

4485

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Form 504
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

State: Florida

12-5613

DESCRIPTIVE REPORT.

Hydro. Sheet No. 4485

LOCALITY:

East Coast

Ormond Beach to Vic. of

Mosquito Inlet

1925

CHIEF OF PARTY:

F. G. Engle

DESCRIPTIVE REPORT

To accompany Hydrographic Sheet No. _____

EAST COAST OF FLORIDA.

Scale 1:40,000

Ship Hydrography off Daytona Beach.
U. S. Coast & Geodetic Survey Ship Lydonia.
Instructions dated November 29, 1924.

LIMITS.

The work on this sheet was done in March, April and May, 1925 and extends southward from work completed in 1924 abreast of Ormond Beach to a line three miles north of Mosquito Inlet and from the launch development at the six fathom curve, about one mile offshore, to the thirteen fathom curve, about seventeen miles offshore. From the inner limit to the ten fathom curve at about nine miles offshore, the lines were spaced one-quarter mile and from the ten fathom curve to the outer limit of the sheet the lines were spaced one-half mile apart.

PROMINENT OBJECTS.

In addition to Mosquito Inlet Lighthouse, there are several prominent artificial objects within the limits of the sheet that are useful in obtaining position. At Ormond Beach the Coquina Hotel, a gray stucco concrete structure, having a prominent tower surmounted by a bright Moorish dome, is a prominent landmark. At Seabreeze, (community adjoining Daytona Beach to Northward) is located the very conspicuous Clarendon Hotel, a large light gray pressed brick building with a red tile roof. It is about eighty feet high and is the largest building visible from seaward in this section.

There are three large steel water tanks in the vicinity of Daytona, each over a hundred feet high, painted black and prominent from seaward.

They were used for obtaining positions on Hydrographic work, ("North" "South" and "Big"). As one of these "Big" is inland from the others, a stranger would have some difficulty in distinguishing one from another, as they show in different relative positions, depending upon the position from which seen.

At "Wilbor by the Sea" two low wooden water tanks, painted black and standing very close to-gether, form a prominent object. As the height is not more than fifty feet, they cannot be seen a great distance. Within the limits of the sheet the objects "Nine" and "Orange", used in the Hydrographic work are tall Hydrographic signals and are not permanent.

At night the lights of the towns of Daytona and Ormond are visible at sea, as well as the headlights of automobiles on the beach. During the survey, a powerful searchlight was played about the sky during the evenings from the town of Daytona.

CONTROL.

Three point fixes were obtained on all the sounding lines to fix position. Up to a distance of about eight to ten miles offshore, the objects used were the prominent objects and tall Hydrographic signals, all of which are determined by triangulation. On a few positions inshore signals located by plane table were used. Over eight to ten miles from shore, three point fixes were obtained from survey buoys planted at about fourteen miles from shore. They were located by cuts from the ship at anchorages at which simultaneous fixes were obtained from shore objects. The buoys and mooring gear were made up on board the Lydonia, and consisted, some of barrels with superstructure and some of can rafts carrying a center pole and crossed banners.

Some discrepancies or jumps in position on the boatsheet were encountered on T day May twenty-first on shifting from shore objects

fixes to buoy fixes, using the buoys "Elk," "Dum" and "Can". Fixes were obtained at these buoys on May twenty-first and again on May twenty-second, using shore objects. These positions are called Elkus, Dummy and Candy, respectively. At first it was thought the buoys had dragged a short distance in the squall of May eighteenth as noted on page forty-seven, volume five, as the fixes differed somewhat from the positions obtained by cuts. However the discrepancies may be due entirely to the inherent weakness of both the cuts and the fixes

Before plotting cuts on both boat and smooth sheets the protractor corrections, as determined from specially constructed protractor testing sheets were applied. It is probable that the position "Elkus" obtained from the shore fix is better than "Elk" obtained from cuts and the smooth sheet was plotted accordingly, using "Elkus".

METHOD.

The hand lead was used exclusively on this work, from a sounding chair twenty feet above water. From A to J days inclusive, a wire center leadline of poor quality was used and thereafter a better line which did not shrink when wet and then stretch out under tension. As noted on Page forty-four volume three, sounding record, it was discovered that up to J day the Chief Quartermaster, Gallon, without the knowledge of the officers, was in the habit of giving the leadline a heavy pull of about thirty to forty pounds just before making the tests. The result of this was that the inferior line "C" used up to this time, stretched about two or three feet in twelve fathoms and the tests were in error by that amount. Accordingly, these tests were rejected and the test of April twenty-fourth P.M. given on page forty-four, volume three, was used for all prior work. It will be noted that the soundings plotted on the boat sheet are those obtained by using the erroneous tests and tide reducers obtained from St. Augustine gauge. The reduction of soundings was later

made using the leadline corrections of April twenty-fourth, P. M. and reducers from Daytona Pier gauge, and the corrected soundings are plotted on the smooth sheet. The crossings are generally good.

COMPARISON WITH PREVIOUS SURVEY.

With the exception of additional shoal soundings obtained in the present survey the depths correspond closely with those shown on chart one hundred and sixty. In only four cases, there was a failure to obtain indication of old shoal soundings. These were at eight and one half fathom soundings, Latitude $29^{\circ} 18.3'$, Longitude $80^{\circ} 55.2'$ where fifty eight feet was obtained; At eight and one half fathom sounding, Latitude $29^{\circ} 19.7'$ Longitude $80^{\circ} 52.2'$ where sixty three feet was obtained; At nine and one half fathom sounding Latitude $29^{\circ} 17.2'$, Longitude $80^{\circ} 54.6'$ where sixty seven feet was obtained and at nine and one-quarter fathom sounding, Latitude $29^{\circ} 18.7'$ Longitude $80^{\circ} 51.1'$ where seventy four feet was obtained. In each case however, shoal water corresponding to the old depth was obtained nearby.

The bottom in the area surveyed was very uneven in some places, the depth changing ten or twelve feet in successive soundings. The shoalest water obtained was thirty nine feet at M. L. W. about five miles offshore abreast of Port Orange where seven and three-quarters fathoms is shown on the chart. The development of shoals was curtailed somewhat due to closing of the season. It is thought however, that sufficient work was done in the area surveyed to locate all shoals and obtain approximately the least water upon them.

The soundings on the smooth sheet were plotted by Mr. E. R. McCarthy, Deck Officer while the ship was at Charleston having new Fathometer oscillators installed, and was done too hurriedly and apparently with little regard to the Field Instructions for this work. It was thought best to transmit the sheet to the office without erasing and replotting

the soundings in the stipulated manner on account of the extra work involved and the injury to the sheet.

Respectfully submitted,



F. G. Engle, H. & G. Engineer.

Statistics. Sheet No. _____

Ship Sheet 1,40,000

East Coast of Florida. *Off Daytona Beach*

Date 1925	Letter	Angles,	Positions,	Vol.	Soundings,	Statute Miles,	Vessel
Mar. 25	A	170	84	1	592	38.6	Lydonia
" 26	B	196	98	1	605	46.6	"
" 27	C	128	64	1	453	28.1	"
Apr. 17	D	136	69	1&2	346	32.8	"
" 20	E	205	103	2	593	49.5	"
" 21	F	210	105	2	502	48.5	"
" 22	G	208	104	2&3	501	47.5	"
" 23	H	210	105	3	538	51.5	"
" 24	J	216	108	3	550	50.4	"
" 25	K	226	114	3&4	636	58.5	"
May 1	L	80	40	4	198	20.3	"
" 4	M	118	59	4	292	27.4	"
" 15	N	116	58	5	270	23.6	"
" 16	P	193	97	5	492	44.2	"
" 18	Q	92	46	5	258	23.3	"
" 19	R	106	53	5	263	21.4	"
" 20	S	63	30	6	230	19.6	"
" 21	T	104	82	6	401	39.4	"
" 22	U	146	73	6	336	33.2	"
" 23	V	258	129	6	606	53.2	"
		<u>3181</u>	<u>1621</u>		<u>8662</u>	<u>757.6</u>	

Approved

F. G. Engle
 F. G. Engle, Commdg.,
 H. & G. Engineer,
 U.S.S. Lydonia.

Respectfully submitted,

E. W. Eickelberg
 E. W. Eickelberg,
 H. & G. Engineer.

January 6, 1926.

~~Division of Hydrography and Topography:~~

Division of Charts:

Tide reducers are approved in
7 volumes of sounding records for

HYDROGRAPHIC SHEET No. 4485

Locality: East Coast of Florida

Chief of Party: F. G. Engle in 1925.
Plane of reference is MLW
6.7ft. on tide staff at Daytona Beach.

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 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.

Hydrographic Sheet No. 4485
East Coast — Florida.

The surveyed area covered on this sheet is well and closely sounded and appears to develop bottom conditions in a satisfactory manner.

No additional work appears necessary.

Plotting approximately accurate but position numbers and letters not according to Art. 326 "General Instructions and positions are punched unnecessarily large.

Pencil plotting while generally accurate as to soundings. "General Instructions, Art 341 were not followed. Descriptive Report refers to this omission.

Sheet badly soiled: appears to have been protracted without protection of cover sheet.

John D. Torrey
Feb. 3/26.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

WASHINGTON March 12, 1926.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4485

Off East Coast of Florida

Surveyed in 1925

Instructions dated November 29, 1924 (LYDONIA)

Chief of Party, F. G. Engle.

Surveyed by Field Party.

Protracted by A. Ogram.

Soundings plotted by E. R. McCarthy and J. D. Thurmond.

Verified and inked by J. D. Torrey.

1. The records conform to the requirements of the General Instructions.
2. The plan and character of the survey conform to the requirements of the General Instructions.
3. The plan and extent of the survey satisfy the specific instructions except that certain areas of less than 10 fathoms outside of the main 10 fathom curve should have been developed by 1/4 mile lines instead of 1/2 mile lines. An inspection of the sheet will show the places referred to.
4. The sounding line crossings are generally adequate. However, there are a few places where crossings differ by 4 to 9 feet. They are as follows:
 - a. In lat. $29^{\circ} 18'.6$, long. $80^{\circ} 55'$, a 57 ft. sounding on 41-42 V is crossed by a 62 ft. sounding on 4-5 D.
 - b. In lat. $29^{\circ} 17'.8$, long. $80^{\circ} 55'$, a 58 ft. sounding on 13 E is crossed by a 49-51 ft. sounding on 44-45 V.
 - c. In lat. $29^{\circ} 19'.6$, long. $80^{\circ} 52'.8$ a 50 ft. sounding on 2-3 N is crossed by a 55 ft. sounding on 123-124 V.

d. In lat. 29° 16'.5, long. 80° 51'.1, a 64 ft. sounding on 47-48 R is crossed by a 68 ft. sounding on 11-12 U.

e. In lat. 29° 15'.5, long. 80° 48'.2 a 68-70 ft. sounding on 34-35 T is crossed by a 75-77 ft. sounding on 47-48 U.

f. In lat. 29° 11'.8, long. 80° 51'.8 a 45-49 ft. sounding on 72-73 J is crossed by a 55-57 ft. sounding on 99-100 V.

These differences are not due to errors of location and are probably due to erroneous leading or in some cases to irregularity of the bottom. It was impossible to eliminate them but inasmuch as they occur in depths of 45 ft. and over they are not serious.

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 but was deficient in the following respects:
 - a. The protracting was only approximately accurate. There was a failure to number every position as required by Paragraph 326 of the General Instructions. About every fifth position was numbered.
 - b. The plotting of soundings while generally accurate, were plotted normal to the line of sounding, instead of reading northward. They were also too large and not carefully made.
7. The junction with H. 4377 on the north is satisfactory.
The junction with H. 4477 on the west is adequate.
8. No further surveying is required within the limits of the survey.
9. Two shoal spots of 39 ft. each were found about 1 1/2 miles apart in approximately lat. 29° 11', long. 80° 52'. This is less than anything shown on the present chart. 160 (See note below).
10. The character and scope of the surveying are very good and the field drafting is fair.
11. Reviewed by A. L. Shalowitz.

Note

There is a $6\frac{1}{2}$ fathom spot shown on Chart 1111 about midway between these two 39 ft. soundings, that were inadvertently omitted from Chart 160. The authority for this sounding is H-1365. Since the development around the spot on the new survey indicates shoaling water, the $6\frac{1}{2}$ should be retained.

R.O.S.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

C. & G. SURVEY
L. & A.
NOV 27 1925
Acc. No.

4485

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. 4485

State Florida

General locality . . . East Atlantic Coast

Locality Ormond Beach to Vic. of Mosquito Inlet
~~Off Daytona Beach~~

Chief of party F. G. Engle

Surveyed by Ship's officers -- U.S.S. Lydonia

Date of survey March 25th to May 23rd, 1925

Scale 1 to 40,000

Soundings in Feet

Plane of reference . . M. L. W.

Protracted by A. Ogram. Soundings in pencil by E. R. McC. + J. D. Thurmond

Inked by J. D. Torrey. Verified by J. D. Torrey: . . .

Records accompanying sheet (check those forwarded):

bes. report, Tide books, 33 Marigrams, 1 Boat sheets,

6 Sounding books, Wire-drag books, Photographs.

1 Angle book

Data from other sources affecting sheet Level, Record St. Augustine
Tide curves for April 17 and 20 as computed from form No. 248 between
St. Augustine and Daytona Beach.

Remarks: Ocean Gauge Tides used, Daytona Beach, except for "D" & "E" days when
a comparison between St. Augustine and Daytona Beach was made and the
resulting computed tides used.