3926

Diag. Cht. No. 1239-2 & 1240-2

Department of Commerce and Labor
COAST AND GEODETIC SURVEY

Superintendent.

State: S. C.

DESCRIPTIVE REPORT.

Sheet No. 3926

LOCALITY:

Charleston S. C
to Martins
Industry Light
Vessel

1906

CHIEF OF PARTY:

T. T. Rude

B

3926

D E S C R I P T I V E R E P O R T

to accompany

INSHORE HYDROGRAPHIC SHEET No. 3926

COAST OF SOUTH CAROLINA
Charleston, S.C., to Martins Industry Light Vessel

December 1, 1915 to May 25, 1916

U.S.C.& G.S.Steamer ISIS GILBERT T. RUDE, Commanding.

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Instructions:

Instructions for this work were issued to Capt. R.F.Luce on November 10, 1915 and orders to me on November 23, 1915 to relieve him of the command of the ISIS.

Area:

The area of hydrography covered on this sheet is included roughly within a line running in a southeast direction 30 miles offshore from Charleston Light Houseldown the coast to alline running in a southeast difection from Martins Industry Light Vessel, extending 35 miles offshore. The inshore limit of the hydrography is just outside the three-fathom curve.

Signals:

The high signals for this work were built along the coast by several different parties.

Mr. O.B.French built and located signals Folly and Bass; Mr. Joachims Ponds, which was located by sextant cuts from the ISIS, Brook, Ton and Point; the party in charge of Capt. F.G.Engle, Surf, Sand, Hilton and Deer.

The following are artificial objects, the positions of which were furnished from the office: Ferris Wheel, Fort Capron Water Tank (Cap), Charleston Lighthouse, Hunting Island Lighthouse, Hilton Head Rear Range and Tybee Lighthouse. Signal House is a large, light colored house and Signal Tree a prom-

inent tree on a point, both located by sextant cuts from the ISIS.

For offshore signals Charleston Light Vessel and Martins Industry Light Vessel were located by sextant cuts from the ISIS.

In addition to these four first class bell and two first class whistle buoys were loaned to the party by the Lighthouse Inspector at Charleston. These were located by sextant cuts from the ISIS and were shifted from time to time, as required, by the Lighthouse Tender CYPRESS.

Method and Instruments:

It has been found that the small hydrographic sextant, with small telescope, has too short a range of vision for this class of work, so navigating sextants are employed for the angle work.

Sounding was done with ordinary hand lead on the fixed position work and with trolley on the dead reckoning. The soundings are spaced every 30 seconds to two minutes, depending on the depth, at a speed of about 4½ knots.

The current observations for plotting the dead reckoning work were made every two hours when on a sounding line. The vessel was anchored with her own ground tackle and observations made with a submerged current pole and a line graduated for a 30 second glass. However, instead of a sand glass a stop watch was found to be not only more accurate but more convenient. The direction of the current was obtained with the ship's pelorus mounted on the wheel box on the quarter deck. The pelorus readings were referred to the quarter deck compass.

On the dead reckoning work the position of the vessel for each anchorage was corrected for an estimated leeway of one tenth mile for a ten knot wind, fifteen hundredths for a fifteen mile wind, etc., also for a set and drift of current, the resultant of the observations observed at that anchorage and the preceding. All winds recorded are estimated as the ISIS was not equipped

with an anemometer.

The spacing of the general system of lines was in accordance with instructions issued to my predecessor, Captain R.F.Luce, -- a system of lines one mile apart out to the generalized 10-fathom curve, these lines to be split to one half mile in the vicinity of an entrance to a harbor; from the ten fathomcurve to the outer edge of the sheet the lines were spaced two miles apart.

Over the broken area inside the line of buoys and between Port Royal Sound and Charleston Harbor the lines were spaced one-half mile apart and these crossed by a system of lines two tenths mile apart and at an angle of forty-five degrees to the main lines. The cross lines were run in this direction in order to run along the axis of the shoals and secure the largest number of soundings on the shoal.

The shoalest sounding made was 27 feet, about one mile inshore from Survey Buoy I. A flag buoy was dropped on this shoal and the vessel manouvered around the spot for the shoalest sounding. In addition to this a close system of lines was run over the shoal.

On account of continued hazy weather during the first part of the season no position work was possible outside the line of buoys till late in the season towards the south end of the sheet. At this time, the latter part of April and in May, the weather cleared, so fixed position lines were run well outside the buoys.

On a number of the dead reckoning lines where crossings were obtained, the soundings agree very well, while in a few cases the crossings differ by a fathom. It would appear, from a study of the soundings and the time that leadsmen were changed, that one of the leadsmen read his line at times one fathom in error. This was easily possible, as all this dead reckoning work

was done during the night time. It would be impossible for the officer on watch to detect this error unless he remained in the sounding chair with the leadsman. In the selection of the correct soundings in these cases it it is thought to be advisable to give Quartermaster Pittman the least weight.

Tide Gauge:

A plain staff gauge at Fort Sumter was connected with the bench marks of the Army Engineers and tides observed by the Fort Sumter Light keeper.

Log Tests and Ship Swings:

For the dead reckoning work tests were made over a two mile course twice during the season to standardize the logs. For these tests three barrel buoys, one at each end and one in the middle of the course, were accurately located by sextant angles to shore objects and their positions plotted on a large scale projection. The vessel was run in each direction several times at different speeds and corrections computed for each speed.

The ship was swung for deviation of compass four times during the season to secure accurate corrections for the courses on the dead reckoning lines.

Plotting:

The greater part of the fair sheet, both fixed position and dead reckoning work, was plotted by Mr. T.J.Shack, Aid, on the ISIS. The soundings are plotted in feet.

The tide reducers were entered in the records and the soundings reduced in the Washington Office.

Respectfully submitted?

Gilbert D. Rude.

Assistant, C & G Survey,
Chief of Party.

D E S C R I P T I V E R E P O R T

to accompany

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Respectfully submitted;

Gilbert D. Rude.

Assistant, C & G Survey,
Chief of Party.

VEC
Mar.22,1917

P.S
R&H
HOB

HYDROGRAPHIC SHEET 3926.

Coast of South Carolina, by party of Assistant G. T. Rude in 1915 - 1916.

TIDES.

	Fort Sumter Feet.
Mean low water, or plane of reference on staff	3.1
Mean range of tide	5.0

Allowance was made for difference in tide off shore.

2 sheets.
Sheet 1

Hydrographic Sheet 3926.

Plotted by Field Party. Verified and inked by H.S. Rappleye and S.L. Rosenberg.

From the shoreline to a short distance beyond the limits of the buoys, the work is controlled by sextant angles. The protracting of the positions was done by the Field Party and was accepted as correct, except where an error appeared probable when the position was checked and corrected if found to be wrong.

The offshore work was carefully verified. The plotting of the compass course, the log distance and the correction for currents and winds, and the closure, or distribution were all checked. Two errors in distributing the closure error were found and the plotting corrected.

There are about 18 sheets from previous surveys covering this area and a study, or rather comparison, with them should prove worth while. There appear to be areas where the bottom has changed considerably, but there are others where it has remained the same. However, owing to the fact that the photographic section is busily engaged with important war work, it is impossible to have a reduction of the red sheets made at this time; so it becomes necessary to defer this comparison until such time as the urgent pressure upon the photographic section has been relieved.

The soundings from position 81 T. to 13 U (lat. 32°18' long. 79°42') appear to be from one to two fathoms too shoal and all efforts to discover an an error have been fruitless. The log distances have been checked, the log corrections have been re-applied and the reduction of soundings has been verified, but the results remain the same.

Hydrographic Sheet 3926

However, in view of the very broken condition of the bottom it is thought advisable to retain these soundings, as there remains a possibility that they may be right.

The soundings that had already been inked before the writer of this report was assigned to this work, were entirely too small; in some cases as small as the position numbers. This will make it extremely trying for the man who makes the compilation for the chart.

The survey as a whole was a very good one. The area was well covered; all shoal indications developed, the crossings generally close, and the records well kept.

Samuel L. Rosenberg,
March 4, 1918.

In comparing this work with overlapping surveys, it was necessary to handle several sheets. Boat sheets and other miscellaneous matter were in the same tubes and considerable time was lost in handling these ~~useless~~ sheets. It is recommended that once an original sheet has been verified and inked, that the boat sheet and other matter no longer necessary ~~should~~ be filed either in another tube or in the archives. This will save the time now necessary in unrolling three or four long sheets and examining them, just for the use of one of them for ten or fifteen minutes. It would also minimize the danger of losing them.

S. L. R.

Applied to compilation of Chart #491 May 6, 1935
G.H.S.

cont. on next page →

Applied to chart 793 April 17, 1936. H.E. MacEwen
Applied to chart 792 December 3, 1936. H.E.M.
Applied to Chart 1240 Dec 1 1964 O. Svendsen