

# 9665

Diag. Cht. No. 1245

NOAA FORM 76-35A

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

## DESCRIPTIVE REPORT (HYDROGRAPHIC)

Type of Survey ..... HYDROGRAPHIC  
Field No. .... HSB-10-3-76  
Office No. .... H-9665

### LOCALITY

State ..... Florida  
General Locality ..... Banana River  
Locality ..... Cape Canaveral

1976-78

CHIEF OF PARTY  
Thomas W. Richards

### LIBRARY & ARCHIVES

DATE ..... February 21, 1979

9665

Area B  
cont.

**HYDROGRAPHIC TITLE SHEET**

H-9665

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-10-3-76

State Florida

General locality Banana River

Locality Cape Canaveral

Scale 1:10,000 Date of survey 5 Nov 1976 - 16 May 1978

Instructions dated 1 October 1975 Project No. OPR-499 (OPR-G207)

Vessel Launches 1277, 1278 and Boston Whaler 1279

Chief of party LCDR Thomas W. Richards

Surveyed by K. Andreen, J. Wilder, W. Sprye

Soundings taken by echo sounder, ~~and~~ ~~and~~ ~~and~~ ~~and~~ ~~and~~ pole Raytheon fathometers: s/n 1904, 2924, -5784  
(DE723D) (719B)

Graphic record scaled by KA, JW, WS, KG, EM, SW, RD, TF, JK, WE

Graphic record checked by same Verification Branch (AVAC)

Protracted by \_\_\_\_\_ Automated plot by AMC - CALCOMP 618  
of smooth sheet by Synetics 1200

Verification by L.G. Cram

Soundings in ~~fathoms~~ feet at ~~MEW~~ ~~MEW~~ Low Water Datum  
Low Water Datum is 0.5 feet below mean water level

REMARKS: This survey is complete and adequate to supersede prior surveys. For other reference reports, see section (S). Notes in red made during verification by verifier

Time Meridian: 0° (GMT)

KA - Kathy Andreen SW - Steve Weisner

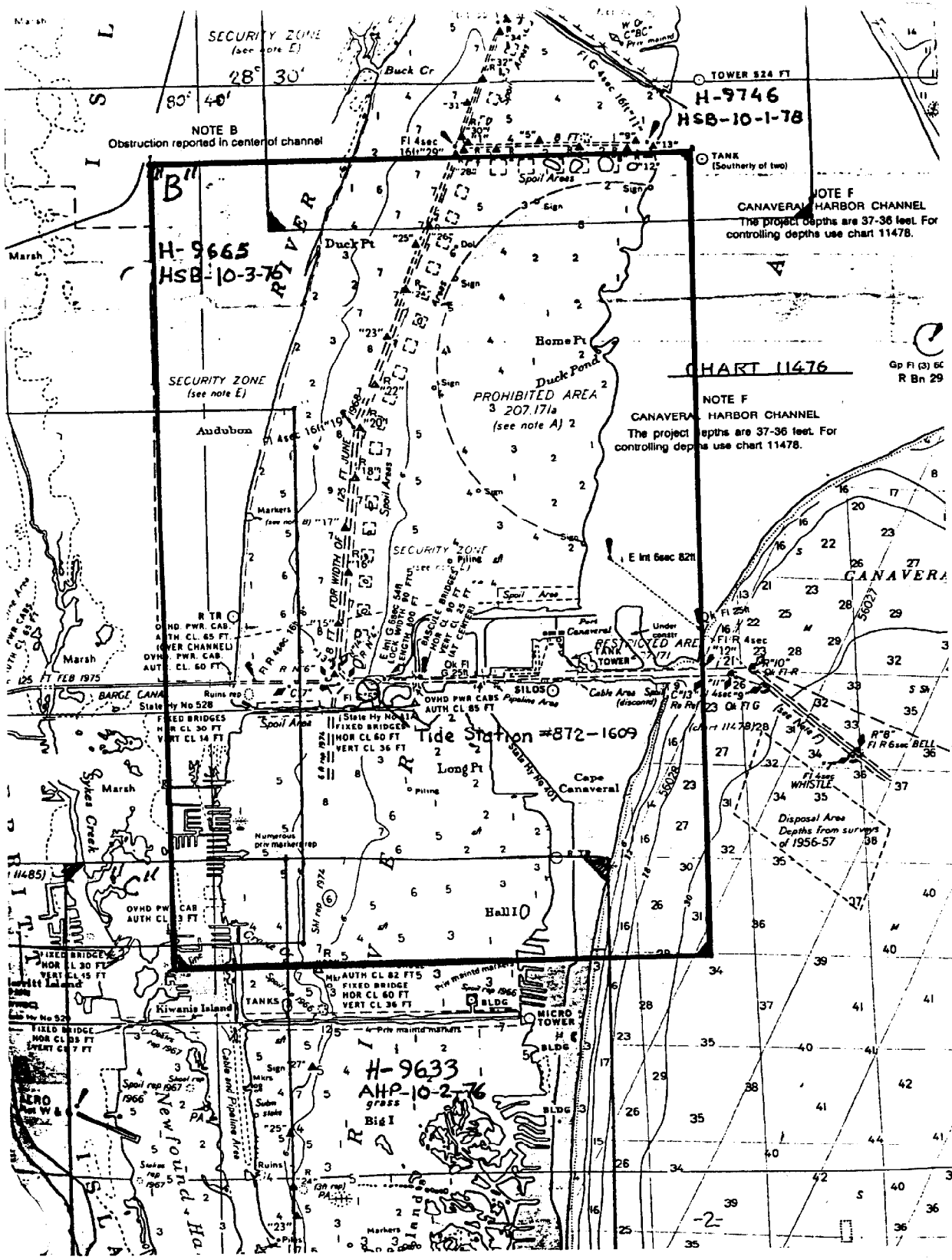
JW - John Wilder RD - Russ Davies

WS - Wayne Sprye TF - Tom Finn

KG - Karen Goodman JK - Judy Krauthamer

EM - Ed Martin WE - William Eutsler

*Applied to sheets 812/79*  
*[Signature]*



**CHART 11476**

Gp Fl (3) 6C  
R Bn 29

**NOTE F**  
CANAVERAL HARBOR CHANNEL  
The project depths are 37-36 feet. For controlling depths use chart 11478.

**H-9665**  
**HSB-10-3-75**

**H-9633**  
**AHP-10-2-76**  
grass  
Big I

DESCRIPTIVE REPORT  
to Accompany  
HYDROGRAPHIC SURVEY H-9665 (HSB-10-3-76)

Scale: 1:10,000 (1976-78)  
LCDR Thomas W. Richards

Hydrographic Field Party #2  
Chief of Party

A. PROJECT

This hydrographic survey was conducted in accordance with PROJECT INSTRUCTIONS OPR-499-AHP-76 (G207), Banana and Indian Rivers, Florida, dated 1 October, 1975, with the following supplements to instructions: Change No. 1, dated 16 Jan., 1976; Change No. 2, dated 7 December, 1977; Change No. 3, dated 21 December, 1977; Change No. 4, dated 31 January, 1978, and Change No. 5 dated June 12, 1978.

B. AREA SURVEYED

The area covered by this survey was bound on the east by the shoreline of Cape Canaveral, Florida, and on the west by the shoreline of Merritt Island, Florida. The southern limit of this survey was Latitude 28°22'30"N, with the northern limits at Latitude 28°29'14"N. The survey commenced on November 5, (JD 310), 1976 and ended on May 16, (JD 136), 1978. However, it should be noted that there was not any hydrography conducted during the period from 12 November (JD 317), 1976 to November 9, (JD 313), 1977.

C. SOUNDING VESSELS

HSB launches 1277, 1278 and the Boston Whaler (1279) were used to obtain the soundings for this survey. Launch 1277 was equipped with a Raytheon 723D fathometer, 1278 and the Boston Whaler (1279) used a portable Raytheon 719B fathometer. Pole soundings were obtained by all vessels where the fathometer could not properly record depths. All vessels were used in obtaining bottom samples.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

Sounding equipment operated well during the survey, with a few minor problems. Both Raytheon 723D fathometers (s/n 1904 and s/n 2924) used on Launch 1277, operated well in depths greater than four feet, but could not consistently sound well in the shoaler areas. Pole soundings were usually obtained for soundings between 0 to 4 feet when using 1277. On several occasions the 723D, s/n 2924, would only intermittently digitize depths or would not give an adequate trace in the dredged channel, thus requiring the receiver and tracking cards in the ECU to be replaced on March 22, 1978, and the receiver card only, on the 15th of May, 1978, when the channel developments were accomplished.

*2 see Verifier's Report*

Launch 1278 and the Boston Whaler (1279), obtained soundings by using either a sounding pole or the Raytheon fathometer, Model DE-719B, s/n 5784. On 1278, the 719B was connected to a permanently mounted transducer, capable of obtaining soundings greater than 1.5 feet. When used on the Boston Whaler, 1279, the 719B was used with a portable transducer, which when attached to the gunwale by clamps, was capable of sounding as shoal as the machine's initial, one foot. The 719B fathometer worked well throughout the entire project.

Launch 1277 obtained soundings in the deeper open water areas and in the primary navigation channels. Launch 1278 was used in shoaler waters and in the smaller marked canals which exist near housing development boundaries. The Boston Whaler, 1279, was used in areas with minimum depth for vessel operation.

Technicians monitored the fathometers continuously during the operations and kept the initial value on the analog trace at zero. In respect to operations involving Launch 1277, fathograms were scanned after hydrography, and the analog trace was compared with the digitized value. When scanning showed the digitized value was undoubtedly in error, a depth was determined from the analog trace. On Launch 1278, and the Boston Whaler, 1279, fix marks were made manually, depths were determined from the analog trace and recorded in the sounding volume.

Stylus arm length checks were made routinely with the Raytheon 723D, by switching from Scale A to F, and noting the 240-foot trace. Adjustments were made if necessary. The 719B Raytheon was checked by adjusting the Cal Zero control knob and the Speed of Sound knob until the calibrate zero line fell directly on the chart paper zero line and the second calibrate mark fell on the chart paper's "calibrate" line. *This sets velocity correctly at 800 fm/sec*  
*RHC.*

All sounding poles and bar check lines were measured with a steel tape before and after the survey and were found to be accurate.

The Boston Whaler, 1279, surveyed at very low speeds, thus it's settlement and squat was determined to be negligible. Settlement and squat for Launches 1277 and 1278 were determined as outlined in Section 4.9.4.2 of the Hydrographic Manual, 4th Edition. The graphs and settlements and squat corrector abstracts are included with this report in the separates following the text. Launch 1277 has two settlement and squat graphs due to the fact that between the 1976 data and the 1977 data, the jet pump was overhauled and a new impeller with a different pitch was installed on 1277. The first settlement and squat was taken on May 7, 1976, and the second on January 17, 1978.

Daily TRA corrections were determined as outlined in Section 4.9.4.1 of the Hydrographic Manual, 4th Edition. Daily TRA corrections were changed to reflect gain/loss of fuel load.

Bar checks were taken daily, weather permitting. Since 95% of the depths recorded for this survey were less than 10 feet, most bar checks were taken to a maximum of 15 feet, and these were only obtained in dredged holes. Bar check abstracts velocity curves and velocity tables for all vessels are included in the separates following the text.

#### E. HYDROGRAPHIC SHEETS

Field sheets were constructed, raw master tapes were logged and data plotted by Launch 1277's PDP 8/e hydroplot system. Edited masters and corrector tapes, velocity tapes, signal tapes and TC/TI tapes, were logged by launch personnel and submitted for smooth plotting to Processing Division, Atlantic Marine Center.

The central meridian for the project was 80°38'30"W and the control latitude was 3111000 meters north of latitude zero.

In addition to the three 1:10,000 scale final main scheme field sheets, one 1:10,000 channel overlay is submitted with this report. Velocity correctors were not applied, <sup>due to the</sup> constant changing from fathometer soundings to pole soundings. Tide correctors were not applied because there is less than 0.2 feet water level difference due to tides in the Banana River. Also, TC/TI corrections were not applied to the final field sheets.

Rough plots were made daily and the final plot was constructed during the last couple months of the survey. No discernable distortion could be detected in the mylar final boat-sheet during the period of plot.

#### F. CONTROL STATIONS / *See Verifier's Report*

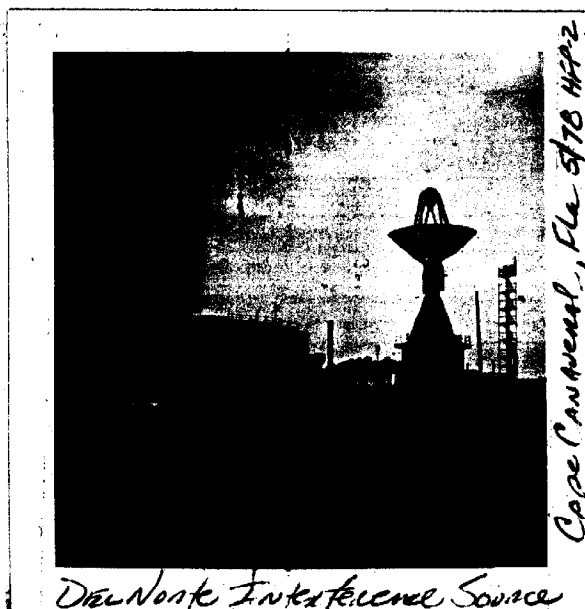
Control stations Tank I, 1976, Mound, 1976; Hospital I, 1976; DBN 28, 1976; Turtle, 1976; Lock, 1976; Waste 2, 1976; DBN 16, (south of the 528 causeway) 1976; Storage I (SI), 1976; Audubon 1976; Storage 2 (S2), 1976; DBN 16 (north of the 528 causeway), 1976; DBN 18, 1976; DBN 23, 1976, and DBN 24, 1976; were established or verified by Photo Party 61, Coastal Mapping Division, Atlantic Marine Center. Refer to Horizontal Control--OPR-499, Banana and Indian Rivers, Florida for surveying methods, geodetic abstracts and computations. Station PN-OI 1978, was established by HSB personnel; refer to Control Report, OPR-G207-HFP-78 Banana and Indian Rivers, Florida, March 1978. Station Storage I (ECC) 1977 was established by launch personnel using a steel tape measure, sextant, and Program RK 407. Printouts of RK 407 are included in the report.

G. HYDROGRAPHIC POSITION CONTROL See Verifier's Report

Del Norte positioning equipment, operating in a range-range mode and also in a range-azimuth mode, (using a Del Norte unit with a Wild T-2); plus "See Boatsheet" methods were used to control the hydrography on Sheet HSB-10-3-76. Fourteen control networks were used on this sheet for the control stations used. All shore stations were located at or eccentric to established third-order triangulation, intersection or traverse stations.

Whenever possible, calibration was established twice daily by positioning the vessels at known third order traverse or intersection stations. Del Norte ranges were compared to ranges calculated by the PDP 8/e computer using program RK 300 or RK 407. Refer to the sounding volumes for calibration data, and see Appendix for abstract of electronic correctors.

In general, the Del Norte equipment worked well throughout the time of the survey; however, a few problems were encountered. On several occasions, the remote units were overpowered by the several large radar installations located throughout the Cape Canaveral and Kennedy Space Center area. Since the master unit would lock onto the radar, giving erroneous values, operations had to be moved to a different area or entirely stopped for the day. Also, when Hydrographic Field Party #3 began working in the same vicinity, interference between the two sets of Del Norte (HFP #2's and the HFP #3's) made it necessary to change all equipment (masters, remotes, and DMU's) from the 700 series to the 800 series on JD 088 (March 29) 1978. Other minor problems included the replacement of the 72 remote s/n 667 with 72 s/n 188 due to the first unit continuously blowing fuses; the control card in the DMU, s/n 189 had to be replaced on two occasions (3-23-78 and 4-4-78); and after JD 122 (5-2-78), the counter for the meter display in the DMU s/n 189 would not go over 1999; instead of the 2000 figure, it would show 0 and start counting to 1999 again. This DMU was not used after the second (2nd) of May (JD 122) 1978.



On JD 080, unit 72 s/n 262, borrowed from HFP #3 for that day only, had unusually high correctors due to the fact that the master and DMU were not calibrated for that particular unit. A baseline calibration was performed to verify the correctors which agreed to the exact meter. Refer to Pages 12 and 13 in Sounding Volume #1 for further information.

A maximum difference of 7 meters between morning and evening calibrations was observed, with a mean standard deviation of the calibrations ranging between 1.55 and 2.61 meters. Calibration distance varied between 463 and 5522 meters.

The following is a summary of equipment utilization during the project. Refer to the enclosed signal list for shore station names and locations.

SHORE STATIONS

<u>SIGNAL #</u>	<u>S/N</u>	<u>JULIAN DAYS USED</u>
158✓	180	314 (1976)
158✓	216	310 (1976)
164✓	180	316 (1976)
168✓	180	310 (1976)
168	216	314 (1976)
174✓	216	316 (1976)

The following is for the 1977-1978 season:

158✓	174	080 (1978)
164✓	188	122 (1978)
164	252	313, 314, 318, 319, 322, (1977), 324, 347, (1977), 066, 083 (1978)
168✓	247	313, 314, 318, 319, 322 (1977), 324, 347, 349, (1977) 004, 005 (1978) 083, 122 (1978)
168✓	174	066 (1978)
168✓	262	080 (1978)
174✓	252	349 (1977), 004, 005 (1978)
174	247	066 (1978)

<u>SIGNAL #</u>	<u>S/N</u>	<u>JULIAN DAYS USED</u>
174✓	174	083 (1978)
400✓	174	088 (1978)
400✓	247	115 (1978)
402✓	247	030, 074, 088, 096, 122 (1978)
402✓	252	032 (1978)
407✓	247	032, 034, 038, 068, 075 (1978) 079, 080, 087 (1978)
407✓	174	072, 074, 082, 096 (1978)



407	252	342, (1977), 024, 025, 122 (1978)
407	188	093, 135 (1978)
406	247	325, 326, 332, 333-335, (1977) 048, 055, 058, 097, 110, (1978), 131, 132 (1978)
406	188	089, 119, 136 (1978)
406	174	046, 059, 061 (1978)
410	252	325, 326, 332-335, (1977), 030, 034, (1978) 038, 046, 048, 055, 058, 059, (1978), 068, 072, 074, 075, 079, 080, (1978), 082, 089, 093, 096, 097, 135 (1978)
410	174	342, 343 (1977), 087 (1978)
410	188	100, 107, 108, 110, 111, (1978), 118, 122, 123 (1978)
414	174	100, 102, 104 (1978)
414	247	111, 118 (1978)
414	188	115, 120 (1978)
416	247	107, 108, 136 (1978)
416	252	123, 125, 131, 132 (1978)

In reference to "See Boatsheet" control, positions were plotted on the field sheet by hand at the time of hydrography. Pseudo-position information (R1 and R2) needed for machine plotting this data was directly scaled in meters from the intersection of several latitude and longitude lines (Control Stations 300, 301, 302, 303). These pseudo-ranges were logged onto the master tapes and all soundings between these fixes were interpolated by time and course.

#### H. SHORELINE See Verifier's Report

Shoreline and topographic details were transferred from orthophoto maps TP-00135, 00137, and 00138. Shoreline details were verified by field edit in 1971. No changes in shoreline were noted by the hydrographer, except for a few discrepancies in the configuration of the islands and shoal areas located on the east side of the dredged channel in the active spoil areas. A few of these areas have changed due to continual depth maintenance of the channel. Refer to the final fieldsheet for these areas. Also, the following aids to navigation on the manuscripts TP-00138 were found to be in error; LT (light) 10 is ~~is~~ now LT (light) #5; DBN #8 has been changed to Black Can Buoy #7, LT (Light) #7 was changed to LT (light) #8.

#### ZERO CURVE

The ~~MLW~~ line was not delineated by hydrography due to the very small periodic tidal range (less than 0.2 feet); however, the 3-foot curve was defined in most areas and the 6-foot curve was defined in all areas except the adjacent canals.

#### I. CROSSLINES

Crosslines totaled 46.9 nautical miles or 12.6% of the main scheme soundings. All crosslines compared to main scheme agreed to the nearest foot.

## J. JUNCTIONS

As per PROJECT INSTRUCTIONS, junctions with prior surveys were not required. Junctions were made with the Contemporary Survey AHP-10-2-76 (H-9633) to the south, and HSB-10-1-78 (H-9746) to the north. Soundings agreed to within one foot.

## K. COMPARISONS WITH PRIOR SURVEYS

Comparisons with the prior U.S. Coast Survey Banana River, Florida, H-1415b, yr. 1878, scale 1:20,000 and H-1415a, yr. 1878, scale 1:20,000 show general agreement within two feet, except in areas where dredging has been done, leaving spoil areas or deep holes, and where there has been extensive changes to the shoreline, due to filling and building housing developments. These areas are on the east side of the river around Port Canaveral and on the west side at the southwest corner of the survey. *concur*

Presurvey review items were investigated with the following results:

- ✓ #9 Shoaling reported, charted at Lat.  $28^{\circ}22.53'$ , <sup>Long.</sup>  $80^{\circ}38.97'$  (extending from  $28^{\circ}22.2'$  north to  $28^{\circ}22.93'$ ). Shoal was reported to have 5 and 6-foot depths in an area where the chart has 7 and 8-foot depths. 100 meter east-west main scheme sounding lines were run over the area. ~~The bottom profile was continuously flat, with depths of 7 feet obtained over the entire area. It is recommended that this reported shoaling be deleted from the chart.~~ *Southern portion of area has shoaled to 6-8' depths. Chart as shown on pres. survey.*
- ✓ #12 Dangerous submerged wreck, located at <sup>Lat.</sup>  $28^{\circ}23.33'N$ , <sup>Long.</sup>  $80^{\circ}39.83'W$ . This wreck was verified as a visible wreck; a burned out dredge, baring 2-foot overall with two stacks, baring 2 3/8 feet above water level. (Detached position  $185^{\circ}$ , <sup>Lat.</sup>  $28^{\circ}23'17.8''$ , <sup>Long.</sup>  $80^{\circ}39'41.3''$ ). It is recommended that this wreck be changed from "submerged wreck" to visible wreck on the chart. *concur*
- ✓ #35 Dangerous sunken wreck, charted at <sup>Lat.</sup>  $28^{\circ}22.8'$ , <sup>Long.</sup>  $80^{\circ}37.4'$ . This was reported as a burned 30-foot boat sunk in 2 feet of water. It was verified, DP #4135 ( $28^{\circ}22'48''$ ,  $80^{\circ}37'26''$ ) with the only remains being the engine block, submerged one foot in 2 feet of water. A sign, "DANGER-WRECK", is posted beside the wreck. ~~It is recommended that this remain on the chart.~~ *concur, revise to wreck awash. #35 Wreck located by D.P. 80 meters S.W. of Charted P.A. location. of same LWD*
- ✓ Piling from T-9173-74, charted at Lat.  $28^{\circ}23.5'$ , Long.  $80^{\circ}38.0'$  was found to be the circular metal ruins of a bombing target used by Patrick Air Force Base at one time. The target ranges from 1/2 to 2-1/2 feet above water level. It is recommended that this be charted as "ruins" at  $28^{\circ}23'30.9''$ ,  $80^{\circ}38'00.9''$  (DP #222) instead of a "piling." *concur*
- ✓ #10 Ruins reported at <sup>Lat.</sup>  $28^{\circ}24.46'$ , <sup>Long.</sup>  $80^{\circ}39.64'$  were verified, DP #4184 marks the seaward end of the pier ruins which bares

(3) at sdg. datum

3 inches to 2.5 feet above the water level. ~~It is recommended~~ <sup>Chart</sup> ~~that this be retained on the chart at~~ <sup>Lat. 28°24'28" Long. 80°39'46"5"</sup> ~~Lat. 28°24'28" Long. 80°39'46"5"~~ <sup>shown on present survey</sup> ~~Lat. 28°24'28" Long. 80°39'46"5"~~ <sup>78</sup>

Dolphins from L-659/70 located at <sup>Lat.</sup> 28°24.75' <sup>Long.</sup> 80°38.8'. These were verified as cement dolphins and platforms (DP #1761-1764), all 12 feet above water level and ranging from 6.2 to sixteen feet wide. It is recommended that these ~~remain on the be~~ <sup>be</sup> ~~charted~~ <sup>charted as shown on the</sup> ~~Lat. 28°24'40.89" Long. 80°38'46.18"~~ <sup>present survey.</sup> ~~Lat. 28°24'40.89" Long. 80°38'46.18"~~ <sup>78</sup>

<sup>9</sup> Piling from T-917A-74 charted at <sup>Lat.</sup> 28°25.57' <sup>Long.</sup> 80°37.6'. This was verified as a group of metal I-beam pilings, forming a cross. Detached positions were taken on the most northerly limit, #708, eastern, #709, western end, #710 and on the south #711. There are a total of 11 pilings varying from 2.7 feet <sup>chart as</sup> to 4.0 feet above water level. It is recommended that this <sup>ruins (4)</sup> ~~be retained on the chart at~~ <sup>Lat. 28°25'37.1" Long. 80°37.'33.2"</sup> ~~Lat. 28°25'37.1" Long. 80°37.'33.2"~~ <sup>78</sup> However, the notation should be changed to "ruins" as was described on the shoreline manuscript #TP-00135. <sup>Concur</sup>

✓ #13 Obstruction reported in the center of channel, in vicinity of <sup>Lat.</sup> 28°26' <sup>Long.</sup> 80°39.5'. This channel is narrow and well marked. Field party launches used this channel nearly daily during the last two months of the survey. The obstruction was reported to be submerged 2.5 feet in the Kennedy Space Center Recreational Complex (KARS) entrance channel. This area was thoroughly searched by sweeping the channel with a drag and running sounding lines down the center and sides of the channel. This <sup>(drag)</sup> investigation does not appear in any sounding volume. Nothing was found in this area, <sup>only the</sup> least depth of the channel was found to be <sup>four feet</sup> at the entrance. It is recommended that this obstruction be removed from the chart. <sup>Concur</sup>

Signs from L-1040/63 and L-1573/72 were verified to be a group of several signs outlining the limits of the restricted area that exists on the east side of the Banana River between 528 and NASA Causeways. This area is restricted due to the Home PT complex which incinerates toxic gases. The following is a list of the latitudes and longitudes of the signs which are all approximately 6.5 feet above water level, with a 5 x 3-foot sign supported by two pilings.

<u>DP#</u>	<u>Latitude</u>	<u>Longitude</u>
4433	28°25'46".22	80°36'09".23
4432	28°25'52".00	80°36'24".65
4431	28°25'57".83	80°36'38".23
4725	28°26'11".36	80°37'04".76
4775	28°26'31".05	80°37'24".64
4774	28°26'43".98	80°37'32".58
4773	28°26'55".22	80°37'37".95
4772	28°27'08".25	80°37'41".42
4771	28°27'13".53	80°37'39".92
4770 (6144)	28°27'21".50	80°37'43".48
6143	28°27'35".91	80°37'42".36

6141	28°27'48".7	80°37'41"40.82"	Chart SIGNS as shown on present survey ✓ J.P.S.
6140	28°28'01".38	80°37'36"35.83"	
6137	28°28'13".05	80°37'25"24.64"	
6136	28°28'28"27.51"	80°37'14"13	
6133	28°28'36"46"	80°37'10"09.87"	
6132	28°28'44"47	80°37'01"00.81"	
6130	28°28'53"52.78"	80°36'47"38"	
6127	28°28'54"	80°36'33"02	
6129	28°28'59"25	80°36'35"08	
6128	28°29'02"33	80°36'23"22.69"	
6124	28°29'05"38	80°36'06"05.90"	
6125	28°29'07"06.57"	80°35'33"32.93"	

Recommend the signs be charted from the above data, as far as practical and there is many more than shown on chart. ✓

Dolphin from L-437/69 was verified at <sup>Lat. 28°</sup> 28°30", <sup>Long.</sup> 80°37'11" ✓  
(DP #6134), bearing thirty feet above water level. It is recommended that this be retained on the chart. Lat. 28°28'29.95" Long. 80°37'10.79"  
Concur (TRIPOD of 1-ft. diameter piles) ✓

L. COMPARISON WITH THE CHART See Verifier's Report

This survey was compared with NOAA Chart 11484, (11th Ed., June 4/77), Scale 1:80,000 and Chart 11476 (11th Ed., January 21, 1978), Scale 1:80,000. Soundings from this survey agreed to the nearest foot, with that of the chart, except in a few cases.

Chart 11484 has a 2 foot sounding, at <sup>Lat. 28°</sup> 28°28'12", <sup>Long.</sup> 80°38'27", where the Contemporary Survey has 6 feet (prior survey shows ~~six foot at this position~~). It is recommended that the charted two foot sounding be replaced by the present survey's six foot depth. ✓  
At <sup>Lat. 28°</sup> 28°26'17", <sup>Long.</sup> 80°38'43", a 9 foot depth is charted where 7 foot depths were obtained on the present survey. It is recommended the charted nine foot sounding at this position be replaced by the present survey's seven foot depths. ✓  
Chart depths as shown on present survey. ✓

The Contemporary Survey soundings show the existence of a number of deep holes caused by dredging for land fill: ✓

Latitude	Longitude	Depth of Hole	Previous Depth
28/23/00	80/39/36	12 11	5 ✓
28/22/56	80/39/35	10	5 ✓
28/24/10	80/39/24	20 (EXCESS LEVEL " ")	5 ✓
28/24/05	80/38/48	30 " " "	8 ✓
28/23/30	80/37/18	18 9	2 ✓
28/23/56	80/37/15	21	2 ✓
28/24/24	80/39/32	11	2 ✓
28/24/55	80/38/09	18 17	5 ✓
28/24/05.07	80/38/08.26	20	5 ✓

Private markers charted at <sup>Lat.</sup> 28°23.1', <sup>Long.</sup> 80°39.5' were verified by detached positions 4384-4395, 4397-4400, 4405-4414; the private maintained aids charted at <sup>Lat.</sup> 28°22.7', <sup>Long.</sup> 80°37.53' to <sup>Lat.</sup> 28°22.9', <sup>Long.</sup> 80°36.7' are DP's 4136-4141; and the markers at <sup>Lat.</sup> 28°26.1', <sup>Long.</sup> 80°39.5' were verified with DP's 4290-4291. Retention of these features is recommended with the notation "PA" being deleted from the chart. ✓  
(Chart markers as shown on the present survey) ✓

M. ADEQUACY OF SURVEY

HSB-10-3-76 (H-9665) is a thorough survey of the area covered by the limits of this boatsheet. The Banana River Channel was developed by 50 meter spacing east-west main scheme sounding line. Further sounding lines parallel to the channel's axis were not obtained due to the fact that the channel will be dredged during June, July, and August, 1978. The dredging is being done by the Army Corps of Engineers, Jacksonville office. Copies of the surveys obtained by the Corps, prior to and after the completion of the dredging will be sent to AMC Processing Division, CAM3%. For further information, contact Mr. Bob Hinderson, Army Corps of Engineers, Jacksonville office, FTS-946-2436. Dredging is to be from the Barge Canal north to the NASA Turning Basin, with a controlling depth of 12 feet. *Controlling depth from H-9665 appears to be 7.5-7.75.*

*see Verifier's Report*

The Barge Canal was developed with one sounding line down the center, plus a line along each side, all parallel to the axis of the canal. In addition to these, are the regular east-west main scheme sounding lines and 300 meter spacing north-south sounding lines, perpendicular to the canal axis. *Controlling depth appears to be 10 ft.*

This survey is complete and adequate to supersede prior surveys for charting. All fathogram field survey records were scanned and checked for peaks and deeps, and appropriate changes were made to the original records when necessary.

N. AIDS TO NAVIGATION

Comparison of the aids to navigation to the Light List, Vol. II, 1977, showed the following discrepancies. Day beacons 13, 15, 16, and 17 were described as "pointers on piles." At the time of the survey, Daybeacons 13, 15, and 17 were found to be green squares and 16 to be a red triangle, all on cement piles. All aids to navigation have been found to be adequately positioned for their intended purpose. For further information, refer to NOAA Form 76-40, Landmarks for Charts, included in the separates following the text. *concur*

O. STATISTICS

This survey contains 481 nautical miles of sounding lines covering 18.8 square nautical miles. This data was obtained by the following launches:

<u>Vessel</u>	<u>Nautical Miles</u>	<u>Number of Positions</u>	<u>Bottom Samples</u>
1277	246.2	1852	17
1278	152.2	1111	29
1279	82.6	1019	11

Refer to the Abstract of Positions in the separates following the text for further information concerning statistics.

P. MISCELLANEOUS

The Banana River has a periodic tidal range of less than 0.2 ft., thus predicted tides were not applied to the smooth field sheets, however, launch personnel observed non-periodic water level changes of up to 1.5-feet within the project area. This has caused minor problems when drawing the 3 and 6 foot depth curves as can be seen on the smooth field sheets. It was noted that the water level was higher than normal on the following days: JD 313-319, 332-335, 343, 093, 097, 125, and 131-132. The water level was observed to be lower on JD 080 and 104. *Corrections in the Print-outs under "tide correctors" reflected water level differences JPS*  
*WATER LEVEL CORRECTIONS APPLIED TO SDGS IN THE PRINTOUT, UNDER TIDE CORRECTION, WAS MINUS 1.4 FT TO PLUS 0.2 FEET*

Electronic positioning lattices were not drawn on the final field sheet due to the large number of different networks used.

It should be noted that the speed on Launch 1278 gradually increased by itself when running, causing slight changes in spacing of soundings. Since the RPM's would only increase to a maximum of 1100 RPM's before being noticed by launch personnel, there wasn't any change in settlement and squat corrections.

The sounding volumes were usually kept with one vessel per volume and the days in consecutive order, however, there were a few exceptions. In Vol. #3, JD 324, soundings were obtained in the Boston Whaler, 1279, whereas the rest of the volume contains 1278's data. Also, Vol. #6 and #7, have days of hydro out of order, this was to minimize field processing time.

It should also be noted that during the 1977-78 season, Launch 1277 had continual problems with her Onan generator fluctuating the output frequency. The frequency would change from 58 to 63 CPS, thus causing the high speed reader to read tapes wrong, and then punch them wrong. When plotting off line, master format errors were constantly being read, thus making it difficult to determine whether the error was actually on the punched tape, or when the computer read the tape, prior to plotting. However, to minimize problems with these tapes, all master and corrector tapes were read through RK 330 on Hydrographic Field Party #3 computer.

Q. RECOMMENDATIONS

None

R. AUTOMATED DATA PROCESSING

Data acquisition and processing was accomplished as per instructions in the Hydrographic Manual, 4th Ed., and the AMC Manual. Sounding and position data were obtained by both

the Hydrolog/Hydroplot system utilizing computer program RK111 and manually recording in sounding volumes and all data transferred to master tapes using a manual logger, AM602 (Elinore) and RK330 (Reformat and Data Check).

For each master tape there is a corresponding corrector tape which includes the vessel's TRA and the Del Norte daily electronic correctors, along with all depth corrections including missed depths, peaks, deeps and time and course corrections for Del Norte busts.

Computer programs used during this survey are included in the following list of programs:

<u>Program</u>	<u>Name</u>	<u>Version Date</u>
RK111	Range-Range Real Time Hydroplot	1/30/76
RK201	Grid, Signal & Lattice Plot	4/18/75
RK211	Range-Range Non Real Time Plot	1/15/76
RK212	Visual Station Table Load	4/01/74
RK216	Range/Azimuth Non Real Time Plot	2/05/76
RK300	Utility	2/05/76
RK330	Reformat and Data Check	5/04/76
PM360	Electronic Corrector Abstract	3/21/74
AM401	Mercator Conversion	4/01/73
RK407	Geodetic Direct/Inverse	10/23/75
AM602	Elinore	5/21/75

#### S. REFERENCES TO REPORTS

Horizontal Control Report OPR-499, Banana and Indian Rivers, Florida, 1976.

Supplemental Report to Horizontal Control Report, OPR-499, Banana and Indian Rivers, Florida, March, 1977.

Descriptive Report, OPR-499, Banana and Indian Rivers, Florida, H-9633, AHP-10-2-76.

Descriptive Report, OPR-G207, Banana and Indian Rivers, Florida, H-9746, HSB-10-1-78.

Control Report, OPR-G207-HFP-78, Banana and Indian Rivers, Florida, March, 1978.

Respectfully submitted,

*Robert Lewis*  
for Kathryn Andreen  
Lt., NOAA  
OIC, HFP #2



**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
 NATIONAL OCEAN SURVEY  
 Hydrographic Surveys Branch  
 439 W. York Street  
 Norfolk, Virginia 23510

June 6, 1978

CAM11/RAL

TO: Chief, Tides Branch, C331  
 FROM: *Robert Lewis*  
 LCDR Thomas W. Richards  
 Chief, HSB

SUBJECT: Request for Tide Data

Please furnish tide data to AMC Processing Division for Survey H-9665 (HSB-10-3-76), Project OPR-499-AHP-76 (G207-HFP-78).

See enclosed field tide note and chartlet for gages operated and survey area.

The following times of hydrography include two hours before and after actual times:

<u>J.D. 1976</u>	<u>Hydro Begins (GMT)</u>	<u>Hydro Ends (GMT)</u>
310	1300	2200
314	1200	2300
316	1200	2100
<u>1977</u>		
313	1600	2300
314	1300	1900
318	1300	2300
319	1500	2100
320	1300	2300
322	1500	2100
324	1500	2200
325	1500	2200
326	1300	2200
332	1500	2200
333	1300	2300
334	1500	2300
335	1200	2300
343	1300	2000
347	1400	2300
349	1400	2000





-3 -2 (Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shallow.) 0 1 2 3 4 5 6 7 8 9 #1

CORRECTIONS IN FEET, FATHOMS

NOAA FORM 5-21  
139-721

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC SURVEY

VELOCITY CORRECTIONS

Ship NOAA LAUNCH 277  
K ANDREEN Comdr

These corrections are to be used  
between 25 JUNE 1976 and 1 APRIL 1977  
in the locality BANANA RIVER, FLORIDA

for hydrographic surveys Nos. H-9633 + H-9665

(For deep water add a 0 to these figures)

DEPTH CORRECTION  
DEPTH IN FATHOMS  
FEET

Table No. 1

DEPTHS	CORRECTIONS
0-1.8	-4
1.9-7.3	-2
7.4-12.8	0
12.9-18.5	2
18.6-24.0	4
24.1-29.5	6
29.6-35.0	8
35.1-40.5	10
40.6-	12

Drawn by KA  
V = RL

(33)

25

Settlement of Sewer  
 LAUNCH 1271  
 June 17 1978  
 SAVANNAH RIVER, FLORIDA

Abstract of Settlement of Spout

RPM's	Corrosion
0 - 1590	0.0
1897 - 2070	10.2
2071 - 2296	10.7
2297 -	10.6

6  
5  
4  
3  
2  
1  
0

CONCENTRATIONS (PERCENT)

0 500 1000 1500 2000 2500

RPM's

SETTLEMENT AND SQUAT

LAUNCH 1278

NOV 10 1977

Abstract of Settlement and Squat

RPM	CORRECTION (%)
0-1075	0
1176-2275	2
2276-2499	8
2500-2658	2
2659-2875	0
2876-3000	13
3000-	17

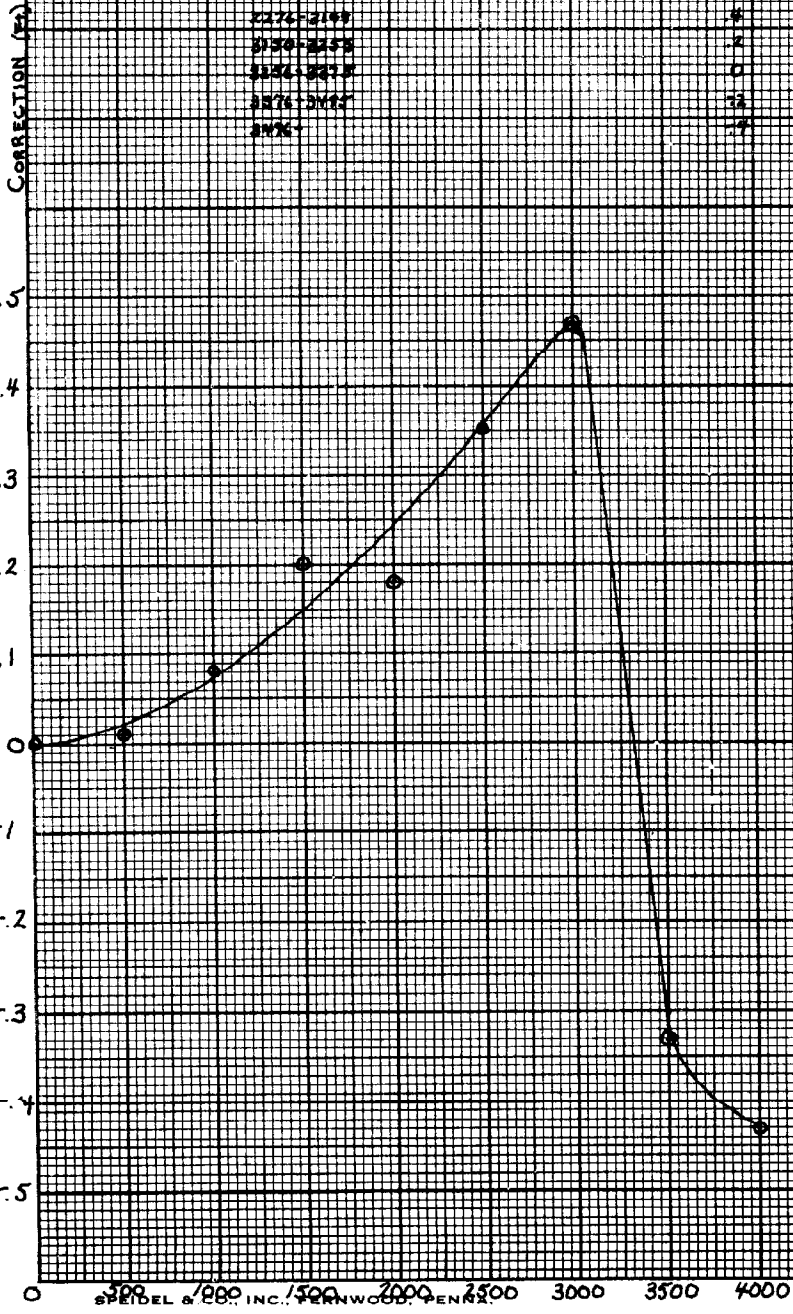
CORRECTION (%)

0.5  
0.4  
0.3  
0.2  
0.1  
0  
-0.1  
-0.2  
-0.3  
-0.4  
-0.5

0 500 1000 1500 2000 2500 3000 3500 4000

SPEIDEL & CO., INC., FERNWOOD, PENNSA  
20X20 TO THE INCH 5, 10, 20TH LINE ACCENTED

RPM - 39-



SIGNAL LISTING

HSB-10-3-76

H 9665

OPR-499

BANANA RIVER, FLA.

001	28	28	41687	080	38	451540	139	0000	000000	Paxton, 1960
158	4	28	21	36710	080	39	13196	254	0000	000000 Tank 1, 1976✓
164	4	28	22	57900	080	39	41581	254	0000	000000 Mound, 1976✓
166	4	28	21	52345	080	38	57224	243	0000	000000 DBN 28, 1976 NOT USED (NOT ON SURVEY LIMITS)
168	4	28	21	38161	080	37	27082	254	0000	000000 Hospital 1, 1976✓
174	4	28	23	29638	080	37	09381	254	0000	000000 Turtle, 1976✓
176	2	28	21	47781	080	37	14007	243	0000	000000 DBN 18 (South of 528), 1976 NOT
300	2	28	23	30000	080	39	30000	<del>243</del> <sup>54</sup>	0000	000000 SBS* } girld intersections
301	2	28	22	30000	080	39	30000	<del>243</del> <sup>54</sup>	0000	000000 SBS* }
302	2	28	23	00000	080	39	30000	<del>243</del> <sup>54</sup>	0000	000000 SBS* }
303	2	28	24	00000	080	39	30000	<del>243</del> <sup>54</sup>	0000	000000 SBS* }
400	4	28	24	31348	080	38	32262	254	0000	000000 Locks, 1976
402	6	28	24	23406	080	39	35098	254	0000	000000 Waste 2, 1976✓
406	6	28	25	06762	080	37	44815	254	0000	000000 Storage 1 (SL), 1976✓
407	6	28	25	06762	080	37	45000	254	0000	000000 Storage 1 (Ecc), 1977**✓
408	2	28	25	31492	080	38	36825	<del>243</del> <sup>50</sup>	0000	000000 DBN 16 (North of 528), 1976✓
410	0	28	26	05070	080	39	29989	254	0000	000000 Audubon, 1976
414	6	28	25	07622	080	36	27030	254	0000	000000 Storage 2 (S2), 1976✓
416	3	28	28	41033	080	38	44878	254	0000	000000 PNO1, 1978***✓
426	2	28	28	05870	080	37	56049	<del>243</del> <sup>50</sup>	0000	000000 DBN 24, 1976
436	0	28	27	41930	080	38	09118	<del>243</del> <sup>50</sup>	0000	000000 DBN 23, 1977✓
438	2	28	26	25035	080	38	31216	<del>243</del> <sup>50</sup>	0000	000000 DBN 18, 1977✓

Refer to Section F, for information on \*, \*\*, \*\*\* stations

ECCENTRIC STATION COMPUTATIONS

RK407

STORAGE (ECC) #407

QUADRANT(NE/NW/SE/SW)?NW

DIRECT OR INVERSE(D/I)?D

DIRECT COMPUTATION

FROM STATION = STORAGE 1

LATITUDE = 028/25/06.762<sup>-</sup>

LONGITUDE = 080/37/44.815<sup>-</sup>

DISTANCE = 5.03<sup>-</sup>

FWD AZIMUTH = 090/00/00<sup>-</sup>

TO STATION = STORAGE 1 (ECC)

LATITUDE = 28/25/06.7620

LONGITUDE = 80/37/44.9998

BCK AZIMUTH = 269/59/59.9119

FROM STATION =

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

## NONFLOATING AIDS OR LANDMARKS FOR CHARTS

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

TO BE CHARTED  
 TO BE REVISED  
 TO BE DELETED

REPORTING UNIT (If field Party, Ship or Office)  
 NOAA LAUNCH - 1277

STATE  
 FLORIDA

LOCALITY  
 BANANA RIVER

DATE  
 3/77

The following objects HAVE  HAVE NOT  been inspected from seaward to determine their value as landmarks.  
 SURVEY NUMBER  
 H-9665

OPR PROJECT NO.  
 4199

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION		METHOD AND DATE OF LOCATION (See instructions on reverse side)	CHARTS AFFECTED
		DATUM			
		LATITUDE D.M. Meters	LONGITUDE D.P. Meters		
LT # 5 ✓	LIGHT #5 Fl. G, 4S (SG) DAYMARK ON DOLPHIN GREEN REFLECTOR	28 24	80 38	F-3-6-L 3-77	
DBN 13 ✓	DAYBEACON #13 (SG) GREEN REFLECTOR SG ON PILE	28 24	80 38	F-3-6-L 3-77	
DBN 15 ✓	DAYBEACON #15 (SG) GREEN REFLECTOR SG ON PILE	28 25	80 38	F-3-6-L 3-77	
DBN 16 ✓	DAYBEACON #16 (TR) RED REFLECTOR TR ON PILE	28 25	80 38	F-3-6-L 8-76	
DBN 17 ✓	DAYBEACON #17 (SG) GREEN REFLECTOR SG ON PILE	28 25	80 38	F-3-6-L 3-77	
DBN 18 ✓	DAYBEACON #18 (TR) RED REFLECTOR TR ON PILE	28 26	80 38	F-3-6-L 3-77	
LT # 19 ✓	LIGHT #19 Fl. W, 4S (SG) DAYMARK ON DOLPHIN GREEN REFLECTOR	28 26	80 38	F-3-6-L 3-77	
DBN 20 ✓	DAYBEACON #20 RED REFLECTOR TR ON PILE	28 26	80 38	F-3-6-L 8-76	
DBN 22 ✓	DAYBEACON #22 RED REFLECTOR TR ON PILE	28 27	80 38	F-3-6-L 3-77	
DBN 23 ✓	DAYBEACON #23 GREEN REFLECTOR SG ON PILE	28 27	80 38	F-3-6-L 3-77	

ORIGINATING ACTIVITY  
 HYDROGRAPHIC PARTY  
 GEODETIC PARTY  
 PHOTO FIELD PARTY  
 COMPILATION ACTIVITY  
 FINAL REVIEWER  
 QUALITY CONTROL & REVIEW GRP.  
 COAST PILOT BRANCH  
 (See reverse for responsible personnel)

RESPONSIBLE PERSONNEL		ORIGINATOR
TYPE OF ACTION	NAME	
OBJECTS INSPECTED FROM SEAWARD	DEBRA ASZLE, LT. NOAA PHOTO PARTY 41	<input checked="" type="checkbox"/> PHOTO FIELD PARTY <input type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
POSITIONS DETERMINED AND/OR VERIFIED	DEBRA ASZLE, LT. NOAA PHOTO PARTY 41	FIELD ACTIVITY REPRESENTATIVE OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		<input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE
<b>INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'</b> (Consult Photogrammetric Instructions No. 64, FIELD (Cont'd))		
<p><b>OFFICE</b></p> <p><b>I. OFFICE IDENTIFIED AND LOCATED OBJECTS</b>            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</p> <p><b>FIELD</b></p> <p><b>II. NEW POSITION DETERMINED OR VERIFIED</b>            Enter the applicable data by symbols as follows:            F - Field            L - Located            V - Verified            1 - Triangulation            2 - Traverse            3 - Intersection            4 - Resection</p> <p><b>A. Field positions* require entry of method of location and date of field work.</b>            EXAMPLE: F-2-6-L            8-12-75</p> <p><b>*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.</b></p>		
<p><b>III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH</b>            Enter 'V-Vis.' and date.            EXAMPLE: V-Vis.            8-12-75</p> <p><b>**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.</b></p>		
<p><b>FIELD (Cont'd)</b></p> <p><b>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.</b>            EXAMPLE: P-8-V            8-12-75            74L(C)2982</p> <p><b>II. TRIANGULATION STATION RECOVERED</b>            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</p>		





RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	DEBRA ASTLE, LT NOAA PHOTO PARTY 61
POSITIONS DETERMINED AND/OR VERIFIED	DEBRA ASTLE, LT NOAA PHOTO PARTY 61
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'  
 (Consult Photogrammetric Instructions No. 64.)

OFFICE	FIELD (Cont'd)
<p><b>I. OFFICE IDENTIFIED AND LOCATED OBJECTS</b>            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</p>	<p><b>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.</b>            EXAMPLE: P-8-V            8-12-75            74L(C)2982</p>
<p><b>FIELD</b></p> <p><b>I. NEW POSITION DETERMINED OR VERIFIED</b>            Enter the applicable data by symbols as follows:            F - Field            L - Located            V - Verified            1 - Triangulation            2 - Traverse            3 - Intersection            4 - Resection</p> <p><b>A. Field positions* require entry of method of location and date of field work.</b>            EXAMPLE: F-2-6-L            8-12-75</p> <p><b>*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.</b></p>	<p><b>II. TRIANGULATION STATION RECOVERED</b>            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</p> <p><b>III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH</b>            Enter 'V-Vis.' and date.            EXAMPLE: V-Vis.            8-12-75</p> <p><b>**PHOTOGAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.</b></p>

APPROVAL SHEET

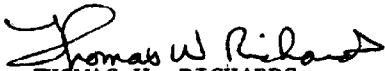
SURVEY H-9665 (HSB 10-3-76)

The hydrographic records transmitted with this report when supplemented by the Corps of Engineers dredge survey mentioned in section "M" are complete and adequate to supersede prior surveys for charting.

The survey is thorough and extremely well documented. The hydrographer should be proud of her work. No additional field work in this area is recommended.

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

Approved and forwarded,



THOMAS W. RICHARDS

LCDR, NOAA

Chief, Hydrographic Surveys Branch

H-9665 (HSB-10-3-76)

FIELD TIDE NOTE

Predicted tide correctors were not applied to the sounding data due to a periodic tidal range of less than 0.2 feet. It should be noted that launch personnel observed non-periodic water level changes of up to 1.5 feet within the project area.

The only tide gage installed for the project was at the Canaveral Locks, #872-1609. It was installed on 4 Nov., 1977 and removed on the 22 May, 1978. The location of the Stevens ADR gage was  $28^{\circ} 24.5'$ ,  $80^{\circ} 38.3'$ , leveled on the 7th of Nov., 1977 and also when removed on the 22nd of May, 1978.

The gage values were set 10 ft. higher than the staff values, with the time first set to GMT, however, later set to EST and then to EDT due to observers having difficulty in changing times to GMT. Tide observations were made by the Cape Canaveral Locks personnel and HFP #2 personnel. All records were sent to Rockville, Tides and Water Levels Branch. All gages operated well during the period of operations.

#2

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6  
 -0.4 -0.2 (For 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal)

CORRECTIONS IN FEET, FATHOMS

NOAA FORM 75-21 U.S. DEPARTMENT OF COMMERCE  
 (10-72) NOAA  
 NATIONAL OCEAN SURVEY

**VELOCITY CORRECTIONS**

Ship NOAA LAUNCH 1277 (MFA#2)

K. ANDRESEN LT Comdg.

These corrections are to be used  
 between 24 JAN (1963) 19 78 and 15 MAY (1963) 19 78  
 in the locality BANANA RIVER, FLA

for hydrographic surveys Nos. MSB 10-3-76  
H-9005

(For deep water add a 0 to these figures)

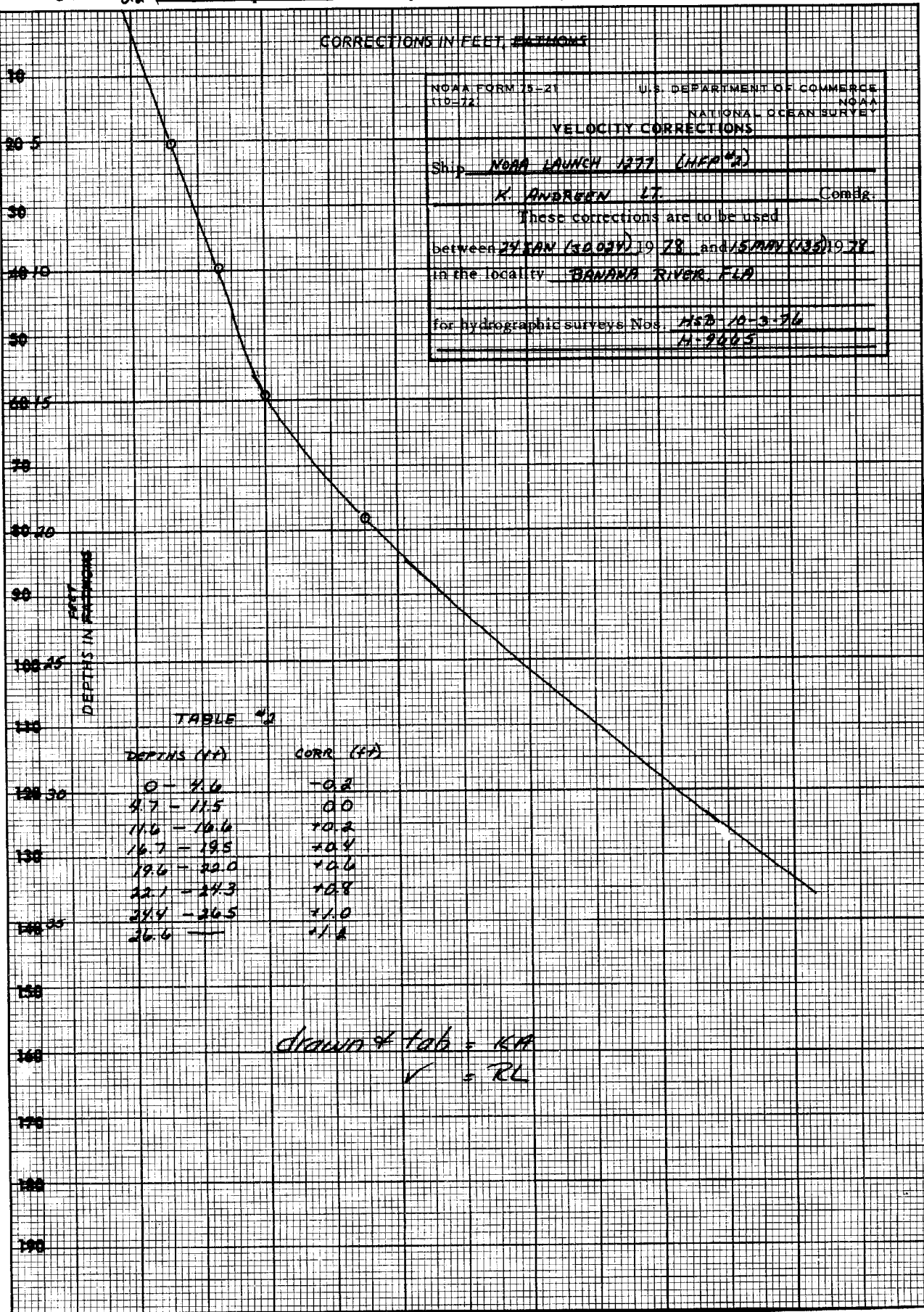


TABLE #1

DEPTH (F)	CORR (F)
0 - 4.6	-0.2
4.7 - 11.5	0.0
11.6 - 16.6	+0.2
16.7 - 19.5	+0.4
19.6 - 22.0	+0.6
22.1 - 24.3	+0.8
24.4 - 26.5	+1.0
26.6 -	+1.2

drawn & tab = KA  
 ✓ RL

-0.2 0.0 (Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.) 0.2 0.4 0.6 0.8 1.0

CORRECTIONS IN FEET, FATHOMS

NOAA FORM 75-21 U.S. DEPARTMENT OF COMMERCE  
 11-741 NOAA  
 NATIONAL OCEAN SURVEY

VELOCITY CORRECTIONS

Ship NOAA LAUNCH 1479 (CHP #2)

K. ANDREEN, LT Comdg

These corrections are to be used \*

between 9 NOV (SD 313) 1977 and 5 MAY (123) 1978

in the locality BANANA RIVER, FLA

for hydrographic surveys Nos. HSB-10-3-76  
H-9115

\* THIS DOES NOT INCLUDE SD 326 (1977),  
 SD 896 - SD 108 (1978) REFER TO  
 VELOCITY CURVE #4

TABLE #3

DEPTH (F)	CORR (F)
0.0 - 2.5	-0.4
2.6 - 5.1	-0.2
5.2 - 10.9	0.0
10.9 - 19.3	+0.2
19.4 - 23.0	+0.4
23.1 - 26.0	+0.6
26.1 - 28.7	+0.8
28.8 - 31.0	+1.0

5  
10  
15  
20  
25  
30  
35  
45  
50

DEPTH IN FATHOMS

For deep water add a 0 to these figures

drawn & Tab - KR  
 ✓ RL

-0.2 0.2 0.4 0.6 0.8 1.0  
 0.0 (Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)

CORRECTIONS IN FEET, FATHOMS

NOAA FORM 25-21 U.S. DEPARTMENT OF COMMERCE  
 10-72 NOAA  
 NATIONAL OCEAN SURVEY

**VELOCITY CORRECTIONS**

Ship NOAA LAUNCH 1978 (LFR#2)

K. ANDREEN, LT Comdr.

These corrections are to be used for SB 344  
11 NOV 1978 and

between 6 APR (SD 096) 1978 and 19 APR (108) 1978  
 in the locality BANANA RIVER, FLA.

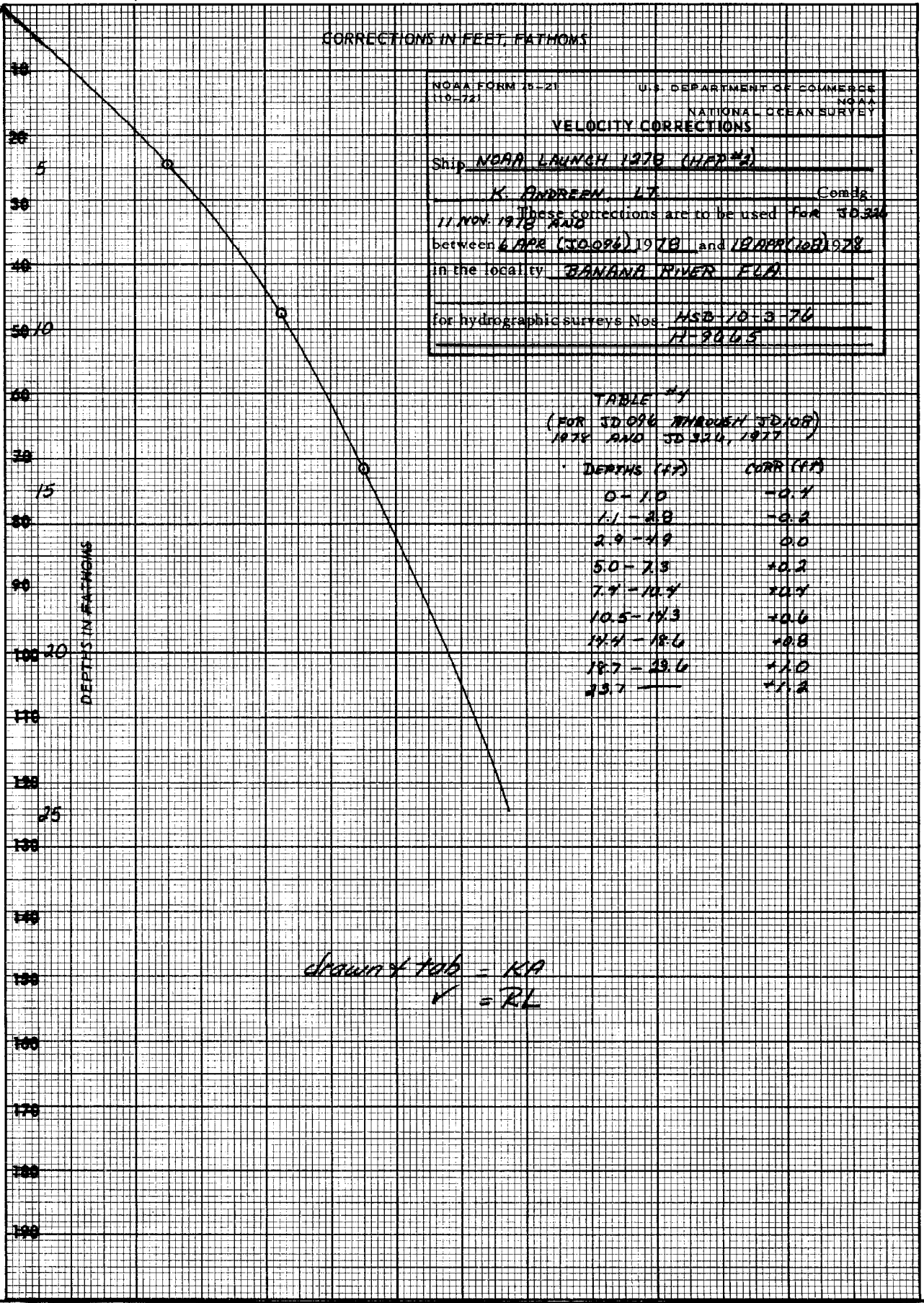
for hydrographic surveys Nos. HSB-10-3-78  
H-9065

TABLE #1  
 (FOR SD 096 THROUGH SD 108)  
 1978 AND SB 344, 1978

DEPTH (FT)	CORR (FT)
0-10	-0.1
1.1-2.9	-0.2
2.9-4.9	0.0
5.0-7.3	+0.2
7.4-10.4	+0.4
10.5-14.3	+0.6
14.4-18.6	+0.8
18.7-23.6	+1.0
23.7 -	+1.2

(For deep water add a 0 to these figures)

DEPTH IN FATHOMS



drawn by tab - KP  
 ✓ = RL

KE 20 X 20 TO THE INCH 46 1240  
 MADE IN U.S.A.  
 KEUFFEL & ESSER CO.

-0.2 0.0 0.2 0.4 0.6 0.8 1.0 1.2  
 (For 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal)

CORRECTIONS IN FEET, FATHOMS

NOAA FORM 75-21  
 110-72 U.S. DEPARTMENT OF COMMERCE  
 NOAA NATIONAL OCEAN SURVEY

VELOCITY CORRECTIONS

Ship HFP #2 - BOSTON WHALER (1278) Comdg.  
R. ANDREEN LT

These corrections are to be used \*  
 between 20 NOV (5033Z) 1977 and 17 MAY (03Z) 1978  
 in the locality BANANA RIVER, FLA

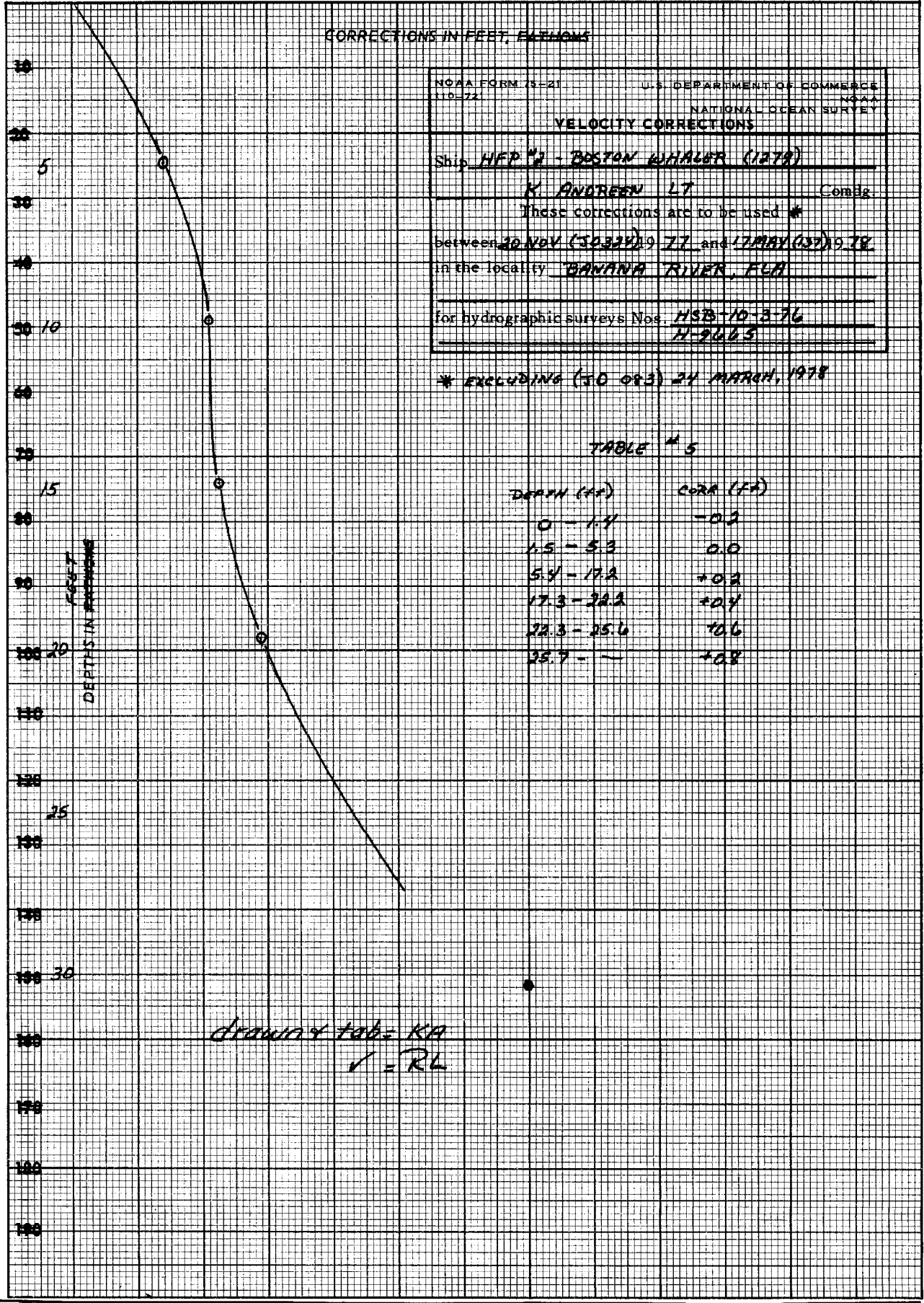
for hydrographic surveys Nos. HSB-10-3-76  
H-9003

\* EXCLUDING (30 083) 21 MARCH, 1978

TABLE # 5

DEPTH (FT)	CORR (FT)
0 - 1.4	-0.2
1.5 - 5.3	0.0
5.4 - 17.2	+0.2
17.3 - 22.2	+0.4
22.3 - 25.6	+0.6
25.7 -	+0.8

(For deep water add a 0 to these figures)



drawn & tab. KA  
 ✓ = RL

0.2 0.4 0.6 0.8 1.0 1.2  
 -0.2 0.0 (Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)

CORRECTIONS IN FEET, FATHOMS

NOAA FORM 75-21 (10-72) U.S. DEPARTMENT OF COMMERCE  
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
 NATIONAL OCEAN SURVEY

VELOCITY CORRECTIONS

Ship HFP #2 - BOSTON WHALER (1279)

R. ANDREEM LT Comdg.

These corrections are to be used  
 between 24 MAR (50083) 07 and 10  
 in the locality BANANA RIVER, FLA

for hydrographic surveys Nos. MSB-10-3-76  
17-9065

TABLE #6  
 (FOR 50083 ONLY)

DEPTH (FT)	CORR. (FT)
0 - 1.6	+0.2
1.7 - 4.3	+0.4
4.4 - 8.0	+0.6
8.1 - 11.7	+0.8
11.8 -	+1.0

(For deep water add a 0 to these figures)

DEPTH IN FATHOMS

drawn & tab = KA  
 ✓ = RL



VELOCITY TABLES

800018 1 0004 0001 000 127700 009665

000073 1 0002

000128 0 0000

000185 0 0002

000240 0 0004

000295 0 0006

999999 0 0006

000046 1 0002 0002 000 127700 009665

000115 0 0000

000166 0 0002

000195 0 0004

000220 0 0006

000243 0 0008

000265 0 0010

999999 0 0012

000025 1 0004 0003 000 127800 009665

000051 1 0002

000108 0 0000

000193 0 0002

000230 0 0004

000260 0 0006

000287 0 0008

000310 0 0010

999999 0 0010

VELOCITY TABLES

000010 1 0004 0004 000 127800 009665

000028 1 0002

000049 0 0000

000073 0 0002

000104 0 0004

000143 0 0006

000186 0 0008

000236 0 0010

999999 0 0012

000014 1 0002 0005 000 127900 009665

000053 0 0000

000172 0 0002

000222 0 0004

000256 0 0006

999999 0 0008

000016 0 0002 0006 000 127900 009665

000045 0 0004

000080 0 0006

000141 0 0008

999999 0 0010

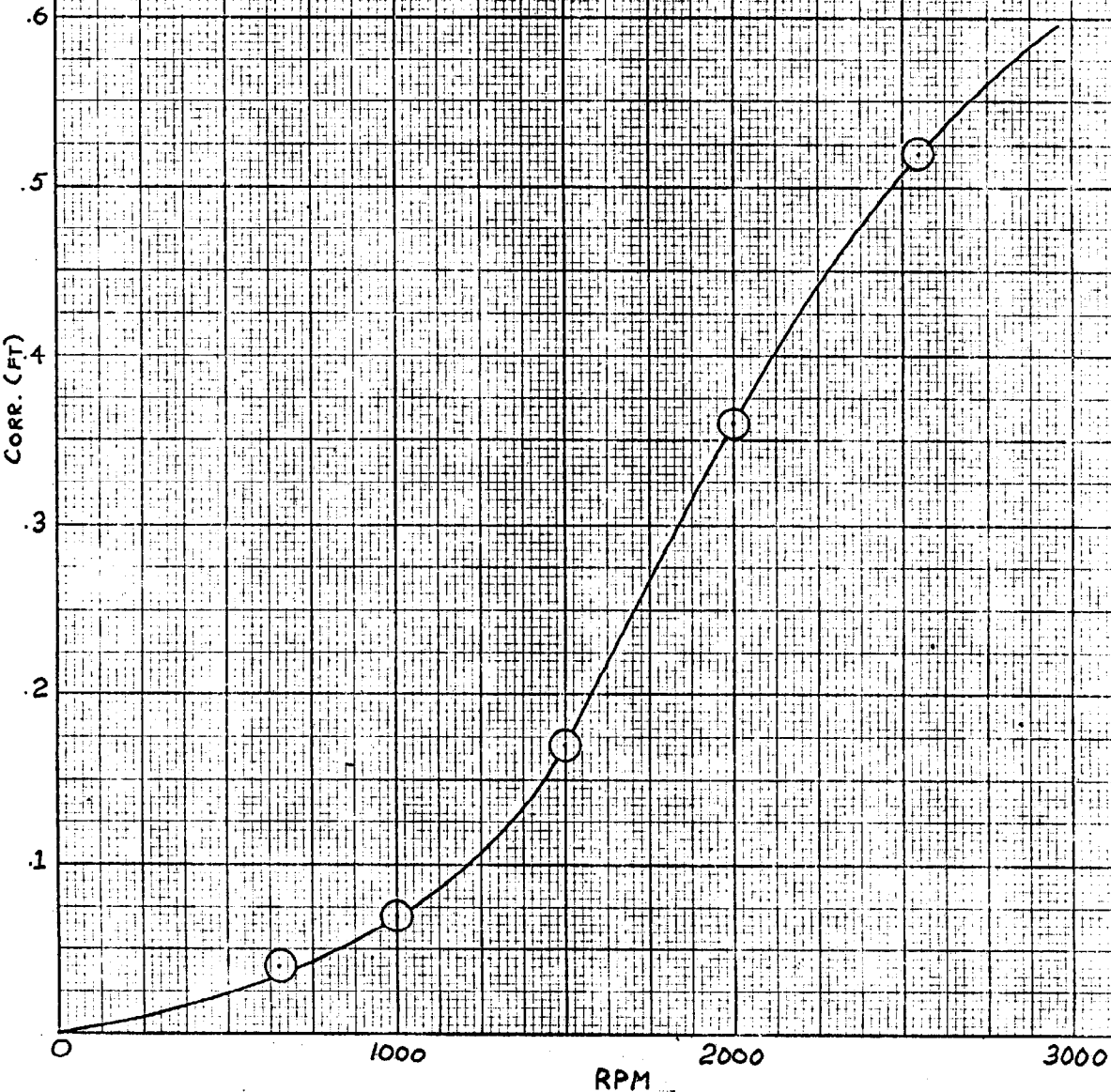
SETTLEMENT SQUAT

LAUNCH 1277

7 MAY 76

ABSTRACT

RPM	CORRECTION (FT)
0-1200	0.0
1201-1825	+0.2
1826-2475	+0.4
2476-2550	+0.6



KE 20 X 20 TO THE INCH 116 12-30  
7 X 10 INCHES MAD. S.A.  
KEUFFEL & ESSER CO.

July 19, 1978

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): 872-1609 Cape Canaveral Locks, Fl.

Period: November 5-11, 1976 and November 9, 1977 - May 16, 1978

HYDROGRAPHIC SHEET: H-9665

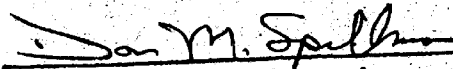
OPR: 499

Locality: Banana River, Florida

Plane of reference (low water datum):  
(~~mean-lower-low-water~~): 2.46 ft.

Height of Mean High Water above Plane of Reference is  
1.0 ft. - figure determined during quality control  
inspection for the compiler's  
Remarks: Zone direct need.

J.P.S.

  
Chief, Tides Branch

85

H-9665

GEOGRAPHIC NAMES

Name on Survey	Source of Name									
	A	B	C	D	E	F	G	H	K	
	ON CHART NO.	ON PREVIOUS SURVEY NO.	ON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP	RANDOMLY	U.S. LIGHT LIST		
Audubon ✓	11478									1
Banana River ✓	11478									2
<del>CANAVERAL</del> Barge Canal ✓	11478									3
Memorial Bennett Causeway ✓	11478									4
Cactus Point ✓	TP-00135									5
Canaveral Peninsula ✓	11484									5
Cape Canaveral (Cp) ✓	11478									6
Duck Point ✓	11484									7
Duck Pond ✓	11484									8
Home Point ✓	11484									9
Long Point ✓	11484									10
Merritt Island ✓	11484									11
Port Canaveral ✓	11484									12
Middle Point ✓	TP-00135									12
Quarterman Cove ✓	TP-00135									13
Hall Island ✓	11484									14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25

Approved:


*Chas. E. Houghton*  
Chief Geographer - C375

17 April 1979

APPROVAL SHEET  
FOR  
SURVEY H- 9665

- A. All revisions and additions made on the smooth sheet during verification have been entered in the magnetic tape records for this survey. A new final position printout has/~~has not~~ been made. A new final sounding printout has/~~has not~~ been made.
- B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic Manual. Exceptions are listed in the Verifier's Report.

Date: 2/9/79

Signed: 

Title: Chief, Verification Branch

HYDROGRAPHIC SURVEY STATISTICS

H-9665

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	BOAT SHEETS & PRELIMINARY OVERLAYS	11
DESCRIPTIVE REPORT	1	SMOOTH OVERLAYS: POS. ARC, EXCESS	3

DESCRIP-TION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES						1-misc. data
CAHIERS	5-w/ printouts					
VOLUMES	14					
BOXES						

T-SHEET PRINTS (List) (DO-file No. 90-32,579) 1 thru 18

SPECIAL REPORTS (List) After Dredging Survey (DO-file No. 90-32,839) 1 thru

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

PROCESSING ACTIVITY	AMOUNTS		
	PRE-VERIFICATION	VERIFICATION	TOTALS
POSITIONS ON SHEET			3982
POSITIONS CHECKED		39	
POSITIONS REVISED		20	
SOUNDINGS REVISED		50	
SOUNDINGS ERRONEOUSLY SPACED		-	
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED		-	
	TIME - HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	2		
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS		96	
VERIFICATION OF SOUNDINGS		168	
COMPILATION OF SMOOTH SHEET		35	
APPLICATION OF TOPOGRAPHY		12	
APPLICATION OF PHOTOBATHYMETRY		-	
JUNCTIONS		4	
COMPARISON WITH PRIOR SURVEYS & CHARTS		8	
VERIFIER'S REPORT		12	
OTHER		-	
	2		
<b>TOTALS</b>	<b>2</b>	<b>335</b>	<b>337</b>

Pre-Verification by <b>K. R. Ainsley</b>	Beginning Date <b>07/27/78</b>	Ending Date <b>07/27/78</b>
Verification by <b>F. P. Cram</b>	Beginning Date <b>08/15/78</b>	Ending Date <b>08/30/79</b>
Verification by <b>H. R. Smith</b>	Time (Hours) <b>6</b>	Date <b>01/31/79</b>
Map Scale Inspection by <b>Hydrographic Inspection Team (AMC)</b>	Time (Hours) <b>18</b>	Date <b>02/07/79</b>
Quality Control Inspection by <b>F. P. SAULSBURY</b>	Time (Hours) <b>109</b>	Date <b>4/16/79</b>
Requirements Evaluation by <b>B. P. Smith</b>	Time (Hours) <b>5</b>	Date <b>6/26/79</b>

*B. P. Smith 5-1-79 11ms*

Reg. No. H-9665

The Computer and Excess Sounding cards for this survey have not been corrected to reflect the changes made to the Computer Card and Excess Card Printouts at this time of the review.

When the cards have been updated to reflect the final results of the survey the following shall be completed:

CARDS CORRECTED

DATE \_\_\_\_\_ TIME REQ'D \_\_\_\_\_ INITIALS \_\_\_\_\_

REMARKS:

Reg. No. 9665

The magnetic tape containing the data for this survey has not been corrected to reflect the changes made during evaluation and review.

When the magnetic tape has been updated to reflect the final results of the survey, the following shall be completed:

MAGNETIC TAPE CORRECTED

DATE 10-13-82 TIME REQ'D \_\_\_\_\_ INITIALS JAC

REMARKS:



ATLANTIC MARINE CENTER  
VERIFIER'S REPORT

REGISTRY NO. H-9665

FIELD NO. HSB-10-3-76

Florida, Banana River, Cape Canaveral

SURVEYED: November 5, 1976 through May 16, 1978

SCALE: 1:10,000

PROJECT: OPR-499

SOUNDINGS: DE-723, DE-723D, DE-719B  
Sounding Pole

CONTROL: Del-Norte  
(Range-Range)  
& Range Azimuth  
(Del-Norte &  
Theodolite T-2),  
See Boatsheet.

Chief of Party ..... T. Richards  
Surveyed by ..... K. Andreen  
..... W. Sprye  
Automated Plot by ..... XYNETICS 1200 Plotter (AMC)  
Verified and Inked by ..... L. G. Cram  
January 30, 1979

1. Introduction

a. The sounding datum in this area is called <sup>Low Water Datum</sup> ~~Indian River~~  
~~Florida Low Water~~. Tidal conditions are such that Mean Low  
Water is not definable. Elevations of features seaward of the  
shoreline such as piles, etc. are referenced to Low Water and  
descriptions appended are shown in slanted lettering. Most  
features a foot or more above Low Water are exposed during  
high water conditions which may occur in this area due to  
atmospheric conditions. The high water line shown on this  
survey is for the most part a Mean Water Level line and the  
Coastal Zone Maps used in this area should be consulted to deter-  
mine the various lines. Elevations shown on this survey for  
landmarks originating with the Coastal Zone Maps are shown as  
indicated on these maps.

b. Some changes were made in red ink in the Descriptive  
Report by the verifier at the time of verification. *also during* ✓  
*Q.C.I.*

2. Control and Shoreline

a. The source of control is adequately described in the  
Descriptive Report. However, some of the control established  
by Photo Party 61 while located by 3rd order methods was not  
permanently marked and was shown on the smooth sheet using ✓  
cartographic code 243 rather than code 250. Control stations  
300 through 303 are ~~gnd~~ <sup>gnd</sup> in sections and were used only to  
convert "See Boatsheet Soundings" into the automated data

processing system.

b. The shoreline application was made from Coastal Zone Maps TP-00135, TP-00137, TP-00138 of 1969-70-71. There were three problems encountered with application of the shoreline. It was necessary to adjust the maps when transferring shoreline between two different maps. It appeared the junctions between these maps are not in agreement. There is a sign on TP-00135 in latitude  $28^{\circ}26'18''$ , longitude  $80^{\circ}37'12''$ . The position of this sign does not agree with any of the signs located by the field. Recommend that Quality Control research the source of this item as personnel from the field unit says no sign exists in this location. The dashed lines delineating shallow areas were not applied to the smooth sheet as they do not agree with the hydrography. Some of the limits of the spoil banks were revised to agree with the hydrography, as the note on the maps appears to be correct, they are "subject to continual change".

See Q.C. critique regarding 5/97

dashed lines delimiting shallow areas added during Q.C. R revised to conform to hydrography

### 3. Hydrography

a. The agreement at crossings on this survey is adequate. ✓

b. The depth curves could be drawn in their entirety with the following exceptions: The "0" ft curve could not be drawn in some areas due to the lack of hydrography caused by the low range of tide. In the area of the channels it was necessary to break some curves due to the sharp delineation of the channel. The excess level (1 & 2) soundings were used to draw the curves where it was practical. The supplemental 3-foot curve was <sup>occasionally</sup> drawn to provide better delineation of the basic bottom configuration. ✓

c. This survey was considered adequate to delineate the basic bottom configuration and least depths. ✓

### 4. Condition of Survey

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

a. The changes in the spoil banks noted during hydrography were not delineated on the field sheet. ✓

b. The drag investigation in latitude  $28^{\circ}26'$ , longitude  $80^{\circ}39.5'$  was not plotted on the field sheet nor did any records of the investigation accompany the field records forwarded to the Processing Division of Atlantic Marine Center.

Accepted the hydrographer's word - obstruction in channel is considered disproved

JFS

c. An overhead power cable crosses the Banana River in the vicinity of latitude 28°25'. The Coastal Zone Maps used for shoreline on this survey do not show the location of supporting towers or poles located in the area of hydrography. The hydrographer should have located these features by detached positions in the area of this survey. *pas. 788-789 note in vol. 4 "line runs around utility pole"*

d. The field did not locate the wreck in latitude 28°23'29", longitude 80°36'47".

*charted from TP-00138 Retain as charted*

e. ~~Numerous~~ <sup>Some</sup> privately maintained channels in the survey area should have been sufficiently investigated by the hydrographer to determine the channel's delineation and navigable depths. Also possible indications of areas where channels may exist, that is, areas ~~marked~~ by private aids, should be investigated for existence of a channel. For example, in the vicinity of latitude 28°22.7', longitude 80°37.0' a marked passage is evident; however, it cannot be ascertained from the hydrographic records whether a channel exists.

These items are ~~the only things~~ that make this survey a good survey rather than a excellent basic survey.

## 5. Junctions

Junctions were effected with the following surveys:

H-9746	(1978)	to the north
H-9633	(1977)	to the south

Adequate junctions were effected with these surveys which are both still in house. (AMC)

## 6. Comparison with Prior Surveys

H-1415a	(1878)	1:20,000
H-1415b	(1878)	1:20,000

These prior surveys are the most recent in this area that provide complete coverage.

The comparison with these prior surveys is adequately discussed under Section "K" of the Descriptive Report. In general the changes noted are attributable to cultural changes.

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

- 7. Comparison With Charts #11484 (11th Edition, June 4, 1977 ✓)
- #11476 (11th Edition, January 21, 1978 ✓)
- #11478 (8th Edition, May 13, 1978 ✓)

a. Hydrography

All of the charted hydrography originates with the previously discussed prior surveys supplemented by U.S. Corps of Engineers Surveys. The Descriptive Report adequately discusses the comparison with charted hydrography under Section L. It was noted however, that no comparison was made with chart #11478 (8th Edition, May 13, 1978) by the field.

The present survey is adequate to supersede the charted information when attention is given to the following items that come from sources not readily ascertainable at the time of verification and do not appear on any topographic or hydrographic information.

<u>Charted Item</u>	<u>Location</u>	<u>Recommendations</u>	
Pier	28°23'11" ✓ 80°36'35" ✓	Revise to submerged ruins	<i>do not concur See Q.C.</i>
Pier ruins	28°23'09" 80°36'34"	Revise to submerged ruins	<i>Critique JPS</i>
Pier	28°23'06.5" 80°36'33"	Revise to submerged ruins	
Pier	28°23'03" 80°36'33"	Revise to submerged ruins	

These recommendations are made to the chart compiler and are valid only if no subsequent information indicates otherwise. It should be further noted that numerous items from the Presurvey Review for this survey are adequately described under Sections K. and L. of the Descriptive Report.

b. Controlling Depths

There are ~~no~~ conflicts with the charted controlling depths of channels in the survey area *but are meaningless because of subsequent C.O.E. dredging.*

The Corps of Engineers completed a dredging project in these areas after the present survey was completed with a controlling depth of 12 ft. The plans for dredging and after dredging survey are both at AMC Processing Division, CAM3 and will be forwarded to headquarters under Plans for Maintenance Dredging (D.O.-file No. 90-32,579) 1 thru 18 and After Dredging Survey (D.O.-file No. 90-32,839) 1 thru 8. Recommend the channel areas effected by these surveys be up-dated according to these surveys. *concur JPS.*

c. Aids to Navigation

The charted positions of the aids in the survey ~~are~~ adequately mark the intended features. The aids to navigation are further discussed under Section N. of the Descriptive Report.

*See also Q.C. Critique*

8. Compliance With Instructions

This survey adequately complies with the Project Instructions.

9. Additional Field Work

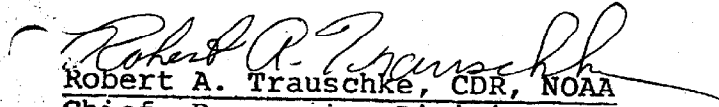
This is a good basic survey, no additional field work is recommended. - *Survey position of Mosquito Lagoon-Egg Galle Canaveral Barge Canal Light #8 is in conflict with charted location of light.*


Inspection Report


H-9665

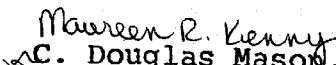
Any verification errors regarding procedures and presentation of survey data detected during inspection by the Hydrographic Inspection Team have been corrected before submission for administrative approval. HIT comments regarding quality of field work, compliance with instructions, and adequacy of the survey have been incorporated within the Verifier's Report.

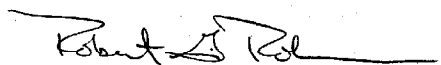
Examined and Approved:  
Hydrographic Inspection Team  
Date: February 7, 1979

  
Robert A. Trauschke, CDR, NOAA  
Chief, Processing Division

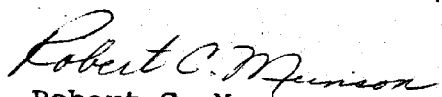
  
Carl W. Fisher, CDR, NOAA  
Chief, Operations Division

  
R. D. Sanocki  
Technical Assistant  
Processing Division

  
C. Douglas Mason, LT, NOAA  
Chief, Electronic Data  
Processing Branch

  
Robert G. Roberson  
Team Leader  
Verification Branch

Approved/Forwarded

  
Robert C. Munson  
RADM, NOAA  
Director, Atlantic Marine Center



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SURVEY  
Rockville, Md. 20852

OA/C352:FPS

May 1, 1979

TO: *for R.H. Carstens*  
A. J. Patrick  
Chief, Hydrographic Surveys Division

THRU: Chief, Quality Control Branch

FROM: F. P. Saulsbury *F.P. Saulsbury*  
Quality Evaluator

SUBJECT: Quality Control Report for H-9665 (1976-78), Florida, Banana River, Cape Canaveral

A quality control inspection of H-9665 was accomplished to monitor the survey for obvious deficiencies with respect to data acquisition, delineation of the bottom, determination of least depths, navigational hazards, junctions, sounding line crossings, shoreline transfer, smooth plotting, decisions and actions taken by the verifier, and the cartographic presentation of data.

The piers and pier ruins addressed in the Verifier's Report under item 7.a, were charted prior to the date of the present survey. The condition of these features is unknown; however, their probable remains are of no significance for charting purposes.

The sign addressed in the Verifier's Report under item 2.b was charted in latitude 28°26'16", longitude 80°37'12" from TP-00135 (1969-71). According to personnel from the field survey unit, no sign exists at this location. This information is accepted as valid. The sign was deleted from the smooth sheet during quality control inspection and should be deleted from the chart. ✓

The junctions on the north with H-9746 (1978) and on the south with H-9633 (1977) will be addressed in the inspections of those surveys.

For charting purposes, to determine bare and awash features, 1 foot may be considered the water level range in the area covered by the present survey.

In general the present survey was found to conform to National Ocean Survey standards and requirements except as discussed in the Verifier's Report, the HIT Report, and as follows:



1. The delineations of several shallow areas were added to the smooth sheet from contemporary topographic manuscripts. Also annotations "shallow" were added from the boat sheets to the smooth sheet during quality control inspection.

The delineation of shallow areas on the topographic manuscripts is not absolute and the limits are generally superseded by hydrography. An annotation of shallow is useful to identify those areas that otherwise may be considered holidays. Likewise, undeveloped areas on the boat sheets, identified as shallow by the hydrographer, should be annotated as shallow on the smooth sheet.

2. The title block on the present survey lists the specific location, general location, and state in that order for the areas covered by the survey. This format is opposite to the preferred practice in naming the state, general locality, and specific locality for the geographical area covered by the survey.

3. When annotating numbers describing items in the water area such as "four piles" or "four x four" post, it is preferred that numerical figures be spelled out; i.e., "four" rather than "4." This precludes the possibility of the numerical annotation being mistaken for a sounding.

4. Meaningful descriptive information on survey items was added to the smooth sheet during quality control inspection. An oversimplification of informative data provided by the hydrographer was shown during verification.

5. The following items not shown on the boat sheet but found in the sounding volumes were overlooked during verification. These items were added to the smooth sheet during quality control inspection.

a. Pier in latitude  $28^{\circ}22.65'$ , longitude  $80^{\circ}36.56'$ . This pier shown in red by the quality evaluator is referenced by position and size in the sounding volumes.

b. Utility pole in latitude  $28^{\circ}25.23'$ , longitude  $80^{\circ}36.77'$ .

c. Two poles in the vicinity of latitude  $28^{\circ}22.88'$ , longitude  $80^{\circ}39.80'$ .

d. Pipe in latitude  $28^{\circ}23.36'$ , longitude  $80^{\circ}40.07'$ .

e. Rock awash in latitude  $28^{\circ}23.20'$ , longitude  $80^{\circ}39.68'$ .

6. A 1-inch diameter pipe uncovering 5 feet at L.W.D., located by detached position in latitude  $28^{\circ}23.11'$ , longitude  $80^{\circ}39.59'$ , was overlooked by the verifier and added during quality control inspection.



7. Geographic positions for items located by detached positions were not recorded in the sounding volumes.

No information about the charted Radio Tower in latitude  $28^{\circ}22.88'$ , longitude  $80^{\circ}36.52'$  was found in the survey records. A Radio Mast and landmark description at this location were added to the survey from TP-00138 (1969-71) during quality control inspection.

8. Daybeacons 13, 15, 17, and 25 that mark the barge canal which extends in a north-south direction on the survey were shown as black on the boat sheets and smooth sheet. The color of the aids was revised from black to green during quality control inspection from several references in the Descriptive Report and sounding volumes.

The colors of daybeacons 16, 18, 23, and 24 used as signals on the survey were omitted during verification and were added during quality control inspection.

9. The following information about privately maintained channel markers from comments entered by the hydrographer in the sounding volumes is mentioned.

The 15 privately maintained channel markers in the vicinity of latitude  $28^{\circ}24.00'$ , longitude  $80^{\circ}37.75'$  are 1 1/2-inch to 3-inch diameter wood posts uncovering 4 to 7 feet at the sounding datum. (Detached positions 664 to 668 and 673 to 682.)

The 16 privately maintained channel markers in the vicinity of latitude  $28^{\circ}23.18'$ , longitude  $80^{\circ}39.65'$ , with the exception of the entrance marker, are 4-inch by 4-inch piles uncovering 2 to 10 feet at the sounding datum. (Detached positions 4384 to 4395 and 4397 to 4400.)

The 10 privately maintained channel markers in the vicinity of latitude  $28^{\circ}23.62'$ , longitude  $80^{\circ}39.77'$  are 4-inch to 10-inch diameter piles uncovering 3 to 10 feet at the sounding datum. (Detached positions 4405 to 4414.)

10. Daybeacon No. 8 plotted in latitude  $28^{\circ}24.52'$ , longitude  $80^{\circ}39.19'$  on contemporary photogrammetric manuscript TP-00138 (1969-71) is not mentioned in the survey records. It is considered to have been removed and replaced with black can buoy No. 7 shown at approximately the same location on the present survey.

Light No. 10 plotted in latitude  $28^{\circ}24.52'$ , longitude  $80^{\circ}38.72'$  on TP-00138 (1969-71) is considered to have been renumbered Light No. 5 and is so designated on the present survey. NOAA form 76-40 included in the Descriptive Report substantiates this designation.

11. Mosquito Lagoon-Eau Gallie Canaveral Barge Canal Light No. 7 plotted in latitude  $28^{\circ}24.55'$ , longitude  $80^{\circ}39.58'$  on TP-00138 (1969-71) is charted at this location from TP-00138 but has been renumbered Light No. 8. The charted number of the aid is verified by NOAA form 76-40 accompanying the present survey. However, the position of this aid located by detached position on the present survey is 30 meters west of its charted position and is considered the latest position. *Correctly plotted on 13<sup>th</sup> Ed, 1/18/84 JMS*

12. The T-shaped pier charted in latitude  $28^{\circ}22.73'$ , longitude  $80^{\circ}36.60'$  from a miscellaneous source was not mentioned in the survey records. Inasmuch as the hydrographer took detached positions 45 meters north of the pier and ran two sounding lines in 1 foot of water where the pier is charted, it is considered unlikely that any part of this structure exists.

13. The six privately maintained red daybeacons, P.A., numbered 2 to 12 and charted from a miscellaneous source in the vicinity of latitude  $28^{\circ}22.80'$ , longitude  $80^{\circ}37.50'$ , were located by detached positions on the present survey.

The white daybeacon, P.A., charted in latitude  $28^{\circ}22.80'$ , longitude  $80^{\circ}37.40'$  from CL-806 of 1977 was described in the sounding volume as immediately beside the wreck that it marks.

None of the above daybeacons were found in the 1978 Light List. They should be charted as markers as shown on the present survey. *1980 Light List Vol. II, p. 370 Cape Shores JMS*

14. The two dolphins charted from CL-659 of 1970 in the vicinity of latitude  $28^{\circ}24.69'$ , longitude  $80^{\circ}38.75'$  were located by detached positions on the present survey as 16-foot wide platforms uncovering 12 feet at the sounding datum. Chart platforms as they appear on the present survey.

Though elevations are referenced to the LWD and usually indicated by an underscored slanting number in parenthesis, features of a topographic nature (above a high water plane) should be annotated in vertical lettering. An approximate value for the difference between LWD and the high water plane is 1 foot.

cc:

OA/C35

OA/C351

