

5564

U. S. COAST & GEODETIC SURVEY
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Form 504
Rev. Dec. 1933
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
R. S. PATTON, DIRECTOR

DESCRIPTIVE REPORT

~~Topographic~~ } Sheet No. 10 5564
Hydrographic }

State South Carolina

LOCALITY

Port Royal Sound

Entrance to Broad and Beaufort Rivers

193 4

CHIEF OF PARTY

Lt. I. E. Rittenburg

5564

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. 10 5564

REGISTER NO.

State North Carolina

General locality Port Royal Sound

Locality Entrance to Broad and Beaufort Rivers

Scale 1 : 10 000 Date of survey May, 1934

Vessel Shore Party #15

Chief of Party L. E. Rittenburg

Surveyed by M. D. Cooper and A. O. Dority

Protracted by L. E. White, Jr.

Soundings penciled by L. E. White, Jr.

Soundings in ~~English~~ feet

Plane of reference Mean Low Water

Subdivision of wire dragged areas by

Inked by R. K. Chishalm

Verified by R. K. Chishalm

Instructions dated Nov. 2, 1933, 19

Remarks: Shoreline applied by party under S. B. Grenell.

Protracted and Soundings Pencilled by Party of B. H. Rigg.

DESCRIPTIVE REPORT TO ACCOMPANY HYDRO. FIELD SHEET #10, PORT ROYAL SOUND, SOUTH CAROLINA. H&T PROJECT #160.

1. INSTRUCTIONS:

This survey was made in accordance with orders and instructions dated Nov. 2nd, 1933.

2. AREA COVERED AND JUNCTIONS:

The area covered by this survey lies between Lat. 32-16 and Lat. 32-19 and West from Parris Island shore to a junction with H-5130, 1931, in the Broad River and North from a junction with H-5119, 1931, to Lat. 32-17 in Port Royal Sound. This survey will join Hydro. Field Sheets; #9, Station Creek, Trenchards Inlet, in Lat. 32-16 to Lat. 32-17. #1, Beaufort River, in Lat. 32-17. #7, Broad, Cheechessee and Colleton Rivers, in Lat. 32-18 to Lat. 32-20. All junctions appear adequate and satisfactory.

3. SURVEY METHODS:

Control was based on the triangulation of C. A. Egner, 1931-33. Three supplemental stations, TREE, HEC and NEW, were occupied and angles observed direct, with theodolite, from triangulation stations, 1931-33, and positions were obtained by computing three point fixes. Other supplemental stations were located by at least three intersecting cuts obtained with plane table and alidade. Hydrography was entirely controlled by three point sextant fixes.

4. DISCREPANCIES:

None.

5. CHANNELS:

Within the limits of this survey; 30 feet can easily be carried from Port Royal Sound up Broad River, within the limits of the marked channel. West of Parris Island shore and East of middle ground shoal lying in Lat. 32-17 to Lat. 32-19.5, Broad River, there is an unmarked channel through which 24 feet can be carried, with caution, to the mouth of Eddings Creek. In the passage between middle ground shoals 12 feet can be carried with extreme caution. The use of this latter passage is recommended only at slack water.

30 feet can be carried, with caution, from Broad River to the mouth of the Cheechessee River, within the marked channel.

36 feet can be carried, with extreme caution, from Port Royal Sound entrance up Broad River to the mouth of the Cheechessee River through an unmarked channel lying West of middle ground shoal in Lat. 32-15.5, Lat. 32-16.

24 feet can easily be carried through Port Royal Sound to the entrance to the marked channel in Beaufort River.

6. DANGERS:

In the Broad River there are five principal dangers; A middle ground shoal lying in Lat. 32-15.6--Long. 80-40.6 and extending North-West about 0.8 mile to Lat. 32-16--Long. 80-41.1 with a least depth of 15 feet. This shoal is unmarked but is discernable by the extreme turbulence of the water in it's immediate vicinity. Survey H-3898, 1917, shows an 18 foot sounding nearby.

A middle ground shoal lying in Lat. 32-17.6--Long. 80-42.3 and extending North-West about two miles to Lat. 32-18.8--Long. 80-43.1 and having a least depth of 3 foot. Midway in the Northerly half of this shoal, Lat. 32-18.4--Long. 80-42.9, a least depth of 3 foot occurs, dropping off sharply to the West

6. DANGERS: Continued---

to a depth of 20 feet in 100M., North gradually to a depth of 11 feet in 350M., East gradually to a depth of 8 feet in 150M. and South gradually to a depth of 6 feet in 250M. This portion of the shoal is unmarked. Midway in the Southerly half of this shoal, Lat. 32-17.8--Long. 80-42.7, a least depth of 3 feet occurs, dropping off to the West gradually to a depth of 28 feet in 100M., North gradually to a depth of 6 feet in 450M., East gradually to a depth of 6 feet in 200M. and South gradually to a depth of 6 feet in 550M. This latter portion of shoal is marked to the Westward by NUN buoy-N-2- which buoy is situated near the point of least depth.

A middle ground shoal lying in Lat. 32-18.7--Long. 80-42.7 and extending North-West one mile to the junction of Hydro. Field Sheet #7, Lat. 32-19.6--Long. 80-43.5. A portion of this shoal lying in Lat. 32-19.5--Long. 80-43.2 is exposed at Mean Low Water, dropping off at this point to the Westward gradually to a depth of 20 feet in 150M., East gradually to a depth of 6 feet in 100M., South-East gradually to a depth of 6 feet in 0.8 mile, Lat. 32-18.8 --Long. 80-42.7. The Southerly portion of this shoal is about 150M. wide and a least depth of 21 feet may be encountered throughout it's length. This entire shoal is unmarked.

A shoal lying in Lat. 32-18.1--Long. 80-43.7 and extending Southerly to a junction with H-5130, 1931, and Northerly to and along the South-East shore of Daw Island. This shoal drops off sharply to the Eastward, along the length described, from exposure at Mean Low Water to a depth of 20 feet in 100M. This entire shoal is unmarked.

A large shoal area beginning at a point due South-East of Parris Island Front Range in Lat. 32-17.2--Long. 80-40.7 and extending shoreward $\frac{1}{2}$ mile, extends North-West 2.2 miles to a point in Lat. 32-18.5--Long. 80-42.8 and is entirely unmarked.

7. COMPARISON WITH PREVIOUS SURVEYS:

This survey has been compared with H-3898, 1916, and considerable change has been noted, principally in the Broad River.

The middle ground shoal lying in Lat. 32-17.6--Long. 80-42.5, as shown in survey, H-3898, 1916, having a least depth of 3 feet, has become materially enlarged toward the North-West, extending to Lat. 32-19.5--Long. 80-43.3 and at this point a portion about 300M. long and 50M. wide is exposed at Mean Low Water. Shoal soundings extend well beyond this point to the North-West and are included on Hydro. Field Sheet #7, adjacent and connecting survey. The previous survey mentioned in this vicinity shows a least depth of 9 feet and little indication of such a shoal making as this recent survey has revealed. The Southerly portion of this shoal, Lat. 32-17.8--Long. 80-42.8, has shifted to the Westward about 200M. and has enlarged in area materially.

There is practically no change in the shoal along the South-Easterly shore of Daw Island, within the limits of this survey.

There is very little change in the shoal area along the lower Western shore of Parris Island, the 6 foot curve having moved riverward about 100M. from the limit determined in the previous survey.

In Lat. 32-18.2--Long. 80-43.4 there was found a ³¹ 24 foot sounding which occurs between a 32 and a 33 foot sounding in the old survey. *Wrong value on boat sheet.*

In Lat. 32-17.1--Long. 80-42.2 the 20 to 24 foot area agrees very closely with the old survey except that it has extended about 300M. South-East.

From Lat. 32-16.6--Long. 80-40.7 to Lat. 32-17.5--Long. 80-41.7 there extends a 27 to 30 foot shoal, about 100M. wide, of which there is no indication in the old survey. *This shoal does not exist, adgs. plotted from shoal on B.S.*

In Lat. 32-15.3--Long. 80-39.2 there is a 27 to 30 foot area which has become materially enlarged Southward.

In Lat. 32-15.3--Long. 80-39.7 there were found 27, 25 and 29 foot soundings, which occur in a 30 to 42 foot area shown in the old survey.

Sounding records show this area is covered by 1 foot of water.

7. COMPARISON WITH OLD SURVEYS: Continued----

In Lat. 32-15.8⁹--Long. 80-40.7^{8 21} a 24 foot sounding was found where an 18 foot sounding was indicated in the old survey. 200M. South-East of this point the recent survey reveals a 16 foot sounding which occurs between 22 and 25 foot soundings shown in the old survey. At this point the 20 foot area was materially developed and the bottom indications are that this is a formation of sandstone which is slowly changing, due to current action.

In Lat. 32-14.7--Long. 80-38.8 there is a small area of 31 to 40 foot soundings immediately adjacent to 49 to 52 foot soundings. This area is enlarged by development over the old survey, H-5130, 1931, and the bottom indications are a formation of small pinnacle or shelf rock. Survey H-5130, 1931, revealed one 37 and one 34 foot ~~KAK~~ sounding in this area but were not developed.

8. TIDES:

A standard automatic tide gage was operated at Parris Island for the entire duration of this survey. Tide reducers were obtained from portable automatic gage's installed at the entrance to Station Creek from Beaufort River, location shown on Hydro. Field Sheet #9, and at Beaufort, S.C.

9. STATISTICS:

Statute miles of sounding lines-----	317.0
Number of soundings-----	6430
Number of positions-----	2266

10. LAND MARKS FOR CHARTS:

Charts #1240 and #571 were examined and all the landmarks in this area suitable for charting are already charted and are all good.

I. E. Rittenburg, Lieut.
Coast & Geodetic Survey,
Chief-Of-Party.

A. O. Dority
Coast & Geodetic Survey,
Draftsman.

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. ..5564

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

Number of positions on sheet	2266
Number of positions checked	95
Number of positions revised	0
Number of soundings recorded	6430
Number of soundings revised	10
Number of signals erroneously plotted or transferred	0

Date: April 8, 1935.

Verification by *B. R. Christman*
J. A. McCormick

Review by *R. G. Christman*

Time: *80 hr*
25 hr *108 hr* *with*

Time: *40 1/4 hrs*
messy plotting

To: Mr. Bacon
 From: L.S.S.

Survey No. H 5564

GEOGRAPHIC NAMES

Chart No. 1240

Date. Dec. 28, 1934.

SOUTH CAROLINA

Diagram No. 1240-2

Names underlined in red approved Dec 31, 1934

Harlow Bacon

* Approved by the Division of Geographic Names, Department of Interior.

Names compared with Chart 1240 and Progressive Military Map, Okatie Quad.

Ø, Not Approved by the Division of Geographic Names, Department of Interior.

R, Referred to the Division of Geographic Names, Department of Interior. *R*

Status	Name on Survey	Name on Chart or Prog. Military Map	New Names in local use	Names assigned by Field	Location
✓	<u>Port Royal Sound</u>	same "	PMM		
✓	<u>Broad River</u>	"	PMM		
✓	<u>Beaufort River</u>	"	PMM		
✓	<u>-----</u>	<u>Chechessee River</u>	PMM		
	<u>Station Cr.</u>	same	PMM		
✓	<u>Morse Island Creek</u> <i>Letter GN 4</i>	Horse I. Creek	P.M.M.		
✓	<u>St. Phillips Island</u> <i>Letter GN 4 D.G.N. R</i>	"			
✓	<u>St. Phillips Island</u> <i>P.M.M.</i>	Phillips Island			
✓	<u>Daws Island</u> <i>(D.G.N.) X</i>	Daw Island	PMM		
✓	<u>Hilton Head Island</u>	same	PMM		
✓	<u>Bay Point</u>	"	PMM		
✓	<u>Parris Island</u>	Same	U.S.G.B.		

Lac

13

Jan 4, 1935

Division of Hydrography and Topography:

✓ Division of Charts: **Attention: Mr. E. P. Ellis**

Tide Reducers are approved in
6 volumes of sounding records for

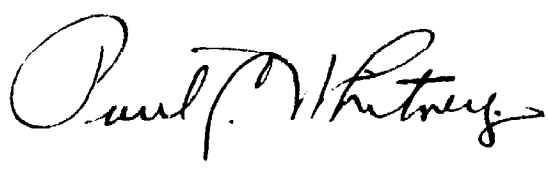
HYDROGRAPHIC SHEET 5564

Locality **Entrance to Broad and Beaufort Rivers, South Carolina**

Chief of Party: **I E Rittenburg in 1934**
Plane of reference is **mean low water reading**
2.2 ft. on tide staff at Station Creek
8.7 ft. below B.M. 4

Height of mean high water above plane of reference is 6.7 feet.

Condition of records satisfactory except as noted below:



Chief, Division of Tides and Currents.

Verifiers Report on H 5564 (1934)

1. The records conform to the requirements of the General Instructions ✓
2. The field plotting was very complete, and accurate. ✓
3. Except for the zero curve and at points of junction with adjoining sheets, the depth curves could be completely drawn. ✓
4. Bottom characteristics amply covered

5. Junctions: (By J. A. Mc Cormick) Junctions made with 5 sheets. all fairly good except 5119 which showed discrepancies in the shoal water south of Bay Point. It is the opinion of this writer that the 1934 soundings should be taken in preference to those of 1931. Soundings from H-5119 have been omitted in the overlap where the big discrepancies occur. Drawing of overlap and photostat accompanies H-5564 for the guidance of the reviewer. ✓

Remarks: Lines developing shoals were run in every disorganized manner.

This criticism of the boat sheet is not justified. Except for too heavy lines for curves and some sounding inked in at wrong values the boat sheet was in fair condition. Pfc

There were no lines showing course from end of one line to beginning of the next on the same day. The numbers indicating positions were plotted anywhere but near the position. The soundings were plotted from $\frac{1}{4}$ " to $\frac{3}{8}$ " or more large, so that 150 were omitted. This necessitated much respacing. The boat sheet was extremely messy, with poorly located position numbers and depth curves inked in adding to the confusion and difficulty of comparison. While the work was accurate, the above faults tended to make the verifying much slower than it should have been. ✓

A number of signals are shown outside the high water line. These are not topographic features. They were actually built in the water. This information from my personal knowledge of their locations. ✓

Respectfully submitted by

D. K. Chisholm

March 30th, 1934⁵

April 8, 1934⁵

Junctions by
J. A. Mc Cormick

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5564 (1934)

Entrance to Broad and Beaufort Rivers, Port Royal Sound, S. C.

Surveyed in May, 1934

Instructions dated November 2, 1933 (I. E. Rittenberg)

Hand Lead Soundings

3 point fixes on shore signals.

Chief of Party - I. E. Rittenberg.

Surveyed by - M. D. Cooper and A. O. Dority.

Protracted and soundings plotted by - L. B. White, Jr.

Verified and inked by - R. K. Chisholm.

1. Condition of Records.

The records are neat and legible and conform to the requirements of the Hydrographic Manual except as follows:

- a. Several signals were shown on the sheet outside the high water line without any indication as to the topographic feature represented. Verbal information from a member of the field party was received to the effect that these were signals built in the shallow water areas and are of a temporary nature.

The descriptive report is complete as to essential details and satisfactorily covers all items of importance.

2. Compliance with Instructions for the Project.

The plan and extent of development are in accordance with the instructions.

3. Sounding Line Crossings.

Sounding line crossings are satisfactory. Differences greater than 1 foot are accounted for by steep slopes of channel banks or by the irregularities of the bottom, indicated by other soundings in the vicinity.

4. Depth Curves.

Within the limits of the survey the usual depth curves may be satisfactorily drawn.

5. Junctions with Contemporary Surveys.

The sheet joins H-5562 (1934) to the northwest in Broad River, H-5130 (1931) to the southwest in Port Royal Sound; H-5517 (1934) and H-5518 (1934) at the entrance to Beaufort River; and H-5119 (1931) to the southeast in Port Royal Sound. All of these junctions are satisfactory. The shoal area just south of Bay Point has changed since the 1931 survey (H-5119) probably through erosion. The low water line is 50 to 100 meters closer to shore and the 6 foot curve is also slightly changed. The overlapping soundings which are in conflict with the present survey have not been transferred to H-5564 (1934).

6. Comparison with Prior Surveys.

- a. H-535 (1855-56), H-830 (1863)
H-649 (1853-57), H-831 (1862-63)
H-802 (1862),

These sheets represent the first surveys by this bureau in the area. The general depths in the channels are about the same but the shoaler areas have changed greatly. All the information on these sheets has been replaced on the charts by later surveys and it would serve no useful cartographic purpose to list the changes in detail.

- b. H-2119 (1892), H-2259 (1896).

These sheets represent surveys of the approach to and a part of the Beaufort River. A part of the area is very changeable, especially the shoal area on the west side of the entrance to the Beaufort River, Parris I. Spit where considerable change has occurred even during the comparatively short space of 4 years between these two surveys. Similar changes in less degree occurred on Middle Shoal. All the information on these two sheets has been replaced on the charts by a later survey and it is not necessary to list the various changes in this review.

- c. H-3897 (1916), H-3898 (1916), H-4174 (1921).

These surveys are the authority for the present representation on the chart. Depth agreements with H-5564 (1934) the deeper areas are good, most of the differences in the 30 foot curve being due to the larger scale and closer development of the later surveys. The east bank and the west bank of the Broad River are also in fair agreement but other shoal areas in the river have changed considerably. The most important changes are the following:

(1) The crest of the shoal at the northern edge of the sheet as compared with H-4174 (1921) has extended southeastward $1/3$ mile to lat. $32^{\circ}19.0'$, long. $80^{\circ}42.8'$ where there is less than 6 feet of water. The least depth on the part of the shoal on H-5564 (1934) is 1 foot, the statement in the D.R., page 2 that a portion was exposed at M.L.W. must have been based on the boatsheet where an excessive tide reduction was applied.

(2) A 17 foot depth on H-3898 (1916) is charted in lat. $32^{\circ}18.75'$, long. $80^{\circ}42.6'$. The present survey shows a detached 18 foot shoal about 80 meters southeast of this position with depths of 22 to 26 feet in the vicinity of the former 17 foot depth. There was no special development of this area during the 1916 survey and in view of other changes in this vicinity the 17 should not be retained on the chart.

(3) The 6 foot shoal spot on H-3898 (1916) charted in lat. $32^{\circ}18.8'$, long. $80^{\circ}43.1'$ has shifted over 200 meters to the southward. The shoal area extending over 1 mile to the southeast has increased somewhat in area and the crest near the southern end has shifted about 120 meters to the westward.

(4) A 25 foot sounding from H-3898 (1916) is charted in lat. $32^{\circ}16.7'$ long. $80^{\circ}41.95'$. A reference to the original sounding records shows that it is one of two shoaler soundings on a line between depths of 39 and 40 feet (pos. 143-144 d day). A later examination of this vicinity on "s" day failed to show any indication of the 25 foot depth but no recommendation relative to its disposal was entered in the records. The present survey shows depths of 41 and 45 feet nearby but no sounding directly over the position. Although the present survey does not absolutely disprove the 25 foot sounding, it is apparently erroneous and should have been rejected on the strength of the later examination at the time of the original survey. It should be disregarded in future charting.

(5) The 18 foot depth from H-3898 (1916) charted in lat. $32^{\circ}15.85'$, long. $80^{\circ}40.8'$ is the center of a middle ground extending about 1 mile north-west and southeast. The present survey shows 19 to 20 feet in the vicinity of the 18 but there is a 15 foot spot about 250 meters south-east of it. The field party reports that this middle ground is a formation of sandstone which is slowly being changed by current action. (See descriptive report, p. 3.) Because of the change indicated, the 18 should be disregarded in future charting.

(6) The shoal area on the west side of the entrance to the Beaufort River is very changeable and H-3898 (1916) shows marked differences in that area.

(7) On Middle Shoal showing charted depths of 23 feet (lat. $32^{\circ}15.5'$, long. $80^{\circ}39.7'$) the bottom is very irregular and both H-3898 and H-3897 of 1916 indicate generally hard bottom. The least depth on H-5564 (1934) is 22 feet and the Descriptive Report states that "the bottom indications are a formation of small pinnacle or shelf rock." On account of the character of the bottom, it is impossible to estimate the amount of change that has taken place since the 1916 survey but because H-5564 (1934) is on a larger scale and in greater detail it is deemed adequate for charting purposes and no part of the above surveys need be retained.

(8) There are a number of other charted soundings from H-3898 (1916) of depths ranging from 26 to 30 feet. These soundings are from 2 to 5 feet shoaler than the depths of the present survey which shows somewhat similar depths in different positions and indicates a general shifting around of these spots. For this reason it was not considered advisable to carry any of these soundings forward, with the exception of the 30 foot sounding (charted) in lat. $32^{\circ}15.75'$, long. $80^{\circ}41.1'$. The surrounding depths do not show much change and the 30 is confirmed by a 28 foot sounding from H-2119 (1892).

7. Comparison with Chart No. 571.a. Hydrography.

Within the area of the present survey the chart is based on surveys discussed in the foregoing paragraphs and contains no additional information that needs consideration in this review.

b. Aids to Navigation.

- (1) Buoy N2 (lat. 32°18', long. 80°42.8') was located about 150 meters south by east of its charted position. This does not affect its value to navigation. In fact, the ideal location would be still farther to the southeast.
- (2) Buoy C1 (lat. 32°16.8', long. 80°39.4') was located about 200 meters to the southeast of its charted position, thereby restricting the channel into Beaufort River somewhat more than necessary.
- (3) Station "Parris F.R. 1933" is the location of the beacon that was a part of the former Parris Island range. The rear beacon has been discontinued and is not shown on the sheet.
- (4) Vertical stripe buoy C (lat. 32°16.6', long. 80°41.2') was located in approximately the same position as charted.

8. Field Plotting.

The protracting of positions was accurate but position numbers and day letters were very much too large. A few of them which might have been mistaken for soundings were changed in the office.

Penciled soundings were also too large and replotting of the more congested areas in the office was necessary to show the development.

9. Additional Field Work Recommended.

While there are numerous shoals on this survey that would probably reveal less depths if a closer development was made over them, it is considered that the survey is sufficiently complete to show the spotty character of the area. No additional work is therefore recommended.

10. Superseding Old Surveys.

Within the area covered, the present survey supersedes the following surveys for charting purposes:

H-535 (1855-56)	In part.	H-2119 (1892)	In part.
H-649 (1853-57)	" "	H-2259 (1896)	" "
H-802 (1862)	" "	H-3897 (1916)	" "
H-830 (1863)	" "	H-3898 (1916)	" "
H-831 (1862-3)	" "	H-4174 (1921)	" "

11. Reviewed by - R. J. Christman and R. L. Johnston, April, 1935.

Inspected by - A. L. Shalowitz.

Examined and approved:

C. K. Green, *C. K. Green*
Chief, Section of Field Records.

L. O. Tolbert
Chief, Division of Charts.

F. Borden
Chief, Section of Field Work.

Stude
Chief, Division of H. & T.

Applied to Cht. 571, May 6, 1935

K. Reynolds

25 ~~13~~ 13, 1936
E.S.S.