

5047

Diag. Cht. No. 1247 & 1248

Form 504

U. S. COAST AND GEODETIC SURVEY
DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey *Hydrographic*
Field No. _____ Office No. *5047*

LOCALITY

State *Florida*
General locality *East Coast*
Locality *Gilbert Shoal*
to Jupiter Inlet
1980

CHIEF OF PARTY

C. A. Egner

LIBRARY & ARCHIVES

DATE _____

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Form 504
Ed. June, 1928

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

U. S. COAST & GEODETIC SURVEY
LIBRARY AND ARCHIVES

JAN 8 1931

State: Florida

Acc. No.

DESCRIPTIVE REPORT

Topographic
Hydrographic

Sheet No. 5047

LOCALITY

East Coast

Gilberts Shoal to

Jupiter Inlet

1930

CHIEF OF PARTY

C. A. Egnor

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DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. 5047

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. 6

REGISTER NO. 5047

State Florida

General locality East Coast

Locality Gilberts Shoal to Jupiter Inlet

Scale 1:40,000 Date of survey Mar. 5 - June 10, 1923

Vessel M. V. Notoma

Chief of Party C. A. Egner

Surveyed by C. A. E.

Protracted by ~~Field Party~~ C. A. E.

Soundings penciled by ~~Field Party~~ C. A. E.

Soundings in ~~fathoms~~ feet

Plane of reference Mean Low Water

Subdivision of wire dragged areas by

Inked by

Verified by

Instructions dated , 192

Remarks: No title sheet received Jan. 7, 1931

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 # F I E L D 6

P R O J E C T N O. 49

F L O R I D A E A S T C O A S T

DESCRIPTIVE REPORT

to Accompany

HYDROGRAPHIC SHEET NO. FIELD 6

PROJECT NO. 49

FLORIDA EAST COAST.

AUTHORITY:

The work on this sheet was executed as a part of the Instructions for Project No. 49, dated December 20, 1929.

LIMITS:

This sheet is on a scale of 1/40:000 being a hydrographic survey of that section of the Florida East Coast from Jupiter Light house northward to a line normal to the Coast four miles north of St. Lucie Inlet. It joins ship sheet No. 7 at the northern end and overlaps the previous season's work of the NATOMA on a line due east of Jupiter Light house. This sheet, all being executed by the ship, overlaps launch sheets Nos. 1, 2 and 4 which cover the area close to the beach from Jupiter Light house northward, and extends offshore to a development of the 100 fathom curve. ✓

METHODS:

The Instructions called for 1/4 mile lines to a development of the 30 fathom curve as far north as Lat. 27° - 10'; north of that, 1/4 mile lines need be carried only to 20 fathoms. Deeper than the above depths 1/2 mile lines were called for to the limit of fixed positions; thereafter 2 mile lines. These general specifications were based on the assumption that fixed positions would be difficult to obtain much beyond ten miles offshore, and other methods would have to be resorted to such as buoy control or P. D. R. to develop that deeper area. ✓

By the development of what we called "monkey hydrography" i.e. two observers with sextants perched high up on the mast, taken together with the fortunate circumstance of a few exceptionally good signals including a lighthouse and a high water tank, it was found that fixed positions could be carried almost throughout the area of this sheet. The 100 fathom curve was developed in this way seventeen miles north of Jupiter Lighthouse.

In view of the ease of carrying such fixed positions, the 30 fathom curve was developed with 1/4 mile lines throughout the sheet. The 30 fathom curve falls about 1 1/2 statute miles off shore on the most northerly line of this sheet.

Only in the very small triangular section at the extreme N.E. corner of the sheet was dead reckoning resorted to and in these few lines the circuits from fixed positions back to fixed position were so short as to make unnecessary the usual involved routine of dead reckoning, with current observations. Half-mile lines were run in all the area beyond fixed position control. The 1/4 and 1/2 mile lines were all run normal to the beach line. The hand lead with the customary bronze core line was used to a depth of approximately eight fathoms. Beyond that depth the sounding was by fathometer, with hand lead and vertical casts with the wire aft as a frequent check upon it. Also, to the limit of fixed positions and to a depth of about thirteen fathoms lines parallel to the shore line were run spaced two miles apart offshore. These served as a check upon the fathometer soundings.

In general, no difficulty was encountered in obtaining depths of 100 fathoms with the fathometer.

However, a full section of this report follows regarding the uncertainties attending its use and the great difficulty in keeping an accurate check on it.

THE FATHOMETER:

At the start of the season the installation of the fathometer (Fessenden System with mechanical striker) was considered an experiment. As the season progressed its deficiencies came to the surface with the result that changes were made, most of which, however, were not done early enough to have much effect on the work of this sheet No. 6.

(1) The greatest trouble was with a fluctuating initial reading. This was serious. It meant that very frequent checks by vertical casts were necessary; worst of all, uncertainty was always present as to just when the change took place. Only a proportional adjustment was possible when applying the corrections between successive vertical casts. The result was that soundings were corrected erroneously in many cases without our being able to do anything about it.

(2) The second most important drawback was the fluctuation of the sounding due to changes in voltage. The ship generator has many auxiliaries

hooked up to it, and furthermore the governor was not at that time functioning efficiently. As a result the necessity of throwing in another auxiliary or cutting it out, as happens quite frequently in the course of a day caused the voltage to fluctuate and consequently the speed of the dial and the sounding. Series of soundings would suffer in this way though the engineer on watch was constantly on the job to keep the voltage uniform.

(3) The third was the difficulty of getting accurate vertical casts beyond 20 fathoms of water. The Gulf Stream takes effect at about the 20 or 30 fathom curve (depending upon wind, etc. in this area).

The current in this Stream measures up to 3 knots or better near the 100 fathom curve, though the strength seems nearly at that pace at 30 fathoms. It is difficult to get a vertical cast accurate within a fathom in this current. Also, the slope at 20 and 30 fathom is quite steep and the ship will drift over as great a change of depth as a fathom or more during the sounding. Also, at the moment of obtaining the vertical cast no fathometer sounding can be gotten; the fathometer sounding immediately before the ship becomes dead in the water or immediately after it gains speed again must be used for the comparison with the vertical cast. Obviously either may be a fathom or more different from the vertical cast which itself may be somewhat in error.

In making comparisons with the hand lead a series of such were invariably taken and a mean used. These comparisons are more accurate of course; had we not had the fluctuations in voltage and initial reading to contend with these would be worthy of greater weighting than deeper vertical cast comparisons. However considerable was left, necessarily, to judgment as to the comparative value of such corrections in making final application to the soundings. The crossings indicate such uncertainty.

Temperature and salinity observations were made for correction to the echo soundings according to the instructions for such work.

The two mile cross lines were run with the hand lead to a depth of about 13 fathoms purposely to give a check upon the fathometer at that depth. Even here and in fact well in to the beach there is a considerable current at times generally stronger in a northerly direction than the reverse. It is quite probable, in view of our later experience, that these hand lead soundings in 10 to 13 fathoms are somewhat in error (perhaps as much as two feet) due to bow of the leadline in a current of which we were at the time unaware, being well offshore and running directly into it. This will in many cases (as W day) explain away part of the discrepancy in the crossings. Also, inaccuracies in angle measurement on very distant signals and small angles will have caused some displacement of positions. Where the slopes are steep as in 30 fathoms this can cause an appreciable error in the crossings.

THE DEPTH CURVES:

Rightly or wrongly, and for which we offer no apology, in an honest attempt to eliminate the errors in the echo soundings we reversed, in some cases, the customary procedure of plotting the depth curves. ✓

It happens that the 20, 30, 50 and 100 fathom curves, especially in the southern part of the sheet, are almost parallel straight lines north and south. A series of crossings, even though some soundings were in error, indicated the most probable location of these curves. There, working back from the curves themselves we were able in numerous instances to spot inaccurate soundings and, tracing those further back, were able to adjust some comparisons to a more probable value. ✓

A peculiar convolution of the 50 fathom curve was found at Lat. 27° - 10'. This seemed the more remarkable because the 100, 30 and 20 fathom curves opposite this point are quite regular. This was developed by additional 1/4 mile lines. ✓

While other depth curves are in general quite regular, the ten fathom curve is quite the contrary, though it does seem to follow a well ordered course out and around definite shoals. This curve falls in fairly flat bottom and is difficult to draw in places as a foot or two error in the soundings changes the location of it rather widely. ✓

The 5 fathom curve is developed by the launch on sheets 1, 2 and 4. Lines on this sheet carried in to 3 fathoms were not replotted on the launch sheets as they serve only to give additional development to areas already well sounded. ✓

SHOALS:

All shoal indications follow a northerly direction. These undoubtedly have a rocky base, sand covered. Outcropping rock ledges are present along the beach around Triangulation Station ROCK and again near Triangulation Station SAND and around the entrance to St. Lucie Inlet. ✓

These rocky ledges undoubtedly extend seaward so as to account for the extensive shoal areas off those three general localities, and give a very irregular appearance to the bottom in areas close by. These shoals are not shallow enough to be a menace to navigation. They are ridges, more or less regular in shape, sand covered. ✓

Immediately north of the jetty at St. Lucie Inlet a rocky bar known as Gilberts Bar shows within the confines of this sheet. This long fingerlike shoal of less than 5 fathoms depth was developed on sheet No. 4 and consequently no development was undertaken by the ship on this sheet. ✓

All shoal indications were developed by cross lines in a North and South direction with lines spaced close enough to delineate the limits and prove the shoals to have no outstanding points which would be a danger.

SHORELINE AND SIGNALS:

Since the shore line along this beach was surveyed by the topographer on scales of 1/20,000 and 1/10,000 it was not reduced to this scale 1/40,000 and consequently does not appear on this sheet.

Such topographic signals as were used were plotted from D.M. and D.P. positions scaled from the topographic sheets.

As far North as triangulation station WALK, the triangulation stations along the beach are those located in 1929 by traverse executed by the M. V. NATOMA. North of triangulation station WALK the triangulation stations are those of the third order scheme executed by the M. V. NATOMA in 1930. Triangulation station JETTY and triangulation station LONG are intersection stations located from the main scheme.

DISCREPANCIES IN THE SOUNDINGS:

A detailed list of discrepancies in the crossings of sounding lines is appended hereto with appropriate notes.

FATHOMETER REPORT &
TEMPERATURE CURVES:

A report on the Fathometer, type 412, (Fessenden System) has been prepared by Lieut. (j.r.) G. R. Shelton who worked with the fathometer during the sounding of this sheet and who with the assistance of a seaman, who was constantly under supervision, made all fathometer readings recorded in connection herewith.

Mr. Shelton likewise had charge of the preparation of the temperature and salinity data and made all corrections in the sounding volumes for initial, temperature, and salinity, as well as the adjustments from comparison with hand lead and vertical casts with wire.

TIDAL DATA:

Reductions for tide on this sheet were gotten from the portable automatic (Rude) gauge maintained throughout the season at the jetty, St. Lucie Inlet, by comparison with the standard gauge in operation at the Rainbo Pier, Palm Beach. Appropriate time and height corrections to the portable gauge were determined by the usual simultaneous comparisons.

GENERAL CONSIDERATIONS:

The coast along the sheet is quite flat with no outstanding objects except those listed on Form 567, accompanying the report. ✓

The beach is sandy with outcropping rock two miles north of Jupiter Inlet in the vicinity of triangulation station SAND and triangulation station WALK and around St. Lucie Inlet. This beach consists of a sand strip inside of which runs a narrow channel dredged in places forming the "Inside Passage". ✓

A highway traverses the beach from Jupiter north to near triangulation station SAND, that section between triangulation station HILD and triangulation station ROYAL being developed and known as Olympia Beach which is a wealthy residence section of beautiful homes occupied during the "season". From offshore this locality is identified by tall eucalyptus and pine trees which line the drives and surround the homes. ✓

North of topographic station ~~OROT~~, which is a moderate sized hotel, the development ceases and the beach becomes swampy and uninviting, breaking away two miles north of triangulation station WALK to form St. Lucie Inlet. This Inlet, for which there were high hopes during "boom times", has turned out to be a disappointment, for the rocky formation at the entrance has discouraged making this opening into the promising port of entry once expected of it. Considerable money was wasted here in the building of a fine jetty and in dredging a channel to the St. Lucie River upon the shores of which Stewart was to become the "Gateway to the Gulf", via a dredged channel to and beyond Lake Okechobee. ✓

North of St. Lucie Inlet a rocky coast and offlying bar known as Gilberts Bar has warranted the maintenance of a Coast Guard Relief Station a short distance north of triangulation station FAY. The small beach house here serves as a landmark not particularly prominent. The beach here supports a palmetto and swampy pine growth. From offshore, the western beach of the inside passage looms up as more prominent than the beach itself, some of the sand knolls as "Mt. Pisgah" and "Cemetery Ridge" rising to about 75 feet in elevation. ✓

A road, too sandy for automobiles, traverses the palmetto scrub from the north down as far as the Coast Guard Station. Those autos which occasionally find it necessary to reach the Station generally prefer the beach itself at low tide. ✓

CURRENTS:

The Gulf Stream is at full strength along the 100 fathom curve, about 3 knots in velocity. This is dissipated as the depth lessens, generally giving out altogether at 20 fathoms though at 30 fathom the current seems to be almost as strong as at 100 fathoms. There is no apparent line of demarkation. ✓

In the Stream itself its presence is manifested by color, and temperature, and by seaweed on the surface. There are times when it is quite evident when the dividing line is crossed; it cannot be said this is a general case. Near the southern part of the sheet this line was more definite for here the slope is more abrupt than farther north. ✓

There is considerable tidal current along the beach. It may be influenced in part by eddies from the Gulf Stream. In general these tidal currents are stronger in a northerly direction than in the reverse. ✓

Quite a tidal current flows in and out of St. Lucie Inlet and the water for two miles or so is discolored by it. ✓

ANCHORAGES:

There are no anchorages for seagoing craft within the confines of this sheet. Small yachts and gas boats regularly ply St. Lucie Inlet in calm weather to Stewart and elsewhere on the Inside Passage, though breakers are very severe across this entrance in moderately rough weather. The St. Lucie Jetty offers a restricted shelter for small craft in S.E. weather. ✓

COAST PILOT NOTES:

These will be taken up in the Seasons Report covering all the area surveyed. ✓

WEATHER:

Weather was generally favorable for the work on this sheet, May and June being the best months. ✓

Respectfully submitted,



C. A. Egnor, H. & G. Engr.
Chief of Party

The work on sheet was executed by;

Field Work : C. A. Egner, H. A. Paton, Right angle and
in charge, and L. angle.

W. R. Porter L. angle

F. A. Riddell L. angle

J. C. Tison, Jr. L. angle

G. R. Shelton L. angle

Office Work : Positions plotted by C. A. Egner

Soundings and curves by C. A. Egner

LIST OF DISCREPANCIES

CROSSINGS

OF

SOUNDING LINES SHEET # 6 FIELD.

PROJECT # 49

DAY LETTER	POSITION	ON POSITION	REMARKS
D	1 - 21 30 - 45 53 - 61		Too shoal Too shoal Too shoal <i>Partly rerun on 1/2 day. Plotted as adjusted</i>
G			Several arbitrary changes made. <i>Hand lead soundings</i>
H	18 - 19 ✓ 39 - 43 ✓ 89 - 90	20 - 21 S 24 - 25 S	Look too shoal <i>40 to 43 rejected</i>
J	21 - 22	3 - 4 C'	Soundings look too deep <i>Plotted as recorded</i>
K	23 - 24 10 (V.C.)		Look too shoal <i>OK ✓</i> Should be used ✓
L	109 - 110 110 31 - 100	93 - 94 Z	Look too shoal Soundings changed slightly <i>Plotted as adjusted by field party 95L to 97F rejected</i>
M	124 - 126 135 - 137 139 - 140 - <i>too shoal</i> 143 - 144 <i>too shoal</i>	on 109 - 110 X <i>depth OK</i>	Probable variation in voltage " " " " (Shoal at Lat. 27-04 Long. 80-02) V day positions may be V.C. indicate depth slightly displaced. <i>8 ft greater which would agree with cross line! Plotted as recorded</i>
N	35 - 36 91 - 98	138 - 139	Appear too shoal due to voltage Appear too shoal <i>Plotted as recorded</i>

DAY LETTER	POSITION	ON POSITION	REMARKS
N	126 end of day 156 - 157	on 104-105 W	Reject 107 & 108 V.C. probably inclined account of current; 9 fms too deep. More adjustment necessary Reject 104-105 W; plot N day as recorded.
P	86 - 88	On 55 - 58 S	Displacement of position Plotted as recorded
Q	2 - 3 3 - 5		Soundings rejected ✓ Appear too shoal Plotted as recorded.
S	56	on 86 P	See above on P day ✓
T	6 - 11 127 - 128	{ 27 - 28 X 111 - 112 W 105 - 106 W	Plotted as recorded T day plotted as recorded 105-106 W rejected
V	84 - 85 87 - 89 65 - 67	2 - 3 C'	Plotted as recorded Rejected soundings ✓ Too deep Plotted as recorded
W	81 - 95 (See M day) 104 - 106		Plotted as recorded although crossings are poor Probably in error rejected
X	10 ✓ 13 - 14 30 - 32 89 - 90 117 - 118 125 - 126	81 S ✓ 110 - 111 W 87 - 88 ✗ 113 - 114 W 14 - 15 D 26 - 27 L	Plotted V.C. ✓ Plotted as recorded " " " " " " " " " 2 ft. in error OK
Z	93 - 94 133 - 134 145 - 146	110 L 10 - 11 } -A' 64 - 65 } 83 - 85 A'	Plotted as recorded Probably in error Plotted as recorded 1342 omitted Plotted as recorded
A'	21 - 22	101 - 102 A'	18 to 22 A' rejected positions uncertain.
C'	2 - 3	9 - 10 L	Plotted as recorded

LIST OF TOPOGRAPHIC POSITIONS

Kel

Ode

Red

Pot

Cup

Flag

Chim

Rot

Ded

Hak

Gard

Wind

Uno

Big

Wist

Naw

-----Positions to be obtained from Office copy
of Descriptive Report accompanying Topo.
Sheet # D. Unfortunately a file copy of
the list of planetable positions was not
retained on board for this sheet.

PLANE TABLE POSITIONS

STATION	Latitude	D.F.	LONGITUDE:	D.P.	Height:	Remarks
1. Dib	26° 57' 10	(1837)	80° 04'	766	(899)	Banner signal.
2. Bow	26 57	308(1545)	80 04	872	(783)	" "
3. Try	26 57	648(1199)	80 04	965	(690)	" "
4. Ros	26 57	888(959)	80 04	1041	614	" "
5. Dia	26 57	1112(735)	80 04	1093	568	"
6. Abe	26 57	1547(300)	80 04	1217	438	"
7. Bed	26 57	1798(49)	80 04	1293	(368)	"
8. Cat	26 58	160(1697)	80 04	1338	(317)	"
9. Dog	26 58	429(1418)	80 04	1412	(243)	"
10. End	26 58	593(1254)	80 04	1439	(216)	"
11. Fen	26 58	735(1112)	80 04	1468	(187)	"
12. Geto	26 58	1072(775)	80 04	1545	(110)	"
13. hide	26 58	1226(620)	80 04	1596	(59)	"
14. It	26 58	1494(353)	80 05	40	1615	"
15. Jid	26 58	1822(19)	80 05	183	(1472)	"
16. Kal	26 59	225(1622)	80 05	279	(1376)	"
17. let	26 59	405(1442)	80 05	345	(1309)	"
18. Mim	26 59	598(1249)	80 05	408	(1246)	"
19. Not	26 59	830(987)	80 05	497	(1157)	"
20. Ode	26 59	1069(778)	80 05	540	(1114)	"
21. Pop	26 59	1335(512)	80 05	585	(1069)	"
22. Qua	26 59	1456(391)	80 05	598	(1056)	"
23. Rit	26 59	1615(222)	80 05	608	(1046)	"
24. Salt	26 59	1795(222)(22)	80 05	637	(1017)	"
25. Top	27 00	206(22)(1641)	80 05	662	(972)	"

FLAME TABLE POSITIONS (CONT'D)

STATIONS	LATITUDE	D.M.	LONGITUDE	D.P.	HEIGHT	REMARKS
26 Use	27° 00'	441(1406)	80 05	725(929)		Banner signal
27 Vot	27 00	853(994)	80 05	805(849)		" "
28 Wop	27 00	1005(842)	80 05	849(805)		"
29 Xi	27 00	1194(853)	80 05	870(784)		"
30 Tel	27 00	1318(535)	80 05	933(721)		"
31 Yea	27 00	1535(312)	80 05	980 (8) (674)		"
32 Red	27 00	1618(194)	80 05	1021(633)		SE Corner Beach house
33 Zip	27 00	16(1831)	80 05	1097(537)		Banner signal
34 We	27 00	73(1774)	80 05	1072(582)		N.E. Corner of Shack
35 Are	27 00	493(1854)	80 05	1258(396)		Banner signal
36 All	27 00	700(1147)	80 05	1306(348)		Banner signal
37 Pole	27 01	786(1061)	80 05	1290(364)		" "
38 Bush	27 01	879(968)	80 05	1374(280)		"
39 Cos	27 01	1045(802)	80 05	1393(261)		"
40 Cab	27 01	1162(635)	80 05	1475(179)		"
41 Pot	27 01	1411(436)	80 05	1558(96)		Flower-pot S of steps.
42 Cup	27 01	162 ⁸ (219)	80 05	1639(15)		S.E. corner of shack
43 Dor	27 01	1828(19)	80 06	60(1594)		" " "
44 Pill	27 02	270(1577)	80 06	149(1505)		N. Pillar of Beach house.
45 Ben	27 02	438(1409)	80 06	217(1537)		Banner signal
46 Ced	27 02	632(1215)	80 06	284(1370)		" "
47 Dip	27 02	805(1042)	80 06	352(1302)		" "
48 Eat	27 02	1001(846)	80 06	421(1233)		" "
49 ^F Nad	27 02	1103(744)	80 06	475 ^F (1179)		" "
50 Get	27 02	1353(494)	80 06	563(1091)		" "

PLANE TABLE POSITIONS (CONT'D)

STATION	LATITUDE	D.M.	LONGITUDE	D.P.	HEIGHT: REMARKS:
51 Hot	27° 02'	1621 (226)	80° 06'	661 (992)	Banner signal
52 In	27 02	1844 (3)	80 06	724 (909)	S.E. Corner Frame House.
53 Flag	27 03	206 (141)	80 06	844 (809)	Flag Pole
54 Sun	27 03	353 (1494)	80 06	875 (778)	Center of summerhouse.
55 Chin	27 ⁿ 03	614 (1233)	80 06	1037 (618)	Center chimney of large house.
56 Jet	27 03	1020 (824)	80 06	1162 (491)	Banner signal
57 Kid	27 03	1362 (485)	80 06	1329 (324)	" "
58 Lem	27 03	1615 (32)	80 06	1539 (114)	"
59 Mit	27 04	462 (1385)	80 07	13 (1640)	"
60 Out	27 04	792 (1055)	80 07	130 (1523)	"
61 Pod	27 04	1466 (391)	80 07	394 (1259)	"
62 Sel	27 04	1840 (7)	80 07	564 (1089)	"
63 Rot	27 05	161 (1666)	80 07	694 (959)	S.E. Corner main bldg.
64 Ute	27 05	480 (1367)	80 07	830 (823)	Banner signal.
65 Tip	27 05	732 (1115)	80= 07	966 (687)	" "
66 Vet	27 05	1094 (753)	80 07	1165 (488)	" "
67 Wad	27 05	1521 (1326)	80 06 ⁰⁷	1386 (267)	" "
68 Yet	27 06	673 (1174)	80 08	8 ⁴ (1569)	" "
69 Zib	27 06	973 (874)	80 08	212 (1441)	" "
70 Add	27 06	1294 (553)	80 08	361 (1292)	" "
71 Cob	27 06	1542 (305)	80 08	470 (1183)	"
72 Bot	27 06	1802 (45)	80 08	516 (1137)	"
73 Did	27 06	379 (1468)	80 08	660 (993)	"
74 Eld	27 06	800 (1047)	80 08	734 (918)	"
75 Fit	27 06	780 (1067)	80 08	675 (877)	"

FROM SHEET #4

PLANE TABLE POSITIONS

STATION	LATITUDE	D.M.	LONGITUDE	D.P.	HEIGHT	REMARKS
1. Pat	27° 09'	(258)	80 08	-- (730)		Banner signals
2. Dole	27 08	50(1800)	80 08	(623)		"
3. Trit	27 08	345(1500)	80 08	(528)		"
4. Bite	27 08	470(1378)	80 08	(468)		"
5. Stump	27 08	510(1342)	80 08	(512)		"
6. Drop	27 08	616(1231)	80 08	(412)		"
7. Mile	27 08	810(1037)	80 08	(315)		"
8. Sig	27 08	1015(832)	80 08	1386 (266)		"
9. Wrap	27 08	1209(632)	80 08	1455(197)		"
10. Gros	27 08	1600(247)	80 08	1523(127)		"
11. Able	27 09	245(1602)	80 09	83(1569)		"
12. Bank	27 09	331(1266)	80 09	301(1351)		"
13. Cat	27 09	372(975)	80 09	369(1083)		"
14. Hab	27 09	1137(710)	80 09	768(880)		"
15. Chan	27 09	1093(754)	80 09	1006(646)		"
16. Spit	27 09	1429(418)	80 09	1000(652)		"
17. Post	27 10	26(1221)	80 09	732(870)		"
↓ 18. <u>Ded</u>	27 10	554(1293)	80 09	830(822)		"
↓ 19. <u>Hak</u>	27 10	922(925)	80 09	690(762)		"
20. Kit	27 10	1243(604)	80 09	946(706)		"
21. Non	27 10	1540(307)	80 09	998(654)		"
↓ 22. <u>Naw</u>	27 10	205(---) 222(222)	80 12	1312(330)		"

STATISTICS TO ACCOMPANY

HYDROGRAPHIC SHEET NO.----- (FIELD NO. 6)

EAST COAST OF FLORIDA.

MOTOR VESSEL NATOMA

C. A. EGNER, CHIEF OF PARTY.

U. S. C. AND G. SURVEY.

Statistics, Sheet No. 6, Florida East Coast.

1930

VOLUME	DATE	DAY	SHIP	MILES OF SOUNDING LINES	NUMBER OF SOUNDINGS	NUMBER OF POSITIONS
1.	Mar. 5	A	Natoma	13.7	174	43
	6	B	"	44.0	622	119
	7	C	"	4.0	104	18
	11	D	"	36.2	428	77
2.	19	E	"	16.8	365	64
	20	F	"	52.5	977	172
	21	G	"	24.7	373	75 - G day carried fwd. to Vo. 3
3.	21	G	"	25.1	342	69
	24	H	"	56.2	687	119
	25	J	"	23.8	284	52
4.	26	K	"	11.0	46	25
	Apr. 2	L	"	56.3	677	117
	3	M	"	70.8	842	152 - M day carried fwd. to Vo. 5
5.	3	M	"	4.6	93	14
	4	N	"	63.2	802	164
	8	P	"	87.4	704	134 - P day carried fwd. to Vo. 6
6.	8	P	"	2.8	54	11
	9	Q	"	4.5	52	9
	15	R	"	12.6	238	42
	23	S	"	95.4	486	117
	24	T	"	54.5	515	126 - T day carried fwd. to Vo. 7
7.	24	T	"	10.4	145	25

Statistics, Sheet No. 6.

1930

VOLUME	DATE	DAY	SHIP	MILES OF SOUNDING LINES	NUMBER OF SOUNDINGS	NUMBER OF POSITIONS
7.	Apr. 25	U	Natoma	5.1	237	40
8.	May 5	V	"	68.8	520	89
	13	W	"	50.6	680	135
	14	X	"	39.9	356	92 - X day carried fwd. to Vo. 9
9.	14	X	"	22.1	199	37
	20	Y	"	58.3	345	116
	21	Z	"	72.8	564	155
	22	A'	"	22.1	181	53 - A' day carried fwd. to Vo.10
10.	22	A'	"	35.6	219	75
	23	B'	"	6.6	123	22
	June 10	C'	"	2.8	37	5
TOTALS - both pages all volumes				1175.7	12,445	2,542

January 13, 1931

Division of Hydrography and Topography:

Division of Charts:

Tide Reducers are approved in
10 volumes of sounding records for

HYDROGRAPHIC SHEET 5047

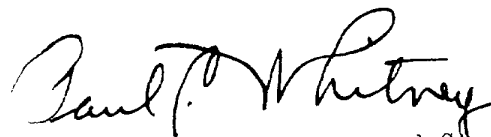
Locality East Coast of Florida

Chief of Party: C. A. Egner in 1930

Plane of reference is mean low water, reading
1.0 ft. on tide staff at St. Lucia Inlet Jetty, Florida
7.0 ft. below B. M. 1

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.



Chief, Division of Tides and Currents.

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 5047

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

Number of positions on sheet	<u>2542</u>
Number of positions checked	<u>665</u>
Number of positions revised	<u>48</u>
Number of soundings recorded	<u>12445</u>
Number of soundings revised	<u>42</u>
Number of signals erroneously plotted or transferred	<u>1</u>

Date: March 19, 1931

Cartographer: J. Walker

Section of Field Records.

Report on sheet H 5047
Chief of Party C. A. Egnor
Protracted by C. A. E.
Verified and Inked
by J. Walker

Surveyed in 1930
Surveyed by C. A. Egnor
Soundings plotted
by C. A. Egnor.

I. Sounding Records.

Most of the sounding records were neat and legible. Too hard a pencil was used in part of volume 2. Some of the reduced soundings were entered illegibly. Some of the soundings were found erroneously reduced - see 98 N, 104 N, 107 H, 90 L, 153 N, 80 P.

Not very many bottom characteristics were given.

Mistakes were apparently made in the time in several places.

The time "ahead" after a stop was not clear in several places - see 66 B, 70 B.

Changes in speed were not given but generally it was obvious the speed had been changed because of a shift in type of sounding apparatus. In most places the speed was very uniform.

~~No dangers were described in the reports and none are shown on the sheet.~~

a list of the signals used is to be found in the descriptive report.

II. Protracting.

The protracting was very good. Of 48 revisions made, over half were due to the erroneous plotting of signal Yard and to the readjustment of some of the deadreckoning positions in the northeast corner of the sheet.

Signal Yard was found plotted about 130 meters south of its position as shown on T 4535.

It was moved to its proper location. All the records were gone over and wherever Yard was used the position was replotted.

The deadreckoning positions from 107 to 118 A' were adjusted by Capt. Borden. He also advised the rejection of the line 125-128 A' as there is no closure and the line is not needed.

~~Several notes were made in the records indicating why certain positions were changed.~~

III. Soundings.

The soundings were neatly plotted according to time with very few exceptions.

The instructions call for hand lead soundings up to 8 fathoms and beyond that depth, fathometer soundings if the fathometer is working properly. Most of the instances where the fathometer was used in depths of less than 8 fathoms are as follows: 93-94N, 129-131N, 144-145N, 158-160N, 14-16P, 29-33P, 44-45P, 79-82P. These soundings do not differ a great deal from the adjacent hand lead soundings.

The following soundings are questionable or were rejected by the field party or the writer: (See also Descriptive Report)

22A. Surrounding depths indicate 100 is probably correct.

107B: Probably should have been recorded as 13 and 13-5 as inked in.

6-14D: Rejected by field and writer because of poor agreement. Line re-run later 2 days.

45-46D. Position of soundings doubtful, Time ahead not given. Soundings were inked in uniformly spaced.

18-21H: Soundings questioned by field, rejected by Capt. Ellis. Make poor crossings with hand lead soundings. Accept these soundings.

40-43 H. Same as above. ^{Rejected}

50-59 H. adjusted by the field and accepted ✓
by the writer and Capt. Ellis.

111-118 H. soundings questioned or rejected ✓
by field. Rejected by Capt. Ellis. ^{Perum 66-72 H}

19-20 J. soundings questioned by field. Inked
in as recorded.

36 J. Questioned by CA Egner, inked in by the
writer as recorded. Probably 1 fath. too shoal ^{reject}

95-97 L. Rejected by Capt. Ellis.

42-43 M & 141-142 M. Bad crossing (20'),
223' sounding omitted on 42-43 M line as it
falls too close to a 202' sounding.

10N & 67-68N. Bad crossing, 237' & 224' - both inked in.

107-108N. The fathometer soundings at these
positions reduce to 615' which looks all right
in respect to other soundings in the vicinity.
However, as they were rejected by the field they
were not inked in by the writer. ✓

1Q. The 123' sounding at 1Q falls on a 133' ✓
sounding between 19 & 20P. The two soundings were
moved slightly so as to show both.

3Q. The 204' sounding at this position
appears too shoal and should probably be rejected
along with the soundings just before it. Inked
in by the writer.

Was 118 H. not included
on acct. of current
log

18-19 S & 41-42 D. at the advice of Mr. Stalowitz hand lead soundings were used in preference to fathometer soundings - especially in critical depths. a 56' sounding was used in preference to a 53 because the 56 is a hand lead sounding.

56 S & 86-87 P. Poor crossing (188'-199') both fathometers; 199' sounding omitted for lack of space.

101-106 S: Rejected by field. Some of the soundings look plausible. Reviewer should examine. Not inked in by the writer. ^{line number} 21-26 X

75-78 W & 76-79 M. The fathometer line (76-79 M) is shallower than the hand lead line (75-78 W) but as the hand lead should be more reliable and makes a fair crossing with 27-28 S, the hand lead soundings were plotted in preference to the fathometer soundings. See also bottom of page 3 of the Descriptive Report.

74-75 W. Bad crossing

93-94 W. " " "

97 W. " " "

104-106 W. " " soundings omitted

by the field and the writer. Crossings disagree with soundings on N, P & T days indicating that the W day soundings are wrong.

111-112 W & 8-9 T. Bad crossing. Both fathometers.

13-14 X & 110-111 W. Bad crossing: (88'-97').

⁵
8X-90X: This line is 5 to 7 feet shoaler than the lines it crosses.

124-125X & 34-35L: Bad crossing (~~56~~ 65'-70').
L line fathometer, X line hand lead - erased 65' fathometer sounding and used 70' hand lead sounding.

13 Y: - Rejected by the writer - too deep - wire inclined.

132-139Z: Soundings questioned, some omitted, see notes page 57 vol. 9. Reviewer should examine these soundings and 61-66A' at the same time.

61-66A': Soundings questioned but inked in.

IV. Conformity to General Instructions.

Sheet received clean and neat.

No geographic names appeared on the sheet.

The shoreline is not shown as there are inshore sheets and the topo sheets are on a larger scale. Apparently the north end of the sheet had become wet or damp at some time before it was received in the office but the boat positions plotted fairly close indicating that the sheet was not badly distorted.

V. Overlap.

Overlap with H 4914. The sounding line 97-98X on H 5047 when transferred to H 4914

appears as much as 17 feet deeper. Inshore from about Long. $80^{\circ}-00\frac{1}{2}$ the agreement is fairly close.

Overlap with H 5022. A photostat was made of H 5047 and the soundings transferred to H 5022. In places these sheets overlapped nearly a mile but as the overlap appeared mostly on blank spaces on the other sheet it was considered all right. The agreement was good though the 30 foot curve had to be changed in numerous places.

Overlap with H 5023. This overlap was considered sufficient and the agreement good.

Overlap with H 5031. The overlap with this sheet was similar to that with H 5022.

Overlap with H 5057. This sheet is now being verified by Mr. Risegari. The curves on H 5047 were left in pencil at the top of the sheet, to be completed when the overlap with H 5057 is applied.

VI. Curves.

The usual depth curves could be shown.

Some of the irregularities in the deeper curves may be due to poor functioning of the fathometers.

VII Shoals.

The shoals appearing on this sheet were adequately developed. Gilbert's Shoal is more fully developed on H 5031.

VIII Comparison with other data.

It is believed that all the remarks in the sounding records have been taken care of.

There appears to be no notes or other information on the boat sheet that does not appear on the smooth sheet.

As no shoreline appears on the sheet and as the signals have been checked by the field the topo sheets were not examined except for geographic names. Although Gard was found to be erroneously plotted it was not considered necessary to recheck all the other signals.

The descriptive report has been read. It seems complete and no comment can be made on it.

Respectfully submitted
 J. Walker
 3/20/31

Section of Field Records
Review of Hydrographic Sheet No. 5047
Gilberts Shoal to Jupiter Inlet, Florida,
East Coast.
Surveyed in 1930
Instructions dated December 20, 1929 (Natoma)
Hand lead and Fathometer soundings.

Chief of Party - C. A. Egner
Surveyed by - C. A. Egner
Protracted and soundings plotted by C. A. Egner
Verified and inked by J. T. Walker.

1. Records.- The records conform to the requirements of the Hydrographic Manual except that there are too few bottom characteristics noted, especially in the area sounded by fathometer. There were many vertical casts for comparison of depth but without bottom characteristic noted.
2. Specific Instructions.- The plan and extent of the development satisfy the Specific Instructions. There is however a weakness in the comparison of the fathometer soundings and vertical casts in the deeper areas. Notes in the records show that due to strong currents, the wire in many casts was inclined and the soundings were not used for comparison.
3. Soundings.- Crossings in the area sounded by hand lead are satisfactory. Crossings of hand lead with fathometer lines are fair, varying up to about 5 feet; in these cases the hand lead soundings were plotted though often showing deeper water. The crossings of fathometer lines with fathometer lines vary up to 15 feet but as the latter were in the deeper areas (20 fathoms and over) they were accepted. (See note below by A. L. S.). Many of the vertical casts made for comparison of the fathometer readings are believed to be too great due to strong currents and inclined wire, and have not been used for adjusting fathometer soundings. In latitude $27^{\circ}04'5$ longitude $79^{\circ}54'5$ while trying to get a vertical cast for comparison, the ship drifted from 107N to 108N, indicating a current of approximately 4 knots, the agreement in depth failed by $9\frac{1}{2}$ fathoms and the comparison was not used in the adjustment. The fathometer depths were used in the plotting where there were such discrepancies. The fathometer soundings approximate the actual depths of this area close enough for all charting purposes. (See Fathometer data accompanying Descriptive Report for further information regarding comparisons).

The usual depth curves have been drawn on the sheet. The uncertainties of the fathometer soundings have introduced little if any irregularity into the several curves.

4. Junction with contemporary adjacent survey sheets is satisfactory. Gilberts Shoal has been developed on H5031 and the soundings shown on this sheet have been combined with that development to make a complete representation of the shoal on that sheet.

Comparison with H1523b (survey of 1882) shows good agreement over the area sounded with the hand lead. Outside the 10 fathom curve and north of latitude 27°07' the fathometer soundings show deeper while south of that latitude they are shoaler than on the survey of 1882. The differences in both cases increase with the depth.

This survey (H5047) has been used in compiling new chart No. 1247 before this sheet was finally reviewed. No changes have been made in the sheet that will affect the charts.

5. Reviewed by R. J. Christman, March 1932.

Note by A. L. Shalowitz

1. Discrepancy in fathometer soundings.

At the northeast end of the sheet in the vicinity of lat. 27°18' long. 79°58' differences in soundings of as much as 3 fathoms occur on the same day where lines taken on the earlier portion of A day cross lines run later in the day. These differences are probably due to a fluctuating initial. As no absolute adjustment of these was possible, resort was had by the expedient of rejecting those soundings that introduced unnatural irregularities in the depth curves.

2. Shoal in lat. 27° - 04', long. 80° - 02'.

An office investigation of this shoal developed a rather peculiar situation. It appears that three parallel fathometer lines, 400 meters apart, were run in this vicinity on M day and on each line a definite indication of a shoal was obtained, the least depth of 60 feet having been found between positions 125 and 126 M. While no lead line comparisons were made directly on the shoal they were made sufficiently close to give a fair value for the index correction. The final fathometer soundings should therefore represent a close approximation of the actual conditions in this locality. However, the hand lead soundings taken in this vicinity on S and W days indicate depths greater by 5 to 11 feet. And with the single exception of the 70 foot sounding obtained between 29 and 30 S there is practically no indication of a shoal on the hand lead lines, although as many as five lines on two separate days crossed and re-crossed this shoal. It seems almost incredible that one of

these lines did not pick up the shoal. And yet the hand lead lines seem to agree amongst themselves and are in acceptable agreement with fathometer lines to the south and north of the shoal (see 28 - 29S crossing 100 - 101 M and 111 - 112 M, and 97 - 99 W crossing 5 - 6 N and 17 - 18 N).

While some of the discrepancies mentioned above might be accounted for by the strong currents producing a bow in the lead line and consequently a greater depth (see page 3, Descriptive Report), it does not seem likely that the current is so strong that differences of 10 and 11 feet would be obtained in these depths.

The possibility of the fathometer soundings being too shoal should also be considered. Even though comparative vertical casts were obtained fairly close to the soundings on the shoal, yet with a fluctuating initial, there would always be uncertainty as to just when the change took place and hence a proportional adjustment would not always be the correct one. But notwithstanding this the fathometer soundings were accepted, particularly in view of the fact that the 1882 survey (H-1523b) shows a 61 foot sounding close to where 60 was obtained on the new survey. The area should, nevertheless, have been further examined by the field party by additional hand lead development and comparative fathometer soundings.

3. Recommendations.

(a) This sheet brings out the need for establishing the reliability of fathometer soundings of the impact oscillator type. The fathometer is intended to pick up shoals which would ordinarily be missed and if we reject as improbable soundings that appear too shoal we are defeating the very object which it is intended to accomplish. If the fathometer initial is subject to such large fluctuations as is indicated by this sheet then it will certainly be necessary to make more frequent comparisons with vertical casts to obtain a proper index correction.

(b) The charted P. D. wreck in lat. 27° - 06.5', long. 80° - 00.6' comes from H. O. Notice to Mariners 46 - 1919. It was reported by the U. S. S. Dolphin that a broken spar was seen projecting about 2 feet above the water attached to submerged wreckage. The vessel was about 100 yards distant.

While no special examination was made by the present survey party to verify its existence, a fathometer line (84 -85H) runs practically over the reported position indicating a

depth of 150 feet uniform bottom. In view of the fact that 13 years have elapsed since the wreck was reported and the fact that the present comprehensive survey failed to pick it up and considering the depth of the water together with the possibility that the supposed wreck was only floating debris, it is recommended that the wreck symbol be removed from the charts.

4. Sheet Inspected by A. L. Shalowitz, April 1932.

Approved
A. M. Sobieralski

Difficulty with new type fathometer makes many soundings on this sheet of doubtful accuracy. Office study in eliminating most doubtful ones makes sheet of sufficient accuracy for charting, but any comparison with later surveys may show discrepancies, and in such comparison the doubtfulness of these soundings should be considered.

A. M. Sobieralski

F. S. Bodew

Ampl to chf 140-1 11-28-60 RKD