10067

10067

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-10-11-82

Office No. H-10067

LOCALITY

State Florida

General Locality Indian River

Locality Titusville to Black Point

1982

CHIEF OF PARTY
LCDR R.W.Jones

LIBRARY & ARCHIVES

DATE August 5, 1986

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

ACPG
CHS
11/85 CCB - To sign off see "Record of Application to CHARTS".

NOAA FORM 77-28 (11-72) | U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION | REGISTER NO.

HYDROGRAPHIC TITLE SHEET

H-10067

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-10-11-82

State Florida

General locality Indian River

Locality Titusville to Black Point

Scale 1:10,000 Date of survey ~~19 Oct~~ 8 Nov 82 - 17 May 83

Instructions dated 7 Sep 82 Project No. OPR-G207-HSB-82

Vessel Hydrographic Field Party Section - HFP4

Chief of party Lt. Cdr. G. W. Jamerson (until 31 Dec 82); Lt. Cdr. R. W. Jones (after 1 Jan 83

Surveyed by C. Greenawalt, E. Martin, D. Bryant, L. Biscorner, R. Adams, R. Lacy

Soundings taken by echo sounder, ~~XXXXXXX~~, pole, lead line, Raytheon DE-719B

Graphic record scaled by HFP-4 personnel

Graphic record checked by HFP-4 personnel

Protracted by N/A Automated plot by Xynetics 1201 (AMC) ~~PDP8/e Computer~~

Verification by AMC Hydrographic Surveys Branch - J. B. Wilson

Soundings in ~~XXXXXXX~~ feet at ~~XXXX~~ ~~XXXXX~~ ~~MHW~~ LWD

REMARKS: Change No. 1 dated 17 September 1982

Notes in red in The Descriptive Report were made during office processing. Miscellaneous pages have been removed and filed with the survey records.

STANDARDS CK'D 8-6-86
C. LOY

AA 4-22-97 AWOIS/SURF MSM 12/22/86

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

☆ U.S. GOVERNMENT PRINTING OFFICE: 1978-665-010-1174

DESCRIPTIVE REPORT
TO ACCOMPANY
HYDROGRAPHIC SURVEY H-10067
HSB-10-11-82

Scale: 1:10,000
Chief of Party: Lt. Cdr. George W. Jamerson, 8 Nov ~~19 Oct~~ 82 - 31 Dec 82
Lt. Cdr. Ronald W. Jones, 01 Jan 83 - 17 May 83
Officer in Charge: Lt. C. Brian Greenawalt
Hydrographic Field Parties Section, Hydrographic Field Party #4
Launches: 0520, 0690

A. PROJECT

This survey was accomplished under Project Instructions OPR-G207-HSB-82, dated 07 September 1982, as amended by Change No. 1, dated 17 September 1982.

This project was conducted in response to requests to update the existing nautical chart coverage.

B. AREA SURVEYED

The area surveyed was the Indian River from approximately one mile south of the Florida Route 402 Causeway, north to Black Point. The geographic bounds of this survey are:

North	28°41'25"N	East	80°45'30"W
South	28°35'30"N	West	80°49'50"W

This survey was conducted from 8 Nov ~~19 October~~ 1982 through 17 May 1983, inclusive.

C. SOUNDING VESSELS

All soundings on this survey were collected by one of the following two vessels:

NOAA Launch 0520 (EDP 0520) - 22-ft MonArk
NOAA Launch 0690 (EDP 0690) - 13-ft Boston Whaler

Launch 0520 was the primary sounding platform for this survey. It was also used for chain sweep operations. Launch 0690 was used in extremely shallow areas, for bottom sampling, and for shoreline verification.

Junctions between the two vessels agree well. All differences were one foot or less. No problems were encountered.

D. SOUNDING EQUIPMENT AND CORRECTION TO ECHO SOUNDINGS

All soundings except those taken with a leadline or a sounding pole were measured and recorded with a model DE719B Raytheon fathometer.

VESNO	DE719B - SERIAL NO.
0520	9221
0690	9221

The fathometer was used in depths one foot to 23 feet.

All fathograms were scanned and checked for peaks and deeps, and the appropriate changes were added to the original records.

The instrument initial, tide and draft, and speed of sound settings were monitored continuously. Adjustments were made either on-line or when the fathograms were scanned.

When weather and sea conditions permitted, barchecks were taken at the beginning and end of each days hydrography. The velocity of sound corrections for this survey were computed from the mean of the daily barchecks. No TDC casts were taken.

Settlement and squat for vessel 0520 were measured using the level method. Results are included in the appendix. Settlement and squat were not measured on vessel 0690 because it was used for detached positions and bottom samples (vessel 0690 was "dead-in-the-water" and therefore the settlement and squat was zero).

Velocity corrector tapes were made and the correctors were applied to the soundings on the final field sheet. TC/TI tapes were generated and these corrections will be applied to the soundings on the final smooth sheet plotted at the Atlantic Marine Center. These tapes and tape listings are included with the project data.

E. HYDROGRAPHIC SHEETS

Field sheets used during this survey were prepared in the field using a PDP8/e computer and a DP-3 Complot Plotter. Worksheets, preliminary sheets, final field sheets, and overlay sheets are included with this survey. Mainscheme soundings, developments, and crosslines are plotted on the final field sheet. Bottom samples, detached positions, charted soundings, junction soundings, and prior survey soundings are plotted on the various overlay sheets.

The projection parameter tapes are included with the project data. Parameter tape listings are included in the appendix.

All records will be forwarded to the Hydrographic Surveys Branch at the Atlantic Marine Center for verification and smooth plotting.

F. CONTROL STATIONS

Control stations used during this survey were either existing geodetic control published by the National Geodetic Survey or control established by the Hydrographic Field Party Support Group and HFP-4 personnel. All stations met a minimum of third-order, Class I standards. All positions are based on the North American 1927 Datum.

All records, abstracts, and geodetic computations for the stations establisted by HFP-4 personnel are included with the survey records. These stations include MARINA 1983, the six (6) Titusville Marina daybeacons, and 12 Indian River daybeacons. Most of the daybeacons were located by open-ended traverse (ie, no-check positions) because they are frequently hit and most are leaning.

A listing of control stations used during this survey is included in the appendix.

G. HYDROGRAPHIC POSITION CONTROL

Two hydrographic position control systems were used during this survey. One system was the Del Norte Trisponder system operated in the non-automated range-range and range-azimuth modes aboard launches 0520 and 0690. The second system involved a Hewlett-Packard Model HP-3810B for range-azimuth control during a shoreline survey.

The following Del Norte equipment was used:

LAUNCH 0520

UNIT	S/N	JULIAN DAY USED
DMU	298	312,313,314,316,320,321,322,326,327,334,337, 341,342,343
	179	348
	192	354,003,004,006,007,010,011,014,017,018,019, 024,025,206,032,040,041,042,046,061,063,087, 089,096,109,125,126,129,133
	429	046
MASTER	187	312,313,314,316,320,321,322,326,327,334,337, 341,342,343,
	277	348,354,003,004,006,007,010,011,014,017,018, 019,024,025,026,032,040,041,042,046,061,063, 087,089,096,109,125,126,129,133
	620	046
REMOTE (Used ashore)	256	312,046
	244	313,314,316,320,321,322,326,327,334,337,341, 342,343,354,003,004,006,007,010,014,017,018, 024,025,026,032,040,041,042,046,061,063,087, 089,096,109,125,126,129,133
	1063	312,313,314,316,320,321,322,326,327,334,337, 341,342,343,348,354,003,004,006,007,010,011, 014,017,018,019,024,025,026,032,040,041,042, 046,061,087,089,096,109
	245	046
	1316	125,219

LAUNCH 0690

UNIT	S/N	JULIAN DAY USED
DMU	192	031,062
MASTER	277	031,062
REMOTES (Used ashore)	244	031,062
	1063	031,062

The master units aboard launches 0520 and 0690 were mounted atop 3-inch diameter pipe-masts about 2.5 meters above the waterline. The remote units were mounted atop Wild instrument tripods positioned over the control stations. These remote units were powered by two 12-volt marine batteries.

Except where otherwise noted in the sounding volumes, launch 0520 was steered along arcs in both the range-range and the range-azimuth modes. Launch 0690 was not steered along arcs.

When launch 0520 was controlled by the range-azimuth method, a Wild T-1 theodolite (S/N 14007) provided the azimuth control.

On Launches 0520 and 0690 static system checks of the Del Norte equipment were performed at fixed aids-to-navigation which were positioned to third-order, Class I control accuracy. These statics system checks were performed at least twice daily in accordance with AMC Operations Order 79, dated 25 February 1982 and superseded 25 January 1983.

The Del Norte equipment was baseline calibrated before the survey began, after the survey was completed, at approximately 2 to 3 weeks intervals during the course of the survey. The baseline calibrations were performed in accordance with AMC Operations Order 79. The baseline distance was 2367 meters: Station NO USE 1940 to Station CROW 1976 (both are published third-order, Class I stations). Results of the baseline calibrations are included in the appendix.

Electronic correctors applied on the corrector tapes are mean correctors determined by the baseline calibrations for the respective periods of hydrography. These correctors are shown in the Electronic Corrector Abstract included in the appendix.

On JD 312, a remote unit (S/N 256) failed at 174800Z. The data collected after the 171500Z system check was rejected and rerun with different equipment.

On JD 347, DMU/Master pair 298/187 failed to respond during the baseline calibration. This pair had been baseline calibrated and zeroed on JD 340. Daily system checks on JD 341, 342, and 343 were within ±5 meters of the check distances, therefore an electronic corrector of zero was applied.

Ranging errors of as much as 5200 meters were encountered throughout the survey area. These errors were sporadic and may have been caused by R-F interference from the Kennedy Space Center. These errors were eliminated from the data and do not affect the quality of the survey.

Remote unit 1316 was not baseline calibrated prior to its use on JD 125 and 129. Daily system checks and the closing baseline on JD 133 proved this remote was within the operating limits as specified in Operations Order 79, sounding data controlled by this unit is adequate for charting.

The intersections of the lines of position for the following 12 positions are slightly less than the minimum allowable of 30°:

JD	POSITIONS
014	2192, 2193, 2211, 2232, 2233, 2256, 2283
017	2300
018	2396, 2404, 2405
025	2754

These positions are the terminal positions of lines that extended into the "banana" by one or two soundings. The bottom is very flat in this area and these soundings adequately depict the depths for charting purposes.

The second positioning system, the Hewlett-Packard 3810B EDMI (S/N 1929A00411), was used to control the position of launches 069 and 0520 during range-azimuth shoreline surveys on JD 027, 032, 075, 096, 119, 129 and 130. The HP-3810B is an invisible laser instrument with a 20-second horizontal circle for azimuth control. It was mounted on a Wild instrument tripod plumbed over a horizontal control station and pointed at a 3-prism reflector on the launch or atop an 8-foot range pole held at the shore/water interface.

H. SHORE LINE

Shoreline details for this survey were transferred to the final field sheet from stable base film copies of the following coastal zone orthophoto maps: TP-00105, TP-00106, TP-00108, and TP-00109. The aerial photography was taken in 1967 and 1970. The field edit on these maps was performed in 1970. The shoreline details have already been applied to Chart 11485.

All shoreline details were verified visually and with hydrographic positions taken on man-made and natural features. Changes to the shoreline are shown on the final field sheet in red. Man-made changes to charted details are discussed in Section L (Chart Comparison) of this report.

Some of the shoreline changes were caused by erosion and silting, especially at the spoil islands and at the Florida East Coast Causeway. Other changes were man-made. RECOMMENDATIONS: Chart the following shoreline changes as shown in red on the ~~final field~~ smooth sheet.

TP-00109

Features: spoil island
Location: 28°35'41"N, 80°47'14"W
Remarks: Shoreline location was determined from estimated distances between the ending position of the sounding lines and the shore.

Feature: spoil island
Location: 28°37'04"N, 80°47'28"W
Remarks: Shoreline location was determined from estimated distances between the ending position of sounding lines and shore.

Feature: shoreline (F.S.R. 402 causeway)
Location: 28°37'28"N to 28°37'38"N
80°47'38"W to 80°47'28"W
Remarks: Revised shoreline located by range-azimuth positions. JD 027, Vol 17. positions 9005 - 9015.

Feature: spoil island
Location: 28°37'50"N, 80°47'55"W
Remarks: Shoreline location was determined from estimated distances between the ending positions of sounding lines and shore.

Feature: shoreline (FECRR causeway)
Location: 28°39'00"N to 28°38'51"N
80°47'41"W to 80°47'11"W
and 28°39'02"N to 28°39'02"N
80°47'52"W to 80°47'15"W
Remarks: Shoreline location was determined from estimated distances between the launch and shore.

TP-00108

Feature: spoil island
Location: 28°39'35"N, 80°48'12"W
Remarks: Shoreline location was determined from estimated distances between the launch and shore.

Feature: spoil island
Location: 28°39'11"N, 80°48'12"W
Remarks: Shoreline location was determined from estimated distances between the launch and shore.

Feature: shoreline (FECCR causeway)
Location: 28°39'05"N, 80°48'38"W
Remarks: This portion of the shoreline is rapidly eroding. The change was determined from estimated distances from Station ADAMS 1982.

Feature: shoreline (FECRR causeway)
Location: 28°39'00"N, 80°48'05"W
Remarks: Shoreline location was determined from estimated distances between the launch and shore.

Feature: spoil island
Location: 28°38'44"N, 80°48'12"W
Remarks: Shoreline location determined from estimated distances between the launch and shore.

Feature: spoil island
Location: 28°38'17"N, 80°48'12"W
Remarks: Shoreline location determined from estimated distances.

Feature: shoreline (Thompson Industries)
Location: 28°37'26"N, 80°48'48"W
Remarks: Thompson Industries has built a jetty which forms a small harbor into which the trawlers built by Thompson are launched. Changes were determined by hydrographic positions 3992-3993, JD. 126, Vol 18.

Feature: surfaced ramp
Location: 28°37'37"N, 80°48'12"W
Remarks: Ramp does not exist. Delete

Feature: bulkhead
Location: 28°37'04"N, 80°48'13"W
Remarks: Bulkhead was removed. No evidence was found during hydrography.

TP-00106

No discrepancies.

TP-00105

Feature: spoil island
Location: 28°40'54"N, 80°48'33"W
Remarks: Shoreline location was determined from estimated distances.

Feature: spoil island
Location: 28°40'30"N, 80°48'32"W
Remarks: Shoreline location was determined from estimated distances.

Feature: spoil island
Location: 28°40'38"N, 80°49'27"W
Remarks: Shoreline location was determined from estimated distances.

Feature: channel
Location: 28°40'15"N to 28°41'10"N
80°49'31"W to 80°49'41"W
Remarks: No channel was found.

I. CROSSLINES

Crosslines totaled 22.0 miles, or 9% of the hydrography. Ninty-nine (99%) percent of all crossline soundings agree within one foot of the main-scheme soundings. The remainder of the soundings agree within two feet.

J. JUNCTIONS

This survey junctions well with Survey H-9994 (1982), 1:10,000 scale to the south. No sounding disagreed by more than two feet. These discrepancies may be attributed to tides; Survey H-9994 was plotted without tide correctors applied.

To the north, Survey H-10071 (1983), 1:10,000 scale, was conducted concurrently with this (H-10067) survey. The junction soundings are in excellent agreement.

K. COMPARISON WITH PRIOR SURVEYS (present depths referred to are based on corrected sdgs)

This survey area was covered by the following prior surveys:

H-6676 (1941) 1:10,000 scale
H-6727 (1941) 1:10,000 scale

(The project instructions mistakenly listed H-6727 as H-6627.)

Surveys H-6676 and H-6727 agree reasonably well with this survey. Most depths agree within one foot, the present survey being shoaler. See Section L (Comparison with Chart).

Discrepancies between the surveys all resulted from man-made changes. The Florida East Coast Railroad (FECRR) bridge and causeway were constructed at Latitude 28°39'00"N sometime after the 1941 surveys were conducted. The area south of the FECRR causeway, at Latitude 28°38'50"N between Longitudes 80°47'15"W and 80°49'03"W, was used as a borrow pit during construction. Survey H-6727 shows 2-4 ft depths where depths of 10-feet were found west of bridge span. RECOMMENDATION: Supersede the prior survey depths with those found during this survey. Concur

Present depths of as much as 19ft. fall in prior depths of 4-5ft. east of bridge span.

Other discrepancies are as follows:

Item: Pier Source: H-6727
Location: 28°35'38"N, 80°48'14"W
Found: Pier ruins, JD 326, Vol 4, Pos #981
Recommendation: Chart the pier ruins at above location from present survey

Item: Pier Source: H-6727
Location: 28°36'04"N, 80°48"15"W
Found: Pier ruins, JD 326, Vol 4, Pos #965-967
Recommendation: Chart the pier ruins and piles at above location from present survey

Item: Pier Source: H-6727
Location: 28°36'14"N, 80°48'22"W
Found: No evidence of pier or ruins on JD 326.
Recommendation: Delete pier from chart. concur

Item: Pier Source: H-6727
Location: 28°36'37"N, 80°48'20"W
Found: ~~Pier~~ Boho ruins and piles, JD 327 and 327, Vol. 4 & 5, Pos # 939-941, 1054
Recommendation: ~~Chart~~ Delete the pier ruins at the above location. and chart present survey info.

Item: Pier ~~Piling ruins~~ Source: H-6727
Location: 28°36'43.9"N, 80°48'08.3"W
Found: ~~Piling ruins extending about 1/2 feet off the bottom~~. (See JD 125, Vol. 18, Pos #3951) Subm. piles covered 4ft. at LWD. Chart accordingly.

Item: Pier ruins Source: H-6727
Location: 28°36'47"N, 80°48'07"W
Found: No evidence was found during limited chain sweep and inconclusive diver investigation of the area on JD 125.
Recommendation: Retain ruins as charted. (See Section P.) concur
Brought forward to present survey as subm. piles

Item: sewer Source: H-6727
Location: lat. 28°36'02", long. 80°48'17"
recommendation: Retain as charted. Was not verified nor disproved, brought forward to present survey.

Item: Double row of pilings Source: H-6676
Location: 28°40'38"N, 80°49'23"W
Found: Most of this row of pilings is covered by the spoil island on which station AESCH 1982 is set. See JD 087, Vol 16, Pos. 3746-3748.
Recommendation: Chart the piling ruins as shown on the ~~final field sheet~~ present survey.

The Intracoastal Waterway was dredged extensively since the 1941 surveys were conducted. New spoil islands and shoals exist where none existed before. concur

Four numbered presurvey review items were listed for the survey area:

ITEM 39: Obstr PA - Fish Haven (auth min 4 ft) Source: CL-166/76
Charted at latitude 28°35'29"N, longitude 80°46'06"W. This item did not appear on the fathograms during searches of the area. On JD 125 it was swept for with a chain drag and not found. Some local boaters have said that this fish haven may have silted over. Efforts to contact Mr. James Andrews, Marine Science Department at Titusville High School, were fruitless.
Recommendation: Retain as presently charted. concur

ITEM 44a: Subm pile Source H-6727
Charted at latitude 28°37'55"N, longitude 80°49'02"W. The water in the vicinity of this item was about one foot deep. A thorough visual search of the area was conducted on JD 075. The visibility was good to a depth of three feet. No evidence of the pile was found. However, some logs were found buried in the sand and flush with the bottom. Awois #2489
Recommendation: Delete the charted submerged pile from the chart. concur

ITEM 47: Submerged wreck symbol, from H-6727 charted at latitude 28°37'09"N, longitude 80°48'11.6"W. On JD 125, a chain sweep hung on ~~the~~ metal debris (See Vol 18, position 3952) which was oriented in a SE/NW direction. least depth 4 ft. Awois #2486
Recommendation: Retain the submerged wreck symbol as charted. do not concur chart as 4WK.

ITEM 34: Subm pile Source H-6727
Charted at latitude 28°38'01"N, longitude 80°48'08"W. Both a visual search and a limited chain sweep of the area were conducted on JD 129. (Vol 18 & 19, position # 4043-4089) No evidence of this pile was found. Awois #248
Recommendation: Retain the submerged pile as charted. (See Section P.) concur, brought forward to present survey

L. COMPARISON WITH THE CHART (Referenced present depths based on corrected edgs.)

Chart 11485, 20th edition, 17 July 1982, scale 1:40,000, was compared to this survey, and the two agree well. Of the soundings compared 99% agree within two feet, with the sounding from this survey being shoaler.

All charted features within the survey area were investigated. The following discrepancies were found:

Feature: shoal uncovers at MLW
Charted Position: 28°38'07"N, 80°48'39"W
Remarks: Shoal is not as extensive as charted and it does not uncover at MLW.
Recommendation: Chart the shoal as shown on the ~~final field sheet~~. present survey

Feature: shoal (marsh islet)
Charted Position: 28°39'56"N, 80°49'05"W
Remarks: Shoal found southwest of charted position. (not a shoal)
Recommendation: Chart shoal at latitude 28°39'54"N, longitude 80°49'08"W. Do not concur, chart present survey sdgs.

✓ Feature: OVHD PWR CAB
Charted Position: 28°37'12"N, 80°48'12"W
Recommendation: ~~Delete from chart~~. Not observed at above position. See pg. 15 of D.R.

Feature: Surfaced ramp
✓ Charted Position: 28°37'04"N, 80°48'07"W
✓ Recommendation: Delete from chart. The ramp is no longer usable. No evidence of ramp on TP-00108 or survey

Feature: Shoal uncovers at MLW
Charted Position: 28°37'00"N, 80°47'30"W
Remarks: Shoal is less extensive, does not uncover at MLW, and has shifted to the southeast.
Recommendation: Chart as shown on the ~~final field sheet~~. present survey.

Feature: shoal, covered at MLW
✓ Charted Position: 28°36'37"N, 80°47'14"W
✓ Remarks: Shoal is less extensive ~~and has shifted to the southeast~~. present survey
Recommendation: Chart as shown on the ~~final field sheet~~.

Feature: Shoal uncovered at MLW.
Charted Position: 28°36'09"N, 80°47'16"W
Remarks: Shoal does not uncover at MLW.
Recommendation: Chart ~~as a shoal that is covered at MLW as shown on the final field sheet~~. present survey sdgs.

Feature: soundings in Puckett, Boggy and Cow Pen Creeks
✓ Charted Positions: 28°38'18"N, 80°47'00"W
28°39'05"N, 80°47'00"W
28°40'08"N, 80°47'00"W
Remarks: Launch 0520 could not gain access to these creeks. The entrances have shoaled and are foul with grass.
Recommendation: Remove these soundings from the chart. concur

✓ Feature: TR
Charted Position: 28°41'24"N, 80°47'05"W
Remarks: Tower has collapsed.
Recommendation: Delete from the chart. concur

Feature: Charted soundings
Charted Position: 28°36'55"N to 28°37'25"N
80°48'14"W to 80°47'18"W
Prior survey reference: H-6727, 16-19 ft
Remarks: This area has silted in. ~~leaving depths ranging from five to eight feet~~. charted
Recommendation: Supersede ~~prior survey~~ soundings with the depths found during this survey.

The following features should be added to the chart:

Feature: ~~submerged~~ pile (D)
Location: 28°39'39.0"N, 80°48'23.3"W , located 25± from LT "19"
Position: 3673 Vol: 16, JD: 087 NC too close

Feature: surfaced ramp
Location: 28°37'05"N, 80°48'15"W NC
Positions: 9079-9080, Vol 17, JD: 096
Remarks: U.S. Coast Guard Auxillary personnel indicated that a channel may be dredged between this ramp and the ICW. No channel presently exists and the water at the ramp is very shallow.

Feature: Florida Marine Patrol Office
Location: 28°37'26.5"N, 80°47'39.7"W
Remarks: ~~Chart the office~~.
Recommend location be included in Coast Pilot

Feature: ~~Stake~~
Location: 28°37'37.3"N, 80°47'14.0"W Position: 2575 pile NC
28°41'26.1"N, 80°48'49.0"W Position: 3115 stake appld

Feature: Piles
Location: 28°37'35.2"N, 80°47'21.1"W Position: 2576 NC
28°37'23.5"N, 80°47'38.8"W Position: 1037 NC
28°37'23.0"N, 80°47'39.7"W Position: 1038 NC
28°37'20.2"N, 80°47'43.7"W Position: 1039 NC
28°39'08.8"N, 80°49'11.1"W Position: 3526 NC
28°39'08.9"N, 80°49'12.2"W Position: 3527 NC
28°39'08.5"N, 80°49'12.2"W Position: 3528 NC
28°39'39.0"N, 80°48'23.3"W Position: 3673 NC
28°40'04.6"N, 80°49'27.0"W Position: 3584 appld
28°39'58.8"N, 80°49'24.2"W Position: 3565 NC
28°39'59.2"N, 80°49'26.1"W Position: 3566 NC
28°40'00.7"N, 80°49'26.8"W Position: 3567 NC

chart features as shown on present survey

Features: Signs
Location: 28°37'24.5"N, 80°47'07.6"W Position: 839
28°37'22.1"N, 80°47'06.3"W Position: 838
28°37'19.9"N, 80°47'04.8"W Position: 837
28°36'57.9"N, 80°46'40.5"W Position: 804
28°36'56.6"N, 80°46'36.4"W Position: 805
28°36'35.2"N, 80°46'11.0"W Position: 783
28°36'33.8"N, 80°46'08.7"W Position: 782
28°40'48.8"N, 80°49'17.9"W Position: 3741 NC

Feature: Pipe
Location: 28°41'16.4"N, 80°48'50.8"W Position: 3141 appld
28°36'50.8"N, 80°48'13.6"W Position: 1043 NC

One new danger to navigation was located in the project area. Information is as follows:

Chart # 11485
Item Description: Submerged wreck (1WK)
Source: H-10067
Investigation Date: 10 May 1983 Time: 1656Z Vessel: 0520
References: Position 4090 Vol: 19 Page: 6
Correctors applied: None
Geodetic Position Observed: 28°38'44.877"N, 80°48'52.480"W

Position Determined by: Range/azimuth methods using HP-3810B EDMI.

Method of Investigation: The sports fishing vessel "Sea Cat" burned to the waterline and sank on 30 April 1983. A visual search of the area was made 10 May 1983 and the wreck was found to be in 42 feet of water with a least depth of 10 feet. The wreck is 10 meters long and lies in a northwesterly/southeasterly direction.

Charting Recommendation: Chart ~~submerged wreck~~ Wk at above position.

The Seventh Coast Guard District was notified of this danger; a copy of the letter is included in the appendix.

The services available at Westland Marina (54) and H.M.S. Titusville (53) were compared to the tabulation on the chart. Recommendation: Delete the surfaced ramp entry for H.M.S. Titusville (#53). No other changes are necessary. See also Section P for comments on upcoming construction at H.M.S. Titusville.

		TIDES		DEPTH		SERVICES					BOAT RENTAL						SUPPLIES				
NO	LOCATION	MEAN RANGE-FT	DIFF (HRS) MIAMI HBR ENT	APPROACH-FEET (REPORTED)	ALONGSIDE-FEET (REPORTED)	ELECTRICITY-MOORINGS-BERTHS (TRANSIENTS)	RAMP SURFACED-NATURAL	REPAIRS HULL-MOTOR-RADIO	MARINE RAILWAY-FEET	LIFT CAPACITY-TONS	CANOE-ROW-MOTOR	CHARTER-HOUSE-SAIL	FOOD-LODGING-CAMPING	TOILETS-SHOWERS-LAUNDRY	PUMP-OUT STATION	WINTER STORAGE WET-DRY	NAUTICAL CHART SALES	WATER-ICE	GROCERIES-HARDWARE	BAIT-TACKLE	DIESEL OIL-GASOLINE
32	INLET HARBOR	1.5	+¾	10	3½	B	S	HM	45				F			WD		WI	H	BT	DG
33	PONCE INLET	1.5	+¾	8	8	BME	S	HM	50			C	F	T		D		WI	H	BT	DG
34	PONCE INLET	2.2	+¼	12	4	BME			100	120		C	F					W			DG
35	PONCE INLET	2.2	+¼	6	8	B E	S	HM	65	40				TS		WD		WI			DG
36	NEW SMYRNA BEACH	2.0	+¾	4	4	B	S	M						T					H		G
37	NEW SMYRNA BEACH	2.0	+¾	10	6	E		HMR		3				T		WD		WI	H		DG
38	NEW SMYRNA BEACH	2.0	+¾	2	6	E	S							T				W		BT	
40	NEW SMYRNA BEACH	2.0	+¼	5	5	E		HMR								WD	C	WI	H	B	G
43	ARIEL			2	4	B	S	M			CRM		FL	TS				WI	G	BT	G
44	ARIEL			2	3	E	S	M			C M		FLC	TSL				WI	GH	BT	G
45	ARIEL			3	4		N				RM			TS				WI		BT	
47	ARIEL			4	6		S				RM		C	TSL	P	D		WI	G	BT	
53	TITUSVILLE			8	10	B E	S	HMR			R			TS				WI	GH		DG
54	TITUSVILLE			9	9	B E		HMR		30				TS		WD	C	WI	GH	T	DG
57	CANAVERAL BARGE C			12	6	BME					M		FLC	TSL			C	WI	G	BT	G
58	MERRITT ISLAND			5½	5½	BME								TS				WI	G		DG
59	MERRITT ISLAND			6	4½	B E		HMR	45	10				TS			C	WI	H		DG
60A	COCOA			7	7	B E		HM		37			FL	TSL			C	WI	GH		
62	MERRITT ISLAND			5	6	B E		HM	50					TS		WD	C		H		
63	GEORGIANA			4½	5	B E								TSL				WI			G
64	INDIAN RIVER			2	4		S	M					F	T				I	G		

(+)DENOTES HOURS LATER (-)DENOTES HOURS EARLIER
THE LOCATIONS OF THE ABOVE PUBLIC MARINE FACILITIES ARE SHOWN ON THE CHART BY LARGE PURPLE NUMBERS.
THE TABULATED 'APPROACH-FEET(REPORTED)' IS THE DEPTH AVAILABLE FROM THE NEAREST NATURAL OR DREDGED CHANNEL TO THE FACILITY.
THE TABULATED 'PUMPING STATION' IS DEFINED AS FACILITIES AVAILABLE FOR PUMPING OUT BOAT HOLDING TANKS.

THIS TABULATION WAS PRODUCED USING COMPUTER ASSISTED METHODS.

M. ADEQUACY OF SURVEY

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

N. AIDS TO NAVIGATION

All fixed aids to navigation in the survey area were located and their positions and descriptions were compared with those listed in Light List Volume II, the FFAIDS listing and as shown on Chart 11485, 20th Edition, July 17, 1982. These aids adequately serve the apparent purpose for which they were established.

The following landmarks are to be retained as charted:

NAME	LOCATION
AERO Rot W&G	28°37'16.1"N, 80°49'54.2"W
TANK (NW of TWO)	28°40'29.520"N, 80°49'38.602"W
R TR	28°37'26.548"N, 80°47'39.561"W

No overhead cables exist in the area. In addition to the submarine cable area charted at the F.S.R. 402 causeway, a submarine cable crosses the Intracoastal Waterway at the FECRR bridge (latitude 28°39'01."N, longitude 80°48'21"W). The cables are part of the bridge structure except at the bascule bridge portion where the cable is submarine. Recommendation: Chart this cable crossing area.

Horizontal and vertical clearances were measured on JD 125, Vol 18.

Bascule Bridge (FECRR) Survey records do not indicate measurement.
Location: 28°39'00"N, 80°48'25"W
Horizontal: 90
Vertical: 7
Retain clearances and cautionary note as charted. concur

Swing Bridge (F.S.R. 402)
Location: 28°37'15"N, 80°47'53"W
Horizontal: 80 ft
Vertical: 10 80 Ft.
Revise clearances on chart. Do not concur.
Retain charted clearances.

O. STATISTICS

Total number of positions	4,294
Lineal nautical miles of mainscheme hydrography	247
Lineal nautical miles of crosslines	22
Lineal nautical miles of development	122
Total lineal nautical miles of hydrography	391
Total square nautical miles of hydrography	12.3
Number of detached positions	316
Number of tide stations installed	1
Number of barchecks	78
Number of bottom samples*	73

*Oceanographic Log Sheet "M" are included in the appendix.

P. MISCELLANEOUS

No tide staffs were installed at the head of the creeks feeding into the Indian River. No currents were observed in these creeks at time of hydro which indicated that no water level gradients exists. These creeks were all too shallow to allow launch 0520 access to much more than 300 meters from the mouth.

Some of the chain sweep investigations for submerged features have insufficient bottom coverage and overlap for disproval. Termination of the field season made it impossible to devote more time to these inconclusive searches therefore, some unfound features are recommended for retention on the chart.

The U.S. Power Squadron in Cocoa, Florida, was contacted as per Change 1 to the project instructions. The charting needs for the Banana River were discussed and recommendations for charting are included in a letter to the Nautical Charting Division (N/CG2). A copy of the letter is included in the appendix.

Q. RECOMMENDATIONS

No additional field work is necessary.

Enclosed with the project data are blue prints of the proposed construction at H.M.S. Titusville Municipal Marina. This construction is to begin in June 1982. Recommendation: Contact Mr. Eber Samples, Jr., after August 1, 1983, to confirm the completion of the construction and if the blue prints accurately portray the construction. Mr. Samples is the Operation Manager and can be reached at:

H.M.S. Titusville Municipal Marina
451 Marina Road
Titusville, FL 32780
Telephone # (305) 269-7255

Additional recommendations are listed in Sections H. K, L, N, and P of this Descriptive Report.

R. AUTOMATED DATA PROCESSING

The following hydroplot system programs were used during this survey:

PROGRAM	VERSION	DATE
RK201	Grid, Signal, and Lattice Plot	05/18/76
RK211	Range-Range Non-Real Time Plot	01/15/76
RK212	Visual Station Table Load	04/01/74
RK216	Range-Azimuth Non-Real Time Plot	02/05/76
RK300	Utility Computations	02/05/76
RJ330	Data Reformat and Check	05/04/76
AM602	Extended Line Oriented Editor	05/20/75
AM602	Extended Line Oriented Editor	12/08/82
RK407	Geodetic Direct and Inverse	09/25/78

S. REFERENCE TO REPORTS

Horizontal Control Report, OPR-G207-HSB-82.

Respectfully submitted,

C. Brian Greenawalt
Lt, NOAA
OIC, HFP-4

SIGNAL TAPE LISTING

OPR-G207-HSB-82

HSB-10-11-82

H-10067

1:10000

588	1	28	35	51150	080	48	16401	250	0000	000000	NO USE 1940 ***
085	1	28	37	07149	080	48	03103	250	0000	000000	CROW 1976 **
203	6	28	37	26548	080	47	39561	139	0000	000000	FLORIDA MARINE PATROL R MAST 1976 **
001	4	28	37	28199	080	47	35199	250	0000	000000	GREENAWALT RM 1 1982 *
002	4	28	39	00048	080	47	44352	250	0000	000000	BISCORNER RM 1 1982 *
003	6	28	39	01214	080	48	35356	250	0000	000000	ADAMS RM 1 1982 *
004	6	28	37	26945	080	48	45320	250	0000	000000	SAND POINT 1982 *
005	5	28	37	27407	080	47	34252	250	0000	000000	GREENAWALT 1982 *
006	1	28	39	01185	080	47	44433	250	0000	000000	BISCORNER 1982 *
007	1	28	39	02235	080	48	36552	250	0000	000000	ADAMS 1982 *
008	1	28	39	58788	080	49	27960	250	0000	000000	CACTUS 1940 ***
009	7	28	40	30059	080	48	33320	250	0000	000000	BRYANT 1982 *
010	1	28	40	38801	080	49	29029	250	0000	000000	AESCH 1982 *
011	6	28	41	59384	080	49	48887	250	0000	000000	THE END 1982 *
012	2	28	42	28745	080	47	29178	250	0000	000000	GREYARD 1982 *
014	6	28	37	16588	080	48	31343	250	0000	000000	MARINA 1983 *
203	2	28	40	29520	080	49	38602	139	0000	000000	MIMS N SQUAT TANK ***

*** Published NGS
** Located by Hoto Party 61 - published NGS
* Located by HFPS & HFP4

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

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

NONFLOATING AIDS ~~AND 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)

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

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
HFP-4	Florida	Indian River	17 May 83

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
G207-HSB-82	HSB-10-11-82	H-10067	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	Indian River North Section Daybeacon 25	28 38	05.490	80 48	24.816		Feb. 1983 F-2-6-L	11485
LIGHT	Indian River North Section Light 26 (LL #3997) Fl. R., 4 Sec	28 37	59.879	80 48	27.667		Feb. 1983 F-2-6-L±	11485
DAYBEACON	Indian River North Section Daybeacon 27	28 37	55.938	80 48	21.818		Feb. 1983 F-2-6-L	11485
DAYBEACON	Titusville Yacht Basin Daybeacon 1	28 37	29.396	80 48	19.555		Feb. 1983 F-2-6-L	11485
DAYBEACON	Titusville Yacht Basin Daybeacon 2	28 37	30.318	80 48	21.409		Feb. 1983 F-2-6-L	11485
DAYBEACON	Titusville Yacht Basin Daybeacon 3	28 37	24.040	80 48	24.502		Feb. 1983 F-2-6-L	11485
DAYBEACON	Titusville Yacht Basin Daybeacon 4	28 37	25.397	80 48	25.832		Feb. 1983 F-2-6-L	11485
DAYBEACON	Titusville Yacht Basin Daybeacon 6	28 37	20.134	80 48	30.548		Feb. 1983 F-2-6-L	11485
DAYBEACON	Titusville Yacht Basin Daybeacon 5	28 37	18.795	80 48	29.334		Feb. 1983 F-2-6-L	11485
LIGHT	Indian River North Section Light 29 (LL# 3998) Fl. G., 4 Sec	28 37	03.951	80 47	42.702		Feb. 1983 F-2-6-L	11485

53.

NC-L-805(83)

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	Lt. C. B. Greenawalt, OIC, HFP-4	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED	Lt. C. B. Greenawalt, OIC, HFP-4	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.

CG243

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

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

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

(See reverse for responsible personnel)

[ ] TO BE CHARTED
[XX] TO BE REVISED
[ ] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
HFP-4	Florida	Indian River	17 May 83

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
G207-HSB-82	HSB-10-11-83	H-10067	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	Indian River North Section Daybeacon 11	28 41	15.280	80 48	40.157		F-2-6-L May 1983	11485
LIGHT	Indian River North Section Light 12 (LL 3994) Fl. W., 4 Sec	28 41	12.134	80 48	46.450		F-2-6-L May 1983	11485
DAYBEACON	Indian River North Section Daybeacon 13	28 41	05.200	80 48	44.500		F-2-6-L May 1983	11485
DAYBEACON	Indian River North Section Daybeacon 15	28 40	39.165	80 48	45.478		F-2-6-L May 1983	11485
LIGHT	Indian River North Section Light 16 (LL 3995) Fl. R., 4 Sec	28 40	35.028	80 48	48.559		F-2-6-L May 1983	11485
DAYBEACON	Indian River North Section Daybeacon 17	28 40	30.472	80 48	44.268		F-2-6-L May 1983	11485
DAYBEACON	Indian River North Section Daybeacon 18	28 40	10.299	80 48	38.347		F-2-6-L May 1983	11485
LIGHT	Indian River North Section Light 19 (LL 3996) Fl. W., 4 Sec	28 39	39.148	80 48	23.466		F-2-6-L May 1983	11485
DAYBEACON	Indian River North Section Daybeacon 20	28 39	38.130	80 48	26.124		F-2-6-L May 1983	11485
DAYBEACON	Indian River North Section Daybeacon 23	28 38	35.480	80 48	25.213		F-2-6-L May 1983	11485

54

NC-L-765(83)

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	Lt. C. B. Greenawalt, OIC, HFP-4	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED	Lt. C. B. Greenawalt	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.

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

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

NONFLOATING 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)

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

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
HFP-4	Florida	Indian River	17 May 83

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

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
G207-HSB-82	HSB-10-11-82	H-10067	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	Indian River North Section Daybeacon 31	28 36	19.893	80 47	36.614		F-2-6-L Jan 1983	11485
LIGHT	Indian River North Section Light 32 (LL 3991) Fl. R., 4 Sec	28 36	20.847	80 47	39.621		F-2-6-L Jan 1983	11485
DAYBEACON	Indian River North Section Daybeacon 33	28 35	53.303	80 47	29.607		F-2-6-L Jan 1983	11485
DAYBEACON	Indian River North Section Daybeacon 34	28 35	28.158	80 47	25.764		F-2-6-L Jan 1983	11485
LIGHT -	Indian River North Section Light 35 (LL 4000) Fl. W., 4 Sec	28 35	29.107	80 47	23.312		F-2-6-L Jan 1983	11485
	nc-L-765(83)							

55

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	Lt. C. B. Greenawalt, OIC, HFP-4	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED	Lt. C. B. Greenawalt	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 LANDMARKS FOR CHARTS

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

(See reverse for responsible personnel)

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

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
HFP-4	Florida	Indian River	Feb 83

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

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
G207-HSB-82	HSB-10-11-82	H-10067	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
TR	Bilby Tower over station WHYNOT has collapsed and is no longer of landmark value.	28 41	24.044	80 47	05.357		V-Vis	11485
	NC-L-765(83)							

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RESPONSIBLE PERSONNEL		
TYPE OF ACTION	NAME	ORIGINATOR
OBJECTS INSPECTED FROM SEAWARD	Lt. C. B. Greenawalt, OIC, HFP-4	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED	Lt. C. B. Greenawalt, OIC, HFP-4	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-10067 (HSB 10-11-82)

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

I gave no direct daily supervision during this field work.

Approved and forwarded,

Ronald W. Jones
LCDR, NOAA
Chief, Hydrographic Field Parties Section

NOAA FORM 61-29 (12-71)

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

REFERENCE NO.
MOA-23-81-86

LETTER TRANSMITTING DATA

DATA AS LISTED BELOW WERE FORWARDED TO YOU BY (Check):

☐ ORDINARY MAIL ☐ AIR MAIL
☒ REGISTERED MAIL ☐ EXPRESS
☐ GBL (Give number) _____

TO:

CHIEF, DATA CONTROL SECTION
HYDROGRAPHIC SURVEYS BRANCH, N/CG243
NATIONAL OCEAN SERVICE, NOAA
ROCKVILLE, MD 20852

DATE FORWARDED
31 July 86

NUMBER OF PACKAGES
2 (1 Box, 1 Tube)

NOTE: A separate transmittal letter is to be used for each type of data, as tidal data, seismology, geomagnetism, etc. State the number of packages and include an executed copy of the transmittal letter in each package. In addition the original and one copy of the letter should be sent under separate cover. The copy will be returned as a receipt. This form should not be used for correspondence or transmitting accounting documents.

H-10067 INDIAN RIVER OPR-G207

PACKAGE 1 (BOX) CONTAINING --- 2 Cohiers of final Data Printouts
1 Original Descriptive Report

PACKAGE 2 (TUBE) CONTAINING --- 1 Smooth Sheet -- 1 final Position Overlay -- 2 excess Overlays

FROM (Signature)
David MacFarland
DAVID B. MAC FARLAND, CDR, NOAA

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

ATLANTIC MARINE CENTER
HYDROGRAPHIC SURVEYS BRANCH, N/MOA23
NOAA, NATIONAL OCEAN SERVICE
439 W. YORK STREET
NORFOLK, VA 23510

NOAA FORM 61-29 SUPERSEDES FORM C&GS 413 WHICH MAY BE USED.

☆ U.S. G.P.O. 1981-564-008/1048

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NO.: H-10067

Number of positions	4176
Number of soundings	15182
Number of control stations	46

	TIME-HOURS	DATE COMPLETED
Preprocessing Examination	24	19 DEC 1983
Verification of Field Data	689	17 JUN 1985
Quality Control Checks	152	
Evaluation and Analysis	50	07 FEB 1986
Final Inspection	24	14 FEB 1986
TOTAL TIME	939	
Marine Center Approval		19 MAR 1986

Transmittal letter of survey and survey records will be included in the Descriptive Report to identify the records accompanying the survey.

DATE: 12/3/84

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Marine Center: Atlantic

OPR: G207

Hydrographic Sheet: H-10067

Locality: Indian River, Florida

Time Period: November 8, 1982 - May 13, 1983

Tide Station Used: 872-1374 - Allenhurst, Florida
872-1456 - Titusville, Florida

Plane of Reference (Mean Lower Low Water): Low Water Datum
872-1374 = 1.72 ft.
872-1456 = 3.15 ft.

Height of Mean High Water Above Plane of Reference:

Remarks: Recommended Zoning

1. North of latiutde 28°40.0' Zone Direct on 872-1374.
2. South of latitude 28°40.0' Zone Direct on 872-1456.

James R. Hubbard
Chief, Tidal Datums Section

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10067

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	
BLACK POINT										1
BOGGY POND										2
BROCK CREEK										3
BROCK FLATS										4
CATFISH CREEK										5
COW PEN CREEK										6
EAST MIMS										7
FLORIDA (title)										8
GATOR CREEK										9
INDIAN RIVER										10
JAY JAY										11
MERRITT ISLAND										12
PACES LANDING										13
PUCKETT CREEK										14
SAND POINT										15
TITUSVILLE										16
WILEY										17
										18
					Approved:					19
					Charles E. Harrington					20
					Chief Geographer - N/CG2x5					21
										22
					FEB 5 1986					23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

ATLANTIC MARINE CENTER
EVALUATION REPORT

REGISTRY NO.: H-10067 FIELD NO.: HSB-10-11-82

Florida, Indian River, Titusville to Black Point

SURVEYED: November 8, 1982, through May 17, 1983

SCALE: 1:10,000 PROJECT NO.: OPR-G207-HSB-82

SOUNDINGS: Raytheon DE-719B Echo Sounder, Lead Line, Pole

CONTROL: Range/Range - Del Norte
Range/Azimuth - Del Norte/Theodolite

Chief of Party	G. W. Jamerson
	R. W. Jones
Surveyed by	C. B. Greenawalt
	E. Martin
	D. Bryant
	L. Biscorner
	R. Adams
	R. Lacy
Automated Plot by	Xynetics 1201 Plotter (AMC)

1. INTRODUCTION

a. No unusual problems were encountered during evaluation.

b. The sounding datum in this area is a local vertical datum and is referred to as LOW WATER DATUM. Tidal conditions are such that Mean Lower Low Water is not definable. Most features 1 foot or more above LWD are exposed at high water stages resulting from meteorological conditions. Elevations of features seaward of the shoreline are referenced to Low Water. Their descriptive labels are shown in vertical lettering when they extend 1 foot or more above LWD.

c. Changes in the Descriptive Report were made in red during office processing.

2. CONTROL AND SHORELINE

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

b. Shoreline originates with Class I registered shoreline (orthophoto) maps TP-00105, TP-00106, TP-00108, and TP-00109 of 1967-70. Shoreline revisions in red are by the hydrographer.

3. HYDROGRAPHY

a. Depths at crossings are in good agreement.

b. The standard depth curves are adequately delineated except for portions of the 0-foot depth curve because of its proximity to shore and the existence of thick grass in nonnavigable areas of the foreshore. The 3 foot depth curve, brown curves, and some dashed depth curves were added to emphasize shoal features.

c. The development of the bottom configuration and the determination of least depths are considered adequate.

4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records, and reports comply with the requirements of the Hydrographic Manual, except that several foul notes on the final field sheet were not defined. The evaluator was informed by a member of the field party that areas along the east side of Indian River are not navigable due to the existence of thick grass. These areas are void of soundings and were delimited by dashes in black ink during office processing.

Remarks made by the hydrographer in sections H, K, and L of the Descriptive Report concerning shoreline revisions, a comparison with prior surveys and a comparison with the chart are very comprehensive. These comments, with some minor revisions noted by the evaluator, and supplemented by a few statements in the Evaluation Report, are considered sufficient to complete the requirements to supersede the prior surveys and chart that fall in the common area of the present survey.

5. JUNCTIONS

Adequate junctions were effected with H-10071 (1983) on the north and H-9994 (1982) on the south.

6. COMPARISON WITH PRIOR SURVEYS

H-6676 (1941) 1:10,000
H-6727 (1941) 1:10,000

These surveys cover the area common to the present survey. With the addition of notes added during evaluation, the hydrographer's comparison in section K of the Descriptive Report is considered complete and no additional

information is required. With the addition of three items brought forward to supplement present hydrography, the present survey is adequate to supersede these prior surveys within the common area.

7. COMPARISON WITH CHART 11485 (20th Edition, July 17, 1982)

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys which require no further consideration, supplemented by U.S. Army Corps of Engineers surveys and other miscellaneous sources.

Attention is directed to the following items:

1. The note, shoaling reported 1979, charted in latitude 28°37'18"N, longitude 80°48'31"W, should be deleted. The note originates with Local Notice to Mariners 45 of 1979. Chart this area as shown on the present survey.

2. The note, 6½ feet reported 1970, charted in latitude 28°37'15"N, longitude 80°48'30"W, should be revised to reflect a controlling depth of 7 feet determined by the present survey. The note originates with a U.S. Power Squadrons letter (Chart Letter 1768 of 1970).

The present survey is adequate to supersede the charted hydrography within the common area.

b. Controlling Depths

The controlling depth for the portion of the Intracoastal Waterway covered by the present survey originates with U.S. Army Corps of Engineers surveys of May and June 1982. Present survey depths are in agreement with the published controlling depths.

c. Aids to Navigation

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

8. COMPLIANCE WITH INSTRUCTIONS

This survey adequately complies with the project instructions, except as noted in section 4 of this report.

9. ADDITIONAL FIELD WORK

This is a good basic survey and no additional work is recommended.

J. B. Wilson
Cartographic Technician
Verification of Field Data

S. R. Baumgardner
Cartographer
Standards Section (N/CG242)
Evaluation and Analysis

R. R. Hill
Senior Cartographic Technician
Verification Check

Inspection Report
H-10067

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 survey complies with National Ocean Service (NOS) requirements except as noted in the Evaluation Report. The survey records comply with NOS requirements except where noted in the Evaluation Report.

Inspected

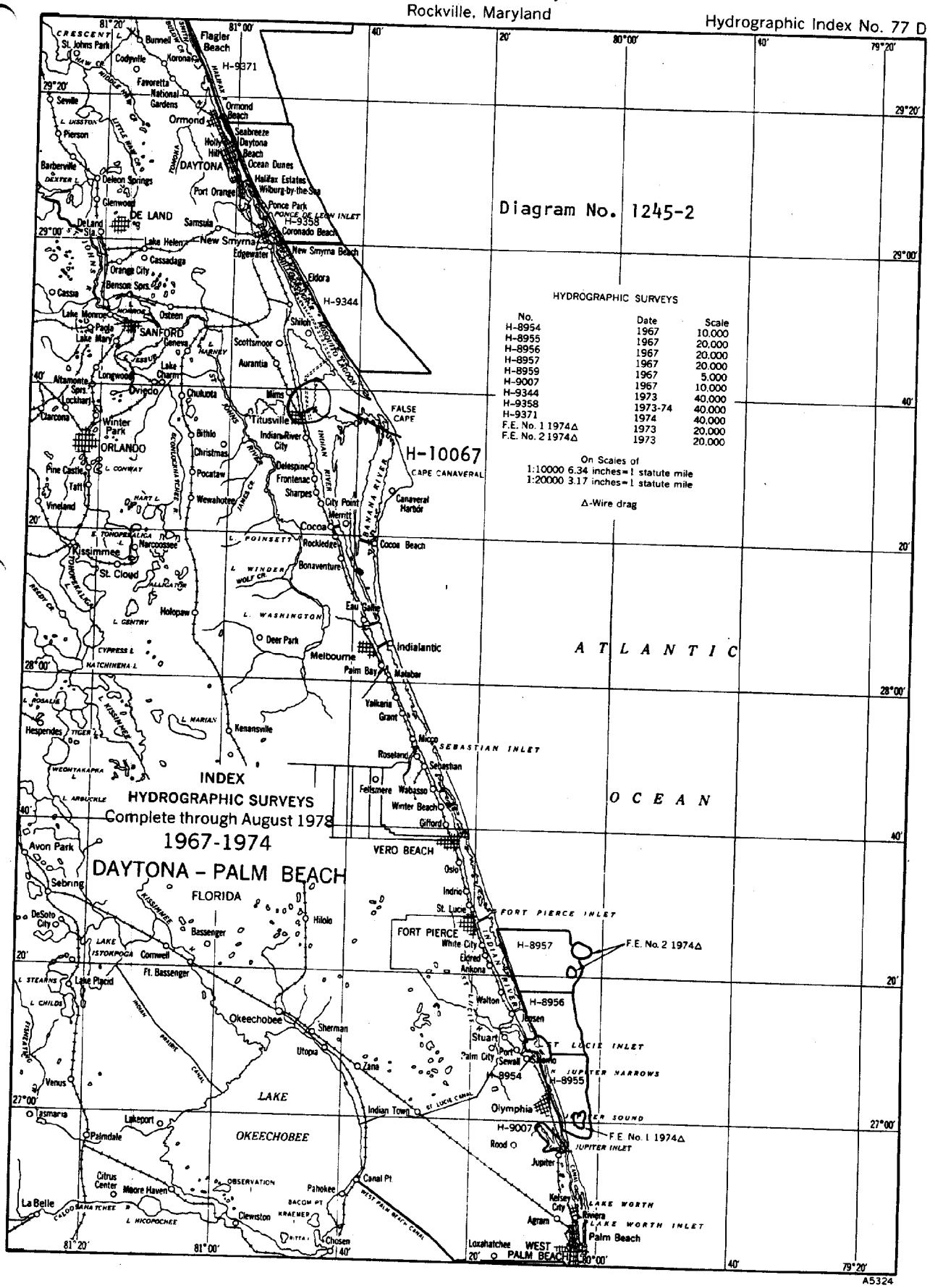
George K. Myers
Chief, Standards Section (N/CG242)
Hydrographic Surveys Branch

Approved

Wesley V. 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-10067

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	WJ Fig	Full [redacted] After Marine Center Approval Signed Via
			Drawing No. 24 Full and complete application to chart.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
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			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.