

6173

U. S. COAST & GEODETIC SURVEY
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REV. DEC. 1933
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
R. S. PATTON, DIRECTOR

DESCRIPTIVE REPORT

~~Topographic~~
Hydrographic } Sheet No. 41

State LOUISIANA

LOCALITY

GULF OF MEXICO

SHIP SHOAL

1936

CHIEF OF PARTY

FRANK S. BORDEN

U. S. GOVERNMENT PRINTING OFFICE: 1934

6173

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

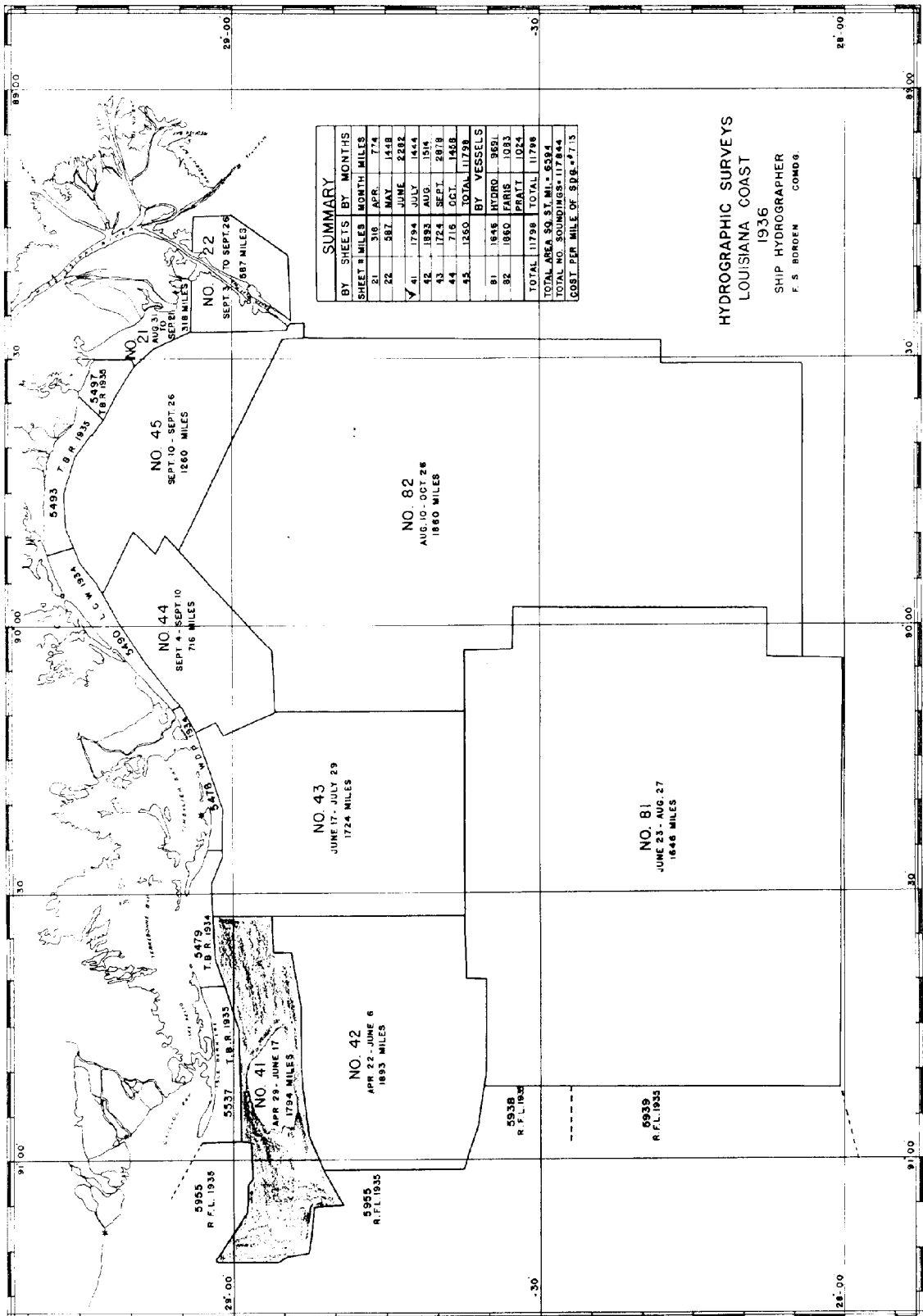
REG. NO. _____
MAR 18 1937
Arch. No. _____

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. 41

REGISTER NO. **H6173**

State Louisiana
General locality Gulf of Mexico
Locality Ship Shoal
Scale 1:40,000 Date of survey April - July, 19 36
Vessel Ship HYDROGRAPHER; Launches FARIS & PRATT
Chief of Party F. S. Borden
Surveyed by Officers Attached to Party (F. R. Gossett)
Protracted by F. R. Gossett and James N. Jones
Soundings penciled by F. R. Gossett and James N. Jones
Soundings in fathoms feet
Plane of reference M.L.W.
Subdivision of wire dragged areas by _____
Inked by E. C. Mc-Glasson
Verified by E. C. Mc-Glasson
Instructions dated March 23, 1936 and May 20,, 19 36
Remarks: _____



SUMMARY

BY SHEETS	BY MONTHS
21	APR. 774
22	MAY 1448
✓ 41	JUNE 2282
42	JULY 1444
43	AUG. 1914
44	SEPT. 2979
45	OCT. 1468
44	TOTAL 11798
BY VESSELS	
81	HYDRO 3691
82	FARIS 1083
	PRATT 1924
	TOTAL 11798
TOTAL AREA SQ. ST. MI. = 6384	
TOTAL NO. SOUNDINGS = 117844	
COST PER MILE OF S.D.S. = \$7.15	

HYDROGRAPHIC SURVEYS
LOUISIANA COAST
1936
SHIP HYDROGRAPHER
F. S. BORDEN COMD'G.

DESCRIPTIVE REPORT TO ACCOMPANY

SHEET (FIELD NO.) 41, 1936

INSTRUCTIONS

This survey was made in compliance with Instructions for Project HT-210, dated March 23, 1936, and Supplemental Instructions dated May 20, 1936.

SURVEY METHODS

Sounding lines on this sheet are controlled by three point sextant fixes on hydrographic buoys and on shore signals.

All soundings by the HYDROGRAPHER were taken with the Dorsey Fathometer; soundings by the Launches FARIS and PRATT were taken by the hand lead method, using eight to fourteen pound leads.

Due caution was taken while sounding with launches to keep the speed low enough for good soundings. In general the speed was between four and five knots. Soundings taken at this speed were not noticeably different from soundings taken at slower speeds.

A plate is attached to this report, which shows graphically how buoys were located. Complete data for signal location are contained in a separate report on HYDROGRAPHIC CONTROL 1936, Ship HYDROGRAPHER. Attached to this report, also, is a list of geographic positions of signals used on this sheet.

The following day letter and position number colors are used on this sheet: HYDROGRAPHER, red; FARIS, green; PRATT, blue.

Dorsey Fathometer soundings are corrected for temperature and salinity (T & S) and for Initial, Draft, and Settling (I/D/S).

In brief these corrections were determined as follows:

From mean temperature and salinity curves for the sounding period velocity factors (and from them velocity corrections) were determined for various depths, using a dial speed of 1499.6 m./sec. A smooth curve was drawn from the computed corrections and the T. & S. correction scaled in feet and tenths.

The value of the settling correction was determined from tests to be 0.9 feet in four fathoms to 0.7 feet in ten fathoms, at full speed. A mean value of 0.8 feet was used.

The initial correction was determined from the differences between vertical casts and simultaneous fathometer soundings the latter being corrected for temperature, salinity and draft of the transceiver. This correction has a mean value of minus 1.2 feet.

The draft corrections were determined from curves drawn from measurements made from the rail to the water over the transceiver, draft mark readings, and fueling data. The draft correction varies from plus 0.5 feet to minus 0.5 feet.

The initial, draft, and settling corrections were combined when entered in the sounding volumes.

Complete data for fathometer corrections are contained in a separate report on "Temperatures and Salinities; Fathometer Corrections, and Velocities, Ship HYDROGRAPHER, 1936", and a list of corrections used on this sheet is attached to this report.

A lead line correction of minus 0.5 feet was applied to all launch soundings. This is explained later in this report.

See Rev., par. 4.
Correction omitted
in depths of 16' or
less.
7/11/36

DISCREPANCIES

1. The crossings and junctions of corrected fathometer soundings taken by the ship were compared with corrected leadline soundings taken by launches with the following results:

On 119 crossings the difference was 0 feet

On 175 crossings the launch soundings were 1 foot deeper

On 56 crossings the launch soundings were 2 feet deeper

On 4 crossings the launch soundings were 3 feet deeper

On 4 crossings the launch soundings were 1 foot shoaler

(This tabulation includes the junctions of the launch soundings on this sheet with ship soundings on Sheet No. 42 of this season)

H-6154(1136)

2. In a total of 358 crossings, in an average depth of 27 feet, the launch soundings averaged 0.8 feet deeper. Of this discrepancy there is a possibility that the ship soundings are slightly shoaler than they should be due to the fact that mean value was used for settlement corrections. Therefore, it was decided to use a correction of minus 0.5 feet on all launch handlead soundings, to correct for such uncertain factors as catenary in the line, tilt of the lead on the bottom, and sinking of the lead in a soft bottom.

Omitted in depths of 18' or less. See Rev. par. 4 H.W.M.

3. The junctions and crossings of the fathometer and hand lead soundings after applying minus 0.5 foot to all lead line soundings are as follows:

On 216 crossings the difference was 0 feet.

On 109 crossings the launch soundings were 1 foot deeper

On 56 crossings the launch soundings were 1 foot shoaler

On 5 crossings the launch soundings were 2 feet deeper

On 1 crossing the launch soundings were 2 feet shoaler.

This leaves an average unadjusted discrepancy of hand lead soundings 0.2 feet deeper than fathometer soundings. The few two foot differences are mainly on fairly steep slopes.

See note on previous page.

Minor discrepancies in reading and recording angles and times have been adjusted in the sounding records and are indicated in red pencil.

The time intervals on this sheet check very well. There are some slight "jumps" on running through lines of buoys and on changing fixes to different buoys, but they are all within the limit of the horizontal scopes of the buoys.

Some of the discrepancies in launch sounding crossings are a little larger than could be expected, partly due to the method of applying the lead line correction and partly, it is believed, to a somewhat unfavorable location of the standard tide gage at Eugene Island, which might cause an uncertainty in the tide reducers of 0.1 to 0.3 foot, at times. There are several instances where a 0.1 or 0.2 foot difference in the tide reducer would have given much better crossings. However, the crossings are in general very good, ^{and} except in the case of an occasional deeper sounding and two two-foot crossings on "j" day (green) May 12th, are one foot or less.

DANGERS

Ship Shoal, with a least depth of 8 feet in Lat. $28^{\circ} 55.4'$ Longitude $91^{\circ} 05.0'$, is the only danger on this sheet, aside from the gradual shoaling on approaching shore. Ship Shoal Lighthouse (a 105 foot skeleton structure) is located near the northwestern, and shoalest portion of the shoal. The main body of the shoal

25

extends roughly east and west, with the 12 foot curve extending about 6 miles east and $2\frac{1}{2}$ miles southwest from the Lighthouse.

CHANNELS

The channel north of Ship Shoal has a least depth of 21 feet near its western entrance, about 6 miles west of Ship Shoal Lighthouse. This channel is marked by two black and white vertically striped, first class nun buoys. This channel is seldom used except by shoal draft fishing boats and small tows.

ANCHORAGES

There are no protected anchorages on this sheet. There is soft mud in the channel north of Ship Shoal with fair holding properties.

COMPARISON WITH PREVIOUS SURVEYS

Attached to this report is a sketch showing the junctions with this sheet ^{and} ~~of~~ other sheets of this season and of work done in 1934 and 1935.

Junctions with work on Sheets Nos. 42 and 43 of this season are very good.

The junction with fathometer soundings on Sheet 5955 (R.F.L. 1935) is good. However the launch hand lead soundings on that sheet are in general deeper than those on this sheet, the discrepancy being as much as 3 feet, ^{in two or three spots.}

The junction of this sheet with Sheet 5537 (T.B.R. 1935) is very good.

The soundings on Sheet ⁵⁴⁷⁹ ~~5497~~ (T.B.R. 1934) are in general from 1 to 2 feet deeper on the junction of this sheet.

The general depths and depth curves around Ship Shoal, as charted, agree fairly well with those on this sheet.

See Rev. for
more detailed
Comparison.
Pars. 6 & 7.

The 5 foot sounding charted $\frac{1}{2}$ mile northwest of Ship Shoal Lighthouse was not found by this survey, and a least depth of 8 feet determined in this area. Considerable time was spent in this area by the sounding party, with the bottom being clearly visible. There is no doubt that ⁹ 8 feet is the shoalest in this vicinity at this time.

5 spot discussed in Rev. par. 7b.

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The light keeper at Eugene Island, who for many years was stationed at Ship Shoal Lighthouse, stated that he had noticed there was a tendency for this area to shoal noticeably during a prolonged period of strong northwesterly winds.

STATISTICS

VESSEL	VOLUMES	STATUTE MILES OF SOUNDINGS	NO. SOUNDINGS	NO. POSITIONS
HYDROGRAPHER	No. 1 to No. 3	541.2	5339	601
FARIS	No. 4 to No. 9	642.1	9595	1891
PRATT	No. 10 to No. 15	643.3	10395	1838
TOTALS	15	1826.6	25329	4330

GENERAL

Attached to this report are the following:

1. Sketch showing methods of locating hydrographic buoys
2. Sketch showing junctions with this season's and previous surveys
3. List of Geographic Positions of Signals
4. Tidal Note
5. List of Fathometer Corrections.

Respectfully submitted,

F. R. Gossett

F. R. Gossett,
Jr. H. & G. Engineer.

James N. Jones

James N. Jones,
Jr. H. & G. Engineer.

7

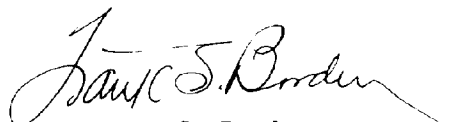
APPROVAL SHEET

Sheet No. 41 has been examined by me and is approved.

After carefully investigating the discrepancies at crossings between corrected fathometer soundings and corrected leadline soundings it appeared reasonably certain that the leadline soundings were, on the average, too deep by approximately 0.5 foot and this amount has been subtracted from each leadline sounding. With this correction applied the agreement between fathometer soundings and leadline soundings is satisfactory.

Correction
omitted in depths
of 18' or less.
See Rev. par. 4.

The sounding work accomplished by the ship on this sheet is largely in depths of from 4 to 6 fathoms. Since the spacing of lines was supposed to have changed from 300 to 600 meters at the five fathom curve strict compliance with the instructions would have produced a non uniform appearing sheet considering the fact that the sounding lines ran parallel to the coast. In lieu of suddenly jumping the spacing from 300 to 600 meters the mean of this spacing (450 meters) was used for the ship work.



Frank S. Borden
Commanding Ship HYDROGRAPHER.

ABSTRACT OF FATHOMETER CORRECTIONS
FOR
SHEET NO. 41

TEMPERATURE AND SALINITY
CORRECTIONS (T/S):

INITIAL, DRAFT AND SETTLING
CORRECTION (I/D/S):

DEPTH FTMS. - FT.	CORRECTION FEET		
3 - 0	+ 0.4	May 9	+0.1
3 - 5	+ 0.5	June 7	-0.2
4 - 4	+ 0.6	8	-0.3
5 - 3	+ 0.7	9	-0.3
6 - 2	+ 0.8	10	-0.4
7 - 1	+ 0.9		
8 - 0	+ 1.0		
8 - 5	+ 1.1		

NOTE

(1) Value of initial correction is -1.2 feet. This is mean of a number of determinations similiar to that shown at the bottom of the plate accompanying this report explaining "Corrections to Dorsey Fathometer" (see page 9)

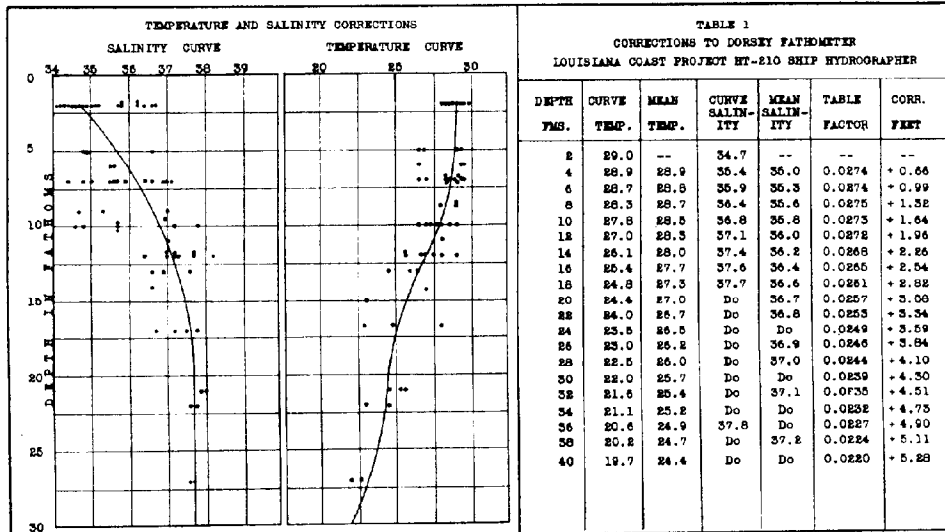
(2) Value of settlement correction for full speed sounding is +0.8. This is the mean of values ranging from +0.9 in depths of 4 fathoms to +0.7 in depths of 10 fathoms.

(3) Combining (1) and (2) above the mean value of (I/S) is -0.4. To this is applied draft corrections for each day as follows:

	(I/S)	* DRAFT (D)	(I/D/S)
May 9	-0.4	12.5-12.0 = +0.5	+0.1
June 7	-0.4	12.2-12.0 = +0.2	-0.2
8	-0.4	12.1-12.0 = +0.1	-0.3
9	-0.4	12.1-12.0 = +0.1	-0.3
10	-0.4	12.0-12.0 = 0.0	-0.4

* Draft correction is taken from graph plotted with values obtained by measuring distances from rail to water. See "Draft Correction" on plate "Corrections to Dorsey Fathometer" (page 9, this report)

12.0 feet of draft correction is applied by increasing numbering on dial by 2.0 fathoms.



DRAFT CORRECTION

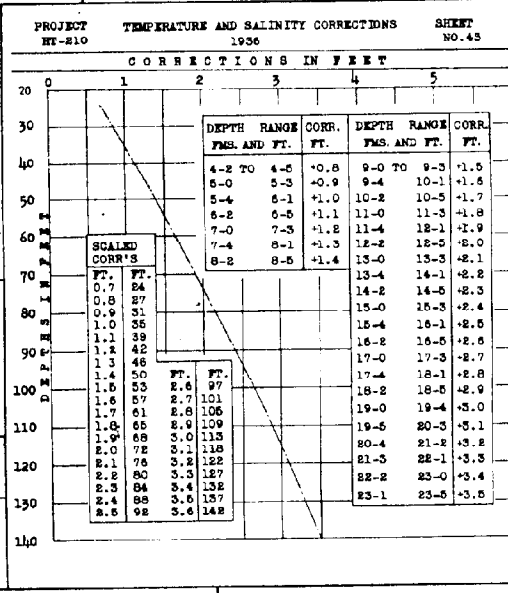
TRANSCIVER OF FATHOMETER IS 22.0 FEET BELOW TOP OF RAIL. DEPTH OF WATER OVER TRANSCIVER IS OBTAINED BY MEASURING THE DISTANCE FROM RAIL TO WATER SURFACE AND SUBTRACTING THIS FROM 22.0 FEET. THIS DEPTH VARIES FROM 11.5 TO 12.5 FEET. GRADUATIONS ON THE DIAL HAVE BEEN CHANGED TO ACCOUNT FOR A DRAFT OF 12 FEET. THE DRAFT CORRECTION THEREFORE RANGES FROM +0.5 TO -0.5 FOOT. MEASUREMENTS OF RAIL TO WATER DISTANCES SHOULD BE TAKEN ON BOTH SIDES OF THE VESSEL TO ELIMINATE EFFECT OF LIST. THEY SHOULD ONLY BE TAKEN WHEN THE SEA IS SMOOTH. A FEW CAREFUL MEASUREMENTS WELL DISTRIBUTED BETWEEN FATHOMERS WILL PROVIDE A GRAPH FROM WHICH ACCURATE CORRECTIONS CAN BE TAKEN.

SETTLEMENT CORRECTION

ALL COMPARISONS WITH THE LEADLINE ARE MADE WITH THE VESSEL DEAD IN THE WATER. THE AMOUNT OF SETTLEMENT AT SOUNDING SPEED MUST THEREFORE BE DETERMINED. THE SETTLEMENT OF THE HYDROGRAPHER AT FULL SPEED VARIES FROM 0.7 FOOT IN DEPTH OF 10 FATHOMS TO 0.9 FOOT IN DEPTH OF 4 FATHOMS. THIS CORRECTION IS OBTAINED BY COMPARING FATHOMETER SOUNDINGS TAKEN WHEN VESSEL IS DEAD IN THE WATER WITH FATHOMETER SOUNDINGS TAKEN WHEN VESSEL IS RUN AT FULL SPEED OVER THE SAME SPOT. COMPARISONS SHOULD ONLY BE MADE OVER LEVEL BOTTOM WITH SMOOTH SEA.

INITIAL CORRECTION

IT IS DESIRABLE WHEN SETTING THE FATHOMETER TO ALLOW FOR AN INITIAL CORRECTION TO OFFSET THE COMBINED AVERAGE SETTLEMENT CORRECTION AND THE DRAFT CORRECTION. THIS INSURES THAT, EXCEPT FOR THE VELOCITY OF SOUND CORRECTION, PRACTICALLY TRUE DEPTHS ARE OBTAINED AT SOUNDING SPEED. ON THE HYDROGRAPHER THE INITIAL CORRECTION IS MINUS 1 FOOT WHILE THE COMBINED AVERAGE DRAFT AND SETTLEMENT CORRECTION IS PLUS 1 FOOT. INITIAL CORRECTION IS OBTAINED BY COMPARING VERTICAL CAST, OBTAINED WHEN SHIP IS DEAD IN THE WATER, WITH FATHOMETER SOUNDING CORRECTED FOR VELOCITY OF SOUND AND DRAFT.



DETERMINATION AND APPLICATION OF DORSEY FATHOMETER CORRECTIONS

FATHOMETER COMPARISON		VARIATION IN DRAFT	
FATHOMETER	5 FMS	TRANS. DRAFT	12 20 22 24
CORR. DRAFT	+0.5		
CORR. VEL.	+0.8		
TOTAL	5 FMS		
VERTICAL CAST	5 FMS		
INITIAL CORR.	-1.0 FT		

ABOVE COMPARISON WAS TAKEN WITH VESSEL DEAD IN THE WATER. THE SETTLEMENT CORRECTION FOR THE DEPTH SHOWN IS +0.9 FT. THEREFORE COMBINED CORRECTION FOR INITIAL, DRAFT, AND SETTLEMENT IS +0.4 FEET.

DRAFT CORRECTION CAN BE TAKEN FROM GRAPH PLOTTED WITH RAIL TO WATER MEASUREMENTS OBTAINED NEAR TRANSCIVER. RECORDED TO TENTH OF FOOT.

CORRECTIONS
TO
DORSEY FATHOMETER
SHEET 43, 1936
COAST OF LOUISIANA
U.S. COAST AND GEODETIC SURVEY
SHIP HYDROGRAPHER
F. S. BORDEN COMD'G.

GEOGRAPHIC POSITIONS OF SIGNALS

SHEET #41

1936

TRIANGULATION STATIONS

NAME	LATITUDE		LONGITUDE	
	°	'	°	'
SHIP	28	54	91	04
		D.M. METERS		D.P. METERS
		1585.8		433.0
(SHIP SHOAL L. H. 1886-1935)				

SHORE SIGNALS

NAME	LATITUDE		LONGITUDE		#
	°	'	°	'	
GUE	29	03	90	48	3
OIL	29	05	90	39	4
PORT	29	04	90	36	5
PISA	29	03	90	57	1
REX	29	03	90	26	7
TAG	29	02	90	52	2
		D.M. METERS		D.P. METERS	
		1461		575	
		51		1595	
		1195		989	
		1022		1096	
		1030		1370	
		658		1101	

Refers to page number of
Special Report, "Computation
of Shore Signals"

LIGHT HOUSE SERVICE BUOYS

NAME	LATITUDE		LONGITUDE		#
	°	'	°	'	
NUN ₂	28	53	91	15	† 340
UNO	28	56	91	03	‡ 340
		D.M. METERS		D.P. METERS	
		1475		963	
		1372		1471	

† SHIP SHOAL CHANNEL WEST BUOY

‡ " " " EAST "

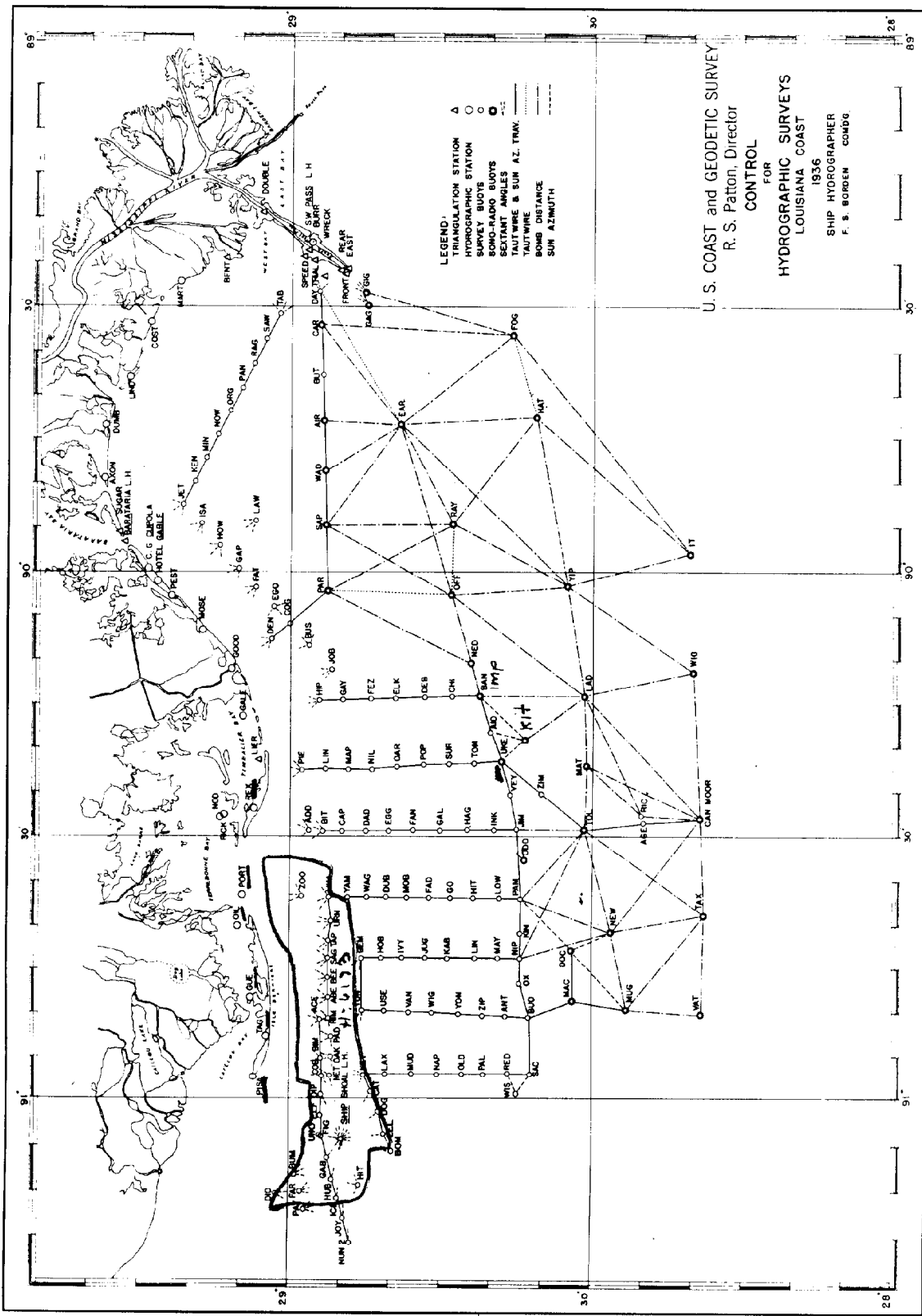
NOTE:—

COMPLETE DATA FOR SIGNAL
LOCATION CONTAINED IN REPORT ON
"CONTROL", SHIP HYDROGRAPHER, 1936.

HYDROGRAPHIC BUOYS

NAME	LATITUDE		LONGITUDE		#
	°	'	°	'	
ABE	28	55	90	48	576 340
BEE	28	55	90	46	56 340
BIM	28	56	90	55	433 340
BOM	28	49	91	05	1014 340
BUM	28	59	91	08	87 340
CAT	28	51	90	59	323 340
COB	28	56	90	57	668 340
DIP	28	56	90	59	1285 340
DOG	28	50	91	01	889 340
EEL	28	50	91	03	969 340
ELF	28	56	91	01	1453 340
FAR	28	58	91	10	216 340
FIG	28	56	91	04	128 340
GAB	28	56	91	06	528 340
GEM	28	52	90	43	1040 340
HUB	28	55	91	08	946 340
ICE	28	54	91	10	1214 340
JOY	28	54	91	13	189 340
KEY	28	52	90	57	376 340
NET	28	55	90	57	584 340
OAK	28	55	90	55	80 340
PAY	28	58	91	12	164 340
PAD	28	55	90	52	1335 340
RIM	28	55	90	50	862 340
SAG	28	55	90	43	1079 340
TAP	28	55	90	41	1165 340
TON	28	52	90	49	962 340
URN	28	55	90	39	871 340
VIM	28	55	90	36	1372 340
WAG	28	52	90	36	1464 C
YAM	28	54	90	36	1462 340
ZOO	28	58	90	36	1351 340

* 340 = Graphic Determination on 1/2000 aluminium sheet.
C = Computed from lant wire & sun azimuth traverse.



▲ TRIANGULATION STATION
 ○ HYDROGRAPHIC STATION
 ○ SURVEY BUOYS
 ○ SMOKE-RADIO BUOYS
 ○ SEXTANT ANGLES
 --- TIDE GAUGE
 --- TIDE MARK & SUN AZ. TRMK.
 --- BOMB DISTANCE
 --- SUN AZIMUTH

U. S. COAST and GEODETIC SURVEY
 R. S. Patton, Director
 CONTROL
 FOR
 HYDROGRAPHIC SURVEYS
 LOUISIANA COAST
 1956
 SHIP HYDROGRAPHER
 F. S. BORDEN COMDG

Field Records Section (Charts).

HYDROGRAPHIC SHEET NO. **H6173**

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

Number of positions on sheet	<i>4330</i>
Number of positions checked	<i>45</i>
Number of positions revised	<i>1</i>
Number of soundings recorded	<i>25,325</i>
Number of soundings revised	<i>143</i>
Number of signals erroneously plotted or transferred	<i>None</i>

Date: *17 April, 1937.*
Verification by *L. C. McBliss*
Review by *Harold W. Murray*
Ver. Corrections *"*

Time: *16 days 6 hours.*
Time: *3 " 4 1/2 "*
" *0 " 3 "*

HYDROGRAPHIC SURVEY NO. H6173

Smooth Sheet Yes

Boat Sheet Three

Sounding Records 15 Vols. _____

Descriptive Report Yes

Title Sheet Yes

List of Signals Vol#1

Landmarks for Charts (Form 567) None

Statistics Yes

Approved by Chief of Party Yes

Recoverable Station Cards (Form 524) None

Special Chart for Lighthouse Service None
(Circular Nov. 30, 1933)

Remarks _____

HYDROGRAPHY

Total Days 33

Base Date June 17, 1936

Remarks

Decisions

1	<i>For Title</i>	
2	<i>For Title</i>	
3		<i>see H-6154</i>
4		<i>USGB decision</i>
5		
6		
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27		

GEOGRAPHIC NAMES
 Survey No. **H6173**

Name on Survey	Source											
	A	B	C	D	E	F	G	H	K			
<u>Gulf of Mexico</u>	✓											1
<u>Louisiana</u>	✓											2
<u>Ship shoal</u>	✓										appd	3
<u>Isles Dernieres</u>	✓										appd	4
												5
												6
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<div style="border: 1px solid black; padding: 5px; display: inline-block;"> Names underlined in red approved by <u>RAE</u> on <u>3/23/37</u> </div>												26
												27

TIDE NOTE FOR HYDROGRAPHIC SHEET

Division of Hydrography and Topography:

March 24, 1937.

✓ Division of Charts: Attention: Mr. E. P. Ellis

Tide Reducers are approved in
15 volumes of sounding records for

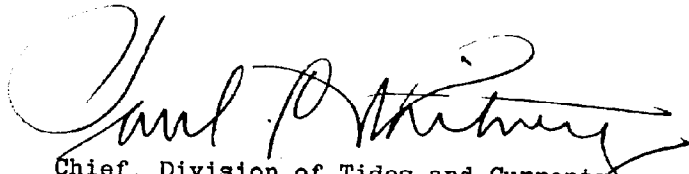
HYDROGRAPHIC SHEET 6173

Locality Ship Shoal, Gulf of Mexico

Chief of Party: F. S. Borden in 1936
Plane of reference is mean low water reading
2.3 ft. on tide staff at Ship Shoal
4.4 ft. below B.M. 1
1.7 ft. on tide staff at Eugene I.
4.1 ft. below B.M. 1

Height of mean high water above plane of reference is 1.2 feet.

Condition of records satisfactory except as noted below:


Chief, Division of Tides and Currents

MEMORANDUM

IMMEDIATE ATTENTION

SURVEY
 DESCRIPTIVE REPORT
~~PHOTO STAT OF~~

No. H **6173**
~~No. H~~

received Mar. 13, 1937
 registered Mar. 16, 1937
 verified
 reviewed
 approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

ROUTE		Initial	Attention called to
20			
✓ 22		<i>SGP</i>	<i>page 4</i>
24			
✓ 25		<i>SGP</i>	<i>pages 6-7</i>
26			
30			
40			
62			
63			
82			
83			
88			
90			

RETURN TO

82	C. K. Green
----	-------------

✓

16 April, 1937.

Verification

- Report on H 6173

Verifying and Sinking

1. The records conform to the requirements of the General Instructions.
2. The usual depth curves can be completely drawn within the limits of the sheet. The one half foot was added to the twelve, eighteen, and thirty foot soundings, when justified, in order to smooth the two, three, and five fathom curves. except as noted in the remarks and elsewhere in this report.
3. The field plotting was completed to the extent prescribed in the Hydrographic Manual.
4. The office draftsman did not have to do over any part of drafting done by the field party, except as noted on the statistic sheet, and change ~~several~~ numerous soundings as specified by the office.

5. The junctions with contemporary adjacent sheets were satisfactory. However on sheet # 5955 (1935), the line of soundings parallel to latitude $28^{\circ}50'$, between meridians $91^{\circ}04'$ and $91^{\circ}06'$, seem to be deeper than the surrounding hydrography. The verifier suggests that this line of soundings be rejected, the three forked curve at this point was left in pencil on # 6173 (1936) and it should be completed after disposition of the above soundings. ^{See Rev. for discrepancy with H-5479 (1934).} and complete.

6. There is no shoreline shown on this sheet. The location of signals will be found in a separate report from the Chief of Party. The buoys shown on the sheet were located and used as hydrographic signals and complete data for their location will be found in the separate report which is mentioned above.

^{See Rev. for origin of signal numbers.}
7. The position numbers on the sounding volumes are shown in block ink and they should be in the same color as the day letter. ^{These will be changed by reviewer, see Rev. Num.}

8. The field party applied a correction of -0.5 foot to all lead-line soundings.

This correction was based on a comparison with adjacent Dorsey fathometer soundings. The errors in the leadline soundings were assumed to be caused by catenary in the line, tilt of the lead on the bottom, and sinking of the lead in the soft bottom.

An inspection of the sheet shows that in depths of 18 feet and less the bottom is uniformly hard, and it is believed that the catenary of the leadline is negligible in these depths.

For these reasons the correction of -0.5 ft. to the leadline soundings has been accepted for depths of 18 feet or more, but in depths less than 18 feet the original depths have been inked on the sheet.

Therefore soundings in pencil, less than 18 feet, on this sheet seem to be shallower than the soundings in ink. This is

By authority of Chiefs. Correction accepted. H. M. M.

due to the fact that approximately every other sounding was inked directly from the original records and all ~~other~~ soundings were plotted, consequently soundings in pencil, less than 18 feet, should be ignored on this sheet.

Respectfully submitted,
E. C. McBlorson

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 6173 (1936) FIELD NO. 41.

Ship Shoal, Gulf of Mexico, Louisiana
Surveyed in April-July, 1936, Scale 1:40,000
Instructions dated March 23, and May 20, 1936 (HYDROGRAPHER)

Hand Lead and Dorsey Fathometer Soundings. 3 Point fixes on buoy and shore signals.

Chief of Party - F. S. Borden.
Surveyed by - F. R. Gossett and various Officers.
Protracted by - F. R. Gossett and James N. Jones.
Soundings plotted by - F. R. G. & J. N. J.
Verified and inked by - G. C. McGlasson.

1. Condition of Records.

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

On the cover label of the sounding records, the position numbers and day letters were in black ink instead of the colors used to designate the various vessels. All data on the title page of each sounding record used was in pencil instead of ink. These were changed in the office.

The Descriptive Report is exceptionally clear and comprehensive and satisfactorily covers all items of importance.

2. Compliance with Instructions for the Project.

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

3. Shoreline and Signals.

- a. This is an offshore survey and no topography is shown.
- b. The topographic signals shown on this sheet were located either by theodolite cuts from triangulation stations or by sextant angles and measured distances from nearby triangulation stations, with at least fourth order accuracy (see page one, D. R. of H-6156 (1936)). The data and computations are filed in cahier marked "Hydrographic Control" (HYDROGRAPHER, F. S. Borden, 1936-S1421).

Buoy signals were located by 3 point fixes on shore signals or by taut wire - sun azimuth positions, all data being filed in the above noted cahier.

4. Sounding Line Crossings.

Agreement of sounding line crossings is in general very good. A detailed comparison is given in the D. R. (pages 3 and 4).

The field party applied a correction of minus 0.5 feet to all hand lead soundings (see D.R., page 3, par. 2) to bring them into closer agreement with the Dorsey fathometer work. It is noted, however, that the Dorsey fathometer-lead line crossing comparisons are confined to depths of 21 feet or greater, the average being 27 feet and that the bottom on the present survey in depths of 18 feet or less is uniformly hard sand. In view of the hard character of the bottom and in the absence of any actual Dorsey fathometer-lead line crossing comparisons in depths of 18 feet or less, the minus 0.5 feet correction for catenary in line, tilt of lead on bottom and sinking of lead in soft bottom is considered negligible and has been omitted in office verification for 18 feet depths or less.

See par. 8 of verifier's report (included in des. report) which explains the rejected pencil soundings made the 18 foot curve which are of lesser depth than those noted.

5. Depth Curves.

The usual depth curves may be completely drawn.

6. Junction with Surveys.

- a. The junctions on the north with H-5537 (1934), on the east with H-6155 (1936) and on the south with H-6154 (1936) are excellent.
- b. The junction on the northwest, west and southwest with H-5955 (1935) is generally satisfactory, however, the 1935 hand lead depths vary one to two and occasionally three feet deeper than the present survey hand lead depths in some areas. In the vicinity of lat. 28°50' long. 91°03' the 1935 Dorsey fathometer depths vary one to two and occasionally three feet shaller than the present survey hand lead depths in some spots. No satisfactory reason for these differences could be adduced, but irregularities, in the bottom are noted in portions of H-5955 which may account for these apparent discrepancies.
- c. The junction on the north in the vicinity of long. 90°37' with H-5479 (1934) is only fair, a number of launch hand lead soundings on the 1934 survey varying one to four feet deeper than the present survey Dorsey fathometer depth of 23 to 26 feet. No definite reason for this discrepancy can be deduced but it is noted that agreement of crosslines on the 1934 survey is within but one to two feet whereas those on the present survey are excellent. It is further noted that the differences are probably due to excessive speed of the sounding launch during the 1934 survey resulting in inclined leadline or in catenary of the leadline. (For discussion, see D. R., page 11 of H-6157 (1936)). No soundings have been transferred in the common area. For charting purposes, the present survey depths should be used to their northern most limit.

7. Comparison with Prior Surveys.a. H-483 (1854-55).

This survey is on a very small scale of 1:200,000 and contains no information that needs consideration in this review. It should be superseded by the present survey in future charting.

b. H-360 (1853), H-1831 (1888-89), H-2014 (1889-90), H-2069 (1891) and H-2070 (1891).

These sparsely covered surveys are on scales of 1:80,000 except the first and last which are 1:20,000. Taken together these sheets cover the entire area of the present survey. A considerable portion of the 1853 survey is overlapped by some of the other surveys, the only portion charted being the shoal area just west of SHIP SHOAL LIGHT.

The general features in this area have persisted in shape and in depth, particularly in the deeper areas. Some changes, however, are noted in the shoaler areas. The shoal area in the vicinity of lat. 29°00' long. 91°10' has deepened one to two feet, the depth curves here (charted) having receded northward approximately 700 m. in some places. Portions of Ship Shoal show evidence of a northward shift, the depth curves (charted) in the vicinities of long. 90°58' and long. 91°05' being shown on the present survey approximately 250 to 1200 m. northward. These changes are more extensive on the northside as the depths here quickly change from 12 to 18 feet to 25 to 32 feet. A deepening of 1/2 to 2 feet and occasionally 3 feet is generally noted throughout the entire area of Ship Shoal. Among the more important shoal spots noted are:

- (1). The 11 foot spot (single 11 charted, Chart 198) in lat. 29°00' long. 91°09' originates with H-1831 (1888-89) and falls in depths of 14 to 16 feet on the present survey. The old survey shows two single 11 foot soundings obtained on different lines, one falling at each end of the shoal spot. Other soundings on the same lines indicate a bottom gradually deepening to depths of 14 or 15 feet. This feature is therefore of such extent that the two lines run directly over this shoal on the present survey could not fail to show evidence of it if it existed. The shoal spot has undoubtedly worn away and should be disregarded in future charting.
- (2) The two 5 foot soundings (charted, Chart 198) in lat. 28°55' long. 91°05' are representative least depths originating with H-360 (1853). The present survey shows depths of 10 to 11 feet here but numerous 9 foot depths approximately 650 m. northward indicating that the area has shifted and also deepened.

- (3). The 11 foot sounding (charted, Chart 198) originating with H-2014 (1889-90) in lat. $28^{\circ}55.3'$ long. $90^{\circ}55.7'$ falls between two sounding lines spaced 270 m. apart and in depths of 15 feet on the present survey. The 11 is one of four 11's obtained on line and is just outside the limit of visual fixes. The present survey development not being sufficiently close to indicate possible changes in depths and other surrounding soundings on both surveys being in good agreement, the 11 has been carried forward and should be retained in future charting.
- (4). The 18 foot sounding (charted, Chart 198) originating with H-2014 (1889-90) in lat. $28^{\circ}54.5'$ long. $90^{\circ}44.9'$ falls in depths of 21 feet on the present survey. The 18 is a single sounding on line which is just outside the limit of visual fixes. In view of the fact that nearby depths on both surveys agree within 1 foot and that the 18 falls just north of a "miss" recorded on line 1 to 2 aa, green on the present survey, it is possible that this shoal spot still exists. The 18 has been carried forward and should be retained in future charting.
- (5). The 30 foot sounding (5 fms. charted, Chart 197) in lat. $28^{\circ}59.5'$ long. $90^{\circ}32.9'$ falls in depths of 33 to 34 feet on the present survey. The 30 is a single sounding on line. Surrounding depths on both surveys indicate that the area has deepened 1 to 2 feet. The 30 should be disregarded in future charting.

Except as noted above, the closer development on the present survey should supersede these surveys in future charting.

8. Comparison with Charts No. 197 (New Print dated Oct. 7, 1936) and No. 198 (New Print dated July 30, 1936).

a. Hydrography.

Hydrography shown on the charts originates with surveys discussed in previous paragraphs of this review except that no authority could be found for the 14 foot sounding (Chart 198) in lat. $28^{\circ}52'$ long. $91^{\circ}05'$. It falls in depths of 19 to 20 feet on the present survey and is also shown on the First Edition of Chart 198 in 1894. This sounding is probably an incorrect charting of the depths shown on H-360 (1853) and should be expunged from the chart.

b. Aids to Navigation.

Aids located on the present survey agree closely with the charted positions except the "N" buoy in lat. $28^{\circ}57'$ long. $91^{\circ}04'$ which is located approximately 130 m. south of its charted position. The positions of all aids correctly mark the features intended.

9. Field Plotting.

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

10. Additional Field Work Recommended.

This is an excellent survey and no additional field work is required, however, when future work is done in this area, the shoal soundings carried forward from previous surveys and discussed in paragraphs 7b(3) and 7b(4) of this review should be examined and definite recommendations made regarding their retention on the charts.

11. Note to Compiler.

Attention is called to the following:

- a. Signal "OIL" (lat. 29°05' long. 90°40') is an oil-well derrick. It falls in open water on H-5479 (1934) and is not charted (Charts 198 and 1116).
- b. The treatment of junctions discussed in paragraph 6c of this review.

12. Superseded Prior Surveys.

Within the area covered, the present survey with the indicated additions from previous surveys supersedes the following surveys for charting purposes:

H-360	(1853)	In part
H-483	(1854-55)	"
H-1831	(1888-89)	"
H-2014	(1889-90)	"
H-2069	(1891)	"
H-2070	(1891)	"

13. Reviewed by Harold W. Murray, May 13, 1937.

Inspected by A. L. Shalowitz.

Examined and approved:

C. K. Green, *C. K. Green*
Chief, Section of Field Records.

L. O. Lobbut
Chief, Division of Charts.

Fred. R. Peacock
Chief, Section of Field Work.

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

Applied to Chart 1050 May 1937 New R. Bushy
Applied to chart 1275