

5435

5435

FORM 504
Ed. June, 1923

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
R. S. Patton, Director

State: South Carolina

DESCRIPTIVE REPORT

~~TOPOGRAPHIC~~ } *Sheet No. 9*
Hydrographic }

LOCALITY

Charleston

Stone River - New Cut and Church Flats.

1934

CHIEF OF PARTY

M. O. Witherbee

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SHEET NO. 9

DATE OF INSTRUCTIONS - November 2, 1933.

SURVEY METHODS - Standard Coast Survey methods were used. Lines were controlled by three point sextant fixes taken on signals and objects located by triangulation and topography. Depths were measured by lead lines read to the nearest foot in the deeper areas and nearest half foot in the shoal areas.

DISCREPANCIES -

Notes by Hydrographer: Some of the cross line soundings do not check the soundings obtained on lines paralleling the channel. These discrepancies are due to the steep character of the banks bounding the channel and also due to not making sufficient allowance for the turn of the boat at the bank. Soundings taken on lines running parallel with the channel should be used in preference to the soundings obtained on zig-zag lines.

Notes by Smooth Plotter: In lat. $32^{\circ} 43.7'$, long. $80^{\circ} 10.1'$, line 62 -- 63b falls on line 7, 8, 9b. The soundings are in poor agreement. In lat. $32^{\circ} 43.3'$, long. $80^{\circ} 09.8'$, line 83 -- 84b falls on line 111 -- 112b. The soundings are in poor agreement. In both the cases noted above, the lines run along the edge of steep banks and a slight displacement would cause this difference in depth. The shoal sounding should be charted.

In lat. $32^{\circ} 43.7'$, long. $80^{\circ} 10.1'$, line 61 -- 62d crossed line 62 -- 63b. Here again line 62 -- 63b appears to be too far to the West, and as the cross line and line 7 -- 8b both have shoal soundings outside the deeper ones obtained on 62 -- 63b, the shoal soundings are considered in their correct position and should be charted.

*Soundings adjusted to
make allowance for loss
of time and speed in turning
R. G. B.*

CHANNELS - From the results of this survey, it is shown that shoals are building up behind the points due to ebb tides. Inside route Pilot, serial 533, directs navigators to "follow a mid-channel course" through this section. It would be safer to favor the outside of all sharp bends. Two such bends occur in lat. $32^{\circ} 43.4'$,

The channel through Church Flats is quite narrow with a limiting depth of eight feet on this sheet. It is marked by numerous beacons and with the aid of directions given in the Inside Route Pilot, it could be easily navigated.

ANCHORAGES - There are no anchorages on this sheet.

COMPARISONS WITH PREVIOUS SURVEYS - The scale of existing charts is too small for comparison to be made with the present survey.

NOTES FOR COAST PILOT - Inside Route Pilot, New York to Key West, Serial No. 533, page 67, par. four, line eight beginning "about one mile" delete entire sentence. The small docks referred to have disappeared with the exception of a few scattered piles on the bank. The reach referred to could best be described by giving the distance from Beacon No. 1 as $1\frac{1}{2}$ miles, and stating that it runs in a direction of about 110° .

STATISTICS -

Vol. No.	Statute Miles	No. of Soundings	No. of Positions
1	25.9	1642	346
2	8.1	548	119
	<u>34.0</u>	<u>2190</u>	<u>465</u>

Respectfully Submitted by,

G. A. Stanton

Forwarded by,

Benjamin H. Rice
Lt. Benjamin H. Rice,
Chief of Party.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

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HYDROGRAPHIC TITLE SHEET

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. 9

REGISTER NO. 5435

State South Carolina

General locality Charleston

Locality Stone River - New Cut and Church Flats Sound.

Scale 1-5,000 Date of survey February, 1934

Vessel Party No. 2

Chief of Party Lt. M. O. Witherbee

Surveyed by G. A. Stanton

Protracted by C. J. Harryman

Soundings penciled by C. J. Harryman

Soundings in fathoms feet

Plane of reference Mean Low Water

Subdivision of wire dragged areas by _____

Inked by R. B. Krum

Verified by R. B. Krum

Instructions dated November 2, 1933

Remarks: Hydrographic survey, review of sheet, and descriptive report under direction of Lt. M. O. Witherbee.
Smooth plotting under direction of Lt. B. H. Rigg.

200

Division of Hydrography and Topography:

June 15, 1934

✓ Division of Charts:

Tide Reducers are approved in
2 volumes of sounding records for

HYDROGRAPHIC SHEET 5435

Locality Stone River, New Cut and Church Flats, South Carolina

Chief of Party: M. O. Witherbee in 1934

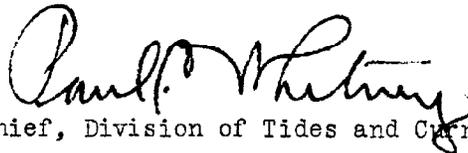
Plane of reference is mean low water, reading

1.7 ft. on tide staff at S. A. L., Railroad Bridge
10.2 ft. below B. M. 1

4.4 ft. on tide staff at Church Creek
14.0 ft. below B.M. 1

Height of mean high water above plane of reference is approximately
5.4 feet at S. A. L. Railroad Bridge and 6.8 feet at Church Creek.

Condition of records satisfactory except as noted below:



Chief, Division of Tides and Currents

VERIFICATION REPORT H- 5435

Records:

The sounding records are neat and legible. They conform to the General Requirements except for the following:

1. "sty" was constantly entered for the bottom characteristic sticky. ✓
2. Positions were not numbered consecutively at points where fixes were rejected, that is, the rejected positions formed a gap in the sequence of the plotted positions.

Not contrary to the Regulations
Rt

Field Protracting:

The field protracting was accurate and well done.

Field Drafting and Plotting:

The field drafting and plotting was not only very careless and sloppy, but also showed many errors. For instance:

1. Soundings were carelessly spaced.
2. While the day numbers and letters were well drawn, and of proper size, they were placed so close to the position points that many were necessarily obliterated when the soundings were inked.
3. The penciled soundings were too large and were poorly drawn.
4. Soundings were omitted which could have been easily plotted had adjacent soundings been made smaller and with more care.
5. Soundings were omitted because the name of a signal or a previously plotted bottom characteristic interfered.
6. The decrease in speed at the beginning and ending of lines and on turns was disregarded. Also the radius of turning was disregarded. The combination of these two errors made the agreement of soundings on cross and channel lines very poor in many cases. (See Descriptive Report)
7. ~~Negative soundings were all penciled in feet and halves of feet.~~
8. The transfer and inking of the shoreline was poorly done. A red transfer medium was used which cannot be erased.
9. Either the quality of the paper is unusually poor, or which is more likely, the field plotter erased his work so much, that the pen constantly "picked up" and the ink blotted in places without warning. Three coats of Restorative were applied to remedy this condition.
10. The bottom characteristic sticky was plotted as "sty".

Office Protracting:

Careful comparison was made with the boat sheet and doubtful positions were checked. Of the 70 positions checked only 2 were in error.

Office Drafting:

Several soundings omitted in the field plotting (see Field Drafting and Plotting) were plotted and inked by the verifier.

Crossings:

The cross lines of d day were carefully scrutinized and many revisions were made by changes not only in radius of turning but also in the allowance for decrease in speed at turns. (See Field Drafting and Plotting par. 6) These changes made for much better agreement of soundings at crossings, although the 6 ft. sounding on the line 69-70d could not be adjusted to any better agreement. The crossings in general are good considering that the banks of the channel are very steep in some places. (See Descriptive Report)

Comparison with Other Data:

1. The hydrographic sheet checked well with the boat sheet and with chart 1239.
2. The contemporary topographic sheets 6057 and 6058 covering this area are control sheets for aerial photo compilation and almost no shoreline is shown. The aerial compilation sheets have not yet been registered, but when they are the verifier suggests that the shoreline on the hydrographic sheet be checked with them, since the shoreline as inked on H-5435 has many peculiar formations.

Curves:

The usual depth curves could be drawn. The 6 foot curve at the bends in the river at latitude 32-43.4 shows a characteristic tidal current formation. Eight feet appears to be the controlling depth from latitude 32-43.4 to the north of this sheet.

Junctions:

As yet no junctions have been made on this sheet since the two adjoining sheets have not yet been verified.

Omissions:

~~The values for the reference station "Goshen" have not been inked pending an accurate, in place of the present approximate, adjustment by the Division of Geodesy. When this adjustment is made the Geographic Datum should be checked.~~

Respectfully submitted,

R. B. Krum
Verifier

July 2, 1934

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. .5435

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

Number of positions on sheet	.465..
Number of positions checked	.70....
Number of positions revised	...2...
Number of soundings recorded	2190..
Number of soundings revised	.35...
Number of signals erroneously plotted or transferred	none..

Date:.....July 3, 1934.....

Cartographer:.....*R. B. Krum*.....

Verification of protracting
Verification & inking of rocks & shoals) by R. B. Krum Time: 10 hrs

Verification of inking by R. B. Krum Time: 57½ hrs

Review by *R. J. Christman Aug. 1934* Time: 16½ hrs.

Section of Field Records

REVIEW OF HYDROGRAPHIC SHEET NO. 5435 (1934)

Stono River, New Cut and Church Flats, Charleston, S. C.
Instructions dated Nov. 2, 1933 (M. O. Witherbee Proj.-
H.T. 155).

Surveyed February 1934.

Hand Lead Soundings - 3 Point Fixes on Shore Objects.

Chief of Party - M. O. Witherbee.
Surveyed by - G. A. Stanton.
Protracted and soundings plotted by - C. J. Harryman.
Verified and inked by - R. B. Krum.

1. Condition of Records.

The sounding records are neat and legible and conform to the requirements of the Hydrographic Manual except that the abbreviation "sty" was used instead of "stk" for sticky bottom.

The heavy black line on the smooth sheet indicates the marsh line at the waters edge; the light black line shows the limits of the marsh farthest from the waters edge. Between these two lines the area is flooded at high water.

2. Compliance with Instructions for the Project.

The survey satisfies the instructions except that the zigzag lines are not adequately controlled to serve the purpose of cross lines as specified in par. 14. A different system of cross lines, more rigidly controlled, would be desirable in narrow channels.

3. Sounding Line Crossings.

The control of the zigzag crossing lines is not satisfactory. To avoid big discrepancies in depths, allowances had to be made for change of speed of the boat at turns, thereby defeating the primary object of cross lines, viz. a check on the regular system of sounding lines. As plotted on the smooth sheet no large discrepancies are shown and the soundings are generally consistent.

4. Depth Curves.

The usual depth curves can be drawn satisfactorily.

5. Junction with Contemporary Surveys.

The sheet joins H. 5466 (1934) to the north; H. 5470 (1934) to the southeast; and H. 5436 (1934) to the southwest. These sheets are not yet ready for detailed comparison.

6. Comparison with Prior Surveys.

a. H. 1639 (1885).

This survey is shown on scale 1/20,000 and only the channel depths could be plotted on the sheet. The controlling depth in 1885 for this section of the river appears to have been $4\frac{1}{2}$ feet located near the northern end of the Church Flats. The present survey shows that the controlling depth for the part of the river shown on H. 5435 (1934) is 8 feet.

The new survey shows a detached shoal or middle ground in Church Creek near its junction with New Cut. This representation is probably due to the larger scale of the present survey. The channel depths on the two surveys are in good agreement.

7. Comparison with Chart No. 1239.

The chart is on too small scale to make a detailed comparison. The three channel beacons on the chart are in agreement with the locations on the sheet. At Church Flats the note "6 Ft. July 1933" is derived from U. S. Eng. report 460/11 of 1933. The present survey shows 8 feet as the controlling depth. Stono River is a part of the Intra Coastal Waterway and is reported on at stated intervals by the U. S. Engineers.

8. Field Plotting.

- a. Protracting was well done but position numbers and day letters were placed too close to the positions, many of them later being obliterated by the inked soundings.
- b. Penciled soundings were too large and in some instances omitted where information of lesser importance, as bottom characteristics or names of signals might have been shifted to other places. A number of the cross lines had to be readjusted in the office, see par. 3 above.
- c. The red transfer medium used in transferring shoreline to the sheet is hard to remove. Also the shoreline was inked carelessly or too heavy a point was used in making the transfer. The uneven line may be partly due to the condition of the paper at the time of making the transfer.

9. Additional Field Work Recommended.

No additional field work is recommended.

10. Superseding Old Surveys.

Within the area covered, the present survey will supersede the following survey for charting purposes.

H. 1639 (1885) in part.

H. 5435 (1934) - 3.

Reviewed by - R. J. Christman, August 1934.

Inspected by - A. L. Shalowitz.

K. T. Adams
K. T. Adams,
Chief, Section of Field Records.

J. S. Gordon
Chief, Section of Field Work.

Examined and approved:

P. O. Pollock
Chief, Division of Charts.

G. W. Wade
Chief, Division of H. & T.

25 Jan 24 1936
Elmer