

4335

Diag. Cht. No. 1007-A, 1116-A, 1279

4335

Form 504 DEPARTMENT OF COMMERCE U. S. COAST AND GEODETIC SURVEY
State: <u>Tex. & Louisiana</u>
11-5013
DESCRIPTIVE REPORT.
Hydrog. Sheet No. <u>4335</u>
LOCALITY:
<u>Gulf of Mexico</u>
<u>Approaches to Sabine Pass - Offshore</u>
1924
CHIEF OF PARTY:
<u>E. R. Hand</u> <u>F. S. Borden</u>

DIRECTOR _____
HYDROGRAPHIC _____
SALES _____
GEOD. DEPT. _____

JUN 14 11 16 AM '24

OFFICE _____
LIBRARY _____
WATERWAYS _____

DESCRIPTIVE REPORT
TO ACCOMPANY
HYDROGRAPHIC SHEET
NO. 4335

(Field No.1)

APPROACHES TO SABINE PASS
1923 - 1924

U. S. C. & G. S. SHIP BACHE

F. S. Borden, Comdg.

1. EXTENT

This sheet embraces the offshore area in the approaches to Sabine Pass from latitude 29-22 southward to the twenty five fathom curve and from longitude 93-12 westward to longitude 93-44. It joins recent offshore surveys of this vessel to the westward and recent inshore surveys of this vessel to the northward. No recent surveys have been made to the eastward.

2. SHOALS

Two shoals dangerous to navigation were found and developed in the this area. The more dangerous of the two lies 12.2 miles 143° true from Sabine Bank L. H. and has 26 feet of water over it at mean low water. After extensive development of this shoal with a flat sea, the lowest sounding obtained was a few tenths over 27 feet. The tidal reducer at this time was about .3 of a foot so that it is probable that 27 feet is the proper sounding to chart. The recorded sounding of 27 feet and a reducer of .3 foot reduces the sounding in the record to 26 feet. It is certain that on a low tide during a "norther" there is not more than 24 or 25 feet of water over it and as it lies in the direct track of vessels making the passage through Sabine Bank from the southeastward it is considered a very dangerous shoal. The bottom is hard sand and the shoalest part is very small in extent. In addition to the lines shown on the sheet in the vicinity of the shoal several other lines were run at very slow speed over the area, the leadsmen obtaining soundings as rapidly as possible. The soundings taken in this area were verified by the Chief of Party.

The second shoal, considered dangerous to deep draft vessels, lies approximately eight miles in an east south easterly direction from the shoal described above and has 32 feet of water over it at mean low water. This shoal as well as the one described above are lumps on a ridge extending out from Sabine Bank. In addition to the soundings shown on the sheet a good many lines were run over this shoal. A small boat was anchored on the shoal and the entire area was carefully covered using the small boat to control the position of the ship.

The five fathom shoal reported in latitude 29-17.5 and longitude 93-22.7 does not exist. In this locality there is nine fathoms of water. It is probable that the mariner making the report was on the shoal described above which lies 4 miles west southwest from his reported position.

3. CONTROL

Work was started on the sheet by Lieut. E. R. Hand. The method employed by him was the precise dead reckoning method. After having run several lines to the 25 fathom curve and having taken meridian altitude sights near the outer ends of the lines Lieut. Hand found large discrepancies between positions, as regards their distance offshore, between his astronomical sights and his dead

reckoning positions. He assumed that his log factor was incorrect and retested his logs. Contrary to expectations it was found that the log factor had not changed. When the vessel was transferred to me an attempt was made to determine the cause of the discrepancies. Buoys were planted to the twenty fathom curve and the position of each determined from the next inner buoy by a full speed run made in one direction followed immediately by a full speed run in the opposite direction. For the buoy location runs two logs were streamed and the compass read every 15 seconds. Using this method the position of the 25 fathom curve was found to be from two to six miles farther offshore than the precise dead reckoning method placed it. Moreover its distance offshore agreed very closely with the position as determined by meridian altitudes. As the buoy method of control proved much more satisfactory than the precise dead reckoning method it was used for all work shown on the sheet except for that done by Lieut. Hand.

In adjusting the work of Lieut. Hand which covers approximately one quarter of the sheet the twenty five fathom curve was drawn out to the twenty five fathom curve as determined by the buoy control method. After adjusting the lines to the twenty five fathom curve soundings were plotted on the lines and the ten fathom curve drawn. The short lines running to the ten fathom curve were then drawn out to correspond with the proper curves. While this method of adjusting was not very satisfactory it was the only method possible. Had the log loss, which caused the discrepancy been constant the adjustment would have been simple but it soon became apparent that the log loss was not constant and that it increased as the sounding speed of the vessel decreased.

4. MEMORANDUM FOR CARTOGRAPHER.

It is recommended that when soundings are selected from this sheet for the new chart that all soundings north of latitude 29-22, which is supposed to be the northern limit of the sheet be taken from the fixed position inshore hydrographic sheet, scale 1:40,000. The control is somewhat more accurate on the inshore sheet since the positions of the buoys were to a large extent actually computed from three point fixes thus eliminating the error due to distortion of the sheet. The lines on the inshore sheet are spaced 600 meters apart and extend out to latitude 29-22, and the entire area north of 29-22 will be found to be sufficiently developed without using any soundings from this sheet. *The inshore sheet will be forwarded in the near future.*

Respectfully submitted,
Frank S. Borden.

Frank S. Borden.

STATISTICS SHEET NO. 1.

4335

Date. 1923	Letter	Volume	Positions	Soundings	Stat. Miles	Boat
Mar. 13	A	1	24	1014	115.0	Ship.
Mar. 23	B	1-2	24	1195	112.0	"
Mar. 27	C	2	4	274	22.4	"
Apr. 4	D	2	4	282	22.8	"
Apr. 5	E	2	10	405	37.0	"
Apr. 5	F	2-3	6	330	26.0	"
Apr. 5	G	3	10	316	26.8	"
Apr. 6	H	3	7	286	20.0	"
Apr. 6	J	3	7	263	18.7	"
Apr. 12	L	4	12	322	31.5	"
Apr. 13	M	4	14	414	32.0	"
Apr. 24	N	4-5	29	1110	107.0	"
May. 8	P	5	175	849	68.0	Launch Ship
TOTAL:			326	7060	639.2	

Date	Letter	Volume	Positions	Soundings	Miles statute	Vessels.
Nov.						
13	Q	6	29	344	25.4	Ship
14	R	6	65	742	67.0	"
15	S	6	26	634	37.0	"
16	T	7	51	587	52.0	"
20	U	7	5	171	12.8	"
21	V	7	19	350	48.0	"
22	W	7	33	628	59.0	"
23	X	8	41	689	67.0	"
Dec.						
3	Y	8	24	317	31.0	"
4	Z	8	7	121	11.2	"
5	A'	8	13	122	9.2	"
6	B'	8	41	309	55.0	"
7	C'	9	37	221	53.0	"
17	D'	9	22	272	40.0	"
18	E'	9	15	304	24.4	"
20	F'	9	3	211	15.4	"
21	G'	9	34	659	44.5	"
21	G'	10	8	218	15.5	"
26	H'	10	26	433	30.0	"
27	J'	10	55	907	62.2	"
28	K'	10	18	266	19.2	"
28	K'	11			7.4	"
Jan.						
8	L'	11	18	328	37.6	"
9	M'	11	32	440	50.0	"
16	N'	11	24	332	42.0	"
17	P'	11	31	312	40.1	"
22	Q'	11	18	128	12.0	"
25	R'	12	14	193	32.0	"
28	S'	12	9	169	16.5	"
29	T'	12	17	303	38.8	"
30	U'	12	26	461	70.5	"
31	V'	12	14	112	44.0	"
Feb.						
1	W'	12	13	46	22.0	"
1	W'	13	20	120	30.0	"
13	X'	13	28	136	56.0	"
14	Y'	13	36	163	54.0	"
15	Z'	13	23	120	23.0	"
20	Buoys					
27	A''	13	19	581	40.2	"
28	B''	13	7	88	6.5	"
29	C''	14	47	907	69.0	"

HYDROGRAPHIC STATISTICS SHEET NO. 1 Cont.

Field No.

Date	Letter	Volume	Positions	Soundings	Miles Statute	Vessel.
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Mar.

3	D ¹	14	9	127	8.5	Ship
3	D ²	15	15	175	14.9	"
5	E ¹	15	30	254	16.0	"
7	F ¹	15	36	292	13.7	"

Total	Capt. F.S.Borden :	1117		15098	1789.8	
Total	Capt. E.R.Hand :	326		7060	639.2	
Grand Total:		1443		22158	2429.0	

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
15 volumes of sounding records for

HYDROGRAPHIC SHEET 4335

Locality: Approaches to Sabine Pass, Texas and Louisiana.

Chief of Party: E.R. Hand and F.S. Borden in 1923 - 24.

Plane of reference is mean low water reading

2.8 ft. on tide staff at U.S. Coast Guard Station at Sabine

2.9 ft. on auto gauge at Galveston.

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



Chief, Division of Tides and Currents.

Report on Inking and Verifying H. 4335 (Offshore)

The positions on this sheet were not verified with the exception of a few in Captain Borden's part.

The intermediate spacing of soundings, however, was completely verified.

The shoal soundings at the end of "T day" were not plotted as there are no positions for them but there are shoaler soundings obtained on "P day".

There is an evident error in log distance between "11-12A" where the distance is much shorter than for others of the same elapsed time. This may indicate that fouling of the log may have caused the error in Captain Hand's work which had to be arbitrarily adjusted.

Two shoal spots are shown on a scale of 1/40,000. On subplan No. 1 a least depth of 26 feet was found. This was enlarged in the office from the smooth sheet by photostat, the positions were transferred to the enlargement and the soundings replotted.

The radial lines on subplan No. 2 were plotted in the office to verify a line of shoal soundings on "21-22 A day". This development failed to corroborate the existence of the shoal soundings, and the failure to check them may be due to either of the following:

1. The shoal soundings are incorrect.
2. "A day" line is out of position.
3. "P day" development is out of position.

The field drafting and plotting of soundings were well done. The records are excellent.

F. M. Albert

F. M. Albert, Draftsman
Section of Field Records

October 6, 1924.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

WASHINGTON

October 10, 1924.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4335

Approaches to Sabine Pass, Texas

Surveyed in 1923-'24.

Instructions dated October 12, 1922, July 27, 1923, October 9, 1923.

Chiefs of Party, E. R. Hand and F. S. Borden.

Surveyed by party of Steamer BACHE.

Protracted by F. Lerner and L. C. Wilder.

Soundings plotted by L. C. Wilder.

Verified and inked by F. M. Albert.

1. The records conform to the requirements of the General Instructions.
2. The plan and character of development conform to the requirements of the General Instructions.
3. The plan and extent of development satisfy the specific instructions.
4. The sounding line crossings are, in general, adequate.
5. The information is sufficient for drawing the usual depth curves.
6. The field plotting was completed to the extent prescribed in the General Instructions. In the office verification the ship's positions as plotted by the field party were accepted.
7. Two shoal spots were questioned (but not rejected) in the sounding records. These are 64 feet near position 21 N, and 58 feet at position 34P.

A series of consecutive soundings including a length of 5 miles on the line 21 to 22A were so much shoaler than the adjacent parallel lines that an extensive development was made on P day to check them.

Although each of these doubtful shoal spots is the least water within about five miles of its location, the field party did not make a final decision as to whether they should be retained or rejected.

In cases like these, where it is known that the office does not possess any information bearing upon them, whereas the field party often has special knowledge of pertinent facts (such as weather conditions or character and ability of personnel), the field party should take final action.

8. The buoy method for control of offshore surveying, as developed by Capt. Borden, shows such superiority to former methods that it should be used wherever the depths permit anchoring the buoys.
9. No further surveying is required within the limits of the sheet.
10. The character and scope of the surveying and field drafting are excellent.
11. Reviewed by E. P. Ellis, October, 1924.
12. The junctions with adjoining surveys are satisfactory.

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.

U. S. Coast and Geodetic Survey.
Field Sheet No. 1. **4335**
Register No. _____

State . Texas and Louisiana

General locality . Gulf of Mexico

Locality . Approaches to Sabine Pass.-Offshore
Eoline R. Hand

Chief of party . Frank S. Borden

Surveyed by Eoline R. Hand and Frank S. Borden, W.D. Patterson, G.C. Jones,
L.O. Stewart, L.C. Wilder, W. Weidlich.

Date of survey . March 1923 to March 1924.

Scale 1 : 80,000

Soundings in . Feet

Plane of reference . Mean Low Water
Frank Lerner

Protracted by L.C. Wilder . Soundings in pencil by L.C. Wilder

Inked by F.M. Albert Verified by ^{Positions not verified}
_{Spacing of soundings verified}

Records accompanying sheet (check those forwarded):

1 Des. report, 2 Tide books, 1 ^{cahier tidal curves} Marigrams, 1 Boat sheets,
15 Sounding books, 2 ^{Current} Wire-log books, 1 cahier P.D.R. Abstracts
~~Data from other sources affecting sheet~~ Photographs.

1 cahier Hourly Tide Records at Galveston

1 Position Abstract Book. 1 Vol Bouy Location Runs.

1 List of Statistics.

Remarks: