

H11997

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey: **Basic Hydrographic**

Registry Number: **H11997**

LOCALITY

State: New York

General Locality: ~~Eastern~~ Long Island Sound

Sub-locality: 3 NM North of Mulford Point

2008

CHIEF OF PARTY
CDR Tod Schattgen
NOAA

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DATE

HYDROGRAPHIC TITLE SHEET

H11997

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: **New York**

General Locality: **~~Eastern~~-Long Island Sound**

Sub-Locality: **3 NM North of Mulford Point**

Scale: **1:20,000** Date of Survey: **9/15/2008-10/29/2008**

Instructions Dated: **7/28/2008** Project Number: **OPR-B370-TJ-08**

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

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

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

Soundings by: **Reson 7125, 8101, and 8125 echosounders**

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

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

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

Verification by: **Atlantic Hydrographic Branch Personnel**

Soundings in: **~~Feet~~ *Meters* at MLLW *H-Cell units in feet at MLLW***

Remarks: ***Bold, red, italic notes in the Descriptive Report were made during office processing.***
1) All Times are in UTC.
2) This is a Basic Hydrographic survey.
3) Projection is NAD83, UTM Zone 18

Table of Contents

A. AREA SURVEYED.....4

B. DATA ACQUISITION AND PROCESSING.....6

 B.1 Equipment.....6

 B.2 Quality Control.....7

 B.3 Corrections to Echo Soundings.....8

 B.4 Data Processing.....9

C. HORIZONTAL AND VERTICAL CONTROL.....10

 C.1 Horizontal Control.....10

 C.2 Vertical Control.....10

D. RESULTS AND RECOMMENDATIONS.....11

 D.1 Chart Comparison.....11

 D.2 Additional Results.....14

 D.3 Dangers to Navigation and Shoals.....14

 D.4 Aids to Navigation.....15

 D.5 Coast Pilot Information.....15

 D.6 Miscellaneous.....15

 D.7 Adequacy of Survey.....16

E. APPROVAL SHEET.....17

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

List of Tables

A-1. Survey Limits.....4

A-2. Hydrographic Survey Statistics.....5

A-3. Dates of Acquisition.....5

B-1. Junction Surveys.....7

B-2. TPE Parameters.....9

B-3. H11997 Field Sheets.....9

List of Figures

A-1. Survey Limit.....6

B-1. Junction Surveys.....8

B-2.

Final
Tidal

<p>Descriptive Report to Accompany Hydrographic Survey H11997</p>
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Zoning.....9

Project OPR-B370-TJ-08
 3 NM North of Mulford Point
 Eastern Long Island Sound
 Scale 1:20,000
~~October~~ **September** 15th-October 29th, 2008
NOAA Ship *Thomas Jefferson*

A. AREA SURVEYED

This hydrographic survey was completed as specified by Hydrographic Survey Letter Instructions* OPR-B370-TJ-08, dated 7/28/2008. The survey area lies in the ~~southeastern~~ **northeastern** end of Long Island Sound.

Northern Limit	Southern Limit	Western Limit	Eastern Limit
41° 15' 04.76" N 072° 08' 47.45" W	41° 08' 33.27" N 072° 24' 21.61" W	41° 10' 09.53" N 072° 24' 28.61" W	41° 08' 33.27" N 072° 24' 21.61" W

Table A-1. Survey Limits

Data acquisition was conducted from September 15th to October 29th, 2008.

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 southern part of the project area. Petroleum and coal products constitute the bulk of the goods transported through the Sound. This project will cover approximately 85 sq. NM of critical survey area as designated in NOAA Hydrographic Survey Priorities, 2008 edition.

Survey H11997 is the result of the amalgamation of **the northern two-thirds of** three separate surveys, originally designated sheets J (H11251), N (**H11446**), and H (**H11445**). ~~(neither of which were given registry numbers in the project instructions.)~~ This step was taken to maximize use of *Thomas Jefferson*'s operational time by minimizing turns between lines.

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<i>Thomas Jefferson</i> , Sheet Q H11997	
LNM Single beam mainscheme only	N/A

LNM Multibeam mainscheme only	824.7986
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)	824.7986
LNM Crosslines singlebeam and multibeam combined	28.92669
LNM Lidar Crosslines	N/A
LNM development lines non mainscheme	N/A
LNM shoreline/nearshore investigations	N/A
Number of Bottom Samples	7
Number of items investigated that required additional time/effort in the field beyond the above survey operations	0
Total number of square nautical miles	67.10

Table A-2. Hydrographic Survey Statistics

Survey limits of H11997 are shown on the following page.

Calendar Date	Julian Day
September 15	259
September 16	260
September 17	261
September 18	262
September 19	263
September 20	264
September 21	265
September 22	266
September 23	267
October 29	303

Table A-3. Dates of Acquisition

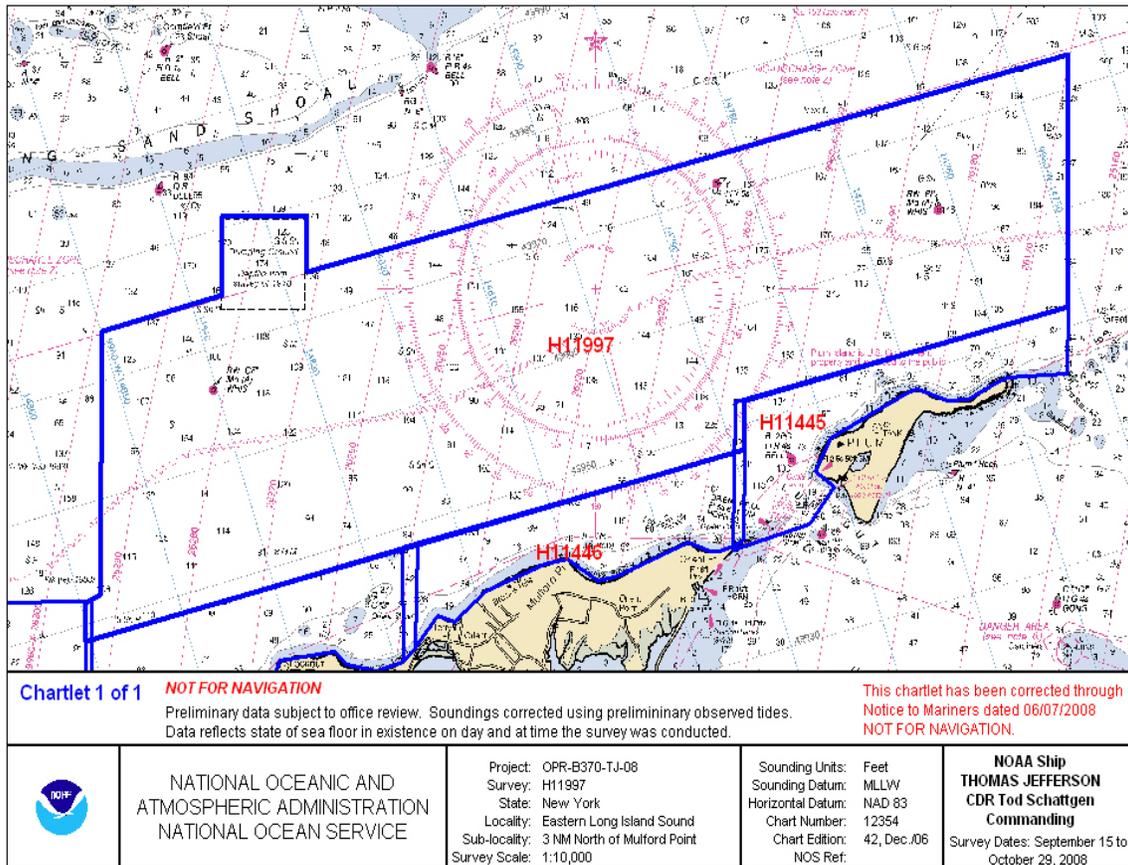


Figure A-1. Survey Limits

B. DATA ACQUISITION AND PROCESSING *See also the Evaluation Report*

Refer to **OPR-B370-TJ-08 Data Acquisition and Processing Report (DAPR)* Spring Addendum Addendum-2008** 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 was acquired by *Thomas Jefferson*, which acquired multibeam echosounder bathymetry and sound speed profiles. Vessel configurations, equipment operation and data acquisition and processing were consistent with specifications described in the DAPR.*

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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 multibeam sonar coverage. Bathymetry coverage was monitored by the creation of 2 meter CUBE BASE Surfaces.

H11997 consists of the east-west limits of three different surveys, which were amalgamated into one.

B 2.3 Crosslines

Multibeam echosounder cross-lines totaling 28.926 linear nautical miles, comprising 3.5 percent of multibeam echosounder hydrography, were acquired during the course of the survey. **Concur.** Crosslines agreed within 3/10ths of one meter, or approximately one foot. **Concur.** As per HSSD 2008, Section 5.4.1.3, a surface difference between crosslines and mainscheme data was generated using CARIS Base Editor as the means to analyze the variation in draft and is included in separates IV,* *Crossline Comparisons.* **Concur.**

B 2.4 Junctions and Prior Surveys

The following contemporary surveys junction with H11997:

Registry #	Scale	Date	Field Party	Junction side
H11251	1:10000	2008	<i>Thomas Jefferson</i>	South
H11446	1:10000	2008	<i>Thomas Jefferson</i>	South
H11445	1:10000	2008	<i>Thomas Jefferson</i>	South
H11999	1:10,000	2008	Thomas Jefferson	Southwest

Table B-1. Junction Surveys

Survey H11997 was compared to survey H11251, H11445, and H11446, all of which junction to the south. Agreement was within two feet. **Concur.**

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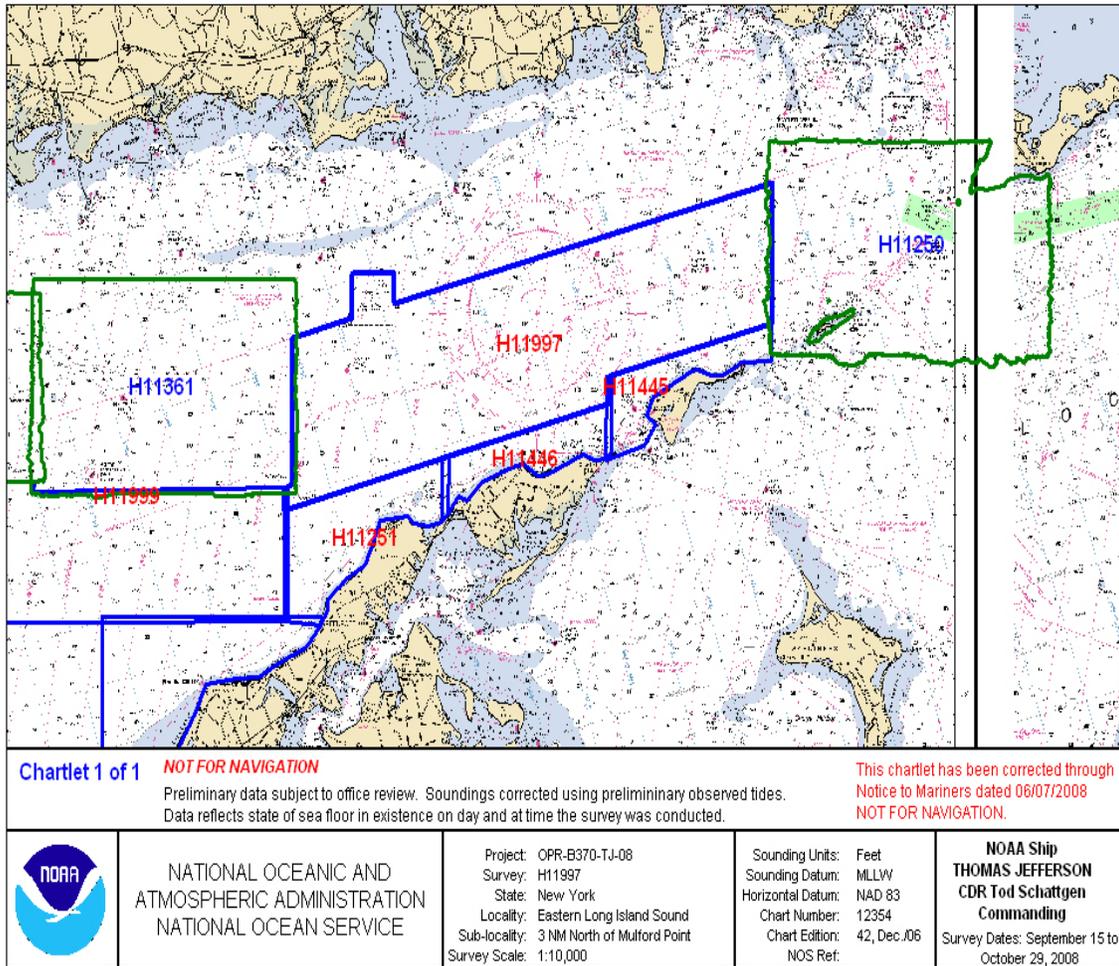


Figure B-1. Junction Surveys.

B 2.5 Systematic Errors

No systematic errors were encountered during data acquisition or processing. *Do not concur. In CARIS subset mode there were many instances of differences between line depths of up to 0.5 meters.*

B 3. CORRECTIONS TO ECHO SOUNDING

HDCS sounding data were reduced to mean lower-low water (MLLW) using approved tides from the primary stations at New London, CT (846-1490) and Bridgeport, CT (846-7150) adjusted for discrete zones provided by CO-OPS, as specified in the Letter Instructions* and illustrated in Figure 4.

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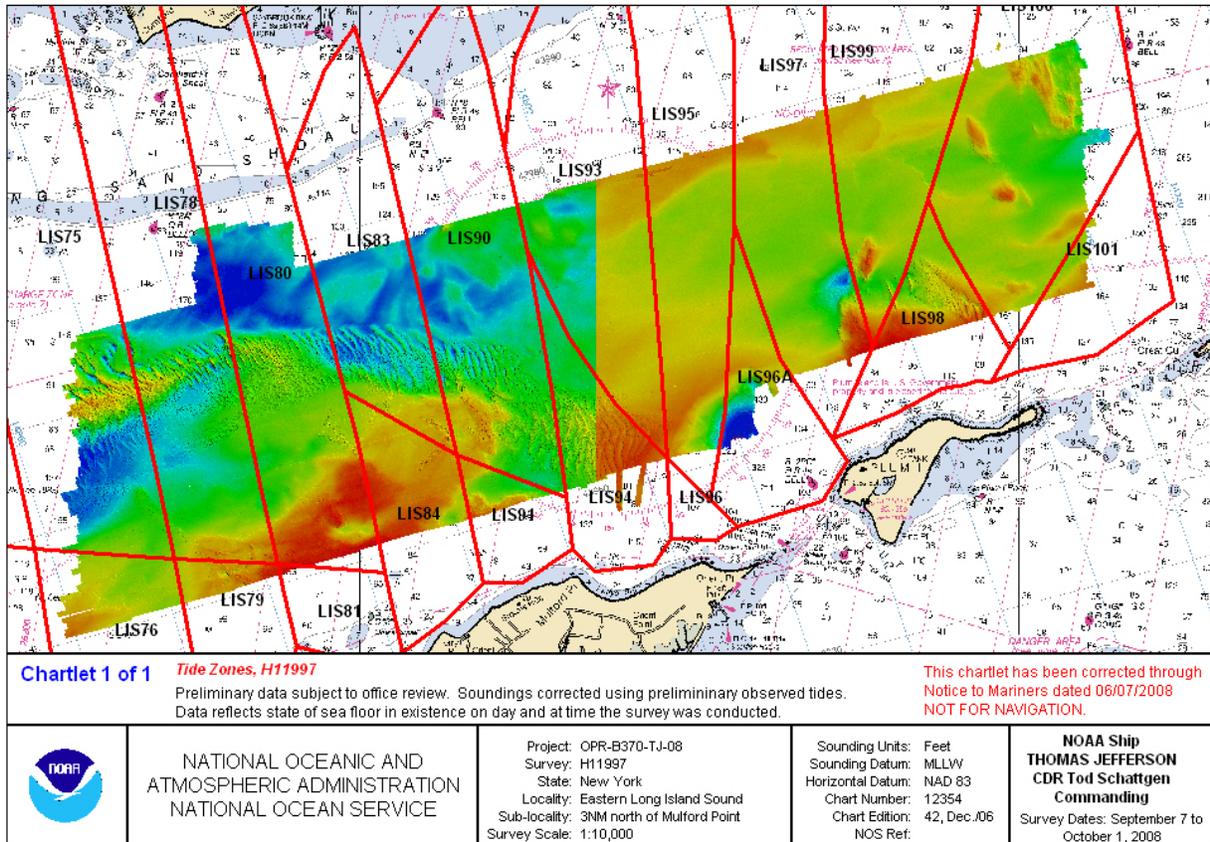


Figure B-2 Final Tide Zoning

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

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

B 4. DATA PROCESSING

B 4.1 Total Propagated Uncertainty

For the 2008 field season, Total Propagated Uncertainty (TPU) parameters for sound speed and tides are calculated separately for each project. The project-specific parameters for OPR-B370-TJ-08, Survey H11997 are as follows:

Vessel	Tide Values		Sound Speed Values	
	Measured	Zoning	Measured	Surface
S222 MVP	0	0.19	1	0.2

Table B-2. TPE Parameters

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

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B 4.2 BASE Surfaces and Mosaics

The following table describes all BASE Surfaces and Mosaics submitted as part of Survey H11997:

<i>Name of Fieldsheet</i>	<i>Resolution</i>	<i>Type</i>	<i>Purpose</i>
H11997_1/H11997_1_2m_CUBE_Deep	2m	CUBE	Coverage assessment
H11997_2/H11997_2_2m_CUBE_Deep	2m	CUBE	Coverage assessment

B-3. H11997 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 **2008 Thomas Jefferson Data Acquisition and Processing Report Spring Addendum Addendum-2008**,* 2008 Field Procedures Manual, and CARIS HIPS/SIPS 6.1 manual for further discussion.

C. VERTICAL AND HORIZONTAL CONTROL *See also the Evaluation Report*

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. 2 Horizontal Control

The horizontal datum for this project is the North American Datum of 1983 (NAD83), zone 18 North. Differential GPS (DGPS) was the sole method of positioning. Differential corrections from U.S. Coast Guard beacons at Moriches, NY, at frequency 293 kHz *was were* used during this survey.

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

C. 3 Vertical Control

The vertical datum for this project is Mean Lower-Low Water (MLLW). The operating National Water Level Observation Network (NWLON) station at New London, CT (8461490) and secondary station at New Haven, CT (8465705), will serve as datum control for H11997. Verified water levels were applied to all data, with discrete tidal zoning used to correct time offsets.

A request for delivery of final approved (verified) tides for this survey was forwarded to N/OPS1 on October 3, 2008 in accordance with the FPM and project letter instructions.

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D. RESULTS AND RECOMMENDATIONS *See also the Evaluation Report*

D.1 Chart Comparison

Survey H11997 was compared with Chart 12354, 12358_1, 12358_2,* 13205_1,* 13209_1 13209_2,* and 13212. Chart comparisons were performed in CARIS, in Pydro using survey-scale excessed soundings, and in MapInfo using survey-scale and chart-scale excessed soundings exported from Pydro.

D.1.1 Chart 12354 Comparison

Depths from chart 12354 generally agree with the current survey, with differences 2 feet or less. All major differences follow.

A 118-ft sounding at location 41/12/15.79N, 072/10/39.93 was found to be a depth of 123 ft following correction with verified water levels. **Concur.**

A 96 foot sounding at location 41/11/56.343N, 072/11/36.536W was found to be a depth of 91.4 feet following correction with verified water levels. **Do not concur. Depths in the area are 98 feet and deeper. The closest shoaler sounding to the 96 is a 93 foot sounding in Lat. 41°11'54.76"N, Lon. 72°11'34.78"W.**

A 113-ft sounding at location 41/12/30.04N, 072/12/01.47W was found to be a depth of 98 feet following correction with verified water levels. **Concur.** A 135-ft sounding 600 meters north of the 113-ft sounding was found to be a depth of 123 feet following correction with verified water levels. **Concur.**

A charted 135 foot sounding at location 41/12/13.485N, 072/09/52.036W was found to be a depth of ~~125~~ **124** feet following correction with verified water levels.

A charted 123 foot sounding at location 41/13/03.945N, 072/21/09.811W was found to be a depth of ~~159~~ **151** feet following correction with verified water levels. Additionally, a 170 foot sounding at location 41/12/56.464N, 072/22/02.972W was found to be a depth of 177 feet following correction with verified water levels. **Concur.** Both of these soundings lie within the charted dumping ground in the western end of the survey area and are corrected with verified water levels. **Concur.**

A charted 108 foot sounding at location 41/11/12.422N, 072/23/23.517W was found to be a depth of ~~100~~ **113** feet following correction with verified water levels.

A charted 74 foot sounding at location 41/09/51.295N, 072/20/10.507W was found to have a nearby depth of 63 feet following correction with verified water levels. **Concur with clarification. The 74 foot sounding has been replaced by the 63 foot Rock, and was a Danger to Navigation.**

The depths of these chart discrepancies are such that a danger to navigation report is not deemed necessary. **Do not concur. See Section D.3.1 (Dangers to Navigation).**

***Not discussed in the Descriptive Report.**

D.1.2 Chart 13212

Soundings are generally comparable with charted depths, with differences in charted and survey soundings 2 feet or less. All major differences follow.

A charted 121 foot sounding at location 41/11/59.946N, 072/10/20.670W was found to be a depth of 103 feet following corrections with verified water levels. *Concur.*

A charted 172 foot sounding at location 41/14/05.506N, 072/09/27.635W was found to be a depth of 157 feet following corrections with verified water levels. *Concur.*

A charted 138 foot sounding at location 41/13/56.283N, 072/10/10.112W was found to be a depth of ~~133~~ *129* feet following corrections with verified water levels.

A charted 129 foot sounding at location 41/14/29.572N, 072/09/09.689W was found to be a depth of ~~125~~ *128* feet following corrections with verified water levels.

The depths of these chart discrepancies are such that a danger to navigation report is not deemed necessary. *Concur.*

D.1.3 Chart 13209_2 1

A charted 136 foot sounding at location 41/13/22.87N, 072/15/11.89W was found to be a depth of 130 feet following corrections with verified water levels. *Concur.*

A charted 140 foot sounding at location 41/13/46.89N, 072/14/19.78W was found to be a depth of 128 feet following corrections with verified water levels. *Concur.*

A charted 116 foot sounding at location 41/13/54.76N, 072/14/28.70W was found to be a depth of 108 feet following corrections with verified water levels. *Concur.*

A charted 144 foot sounding at location 41/13/49.93N, 072/13/45.38W was found to be a depth of 138 feet following corrections with verified water levels. *Concur.*

A charted 124 foot sounding at location 41/12/04.89N, 072/11/36.47W was found to be a depth of 114 feet following corrections with verified water levels. *Concur.*

The depths of these chart discrepancies are such that a danger to navigation report is not deemed necessary. *Concur.*

D.1.4 Chart 12358_1

A charted 167 foot sounding at location 41/10/35.70N, 072/14/44.69W was found to be a depth of ~~148~~ *153* feet following corrections with verified water levels.

A charted 119 foot sounding at location 41/10/39.48N, 072/16/45.18W was found to be a depth of 113 feet following corrections with verified water levels. *Concur.*

The depths of these chart discrepancies are such that a danger to navigation report is not deemed necessary. *Concur.*

D.1.5 ENC US4NY1GM

A 27.4 meter sounding at location 41/10/13.25N, 072/19/12.07W was found to be a depth of 28.33 meters following corrections with verified water levels. *Concur.*

A 27.7 meter sounding at location 41/09/33/48N, 072/21/30.47W was found to be a depth of ~~29.15~~ **29.8** meters following corrections with verified water levels.

A 34.7 meter sounding at location 41/09/47.39N, 072/22/07.03W was found to be a depth of 35.19 meters following corrections with verified water levels. *Concur.*

A 51.2 meter sounding at location 41/10/39.82N, 072/23/32.17 was found to be a depth of 50.28 meters following corrections with verified water levels. *Concur.*

The depths of these chart discrepancies are such that a danger to navigation report is not deemed necessary. *Concur.*

D.1.6 ENC US5MA22M

A 51.2 meter sounding at location 41/14/45.33N, 072/09/01.58W was found to be a depth of 52.91 meters following correction with verified water levels. *Concur.*

A 41.4 meter sounding at location 41/14/47.53N, 072/09/18.22W was found to be a depth of 42.76 meters following correction with verified water levels. *Concur.*

A 49.9 meters sounding at location 41/14/33.00N, 072/09/35.48W was found to be a depth of ~~49.19~~ **50.54** meters following correction with verified water levels.

A 45.3 **I** meter sounding at location 41/13/14.62N, 072/09/50.76W was found to be a depth of 42.64 meters following correction with verified water levels. *Concur.*

A 52.4 meter sounding at location 41/12/29.00N, 072/09/44.47W was found to be a depth of 51.03 meters following correction with verified water levels. *Concur.*

A 41.1 foot sounding at location 41/11/21.14N, 072/16/45.84W was found to be a depth of 42.53 meters following correction with verified water levels. *Concur.*

The depths of these chart discrepancies are such that a danger to navigation report is not deemed necessary. *Concur.*

D.1.7 ENC US4CN21M

Although listed in the project instructions, this ENC does not lie within the survey area and thus would not be affected by this survey.

D.2 Additional Results

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

One ~~One~~ **Six** assigned AWOIS items ~~was~~ **were** located within the modified limits of H11997 and investigated during this survey. AWOIS items were investigated with coverage multibeam over the search radius. AWOIS items located in the Pydro Survey Session which were not in the survey area were given a Primary status, resolved, and identified as outside the survey area. All AWOIS items are described in detail in Appendix II* of this report.

D.2.1 Shoreline

There is no shoreline within the sheet limits of survey H11997. **Concur.**

D.2.2 Charted Features

A charted wreck, **Cities Services #4 (AWOIS 1831)**, was found to be in error. The wreck, originally charted in position ~~41-12.9°N, 072-17.5°W~~, is actually located in position 41-12.8°N, 072-17.5 **6°**W. The hydrographer recommends charting the wreck in the surveyed location, **with a least depth of 127.84 feet.**

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

D.2.3 Charted Pipelines and Cables

One charted cable transects the survey area. The cable is buried and not visible in the multibeam digital terrain models. The Hydrographer has no recommendations for this cable. **Concur.**

D.2.4 Bridges, Ferry Routes, and Overhead Cables

Ferry routes within the survey limits are not charted, and no bridges or overhead cables are located within the survey area. The hydrographer has no recommendations regarding their charting. **Concur.**

D.3 Dangers to Navigation and Shoals

D.3.1 Dangers to Navigation

Two dangers to navigation were located during this survey.

***Appended to this report and filed digitally at AHB.**

A rock, located at 41° 11' 41.2" N, 072° 11' 39.1" W, has a least depth of ~~50.03~~ **49.32** feet following correction with verified water levels. It has no sounding over it and the nearest soundings ~~having~~ **have** values of 84 and 96 feet. The feature appears to be the beginning of a charted area of shoaling. These do not accurately represent the true bathymetry of the area of the item in question, and is believed to represent a danger to navigation. ***This danger has already been charted, but inaccurately, using a different position and depth. The rock should be charted as denoted in this paragraph.***

A rock, located at 41° 09' 50.3" N, 072° 20' 12.9" W, has a least depth of 63.6 feet following correction with verified water levels. It lies directly over a charted 74 foot sounding. This item is believed to represent a danger to navigation. ***Concur.***

Please refer to Appendix I* for the full Danger to Navigation report.

D 3.2 Shoals

One area of potentially navigationally significant shoaling was found over the course of survey H11997.

It is located in ~~location~~ **position** 41° 11' 41.2" N, 072° 11' 39.1" W, and has a least depth of 50.03 feet following correction with verified water levels. It is covered in the survey's Danger to Navigation report, and is a part of an inshore shoal that appears to extend offshore considerably more than is charted. Please refer to Appendix I* for the Danger to Navigation report item referring to this shoal. ***Do not concur, the least depth found was 49.3ft (15.03 meters). Concur with shoaling, see survey H11445 for the continuation of the shoal.***

D.4 Aids to Navigation

There are three charted Aids to Navigation (ATON) within the revised limits of H11997.

The private yellow buoy (Fl Y 6s), in position 41-13.5'N, 072-14.3'W, was not found on station. The hydrographer recommends that the buoy be removed from the chart. ***Defer disposition of this item to the Marine Chart Division.***

All other aids to navigation were on station, serving their intended purpose.

D.5 Coast Pilot Information

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

D.6 Miscellaneous

Bottom Samples

Six bottom samples were collected in accordance with NOAA Hydrographic Survey Specifications and Deliverables. A complete description of all bottom samples acquired during

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Survey H11997 is contained in the Pydro PSS. A list of all bottom samples acquired during Survey H11997 is contained in Appendix V ***the Separates Acquisition Logs and Detached Positions.* See the .tgt files for the correct positions and descriptions of the bottom samples.***

Environmental Conditions and Notes

No environmental conditions hindered data acquisition over the course of the survey.

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.*

Summary and Recommendations for Additional Work

There are no recommendations for additional work.

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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 H11997 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 Spring Addendum-2008	4 Feb 2009	N/CS33
Horizontal and Vertical Control Report for OPR-B370-TJ-08	N/A	N/CS33
Tides and Water Levels Package for OPR-B370-TJ-08	N/A	N/OPS1
Coast Pilot Report for OPR-B370-TJ-08	N/A	N/CS26

Approved and Forwarded:


 jasper.schaer
 I have reviewed this
 document
 2009.03.02 13:08:24 Z


 2009.02.27
 16:27:53 Z

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:


 Andrew Ostapenko
 I am the author of this
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 matthew forrest
 I am the author of
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ENS Andrew J. Ostapenko, NOAA
 Junior Officer

Matthew R. Forrest
 Survey Technician

H11997 Dangers to Navigation

Registry Number: H11997
State: New York
Locality: Long Island Sound
Sub-locality: 3 NM North of Mulford Point
Project Number: OPR-B370-TJ-08
Survey Date: 09/22/2008

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
13209	25th	04/01/2007	1:40,000 (13209_1)	USCG LNM: 12/09/2008 (02/24/2009) NGA NTM: 04/11/1998 (02/28/2009)
12358	20th	04/01/2008	1:40,000 (12358_1)	USCG LNM: 11/25/2008 (02/24/2009) NGA NTM: 12/04/1999 (02/28/2009)
13205	38th	02/01/2007	1:80,000 (13205_1)	USCG LNM: 01/13/2009 (02/24/2009) NGA NTM: 04/11/1998 (02/28/2009)
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	47th	05/01/2008	1:400,000 (12300_1)	[L]NTM: ?
13006	34th	05/01/2007	1:675,000 (13006_1)	[L]NTM: ?
5161	13th	10/01/2003	1:1,058,400 (5161_1)	[L]NTM: ?
13003	49th	04/01/2007	1:1,200,000 (13003_1)	[L]NTM: ?

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

Features

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	DTON-1 63ft Rock	Obstruction	19.41 m	41° 09' 50.3" N	072° 20' 12.9" W	---
1.2	DTON-2 Delete charted 52 ft Rock	Rock	15.89 m	41° 11' 39.9" N	072° 11' 40.5" W	---

1 - Danger To Navigation

1.1) Profile/Beam - 475/122 from h11997 / tj_s222_reson7125_port / 2008-266 / 938_2121

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 09' 50.3" N, 072° 20' 12.9" W
Least Depth: 19.41 m (= 63.67 ft = 10.612 fm = 10 fm 3.67 ft)
TPU ($\pm 1.96\sigma$): THU (TPEh) ± 1.000 m ; TVU (TPEv) ± 0.387 m
Timestamp: 2008-266.21:21:59.572 (09/22/2008)
Survey Line: h11997 / tj_s222_reson7125_port / 2008-266 / 938_2121
Profile/Beam: 475/122
Charts Affected: 12358_1, 12354_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

Uncharted dangerous rock- The 19.41 meter (63.67 foot) least depth on this rock was acquired by multibeam echosounder and corrected to MLLW using verified water levels and final zoning. The charted depth in the area is 74 feet.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11997/tj_s222_reson7125_port/2008-266/938_2121	475/122	0.00	000.0	Primary

Hydrographer Recommendations

Chart according to position, depth and S-57 attribution.

Cartographically-Rounded Depth (Affected Charts):

63ft (12358_1, 12354_1)

10 ½fm (12300_1, 13006_1, 13003_1)

19.4m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: VALSOU - 19.408 m

Office Notes

Concur with clarification. DToN-1 shown on Chart 12358, 20th Edition April 01, 2008 as a 63 ft dangerous rock.
Retain as charted.

1.2) Profile/Beam - 2415/237 from h11997 / tj_s222_reson7125_port / 2008-266 / 954_1823

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 11' 39.9" N, 072° 11' 40.5" W
Least Depth: 15.89 m (= 52.13 ft = 8.689 fm = 8 fm 4.13 ft)
TPU ($\pm 1.96\sigma$): THU (TPEh) ± 1.000 m ; TVU (TPEv) ± 0.388 m
Timestamp: 2008-266.18:28:32.796 (09/22/2008)
Survey Line: h11997 / tj_s222_reson7125_port / 2008-266 / 954_1823
Profile/Beam: 2415/237
Charts Affected: 13209_1, 12354_1, 13205_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

Uncharted dangerous rock- The 15.25 meter (50.03 foot) least depth on this rock was acquired by multibeam echosounder and corrected to MLLW using verified water levels and final zoning. Charted depths in the area are 84 and 96 feet.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11997/tj_s222_reson7125_port/2008-266/954_1823	2415/237	0.00	000.0	Primary

Hydrographer Recommendations

Chart according to position, depth and S-57 attribution.

Cartographically-Rounded Depth (Affected Charts):

52ft (13209_1, 12354_1, 13205_1)

8 $\frac{3}{4}$ fm (12300_1, 13006_1, 13003_1)

15.9m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)
Attributes: VALSOU - 15.890 m
Geo object 2: Underwater rock / awash rock (UWTROC)

Attributes: QUASOU - 1:depth known
RECDAT - 20080922
SORDAT - 080922
SORIND - NOAA Ship Thomas Jefferson
STATUS - 1:permanent
TECSOU - 3:found by multi-beam
VALSOU - 15.890 m
VERDAT - 12:Mean lower low water
WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. H11997 DToN-2 was submitted as a 50 ft dangerous rock by field unit and was charted as a 52 ft dangerous rock by MCD. During office processing of junction survey H11445 an adjacent 46 ft dangerous rock was found and submitted as a DToN. Delete charted dangerous rock least depth 52 ft and retain 46 ft dangerous rock from survey H11445. Refer to the addendum in Appendix V of the DR for additional details.

AHB_11997_features_AWOIS

Registry Number: H11997
State: New York
Locality: Long Island Sound
Sub-locality: 3 NM North of Mulford Point
Project Number: OPR-B370-TJ-08
Survey Dates: 09/16/2008 - 09/22/2008

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
13212	38th	11/01/2008	1:20,000 (13212_1)	USCG LNM: 01/29/2008 (02/24/2009) CHS NTM: None (01/30/2009) NGA NTM: 03/29/2003 (02/28/2009)
12375	21st	02/17/2001	1:20,000 (12375_1)	[L]NTM: ?
12372	34th	11/01/2006	1:40,000 (12372_11) 1:40,000 (12372_1)	[L]NTM: ?
13209	25th	04/01/2007	1:40,000 (13209_1)	USCG LNM: 12/09/2008 (02/24/2009) NGA NTM: 04/11/1998 (02/28/2009)
12358	20th	04/01/2008	1:40,000 (12358_1)	USCG LNM: 11/25/2008 (02/24/2009) NGA NTM: 12/04/1999 (02/28/2009)
13205	38th	02/01/2007	1:80,000 (13205_1)	USCG LNM: 01/13/2009 (02/24/2009) NGA NTM: 04/11/1998 (02/28/2009)
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	47th	05/01/2008	1:400,000 (12300_1)	[L]NTM: ?
13006	34th	05/01/2007	1:675,000 (13006_1)	[L]NTM: ?
5161	13th	10/01/2003	1:1,058,400 (5161_1)	[L]NTM: ?
13003	49th	04/01/2007	1:1,200,000 (13003_1)	[L]NTM: ?

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

Features

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	AWOIS 1835 disproved wreck PA	AWOIS	[no data]	[no data]	[no data]	---

1.2	AWOIS 7358 OBSTRUCTION	AWOIS	[no data]	[no data]	[no data]	---
1.3	AWOIS 7359 OBSTRUCTION	AWOIS	[no data]	[no data]	[no data]	---
1.4	AWOIS 7360 UNKNOWN	AWOIS	[no data]	[no data]	[no data]	---
1.5	AWOIS 1831 Revise Wreck	Wreck	38.97 m	41° 12' 48.4" N	072° 17' 36.4" W	1831
1.6	AWOIS 7357 136ft Sounding	Shoal	41.44 m	41° 13' 46.8" N	072° 10' 09.4" W	7357
2.1	DTON-1 63ft Rock	Obstruction	19.41 m	41° 09' 50.3" N	072° 20' 12.9" W	---
2.2	DTON-2 Delete charted 52 ft Rock	Rock	15.89 m	41° 11' 39.9" N	072° 11' 40.5" W	---

1 - AWOIS Features

1.1) AWOIS #1835 - AWOIS 1835 disproved wreck PA

No Primary Survey Feature for this AWOIS Item

Search Position: 41° 13' 19.0" N, 072° 16' 49.3" W
Historical Depth: [None]
Search Radius: 250
Search Technique: S2,MB
Technique Notes: [None]

History Notes:

CL1291/81-USCG; WRECK FOUND W/SS IN POS.41/13/18.60, 072/16/51.00 (NAD 27) COVERED 128 FT APPROX. 200 YDS DUE WEST IS A SMALLER CONTACT, THOUGHT TO BE WOOD CONSTRUCTION AND SLIGHTLY MOVEABLE, INFO VERIFIED BY TELECON CGC MAHONING.

Survey Summary

Charts Affected: 12375_1, 12372_11, 13209_1, 12354_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

Object not found using object detection multibeam.

Feature Correlation

Address	Feature	Range	Azimuth	Status
AWOIS_B370-TJ-08	AWOIS # 1835	0.00	000.0	Primary

Hydrographer Recommendations

Hydrographer recommends removal from chart.

S-57 Data

Geo object 1: Wreck (WRECKS)
Attributes: SORDAT - 20081029
 SORIND - NOAA Ship Thomas Jefferson

Office Notes

Concur with clarification. Delete disproved AWOIS item 1835 non-dangerous wreck, least depth known and text "PA". Chart survey soundings in common area. Update AWOIS database.

1.2) AWOIS #7358 - AWOIS 7358 OBSTRUCTION

No Primary Survey Feature for this AWOIS Item

Search Position: 41° 14' 10.3" N, 072° 09' 01.3" W
Historical Depth: [None]
Search Radius: 0
Search Technique: S2,MB
Technique Notes: [None]

History Notes:

H9212/71--SHOAL AREA CENTERED IN LAT 41-14-10N, LONG 72-09-03W; 127 FT. LEAST DEPTH.■
 FE268WD--OPR-B660-RU/HE-83,84; BOULDER FIELD CENTERED AT THE SAME POSITION AS THE SHOAL ABOVE; EVALUATOR RECOMMENDED CHARTING "BLDS" AT LAT 41-14-05N, LONG 72-08-52W, LAT 41-14-27N, LONG 72-08-52W TO DELINEATE THE BOULDER FIELD. (ENTERED MSM 5/89)

Survey Summary

Charts Affected: 13212_1, 12372_1, 13209_1, 12354_1, 13205_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

Survey H11997 did not address this item, as it was outside of the survey area.

Feature Correlation

Address	Feature	Range	Azimuth	Status
AWOIS_B370-TJ-08	AWOIS # 7358	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Office Notes

Do not concur, AWOIS item #7358 is within the survey limits of H11977. Office processing determined that the AWOIS position was within a rocky seabed area containing with. Survey least depths in the area range from 108ft to 126ft. Supersede charted soundings with survey soundings in common area and chart as rocky seabed area. Update AWOIS database.

1.3) AWOIS #7359 - AWOIS 7359 OBSTRUCTION

No Primary Survey Feature for this AWOIS Item

Search Position: 41° 14' 00.4" N, 072° 10' 18.3" W
Historical Depth: [None]
Search Radius: 0
Search Technique: S2,MB
Technique Notes: [None]

History Notes:

H9212/71-- SHOAL, WITH 117 FT. LEAST DEPTH, CENTERED IN LAT 41-14-00N, LONG 72-10-20W.■ FE268WD--OPR-B660-RU/HE-83,84; BOULDER FIELD CENTERED AROUND THE SAME POSITION AS THE SHOAL ABOVE; EVALUATOR RECOMMENDED CHARTING "BLDS" IN LAT 41-14-01N, LONG 72-10-18W TO DELINEATE BOULDER FIELD. (ENTERED MSM 5/89)

Survey Summary

Charts Affected: 13212_1, 12372_1, 13209_1, 12354_1, 13205_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

Survey H11997 did not address this item, as it was outside of the survey area.

Feature Correlation

Address	Feature	Range	Azimuth	Status
AWOIS_B370-TJ-08	AWOIS # 7359	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Office Notes

Do not concur, AWOIS item #7359 is within the survey limits of H11977. Office processing determined that the AWOIS position was within a rocky seabed area containing some boulders. Survey least depths in the area range

from 112ft to 119ft. Supersede charted soundings with survey soundings in common area and chart as rocky seabed area. Update AWOIS database.

1.4) AWOIS #7360 - AWOIS 7360 UNKNOWN

No Primary Survey Feature for this AWOIS Item

Search Position: 41° 11' 17.4" N, 072° 18' 10.3" W
Historical Depth: 27.13 m
Search Radius: 0
Search Technique: S2,MB
Technique Notes: [None]

History Notes:

H9181/70 -- 89 FT SHOAL SOUNDING LOCATED IN LAT 41-11-17N, LONG 72-18-12W.■■■
 FE268WD--OPR-B660-RU/HE-83,84; BOULDER FIELD CENTERED IN APPROXIMATELY THE SAME POSITION AS 89 FT. SOUNDING ABOVE; 90 FT. SOUNDING CHARTED; RECOMMENDED DELETING CHARTED SOUNDING, CHARTING 89 FT. SOUNDING FROM H9181 AND CONDUCT ADDITIONAL SURVEY WORK TO DETERMINE THE EXTENT OF BOULDER FIELD. (ENTERED MSM 5/89)

Survey Summary

Charts Affected: 12354_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

Survey H11997 did not address this item, as it was outside of the survey area.

Feature Correlation

Address	Feature	Range	Azimuth	Status
AWOIS_B370-TJ-08	AWOIS # 7360	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

Geo object 1: Seabed area (SBDARE)
Attributes: NATQUA - 2,3:medium,coarse
 NATSUR - 6,17:gravel,shells
 SORDAT - 20081029
 SORIND - NOAA Ship Thomas Jefferson

Office Notes

Do not concur, AWOIS item #7360 is within the survey limits of H11977. Office processing determined that the AWOIS position was not within a boulder area, but within a sandwave area with survey least depths ranging from 95ft to 110ft. Supersede charted soundings with survey soundings in common area. Update AWOIS databse.

1.5) AWOIS 1831 Revise Wreck

Primary Feature for AWOIS Item #1831

Search Position: 41° 12' 48.4" N, 072° 17' 37.3" W
Historical Depth: 38.71 m
Search Radius: 100
Search Technique: S2,MB
Technique Notes: [None]

History Notes:

H9181/70-71--OPR-474; LIMITED DEVELOPEMENT OF 25 METER LS FOUND APPARENT WRECK RISING 15 FT IN 140 FT, 127 FT LD (ACTUAL); FATHO TRACE BROKEN, NO DIVER VERIFICATION; AT POS.41-12-48N, 72-17-39W. ■ CL1291/81--CG; WK FOUND W/SS IN 143 FT OF WATER, DIVER IDENTIFIED AS BARGE RIVETED CONSTRUCTION, STEEL, MUCH MARINE GROWTH. INFO VERIFIED BY TELECON CGC MAHONING. ■■ DESCRIPTION ■ 01 1936 ■ 24 NO. 8373. BARGE, 810 GT, SUNK 1/24/36 BY MARINE CASUALTY; POSITION ACCURACY WITHIN 1 MILE ■ 206 LORAN C RATES: 9960-W 14806.9; 9960-Y 43970.7. (ENTERED MSM 3/89) ■ **** IT WAS DETERMINED THAT ITEM 1830 WAS THE SAME AS THIS ITEM. THE DATA FROM ITEM 1830 WAS COMBINED WITH THIS ITEM.

Survey Summary

Survey Position: 41° 12' 48.4" N, 072° 17' 36.4" W
Least Depth: 38.97 m (= 127.84 ft = 21.306 fm = 21 fm 1.84 ft)
TPU (±1.96σ): THU (TPEh) ±1.004 m ; TVU (TPEv) ±0.389 m
Timestamp: 2008-260.20:49:51.749 (09/16/2008)
Survey Line: h11997 / tj_s222_reson7125_port / 2008-260 / 361_1957
Profile/Beam: 5366/100
Charts Affected: 12372_11, 12354_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

Item is Cities Services #4, a charted wreck contained in the AWOIS Database.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11997/tj_s222_reson7125_port/2008-260/361_1957	5366/100	0.00	000.0	Primary
AWOIS_B370-TJ-08	AWOIS # 1831	20.54	085.7	Secondary

Hydrographer Recommendations

Chart according to surveyed depth, position and S-57 data.

Cartographically-Rounded Depth (Affected Charts):

128ft (12372_11, 12354_1)

21fm (12300_1, 13006_1, 13003_1)

39m (5161_1)

S-57 Data

Geo object 1: Wreck (WRECKS)
Attributes: CATWRK - 1:non-dangerous wreck
CONVIS - 2:not visual conspicuous
OBJNAM - CITIES SERVICES #4
QUASOU - 6:least depth known
STATUS - 1:permanent
TECSOU - 3:found by multi-beam
VALSOU - 38.965 m
VERDAT - 12:Mean lower low water
WATLEV - 3:always under water/submerged

Office Notes

Concur with conditions. Delete charted AWOIS Item #1831 non-dangerous sunken wreck, least depth unknown. Chart AWOIS Item #1831 non-dangerous sunken wreck, least depth known 128 feet at the survey position. Update AWOIS database.

1.6) AWOIS 7357 136ft Sounding

Primary Feature for AWOIS Item #7357

Search Position: 41° 13' 46.4" N, 072° 10' 08.6" W
Historical Depth: 41.15 m
Search Radius: 200
Search Technique: S2,MB
Technique Notes: [None]

History Notes:

FE268WD--OPR-B660-RU/HE-83,84; CONTACT #13; SUSPECTED WRECK LOCATED DURING SURVEY OPERATIONS IN LAT 41-13-46.1N, LONG 72-10-10.3W (COMPUTED BY OFFSET FROM THE VESSEL TRACK); EVALUATOR INTERPRETED SIDE SCAN SONAR CONTACT AS A BOULDER; COMPUTED LEAST DEPTH OF 135 FT. (ESTIMATED BY SCALING THE HEIGHT OFF THE BOTTOM FROM SIDE SCAN SONAR RECORDS); LIES ON THE CREST OF A RIDGE THAT IS COVERED BY LARGE BOULDERS; WHETHER IT IS A BOULDER OR A WRECK IS OF LITTLE IMPORTANCE BECAUSE OF LEAST DEPTH. (ENTERED MSM 5/89)

Survey Summary

Survey Position: 41° 13' 46.8" N, 072° 10' 09.4" W
Least Depth: 41.44 m (= 135.97 ft = 22.661 fm = 22 fm 3.97 ft)
TPU ($\pm 1.96\sigma$): THU (TPEh) ± 1.005 m ; TVU (TPEv) ± 0.389 m
Timestamp: 2008-261.04:53:29.348 (09/17/2008)
Survey Line: h11997 / tj_s222_reson7125_port / 2008-261 / 366_0446
Profile/Beam: 2161/108
Charts Affected: 13212_1, 12372_1, 13209_1, 12354_1, 13205_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

Not navigationally significant.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11997/tj_s222_reson7125_port/2008-261/366_0446	2161/108	0.00	000.0	Primary
AWOIS_B370-TJ-08	AWOIS # 7357	21.85	299.2	Secondary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

136ft (13212_1, 12372_1, 13209_1, 12354_1, 13205_1)

22fm (12300_1, 13006_1, 13003_1)

41m (5161_1)

S-57 Data

[None]

Office Notes

Concur with clarification, AWOIS item #7359 is within the survey limits of H11977. Office processing determined that the AWOIS item #7359 position was within a rocky seabed area containing some boulders. Survey least depth on the the prominent boulder is 136ft in an area of depths ranging from 145ft to 170ft. Chart shoal sounding least depth 136 ft at the survey position within the rocky seabed area. Update AWOIS database.

2 - Dangers to Navigation

2.1) DToN-1 63ft Rock

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 09' 50.3" N, 072° 20' 12.9" W
Least Depth: 19.41 m (= 63.67 ft = 10.612 fm = 10 fm 3.67 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.000 m ; **TVU (TPEv)** ± 0.387 m
Timestamp: 2008-266.21:21:59.572 (09/22/2008)
Survey Line: h11997 / tj_s222_reson7125_port / 2008-266 / 938_2121
Profile/Beam: 475/122
Charts Affected: 12358_1, 12354_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

Uncharted dangerous rock- The 19.41 meter (63.67 foot) least depth on this rock was acquired by multibeam echosounder and corrected to MLLW using verified water levels and final zoning. The charted depth in the area is 74 feet.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11997/tj_s222_reson7125_port/2008-266/938_2121	475/122	0.00	000.0	Primary

Hydrographer Recommendations

Chart according to position, depth and S-57 attribution.

Cartographically-Rounded Depth (Affected Charts):

- 63ft (12358_1, 12354_1)
- 10 ½fm (12300_1, 13006_1, 13003_1)
- 19.4m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)
Attributes: VALSOU - 19.408 m

Office Notes

Concur with clarification. DToN-1 shown on Chart 12358, 20th Edition April 01, 2008 as a 63 ft dangerous rock.
Retain as charted.

2.2) DTON-2 Delete charted 52 ft Rock

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 11' 39.9" N, 072° 11' 40.5" W
Least Depth: 15.89 m (= 52.13 ft = 8.689 fm = 8 fm 4.13 ft)
TPU (±1.96σ): **THU (TPEh)** ±1.000 m ; **TVU (TPEv)** ±0.388 m
Timestamp: 2008-266.18:28:32.796 (09/22/2008)
Survey Line: h11997 / tj_s222_reson7125_port / 2008-266 / 954_1823
Profile/Beam: 2415/237
Charts Affected: 13209_1, 12354_1, 13205_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

Uncharted dangerous rock- The 15.25 meter (50.03 foot) least depth on this rock was acquired by multibeam echosounder and corrected to MLLW using verified water levels and final zoning. Charted depths in the area are 84 and 96 feet.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11997/tj_s222_reson7125_port/2008-266/954_1823	2415/237	0.00	000.0	Primary

Hydrographer Recommendations

Chart according to position, depth and S-57 attribution.

Cartographically-Rounded Depth (Affected Charts):

52ft (13209_1, 12354_1, 13205_1)

8 ¾fm (12300_1, 13006_1, 13003_1)

15.9m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)
Attributes: VALSOU - 15.890 m
Geo object 2: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 1:depth known

RECDAT - 20080922
SORDAT - 080922
SORIND - NOAA Ship Thomas Jefferson
STATUS - 1:permanent
TECSOU - 3:found by multi-beam
VALSOU - 15.890 m
VERDAT - 12:Mean lower low water
WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. H11997 DToN-2 was submitted as a 50 ft dangerous rock by field unit and was charted as a 52 ft dangerous rock by MCD. During office processing of junction survey H11445 an adjacent 46 ft dangerous rock was found and submitted as a DToN. Delete charted dangerous rock least depth 52 ft and retain 46 ft dangerous rock from survey H11445. Refer to the addendum in Appendix V of the DR for additional details.

H11997_Bottom_Samples

Registry Number: H11997
State: New York
Locality: Long Island Sound
Sub-locality: 3 NM North of Mulford Point
Project Number: OPR-B370-TJ-08
Survey Dates: 09/22/2008 - 09/23/2008

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
13212	38th	11/01/2008	1:20,000 (13212_1)	USCG LNM: 01/29/2008 (02/24/2009) CHS NTM: None (01/30/2009) NGA NTM: 03/29/2003 (02/28/2009)
12372	34th	11/01/2006	1:40,000 (12372_11) 1:40,000 (12372_1)	[L]NTM: ?
13209	25th	04/01/2007	1:40,000 (13209_1)	USCG LNM: 12/09/2008 (02/24/2009) NGA NTM: 04/11/1998 (02/28/2009)
12358	20th	04/01/2008	1:40,000 (12358_1)	USCG LNM: 11/25/2008 (02/24/2009) NGA NTM: 12/04/1999 (02/28/2009)
13205	38th	02/01/2007	1:80,000 (13205_1)	USCG LNM: 01/13/2009 (02/24/2009) NGA NTM: 04/11/1998 (02/28/2009)
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	47th	05/01/2008	1:400,000 (12300_1)	[L]NTM: ?
13006	34th	05/01/2007	1:675,000 (13006_1)	[L]NTM: ?
5161	13th	10/01/2003	1:1,058,400 (5161_1)	[L]NTM: ?
13003	49th	04/01/2007	1:1,200,000 (13003_1)	[L]NTM: ?

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

Features

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	G Sh	Shoal	[None]	41° 13' 37.2" N	072° 10' 54.2" W	---
1.2	G Sh	Bottom Sample	[None]	41° 12' 54.0" N	072° 09' 46.8" W	---

1.3	G S	Bottom Sample	[None]	41° 09' 33.1" N	072° 21' 07.7" W	---
1.4	c S SH	Bottom Sample	[None]	41° 11' 46.2" N	072° 21' 18.8" W	---
1.5	c S bk Sh	Bottom Sample	[None]	41° 11' 41.7" N	072° 19' 30.3" W	---

1 - Detached Positions

1.1) G Sh

Survey Summary

Survey Position: 41° 13' 37.2" N, 072° 10' 54.2" W
Least Depth: [None]
TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2008-266.15:22:53.000 (09/22/2008)
DP Dataset: h11997 / unassigned / 2008-266 / 09222008_bs
Profile/Beam: 1/1
Charts Affected: 12372_1, 13209_1, 12354_1, 13205_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

charted "GSh", lost sampler

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11997/unassigned/2008-266/09222008_bs	1/1	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

Geo object 1: Seabed area (SBDARE)
Attributes: NATQUA - 2,2:medium,medium
 NATSUR - 6,17:gravel,shells
 SORDAT - 20081029
 SORIND - NOAA Ship Thomas Jefferson

Office Notes

QUA: GPSmode=2, SVs=10, HDOP=1.10

Recommend charting seabed area

1.2) G Sh

Survey Summary

Survey Position: 41° 12' 54.0" N, 072° 09' 46.8" W
Least Depth: [None]
TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2008-266.16:43:39.000 (09/22/2008)
DP Dataset: h11997 / unassigned / 2008-266 / 09222008_bs
Profile/Beam: 2/1
Charts Affected: 13212_1, 12372_1, 13209_1, 12354_1, 13205_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

Charted Sh G, Gravel shell

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11997/unassigned/2008-266/09222008_bs	2/1	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

Geo object 1: Seabed area (SBDARE)
Attributes: NATQUA - 3,3:coarse,coarse
 NATSUR - 6,17:gravel,shells
 SORDAT - 20081029
 SORIND - NOAA Ship Thomas Jefferson

Office Notes

QUA: GPSmode=2, SVs=10, HDOP=1.10

Recommend charting seabed area

1.3) G S

Survey Summary

Survey Position: 41° 09' 33.1" N, 072° 21' 07.7" W
Least Depth: [None]
TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2008-267.18:09:18.000 (09/23/2008)
DP Dataset: h11997 / unassigned / 2008-267 / 09232008_bs
Profile/Beam: 1/1
Charts Affected: 12358_1, 12354_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

Charted S GM verified as shells/gravel

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11997/unassigned/2008-267/09232008_bs	1/1	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

Geo object 1: Seabed area (SBDARE)
Attributes: NATQUA - 3,3:coarse,coarse
 NATSUR - 6,17:gravel,shells
 SORDAT - 20081029
 SORIND - NOAA Ship Thomas Jefferson

Office Notes

QUA: GPSmode=2, SVs=11, HDOP=0.90

Recommend charting seabed area

1.4) c S SH

Survey Summary

Survey Position: 41° 11' 46.2" N, 072° 21' 18.8" W
Least Depth: [None]
TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2008-267.20:33:14.000 (09/23/2008)
DP Dataset: h11997 / unassigned / 2008-267 / 09232008_bs
Profile/Beam: 2/1
Charts Affected: 12372_11, 12354_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11997/unassigned/2008-267/09232008_bs	2/1	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

Geo object 1: Seabed area (SBDARE)
Attributes: NATQUA - 3,3:coarse,coarse
 NATSUR - 6,17:gravel,shells
 SORDAT - 20081029
 SORIND - NOAA Ship Thomas Jefferson

Office Notes

QUA: GPSmode=2, SVs=9, HDOP=1.10

Recommend charting seabed area

1.5) c S bk Sh

Survey Summary

Survey Position: 41° 11' 41.7" N, 072° 19' 30.3" W
Least Depth: [None]
TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2008-267.21:06:48.000 (09/23/2008)
DP Dataset: h11997 / unassigned / 2008-267 / 09232008_bs
Profile/Beam: 3/1
Charts Affected: 12372_11, 12354_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11997/unassigned/2008-267/09232008_bs	3/1	0.00	000.0	Primary

Hydrographer Recommendations

[None]

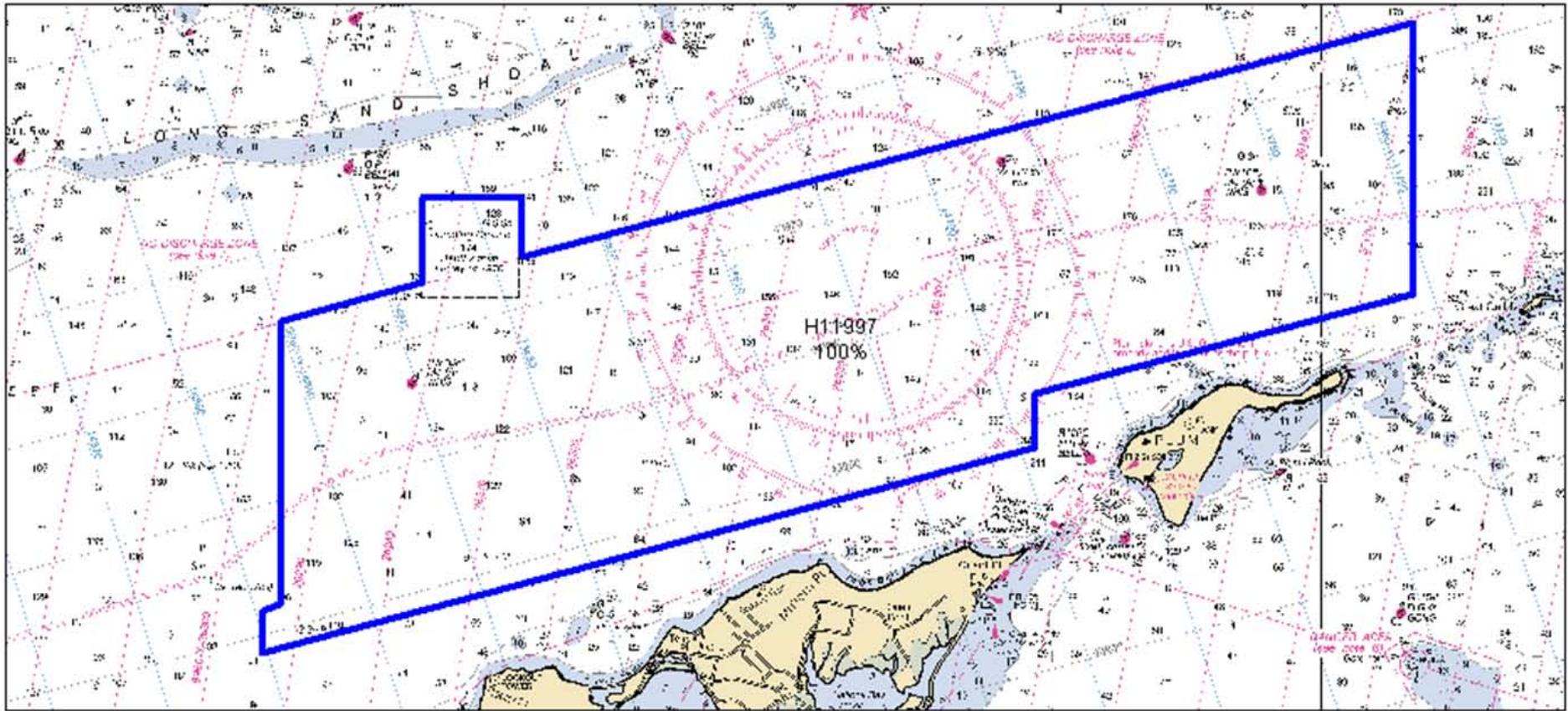
S-57 Data

Geo object 1: Seabed area (SBDARE)
Attributes: NATQUA - 2,2:medium,medium
 NATSUR - 4,17:sand,shells
 SORDAT - 20081029
 SORIND - NOAA Ship Thomas Jefferson

Office Notes

QUA: GPSmode=2, SVs=8, HDOP=1.80

Recommend charting seabed area



Project	Sheet_Letter	H_num	HO_Est_SIIM	CumIPercCompPre	CumIPercCompC	SIIM_CompCurl	CumSIIMcon	CumIPercProcess
B370-TJ-08	Q	H11997	37	0	100	37	37	0

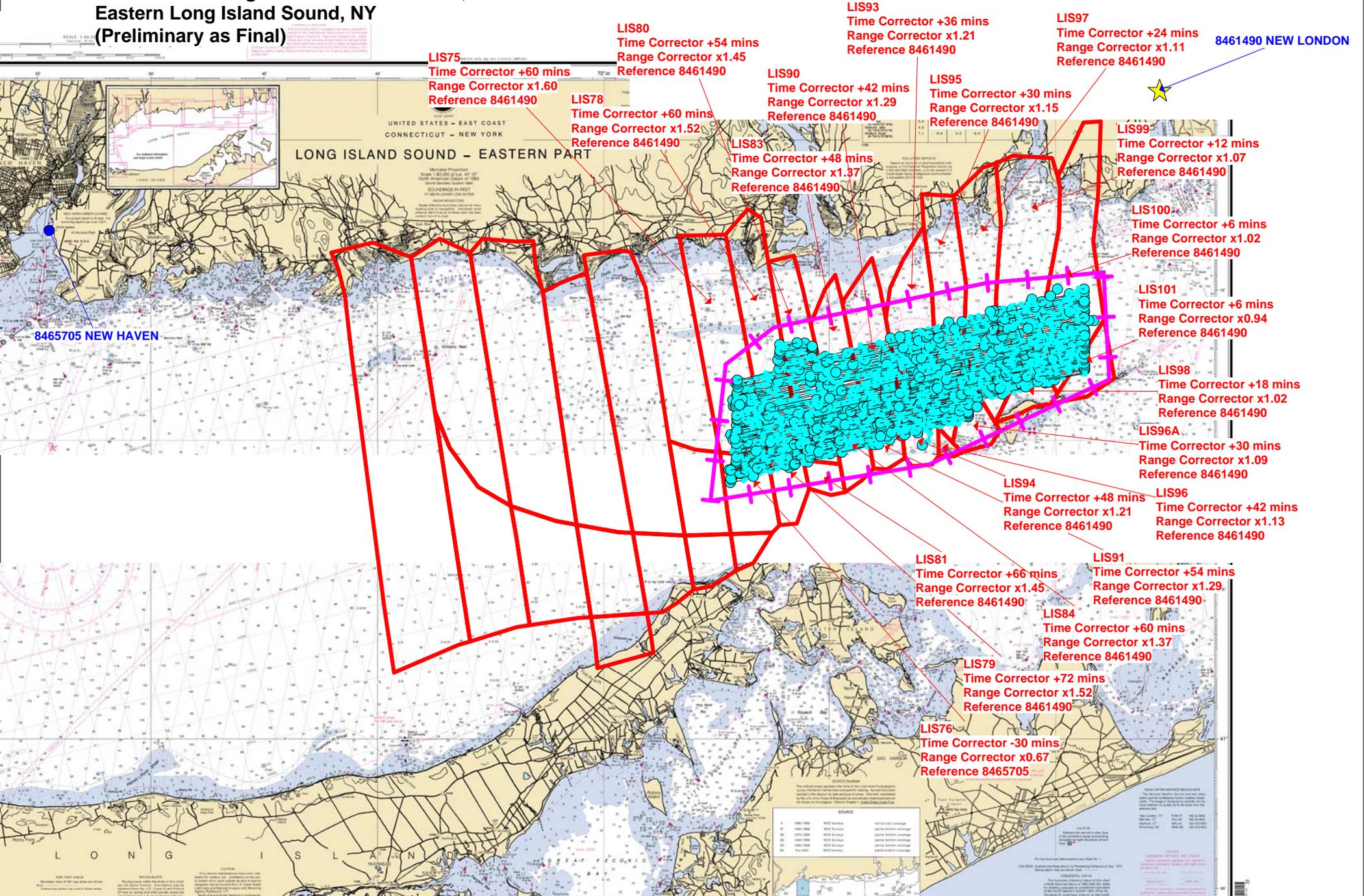
Progress Sketch OPR-B370-TJ-08
September 2008



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



Final Tidal Zoning for OPR-B370-TJ-2008, H11997 Eastern Long Island Sound, NY (Preliminary as Final)



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

AHB COMPILATION LOG

General Survey Information	
REGISTRY No.	H11997
PROJECT No.	OPR-B370-TJ-08
FIELD UNIT	<i>Thomas Jefferson</i> Personnel
DATE OF SURVEY	9/15/2008-10/29/2008
LARGEST SCALE CHART	13212, 38th Ed, 20081101, 1:20000
ADDITIONAL CHARTS	12354, 42 nd Ed, 20061201, 1:80000; 12358_1, 12358_2, 20 th Ed, 20080401, 1:40000; 13205_1, 38 th Ed, 20070201, 1:80000; 13209_1, 13209_2, 25 th Ed, 20070401, 1:40000
SOUNDING UNITS	feet
COMPILER	ENS Joseph Carrier

Source Grids	File Name
	H:\Compilation\H11997_B370_TJ\AHB_H11997\E-SAR Final Products\GRIDS
	E-SAR Final Products\GRIDS\Southwest_Final.hns
	E-SAR Final Products\GRIDS\Midwest_Final.hns
	E-SAR Final Products\GRIDS\H11997_1_2m_CUBE_Deep_Final.hns
Surfaces	File Name
	H:\Compilation\H11997_B370_TJ\AHB_H11997\COMPILE\Working
<i>Combined</i>	H11997_8m_Combined.hns
<i>Interpolated TIN</i>	\Interpolated TIN\H11997_8m_InterpTIN.hns
<i>Shifted Interpolated TIN</i>	\Shifted Surface\H11997_8m_InterpTIN_Shifted
<i>Product Surface</i>	\Product Surface\H11997_20k_200mrad_8mres.hns
Final HOBs	File Name
	H:\Compilation\H11997_B370_TJ\AHB_H11997\COMPILE\Final_Hobs
<i>Survey Scale Soundings</i>	H11997_SS_Soundings.hob
<i>Chart Scale Soundings</i>	H11997_CS_Soundings.hob
<i>Contour Layer</i>	H11997_Contours.hob
<i>Feature Layer</i>	H11997_Features.hob
<i>Meta-Objects Layer</i>	H11997_MetaObjects.hob
<i>Blue Notes</i>	H11997_BlueNotes.hob
<i>ENC Retain Soundings</i>	H11997_ENC_Retain_Soundings.hob

Meta-Objects Attribution	
Acronym	Value
M_COVR	
CATCOV	coverage available
SORDAT	20081029
SORIND	US,US,survey,H11997
M_QUAL	
CATZOC	6
INFORM	Registry Number, Project Number, Vessel
POSACC	10
SORDAT	20081029
SORIND	US,US,survey,H11997
SUREND	20081029

[Type text]

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SURSTA	20080915
DEPARE	
DRVALV 1	49.2999ft
DRVALV2	324.7001ft
SORDAT	20081029
SORIND	US,US,nsurf,H11997
M_CSCL	
CSCALE	1:40000 and 1:80000
SORDAT	20081029
SORIND	US,US,survey,H11997

SPECIFICATIONS:

- I. COMBINED SURFACE:
 - a. Number of ESAR Final Grids: 3
 - b. Resolution of Combined (m): 8

- 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: 49.3
 - ii. Maximum: 324.7

- III. INTERPOLATED TIN SURFACE:
 - a. Resolution (m): 8
 - b. Linear
 - c. Shifted value:-0.229m (feet), (≤ 10 fathoms)

- IV. CONTOURS:
 - a. Use a Depth List: H11997_NOAA_depth_curves_list.txt
 - b. Line Object: DEPCNT
 - c. Value Attribute: VALDCO

- V. FEATURES:
 - a. Total Number of Features:17
 - b. Number of Insignificant Features:16

- VI. CHART SURVEY SOUNDINGS (CS):
 - a. Number of ENC CS Soundings: 370
 - b. Radius
 - c. Shoal biased
 - d. Use Single-Defined Radius: m on the ground
 - i. Radius Value (m):150 for the 20k; 365 for 40k; 944 for 80k
 - ii. Or use a Sounding Space Range Table (if applicable): HXXXXX_SSR.txt
 - e. Filter: Interpolated != 1
 - f. Number Survey CS Soundings:502

- VII. Notes:

[Type text]

**ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT to ACCOMPANY
SURVEY H11997 (2009)**

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

B. DATA ACQUISITION AND PROCESSING

B.1 DATA PROCESSING

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

HSTP PYDRO version 9.6 (r2698)
CARIS HIPS/SIPS version 6.1 SP2 HF 1-8
CARIS Bathy Manager version 2.1 SP1 HF 1-10
DKART INSPECTOR, version 5.0 Build 707
CARIS HOM version 3.3
CARIS S57 Composer version 2.1

B.2. QUALITY CONTROL

B.2.1. H-Cell

The source of bathymetry for the H-Cell is the 2-m resolution combined BASE surface. A generalized product surface was created from the combined BASE surface. A final selected sounding layer was generated from the generalized product surface. The SS sounding layer consists of soundings at three scales: 1:20k, 1:40k and 1:80k. The survey soundings in each region were selected using a shoal-biased radius of 0.5-1 mm at the respective chart scale.

A TIN was created from the survey scale soundings; in turn, a surface was interpolated from the TIN. The chart-scale soundings were selected from only the non-interpolated grid nodes so that the chart-scale selected soundings are a subset of the survey-scale selected soundings. The surface model was referenced when selecting the chart-scale soundings, to ensure that the selected soundings portrayed the bathymetry within the common area.

Depth contours were created from a 2-m resolution, shifted surface generated from a TIN (triangulated irregular network). The contours are forwarded to MCD for reference only. The contours were utilized during chart-scale sounding selection and quality assurances efforts at AHB. The contours 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 Pre-Compile Process Log attached at the end of this document. The SAHOB files included depth areas (DEPARE), depth contours (DEPCNT), sounding

selections (SOUNDG), features (SBDARE, WRECKS, UWTRC), Meta objects (M_COVR, M_QUAL, M_CSCL), and cartographic Blue Notes (\$CSYMB).

All of the components with the exception of the sounding selection and depth contours were inserted into one feature layer (including the Bluenotes, as dictated by Hydrographic Technical Directive 2008-8), and this layer was exported into S-57 format in order to create the H-Cell deliverable. Similarly, the sounding selection 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 (H11997_CS.000), and one that contains the sounding selection and depth contours (H11997_SS.000). Finally, quality assurance checks were made utilizing CARIS S-57 Composer version 2.1 validation checks and DKART INSPECTOR, version 5.0, tests (save DKART validation check window results as a text file and put it in the Chief's Review folder).

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

H11997 CARIS H-Cell final deliverables include the following products:

H11997_CS.000	1:20,000 Scale	H11997 H-Cell with Chart Scale Selected Soundings
H11997_SS.000	1:20,000 Scale	H11997 Selected Soundings (Survey Scale)

B.2.2. Junctions

The following contemporary surveys junction with H11445:

Registry #	Scale	Date	Field Party	Junction side
H11445	1:10,000	2008	<i>Thomas Jefferson</i>	Southeast
H11446	1:10,000	2008	<i>Thomas Jefferson</i>	Southwest
H11251	1:10,000	2008	<i>Thomas Jefferson</i>	Southwest
H11999	1:10,000	2008	<i>Thomas Jefferson</i>	Southwest
H11361	1:10,000	2004	<i>Thomas Jefferson</i>	West
H11250	1:10,000	2004	<i>Thomas Jefferson</i>	Northeast

Survey H11445 junctions with H11997 in the South; the difference in soundings between the two surveys is on average 0.4 meters.

Survey H11446 junctions with H11997 to the South; the difference in soundings between the two surveys is on average 0.3 meters.

Survey H11251 junctions with H11997 to the South; the difference in soundings between the two surveys is on average 0.2 meters.

Survey H11999 junctions with H11997 to the Southwest; the difference in soundings between the two surveys is on average 0.1 meters.

Survey H11361 junctions with H11997 to the West; the difference in soundings between the two surveys is on average 0.2 meters.

Survey H11250 junctions with H11997 in the Northeast; the difference in soundings between the two surveys is on average 0.3 meters.

D. RESULTS AND RECOMMENDATIONS

D.1 CHART COMPARISON

13212 (38nd Edition, Nov./08)

Corrected through NM 11/01/08
Corrected through LNM 10/21/08
Scale 1:20,000

13209 (25nd Edition, Apr./07)

Corrected through NM 04/14/07
Corrected through LNM 04/03/07
Scale 1:40,000

12354 (42nd Edition, Dec./06)

Corrected through NM 12/09/06
Corrected through LNM 11/28/06
Scale 1:80,000

12358 (20th Edition, Apr./08)

Corrected through NM 04/12/08
Corrected through LNM 04/01/08
Scale 1:40,000

ENC Comparison

US4NY1GM

Eastern Long Island Sound
Edition 17
Application Date 2009-03-19
Issue Date 2009-04-08
Chart 12354

US5MA22M

Block Island Sound and Gardiners Bay
Edition 12
Application Date 2009-04-22
Issue Date 2009-05-04
Chart 13209

US5CN20M

Long Island Sound - Ri Conn
Edition 5
Application Date 2009-03-12
Issue Date 2009-03-12
Chart 12372

US5CN30M

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:

The field unit obtained bottom samples as indicated in the Letter Instructions. The spatial and feature attributes of additional SBDARE point features were carried forward from the ENC (US5MA22M, US4NY1GM, US5CN20M, US5CN30M). SBDARE area features (sand wave areas) were created by using the original grids and combined surface as a reference to delineate the specific sea bed area.

- a. AWOIS Item #1831, 127ft Wreck located at 41° 12' 48.4" N, 072° 17' 37.3" W was found by the survey to have a least depth of 38.7m to the Southwest of the original charted location. It is recommended that this feature be moved to the survey position.
- b. AWOIS Item #1835, 152ft Wreck located at 41° 13' 19.0" N, 072° 16' 49.3" W was not found in the survey area or within a 250m radius of the previously charted location. It is recommended that this feature be removed from future charts.
- c. The charted 63ft Rock located at 41° 09' 50.3" N, 072° 20' 12.9" W was found by the survey to have a least depth of 19.41m. It is recommended to update the chart with a 63ft Rock at this position.
- d. The 52ft Rock located at 41° 11' 39.9" N, 072° 11' 40.5" W reported as a DTON during the survey should be removed from the chart. It has been superseded by a 46ft Rock reported as a DTON found in a junction survey near the boundary of H1 1997. Refer to the DR Addendum.

D.2. ADDITIONAL RESULTS

In the DR it was noted by field personnel that crosslines achieved only 3.5% of mainscheme coverage. The HSSDM states that crosslines should be at least 5% of the mainscheme for multibeam surveys; there was no explanation for this deviation from specification. DR, section B.2.5 it is stated that there were no systematic errors. However in many of the Hips subsets reviewed; depth variances of 0.2m up to 0.5m were viewed. In the project instructions it was required that sidescan coverage be used in depths less than 20 meters, however along the southern boundary of the survey there are a few

soundings that measured less than 20 meters and there was no sidescan coverage to support the 100% multibeam coverage. The coverage of these lines did not present a major problem to SS sounding density and therefore, the survey is adequate for chart updates.

D.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:

D.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.

APPROVAL SHEET
H11997

Initial Approvals:

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

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

Joseph Carrier
ENS, NOAA
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: _____

Rick Brennan
LCDR, NOAA
Chief, Atlantic Hydrographic Branch