

4299

Diag. Cht. No. 1244

Form 504

U. S. COAST AND GEODETIC SURVEY  
DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. \_\_\_\_\_ Office No. H-4299

LOCALITY

State FLORIDA

General locality EAST COAST OF FLORIDA

Locality VICINITY OF MATANZAS INLET

19 23

CHIEF OF PARTY

R. F. Luce & A. M. Sobieralski

LIBRARY & ARCHIVES

DATE NOVEMBER 7, 1923

8-1870-1 (1)

4299

DESCRIPTIVE REPORT

to accompany

Hydrographic Sheet A

East Coast of Florida

Lat.  $29^{\circ}-47.5'$  to Lat.  $29^{\circ}-54.7'$

Scale 1-40,000

\* \* \* \* \*  
\* \* \* \* \*

U.S.C. & G.S. Str. Lydonia

Jan.-Apr. 1923.

R. F. Luce & A. M. Sobieralski

Chief of Party.

\* \* \* \* \*

## Descriptive Report

to accompany

Hydrographic Sheet "A".,

East Coast of Florida

This sheet shows the fixed position work done by the Str. Lydonia off the East Coast of Florida during the season 1922-1923. The hydrography was done under instructions dated Nov. 7, 1922. The northern part of the sheet was done under the direction of Lt. Comdr. R. F. Luce, while the southern part of the sheet was done under the direction of Lt. A. M. Sobieralski.

### SIGNALS.

Tall signals were built by a party from the ship. Fixed positions were carried as far off shore as possible using these signals. Near the limit of visibility of these signals, the ship was anchored with a short scope of chain, and cuts taken to floating signals placed about 10 miles off shore, and spaced about  $2\frac{1}{2}$  miles apart. Fixed positions were then carried about 2 miles beyond these buoys. Under more favorable weather conditions, it might be possible to locate these buoys at a greater distance from shore, but with the hazy weather experienced off this coast during the winter months, the best weather had to be used to locate these buoys even at this distance.

The usual type of single barrel floating signal was used. They were anchored in about 10 fathoms, with two concrete anchors, about 200 lbs. each. Either  $3\frac{1}{2}$ " manila or  $3/8$ " galv. cast steel rope was used, 20 fathoms on each anchor and a stray line of about 10 fathoms. The anchors were well spread, and the buoys not only kept their place, but this method had the additional advantage of reducing the scope and the weight of the anchors. The cause of buoys going adrift was found to be either chafe in the anchor line or the shackles giving way. Pin shackles are preferable to screw shackles.

The tall signals were built over triangulation stations if possible. Scott and Rheems were first located by sextant cuts from the ship, while the shore party located them by a rough traverse with steel tape, and later the topographer located them with the plane table. I have used the hydrographic location of the signals, for although the different

locations agree very closely, the position determined by the hydrographic party is about the mean of the other two. The cuts to locate the floating signals are recorded in a separate volume of "Angles". Wherever possible the horizon was closed and the closure distributed among the angles. In plotting these cuts, I found that the best results were obtained by first determining a mean position, that is, if angles were taken to more than three signals already located, the position of the observer is first determined by plotting various combinations of these angles, and the cuts then plotted from this mean position. I tried to avoid cuts to signals more than 6 miles away, as the results are generally unsatisfactory. Better results were always obtained in clear weather than in hazy weather, but as clear weather was scarce, it was often difficult to get cuts to agree.

While the instructions called for lines spaced  $\frac{1}{2}$  mile outside of the 10 fathom curve, this curve is so irregular that the lines were spaced  $\frac{1}{4}$  mile to the outer 10 fathom curve. In other respects, the instructions were followed.

Crossings are generally good. In one place L<sup>34</sup> to L<sup>49</sup> "g" day, the soundings did not cross and the line was re-run. The discrepancy was probably due to an inexperienced leadsmen. Suitable notes were placed in the record.

#### PLANE OF REFERENCE.

The tide staff at Matanzas Inlet was the only place at which tidal observations were being taken when I took up the work. The staff was poorly located, and the range was so reduced, that the readings had to be increased  $\frac{1}{3}$  before being applied as reducers, as directed by Office letter # 41/WHM dated Sept. 7, 1923, copy of which is attached to this report.

As soon as possible, I installed an automatic tide gauge at St. Augustine, and after March 15, this gauge was used for tide reducers. There is some overlap in the areas where the different tide stations are used, but roughly, the Matanzas Inlet tide staff was used north of Lat. 29°-40.5' and the St. Augustine gauge was used south of this line. It would have been desirable to obtain some readings on the outside coast, but I believe the St. Augustine gauge gives readings close enough for this work, as there appears to be little difference between Fernandina and Cape Canaveral, and it may be assumed that the time and height of the tide is the same along this whole coast.

#### GENERAL DESCRIPTION.

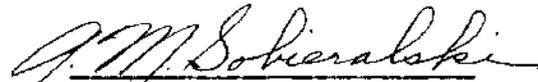
The 10 fathom curve follows the general trend of the coast at a distance of 2 - 3 miles. At a distance of about 6 miles from the coast

there are a series of narrow banks running north and south with depths of 8 - 10 fathoms. Further off shore, there are 10 fathom banks of irregular shape projecting roughly at right angles to the coast as much as 12 miles from shore. The 10 fathom curve is therefore no guide to the distance off shore.

No shoals were discovered. A 51 foot spot (see L<sup>10</sup> M) in Lat. 29°-41.0 Long. 81°-08.1 surrounded by a uniform depth of 65 feet looks like an error, although the sounding was checked. However, the soundings close by show a slight indication so that this may be a small detached shoal. Otherwise, the soundings agree well with those shown on the charts of this vicinity.

A development of the spring off Crescent Beach is shown on an enlarged scale 1-2,000. This day's work was plotted on a 1-20,000 projection and enlarged by using proportional dividers. The soundings in red show the points at which specimens and water temperature observations were taken to determine the quality of the water from the spring. A separate report describes this work, and a tracing of this enlargement was submitted with that report.

Respectfully submitted.



A. M. Sobieralski,  
Chief of Party, C.&G. Survey.

To the Director,  
U.S. Coast & Geodetic Survey,  
Washington, D.C.

\*\*\*\*\* STATISTICS SHEET No. A. \*\*\*\*\*

1923	LETTER DAY	VOLUME	POSITION	SOUNDINGS	MILES STATUTE	VESSEL	
Jan.	10	A	1	62	193	15.8	LYDONIA
	11	B	1	29	84	6.6	"
	16	C	1	80	275	23.2	"
	17	D	1	122	431	35.7	"
	18	E	1&2	73	220	19.7	"
	19	F	2	38	127	11.7	"
	26	G	2	159	555	47.8	"
	29	H	2	44	156	13.0	"
	31	J	3	89	301	25.75	"
Feb.	1	K	3	50	155	14.1	"
	8	L	3	118	397	30.5	"
	13	M	3	24	73	7.0	"
	14	N	4	90	267	23.0	"
	15	P	4	181	617	51.1	"
	16	Q	4	9	37	4.7	"
Mar	5	R	4&5	43	122	8.0	"
	6	S	5	133	393	34.6	"
	7	T	5&6	164	491	43.5	"
	8	V	6	53	187	15.6	"
	22	W	6	7	20	1.4	"
	27	X	6	102	307	27.0	"
Apr	5	Y	6&7	120	401	35.0	"
	6	Z	7	18	112	10.0	"
	7	AA	7	56	174	16.0	"
	9	BB	7	23	191	14.4	"
	10	CC	7	77	290	20.9	"
	11	DD	7&8	149	596	45.2	"
	12	EE	8	219	477	43.8	"
	13	FF	8	19	75	6.5	"
	17	GG	8	53	180	17.3	"
	18	HH	8&9	136	411	38.2	"
	19	JJ	9	138	453	43.0	"
	20	KK	9&10	103	411	36.9	"
TOTAL- - - - -				2781	9179	786.95	

COPY TO FIELD RECORDS

C. I. C.

Nov. 14, 1923.

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in  
10 volumes of sounding records for

HYDROGRAPHIC SHEET 4299

Locality: Off Matanzas Inlet and St. Augustine, Fla.

Chief of Party: R. F. Luce and A. M. Sobieralski in 1923

Plane of reference is mean low water, reading  
1.4 ft. on tide staff at Summer Haven (Matanzas Inlet)

6.5 " " auto-gauge at St. Augustine

For reduction of soundings, 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.



Chief, Division of Tides and Currents.

# Report on Hydrog. Sheet

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The work covered by this sheet was done very satisfactorily. In addition to the hydrography, an investigation was also made of a spring off Crescent Beach, Fla., in connection with which a collection of bottled samples of the water at the surface and at the bottom were made and also the corresponding temperatures noted. A sub plan enlargement of this spring, 1-2,000, was made which shows the development of this strange phenomenon. It will be noted that the soundings in red in the sub plan are the <sup>positions</sup> from which samples of the water were taken.

The sounding records appear complete and contain sufficient notes pertaining to the progress of the work. In this connection mention is made of Buoy, Fox and Cam, which moved out of their places due to either chafe in the anchor or the shackles giving away as described in the descriptive report, but note of these changes was made and positions relocated.

Report on Hydrog. Sheet (cont)

(2)

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The plotting of the soundings ~~was~~ satisfactory, but might have been improved for inking in if not so hard a pencil was used. In the sub plan the position numbers are too large, being almost as large in some cases as the soundings. There were ~~omissions~~ in some instances of the full numbers of <sup>same</sup> soundings which could be plotted between two positions, and a lesser number ~~was~~ supplied instead, though the time intervals in all cases were evenly spaced.

The projecting appeared to be good with but one exception. "1<sub>E</sub>" of the first line of the sheet was found incorrectly plotted. The projecting done in the sub plan was done first on 1-20,000 scale ~~enlargement~~ <sup>projection</sup> and enlarged to 1-2,000 by use of proportional dividers. The work done in the sub plan appears to be accurate and has been accepted.

Respectfully submitted,

B. Prigari

Mar. 25, 1924

ADDRESS THE DIRECTOR  
U. S. COAST AND GEODETIC SURVEY  
AND REFER TO No. 4-DEM

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

WASHINGTON

April 22, 1924.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4299

Vicinity of Matanzas Inlet

Surveyed in 1923

Instructions dated Nov. 4, 1922 and Feb. 26, 1923.

Chiefs of Party, R. F. Luce and A. M. Sobieralski.

Surveyed by party of Steamer LYDONIA.

Protracted by G. J. Itter.

Soundings plotted by E. H. Bernstein.

Verified and inked by G. Risegari.

1. The records conform to the requirements of the General Instructions.
2. The plan and character of development conform to the requirements of the General Instructions.
3. The plan and extent of development satisfy the specific instructions.
4. The sounding line crossings are adequate.
5. The information is sufficient for drawing the usual depth curves.
6. The field plotting was completed to the extent prescribed in the General Instructions. The lead pencil used in plotting soundings was too hard which added to the difficulty of inking.
7. The junctions with the adjacent sheets are satisfactory.
8. The character and scope of the surveying and field drafting are excellent.
9. Reviewed by E. P. Ellis, April, 1924.

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.

U. S. Coast and Geodetic Survey.

Register No. **4299**

State **FLORIDA.**

General locality **E. Coast of Florida.**

Locality **Vicinity of Matanzas Inlet**  
~~Lat. 29° 47.5' to Lat. 29° 34.7'~~

Chief of party **Party of Str. Lydonia.**  
~~R. F. Luce and A. M. Sobieralski~~

Surveyed by **R. F. Luce and A. M. Sobieralski.**

Date of survey **January 10 - April 20, 1923.**

Scale **1:2,000**  
**1-40,000**

Soundings in **Feet.**

Plane of reference **M.L.W.**

Protracted by **C.J. Ifter.** Soundings in pencil by **E.H. Barnstein**

Inked by **G. Risehari.** Verified by **G.R.**

Records accompanying sheet (check those forwarded):

Des. report, \_\_\_\_\_ Tide books, \_\_\_\_\_ Marigrams, 1 Boat sheets,  
10 Sounding books, \_\_\_\_\_ Wire-drag books, \_\_\_\_\_ Photographs. **2 angle books.**

Data from other sources affecting sheet

Remarks: