4802

Diag. Cht. No. 1233

Form 504

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

....., *Director*

State: North Carolina

DESCRIPTIVE REPORT

~~*Topographic*~~
Hydrographic } *Sheet No.* 4802

LOCALITY

Cape Lookout

Cape Lookout Shoals and

Cape Lookout Bight

1928

CHIEF OF PARTY

J. Senior

GOVERNMENT PRINTING OFFICE

D-112-6V

4802

DESCRIPTIVE REPORT TO ACCOMPANY HYDROGRAPHIC SHEET No.3

Cape Lookout Shoals and Cape Lookout Bight, N. C.

INSTRUCTIONS. The survey was made in accordance with Instructions from the Director dated June 11, 1928 and supplemental Instructions dated July 12, 1928.

The two sets of instructions required surveys of two areas which, while not far apart, were not contiguous but, as one of them was small, both surveys were plotted on the same sheet.

The original instructions called for a survey of the slue channel across Cape Lookout Shoals and the limits of this work were Lat. 34°35 N. on the North and 34°32' N. on the South; Longitude 76°29'W on the East and 76°32' W. on the West.

In accordance with the supplemental instructions a hydrographic survey was made of Cape Lookout Bight. The work was carried as far north as Lat. 34° 37½'. Some lines were also run outside the breakwater. The methods and features of the surveys of the two areas will be described separately.

Cape Lookout Shoals.

SURVEY METHODS. On account of much shoal water and because of close spacing of lines, most of the work was done with a chartered launch. All soundings were taken with a hand lead.

All positions were determined by visual fixes. For these a few prominent buildings on the Cape whose location, determined by third order triangulation, had previously been furnished, were available but it was necessary to use several buoys in addition.

Two navigational buoys (first class cans) were located by means of three or more sextant angles between triangulation stations and three fourth class nun buoys, which had been placed by the lighthouse tender "ORCHID" especially for this purpose, were located in the same manner. Each day small boats carrying a target were tied to the three small buoys for sighting upon at distances at which the buoys themselves were not visible. The positions of all buoys used for fixes were usually checked twice a day but it was found that they did not vary.

On the first day, a few lines were run by the ship to approximately define the limits of the channel. These lines were run under the guidance of a local pilot who had a good knowledge of the shoals. Later a system of lines, spaced 50 meters apart, were run

by the launch to cover the area of the channel and a system of cross lines, spaced about 300 meters, were run as far the 36 foot curve on each side of the channel, except in the northwest region, where they were run as far as the breakers.

DISCREPANCIES : Discrepancies occurred at a few crossings. There are three places where the discrepancy was five feet, which represents the maximum that occurred but these were not in the channel.

None of the discrepancies found cast any doubt on the least depth of 10 feet which it was desired to establish in a straight channel across the shoals.

The discrepancies may be partly explained by the uneveness of the bottom and partly by currents, which at times had considerable strength. It is recommended that the shoaler soundings be used for the chart, as that is on the side of safety and will not reduce the least depth of the channel.

DANGERS : The position of a submerged wreck was determined. This wreck is shown on Chart No. 1233. The wreck is bare at extreme low water and its position, which is shown on the chart, is Lat. 34°33.4, Long. 76°31.62. The chart shows the wreck marked by a buoy but at the time of this survey the buoy did not exist. Because the land is flat and without prominent features, it is not possible to locate the wreck by ranges and as long as the buoy is missing, vessels should take care to keep well south of the wreck. The position of the wreck as shown on the chart is correct.

There are breakers about a third of a mile west of the western edge of the channel, half way between its northern and southern ends. There are also breakers (shown on the chart as Lookout Breakers) about a third of a mile south of the southern end of the channel. In addition, there are several spots on each side of the channel where the depth is one or two feet less than the least depth of the channel itself. Some of these soundings are near positions 45c, 107c, 159d, 18d, and 7c.

Because of undulating character of the sandy bottom, several shoal soundings occurred. No great amount of development was done, however, because several crossings verified such soundings, because the bottom is known to be uneven, and because the object of the survey was merely to locate a channel unobstructed by shoals which would be dangerous to vessels used in that locality. Some drift sounding was done for 20 minutes at position 89g to ascertain whether a shoaler spot existed than at first found but nothing less than 10 feet was discovered.

CHANNEL : The Instructions of June 11-th mention a reef, so-called, extending along the east side of the shoal. No real reef was found but a sandy ridge runs approximately along the meridian 76°30.1 W. from Lookout Breakers to Latitude 34°33.7. The least depth found along this ridge was six feet (see pos. 71b, 83b). South of the southern end of the channel, near lat. 34°32, long. 76°30.3 a depth of 2 ft. was found but this was in the area of Lookout Breakers.

It was found that a straight channel 200 meters wide with a least depth of 10 feet at mean low water could be marked across Cape Lookout Shoals. This channel bears 187° true from the northern end as far as lat. 34°32.30, Long. 76°30.78. At this point the channel turns west to bear 281° true until the safe water west of the shoals is reached. The 10 foot depth exists in several places in the channel but the shoalest sounding, which also reduces to 10 ft.- was found at pos. 89 g.

The channel will be used principally by local fishing boats of a draft about 7 or 8 feet. It is the desire of the owners of these boats to have the channel marked in order that boats going to or from the fishing grounds north of Cape Lookout can take a short cut across the shoals instead of having to go around their southern extremity.

COMPARISON WITH PREVIOUS SURVEY : As a whole, the survey agrees with the old survey of 1865 but in several places the soundings differ by a few feet. This is to be expected because of currents and the sandy nature of the bottom.

Cape Lookout Bight.

SURVEY METHODS : The area in Cape Lookout Bight was surveyed by means of a launch, except for a few lines, a hundred meters apart, which were run by the ship.

The work was done by the usual method. All soundings were taken with a hand lead and all positions were visual fixes. The signals used were third order triangulation stations and topographic signals.

The sounding lines were spaced 50 meters apart, except some outside the breakwater, which were spaced wider because of unfavorable weather. The shore line outside and south of the breakwater could not be approached more closely than 150 meters because on the day of the hydrography the sea was choppy and the swell and surf were such as to make it unsafe to run closer to the shore.

DISCREPANCIES : No discrepancies in soundings or signals occurred.

DANGERS : A small wreck lies near the eastern shore

of the bight in 2 ft. of water. A piece of a mast projects a few feet above the water at low tide but does not show at high tide. This wreck is hardly a danger, however, as it is so close to the shore that aboat is not likely to come near it. The position of the wreck is Lat. 34°0', Long. 76°31.9 Prob. 37'

A wrecked scow lies just west of the northern end of the spit which is approximately in the middle of the area. It, too, however is in such shallow water that no boat is likely to come near it and it is plainly visible. Its position is Lat. 34°37.1 and Long. 76°32.6.

A sand spit, beginning about 200 meters south of Wreck Point (Topo signal SPIT), extends about 250 meters eastward into the bight and its extremity is marked by a spar, shown on the topogrraphic sheet as signal POST. This spit is quite steep on either side. Vessels should, of course, take care to pass east of the spar. The position of the end of the spit is Lat. 34°36.97, Long. 76°32.22.

The least depth found was one half foot at pos. 6g on a line run close to the shore line at high tide.

ANCHORAGE : Cape Lookout affords a very good anchorage, especially for small craft drawing less than nine feet. These can anchor toward the southern end of the bight, which is almost completely landlocked. The bottom is sticky and affords good holding ground. Small fishing and excursion boats use this anchorage, as well as an occasional Coast Guard chaser.

Comparison with Previous Surveys. The soundings of this survey agree well with those of the survey 1912. However, there has been considerable change in the high and low water lines, as mentioned in the descriptive report accompanying the topographic sheet of this area.

Respectfully submitted :

J. C. Bose

J. C. BOSE, Jr. H.&G.E.
U.S.M.V.NATOMA.

APPROVED AND FORWARDED:

Jack Senior

JACK SENIOR, Chief of Party.

STATISTICS FOR HYDROGRAPHIC SHEET, FIELD No. 3

	SHIP	LAUNCH	TOTAL
Number of Positions :	180	1201	1381
" " Soundings :	1000	5618	6618
Statute Miles of Sounding Lines :	18.4	170.0	188.4

TIDAL DATA SHEET TO ACCOMPANY TOPOGRAPHIC SHEET No. 3

(Cape Lookout Shoals, North Carolina)

—000—

LOCATION : Plain staff in Cape Lookout Bight.

PLANE OF REFERENCE : Mean Low Water 1.5 ft. on staff (1928)

HIGHEST TIDE OBSERVED: + 6.0 ft. at 6.00 p.m. July 16.

LOWEST TIDE OBSERVED: + 0.3 ft. at Noon, July 16.

SPECIAL REPORT

on surveys in the vicinity of Cape Lookout, N. C.,
executed by the
Party of the Motor Vessel NATOMA

June - July, 1928

Reference : Instructions dated June 11, June 26
and July 12, 1928.

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1. TRIANGULATION.

No triangulation was necessary other than the recovery of former stations and the use of previously determined landmarks for signals.

2. TOPOGRAPHY.

Revision surveys were executed of a section of the outer coast of Bogue Bank, eastward of Beaufort Entrance, and also of that section of Lookout Bight shown in sub-sketch on Chart 1233. The revision consisted of a complete plane-table re-survey of the areas affected. The field work was executed by Lieut.(j.g.) Chas. R. Bush, Jr., on two sheets, designated in the field as "A" and "B". The above sheets and the descriptive reports accompanying same, have been examined and verified, and are approved.

3. HYDROGRAPHY.

The hydrographic work executed under Instructions in above reference, is depicted on Hydrographic Sheet No.3 (field designation) and supplemented by the descriptive report written by Lieut. J. C. Bose. The sheet and report have been verified and are approved.

(a) A straight channel across Lookout Shoals, 200 meters wide, with a depth of 10 feet at mean low water, was developed. The northern and southern extremities of channel, were marked temporarily, by means of 4-th class nun buoys. The party then remained in the field till the arrival of the Lighthouse tender "ORCHID" to further assist that department in marking the channel. The northern navigational buoy was placed prior to the departure of the"NATOMA" from Morehead City. However, due to unfavorable weather, shallow water, and contracted swinging room, at the south end of channel, the master of the Lighthouse tender, deemed it best to await more favorable conditions. The "NATOMA" then dragged a second survey marker to the south end, to supplement

first buoy, previously placed in position, to mark south end of channel, till such time as the Lighthouse Department was able to mark channel permanently. It had been the experience of this party that the survey buoys kept their position very well. Since the survey work of the above Instructions was accomplished, and a period of stormy weather in prospect, it was not deemed advisable to remain in the field any longer. The master of the ORCHID was given all necessary data for marking the channel. The "NATOMA" sailed for Norfolk, Va., on July 21-st.

It is recommended that, on account of the strong currents existing across these shoals, that range buoys be placed in addition to, or supplementing the end buoys, to assist the mariners in holding a mid-channel course.

The position of the northern buoy marker is in latitude $34^{0}34.8$, longitude $76^{0}30.45$. The position of survey buoys marking the southern extremity of channel is in latitude $34^{0}32.30$, longitude $76^{0}30.78$. There are breakers 450 meters southeast of the southern extremity of channel. A line of soundings was run to define its northern limits. As indicated by the survey, it will not be necessary to run as far south as the indicated position of buoy marking the southern end of channel. A westerly course can be made safely approximately in latitude $34^{0}32.5$. This turning point might also act as the front range for southern part of channel. A buoy at this turning point is suggested lest the tendency be to make the turn too soon, which would lead into undeveloped area and depths of less than 10 feet. Two buoys in range for the northern part of the channel are likewise recommended to keep clear of several 8½ feet shoals bordering on either side of, and close to channel.

As stated in the descriptive report accompanying hydrographic sheet, it was necessary to supplement shore signals with buoy signals for work on the shoals. The locations of buoys were obtained graphically on a specially constructed projection, scale 1 : 30,000. This sheet is forwarded together with sounding sheet. It was found that buoys kept their position very well, and because of the uncertain currents, and considering the short scope of chain used with buoys, no attempt was made to adjust buoy positions for the 6 - 7 fms of chain used, in plotting smooth sheet.

(b) A hydrographic re-survey of that section of Lookout Bight shown in sub-sketch on Chart 1233 was made. A complete development was made of area effected, except south of the breakwater, where close approach to coast was not possible because of heavy breakers, and it was not deemed to be the intent of the Instructions to delay the ship's sailing to Norfolk in order to complete the soundings close to this section of the coast. The hydrographic and topographic surveys check closely the surveys of 1912.

The correct azimuth and limits of the breakwater were obtained also position of lighted buoy. That section of breakwater submerged at

low water is indicated in dashed lines. The dashed lines on Chart 1233 have no significance other than projected contemplated development and should be romoved.

Jack Senior

JACK SENIOR, H. & G. E.
Chief of Party, Cmdg.
U.S.M.V. NATOMA.

T-814

Copy for Section of Field Records files.

September 5, 1928.

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
6 volumes of sounding records for

HYDROGRAPHIC SHEET 4802

Locality: VICINITY OF CAPE LOOKOUT, N. C.

Chief of Party: Jack Senior, 1928.
Plane of reference is M L W
1.5 ft. on tide staff at Cape Lookout.

Condition of records satisfactory except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of each day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.

Paul P. Whitney

Chief, Division of Tides and Currents.

IN REPLY ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY
AND NOT THE SIGNER OF THIS LETTER

AND REFER TO No. 11-DHM

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

October 22, 1928.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4802

Cape Lookout Shoals and Cape Lookout Bight, North Carolina

Surveyed in 1928

Instructions dated June 11, 1928 and July 12, 1928 (NATOMA)

Chief of Party, Jack Senior.

Surveyed by J. Senior and J. C. Bose.

Protracted and soundings plotted by W. J. Chovan.

Verified and inked by J. Fleming.

1. The records conform to the requirements of the General Instructions.

2. The plan and extent of development fulfill the requirements of the specific instructions with the following exceptions:

   a. The spacing of the lines in some portions of the channel exceeds the 50 meter limit set by the instructions. These will be mentioned below.

   b. Paragraph 6 of the instructions of June 11, 1928 calls for the running of 300 meter lines across the shoals between the 5 fathom curves from Cape Lookout to Lookout Breakers. This work was extended approximately to those limits on the eastern side of the shoal, that is, to the east of Long. 76° 31', but no lines were run across the shoal to the westward of this meridian.

3. The sounding line crossings are generally adequate. There were some discrepancies, due perhaps to the inequalities of the bottom or to the strong currents prevailing here at times (see page 2, descriptive report). In accordance with the customary practice the shoaler sounding was used in all cases where there was a conflict.

4. The information is sufficient for drawing the depth curves in the vicinity of the channel. Beyond this area the information is sufficient to determine the trend of the various

depth curves. In Cape Lookout Bight all the curves can be drawn except in the inshore area just south of the breakwater, where the swell and surf prevented the extension of the work further inshore.

5. The usual field plotting was done by the field party and was found to be generally good. There were several instances where the errors in protracting amounted to over 50 meters.

6. The work in Cape Lookout Bight was carried to a point where a good agreement was effected with the 1912 survey, H. 3374. It will therefore be possible to use the 1912 survey to fill in any area that falls beyond the limits of the present survey. Considerable change has taken place in the vicinity of Wreck Pt. The shoaling that has taken place about 500 meters southwest of lat. 34° 37', long. 76° 33' is doubtless due to the construction of the breakwater.

No comparison has been made with the 1865 survey for the area between Cape Lookout and Lookout Breakers.

7. While it is believed that the channel developed will be sufficient to accommodate the average draft boat that will use this, it cannot be said that the channel as laid out by the field party is safe for 10 feet at mean low water and for two reasons: In the first place, there is an insufficient development in the vicinity of the 10 1/2 foot spot in lat. 34° 33' 1168 m., long. 76° 30' 880 m. The distance between this sounding and the nearest sounding in the center of the channel is 70 meters, leaving an area of uncertain depth.

Secondly, there is a 9 1/2 foot sounding in lat. 34° 32', 1307 m., long. 76° 30' 1120 m. which lies 36 meters from the center of the channel as laid down by the field party. It should be noted that the field party recommends that a 10 foot sounding be plotted here (see note at position 89 e, vol. 4, page 66) owing to the fact that the leadsman made an allowance for choppy seas in many cases of as much as 9". It was, nevertheless, not deemed advisable to accept this recommendation, since it would be a departure from the usual practice of leaning to the side of safety. A 9 1/2 foot sounding was therefore plotted. (Concurred in by Chief of Field Records.)

An examination of the completed survey would seem to indicate that a mid-channel sailing line on a course of 188° true, instead of 187° recommended by the field party, would better establish a 10-foot depth at mean low water.

8. Additional soundings would have been desirable in the channel between lat. 34° 34' and the north end of the channel. Also in the channel in the vicinity of lat. 34° 33 1/4'. (See below)++

9. Attention is called to the fact that the statement in the descriptive report (page 2, paragraph 4) that the chart shows a buoy at the wreck located by this party in lat. 34° 33'.4, long. 76° 31'.6 is incorrect. The present chart shows a buoy at the northernmost wreck which is about 750 meters northwest of the wreck located by this party. No buoy has ever been charted at the lower wreck. It is quite likely that the surveyor in hurriedly glancing at the chart saw the wreck with the buoy and believed that that was the wreck he located. However, his statement does leave in doubt the question whether the buoy at the northernmost wreck still exists. This matter should be referred to the Lighthouse Bureau or the Chief of Party.

10. The 7 foot sounding on H. 885 in lat. 34° 33' 932 m., long. 70° 30' 982 m. appears no longer to exist.

11. Reviewed by A. L. Shalowitz, October, 1928.

Approved:

Chief, Section of Field Records (Charts)

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

++Split lines should have been run across the 6 foot bank to the east of the channel between lat. 34° 33' and 34° 33'.5.

Field Records Section

Report on H 4802 —— Surveyed in 1928
Chief of Party Jack Senior — Surveyed by J. S. & J. G. Bose
Protracted by W. J. Choran — Soundings plotted by W. J. C.
Verified and Inked by J. O. Fleming

(1) Records conform to requirements of G.I. ✓

(2) Plan and character of development fulfills requirements of G.I.

(3) Sounding line crossings are adequate see page (2 descript Rpt)

(4) Depth curves in and about the channel can be completely drawn ✓

(5) The field plotting was 'Very good' and was complete to the extent prescribed in G.I. ✓

(6) It is believed that the plan and character of this development has brought out very definately the profile of this channel and it appear extremely unlikely ✓ that any lesser depths exist in the channel.

(7) Names of C. Lockhart and C.L. shoals were enlarged and inked. and all other notes, also were inked at ✓ the office (except as noted at bottom of page 2)

(8) There were several positions which were more than 50 Meters out of true position

Some of these were less

examples		
	54 - f	40 M.
	127 - f	50 "
	6 - h	60 "
	15 - J	60 "
	58 - b	35 "

6 - h was plotted on the low water line and showed a depth of 16 ft. ✓

(9) Positions 1k and 15 - b are uncertain owing to the fact that the circles passing thru the positions make a very small angle with each other. They were plotted using the difference in compass bearing from pos. 13 and the time. ✓

Approximately 200 Meters N.W. of 'Spit' are several 2 FT. Soundings.
A Comparison with the survey of 1912 shows that the depth here has changed from 24 ft in 1912 to 2 ft. in 1928.
Aprox. 600 Meters N.W. of 'Ban' and on the side of the breakwater is a 7 FT Sounding. The survey of 1912 shows that the depth at that time was 42 FT.
Appra 300 Meters S.E. of Ban are shown several 13 FT and 14 FT Soundings
The 1912 sheet shows depths between 34 and 39 FT
No doubt the changes are largely due to the formation of the breakwater
but attention is called to the general shoaling tendency South of 'BAN'

The Descriptive Report states that the wreck in Lat 34° 33.4" Long. 76° 31.62" is shown with a buoy on chart 1233 but that at the time of the survey the buoy did not exist.
It is desired to call attention to the fact that a buoy is not shown near that particular wreck on chart 1233 but a buoy is shown on a wreck in Lat 34° 33.7' Long. 76° 31.9' or about 700 meters N. West of the wreck described in the descriptive Report.
According to the report on the 1912 Survey the wreck to the South is that of a barge tramp steamer.
The 1912 position data - The 1928 position data and the position as actually plotted on the smooth sheet are conflicting and the boat sheet does not agree with either.
Perhaps the most reliable information is that given on Vol. 2 Page 20 sounding records under remarks.
Position 28-b was carefully checked and found to be correct
The note says 'wreck 20 meters starboard beam' and it is doubtful if the error in estimating such a short distance will exceed 20%.
It is therefore deduced that the platted position on the smooth sheet represents approximately the true position of the wreck described in the 1912 and 1928 reports.
The position of the wreck, using the various data, has been plotted on the smooth sheet for the purpose of comparison and study.
The wreck to the N.W. is not mentioned in the descriptive report and its position, scaled from chart 1233, has been plotted on the smooth sheet. This is the wreck with the buoy.

Pencil lines 200 meters apart and parallel to the mid channel sailing line have been drawn on the smooth sheet to show the approximate limits of the channel
It will be noted that only one sounding less than 10 ft is to be found between the pencil lines and this is a 9 FT sounding in Lat 34° 32.7" ✓
This sounding is questionable.
In Vol. 4 - Page 66 the lead line sounding was 2 fath 1 FT and the Tide reducer was 3.5 FT from which we obtain a reduced sounding of 9.5 ft
yet the note says that the sounding reduced to 9.7 ft

REPORT ON H 4802

The chief of party stated that owing to a choppy sea as much as 9" was allowed. and therefore the 10 FT sounding value is "safe and correct" It is not clear why this applies only to the shoalest sounding within the limits of the lines representing the channel

In view of the fact that the reduced sounding value is 9.5 FT and not 9.7 FT as stated in the record and in view of the fact that the sounding value has been manipulated to make it a 10 ft sounding it is thought that there are insufficient grounds for making an exception in the case of the shoalest sounding or for treating it in any way to make it fit a desired 'least depth' in such an important waterway. The sounding value of 9 FT has therefore been placed near 9½ mid channel.

The channel appears to have been very well developed but there is one spot in the channel in Lat 34° 33.65" which contains a 10 ft sounding. The region to the N.W of this sounding is not sufficiently developed and is very doubtful

Referring again to the wreck (towards the South) it is thought that possibly the wreck has shifted a distance in a Southerly direction equal to the difference between the date of 1912 and the date of 1928.

Recapitulation

The entire work was Very good

The Survey and development brought out the fact that changes in depth were not great except in Two spots already referred to.

The channel is well developed and only one spot in Lat 34.33.65" appears doubtful.

The question of the existence of only one wreck or two wrecks and their positions should be settled

The existence of a buoy on a wreck in Lat 34° 33.7" Long 76° 31.9" should be proved or disproved

Respectfully submitted

John Fleming

Oct. 16, 1928

P.S. Page #2 paragraph 2 Descriptive R. states that shoalest sounding was at Pos 18 & This is erroneous and the shoalest sounding in the channel occurs at Pos. 89-e

Form 537
11—5812

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. 4802

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. 3

REGISTER NO. 4802

State NORTH CAROLINA

General locality Cape Lookout

Locality Cape Lookout Shoals and Cape Lookout Bight.

Scale 1 : 10.000 Date of survey June 28 - July 20-th, 1928

Vessel M. V. NATOMA

Chief of Party JACK SENIOR, H.&G.E.

Surveyed by JACK SENIOR and J. C. BOSE.

Protracted by W. J. CHOVAN.

Soundings penciled by W. J. CHOVAN

Soundings in ~~fathems~~ feet

Plane of reference Mean Low Water (1.5 on T.S.)

Subdivision of wire dragged areas by

Inked by J. Fleming Oct-17-1928

Verified by J.F

Instructions dated June 11-th and July 12-th, 192 8

Remarks: Surveyed by Ship and Launch.

GPO

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 4802

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

Number of positions on sheet	1,381
Number of positions checked	366
Number of positions revised	23
Number of soundings recorded	6,500
Number of soundings revised	43
Number of signals erroneously plotted or transferred	NONE

Date: Oct. 17, 1928

Cartographer: John Fleming