

4213

Diag. Chart No. 1275-B

Form 504
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

State: *Louisiana*

11-5013

DESCRIPTIVE REPORT.

Hyd. Sheet No. **4213**

LOCALITY:

*Mississippi Delta -
Off Southwest Pass
and South Pass*

1921 - 22

CHIEF OF PARTY:

F. B. Sims A. S. Borden

4213

DESCRIPTIVE REPORT
TO ACCOMPANY
HYDROGRAPHIC SHEET B.
PRECISE DEAD RECKONING
OFF
THE MISSISSIPPI PASSES
LOUISIANA
1921 - 1922
U. S. S. HYDROGRAPHER

F.B.T. Siems

F. S. Borden

Commanding.

H 4213

Descriptive Report
to accompany
Hydrographic Sheet B (uncompleted)
F.B.T. Siems, Chief of Party.

Limits: The work covered by this report extends from longitude 89°-17' and longitude 89°-35' between the 50 and 100 fathom curve off Southwest Pass.

Results of the Survey: The area under consideration includes the greater part of the toe of the bar near the 100 fathom curve formed by the sediment brought down by Southwest Pass. Along a line extending south between South Pass and Southwest Pass the slope of the bottom from the 20 to 100 fathom curve is quite regular. There is a gradual widening of the distances between 50, 60 and 70 fathom curves, upon approaching a line approximately S.S.W. from Southwest Pass. Out from the 70 fathom curve S.S.W. from Southwest Pass there is an abrupt slope, which apparently marks the limits of the continental shelf. A bank of 32 fathoms consisting of small loose coral rock was found near the toe of bar between the 60 and 70 fathom curves. The rest of the area surveyed consists of mud or clay bottom.

Currents observed in connection with dead reckoning were found to be variable, generally of considerable strength, and seem to be influenced mainly by wind. On account of the variable currents further inshore, buoys located from shore objects were planted along the fifty fathom curve to which the ends of dead reckoning lines were fixed.

All soundings are up and down casts, and measured by registering sheave.

Respectfully submitted

F.B.T. Siems
F.B.T. Siems.

December 3, 1921.

H-4213

SUPPLEMENTAL DESCRIPTIVE

REPORT

TO ACCOMPANY

HYDROGRAPHIC SHEET B.

F.S. Borden,
Chief of Party.

EXTENT.

This report covers a portion of the offshore precise dead reckoning hydrography executed by the party on the Steamer Hydrographer and is supplemental to the report of F.B.T. Siems, by whom the work was started. The area covered by this sheet extends from longitude $89^{\circ}-40$, eastward to approximate longitude $89^{\circ}-05$. It adjoins the work on the inshore sheet (Sheet A) to the northward and the work of H. A. Seran, 1917 to the eastward. No recent work has been done to the westward. In general the sounding lines were carried out to the 100 fathom curve but in connection with the search for reported banks off South Pass the work was extended out to the 250 fathom curve at the east end of the work.

REPORTED BANK.

Within the area covered by the sheet were several reported shoals. A bank with 34 fathoms of water on it was found in latitude $28^{\circ}-38$, longitude $89^{\circ}-33$. A report of this bank was made by F.B.T. Siems. Other banks searched for in this locality were not found. A bank with 36 fathoms on it was reported in latitude $28^{\circ}-45$, longitude $89^{\circ}-07$ by Captain Helesham of the British S.S. Lutetian. This bank was searched for but no indications of it could be found, the depth at the reported position being 230 fathoms.

SURVEY METHODS.

On account of the very strong and variable currents off the Passes, additional means other than those ordinarily used in precise dead reckoning were employed to control the sounding lines. In some cases buoys were dropped approximately every two miles on the line running offshore. This line of buoys by back bearings controlled the azimuth of the line. On the return line, two miles to the eastward, the buoys not only controlled the azimuth of the line but by sufficient bearings to the buoys and to the fixed position at the inner end it was possible to actually locate the buoys. This method was used on "J" Day. For lines on "K" and "L" days buoys were planted as far out as a shore fix could be obtained and lines run on range with these buoys and South Pass Lt. House, the position of the vessel being obtained by a resection on the tall southeast wireless tower at Southwest Pass. In this way it was possible to obtain fixed positions to the 100 fathom curve. When the line had been carried as far as possible by this method and just before the fix was lost due to So. Pass Light House going under the horizon a second buoy was dropped and located. This buoy was then used as a point

of departure for dead reckoning lines run in search of the reported shoal mentioned above.

As the Hydrographer is not equipped with a means of anchoring in deep water for current observations it has been customary in the past when the vessel has been engaged on this class of work to drop a small boat at a temporary buoy to make current observations. This method was tried but the current was so strong at the buoy that the small boat could not be held in position to obtain satisfactory current observations. Thereafter currents were measured by dropping a float at the buoy and allowing it to drift with the current for several minutes. The ship then ran alongside the float, observed the direction of set and measured the vertical angle between the horizon and the buoy. Knowing the exact height of eye as a base the velocity of the current was computed. This method was checked by using a different period of time and the velocity computed checked to the nearest tenth of a knot. (SEE PAGE 2 (VOL. 3 SOUNDING RECORD). It is my opinion that this method is far superior to the ordinary method of observing currents for precise dead reckoning. It cannot however be used at night. On "M" day this method was used exclusively. The measured currents averaged over 1.5 knots, the line was 37 miles long and consumed 6 hours in running it. The total set during this period was over 9 nautical miles and yet the closing error on the return to fixed position was only one mile.

All sounding were made with steam sounding machine and are vertical casts. The surface current differs considerably from the subsurface current which makes it difficult to obtain vertical casts. The slope of the wire was measured with a quadrant and corrections for slant applied. It is not believed that the full correction for a certain angle slant should be applied as it is improbable that the wire has the same degree of slant throughout its length. However as no definite conclusions could be arrived at as to what proportion of the slant to correct for the soundings have been reduced for the full amount.

The day after work had been completed on the sheet the ship was swung. Deviations found agreed on all headings within a few minutes of those obtained from the previous swing. On the same day the log was tested using precisely the same method as regards intervals between stops, etc as had been used on the sounding line. The factor obtained agreed very closely with the factor previously obtained. The method used in testing the log was as follows:

A line five miles in length was run on a sensitive range. The Position at each end of the line was strongly determined and the line was run in the direction in which the current was setting and then back on the same range. The log was read at each end of each run and also at each stop for sounding (vessel was stopped after each 10 minutes of run to assimilate Sounding Conditions).

The Computation of log factor was as follows:

Elapsed time running out	37 minutes.
" " " in	49 "

Log distance out	3.81
Log distance in	5.50
Actual distance out	4.88
Actual distance in	4.94

Let X Average set of current during run
Let Y Log factor.

$$3.81 Y + \frac{37}{60} x = 4.88$$

$$5.50 Y - \frac{49}{60} x = 4.94$$

Solving for Y
 $Y = 1.08$

CONCLUSION.

Attached hereto is the original descriptive report written by Captain Siems, and total of statistics covering all work on this sheet.

Respectfully Submitted,



Frank S. Borden.

Statistics of Hydrography
 to accompany
 Descriptive Report
 Sheet "B" (Field Letter)
 Southwest Pass to South Pass
 Louisiana.

Ship Hydrography, Vicinity Southwest Pass and South Pass, Miss. Delta.

SHEET "B"

Date	Letter	Vol.	Positions	Sndgs.	Miles	Boat	Remarks
Oct. 11, 1921.	A	1	11	6	12.0	Ship	Wire Sndgs.
" 28, "	B	1	18	18	30.0	"	" "
Nov. 1, "	C	1	17	13	32.0	"	" "
" 2, "	D	1	23	18	34.0	"	" "
" 3, "	E	1	24	22	12.5	"	" "
" 8, "	F	1	15	14	31.0	"	" "
" 16, "	G	1	17	15	11.5	"	" "
" 29, "	H	2	40	36	15.1	"	" "
Apr. 22, 1922.	J	3	20	20	20.7	"	" "
" 29, "	K	3	17	17	15.8	"	" "
May 16, "	L	3	30	30	23.0	"	" "
June 2, "	M	3	27	24	37.6	"	" "
Total Wire Soundings			259	233	275.2		

E.A.X.

COPY TO FIELD RECORDS

41/VFB

July 26, 1922.

Division of Hydrography and Topography:

Division of Charts:

On account of the depth of soundings, which are usually greater than 40 fathoms, and the mean range of the tide being less than one per cent of the depths, no reduction was considered necessary in three volumes of sounding records for

HYDROGRAPHIC SHEET 4213

Between Southwest Pass and South Pass, Louisiana.

F. B. T. Sims in 1921 and F. S. Borden in 1922.

Condition of records, satisfactory.



Chief, Division of Tides and Currents.

Report on Verification and Inking #. 4213.

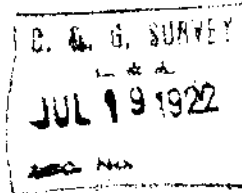
This sheet is principally dead-reckoning work. In accordance with the custom in this section the plotted positions of the dead-reckoning were not verified.

The field drafting was excellent. The sheet and records showed evidence of care and judgment in the work.

A short line (32-40H) was not plotted in the field but in the office.

Frank M. Albert
Draftsman, Section of Field Records.

Aug. 16, 1922.



Memorandum to Accompany Precise Dead
Reckoning Abstract.

4213

Abstract for H day was forwarded
to Washington with records of sheet A by
mistake.

The abstract in question should be
attached to this cahier as it forms a part
of the records of B sheet.

Frank S. Borden,
Chief of Party.

4213

ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY

AND REFER TO NO. 4-DRM

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
WASHINGTON

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4213

Surveyed in 1921-22

Instructions dated Jan. 19, 1921 and May 3, 1922.

Chiefs of Party, F. B. T. Siems and F. S. Borden

Surveyed by party of Str. Hydrographer

Protracted and soundings plotted by A. R. Jessup.

Verified and inked by F. M. Albert.

1. The records conform to the requirements of the General Instructions, but the dead reckoning abstracts of the 1922 work have several omissions. No allowance was made for transfer by either party nor was allowance made for log loss on J to M days, nor was the number of the log given for those days. Siems used the log factor for Full Speed when he should have used Full and Stop. Borden very properly used Full and Stop, but his failure to note the number of the log that was used makes it impossible to compare the two log factors.
2. The character of development fulfills the requirements of the General Instructions and the plan and extent satisfy the specific instructions.
3. The sounding line crossings are adequate.
4. The information is sufficient to permit the usual depth curves to be drawn.
5. The field plotting was completed to the extent prescribed in the General Instructions, the only omission being the failure to ink the position numbers and day letters. The office draftsman did not have to do over any part of the work done by the field draftsman.

6. The information regarding methods of dead reckoning surveying given by Capt. Borden in his descriptive report is a valuable contribution to our knowledge of this branch of hydrographic surveying.
7. No further surveying is required within the limits of the sheet.
8. The surveying is excellent and the field drafting is good.
9. Reviewed by E. P. Ellis, November, 1922.

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.

Register No. 4213 (*Field Letter "B"*)

State . . . Louisiana

General locality . . . Mississippi Delta

Locality . . . ~~Between~~ ^{off} Southwest Pass and South Pass

Chief of party . . F. B. T. Siems - F. S. Borden

Surveyed by . . . F. B. T. Siems - F. S. Borden

Date of survey . . October 11, 1921 to June 2, 1922.

Scale . . . 1:80,000.

Soundings in . . . fathoms

Plane of reference Mean Low Water.

Plotted

~~Plotted~~ by A. R. J. . . Soundings in pencil by A. R. J. . .

Inked by . . . ?? Verified by . . ??

Records accompanying sheet (check those forwarded):

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

Sounding books, Smooth Sheet, Photographs. *1 Computations for Deviation*

Data from other sources affecting sheet

Remarks: