H12526

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Ocean Survey

DESCRIPTIVE REPORT

Type of Survey:	Navigable Area
Registry Number:	H12526

LOCALITY

State(s):	New York
General Locality:	New York, NY
Sub-locality:	6 NM South of Jones Inlet

2013

CHIEF OF PARTY
CAPT Lawrence T. Krepp, NOAA

LIBRARY & ARCHIVES

Date:

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:
HYDROGRAPHIC TITLE SHEET	**H12526**

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(s):	**New York**
General Locality:	**New York, NY**
Sub-Locality:	**6 NM South of Jones Inlet**
Scale:	**40000**
Dates of Survey:	**05/18/2013 to 05/28/2013**
Instructions Dated:	**02/25/2013**
Project Number:	**OPR-B310-TJ-13**
Field Unit:	**NOAA Ship *Thomas Jefferson***
Chief of Party:	**CAPT Lawrence T. Krepp, NOAA**
Soundings by:	**Multibeam Echo Sounder**
Imagery by:	
Verification by:	**Atlantic Hydrographic Branch**
Soundings Acquired in:	**meters at Mean Lower Low Water**

Remarks:

The purpose of this survey is to provide contemporary surveys to update National Ocean Service (NOS) nautical charts. All separates are filed with the hydrographic data. Any revisions to the Descriptive Report (DR) generated during office processing are shown in bold red italic text. The processing branch maintains the DR as a field unit product, therefore, all information and recommendations within the body of the DR are considered preliminary unless otherwise noted. The final disposition of surveyed features is represented in the OCS nautical chart update products. All pertinent records for this survey, including the DR, are archived at the National Geophysical Data Center (NGDC) and can be retrieved via http://www.ngdc.noaa.gov/.

Table of Contents

List of Tables

List of Figures

Descriptive Report to Accompany Survey H12526

Project: OPR-B310-TJ-13

Locality: New York, NY

Sublocality: 6 NM South of Jones Inlet

Scale: 1:40000

May 2013 - May 2013

NOAA Ship *Thomas Jefferson*

Chief of Party: CAPT Lawrence T. Krepp, NOAA

A. Area Surveyed

This survey was conducted in New York, approximately six nautical miles south of Jones Inlet.

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
40° 30" 20.16' N 73° 39" 55.08' W	40° 26" 25.8' N 73° 28" 33.6' W

Table 1: Survey Limits

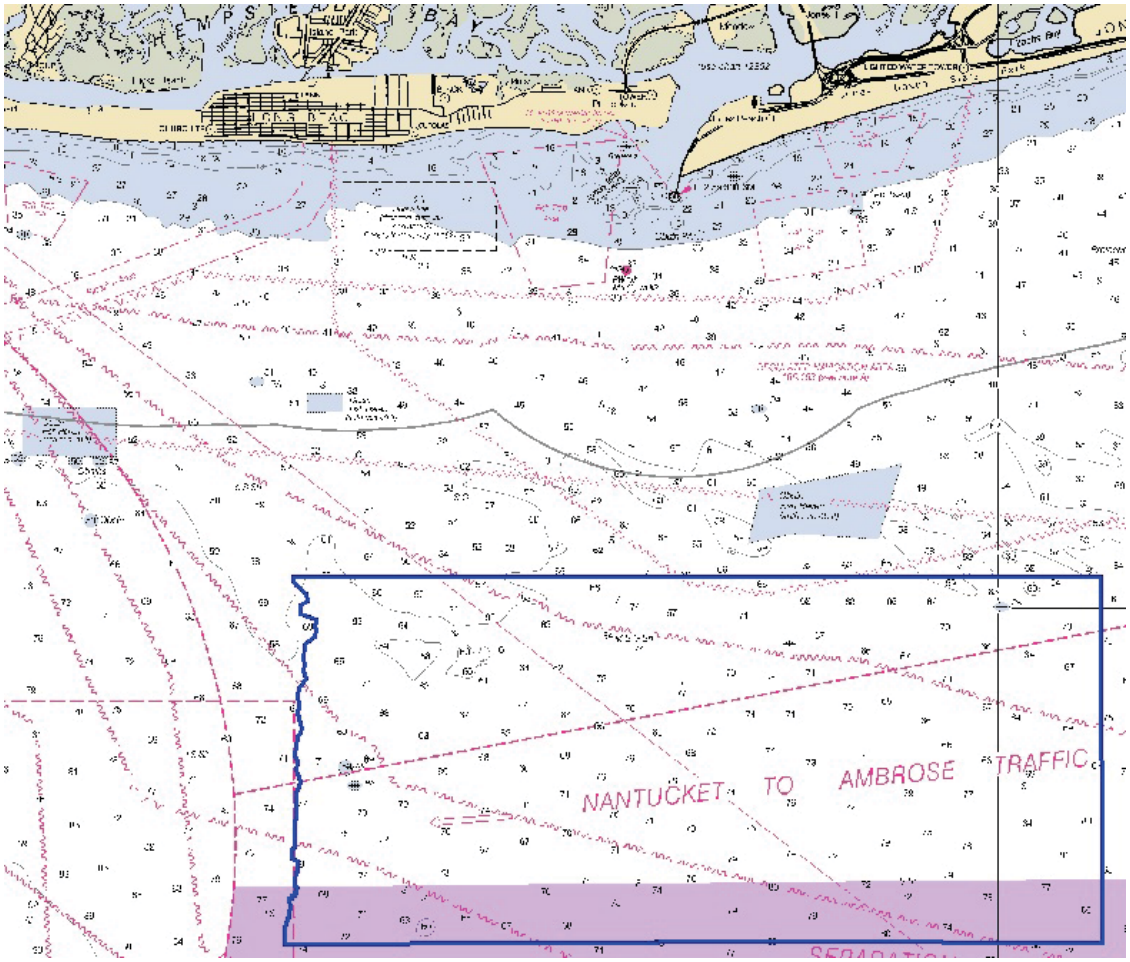


Figure 1: H12526 Survey Limits

The sheet limits were extended by about 150 meters on the west side in order to overlap with junction H12158.

A.2 Survey Purpose

The purpose of this project is to provide contemporary surveys to update National Ocean Service (NOS) nautical charting products.

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

A.4 Survey Coverage

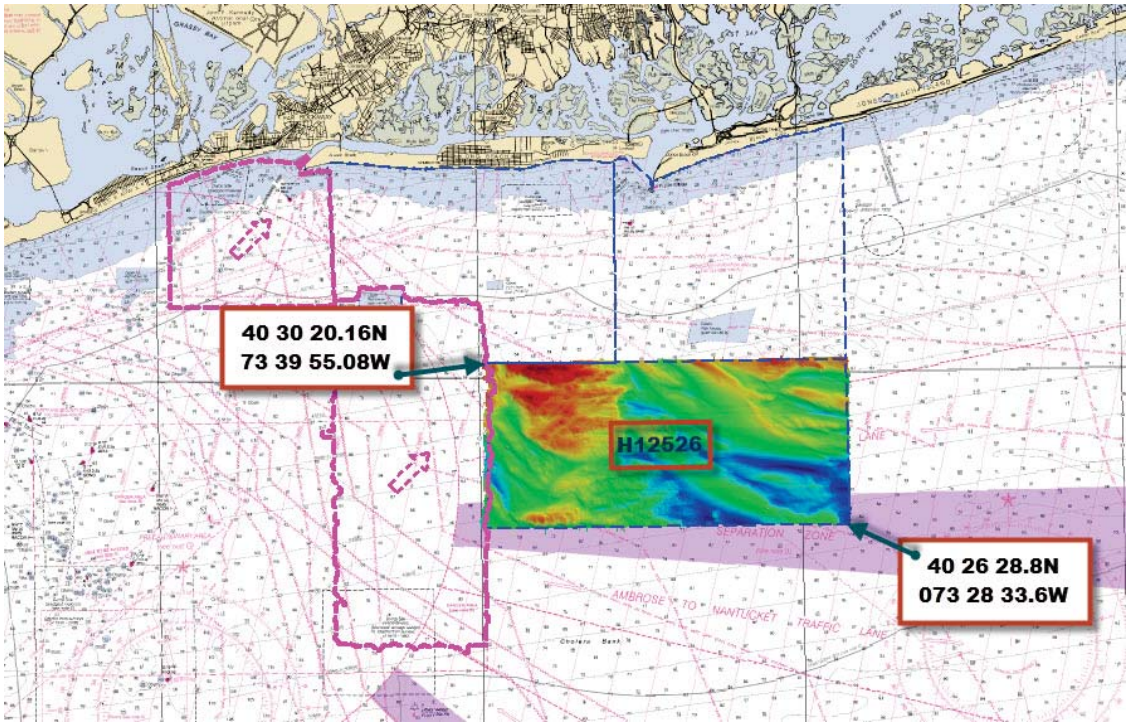


Figure 2: Survey H12526 Within the Project Area

Survey Coverage was in accordance with the requirements in the Project Instructions and the HSSD.

A.5 Survey Statistics

The following table lists the mainscheme and crossline acquisition mileage for this survey:

	HULL ID	*S222*	*3101*	*Total*
LNM	**SBES Mainscheme**	0	0	0
	MBES Mainscheme	1292.6	20.85	1313.4
	Lidar Mainscheme	0	0	0
	SSS Mainscheme	0	0	0
	SBES/MBES Combo Mainscheme	0	0	0
	SBES/SSS Combo Mainscheme	0	0	0
	MBES/SSS Combo Mainscheme	0	0	0
	SBES/MBES Combo Crosslines	51.55	0	51.55
	Lidar Crosslines	0	0	0
Number of Bottom Samples				4
Number AWOIS Items Investigated				3
Number Maritime Boundary Points Investigated				0
Number of DPs				4
Number of Items Items Investigated by Dive Ops				0
Total Number of SNM				33

Table 2: Hydrographic Survey Statistics

The following table lists the specific dates of data acquisition for this survey:

Survey Dates	Julian Day Number
05/18/2013	138
05/19/2013	139
05/20/2013	140
05/21/2013	141
05/22/2013	142
05/23/2013	143
05/24/2013	144
05/25/2013	145
05/26/2013	146
05/27/2013	147
05/28/2013	148

Table 3: Dates of Hydrography

B. Data Acquisition and Processing

B.1 Equipment and Vessels

Refer to the Data Acquisition and Processing Report (DAPR) for a complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods. Additional information to supplement sounding and survey data, and any deviations from the DAPR are discussed in the following sections.

B.1.1 Vessels

The following vessels were used for data acquisition during this survey:

Hull ID	*S222*	*3101*
LOA	208 feet	31 feet
Draft	15 feet	5.2 feet

Table 4: Vessels Used

Data were acquired by NOAA Ship Thomas Jefferson and Hydrographic Survey Launch 3101. NOAA Ship Thomas Jefferson acquired Reson 7125 multibeam echosounder soundings, sound velocity profiles, and bottom samples. Launch 3101 acquired Reson 7125 echosounder soundings, and sound velocity profiles.

B.1.2 Equipment

The following major systems were used for data acquisition during this survey:

Manufacturer	Model	Type
Applanix	POS/MV	Positioning and Attitude System
Seabird	Seacat 19+	Sound Speed System
Brook Ocean Technology	MVP 100	Sound Speed System
Reson	7125 ROV	MBES
Reson	7125 SV1	MBES

Table 5: Major Systems Used

B.2 Quality Control

B.2.1 Crosslines

Crosslines, acquired for this survey, totalled 3.9% of mainscheme acquisition.

The Thomas Jefferson collected 51.55 lineal nautical miles of multibeam echosounder (MBES) crosslines, equating to 3.9% of mainscheam MBES data. All crosslines were filtered 45° to either side of nadir in order to remove the effects of outerbeam refraction and a beam processing artifact. A 4 meter CUBE surface was created using only mainscheme lines, while a second 4 meter CUBE surface was created using only crosslines.A difference surface was then created using CARIS BathyData Base, and statistics on the depth differences were calculated. The mean was 0.125m and the standard deviation was 0.09m. Survey H12526 complies with section 5.2.4.3 of the HSSD (2013 ed).

For a full discussion of the outerbeam refraction and beam processing error, see section B.2.5 of this report.

B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

Measured	Zoning
0 meters	0.08 meters
0 meters	0.102 meters

Table 6: Survey Specific Tide TPU Values

Hull ID	Measured - CTD	Measured - MVP	Surface
S222	4 meters/second	1 meters/second	0.2 meters/second
3101	4 meters/second	N/A meters/second	0.2 meters/second

Table 7: Survey Specific Sound Speed TPU Values

The method used to calculate Total Propagated Uncertainty values for survey H12526 varied based on the process used to apply water level values to the data. The first method was applied to data reduced to MLLW using a POSPac IAPPK 3D positional solution and a VDatum separation mode. For this data, realtime uncertainty values for roll, pitch, gyro, navigation, and elevation were supplied via a SBET RMS file generated by Applanix POSPac. The remaining sources of uncertainty were a combination of: field assigned values for sound speed uncertainties; Operations Branch assigned values for VDatum separation model uncertainty; and a priori values for sonar mounting and vessel speed based on Appendix 4, table 4.9 of the NOAA Field Procedures Manual (ed 2013). Field assigned values for sound speed are in Table 6 above, Operations Branch assigned values for the VDatum model are in row 2 of Table 6.

The second method used to calculate Total Propagated Uncertainty was applied to data reduced to MLLW via zoned tides. This data again used a POSPac IAPPK 3D positional solution, but used a zoned tide grid to reduce the data to MLLW. Uncertainties for this data also used an SBET RMS file for realtime pitch, roll, gyro, navigation, and elevation uncertainties, as well as a priori values for sonar mounting and vessel speed. However, uncertainties for tide gauge measurement, tidal datum computation error, and tidal zoning error were provided by the Center for Operational Oceanographic Products and Services (CO-OPS). CO-OPS assigned values for tidal uncertainty are in row 1 of Table 6.

Additionally, 6 lines of MB data did not have any correlating POSPac RMS error data, making application of real time uncertainties for roll, pitch, gyro, navigation, and elevation impossible. These lines used solely a priori values set by Appendix 4 table 4.9 of the NOAA Field Procedures Manual (ed 2013) to calculate uncertainties for roll, pitch, gyro, and navigation to calculate uncertainty. For a listing of lines, see section B.5.3 of this report.

Total Propagated Uncertainties for the entire survey were evaluated to ensure compliance with section 5.1.3 of NOAA's HSSD (ed 2013). First the maximum allowable uncertainty for each node was calculated using the equation: -Uncertainty/(0.5^2 +((Depth*0.013)^2)^0.5). Second the ratio between the actual uncertainty

and maximum allowed uncertainty was found for each node. The resulting 'IHO_Order1' layer was filtered using a colour map to show any areas where the ratio exceeded -1.0, indicating the surface failed to meet IHO Order 1 standards. The results showed IHO uncertainty values were exceeded along the edges of certain MB swaths. For a full discussion see section B.2.5 of this report.

B.2.3 Junctions

Three junction comparisons were completed for survey H12569. Junctioning surveys H12525 and H12527 were acquired concurrently with this survey. Survey 12158 was completed in 2009 by NOAA Ship Thomas Jefferson. Depth comparisons were performed in CARIS BathyData BASE using difference surfaces. Statistics were performed on each difference surface created.

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H12158	1:10000	2009	NOAA Ship THOMAS JEFFERSON	W
H12525	1:10000	2013	NOAA Ship THOMAS JEFFERSON	NW
H12527	1:10000	2013	NOAA Ship THOMAS JEFFERSON	NE

Table 8: Junctioning Surveys

H12158

The difference between survey H12526 and H12158 ranged from -1.50m to 0.66m. The mean was -0.02m and the standard deviation was 0.143m. Out of 313,036 nodes, 3 have a meter of more of disagreement and 99.9% are within 1 meter. The fliers are on the outer edges of H12158.

H12525

The difference between survey H12526 and H12525 ranged from -0.36m to 0.25m. The mean was 0.005m and the standard deviation was 0.071m. Out of 68,363 nodes, 1 has a meter of more of disagreement and 99.9% are within 1 meter. There is about 80 meters of overlap between the junctions.

H12527

The difference between survey H12526 and H12527 ranged from -0.53m to 0.52m. The mean was -0.125m and the standard deviation was 0.13m. Out of 100,570 of nodes, 1 has a meter of more of disagreement and 99.9% are within 1 meter. There is about 50-70 meters of overlap between the junctions.

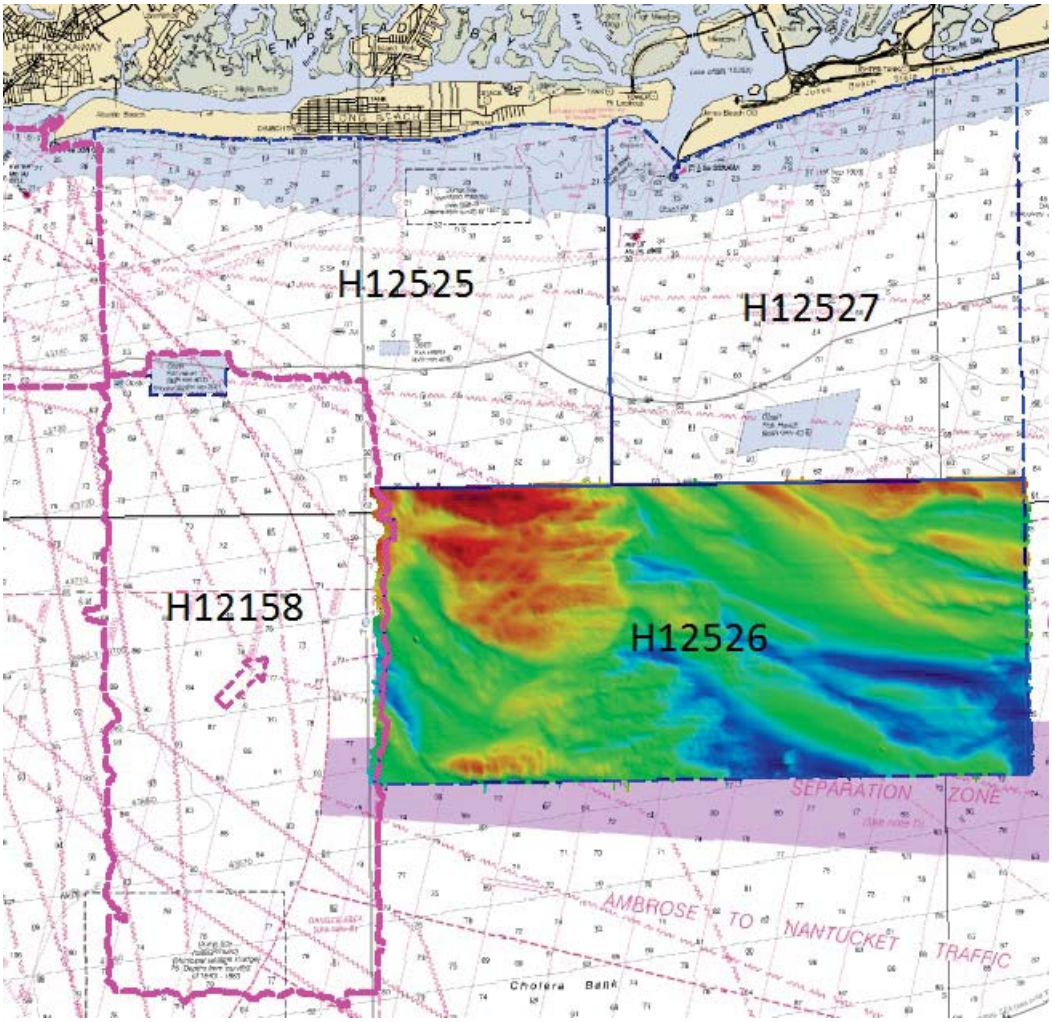


Figure 3: Survey H12526 with Junction Locations

B.2.4 Sonar QC Checks

Sonar system quality control checks were conducted as detailed in the quality control section of the DAPR.

B.2.5 Equipment Effectiveness

During post processing, the hydrographer noted vertical offsets in the 50cm and 2m CUBE surfaces. Examination of the associated MB data revealed that the vertical jumps stemmed from three distinct causes:

1. Errors due to sound velocity: A refraction artifact appears in the MB data collected by S222 RESON 7125 for H12526. The refraction error appears as either upward or downward bowing of the MB swath, which has caused vertical jumps in the CUBE reference surface as well as a striping effect in the standard deviation child layer. After discovery of the refraction problems, sound speed values were evaluated, using a python script named Cast Time, and compared to sound speed values recorded at the face of the vessel's RESON 7125-ROV transducer against sound speed profiles collected by the MVP. The red lines on graph (see figure

4) shows points where the difference between the sensors exceeded 2m/s. The field unit cannot say which sensor caused the error.

2. Errors due to beam formation: An artifact of unconfirmed cause appears in the MB data collected by S222 Reson 7125. The artifact has two distinct characteristics; the first appears as a sharp upward or downward spike on the starboard edge of the MB swath (see figure 6), the second appears as an elongated 'S' shape across the swath (see figure 5). The field unit has encountered the 'S' shape in previous projects, and has historically attributed the artifact to an error in the 7125's sectoring and beam steering algorithm. The outerbeam spike has not been observed before, but the periodic appearance across several different projects leads the field to believe it also stems from a systemic error in the 7125's beam formation. Both types of beam forming errors have caused vertical jumps in the CUBE surface.

3. Errors due to an ERS anomaly: Finally, an artifact due to errors in the vertical element of IAPPK positional solutions applied to the MB data acquired by S222's Reson 7125. Application of GPS Tides caused some MB data to jump above or fall below the general trend of the CUBE surface (see figure 7). Though portions of the MB data were reverted to zoned tides, IAPPK solutions is seen as superior method and some level of vertical jump were allowed.

In many instances, the vertical offset seen in the CUBE surface was the result of two or more errors in combination (see figure 8). The errors due to ERS tide were the most common, and caused the largest vertical errors. Select portions of the MB data was reverted to zoned tides, however water level derived from IAPPK heights are seen as superior method and some level of vertical error was accepted in order to retain the IAPPK height solutions. The general amount of vertical offset seen in the CUBE surfaces was 0.20m. The largest error seen was 0.62m, at 40°30' 09.45"N 073° 30' 12.47"W. The errors do not cause spikes in a shoal biased sounding set, however the survey does contain nodes that exceed IHO Order 1 uncertainty values. The exceptions occur primarily when the outerbeams of a vertically offset MB swath overlaps a swath with no vertical offset (see figure 9)

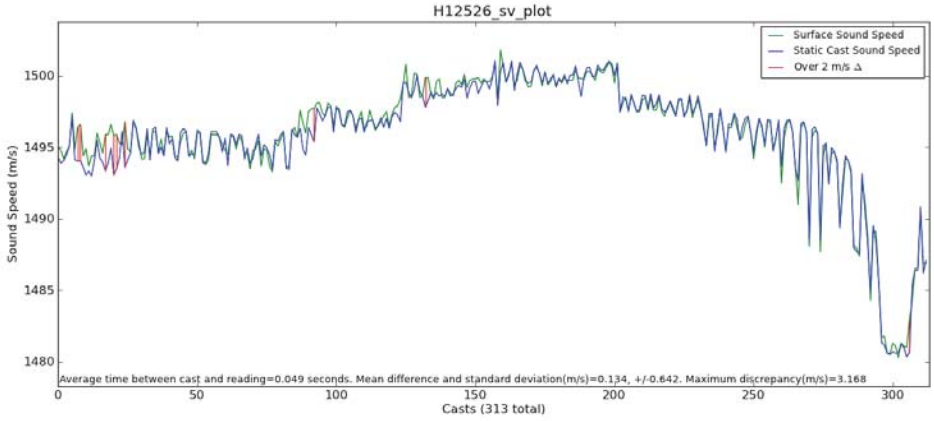


Figure 4: Plot shows sound speed at the face of the transducer vs the speed of sound at the same depth point collected from MVP cast. The red line shows difference > 2m between the two sound speed methods.

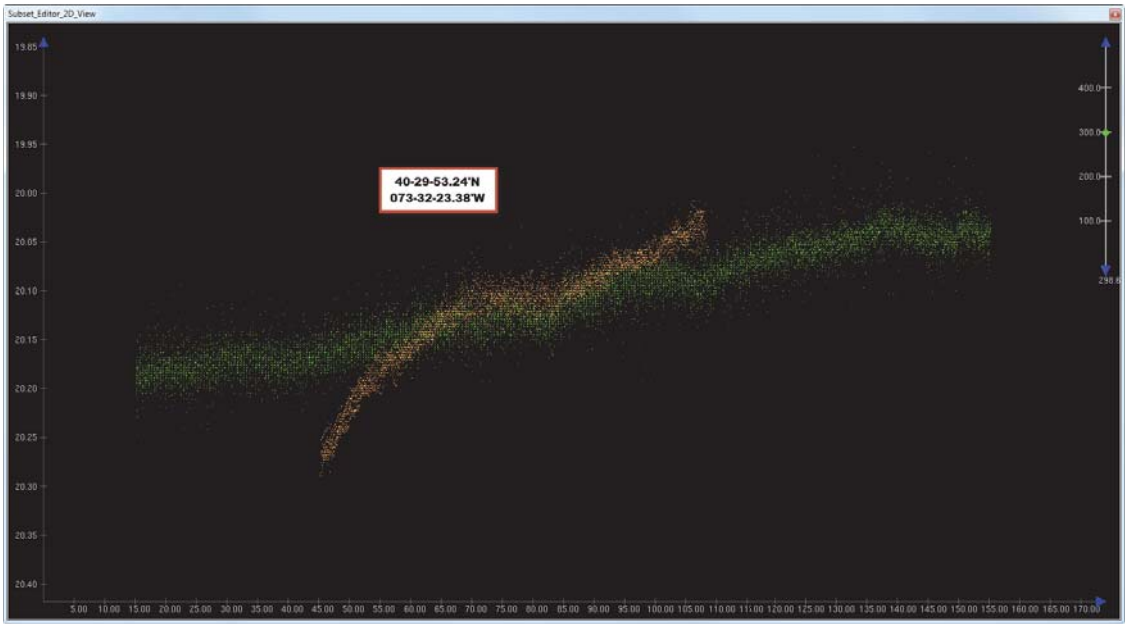


Figure 5: Example of beam formation error showing S-shaped error

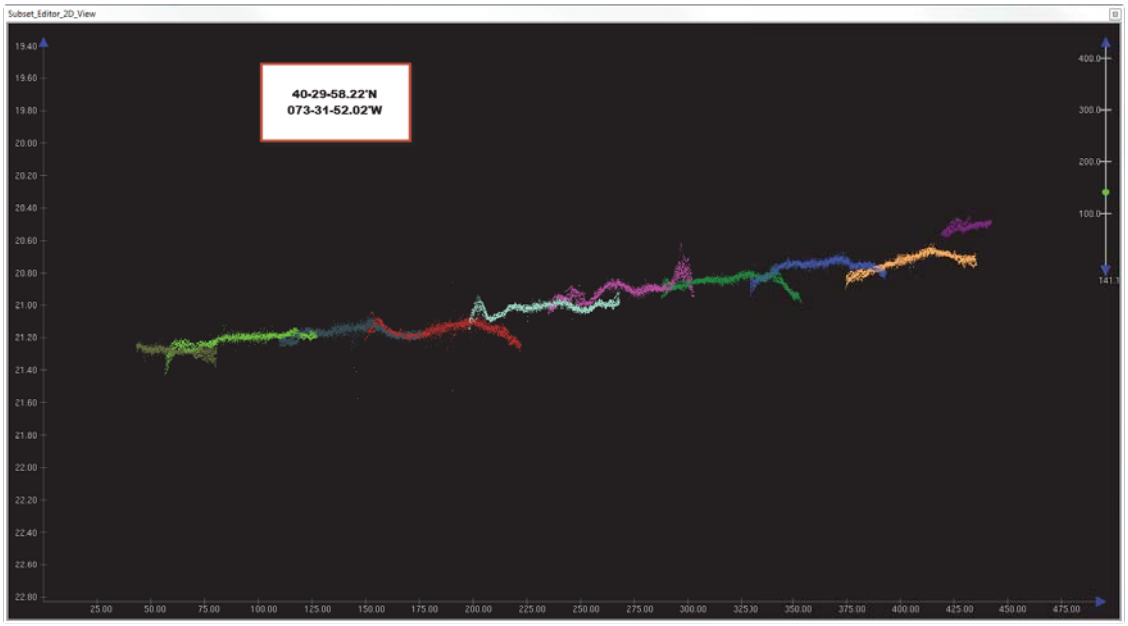


Figure 6: Example of beam formation showing downward spike on starboard side of swath.

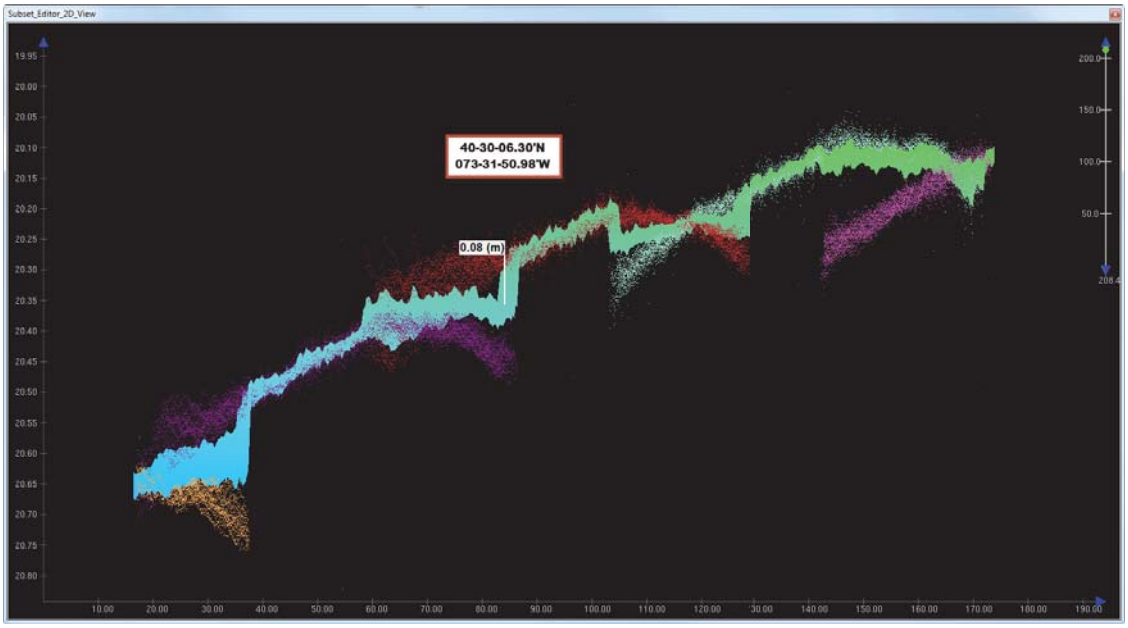


Figure 7: Vertical offset in the Caris CUBE surface due to ERS anomaly.

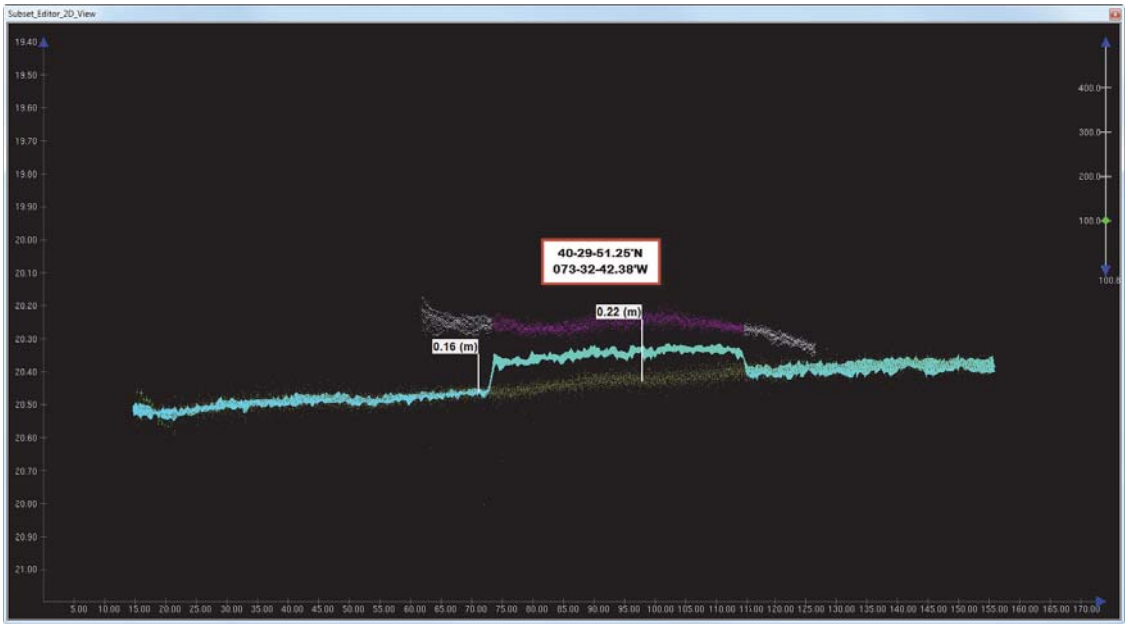


Figure 8: Example of combined errors. In this case, the ERS vertical offset in conjunction with the s-shaped beam formation error.

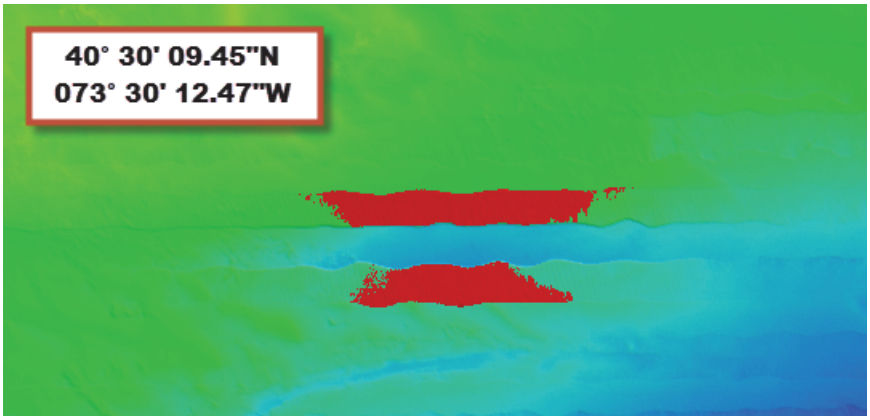


Figure 9: An area that exceeds IHO mandated uncertainty values. The nodes exceeding IHO Order1 have been filtered to appear red. This example occured when a swath of MB data with a downward vertical bias overlaped the unbiased lines to the north and south.

B.2.6 Factors Affecting Soundings

There were no other factors that affected corrections to soundings.

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: Moving vessel profiler (MVP) casts were taken by the ship approximately every 30 to 40 minutes. CTDs were taken by launch 3101 about every 4 hours.

No sound speed zoning was required for this survey. During post processing, a sound velocity artifact was observed. It is believed the error is the result of a failure in one of S222's sound velocity sensors, and cannot be removed via sound velocity zoning. For further discussion of sound velocity artifacts, see point 3 in section B.2.5 above.

B.2.8 Coverage Equipment and Methods

All equipment and survey methods were used as detailed in the DAPR.

B.2.9 H12526 Density Compliance

Each finalized surface was filtered from 0 to 4. These were selected to get the number of soundings that did not meet density. The number of soundings for the entire data set was found by using the compute statistics function in Caris BASE Editor. Density is met 99% of the time for the 2 meter grid. The 0.5 meter grid meets density 82% of the time. This is below the 95% density requirement. The survey line plan was created based on the 2012 Specifications and Deliverables, which had the object detection requirement set for 0-20 meters of water depth. The 2013 Specifications and Deliverables is dated April 2013 and changes the object detection depth to 0-22 meters of water. The Start date of this survey was 18 May 2013.

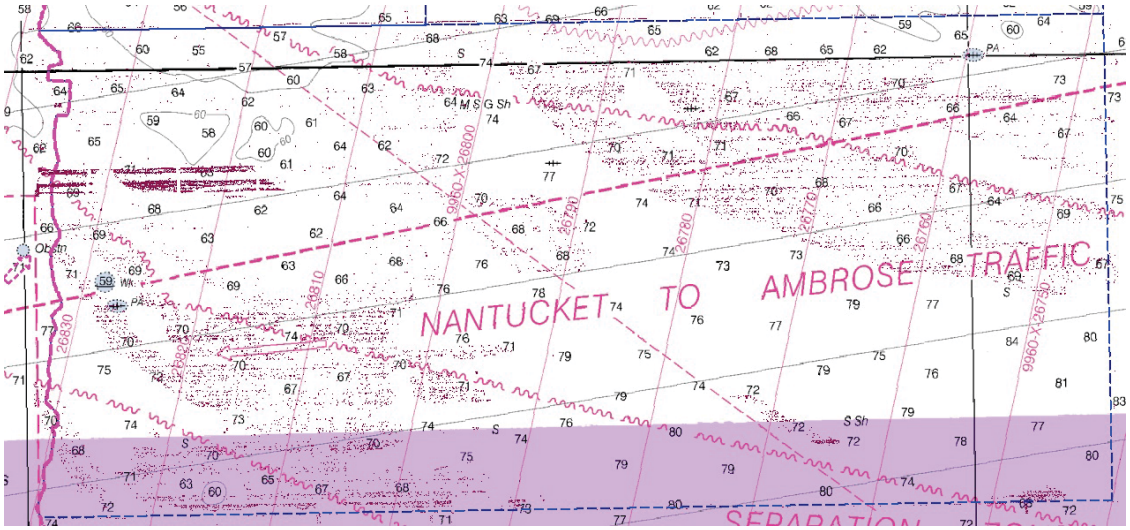


Figure 10: H12526 Areas That Did Not Meet Density

B.3 Echo Sounding Corrections

B.3.1 Corrections to Echo Soundings

All data reduction procedures conform to those detailed in the DAPR.

B.3.2 Calibrations

The following calibrations were conducted after the initial system calibration discussed in the DAPR:

Calibration Type	Date	Reason
Timing Error	2013-05-22	A timing error was observed. A corrector of -0.3 seconds was applied, then removed from the HVF.

Table 9: Calibrations not discussed in the DAPR.

On DN142 a brief timing error was observed in data collected by S222. A corrector was added to the vessel's Caris HVF file.

B.4 Backscatter

Backscatter was logged as a 7k file and submitted to the Atlantic Hydrographic Branch for processing. One line per vessel, per day was processed aboard the Thomas Jefferson in order to assess and ensure quality. No deficencies were noted.

B.5 Data Processing

B.5.1 Software Updates

There were no software configuration changes after the DAPR was submitted.

The following Feature Object Catalog was used: NOAAProfileField Version 5.3.2

B.5.2 Surfaces

The following surfaces and/or BAGs were submitted to the Processing Branch:

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H12526_50cm_MLLW_Final	CUBE	0.5 meters	17.27 meters - 22.00 meters	NOAA_0.5m	Object Detection
H12526_2m_MLLW_Final	CUBE	2 meters	18.00 meters - 26.32 meters	NOAA_2m	Complete MBES
H12526_Combined_2m_Final	CUBE	2 meters	17.27 meters - 26.32 meters	NOAA_2m	Complete MBES

Table 10: Submitted Surfaces

B.5.3 Lines without associated POS data

Two lines collected by S222 lack associated POS data. As a result, True Heave could not be loaded, nor could SBET or RMS error files be created. An additional 4 lines collected by HSL 3101 have no RMS error data. See below for a listing of lines:

3101, DN 148: lines 066_1534, 300_1332, 310_1417 have not RMS error data;

3101, DN 148: line 362_1701 has no RMS data;
S222, DN 143: line 143_432_1841 has no True Heave, SBET, or RMS data;
S222, DN 147: line 147_325_0337 has no True Heave, SBET, or RMS data.

C. Vertical and Horizontal Control

Additional information discussing the vertical or horizontal control for this survey can be found in the accompanying HVCR.

C.1 Vertical Control

The vertical datum for this project is Mean Lower Low Water.

Standard Vertical Control Methods Used:

Discrete Zoning

The following National Water Level Observation Network (NWLON) stations served as datum control for this survey:

Station Name	Station ID
Sandy Hook, NJ	853-1680

Table 11: NWLON Tide Stations

File Name	Status
8531680.tid	Final Approved

Table 12: Water Level Files (.tid)

File Name	Status
B310TJ2013CORP.zdf	Final

Table 13: Tide Correctors (.zdf or .tc)

A request for final approved tides was sent to N/OPS1 on 05/30/2013. The final tide note was received on 06/11/2013.

Preliminary zoning is accepted as final.

Non-Standard Vertical Control Methods Used:

VDatum

Ellipsoid to Chart Datum Separation File:

2013_B310_VDatum_Ellip_MLLW.xyz

C.2 Horizontal Control

The horizontal datum for this project is North American Datum of 1983 (NAD83).

The projection used for this project is 18 North.

The following PPK methods were used for horizontal control:

Smart Base

The following CORS Stations were used for horizontal control:

HVCR Site ID	Base Station ID
SHK5	SHK5
NYQN	NYQN
NYCI	NYCI
NYBR	NYBR
NJNT	NJNT
MOR6	MOR6
MOR7	MOR7
NJOC	NJOC

Table 14: CORS Base Stations

The following DGPS Stations were used for horizontal control:

DGPS Stations
Sandy Hook, NJ (286 kHz)

Table 15: USCG DGPS Stations

D. Results and Recommendations

D.1 Chart Comparison

A sounding plot of H12526 was created and compared to the charts and ENCs.

D.1.1 Raster Charts

The following are the largest scale raster charts, which cover the survey area:

Chart	Scale	Edition	Edition Date	LNM Date	NM Date
12326	1:80000	52	06/2013	05/21/2013	06/01/2013

Table 16: Largest Scale Raster Charts

12326

In general the soundings agree within 2 feet. There are some 60 foot contours in the north, south west, and east that have gone away or changed.

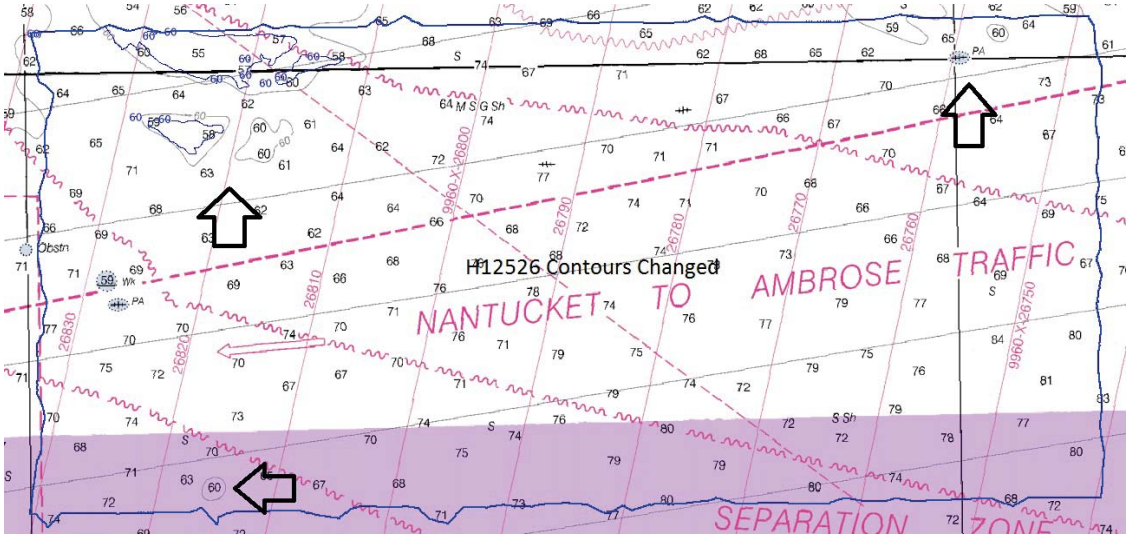


Figure 11: 60 Foot Contour Changes

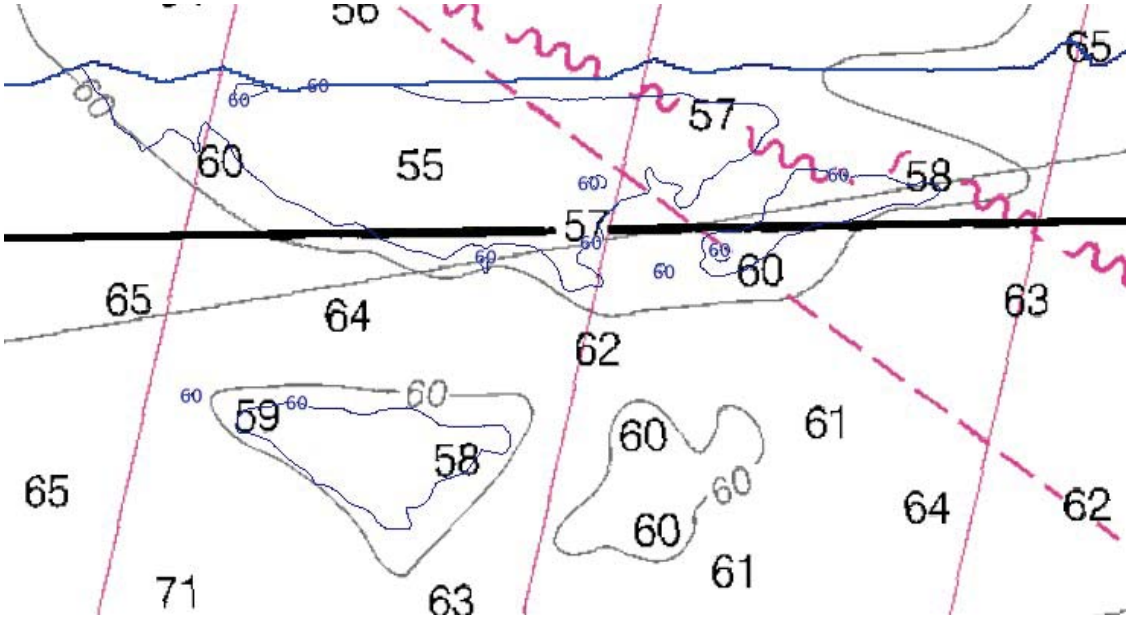


Figure 12: Northern 60 Foot Contour Change

D.1.2 Electronic Navigational Charts

The following are the largest scale ENCs, which cover the survey area:

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US4NY1AM	1:80000	26	NaN/NaN/NaN	03/07/2013	NO
US4NY1BM	1:80000	2	NaN/NaN/NaN	01/24/2013	NO

Table 17: Largest Scale ENCs

US4NY1AM

In general the soundings agree within 0.6 meters. There are some 18.2 meter contours in the north, south west, and east that have gone away or changed.

US4NY1BM

In general the soundings agree within 0.6 meters. There are some 18.2 meter contours in the north, south west, and east that have gone away or changed.

D.1.3 AWOIS Items

Three AWOIS items are present in the survey area. All three are addressed. Consult the H12526_FFF for information about AWOIS items in the survey area.

D.1.4 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.5 Charted Features

Two charted items are present. Consult the H12526_FFF for more information about the charted features in the survey area.

D.1.6 Uncharted Features

Eight uncharted features were found. Consult the H12526_FFF for more information about the uncharted features in the survey area.

D.1.7 Dangers to Navigation

No Danger to Navigation Reports were submitted for this survey.

D.1.8 Shoal and Hazardous Features

No shoals or potentially hazardous features exist for this survey.

D.1.9 Channels

This survey covers part of the Nantucket to Ambrose traffic lane. No controlling depths are provided for that area.

D.1.10 Bottom Samples

Consult the H12526_FFF for more information about the bottom samples acquired in the survey area.

D.2 Additional Results

D.2.1 Shoreline

No shoreline is present.

D.2.2 Prior Surveys

Comparisons were only made to the chart.

D.2.3 Aids to Navigation

No Aids to navigation (ATONs) exist for this survey.

D.2.4 Overhead Features

No overhead features exist for this survey.

D.2.5 Submarine Features

Four cables cross the survey area. These are not seen in the data and are assumed to be properly buried.

D.2.6 Ferry Routes and Terminals

No ferry routes or terminals exist for this survey.

D.2.7 Platforms

No platforms exist for this survey.

D.2.8 Significant Features

No significant features exist for this survey.

D.2.9 Construction and Dredging

No present or planned construction or dredging exist within the survey limits.

E. Approval Sheet

As Chief of Party, Field operations for this hydrographic survey were conducted under my direct supervision, with frequent personal checks of progress and adequacy. I have reviewed the attached survey data and reports.

All field sheets, this Descriptive Report, and all accompanying records and data are approved. All records are forwarded for final review and processing to the Processing Branch.

The survey data meets or exceeds requirements as set forth in the NOS Hydrographic Surveys and Specifications Deliverables Manual, Field Procedures Manual, Standing and Letter Instructions, and all HSD Technical Directives. These data are adequate to supersede charted data in their common areas. This survey is complete and no additional work is required with the exception of deficiencies noted in the Descriptive Report.

Approver Name	Approver Title	Approval Date	Signature
CDR James M. Crocker, NOAA	Commanding Officer	12/17/2013	Digitally signed by James Crocker DN: cn=James Crocker, o=CO, NOAA Ship Thomas Jefferson, ou=CDR/NOAA, email=james.m.crocker@noaa.gov, c=US Date: 2013.12.17 12:41:50 -05'00'
LT Megan Guberski, NOAA	Field Operations Officer	12/17/2013	
ST Kimberly Glomb	Sheet Manager	12/17/2013	

APPENDIX I

TIDE NOTE AND GRAPHICS

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : June 5, 2013

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: OPR-B310-TJ-2013
HYDROGRAPHIC SHEET: H12526

LOCALITY: 6NM South of Jones Inlet, New York, NY
TIME PERIOD: May 18 - May 28, 2013

TIDE STATION USED: 8531680 Sandy Hook, NJ
Lat.40° 28.01'N Long. 74° 0.56' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.492 meters

REMARKS: RECOMMENDED ZONING

Preliminary zoning is accepted as the final zoning for project OPR-B310-TJ-2013, H12526, during the time period between May 18 and May 28, 2013.

Please use the zoning file B310TJ2013CORP submitted with the project instructions for OPR-B310-TJ-2013, H12526. Zones SA3, SA4, SA12, SA13 and SA14 are the applicable zones for H12526.

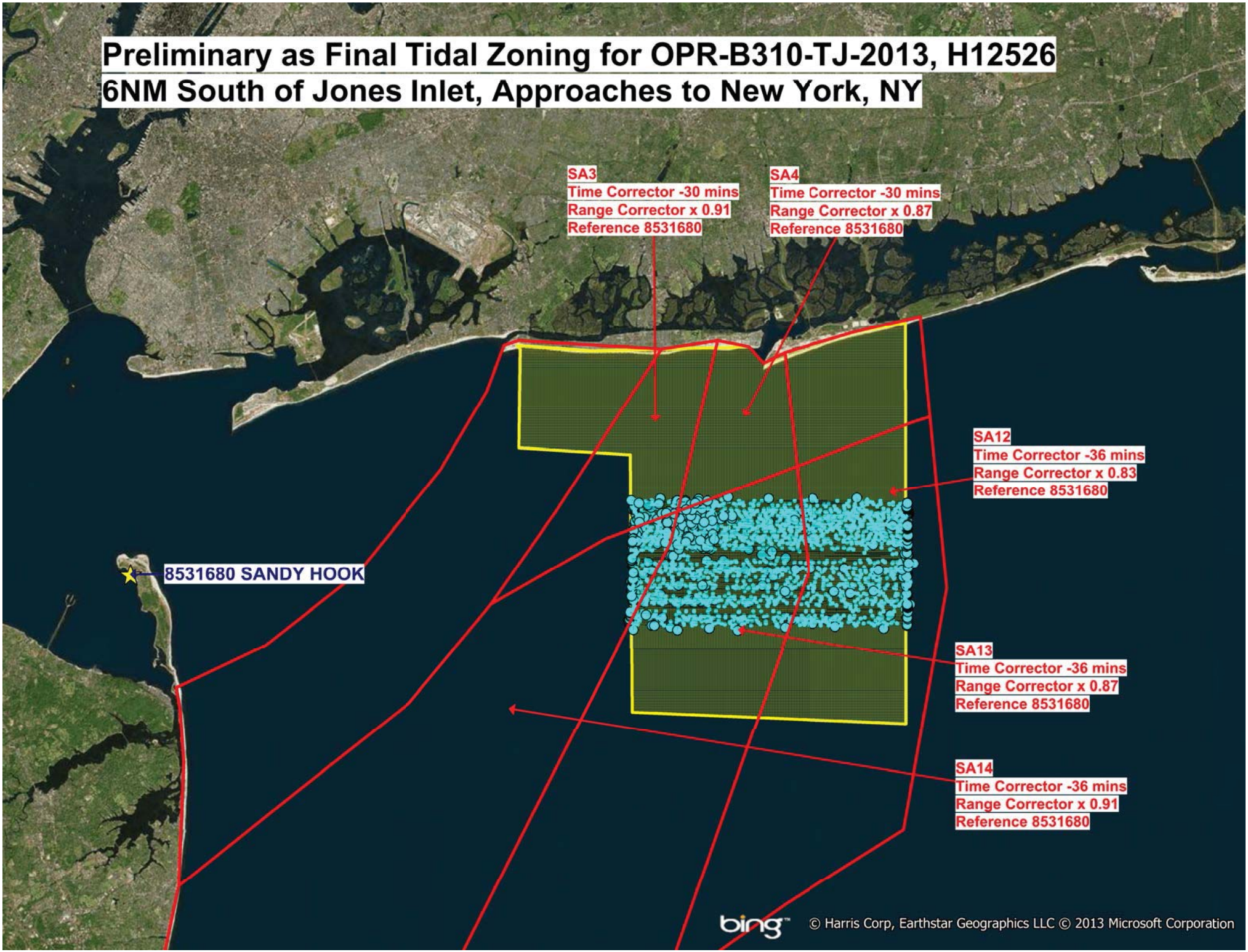
Refer to attachments for zoning information.

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

HOVIS.GERALD.THOMAS.1365860250

Digitally signed by HOVIS.GERALD.THOMAS.1365860250
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=OTHER, cn=HOVIS.GERALD.THOMAS.1365860250
Date: 2013.06.10 14:01:16 -04'00'

CHIEF, PRODUCTS AND SERVICES BRANCH


Preliminary as Final Tidal Zoning for OPR-B310-TJ-2013, H12526
6NM South of Jones Inlet, Approaches to New York, NY
SA3
Time Corrector -30 mins
Range Corrector x 0.91
Reference 8531680
SA4
Time Corrector -30 mins
Range Corrector x 0.87
Reference 8531680
SA12
Time Corrector -36 mins
Range Corrector x 0.83
Reference 8531680
8531680 SANDY HOOK
SA13
Time Corrector -36 mins
Range Corrector x 0.87
Reference 8531680
SA14
Time Corrector -36 mins
Range Corrector x 0.91
Reference 8531680
bing
© Harris Corp, Earthstar Geographics LLC © 2013 Microsoft Corporation

APPENDIX II

SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCE

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Coast Survey
Silver Spring, Maryland 20910-3282

November 14, 2014

MEMORANDUM FOR: CAPT James Crocker, NOAA
Commanding Officer, NOAA Ship *Thomas Jefferson*

FROM: Mike Brown
BROWN.MICHAEL.BLAZEK.1063656620
2014.11.19 09:22:34 -05'00'
Chief, Hydrographic Surveys Division

SUBJECT: Vertical Datum Transformation Technique,
OPR-B310-TJ-13, Approaches to New York, NY

Hydrographic survey H12526 is approved for vertical reduction to chart datum, Mean Lower Low Water (MLLW), using the NOAA Vertical Datum Transformation (VDatum) (http://vdatum.noaa.gov) derived separation (SEP) model provided on the project CD/DVD.

While an Interim Deliverable VDatum Validation memo was not formally submitted for survey H12526, approval of VDatum, in lieu of the NOAA Center for Operational Oceanographic Products and Services (CO-OPS) TCARI package as per the Project Instructions, is based on your recommendation, the previous approval for the adjacent survey H12527, and a preliminary review of the crossline statistics for survey H12526.

The results of the data analysis show that ellipsoidally referenced survey (ERS) techniques with VDatum used as the vertical datum reducer to MLLW in this area indicate an internal consistency of the survey data and produces final sounding values that meet or exceed horizontal and vertical specifications for hydrographic surveys.

You shall include a description of your ERS processing procedures and the comparisons you conducted between ERS and traditional tides in the appropriate Descriptive Report (DR), Horizontal and Vertical Control Report and/or Data Acquisition and Processing Report.

This memo and your memo, shall be included in the supplemental correspondence Appendix of the DR.

APPENDIX III

SURVEY FEATURES REPORT

DToNs - none
AWOIS - four
Wrecks - one
Maritime Boundaries - none

H12526_Features Report

Registry Number: H12526

State: New York

Locality: New York

Sub-locality: 6 NM South of Jones Inlet

Project Number: OPR-B310-TJ-13

Survey Date: 5/18/13 - 5/28/13

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
12326	52nd	06/01/2013	1:80,000 (12326_1)	USCG LNM: 2/17/2015 (3/3/2015) CHS NTM: None (2/27/2015) NGA NTM: 5/10/2003 (3/14/2015)
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 #1624	Wreck	19.75 m	40° 28' 19.4" N	073° 39' 09.3" W	AWOIS #1624
1.2	AWOIS #1630	GP	[None]	40° 29' 11.7" N	073° 34' 23.9" W	AWOIS #1630
1.3	AWOIS #1635	GP	[None]	40° 29' 37.2" N	073° 32' 55.5" W	AWOIS #1635
1.4	AWOIS #1637	GP	[None]	40° 30' 00.4" N	073° 29' 58.4" W	AWOIS #1637
2.1	Uncharted wreck 1	Wreck	21.00 m	40° 28' 56.1" N	073° 34' 38.2" W	---

1 - AWOIS Features

1.1) AWOIS #1624 - dangerous sunken wreck, least depth 64.81 feet

Feature for AWOIS Item #1624

Search Position: 40° 28' 19.4" N, 073° 39' 09.3" W

Historical Depth: 19.75 m 59 ft

Search Radius: [unknown]

Search Technique: [unknown]

Technique Notes:

History Notes: HISTORY FE221/78-79--OPR-C622; A-60 FT HANG WAS DIVER INVESTIGATED AND DETERMINED ì TO BE LIZZIE D, A CONVERTED FISHING BOAT, CLEARED TO 59 FT; VESSEL NOT ì DESCRIBED. DESCRIPTION 195 LORAN-C RATES HAVE BEEN PROVIDED BY MR. RICHARD TARACKA, GREENWICH, ì CT. POLICE DEPT., TEL. NO. 203-622-8020; 9960-X 26828.9, 9960-Y 43696.4.ì (ENTERED MSM 6/89)

Survey Summary

Survey Position: 40° 28' 19.4" N, 073° 39' 09.3" W

Least Depth: 19.75 m (= 64.81 ft = 10.802 fm = 10 fm 4.81 ft)

TPU (±1.96σ): **THU (TPEh)** [None] ;**TVU (TPEv)** [None]

Timestamp: 2013-148.00:00:00.000 (05/28/2013)

Dataset: H12526_Pydro Features.000

FOID: 0_ 0003092744 00001(FFFE002F31080001)

Charts Affected: 12326_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

WRECKS/remrks: Charted wreck found with Reson 7125 object detection multibeam. Soundings are corrected to MLLW with VDATUM solution.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12526_Pydro Features.000	0_ 0003092744 00001	0.00	000.0	Primary

Hydrographer Recommendations

Update charted wreck.

Cartographically-Rounded Depth (Affected Charts):

65ft (12326_1)

10 ¾fm (12300_1, 13006_1, 13003_1)

19.7m (5161_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	CONVIS - 2:not visual conspicuous
	EXPSOU - 1:within the range of depth of the surrounding depth area
	NINFOM - Add wreck
	QUASOU - 6:least depth known
	SORDAT - 20130528
	SORIND - US,US,graph,H12526
	TECSOU - 3:found by multi-beam
	VALSOU - 19.754 m
	WATLEV - 3:always under water/submerged

Office Notes

SAR: Ensonified with complete coverage MBES. Charted wreck was verified as per survey data. Defer the final charting disposition to AHB Compile Team.

COMPILATION: Concur. This is the new position of AWOIS 1624. Add a dangerous sunken wreck, least depth 64.81 feet in the present survey position.

Feature Images

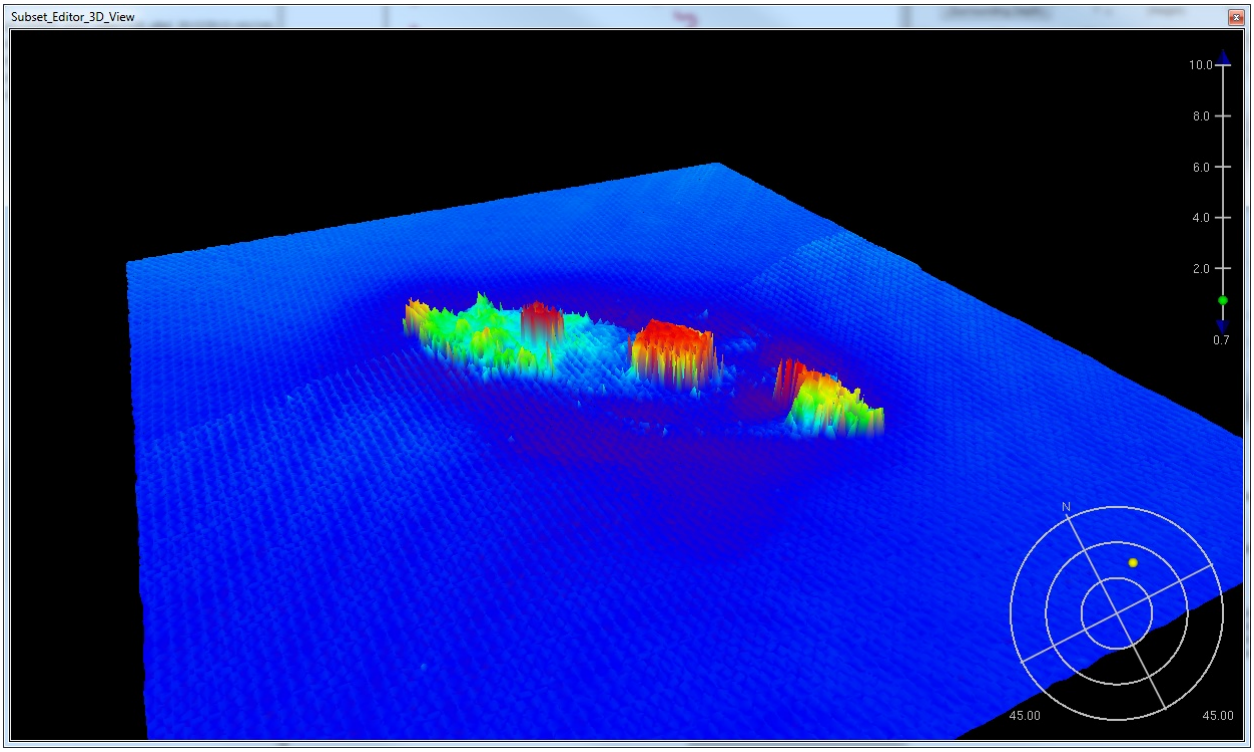


Figure 1.1.1

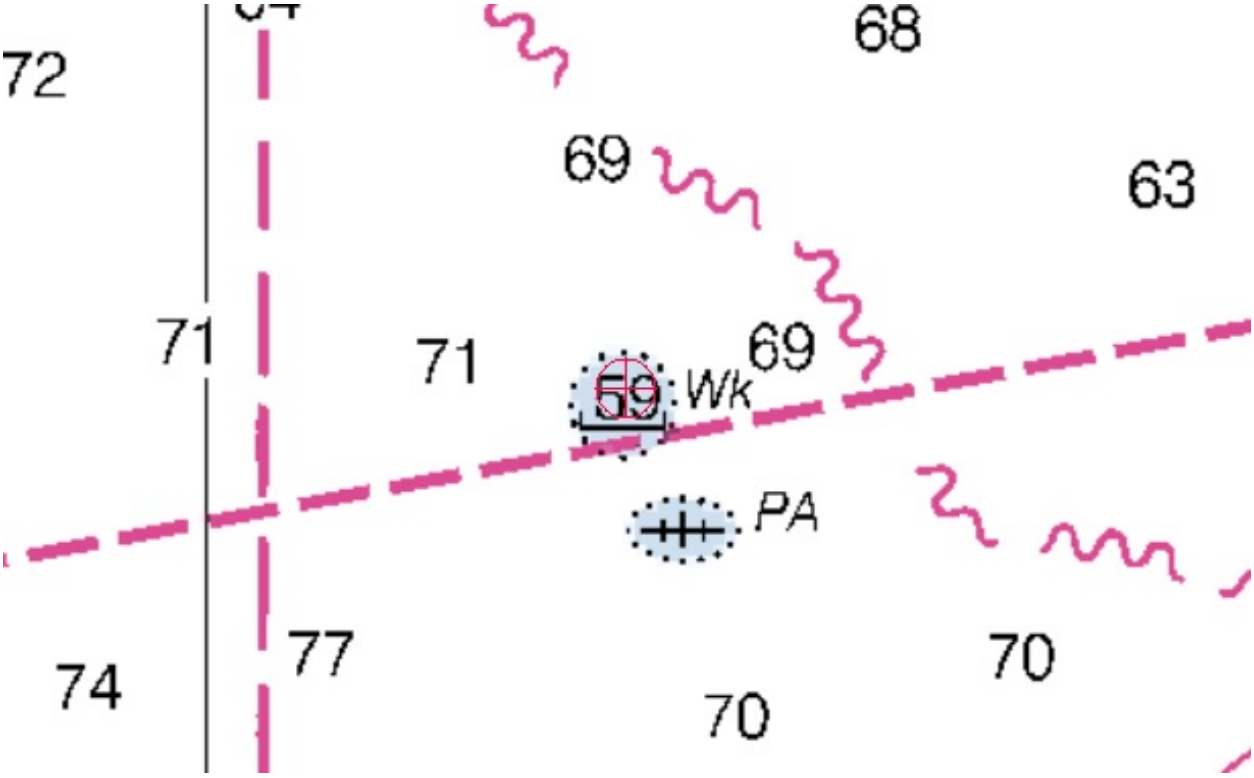


Figure 1.1.2

1.2) AWOIS 1630 - Disproved non-dangerous wreck, depth unknown

Feature for AWOIS Item #AWOIS #1630

Search Position: 40° 29' 11.7" N, 073° 34' 23.9" W

Historical Depth: [None]

Search Radius: [unknown]

Search Technique: [unknown]

Technique Notes:

History Notes:HISTORY NM DATED 1/24/16 DESCRIPTION 24 NO.1345; SUNK 1916; REPORTED SILTED OVER; POSITION ACCURACY ì WITHIN 1 MILE 195 LORAN C RATES PROVIDED BY MR. RICHARD TARACKA, GREENWICH, ì CT. POLICE DEPARTMENT, TEL NO 203-622-8020; 9960-X 26794.3, ì 9960-Y 43697.1; IDENTIFIED AS A STEEL WRECK. (ENTERED MSM 4/90)

Survey Summary

Survey Position: 40° 29' 11.7" N, 073° 34' 23.9" W

Least Depth: [None]

TPU (±1.96σ): **THU (TPEh)** [None] ;**TVU (TPEv)** [None]

Timestamp: 2013-148.00:00:00.000 (05/28/2013)

Dataset: H12526_Pydro Features.000

FOID: 0_ 0003092747 00001(FFFE002F310B0001)

Charts Affected: 12326_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

$CSYMB/remrks: Wreck disproven using object detection MB.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12526_Pydro Features.000	0_ 0003092747 00001	0.00	000.0	Primary

Hydrographer Recommendations

Remove charted wreck.

S-57 Data

Geo object 1: Cartographic symbol ($CSYMB)

Attributes:

NINFOM - Delete wreck

NTXTDS - ENC#US4NY1BM,Edition4,20140813

SORDAT - 20130528

SORIND - US,US,graph,H12526

Office Notes

SAR: AWOIS was ensonified with complete coverage MBES. No evidence of this feature was found. This feature is considered disproved. Defer the final charting disposition to AHB Compile Team.

COMPILATION: Concur. AWOIS 1630, charted non-dangerous sunken wreck, depth unknown, is considered disproved by present survey. Delete charted wreck and update area based on present survey data.

1.3) AWOIS 1635 - Disproved non-dangerous wreck, depth unknown

Feature for AWOIS Item #AWOIS #1635

Search Position: 40° 29' 37.2" N, 073° 32' 55.5" W

Historical Depth: [None]

Search Radius: [unknown]

Search Technique: [unknown]

Technique Notes:

History Notes: HISTORY NM DATED 1/24/16 DESCRIPTION 24 NO.1344; SUNK 1915; POSITION ACCURACY WITHIN 1 MILE, SUBSEQUENTLY REPORTED SILTED OVER; 40-29-36N, 73-33-00W SURVEY REQUIREMENTS NOT DETERMINED

Survey Summary

Survey Position: 40° 29' 37.2" N, 073° 32' 55.5" W

Least Depth: [None]

TPU (±1.96σ): **THU (TPEh)** [None] ; **TVU (TPEv)** [None]

Timestamp: 2013-148.00:00:00.000 (05/28/2013)

Dataset: H12526_Pydro Features.000

FOID: 0_ 0003092745 00001(FFFE002F31090001)

Charts Affected: 12326_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

$CSYMB/remrks: AWOIS #1635 investigated with Reson7125 multibeam. No wreck was found. The AWOIS description has this wreck silted over. The position accuracy was specified at 1 mile and should have been a PA. A 500m radius was specified by the Project reference File. Based on this reccomend removing the item from chart.

$CSYMB/invreq: Type: UNKNOWN, Itemstatus: ASSIGNED, Searchtype: FULL, Technique: S2 MBES 500m radius prescribed

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12526_Pydro Features.000	0_ 0003092745 00001	0.00	000.0	Primary

Hydrographer Recommendations

Delete Charted Wk

S-57 Data

Geo object 1:	Cartographic symbol ($CSYMB)
Attributes:	NINFOM - Delete wreck
	NTXTDS - ENC#US4NY1BM,Edition4,20140813
	SORDAT - 20130528
	SORIND - US,US,graph,H12526

Office Notes

SAR: AWOIS was ensonified with complete coverage MBES. No evidence of this feature was found. This feature is considered disproved. Defer the final charting disposition to AHB Compile Team.

COMPILATION: Concur. AWOIS 1635, charted non-dangerous sunken wreck, depth unknown, is considered disproved by present survey. Delete charted wreck and update area based on present survey data.

1.4) AWOIS #1637 - Disproved dangerous wreck PA, depth unknown

Feature for AWOIS Item #AWOIS #1637

Search Position: 40° 30' 00.4" N, 073° 29' 58.4" W
Historical Depth: [None]
Search Radius: [unknown]
Search Technique: [unknown]
Technique Notes:

History Notes: 01637 DESCRIPTION 24 NO.873; TRAWLER, 302 GT; SUNK 3/15/45 BY MARINE CASUALTY; POS. ACCU. 1-3 MILES 61 3/15/45 SURVEY REQUIREMENTS NOT DETERMINED

Survey Summary

Survey Position: 40° 30' 00.4" N, 073° 29' 58.4" W
Least Depth: [None]
TPU (±1.96σ): **THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp: 2013-148.00:00:00.000 (05/28/2013)
Dataset: H12526_Pydro Features.000
FOID: 0_ 0003092746 00001(FFFE002F310A0001)
Charts Affected: 12326_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

$CSYMB/remrks: AWOIS #1637 disproven using object detection MB.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12526_Pydro Features.000	0_ 0003092746 00001	0.00	000.0	Primary

Hydrographer Recommendations

Update AWOIS database.

S-57 Data

Geo object 1: Cartographic symbol ($CSYMB)

Attributes:

NINFOM - Delete wreck

NTXTDS - ENC#US4NY1BM,Edition4,20140813

SORDAT - 20130528

SORIND - US,US,graph,H12526

Office Notes

SAR: AWOIS was ensonified with complete coverage MBES. No evidence of this feature was found. This feature is considered disproved. Defer the final charting disposition to AHB Compile Team.

COMPILATION: Concur. AWOIS 1637, charted dangerous sunken wreck PA, depth unknown, is considered disproved by present survey. Delete charted wreck and update area based on present survey data.

2 - Wreck Features

2.1) Uncharted 68.89 ft non-dangerous sunken wreck

Survey Summary

Survey Position:	40° 28' 56.1" N, 073° 34' 38.2" W
Least Depth:	21.00 m (= 68.89 ft = 11.482 fm = 11 fm 2.89 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-148.00:00:00.000 (05/28/2013)
Dataset:	H12526_Pydro Features.000
FOID:	0_ 0003092748 00001(FFFE002F310C0001)
Charts Affected:	12326_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

WRECKS/remrks: Wreck found with Reson 7125 multibeam. Soundings are corrected to MLLW with VDATUM solution. This wreck is located about 600 meters from a charted wreck that is not present.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12526_Pydro Features.000	0_ 0003092748 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart wreck.

Cartographically-Rounded Depth (Affected Charts):

69ft (12326_1)

11ft (12300_1, 13006_1, 13003_1)

21.0m (5161_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 1:non-dangerous wreck
	CONVIS - 2:not visual conspicuous
	EXPSOU - 1:within the range of depth of the surrounding depth area
	NINFOM - Add wreck
	QUASOU - 6:least depth known

SORDAT - 20130528

SORIND - US,US,graph,H12526

TECSOU - 3:found by multi-beam

VALSOU - 20.999 m

WATLEV - 3:always under water/submerged

Office Notes

SAR: Ensonified with complete coverage MBES. Feature was verified as per survey data and not considered hydrographically significant. The wreck appears to be highly deteriorated with very little vertical relief. Defer the final charting disposition to AHB Compile Team.

COMPILATION: Concur with conditions. Add non-dangerous sunken wreck, least depth 68.89 feet, in the present survey position.

Feature Images

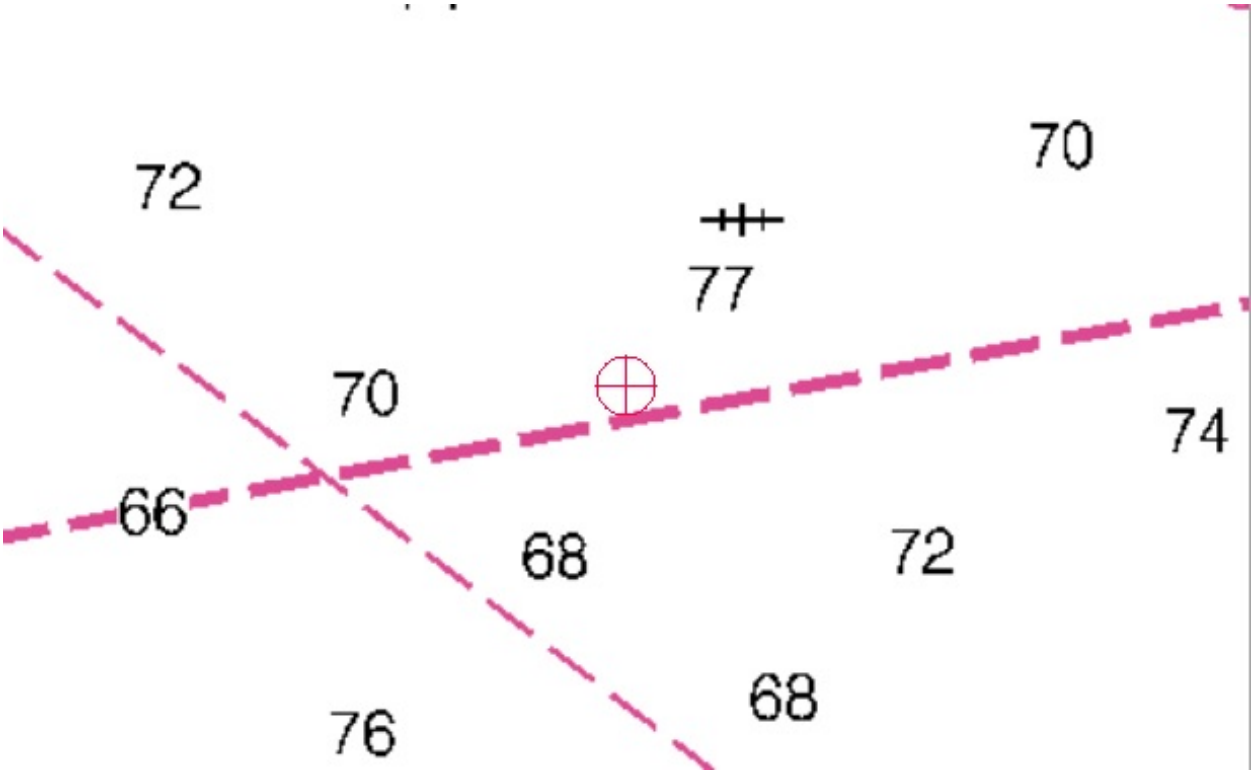


Figure 2.2.1

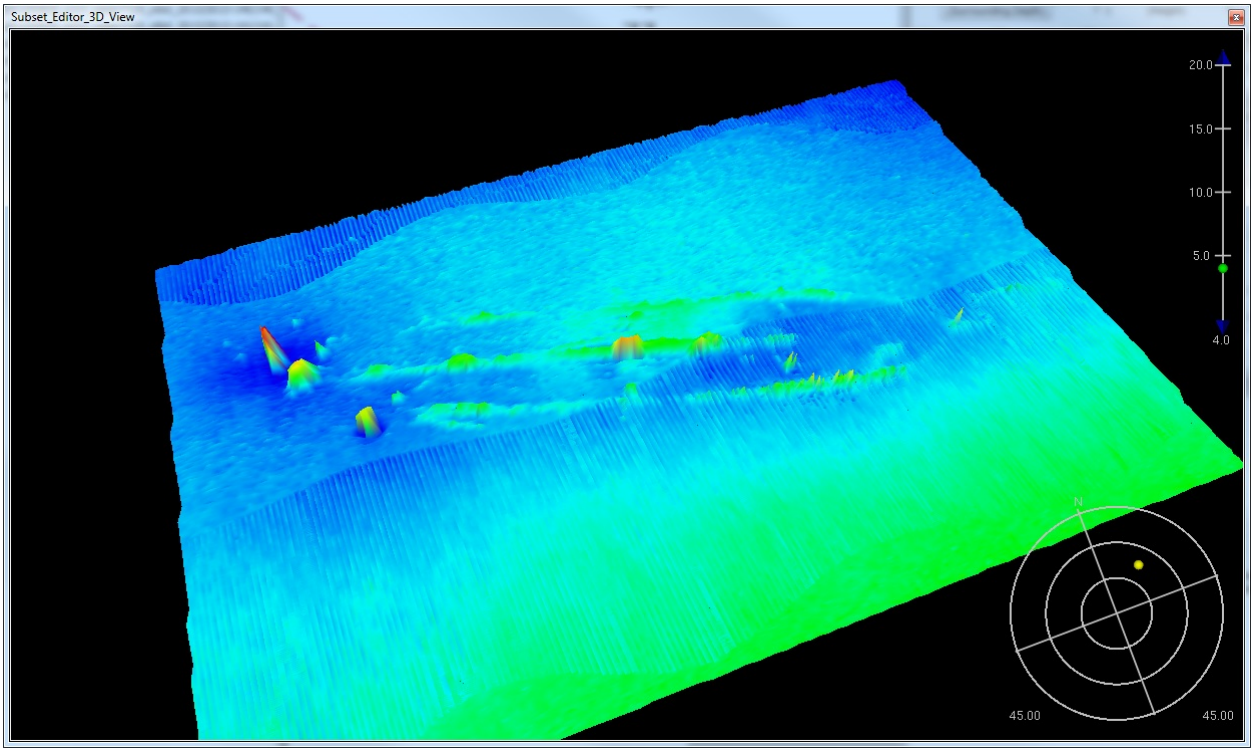


Figure 2.2.2

APPROVAL PAGE

H12526

Data meet or exceed current specifications as certified by the OCS survey acceptance review process. Descriptive Report and survey data except where noted are adequate to supersede prior surveys and nautical charts in the common area.

The following products will be sent to NGDC for archive

- H12526_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12526_GeoImage.pdf

The survey evaluation and verification has been conducted according to current OCS Specifications, and the survey has been approved for dissemination and usage of updating NOAA's suite of nautical charts.

Approved: _____

Lieutenant Commander Matthew Jaskoski, NOAA
Chief, Atlantic Hydrographic Branch