

H11301

<p>NOAA FORM 76-35A</p> <p>U.S. DEPARTMENT OF COMMERCE          NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION          NATIONAL OCEAN SURVEY</p> <p>DESCRIPTIVE REPORT</p>	
<p><i>Type of Survey:</i></p>	<p>Navigable Area</p>
<p><i>Registry Number:</i></p>	<p>H11301</p>
<p>LOCALITY</p> <p><i>State:</i> Virginia</p> <p><i>General Locality:</i> Approaches to Chesapeake Bay</p> <p><i>Sub-locality:</i> 10NM Southeast of Cape Henry</p>	
<p>2005</p> <p>CHIEF OF PARTY          CAPT Emily B. Christman, NOAA</p>	
<p>DATE</p>	<p>LIBRARY &amp; ARCHIVES</p>

NOAA FORM 77-28 (11-72)	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:  <h2 style="text-align: center; margin: 0;">H11301</h2>
<h1 style="margin: 0;">HYDROGRAPHIC TITLE SHEET</h1>		
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:	10Nm Southeast of Cape Henry	
Scale:	1:10,000	Date of Survey:            04/04/05 to 11/15/05
Instructions Dated:	02/16/05	Project Number:            OPR-D304-RU/TJ-05
Change No.1 Dated:	03/04/05	
Change No.2 Dated:	05/13/05	
Change No.3 Dated:	07/19/05	
Vessel:	NOAA Ship THOMAS JEFFERSON, S-222	
Chief of Party:	CAPT Emily B. Christman, NOAA	
Surveyed by:	THOMAS JEFFERSON Personnel	
Soundings by:	Reson SeaBat 8101 multibeam sonar Reson SeaBat 8125 multibeam sonar	
Graphic record checked by:	N/A	
Protracted by:	N/A	Automated Plot: N/A
Verification by:	Atlantic Hydrographic Branch Personnel	
Soundings in:	Feet at MLLW	
Remarks: 1) <i>All Times are UTC.</i> 2) <i>This is a Navigable Area Hydrographic Survey.</i> 3) <i>Projection is UTM Zone 18.</i> <b><i>Red, Bold, Italic notes in the Descriptive Report were made during Office Processing.</i></b>		

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APPENDIX

## **DESCRIPTIVE REPORT**

to accompany  
HYDROGRAPHIC SURVEY H11301

Scale of Survey: 1:10,000  
Year of Survey: 2005  
NOAA Ship THOMAS JEFFERSON  
CAPT Emily B. Christman, Commanding

### **A. AREA SURVEYED**

This hydrographic survey was conducted in accordance with Hydrographic Survey Letter Instructions\* for project OPR-D304-RU/TJ-05, Approaches to Chesapeake Bay, Virginia. The original instructions are dated February 16, 2005.

Revised project instructions are dated March 4, 2005\*. Changes were made within the priority 1 (P1) survey area to include the deep water route. Tide zone SA46 was added for the Chesapeake Bay Bridge Tunnel tide gauge (863-8863).

Revised project instructions are dated May 13, 2005\*. Changes were made to add sheet "G" registry number H11323 to this project (OPR-D304-RU/TJ-05).

Revised project instructions are dated July 19, 2005\*. Changes were made to use the guidelines from the Field Procedures Manual for determining the resolution of BASE surface grids. Pydro generated requests for approved tides are to be sent immediately after the end of the field acquisition on a survey sheet. No further changes were made to the project instructions.

This Descriptive Report pertains to sheet "K" of project OPR-D304-RU/TJ-05, which includes Approaches to Chesapeake Bay. The assigned registry number for this sheet is H11301, as prescribed in the Letter Instructions\*.

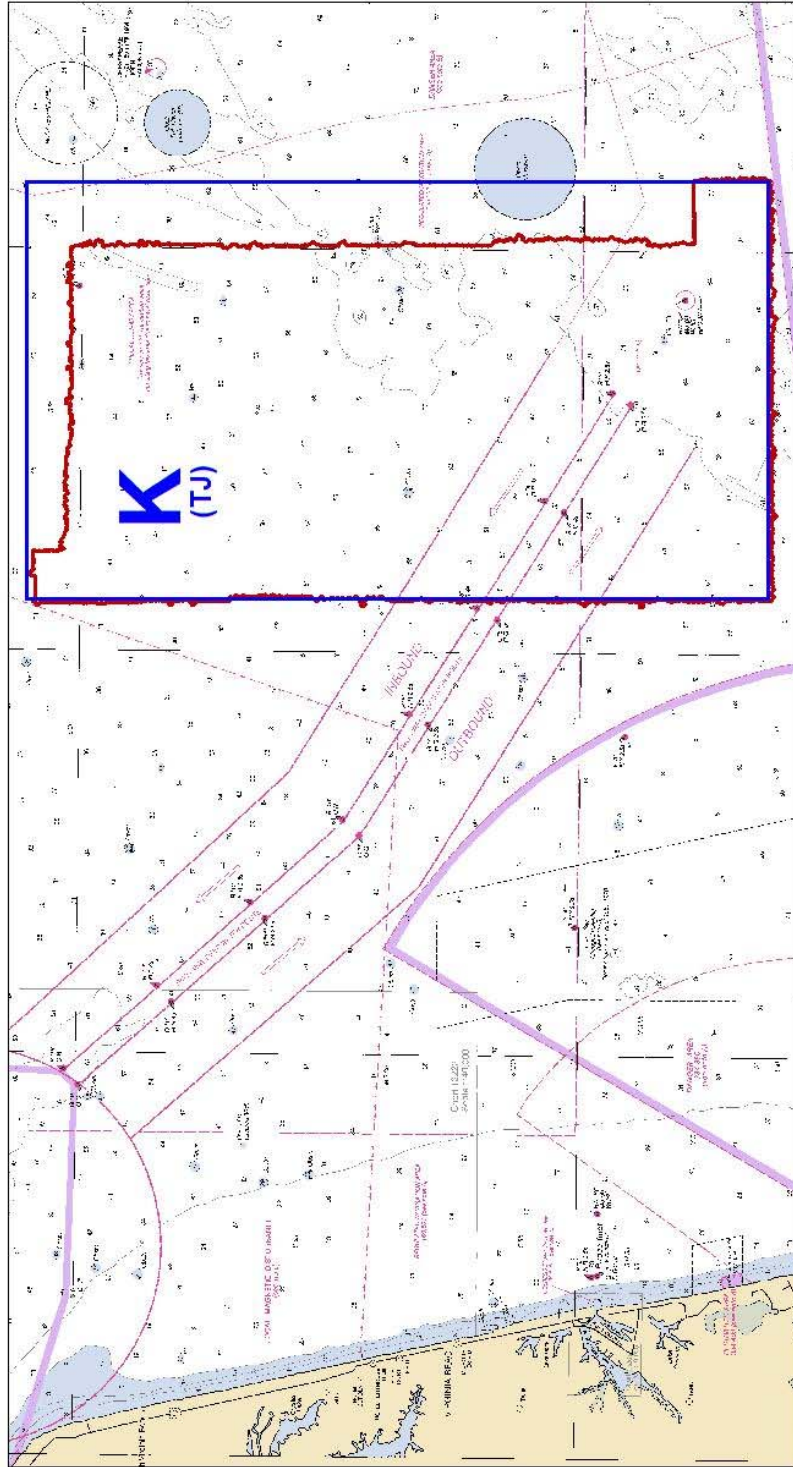
This project responds to a request from the Maryland and Virginia Pilots Associations for modern hydrographic data in the approaches to the Chesapeake Bay. Over the next several years, there are plans for vessels with increasingly deeper drafts to be transiting this area. These plans have created a critical need for updated depths and object detection in the approaches to the Chesapeake Bay.

*\*Filed with original field records.*

**Statistics**


- Lineal nautical miles of single beam only sounding lines – N/A
- Lineal nautical miles of multibeam only sounding lines – 1184.63
- Lineal nautical miles of side scan sonar only lines – 397.77
- Lineal nautical miles of any combination of the above techniques (specify methods used) – N/A
- Lineal nautical miles of cross lines – 103.38
- Lineal nautical miles of developments – N/A
- Lineal nautical miles of shoreline/nearshore investigation – N/A
- Specific dates of data acquisition – April 4–8, 11; June 1, 4–9, 15–19, 21; August 28; November 13–15 2005
- Number of bottom samples collected – N/A
- Number of items investigated either as a new development or from AWOIS – 16
- Total number of square nautical miles – 25
- Number of items investigated that required additional time/effort in the field beyond the above survey operations – N/A

For complete survey limits, see the chartlet on the following page.



Chartlet 1 of 1

NOT FOR NAVIGATION.

	<p><b>NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SERVICE</b></p>	<p>Project: OPR-D304-TJ-05          Survey: H11301          State: Virginia          Locality: Approaches to Chesapeake Bay          Sub-locality: 10Nm Southeast of Cape Henry          Survey Scale: 1:10,000</p>	<p>Sounding Units: Feet          Sounding Datum: MLLW          Horizontal Datum: NAD 83          Projection: UTM 18          Central Meridian: 075° 00 00          Scale Factor: 0.9996</p>	<p><b>NOAA Ship THOMAS JEFFERSON</b>  <b>CAPT Emily B. Christman</b>          Commanding          April 4 to          November 15, 2005</p>
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## **B. DATA ACQUISITION AND PROCESSING** *See Evaluation Report*

### **EQUIPMENT**

Data were acquired by NOAA Ship THOMAS JEFFERSON, Launches 1005, 1014, 3101, and 3102. Launches 1005 and 1014 are NOAA's standard 8.5 meter aluminum Jensen vessels. Launches 3101 and 3102 are 9.5 meter aluminum vessels. *Concur.*

NOAA Ship THOMAS JEFFERSON acquired side scan sonar data using a Klein 5000 towfish. All positioning and attitude were determined with a TSS POS/MV 320 (version 3) GPS-aided inertial navigation system. *Concur.*

Launch 1005 acquired shallow-water multibeam (SWMB) data. A Reson SeaBat 8101 multibeam system was used for SWMB hydrography. All positioning and attitude were determined with a TSS POS/MV 320 (version 3) GPS-aided inertial navigation system. *Concur.*

Launch 1014 acquired Shallow-water multibeam (SWMB) data. A Reson Seabat 8125 multibeam system was used for SWMB hydrography. All positioning and attitude were determined with a TSS POS/MV 320 (version 3) GPS-aided inertial navigation system. *Concur.*

Launch 3101 acquired Shallow-water multibeam (SWMB) data. A Reson Seabat 8125 multibeam system was used for SWMB hydrography. All positioning and attitude were determined with a TSS POS/MV 320 (version 4) GPS-aided inertial navigation system. *Concur.*

Launch 3102 acquired shallow-water multibeam (SWMB) data. A Reson SeaBat 8101 multibeam system was used for SWMB hydrography. All positioning and attitude were determined with a TSS POS/MV 320 (version 3) GPS-aided inertial navigation system. *Concur.*

Refer to the Data Acquisition and Processing Reports (DAPR)\*, spring (dated 1 April 2005) and fall (~~submission pending~~) for detailed equipment and vessel configuration information. *Concur.*

### **QUALITY CONTROL**

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

Daily confidence checks were made by observing the outer ranges of the side scan sonar images. A good check consisted of distinguishing contacts or sand waves across the entire range of the side scan trace. Some problems due to refraction were observed. Object detection capability was adequate. *Concur.*

*\*Filed with original field records.*

## Shallow Water Multibeam Quality Control

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

Data for launch 1014 from DN 94 to DN 101 had a roll error resulting from a loose bolt on the multibeam sled. This error was outside of the error budget for this project. All of this data was deleted. *Concur.*

Problems with heave drift were experienced due to the long period swells in the survey area. The POS/MV heave bandwidth was changed from 10 to 20 on DN 101 on both launches to account for this. Thereafter it was adjusted as needed. *Concur.*

Data acquired on DN 152 by launch 1005 had heave drift problems. No true heave data were available for post processing. Data adversely affecting the surface were rejected. *Concur.*

For all data that had heave problems, data that exceeded the error budget were deleted using the attitude editor to delete just those parts of the lines that had problems. *Concur.*

This area has a sharp change in sound velocity. An "S" curve can be seen in the CTD profiles. On DN 159 the outer beams of the Reson 8101 were filtered 40 - 40. This created holidays which were later filled. *Concur.*

Data from DN 160 was having Sound velocity problems. A cast from DN 159 at 19:37 near the same time a cast would have been taken on DN 160 yielded favorable results. This cast was appended to H11301\_1014\_master.svp and post dated to DN 160 19:37. *Concur.*

A wobble was detected in the data for DN 240. Although the cause is unknown it may have been caused by the multibeam not being fully deployed. The error was within the error budget and the data was still used. *Concur.*

## Cross lines

A total of 103.38 linear nautical miles (lnm) of cross lines were run, equivalent to 12.2% of the 1184.63 nautical miles of main scheme data. Cross line HDCS data and a mainscheme CUBE surface were compared using HIP'S QC report tool to examine the internal consistency of the data: however, since this procedure compares HDCS data to a CUBE surface and not a CUBE surface to a CUBE surface, the results should be reviewed accordingly. There was good general agreement. *Concur.*

## Junctions

This survey junctions with H11027, H11302, and H11303. *Do not concur. See Evaluation Report.*

Hydrographic survey H11027 was conducted by NOAA Ship WHITING in 2001. This survey overlaps the current survey in the upper northwest corner. The difference in the soundings between the two surveys ranges from 1 to 3 feet. There is up to a 6 foot difference where there is shoaling. *Concur.*

Hydrographic survey H11302 was conducted by NOAA Ship THOMAS JEFFERSON in 2003. This survey overlaps the current survey for most of the northern area. Most of the soundings agree. Where there are differences they are not by more than 1 or 2 feet. *Concur.*

Hydrographic survey H11303 was conducted by NOAA Ship THOMAS JEFFERSON in 2004. This survey overlaps the current survey along most of the eastern side. There were problems with survey H11303. This survey was rejected by the Atlantic Hydrographic Branch. H11303 will be resurveyed in 2006. *Concur.*

AWOIS item 11434 was not completely covered by survey H11301. The radius for this will be covered by survey H11303 when it is resurveyed in 2006. *Concur.*

## CORRECTIONS TO ECHO SOUNDING

All methods or instruments used were as described in the project DAPR\*. All sound velocity casts are located in the Pydro PSS. *Concur.*

## DATA PROCESSING

Twenty - five CUBE surfaces cover the entire survey area. These were created with a resolution of 1 meter. Thirty - two CUBE surfaces with a resolution of 0.5 meters were created over sand waves and the wreck of the SANTORE. There are nine combined CUBE surfaces. These were created with a resolution of 2 meters. See also Appendix V\*. *Concur with clarification. See Evaluation Report.*

*\*Filed with original field records.*

<b>Field Sheet</b>	<b>Resolution</b>	<b>Field Sheet</b>	<b>Resolution</b>
H11301_Coverage_1	1 meter	H11301_1a	0.5 meter
H11301_Coverage_2	1 meter	H11301_1b	0.5 meter
H11301_Coverage_3	1 meter	H11301_2a	0.5 meter
H11301_Coverage_4	1 meter	H11301_2b	0.5 meter
H11301_Coverage_5	1 meter	H11301_2c	0.5 meter
H11301_Coverage_6	1 meter	H11301_3a	0.5 meter
H11301_Coverage_7	1 meter	H11301_3b	0.5 meter
H11301_Coverage_8	1 meter	H11301_3c	0.5 meter
H11301_Coverage_9	1 meter	H11301_3d	0.5 meter
H11301_Coverage_10	1 meter	H11301_4a	0.5 meter
H11301_Coverage_11	1 meter	H11301_5a	0.5 meter
H11301_Coverage_12	1 meter	H11301_5b	0.5 meter
H11301_Coverage_13	1 meter	H11301_5c	0.5 meter
H11301_Coverage_14	1 meter	H11301_5d	0.5 meter
H11301_Coverage_15	1 meter	H11301_6a	0.5 meter
H11301_Coverage_16	1 meter	H11301_6b	0.5 meter
H11301_Coverage_17	1 meter	H11301_6c	0.5 meter
H11301_Coverage_18	1 meter	H11301_6d	0.5 meter
H11301_Coverage_19	1 meter	H11301_9a	0.5 meter
H11301_Coverage_20	1 meter	H11301_9b	0.5 meter
H11301_Coverage_21	1 meter	H11301_10a	0.5 meter
H11301_Coverage_22	1 meter	H11301_10b	0.5 meter
H11301_Coverage_23	1 meter	H11301_13a	0.5 meter
H11301_Coverage_24	1 meter	H11301_13b	0.5 meter
H11301_Coverage_25	1 meter	H11301_14a	0.5 meter
		H11301_16a	0.5 meter
		H11301_16b	0.5 meter
		H11301_16c	0.5 meter
		H11301_17a	0.5 meter
		H11301_19a	0.5 meter
		H11301_19b	0.5 meter
		H11301_19c	0.5 meter
		H11301_Combined_Coverage	2 meter

## C. VERTICAL AND HORIZONTAL CONTROL

### VERTICAL CONTROL

The tidal datum for this project is Mean Lower Low Water (MLLW). The operating tide station at Chesapeake Bay Bridge Tunnel, VA (863-8863) served as control for datum determination.

***Concur.***

Tidal zoning for this survey is consistent with the Letter Instructions\*. The zone used for this survey is as follows:

Station	Corrector (min)	Ratio	Reference
SA50D	-24	x1.33	863-8863
SA50E	-24	x1.27	863-8863
SA51	-30	x1.33	863-8863
SA54	-36	x1.41	863-8863
SA54A	-36	x1.33	863-8863
SA55	-42	x1.41	863-8863
SA56	-30	x1.41	863-8863
SCB1	-12	x1.25	863-8863
SCB4	-12	x1.20	863-8863
SCB5	-12	x1.14	863-8863

A Request for Approved Tides letter was sent to N/OPS1 on November 17, 2005. (Appendix IV\*). Verified tides from the N/OPS1 CO-OPS website were downloaded on November 21, 2005, and applied to all sounding data. ***Concur with clarification. Final tide zones were applied during office processing.***

### HORIZONTAL CONTROL

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

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, VA (289). No horizontal control stations were established for this survey. ***Concur.***

Horizontal dilution of precision (HDOP) was monitored daily on the launches. That value did not exceeded 2.5, and adequate satellite coverage was maintained throughout the survey period. ***Concur.***

***\*Filed with original field records.***

## **D. RESULTS AND RECOMMENDATIONS** *See Evaluation Report*

### **CHART COMPARISON**

There are five charts affected by this survey:

**12205**, 29<sup>th</sup> edition, October 30, 2004, 1:80,000

**12207**, 21<sup>st</sup> edition, March 13, 2004, 1:80,000

**12208**, 11<sup>th</sup> edition, May 14, 2005, 1:50,000

**12221**, 77<sup>th</sup> edition, May 21, 2005, 1:80,000

**12280**, 5<sup>th</sup> edition, October 16, 2004, 1:200,000

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

The soundings were compared to those on chart 12208. Many of the soundings agree. Most of the soundings have a difference of 1 to 2 feet. A few soundings have a difference of 3 or 4 feet. Many soundings inside the channel agree with the charted soundings. Some of the soundings are 1 to 2 feet deeper. The hydrographer recommends updating the chart using this survey's soundings. *Concur.*

### **AWOIS Items and Significant Contacts**

There are seven AWOIS items and nine investigation only items within the survey limits. See Appendix 1\* for feature reports. *Concur.*

### **Dangers to Navigation**

There are no dangers to navigation. *Concur.*

### **Charted Features**

All charted point features are addressed in the Item Investigations section. There are no additional charted features. *Do not concur. Only AWOIS items were addressed in this survey. There are no additional features.*

## **ADDITIONAL RESULTS**

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

All of the aids to navigation are correctly charted. *Concur.*

*\*Filed with original field records.*

**Bridges and Overhead Cables**

There are no bridges or overhead cables associated with this project. *Concur.*

**Submarine Cables and Pipelines**

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

**Prior Surveys**

A comparison with prior surveys was not required for this survey. *Concur with Clarification. See Evaluation Report.*

**E. APPROVAL SHEET****OPR-D304-RU/TJ-05  
Approaches to Chesapeake Bay  
Virginia****10Nm Southeast of Cape Henry  
Survey Registry No. H11301**

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.

Also submitted in association with the descriptive report has been a series of reports and data:

OPR-D304-TJ-05 HORIZONTAL AND VERTICAL CONTROL REPORT (submission pending)  
SPRING HYDROGRAPHIC SYSTEMS CERTIFICATION REPORT (effective 4/10/05)  
FALL HYDROGRAPHIC SYSTEMS CERTIFICATION REPORT (effective 7/26/05)  
SPRING DATA AND ACQUISITION AND PROCESSING REPORT (effective 4/1/05)  
FALL DATA AND ACQUISITION AND PROCESSING REPORT (submission pending)

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

Respectfully,

Submitted:

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ST Kimberly A. Glomb  
Hydrographer

Approved and Forwarded:

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LT Marc S. Moser, NOAA  
Field Operations Officer

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CAPT Emily B. Christman, NOAA  
Commanding Officer

## **APPENDIX I**

### ITEM INVESTIGATIONS AND CHARTED FEATURES

Following are item investigation reports detailing:

1. AWOIS Items

There were no DTONs or additional charted features on this survey.

# H11301 - AWOIS Items

**Registry Number:** H11301  
**State:** Virginia  
**Locality:** Approaches to Chesapeake Bay  
**Sub-locality:** 10NM Southeast of Cape Henry  
**Project Number:** OPR-D304-TJ-05  
**Survey Dates:** 06/18/2005 - 02/23/2006

## Charts Affected

Number	Version	Date	Scale
12208	10th Ed.	05/01/2004	1:50000
12205	29th Ed.	10/01/2004	1:80000
12207	21st Ed.	03/01/2004	1:80000
12221	76th Ed.	02/01/2005	1:80000
12280	5th Ed.	10/01/2004	1:200000
12200	48th Ed.	06/01/2004	1:419706
13003	48th Ed.	10/01/2004	1:1200000

## Features

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	364/139 Santore AWOIS 803	Sounding	12.76 m	36° 53' 50.761" N	075° 46' 51.431" W	803
1.2	1704/55 AWOIS#7529 OBSTRUCTION Old buoy block	Sounding	18.02 m	36° 51' 57.557" N	075° 44' 59.683" W	7529
1.3	0001 Obstruction AWOIS 11434	SSS	[None]	36° 52' 03.544" N	075° 44' 53.858" W	11434
1.4	AWOIS#788 UNKNOWN	GP	[None]	36° 51' 43.530" N	075° 46' 00.733" W	788
1.5	AWOIS#796 UNKNOWN	GP	[None]	36° 53' 04.347" N	075° 46' 58.596" W	796
1.6	AWOIS#3329 UNKNOWN	GP	[None]	36° 50' 24.530" N	075° 49' 10.970" W	3329
1.7	AWOIS#1608 STORMY	GP	[None]	36° 51' 48.567" N	075° 47' 00.624" W	1608
1.8	AWOIS#3777 OBSTRUCTION	GP	[None]	36° 53' 00.040" N	075° 48' 10.133" W	3777
1.9	AWOIS#8277 OBSTRUCTION	GP	[None]	36° 50' 16.677" N	075° 48' 10.778" W	8277
1.10	AWOIS#7526 OBSTRUCTION	GP	[None]	36° 51' 48.384" N	075° 48' 00.533" W	7526
1.11	AWOIS#7528 OBSTRUCTION	GP	[None]	36° 52' 27.911" N	075° 45' 20.287" W	7528
1.12	AWOIS#7530 UNKNOWN	GP	[None]	36° 53' 36.457" N	075° 45' 37.733" W	7530

1.13	AWOIS#8225 OBSTRUCTION	GP	[None]	36° 55' 00.457" N	075° 46' 28.733" W	8225
1.14	AWOIS#9930 UNKNOWN	GP	[None]	36° 49' 12.110" N	075° 46' 06.114" W	9930
1.15	AWOIS#11433 OBSTRUCTION	GP	[None]	36° 51' 50.070" N	075° 47' 00.624" W	11433
1.16	AWOIS#11431 OBSTRUCTION	GP	[None]	36° 51' 49.134" N	075° 45' 29.841" W	11431

**1 - DR\_AWOIS**

## 1.1) 364/139 Santore AWOIS 803

### Primary Feature for AWOIS Item #803

**Search Position:** 36° 53' 53.180" N, 075° 46' 51.070" W  
**Historical Depth:** 13.41 m  
**Search Radius:** 50  
**Search Technique:** [unknown]  
**Technique Notes:** [unknown]

#### History Notes:

[unknown]

### Survey Summary

**Survey Position:** 36° 53' 50.761" N, 075° 46' 51.431" W  
**Least Depth:** 12.76 m  
**Timestamp:** 2005-240.15:25:49.418 (08/28/2005)  
**Survey Line:** d304\_tj\_05\_h11301k / tj\_3101\_reson8125 / 2005-240 / 389\_1525  
**Profile/Beam:** 364/139  
**Charts Affected:** 12208\_1, 12207\_1, 12221\_1, 12280\_2, 12200\_1, 13003\_1

#### Remarks:

Item investigated with 100% MBES and 200% SSS. Wreck found. Least depth on AWOIS#803 obtained.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
d304_tj_05_h11301k/tj_3101_reson8125/2005-240/389_1525	364/139	0.00	000.0	Primary
d304_tj_05_h11301k/s222_200/2005-097/222_1040	0001	9.70	063.5	Secondary
d304_tj_05_h11301k/s222_100/2005-097/121_0041	0001	10.91	131.0	Secondary
d304_tj_05_h11301k/s222_200/2005-097/221_1006	0002	66.14	167.8	Secondary (grouped)
d304_tj_05_h11301k/s222_200/2005-097/221_1006	0001	71.10	176.2	Secondary (grouped)
OPR-D304-TJ-05-AWOIS	AWOIS # 803	75.34	186.8	Secondary (grouped)
d304_tj_05_h11301k/s222_100/2005-097/120_0704	0001	112.69	185.3	Secondary (grouped)

## Hydrographer Recommendations

Chart as per digital data.

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

42ft (12208\_1, 12207\_1, 12221\_1, 12280\_2)

7fm (12200\_1, 13003\_1)

### S-57 Data

**Geo object 1:** Wreck (WRECKS)  
**Attributes:** CATWRK - 2:dangerous wreck  
CONVIS - 2:not visual conspicuous  
OBJNAM - Santore  
STATUS - 1:permanent  
TECSOU - 2,3:found by side scan sonar,found by multi-beam  
VALSOU - 12.763 m  
VERDAT - 12:Mean lower low water  
WATLEV - 3:always under water/submerged

### Office Notes

Concur with clarification. Remove charted WK LD 44ft, chart WK LD 41FT.

## 1.2) 1704/55 AWOIS#7529 OBSTRUCTION Old buoy block

### Primary Feature for AWOIS Item #7529

**Search Position:** 36° 51' 57.530" N, 075° 44' 59.310" W  
**Historical Depth:** [None]  
**Search Radius:** 200  
**Search Technique:** [unknown]  
**Technique Notes:** [unknown]

#### History Notes:

[unknown]

### Survey Summary

**Survey Position:** 36° 51' 57.557" N, 075° 44' 59.683" W  
**Least Depth:** 18.02 m  
**Timestamp:** 2005-169.12:47:14.985 (06/18/2005)  
**Survey Line:** d304\_tj\_05\_h11301k / 1005\_mb / 2005-169 / 007\_1244  
**Profile/Beam:** 1704/55  
**Charts Affected:** 12208\_1, 12207\_1, 12221\_1, 12280\_2, 12200\_1, 13003\_1

#### Remarks:

Item investigated with 100% MBES and 100% SSS. Image observed in side scan and multibeam.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
d304_tj_05_h11301k/1005_mb/2005-169/007_1244	1704/55	0.00	000.0	Primary
OPR-D304-TJ-05-AWOIS	AWOIS # 7529	9.25	275.2	Secondary
d304_tj_05_h11301k/s222_100/2005-095/131_0927	0001	9.93	117.4	Secondary

### Hydrographer Recommendations

Delete wiredrag symbol and chart as per digital data.

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

59ft (12208\_1, 12207\_1, 12221\_1, 12280\_2)

9 ¾fm (12200\_1, 13003\_1)

### **S-57 Data**

**Geo object 1:** Obstruction (OBSTRN)  
**Attributes:** CATOBS - 6:foul area  
CONDTN - 2:ruined  
NATCON - 2:concreted  
OBJNAM - Old buoy block  
QUASOU - 1:depth known  
STATUS - 1:permanent  
TECSOU - 2,3:found by side scan sonar,found by multi-beam  
VALSOU - 18.020 m  
VERDAT - 12:Mean lower low water  
WATLEV - 3:always under water/submerged

### **Office Notes**

Concur with clarification. Delete 57FT Wire Drag OBSTN, Chart 59Ft OBSTN.

### 1.3) 0001 Obstruction AWOIS 11434

#### Primary Feature for AWOIS Item #11434

**Search Position:** 36° 52' 03.150" N, 075° 44' 53.450" W  
**Historical Depth:** 17.68 m  
**Search Radius:** 200  
**Search Technique:** [unknown]  
**Technique Notes:** [unknown]

#### History Notes:

[unknown]

#### Survey Summary

**Survey Position:** 36° 52' 03.544" N, 075° 44' 53.858" W  
**Least Depth:** [None]  
**Timestamp:** 2006-047.09:12:35 (02/16/2006)  
**Survey Line:** d304\_tj\_05\_h11301k / s222\_100 / 2005-096 / 129\_2211  
**Contact/Point:** 0001/1  
**Charts Affected:** 12208\_1, 12207\_1, 12221\_1, 12280\_2, 12200\_1, 13003\_1

#### Remarks:

Contact on AWOIS item 11434 observed with 100% side scan. This item was not covered with multibeam. This item will be investigated with acquisition on sheet H11303.

#### Feature Correlation

Address	Feature	Range	Azimuth	Status
d304_tj_05_h11301k/s222_100/2005-096/129_2211	0001	0.00	000.0	Primary
OPR-D304-TJ-05-AWOIS	AWOIS # 11434	15.81	320.5	Secondary

#### Hydrographer Recommendations

Retain item as charted.

This item was not completely covered with multibeam. An item was seen in the side scan. This item will not be completely covered with multibeam until survey H11303 is completed in 2006.

## **S-57 Data**

[None]

## **Office Notes**

Concur. Refer to H11303 for charting recommendation.

## 1.4) AWOIS#788 UNKNOWN

### Primary Feature for AWOIS Item #788

**Search Position:** 36° 51' 43.530" N, 075° 46' 00.710" W  
**Historical Depth:** 17.07 m  
**Search Radius:** 0  
**Search Technique:** [unknown]  
**Technique Notes:** [unknown]

#### History Notes:

[unknown]

### Survey Summary

**Survey Position:** 36° 51' 43.530" N, 075° 46' 00.733" W  
**Least Depth:** [None]  
**Timestamp:** 2006-054.13:40:47 (02/23/2006)  
**GP Dataset:** ChartGPs - Digitized  
**GP No.:** 1  
**Charts Affected:** 12208\_1, 12207\_1, 12221\_1, 12280\_2, 12200\_1, 13003\_1

#### Remarks:

Item investigated with 100% MBES and 100% SSS. Item not found.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	1	0.00	000.0	Primary
OPR-D304-TJ-05-AWOIS	AWOIS # 788	0.56	270.3	Secondary (grouped)

### Hydrographer Recommendations

Chart soundings as per digital data.

### S-57 Data

[None]

## Office Notes

Item is not charted. Retain as not charted.

## 1.5) AWOIS#796 UNKNOWN

### Primary Feature for AWOIS Item #796

**Search Position:** 36° 53' 04.530" N, 075° 46' 58.710" W  
**Historical Depth:** 16.46 m  
**Search Radius:** 0  
**Search Technique:** [unknown]  
**Technique Notes:** [unknown]

#### History Notes:

[unknown]

### Survey Summary

**Survey Position:** 36° 53' 04.347" N, 075° 46' 58.596" W  
**Least Depth:** [None]  
**Timestamp:** 2006-054.13:44:45 (02/23/2006)  
**GP Dataset:** ChartGPs - Digitized  
**GP No.:** 2  
**Charts Affected:** 12208\_1, 12207\_1, 12221\_1, 12280\_2, 12200\_1, 13003\_1

#### Remarks:

Item investigated with 100% MBES and 100% SSS. Item not found.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	2	0.00	000.0	Primary
OPR-D304-TJ-05-AWOIS	AWOIS # 796	6.31	153.6	Secondary (grouped)

### Hydrographer Recommendations

Chart soundings as per digital data.

### S-57 Data

[None]

## Office Notes

Item is not charted. Retain as not charted.

## 1.6) AWOIS#3329 UNKNOWN

### Primary Feature for AWOIS Item #3329

**Search Position:** 36° 50' 24.530" N, 075° 49' 10.720" W  
**Historical Depth:** [None]  
**Search Radius:** 0  
**Search Technique:** [unknown]  
**Technique Notes:** [unknown]

#### History Notes:

[unknown]

### Survey Summary

**Survey Position:** 36° 50' 24.530" N, 075° 49' 10.970" W  
**Least Depth:** [None]  
**Timestamp:** 2006-054.16:28:13 (02/23/2006)  
**GP Dataset:** ChartGPs - Digitized  
**GP No.:** 3  
**Charts Affected:** 12208\_1, 12207\_1, 12221\_1, 12280\_2, 12200\_1, 13003\_1

#### Remarks:

Item investigated with 100% MBES and 100% SSS. Item not found.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	3	0.00	000.0	Primary
OPR-D304-TJ-05-AWOIS	AWOIS # 3329	6.18	270.0	Secondary (grouped)

### Hydrographer Recommendations

Chart soundings as per digital data.

### S-57 Data

[None]

## Office Notes

Item is not charted. Retain as not charted.

## 1.7) AWOIS#1608 STORMY

### Primary Feature for AWOIS Item #1608

**Search Position:** 36° 51' 48.530" N, 075° 47' 00.510" W  
**Historical Depth:** [None]  
**Search Radius:** 0  
**Search Technique:** [unknown]  
**Technique Notes:** [unknown]

**History Notes:**

[unknown]

### Survey Summary

**Survey Position:** 36° 51' 48.567" N, 075° 47' 00.624" W  
**Least Depth:** [None]  
**Timestamp:** 2006-054.17:16:17 (02/23/2006)  
**GP Dataset:** ChartGPs - Digitized  
**GP No.:** 4  
**Charts Affected:** 12208\_1, 12207\_1, 12221\_1, 12280\_2, 12200\_1, 13003\_1

**Remarks:**

Item investigated with 100% MBES and 100% SSS. Item not found.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	4	0.00	000.0	Primary
OPR-D304-TJ-05-AWOIS	AWOIS # 1608	3.03	292.0	Secondary (grouped)

### Hydrographer Recommendations

Chart soundings as per digital data.

### S-57 Data

[None]

## Office Notes

Item is not charted. Retain as not charted.

## 1.8) AWOIS#3777 OBSTRUCTION

### Primary Feature for AWOIS Item #3777

**Search Position:** 36° 52' 59.930" N, 075° 48' 10.110" W  
**Historical Depth:** [None]  
**Search Radius:** 0  
**Search Technique:** [unknown]  
**Technique Notes:** [unknown]

#### History Notes:

[unknown]

### Survey Summary

**Survey Position:** 36° 53' 00.040" N, 075° 48' 10.133" W  
**Least Depth:** [None]  
**Timestamp:** 2006-054.17:18:54 (02/23/2006)  
**GP Dataset:** ChartGPs - Digitized  
**GP No.:** 5  
**Charts Affected:** 12208\_1, 12205\_1, 12207\_1, 12221\_1, 12280\_2, 12200\_1, 13003\_1

#### Remarks:

Item investigated with 100% MBES and 100% SSS. Item not found.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	5	0.00	000.0	Primary
OPR-D304-TJ-05-AWOIS	AWOIS # 3777	3.44	350.6	Secondary (grouped)

### Hydrographer Recommendations

Chart soundings as per digital data.

### S-57 Data

[None]

## Office Notes

Item is not charted. Retain as not charted.

## 1.9) AWOIS#8277 OBSTRUCTION

### Primary Feature for AWOIS Item #8277

**Search Position:** 36° 50' 16.640" N, 075° 48' 10.710" W  
**Historical Depth:** [None]  
**Search Radius:** 0  
**Search Technique:** [unknown]  
**Technique Notes:** [unknown]

#### History Notes:

[unknown]

### Survey Summary

**Survey Position:** 36° 50' 16.677" N, 075° 48' 10.778" W  
**Least Depth:** [None]  
**Timestamp:** 2006-054.17:20:48 (02/23/2006)  
**GP Dataset:** ChartGPs - Digitized  
**GP No.:** 6  
**Charts Affected:** 12208\_1, 12207\_1, 12221\_1, 12280\_2, 12200\_1, 13003\_1

#### Remarks:

Item investigated with 100% MBES and 100% SSS. Item not found.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	6	0.00	000.0	Primary
OPR-D304-TJ-05-AWOIS	AWOIS # 8277	2.03	303.9	Secondary (grouped)

### Hydrographer Recommendations

Chart soundings as per digital data.

### S-57 Data

[None]

## Office Notes

Item is not charted. Retain as not charted.

## 1.10) AWOIS#7526 OBSTRUCTION

### Primary Feature for AWOIS Item #7526

**Search Position:** 36° 51' 48.530" N, 075° 48' 00.510" W  
**Historical Depth:** [None]  
**Search Radius:** 0  
**Search Technique:** [unknown]  
**Technique Notes:** [unknown]

#### History Notes:

[unknown]

### Survey Summary

**Survey Position:** 36° 51' 48.384" N, 075° 48' 00.533" W  
**Least Depth:** [None]  
**Timestamp:** 2006-054.17:22:44 (02/23/2006)  
**GP Dataset:** ChartGPs - Digitized  
**GP No.:** 7  
**Charts Affected:** 12208\_1, 12207\_1, 12221\_1, 12280\_2, 12200\_1, 13003\_1

#### Remarks:

Item investigated with 100% MBES and 100% SSS. Item not found.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	7	0.00	000.0	Primary
OPR-D304-TJ-05-AWOIS	AWOIS # 7526	4.55	187.1	Secondary (grouped)

### Hydrographer Recommendations

Delete obstruction cleared to 52 feet and chart soundings as per digital data.

### S-57 Data

[None]

## Office Notes

Concur. Remove charted 52FT OBSTRN.

## 1.11) AWOIS#7528 OBSTRUCTION

### Primary Feature for AWOIS Item #7528

**Search Position:** 36° 52' 28.130" N, 075° 45' 20.310" W  
**Historical Depth:** [None]  
**Search Radius:** 0  
**Search Technique:** [unknown]  
**Technique Notes:** [unknown]

#### History Notes:

[unknown]

### Survey Summary

**Survey Position:** 36° 52' 27.911" N, 075° 45' 20.287" W  
**Least Depth:** [None]  
**Timestamp:** 2006-054.17:24:21 (02/23/2006)  
**GP Dataset:** ChartGPs - Digitized  
**GP No.:** 8  
**Charts Affected:** 12208\_1, 12207\_1, 12221\_1, 12280\_2, 12200\_1, 13003\_1

#### Remarks:

Item investigated with 100% MBES and 100% SSS. Item not found.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	8	0.00	000.0	Primary
OPR-D304-TJ-05-AWOIS	AWOIS # 7528	6.80	175.3	Secondary (grouped)

### Hydrographer Recommendations

Chart soundings as per digital data.

### S-57 Data

[None]

## Office Notes

Item is not charted. Retain as not charted.

## 1.12) AWOIS#7530 UNKNOWN

### Primary Feature for AWOIS Item #7530

**Search Position:** 36° 53' 36.530" N, 075° 45' 37.710" W  
**Historical Depth:** [None]  
**Search Radius:** 1000  
**Search Technique:** [unknown]  
**Technique Notes:** [unknown]

#### History Notes:

[unknown]

### Survey Summary

**Survey Position:** 36° 53' 36.457" N, 075° 45' 37.733" W  
**Least Depth:** [None]  
**Timestamp:** 2006-054.17:27:03 (02/23/2006)  
**GP Dataset:** ChartGPs - Digitized  
**GP No.:** 9  
**Charts Affected:** 12208\_1, 12207\_1, 12221\_1, 12280\_2, 12200\_1, 13003\_1

#### Remarks:

AWOIS radius investigated with 100% MBES and 200% SSS. Item not found.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	9	0.00	000.0	Primary
OPR-D304-TJ-05-AWOIS	AWOIS # 7530	2.33	194.0	Secondary (grouped)

### Hydrographer Recommendations

Delete dangerous submerged wreck symbol and chart soundings as per digital data.

### S-57 Data

[None]

## Office Notes

Concur. Remove charted WK.

## 1.13) AWOIS#8225 OBSTRUCTION

### Primary Feature for AWOIS Item #8225

**Search Position:** 36° 55' 00.530" N, 075° 46' 28.710" W  
**Historical Depth:** [None]  
**Search Radius:** 2000  
**Search Technique:** [unknown]  
**Technique Notes:** [unknown]

#### History Notes:

[unknown]

### Survey Summary

**Survey Position:** 36° 55' 00.457" N, 075° 46' 28.733" W  
**Least Depth:** [None]  
**Timestamp:** 2006-054.17:29:04 (02/23/2006)  
**GP Dataset:** ChartGPs - Digitized  
**GP No.:** 10  
**Charts Affected:** 12208\_1, 12207\_1, 12221\_1, 12280\_2, 12200\_1, 13003\_1

#### Remarks:

The radius for this AWOIS item extends outside the survey area for H11301. H11302 is the junctioning survey for this item. The DR mentions that 200% side scan was used over the northern half of the search radius. The item was not found.

The remainder of the search radius was investigated with 100% multibeam and 200% SSS. The item was not found in this survey (H11301) either.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	10	0.00	000.0	Primary
OPR-D304-TJ-05-AWOIS	AWOIS # 8225	2.33	194.0	Secondary (grouped)

### Hydrographer Recommendations

Delete dangerous submerged wreck symbol and chart soundings as per digital data.

## **S-57 Data**

[None]

## **Office Notes**

Concur. Item radius was fully covered between H11302 and H11301. Delete WK PA.

## 1.14) AWOIS#9930 UNKNOWN

### Primary Feature for AWOIS Item #9930

**Search Position:** 36° 49' 12.000" N, 075° 46' 06.000" W  
**Historical Depth:** [None]  
**Search Radius:** 1000  
**Search Technique:** [unknown]  
**Technique Notes:** [unknown]

#### History Notes:

[unknown]

### Survey Summary

**Survey Position:** 36° 49' 12.110" N, 075° 46' 06.114" W  
**Least Depth:** [None]  
**Timestamp:** 2006-054.17:31:06 (02/23/2006)  
**GP Dataset:** ChartGPs - Digitized  
**GP No.:** 11  
**Charts Affected:** 12208\_1, 12207\_1, 12221\_1, 12280\_2, 12200\_1, 13003\_1

#### Remarks:

Item investigated with 100% MBES and 100% SSS. Item not found.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	11	0.00	000.0	Primary
OPR-D304-TJ-05-AWOIS	AWOIS # 9930	4.41	320.4	Secondary (grouped)

### Hydrographer Recommendations

Delete dangerous submerged wreck (PA) and chart soundings as per digital data.

### S-57 Data

[None]

## Office Notes

Item is not charted. Retain as not charted.

## 1.15) AWOIS#11433 OBSTRUCTION

### Primary Feature for AWOIS Item #11433

**Search Position:** 36° 51' 49.960" N, 075° 47' 00.510" W  
**Historical Depth:** 18.29 m  
**Search Radius:** 0  
**Search Technique:** [unknown]  
**Technique Notes:** [unknown]

#### History Notes:

[unknown]

### Survey Summary

**Survey Position:** 36° 51' 50.070" N, 075° 47' 00.624" W  
**Least Depth:** [None]  
**Timestamp:** 2006-054.17:32:43 (02/23/2006)  
**GP Dataset:** ChartGPs - Digitized  
**GP No.:** 12  
**Charts Affected:** 12208\_1, 12207\_1, 12221\_1, 12280\_2, 12200\_1, 13003\_1

#### Remarks:

Item investigated with 100% MBES and 100% SSS. Item not found.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	12	0.00	000.0	Primary
OPR-D304-TJ-05-AWOIS	AWOIS # 11433	4.41	320.4	Secondary (grouped)

### Hydrographer Recommendations

Chart soundings as per digital data.

### S-57 Data

[None]

## Office Notes

Item is not charted. Retain as not charted.

## 1.16) AWOIS#11431 OBSTRUCTION

### Primary Feature for AWOIS Item #11431

**Search Position:** 36° 51' 49.170" N, 075° 45' 30.000" W  
**Historical Depth:** 18.29 m  
**Search Radius:** 100  
**Search Technique:** [unknown]  
**Technique Notes:** [unknown]

#### History Notes:

[unknown]

### Survey Summary

**Survey Position:** 36° 51' 49.134" N, 075° 45' 29.841" W  
**Least Depth:** [None]  
**Timestamp:** 2006-054.17:34:06 (02/23/2006)  
**GP Dataset:** ChartGPs - Digitized  
**GP No.:** 13  
**Charts Affected:** 12208\_1, 12207\_1, 12221\_1, 12280\_2, 12200\_1, 13003\_1

#### Remarks:

Item investigated with 100% MBES and 100% SSS. Item not found.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	13	0.00	000.0	Primary
OPR-D304-TJ-05-AWOIS	AWOIS # 11431	4.09	106.0	Secondary (grouped)

### Hydrographer Recommendations

Delete 60 foot obstruction and chart soundings as per digital data.

### S-57 Data

[None]

## Office Notes

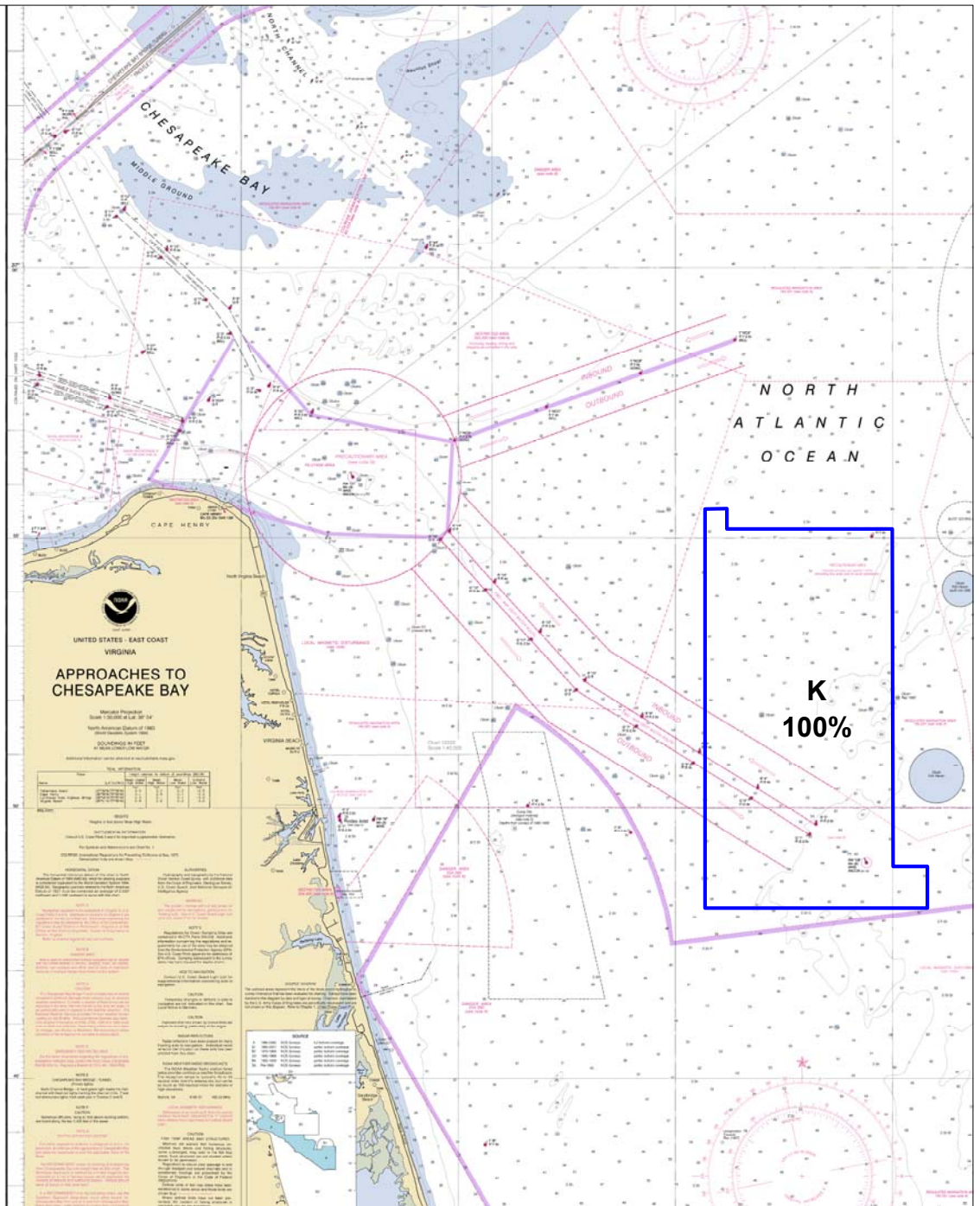
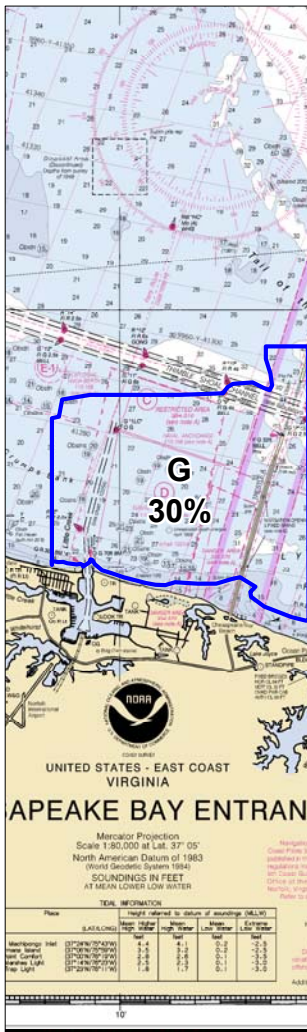
Concur. Remove charted 60FT OBSTN.

## **APPENDIX II**

### **LIST OF GEOGRAPHIC NAMES**

The hydrographer has no particular recommendations regarding geographic names.

**APPENDIX III**  
**PROGRESS SKETCH**



Project	Sheet_Letter	H_num	HQ_Est_SNM	CumIPercCompPrev	CumIPercCompCui	SNM_CompCurA	CumSNMcom
D304	G	H11323	13	30	30	4	4
D304	K	H11301	25	95	100	2	25

Project	Month	LNM_HydrC	LNM_MB	SV_Casts	Bottom_Samp	AWOIS_Items	DAS	DTime equip_H	DTime_Weather_t
D304	April	382.00	496.50	67.00	0.00	0.00	12.00	0.00	127.00
D304	June	28.00	1,352.00	195.00	0.00	0.00	22.00	17.00	6.00
D304	Nov	0.00	77.00	10.00	0.00	14.00	12.00	30.00	0.00

**Progress Sketch OPR-D304-TJ-05  
 November, 2005**

**APPENDIX IV**

**TIDES AND WATER LEVELS**

November 17, 2005

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

FROM: CAPT Emily B. Christman, THOMAS JEFFERSON

SUBJECT: Request for Approved Tides/Water Levels

Please provide the following data:

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

Transmit data to:

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

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

Project No.: OPR-D304-RU/TJ-05  
Registry No.: H11301  
State: Virginia  
Locality: Approaches to Chesapeake Bay  
Sublocality: 10Nm Southeast of Cape Henry

Attachments containing:

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

cc: N/CS33

---

Year_DOY	Min Time	Max Time
2005_094	20:34:20	23:00:55
2005_095	12:32:48	22:34:16
2005_096	13:08:02	20:01:28
2005_097	12:42:49	18:43:04
2005_098	17:53:06	21:57:34
2005_101	13:20:27	15:17:33
2005_152	12:34:31	21:30:22
2005_155	12:30:28	19:18:43
2005_156	12:29:22	19:41:49
2005_157	12:24:49	20:48:18
2005_158	12:35:34	21:47:11
2005_159	12:23:22	21:12:10
2005_160	13:18:10	21:35:40
2005_166	12:24:40	21:36:08
2005_167	12:27:08	19:33:02
2005_168	13:10:38	21:34:22
2005_169	12:44:18	21:32:37
2005_170	12:19:32	19:29:15
2005_172	12:40:38	21:44:15
2005_240	13:41:33	19:56:08
2005_317	19:39:53	22:05:09
2005_318	12:28:55	22:00:44
2005_319	13:08:29	16:31:38

**APPENDIX V**SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCES

Please include this comment in your DR PRIOR SURVEY section:

"A comparison with prior surveys was not required for this survey."

Kim,

Please ensure that you use the updated zoning for your survey. I have extracted these files to H:\tide\2005\OPR-D304-TJ-RU-05\Preliminary\D304TJ2005\_rev2\

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

**Subject:**OPR-D304-TJ-2005 (Revised Areas)  
**Resent-Date:**Thu, 05 May 2005 19:47:12 GMT  
**Resent-From:**[FOO.Thomas.Jefferson@noaa.gov](mailto:FOO.Thomas.Jefferson@noaa.gov)  
**Date:**Thu, 05 May 2005 15:53:21 -0400  
**From:**Allison Stolz <[Allison.Stolz@noaa.gov](mailto:Allison.Stolz@noaa.gov)>  
**To:**Michael Riddle <[Michael.Riddle@noaa.gov](mailto:Michael.Riddle@noaa.gov)>, \_NMAO MOA FOO Thomas Jefferson <[FOO.Thomas.Jefferson@noaa.gov](mailto:FOO.Thomas.Jefferson@noaa.gov)>  
**CC:**Cary Wong <[Cary.Wong@noaa.gov](mailto:Cary.Wong@noaa.gov)>, Monica Cisternelli <[Monica.Cisternelli@noaa.gov](mailto:Monica.Cisternelli@noaa.gov)>

DATE: 5/5/2005

MEMORANDUM FOR: Lieutenant Jon Swallow  
Chief, Operations Branch, N/CS31

FROM: Cary R. Wong  
Requirements and Development Division, N/OPS1

SUBJECT: Delivery of Tide Requirements for Hydrographic Surveys

Tide requirements for hydrographic survey project OPR-D304-TJ-2005\_Rev2, Approaches to Chesapeake Bay, VA (Revised Areas) are being provided in Microsoft Word format. A .ZIP file containing all pertinent MapInfo files, as well as tidal zoning

graphics in PDF, are attached to this email. Six minute predictions for Chesapeake Bay Bridge Tunnel, VA (863-8863) may be retrieved in one month increments over the internet from the CO-OPS Home Page at <http://www.co-ops.nos.noaa.gov/> by clicking on "Predictions".

Kim,

Please just note that the AWOIS items radii are partially covered by survey H11303 which will be complete in 2006. Also note whether you found any contacts matching the AWOIS description in the part of the radii covered by your data. Done. Don't worry about a sounding comp.

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

Subject: Re: [Fwd: H11303 DR]

Date: Thu, 16 Feb 2006 14:14:06 -0500

From: Edward Owens <[edward.owens@noaa.gov](mailto:edward.owens@noaa.gov)>

Organization: NOS, OCS, HSD, Atlantic Hydrographic Branch

To: [Marc.S.Moser@noaa.gov](mailto:Marc.S.Moser@noaa.gov)

References: <[43F4A046.9F500418@noaa.gov](mailto:43F4A046.9F500418@noaa.gov)>

Hello Marc,

Your request was passed on to me. H11303 was the survey that was rejected by the Branch. The data would not meet the criteria for your coverage requirements. Please let me know if you would like more information.

Edward

Robert G Roberson wrote:

>

> Ed,

>

> Please try and help Marc out. Let him know that this survey was tossed.

>

> ROBO

>

> -----

>

> Subject: H11303 DR

> Date: Thu, 16 Feb 2006 10:38:57 -0500

> From: "marc.s.moser" <[Marc.S.Moser@noaa.gov](mailto:Marc.S.Moser@noaa.gov)>  
> To: Tod Schattgen <[Tod.Schattgen@noaa.gov](mailto:Tod.Schattgen@noaa.gov)>  
> CC: Robert G Roberson <[Robert.G.Roberson@noaa.gov](mailto:Robert.G.Roberson@noaa.gov)>  
>  
> Good morning Sir,  
>  
> We are completing the write up for H11301. This survey junctions with  
> H11303, a 2004 TJ survey. All of our backup CD's are down in Charleston  
> and we can't currently access.  
>  
> Would it be possible to get the Pydro PSS and DR for this survey (There  
> is one or two AWOIS radii that span both sheets)?

Note for either DAPR or DR (probably DR, with smaller note in DAPR). POS M/V heave bandwidth changed from 10 to 20 today (4/11/05) on both launches to account for long period swell.

Kim, you will need a footnote about which data we end up rejecting due to heave artifacts.

Kim,

Please take note of this since you will have to document in your DR.

Peter Lewit wrote:

I noticed that the correction for most of our casts has been 0 for velocity. However an "S" curve has been seen in the profile. I used a cast from dn159 at 19:37 near the same time we would have taken a cast on 160, and got favorable results. I took that cast appended it to H11301\_1014\_master.svp and post dated it to DN160 19:37. This should be noted in the DR. Pete

Another note for either DAPR or DR for this survey

Due to a fault with the 8125 mounting, with MBES data acquired with Launch 1014 from April 4-11 were unusable. A significant roll error in these data were introduced outside of the error budget for this project.

Kim,

attached are Deborahs and Pete's processing notes for this leg.

Review Change #3 of the Letter Instructions (in the D304 Project Directory) for guidance for surface resolutions. Basically, we can get away with 2m grids for quick cleaning, but we will have to follow the guidance below for

coverage:

4% water depth over shoals (crests of sand waves, objects, etc.)

2m everywhere else

Final surface collection:

0-15m depth - 0.5m resolution

14-30m depth - 1m resolution

#### **V.1. BOTTOM SAMPLE, NOAA FORM 75-44**

There were no bottom samples acquired.

#### **V.2. AIDS TO NAVIGATION, NOAA FORM 76-40**

All of the Aids to navigation are positioned as they appear on the chart.

#### **V.3. COAST PILOT REPORT, NOAA FORM 77-6**

No Changes to the Coast Pilot are needed

NOAA Form 77-6  
(Rev. 8/95)U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

## COAST PILOT REPORT

**SUBMIT TO:**NATIONAL OCEAN SERVICE, NOAA (N/CS261)  
1315 EAST-WEST HIGHWAY, STATION 7317  
SILVER SPRING, MD 20910-3282  
FAX: 301-713-4516  
INTERNET: [Lynn.Preston@noaa.gov](mailto:Lynn.Preston@noaa.gov)

This record of your experience and observations when traversing the coast, entering port, and/or navigating inside waters will be used to update the Coast Pilot.

**OBSERVER: NAME AND ADDRESS**Commanding Officer  
NOAA Ship Thomas Jefferson  
439 West York Street  
Norfolk, VA 23510**TEL. (daytime)** (757) 441-6322**DATE OF OBSERVATION****DATE OF SUBMISSION****VESSEL NAME AND ADDRESS**NOAA Ship Thomas Jefferson  
439 West York Street  
Norfolk, VA 23510**GEOGRAPHIC LOCATION***(Refer to charted objects by distance and bearing and/or include latitude/longitude, as applicable)***CHART NUMBER**

12221, 12222, 12225, 12254, 12256, 12245

**COAST PILOT NUMBER and EDITION NUMBER**3, 37<sup>th</sup> Ed., 2004, Chapter 9, pages 251-265**CHANGES TO EXISTING COAST PILOT TEXT**

Give recommended revised language for the book. Identify affected text by page, paragraph(s), and line number(s). State the source of the information if other than personal; observation.

No changes are recommended at this time.

(Continue on plain paper)

**REQUEST FOR SURVEYS OR CHART CHANGE**

List area for which surveys and/or changes in chart format, scale, or layout are needed. Include the name and geographic position of the area, the chart number of the largest scale chart that covers the area, and the reason for the request.

None.

(Continue on plain paper)

**ADDITIONAL INFORMATION FOR THE COAST PILOT**

We are particularly interested in information about unusually strong currents; prominent landmarks; objects which provide particularly good radar return; sheltered anchorages (be explicit on direction of weather and type of bottom observed); drawbridge operation changes (e.g., drawbridge remains permanently in open position); change in pilot pick-up points; changes in radio frequencies monitored by pilots, marine exchanges, harbor masters, or drawbridges.

None

(Continue on plain paper)

Public reporting burden for this collection is estimated to average thirty minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the National Ocean Service (N/CS261), 1315 East-West Highway, Silver Spring, MD 20910-3282; and to the Office of management and Budget, Paperwork Reduction Project (0648-0007), Washington, DC 20503.



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

**TIDE NOTE FOR HYDROGRAPHIC SURVEY**

**DATE :** March 8, 2006

**HYDROGRAPHIC BRANCH:** Atlantic  
**HYDROGRAPHIC PROJECT:** OPR-D304-RU/TJ-2005  
**HYDROGRAPHIC SHEET:** H11301

**LOCALITY:** 10 NM Southeast of Cape Henry, Approaches to Chesapeake Bay, VA  
**TIME PERIOD:** April 4 - November 15, 2005

**TIDE STATION USED:** 863-8863 Chesapeake Bay Bridge Tunnel, VA  
Lat. 36 58.0'N Long. 076 06.8' W

**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 0.000 meters  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 0.814 meters

**REMARKS: RECOMMENDED ZONING**

**Use zone(s) identified as:** SA51, SA54, SA54A & 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).



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CHIEF, PRODUCTS AND SERVICES DIVISION



**ATLANTIC HYDROGRAPHIC BRANCH  
EVALUATION REPORT to Accompany  
Survey H11301 (2005)**

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 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 50cm and 1m grids, combined into 4 surfaces at 2 meter resolution. The survey scale selected soundings were extracted from the 2m combined surfaces. The selected sounding set is approximately 10 to 20 times the number of charted depths. The chart scale selected soundings are a subset of the survey scale selected soundings. The surface model was referenced when selecting the chart scale soundings, to ensure that the selected soundings portrayed the bathymetry within the common area.

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

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

The H11301 CARIS H-Cell final deliverables include the following products:

US511301_CU.000	1:50,000 Scale	H11301 H-Cell with Chart Scale Selected Soundings
US511301_SS.000	1:10,000 Scale	H11301 Selected Soundings (Survey Scale)
US511301_BlueNtoes.000	1:50,000 Scale	H11301 Cartographic Notes

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

No contemporary surveys exist for junctioning. The surveys the field unit discussed in the Junctions section of the Descriptive Report are actually Prior surveys not Junctioning surveys.

## **D. RESULTS AND RECOMMENDATIONS**

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

12208 (12th Edition, May/07)  
Corrected through NM 05/05/2007  
Corrected through LNM 05/01/2007  
Scale 1:50,000

### **ENC Comparison**

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

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

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

### **D.3. MISCELLANEOUS**

Chart compilation was done by Atlantic Hydrographic Branch personnel, in Norfolk, Virginia. Compilation data will be forwarded to Marine Chart Division, Silver Spring, Maryland. See Section D.1. of this report for a list of the Raster Charts and Electronic Navigation Charts (ENC) used for compiling the present survey:

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

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

**APPROVAL SHEET**  
**H11301**

**Initial Approvals:**

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

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

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**Sarah M. Eggleston**  
Physical Scientist  
Atlantic Hydrographic Branch

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

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

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