

5410

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: Louisiana	
DESCRIPTIVE REPORT	
Topographic } Hydrographic }	Sheet No. 6 5410
LOCALITY	
Gulf of Mexico	
Louisiana Coast	
West of Trinity Shoal	
1933 - 4	
CHIEF OF PARTY	
W. E. Parker	

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SHEET NO 6
GULF OF MEXICO
LOUISIANA COAST

DATE OF INSTRUCTIONS:

Instructions for this survey were dated December 17, 1932, and Supplemental Instructions January 7, 1933. Letter of May 31, 1933, authorized the plane of reference and location of tide gauge.

SURVEY METHODS:

The positions for the off shore work up to twelve miles off-shore were located by means of sextant fixes. The Ship Hydrographer's starboard launch working from the shore line to two miles off shore and the Ship Hydrographer working from the two mile zone to twelve miles off-shore. Signal towers, located by plane table methods, together with a few triangulation signal towers were used for control. The triangulation for the control of this work was executed by Lieutenant E. R. McCarthy in 1933. Beyond the limit of visibility of the shore signal towers, R.A.R. methods were used for position finding. Control for this work was made possible by the use of a system of buoys located and tied into shore signal towers by a system of triangulation using sextant angles, bombéd distances, and taut wire measurements. These triangulated buoys were plotted on an aluminum sheet from which the geographical positions were taken for plotting on the smooth sheets.

In carrying out the R.A.R. work, the launches Pratt and Faris, each carrying a hydrophone, were used as hydrophone stations, the launches being moved to the various buoys to cover the hydrography of the different areas as the work progressed. The positions of the hydrophones relative to the buoy anchors were determined by the Officers on the launches every thirty minutes while work was going on.

Bearings on buoys were taken from R.A.R. positions where visibility permitted. These bearings are indicated on the smooth sheet by yellow lines about two millimeters long.

All soundings on sheet No. 6 were taken by means of the lead line which was verified or calibrated at the beginning and end of each day.

Velocities of sound were determined from data taken by Officers on each of the launches twice a day during hydrography. This data consisted of surface water temperatures, bottom temperatures and bottom water samples from which specific gravities were determined which in turn were used to find the velocities of sound from standard tables (B. A. Tables of 1927).

Tidal reductions were made from data obtained from recording tidal station located at Calcasieu Pass Lighthouse, Louisiana.

DISCREPANCIES:

The visual work was plotted without any difficulty other than running across an occasional error in observing or recording. The majority of errors in record were cases where the angle or topographic station actually recorded sounded very much like the correct angle or station. All doubtful fixes were checked against the boat sheet, and all deviations and rejections were noted in the sounding records opposite the fixes in question.

In plotting the R.A.R. fixes it was found that for the work east of longitude $92^{\circ} 40'$ the bearings, with few exceptions, checked satisfactorily with the bomb fixes, but in the area west of longitude $92^{\circ} 40'$ a larger discrepancy occurred between bearings and bomb fixes. Where discrepancies occurred and bearings or bomb arcs were not rejected, positions were generally plotted as follows: Within a radius of three miles of a

hydrophone buoy the intersection of the bearing and distance arc from that buoy was accepted, positions from three to seven miles from an occupied buoy were plotted by taking a mean between bearings and bomb arcs, giving more weight to the bomb arc intersections as the distances from the buoy increased and at distances greater than seven miles, the bomb arc intersections were usually accepted as positions. Methods used in plotting positions were noted in the sounding records and frequent comparisons were made with the boat sheet.

On W day only single arcs were obtained for positions 11 & 12. In each case the arcs radii were short; therefore, the positions were adjusted to agree with course, time and log run.

The original buoy GG (noted as GG_o on smooth sheet) was planted on November 9, 1933, but was never located in the field because of failure to get bombs through. Since many bearings were taken on this buoy such of those bearings from good bomb arc intersections were used to locate the buoy on the smooth sheet, then bearings on this buoy from single arc positions were used in plotting the location of such positions as positions 15 & 16 on W day.

On Z day for positions 30 to 52 only single bomb distances from alternate launches were obtained on alternate one minute and six minute intervals. These positions were adjusted by, first, marking log distance on course between one minute interval arcs, and then connecting these short lines by means of lines along the six minute interval spaces and checking the final line for correctness by means of a traverse. The resultant positions checked satisfactorily with time, log run, and course with the exception of positions 50 and 51. These positions fell too close together for time and log run to check, but since the positions

before and after 50 and 51 checked closely, and since this same characteristic occurred on the boat sheet, these two positions were plotted on their respective single arcs. Noting position 98 (Z day) hydrophone positions were changed between positions 97 and 98 (at 16:00 o'clock) which change was enough to keep log run and time from 97 to 98 from checking with the log run from 98 to 99, however position 98 was plotted on the single arc as the discrepancy was not large.

A traverse was used to plot the positions on D' day from positions 1 to 20 since there were many single arcs and several discrepancies.

Some difficulty was experienced in plotting positions 29 to 37 (D' day). It was found that the log runs and time between these positions did not check, but because of the appearance of the same characteristic on the boat sheet and because of indications of possible errors in timing these positions were plotted on their respective arcs.

On D' day, positions 38 to 47, the discrepancy between bearings and arc intersections averaged about 3° in the same direction for each position. An adjustment was made using a traverse and mean positions. The discrepancies between bearings and arc intersections continued throughout D' day and in fact throughout the rest of the work west of D' day but with the exception of the stretch from position 38 to 47 (D' day) this discrepancy averaged only 1° to $1\frac{3}{4}^{\circ}$, and generally was in the same direction in terms of the compass. The character of the arc intersections directly between buoys HH and FF were such as to indicate that the buoys were plotted too close together or the velocities of sound as used for distance computations were too high.

As a whole good agreement was found between bearings and arc intersections for K' and L' days.

Discrepancies at crossings for the sheet as a whole were very small, being only one to two feet with the greatest discrepancy of 3 feet occurring at intersection of 23 L and 105 F of visual work. ^{Lat. 29°35'} _{Long. 92°47.4'}

DANGERS:

There were no dangers found in the area covered by this sheet since the bottom sloped gradually and uniformly from 1 to 3 feet 50 meters off shore to 65 feet about 28 miles off shore without any large or dangerous shoals.

COMPARISONS WITH PREVIOUS SURVEYS:

The soundings on the south end of sheet six check satisfactorily with the soundings on the north end of sheet No. 3

Comparison of sheet No. 6 with a chart made up from surveys up to 1924 show very good agreement with the soundings checking within two or three feet and the same characteristic bottom common to both surveys. One change was noted, however, and that being that the shore line has moved northward about five hundred meters since the survey of the shore line as shown on the chart made from surveys up to 1924.

* For additional remarks, consult descriptive report of T-4795. *H. W. W.*

E. D. Farmer

E. D. Farmer, Draftsman,
Coast and Geodetic Survey.

Examined and approved



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

STATISTICS FOR SHEET NUMBER 6

Total number of positions	3,095
Total number of soundings	17,648
Total number of statute miles	1,588

RAC

April 2, 1934.

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in
10 volumes of sounding records for

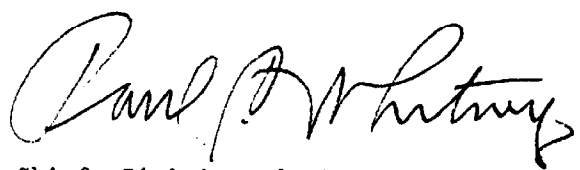
HYDROGRAPHIC SHEET 5410

Locality West of Trinity Shoal, Gulf of Mexico, Louisiana Coast

Chief of Party: W. E. Parker, 1933-1934
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

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. 6

REGISTER NO.

State LOUISIANA

General locality GULF OF MEXICO

Locality WEST OF TRINITY SHOAL

Scale 1:40,000 Date of survey July 20, 1933 to January 3, 1934

Vessel U.S.C. & G.S.S. "HYDROGRAPHER"

Chief of Party W. E. Parker

Surveyed by E. H. Kirsch, K. G. Crosby, W. D. Patterson, R. W. Woodworth, P. C. Doran

Protracted by E. D. Parmer

Soundings penciled by E. D. Parmer

Soundings in fathoms feet

Plane of reference Mean Low Water

Subdivision of wire dragged areas by -----

Inked by [Signature] Protracted by [Signature]

Verified by [Signature]

Instructions dated Dec. 17, 1932, Jan. 7, 1933, May 31 1933

Remarks: Contains filed instructions

Memorandum for Verification and
Review of H-5410, by
Leo S. Straw.

1. The Records conform to the requirements of the general instructions.
except as noted in #1 of the review.
2. The protracting of that portion of the work covered by visual fix control is satisfactory. A visual comparison of the smooth sheet and boat sheet, which involve both the three point fix control and R. A. R. work, revealed no discrepancies which had not been carefully considered and adjusted by the Field.
3. No note appeared on the smooth sheet giving the ~~Batum~~ reference triangulation station. The Field Computations of the Geographic positions were made on the North American 1927 Datum, the typewritten note "NORTH AMERICAN" after "Datum" on the Geographic forms was corrected to read "NORTH AMERICAN 1927". Triangulation station CON ^{was} the only one on the sheet. ^{marked in} it is ~~the~~ used as ~~the~~ reference station. The location of this station is Lat. $29^{\circ}35'$ - 1317.9m. N. A. 1927
Long. $92^{\circ}41'$ - 2.3 m. Datum.
(Office Computations)
4. No concentric circles, for radial measurement from the Hydrophone stations, were plotted on the sheet.
5. In general there is very good agreement of the cross lines on this sheet. See Descriptive Report page 5. the last paragraph under SURVEY METHODS also the paragraph under DANGERS.

Field Record Section
Report on H 5410

May 15, 1934.

The sounding records were neat, ^{and} legible, & complete.

The depths conformed to the Hydrographic manual, but in a good many cases ~~were~~ ^{depth} ~~amounts~~ were erroneously plotted.

The field drafting in general was well done; however the following was found to be wrong:

1. Vol 1 & 2 (Starboard launch) Upper case day letter shows in sounding records while lower case shown on smooth sheet. Records were changed to lower case.

2. Triangulation Stations: No triangulation stations, with the exception Δ Cow, were plotted in field. These were plotted in this office.

No overlaps were made because sheet #5411 on the south & sheet #5418 on the west are ^{part of} ~~in~~ ~~work~~ were not available.

The 10 fathom curve was not inked because there is a discrepancy between the location ~~on~~ shown on ~~this~~ sheet & that shown on #5411. The 10 fm. curve is ^{now} satisfactory and has been inked - ~~from~~ ^{from} 7/11/34.

Respectfully submitted,

W. J. Zerk

Section of Field Records

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REVIEW OF HYDROGRAPHIC SURVEY NO. 5410 (1933).

West of Trinity Shoal, Gulf of Mexico, Louisiana.
Instructions dated Dec. 17, 1932; Jan. 7 and May 31, 1933 (HYDROGRAPHER)
Surveyed in 1933-34.

Hand Lead Soundings - 3 Point Control on Shore Signals and using
RAR Floating Launch Hydrophones.

Chief of Party - W. E. Parker.

Surveyed by - E. H. Kirsch; K. G. Crosby, and W. D. Patterson, *R.W. Woodworth and
P.C. Doran*

Protracted by - E. D. Farmer.

Soundings penciled by E. D. Farmer.

Verified and inked by - L. S. Straw; I. M. Zeakind.

1. Condition of Records.

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

a. In volumes 1 and 2 capital letters were used to designate launch work instead of lower case letters. These were corrected in the office (Par. 61 of H. M.).

b. At the beginning of each day's work, the name of the leadman was not consistently entered (Par. 64b of H. M.).

c. No reference station note was placed on the smooth sheet and was accordingly added in the office.

d. No list of signals used in inshore work was attached to the sounding volumes (Par. 139 of H. M.).

e. No concentric circles for R.A.R. distances were shown on the sheet. This is probably due to the closeness of the various hydrophone stations, distortion of the paper being negligible in plotting distances.

2. Compliance with Instructions for the Project.

The plan, character and extent of the survey satisfy the instructions for the Project.

3. Sounding Line Crossings.

Agreement of soundings on crossings is very good. Differences are limited to less than 3%. Two exceptions are noted:

a. Line 20 to 24L (Ship) in approximate lat. $29^{\circ}35'$, long. $92^{\circ}48'$ soundings of which in average depths of 25 feet are 2 feet too deep.

b. Line 61 to 64c (launch) in approximate lat. $29^{\circ}37'$, long. $92^{\circ}48'.3$. An improvement of the 12 and 18 ft. curve might have been possible if the tide reducer had been entered to the nearest half foot instead of whole feet.

4. Depth Curves.

The 6, 12, 18, 30 and 60 foot curves falling within the limits of the survey may be satisfactorily drawn.

5. Junction with Contemporary Surveys.

The junction on the south with H. 5411 (1933) is satisfactory. The junction on the west with H. 5418 (1933) will be considered in the review of that sheet. The junction on the east will be considered when that work has been received from the field.

6. Comparison with Prior Surveys.

a. H. 1645 (1885).

This survey covers a portion of the western limits of H. 5410 (1933). Soundings are in general good agreement.

b. H. 1776 (1887-88).

Soundings of this survey are in general good agreement with H. 5410 (1933).

7. Comparison with Chart No. 1278.

There are no shoals, critical soundings or other items of importance on the above chart which need consideration in this review.

8. Field Plotting.

Field protracting and plotting of soundings conform to the requirements of the Hydrographic Manual.

9. Additional Field Work Recommended.

This survey is complete, no additional work is required.

10. Superseding Old Surveys.

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

H. 1645 (1885) In part.
H. 1776 (1887-88) " "

11. Reviewed by - Harold W. Murray - July 11, 1934.

Inspected by - A. L. Shalowitz.

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

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

Examined and approved:

L. O. Pollock
Chief, Division of Charts.

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

Applied to drawings of charts 1007 + 1116

Oct. 15/34 C. F. S.

Applied to Chart 1051 Aug 1937 Chas. R. Bush Jr