U.S. Department of Commerce National Oceanic and Atmospheric Administration National Ocean Survey				
]	DESCRIPTIVE REPORT			
Type of Survey:	Basic Hydrographic Survey			
Registry Number:	H12527			
	LOCALITY			
State(s): New York				
General Locality: New York, NY				
Sub-locality: SW of Jones Beach Island				
	2013			
CHIEF OF PARTY CDR Lawrence T. Krepp				
	LIBRARY & ARCHIVES			
Date:				

NATIO	U.S. DEPARTMENT OF COMMERCE NAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:			
HYDROGRAPHIC TITLE SHEETH12527					
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):	rate(s): New York				
General Locality:	New York, NY	New York, NY			
Sub-Locality:	SW of Jones Beach Island				
Scale:	10000				
Dates of Survey:	05/29/2013 to 06/12/2013				
Instructions Dated:	02/25/2013				
Project Number:	OPR-B310-TJ-13				
Field Unit:	NOAA Ship Thomas Jefferson	NOAA Ship Thomas Jefferson			
Chief of Party:	CDR Lawrence T. Krepp	CDR Lawrence T. Krepp			
Soundings by:	Multibeam Echo Sounder Singlebean	Multibeam Echo Sounder Singlebeam Echo Sounder			
Imagery by:	Side Scan Sonar	Side Scan Sonar			
Verification by:	Atlantic Hydrographic Branch				
Soundings Acquired in:	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/.

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Descriptive Report to Accompany Survey H12527

Project: OPR-B310-TJ-13 Locality: New York, NY Sublocality: SW of Jones Beach Island Scale: 1:10000 May 2013 - June 2013 **NOAA Ship Thomas Jefferson** Chief of Party: CDR Lawrence T. Krepp

A. Area Surveyed

This survey was conducted in the approaches to New York, in the immediate vicinity SW of Jones Beach.

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit		
40° 35" 43.2' N	40° 30" 16.8' N		
73° 35" 58.8' W	73° 28" 22.2' W		

Table 1: Survey Limits

Due to safety concerns, the inshore limit of the NALL was not reached for the entirety of survey H12527. This occurred on the western portion of the sheet near Jones Inlet; on multiple days, the survey launches were unable to move further in shore due to standing surf waves.



Figure 1: Red coverage indicates where the 4 meter contour was reached. The outlined areas show where MBES coverage did not reach the 4 meter contour.

A.2 Survey Purpose

The purpose of this project is to provide contemporary surveys to update National Ocean Service (NOS) nautical charting products. This project will cover approximately 87 square nautical miles (SNM) Critical and Priority 1, 3, and 4 areas as identified in the 2012 NOAA Hydrographic Survey Priorities (NHSP document).

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

A.4 Survey Coverage



Figure 2: Large scale view of H12527 coverage 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:

	Vessel	S-222	3101	3102	Total
	SBES Mainscheme	0	0	0	0
	MBES Mainscheme	18.7	1.6	1.2	21.5
	Lidar Mainscheme	0	0	0	0
	SSS Mainscheme	0	0	0	0
LNM	SBES/MBES Combo Mainscheme	0	0	0	0
	SBES/SSS Combo Mainscheme	3.3	0	0	3.3
	MBES/SSS Combo Mainscheme	560.5	84.3	157.1	801.9
	SBES/MBES Combo Crosslines	41.7	7.7	14.7	64.1
	Lidar Crosslines	0	0	0	0
Number of Bottom Samples					16
Number AWOIS Items Investigated					10
Number Maritime Boundary Points Investigated					0
Number of DPs					0
Number of Items Items Investigated by Dive Ops					0
Total Number of SNM					27.2

Table 2: Hydrographic Survey Statistics

Survey Dates	Julian Day Number
05/29/2013	149
05/30/2013	150
06/04/2013	155
06/05/2013	156
06/06/2013	157
06/07/2013	158
06/10/2013	161
06/11/2013	162
06/12/2013	163

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

Table 3: Dates of Hydrography

Values in the "Mainscheme MBES" category represent development lines where no side scan was operated.

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	S-222	3101	3102
LOA	208 feet	31 feet	31 feet
Draft	15 feet	5.2 feet	5.2 feet

Table 4: Vessels Used

S222 acquired side scan data with concurrent multibeam acquisition, attitude data and bottom samples. S222 also acquired a total of five lines with side scan and concurrent single beam. Hydrographic survey launch

(HSL) 3101 acquired side scan with concurrent multibeam acquisition, and attitude data. HSL 3102 acquired side scan with concurrent multibeam acquisition, attitude data and bottom samples.

B.1.2 Equipment

The following m	najor systems	were used for	data acquisition	during this survey:
\mathcal{O}	J J		1	0 5

Manufacturer	Model	Туре
Reson	7125	MBES
Reson	7125 SV	MBES
Odom	Echotrac MKIII	SBES
Klein Associates	5000	SSS
Klein Associates	5500	SSS
Applanix	POS M/V v4	Positioning and Attitude System
Trimble	SPS351	Positioning System
Sea-Bird Electronics	SBE 19+	Conductivity, Temperature, and Depth Sensor
Brooke Ocean Technology	Moving Vessel Profiler 100	Sound Speed System
AML Oceanographic	AML Smart SV&P Probe	Sound Speed System
AML Oceanographic	AML Smart SV&T Probe	Sound Speed System
Reson	SV70	Sound Speed System

Table 5: Major Systems Used

B.2 Quality Control

B.2.1 Crosslines

Crosslines, acquired for this survey, totalled 8.0% of mainscheme acquisition.

The Thomas Jefferson and her survey launches acquired 64.1 linear nautical miles of MBES and VBES crosslines, equating to 7.99% of mainscheme MBES and VBES data. Crosslines were compared to mainscheme using a difference surface, created in CARIS BathyData Base. Using the difference surface, every instance of overlap was evaluated. The mean was 0.012 meters and the standard deviation was 0.051 meters. Survey H12527 complies with section 5.2.4.3 of the HSSD (2012 ed).

B.2.2 Uncertainty

Measured	Zoning
0 meters	0.102 meters
0 meters	0.08 feet

The following survey specific parameters were used for this survey:

Table 6: Survey Specific Tide TPU Values

Hull ID	Measured - CTD	Measured - MVP	Surface
S222	N/A meters/second	1 meters/second	.2 meters/second
3101	4 meters/second	N/A meters/second	.2 meters/second
3102	4 meters/second	N/A meters/second	.2 meters/second

Table 7: Survey Specific Sound Speed TPU Values

The values used to calculate Total Propagated Uncertainty for survey H12527 varied based on the method used to reduce soundings to chart datum.

For data reduced via a separation mode, Total Propagated Uncertainties were derived using a combination of: real time uncertainties for vessel motion; a priori values for equipment and vessel characteristics; an a priori value for the separation model; and field assigned values for sound speed uncertainties. The real time uncertainties for vessel motion include roll, pitch, gyro, navigation, and elevation. The uncertainties in these measurements were recorded as part of the POSPac IAPPK 3D positional solution and were applied to the soundings via an SBET RMS file generated by Applanix POSPac. Uncertainties for sonar mounting and vessel speed were assigned using the a priori values found in Appendix 4, table 4.9 of the NOAA Field Procedures Manual (FPM) (ed 2014), and applied to the data via the CARIS HIPS Hydrographic Vessel File. The uncertainty associated with the VDatum separation model was supplied by the Hydrographic Services Division's Operations Branch (see Table 6, row 1). Finally, the uncertainty associated with sound speed measurements were based on the frequency and location of CDT casts, in accordance with the guidance set by Appendix 4 of the FPM (ed 2014) (see Table 7).

For data reduced via water level modeling, Total Propagated Uncertainties again used a POSPac IAPPK solution for horizontal positioning, but used a zoned tide grid for vertical positioning. Uncertainty values for real time roll, pitch, gyro, and navigation remain the same, as do uncertainties from sonar mounting, vessel speed, and sound speed measurements. 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) (see Table 6, row 2) The CO-OPS uncertainty value was provided at the 95% confidence interval. It was divided by 1.96 to provide the 1-sigma value needed by CARIS.

Total Propagated Uncertainty was then evaluated to ensure compliance with section 5.1.3 of NOAA's Hydrographic Survey Specification and Deliverables (HSSD). First the maximum allowable uncertainty for

each node was calculated. Second the ratio between actual uncertainty and maximum allowed uncertainty is found for each node. The resulting 'IHO_ratio' layer was filtered using a color map to show any areas where actual uncertainty exceeded the maximum allowed uncertainty. For the 4m grid, 4,461,120 nodes were evaluated and 99.97% were within IHO uncertainty.

B.2.3 Junctions

There were a total of two contemporary surveys, from the same project, that junction with Survey H12527. For both junction comparisons, overlapping areas of the surveys were compared by the difference surface method in CARIS BathyDataBase.

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H12525	1:10000	2013	NOAA Ship THOMAS JEFFERSON	W
H12526	1:40000	2013	NOAA Ship THOMAS JEFFERSON	S

Table 8: Junctioning Surveys

<u>H12525</u>

H12527 compared very well with H12525, with differences ranging from -1.107 meters to 1.894 meters. The mean difference is 0.014 meters and the standard deviation is 0.114 meters. Out of 7181 nodes, 2 have a difference greater than 1 meter, for a 99.972% pass rate.

<u>H12526</u>

H12527 compared well with H12526, with differences ranging from -0.365 meters to 1.557 meters. The mean difference is 0.037 meters and the standard deviation is 0.325 meters. Out of 1709 nodes, 83 have a difference greater than 1 meter, for a 95.14% acceptance rate.

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

S-222 Reson 7125 Failure

During the first day of acquisition, S-222's MBES failed. In order to keep the vessel operating, one cross line and one portion of a main scheme line used the Odom Echotrac MKIII. This system was not patch

tested during the 2013 field season and is not included in the DAPR or HSRR documents. Soundings from the Odom Echotrac MKIII were compared to nearby MBES data and found to agree well. The MBES system was repaired and operational for the next survey day (DN150).

B.2.6 Factors Affecting Soundings

Vertical Errors due to ERS Anomaly

There was an artifact due to errors in the vertical element of IAPPK positional solutions applied to multibeam data sporadically, throughout the survey. This type of vertical offset is not platform specific and no attempts to correlate these anomalies to SBET quality control information have proven successful. When present, the issue manifests itself during the application of GPS Tides. This reveals itself as MB data rising above or falling below the general trend of neighboring data. Where data was out of specification, ERS tides were removed and the data was reverted to zoned tides.

Survey Launch Data Near Shore

The quality of acquired MBES and SSS data was lower than usual due to large, standing swells near shore. A significantly higher portion of acquired MBES data was rejected in Subset editor as noise than is normal for a contemporary survey.

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: S222 acquired sound velocity profiles every 30 to 60 minutes depending on the rate of change of the constantly monitored surface sound velocity. If surface sound velocity changed rapidly, casting frequency was increased. HSL 3101 and 3102 performed CTD casts approximately every 4 hours.

For S-222, sound velocity was applied in CARIS HIPS using the "nearest in time," method. For the survey launches, "nearest in distance within time 2 hours," was used.

B.2.8 Coverage Equipment and Methods

During processing of H12527, CARIS HIPS software experienced a bug that caused a subset of the SSS contacts to lose their connection to the corresponding HIPS data.

B.2.9 Density Requirements for Survey H12527

H12527 is an object detection survey that utilized set line spacing for 200% SSS coverage with concurrent MBES data acquisition. Submitted grids adhere to the object detection coverage requirements of HSSD 2012, section 5.2.2.1. For most of the survey, adjacent MBES swaths do not overlap and therefore the number of nodes with five or fewer soundings is far higher in these ares. Density requirements for H12527

were analyzed using NOAA's Standards Compliance Review script. It was found 98.5% of finalized surface nodes at the 1 meter grid resolution contain five or more soundings.

B.3 Echo Sounding Corrections

B.3.1 Corrections to Echo Soundings

The following lines exhibited vertical offsets from surrounding lines when ERS tides were used. In all cases, reverting to zoned tides fixed the vertical offset issue. 3101_DN163 lines: 163_114_1308, 163_146_1325, 163_114A1308, 163_210_1039, 163_211_1117, 163_212_1208, 163_226_1334, 163_213_1239, 163_600_1458, 163_601_1455, 163_602_1507, 163_603_1529, 163_604_1504, 163_605_1527, 092_2300, 093_2307, 094_2308, 095_2310, 096_2311, 097_2312, 099_2324, 098_2322, 099_2325, 099_2326.

B.3.2 Calibrations

All sounding systems were calibrated as detailed in the DAPR.

B.4 Backscatter

Backscatter was logged as an 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.

B.5 Data Processing

B.5.1 Software Updates

The following software updates occurred after the submission of the DAPR:

Manufacturer	Name	Version	Service Pack	Hotfix	Installation Date	Use
Caris	HIPS/SIPS	8	0	2	05/31/2013	Processing
Caris	HIPS/SIPS	8	0	3	07/15/2013	Processing

Table 9: Software Updates

The following Feature Object Catalog was used: NOAAProfilefield.xml V5.3.2

During the early part of the 2013 field season, several hot fixes for CARIS 8.0 were applied. See the DAPR for a complete listing of these software changes.

B.5.2 Surfaces

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H12527_MB_50cm_MLLW_Final.csar	CUBE	0.5 meters	1.23 meters - 23.39 meters	NOAA_0.5m	ODMB
H12527_MB_4m_MLLW_Final.csar	CUBE	4.0 meters	1.34 meters - 33.99 meters	NOAA_4m	Coverage
H12527_SSS_100%.csar	SSS Mosaic	1.0 meters	0 meters - 22 meters	NOAA_1m	100% SSS Coverage
H12527_SSS_200%.csar	SSS Mosaic	1.0 meters	0 meters - 22 meters	NOAA_1m	200% SSS Coverage

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

Table 10: Submitted Surfaces

Submitted CUBE surfaces follow the depth thresholding requirements outlined in the 2012 HSSD, section 5.2.2.1 for an object detection survey. The survey area of H12527 is predominantly covered by the 0.5 meter BASE surface.

B.5.3 SBET Not Applied to All Lines

Due to POS M/V logging issues causing data gaps in the acquisition of attitude information, the following lines do not have SBETs applied.

S222_DN149: 149_901_1024, 149_901_1009, 149_902_1030. 3102_DN162: 162_042A2033, 162_043_2139, 162_044_2126, 162_045_2116, 162_045_2121, 162_046_2107, 162_047_2147.

These 10 lines are crosslines and were compared to mainscheme. These lines compared favorably with SBET corrected mainscheme lines and no additional processing is required.

B.5.4 Side scan Contact File Corruption

Prior to a an update of a CARIS version, SSS contacts were flagged and exported to S-57 format with images. The date of the export and the time of the version of the CARIS/SIPS contact export was known. The new version corrupted the "Contact" files located in the line directory. All old contacts were lost leaving an empty Contact file. As new contacts were selected the Contact files were either re-populated or new files created. The new features were then exported and appended to the previous S-57 file which was determined

to be a qualitative reflection of the previous scanned data. The verifier may find that some features have no match in the sidescan contact file. It was determined that re-scanning the entire survey was not time efficient considering the confidence of the already preserved contacts. Simply stated there are before and after contact selections combined into one S-57 SSS file.

C. Vertical and Horizontal Control

Per section 5.1.2.3 of the FPM, no Horizontal and Vertical Control Report has been generated for Survey H12525.

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	8531680

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 06/14/2013. The final tide note was received on 06/28/2013.

CO-OPS accepted preliminary zoning as final zoning for survey H12527. Since the survey was extended in to Jones Inlet, the accepted tide zoning does not include these lines.

Non-Standard Vertical Control Methods Used:

VDatum

Ellipsoid to Chart Datum Separation File:

2013_B310_VDatum_Ellip_MLLW.xyz

Cross lines with and without SBETs applied were compared using Pydro's Time Series Comparison tool. Results of the comparison were: S222: N,mean,stdev = 158835,-0.086,0.117; HSL 3101: N,mean,stdev = 66032,-0.207,0.305; HSL 3102: N,mean,stdev = 112070,-0.024,0.045. See Appendix V for the interim deliverable memo and resulting VDATUM approval memo.

The following lines were reverted back to discrete zoning from GPS tides to fix vertical offset issues:

Vessel Day Line

3101 163 092_2300

3101 163 093_2307

3101 163 094_2308

3101 163 095_2310

- 3101 163 096_2311
- 3101 163 097_2312
- 3101 163 099_2324
- 3101 163 098_2322
- 3101 163 099_2325
- 3101 163 099_2326
- 3101 163 163_114_1308

- 3101 163 163_146_1325
- 3101 163 163_114A1308
- 3101 163 163_210_1039
- 3101 163 163_211_1117
- 3101 163 163_212_1208
- 3101 163 163_226_1334
- 3101 163 163_600_1458
- 3101 163 163_213_1239
- 3101 163 163_601_1455
- 3101 163 163_602_1507
- 3101 163 163_603_1529
- 3101 163 163_604_1504
- 3101 163 163_605_1527
- 3102 157 157_165_1455
- 3102 157 157_166_1539
- 3102 157 157_170_1841
- 3102 161 161_142_2033
- 3102 162 162_042A2033
- 3102 162 162_043_2139
- 3102 162 162_044_2126
- 3102 162 162_045_2116
- 3102 162 162_045_2121
- 3102 162 162_046_2107

3102 162 162_047_2147

S222 149 149_901_1024

S222 149 149_901_1009

S222 149 149_902_1030

S222 149 149_908_1430

C.2 Horizontal Control

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

The projection used for this project is UTM-18N.

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
MOR5	MOR5
MOR6	MOR6
NYCI	NYCI
NJNT	NJNT
NYBR	NYBR
NYCI	NYCI
NYNQ	NYNQ
SHK5	SHK5
ZNY1	ZNY1

Table 14: CORS Base Stations

The following DGPS Stations were used for horizontal control:

DGPS Stations Sandy Hook, NJ (286kHz)

Table 15: USCG DGPS Stations

D. Results and Recommendations

D.1 Chart Comparison

H12527 was compared to affected RNC and ENC products by creating a high density sounding layer in CARIS BathyDataBase and comparing charted water depths with surveyed soundings.

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
12352	1:20000	34	09/2013	08/21/2012	09/01/2012

 Table 16: Largest Scale Raster Charts

12326

The chart agreed very well with H12527. Surveyed soundings generally agreed with charted depths to within plus or minus 2 feet with one area of exception (See the RNC 12352 comparison below for further discussion).

12352

In the offshore areas of raster 12352, soundings from H12527 generally agreed within 1-2 feet of charted depths. However, significant sand migration has occurred since the area was previously surveyed, and many of the charted water depths are inaccurate. This is especially true near the the approaches to Jones Inlet and

within the mouth of the inlet itself. As noted on raster 12352_5, buoys and soundings in Jones Inlet are not charted due to continual change. The hydrographer recommends that the extents of this area be extended to the southwest, or that an additional note be included warning mariners of significantly varying water depths. A cautionary area is included in the submitted final feature file.



Figure 3: Vicinity of Jones Inlet, showing extreme deviation of surveyed soundings and charted depths.



Figure 4: South of Jones Beach. Areas of discrepancy are circled.



Figure 5: South of Jones Beach. Areas of discrepancy are circled.



Figure 6: South of Jones Beach. Areas of discrepancy are circled.

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?
US5NY53M	1:20000	10	NaN/NaN/NaN	05/01/2013	NO
US4NY1BM	1:80000	2	NaN/NaN/NaN	01/24/2013	NO

Table 17: Largest Scale ENCs

<u>US5NY53M</u>

Much like RNC 12352, ENC US5NY53M agreed well (1 to 3 feet) with surveyed depths aside from the area of large discrepancy noted in the NW corner of the sheet. See RNC 12352 comparison for further discussion.

US4NY1BM

ENC US4NY1BM agreed very well with H12527. Surveyed soundings generally agreed with charted depths to within 3 feet with one area of exception (See the RNC 12352 comparison above for further discussion).

D.1.3 AWOIS Items

The survey contained 10 assigned AWOIS items:

AWOIS item #7772: Hydrographer recommends deleting charted feature, disproved by 200% SSS investigation.

AWOIS item #7813: Hydrographer recommends updating the charted position and depth of OBSTRN based on MBES data.

AWOIS item #7727: Hydrographer recommends updating the charted position and depth of OBSTRN based on MBES data.

AWOIS item #15087: Hydrographer recommends deleting charted feature, disproved by 200% SSS investigation.

AWOIS item #7714: Hydrographer recommends updating the charted position and depth of WRECK based on MBES data.

AWOIS item #15079: Hydrographer recommends deleting charted feature, disproved by 200% SSS investigation.

AWOIS item #4302: Hydrographer recommends deleting charted buoy and associated anchor, disproved by 200% SSS investigation and visual examination.

AWOIS item #15089: This item could not be fully investigated due to safety concerns.

AWOIS item #15085: This item could not be fully investigated due to safety concerns.

AWOIS item #4303: This item could not be fully investigated due to safety concerns.

See the Final Feature HOB file for more details.

D.1.4 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.5 Charted Features

No charted features exist for this survey that are not already assigned as AWOIS items.

D.1.6 Uncharted Features

No uncharted features exist for this survey.

D.1.7 Dangers to Navigation

No Danger to Navigation Reports were submitted for this survey.

D.1.8 Shoal and Hazardous Features

A fish haven obstruction area exists in the southern portion of H12527. The authorized minimum depth of the fish haven is 40ft and no soundings less than 49 feet were founding within this area. As expected, significant side scan contacts with heights up to 2.5 meters were observed in the fish haven, but these heights were still below the authorized 40 foot minimum depth and were not investigated with multibeam. It should be noted that the hydrographer observed active dumping of fish haven materials in the site by a tug and barge vessel.

D.1.9 Channels

No maintained channels exist for this survey. There are no designated anchorages, precautionary areas, safety fairways, traffic separation schemes, pilot boarding areas, or channel and range lines within the survey limits.

D.1.10 Bottom Samples

In total, 16 bottom samples were collected and these results were compared to charted bottom types. See the final feature HOB file for more details.

D.2 Additional Results

D.2.1 Shoreline

A limited shoreline investigation was carried out and no features inshore of the NALL were not found. One assigned feature, AWOIS item #4303, was not found by H12527, but could not be fully investigated due to its proximity to land.

D.2.2 Prior Surveys

No prior survey comparisons exist for this survey.

D.2.3 Aids to Navigation

Two ATONS exist for H12527 and both appear to be on station and functioning correctly. No changes are necessary to the charted ATONS.



Figure 7: ATONs on raster 12326 in the northwest corner of H12527.

D.2.4 Overhead Features

No overhead features exist for this survey.

D.2.5 Submarine Features

Multiple submarine cables cross through H12527, but in all cases, no evidence of these cables is seen in MBES or SSS data. There are also two fish trap areas near shore, but H12527 did not discover evidence of a high concentration of fish traps in either of these areas.

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

Significant features exist for this survey in the form of large sand migration in the vicinity of Jones Inlet (NW corner of H12527). As discussed in the chart comparison section, the hydrographer recommends retaining and/or expanding the cautionary zone that exists for the area.

D.2.9 Construction and Dredging

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

D.2.10 New Survey Recommendations

No new surveys or further investigations are recommended for this area.

D.2.11 New Inset Recommendations

No new insets are recommended for this area.

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, 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
LTjg Andrew R. Clos	Sheet Manager	03/07/2014	Andrew Clos 2014.03.10 09:41:12 -04'00'
LT Megan R. Guberski	Field Operations Officer	03/07/2014	Mugan R. Guberski Honn
CDR James M. Crocker	Commanding Officer	03/07/2014	James Crocker cn=James Crocker, o=CO, NOAA Ship
			email=james.m.crocker@noaa.gov, c=US 2014.03.10 09:14:53 -04'00'

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 24, 2013

HYDROGRAPHIC BRANCH: Atlantic HYDROGRAPHIC PROJECT: OPR-B310-TJ-2013 HYDROGRAPHIC SHEET: H12527

LOCALITY: SW of Jones Beach Island, Approaches to NY, NY TIME PERIOD: May 29 - June 12, 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, H12527, during the time period between May 29 and June 12, 2013.

Please use the zoning file B310TJ2013CORP submitted with the project instructions for OPR-B310-TJ-2013, H12527. Zones SA4, SA5, SA12 and SA13 are the applicable zones for H12527.

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).

Note 2: Additional water level data is needed to provide zoning in Jones Inlet. Additional data, expected in the summer of 2013, may allow us to extend Sandy Hook's coverage into the bay areas in future projects.



CHIEF, PRODUCTS AND SERVICES BRANCH





APPENDIX II

SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCE



UNITED STATES DEPARTMENT COMMERCE National Oceanic and Atmospheric Administration Office of Marine and Aviation Operations NOAA Ship Thomas Jefferson S-222 439 West York Street Norfolk, VA 23510-1114

27 January 2014

MEMORANDUM TO:	Jeffrey Ferguson Chief, Hydrographic Surveys Division	
FROM:	CDR James M. Crocker, NOAA Commanding Officer	

SUBJECT: H12527 Interim Deliverables

As per the project instructions for OPR-B310-TJ-13, NOAA Ship *Thomas Jefferson* was tasked with providing a recommendation on the vertical transformation technique to be used for each sheet. This recommendation is based upon an analysis of crossline data processed with TCARI tidal zoning and VDatum ERS. This analysis was performed using Pydro's Post Acquisition Tools.

Crossline Analysis

Crosslines from H12527 were parallel processed with one set of depths reduced to MLLW via zoned tides and the other set reduced via VDatum ERS. Pydro's Post Acquisition Tool "Compare Time Series Data" yielded the following results:

Vessel	Comparison Method	Number of Comparisons	Mean	StdDev (m)
HSL 3101	ERS-Zoned	66032	-0.207	0.035
HSL 3102	ERS-Zoned	112070	-0.024	0.045
S222	ERS-Zoned	158835	-0.086	0.117

Table 1: File-wise Stastics:

Table 2: Sensor-wise Stastics:

Number of Comparisons	Mean	StdDev (m)
336937	-0.074	0.057
Discussion

Results of the analysis showed that the standard deviation between ERS and Zoned tidal corrections were 3.5cm for HSL 3101, 4.5cm for HSL 3102, and 11.7cm for S222. The overall standard deviation is less than the uncertainty associated with the separation model. Although the mean value for HSL 3101 is notably high at 20.7cm, the ERS data was visually observed to match horizontally and vertically with data from the other 2 platforms. For this reason, the high mean is believed to be from a systematic error that was eradicated by application of GPS tide.

Recommendation

The results of the analysis indicate that there is not a problem with the VDatum model. The Time Series analysis indicates that the uncertainty associated with the separation model is less than the water level uncertainties supplied by CO-OPS. We also feel that ERS better accounts for differences seen in static draft and dynamic draft and provides us with more accurate depths.



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

January 28, 2014

MEMORANDUM FOR:

CDR James M. Crocker, NOAA Commanding Officer, NOAA Ship *Thomas Jefferson*

FROM:

Jeffrey Ferguson Chief, Hydrographic Surveys Division

SUBJECT:

Vertical Datum Transformation Technique, OPR-D332-TJ-13, Approaches to Delaware Bay, DE

Hydrographic surveys H12527 is approved for vertical reduction to chart datum, Mean Lower Low Water (MLLW), using the NOAA Vertical Datum Transformation (VDatum) (<u>http://vdatum.noaa.gov</u>) derived separation (SEP) model provided on the project CD/DVD.

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 and the review of comparison results you included in your memos from January 27, 2014, Subject "H12527 Interim Deliverables".

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 a better internal consistency of the survey data and produces final sounding values that meet or exceed horizontal and vertical specifications for hydrographic surveys.

The comparison techniques are in line with the procedures that were developed and approved as part of the CSDL Ellipsoidally Referenced Survey (ERS) project. These procedures and deliverables in the NOS Hydrographic Surveys Specifications and Deliverables Manual and Field Procedures Manual documents.

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.





OPR-B370-TJ-13, HSSD & FPM 2013

Paul Turner - NOAA Federal <paul.turner@noaa.gov>

Wed, Apr 17, 2013 at 10:55 AM To: Megan Guberski - NOAA Federal < megan.guberski@noaa.gov>, OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>

Cc: Marc Moser - NOAA Federal <marc.s.moser@noaa.gov>, Paul Turner - NOAA Federal <paul.turner@noaa.gov>

Hi Megan-

LCDR Moser approved your request to operate under the 2013 Hydrographic Surveys Specifications and Deliverables and Field Procedures Manual for OPR-B370-TJ-13. Please be advised that the 2013 version of the Field Procedures Manual has not been released yet and I will forward you a copy once it has been approved. This email is to serve as your official notice, please include this email in all Descriptive Reports produced for OPR-B370-TJ-13.

Hydrography for OPR-B370-TJ-13 shall consist of Navigable Area Surveys in accordance with the following support documents:

NOS Field Procedures Manual for Hydrographic Surveying (FPM), April 2013 NOS Hydrographic Surveys Specifications and Deliverables Manual (HSSD), April 2013 Hydrographic Survey Technical Directive (HTD): HTD 2012-2 Config Mgmt Hydrographic Survey Technical Directive (HTD): HTD 2011-3 XML Reports Hydrographic Survey Technical Directive (HTD): HTD 2012-1 CARIS 7.1

Please let me know if you have any comments or questions.

Thank you,

Paul Turner

Paul Turner **Physical Scientist** NOAA - Office of Coast Survey

301-713-2700 *106 Paul.Turner@noaa.gov

From:	Erin Weller - NOAA Federal
То:	Castle Parker - NOAA Federal
Subject:	Re: Tide Uncertainty for OPR-B310-TJ-2013, H12525
Date:	Thursday, June 05, 2014 3:32:51 PM
Attachments:	H12525 TPU 4m diff.jpeg
	H12525 TPU 50cm diff.jpeg

The difference between the non-tide zoning TPU vs TPU tide (0.005 measured, 0.25 zoning) surfaces looks reasonable. I believe we can carry on without recomputing TPU, refinalizing....etc.

If you feel ok with it, I will document heavily in the SAR and move on without the values?

Erin C. Weller Physical Scientist NOAA's National Ocean Service Office of Coast Survey, Hydrographic Surveys Division Atlantic Hydrographic Branch 757.441.6746

On Thu, Jun 5, 2014 at 1:48 PM, Erin Weller - NOAA Federal <<u>erin.weller@noaa.gov</u>> wrote:

FYI

Erin C. Weller Physical Scientist NOAA's National Ocean Service Office of Coast Survey, Hydrographic Surveys Division Atlantic Hydrographic Branch <u>757.441.6746</u>

------ Forwarded message ------From: Lijuan Huang - NOAA Affiliate <lijuan.huang@noaa.gov> Date: Thu, Jun 5, 2014 at 10:32 AM Subject: Re: Tide Uncertainty for OPR-B310-TJ-2013, H12525 To: Gerald Hovis - NOAA Federal <gerald.hovis@noaa.gov> Cc: Erin Weller - NOAA Federal <erin.weller@noaa.gov>, "_NOS.CO-OPS.HTP" <<u>NOS.COOPS.HPT@noaa.gov</u>>, Allison Stone - NOAA Federal <allison.c.stone@noaa.gov>

Hi Erin,

There is no hourly or 6-min data in the survey area for a direct TPE calculation. The TPE between Sandy Hook 8531680 and Fire Island 8535186 is 0.25m. You may use the 0.25m value for the survey tracklines offshore. For the survey tracklines in Jones Inlet, there is no data that we can use to determine if the tide reduction meets specification. That is why we didn't provide zoning in Jones Inlet.

Regards,

Lijuan

On Thu, Jun 5, 2014 at 8:27 AM, Gerald Hovis - NOAA Federal <<u>gerald.hovis@noaa.gov</u>> wrote:

Erin,

HPT will help you with this question.

Jerry

----- Forwarded message ------From: **Erin Weller - NOAA Federal** <<u>erin.weller@noaa.gov</u>> Date: Wed, Jun 4, 2014 at 3:21 PM Subject: Tide Uncertainty for OPR-B310-TJ-2013, H12525 To: Gerald Hovis - NOAA Federal <<u>gerald.hovis@noaa.gov</u>>, Allison Stone - NOAA Federal <<u>allison.c.stone@noaa.gov</u>>

Hi Gerald,

I'm reviewing the TJ's survey from OPR-B310-TJ-2013, H12525 and looking for the tide measured and zoning uncertainty values provided by CO-OPS. Can you please provide me with those values?

Hi Allison,

Tide uncertainty values were not included for most of the lines the last time TPU was computed. The tide note submitted with H12525 is from H12527 and does not include uncertainty values. It is unclear from the DR which values were supposed to be used. I'm working to resolve whether or not the data meets specification. Please provide any details you have to resolve the discrepancy.

Thank you, Erin C. Weller Physical Scientist NOAA's National Ocean Service Office of Coast Survey, Hydrographic Surveys Division Atlantic Hydrographic Branch <u>757.441.6746</u>

Jerry Hovis Products and Services Branch Oceanographic Division Center for Operational Oceanographic Products & Services National Ocean Service National Oceanographic Atmospheric Administration http://www.tidesandcurrents.noaa.gov/

gerald.hovis@noaa.gov SSMC4, Sta. 7109 1305 East-West Highway Silver Spring, MD 20910 USA Work: (301) 713-2890 x109 Cell: (240)-997-2651 Fax: (301) 713-4437

Lijuan Huang NOAA/NOS/CO-OPS/Hydro Planning Team 1305 East-West Highway N/OPS3, Sta. 7342, SSMC4 Silver Spring, MD 20910-3218 Email: <u>lijuan.huang@noaa.gov</u> Phone: <u>1-301-713-2890 x192</u>

APPENDIX III

SURVEY FEATURES REPORT

AWOIS - nine DToNs - two Wrecks - two (See also AWOIS section) Maritime Boundaries - none

H12527_Feature Report

Registry Number: H12527 State: New York Locality: New York Sub-locality: SW of Jones Beach Island Project Number: OPR-B310-TJ-13 Survey Dates: 05/29/2013 to 06/12/2013

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
12352	32nd	12/01/2007	1:20,000 (12352_5)	[L]NTM: ?
12326	50th	05/01/2006	1:80,000 (12326_1)	[L]NTM: ?
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: ?

Charts Affected

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

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	AWOIS 15085 - dangerous sunken wreck	Wreck	[None]	40° 34' 30.5" N	073° 35' 10.3" W	15085
1.2	AWOIS 15089 - dangerous sunken wreck	Wreck	[None]	40° 34' 24.7" N	073° 34' 44.6" W	15089
1.3	AWOIS 7727 - 68 foot non-dangerous sunken wreck	Wreck	20.67 m	40° 30' 41.9" N	073° 34' 37.9" W	7727
1.4	AWOIS 7813 - 70 foot non-dangerous sunken wreck	Wreck	21.56 m	40° 30' 29.3" N	073° 34' 20.3" W	7813
1.5	AWOIS 4302	GP	[None]	40° 34' 00.4" N	073° 34' 10.5" W	4302
1.6	AWOIS 15087	GP	[None]	40° 32' 08.2" N	073° 33' 21.3" W	15087
1.7	AWOIS 15079	GP	[None]	40° 34' 15.9" N	073° 32' 00.0" W	15079
1.8	AWOIS 7714 - 51 foot dangerous sunken wreck	Wreck	15.61 m	40° 32' 29.7" N	073° 31' 57.6" W	7714
1.9	AWOIS 7772	GP	[None]	40° 30' 33.8" N	073° 31' 44.1" W	7772
2.1	Caution Area 1	GP	[None]	40° 35' 08.1" N	073° 34' 22.8" W	
2.2	DTON #1	Wreck	10.55 m	40° 32' 01.2" N	073° 33' 50.1" W	

Features

3.1	Charted dangerous sunken wreck, depth unknown	Wreck	[None]	40° 34' 37.1" N	073° 33' 42.8" W	
3.2	Uncharted dangerous sunken wreck, least depth 54 feet	Wreck	16.49 m	40° 31' 00.9" N	073° 33' 29.5" W	

1 - AWOIS Features

1.1) AWOIS 15085 - dangerous sunken wreck

AWOIS Item #15085

Search Position:	40° 34' 30.5" N, 073° 35' 10.3" W
Historical Depth:	[None]
Search Radius:	300
Search Technique:	Type: CHARLIES LAST CHANCE, Itemstatus: ASSIGNED, Searchtype: FULL, Technique: S2 MBES
Technique Notes:	

History Notes:

History

LNM 37/87; CGD1 -- VESSEL REPORTED SUNK IN 12 FT OF WATER (LAH 02/01/2013)

Survey Summary

Survey Position:	40° 34' 30.5" N, 073° 35' 10.3" W
Least Depth:	[None]
TPU (±1.96 σ) :	THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp:	2006-060.00:00:00.000 (03/01/2006)
Dataset:	H12527_Pydro features.000
FOID:	0_0003055575 00001(FFFE002E9FD70001)
Charts Affected:	12352_5, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

[None]

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12527_Pydro features.000	0_0003055575 00001	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes:CATWRK - 2:dangerous wreck
NINFOM - Retain wreck
QUASOU - 2:depth unknown
SORDAT - 20060300
SORIND - US,US,graph,Chart 12352
WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: charted wreck PA (AWOIS 15085) was NOT verified by the field. Search radius was incomplete due to vessel safety. Defer the final charting disposition to AHB Compile Team.

COMPILATION: Concur. Retain AWOIS 15085, charted dangerous, sunken wreck PA, least depth unknown.

1.2) AWOIS 15089 - dangerous sunken wreck

AWOIS Item #15089

Search Position:	40° 34' 24.7" N, 073° 34' 44.6" W
Historical Depth:	[None]
Search Radius:	300
Search Technique:	Type: UNKNOWN, Itemstatus: ASSIGNED, Searchtype: FULL, Technique: S2 MBES
Technique Notes:	

History Notes:

History

NOS CHART 12352 -- CHARTED A 4 FT REP PRIOR TO 1972 (LAH 2/1/2013)

Survey Summary

Survey Position:	40° 34' 24.7" N, 073° 34' 44.6" W
Least Depth:	[None]
TPU (±1.96 σ):	THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp:	2006-060.00:00:00.000 (03/01/2006)
Dataset:	H12527_Pydro features.000
FOID:	0_0003055574 00001(FFFE002E9FD60001)
Charts Affected:	12352_5, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

WRECKS/remrks: Not fully investigated, area could not be safely surveyed due to standing swells. Not observed in coverage obtained.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12527_Pydro features.000	0_0003055574 00001	0.00	000.0	Primary

Hydrographer Recommendations

Retain AWOIS item.

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes:CATWRK - 2:dangerous wreck
NINFOM - Retain wreck
QUASOU - 2:depth unknown
SORDAT - 20060300
SORIND - US,US,graph,Chart 12352
STATUS - 18:existence doubtful
WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Charted wreck PA (AWOIS 15089) was NOT verified by the field. Search radius was incomplete due to vessel safety. Defer the final charting disposition to AHB Compile Team.

COMPILATION: Concur. Feature was not completely investigated during present survey operations, so it is not considered disproven. Retain charted dangerous sunken wreck ED, least depth unknown.

1.3) AWOIS 7727 - 68 foot non-dangerous sunken wreck

AWOIS Item #7727

Search Position:	40° 30' 41.9" N, 073° 34' 37.9" W
Historical Depth:	20.67 m
Search Radius:	300
Search Technique:	Type: UNKNOWN, Itemstatus: ASSIGNED, Searchtype: FULL, Technique: S2 MBES
Ta al milina Mataz	

Technique Notes:

History Notes:

History

DESCRIPTION 195 LORAN C RATES PROVIDED BY MR. RICHARD TARACKA GREENWICH ì CT. POLICE DEPARTMENT TEL. NO. 203-622-8020; IDENTIFIED AS COAL ì WRECK AND AS JOE; LORAN C RATES: 9960-X 26798.0 9960-Y 43713.2; ì LAT 40-30-40.08N LONG 73-34-35.12W (COMPUTED FROM LORAN RATES). ì (ENTERED MSM 5/90)

Survey Summary

Survey Position:	40° 30' 41.9" N, 073° 34' 37.9" W
Least Depth:	20.67 m (= 67.83 ft = 11.305 fm = 11 fm 1.83 ft)
TPU (±1.96 თ):	THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp:	2013-163.00:00:00.000 (06/12/2013)
Dataset:	H12527_Pydro features.000
FOID:	0_0003055576 00001(FFFE002E9FD80001)
Charts Affected:	12326_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

WRECKS/remrks: AWOIS wreck found by H12527

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12527_Pydro features.000	0_0003055576 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart wreck with updated position and least depth.

Cartographically-Rounded Depth (Affected Charts):

68ft (12326_1) 11ft (12300_1, 13006_1, 13003_1) 20.6m (5161_1)

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes:CATWRK - 1:non-dangerous wreck
INFORM - Chart wreck with updated position and least depth.
NINFOM - Add wreck
QUASOU - 6:least depth known
SORDAT - 20130612
SORIND - US,US,graph,H12527
TECSOU - 3:found by multi-beam
VALSOU - 20.674 m
WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: AWOIS 7727 uncharted wreck: feature was ensonified with object detect SSS and MBES. SS imagery indicates the feature is scattered debris and severly deteriorated. Feature is verified as per survey data. Defer the final charting disposition to AHB Compile Team.

COMPILATION: Concur. Add non-dangerous sunken wreck, least depth 67.828 feet in the present survey position. Update AWOIS database with present survey findings.

Feature Images



Figure 1.3.1



Figure 1.3.2

1.4) AWOIS 7813 - 70 foot non-dangerous sunken wreck

AWOIS Item #7813

Search Position:	40° 30' 29.3" N, 073° 34' 20.3" W
Historical Depth:	21.56 m
Search Radius:	300
Search Technique:	Type: UNKNOWN, Itemstatus: ASSIGNED, Searchtype: FULL, Technique: S2 MBES

Technique Notes:

History Notes:

History

DESCRIPTION 195 LORAN C RATES PROVIDED BY MR. RICHARD TARACKA GREENWICH ì CT. POLICE DEPARTMENT TEL NO 203-622-8020; IDENTIFIED AS A COAL ì SHIP; 9960-X 26796.4 9960-Y 43712.3; LAT 40-30-35.69N LONG ì 73-34-24.44W (NAD27 POSITION COMPUTED FROM LORAN RATES). (ENTERED ì MSM 7/90)

Survey Summary

Survey Position:	40° 30' 29.3" N, 073° 34' 20.3" W
Least Depth:	21.56 m (= 70.73 ft = 11.789 fm = 11 fm 4.73 ft)
TPU (±1.96 σ):	THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp:	2013-163.00:00:00.000 (06/12/2013)
Dataset:	H12527_Pydro features.000
FOID:	0_0003055579 00001(FFFE002E9FDB0001)
Charts Affected:	12326_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

WRECKS/remrks: AWOIS wreck found by H12527

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12527_Pydro features.000	0_ 0003055579 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart wreck with updated position and least depth.

Cartographically-Rounded Depth (Affected Charts):

70ft (12326_1)

12ft (12300_1, 13006_1, 13003_1)

21m (5161_1)

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes:CATWRK - 1:non-dangerous wreck
INFORM - Chart wreck with updated position and least depth.
NINFOM - No changes to charting
QUASOU - 6:least depth known
SORDAT - 20130612
SORIND - US,US,graph,H12527
TECSOU - 3:found by multi-beam
VALSOU - 21.560 m
WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: AWOIS 7813 uncharted wreck: feature was ensonified with object detect SSS and MBES. The feature is not considered significant based upon the height above the sea floor. It appears that the wreck is severly deteriorated based upon the height above the sea floor and the SS imagery. The SSS imagery indicates a wreck like object. Defer the final charting disposition to AHB Compile Team.

COMPILATION: Concur with conditions. Present survey found a non-dangerous sunken wreck, least depth 70.735 feet. It is recommended no changes are made to charting. Update AWOIS database based on present survey findings.

Feature Images



Figure 1.4.2



Figure 1.4.3



Figure 1.4.4



Figure 1.4.5

1.5) AWOIS 4302

AWOIS Item #4302

Search Position:	40° 34' 00.4" N, 073° 34' 10.5" W
Historical Depth:	[None]
Search Radius:	300
Search Technique:	Type: OBSTRUCTION, Itemstatus: ASSIGNED, Searchtype: FULL, Technique: S2 MBES
— • • • • •	

Technique Notes:

History Notes:

History

04302 HISTORY LNM44/75--3RD CGD; 10/15/75; BUOY ESTABLISHED IN LAT 40-34-00N LONG 73-34-12N TO MARK A SUNKEN 18 000 POUND ANCHOR. (ENTERED MSM 12/85)

Survey Summary

Survey Position:	40° 34' 00.4" N, 073° 34' 10.5" W
Least Depth:	[None]
TPU (±1.96 σ):	THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp:	2013-163.00:00:00.000 (06/12/2013)
Dataset:	H12527_Pydro features.000
FOID:	0_0003055573 00001(FFFE002E9FD50001)
Charts Affected:	12352_5, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

\$CSYMB/remrks: AWOIS item not found by H12527.

\$CSYMB/invreq: Type: OBSTRUCTION, Itemstatus: ASSIGNED, Searchtype: FULL, Technique: S2 MBES

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12527_Pydro features.000	0_0003055573 00001	0.00	000.0	Primary

Hydrographer Recommendations

Delete disproved AWOIS item.

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)

Attributes: NINFOM - Delete obstruction NTXTDS - ENCUS5NY53M,Edition12,20141016 SORDAT - 20130612 SORIND - US,US,graph,H12527

Office Notes

SAR NOTES: Charted Obstn PA (AWOIS 4302) ensonified with object detect SSS and MBES. No evidence of this feature was found. This feature is considered as disproved. Recommend to update the AWOIS database.

COMPILATION: Concur. Delete charted dangerous obstruction PA, least depth unknown and update AWOIS database for AWOIS item 4302. No indication of feature during present survey operations. Consider Item disproven. In addition, update area with present survey depths.

1.6) AWOIS 15087

AWOIS Item #15087

Search Position:	40° 32' 08.2" N, 073° 33' 21.3" W
Historical Depth:	[None]
Search Radius:	300
Search Technique:	Type: UNKNOWN, Itemstatus: ASSIGNED, Searchtype: FULL, Technique: S2 MBES
Technique Notes:	
History Notes:	

History

LNM 41/91; CGD1 -- ADDED DANGEROUS SUBM WK PA. (LAH 2/1/2013)

Survey Summary

Survey Position:	40° 32' 08.2" N, 073° 33' 21.3" W
Least Depth:	[None]
TPU (±1.96 σ) :	THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp:	2013-163.00:00:00.000 (06/12/2013)
Dataset:	H12527_Pydro features.000
FOID:	0_0003055577 00001(FFFE002E9FD90001)
Charts Affected:	12326_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

\$CSYMB/remrks: AWOIS item not found by H12527.

\$CSYMB/invreq: Type: UNKNOWN, Itemstatus: ASSIGNED, Searchtype: FULL, Technique: S2 MBES

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12527_Pydro features.000	0_0003055577 00001	0.00	000.0	Primary

Hydrographer Recommendations

Delete disproved AWOIS item.

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)

Attributes: NINFOM - Delete Wreck NTXTDS - ENCUS4NY1BM,Edition4,20140813 SORDAT - 20130612 SORIND - US,US,graph,H12527

Office Notes

SAR NOTES: Charted wreck PA (AWOIS 15087) Ensonified with object detect SSS and MBES. No evidence of this feature was found. This feature is considered as disproved. Recommend to update the AWOIS database.

COMPILATION: Concur. No indication of wreck in present survey coverage. Consider item disproved. Delete dangerous sunken wreck PA, depth unknown and update the AWOIS database based on present survey findings.

1.7) AWOIS 15079

AWOIS Item #15079

Search Position:	40° 34' 15.9" N, 073° 32' 00.0" W
Historical Depth:	[None]
Search Radius:	300
Search Technique:	Type: UNKNOWN, Itemstatus: ASSIGNED, Searchtype: FULL, Technique: S2 MBES
Technique Notes:	
History Notes:	
History	

LNM 14/93; CGD1 -- ADDED DANGEROUS SUBM WK PA (LAH 2/1/2013)

Survey Summary

Survey Position:	40° 34' 15.9" N, 073° 32' 00.0" W
Least Depth:	[None]
TPU (±1.96 σ) :	THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp:	2013-163.00:00:00.000 (06/12/2013)
Dataset:	H12527_Pydro features.000
FOID:	0_ 0003055572 00001(FFFE002E9FD40001)
Charts Affected:	12352 5, 12326 1, 12300 1, 13006 1, 5161 1, 13003 1

Remarks:

\$CSYMB/remrks: Delete Item

\$CSYMB/invreq: Type: UNKNOWN, Itemstatus: ASSIGNED, Searchtype: FULL, Technique: S2 MBES

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12527_Pydro features.000	0_0003055572 00001	0.00	000.0	Primary

Hydrographer Recommendations

Disproved by 200% SSS

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)

Attributes: NINFOM - Delete wreck NTXTDS - ENCUS5NY53M,Edition12,20141016 SORDAT - 20130612 SORIND - US,US,graph,H12527

Office Notes

SAR NOTES: Charted wreck PA (rep 1993) nsonified with object detect SSS and MBES. No evidence of this feature was found. This feature is considered as disproved.

COMPILATION: Concur. Delete charted dangerous sunken wreck, PA (rep 1993). Consider AWOIS 15079 disproved by present survey. Update AWOIS database and chart with present survey findings.

1.8) AWOIS 7714 - 51 foot dangerous sunken wreck

AWOIS Item #7714

Search Position:	40° 32' 29.7" N, 073° 31' 57.6" W
Historical Depth:	15.61 m
Search Radius:	300
Search Technique:	Type: UNKNOWN, Itemstatus: ASSIGNED, Searchtype: FULL, Technique: S2 MBES
— I · N /	

Technique Notes:

History Notes:

History

DESCRIPTION 195 LORAN C RATES PROVIDED BY MR. RICHARD TACKARA GREENWICH ì CT. POLICE DEPARTMENT TEL. NO. 203-622-8020; IDENTIFIED AS STONE Ì BARGE; 9960-X 26782.1-2-5 9960-Y 43728.2; LAT. 40-32-33.55N LONG. Ì 73-32-01.27W (COMPUTED FROM LORAN RATES). (ENTERED 5/90 MSM)

Survey Summary

Survey Position:	40° 32' 29.7" N, 073° 31' 57.6" W
Least Depth:	15.61 m (= 51.22 ft = 8.537 fm = 8 fm 3.22 ft)
TPU (±1.96 ஏ) :	THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp:	2013-163.00:00:00.000 (06/12/2013)
Dataset:	H12527_Pydro features.000
FOID:	0_0003055578 00001(FFFE002E9FDA0001)
Charts Affected:	12326_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

[None]

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12527_Pydro features.000	0_0003055578 00001	0.00	000.0	Primary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

51ft (12326_1)

8 ½fm (12300_1, 13006_1, 13003_1)

15.6m (5161_1)

S-57 Data

Geo object 1: Wreck (WRECKS) Attributes: CATWRK - 2:dangerous wreck NINFOM - Add wreck QUASOU - 6:least depth known SORDAT - 20130612 SORIND - US,US,graph,H12527 VALSOU - 15.612 m WATLEV - 3:always under water/submerged

Office Notes

SAR: Wreck like object or possible crane or skeletal tower observed within the AWOIS 7714 search radius. Interpretation is not definitive that this feature is associated with AWOIS 7714, the close proximity to the rock pile indicates some association. Rock pile is located approximately 50m to the SW of this location.

COMPILATION: Concur with conditions. AWOIS 7714 is described as dangerous submerged stone barge, not a rock pile. This wreck is probably the one referred to in the AWOIS database for AWOIS 7714. Add dangerous sunken wreck, least depth 51.22 feet in present survey position. Update AWOIS 7714 database based on present survey findings.



Figure 1.8.2

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Figure 1.8.3



Figure 1.8.4



Figure 1.8.5
1.9) AWOIS 7772

AWOIS Item #7772

Search Position:	40° 30' 33.8" N, 073° 31' 44.1" W
Historical Depth:	[None]
Search Radius:	300
Search Technique:	Type: C, Itemstatus: ASSIGNED, Searchtype: FULL, Technique: S2 MBES
Technique Notes:	

History Notes:

History

DESCRIPTION 195 LORAN C RATES PROVIDED BY MR. RICHARD TARACKA GREENWICH ì CT. POLICE DEPARTMENT TEL. NO. 203-622-8020; IDENTIFIED AS C ì 9960-X 26775.1 9960-Y 43708.8; LAT. 40-30-33.44N LONG. ì 73-31-45.59W (COMPUTED FROM LORAN RATES). (ENTERED 5/90 MSM)

Survey Summary

Survey Position:	40° 30' 33.8" N, 073° 31' 44.1" W
Least Depth:	[None]
TPU (±1.96 თ) :	THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp:	2013-163.00:00:00.000 (06/12/2013)
Dataset:	H12527_Pydro features.000
FOID:	0_0003055580 00001(FFFE002E9FDC0001)
Charts Affected:	12326 1.12300 1.13006 1.5161 1.13003 1

Remarks:

\$CSYMB/remrks: AWOIS item not found by H12527.

\$CSYMB/invreq: Type: C, Itemstatus: ASSIGNED, Searchtype: FULL, Technique: S2 MBES

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12527_Pydro features.000	0_ 0003055580 00001	0.00	000.0	Primary

Hydrographer Recommendations

Delete disproved AWOIS item.

S-57 Data

Geo object 1: Cartographic symbol (\$CSYMB)

Attributes: NINFOM - No change in charting NTXTDS - ENCUS4NY1BM,Edition4,20140813 SORDAT - 20130612 SORIND - US,US,graph,H12527

Office Notes

SAR NOTES: AWOIS 7772 uncharted wreck was insonified with object detect SSS and MBES. No evidence of this feature was found. This feature is considered as disproved. Recommend to update the AWOIS database.

COMPILATION: Concur. No indication of any wreck in present survey data in and around the vicinity of this item. Consider AWOIS 7772 disproved by the present survey. No change to charting. Update AWOIS database based on present survey findings.

2 - Dangers To Navigation

2.1) Caution Area 1

DANGER TO NAVIGATION

Survey Summary

Survey Position:	40° 35' 08.1" N, 073° 34' 22.8" W
Least Depth:	[None]
TPU (±1.96 σ) :	THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp:	2013-163.00:00:00.000 (06/12/2013)
Dataset:	H12527_Pydro features.000
FOID:	0_0003055583 00001(FFFE002E9FDF0001)
Charts Affected:	12352_5, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

CTNARE/remrks: Area of drastically shifting sandwaves

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12527_Pydro features.000	0_ 0003055583 00001	0.00	0.000	Primary

Hydrographer Recommendations

Cannot insure accuracy of surveyed depths in area with shifting sand waves.

S-57 Data

Geo object 1: Caution area (CTNARE)

Attributes: NINFOM - Add caution area

SORDAT - 20130612

SORIND - US, US, graph, H12527

Office Notes

SAR NOTES: Feature was ensonified with OD SSS and set line spacing MBES. The survey data validates the existence of the sand waves and shoaling in the area. Defer the final charting disposition to AHB Compile Team.

COMPILATION: Concur. Delete charted caution area. Add caution area as detailed based on present survey findings.

2.2) DTON #1

DANGER TO NAVIGATION

Survey Summary

Survey Position:	40° 32' 01.2" N, 073° 33' 50.1" W
Least Depth:	10.55 m (= 34.61 ft = 5.769 fm = 5 fm 4.61 ft)
TPU (±1.96 თ):	THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp:	2013-163.00:00:00.000 (06/12/2013)
Dataset:	H12527_Pydro features.000
FOID:	0_0003055584 00001(FFFE002E9FE00001)
Charts Affected:	12326_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

WRECKS/remrks: Found durng office processing

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12527_Pydro features.000	0_0003055584 00001	0.00	000.0	Primary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

34ft (12326_1)

5 ¾fm (12300_1, 13006_1, 13003_1)

10.5m (5161_1)

S-57 Data

- Geo object 1: Wreck (WRECKS)
- Attributes: CATWRK 2:dangerous wreck NINFOM - Add wreck QUASOU - 6:least depth known SORDAT - 20130612

SORIND - US,US,graph,H12527 TECSOU - 3,2:found by multi-beam,found by side scan sonar VALSOU - 10.550 m WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Noted during office processing. Feature was ensonified with object detect SSS and MBES. Feature is considered significant and verified as per survey data. Defer the final charting disposition to AHB Compile Team.

COMPILATION: Concur. Delete charted dangerous sunken wreck with a least depth of 34 feet. Add a dangerous sunken wreck, least depth 34.613 feet, in the present survey position.

Feature Images



Figure 2.2.1



Figure 2.2.2



Figure 2.2.3

3 - Wreck Features

3.1) Charted dangerous sunken wreck, depth unknown

Survey Summary

Survey Position:	40° 34' 37.1" N, 073° 33' 42.8" W
Least Depth:	[None]
TPU (±1.96):	THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp:	2006-060.00:00:00.000 (03/01/2006)
Dataset:	H12527_Pydro features.000
FOID:	0_0003055581 00001(FFFE002E9FDD0001)
Charts Affected:	12352_5, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

[None]

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12527_Pydro features.000	0_0003055581 00001	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

- Geo object 1: Wreck (WRECKS)
- Attributes: CATWRK 2:dangerous wreck

NINFOM - Retain wreck

QUASOU - 2:depth unknown

SORDAT - 20060300

SORIND - US,US,graph,Chart 12352

WATLEV - 3:always under water/submerged

Office Notes

COMPILATION: Wreck was not investigated during present survey. Retain wreck as charted.

3.2) Uncharted dangerous sunken wreck, least depth 54 feet

Survey Summary

Survey Position:	40° 31' 00.9" N, 073° 33' 29.5" W
Least Depth:	16.49 m (= 54.11 ft = 9.019 fm = 9 fm 0.11 ft)
TPU (±1.96 თ) :	THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp:	2013-163.00:00:00.000 (06/12/2013)
Dataset:	H12527_Pydro features.000
FOID:	0_0003055582 00001(FFFE002E9FDE0001)
Charts Affected:	12326_1, 12300_1, 13006_1, 5161_1, 13003_1

Remarks:

[None]

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12527_Pydro features.000	0_0003055582 00001	0.00	0.000	Primary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

54ft (12326_1) 9fm (12300_1, 13006_1, 13003_1) 16.5m (5161_1)

S-57 Data

Geo object 1: Wreck (WRECKS) Attributes: CATWRK - 2:dangerous wreck NINFOM - Add wreck QUASOU - 6:least depth known SORDAT - 20130612 SORIND - US,US,graph,H12527 VALSOU - 16.494 m WATLEV - 3:always under water/submerged

Office Notes

SAR: Wreck observed during survey review. Feature has been verified via SS and MB.

COMPILATION: Concur. Add a dangerous sunken wreck, least depth 54.114 feet in the present survey position.

Feature Images



Figure 3.7.1



Figure 3.7.3

APPROVAL PAGE

H12527

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

- H12527_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12527_GeoImage.pdf

The survey evaluation and verification has been conducted according 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