

**H12012**

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: H12012

**LOCALITY**

State: Connecticut

General Locality: Eastern Long Island Sound

Sub-locality: 3 NM South of the entrance to the CT River

**2009**

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

LIBRARY & ARCHIVES  
DATE

**HYDROGRAPHIC TITLE SHEET**

**H12012**

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: **Connecticut**

General Locality: **Eastern Long Island Sound**

Sub-Locality: **3 NM South of the entrance to the CT River**

Scale: **1:10,000** Date of Survey: **18 April 2009 to 30 April 2009**

Instructions Dated: **3 March 2009** Project Number: **OPR-B370-TJ-09**

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

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

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

Soundings by: **Reson 7125 multibeam echosounder**

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

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

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

Verification by: ***Atlantic Hydrographic Branch***

Soundings in: **Meters at MLLW**

Remarks:

- 1) All Times are in UTC.***
  - 2) This is a Navigable Area Hydrographic Survey.***
  - 3) Projection is NAD83, UTM Zone 18.***
- Red, Bold, Italic notes were made during office processing.***

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**Descriptive Report to Accompany Hydrographic Survey H12012**

Project OPR-B370-TJ-09  
 Eastern Long Island Sound  
 3 NM South of the entrance of the CT River  
 Scale 1:10,000  
 18 April 2009 – 30 April 2009  
**NOAA Ship *Thomas Jefferson***

**A AREA SURVEYED**

This hydrographic survey was completed as specified by Hydrographic Survey Letter Instructions OPR-B370-TJ-09, dated 3 March, 2009.

Northern Limit	Southern Limit	Western Limit	Eastern Limit
41° 15' 32.11" N 072° 13' 45.90" W	41° 11' 55.97" N 072° 24' 06.72" W	41° 12' 31.39" N 072° 24' 09.39" W	41° 15' 24.69" N 072° 08' 42.65" W

Data acquisition was conducted from 18 April to 30 April, 2009.

The purpose of this project is to detect hazards to navigation and to provide updated bathymetry. This project responds to a request from the Northeast Marine Pilots Association for contemporary hydrographic surveys to update the nautical charts in the Eastern Long Island Sound. The current vintage of hydrography dates back to as early as 1883 in the northern part of the project area. Petroleum and coal products constitute the bulk of the goods transported through the Sound.

**Table 1: Hydrographic Survey Statistics**

	Linear Nautical Miles
Single beam mainscheme only	N/A
Multibeam mainscheme only	361.184
Side Scan Sonar mainscheme only	0
Crosslines	17.811
Developments	0.756
Shoreline/nearshore investigations	N/A
Number of Bottom Samples	7
Number of AWOIS items investigated	2

The survey limits of H12012 (Figure 1) are shown on the following page.

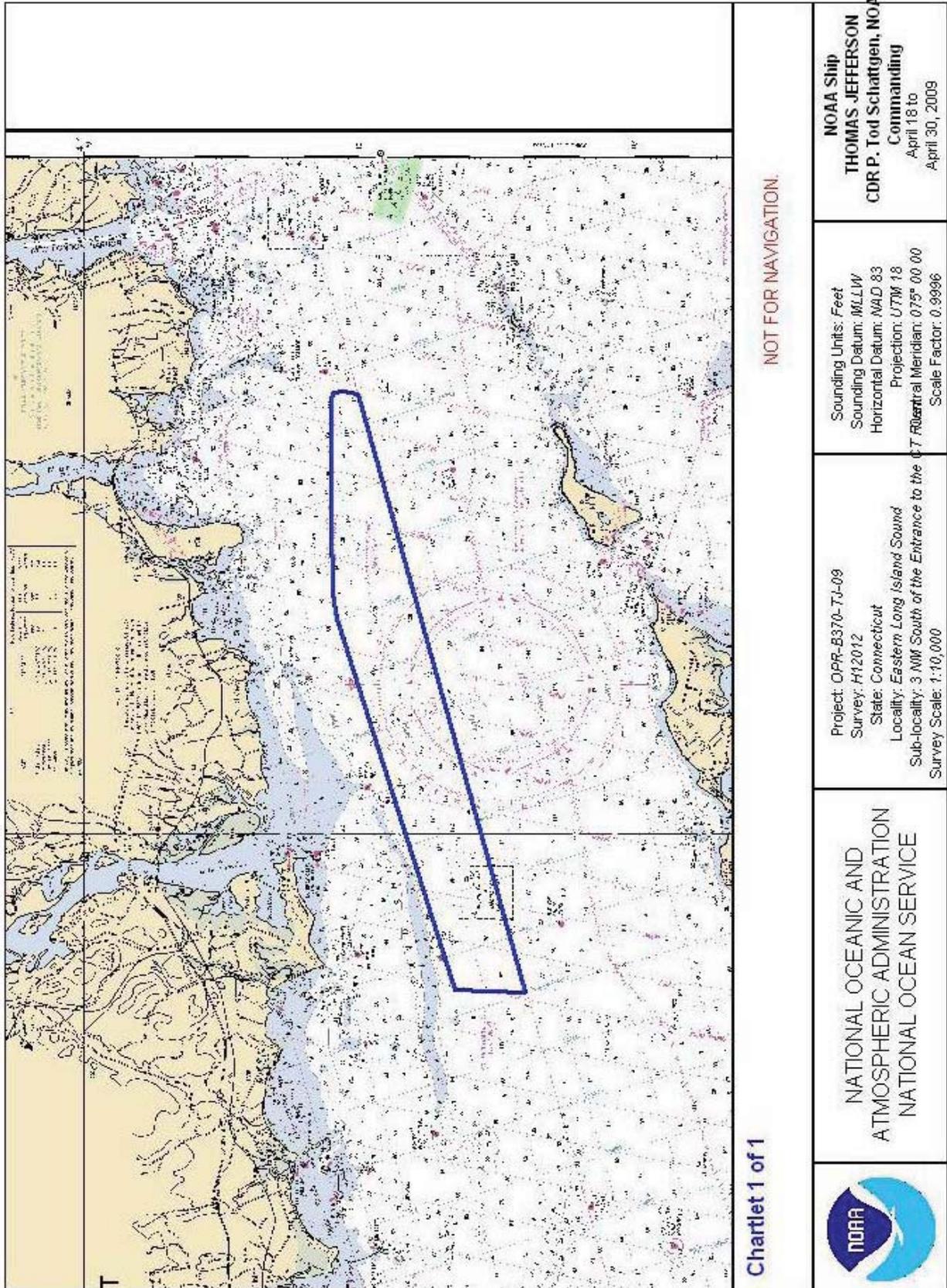


Figure 1: Survey Limits

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

<b>Calendar Date</b>	<b>Julian Day</b>
18 April 2009	108
19 April 2009	109
20 April 2009	110
21 April 2009	111
22 April 2009	112
30 April 2009	120

**B DATA ACQUISITION AND PROCESSING**

Refer to **OPR-B370-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.

**B 1 EQUIPMENT AND VESSELS**

Data were acquired by NOAA Ship *Thomas Jefferson*. NOAA Ship *Thomas Jefferson* acquired Reson 7125 multibeam echosounder soundings, sound velocity profiles, and bottom samples. Vessel configurations, equipment operation and data acquisition and processing were consistent with specifications described in the DAPR \*.

**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.

**B 2.2 Sounding Coverage**

As per the Letter Instructions\*\*, this survey was conducted using complete coverage multibeam. Bathymetry coverage was monitored by creating a BASE surface with a two meter resolution. Coverage over the AWOIS items was monitored by creating BASE surfaces with a one meter resolution over the radius. ***Concur with clarification, the entire radius of AWOIS #13003 was not covered with 100% MBES. See Appendix II\* for further information.***

There is a 3 kilometer area south of Long Sand Shoal that has soundings less than 20 meters. A side scan line should have been run. The area was not discovered until the sounding plot was created. ***Concur.***

***\* Submitted with H-Cell deliverable. \*\*Filed with original field records***

The survey limits were modified to include the dumping ground that was surveyed during the 2008 field season as part of sheet H11997. It would have been inefficient to have the ship run lines and turn over that area or stop logging over that area and continue on to the next line.

***Concur with clarification. All data from this survey shall supersede depths from survey H11997.***

**B 2.3 Crosslines**

Multibeam echosounder cross-lines totaling 17.811 lineal nautical miles, comprising 4 percent of hydrography, were acquired during the course of the survey. An evaluation of the standard deviation layer of the BASE surface was performed for fieldsheet H12012\_1\_CUBE\_NOAA\_2m. The results indicate some systematic artifacts due to attitude inputs, but these do not exceed 0.140 in any area. Other areas of high standard deviation are caused by bathymetric features or man made obstructions. ***See section B 2.5 for further systematic error issues.*** The results of the evaluation are located in the Descriptive Report/Separates/IVCrossline\_Comparison\*\* folder submitted with this survey. A surface differencing between crosslines and mainscheme was performed and the resultant surface placed in the Descriptive Report/Separates/IVCrossline\_Comparison\*\* folder.

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

**B 2.4 Junctions and Prior Surveys**

The following contemporary surveys junction with H12012:

<b>Registry #</b>	<b>Scale</b>	<b>Year</b>	<b>Field Party</b>	<b>Junction side</b>
H11250	1:10,000	2003	<i>Thomas Jefferson</i>	East
H11361	1:10,000	2004	<i>Thomas Jefferson</i>	West
H11442	1:10,000	2005	<i>Thomas Jefferson</i>	Northeast
H11997	1:10,000	2008	<i>Thomas Jefferson</i>	South
H12013	1:10,000	2009	<i>Thomas Jefferson</i>	North

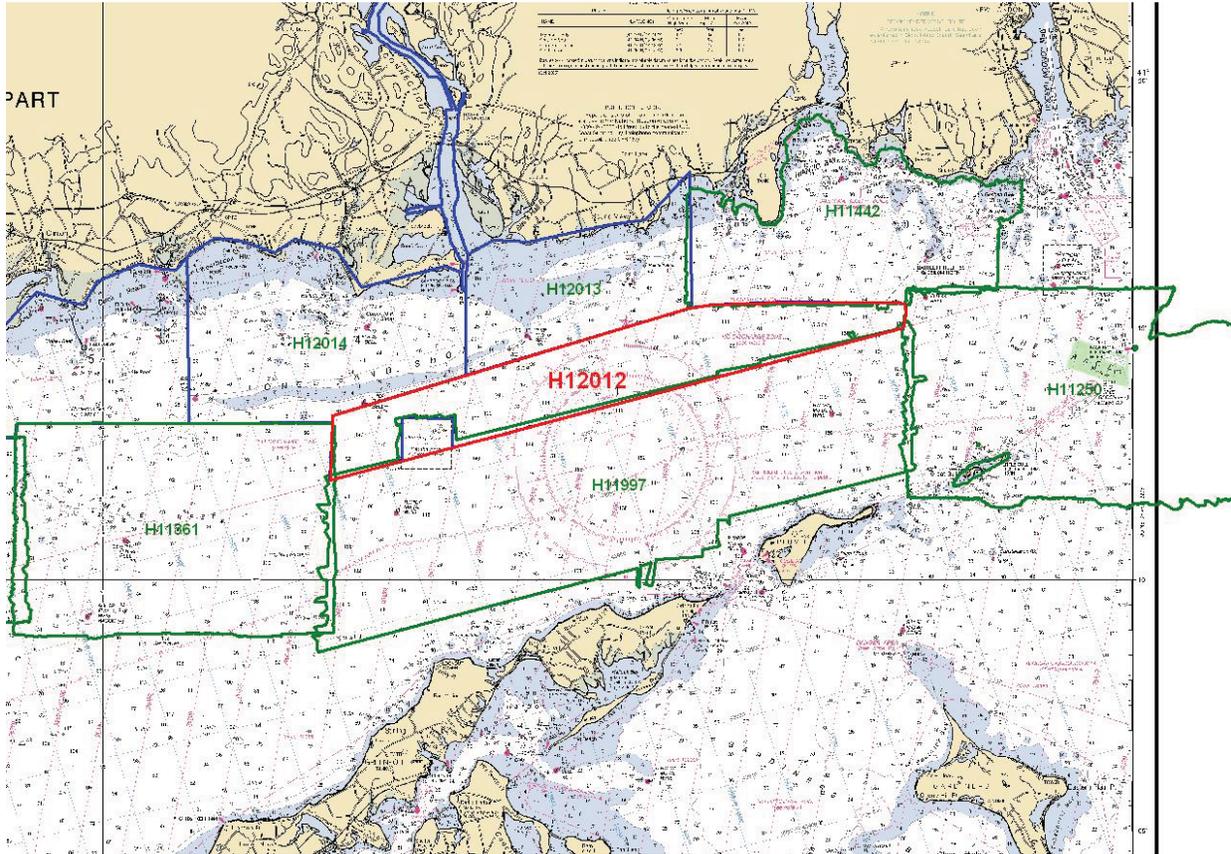
Survey H11250 junctions with H12012 in the East. As this survey is older than five years, there is no contemporary data set to compare to. ***Junction comparison with this survey was not required.***

Survey H11361 junctions with H12012 in the West. There were no data sets made available at the time of review of this survey. ***Junction comparison with this survey was not required.***

Survey H11442 junctions with H12012 in the Northeast. There were no data sets made available at the time of review of this survey. ***Junction comparison with this survey was not required.***

Survey H11997 junctions with H12012 in the South. There were no data sets made available at the time of review of this survey. ***Office comparison determined that survey soundings from H12012 compare within 1 to 2 ft of H11997.***

Survey H12013 junctions with H12012 in the North. The difference in soundings between the two surveys is no greater than one foot. *Concur.*



**Figure 2: H12012 Junction Surveys**

**B 2.5 Systematic Errors**

Due to a faulty RESON 7125 multibeam receiver on the TJ, which got replaced after this survey, a systematic artifact appears throughout the data as dual along track striping near nadir, ranging in height from 10cm to 20cm. This error was accounted for this survey in the CARIS vessel configuration (TJ\_S222\_RESON7125.hvf) by adding a 0.200 m value for the Total Propagated Error for the delta draft.

This survey has good internal consistency except in the following areas where areas of low density occur at the outer beams.

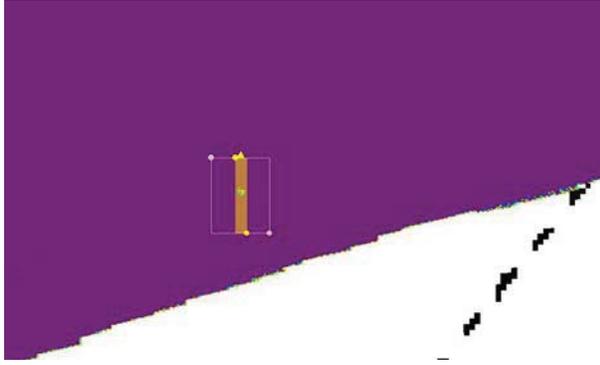


Figure 3: Density Layer

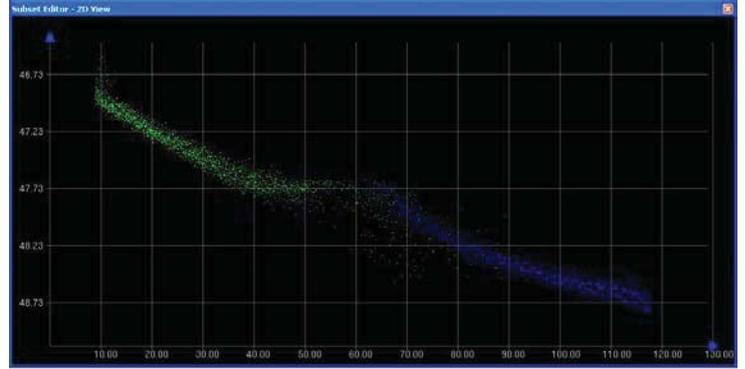


Figure 4: Density Layer Subset

The lines acquired on 30 April 2009 have the highest standard deviation. These lines were acquired over sandwaves. A week had passed before these lines were acquired. There may have been some movement of the sandwaves which caused the high standard deviation.

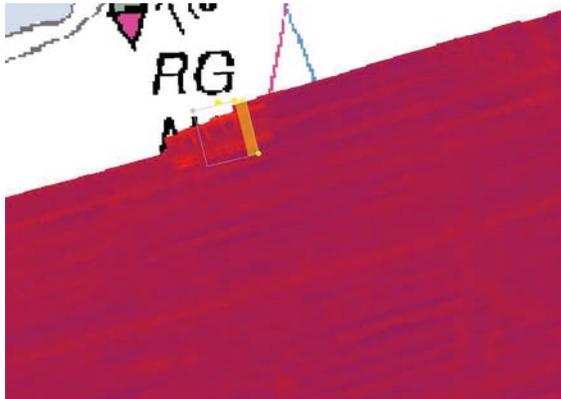


Figure 5: Standard Deviation Layer

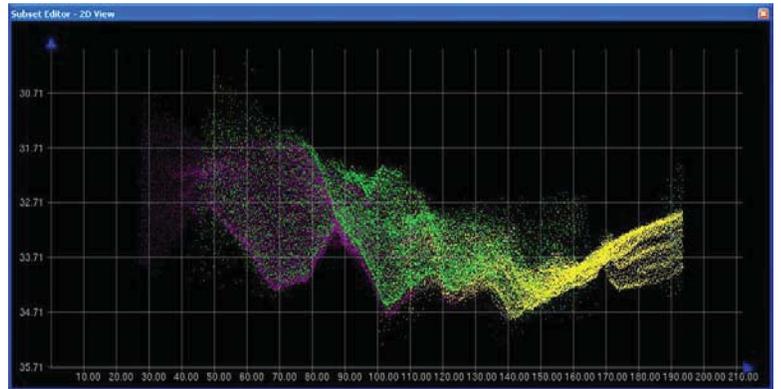


Figure 6: Standard Deviation Layer Subset

Other areas of high standard deviation include wrecks, rocks, and outer beams. ***Do not concur. An average 0.2-0.4m offset was apparent between nearly every line in the survey area. It is suggested that the offset is a result of a Dynamic Draft issue as offsets are most significant between lines run in opposite directions. The offset is within IHO Order 1 specifications.***

**B 3 CORRECTIONS TO ECHO SOUNDINGS**

HDCS sounding data were reduced to mean lower-low water (MLLW) using verified water levels from New London, CT (8461490) and New Haven, CT (8465705), adjusted for tidal constituents and residuals provided by CO-OPS and illustrated in Figure 7.



**B 4.2 BASE Surfaces and Mosaics**

The following table describes all BASE Surfaces and Mosaics submitted as part of Survey H12012:

**Table 4: Fieldsheets**

<i>Name of Surfaces</i>	<i>Resolution</i>	<i>Type</i>	<i>Purpose</i>
H12012_1_CUBE_NOAA_2m_Final	2.0 meter	CUBE	Sounding Coverage
H12012_AWOIS_13003_NOAA_1m_Final	1.0 meter	CUBE	AWOIS Coverage
H12012_AWOIS_7500_NOAA_1m_Final	1.0 meter	CUBE	AWOIS Coverage

This survey was processed using the Combined Uncertainty and Bathymetry Estimator (CUBE) algorithm. The CUBE configuration was set to NOAA\_2m for the two meter coverage surface and NOAA\_1m for the one meter AWOIS surfaces. Refer to the 2009 Data Acquisition and Processing Report\*, 2008 Field Procedures Manual, and CARIS HIPS/SIPS 6.1 manual for further discussion.

**C HORIZONTAL AND VERTICAL CONTROL**

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.

**C 1.1 Horizontal Control**

The horizontal datum for this project is the North American Datum of 1983 (NAD83) *Zone 18N*. Differential GPS (DGPS) was the sole method of positioning. Differential corrections from the U.S. Coast Guard beacon at Moriches, NY (293 kHz) were as 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) stations at New London, CT (8461490) and New Haven, CT (8465705), served as datum control for H12012. 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 1 May 2009 in accordance with the FPM and project letter instructions\*\*. Final smooth tide letter received 3 June 2009, accepting preliminary TCARI grid as final.

*\* Submitted with H-Cell deliverable. \*\*Filed with original field records.*

## D RESULTS AND RECOMMENDATIONS

### D 1 Chart Comparison

Survey H12012 was compared with chart 12375 (21<sup>st</sup> Ed.; February 17, 2001, 1:20,000), chart 13211 (15<sup>th</sup> Ed.; September 2007, 1:20,000), chart 12372 (34<sup>th</sup> Ed.; November 2006, 1:40,000), chart 13209 (25<sup>th</sup> Ed.; April 2007, 1:40,000), chart 12354 (42<sup>nd</sup> Ed.; December 2006, 1:80,000), chart 12300 (47<sup>th</sup> Ed.; May 2008, 1:400,000), chart 5161 (13<sup>th</sup> Ed.; October 2003, 1:1,058,400), chart (49<sup>th</sup> Ed.; April 2007, 1:1,200,000), and ENC's US5MA22M, US3NY01M, and US2ECO3M. Chart comparisons were performed in Pydro using survey-scale excessed soundings and in MapInfo using survey-scale and chart-scale excessed soundings exported from Pydro. ***Concur with clarification. Comparisons are only required between the current survey and the largest scale charts. For comparisons see charts 12375, 13211, and 12372.***

#### D 1.1 Chart 12375 Comparison

In general, the soundings agree within 2 feet. Where there are differences they tend to be shallower. In position 41° 14' 02.27" N 072° 19' 47.33" W there is a 13 foot difference where there is a large sandwave near a 155 foot depth. ***Concur with clarification. In the vicinity of the charted 155ft depth there is a 128ft survey depth for a difference of 27ft.***

#### D 1.2 Chart 13211 Comparison

In general, the soundings agree within 1 foot. Where there are differences ~~they~~ ***the charted depths*** tend to be deeper. ***Concur***

#### D 1.3 Chart 12372 Comparison

In general, the soundings agree to within 2 feet. Where there are differences they tend to be deeper. ***Concur with clarification. Soundings agree within 2ft.***

#### D 1.4 Chart 13209 Comparison

In general the soundings agree to within 1 foot. Where there are differences they tend to be deeper. ***Refer to comparisons for largest scale charts above.***

#### D 1.5 Chart 12354 Comparison

In general, the soundings agree to within 2 feet. Where there are differences they tend to be deeper. Most of the differences are by no more than 4 feet. ***Refer to comparisons for largest scale charts above.***

#### D 1.6 Chart 12300 Comparison

None of the depths on chart 12300 fall within the limits of H12012. ***Concur. Refer to comparisons for largest scale charts above.***

### **D 1.7 Chart 13006 Comparison**

None of the depths on chart 13006 fall within the limits of H12012. *Concur. Refer to comparisons for largest scale charts above.*

### **D 1.8 Chart 5161 Comparison**

None of the depths on chart 5161 fall within the limits of H12012. *Concur. Refer to comparisons for largest scale charts above.*

### **D 1.9 Chart 13003 Comparison**

None of the depths on chart 13003 fall within the limits of H12012. *Concur. Refer to comparisons for largest scale charts above.*

### **D 1.10 ENC US5MA22M Comparison**

In general, the soundings agree to within 1 meter. Where there are differences they tend to be deeper. *Concur with clarification. Soundings agree within 1m. The survey also falls on the following ENC's: US5CN20M, US5CN30M, and US5CN41M, and agrees within 1m.*

### **D 1.11 ENC US3NY01M Comparison**

None of the depths on ENC US3NY01M fall within the limits of H12012. *Concur. Refer to comparison for ENC US5MA22M.*

### **D 1.12 ENC USECO3M Comparison**

None of the depths of ENC USECO3M fall within the limits of H12012. *Concur. Refer to comparison for ENC US5MA22M.*

## **D 2 Additional Results**

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

A total of two assigned AWOIS items were located within the modified limits of H12012 and investigated during this survey. The Project instructions \*\* were not clear about how the AWOIS items were to be investigated. The AWOIS items were investigated with object detection multibeam coverage over the search radius.

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

A portion of the assigned AWOIS #13003 radius and was not ensonified by MB in this survey. This AWOIS will be addressed in the next survey H12014, later this field season, when this AWOIS circle can be fully ensonified and the AWOIS disproved (see email HSD reference, Appendix V\*\*\*). All AWOIS items are described in detail in Appendix II\*\*\* of this report. ***Do not concur. Survey H12014 was not started during the 2009 field season. AWOIS #13003 will be retained as charted. See Appendix II\*\*\* for further information.***

#### **D 2.4 Shoreline**

There is no shoreline within the sheet limits of survey H12012. ***Concur.***

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

The dumping ground at 41° 12' 47.77" N 072° 21' 28.69" W was verified by survey H11997, in 2008. All other charted features and item investigations are described in detail in Appendix II\*\*\* of this report. ***Concur with clarification. H12012 is a complete coverage survey. All soundings from this survey will supersede those of H11997.***

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

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

#### **D 2.7 Bridges, Ferry Routes, and Overhead Cables**

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

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

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

There are no dangers to navigation within the survey limits of H12012. ***Concur.***

#### **D 3.2 Shoals**

There are no shoals within the survey limits of H12012. ***Concur.***

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

There are no charted Aids to Navigation (ATON) within the survey limits of H12012. ***Concur.***

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

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

***\*\*\*Appended to this report.***

## **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 H12012 is contained in Appendix V\*\*\* *Concur.*

### **D 7 Adequacy of Survey**

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

*\*\* Filed with original field records. \*\*\*Appended to this report.*

**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 H12012 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-B370-TJ-09	14 August 2009	N/CS33

Approved and Forwarded:


  
**Jasper Schaer**  
 2009.09.11  
 11:46:08 -04'00'  


---

 LT Jasper D. Schaer, NOAA  
 Field Operations Officer


  
 Digitally signed by Shepard  
 Smith  
 Date: 2009.08.13 21:35:26 Z  


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 CDR P. Tod Schattgen, NOAA  
 Commanding Officer

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

Survey Manager:
   

  
**Kim Glomb**  
 2009.09.11  
 11:44:32 -04'00'  


---

 Kimberly Glomb  
 Survey Technician, NOAA

# **Appendix I**

## **Dangers to Navigation**

None

## **Appendix II**

### **Survey Features Report**

#### **1. AWOIS Items**

**-2**

#### **2. Charted Features**

**-0**

#### **3. Uncharted Features**

**-2**

# H12012 AWOIS Items

**Registry Number:** H12012  
**State:** Connecticut  
**Locality:** Eastern Long Island Sound  
**Sub-locality:** 3 NM South of the entrance to the CT River  
**Project Number:** OPR-B370-TJ-09  
**Survey Dates:** 18 April 2009 - 30 April 2009

## Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
12375	21st	02/17/2001	1:20,000 (12375_1)	[L]NTM: ?
13211	14th	09/01/2004	1:20,000 (13211_1)	[L]NTM: ?
12372	33rd	08/01/2004	1:40,000 (12372_11)	[L]NTM: ?
13209	24th	06/01/2004	1:40,000 (13209_1)	[L]NTM: ?
12354	42nd	12/01/2006	1:80,000 (12354_1)	USCG LNM: 04/29/2008 (06/03/2008) CHS NTM: None (04/25/2008) NGA NTM: 12/04/1999 (06/07/2008)
12300	45th	03/01/2005	1:400,000 (12300_1)	[L]NTM: ?
13006	32nd	02/01/2005	1:675,000 (13006_1)	[L]NTM: ?
5161	13th	10/01/2003	1:1,058,400 (5161_1)	[L]NTM: ?
13003	48th	10/01/2004	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	AWOIS #13003 UNKNOWN	AWOIS	[no data]	[no data]	[no data]	---
1.2	AWOIS # 7500	Wreck	29.54 m	41° 14' 42.0" N	072° 15' 47.2" W	7500

**1 - DR\_AWOIS**

## 1.1) AWOIS #13003 - AWOIS #13003 UNKNOWN

### No Primary Survey Feature for this AWOIS Item

**Search Position:** 41° 13' 54.0" N, 072° 20' 54.0" W  
**Historical Depth:** [None]  
**Search Radius:** ~~300~~ 750  
**Search Technique:** ~~[None]~~ S2, MB, DI  
**Technique Notes:** [None]

#### History Notes:

LNM 44/91 -- WRECK PA REPORTED IN POSITION: 41-13-54 N, 072-20-54 W (NAD 83). WRECK NOW CHARTED IN POSITION: 41°13'54.22" N 072°20'53.55" W (NAD 83). UPDATED 3/3/2005 JCM.

### Survey Summary

**Charts Affected:** 12375\_1, 12372\_11, 12354\_1, 12300\_1, 13006\_1, 5161\_1, 13003\_1

#### Remarks:

The radius of AWOIS #13003 appears on Sheets H12012 and H12014. The portion of AWOIS #13003 that falls on H12012 was investigated with RESON 7125 multibeam. The AWOIS item was not found.

Due to a change in water depth within the AWOIS radius full object detection coverage was not acquired.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
EasternLongIslandSoundAWOISv2	AWOIS # 13003	0.00	000.0	Primary

### Hydrographer Recommendations

Recommend including AWOIS search in adjacent survey H12014 for full investigation.

### S-57 Data

[None]

### Office Notes

Concur with clarification. H12014 has not been surveyed as of the end of the 2009 field season. Item has not been disproved. Retain as charted.



### Feature Images

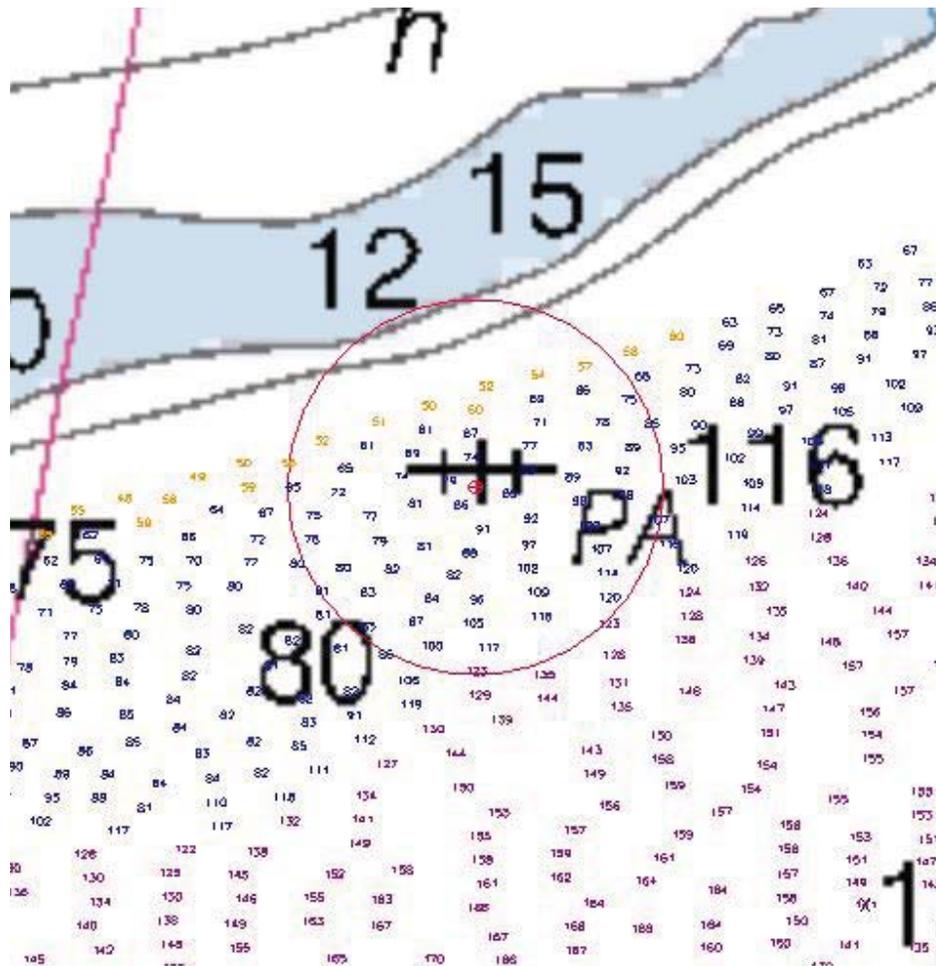


Figure 1.1.1

## 1.2) AWOIS # 7500

### Primary Feature for AWOIS Item #7500

**Search Position:** 41° 14' 41.9" N, 072° 15' 47.2" W  
**Historical Depth:** 29.90 m  
**Search Radius:** 50  
**Search Technique:** S2,MB,DI,SD  
**Technique Notes:** [None]

**History Notes:**

FE343SS/90--OPR-B660-HE; WRECK WAS LOCATED IN POS. LAT.41-14-41.92N, LONG.72-15-47.18W (NAD 83) WITH A LEAST DEPTH OF 29.9M (98.1 FT). EVALUATOR RECOMMENDS TO ADD ITEM TO CHART AS A NON-DANGEROUS WRECK. (UPDATED 8/92 MCR)

### Survey Summary

**Survey Position:** 41° 14' 42.0" N, 072° 15' 47.2" W  
**Least Depth:** 29.54 m (= 96.91 ft = 16.152 fm = 16 fm 0.91 ft)  
**TPU (±1.96σ):** THU (TPEh) ±1.004 m ; TVU (TPEv) ±0.416 m  
**Timestamp:** 2009-110.01:47:15.961 (04/20/2009)  
**Survey Line:** h12012 / tj\_s222\_reson7125\_stbd / 2009-110 / 240\_0142  
**Profile/Beam:** 2276/18  
**Charts Affected:** 12375\_1, 13211\_1, 12372\_11, 13209\_1, 12354\_1, 12300\_1, 13006\_1, 5161\_1, 13003\_1

**Remarks:**

AWOIS #7500 found with RESON 7125 multibeam.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
h12012/tj_s222_reson7125_stbd/2009-110/240_0142	2276/18	0.00	000.0	Primary
EasternLongIslandSoundAWOISv2	AWOIS # 7500	3.25	348.7	Secondary

### Hydrographer Recommendations

Retain as charted.

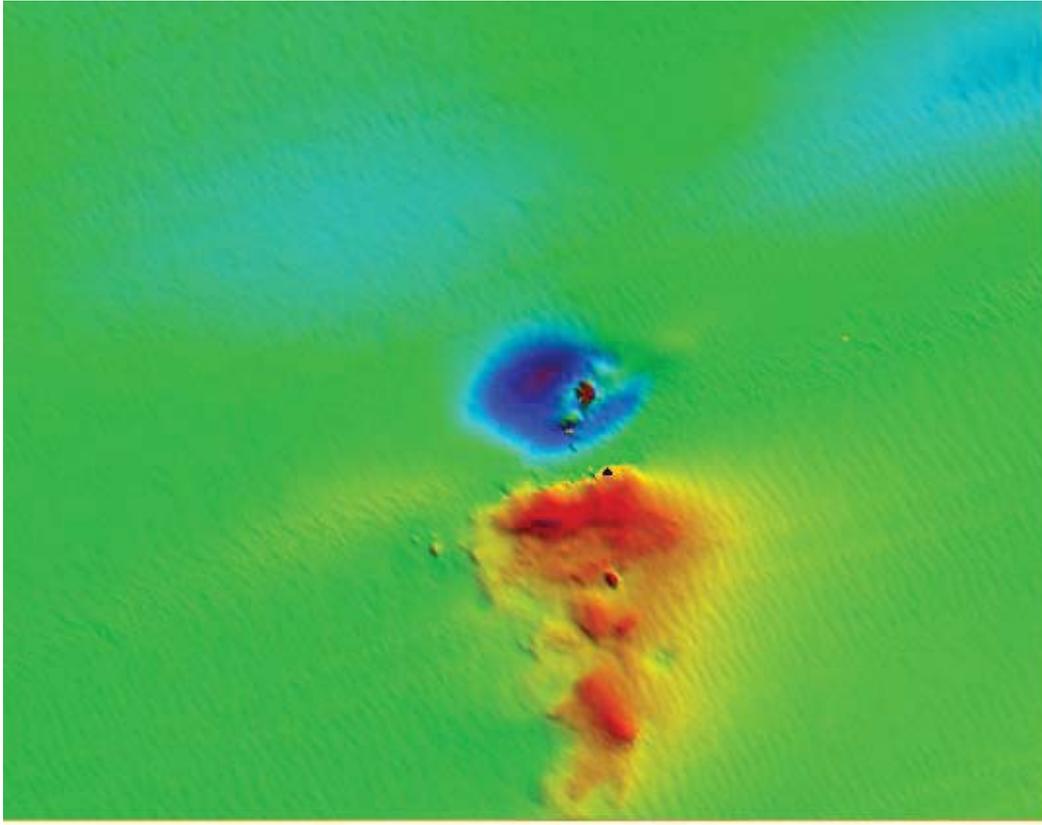
## S-57 Data

**Geo object 1:** Wreck (WRECKS)  
**Attributes:** CATWRK - 1:non-dangerous wreck  
OBJNAM - AWOIS #7500  
QUASOU - 6:least depth known  
SORDAT - 20090430  
SORIND - US,US,graph,H12012  
TECSOU - 3:found by multi-beam  
VALSOU - 29.538 m  
WATLEV - 3:always under water/submerged

## Office Notes

Concur with clarification. Delete charted non-dangerous wreck least depth 98 feet. Chart non-dangerous wreck,  
least depth 98 feet at the survey position.

## Feature Images



*Figure 1.2.1*

# H12012 Uncharted Items

**Registry Number:** H12012  
**State:** Connecticut  
**Locality:** Eastern Long Island Sound  
**Sub-locality:** 3 NM South of the entrance to the CT River  
**Project Number:** OPR-B370-TJ-09  
**Survey Dates:** 18 April 2009 - 30 April 2009

## Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
12375	21st	02/17/2001	1:20,000 (12375_1)	[L]NTM: ?
13211	14th	09/01/2004	1:20,000 (13211_1)	[L]NTM: ?
12372	33rd	08/01/2004	1:40,000 (12372_11) 1:40,000 (12372_1)	[L]NTM: ?
13209	24th	06/01/2004	1:40,000 (13209_1)	[L]NTM: ?
13205	37th	09/01/2004	1:80,000 (13205_1)	[L]NTM: ?
12354	42nd	12/01/2006	1:80,000 (12354_1)	USCG LNM: 04/29/2008 (06/03/2008) CHS NTM: None (04/25/2008) NGA NTM: 12/04/1999 (06/07/2008)
12300	45th	03/01/2005	1:400,000 (12300_1)	[L]NTM: ?
13006	32nd	02/01/2005	1:675,000 (13006_1)	[L]NTM: ?
5161	13th	10/01/2003	1:1,058,400 (5161_1)	[L]NTM: ?
13003	48th	10/01/2004	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	Uncharted Wreck	Wreck	42.81 m	41° 13' 32.4" N	072° 20' 27.3" W	---
1.2	Uncharted Wreck	Wreck	29.21 m	41° 15' 16.4" N	072° 11' 59.1" W	---

**1 - DR\_UnCharted**

## 1.1) Uncharted Wreck

### Survey Summary

**Survey Position:** 41° 13' 32.4" N, 072° 20' 27.3" W  
**Least Depth:** 42.81 m (= 140.46 ft = 23.409 fm = 23 fm 2.46 ft)  
**TPU ( $\pm 1.96\sigma$ ):** **THU (TPEh)**  $\pm 1.006$  m ; **TVU (TPEv)**  $\pm 0.410$  m  
**Timestamp:** 2009-110.10:32:45.794 (04/20/2009)  
**Survey Line:** h12012 / tj\_s222\_reson7125\_stbd / 2009-110 / 235\_1021  
**Profile/Beam:** 4287/181  
**Charts Affected:** 12375\_1, 12372\_11, 12354\_1, 12300\_1, 13006\_1, 5161\_1, 13003\_1

#### Remarks:

Uncharted wreck found with Reson 7125 multibeam.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
h12012/tj_s222_reson7125_stbd/2009-110/235_1021	4287/181	0.00	000.0	Primary

### Hydrographer Recommendations

Chart non dangerous wreck in designated location.

### S-57 Data

**Geo object 1:** Wreck (WRECKS)  
**Attributes:** CATWRK - 1:non-dangerous wreck  
 OBJNAM - Uncharted Wreck  
 QUASOU - 6:least depth known  
 SORDAT - 20090430  
 SORIND - US,US,NSURF,H12012  
 TECSOU - 3:found by multi-beam  
 VALSOU - 42.811 m  
 WATLEV - 3:always under water/submerged

## Office Notes

Concur.

## Feature Images



*Figure 1.1.1*

## 1.2) Uncharted Wreck

### Survey Summary

**Survey Position:** 41° 15' 16.4" N, 072° 11' 59.1" W  
**Least Depth:** 29.21 m (= 95.84 ft = 15.973 fm = 15 fm 5.84 ft)  
**TPU ( $\pm 1.96\sigma$ ):** **THU (TPEh)**  $\pm 1.002$  m ; **TVU (TPEv)**  $\pm 0.408$  m  
**Timestamp:** 2009-112.15:07:20.804 (04/22/2009)  
**Survey Line:** h12012 / tj\_s222\_reson7125\_stbd / 2009-112 / 028\_1506  
**Profile/Beam:** 475/60  
**Charts Affected:** 13211\_1, 12372\_1, 13209\_1, 12354\_1, 13205\_1, 12300\_1, 13006\_1, 5161\_1, 13003\_1

#### Remarks:

Uncharted wreck found with Reson 7125 multibeam.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
h12012/tj_s222_reson7125_stbd/2009-112/028_1506	475/60	0.00	000.0	Primary

### Hydrographer Recommendations

Chart non dangerous wreck in designated location.

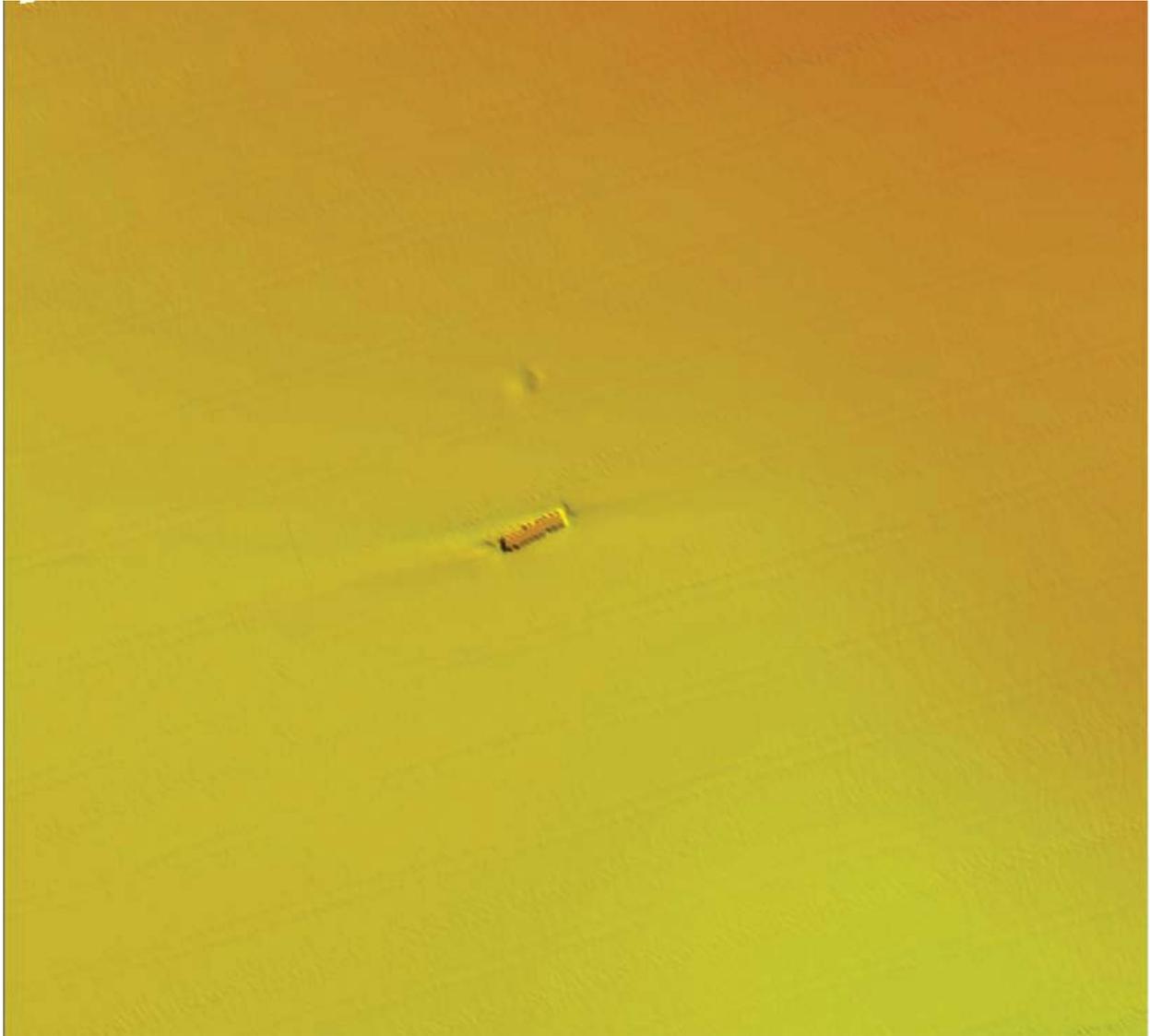
### S-57 Data

**Geo object 1:** Wreck (WRECKS)  
**Attributes:** CATWRK - 1:non-dangerous wreck  
 OBJNAM - Uncharted wreck  
 QUASOU - 6:least depth known  
 SORDAT - 20090430  
 SORIND - US,US,graph,H12012  
 TECSOU - 3:found by multi-beam  
 VALSOU - 29.211 m  
 WATLEV - 3:always under water/submerged

## Office Notes

Concur.

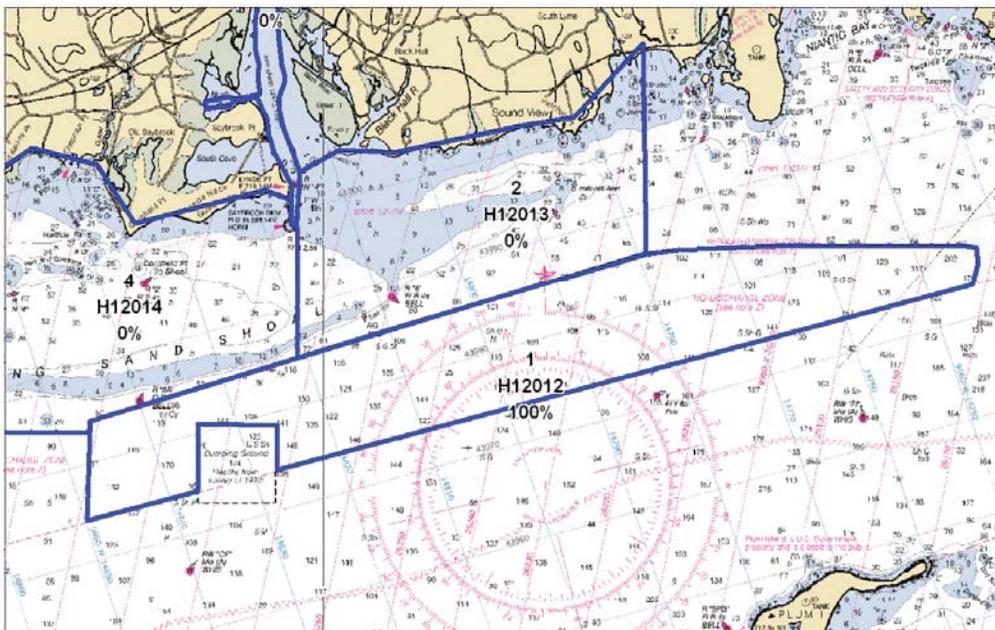
## Feature Images



*Figure 1.2.1*

# **Appendix III**

## **Progress Sketch**



Project	Sheet_Letter	H_num	HO_Est_SNM	CumIPercCompPrev	CumIPercCompCurMon	SNM_CompCurMoi	CumSNMcomp
B370-TJ-09	2	H12013	6	0	0	0	0
B370-TJ-09	5		0	0	0	0	0
B370-TJ-09	7		0	0	0	0	0
B370-TJ-09	6		0	0	0	0	0
B370-TJ-09	3	H12015	1	0	0	0	0
B370-TJ-09	1	H12012	14	0	100	14	14

**Progress Sketch OPR-B370-TJ-09**  
**April, 2009**

## **Appendix IV**

### **Tides and Water Levels**

- 1. Tide Notes**
- 2. Request for Approved Tides**
- 3. Final Tide Notes**



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NOAA Ship THOMAS JEFFERSON (MOA-TJ)  
439 West York St  
Norfolk, VA 23510-1145

May 01, 2009

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

FROM: CDR P. Tod Schattgen, NOAA Ship THOMAS JEFFERSON (MOA-TJ)

SUBJECT: Request for Approved Tides/Water Levels

Please provide the following data:

1. Tide Note
2. Final TCARI grid
3. Six Minute Water Level data (Co-ops web site)

Transmit data to the following:

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

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

Project No.: OPR-B370-TJ-09  
Registry No.: H12012  
State: Connecticut  
Locality: Eastern Long Island Sound  
Sublocality: 3 NM South of the Entrance to the CT River

Attachments containing:

- 1) an Abstract of Times of Hydrography,
- 2) digital MID MIF files of the track lines from Pydro

cc: N/CS33



---

Year_DOY	Min Time	Max Time
2009_108	19:13:58	23:55:58
2009_109	00:01:01	23:53:12
2009_110	00:09:39	23:51:34
2009_111	01:02:37	02:29:09
2009_112	13:30:15	21:18:23
2009_120	06:42:46	08:41:27



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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : May 27, 2009

HYDROGRAPHIC BRANCH: Atlantic  
HYDROGRAPHIC PROJECT: OPR-B370-TJ-2009  
HYDROGRAPHIC SHEET: H12012

LOCALITY: 3 NM South of the Entrance to the CT River, CT  
TIME PERIOD: April 18 - 30, 2009

TIDE STATION USED: 846-1490 New London, CT  
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: 846-5705 New Haven, CT  
Lat. 41° 16.9' N Long. 72° 54.5' W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters  
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.949 meters

REMARKS: RECOMMENDED GRID

Please use the TCARI grid "B370TJ2009-TCARI" as the final grid for project OPR-B370-TJ-2008, H12012, during the time period between April 18 - 30, 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).

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: 2009.06.03 12:40:15 -04'00'

CHIEF, OCEANOGRAPHIC DIVISION





## **Appendix V**

### **Supplemental Survey Records & Correspondence**





**Subject:** H12012, B370-TJ-09, ELIS  
**From:** "jasper schae" <jasper.schaer@noaa.gov>  
**Date:** Wed, 29 Apr 2009 20:18:55 -0400  
**To:** Jeremy McHugh <Jeremy.McHugh@noaa.gov>

Jeremy-

Would you look into this PA in the AWOIS database? What is the requirement to disprove it? Then send us an update AWOIS list for B370.

thanks-js

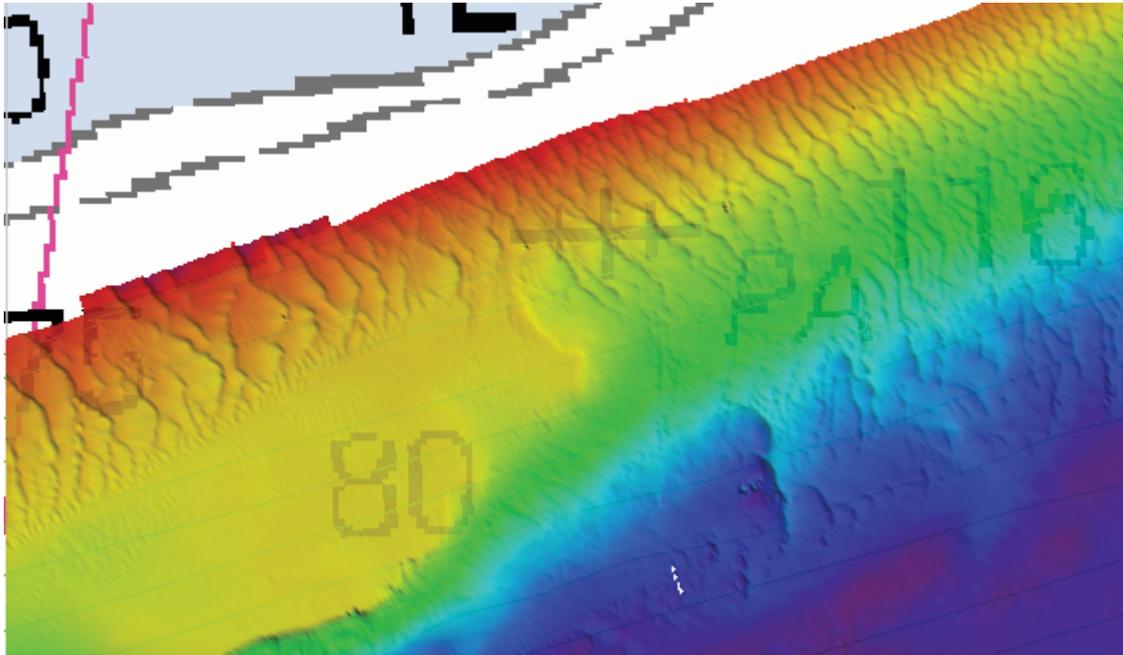
LT.Jasper Schae <[jasper.schaer@noaa.gov](mailto:jasper.schaer@noaa.gov)>  
Field Operations Officer  
NOAA Ship THOMAS JEFFERSON  
NOAA Office of Marine and Aviation Operations

**H12012\_charted PA.pdf**

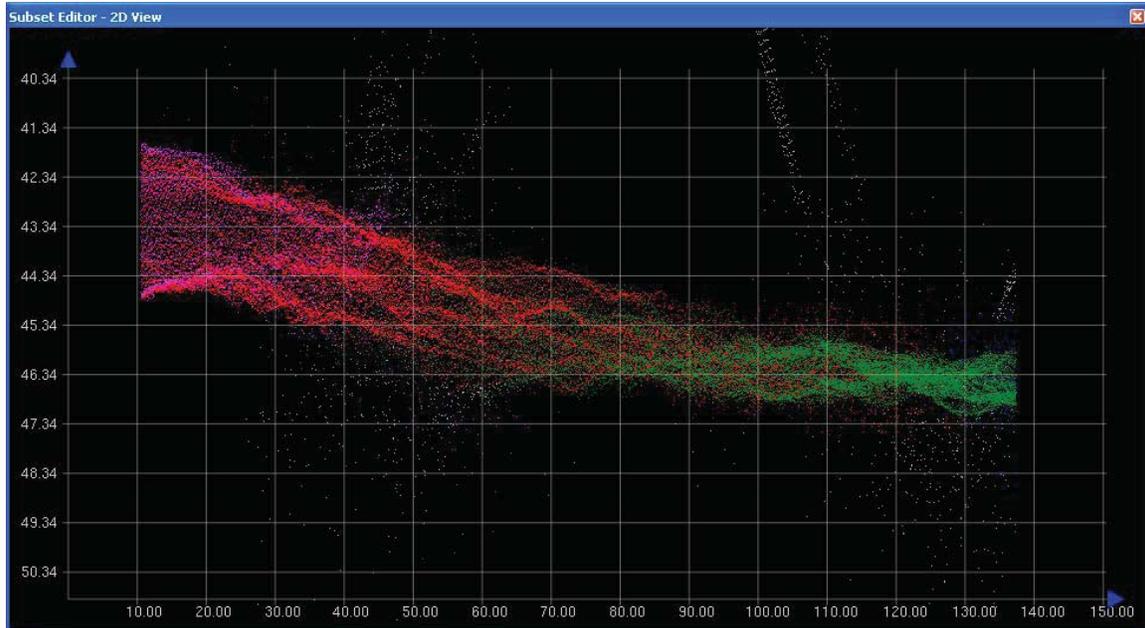
**Content-Type:** application/pdf  
**Content-Encoding:** base64

# H12012 Wreck PA

The fieldsheet shown here is a 1 meter grid.



The small hole in the fieldsheet is outside the 300 meter radius. Below is what the hole looks like in subset editor.



**Subject:** Re: your request for awois item guidance

**From:** Jeremy McHugh <Jeremy.McHugh@noaa.gov>

**Date:** Mon, 10 Aug 2009 11:14:18 -0400

**To:** jasper schaeer <jasper.schaer@noaa.gov>

**CC:** "shep.smith" <Shep.Smith@noaa.gov>, James.M.Crocker@noaa.gov

jasper,

I concur. Please ensonify the remainder of the search area and address that item as part of H12014.

Thanks,

Jeremy

jasper schaeer wrote, On 8/10/2009 10:54 AM:

Not exactly an answer....

We were unable to cover the remaining 1/4 of assigned search radius for the this assigned AWOIS #13003 for survey H12012. In H12012's DR, we will acknowledge we did not met the requirement, but we plan to ensonfy the remaining 1/4 of the radius and address this disproval/update in survey H12014.

Do you concur with action item?

r-js

Jeremy McHugh wrote:

Yes, I got it. I have not been briefed on yesterday's conference call yet, but it sounds like you have everything under control.

Let me know if you need anything.

Jeremy

jasper schaeer wrote, On 8/4/2009 12:01 PM:

Sent you a email with more detail about this awois on H12012. Did you receive, yet?

r-js

Jeremy McHugh wrote:

Hi Jasper,

I just got your voicemail regarding an awois item that you need guidance on.

Let me know the situation if you still want that guidance.

Thanks,

Jeremy

--

Jeremy McHugh, Physical Scientist

NOAA's Office of Coast Survey

301-713-2702 x117

## AHB COMPILATION LOG

General Survey Information	
REGISTRY No.	H12012
PROJECT No.	OPR-B370-TJ-09
FIELD UNIT	NOAA SHIP THOMAS JEFFERSON
DATE OF SURVEY	20090430
LARGEST SCALE CHART	<i>12375 1, edition 21, 200102, 1:20,000</i>
ADDITIONAL CHARTS	<i>13211 1, edition 15, 200709, 1:20,000</i>
ADDITIONAL CHARTS	<i>12372 11, edition 34, 200611, 1:40,000</i>
SOUNDING UNITS	Feet
COMPILER	Kyle S. Bates

Source Grids	File Name
	H:\Compilation\H12012_B370_TJ\AHB_H12012\E-SAR Final Products\GRIDS\
	E-SAR Final Products\GRIDS\H12012_1_CUBE_NOAA_2m_Final.csar
	E-SAR Final Products\GRIDS\H12012_AWOIS_7500_NOAA_1m_Final.csar
	E-SAR Final Products\GRIDS\H12012_AWOIS_13003_NOAA_1m_Final.csar
Surfaces	File Name
	H:\Compilation\H12012_B370_TJ\AHB_H12012\COMPILE\Working
<i>Combined</i>	H12012_4m_Combined.csar
<i>Interpolated TIN</i>	\Interpolated TIN\H12012_8m_InterpTIN.csar
<i>Shifted Interpolated TIN</i>	\Shifted Surface\H12012_8m_InterpTIN_Shifted.csar
Final HOBs	File Name
	H:\Compilation\H12012_B370_TJ\AHB_H12012\COMPILE\Final_Hobs\
<i>Survey Scale Soundings</i>	H12012_SS_Soundings.hob
<i>Chart Scale Soundings</i>	H12012_CS_Soundings.hob
<i>Contour Layer</i>	H12012_Contours.hob
<i>Feature Layer</i>	H12012_Features.hob
<i>Meta-Objects Layer</i>	H12012_MetaObjects.hob
<i>Blue Notes</i>	H12012_BlueNotes.hob

Meta-Objects Attribution	
Acronym	Value
<b>M_COVR</b>	
CATCOV	Coverage Available
SORDAT	20090430
SORIND	US,US,graph,H12012
<b>M_QUAL</b>	
CATZOC	Zone of Confidence U (data not assessed)
INFORM	Registry Number, Project Number, Vessel
POSACC	10.000m
SORDAT	20090430
SORIND	US,US,graph,H12012
SUREND	20090430
SURSTA	20090418
<b>DEPARE</b>	
DRVALV 1	48.402ft

[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

DRVALV2	242.470ft
SORDAT	20090430
SORIND	US,US,graph,H12012
<b>M_CSCL</b>	
CSCALE	40,000
SORDAT	20090430
SORIND	US,US,graph,H12012

SPECIFICATIONS:

- I. COMBINED SURFACE:
  - a. Number of ESAR Final Grids: 3
  - b. Resolution of Combined (m): 4
  
- 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: 48.402ft
    - ii. Maximum: 242.470ft
  
- III. INTERPOLATED TIN SURFACE:
  - a. Resolution (m): 8
  - b. Linear
  - c. Shifted value: *[-0.229m (feet), ( $\leq 10$  fathoms)]*
  
- IV. CONTOURS:
  - a. Use a Depth List: H12012\_NOAA\_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: 3
  
- VI. CHART SURVEY SOUNDINGS (CS):
  - a. Number of ENC CS Soundings: 338
  - b. Radius
  - c. Shoal biased
  - d. Use Single-Defined Radius: m on the ground
    - i. Sounding Space Range Table (if applicable): H12012\_SSR.txt
  - e. Filter: Interpolated != 1
  
- VII. Number Survey CS Soundings: 399

**ATLANTIC HYDROGRAPHIC BRANCH  
EVALUATION REPORT to ACCOMPANY  
SURVEY H12012 (2009)**

This Evaluation Report has been written to supplement and/or clarify the original Descriptive Report. Sections in this report refer to the corresponding sections of the Descriptive Report.

**B. DATA ACQUISITION AND PROCESSING**

**B.2. QUALITY CONTROL**

**B.2.1. H-Cell**

The AHB source depth grid for the survey's nautical chart update product entailed the field's original 1m and 2m grids, combined at a resolution of 4 meters. The survey scale soundings were extracted from the 4m combined surface. The selected survey scale soundings were extracted from the 4m combined grid using an interval of 1mm at a chart scale of 1:10,000. 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.

A TIN (Triangulated Irregular Network) surface was created from the survey scale soundings from which an interpolated surface was generated for the purpose of generating depth curves. The curves were utilized during chart scale sounding selection and quality assurance efforts at AHB. The depth curves are incorporated into the SS H-Cell product as per 2009 H-Cell Specifications.

The pre-compilation products or components (Stand Alone HOB files (SAHOB)) are detailed in the Compile Log attached at the end of this document. The SAHOB files included depth curves (DEPCNT), depth area (DEPARE), sounding selections (SOUNDG), features (SBDARE, SNDWAV, WRECKS), Meta objects (M\_COVR, M\_QUAL, M\_CSCL), and cartographic Blue Notes (\$CSYMB). The individual SAHOB files were inserted into one CARIS BASE Manager feature layer and exported to S57 format in order to create the H-Cell deliverable.

All of the components with the exception of the survey scale sounding selection and depth contours were inserted into one feature layer. The SAHOB H-Cell layer was exported to S-57 format for H-Cell deliverable. H12012 H-Cell chart scale soundings were selected based upon the scale of the applicable chart.

Both S-57 files were converted in CARIS HOM for output of the H-Cell's in chart units (feet). The final deliverables are two S-57 files. The H12012\_CS.000 contains the chart scale soundings, features, and meta objects. The H12012\_SS.000 contains the survey scale sounding selections and depth contours. Quality assurance checks were made utilizing CARIS S-57 Composer version 2.1 validation checks and dKart Inspector, version 5.0 tests.

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

H12012 CARIS H-Cell final deliverables include the following products:

H12012_CS.000	1:20,000 Scale	H12012 H-Cell with Chart Scale Selected Soundings
H12012_SS.000	1:10,000 Scale	H12012 Selected Soundings (Survey Scale)

#### **B.4 DATA PROCESSING**

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

HSTP PYDRO version 9.10 (r2824)  
 CARIS Bathy Manager version 2.3 HF 1-16  
 CARIS Bathy Manager version 2.1 HF 1-10  
 DKART INSPECTOR, version 5.0 Build 732 SP1  
 CARIS HOM version 3.3  
 CARIS S57 Composer version 2.1 HF 1-4

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

Final vertical correction processing was completed by the field unit/office personnel with no additional correction required by Atlantic Hydrographic Branch. The field unit/office personnel applied verified water levels in conjunction with the preliminary tidal zoning which was accepted and approved by N/OPSI CO-OPS as the final zoning for H12012. 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 18N.

## **D. RESULTS AND RECOMMENDATIONS**

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

#### **13211 1 (15th Edition, Sep./07)**

Corrected through NM 07/10/2010  
Corrected through LNM 06/22/2010  
Scale 1:20,000

#### **12372 11 (34th Edition, Nov./06)**

Corrected through NM 07/10/2010  
Corrected through LNM 06/22/2010  
Scale 1:40,000

#### **12375 1 (21st Edition, Feb./01)**

Corrected through NM 07/10/2010  
Corrected through LNM 06/22/2010  
Scale 1:20,000

### **ENC Comparison**

#### **US5CN41M**

North Shore of Long Island Sound  
Niantic Bay and Vicinity  
Edition 2  
Application Date 2010-06-29  
Issue Date 2010-06-29  
Chart 13211

#### **US5CN20M**

Long Island Sound – Watch Hill to  
New Haven Harbor  
Edition 7  
Application Date 2009-11-25  
Issue Date 2009-11-25  
Chart 12372

#### **US5CN30M**

Connecticut River Long Island Sound  
To Deep River  
Edition 5  
Application Date 2010-06-11  
Issue Date 2010-06-11  
Chart 12375

### **D.1.1 Hydrography**

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

a. This survey did not completely cover the assigned search radius for the wreck described in AWOIS #13003 in 41° 13' 54.0" N, 072° 20' 54.0" W. While there was no indication of a wreck within that portion of the AWOIS radius falling within these survey limits, the investigation was not adequate to disprove this wreck. AHB recommends retaining this wreck as charted.

### **D.6. MISCELLANEOUS**

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

### **D.7. ADEQUACY OF SURVEY**

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

**APPROVAL SHEET**  
**H12012**

**Initial Approvals:**

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

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



**Kyle Bates**  
**2010.07.30**  
**12:43:03 -04'00'**

---

**Kyle Bates**  
Hydrographic Intern  
Atlantic Hydrographic Branch

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

Approved: \_\_\_\_\_  
**Richard Brennan**  
Commander, NOAA  
Chief, Atlantic Hydrographic Branch