

H11988

NOAA FORM 76-35A

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

## DESCRIPTIVE REPORT

*Type of Survey* Hydrographic Survey

*Field No.* N/A

*Registry No.* H11988

### LOCALITY

*State* Rhode Island

*General Locality* Providence

*Sublocality* Conanicut Point to Warwick

2008-2009

### CHIEF OF PARTY

Lt. Matthew Jaskoski

### LIBRARY & ARCHIVES

DATE

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  <b>HYDROGRAPHIC TITLE SHEET</b>		REGISTRY No  <b>H11988</b>
<b>INSTRUCTIONS</b> – The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.		FIELD No: N/A
State <u>Rhode Island</u>		
General Locality <u>Providence</u>		
Sub-Locality <u>Conanicut Point to Warwick</u>		
Scale <u>1:10,000</u>		Date of Survey <u>07/18/2008 - 08/13/2009</u>
Instructions dated <u>7/24/2008</u>		Project No. <u>OPR-B301-NRT5-08</u>
Vessel <u>NOAA Launch S3002</u>		
<hr/>		
Chief of party <u>Lt. Matthew Jaskoski, NOAA</u>		
Surveyed by <u>NRT5 Personnel</u>		
Soundings by <u>Simrad EM3000, EM3002, Odom Echotrack CV/200</u>		
SAR by <u>Adam Argento</u>		Compilation by <u>Kurt Brown</u>
Soundings compiled in <u>Feet</u>		
<hr/>		
<b>REMARKS:</b> <u>All times are UTC. UTM Zone 19N</u>		
<u>The purpose of this survey is to provide contemporary surveys to update National Ocean Service (NOS) nautical charts. All separates are filed with the hydrographic data. Revisions and end notes in red were generated during office processing. The processing branch concurs with all information and recommendations in the DR unless otherwise noted. Page numbering may be interrupted or non sequential.</u>		
<hr/>		
<u>All pertinent records for this survey, including the Descriptive Report, are archived at the National Geophysical Data Center (NGDC) and can be retrieved via <a href="http://www.ngdc.noaa.gov/">http://www.ngdc.noaa.gov/</a>.</u>		

**DESCRIPTIVE REPORT**  
 to accompany  
 HYDROGRAPHIC SURVEY H1198<sup>1</sup>

Scale of Survey: 1:10,000  
 Years of Survey: 2008 and 2009  
 NOAA Navigation Response Team 5  
 LT Matthew Jaskoski, OIC

**A. AREA SURVEYED**

This hydrographic survey was conducted in accordance with Hydrographic Survey Letter Instructions for project OPR-B301-NRT5-08, H11988, Providence, Rhode Island. The original instructions are dated July 24, 2008.

This Descriptive Report pertains to an area of approximately 11 SNM, of North Narragansett Bay from the Greenwich Bay in the north, to Conanicut Island in the South. The assigned registry number for this sheet is H11988, as prescribed in the Letter Instructions.

The purpose of the CY 2008 and 2009 operations in this area were to provide contemporary surveys to update National Ocean Service (NOS) nautical charts as the Port of Providence and Narragansett Bay have been designated critical survey areas.

For complete survey limits, see figure A-1 on the following page.

Linear nautical miles of single beam only sounding lines - mainscheme only	440.18
Linear nautical miles of side scan sonar only lines - mainscheme only	437.2
Linear nautical miles of any combination of the above techniques	437.2
Linear nautical miles of crosslines from single beam and multibeam combined	32.26
Linear nautical miles of developments other than mainscheme lines	37.7
Linear nautical miles of shoreline/nearshore investigation	0.0
Number of bottom samples collected	0
Number of items investigated that required additional time/effort in the field beyond the above survey operations	0
 Total square nautical miles	 16.7

Dates of acquisition: July 18, 2008 to August 13, 2009

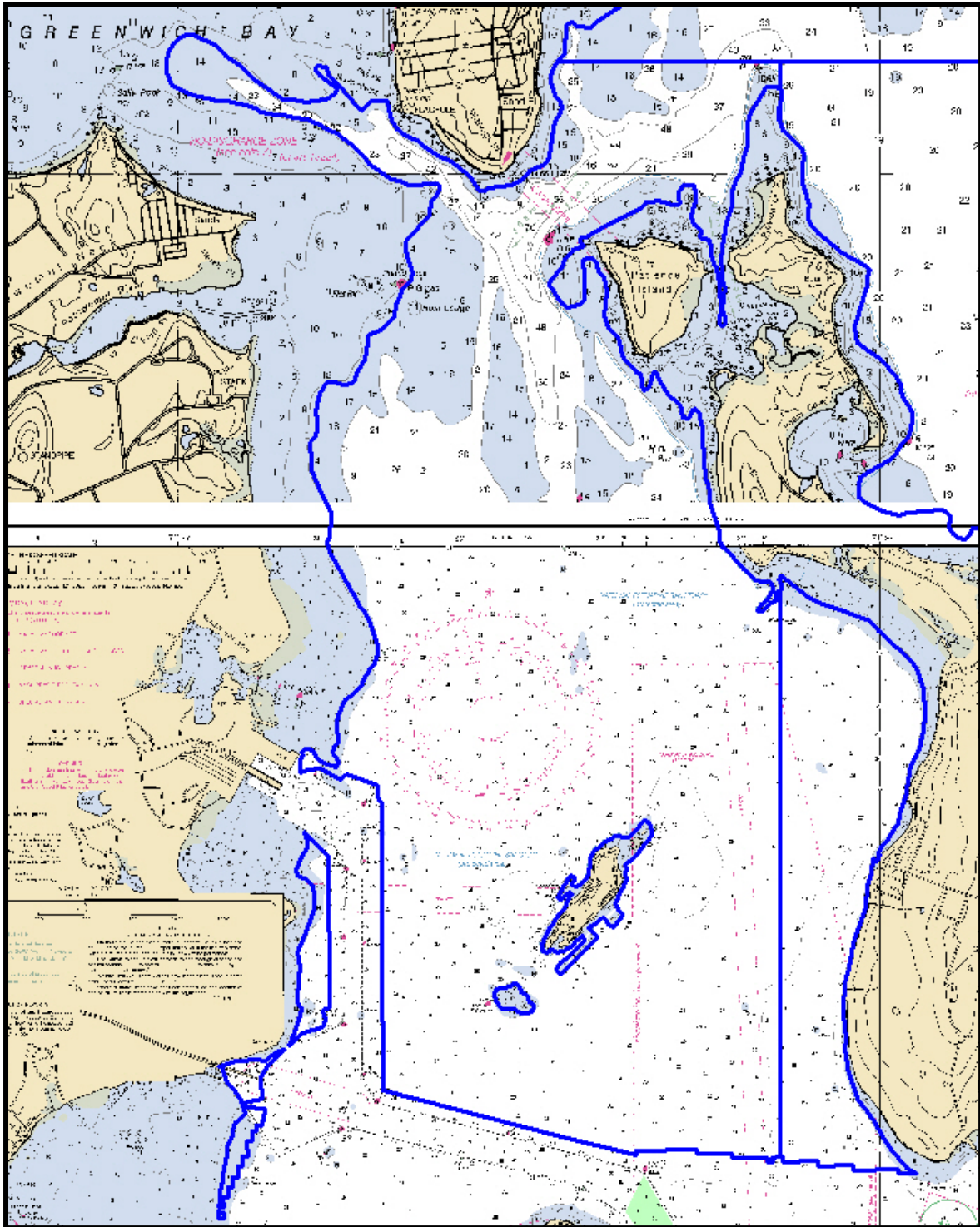


Figure A-1: Outline of survey area

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

### **B.1 EQUIPMENT**

Data were acquired by NOAA NRT-5 S3002. NOAA Survey Vessel S3002 is an approximately 9m aluminum SeaArk outboard driven vessel with an average multibeam transducer draft of 1.3 meters.

NOAA S3002 acquired both bathymetry and imagery data in the project area. Side scan sonar data were acquired with a towed Klein 3000 sonar system (SSS). Bathymetry data were acquired with both an Odom Echotrac C/V 200 verticalbeam echosounder (VBES), and a Kongsberg Simrad EM 3000 multibeam echosounder (MBES) during 2008 and a Kongsberg EM3002 multibeam echosounder (MBES) during 2009 operations. 2009 operations with the em3002 occurred in two configurations. One was as a pole mounted MBES exactly like the em3000 setup and later as a hull mounted transducer (See included 2009 updated DAPR). Positioning and attitude were determined with a TSS POS/MV 320 (version 4) GPS aided inertial navigation system

### **B.2 QUALITY CONTROL**

#### **B.2.1 Side Scan Sonar Quality Control**

Daily confidence checks were made by observing the outer ranges of the side scan sonar image trace. A good check consisted of distinguishing linear contacts across the entire range of the side scan trace. Navigation data were reviewed, fliers were rejected with interpolation. In shallow water, refraction was noticeable in the outer one-third to outer one-half of the range on both the starboard and port return. Drags marks from clam rakes were visible through the refraction waves, but additional SSS line splits were conducted where the refraction was particularly pronounced.

In accordance with the project instructions, 200% SSS bottom coverage was collected for this survey at 75m range scale. A SSS image mosaic was created at 1m resolution for submission (Table B-2).

#### **B.2.2 Multibeam Echosounder Quality Control**

Multibeam echosounder data were acquired at 100% coverage for SSS contact development, and areas deemed navigationally significant by the hydrographer. In order to successfully operate the EM3000 and EM3002 with the SIS software, casts were completed at the start of survey day and manually entered into the SIS program as ASVP files. This ASVP file provided a sound velocity profile for the entire water column as well as the surface sound velocity meter at the transducer head. Navigation data were reviewed; any fliers were rejected with interpolation. For detailed discussion of MBES system calibrations, data acquisition, and data processing refer to this project's DAPR.

**B.2.3 Total Propagated Error**

Total Propagated Error (TPE) parameters for sound speed and tide data for H11988 are shown in table B-1. The estimated tidal error contribution to the total survey error budget in the vicinity of Narragansett Bay is included in the TCARI grid. Sound speed TPE values were used in accordance with HSTP guidelines regarding frequency of surface and water column sound speed measurements.

Table B-1. Total Propagated Error parameters as applied in Caris.

<b>Total Propagated Error Values</b>			
Tide Values		Sound Speed Values	
Measured	Zoning	Measured	Surface
0.0	0.00	4.0	0.2

**B.2.4 Fieldsheets and Navigation Surfaces**

Caris HIPS uncertainty weighted BASE surfaces were created for this project<sup>2</sup>. For MBES data, CUBE surfaces were created and submitted at 0.50m resolution. An uncertainty weighted CUBE surface was created for VBES data at 4.00m resolution. The MBES BASE surface finalized weighted grid is included in the PSS. Table B-2 lists all surfaces submitted with this survey.

**B.2.5 Single Beam Quality Control**

Navigation data were reviewed, fliers were rejected with interpolation. There were no unusual events associated with the collection of VBES data for this project.

Refer to this project’s DAPR for detailed discussion of VBES system calibrations, data acquisition, and data processing.

Table B-2: H11988 Bathymetry surfaces and Side Scan mosaic resolutions.

<b>H11988 Bathymetry Surfaces and SSS Mosaic</b>			
Fieldsheet	Surface/Mosaic Name	Grid Type	Resolution
H11988	H11988_MBES_CUBE_50cm	Uncertainty Weighted	0.50m
H11988	H11988_MBES_CUBE_50cm_Final	Uncertainty Weighted	0.50m
H11988	H11988_VBES_CUBE_4m	Uncertainty Weighted	4.00m
H11988	H11988_VBES_CUBE_4m_Final	Uncertainty Weighted	4.00m
H11988	H11988_SSS_1m	SSS Mosaic	1.00m

**B.2.6 Crosslines**

For this survey 37.7 linear NM of crosslines were acquired, this is approximately 10% of the mainscheme VBES bathymetry linear NM. A visual examination of approximately 10% of crossline-mainscheme common areas showed general agreement between crosslines and mainscheme lines to within 1-2 feet. For a list of all crosslines acquired for this project, tabulated by DN and line file name, please refer to the processing logs located in the separates section of the DR submission package.

**B.2.7 Junctions**

Survey H11988 junctions with contemporary survey H11929, H12153 and H11931<sup>3</sup>. Visual examination of all junction areas showed agreement between bathymetry data to within 1-2ft.

**B.3 CORRECTIONS TO ECHO SOUNDING**

All methods or instruments used were as described in the project DAPR. All sound velocity casts are included in the PSS.

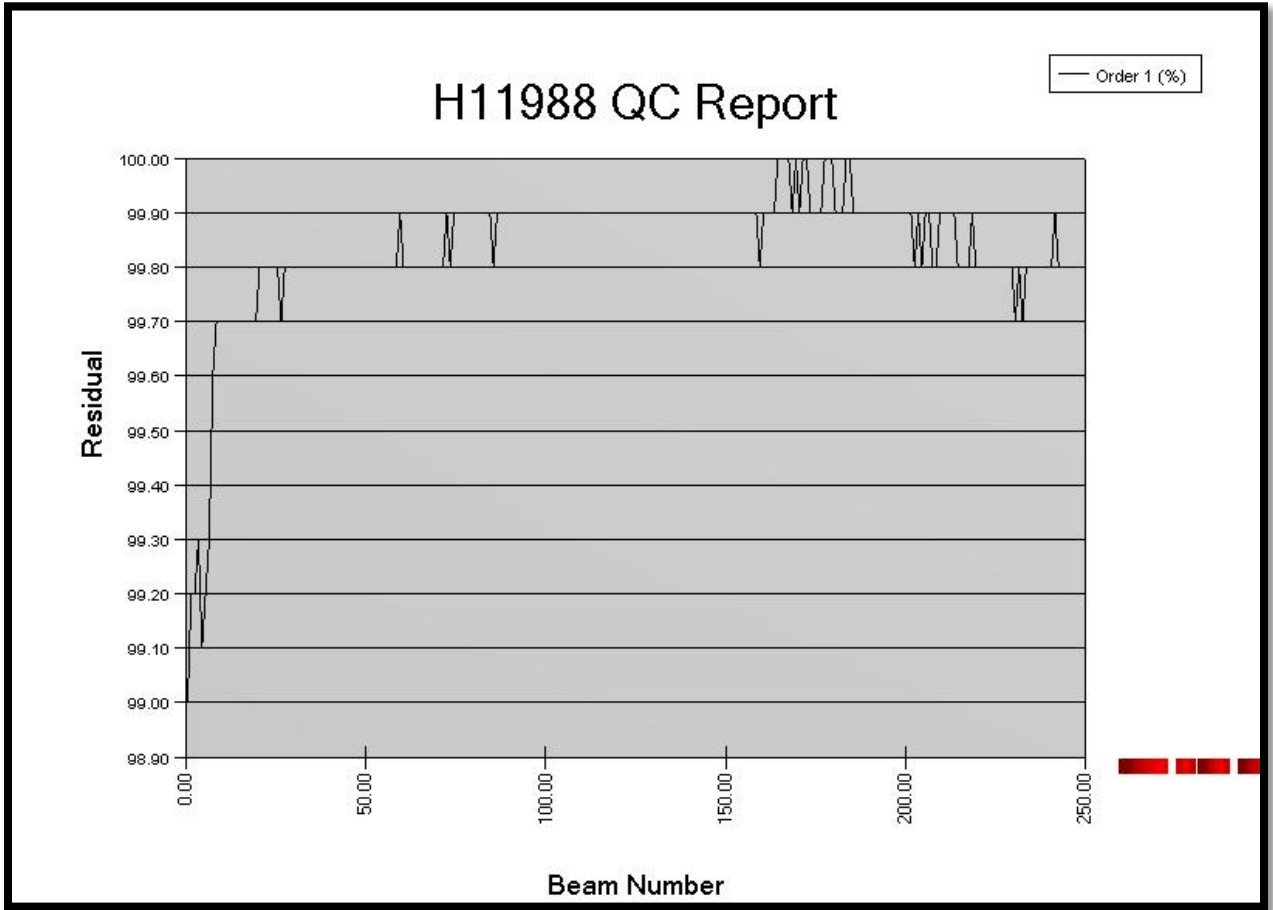


Figure B-1: Caris QC report, IHO order oneness v Beam Number



## **C. VERTICAL AND HORIZONTAL CONTROL**

### **C.1 VERTICAL CONTROL**

The tidal datum for this project is Mean Lower Low Water (MLLW). The operating National Water Level Observation Network (NWLON) stations at Providence, RI (845-4000) and Newport, RI (845-2660) served as datum control for the survey area including determination at each subordinate station. The operating stations at Providence, RI (845-4000), Conimicut Light, RI (845-2944), Quonset Point, RI (845-4049) and Newport, RI (845-2660) provided residuals for this project. A Request for Approved Tides was sent to N/OPS1 on September 10, 2009 (Appendix III). Verified tides from the N/OPS1 CO-OPS website were downloaded and applied to all sounding data via TCARI in Pydro<sup>4</sup>.

### **C.2 HORIZONTAL CONTROL**

The horizontal datum used for this survey is the North American Datum of 1983 (NAD 83), projected using UTM zone 19.

Sounding positional control was determined using the Global Positioning System (GPS) corrected by U.S. Coast Guard differential GPS (DGPS) beacon stations. The DGPS beacon used for this survey was Acushnet, MA. No horizontal control stations were established for this survey.

Horizontal dilution of precision (HDOP) was monitored during acquisition, and did not exceed 4.00. Adequate satellite coverage was maintained throughout the survey period.

## D. RESULTS AND RECOMMENDATIONS

### D.1 CHART COMPARISON

The charts affected<sup>5</sup> by this survey are:

<i>Chart Number</i>	<i>Edition</i>	<i>Edition Date</i>	<i>Scale</i>
13221	57 <sup>th</sup>	02/01/2008	1:40000
13224	38 <sup>th</sup>	11/01/2006	1:20000
13225	33 <sup>rd</sup>	12/01/2005	1:10000

<i>ENC Cell Name</i>
US5RI23M
US5RI24M

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

Sounding data generally agreed with charted depths to within 1-2 feet, navigationally significant differences from charted depths are addressed in Appendix II of this report.

#### D.1.2 AWOIS Items and Significant Contacts

There were eight AWOIS items within the survey limits of H11988. Full searches were done for all eight AWOIS items and they have been commented on in the Feature Report and within the Info of each AWOIS item in Pydro. Hydrographer recommendations are noted in the feature report<sup>6</sup>. See Appendix II.

#### D.1.3 Dangers to Navigation

There were no DToNs submitted for survey H11988<sup>7</sup>.

#### D.1.4 Charted Features

Hydrographer recommended changes to charted items are listed in Appendix II of this report as well as in the PSS. All charted items not specifically addressed in Appendix II are recommended to be retained as charted by the hydrographer<sup>8</sup>.

### **D.1.5 Charting Recommendations**

Hydrographer recommendations for discreet items are included in Appendix II of this report as well as in the PSS. Survey H11988 is complete and adequate to supersede charted soundings in their common areas<sup>9</sup>.

## **D.2 ADDITIONAL RESULTS**

### **D.2.1 Aids to Navigation**

No AToNs within the survey limits of H11988 were found to be significantly off station. See Appendix V, section V.3.

### **D.2.2 Bridges and Overhead Cables**

There are no bridges or overhead cables in the survey area.

### **D.2.3 Submarine Cables and Pipelines**

There are four charted submarine cable areas in the survey area.

**E. APPROVAL SHEET**

**OPR-B301  
Providence  
Rhode Island**

**Providence River and North Narragansett Bay  
Survey Registry No. H11988**

Field operations for this survey were conducted under my daily supervision with frequent checks of progress and adequacy. All fieldsheets, bathymetry models, this Descriptive Report, and all accompanying records and data are approved.

Submitted in association with this descriptive report has been a series of reports and data:

2008 Data Acquisition and Processing Report (submitted with this report)

2009 Data Acquisition and Processing Report (submitted with this report)

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

Respectfully,

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John Doroba, PST/NOAA  
NRT-5



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Bert Ho (Team Leader)  
LT(jg) Matthew Jaskoski, NOAA  
OIC NRT-5

Revisions and Corrections Compiled During Processing and Certification

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<sup>1</sup> This survey was originally submitted to AHB and subsequently transferred to PHB for compilation.

<sup>2</sup> The 4 meter combined surface, H11988\_4m\_Combined, created during the SAR process was used for compilation.

<sup>3</sup> A common junction was made with survey H11929. A common junction will be made with survey H12153 when it is compiled. H11988 does not junction with survey H11931.

<sup>4</sup> See attached Tide Note dated September 29, 2009.

<sup>5</sup> Chart 13223 is also affected.

<sup>6</sup> See attached feature report.

<sup>7</sup> One DTON was submitted during compilation. See attached DTON report.

<sup>8</sup> Chart features per HCell H11988\_CS.000

<sup>9</sup> Concur with clarification. In several areas features were retained due to inadequate SSS coverage.

# H11988 Danger to Navigation

**Registry Number:** H11988  
**State:** Rhode Island  
**Locality:** Providence  
**Sub-locality:** Conanicut Point to Warwick  
**Project Number:** OPR-B301-NRT5-08  
**Survey Dates:** 20080718 - 20090813

## Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
13223	41st	06/01/2009	1:20,000 (13223_1)	USCG LNM: 11/1/2011 (11/1/2011) CHS NTM: None (7/29/2011) NGA NTM: 11/1/2008 (11/12/2011)
13221	58th	05/01/2010	1:40,000 (13221_1)	USCG LNM: 6/14/2011 (6/14/2011) CHS NTM: None (5/27/2011) NGA NTM: 11/1/2008 (6/25/2011)
13221	57th	02/01/2008	1:40,000 (13221_2)	[L]NTM: ?
13218	40th	02/01/2008	1:80,000 (13218_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.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude
1.1	Obstruction	8.00 m	41° 35' 09.7" N	071° 24' 34.0" W

# **1 - Dangers To Navigation**

## 1.1) Obstruction

### DANGER TO NAVIGATION

#### Survey Summary

**Survey Position:** 41° 35' 09.7" N, 071° 24' 34.0" W  
**Least Depth:** 8.00 m (= 26.24 ft = 4.373 fm = 4 fm 2.24 ft)  
**TPU ( $\pm 1.96\sigma$ ):** **THU (TPEh)**  $\pm 1.970$  m ; **TVU (TPEv)**  $\pm 0.233$  m  
**Timestamp:** 2009-166.16:21:54.989 (06/15/2009)  
**Survey Line:** h11988 / nrt5\_s3002\_em3002\_mbes / 2009-166 / 149\_1621  
**Profile/Beam:** 470/5  
**Charts Affected:** 13223\_1, 13221\_1, 13221\_2, 13218\_1, 13006\_1, 5161\_1, 13003\_1

#### Remarks:

SWMB shows 26 ft. obstruction. Possible pile.

#### Feature Correlation

Source	Feature	Range	Azimuth	Status
149_1621	470/5	0.00	000.0	Primary

#### Hydrographer Recommendations

Chart new obstruction.

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

26ft (13223\_1, 13221\_1, 13221\_2, 13218\_1)

4 ¼fm (13006\_1, 13003\_1)

8.0m (5161\_1)

#### S-57 Data

**Geo object 1:** Obstruction (OBSTRN)  
**Attributes:** CATOBS - 1:snag / stump  
 NINFOM - Chart 26 ft. Obstruction  
 QUASOU - 1:depth known  
 SORDAT - 20090615



SORIND - US,US,graph,H11988

TECSOU - 3:found by multi-beam

VALSOU - 7.997 m

WATLEV - 3:always under water/submerged

## Office Notes

Chart 26 ft. obstruction. This obstruction was submitted by PHB as a DTON and is included in the HCell.

### Feature Images

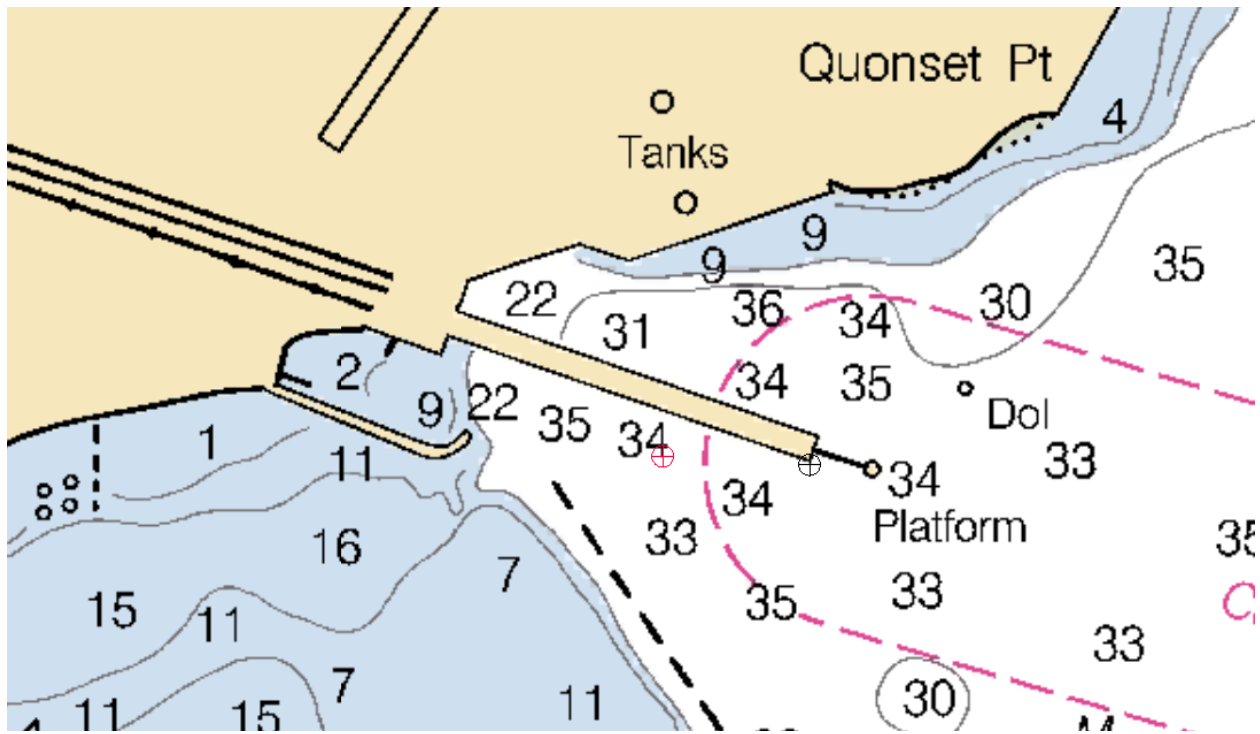


Figure 1.1.1

# H11988 AWOIS Report

**Registry Number:** H11988  
**State:** Rhode Island  
**Locality:** Upper Narragansett Bay  
**Sub-locality:** Conanicut Point to Warwick  
**Project Number:** OPR-B310-NRT5-08  
**Survey Dates:** 08/19/2008 - 06/15/2009

## Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
13223	39th	07/01/2007	1:20,000 (13223_1)	USCG LNM: 05/27/2008 (05/27/2008) CHS NTM: None (05/30/2008) NGA NTM: 11/15/2003 (06/07/2008)
13221	58th	05/01/2010	1:40,000 (13221_1)	USCG LNM: 6/14/2011 (6/14/2011) CHS NTM: None (5/27/2011) NGA NTM: 11/1/2008 (6/25/2011)
13221	57th	02/01/2008	1:40,000 (13221_2)	[L]NTM: ?
13218	40th	02/01/2008	1:80,000 (13218_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.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	AWOIS	[no data]	[no data]	[no data]	---
1.2	AWOIS	[no data]	[no data]	[no data]	---
1.3	AWOIS	[no data]	[no data]	[no data]	---
1.4	Obstruction	10.27 m	41° 35' 30.3" N	071° 23' 42.4" W	7891
1.5	Wreck	7.05 m	41° 36' 29.7" N	071° 23' 40.8" W	13321
1.6	Wreck	6.23 m	41° 36' 28.3" N	071° 23' 33.0" W	13320
1.7	Wreck	6.17 m	41° 36' 47.5" N	071° 20' 24.0" W	7900
1.8	Wreck	10.70 m	41° 35' 26.4" N	071° 20' 27.8" W	14219

**1 - DR\_AWOIS**

## 1.1) AWOIS #14218 - OBSTRUCTION

### No Primary Survey Feature for this AWOIS Item

**Search Position:** 41° 35' 32.1" N, 071° 20' 57.9" W  
**Historical Depth:** 7.62 m  
**Search Radius:** 50  
**Search Technique:** S2, MB  
**Technique Notes:** [None]

**History Notes:**

F00360/1991-- An obstruction was located at 41/35/32.06 - 71/20/57.88. Least depth of the obstruction is 25 feet. (Entered CEH 7/1/2008)

B301-NRT5-09--No obstruction found in SSS 200% coverage.

### Survey Summary

**Charts Affected:** 13223\_1, 13221\_1, 13221\_2, 13218\_1, 13006\_1, 5161\_1, 13003\_1

**Remarks:**

Area was covered with 200% SSS. No feature identified.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
AWOIS Items	AWOIS # 14218	0.00	000.0	Primary

### Hydrographer Recommendations

Hydrographer recommends removing this charted obstruction. No feature found in SSS. -bsh

### S-57 Data

**Geo object 1:** Obstruction (OBSTRN)  
**Attributes:** QUASOU - 2:depth unknown  
 TECSOU - 2:found by side scan sonar  
 VALSOU - 7.62 m

## Office Notes

SAR: Concur with recommendation. AWOIS 14218 not found in 50m search radius

## 1.2) AWOIS #12262 - OBSTRUCTION

### No Primary Survey Feature for this AWOIS Item

**Search Position:** 41° 35' 00.0" N, 071° 23' 45.5" W  
**Historical Depth:** [None]  
**Search Radius:** 100  
**Search Technique:** S2, MB  
**Technique Notes:** [None]

**History Notes:**

HISTORY

NM48/00-- ADD DANGERCIRCLE AND "CURRENT METER" IN LAT. 41-35-00.40N, LONG. 71-23-44.50W. CHARTED AS AN OBSTN (SUBM BUOY). (ENT 3/1/04, SJV)

B301-NRT5-09--No feature found in 200% SSS coverage. BSH

### Survey Summary

**Charts Affected:** 13223\_1, 13221\_1, 13221\_2, 13218\_1, 13006\_1, 5161\_1, 13003\_1

**Remarks:**

Area was covered with 200% SSS and no feature was identified.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
AWOIS Items	AWOIS # 12262	0.00	000.0	Primary

### Hydrographer Recommendations

Hydrographer recommends removing this charted obstruction and corresponding AWOIS. -bsh

### S-57 Data

**Geo object 1:** Obstruction (OBSTRN)  
**Attributes:** QUASOU - 2:depth unknown  
 TECSOU - 2:found by side scan sonar

## Office Notes

SAR: Concur with recommendation. AWOIS 12262 not found in 100m search radius



### 1.3) AWOIS #7899 - OBSTRUCTION

#### No Primary Survey Feature for this AWOIS Item

**Search Position:** 41° 36' 49.1" N, 071° 20' 27.4" W  
**Historical Depth:** 3.69 m  
**Search Radius:** 75  
**Search Technique:** S2,DI,ES,MB  
**Technique Notes:** [None]

#### History Notes:

##### HISTORY

NM25/61--6/24/61; A 5 PONTOON BARGE REPORTED SUNK IN 22 FT OF WATER WITH 14 FT OF WATER OVER IT ON THE WEST SIDE OF PRUDENCE ISLAND; PA LAT 41-36-47N, LONG 71-20-25W.

H6859/62-63AD.WK.--WIRE DRAG SURVEY CONDUCTED IN VICINITY OF OBSTRUCTION REPORTED IN LAT 41-36-47N, LONG 71-20-25W; IN 1962 SEASON, THERE WAS A DOUBLE HANG NEAR REPORTED POSITION OF OBSTRUCTION WITH EFFECTIVE WIRE DRAG DEPTH OF 17 FT; DIVER DEPTHS OF 11 AND 14 FT; BOTH HANGS REPORTED TO BE PIECES OF ANGLE IRON PROTRUDING FROM A SUBMERGED BARGE; SUBSEQUENTLY CLEARED TO EFFECTIVE DEPTHS OF 8 AND 10 FT.; REVIEWER RECOMMENDED DELETING CHARTED SYMBOL AND ADDING 8 AND 10 FT CLEARED WRECKS IN LAT 41-36-48.5N, LONG 71-20-27.4W, AND LAT 41-36-47.9N, LONG 71-20-22.8W (SCALED FROM A SHEET ON NAD 27). (ENTERED MSD 1/91)

FE360SS/91--OPR-B660-RU; WRECK LOCATED IN POS. LAT.41-36-49.14N, LONG.71-20-25.41W WITH A DIVER LEAST DEPTH OF 3.7M (12.1FT). WRECK IS A PORTION OF STEEL BARGE, LD TAKEN ON A STEEL BEAM STICKING UP AT 45 DEG ANGLE. EVALUATOR RECOMMENDS TO CHART THE MOST SIGNIFICANT PART OF THIS WRECKAGE (INCLUDES AWOIS 7900) IN POS. LAT.41-36-48.26N, LONG.71-20-20.98W WITH A LEAST DEPTH OF 3.7M (12FT). (UPDATED 7/94 MCR)

### Survey Summary

**Charts Affected:** 13223\_1, 13221\_1, 13221\_2, 13218\_1, 13006\_1, 5161\_1, 13003\_1

**Remarks:**

[None]

**Feature Correlation**

Address	Feature	Range	Azimuth	Status
AWOIS Items	AWOIS # 7899	0.00	000.0	Primary

**Hydrographer Recommendations**

[None]

**S-57 Data**

[None]

**Office Notes**

Do not concur. Inadequate search for wreck. Compiler recommends retaining the charted wreck.

## 1.4) Profile/Beam - 310/69 from h11988 / nrt5\_s3002\_em3002\_mbes / 2009-166 / 008\_1632

### Primary Feature for AWOIS Item #7891

**Search Position:** 41° 35' 30.1" N, 071° 23' 42.2" W  
**Historical Depth:** 9.91 m  
**Search Radius:** 50  
**Search Technique:** S2, MB  
**Technique Notes:** [None]

#### History Notes:

HISTORY

LNM41/76--1ST CGD; 8/18/76; A 35 FT. LONG TANK, 5 FT. IN DIAMETER HAS BEEN REPORTED SUNK IN PA LAT 41-35-36N, LONG 71-23-24W (NAD27) IN 25 FT. OF WATER. (ENTERED MSD 12/90)  
 FE360SS/91--OPR-B660-RU; A STEEL TANK, APPROX 20FT X 5FT, WAS FOUND IN POS. 1 LAT.41-35-30.08N, LONG.71-23-42.24W WITH A DIVER LEAST DEPTH OF 9.8M (32.5FT). THE TANK SITS IN A DEPRESSION IN THE CHANNEL AND HAS SUNK IN THE SOFT BOTTOM TO ABOUT A ONE FOOT DEPTH. BECAUSE OF THESE TWO FACTORS, THE TANK MAY RISE ONLY TWO TO THREE FEET ABOVE THE RELATIVELY FLAT BOTTOM OF THIS DREDGED CHANNEL. UPDATED MCR

### Survey Summary

**Survey Position:** 41° 35' 30.3" N, 071° 23' 42.4" W  
**Least Depth:** 10.27 m (= 33.70 ft = 5.617 fm = 5 fm 3.70 ft)  
**TPU ( $\pm 1.96\sigma$ ):** **THU (TPEh)**  $\pm 1.966$  m ; **TVU (TPEv)**  $\pm 0.224$  m  
**Timestamp:** 2009-166.16:32:23.624 (06/15/2009)  
**Survey Line:** h11988 / nrt5\_s3002\_em3002\_mbes / 2009-166 / 008\_1632  
**Profile/Beam:** 310/69  
**Charts Affected:** 13223\_1, 13221\_1, 13221\_2, 13218\_1, 13006\_1, 5161\_1, 13003\_1

#### Remarks:

Area was covered with 200% SSS and 100% MBES. AWOIS item #7891. Object in a depression.

## Feature Correlation

Address	Feature	Range	Azimuth	Status
h11988/nrt5_s3002_em3002_mbes/2009-166/008_1632	310/69	0.00	000.0	Primary
AWOIS Items	AWOIS # 7891	7.83	341.8	Secondary

## Hydrographer Recommendations

Hydrographer recommends removing AWOIS item #7891. Object has a LD of 33.69 ft. -bsh

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

33ft (13223\_1, 13221\_1, 13221\_2, 13218\_1)

5 ½fm (13006\_1, 13003\_1)

10.3m (5161\_1)

## S-57 Data

**Geo object 1:** Obstruction (OBSTRN)  
**Attributes:** QUASOU - 1:depth known  
 TECSOU - 3:found by multi-beam  
 VALSOU - 10.272 m

## Office Notes

SAR: Do not concur with recommendaiton. Image shows feature still present, though not particularly prominent. Chart new obstruction at surveyed position.

## 1.5) Profile/Beam - 182/105 from h11988 / nrt5\_s3002\_em3002\_mbes / 2009-166 / 164\_1651

### Primary Feature for AWOIS Item #13321

**Search Position:** 41° 36' 28.8" N, 071° 23' 40.5" W  
**Historical Depth:** 5.79 m  
**Search Radius:** 50  
**Search Technique:** S2, MB  
**Technique Notes:** [None]

#### History Notes:

H10720/96--OPR-B302-RU; SSS AND ES SEARCHES IDENTIFIED A 6M SOUNDING. HYDROGRAPHER RECOMMENDS CHARTING THE 19FT LEAST DEPTH OBSTN SURROUNDED BY A DANGER CURVE AT 41/36/28.813N 71/23/41.490W (UPDATED 7/18/05, SME)

### Survey Summary

**Survey Position:** 41° 36' 29.7" N, 071° 23' 40.8" W  
**Least Depth:** 7.05 m (= 23.12 ft = 3.853 fm = 3 fm 5.12 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh)  $\pm 1.965$  m ; TVU (TPEv)  $\pm 0.217$  m  
**Timestamp:** 2009-166.16:51:59.527 (06/15/2009)  
**Survey Line:** h11988 / nrt5\_s3002\_em3002\_mbes / 2009-166 / 164\_1651  
**Profile/Beam:** 182/105  
**Charts Affected:** 13223\_1, 13221\_1, 13221\_2, 13218\_1, 13006\_1, 5161\_1, 13003\_1

#### Remarks:

Area was covered with 200% SSS and 100% MBES. AWOIS item 13321. Existent.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
h11988/nrt5_s3002_em3002_mbes/2009-166/164_1651	182/105	0.00	000.0	Primary
h11988/nrt5_s3002_klein3000_sss/2008-226/sonar_data080813172700	0001	1.47	156.3	Secondary
AWOIS Items	AWOIS # 13321	27.32	344.0	Secondary

## Hydrographer Recommendations

Hydrographer recommends AWOIS #13321 remain as charted.

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

23ft (13223\_1, 13221\_1, 13221\_2, 13218\_1)

3 ¾fm (13006\_1, 13003\_1)

7.0m (5161\_1)

## S-57 Data

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

**Attributes:** CATWRK - 1:non-dangerous wreck

QUASOU - 1:depth known

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

VALSOU - 7.047 m

WATLEV - 3:always under water/submerged

## Office Notes

Concur. Retain as charted.

## 1.6) Profile/Beam - 424/44 from h11988 / nrt5\_s3002\_em3002\_mbes / 2009-166 / 167\_1655

### Primary Feature for AWOIS Item #13320

**Search Position:** 41° 36' 28.2" N, 071° 23' 32.9" W  
**Historical Depth:** 5.49 m  
**Search Radius:** 50  
**Search Technique:** S2, MB  
**Technique Notes:** [None]

#### History Notes:

H10720/96--OPR-B302-RU; S2, ES, AND DI SEARCHES FOUND A 10-12FT SECTION OF STEEL DREDGE PIPE ANGLING UP APPROX 6FT OUT OF SOFT, MUDDY BOTTOM. HYDROGRAPHER RECOMMENDS CHARTING THE 18FT LEAST DEPTH OBSTN AT 41/36/28.240N 71/23/32.944W (UPDATED 7/18/05, SME)

### Survey Summary

**Survey Position:** 41° 36' 28.3" N, 071° 23' 33.0" W  
**Least Depth:** 6.23 m (= 20.44 ft = 3.407 fm = 3 fm 2.44 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh)  $\pm 1.966$  m ; TVU (TPEv)  $\pm 0.214$  m  
**Timestamp:** 2009-166.16:55:39.273 (06/15/2009)  
**Survey Line:** h11988 / nrt5\_s3002\_em3002\_mbes / 2009-166 / 167\_1655  
**Profile/Beam:** 424/44  
**Charts Affected:** 13223\_1, 13221\_1, 13221\_2, 13218\_1, 13006\_1, 5161\_1, 13003\_1

#### Remarks:

Area was covered with 200% SSS and 100% MBES. AWOIS item #13320. Verified.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
h11988/nrt5_s3002_em3002_mbes/2009-166/167_1655	424/44	0.00	000.0	Primary
AWOIS Items	AWOIS # 13320	0.40	325.0	Secondary
h11988/nrt5_s3002_klein3000_sss/2008-226/sonar_data080813172300	0001	4.93	343.0	Secondary
h11988/nrt5_s3002_klein3000_sss/2008-210/sonar_data080728130200	0001	4.93	345.3	Secondary

## Hydrographer Recommendations

Hydrographer recommends AWOIS #13320 remain as charted. -bsh

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

20ft (13223\_1, 13221\_1, 13221\_2, 13218\_1)

3 ¼fm (13006\_1, 13003\_1)

6.2m (5161\_1)

## S-57 Data

**Geo object 1:** Wreck (WRECKS)  
**Attributes:** CATWRK - 1:non-dangerous wreck  
QUASOU - 1:depth known  
TECSOU - 3:found by multi-beam  
VALSOU - 6.231 m  
WATLEV - 3:always under water/submerged

## Office Notes

Concur. Retain as charted.



## 1.7) Profile/Beam - 712/42 from h11988 / nrt5\_s3002\_em3000\_mbes / 2008-232 / 085\_1405

### Primary Feature for AWOIS Item #7900

**Search Position:** 41° 36' 47.6" N, 071° 20' 23.9" W  
**Historical Depth:** 6.40 m  
**Search Radius:** 75  
**Search Technique:** S2,ES,DI,MB  
**Technique Notes:** [None]

#### History Notes:

##### HISTORY

NM25/61--6/24/61; A 5 PONTOON BARGE IS REPORTED SUNK IN 22 FT OF WATER WITH 14 FT OF WATER OVER IT ON WEST SIDE OF PRUDENCE ISLAND IN PA LAT 41-36-47N, LONG 71-20-25W (NAD27).

H6859/62-63AD.WK.--A WIRE DRAG SURVEY CONDUCTED IN THE VICINITY OF THE OBSTRUCTION IN LAT 41-36-47N, LONG 71-20-25W; IN 1962 SEASON, THERE WAS A DOUBLE HANG NEAR REPORTED POSITION OF OBSTRUCTION WITH AN EFFECTIVE DEPTH OF 17 FT; DIVER DEPTHS OF 11 AND 14 FT; BOTH HANGS WERE REPORTED TO BE PIECES OF ANGLE IRON PROTRUDING FROM A SUBMERGED BARGE; SUBSEQUENTLY CLEARED TO EFFECTIVE DEPTHS OF 8 AND 10 FT; REVIEWER RECOMMENDED DELETING CHARTED SYMBOL AND ADDING 8 AND 10 CLEARED WRECKS; IN LAT 41-36-48.5N, LONG 71-20-27.4W, AND 41-36-47.9N, LONG 71-20-22.8W (SCALED FROM A SHEET IN NAD27). (ENTERED MSD 1/91)

FE360SS/91--OPR-B660-RU; WRECK LOCATED IN POS. LAT.41-36-47.61, LONG.71-20-23.87W WITH A DIVER LEAST DEPTH OF 6.5M (21FT). WRECK IS A STEEL AND BARGE-LIKE, LYING FLAT ON BOTTOM. EVALUATOR RECOMMENDS TO CHART THE MOST SIGNIFICANT PART OF THIS WRECKAGE (INCLUDES AWOIS 7899) FOUND IN POS. LAT.41-36-48.26N, LONG.71-20-20.98W WITH A LEAST DEPTH OF 3.7M (12FT). (UPDATED 7/94 MCR)

### Survey Summary

**Survey Position:** 41° 36' 47.5" N, 071° 20' 24.0" W  
**Least Depth:** 6.17 m (= 20.25 ft = 3.375 fm = 3 fm 2.25 ft)

**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh)  $\pm 1.964$  m ; TVU (TPEv)  $\pm 0.243$  m  
**Timestamp:** 2008-232.14:06:00.952 (08/19/2008)  
**Survey Line:** h11988 / nrt5\_s3002\_em3000\_mbes / 2008-232 / 085\_1405  
**Profile/Beam:** 712/42  
**Charts Affected:** 13223\_1, 13221\_1, 13221\_2, 13218\_1, 13006\_1, 5161\_1, 13003\_1

**Remarks:**

Area was covered with 200% SSS and 100% MBES. Wreck, AWOIS 7900.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
h11988/nrt5_s3002_em3000_mbes/2008-232/085_1405	712/42	0.00	000.0	Primary
h11988/nrt5_s3002_klein3000_sss/2008-225/sonar_data080812175700	0001	0.74	138.0	Secondary
AWOIS Items	AWOIS # 7900	3.96	219.9	Secondary
h11988/nrt5_s3002_klein3000_sss/2008-225/sonar_data080812175700	0002	49.86	006.3	Secondary (grouped)

### Hydrographer Recommendations

Hydrographer recommends remain as charted. -bsh

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

20ft (13223\_1, 13221\_1, 13221\_2, 13218\_1)

3 ¼fm (13006\_1, 13003\_1)

6.2m (5161\_1)

### S-57 Data

**Geo object 1:** Wreck (WRECKS)  
**Attributes:** CATWRK - 1:non-dangerous wreck  
 QUASOU - 1:depth known  
 SORDAT - 20080819  
 TECSOU - 3:found by multi-beam  
 VALSOU - 6.173 m  
 WATLEV - 3:always under water/submerged

## Office Notes

Concur.

## 1.8) Profile/Beam - 207/117 from h11988 / nrt5\_s3002\_em3000\_mbes / 2008-232 / 140\_1502

### Primary Feature for AWOIS Item #14219

**Search Position:** 41° 35' 25.0" N, 071° 20' 27.0" W  
**Historical Depth:** 11.28 m  
**Search Radius:** 75  
**Search Technique:** S2, MB  
**Technique Notes:** [None]

#### History Notes:

L1716/00-- SAIC sent a DTON report on an obstruction found with least depth of 37 feet, located at 41/35/25 - 71/20/27. (Entered CEH 7/1/2008)

### Survey Summary

**Survey Position:** 41° 35' 26.4" N, 071° 20' 27.8" W  
**Least Depth:** 10.70 m (= 35.10 ft = 5.850 fm = 5 fm 5.10 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh)  $\pm 1.971$  m ; TVU (TPEv)  $\pm 0.279$  m  
**Timestamp:** 2008-232.15:02:27.228 (08/19/2008)  
**Survey Line:** h11988 / nrt5\_s3002\_em3000\_mbes / 2008-232 / 140\_1502  
**Profile/Beam:** 207/117  
**Charts Affected:** 13223\_1, 13221\_1, 13221\_2, 13218\_1, 13006\_1, 5161\_1, 13003\_1

#### Remarks:

Area was covered with 200% SSS and 100% MBES. Large container or barge. AWOIS item 14219 confirmed.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
h11988/nrt5_s3002_em3000_mbes/2008-232/140_1502	207/117	0.00	000.0	Primary
h11988/nrt5_s3002_klein3000_sss/2008-225/sonar_data080812173000	0001	11.02	287.5	Secondary
h11988/nrt5_s3002_klein3000_sss/2008-225/sonar_data080812161000	0001	16.52	321.2	Secondary
AWOIS Items	AWOIS # 14219	46.11	334.7	Secondary

## Hydrographer Recommendations

Hydrographer recommends obstruction remain as charted, verified AWOIS item #14219. -bsh

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

35ft (13223\_1, 13221\_1, 13221\_2, 13218\_1)

5 ¾fm (13006\_1, 13003\_1)

10.7m (5161\_1)

## S-57 Data

**Geo object 1:** Wreck (WRECKS)  
**Attributes:** CATWRK - 1:non-dangerous wreck  
QUASOU - 1:depth known  
TECSOU - 3:found by multi-beam  
VALSOU - 10.699 m  
WATLEV - 3:always under water/submerged

## Office Notes

Do not concur. Remove charted obstruction and chart new obstruction at surveyed position.

### Feature Images

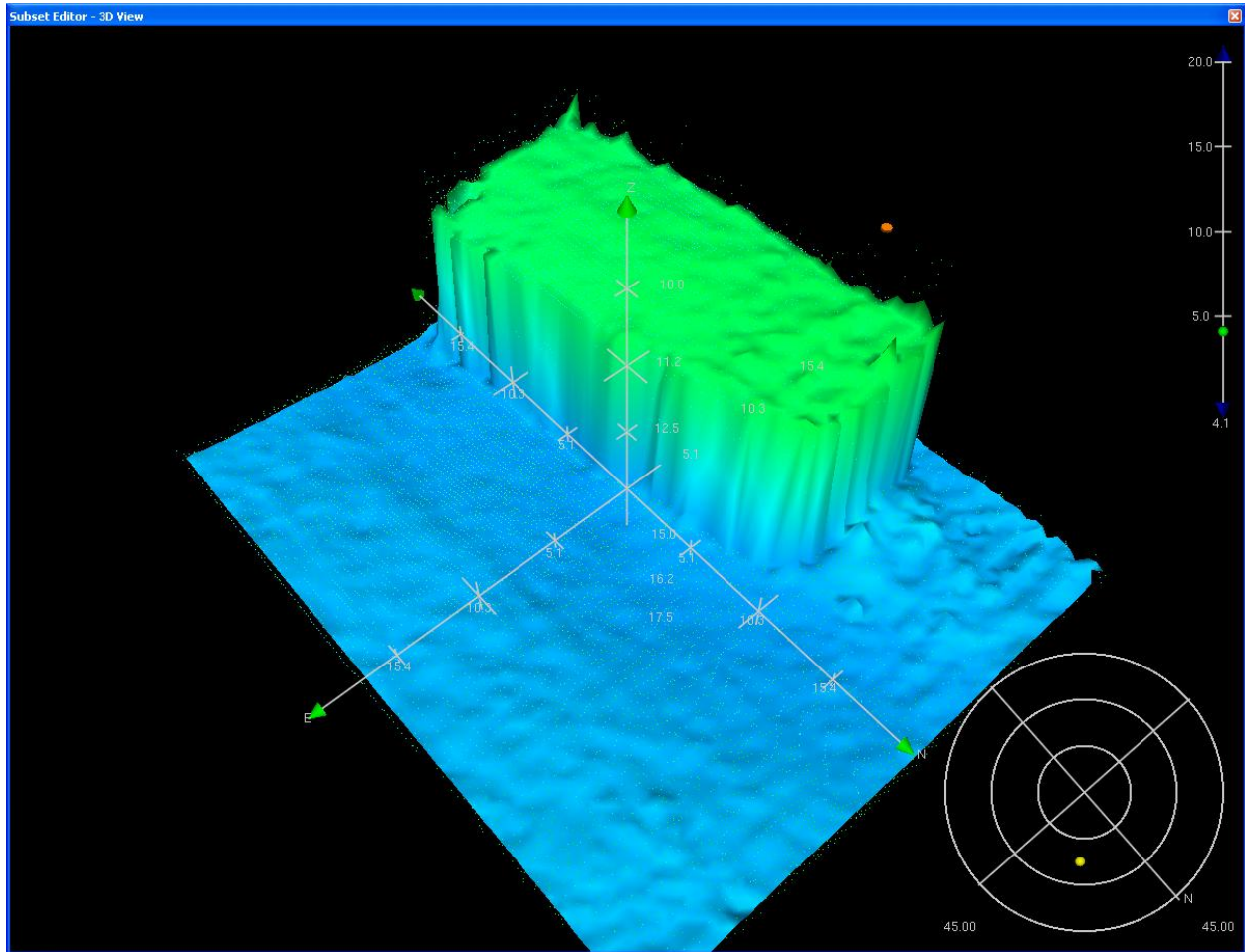


Figure 1.8.1



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

**TIDE NOTE FOR HYDROGRAPHIC SURVEY**

**DATE :** September 29, 2009

**HYDROGRAPHIC BRANCH:** Atlantic  
**HYDROGRAPHIC PROJECT:** OPR-B301-NRT5-2009  
**HYDROGRAPHIC SHEET:** H11988

**LOCALITY:** Upper Narragansett Bay, RI  
**TIME PERIOD:** July 14, 2008 - June 15, 2009

**TIDE STATION USED:** Fall River, MA 844-7386  
Lat. 41° 42.3' N Long. 71° 9.8' W

**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 0.000 meters  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 1.382 meters

**TIDE STATION USED:** Conimicut Light, RI 845-2944  
Lat. 41° 43.0' N Long. 71° 20.7' W

**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 0.000 meters  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 1.319 meters

**TIDE STATION USED:** Newport, RI 845-2660  
Lat. 41° 30.6' Long. 71° 19.6'

**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 0.000 meters  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 1.099 meters

**TIDE STATION USED:** Quonset Point, RI 8454049  
Lat. 41° 35.1' Long. 71° 24.5'

**PLANE OF REFERENCE (MEAN LOWER LOW WATER):** 0.000 meters  
**HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE:** 1.176 meters

**REMARKS: RECOMMENDED Grid**

Please use the TCARI grid "B301NRT52009-Final.tc" as the final grid for project OPR-B301-NRT5-2009, H11988, during the time period between July 14, 2008 - June 15, 2009.

**Refer to attachments for grid information.**

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

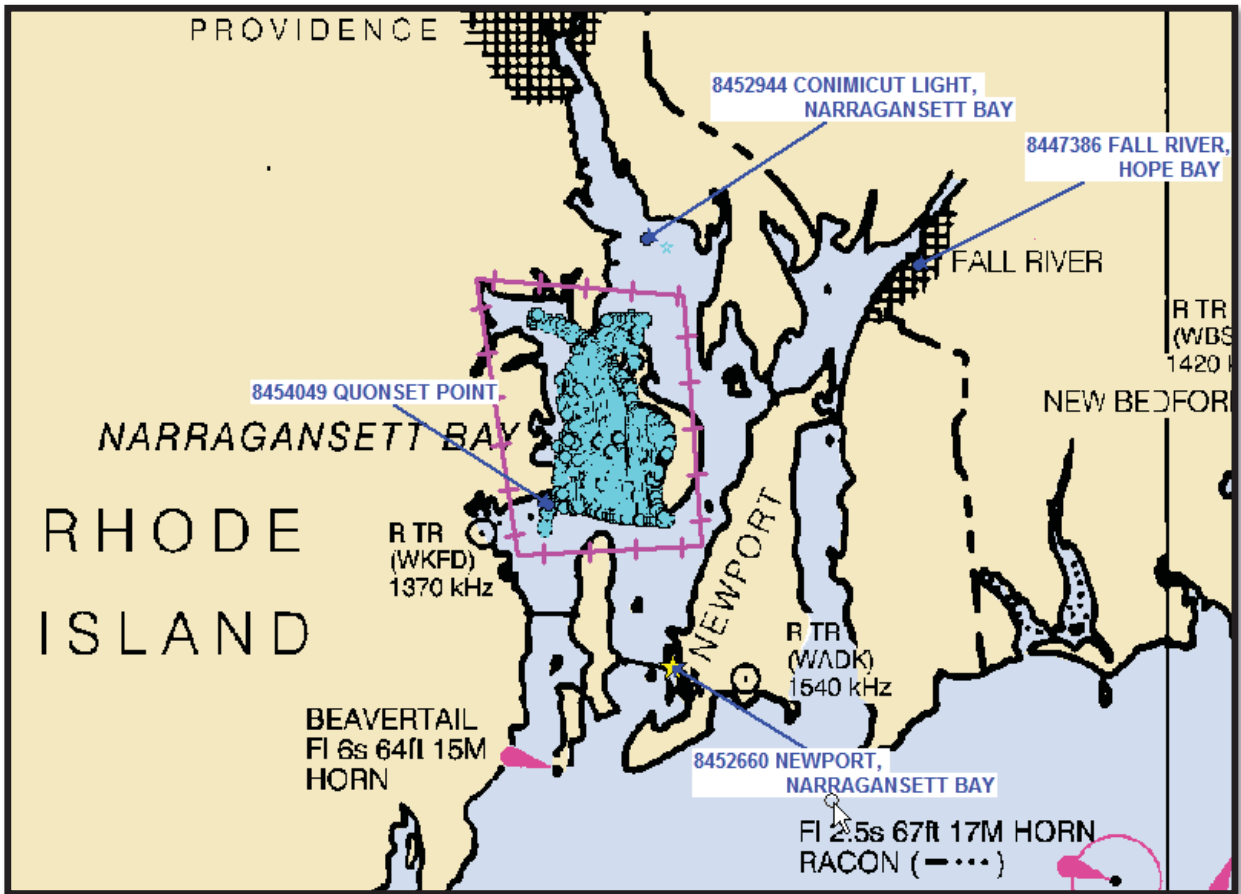
**Note 2:**

**Peter J. Stone**  
Digitally signed by Peter J. Stone  
DN: cn=Peter J. Stone, o=CO-OPS, ou=NOAA/  
NOS, email=peter.stone@noaa.gov, c=US  
Date: 2009.10.06 15:39:37 -04'00'

CHIEF, OCEANOGRAPHIC DIVISION



Final TCARI Grid for  
B301-NRT5-2008, H11988  
Upper Narragansett Bay, RI





# PHB Compilation Log

## General Survey Info

Survey Number	H11988	Field Unit	NRT5	State	RI	UTM Zone	19N
Project Number	OPR-B301-NRT5-08	Project Name (Locality)	Providence				
Start Date	07/18/2008	Sublocality	Conanicut Point to Warwick				
End Date	08/13/2009	Survey Scale	10,000	Compilation Scale	20000		

### Affected Raster Charts

Chart	KAPP	Scale	Edition	Date	NTM Date
13223	2134	20000	41st	06/01/2009	11/12/2011
13224	2132	20000	39th	08/01/2009	10/29/2011



### Affected Electronic Charts

ENC	Scale
US5RI22M	20000
US5RI23M	20000



### Spatial Reference

Horizontal Datum	WGS84
Coordinate System	LLDG
Sounding Datum	MLLW
Vertical Datum	MHW

### Junction Surveys

Survey Number	Survey Date	Location Relative to Current Survey
H11929	01/01/2008	N
H12153	01/01/2009	E



HCell Compiler	Kurt Brown	QC Reviewer	Holmberg	SAR Reviewer	Crescent Moegling
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### Source Surfaces

Resolution	File Name
4	H11988_4m_Combined

# PHB Compilation Log

## Processing Info



### Supporting Documents

Name	Version
Specs and Deliverables	April 2011
HCell Specs	6.1



## Software Used

Software	Version, HF	Used For
CARIS HIPS	7.1 HF3	SAR Review. Inspection of Combined BASE Surfaces.
Pydro	11.10	SAR Review. Generation of Features Reports.
CARIS BASE Editor	3.2 HF5	Creation of soundings and bathy-derived features, meta area object, and Blue Notes; Survey evaluation and verification; Initial HCell assembly.
CARIS S-57 Composer	2.2 HF4	Final compilation of the HCell, correct geometry and build topology, apply final attributes, export the HCell, and QA.
CARIS GIS	4.4a	Setting the sounding rounding variable for conversion of the metric HCell to NOAA charting units with NOAA rounding. (For Fathoms and Feet chart units only.)
CARIS HOM	3.3 SP3 HF8	Perform conversion of the metric HCell to NOAA charting units with NOAA rounding. (For Fathom and Feet chart units only)
CARIS Plot Composer	5.1 SP 2	Generate plots of CARIS Session files used for QC.
HydroService, dKart Inspector		Validation check of the base cell file.
Fugawi View ENC	1.0.0.3	Independent inspection of final HCells using COTS viewer.

## Product Info

### Deliverables

Chart Scale HCell

Survey Scale HCell

HCell Report for MCD

Feature Listing

Descriptive Report

Survey Outline

### Horizontal and Vertical Units

During creation of the HCell all soundings and features are maintained in metric units with as high precision as possible. Depth units for soundings measured with sonar maintain millimeter precision. Depths on rocks above MLLW and heights on islets above MHW are typically measured with range finder, so precision is less.

Depth Units (DUNI)

Height Units (HUNI)

Positional Units (PUNI)

# PHB Compilation Log

<b>Radius Setting</b>		
A survey-scale sounding (SOUNDG) feature object layer was built from the Combined Surface in CARIS BASE Editor. A shoal-biased selection was made at survey scale using a Radius Table file with values shown below.		
Radius (mm)	Min. Depth (m)	Max Depth (m)
3	-4.7	10
4	10	20
4.5	20	50
5	50	500

<b>Contours</b>			
Depth contours at the intervals on the largest scale chart are included in the SS HCell for MCD raster charting division to use for guidance in creating chart contours. With the exception of the zero contours included in the *_CS file, contours have not been deconflicted against shoreline features, soundings and hydrography.			
Charted Contours	Metric Equivalent	Metric- NOAA Rounded	Chart Contours - NOAA Rounded
6ft	1.8288m	2.0574m	6.75ft
12ft	3.6576_	3.8862m	12.75
18ft	5.4864_	5.715m	18.75
30ft	9.3762_	9.144m	30.75
<b>Add Contour</b>		<b>Remove Contour</b>	

## Additional Info

<b>Contact Information</b>	
Inquiries regarding this HCell content or construction should be directed to:	
HCell Compiler	Kurt Brown
Phone Number	206-526-6839
Email	kurt.brown@noaa.gov

<b>Compilation Comments</b>

APPROVAL SHEET  
H11988

Initial Approvals:

The survey evaluation and verification has been conducted according to branch processing procedures and the HCell compiled per the latest OCS HCell Specifications.

The survey and associated records have been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, S-57 classification and attribution of soundings and features, cartographic characterization, and verification or disproof of charted data within the survey limits. The survey records and digital data comply with OCS requirements except where noted in the Descriptive Report and are adequate to supersede prior surveys and nautical charts in the common area.

I have reviewed the HCell, accompanying data, and reports. This survey and accompanying digital data meet or exceed OCS requirements and standards for products in support of nautical charting except where noted in the Descriptive Report.