5116

Drag. Cht. No. 1246

Form 504
Ed. June, 1928

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
R. S. Patton, Director

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DESCRIPTIVE REPORT

~~Topographic~~ xx
Hydrographic } Sheet No. 2 5116

LOCALITY

East Coast ~~of Florida~~

~~South of Cape Canaveral~~

Offshore of Sebastian Inlet

1931

CHIEF OF PARTY

George D. Cowie

U. S. GOVERNMENT PRINTING OFFICE: 1928

5116

Form 537
Ed. Sept., 1929

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

REG. NO. 5116

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. 2

REGISTER NO. 5116

State Florida

General locality East Coast

Locality Offshore of Sebastian Inlet ~~South of Cape Canaveral~~

Scale 1:40,000 Date of survey March 21-25 incl., 19 31

Vessel U.S.C. & G.S.S. LYDONIA

Chief of Party George D. Cowie

Surveyed by George D. Cowie and L. S. Hubbard

Protracted by J. S. Morton

Soundings penciled by J. S. Morton

Soundings in ~~fathoms~~ feet

Plane of reference Mean Low Water

Subdivision of wire dragged areas by

Inked by

Verified by

Instructions dated January 5, 19 31

Remarks:

U. S. GOVERNMENT PRINTING OFFICE: 1930

DESCRIPTIVE REPORT TO ACCOMPANY

HYDROGRAPHIC SHEET NO. 2

The work was authorized by the Directors Instructions dated January 5, 1931.

This sheet comes within the area between the ten and twenty-four fathom curves, about midway between Cape Canaveral and Fort Pierce, Florida. On the north, along the parallel 28° 05' this sheet joins sheet No. 1 and on the east makes junction with sheet No. 3 along the meridian 80° 08'. The southern junction of this sheet is with the work executed by the RANGER in 1930 along a line bearing 68° true from a point at latitude 27-54.2 longitude 80-16.0; and with the inshore work done by the LYDONIA in 1930, on the west, along a line bearing 335° true from the same point.

In this area the bottom is chiefly hard mud with some gravel and broken shell in it. There were no appreciable irregularities of the bottom found, the slope is moderate, tho more steep outside of the sixteen fathom curve than inside.

The 412 (hammer) type fathometer was used for obtaining the depths and lead line substituted when the fathometer was out of order. The results from the fathometer were satisfactory, the chief cause of trouble being the spring in hammer which broke quite frequently. This would usually cause a delay of about two hours to replace the spring at which times the lead line was substituted. This necessitated running at slow speed. It was also found that the index corrections would vary thru the day but this was taken care of by ~~taking~~ making frequent comparisons with the hand lead at the inner and outer ends of the lines.

All soundings were corrected for tide; in addition fathometer

soundings were corrected for the salinity and temperature of the water, and an index correction ascertained by comparisons, hand lead and fathometer. This index correction was applied as varying directly with time between succeeding comparisons.

The control for this work was entirely floating signals. Eighteen single drum buoys being used. One line of buoys was planted along the inshore limit of the work (EGG to INK) in about 12 fathoms of water, and a line along the offshore limit (EMMA to IZZY) in about 20 fathoms of water. Between these two lines a sufficient number of buoys were planted to give control at all times and to locate the outer line of buoys with reasonable accuracy.

The buoys in the area concerned by this sheet were located by sun azimuths and double log runs from one buoy (EGG), which was located by sextant cuts, using shore objects for the fix. There were two exceptions to this, buoys HOT and HAND were located by sextant cuts using previously located buoys for the fix. In this area there is one closed loop of buoys, EGG to EMMA to GOOD to GET, which was computed and adjusted by the transit rule. The error of closure was about 150 meters in distance and less than 1 minute in azimuth (i.e. the algebraic sum of the external angles equalled 360° 00'). The buoys south of the closed loop were plotted from the adjusted positions of "GOOD" on the outer line, and "GET" on the inner line.

The accuracy of the location of the buoys was further proven by the consistency of the plotted positions when changing fix or when passing thru a line of buoys. There are only two instances where there was an appreciable jump. From position R13 to 114 "C" Day there is a jump when the line passes thru the outer line of buoys. This may have

been caused by a change of current but there is no proof of this. This is at latitude 28° 02!9, longitude 80° 08.0'. The other inconsistincy is at Latitude 28° 58.1' long.80° 09.8' positions 4-5 E. This was on a change of fix from the outer line of buoys to a single angle "HAND" to "HOT". The single angle is very small and the two buoys used have the weakest location on the buoys on this sheet. It is recommended that positions 4 and 8 be held and the intervening positions plotted on time and course.

4 E rejected by JSM

For the most part the cross lines of soundings checked quite closely. At latitude 27°-58' longitude 80° 14' the maximum error of 7 ft. occurred, where the cross line on C day crossed between 96 and 97 D. It is recommended that the soundings on C day be accepted. On position 60 D a piece broke off the hammer spring and from then until position 106 D, when the hammer stopped working, there was quite a large correction to be applied to soundings. Comparisons with hand lead were taken on both ends of the lines and the crossings at the ends were satisfactory but with so large a correction it is probably better to accept the cross line. The soundings between positions 1 and 3 E do not check the adjoining soundings very well and it is recommended that this line be rejected. The hammer spring broke on position 3 E. This is at latitude 27° 58.3' longitude 80° 10.5'.

The "C" day soundings being shoaler will be the ones to be charted A.L.S.

These have been omitted A.L.S

The maximum difference in joining with old work is at latitude 28°05! longitude 80° 10.7', a difference of 9 ft. This is with the work done by the LYDONIA in 1930. On the south the maximum difference in the junction with the work of the RANGER 1930 is six feet.

new work to cover this area. A.L.S

Respectfully submitted
Jeremiah S. Morton
Aid, C. &. G. Survey.

Forwarded;
George D. Cowie
George D. Cowie
Chief of Party.

STATISTICS

for

HYDROGRAPHIC SHEET NO. 2

Day	Date 1931	Mileage (statute)	Soundings		Pos.	Boat	Vol.
			H.L.	Fath.			
A	Mar. 21	24.4	134		49	Ship	1
B	Mar. 22	60.5	339		107	Ship	1
C	Mar. 23	78.6	422		146	Ship	1
D	Mar. 24	64.0	281	66	124	Ship	1 & 2
[redacted]	Mar. 25	59.1	297	131	122	Ship	2
Totals		286.6	1473 197 1670	197	548		2

Area surveyed 132 square statute miles.

Latitude and Longitude of Hydrograhic

Signals - Sheet No. 2

Buoy	Latitude °	'	meters	Longitude °	'	meters
Egg	28	05	1227	80	21	1284
Eat	28	05	1452	80	17	1438
Era	28	06	120	80	14	1202
Eden	28	06	336,	80	~~08~~ 11	~~505~~ 880
Emma	28	06	1088	80	08	505
Foul	28	03	1665	80	08	417
Good	28	01	478	80	08	345
Goat	28	01	509	80	11	1134
Gad	28	01	545	80	15	450
Get	28	01	590	80	18	1256
Few	28	03	883	80	19	1620
Hard	27	58	1096	80	08	132
Izzy	27	55	1583	80	07	1565
Hand	27	57	1735	80	11	256
Hot	27	57	709	80	13	560
Haw	27	59	293	80	17	868
Hit	27	56	1772	80	16	516
Ink	27	54	1672	80	15	255

Section of Field Records.

Report on Sheet H 5116
Chief of Party G. W. Cowie
Protracted by J. A. Morton
Verified and Inked by J. T. Walker

Surveyed in March 1931
Surveyed by G. W. Cowie
and J. L. Hubbard
Soundings plotted by
J. A. Morton.

I. Sounding Records.

The sounding records were neat and complete.

II. Protracting

The protracting was very good, - only two slight differences were found.

III. Soundings.

The lines on this sheet were all determined by buoys, - none of the shore signals being used.

The soundings are all fathometer soundings except 107-124 D, 5-28 E, and 90-105 E. The fathometer and V.C. crossings do not vary by more than 3 feet. A few of the other crossings are out 6 or 7 feet but the majority are excellent.

IV. Overlap.

H 5039. The offshore work on H 5039 will probably be rejected and replaced by a

new survey which has not yet been received in the office. In view of these circumstances the overlap with the offshore portion of H 5039 is not to be applied at the present. The overlaps with the inshore work on H 5039 is sufficient and the agreement is satisfactory.

H5032. The junction with H 5032 is good and the agreement is fair.

H5029 A corner of H 5116 is within ~~400~~ meters of a corner of H 5029 and an overlap was assumed but the two sheets are not close enough together to make any comparisons.

V. Comparisons with old sheets.

H 1488a (1881). A few soundings were transferred in pencil from this sheet to H 5116 for purposes of comparison and were found to agree excellently.

H 1488b (1881). A few soundings from this sheet were compared with H 5116 and the agreement was found to be good.

Respectfully submitted,

J. T. Walker

aug 15, 1931.

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

AND REFER TO No. 82-DRM

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

SECTION OF FIELD RECORDS

Review of Hydrographic Sheet No. 5116

Offshore of Sebastian Inlet, East Coast of Florida

Surveyed in 1931

Instructions dated January 5, 1931 (LYDONIA)

Fathometer and Hand Lead Soundings - Buoy Control

Chief of Party, G. D. Cowie

Surveyed by G.D.C., L. S. Hubbard

Protracted and soundings plotted by J. S. Morton

Verified and inked by J. T. Walker

1. Records

The records conform to the requirements of the Hydrographic Manual with the exception that more bottom characteristics should have been noted. There is also a total absence of temperature and salinity observations and no computations have been submitted for the fathometer velocity corrections.

2. Specific instructions

The work is in conformity with the specific instructions as to spacing of lines and extent of work.

3. Sounding line crossings

The sounding line crossings are considered adequate for this class of work. There are a number of discrepancies in the crossings that amount to as much as 7 feet, but no consistent difference was observed on any one line. In some cases a large difference was noted when one day's work crossed another day's and yet there was a perfect agreement when the two days crossed each other at another place. At other times two lines on the same day's work indicated

a difference of as much as 6 feet and yet a few minutes later at another crossing of the same day's work the agreement was perfect. Such discrepancies cannot be caused by an error in position since more uniform differences would be noted. It is doubtless due to some idiosyncrasy of the fathometer that manifested itself for a short time only and hence was not ironed out by the corrections derived from the simultaneous observations. Or perhaps a sudden pitch or roll of the vessel uncorrected for, might introduce such differences. But whatever the cause, it should be borne in mind that such discrepancies are magnified by the fact that the soundings are plotted in feet -- a most severe test to impose on fathometer work.

4. Junctions with contemporary surveys

H. 5039 - The junction with this survey on the west is satisfactory. This sheet also overlaps the present survey (H. 5116) on the north, but on account of the doubtful control on H. 5039, the work to the northward of the present survey has been resurveyed with more rigid control, hence that work has not been compared with the present survey.

H. 5032 - The junction with this sheet on the south is adequate after the rejection of the soundings on the line 84-100 R' (H. 5032). This line appears too deep. A portion of that line, 100-101 R', had already been rejected as not being in harmony with other work on the sheet. The line is not necessary for the development of the area.

5. Comparison with old surveys

A comparison with H. 1488[a] and [b] (surveyed in 1881) shows a very good agreement. There are some differences of a few feet between the two surveys but no shoals are involved.

6. Field drafting

The usual field drafting was completed by the field party and was satisfactorily done.

7. Additional work

No additional work is necessary within the limits of this survey.

8. Reviewed by A. L. Shalowitz, August 1931.

Approved:

R. M. Sobieralski
Chief, Field Records Section

J. S. Borden
Chief, Field Work Section

RAE

July 29, 1931

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in
2 volumes of sounding records for

HYDROGRAPHIC SHEET 5116

Locality Offshore of Sebastian Inlet, East Coast of Florida

Chief of Party: G. D. Cowie in 1931
Plane of reference is mean low water, reading
-0.1 ft. on tide staff at Canaveral Harbor
11.2 ft. below B. M. 1

The tide at place of sounding was considered to occur 40 minutes earlier than at Canaveral Harbor.

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 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 Schureman

Acting Chief, Division of Tides and Currents.

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 5116.

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

Number of positions on sheet	548
Number of positions checked	133
Number of positions revised	2
Number of soundings recorded	1670
Number of soundings revised	10
Number of signals erroneously plotted or transferred	0

Date: Aug. 14, 1931

Cartographer: J. T. Walker