

# 4155

C. & G. SURVEY

FEB 2 1921

Dredg. Chf. No. 1240-2

ACC. No.

# 4155

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

State: *South Carolina*

11-5613

DESCRIPTIVE REPORT.

Hydr. Sheet No. **4155**

LOCALITY:

*Hilton Head Island*  
*Port Royal Sound to*  
*Calibogue Sound*

1920

CHIEF OF PARTY:

*H. A. Swan*

OFFICE OF THE  
NAVY

FEB 2 11 03 AM '21

DESCRIPTIVE REPORT  
TO ACCOMPANY  
HYDRGRAPHIC SHEET

OFFICE OF THE  
NAVY  
NAVY DEPARTMENT  
WASHINGTON, D. C.

PORT ROYAL SOUND  
TO  
CALIBOGUE SOUND  
OFF HILTON HEAD ID. S.C.

U. S. S. BACHE  
H. A. SERAN  
COMMANDING

## LIMITS.

This sheet embraces the inshore hydrography off Hilton Head Island, from Port Royal Entrance to the shoals at the entrance to Calibogue Sound. It overlaps the Port Royal Entrance Survey of F.G.Engle ( Sheet ) H3897 ) to the northward, the off-shore survey by P.C. Whitney ( sheet H3983 ) to the eastward and the Tybee Roads survey by H.A.Seran to the southward.

## CHANGES SINCE LAST SURVEY.

The most noticeable change since the last survey was made of this area is in the shape, size and position of Gaskin Bank. This shoal has moved approximately one mile to the westward and has decreased considerably in size. The western end of this shoal, a small portion of which bears at low water, is now in what the present edition of chart No. 571 shows to be 16 feet of water. The bottom over this shoal is so irregular that it has only been possible to generalize the 12 foot curve. There seems to be a tendency for long, narrow ridges, running parallel to the shore line, to form in the shoal. While sounding over this area the general trend of these ridges could be identified by the lines of breakers.

No evidence was found of the five foot shoal at the southeast end of Gaskin Banks, although a nine foot spot was found just southeast of this shoal. As Gaskin Bank moves to the westward the eastern part washes away and considerable more water was found over this area than is shown on present edition of the chart.

The water between Gaskin Bank and the shore is now deeper than when the last survey was made. The six foot curve is about one half as far from shore as is shown on the present chart.

That the shore line is being washed back is evidenced by the fact that many tree stumps were seen at least 100 meters out from the high water mark.

The detached shoal shown on the chart three quarter mile southeast of Hilton Head Front Range Light has been entirely washed away but a new shoal with five feet of water on it has formed about one mile northeast of the old one.

The east side of Joiner's Bank is practically identical with its positions as shown on chart No. 571, but the outer end has built out about three-eighth of a mile to the eastward.

## CONTROL, SIGNALS, ETC.

The hydrography on this sheet was controlled by the two triangulation stations "Do" and "Hilton" and the intermediate signals located by the plane table party. The signals shown on the boat sheet differ in position from those on the smooth sheet,, due to the adjustment made after the traverse had been run from "Do" to "Not", which are on extreme ends of Hilton Head Island.

The intermediate signals consisted of standard tripod signals located about a mile and a quarter apart and of small banners built by the plane table party about a quarter of a mile apart. Hilton Head Front Range light was used to good advantage as was the tall hydrographic signal "Do" still standing from previous work in this vicinity.

## PARTY.

The entire work on this sheet was done by the same party, which consisted of two officers, one recorder, one launch engineer, two leadsmen and helmsmen, and one seaman. The leadsman and helmsman alternated at the wheel and lead, and one seaman pulled in the lead.

## METHOD EMPLOYED.

In accordance with instructions, lines were run a quarter of a mile apart. In only a few instances was it necessary to run additional lines as the bottom over the greater part of the area is regular and the curves are easily defined. On Gaskin Bank the bottom was so very irregular and the value of a close survey so slight that it was not deemed necessary or expedient to further develop it, after running the quarter mile lines. On a bank of this nature the shoalest areas are readily determined by the breakers and a complete development of it adds very little to the value of the survey.

Soundings were made with the launch running at an average speed of 5.3 miles per hour. The greater part of the soundings were taken at 15 second intervals although it was often necessary to increase this interval to twenty and occasionally to thirty seconds. In water under two fathoms, the interval was decreased to ten seconds.

Lines were run sufficiently far out to overlap the adjoining surveys by about a quarter of a mile.

Where the sheet overlaps sheet H3897, the soundings checked remarkably well but where it overlaps Sheet H3983 there is a slight discrepancy, this survey giving a little more water than is shown in the survey of a few years ago.

Considerable time was lost on account of engine trouble and also on account of the long runs to and from the working grounds. A table is attached showing the time of sounding each day and also the time delayed by various causes. This table shows that of the  $71 \frac{1}{3}$  hours of working time in surveying this area, only  $39 \frac{1}{2}$  hours or 55.4 percent of the total working time was spent in actual sounding.

TABLE

Showing time actual sounding  
and  
Time delayed by various causes.

DAY	SOUNDING		Took from Deck	W/et King	Ground.	Delayed by	ENGINE	Time Out for Lunch, Getting up, etc.	Delayed by	Bad Weather	Total time from leaving Ship to Returning	No. Miles Sounding	Av. Sounding	Speed
	hr	min												
A	5	27	1	34	1	01	1	13	0	00	9	15	27.0	4.95
B	4	21	4	20			1	14			9	55	21.0	4.82
C	4	45	1	41			1	09			7	35	25.5	5.60
D	# 1	12	1	27	6	26	1	00			10	05	7.6	6.33 #
E	5	09	4	36	0	10	1	05			11	00	25.3	4.91
F	4	53	2	40	0	00	1	05			8	38	28.7	5.85
G	3	24	1	38	0	50	0	38			6	30	19.8	5.82
H	3	04	0	24	4	37	1	00			9	05	16.2	5.28
J	7	16	0	07	0	18	1	14			8	55	38.2	5.26
Totals	39	31	18	27	15	22	9	38	0	00	80	58	210.3	
Avg.	4	23	2	03	1	29	1	04	0	00	9	00	23.4	5.32

# Only one line ran, which was with favorable current. #

Total time ( from departure to return of launch  
to ship ) 80:58

Time taken out for lunch, anchoring and getting up  
anchor 9:38

Total working time 71:20

Percentage of working time actually sounding 55.4

Percentage of time running to and from working  
Grounds, 25.8

Percentage of working time delayed by engine  
trouble, 18.8

Percentage of working time delayed by weather 00.0

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100.0

Respectfully submitted,

Approved  
*Har. Jean*  
Commanding.

*Frank S. Borden,*  
*St. Eugene,*  
*Coast and Geodetic Survey.*

STATISTICS  
SHEET I  
OFF HILTON HEAD ISLAND  
SOUTH CAROLINA

Date	Letter	Volume	Soundings	Positions	Miles
Oct. 21	A	1	1118	92	27.0
22	B	1	757	70	21.0
25	C	2	1253	87	26.5
26	D	2	249	24	7.6
28	E	2 & 3	1170	79	25.3
29	F	3	1093	92	28.7
Nov. 1	G	4	706	62	19.8
2	H	4	682	59	16.2
3	J	4 & 5	1653	142	38.2
TOTAL			8681	707	216.3

U.S.S. BACHE

H.A. SERAN, COMMANDING.

DIRECTOR  
ADDRESS THE SUPERINTENDENT  
U. S. COAST AND GEODETIC SURVEY

FIELD RECORDS (C)

AND REFER TO NO. 41/VFB

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

WASHINGTON February 11, 1921.

Division of Hydrography and Topography:

Division of Charts:

Tidal reductions are approved in  
5 volumes of sounding records for

HYDROGRAPHIC SHEET 4155

Off Hilton Head Island, S. C.  
H. A. Seran in 1920

Plane of reference is  
Mean low water, reading

-0.2 ft. on tide staff at Fort Scriven Wharf,  
Tybee Island, Georgia.

Condition of records: Satisfactory.

Chief, Division of Tides and Currents.

# SECTION OF FIELD RECORDS

## Report on Verification and Linking H4155

The records for this sheet were in good condition and, except for the failure to note compass courses, they were well kept.

The protracting and plotting of soundings were excellent.

The lines were well controlled and further development was not done because it would not add to the knowledge of the bottom.

The drafting conformed to the General Instructions except in the matter of numbering every position.

The work in the field and upon the sheet by F. S. Borden was commendable.

Frank M. Albert.

Feb. 23, 1921

Mar. 28, 1921

In order to obtain better relative depths the following inked soundings were changed, with tidal reductions based on Gaspari Banks instead of Ft. Severn:

Between 84c and 86c the depths were increased one foot.

"	48c	"	51c	"	"	"	"	decreased	"
"	36c	"	39c	"	"	"	"	"	"
"	22c	"	25c	"	"	"	"	"	"
"	49c	"	52c	"	"	"	"	increased	"
"	21F	"	23F	"	"	"	"	"	"
"	1c	"	9c	"	"	"	"	"	"

Frank M. Albert.

AND REFER TO NO. 4 MEM

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

SECTION OF FIELD RECORDS.

Report on Hydrographic Sheet 4155.                      Surveyed in 1920.  
Chief of Party: H. A. Seran.                              Surveyed by F. S. Borden.  
Protracted by F. S. Borden.                              Soundings plotted by F.S.Borden.  
Verified and inked by F. M. Albert.

1. The records of this sheet were well kept except for the omission of boat's courses, and the omission (with a few exceptions) of bottom characteristics.
2. The plan and character of development fulfills the requirements of the General Instructions except for the omission of cross lines. There are several lines whose depths do not agree with adjacent parallel lines. Cross lines would have aided in rectifying the differences.
3. The plan and extent of development satisfy the specific instructions.
4. The sounding line crossings are adequate.
5. The development is sufficient to permit the usual depth curves to be drawn.
6. The field plotting was completed to the extent prescribed in General Instructions.
7. The office draftsman did not have to do over again any of the field drafting.
8. No further surveying is required within the area covered by the sheet.
9. The instructions called for simultaneous observations between the Tybee Island gauge and Capt. Luce's gauge in Port Royal Sound. These simultaneous observations were made, but the resulting adjustments to the Tybee Island reducers were not made. Revision of the tide reducers was therefore necessary in the office.
10. The character and scope of the surveying are excellent. The field drafting also is excellent.
11. Reviewed by. E. P. Ellis, March, 1921.
12. Two copies of this report to be sent to Hydrography and Topography Division.

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

DIRECTOR  
HYDROGRAPHY  
OFFICE  
NOV 25 1920

HYDROGRAPHIC TITLE SHEET

FEB 2 11 10 AM '21

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. 4155

State . South Carolina.

General locality ~~Off~~ Hilton Head Island.

Locality Port. Royal Sd. to Calibogue Sd.

Chief of party H.A. Seran.

Surveyed by F.S. Borden.

Date of survey Oct. 21 -- Nov. 3, 1920.

Scale . . . . . 1 : 20000

Soundings in . Feet.

Plane of reference Mean Low Water, Tybee Id., Ga.

Protracted by F.S. Borden Soundings in pencil by F.S. Borden.

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

Records accompanying sheet (check those forwarded):

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

5  Sounding books,  Wire-drag books,  Photographs.

Data from other sources affecting sheet . . . . .

Surveys by F.G. Engle, Sheet No. H3897 and by P.C. Whitney, Sheet No. H3983.

Remarks:

