

**H11922**

NOAA FORM 76-35A

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

**DESCRIPTIVE REPORT**

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

*Registry Number:* **H11922**

**LOCALITY**

*State:* RI and MA

*General Locality:* Rhode Island Sound and Approaches

*Sub-locality:* 8 NM West of Gay Head

**2008**

CHIEF OF PARTY  
**CDR P. Tod Schattgen**  
NOAA

LIBRARY & ARCHIVES  
DATE

**HYDROGRAPHIC TITLE SHEET**

**H11922**

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: **RI and MA**

General Locality: **Rhode Island Sound and Approaches**

Sub-Locality: **8 NM West of Gay Head**

Scale: **1:10,000** Date of Survey: **07/16/08 to 08/22/08**

Instructions Dated: **06/24/2008** Project Number: **OPR-B307-TJ-08**

Vessel: **NOAA Ship *Thomas Jefferson***

Chief of Party: **CDR P. Tod Schattgen, NOAA**

Surveyed by: ***Thomas Jefferson Personnel***

Soundings by: **Reson 8101, 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:

Soundings in: **Meters at MLLW (*H-Cell in feet at MLLW*)**

Remarks:

- 1) All Times are in UTC.**
  - 2) This is a Navigable Area Hydrographic Survey.**
  - 3) Projection is UTM Zone 19, North American Datum of 1983.**
- \*Bold italic red notes in the Descriptive Report were mad during office processing***

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**Descriptive Report to Accompany Hydrographic Survey H11922**

Project OPR-B307-TJ-08  
 8 NM West of Gay Head  
 Rhode Island Sound and Approaches  
 Scale 1:10,000  
 July 16<sup>th</sup> – August 22<sup>nd</sup> 2008  
**NOAA Ship THOMAS JEFFERSON**

**A. AREA SURVEYED**

This hydrographic survey was completed as specified by Hydrographic Survey Letter Instructions OPR-B307-TJ-08, dated 24 June 2008. The survey area includes the following area:

North-east corner	North-west corner	South-east corner	South-west corner
41° 21' 27.72" N 70° 54' 09.78" W	41° 18' 02.10" N 71° 06' 00.38" W	41° 19' 06.88" N 70° 52' 19.30" W	41° 15' 38.05" N 071° 04' 54.91" W

**Table A-1: Survey Extents**

Data acquisition was conducted from 16 July 2008 to 22 August 2008.

The purpose of this survey was to provide modern complete coverage hydrographic surveys for 28 square nautical miles area, which was designated as a critical area in the Hydrographic Survey Priorities, 2007 edition.

<i>NOAA Ship THOMAS JEFFERSON, Sheet D H11922</i>	Linear Nautical Miles
LNM Single beam mainscheme only	N/A
LNM Multibeam mainscheme only	830.0
LNM Lidar mainscheme only	N/A
LNM Side Scan Sonar mainscheme only	N/A
Linear nautical miles of any combination of the above techniques (specify methods)	N/A
LNM Crosslines singlebeam and multibeam combined	41.0
LNM Lidar Crosslines	N/A
LNM development lines non mainscheme	53.4
LNM shoreline/nearshore investigations	0
Number of Bottom Samples	14
Number of items investigated that required additional time/effort in the field beyond the above survey operations	0
Total number of square nautical miles	28

**Table A-2. Hydrographic Survey Statistics**

Calendar Date	Julian Day	Calendar Date	Julian Day
16-July-2008	198	10-August-2008	223
17-July-2008	199	11-August-2008	224
18-July-2008	200	12-August-2008	225
22-July-2008	204	13-August-2008	226
23-July-2008	205	14-August-2008	227
24-July-2008	206	19 August-2008	232
25-July-2008	207	20-August-2008	233
26-July-2008	208	21-August-2008	234
27-July-2008	209		
28-July-2008	210		
31-July-2008	213		
06-August-2008	219		
07-August-2008	220		
09-August-2008	222		

Table A-3: Dates of Multibeam Data Acquisition in Calendar and Julian Days

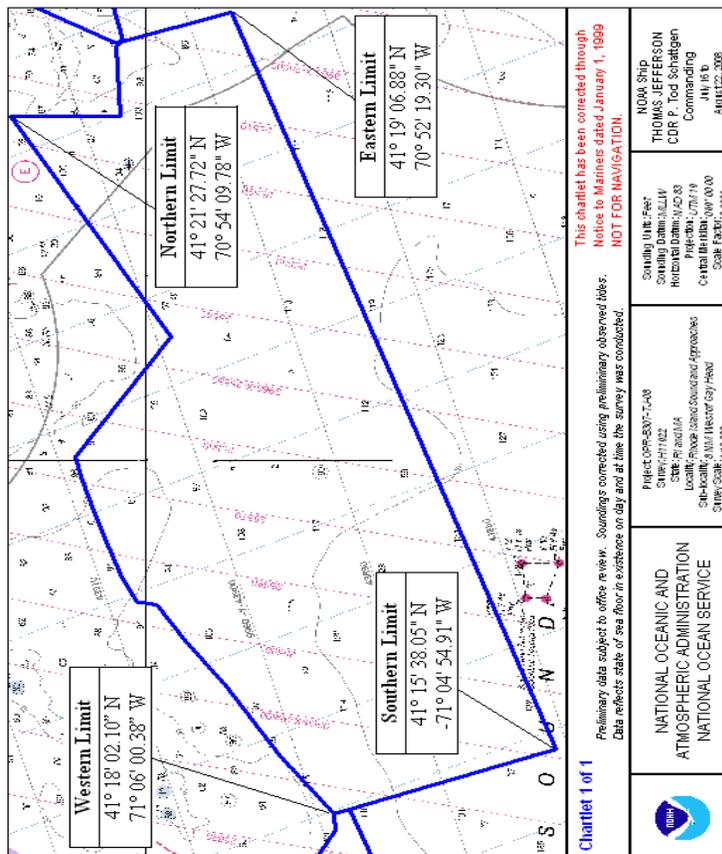


Fig. A-1: H11922 Survey Area

## **B. DATA ACQUISITION AND PROCESSING**

Refer to *Fall 2008 Thomas Jefferson 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.

*\*The Fall 2008 DAPR was not available at the time of submission. The Data was submitted with the Spring 2008 DAPR and was filed at the Atlantic Hydrographic Branch.*

### **B 1. EQUIPMENT AND VESSELS**

Data were acquired by NOAA Ship *Thomas Jefferson* (S222) and Hydrographic Survey Launches 3101 and 3102. S222 acquired RESON 7125 multibeam echosounder soundings, sound velocity profiles, and bottom samples. S222 acquired data using both its port and starboard heads separately. Launch 3101 acquired RESON 8125 multibeam echosounder soundings, and sound velocity profiles. Launch 3102 acquired RESON 8101 multibeam echosounder soundings, and sound velocity profiles. Vessel configurations, equipment operation and data acquisition and processing were consistent with specifications described in the DAPR\*.

*\*Data filed at the Atlantic Hydrographic Branch*

### **B 2. QUALITY CONTROL *(Also see Evaluation Report)***

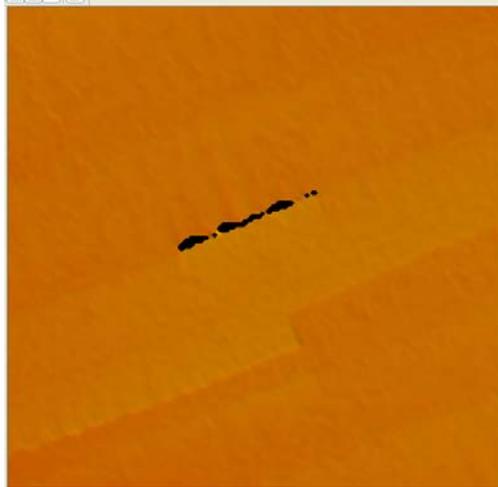
#### **B 2.1 System Certification and Calibration**

Refer to the included 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.

*\*Data filed at the Atlantic Hydrographic Branch*

#### **B.2.2 Sounding Coverage**

As per the Letter Instructions, this survey was conducted using complete multibeam coverage, which was monitored by the creation of a 2 meter BASE surface. A list of all navigationally significant features is contained in Appendix II. A coverage gap is located at 41°20'29.11"N, 070°59'54.94"W which is 112 meters in length, does not appear to contain any potentially significant features, and lies in a flat-bottomed area. *Concur.*



**Fig. B-1. Holiday at 41°20'29.11"N, 070°59'54.94"W**

**B.2.3 Crosslines**

Multibeam echosounder cross-lines totaling 40.9 linear nautical miles, comprising 5 percent of multibeam hydrography, were acquired during the course of the survey. Crosslines were acquired with all three vessels\*, so that a good comparison of same-vessel soundings for each of the three vessels could be achieved. Visual comparison was conducted to assess any differences between crosslines and mainscheme data. Standard deviation for crosslines and artifacts was within the IHO Order 1 Error Budget of 0.5m, and was generally within 0.20 m. Please see the document entitled “H11922 Standard Deviation Report”, located under the Crossline Comparisons folder, for a detailed description of the results. *Concur with clarification. Data delivered to AHB can only verify that crosslines were acquired by the TJ Reson 7125 Port head only.*

**B 2.4 Junctions and Prior Surveys**

The following contemporary surveys junction with H11922:

<b>Registry #</b>	<b>Scale</b>	<b>Date</b>	<b>Field Party</b>	<b>Junction side</b>
H10458	1:20,000	1993	<i>Rude</i>	NW
H10548	1:10,000	1994	<i>Rude</i>	N
H10649	1:10,000	2004	Contractor	NE
H11920	1:10,000	2008	<i>Thomas Jefferson</i>	E
H11995	1:10,000	2008	<i>Thomas Jefferson</i>	W

**Table B-1. Junction and Prior Surveys**

Historical junction surveys provided for comparison are in a format unrecognizable by any of *Thomas Jefferson’s* suite of processing software. Surrounding chart soundings and concurrent surveys are considered adequate to provide surrounding comparison data, and are generally within 2 feet of the outer soundings. *Concur.*

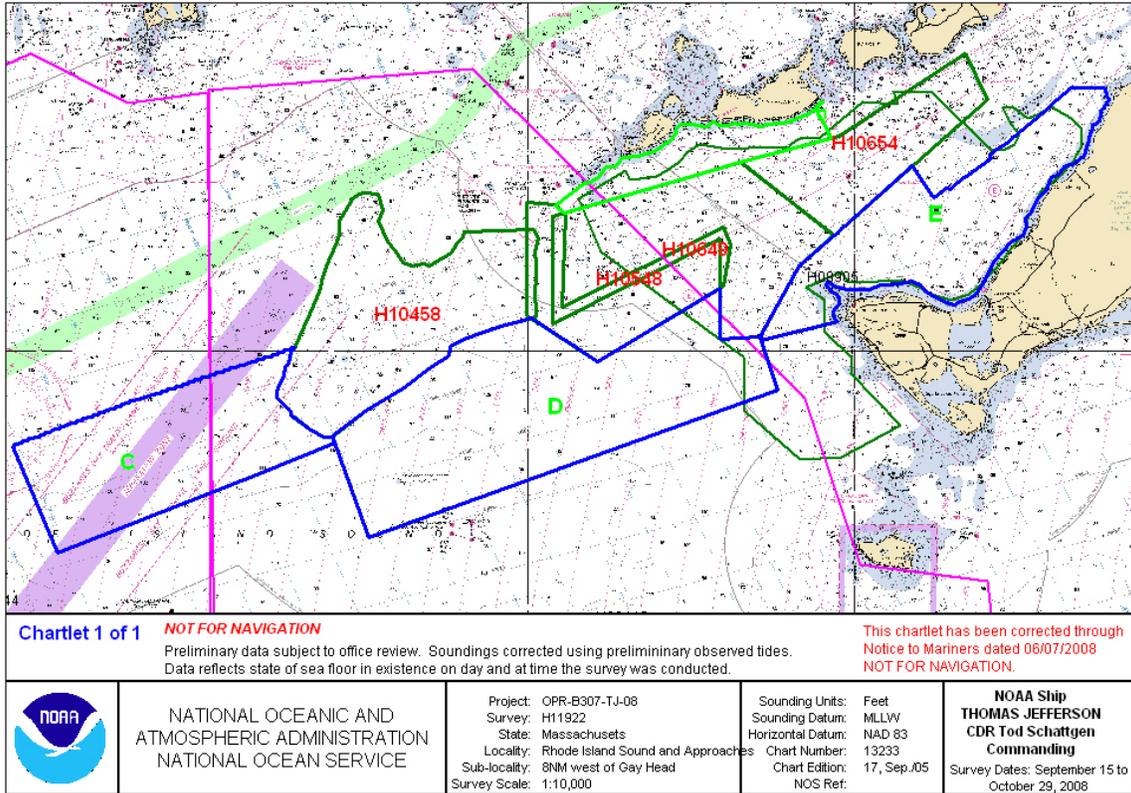
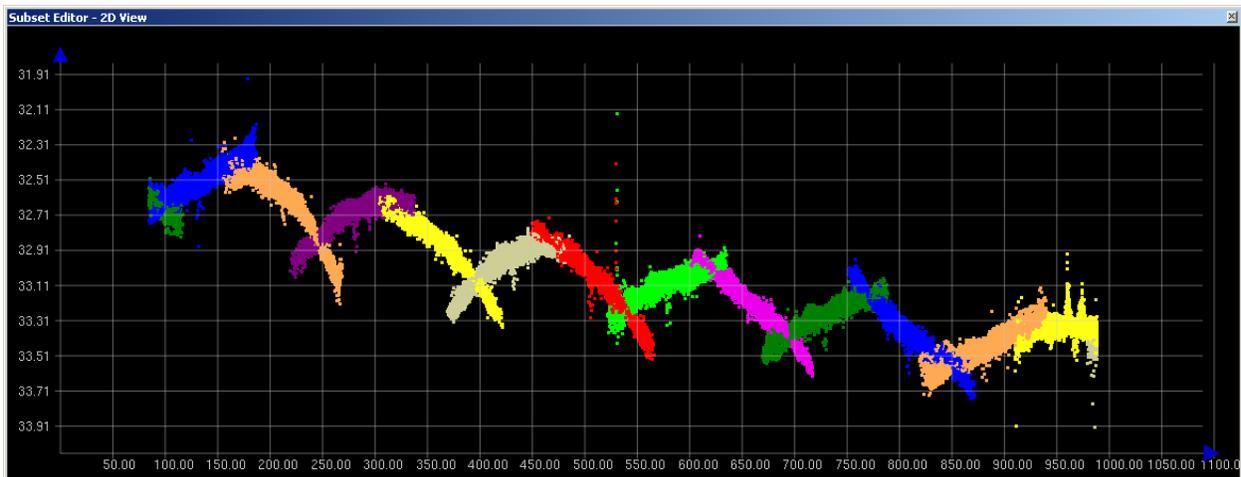


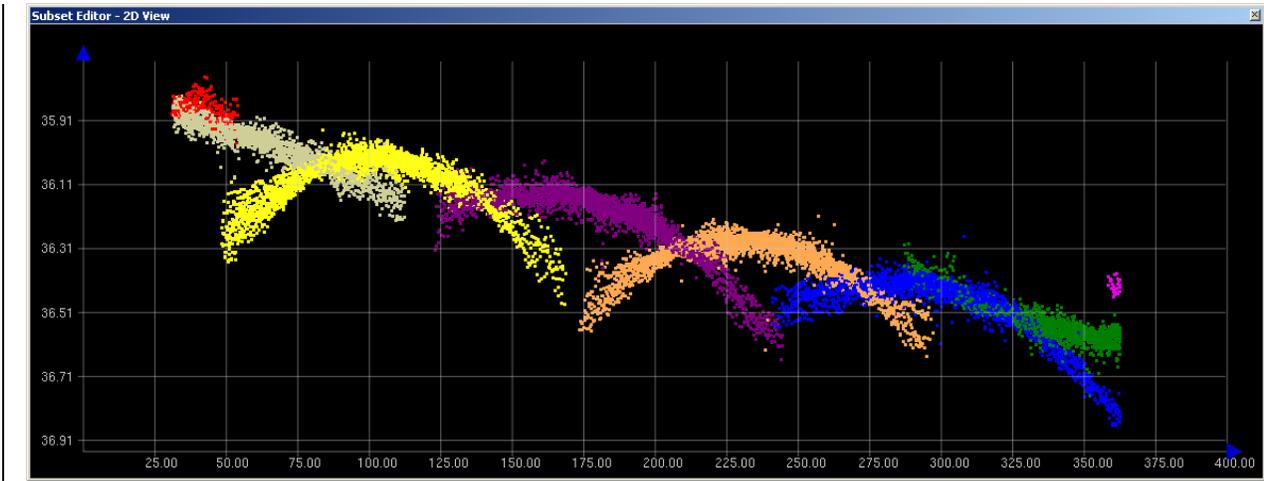
Figure B-2. H11922 Junction Surveys.

### B 2.5 Systematic Errors



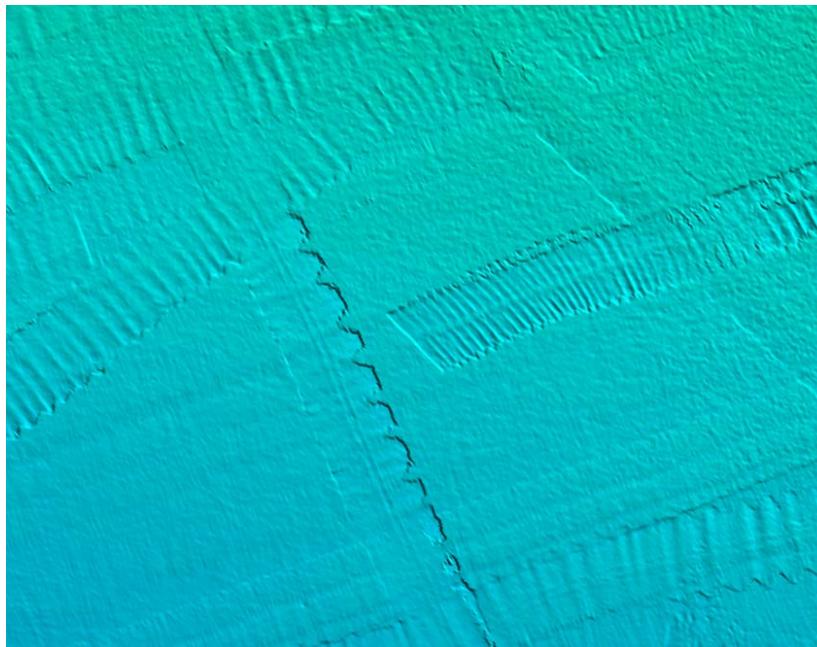
**Fig. B-3. Launch 3101 Roll Artifact**

A roll artifact was found in the RESON 8125 on Launch 3101. This was corrected by adding a 0.10 value for time series



**Fig. B-4. Launch 3101 sound speed error.**

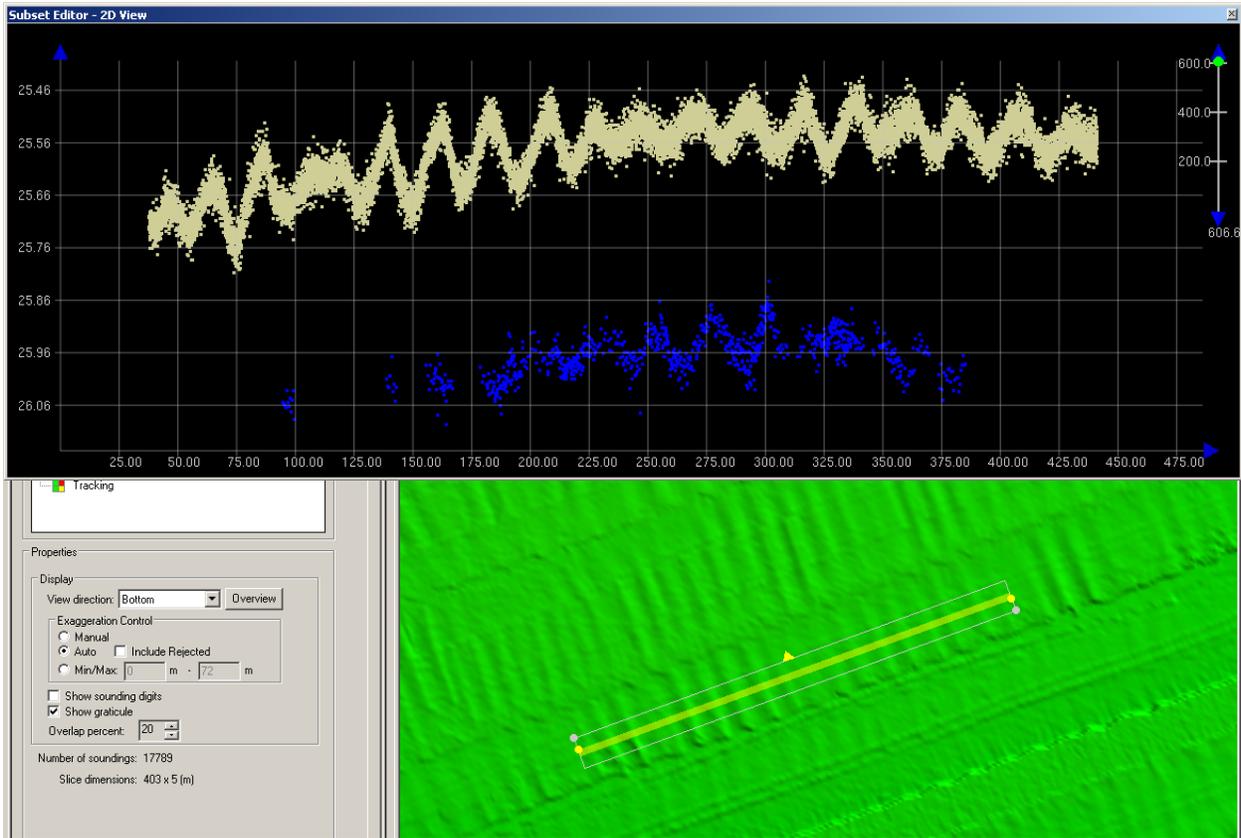
A sound speed error was encountered on day numbers 205 and 207 with data acquired by HSL 3101. An attempt was made to correct by substituting SVP information collected by *Thomas Jefferson* which was operating nearby, with no success. An approximately 20 centimeter difference between nadir and outer beams was observed, as demonstrated by the above image. This falls well within IHO Order 1 specifications for vertical error.



**Fig. B-5. Crossline error.**

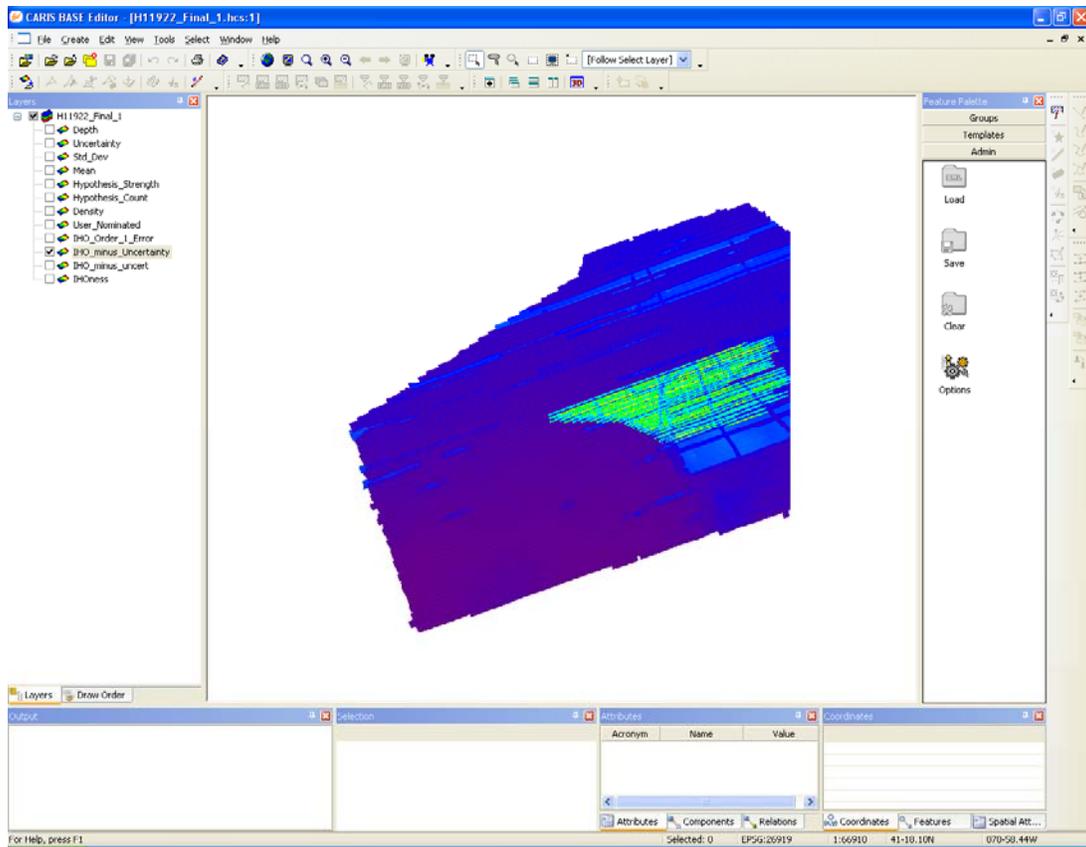
Junction between Reson 8125 mainscheme and Reson 7125 Crosslines. The 7125 crossline data was found to have significant sound speed error in the outer beams. This was determined by examining the area in subset editor, the surrounding mainscheme data is flat while the crossline

data displayed significant “frowning”. As this data was not needed for coverage, the outer beams were filtered out (from 30 degrees on either side of nadir).



**Figure B-6. Heave artifact.**

A heave artifact was noted throughout the data in various places. The cause of this error is unknown; however, the 0.2 meter error it creates is well within the IHO Order 1 error budget for this survey. *Concur.*

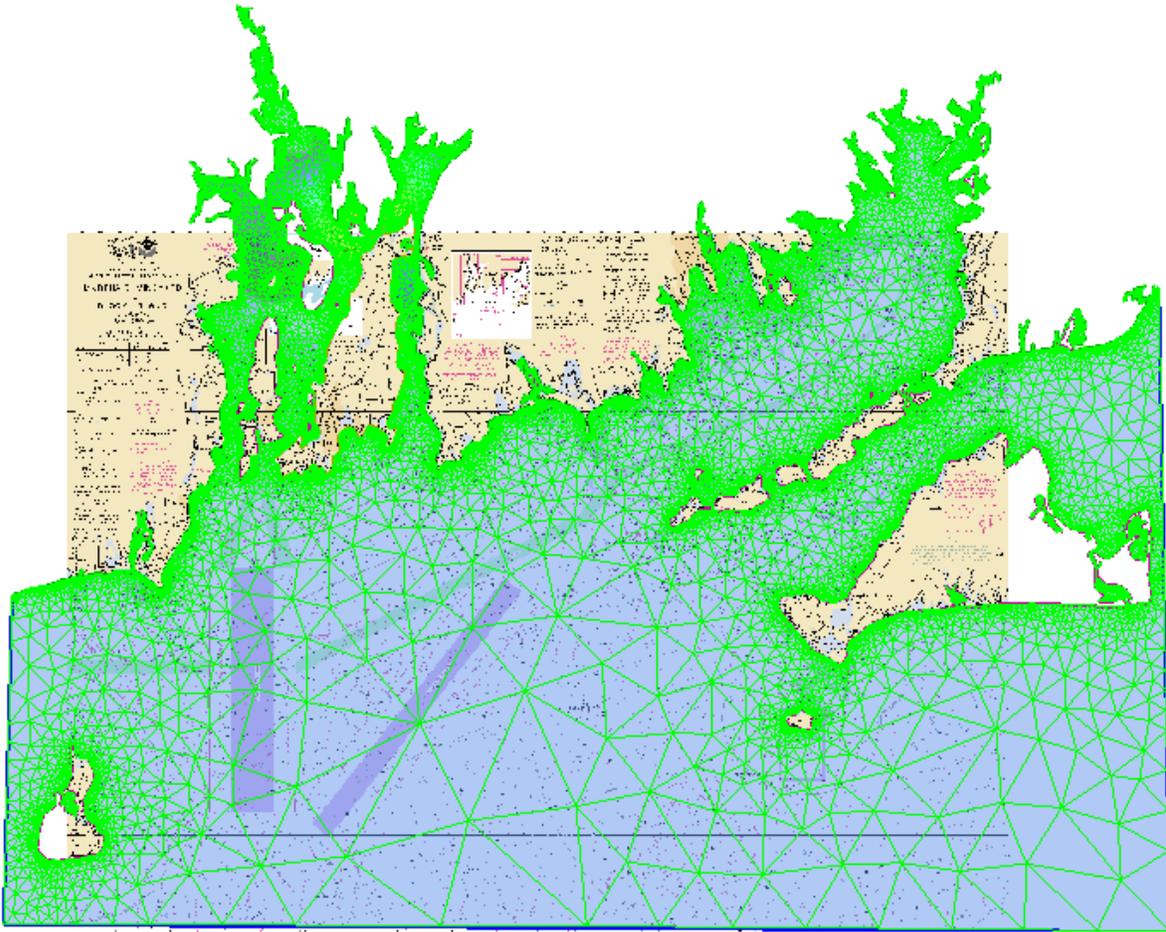


**Figure B-7. IHO order issues.**

The Reson 8125 data from DN 234 (green lines in the figure above) did not initially meet IHO Order 1 Specifications. The problem was traced to an abnormally high value in the MRU Align StdDev Roll/Pitch entry in the TPE section of the HVF. The patch test was re-examined and a new value was derived, which brought the data into IHO Order 1 specifications. *Concur.*

### **B 3. CORRECTIONS TO ECHO SOUNDING**

Sounding data were reduced to mean lower-low water (MLLW) using approved tides from the primary station at Newport, RI (845-2660) and secondary station at Menemsha Harbor (844-8725), adjusted for tidal constituents and residuals provided by CO-OPS as specified in the Letter Instructions and illustrated in Figure 4.



**Figure B-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.

**B 4. DATA PROCESSING**

**B 4.1 Total Propagated Error**

For the 2008 field season, Total Propagated Error (TPE) parameters for sound speed and tides are calculated separately for each project. The project-specific parameters for OPR-B307-TJ-08, Survey H11922 are as follows:

Vessel	Tide Values		Sound Speed Values	
	Measured	Zoning	Measured	Surface
3101	0	0	1	0.2
3102	0	0	1	0.2
S222 MVP	0	0	1	0.2
S222 CTD	0	0	1	0.2

**Table B-2. TPE parameters**

Measured Sound Speed values were calculated using the HSTP Sound Speed Estimator program and were consistently below 1 m/s for the project area (see processing logs in the Acquisition\_& Processing\_Logs folder in the Separates folder. The TPE values were calculated for all MBES data immediately following CARIS Merge.

**B 4.2 BASE Surfaces and Mosaics**

The following table describes all BASE Surfaces and Mosaics submitted as part of Survey H11922:

<i>Name of Fieldsheet</i>	<i>Resolution</i>	<i>Type</i>	<i>Purpose</i>
H11922_1	2 m	CUBE	Coverage and Bathymetry Monitoring
H11922_2	2 m	CUBE	Coverage and Bathymetry Monitoring

**Table B-3. Compiled field sheets**

This survey was processed using the Combined Uncertainty and Bathymetry Estimator (CUBE) algorithm. IHO Order 1 was selected and the CUBE configuration was set to “Deep”. Refer to the [FallSpring 2008 Thomas Jefferson Data Acquisition and Processing Report](#), 2008 Field Procedures Manual (FPM), and CARIS HIPS/SIPS 6.1 manual for further discussion.

## **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.

### **C 1.1 Horizontal Control**

The horizontal datum for this project is the North American Datum of 1983 (NAD83), UTM zone 19. Differential GPS (DGPS) was the sole method of positioning. Differential corrections from the U.S. Coast Guard beacon at Acushnet, MA (306 kHz) were used during this survey.

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

### **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 Newport, RI (845-2660) and secondary station at Menemsha Harbor (844-8725), served as datum control for H11922. Verified water level data with approved TCARI constituents and residuals were applied to all sounding data after completion of operations.

A request for delivery of final approved (verified) tides for this survey was forwarded to N/OPS1 on August 25, 2008, in accordance with the FPM and project letter instructions. Approved (verified) water levels were downloaded from CO-OPS on October 15th, 2008, and applied with preliminary TCARI zoning which was accepted as final TCARI zoning.

## D. RESULTS AND RECOMMENDATIONS

### D.1 Chart Comparison

Survey H11922 was compared with chart 13218 (40<sup>th</sup> Ed.; February 2008, 1:80,000), 13200 (35<sup>th</sup> Ed.; May 2007, 1:400,000), 12300(47<sup>th</sup> Ed.; May 2008, 1:400,000), 13009 (33<sup>rd</sup> Ed.; May 2007, 1:675,000), 5161 (13<sup>th</sup> Ed.; October 2003, 1:1,058,400) 13003 (49<sup>th</sup> Ed.; April 2007, 1:1,200,000) ENC US4MA23M. Chart comparisons were performed in CARIS.

#### D.1.1 Chart 13218 Comparison

Depths from charts 13218 generally agree with the current survey, with differences generally 2 feet or less. Forty soundings were compared from the chart to the survey, resulting in an average difference of 2.3 feet. The chart was generally shoaler than the acquired depths.

A charted 90 foot mound in location 41° 18' 09.77" N, 071° 00' 10.60" W was surveyed by all three platforms and found to have a least depth of 101 feet at MLLW, corrected with approved tides and final tide zoning. The Hydrographer recommends charting present survey soundings in this location.

A charted 96 foot sounding in location 41° 17' 16.47" N, 071° 00' 12.75" W was found to have a least depth of 103 feet at MLLW, corrected with approved tides and final tide zoning. The Hydrographer recommends charting present survey soundings in this location.

#### D.1.2 Chart 12300 Comparison

Depths from Chart 12300 generally agree with the current survey, with the average difference of 3-4 feet. The only noteworthy exceptions are the aforementioned 90 foot (15 fathom) mound that was found to be 101 feet deep and the AWOIS wreck that was not disproved. *Do not concur. AWOIS item #7226 disproved. Also see Evaluation Report*

#### D.1.3 Chart 13200 Comparison

Depths from Chart 13200 generally agree with the current survey, with the average difference of 3-4 feet. The only noteworthy exceptions are the aforementioned 90 foot (15 fathom) mound that was disproved and the AWOIS wreck that was not disproved. *Do not concur. AWOIS item #7226 disproved. Also see Evaluation Report*

#### D.1.4 Chart 13009 Comparison

Depths from Chart 12300 generally agree with the current survey, with the average difference of 3-4 feet. The only noteworthy exceptions are the aforementioned 90 foot (15 fathom) mound that was found to be 101 feet and the AWOIS wreck that was not disproved. *Do not concur. AWOIS item #7226 disproved. Also see Evaluation Report*

### **D.1.5 Chart 5161 Comparison**

This chart contains no soundings for the surveyed area.

### **D.1.6 Chart 13003 Comparison**

This chart contains no soundings for the surveyed area. It does however display the disproved AWOIS item.

### **D.1.7 ENC US4MA23M**

Depths from Electronic Navigation Chart US4MA23M generally agree with the current survey, with differences in most cases 1 foot or less. Twenty soundings were compared from the chart to the survey, with an average difference of 2.5 feet. The chart was generally shoaler than the survey data.

## **D.2 Additional Results**

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

AWOIS item #7226, assigned, was not disproved, see Appendix 2. *Do not concur. AWOIS item #7226 disproved.*

### **D.2.4 Shoreline**

There is no shoreline within the sheet limits of survey H11922.

### **D.2.5 Charted Features**

All charted features and item investigations are described in detail in Appendix II of this report.

### **D.2.6 Charted Pipelines and Cables**

There are no charted pipelines or cables in the survey area.

### **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.

### **D.3 Dangers to Navigation and Shoals**

#### **D 3.1 Dangers to Navigation**

No dangers to navigation were found in this survey.

#### **D 3.2 Shoals**

No evidence of shoaling significant to navigation was discovered in this survey.

#### **D.4 Aids to Navigation**

No charted Aids to Navigation (ATON) within the revised limits of H11922.

#### **D.5 Coast Pilot Information**

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

#### **D.6 Miscellaneous**

##### **Bottom Samples**

Bottom samples were collected in accordance with NOAA Hydrographic Survey Specifications and Deliverables. A list of all bottom samples acquired during Survey H11922 is contained in Appendix V. A complete description of all bottom samples acquired during Survey H11922 is contained in the Pydro PSS. *Concur.*

##### **Environmental Conditions and Notes**

A high density of lobster traps existed within the sheet limits of H11922 during the time of acquisition. This necessitated the use of all three platforms during the survey. The launches were able to enter areas where the lobster pot density was deemed to be too high to operate the ship safely without undue risk to private property.

#### **D.8 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.

#### **Summary and Recommendations for Additional Work**

The area of the survey was exceptionally rocky, and bathymetric grids indicated a large number of objects. Over 450 significant features (as defined by HSSDM) were selected, noted, and imported into Pydro. The majority of the features located were boulders, and, given that the grid honors these features, the decision was made to not label any of them with a “significant” or

“report” flag in Pydro. This decision has been supported by personnel from the Atlantic Hydrographic Branch. The Hydrographer recommends referencing the Base CUBE-processed surface and soundings over features objects for bathymetry. *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 H11922 is adequate to supersede charted soundings in their common areas.

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

<u>Title</u>	<u>Date Sent</u>	<u>Office</u>
Data Acquisition and Processing Report for OPR-B307-TJ-08 (fall) May 2008	N/CS33	<u>pending</u> <sup>7</sup>
Horizontal and Vertical Control Report for OPR-B307-TJ-08	N/A	N/CS33
Tides and Water Levels Package for OPR-B307-TJ-08	N/A	N/OPS1
Coast Pilot Report for OPR-B307-TJ-08	NA	N/CS26

Approved and Forwarded:

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LT Jasper D. Schaer, NOAA  
Field Operations Officer

---

CDR P. Tod Schattgen, NOAA  
Commanding Officer

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

Survey Managers:

\_\_\_\_\_  
ENS Michael O'Neal, NOAA

\_\_\_\_\_  
AST Matthew Forrest

# H11922 Feature Report

**Registry Number:** H11922  
**State:** Massachusetts  
**Locality:** Rhode Island Sound and Approaches  
**Sub-locality:** 8 NM W of Gay Head  
**Project Number:** OPR-B307-TJ-08  
**Survey Date:** 11/15/2008

## Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
13218	40th	02/01/2008	1:80,000 (13218_1)	USCG LNM: 05/20/2008 (06/03/2008) NGA NTM: 11/15/2003 (06/07/2008)
13200	35th	05/01/2007	1:400,000 (13200_1)	[L]NTM: ?
12300	47th	05/01/2008	1:400,000 (12300_1)	[L]NTM: ?
13009	33rd	05/01/2007	1:500,000 (13009_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

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	---	Obstruction	[None]	41° 16' 60.0" N	071° 03' 58.8" W	---
2.1	UNKNOWN	AWOIS	[no data]	[no data]	[no data]	---

## **1 - New Features**

## 1.1) GP No. - 1 from ChartGPs - Digitized

### Survey Summary

**Survey Position:** 41° 16' 60.0" N, 071° 03' 58.8" W  
**Least Depth:** [None]  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2008-320.18:59:50 (11/15/2008)  
**GP Dataset:** ChartGPs - Digitized  
**GP No.:** 1  
**Charts Affected:** 13218\_1, 12300\_1, 13200\_1, 13009\_1, 13006\_1, 5161\_1, 13003\_1

#### Remarks:

Item was covered with coverage bathymetry and no item was found.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	1	0.00	000.0	Primary

### Hydrographer Recommendations

[None]

### S-57 Data

**Geo object 1:** Obstruction (OBSTRN)  
**Attributes:** CATOBS - 1:snag / stump  
 INFORM - Charted unexploded depth charge, rep. 9/14/1957.  
 OBJNAM - Unexploded depth charge  
 SORDAT - 20081115  
 SORIND - US, US, Graph, 13218  
 WATLEV - 3:always under water/submerged

### Office Notes

Concur with clarification. Retain obstruction as charted. Obstruction is in a muddy seeded area and may cover and uncover underwater.

## **2 - AWOIS Features**

## 2.1) AWOIS #7226 - UNKNOWN

### No Primary Survey Feature for this AWOIS Item

**Search Position:** 41° 20' 12.4" N, 070° 54' 58.1" W  
**Historical Depth:** [None]  
**Search Radius:** 1500  
**Search Technique:** S2  
**Technique Notes:** [None]

#### History Notes:

NM41/48--A FISHING VESSEL HAS BEEN REPORTED SUNK IN 104 FT. OF WATER IN PA LAT 41-20-12N, LONG 70-55-00W. (ENTERED MSM 3/89) REFERENCE--SEE AWOIS ITEM 1876 H6445/39--104FT DEPTHS EXIST IN VICINITY. (UPDATED 11/91 RWD)

### Survey Summary

**Charts Affected:** 13218\_1, 12300\_1, 13200\_1, 13009\_1, 13006\_1, 5161\_1, 13003\_1

#### Remarks:

Unknown charted wreck, AWOIS item 7226, does not appear in bathymetric data. The criteria, 200% SSS and 1500 meter radius, was too large for the scope of the work assigned. However, current acquired coverage bathymetry within this 1500 radius reveals no wreck.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
AWOIS_B307-TJ-08	AWOIS # 7226	0.00	000.0	Primary

### Hydrographer Recommendations

#### S-57 Data

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

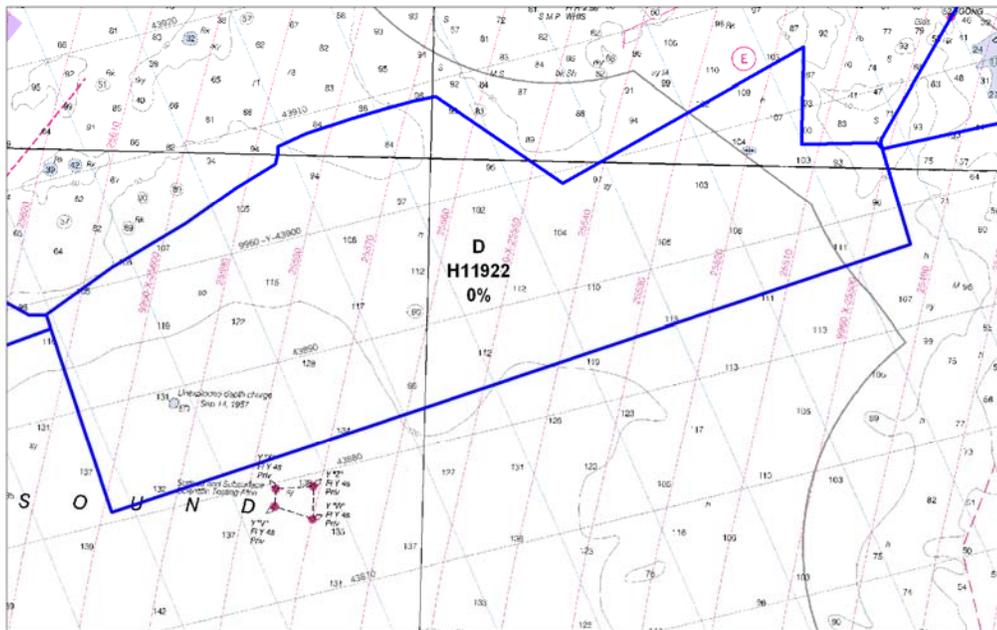
### Office Notes

Concur with clarification. AWOIS item #7226 at LAT 41°20'12.390", LON -070°54'58.111" is considered disproved. Delete wreck symbol from Chart #13218. Recommend update AWOIS database with survey results for AWOIS item #7226.



# Appendix III

## Progress Sketch



Project	Sheet_Letter	H_num	HQ_Est_SNM	CumIPercCompPrev	CumIPercCompCur	SNM_CompCurV	CumSNM.comj
B307-TJ-08	F	H11921	5	99	1	0	5
B307-TJ-08	E	H11920	15	99	1	0	15
B307-TJ-08	D	H11922	28	100	0	0	28
B307-TJ-08	B	H11996	17	99	1	1	17
B307-TJ-08	C	H11995	17	95	5	1	17

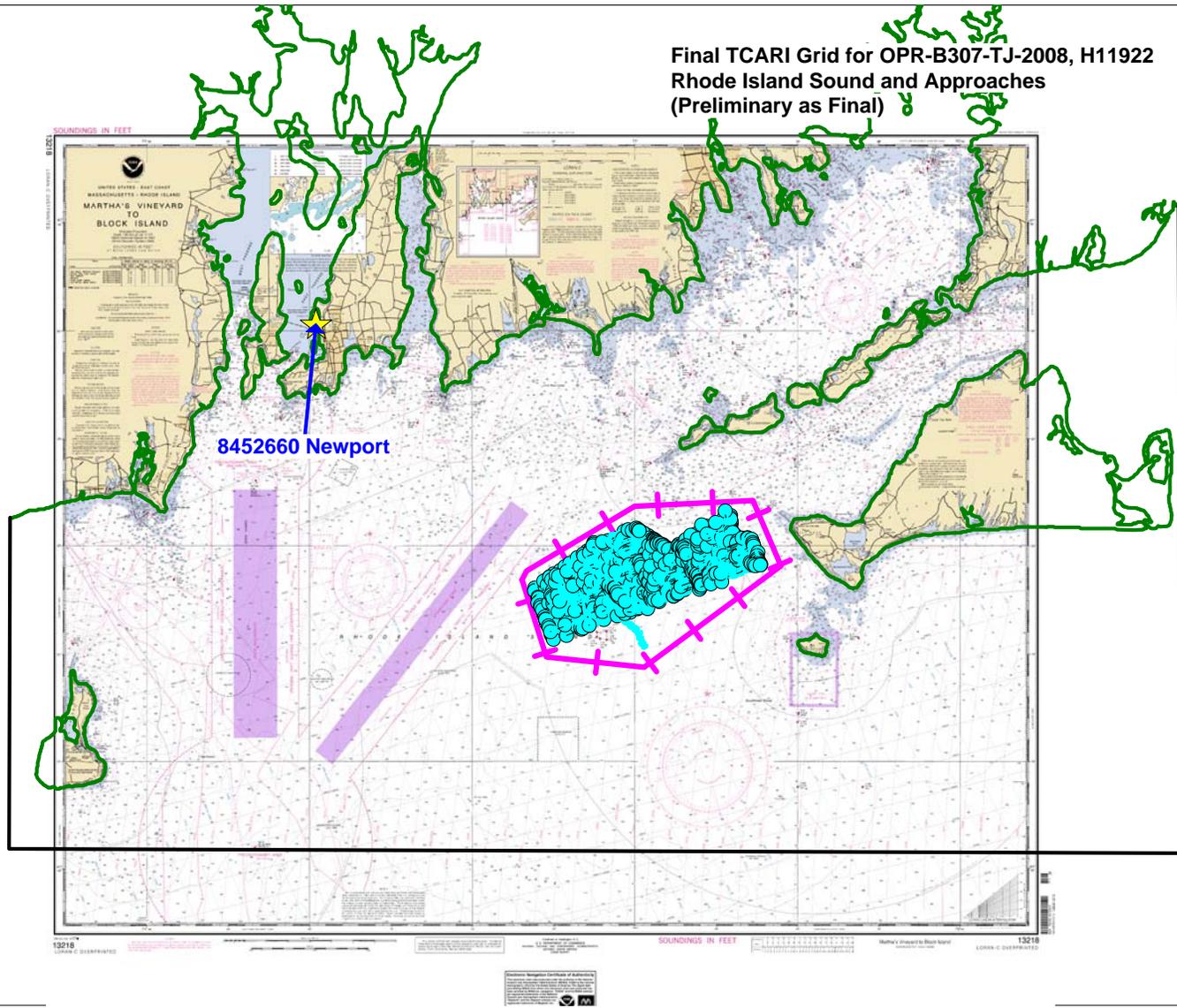
Progress Sketch OPR-B307-TJ-08  
September 2008



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



Final TCARI Grid for OPR-B307-TJ-2008, H11922  
Rhode Island Sound and Approaches  
(Preliminary as Final)



## Bottom Samples

No.	Feature Type	Survey Latitude	Survey Longitude	NATQUA	NATSUR
1.1	dk gy M Si	41° 17' 57.5" N	070° 56' 41.4" W	5:sticky	1:mud
1.2	dk gy M Si	41° 17' 39.3" N	070° 58' 00.1" W	5: Sticky	1: Mud
1.3	dk gy S Sh Si	41° 17' 14.6" N	070° 59' 25.4" W	2: Medium	4: Sand
1.4	dk gy M	41° 16' 54.1" N	071° 00' 45.0" W	2: Medium	4: Sand
1.5	gy M	41° 16' 36.0" N	071° 01' 58.8" W	5: Sticky	1: Mud
1.6	dk gy M	41° 17' 11.4" N	071° 03' 55.7" W	5: sticky	1: Mud
1.7	dk gy M	41° 17' 54.8" N	071° 01' 15.7" W	5: Sticky	1: Mud
1.8	dk gy sft M	41° 19' 17.3" N	071° 00' 24.1" W	5: Sticky	1: mud
1.9	dk gy M	41° 18' 40.3" N	071° 03' 01.0" W	6: Soft	1: Mud
1.10	dk gy M	41° 18' 44.8" N	070° 58' 23.1" W	5: Sticky	1: mud
1.11	dk gy M	41° 19' 00.6" N	070° 57' 03.7" W	5: Sticky	1: mud
1.12	dk gy M	41° 19' 24.4" N	070° 55' 52.9" W	5. Sticky	1. Mud
1.13	gy sticky M	41° 19' 43.2" N	070° 54' 28.3" W	5: Sticky	1. Mud
1.14	dk gy M	41° 20' 06.3" N	070° 53' 09.4" W	5: Sticky	1: Mud

**ATLANTIC HYDROGRAPHIC BRANCH  
EVALUATION REPORT to ACCOMPANY  
SURVEY H11922 (2008)**

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.

**A. DATA ACQUISITION AND PROCESSING**

**A.1 DATA PROCESSING**

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

HSTP PYDRO version 8.7 (r2586)  
CARIS HIPS/SIPS version 6.1 Sp2  
CARIS Bathy Manager version 2.1 Sp1  
DKART INSPECTOR, version 5.0 Build 732 SP1  
CARIS HOM version 3.3 Sp3  
CARIS S57 Composer version 2.0

**A.2. QUALITY CONTROL**

**A.2.1. H-Cell**

The Atlantic Hydrographic Branch used a combined 2 meter source grid for H-Cell compilation. This source grid is the result of a combined 2 meter resolution grid and a product of the field unit's original 2 meter grid cells. A total of two grid cells were used to produce the combined grid surface. Using the combined surface, a product surface was generated. Ensuring that no generalized nodes were used, survey scale soundings were then created from the product surface at 1mm radius at 1:80000. From the survey scale sound set, a triangular irregular network was and an interpolated surface was generated. Interpolated grid nodes were filtered out and the interpolated surface, the using a sounding radius table chart scale soundings were generated.

Depth curves were created from a interpolated TIN surface of 2m resolution. This interpolated TIN was shifted by -0.229 feet to allow shoal biasing of depth curves. These curves were utilized during chart scale sounding selection and quality assurances efforts at AHB. The depth curves are incorporated into the SS H-Cell product per 2009 H-Cell Specifications. The depth curves are forwarded to MCD for reference only.

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

All H-Cell components (including the Bluenotes, as dictated by Hydrographic Technical Directive 2008-8) with the exception of the sounding selection and depth contours were inserted into one feature layer. The feature layer was exported into S-57 format in order to create the H-Cell deliverable. Similarly, the 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/fathoms and 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 (H11922\_CS.000), and one that contains the sounding selection and depth contours (H11922\_SS.000). Finally, quality assurance checks were made utilizing CARIS S-57 Composer version 2.0 validation checks and DKART INSPECTOR, version5.0, 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.

H11922CARIS H-Cell final deliverables include the following products:

H11922_CS.000	1:80,000 Scale	H11922 H-Cell with Chart Scale Selected Soundings
H11922_SS.000	1:80,000 Scale	H11922 Selected Soundings (Survey Scale)

**Table 1:H-Cell Deliverables**

### **A.2.2. Junctions**

The following contemporary surveys junction with H11922:

<b>Registry #</b>	<b>Scale</b>	<b>Date</b>	<b>Field Party</b>	<b>Junction side</b>
H10458	1:20,000	1993	<i>Rude</i>	NW
H10548	1:10,000	1994	<i>Rude</i>	N
H10649	1:10,000	2004	Contractor	NE
H11920	1:10,000	2008	<i>Thomas Jefferson</i>	E
H11995	1:10,000	2008	<i>Thomas Jefferson</i>	W

**Table 2: Junction and Prior Surveys**

Surrounding chart soundings and concurrent surveys are considered adequate to provide surrounding comparison data, and are generally within 2 feet of the outer soundings.

## **B. VERTICAL AND HORIZONTAL CONTROL**

The final processing for vertical corrections was completed by the field unit with no additional corrections required by Atlantic Hydrographic Branch. The field unit applied verified water levels in conjunction with the preliminary tidal zoning which was accepted and approved by N/OPSI CO-OPS as the final zoning for H11922. 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 19N.

## **C. RESULTS AND RECOMMENDATIONS**

### **C.1 CHART COMPARISON**

**13218(40th Edition, 20080801)**

Corrected through NM 02/16/08

Corrected through LNM 02/12/08

Scale 1:80,000

**13200 (35th Edition, 20081101)**

Corrected through NM 11/29/2008

Corrected through LNM 11/18/2008

Scale 1:400,000

**12300 (47th Edition, 20080501)**

Corrected through NM 11/29/2008

Corrected through LNM 11/18/2008

Scale 1:400,000

**13009 (33th Edition, 20070501)**

Corrected through NM 11/29/2008

Corrected through LNM 11/18/2008

Scale 1:675,000

**ENC Comparison**

**US4MA23M**

Martha's Vineyard to Block Island

Edition 12

Application Date 2008-11-20

Issue Date 2009-01-21

Chart 13218

**C.1.1 Hydrography**

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

a. The *Unexploded depth charge REP Sep 14,157* charted in Latitude 41° 16' 59.7979" N, Longitude 071° 503' 58.75"W on NOS Chart 13218, 35th edition was not considered disproved and therefore should be retained as charted. The field unit covered the area with 100% multibeam echo sounder coverage. The obstruction was not identified in the bathymetry however; the feature does exist in a muddy area. It is possible that the feature covers and uncovers underwater and thus it was determined to retain this feature as charted.

b. Delete AWOIS Item #37226 *dangerous sunken wreck* charted in Latitude 41° 20' 11.028" N, Longitude 070°54' 56.389"W. The feature was surveyed with 100% multibeam echo sounder coverage. The wreck was not detected in multibeam bathymetry or in multibeam backscatter. This feature is considered disproved.

c. Numerous small rock features exist in survey area. In portions of the survey area where larger rock areas are present, AHB decided to chart the area as a rocky seabed area given the size of the largest scale chart. A total of three rocky seabed areas were digitized from the highest resolution combined gridded surface and submitted with the H-cell

**C.2. ADDITIONAL RESULTS**

**C.2.1. Aids to Navigation**

**No aids to navigations were present in the survey area.**

**C.2.1. Dangers to Navigation**

**No dangers to navigation were present in the survey area.**

**C.3. MISCELLANEOUS**

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

**C.4. ADEQUACY OF SURVEY**

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

## AHB COMPILATION LOG

General Survey Information	
REGISTRY No.	H11922
PROJECT No.	OPR-B307-TJ-08
FIELD UNIT	NOAA Ship THOMAS JEFFERSON.
DATE OF SURVEY	07/16/08 to 08/22/08
LARGEST SCALE CHART	<i>13218, edition 40, 20080201, 1:80,000</i>
ADDITIONAL CHARTS	<i>13200, edition 35, 20081101, 1:400,000</i>
	<i>12300, edition 47, 20080501, 1:400,000</i>
	<i>13009, edition 33, 20070501, 1:675,000</i>
SOUNDING UNITS	Feet
COMPILER	SELF

Source Grids	File Name
	H:\Compilation\HXXXXXX XXXX XXXX\AHB_HXXXXXX\
	E-SAR Final Products\GRIDS\H11922_Combined
	E-SAR Final Products\GRIDS\H11922_1_2m_CUBE_Deep_Final
	E-SAR Final Products\GRIDS\H11922_2_2m_CUBE_Deep_Final
Surfaces	File Name
	H:\Compilation\HXXXXXX XXXX-XXXX\AHB_HXXXXXX\COMPILE\Working
<i>Combined</i>	H11922_2m_Combined.hns
<i>Interpolated TIN</i>	\Interpolated TIN\H11736_2m_InterpTIN.hns
<i>Shifted Interpolated TIN</i>	\Shifted Surface\H11736_2m_InterpTIN_Shifted.hns
<i>Product Surface</i>	\Product Surface\H11736_2m_Product_Surface.hns (reapplied designated soundings)
Final HOBs	File Name
	H:\Compilation\HXXXXXX XXXX-XXXX\AHB_HXXXXXX\COMPILE\Final_Hobs\
<i>Survey Scale Soundings</i>	H11922_SS_Soundings.hob
<i>Chart Scale Soundings</i>	H11922_CS_Soundings.hob
<i>Contour Layer</i>	H11922_Contours.hob
<i>Feature Layer</i>	H11922_Features.hob
<i>Meta-Objects Layer</i>	H11922_MetaObjects.hob
<i>Blue Notes</i>	H11922_Bluenotes.hob
<i>ENC Retain Soundings</i>	N/A 100% MBES coverage

Meta-Objects Attribution	
Acronym	Value
<b>M_COVR</b>	
CATCOV	1
SORDAT	20080822
SORIND	US,US,survey,H11922
<b>M_QUAL</b>	
CATZOC	6
INFORM	Registry Number, Project Number, Vessel
POSACC	10
SORDAT	20080822
SORIND	US,US,survey,H11922
SUREND	20080822

[Type text]

This Document is for Office Process use only and is intended to supplement, not supersede or replace, information/recommendations in the Descriptive or Evaluation Reports

SURSTA	20080716
<b>DEPARE</b>	
DRVALV 1	77.625
DRVALV2	140.321
SORDAT	20080822
SORIND	US,US,survey,H11922
<b>M_CSCL</b>	
CSCALE	N/A largest chart encompasses survey area
SORDAT	
SORIND	

SPECIFICATIONS:

- I. COMBINED SURFACE:
  - a. Number of ESAR Final Grids: 2
  - b. Resolution of Combined (m): 2m
  
- II. SURVEY SCALE SOUNDINGS (SS):
  - a. Radius
  - b. Shoal biased
  - c. Use Single-Defined Radius (mm at Map Scale): ; Radius Value = 1
  - d. Queried Depth of All Soundings
    - i. Minimum:
    - ii. Maximum:
  
- III. INTERPOLATED TIN SURFACE:
  - a. Resolution (m): 2m
  - b. Linear
  - c. Shifted value: *[-0.229m (feet), (<= 10 fathoms)]*  
*[-1.372m (fathoms), (> 10 fathoms)]*
  
- IV. CONTOURS:
  - a. Use a Depth List: (N/A, contours were hand drawn to NOAA's contour interval)
  - b. Line Object: DEPCNT
  - c. Value Attribute: VALDCO
  
- V. FEATURES:
  - a. Total Number of Features: 2 (from Pydro)
  - b. Number of Insignificant Features: (1 significant feature, 1 feature recommended delete)
  
- VI. CHART SURVEY SOUNDINGS (CS):
  - a. Number of ENC CS Soundings: 49
  - b. Radius
  - c. Shoal biased
  - d. Use Single-Defined Radius: m on the ground
    - i. Radius Value (m): Sounding radius table used
    - ii. Or use a Sounding Space Range Table (if applicable): H11922\_SSR.txt
  - e. Filter: Interpolated != 1 concur
  - f. Number Survey CS Soundings:

VII. Notes:

[Type text]

**APPROVAL SHEET**  
**H11922**

**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 disproof of charted data. All revisions and additions made to the H-Cell files during survey processing have been entered in the digital data for this survey. The survey records and digital data comply with National Ocean Service and Office of Coast Survey requirements except where noted in the Descriptive Report and the Evaluation Report.

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

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**Vanessa R. Self**  
Physical Scientist  
Atlantic Hydrographic Branch

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

Approved: \_\_\_\_\_  
**Shepard Smith**  
Commander, NOAA  
Chief, Atlantic Hydrographic Branch