

5417

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

State: LOUISIANA

DESCRIPTIVE REPORT

~~Topographic~~ } Sheet No. 4¹⁷ 5417
Hydrographic }

LOCALITY

GULF OF MEXICO

S. E. of CALCASIEU PASS

1933

CHIEF OF PARTY

W. E. PARKER.

5417

DESCRIPTIVE REPORT TO ACCOMPANY

HYDROGRAPHIC SHEET 4

GULF OF MEXICO

OFF LOUISIANA COAST

SOUTH EAST OF CALCASIEU PASS.

AUTHORITY:

This work was done under Instructions of the Director, dated December 17, 1932, Supplemental Instructions dated January 7, 1933 and letter dated May 13, 1933.

SURVEY METHODS:

Four buoys were located for R. A. R. controls, their positions being established by bombed distances from buoys on Sheet No. 3, which buoys had been located as described in the descriptive report for that sheet

Sounding lines were run south from these buoys and controlled by R. A. R. fixes as long as bomb returns could be had from the launches anchored at the buoys. When bomb returns failed the ship continued south until past the 100-fathom curve, then ran east or west a distance of four miles and then north to a bomb fix. After which the course was modified as necessary to give the required line spacing and continued north on R. A. R. control to a junction with the work on the inshore sheet. Usually bomb control failed at twenty five to forty miles from the stations, in depths of 40 to 50 fathoms, and thereafter the control was gyrocompass course and two patent logs - (Chernikeeff and Walker taffrail). For some unexplained reason, R.A.R. was more effective during the forenoon than during the afternoon and so the offshore lines were controlled farther than the inshore lines.

Three such loops were run on B, D and E days and then on G day a line was run offshore, as on the previous days, but to 170 fathoms, westward of previous work. From there it zig-zagged north and south across the south ends of the previous work and offshore to 150 to 200 fathoms, returning on H day eastward of previous work to the north limit of the sheet.

On the next offshore line (K day) a shoal was found in Lat. $27^{\circ} 58'$ Long $92^{\circ} 36'$. On the following offshore trip (M day) the shoal was recovered and buoyed and the buoy located by bomb distances to buoys AA and BB. A dead reckoning traverse was run westward from this buoy to further develop shoals found on G and H days and to coordinate the work of those days. The traverse returned to the buoy. After which, the shoal was developed by radial lines through the buoy position. The line was then carried offshore to 300 fathoms and returned to the north limit of the sheet.

Soundings were taken with fathometer, by the fast red light method to the limit of its scale and then by slow red light. The latter method failed at times, notably on B day, from position 26 to 29, and on M day from 30 to 34. The usual comparative soundings were taken with leadline or wire when positions could be fixed by R. A. R. or the line was well under control. A few additional deep soundings were taken by wire to test the fathometer but stops were avoided as much as possible where the dead reckoning was weak. These soundings are indicated by "W" after the depth.

DEAD RECKONING ADJUSTMENT:

The adjustment of the short off and inshore lines beyond the range of R. A. R. was simple. The track was laid down by gyro-

compass course and log distance from the last outward fix to the first inward position. The latter position was then moved up to its R. A. R. fix and the line adjusted throughout in the ratio of the time on course to the total time between fixes. No attempt was made to correct for current as the current along the D. R. track was quite different from that reported by the station launches. The closure never exceeded about 1-1/2 miles. *5 miles - 8/12*

The two long D. R. traverse lines from position 15 G day to 48 H day and 24 M day to 39 N day were also adjusted first in the same way. Soundings were then plotted along those lines and along the short off and in shore loops. A second adjustment was then applied to the D. R. positions of D, G, H, M and N days to bring their soundings into agreement at crossings with each other and with the short D. R. lines of previous days.

The radial sounding lines around the marker buoy on the shoal were plotted and intersecting D. R. lines were moved as necessary to make their soundings agree with those on the radial lines.

The D. R. track and the first adjustment of all D. R. lines are shown on the sheet.

DISCREPANCIES:

Soundings check well on cross lines within the controlled area. The 50 and 100-fathom curves are logical and adjacent short D. R. lines are in good agreement.

The soundings on the long D. R. lines were brought into reasonable agreement after the second adjustment of these lines, except at a few places as follows:

Line 14 to 15 H makes poor crossings with M and N. Apparently this line lies eastward of 59 to 60 G but the crossings of 11 to 12 H with 61 to 62 G is satisfactory.*

The relative positions of 33 to 35 H with respect to 47 to 48 M and of 28 to 31 H with respect to 44 to 46 M are questionable. Apparently these lines should be transposed. Elsewhere the D. R. lines cross well considering the weakness of the control and the irregularity of the bottom.*

The extent of the second adjustment to make crossings agree is indicated by the following:

D day line at position 33 was moved 0.4 mile east from the first adjustment.

G day line at position 48 was moved north 0.8 mile (close to its unadjusted latitude) and this amount uniformly reduced until the second adjustment merged into the first at position 41 H day. Slight shift made in office between pos. 47-62 G and the continued day, pos. 18 H.

K day lines across the buoyed shoal were moved 0.25 mile east to make their soundings agree with the better controlled soundings taken around the buoy.

The line from 5 to 6 N day was moved 0.4 mile west from the first adjustment and this amount was gradually absorbed forward and backward from those positions. Considerable portions of M-N day readjusted in office.

DANGERS:

There are none, but there is extreme irregularity near the 100-fathom curve. From the shore seaward to 100 fathoms - 60 fathoms in one place - the bottom slopes uniformly and gradually and is composed of mud except there are patches of shell and broken shell occasionally. A few miles outside the 100-fathom curve, and at one

* These lines were readjusted in the office and are now in good agreement. X-ray

place just inside, there are shoals separated by deep water, one of
^{31 fm.}
 (34) fathoms, one of 48, and the shoalest, which is inside the 100-
 fathom curve, of 18 fathoms. The bottom is hard on the shoals, and
 such samples as could be brought up are of coral, pebbles and sand. } These have been
 shown on the
 sheet

AGREEMENT WITH PREVIOUS SURVEYS:

The soundings on this sheet agree with those on the inshore
 sheet (No. 3). The shoals outside the 100-fathom curve are indicated
 by the 50 and three 80's around Lat. $27^{\circ}50'$ Long. $93^{\circ}00'$ on chart
 1116. The 18-fathom shoal in Lat. $27^{\circ}57'$ Long. $92^{\circ}36'$ is apparent-
 ly a "find".



W. E. Parker, Captain,
 Coast and Geodetic Survey,
 Chief of Party.

STATISTICS OF SHEET 4

NUMBER OF POSITIONS: 649

NUMBER OF SOUNDINGS: 5976

NUMBER OF STATUTE MILES

OF SOUNDING LINES: 1195

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. 5417

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. 4 5417

REGISTER NO.

State Louisiana

General locality Gulf of Mexico

Locality S. E. of Calcasieu Pass

Scale 1:80,000 Date of survey Sept. 20-October 19 1933

Vessel HYDROGRAPHER

Chief of Party W. E. Parker

Surveyed by W. D. Patterson, R. W. Woodworth, K. G. Crosby

Protracted by M. J. Smith

Soundings penciled by M. J. Smith

Soundings in fathoms Feet

Plane of reference Mean Low Water

Subdivision of wire dragged areas by -----

Inked by C. R. Bush, Jr.

Verified by C. R. B. and J. L. Ladd

Instructions dated December 17, 1932; January 7, 1933

Remarks: -----

82

LAC

April 26, 1954

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in
4 volumes of sounding records for

HYDROGRAPHIC SHEET 5417

Locality East of Calcasieu Pass, Gulf of Mexico, Louisiana Coast

Chief of Party: W. E. Parker in 1933
Plane of reference is mean low water, reading
3.5 ft. on tide staff at Calcasieu Lighthouse
5.8 ft. below B. M. 1

Height of mean high water above plane of reference is 1.5 feet

Condition of records satisfactory except as noted below:



Chief, Division of Tides and Currents

Section of Field Records

Report on H. 5417

Chief of Party - W. E. Parker
Protracted by - M. J. Smith.
Verified and Inked by - C. R. Bush, Jr.

Surveyed in - Sept-Oct. 1933
Surveyed by - W. D. Patterson,
R. W. Woodworth,
K. G. Crosby.

Soundings
plotted by - M. J. Smith.

The records in most part conform to the General Instructions. In several cases however it was hard to tell which soundings as registered on the fathometer were comparisons with the vertical casts. Other comparisons omitted the time.

The usual depth curves could be completely drawn. In some places around shoals the curves might have been more definitely located if additional sounding lines had been run where there is quite a space between sounding lines.

The field plotting was not altogether complete to the extent prescribed in the regulations. In developments and congested areas there were not sufficient day letters inked in to enable the sounding lines to be followed easily.

The verifier had to make many office adjustments both in the positions and in the soundings themselves. The soundings evidently were carelessly plotted from the records and in many cases poorly spaced. (see statistics sheet for number of soundings changed). The day letters in many cases were entirely too large, in some instances nearly as large as the soundings.

The field draftsman frequently missed soundings and omitted others where there were several of the same depth.

The junctions with adjacent sheets were satisfactory.

Many office adjustments had to be made:

In the vicinity of Lat. $27^{\circ}57'.5$, long. $92^{\circ}36'.5$ where the 18 fm. shoal was found and buoyed, the lines were bowed slightly by taking the current into account, which made better crossings.

In the vicinity of Lat. $27^{\circ}50'$, Long. $92^{\circ}30'$ the dead reckoning lines must be accepted although the ^{conviction} indentation of the 200 fathom curve indicates decided shoaling.

The shoal spots in Lat. $27^{\circ}50'$, Long. $92^{\circ}55'$ and Lat. $27^{\circ}48'$, Long. $93^{\circ}03'$ were taken separately. The two systems of dead reckoning lines, namely G-H day and M-N day were plotted on separate tracings. The original adjustments as calculated and plotted mathematically by the field party were used on these tracings. The loop system of lines (controlled inshore by bomb fixes) were inked as adjusted by the field party and used as a base. The two tracings were then both superimposed on the smooth sheet and shifted until all major crossings agreed. Intermediate depth curves were also drawn and

Report on H. 5417 - 2

used as an additional basis for shifting. After the major adjustments had been made minor adjustments were made along the lines themselves and carried back to a point of zero adjustment mathematically. ✓
The maximum adjustment of 1712 meters in a direction $207^{\circ}30'$ true was made.

It is felt that this method of adjustment has brought out the major features of the sheet and placed the shoals in their relatively correct position. ✓

Soundings from 28D to 30D are considered questionable by K. T. Adams. ✓

The 114 fathom sounding after position 7H was questionable due to the quick change from slow red to fast red light and back again and was rejected by K. T. Adams. ✓

*she should
be accepted
as recorded
A.R.S.*

Due to the numerous corrections in soundings and adjustments as aforesaid mentioned the field drafting is only considered fair. ✓

Respectfully submitted,

Chas. R. Bush, Jr.,
Jr. Carto. Engr.

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5417 (1933)

S. E. of Calcasieu Pass, Gulf of Mexico, Louisiana.
Instructions dated Dec. 17, 1932 and Jan. 7, 1933 (HYDROGRAPHER)
Surveyed - September-October 1933.

Fathometer Soundings - RAR Control Using Floating Hydrophone
Stations and Dead Reckoning.

Chief of Party - W. E. Parker.

Surveyed by - W. D. Patterson, K. G. Crosby; R. W. Woodworth.

Protracted and soundings penciled by - M. J. Smith.

Verified and inked by - J. G. Ladd; C. R. Bush, Jr.

1. Condition of Records.

The records are neat, legible and conform to the requirements of the Hydrographic Manual except as follows:

- a. The name of the fathometer reader was not consistently entered at the beginning of each day's work.
- b. Vertical casts when recorded, were not clearly indicated as such nor were they always identified by a recorded time interval.
- c. Degree and minute symbols were omitted on all longitude values. These were added in the office.

2. Compliance with Instructions for the Project.

The plan, character and extent of the survey satisfy the instructions for the project, except as indicated in paragraphs 9 and 10.

3. Sounding Line Crossings.

No cross lines were required by the instructions for the project. However, such cross lines as were run are in good agreement.

4. Depth Curves.

The 20, 50, 100 and portions of the 200 fathom curve may be satisfactorily drawn within the limits of the survey.

5. Junctions with Contemporary Surveys.

- a. The junction on the north with H. 5411 (1933) is excellent.
- b. The junction on the northwest with H. 4335 (1924) as prescribed in the instructions for the project is excellent.
- c. The junction on the east will be made when that work has been received from the field.

6. Comparison with Prior Surveys.

a. H. 1350 (1875-77).

This survey contains sounding lines spaced on an average of about 35 miles apart on a scale of 1 to 600,000 and is controlled by dead reckoning. The few soundings which fall within the limits of the new survey are in good agreement.

b. H. 5303c (1933).

This is a "track" fathometer survey controlled by dead reckoning and astronomical positions on a scale of 1:1,000,000. The portion of the survey which falls within the limits of the new survey, (H. 5417 (1933) has been questioned because of supposed erratic fathometer fluctuations. However, the fluctuating soundings of line 25 to 28G when transferred to the new survey (H. 5417 (1933) between lat. $27^{\circ}40'$ and $27^{\circ}52'$ in long. $93^{\circ}09'$ were found to be in good agreement. The 68 fathom sounding of H. 5303c (1933) in lat. $27^{\circ}42'$, long. $93^{\circ}09'$ fall one-half mile southwest of a 76 fathom bank on H. 5417 (1933). It was not considered advisable to salvage the 68 fathom sounding and transfer it to the new survey. (See additional work, paragraph 9, below).

7. Comparisons with Chart No. 1116.

Apart from the soundings charted from H. 1350 (1875-77) considered above, there are only a few additional soundings on Chart 1116 that fall within the area covered by the present survey. These originate from several sources and will be considered separately below:

a. 25 fathoms, Lat. $28^{\circ}23'$, Long. $92^{\circ}41'$.

This sounding originates with Blueprint #13789 (actually Chart No. 20) accompanied by Chart Letter No. 160, of 1911, and is based on information from the Captain of a large fishing schooner. The sounding falls midway between two sounding lines spaced 2 miles apart on the new survey and in depths of 30 to 31 fathoms. No shoaling indications were obtained on H. 1350 (1875-77) nor on the new survey, H. 5417 (1933). Considering the character of the original information this sounding should be disregarded in future charting.

b. 19 fathoms, Lat. $27^{\circ}58'$, Long. $92^{\circ}36'$.

This sounding originates with Chart Letter #675 (of 1933) as an advance report of the 1933 survey. The sounding reduces to 18 fathoms, (see pos. 24 M) in the final verification and its position is slightly different than now charted.

c. 31 fathoms, Lat. 27°47', Long. 93°03'.

This sounding is from the same source as the 19 fathom sounding in paragraph (b) above. The final verification places this sounding about 2 miles to the northwest of its charted position.

This sounding confirms a reported 32 fathom sounding in the same vicinity (Chart Letter #6 of 1916) which is shown on the present edition of Chart No. 1007 but which was inadvertently omitted from Chart No. 1116 beginning with the May 1925 edition. In the light of the present survey this 32 fathom may be disregarded in future chartings.

d. 80 fathoms, Lat. 27°47', Long. 93°10'.5,
and 80 fathoms, Lat. 27°50', Long. 92°53'.5.

These soundings originate with Chart Letter No. 6 of 1916 (par. 2) based on reported shoal spots by the Fishing Schooner "Fortuna". Both these soundings were reported on a ridge with a least depth of 32 fathoms (see par. 7, c., above). Considering the character of the report, all these reported depths agree remarkably well with the shoals found on the present survey. In the light of the new survey it will be unnecessary to use any of these soundings in future chartings.

e. 80 fathoms, Lat. 27°49', Long. 92°59'.

The source of this sounding which falls in depths of 112 to 115 fathoms on the new survey and midway between two shoals of 31 and 48 fathoms, is not known. It does not appear on Chart Standard #20 (April 1914) but is charted on the subsequent Standard No. 1116 (Feb. 1918). There is a bare possibility that it may have been confused with the charted 80 fathom sounding about 5 miles to the ENE (auth. Chart Letter #6, of 1916) which was applied as a chart correction on Standard No. 20 (April 1914). The charted 80 fathom sounding, whether authentic or not, is evidently out of position and should be disregarded in future chartings.

f. 50 fathoms, Lat. 27°44', Long. 93°06'.

The source of this sounding is not known. It is not shown on Chart Standard No. 20 (April 1914) but is shown on the subsequent Standard No. 1116 (Feb. 1918). The sounding falls in depths over 100 fathoms on the new survey but is about $2\frac{1}{2}$ miles NE of a shoal with a least depth of 76 fathoms obtained on each of two sounding lines spaced about 2 miles apart. It is also about 5 miles southwest of a 31 fathom shoal obtained on the new survey. It may be located on either of the two shoals. Considering the uncertain character of its origin, it should be disregarded in future chartings.

g. 17 fathoms, Lat. 28°33', Long. 92°43'.5.

The source of this sounding could not be ascertained. If falls in depths of 25 fathoms even bottom on the new survey. Considering the uncertain character of its origin, it should be disregarded in future charting.

8. Field Plotting.

Field protracting and plotting were in accordance with the Hydrographic Manual except as follows:

- a. Soundings were not consistently plotted with respect to recorded timing intervals (par. 147) nor as to depths as recorded and had to be revised in the office.
- b. It would appear that the field party should have made a further adjustment of some of the dead reckoning lines on the shoals with a view to effecting better crossings. Readjustments were made in the office based on cross line agreements.

Same depth shown
1 mile SE on H-6293(1937).

9. Offshore Control.

The control for the dead reckoning beyond the hundred fathom curve and for the development of the two shoals (Latitude 27°48', Longitude 93°04' and Latitude 27°49', Longitude 92°53') was not adequate. The principal system of lines should have consisted of loops from an R.A.R. position out to the limit and back in to an R.A.R. position. Such loops of hydrography are simple to adjust and there is a relatively short space of time uncontrolled.

When the two shoals above mentioned were found they should have been developed in a manner similar to that used on the 18 fathom shoal, located in Latitude 27°58', Longitude 92°36', by anchoring a buoy on the shoal, locating it by R.A.R. or by a double dead reckoning run and developing the shoal by running radial lines from the buoy.

Or, in lieu of the above, if the anchoring of buoys was considered impracticable, after the development of the shoals by dead reckoning, this dead reckoning development should have been better controlled by the running of a loop from an R.A.R. position out across the center of one shoal and back across the center of the other shoals to an R.A.R. position.

See Rev. 1 par. 7d, H-6293(1937) for further details on discrepancies.

10. Additional Field Work Recommended.

For Future Consideration.

- a. Additional lines in the general vicinity of Lat. 27°43', long. 93°08', where a least depth of 76 fathoms was obtained on two different lines spaced about a mile apart. The fact that a 68 fathom sounding (questionable) from

- H. 5303c, 1933 (see par. 6b, above) plots within a half mile of the westerly 76 fathoms and a charted 50 fathom sounding (source unknown, see Par. 7f, above) falls about 2 miles to the NE of the easterly 76 fathoms is an indication that shoaler water may be found in this vicinity. * Found 70 fms. nearby, also 58 fms. 4 1/2 miles NE.
- b. A split line in the vicinity of the 48 fathom shoal in lat. $27^{\circ}49'.0$, long. $92^{\circ}53'.5$. * Found 35 fms., also 27 fms. 2 1/2 miles N.W. Done
- c. Additional lines over the 34 fathom shoal (Lat. $24^{\circ}48'$ long. $93^{\circ}04'$) especially across the north and south ends of the shoal, where the extent is not defined. * Found 30 fms., also 26 and 39 fms. 3 miles N.
- d. The spacing of several of the offshore lines exceeds the four mile spacing required by the instructions. This would not be material except for the discovery of the small shoals in the vicinity of the 100 fathom curve. The area of the 18 fathom shoal is at most $2\frac{1}{2}$ miles wide and could occur between any of the lines spaced three or more miles apart. Split lines should at least be run at Longitudes $92^{\circ}38'$, $92^{\circ}51'$ and $93^{\circ}04'.5$ and from Latitude $28^{\circ}15'$ out to the 100 fathom curve. Accomplished on H-6502 (1937)
- e. A determination of the extent of the submarine valley in lat. $27^{\circ}50'$, long. $92^{\circ}43'$. * Valley narrowed in width
- f. A further development of the irregularities in the vicinity of lat. $27^{\circ}48'$, long. $92^{\circ}31'$. H-6501 (1937)

11. Superseding Old Surveys.

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

H. 1350 (1875-77) In part.
H. 5303c (1933) In part.

12. Reviewed by - Harold W. Murray, August 3, 1934.

Inspected by - A. L. Shalowitz.

K. T. Adams
K. T. Adams,
Chief, Section of Field Records.

Examined and approved:

L. O. Gilbert
Chief, Division of Charts.

J. B. Bond
Chief, Section of Field Work.

G. H. Hude
Chief, Division of H. & T.

* Developed on H-6293 (1937)
 Not accomplished as of Nov. 1937

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. *H.5417*

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

Number of positions on sheet	.649..
Number of positions checked	.135..
Number of positions revised	..92..
Number of soundings recorded	.5976
Number of soundings revised	.1100
Number of signals erroneously plotted or transferred ✓

Date:..... *July 30, 1934*

Cartographer:..... *Chas. R. Bush, Jr.*

Verification of protracting
Verification & inking of rocks & shoals] by *J.L. Ladd*
Chas. R. Bush, Jr.

Time: *1 day 3 hr*
17 days -

Verification of inking by

Time:

Review by *Harold W. Murray*

Time: *19 1/2 hrs = 2 1/4 days*

Applied to drawings of charts 1007 & 1116

Oct. 15/34, C.S.D.