotel Rio Del Mar Stack, 1931
SHIP	Ship Resort, West Mast, 1931.
SOG	Sog, 1931.
CRUZ	Santa Cruz Light House, 1884.
WILD	Wilder, 1931.
DER	Oil Derrick near Bal, 1931.
OUT	Oil Derrick near Pars, 1931.
TAN	Tank by Stucco House, 1932, (Located by supplemental triangulation).

TOPOGRAPHIC

ARCH	Topographic Signal, Sheet 1.
EAST	Topographic Signal, Sheet 1.

STATISTICS

to accompany

HYDROGRAPHIC SHEET FIELD NO. 45.

Date 1932-	Day	Stat. Miles Snd'g line	No. of Positions	S O U N D I N G S		
				Echo (RL)	Wire	Hand Lead
10-25	A	76.4	156	697	6	4
10-26	B	74.1	147	556	5	2
10-27	C	84.6	140	491	3	5
11-11	D	39.8	70	237	2	5
11-12	E	55.9	103	367	6	7

TOTALS: 330.8 616 2348 22 23

AREA: In Square Statute Miles, 75.0

H 5247

Chief of Party - F. L. Peacock
Surveyed by - F. L. Peacock, R. F. A. Studds, J. H. Brittain
Projected by - S. H. Van Gelder
Soundings penciled by - " " " "
Verified & inked by - John G. Ladd

1. The marks conform to the requirements of the General Instructions. ✓
2. The plan and character of development fulfill the requirements of the General Instructions. ✓
3. The sounding line crossings are adequate. ✓
4. The usual depth curve could be drawn.
5. - The field plotting was complete and ✓ satisfactorily done.
6. The junctions with adjacent surveys could not be compared as ~~the~~ they have not been verified and inked. ✓
7. The three following lines of sounding represent ~~the~~ extreme cases of uneven bottom along the northern limits of this survey ✓ as mentioned in the descriptive report.
100c to 107c, 105c to 110c, and 104b to 106b. and
101b to 103b.
It is possible that the fathometer was not

7. (cont.)

functioning properly on these lines as
~~the~~ ~~the~~ adjacent parallel lines do
not completely confine the irregularities

8. The comparative fathometer and lead
soundings as indicated on the sheet
by a bracket thus $\begin{cases} 48\text{vc} \\ 49 \end{cases}$ the fathometer
sounding is on the position and the
lead sounding is marked with a v.c. after
it.

Respectfully submitted
John S. Ladd
Asst. Comdr. Eng.

July 10, 1933

SECTION OF FIELD RECORDS

Review of Hydrographic Sheet No. 5247
Northern Part of Monterey Bay, California.
Surveyed October - November 1932
Instructions dated April 4, 1932 (Guide)

Chief of Party - F. L. Peacock.
Surveyed by - F. L. Peacock, R. F. A. Studds, J. H. Brittain
Protracted and soundings plotted by - S. H. Van Gelder (C.E.Hand)
Verified and inked by - J. G. Ladd.

1. The records conform to the requirements of the Hydrographic Manual.
2. The plan and extent of development conform to the regulations and satisfy the specific instructions.
3. Soundings at crossing of lines are in good agreement. The discrepancies mentioned in the Descriptive Report apparently are depressions of small extent and even if future surveys should discredit the existence of some of them the charting value of H. 5247 would not be impaired thereby.
4. Depth curves can be drawn satisfactorily. The 30 fathom curve is shown in brown. A few small changes in the 50 and in the 100 fathom curves would be made by combining all the surveys of the area covered by this sheet.
5. Junctions with contemporary sheets H. 5266, H. 5278 and H. 5279 are satisfactory. The inshore hydrographic sheets are not yet available.
6. Comparison with H. 558 (1856) and H. 4453 (1925) shows very good agreement in depths. Depth curves were necessarily very much generalized on the earlier sheets and are materially different in a number of places on H. 5247. The curves on H. 5247 should be used in the revision of charts 5402 and 5403.
7. The field drafting was satisfactory.
8. Recommendation:- This sheet (H5247) should supersede previous surveys for charting purposes in the area covered by it. This refers particularly to the depth curves on the earlier surveys.

In the revision of Chart 5403, consideration should be given to showing both the 30 and the 50 fathom curves, as the latter is a characteristic curve in this locality. No further surveys are deemed necessary.

9. Reviewed by R. J. Christman, August 30, 1933.

Sheet Inspected by A. L. Shalowitz, September 14, 1933.


Chief, Field Records Section.


Chief, Field Work Section.

Examined and approved:


Chief, Chart Division.


Chief, H. & T. Division.

April 19, 1933

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in
2 volumes of sounding records for

HYDROGRAPHIC SHEET 5247

Locality Northern part of Monterey Bay, Coast of California.

Chief of Party: Fred. L. Peacock in 1932
Plane of reference is mean lower low water, reading
3.0 ft. on tide staff at Santa Cruz
14.5 ft. below B. M. 2

Height of mean higher high water above plane of reference is 5.3 feet

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.

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 5247.

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

Number of positions on sheet	616.
Number of positions checked	71.
Number of positions revised	—
Number of soundings recorded	2393.
Number of soundings revised	36.
Number of signals erroneously plotted or transferred	—

Date: July 6, 1933

Cartographer: John G. Ladd

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

U. S. COAST & GEODETIC SURVEY
LIBRARY AND ARCHIVES
APR 4 1933
Acc. No. _____
REG. NO. 5247

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. ~~44~~ 45

REGISTER NO. 5247

State California

General locality Pacific Coast

Locality Northern Part of Monterey Bay

Scale 1:40,000 Date of survey October 25, 1932,
to November 12, 1932

Vessel U.S.C. & G.S.S. GUIDE

Chief of Party Fred. L. Peacock

Surveyed by Fred. L. Peacock, R. F. A. Studds, and J. H. Brittain

Protracted by S. H. Van Gelder

Soundings penciled by S. H. Van Gelder

Soundings in fathoms ~~FEET~~

Plane of reference M L L W

Subdivision of wire dragged areas by _____

Inked by John G. Ladd

Verified by J. G. L.

Instructions dated April 4, 19 32

Remarks: Positions by visual sextant fix.

Soundings by Fathometer.

5247

Additional work

5247

Form 504
Ed. June, 1923

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
R. S. Patton Director

State: California

DESCRIPTIVE REPORT

Photographic }
Hydrographic } Sheet No. 21 5247

LOCALITY

Monterey Bay

Northeast Part.

1933

CHIEF OF PARTY

Fred L. Peacock.

Additional work

5247

Additional work

DESCRIPTIVE REPORT
to accompany
HYDROGRAPHIC SHEET FIELD NO. 21 Additional work
Project No. 101
Coast of California
U.S.C. & G.S.S. GUIDE
1933

INSTRUCTIONS: Instructions for the hydrography on this sheet are dated April 4, 1932.

LOCALITY: This sheet covers an area off Capitola in the northern end of Monterey Bay between the inshore launch sheets and the ship work farther off-shore.

LIMITS: This sheet joins Launch Sheets No. 8 on the west, No. 9 on the north and No. 1, Project No. 130 on the east. It joins Ship Sheet No. 45 on the south.

CHARACTER OF WORK: Paragraph twenty-three of the instructions states that launch sheets should be plotted on a scale of 1 : 10,000. However, this sheet has been plotted on a scale of 1 : 20,000 as satisfactory sextant fixes could not be obtained in the area covered on sheets plotted to the scale called for in the instructions.

This sheet, besides covering the area previously mentioned also resurveys several areas along the junctions between Ship Sheet No. 45 and the inshore launch sheets, in about fifteen fathom depths, where additional development was done because of a few fathom-eter soundings obtained on the ship sheet which were at the time considered correct, but were later deemed to be questionable. It was found later that the gear shaft of the fathometer had developed excessive end play and as a result the fathometer soundings occasionally fluctuated somewhat from the true depth, in depths less than twenty fathoms. In those places where the fathometer soundings were deemed questionable the area was later developed with leadline soundings.

The hydrography on this sheet is all hand lead sounding with visual sextant fix control. The depths range from nine to a maximum of eighteen fathoms. In the deeper water it will be noted that the stop and back method used for control of machine soundings between fixes was resorted to.

The sounding lines in the area not covered by other recent hydrography are spaced approximately 180 meters. In the areas where development was done the spacing of the lines was approximately half that of the regular spacing.

In Latitude $36^{\circ} 50.2$ and Longitude $121^{\circ} 50.1$, and Latitude $36^{\circ} 52.3$ and Longitude $121^{\circ} 52.3$ are two of the areas where irregular fathometer soundings were obtained and were later covered by hand lead development. In these areas the bottom was found to be regular. Two other such places which were developed are between Latitudes $36^{\circ} 54.0$ and $36^{\circ} 55.0$ in Longitude $121^{\circ} 57.8$ and Latitude $36^{\circ} 55.3$ and Longitude $121^{\circ} 59.0$. In these places the irregular fathometer soundings were also disproved.

COMPARISON WITH PREVIOUS SURVEYS: This survey agrees very well with previous surveys as shown on sheets Nos. H558 and H561.

Respectfully submitted,

Walter J. Chovan
Walter J. Chovan,
Jr. H. & G. Engineer,
U.S.C. & G. Survey.

A. Newton Stewart
A. Newton Stewart,
Jr. H. & G. Engineer,
U.S.C. & G. Survey.

Respectfully forwarded,
approved:

Fred. L. Peacock
Fred. L. Peacock,
Chief of Party, C. & G. Survey,
Commanding Ship GUIDE.

STATISTICS
to accompany
HYDROGRAPHIC SHEET FIELD NO. 21
Project No. 101
Coast of California
U.S.C. & G.S.S. GUIDE
1933.

Additional work

Date 1933	Day	Statute Miles Sounding Lines	No. of Positions	No. of Soundings.
5-22	a	8.0	40	117
5-23	b	24.2	161	301
5-24	c	6.9	46	79
5-25	d	10.3	89	151
Total		49.4	336	648

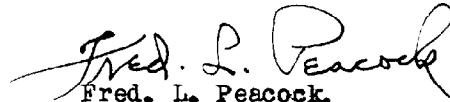
Area in square statute miles 1.6

STATEMENT
to accompany
HYDROGRAPHIC SHEET FIELD NO. 21
Project No. 101
Coast of California
U.S.C. & G.S.S. GUIDE
1933.

The protracting and plotting of soundings on this sheet was done by Mr. E. A. Foster and Mr. E. E. Garnett under the direct supervision of Lieutenant (j.g.) L. W. Swanson.

At least ten percent of the protracting and of the plotted soundings were verified by Lieutenant (j.g.) A. Newton Stewart. Lieutenant Stewart has drawn the depth curves.

The completed smooth sheet has been examined and is approved. However, as much of the work was done by temporary employees it is recommended that the office verification be correspondingly rigid.


Fred. L. Peacock,
Chief of Party, C. & G. S.,
Commanding Ship GUIDE.

Oakland, California,
February 6, 1934.

LIST OF SIGNALS
to accompany
HYDROGRAPHIC SHEET FIELD NO. 21 Additional work
Project No. 101
Coast of California
U.S.C. & G.S.S. GUIDE
1933.

TRIANGULATION

Hydrographic Name	Location
Light	Santa Cruz Lighthouse, 1931
Mast	Ship Resort, West Mast, 1931
Rio	Hotel Rio Del Mar Stack, 1931
Dune	Dune, 1931
Leon	Leon, 1931
Bluff	Bluff, 1931
Paj	Pajaro Mouth No. 3, 1931
Chim	Black Smoke Stack, Moss Beach, 1931

TOPOGRAPHIC

Arch	Topographic Sheet H, Project 101
Tan	" " A " 130

HYDROGRAPHIC

New	Sounding Volume No. 4, Sheet Field No. 9.
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The usual position interval is about two minutes.

This survey was executed between May 22 and May 25, 1933.

CONTROL: The control for the hydrography on this sheet consists of positions determined by Lieutenant C. D. Meamy by triangulation in 1931. The topographic signals were located by the 1932 topographic unit of the Ship GUIDE's party and by the topographic unit of the shore party in charge of Lieutenant-Commander G. C. Jones in 1933. There is also one hydrographic signal located by the hydrographic party in 1933.

These positions are all plotted on the North American 1927 Adjusted Datum.

TIDAL REDUCERS: Tidal reducers were obtained from the records of the Santa Cruz Tide Station. It was not necessary to apply a correction for either time or height.

The operation of the tide gage at this station was discontinued following the close of the 1932 field season. The gage was re-established on April 17, 1933, prior to the time hydrography was started on this sheet. The tide staff was not removed during the time the gage was not in operation. A new tide staff was nailed over the face of the old staff in the same position and was connected to bench marks when the gage was re-established. The staff reading for mean lower low water is the same for the 1933 period of operation as it was for the 1932 period.

For further information on this subject the reader is referred to the Season's Tidal Report which covers all the tidal work done by the Ship GUIDE's party from April 29, 1932 to February 28, 1933.

LEADLINE CORRECTIONS: Leadlines were checked regularly before and after each days work. It was not necessary to apply any leadline corrections to the soundings.

BOTTOM CHARACTERISTICS: Numerous bottom characteristics over the area were obtained. The bottom is sandy over the entire area surveyed.

DANGERS AND SHOALS: There are no dangers or shoals in the area covered by this sheet.

JUNCTIONS: The junctions with Launch Sheets No. 8 on the west, No. 9 on the north and No. 1, Project No. 130 on the east, and with Ship Sheet No. 45 on the south, are satisfactory.

Field Record Section
additional work - H 5247

April 4, 1934

Chief of Party: Fred A. Beacock.
Surveyed by: Walter J. Chovan
Protracted by: J. Miller
Soundings Recalled by: J. Miller
Δ Stations Plotted by: J. Miller
" " " " W. H. Bamford
Verified by: J. M. Zasknid
Lined by: J. M. Zasknid

This work was originally plotted on
H-5394. All records were changed to show the
work as additional to sheet H 5247.

The sounding records were neat, legible,
& complete.

The protracting was very good.

The draughting on subrothe sheet was done
at this office & is well done.

The additional work dispenses the irregu-
larities of the original survey.

Respectfully submitted,

J. M. Zasknid

FIELD RECORDS SECTION
Review of Hydrographic Sheet No. 5247 (Additional Work)
Northern Part of Monterey Bay, California
Surveyed in 1933
Hand lead soundings.
Original instructions dated April 4, 1932 (Guide)

Chief of party - F. L. Peacock.
Surveyed by - W. J. Chovan.
Protracted and soundings plotted by - I. Miller.
Verified and inked by - I. M. Zeskind.

Apparently no supplemental instructions were issued for the additional work which was done at the discretion of the Chief of Party because of some irregularities in the fathometer soundings of 1932 in depths of about 15 fathoms.

The hand lead soundings of 1933, show the bottom to be even and uniform and it is probable the fathometer soundings sometimes fluctuated from the true depth. The trouble was ascribed by the field party to excessive end play in the gear shaft of the fathometer. The differences are seldom more than one fathom. The greatest discrepancy being three fathoms in the case of the 12 fathom, fathometer sounding in Lat. $36^{\circ} 55'.45$, long. $121^{\circ} 59'.3$.

The hand lead soundings of the additional work of 1933 should be given the preference over the fathometer soundings in charting except in the case of a shoal fathometer sounding which may represent a spot which was missed by the handlead. Handlead soundings may be distinguished by their blue position numbers.

The additional work was originally submitted by the field party on a scale of 1 to 20,000. It was decided in the office to replot the work on H. 5247, which shows the original survey of 1932, in order that this sheet would contain all of the hydrography done in this area.

The additional work does not affect or change any of the statements made in the original review of H. 5247 which is still the basic review for this sheet.

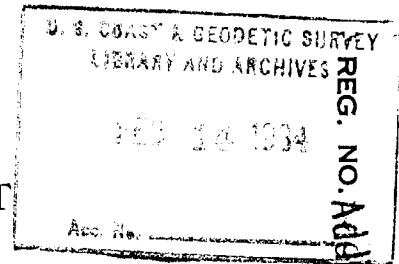
Reviewed by - R. L. Johnston.

Approved: L. O. Solbert,
Chief, Section of Field Records.

L. O. Solbert
Chief, Section of Field Records
F. S. Borden
Chief, Section Field Work
G. H. de
Chief, H & D.

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. 21 55247 Additional work

REGISTER NO.

State California
 General locality Monterey Bay
 Locality Southeast of Santa Cruz.
 Scale 1:20,000 Date of survey May 22-25, 1933
 Vessel Chartered Launch OHIO No. 3
 Chief of Party Fred. L. Peacock
 Surveyed by Walter J. Chovan
 Protracted by E. A. Foster, E. E. Garnett
 Soundings penciled by E. A. Foster, E. E. Garnett
 Soundings in fathoms feet
 Plane of reference M L L W
 Subdivision of wire dragged areas by _____
 Inked by _____
 Verified by _____
 Instructions dated _____ April 4 _____, 19 32
 Remarks: Hand lead sounding
Visual fix control

R.W.W. 8/26/92

LAC

February 23, 1934.

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in

1 volume of sounding records for

HYDROGRAPHIC SHEET Additional work

Locality Southeast of Santa Cruz, Coast of California

Chief of Party: Fred L. Peacock in 1933

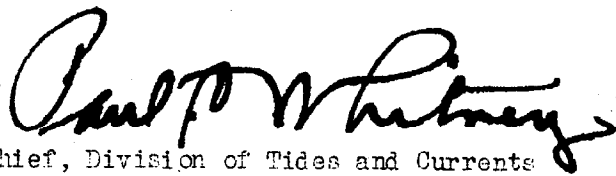
Plane of reference is mean lower low water, reading

3.0 ft. on tide staff at Santa Cruz

14.5 ft. below B. M. 2

Height of mean higher high water above plane of reference is 5.3 ft.

Condition of records satisfactory except as noted below:



Chief, Division of Tides and Currents