H11531

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Basic Hydrographic

Field No.

Registry No. H11531

LOCALITY

State Florida

General Locality Port Canaveral

Sublocality Approach to Port Canaveral

2006

CHIEF OF PARTY

LCDR Lawrence T. Krepp, NOAA

LIBRARY & ARCHIVES

DATE

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTRY NUMBER: H11531

FIELD NUMBER:

State: Florida

General Locality: ~~North Atlantic Ocean~~ ***Port Canaveral***

Locality: Approach to Port Canaveral

Scale: 1:10,000 Date of Survey: 4/21/2006 - 5/15/2006

Instructions Dated: Febuary 13, 2006 Project Number: OPR-H320-RU-06

Vessel: NOAA Ship RUDE s590

Chief of Party: LCDR Lawrence T. Krepp, NOAA

Surveyed by: LCDR Krepp, LCDR Zezula, CST Kitt, ST Ramey

Soundings by echosounder, hand lead, pole: ODOM Echotrac DF3200 MKII VBES, RESON 8125 MBES

Graphic record scaled by: RUDE Personnel

Graphic record checked by: RUDE Personnel

Protracted by: N/A Automated plot by: N/A

Verification by: Atlantic Hydrographic Branch Personnel

Soundings in: Feet: ~~X~~ Fathoms: _____ Meters: ***X*** at MLW: _____ MLLW: X

Remarks: All times in UTC. All soundings corrected with approved tides. Map projection UTM 17.

Bold, red, italic notes in the Descriptive Report were made during office processing.

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

TABLE OF CONTENTS

DESCRIPTIVE REPORT

To accompany

HYDROGRAPHIC SURVEY H11531

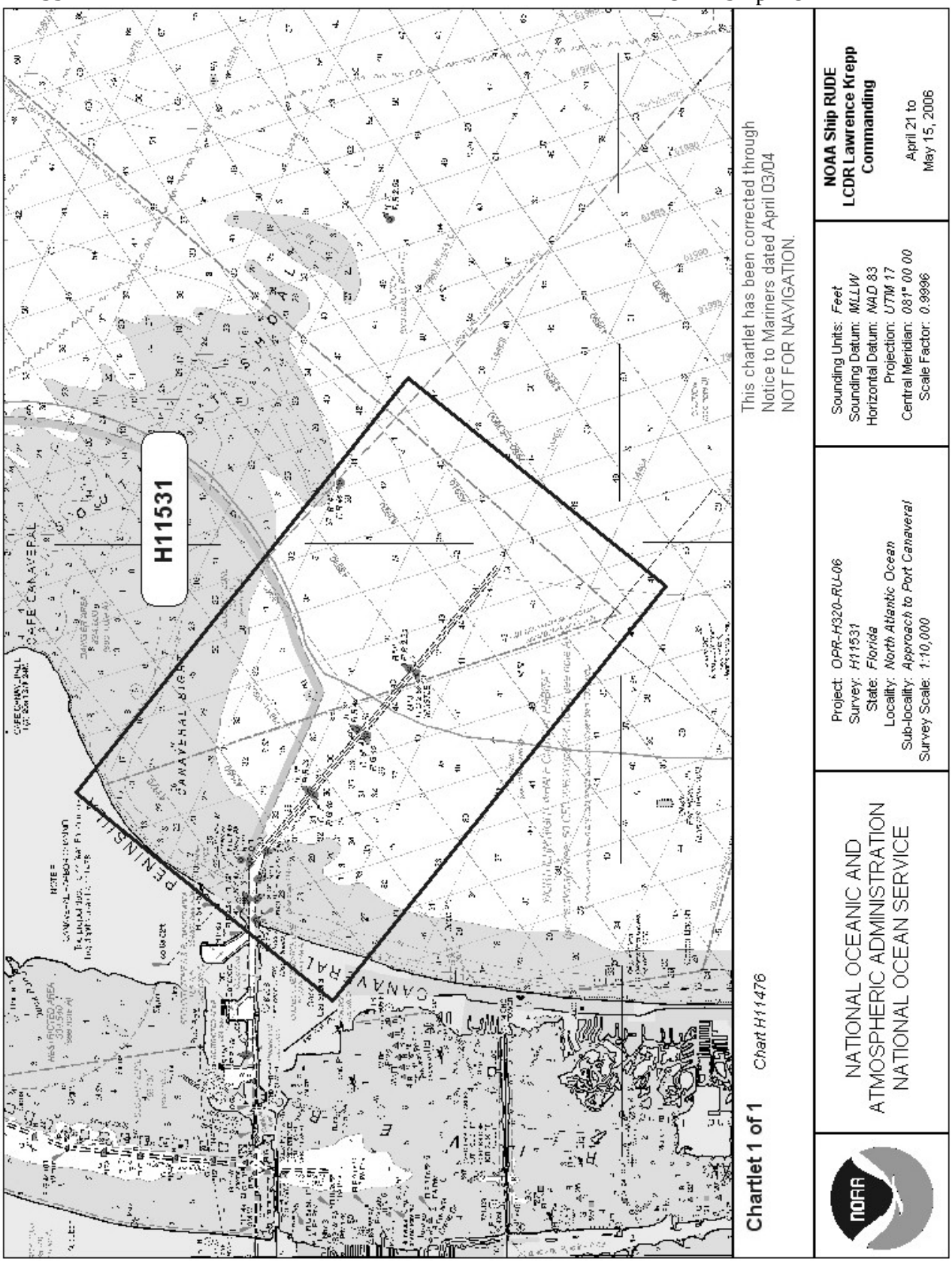
Scale of Survey: 1:10000
Year of Survey: 2006
NOAA Ship RUDE
LCDR Lawrence T. Krepp, Commanding

A. AREA SURVEYED

This hydrographic survey was conducted in accordance with Hydrographic Survey Letter of Instructions for project OPR-H320-RU updated February 13, 2006.

This project was conducted to provide side scan sonar and/or multibeam data in support of National Ocean Service (NOS) nautical charts in response to requests from the Canaveral Pilots Association. Survey H11531 was performed in accordance with NOS requirements for side scan sonar and multibeam data acquisition and processing.

Full bottom coverage of the assigned survey area, consisting of 200% side scan sonar and VBES was achieved. Multibeam developments were run on item investigations to provide least depth. For complete survey limits, please see the chartlet on the following page. Note: Statistics may be found in Appendix III of this report.


H11531
CAPE CANAVERAL
CANAVERAL BIGHT
PENINSULA
CANAVERAL
SHOAL
This chartlet has been corrected through Notice to Mariners dated April 03/04
NOT FOR NAVIGATION
Chartlet 1 of 1 Chart H11476
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE
Project: OPR-H320-RU-06
Survey: H11531
State: Florida
Locality: North Atlantic Ocean
Sub-locality: Approach to Port Canaveral
Survey Scale: 1:10,000
Sounding Units: Feet
Sounding Datum: MLLW
Horizontal Datum: NAD 83
Projection: UTM 17
Central Meridian: 081° 00 00
Scale Factor: 0.9996
NOAA Ship RUDE
LCDR Lawrence Krepp
Commanding
April 21 to
May 15, 2006

B. DATA ACQUISITION and PROCESSING *See also the Evaluation Report*

B.1 EQUIPMENT

NOAA Ship RUDE (s-590) was the only platform used for this survey. The RUDE is 90 feet in length with a 22-foot beam and 7-foot draft.

Vertical-beam echo sounding data was acquired on RUDE with an Odom Echotrac DF3200 MKII dual-beam echo sounder (24 and 200 kHz). Vertical-beam data was used in conjunction with Side Scan Sonar to ensonify objects on the bottom not apparent at side scan nadir and also for crossline checks with the mainscheme lines. No vertical-beam data is included while running multibeam developments.

RUDE acquired all side scan sonar data using a Klein 5500 towfish set to the 100-meter range scale and with high resolution on 75-meter and 50-meter range scales. Side scan sonar data was recorded digitally using Triton ISIS software and archived in Extended Triton Format (xtf).

For developments, single frequency (455 kHz) multi-beam data on RUDE was acquired with a Reson SeaBat 8125 shallow water swath sonar system. Positioning and attitude was determined with a TSS POS/MV and utilizing a Trimble DSM-212L DGPS receiver.

Sound velocity data was acquired using a Sea-Bird SBE 19 SEACAT Conductivity, Temperature and Depth (CTD) Profiler.

The RUDE encountered no discrepancies or anomalies during this survey, nor was any deviation from standard operating procedures or equipment present. However, please see section D, Results and Recommendations, which addresses the use of the 24 kHz (low frequency) in lieu of the higher frequency VBES and SWMB in certain areas in the channel due to the presence of "fluff." Please refer to the 2006 DAPR* for detailed equipment and vessel configuration.

**** Filed digitally at the Atlantic Hydrographic Branch (AHB).***

B.2 QUALITY CONTROL

Side Scan Sonar Quality Control

Daily confidence checks were made by observing the outer ranges of the side scan sonar images. A good check consisted of distinguishing contacts, i.e. buoy blocks, drag scours, or sand waves across the entire range of the side scan trace. Under conditions of questionable data quality due to high refraction or surface noise, these confidence checks were conducted as often as possible. Side scan data acquisition was suspended when targets approximately one cubic meter in size could not be resolved to the edge of the range scale.

Shallow Water Multibeam Quality Control

There were no faults with the shallow water multibeam system under normal conditions that affected data integrity in this survey. Please refer to the project's DAPR* for detailed discussion of SWMB system calibrations, patch test, data acquisition, and data processing.

Crosslines

The total distance of crosslines is 78 linear nautical miles which equates to 10.7% of total mainscheme lines. Crossline to mainscheme line comparison was conducted by visual inspection after data was imported into MapInfo 8.5. The comparison is adequate, with the majority of differences being two feet or less. Since sounding data was comprised solely of single-beam data, no computer analysis is available.

Junctions

H11531 is junctioned to the south***west*** by H11532, a basic hydrographic survey also conducted by RUDE this field season. Comparison is excellent as soundings agree to within a foot. No prior surveys were available or provided for further comparison.
Concur.

B.3 CORRECTIONS TO ECHO SOUNDINGS

All methods or instruments were implemented as described in the Correction to Echo Sounding section of the DAPR* for this project. Velocwin SV and GPs may be found in the final Pydro PSS. The DQA record is included in Separates II.*
**** Filed digitally at AHB.***

C. VERTICAL and HORIZONTAL CONTROL *See also the Evaluation Report*

Vertical Control

The tidal datum for this project is Mean Lower Low Water (MLLW). All soundings are referenced to MLLW. The operating National Water Level Observation Network (NWLON) station at Trident Pier, FL (872-1604) served as datum control for the survey area. All soundings were reduced to Mean Lower Low Water with approved tides. Opening levels were performed by CO-OPS. Closing levels will be completed at the conclusion of OPR-H320. A Request for Smooth Tides letter was sent to N/OPS1 June 19, 2006 and was acknowledged on June 29, 2006 (Appendix IV). Tide corrections were applied to the soundings using CARIS HIPS and SIPS v5.4.

Zoning was provided on the project CD. No changes to zoning, time correctors, or range ratios were made by field personnel.

Horizontal Control

The horizontal datum used for this survey is the North American Datum of 1983 (NAD 83), projected using UTM zone 17.

Sounding positional control was determined using the Global Positioning System (GPS) corrected by U.S. Coast Guard differential GPS (DGPS) beacon stations. The primary DGPS beacon used for this survey was Canaveral, FL. The primary signal was adequate throughout the survey. No horizontal control stations were established for this survey.

Horizontal dilution of precision (HDOP) was monitored daily. Data was to be re-acquired if the HDOP value exceeded 2.5. The TSS POS/MV positioning system was also used to monitor the accuracy of the ship's position and orientation. Data was to be re-acquired if POS M/V's estimated position accuracy exceeded 4 m. Neither of the above cases occurred. Refer to the 2006 DAPR* for more details regarding RUDE's POS M/V settings and operation.

**** Filed digitally at AHB.***

D. RESULTS and RECOMMENDATIONS *See also the Evaluation Report*

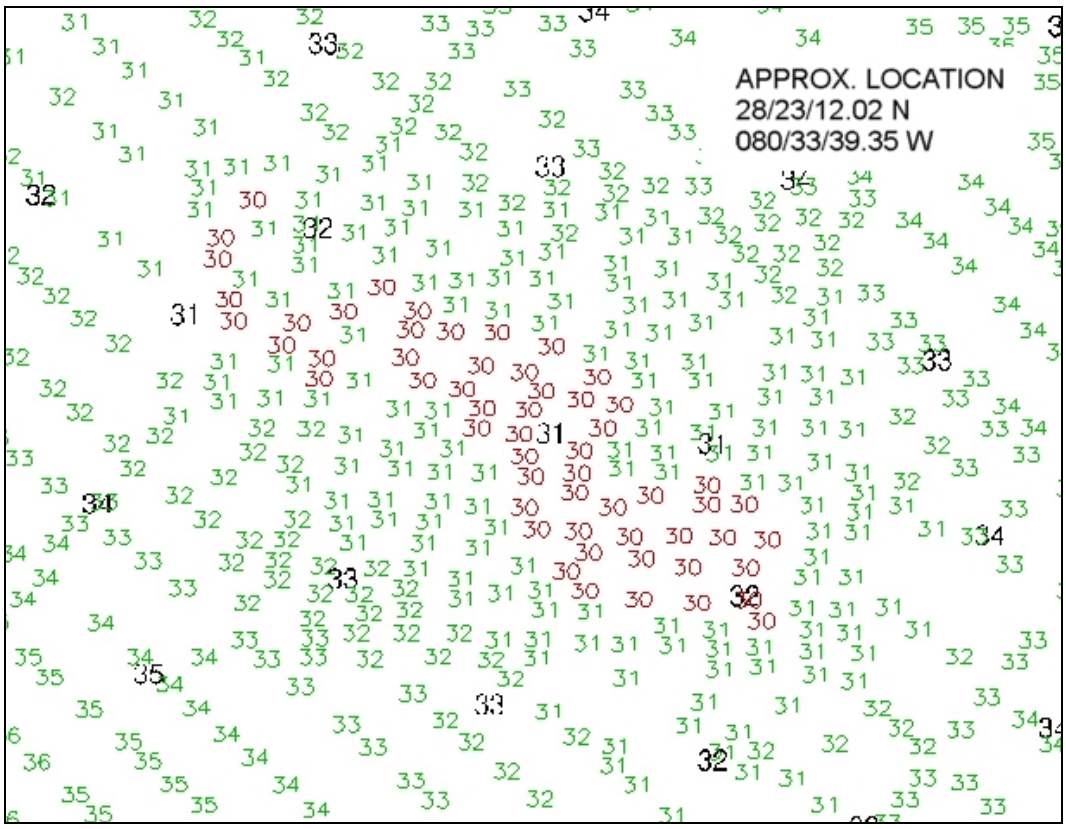
D.1 CHART COMPARISON

Charts Affected: The following charts contain soundings within the survey limits of H11531:

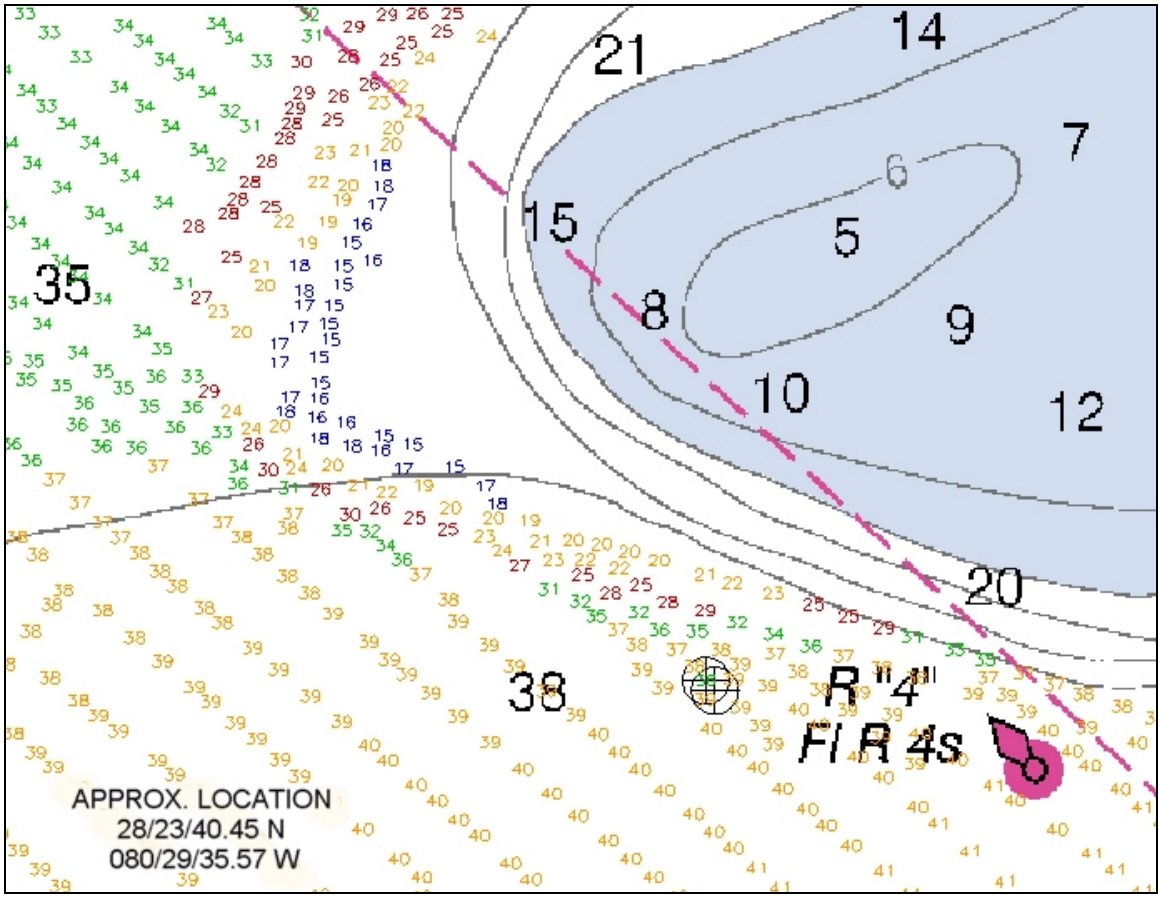
11460	40th Ed	Sep/05	NM	Sep 17/05	LNM	Sep 13/05	1:466940
11476	21st Ed	Jul/06	NM	Jul 22/06	LNM	Jul 11/06	1:80000
11484	23rd Ed	Sep/06	NM	Sep 09/06	LNM	Aug 29/06	1:80000
11481	6th Ed	Nov/06	NM	Nov 11/06	LNM	Nov 07/06	1:25000
11478	21st Ed	May/05	NM	May 28/05	LNM	May 17/05	1:10000

Agreement with chart 11476 was adequate with current soundings agreeing to within 2-feet of charted with the following exceptions:

By request of the Canaveral Pilots, a charted sounding of 31 feet was examined. Results show a shoaler depth of 30 feet as seen in the following figure: ***Concur.***



The charted shoal in vicinity of buoy R"4" Fl R 4s extends further west than charted to approximate location 28/23/40.45 N, 080/29/35.57 W as shown in the following figure: ***Concur.***



ENCs Affected: The following electronic navigational charts contain items within the surveyed sounding limits of H11531:

ENC US3FL30M
ENC US5FL81M

The one dangerous obstruction charted on ENC US3FL30M is 217m west of the current least depth ~~sounding~~ ***on a wreck***. The hydrographer recommends updating the ENC, showing the obstruction ~~at its present surveyed position of~~ at its updated surveyed position of 28°23'49.63" N, 080°32'05.45" W. ***Do not concur. See information about a 31 Wk on page 8. Also, this item is shown on chart 11460 as a wreck, and the SSS image from the present survey shows a wreck.***

Both ENC's were compared with current soundings using CARIS 6.0 field sheet editor. Comparison was adequate with the majority of soundings agreeing to within 2 feet. The hydrographer recommends current soundings supercede all previous chart editions.

Two AWOIS items whose descriptions ***(in the database)*** are identical, though spaced 270 meters apart, were examined. Although a contact was found and developed near the 200-meter radius edge of #13309 ***(shown on chart 11478 as a "Subm wave monitor PA")***, the item does not appear to be the described item, nor is it a "significant" contact. AWOIS #13468, located 270 meters due east of #13309 and with the same description ***(in the database)*** is marked on the chart with "Y Fl Y 4s PA Navy." No contact was seen with 200% sidescan, nor was the charted buoy physically present. The hydrographer recommends the removal of AWOIS #13309 and #13468 from the database ***(Do not concur. Retain these items in the AWOIS database; remove them from the chart.)*** as well as removing the ***a***forementioned buoy from the charts. Results and recommendations ~~of~~ ***for*** these items may also be found in the AWOIS report generated in PYDRO and in Appendix II of this report. Please refer to SEPARATES V,***** "Sidescan Contact Listing and Images of Significant Contacts," for all investigated items.

One charted item was investigated ~~and investigated~~ with multibeam. The charted position of a "Wk" ~~was~~ ***is*** ~~found at location~~ 28°23'50.37" N, 080°32'06.43" W. To summarize:

Contact (MB)	Tides	Position	LD	Recommendation
501_1608	992/218	Approved 28°23'49.63" N, 080°32'05.45" W	31ft	Modify chart(s) ***Concur.***

Two uncharted side scan contacts were discovered and developed with multibeam. They are fully described in the PYDRO-generated report "DR_Uncharted_Contacts.pdf" found in Separates V.***** To summarize:

Contact (MB)	Tides	Position	LD	Recommendation
800_2050	917/ 86	Approved 28°24'37.34" N, 080°34'39.72" W	27ft	Modify chart(s) ***Do not concur. Least depth is on "fluff". Do not chart.***
836_1731	226/166	Approved 28°22'38.~~74~~***79***"N, 080°28'13.66"W	43ft	Modify chart(s) ***Concur with clarification. Chart a 43ft dangerous Obstn as shown on the present survey.***

**** Filed digitally at AHB.***

Port Canaveral Entrance Channel

The original plan was to have 100% SSS / 100% MB coverage throughout the Port Canaveral Entrance Channel, in particular, Middle Reach and Outer Reach. Multibeam data was "noisy" in this area and there was a significant vertical difference between high and low frequencies of the VBES. The higher frequency sonars, VBES (200 kHz) and RESON 8125 (455 kHz), were defining "fluff", or, suspended particles in the water column, as the sea floor. Therefore, the low frequency of the VBES (24 kHz) was used as "primary" in these areas of discrepancy only.

The multibeam lines in question, collected on DN 116, were tagged as “rejected” but still may be found in the HDCS dataset for further scrutiny.

Dangers to Navigation

There were no Dangers to Navigation items discovered during this survey. ***Concur.***

Aids to Navigation

All floating aids to navigation denoted on charts appeared to be in their proper positions and functioning as intended except the “Y Fl Y 4s PA Navy” buoy mentioned in the AWOIS section of this report. No actual detached positions were acquired. ***Concur.***

D.2 ADDITIONAL RESULTS

Shoreline

Shoreline was not verified on H11531. ***Concur.***

Bottom Samples

Bottom sediment samples were collected at 11 locations picked corresponding to charted descriptions. No major discrepancies were found. The hydrographer recommends updating charts with the given characteristics in APPENDIX V. ***Concur.***

Submarine Cables

No charted submarine cables were present on this survey. ***Concur.***

E. APPROVAL SHEET

LETTER OF APPROVAL

REGISTRY NO. H11531

Data acquisition, processing, and analysis contributing to the accomplishment of this navigable area survey were conducted under my direct supervision with frequent personal checks of progress and adequacy. All data, field sheets, this Descriptive Report, and accompanying records were reviewed in their entirety and are approved.

The survey is adequate to supercede all prior surveys in common areas and is considered complete and adequate for nautical charting.

Respectfully Submitted:

Wesley G. Kitt
Chief Survey Technician
NOAA Ship RUDE

Thru:

Shawn Maddock
Lieutenant, NOAA
Field Operations Officer
NOAA Ship RUDE

Approved:

Lawrence T. Krepp
2007.02.07 07:12:20
-05'00'

Lawrence T. Krepp
Lieutenant Commander, NOAA
Commanding Officer
NOAA Ship RUDE

Registry Number: H11531

State: Florida

Locality: Port Canaveral

Sub-locality: Approach to Port Canaveral

Project Number: OPR-H320-RU

Survey Dates: 04/21/2006 - 05/15/2006

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11478	21st	05/01/2005	1:10,000 (11478_1)	USCG LNM: 04/01/2008 (10/07/2008) NGA NTM: 04/24/1999 (10/11/2008)
11481	6th	11/01/2006	1:25,000 (11481_1)	USCG LNM: 04/01/2008 (10/07/2008) NGA NTM: 07/31/1999 (10/11/2008)
11476	20th	04/01/2004	1:80,000 (11476_1)	[L]NTM: ?
11484	22nd	11/01/2003	1:80,000 (11484_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: ?
11009	37th	07/01/2004	1:1,200,000 (11009_1)	[L]NTM: ?
411	50th	09/01/2005	1:2,160,000 (411_1)	[L]NTM: ?

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

Features

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	992/218	Wreck	9.49 m	28° 23' 49.6" N	080° 32' 05.4" W	---
2.1	226/166	Obstruction	13.09 m	28° 22' 38.8" N	080° 28' 13.7" W	---
2.2	4913/147	Sounding	12.72 m	28° 23' 57.1" N	080° 33' 38.0" W	---
3.1	OBSTRUCTION	AWOIS	[no data]	[no data]	[no data]	---
3.2	OBSTRUCTION	AWOIS	[no data]	[no data]	[no data]	---

1 - Charted Features

1.1) Profile/Beam - 992/218 from h11531 / ru_mb_2006 / 2006-111 / 501_1608

Survey Summary

Survey Position: 28° 23' 49.6" N, 080° 32' 05.4" W

Least Depth: 9.49 m (= 31.15 ft = 5.191 fm = 5 fm 1.15 ft)

TPU (±1.96σ): **THU (TPEh)** [None] ; **TVU (TPEv)** [None]

Timestamp: 2006-111.16:09:22.149 (04/21/2006)

Survey Line: h11531 / ru_mb_2006 / 2006-111 / 501_1608

Profile/Beam: 992/218

Charts Affected: 11481_1, 11476_1, 11484_1, 11460_1, 11451_17, 11009_1, 411_1

Remarks:

Wreckage/Debris field with least depth of 31 ft at two different points.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11531/ru_mb_2006/2006-111/501_1608	992/218	0.00	000.0	Primary
h11531/ru_ss_2006/2006-129/239_2030	0001	13.53	098.5	Secondary
h11531/ru_ss_2006/2006-117/141_1918	0001	14.03	128.9	Secondary
ChartGPs - Digitized	1	35.30	130.6	Secondary (grouped)
h11531/ru_ss_2006/2006-117/140_1937	0001	37.65	120.4	Secondary

Hydrographer Recommendations

Replace "Dangerous Wk 32" with "Dangerous Wk 31" at surveyed location.

Cartographically-Rounded Depth (Affected Charts):

31ft (11481_1, 11476_1, 11484_1, 11451_17)

5 ¼fm (11460_1, 11009_1, 411_1)

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 2:dangerous wreck

CONVIS - 2:not visual conspicuous

HEIGHT - 1.49 m

QUASOU - 6:least depth known

TECSOU - 3:found by multi-beam

VALSOU - 9.493 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur.

Feature Images

[Image file S:/Pydro_Proj/H320 Port Canaveral/OPR-H320-RU-06_PortCanaveral/H11531/PSS/Images/501_1608_992-218.bmp does not exist.]

2 - New Features

2.1) Profile/Beam - 226/166 from h11531 / ru_mb_2006 / 2006-135 / 836_1731

Survey Summary

Survey Position: 28° 22' 38.8" N, 080° 28' 13.7" W

Least Depth: 13.09 m (= 42.95 ft = 7.158 fm = 7 fm 0.95 ft)

TPU (±1.96σ): **THU (TPEh)** [None] ; **TVU (TPEv)** [None]

Timestamp: 2006-135.17:31:49.180 (05/15/2006)

Survey Line: h11531 / ru_mb_2006 / 2006-135 / 836_1731

Profile/Beam: 226/166

Charts Affected: 11481_1, 11476_1, 11484_1, 11460_1, 11451_17, 11009_1, 411_1

Remarks:

[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11531/ru_mb_2006/2006-135/836_1731	226/166	0.00	000.0	Primary
h11531/ru_ss_2006/2006-115/145_1739	0001	14.01	309.4	Secondary
h11531/ru_ss_2006/2006-124/245_1838	0001	17.18	305.6	Secondary

Hydrographer Recommendations

Chart "Dangerous Obstn", least depth 43 feet based on approved tides at the surveyed position.

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

TECSOU - 3:found by multi-beam

VALSOU - 13.091 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur.

Feature Images

[Image file S:/Pydro_Proj/H320 Port Canaveral/OPR-H320-RU-06_PortCanaveral/H11531/PSS/Images/836_1731_226-166.bmp does not exist.]

2.2) Profile/Beam - 4913/147 from h11531 / ru_mb_2006 / 2006-116 / 444_1606

Survey Summary

Survey Position: 28° 23' 57.1" N, 080° 33' 38.0" W

Least Depth: 12.72 m (= 41.74 ft = 6.956 fm = 6 fm 5.74 ft)

TPU (±1.96σ): **THU (TPEh)** [None] ; **TVU (TPEv)** [None]

Timestamp: 2006-116.16:13:02.131 (04/26/2006)

Survey Line: h11531 / ru_mb_2006 / 2006-116 / 444_1606

Profile/Beam: 4913/147

Charts Affected: 11478_1, 11481_1, 11476_1, 11484_1, 11460_1, 11451_17, 11009_1, 411_1

Remarks:

A feature appearing to be a mound of dredge spoil was located during office review in a US Navy-maintained channel. The controlling depth of the channel is 44 feet. The least depth of this spoil mound is 41 feet.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11531/ru_mb_2006/2006-116/444_1606	4913/147	0.00	000.0	Primary

Hydrographer Recommendations

Cartographically-Rounded Depth (Affected Charts):

41ft (11478_1, 11481_1, 11476_1, 11484_1, 11451_17)

7fm (11460_1, 11009_1, 411_1)

S-57 Data

[None]

Office Notes

Submit relevant information to NOAA Southeast Regional Navigation Manager for dissemination to required parties. 3/1/07 Update: The latest update of raster 11478 (10/07/08) (not a new Edition) shows in the channel tabulation block that the channel was surveyed in 6/07 and that the current controlling depth is approx. 43 feet. Apparently the channel has been dredged since the present survey, and the 41 foot depth no longer exists. Do not chart 41 foot depth. 11/7/08

3 - AWOIS Features

3.1) AWOIS #13309 - OBSTRUCTION

No Primary Survey Feature for this AWOIS Item

Search Position: 28° 24' 43.0" N, 080° 34' 35.0" W

Historical Depth: [None]

Search Radius: 200

Search Technique: VS, S2, MB, DI

Technique Notes: [None]

History Notes:

L294/00 -- ROGER W. KIPP OF NIMA MARINE NAVIGATION DEPARTMENT (PHONE: 305-506-5621) RESPONDS TO NOAA/NOS INQUIRY FROM SEAN LEGEER ON FEB 14, 2000 THAT HE CANNOT FIND ANY SOURCE TO CONFIRM OR DENY THE EXISTENCE OF THE CHARTED "SUBM WAVE MONITOR PA" BUOY NOW CHARTED IN POSITION 28-24-43 N, 080-234-35 W (NAD 83). ROGER KIPP ALSO REPORTED THAT A "SMART 800" BUOY LOCATED IN POSITION 28-24-42.9 N, 080-34-35.1 W (NAD 83) AS BEEN REMOVED. UPDATED 12/29/2005 JCM.

Survey Summary

Charts Affected: 11478_1, 11481_1, 11476_1, 11484_1, 11460_1, 11451_17, 11009_1, 411_1

Remarks:

bathy contact within AWOIS search radius but unrelated.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H320-RU-06_AWOIS	AWOIS # 13309	0.00	000.0	Primary

Hydrographer Recommendations

No evidence seen of AWOIS #13309. Remove from database.

S-57 Data

[None]

Office Notes

Delete obstn and notation "Subm wave monitor PA". Do not delete this AWOIS item from the database.

3.2) AWOIS #13468 - OBSTRUCTION

No Primary Survey Feature for this AWOIS Item

Search Position: 28° 24' 43.0" N, 080° 34' 25.0" W

Historical Depth: [None]

Search Radius: 0

Search Technique: [None]

Technique Notes: [None]

History Notes:

L294/00 -- ROGER W. KIPP OF NIMA MARINE NAVIGATION DEPARTMENT (PHONE: 305-506-5621) RESPONDS TO NOAA/NOS INQUIRY FROM SEAN LEGEER ON FEB 14, 2000 THAT HE CANNOT FIND ANY SOURCE TO CONFIRM OR DENY THE EXISTENCE OF THE CHARTED "SUBM WAVE MONITOR PA" BUOY NOW CHARTED IN POSITION 28-24-43 N, 080-234-35 W (NAD 83). ROGER KIPP ALSO REPORTED THAT A "SMART 800" BUOY LOCATED IN POSITION 28-24-42.9 N, 080-34-35.1 W (NAD 83) AS BEEN REMOVED. UPDATED 12/29/2005 JCM.

Survey Summary

Charts Affected: 11478_1, 11481_1, 11476_1, 11484_1, 11460_1, 11451_17, 11009_1, 411_1

Remarks:

No evidence of AWOIS 13468 found.

Feature Correlation

Address	Feature	Range	Azimuth	Status
H320-RU-06_AWOIS	AWOIS # 13468	0.00	000.0	Primary

Hydrographer Recommendations

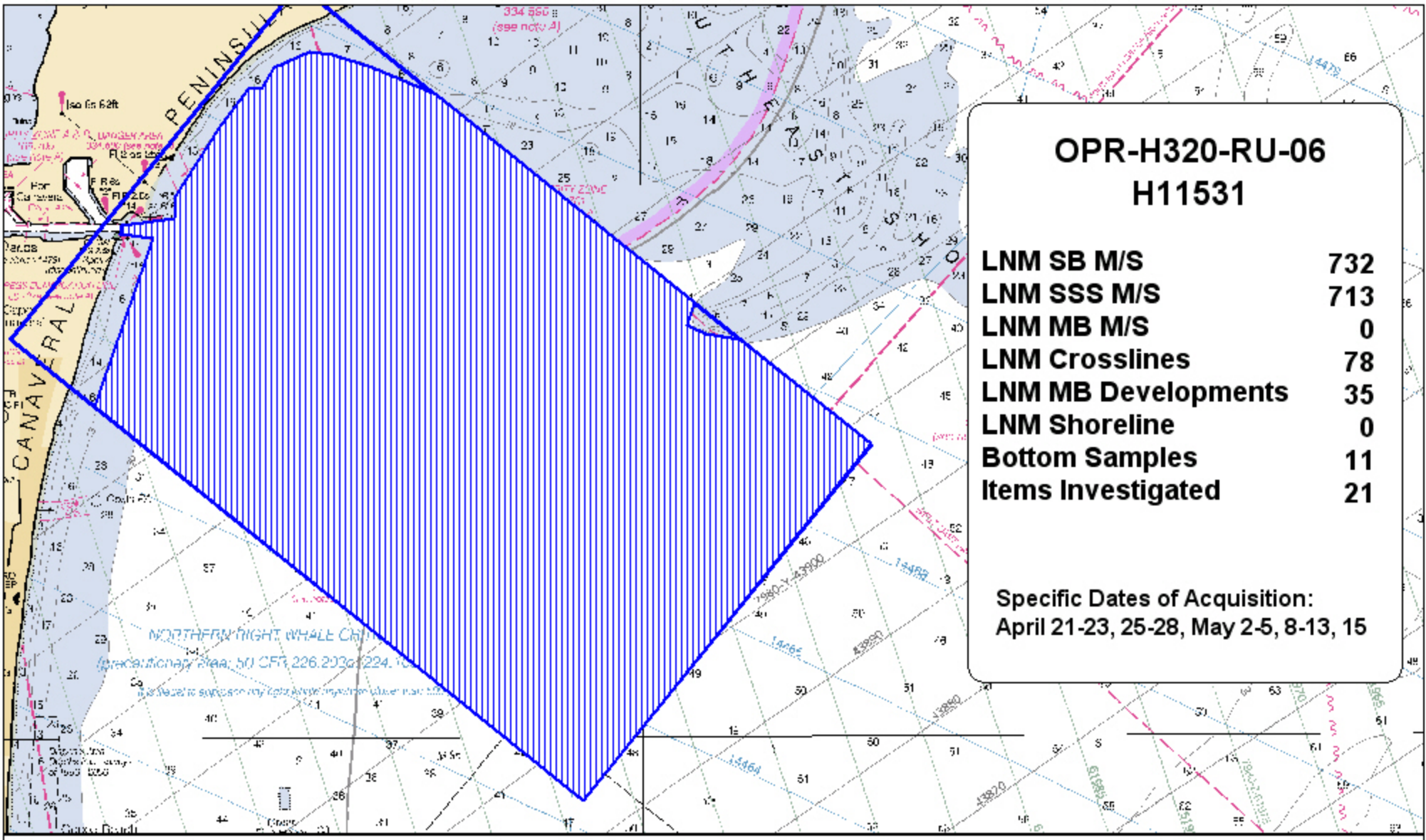
Remove from database.

S-57 Data

[None]

Office Notes

Delete buoy symbol and notation "Y Fl Y 4s PA Navy". Do not delete this AWOIS item from the database.



OPR-H320-RU-06
H11531

LNM SB M/S	**732**
LNM SSS M/S	**713**
LNM MB M/S	**0**
LNM Crosslines	**78**
LNM MB Developments	**35**
LNM Shoreline	**0**
Bottom Samples	**11**
Items Investigated	**21**

Specific Dates of Acquisition:
April 21-23, 25-28, May 2-5, 8-13, 15

Chartlet 1 of 1 *Chart H11476*

This chartlet has been corrected through Notice to Mariners dated April 03/04
NOT FOR NAVIGATION.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

Project: *OPR-H320-RU-06*
Survey: *H11531*
State: *Florida*
Locality: *North Atlantic Ocean*
Sub-locality: *Approach to Port Canaveral*
Survey Scale: *1:10,000*

Sounding Units: *Feet*
Sounding Datum: *MLLW*
Horizontal Datum: *NAD 83*
Projection: *UTM 17*
Central Meridian: *081° 00 00*
Scale Factor: *0.9996*

NOAA Ship RUDE
LCDR Lawrence Krepp
Commanding

April 21 to
May 15, 2006

June 19, 2006

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

FROM: LCDR Lawrence T. Krepp, NOAA Ship RUDE s590

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:

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-H320-RU
Registry No.:	H11531
State:	Florida
Locality:	North Atlantic
Sublocality:	Approach to Port Canaveral

Attachments containing:
1) an Abstract of Times of Hydrography,
2) digital MID MIF files of the track lines from pydro on CD/diskette

cc: N/CS33

Year_DOY	Min Time	Max Time
2006_111	13:11:43	21:50:06
2006_112	12:55:03	18:23:36
2006_113	12:40:44	19:22:57
2006_115	13:04:59	22:02:00
2006_116	12:36:09	21:17:22
2006_117	12:44:21	21:36:53
2006_118	12:57:21	16:11:22
2006_122	12:31:29	21:13:16
2006_123	13:12:57	20:21:20
2006_124	15:18:59	20:55:56
2006_125	12:55:36	19:03:24
2006_128	13:18:40	20:44:12
2006_129	13:37:25	21:05:04
2006_130	12:54:46	20:52:35
2006_131	13:11:17	20:52:48
2006_132	12:52:29	15:35:02
2006_133	12:49:48	18:03:17
2006_135	14:30:42	20:56:21

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : June 20, 2006

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: OPR-H320-RU-2006
HYDROGRAPHIC SHEET: H11531

LOCALITY: North Atlantic, Approach to Port Canaveral, FL
TIME PERIOD: April 21 - May 15, 2006

TIDE STATION USED: 872-1604 Trident Pier, FL
Lat. 28° 24.9'N Long. 80° 35.6' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.105 meters

REMARKS: RECOMMENDED ZONING

Preliminary zoning is accepted as the final zoning for project OPR-H320-RU-2006, H11531, during the time period between April 21 - May 15, 2006.

Please use the zoning file "H320RU2006CORP" submitted with the project instructions for OPR-H320-RU-2006, H11531. Zone SA216 is the applicable zone for H11531.

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).

CHIEF, PRODUCT AND SERVICES DIVISION

Subject: Re: Question regarding DR submission
From: Caleb.Gostnell@noaa.gov
Date: Thu, 01 Feb 2007 10:09:33 -0500
To: Shawn Maddock <Shawn.Maddock@noaa.gov>
CC: _NOS OCS Field Procedures Manual Updates <FPMupdates@noaa.gov>, Wesley Kitt <Wesley.Kitt@noaa.gov>, "caryn.arnold" <Caryn.Arnold@noaa.gov>, Tod Schattgen <Tod.Schattgen@noaa.gov>, Norris A Wike <Norris.A.Wike@noaa.gov>, Gerd Glang <Gerd.Glang@noaa.gov>, Jeffrey Ferguson <Jeffrey.Ferguson@noaa.gov>, Doug Baird <Doug.Baird@noaa.gov>, Peter Holmberg <Peter.Holmberg@noaa.gov>

Shawn,

Sorry for the delayed response on this, we have been feverishly discussing the issue here at HQ and with the hydro branches.

There appear to be benefits to both techniques (i.e., submitting the DR as a single document and submitting it as three separate documents). For now, please submit the DR as three separate digitally signed documents. Once the survey has been processed at the branch, the branch will forward all three documents to DACB. DACB will then merge the three documents into a single comprehensive DR prior to submission to NGDC.

This will serve as a test case and we will continue to discuss the issue. There may be changes to the above policy based on your survey submission, but either way the policy will be formalized in a soon to be issued HSTD on the digital data submission pipeline.

Hope that helps.

Cheers,

Caleb

----- Original Message -----
From: Shawn Maddock <Shawn.Maddock@noaa.gov>
Date: Tuesday, January 30, 2007 1:46 pm
Subject: Question regarding DR submission

> All,
> RUDE is putting together a DR for one of our survey sheets, and is
> complying with the latest FPM requirements for submission. Earlier
> today, we met with AHB to discuss the latest requirement for the
> DR to
> be submitted as a *.pdf. It was verbally stated, with their
> reasons as
> to why, that AHB prefers to receive three separate *.pdf's from
> the
> ship; one for the DR, one for the Appendices, and one for the
> Separates.
> However, I understand that headquarters initially wanted all three
> to be
> in one *.pdf.
>
> Please advise RUDE on how to handle this, as we are about to
> submit this
> DR. Can this distinction between one *.pdf versus three *.pdf's
> be
> addressed, and notify the fleet/NRT's know as soon as possible?
>
> Thank you,

Subject: Re: Question regarding DR submission
From: "Shawn Maddock" <shawn.maddock@noaa.gov>
Date: Thu, 01 Feb 2007 11:30:26 -0500
To: Caleb.Gostnell@noaa.gov, _NOS OCS Field Procedures Manual Updates <FPMupdates@noaa.gov>
CC: Wesley Kitt <Wesley.Kitt@noaa.gov>, "caryn.arnold" <Caryn.Arnold@noaa.gov>, Tod Schattgen <Tod.Schattgen@noaa.gov>, Norris A Wike <Norris.A.Wike@noaa.gov>, Gerd Glang <Gerd.Glang@noaa.gov>, Jeffrey Ferguson <Jeffrey.Ferguson@noaa.gov>, Doug Baird <Doug.Baird@noaa.gov>, Peter Holmberg <Peter.Holmberg@noaa.gov>

Good morning,
Thank you for looking into this matter.

The next issue to address pertains to the Appendices, in which there are several items that can not be converted to *.pdf. Specifically, it's any of the MapInfo generated files for Appendices III and IV. In App III, there are 4 files generated as part of the Survey Outline. In App IV, there are a number of different file extensions related to tides and water levels.

How would you like for field units to handle the conversion of these files for submission?

Shawn

Caleb.Gostnell@noaa.gov wrote:

> Shawn,
>
> Sorry for the delayed response on this, we have been feverishly discussing the issue here at HQ and with the hydro branches.
> There appear to be benefits to both techniques (i.e., submitting the DR as a single document and submitting it as three separate documents). For now, please submit the DR as three separate digitally signed documents. Once the survey has been processed at the branch, the branch will forward all three documents to DACB. DACB will then merge the three documents into a single comprehensive DR prior to submission to NGDC.
> This will serve as a test case and we will continue to discuss the issue. There may be changes to the above policy based on your survey submission, but either way the policy will be formalized in a soon to be issued HSTD on the digital data submission pipeline.
>
> Hope that helps.
>
> Cheers,
>
> Caleb

> Shawn
>
> --
> Shawn Maddock, LT/NOAA
> Operations Officer
> NOAA Ship RUDE
> 439 W. York St.
> Norfolk, VA 23510
> work: (757) 615-6465
> cell: (757) 635-7452
> shawn.maddock@noaa.gov

Subject: Re: Question regarding DR submission
From: Caleb.Gostnell@noaa.gov
Date: Thu, 01 Feb 2007 13:45:17 -0500
To: Shawn Maddock <Shawn.Maddock@noaa.gov>
CC: _NOS OCS Field Procedures Manual Updates <FPMupdates@noaa.gov>, Wesley Kitt <Wesley.Kitt@noaa.gov>, "caryn.arnold" <Caryn.Arnold@noaa.gov>, Tod Schattgen <Tod.Schattgen@noaa.gov>, Norris A Wike <Norris.A.Wike@noaa.gov>, Gerd Glang <Gerd.Glang@noaa.gov>, Jeffrey Ferguson <Jeffrey.Ferguson@noaa.gov>, Doug Baird <Doug.Baird@noaa.gov>, Peter Holmberg <Peter.Holmberg@noaa.gov>

Shawn,

I think you should be able to print the MapInfo layouts to .pdf and open the tides files in Notepad and print them to .pdf as well; then they can be included in the appropriate .pdf document for submission. Preferably everything should be submitted as a document, but if there are a few ancillary files that it is deemed important to include they may be attached to the appropriate .pdf file in Adobe Acrobat using Document - Attach a File, and then selecting the desired file(s) (note - this will not work with .zip files but appears to work with all other tested file formats). Let me know if that addresses your concerns or if I have oversimplified the issue.

Cheers,

Caleb

----- Original Message -----
From: Shawn Maddock <Shawn.Maddock@noaa.gov>
Date: Thursday, February 1, 2007 11:30 am
Subject: Re: Question regarding DR submission

> Good morning,
> Thank you for looking into this matter.
>
> The next issue to address pertains to the Appendices, in which
> there are
> several items that can not be converted to *.pdf. Specifically,
> it's any
> of the MapInfo generated files for Appendices III and IV. In App
> III,
> there are 4 files generated as part of the Survey Outline. In App
> IV,
> there are a number of different file extensions related to tides
> and
> water levels.
>
> How would you like for field units to handle the conversion of
> these
> files for submission?
>
> Shawn
>
> Caleb.Gostnell@noaa.gov wrote:
>
>> Shawn,
>>
>> Sorry for the delayed response on this, we have been feverishly
>> discussing the issue here at HQ and with the hydro branches.
>>
>> There appear to be benefits to both techniques (i.e., submitting
> the DR
>> as a single document and submitting it as three separate

> documents).
> For now, please submit the DR as three separate digitally signed
> documents. Once the survey has been processed at the branch, the
> branch will forward all three documents to DACB. DACB will then
> merge
> the three documents into a single comprehensive DR prior to
> submission
> to NGDC.
>
> This will serve as a test case and we will continue to discuss
> the
> issue. There may be changes to the above policy based on your
> survey
> submission, but either way the policy will be formalized in a
> soon to
> be issued HSTD on the digital data submission pipeline.
>
> Hope that helps.
>
> Cheers,
>
> Caleb

Subject: Re: Question regarding DR submission
From: "Shawn Maddock" <shawn.maddock@noaa.gov>
Date: Thu, 01 Feb 2007 16:41:09 -0500
To: Caleb.Gostnell@noaa.gov
CC: _NOS OCS Field Procedures Manual Updates <FPMupdates@noaa.gov>, Wesley Kitt <Wesley.Kitt@noaa.gov>, "caryn.arnold" <Caryn.Arnold@noaa.gov>, Tod Schattgen <Tod.Schattgen@noaa.gov>, Norris A Wike <Norris.A.Wike@noaa.gov>, Gerd Glang <Gerd.Glang@noaa.gov>, Jeffrey Ferguson <Jeffrey.Ferguson@noaa.gov>, Doug Baird <Doug.Baird@noaa.gov>, Peter Holmberg <Peter.Holmberg@noaa.gov>

Hi Caleb,
Let me clarify what we've been worried about in the past couple of days. The actual concern that we have is not converting the MapInfo files to *.pdf, or to a jpeg, or anything like that - though I appreciate the instructions on how to do so. The issue is more of what we have been historically turning in, which is still required by Section 5.1.2.2 of the FPM. And that is: the submission of the MapInfo files. In the past, a workspace was submitted, with all of the supporting files (the *.tab files, for example).

Now, we can convert the *.wor to the *.pdf, as what you guys have instructed in the last couple of e-mails, and we'll be more than happy to do so. However, they will be nothing more than either an image, or an un-editable *.pdf. In other words, you won't really be getting the original MapInfo *.wor file, or the supporting MapInfo tables, in the event that you want to reconstruct any of them. Do I have a misunderstanding of why, in the past, those were submitted (meaning, for the purpose of reconstruction)? If I do have a misunderstanding, then I apologize. But if you indeed WANT those MapInfo files, converting them to *.pdf will not allow for any edits or reconstruction.

This is what we've been asking clarification on. Do you want the un-editable *,pdf's...and if so, what happens to the MapInfo files that are required to be turned in as per Section 5.1.2.2 of the FPM?

Thanks,
Shawn

Caleb.Gostnell@noaa.gov wrote:

> Shawn,
>
> I think you should be able to print the MapInfo layouts to .pdf and open the tides files in Notepad and print them to .pdf as well; then they can be included in the appropriate .pdf document for submission. Preferably everything should be submitted as a document, but if there are a few ancillary files that it is deemed important to include they may be attached to the appropriate .pdf file in Adobe Acrobat using Document - Attach a File, and then selecting the desired file(s) (note -
> this will not work with .zip files but appears to work with all other tested file formats). Let me know if that addresses your concerns or if I have oversimplified the issue.
>
> Cheers,
>
> Caleb

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT to ACCOMPANY
SURVEY H11531 (2006)

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 7.3 r2537
CARIS HIPS/SIPS version 6.1 SP2 HF 1-4
CARIS Bathy Manager version 2.1 SP1 HF 1-10
DKART INSPECTOR, version 5.0 Build 732 SP1
CARIS HOM version 3.3 SP3 HF 1-8
CARIS S57 Composer version 1.0 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 2m grid, which was used to create a product surface grid with a resolution of 5m. The survey scale selected soundings were extracted from the 5m product surface. The selected sounding set is approximately 55 to 60 times the number of charted depths. 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.

Depth curves were drawn by hand. The depth curves are forwarded to MCD for reference only. The curves were utilized during chart scale sounding selection and quality assurances efforts at AHB.

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 SAHOB files included depth curves (DEPCNT), sounding selections (SOUNDG), features (SBDARE, OBSTRN, WRECKS), Meta objects (M_COVR, M_QUAL, M_CSCL), and cartographic Blue Notes. The individual SAHOB files were inserted into one BASE Manager feature layer and exported to S57 format in order to create the H-Cell deliverable.

The completed H-Cell was exported as a Base Cell File (ENC.000) in S-57 format with all values in metric units. The metric equivalent ENC.000 file was then converted to NOAA chart units (ENC_CU.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 H11531 CARIS H-Cell final deliverables include the following products:

US511531_CS.000	1:10,000 Scale	H11531 H-Cell with Chart Scale Selected Soundings
US511531_SS.000	1:10,000 Scale	H11531 Selected Soundings (Survey Scale)

B.22. Junctions

Survey H11531 (2006) junctions with surveys H11532 (2006) to the southwest and H11533 (2007) to the southeast. Present survey soundings compare within one foot of both junctional surveys. Present survey depths are in harmony with the charted hydrography to the northeast and south-southeast, with the exception of a shoal that is moving westward (see page 7 of the Descriptive Report).

C. VERTICAL AND HORIZONTAL CONTROL

Final vertical correction processing was completed by office personnel at the Atlantic Hydrographic Branch. The office personnel applied verified water levels in conjunction with the preliminary tidal zoning which was accepted and approved by N/OPSI CO-OPS as the final zoning for H11531. Sounding datum is Mean Lower Low Water (MLLW). Vertical datum is Mean High Water (MHW)

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD83), UTM projection zone 17. Office ENC processing of this survey required translating the datum to meet S-57 ENC requirements.

D. RESULTS AND RECOMMENDATIONS

D.1 CHART COMPARISON

11478 (21st Edition, May/05)
Corrected through NM May 28/05
Corrected through LNM May 17/05
Scale 1:10,000

11481 (6th Edition, Nov./06)
Corrected through NM Nov. 11/06
Corrected through LNM Nov. 7/06
Scale 1: 25,000

11460 (41st Edition, Jul./08)
Corrected through NM Jul. 26/06
Corrected through LNM Jul. 22/06
Scale 1: 466,940

ENC Comparison

US5FL82M
Port Canaveral
Edition 9
Application Date 2008-11-14
Issue Date 2008-11-14
Chart 11478

US5FL81M
Approaches to Port Canaveral
Edition 11
Application Date 2008-12-02
Issue Date 2008-12-02
Chart 11481

US3FL30M
Cape Canaveral to Key West
Edition 11
Application Date 2008-08-25
Issue Date 2008-10-27
Chart 11460

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.

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 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.**

Version 1.0

This Document is for Office Process use only and is intended to supplement, not supersede or replace, information/recommendations in the Descriptive or Evaluation Reports

AHB PRE-COMPILATION PROCESS

REGISTRY No.	H11531
PROJECT No.	OPR-H320-RU-06
FIELD UNIT	NOAA SHIP *RUDE*
COMPILER	MARILYN SCHLUTER
LARGEST SCALE CHART	11478 Edition 21 20050501
CHART SCALE	1: 10,000
SURVEY SCALE	1: 10,000
DATE OF SURVEY	20060515
CONTENT REVIEW DATE	20081114

Components	File Names
Product Surface	531_5m_Final.hns
Shifted Surface	N/A
Contour Layer	crvs3.hob
Survey Scale Soundings	SS2.hob
Chart Scale Soundings	CCCSSS.hob, cs25000.hob
ENC Retain Soundings	N/A
Feature Layer	cs25000.hob
Meta-Objects Layer	M_QUAL.hob, M_CSCL.hob, M_COVR.hob
Blue Notes	BlueNotes.hob

SPECIFICATIONS:

I. COMBINED SURFACE:
   a. File name: ____only one grid
   b. Resolution: _____m
   c. Final Grid Location:_____

II. PRODUCT SURFACE (SOUNDINGS):
   a. Scale: 1: 10,000
   b. Radius:_____m
   c. Resolution: 5__m

   d. Depth
      i. Minimum: ____4.52___m
      ii. Maximum: ____15.59__m

   PRODUCT SURFACE (CONTOURS): DRAWN BY HAND
   a. Scale: 1:_____
   b. Radius:_____m
   c. Resolution: ___m

III. SHIFTED SURFACE:
   Single Shift Value:_N/A___ *[-0.229m (feet), (≤ 10 fathoms)]*
   [-1.372m (fathoms), (> 10 fathoms)]

IV. CONTOUR LAYER:
   a. Use a Depth List: XXXXXX_NOAA_depth_curves_list.txt
      Depth List:

b. Output Options:
   i. Create contour lines:
      1. Line Object: DEPCNT
      2. Value Attribute: VALDCO

V. SOUNDING SELECTION:

a. Selection Criteria:
   i. Radius
   ii. Shoal biased
   iii. Use Single-Defined Radius: ____distance on ground (m)
   iv. Filter: Generalized !=1

VI. FEATURES:

a. Brought in from Survey
   Total No. 13 BS, 1 Obstn, 1 Wreck

b. Brought in from ENC
   ENC: US5FL81M, US5FL82M
   Total No. 4 BS

VII. META-OBJECTS:

a. M_COVR attributes

Acronym	Value
SORDAT	20060515
CATCOV	1
SORIND	US,US,survy,H11531

b. M_QUAL attributes

Acronym	Value
CATZOC	Unassessed
INFORM	H11531, OPR-H320-RU-06, NOAA Ship *RUDE*
POSACC	10 m
SORDAT	20060515
SORIND	US,US,survy,H11531
SUREND	20060515
SURSTA	20060421
TECSOU	N/A

c. DEPARE attributes

Acronym	Value
DRVALV 1	14.498 ft
DRVALV2	51.148 ft
SORDAT	20060515
SORIND	US,US,nsurf,H11531

d. M_CSCL attributes

Acronym	Value
CSCALE	25,000
SORDAT	20060515
SORIND	US,US,survy,H11531

VIII. NOTES:

APPROVAL SHEET
H11531

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 review per the Hydrographic surveys Division Office Processing Manual and are verified to be accurate and complete except where noted.

Marilyn Schluter

Digitally signed by Marilyn Schluter
DN: cn=Marilyn Schluter, o=NOAA, ou=Atlantic Hydrographic Branch, email=marilyn.l.schluter@noaa.gov, c=US
Date: 2008.12.19 13:44:45 -05'00'

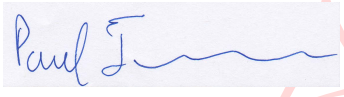
Marilyn L. Schlüter
Cartographer
Atlantic Hydrographic Branch

I have reviewed the Base 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: 

Digitally signed by Shepard Smith
DN: cn=Shepard Smith, o=NOAA, ou=AHB, email=shep.smith@noaa.gov, c=US
Date: 2008.12.19 14:45:10 -05'00'

Shepard M. Smith
Commander, NOAA
Chief, Atlantic Hydrographic Branch



Paul Turner
I have reviewed this document
AWOIS and Surf Check
2008.12.30 13:26:05 -05'00'