

5814

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. 1  
Hydrographic }

State North Carolina

LOCALITY

~~Hatteras Inlet, N. C.~~

Pamlico Sound  
• Hatteras Inlet

1935

CHIEF OF PARTY

J. C. Bose

7184

5814

1017

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

U. S. COAST & GEODETIC SURVEY  
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JUN 16 1935  
Acc. No. \_\_\_\_\_

REG. NO.

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. **5814**

State North Carolina

General locality Pamlico Sound

Locality Hatteras Inlet

Scale 1: 10000 Date of survey May, 19 35

Vessel \_\_\_\_\_

Chief of Party J.C. Bose

Surveyed by R.H. Carstens

Protracted by A.G. Turner

Soundings penciled by A. van Rauth

Soundings in ~~fathoms~~ feet Feet

Plane of reference Mean Low Water

Subdivision of wire dragged areas by \_\_\_\_\_

Inked by Miss H.V. Bennett & R. McCann

Verified by R. McCann & C. STANLEY LIGHTBOWN

Instructions dated August 31, 1935, 19

Remarks: \_\_\_\_\_

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SHEET No. 1

Hatteras Inlet, North Carolina

Sub-Party, Launch WELKER

J.C. Bose, Chief of Party

INSTRUCTIONS

Work on this sheet was done under instructions for Project HP-197 dated August 31, 1934, supplemented by verbal instructions to Commanding Officer, Launch MIKAWA. ✓

PURPOSE

The purpose of the survey, undertaken at the request of the Bureau of Lighthouses, was to determine if a channel into Hatteras Inlet from seaward existed, which it would be feasible to mark with aids to navigation. ✓

CONTROL AND SURVEY METHODS

Control for this sheet was established by triangulation executed during 1935, and planetable location of topographic signals. The sheet is plotted on the North American 1927 Datum. ✓

The usual hydrographic methods were followed, positions being determined by sextant fixes and soundings taken with leadline. ✓

Lines were run on approximate compass courses using a standard small boat compass. As no ranges were available and because of strong winds and currents of shifting and varying strengths it was found difficult to follow a prearranged system of lines. ✓

The boat used was a 27 foot skiff powered by a 9 H.P. outboard motor. This power for the skiff was found to be very inadequate on account of the strong winds and currents experienced. If this type of boat is again used for hydrography in the inlet it is recommended that a more powerful motor be installed and a minimum of protective canvas used. ✓

CHANNELS

Four channels were investigated on the Sound side of the inlet and one channel leading through from the Ocean side.

Of the four channels on the <sup>Sound</sup> south side of the inlet the channel to the west leading forth from the Coast Guard Station and the two easternmost channels leading to the beacons in the vicinity of Cross

Shoals are used by fish boats. The third channel between these terminates in a shoal. ✓

The deeper of these channels is the westernmost one which, however, shoals markedly on the Sound end and is blocked by a bar. Should this bar be dredged it would be by far the best channel because of its depth and breadth. The channels to the eastward are blocked near the beacons by shoals, and also near the western end of Cape Hatteras where the shoal extends almost to the land. ✓

All these channels shoal very rapidly near their edges. On practically every sounding line crossing the channel the boat grounded on the shoal and had to be pushed off. On calm sunny days the gray water on the shoals and the blue water in the channels clearly mark the limits of the channels. ✓

The currents in these channels are very strong causing tide rips and cross seas. This is especially noticeable in the channel directly between Ocracoke Island and Cape Hatteras where the current boils and swirls at ebb tide, the water becoming gray in color from the sand it carries. The deposition of this sand extends the shoal from the Sound down into the Inlet splitting the channel in the Inlet into two channels, one leading to the east and one to the west. On a flood tide the currents often carry waves from the ocean well into the Inlet creating a menace to small craft navigation. ✓

On the Ocean side the most important channel follows the shore of Cape Hatteras to the eastward around the bar blocking the inlet. This channel is by far the most important, being used by practically all traffic going through the Inlet. ✓

Another small channel winds out between breakers to the southeast of the Inlet but is used only on calm days by a few fishermen. This channel was not investigated. ✓

On the Ocean side of the bar to the southeast of the Inlet the waves constantly break. When the wind is from the northeast seas also break on the channel side of the bar. ✓

Respectfully submitted:

Ramond H. Carstens  
Deck Officer, C. & G.S.

Approved and forwarded to  
Commanding Officer, Launch MIKAWA.

J. C. Bose,  
Chief of Party

Approved:

John A. Bond  
Chief of Party

STATISTICS FOR SHEET No. 1 - HATTERAS INLET, N. C.

Day Letter	Volume	Statute Miles	Soundings	Positions
αA	1	5.7	541	43
βB	1	7.1	578	66
γC	1 & 2	14.9	1208	115
δD	2	4.0	451	39
εE	2	12.5	602	99
ζF	2 & 4	8.6	452	82
ηG	4	14.0	694	114
θH	4 & 5	12.3	662	114
ιJ	5	3.8	342	50
κK	5	6.0	281	54
λL	5	11.7	533	96
μA	3	3.6	134	25
		104.2	6378	897

Smooth sheet No. 1 - Hatteras Inlet, N. C. - was executed by Mr. R. H. Carstens, Deck Officer, serving under J. C. Bose, Chief of Party. The field records were transferred by Lieutenant Bose to the undersigned for reductions and plotting. ✓

The sheet was plotted under the immediate supervision of the undersigned. The sheet and accompanying records have been inspected and are approved. ✓

John A. Bond  
Lieutenant U.S.C. & G.S.  
Chief of Party



# Report on H-5814

August 2, 1935

1. The records conform to the requirements of the General Instructions, except that in volumes under "soundings"; feet, tenths, fathoms, and feet were not marked as required. The name of one signal was misspelled on "list of signals". Day letters shown on statistic sheet were lower case letters instead of capital.
2. The usual depth curves were completely drawn. ✓
3. The field plotting was completed to the extent prescribed in the Hydrographic manual. ✓
4. The office draftsman had to ink the shore line and low water line which was transferred in pencil by the field draftsman. ✓  
 Two positions were erroneously numbered. ✓  
 One hundred and six positions were replotted in latitude  $35^{\circ}12'$  -  $35^{\circ}14'$  and longitude  $75^{\circ}47'$  -  $75^{\circ}48'$ ; this area was a great distance from the signals used and is probably the reason that these lines do not check with the Boat Sheet. The revision of these positions however did not materially change the depth curves, and a good many of the positions were in unimportant water.
5. There are no contemporary adjacent hydrographic sheets and therefore no junctions were made. ✓
6. The exact location of fish stakes could not be determined, however those shown were taken from records and Boat Sheet. ✓  
 A 14 and 15 ft. sounding (Lat.  $35^{\circ}11'.4$ , Long.  $75^{\circ}45'.9$ ) occurs in 8 and 9 ft. of water, (see note page 40 volume 5 between positions +7 and 48 red K day). Attention is called to an 11 and 18 ft. sounding in 20 to 30 ft. of water (Lat.  $35^{\circ}11'.8$  - Long.  $75^{\circ}43'.7$ ), these soundings appear on the Boat Sheet and seem to be correct as far as the plotting and tide reduction is concerned. The verifier accepted the smooth plotter interpretation of the location of position 22 (blue) A day, although this location disagrees with the Boat Sheet. The shore line shown was taken from topographic sheet 6313 (1935), There is no air photo compilation available for this area; however pictures have been ordered and compilation will probably be available in about six months. ✓

(over)



Respectfully submitted  
R. A. McCann  
C. Stanley Lightbown

HYDROGRAPHIC SURVEY NO. H5814

Smooth Sheet 1

Boat Sheet 1

Sounding Records 5 Vols. \_\_\_\_\_

Descriptive Report Yes

Title Sheet Yes

List of Signals Yes in Vol. 1

Landmarks for Charts (Form 567) Yes

Statistics Yes

Approved by Chief of Party J. C. Rose (J. A. Bond)

Recoverable Station Cards (Form 524) None

Special Chart for Lighthouse Service None *No floating aids*  
(Circular Nov. 30, 1933)

Remarks \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. **..5814**

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

Number of positions on sheet	<b>.897.</b>
Number of positions checked	<b>.225.</b>
Number of positions revised	<b>..106..</b>
Number of soundings recorded	<b>.6378.</b>
Number of soundings revised	<b>.540.</b>
Number of signals erroneously plotted or transferred	<b>...0...</b>

Date: *Aug. 2 - 1935*

Verification by	<i>R. McCann - C. S. LIGHTBOWN</i>	Time:	<u>80</u>
INKED BY	<i>Miss H. V. Bennett + R. McCann</i>	"	<u>15 1/2</u>
Review by	<i>R. J. Christman</i>	Time:	<u>16 1/2 hrs</u>

TIDE NOTE FOR HYDROGRAPHIC SHEET

June 26, 1935.

Division of Hydrography and Topography:

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

Tide Reducers are approved in  
 5 volumes of sounding records for

HYDROGRAPHIC SHEET 5814

Locality Hatteras Inlet, North Carolina

Chief of Party: J. C. Bose in 1935  
 Plane of reference is mean low water reading  
 3.3 ft. on tide staff at Hatteras Inlet  
 4.4 ft. below B.M. 1

Height of mean high water above plane of reference  
 is 1.0 foot.

Condition of records satisfactory except as noted below:

*Paul B. McIntyre*  
 Chief, Division of Tides and Currents.

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5814 (1935) FIELD NO. 1

Hatteras Inlet, Pamlico Sound, North Carolina  
Surveyed in May 1935  
Instructions dated Aug. 31, 1935 (Proj. HT 197)

Hand Lead Soundings.

3 Point fixes on shore signals.

Chief of Party - J. C. Bose.  
Surveyed by - R. H. Carstens.  
Protracted by - A. G. Turner.  
Soundings penciled by - A. van Reuth.  
Verified and inked by - C. Stanley Lightbown, R. McCann, and  
Miss H. V. Bennett.

1. Condition of Records.

The records are neat and legible and conform to the requirements of the Hydrographic Manual, except that the use of caps. and lower case letters for day letters was not consistent. Capitals were used in the sounding records but lower case letters were used on cover and title page and in the list of statistics.

The Descriptive Report satisfactorily covers the items of importance.

2. Compliance with Instructions for the Project.

The survey was made at the special request of the Lighthouse Service under verbal instructions in connection with the specifications for Project HT-197.

The survey satisfies the purpose for which it was made but should not be considered a complete survey of the area covered. (See Descriptive Report page 1, under "Purpose").

3. Shoreline and Signals.

The shoreline originates with plane table survey T-6313 (1935).

Signals are from 1935 triangulation and from topographic survey T-6313 (1935).

4. Sounding Line Crossings.

The depths on cross lines are in good agreement, the few exceptions being due to very steep slopes at the edge of the channels.

5. Depth Curves.

Within the area covered, the usual depth curves may be satisfactorily drawn, including the 6 foot curve.

6. Junction with Contemporary Surveys.

This survey is a special examination made at the request of the Lighthouse Service and no contemporary surveys join it.

7. Comparison with Prior Surveys.

a.	H-235	(1850)	H-763	(1861)
	H-322	(1852)	H-1565	(1884)
	H-612	(1857)	H-1870	(1887-8)
	H-612 bis	(1864)	H-3000	(1909)
	H-672	(1858)		

These surveys are on a scale 1:5,000, 1:10,000 and 1:20,000. All of them show hydrography within the area of the present survey, except H-1870 (1887-8), which is a study of oyster beds in Pamlico Sound and does not show any soundings within the limits of H-5814 (1935). The area under consideration is very changeable. The inlet itself has moved about a mile to the westward during the time represented by the above surveys with much shifting of channels and shoals. No part of the information from these surveys is in use on the present chart and it would serve no useful cartographic purpose to give a detailed comparison with the present survey.

b. H-3922 (1916).

This survey on a scale 1:20,000, is the basis for the representation on the chart of the area under consideration. A comparison with the present survey shows that the area is very changeable; the channels have shifted in location as well as become shoaler; and several of the former channels leading into the sound now end up in shoal areas. The bar on the ocean side of the inlet has shoaled 3 to 4 feet and the main channel now passes to the eastward close to shore. Because of the many changes and also because of the larger scale of the present survey, H-5814 (1935) should supersede the above survey for the area covered. The two lines of soundings of the 1935 survey extending from latitude 35°13', longitude 75°47', to latitude 35°14.7', longitude 75°44.4', should be disregarded in adjusting the older survey to the present survey as they do not add any vital information to the chart, but would only serve to complicate the junction of the two surveys.

8. Comparison with Chart 1232 (New Print dated Dec. 12, 1934).a. Hydrography.

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

b. Aids to Navigation.

The two beacons are charted in approximately the positions given on the present survey. There were no other aids within the area of the present survey. Since the survey was made three post lights and a lighted bell buoy have been established to mark the principal channel. (See N. M. 47 of 1935). The charted note relative to buoys at Hatteras Inlet no longer applies.

9. Field Plotting.

Field plotting was good except in the area to the westward of longitude 75 - 47 where about 100 positions were revised by the verifier.

The penciling of soundings in general was satisfactory.

10. Additional Field Work Recommended.

The survey adequately serves the purpose for which it was made. Although no adequate junction is made with previous surveys, owing to the very changeable nature of the bottom, any future survey of this inlet should be made independent of the 1935 survey.

11. Superseding Old Surveys.

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

H-235	(1850)	in part	H-763	(1861)	In part
H-322	(1852)	" "	H-1565	(1884)	" "
H-612	(1857)	" "	H-1870	(1887-8)	" "
H-612 bis	(1864)	" "	H-3000	(1909)	" "
H-672	(1858)	" "	H-3922	(1916)	" "

12. Reviewed by - R. J. Christman, Dec. 16, 1935.

Inspected by - A. L. Shalowitz.

Examined and approved:

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

*L. O. Polbut*  
 Chief, Division of Charts.

*F. J. Borden*  
 Chief, Section of Field Work.

*Thud*  
 Chief, Division of H. & T.

*applied to drawing of chart 1232 - June 24, 1936 - J.W.*