

4540 and 4541

4540 and 4541

Form 504  
 DEPARTMENT OF COMMERCE.  
 U. S. COAST AND GEODETIC SURVEY

State: Hawaiian Is.

11-5613

DESCRIPTIVE REPORT.  
 ) and 2  
 Hydrographic Sheets Nos. 4540 and 4541

LOCALITY:

Oahu I. S. Coast

Honolulu Har. Entrance to

Vic. Pearl River and

Barbers Pt.

1926

CHIEF OF PARTY:

C. L. Garner

July 26, 1926.

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in  
2 volumes of sounding records for

HYDROGRAPHIC SHEET NO. 4540

Locality: SOUTH COAST OF OAHU

Chief of Party: C. L. Garner in 1926

Plane of reference is  
1.3 ft. on tide staff at Honolulu.

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.

*H. H. Harns*  
Chief, Division of Tides and Currents.

July 24, 1926.

(11)

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in  
volumes of sounding records forHYDROGRAPHIC SHEET NO. **4542**Locality: **SOUTH COAST OF OAHU.**Chief of Party: **Clem L. Garner in 1926.**Plane of reference is  
**1.5** ft. on tide staff at **Honolulu.**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.



Chief, Division of Tides and Currents.

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SHEETS NOS. 1 AND 2 (field designation)  
SOUTH COAST OF OAHU ISLAND, T. H.

Commanding Officer's Instructions dated Mar.6, 1926.

Clem L. Garner

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Chief of Party.

1926.

DESCRIPTIVE REPORT  
to accompany

HYDROGRAPHIC SHEETS NOS. 1 AND 2 (field designation)  
SOUTH COAST OF OAHU ISLAND, T. H.

Commanding Officer's Instructions dated Mar. 6, 1926.

0-0-0-0-0-0-0-0-0

1. GENERAL: Hydrographic sheets Nos. 1 and 2, on a scale of 1:10000, contain the additional sounding lines called for by the Director's instructions of March 6, 1926, and as were indicated on the bromide copies of the 1911 sheets. The above two sheets cover the hydrography of the western half of the south shore of Oahu Island, from Barbers Point to Honolulu Harbor entrance, and approximately include hydrographic work from the 10 to the 100 fathom curve. The recent additional surveys were made on the same scale and are of identical limits as hydrographic sheet No. 3294 - east and west sections (Office designation.) Sheets Nos. 3 and 4 join on to the eastward.

2. SURVEY METHODS AND CONTROL: The ship was used almost entirely in executing the hydrography of sheets Nos. 1 and 2. Although it was the Commanding Officer's intentions at the onset to have the close inshore work done with launches, this plan had to be dropped due to the stiff winds prevailing along the south coast of Oahu Island at the time of the survey. The Fischer-Rude sounding tubes were used in depths of 15 to 100 fathoms; the hand lead in depths of less than 15 fathoms; and vertical casts were taken in depths greater than 100 fathoms. Comparative readings were taken daily and near the time of sounding. Bottom characteristics were obtained frequently. — ?

Objects determined by triangulation and by plane table (Lieutenant Hand's surveys) were used for the control of the hydrographic work, with the following exceptions. The positions of signals JOP, GOOD, HOU, and TRI on sheet #1, and signal ZAM on sheet #2 were determined graphically by means of sextant cuts from the ship, and are thus indicated on the sheets and in the sounding records. Their positions were determined by angles on triangulation points where possible. Their positions are deemed to be well determined and of sufficient accuracy for the scale of the projection. A list of the signals determined by sextant angles, with their D. M. and D. Ps. noted, as scaled from the smooth sheets, is included with this report. The automatic tide gauge at Honolulu was used in the reduction of soundings.

Relative to the control of positions on these sheets it should be explained that the positions of all topographically determined points were secured from blue prints originating from Lieutenant Hand's topographic sheets, scale 1:5,000 and were furnished by the Army Engineers.

A number of these points are determined by triangulation but this was not known until a part of the work was completed and as the discrepancy between them was small all of the work on the boat sheets was plotted from the topographic positions. In plotting the smooth sheets, however, the positions by triangulation are used.

As the accuracy of the position of the topographic signals which were transferred from blue prints of a different scale from the present sheets is somewhat doubtful it is recommended that these positions be checked with the positions as shown on the original sheets on file at the Office.

3. GENERAL DESCRIPTION OF THE COAST: The Coast Pilot description of the south coast of Oahu from Barber's Point to Honolulu Harbor entrance is accurate and complete. There are some additional objects conspicuous from seaward in the vicinity of Pearl Harbor and Honolulu not described in the Coast Pilot. These however, fall outside the limits of these sheets and will be taken up in the report accompanying sheet "A" (scale 1:40000).

4. INSHORE DANGERS: No dangers other than those already indicated on the charts, and no indication of uncharted dangers were found. The additional surveys, on the contrary, further indicate the area to be quite clear of detached coral heads and of unexpected and dangerous changes in depth. The line of breakers and inshore dangers are correctly delineated on the bromide copies of the original surveys. Shoal water extends beyond the outer reef for a quarter of a mile and more in places and in comparatively calm weather the shoal water is not indicated by breakers. However, shoal water is distinguishable by a change in the color of the water and generally bottom is discernible in depths of 8 fathoms.

The three-masted schooner ZAMPA was wrecked on the reef west of Honolulu Harbor entrance, and its position is indicated on sheet #2 (signal ZAM). The wreck broke up within a week of the mishap, in a period of comparatively calm weather and only a broken hull with out masts now remains.

There are breaks in the outer reef other than those indicated on sheet #3294 and as described in the Coast Pilot. Landings from a whaleboat were effected on the white sand beach east of O Bon, also on the sandy beach in the small bight directly north of O Jop. Other possible landing places, in smooth weather, were discernible near stretches of sandy beach. These are doubtlessly shown on sheets executed by Lieut. Hand.

5. ANCHORAGES, CURRENTS, ETC: Anchorage is possible almost anywhere along this stretch of coast, where the depths are suitable, but of course are not recommended for any southerly weather.

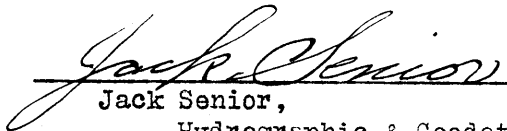
No observations for currents were made other than what was noticeable in the progress of the work. Whatever current exists is undoubtedly non-tidal, and its force and direction is governed chiefly by the trade winds. Approximately 1 to  $1\frac{1}{2}$  knot currents were noticed in the vicinity of Barber's Point, flowing in the direction of the trades.

6. COMPARISON WITH PREVIOUS SURVEYS: There are few discrepancies between the old and the new soundings most of which are not critical. These are mostly noted by red circles on the boat sheet. The 282 feet sounding shown on the old sheet just off the entrance to Pearl Harbor is apparently in error as several additional soundings in the same vicinity fail to reveal any such depths.

The soundings on boat-sheets are plotted in feet as it seemed the obviously necessary thing for comparison. Smooth sheet No.2 is also plotted in feet, but by error, as it was planned to plot all of these in fathoms as required by the Field Instructions. All other smooth sheets will be plotted in fathoms.

7. STATISTICS: The usual statistical and title sheets, and list of hydrographic positions to accompany the sheets are included with this report.

Respectfully submitted

  
Jack Senior,

Hydrographic & Geodetic  
Engineer.

Approved and forwarded:



Glen L. Garner, Lieut. Comdr.  
Commanding Str. DISCOVERER.

STATISTICS SHEET TO ACCOMPANY HYDROGRAPHIC SHEET #1.

(Date) 1926	(Letter)	(Vol)	(Positions)	(Sdgs.)	(Miles)	(Vessel)
April 14	A	1	43	98	10.5	DISCOVERER
" 15	B	1	72	197	21.0	"
" 16	C	1 & 2	140	349	27.1	"
" 19	D	2	54	88	10.5	"
" 20	E	2	137	387	26.5	"
Totals: - - - - -			446	1119	95.6	

*Area = 12.0 Sq. mi.*



STATISTICS SHEET NO. 2

(Date) 1926	(Letter)	(Vol.)	(Positions)	(Sdgs.)	(Miles statute)	(Vessel)
April 15	a	1	87	177	9.3	Port Mo.S.
" 20	A	1	5	15	1.2	DISCOVERER
" 23	B	1	163	398	28.0	"
" 26	C	1 & 2	129	309	18.2	"
May 8	D	2	95	180	13.4	"

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Totals: . . . 479 1072 70.1

Area = 5.5 sq mi.

List of HYDROGRAPHIC POSITIONS to accompany

Hydrographic Sheets Nos. 1 and 2,- south coast of OAHU ISLAND.

<u>Object &amp; Description</u>	<u>Latitude</u>	<u>D.M.</u>	<u>Longitude</u>	<u>D.P.</u>	<u>Remarks</u>
ZAM - Wreck of 3 masted schooner on reef;middle mast.	21-18	243 1602	157-54	48 1681	Sheet #2
JOP - Tripod sig- nal on point.	21-19	67 1778	158-07	519 1210	Sheet #1
GOOD - Weather beaten tin- roofed house.	21-18	203 1642	158-04	1017 712	Sheet #1
HOU - red-roofed house.	21-18	400 1445	158-03	1703 26	Sheet #1
VANE - Wind-mill vane,painted white	21-18	506 1339	158-03	1642 87	Sheet #1
TRI - Tripod signal.	21-18	464 1381	158-03	381 1348	Sheet #1

ADDRESS THE DIRECTOR  
U. S. COAST AND GEODETIC SURVEY

AND REFER TO No.

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

August 6, 1926.

REPORT ON VERIFICATION OF HYDROGRAPHIC SHEET 4540

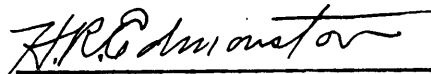
The protracting on this sheet was good but the plotting of soundings were only fair as the time intervals were not carefully adhered to.

The general instructions call for 5 feet above  $8\frac{3}{4}$  fathoms to be plotted as the next whole fathom. This was not done.

Soundings below 7 fathoms should have been plotted in sixths of fathoms instead of quarters.

The sounding records are complete with all the necessary information.

The topographic signals were checked as requested in the descriptive report.



H.R. Edmonston, Field Records Section.

ER.

ADDRESS THE DIRECTOR  
U. S. COAST AND GEODETIC SURVEY

AND REFER TO NO. 11-DEM

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

WASHINGTON August 18, 1926.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4540

South Coast of Oahu Island, Hawaiian Islands

Surveyed in 1926

Instructions dated March 6, 1926 (DISCOVERER)

Chief of Party, C. L. Garner.

Surveyed by C. L. G.

Protracted by J. C. Partington.

Soundings plotted by J. C. P.

Verified and inked by H. R. Edmonston.

1. The records conform to the requirements of the General Instructions except that there was an insufficient number of bottom characteristics. On E day, in 387 soundings only 3 bottom characteristics are noted.
2. The plan and character of the survey conform to the requirements of the General Instructions.
3. The plan and extent of development satisfy the specific instructions.
4. The information is sufficient for drawing the usual depth curves.
5. The usual field plotting was done by the field party, but was defective in the following respects:
  - a. The time intervals were not carefully adhered to.
  - b. The plotting of 5 ft. as the next whole fathom for soundings over 8 3/4 fathoms was ignored.
  - c. Soundings below 7 fathoms were plotted in quarter fathoms rather than in sixths.

6. The junctions with the adjacent surveys are satisfactory.
7. No additional work is necessary within the limits of this survey. This sheet was intended to cover gaps in H. 3293 and H. 3294.
8. Attention is called to the graphs of the various tube comparisons submitted with this sheet. In no case is the departure from the normal line excessive, and it would seem quite feasible to consolidate or eliminate many of the graphs. This sheet should be used as a basis for further study of pressure tube graphs.
9. Character and scope of field operations - excellent.  
Field drafting - fair.
10. Reviewed by A. L. Shalowitz, August, 1926.

*Approved*  
*LOR*  
*8/13*

E.P.E.

ADDRESS THE DIRECTOR  
U.S. COAST AND GEODETIC SURVEY  
AND REFER TO NO. 11-DEM

DEPARTMENT OF COMMERCE  
U.S. COAST AND GEODETIC SURVEY

WASHINGTON September 1, 1926.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4541

South Coast of Oahu Island, Hawaiian Islands

Surveyed in 1926

Instructions dated March 6, 1926 (DISCOVERER)

Chief of Party, C. L. Garner.

Surveyed by C. L. Garner, R. W. Knox.

Protracted and soundings plotted by W. J. Chovan.

Verified and inked by G. Risegari.

1. The records were defective in the following respects:
  - a. Insufficient bottom characteristics in the ship's work.
  - b. Total omission of bottom characteristics in the work of the motor sailer. Also failure to note boat's heading by compass.
  - c. There were entirely too many corrections made to the objects used and angles observed in the motor sailer work. This indicates a confusion of signals and tends to throw doubt upon the accuracy of the work. A statement should have been made in the record or in the descriptive report giving the reason for such changes, some of which appear to be entirely arbitrary.

A summary of the changes made may be interesting:

In 87 positions taken, 64 had changes in one of the signals, 13 had changes in two of the signals and 10 had changes in all three of the signals. Fifteen changes were made in the recorded angles, including such arbitrary ones as changes from 34° 00' to 32° 40' (position 13 a) or from 30° 00' to 30° 57' (position 78 a).

2. The plan and character of the survey conform to the requirements of the General Instructions.

3. The plan and extent of development satisfy the specific instructions with the exception of 3 small lines outlined on the bromide sent to the field, which were not executed by this party. The area covered by these lines has, however, been adequately covered by the party of E. R. Hand on H. 4537.
4. The information on this sheet, in conjunction with H. 3294, is sufficient for drawing the usual depth curves.
5. The usual field plotting was done by the field party and was defective in the following respects:
  - a. There were many errors in protracting, probably due to an unadjusted protractor.
  - b. In plotting soundings, notes in the record such as "position taken 30 seconds late" were entirely ignored and the soundings plotted on the position instead of 30 seconds ahead of the position.
  - c. The position numbers and day letters were in many cases too large.
6. The junction with H. 4540 on the west is satisfactory. The junction with H. 4537 (E. R. Hand) is generally adequate. There are some discrepancies between the soundings on the 2 sheets, but this may be due to the irregularity of the bottom.

The junction with H. 4484 is satisfactory except in the vicinity of Lat.  $21^{\circ} 18'$ , Long.  $157^{\circ} 57'$ , where there remains a small gap in the work. In other parts of the sheet the apparent gaps are taken care of by H. 3294.
7. There are several discrepancies in soundings between this sheet and H. 3294. These are encircled in red on the boat sheet. It is recommended that in all such cases the shoaler sounding be charted with the exception of the 282 foot sounding in Lat.  $21^{\circ} 17'$  730 meters, Long.  $157^{\circ} 57'$  920 meters (H. 3294). This is manifestly an error in view of the depths obtained in this vicinity on the later survey and should therefore be ignored in charting. (Concurred in by Chief, Section of Field Work).
8. No additional work is necessary except possibly a line of soundings to fill the gap in the junction with H. 4484 as mentioned in Paragraph 6.
9. Attention is called to the soundings taken with the motor sailer on A, day, positions 1 to 6. It is evident from the records that the party was experiencing difficulty in identifying signals.

The plotting of the positions as recorded discloses impossible speeds and improbable locations for most of the positions. As the line was not plotted on the boat sheet it was not considered advisable to juggle with the signals and the angles. The line has therefore been completely rejected.

10. Character and scope of surveying: Ship's work, very good; motor sailer, fair.  
Field drafting, good.
11. Reviewed by A. L. Shalowitz, August 30, 1926.

*Approved, in reference to par. 6, the area appears  
large on account of the large scale of  
sheet 4484, but it is not deemed necessary to  
do additional work*  
L.O.  
H.S.



## Report for Hyd. 4541

The character and completeness of the records accompanying this sheet were found to be satisfactory, with these exceptions; - vol. I. (motor sailor) no bottom characters were noted, and in vols. II & III (Discoverer) very few of the characters were noted.

The protracting was deficient in a number of cases and the persistency in error in these cases lead to the conclusion that the field protractor was out of adjustment. The maximum error is found at pos. 2313 where the difference between the protracted and reprotracted positions shows 70 meters. In <sup>some</sup> other cases 15 meters is not uncommon. The protracting in all other cases was very good.

A Sta. Pueloa was found to be plotted incorrectly - the error was 12 meters too large latitudinally. This error of plotting was given due consideration in trying to allocate it to the errors <sup>in protracting</sup> mentioned above where this station was used, but no appreciable difference was found. <sup>due to the new and old positions.</sup> ~~in the protracted & reprotracted positions.~~ The replotting of several topographic signals showed very small changes of about 5 meters. These changes, however, had practically no effect in the protracting.

<sup>(than the acc. up to)</sup>  
In a number of instances the time of a position was taken later by a <sup>number of</sup> few seconds, recorded thus, "30 sec. late" (see pos. 1108.) and no provision was made by the plotter of the sheet making these allowances for the accompanying soundings. In such instances the sdgs. were plotted on these protracted positions with apparent disregard of the note.

The day figures accomp. the sounding positions were in a number of cases too large, but no trouble

was experienced.

The sheet was clean, legible and free from features marking poor draftsmanship.

Respectfully submitted,

S. P. P. P.

Aug. 25, 1926.

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

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.

4540

U. S. Coast and Geodetic Survey.

Register No. 4540

State . . . Hawaiian Islands . . . . .

General locality . . . ~~South Coast~~ Oahu Island, S. Coast. . . .

Locality . . . . . Vic. Pearl River to Barbers Pt.  
~~Barbers Point and East.~~ . . . . .

Chief of party . . . Clem L. Garner . . . . .

Surveyed by . . . Clem L. Garner . . . . .

Date of survey . . . April 14 to April 20, 1926 . . . . .

Scale . . . . . 1:10000 . . . . .

Soundings in . . . fathoms (feet on boat sheet) . . . . .

Plane of reference . MLW. . . . . .

Protracted by . . J.C.P. . Soundings in pencil by . J.C.P.

Inked by . . . . . Verified by . . . . .

Records accompanying sheet (check those forwarded):

\*Des. report,  Tide books,  Marigrams,  Boat sheets,

2 Sounding books,  Wire-drag books,  Photographs.

Data from other sources affecting sheet . . . . .

Remarks: \*D.R. 4540 and 4541 combined

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

4541

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. 4541<sup>2</sup>

State . . . Hawaiian Islands *Hbr. ✓*

General locality . . . ~~South Coast Oahu Island, S. Coast~~

Locality . . . Honolulu Har Entrance to Vic. Pearl River  
~~Vicinity Pearl Harbor~~

Chief of party . . . Clem L. Garner

Surveyed by . . . Clem L. Garner, & Robert W. Knox

Date of survey . . . April 15 to May 8, 1926.

Scale . . . . . 1:10000.

Soundings in . . . Foot Faths.

Plane of reference . . . Mean Lower Low water.

Protracted by W.J.C.<sup>horan</sup> . . . Soundings in pencil by W.J.C.

Inked by . . . . . Verified by . . . . .

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 . . . . .

Remarks: <sup>\*</sup>D.R. 4540 and 4541 combined

H-4541 Applied to Cht. 4109 During revision of limits 11-13-61 G.R.J.