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Diag. Chart No. 1241-1

Treasury Department,  
U. S. COAST AND GEODETIC SURVEY.

*O. H. Tittmann*  
Superintendent.

State: *Ga.*

DESCRIPTIVE REPORT.

*Hydrographic Sheet No.*

LOCALITY:

*Sapelo Bar and Channel*

1902

CHIEF OF PARTY:

*J. F. Weld*

2572

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OUTSIDE SHEET.

*Sapelo Sound, Ga.*

Scale  $\frac{1}{20000}$

March 4th to April 11th, 1902.

This sheet consists of a survey of the bar and entrance to Sapelo Sound, Ga., with lines from 50 to 200 metres apart. Outside of this is an open scheme with lines from 300 to 600 metres apart, for the purpose of connecting up with the old survey.

Sounding was begun on March 4th and pushed as rapidly as possible until completed. When conditions prevented outside sounding the work on the inside sheet was taken up.

The depth upon the bar has changed but little since the survey of 1856, although <sup>*the present*</sup> this survey seems to indicate a slightly better depth. The greatest depth that can be carried over the bar at mean low water is 18ft., except for a narrow channel where it would be possible to carry 19ft.

Considerable change was found in the channel from the bar to the harbor in the vicinity of Experiment Shoal, which seems to have shifted bodily towards the Southwest to have encroached considerably upon the deep water.

The depth seems to have changed but little, either in the channel (except as above noted) or along shore to the southward. North of the channel, however, there appears to be somewhat better water than shown on the old chart.

The shore line near the entrance has changed considerably, both points having been washed off, the sand filling in on the shore a mile or so below.

A plane-table resurvey of the outer shore line between the northern- and southernmost signals was made by Mr. Wm. E. Parker, Jr. Aid. The hydrographic work was largely done under the immediate supervision of Mr. F. H. Ainsworth, 1st Watch Officer.

Tides were observed at the National Quarantine Station in the harbor. Until March 17th, a staff gauge was read during the working hours. Thereafter automatic gauge No. 49, was used. As this gauge is not made to register as great an extreme of tides as is encountered here, considerable annoyance was caused by its occasional failures to record. However, fifty low waters were observed and a fairly reliable plain<sup>ne</sup> determined.

It might seriously be questioned, however, if the tide observed was the same as the tide upon the bar some 8 or 10 miles away. That it was not would seem to be indicated by the fact that some lines of soundings crossed continuously high or low.

With the exception of this discrepancy of certain lines, the work crossed very well, better, indeed, than might be expected from the fact that some of it was done under very unfavorable conditions with fresh winds and considerable sea.

Close attention was given to the lead-line to see that it was correct. A spring-balance was used to give the proper strain, when testing its length.

Considerable difficulty was experienced in locating signals 'North' and 'Palm' at the extreme north and south limits of the work, Mr. French's triangulation not extending far enough up and

down the coast to give suitable conditions upon the bar. These signals had to be built high enough to be seen over the tree tops about 50 or 60 feet, and were located by cuts from signals located by Mr. French. An iron signal was also put up on Experiment Shoal for inshore work.

The buoys as at present located are not very satisfactory. The outer striped buoys are well placed as is the outer red. Black buoy No. 1 is in 24 ft. of water and should be shifted 250 metres to the southwest to the point of the shoal. Black buoy No. 1 $\frac{1}{2}$  should be shifted a mile inshore and to the southward, so as to mark the inshore end of the same shoal, where it encroaches upon the channel. The striped buoy off Experiment Shoal is dangerously misleading, being almost upon the edge of the shoal. It should be shifted south to the center of the channel or removed and replaced by a red buoy on the edge of the shoal, about 200 metres north of the position now occupied by the striped buoy. The buoys are not shown in the Coast and Geodetic Survey charts to be in the positions they now occupy.

A careful search was made for the 16 ft. spot shown in mid-channel near Experiment Shoal. I am convinced it does not exist.

There is good water in the channel after crossing the bar, but the channel is narrow and made somewhat dangerous by the strong tides.

Current observations were made at two stations, one on the bar, the other at the entrance to the sound.

(4)

The smooth sheet was plotted and inked by Wm.E.Parker.

On this sheet there were 3982 angles taken and 17805 soundings made with a total of 266.3 miles of sounding lines.

Respectfully yours,

*J. F. Well,*

Ass't., U.S.C. & G. Survey, Com'd'g.

Report  
on  
Hydrographic Sheet No. 2572.  
Sapelo Bar and Channel,  
Ga.

Assistant Weld,  
1902.

The work on this is not of a high order. The most important point determined by the survey, the navigable depth over sea bar, is in doubt to the amount of two feet, possibly.

That the bad crossings are not attributable solely to unfavorable conditions of wind and waves is indicated by the fact that some lines are uniformly deeper and others shoaler at the crossings, a result, almost unquestionably, due to erroneous correction for tide.

The permanent and only gauge used was at the Quarantine Station inside the Sound and distant six miles from the bar. By reason of its location relative to working ground, configuration of shoreline, etc., and frequently recurring unfavorable weather conditions, it could give only a very rough determination of tide on the bar.

This work serves to direct attention to the imperative need of a gauge on working ground, or practically there so far as the tide is concerned. Not that the only gauge for the work is to be maintained on an exposed bar; but, in addition to the permanent gauge located where circumstances require, there shall be set up (daily if necessary) a staff gauge to be read at least three times a day and oftener if possible, for comparison with the permanent gauge, in order to show that the tides are identical at the two stations, or, if not, to determine the correction necessary to be applied to record of permanent gauge.

A graduated scantling or gas-pipe, pumped down or attached to gas-pipe tripod, would serve in most exposed positions.

The distribution of sounding lines could have been better; shoal indications not as closely developed as less important deeper parts of fairway—doubtful shoal soundings in entrance were not examined. They were marked "doubtful," merely; as much could have been done in the Office.

More complete and reliable information in regard to wind, waves, currents and bottom is desirable and useful.

The recorder had little or no experience previously, apparently. The record is crude and uncertain in parts and is not improved where "same" is used instead of names of signals. The record would have been clearer and plotting facilitated had a line been left blank before or after each position.

The plotted soundings are small, poorly formed, irregular and not easily deciphered. In converting decimals into vulgar fractions the draftsman was not consistent. Curves of equal depth as drawn in field seem to be mere random shots. The sheet was not oriented, and lacks the signature of Chief of Party.

5-7-03.

J. T. W. (Signed)