

4734

Diag. Ckt. No. 1231-2

4734

Form 504	
DEPARTMENT OF COMMERCE	
U. S. COAST AND GEODETIC SURVEY	
E. Lester Jones, Director	
State: North Carolina	
DESCRIPTIVE REPORT	
Topographic } Hydrographic }	Sheet No. 4734
LOCALITY	
Pamlico Sound	
Ocracoke Inlet and Vicinity	
1927	
CHIEF OF PARTY	
R. E. Moore	

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SHEET NO.

4734

Authority: This work was done under instructions dated June 30, 1927.

Limits: The limits of this sheet are $N35^{\circ}05'$, $W75^{\circ}56'$; $N35^{\circ}09.7'$, $W75^{\circ}59'$; $N35^{\circ}05'$, $W76^{\circ}07'$; and $N35^{\circ}00.5'$, $W76^{\circ}04'$. It includes the southern two miles of Ocracoke Island and the northern three miles of Portsmouth Island, the offlying islands in Pamlico Sound as far as Shell Carth, Swash Channel Beacon, Blair and Teaches' Hole Channel, and the southern part of Wallace Channel. Offshore the work extends to the thirty foot curve.

Scale 1:10,000.

General Description: In general, the outside coast is low and sandy with scattered low sand dunes. The inside shoreline is swampy with low scrub trees and bushes. Ocracoke Lighthouse is the most prominent landmark, although a house built on a sand hill and surrounded with trees about a third of a mile south of the lighthouse is a good landmark and has the advantage of being easily seen when atmospheric conditions are such that by contrast with the background, the lighthouse can only be distinguished with difficulty.

On the Portsmouth side, the pyramidal tower of the Coast Guard Station, and the church steeple are prominent. The large fish factory on Casey Island is easily the most prominent object as seen from the west, north, and east, but as it is unused and no pretense made of keeping it in repair, it is doubtful if it remains standing more than a couple of years.

The one and a half story building used as a hunter's lodge on North Rock is prominent as being the only building on the small islands northward of Portsmouth.

Offlying islands: About two miles north of Portsmouth is a group of islands, the largest of which are North Rock and Beacon Island, both of which are low and marshy. About a half a mile south and southwest of North Rock are Shell Rock and Flounder Slue Rock respectively. These are low and grassy and of oyster shell formation. The area between these islands are foul and studded with numerous oyster rocks and grassy islands.

Changes in comparison with former surveys:

The most prominent change in the shoreline is the extension of the southern end of Ocracoke Island about 1300 meters south of its position as shown by the survey of 1916, and the disappearance of

Bird Island. About halfway between Beacon Island and southern point of Ocracoke Island, and on the east side of Blair Channel there is evidently a small island forming. It comes and goes according to storms, at times being above high water, and at other times awash at high water. Signal Crob was built on this shoal.

Due, probably, to the narrowing of the Inlet, and the increased current caused thereby, the waters adjacent to the Inlet have undergone complete change. There is now an area with 16 feet at mean low water connecting the southern ends of Teaches' Hole and Wallace Channels. From this area a channel with varying depths up to 50 feet leads seaward, with a depth of 14 feet at mean low water over the bar in the present buoyed channel.

The narrow slue on the south side of Wallace Channel northwest of Ayers Rock Beacon has sanded in, as also has the northern end of western slue of Teaches' Hole Channel by buoys #5 and #7.

The Swash Channel has filled in slightly and cannot be relied on for more than 6 feet at low water.

Bars and Channels: Outside.

Shoals and sandbars extend to seaward about two miles from the north end of Portsmouth Island in an easterly direction, and a half a mile in a southeasterly direction from the south end of Ocracoke Island. The sea breaks over these bars practically all the time. There is a channel between these bars 600 meters with depths varying between 13 and 21 feet.

The present buoyed channel is about midway between the bars and has a clear depth of 14 feet at mean low water, this depth being about 200 meters south of the present mid-channel nun buoy. It appears possible that a channel with least depth of 16 feet might be obtained by running the south tangents of Beacon and Ocracoke Islands on range. No reliance could be placed on this range because of the tendency of Ocracoke Island to shift.

From Mid Channel can buoy to buoy #4, depths from 20 to 50 feet were obtained, the deeper water being on the south side of the channel.

A shoal with depths from 4 to 6 feet extends 600 meters to the westward of from the south end of Ocracoke Island. The end of this shoal is marked by buoy #4.

Inside:

From the entrance, three channels branch out. Teaches' Hole Channel up the Ocracoke side, and thence by the Swash Channel to Pamlico Sound. Wallace Channel up the Portsmouth side of Shell Castle

and Flounder Slue Rock. Blair Channel midway between the others and to the eastward of Beacon Island. Wallace and Blair Channels enter Pamlico Sound over bulkheads over which 3 feet only can be carried.

Between these channels are large areas of flats with depths of less than 6 feet.

Teaches' Hole Channel, the one principally used, is about 200 meters wide and has a controlling depth of 12 feet at mean low water north of \triangle Tri. From here on it deepens and widens slightly. The Swash Channel is narrow and good for 6 feet at mean low water and vessels bound for Pamlico Sound are forced to wait for high water or to plow their own way through.

Wallace Channel is used for boats during a temporary anchorage in the vicinity of Ayers Rock Beacon.

Blair Channel is not used.

Tide rips are common in all localities when the wind and current are opposite. Heavy rips were encountered in Inlet.

Current swirls and eddies are common off \triangle Tri where the currents from the various channels meet.

Tides and currents:

A portable tide gauge was kept in operation at Ocracoke during the entire period of the work. This gauge gave good results. In two or three instances trouble was experienced by the nut holding the float wire backing off.

Portable gauges were also in operation at Ocracoke Inlet and Casey Island. The clock on the first gauge at the Inlet refused to function, but the second gauge worked satisfactorily until the gauge was washed away during a N. W. gale on November 4. Neither the gauge nor the staff were replaced because there were only two days work in the vicinity left.

The gauge at Casey Island did not give very satisfactory results because the clock ran spasmodically.

For tides outside Mid Channel buoy "C", the tides at the Inlet were multiplied by 1.5 and the time advanced 15 minutes.

Currents in the area are very strong, estimated 4 to 5 knots on ebb and 3 to 4 on flood. Buoys #1 and #4 were observed at times to be almost dragged under by the ebb.

At the inlet, on the ebb tide, the currents of the various channels meet and cause heavy swirls, eddies, and tide rips, especially off the south point of Ocracoke Island. In general, the current through the Inlet is north on flood and south on the ebb.

In the channels, due to their constriction by the flats, the currents set with the axis of the channels.

Anchorage: One of the reasons for the survey was to determine the possibility of harbors of refuge in the channels leading up to Ocracoke and Portsmouth. The vessels which use these anchorages are mostly fishermen driven in by bad weather. Most of them used the anchorage off Ocracoke between Cockle Shoal Beacon, and the Coast Guard Station; a few used the channel between Cockle Shoal Beacon and Swash Channel and a few anchored in Wallace Channel below Ayer Rock.

In all cases swinging is more or less restricted, and with the hard sand bottom there was a great tendency to drag anchor. In one N. W. gale around November 4, practically every boat at anchor dragged aground. In a heavy N. E. storm on December 3, the ELSIE with two anchors out and engines going dragged all night.

The anchorage off Ocracoke has a depth of 13 feet and is only about 150 meters wide.

The one off Portsmouth has depths from 15 to 20 feet and is about 500 meters wide.

In both cases winds from N. W. to N. E. can blow directly on the anchorages and make conditions unpleasant.

Silver Lake, north of Ocracoke town, can only be entered by boats drawing 2 feet, and then only at high tide.

Dangers previously reported:

No signs of the wrecks shown on Chart 1231 near buoys #2 and #1A respectively, were found.

The wreck of the Victoria S on the outside in latitude 35°06' N and longitude 75°57.75' W was, when the party left the field, about 50 meters from the high water line and only the stern above water. It is probable that in the course of two or three storms it will be entirely broken up and washed ashore.

Survey methods:

The usual triangulation and topographic control was used.

Table of Statistics.Hyd.Sheet No.

Day	Date	Vol.	No.Miles Sdg.	No.Positions	No. Soundings
A	Sep 2	1	1.7	13	59
B	6	1	14.6	83	497
C	7	1	22.1	147	837
D	8	2	39.3	233	832
E	9	2	11.0	72	271
a	14	3	21.2	190	1554
b	15	3,4	28.3	170	840
c	16	4,5	18.2	151	1065
d	29	5	22.0	197	1011
e	30	6	19.2	188	1318
f	Oct.3	6	5.5	54	354
g	4	6,7	17.3	156	962
h	5	7	9.1	84	578
j	6	7,8	12.7	115	770
k	7	8	15.1	177	771
l	10	9	21.6	171	1228
m	13	9	4.1	27	192
n	14	9,10	21.8	151	1019
p	15	10	11.6	82	604
q	17	10,11	15.2	144	917
r	18	11	4.6	39	306
s	21	11,12	19.7	182	1156
t	22	12	11.2	96	576
u	24	12	25.4	206	1183
v	25	13	29.8	179	1074
w	26	13,14	15.0	102	606
x	27	14	9.8	54	341
y	31	14	23.8	195	1283
z	Nov.1	15	15.8	129	774
a'	3	15	10.1	98	588
b'	8	15,16	24.6	146	1310
c'	9	16	16.7	138	966
d'	10	17	19.6	164	1367
e'	12	17	10.6	80	384
f'	14	18	24.0	167	1169
g'	15	18,19	15.7	114	627
h'	16	19	18.8	151	1057
j'	18	19	4.0	31	229
k'	21	19,20	22.7	179	1350
l'	22	20,21	22.0	181	1050
m'	23	21	15.5	148	1036
n'	Dec.7	22	4.3	34	310
p'	15	22	2.0	26	189
Totals			699.3	5444	34610

The instructions called for sufficient lines over the flats to determine their extent, and on November 16, these instructions were supplemented to develop the 6 foot curve. Most of the area of flats could be covered only after a N. W. gale had piled the water up on the eastern side of the sound.

The area around the Inlet is liable to considerable change from time to time, and especially during heavy storms, and is apparently continually under the process of building up and wearing away.

Respectfully submitted,

R. R. Moore
Asst Engr.

Statistics:

Number of positions on sheet --- 5,444
" " " verified ----- 4,600
Number of soundings recorded --- 34,610
" " " inked ----- 33,340
Number of volumes 22
Time spent in verifying, inking,
and reviewing ----- 68 days

John C. MacKeb.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

AND REFER TO No. 11-DFM

WASHINGTON

May 25, 1928.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4734

Surveyed in 1927

Chief of Party, R. R. Moore.

Surveyed by R. R. M.

Protracted by R. R. M.; Soundings plotted by R. R. M.

Verified and inked by J. C. MacNab.

1. The records conform to the requirements of the General Instructions. The sounding records were complete and legible with the following exceptions:
 - (a) In many cases the 4's and 9's may be easily confused.
 - (b) In several cases the 2's and 7's are difficult to differentiate.
 - (c) Several volumes of soundings had been wet and some pages were very faint.
2. The plan and character of development fulfill the requirements of the General Instructions.
3. The plan and extent of development satisfy the specific instructions except for the following:

The specific instructions state that "Lines shall be spaced about 50 meters over the bar, in channels and in anchorages."

 - (a) Lat. 35° 03' 12", Long. 175° 59' 15". In this vicinity there is a 14 ft. sounding which might have been developed a little more.
 - (b) In the vicinity of Lat. 35° 04' to 35° 04' 15" and Long. 76° 01' to 76° 01' 30", which is in the main channel, about two more lines would better develop this part of the channel.
4. The sounding line crossings are adequate although these do not agree very well in several places.
5. The usual depth curves can be completely drawn.

6. The field plotting was completed to the extent prescribed in the General Instructions.
7. The office draftsman did not have to do over any part of the drafting executed by the field party.
8. The junctions with adjacent sheets are satisfactory.

The overlap between H. 4778 and this sheet will be taken up when H. 4778 is verified.

9. Except for the two points (a) and (b), paragraph 1, no further surveying is required to fully develop the area within the limits of this sheet. In view of the fact that this locality at the bar of the inlet is constantly undergoing a change it is believed that the above points mentioned are not of sufficient importance to require further work in this area at this time.

10. Remarks:

(a) The protracting was exceptionally accurate, there being only about 150 positions incorrectly plotted in the 4600 checked. The sheet contains about 5400 positions. Crooked lines and dense sounding areas necessitated the checking of such a large percentage of the positions.

(b) The punch point in the protractor appears to have been rather dull as the position points are larger than necessary.

(c) With regard to the two wrecks shown on chart 1231 near buoys No. 2 and No. 1A respectively and mentioned in the descriptive report of this sheet, I conferred with Mr. Moore, Chief of Party and he advises that the two wrecks be removed from the chart.

11. Rating of the work:
 - (a) Character and scope of the surveying - excellent.
 - (b) Field drafting - very good.

12. Reviewed by J. C. MacNab, May 24, 1928.

Sheet inspected by A. L. Shalowitz.

Approved:

Chief, Section of Field Records (Charts)

Chief, Section of Field Work (H. & T.)

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.
4734

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. _____

REGISTER NO. 4734

State.....North Carolina.....

General locality.....~~Ocracoke Inlet~~ Pamlico Sound.....

Locality.....Ocracoke Inlet.....

Scale: 1:10000..... Date of survey.....Sept.-- Dec....., 1927

Vessel.....Launch ELSIE III.....

Chief of Party.....R.R. Moore.....

Surveyed by.....R.R. Moore.....

Protracted by.....R.R. Moore.....

Soundings penciled by.....R.R. Moore.....

Soundings in ~~fathoms~~ feet

Plane of reference.....MLW.....

Subdivision of wire dragged areas by.....

Inked by.....

Verified by.....

Instructions dated.....June 30....., 1927

Remarks:.....