9994

Diagram No. 1245-2

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. HSB-10-3-82

Office No. H-9994

LOCALITY

State Florida

General Locality Indian River

Locality Indian River City to Titusville

19 82

CHIEF OF PARTY
LCDR G.W.Jamerson

LIBRARY & ARCHIVES

DATE January 2, 1986

☆U.S. GOV. PRINTING OFFICE: 1980—766-230

9994

INDEX

* Removed and filed with the original field records.

NOAA FORM 77-28 (11-72) U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

REGISTER NO. H-9994

HYDROGRAPHIC TITLE SHEET

INSTRUCTIONS - 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. HSB-10-3-82

State: Florida

General locality: Indian River ~~Indian River City~~

Locality: ~~Vicinity of Titusville and Banana Creek~~ ~~Indian River City to Titusville~~ ← This locality is correct.

Scale: 1:10,000 Date of survey: 16 Feb.1982 - 23 Apr 1982

Instructions dated: 26 August 1981 Change 1 Oct.1, 1981 Project No.: OPR-G207-HSB-81

Vessel: Hydrographic Surveys Branch - HFP5

Chief of party: George W. Jamerson, LCDR.

Surveyed by: John W. Humphrey, Lt.jg.

Soundings taken by echo sounder, ~~hand lead,~~ pole: ~~all~~

Graphic record scaled by: JH, BAL, JMR, KLG, SRL, SW

Graphic record checked by: JH & BAL

Protracted by: ------ Automated plot by: ~~Field sheet PDP/8e~~ Xynetics 1201 (AMC)

Verification by: AMC Verification ~~Branch~~ Unit

Soundings in ~~fathoms~~ feet at ~~MLW~~ ~~MLLW~~ Low Water Datum

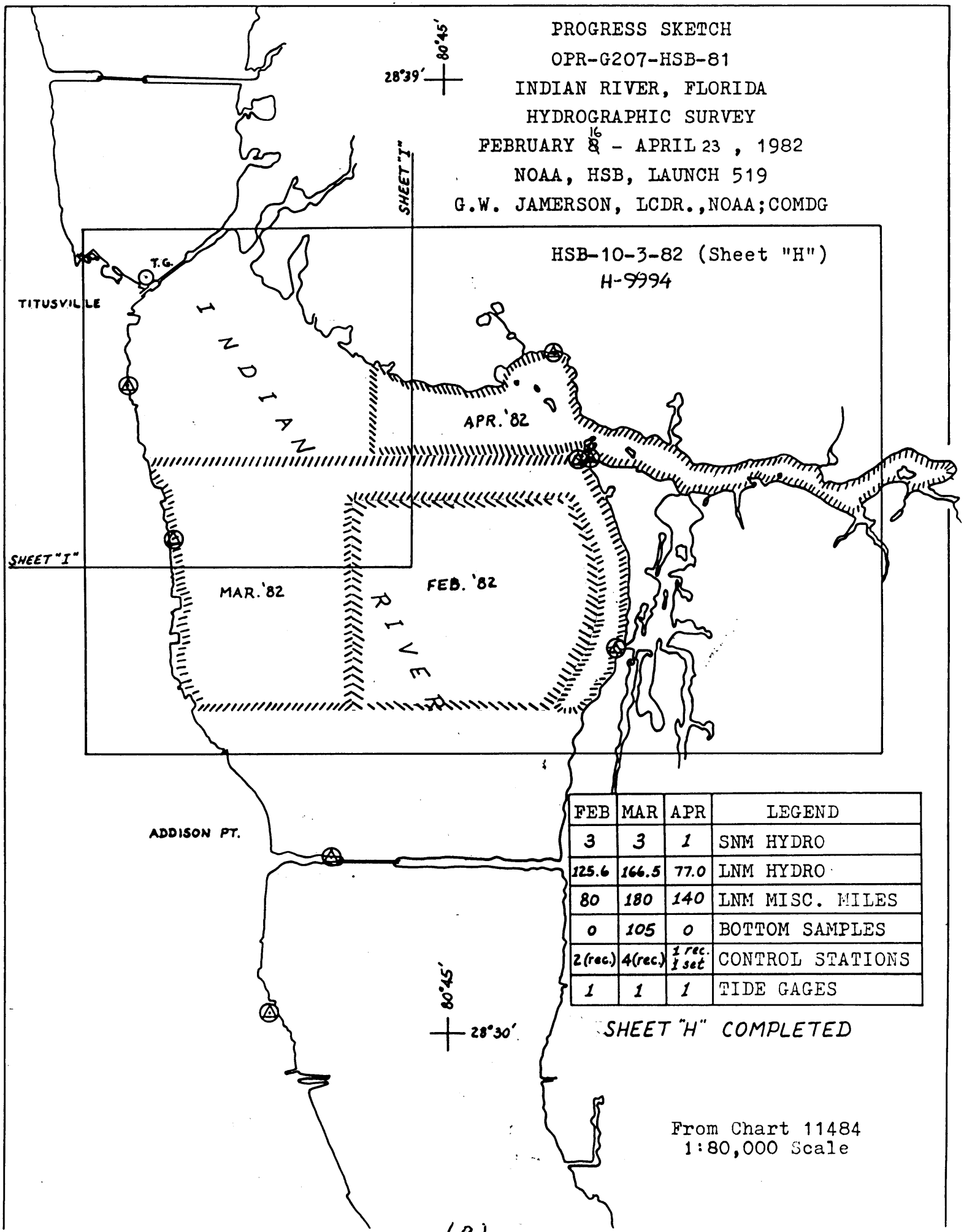
REMARKS: Notes in red were made during verification.

AWOIS/SURF GMM 11/13/86

NOAA FORM 77-28 SUPERSEDES FORM C&GS-537.

(1)

☆ U.S. GPO: 1974-0-768-081/1207



FEB	MAR	APR	LEGEND
3	3	1	SNM HYDRO
125.6	166.5	77.0	LNM HYDRO
80	180	140	LNM MISC. MILES
0	105	0	BOTTOM SAMPLES
2(rec.)	4(rec.)	1 rec. 1 set	CONTROL STATIONS
1	1	1	TIDE GAGES

DESCRIPTIVE REPORT
TO ACCOMPANY
HYDROGRAPHIC SURVEY H-9994
HSB-10-3-82

Scale: 1:10,000
Chief of Party: Lt. Cdr. George W. Jamerson, NOAA
Officer-in-Charge: Lt(jg) John W. Humphrey, NOAA
Hydrographic Surveys Branch, Hydrographic Field Party #5
Launch 519

A. PROJECT

This survey was carried out in accordance with Project Instructions OPR-G207-HSB-81 dated August 26, 1981, and amended by change 1 dated October 1, 1981.

B. AREA SURVEYED

This survey was conducted inland of Florida's Atlantic coast in the Indian River from Indian River City to Titusville bounded by the following geographic limits:

North 28°37'36"	East 80°39'36"
South 28°32'40"	West 80°48'50"

This survey was conducted between February 16 (JD 047) and April 23 (JD 113) 1982. The western shoreline of the Indian River within the survey limits is characterized by sand and marsh beach front with man-made bulkheads and private piers. Banana Creek extends to the East from Longitude 80°43'34" to 80°37'2". Hydrography on the Banana Creek extends from the western limit of the creek to the Kennedy Parkway Bridge at 80°39'34". The eastern shore of the survey area has mangrove vegetation from the southern to northern limit. Immediately seaward from the eastern shore there is grass in the water extending to the 2 foot contour (verification of notation on TP-00113).

Bottom topography is generally flat except for dredge spoil areas located adjacent to the Intracoastal Waterway (ICW) on the east and west sides. The spoils ridge on the west side of the channel is submerged while the spoils area on the eastern side has areas awash at times of low tides and individual vegetated islands.

C. SOUNDING VESSELS

Soundings for this survey were obtained by Launch 519, Skiffs 1279 and 576.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

The following equipment was used aboard vessel 519:

EQUIPMENT	SERIAL NUMBER
Raytheon DE719-B (JD 047 to JD 078)	7727
Raytheon DE719-B (JD 082 to JD 112)	6216

All survey records were scanned and checked by trained field personnel. Peaks and deeps considered significant, that occurred between soundings were inserted on the generated master tape. Fathometer calibration checks were made at frequent intervals on each day of hydrography. Any necessary adjustments were made and noted on the fathogram. Any departure of the trace from the calibration was corrected during the scanning process.

Velocity corrections were derived from bar check data (See Appendix "D" for velocity correction printout). Bar checks were taken on each day of hydrography, two per day whenever possible, using Launch 519. Pole soundings were obtained using skiffs 1279 and 576 (See abstract of positions for listing by Julian Day). See sec. 4b of the Eval. Report.

A transducer draft of 1.2 foot was applied to all fathometer soundings taken by launch 519. Settlement and squat correctors were determined on February 12, 1982 and March 15, 1982, for an Evinrude 150 horsepower and a 140 horsepower respectively. A copy of field data and settlement and squat correctors versus RPMs for launch 519 are appended to this report. Settlement and squat correctors will be applied via the TC/TI tape during final processing of data by OA/CAM3, Processing Division.

There are no predicted tides for this area as water level changes are predominately wind generated. Sounding data on the final field sheet is not corrected for predicted tides. Smooth tides have been requested from the Chief, Tides and Water Levels Branch (OA/C23) for the period of hydrography (See Appendix "B"). See sec. 1a of the Eval. Report.

E. HYDROGRAPHIC SHEETS

All work was plotted on four mylar sheets using DP-3-5 automated plotter.

Number of Sheets	Type	Skew
2	Main Scheme, Crossline	0,21,54
1	Bottom Samples Detached Positions	0,21,54
1 (Banana Creek)	Main Scheme, Crosslines Detached Positions	0,21,48

Soundings on the field sheet are corrected for draft and sound velocity. The final smooth sheet will be plotted at the Atlantic Marine Center, Norfolk, Va.

All field records and the following tapes have been forwarded to AMC Processing Division:

Generated Master Range/Range Tapes
Generated Master Range/Azimuth Tapes
Electronic Corrector Tapes
Velocity Corrector Tapes
Parameter Tapes
ASCII Signal Tapes
TC/TI Tapes

F. HORIZONTAL CONTROL STATIONS

Nine horizontal control stations of Third Order accuracy were used for this survey. They are as follows:

Signal # and Name	Latitude	Longitude
081-Martin, 1981	28°31'37.707"	80°45'32.337"
584-MID, 1940	28°33'38.339"	80°43'12.125"
587-Stayout RM 1, 1982	28°36'29.052"	80°43'46.836"
588-NAVO(Use), 1940	28°35'51.150"	80°48'16.401"
616-Granite, 1976-1981	28°31'38.775"	80°46'07.158"
626-Went Eccentric, 1982	28°34'47.644"	80°47'55.031"
627-NANA,Eccentric, 1982	28°35'26.315"	80°43'27.307"
628-Titusville New Municipal Tank, 1960	28°36'25.106"	80°49'31.891"
630-Radio Mast	28°37'31.073"	80°39'26.327"

The geographic position for signal number 629, Banana Creek Photo Point, was scaled off Coastal Zone Map TP-00110, Florida, Brevard County, Max Hoeck Creek to Banana Creek. The Banana Creek Photo Point was used for Range/Azimuth control for the east end of the Banana Creek, Signal 630, listed above was used as the initial station for signal 629. These two signals are on a separate signal tape. The geographic position of the Banana Creek Photo Point is 28°35'20.7", 80°39'34.2". See sec. 4a of the Eval. Report.

G. HYDROGRAPHIC POSITION CONTROL See sec. 4k of the Eval. Report.

All hydrography was controlled by range/range positioning control except on Julian Day 104, 105, and 106 when range/azimuth was used in Banana Creek. Del Norte equipment was used for all range positioning and a Wild T-1 Theodolite for azimuth control. The following equipment was used:

Equipment	Serial Number
DMU/Master	182/219
Remote (78)	253
Remote (74)	1316
Remote (76)	244
Remote (74)	222
Master (78)	263

Baseline calibrations were conducted on the following dates involving DMU/Master pairs used on vessels 519, 1279, 572 during this survey:

Date	DMU/Master	Baseline	Distance
Feb 11	517/263	No(USE) - Causeway	2859
Feb 11	182/219	No(USE) - Causeway	2859
Mar 16	182/219	No(USE) - Causeway	2859
Mar 24	182/219	No(USE) - Causeway	2859
Mar 31	517/263	No(USE) - Stayout RM1	7416
Apr 01	517/250	No(USE) - Causeway	2859
Apr 02	517/250	No(USE) - Causeway	2859
Apr 02	182/263	No(USE) - Causeway	2859
Apr 23	182/263	No(USE) - Causeway	2859

Position information is as follows:

Station	Latitude	Longitude
No (USE), 1940	28°35'51.150"	80°48'16.401"
Stayout RM1, 1982 (field position)	28°36'29.052"	80°43'46.836"

Station "causeway" has no geographic position. Baseline distance was determined by repetitive observations with a Hewlett-Packard 3808A EDM. Static point calibrations for daily checks were obtained laying alongside the following points: See sec. 4f of the Eval. Repo

Name	Latitude	Longitude
Nana, 1940	28°35'26.490"	80°43'28.171"
Indian River (North Section)		
Lt. "29"	28°37'03.950"	80°47'42.784"
Lt. "35"	28°35'29.107"	80°47'23.314"
Lt. "38"	28°34'06.859"	80°46'50.559"
~~Lt. "41"~~	~~28°32'41.391"~~	~~80°46'10.692"~~ Does not fall on survey.
DBn. "42"	28°32'42.024"	80°46'14.115"

H. SHORELINE See sec. 2 of the Eval. Report.

Main scheme lines were carried to the limit of navigation and to the physical shoreline where possible. Hydro positions are in good agreement with prominent positions on the west shore. Comparisons for this survey were made with shoreline transferred from Coastal Zone Maps, Indian River, Brevard County, Florida, TP-00113, TP-00112, TP-00108, TP-00109 and TP-00110. A crossline was run approximately 75-90 meters off the western shore paralleling the shoreline from the southern limit of hydrography to the northern junction with Sheet "J". The eastern shore was verified visually where shallows prevented obtaining a hydro position on the shoreline. Few minor changes were discovered on the eastern shoreline based on hydro positions compared with shoreline transferred from the aforementioned manuscripts. Shoreline was transferred in black as it was verified by the hydrographer.

I. CROSSLINES See sec. 3a of the Eval. Report.

Crosslines were run 45 to 90 degrees to main scheme lines and accounted for 13% of total sounding line mileage. Comparison of crossline and main scheme hydro shows excellent agreement. Over 90% of compared soundings agreed to within one foot or less. In some cases, particularly the areas immediately adjacent to the Intracoastal Waterway, soundings agree within 1 to 2 ft. This is due to the hydrography in that area being run at times of different water levels.

J. JUNCTION SURVEYS See sec. 5 of the Eval. Report.

This survey junctions with the following contemporary surveys:

Area of Junction	Field #	Registry #	Scale	Date
North	HSB-10-11-83	H-10067	1:10,000	1982-83
South	HSB-10-5-81	H-9988	1:10,000	1981

Comparison of junction soundings shows good agreement with all compared soundings agreeing to 1 foot or less. Differences of plotted soundings of one foot may be attributed to differences in the water level at the times of hydrography.

K. COMPARISON WITH PRIOR ~~SOUNDINGS~~ SURVEYS See sec. 4e and 6 of the Eval. Report.

This survey was within the limits of the following prior survey:
H-1292 (1875-76) 1:20,000 covers Banana Creek.

Registry #	Scale	Date
H-6727	1:10,000	1941

Current soundings obtained east of Longitude 80°46'00", between the northern and southern sheet limits, show agreement with prior soundings. All soundings compared show agreement to one foot or less. West of the aforementioned longitude there are specific areas of notable difference. Several distinct dredge spoil dump areas exist along the length of the ICW on the east side. The following geographic positions represent the least depth soundings on these spoil areas or the center of an area bordered by 0 foot soundings:

1.	28°33'08"	80°46'06"	4.	28°34'22"	80°46'39"
2.	28°33'35"	80°46'19"	5.	28°34'50"	80°46'52"
3.	28°33'59"	80°46'29"	6.	28°35'15"	80°47'04"

Position 1 has a 2 ft. least depth.
Positions 1-4 are awash at periods of very low tide. Positions 5 and 6 are islands with grass and scrubby vegetation.

Comparing soundings of this survey with those of the prior survey shows a range of 3-7 foot shoaler on the present survey differences due to dredge spoil dumping. Soundings in the channel compare favorably with the prior survey. The main axis of the channel (ICW) shows that no notable shift has occurred in comparison to the axis of the channel on the prior survey. West of the (ICW) is a ridge of dredge spoils oriented parallel to the channel axis. 1-3 ft. deeper on the present survey.

The western shoreline has been changed by bulkheading, land fill and pier construction. Very little change has occurred in the eastern shoreline.

The ridge is located 300-350 meters from the centerline of the ICW. The ridge, unlike the spoil dump areas on the east side of the channel, was present at the time of the prior survey. Comparison of soundings between the 1941 and the 1982 survey shows that the ridge has been slightly worn down during this time span. One-third of the compared soundings showed 1-2 foot deeper depths than the prior survey. The remainder of the compared soundings on the ridge and those soundings in the small gaps between the ridge remained the same.

The bottom topography in the vicinity of the western shoreline shows three distinct areas of change around the following geographic positions:

1. 28°33'08" 80°47'34"
2. 28°34'05" 80°47'37"
3. 28°35'09" 80°47'41"

The depths from the current survey in these areas are considerably deeper (7-12 feet) than prior survey soundings. These holes are the result of dredging for the fill used in the concrete bulkheads on the adjacent shore.

L. CHART COMPARISON See sec. 7 of the Eval. Report.

The following charts were used for comparison for this survey:

Chart #	Edition	Date	Scale
11485SC	19	Sep. 5, 1981	1:40,000
11484	14	Nov. 1, 1980	1:80,000

Charted features including shoreline, shoals, private markers, and obstructions are in good agreement with findings of the current survey. The western shoreline as shown on Chart 11485 shows solid shoreline enclosing a basin. The southeastern corner at 28°33'43", 80°47'48" has eroded away and is now covered with water but may be exposed at periods of low tide. This area is denoted as "area being filled" on TP-00112, however, filling of the area has ceased. See sec. P of this Descriptive Report.

Moore Creek is not accessible from the south in the area of 28°33'42", 80°42'55" as shown on Chart 11484. The chart shows scattered mangrove islands but the existence of a man-made levee was verified by the hydrographer. A six foot sounding charted at 28°36'03", 80°45'09" was developed using a crossline pattern at 20-meter spacing. The area showed no sign of shoaling from the level 7 foot depths in the immediate area. The 6 ft. is charted at the above position. The development was done in the wrong place (28°36'03", 80°45'09") See sec. O of this D.R.

One Presurvey Review Item was developed within the limits of this survey. PSR Item #44B - Submerged Pile (28°34'37", 80°47'51") based on U. S. Power Squadron reports. CL 1155/78 This item was verified visually least depth obtained and checked with a hydro fix (Position #1917). Delete the subm piles note and just label piles.

M. ADEQUACY OF THE SURVEY See sec. 6 and 9 of the Eval. Report.

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

N. AIDS TO NAVIGATION See sec. 7c of the Eval. Report.

Included within the limits of this survey were seven fixed aids to navigation:

Aid	Characteristic	Latitude	Longitude
DBn "34"		28°35'28.104"	80°47'25.771"
Light "35"	Fl. W. 4s	28°35'29.107"	80°47'23.312"
DBn "36"		28°35'01.600"	80°47'15.440"
DBn "37"		28°34'31.424"	80°46'57.924"
Light "38"	Fl. R. 4s	28°34'06.859" (915)	80°46'50.559" (629)
~~Light~~ DBn "39"		28°33'41.556"	80°46'36.109"
DBn "40"		28°33'13.744"	80°46'27.350"

The following aids to navigation were not within the survey limits but were also located: These fall on H-9988 and H-10067.

Aid	Characteristics	Latitude	Longitude
Light "29"	Fl. G. 4s	28°37'03.950"	80°47'42.784" (90)
DBn "31"		28°36'19.841"	80°47'36.604"
Light "32"	Fl. R. 4s	28°36'20.847"	80°47'39.619"
DBn "33"		28°35'53.244"	80°47'29.612"
~~Light~~ DBn "41"	Fl. G. 4s	28°32'41.~~391~~" (410)	80°46'10.~~692~~" (709)

All aids to navigation listed in this section are found in the U. S. Coast Guard Light List under Intracoastal Waterway - Mosquito Lagoon to Eau Gallie- Seventh District- Indian River (North Section).

O. STATISTICS

Linear Nautical Miles of Hydrography	263.6
Linear Nautical Miles of Crosslines	40.1
Linear Nautical Miles of Development	53.5
Total Linear Miles of Hydrography	357.0
Total Miscellaneous Miles	299.0
Total Miles Run	656.0
Square Miles of Hydrography	15.3
Total Number of Positions	3231.0
Bottom Samples	105.0
Bar Checks	33.0

P. MISCELLANEOUS

The area designated on TP-00112 as "area being filled" on the western shore at 28°33'43", 80°47'48" (Position #5680) may uncover at periods of low tide. Also on TP-00112, the shoreline is shown as solid from 28°33'15.6", 80°47'46.3" to 28°33'19.5", 80°47'47.5" at the abandoned marine life exhibit. The section

described is a row of piles between the above positions (See sounding volume #11, Position #'s 1865-1866 for descriptions). Chart as a row of piles.

Brown contour lines shown on south main scheme final field sheet depict the 5 foot contour. This was used as a supplemental contour to delineate shoaler areas of the ridge west of the ICW not defined by the 6 foot contour. No brown curves are shown on the smooth sheet.

Existing piers located by hydro fix but not shown on the shoreline manuscript are shown in red on the final field sheet. ✓

The geographic position for the Banana Creek Photo Point (~~Labelled BCPP on~~ signal number 629) was used for the range/azimuth control in the east end of the Banana Creek and as a range station for See Field Sheet work on Banana Creek. ✓ Hydrographic control in the east end of Banana Creek does not meet Third Order hydrographic control standards, however, it is considerably better than See Field Sheet methods.

Shoreline for Banana Creek was transferred from TP-00110. Grid tick marks from this manuscript do not align with the grid on the mylar field sheet as a result of distortion in the paper manuscript. Shoreline on the smooth sheet is from a stable base copy of TP-00110.

The final baseline calibration showed both Del Norte remote units to be 10-meters lower than the true distance. No correction was applied to sounding positions because daily checks up to and including the day before the baseline calibration were excellent. Daily calibrations were made in the survey area with the Del Norte antenna positioned within 1 meter of the Third Order calibration object. ✓ The final baseline was not overlooked by the hydrographer. Because of the greater number of daily calibrations with zero correctors, more weight was placed on daily calibrations than the final baseline calibration. All survey records not included in this descriptive report have been forwarded to CAM3, Processing Division.

Q. RECOMMENDATIONS

~~It is recommended that "piles" charted at 28°34'37", 80°47'51" on Chart 11485 remain charted as such.~~ A solid line should be shown on Chart 11484 at 28°33'42", 80°42'55" at the south end of Moore Creek to show access blocked by levee. ✓ It is recommended that this survey supersede all prior surveys for charting. ✓

R. AUTOMATED DATA PROCESSING

Program		Version
RK201	Grid Signal and Lattice Plot	04/18/75
RK212	Visual Table Load	04/01/74
RK216	R-AZ Non-Real Time Plot	02/09/81
RK300	Utility Computations	02/05/76 ✓
RK330	Data Reformat and Check	05/04/76
PM360	Electronic Corrector Tape Abstract	02/02/76
AM401	Transverse Mercator State Plane Coordinates	04/01/73

Program	Version
RK407 Geodetic Inverse/Direct Computation	09/25/78
AM602 ELINOR	05/20/75
RK211 Range-Range Non-Real Time Plot	02/02/81

S. REFERENCE TO REPORT

Descriptive Report for H-9988 (HSB-10-5-81).

Respectfully submitted,

John W. Humphrey Jr.

John W. Humphrey
Lt(jg), OIC, HFP-5, NOAA

FIELD TIDE NOTE
H-9994

Due to the non-periodic nature of the tide in the survey area, predicted tide corrections were not applied to the field sheet. During the period of the survey, a maximum tide range of 1.5 feet was observed, usually occurring over the period of several days. Water levels in the area were noted to be highly wind dependent.

Information on the control station for this survey is as follows:

Name:	Titusville, Florida
Station Number:	872-1456
Location:	28°37.2', 80°48.0'
Period of Operation:	Continuous
Contract Observers:	Chapman and Associates, Inc. This

gage was leveled by field party personnel prior to and upon completion of hydrography.

Information on the subordinate station is as follows:

Name:	Williams Point
Station Number:	872-1574
Location:	28°27.4'
	80°45.6'
Period of Operation:	Nov 3, 1981 - Apr 22, 1982
Observers:	HFP-4 and HFP-5

This gage was leveled by field party personnel prior to and upon completion of hydrography.

A tide staff was installed at the head of Banana Creek and was observed during times of hydrography.

Name:	VAB, Banana Creek
Station Number:	872-1478
Location:	28°35'21", 80°39'36"
Period of Operation:	Times of hydro - April 14-22, 1982

The time meridian used for all observations was 075° (+5). All records have been forwarded to Rockville, Maryland.

(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)

(For deep water add a 0 to these figures)

CORRECTIONS IN FEET, FATHOMS

NOAA FORM 76-21 (10-72) U.S. DEPARTMENT OF COMMERCE NOAA NATIONAL OCEAN SURVEY

VELOCITY CORRECTIONS

Ship HSB — HFP-5

LCDR G.W. Jamerson Comdg.

These corrections are to be used

between Feb. 16 1982 and Apr. 23 1982

in the locality Atlantic Coast (Indian River, Florida)

for hydrographic surveys Nos. H-9994

SD 047 — 076

−0.2

0.0

+0.2

+0.4

+0.6

+0.8

Depth	Vel. Corr.
00 – 4.0	−0.2 ✓
4.1 – 9.8	0.0 ✓
9.9 – 15.9	+0.2 ✓
16.0 – 21.9	+0.4 ✓
22.0 – 27.8	+0.6 ✓
28.9 – 33.8	+0.8

DEPTHS IN FATHOMS

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190

0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0 16.0 17.0 18.0 19.0 20.0 21.0 22.0 23.0 24.0 25.0

−0.4 −0.3 −0.2 −0.1 0.0 +0.1 +0.2 +0.3 +0.4 +0.5 +0.6 +0.7

✓ JWH

46 1240

K&E 20 X 20 TO THE INCH • 7 X 10 INCHES KEUFFEL & ESSER MADE IN U.S.A.

☆U.S. GOV. PRINTING OFFICE: 1979—667-143

MASTER SIGNAL LIST

OPR-G207-HSB-81

H-9994

081	7	28	31	37709	080	45	32341	250	0000	000000 Martin, 1981
584	2	28	33	38339	080	43	12125	250	0000	000000 Mid, 1940
587	1	28	36	29052	080	43	46836	250	0000	000000 Stayout RM 1, 1982
588	7	28	35	51150	080	48	16401	250	0000	000000 NO (USE), 1940
616	5	28	31	38775	080	46	07152	250	0000	000000 Granite 1976-1981
626	3	28	34	47644	080	47	55031	250	0000	000000 Went Ecc 1982
627	4	28	35	26315	080	43	27307	250	0000	000000 NANA Eccentric, 1982
628	1	28	36	25106	080	49	31891	139	0000	000000 Titusville New Municipal water tank, 1960

APPENDIX "F"

SIGNAL TAPE PRINT OUT

BANANA CREEK, FLA

629	3	28	35	20700	080	39	34200	254	0000	000000	Banana Creek Photo Point TP-00110
630	3	28	37	31073	080	39	26327	139	0000	000000	Radio Mast (Ht. 507), 1982

APPENDIX "F"

CHART 11484

SHEET "H"

ABSTRACT OF POSITIONS

J.D.	POSITIONS	CTRL	S1	M	S2	REMARKS
047	001 - 015	04	588		587	HYDRO - MAIN SCHEME
	016 - 028	04	588		587	REJECTED POSITIONS
049	029 - 044	04	588		587	HYDRO - MAIN SCHEME
	045	04	588		587	REJECTED POSITION
	046 - 113	04	588		587	HYDRO - MAIN SCHEME
050	114 - 248	04	588		587	HYDRO - MAIN SCHEME
053	249 - 358	04	588		587	HYDRO - MAIN SCHEME
054	359 - 447	04	588		587	HYDRO - MAIN SCHEME
055	448 - 461	04	588		587	HYDRO - MAIN SCHEME - NSP
	462 - 589	04	588		587	HYDRO - MAIN SCHEME
056	590 - 670	04	588		587	HYDRO - MAIN SCHEME
057	671 - 736	04	588		587	HYDRO - MAIN SCHEME
060	737 - 883	04	588		587	HYDRO - MAIN SCHEME
061	884 - 976	04	588		587	HYDRO - MAIN SCHEME
	977	04	588		587	DETACHED POSITION
	978 - 1039	04	588		587	HYDRO - MAIN SCHEME
062	1040 - 1116	04	588		587	HYDRO - MAIN SCHEME
	1117 - 1118	04	588		587	DETACHED POSITIONS
	1119 - 1160	04	588		587	HYDRO - MAIN SCHEME

CHART 11484

SHEET "H"

ABSTRACT OF POSITIONS

J.D.	POSITIONS	CTRL	s1	M	s2	REMARKS
063	1161 - 1216	04	588		587	HYDRO - MAIN SCHEME
074	1217 - 1313	04	588		587	HYDRO - CROSSLINE
075	1314 - 1341	04	588		587	HYDRO - CROSSLINE
	1342 - 1370	04	588		587	HYDRO - SPLITS - DEV.
076	1371 - 1554	04	588		587	HYDRO - DEVELOPMENT SNSP
077	1555 - 1641	04	588		587	HYDRO - DEVELOPMENT
	1642 - 1646	04	588		587	BOTTOM SAMPLES
078	1647 - 1671	04	588		587	BOTTOM SAMPLES
082	1672 - 1730	04	588		587	BOTTOM SAMPLES
084	1731 - 1813	04	588		587	HYDRO
	1814 - 1859	04	588		616	HYDRO
	1860 - 1869	04	588		616	D.P.'s
	1870 - 1872	04	588		587	D.P.'s
085	1873 - 1878	04	588		587	DETACHED POSITIONS
	1879 - 1892	04	588		587	HYDRO
	1893 - 1908	04	588		587	~~HYD~~ BOTTOM SAMPLES
	1909 - 1916	04	588		587	HYDRO
	1917 - 1918	04	588		587	PSR ITEM 44B DETACHED POS.
089	1919 - 1995	04	588		587	HYDRO - 22m SPLITS
090	1996 - 2117	04	588		587	HYDRO - 22m SPLITS

Launch 519

CHART 11484

SHEET "H"

ABSTRACT OF POSITIONS

J.D.	POSITIONS	CTRL	s1	M	s2	REMARKS
096	2118 - 2129	04	588		587	22m DEV. SPLITS
	2130 - 2156	04	588		587	DETACHED POSITIONS OF POLE SOUNDING ON RIDGE
098	2157 - 2205	04	584		626	HYDRO - MAIN SCHEME
102	2206 - 2315	04	584		626	HYDRO - MAIN SCHEME
103	2316 - 2395	04	584		626	HYDRO - MAIN SCHEME
103	2396	04	584		626	DETACHED POSITION
103	2397 - 2419	04	584		626	HYDRO - MAIN SCHEME

"WHALER" (SKIFF) 1279

SHEET "H"

CHART 11484

Pg 1 of 3

ABSTRACT OF POSITIONS

J.D.	POSITIONS	CTRL	s1	M	s2	REMARKS
069	5001-5023	04	588		587	HYDRO - MAIN SCHEME
	5024-5025	04	588		587	DETACHED POSITIONS
	5026-5032	04	588		587	HYDRO - MAIN SCHEME
	5033	04	588		587	DETACHED POSITION
070	5034-5072	04	588		587	HYDRO - MAIN SCHEME
	5073-5077	04	588		587	HYDRO - CROSSLINE
092	5078 - 5093	04	588		587	HYDRO MAIN SCHEME
095	5094 - 5153	04	588		587	HYDRO MAIN SCHEME
104	5154 - 5183	03	627	627	628	HYDRO MAIN SCHEME
105	5184 - 5198	03	627	627	628	HYDRO MAIN SCHEME
	5199	03	627	627	628	DETACHED POSITION
	5200 - 5225	03	627	627	628	HYDRO MAIN SCHEME
	5226	03	627	627	628	DETACHED POSITION
	5227-5230	03	627	627	628	HYDRO MAIN SCHEME
	5231-5232	03	627	627	628	DETACHED POSITIONS
	5233-5238	03	627	627	628	HYDRO MAIN SCHEME
	5239-5244	03	627	627	628	DETACHED POSITIONS
106	5245-5266	03	629	629	630	HYDRO MAIN SCHEME
	5267	03	629	629	630	DETACHED POSITION
	5268-5281	03	629	629	630	HYDRO MAIN SCHEME
	5282-5284	03	629	629	630	DETACHED POSITIONS
	5285-5307	04	584		626	HYDRO MAIN SCHEME
107	5307-5324	04	588		584	DETACHED POSITIONS
	5325-5347	04	584		081	HYDRO MAIN SCHEME
	5348-5377	04	584		081	DETACHED POSITIONS
	5350	04	584		081	REJECTED POSITION

" WHALER "(SKIFF) 0576 SHEET "H"

CHART 11484

Pg 2 of 3

ABSTRACT OF POSITIONS

J.D.	POSITIONS	CTRL	S1	M	S2	REMARKS
109	5378 - 5401	04	584		626	HYDRO
	5402 - 5403	04	584		626	~~HYDRO~~ DETACHED POSITION
	5404 - 5405	04	584		626	HYDRO
	5406 - 5407	04	584		626	DETACHED POSITIONS
	5408 - 5422	04	584		626	HYDRO
	5423	04	584		626	DETACHED POSITION
	5424 - 5432	04	584		626	HYDRO
	5433	04	584		626	DETACHED POSITIONS
	5434 - 5443	04	584		626	HYDRO
	5444	04	584		626	DETACHED POSITION
	5445 - 5453	04	584		626	HYDRO
	5454	04	584		626	DETACHED POSITION
	5455 - 5464	04	584		626	HYDRO
	5465	04	584		626	DETACHED POSITION
	5466 - 5475	04	584		626	HYDRO
	5476	04	584		626	DETACHED POSITION
	5477 - 5487	04	584		626	HYDRO
	5488	04	584		626	DETACHED POSITION
	5489 - 5499	04	584		626	HYDRO
	5500	04	584		626	DETACHED POSITION
	5501 - 5505	04	584		626	HYDRO
0	5506 - 5528	04	626		584	DETACHED POSITIONS
	5529 - 5534	04	626		584	HYDRO
	5535 - 5537	04	626		584	DETACHED POSITIONS
	5538 - 5574	04	626		584	CROSSLINE
	5575	04	626		584	DETACHED POSITION
	5576 - 5585	04	626		584	HYDRO
	5586 - 5618	04	626		587	HYDRO
111	5619 - 5630	04	587		081	HYDRO
	5631	04	587		081	DETACHED POSITION
	5632 - 5637	04	587		081	HYDRO
	5638	04	587		081	DETACHED POSITION
	5639 - 5640	04	587		081	HYDRO
	5641 - 5649	04	587		081	DETACHED POSITIONS
	5650 - 5678	04	587		081	HYDRO
	5679 - 5682	04	587		081	DETACHED POSITIONS
	5683 - 5685	04	587		081	HYDRO

CHART 11484

"WHALER" (SKIFF) 0576

SHEET "H"

Pg. 3 of 3

ABSTRACT OF POSITIONS

J.D.	POSITIONS	CTRL	s1	M	s2	REMARKS
111	5686 - 5698	04	587		081	DETACHED POSITIONS
	5699 - 5704	04	587		081	HYDRO
	5705 - 5727	04	587		081	DETACHED POSITIONS
	5728 - 5737	04	587		081	HYDRO
	5738	04	587		081	DETACHED POSITION
112	5739 - 5755	04	626		587	HYDRO
	5756 - 5810	04	SFS			HYDRO

NOAA FORM 76-40 (8-74)
Replaces C&GS Form 567.

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NONFLOATING AIDS OR [redacted] FOR CHARTS

ORIGINATING ACTIVITY
- [X] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

- [X] TO BE CHARTED
- [ ] TO BE REVISED
- [ ] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office): HSB-HFP5
STATE: Florida
LOCALITY: Intracoastal Waterway Indian River (North Section)
DATE: 3/82

The following objects HAVE [X] HAVE NOT [ ] been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.: OPR-G2-7-HSB-81
JOB NUMBER: H-9994
SURVEY NUMBER: HSB-10-3-82
DATUM: 1927 North American

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° /	LATITUDE // D.M. Meters	POSITION LONGITUDE ° /	LONGITUDE // D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
LIGHT	Intracoastal Waterway Indian River (North Section) Light "29" Fl. G., 4s L.L. #3998	28 37	03.950	80 47	42.784		F-3-6-L 2/11/82	11484 11485
DAYBEACON	Intracoastal Waterway Indian River (North Section) DBn "31" L.L. #3998	28 36	19.841	80 47	36.604		F-3-6-L 3/8/82	11484 11485
LIGHT	Intracoastal Waterway Indian River (North Section) Light "32" Fl. R., 4s L.L. #3991	28 36	20.847	80 47	39.619	OUTSIDE LIMITS OF SURVEY	F-3-6-L 2/11/82	11484 11485
DAYBEACON	Intracoastal Waterway Indian River (North Section) DBn "33" L.L. #3991	28 35	53.244	80 47	29.612		F-3-6-L 3/8/82	11484 11485
DAYBEACON	Intracoastal Waterway Indian River (North Section) DBn "34" L.L. #3991	28 35	28.104	80 47	25.771		F-3-6-L 3/8/82	11484 11485
LIGHT	Intracoastal Waterway Indian River (North Section) Light "35" Fl. W., 4s L.L. #4000	28 35	29.107	80 47	23.314 (2)		F-3-6-L 2/11/82	11484 11485
DAYBEACON	Intracoastal Waterway Indian River (North Section) DBn "36" L.L. #4000	28 35	01.600	80 47	15.440		F-3-6-L 3/8/82	11484 11485
DAYBEACON	Intracoastal Waterway Indian River (North Section) DBn "37" L.L. #4000	28 34	31.424	80 46	57.924		F-3-6-L 3/8/82	11484 11485
LIGHT	Intracoastal Waterway Indian River (North Section) Light "38" Fl. R., 4s L.L. #4001	28 34	06.859 (975)	80 46	50.559 (629)		F-3-6-L 2/11/82	11484 11485
DAYBEACON	Intracoastal Waterway Indian River (North Section) DBn "39" L.L. #4001	28 33	41.556	80 46	36.109		F-3-6-L 3/8/82	11484 11485

45.

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	Lt(jg) John W. Humphrey, Jr., NOAA	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED	Lt(jg) John W. Humphrey, Jr., NOAA	FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'

(Consult Photogrammetric Instructions No. 64,

OFFICE

I. OFFICE IDENTIFIED AND LOCATED OBJECTS
Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.
EXAMPLE: 75E(C)6042
8-12-75

FIELD

I. NEW POSITION DETERMINED OR VERIFIED
Enter the applicable data by symbols as follows:

F - Field	P - Photogrammetric
L - Located	Vis - Visually
V - Verified	
1 - Triangulation	5 - Field identified
2 - Traverse	6 - Theodolite
3 - Intersection	7 - Planetable
4 - Resection	8 - Sextant

A. Field positions* require entry of method of location and date of field work.
EXAMPLE: F-2-6-L
8-12-75

*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

FIELD (Cont'd)

B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.
EXAMPLE: P-8-V
8-12-75
74L(C)2982

II. TRIANGULATION STATION RECOVERED
When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.
EXAMPLE: Triang. Rec.
8-12-75

III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH
Enter 'V-Vis.' and date.
EXAMPLE: V-Vis.
8-12-75

**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

☆ U. S. GPO:1975-0-665-080/1155

NOAA FORM 76-40 (8-74)
Replaces C&GS Form 567.

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NONFLOATING AIDS OR [redacted] FOR CHARTS

ORIGINATING ACTIVITY
- [X] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

[X] TO BE CHARTED [ ] TO BE REVISED [ ] TO BE DELETED	REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
	HSB-HFP-5	Florida	Intracoastal Waterway Indian River (North Section)	3/82

The following objects HAVE [X] HAVE NOT [ ] been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
OPR-G207-HSB-81	H-9994	HSB-10-3-82	1927 North American

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
DAYBEACON	Intracoastal Waterway Indian River (North Section) DBn "40" L.L. #4001	28 33	13.744	80 46	27.350		F-3-6-L 3/8/82	11484 11485
LIGHT	Intracoastal Waterway Indian River (North Section) Light "41" Fl. G., 4s, L.L. #4002	28 32	41.391 (410)	80 46	10.692 (709)		F-3-6-L 2/11/82	11484 11485
DAYBEACON	Intracoastal Waterway Indian River (North Section) DBn "42" L.L. #4002	28 32	42.02	80 46	14.12	OUTSIDE LIMITS OF SURVEY	Detached Position Hydro Fix *	11484 11485
						* (3rd order position will be obtained during winter		1982)

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	Lt(jg) John W. Humphrey, Jr., NOAA	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED	Lt(jg) John W. Humphrey, Jr., NOAA	FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'

(Consult Photogrammetric Instructions No. 64,

OFFICE

I. OFFICE IDENTIFIED AND LOCATED OBJECTS

Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.

EXAMPLE: 75E(C)6042
8-12-75

FIELD

I. NEW POSITION DETERMINED OR VERIFIED

Enter the applicable data by symbols as follows:

F - Field	P - Photogrammetric
L - Located	Vis - Visually
V - Verified	
1 - Triangulation	5 - Field identified
2 - Traverse	6 - Theodolite
3 - Intersection	7 - Planetable
4 - Resection	8 - Sextant

A. Field positions* require entry of method of location and date of field work.

EXAMPLE: F-2-6-L
8-12-75

*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

FIELD (Cont'd)

B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.

EXAMPLE: P-8-V
8-12-75
74L(C)2982

II. TRIANGULATION STATION RECOVERED

When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.

EXAMPLE: Triang. Rec.
8-12-75

III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH

Enter 'V-Vis.' and date.

EXAMPLE: V-Vis.
8-12-75

**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

☆ U.S.GPO:1975-0-665-080/1155

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

~~NON-FLOATING AIDS OR~~ LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY
- [X] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

- [x] TO BE CHARTED
- [ ] TO BE REVISED
- [ ] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office): HSB-HFP5

STATE: Florida

LOCALITY: Intracoastal Waterway
Indian River (North Section)

DATE: 3/82

The following objects HAVE [X] HAVE NOT [ ] been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.: OPR-G207-HSB-81

JOB NUMBER: H-9994

SURVEY NUMBER: HSB-10-3-82

DATUM: 1927 North American

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	METHOD AND DATE OF LOCATION FIELD	CHARTS AFFECTED
TANK	NEW (Titusville Municipal Tank, 1960)	28 36	25.1057	80 49	31.8914		F-3-6-L 2/11/82	11484 11485
AERO BEACON	Airway Bn 20 Near Titusville Rot W&G	28 37	07.760	80 49	53.900		F-3-6-L 2/11/82	11484 11485
RADIO TOWER	Radio Tower (WRMF) 1050 KHz	28 35	46.2421	80 49	08.8038	OUTSIDE LIMITS OF SURVEY	F-3-6-L 2/11/82	11484 11485
RADIO TOWER	Florida Marine Patrol Radio Tower	28 37	26.5456	80 47	39.5607		F-3-6-L 2/11/82	11484 11485
TOWER	Tower 512 Ft	28 37	31.073	80 39	26.327		F-3-6-L 2/11/82	11484 11485

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RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	Lt(jg) John W. Humphrey, Jr., NOAA	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED	Lt(jg) John W. Humphrey, Jr., NOAA	FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'

(Consult Photogrammetric Instructions No. 64,

OFFICE

I. OFFICE IDENTIFIED AND LOCATED OBJECTS

Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.

EXAMPLE: 75E(C)6042
8-12-75

FIELD

I. NEW POSITION DETERMINED OR VERIFIED

Enter the applicable data by symbols as follows:

F - Field	P - Photogrammetric
L - Located	Vis - Visually
V - Verified	
1 - Triangulation	5 - Field identified
2 - Traverse	6 - Theodolite
3 - Intersection	7 - Planetable
4 - Resection	8 - Sextant

A. Field positions* require entry of method of location and date of field work.

EXAMPLE: F-2-6-L
8-12-75

*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

FIELD (Cont'd)

B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.

EXAMPLE: P-8-V
8-12-75
74L(C)2982

II. TRIANGULATION STATION RECOVERED

When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.

EXAMPLE: Triang. Rec.
8-12-75

III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH

Enter 'V-Vis.' and date.

EXAMPLE: V-Vis.
8-12-75

**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

☆ U.S.GPO:1975-0-665-080/1155

APPROVAL SHEET
Survey H-9994 (HSB-10-3-82) ✓

The hydrographic records transmitted with this report are complete and adequate to supersede prior surveys for charting with no additional field work recommended.

Direct daily supervision was not given by me during the field work.

Approved and fowarded,

Geo. W. Jamerson

George W. Jamerson
Lt. Cdr., NOAA
Chief, Hydrographic Surveys Branch

DATE: August 10, 1982

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center:

Hourly heights are approved for

Tide Station Used (NOAA Form 77-12): 872-1456 Titusville, FL
872-1574 Williams Point, FL

Period: February 16-April 16, 1982

HYDROGRAPHIC SHEET: H-9994

OPR: G-207

Locality: Indian River, Florida

Plane of reference (LOW WATER DATUM): 872-1456 = 3.15 ft.
(mean lower low water): 872-1574 = 1.10 ft.

Height of Mean High Water above Plane of Reference is

REMARKS: RECOMMENDED ZONING:

Use automatic zoning.

James C. Hubbard
Chief, Tidal Datums and Information Branch

NOAA FORM 76-155
(11-72)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

SURVEY NUMBER

H-9994

GEOGRAPHIC NAMES

Name on Survey	A ON CHART NO.	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
FLORIDA (TITLE)										1
INDIAN RIVER										2
TITUSVILLE										3
INDIAN RIVER CITY										4
BANANA CREEK										5
KENNEDY PKWY BRIDGE (CULTURAL FEATURE)										6
CEDAR HAMMOCK										7
CEDAR HAMMOCK CREEK										8
GREEN BUSH POINT										9
JONES CREEK										10
MERRITT ISLAND										11
PALMA CRYSTAL										12
PEACOCKS POCKET										13
SEVEN PINES CREEK										14
SKUNK ISLAND										15
STONY ISLAND										16
										17
										18
					Approved:					19
										20
					Charles E Harrington					21
					Chief Geographer		N/CG	2x5		22
					7 Feb. 1984					23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 77-27 | U.S. DEPARTMENT OF COMMERCE | REGISTRY NUMBER

HYDROGRAPHIC SURVEY STATISTICS

H-9994

RECORDS ACCOMPANYING SURVEY: To be completed when survey is processed.

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	SMOOTH OVERLAYS: POS., ARC, EXCESS	3
DESCRIPTIVE REPORT	1	FIELD SHEETS AND OTHER OVERLAYS	6

DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/SOURCE DOCUMENTS	
ACCORDIAN FILES	1			3		
ENVELOPES	4					
VOLUMES	16					
CAHIERS						
BOXES						

SHORELINE DATA

SHORELINE MAPS(List): TP's 00108, 00109, 00110, 00112 AND 00113

PHOTOBATHYMETRIC MAPS(List): N/A

NOTES TO THE HYDROGRAPHER(List): N/A

SPECIAL REPORTS(List): N/A

NAUTICAL CHARTS(List): 11484 AND 11485

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	*EVALUATION*	*TOTALS*
POSITIONS ON SHEET			3231
POSITIONS REVISED	0	0	0
SOUNDINGS REVISED	32	0	32
CONTROL STATIONS REVISED	2	0	2
	TIME-HOURS		
	VERIFICATION	*EVALUATION*	*TOTALS*
PRE-PROCESSING EXAMINATION	20	6	26
VERIFICATION OF CONTROL	10	0	10
VERIFICATION OF POSITIONS	92	0	92
VERIFICATION OF SOUNDINGS	207	1	208
VERIFICATION OF JUNCTIONS	8	4	12
APPLICATION OF PHOTOBATHYMETRY	0	0	0
SHORELINE APPLICATION/VERIFICATION	19	0	19
COMPILATION OF SMOOTH SHEET	79	5	84
COMPARISON WITH PRIOR SURVEYS AND CHARTS	0	14	14
EVALUATION OF SIDESCAN SONAR RECORDS	0	0	0
EVALUATION OF WIRE DRAGS AND SWEEPS	0	0	0
EVALUATION REPORT	0	12	12
OTHER DIGITIZING	30	0	30
MISC. E & A	0	3	3
TOTALS	465	45	510

Pre-processing Examination by L.G.GRAM, D.V.MASON, R.G. ROBERSON	*Beginning Date* 10/13/82	*Ending Date* 10/18/82
Verification of Field Data by R.H. WHITFIELD R.R. HILL	*Time(Hours)* 376	*Ending Date* 9/13/83
Verification Check by C.D. MEADOR, R.G. ROBERSON, G.F. TREFETHEN	*Time(Hours)* 81	*Ending Date* 2/2/84
Evaluation and Analysis by C.D. MEADOR	*Time(Hours)* 33	*Ending Date* 3/1/84
Inspection by S.R. BAUMGARDNER	*Time(Hours)* 14	*Ending Date* 2/29/84

ATLANTIC MARINE CENTER
EVALUATION REPORT

REGISTRY NO.: H-9994 FIELD NO.: HSB-10-3-82

Florida, Indian River, Indian River City to Titusville

SURVEYED: February 16 through April 23, 1982

SCALE: 1:10,000 PROJECT NO.: OPR-G207-HSB-81

SOUNDINGS: Raytheon DE719-B Fathometer and Sounding Pole CONTROL: DEL NORTE (Range/Range and Range/Azimuth)

Chief of Party.....G. W. Jamerson

Surveyed by.....J. W. Humphrey

Automated Plot by.....Xynetics 1201 Plotter (AMC)

1. INTRODUCTION

a. No unusual problems were encountered during verification.

The sounding datum in this area is a local low water datum and is referred to as LOW WATER DATUM. Tidal conditions are such that Mean Lower Low Water is not definable. Elevations of features seaward of the shoreline such as piles, etc...are referenced to Low Water and the descriptive labels for such features are shown in vertical lettering when they extend one foot or more above LWD and in slanted lettering when the elevations of such features are less than one foot above LWD. Most features a foot or more above LWD are exposed during high water conditions which may occur in this area due to meteorological conditions.

b. Notes in the Descriptive Report were made in red during verification.

2. CONTROL AND SHORELINE

a. Control is adequately discussed in sections F and G of the Descriptive Report.

b. Shoreline originates with Coastal Zone maps TP-00108 of 1967/70-70, TP-00109 of 1967/70-70, TP-00110 of 1967-71, TP-00112 of 1969/70-70 and TP-00113 of 1967-70.

Shoreline revisions in red were made from information provided by the hydrographer.

Position 5314, a Detached Position taken on shoreline in Latitude 28°35'13.07", Longitude 80°48'02.57", mentioned, "Sewer outfall inshore of position." No Detached Position was taken on this outfall, but during verification a note "sewer outfall" was placed on the present survey smooth sheet at the above location.

All shoreline shown on the smooth sheet was inked with the line weight for fast, solid land during verification. Almost all of the eastern shoreline in the survey area is shown as apparent shoreline on the TP manuscripts. Section B of the Descriptive Report explains that the eastern shore is mangrove vegetation.

The Quality Control Inspector did not find the effort to change the already inked fast, solid land to apparent shoreline justifiable and the verifier was not required to make the correction.

The note, "among ruins", was added to the pile shown on the smooth sheet in Latitude 28°32'57.62", Longitude 80°47'37.79", because the note in Sounding Volume 16 at position 5649 says, "D.P. Ruins - Pile bares 3.0 ft. @ T of S."

A sketch of a pier in Sounding Volume 15, at position 5363 (Latitude 28°34'40.09", Longitude 80°47'54.90") shows a row of three piles, three meters off both sides of the pier. These piles were not shown on the present smooth sheet because of the survey scale.

3. HYDROGRAPHY

a. Crosslines on this survey agree with main scheme sounding lines within the limits stated in sections 4.6.1 and 6.3.4.3 of the Hydrographic Manual.

b. The standard depth curves could be drawn in their entirety except for the zero depth curve where the alongshore areas were too shallow for development.

c. This survey adequately delineates the basic bottom and the least depths.

4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records and reports comply with the requirements of the Hydrographic Manual except for the following:

a. The geographic position for station 629 BANANA CREEK PHOTO POINT was scaled from a copy of TP-00110. The fourth paragraph in section P of the Descriptive Report says this was a paper manuscript. Section 4.1 of the Project Instructions specifically states that paper copies of these TP sheets "...shall not be used for locating signals because of their dimensional instability."

The field should always use stable base copies of shoreline manuscripts for shoreline transfer or signal location.

b. The velocity curve shown on page 19 of the Descriptive Report did not consider two of the four plotted points. A velocity curve meaning the four

points would have been more desirable. However, due to the shoalness of the survey area, the maximum difference between the plotted curve and a meaned curve is .2 ft. at the greatest depths. The velocity curve was not changed during verification because of this small difference.

c. The sketches in the Sounding Volumes did not always clearly show what the hydrographer was trying to portray.

d. Enough Detached Positions should be taken to adequately define the extent, shape and direction of features (piers, bulkheads, etc.). One Detached Position among a group of piers with a note or a sketch is not adequate.

e. No comparison was made with prior survey H-1292 (1875-76) which covers Banana Creek.

f. A geographic position should have been determined for calibration station CAUSEWAY.

g. As required by section 4.2.3.1 of the Project Instructions, the field located all daybeacons by traverse. However, none of the field acquired data, raw records, observations, etc., was forwarded to AMC. For this reason, none of the daybeacons on the present survey are shown by the triangulation symbol.

h. No negative report for dangers to navigation was included in the Descriptive Report as required by section 6.12 of the Project Instructions.

i. Sounding line spacing requirements were met with the exception of Banana Creek, which was restricted by NASA.

j. Bottom Samples were not in compliance with section 1.6.3 of the Hydrographic Manual north of Latitude 28°35'15" and east of Longitude 84°46'00".

k. Baseline calibrations were not described in the Descriptive Report as required by AMC OPORDER No. 79.

5. JUNCTIONS

H-9988 (1981-82) to the south
H-10067 (1982-83) to the north

An excellent junction was made with survey H-9988 and the junctional curves are complete and require no further consideration.

The junction with survey H-10067 will be discussed in its Evaluation Report.

6. COMPARISON WITH PRIOR SURVEYS

H-1292 (1:20,000) 1875-76
H-6727 (1:10,000) 1941

Together these two prior surveys cover the entire area of the present survey.

The area of comparison between prior survey H-1292 and the present survey was just Banana Creek, which was not surveyed on prior survey H-6727. There is excellent agreement between the prior and present survey soundings in this shallow creek. The shoreline shows the same basic shape and islands are in the same locations. It appears that little natural change occurs in Banana Creek.

The hydrographer's comparison with prior survey H-6727 in section K of the Descriptive Report is comprehensive and no additional information is needed in this section of the Evaluation Report.

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

7. COMPARISON WITH CHARTS

No. 11484 (14th Edition, November 1, 1980)
No. 11485 (19th Edition, September 5, 1981)

a. Hydrography

Except for a few soundings along the edge of the Intracoastal Waterway's maintained channel, which probably originate with U.S. Army Corps of Engineers surveys, the charted hydrography originates with the previously discussed prior surveys and is adequately discussed under that comparison.

Attention is directed to the following:

1) One Presurvey Review Item (44b) was investigated by the field. The Descriptive Report (Section L) adequately addresses this item.

2) The hydrographer makes additional charting recommendations in Sections K, P and Q of the Descriptive Report.

3) The following originate with miscellaneous sources and are deferred to the compiler for final consideration:

Item	Latitude	Longitude
pier ruins	28°33'52"	80°47'52"
pier ruins	28°34'28"	80°47'52"
pier	28°34'59"	80°47'59"

The present survey is adequate to supersede the charted hydrography in the common area except as noted above.

b. Controlling Depths

The Intracoastal Waterway channel soundings on the present survey have been superseded by more recent U.S. Corps of Engineers surveys of May and June of 1982 which found a controlling depth of 7 feet. (Telephone conversation with Mr. Al Lundberg, Aids to Navigation Section, on December 7, 1983).

c. Aids to Navigation

The seven presently charted fixed aids to navigation adequately mark the features intended.

8. COMPLIANCE WITH INSTRUCTIONS

Except as listed elsewhere in this report, this survey adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

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

Robert R. Hill
Senior Cartographic Technician
Verification of Data

Leroy G. Cram
Chief, Verification Group
Verification Check

Charles D. Meador
Chief, Evaluation and Analysis Group
Evaluation and Analysis

INSPECTION REPORT
H-9994

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disproval of charted data. The digital data have been completed and all revisions and additions made to the smooth sheet during survey processing have been entered in the magnetic tape record for this survey. Final control, position, and sounding printouts of the survey have been made. The survey complies with National Ocean Service requirements except as noted in the Evaluation Report. The survey records comply with NOS requirements except where noted in the Evaluation Report.

Inspected

Stephen Baumgardner

Stephen Baumgardner
Senior Cartographer
Standards Section

Karl Wm Kieninger

Karl Wm. Kieninger, CDR, NOAA
Chief, Hydrographic Surveys Branch

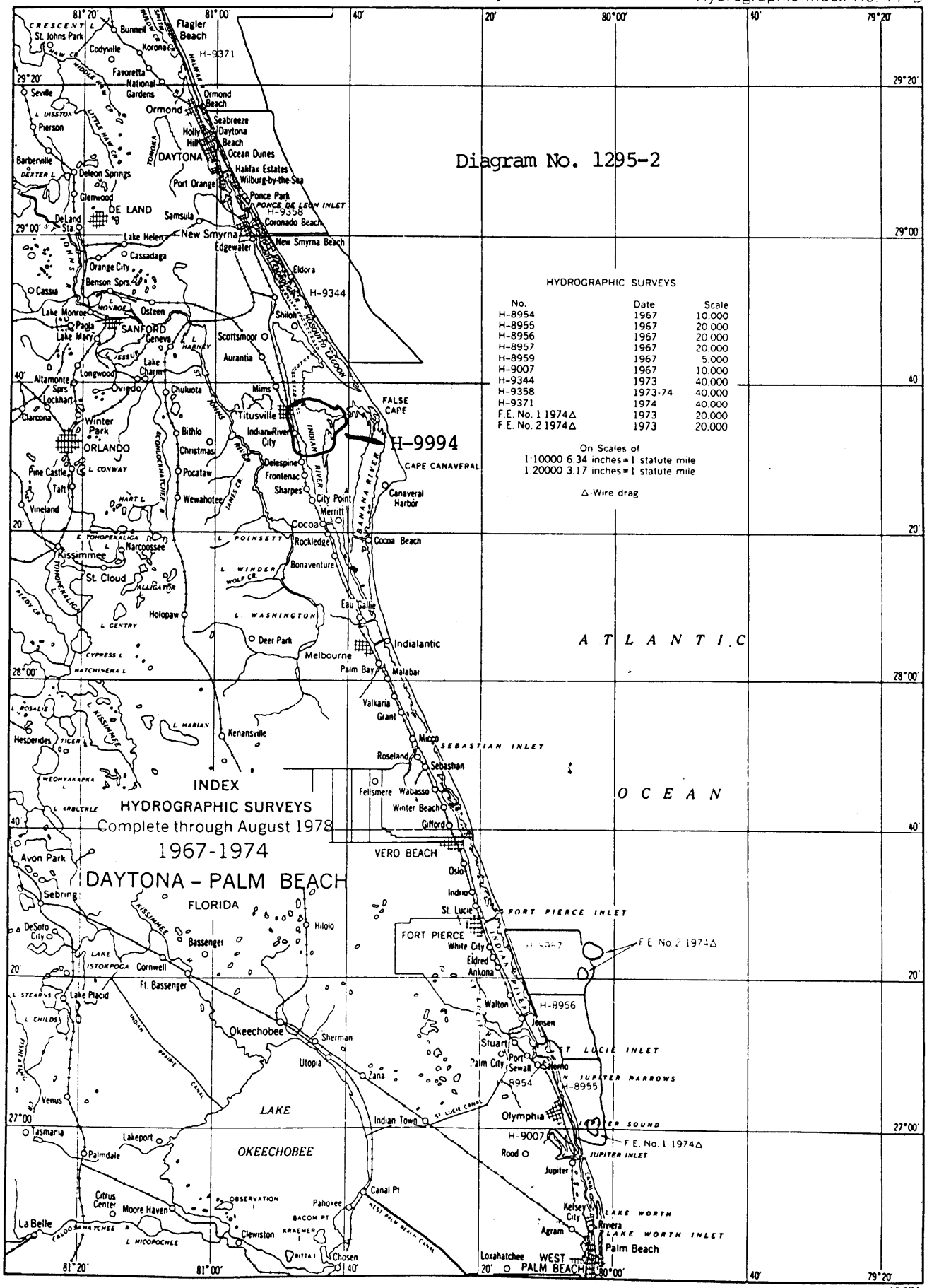
Approved March 1, 1984

Wesley V Hull

Wesley W. Hull, RADM, NOAA
Director, Atlantic Marine Center

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Rockville, Maryland

Hydrographic Index No. 77 D



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NOAA FORM 75-96
(10-83)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9994

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
11485	3-13-87	W.J. Terry	Full ~~Part Before After~~ Marine Center Approval Signed Via
			Drawing No. 24 Full and complete application to the cht.
11484	3-16-87	W.J. Terry	Full ~~Part Before After~~ Marine Center Approval Signed Via
			Drawing No. 33 Full and complete application to cht.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No. 1
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED. APP'L TO STDS 1-3-96 PP