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Form 504

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

....., Director

State: Louisiana

DESCRIPTIVE REPORT

Topographic | Sheet No. **4656**
Hydrographic

LOCALITY

S. W. Coast of Louisiana

Southeast of Sabine Bank

1927

CHIEF OF PARTY

O. W. Swainson

GOVERNMENT PRINTING OFFICE

C. & G. SURVEY
L. & A.
JUL 9 1927
Acc. No.

DESCRIPTIVE REPORT

HYDROGRAPHIC EXAMINATION

SE OF SABINE BANK

O. W. SWAINSON
CHIEF OF PARTY

JUNE 1927.

Report on Hydrographic Examination Off Sabine Bank.

In accordance with orders dated June 18, 1927, to investigate certain reported soundings off Sabine Pass, Texas, I left Washington June 18, arriving at Beaumont June 20. I immediately made arrangements to have my instruments forwarded from Sabine to Beaumont and then called on Captain Larsen on the Lighthouse tender SUNFLOWER, who had been instructed to place his vessel at my disposal. An investigation of the vessel's equipment revealed that it had no pelorids, no chronometer and no sounding machine. All the other necessary instruments and equipment had been sent from Washington.

The evening of the 20th Lieutenant H. A. Karo and two former members of the crew of the BACHE reported to me aboard the SUNFLOWER.

The SUNFLOWER got under way at five A. M. the 21st.

Azimuth sights were taken on the sun on various courses during the run from Beaumont to Sabine.

Determination of Log Factors. - The ship's log and a Coast Survey log were streamed as soon as the vessel was clear of the buoys at the entrance to the Pass. A course was selected parallel to the beach just east of the jetty where the current would be at a minimum and the vessel put on this course at sounding speed of four knots. After the logs started operating smoothly, a position was taken with sextant angles on Sabine Light, front range beacon, and the entrance light, and the logs read. After running about a mile another position was taken and the logs read again. The vessel then steamed at the same speed back over the same course and the logs read between sextant positions obtained as before and giving the approximate same distance. The average log factor obtained from the two runs was thus free from current effects. The first distance run was 1.11 miles and the ship's log gave 0.99 and the C. S. log 1.0 miles. On the back run the distance was 1.10 miles and the logs 0.99 and 1.02 respectively. Therefore, a factor of 1.1 was taken for both logs for this speed.

The vessel then ran full speed toward Sabine Bank Lighthouse, a position being taken and the logs read at the beginning of the run and when abeam the light. Considerable current was encountered. The plotted courses for this run gave the position of the ship $1\frac{1}{2}$ miles west of the actual position when abeam the light. It was impossible, therefore, to determine the actual log error, but judging from the direction of the current flowing past the buoys, the distance made good was about 12.5 and the logs showed 11.5 or approximately one and one-tenth of the log distance equaled true distance. At the close of the work on June 23, No current was encountered on the run from the Sabine Bank Lighthouse to the flashing buoy off the end of the jetty. On the true distance of 9.9 miles, the logs read 9.0.

Therefore, the log factor for both logs at sounding speed and full speed was taken at 1.1.

The logs agreed with each other remarkably well throughout the work.

On the run to the point at which to begin sounding the course was set 4° to the south of that desired to make good. This was to offset the NE leg set as observed at the buoys and the run from the jetty to the Sabine Bank Light.

A black can buoy was dropped to mark the place of beginning of the sounding line.

Sounding began at 7:00 P. M. A metal core Coast Survey lead line was used. The speed of the SUNFLOWER was regulated so as to proceed as rapidly as possible and yet allow accurate up and down casts to be obtained. The speed was from 6 knots in 11 fathoms to $3\frac{1}{2}$ in 18 fathoms. Soundings were taken every 2 minutes.

The leadsmen were both experienced. Their sounding was closely watched by either Lieutenant Karo or myself. Any unusual sounding was immediately checked.

The outer end of the line was reached at four A. M. No buoy was dropped here as the water was too deep and it was feared that much difficulty would be experienced in recovering it at the end of a line, especially if the sea became any rougher or the weather rainy as the indications pointed they might. Cloudiness prevented star sights.

Three miles were run SW and a new line of soundings started NW parallel to the first.

The inner or northern end of the second line was reached at 1:30 P. M. June 22. The marker buoy had not been sighted, so three miles were run NE and then turned SE to run out to the 12 fathom curve, at which depth the buoy had been dropped. When the 12 fathom curve had been reached, the vessel was headed eastward and this curve followed. After running 15 miles and not seeing the buoy, the SUNFLOWER was headed in the direction of the flashing lighted buoy. This was picked up and passed only 1.4 miles from the dead reckoning course and 1.5 miles from the distance by log.

A departure was taken from the lighted buoy and the vessel run to a point $3\frac{1}{2}$ miles eastward of the point where the marker buoy had been dropped. A line of soundings was then run parallel and $3\frac{1}{2}$ miles from the first.

At the outer end of the line the ship ran 6 miles SW and a new sounding line started NW nearly parallel to the others. It was thought that the vessel might be too far to the westward so the course was laid slightly eastward in order to converge on the others.

At 12:20 P.M. on June 23 the buoy marking the beginning of the first line was sighted nearly ahead. The buoy was passed 400 meters on the starboard beam. This was one-half mile off the dead reckoning line and 3-3/4 miles ahead of the D.R. position.

As I had used the SUNFLOWER three days and the Captain was very anxious to start on his regular work, although he offered to continue sounding until I was satisfied, the buoy was taken aboard and a full speed line run to Sabine Bank Light.

A full speed line was run from Sabine Light to the jetty to get a better determination of the full speed log factor. There was no noticeable current during this run.

Courses steered . The compass was checked on all main directions steered by careful observations on the sun from time to time. The maximum difference in the compass error obtained by these observations and that shown by the ship's deviation card was 3 degrees.

In the cases where allowance was made for drift the amount for the allowance was estimated by watching the drift of the vessel when putting out and taking in the marker buoy, by noticing the drift when headway was taken off and the lead rested on the seabottom, by wind observations, and by the current past the buoys.

Adjustment of lines. The two dead reckoning positions of the marker buoy determined by the run to it and from it differed 2.5 miles. The two positions of it as actually steered and logged 0.7 mile. The average of the former two differed from the average of the latter two by 1 mile. A mean of the four was taken as the position of the buoy.

Due to the many changes in course from 29B to 36B the adjusted position of soundings from 25B to 35B is not as reliable as the rest of the work. It is thought that these positions may be in error as much as one mile.

The third and fourth lines were adjusted from the beginning of the line to the end of the run in accordance with the closing error on the marker buoy, and should not be in error more than 1/2 mile.

Conclusion. A line of soundings was run over the reported soundings or within 1/2 mile of them. Another was run 3-1/2 miles eastward of them, and a line 3 miles west at the southern end and 1/2 mile west at the northern end. The bottom was found uniform with no indication of shoals excepted as noted below. The maximum variation from an even slope was one fathom- the soundings changed from 13-1/2 to 12-1/2 over an area a mile wide in a SE and NW direction at latitude 28 57', longitude 92 50

A 1-1/2 fathom shoaling near the marker buoy was obtained.

Captain Larsen and the officers and men of the Lighthouse Tender
SUNFLOWER gave me all the assistance in their power. They carried
out my slightest wishes in the most willing and courteous manner.

Respectfully submitted,

A handwritten signature in cursive script, reading "O.W. Swainson". The signature is written in dark ink and is positioned below the typed name.

O.W. Swainson,
H. & G. Engineer,
U.S. Coast and Geodetic Survey.

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This work consists of several lines run to investigate certain reported soundings. They have been plotted on a copy of Chart No 1116, which will serve as a smooth sheet.

The lines are run entirely by dead reckoning and are tied up to Sabine Light and the whistle buoy. The methods used are fully described in the descriptive report.

An independent plotting of the dead reckoning lines was done in the office. This checked up the field plotting of "C" day perfectly and did not differ but a little on "A" and "B" days. The field plotting was therefore accepted.

Out of a total number of seven hundred and thirty seven soundings taken, less than twenty per cent have been plotted. With the exception of the nine and one half fathom sounding between pos. 24 B and pos 25 B, the soundings do not develop any marked shoaling.

R. L. Johnston

AND REFER TO No. 11-DRM

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

WASHINGTON December 1, 1927.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4656

Southeast of Sabine Bank, Louisiana

Surveyed in 1927

Chief of Party, O. W. Swainson.

Surveyed, protracted, and soundings plotted and inked by O. W. S.

Verified by R. L. Johnston.

1. The records, as well as the plan and character of development, fulfill the requirements of the General Instructions.
2. The specific instructions are not available.
3. The purpose of this examination was to check the correctness of several shoal soundings reported by the Hydrographic Office.
4. The control of the examination is by dead reckoning and is subject to the doubt as to absolute accuracy that is inherent to this method. However, in view of the unusual precautions exercised, the work may be considered as substantially correct in position, and absolutely accurate as to depths, which were sounded by experienced leadsmen, under the observation at all times of one of the officers.
5. While the sounding lines do not pass, in all cases, exactly over the locations of the reported shoals, there is no doubt that the examination clearly disproved their existence in the reported locations, and that the chart as published correctly represents the area in question.
6. No further surveying is required.
7. The character of the surveying and field plotting is excellent, and the scope is sufficient.
8. Reviewed by E. P. Ellis, November, 1927.

Approved:

Chief, Section of Field Records (Charts)

Chief, Section of Field Work (H. & T.)

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. 4656

HYDROGRAPHIC TITLE SHEET

Prepared in Office - F.R.

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. _____

REGISTER NO. **4656**

State Louisiana

General locality S.W. Coast of Louisiana

Locality Southeast of Sabine Bank

Scale 459000 approx. Date of survey June 21-24, 1927

Vessel _____

Chief of Party O.W. Swainson

Surveyed by O.W.S.

Protracted by _____

Soundings penciled by _____

Soundings in fathoms ~~feet~~

Plane of reference _____

Subdivision of wire dragged areas by _____

Inked by _____

Verified by R. L. L.

Instructions dated July 18, 1927

Remarks: _____