H11999

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: H11999

LOCALITY

State: New York

General Locality: Eastern Long Island Sound

Sub-locality: 5 NM North of Duck Pond Point

2008

CHIEF OF PARTY
CDR P. Tod Schattgen
NOAA

LIBRARY & ARCHIVES

DATE

NOAA FORM 77-28 (11-72) U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:
HYDROGRAPHIC TITLE SHEET	**H11999**

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:	**5 NM North of Duck Pond Point**
Scale:	**1:10,000** Date of Survey: **2 October to 29 October 2008**
Instructions Dated:	**28 July 2008** Project Number: **OPR-B370-TJ-08**
Change No. 1 Dated	**30 September 2008**
Vessel:	**NOAA Ship *Thomas Jefferson***
Chief of Party:	**CDR P. Tod Schattgen**
Surveyed by:	***Thomas Jefferson* Personnel**
Soundings by:	**Reson 7125, 8101, and 8125 multibeam echosounders.**
Graphic record scaled by:	**N/A**
Graphic record checked by:	**N/A**
Protracted by:	**N/A** Automated Plot: **N/A**
Verification by:	
Soundings in:	***Feet*** ~~**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.

Table of Contents

List of Tables

List of Figures

Descriptive Report to Accompany Hydrographic Survey H11999

Project OPR-B370-TJ-08
Eastern Long Island Sound
5 NM North of Duck Pond Point
Scale 1:10,000
2 October to 29 October 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 28 July, 2008.

Revised project instructions* are dated 30 September, 2008. Changes were made to add sheet "Q" with a registry number of H11997 and assign sheet "K" the registry number H11999. POSPac data was required for acquisition with true heave selected. Tide gauge 8465705 was used in place of 8467150.

Northern Limit	Southern Limit	Western Limit	Eastern Limit
41° 09' 10.39" N 072° 35' 06.00" W	41° 06' 21.14" N 072° 31' 18.55" W	41° 07' 38.22" N 072° 39' 01.94" W	41° 07' 42.01" N 072° 24' 09.01" W

Table A-1: Approximate survey area

Data acquisition was conducted from 2, October 2008 to 29, October 2008.

This Project responds to a request from the Northeast Maritime Pilots Association for contemporary hydrographic surveys to update the nautical charts in the Eastern Long Island Sound. The current vintage of hydrography for the survey area dates back 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.

	Lineal Nautical Miles
Single beam mainscheme only	N/A
Multibeam mainscheme only	977.37
Side Scan Sonar mainscheme only	17.50
Crosslines 49.09	
Developments	N/A
Shoreline/nearshore investigations	N/A
Number of Bottom Samples	4
Number of AWOIS items investigated	3

Table A-2: Survey Statistics

The survey limits of H11999 are shown on the following page.
Filed with original field records

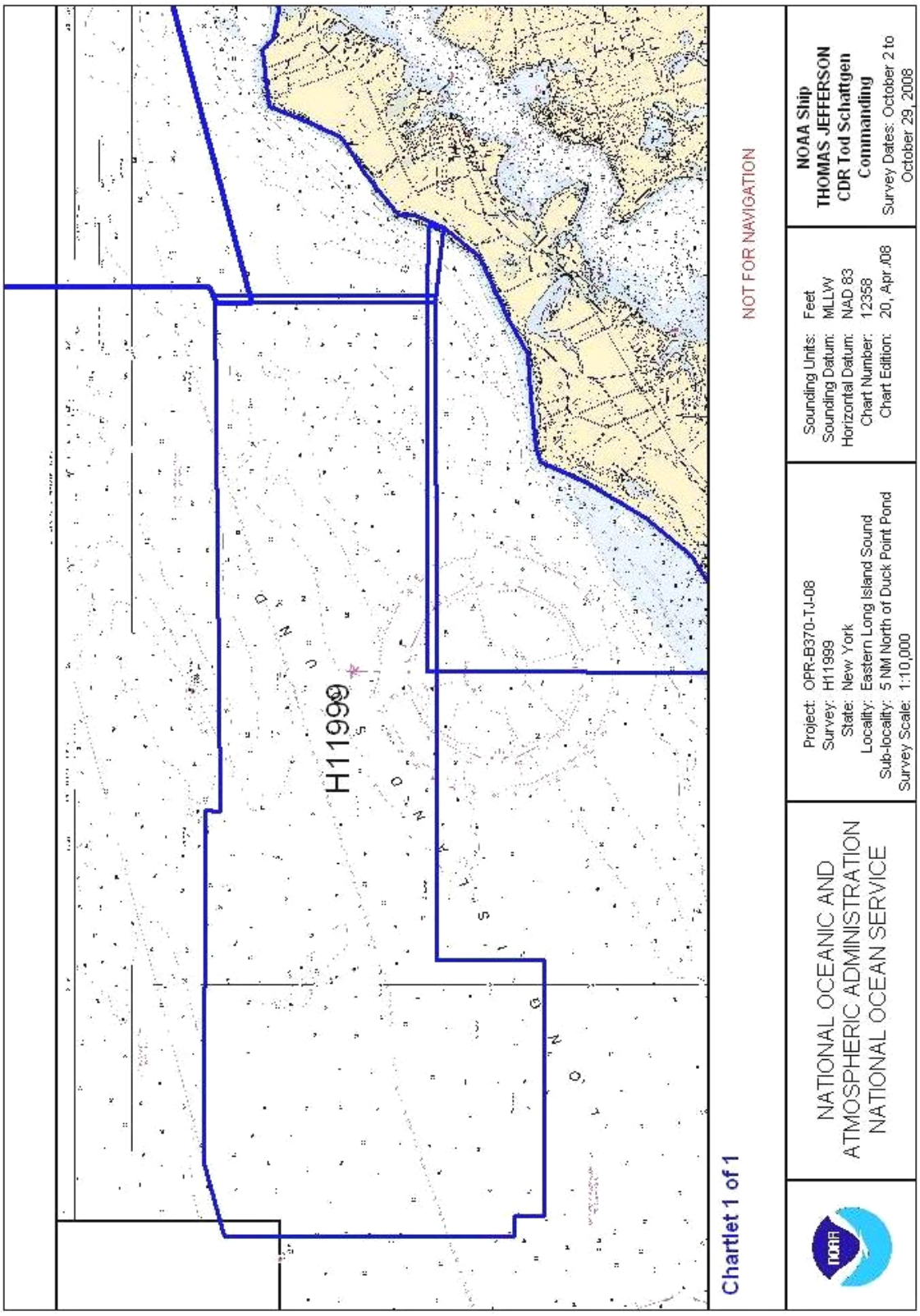


Figure A-1: Survey Area

B. DATA ACQUISTION AND PROCESSING

Refer to ***Thomas Jefferson Data Acquisition and Processing Report (DAPR),and Thomas Jefferson Data Acquisition and Processing Report - Spring 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. ***Concur.***

B 1. EQUIPMENT AND VESSELS

Data were acquired by NOAA Ship *Thomas Jefferson* and Hydrographic Survey Launches 3101 and 3102. NOAA Ship *Thomas Jefferson* acquired Reson 7125 multibeam echosounder soundings and sound velocity profiles. Launch 3101 acquired Reson 8125 multibeam echsounder soundings and sound velocity profiles. Launch 3102 acquired Klein 5000 side scan sonar imagery, Reson 8101 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 addendum***. ***Concur.***

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. ***Concur.***

B.2.2 Sounding Coverage

As per the Letter Instructions*, this survey was conducted using 100% side scan sonar and object detection multibeam coverage in depths from 4 to 20 meters, and complete multibeam coverage in depths greater than 20 meters. Side Scan Sonar coverage was monitored by creating a 100% coverage mosaic with a 0.5 meter resolution. Bathymetry coverage was monitored by creating BASE surfaces with a 2.0 meter resolution ***for complete coverage requirement areas*** and a 0.5 meter resolution in less than 20 meter depth ***for object detection requirement areas***. ***Concur with clarification. Some areas with depths between 4-20m were not covered by side scan sonar.***

****Filed with original field records***

Due to time constraints it was decided not to survey the area in red shown below. ***Concur.***

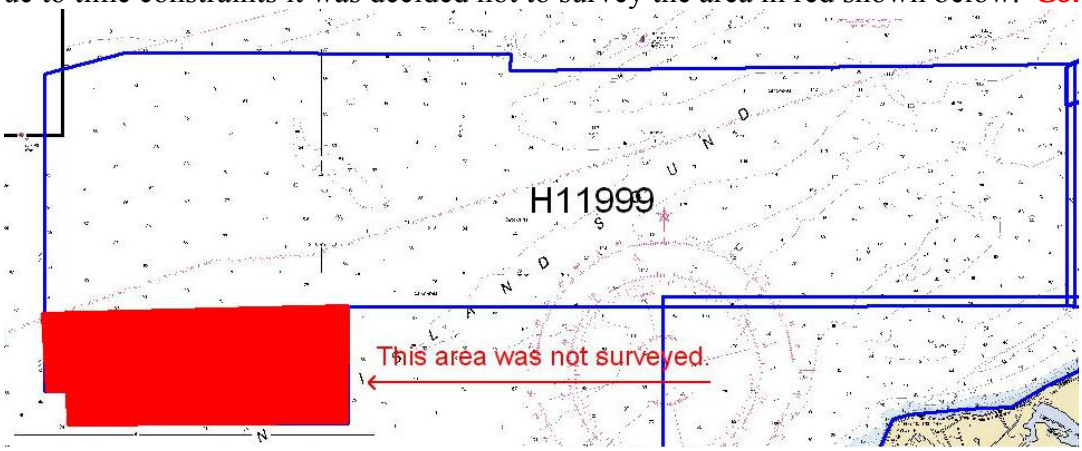


Figure B-1: Area Not Surveyed

On the eastern side there are gaps where the data does not fully reach the survey limits. Data from surveys H11997 and H11251 fill the gaps. ***Concur.***

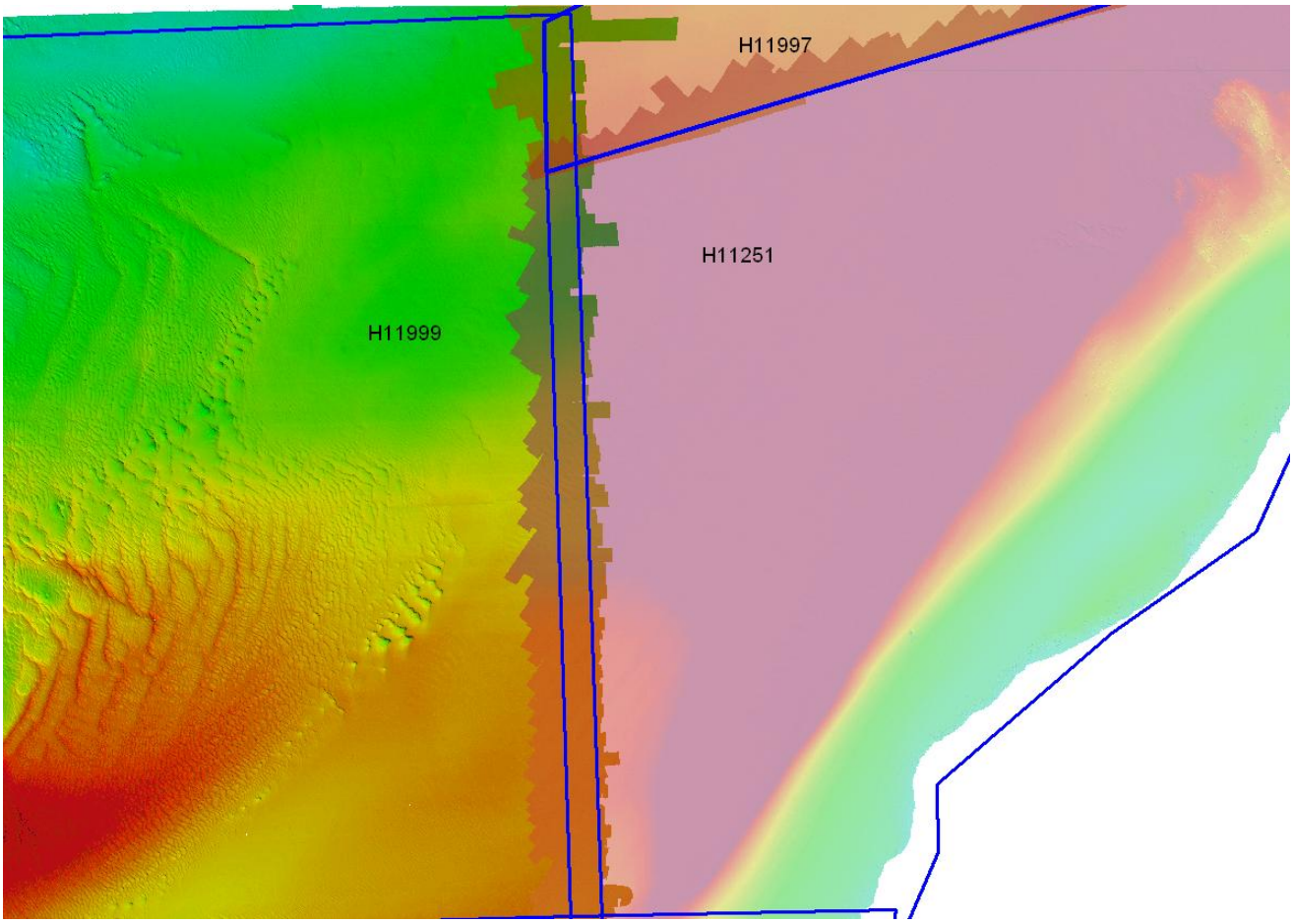


Figure B-2: Overlap

B 2.3 Crosslines

Multibeam echosounder cross-lines totaling 49.09 lineal nautical miles, comprising 5 percent of hydrography, were acquired during the course of the survey. As per guidance from AHB an evaluation of the standard deviation layer of the BASE surface was performed for fieldsheet 1 when it was one large fieldsheet of the entire survey area. The results indicate some systematic artifacts due to attitude inputs, but these do not exceed 0.631 meter in any area. Other areas of high standard deviation are caused by bathymetric features or man made obstructions. The results of the evaluation are located in the Descriptive Report/Separates/IV Crossline_comparisons folder* submitted with this survey. ***An unknown error caused a number of lines to exhibit up to a 1 meter vertical offset from neighboring lines. These lines were removed from the surface during office processing.***

B 2.4 Junctions and Prior Surveys

The following contemporary surveys junction with H11999:

Registry #	Scale	Date	Field Party	Junction side
H11251	1:10,000	2008	*Thomas Jefferson*	East
H11255	1:10,000	2004	*Thomas Jefferson*	Southwest
H11361	1:10,000	2004	*Thomas Jefferson*	Northeast
H11997	1:10,000	2008	*Thomas Jefferson*	Northeast
H11252	1:20,000	2004	*Thomas Jefferson*	Northwest

Survey H11251 junctions with H11999 in the East. The difference in soundings between the two surveys ***for the most part*** is no greater than 0.3 meters. ***On the western side of the junction there is a 3.2 meter difference where H11999 is shoaler. Concur with clarification.***

Survey H11255 junctions with H11999 in the Southwest. Due to time constraints that area was not surveyed. ***Concur.***

Survey H11361 junctions with H11999 in the Northeast. The difference in soundings between the two surveys for the most part is no greater than 0.3 meters. On the Southwestern side of the junction there is up to a 4.5 meter difference where it has gotten deeper. ***Concur.***

Survey H11997 junctions with H11999 in the Northeast. The difference between the two surveys is no greater than 0.3 meters. ***Concur.***

Survey H11252 junctions with H11999 in the Northwest. The difference in soundings between the two surveys for the most part is no greater than 0.3 meters. On the Southeastern side of the junction there is up to a 1.5 meter difference where it has gotten shallower. ***Concur.***

****Filed with original field records***

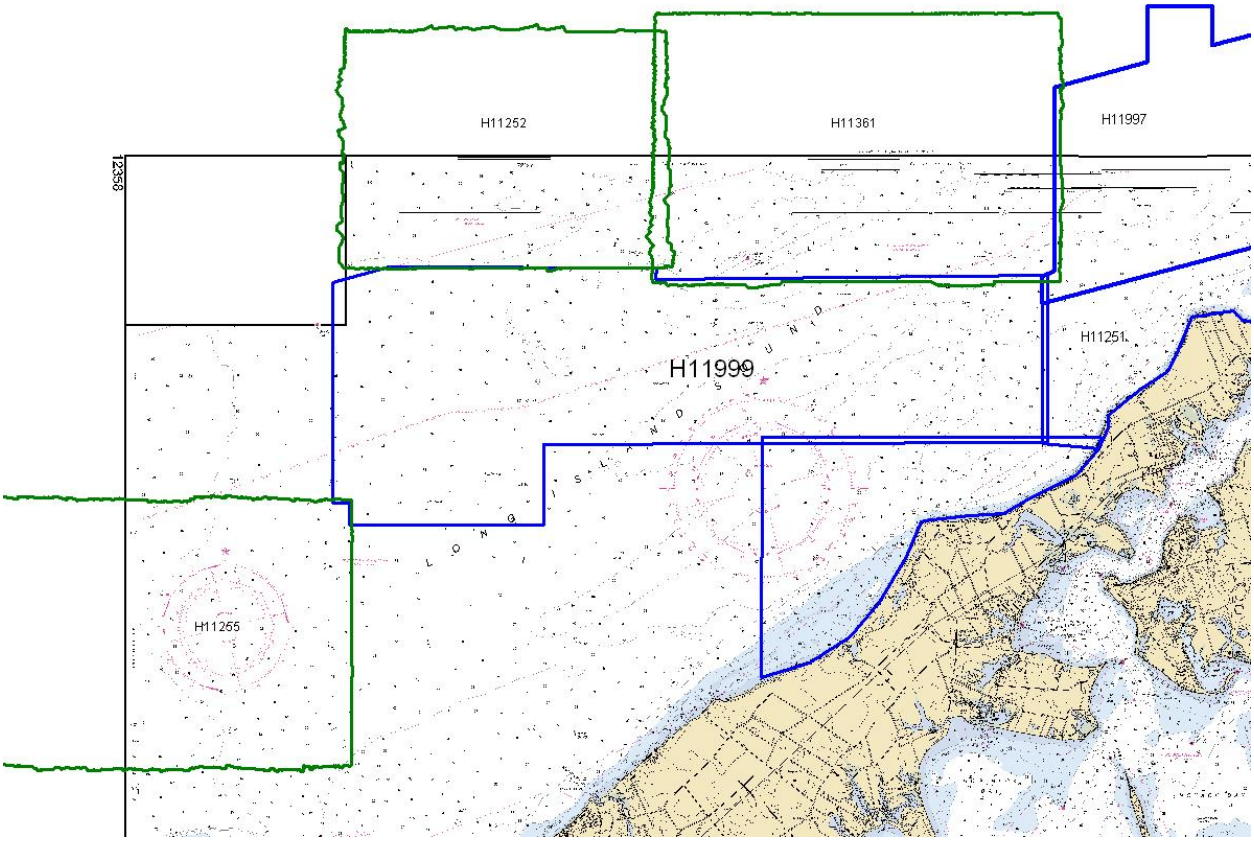


Figure B-3: Junction Surveys

B 2.5 Systematic Errors

A tide artifact is present in the surface. It is most noticeable in the flat sandy area on the western side. It does not exceed 0.37 meters. ***Do not concur. The final data submission does not include any tidal artifact.***

B 3. CORRECTIONS TO ECHO SOUNDING

HDCS sounding data were reduced to mean lower-low water (MLLW) using Verified water levels from New London, Thames River, CT (8461490) and New Haven, New Haven Harbor CT (8465705) ***and final tide zoning*** ~~adjusted for tidal constituents and residuals~~ provided by CO-OPS as specified in the Letter Instructions***** and illustrated below. ***Concur.***

****Filed with original field records***

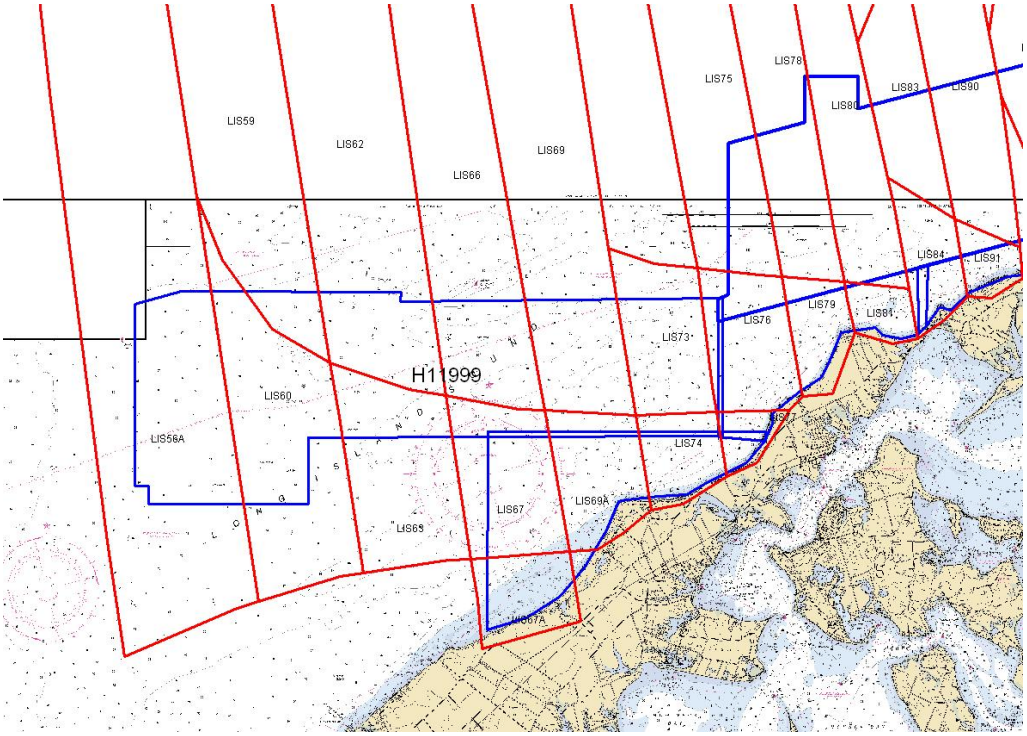


Figure B-4 Final Tide Zoning

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

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. ***Concur.***

B 4. DATA PROCESSING

B 4.1 Total Propagated Error

For the 2008 field season, Total Propagated Error (TPE) parameters for sound speed and tides were calculated separately for each project. The project-specific parameters for OPR-B370-TJ-08, Survey H11999 are as follows:

TPE Parameters

Vessel	Tide Values		Sound Speed Values	
	Measured	Zoning	Measured	Surface
S222	0.00	0.19	1	0.2
3101	0.00	0.19	4	0.2
3102	0.00	0.19	4	0.2

Table B-1: TPE Parameters

These values were calculated for all MBES data immediately following CARIS Merge.
****Filed with original field records***

B 4.2 BASE Surfaces and Mosaics

The following table describes all BASE Surfaces and Mosaics submitted as part of Survey H11999:

Name of Surfaces and/or Mosaics	***Resolution***	***Type***	***Purpose***
H11999_100SSS_Mosiac	0.5 meter	SSS Mosaic	Side Scan Coverage
H11999_1_Cube_deep_2m_Final 2.0	meter	CUBE	Sounding Coverage
H11999_2_Cube_deep_2m_Final 2.0	meter	CUBE	Sounding Coverage
H11999_Cube_Shal_50cm_Final.hns 0.5	meter CUBE		Depth Threshold
H11999_Combined_2m	2.0 meter	Combined	For Pydro, not a deliverable

Table B-2: Compiled Fieldsheets

This survey was processed using the Combined Uncertainty and Bathymetry Estimator (CUBE) algorithm. The CUBE configuration was set to "Deep" for this entire survey and IHO order 1 was chosen***, except for the 50cm surfaces which used the "Shallow" parameter to meet object detection requirements***. The surface H11999_Cube_Shal_50cm_Final.hns was finalized using CARIS BASE Editor 2.1 due to the large amount of data at 50cm resolution. Refer to the 2008 Data Acquisition and Processing Report***, 2007 Field Procedures Manual, and CARIS HIPS/SIPS 6.1 manual for further discussion. ***Concur with clarification. Due to the large size of fieldsheet 3 (containing the 50cm surface), the surface was too large to be finalized in CARIS HIPS/SIPS. The fieldsheet was broken down into 4 smaller fieldsheets during office processing which were finalized in CARIS HIPS/SIPS as normal.***

C. VERTICAL AND HORIZONTAL CONTROL

As Per FPM section 5.2.3.2.3 guidance a HVCR report was not filed as no horizontal control stations were established by the field party for this survey. A summary of horizontal and vertical control for this survey follows. ***Concur.***

C 1.1 Horizontal Control

The horizontal datum for this project is the North American Datum of 1983 (NAD83), zone 18. Differential GPS (DGPS) was the sole method of positioning. Differential corrections from U.S. Coast Guard beacons at Acushnet, MA (306 kHz), and Moriches, NY (293 kHz), were used during this survey. ***Concur.***

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

****Filed with original field records***

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, Thames River, CT (8461490) and New Haven, New Haven Harbor CT (8465705) served as datum control for H11999. Final tides with final zoning were applied to all sounding data. ***Concur.***

A request for delivery of final approved (verified) tides for this survey was forwarded to N/OPS1 on 29 October 2008 in accordance with the FPM and project letter instructions. Final tide letter***** was received 10 November 2008 and preliminary zoning was accepted as final. ***Concur.***

D. RESULTS AND RECOMMENDATIONS

D.1 Chart Comparison

Survey H11999 was compared with charts 12358 (20th Ed.; April 2008, 1:40,000), 12354 (42nd Ed.; December 2006, 1:80,000), 12300 (47th Ed.; May 2008, 1:1,400,000), 13006 (34th Ed.; May 2007, 1:675,000), 5161 (13th Ed.; October 2003, 1:1,058,400), 13003 (49th Ed.; April 2007, 1:1,200,000), and ENC US4NY1GM Chart comparisons were performed in Pydro using survey-scale excessed soundings and also reviewed in MapInfo using soundings exported from Pydro.

D.1.2 Chart 12358 Comparison

In general the soundings agree within 3 feet. Where there are differences they tend to be deeper than the charted depths. In some cases more than a 10 foot difference exists. ***Concur with clarification, none of the areas with significant differences are significant with respect to navigation.***

D.1.3 Chart 12354 Comparison

In general the soundings agree within 3 feet. Where there are differences they tend to be deeper than the charted depths. In some cases more than a 10 foot difference exists. ***Concur with clarification, none of the areas with significant differences are significant with respect to navigation.***

D.1.6 Chart 12300 Comparison

None of the depths on chart 12300 fall within the survey limits of H11999. ***Concur.***

D.1.7 Chart 13006 Comparison

None of the depths on chart 13006 fall within the survey limits of H11999. ***Concur.***

****Filed with original field records***

D.1.8 Chart 5161 Comparison

None of the depths on chart 5161 fall within the survey limits of H11999. ***Concur.***

D.1.9 Chart 13003 Comparison

None of the depths on chart 13003 fall within the survey limits of H11999. ***Concur.***

D.1.10 ENC US4NY1GM

In general the soundings agree within 1 meter. Where there are differences they tend to be deeper than the charted depths. In some cases more than a 3 meter difference exists. ***Concur with clarification, none of the areas with significant differences are significant with respect to navigation.***

D.2 Additional Results

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

A total of three assigned AWOIS items were located within the limits of H11999 and investigated during this survey. AWOIS items were investigated with complete multibeam over the search radius. All AWOIS items are described in detail in Appendix II* of this report. ***Concur.***

D.2.4 Shoreline

There is no shoreline within the sheet limits of survey H11999. ***Concur.***

D.2.5 Charted Features

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

Description of Feature	*Charted Latitude*	*Charted Longitude*	*Least Depth*
Wreck 41°06’45.037”N		072°32’09.441”W	25.55 meters
Wreck 41°08’36.456”N		072°25’56.813”W	30.85 meters
Sandwaves 41°08’44.010”N		072°28’26.736”W	36.28 meters
Sandwaves 41°08’17.034”N		072°30’16.419”W	33.78 meters
Sandwaves 41°07’19.969”N		072°32’12.984”W	26.40 meters
Sandwaves 41°06’31.878”N		072°33’30.622”W	25.76 meters

Table D-1: Charted Features

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

Filed with original field records

D.2.6 Charted Pipelines and Cables

One charted cable crosses the survey area. The cable is not visible in the multibeam data. The hydrographer has no recommendations regarding the cable. ***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 H11999. ***Concur.***

D 3.2 Shoals

There is a shoal in the vicinity of 41°06'46.938"N, 072°26'33.613"W. Many of the ***current*** soundings are up to a meter deeper than the charted depths in that area. ***Concur.***

D.4 Aids to Navigation

There are no charted Aids to Navigation (ATON) within the limits of H11999. ***Concur.***

D.5 Coast Pilot Information

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

D.6 Bottom Samples

A total of four bottom samples were acquired. A list of all bottom samples is contained in ~~Appendix V~~ ***Separates I****. ***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***

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 H11999 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:

Title	Date Sent	Office
Data Acquisition and Processing Report Spring-Addendem-2008	4 Feb 09	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 13:36:58 Z

LT Jasper Schaer, NOAA
Field Operations Officer

2009.02.27 16:29:06 Z

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:

jasper.schaer
I am the author of this document
2009.03.02 13:44:02 Z

Kimberly Glomb
Survey Technician, NOAA

Appendix I

Dangers to Navigation

There are no dangers to navigation.

Appendix II

Survey Features Report

1. Charted Features
2. AWOIS Items

H11999 Features Report

Registry Number: H11999

State: New York

Locality: Eastern Long Island Sound

Sub-locality: 5 NM North of Duck Pond Point

Project Number: OPR-B370-TJ-08

Survey Dates: 10/03/2008 - 10/09/2008

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
12358	20th	04/01/2008	1:40,000 (12358_1)	NGA NTM: None (06/07/2008) USCG LNM: None (06/03/2008) CHS NTM: None (04/25/2008)
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	101ft Wreck	Wreck	30.93 m	41° 08' 36.5" N	072° 25' 56.8" W	---
2.1	AWOIS #1800 SOUNDING Disproved	AWOIS	[no data]	[no data]	[no data]	---
2.2	Retain As Charted - AWOIS #3342	AWOIS	[no data]	[no data]	[no data]	---
2.3	AWOIS #3341 - 82ft Wreck	Wreck	25.17 m	41° 06' 45.3" N	072° 32' 09.5" W	3341

1 - Charted Features

1.1) 101ft Wreck

Survey Summary

Survey Position:	41° 08' 36.5" N, 072° 25' 56.8" W
Least Depth:	30.93 m (= 101.49 ft = 16.914 fm = 16 fm 5.49 ft)
TPU (±1.96σ):	**THU (TPEh)** ±1.002 m ; **TVU (TPEv)** ±0.783 m
Timestamp:	2008-283.18:28:22.294 (10/09/2008)
Survey Line:	h11999 / tj_s222_reson7125_port / 2008-283 / 314_1731
Profile/Beam:	12035/117
Charts Affected:	12358_1, 12354_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

Charted wreck found with Reson 7125 multibeam.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11999/tj_s222_reson7125_port/2008-283/314_1731	12035/117	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 1:non-dangerous wreck
	OBJNAM - 101ft Wreck
	QUASOU - 6:least depth known
	SORDAT - 20081029
	SORIND - US,US,nsurf,H11999
	STATUS - 1:permanent
	TECSOU - 3:found by multi-beam
	VALSOU - 30.933 m
	VERDAT - 12:Mean lower low water
	WATLEV - 3:always under water/submerged

Office Notes

Modify LD on charted 95ft wk to 101ft wk.

Feature Images

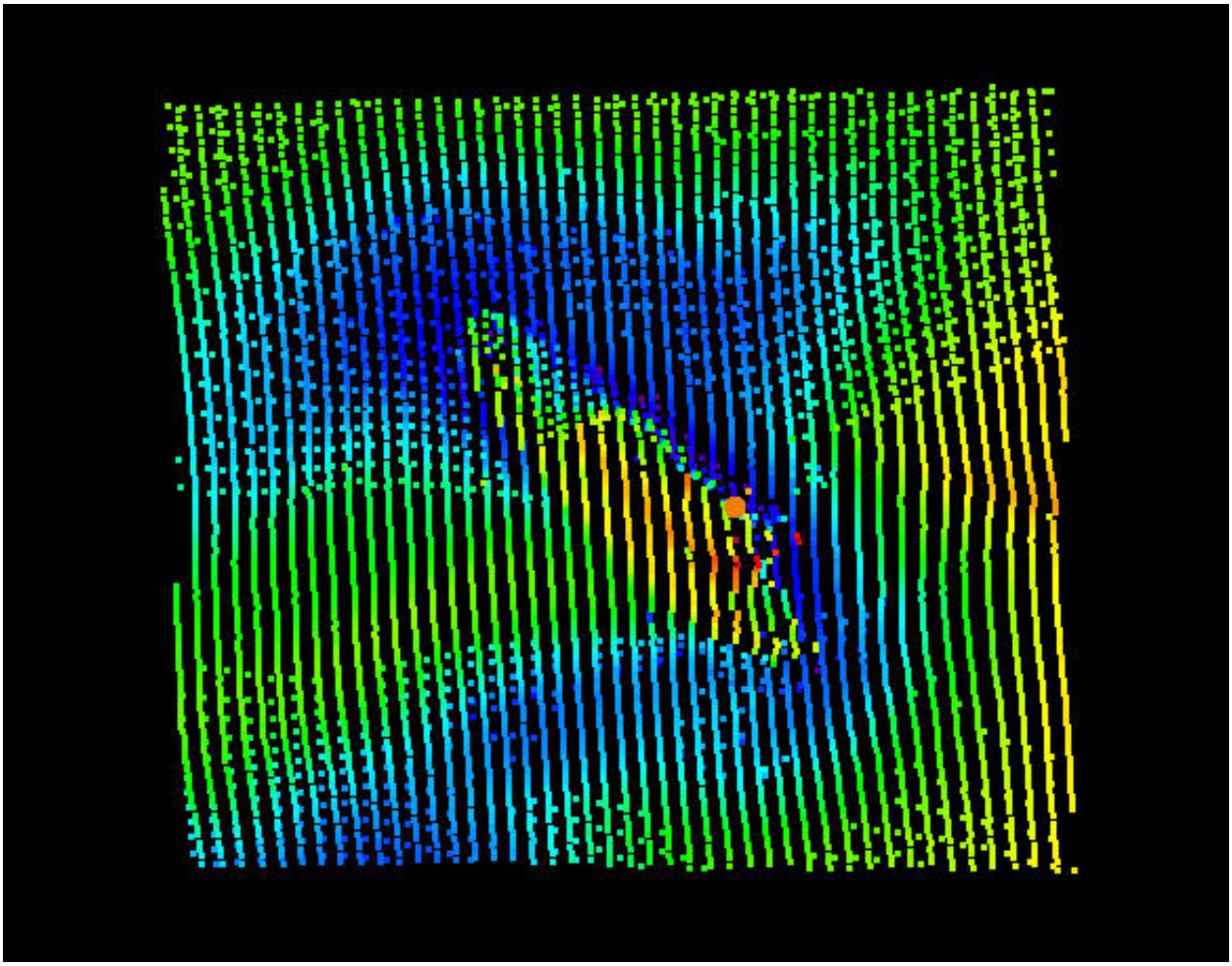


Figure 1.1.1

2 - AWOIS Features

2.1) AWOIS #1800 - AWOIS #1800 SOUNDING Disproved

No Primary Survey Feature for this AWOIS Item

Search Position: 41° 08' 06.3" N, 072° 35' 16.3" W

Historical Depth: 16.46 m

Search Radius: 0

Search Technique: S2,MB

Technique Notes: [None]

History Notes:

H9089/69--BS; SURVEY NOT PROCESSED; BS SHOWS INTENSIFIED DEVELOPMENT, FURTHER WORK MAY BE REQUIRED TO ESTABLISH DEPTHS LESS THAN 54 FT.

Survey Summary

Charts Affected: 12358_1, 12354_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

No specific feature was found in this area.

Feature Correlation

Address	Feature	Range	Azimuth	Status
AWOIS_B370-TJ-08	AWOIS # 1800	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

[None]

Office Notes

There is no currently charted item in this location. No shoaling below 54feet is evident. AWOIS item considered disproved - no further investigation recommended.

2.2) AWOIS #3342 - Retain As Charted - AWOIS #3342

No Primary Survey Feature for this AWOIS Item

Search Position: 41° 05' 24.3" N, 072° 35' 40.3" W

Historical Depth: [None]

Search Radius: 250

Search Technique: S2,MB

Technique Notes: [None]

History Notes:

MAR--11/83, OPR-B660-RU/HE; SHOALING AREA OF SAND WAVES LOCATED IN LAT.41-05-33.5N, LONG.72-35-51.3W. LD DETERMINED IS 69.7 FT (PREDICTED TIDES). (ENTERED, 2/84, RWD). ■ CL1130/83--SAME DATA AS ABOVE. (ENTERED 4/84 RWD). ■ FE322WD--OPR-B660-RU/HE-83-84; 69 FT. DEPTH WAS NOT VERIFIED SINCE INSUFFICIENT SOUNDING CORRECTORS WERE DETERMINED FOR ECHO SOUNDINGS; HYDROGRAPHY OBTAINED BY THIS SURVEY IS CONSIDERED ONLY RECONNAISSANCE; HUNG ON SAND WAVE IN LAT 41-05-24N, LONG 72-35-42W AT 72 FT.; CLEARED BY 70 FT; HANG IS NOT RECOMMENDED FOR CHARTING; EVALUATOR RECOMMENDED DELETING THE CHARTED 69 FT. SHOAL AND ADD THE PICTORAL SAND WAVE SYMBOL TO THE CHART IN THE VICINITY OF THE PRESENT SURVEY. (UPDATED MSM 5/89)

Survey Summary

Charts Affected: 12358_1, 12354_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

Due to time constraints the area where this AWOIS item is located was not surveyed.

Feature Correlation

Address	Feature	Range	Azimuth	Status
AWOIS_B370-TJ-08	AWOIS # 3342	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

[None]

Office Notes

Concur. Retain as charted.

2.3) AWOIS #3341 - 82ft Wreck

Primary Feature for AWOIS Item #3341

Search Position:	41° 06' 45.8" N, 072° 32' 09.3" W
Historical Depth:	21.64 m
Search Radius:	100
Search Technique:	S2,MB
Technique Notes:	[None]

History Notes:

S-B600-RU -- 71-FOOT WIRE DRAG DEPTH OVER AN UNKNOWN SHIPWRECK. IT IS UNCLEAR WHETHER THE ITEM WAS PROVED OR DISPROVED. ■■STORY■ MAR--1/84, OPR-B660-RU/HE-83; NON-DANGEROUS SUBM. WK. CLEARED BY WD, EFFECTIVE DEPTH 72FT BASED ON PREDICTED TIDES IN LAT.41-06-45.44N,LONG.72-32-10.92W. RECOMMENDS CHARTING NON-DANGEROUS SUBM. WK.■ CL212/84--SAME DATA AS ABOVE. (ENTERED, 2/84, RWD).■ FE322WD--OPR-B660-RU/HE-83-84; WRECK LOCATED BY SIDE SCANSONAR IN LAT 41-06-45.45N, LONG 72-32-11.01W; NOT DIVER INVESTIGATED OR IDENTIFIED; ECHO SOUNDER DEVELOPMENT YIELDED A GOOD POSITION AND A SHOALEST DEPTH OF 81 FT.(NOT CORRECTED FOR VELOCITY OR INSTRUMENT ERROR); WIRE DRAG CLEARED IN OPPOSITE DIRECTIONS BY 71 FT.; NOT CONSIDERED A HAZARD TO NAVIGATION; EVALUATOR RECOMMENDED CHARTING A 71 FT. SOUNDING, BASKET, AND TYPE WK. (UPDATED MSM 5/89)■■ DESCRIPTION■ 206 LORAN C RATES: 9960-W 14915.9, 9960-Y 43946.6. (ENTERED MSM 3/89)

Survey Summary

Survey Position:	41° 06' 45.3" N, 072° 32' 09.5" W
Least Depth:	25.17 m (= 82.59 ft = 13.765 fm = 13 fm 4.59 ft)
TPU (±1.96σ):	**THU (TPEh)** ±1.023 m ; **TVU (TPEv)** ±0.766 m
Timestamp:	2008-277.03:46:49.448 (10/03/2008)
Survey Line:	h11999 / tj_s222_reson7125_port / 2008-277 / 364_0326
Profile/Beam:	1853/256
Charts Affected:	12358_1, 12354_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

AWOIS item #3341 was investigated with complete Reson 7125 multibeam. The wreck was found.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11999/tj_s222_reson7125_port/2008-277/364_0326	1853/256	0.00	000.0	Primary

h11999/tj_s222_reson7125_port/2008-277/364_0326	1851/246	7.32	351.5	Secondary (grouped)
AWOIS_B370-TJ-08	AWOIS # 3341	16.77	192.7	Secondary

Hydrographer Recommendations

[None]

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes:

CATWRK - 1:non-dangerous wreck

OBJNAM - 82ft Wreck

QUASOU - 6:least depth known

SORDAT - 20081029

SORIND - US,US,nsurf,H11999

STATUS - 1:permanent

TECSOU - 3:found by multi-beam

VALSOU - 25.174 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur. Retain 82ft wk as charted.

Feature Images

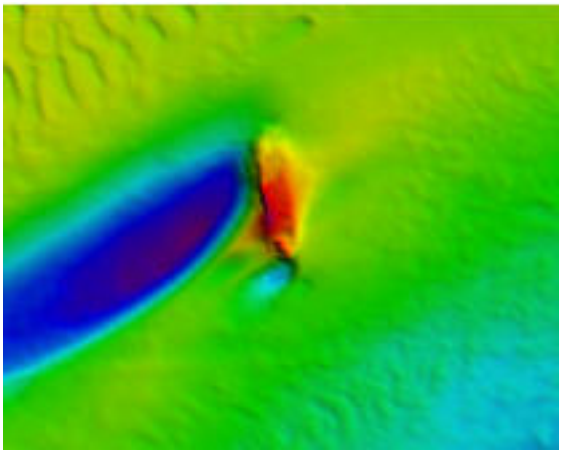


Figure 2.3.1

Appendix III

Progress Sketch

Appendix IV

Tides and Water Levels

1. Tide Notes

-N/A

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

October 29, 2008

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 zoning in MapInfo and .MIX format
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-08
Registry No.:	H11999
State:	New York
Locality:	Eastern Long Island Sound
Sublocality:	5 NM North of Duck Pond Point

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
2008_276	12:31:23	23:52:15
2008_277	00:00:11	23:50:49
2008_278	00:05:20	11:26:58
2008_281	13:20:06	21:14:18
2008_282	14:32:18	21:40:16
2008_283	11:58:01	21:29:04
2008_287	15:43:02	21:16:23
2008_288	13:59:31	15:11:30
2008_295	13:08:05	20:21:08
2008_296	12:51:46	21:47:13
2008_297	19:12:21	21:22:46
2008_298	14:18:15	19:16:40
2008_299	20:19:35	23:59:58
2008_300	00:00:02	21:31:37
2008_301	12:37:34	21:32:15
2008_302	12:33:38	22:42:11

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : November 10, 2008

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: OPR-B370-TJ-2008
HYDROGRAPHIC SHEET: H11999

LOCALITY: 5 NM North of Duck Pond Point, Long Island Sound, NY
TIME PERIOD: October 2 - 28, 2008

TIDE STATION USED: 846-1490 New London, CT
Lat. 41° 21.3' N Long. 72° 5.2' 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° 17.0' 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 ZONING

Preliminary zoning is accepted as the final zoning for project OPR-B370-TJ-2008

Please use the zoning file "B370TJ2008CORP" submitted with the project instructions for B370TJ2008. Zones LIS56A, LIS59, LIS60, LIS62, LIS63, LIS66, LIS67, LIS69, LIS69A, LIS73, LIS74, LIS75, LIS76, & LIS77. are the applicable zones for H11398.

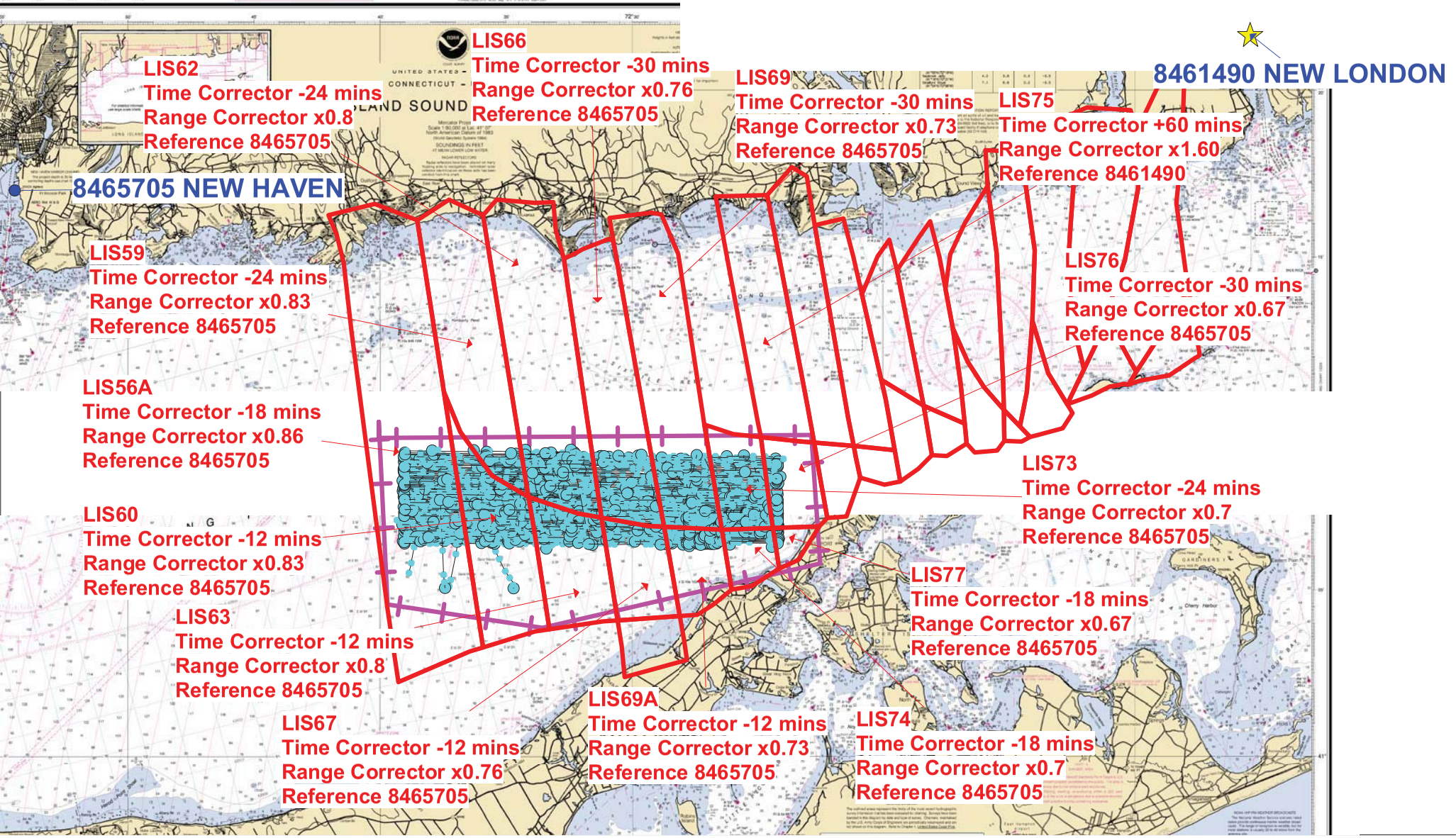
Note 1: Provided time series data are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time on the 1983-2001 National Tidal Datum Epoch (NTDE).

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: 2008.11.17 12:56:27 -05'00'

CHIEF, OCEANOGRAPHIC DIVISION

Preliminary As Final Tidal Zoning
for OPR-B370-TJ-2008, H11999
Eastern Long Island Sound, NY



Appendix V

Supplemental Survey Records & Correspondence

Subject: Re: [Fwd: Tide zoning issues on two TJ's survey projects]
From: Carolyn Lindley <Carolyn.Lindley@noaa.gov>
Date: Mon, 20 Oct 2008 15:18:18 -0400
To: jasper schaer <jasper.schaer@noaa.gov>
CC: NOS.COOPS.HPT@noaa.gov, "james.m.crocker" <James.M.Crocker@noaa.gov>, tod schattgen <Tod.Schattgen@noaa.gov>

Hi Jasper,
The TPE value is the 95% value.
Thanks,
Carolyn

jasper schaer wrote:
> Our data analysis has revealed that we are at IHO-2, if we use the 0.38 TPE value for B370. Is this tpe value, 0.38m, a 1-sigma or 95% value?
>
> thanks-js
>
> jasper schaer wrote:
>
> > Thanks, Craig for your quick response. -js
> >
> > Craig Martin wrote:
> >
> > > Jeremy / Jasper,
> > >
> > > In response to your email on two of TJ's survey projects:
> > >
> > > 1) The error estimate that should be used for the tides portion of the TPE on the B370 project is 0.38 meters.
> > >
> > > 2) Generally, no revision to preliminary tide zones is conducted, unless the mission is drastically beyond the scope of the original project submitted to CO-OPS. Short overages outside of the preliminary zoning is addressed and covered in the Smooth Tide process. We have not received a request for smooth tides for any B370 sheets to date. Once HPT receives these requests we will adjust the zoning and send back to the ship for application.
> > >
> > > 3) Due to total lack of tide information inside Menemsha Pond, CO-OPS is unable to provide reliable tide correctors to meet OCS specs beyond the southern border of Edy's Island. The TCARI grid was adjusted to the point where information could be confidentially extrapolated to meet these standards. This was annotated in the "Notes" section on the Final Tide note for the H-11920 in which the data was collected. In addition, CO-OPS informed HSD of this lack of tide information when the data was collected.
> > >
> > > Regards,
> > > Craig
> > >
> > > Jeremy McHugh wrote:
> > >
> > > > Hi HPT,
> > > > Could you please address each of Jasper's three concerns and copy everyone on the reply. Thanks!
> > > > Jeremy
> > > >
> > > > -------- Original Message --------
> > > > Subject: Tide zoning issues on two TJ's survey projects
> > > > Date: Sat, 27 Sep 2008 16:39:25 -0400
> > > > From: jasper schaer <jasper.schaer@noaa.gov>
> > > > Organization: NOAA-TJ
> > > > To: Smooth.Tides@noaa.gov

CC: Jeremy McHugh <Jeremy.McHugh@noaa.gov>
References: <ae8627f11e4ab567.48db6d84@noaa.gov>
<48DBB8BE.3000703@noaa.gov> <48DBC7AE.9080302@noaa.gov>
<48DBDC75.9000507@noaa.gov> <48DBF32E.10601@noaa.gov>
<ad3413f430b07cf.48dcb168@noaa.gov> <48DD051E.6050609@noaa.gov>
<48DD1459.2010202@noaa.gov>

Tide zoning issues on B370 & B307.

1. We were looking for the error estimates to apply to our TPE on B370. There were none given in the tide letter part of the project instruction because at the time it was being determined. If we apply zero, we run the risk of data dropping out in our grid surfaces. We need error estimate for our discreet zoning for B370 or at the very least a high.

2. TJ 's launches survey to the 4m curve and at times we acquire data outside the preliminary tide zone in getting to the 4 m curve. This is the case for B370. Will need a revision for discreet tide zoning for B370. What do you need from us?

3. Data from survey B307 was collected in Menemsha Pond, an area that was not original planned, hence why the B307's tcari files were revised. When we try to apply the verified WL data to the TCARI file, we encounter a host of problems, see attached.

r-js

--
Jeremy McHugh, Physical Scientist
NOAA's Office of Coast Survey
301-713-2702 x117

Carolyn Lindley <Carolyn.Lindley@noaa.gov>
Oceanographer
NOAA/National Ocean Service
CO-OPS

Subject: [Fwd: OPR-B370-TJ-08]
From: "jasper schaer" <jasper.schaer@noaa.gov>
Date: Mon, 22 Sep 2008 16:15:20 -0400
To: "kimberly.glomb" <kimberly.glomb@noaa.gov>
CC: daniel wright <daniel.wright@noaa.gov>, tod schattgen <tod.schattgen@noaa.gov>, matthew.vanhoy@noaa.gov

```
Here you go......-foo
```

Subject: OPR-B370-TJ-08
From: Paul.Turner@noaa.gov
Date: Mon, 22 Sep 2008 15:58:51 -0400
To: "FOO.Thomas.Jefferson@noaa.gov" <FOO.Thomas.Jefferson@noaa.gov>, jasper.schaer@noaa.gov
CC: "james.m.crocker" <James.M.Crocker@noaa.gov>, Jeremy McHugh <Jeremy.McHugh@noaa.gov>

```
Hi Jasper-

The registry number for Sheet K, 5 NM North of Duck Pond Point for OPR-B370-TJ-08 has been
assigned with registry number H11999.

Paul Turner
```

LT.Jasper Schaer <jasper.schaer@noaa.gov>
Operations Officer
SHIP THOMAS JEFFERSON
NOAA

OPR-B370-TJ-08	**Content-Type:** message/rfc822 **Content-Encoding:** 7bit

Subject: Re: for the Appendix V record, OPR-B307, H11920 & H11921
From: "shep.smith" <smith.shepard@gmail.com>
Date: Sat, 26 Jul 2008 14:26:28 -0400
To: jasper schaer <jasper.schaer@noaa.gov>

Sounds like a good approach.

jasper schaer wrote:

> Sir,
>
> Will AHB accept object detection MB coverage, in place of complete MB coverage, in the 4-20 meter survey area of the project, which already been covered by 100% SSS?
>
> V/r-js

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

REGISTRY No.	***H11999***
PROJECT No.	***OPR-B370-TJ-08***
FIELD UNIT	***THOMAS JEFFERSON***
PRE-COMPILER	***WES DUKES***
LARGEST SCALE CHART	***12358, 20th Ed, 20080401***
CHART SCALE	1:***40000***
SURVEY SCALE	1:***10000***
DATE OF SURVEY	***2 October to 29 October 2008***
CONTENT REVIEW DATE	***28 July 2009***

Components	File Names
Product Surface	***H11999_10k_100mrad_8mres.hns***
Interpolated TIN	***H11999_6m_InterpTIN.hns***
Shifted Surface	***H11999_6m_InterpTIN_Shifted.hns***
Contour Layer	***H11999_Contour_rrv.hob***
Survey Scale Soundings	***H11999_SS_Soundings.hob***
Chart Scale Soundings	***H11999_CS_Soundings.hob***
Feature Layer	***H11999_Features.hob***
Meta-Objects Layer	***H11999_MetaObjects.hob***
Blue Notes	***H11999_BlueNotes.hob***

SPECIFICATIONS:

I. COMBINED SURFACE:
   a. File name: ***H11999_AHB_2m_Combined.hns***
   b. Resolution: ***2m***
   c. Final Grid Location: ***H:\COMPILATION\H11999_B370_TJ\AHB_H11999\COMPILE\GRIDS***

II. PRODUCT SURFACE (SOUNDINGS):
   a. Scale: 1: ***10000***
   b. Radius: ***100 m***
   c. Resolution: ***8m***

   d. Depth
      i. Minimum: ***8.87*** m
      ii. Maximum: ***50.62*** m

   PRODUCT SURFACE (CONTOURS):
   a. Scale: 1:***10000***
   b. Radius: ***100*** m
   c. Resolution: ***8*** m

III. SHIFTED SURFACE:
   Single Shift Value:_____ *[**-0.229m (feet),** (≤ 10 fathoms)]*
   [-1.372m (fathoms), (> 10 fathoms)]

IV. CONTOUR LAYER:
   a. Use a Depth List: ***H11999_NOAA_depth_curves_list.txt***

Depth List:

b. Output Options:
   i. Create contour lines:
      1. Line Object: DEPCNT
      2. Value Attribute: VALDCO

V. SOUNDING SELECTION:

a. Selection Criteria:
   i. Radius
   ii. Shoal biased
   iii. Use Single-Defined Radius: ___ distance on ground (m)
   iv. Filter: Generalized !=1

VI. FEATURES:

a. Brought in from Survey
   Total No. 2
b. Brought in from ENC
   Total No. 0

VII. META-OBJECTS:

a. M_COVR attributes

Acronym	Value
SORDAT	***20081029***
CATCOV	***1***
SORIND	***US,US,survy,H11999***

b. M_QUAL attributes

Acronym	Value
CATZOC	***U***
INFORM	***H11999,OPR-B370-TJ-08,TJ***
POSACC	***10***
SORDAT	***20081029***
SORIND	***US,US,survy,H11999***
SUREND	***20081029***
SURSTA	***20081002***
TECSOU	***Multi-beam***

c. DEPARE attributes

Acronym	Value
DRVALV 1	***8.8720m***
DRVALV2	***49.4050m***
SORDAT	***20081029***
SORIND	***US,US,survy,H11999***

d. M_CSCL attributes

Acronym	Value
CSCALE	***80000***
SORDAT	***20081029***
SORIND	***US,US,survy,H11999***

VIII. NOTES:

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT to ACCOMPANY
SURVEY H11999 (2008)

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

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 5.1 SP1 Build 743
CARIS HOM version 3.3 SP3 HF1-8
CARIS S57 Composer version 2.1

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 1/2m and 2m grids, combined at a 2m resolution, then using them to create a product surface grid with a resolution of 8m. The survey scale selected soundings were extracted from the 8m product surface. A TIN was created from the survey scale selected soundings. 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 curves were created from a 6m interpolated surface grid. The depth curves are forwarded to MCD for reference only. The curves were utilized during chart scale sounding selection and quality assurances efforts at AHB. The depth curves are incorporated into the SS H-Cell product 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), 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 (H11999_CS.000), and one that contains the sounding selection and depth contours (H11999_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.

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

H11999 CARIS H-Cell final deliverables include the following products:

H11999_CS.000	1:40,000 Scale	H11999 H-Cell with Chart Scale Selected Soundings
H11999_SS.000	1:10,000 Scale	H11999 Selected Soundings (Survey Scale)

D. RESULTS AND RECOMMENDATIONS

D.1 CHART COMPARISON

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

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. 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 (US4NY1GM). 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.

b. AWOIS Item #3341, 82ft Wreck located at 41-06-45.3N 72-32-09.5W was located by the survey and determined to be correctly charted. It is recommended that this feature be retained as charted.

c. The charted 95ft Wreck located at 41-08-36.5N 72-25-56.8W was found by the survey to have a least depth of 30.93m. It is recommended to update the chart with a 101ft Wreck at this position.

D.2. ADDITIONAL RESULTS

An unknown vertical offset was apparent in a number of lines amounting to approximately 1m as compared to neighboring lines. The cause is unknown and could therefore not be corrected. Some lines were removed in order to create a more accurate model of the sea floor in the survey area. The removal 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
H11999

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.

_____

Wes Dukes
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.

Richard T. Brennan
I am approving this document
2009.09.16 17:51:11 -04'00'

Approved: _____

LCDR Rick Brennan
NOAA
Chief, Atlantic Hydrographic Branch

Jeremy McHugh
AWOIS/SURF Check
Completed
2009.09.23 10:45:22 -04'00'