

H11411

<p>NOAA FORM 76-35A</p> <p>U.S. DEPARTMENT OF COMMERCE          NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION          NATIONAL OCEAN SURVEY</p> <p><b>DESCRIPTIVE REPORT</b></p>	
<i>Type of Survey:</i>	<b>Navigable Area</b>
<i>Registry Number:</i>	<b>H11411</b>
<p><b>LOCALITY</b></p> <p><i>State:</i> North Carolina</p> <p><i>General Locality:</i> Approaches to Wilmington</p> <p><i>Sub-locality:</i> 8 NM South of the Entrance to the Cape Fear River</p>	
<p><b>2006</b></p> <p>CHIEF OF PARTY</p> <p><b>CDR Raymond C. Slagle, NOAA</b></p>	
DATE	LIBRARY & ARCHIVES

NOAA FORM 77-28 (11-72)	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:  <p style="text-align: center; font-size: 1.2em;"><b>H11411</b></p>	
<p style="font-size: 1.2em; margin: 0;"><b>HYDROGRAPHIC TITLE SHEET</b></p>			
INSTRUCTIONS:    The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.			
State:	<p style="margin: 0;"><b>North Carolina</b></p>		
General Locality:	<p style="margin: 0;"><b>Approaches to Wilmington</b></p>		
Sub-Locality:	<p style="margin: 0;"><b>8 NM South of the Entrance to the Cape Fear River</b></p>		
Scale:	<p style="margin: 0;"><b>1:20,000</b></p>	Date of Survey:	<p style="margin: 0;"><b>10 July 2006 to 02 August 2006</b></p>
Instructions Dated:	<p style="margin: 0;"><b>06/12/06</b></p>	Project Number:	<p style="margin: 0;"><b>OPR-G374-TJ-06</b></p>
Vessel:	<p style="margin: 0;"><b>NOAA Ship THOMAS JEFFERSON, S-222</b></p>		
Chief of Party:	<p style="margin: 0;"><b>CDR Raymond C. Slagle, NOAA</b></p>		
Surveyed by:	<p style="margin: 0;"><b>THOMAS JEFFERSON Personnel</b></p>		
Soundings by:	<p style="margin: 0;"><b>Reson 8125 multibeam echosounder, Reson 8101 multibeam echosounder, Reson SeaBat 7125 multibeam echosounder</b></p>		
Graphic record checked by:	<p style="margin: 0;"><b>N/A</b></p>		
Protracted by:	<p style="margin: 0;"><b>N/A</b></p>	Automated Plot:	<p style="margin: 0;"><b>N/A</b></p>
Verification by:	<p style="margin: 0;"><b>Atlantic Hydrographic Branch Personnel</b></p>		
Soundings in:	<p style="margin: 0;"><b>Meters <i>F</i> at MLLW</b></p>		
Remarks: <i>* Bold, red, italic notes in the Descriptive Report were made during office processing.</i> 1) <i>All Times are UTC.</i> 2) <i>This is a Standard Navigable Area Hydrographic Survey.</i> 3) <i>Projection is UTM Zone 17.</i>			

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**DESCRIPTIVE REPORT**  
 to accompany  
 HYDROGRAPHIC SURVEY H11411

Scale of Survey: 1:20,000  
 Year of Survey: 2006  
 NOAA Ship THOMAS JEFFERSON  
 CDR Raymond C. Slagle, Commanding Officer

**A. AREA SURVEYED**

This hydrographic survey was conducted in accordance with Hydrographic Survey Letter Instructions for project \*OPR-G374-TJ-06. The original instructions are dated 12 June 2006. No change letters were issued for this project. \* *Filed digitally at the Atlantic Hydrographic Branch (AHB).*

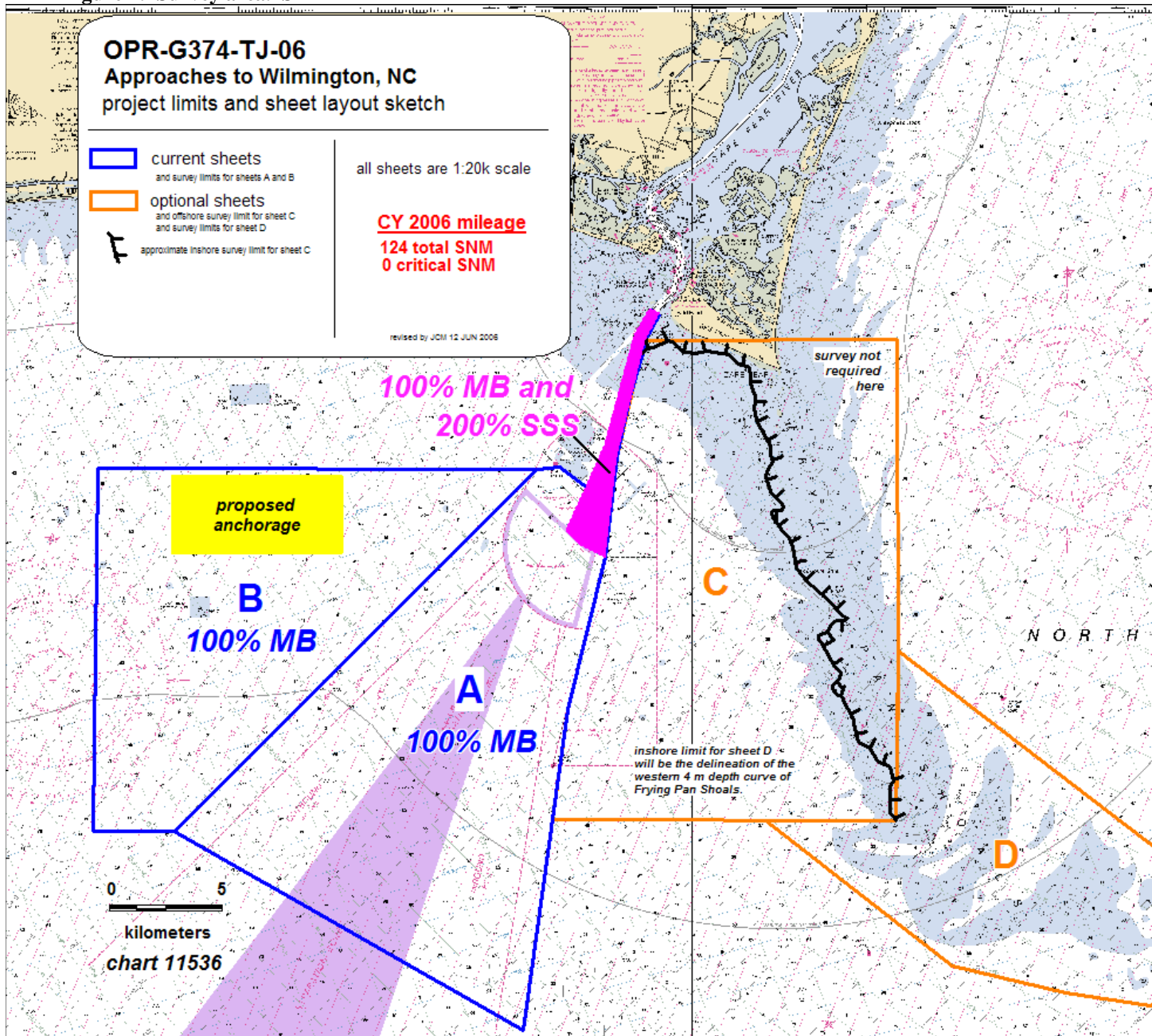
This Descriptive Report (DR) applies to sheet “A” of project OPR-G374-TJ-06, which covers an area approximately 70 square nautical miles eight miles south of the Entrance to the Cape Fear River. The registry number of this sheet is H11411. See survey area chart: Figure 1.

Since a channel deepening project in 2003, the port of Wilmington is bringing in 42' draft ships with a plan to go to 44' in 2005. Since the last NOAA survey by NOAA ship WHITING (1996-1997), the pilot boarding area and safety fairway have been realigned. Also, there have been at least five major storms that may have affected the sea bottom in the approaches to Wilmington.

The Cape Fear River Pilots and USCG have requested that a new hydrographic survey be conducted to determine the current state of the bottom, as well as to identify the western edge of the Frying Pan Shoals area. The data acquired in partial bottom coverage areas will be used to determine the general agreement of the chart to present conditions.

Lineal Nautical Miles	
Single Beam Only	0
Multibeam Only	2564.5
Side Scan Sonar Only	100.9
Side Scan/Single Beam	0
Crosslines	85.2
Multibeam Developments	0
Side Scan Developments	0
Shoreline Investigation	0
Data acquired from 10 July to 02 August 2006	
No bottom samples collected	
4 AWOIS items investigated	

Figure 1: Survey area. SHEET A



## **B. DATA ACQUISITION AND PROCESSING** *See also the Evaluation Report*

### **B.1 EQUIPMENT**

Data for this survey were acquired by NOAA Ship THOMAS JEFFERSON, NOAA Launch 3101, and NOAA Launch 3102. NOAA Ship THOMAS JEFFERSON is a 63.4-meter hydrographic survey vessel with an average transducer depth of 4.6 meters. NOAA Launches 3101 and 3102 are 9.5-meter aluminum boats with a transducer draft of 0.5 meters.

NOAA Ship THOMAS JEFFERSON acquired MBES data with the RESON 7125 system inside the limits of H11411. Positioning and attitude data onboard THOMAS JEFFERSON were determined with an Applanix POS/MV (version 4). Sound velocity profiles were acquired using the Brooke Ocean Moving Vessel Profiler (MVP) and Sea-Bird Electronics SBE19+ CTD.

NOAA Launch 3101 acquired MBES data with the RESON 8125 system inside the limits of H11411. Positioning and attitude data onboard Launch 3101 were determined with an Applanix POS/MV (version 4). Sound velocity profiles were acquired using Sea-Bird Electronics SBE19+ CTD. Due to mechanical failures, Launch 3101 was out of commission for part of survey H11411.

NOAA Launch 3102 acquired MBES data with the RESON 8101 system, and side scan sonar data with the KLEIN 5000 inside the limits of H11411. Positioning and attitude data onboard Launch 3102 were determined with an Applanix POS/MV (version 3). Sound velocity profiles were acquired using Sea-Bird Electronics SBE19+ CTD.

No unusual vessel configurations or problems were encountered. \*Refer to the Data Acquisition and Processing Report (DAPR) for detailed equipment and vessel configuration information.

*\* Filed digitally at AHB.*

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

#### **B.2.1 Side Scan Sonar Quality Control**

Daily confidence checks were made by observing the outer ranges of all side scan sonar images. A good check consisted of distinguishing contacts or sand waves across the entire range of the side scan trace. Some refraction due to radical temperature variation in the water column was observed over some of the survey area. No other unusual problems were encountered.

#### **B.2.2 Multibeam Echosounder Quality Control**

Complete MBES soundings were acquired as the primary source of bathymetry in the Cape Fear River Entrance Channel and its approaches. The area that includes the pilot boarding area northward through the Cape Fear River Entrance Channel was acquired with Launch 3101 using the RESON 8125 MBES and Launch 3102 using the RESON 8101 MBES. The area south of the pilot boarding area and continuing south through the traffic separation lanes was acquired with

THOMAS JEFFERSON using the RESON 7125 MBES. The 7125 is a newly installed system on the JEFFERSON. Like with many new systems, there were hardware and software obstacles that did not allow for both sonar heads to be used simultaneously. Only the port-side MBES head was used for data acquisition with the 7125 system. AWOIS items were investigated with Launch 3102 and the 8101 MBES.

The Caris HIPS Vessel File (HVF) of launch 3101 was at times modified to account for a dynamic precise timing latency. Stemming from an as yet undetermined origin, a dynamic latency in the GPS time stamp between position, attitude (POS/MV) and bathymetry (Reson) data was noted. This asynchrony caused a “wavy” appearance in the data. Roll timing error was altered to correct for this problem. \*Refer to the Data Acquisition and Processing Report (DAPR) for vessel configuration information. *\*DAPR filed with Project reports for OPR-G374-TJ.*

DN 214 showed evidence of this dynamic precise timing latency and the HVF was modified accordingly.

For detailed discussion of SWMB system calibrations, data acquisition, and data processing refer to this project’s \*DAPR. *\* Filed digitally at AHB.*



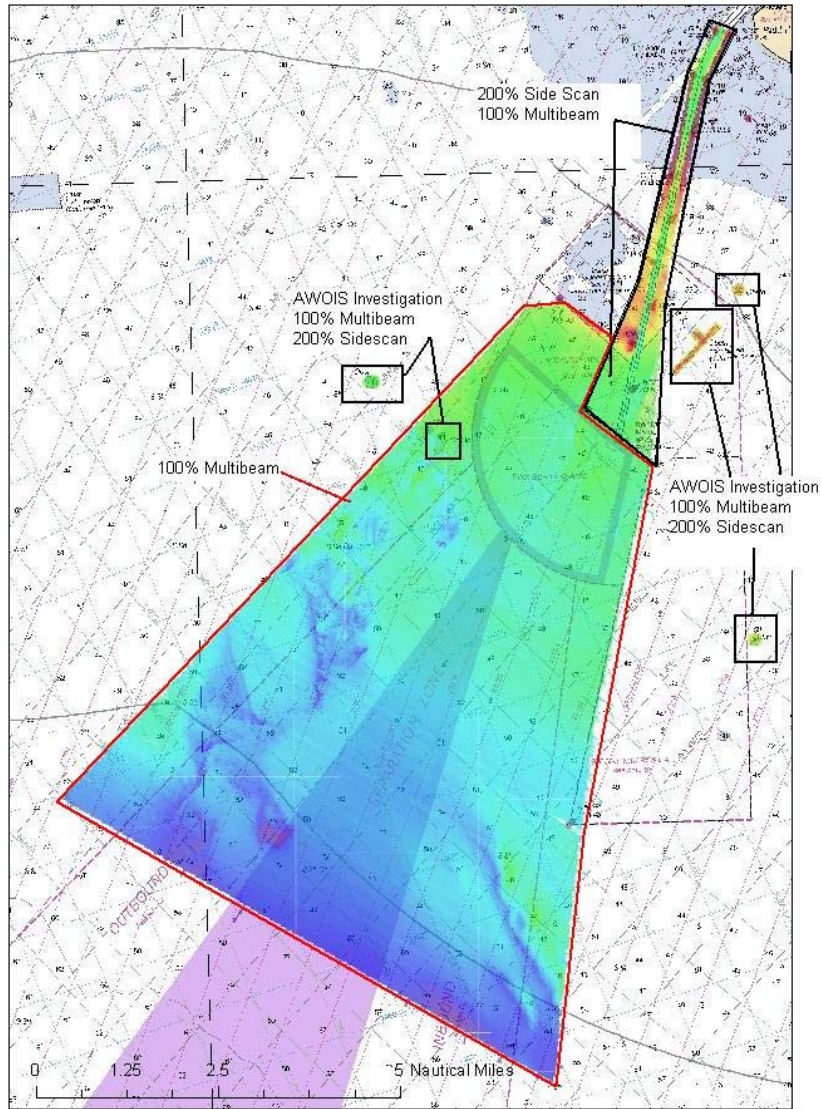


Figure 2: Sonar Coverage Areas

### B.2.3 Total Propagated Error

For the 2006 field season, Total Propagated Error (TPE) parameters for sound speed and tides are calculated separately for each project. The project-specific parameters for OPR-G374-TJ-06, Survey H11411 are as follows:

Vessel	Tide Values		Sound Speed Values	
	Measured	Zoning	Measured	Surface
3101	0	0.21	0.05	0.3
3102	0	0.21	0.05	0
S222	0	0.21	0.05	0.06

These values were applied to all MBES data immediately following CARIS Merge.

#### B.2.4 Fieldsheets and Navigation Surfaces

Thirty-one Fieldsheets were generated for Survey H11411:

<b>FIELDSHEET NAME</b>	<b>SURFACE NAME</b>	<b>TYPE</b>	<b>PURPOSE</b>	<b>RESOLUTION</b>
H11411_1	H11411_1_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_2	H11411_2_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_3	H11411_3_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_4	H11411_4_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_5	H11411_5_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_6	H11411_6_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_7	H11411_7_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_8	H11411_8_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_9	H11411_9_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_10	H11411_10_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_11	H11411_11_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_12	H11411_12_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_13	H11411_13_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_14	H11411_14_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_15	H11411_15_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_16	H11411_16_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_17	H11411_17_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_18	H11411_18_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_19	H11411_19_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_20	H11411_20_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_21	H11411_21_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_22	H11411_22_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_23	H11411_23_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_24	H11411_24_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_25	H11411_25_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_26	H11411_26_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_27	H11411_27_2m_Final	CUBE, IHO-1	Coverage	2m
H11411_28	H11411_28_2m_Final	CUBE, IHO-1	Coverage	2m

H11411_2m	H11411_250cm_Final	Combined Finalized BASE	Combined Surfaces	2.5m
H11411_100SSS	H11411_100SSS_1m	Mosaic	SSS Coverage	1m
H11411_200SSS	H11411_200SSS	Mosaic	SSS Coverage	1m

**B.2.5 Crosslines**

A total of 85.2 lineal nautical miles of crosslines were acquired by the field party, for a total of 3.3 % of mainscheme MBES coverage. While the percentage of crossline coverage does not meet requirements of the Hydrographic Survey Specifications and Deliverables (HSSD), a HIPS Crossline-to-mainscheme data was performed; data meets IHO Order I specification. \*Results of this test are included in Separate II.

**B.2.6 Junctions *See the Evaluation Report.***

No contemporary surveys junction with Survey H11411.

**B.3 CORRECTIONS TO ECHO SOUNDING**

All methods or instruments used were as described in the project DAPR. \*A table detailing all sound velocity casts is located in Separate III.

**B.4 DATA PROCESSING**

For a detailed discussion of data processing procedures, refer to the project \* DAPR.

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

**C.1 VERTICAL CONTROL**

The tidal datum for this project is Mean Lower Low Water (MLLW). The operating tide stations at Sunset Beach, NC (865-9897) and Springmaid Pier, SC (866-1070) served as control for datum determination. Tidal zoning for this survey is consistent with the \* Letter Instructions. The zones used for this survey are as follows:

<b>Zone Name</b>	<b>Time Corrector(mins)</b>	<b>Range Ratio</b>	<b>Predicted Reference</b>
SA88	-6	x0.89	865-9897
SA89	-6	x0.93	865-9897
SA91	+6	x0.98	865-9897
SA92	0	x0.98	865-9897
SA93	0	x1.02	865-9897
SA94	+6	x1.02	865-9897

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

SA95	+6	x1.06	865-9897
SA98	+6	x1.02	865-9897
SA104	-6	x1.02	865-9897
SA105	-6	x0.98	865-9897
SA106	-6	x0.93	865-9897
SA107	-6	x0.89	865-9897

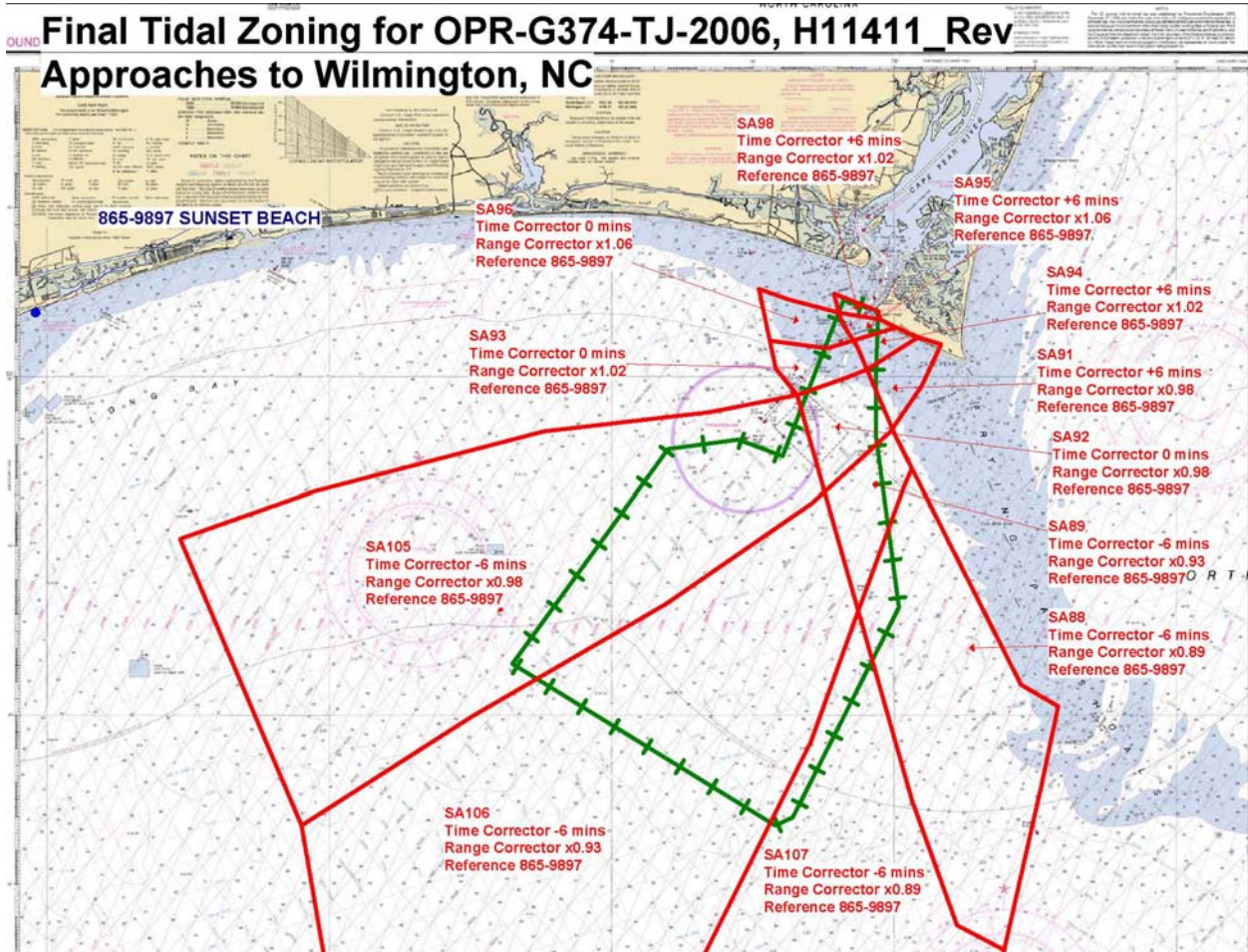


Figure 3: Final Tide Zoning

A Request for Approved Tides letter was sent to N/OPS1 on 11 August 2006 \* (Appendix IV). Verified water levels from the N/OPS1 CO-OPS website were downloaded on 17 August 2006 and applied to all sounding data using preliminary tide zoning. Final tide zoning was applied to all sounding data on 01 October 2006. *\*Data appended to this report.*

**C.2 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 Kensington, SC and the secondary DGPS beacon was New Bern, NC. No horizontal control stations were established for this survey.

Horizontal dilution of precision (HDOP) was monitored daily on the ship and launch. That value did not exceed 2.5, and adequate satellite coverage was maintained throughout the survey period.

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

**D.1 CHART COMPARISON**

There are four charts and four ENC's affected by this survey:

<u>Chart Number</u>	<u>Edition</u>	<u>Edition Date</u>	<u>Next Planned Printed Edition</u>	<u>Raster (.kap) Date**</u>	<u>Scale</u>
11009	37th	Jul-04	Nov-05	4/7/2005	1,200,000
11520	41 <sup>st</sup>	Jul-03	Oct-05	4/7/2005	432,720
11536	17 <sup>th</sup>	Feb-04	Mar-09	4/7/2005	80,000
11537	35th	Feb-04	Mar-06	4/7/2005	40,000

<u>ENC Cell Name</u>	<u>Edition</u>	<u>Update Application Date</u>	<u>Issue Date</u>
US5NC12M	8th	2006-01-17	2006-05-10
US4NC11M	3rd	2005-05-27	2005-12-29
US2EC02M	4th	2005-07-14	2005-12-29
US3SC10M	5th	2005-10-05	2006-04-15

**D.1.1 General Agreement with Charted soundings**

In general, soundings agreed within one foot of charted depths over the entire Sheet A. No navigationally significant shoals were observed. *Concur*

### **D.1.2 AWOIS Items and Significant Contacts**

Nine AWOIS items were assigned for OPR-G374-TJ-06. Four of these items were fully investigated. Information pertaining to these AWOIS items is located in Appendix II.

### **D.1.3 Dangers to Navigation**

There were no Dangers to Navigation for Survey H11411. *Do not concur. See Appendix I of this report.*

### **D.1.4 Charted Features**

All charted features are discussed in Appendix II.

### **D.1.5 Charting Recommendations**

The hydrographer recommends superseding charted soundings with present survey soundings in common areas. *Concur with conditions. See Appendix II of this report.*

## **D.2 ADDITIONAL RESULTS**

### **D.2.1 Aids to Navigation and Other Detached Positions**

There were no Aids to Navigation or Detached Positions in the survey limits of Survey H11411. *Do not concur. See Section D.2.1 of the Evaluation Report.*

### **D.2.2 Bridges and Overhead Cables**

No bridges or overhead cables were on this survey.

### **D.2.3 Submarine Cables and Pipelines**

There were no submarine cables or pipelines positioned during this survey, nor were any images of these items acquired on SSS.

**E. APPROVAL SHEET**

**OPR-G374-TJ-06**  
**Approaches to Wilmington**  
**8 NM South of the Entrance to the Cape Fear River**  
  
**Survey Registry No. H11411**

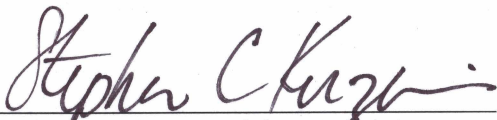
Field operations for this basic hydrographic survey were conducted under my daily supervision with frequent checks of progress and adequacy. All field sheets, this Descriptive Report, and all accompanying records and data are approved.

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

Also submitted in association with this descriptive report has been the following report:

- 2006 Hydrographic Systems Readiness Review report (submitted 09 May 2006)
- OPR-G374-TJ-06 Horizontal and Vertical Control Report (submitted 20 August 2006)
- 2006 Data Acquisition and Processing Report (submitted 06 October 2006)

Respectfully Submitted:



LT(jg) Stephen Kuzirian, NOAA  
Junior Officer/ Hydrographer

Approved and Forwarded:

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LT Christiaan VanWestendorp, NOAA  
Field Operations Officer

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CDR Raymond C. Slagle, NOAA  
Commanding Officer

## APPENDIX I

### DANGERS TO NAVIGATION REPORT



# H11411\_DANGER\_TO\_NAVIGATION\_REPORT

**Registry Number:** H11411  
**State:** North Carolina  
**Locality:** Approaches to Wilmington  
**Sub-locality:** Frying Pan Shoals  
**Project Number:** OPR-G374-TJ-06  
**Survey Date:** 07/20/2006

## Charts Affected

Number	Version	Date	Scale
11536	18th Ed.	05/01/2005	1:80000
11520	42nd Ed.	09/01/2005	1:432720
11009	37th Ed.	07/01/2004	1:1200000

## Features

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	AWOIS 774	Wreck	8.64 m	33° 43' 29.105" N	078° 00' 52.379" W	774

## **1 - Danger To Navigation**

## 1.1) AWOIS 774

### DANGER TO NAVIGATION

#### Primary Feature for AWOIS Item #774

**Search Position:** 33° 43' 29.090" N, 078° 00' 52.250" W  
**Historical Depth:** 9.14 m  
**Search Radius:** 50  
**Search Technique:** S2,MB,DI,SD  
**Technique Notes:** [None]

#### History Notes:

H9116/70--UNREVIEWED-REFERENCE CL1424/84--COE SURVEY DATED 10/19/84--SUBMERGED OBJECT 31FT BELOW SURFACE IN APPROX. POS. LAT.33-43-28.5N, LONG.78-00-53.5W VESSELS WITH A DRAFT OF 31FT OR GREATER SHOULD REMAIN CLEAR OF THIS AREA. (ENTERED 11/15/84 MJF) BP124005--COE; 30.2 FT OBSTRUCTION. LNM43/84(10/23/84)--5TH CGD; 31FT SUBM OBST (PA) 1984, POSITION GIVEN IN LAT 33-43-28.5N, LONG 78-00-53.5W(NAD27). (CHARTED AS 30 FT). REFER TO AWOIS ITEM 9684. (UPDATED 3/96 RWD) H10690/96--VIRGINIUS, SUBM 30FT AT MLLW, DIVER MOD III LEAST DEPTH, POSITION GIVEN IN LAT 33/43/29.09N, LONG 78/00/52.25W. (UPDATED 1/97 RWD) (UPDATED 12/97 RWD) DESCRIPTION \*\*\*\* TELECON (10/24/84); W/COE, MR. GLENN BOONE, WILMINGTON, SURVEY BRANCH; SAID THEY WILL SEND DIVER DOWN AS WEATHER PERMITS AND WILL SEND PLOTTED SURVEYS OF WRECK AREA. THEY BELIEVE THE 220FT WRECK MAY BE THE WRECK "VIRGINIUS" A CONFEDERATE BLOCKADE RUNNER DURING THE CIVIL WAR. 195 LORAN-C RATES: 7980 CHAIN; 45301.8-Y AND 59205.1-Z; MR. STEVEN PFAFF (910-922-2526) PROVIDED THE VERIFIED LORAN RATES.

### Survey Summary

**Survey Position:** 33° 43' 29.105" N, 078° 00' 52.379" W  
**Least Depth:** 8.64 m  
**Timestamp:** 2006-201.13:08:18.592 (07/20/2006)  
**Survey Line:** h11411 / tj\_3102\_reson8101 / 2006-201 / 195\_1307  
**Profile/Beam:** 309/97  
**Charts Affected:** 11536\_1, 11520\_1, 11009\_1

#### Remarks:

Contact of 28' depth at 30' charted wreck, correlates to AWOIS# 774. Contact found by Reson 8101. Corrected to MLLW, verified tides final zoning.

## Feature Correlation

Address	Feature	Range	Azimuth	Status
h11411/tj_3102_reson8101/2006-201/195_1307	309/97	0.00	000.0	Primary
h11411/tj_3102_reson8101/2006-201/193_1302	292/2	1.87	094.7	Secondary
h11411/tj_3102_klein5000_sss200/2006-201/031_1233	0002	2.62	232.6	Secondary
AWOIS_OPR-G374-TJ-06	AWOIS # 774	3.35	278.1	Secondary

## Hydrographer Recommendations

DELETE CHARTED 30 FT DANGEROUS SUNKEN WRECK AND CHART A DANGEROUS 28 FOOT SUNKEN WRECK IN THE PRESENT SURVEY LOCATION.

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

28ft (11536\_1)

4 ¾fm (11520\_1, 11009\_1)

## S-57 Data

**Geo object 1:** Wreck (WRECKS)

**Attributes:** CATWRK - 2:dangerous wreck  
 INFORM - 28 FOOT SOUNDING ON A SUNKEN WRECK  
 OBJNAM - AWOIS 774  
 TECSOU - 3:found by multi-beam  
 VALSOU - 8.645 m  
 VERDAT - 12:Mean lower low water  
 WATLEV - 3:always under water/submerged

## Office Notes

LEAST DEPTH FOUND IN OFFICE. CONCUR. THIS ISTEM IS BEING SUBMITTED AS A DANGER TO NAVIGATION.

**APPENDIX II**  
**SURVEY FEATURES REPORT**

# H11411 Item Investigation Report

**Registry Number:** H11411  
**State:** North Carolina  
**Locality:** Approaches to Wilmington  
**Sub-locality:** Frying Pan Shoals  
**Project Number:** OPR-G374-TJ-06  
**Survey Dates:** 07/20/2006 - 08/01/2006

## Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11537	36th	05/01/2005	1:40,000 (11537_1)	[L]NTM: ?
11536	18th	05/01/2005	1:80,000 (11536_1)	[L]NTM: ?
11520	42nd	09/01/2005	1:432,720 (11520_1)	[L]NTM: ?
11009	37th	07/01/2004	1:1,200,000 (11009_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	AWOIS 12569	Obstruction	11.23 m	33° 48' 15.3" N	078° 00' 54.9" W	---
2.1	AWOIS #13010	AWOIS	[no data]	[no data]	[no data]	---
2.2	AWOIS 13009	Obstruction	12.43 m	33° 47' 10.9" N	078° 07' 04.7" W	13009
3.1	AWOIS 774	Wreck	8.64 m	33° 43' 29.1" N	078° 00' 52.4" W	774

## **1 - New Features**

## 1.1) AWOIS 12569

### Survey Summary

**Survey Position:** 33° 48' 15.3" N, 078° 00' 54.9" W  
**Least Depth:** 11.23 m (= 36.83 ft = 6.138 fm = 6 fm 0.83 ft)  
**TPU ( $\pm 1.96\sigma$ ):** **THU (TPEh)**  $\pm 0.981$  m ; **TVU (TPEv)**  $\pm 0.370$  m  
**Timestamp:** 2006-201.17:20:18.529 (07/20/2006)  
**Survey Line:** h11411 / tj\_3102\_reson8101 / 2006-201 / 151\_1719  
**Profile/Beam:** 437/94  
**Charts Affected:** 11537\_1, 11536\_1, 11520\_1, 11009\_1

#### Remarks:

Raised area in bathy data could be possible charted obstruction, however the least depth on the object is deeper (37') then charted 32' depth.

Contact is outside AWOIS search radius, but correlates to AWOIS #12569. Contact found by Reson 8101, corrected to MLLW, verified tides final zoning.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
h11411/tj_3102_reson8101/2006-201/151_1719	437/94	0.00	000.0	Primary

### Hydrographer Recommendations

Do not concur. Least depth of 31.79 feet in Latitude 33°48'17.61N Longitude 078°00'57.92W found on survey H11722 (2007). Revise feature to reflect those findings.

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

37ft (11537\_1, 11536\_1)

6fm (11520\_1, 11009\_1)

### S-57 Data

**Geo object 1:** Obstruction (OBSTRN)  
**Attributes:** INFORM - 37 ft dangerous submerged obstruction  
 OBJNAM - AWOIS 12568  
 QUASOU - 6:least depth known  
 TECSOU - 3:found by multi-beam



VALSOU - 11.225 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

## Office Notes

Concur.

.

## **2 - AWOIS Features**

**2.1) AWOIS #13010**

**No Primary Survey Feature for this AWOIS Item**

**Search Position:** 33° 46' 23.0" N, 078° 05' 54.2" W  
**Historical Depth:** 12.50 m  
**Search Radius:** 50  
**Search Technique:** S2, MB,DI  
**Technique Notes:** [None]

**History Notes:**

H10787/97 -- OPR-G309-WH; 41 COhD DETECTED WITH SIDE SCAN SONAR IN POSITION 33-46-22.981N, 078-05-54.232 W [NAD 83]. DIVERS INVESTIGATED THE CONTACT ON JUNE 12, 1996 AND LOCATED A CORAL HEAD RISING 5 FT OFF THE BOTTOM. UPDATED 3/15/2005 JCM.

**Survey Summary**

**Charts Affected:** 11537\_1, 11536\_1, 11520\_1, 11009\_1

**Remarks:**

unusual shaped contact within a slightly geological elevation and sandwaves  
 18 October - raised areas in coral hear circle, bathy data indicates contact is deeper then charted 41' depth  
 2 November - Contact is only 10m from AWOIS search radius. Correlates to AWOIS #13010

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
AWOIS_OPR-G374-TJ-06	AWOIS # 13010	0.00	000.0	Primary

**Hydrographer Recommendations**

Retain charted coral hd circlce with new depth per present survey finding

**S-57 Data**

[None]

## Office Notes

DO NOT CONCUR. Delete the 2 charted 41 foot depths and the danger curve. Retain CoHd lable as a bottom characteristic. Chart a 41 foot depth in present survey locaiton. The 41 foot depth is the least depth on the coral head.

## 2.2) AWOIS 13009

### Primary Feature for AWOIS Item #13009

**Search Position:** 33° 47' 10.9" N, 078° 07' 04.9" W  
**Historical Depth:** 12.50 m  
**Search Radius:** 50  
**Search Technique:** S2, MB, DI, SD  
**Technique Notes:** [None]

**History Notes:**

H10787/97 -- OPR-G309-WH; METAL OBSTRUCTION DETECTED WITH SIDE SCAN SONAR IN POSITION 33-47-10.863 N, 078-07-04.903 W [NAD 83]. DIVERS INVESTIGATED THE CONTACT ON JUNE 12, 1996 AND LOCATED A FLAT METAL OBJECT, APPROXIMATELY 30 FT BY 15 FT, WITH ONE END STUCK IN THE SAND AND THE OTHER END INCLINED AND RISING 5 FT OFF THE BOTTOM. UPDATED 3/15/2005 JCM.

### Survey Summary

**Survey Position:** 33° 47' 10.9" N, 078° 07' 04.7" W  
**Least Depth:** 12.43 m (= 40.79 ft = 6.798 fm = 6 fm 4.79 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh)  $\pm 0.981$  m ; TVU (TPEv)  $\pm 0.426$  m  
**Timestamp:** 2006-213.18:48:47.659 (08/01/2006)  
**Survey Line:** h11411 / tj\_3102\_reson8101 / 2006-213 / 101\_1845  
**Profile/Beam:** 1239/78  
**Charts Affected:** 11536\_1, 11520\_1, 11009\_1

**Remarks:**

charted obstruction with least depth of 12.43m (40.8ft), found by Reson 8101 and KLEIN 5000, corrected to MLLW, verified tides final zoning

### Feature Correlation

Address	Feature	Range	Azimuth	Status
h11411/tj_3102_reson8101/2006-213/101_1845	1239/78	0.00	000.0	Primary
h11411/tj_3102_reson8101/2006-201/134_1430	392/2	2.45	244.4	Secondary
AWOIS_OPR-G374-TJ-06	AWOIS # 13009	4.55	069.4	Secondary
h11411/tj_3102_klein5000_sss200/2006-201/019_1458	0002	7.55	348.9	Secondary

## Hydrographer Recommendations

Revise charted Obstruction to present survey location and depth.

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

41ft (11536\_1)

6 ¾fm (11520\_1, 11009\_1)

## S-57 Data

**Geo object 1:** Obstruction (OBSTRN)  
**Attributes:** INFORM - 41 ft dangerous obstruction  
OBJNAM - AWOIS 13009  
QUASOU - 6:least depth known  
TECSOU - 2,3:found by side scan sonar,found by multi-beam  
VALSOU - 12.433 m  
VERDAT - 12:Mean lower low water  
WATLEV - 3:always under water/submerged

## Office Notes

**CONCUR.** Revise charted 41 foot dangerous submerged obstruction to reflect present survey findings.

### **3 - Dangers to Navigation**

### 3.1) AWOIS 774

## DANGER TO NAVIGATION

### Primary Feature for AWOIS Item #774

**Search Position:** 33° 43' 29.1" N, 078° 00' 52.3" W  
**Historical Depth:** 9.14 m  
**Search Radius:** 50  
**Search Technique:** S2,MB,DI,SD  
**Technique Notes:** [None]

#### History Notes:

H9116/70--UNREVIEWED-REFERENCE ■ CL1424/84--COE SURVEY DATED 10/19/84--SUBMERGED OBJECT 31FT BELOW SURFACE IN APPROX. POS. LAT.33-43-28.5N, LONG.78-00-53.5W VESSELS WITH A DRAFT OF 31FT OR ■ GREATER SHOULD REMAIN CLEAR OF THIS AREA. (ENTERED 11/15/84 MJF) ■ BP124005--COE; 30.2 FT OBSTRUCTION. ■ LNM43/84(10/23/84)--5TH CGD; 31FT SUBM OBST (PA) 1984, POSITION GIVEN IN LAT 33-43-28.5N, LONG 78-00-53.5W(NAD27). (CHARTED AS 30 FT). REFER TO AWOIS ITEM 9684. (UPDATED 3/96 RWD) ■ H10690/96--VIRGINIUS, SUBM 30FT AT MLLW, DIVER MOD III LEAST DEPTH, POSITION GIVEN IN LAT 33/43/29.09N, LONG 78/00/52.25W. (UPDATED 1/97 RWD) (UPDATED 12/97 RWD) ■ ■ DESCRIPTION ■ \*\*\*\* TELECON (10/24/84); W/COE, MR. GLENN BOONE, WILMINGTON, SURVEY BRANCH; ■ SAID THEY WILL SEND DIVER DOWN AS WEATHER PERMITS AND WILL SEND PLOTTED ■ SURVEYS OF WRECK AREA. THEY BELIEVE THE 220FT WRECK MAY BE THE WRECK ■ "VIRGINIUS" A CONFEDERATE BLOCKADE RUNNER DURING THE CIVIL WAR. ■ 195 LORAN-C RATES: 7980 CHAIN; 45301.8-Y AND 59205.1-Z; MR. STEVEN PFAFF ■ (910-922-2526) PROVIDED THE VERIFIED LORAN RATES.

### Survey Summary

**Survey Position:** 33° 43' 29.1" N, 078° 00' 52.4" W  
**Least Depth:** 8.64 m (= 28.36 ft = 4.727 fm = 4 fm 4.36 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh)  $\pm 0.981$  m ; TVU (TPEv)  $\pm 0.369$  m  
**Timestamp:** 2006-201.13:08:18.516 (07/20/2006)  
**Survey Line:** h11411 / tj\_3102\_reson8101 / 2006-201 / 195\_1307  
**Profile/Beam:** 309/97  
**Charts Affected:** 11536\_1, 11520\_1, 11009\_1

#### Remarks:

Contact of 28' depth at 30' charted wreck, correlates to AWOIS# 774. Contact found by Reson 8101. Corrected to MLLW, verified tides final zoning.



## Feature Correlation

Address	Feature	Range	Azimuth	Status
h11411/tj_3102_reson8101/2006-201/195_1307	309/97	0.00	000.0	Primary
h11411/tj_3102_reson8101/2006-201/193_1302	292/2	1.87	094.7	Secondary
h11411/tj_3102_klein5000_sss200/2006-201/031_1233	0002	2.62	232.6	Secondary
AWOIS_OPR-G374-TJ-06	AWOIS # 774	3.35	278.1	Secondary

## Hydrographer Recommendations

DELETE CHARTED 30 FT DANGEROUS SUNKEN WRECK AND CHART A DANGEROUS 28 FOOT SUNKEN WRECK IN THE PRESENT SURVEY LOCATION.

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

28ft (11536\_1)

4 ¾fm (11520\_1, 11009\_1)

## S-57 Data

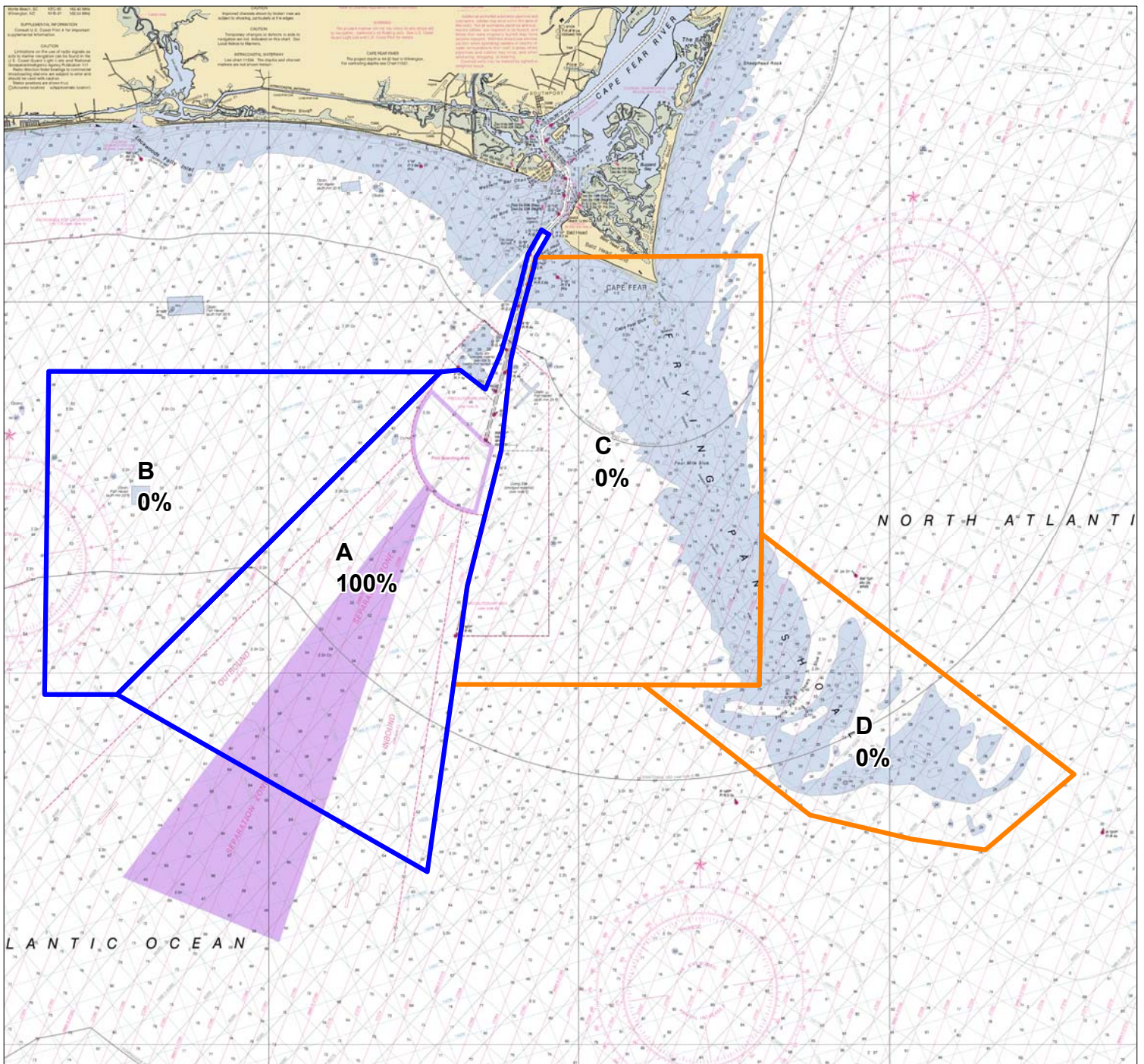
**Geo object 1:** Wreck (WRECKS)

**Attributes:** CATWRK - 2:dangerous wreck  
 INFORM - 28 FOOT SOUNDING ON A SUNKEN WRECK  
 OBJNAM - AWOIS 774  
 SORDAT - 20060802  
 SORIND - US,US,nsurf,H11411  
 TECSOU - 3:found by multi-beam  
 VALSOU - 8.644 m  
 VERDAT - 12:Mean lower low water  
 WATLEV - 3:always under water/submerged

## Office Notes

**CONCUR.** Revise charted feature to reflect present survey findings. This item is being submitted as a danger to navigation.

APPENDIX III  
FINAL PROGRESS SKETCH AND SURVEY



Project	Sheet_Letter	H_num	HQ_Est_SNM	CumIPercCompPrev	CumIPercCompCui	SNM_CompCurH	CumSNMcom
C	C		59	0	0	0	0
D	D		42	0	0	0	0
A	A	H11411	70	95	100	15	61
B	B	H11413	54	0	0	0	0

Project	Month	LNM_Hydr	LNM_MB	SV_Casts	Bottom_Sam	AWOIS_Items	Tide_Guage_Inst	DAS	DTime equip_H	DTime_Weather_	D_Time_other_I
G374	July	94.90	2,511.80	694.00	0.00	0.00	0.00	21.00	134.00	46.00	0.00
G374	August	0.00	167.70	40.00	0.00	4.00	0.00	4.00	12.00	0.00	0.00

## Progress Sketch OPR-G374-TJ-06 August, 2006

APPENDIX IV  
TIDES AND WATER LEVELS

<p><b>U.S. DEPARTMENT OF COMMERCE</b> NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SERVICE</p> <p><b>HORIZONTAL AND VERTICAL CONTROL REPORT</b></p>
<p><i>Type of Survey</i> Navigable Area <i>Field No.</i> OPR-G374-TJ-06 <i>Registry No.</i> H11411</p>
<p><b>LOCALITY</b></p> <p><i>State:</i> North Carolina <i>General Locality:</i> Approaches to Wilmington</p>
<p><u>2006</u></p> <p><b>CHIEF OF PARTY</b></p> <p>CDR Raymond C. Slagle NOAA Ship THOMAS JEFFERSON</p>
<p><b>LIBRARY &amp; ARCHIVES</b></p> <p>DATE 11 August 2006</p>

**I. Projects Surveyed****OPR-G374-TJ-06****Registry #: H11411**

- General Locality: Approaches to Wilmington
- Sublocality: Frying Pan Shoals
- Chief of party: CDR Raymond C. Slagle
- Project Instructions: June 12, 2006

**II. Vertical Control****A. OPR-G374-TJ-06**

The operating National Water Level Observation Network (NWLON) station at Springmaid Pier, SC (866-1070) will serve as datum control for the survey area. Therefore, it is critical that this station remain in operation during all periods of hydrography. No leveling is required at Springmaid Pier, SC (866-1070) or Sunset Beach, NC (865-9897) by NOAA ship THOMAS JEFFERSON personnel. The operating water level station at Sunset Beach, NC (865-9897) will provide water level reducers for this project, reiterating the importance of its operation during all periods of hydrography.

**Springmaid Pier, SC**

- Station ID: 866-1070
- Latitude: 33° 39.3'N
- Longitude: 078° 55.1'W
- No unusual tidal, water level or current conditions were reported.
- No leveling was required by personnel from NOAA Ship THOMAS JEFFERSON
- See table 1 for the dates of hydrography.

**Sunset Beach, NC**

- Station ID: 865-9897
- Latitude: 33° 51.9'N
- Longitude: 078° 30.4'W
- No unusual tidal, water level or current conditions were reported.
- No leveling was required by personnel from NOAA Ship THOMAS JEFFERSON
- See table 1 for the dates of hydrography.

Table 1 - Dates of Hydrography

Year_DOY	Min Time	Max Time
2006_191	03:10:25	23:54:38
2006_192	00:06:48	23:52:24
2006_193	00:00:01	22:01:06
2006_194	15:21:25	23:59:57
2006_195	00:00:02	14:38:17
2006_199	01:01:15	23:48:39
2006_200	00:10:12	23:59:59
2006_201	00:00:03	23:59:13
2006_202	00:23:18	09:07:07
2006_205	18:03:17	23:59:57
2006_206	00:00:02	23:59:57
2006_207	00:00:02	23:58:48
2006_208	00:06:51	23:59:58
2006_209	00:00:02	23:59:09
2006_210	00:06:20	23:53:50
2006_211	00:02:37	23:58:53
2006_212	00:00:02	23:59:57
2006_213	00:00:02	23:55:06
2006_214	00:01:47	21:41:17

**III. Horizontal Control**


All parameters were provided in the letter instructions and no additional fieldwork was completed that would change these parameters.



IV. Approval


As Chief of Party, I have ensured that all information contained in the Vertical and Horizontal Control Report is complete and accurate to the best of my knowledge.

Submitted:

  
ENS Megan A. Nadeau, NOAA  
Junior Officer

Approved and Forwarded:

  
LT Christiaan van Westendorp, NOAA  
Operations Officer

  
CDR Raymond C. Slagle, NOAA  
Commanding Officer

APPENDIX V  
SUPPLEMENTAL SURVEY AND  
CORRESPONDENCE

**Subject:** Re: Please Review: OPR-G374-TJ-06-LetterInstructions.doc

**From:** Doug.Baird@noaa.gov

**Date:** Tue, 30 May 2006 08:26:41 -0400

**To:** Jeremy McHugh <Jeremy.McHugh@noaa.gov>

**CC:** Tod.Schattgen@noaa.gov, "raymond.c.slagle" <Raymond.C.Slagle@noaa.gov>, Marc S Moser <Marc.S.Moser@noaa.gov>, Christiaan VanWestendorp <Christiaan.VanWestendorp@noaa.gov>, Michael Riddle <Michael.Riddle@noaa.gov>

Ray,

If your comparisons with the prior surveys find that current soundings are shoaler, then yes develop with 100% multibeam.

Regards,  
Doug

----- Original Message -----

From: Jeremy McHugh <[Jeremy.McHugh@noaa.gov](mailto:Jeremy.McHugh@noaa.gov)>

Date: Thursday, May 25, 2006 5:00 pm

Subject: Re: Please Review:

OPR-G374-TJ-06-LetterInstructions.doc

Hi again Tod,  
Thanks for more comments! I will answer these to the best of my ability and then Doug and Mike can respond too if necessary. My responses are in-line below. Let me know soon if you have any other comments as I may need to get a final version of these instructions out soon.

-Jeremy

[Tod.Schattgen@noaa.gov](mailto:Tod.Schattgen@noaa.gov) wrote:

Jeremy,

1. What is the product of the survey?

Certainly a SSS mosaic should be created to demonstrate coverage.

The product of the surveys should be SSS mosaics and DTMs for the multibeam data.

2. What is the field supposed to do with the MB data? Create a DTM,> compare depths from the strips to charted depths? How are areas shoaler than the chart to be handled? Select soundings from the chart in a pydro pss.

TJ personnel should use the multibeam data to compare general depths and positions of charted features from this project with the prior surveys listed in the instructions and provided on the project data CD (see end of section 1.2 and section 6.9). If significant differences between the charted and surveyed depths are found or if the position of charted features has shifted significantly, TJ personnel should notify Doug Baird (section 1.9). Not sure what you mean in the last sentence;

please clarify.

3. Are the sounding to be saved in Pydro only.

Are shoals to be developed with tighter MB lines or 100% MB coverage?

Not sure how to answer the first sentence; Doug or Mike, can you address this? I think that shoals with depths or positions that are significantly different from prior survey data should be covered with 100% MB. Doug and Mike, what do you think?

Best Regards,  
Tod

----- Original Message -----

From: Jeremy McHugh <[Jeremy.McHugh@noaa.gov](mailto:Jeremy.McHugh@noaa.gov)>

Date: Thursday, May 25, 2006 1:43 pm

Subject: Re: Please Review:

OPR-G374-TJ-06-LetterInstructions.doc

Hi Ray (and Tod- your email was very similar to

Ray's comment below

regarding line spacing so this is a reply to your comment as well)

Thanks for the comments!

1. That requirement for MB or SB acquisition

concurrent with SSS

acquisition is apparently been around for a

while and, as far as

I know,  
has not caused any trouble in the past (i.e. in  
the pre-MVP  
days).  
Since  
you can't tow SSS and MVP concurrently, I  
suppose that rerunning  
the SSS  
lines with MB while towing the MVP is better  
than having no  
bathymetry  
at all- I spoke with Marc Moser about that  
possibility. What do  
you  
think?  
2. Those MB line spacings are intended to be  
for reconnaissance  
lines to  
detect general bathymetric changes. As such,  
please consider the  
200 m  
and 500 m line spacings to be a minimum  
spacing. When we wrote  
up  
the  
letter instructions, I was not thinking that  
you would acquire  
MB  
and  
SSS simultaneously with the launches (I was not  
sure that was  
possible  
with the launches), but that sounds like a  
great idea. In that  
case,  
your SSS line spacing would be more closely  
spaced than 200-500  
meters.  
That is fine. Let me know if you have any other  
questions.

Enjoy the holiday weekend!  
-Jeremy

raymond.c.slagle wrote:

Jeremy,

I have a comment about the following requirement.

"Collect multibeam or single beam echo sounder

data

concurrently

with

SSS data collection. At the Commanding

Officer's discretion,

extremely

rocky areas, or where SSS operations are

impractical due to

entanglement hazards can be examined with 100%

multibeam only. "

1. The ship usually will not acquire MBES data

concurrently

with

SSS

data because we do not tow both the SSS and

MVP at the same time.

2. When multibeam data is collected

concurrently with SSS using

the

launch, the line spacing will be the same.

However, sheets B

and

C

require 100% SSS and 100 m and 500 m spaced MB

lines

respectively.

Would we still have a requirement to acquire

additional MBES

lines at

200 or 500m line spacing?

Ray

Jeremy McHugh wrote:

TJ Officers and Tod:

A draft copy of the letter instructions for

OPR-G374-TJ-06,

Approaches to Wilmington, NC are attached.

Please note that

there

have

been some changes in the sheets and coverage

requirements

since

the

original instructions for this project were

issued last season.

Please review and provide any comments or

feedback to me as

soon

as

possible. I plan to send out the final

instructions as soon as

possible before June 6th.

-Jeremy

--

Jeremy McHugh, Physical Scientist

NOAA's National Ocean Service, Office of Coast

Survey

301-713-2702 x117





**Subject:** H11411 wrap-up guidance

**From:** "Jeremy McHugh" <Jeremy.McHugh@noaa.gov>

**Date:** Thu, 27 Jul 2006 13:27:12 -0400

**To:** Christiaan VanWestendorp <Christiaan.VanWestendorp@noaa.gov>, "LT Marc S. Moser" <Marc.S.Moser@noaa.gov>, CDR Raymond Slagle <Raymond.C.Slagle@noaa.gov>, James M Crocker <James.M.Crocker@noaa.gov>

**CC:** Doug Baird <Doug.Baird@noaa.gov>, Michael Riddle <Michael.Riddle@noaa.gov>, Jerry Mills <Jerry.Mills@noaa.gov>

TJ Officers,

So that you can plan ahead...please submit a complete "squared-off" survey for however much that you can get done on H11411 before you depart the Wilmington area next week. Let me know if you have any questions.

-Jeremy

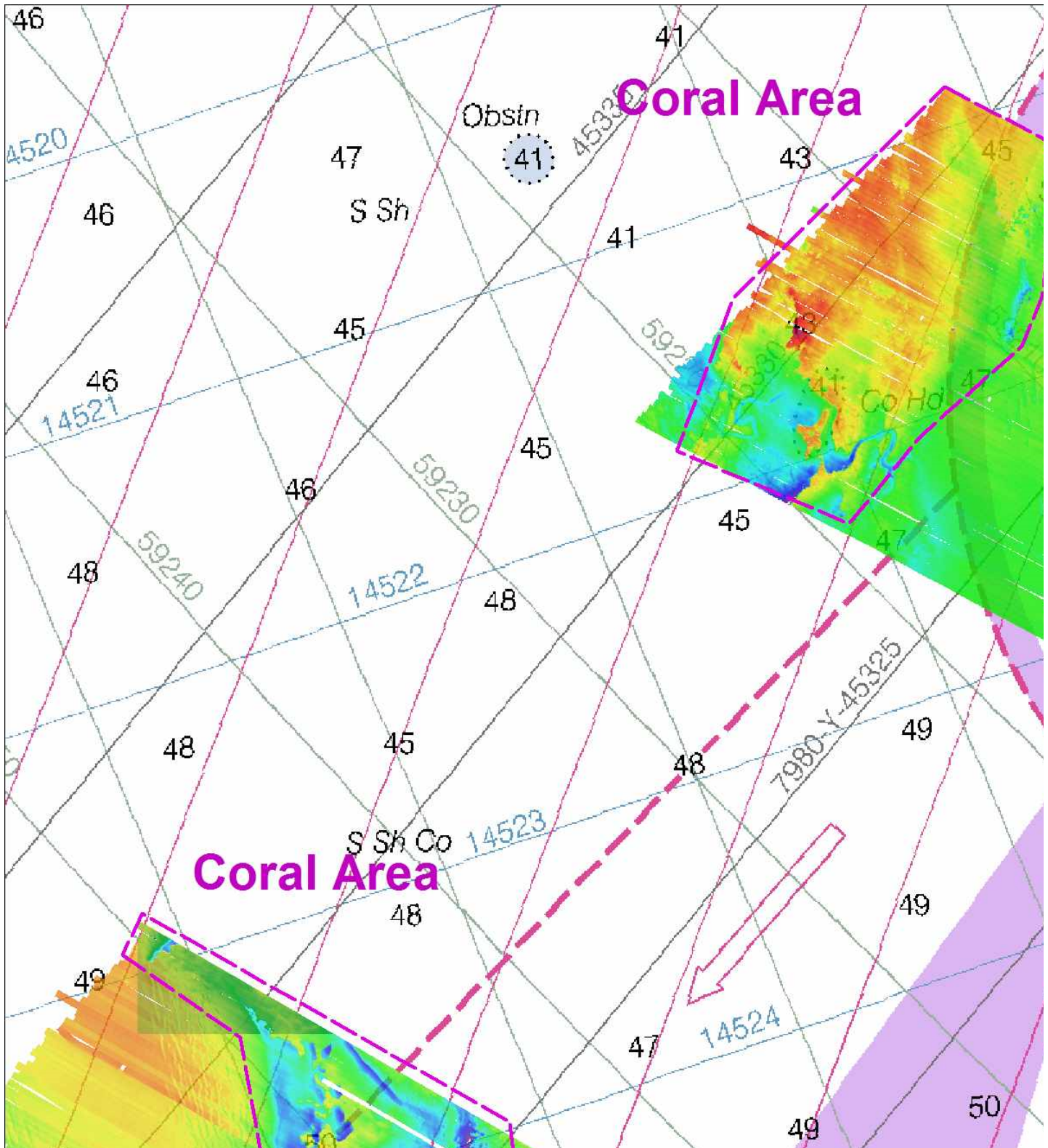
--

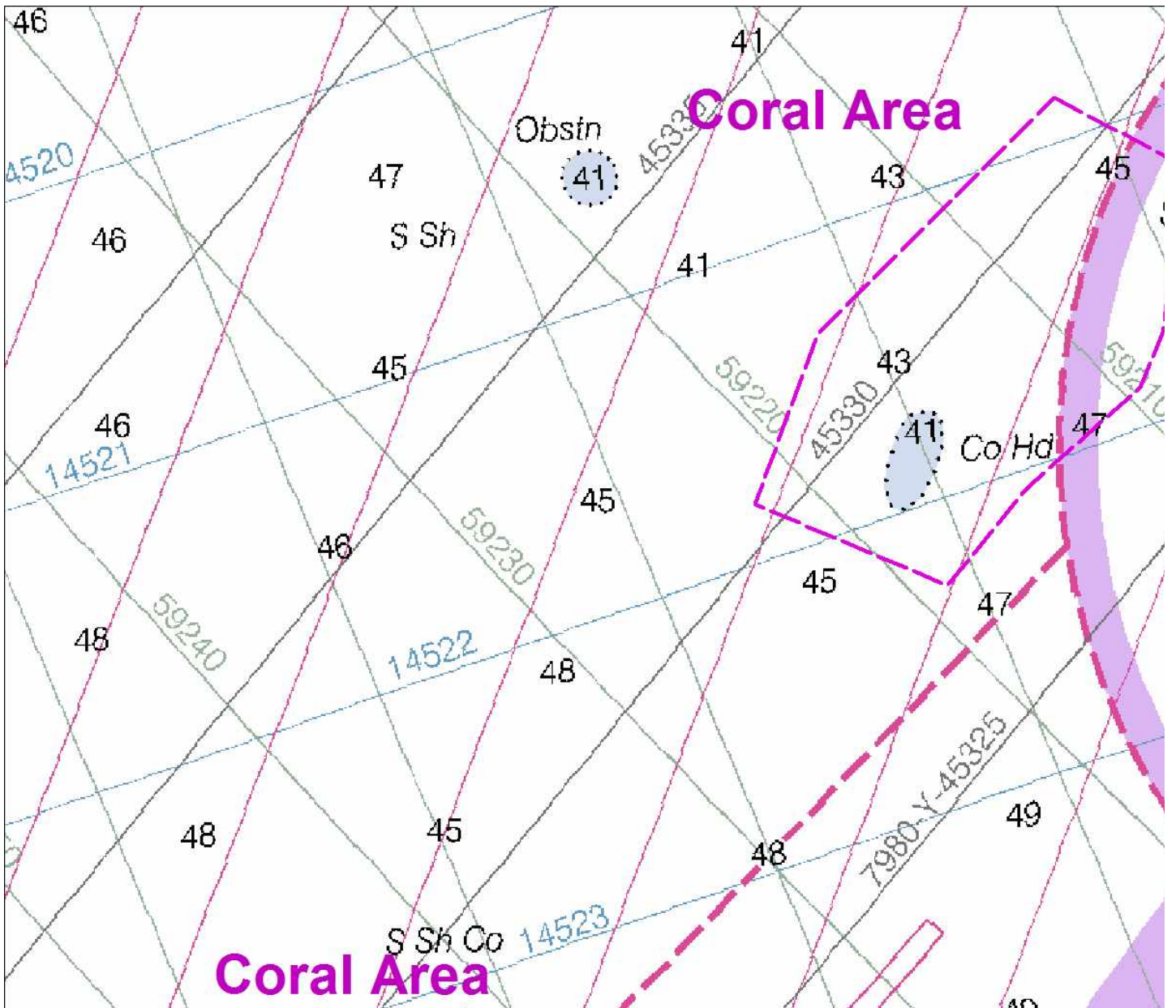
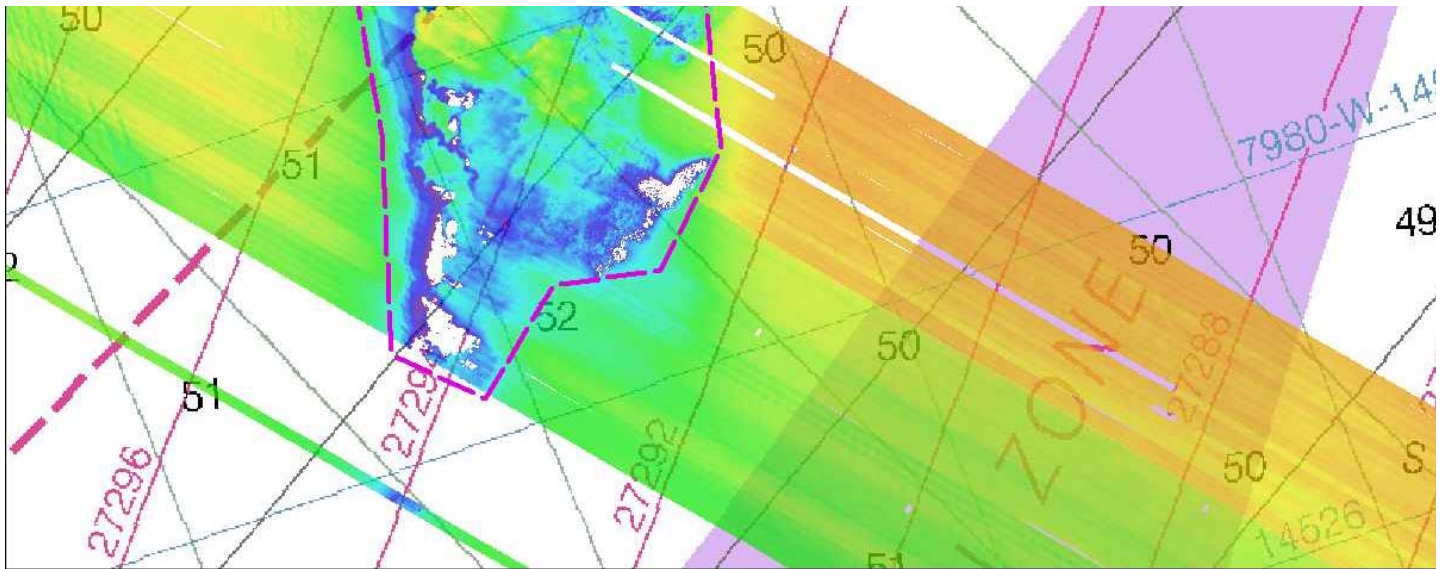
Jeremy McHugh, Physical Scientist  
NOAA's National Ocean Service, Office of Coast Survey  
301-713-2702 x117

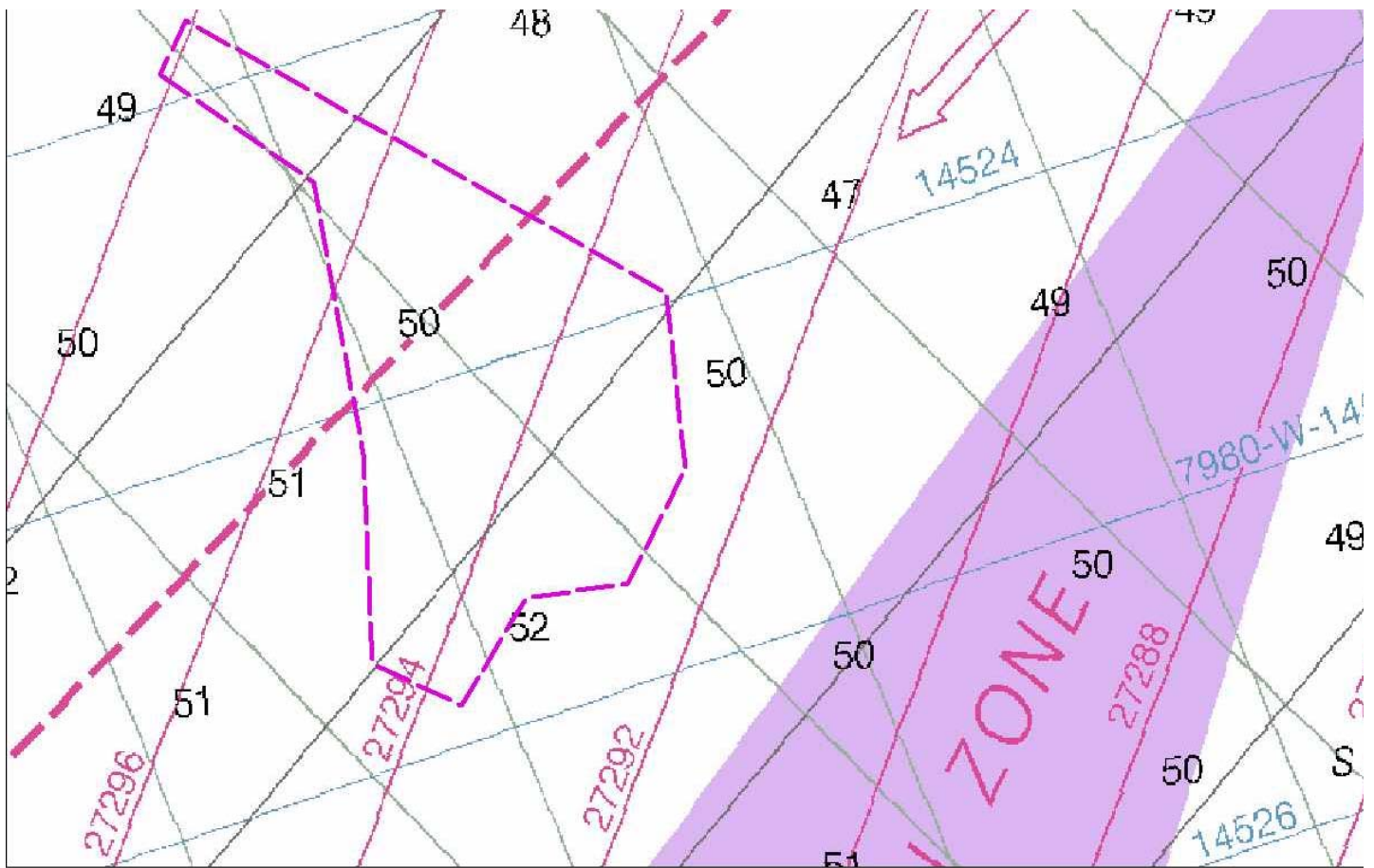
**Subject:** Coral Areas near Cape Fear  
**From:** "marc.s.moser" <marc.s.moser@noaa.gov>  
**Date:** Tue, 18 Jul 2006 12:41:50 -0400  
**To:** joseph.m.orlando@uscg.mil  
**CC:** Christiaan VanWestendorp <christiaan.vanwestendorp@noaa.gov>

As we discussed, attached are two images of what appear to be areas of coral. The two areas may link in between, but we have not surveyed there yet.

Thank you for you assistance with the package.







CoralArea1a.jpg	Content-Type: image/jpeg
	Content-Encoding: base64

---

CoalArea2a.jpg	Content-Type: image/jpeg
	Content-Encoding: base64

**Subject:** Re: Problem with H11411

**From:** "william.winner" <william.winner@noaa.gov>

**Date:** Thu, 17 Aug 2006 18:56:42 -0400

**To:** Stephen Kuzirian <stephen.kuzirian@noaa.gov>

**CC:** Christiaan VanWestendorp <christiaan.vanwestendorp@noaa.gov>

Steve,  
DN214 definitely had some roll-time errors. This had nothing to do with the mounting. There were two sections during the day with a noticeable error. I have updated the HVF to reflect the timing error values and have re-merged the data. You may notice a few small areas in the data with remnants, however, the surface is only being pulled up a decimeter. This, to my understanding, is within specs, and to make the data perfect would involve extra HVF entries that, to me, seem unnecessary. I have not looked at DN213 yet. If someone tries to tell you that it was a problem with the mounting, then have them speak to me, as to why this could not possibly be the case.

I did notice on a few lines where there were some areas that were caused by a wobble in the mount. A good example would be line 267\_1146 on DN214. If you look at the line in swath editor, you will notice a few sounding lines that are off. However, I noticed a total of 3 sounding lines with an issue. This should in no way affect the BASE surface.

I will look at DN213 as soon as I can.

Bill

Stephen Kuzirian wrote:

Bill,

There appears to be a roll time error with some of the data in H11411. Its occurring on DN 214 on boat 3101. Please take a look at the HVF and let me know if and when you fix it so I can re-apply.  
Thanks,

Stephen

ENS William Winner, NOAA <[william.winner@noaa.gov](mailto:william.winner@noaa.gov)>

Junior Officer

NOAA Ship Thomas Jefferson

Text messages about missing data on survey H11411.

Subject:

H11411 Restore

Date:

Mon, 21 Apr 2008 12:29:13 -0400

From:

Edward Owens <Edward.Owens@noaa.gov>

Organization:

NOS, OCS, HSD, Atlantic Hydrographic Branch

To:

Norm.Michaud@noaa.gov, "Bland, Deborah" <Deborah.A.Bland@noaa.gov>

CC:

Leonard.Tyson@noaa.gov, Shepard Smith <Shep.Smith@noaa.gov>

Hello Norm,

As discussed, could you please restore H11411 as we investigate the survey for missing and incomplete data.

Location- H:\COMPILATION\H11411\_G347-TJ

Thanks very much, Edward

Subject:

Re: H11411 Restore

Date:

Wed, 23 Apr 2008 05:30:04 -0400

From:

Norm Michaud <Norm.Michaud@noaa.gov>

To:

Edward Owens <Edward.Owens@noaa.gov>, Castle E Parker  
<Castle.E.Parker@noaa.gov>

CC:

"Bland, Deborah" <Deborah.A.Bland@noaa.gov>, Leonard.Tyson@noaa.gov,  
Shepard Smith <Shep.Smith@noaa.gov>

References:

1

Gene,

Was the restored data any different?

Norm

Subject:

Re: h11411

Date:

Wed, 23 Apr 2008 08:24:14 -0400

From:

Shep Smith <Shep.Smith@noaa.gov>

To:

Debbie Bland <Deborah.A.Bland@noaa.gov>

CC:

Castle.E.Parker@noaa.gov

References:

1

Debbie,

I am confused. Do you think that the missing lines got deleted somehow along the way, or do you think they were never collected or never processed?

How much is missing? Is it important?

Shep

Debbie Bland wrote:

> the missing and incomplete data was still there after the survey was  
> restored. it looks like 2 lines of data missing and 2-3 areas where the  
> field did sss but no mb to accompany it. gene said i should let you  
> know this and to let you know that the original data is stored off site  
> and we can do a restore from their data if you think its warrented. i  
> can continue to work with what i have until a decision is made.  
>  
> dab

Subject:

Re: h11411

Date:

Wed, 23 Apr 2008 10:25:38 -0400

From:

"Castle.E.Parker" <Castle.E.Parker@noaa.gov>  
To:  
Shep Smith <Shep.Smith@noaa.gov>  
CC:  
Debbie Bland <Deborah.A.Bland@noaa.gov>  
References:  
1 , 2

Shep,

The bottom line is that we have parity between the live data and the back up at AHB. We don't have enough information to say the field submitted the survey with missing data without requesting the NGDC backup data set. I did this comparison yesterday and only made paper and pen annotation, then threw it away once determined that the live data and the AHB backup were the same. The SAR did not address the missing data with exception of image inserted into SAR doc discussing holiday. The Data Management Team wasn't annotating the SAR doc at that time. A field submitted grid has coverage in that area. This indicates that the field processed and add the line to the grid, but was it omitted on the USB submission. No media listing found within the survey directory.

The data from the tape archive is the same as what's on currently live on AHB's NAS. Review of the acquisition and processing logs indicate that the acquisition log for DN 200 (possible missing lines) was not submitted; inconsistent survey records exist. I have found some references to lines of data that contained no Observed depths; these lines were not rerun for bathy data. No media list exists for USB submission comparison to what's live on the AHB network. In the NE corner of the survey, SSS was acquired with no bathy data. Log entries indicate the files contained no observed depths and was not later rerun. Missing acquisition logs for vessel 3102 DN 201 and 208; missing acquisition logs for vessel 3101 DN 200 and 201. The processing logs are void of processing details as well; the processing logs lists the line numbers but no other notes.

Work around: if Deb does not have to make any edits to HDCS and re-compute, I would suggest using the field's grid for for source when compiling the H-cell.

Results: hard to say without requesting data from NGDC. This was the time period of re-organization as well.

Since the AHB tape backup of processed data does not contain the missing lines, the only way to find out if it were submitted is to request the back up copy version that resides at NGDC. This would take time and effort that could entail at least two to five days to receive the data and compare.



NGDC inventory indicates the following:

I don't understand what the support size references (?raw plus processed).

The backup tape version is as follows:

AHB H:\COMPILATION\H11411\_G347-TJ\CARIS:

It's hard to decipher what's going on as none of the files sizes agree; close but not exactly the same file size.

DN 200 processing log indicates lines 101 and 102 were processed, contains no special notes. The acquisition log for DN 200 is missing from the documentation.

I have an email from Jasper Schaer indicating the USB drive is back and the full data minus the raw was loaded in T drive.

That's all I can find out from here.

Gene

Subject:

Re: h11411

Date:

Wed, 23 Apr 2008 15:25:03 -0400

From:

Shep Smith <Shep.Smith@noaa.gov>

To:

Debbie Bland <Deborah.A.Bland@noaa.gov>

CC:

Edward.Owens@noaa.gov, Castle.E.Parker@noaa.gov

References:

1 , 2 , 3

It seems like we ought to try to find the missing lines, if it won't take us too long...If it looks like it will hold you up more than a day or two, let's look for an exit strategy

Debbie Bland wrote:

> they were never with the data that we downloaded. when they did the  
> restore yesterday, the lines were still missing. plus there is some  
> development areas where sss was run but no multibeam data was collected  
> in the same area. it doesn't seem like that much is missing, maybe 2 or  
> 3 lines on the western end of the survey. i don't think it would mean  
> not being able to continue processing the survey but we will find out as  
> we go along. according to ed the final grids sent in by the field  
> include the data so he thinks the field had the data but never submitted  
> it to us.  
>

Subject:

Re: h11411

Date:

Thu, 24 Apr 2008 06:47:05 -0400

From:

"Castle.E.Parker" <Castle.E.Parker@noaa.gov>

To:

Debbie Bland <Deborah.A.Bland@noaa.gov>

References:

1 , 2 , 3 , 4

Good Morning all,

Jasper noted the data gap (west side) in the SAR. That first line of inquiry would go back to the TJ. Provide Jasper Schaer with screen grab and and list of locations where the the data issues reside. If you want need assistance let me know.

This is really a pain as it needs to be expressed clearly and this takes time and effort. Even if we went back to NGDC for the off site backup, it doesn't mean that the data set would be any different than what is on the AHB network.

gene

Subject:

Re: h11411

Date:

Fri, 25 Apr 2008 09:59:41 -0400

From:

Debbie Bland <deborah.a.bland@noaa.gov>

Organization:

NOS, OCS, HSD, Atlantic Hydrographic Branch

To:

jasper.schaer@noaa.gov

CC:

"Owens, Edward" <Edward.Owens@noaa.gov>, "Smith, Shepard" <Shep.Smith@noaa.gov>, Castle.E.Parker@noaa.gov

References:

1 , 2 , 3 , 4 , 5

jasper,

the area where there is sss data but no multibeam data is in 33/47/47.31, 78/04/44.13. this is in the vicinity of the development of the charted fish haven at the north east end of the survey area. the sss lines are 2006-201-063\_1630, 062\_1628, 061\_1626, 060\_1624 and 059\_1622. Line

the area with the missing and incomplete data is in the vicinity of 33/47/03.33, 78/04/41/40. at line 2006-200-103\_1146 the data is incomplete, the mb data doesn't have any sounding data associated with it(no observed data, no processed data \_ so says EDWARD). the missing data lines are to the south of that line. the area is on the northwest side of the survey.

attached is a screen grab showing both areas.

Debbie

Subject:

Re: h11411

Date:

Fri, 25 Apr 2008 15:15:20 +0000

From:

jasper schaer <jasper.schaer@noaa.gov>

To:

Debbie Bland <Deborah.A.Bland@noaa.gov>

CC:

Leonard.Tyson@noaa.gov

References:

1 , 2 , 3 , 4 , 5 , 6

Deb-

Thanks for the update. Leonard will double check against our copies here. But before he does so, he needs to know what vessel was doing the acquisition of SSS for the day in question.

Next time, I need a little more background about the survey if there is a data question. Such as, location (Wilmington, NC) and project (OPR-XXXXXX), registry (H) and then year. Remember, I have a lot of things going on and several drawers of DVD to sort through. So the more info you provide to me, helps.

cheers-js

Subject:

Re: h11411

Date:

Fri, 25 Apr 2008 11:31:24 -0400

From:

Debbie Bland <deborah.a.bland@noaa.gov>

Organization:

NOS, OCS, HSD, Atlantic Hydrographic Branch

To:

jasper.schaer <jasper.schaer@noaa.gov>

References:

1 , 2 , 3 , 4 , 5 , 6 , 7

no problem, more info will follow. gene sent the request to me and told me what you needed and that is what i sent to you. the survey is H11411\_Approaches to Cape Fear\_ OPR-G374-TJ\_06.

vessel TJ\_3102\_klein50000\_sss2000

the area where there is sss data but no multibeam data is in 33/47/47.31, 78/04/44.13. this is in the vicinity of the development of the charted fish haven at the north east end of the survey area. the sss lines are 2006-201-063\_1630, 062\_1628, 061\_1626, 060\_1624 and 059\_1622.

vessel TJ\_3101\_reson8125

the area with the missing and incomplete data is in the vicinity of 33/47/03.33, 78/04/41/40. at line 2006-200-103\_1146 the data is incomplete, the mb data doesn't have any sounding data associated with it(no observed data, no processed data \_ so says EDWARD). the missing

data lines are to the south of that line. the area is on the northwest side of the survey.

Subject:

Re: h11411

Date:

Fri, 25 Apr 2008 16:07:10 +0000

From:

jasper schaeer <jasper.schaer@noaa.gov>

To:

Debbie Bland <Deborah.A.Bland@noaa.gov>

CC:

Leonard.Tyson@noaa.gov

References:

1 , 2 , 3 , 4 , 5 , 6 , 7 , 8

Thanks Deb. That is actually what I needed to move forward on this missing data. We will try to get you an answer in the next few days.-js

Subject:

Re: h11411

Date:

Sat, 26 Apr 2008 15:29:13 +0000

From:

jasper schaeer <jasper.schaer@noaa.gov>

To:

Debbie Bland <Deborah.A.Bland@noaa.gov>

CC:

Castle.E.Parker@noaa.gov, Shep.Smith@noaa.gov, Tod.Schattgen@noaa.gov,

Christiaan VanWestendorp <Christiaan.VanWestendorp@noaa.gov>,

Leonard.Tyson@noaa.gov

References:

1 , 2 , 3 , 4 , 5 , 6 , 7 , 8

Answer to H11411 question, see attached. r-js

1. The missing MBES for day 3102, Fig 1, has an answer. Procedures at the time on HLS 3102 was to alternate between SSS and MBES acquisition because of cross talk. In

other words, they would run SSS lines turn the SSS system off, then re-run lines w/ 8125. Based on the coverage map Fig 2 and the acquisition logs, there is no more MBES data for the NW portion of fish haven.

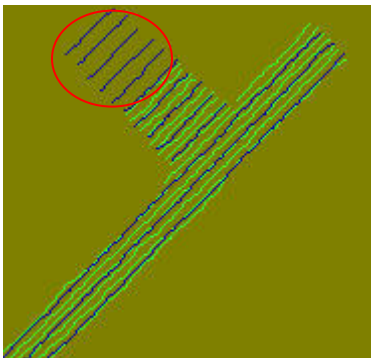


Fig 1. AHB coverage

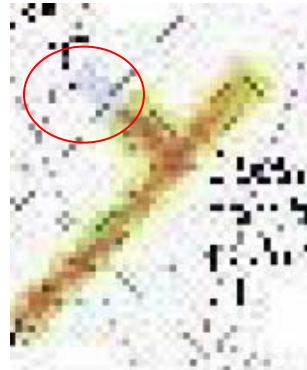


Fig 2. coverage from DR

2. Based on the H11411 ESAR (Fig3), this issue was identified; however no action item was brought to the TJ's attention until now. Based on original TJ's coverage map, Fig 4, data was present to make the coverage. At this point it is anybody's guess what DVD this data resides. To expedite this search, I request (Fig 5) the DNs, vessels, and line numbers of the lines above, below, and adjunct to the area. This would expedite our search on the DVDs. We expect to resolve this issue quickly with your help and send the data back on a USB with Leonard.

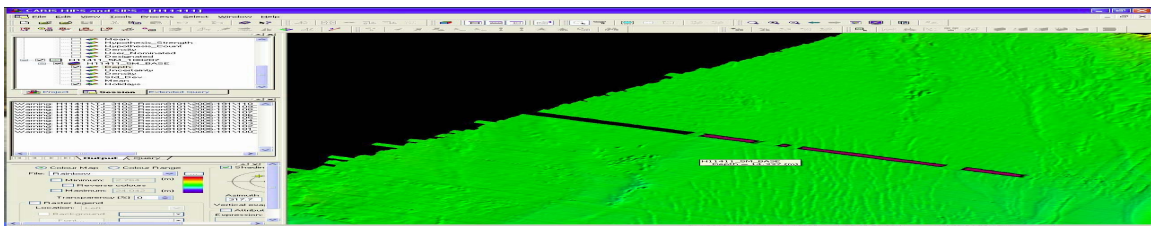


Fig 3, ESAR screen grab

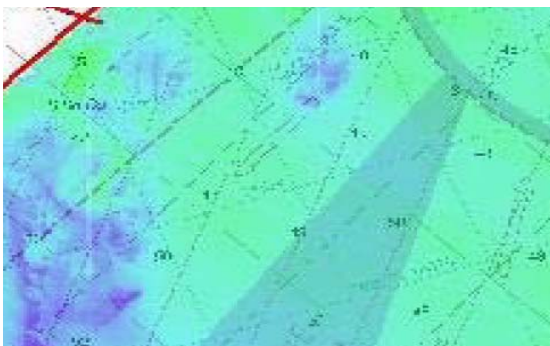


Fig 4, from DR coverage

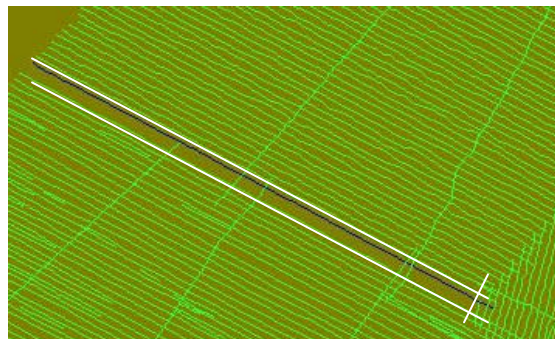


Fig 5, lines in white need line info

**ATLANTIC HYDROGRAPHIC BRANCH  
EVALUATION REPORT to Accompany  
Survey H11411 (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 r2239  
CARIS HIPS/SIPS version 6.1 SP1 HF 1-6  
CARIS Bathy Manager version 2.1 HF 1-3  
DKART INSPECTOR, version 5.0 Build 732 SP1  
CARIS HOM version 3.3  
CARIS S57 Composer version 1.0

**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 grids, combined at 2 meter resolution, then using them to create a product surface grid with a resolution of 10m. The survey scale selected soundings were extracted from the 10m product surface. The selected sounding set interval is approximately 90 meters at the at the scale of the survey. 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 created from a 40m product surface grid. The 40m grid resolution product surface model was generated at a scale of 1:20,000, generalization radius of 800m with no defocusing. 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 depth curves are incorporated into the US411411\_CS.000 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 SAHOB files included Depth Contours (DEPCNT), Depth Areas (DEPARE), sounding selections (SOUNDG), features (WRECKS, OBSTRN, SBDARE), 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-Cells were exported as ENC.000 files in S-57 format with all values in metric units. The metric equivalent ENC.000 files were then converted to NOAA chart unit H-Cells US4H11411\_CS.000 and US4H11411\_SS.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 H11411 CARIS H-Cell final deliverables include the following products:

US4H11411_CS.000	1:40,000 Scale	H11411 H-Cell with Chart Scale Selected Soundings
US4H11411_SS.000	1:20,000 Scale	H11411 Selected Soundings (Survey Scale)
H11411_BlueNtoes.000	1:40,000 Scale	H11411 Cartographic Notes and Depth Curves

### **B.2.2. Junctions**

Survey H11411 (2006) junctions with surveys H11413 (2007) to the west and H11722 (2007) to the east. Present survey soundings compare within 2 feet with the junctional surveys. Present survey depths are in harmony with the charted hydrography to the north and south.

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

Final vertical correction processing was completed by the field unit with no additional correction required by Atlantic Hydrographic Branch. The field unit 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 H11411. 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**

11537 (37th Edition, DEC/06)  
Corrected through NM 12/09/2006  
Corrected through LNM 12/09/2006  
Scale 1:40,000

11536 (18th Edition, MAY/05)  
Corrected through NM 05/21/2005  
Corrected through LNM 05/17/2005  
Scale 1:80,000

### **ENC Comparison**

US4NC11M  
Approaches to Cape Fear River  
Edition 5  
Update Application Date 2007-02-15  
Issue Date 2008-05-07  
References: Chart 11536



US5NC12M

Cape Fear River

Edition 20

Update Application Date 2008-02-15

Issue Date 2008-05-07

References: Chart 11537

**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:

1. The field unit was not directed to obtain bottom samples in the Letter Instructions, therefore all charted sea bed characteristic (SBDARE) objects were retained as charted. The spatial and feature attributes of the SBDARE point features were carried forward from the ENC's (US4NC11M and US5NC12M).

**D.2. ADDITIONAL RESULTS**

The Branch submitted one item to the Marine Chart Division, N/CS3.1, Silver Spring, Maryland as a Danger to Navigation.

**D.2.1. Aids to Navigation**

There are twelve aids to navigation within the limits of the present survey. None of the aids were positioned by the field. It is recommended that the charting disposition of these navigational aids be deferred to Marine Chart Division, Nautical Data Branch for final decision.

**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 File or the Blue Notes should be retained as charted. Refer to the Descriptive Report for further recommendations by the hydrographer.

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## AHB PRE-COMPILATION PROCESS

REGISTRY No.	H11411
PROJECT No.	OPR-G374-TJ-06
FIELD UNIT	NOAA SHIP THOMAS JEFFERSON, S-222
PRE-COMPILER	DEBORAH A. BLAND
LARGEST SCALE CHART	11537, 37 <sup>TH</sup> EDITION, 200606
CHART SCALE	1:40,000
SURVEY SCALE	1:20,000
DATE OF SURVEY	10 JULY 2006 TO 02 AUGUST 2006
CONTENT REVIEW DATE	June 3, 2008

Components	File Names
<i>Product Surface</i>	PS_H11411_20k_200mrad_10mres.hns
<i>Shifted Surface</i>	PS_H11411_20k_800mrad_40mres_Shifted.hns
<i>Contour Layer</i>	PS_H11411_20k_800mrad_40mres_Contours.hob
<i>Survey Scale Soundings</i>	H11411_SS_Soundings.hob
<i>Chart Scale Soundings</i>	H11411_CS_Soundings.hob
<i>ENC Retain Soundings</i>	H11411_ENC_Retain_Soundings
<i>Feature Layer</i>	H11411_Features.hob
<i>Meta-Objects Layer</i>	H11411_MetaObjects.hob
<i>Blue Notes</i>	H11411_BlueNotes.hob

### SPECIFICATIONS:

#### I. COMBINED SURFACE:

- a. File name: H11411\_2m\_Combined.hns
- b. Resolution: 2 m
- c. Fieldsheet Location: H:\Compilation\H11411\_G347-TJ\AHB template\COMPILE\working
- d. PRODUCT SURFACE (SOUNDINGS):
- e. Scale: 1:20000
- f. Radius: 200 m
- g. Resolution: 10 m
- h. Depth
  - i. Minimum: 2.75 m
  - ii. Maximum: 21.78 m

#### PRODUCT SURFACE (CONTOURS):

- a. Scale: 1:20,000
- b. Radius: 800 m
- c. Resolution: 40 m

#### II. SHIFTED SURFACE:

- a. Single Shift Value: -0.229m [-0.229m (feet) / -1.372 m (fathoms)]

#### III. CONTOUR LAYER:

- a. Use a Depth List: H11411\_NOAA\_depth\_curves\_list.txt  
Depth List:

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

IV. SOUNDING SELECTION:

- a. Selection Criteria:
  - i. Radius
  - ii. Shoal biased
  - iii. Use Single-Defined Radius: 90 distance on ground (m)
  - iv. Filter: Generalized !=1

V. FEATURES:

- a. Brought in from Survey  
Total No. 2
- b. Brought in from ENC  
ENC: #US5NC12M
- c. Total No. 8
- d. Brought in from ENC  
ENC: #US4NC11M  
Total No. 9

VI. META-OBJECTS:

- a. M\_COVR attributes

Acronym	Value
INFORM	H11411
SORDAT	20060802
CATCOV	1
SORIND	US,US,survy,H11411

- b. M\_QUAL attributes

Acronym	Value
CATZOC	zone of confidence U (data not assessed)
INFORM	H11411, OPR-G374-TJ-06, NOAA Ship Thomas Jefferson
POSACC	10
SORDAT	20060802
SORIND	US,US,survy,H11411
SUREND	20060802
SURSTA	20060410
TECSOU	3 found by multibeam

- c. DEPARE attributes

Acronym	Value
DRVALV 1	2.7m
DRVALV2	21.7m
SORDAT	20060802
SORIND	US,US,nsurf,H11411
INFORM	H11411

- d. M\_CSCL attributes

Acronym	Value
CSCALE	80000
INFORM	H11411
SORDAT	20050501

*Version 1.0*

SORIND

US,US,graph,Chart,11536

VII. NOTES:



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

**TIDE NOTE FOR HYDROGRAPHIC SURVEY**

**DATE :** August 15, 2006

**HYDROGRAPHIC BRANCH:** Atlantic  
**HYDROGRAPHIC PROJECT:** OPR-G374-TJ-2006  
**HYDROGRAPHIC SHEET:** H11411

**LOCALITY:** Frying Pan Shoals, Approaches to Wilmington, NC  
**TIME PERIOD:** July 10 - August 2, 2006

**TIDE STATION USED:** 865-9897 Sunset Beach, NC  
Lat. 33° 51.9'N Long. 78° 30.4' W

**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 0.000 meters  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 1.532 meters

**REMARKS: RECOMMENDED ZONING**

Use zone(s) identified as: SA88, SA89, SA91, SA92, SA93, SA94, SA95,  
SA96, SA98, SA105, SA106 and SA107

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, PRODUCTS AND SERVICES DIVISION



**APPROVAL SHEET**  
**H11411**

**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.

---

**Deborah A. Bland**  
Cartographer  
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**  
Lieutenant Commander, NOAA  
Chief, Atlantic Hydrographic Branch