<table>
<thead>
<tr>
<th>Type of Survey:</th>
<th>Navigable Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registry Number:</td>
<td>H12033</td>
</tr>
</tbody>
</table>

**LOCALITY**

<table>
<thead>
<tr>
<th>State:</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Locality:</td>
<td>Block Island Sound</td>
</tr>
<tr>
<td>Sub-locality:</td>
<td>W Shore of Block Island: Sandy Pt. to Bluff Head</td>
</tr>
</tbody>
</table>

**2009**

CHIEF OF PARTY

CDR Shepard M. Smith

NOAA
**State:** Rhode Island  
**General Locality:** Block Island Sound  
**Sub-Locality:** W Shore of Block Island: Sandy Pt. to Bluff Head  
**Scale:** 1:7,500  
**Instructions Dated:** 26 February 2009  
**Project Number:** OPR-B363-TJ-09  
**Vessel:** NOAA Ship Thomas Jefferson  
**Chief of Party:** CDR Shepard M. Smith  
**Surveyed by:** Thomas Jefferson Personnel  
**Soundings by:** Reson 8125 and 7125 multibeam echosounders.  
**Graphic record scaled by:** N/A  
**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) All Times are in UTC.
2) This is a Navigable Area Hydrographic Survey.
3) Projection is NAD83, UTM Zone 19.

*Bold italic red notes in the Descriptive Report were made during office processing.*
Table of Contents

A. AREA SURVEYED ........................................................................................................... 4

B. DATA ACQUISITION AND PROCESSING ................................................................. 6
  B.1 EQUIPMENT AND VESSELS ............................................................................. 6
  B.2 QUALITY CONTROL ......................................................................................... 6
    Sounding Coverage ................................................................................................. 6
    Systematic Errors ..................................................................................................... 7
    Crosslines ................................................................................................................. 8
    Junctions and Prior Surveys .................................................................................... 9
  B.3 CORRECTION TO ECHO SOUNDINGS ............................................................ 10
  B.4 DATA PROCESSING .......................................................................................... 10

C. HORIZONTAL AND VERTICAL CONTROL ............................................................. 11

D. RESULTS AND RECOMMENDATIONS ................................................................. 12
  D.1 CHART COMPARISON ....................................................................................... 12
  D.2 ADDITIONAL RESULTS .................................................................................. 13

E. APPROVAL SHEETS .................................................................................................. 16

Appendix I DANGER TO NAVIGATION REPORTS
Appendix II SURVEY FEATURES REPORT
Appendix III FINAL PROGRESS SKETCH AND SURVEY OUTLINE
Appendix IV TIDES AND WATER LEVELS
Appendix V SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCE

List of tables
Table 1 Hydrographic Survey Statistics ........................................................................ 4
Table 2 Dates of Multibeam Data Acquisition in Calendar and Julian Days .................... 6
Table 3 TPE Parameters .............................................................................................. 11
Table 4 Field sheets ...................................................................................................... 11
Table 5 Charted Features .............................................................................................. 13
Table 6 Dangers to Navigation .................................................................................... 14

List of figures
Figure 1 Survey Limits .................................................................................................. 5
Figure 2 Area of low Density ....................................................................................... 7
Figure 3 Density layer Subset ....................................................................................... 7
Figure 4 8125 Rarification ......................................................................................... 8
Figure 5 Standard Deviation Layer ............................................................................. 8
Figure 6 Standard Deviation Layer Subset .................................................................. 8
Figure 7 H12012 Junction Surveys ............................................................................ 9
Figure 8 Final Tide Zoning .......................................................................................... 10
A. AREA SURVEYED

This hydrographic survey was completed as specified by Hydrographic Survey Project Instructions OPR-B363-TJ-09, dated 26 February 2009.

<table>
<thead>
<tr>
<th>Northern Limit</th>
<th>Southern Limit</th>
<th>Western Limit</th>
<th>Eastern Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>41° 15’ 42.84” N</td>
<td>41° 08’ 52.8” N</td>
<td>41° 12’ 33.12” N</td>
<td>41° 12’ 56.16” N</td>
</tr>
<tr>
<td>071° 36’ 29.52” W</td>
<td>071° 37’ 12.36” W</td>
<td>071° 38’ 16.44” W</td>
<td>071° 34’ 36.84” W</td>
</tr>
</tbody>
</table>

Data acquisition was conducted from 7 August – 21 August 2009.

The purpose of this project is to update the nautical charts in the area. Most of the bathymetry is from surveys completed before 1940. This project responds, in part, to a request from the President of the Northeast Marine Pilots for new hydrographic survey to support deep draft (60’) vessels carrying oil along the route the proceeds northwest from the precautionary area south of the Narragansett Bay and Buzzards Bay traffic lanes.

<table>
<thead>
<tr>
<th>Linear Nautical Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single beam mainscheme only</td>
</tr>
<tr>
<td>Multibeam mainscheme only</td>
</tr>
<tr>
<td>Side Scan Sonar mainscheme only</td>
</tr>
<tr>
<td>Developments</td>
</tr>
<tr>
<td>Crosslines</td>
</tr>
<tr>
<td>Shoreline/nearshore investigations</td>
</tr>
<tr>
<td>Number of Bottom Samples</td>
</tr>
<tr>
<td>Number of AWOIS items investigated</td>
</tr>
</tbody>
</table>

Table 1: Hydrographic Survey Statistics

Survey limits of H12033 (Figure 1) are shown on the following page.
Table 2: Dates of Multibeam Data Acquisition in Calendar and Julian Days

<table>
<thead>
<tr>
<th>Calendar Date</th>
<th>Julian Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 August 2009</td>
<td>219</td>
</tr>
<tr>
<td>8 August 2009</td>
<td>220</td>
</tr>
<tr>
<td>9 August 2009</td>
<td>221</td>
</tr>
<tr>
<td>10 August 2009</td>
<td>222</td>
</tr>
<tr>
<td>11 August 2009</td>
<td>223</td>
</tr>
<tr>
<td>12 August 2009</td>
<td>224</td>
</tr>
<tr>
<td>13 August 2009</td>
<td>225</td>
</tr>
<tr>
<td>18 August 2009</td>
<td>230</td>
</tr>
<tr>
<td>20 August 2009</td>
<td>232</td>
</tr>
<tr>
<td>21 August 2009</td>
<td>233</td>
</tr>
</tbody>
</table>

B. DATA ACQUISITION AND PROCESSING  See also the H-Cell Report.

Refer to OPR-B363-TJ-09 Data Acquisition and Processing Report (DAPR)* for a complete description of data acquisition and processing systems, survey vessels, 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. *Included with survey deliverables.

B 1. EQUIPMENT AND VESSELS

Data were acquired by NOAA Ship Thomas Jefferson and Hydrographic Survey Launches 3101 and 3102. NOAA Ship Thomas Jefferson acquired Reson 7215 multibeam echosounder soundings and sound velocity profiles. Launch 3101 acquired Reson8125 multibeam echosounder soundings and sound velocity profiles. Launch 3102 acquired Reson7125 multibeam echosounder soundings, 200% Klein 5000 Side scan Sonar, bottom samples, and sound velocity profiles. Concur with clarification - Launch 3102 acquired 100% Klein 5000 Side Scan Sonar data in addition to the previous mentioned data.

B 2. QUALITY CONTROL

B 2.1 System Certification and Calibration

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

B 2.2 Sounding Coverage

As per the Letter Instructions, this survey was conducted using object detection multibeam in depths less than 20 meters. Complete multibeam was acquired in depths greater than 20 meters. Side scan sonar data was acquired over some features and rocky areas. Side scan sonar coverage was monitored by creation of 100% and 200% coverage mosaics, each with 1m resolution.
Bathymetry coverage was monitored by creating 0.5 meter resolution BASE surfaces in the object detection areas and 2 meter BASE surfaces over the complete multibeam areas. Numerous small holidays exist throughout the shallower areas of the survey. Northwest of Grace Cove several long holidays exist. These were covered with side scan sonar. The largest holiday occurs west of Bluff Head.  *Concur.*

Due to numerous large rocks in the middle to southern end of the survey area it was decided to survey to the 18 foot curve. *Concur.*

An area of low density coverage exists in the vicinity of 41°12.93’ N, 071° 36.06’W. This was caused by inadequate overlap in polygon acquisition. A decrease in the displayed swath angle reduced this problem in most areas of the survey. *Concur.*

![Figure 2: Area of low Density](image1.png) ![Figure 3: Density Layer Subset](image2.png)

**B.2.3 Systematic Errors**

A sound velocity error is present in the ship multibeam data. This generally does not exceed 0.5 meters. *Concur with clarification - Sound velocity errors were examined and fixed during office processing.*

Areas of sounding ratification occur with the Reson 8125 in depths approaching the 60ft contour. As the vessel nears the deeper limit of the range scale, the survey vessel must slow down significantly to maintain adequate coverage (5 soundings per node). This was not achieved in some areas as indicated in Figure 4, which shows the Density layer of the BASE surface threshold to 4 soundings per node. Areas of light pixels are below the minimum 5 soundings per node. *Concur.*
Areas of high standard deviation occur where the Reason 8215 crosslines intersect with the ship data. The cause is unknown, but may be attributed to an error in static offsets with the two platforms. Generally these errors do not exceed 0.4 meters. Concur with clarification - After office QC, it was determined that the crossline error was due to a strong ebb-flood current in the survey area that was not compensated for. Errors were examined and fixed during office processing.

Other areas of high standard deviation include rocks, slopes, and sand waves.
B 2.4 Crosslines

Multibeam echo sounder crosslines totaling 27.72 lineal nautical miles, comprising 5 percent of hydrography, were acquired during the course of the survey. A surface differencing between crosslines and mainscheme was performed and the resultant surface placed in the Descriptive Report/Separates/IV Crossline_Comparison folder. Concur.

B 2.4 Junctions and Prior Surveys See also the H-Cell Report.

The following contemporary surveys junction with H12033:

<table>
<thead>
<tr>
<th>Registry #</th>
<th>Scale</th>
<th>Year</th>
<th>Field Party</th>
<th>Junction side</th>
</tr>
</thead>
<tbody>
<tr>
<td>H10795</td>
<td>1:10,000</td>
<td>1998</td>
<td>Rude</td>
<td>Southwest</td>
</tr>
<tr>
<td>H12010</td>
<td>1:7,500</td>
<td>2009</td>
<td>Thomas Jefferson</td>
<td>Northeast</td>
</tr>
<tr>
<td>H12139</td>
<td>1:20,000</td>
<td>2009</td>
<td>Thomas Jefferson</td>
<td>Northwest</td>
</tr>
<tr>
<td>H12137</td>
<td>1:20,000</td>
<td>2009</td>
<td>Thomas Jefferson</td>
<td>Southwest</td>
</tr>
<tr>
<td>H12011</td>
<td>1:7,500</td>
<td>2009</td>
<td>Thomas Jefferson</td>
<td>North</td>
</tr>
</tbody>
</table>

Survey H10795 junctions with H12033 in the Southwest. As this survey is older than five years, there is no contemporary data set to compare to. Concur.

Survey H12010 junctions with H12033 in the Northeast. The difference in soundings between the two surveys is no greater than one foot. Concur.

Survey H12139 junctions with H12033 in the Northwest. The difference in soundings between the two surveys is no greater than one foot. Concur.

Survey H12137 junctions with H12033 in the Southwest. The difference in soundings between the two surveys is no greater than one foot. Concur.

Survey H12011 junctions with H12033 in the North. The difference in soundings between the two surveys is no greater than one foot. Concur.
B 3. CORRECTIONS TO ECHO SOUNDING

HDCS sounding data were reduced to mean lower-low water (MLLW) using verified water levels from New London, CT (8461490), Newport, RI (8452660), and Montauk, NY (8510560) adjusted for tidal constituents and residuals provided by CO-OPS as specified in the Project Instructions and illustrated in Figure 7. Concur.

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

---

Figure 7: H12033 Junction Surveys

Figure 8: Final Tide Zoning
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. *Included with survey deliverables.

B 4. DATA PROCESSING  See also the H-Cell Report.

B 4.1 Total Propagated Error

For the 2009 field season, Total Propagated Error (TPE) parameters for sound speed and tides are calculated separately for each project. The project-specific parameters for OPR-B363-TJ-09, Survey H12033 are as follows:

<table>
<thead>
<tr>
<th>Vessel</th>
<th>Tide Values</th>
<th>Sound Speed Values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Measured</td>
<td>Zoning</td>
</tr>
<tr>
<td>S222</td>
<td>TCARI</td>
<td>TCARI</td>
</tr>
<tr>
<td>3101</td>
<td>TCARI</td>
<td>TCARI</td>
</tr>
<tr>
<td>3102</td>
<td>TCARI</td>
<td>TCARI</td>
</tr>
</tbody>
</table>

Table 3: TPE Parameters

These values were calculated for all MBES data immediately following CARIS Merge. Concur.

B 4.2 BASE Surfaces and Mosaics

The following table describes all BASE Surfaces and Mosaics submitted as part of Survey H12033:

<table>
<thead>
<tr>
<th>Name of Surfaces and/or Mosaics</th>
<th>Resolution</th>
<th>Type</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>H12033_1 CUBE_NOAA_2m_Final</td>
<td>2.0 meter</td>
<td>CUBE</td>
<td>Sounding Coverage</td>
</tr>
<tr>
<td>H12033_2 CUBE_NOAA_2m_Final</td>
<td>2.0 meter</td>
<td>CUBE</td>
<td>Sounding Coverage</td>
</tr>
<tr>
<td>H12033_3 CUBE_NOAA_2m_Final</td>
<td>2.0 meter</td>
<td>CUBE</td>
<td>Sounding Coverage</td>
</tr>
<tr>
<td>H12033_1 CUBE_NOAA_50cm_Final</td>
<td>0.5 meter</td>
<td>CUBE</td>
<td>Sounding Coverage</td>
</tr>
<tr>
<td>H12033_2 CUBE_NOAA_50cm_Final</td>
<td>0.5 meter</td>
<td>CUBE</td>
<td>Sounding Coverage</td>
</tr>
<tr>
<td>H12033_3 CUBE_NOAA_50cm_Final</td>
<td>0.5 meter</td>
<td>CUBE</td>
<td>Sounding Coverage</td>
</tr>
<tr>
<td>H12033_4 CUBE_NOAA_50cm_Final</td>
<td>0.5 meter</td>
<td>CUBE</td>
<td>Sounding Coverage</td>
</tr>
<tr>
<td>H12033_5 CUBE_NOAA_50cm_Final</td>
<td>0.5 meter</td>
<td>CUBE</td>
<td>Sounding Coverage</td>
</tr>
<tr>
<td>H12033_6 CUBE_NOAA_50cm_Final</td>
<td>0.5 meter</td>
<td>CUBE</td>
<td>Sounding Coverage</td>
</tr>
<tr>
<td>H12033_7 CUBE_NOAA_50cm_Final</td>
<td>0.5 meter</td>
<td>CUBE</td>
<td>Sounding Coverage</td>
</tr>
<tr>
<td>H12033_Combined_2m</td>
<td>2.0 meter</td>
<td>CUBE</td>
<td>Sounding Coverage All</td>
</tr>
<tr>
<td>H12033_SSS_Mosaic_100</td>
<td>1.0 meter</td>
<td>SSS Mosaic</td>
<td>100% Side Scan Coverage</td>
</tr>
<tr>
<td>H12033_SSS_Mosaic_200</td>
<td>1.0 meter</td>
<td>SSS Mosaic</td>
<td>200% Side Scan Coverage</td>
</tr>
</tbody>
</table>

Table 4: Fieldsheets

This survey was processed using the Combined Uncertainty and Bathymetry Estimator (CUBE) algorithm. The CUBE configuration was set to NOAA_0.5m for the 0.5 meter coverage surfaces and NOAA_2m for the 2 meter coverage surfaces. The Finalized surfaces were depth thresholded using values of 0.00 to 20.0 meters for the 0.5 meter grids and 18.0 to 200.0 meters for the 2 meter grids. Refer to the 2009 Data Acquisition and Processing Report*, 2007 Field

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. HORIZONTAL AND VERTICAL CONTROL  See also the H-Cell Report.

As per FPM section 5.2.3.2.3 a HVCR report was not filed as no horizontal and vertical 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 U.S. Coast Guard beacons at Moriches, NY (293 kHz), and Acushnet, MA (306 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 (NWLO) stations at New London, CT (8461490), Newport, RI (8452660), and Montauk, NY (8510560) served as datum control for H12033. Verified tides with final TCARI constituents and residuals were applied to all sounding data.

A request for delivery of final approved (verified) tides for this survey was forwarded to N/OPS1 on 23 August, 2009 in accordance with the FPM and project letter instructions. Final smooth tide letter was received 4 September 2009, and states TCARI grid B363TJ2009-TCARI-Revised should be used as final. Concur – Approved tides and zoning were applied during field processing.

D. RESULTS AND RECOMMENDATIONS  See also the H-Cell Report.

D.1 Chart Comparison

Survey H12033 was compared with chart 13215 (18th Ed.; August 2004, 1:40,000), chart 13217 (15th Ed.; November 2006, 1:15,000), chart 13218 (40th Ed.; February 2008, 1:80,000), chart 13003 (49th Ed.; April 2007, 1:1,200,000), chart 13006 (35th Ed.; April 2009, 1:1,675,000), chart 5161 (13th Ed.; October 2003, 1:1,058,400) and ENCs US4CN21M, USMA23M, US3NY01M,
and US2EC03M. Chart comparisons were performed in CARIS Base Editor and Pydro using survey-scale excessed soundings. Concur.

D.1.1 Chart 13215 Comparison

In general the soundings agree within 2 feet. South of Dories Cove there are differences of up to 4 feet where it has become more shoal. Concur.

D.1.2 Chart 13217 Comparison

In general the soundings agree within 2 feet. South of Dories Cove there are differences of up to 5 feet where it has become more shoal. North of Grace Cove there are differences of up to 4 feet where it has become more shoal. Concur.

D.1.3 Chart 13218 Comparison

In general the soundings agree within 3 feet. Where there are differences they tend to be deeper. Concur.

D.1.4 Chart 13003 Comparison

None of the depths on chart 13003 fall within the limits of H12033. Concur.

D.1.5 Chart 13006 Comparison

None of the depths on chart 13006 fall within the limits of H12033. Concur.

D.1.6 Chart 5161 Comparison

None of the depths on chart 5161 fall within the limits of H12033. Concur.

D.1.7 ENC US4CN21M Comparison

In general the soundings agree within 1 meter. Where there are differences they tend to be deeper. Concur

D.1.8 ENC USMA23M Comparison

None of the depths on ENC USMA23M fall within the limits of H12033. Concur

D.1.9 ENC US3NY01M Comparison

None of the depths on ENC US3NY01M fall within the limits of H12033. Concur

D.1.10 ENC US2EC03M Comparison

None of the depths on ENC US2EC03M fall within the limits of H12033. Concur
D.2 Additional Results

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

A total of 15 assigned AWOIS items were located within the limits of H12033. Only 4 were investigated during this survey. AWOIS items were investigated with complete multibeam and 200% side scan sonar over the search radius. The investigated AWOIS items are described in detail in Appendix II of this report. The 11 maritime boundary AWOIS items were not investigated due to not having a shoal draft, inshore maneuverable survey boat. *See Appendix II for final charting recommendations of AWOIS items investigated.*

D.2.2 Shoreline

Shoreline was not investigated due to numerous large rocks near the shoreline. *Concur.*

D.2.3 Charted Features

The following features are located as charted and their representation on the chart is adequate. The hydrographer recommends retaining the following feature as charted:

<table>
<thead>
<tr>
<th>Description of Feature</th>
<th>Charted Latitude</th>
<th>Charted Longitude</th>
<th>Least Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charted Boulder</td>
<td>41° 11’ 39.293” N</td>
<td>071° 35’ 47.762” W</td>
<td>18.32 feet</td>
</tr>
</tbody>
</table>

*See Appendix II for final charting recommendation.*

Table 5: Charted Features

All other charted features and item investigations are described in detail in Appendix II of this report. *Concur with clarification – See Appendix II for final charting recommendations of charted features.*

D.2.4 Charted Pipelines and Cables

There are no pipelines that run through the survey area.

Two charted cable areas are located in the survey area. The cables are not visible in the multibeam data. The Hydrographer has no recommendations regarding these cables. *Concur.*

D.2.5 Bridges, Ferry Routes, and Overhead Cables

The Viking Fleet Ferries go from Montauk, NY to Great Salt Pond Block Island. There is a ferry from New London, CT and a high speed ferry that goes into Great Salt Pond. Defer charting of these routes to Marine Chart Division.

There are no 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

Nine dangers to navigation were found and reported to the NOAA’s Office of Coast Survey, Marine Chart Division (MCD) for verification and final submission. A copy of each Danger to Navigation Report is included in Appendix I, and a copy of each DTON email to MCD is located in Appendix V of this Descriptive Report.

A table of all Dangers to Navigation identified in this survey, with their submission date to MCD, is included below.

<table>
<thead>
<tr>
<th>DTON Number</th>
<th>Description</th>
<th>Latitude</th>
<th>Longitude</th>
<th>Date Submitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rock</td>
<td>41°12'08.095&quot;N</td>
<td>071°35'25.665&quot;W</td>
<td>18 September 2009*</td>
</tr>
<tr>
<td>2</td>
<td>Rock</td>
<td>41°11'13.191&quot;N</td>
<td>071°36'18.989&quot;W</td>
<td>18 September 2009*</td>
</tr>
<tr>
<td>3</td>
<td>Rock</td>
<td>41°10'05.021&quot;N</td>
<td>071°36'57.503&quot;W</td>
<td>18 September 2009*</td>
</tr>
<tr>
<td>4</td>
<td>Rock</td>
<td>41°10'36.600&quot;N</td>
<td>071°36'44.455&quot;W</td>
<td>18 September 2009*</td>
</tr>
<tr>
<td>5</td>
<td>Rock</td>
<td>41°09'00.415&quot;N</td>
<td>071°36'59.668&quot;W</td>
<td>18 September 2009*</td>
</tr>
<tr>
<td>6</td>
<td>Rock</td>
<td>41°12'00.978&quot;N</td>
<td>071°35'25.243&quot;W</td>
<td>18 September 2009*</td>
</tr>
<tr>
<td>7</td>
<td>Rock</td>
<td>41°12'56.040&quot;N</td>
<td>071°35'01.874&quot;W</td>
<td>18 September 2009*</td>
</tr>
<tr>
<td>8</td>
<td>Rock</td>
<td>41°10'12.470&quot;N</td>
<td>071°36'49.930&quot;W</td>
<td>18 September 2009*</td>
</tr>
<tr>
<td>9</td>
<td>Rock</td>
<td>41°10'00.775&quot;N</td>
<td>071°36'49.953&quot;W</td>
<td>18 September 2009*</td>
</tr>
</tbody>
</table>

*See Appendix I for final charting recommendations of DTONs.*

Table 6: Dangers to Navigation

D 3.2 Shoals

South of Dories Cove there are some four foot differences where it has become more shoal. Concur
North of Grace Cove there are some five foot differences where it has become more shoal.  

Concur

D.4 Aids to Navigation

There are six charted Aids to Navigation (ATONs) within the limits of H12033.

All Aids to Navigation were found to be on station and serving their intended purpose. The Hydrographer has no recommendations regarding these ATONs. Concur.

D.5 Coast Pilot Information

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

D.6 Miscellaneous  See also the H-Cell Report.

Bottom Samples

Bottom samples were collected throughout the survey area. A total of 21 bottom samples were acquired. A list of bottom samples is contained in Appendix V. Concur.

D.8 Adequacy of Survey  See also the H-Cell Report.

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
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.

Listed below are supplemental reports submitted separately that contain additional information relevant to this survey:

The Data Acquisition and Processing Report for OPR-B363-TJ-09 is submitted separately and contains additional information relevant to this survey.

Approved and Forwarded:

Jasper Schaer  
2009.09.30  
08:50:43 -04'00'

LT Jasper D. Schaer, NOAA  
Field Operations Officer

CDR Shepard M. Smith, NOAA  
Commanding Officer

Digitally signed by  
Shepard Smith  
Date: 2009.09.30 09:32:39 -04'00'

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

Kim Glomb  
2009.09.30  
08:51:36 -04'00'

Survey Manager:

Kimberly Glomb  
Survey Technician, NOAA
Appendix I

Dangers to Navigation

-9
**DTON**

**Registry Number:** H12033  
**State:** Rhode Island  
**Locality:** Block Island Sound  
**Sub-locality:** W Shore of Block Island: Sandy Pt. to Bluff Head  
**Project Number:** OPR-B363-TJ-09  
**Survey Dates:** 7 August 2009 - 21 August 2009

### Charts Affected

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<th>Date</th>
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<th>RNC Correction(s)*</th>
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|        |         |            |             | CHS NTM: None (04/24/2009)  
|        |         |            |             | NGA NTM: None (06/27/2009) |
| 13215  | 19th    | 12/01/2009 | 1:40,000 (13215_1) | USCG LNM: 12/08/2009 (02/16/2010)  
|        |         |            |             | CHS NTM: None (12/25/2009)  
|        |         |            |             | NGA NTM: None (02/27/2010) |
| 13205  | 38th    | 02/01/2007 | 1:80,000 (13205_1) | [L]NTM: ? |
| 12300  | 47th    | 05/01/2008 | 1:400,000 (12300_1) | [L]NTM: ? |
| 13006  | 34th    | 05/01/2007 | 1:675,000 (13006_1) | [L]NTM: ? |
| 5161   | 13th    | 10/01/2003 | 1:1,058,400 (5161_1) | [L]NTM: ? |
| 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

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1 - DR_DToN
1.1) Profile/Beam - 2489/390 from h12033 / tj_3102_reson7125_mb / 2009-222 / 032_1310

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 12’ 08.1” N, 071° 35’ 25.7” W
Least Depth: 4.41 m (= 14.48 ft = 2.413 fm = 2 fm 2.48 ft)
TPU (±1.96σ): THU (TPEh) ±1.000 m ; TVU (TPEv) ±0.284 m
Survey Line: h12033 / tj_3102_reson7125_mb / 2009-222 / 032_1310
Profile/Beam: 2489/390
Charts Affected: 13217_1, 13215_1, 13205_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:
DTON found with Reson 7125 multibeam. Verified tides were applied with final TCARI zoning.

Feature Correlation

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Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):
14ft (13217_1, 13215_1, 13205_1)
2 ¼fm (12300_1, 13006_1, 13003_1)
4.4m (5161_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Office Notes

Charted 14 rock was determined during office processing to be a sounding in a rocky seabed area. Delete 14 Rk and danger curve. Chart present survey depths.
Feature Images

Figure 1.1.1
1.2) Profile/Beam - 5147/1 from h12033 / tj_3101_reson8125_mb / 2009-224 / 000_1850

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 11' 13.2" N, 071° 36' 19.0" W
Least Depth: 5.16 m (= 16.92 ft = 2.820 fm = 2 fm 4.92 ft)
TPU (±1.96σ): THU (TPEh) ±0.982 m ; TVU (TPEv) ±0.123 m
Survey Line: h12033 / tj_3101_reson8125_mb / 2009-224 / 000_1850
Profile/Beam: 5147/1
Charts Affected: 13217_1, 13215_1, 13205_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:
DTON found with Reson 8125 multibeam. Verified tides were applied with final TCARI zoning.

Feature Correlation

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Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):
17ft (13217_1, 13215_1, 13205_1)
2 ¾fm (12300_1, 13006_1, 13003_1)
5.2m (5161_1)

S-57 Data

Geo object 1: Buoy, lateral (BOYLAT)
Attributes: BOYSHP - 1:conical (nun, ogival)
CATLAM - 2:starboard-hand lateral mark
COLOUR - 3:red
Geo object 2: Sounding (SOUNDG)

Office Notes

Charted 16 rock was determined during office processing to be a sounding in a rocky seabed area. Delete 16 Rk and danger curve. Chart present survey depths.
Feature Images

Figure 1.2.1
1.3) Profile/Beam - 612/80 from h12033 / tj_3101_reson8125_mb / 2009-225 / 000_1704

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 10' 05.0" N, 071° 36' 57.5" W
Least Depth: 6.62 m (= 21.72 ft = 3.620 fm = 3 fm 3.72 ft)
TPU (±1.96σ): THU (TPEh) ±0.981 m ; TVU (TPEv) ±0.109 m
Survey Line: h12033 / tj_3101_reson8125_mb / 2009-225 / 000_1704
Profile/Beam: 612/80
Charts Affected: 13217_1, 13215_1, 13205_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:
DTON found with Reson 8125 multibeam. Verified tides were applied with final TCARI zoning.

Feature Correlation

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Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):
21ft (13217_1, 13215_1, 13205_1)
3 ½fm (12300_1, 13006_1, 13003_1)
6.6m (5161_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Office Notes

Charted 21 rock was determined during office processing to be a sounding in a rocky seabed area. Delete 21 Rk and danger curve. Chart present survey depths.
Feature Images

Figure 1.3.1
1.4) Profile/Beam - 4389/84 from h12033 / tj_3101_reson8125_mb / 2009-225 / 000_1704

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 10' 36.6" N, 071° 36' 44.5" W
Least Depth: 5.44 m (= 17.85 ft = 2.975 fm = 2.5 fm 8.5 ft)
TPU (±1.96σ): THU (TPEh) ±0.980 m ; TVU (TPEv) ±0.107 m
Survey Line: h12033 / tj_3101_reson8125_mb / 2009-225 / 000_1704
Profile/Beam: 4389/84
Charts Affected: 13217_1, 13215_1, 13205_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:
DTON found with reson 8125 multibeam. Verified tides were applied with final TCARI zoning.

Feature Correlation

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Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):
18ft (13217_1, 13215_1, 13205_1)
3fm (12300_1, 13006_1, 13003_1)
5.4m (5161_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Geo object 2: Underwater rock / awash rock (UWTROC)
Attributes: SORDAT - 20090821
SORIND - US,US,graph, H12033
VALSOU - 5.441 m

WATLEV - 3: always under water/submerged

Office Notes

The charted 17 rock was determined during office processing to be a sounding in a rocky seabed area. Delete 17 Rk and danger curve. Chart present survey depths.
Feature Images

Figure 1.4.1
1.5) Profile/Beam - 1861/42 from h12033 / tj_3101_reson8125_mb / 2009-232 / 000_1419

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 09' 00.4" N, 071° 36' 59.7" W
Least Depth: 6.11 m (= 20.04 ft = 3.339 fm = 3 fm 2.04 ft)
TBU (±1.96σ): THU (TPEh) ±0.981 m ; TVU (TPEv) ±0.113 m
Survey Line: h12033 / tj_3101_reson8125_mb / 2009-232 / 000_1419
Profile/Beam: 1861/42
Charts Affected: 13217_1, 13215_1, 13205_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:
DTON found with Reson 8125 multibeam. Verified tides were applied with final TCARI zoning.

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Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):
20ft (13217_1, 13215_1, 13205_1)
3 ¼fm (12300_1, 13006_1, 13003_1)
6.1m (5161_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Office Notes

Charted 20 rock was determined during office processing to be a sounding in a rky seabed area. Delete 20 Rk and danger curve. Chart present survey depths.
Feature Images

Figure 1.5.1
1.6) Profile/Beam - 12541/139 from h12033 / tj_3102_reson7125_mb / 2009-221 / 027_1542

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 12’ 01.0” N, 071° 35’ 25.2” W
Least Depth: 2.96 m (= 9.70 ft = 1.617 fm = 1 fm 3.70 ft)
TPU (±1.96σ): THU (TPEh) ±0.999 m ; TVU (TPEv) ±0.283 m
Survey Line: h12033 / tj_3102_reson7125_mb / 2009-221 / 027_1542
Profile/Beam: 12541/139
Charts Affected: 13217_1, 13215_1, 13205_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:
DTON found with Reson 7125 multibeam. Verified tides were applied with final TCARI zoning.

Feature Correlation

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Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):
9ft (13217_1, 13215_1, 13205_1)
1 ½fm (12300_1, 13006_1, 13003_1)
3.0m (5161_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Office Notes

During office processing and review of the charted 9 Wk it was determined that the wreck does not exist. The area is rocky seabed. Delete 9 Wk and danger curve. Chart present survey depths.
Feature Images

Figure 1.6.1
Figure 1.6.2
1.7) Profile/Beam - 1212/117 from h12033 / tj_3102_reson7125_mb / 2009-221 / 032_1719

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 12’ 56.0” N, 071° 35’ 01.9” W
Least Depth: 6.00 m (= 19.69 ft = 3.281 fm = 3 fm 1.69 ft)
TPU (±1.96σ): THU (TPEh) ±1.000 m ; TVU (TPEv) ±0.285 m
Survey Line: h12033 / tj_3102_reson7125_mb / 2009-221 / 032_1719
Profile/Beam: 1212/117
Charts Affected: 13217_1, 13215_1, 13205_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:
DTON found with Reson 7125 multibeam. Verified tides were applied with final TCARI zoning.

Feature Correlation

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Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):
19ft (13217_1, 13215_1, 13205_1)
3 ¾fm (12300_1, 13006_1, 13003_1)
6.0m (5161_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Office Notes

Charted 19 rock was determined during office processing to be a sounding in a rocky seabed area. Delete 19 Rk and danger curve. Chart present survey depths.
Feature Images

Figure 1.7.1
Figure 1.7.2
1.8) Profile/Beam - 9087/512 from h12033 / tj_3102_reson7125_mb / 2009-230 / 001_1658

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 10' 12.5" N, 071° 36' 49.9" W
Least Depth: 4.80 m (= 15.73 ft = 2.622 fm = 2 fm 3.73 ft)
TPU (±1.96σ): THU (TPEh) ±1.000 m; TVU (TPEv) ±0.288 m
Survey Line: h12033 / tj_3102_reson7125_mb / 2009-230 / 001_1658
Profile/Beam: 9087/512
Charts Affected: 13217_1, 13215_1, 13205_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:
DTON found with Reson 7125 multibeam. Verified tides were applied with final TCARI zoning.

Feature Correlation

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Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):
15ft (13217_1, 13215_1, 13205_1)
2 ½fm (12300_1, 13006_1, 13003_1)
4.8m (5161_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Office Notes

Charted 15 rock was determined during office processing to be a sounding in a rocky seabed area. Delete 15 Rk and danger curve. Chart present survey depths.
Feature Images

Figure 1.8.1
Figure 1.8.2
1.9) Profile/Beam - 11183/1 from h12033 / tj_3102_reson7125_mb / 2009-230 / 004_1740

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 10' 00.8" N, 071° 36' 50.0" W
Least Depth: 3.23 m (= 10.59 ft = 1.766 fm = 1 fm 4.59 ft)
TPU (±1.96σ): THU (TPEh) ±1.000 m; TVU (TPEv) ±0.285 m
Survey Line: h12033 / tj_3102_reson7125_mb / 2009-230 / 004_1740
Profile/Beam: 11183/1
Charts Affected: 13217_1, 13215_1, 13205_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:
DTON found with Reson 7125 multibeam. Verified tides were applied with final TCARI zoning.

Feature Correlation

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Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):
10ft (13217_1, 13215_1, 13205_1)
1 ¾fm (12300_1, 13006_1, 13003_1)
3.2m (5161_1)

S-57 Data

Geo object 1: Sounding (SOUNDG)
Office Notes

Charted 10 rock was determined during office processing to be a sounding in a rky seabed area. Delete 10 Rk and danger curve. Chart present survey depths.
Feature Images

Figure 1.9.1
Figure 1.9.2
Appendix II

Survey Features Report

1. AWOIS Items
   -4

2. Charted Features
   -2

3. Uncharted Features
   -2
AWOIS

Registry Number: H12033
State: Rhode Island
Locality: Block Island Sound
Sub-locality: W Shore of Block Island: Sandy Pt. to Bluff Head
Project Number: OPR-B363-TJ-09
Survey Dates: 7 August 2009 - 21 August 2009

Charts Affected

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<th>CHS NTM</th>
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* Correction(s) - source: last correction applied (last correction reviewed--“cleared date”)

Features

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<td>071° 36' 28.0&quot; W</td>
<td>7784</td>
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<td>1.4</td>
<td>AWOIS #1825</td>
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<td>41° 12' 08.3&quot; N</td>
<td>071° 36' 01.8&quot; W</td>
<td>1825</td>
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1.1) AWOIS #7280 - AWOIS #7280 OBSTRUCTION

No Primary Survey Feature for this AWOIS Item

Search Position: 41° 11' 57.5" N, 071° 35' 54.0" W
Historical Depth: 15.50 m
Search Radius: 50
Search Technique: ES,S4,DI,##
Technique Notes: [None]

History Notes:
SURVEY REQUIREMENT COMMENTS
SEARCH ONLY TO 30 FT. CURVE AS INDICATED ON PSR MARKUP

HISTORY
CL1250/64--U.S. NAVY UNDERWATER SOUND LABORATORY; A TRANSUDCER i
WAS INSTALLED OFF BLOCK ISLAND IN LAT 41-11-54N, LONG 71-35-52W i
WITH A CABLE RUNNING ALONG A LINE APPROXIMATELY 090 DEGREES TO i
THE SHORE; THE TRANSUDCER IS ABOUT 5 FT. HIGH IN 50 FT. OF WATER i
LEAVING ABOUT 45 FT. OF WATER OVER IT; REQUESTED A CABLE AREA i
BOUNDED BY A LINE RUNNING FROM THE LIGHT IN LAT 41-12-00N, LONG i
71-35-06W TO A POSITION IN LAT 41-12N, LONG 71-35-39.5W, THENCE i
TO LAT 41-12N, LONG 71-36W, THENCE TO LAT 41-11-47N, LONG 71-36W, i
THENCE ALONG A LINE 090 DEGREES TO SHORE; CHARTED AS AN i
OBSTRUCTION REP WITH A 45 FT. SOUNDING AND A DANGER CURVE.
NM43/64--SAME AS ABOVE INFO. (ENTERED MSM 6/89)

FE-348SS/90--OPR-B660-HE; FIELD UNIT LOCATED A TRANSUDCER i
PLACED BY THE USN IN LAT.41-11-57.45N, LONG.71-35-54.0W (NAD 83). i
DIVER INVESTIGATION ACCOMPLISHED; MIN. OBSERVED LEAST DEPTH BY i
ECHO SOUNDER WAS 15.5M (MLLW). (UPDATED 3/93 MCR)

Survey Summary

Charts Affected: 13217_1, 13215_1, 13205_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:
AWOIS #7280 investigated with Reson 7125 multibeam and 200% Klein 5000 side scan sonar. The AWOIS item
was not seen. All that was found was scour. It appears that AWOIS #7280 was removed.
Feature Correlation

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Hydrographer Recommendations

Remove charted obstruction.

S-57 Data

Geo object 1: Obstruction (OBSTRN)
Attributes:
- SORDAT - 20090821
- SORIND - US,US,graph,H12033
- VALSOU - 15.5 m
- WATLEV - 3: always under water/submerged

Office Notes

Concur. Delete charted 51 Obstn and danger curve.
Feature Images

Figure 1.1.1
1.2) AWOIS #1838 - AWOIS #1838 PRINCESS AUGUSTA

No Primary Survey Feature for this AWOIS Item

Search Position: 41° 13' 54.4" N, 071° 34' 40.2" W
Historical Depth: [None]
Search Radius: 200
Search Technique: S2, ES
Technique Notes: [None]

History Notes:
[None]

Survey Summary

Charts Affected: 13217_1, 13215_1, 13205_1, 13218_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:
Most of the radius of AWOIS #1838 falls on sheet H12010. This item was not seen in the portion that falls on H12033. See the H12010 descriptive report for more information.

Feature Correlation

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<th>Range</th>
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</tr>
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</table>

Hydrographer Recommendations

[None]

S-57 Data

[None]

Office Notes

Item neither verified nor disproved by present survey or H12010. Item is not shown on Chart 13217, 15th. Ed., Nov./06 or ENC #US5RI11M. No change in charting is recommended.
1.3) Profile/Beam - 88/106 from h12033 / tj_3101_reson8125_mb / 2009-222 / 000_1302

Primary Feature for AWOIS Item #7784

Search Position: 41° 12' 00.8" N, 071° 36' 28.2" W
Historical Depth: [None]
Search Radius: 50
Search Technique: S2,ES,DI
Technique Notes: [None]

History Notes:
HISTORY
LNM48/70--1ST CGD; 12/2/70; BLOCK ISLAND SOUND EXPERIMENTAL LIGHT E i
HAS BEEN ESTABLISHED BY U.S. NAVY UNDERWATER SYSTEMS CENTER, NEW i
LONDON, CT.; 12 FT. ABOVE MHW ATOP AN ORANGE AND WHITE HORIZONTAL BANDED i
PIPE SECURED TO A SUNKEN BARGE IN 100 FT. OF WATER IN REPORTED i
POSITION 1350 YARDS, 271 DEGREES FROM GREAT SALT POND OUTER END i
LIGHT; PA LAT 41-11-58N, LONG 71-36-27W.
LNM40/77--1ST CGD; 9/7/77; LIGHT HAS BEEN DISCONTINUED; TELECON i
WITH CG, 10/18/77, STRUCTURE REMAINS; CHARTED AS POLE. (ENTERED i
MSM 6/90)
FE-348SS/90--OPR-B660-HE; A SUNKEN BARGE WAS LOCATED IN i
LAT.41-12-00.79N, LONG.71-36-28.20W (NAD 83). EXAMINATION OF SIDE i
SCAN RECORDS DURING OFFICE PROCESSING FOUND TWO EXTREMITIES i
PROTRUDING OUTWARD AND UPWARDED FROM THE HULL OF THE SUNKEN i
BARGE. OFFICE PROCESSING WAS UNABLE TO TO DETERMINE THE HEIGHT OF i
EXTREMITIES DUE TO THE SONARGRAM ASPECT. THE BARGE HAS A COMPUTED i
HEIGHT OF 2.6M (8 FT) IN DEPTHS OF 96-98 FT. ECHOSOUNDER DEVELOPMENT i
ON BARGE WAS NOT CONSIDERED ADEQUATE FOR DETERMINING LEAST i
DEPTH. MINIMALLY OBSERVED DEPTH ON BARGE WAS 26.1M (85 FT). i
EVALUATOR RECOMMENDS TO DELETE POLE FROM THE CHART AND SHOW A i
BARGE AS OBSERVED. (UPDATED 3/93 MCR)
DESCRIPTION
**** TELECON WITH USCG, POINT JUDITH, 6/14/90, TEL. NO. i
401-789-0444; BASE STILL REMAINS WITH APPROXIMATELY 90 FT. OF i
WATER OVER IT; OTHER WRECKS ALSO IN AREA; MAY ALSO BE WRECKAGE OF AIRPLANE WHICH WAS LOST IN THIS AREA LAST YEAR; IF AIRPLANE WRECKAGE FOUND, CONTACT USCG, PT. JUDITH. (ENTERED MSM 6/90)

Survey Summary

Survey Position: 41° 12' 00.1" N, 071° 36' 28.0" W
Least Depth: 27.77 m (= 91.12 ft = 15.186 fm = 15 fm 1.12 ft)
TPU (±1.96σ): THU (TPEh) ±0.994 m ; TVU (TPEv) ±0.179 m
Survey Line: h12033 / tj_3101_reson8125_mb / 2009-222 / 000_1302
Profile/Beam: 88/106
Charts Affected: 13217_1, 13215_1, 13205_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:
AWOIS #7784 was investigated with Reson 8125 multibeam and 200% klein 5000 Side scan sonar. Verified tides with final TCARI zoning was applied to the multibeam data. AWOIS #7784 was found.

Feature Correlation

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Hydrographer Recommendations

Chart least depth on wreck as per current survey.

S-57 Data

Geo object 1: Wreck (WRECKS)
Attributes: CATWRK - 1:non-dangerous wreck
OBJNAM - AWOIS 7784
QUASOU - 6:least depth known
SORDAT - 20090821
SORIND - US,US,graph,H12033
TECSOU - 2,3:found by side scan sonar,found by multi-beam
VALSOU - 27.772 m
WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. Delete 85 Wk. Add 91 Wk.
1.4) Profile/Beam - 6489/53 from h12033 / tj_3102_reson7125_mb / 2009-219 / 008_1920

**Primary Feature for AWOIS Item #1825**

| Search Position: | 41° 12' 08.4" N, 071° 36' 01.5" W |
| Historical Depth: | 15.54 m |
| Search Radius: | 100 |
| Search Technique: | MB,S2,ES |
| Technique Notes: | UPDATE LEAST DEPTH ON WRECK |

**History Notes:**

SURVEY REQUIREMENT COMMENTS
LOCAL DIVERS REPORT THAT THERE ARE TWO WRECKS AT THIS POSITION. LOCATE BOTH AND ACQUIRE LEAST DEPTHS AND POSITIONS.

HISTORY

H4041/18-19WD--WRECK LOCATED IN LAT 41-12-08.0N, LONG 71-36-02.4W (SCALED FROM SURVEY AT 1:20,000 SCALE); 51 FT. SOUNING. (ENTERED MSM 4/89)

FE-348SS/90--OPR-B660-HE; WRECK LOCATED BY SIDE SCAN SONAR IN POS. LAT.41-12-08.36N, LONG.71-36-01.54W (NAD 83). FATHOMETER MINIMALLY OBSERVED DEPTH (NOT CONSIDERED LEAST DEPTH) WAS 21.6M. (UPDATED 3/93 MCR)

DESCRIPTION

24 NO.8653; POSITION ACCURACY WITHIN 1 MILE; WD CLEARED TO 51 FT.; REPORTED THROUGH CGS SURVEY; DATED 1941.

195 LORAN C RATES PROVIDED BY MR. RICHARD TARACKA, GREENWICH, CT. POLICE DEPARTMENT, TEL NO. 203-622-8007; WRECK IDENTIFIED AS TWO BROTHERS IN 9960-X 25872.1, 9960-Y 43902.3; WRECK IDENTIFIED AS MONTANA IN 9960-X 25871.2, 9960-Y 43900.7. (ENTERED MSM 4/89)

193 WRECK IDENTIFIED AS "MONTANNA" LOCATED AT LORAN RATES 9960-W 14545.3, 9960-Y 43900.7; INFORMATION PROVIDED BY MR. TIM COLEMAN, MT PUBLICATIONS, MYSTIC, CT., TEL NO. 203-572-0564. (ENTERED MSM 7/89)
Survey Summary

Survey Position: 41° 12' 08.3" N, 071° 36' 01.8" W
Least Depth: 22.87 m (= 75.04 ft = 12.507 fm = 12 fm 3.04 ft)
TPU (±1.96σ): THU (TPe) ±1.016 m ; TVU (TEV) ±0.335 m
Survey Line: h12033 / tj_3102_reson7125_mb / 2009-219 / 008_1920
Profile/Beam: 6489/53
Charts Affected: 13217_1, 13215_1, 13205_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:
AWOIS #1825 was investigated with Reson 8125 multibeam and 200% klein 5000 Side scan sonar. Verified tides with final TCARI zoning was applied to the multibeam data. AWOIS #1825 was found.

Feature Correlation

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<td>101.0</td>
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Hydrographer Recommendations

Retain as charted.

S-57 Data

Geo object 1: Wreck (WRECKS)
Attributes: QUASOU - 6:least depth known
SORDAT - 20090821
SORIND - US,US,graph,H12033
TECSOU - 2,3:found by side scan sonar,found by multi-beam
VALSOU - 22.873 m
VERDAT - 16:Mean high water
WATLEV - 3:always under water/submerged
Office Notes

Do not concur - Delete 71 Wk. Add 75 Wk.
Registry Number: H12033
State: Rhode Island
Locality: Block Island Sound
Sub-locality: W Shore of Block Island: Sandy Pt. to Bluff Head
Project Number: OPR-B363-TJ-09
Survey Dates: 7 August 2009 - 21 August 2009

Charts Affected

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

Features

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<td>18 Boulder disproved Shoal</td>
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<td>071° 35' 47.8&quot; W</td>
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<td>1.2</td>
<td>7 Rk Wire Drag disproved Obstruction</td>
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1.1) Profile/Beam - 308/181 from h12033 / tj_3102_reson7125_mb / 2009-222 / 103_1919

Survey Summary

Survey Position: 41° 11' 39.3" N, 071° 35' 47.8" W
Least Depth: 5.58 m (= 18.32 ft = 3.053 fm = 3 fm 0.32 ft)
TPU (±1.96σ): THU (TPEh) ±0.999 m ; TVU (TPEv) ±0.284 m
Survey Line: h12033 / tj_3102_reson7125_mb / 2009-222 / 103_1919
Profile/Beam: 308/181
Charts Affected: 13217_1, 13215_1, 13205_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:
Charted boulder found with Reson 7125 multibeam. Verified tides were applied with final TCARI zoning.

Feature Correlation

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</table>

Hydrographer Recommendations

Retain charted dangerous obstruction, boulder. Update sounding with current survey.

S-57 Data

Geo object 1: Sounding (SOUNDG)

Office Notes

Charted 16 Boulder was determined during office processing to be a sounding in a rky seabed area. Delete 16 Boulder and danger curve. Chart present survey depths.
Feature Images

Figure 1.1.1
1.2) GP No. - 1 from ChartGPs - Digitized

Survey Summary

Survey Position: 41° 13’ 04.7” N, 071° 34’ 56.7” W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2009-267.16:50:00 (09/24/2009)
GP Dataset: ChartGPs - Digitized
GP No.: 1
Charts Affected: 13217_1, 13215_1, 13205_1, 13218_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:
Seven foot wire drag investigated with Reson 7125. All of the depths are deeper than seven feet.

Feature Correlation

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<th>Azimuth</th>
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Hydrographer Recommendations

Remove dangerous rock. Chart current survey soundings.

S-57 Data

Geo object 1: Obstruction (OBSTRN)
Attributes: SORDAT - 20090821
SORIND - US,US,graph,H12033
WATLEV - 3:always under water/submerged

Office Notes

Concur - Delete 7 Rk wire drag clearance. Chart present survey depths.
Feature Images

Figure 1.2.1
Figure 1.2.2
UNCHARTED

Registry Number: H12033
State: Rhode Island
Locality: Block Island Sound
Sub-locality: W Shore of Block Island: Sandy Pt. to Bluff Head
Project Number: OPR-B363-TJ-09
Survey Dates: 7 August 2009 - 21 August 2009

Charts Affected

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

Features

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1 - DR_UnCharted
1.1) Profile/Beam - 1880/213 from h12033 / tj_3102_reson7125_mb / 2009-221 / 030_1653

Survey Summary

Survey Position: 41° 12' 36.5" N, 071° 35' 13.2" W
Least Depth: 11.52 m (= 37.80 ft = 6.300 fm = 6 fm 1.80 ft)
TPU (±1.96σ): THU (TPEh) ±1.000 m ; TVU (TPEv) ±0.289 m
Survey Line: h12033 / tj_3102_reson7125_mb / 2009-221 / 030_1653
Profile/Beam: 1880/213
Charts Affected: 13217_1, 13215_1, 13205_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:
Uncharted wreck found with Reson 7125 multibeam. Verified tides were applied with final TCARI zoning. Inconsistency in position caused a double image but the least depth is accurate.

Feature Correlation

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Hydrographer Recommendations

Chart dangerous wreck in designated location.

Cartographically-Rounded Depth (Affected Charts):
38ft (13217_1, 13215_1, 13205_1)
6 ¼fm (12300_1, 13006_1, 13003_1)
11.5m (5161_1)

S-57 Data

Geo object 1: Wreck (WRECKS)
Attributes: CATWRK - 1:non-dangerous wreck
QUASOU - 6:least depth known
SORDAT - 20090821
SORIND - US,US.graph,H12033
TECSOU - 3: found by multi-beam
VALSOU - 11.522 m
VERDAT - 16: Mean high water
WATLEV - 3: always under water/submerged

Office Notes

Concur with clarification - Add 38 Wk and danger curve.
Feature Images

Figure 1.1.1
Appendix III

Progress Sketch

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Appendix IV

Tides and Water Levels

1. Tide Notes

2. Request for Approved Tides

3. Final Tide Notes
DATE: September 04, 2009

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: CPR-B363-TJ-2009
HYDROGRAPHIC SHEET: H12033

LOCALITY: W Shore Block Island: Sandy Pt. to Bluff Head, RI
TIME PERIOD: August 7 - 21, 2009

TIDE STATION USED: Newport, RI 845-2660
                   Lat. 41° 30.3' N Long. 71° 19.6' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.099 meters

TIDE STATION USED: New London, CT 846-1490
                   Lat. 41° 21.7' N Long. 72° 05.4' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.839 meters

TIDE STATION USED: Montauk, NY 851-0560
                   Lat. 41° 02.9' N Long. 71° 57.6' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.683 meters

REMARKS: RECOMMENDED GRID

Please use the TCARI grid "B363TJ2009-TCARI-Revised" as the final grid for project CPR-B363-TJ-2009, H12033, during the time period between August 7 and August 21, 2009.

Refer to attachments for grid information.

Note 1: Provided time series data are tabulated in metric units (meters), relative to MLW and on Greenwich Mean Time on the 1983-2001 National Tidal Datum Epoch (NTDE).

Peter J. Stone
CHIEF, OCEANOGRAPHIC DIVISION
Final TCARI Grid for OPR-B363-TJ-2009, H12033
Block Island Sound, RI
Appendix V

Supplemental Survey Records & Correspondence
U.S. DEPARTMENT OF COMMERCE  
(10-95) NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
OCEANOGRAPHIC LOG SHEET - M  
BOTTOM SEDIMENT DATA

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**H12033 COMPILATION LOG**

### General Survey Information

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**SPECIFICATIONS:**

I. **COMBINED SURFACE:**
   a. Number of ESAR Final Grids: **10**
   b. Resolution of Combined (m): **4M**

II. **SURVEY SCALE SOUNDINGS (SS):**
   a. **Radius**
   b. **Shoal biased**
   c. Use Radius Table File: *H12033_SoundgsSpacingRange*
   d. Queried Depth of All Soundings
      i. Minimum: **0.926M**
      ii. Maximum: **46.81M**

III. **INTERPOLATED TIN SURFACE:**
   a. Resolution (m): **4M**
   b. **Linear**
   c. Shifted value: 
      - **[-0.229m (feet), (≤ 10 fathoms)]**
      - **[-1.372m (fathoms), (> 10 fathoms)]**

IV. **CONTOURS:**
   a. Use a Depth List: *H12033_depth_curves_list.txt*
   b. Line Object: **DEPCNT**
   c. Value Attribute: **VALDCO**

V. **FEATURES:**
   a. Total Number of Features: **4**
   b. Number of Insignificant Features:

VI. **CHART SURVEY SOUNDINGS (CS):**
   a. Number of ENC CS Soundings: **753**
   b. **Radius**
   c. **Shoal biased**
   d. Use Single-Defined Radius: **m on the ground**
      i. Radius Value (m):
      ii. Or use a Sounding Space Range Table (if applicable): **N/A**
   e. Filter: **Interpolated != 1**
   f. Number Survey CS Soundings: **832**

VII. Notes:
ATLANTIC HYDROGRAPHIC BRANCH
H-CELL REPORT to ACCOMPANY
SURVEY H12033 (2009)

This H-Cell 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.2. QUALITY CONTROL

H-Cell

The AHB source depth grid for the survey’s nautical chart update product
entailed the field’s original 50cm and 2m grids. These grids were combined at 4 meter
resolution. The survey scale soundings were created from the combined surface using the
H12033_SoudingsSpacingRange file. Refer to the Compilation Log above for exact
values used for this process. A TIN was created from the survey scale soundings from
which an interpolated surface was generated. The chart scale soundings were selected
from the filtered interpolated surface using a single defined radius at the 1:15,000 chart
scale. The chart scale selected soundings are a subset of the survey scale selected
soundings. The surface model was referenced when selecting the chart scale soundings,
to ensure that the selected soundings portrayed the bathymetry within the common area.

Depth contours were created from a shifted interpolated TIN surface of
8m resolution and the contours were then derived from the interpolated and non-
interpolated nodes. Therefore, using this method the contours are in harmony with the SS
and CS soundings while maintaining the chart equivalent contour values as whole
integers. The depth contours are being forwarded to MCD for reference only. The
contours were utilized during chart scale sounding selection and quality assurance efforts
at AHB. The depth contours are incorporated into the SS H-Cell product as per 2009 H-
Cell Specifications.

The compilation components (Stand Alone HOB files (SAHOB)) are
detailed in the Compile Log attached to the Descriptive Report. The SAHOB files
included depth areas (DEPARE), depth contours (DEPCNT), sounding selections
(SOUNDG), features (SBDARE, SNDWAV, WRECKS), Meta objects (M_COVR,
M_QUAL), and cartographic Blue Notes ($CSYMB).

All of the components with the exception of the survey scale 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 survey
scale sounding selection and depth contours were exported into S-57 format separately,
and then both S-57 files were processed in CARIS HOM to convert the metric units to
feet. The final products are two S-57 files, in Lat/Lon NAD-83, one that contains the
Chart soundings, all the Features, Meta objects, and Bluenotes (H12033_CS.000), and
one that contains the survey scale sounding selection and depth contours
(H12033_SS.000). Finally, quality assurance checks were made utilizing CARIS S-57
Composer version 2.1 validation checks and DKART INSPECTOR version 5.
H12033 CARIS H-Cell final deliverables include the following products:

<table>
<thead>
<tr>
<th>Code</th>
<th>Scale</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H12033_C.S.000</td>
<td>1:15,000 Scale</td>
<td>H12033 H-Cell with Chart Scale Selected Soundings</td>
</tr>
<tr>
<td>H12033_SS.000</td>
<td>1:7,500 Scale</td>
<td>H12033 Selected Soundings (Survey Scale)</td>
</tr>
</tbody>
</table>

**B.2.4 Junctions**

Survey H12033 has a junction with surveys H12010 to the east, H12137 to the southwest, H12139 to the northwest and H12011 to the north. Present survey soundings compare within 1 foot with H12010, H12137, H12139 and H12011.

**B.4 DATA PROCESSING**

The following software was used to process data at the Atlantic Hydrographic Branch:

- CARIS HIPS/SIPS version 6.1 SP2, HF 1-8
- CARIS Bathy DataBASE version 2.1 SP1, HF 1-10
- CARIS S-57 Composer version 2.1 HF 4
- DKART INSPECTOR, version 5.0 Build 732 SP1
- CARIS HOM ENC 3.3 SP3 HF 8
- PYDRO 10.7 (r2982)

**C. HORIZONTAL AND VERTICAL CONTROL**

The Hydrographer makes adequate mention of all water level and vertical datum adjustments in the Descriptive Report and Horizontal and Vertical Control Report submitted with this project.

The horizontal control used for this survey’s data acquisition and H-Cell compilation is based upon the North American Datum of 1983 (NAD83), UTM projection zone 19.

**D. RESULTS AND RECOMMENDATIONS**

**D.1 CHART COMPARISON 13217 (15th Edition, Nov. /06)**

- Corrected through NM 11/04/2006
- Corrected through LNM 10/24/2006
- Scale 1:15,000

**ENC Comparison US5RI11M**

- Block Island
- Edition 2
- Application Date 2010-05-05
- Issue Date 2010-05-05
- Chart 13217
HYDROGRAPHY

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

Three rky seabed areas in the following locations were created from the grids of the present survey:

<table>
<thead>
<tr>
<th>LATITUDE N</th>
<th>LONGITUDE W</th>
</tr>
</thead>
<tbody>
<tr>
<td>41°13'15.00”</td>
<td>071°35'15.00”</td>
</tr>
<tr>
<td>41°10'50.00”</td>
<td>071°36'50.00”</td>
</tr>
<tr>
<td>41°15'30.00”</td>
<td>071°35'20.00”</td>
</tr>
</tbody>
</table>

All charted bottom characteristic with notations rky or hard were deleted from within the rky seabed areas. It is recommended that the areas be charted as shown on present survey.

An area of uncharted sand waves in the vicinity of Latitude 41°14'55.00”N Longitude 071°36'10.00”W was located during present survey operations. It is recommended that the areas be charted as shown on present survey.

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.

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.
Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of depth contours, disposition 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.

Norris A. Wike  
Cartographer  
Atlantic Hydrographic Branch

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

Richard T. Brennan
I am approving this document
2010.08.31 18:49:16 -04'00'

Approved: __________________________

Richard T. Brennan  
Commander, NOAA  
Chief, Atlantic Hydrographic Branch

Rachel Medley
AWOIS and SURF check complete  
2010.09.08 14:01:23 -04'00'