

8043

Diag. Cht. No. 1256

Form 504

U. S. COAST AND GEODETIC SURVEY
DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic
SO-2253-Raydist
Field No. SO-2253 Office No. H-8043

LOCALITY

State Florida
General locality West Coast
Locality Siesta Key to Longboat Key

194 54

CHIEF OF PARTY

Roswell C. Bolstad

LIBRARY & ARCHIVES

DATE MARCH 3, 1955

80430

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

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.

REGISTER No. H-8043

Field No. So-2253

State FLORIDA ✓

General locality WEST COAST ✓

Locality SIESTA
~~SARASOTA~~ KEY TO LONGBOAT KEY ✓

Scale 1:20,000 ✓ Date of survey 14 Oct. 1953 to 24 Sept. 1954 ✓

Instructions dated 18 December 1952

Vessel SOSBEE

Chief of party ROSWELL C. BOLSTAD ✓

Surveyed by SHIP'S OFFICERS ✓

Soundings taken by ~~XXXXXXXX~~, graphic recorder, ~~XXXXXXXXXXXX~~ POLE

Fathograms scaled by SHIP'S PERSONNEL

Fathograms checked by SHIP'S PERSONNEL & NORFOLK PROCESSING OFFICE

Protracted by W.W. FEAZEL

Soundings penciled by W.W. FEAZEL

Soundings in ~~XXXXXXXX~~ feet at MLW ~~XXXXXXXX~~
and are true depths ✓

REMARKS: This survey was smooth plotted using the Mylar Overlay Method.

2796

DESCRIPTIVE REPORT

TO ACCOMPANY

HYDROGRAPHIC SURVEY NO. H-8043 (Field No. SO-2253 and
SO-2253 - Raydist)

Sarasota Key to Longboat Key West Coast of Florida

Scale 1:20,000 14 October 1953 - 24 Sept. 1954

U.S.C. & G.S. Ship SOSBEE Roswell C. Bolstad, Ch. of Party

A. PROJECT:

This survey is part of Project CS-353 and was done in accordance with original instructions dated 18 December 1952.

No supplemental instructions received. Numerous letters were received regarding the functioning of the Raydist equipment. Standard operating procedures for hydrography were developed during the course of experimenting and procedure with the Raydist equipment; this is covered in the Initial and Final Reports of Raydist Equipment Tests previously submitted.

B. SURVEY LIMITS AND DATES:

The survey covers the waters of the Gulf of Mexico from shore to approximately 8 - 9 miles offshore.

The area covered is rectangular with the longer axis aligned 150° - 330° T. The northern corner is Lat. 27° - 23.8 N., at edge of Longboat Key and the eastern corner Lat. 27° - 13.8 N., at edge of Siesta Key (Sarasota Key).

An index of hydrographic sheets is enclosed to show junctions with contemporary surveys of the SOSBEE. The offshore edge of this survey joins survey H-7934, 1:80,000; 1951.

Field work was started on 14 Oct. 1953 and was completed on 24 Sept. 1954, with the period between only intermittantly assigned to this Survey.

C. VESSELS AND EQUIPMENT:

Skiff No. 735 was used for lines in shoal water along the beach. This is a 25-foot wooden craft, powered by two ten-horsepower outboard motors, and operated from the Ship SOSBEE based at Sarasota Municipal Pier, Sarasota, Fla. The speed of the skiff is about 6 knots maximum with a turning radius of about 20 meters.

C. VESSELS AND EQUIPMENT: Con't.

The bulk of sounding was done with the Ship SOSBEE, a diesel powered, single screw, wooden hull vessel, 63 feet long at the waterline, Standard sounding speed of 1400 RPM averages 8.5 - 9.0 knots. Turning radius of the SOSBEE is about 100 meters.

The fathometer used in most of the sounding was 808J No. 115-S calibrated for a velocity of sound in sea water of 820 fm/sec.

On three days of ship hydrography and one of skiff, fathometer 808, 140-SP, calibrated at 820 fm/sec. was used. Shoal soundings along shore were made with a wooden pole graduated in feet.

D. TIDES AND CURRENT STATIONS:

All tidal reductions for boat sheet were made directly from recorded tides at the Sarasota Municipal Pier, Portable Tide Gage, Sarasota, Fla. See Tide Note for smooth sheet reduction.

No current stations were occupied in area of survey.

E. SMOOTH SHEET:

Not in scope of this report.

F. CONTROL STATIONS:

Triangulation stations (unadjusted field positions) used are these:

- △ AMBE TR 27 (USE)(1946), 1953; J.E. Waugh, Ch. of Party
- △ ALBERT, 1954 - R. C. Bolstad, Ch. of Party
- △ CHARLEY, 1954 - R. C. Bolstad, Ch. of Party
- RING - △ RING, 1953 - J. E. Waugh, Ch. of Party
- FEZ - △ NEW PASS Power Pole, South, 1953;
J. E. Waugh, Ch. of Party
- ARM - △ Sarasota, St. Armands Key Tank, (elev.), 1953;
J. E. Waugh, Ch. of Party
- LEO - △ Big Sarasota Pass Light 5, 1953;
J. E. Waugh, Ch. of Party
- END - △ END, 1953, - J. E. Waugh, Ch. of Party
- RIP - △ RIP, 1954 - R. C. Bolstad, Ch. of Party
- WIN - △ EWING (USE), 1935

Topographic stations were located by photogrammetric radial plot, shoreline manuscripts T-11083, T-11085, T-11086 & T-11087.

G. SHORELINE AND TOPOGRAPHY:

The shoreline was transferred to the ^{Mylar} ~~boat~~ ^{unreviewed} sheet from shoreline manuscripts T-11083, T-11085, ~~T-11086~~ ^{& T-11087}. Original photos of area taken in 1952.

The smooth sheet was photo-lithographically reproduced from the verified Mylar sheet.

G. SHORELINE AND TOPOGRAPHY: Con't.

Sounding lines were run as close to the beach as possible to delineate the low water line. A shoal tends to build up just off shore from wave action. Development of these shoals was impractical; storm and high wave action will cause shifting and changes. The area especially affected is the surveyed area off Longboat Key.

Certain areas of shoreline are subject to erosion. The beach along St. Armand Key is one. Here numerous short rock groins are in the process of being built out from the beach. Other beaches tending to erode can be expected to receive similar treatment.

H. SOUNDINGS:

Two 808 model fathometers were used, the same machines being transferred from skiff to ship as required. See paragraph 3 under item C.

Bar checks were obtained each day to correct soundings for a given initial. Leadline comparisons were also made in some instances. Minor discrepancies between visual and Raydist work were possibly caused by the use of a larger bar check correction during the Raydist work. Adjustment is not thought necessary.

In depths too shoal for the fathometer to record properly, a sounding pole, graduated in feet, was used.

Settlement and squat corrections for Ship SOSBEE were applied as determined in special report of May 1951.

I. CONTROL OF HYDROGRAPHY:

A list of stations is included in the applicable data of this report.

Hydrography on SO-2253^{H-8043} was controlled by three-point sextant fixes. This hydrography extended approximately 2.5 miles offshore with 4 crosslines extending to the outer offshore limit. The remainder of the hydrography was completed on SO-2253^{H-8043}. Raydist, using the Raydist Range System for control. ALBERT, 1954 and BAKER, 1954 were used as control stations for all Raydist work. For full information on the SOSBEE's work and tests with the Raydist Range System, see various reports submitted on this system during period of July thru Oct. 1954, the main report being "Final Raydist Report, 12 Oct. 1954, R. C. Bolstad, Comdg. Officer, Ship SOSBEE."

Comparison of overlapping soundings of the Raydist and Visual work showed good agreement. The plotted accuracy of the Raydist positions on the boat sheet are believed excellent. (See Dir. Ltr. to Supervisor SED. dated 30 Sept. 1954, ref. 22/MEK, D-I-SE).

I. CONTROL OF HYDROGRAPHY: Con't.

Also see Final Report of Raydist Equipment Tests submitted by Cdr. R. C. Bolstad 7 Oct. 1954.

Raydist arcs (circular) were drawn on SO-2253 - Raydist at 100 lane intervals (1 lane = $\frac{1}{2}$ wave length = 59.455 ft.) with station ALBERT, 1954 and BAKER, 1954 as centers. Positions were plotted on the aluminum boat sheet with an Odessey protractor using range values from stations ALBERT and BAKER. The original recorded reading from station BAKER is in lanes and can be laid off directly. The original recorded readings from ALBERT are for a system of hyperbolic curves about the two stations. A simple formula converts the hyperbolic value to a range value. Both hyperbolic reading and computed range value for station ALBERT are recorded in the sounding record books. Up to "81 Q" day the stamp used for the fix identifies the values; thereafter the computed range value of ALBERT is shown in the bracket.

The formula for converting the hyperbolic reading to a range value is as follows:

$$\text{ALBERT Range value} = (\text{ALBERT to BAKER Dist.}) + \text{BAKER Reading} - 2 (\text{hyper. reading of ALBERT}).$$

All but the hyperbolic reading are in lanes (or $\frac{1}{2}$ wave lengths).

The distance between ALBERT and BAKER was computed by inverse to be 482.51 lanes.

Positions could be plotted using the hyperbolic reading and hyperbolic curves. Stronger intersection of arcs by this method could be obtained in the extreme northern and southern areas of survey, but is not deemed necessary. The running of arcs off station BAKER proved extremely satisfactory in doing hydrography. A voltmeter was connected to the Raydist station indicator so as to show the change in phase of station BAKER. The helmsman could then change his course to keep the phase meter at a relatively constant reading (± 20 ft.). Installation and coordination of the phasemeter was easily accomplished.

Sometimes hydrographic lines were not started on the arc to be run. In smooth plotting if the records do not give information as to the subsequent course to the second position out, it will be adequate to show a gradual movement onto the prescribed arc.

J. ADEQUACY OF SURVEY:

The survey is complete and adequate to supersede prior surveys for charting.

Junctions with adjoining surveys are satisfactory and depth

J. ADEQUACY OF SURVEY: Con't.

curves are continuous at these junctions with the possible exception of H-7934. The overlapping soundings of the SOSBEE's Raydist controlled work and the boat sheet soundings of H-7934 (1:80,000, shoran controlled, HYDROGRAPHER) were not in good agreement. Some of the sounding lines on H-7934 were in good agreement, others were not.* The difference varied, 0 - 8 feet. Smooth plotting soundings of H-7934 should eliminate most of the difference. The intersection of arcs in this area on H-7934 were poor, and it is probable the tidal data is somewhat in error. There is a significant difference of scale involved. Enough overlap was provided on SO-2253 - Raydist (H-8043) to give a good comparison with H-7934. An extensive comparison is recommended where the smooth sheet soundings of H-7934 are available. The Raydist positions on H-8043 are considered by this party to be unquestionable; when the discrepancy was first noted a subsequent series of overlapping lines were run indicating the accuracy of H-8043. (See Review, par. 4.)

adequate
junction
was
made

K. CROSSLINES:

Crosslines totalling 9% of the total mileage were run. Any depth discrepancies were in the magnitude of one foot.

L. COMPARISON WITH PRIOR SURVEYS: *See Review, par. 5.*

See comparison with Chart.

M. COMPARISON WITH CHART: *See Review, pars. 5 & 6.*

An extensive comparison was made with Chart 1256, print date 7/13/53. The comparison of soundings showed a fair agreement. There were a number of charted soundings which were shoaler than found on the new survey with several charted soundings apparently deeper. By allowing up to a 0.2 mile horizontal displacement of the charted soundings, most all discrepancies could be reconciled.

Below are listed charted soundings which can not be reconciled within one foot in the above manner.

1. The 27 foot depth charted at Lat. 27° - 20' .7, Long. 82° - 40' .0! The 25 foot charted sounding 0.4 mile NE of this sounding also was not duplicated in the area. These soundings are two ~~to three~~ feet shoaler than found on SO-2253-Raydist. (present survey)
2. The 34 foot depth charted at Lat. 27° - 20' .²7, Long. 82° - 43' .3 is 2 - 3 feet shoaler than found on SO-2253-Raydist. (35-30 ft. depth slightly northward on pres. survey)
3. The 30 foot depth charted at Lat. 27° - 19' .⁷6, Long. 82° - 39' .² is three feet shoaler than found on SO-2253-Raydist. 31-ft. sdg. nearby on east

M. COMPARISON WITH CHART: Con't.

4. The 27 foot depth charted at Lat. $27^{\circ} - 19'.0$, Long. $82^{\circ} - 39'.9$ is 2 feet shoaler than found on SO-2253 - Raydist. ✓
(27 southwestward on pres. survey)
5. The 36 foot depth charted at Lat. $27^{\circ} - 18'.5$, Long. $82^{\circ} - 38'.4$ is ~~2~~²⁻³ feet deeper than found on SO-2253 - Raydist. ✓
6. The 30 foot depth charted at Lat. $27^{\circ} - 16'.2$, Long. $82^{\circ} - 38'.2$ is ~~2~~²⁻³ feet shoaler than found on SO-2253 - Raydist. ✓
(32-ft. depths close by adequate for charting)
7. The *31 foot depth charted at Lat. $27^{\circ} - 15'.2$, Long. $82^{\circ} - 38'.4$ is 4 - 5 feet shoaler than found in the immediate area on SO-2253 - Raydist. *(comparable depths slightly southeastward) ✓
8. The *31 foot depth charted at Lat. $27^{\circ} - 14'.⁰2$, Long. $82^{\circ} - 36'.8$ is two feet shoaler than found in the immediate area on SO-2253 - Raydist. *comparable depths slightly northward ✓
9. The 30 foot depth charted at Lat. $27^{\circ} - 13'.1$, Long. $82^{\circ} - 36'.8$ is in deeper water on SO-2253 - Raydist but is 0.2-0.3 miles from similar soundings on the SO-2253 - Raydist. The 34 foot sounding 0.7 miles E of this charted sounding falls in shoaler water but could be reconciled by a similar displacement. ✓
10. The 36 foot depth charted at Lat. $27^{\circ} - 10'.3$, Long. $82^{\circ} - 39'.1$ is in deeper water on SO-2253 - Raydist. A displacement of 0.2 - 0.3 miles would bring it into agreement. ✓
11. The 37 foot depth charted at Lat. $27^{\circ} - 15'.3$, Long. $82^{\circ} - 43'.0$ is four feet shoaler than found on SO-2253-Raydist. ✓
12. The 39 foot depth charted at Lat. $27^{\circ} - 16'.1$, Long. $82^{\circ} - 43'.4$ is ~~two feet shoaler than found~~ on SO-2253 - Raydist. ✓
in agreement with depths
13. The 48 foot depth charted at Lat. $27^{\circ} - 13'.1$, Long. $82^{\circ} - 42'.0$ is 3 feet deeper than found on SO-2253 - Raydist. ✓
14. The 34 foot depth charted at Lat. $27^{\circ} - 13'.1$, Long. $82^{\circ} - 33'.9$ is two feet deeper than found on SO-2253. ✓
15. The 4 foot depth charted at $27^{\circ} - 15'.9$, Long. $82^{\circ} - 33'.7$ no longer exists. The shoal in this area has changed considerably with deeper water now existing along shore south of Big Sarasota Pass entrance. (sndg. deleted from chart)

See Review, par. 5.

Most of the above differences are small. The scale of chart and survey are appreciably different. Charted soundings are apparently from an 1876 survey and the methods then used may allow for some differences. It is also very probable that slight bottom changes are effected by wind and storm action; some fairly strong sweep of the current has been noted during these periods. No further field resolution of differences is considered necessary. ✓

N. DANGERS AND SHOALS:

There are no important newly found dangers or shoals in this survey.

All shoals, dangers, and bare rocks were found charted or shoaler depths were found except as noted previously in this report.

O. COAST PILOT INFORMATION:

A special coast pilot report will be made for the entire northern part of this project.

Buoys into Big Sarasota and New Pass are subject to change.

The passes are liable to change from storms and somewhat to normal tidal current action. Changes in aids to navigation for both passes are frequent.

Only the expected tidal currents near the passes were noted during hydrographic operations. No current stations were occupied in the area of the survey.

No other COAST PILOT INFORMATION is covered by this survey.

P. AIDS TO NAVIGATION:

No fixed aids in limits of survey. For New Pass and Big Sarasota Pass fixed aids, see descriptive reports for H-8044 and H-8098 respectively.

The latest location (27 Oct. 1954) of entrance buoys to New Pass and Big Sarasota Pass, Surveys H-8044 and H-8098, have been included in Vol. 3, page 60, SO-2253. *are shown on smooth sheet H-8043*

Q. LANDMARKS FOR CHARTS:

Landmarks are to be reported on Form 567 for the northern half of the project.

A list of recommended landmarks for this survey are:

ARM - Δ SARASOTA ST. ARMAND KEY, TANK, (Elev.), 1953. } charted
RING - Δ RING, 1953; abandoned hotel cupola.

R. GEOGRAPHIC NAMES:

No special report on Geographic Names was required. No discrepancies in Geographic names were found by the hydrographic party other than that noted by the Tampa Photogrammetric Office's Field Inspection Report. This reported the usage of Siesta Key rather than Sarasota Key. It is suggested that the registered sub-locality of this survey (Sarasota Key to Longboat Key) be changed to Siesta Key to Longboat Key in accordance with this change.

S. SILTED AREAS:

None.

T. BOTTOM SAMPLES:

Bottom samples were obtained at required intervals throughout the surveyed area using a leadline with soap placed in a hollow bottom. Both material and characteristics are given in the sounding volumes; the purple circles on the boat sheet show locations where bottom samples were taken.

U. RAYDIST RANGE SYSTEM:

For complete report on the Raydist Range System see Final Raydist Report, 12 Oct. 1954, R. C. Bolstad, Comdg. Officer, Ship SCSBEE.

The Raydist Range System is a tracking system and is subject to disadvantages of such. The main advantages noted by this party are:

1. Compactness of equipment.
2. Easy installation and portability of stations.
3. Use of shore power where available.
4. No shore station attendants with shore power use.
5. Accuracy.
6. Adaptability to steering arcs.
7. Use in most any weather; day or night.
8. Bush recorder (optional) gives position at every moment.

Main disadvantages are:

1. It is a tracking system.
 - (a) loss of lane count due to bad electrical storms.
 - (b) loss of lane count due to power failure (any station).
 - (c) loss of lane count due to instability due to distance, multipathing, or poor ship grounding.
2. Present reading system, similar to electric meter, and necessary conversion of hyperbolic reading to plottable range value.
3. Only one ship can operate on Raydist Range System.
4. Grounding of shore stations necessary.

U. RAYDIST RANGE SYSTEM: Con't.)

The methods of calibration of Raydist equipment were explored during this survey. Once set in, at a known representative point in the area, the dials read the correct phase (fraction of a lane) until operational or tuning changes occur in the equipment. The problem then consists of checking the lane or whole count. Below are listed methods used by this party:

1. Computed calibration sites.
2. Computed point on range (using intersection of ranges or range and sextant angles).
3. Computed Buoy positions.
4. Items 1, 2, and 3 with values not computed but determined by previous correct Raydist readings.
 - (a) Buoy positions particularly useful when working outer part of survey.
5. Baseline crossings give check on hyperbolic station.

Possible modifications recommended by this party are these:

1. More readable dials (A power driven phase meter with a printing device has been suggested).
2. Eliminate computation involving conversion of hyperbolic reading by power driven conversion computer to read both range values.
3. Higher frequency stations to facilitate checking lane count and more stability of lane count.

The range of the system is approximately line of sight. Readings were gotten better than 18 miles from a shore station.

No maximum distance was obtained.

V. SOUNDING VOLUMES:

Work on this hydrographic sheet was done with the skiff No. 735 for the inshore area and for the off shore area with the Ship SOSBEE using both visual fixes and Raydist control. The contents of the 17 volumes comprising this sheet are as follows:

<u>Vol.</u>	<u>Craft</u>	<u>Day Letters</u>	<u>Day Ltr. Color</u>	<u>Type</u>	<u>Control</u>
1	Ship SOSBEE	1A - 71D	blue	Sextant	fix
2	Skiff 735	1a - 87c	"	"	"
3	" "	88c - 42e	"	"	"
4	Ship SOSBEE	1E - 128G	"	"	"
5	" "	129G - 33M	"	"	"

V. SOUNDING VOLUMES: Con't.

<u>Vol.</u>	<u>Craft</u>	<u>Day Letters</u>	<u>Day Ltr. Color</u>	<u>Type Control</u>
6	Ship SOSBEE	1J - 32L	blue	Sextant fixes
7	" "	34M - 90M	"	" "
8	" "	1B - 70G	green Red	Raydist
9	" "	7H - 86K	"	"
10	" "	87K - 76M	"	"
11	" "	1N - 96P	"	"
12	" "	97P - 144Q	"	"
13	" "	1R - 72S	"	"
14	" "	73S - 150T	"	"
15	" "	1U - 76V	"	"
16	" "	77V - 102V	"	"
17	Skiff 735	43e - 94e	blue	Sextant fixes

Z. TABULATION OF APPLICABLE DATA:

1. Statistics.
2. Tide Note.
3. Approval Sheet.
4. Index of Sheets.
5. List of Stations.

Submitted by,

Wilfred V. Warner,
Ensign, USC&GS

STATISTICS

For Hydrographic Survey H-8043

Field No.'s SO-2253 and SO-2253 - Raydist

Day Letter	Vol. No.	Date	Number of Pole Sdgs.	Number of Positions	Stat. Miles of Sdg.
(SO-2253)					
✓ A <i>Blue</i>	1	14 Oct.	1953	CP 41 ✓	10.7
✓ a	2	16 "	1953	CP 46 ✓	7.2
✓ B	1	22 Dec.	1953	CP 134 ✓	47.9
✓ b	2	8 Jan.	1954	CP 120 ✓	27.1
✓ c	2 & 3	18 Jan.	1954	CP 170 ✓	35.8
✓ C	1	19 Jan.	1954	CP 33 ✓	10.9
✓ D	1	20 "	1954	CP 33 ✓	11.5
✓ E	2	10 Feb.	1954	CP 58 ✓	19.5
✓ F	2	17 "	1954	CP 91 ✓	29.9
✓ G	4 & 5	18 Mar.	1954	CP 166 ✓	55.5
✓ H	5	29 "	1954	CP 190 ✓	51.4
✓ J	6	26 Apr.	1954	CP 29 ✓	10.4
✓ K	6	29 "	1954	CP 30 ✓	9.4
✓ L	6	5 May.	1954	CP 32 ✓	10.2
✓ M	5 & 7	8 June	1954	CP 90 ✓	40.0
✓ d	3	11 "	1954	CP 293	24.3
✓ e	3 & 17	24 Sept.	1954	CP 94 ✓	16.2
Total for SO-2253			466	1487	417.9

(SO-2253 - Raydist)

✓ B <i>Red</i>	8	29 June	1954	CP 69 ✓	34.1
✓ G	8	12 July	1954	CP 70 ✓	24.8
✓ H	9	13 "	1954	CP 24 ✓	11.6
✓ J	9	14 "	1954	CP 47 ✓	23.3
✓ K	9 & 10	15 "	1954	CP 141 55 ✓	26.3
✓ L	10	16 "	1954	CP 30 ✓	14.1
✓ M	10	19 "	1954	CP 76 ✓	36.0
✓ N	11	22 "	1954	CP 96 ✓	44.7
✓ P	11 & 12	27 "	1954	CP 121 ✓	54.2
✓ Q	12	28 "	1954	CP 144 ✓	67.9
✓ R	13	29 "	1954	CP 127 ✓	60.0
✓ S	13 & 14	30 "	1954	CP 92 ✓	40.5
✓ T	14	4 Aug.	1954	CP 150 ✓	65.3
✓ U	15	5 "	1954	CP 141 ✓	55.7
V	15 & 16	9 "	1954	12 L.L. 102	37.1
Total for SO-2253 - Raydist			12 L.L.	1344	595.5

Total for SO-2253 (Brought Forward)	466	1487	417.9
Grand Total	478	2831	1013.4

Square Statute Miles of Sounding:

SO-2253 - Raydist - - - - - 74.5

SO-2253 - - - - - 29.0

Total Square Stat. Miles 103.5

PROCESSING OFFICE LIST OF SIGNALS
H-8043

TRIANGULATION STATIONS

ARM ✓ ALBERT, 1954 (Raydist station)
 ✓ SARASOTA ST. ARMAND KEY, TANK, 1953
 ✓ BAKER, 1954 (Raydist station)
 ✓ CHARLEY, 1954
 END ✓ END, 1953
 FEZ ✓ NEW PASS POWER POLE, SOUTH, 1953
 LEO ✓ BIG SARASOTA PASS LIGHT 5, 1953
 RING ✓ RING, 1953
 RIP ✓ RIP, 1954
 WIN ✓ EWING (USE), 1953

TOPOGRAPHIC STATIONS

(Source T-11083)

Cow ✓ Fat ✓ Gal Hex Hop Hut Lay Low New Pep ✓

(Source T-11085)

Con ✓ Dot ✓ Elm ✓ Gem ✓ Gum ✓ Ice ✓ Ivy ✓ Leg ✓ Lug ✓ Max ✓ Mum ✓
 Nip ✓ Ora ✓ Pro ✓ Rag ✓ Sis ✓ Sue ✓ Tap ✓ Thy ✓ Via ✓ Wig ✓ Zip ✓
 8567 Zig

(Source T-11086)

Ace ✓ Ado ✓ Alp ✓ Boa ✓ Cry ✓ Day ✓ Ego ✓ Gin ✓ Hub ✓ Nul ✓ Pal ✓
 Rum ✓ Sam ✓ Tan ✓ Van ✓ Wax ✓ Yam ✓ Zag

(Source T-11087)

Ave ✓ Duo ✓ Fin ✓ Ida ✓ Joe ✓ Nix ✓ Rio ✓ Wag ✓ Zoo ✓

HYDROGRAPHIC STATIONS

✓ Dog Vol. 1, Pg. 51 ×
 Egg Vol. 1, Pg. 52 ×
 Fro Vol. 1, Pg. 52 ×
 Fun Vol. 1, Pg. 51 ×
 Peg Vol. 2, Pg. 15 ×
 Quo Vol. 3, Pg. 65 ×
 War Vol. 2, Pg. 29 ×
 Yet Vol. 1, Pg. 51 ×

FLOATING AIDS TO NAVIGATION
H-8043

<u>BUOY</u>	<u>LAT. & LONG.</u>	<u>METERS</u>	<u>DEPTH</u>	<u>POS. NO.</u>	<u>DATE</u>
New Pass Bell Buoy 1	27-18 ✓ 82-35	1818.0 ✓ 1488.0 1388.0	21	*None	27 Oct. 1954
Big Sarasota Pass Lighted Buoy 2	27-15 ✓ 82-34	1740.0 ✓ 832.0	20	*None	27 Oct. 1954

* See page 60, Volume 3

TIDE NOTE

A portable automatic tide gage was maintained at Sarasota Municipal Pier, Florida, Lat. $27^{\circ} - 20'10''$ N., Long. $82^{\circ} - 32'17''$ W. Hourly heights were used directly to reduce all sounding done on H-8043 (SO-2253 and SO-2253 - Raydist). Zero of the staff was 1.5 feet below the plane of Mean Low Water, according to letter 36 fj of 20 April 1953.

It is now realized that a correction of -1.0 hr. applied to these tides (instead of applying no time difference) would better reduce the soundings of H-8043. Leaving tidal reductions as recorded results in a maximum error of 0.4 ft. with an average error of 0.2 ft. This is considered sufficiently accurate for all charting purposes in this off shore area.

APPROVAL SHEET

The survey of the area covered by H-8043 (SO-2253 and SO-2253 - Raydist) is adequate for charting purposes. The sounding records and boat sheet have been inspected and are approved this date. Additional work is not necessary.

Roswell C. Bolstad
Commander, USC&GS
Comdg. Ship SOSBEE

SPECIAL REPORT
ON
THE NYLAR METHOD OF SMOOTH PLOTTING SURVEY H-8043

AUTHORITY: The Director's letter dated 30 Sept. 1954, 22/MEK,
D-1-EE.

PROCEDURE: Instructions in the reference letter were followed exactly, and as far as the smooth plotting is concerned, no changes are recommended.

RESULTS: The transfer of positions required from 30 to 35% of the time usually spent plotting in the conventional manner. The other operations required approximately the same amount of time.

COMMENTS: The conclusions listed below were derived from the limited experience gained while supervising the smooth plot of Survey H-8043. Some of these objections may be eliminated by experience gained from a more extensive use of the method, and possibly by suggestions from individuals with more experience in working on acetate. At present, it is the opinion of the writer that the use of a Mylar overlay is an alternate rather than an improved method of obtaining an inked smooth sheet.

The following are conclusions submitted for consideration by the Washington Office:

(1) The time gained by eliminating position plotting will be largely off-set by that spent inking position numbers, station symbols and names etc., on the final sheet. This will be a duplication of effort as this inking has to be done on the Mylar. *a/50*

(2) It was found to be impracticable to ink soundings directly on the Mylar without penciling them first. This was necessary to eliminate crossing discrepancies and to check questionable lines. The smooth plotter made several attempts to ink the soundings directly from the volumes, but found it necessary to make many tedious erasures in order to obtain good crossings.

(3) When inking soundings on lines going in a northerly direction the plotter has to wait for the ink to dry on individual soundings so they will not be smeared by his hand.

(4) Depth curves can not be smoothed out and discrepancies adjusted on the Mylar as easily as they can on the conventional sheet while the soundings are still in pencil.

(5) The areas where the Mylar method may be used are restricted to open waters with a comparatively smooth bottom.

(6) Smooth sheet paper is much easier to handle and it takes ink and erases much better. The Mylar is easily damaged by the spacing machine and steel eraser.

(7) The smooth plotter reported the Mylar method to be much harder on the eyes and definitely less interesting than plotting in the conventional manner.

(8) For accuracy in plotting, the field work should be done on a stable medium such as aluminum mounted paper. This is difficult to handle, both aboard ship and in the processing office.

H-5043 is an excellent survey and none of these objections can be attributed to deficiency in the field work.

Respectfully submitted,

Hugh L. Proffitt
Cartographer

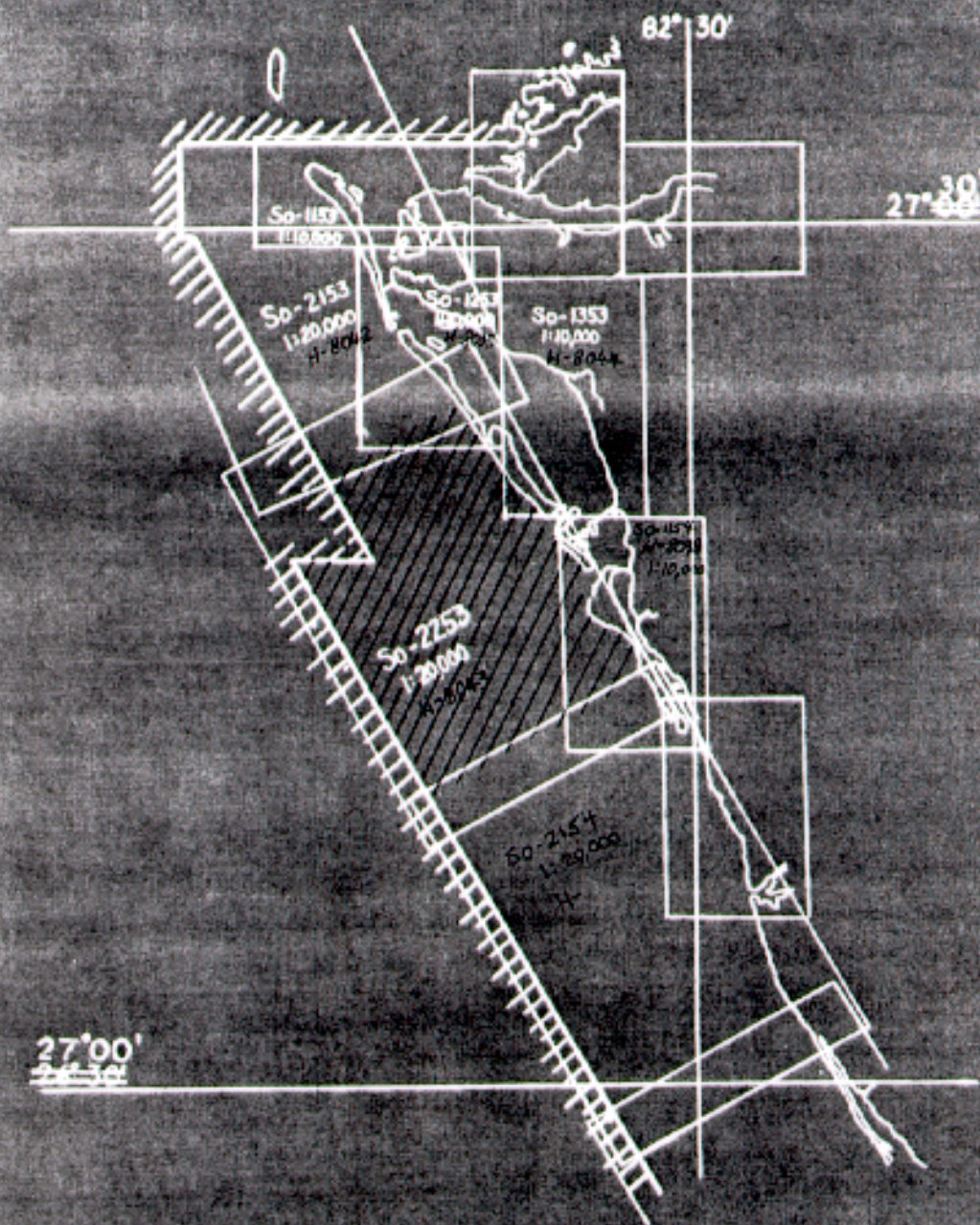
Norfolk, Virginia
10 February 1955

Approved & Forwarded:

W. H. Deibridge
Captain, USCGC
Supervisor, SE Dist.

*Film distortion and splicing negatives
resulted in bend in meridian lines
of 7 mm in 48 in.*

P.H. Carstens 8/12/55



INDEX OF SHEETS
PROJECT CS-353
(Northern Part)

LIST OF STATIONS

See Processing office list.

Name Used In Survey	Origin of Station
ACE - - - - -	No. 8670, T-11086 (Photo - hydro)
ADO - - - - -	No. 8664, T-11086 (" ")
ALBERT - - - - -	Δ ALBERT, 1954 - R. C. Bolstad, Chief of Party
ALP - - - - -	No. 8676, T-11086 (Photo - hydro)
ARM - - - - -	Δ Sarasota, St. Armand Key, Tank, (elev.), 1953, J. E. Waugh, Chief of Party
AVE - - - - -	No. 8751, T-11087 (Photo - hydro)
BAKER - - - - -	Δ BAKER, 1954 - R. C. Bolstad, Chief of Party
BOA - - - - -	No. 8669, T-11086 (Photo - hydro)
CON - - - - -	No. 8576, T-11085 (Photo - hydro)
COW - - - - -	No. 8357, T-11083 (" ")
CRY - - - - -	No. 8677, T-11086 (" ")
DAY - - - - -	No. 8611, T-11086 (Photo - hydro)
DOG - - - - -	Hydro. location, Vol. 1 page 50, SO-2253.
DOT - - - - -	No. 8569, T-11085 (Photo - hydro)
DUO - - - - -	No. 8750, T-11087 (" ")
EGG - - - - -	Hydro. location, Vol. 1, page 52, SO-2253.
EGO - - - - -	No. 8673, T-11086 (Photo - hydro)
ELM - - - - -	No. 8574, T-11085 (" ")
END - - - - -	Δ END, 1953 - J. E. Waugh, Chief of Party
FAT - - - - -	No. 8356, T-11083 (Photo - hydro)
FEZ - - - - -	Δ NEW PASS Power Pole, South, 1953, J. E. Waugh, Chief of Party
FIN - - - - -	No. 8748, T-11087 (Photo - hydro)
FRO - - - - -	Hydro. location, Vol. 1, page 52, SO-2253.
FUN - - - - -	" " " 1, page 51, SO-2253.
GAL - - - - -	No. 8339, T-11083 (Photo - hydro)
GEM - - - - -	No. 8584, T-11085 (" ")
GIN - - - - -	No. 8615, T-11086 (" ")
GUM - - - - -	No. 8570, T-11085 (" ")

LIST OF STATIONS
(Con't.)

Name Used In Survey	Origin of Station
HEX - - - - -	No. 8358, T-11083 (Photo - hydro)
HOP - - - - -	No. 8353, T-11083 (" ")
HUB - - - - -	No. 8678, T-11086 (" ")
HUT - - - - -	No. 8355, T-11086 (" ")
ICE - - - - -	No. 8582, T-11085 (Photo - hydro)
IDA - - - - -	No. 8755, T-11087 (" ")
IVY - - - - -	No. 8562, T-11085 (" ")
JOE - - - - -	No. 8753, T-11087 (Photo - hydro)
LAY - - - - -	No. 8348, T-11083 (Photo - hydro)
LEG - - - - -	No. 8579, T-11085 (" ")
LEO - - - - -	△ Big Sarasota Pass Light 5, 1953, J. E. Waugh, Chief of Party
LOW - - - - -	No. 8354, T-11083 (Photo - hydro)
LUG - - - - -	No. 8563, T-11085 (" ")
MAX - - - - -	No. 8564, T-11085 (Photo - hydro)
MUM - - - - -	No. 8583, T-11085 (" ")
NEW - - - - -	No. 8352, T-11083 (Photo - hydro)
NIP - - - - -	No. 8568, T-11085 (" ")
NIX - - - - -	No. 8749, T-11087 (" ")
NUL - - - - -	No. 8614, T-11086 (" ")
ORA - - - - -	No. 8585, T-11085 (Photo - hydro)
PAL - - - - -	No. 8612, T-11086 (Photo - hydro)
PEG - - - - -	Hydro. location, Vol. 2, page 13, SO-2253.
PEP - - - - -	No. 8343, T-11083 (Photo - hydro)
PRO - - - - -	No. 8575, T-11085 (" ")
QUO - - - - -	Hydro. location, Vol. 3, page 65, SO-2253.
RAG - - - - -	No. 8577, T-11085 (Photo - hydro)
RING - - - - -	△ RING, 1953 - J. E. Waugh, Chief of Party
RIO - - - - -	No. 8752, T-11087 (Photo - hydro)
RIP - - - - -	△ RIP, 1954 - R. C. Bolstad, Chief of Party
RUM - - - - -	No. 8671, T-11086 (Photo - hydro)
SAM - - - - -	No. 8610, T-11086 (Photo - hydro)
SIS - - - - -	No. 8578, T-11085 (" ")
SUE - - - - -	No. 8565, T-11085 (" ")

LIST OF STATIONS
(Cont.)

Name Used In Survey	Origin of Station
TAN - - - - -	No. 8616, T-11086 (Photo - hydro)
TAP - - - - -	No. 8566A, T-11085 (" ")
THY - - - - -	No. 8581, T-11085 (" ")
VAN - - - - -	No. 8663, T-11086 (Photo - hydro)
VIA - - - - -	No. 8581A, T-11085 (" ")
WAG - - - - -	No. 8754, T-11087 (Photo - hydro)
WAR - - - - -	Hydro. location, Vol. 2, page 29, SO-2253.
WAX - - - - -	No. 8679, T-11086 (Photo - hydro)
WIG - - - - -	No. 8580, T-11085 (" ")
WIN - - - - -	△ EWING (USE), 1935
YAM - - - - -	No. 8672, T-11086 (Photo - hydro)
YET - - - - -	Hydro location, Vol. 1, page 50, SO-2253.
ZAG - - - - -	No. 8675, T-11086 (Photo - hydro)
ZIG - - - - -	No. 8572, T-11085 (" ")
ZOO - - - - -	No. 8756, T-11087 (" ")

Photo-hydro station No. 8663, T-11086 was located as Big Sarasota Pass Daybeacon 12, 1953. Since this day-beacon has been renumbered 14.

Unlisted Photo-hydro station No. 8747, T-11087 was used in the hydrographer's location of Rip. Later this signal was located by Traverse as △ RIP, 1954, along with △ CHARLEY, 1954.

Unlisted photo-hydro station No. 8567, T-11085 was used in the hydrographer's location of signal FUN.

ADDENDUM
To Accompany

HYDROGRAPHIC SURVEY H-8043 (Field No. So-2253)

GENERAL

This survey was smooth plotted in accordance with instructions given in the Director's letter to the Supervisor, S.E. District, dated 30 Sept. 1954, 22/MEK, D-1-SE. (See attached copy of Processing Office report on Mylar method) ✓

This appears to be an excellent basic survey in an area where the bottom is made up of a series of minor irregularities. The soundings checked very well at crossings, but the character of the bottom will create a great many irregularities in the depth curves. It is probable that more extensive development on some of the shoal indications might have been advisable. ✓

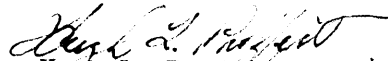
TOPOGRAPHY

The fishing platform, mentioned in volume 2, page 29, at station WAR, was not plotted due to a lack of sufficient data. (platform indicated by note on smooth sheet) ✓

COMPARISON WITH SURVEY H-7934 When the junctional area on H-7934 was verified an adequate junction was effected

The depths on this survey are in general agreement with those on H-7934. Maximum discrepancies are about 3 feet and this is believed to be due to shoals picked up by the closer development on H-8043. Review, par. 4

Respectfully submitted,


Hugh L. Proffitt
Cartographer.

Norfolk, Va.
11 Feb. 1955

GEOGRAPHIC NAMES

Survey No. H-8043

Name on Survey	On Chart No.		On previous survey No.		On U. S. quadrangle Maps		From local information		On local Maps		P. O. Guide or Map		Rand McNally Atlas		U. S. Light List	
	A	B	C	D	E	F	G	H	K							
																1
																2
																3
LONGBOAT KEY																4
SIESTA KEY																5
CEROL ISLES																6
SARASOTA PT.																7
POINT O'ROCKS																8
BIG SARASOTA PASS																9
NEW PASS																10
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Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-8043....

Records accompanying survey:

Boat sheets ..2..; sounding vols. 47....; wire drag vols.;
 bomb vols.; graphic recorder rolls 15.enr;
 special reports, etc. 1. Mylar Overlay (Smooth Sheet), 1 transmitting...
 letter of 14 Feb. 55, Norfolk, Va.

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

Number of positions on sheet	2831
Number of positions checked	25
Number of positions revised
Number of soundings revised (refers to depth only)	20
Number of soundings erroneously spaced	15
Number of signals erroneously plotted or transferred
Topographic details	Time 4 hrs.
Junctions	Time 16*
Verification of soundings from graphic record	Time 3 hrs.

Verification by A.J. Hoffman Total time 112 hrs Date 8/10/55

Reviewed by J.A. Dinwiddie Time 48 Date 26 Aug. 1955

23 hrs additional time was used inspecting the junction with H-7934

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-8043

SO-2253-Raydist
FIELD NO. SO-2253

Florida, West Coast, Siesta Key to Longboat Key

Project No. CS-353

Surveyed - Oct. 1953, Sept. 1954

Scale 1:20,000

Soundings:

Control:

808 Fathometer

Raydist
Sextant fixes on
shore signals

Chief of Party - R. C. Bolstad

Surveyed by - R. C. Bolstad, A. L. Wardwell and W. V. Warner

Protracted by - W. W. Feazel

Soundings plotted and inked by - W. W. Feazel

Verified by - A. J. Hoffman

Reviewed by - T. A. Dinsmore 26 August 1955

Inspected by - R. H. Carstens

1. Shoreline and Control

The shoreline originates with the unreviewed manuscripts of air-photographic surveys T-11083, T-11085, T-11086 and T-11087 of 1952.

The origin of the control is given in the Descriptive Report.

2. Sounding Line Crossings

Depths at crossings are in very good agreement.

3. Depth Curves and Bottom Configuration

The usual depth curves are adequately delineated. It was impracticable to completely determine the low-water curve because of its proximity to the shoreline and the low range of tide (1.3 ft.).

The bottom is generally smooth and undulating. Minor irregularities of 1-5 ft. in the form of irregularly shaped

shoals and ridges are found throughout the survey.

4. Junctions with Contemporary Surveys

Discrepancies of 1-4 ft. originally appearing in the overlapping depths of H-7934 (1951) and the present survey have been resolved on H-7934 by rescanning the fathograms in some instances and through revisions to fathometer reducers on H-7934. The present survey now junctions adequately with H-7934 on the west. Project surveys on the north, east and south have not yet been received in this office.

5. Comparison with Prior Surveys

H-1314a (1876), 1:40,000

H-1557b (1883), 1:40,000

The present survey falls within the area covered by these prior surveys. Although the prior and present depths are generally in agreement, differences of 2-4 ft. are found in scattered localities. In many instances, a shift in position of the prior sounding would affect agreement with present depths. The differences found are attributed to inaccuracies in early survey methods, minor irregularities (sand waves) in the bottom and probable shifting of sand shoals from current and storm action. Fairly strong currents are observed in the area during periods of wind and storm. The accurately controlled present survey with its thorough coverage defines the bottom configuration more completely and clearly than the widely spaced sounding lines on the smaller-scale prior surveys.

The present survey is adequate to supersede the prior surveys within the common area.

6. Comparison with Chart 1256 (Latest print date 1-3-55)

A. Hydrography

Charted hydrography originates principally with the previously discussed surveys which need no further consideration. Supplementary soundings (unverified) from the present survey have been applied to the chart from advance information shown on blueprint 51874 (copy of boat sheet). Minor revisions have been made to some smooth-sheet soundings during verification.

It is noted that the following soundings on inshore shoals on the present survey are not charted:

<u>Depth</u>	<u>Latitude</u>	<u>Longitude</u>
17	27°23.43'	82°39.04'
17	27°21.80'	82°38.27'
18	27°20.28'	82°37.12'
17	27°19.73'	82°36.35'

Other shoals of lesser importance also remain uncharted.
 The present survey entirely supersedes the charted information.

B. Aids to Navigation

The aids to navigation located on the present survey are in substantial agreement with the charted aids and adequately mark the features intended.

7. Condition of Survey

- (a) The sounding records and Descriptive Report are complete and comprehensive.
- (b) The smooth plotting was accurately done.
- (c) This is the first survey made by this Bureau using the Raydist Range System of control. Evaluation of the equipment and field methods by the hydrographer together with comments by the Processing Office regarding the Mylar Overlay method of smooth plotting are comprehensively covered in the Descriptive Report.

In the verification of the survey, it is estimated that about 40% of the verifiers time was saved because of the pre-inked soundings on the Mylar sheet. However, where there were discrepancies in crossings, faulty spacing of soundings or revisions in depths of soundings; corrections or revisions were tedious and time-consuming because of the very thin film of drafting surface on the Mylar sheet and the extremely hard surface of the underlying Mylar substance itself. The present smooth sheet is a photolithographic reproduction of the verified Mylar sheet. Topographic signals, Raydist arcs, position numbers etc., were subsequently added in colored ink to the smooth sheet in the Processing Office. The addition of depth curves and junctional soundings in the Washington Office presented no unusual problems. It should be noted, however, that the lithographically printed soundings on the smooth sheet are not as black and lack the density of soundings normally inked on this medium. It is further noted that the meridians on the smooth sheet bow by as much as 0.7 millimeters in a distance of 48 inches. This is probably caused by film distortion or negative splicing in the reproduction process.

Conclusions: From the hydrographer's evaluation in the Descriptive Report, it appears that the Raydist Range System

of control with the improvements recommended would serve as a useful adjunct to field operations. The limitations of the equipment, however, would restrict practicable use to selected inshore localities and the operation of one vessel.

From the reports covering the processing and verification of the survey, it is evident that numerous objections were found in the use of the Mylar method of smooth plotting. The difficulties encountered in drafting on Mylar and the duplication of effort inherent in the procedures followed, limits the process to an alternate rather than an improved method of smooth plotting and inking surveys.

8. Compliance with Project Instructions

The survey adequately complies with the Project Instructions.

9. Additional Field Work

This is an excellent basic survey and no additional field work is required. ✓

Examined and Approved:



H. R. Edmonston
Chief, Nautical Chart Branch



E. R. McCarthy
Chief, Chart Division



J. C. Bull
Chief, Hydrography Branch



Earl O. Heaton
Chief, Division of Coastal Surveys

RAC

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrographic Surveys:~~

4 April 1955

Division of Charts: R. H. Carstens

Plane of reference approved in
17 volumes of sounding records for

HYDROGRAPHIC SHEET

8043

Locality West Coast of Florida

Chief of Party: R. C. Bolstad in 1953-54
Plane of reference is mean low water, reading
1.5 ft. on tide staff at Sarasota
6.5 ft. below B. M. 1 (1953)

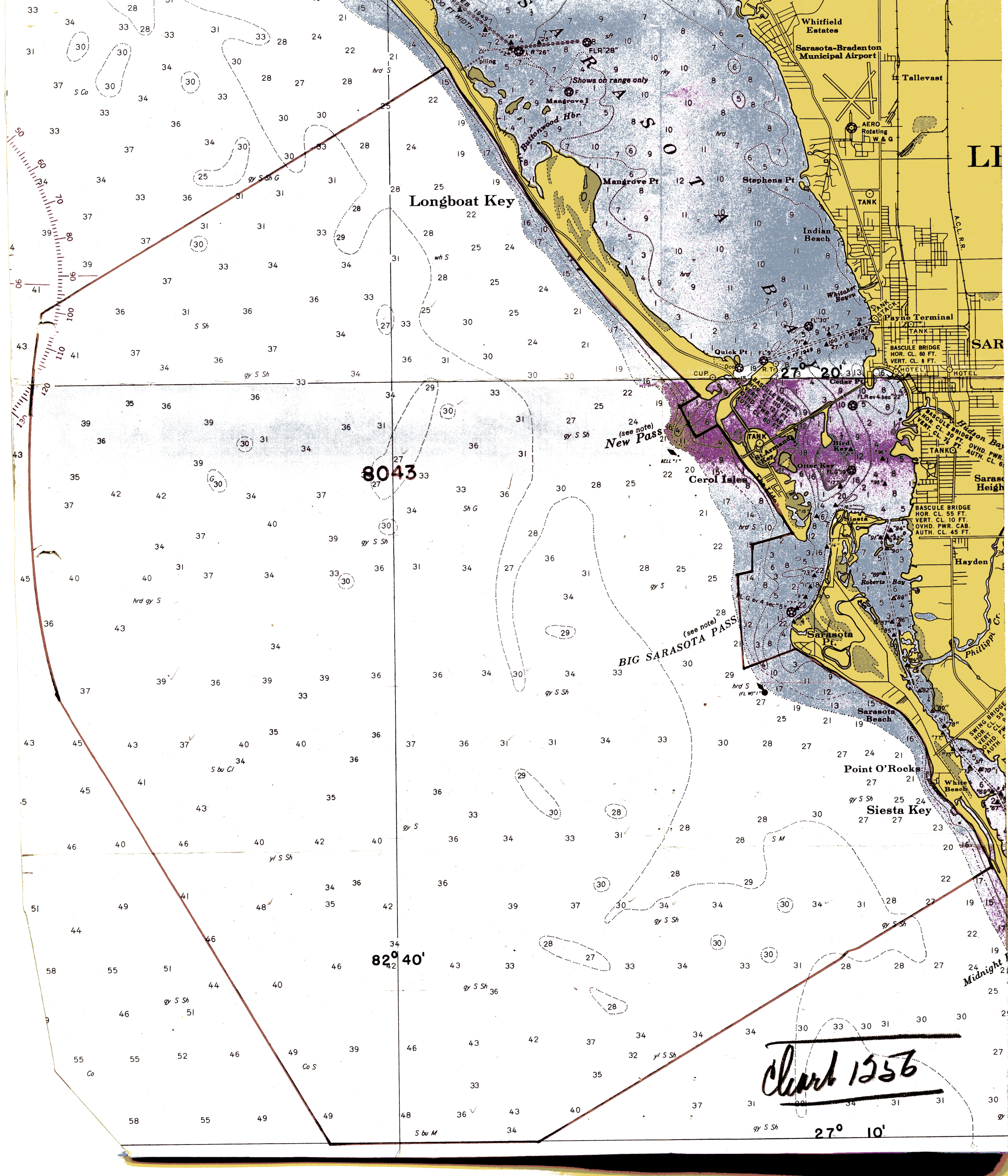
Height of mean high water above plane of reference is 1.3 feet.

Condition of records satisfactory except as noted below:

E. C. McKay

Tides Branch

Chief, Division of Tides and Currents.



8043

82° 40'

Chart 1556

27° 10'

NAUTICAL CHARTS BRANCH

SURVEY NO. _____

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
4/2/56	1002	H. MacEwen	Before After Verification and Review Examined for critical corrections. Two edg. appls.
10/25/56	857	Jaru.	Before After Verification and Review
4-1-57	1003	R. K. De Landau	Examined Before After Verification and Review. No correction. Await application to larger scale chrt.
12/29/58	1003	H. W. Burgoyne	Before After Verification and Review completely applied hydro
1-20-59	1007	R. K. De Landau	Before After Verification and Review thru chrt 1003
2 Mar 59	1002	Melch	Before After Verification and Review thru 1003, above
4 Aug 60	1256		Before After Verification and Review In part thru 857. above
4 Apr 61	857	Melch	Before After Verification and Review Extended hydro. seaward to new limits of chart.
			Before After Verification and Review
			Before After Verification and Review
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			Before After Verification and Review

M-2168-1

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.