

6834

6834

Form 504 U. S. COAST AND GEODETIC SURVEY DEPARTMENT OF COMMERCE <b>DESCRIPTIVE REPORT</b>	
Type of Survey	Hydrographic
Field No.	1143
Office No.	6834
<b>LOCALITY</b>	
State	NORTH CAROLINA
General locality	Ocracoke Inlet
Locality	<del>Ocracoke Inlet</del>
<u>194 3</u> <b>CHIEF OF PARTY</b> Raymond H. Tryon Jr.	
<b>LIBRARY &amp; ARCHIVES</b>	
DATE	

H6834

Form 537  
(Ed. Nov. 1941)

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

REG. NO. H-6834

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.

REGISTER NO. H-6834

Field No. 1143

State NORTH CAROLINA

General locality OCRACOKE INLET

Locality ~~OCRACOKE INLET~~

Scale 1:10,000 Date of survey Feb. - July, 1943

Instructions dated Nov. 2, 1942

Vessel ELSIE III

Chief of party Raymond H. Tryon Jr.

Surveyed by Raymond H. Tryon Jr.

Soundings taken by fathometer, graphic recorder, ~~hand lead, voice~~

Protracted by M. J. Langley

Soundings penciled by M. J. Langley

Soundings in ~~fathoms~~ feet at MLW ~~MLW~~

REMARKS: This sheet was processed at the Norfolk Processing Office.

## DESCRIPTIVE REPORT

H6834

TO ACCOMPANY HYDROGRAPHIC SURVEY

FIELD NO. 1143

OCRACOKE INLET, NORTH CAROLINA

INSTRUCTIONS:

The work of this survey was accomplished under original instructions dated November 2, 1942. ✓

SURVEY METHODS:

Standard methods of hydrographic surveying were used. Three point fixes were used to control the position of the sounding launch. Soundings were obtained by 808A portable fathometer. Bottom characteristics were obtained underway by casts of the hand lead which was armed with tallow to pick up the specimen. These casts were all made on fixes and were distributed throughout the day. ✓

All the positions of the signals used on this survey were determined from the topographic survey. Signal EX on Ocracoke Island was first located by sextant cuts but was afterward located on the topographic survey. ✓

Some difficulty was experienced with the fathometer. In no case was the fathometer used until it had been ascertained that it was functioning properly. Sometimes it was noticed that the paper speed was slow due to the dragging of the feed roll. This was particularly noticeable when the roll had been depleted to about  $\frac{2}{3}$  of its extent. This condition was ameliorated somewhat by greasing the ends of the feed roll with vaseline. The condition was not experienced with every roll. Greatest difficulty was found with those rolls that had the ends covered with glue, for even with scraping off the glue lumps to get an even bearing surface, a drag on the feed was the usual result. In every case when the recorder noted that the fathometer time was not in agreement with the clock time, work was stopped until the machine could be placed in working order. ✓

It was very difficult to get bar checks in the area covered by the survey. Strong currents prevailed constantly in the channels and currents and swells were the condition outside. There are but few minutes of slack water anywhere in the area. Most of the bar checks were taken in the deep hole (59 ft) located west of signal "Poi". This was for the reason that fair protection could be had from the outside swells and this was the quietest place in the vicinity. All bar checks were taken with a bar made up of a  $\frac{3}{8}$ " steel plate suspended by well seasoned lead line graduated in feet up to 42'. The lines were calibrated at the beginning and end of the season. Discrepancies are listed in the sounding volumes and are negligible. ✓

? 27

H.S.H.

DISCREPANCIES:

The soundings on positions 30g to 33g are deeper by from 6 to 10 feet than the soundings obtained on "b" day which are outside of this line. Since these lines are on the edge of a very steep shelf, the smooth plotting may reconcile the discrepancies. If not it is recommended that the above positions be rejected.

Smooth plotting eliminated discrepancy.  
lat. 35° 04.16'  
long. 76° 01. 38'

The area at the beginning of Teaches Hole Channel immediately northwest of the sand island on which signal "Poi" is located was subject to changes during the course of the survey. Sounding lines run on "c", "d" and "e" days from Teaches Hole Light 7 to the junction buoy showed a channel of minimum depth of 11 to 12 feet. On April 16 the party went out after the day's work to investigate a reported grounding of the C.G.R. No. 2023 in this area. Evidence of some shoaling was found, though the channel through the area was still existant. Additional work was done in the area on June 5, and several cross lines showed shoaling to depths of 8 and 9 feet. Unfortunately, the fathometer failed at the end of this day's work and could not be put into operation again so it was not until June 16 that surveys were resumed, this time with a new indicator. A complete new system of sounding lines was run for the area on an overlay. This new system of lines definitely proved the existance of the shoaling previously suspected. It is recommended that the soundings previous to the date of the resurvey of this area that fall within the limits of the work on "k" day, not be plotted on the smooth sheet if it is determined by inspection that the area has changed. This will affect portions of the lines run on "c", "d", and "e" days.

k day soundings predominate. Controlling depth 8 ft.

Cross lines were run only on the outside channel. The crossings are good with but few differing by more than a foot. Since the soundings were plotted to the nearest foot, it is expected that the smooth plotting will reconcile these discrepancies.

DANGERS:

An obstruction was found in Latitude 35° 03.3', Longitude 76° 00.3'. The least depth recorded reduced to 6 1/2 feet. The obstruction was reported by one of the C.G. patrol boats on the evening of May 29 which reported a slight grounding in the approximate position given above. Accordingly, on the 30th, the party prepared a grapnel with 25 ft. of manilla line supported by two cork floats painted yellow to mark the spot if found. In spite of heavy swells, the obstruction was found in about ten minutes of cruising around with the fathometer running. The grapnel was lodged and an approximate least depth and position was obtained. The current and heavy swells made hydrography impossible on this date. It was not until June 5th that the sea had flattened enough to enable the investigation to be concluded. On the latter date, the launch drifted down with the current at varying distances from the marker buoy and shoal soundings were obtained and marked by a fix. About 30 minutes of this work was done. The position of the obstruction is 90 meters WSW of the charted wreck and is undoubtedly the same object.

83

C.P. 87.14

CHANNELS:

(a) From seabuoy across bar to turning buoy

From a point 80 yards SW of the sea buoy on a course of 340° T, a minimum depth of 13 feet is obtained over the bar, 700 meters to the northwestward. This course will carry the vessel about the same distance off each of the fairway buoys marking the channel and 140 yards off the red wreck buoy. The water gradually deepens after crossing the bar to a depth of 36 feet at the turning buoy at the NW end of this channel.

Controlling depth over bar 12 ft.

Both sides of this channel are enclosed by breakers in any moderate swell. On an ebb tide rips are experienced all through the channel and there are breakers across the bar in anything more than a moderate swell. The bar can be traversed in heavy weather by experienced pilots in vessels drawing not more than eight feet.

N.B.

This area on the outside bar is very difficult for hydrographic surveying. The frequency of storms keeps the swell running and even in the summer time the breeze never dies out and usually blows fresh every day.

25

(b) From turning buoy to junction buoy

From the turning buoy at the head of the inlet channel the water deepens still further in the area between the two sand islands until the maximum depth of 57 feet is obtained at deepest portion of the pot-hole 450 meters west of signal "Poi". This pot-hole marks the junction of all the estuaries leading out to the inlet and is kept scoured by the action of the swift currents.

(c) From junction buoy to Wallace Channel Light 1

The best water in this area is found by heading south of the direct line between the two aids, and then following the sand beach northwestward. Deep water up to 30 feet is found by 200 yards off the beach for the last half of this journey. By carefully choosing the course a minimum depth of 16 feet will be encountered. The shoals on both sides of this area are plainly visible.

H-6836 (1943) shows controlling depth in upper part of channel to be 12 ft.

(d) Teaches Hole Channel

This channel runs from the junction buoy to Cockle Shoal Light. The last 800 meters of this channel was surveyed on sheet 1243- but for clarity of discussion will be included here. The channel is bounded on the southeast and east by Ocracoke Island and on the north and west by a bulkhead consisting of shifting shoals, spoil banks from dredging operations. Most of these are plainly visible to the navigator.

H-6835 (1943) This misleading use of the word "bulkhead" was found many times in the sounding volumes.

A steep bank is found after passing the junction buoy where the water shoals steeply from the depths of the previously mentioned pot-hole to minimum depths of 8 and 9 feet. The shoaling is due northwest of the sand island on which is located signal "Poi".

After passing this point, the water deepens to 14 to 16 feet passing Teaches Hole Light 7. An encroachment in the channel opposite Teaches Hole Light is noted where depths shoal to 11 feet. For the remainder of the channel, depths of 13 to 15 feet are found. A 22 foot hole is found just off the break-water near signal "Gus".

ANCHORAGES:

No good anchorages are found in the area covered by the survey. Small boats can anchor anywhere in the lee of the land provided the wind and sea are not too strong. The bottom is mostly hard sand and very poor holding ground.

COMPARISON WITH PREVIOUS SURVEYS:

The hurricane of 1933 and subsequent storms have changed the channels considerably. For this reason it is difficult to make anything but a cursory comparison with the last previous survey which was fifteen years ago.

The channel over the bar is in an entirely new location, the entrance over the bar being a mile west-southwest of the old entrance. Depths on the bar are about 2 feet shoaler than previously charted. Otherwise the same general depths prevail. The same general depths prevail in Teaches Hole Channel except for the shoaling previously discussed between the junction buoy and Teaches Hole Light 7.

The channel northeast of Portsmouth Island is nearly the same as shown previously except that the whole channel has moved south-westward (see topographic survey report) and deep water is found right up to the beach. An encroachment of the bulkhead 600 meters east of Wallace Channel Light 1 is noted where depths of 8 feet are found.

GEOGRAPHIC NAMES:

No new geographic names are recommended for this area.

STATISTICS FOR HYDROGRAPHIC SURVEY, FIELD NO. 1143:

Number of Positions - - - - - 836  
Number of Soundings - - - - - 4602  
Statute Miles of Sounding Lines -1162

Respectfully submitted,

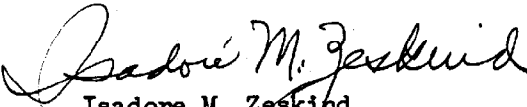
*Raymond H. Tryon Jr.*  
Raymond H. Tryon Jr.  
H. & G. Engineer

H6834  
H6834

A D D E N D U M

This sheet was processed at the Norfolk Processing Office.

Respectfully submitted,

  
Isadore M. Zeskind  
Associate Cartographic Engineer

Norfolk, Va.  
September 4, 1943

Approved and forwarded



Paul C. Whitney  
Supervisor, S. E. District

Surveys Section (Chart Division)

HYDROGRAPHIC SURVEY NO. 6834.....

Records accompanying survey:

Boat sheets .1.; sounding vols. .5.; wire drag vols. ....;  
 bomb vols. ....; graphic recorder rolls .7....;  
 special reports, etc. ....  
 .....

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

Number of positions on sheet	.836
Number of positions checked	...30
Number of positions revised	....0
Number of soundings recorded	..4402
Number of soundings revised (refers to depth only)	....0
Number of soundings erroneously spaced	....0
Number of signals erroneously plotted or transferred	....0
Topographic details	Time .....
Junctions	Time .....
Verification of soundings from graphic record	Time .....

Verification by J.A. McCormick Total time 36 hrs. Date Oct. 7, 1943.

Review by J.A. McCormick..... Time 8 hrs. Date Oct. 9, 1943.



Remarks

Decisions

1		U.S.G.B.
2		350 760
3		"
4		351 758
5		350 760
6		"
7		
8		
9		
10		
11		
12	location of tide staff.	351 759
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26		
27		

H 834

GEOGRAPHIC NAMES

Survey No. H-6834

Name on Survey	Source										
	A	B	C	D	E	F	G	H	K		
<u>North Carolina</u>											1
<u>Ocracoke Inlet</u>											2
<u>Portsmouth I.</u>											3
<u>Ocracoke I.</u>											4
<u>Teaches Hole Channel</u>											5
<u>Wallace Channel</u>											6
											7
											8
											9
											10
											11
<u>Ocracoke</u>											12
											13
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											M 234

Names underlined in red approved  
by L. Heek on 10/14/43

H6834

1948-1949

# MEMORANDUM

## IMMEDIATE ATTENTION

SURVEY }  
 DESCRIPTIVE REPORT } No. H  
 PHOTOSTAT OF } No. T

{ received  
 { registered  
 { verified  
 { reviewed  
 { approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

ROUTE		Initial	Attention called to
20			
22			
24			
✓ 25	Pg 3	PSF	
✓ 26			
✓ 27	Pg 1	ALB	
40			
62			
63			
82			
✓ 83	Pg 2	ALB	
88			
90			

RETURN TO

82	
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*✓ QMC*

2ae  
TAC

TIDE NOTE FOR HYDROGRAPHIC SHEET

September 14, 1943

~~Division of Hydrography and Topography:~~

Division of Charts: Attention: H. R. EDMONSTON

Plane of reference approved in  
5 volumes of sounding records for

HYDROGRAPHIC SHEET 6834

Locality Ocracoke Inlet, North Carolina

Chief of Party: Raymond H. Tryon, Jr., in 1943

Plane of reference is mean low water reading

3.4 ft. on tide staff at Ocracoke

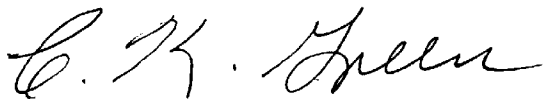
6.5 ft. below B. M. 6

Height of mean high water above plane of reference is 2.4 feet outside the bar; 1.9 feet up Teaches Hole as far as Light 7; 1.2 feet in the area northeast of Teaches Hole Light 7.

~~Condition of records satisfactory except as noted below:~~

NOTE: For the work on the outside bar, a time difference of -20 minutes and a ratio of ranges of 2.0 on the Ocracoke gage was used. The area in which these tidal constants were used was as far northeast as a line drawn across the channel 400 meters southeast of signal "Poi". In the area included from the above line up Teaches Hole Channel as far as Light 7 and as far west as Wallace Channel Light 1 a time difference of -10 minutes and a ratio of ranges of 1.6 on the Ocracoke gage was used. In the area northeast of Teaches Hole Light 7 no corrections were used on the gage of Ocracoke.

Chief, Division of Tides and Currents.



DIVISION OF CHARTS

REVIEW SECTION - SURVEYS BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. 6834

Field No. 1143

North Carolina; Ocracoke Inlet  
Surveyed February - July 1943; Scale 1:10,000  
Instructions dated November 2, 1942 (Project CS 299)

Soundings:

808 Recorder

Control:

Three-point fix on shore signals

Chief of Party - R. H. Tryon, Jr.  
Surveyed by - R. H. Tryon, Jr.  
Protracted by - M. J. Langley  
Soundings plotted by - M. J. Langley  
Verified and inked by - J. A. McCormick  
Reviewed by - J. A. McCormick  
Inspected by - H. R. Edmonston, October 8, 1943

1. Shoreline and Signals

Shoreline and topographic signals are from T-6924 (1942-43).

2. Sounding Line Crossings

As stated in the descriptive report the area in Lat.  $35^{\circ}04.4'$ , Long.  $76^{\circ}01.2'$  shoaled 2 to 3 feet during the course of the survey. The earlier depths were omitted from the smooth sheet wherever they conflicted with those obtained later. Otherwise, agreement of crossing and adjacent lines was excellent.

3. Depth Curves

The general regularity of the curves is no doubt the result of strong currents over fine sand bottom.

4. Adjoining Surveys

Excellent junctions were effected with H-6835 (1943) on the northeast and H-6836 (1943) on the northwest.

5. Previous Surveys

H- 321 (1852), 1:10,000; H- 538 (1856), 1:40,000;  
 H- 613 (1857), 1:20,000; H-1364 (1877), 1:20,000;  
 H-1457 (1880), 1:40,000; H-2798 (1905), 1:20,000;  
 H-3902 (1916), 1:20,000; H-4734 (1927), 1:10,000

In 1852, the tip of Ocracoke Island was about one mile northeast of its present position. By 1877, it had built out about one-half mile and by 1927, it was a little to the southwest of the present limits. Portsmouth Island has receded about one mile, most of the change occurring before 1877. The two small islands between Portsmouth and Ocracoke Islands build up and wash away. The latest previous survey, H-4734, shows five feet of water over both places. Some of the earlier surveys show a single island, sometimes with channels of about equal importance on either side. What is now the deepest part of the entrance (Lat. 35°04', Long. 76°01') was once dry land. Present depths in the channel are much the same as in its previous positions. Depths over the bar have remained fairly constant at 11 to 13 feet (12 feet at present). Widest change in the bar was between 1927 and the present year when it shifted over a mile to the southwest. Prior to 1927, it was fairly close to its present position.

6. Comparison with Chart 1231 (Print of April 20, 1943)  
 Chart 1232 (Print of July 13, 1943)  
 Chart 1233 (Print of Aug. 20, 1943)

Depths charted in this area are mostly from H-4734 (1927), discussed in the preceding paragraph. Channel depth of 15 feet at Buoy "9" (Lat. 35°05.6', Long. 75°59.8') was added from U. S. Engineers' B.P. 36641 of 1942. The present survey shows 13 feet at this point but with the buoy on the wrong side to mark it properly.

Charted shoreline was revised from Chart Letter 218 of 1942, a memorandum from the Photogrammetric Section of the Division of Charts. Later photographs are available and a new compilation is to be made incorporating the information on T-6924 (1942-43).

Charted positions of aids in the area are in several cases only approximate. The survey shows the correct positions. Some of the aids could be shifted to better mark the channels. This is particularly true of the aforementioned Buoy "9" and the buoys in the entrance channel.



7. Compliance with Project Instructions

It was the intent of the instructions that a more extensive survey be made of the seaward approaches to the inlet. The survey does not cover the area formerly traversed by the channel and the old channel soundings naturally cannot be retained on the charts.

*Letter of 5/11/43  
authorized outside  
work to be  
omitted other  
than navigable  
channels east.*

8. Additional Field Work Recommended

None.

9. Superseded Surveys

H- 321 in part.  
H- 538 " "  
H- 613 " "  
H-1364 " "  
H-1457 " "  
H-2798 " "  
H-3902 " "  
H-4734 " "

Examined and approved:

*Robert W. Prof*  
Chief, Surveys Branch

*J. B. Borden*  
Chief, Division of Charts

*Carl O. Heston*  
Chief, Section of Hydrography

*G. F. Luce*  
Chief, Division of  
Coastal Surveys

# NAUTICAL CHARTS BRANCH

SURVEY NO. 6834

## Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
			Before After Verification and Review
9/7/45	419	L.A. McGinn	<del>Before</del> After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
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			Before After Verification and Review
			Before After Verification and Review

M-2168-1

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

Applied to CN 1231 - Oct 1943 - N.D.B.  
Applied to chart 418. October 27, 1943 Lam.  
" " 1232 Apr 1944 J.H.G.