

H10749

NOAA FORM 78-35A

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

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC/LIDAR

Field No. NO-10-2-97

Registry No. H-10749

LOCALITY

State FLORIDA

General Locality NORTH ATLANTIC OCEAN

Sublocality APPROACHES TO PORT

..... EVERGLADES, FLORIDA

.....
19 97

CHIEF OF PARTY

..... MARK W. BROOKS, JECA

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DATE MAY 3 1999

HYDROGRAPHIC TITLE SHEET

H-10749

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.

NO-10-2-97

State Florida

General locality Fort Lauderdale North Atlantic Ocean

Locality Approaches to Port Everglades, Florida

Scale 1:10,000 Date of survey Feb-Mar 1997

Instructions dated Feb. 1, 1997 Project No. OPR-H395-KR-97

Vessel NOAA 60

Chief of party Mark W. Brooks

Surveyed by John E. Chance & Associates, Inc.

Soundings taken by echo sounder, hand lead, pole LIDAR

Graphic record scaled by Mark W. Brooks, Cris Weber

Graphic record checked by Mark W. Brooks, Cris Weber

Protracted by N/A Automated plot by N/A ²⁵⁰⁰⁰ (office)

Verification by N/A Atlantic Hydrographic Branch Personnel

Soundings in fathoms feet at MLW MLLW Feet at MLLW

REMARKS: John E. Chance & Associates, Inc.

200 Dulles Drive
Lafayette, LA 70506

Notes in the Descriptive Report were made in Red during
office processing.

awc/surf 2/9/99 mcr

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A. PROJECT

A.1 This survey was conducted in accordance with Hydrographic Project Instructions OPR-H395-KR-97, Approaches to Port Everglades.

A.2 Project OPR-H395-KR-97 provides NOAA with modern, accurate hydrographic survey data acquired using lidar technology.

A.3 This portion of Project OPR-H395-KR-97, Approaches to Port Everglades.

A.3 No information has been presented to the contractor concerning the origin or possible requests for Project OPR-H395-KR-97.

B. AREA SURVEYED

The survey encompasses an area along the coast of Florida near Port Everglades Harbor. The bounding polygon is described as follows:

- 80.10115, 26.08325 -80.08609, 26.08325
- 80.08094, 26.12951 -80.09772, 26.12951
- 80.10061, 26.12138 -80.10052, 26.11125
- 80.09929, 26.09859 -80.10048, 26.09859
- 80.10220, 26.09648 -80.10220, 26.09458
- 80.11604, 26.09458 -80.11604, 26.09421
- 80.10216, 26.09427 -80.10216, 26.09301
- 80.11246, 26.09307 -80.11246, 26.09265
- 80.10492, 26.09265 -80.10450, 26.09096
- 80.10115, 26.08881 -80.10115, 26.08325

Both commercial vessels and pleasure craft are frequent in this area. The port of Port Everglades is served by the project area. The port of Port Everglades is a major cruise stop for many of the world's large passenger vessels. A considerable amount of domestic and foreign commerce passes through the port. Commercial interests in the area include commercial shipping, passenger cruise ships, and commercial fishing.

In the Approaches to Port Everglades, several spoil areas and fish havens exist. ~~This fish haven located just northeast of the harbor entrance has an authorized clearance of 18 feet.~~

out of place in this D.R. See Section 5.5 and 5.6 of this Report

LIDAR data collection days included Feb. 9-12, Feb. 22, Mar. 10-11, 1997.

C. SURVEY VESSELS

C.1 The following survey vessels was used during this project:

<u>VESSEL</u>	<u>REGISTRATION NUMBER</u>	<u>PRIMARY FUNCTION</u>
NOAA 60	N60RF	Hydrography

C.2 No unusual vessel configurations or problems were encountered.

D. AUTOMATED DATA ACQUISITION AND PROCESSING - *See also Evaluation Report*

D.1 All LIDAR data were collected using the SHOALS Airborne Data Collection System, version 951105. This software is manufactured by OPTECH, Inc., North York, Ontario, Canada.

D.3 LIDAR data were processed using the SHOALS Data Processing System, version 1.78. This software is manufactured by OPTECH, Inc., North York, Ontario, Canada. The software uses a depth extraction algorithm developed by NOS.

D.4 A new algorithm for hazard detection was developed by NOS for this project. The algorithm was incorporated into the SHOALS Data Processing System. This algorithm automatically looks for possible hazards to aid the hydrographer in data analysis.

D.5 No non-standard automated acquisition or processing methods were used.

E. SONAR EQUIPMENT

E.1 No side scan data were collected during this phase of Project OPR-H395-KR-97.

F. SOUNDING EQUIPMENT

F.1 All hydrographic soundings were acquired using the US Army Corps of Engineers SHOALS Lidar Bathymetry System. The following list contains information for the separate components of the system:

COMPONENT	SERIAL NUMBER	DATES USED
SHOALS	1	40-43, 52, 69-70

F.2 The SHOALS system was the only sounding equipment used during this survey for the purpose of charting. No multibeam nor single-beam data were collected. No diver investigations were conducted for this survey, eliminating the need for a pneumatic depth gauge.

F.3 The SHOALS Lidar Bathymetry System uses a laser that is a 200 Hz Nd:YAG operating at a wave length of 1064 nm (infrared) and frequency doubled to 532 nm (green). The system operates at a power level of about 5 milli-joules. The receiver includes a Cassegrain design telescope. Five detectors are in the system, a gated photomultiplier tube (PMT), two avalanche photo diodes (APD) to detect 1064 nm radiation (IR1 and IR2), an APD to detect 532 nm radiation (green), and an APD to detect Raman radiation at 645 nm. There were no faults in the SHOALS system that affected the accuracy of the data.

G. CORRECTIONS TO SOUNDINGS

G.1 a) The SHOALS system requires no sound velocity correction, but does require an index of refraction based upon the water salinity. This number is used for the calculation of the refraction angle when the light enters the water. No major fresh water streams are in the area of the project, therefore a value of 1.3423, which is typical of salty water, was used.

b) No instrument correctors were applied to the SHOALS system.

c) Operating characteristics of the SHOALS system requires no draft corrections to collected data.

~~**d)** Operating characteristics of the SHOALS system requires no draft corrections to collected data.~~ Same as above.

e) A Litton LTN-90 Inertial Reference System measures roll, pitch and vertical acceleration of the helicopter for the SHOALS system. These values are stored on the raw data tapes and are applied in the SHOALS processor.

G.2 There were no unusual or unique methods or instruments used for correcting the SHOALS data.

G.3 Pneumatic depth gauges were not required for this phase of survey H-10749.

G.4 The SHOALS data processor incorporates a wave correction algorithm. This algorithm is capable of producing corrections for both long- and short-period waves. A corrector value is produced for every sounding and is automatically applied to each sounding. The value for each pulse can be found in the database of each flight the SHOALS system completed. Application of the wave corrector to raw measurements appeared to accurately represent true depths.

G.5 The SHOALS system uses a an apriori_k value that is used to calculate surface biases in real time for the alignment of the waveforms in the digital record, and for the recalculation of the biases in the post-processing. The value should be based on the water clarity of the area being surveyed. A value of 0.15 m⁻¹ was used for project H-10749.

G.6 a) The tidal datum for this project is Mean Lower Low Water. The operating tide station at Virginia Key, FL (872-3214) served as direct control for the datum determination. No predicted tides were used during this project.

b) Zoning for this project is consistent with the project instructions.

A request for smooth tides was faxed on April 24, 1997. The smooth tides were received on June 23, 1997. *Smooth tides were applied in the field.*

H. CONTROL STATIONS - *See also Evaluation Report*

H.1 The horizontal datum for this project is the North American Datum of 1983 (NAD 83).

H.2 This survey was conducted exclusively using Differential GPS (DGPS) positioning, which precluded the need for shore-based horizontal control stations.

H.3 No horizontal control stations were used or established for this survey.

H.4 Verification of horizontal control was not necessary since no land-based horizontal control stations were used.

H.5 There are no photogrammetric problems, positioning problems or unconventional survey methods pertinent to this survey.

I. HYDROGRAPHIC POSITION CONTROL - *See also Evaluation Report*

I.1 This survey was conducted exclusively using Differential GPS (DGPS) positioning.

I.2 Data collected aboard NOAA 60 were not collected when the Horizontal Dilution of Precision (HDOP) exceeded 4.0.

NOAA 60's DGPS receiver's were configured such that only satellites ten degrees or greater above the horizon were used in the position computation. The age of pseudo-range correctors used in the position computation was set not to exceed 30 seconds. A minimum of four satellites was used to compute positions. No Dead Reckoning (DR) was ever performed.

I.3 Control Equipment:

NOAA 60 DGPS
Ashtech GPS Sensor
S/N LP02081-NOT12D1H00
John E. Chance & Associates, Inc. OMNISTAR®

Correctors were computed using the entire United States OMNISTAR® network. The DGPS system requires no calibration from outside sources. No checks were done for data collected on NOAA 60.

I.4 No calibration data were required to be applied to the raw positioning data because DGPS was the primary positioning system.

I.5 a) There were no unusual methods used to calibrate or operate the electronic positioning equipment.

b) The OMNISTAR® used for the positioning of NOAA 60 experienced no problems.

c) At no time was weather a problem or concern for the DGPS system on NOAA 60.

d) No systematic errors were detected that required adjustments to the DGPS system.

e) Aboard NOAA 60, antenna positions were corrected for offset and referenced to the position of the SHOALS scanning mirror. These correctors were located on the flight planning tape and are applied in the post-processing of the data.

J. SHORELINE - See also Evaluation Report

Not Applicable. No shoreline is contained within the boundaries of this survey. However, the breakwaters at the entrance to the harbor are presented on the final sheets

K. CROSSLINES . See also Evaluation Report

K.1 No planning of crosslines was done during this phase of survey H-10749. Lines running along the channel and lines that were run to fill in holidays enabled the contractor to check data from mainscheme lines.

K.2 Data collected from lines running through the channel compared very well with data collected from lines running across the channel. No error in the position of the channel walls was evident due to the directional running of lines.

K.3 No numerical comparisons of cross-directional sounding lines was done during this survey.

L. JUNCTIONS . See also Evaluation Report

Junctional comparisons with contemporary surveys are not applicable under this contract. See Section N for comparison to the nautical charts.

M. COMPARISON WITH PRIOR SURVEYS - See also Evaluation Report

Comparison with prior surveys was not required under this contract. See Section N for comparison to the nautical charts.

N. COMPARISON WITH EXISTING CHARTS - See Section N. of the Evaluation Report

N.1 The largest scale chart affected by this survey area is:

Chart 11470
31st ed. Nov. 23, 1996
Scale 1:10,000

]} ~~Newer Edition used in office~~

N.2 No Danger to Navigation reports were submitted in conjunction with survey H-10749.

N.3 The general correlation between charted shoal areas and this survey is very good. The centerlines of the submerged groin and breakwaters were all found to be very near ~~the~~ the charted centerlines. The small differences in the positions could be due to the build up of sand around the structures. In areas of known reefs, the lidar data showed locations of both deeper and shallower least depths than on the existing charts. *concur w/ conditions*
No reefs are charted in ~~the~~ *the* immediate *concur w/ conditions* vicinities of this survey.

N.4 AWOIS number 9906, a wreck presently charted at -80° 05, 25.00", 26° 05' 33.20" was found to actually be at positioned at -80° 05' 25.00", 26° 05' 34.55". The least depth on the wreck was found to be 44.3⁴ feet. The water depth in the area is 47 feet and greater. *Concur w/ conditions. See E+A Report N.4.*

N.5 Three charted soundings were not found during this survey. These three soundings are defined as follows:

Lat.	26° 06' 56.0"	26° 06' 56.0"	26° 06' 53.0"
Lon.	-80° 05' 56.2"	-80° 05' 55.5"	-80° 05' 55.0"
Depth	13 feet	14 feet	17 feet

Multiple flights were accomplished in this area and no evidence of these depths were found. The average depth of water in this area is 21 feet. *Concur - See also Sections S. 2-4 of this Report*

N.6 Two areas were found to have shallower controlling depths than are actually shown on the chart. These controlling depths are as follows: *concur - See also Sections S. 5-6 of this Report and Section N.a.2. of the Evaluation Report.*

Lat.	26° 07' 23.5"	26° 07' 14.4"
Lon.	-80° 05' 37.0"	-80° 05' 38.2"
Depth	15 feet	14 feet

O. NOT USED

P. AIDS TO NAVIGATION - *See also Evaluation Report*

P.1 No correspondence with the U.S. Coast Guard regarding floating aids to navigation was conducted.

P.2 Many floating aids to navigation exist within the survey area. These aids are shown on the final smooth sheet -

P.3 No bridges, overhead cables or overhead pipelines are located within the survey limits.

P.4 No submerged pipelines exist in the area.

P.5 No ferry terminals are located within the survey area.

R.4 No evidence of unusual currents was recorded during this survey.

R.5 Two small areas within the survey limits do not have 100% lidar coverage. The areas were overflowed on more than one occasion, but in these areas, the algorithm failed to pick a proper depth from the data. After manual inspection of the data, no signs of any hazards were present in these areas.

S. RECOMMENDATIONS *See also Evaluation Report*

S.1 The contractor is aware of no construction or dredging that will affect results of this survey.

S.2 A change should be made to existing charts. Chart 11470 shows a least depth of 13 feet at: *- Do NOT concur Retain as charted*

26° 06' 56.0" N
80° 05' 56.2" W

It is recommended that this depth be removed from the chart.

S.3 Chart 11470 also shows a least depth of 14 feet at: *DO NOT CONCUR - Retain as charted*

26° 06' 56.0" N
80° 05' 55.5" W

It is recommended that this depth be removed from the chart.

S.4 Chart 11470 shows a least depth of 17 feet at: *DO NOT CONCUR - Retain as charted*

26° 06' 53.0" N
80° 05' 55.0" W

It is recommended that this depth be removed from the chart.

S.5 A new controlling depth should be put on Chart 11470 as follows: *DO NOT CONCUR. Retain as charted. See Evaluation Report Section No. 2.*

26° 07' 23.5" N
80° 05' 37.0" W
Least Depth = 15 feet

S.6 A new controlling depth should be put on Chart 11470 as follows: *DO NOT CONCUR. Retain as charted. See Evaluation Report Section No. 2.*

26° 07' 14.4" N
80° 05' 38.2" W
Least Depth = 14 feet

S.7 ^{Seven} ~~Three~~ submerged structures were listed in the AWOIS listing for this survey. It is recommended that the least depth of each structure be noted as follows: See Evaluation Report Section N.a. 8, 14 and 15.

AWOIS #	9907	9908	9912
Lat.	26° 05' 29.6" N	26° 05' 44.5" N	26° 06' 40.4" N
Lon.	80° 06 09.8" W	80° 06' 00.3" W	80° 05' 50.5" W
Least Depth	10 -8.56 feet	11 -7.15 feet	11 12.66 feet

S.7 The contractor recommends further investigations of the survey area in the areas where 100% coverage was not obtained. Also, confirmation of some least depths could be accomplished at the same time. The investigations should be accomplished by marine vessel using side scan sonar with a high resolution multi-beam system for least depth determination. *Circular*

T. REFERRAL TO REPORTS

No reports have been published which are not part of this Descriptive Report for survey H-10749.

Omnistar Site Survey 1996

ITRF94/96 Coordinates

<u>Site</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Ellipsoidal Height</u>
Mercedes, TX	N 26° 06' 10.83388"	W 97° 51' 24.48161"	-3.8720m
Houston, TX	N 29° 35' 04.68541"	W 95° 30' 10.75933"	4.3010m
West Glenn, TX	N 29° 43' 30.59525"	W 95° 30' 33.38134"	-2.7070m
Pensacola, FL	N 30° 28' 50.08871"	W 87° 14' 55.37459"	10.4230m
Coco Beach, FL	N 28° 07' 09.09154"	W 80° 34' 42.45647"	-20.3080m
Fayetteville, NC	N 35° 06' 20.24045"	W 78° 55' 19.65223"	32.3280m
Long Island, NY	N 40° 46' 58.27470"	W 72° 45' 51.48090"	-28.0800m
Duluth, MN	N 46° 50' 14.24659"	W 92° 12' 48.62647"	432.4340m
Everett, WA	N 47° 54' 15.02694"	W 122° 16' 29.04485"	167.7410m
Redding, CA	N 40° 33' 53.54173"	W 122° 21' 48.85769"	134.3110m
San Diego, CA	N 32° 54' 47.94791"	W 117° 13' 51.30125"	-19.6990m
Denver, CO	N 39° 34' 49.64003"	W 104° 51' 50.88076"	1743.7880m
Lafayette, LA	N 30° 13' 13.84437"	W 92° 03' 21.29095"	-8.6890m
St Johns, Canada	N 47° 36' 51.56310"	W 52° 43' 23.62332"	134.8370m
Carmen, Mexico	N 18° 38' 38.37706"	W 91° 49' 23.66018"	27.2120m
Carmen Hotel, Mexico	N 18° 39' 41.92219"	W 91° 49' 50.65762"	-1.0790m

GEOGRAPHIC NAMES

H-10749

Name on Survey	<div style="display: flex; justify-content: space-between;"> A ON CHART NO. 11470 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 </div>										
	A	B	C	D	E	F	G	H	K		
BAR CUT	X										1
BIRCH OCEAN FRONT	X		X								2
FLORIDA (title)	X										3
FORT LAUDERDALE (title)	X		X								4
FORT LAUDERDALE BEACH	X		X								5
HARBOR HEIGHTS	X		X								6
NORTH ATLANTIC OCEAN	X		X								7
OUTER BAR CUT	X										8
PORT EVERGLADES (title)	X		X								9
SOUTH BEACH PARK	X		X								10
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											25

Approved

Dennis J. Rosenberg
Chief Hydrographer

APR 28 1998

LETTER TRANSMITTING DATA

N/CS33-04-99

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

ORDINARY MAIL AIR MAIL

REGISTERED MAIL EXPRESS

GBL (Give number) _____

TO:

CHIEF, DATA CONTROL GROUP, N/CS3x1
NOAA/NATIONAL OCEAN SERVICE
STATION 6815, SSMC3
1315 EAST-WEST HIGHWAY
SILVER SPRING, MARYLAND 20910-3282

DATE FORWARDED

FEBRUARY 3, 1999

NUMBER OF PACKAGES

ONE 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.

H10749

FLORIDA, NORTH ATLANTIC OCEAN, APPROACHES TO PORT EVERGLADES

(ONE) TUBE CONTAINING THE FOLLOWING:

- 1 SMOOTH SHEET FOR SURVEY H10749
- 1 ORIGINAL DESCRIPTIVE REPORT
- 1 DRAWING HISTORY FORM (NOAA FORM #76-71) FOR NOS CHART 11470
- 1 RECORD OF APPLICATION TO CHART FORM (NOAA FORM #75-96) FOR SURVEY H10749
- 1 H-DRAWING FOR NOS CHART 11470
- 1 COMPOSITE DRAWING FOR NOS CHART 11470

FROM: (Signature)

Deborah A. Bland

RECEIVED THE ABOVE

(Name, Division, Date)

Return receipted copy to:

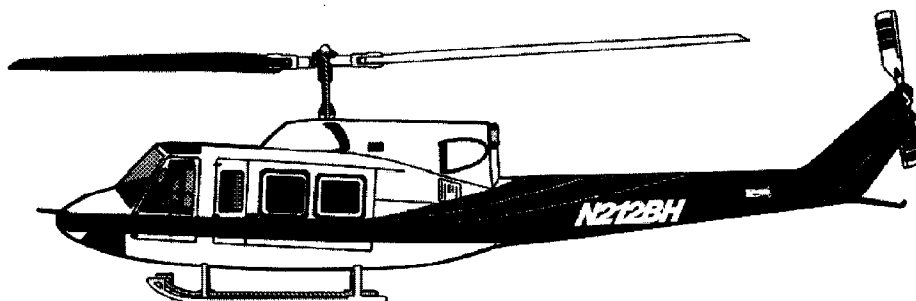
ATLANTIC HYDROGRAPHIC BRANCH
N/CS33
439 WEST YORK STREET
NORFOLK, VA 23510-1114

**ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H10749 (1997)**

This Evaluation Report has been written to supplement and/or clarify the original Descriptive Report. Sections in this report refer to the corresponding sections of the Descriptive Report.

C. SURVEY PLATFORM

The survey platform for this survey is listed in the Descriptive Report as NOAA 60. NOAA 60 is a BELL 212 helicopter.



Bell 212 helicopter

D. AUTOMATED DATA ACQUISITION AND PROCESSING

The following software was used to process data at the Atlantic Hydrographic Branch:

Hydrographic Processing System
NADCON, version 2.10
SiteWorks, version 2.01
MicroStation 95, version 5.05
I/RAS B, version 5.01
Microsoft Excel 97
NOS-L15 convertor

The smooth sheet was plotted using an Hewlett Packard DesignJet 2500CP plotter.

H. CONTROL STATIONS

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD 83). Office processing of this survey is based on these values. The smooth sheet has been annotated with ticks showing the computed mean shift between the NAD 83 and the North American Datum of 1927 (NAD 27).

To place this survey on the NAD 27, move the projection lines 1.313 seconds (40.392 meters or 4.04 mm at the scale of the survey) north in latitude, and 0.842 seconds (23.397 meters or 2.34 mm at the scale of the survey) east in longitude.

I. HYDROGRAPHIC POSITION CONTROL

The field unit did not do an performance checks on the DGPS as instructed in Section 4.9.1. of the Statement of Work (SOW).

J. SHORELINE

Brown shoreline originates with NOS chart 11470, 32nd edition, dated November 22, 1997, and is for orientation purposes only.

K. CROSSLINES

The field unit did not run any crosslines to check their mainscheme lines of hydrography. They were instructed to run 5% or more crosslines in Section 4.9.2 of the SOW.

L. JUNCTIONS

There are no junctional surveys. Present survey depths are in general harmony with the charted hydrography to the north, south, east and west.

M. COMPARISON WITH PRIOR SURVEYS

A comparison with prior surveys was not done during office processing in accordance with section 4. of the memorandum titled "Changes to Hydrographic Survey Processing", dated May 24, 1995. This memorandum covers airborne lidar survey data also.

N. COMPARISON WITH CHART 11470 (32nd Edition, Nov 22/97)

a. Hydrography

The charted hydrography originates with the prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in section N. of the Descriptive Report. The following should be noted:

- 1) The hydrographers notes and recommendations are based

on chart 11470, 31st edition, Nov. 23, 1996. This was the latest edition of the chart at the time of the survey.

2) A charted fish haven, auth min depth 7 ft, in the vicinity of Latitude 26°07'44"N, Longitude 80°05'40"W, was charted subsequent to the 31st edition of chart 11470 and was not fully investigated by the field unit. No conflicts were found by the present survey and no changes in charting are recommended.

3) A charted fish haven, auth min depth 40 ft, in the vicinity of Latitude 26°07'40.6"N, Longitude 80°05'15.3"W, was charted subsequent to the 31st edition of chart 11470 and was not fully investigated by the field unit. The following shoal depths are in conflict with the charted authorized minimum depth:

<u>Depth</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
<u>ft/m</u>		
38/11 ⁶	26°07'45.57"	80°05'12.62"
37/11 ⁴	26°07'44.37"	80°05'22.79"
39/11 ⁹	26°07'38.60"	80°05'23.04"
39/12	26°07'33.44"	80°05'23.65"
37/11 ³	26°07'28.64"	80°05'24.90"
39/12	26°07'27.01"	80°05'15.78"
35/10 ⁸	26°07'25.91"	80°05'25.39"
37/11 ⁴	26°07'23.26"	80°05'25.34"

It is recommended that these depths be charted as shown on the present survey within the charted fish haven limits.

4) AWOIS Item #9906, a charted dangerous sunken wreck, originating with Local Notice to Mariners #31 of 1982 (LNM31/82), in Latitude 26°05'33.2"N, Longitude 80°05'25.0"W was located by the field unit. A wreck with a depth of 44 feet (13⁴ m), in Latitude 26°05'34.69"N, Longitude 80°05'25.17"W, was located by the hydrographer. It is recommended that the charted dangerous sunken wreck be deleted from the chart, and the feature be charted as shown on the present survey.

5) A charted note, shoaling reported Aug 1983, in Latitude 26°06'00"N, Longitude 80°05'37"W, originates with LNM33/83, is not considered disproved. It is recommended that the note be retained on the chart. It is further recommended that additional work be done on this item at a later date.

6) AWOIS Item #9912, a charted submerged groin (10 ft

rep),, in Latitude 26°06'39.2"N, Longitude 80°05'53.3, originating with Chart Letter #967 of 1968 (CL967/68)"W was verified by the present survey. A least depth on the groin was not determined. No change in charting status is recommended.

7) AWOIS Items #9907 and #9908, charted submerged breakwaters, in Latitude 26°05'32.0"N, Longitude 80°05'45.5"W and Latitude 26°05'43.0"N, Longitude 80°05'45.5"W, respectively, originate with U.S. Corps of Engineers Blueprint number 27315A of 1934 (BP27315/34-A) and are not considered disproved. No change in charting status is recommended.

8) Two charted signs, PA, in Latitude 26°05'44.3"N, Longitude 80°06'19.2"W and Latitude 26°05'34.4"N, Longitude 80°06'19.6"W originate with unknown sources. These features were neither verified nor disproved by the field unit. No change in charting status is recommended.

9) A charted pier in ruins, in Latitude 26°05'33.3"N, Longitude 80°06'36.0"W, originates with an unknown source, and was neither verified nor disproved by the field unit. No change in charting status is recommended.

10) A charted rock with a depth of 3 feet (1 m), in Latitude 26°05'41.6"N, Longitude 80°06'18.9"W, originating with an unknown source was neither verified nor disproved by the present survey. No change in charting status is recommended.

11) AWOIS Item #9913, a charted sunken wreck, PA, in Latitude 26°06'00.31"N, Longitude 80°04'52.15"W, originating with LNM20/81 was not investigated by the field unit and is not considered disproved. No change in charting status is recommended.

12) The following charted depths originate with prior surveys and other sources unavailable at the time of office processing and were not brought forward to the smooth sheet. These depths were neither disproved nor verified by the present survey.

<u>Depth</u> <u>ft/m</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
16/4 ⁹	26°05'27.8"	80°05'46.9"
15/4 ⁶	26°05'27.9"	80°05'51.2"
14/4 ³	26°05'27.9"	80°05'53.0"
12/3 ⁷	26°05'27.6"	80°06'05.4"
11/3 ³	26°05'29.5"	80°06'05.4"
1/0 ³	26°06'33.5"	80°06'12.7"

5/1 ⁵	26°06'35.3"	80°06'10.9"
13/4	26°05'31.0"	80°05'48.3"
4/1	26°05'50.7"	80°06'02.4"
3/0 ⁹	26°05'47.5"	80°06'05.0"

No change in charting status is recommended.

13) AWOIS Item #9910 a charted Discontinued Spoil Area, in Latitude 26°05'50"N Longitude 80°05'45"W, originates with BP63165/62. This feature was developed by the field unit. It is recommended that the feature be removed from the chart and that the area be charted as shown on the present survey.

14) AWOIS Item #9909, charted Shoal with boulders note and limits, in Latitude 26°05'50.2"N, Longitude 80°06'15.6"W originating with LNM7/71, is located within the limits of this survey, but was neither verified nor disproved by the present survey. It is recommended that the area be charted as shown on the present survey, that the limits be deleted and that the note be retained as charted.

15) AWOIS Item #9911, a charted note, Shoaling rep Aug 1983, in Latitude 26°06'00"N, Longitude 80°05'37"W, originating with Local Notice to LNM35/83, is located within the limits of this survey, but was not fully verified nor disproved by the present survey. It is recommended that the area be charted as shown on the present survey and the note be retained as charted.

The present survey is adequate to supersede the charted hydrography within the common area. It is recommended that the above unresolved items be further investigated at a later date.

b. Dangers to Navigation

There were no dangers to navigation submitted by the field unit. No dangers to navigation were discovered during office processing.

c. Controlling Depths

A conflict exists between the Bar Cut left outside quarter tabulated depth of 41.4 feet and a 39 foot (11⁹ m) depth, in Latitude 26°05'34.9"N, Longitude 80°06'35.2"W, located by the field unit.

A conflict exists between the Bar Cut left inside quarter tabulated depth of 44.4 feet and a 43 foot (13¹ m)

depth, in Latitude 26°05'36.9"N, Longitude 80°06'28.5"W, located by the field unit.

A conflict exists between the Bar Cut right inside quarter tabulated depth of 44.7 feet and a 43 foot (13¹ m) depth, in Latitude 26°05'37"N, Longitude 80°06'24.2"W, located by the field unit.

No other conflicts exist.

P. Aids to Navigation

Six floating aids to navigation, and two privately maintained aids are within the survey limits; these aids were not located by the field unit.

R. MISCELLANEOUS

Chart compilation was done by Atlantic Hydrographic Branch personnel, in Norfolk, Virginia. Compilation data will be forwarded to Marine Chart Division, Silver Spring, Maryland. Chart compilation was performed on the following chart:

11470 32nd edition November 22, 1997

S. RECOMMENDATIONS

This is an adequate basic hydrographic survey. The following should be noted:

- 1) The lack of available flying time made accomplishing full 100% coverage impossible.
- 2) The lack of performance checks because of use of the OMNISTAR DGPS system, which according to the contractor required no calibration
- 3) The lack of crosslines - none were run, although the contractor stated that the lines running along the channel and those run to fill in holidays enabled them to check mainscheme sounding line data.
- 4) The number of hazards indicated by the SHOALS processing, as well as the daily flight records, would indicate periodic substandard conditions for LIDAR data acquisition.

Due to the above deficiencies, additional work was

H10749

conducted by NOS personnel.

Robert Snow

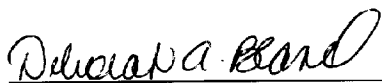
Robert Snow

Cartographic Technician
Verification of Field Data
Evaluation and Analysis

APPROVAL SHEET
H10749 (1997)

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disapproval of charted data. The digital data have been completed and all revisions and additions made to the smooth sheet during survey processing have been entered in the digital data for this survey. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.



Date: 12/16/98

Deborah A. Bland
Cartographer,
Atlantic Hydrographic Branch


I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.



Date: 12/17/98

Andrew L. Beaver
Lieutenant Commander, NOAA
Chief, Atlantic Hydrographic Branch

Final Approval:

Approved: 

Date: May 8³, 1999²²²

Andrew A. Armstrong, III
Captain, NOAA
Chief, Hydrographic Surveys Division

MARINE CHART BRANCH
RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H10749

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
11470	12/21/98	D. Hancock	Full Part After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
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SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED