

4321

Diag. Cht. No. 5302-1

Form 504

U. S. COAST AND GEODETIC SURVEY
DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. _____ Office No. H-4321

LOCALITY

State CALIFORNIA

General locality PACIFIC COAST

Locality LOPEZ PT. TO COOPER PT. —OFFSHORE

1942

CHIEF OF PARTY

R. F. Luce

LIBRARY & ARCHIVES

DATE _____

4321

DESCRIPTIVE REPORT TO ACCOMPANY HYDROGRAPHIC SHEET A
(Special Investigation off Point Sur, Calif.)

The work on this sheet was performed by the Str. GUIDE, under the command of Lieut. Comdr. R. F. Luce, on January 18 and 19, 1924, in accordance with Instructions of the Director dated December 19, 1923, reference 7-LE.

The sounding work was done by means of the sonic depth finder, taking soundings from the vessel proceeding at a speed of approximately nine knots, soundings being taken as close together as possible, which in this case spaced soundings about 0.4 statute miles apart. Sounding lines were spaced one nautical mile apart over the area, as called for in the instructions. After about every hour's run of the vessel, the vessel was stopped and vertical wire soundings were taken, at each of which water temperatures were measured both at the surface and at the bottom; at the same time as the wire sounding was being taken, the depth was measured by the sonic apparatus, the differences between the various wire and sonic soundings being used to obtain a corrected mean velocity of sound for use in correcting the intermediate sonic soundings.

In the two days' work, an area of 115 square statute miles was covered, 150 statute miles of sounding lines run, and 367 sonic and 16 wire soundings were taken; the depths measured ranged from 275 to 800 fathoms, no indications of the shoal water reported being obtained.

The sounding lines were located by sextant angles from the vessel on natural shore objects, principally prominent mountain peaks along the shore, which had been located by triangulation by previous survey parties; positions were taken at each wire sounding and at about six minute intervals on the lines.

Reference is made to reports of Commander N. H. Heck to the Director, dated January 21 and 24, 1924.

TABLE OF STATISTICS

Str. GUIDE

Off Cape Sur California

(Search for reported Shoal)

| DATE | LETTER | VOLUME | POSITIONS | <u>SOUNDINGS</u> | | MILES | VESSELS |
|------------------|--------|--------|-----------|------------------|------|---------|---------|
| | | | | Sonic | Wire | STATUTE | |
| January 18, 1924 | A | H-2 | 86 | 195 | 8 | 83.4 | Ship |
| " 19, 1924 | B | H-2 | 74 | 172 | 7 | 67.6 | " |
| | | TOTAL | 160 | 367 | 15 | 151.0 | |

No tide reducers applied

Report on Hydrographic Sheet

4321

Surveyed in 1924

1. The character and completeness of records and notes for this sheet appear satisfactory. An improvement might be suggested at this point which may in the future obviate a difficulty which was experienced in the checking of the plotting of soundings on this sheet.

These difficulties did not arise while the vessel was running a uniform velocity of which was about 9 knots, but chiefly when starting from a dead stop. The term "ahead" was used to indicate that the vessel was started, but no term was used to signify the moment when the vessel attained full speed. It therefore became difficult to ^{check} plot the soundings in the vicinity of a stopped position.

2. The protracting was good, but the time intervals in a number of cases were not carefully adhered to, the reason probably being in most of these cases to the small scale where the width of a figure can make an appreciable change. In some few cases the intervals were off considerably.
3. The position figures in red are too large and should have been made smaller.
4. The sheet was clean and the work legible.

Verified and inked by

B. Pregari

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4321

Off Lopez Pt., California

Surveyed in 1924

Instructions dated December 19, 1923.

Chief of Party, R. F. Luce.

Sonic sounding under direction of N. H. Heck.

Protracted and soundings plotted by H. B. Brown.

Verified and inked by G. Risegari.

1. The sounding records do not contain the information called for in General Instructions. The organization notes are incomplete, no information is given as to the character of wire sounding apparatus and the deviation table is not filled out. The division of responsibility between Captains Luce and Heck is not stated.
2. The sonic data are not sufficiently clear and complete to check or interpret the work.
 - (a) The meanings of the initials V, C, N and S at the heads of columns are not explained.
 - ~~(b) Temperature and salinity observations, if made, were not recorded.~~
 - (c) The differences in time between bridge and radio room and the use of the term 3 bells required verbal explanation.
 - (d) The time for the sound to reach the bottom and return to the ship is not recorded.
 - (e) The method and data with which the accepted soundings were computed are entirely lacking.
 - (f) It would conform to customary practice and facilitate plotting if the sonic soundings were synchronized with the 3-point fixes.

3. It is well understood that the sonic depth finder has barely passed through the experimental stage, and that the methods of using it have not yet been standardized. The above remarks, therefore, are not intended as criticisms as much as suggestions for enabling the data to be submitted in such form as will permit it to be understood and checked. It is suggested that instructions analagous to those dated February 23, 1923 for the use of pressure tubes be prepared for the use of the sonic depth finder and the records pertaining to it.
4. The plan and character of development conform to the requirements of the General Instructions.
5. The plan and extent of development satisfy the specific instructions.
6. The field plotting was completed to the extent prescribed in the General Instructions and none of it had to be done over by the office draftsman.
7. The sounding line crossings are all satisfactory except the three soundings at position 45 A.
8. The purpose of this survey was to locate the 13 fathom shoal reported by the U. S. S. Pennsylvania in 1923. Capt. Luce's examination extended from 3 to 7 miles beyond the reported location of the shoal and the development was so complete that it is definitely known that the shoal does not lie within the limits of the examination. This conclusion is strengthened by the fact that both soundings on the reported shoal showed white sand bottom, whereas all twelve of Capt. Luce's bottom specimens were green mud.
9. The three soundings at 45 A may have a special significance. Either they are erroneous or, if correct, they lie on the edge of a bank which may be the reported shoal. The distance of this possible bank from Pt. Sur is nearly equal to that of the reported shoal and the difference in direction from Pt. Sur may be due to an error in allowing for magnetic variation. Additional development to the westward of this survey is needed to determine the facts.
10. The character and scope of the surveying and field drafting are excellent. The quality of results by the sonic depth finder also are excellent.
11. Although the sonic depth finder has probably not yet attained the accuracy, reliability and speed of which it is capable, this survey demonstrates nevertheless its economic superiority over all other methods of sounding in depths over 100 fathoms.

In Special Publication No. 97 the time required for each sounding in depths averaging the same as those on this sheet was 19 minutes. As there were 351 sonic soundings taken (in addition to those taken simultaneously with the 16 wire soundings), 111 hours would have been required to take these 351 soundings if they had been taken with the wire deep sea sounding machine.

Reviewed by E. P. Ellis, May, 1924.

April 8, 1924

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
2 volumes of sounding records for

HYDROGRAPHIC SHEET 4321

Locality: Off Cape Sur, California.

Chief of Party: R. F. Luce in 1924

Plane of reference is
ft. on tide staff at

~~Remarks:~~

No tide corrections made because of great depths.

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 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

G. T. Luce

Chief, Division of Tides and Currents.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

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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.

U. S. Coast and Geodetic Survey.

Register No. 4321

State . . . California

General locality Pacific Coast

Locality Lopez Pt. to Cooper Pt. - Offshore
~~Search for reported shoal off Point Sur~~

Chief of party R. F. Luce

Surveyed by Str. GUIDE

Date of survey . . . January 18-19, 1924

Scale . . . 1:80,000

Soundings in fathoms

Plane of reference . . Soundings not reduced

Protracted by H. B. Brown . Soundings in pencil by H. B. Brown

Inked by G. Risegari . . . Verified by . . G. R.

Records accompanying sheet (check those forwarded):

Des. report, Tide books, Marigrams, 1 Boat sheets,

2 Sounding books, Wire-drag books, Photographs.

Data from other sources affecting sheet

Remarks: Where wire and sonic soundings were taken at the same position, both are plotted on the sheet. With this exception, all soundings plotted are sonic soundings.