

4615

C. & G. SURVEY
L. & A.
APR 18 1927
Acc. No.

Form 504

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

State: N. & S. Carolina

11-5013

DESCRIPTIVE REPORT.

Hydrographic Sheet No. "A". 4615

LOCALITY:

N. Part of Coast of S. C.

Mad Inlet to Vicinity of

Murrell Inlet

1925 - 26.

CHIEF OF PARTY:

K. T. Adams.

4615

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

The finished Hydrographic Sheet is to be accompanied by the following title sheet, filled in as completely as possible, when the sheet is forwarded to the Office.

4615

U. S. Coast and Geodetic Survey.

Register No. ^A 4615

State North & South Carolina

General locality North End of Coast of S.C.

Locality Mad. Inlet to Vicinity of Murrell Inlet

Chief of party K.T. Adams

Surveyed by K.T. Adams

Date of survey November 6, 1925 -- June 8, 1926

Scale 1 : 40,000

Soundings in Feet

Plane of reference MLW

Protracted by Bernstein . Soundings in pencil by Bernstein

Inked by Verified by

Records accompanying sheet (check those forwarded):

1 Des. report, _____ Tide books, _____ Marigrams, 2 Boat sheets,

¹⁶~~15~~ _____ Sounding books, _____ Wire-drag books, _____ Photographs.

Data from other sources affecting sheet

Remarks: *Vol. 16 of Soundings applies also to 4616 - It contains Buoy Location.*

D E S C R I P T I V E R E P O R T
T O A C C O M P A N Y
H Y D R O G R A P H I C S H E E T # A

Date of Instructions.. The work in this sheet was done under instructions dated April 21, 1924. The actual work was accomplished between the dates of November 6, 1925 and June 8, 1926.

General Description of the Coast. The entire coast is low and sand beach. In some places sand dunes may rise to height of perhaps fifty feet. Inshore from the beach is the tree line, back from one half to one mile. This tree line in general is about eighty or ninety feet high. There is a considerable settlement at Myrtle Beach which is visible from seaward. For a more detailed description of the coast and natural objects, refer to the topographic sheets covering this area.

Outlying Dangers and Islands. The entire coast is clear, there being no islands or shoals.

Currents, Tidal or Non-tidal. No current observations were taken. However it was noted that the current ran parallel to the beach inshore and was tidal but farther offshore the current more usually sets on and off shore. Probably the strongest current encountered was less than a knot and a half.

Land Marks. The only landmarks of value in navigation are (a) the small settlement near \triangle Nixon. (b) The high, white sand dune upon which \triangle Wind was located, which is very prominent and visible a long distance and (c) the hotel and settlement at Myrtle Beach.

Inshore Dangers. There are no inshore dangers for a vessel using reasonable caution. The two fathom curve is very close to the beach with the exception of in the vicinity of Little River Inlet where the shoals have built out as is usual in this country in the vicinity of inlets.

Bars and Channels. The only inlet in which any vessel may enter is at Little River Inlet where about five feet may be had at low tide. Of course this bar breaks badly with any sea and it is dangerous to cross at those times. It is buoyed but the channel is shifting and too much trust cannot be placed in the buoys unless it is known that they correctly mark the channel.

Anchorage. There are no protected anchorages. However this vessel has anchored all over this area in all kinds of weather and found the holding ground quite good.

Change of Coast Line or Depths. No noticeable change in depths was noted. For changes in shoreline refer to topographic sheets covering this area.

Survey Methods. The customary Coast Survey methods were used. Hand lead soundings were used entirely. Work to within about one mile of the beach was

done by the ship, and from that point inshore as close as possible by the launch. The launch work was done on a 1:20,000 scale, however being smooth plotted on the 1:40,000 scale ship sheets with the exception of the inlets of which a 1:20,000 insert was made. ✓

Control to about nine or ten miles offshore was visible by three point fixes on tall hydrographic signals. Beyond this point to the limit of the sheet, control was by visible three point fixes on anchored buoys which had been located by cuts from the ship. ✓

Location of Buoys. The above mentioned buoys were located by several methods. Some of them were located by cuts, as usual. Some were located by a three point fix taken from the ship very near the buoys, and on one or two cases temporary buoys were located by dead reckoning runs. ✓

Tides. During this period one tide gauge was maintained at Fort Caswell near the mouth of Cape Fear river. During the period when sounding was being done tides were read at Little River Inlet and later as the work progressed a tide gauge was installed at Murrell's Inlet and maintained to the completion of the work. ✓

K. T. Adams
Comdg

S T A T I S T I C S

Hydrographic Sheet "A"

North and South Carolina

Steamer LYDONIA --- K. T. Adams, Commanding.

1925

1926

Statistics -- Sheet "A"

1925	Date	Letter	Vol.	Positions.	Soundings.	Stat.Miles,	Vessel.
	Nov. 6	A	1	136	772	55.0	Lydonia.
	" 7	B	1	122	651	54.0	"
	" 8	C	1	46	312	22.0	"
	" 9	D	2	49	310	24.0	"
	" 10	E	"	81	490	37.0	"
	" 11	F	"	75	446	33.2	"
	" 12	G	"	14	67	4.7	"
	" 19	H	"	77	421	34.7	"
	" 19	H	3	23	126	10.6	"
	" 24	J	"	104	648	47.2	"
	Dec. 3	K	"	40	227	16.6	"
	" 4	L	"	31	194	10.3	"
	" 5	M	"	38	240	17.4	"
	" 9	N	"	53	337	23.0	"
	" 9	N	4	36	203	13.8	"
	" 10	P	"	70	411	27.4	"
	" 18	Q	"	86	483	53.0	"
	" 19	R	"	16	75	6.9	"
1926	Jän 4	S	"	12	74	6.3	"
	" 7	T	"	95	494	42.3	"
	" 7	T	5	28	177	4.9	"
	" 11	U	"	30	171	15.3	"
	" 12	V	"	30	182	17.3	"
	" 14	W	"	24	127	10.7	"
	" 15	X	"	94	632	55.4	"
	" 19	Y	"	72	437	46.0	"
	" 19	Y	6	2	19	1.1	"
	" 20	Z	"	84	247	21.8	"
	" 21	A	"	12	64	6.0	"
	" 27	B	"	61	397	36.2	"
	Feb. 2	C	"	52	344	29.6	"
	" 3	D	"	31	189	16.0	"
	" 4	E	"	62	283	30.2	"
	" 5	F	7	45	263	23.5	"
	" 10	G	"	57	348	30.0	"
	" 11	H	"	103	630	57.00	"
	" 24	J	"	16	110	8.0	"
	Apr. 1	K	8	147	820	92.5	"
	" 3	L	"	22	141	11.4	"
	" 6	M	"	74	479	42.2	"
	" 7	N	9	108	702	66.7	"
	" 9	P	"	122	592	79.0	"
	" 10	Q	"	50	305	24.2	"
	" 17	R	10	108	623	63.8	"
	" 18	S	"	35	181	17.5	"
	" 19	T	"	71	383	38.9	"

Date Letter Vol. Positions Soundings Stat. Miles. Vessel.

(continued)

1956

Apr.	20	U'	10	75	384	30.1	Lydonia.
"	20	U'	11	29	209	19.9	"
"	21	V'	11	57	341	29.9	"
"	22	W'	"	67	388	35.4	"
"	26	X'	"	21	132	8.9	"
"	28	Y'	"	87	500	44.6	"
"	28	Y'	12	11	80	6.8	"
May	5	Z'	"	17	93	8.6	"
"	11	A''	"	38	203	18.8	"
"	14	B''	"	73	290	45.4	"
"	18	C''	"	34	181	17.8	"
"	28	D''	"	16	108	10.5	"
"	29	E''	"	14	86	8.3	"
June	8	F''	"	19	132	12.3	"
Ship totals:- - - -				3302	18,954	18,25.8	

1925	Dec.	4	a	1	124	844	23.0	Launch.
"	"	5	b	"	23	152	2.5	"
"	"	10	c	"	95	489	17.3	"
1926	Jan.	4	d	"	24	149	6.0	"
"	Feb.	2	e	2	89	487	19.5	"
"	Apr.	2	f	"	97	609	26.5	"
"	"	3	g	"	51	346	14.4	"
"	"	7	h	3	104	830	19.1	"
"	May	7	j	"	46	267	11.4	"
Launch totals:				653	4173	139.7		

Sheet totals: 3955 23127 1965.5

Unit for Soundings -- Feet.

Plane of reference -- MLW.

Tide Gauge at Fort Caswell - Used a - b days - Used A - J'

Pl. of reference - (5.1')

Lowest tide -- (3.3') - 3/16/26.

Highest tide - (10.7') - 12/2/25.

Tide Gauge at Little River - Used c - e days - Used E - J'

Pl. of reference - (1.1')

Lowest tide -- (0.2') -- 1/14/26.

Highest tide - (7.5') -- 1/15/26.

Tide Gauge at Murrel's Inlet - Used f - j days , Used K' - F''

Pl. of reference (4.7')

Lowest tide - (1.8') - 4/26/26.

Highest tide - (11.3') - 5/28/26.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

Washington, September 13, 1927

Referred to:

Division of Hydrography and
Topography

For: Reference third paragraph of
letter from Commanding Officer,
Steamer LYDONIA, dated September 8,
1927.

It is probable that the tides at
the gauges in the Inlets mentioned
differ to some extent from the tides
outside but differences due to this
cause would be expected to explain
only a small fraction of the dis-
crepancies noted, especially as these
tides were used for both launch and
ship soundings.

G. Wade

Chief, Division Tides
and Currents.

11
Field Records.

It would appear
that the ship work
should be accepted
in place of the
launch work where
discrepancies are
noted on this and
adjacent sheets

Robson

Soundings omitted from
Lunch Records Hyd 4615

A day:

27
28-104A
27 105A
26
28 120A

B day:

28
28
28
29 6B
28
27 7B

C day

30 16c
31
30
30
30 17c
30 18c
30

30 64c
↓
To

31 68c
29
29
29
29
29

28
29
29
29
30 76c
↓
To
30 77c

28
28
28 87c
↓
To
28 92c
28
28

D day

28 4d
29
29 14d
↓
15d
26 16d
26
26

31
31
32
32 29c

31 30c
31
31
31
30
30 31c

30
30
30
30
30
30 32c

30
30 42c

30
31
31
31
31 54c

32 53c

32
31
31
30
30
30 56c

30
30
30
30
30
30 57c
30

OVER ↓

E day

27 1 E
↓
26 3 E
26
26

28
28
28 12E
28 13E
28

27
27 21E
↓
27 23E

30
30
30
31 44E

28
28
28 62E
↓
29 64E

29
29
29
29 73E
↓
29 76E

30
30
29

29
31
31 82E
↓
28 87E

28
28
28
28
28

F day

29 1F
to
28 3F instance

28
28
28
29
29 75F

30
30
30
29
30
31
31 11F
31 12F
31
31
31
31
- 19F
to
30 22F
30
30
30
30

29 41F
to
28 42F
28
28
27
27
28
28
28
49F
to
29 50F

28 60F
to
26 61F
26
26
25

27
27
28
28
28
28 67F
28 68F
28

G day

28 1G
28
28
27 2G
27

27
27
27
27-9G
to
27-12G

- 20G
to
28 23G

27
27
28
28
29
30 -45G

27 46G
27
27
26
26
26
26

H day

26 11H
to
25 14H
25
25
25
25
25
25

- 19H
26 21H

27
28
28 46H
26 47H
26
25
25
24

27
27
27
27
27 54H

27 55H
26
26

26
26 61H
to
25 63H

25
25
24
24
24
26 81H
26
26
26
25
25
25

J day

26
26
26 13J
to
27 15J
27
27
27
26

- 22J
to
26 25J
26
26

25
25 33J
25 34J
25
25

POST-OFFICE ADDRESS: Box 1344, Wilmington, N. C.

TELEGRAPH ADDRESS:

EXPRESS OFFICE:

SEP 9 11 17 AM '27

14
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DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

Steamer Lydonia,

Wilmington, N. C.
September 8, 1927.

To: The Director,
U.S.C. & G. Survey.

From: Commanding Officer,
U.S.C. & G.S.S. Lydonia.

Subject: Junction of Launch and Ship Work.

Reference: Your letter 10-rs.

There are returned herewith two photostatic copies of my hydrographic work done last year.

The junction of the launch and the ship work has been carefully examined by me and the following information is furnished:

It is suggested that, if it has not already been done, the tidal Section make a critical examination of the tides that were used to reduce these soundings. The Tide Staff at Little River Inlet and the Tide Gauge at Murrel's Inlet were in-side these Inlets and especially at Murrel's Inlet the channel of ingress and egress is very small. Tide gauges established this season in-side of Inlets have proved very unsatisfactory and have been discontinued. It is very questionable in my mind, now, if the gauge at Murrel's Inlet gave the true height of the tide for reducing out-side soundings.

It is my belief that the ship soundings are the more reliable, altho it must be admitted that the ship soundings are on the side of safety. The leadsman are taught to get an average depth if it is slightly rough, but to always read the lesser rather than the greater foot if there is any doubt in their minds.

I submit the following reasons to believe the ship work to be the more correct:

The ship is constantly doing hydrography and the leadsman get constant practise and become quite efficient.

A five or six fathom sounding is very easy to take from the ship and compared to a ten or twelve fathom sounding must

be correspondingly accurate.

On the in-shore ends of the lines the depth is watched closely by an officer on the bridge to make sure the ship is not in danger.

In the lesser depths sounded from the ship the lead hits the bottom well ahead of a vertical line and the leadsman has plenty of time to feel the bottom and read his lead line.

Opposed to the above:

The launch works very little, probably on an average of not more than a day a month, and the men are inexperienced, getting very little practise.

A five or six fathom sounding is the deepest depth for the launch and is correspondingly harder to get, whereas it is the easiest for the ship. Sounding from the launch there is no room for a swing of the lead to get a deep sounding.

The Officers in the launch cannot watch the soundings closely, because the lines are so short and are turned so often and signals are changed so often so that their attention is almost all taken up watching the signals

In five or six fathomsⁱⁿ the launch the lead hits the bottom just about at verticality and there is little time to feel the bottom and read the line; it is done hastily.

A very slight ripple in the water makes the launch roll and pitch and the soundings correspondingly difficult to get in the deeper water.

On the other hand, the ship sounds in comparatively rough weather where the swell or waves may make the soundings more inaccurate, whereas an attempt is made to do the launch work on the smoothest days.

At the very start of a line, soundings are very apt to be inaccurate for one or two soundings. It seems that it takes a sounding or two for the leadsman to get their bearings and get to swinging the right amount of leadline out. However this applies only to the start of the days work or where there has been a delay in starting a line.

An examination of the photostat shows inconsistencies in the own work. For instance: From 20 to 24 j day in the launch work is deeper than the line on each side of it. From 59 to 62 h days is is deeper than the line on each side of it. In fact, in the vicinity every alternate line is deeper than the line next to it. This throws a question on the accuracy of the launch work.

It is probable that the speed ~~the~~ was too great in this work to get good soundings. It is almost impossible to run a Navy Motorsailer at anything except full speed. In the area under consideration a

(The Director)

3

bucket was towed by the launch in an effort to slow the launch down enough. Since working north of Cape Fear a drag has been towed behind the launch which has slowed it down still more and the latest results have checked much better.

I feel reasonably sure of the locations of the positions in both both classes of work. I think no doubt should be cast on that part.

It would perhaps be of value to have a launch line and a ship line run parallel to the shore at this junction of the work, and if desired by the office this will be done in the future. It would not be feasible on the old work, as this would necessitate rebuilding and perhaps locating an enormous number of signals for just this one line.

Mr. Okeson, who did most of the launch hydrography and much of the ship work also, is going on leave in the near future and I have requested him to call at the office and give what assistance he can in straightening this matter out.

K. T. Adams

K. T. Adams,
Comdg. Officer,
Str. Lydonia.

June 16, 1927.

J.J.H.

(11)

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
16 volumes of sounding records for

HYDROGRAPHIC SHEET 4615

Locality: COAST OF N. and S. Carolina.

Chief of Party: F.G.Engle and K.T.Adams, 1925-1926.

Plane of reference is M L W

1.0 ft. on tide staff at Little River Inlet.

4.8 ft. -----do----- Murrell Inlet.

5.0 ft. -----do----- Ft. Caswell

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; **incorrect.**
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.

[Signature]

Chief, Division of Tides and Currents.

NOTE:- Lead line corrections for depth less than seven fathoms while entered to tenths of a foot have in some instances been taken to the nearest foot in making the field reductions.

Statistics on Hyd 4615

No. of days	45 d 5 h.
No of positions on sheet	3955
" " " checked	613
" " " changed	46.
(Note: all errors were negligible - changes being made to cause slight improvement in the lines affected resulted.)	
No of soundings on sheet	23,127
" " " inked	20,816

Attached is sheet showing lunar soundings omitted because of disagreement with ship work.

Inking H. 4615

(Conference between Colbert, Okeson, Shalowitz and Ellis -
concurrent in by Pagenhart)

At junctions of ship and launch work
plot all ship soundings.

When there is disagreement between the
two systems omit the launch soundings until
they are within one foot of the adjacent
ship soundings.

In cases where ^{there} is development by the
launch, all soundings should be inked.

E.P.

AND REFER TO No. 11-DRM

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

WASHINGTON December 28, 1927.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4615

Surveyed in 1925 and 1926

Instructions dated April 21, 1924.

Chief of Party, K. T. Adams.

Surveyed by Field Party.

Protracted and soundings plotted by P. L. Bernstein.

Verified and inked by H. E. MacEwen.

1. The records conform to the requirements of the General Instructions.
2. The plan and character of the development fulfill the requirements of the General Instructions.
3. The plan and extent of the development satisfy the specific instructions.
4. The sounding line crossings are adequate and good agreement was obtained except in a few instances enumerated in the "Remarks" paragraph.
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 of the drafting done by the field party.
8. The junctions with adjacent sheets are satisfactory.
9. No further surveying is required within the limits of this sheet unless it is desired to fill the gap left by the omission of many of the launch soundings or unless it is desired to run test lines along the inshore end of the work to determine which of the systems is more reliable.

The entrance channel of Little River Inlet could have been more completely covered between the buoys N4 and N8 by the running of one or more additional lines of soundings.

10. Remarks:

Attention is called to the fact that along the entire inshore end of this sheet at the junction of the launch and ship work, there was a difference ranging from 2 to 6 feet with the launch work almost consistently deeper than the ship work. After a thorough study was made in the office in an attempt to arrive at a satisfactory solution, the matter was referred to the Chief of Party for explanation. The letter in answer thereto is attached to the Descriptive Report of this sheet. The suggestion of the Chief of Party that the ship work is believed to be the more accurate led to the adoption by the Field Records Section of the following procedure in the verifying and inking of this sheet (concurred in by the Chief of Field Work):

a. Where the launch and ship work overlap and the differences are not in excess of one foot, the launch work was accepted. Otherwise the launch soundings were entirely omitted.

b. Where the two systems do not overlap, the launch work was accepted from the beach offshore to a point where the disagreement with the soundings on the inshore ends of the ship lines became greater than one foot, in which case they were entirely omitted. This accounts for the gaps in the work on the smooth sheet. Lines were run here by the launch but the soundings were from 2 to 5 feet deeper than the soundings on the inshore ends of the ship work. If the launch work had been accepted in its entirety unnatural representation of the bottom contours would have resulted. It was for this reason that the soundings in this zone were omitted.

There were some instances of poor agreement at line crossings. They are listed below. In all cases the lines involved were checked and found to be plotted correctly.

Between:		Difference
81Q and 82Q, 68'; 36G' and 37G', 63'	Lat. 33°36'37" Long. 78°32'12"	5 feet
30Q and 31Q, 56'; 46Y and 47Y, 53'	Lat. 33°37'42" Long. 78°35'54"	3 feet
20P and 21P, 37'; 31X, 33'	Lat. 33°43'30" Long. 78°42'29"	4 feet
24E and 25E, 27'; 13X and 14X, 23'	Lat. 33°43'12" Long. 78°46'27"	4 feet

74Y, 43'; 25Y and 26Y, 46'	Lat. 33°38'12" Long. 78°38'52"	3 feet
38H' and 39H', 50'; 28Y and 29Y, 54'	Lat. 33°36'52" Long. 78°40'35"	4 feet
45F', 47'; 31Y and 32Y, 52'	Lat. 33°35'45" Long. 78°42'02"	5 feet
35H' and 36H', 50'; 40Y and 41Y, 56'	Lat. 33°35'22" Long. 78°38'58"	6 feet
38Y to 39Y runs parallel to 21Q' to 22Q'; depths vary 3 feet		
36W' and 37W', 47'; 9E' and 10E', 44'	Lat. 33°31'23" Long. 78°48'02"	3 feet
45F', 47'; 31Y and 32Y, 52'	Lat. 33°35'45" Long. 78°42'02"	5 feet.
11M', 38'; 20Y', 34'	Lat. 33°33'08" Long. 78°51'33"	4 feet

11. Rating of work:

- a. Character and scope of surveying, good.
- b. Field drafting, excellent.

12. Reviewed by H. E. MacEwen, December, 1927.

Sheet inspected by A.L.S.

Approved:

Chief, Section of Field Records (Charts)

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