

4550

4550

Form 504 DEPARTMENT OF COMMERCE U. S. COAST AND GEODETIC SURVEY
State: California
DESCRIPTIVE REPORT.
Hydrogr. Sheet No. ⁵ 4550
LOCALITY: S. Coast South of Santa Cruz Is. South of Santa Rosa I. Santa Rosa Islands.
1926
Pioneer CHIEF OF PARTY:
R. F. Luce

w w b
Sept. 10, 1926.

11

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
2 volumes of sounding records for

HYDROGRAPHIC SHEET NO. 4550

Locality: Southern California

Chief of Party: R. F. Luce in 1926.

Plane of reference is
ft. on tide staff at

Reducers less than 1% of depth, . . . disregarded.

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.

W. R. Luce

Chief, Division of Tides and Currents.

Descriptive Report
to accompany Hydrographic Sheet B.

Locality. Authority.

This report covers part of the offshore hydrography done by the "Pioneer" during the months of March and April 1926, south-west of the islands of Santa Cruz, Santa Rosa, and San Miguel, lying off the coast of Southern California. The area surveyed extends approximately from latitude $33^{\circ}15'N$ to $33^{\circ}50'N$ and from longitude $119^{\circ}50'W$ to $120^{\circ}40'W$.

The authority for the work is contained in instructions from the Director to the commanding officer of the "Pioneer" under date of October 20, 1925.

Methods. Control.

Work on the area covered by Sheet B was begun on March 2 and ended April 16; however, the work was not done continuously between these dates, but only when poor visibility prevented hydrography in the adjacent area to the east, shown on Sheet A. The reason for this plan was that the work in the eastern area depended for control upon visual fixes, while the area described by this report was surveyed with the use of radio-acoustic ranging.

Most of the area was covered by a system of nine parallel lines of sonic soundings, forty miles long and spaced approximately two miles apart and running in the direction of 247° true from the eastern limits. The sound-

ings were spaced about half a mile apart, since they were taken at three-minute intervals while the ship was traveling at the rate of about nine knots.

Two radio shore stations had been established on the southern shores of Santa Cruz and Santa Rosa Islands. The ship's position was determined by two intersecting arcs, struck from the plotted positions of the hydrophones, whose radii represented the distances between the ship and each of the hydrophones, computed from the velocity of the sound of a bomb fired astern of the vessel.

Both shore stations could not be relied upon to receive the sound from the bomb every time, however, and therefore the ship was run according to the usual methods of precise dead reckoning. Readings of the patent log were recorded every fifteen minutes and the lines adjusted on the sheet to fit bomb fixes, log distances, and single distances from the shore stations with the least discrepancies possible. Distances determined by log and by sound ranging agreed quite well and it is believed that the lines were adjusted with but very small error.

One long diagonal cross-line was run. All crossings agreed except in the case of one line, where an unexplained discrepancy of 200 fathoms exists. Because of the irregularity of the bottom of this part of the ocean, large errors can easily occur through a small error in position.

The bottom of the ocean is very uneven in the vicinity of the Santa Barbara Islands. At the extreme eastern limits of Sheet B is a submarine ridge connecting the islands of Santa Rosa and San Nicolas, interrupted about midway between these islands by a gulley.

West of this ridge the bottom is fairly even for a distance of about twenty miles, whereupon another ridge is encountered, extending in a north-and-south direction. The depth on this ridge varies from three to four hundred fathoms, while the bottom on each side is at a depth of six hundred fathoms. The six hundred fathom depth prevails for a distance of fifteen miles west of the ridge, whereupon the depth goes to 1200 fathoms in the course of four miles.

No tidal corrections were applied to the soundings because the depths were so great as to make them insignificant.

Because the courses run were always made good, no strong currents are believed to exist.

*J. C. Bose,
Jr. H. & S. Eng.*

STATISTICS SHEET

Date, 1926	Letter	Vol- ume	Posi- tions	Sound- ings	Miles, statute	Vessel
March 2	A	1	48	87	93.0	Pioneer
" 4	B	1	51	172	91.0	"
" 24	C	1	55	191	99.5	"
" 25	D	2	25	55	27.5	"
" 26	E	2	64	192	115.0	"
April 14	F	2	47	138	89.0	"
			<u>290</u>	<u>835</u>	<u>515.0</u>	

Field Record Section

Report on Sheet No H-4550

Surveyed in 1925

Chief of Party - R. F. Luce

Surveyed by - Field Party

Projected by - A. B. Srenell

Soundings Plotted by - A. B. J.

Verified and inked by - H. MacLennan

1. The record conforms to all the requirements of the general instructions.
2. The area is sufficiently covered.
3. One line of soundings was run crossing the main system of lines and checks well in every case but one where an error of 200 fathoms occurs. This discrepancy was mentioned but not explained or corrected by the field party.
4. The control was obtained by Radio astronomical ranges supplemented by precise dead reckoning. Because of the difficulty in obtaining an accurate check on the work the ^{field} plotting

was accepted as correct.

5. Rating of work

- a. Character and scope of surveying - Good
- b. Field drafting - good

Respectfully submitted.

H. Ernie Ewen

Draftsman

Jan 1, 1927

6.08.

IN REPLY ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY
AND NOT THE SIGNER OF THIS LETTER

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

AND REFER TO NO. 11-DEM

WASHINGTON January 18, 1927.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4550

South of Santa Rosa Island, California

Surveyed in 1926

Instructions dated October 20, 1925 (Pioneer); December 10, 1924 (Pioneer)

Chief of Party, R. F. Luce.

Surveyed by Field Party.

Protracted and soundings plotted by S. B. Grenell.

Verified and inked by H. E. MacEwen.

1. The records conform to the requirements of the General Instructions.
2. The plan and character of development satisfy 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 sounding line crossings are good except in the vicinity of lat. $33^{\circ} 28 \frac{1}{2}'$, long. $120^{\circ} 15'$ where a 648 fathom line is crossed by a 407-418 fathom line. It is probable that this error is due to a slight misplacement of one of the lines.
6. The field plotting was completed to the extent prescribed in the General Instructions. The adjustment of the lines made by the field party was accepted without checking. The customary check, however, was given the soundings.
7. The junction with H. 4559 is satisfactory. Where there was an irreconcilable conflict in depths between the two sheets, the soundings on H. 4559 were accepted in view of the better method of control used on that sheet. In such cases the soundings on H. 4550 were omitted in order that the depth curves on the two sheets would agree.

8. No additional work is necessary within the limits of this survey, but the work should be extended southward to a junction with H. 4447.
9. It may be of interest to note that out of 84 bombs fired for position location only 10 returns were received from both hydrophone stations, 46 returns from 1 station and 28 bombs failed to return at all. In practically every case where the ship was westward of the submarine ridge connecting Santa Rosa and San Nicolas Islands the signals failed to come back from the hydrophone located on the opposite side of the ridge. This is of interest in throwing some light on the possible path of sound through sea water, as well as the effect of intervening shoals on Radio Acoustic Range finding.
10. Character and scope of field operations and field drafting - very good.
11. Reviewed by A. L. Shalowitz, January, 1927.

Approved:

Chief, Section of Field Records (Charts)

L. O. Polk

Chief, Section of Field Work (H. & T.)

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.

4550

U. S. Coast and Geodetic Survey.

Register No. 4550

State California

General locality ~~Southern California~~ S. Coast

Locality ~~Santa Barbara Islands~~ South of Santa Rosa I.

Chief of party R. F. Luce, H. & G. Engineer

Surveyed by ~~Steamer PIONEER~~ Party of Steamer Pioneer

Date of survey March 2 to April 14, 1926

Scale 1 - 120,000

Soundings in Fathoms

Plane of reference Mean lower low water

Protracted by S. B. Grenell. Soundings in pencil by S. B. Grenell

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:

4550 Add'l. Work

C. & G. SURVEY
L. & A.
MAY 17 1928
Acc. No.

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

State: CALIFORNIA
11-5413

DESCRIPTIVE REPORT.

HYD. Sheet No. H4550 4550 Add'l. Wk.

LOCALITY:
COAST OF SOUTHERN CALIFORNIA,
SOUTH OF SANTA ROSA.

1928

CHIEF OF PARTY:
F. G. ENGLE

4550 Add'l. Wk.

DESCRIPTIVE REPORT

TO ACCOMPANY.

HYDROGRAPHIC SHEET NO.4550 - - - - - SCALE 1: 120,000
COAST OF SOUTHERN CALIFORNIA; SOUTH OF SANTA ROSA.
ADDITIONAL WORK DONE BY "DISCOVERER" IN 1928.

The work was done in accordance with Director's instructions dated December 16, 1927, Par.25(b).

All soundings are by fathometer and were reduced by temperature curves and data filed with sheet No.4560.

Deviations used were obtained from azimuths taken on lines and on C and D days, sheet 4447.

A straight time adjustment was first made and then position 37A was arbitrarily moved .95 mile 124 deg. true to make crossings with line D day, sheet 4447 and a second adjustment made.

The work called for in Par.25(a) of Director's instructions was not done due to closing season.

Respectfully submitted



F.G. Engle
H. & G. Engr.
Commanding.

STATISTICS FOR HYD. SHEET NO. H4550

<u>Date</u>	<u>1928</u>	<u>: Letter</u>	<u>: Volume</u>	<u>: Positions</u>	<u>: Sdgs</u>	<u>: Miles (st)</u>	<u>: Vessel</u>					
Mar.	22:	A	:	1	:	57	:	300	:	122.0	:	DISCOVERER

AND REFER TO No. 11-DRM

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

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4550, Additional Work

South of Santa Rosa Island, California

Additional Work in 1928

Instructions dated December 16, 1927 (DISCOVERER)

Chief of Party, F. G. Engle.

Surveyed by F. G. Engle.

Protracted and soundings plotted by T. B. Reed.

Verified and inked by J. C. MacNab.

1. The records conform to the requirements of the General Instructions.
2. The plan and character of development executed satisfy the General Instructions.
3. The plan and extent of development satisfy the specific instructions except as follows.

(a) The area specified in paragraph 25 (a) of the specific instructions was not investigated. The descriptive report gives as the reason "due to closing season." It is believed that if this development is attempted in the future it should be done on H. 4559 as the greater part of this locality is better developed on that sheet, together with the fact that a split line in this locality called for in paragraph 18 (b), same specific instructions, has not been surveyed.

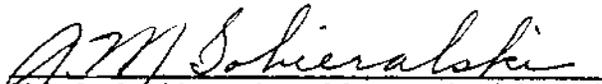
(b) The area specified in paragraph 25 (b) of the specific instructions was properly developed but when considered with the work requested in paragraph 16 (c), same specific instructions, the 119 fathom sounding plotted on H. 4447 was not properly investigated. It appears that the ship passed about 1 mile to the south of the 119 fathom sounding and made its development 5 miles to the west of this sounding.

It is believed that a development of this sounding is desirable, but only if it can be accomplished when other work in the vicinity is in progress.

4. The information is sufficient for drawing the usual depth curves.
5. The sounding line crossings are good.
6. The field plotting was completed to the extent prescribed in the General Instructions and no further adjustment of this plotting was necessary in the office. The customary check, however, was given the soundings.
7. The junction with H. 4447 is satisfactory except in regard to the 119 fathom sounding mentioned in Paragraph 3 (b) of this report.
8. The additional work necessary to develop the 119 fathom sounding might be better done on this sheet instead of H. 4447.
9. Remarks:

The additional work has brought to light two new banks, one a 189 fathom spot near latitude $33^{\circ} 09'$, longitude $128^{\circ} 10'$, and one of greater importance, 126 fathoms, latitude $33^{\circ} 08 \frac{1}{2}'$, longitude $128^{\circ} 21'$.
10. Character and scope of field operations and field drafting - good.
11. Reviewed by A. M. Sobieralski and J. C. MacNab, January, 1929.

Approved:


Chief, Section of Field Records (Charts)

Chief, Section of Field Work (H. & T.)

(11)

T. J. H.

Copy for Section of Field Records files.

June 6, 1928.

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
1 volume of sounding records for

HYDROGRAPHIC SHEET 4850 add'l.

Locality: **SOUTHERN CALIFORNIA.**

Chief of Party: **F. G. Engle, 1928.**

Plane of reference is **M L L W**

5.5 ft. on tide staff at **Los Angeles Harbor.**

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.
- ****6. 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.

F. G. Engle

Chief, Division of Tides and Currents.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. 4550 ADD'L WK.

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. _____

REGISTER NO. H4550 Add'l Work

State California

General locality Southern Coast

Locality South of Santa Rosa

Scale 1/120,000 Date of survey March 22, 1928

Vessel DISCOVERER

Chief of Party F. G. Engle

Surveyed by F. G. Engle

Protracted by T.B.R.

Soundings penciled by T. B. Reed

Soundings in fathoms ~~Feet~~

Plane of reference MLLW

Subdivision of wire dragged areas by _____

Inked by _____

Verified by _____

Instructions dated Dec., 16, 1927

Remarks: _____

IN REPLY ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY
AND NOT THE SIGNER OF THIS LETTER

AND REFER TO NO. 11-BHM

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4550, Additional Work

South of Santa Rosa Island, California

Additional Work in 1928

Instructions dated December 16, 1927 (DISCOVERER)

Chief of Party, F. G. Eagle.

Surveyed by F. G. Eagle.

Pretracted and soundings plotted by T. B. Reed.

Verified and inked by J. C. MacNab.

1. The records conform to the requirements of the General Instructions.
2. The plan and character of development executed satisfy the General Instructions.
3. The plan and extent of development satisfy the specific instructions except as follows.

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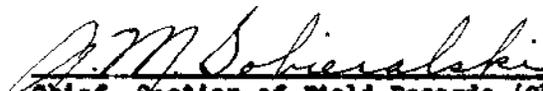
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8. The additional work necessary to develop the 119 fathom sounding might be better done on this sheet instead of H. 4447.
9. Remarks:

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10. Character and scope of field operations and field drafting - good.
11. Reviewed by A. M. Sobieralski and J. C. MacNab, January, 1929.

Approved:


Chief, Section of Field Records (Charts)

Chief, Section of Field Work (H. & T.)