H11568

NOAA FORM 76-35A

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

# DESCRIPTIVE REPORT

*Type of Survey*: **Navigable Area**

*Registry Number*: **H11568**

## LOCALITY

*State*: Virginia

*General Locality*: Approaches to Chesapeake Bay

*Sub-locality*: 17 NM Southeast of Cape Henry

**2006**

CHIEF OF PARTY

**CDR Raymond C. Slagle, NOAA**

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DATE

NOAA FORM 77-28 (11-72)

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

# HYDROGRAPHIC TITLE SHEET

REGISTRY NUMBER:

**H11568**

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: | **Virginia** | | |
| General Locality: | **Approaches to Chesapeake Bay** | | |
| Sub-Locality: | **17 NM Southeast of Cape Henry** | | |
| Scale: | **1:10,000** | Date of Survey: | **04/14/06 to 06/25/06** |
| Instructions Dated: | **03/09/2006** | Project Number: | **OPR-D304-TJ-06** |
| Vessel: | **NOAA Ship THOMAS JEFFERSON, S-222** | | |
| Chief of Party: | **CDR Raymond C. Slagle, NOAA** | | |
| Surveyed by: | **THOMAS JEFFERSON Personnel** | | |
| Soundings by: | **Reson SeaBat 7125 multibeam sonar** | | |
| Graphic record checked by: | **N/A** | | |
| Protracted by: | **N/A** | Automated Plot: | **N/A** |
| Verification by: | ***Atlantic Hydrographic Branch*** | | |
| Soundings in: | **Meters at MLLW** | | |

Remarks: ***Bold, Italic, Red notes in the Descriptive Report were made during office processing.***
***1) All Times are UTC.***
***2) This is a Standard Navigable Area Hydrographic Survey.***
***3) Projection is UTM Zone 18.***

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***Data Filed with original field records.***

# DESCRIPTIVE REPORT

to accompany
HYDROGRAPHIC SURVEY H11568

Scale of Survey: 1:10,000
Year of Survey: 2006
NOAA Ship THOMAS JEFFERSON
CDR Raymond C. Slagle, Commanding

## A. AREA SURVEYED

This hydrographic survey was conducted in accordance with Hydrographic Survey Letter Instructions* for project OPR-D304-TJ-06. The original instructions are dated April 24, 2006. No change letters were issued for this project.

This Descriptive Report (DR) applies to sheet "L" of project OPR-D304-TJ-06, which covers an area approximately 17 nautical miles Southeast of Cape Henry. The registry number of this sheet is H11568 and the survey area encompasses an approximate 27 square nautical mile area to the south and east of the "CB" buoy. See survey area chart: Figure A.

This project responds to a request from the Maryland and Virginia Pilots Associations for modern hydrographic data in the approaches to the Chesapeake Bay. Over the next several years, there are plans for vessels with increasingly deeper drafts to be transiting the area. These plans have created a critical need for updated depths and object detection in the approaches to the Chesapeake Bay. The Hampton Roads Complex, which includes Portsmouth, Norfolk, Hampton, and Newport News, is the world's foremost bulk cargo handler. Coal, petroleum products, grain, sand and gravel, tobacco, and fertilizer constitute more than 90 percent of the heavy traffic movement through this waterway. An increasing amount of general cargo is handled by the Hampton Roads ports also. This project will cover approximately 75 $nm^2$ of critical survey area as designated in NOAA Hydrographic Survey Priorities, 2004 edition.

***Data Filed with original field records***

| Lineal Nautical Miles | |
|---|---|
| Single Beam Only | 0 |
| Multibeam Only | 1173.5 |
| Side Scan Sonar Only | 309.9 |
| Side Scan/Single Beam | 0 |
| Crosslines | 66.6 |
| Developments | 0 |
| Shoreline Investigation | 0 |
| Data acquired from 14 April to 25 June 2006 | |
| No bottom samples collected | |
| 4 New Developments & 1 AWOIS item investigated | |

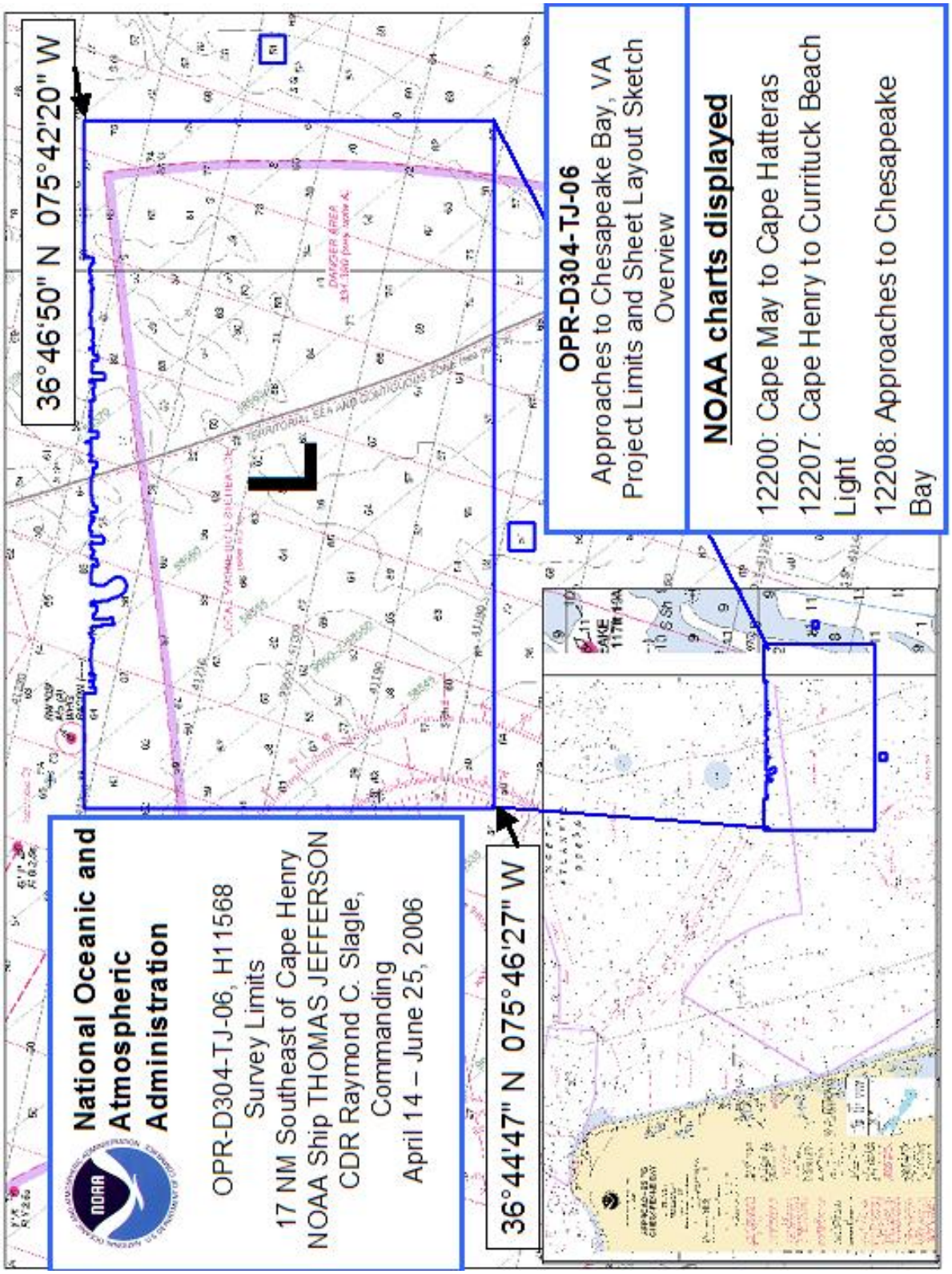


**Figure 1: Survey area.**

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

## B.1 EQUIPMENT

Data for this survey were acquired by NOAA Ship THOMAS JEFFERSON, a 63.4-meter hydrographic survey vessel with an average transducer depth of 4.6 meters.

NOAA Ship THOMAS JEFFERSON acquired imagery data with a towed Klein 5500 side scan sonar (SSS) and bathymetry data with a Reson 7125 single-head (Port) multibeam echosounder (MBES) inside the limits of H11568. Positioning and attitude data onboard THOMAS JEFFERSON were determined with an Applanix POS/MV (version 4). Sound velocity profiles were acquired throughout the survey with a Brooke-Ocean Moving Vessel Profiler (MVP).

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

## 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. Mild to moderate refraction error was observed over some of the survey area. No other unusual problems were encountered.

### B.2.2 Multibeam Echosounder Quality Control

MBES soundings were acquired as the primary source of bathymetry for the survey. A systematic sound velocity artifact was observed in MBES data over the entire survey area. This error is on the order of 0.2 meters, which is within the error budget for an IHO Order I survey.

Some MBES survey lines were found to have lost POS/MV attitude correction and/or have corrupt navigation time at some point during acquisition. The cause of the missing attitude correction is not known. The corrupt bathymetry lines and imagery lines over the corrupt bathymetry lines were inspected for significant features in CARIS Swath Editor and Side Scan Editor, respectively. No significant features were found. Lines displaying this problem were not added to the product grid.

There were no other faults with the MBES system which affected data integrity. Refer to this project's DAPR for detailed discussion of MBES system calibrations, data acquisition, and data processing.

### 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-D304-TJ-06, Survey H11568 are as follows:

| Tide Parameters | | Sound Speed Parameters | |
|---|---|---|---|
| **Measurements** | **Zoning** | **Measurements** | **Surface** |
| 0 | 0.18 | 0.05 | 0.06 |

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

### B.2.4 Fieldsheets and Navigation Surfaces

Fifteen Fieldsheets were generated for Survey H11568:

| FIELDSHEET NAME | SURFACE NAME | TYPE | PURPOSE | RESOLUTION |
|---|---|---|---|---|
| H11568_Combined | H11568_Combined_5m | MBES BASE | Combined MBES coverage | 5m |
| H11568_Contacts | N/A | Contact | SSS contacts | N/A |
| H11568_Final_1 | H11568_Final_1_2m | MBES BASE | Southwest corner | 2m |
| H11568_Final_2 | H11568_Final_2_2m | MBES BASE | Southwest | 2m |
| H11568_Final_3 | H11568_Final_3_2m | MBES BASE | Southeast | 2m |
| H11568_Final_4 | H11568_Final_4_2m | MBES BASE | Southeast corner | 2m |
| H11568_Final_5 | H11568_Final_5_2m | MBES BASE | Central east edge | 2m |
| H11568_Final_6 | H11568_Final_6_2m | MBES BASE | Central east | 2m |
| H11568_Final_7 | H11568_Final_7_2m | MBES BASE | Central west | 2m |
| H11568_Final_8 | H11568_Final_8_2m | MBES BASE | Central west edge | 2m |
| H11568_Final_9 | H11568_Final_9_2m | MBES BASE | Northwest corner/edge | 2m |
| H11568_Final_10 | H11568_Final_10_2m | MBES BASE | Northeast corner | 2m |
| H11568_Poss_Wreck | H11568_Wreck_80cm | MBES BASE | New wreck | 80 cm |
| H11568_Poss_wreck_1 | Poss_Wreck_1_40cm | SSS Mosaic | New wreck | 40 cm |
| H11568_Poss_Wreck_2 | Poss_Wreck_2_40cm | SSS Mosaic | New wreck | 40 cm |
| H11568_100_1m | 1m_final | SSS Mosaic | SSS Coverage | 1m |

### B.2.5 Crosslines

A total of 66.6 lineal nautical miles of crosslines, for a total of 5.6% of total lineal nautical miles of survey lines, were acquired by the field party. A HIPS Crossline-to-BASE Grid comparison was performed to test whether the crosslines compared to the BASE Surface met IHO Order I specification. The results of this test showed that the surface meets IHO Order I specification. Results of this test are included in Separate II.

### B.2.6 Junctions

Junctioning surveys with Survey H11568 include H11303, acquired by THOMAS JEFFERSON simultaneously with this survey, as well as H11301, acquired by THOMAS JEFFERSON in 2005. Present survey soundings agreed within 1 foot of the three adjoining surveys.

### 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*.
***Data Filed with original field records***

## C. VERTICAL AND HORIZONTAL CONTROL

### C.1 VERTICAL CONTROL

The tidal datum for this project is Mean Lower Low Water (MLLW). The operating tide station at Rudee Inlet, VA (863-9207) 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:

| STATION | CORRECTOR (min) | RATIO | REFERENCE |
|---|---|---|---|
| SA55 | -12 | x 1.10 | 863-9207 |
| SA46 | -18 | x 1.07 | 863-9207 |

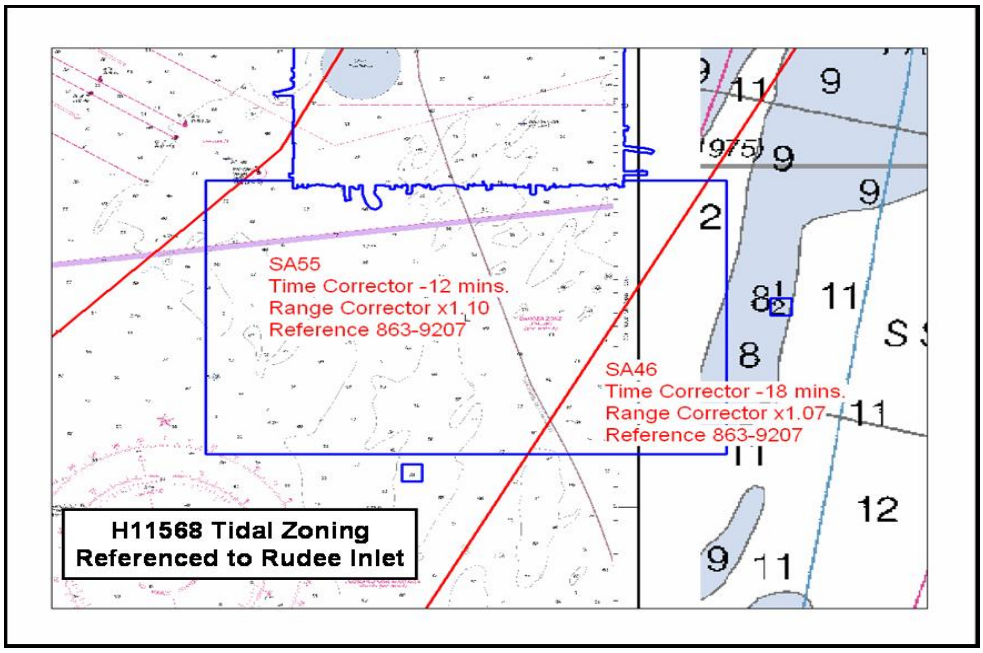


**Figure 2: Preliminary Tide Zoning**

A Request for Approved Tides letter was sent to N/OPS1 on June 17, 2006 (Appendix IV*). Verified water levels from the N/OPS1 CO-OPS website were downloaded on July 6, 2006, and applied to all sounding data using preliminary tide zoning.
***Data Filed with original field records***

### C.2 HORIZONTAL CONTROL

The horizontal datum used for this survey is the North American Datum of 1983 (NAD 83), projected using UTM zone 18.

Sounding positional control was determined using the Global Positioning System (GPS) corrected by U.S. Coast Guard differential GPS (DGPS) beacon stations. The primary and only DGPS beacon used for this survey was Driver, Virginia. 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 exceeded 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 three charts and two ENC's affected by this survey:

12200, 48th Edition, June 19, 2004, scale 1:419,706
12207, 21st Edition, March 2, 2004, scale 1:80,000
12208, 11th Edition, May 10, 2005, scale 1:50,000
US4VA12M, 2nd Edition, January 24, 2006, scale 1:80,000
US5VA11M, 4th Edition, December 7, 2005, scale 1:50,000

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

In general, soundings agreed within 2 feet of charted depths in H11568. Throughout the survey area, however, some areas, typically running north to south, had variations of up to 4 feet from the charted soundings. These variations indicate the dynamic nature of the ocean bottom in the form of migrating sand waves due to storm and tidal interactions. No navigationally significant shoals were observed.

### D.1.2 AWOIS Items and Significant Contacts

One AWOIS item was assigned for H11568 and investigated. Information pertaining to this AWOIS item is located in Appendix II.

One uncharted wreck was discovered during survey operations and is discussed in detail in Appendix II. All contacts significant to surface navigation are described in detail in Appendix II.

### D.1.3 Dangers to Navigation

There were no Dangers to Navigation for Survey H11568.

### D.1.4 Charted Features

There are no wire drag items, or any other charted features, that need disproving on this survey. All other charted features are addressed in the Item Investigations and Dangers to Navigation sections.

### D.1.5 Charting Recommendations

The hydrographer recommends superseding charted soundings with present survey soundings in common areas.

## 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 H11568.

### 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-D304-TJ-06**
**Approaches to Chesapeake Bay**
**17 NM Southeast of Cape Henry**

**Survey Registry No. H11568**

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-D304-TJ-06 Horizontal and Vertical Control Report (submitted 12 July 2006)

Respectfully Submitted:

LT Christiaan H. van Westendorp, NOAA
Field Operations Officer / Sheet Manager

Approved and Forwarded:

CDR Raymond C. Slagle, NOAA
Commanding Officer

# APPENDIX I

## DTON

There are no DTONs for Survey H11568.

# APPENDIX II

ITEM INVESTIGATION REPORTS

# H11568 AHB Feature Report

**Registry Number:** H11568

**State:** VA

**Locality:** Approaches to Chesapeake Bay

**Sub-locality:** 17 NM Southeast of Cape Henry

**Project Number:** OPR-D304-TJ-06

**Survey Dates:** 06/17/2006 - 06/25/2006

## Charts Affected

| Number | Edition | Date | Scale (RNC) | RNC Correction(s)* |
|---|---|---|---|---|
| 12208 | 12th | 05/01/2007 | 1:50,000 (12208_1) | USCG LNM: 02/12/2008 (05/13/2008)<br>NGA NTM: 06/09/2007 (05/17/2008) |
| 12207 | 21st | 03/01/2004 | 1:80,000 (12207_1) | USCG LNM: 10/17/2006 (02/26/2008)<br>NGA NTM: 06/09/2007 (03/01/2008) |
| 12200 | 48th | 06/01/2004 | 1:419,706 (12200_1) | [L]NTM: ? |
| 13003 | 48th | 10/01/2004 | 1:1,200,000 (13003_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 | 26603/21 - Chart 53 Obstn w/incomplete coverage | Obstruction | 16.25 m | 36° 46' 01.6" N | 075° 46' 06.9" W | --- |
| 1.2 | 17003/163 - Uncharted 57 Wk. | Wreck | 17.39 m | 36° 47' 21.1" N | 075° 42' 53.8" W | --- |
| 2.1 | 29628/223 - revise to 38 Wk w/incomplete coverage | Wreck | 11.82 m | 36° 45' 57.6" N | 075° 46' 16.7" W | 12994 |

# 1 - New Features

## 1.1) 26603/21 - Chart 53 Obstn w/incomplete coverage

### Survey Summary

**Survey Position:** 36° 46' 01.6" N, 075° 46' 06.9" W

**Least Depth:** 16.25 m (= 53.30 ft = 8.883 fm = 8 fm 5.30 ft)

**TPU (±1.96σ):** **THU (TPEh)** ±1.015 m ; **TVU (TPEv)** ±0.390 m

**Timestamp:** 2006-168.09:16:03.163 (06/17/2006)

**Survey Line:** h11568 / tj_s222_reson7125_port / 2006-168 / 061_0827

**Profile/Beam:** 26603/21

**Charts Affected:** 12208_1, 12207_1, 12200_1, 13003_1

**Remarks:**

The feature is a rock. Soundings were acquired with Reson 7125 MBES and corrected to MLLW with observed water levels and preliminary tidal zoning.

### Feature Correlation

| Address | Feature | Range | Azimuth | Status |
|---|---|---|---|---|
| h11568/tj_s222_reson7125_port/2006-168/061_0827 | 26603/21 | 0.00 | 000.0 | Primary |
| h11568/tj_s222_klein5000_sss100/2006-105/115_2240 | 0003 | 9.13 | 339.0 | Secondary |

### Hydrographer Recommendations

Chart a rock at the present survey position.

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

53ft (12208_1, 12207_1)

8 ¾fm (12200_1, 13003_1)

### S-57 Data

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

**Attributes:** INFORM - Incomplete coverage over Obstn, flag for further investigation. Chart an dang. 53 Obstn.

QUASOU - 1:depth known

STATUS - 1:permanent

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 16.245 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

## Office Notes

Feature was not fully investigated, depth is known but actual least depth is unknown based on shadows created by angle of ensonification. Chart an Obstn with a depth of 53 ft. in Latitude 36° 46' 01.596" N, Longitude 75° 46' 06.926" W. Recommend feature be flagged for further investigation using complete coverage requirements.

## 1.2) 17003/163 - Uncharted 57 Wk.

### Survey Summary

**Survey Position:** 36° 47' 21.1" N, 075° 42' 53.8" W

**Least Depth:** 17.39 m (= 57.06 ft = 9.510 fm = 9 fm 3.06 ft)

**TPU (±1.96σ):** **THU (TPEh)** ±1.002 m ; **TVU (TPEv)** ±0.423 m

**Timestamp:** 2006-176.03:30:41.140 (06/25/2006)

**Survey Line:** h11568 / tj_s222_reson7125_port / 2006-176 / 812_0302

**Profile/Beam:** 17003/163

**Charts Affected:** 12208_1, 12207_1, 12200_1, 13003_1

**Remarks:**

The feature is an uncharted wreck that is mostly buried in sediment, with a prominent mast at the bow. Soundings were acquired with RESON 7125 MBES and corrected to MLLW using observed water levels with preliminary tide zoning.

### Feature Correlation

| Address | Feature | Range | Azimuth | Status |
|---|---|---|---|---|
| h11568/tj_s222_reson7125_port/2006-176/812_0302 | 17003/163 | 0.00 | 000.0 | Primary |
| h11568/tj_s222_klein5000_sss100/2006-106/131_1541 | 0001 | 2.98 | 345.2 | Secondary |
| h11568/tj_s222_klein5000_sss100/2006-106/130_1745 | 0001 | 6.08 | 298.1 | Secondary |

### Hydrographer Recommendations

Chart a wreck at the present survey position.

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

57ft (12208_1, 12207_1)

9 ½fm (12200_1, 13003_1)

### S-57 Data

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

**Attributes:** CATWRK - 2:dangerous wreck

INFORM - Chart a 57 Wk.

STATUS - 1:permanent

TECSOU - 3:found by multi-beam

VALSOU - 17.391 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

## Office Notes

Concur, chart a Wk with a least depth of 57 ft. in Latitude 36° 47' 21.073" N, Longitude 75° 42' 53.846" W.

# 2 - AWOIS Features

## 2.1) 29628/223 - revise to 38 Wk w/incomplete coverage

### Primary Feature for AWOIS Item #12994

**Search Position:** 36° 45' 54.5" N, 075° 46' 16.7" W

**Historical Depth:** 13.41 m

**Search Radius:** 200

**Search Technique:** SWMB, S2, DI, SD

**Technique Notes:** [None]

**History Notes:**

F0077 WD (1948) -- A WRECK REPORTED TO BE THE "TIGER" WAS HUNG AT 41 FEET AND WAS CLEARED BY 39 FEET IN LATITUDE 36-45-15.0, LONGITUDE 75-46-18.6 (NAD 27). (UPDATED 2/16/2005 JCM)■■ H09871 WD (1976) -- ITEM 4, AS IDENTIFIED IN THE DESCRIPTIVE REPORT AS THE "TIGER", WAS LOCATED IN POSITION: LATITUDE 36-45.9, LONGITUDE 75-46.3 (NAD 27). THE ITEM SEEMS TO HAVE SETTLED SINCE IT WAS FOUND IN F0077 (1948), AS IT CAUSED A HANG AT 44 FEET AND WAS CLEARED BY 43 FEET. (UPDATED 2/16/2005 JCM)■ ■ H09948 (1981) -- A WRECK, IDENTIFIED AS THE "TIGER" IN THE DESCRIPTIVE REPORT, WAS CARRIED FORWARD FROM H08971 (1976). THE HYDROGRAPHER RECOMMENDED CHARTING THE WRECK IN THE SAME POSITION AND WITH THE SAME 43 FT CLEARANCE DEPTH. (UPDATED 2/16/2005 JCM)

### Survey Summary

**Survey Position:** 36° 45' 57.6" N, 075° 46' 16.7" W

**Least Depth:** 11.82 m (= 38.77 ft = 6.462 fm = 6 fm 2.77 ft)

**TPU (±1.96σ):** **THU (TPEh)** ±1.012 m ; **TVU (TPEv)** ±0.396 m

**Timestamp:** 2006-168.03:29:22.812 (06/17/2006)

**Survey Line:** h11568 / tj_s222_reson7125_port / 2006-168 / 058_0240

**Profile/Beam:** 29628/223

**Charts Affected:** 12208_1, 12207_1, 12200_1, 13003_1

**Remarks:**

Feature is a charted wreck, AWOIS item number 12994 (TIGER).

Soundings were acquired with 7125 MBES and corrected to MLLW with observed water levels and preliminary tide zoning.

### Feature Correlation

| Address | Feature | Range | Azimuth | Status |
|---|---|---|---|---|
| h11568/tj_s222_reson7125_port/2006-168/058_0240 | 29628/223 | 0.00 | 000.0 | Primary |
| h11568/tj_s222_klein5000_sss100/2006-105/115_2240 | 0001 | 9.45 | 040.7 | Secondary |

| | | | | |
|---|---|---|---|---|
| h11568/tj_s222_klein5000_sss100/2006-105/114_2028 | 0002 | 43.59 | 019.9 | Secondary |
| OPR-D304-TJ-06_AWOIS | AWOIS # 12994 | 95.65 | 359.5 | Secondary |

## Hydrographer Recommendations

Chart a dangerous sunken wreck at the present survey position.

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

39ft (12208_1, 12207_1)

6 ½fm (12200_1, 13003_1)

## S-57 Data

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

**Attributes:** CATWRK - 2:dangerous wreck

INFORM - Incomplete coverage over wreck, revise charted dang. 43 Wk to a dang. 38 Wk

STATUS - 1:permanent

TECSOU - 3:found by multi-beam

VALSOU - 11.818 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

## Office Notes

AWOIS investigation was only partially completed over AWOIS Item #12994. AWOIS Item was not fully investigated, depth is known but actual least depth is unknown based on shadows created by angle of ensonification. Recommend AWOIS Item be listed for future investigation with complete coverage requirements. Revise the charted dangerous 43 wreck to a dangerous Wk with a depth of 38 ft. in Latitude 36° 45' 57.633" N, Longitude 75° 46' 16.746" W.

**Subject: Re: AWOIS Item #12994**
**Date:** Wed, 25 Jun 2008 12:33:42 -0400
**From:** Jeremy McHugh <Jeremy.McHugh@noaa.gov>
**To:** Bryan Chauveau <Bryan.Chauveau@noaa.gov>

Thanks for the heads up and for resending the graphics Bryan. I am sure you will do this anyway, but please annotate the DR with this information.
Jeremy

Bryan Chauveau wrote:
> *Hi Jeremy,*
>
> *I recently started work on the TJ survey H11568 this week. AWOIS Item*
> *#12994 is in this survey area, but as you can see by the attached images*
> *the TJ did not get adequate coverage over this feature.*
>
> *As you can see, the least depth of this wreck is now very questionable*
> *38.773 ft, but from incomplete coverage. From the look of the wreck, it*
> *may be shoaler. The history of this wreck has shown depths starting at*
> *39 ft., dropping to 44 ft, then 43 ft., all from wire drag, but now it*
> *may be shoaler?*
>
> *I wanted to let you know so you can put this feature on a TO BE EXAMINED*
> *feature list and get it out to be re-examined when possible.*
>
> *Bryan Chauveau*
>
>

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

Wesley.Kitt@noaa.gov wrote:

Good Morning Chris,

My first task upon joining AHB and getting off the RUDE is to do the 30-day review on the 500-day old survey you guys did off of Cape Henry. Think AHB is backed up? Anyway, I'm just going through the basic stuff right now and noticed that the tide note for approved tides, dated 13 Jul 06, says that the following zone should be used:

D304RU2006CORP

In your Tides folder, the zone file says:

D304TJ2005CORP_rev2

The original Letter of Instructions says:

D304TJ2005CORP

So my question is: Did CO-OPs mess up the name thinking it was RUDE working? Or, was that the correct zone file but you guys renamed it D304TJ2005CORP_rev2? I didn't see any revised letters of instruction changing the zoning to a "rev2." The only Letter of Instructions in the data submittal is the original one.

The main reason for asking is since the tide note says "the preliminary zoning is accepted as the final zoning for project OPR-D304-RU-2006, H11568, during the time period between June 14-25, 2006. If that is what was used for the verified tides ya'll applied then we won't have to reapply and remerge all the data. However, if there is a discrepancy here with the zone files, we will have to do just that. Any enlightenment in this area would be greatly appreciated. Thanks! Hope all is well "out there!"

Respectfully,

Wes Kitt, AHB

Hi, Wes,

You're in luck, because (as you probably know already) I was the sheet manager. However, I was still pretty green at that point, so my recollection may be a little hazy. We were using the 2005 D304 preliminary tide zoning file for tide application during field processing per the LI's. However, I believe that our data for H11323 and H11568 exceeded the bounds of the original D304TJ2005CORP.zdf file, so we made some "adjustments" to the boundaries and saved them with the new name (rev2). We submitted the survey with verified tides and the revised preliminary zoning applied, and we did not apply final zoning (for whatever reason, I don't remember). As far as why we received a RUDE final zoning file is beyond me. All I can think is that RUDE and TJ D304 projects were identical with regard to tide zoning bounds, so one file covers both.

- Chris

Wesley.Kitt@noaa.gov wrote:

Hi Monica,

Well, I finally made the move from Ship to Cubicle! Working at AHB now as a PS and my first task is to do a submittal review for a survey the TJ did in June of 2006. The survey is H11568. Their tide note that they received was dated July 13, 2006, a copy of which is attached. The note says to use D304RU2006CORP for final zoning. The copy that TJ sent to us is D304TJ2005CORP_rev2. I was wondering if they corresponded with you guys at all about a revision? In any event, do you still have a copy of your final zoning for that sheet that you could send to me? An email from Chris said that final tides were not applied, if necessary. The thing is, if their D304TJ2005CORP_rev2 matches your final zoning file then nothing needs to be done, right? If not though, all the data has to be remerged with the correct final zoning.

Thanks Monica,

R,

Wes

Hi Wes

I believe the tide note is supposed to reference the D304TJ2006CORP file. As for the rev2, we do not know about that. If they changed the file, they didn't tell us. If you have the rev2 file, you can send to me and can make sure its ok. I'm guessing it is, if all they did was adjust a few nodes. Hope this helps

Monica

Wesley.Kitt@noaa.gov wrote:

Hi again Monica,

Chris, I'm CC-ing you on this one. We didn't receive the MapInfo files for the zoning of H11568. I rechecked and saw that we do have the ones from projects later in the year so I was looking in the right place. : ) Chris, if you guys have the file could you please send a copy to Monica and us? So when are you guys coming back to Norfolk? RUDE's sitting over there all by their lonesome.

Respectfully,

Wes

Hi, Wes (and Monica),

I checked our archives, and I guess we got the same thing you got (OPR-D304-RU-06) for a final tide note. However, we did not receive the MapInfo files that accompanied the tide note, I guess because the preliminary zoning was accepted as final zoning. The plot thickens...

- Chris

Monica.Cisternelli@noaa.gov wrote:

Preliminary as Final means we do not re-send the zoning file, the user is supposed to apply the preliminary zoning ofr that project. I think all we need to know is what preliminary zoning file the TJ and Rude used for OPR-D304. Obviously this project was split between 2 ships, and the CORP files were not renamed. Did the TJ ever receive preliminary zoning for OPR-D304 in 2006?

I am not sure what to do about this survey. All I can think is to have the TJ send us the CORP file they used, and we can edit the tide note with the correct tide file, and re-send the tide note and zone file to AHB. Unless anyone can think of a better way.

Wesley.Kitt@noaa.gov wrote:

Hi Monica,

That sounds good to me. Nothing is really getting bogged down by this action and it would be good to have clarification. Thanks for your time in this!

R,

Wes

Hi Wes

Here is the revised zoning for OPR-D304-TJ-2006, H11568. I ended up just re-doing the whole thing, since what the TJ had applied was from 2005, and the had to manually stretch the zones to cover their survey area. So if you can overwrite whatever tide note you have with this one. Thanks Let me know if you come across any problems, or questions. Hope everything is going well with you.

Monica

**Subject:** Re: Request for Comments, Approaches to Chesapeake Bay Instructions
**From:** "Jeremy McHugh" <Jeremy.McHugh@noaa.gov>
**Date:** Wed, 22 Feb 2006 09:53:47 -0500
**To:** "marc.s.moser" <Marc.S.Moser@noaa.gov>
**CC:** Emily B Christman <Emily.B.Christman@noaa.gov>, Raymond C Slagle <Raymond.C.Slagle@noaa.gov>, Doug Baird <Doug.Baird@noaa.gov>, Michael Riddle <Michael.Riddle@noaa.gov>, Christiaan VanWestendorp <Christiaan.VanWestendorp@noaa.gov>, Tod Schattgen <Tod.Schattgen@noaa.gov>

Hi Marc,
Not sure I fully understand the question, but I will give my best answer.

Last season, with the help of Shep (I think), we took a stab at writing coverage requirements for complete vs. object detection multibeam coverage in the project instructions for the Approaches to Chesapeake Bay project- Is this what you are referring to as the specs for coverage requirements? If so, we are not providing that within the project instructions for Chesapeake Bay this year, but that information is contained in a draft version of the S+D.

The latest draft version of the S+D has this to day about coverage and demonstration of coverage:
---
5.3. Coverage
In general, there are three classifications of multibeam coverage: Complete Multibeam Coverage, Object Detection Multibeam and Set Line Spacing. The survey coverage technique will be specified in the Hydrographic Survey Letter Instructions or Statement of Work.
• Complete Multibeam Coverage
Line spacing shall be such that the portions of the swaths that meet the accuracy and resolution requirements in Section 5.2 overlap to ensure that no gap in coverage exists due to the uncertainty in positioning and vessel motion. This will usually reflect an IHO Order 1 survey, where accurate depths are obtained, but not all small objects (1 meter cubes) may be detected.
• Object Detection Coverage
Line spacing shall be such that the portions of the swaths that meet IHO Special Order overlap. This will usually reflect an IHO Special Order survey where small objects (1 meter cubes) can be detected.
• Set Line Spacing
The hydrographer shall conduct multibeam operations at the line spacing specified in the Hydrographic Survey Letter Instructions or Statement of Work. This is usually associated with multibeam data collected concurrently with side scan sonar operations (sometimes referred to as "skunk stripe", where the side scan swath is wider than the multibeam swath).

5.3.1. Demonstration of Coverage
To demonstrate Complete Multibeam Coverage, a collection of BAGs or CARIS BASE surfaces covering the survey area shall be submitted which have the following characteristics:
- Grid resolution of 10 to 20% of the depth, to a minimum resolution of 2 meters.
If survey data can support higher resolutions, then use hydrographer discretion and submit a higher resolution, if appropriate.
- Maximum propagation distance of soundings to node of 20% of the depth or one grid resolution, whichever is greater.
- At least 95% of all nodes on the surface must be populated.
- Maximum surface uncertainty is IHO Order 1 for depths less than 100 meters (IHO Order 2 for depths greater than 100 meters).
- No holiday larger than 3 nodes across.
Complete Multibeam surveys are usually conducted in conjunction with side scan sonar operations or in areas where general bathymetric data is required and there is little risk of small man made hazards to navigation being present.
Set Line Spacing surveys will use the same grid characteristics of Complete Multibeam to show the areas where multibeam data was collected.
To demonstrate Object Detection Multibeam coverage, a collection of BAGs or CARIS BASE surfaces covering the survey area shall be submitted which have the following characteristics;
- Grid resolution of 2 to 4% of the depth, to a minimum resolution of 0.5 meters.
If survey data can support higher resolutions, then use hydrographer discretion and submit

a higher resolution, if appropriate.
- Maximum propagation distance of soundings to node of 20% of the depth or one grid resolution, whichever is greater.
- At least 99% of all nodes on the surface must be populated.
- Maximum surface uncertainty is IHO Special Order for depths less than 100 meters (IHO Order 1 for depths greater than 100 meters).
- No holiday larger than 3 nodes across.

In both cases, if a holiday occurs at the top of a rock, wreck or other significant feature, then the data gap must be filled, even if the gap is less than 3 nodes across. The hydrographer must ensure that accurate least depths are obtained on all significant features. Individual soundings that do not meet the Horizontal Position Accuracy as defined in Section 3.1 or do not meet the Vertical Accuracy as defined in Section 5.2.1, shall not be applied to the grid.
As always, the hydrographer must ensure that the data accurately reflects the condition of the seafloor at the time of the survey and adjust operations if required. Any deviations from the specifications must be clearly explained in the Descriptive Report.
The purpose of the above grid parameters is to "demonstrate coverage". Depending on the survey area and seafloor topography, a different grid resolution may be more appropriate to accurately depict the seafloor with a minimum amount of designated soundings. If needed, the hydrographer may submit two sets of grids. One set used solely to demonstrate coverage and a second set that is the final depiction of the seafloor with all appropriate designated soundings applied. However, in the DR and data submission transmittal, the hydrographer must clearly specify which set of grids are for the final depiction of the seafloor and which set of grids are merely to prove coverage.

let me know if this helps or not,
Jeremy

marc.s.moser wrote:

> Jeremy,
>
> Where will the specifications for coverage requirements for this project be stated (FPM or S+D)?
>
> TJ personnel will not be required to perform opening or closing levels on the Rudee Inslet gauge, correct?
>
> Jeremy McHugh wrote:
>
> > Hi Emily, Ray, and Marc,
> > A draft copy of the project instructions for TJ's Approaches to Chesapeake Bay project are attached in PDF format. Please review them and provide any comments or feedback as soon as possible. Thanks. Let me know if you have any questions.
> > -Jeremy

--
Jeremy McHugh, Physical Scientist
NOAA's National Ocean Service, Office of Coast Survey
301-713-2698 x117

**Subject:** Re: Request for Comments, Approaches to Chesapeake Bay Instructions
**From:** Doug.Baird@noaa.gov
**Date:** Mon, 27 Feb 2006 09:38:43 -0500
**To:** "emily.b.christman" <Emily.B.Christman@noaa.gov>
**CC:** "marc.s.moser" <Marc.S.Moser@noaa.gov>, Jeremy McHugh <Jeremy.McHugh@noaa.gov>, Raymond C Slagle <Raymond.C.Slagle@noaa.gov>, Michael Riddle <Michael.Riddle@noaa.gov>, Christiaan VanWestendorp <Christiaan.VanWestendorp@noaa.gov>, Tod Schattgen <Tod.Schattgen@noaa.gov>

Emily,

You bring up some good points - we will work through the changes and get the LI more precise and accurate. However, note that when bottom samples are requested - the density of the sampling is determined by changes noted from the prior survey. So, there be some valid reasons for the field to review and compare to the prior survey.

Doug

----- Original Message -----
From: "emily.b.christman" <Emily.B.Christman@noaa.gov>
Date: Monday, February 27, 2006 9:10 am
Subject: Re: Request for Comments, Approaches to Chesapeake Bay Instructions

> I have a couple comments:
>
> 1) para 6.9, the requirement for prior survey comparison - it does say
> IAW the HSSDM and FPM, which I haven't looked at, but if we have 100%
> coverage prior survey comparison is not required. While I assume the
> references clear that up, I would suggest the boilerplate paragraph be
> reworded to eliminate any potential confusion. Those of us who are old
> school are continually picking at this in the DR verbiage - let's just
> end the discussion by being clear in the instructions.
>
> 2) I would like to see deadlines for other people's requirements to be
> made known to the ship. Para 4.2.1, MCD is supposed to let us know if
> USCG needs any ATONs positioned, but MCD has no deadline; and 6.11.3,
> NMS is supposed to give us a list of RUST or restricted info items, but
> again, NMS has no deadline to meet.
>
> thanks
> EBC
>
> marc.s.moser wrote:
>
>> Jeremy,
>>
>> Where will the specifications for coverage requirements for this project be stated (FPM or S+D)?
>>
>> TJ personnel will not be required to perform opening or closing levels

on the Rudee Inslet gauge, correct?

Jeremy McHugh wrote:

> Hi Emily, Ray, and Marc,
> A draft copy of the project instructions for TJ's Approaches to
> Chesapeake Bay project are attached in PDF format. Please

review them

> and provide any comments or feedback as soon as possible.

Thanks. Let

> me know if you have any questions.
> -Jeremy

**Subject:** Re: Request for Comments, Approaches to Chesapeake Bay Instructions
**From:** "Jeremy McHugh" <Jeremy.McHugh@noaa.gov>
**Date:** Mon, 27 Feb 2006 10:47:25 -0500
**To:** "emily.b.christman" <Emily.B.Christman@noaa.gov>
**CC:** "marc.s.moser" <Marc.S.Moser@noaa.gov>, Raymond C Slagle <Raymond.C.Slagle@noaa.gov>, Doug Baird <Doug.Baird@noaa.gov>, Michael Riddle <Michael.Riddle@noaa.gov>, Christiaan VanWestendorp <Christiaan.VanWestendorp@noaa.gov>, Tod Schattgen <Tod.Schattgen@noaa.gov>

Hi Emily,
1) This is a good point. Consequently, we changed section 6.9 to this:

*6.9. **_ Prior Surveys_**: * At the discretion of the hydrographer, compare data from this project with the following prior surveys during the course of data acquisition in accordance with section 8.1.3., D.2 of the HSSDM and sections 2.2.3.5. and 4.4.3.4. of the FPM.

2) To date, I have still not received ATONs or RUST items from MCD and NMS, so I am not sure if any will be assigned to this project. Consequently, those corresponding sections in the draft I sent, are simply informing you of the present situation and holding a place so that you know ATON's and RUST items might be coming in case any are assigned. The final instructions will not be so vague. If no ATONs or RUST items are provided to me by the time I send final project instructions and data out to you , I will leave those sections out of the instructions entirely.

Thanks for the feedback- it is better to resolve all this ASAP. Let me know if you have any other comments by COB Friday March 3rd so that I can get the final instructions out to you early in the following week.
-Jeremy

emily.b.christman wrote:

> I have a couple comments:
>
> 1) para 6.9, the requirement for prior survey comparison - it does say IAW the HSSDM and FPM, which I haven't looked at, but if we have 100% coverage prior survey comparison is not required. While I assume the references clear that up, I would suggest the boilerplate paragraph be reworded to eliminate any potential confusion. Those of us who are old school are continually picking at this in the DR verbiage - let's just end the discussion by being clear in the instructions.
>
> 2) I would like to see deadlines for other people's requirements to be made known to the ship. Para 4.2.1, MCD is supposed to let us know if USCG needs any ATONs positioned, but MCD has no deadline; and 6.11.3, NMS is supposed to give us a list of RUST or restricted info items, but again, NMS has no deadline to meet. thanks
> EBC
>
> marc.s.moser wrote:
>
>> Jeremy,
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>> Where will the specifications for coverage requirements for this project be stated (FPM or S+D)?
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>> TJ personnel will not be required to perform opening or closing levels on the Rudee Inslet gauge, correct?
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>> Jeremy McHugh wrote:
>>
>>> Hi Emily, Ray, and Marc,
>>> A draft copy of the project instructions for TJ's Approaches to Chesapeake Bay project are attached in PDF format. Please review them and provide any comments or feedback as soon as possible. Thanks. Let me know if you have any questions.
>>> -Jeremy

--
Jeremy McHugh, Physical Scientist
NOAA's National Ocean Service, Office of Coast Survey
301-713-2698 x117

**Subject:** D304 AWOIS database
**From:** "marc.s.moser" <marc.s.moser@noaa.gov>
**Date:** Thu, 22 Jun 2006 19:35:12 -0400
**To:** Jeremy McHugh <Jeremy.McHugh@noaa.gov>
**CC:** Christiaan VanWestendorp <christiaan.vanwestendorp@noaa.gov>

Jeremy,

The AWOIS database for D304 appears to have some problems. Please e-mail us a new copy.

**Subject:** D304 AWOIS database
**From:** "Jeremy McHugh" <Jeremy.McHugh@noaa.gov>
**Date:** Fri, 23 Jun 2006 08:40:33 -0400
**To:** Marc S Moser <Marc.S.Moser@noaa.gov>
**CC:** Christiaan VanWestendorp <Christiaan.VanWestendorp@noaa.gov>

```
good Morning Marc,
The D304 AWOIS database is zipped and attached. I opened it up just before zipping it and
it works ok on my end. Let me know if you have any more problems with it or if you need
anything else.

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

| | |
|---|---|
| **OPR-D304-TJ-06_AWOIS.zip** | **Content-Type:** application/x-zip<br>**Content-Encoding:** base64 |

**Subject:** Re: [Fwd: D304 AWOIS database]
**From:** "Jack Riley" <Jack.Riley@noaa.gov>
**Date:** Fri, 23 Jun 2006 16:01:12 -0400
**To:** "marc.s.moser" <Marc.S.Moser@noaa.gov>, Peter.Lewit@noaa.gov
**CC:** jeremy.mchugh@noaa.gov, Christiaan.VanWestendorp@noaa.gov

There's only one valid table in the database--the one named "delete".
Choose the table definition named "delete" in the Pydro Insert AWOIS dialog (not any of the 3 named "~TMPCLP*")

jack

marc.s.moser wrote:

> -------- Original Message --------
> Subject: D304 AWOIS database
> Date: Fri, 23 Jun 2006 08:40:33 -0400
> From: Jeremy McHugh <jeremy.mchugh@noaa.gov>
> To: Marc S Moser <Marc.S.Moser@noaa.gov>
> CC: Christiaan VanWestendorp <Christiaan.VanWestendorp@noaa.gov>
>
> good Morning Marc,
> The D304 AWOIS database is zipped and attached. I opened it up just
> before zipping it and it works ok on my end. Let me know if you have any
> more problems with it or if you need anything else.

---


| | |
|---|---|
| **moz-screenshot.jpg** | **Content-Type:** image/jpeg<br>**Content-Encoding:** base64 |

**Subject:** Verified tides
**From:** "kimberly.glomb" <kimberly.glomb@noaa.gov>
**Date:** Fri, 07 Jul 2006 12:31:01 +0000
**To:** Christiaan VanWestendorp <christiaan.vanwestendorp@noaa.gov>

Chris, Verified tides have been applied to all of the lines for your sheet. Some lines still have no true heave loaded. DN 176 No true heave can be loaded at all. Get the error message True heave file does not match navigation time.
Kimberly

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

# TIDE NOTE FOR HYDROGRAPHIC SURVEY

**DATE :** August 14, 2007

**HYDROGRAPHIC BRANCH:** Atlantic
**HYDROGRAPHIC PROJECT:** OPR-D304-RU-2006
**HYDROGRAPHIC SHEET:** H11568

**LOCALITY:** 17 NM Southeast of Cape Henry, Chesapeake Bay, VA
**TIME PERIOD:** June 14-25, 2006

**TIDE STATION USED:** 863-9207 Inside Channel, Rudee Inlet, VA
Lat. 36° 49.9'N Long. 75° 58.4' W
**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 0.000 meters
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 1.044 meters

**REMARKS: RECOMMENDED ZONING**

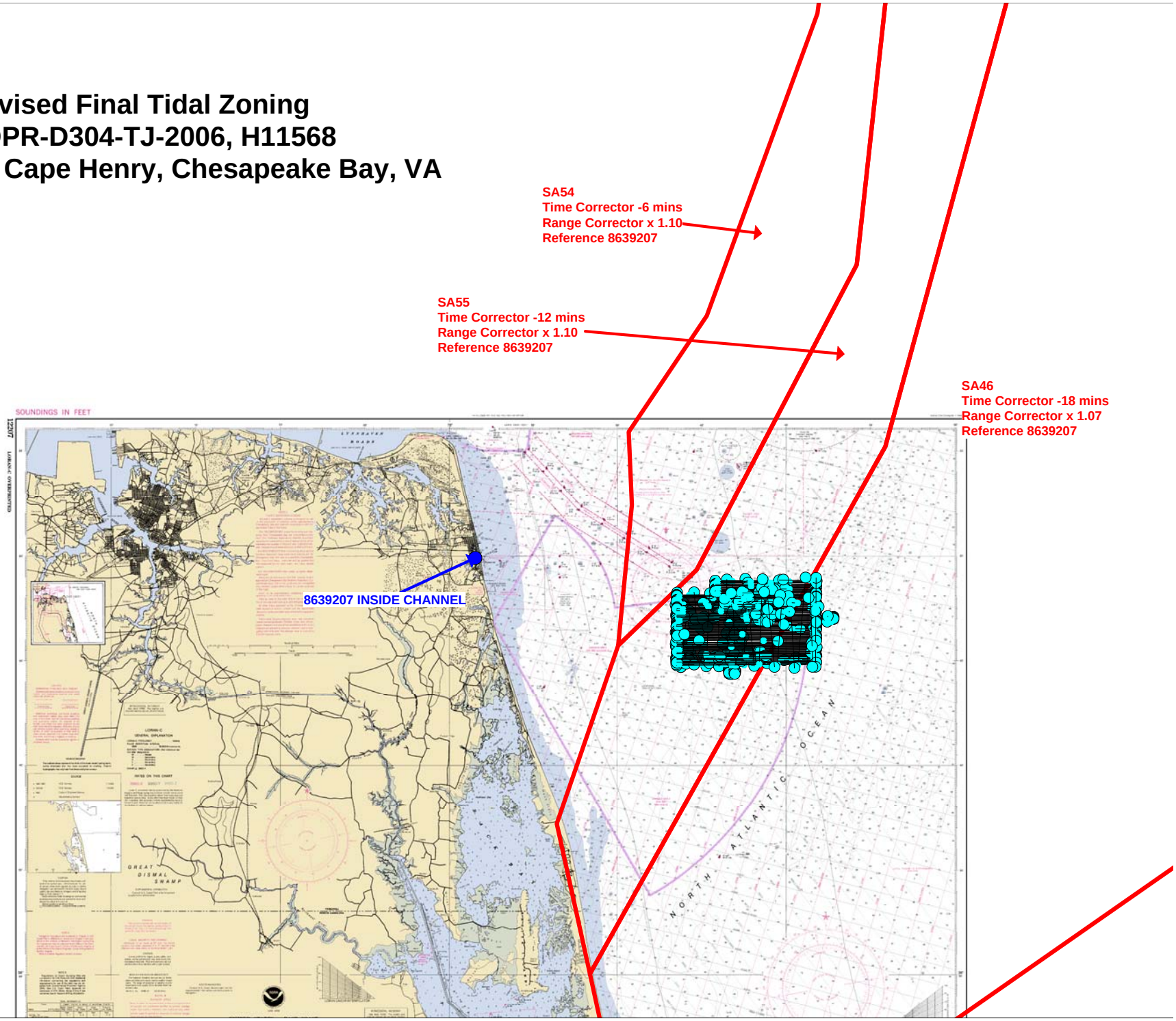
SA46, SA54 & SA55

**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

# Revised Final Tidal Zoning
# for OPR-D304-TJ-2006, H11568
# Southeast of Cape Henry, Chesapeake Bay, VA



**ATLANTIC HYDROGRAPHIC BRANCH**
**EVALUATION REPORT to Accompany**
**Survey H11568 (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 and review data at the Atlantic Hydrographic Branch (AHB):

CARIS HIPS/SIPS version 6.1
CARIS BASE Manager 2.1
PYDRO, version 8.6 (build r2366
Dkart Inspector V. 5.0 Build 732 (SP1)

### B.2 QUALITY CONTROL

**H-Cells**

The AHB source depth grid was generated as a 2m resolution combined BASE surface sourced from the AHB generated 2m combined BASE surface for survey H11568 as there was an undetermined error in the field generated surfaces. Survey scale soundings were extracted from 5m Product Surface generated at a 1:50000 scale using a radius of 25m. Soundings were selected for charting by hand using the latest raster charts (13211 and 13212) and smooth contours as background for sounding placement. Soundings were then checked for conflicts, corrected to remove conflicts, and edited to allow for proper sounding compilation placement with respect to existing charted depths outside the survey area. 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 BASE Editor shifted surface sourced from the 54m product surface using a single shift value of 0.229m. However, preliminary contours were far too detailed, so smoothed contours were created by hand.

The compilation products and Stand Alone HOB Files (SAHOB) are detailed in the Compilation Process Log of this document. All individual SAHOB files were assembled in BASE Editor during H-Cell compilation.

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 fathoms 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 H11568 CARIS H-Cell final deliverables include the following products:

| | | |
|---|---|---|
| US511568_CU.000 | 1:10,000 Scale | H11568 H-Cell with Chart Scale Soundings |
| US511568_SS.000 | 1:10,000 Scale | H11568 Survey Scale Soundings |
| US511568_BlueNotes.000 | 1:10,000 Scale | H11568 Cartographic Notes |

**Junctions**

Survey H11568 (2006) junctions with surveys H11301 (2005) to the north and H11303 (2006) to the northwest. Present survey soundings compare well with the junction surveys, within 10-30 cm with survey H11303 and within 10-50 cm with survey H11301. Present survey depths are in harmony with the charted hydrography to the east, west and south. Soundings charted from the two junctional surveys are to be superseded by the present survey.

## C. VERTICAL AND HORIZONTAL CONTROL

Final vertical correction processing was completed by office personnel after verification of the correct tidal zoning to use. 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 H11568. 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 18. Office ENC processing of this survey required translating the datum to meet S-57 ENC requirements. The horizontal geodetic datum was translated to Latitude and Longitude (LLDG) World Geodetic System-84 (WGS-84) during CARIS HOM processing.

## D. RESULTS AND RECOMMENDATIONS

### D.1 Chart Comparison

**12208 (12th Edition, May/07)**
Corrected through NM May 5/07
Corrected through LNM May 1/07
1:50,000 Scale

**12207 (21st Edition, Mar./07)**
Corrected through NM Mar. 13/04
Corrected through LNM Mar. 2/04
1:80,000 Scale

**ENC Comparison**

**US5VA11M**
Approaches to Chesapeake Bay
Edition 9
Update Application Date 2008-05-16
Issue Date 2008-05-16
References: Charts 12208

**US4NC32M**
Cape Henry to Currituck Beach Light
Edition 2
Update Application Date 2007-01-11
Issue Date 2007-01-11
References: Chart 12207

**Hydrography**

The charted hydrography originates with prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in Section D. of the Descriptive Report.

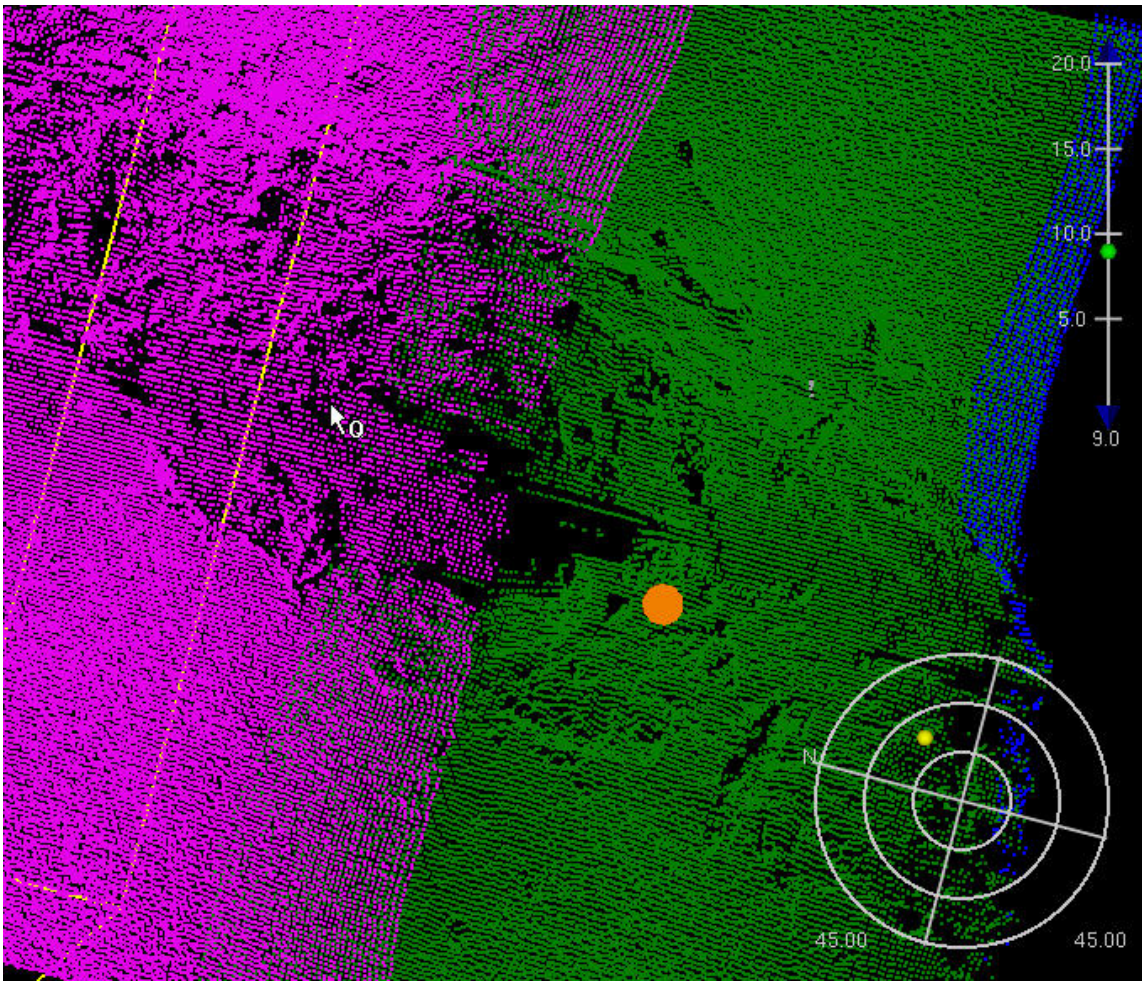
**Charted and Uncharted Features**

Two features were not completely investigated during the survey. The following should be noted:

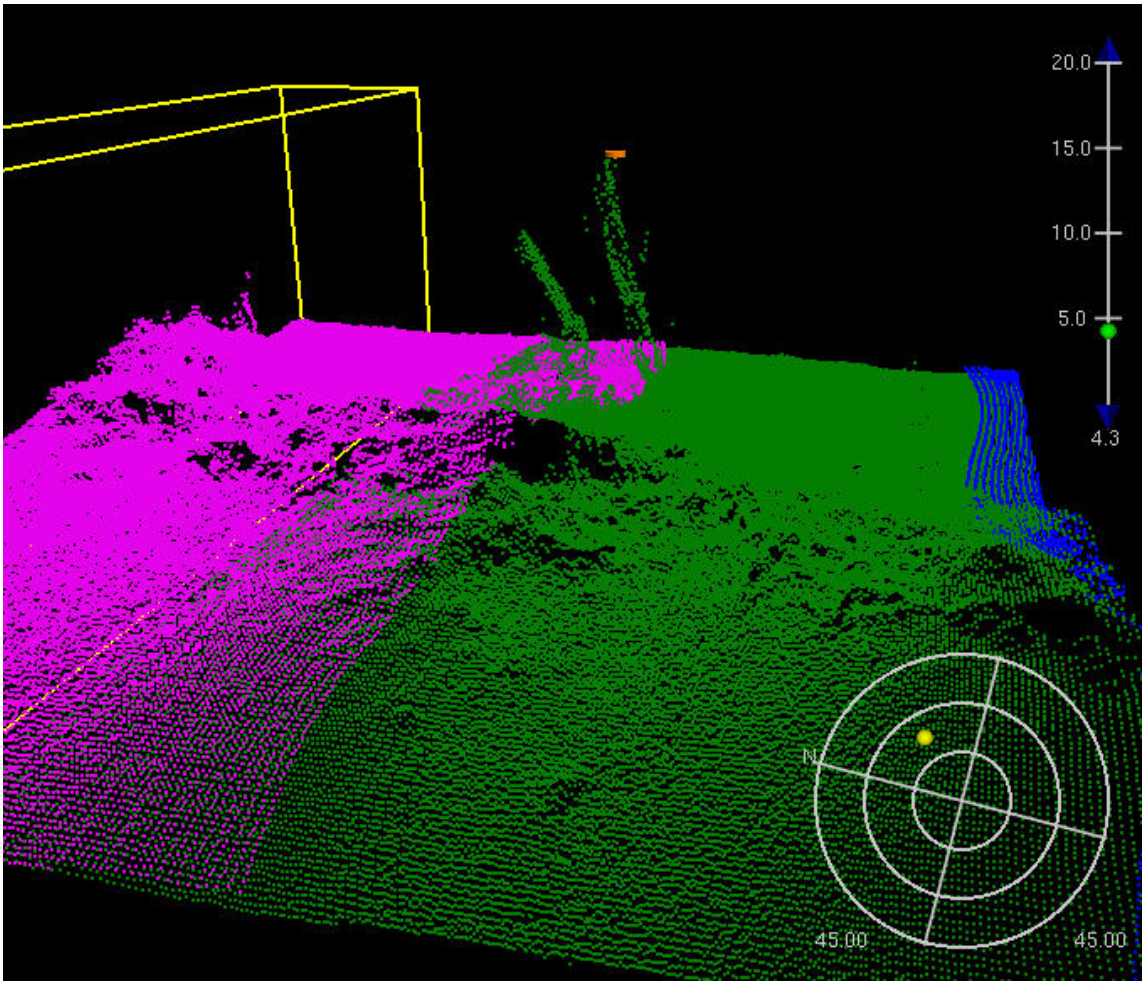
1) AWOIS Item #12994 was not completely investigated. The depth is known but the actual least depth is unknown based on shadows created by the angle of ensonification. This AWOIS Item is neither proven nor disproven. Revise the charted dangerous 43 Wreck to a dangerous Wreck with a depth of 38 ft. in Latitude 36° 45' 57.633" N, Longitude 75°

46'16.746" W and recommend the AWOIS Item be listed for further investigation using Object Detection Coverage Parameters. The following images detail the lack of ensonification of the charted dangerous wreck:

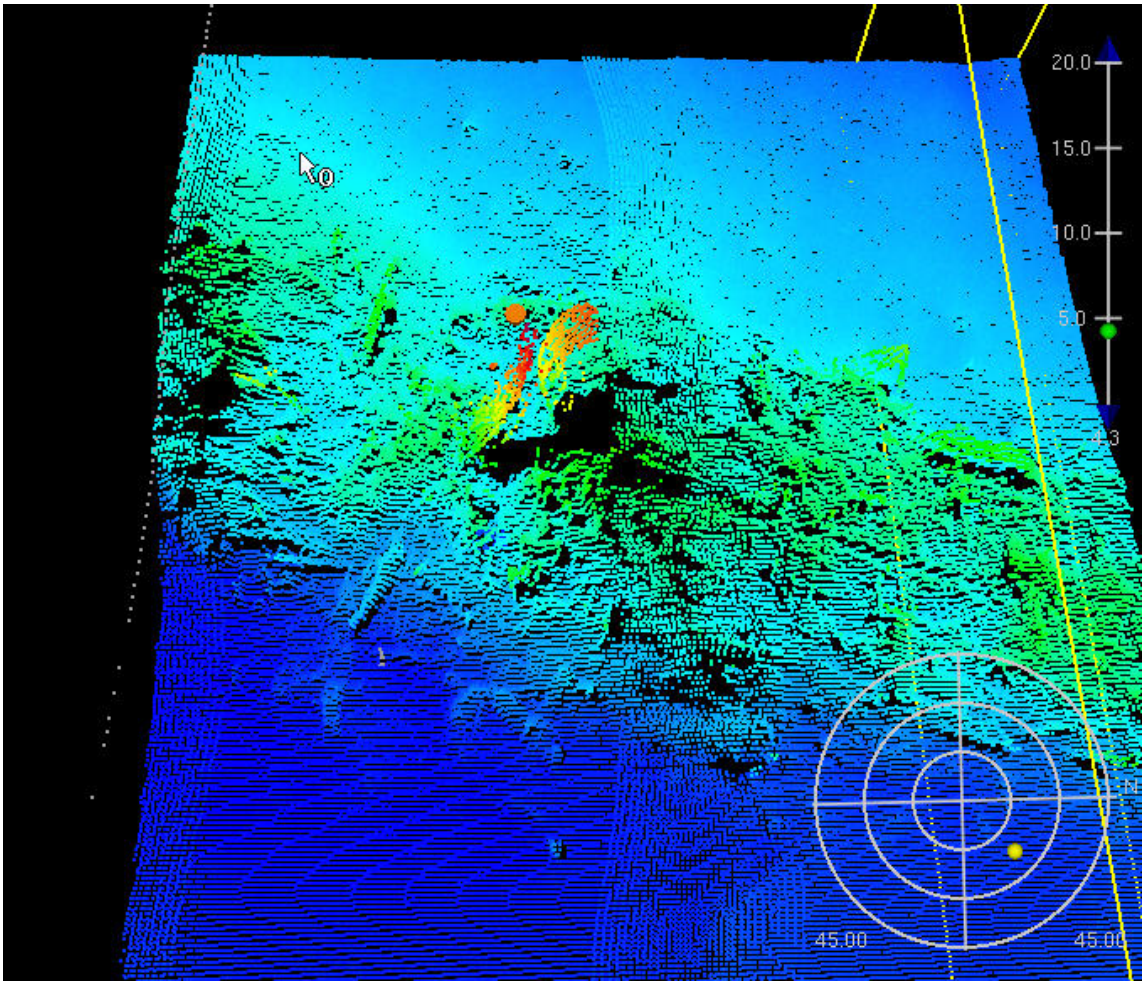
Incomplete multibeam coverage over AWOIS Item #12994 (Image 1) –



Incomplete multibeam coverage over AWOIS Item #12994 (Image 2) –

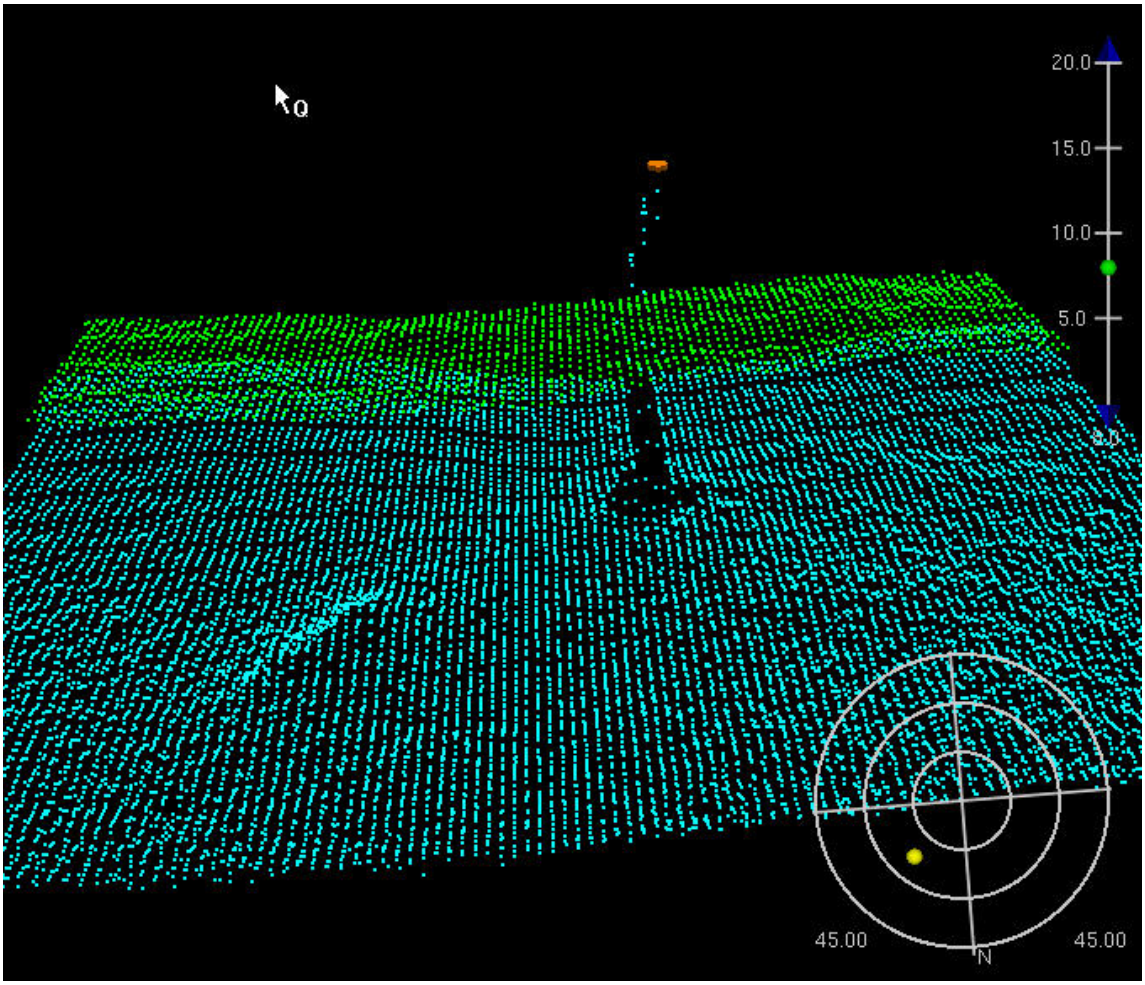


Incomplete multibeam coverage over AWOIS Item #12994 (Image 3) –

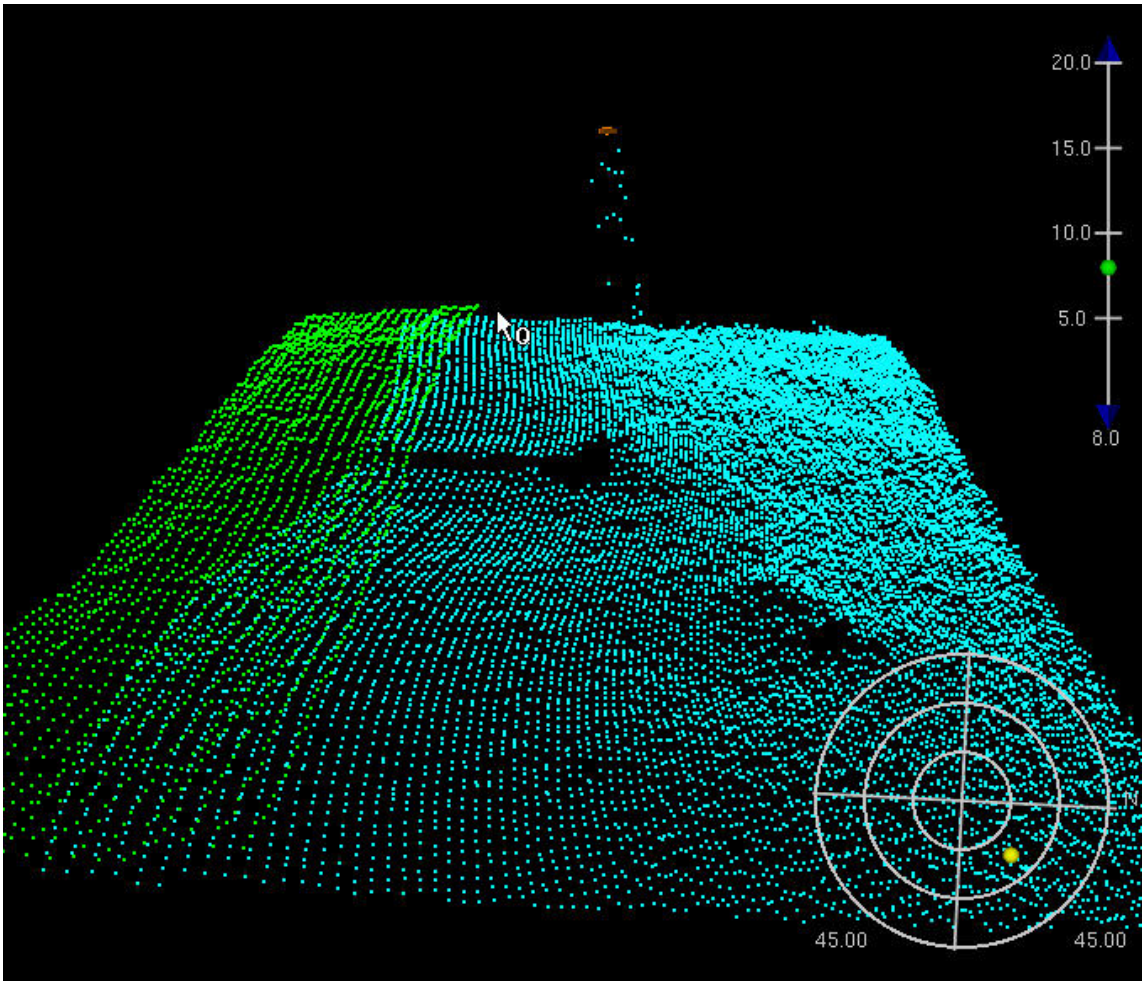



2) Northeast of the charted AWOIS Wreck is a new Obstruction, however this feature was not fully investigated either. The depth is known but the actual least depth is unknown based on shadows created by the angle of ensonification. Chart an Obstn with a depth of 53 ft. in Latitude 36° 46' 01.596" N, Longitude 75° 46' 06.926"W and recommend the feature be listed for further investigation using Object Detection Coverage Parameters. The following images detail the lack of ensonification of the obstruction:

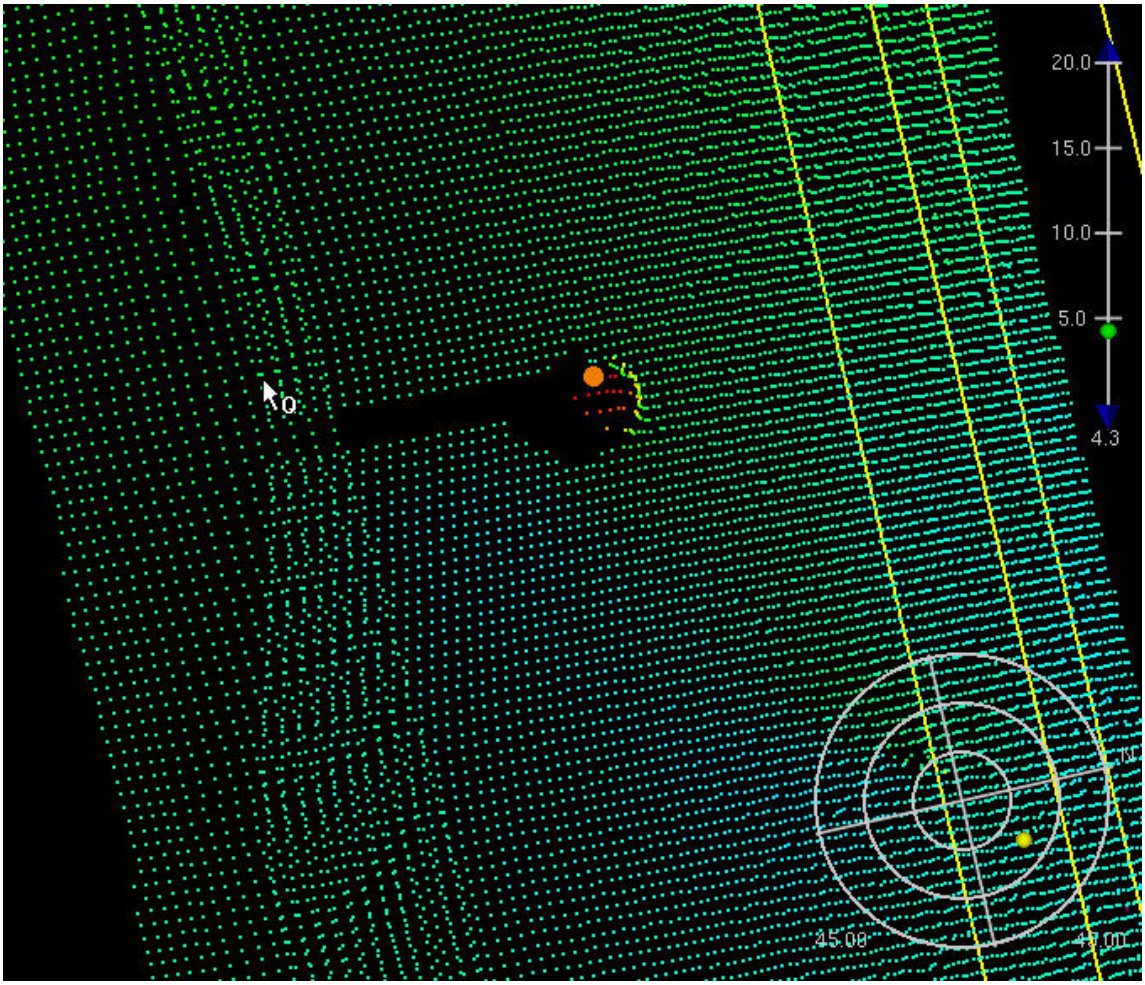
Incomplete multibeam coverage over Obstruction (Image 1) –



Incomplete multibeam coverage over Obstruction (Image 2) –



Incomplete multibeam coverage over Obstruction (Image 3) –




**Comparison with Prior Surveys**

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

**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 or the Blue Notes should be retained as charted. Refer to the Descriptive Report for further survey requirements recommended by the hydrographer.

Bryan Chauveau
Physical Scientist
Verification of Data
Evaluation Report

# H11568 COMPILATION PROCESS RECORD

| | |
|---|---|
| Registry No. | H11568 |
| Project No. | OPR-B304-TJ-06 |
| Field Unit | NOAA Ship Thomas Jefferson |
| Compilers | Bryan Chauveau |

Largest Scale Chart

**12208 (12th Edition, May /07)**
Corrected through NM May 5/07
Corrected through LNM May 1/07
1:50,000 Scale

**12207 (21st Edition, Mar. /04**
Corrected through NM Mar. 13/04
Corrected through LNM Mar. 2/04
1:80,000 Scale

**US5VA11M**
Edition 9
Issue Date 2008-05-16
Update Application Date 2008-05-16
Chart 12208

**US4NC32M**
Edition 2
Issue Date 2007-01-11
Update Application Date 2007-01-11
Chart 12207

| | |
|---|---|
| Survey Scale | 1:10000 |
| Date Of Survey | 4-14 to 6-25-2006 |

| Milestones | File Name |
|---|---|
| *Product Surface Creation* | H11568_AHB_PS_5m.hns |
| *Shifted Surface* | H11568_AHB_PS_Shifted_5m.hns |
| *Contour Layer* | H11568_contours.hob |
| *Survey Scale Soundings* | H11568_SS_Soundings.hob |
| *Chart Scale Soundings* | H11568_Charted_Soundings.hob |
| *Feature Layer* | H115681_Features.hob<br>H11568_DepAre.hob<br>H11568_Seabed_Notations.hob |
| *Meta-objects Layer* | H11568_MCovr.hob<br>H11568_MQual.hob<br>H11568_M_Cscl.hob |
| *Blue Notes* | H11568_BlueNotes.hob |

META-OBJECTS:

M_COVR attributes

| Acronym | Value |
|---|---|
| CATCOV | 1 - coverage available |
| SORDAT | 20060625 |
| SORIND | US,US,survy,H11568 |

M_QUAL attributes

| Acronym | Value |
|---|---|
| CATZOC | zone of confidence A2 |
| INFORM | H11441, OPR-B304-TJ-06, NOAA Ship Thomas Jefferson, S-222 |
| TECSOU | Multibeam |
| SURSTA | 20060414 |
| SUREND | 20060625 |
| POSACC | 10 |
| SORDAT | 20060625 |
| SORIND | US,US,survy,H11568 |

Final Grids Listing –

| | | | |
|---|---|---|---|
| H11568_AHB_1_2m_Final.hns | 72,672 KB | HNS File | 7/8/2008 10:30 AM |
| H11568_AHB_1_2m_Final.xml | 16 KB | XML Document | 7/8/2008 10:30 AM |
| H11568_AHB_2_2m_Final.hns | 77,663 KB | HNS File | 7/8/2008 10:31 AM |
| H11568_AHB_2_2m_Final.xml | 15 KB | XML Document | 7/8/2008 10:31 AM |
| H11568_AHB_3_2m_Final.hns | 65,598 KB | HNS File | 7/8/2008 11:28 AM |
| H11568_AHB_3_2m_Final.xml | 13 KB | XML Document | 7/8/2008 11:28 AM |
| H11568_AHB_4_2m_Final.hns | 71,786 KB | HNS File | 7/8/2008 11:50 AM |
| H11568_AHB_4_2m_Final.xml | 12 KB | XML Document | 7/8/2008 11:50 AM |
| H11568_AHB_5_2m_Final.hns | 57,165 KB | HNS File | 7/8/2008 12:49 PM |
| H11568_AHB_5_2m_Final.xml | 10 KB | XML Document | 7/8/2008 12:49 PM |
| H11568_AHB_6_2m_Final.hns | 66,380 KB | HNS File | 7/8/2008 1:23 PM |
| H11568_AHB_6_2m_Final.xml | 10 KB | XML Document | 7/8/2008 1:23 PM |
| H11568_AHB_7_2m_Final.hns | 47,288 KB | HNS File | 7/8/2008 1:48 PM |
| H11568_AHB_7_2m_Final.xml | 12 KB | XML Document | 7/8/2008 1:48 PM |
| H11568_AHB_8_2m_Final.hns | 65,015 KB | HNS File | 7/8/2008 2:11 PM |
| H11568_AHB_8_2m_Final.xml | 13 KB | XML Document | 7/8/2008 2:11 PM |
| H11568_AHB_9_2m_Final.hns | 53,878 KB | HNS File | 7/9/2008 10:28 AM |
| H11568_AHB_9_2m_Final.xml | 11 KB | XML Document | 7/9/2008 10:28 AM |
| H11568_AHB_10_2m_Final.hns | 57,735 KB | HNS File | 7/9/2008 10:53 AM |
| H11568_AHB_10_2m_Final.xml | 10 KB | XML Document | 7/9/2008 10:53 AM |

**APPROVAL SHEET**
**H11568**

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development 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 NOS requirements except where noted in the Evaluation Report.

Bryan Chauveau

Digitally signed by bryan.chauveau
DN: cn=bryan.chauveau
Reason: I am the author of this document
Date: 2008.07.28 13:57:57 -04'00'

Bryan Chauveau
Physical Scientist,
Atlantic Hydrographic Branch

All final products have undergone a comprehensive review as per the Atlantic Hydrographic Branch Processing Manual and are verified to be accurate and complete except where noted in the Evaluation Report.

I have reviewed the Base Cell files, accompanying data, and reports. This survey and accompanying Marine Chart Division deliverables meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.

Approved:

Shepard Smith
I am approving this document
2008.07.28 15:00:00 -04'00'

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

Jeremy McHugh

Digitally signed by Jeremy McHugh
DN: cn=Jeremy McHugh, c=US
Reason: I have reviewed this document
Date: 2008.07.30 12:05:53 -04'00'