

F00532

NOAA FORM 76-35A	
U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY	
DESCRIPTIVE REPORT	
Type of Survey	Hydrographic / SSS & VBES
Registry No.	F00532
LOCALITY	
State	Florida
General Locality	Ft Lauderdale
Sub-locality	Ft Lauderdale to Dania Cut-off Canal
2007	
CHIEF OF PARTY David B. Elliott - Team Leader	
LIBRARY & ARCHIVES	
DATE	

NOAA FORM 77-28 U.S. DEPARTMENT OF COMMERCE (11-72) NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION		REGISTRY NUMBER:  <b>F00532</b>																																																													
<b>HYDROGRAPHIC TITLE SHEET</b>																																																															
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 NUMBER: N/A																																																													
<table> <tr> <td>State/Territory:</td> <td colspan="3"><b>Florida</b></td> </tr> <tr> <td>General Locality:</td> <td colspan="3"><b>Ft. Lauderdale</b></td> </tr> <tr> <td>Sub-Locality:</td> <td colspan="3"><b>Ft. Lauderdale to Dania Cut-Off Canal</b></td> </tr> <tr> <td>Scale:</td> <td><b>1:10,000</b></td> <td>Date of Survey:</td> <td>13 Feb. to 26 Apr. 2007</td> </tr> <tr> <td>Instructions Dated:</td> <td><b>09 Feb, 2007</b></td> <td>Project Number:</td> <td><b>OPR-H328-NRT2-07</b></td> </tr> <tr> <td>Vessel:</td> <td colspan="3"><b>NOAA Launch 1210</b></td> </tr> <tr> <td>Chief of Party:</td> <td colspan="3"><b>David B. Elliott - Team Leader</b></td> </tr> <tr> <td>Surveyed by:</td> <td colspan="3"><b>David Elliott, Robert Ramsey &amp; Frank Younger (NRT2)</b></td> </tr> <tr> <td>Soundings by:</td> <td colspan="3"><b>ODOM ECHOTRAC CV</b></td> </tr> <tr> <td>Graphic record scaled by:</td> <td colspan="3"><b>DE, RR, FY</b></td> </tr> <tr> <td>Graphic record checked by:</td> <td colspan="3"><b>DE, RR, FY</b></td> </tr> <tr> <td>Protracted by:</td> <td><b>N/A</b></td> <td>Automated Plot:</td> <td><b>N/A</b></td> </tr> <tr> <td>Verification by:</td> <td colspan="3"><b>Atlantic Hydrographic Branch</b></td> </tr> <tr> <td>Soundings in:</td> <td colspan="3"><b>Meters at MLLW <i>feet</i></b></td> </tr> <tr> <td colspan="4">           Remarks:   <b>1) All Times are UTC.</b>   <b>2) This is a basic Hydrographic Survey under the Navigable Area Concept.</b>   <b>3) Projection is UTM Zone 17.</b> </td> </tr> </table>				State/Territory:	<b>Florida</b>			General Locality:	<b>Ft. Lauderdale</b>			Sub-Locality:	<b>Ft. Lauderdale to Dania Cut-Off Canal</b>			Scale:	<b>1:10,000</b>	Date of Survey:	13 Feb. to 26 Apr. 2007	Instructions Dated:	<b>09 Feb, 2007</b>	Project Number:	<b>OPR-H328-NRT2-07</b>	Vessel:	<b>NOAA Launch 1210</b>			Chief of Party:	<b>David B. Elliott - Team Leader</b>			Surveyed by:	<b>David Elliott, Robert Ramsey &amp; Frank Younger (NRT2)</b>			Soundings by:	<b>ODOM ECHOTRAC CV</b>			Graphic record scaled by:	<b>DE, RR, FY</b>			Graphic record checked by:	<b>DE, RR, FY</b>			Protracted by:	<b>N/A</b>	Automated Plot:	<b>N/A</b>	Verification by:	<b>Atlantic Hydrographic Branch</b>			Soundings in:	<b>Meters at MLLW <i>feet</i></b>			Remarks:  <b>1) All Times are UTC.</b>  <b>2) This is a basic Hydrographic Survey under the Navigable Area Concept.</b>  <b>3) Projection is UTM Zone 17.</b>			
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**DESCRIPTIVE REPORT**

**to accompany**

**OPR-H328-NRT2-07**

**FIELD EXAMINATION SURVEY**

**F00532**

**PORT EVERGLADES, FL**

**Scale of Survey: 1:10,000**

**Year of Survey: 2007**

**Navigation Response Team 2 - Launch 1210**

**David B. Elliott- Team Leader**

**A. AREA SURVEYED**

This Field Examination/Chart Evaluation hydrographic survey was conducted in accordance with Hydrographic Project Instructions for S-H912-NRT2-07, Ft Lauderdale, FL. The instructions are dated Feb. 09, 2007.

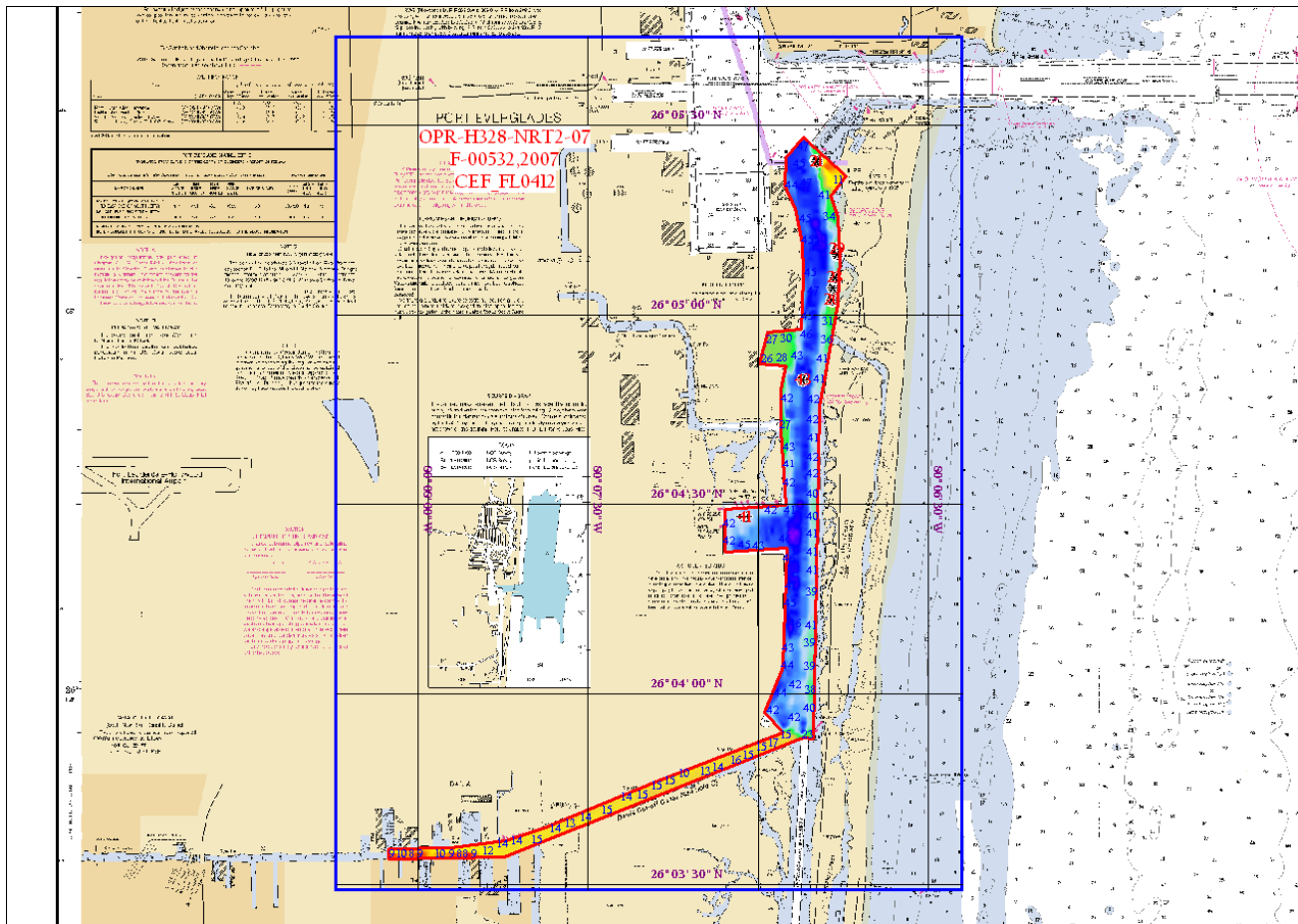
The purpose of this project is to provide NOAA-Remote Sensing Division with a CEF (Chart Evaluation File) for shoreline updates and to collect new hydrography with side scan sonar and identify features on the sea floor between Ft. Lauderdale and the Dania Cut Off Canal. The Southeast Regional Navigation Manager requested a hydrographic survey near Port Everglades as a response to the Ft Lauderdale Pilots Association.

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Survey Dates: Feb 13, 2007 (DN: 044) to, Apr. 26, 2007 (DN: 116)

Survey limits are displayed graphically in the chartlet on the following page .





Total LNM of SB & SSS = 13.0 Crosslines = 0 Total Sq NM = 1.0 Bottom Samples = 0

## **B. DATA ACQUISITION AND PROCESSING**

### **B.1. EQUIPMENT**

Data were acquired by Navigation Response Team 2 and survey Launch 1210. The vessel was configured as described in the Data Acquisition and Processing Report (DAPR) for this project. Major data acquisition systems are summarized below. *DAPR is on file.*

NOAA launch 1210, a 30-foot SeaArk with a draft of 0.5 meters, was used to collect all survey data. There were no unusual vessel configurations or problems encountered with the vessel.

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An ODOM EchotracCV, Fathometer, was used to collect all echo soundings on this survey

A Klein 3000 side scan sonar, was used throughout this survey. The side scan sonar equipment was used to investigate AWOIS items.

A Trimble DGPS Beacon Receiver was used as the primary navigation station on launch 1210.

A Trimble Pathfinder ProXRS was used for all ENC high accuracy positioning and establishment of calibration points.

The Instruments used for determining corrections for the speed of sound through the water column were an ODOM Digibar Ser # 98295-020606 and a Seabird-Seacat Velocity Profiler, model 19-03, Ser# 198671-1477.

## **B.2. QUALITY CONTROL**

Following the Field Procedures Manual and the NOS Hydrographic Surveys Specifications and Deliverables Manual, June 14, 2006 has insured the integrity of the survey data for F00532.

Differential GPS (DGPS) was used for all hydrographic data acquired on this survey. DGPS performance checks were conducted in accordance with FPM 3.4.4 by comparing the DGPS position of the vessel to a high accuracy (1<sup>st</sup> order) calibration point weekly.

### **Echo Sounder Control**

Lead line comparisons were conducted daily and compared to the digital depth and draft.

### **Side Scan Sonar Quality Control**

Daily confidence checks were conducted by observing side scan imagery in the vicinity of known contacts, such as buoys or sand waves. Side scan data were considered satisfactory if these contacts could be distinguished throughout the entire range of the side scan trace. The confidence checks were performed daily at 100/500kHz.

A coverage of 200% was obtained wherever possible in the required survey areas and where water depth and/or hazards permitted. Side scan sonar coverage was conducted to the 12-foot depth curve and single beam reduced line spacing was performed in other areas where warranted. The towfish was deployed off

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the starboard quarter of the vessel, which proved very stable. Distorted images caused by strong tidal currents, or sea state, were seen periodically. Significant contacts and shadows were processed with Caris HIPS/SIPS to determine the height off the bottom. The significant contacts were then compared by position, as well as common depth and relationship to channels to determine if further investigations were needed. All areas surveyed were track line/swath line plotted to insure complete coverage.

The system frequencies used were 100kHz and 500kHz. The recorder was set on one of either 50/75/100-meter range scales. There were no water depths greater than 35 meters.

When operating in shoaler waters (e.g. less than 30 meters deep), a short tow was required for the Klein system. When cable-out was approximately 7 meters or less, minor degradation of the side scan imagery and Innerspace echosounder traces were noted due to cross-talk between the two systems.

## **Junctions**

There are no Junctions applicable to this survey.

## **B.3. CORRECTIONS TO ECHO SOUNDING**

Sound velocity data has been submitted with the digital data package. There are no deviations to be discussed in this section.

## **C. VERTICAL AND HORIZONTAL CONTROL**

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The Instruments used for determining corrections for the speed of sound through the water column were an ODOM Digibar and a Seabird-Seacat Velocity Profiler. CTD casts are downloaded and processed in the Velociwin program supplied by the Hydrographic Systems and Technology Program (HSTP). Corrections were applied to the sounding plot using the Carris HIPS.

Field soundings are corrected by unverified actual heights from NOAA/CO-OPS.

The Real Time Actual 6 min Tides are downloaded from:

"http://co-ops.nos.noaa.gov/data\_res.html", for all gauges required in the given projects defined by the ZDF file provided in the project letter, and instruction. Tide values are downloaded in blocks of data that covers the Times of Hydrography, and saved in a text file format. The MapInfo program is then used with the "HYDRO\_MI" pre-Survey function, of "Create Cowlis", this function converts the text file into a Caris tide file (.tid). *All soundings adjusted for verified tides and final tide zoning file from CO-OPS.*

All elevations and soundings on survey F00532 are based on MLLW unless otherwise specified.

A Request for Approved Tides letter was sent to N/OPS1 on May 21, 2007 (Appendix IV).

## Horizontal Control

The horizontal datum used for this survey is the North American Datum of 1983 (NAD 83), projected using UTM zone 17. The control reference station used for this survey was the USCG DGPS Beacon. *Miami.*

Horizontal dilution of precision (HDOP) was monitored on Hypack daily on the survey platform. The value never exceeded 2.5 HDOP, and adequate satellite coverage was maintained throughout the survey period. All positioning equipment was operated in a manner consistent with the manufacturers requirements and as described in the DAPR. There were no equipment malfunctions which affected the positional quality of the data.

## D. RESULTS AND RECOMMENDATIONS

### D.1 Chart Comparison

There ~~are two~~ charts affected by this survey:

<u>Chart Number</u>	<u>Edition</u>	<u>Edition Date</u>	<u>Scale</u>
11470	37 <sup>th</sup>	Oct. 01, 2004	1:10,000
11467	39 <sup>th</sup>	May 01, 2005	1:40,000
11466	37 <sup>th</sup>	Aug. 01, 2005	1:80,000

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### **General Agreement with Charted soundings**

In general survey soundings compared with the charted soundings within two to three feet. The smooth tides may resolve some of these soundings. All charted soundings should be superseded by this survey. *Concur with clarification. Charts 11467 and 11466 have no bathymetry in the survey area. Therefore, comparison at AHB was done on chart 11470 only.*

### **AWOIS Item Investigations**

There were no AWOIS items within the survey limits. *Concur.*

**The following is a list of charted features that were investigated on F00532 that contain the label PA, ED, PD or Rep that were not assigned as AWOIS:**

- 1) A nine foot 2001 report at 26° 04' 36.53" N, 080° 07' 19.1" W, is now eleven foot. *Concur.*
- 2) A nine foot 2001 report at 26° 05' 21.183" N, 080° 06' 46.5" W, is now eleven foot. *Concur.*
- 3) A charted rock at 26° 03' 36.46"N, 080° 07' 40.70"W, does not exist and was disproved by 200% side scan coverage. Soundings in the area reflect 15 to 16 foot at MLW.

*Concur with clarification. Soundings are based on MLLW.*

### **Dangers to Navigation**

There were eight DTONS within the confines of F00532, the reference for these features can be found in the Appendices Section I. The geographic locations for these DTONS are all new positions to the chart. These items were submitted in advance to MCD.

*See Evaluation Report.*

## **D. 2. ADDITIONAL RESULTS**

### **Aids to Navigation and Other Detached Positions**

Navigation Aids serve their intended purpose.

*See Evaluation Report.*

### **Ferry Routes**

There are no Ferry routes within the confines of F00532.

### **Submarine Cables and Pipelines**

There is one submerged cable crossing, two submerged pipelines and one overhead power cable. They are adequately charted.

### **Bridges**

There are no bridges within the confines of F00532

## **E. APPROVAL SHEET**

**OPR-H328-NRT2-07**

**Ft. Lauderdale, FL**

**Survey Registry No. F00532**

Field operations for this basic hydrographic survey were conducted under my daily supervision with frequent checks of progress and adequacy. All field sheets, this Descriptive Report, and all accompanying records and data are approved.

This survey is adequate to supersede all prior surveys in common areas, and for application to the relevant NOS nautical charts.

**Submitted by:**

**David B. Elliott - Team Leader  
Navigation Response Team 2**

## **APPENDIX I**

### **Dangers to Navigation**



# F00532\_DtoN\_Report

**Registry Number:** F00532  
**State:** Florida  
**Locality:** Atlantic Ocean  
**Sub-locality:** Port Everglades to Dana Cut  
**Project Number:** OPR-H328-NRT2-07  
**Survey Dates:** 02/13/2007 - 04/26/2007

## Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11470	37th	10/01/2004	1:10,000 (11470_1)	[L]NTM: ?
11467	39th	05/01/2005	1:40,000 (11467_5) 1:24,000 (11467_2)	[L]NTM: ?
11466	37th	08/01/2005	1:80,000 (11466_1)	[L]NTM: ?
11469	7th	12/01/2005	1:100,000 (11469_1)	[L]NTM: ?
11460	40th	09/01/2005	1:466,940 (11460_1)	[L]NTM: ?
11451	32nd	03/01/2005	1:495,362 (11451_17) 1:495,362 (11451_16)	[L]NTM: ?
11013	46th	11/01/2005	1:1,200,000 (11013_1)	[L]NTM: ?
411	51st	12/01/2006	1:2,160,000 (411_1)	[L]NTM: ?

\* Correction(s) - source: last correction applied (last correction reviewed--"cleared date")

## Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Wreck	12.71 m	26° 04' 27.8" N	080° 07' 02.1" W	---
1.2	Rock	8.82 m	26° 05' 10.3" N	080° 06' 45.9" W	---
1.3	Rock	9.30 m	26° 05' 09.6" N	080° 06' 45.8" W	---
1.4	Rock	6.97 m	26° 05' 05.9" N	080° 06' 46.2" W	---
1.5	Rock	6.27 m	26° 05' 02.4" N	080° 06' 46.7" W	---
1.6	Rock	13.26 m	26° 04' 49.6" N	080° 06' 51.9" W	---
1.7	Rock	6.61 m	26° 05' 24.2" N	080° 06' 49.5" W	---

**1 - DR\_DToN**

## 1.1) Profile/Beam - 410/1 from f00532 / nrt2\_1210\_sb / 2007-044 / 001\_1732

### DANGER TO NAVIGATION

#### Survey Summary

**Survey Position:** 26° 04' 27.8" N, 080° 07' 02.1" W  
**Least Depth:** 12.71 m (= 41.69 ft = 6.948 fm = 6 fm 5.69 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2007-044.17:32:34.832 (02/13/2007)  
**Survey Line:** f00532 / nrt2\_1210\_sb / 2007-044 / 001\_1732  
**Profile/Beam:** 410/1  
**Charts Affected:** 11470\_1, 11467\_5, 11466\_1, 11469\_1, 11460\_1, 11451\_16, 11451\_17, 11013\_1, 411\_1

#### Remarks:

Subm Wrk was located during Hurricane response in 2005. The wreck has not been removed.

#### Feature Correlation

Address	Feature	Range	Azimuth	Status
f00532/nrt2_1210_sb/2007-044/001_1732	410/1	0.00	000.0	Primary
f00532/nrt2_1210_klein3000hf_200sss/2007-044/sss070213173000	0001	2.51	184.0	Secondary
f00532/nrt2_1210_klein3000hf_200sss/2007-044/sss070213172200	0001	3.47	300.5	Secondary
f00532/nrt2_1210_klein3000hf_100sss/2007-044/sss070213172500	0001	6.07	077.7	Secondary
f00532/nrt2_1210_klein3000hf_100sss/2007-044/sss070213171900	0001	8.13	064.9	Secondary

#### Hydrographer Recommendations

Chart subm NON-Dangerous wrk with a LD=41ft @ mllw.

#### Cartographically-Rounded Depth (Affected Charts):

41ft (11470\_1, 11467\_5, 11466\_1, 11451\_16, 11451\_17)

7fm (11460\_1, 11013\_1, 411\_1)

6fm 5ft (11469\_1)

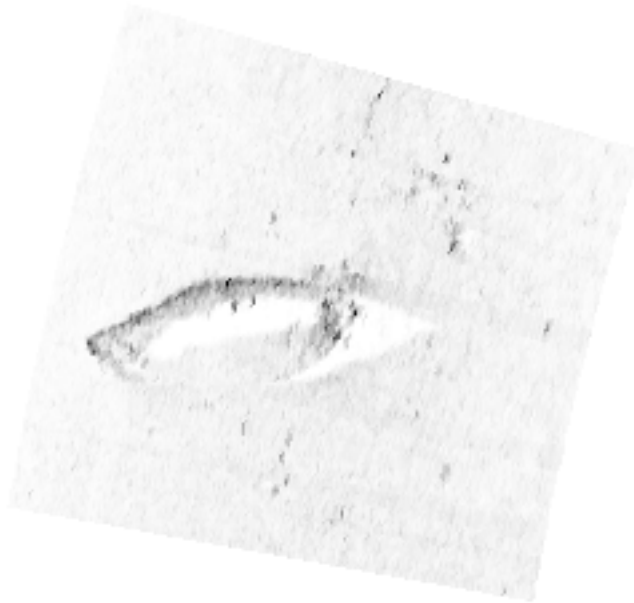
## S-57 Data

**Geo object 1:** Wreck (WRECKS)  
**Attributes:** CATWRK - 2:dangerous wreck  
CONVIS - 2:not visual conspicuous  
INFORM - noted first after Hurricane Wilma 2005  
OBJNAM - subm Wrk  
QUASOU - 1:depth known  
TECSOU - 1,2:found by echo-sounder,found by side scan sonar  
VALSOU - 12.706 m  
VERDAT - 12:Mean lower low water  
WATLEV - 3:always under water/submerged

## Office Notes

Concur with clarification. Chart Submerged dangerous wreck at surveyed position.

## Feature Images



*Figure 1.1.1*

## 1.2) Profile/Beam - 433/1 from f00532 / nrt2\_1210\_sb / 2007-116 / 002\_1253

### DANGER TO NAVIGATION

#### Survey Summary

**Survey Position:** 26° 05' 10.3" N, 080° 06' 45.9" W  
**Least Depth:** 8.82 m (= 28.94 ft = 4.824 fm = 4 fm 4.94 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2007-116.12:53:35.068 (04/26/2007)  
**Survey Line:** f00532 / nrt2\_1210\_sb / 2007-116 / 002\_1253  
**Profile/Beam:** 433/1  
**Charts Affected:** 11470\_1, 11467\_2, 11467\_5, 11466\_1, 11469\_1, 11460\_1, 11451\_17, 11013\_1, 411\_1

#### Remarks:

sss ops showed numerous large rocks along wall.

#### Feature Correlation

Address	Feature	Range	Azimuth	Status
f00532/nrt2_1210_sb/2007-116/002_1253	433/1	0.00	000.0	Primary
f00532/nrt2_1210_sb/2007-116/002_1253	384/1	4.09	357.9	Secondary (grouped)
f00532/nrt2_1210_klein3000hf_100sss/2007-044/sss070213174700	0001	5.86	214.2	Secondary (grouped)
f00532/nrt2_1210_klein3000hf_100sss/2007-044/sss070213174700	0002	6.51	354.4	Secondary

#### Hydrographer Recommendations

Retain Foul along shore. Chart 29ft @ mllw

#### Cartographically-Rounded Depth (Affected Charts):

29ft (11470\_1, 11467\_2, 11467\_5, 11466\_1, 11451\_17)

4 ¾fm (11460\_1, 11013\_1, 411\_1)

4fm 5ft (11469\_1)

#### S-57 Data

**Geo object 1:** Obstruction (OBSTRN)

**Attributes:** INFORM - rk

OBJNAM - subm rk

QUASOU - 1:depth known

TECSOU - 1,2:found by echo-sounder,found by side scan sonar

VALSOU - 8.822 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

**Geo object 2:** Underwater rock / awash rock (UWTROC)

**Attributes:** QUASOU - 1:depth known

TECSOU - 1,2:found by echo-sounder,found by side scan sonar

VALSOU - 8.822 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

## Office Notes

Concur.

## Feature Images



*Figure 1.2.1*



### 1.3) Profile/Beam - 136/1 from f00532 / nrt2\_1210\_sb / 2007-116 / 002\_1253

## DANGER TO NAVIGATION

### Survey Summary

**Survey Position:** 26° 05' 09.6" N, 080° 06' 45.8" W  
**Least Depth:** 9.30 m (= 30.52 ft = 5.086 fm = 5 fm 0.52 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2007-116.12:53:19.802 (04/26/2007)  
**Survey Line:** f00532 / nrt2\_1210\_sb / 2007-116 / 002\_1253  
**Profile/Beam:** 136/1  
**Charts Affected:** 11470\_1, 11467\_2, 11467\_5, 11466\_1, 11469\_1, 11460\_1, 11451\_17, 11013\_1, 411\_1

#### Remarks:

[None]

### Feature Correlation

Address	Feature	Range	Azimuth	Status
f00532/nrt2_1210_sb/2007-116/002_1253	136/1	0.00	000.0	Primary
f00532/nrt2_1210_klein3000hf_100sss/2007-044/sss070213174700	0003	2.86	001.2	Secondary

### Hydrographer Recommendations

[None]

#### Cartographically-Rounded Depth (Affected Charts):

30ft (11470\_1, 11467\_2, 11467\_5, 11466\_1, 11451\_17)

5fm (11460\_1, 11013\_1, 411\_1)

5fm 0ft (11469\_1)

### S-57 Data

**Geo object 1:** Obstruction (OBSTRN)  
**Attributes:** INFORM - rk  
 OBJNAM - subm rk  
 QUASOU - 1:depth known

TECSOU - 1,2:found by echo-sounder,found by side scan sonar

VALSOU - 9.301 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

**Geo object 2:** Underwater rock / awash rock (UWTROC)

**Attributes:** QUASOU - 1:depth known

TECSOU - 1,2:found by echo-sounder,found by side scan sonar

VALSOU - 9.301 m

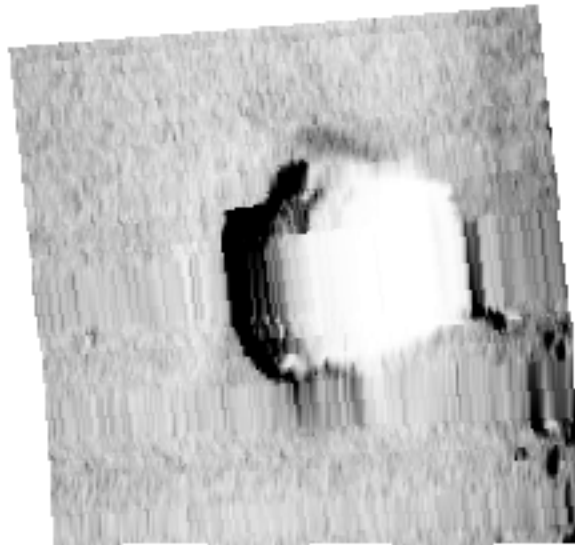
VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

## Office Notes

Rock. Chart sounding and leave the text "foul".

## Feature Images



*Figure 1.3.1*

## 1.4) Profile/Beam - 833/1 from f00532 / nrt2\_1210\_sb / 2007-116 / 004\_1251

### DANGER TO NAVIGATION

#### Survey Summary

**Survey Position:** 26° 05' 05.9" N, 080° 06' 46.2" W  
**Least Depth:** 6.97 m (= 22.86 ft = 3.810 fm = 3 fm 4.86 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2007-116.12:52:23.293 (04/26/2007)  
**Survey Line:** f00532 / nrt2\_1210\_sb / 2007-116 / 004\_1251  
**Profile/Beam:** 833/1  
**Charts Affected:** 11470\_1, 11467\_5, 11466\_1, 11469\_1, 11460\_1, 11451\_17, 11013\_1, 411\_1

#### Remarks:

200% sss ops located large rks.

#### Feature Correlation

Address	Feature	Range	Azimuth	Status
f00532/nrt2_1210_sb/2007-116/004_1251	833/1	0.00	000.0	Primary
f00532/nrt2_1210_klein3000hf_100sss/2007-044/sss070213174700	0004	5.07	351.3	Secondary
f00532/nrt2_1210_klein3000hf_100sss/2007-044/sss070213173900	0005	5.95	144.6	Secondary
f00532/nrt2_1210_klein3000hf_100sss/2007-044/sss070213173900	0004	43.22	017.4	Secondary
f00532/nrt2_1210_klein3000hf_100sss/2007-044/sss070213174700	0005	49.98	010.0	Secondary

#### Hydrographer Recommendations

Chart 23 ft rk @ mllw.

#### Cartographically-Rounded Depth (Affected Charts):

23ft (11470\_1, 11467\_5, 11466\_1, 11451\_17)

3  $\frac{3}{4}$ fm (11460\_1, 11013\_1, 411\_1)

3fm 5ft (11469\_1)

## S-57 Data

**Geo object 1:** Obstruction (OBSTRN)

**Attributes:** INFORM - rk

OBJNAM - subm rk

QUASOU - 1:depth known

TECSOU - 1,2:found by echo-sounder,found by side scan sonar

VALSOU - 6.968 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

**Geo object 2:** Underwater rock / awash rock (UWTROC)

**Attributes:** QUASOU - 1:depth known

STATUS - 1:permanent

TECSOU - 1,2:found by echo-sounder,found by side scan sonar

VALSOU - 6.968 m

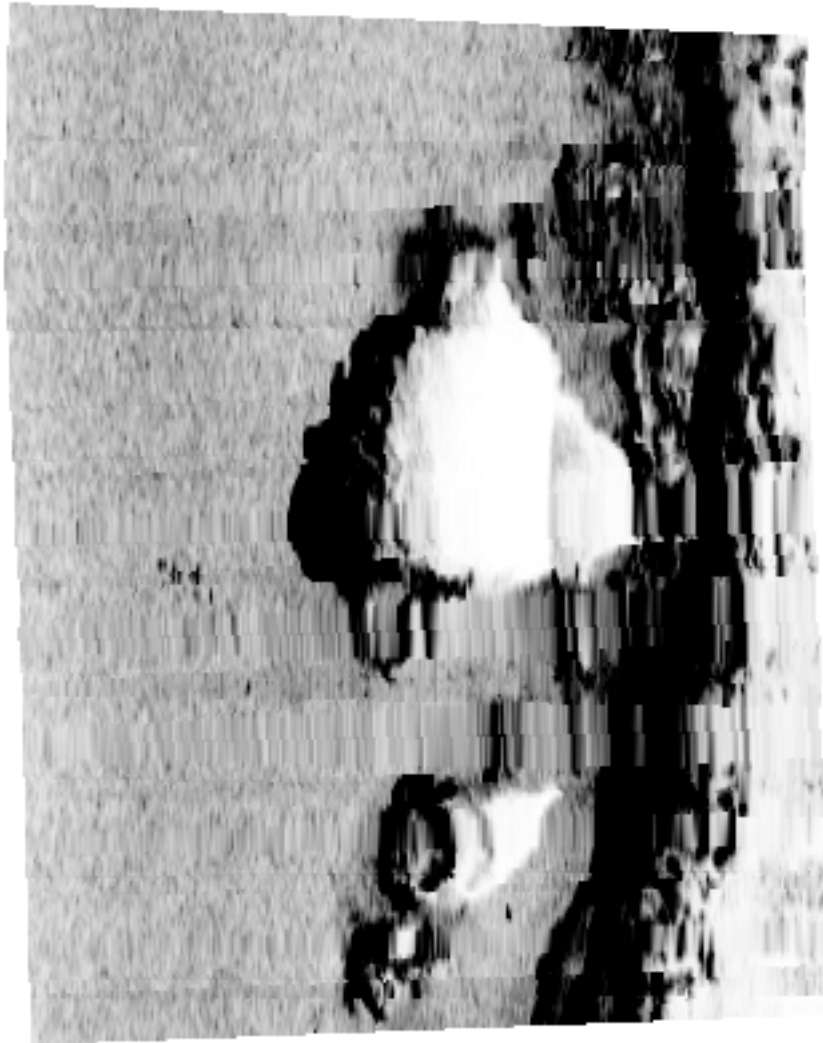
VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

## Office Notes

Concur.

## Feature Images



*Figure 1.4.1*

## 1.5) Profile/Beam - 468/1 from f00532 / nrt2\_1210\_sb / 2007-116 / 006\_1251

### DANGER TO NAVIGATION

#### Survey Summary

**Survey Position:** 26° 05' 02.4" N, 080° 06' 46.7" W  
**Least Depth:** 6.27 m (= 20.56 ft = 3.427 fm = 3 fm 2.56 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2007-116.12:51:23.867 (04/26/2007)  
**Survey Line:** f00532 / nrt2\_1210\_sb / 2007-116 / 006\_1251  
**Profile/Beam:** 468/1  
**Charts Affected:** 11470\_1, 11467\_5, 11466\_1, 11469\_1, 11460\_1, 11451\_17, 11013\_1, 411\_1

#### Remarks:

200% sss ops located large rks.

#### Feature Correlation

Address	Feature	Range	Azimuth	Status
f00532/nrt2_1210_sb/2007-116/006_1251	468/1	0.00	000.0	Primary
f00532/nrt2_1210_klein3000hf_100sss/2007-044/sss070213173900	0003	4.94	186.2	Secondary
f00532/nrt2_1210_klein3000hf_100sss/2007-044/sss070213174700	0006	5.97	006.7	Secondary

#### Hydrographer Recommendations

Retain foul.

#### Cartographically-Rounded Depth (Affected Charts):

20ft (11470\_1, 11467\_5, 11466\_1, 11451\_17)

3 ¼fm (11460\_1, 11013\_1, 411\_1)

3fm 2ft (11469\_1)

#### S-57 Data

**Geo object 1:** Obstruction (OBSTRN)  
**Attributes:** INFORM - rk  
 OBJNAM - subm rk

QUASOU - 1:depth known

TECSOU - 1,2:found by echo-sounder,found by side scan sonar

VALSOU - 6.267 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

**Geo object 2:** Underwater rock / awash rock (UWTROC)

**Attributes:** QUASOU - 1:depth known

TECSOU - 1,2:found by echo-sounder,found by side scan sonar

VALSOU - 6.267 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

## Office Notes

Concur with clarification. Add depth of 20 ft.



## Feature Images



*Figure 1.5.1*

## 1.6) Profile/Beam - 520/1 from f00532 / nrt2\_1210\_sb / 2007-116 / 008\_1247

### DANGER TO NAVIGATION

#### Survey Summary

**Survey Position:** 26° 04' 49.6" N, 080° 06' 51.9" W  
**Least Depth:** 13.26 m (= 43.49 ft = 7.248 fm = 7 fm 1.49 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2007-116.12:48:15.768 (04/26/2007)  
**Survey Line:** f00532 / nrt2\_1210\_sb / 2007-116 / 008\_1247  
**Profile/Beam:** 520/1  
**Charts Affected:** 11470\_1, 11467\_5, 11466\_1, 11469\_1, 11460\_1, 11451\_16, 11451\_17, 11013\_1, 411\_1

#### Remarks:

200% sss ops located large rk.

#### Feature Correlation

Address	Feature	Range	Azimuth	Status
f00532/nrt2_1210_sb/2007-116/008_1247	520/1	0.00	000.0	Primary
f00532/nrt2_1210_klein3000hf_200sss/2007-044/sss070213142300	0001	1.19	124.0	Secondary
f00532/nrt2_1210_klein3000hf_200sss/2007-044/sss070213151300	0005	1.99	002.7	Secondary

#### Hydrographer Recommendations

Chart 43ft rk @ mllw.

#### Cartographically-Rounded Depth (Affected Charts):

43ft (11470\_1, 11467\_5, 11466\_1, 11451\_16, 11451\_17)

7 ¼fm (11460\_1, 11013\_1, 411\_1)

7fm 1ft (11469\_1)

#### S-57 Data

**Geo object 1:** Obstruction (OBSTRN)  
**Attributes:** INFORM - rk  
 OBJNAM - subm rk

QUASOU - 1:depth known

TECSOU - 1,2:found by echo-sounder,found by side scan sonar

VALSOU - 13.256 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

**Geo object 2:** Underwater rock / awash rock (UWTROC)

**Attributes:** QUASOU - 1:depth known

TECSOU - 1,2:found by echo-sounder,found by side scan sonar

VALSOU - 13.256 m

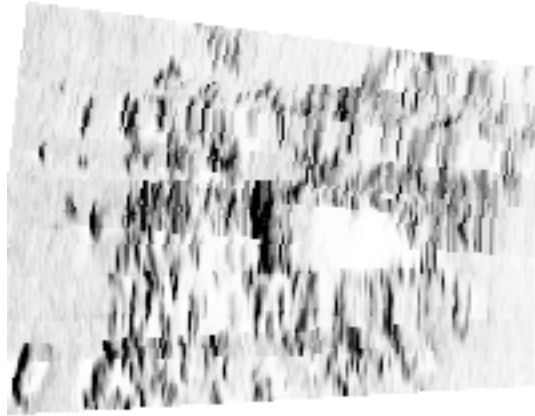
VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

## Office Notes

Concur.

## Feature Images



*Figure 1.6.1*

## 1.7) Profile/Beam - 817/1 from f00532 / nrt2\_1210\_sb / 2007-116 / 052\_1257

### DANGER TO NAVIGATION

#### Survey Summary

**Survey Position:** 26° 05' 24.2" N, 080° 06' 49.5" W  
**Least Depth:** 6.61 m (= 21.68 ft = 3.614 fm = 3 fm 3.68 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2007-116.12:57:45.610 (04/26/2007)  
**Survey Line:** f00532 / nrt2\_1210\_sb / 2007-116 / 052\_1257  
**Profile/Beam:** 817/1  
**Charts Affected:** 11470\_1, 11467\_2, 11467\_5, 11466\_1, 11469\_1, 11460\_1, 11451\_17, 11013\_1, 411\_1

#### Remarks:

[None]

#### Feature Correlation

Address	Feature	Range	Azimuth	Status
f00532/nrt2_1210_sb/2007-116/052_1257	817/1	0.00	000.0	Primary
f00532/nrt2_1210_klein3000hf_200sss/2007-044/sss070213151300	0001	5.09	151.6	Secondary

#### Hydrographer Recommendations

[None]

#### Cartographically-Rounded Depth (Affected Charts):

21ft (11470\_1, 11467\_2, 11467\_5, 11466\_1, 11451\_17)

3 ½fm (11460\_1, 11013\_1, 411\_1)

3fm 3ft (11469\_1)

#### S-57 Data

**Geo object 1:** Obstruction (OBSTRN)  
**Attributes:** INFORM - rock slab  
 OBJNAM - subm rk  
 QUASOU - 1:depth known

TECSOU - 1,2:found by echo-sounder,found by side scan sonar

VALSOU - 6.609 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

**Geo object 2:** Underwater rock / awash rock (UWTROC)

**Attributes:** QUASOU - 1:depth known

TECSOU - 1,2:found by echo-sounder,found by side scan sonar

VALSOU - 6.609 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

## Office Notes

Chart 21 ft Rk.

## Feature Images



*Figure 1.7.1*

## **APPENDIX II**

### **Survey Features**



# F00532 Charted

**Registry Number:** F00532  
**State:** Florida  
**Locality:** Atlantic Ocean  
**Sub-locality:** Port Everglades to Dana Cut  
**Project Number:** OPR-H328-NRT2-07  
**Survey Date:** 06/27/2007

## Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11470	37th	10/01/2004	1:10,000 (11470_1)	[L]NTM: ?
11467	39th	05/01/2005	1:40,000 (11467_5)	[L]NTM: ?
11466	37th	08/01/2005	1:80,000 (11466_1)	[L]NTM: ?
11469	7th	12/01/2005	1:100,000 (11469_1)	[L]NTM: ?
11460	40th	09/01/2005	1:466,940 (11460_1)	[L]NTM: ?
11451	32nd	03/01/2005	1:495,362 (11451_17) 1:495,362 (11451_16)	[L]NTM: ?
11013	46th	11/01/2005	1:1,200,000 (11013_1)	[L]NTM: ?
411	51st	12/01/2006	1:2,160,000 (411_1)	[L]NTM: ?

\* Correction(s) - source: last correction applied (last correction reviewed--"cleared date")

## Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Pile	[None]	26° 04' 29.8" N	080° 06' 54.6" W	---

**1 - DR\_Charted**

## 1.1) Contact/Point - 0001/1 from f00532 / nrt2\_1210\_klein3000hf\_100sss / 2007-044 / sss070213162700

### Survey Summary

**Survey Position:** 26° 04' 29.8" N, 080° 06' 54.6" W  
**Least Depth:** [None]  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2007-178.03:35:28 (06/27/2007)  
**Survey Line:** f00532 / nrt2\_1210\_klein3000hf\_100sss / 2007-044 / sss070213162700  
**Contact/Point:** 0001/1  
**Charts Affected:** 11470\_1, 11467\_5, 11466\_1, 11469\_1, 11460\_1, 11451\_16, 11451\_17, 11013\_1, 411\_1

#### Remarks:

Chtd light

### Feature Correlation

Address	Feature	Range	Azimuth	Status
f00532/nrt2_1210_klein3000hf_100sss/2007-044/sss070213162700	0001	0.00	000.0	Primary
ChartGPs - Digitized	1	4.65	044.7	Secondary (grouped)

### Hydrographer Recommendations

[None]

### S-57 Data

**Geo object 1:** Pile (PILPNT)

### Office Notes

Do not concur. Charted Pile. Retain as charted.

# F00532 Uncharted

**Registry Number:** F00532  
**State:** Florida  
**Locality:** Atlantic Ocean  
**Sub-locality:** Port Everglades to Dana Cut  
**Project Number:** OPR-H328-NRT2-07  
**Survey Date:** 01/23/2009

## Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11470	37th	10/01/2004	1:10,000 (11470_1)	[L]NTM: ?
11467	39th	05/01/2005	1:40,000 (11467_5)	[L]NTM: ?
11466	37th	08/01/2005	1:80,000 (11466_1)	[L]NTM: ?
11469	7th	12/01/2005	1:100,000 (11469_1)	[L]NTM: ?
11460	40th	09/01/2005	1:466,940 (11460_1)	[L]NTM: ?
11451	32nd	03/01/2005	1:495,362 (11451_17)	[L]NTM: ?
11013	46th	11/01/2005	1:1,200,000 (11013_1)	[L]NTM: ?
411	51st	12/01/2006	1:2,160,000 (411_1)	[L]NTM: ?

\* Correction(s) - source: last correction applied (last correction reviewed--"cleared date")

## Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Dolphin	[None]	26° 04' 53.7" N	080° 06' 54.6" W	---

## **1 - DR\_UnCharted**

## 1.1) Contact/Point - 0001/1 from f00532 / nrt2\_1210\_klein3000hf\_200sss / 2007-044 / sss070213170200

### Survey Summary

**Survey Position:** 26° 04' 53.7" N, 080° 06' 54.6" W  
**Least Depth:** [None]  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2009-023.04:44:33 (01/23/2009)  
**Survey Line:** f00532 / nrt2\_1210\_klein3000hf\_200sss / 2007-044 / sss070213170200  
**Contact/Point:** 0001/1  
**Charts Affected:** 11470\_1, 11467\_5, 11466\_1, 11469\_1, 11460\_1, 11451\_17, 11013\_1, 411\_1

#### Remarks:

AHB addition - Dolphin

### Feature Correlation

Address	Feature	Range	Azimuth	Status
f00532/nrt2_1210_klein3000hf_200sss/2007-044/sss070213170200	0001	0.00	000.0	Primary
f00532/nrt2_1210_klein3000hf_200sss/2007-044/sss070213165700	0001	6.71	130.0	Secondary
f00532/nrt2_1210_klein3000hf_100sss/2007-044/sss070213170000	0001	11.61	075.4	Secondary

### Hydrographer Recommendations

[None]

### S-57 Data

**Geo object 1:** Pile (PILPNT)

### Office Notes

Chart Dolphin PA

## **APPENDIX III**

### **Final Project Sketch and Survey Outline**





## **APPENDIX IV**

### **Tides and Water Levels**

May 21, 2007

MEMORANDUM FOR: Chief, Requirements and Development Division, N/OPS1

FROM: D.B. Elliott, NOAA // NRT2

SUBJECT: Request for Approved Tides/Water Levels

Please provide the following data:

1. Tide Note
2. Final zoning in MapInfo and .MIX format
3. Six Minute Water Level data (Co-ops web site)

Transmit data to the following:

NOAA/NOS/Atlantic Hydrographic Branch  
N/CS33, Building #2  
439 West York Street  
Norfolk, VA 23510  
ATTN: Chief AHB

These data are required for the processing of the following hydrographic survey:

Project No.: OPR-H328-NRT2-07

Registry No.: F00532

State: Florida

Locality: Atlantic Ocean

Sublocality: Port Everglades to Dana Cut

Attachments containing:

- 1) an Abstract of Times of Hydrography,
- 2) digital MID MIF files of the track lines from Pydro

cc: N/CS33

Year_DOY	Min Time	Max Time
2007_044	14:11:51	19:12:18
2007_116	12:40:48	13:11:15



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
National Ocean Service  
Silver Spring, Maryland 20910

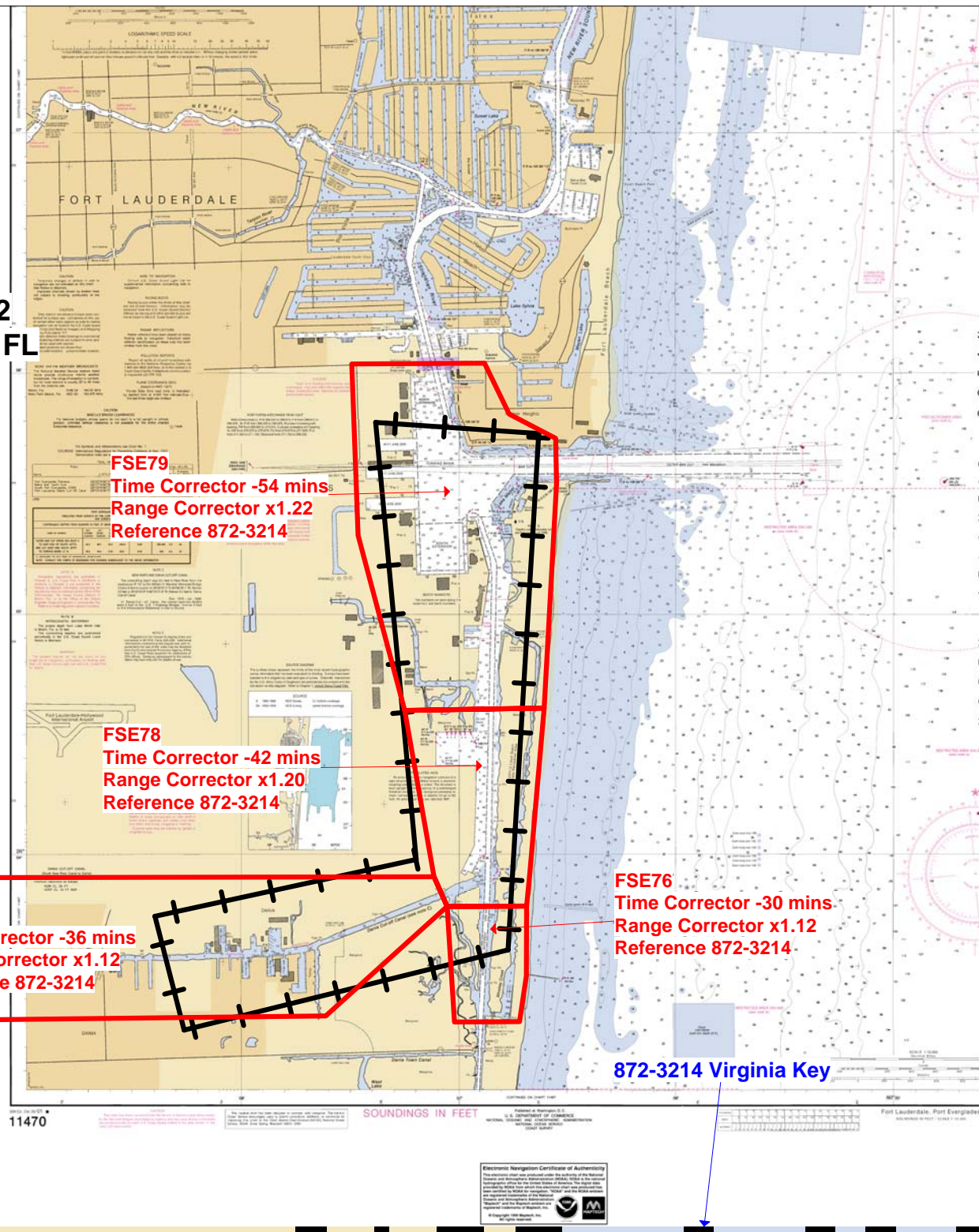


# **Final tide zone node point locations for OPR-H328-NRT2-2007, F00532**

Format: Tide Station (in recommended order of use)  
Average Time Correction (in minutes)  
Range Correction  
Longitude in decimal degrees (negative value denotes Longitude West),  
Latitude in decimal degrees

	Tide Station Order	AVG Time Correction	Range Correction
Zone FSE76	872-3214	-30	1.12
-80.116939 26.055031			
-80.117497 26.063039			
-80.117497 26.063039			
-80.111411 26.06306			
-80.111429 26.058224			
-80.111954 26.055054			
-80.116939 26.055031			
Zone FSE77	8723214	-36	1.12
-80.118503 26.065091			
-80.160234 26.065019			
-80.160158 26.05511			
-80.126812 26.055449			
-80.117497 26.063039			
-80.118503 26.065091			
Zone FSE78	8723214	-42	1.2
-80.111165 26.065298			
-80.110066 26.076784			
-80.12075 26.076612			
-80.118503 26.065091			
-80.117497 26.063039			
-80.111411 26.06306			
-80.111165 26.065298			
Zone FSE79	8723214	-54	1.22
-80.110066 26.076784			
-80.109112 26.092318			
-80.109178 26.095463			
-80.11274 26.09714			
-80.114633 26.100667			
-80.124811 26.100617			
-80.124325 26.088748			
-80.12075 26.076612			
-80.110066 26.076784			

**Final Tidal Zoning for  
OPR-H328-NRT2-2007, F00532  
Port Everglades to Dana Cut, FL**





**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
National Ocean Service  
Silver Spring, Maryland 20910

**TIDE NOTE FOR HYDROGRAPHIC SURVEY**

**DATE :** June 6, 2007

**HYDROGRAPHIC BRANCH:** Atlantic

**HYDROGRAPHIC PROJECT:** OPR-H328-NRT2-2007

**HYDROGRAPHIC SHEET:** F00532

**LOCALITY:** Port Everglades to Dana Cut, FL

**TIME PERIOD:** February 13, 2007  
April 26, 2007

**TIDE STATION USED:** 872-3214 Virginia Key, FL

Lat. 25° 43.9'N Long. 80°9.7' W

**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 0.000 meters

**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 0.662 meters

**REMARKS:** RECOMMENDED ZONING

Use zone(s) identified as: FSE76, FSE77, FSE78 and FSE79

Refer to attachments for zoning information.

**Note 1:** Provided time series data are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time on the 1983-2001 National Tidal Datum Epoch (NTDE).

*fm*

*[Signature]*

CHIEF, PRODUCTS AND SERVICES DIVISION



## **APPENDIX V**

### **Supplemental Survey Records**

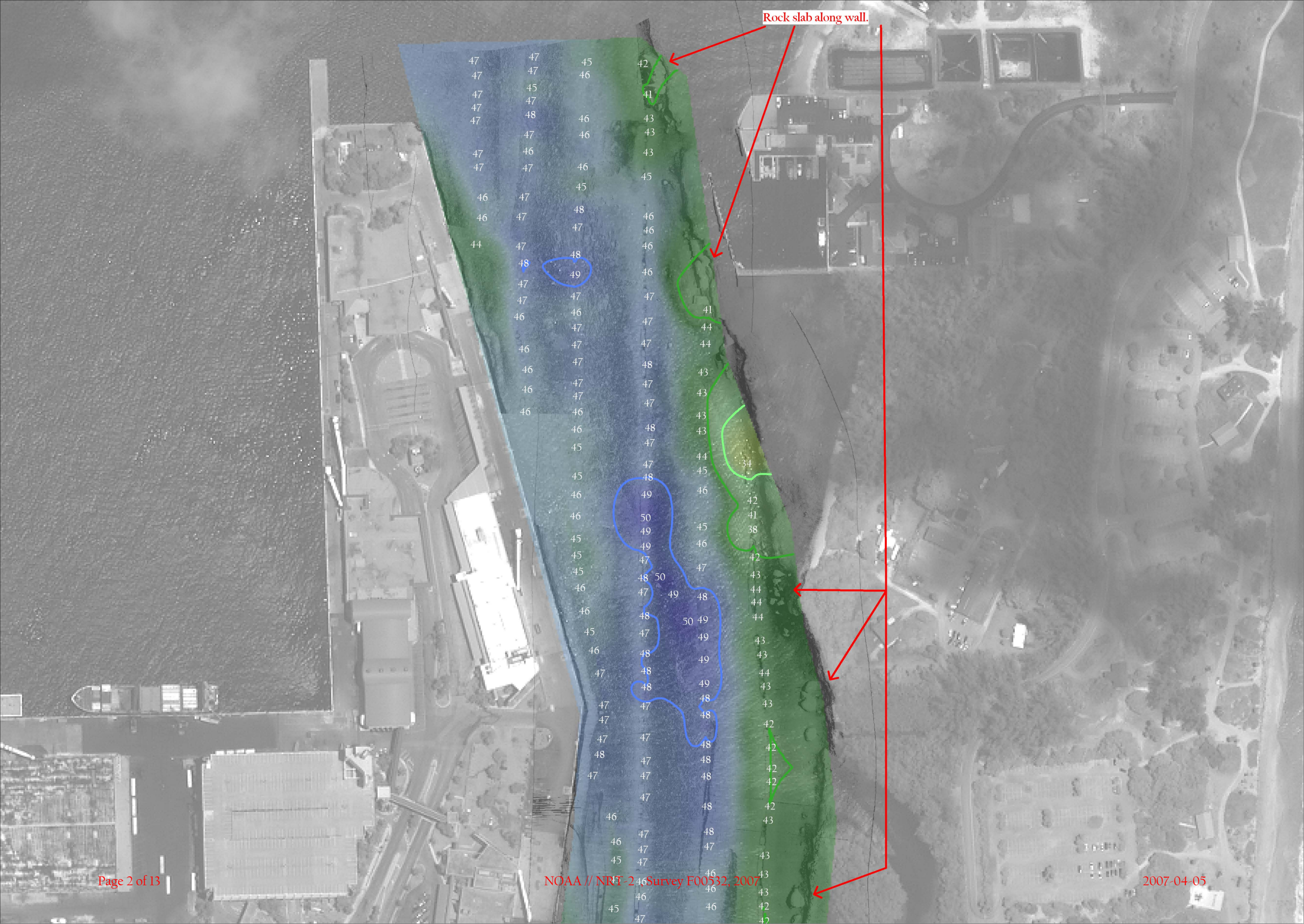


NOTE: UNDER NOAA'S LICENSING AGREEMENT WITH SPACE IMAGING, INC. THE IKONOS SATELLITE IMAGERY ON THIS DISK MAY BE FREELY DISTRIBUTED WITHIN NOAA, BUT SHALL NOT BE PROVIDED TO OTHER AGENCIES OR TO THE PUBLIC.

The color imagery is downloaded 1m resolution, MrSid format, from the Florida State "Labins" site. This imagery was flown in 2004, and is free to the public for download and viewing.

The Side Scan Sonar imagery was conducted in 2007, as part of NOAA survey F-00532. This is a preliminary review, and additional work is planned in late April, 2007.

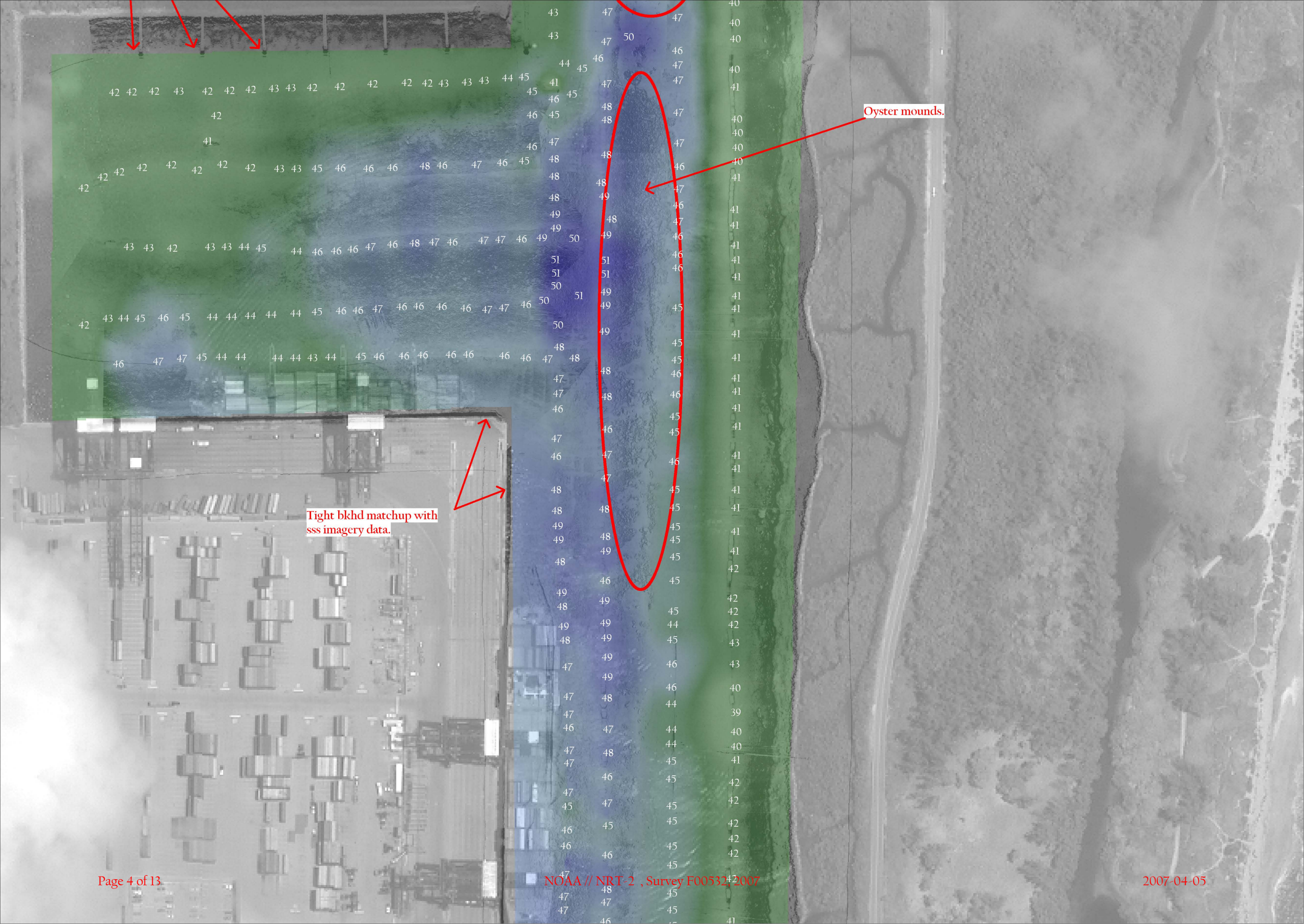
The purpose of this document, is to present the varying aspects and usage of NOAA Hydrographic survey data. As can be seen in these data sets, in addition to contemporary hydrographic charting purposes, channel limits, outfall effects, bottom characteristics, shoreline erosion, are but a few reviewable factors available.











Oyster mounds.

Tight bkhd matchup with  
sss imagery data.





End of dredged channel.





Stormwater runoffs depositing silt into  
norther channel edge.





Charted rock no longer exist.



Sign PA

Pipeline Area

Mar

Charted rock no longer exist.











F00532\_SEL\_Qm\_AS  
Intensity = 5









**ATLANTIC HYDROGRAPHIC BRANCH  
EVALUATION REPORT to ACCOMPANY  
SURVEY F00532 (2007)**

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.

**B. DATA ACQUISITION AND PROCESSING**

**B.1 DATA PROCESSING**

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

HSTP PYDRO version 8.7 r2586  
CARIS HIPS/SIPS version 6.1 SP2 HF 1-6  
CARIS Bathy Manager version 2.1 HF 1-5  
DKART INSPECTOR, version 5.0 Build 732 SP1  
CARIS HOM version 3.3 SP3 HF 1-8  
CARIS S57 Composer version 2.0 HF 1-2

**B.2. QUALITY CONTROL**

**B.2.1. H-Cell**

The AHB source depth grid for the survey's nautical chart update product entailed the field's original VBES data to create a product surface grid with a resolution of 3m. The survey scale selected soundings were extracted from the 3m product surface. The selected sounding set is approximately 1mm per chart scale, which is 1:10,000. The chart scale selected soundings are a subset of the survey scale selected soundings. The surface model was referenced when selecting the chart scale soundings, to ensure that the selected soundings portrayed the bathymetry within the common area.

Density of soundings for this survey was sparse. VBES line spacing was "reduced" to 30-40 meters in some areas but enough data was not collected to supercede some current charted soundings.

A 30-ft depth curve was manually created in some areas to show areas of obstructions as well as SBDAREs to delineate "Rky" areas. Rocks were too numerous to include as individual point contacts. The depth curves are forwarded to MCD for reference only. The depth curves are incorporated into the SS layer deliverable.

The pre-compilation products or components (Stand Alone HOB files (SAHOB)) are detailed in the Pre-Compile Process Log attached at the end of this document. The Stand Alone HOB files (SAHOB) included depth curves (DEPCNT), sounding selections (SOUNDG), features (SBDARE), Meta objects (M\_COVR, M\_QUAL, M\_NSYS), and cartographic Blue Notes. The individual SAHOB files were inserted into the BASE Manager SS and CS layers and exported to S57 format in order to create the H-Cell deliverables.

The completed H-Cell was exported as a Base Cell File (F00532\_CS\_Meters.000) in S-57 format with all values in metric units. The metric file was then converted to NOAA chart units (F00532\_CS.000) with all values measured in feet following NOAA sounding rounding rules.

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

The F00532 CARIS H-Cell final deliverables include the following products:

F00532_CS.000	1:10,000 Scale	F00532 H-Cell with Chart Scale Selected Soundings, features, META, and Bluenotes
F00532_SS.000	1:10,000 Scale	F00532 Selected Soundings (Survey Scale) and Depth Curves

## **D. RESULTS AND RECOMMENDATIONS**

### **D.1 CHART COMPARISON**

#### **11470 (38th Edition, AUG/08)**

Corrected through NM 08/23/2008

Corrected through LNM 08/14/2008

Scale 1:10,000

#### **ENC Comparison**

#### **US5FL32M**

Fort Lauderdale

Port Everglades

Edition 14

Application Date 2008-12-19

Issue Date 2009-01-26

Chart 11470

#### **D.1.1 Hydrography**

The charted hydrography originates with prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in section “D” and Appendix 1&2 of the Descriptive Report. The following exceptions are noted:

- a. No crosslines were run by the field unit and all lines were run parallel to the channel. Across-channel lines would have been very beneficial for compilation.
- b. Sidescan imagery covered the entire width of surveyed area and was very helpful in pointing out contacts and foul areas. Hand drawn contours are for information only. It is recommended that areas defined by SBDARE and/or contours be denoted as “Rky” or absorbed into an updated foul area delineation.

- c. Although all point contacts are included in Appendix II of the Descriptive Report, some were omitted for compilation and replaced by SBDARE and CS soundings.

### **D.3. 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. See Section D.1. of this report for a list of the Raster Charts and Electronic Navigation Charts (ENC) used for compiling the present survey:

### **D.4. ADEQUACY OF SURVEY**

The present survey is adequate to supersede some of the charted bathymetry within the common area. Any features not specifically addressed either in the H-Cell BASE Cell File or the Blue Notes should be retained as charted. Refer to the Descriptive Report for further recommendations by the hydrographer.



**APPROVAL SHEET**  
**F00532**

**Initial Approvals:**

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, representation of critical depths, cartographic symbolization, and verification or disproval of charted data. All revisions and additions made to the H-Cell files during survey processing have been entered in the digital data for this survey. The survey records and digital data comply with National Ocean Service and Office of Coast Survey requirements except where noted in the Descriptive Report and the Evaluation Report.

All final products have undergone a comprehensive reviews per the Hydrographic surveys Division Office Processing Manual and are verified to be accurate and complete except where noted.

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**Wesley G Kitt**  
Physical Scientist  
Atlantic Hydrographic Branch

I have reviewed the H-Cell files, accompanying data, and reports. This survey and accompanying Marine Chart Division deliverables meet National Ocean Service requirements and standards for products in support of nautical charting except where noted.

Approved: \_\_\_\_\_

**Shepard Smith**  
Commander, NOAA  
Chief, Atlantic Hydrographic Branch