

F00585

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey: Field Examination
Registry Number: F00585

LOCALITY

State: Virginia
General Locality: North Atlantic Ocean
Sub-locality: 50 NM East of Assateague Island, VA

2009

CHIEF OF PARTY
CDR Shepard M. Smith
NOAA

LIBRARY & ARCHIVES
DATE

HYDROGRAPHIC TITLE SHEET

F00585

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: **North Atlantic Ocean**

Sub-Locality: **50 NM East of Assateague Island, VA**

Scale: **1:80,000** Date of Survey: **11/10/2009**

Instructions Dated: **11/12/2009** Project Number: **S-D946-TJ-09**

Vessel: **NOAA Ship THOMAS JEFFERSON**

Chief of Party: **CDR Shepard M. Smith, NOAA**

Surveyed by: **Thomas Jefferson Personnel**

Soundings by: **Reson 7125 Multibeam Echosounder**

Graphic record scaled by: **N/A**

Graphic record checked by: **N/A**

Protracted by: **N/A** Automated Plot: **N/A**

Verification by:

Soundings in: **Meters at MLLW**

Remarks:
1) All Times are in UTC.
2) This is a Field Examination Survey.
3) Projection is NAD83, UTM Zone 18.

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Descriptive Report to Accompany Hydrographic Survey F00585

Project S-D946-TJ-09
 50 NM East of Assateague Island
 Bow Mariner Wreck Investigation, VA
 Scale 1:80,000
 November 10, 2009
NOAA Ship *THOMAS JEFFERSON*

A. AREA SURVEYED

This hydrographic survey was completed as specified by Hydrographic Survey Letter Instructions S-D946-TJ-09, dated November 12th, 2009

Northern Limit Southern	Limit Western	Limit East	ern Limit
37°54'16.92" N 074°15'14.93" W	37°53'41.97" N 074°15'12.83" W	37°53'23.29" N 074°15'43.57" W	37°53'41.97" N 074°15'12.83" W

The purpose of this survey is to investigate a field of debris that is believed to have been left behind by the explosion of the M/T Bow Mariner in 2004 about 50 nautical miles East of Assateague Island, VA

NOAA Ship <i>Thomas Jefferson</i>, Sheet F00585	
LNM Multibeam mainscheme only 6	.236868
LNM Side Scan Sonar mainscheme only	N/A
Linear nautical miles of any combination of the above techniques (SSS w/ concurrent MB)	N/A
LNM Crosslines singlebeam and multibeam combined	N/A
LNM Lidar Crosslines	N/A
LNM development lines non mainscheme	N/A
LNM shoreline/nearshore investigations	N/A
Number of Bottom Samples	N/A
Number of items investigated that required additional time/effort in the field beyond the above survey operations	N/A
Total number of square nautical miles	0.5308

Table 1. Hydrographic Survey Statistics

Survey limits of F00585 are shown on the following page, figure1.

Calendar Date	Julian Day
11/10/2009 3	14

Table 2. Dates of Multibeam Data Acquisition in Calendar and Julian Days

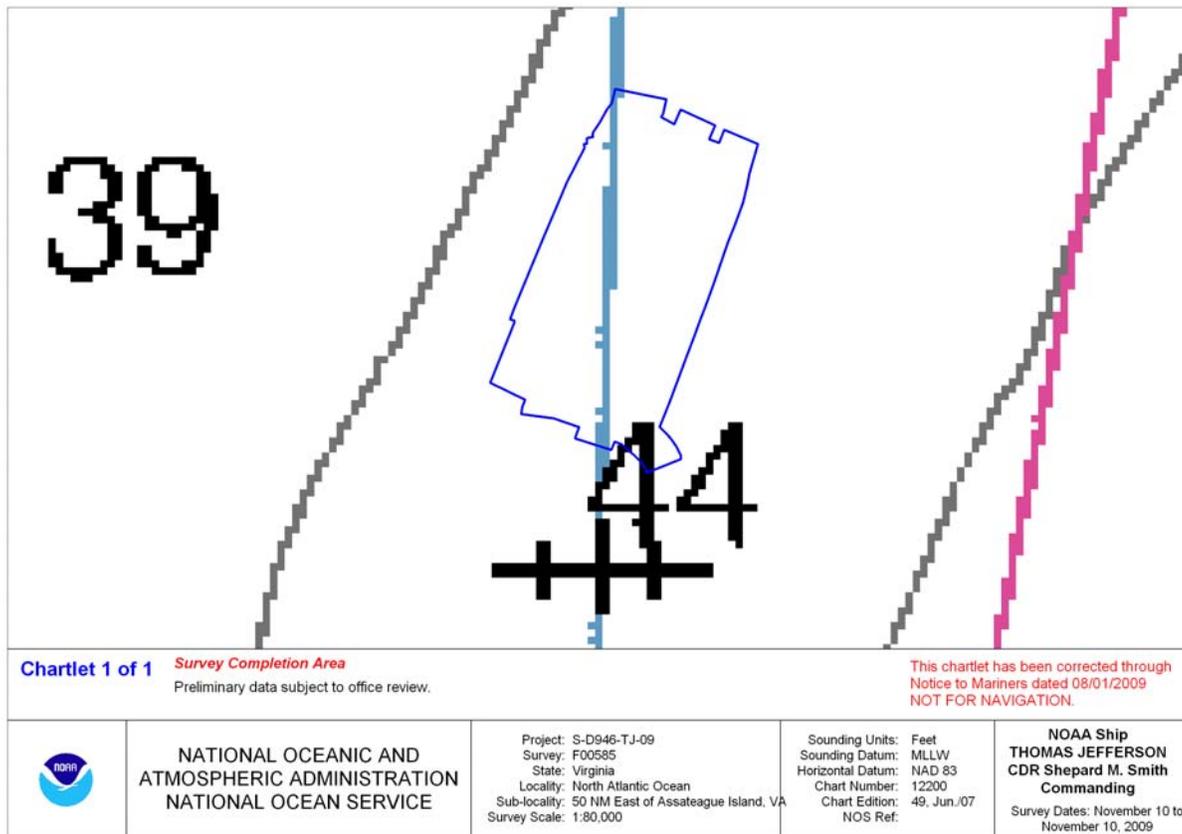


Fig. 1: Survey Limits

See J /EgnTgr qtv

B. DATA ACQUISITION AND PROCESSING

Refer to *S-D946-TJ-09 Data Acquisition and Processing Report (DAPR)* for a complete description of data acquisition and processing systems, survey vessel, quality control procedures and data processing methods. Additional information to supplement sounding and survey data, and any deviations from the DAPR are included in this descriptive report. *Uwdo kwgf 'y kj 'J /Egnlf gkxgt cdigu'!*

B 1. EQUIPMENT AND VESSELS

Multibeam echosounder and sound speed data were acquired by NOAA Ship *Thomas Jefferson*. Vessel configurations, equipment operation and data acquisition and processing were consistent with specifications described in the DAPR. *Concur.*

B 2. QUALITY CONTROL

B 2.1 System Certification and Calibration

Refer to NOAA Ship *Thomas Jefferson*'s DAPR and Hydrographic Systems Readiness Report 2009 (HSRR) for a complete description of system integration and initial calibration results for equipment and sensors used for this survey. **Concur.**

B.2.2 Sounding Coverage

As per the Letter Instructions, this survey used complete multibeam sonar coverage. The wreck was located approximately 0.52 NM North West of the charted wreck location. Five multibeam lines were acquired over the wreck, providing coverage from all angles. Additional lines were run in a Northeast direction from the wreck in order to develop possible debris areas. The extents of the survey area were determined by plotting the coordinates of debris and snag locations as provided by AHB, (see Appendix V). **Concur.**

B 2.3 Crosslines

Crosslines were not collected during the course of the survey since multiple lines from different angles were acquired over the wreck. As per email dated 10 Sept 2009 from AHB and included in Appendix V, quality control was performed using the standard deviation layer of the survey's CUBE surface. Areas of unusually high standard deviation were investigated and resolved in processing, except where caused by areas of high bathymetric relief or as described in Section 2.5 Systematic Errors. **Concur.**

B 2.4 Junctions and Prior Surveys

No contemporary survey data were available for junction analysis with F00585. **Concur.**

B 2.5 Systematic Errors

No significant systematic errors were observed in the Multibeam data. **Concur.**

B 3. CORRECTIONS TO ECHO SOUNDING

HDGS sounding data were reduced to mean lower-low water (MLLW) using verified water levels from station Duck, FRF Pier , NC (865-1370) approximately 125NM South West of the survey area. Verified water levels were applied on 12/7/2009 using final zoning as provided by CO-OPS and illustrated in Figure 2.

All other datum reduction procedures conform to those outlined in the DAPR.

All methods and instruments used for sound velocity correction were as described in the DAPR. A table detailing all sound velocity casts is located in Separate II of this Descriptive Report.

Sound velocity corrections for this survey were applied using only data from the SeaBird 19+ CTD. Application in CARIS HIPS was nearest in time. **Concur.**

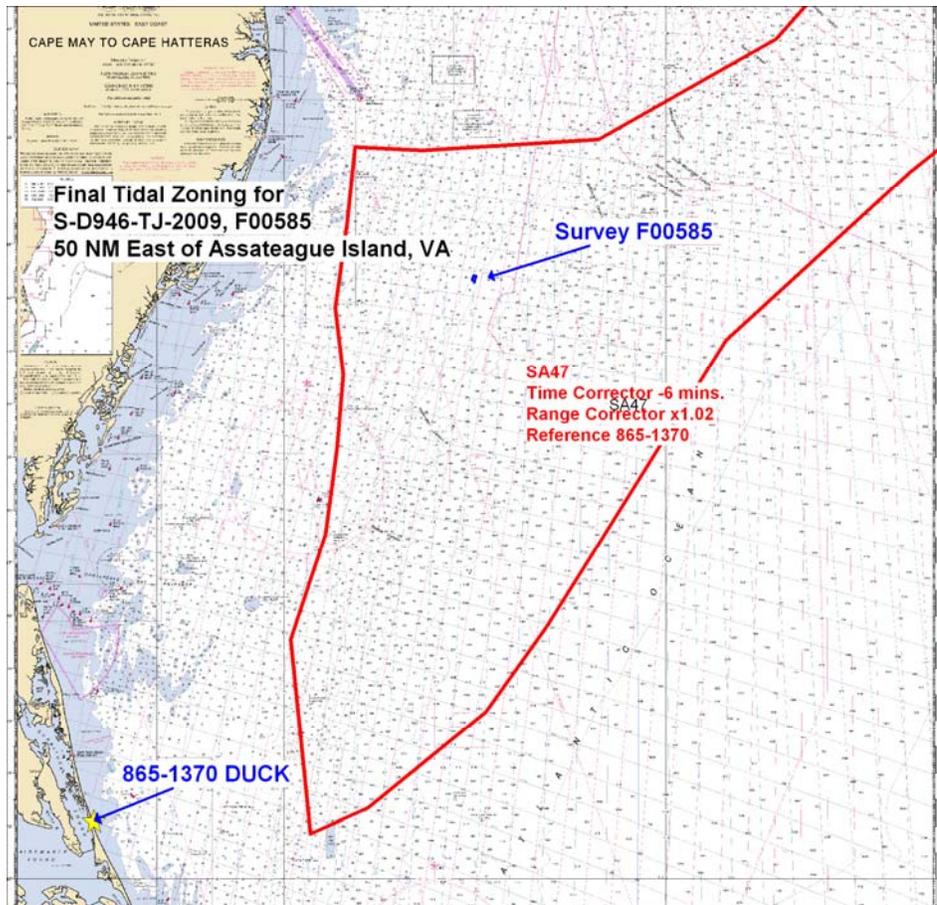


Figure 2: Tide Zone

B 4. DATA PROCESSING

B 4.1 Total Propagated Error

TPE values for Sound Speed were estimated to be 4 m/s for water column measurements and 0.21 m/s for the Surface Sound Velocimeter. The estimated tidal error contribution to the total survey error budget in the survey area was .16 meters as estimated at the at the 95% confidence level, and includes the estimated gauge measurement error and tidal zoning error. See Appendix IV, F00585_Tide_Range_Analysis.xls for tide values and analysis. These values were calculated for all MBES data immediately following CARIS Merge. *Concur.*

B 4.2 BASE Surfaces and Mosaics

Table 4 describes all BASE surfaces submitted as part of Survey F00585. The projection used for cartographic products and grids is UTM Zone 18 North.

<i>Name of Fieldsheet</i>	<i>Resolution</i>	<i>Type</i>	<i>Purpose</i>
F00585_Cube_NOAA_2m_Final	4m CUBE	General	Bathymetry

Table 3: Base surfaces/Mosaics

The Cube surface was computed using the Combined Uncertainty and Bathymetry Estimator (CUBE) algorithm. The CUBE configuration was set to NOAA_2m for the general surface, providing object detection resolution with no significant loss of coverage. Refer to the 2009 Data Acquisition and Processing Report, 2009 Field Procedures Manual, and CARIS HIPS and SIPS User Guide for further discussion.

B 4.3 Data cleaning

The survey data was cleaned using the swath and subset editor tools in CARIS. All areas of the BASE surface that indicated a high standard deviation were examined and cleaned as required such that no residual errors exist in the surface that exceed the IHO order 1 depth accuracy requirements. *Concur.*

C. VERTICAL AND HORIZONTAL CONTROL

As Per FPM section 5.2.3.2.3 guidance a HVCR report was not filed as no horizontal control stations were established by the field party for this survey. A summary of horizontal and vertical control for this survey follows. *Concur.*

C 1.1 Horizontal Control

The horizontal datum for this project is the North American Datum of 1983 (NAD83). Differential GPS (DGPS) was the sole method of positioning. Differential corrections from the U.S. Coast Guard beacon at Annapolis, MD (301 kHz) were used during this survey.

No horizontal control stations were established by the field party for this survey. *Concur.*

C 1.2 Vertical Control

The vertical datum for this project is Mean Lower-Low Water (MLLW). The operating National Water Level Observation Network (NWLON) station at Duck, FRF Pier, NC will serve as datum control for F00585. Verified water levels were applied to all sounding data.

A request for delivery of final approved (verified) tides for this survey was forwarded to N/OPS1 on November 17, 2009. *Concur.*

D. RESULTS AND RECOMMENDATIONS

D.1 Chart and ENC Comparison

Sounding data were compared to chart 12200, 49th Ed., June/07 and corrected to USCG LNM through Jun. 26/07, and NTM through Jun. 30/07 and ENC US3DE01M. No significant changes to soundings were noted in the common areas. As the ENC is digitized from the raster, no further comparison was made to the ENC. *Concur.*

D.2 Additional Results

D.2.1 Automated Wreck and Obstruction Information Service (AWOIS) Items

No AWOIS item is associated with the Bow Mariner wreck location. *Concur.*

D.2.4 Shoreline

There is no shoreline within the sheet limits of F00585. *Concur.*

D.2.5 Charted Features

The charted wreck and nearby debris areas were the assigned targets within the survey area, and were found. See Appendix II for complete feature information. A hydrographic object feature file is also included in Appendix II, as a reference for the debris area obstructions. *Concur.*

D.2.6 Charted Pipelines and Cables

No charted cables or pipelines within the limits of the survey. *Concur.*

D.2.7 Bridges, Ferry Routes, and Overhead Cables

There are no ferry routes, bridges, or overhead cable crossings within the limits of the survey. *Concur.*

D.3 Dangers to Navigation and Shoals

D 3.1 Dangers to Navigation

No dangers to navigation were found or reported to the NOAA's Office of Coast Survey. *Concur.*

D 3.2 Shoals

No shoals were observed in this survey. *Concur.*

D.4 Aids to Navigation

There were no aids to navigation in the survey area. *Concur.*

D.5 Coast Pilot Information

The Hydrographer has no recommendations for changes or addenda to the Coast Pilot. *Concur.*

D.6 Miscellaneous

Bottom Samples

No bottom samples were collected during this survey. *Concur.*

Environmental Conditions and Notes

No unusual environmental conditions were observed during this survey. *Concur.*

D.7 Adequacy of Survey

This survey is considered complete and adequate to supersede charted depths within the common area as per requirements specified in the Project Letter Instructions. *Concur.*

Summary and Recommendations for Additional Work

Overall, the mission was accomplished and wreck was found. *Concur.*

E. APPROVAL

As Lead Hydrographer, I have ensured that standard field surveying and processing procedures were followed in producing this examination in accordance with the Office of Coast Survey Hydrographic Surveys Division's *Field Procedures Manual*, and NOS *Hydrographic Surveys Specifications and Deliverables*. Field operations for this basic hydrographic survey were conducted under my daily supervision with frequent checks of progress and adequacy.

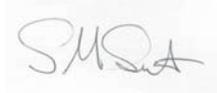
All field sheets, this Descriptive Report, and all accompanying records and data are approved. All records are forwarded for final review and processing to N/CS33, Atlantic Hydrographic Branch.

Survey F00585 is adequate to supersede charted soundings in their common areas. This is a survey that requires special handling protocol. Providing preliminary data and products as requested from USCG personnel. Without authorization from the USCG data shall not be released to the public.

The Data Acquisition and Processing Report for S-D946-TJ-09 is submitted separately and contains additional information relevant to this survey.

Approved and Forwarded:

 Mark Blankenship
2009.12.11 08:50:07
-05'00'

 Digitally signed by Shepard
Smith
Date: 2009.12.11 08:53:52
-05'00'

LT Mark Blankenship, NOAA
Field Operations Officer

CDR Shepard M. Smith, NOAA
Commanding Officer

In addition, the following individuals were also responsible for overseeing data acquisition and processing of this survey:

Survey Managers:

 Matt Van Hoy
2009.12.11 08:41:30 -05'00'

 daniel wright
2009.12.11 08:45:33
-05'00'

Mathew Van Hoy
Assistant Hydrographic Survey Tech, NOAA

Daniel Wright
Chief Hydrographic Survey Tech, NOAA

Appendix I

Danger to Navigation Report

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Appendix II

Survey Feature Report

Charted Features

F00585 Charted Features

Registry Number: F00585
State: Virginia
Locality: 50 NM East of Assateague Island, VA
Sub-locality: 50 NM East of Assateague Island, VA
Project Number: S-D946_TJ-09
Survey Date: 11/10/2009

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
12200	49th	06/01/2007	1:419,706 (12200_1)	NGA NTM: 04/17/2004 (08/01/2009)
13003	49th	04/01/2007	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	20fm Wreck	Wreck	36.60 m	37° 53' 21.5" N	074° 15' 22.4" W	---

1.1) 20fm Wreck

Survey Summary

Survey Position: 37° 53' 21.5" N, 074° 15' 22.4" W
Least Depth: 36.60 m (= 120.08 ft = 20.014 fm = 20 fm 0.08 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.071 m ; **TVU (TPEv)** ± 0.517 m
Timestamp: 2009-314.22:11:37.158 (11/10/2009)
Survey Line: f00585 / tj_s222_reson7125_stbd / 2009-314 / 008_2209
Profile/Beam: 373/488
Charts Affected: 12200_1, 13003_1

Remarks:

Wreck of Bow Mariner found with Multibeam

Feature Correlation

Address	Feature	Range	Azimuth	Status
f00585/tj_s222_reson7125_stbd/2009-314/008_2209	373/488	0.00	000.0	Primary
f00585/tj_s222_reson7125_stbd/2009-314/007_2201	508/474	5.83	299.9	Secondary
ChartGPs - Digitized	1	977.55	355.7	Secondary (grouped)

Hydrographer Recommendations

Revise Charted Wreck.

Cartographically-Rounded Depth (Affected Charts):

20fm (12200_1, 13003_1)

S-57 Data

Geo object 1: Wreck (WRECKS)
Attributes: CATWRK - 1:non-dangerous wreck
 QUASOU - 6:least depth known
 SORDAT - 20091110
 SORIND - US,US,graph,F00585
 TECSOU - 3:found by multi-beam
 VALSOU - 36.601 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. The non-dangerous wreck is charted incorrectly on NOS chart 12200, 49th edition at Latitude 37-52-48.382N, Longitude 074-15-16.533W. Recommend to delete the wreck at the current charted location and chart a wreck, least depth 20 fm, at the F00585 surveyed location.

Feature Images

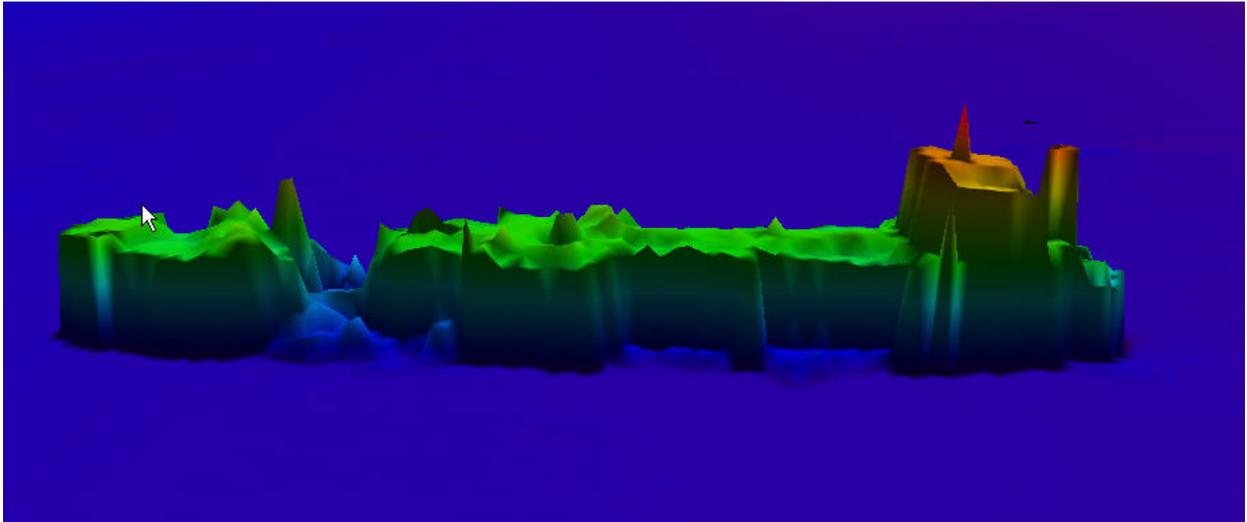


Figure 1.1.1

Uncharted Features

F00585 Uncharted Features

Registry Number: F00585
State: Virginia
Locality: 50 NM East of Assateague Island, VA
Sub-locality: 50 NM East of Assateague Island, VA
Project Number: S-D946_TJ-09
Survey Date: 11/10/2009

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
12200	49th	06/01/2007	1:419,706 (12200_1)	NGA NTM: 04/17/2004 (08/01/2009)
13003	49th	04/01/2007	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	Obstruction	Obstruction	71.70 m	37° 54' 04.8" N	074° 15' 14.2" W	---

1.1) Obstruction

Survey Summary

Survey Position: 37° 54' 04.8" N, 074° 15' 14.2" W
Least Depth: 71.70 m (= 235.23 ft = 39.205 fm = 39 fm 1.23 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.031 m ; **TVU (TPEv)** ± 0.487 m
Timestamp: 2009-314.20:27:41.939 (11/10/2009)
Survey Line: f00585 / tj_s222_reson7125_stbd / 2009-314 / 001_2025
Profile/Beam: 267/209
Charts Affected: 12200_1, 13003_1

Remarks:

Debris From Wreck

Feature Correlation

Address	Feature	Range	Azimuth	Status
f00585/tj_s222_reson7125_stbd/2009-314/001_2025	267/209	0.00	000.0	Primary

Hydrographer Recommendations

Chart "Foul Area" in surveyed position.

S-57 Data

Geo object 1: Obstruction (OBSTRN)
Attributes: OBJNAM - Obstruction
 QUASOU - 6:least depth known
 SORDAT - 20091110
 SORIND - US,US,graph,F00585
 TECSOU - 3:found by multi-beam
 VALSOU - 71.699 m
 WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. Chart obstructions at survey location.

Feature Images

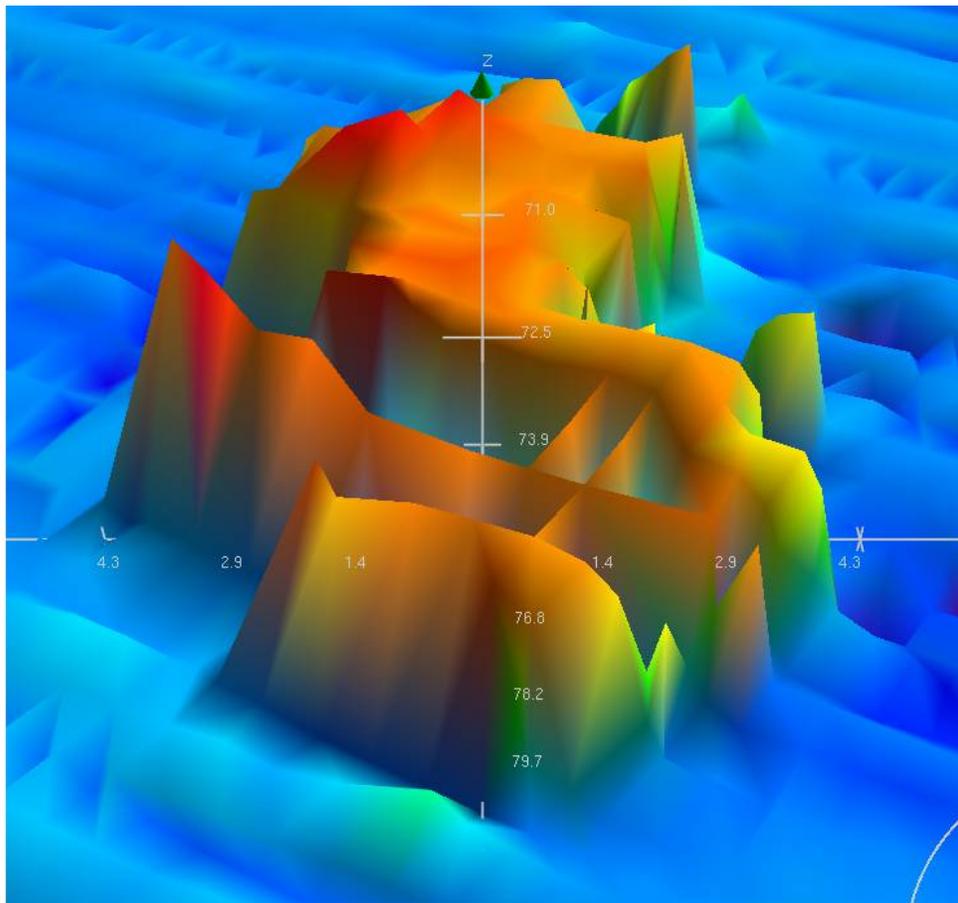
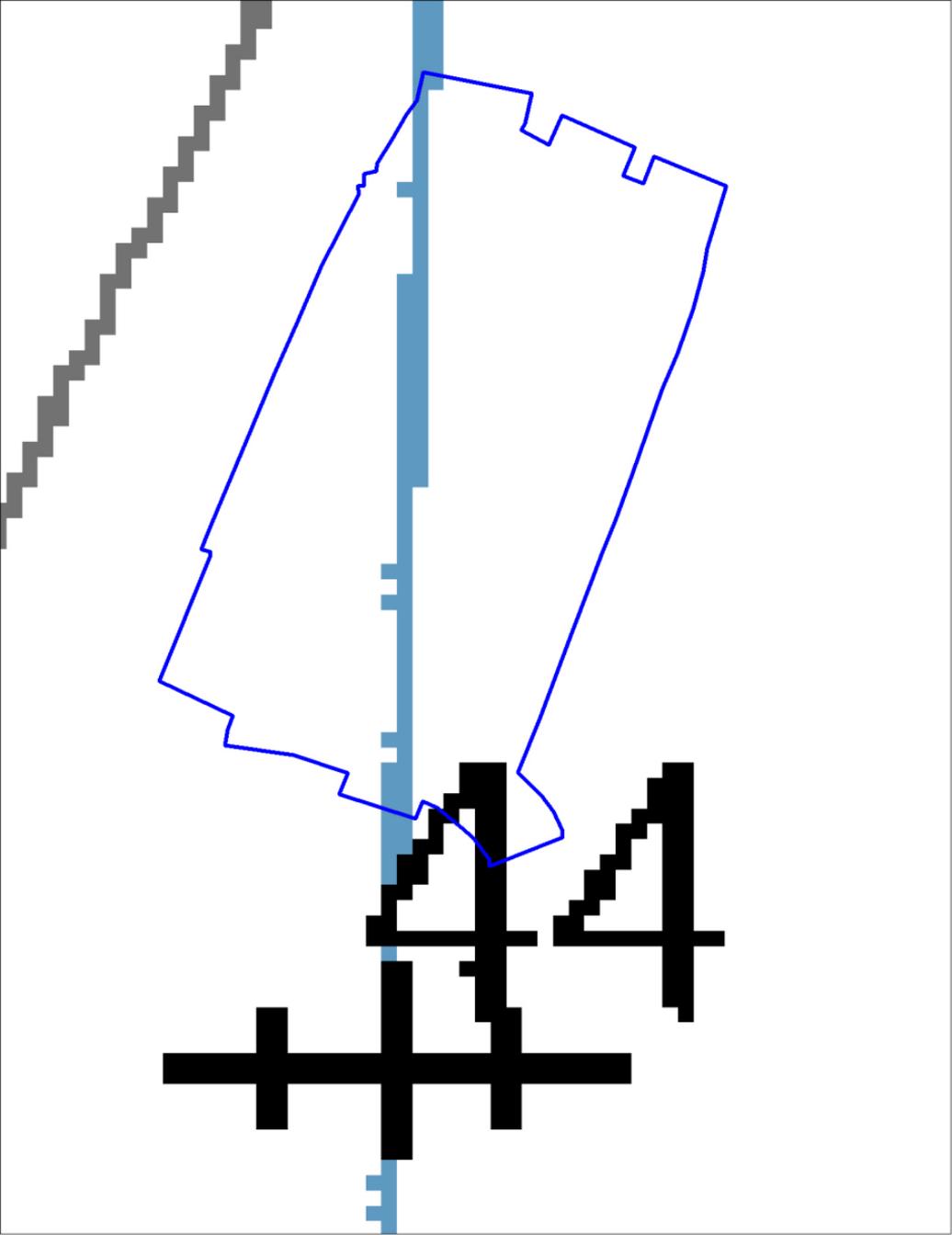


Figure 1.1.1

Appendix III

Final Progress Sketch and Survey Outline



Appendix IV

Tides and Water Levels



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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : December 3, 2009

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: S-D946-TJ-2009
HYDROGRAPHIC SHEET: F00585

LOCALITY: 50 NM East of Assateague Island, VA
TIME PERIOD: November 10, 2009

TIDE STATION USED: 865-1370 Duck, NC
Lat. 36° 11.0'N Long. 075° 44.8' W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.027 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: SA47

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).

Peter J. Stone

Digitally signed by Peter J. Stone
DN: cn=Peter J. Stone, o=CO-OPS, ou=NOAA/
NOS, email=peter.stone@noaa.gov, c=US
Date: 2009.12.03 17:59:47 -05'00'

CHIEF, OCEANOGRAPHIC DIVISION



Subject: S-D946_TJ-09 Smooth Tide Request

From: "mark.blankenship" <Mark.Blankenship@noaa.gov>

Date: Tue, 17 Nov 2009 15:00:01 -0500

To: smooth.tides@noaa.gov

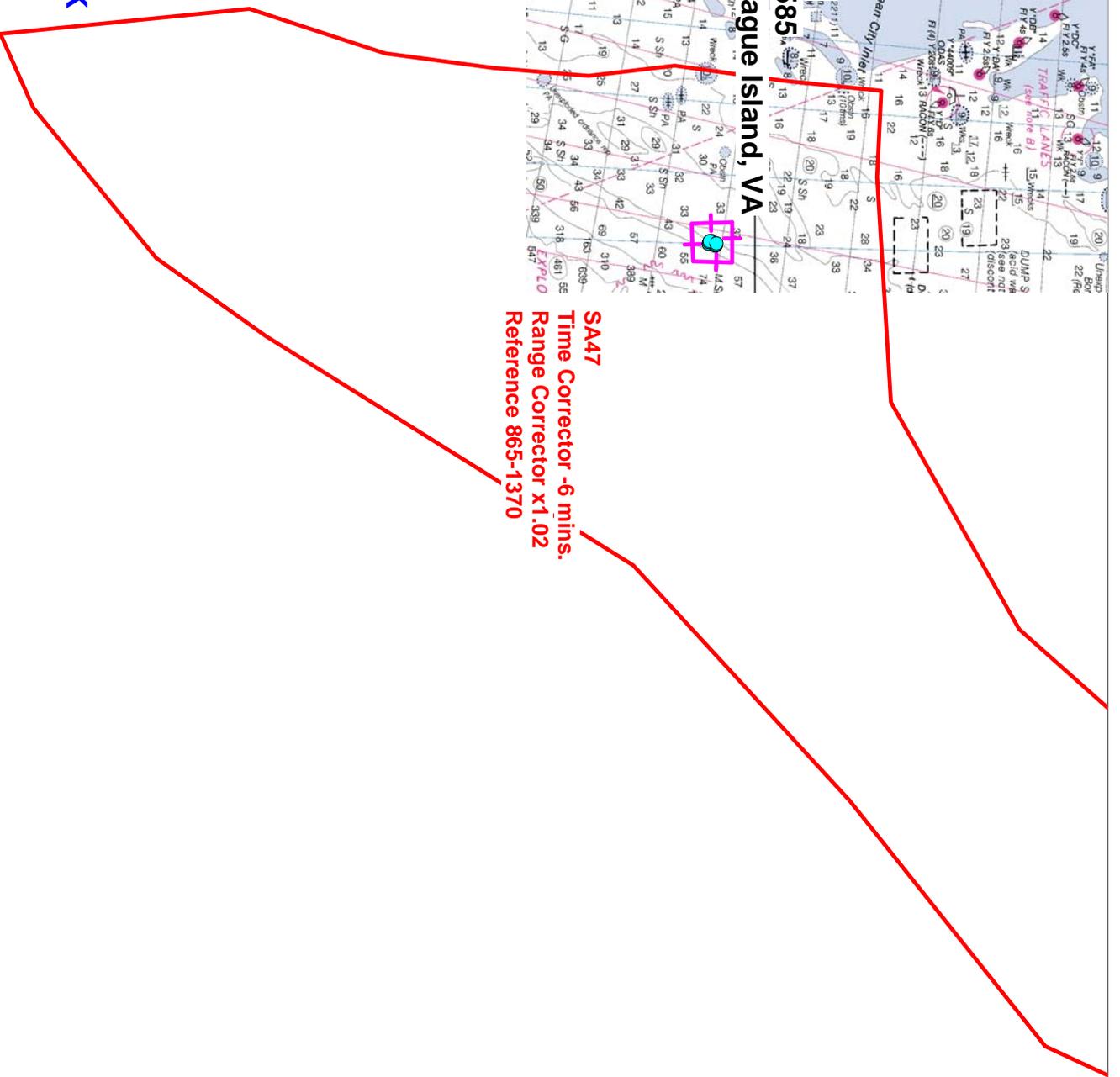
CC: co.thomas.jefferson@noaa.gov, foo.thomas.jefferson@noaa.gov, Daniel.Wright@noaa.gov, "matt.vanhoy" <matt.vanhoy@noaa.gov>, "LCDR Rick Brennan NOAA" <Richard.T.Brennan@noaa.gov>, Jeremy.McHugh@noaa.gov

Attached is a smooth tide request for project S-D946_TJ-09
Registry number F00585
LT Blankenship

F00585.zip	Content-Type: application/x-zip-compressed Content-Encoding: base64
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865-1370 DUCK



Final Tidal Zoning for
S-D946-TJ-2009, F00585
50 NM East of Assateague Island, VA

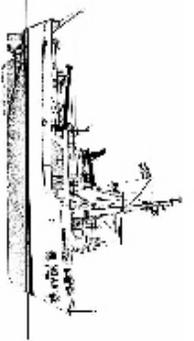
SA47
Time Corrector -6 mins.
Range Corrector x1.02
Reference 865-1370

Appendix V

Supplemental Survey Records and Correspondence

LATITUDE	LONGITUDE	Depth (ft)	Hgt off Bottom (ft)	remarks
37°54'07.334" N	074°15'10.707" W	-	13.42	Debris from T/V Bow Mariner.
37°54'06.538" N	074°15'10.665" W	-	6.17	Debris from T/V Bow Mariner.
37°53'30.775" N	074°15'19.704" W	-	9.51	Debris from T/V Bow Mariner.
37°53'27.335" N	074°15'20.193" W	-	9.25	Debris from T/V Bow Mariner.
37°53'21.328" N	074°15'25.176" W	-	4.89	Debris close to wreck of T/V Bow Mariner.
37°53'48.485" N	074°14'58.665" W	-	11.32	Debris from T/V Bow Mariner.
37°53'47.318" N	074°14'59.333" W	-	13.19	Debris from T/V Bow Mariner.
37°53'29.457" N	074°15'17.562" W	-	6.20	Debris from T/V Bow Mariner.
37°53'47.778" N	074°14'58.366" W	-	11.29	Debris from T/V Bow Mariner.
37°53'46.994" N	074°14'58.748" W	-	16.14	Debris from T/V Bow Mariner.
37°53'56.441" N	074°14'48.798" W	-	4.53	Debris from T/V Bow Mariner.
37°54'03.703" N	074°15'09.688" W	-	13.78	Debris from T/V Bow Mariner.
37°54'00.674" N	074°15'07.763" W	-	16.70	Debris from T/V Bow Mariner.
37°53'58.554" N	074°15'03.782" W	-	7.64	Debris from T/V Bow Mariner.
37°53'50.805" N	074°15'08.735" W	-	15.39	Debris from T/V Bow Mariner.
37°53'48.704" N	074°15'03.429" W	-	17.26	Debris from T/V Bow Mariner.
37°53'49.839" N	074°15'03.182" W	-	29.27	debris from T/V Bow Mariner.
37°53'48.830" N	074°14'58.381" W	-	8.27	Debris from T/V Bow Mariner.
37°53'47.356" N	074°14'58.489" W	-	13.02	Debris from T/V Bow Mariner.
37°53'57.499" N	074°15'01.221" W	-	17.36	Debris from T/V Bow Mariner.
37°53'32.097" N	074°15'19.689" W	-	15.32	Debris from T/V Bow Mariner.
37°53'21.513" N	074°15'22.331" W	107.55	141.27	Least Depth of T/V Bow Mariner
37°53'21.019" N	074°15'21.216" W	195.41	51.08	Aft-most point of T/V Bow Mariner
37°53'23.308" N	074°15'27.207" W	138.54	106.86	Forward mast of T/V Bow Mariner
37°53'23.601" N	074°15'27.627" W	185.01	60.99	Forward-most point of T/V Bow Mariner

Wreck of T/V Bow Mariner: Length = 590 ft, Breadth = 115 ft



NOAA Ship Rude

44

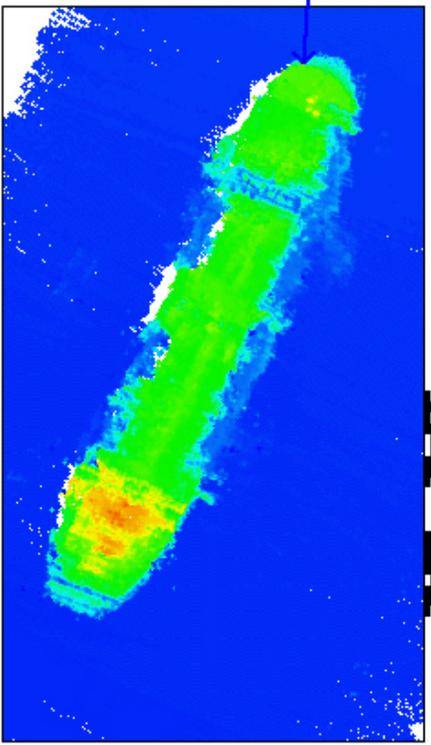
Debris Field - explosion site?

0.6 nm

● = Side Scan contact of debris

44

Wreckage of Bow Mariner
Least Depth 107.3 ft (preliminary tides)
Position 37-53-21.51 N
074-15-22.33 W



Subject: Re: Crossline comparison

From: Chris van Westendorp <Christiaan.VanWestendorp@noaa.gov>

Date: Thu, 10 Sep 2009 13:00:35 -0400

To: "mark.blankenship" <Mark.Blankenship@noaa.gov>

CC: LCDR Rick Brennan <Richard.T.Brennan@noaa.gov>, Castle Parker <Castle.E.Parker@noaa.gov>, Edward Owens <Edward.Owens@noaa.gov>, LT Jasper Schaer <jasper.schaer@noaa.gov>, CDR Shep Smith <Shep.Smith@noaa.gov>, Daniel Wright <Daniel.Wright@noaa.gov>

Mark,

Per 5.1.4.3 of the HSSD, AHB authorizes TJ to use the Standard Deviation layer to conduct surface difference comparison and analysis on future survey submissions of multibeam data. This meets the crossline comparison requirement laid out in HSSD.

Please let me know if you have any questions or need for further clarification.

R/

LCDR Chris van Westendorp, NOAA

mark.blankenship wrote:

Chris,

You mentioned in the meeting today that AHB was not going to require the multiple CUBE surface comparison, instead allowing us to use a single surface standard deviation layer to do our checks with. Is there any memo coming out for that?

Mark

LCDR Chris van Westendorp <christiaan.vanwestendorp@noaa.gov>

Atlantic Hydrographic Branch

NOAA OCS

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AHB COMPILATION LOG

General Survey Information	
REGISTRY No.	F00585
PROJECT No.	S-D946-TJ-09
FIELD UNIT	NOAA SHIP THOMAS JEFFERSON
DATE OF SURVEY	11/10/2009
LARGEST SCALE CHART	<i>12200, edition 49, 20070601, 1:419,706</i>
ADDITIONAL CHARTS	<i>13003, edition 50, 20070401, 1:1,200,000</i>
SOUNDING UNITS	fathoms
COMPILER	Allison C. Stone

Source Grids	File Name
	H:\Compilation\F00585_D946_TJ\AHB_F00585\ E-SAR Final Products\GRIDS\F00585_Cube_NOAA_2m_Final.csar
Surfaces	File Name
	H:\Compilation\F00585_D946_TJ\AHB_F00585\COMPILE\Working\ \Interpolated TIN\F00585_12m_InterpTIN.csar
<i>Interpolated TIN</i>	
<i>Shifted Interpolated TIN</i>	\Shifted Surface\F00585_12m_InterpTIN_Shifted.csar
Final HOBs	File Name
	H:\Compilation\F00585_D946_TJ\AHB_F00585\COMPILE\Final_Hobs\ F00585_SS_Soundings.hob
<i>Survey Scale Soundings</i>	
<i>Contour Layer</i>	F00585_Contours.hob
<i>Feature Layer</i>	F00585_Features.hob
<i>Meta-Objects Layer</i>	F00585_MetaObjects.hob
<i>Blue Notes</i>	F00585_BlueNotes.hob

Meta-Objects Attribution	
Acronym	Value
M_COVR	
CATCOV	1 Coverage Available
SORDAT	20091110
SORIND	US,US_graph,F00585
M_QUAL	
CATZOC	Zone of Confidence U (data not assessed)
INFORM	S-D946-TJ-09, F00585, NOAA Ship Thomas Jefferson
POSACC	10.0 m
SORDAT	20091110
SORIND	US,US_graph,F00585
SUREND	20091110
SURSTA	20091110
DEPARE	
DRVALV 1	20.01367
DRVALV2	42.91831
SORDAT	20091110
SORIND	US,US_graph,F00585
M_CSCL	
CSCALE	1:419706
SORDAT	20091110
SORIND	20091110

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SPECIFICATIONS:

- I. COMBINED SURFACE:
 - a. Number of ESAR Final Grids: 1
 - b. Resolution of Combined (m): 2 m

- II. SURVEY SCALE SOUNDINGS (SS):
 - a. Radius
 - b. Shoal biased
 - c. Use Single-Defined Radius (mm at Map Scale): 1: 420,000 ; Radius Value = 0.10
 - d. Queried Depth of All Soundings
 - i. Minimum: 20.01367
 - ii. Maximum: 42.91831

- III. INTERPOLATED TIN SURFACE:
 - a. Resolution (m): 12 m
 - b. Natural Neighbor
 - c. Shifted value: .75 fm
[-0.229m (feet), (≤ 10 fathoms)]
[-1.372m (fathoms), (> 10 fathoms)]

- IV. CONTOURS:
 - a. Use a Depth List: F00585_NOAA_depth_curves_list.txt
 - b. Line Object: DEPCNT
 - c. Value Attribute: VALDCO

- V. FEATURES:
 - a. Total Number of Features: 2
 - b. Number of Insignificant Features: 0

- VI. Notes:

**ATLANTIC HYDROGRAPHIC BRANCH
H-CELL REPORT to ACCOMPANY
SURVEY F00585 (2009)**

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:

CARIS Bathymetry Manager version 2.1 HF 1-10
CARIS Bathymetry Manager version 2.3 HF 1-16
DKART INSPECTOR, version 5.0 Build 732 SP1
CARIS HOM version 3.3
CARIS S57 Composer version 2.1 HF 1-4
PYDRO version 9.10

B.2. QUALITY CONTROL

B.2.1. H-Cell

The AHB source depth grid for the survey's nautical chart update product entailed using the field's original 2m grid. The survey scale soundings were created from the combined surface at 0.1mm radius at 1:420,000. A 12 m resolution TIN was created from the survey scale soundings from which an interpolated surface was generated. No chart scale soundings were selected from the filtered interpolated surface due to the location of wreck and obstruction symbols to be charted.

40 fathom depth contours were generated for this survey.

The pre-compilation products or components (Stand Alone HOB files (SAHOB)) are detailed in the Compile Log attached at the end of this document. The SAHOB files included depth areas (DEPARE), depth contours (DEPCNT), sounding selections (SOUNDG), features (OBSTRN and WRECK), Meta objects (M_COVR, M_QUAL), and cartographic Blue Notes (\$CSYMB).

All of the components with the exception of the sounding selection and depth contours were inserted into one feature layer (including the Bluenotes, as dictated by Hydrographic Technical Directive 2008-8), and this layer was exported into S-57 format in order to create the H-Cell deliverable. Similarly, the sounding selection was exported into S-57 format separately, and then both S-57 files were processed in CARIS HOM to convert the metric units to fathoms and feet. The final products are two S-57 files, in Lat/Lon NAD-83, one that contains all features, Meta objects, and Bluenotes (F00585_CS.000), and one that contains the sounding selection and depth contours (F00585_SS.000). Finally, quality assurance checks were made utilizing CARIS S-57 Composer version 2.1 validation checks and DKART INSPECTOR, version 5.0, tests.

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

F00585 CARIS H-Cell final deliverables include the following products:

F00585_CS.000	1:420,000 Scale	F00585 Features, Metaobjects, Bluenotes (Chart Scale)
F00585_SS.000	1:80,000	F00585 Survey Scale Soundings and Depth Contours

B.2.2. Junctions

No contemporary surveys exist for junctioning.

C. VERTICAL AND HORIZONTAL CONTROL

Final vertical correction processing was completed by the field unit/office personnel with no additional correction required by Atlantic Hydrographic Branch. The field unit/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 F00585. 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.

D. RESULTS AND RECOMMENDATIONS

D.1. CHART COMPARISON **12200 1 (49th Edition, June 2007)**
 Corrected through NM 08/21/2010
 Corrected through LNM 08/10/2010
 Scale 1:419,706

ENC Comparison **US3DE01M**
 Cape May to Cape Hatteras
 Edition 9
 Application Date 2009-10-13
 Issue Date 2010-06-29
 Chart 12200

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.2. ADDITIONAL RESULTS

No additional results.

D.3. DANGERS TO NAVIGATION

No dangers to navigation

D.4. AIDS TO NAVIGATION

No aids to navigation

D.5. COAST PILOT INFORMATION

No coast pilot information

D.6. 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.7. 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
F00585

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.

Allison C. Stone
Hydrographic Intern
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: _____
Richard T. Brennan
Commander, NOAA
Chief, Atlantic Hydrographic Branch