

H12604

NOAA FORM 76-35A	
U.S. Department of Commerce National Oceanic and Atmospheric Administration National Ocean Service	
DESCRIPTIVE REPORT	
Type of Survey:	Navigable Area
Project Number:	OPR-B310-KR2-13
Registry Number:	H12604
LOCALITY	
State(s):	New York
General Locality:	North Atlantic, New York Harbor and Approaches
Sub-locality:	Lower Bay to Jamaica Bay
2013	
CHIEF OF PARTY George G. Reynolds	
LIBRARY & ARCHIVES	
Date:	

NOAA FORM 77-28		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION		REGISTRY NUMBER:	
HYDROGRAPHIC TITLE SHEET				H12604	
INSTRUCTIONS: The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.					
State:		New York			
General Locality:		North Atlantic, New York Harbor and Approaches			
Sub-Locality:		Lower Bay to Jamaica Bay			
Scale:		1:10000			
Dates of Survey:		Sep 17, 2013 to Dec 20, 2013			
Instructions Dated:		Jun 19, 2013			
Project No.:		OPR-B310-KR2-13			
Field Unit:		Ocean Surveys, Inc.			
Chief of Party:		George G. Reynolds			
Soundings by:		Multibeam Echo Sounder			
Imagery by:		Side Scan Sonar and MBES Backscatter			
Verification by:		Atlantic Hydrographic Branch			
Soundings Acquired in:		meters at Mean Lower Low Water			
Remarks: All times are recorded in UTC. Data recorded and presented relative to UTM Zone 18 North. THE INFORMATION PRESENTED IN THIS REPORT AND THE ACCOMPANYING BASE SURFACES REPRESENTS THE RESULTS OF SURVEYS PERFORMED BY OCEAN SURVEYS, INC. DURING THE PERIOD OF 17 SEPTEMBER 2013 TO 20 DECEMBER 2013 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO OSI.					

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 Centers for Environmental Information (NCEI) and can be retrieved via <https://www.ncei.noaa.gov/>.

Table of Contents

A. Area Surveyed.....	1
A.1 Survey Limits.....	1
A.2 Survey Purpose.....	1
A.3 Survey Quality.....	1
A.4 Survey Coverage.....	2
A.5 Survey Statistics.....	4
B. Data Acquisition and Processing.....	7
B.1 Equipment and Vessels.....	7
B.1.1 Vessels.....	8
B.1.2 Equipment.....	8
B.2 Quality Control.....	8
B.2.1 Cross Lines.....	8
B.2.2 Uncertainty.....	12
B.2.3 Junctions.....	13
B.2.4 Sonar QC Checks.....	13
B.2.5 Equipment Effectiveness.....	14
B.2.6 Factors Affecting Soundings.....	14
B.2.7 Sound Speed Methods.....	14
B.2.8 Coverage Equipment and Methods.....	15
B.3 Echo Sounding Corrections.....	15
B.3.1 Corrections to Echo Soundings.....	15
B.3.2 Calibrations.....	15
B.4 Backscatter.....	15
B.5 Data Processing.....	15
B.5.1 Software Updates.....	15
B.5.2 Surfaces.....	16
C. Vertical and Horizontal Control.....	17
C.1 Vertical Control.....	17
C.2 Horizontal Control.....	18
D. Results and Recommendations.....	20
D.1 Chart Comparison.....	20
D.1.1 Raster Charts.....	21
D.1.2 Electronic Navigational Charts.....	46
D.1.3 AWOIS Items.....	47
D.1.4 Maritime Boundary Points.....	48
D.1.5 Charted Features.....	48
D.1.6 Uncharted Features.....	48
D.1.7 Dangers to Navigation.....	49
D.1.8 Shoal and Hazardous Features.....	50
D.1.9 Channels.....	55
D.1.10 Bottom Samples.....	67

D.2 Additional Results.....	68
D.2.1 Shoreline.....	68
D.2.2 Prior Surveys.....	68
D.2.3 Aids to Navigation.....	70
D.2.4 Overhead Features.....	76
D.2.5 Submarine Features.....	78
D.2.6 Ferry Routes and Terminals.....	90
D.2.7 Platforms.....	94
D.2.8 Significant Features.....	94
D.2.9 Construction and Dredging.....	95
D.2.10 Position Discrepancy Between Charted H12604 DtoNs and the LNM.....	100
D.2.11 Tidal Information Table Update RNC 12402.....	101
D.2.12 New Survey Recommendation.....	102
D.2.13 New Inset Recommendation.....	102
E. Approval Sheet.....	103

List of Tables

Table 1: Survey Limits.....	1
Table 2: Hydrographic Survey Statistics.....	4
Table 3: Dates of Hydrography.....	7
Table 4: Vessel Used.....	8
Table 5: Primary Survey Equipment.....	8
Table 6: Survey Specific Tide TPU Values.....	12
Table 7: Survey Specific Sound Speed TPU Values.....	12
Table 8: Submitted MBES Coverage Surfaces.....	16
Table 9: NWLON Tide Station.....	17
Table 10: Subordinate Tide Station.....	17
Table 11: Water Level Files.....	18
Table 12: Tide Corrector File.....	18
Table 13: CORS Base Stations.....	19
Table 14: New York State DOT CORS Network Stations.....	19
Table 15: USCG DGPS Stations used for Horizontal Control.....	20
Table 16: Largest Scale Raster Charts.....	21
Table 17: Largest Scale Electronic Charts.....	46
Table 18: DTON Reports.....	49

List of Figures

Figure 1: Survey H12604 MBES coverage colored by depth overlaid on RNC 12326.....	3
Figure 2: An overview of MBES survey lines shows the cross lines highlighted in yellow in reference to all other MBES lines displayed in black.....	10

Figure 3: The graph shows a frequency distribution of the depth differences between the H12604 cross line data and all H12604 mainscheme, development, and side looking data. Statistics from the depth difference sample set are displayed above the graph.....	11
Figure 4: The table displays the number of 2-meter cells from the crossline and mainscheme surfaces that were compared to generate the crossline comparison difference surface. Given a total number of 1,008, 509 cells in the difference surface, the percentage of cells are provided that met different depth difference criteria.....	12
Figure 5: Contours generated from the H12604 MBES data (6' in red, 12' in green, and the 18' in orange) are shown in reference to the charted contours surrounding Coney Island from RNC 12402 (highlighted in yellow).....	22
Figure 6: Areas of shoaling and deepening west of Rockaway Inlet are highlighted with H12604 survey data, soundings in red and contours (6' in red, 12' in green, and 18' in orange), with a 50-cm CUBE surface overlaid on RNC 12350 in the background.....	23
Figure 7: Contours generated from the H12604 MBES data (6' in red, 12' in green, 18' in orange, 30' in pink, and 36' in blue) are shown in comparison to the charted contours from RNC 12350 north of Rockaway Point. The chart was overlain with a 50-cm CUBE surface.....	29
Figure 8: Scour at the base of Gil Hodges Memorial Bridge is apparent in a 50-cm CUBE surface overlaid on RNC 12350. Surveyed depths within the scour marks are colored in yellow and displayed in feet.....	30
Figure 9: The surveyed 6' contour (in red) has migrated seaward into the entrance to Sheepshead Bay. A surveyed 4-foot depth is highlighted in red overlaid on RNC 12350. The surveyed 12', 18', and 30' contour are colored in green, orange, and pink respectively.....	31
Figure 10: Contours generated from the H12604 MBES data (6' in red, 12' in green, and 18' in orange) are shown in reference to the charted contours within Mill and Gerritsen Creeks. Surveyed soundings that represent significant change from the charted depths are highlighted in blue with a 50-cm CUBE surface overlaid on RNC 12350 in the background.....	32
Figure 11: Contours generated from the H12604 MBES data (6' in red and 36' in blue) are shown in reference to Shell Bank Channel and Shell Bank Creek. Surveyed soundings that represent significant change from the charted depths are highlighted in pink with a 50-cm CUBE surface overlaid on RNC 12350 in the background.....	33
Figure 12: Contours generated from the H12604 MBES data (6' in red and 18' in orange) are shown in reference to northern Beach Channel. Representative soundings of the deepening trend over Nova Scotia Bar were highlighted in blue with a 50-cm CUBE surface overlaid on RNC 12350 in the background.....	34
Figure 13: Contours generated from the H12604 MBES data (6' in red, 12' in green, and 18' in orange) are shown in reference to northern Beach Channel. Representative soundings of the deepening trend over Little Egg and Giant Bar Marsh were highlighted in blue with a 50-cm CUBE surface overlaid on RNC 12350 in the background.....	35
Figure 14: Contours generated from the H12604 MBES data (6' in red and 18' in orange) are shown in reference to Yankee Channel. Representative soundings of the shoaling trend over were highlighted in red with a 50-cm CUBE surface overlaid on RNC 12350 in the background.....	36
Figure 15: Contours generated from the H12604 MBES data (6' in red, 12' in green, and 18' in orange) are shown in reference to the western entrance to Runway Channel. Representative soundings of the deepening trend were highlighted in blue with a 50-cm CUBE surface overlaid on RNC 12350 in the background.....	37
Figure 16: Contours generated from the H12604 MBES data (6' in red, 12' in green, and 18' in orange) are shown in reference to the east side of Island Channel north of Long Pol Bar. Representative soundings of the shoaling trend were highlighted in red with a 50-cm CUBE surface overlaid on RNC 12350 in the background.....	38

Figure 17: Contours generated from the H12604 MBES data (6' in red, 12' in green, 18' in orange, 30' in pink, and 36' in blue) are shown in reference to the charted contours and soundings surrounding Canarsie Pier. Representative soundings of the shoaling and deepening trends were highlighted in red and blue with a 50-cm CUBE surface overlaid on RNC 12350 in the background.....	39
Figure 18: Contours generated from the H12604 MBES data (6' in red, 12' in green, and 18' in orange) are shown in reference to North Channel. Representative soundings of the shoaling and deepening trends were highlighted in red and blue with a 50-cm CUBE surface overlaid on RNC 12350 in the background.....	40
Figure 19: Evidence of past dredging was apparent in Grassy Bay as highlighted by contours generated from the H12604 MBES data (6' in red, 12' in green, 18' in orange, 30' in pink, and 36' in blue) overlaid on a 50-cm CUBE surface with RNC 12350 in the background. Representative soundings of the shoaling and deepening trends were highlighted in red and blue	41
Figure 20: Scour was identified at the base of the Trestle bridge in East Broad Channel. Two deep holes were surveyed to the east and west of the bridge highlighted with contours generated from the H12604 MBES data (6' in red, 12' in green, 18' in orange, 30' in pink, and 36' in blue) and a 50-cm CUBE surface overlaid on RNC 12350. Soundings representing the maximum surveyed depth within the holes were colored in blue.....	42
Figure 21: Two deep holes were surveyed near the entrance to Vernam Basin. The holes are highlighted by the contours generated from the H12604 MBES data (6' in red, 12' in green, 18' in orange, 30' in pink, and 36' in blue) and a 50-cm CUBE surface overlaid on RNC 12350. Soundings representing the maximum surveyed depth within the holes were colored in blue.....	43
Figure 22: Contours generated from the H12604 MBES data (6' in red, 12' in green, 18' in orange, 30' in pink, and 36' in blue) are shown in reference to Norton Basin. Representative soundings of the shoaling and deepening trends are highlighted in red and blue with a 50-cm CUBE surface overlaid on RNC 12350 in the background.....	44
Figure 23: Contours generated from the H12604 MBES data (6' in red, 12' in green, 18' in orange, 30' in pink, and 36' in blue) are shown in reference to the southern side of Head of Bay. Significant deepening was surveyed over two charted shoals with a new 8-foot shoal reported as a DtoN.....	45
Figure 24: The figure highlights two examples from Jamaica Bay where a horizontal shift between the coastline and shoreline features in the CSF colored in green and the coastline as charted on RNC 12350 was apparent. The CSF was generated from ENC US5NY50M.....	47
Figure 25: The extents of the Plumb Beach Channel shoal have changed significantly compared to the charted shoal as highlighted by contours derived from H12604 MBES data (6' in red, 12' in green, 18' in orange, and 30' in pink). In the background, a 50-cm CUBE surface is overlaid on RNC 12350.....	53
Figure 26: A charted shoal has changed significantly from the chart as highlighted by contours derived from H12604 MBES data (6' in red, 12' in green, 18' in orange, 30' in pink, and 36' in blue) compared with the charted caution area (black dashed line). In the background, a 50-cm CUBE surface is overlaid on RNC 12350.....	54
Figure 27: This figure points out the as-charted locations of Ambrose Channel and Chapel Hill Channel in relation to the H12604 survey area. A MBES shaded relief coverage was overlaid on RNC 12402.....	60
Figure 28: NM 49/13 (7 December 2013) - New Controlling Depth Tabulation for Ambrose Channel and Chapel Hill Channel.....	61
Figure 29: NY Corps of Engineers Report of Channel Conditions for Ambrose Channel dated 3 March 2014.....	62
Figure 30: This figure highlights Ambrose Channel as currently charted (red hatch) and as defined by the NY Corps of Engineers (blue hatch) overlaid on RNC 12402. The assigned limits of Survey H12604 are shown as a magenta line.....	63

Figure 31: Tabulation of Ambrose Channel turning points per NY Corps of Engineers e-mail dated July 30, 2014.....	64
Figure 32: The charted Fairway/Dredged area east of Barren Island is shown on RNC 12350, overlaid with a 50-cm CUBE surface colored by depth range. Depths less than 28 feet are shaded in red and depths 28 feet and greater are shaded green.....	64
Figure 33: The charted Channel/Fairway within Beach Channel is shown on RNC 12350, overlaid with a 50-cm CUBE surface colored by depth range. Depths less than 15 feet are shaded in red and depths 15 feet and greater are shaded green.....	65
Figure 34: The charted Channel/Fairway within Grass Haddock Channel is shown on RNC 12350, overlaid with a 50-cm CUBE surface colored by depth range. Depths less than 15 feet are shaded in red and depths 15 feet and greater are shaded green.....	66
Figure 35: The charted Channel/Fairway within Negro Bar Channel and Motts Basin is shown on RNC 12350, overlaid with a 50-cm CUBE surface colored by depth range. Depths less than 15 feet are shaded in red and depths 15 feet and greater are shaded green.....	67
Figure 65: A chartlet displays the obstructions and wrecks submitted with OSI DtoN #15 highlighted in red and overlaid on the Sheepshead Bay Special Anchorage Area on RNC 12350 (downloaded June 13, 2014). There is a disparity between the submitted positions for two features, one wreck and one obstruction, and the charted positions.....	101
Figure 66: Currently Charted and Recommended Updated Tidal Datum Values for Norton Point, Hook Creek, NY.....	102
Figure 36: A shaded relief depth difference map displaying the results of a surface-to-surface subtraction of Survey H12604 (2013) MBES data from Survey H11601 (2006) MBES data.....	69
Figure 37: Historic USGS topographic maps were compared alongside RNC 12350 to show landfill changes within Mill Basin.....	69
Figure 38: Historic USGS topographic maps were compared alongside RNC 12350 to show landfill changes in the waters surrounding JFK International Airport.....	70
Figure 39: A photo of the Sewer Outfall Diffuser "Roundhouse" located within Rockaway Inlet. The charted light was not observed on the diffuser structure.....	73
Figure 40: A photo of a damaged pier which was the supposed location of missing "Kennedy Airport Dock Light C" (LL#34605).....	74
Figure 41: A photo of a red light on a dock house nearby the charted location of missing "Kennedy Airport Dock Light F" (LL#34610).....	75
Figure 42: Photos of typical fixed and floating JFK security zone aids to navigation.....	76
Figure 43: Aerial imagery captured the change in the Paerdegat Basin Bridge from one span to two spans during Belt Parkway construction.....	77
Figure 44: North Channel pipe feature making landfall on Canarsie Pol.....	81
Figure 45: Uncharted outfall pipe on Coney Island Beach.....	81
Figure 46: Rockaway Inlet Sewer Outfall pipelines overlaid by surveyed pipeline segments (in red) with RNC 12350 in the background.....	82
Figure 47: Rockaway Inlet charted sewer diffuser "Roundhouse", as-surveyed roundhouse position, and new diffuser pipe as seen in a 50-cm CUBE surface overlaid on RNC 12350.....	83
Figure 48: A presumed uncharted cable colored in red located at the east end of North Channel.....	84
Figure 49: Cable signs alongside the Cross Bay Blvd Bridge within North Channel.....	85
Figure 50: Pipeline crossing signs observed on the shoreline within Survey H12604.....	86
Figure 51: Pipeline signs indicate the presence of an uncharted pipeline in Bergen Basin.....	87

<u>Figure 52: A vandalized sign indicates the possible presence of an uncharted pipeline within Fresh Creek.....</u>	<u>88</u>
<u>Figure 53: The location of the as-surveyed pipelines within Shellbank Basin were highlighted in yellow. In the background a 50-cm CUBE surface was overlaid on RNC 12350.....</u>	<u>89</u>
<u>Figure 54: A photo obtained from a New York Time article of the Shellbank Basin diffused-air bubble mixing system pipes.....</u>	<u>90</u>
<u>Figure 55: SeaStreak Ferry route between Rockaway Park, NY and various landings in Manhattan, NY.....</u>	<u>92</u>
<u>Figure 56: SeaStreak Ferry route between Rockaway Park, NY and various landings in Manhattan, NY.....</u>	<u>92</u>
<u>Figure 57: New York Beach Ferry route between Rockaway, NY and Pier 11, Wall Street, NY.....</u>	<u>93</u>
<u>Figure 58: General path of SeaStreak fast ferries observed transiting through Survey H12604.....</u>	<u>93</u>
<u>Figure 59: Two dome-like mounds were developed with MBES coverage within Survey H12604, shown in a 50-cm CUBE surface overlaid on RNC 12350.....</u>	<u>95</u>
<u>Figure 60: Rockaway Inlet dredge area and prior location of submerged pipeline highlighted represented in a 50-cm CUBE surface overlaid on RNC 12350.....</u>	<u>97</u>
<u>Figure 61: Photos of a new dock or similar structure under construction in Head of Bay.....</u>	<u>98</u>
<u>Figure 62: New steel bulkheaded pier under construction in Norton Basin.....</u>	<u>99</u>
<u>Figure 63: LNM 3/14 describing dredging and construction activities around Paerdegat Basin.....</u>	<u>100</u>
<u>Figure 64: LNM 20/14 describing ongoing bridge construction within the bounds of Survey H12604.....</u>	<u>100</u>

Descriptive Report to Accompany Survey H12604

Project: OPR-B310-KR2-13

Locality: North Atlantic, New York Harbor and Approaches

Sublocality: Lower Bay to Jamaica Bay

Scale: 1:10000

September 2013 - December 2013

Ocean Surveys, Inc.

Chief of Party: George G. Reynolds

A. Area Surveyed

This survey provides hydrographic data for portions of Jamaica Bay and New York Harbor Lower Bay. The general locations of the survey limits are presented in Table 1.

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
40° 39" 46' N 74° 3" 16' W	40° 32" 9' N 73° 44" 20' W

Table 1: Survey Limits

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 is in response to different user group needs following Hurricane Sandy landfall. Specifically these data will adjoin updated shoreline, address the need for updated bathymetry for inundation modeling, and help identify marine debris for potential removal.

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

A.4 Survey Coverage

Survey Coverage was in accordance with the requirements in the Hydrographic Survey Project Instructions (June 19, 2013), the Statement of Work, and the Hydrographic Specifications and Deliverables, April 2013 (HSSD). The Project Instructions (PI) stated: “The inshore limit of hydrography will be the farthest offshore of the following: (1) the 2-meter depth contour or (2) the line defined by the distance seaward from the MHW line which is equivalent to 0.8 millimeters at the scale of the largest scale nautical chart.” The coverage criteria assigned in the PI varied with water depth; the coverage requirements were as follows:

- 2 meters to 4 meters water depth: 100% SSS with concurrent VBES or MBES (and backscatter), or Object Detection MBES (and backscatter).
- 4 meters to 20 meters water depth: 200% SSS with concurrent VBES or MBES (and backscatter), or Object Detection MBES (and backscatter).
- Greater than 20 meters water depth: Complete MBES with Backscatter.

The majority of the project survey area was in water less than 20 meters deep. All PI coverage requirements for survey H12604 were satisfied. Despite the PI-specified coverage which did not require SSS coverage in water deeper than 20 meters, 200% SSS coverage was achieved for the entire survey area deeper than 4 meters, along with complete MBES coverage in depths greater than 20 meters. This approach was used in lieu of the PI-specified method requiring only MBES coverage since the tracklines that intersected water depths greater than 20 meters were a continuation of lines run in water less than 20 meters deep; therefore, it did not make sense operationally to break the lines at the 20 meter contour.

Additional MBES coverage was obtained as necessary to provide a least depth for all significant SSS contacts and assigned AWOIS investigation items. The final survey area covers 25.91 square nautical miles (Figure 1).

SSS tracklines were separated by one-half the distance required for 100% coverage plus an allowance for overlap and trackline maintenance. During data acquisition the goal was to run odd numbered lines for the 100% SSS coverage and even numbered lines for the 200% SSS coverage; however, in many areas, the narrow channels and shoreline constructions complicated the line plans and to meet the double coverage requirements the odd and even numbering scheme did not always apply. During coverage mosaic generation, the majority of the lines acquired to satisfy the requirement of 100% SSS coverage in the 2 meter to 4 meter depth area were added to the 100% coverage mosaic (H12604_SSS_100_1m); the 200% coverage mosaic includes the remaining SSS lines within the 2 meter to 4 meter depth area.

A best attempt was made to create discrete 100% and 200% mosaics, but due to the complex survey line driving, several coverage gaps were unavoidable in the 100% and 200% mosaics in depth areas 4 meters or deeper. A gap in the mosaic did not preclude the fulfillment of coverage requirements if one or both of the following conditions were met: 1) 200% SSS coverage was met with any two SSS lines regardless of designation in a 100% or 200% mosaic (i.e. double coverage exists in one mosaic over a gap in the second mosaic), and 2) there was MBES coverage over the SSS mosaic gap, which can be considered as the second 100% coverage. The second condition was specified in section 5.2.2 Coverage and Resolution in the HSSD which states the following: "Note that 200% side scan sonar coverage with set line spacing bathymetry is also a valid 100%

bottom coverage technique." No SSS contacts or bathymetric features were positioned within the mosaic coverage gaps.

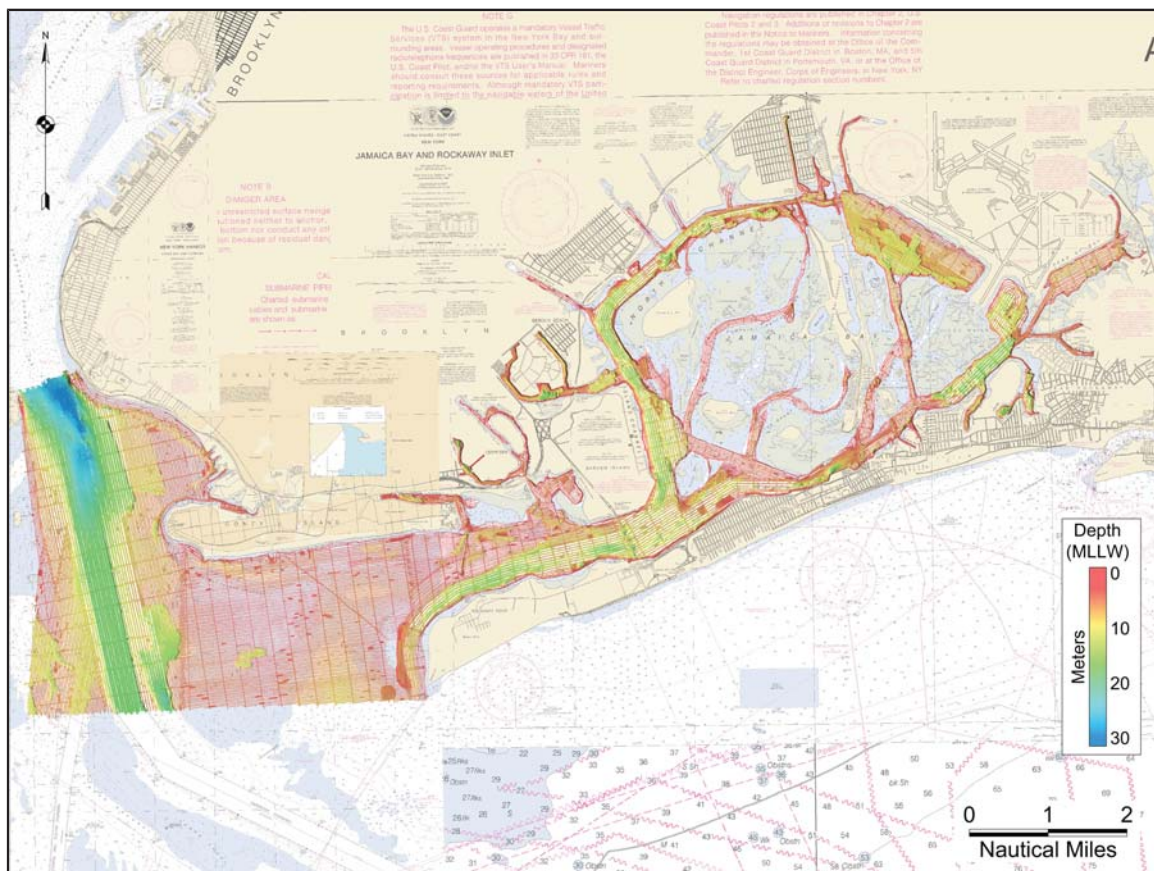


Figure 1: Survey H12604 MBES coverage colored by depth overlaid on RNC 12326.

A.5 Survey Statistics

The following tables list the survey statistics (Table 2) and the dates of hydrography (Table 3).

	Hull ID	<i>R/V ABLE II</i>	<i>Total</i>
LNM	SBES Mainscheme	0	0
	MBES Mainscheme	318.1	318.1
	Lidar Mainscheme	0	0
	SSS Mainscheme	0	0
	SBES/MBES Mainscheme	0	0
	SBES/SSS Mainscheme	0	0
	MBES/SSS Mainscheme	1233.2	1233.2
	SBES/MBES Crosslines	104.8	104.8
	Lidar Crosslines	0	0
Number of Bottom Samples			50
Number of AWOIS Items Investigated			41
Number of Maritime Boundary Points Investigated			0
Number of DPs			0
Number of Items Investigated by Dive Ops			0
Total Number of SNM			25.91

Table 2: Hydrographic Survey Statistics

Survey Dates	Julian Day Number
09/21/2013	264
09/22/2013	265
09/23/2013	266
09/24/2013	267
09/25/2013	268
09/26/2013	269
09/27/2013	270
09/28/2013	271
09/29/2013	272
09/30/2013	273
10/01/2013	274
10/02/2013	275
10/03/2013	276
10/04/2013	277
10/05/2013	278
10/06/2013	279
10/07/2013	280
10/08/2013	281
10/09/2013	282
10/10/2013	283
10/11/2013	284
10/12/2013	285
10/13/2013	286
10/14/2013	287
10/15/2013	288
10/16/2013	289
10/17/2013	290
10/18/2013	291
10/20/2013	293
10/21/2013	294
10/22/2013	295
10/23/2013	296
10/24/2013	297

Survey Dates	Julian Day Number
10/25/2013	298
10/26/2013	299
10/27/2013	300
10/28/2013	301
10/29/2013	302
10/30/2013	303
10/31/2013	304
11/02/2013	306
11/03/2013	307
11/04/2013	308
11/05/2013	309
11/06/2013	310
11/07/2013	311
11/08/2013	312
11/09/2013	313
11/10/2013	314
11/11/2013	315
11/12/2013	316
11/13/2013	317
11/14/2013	318
11/15/2013	319
11/16/2013	320
11/17/2013	321
11/18/2013	322
11/19/2013	323
11/20/2013	324
11/21/2013	325
11/22/2013	326
11/23/2013	327
12/04/2013	338
12/05/2013	339
12/06/2013	340
12/07/2013	341

Survey Dates	Julian Day Number
12/08/2013	342
12/09/2013	343
12/10/2013	344
12/11/2013	345
12/12/2013	346
12/13/2013	347
12/14/2013	348
12/15/2013	349
12/16/2013	350
12/17/2013	351
12/18/2013	352
12/19/2013	353
12/20/2013	354

Table 3: Dates of Hydrography

B. Data Acquisition and Processing

B.1 Equipment and Vessels

Refer to the OPR-B310-KR2-13 Data Acquisition and Processing Report (DAPR) for a complete description of data acquisition and processing systems, the survey vessel, 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

All survey operations were conducted from the R/V Able II, Connecticut registration number CT 4788 BB, a 7.6-meter fiberglass vessel with a 2.9-meter beam and 0.8-meter draft. R/V Able II is powered by twin 150 HP outboard engines.

Hull ID	<i>Able II - CT 4788 BB</i>
LOA	7.6 meters
Draft	0.8 meters

Table 4: Vessel Used

B.1.2 Equipment

All equipment was installed and calibrated in accordance with the DAPR.

Manufacturer	Model	Type
Reson	8125	MBES
EdgeTech	4125	SSS
Applanix	POS-MV 320 V4	Positioning and Attitude System
AML	Base X with SX-Xchange and P-Xchange sensors	Sound Speed System
SeaBird Electronics	MicroCAT SBE-37	Sound Speed System
Trimble	MS750	Positioning System

Table 5: Primary Survey Equipment

B.2 Quality Control

B.2.1 Cross Lines

The planned cross line mileage was approximately 10% of mainscheme mileage required in the HSSD for Set Line Spacing coverage. A hybrid mainscheme line plan featuring 40 meter and 60 meter lines was used in calculating total planned line mileage. There were myriad unanticipated shoals and features requiring substantial additional effort to achieve coverage results as specified in the HSSD. As a result the total percentage of MBES cross line mileage versus typical MBES mainscheme line coverage equaled 8.5%

while MBES cross line mileage versus all MBES line mileage including mainscheme, investigation, shoal development, and side-looking shallow water coverage equaled 6.8%.

Cross lines were run nominally perpendicular to mainscheme lines (Figure 2). Soundings from mainscheme lines and cross lines were compared periodically throughout survey operations reviewing preliminary MBES surfaces and using CARIS HIPS Subset Editor. Cross line comparisons provided confirmation that the system offsets and biases were entered correctly and verified the accuracy of sounding correctors (i.e. tide, sound speed, TrueHeave).

Statistical quality control information was compiled from a difference surface, generated in CARIS HIPS, between the depth layer of a 2-meter CUBE surface composed only of cross line data and the depth layer of a 2-meter CUBE surface composed of all accepted mainscheme, development, and side looking data (hereafter called "mainscheme" data). The cross line analysis results demonstrate excellent agreement between cross line soundings and mainscheme sounding. In fact, 99.97% of cross line versus mainscheme depth differences were less than or equal to 0.50 meters. The allowable TVU for the range of water depths within Survey H12604 is greater than 0.50 meters. Figure 3 is a histogram showing the distribution of depth differences for all comparison grid cells considered; extreme Min/Max values were omitted from the histogram to maintain a usable scale. The table shown in Figure 4 presents a breakdown of cross line versus mainscheme depth differences with respect to depth difference range. The total number of 2-meter comparison cells = 1,008,509. The table is organized as shown in the following example: of 1,008,509 possible comparison cells, 1,000,900 or 99.25% of the cells include cross line and mainscheme soundings that match within +/- 20 centimeters.

The minimum/maximum depth difference range of all comparison cells is -3.08 meters to +2.15 meters with the overwhelming majority of comparison cells showing differences below 0.50 meters. Larger depth differences are distributed evenly throughout the survey area, i.e. no systematic, temporal, sound speed, or tide errors are evident. The largest differences of -3.08 and + 2.15 as well as other differences approaching these values are the result of small positioning differences between cross line and mainscheme line data surrounding features with tall, narrow components such as the sunken wreck at position 40-38-00.07 N, 073-52-17.80 W, the obstruction at position 40-36-27.09 N, 073-52-53.70 W, or the obstruction at position 40-35-54.23 N, 073-46-46.69 W. Smaller differences on the order of +/- 1-meter are observed in areas of steep slopes including, for example, at positions 40-37-49.7 N, 073-52-29.6 W, 40-33-07.9 N, 073-56-55.3 W, and 40-36-24.3 N, 073-46-17.1 W.

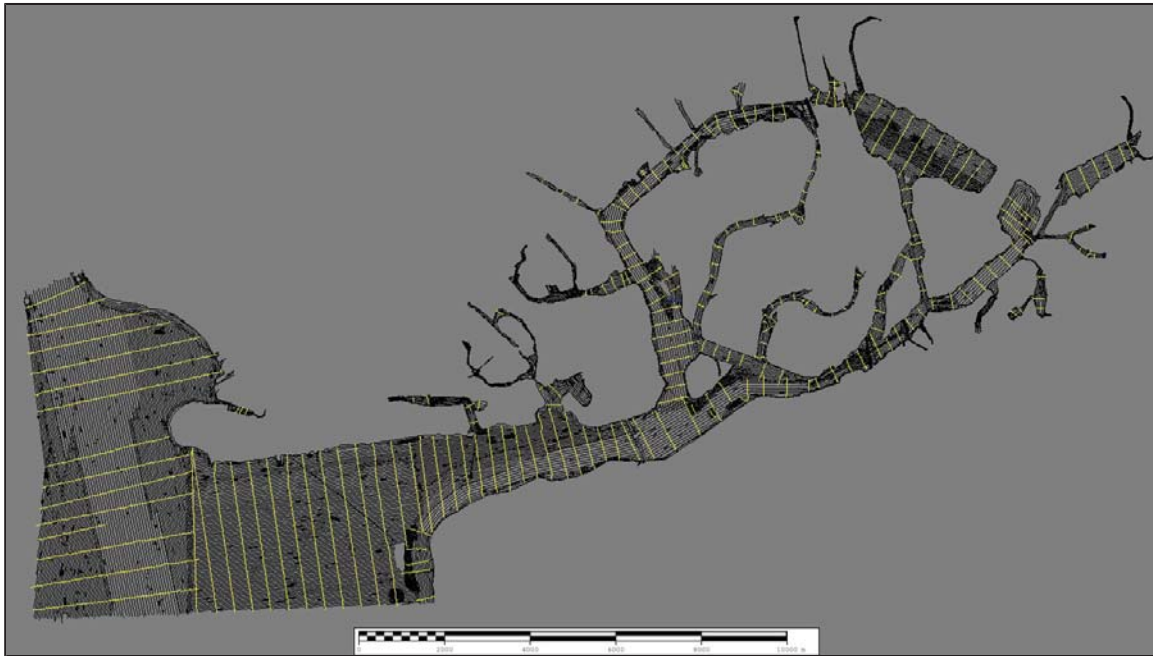


Figure 2: An overview of MBES survey lines shows the cross lines highlighted in yellow in reference to all other MBES lines displayed in black.

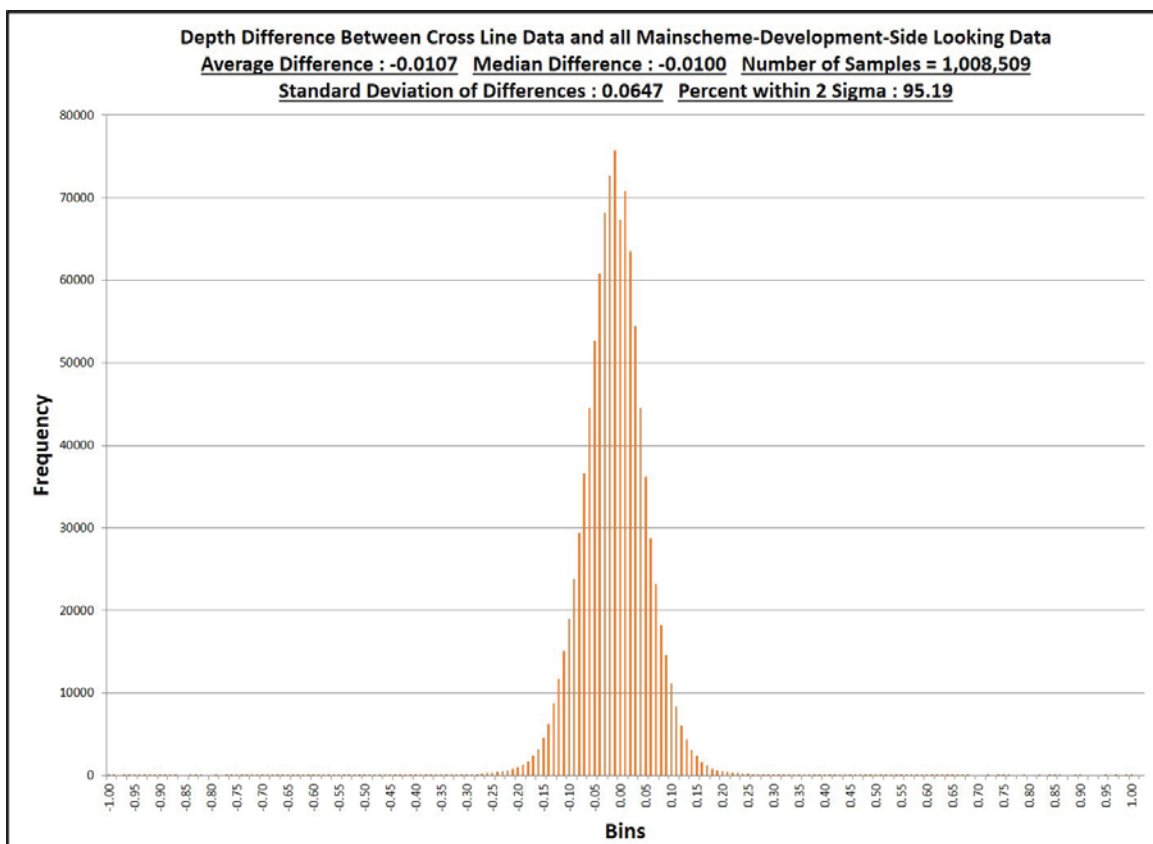


Figure 3: The graph shows a frequency distribution of the depth differences between the H12604 cross line data and all H12604 mainscheme, development, and side looking data. Statistics from the depth difference sample set are displayed above the graph.

Depth Difference in 2-Meter Comparison Cells Crossline vs. Mainscheme (+/-) cm	Number of 2-Meter Crossline Comparison Cells with Depth Range ≤ Depth Difference Column	Percentage of 2-Meter Crossline Comparison Cells*
50	1,008,215	99.97%
25	1,005,098	99.66%
20	1,000,900	99.25%
15	986,489	97.82%
13	970,374	96.22%
10	916,143	90.84%
* Total of 2-Meter Crossline Comparison Cells = 1,008,509		

Figure 4: The table displays the number of 2-meter cells from the crossline and mainscheme surfaces that were compared to generate the crossline comparison difference surface. Given a total number of 1,008, 509 cells in the difference surface, the percentage of cells are provided that met different depth difference criteria.

B.2.2 Uncertainty

The following two tables list the tide and sound speed uncertainty parameters that were used to compute Total Propagated Uncertainty (TPU) for this survey.

Measured	Zoning
0.01 meters	0.19 meters

Table 6: Survey Specific Tide TPU Values

Hull ID	Measured - CTD	Measured - MVP	Surface
Able II - CT 4788 BB	4 meters/second		2 meters/second

Table 7: Survey Specific Sound Speed TPU Values

The methods used to minimize the uncertainty in the corrections to echo soundings are described in detail in Section B. Processing and Quality Control of the project DAPR. Survey H12604 did not deviate from the methods documented in the DAPR.

The Total Vertical Uncertainty Quality Check (TVU QC) "Ratio Method" was used to evaluate IHO uncertainty for all finalized surfaces. The TVU QC "Ratio Method" is described in the Chapter 4 Appendices of the NOAA OCS Field Procedures Manual (FPM) dated April 2013. Per the FPM TVU QC section, "The hydrographer should use the finalized surface because this surface will identify areas where either the uncertainty or the standard deviation exceeded the maximum allowable error and the greater of these two values is used in addition to having the uncertainty scaled to a 95% CI, whereas unfinalized surface uncertainties are reported at the 68% CI." The FPM TVU QC section also states that, "[ratio] values which do not require further examination are from -1 to 0 and the values which do require further examination are from -100 to -1". It should be noted that finalized surfaces were used in this analysis.

Four (4) MBES CUBE surfaces were delivered along with Survey H12604 including "H12604_MB_4m_MLLW_Final", "H12604_MB_2m_MLLW_Final", "H12604_MB_50cm_MLLW-East_Final", and "H12604_MB_50cm_MLLW-West_Final". The 4-meter surface is intended to satisfy "Set Line Spacing" coverage and sounding density requirements, the 2-meter surface is intended to satisfy "Complete Multibeam Coverage" coverage and density requirements in water depth over 20 meters and the 0.5-meter surfaces are intended to satisfy the sounding density requirements for item investigations while offering a high resolution product for the survey acceptance review.

Results from the TVU QC analysis indicate that 99.99% of the nodes from the finalized 4-meter "Set Line Spacing" surface and 99.98% of the nodes from the finalized 2-meter "Complete Coverage" surface meet IHO Order 1 uncertainty specifications. Furthermore, the TVU QC indicates that 99.89% of the nodes from the finalized "East" and 99.99% of the nodes from the finalized "West" 0.5-meter surfaces meet IHO Order 1 uncertainty specifications. The maximum ratio range of all comparison cells from the 4-meter surface is -1.35 with the overwhelming majority of comparison cells showing ratio differences below -1.0. As expected the ratio range is greater for the 2-meter and 0.5-meter cells; few outliers on the 0.5 meter comparison surface exceed a ratio of -9.0. For all surfaces the larger ratio differences are distributed evenly throughout the survey area, i.e. no systematic, temporal, sound speed, or tide errors are evident. The position of the comparison cells of the 2-meter and 0.5-meter surfaces exhibiting the largest ratio values coincide with the non-compliant comparison cells of the 4-meter surface, such that the largest uncertainties exist in the same general location for all surfaces. As expected, QC nodes not in compliance with IHO Order 1 Uncertainty Specifications are found in areas that have features with tall, narrow components, on wrecks, around bridge piers, and in areas with steep slopes such as areas recently dredged and channel walls or shoreline banks.

B.2.3 Junctions

No junctioning surveys were provided for this project.

There are no contemporary surveys that junction with this survey.

B.2.4 Sonar QC Checks

Sonar system quality control checks were conducted as detailed in the Quality Control section of the DAPR. Results from the daily MBES bar checks are included in Appendix II of the DAPR.

B.2.5 Equipment Effectiveness

POSPac File Failure

On a number of days the POSPac/TrueHeave file was not logged. This did not negatively impact sounding data as the survey days lacking TrueHeave were calm and TrueHeave data were not required to correct for heave drift. With this exception all instrumentation functioned properly.

B.2.6 Factors Affecting Soundings

SSS Refraction

Dynamic water column sound speed changes affected the SSS imagery at times, causing refraction in the outer ranges of the SSS swath. When refraction affected the imagery in the towed SSS configuration the field team attempted to “fly” the SSS towfish above or below the refractive lens keeping in mind the altitude specification (8-20% range scale) described in the HSSD. However, given that much of the project imagery was acquired with the SSS on a fixed mount, it was not always possible to fly the SSS towfish above or below the refractive lens. In these cases, line spacing was reduced in refractive areas to ensure that the PI-specified 200% SSS coverage requirement was achieved using only high quality imagery. As changes to the line plan or SSS range scale were made they were recorded in the acquisition and processing logs.

Despite the sometimes dynamic sound speed tendencies in the area, acquisition of frequent sound speed profile casts allowed for adequate correction of the MBES sounding swath.

Fish in SSS Imagery

In some areas an abundance of fish were seen in the SSS data, either as lone swimmers or in schools. Fish were noted in the acquisition log by the field team, and these areas were carefully reviewed during data processing. Shadows, usually detached from a dark return, were typically associated with fish either in the water column or at a position closer to nadir. In the cases where a visible shadow was recorded, the contact was designated as a fish for two reasons: 1) the possibility that the assumed fish was actually a feature and 2) to assist processors in rejecting fish-related noise from the MBES data. The fish designation was confirmed if no correlating item was found in the second SSS coverage. If visible in both SSS coverages with a significant height, the contact was investigated with object detection MBES coverage to verify or disprove the presence of a feature.

B.2.7 Sound Speed Methods

Sound speed profile data were acquired with an AML Base-X approximately every 2 hours or less during survey operations. Profiles were acquired more frequently if high variability was noted in the surface sound speed or the survey vessel moved between survey area locations. To a point, if the surface sound speed alarm in HYSWEEP SURVEY was triggered, due to a greater than 2 meters/second surface-to-cast difference, then additional casts would be taken. However there were certain periods during the survey when the surface sound speed was highly irregular, with variations on the order of 11 m/s within three (3) minutes of along-track time. It would have been impractical during these periods to collect an additional sound speed cast each time the

surface sound speed changed by 2 m/s. As a result, the hydrographers used their judgment about when and where to collect sound speed profile casts. Up to nine (9) sound speed profiles were collected on days such as this.

Profiles were manually acquired by lowering the instrument(s) to the seafloor. Locations for the casts were selected to maximize depth and capture a profile representative of conditions observed within a daily operating area. At all times the instruments reached a depth of at least 95% of water depth. All casts were acquired in or within close proximity to the survey area.

With few exceptions the Nearest in Distance Within Time (3-hour) profile selection method was used to determine which cast was applied to the soundings. This method was selected to limit the effects of spatial and temporal variation in sound speed.

B.2.8 Coverage Equipment and Methods

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

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

All sounding systems were calibrated as detailed in the DAPR.

B.4 Backscatter

Raw Backscatter was logged in HYSWEEP SURVEY in 81X format. Per discussion with AHB's Hydrographic Team Lead during an OSI office visit on April 29, 2014, OSI did not process the 81X files. The backscatter files are included in the "Preprocess\Bathy\MBES" day folder with their corresponding .HSX file.

B.5 Data Processing

B.5.1 Software Updates

The following Feature Object Catalog was used: NOAA Extended Attribute File v. 5.3.2

Software versions described in Section A of the DAPR were used throughout acquisition and processing of data for Project OPR-B310-KR2-13.

B.5.2 Surfaces

The following CUBE surfaces and mosaics were submitted to the Processing Branch:

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H12604_MB_4m_MLLW_Final	CUBE	4 meters	-1.89 meters - 31.38 meters	NOAA_4m	MBES Set Line Spacing
H12604_MB_2m_MLLW_Final	CUBE	2 meters	18 meters - 31.38 meters	NOAA_2m	Complete MBES
H12604_MB_50cm_MLLW_East_Final	CUBE	0.5 meters	-1.92 meters - 20.55 meters	NOAA_0.5m	Object Detection
H12604_MB_50cm_MLLW_West_Final	CUBE	0.5 meters	-0.35 meters - 31.55 meters	NOAA_0.5m	Object Detection

Table 8: Submitted MBES Coverage Surfaces

Four (4) MBES CUBE surfaces and two (2) SSS mosaics comprise the total surfaces delivered with Survey H12604. To prove MBES coverage requirements were met for Set Line Spacing, a 4-meter CUBE surface was generated for the entire survey area. To satisfy the MBES coverage requirement of Complete Multibeam Coverage in depths over 20 meters, a 2-meter CUBE surface was generated for the entire survey area and then finalized according to depth such that the minimum depth range for the finalized 2-meter surface was 18 meters, per section 5.2.2.2 in the HSSD.

Due to the large number of item investigations, object detection coverage surfaces are not presented individually. Rather, two 0.5 meter CUBE surfaces, "East" and "West" serve to satisfy the density requirements for item investigations over significant features while offering a high resolution product for general use by AHB.

Two 1-meter SSS mosaics were submitted as GeoTIFFs to satisfy the SSS coverage requirements of 100% coverage up to the 2 meter contour and 200% coverage up to the 4 meter contour. Between the two SSS mosaics, a minimum of 100% SSS coverage was obtained within the 2 to 4 meter depth range as safe navigation permitted. In addition, GeoTIFFs were submitted at a higher resolution of 25 centimeters for each 100% and 200% SSS coverage to assist with the survey review.

As noted in the DAPR Section B.3 Data Processing, the Examined sounding flag was used in CARIS HIPS to indicate high-water features in the MBES data, rather than rejecting the features from the dataset. Per page 35 of the OPR-B310-KR2-13 DAPR: "A 1-meter CUBE surface built solely from Examined soundings was created to display all high-water features (floating piers, pilings, bridges, sheet pile, etc.) that remain

dry at high tide." A Bathymetric Attributed Grid (BAG) file of the 1-meter Examined sounding surface (H12604_MB_1m_Examined-points.bag) is provided with the H12604 data submission.

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) station served as datum control for this survey:

Station Name	Station ID
Sandy Hook, NJ	853-1680

Table 9: NWLON Tide Station

The following subordinate water level station was established for this survey:

Station Name	Station ID
Norton Point, Hook Creek, NY	851-6891

Table 10: Subordinate Tide Station

As documented in the tide zoning report entitled "OPR-B310-KR2-13_Tide_Zoning_Report.pdf" and the project DAPR, preliminary zoning was superseded by a new zoning scheme created by JOA Surveys after their analysis of subordinate gauge and other "zoning gauge" datasets. The final zoning file "OPR-B310-KR2-13-20140401.zdf" as well as subordinate tide gauge data from Norton Point, Hook Creek, NY (851-6891) was accepted by CO-OPS in a letter dated May 28, 2014.

The tide zoning report was delivered to CO-OPS under separate cover and is included in the Project HVCR delivery directory.

Prior to generation of the final zoning scheme the preliminary zoning scheme, included in the Tides SOW was tested during early stages of data MBES data processing. It was evident at the outset of testing that the preliminary zoning scheme, using tide data from only the Sandy Hook gauge (853-1680) did not yield favorable overlap agreement between mainscheme and cross line MBES data. Analysis of cross line data using the final zoning scheme along with data from both tide stations tabulated above indicates that the final zoning scheme is well constructed as evidenced by overwhelmingly good agreement between mainscheme and cross line MBES datasets.

As a QA/QC measure, where POSPac data were available, POSPac MMS was used to create an IAPPK tide file. Sounding were corrected to MLLW using the IAPPK tides (corrected to MLLW using V-Datum). A qualitative review of depth agreement between cross lines vs. mainscheme lines as well as adjacent line overlaps was undertaken using both the final zoned tides and the IAPPK-corrected tides. In general, sounding agreement did not appear to be considerably better or worse using the IAPPK-corrected tides as opposed to using zoned tides. Therefore, zoned tides were ultimately used for sounding reduction.

File Name	Status
8531680.tid	Final Approved
8516891.tid	Final Approved

Table 11: Water Level Files

File Name	Status
OPR-B310-KR2-13-20140401.zdf	Final

Table 12: Tide Corrector File

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 Zone 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
CORS	SHK6
CORS	SHK5
CORS	NYBR
CORS	NYBP
CORS	NJNT
CORS	NJI2

Table 13: CORS Base Stations

The following NYSNet stations were used for horizontal control:

HVCR Site ID	Base Station ID
NYSNet	NYOB
NYSNet	NYPR
NYSNet	NYBK
NYSNet	NYJM
NYSNet	NYQN
NYSNet	NYCI

Table 14: New York State DOT CORS Network Stations

RTK GPS positioning was used during calibration of the MBES and SSS systems aboard R/V Able II. In practice the position of the RTK GPS base station was established via one OPUS-RS observation. However, the GPS base station information is not documented as if it were serving as the project's horizontal or vertical reference. Rather, the exact position and elevation of the RTK GPS base station is treated as an arbitrarily derived value since during calibrations, X, Y, Z positioning precision, not accuracy, is paramount. All pre-survey calibrations were conducted with the vessel's primary positioning system, the POS-MV, in RTK GPS mode where horizontal and vertical positioning precision was achieved with minimal regard for the absolute horizontal or vertical accuracy of the RTK GPS solution.

Prior to and during the course of the survey the accuracy of the primary positioning system was verified by means of a physical measurement to a project horizontal control point established at the vessel's overnight berth. The project horizontal control point was established using the National Geodetic Survey's Online Positioning Users Service (OPUS). Position confidence checks were accomplished daily. Refer to the DAPR and HVCR for additional details.

Real-time positioning correctors from the USCG Sandy Hook, NJ station were received and used by the primary positioning system without interruption throughout the course of the survey.

The following DGPS stations were used for horizontal control:

DGPS Stations
Sandy Hook, NJ (primary positioning) 286 kHz
Moriches, NY (positioning integrity alarm) 293 kHz

Table 15: USCG DGPS Stations used for Horizontal Control

D. Results and Recommendations

D.1 Chart Comparison

Chart comparisons were performed in CARIS HIPS/SIPS and Notebook using finalized BASE surfaces and contours and selected soundings. The latest editions of the NOAA NOS Raster Nautical Charts (RNC) and Electronic Nautical Charts (ENC) were downloaded from the NOAA Office of Coast Survey website (<http://www.nauticalcharts.noaa.gov/>) weekly during survey operations, and after the survey was completed for final comparisons. The RNCs and ENCs used for final comparisons were downloaded on June 13, 2014 and are submitted with the survey deliverables.

Local Notice to Mariners (LNM) and Notice to Mariners (NM) spanning the period beginning at the date of issuance of the Hydrographic Project Instructions (June 19, 2013) and ending on June 18, 2014 were consulted in conjunction with the foregoing chart comparison. Pertinent notifications are included, as appropriate, in following report sections. All pertinent NM corrections are also noted in the LNM. The current USCG Light List, corrected up to the LNM/NM ending June 18, 2014, was consulted frequently during the chart comparison.

The following sections adhere to the Descriptive Report sounding rounding system as described in Section 5.1.2 of the HSSD. Specifically, features described below having “precision” depths are presented in the following manner: ff feet (mm.mm meters, $\pm t.tt$ TPU) where ff = depth expressed in feet (chart units) having been rounded based on the precise meters expression of the depth using the 0.75 round value rule.

mm.mm = depth expressed in meters

$\pm t.tt$ = Total Propagated Uncertainty (TPU) expressed in meters

An example of this notation follows: 80 feet (24.58 meters, ± 0.24 TPU).

During the chart comparison it was found that the least depth soundings for charted regions were on features such as wrecks or obstructions; however, the chart comparisons documented below will discuss general seafloor changes, shoaling and deepening trends, associated with natural or unnatural (dredging) sediment transport. All new or charted features identified, updated or disproved within Survey H12604 were addressed and attributed in the S-57 Final Feature File.

D.1.1 Raster Charts

The following table summarizes pertinent epoch details about the largest scale RNCs assigned for the survey area.

Chart	Scale	Edition	Edition Date	LNМ Date	NM Date
12402	1:15000	12	06/2012	05/27/2014	06/14/2014
12350	1:20000	60	08/2011	05/27/2014	06/14/2014

Table 16: Largest Scale Raster Charts

12402

In general there was good agreement (± 3 feet) between the charted soundings from RNC 12402 and surveyed depths with the following exceptions discussed below.

Discrepancies were noted between the locations of the charted contours and surveyed depth curves, with the largest changes noted along the coastal and shallow water contours. In several locations surrounding the Coney Island coastline the 6-foot contour was surveyed significantly offshore of its charted position (Figure 5), with the largest discrepancy noted off the southwest corner of Coney Island (40-34-17.21N, 074-00-35.14W) where the 6-foot contour has migrated over 200 meters offshore disproving a charted 14-foot depth and a 12-foot contour. Representative soundings over this shoal were submitted to AHB in S-57 format with H12604 DtoN #6.

A charted 13-foot shoal located in East Bank at 40-32-57.33N, 073-59-28.38W was disproved with surveyed depths measuring over 20 feet deeper than the charted depth.

The eastern border of RNC 12402 overlaps with the western border of RNC 12350 by 2500 meters (1.3 nautical miles). This intersection includes Rockaway Inlet where significant deepening and shoaling were identified on the west side of the inlet (Figure 6). The deepening was due to ongoing dredging in the area, as reported in the Local Notice to Mariners. A temporary dredge pipe was identified during data acquisition for survey H12604 that extended diagonally from the south side of Coney Island to Rockaway Inlet. Depths bordering the western side of the inlet were over 17 feet deeper than the charted 1-foot depth located at 40-32-54.75N, 073-56-55.49W.

The positioning of the shoal that runs along the west side of Rockaway Inlet annotated with the word “Breakers” was found to be considerably modified. The shoal had migrated over 500 meters to the north of the charted 6-foot contour that bounded the shoal and the southern portion of the shoal had been deepened by the inlet dredging. The approximate north and south limits of the updated shoal are 40-33-24.38N, 073-57-02.44W and 40-32-42.59N, 073-56-57.86W, respectively. Representative soundings over this shoal were submitted to AHB in S-57 format with H12604 DtoN #25.

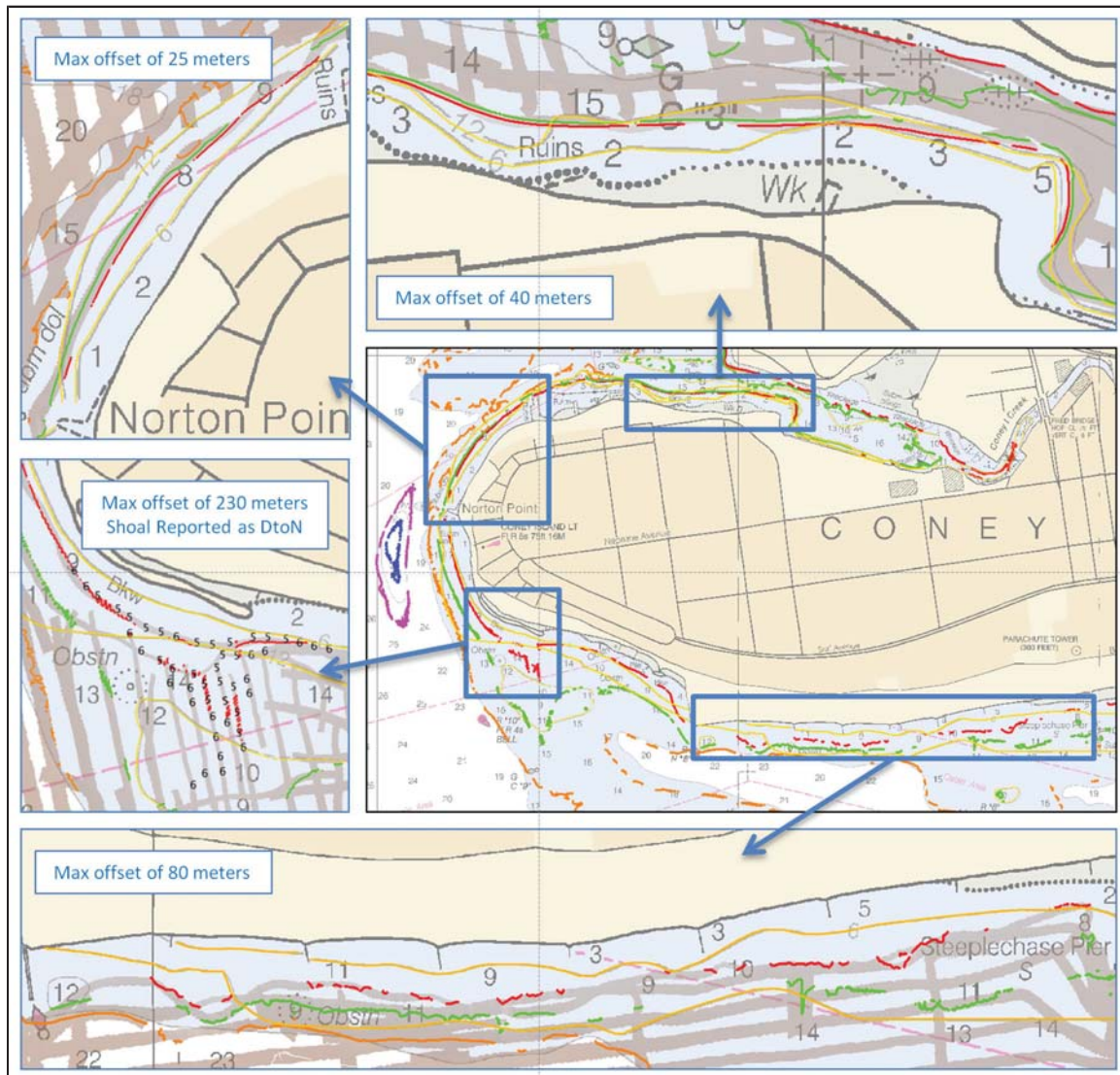


Figure 5: Contours generated from the H12604 MBES data (6' in red, 12' in green, and the 18' in orange) are shown in reference to the charted contours surrounding Coney Island from RNC 12402 (highlighted in yellow).

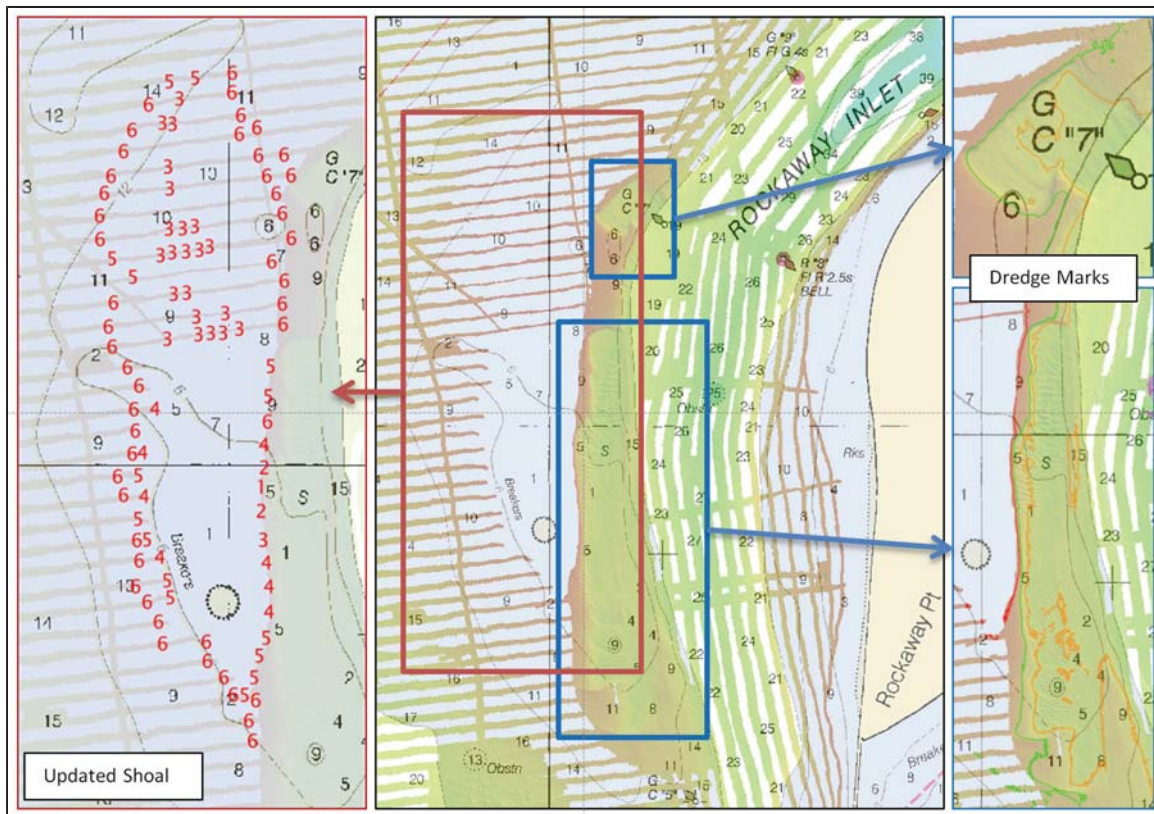


Figure 6: Areas of shoaling and deepening west of Rockaway Inlet are highlighted with H12604 survey data, soundings in red and contours (6' in red, 12' in green, and 18' in orange), with a 50-cm CUBE surface overlaid on RNC 12350 in the background.

12350

In general there was good agreement within 4 feet between charted depths and surveyed depths within Rockaway Inlet, where the H12604 data overlapped with the Area A source data (NOS Surveys, 1990-2009) highlighted in RNC 12350's Source Diagram. Within Jamaica Bay, Survey H12604 data differed significantly from the charted soundings and contours particularly around the charted marsh lands, at the entrances to side basins and creeks, beneath bridges, and in uncharted deep areas where historic dredging had occurred. Below the significant differences found during the chart comparison are documented with the discussion subdivided by geographically defined sea areas.

Rockaway Inlet:

As mentioned in the chart comparison section for RNC 12402, the western border of RNC 12350 overlaps with the eastern border of RNC 12402 by 2500 meters (1.3 nautical miles). Though there were minor differences in sounding positioning between the two charts, the results of the chart comparison within the overlapping section of charts 12402 and 12350 were nearly identical. Therefore, the only significant change between charted and

surveyed soundings in the chart junction area was on the west side of Rockaway inlet (Figure 6). For more information about this difference see the chart comparison section for RNC 12402.

Along the north shore of Rockaway Point, the surveyed 6-foot, 12-foot and 18-foot contours frequently deviated from the charted contours of corresponding depths, with the surveyed depth curves predominantly positioned inshore of their charted locations (Figure 7).

A new hole with a maximum surveyed depth of 51 feet (15.72 meters, ± 0.43 TPU) was centered at 40-34-04.5 N, 73-53-50.8 W near the shoreline of Rockaway Point seaward of a charted 18-foot contour and inshore of a charted 23-foot depth. A deepening trend was also observed around the bridge piers of the Gil Hodges Memorial Lift Bridge that spans Rockaway Inlet from 40-34-41.3 N, 073-53-16.0 W to 40-34-07.0 N, 073-52-55.0 W. Evidence of scour was apparent surrounding the bridge piers, with surveyed depths differing from charted depths by over 20 feet (Figure 8).

Sheepshead Bay:

Overall soundings within Sheepshead Bay agreed with charted depths within 3 feet. Three instances of significant shoaling were noted. A sounding measuring 4 feet (1.26 meters, ± 0.40 TPU) located at 40-34-32.4 N, 73-55-45.1 W was developed between charted 12-foot contours. The surveyed 6-foot depth curve extended into the channel at the entrance to Sheepshead Bay alongside charted channel buoy G C “7” (Figure 9).

A deep hole charted off the east side of Sheepshead Bay centered on 40-34-52.0 N, 073-55-40.5 W was surveyed to be over 14 feet shallower than the charted depths. Surveyed soundings between 7 to 10 feet were developed over charted depths of 20, 21, and 24 feet.

A 6-foot shoal within a charted anchorage area on the south side of Sheepshead Bay (40-34-53.1 N, 073-56-18.1 W) was disproved with MBES Coverage. Depths surveyed over the shoal, within the anchorage area, ranged between 14 and 21 feet.

Dead Horse Bay:

Shoaling was identified along the charted 6-foot contour in the southern end of Dead Horse Bay and within a charted marina centered on 40-35-04.5 N, 073-54-01.5 W. Within the marina, surveyed depths were 7 to 10 feet shallower than the charted depths of 20 and 28 feet.

On the eastern approach to Dead Horse Bay and Gerritsen Inlet, deepening was observed within the charted 0 to 6 foot depth area. The largest disparity between the surveyed and charted depths within this area was over a deep hole with a maximum surveyed depth of 33 feet (10.28 meters, ± 0.41 TPU) located at 40-34-42.5 N, 73-54-09.4 W between two charted depths of 4 feet.

Mill Creek and Gerritsen Creek:

There was poor agreement between surveyed depths and charted depths within Gerritsen Creek and Mill Creek. In multiple locations the navigable water within the creeks had narrowed, and the surveyed 6-foot contours were significantly different than the charted 6-foot contours that border the areas of safe passage (Figure 10). The majority of the charted soundings within the creeks differed with surveyed depths and require updating.

Shell Bank Channel and Shell Bank Creek:

Overall surveyed depths agreed well with the charted soundings within Shell Bank Channel; however, shoaling was identified along the southern slope of the channel, with the 6-foot contour having shifted toward the channel's centerline. Three soundings were submitted to AHB with H12604 DtoN #21 to represent the shoaling at the southern entrance to Shell Bank Channel (Figure 11a).

Within Shell Bank Creek, soundings within a narrow channel off the eastern side of the creek were found to be shallower than the 14-foot controlling depth located at 40-35-20.6 N, 073-55-38.5 W and two deep holes were developed at the start and end of the creek. The holes contained a large amount of wreckage and were over 16 feet deeper than the charted soundings (Figure 11b).

Beach Channel:

A significant amount of change was noted between charted and surveyed depths within Beach Channel. Most notably, there was expansive deepening along the northern limits of Beach Channel beneath Nova Scotia Bar and over Yankee Channel (Figure 12) and beneath Little Egg Marsh and Giant Bar Marsh (Figure 13).

Runway Channel:

Although there was good agreement between surveyed and charted depths down the center of Runway Channel, notable shoaling was identified along its southern border with Nova Scotia Bar running into Yankee Channel. Soundings representative of the shoaling were submitted to AHB with H12604 DtoN #24 (Figure 14).

Extensive deepening occurred over charted depths and contours at the western entrance to Runway Channel which intersects Island Channel, east of charted buoy RG "RC" located at 40-35-38.9 N, 073-52-27.8 W (Figure 15).

Island Channel:

Overall there was good agreement between charted and surveyed depths within Island Channel with shoaling noted north of Long Pol Bar on the east side of Island Channel (Figure 16). Representative soundings over the shoal were submitted to AHB with H12604 DtoN #3.

Following north from Long Pol Bar towards North Channel, shoaling was identified along a charted 18-foot contour on the east (40-36-40.6 N, 073-52-57.3 W) and west (40-37-07.5 N, 073-53-37.9 W) side of Island Channel and over a charted 22-foot depth at 40-36-46.9 N, 073-53-04.2 W.

Mill Basin and East Mill Basin:

There was shoaling and deepening in Mill Basin on the east side of the Bascule Bridge. Representative soundings over two of the shoals, one located at the confluence of Island Channel and the eastern end of Mill Basin and the other directly east of the Bascule Bridge, were reported to AHB with H12604 DtoN #1 and some changes have since been enacted on the chart.

Within Mill Basin there were significant deepening changes observed including 25-foot depths surveyed in a 0- to 6-foot depth area (40-36-29.9 N, 073-53-25.9 W), 31-foot soundings surveyed over a charted 14-foot depth (40-36-17.9 N, 073-53-33.0 W), and a surveyed 12-foot contour located inshore of charted 4- and 3-foot depths (40-36-15.9 N, 073-53-46.6 W). The surveyed 30-foot contour was found to encompass a charted 17-foot depth at 40-36-16.8 N, 073-54-10.5 W and a charted 25-foot depth at 40-36-10.4 N, 073-54-37.6 W.

Not including the least depths over the large number of wrecks and obstructions within East Mill Basin, the majority of charted soundings were shallower than the surveyed depths.

North Channel:

Significant changes in charted depths were identified to the southwest and northeast of Canarsie Pier. Representative soundings southwest of Canarsie Pier were submitted to AHB with H12604 DtoN #17 and several soundings have since been updated on the chart (Figure 17).

Along the southern edge of North Channel, surveyed depths and contours were very different from the charted depths and contours. The majority of the change was a deepening over the charted depths and an expansion of the navigable waters of North Channel into charted marsh land located to the south. Surveyed contours along the southern limit of North Channel were primarily located inshore of their respective charted contours (Figure 18).

Shoaling was observed within North Channel as well; soundings selected to represent the new shoals were submitted to AHB with H12604_DtoN_#17 and H12604_DtoN_#18. The shoaling included the migration toward the channel center of the charted 6-foot contour along the north shore of North Channel, new limiting depths at the entrance to Fresh Creek, and three new shoals: 1) the center of the channel south of Hendrix Creek (40-38-10 N, 073-52-00 W), 2) southwest of charted buoy R “26” (40-38-25 N, 073-51-19 W), and 3) south of charted buoy R N “30” (40-38-34 N, 073-50-32 W). Also included with DtoN #18 were soundings that delineated changes in the small bay at the entrance to Old Mill Creek (40-38-37 N, 073-51-19 W).

Shellbank Basin, Hawtree Basin, and Bergen Basin:

In general the surveyed soundings within Shellbank Basin, Hawtree Basin, and Bergen Basin were shallower than the charted depths. Representative soundings of the new shoaling at the entrances to both Shellbank and Hawtree Basins were submitted to AHB with H12604 DtoN #16. Also, at the northern terminus of Bergen Basin the surveyed 6-foot contour has migrated approximately 350 meters west of its charted position. Surveyed depths were over 7 feet shallower than charted depths, with 2-foot soundings developed over a charted 11-foot depth located at 40-39-40.0 N, 073-48-59.3 W.

Grassy Bay:

Within Grassy Bay there was not a predominant shoaling or deepening trend. In some areas surveyed depths were significantly deeper than charted and in some areas surveyed depths were significantly shallower than charted. More specifically, it appears that there had been extensive historical dredging in the area, with sediment filling into the deeper, dredged trough areas (Figure 19).

East Broad Channel and Winhole Channel:

Within East Broad Channel and Winhole Channel, surveyed depths were most often 2 to 4 feet shallower than charted depths and a change in the position of the charted 6-foot contour was identified in several locations. In the southern portion of East Broad Channel, around position 40-35-59 N, 73-48-55 W, the 6-foot contour on the east side of the channel had advanced significantly west of its charted position toward the channel center. Representative soundings of the shoaling were submitted to AHB in S57 format with H12604 DtoN #14. The charted 6-foot contour on the east side of East Broad Channel has since been updated using the soundings from the DtoN submission.

Evidence of scour was observed beneath the Trestle train bridge that spans East Broad Channel where a deepening trend was noted on both sides of the bridge (Figure 20). Surveyed depths were over 20 feet deeper than the charted depths.

Shoaling was surveyed at the entrance to Hassock Creek, where depths of 4 to 5 feet were surveyed in the center of the creek entrance inshore of the charted 8-foot depth that represents the charted controlling depth for the southern portion of the creek (40-36-44.39N, 073-48-17.33W).

The extents of the charted shoal located alongside charted channel buoy R “8” (40-37-42.0 N, 073-48-37.6 W) at the northern entrance to Winhole Channel differ drastically from the shoal's charted position. The shoal has shrunk in size to the northwest and expanded to the southeast; soundings representative of the shift in the shoal were submitted to AHB in S-57 format with H12604 DtoN #16.

Brant Point, Vernam Basin, and Somerville Basin:

Overall surveyed depths were deeper than charted depths in the area surrounding Brant Point, in particular at the entrance to Vernam Basin (40-35-49.71N, 073-48-23.08W) where two deep holes were surveyed over charted depths of 11 feet and 19 feet (Figure 21). However, closer to the entrance and within Vernam Basin, surveyed depths were 5 to 11 feet shallower than the charted soundings.

A shoaling trend was identified within Somerville Basin, where surveyed soundings were 4 to 12 feet shallower than the charted depths. Shoaling over a charted 30-foot depth located at 40-36-09.94N, 073-47-08.21W imposes a new limiting depth of 22 feet for Somerville Basin. Representative soundings of the shoaling were submitted to AHB in S-57 format with H12604 DtoN #10.

Norton Basin:

Although there was good agreement between individual charted depths and surveyed soundings within Norton Basin, multiple shoals and holes were surveyed along the charted 6-foot contours (Figure 22). A 4-foot shoal was added to the chart positioned at 40-36-07.21N, 073-46-28.45W following the submission of a sounding over the new shoal to AHB with H12604 DtoN #11.

Head of Bay, Norton Point, and Thurston Basin:

Within Head of Bay, there was good agreement between charted soundings and surveyed depths in the northern half of the bay, with deepening noted along the 6-foot contour marking the northern limit of the navigable

water. For the majority of the southern border of Head of Bay, surveyed soundings were deeper than charted, disproving the charted 6-foot contour which had advanced well inshore of its charted position. Some of the deepening appears to be due to historical dredging. Despite the predominance of deepening in the southern section of Head of Bay, a new shoal was identified by OSI positioned at 40-37-45.3 N, 73-45-14.3 W and several representative soundings were submitted to AHB with H12604 DtoN #13. An 8-foot depth is now charted at the position, however, the charted 0- to 6-foot depth area which surrounds the new shoal has been disproved (Figure 23).

A deep hole was developed southwest of Norton Point with depths over 35 feet surveyed over a charted 6-foot contour (40-37-57.62N, 073-44-47.62W). Within Motts Creek, shoaling was surveyed over a charted 9-foot sounding located at 40-37-52.03N, 073-44-33.97W with surveyed depths measuring less than 6 feet. This new shoal imposes a new limiting depth for the east side of Motts Creek.

Depths surveyed within Thurston Basin were shallower than charted depths by as much as 10 feet. Access to the northwest limit of Thurston Basin was restricted by a permanent boom.

Central Jamaica Bay:

There were considerable differences between the surveyed 6-foot contours and the charted 6-foot contours within the narrow channels in the center of Jamaica Bay including: Big Fish Kill Channel, Pumpkin Patch Channel and West Broad Channel. Soundings selected to represent the significant shoaling within these channels were submitted to AHB in S-57 format with H12604 DtoN #24.

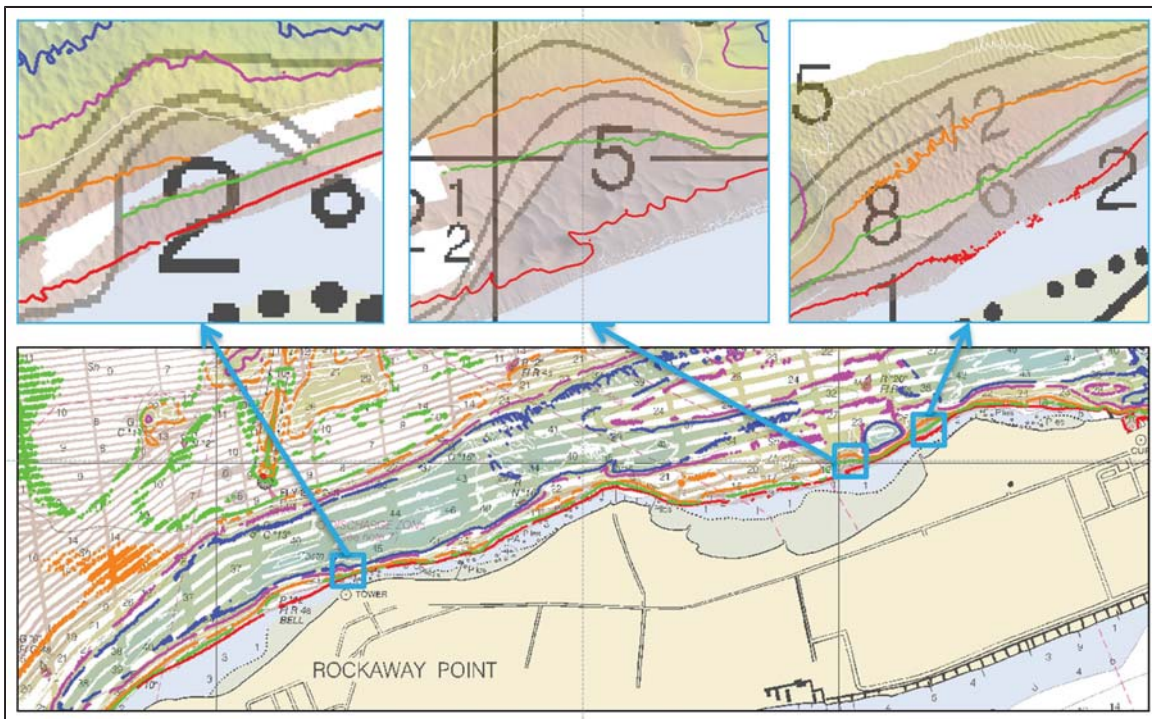


Figure 7: Contours generated from the H12604 MBES data (6' in red, 12' in green, 18' in orange, 30' in pink, and 36' in blue) are shown in comparison to the charted contours from RNC 12350 north of Rockaway Point. The chart was overlain with a 50-cm CUBE surface.

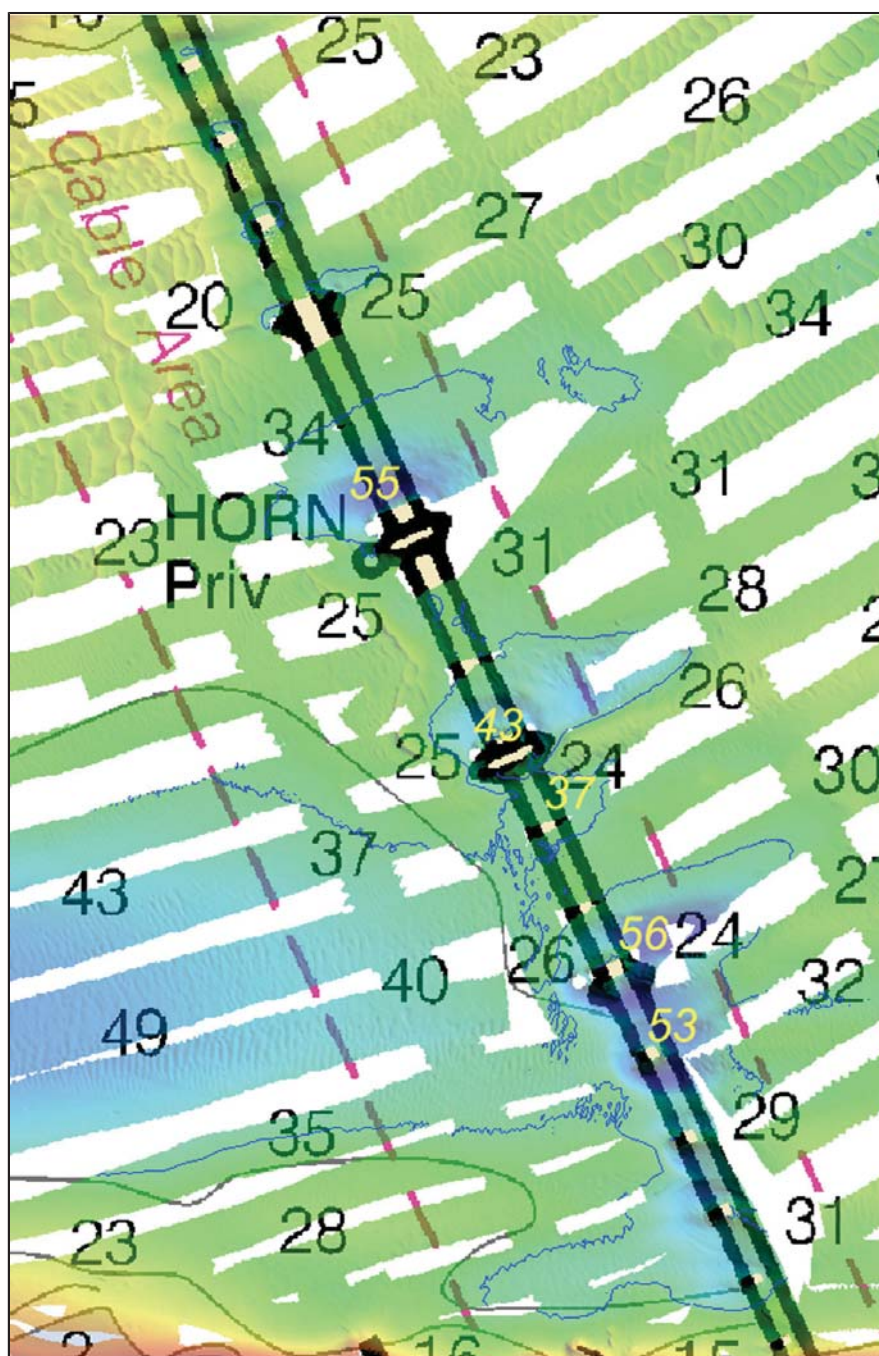


Figure 8: Scour at the base of Gil Hodges Memorial Bridge is apparent in a 50-cm CUBE surface overlaid on RNC 12350. Surveyed depths within the scour marks are colored in yellow and displayed in feet.

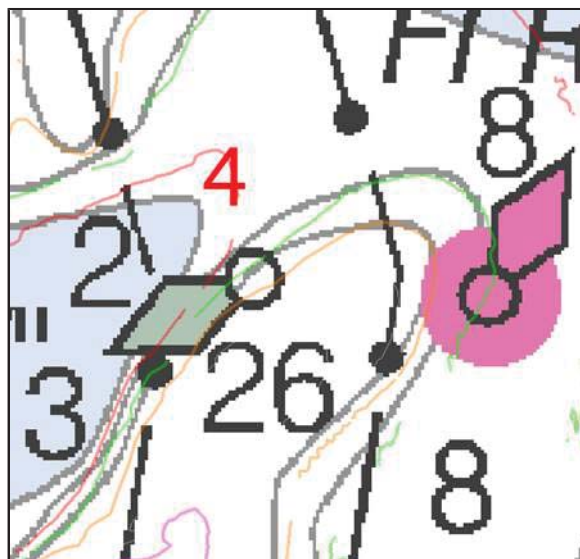


Figure 9: The surveyed 6' contour (in red) has migrated seaward into the entrance to Sheephead Bay. A surveyed 4-foot depth is highlighted in red overlaid on RNC 12350. The surveyed 12', 18', and 30' contour are colored in green, orange, and pink respectively.

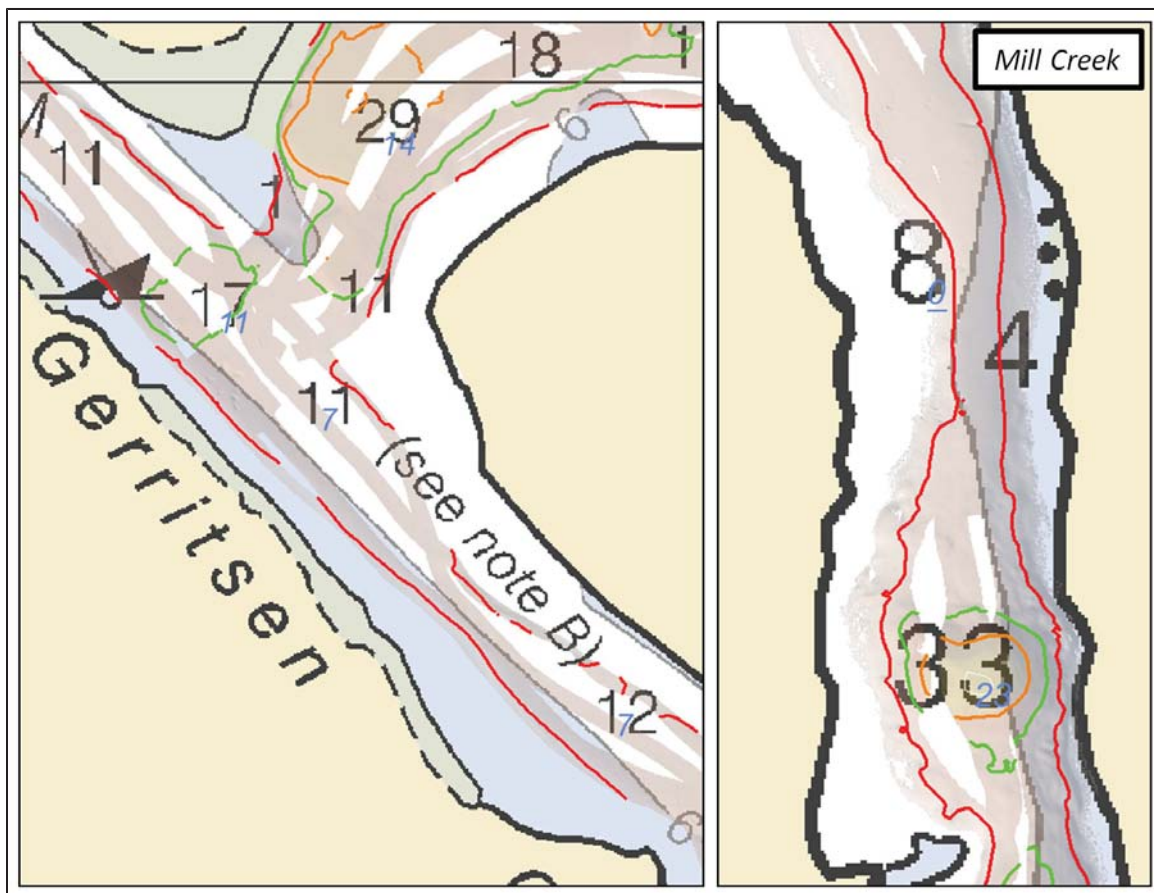


Figure 10: Contours generated from the H12604 MBES data (6' in red, 12' in green, and 18' in orange) are shown in reference to the charted contours within Mill and Gerritsen Creeks. Surveyed soundings that represent significant change from the charted depths are highlighted in blue with a 50-cm CUBE surface overlaid on RNC 12350 in the background.

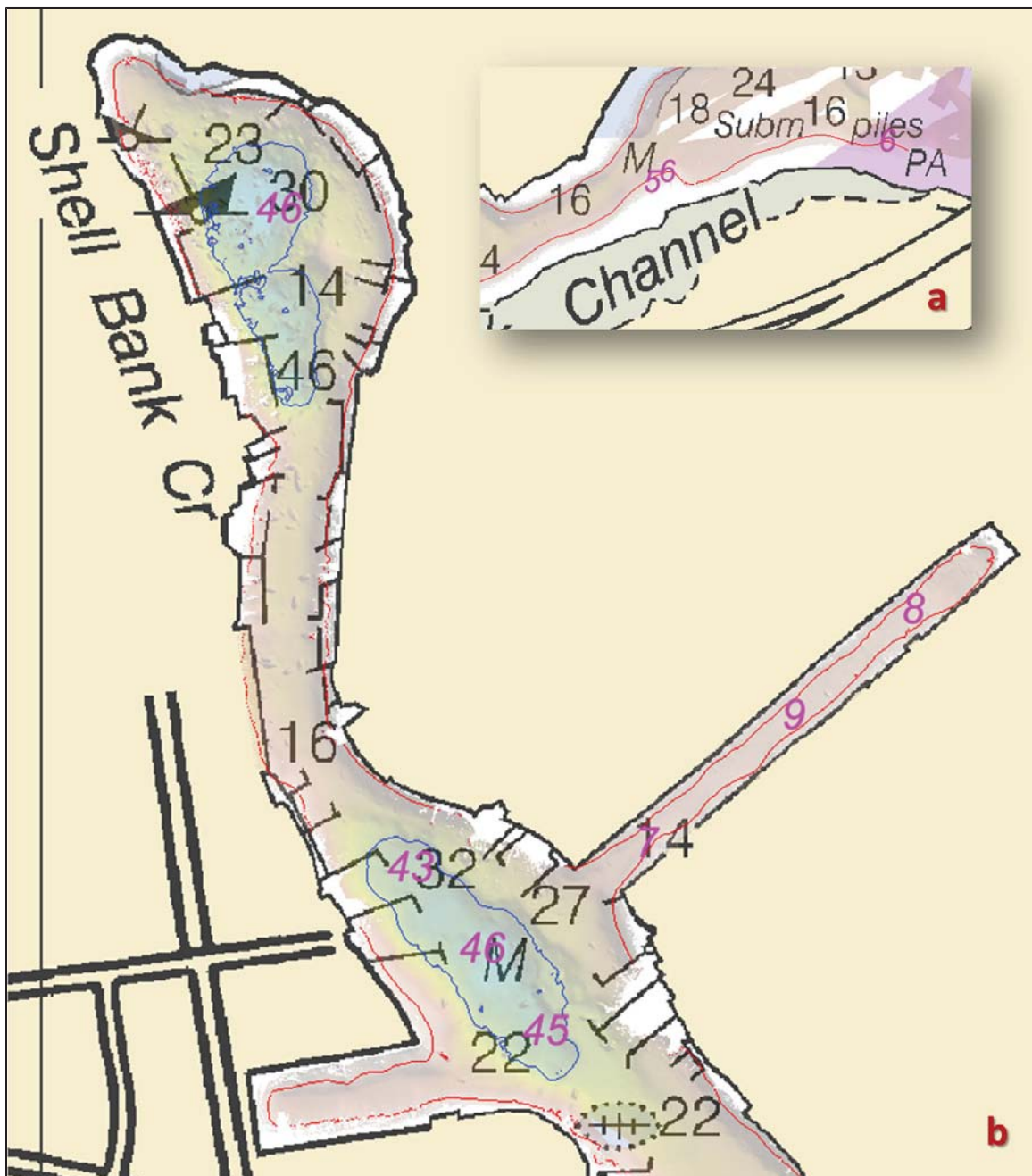


Figure 11: Contours generated from the H12604 MBES data (6' in red and 36' in blue) are shown in reference to Shell Bank Channel and Shell Bank Creek. Surveyed soundings that represent significant change from the charted depths are highlighted in pink with a 50-cm CUBE surface overlaid on RNC 12350 in the background.

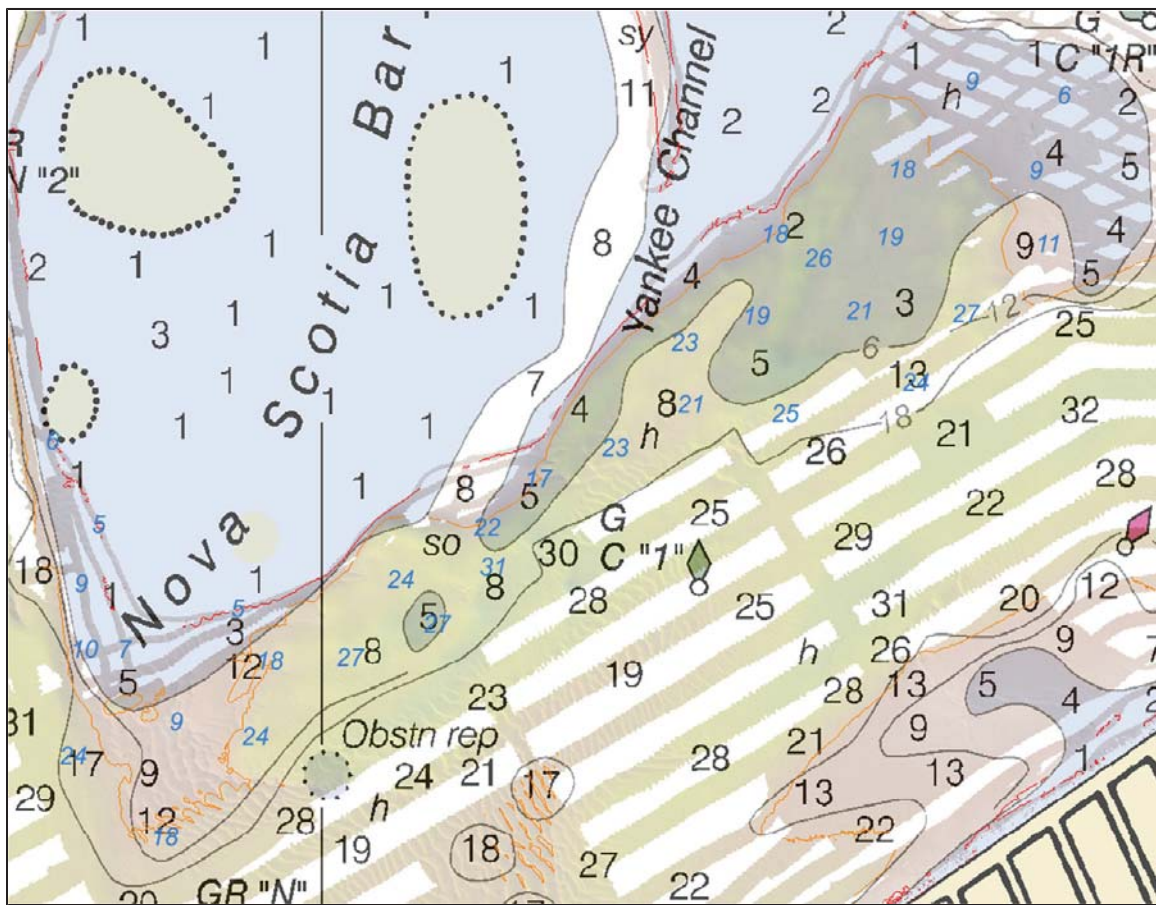


Figure 12: Contours generated from the H12604 MBES data (6' in red and 18' in orange) are shown in reference to northern Beach Channel. Representative soundings of the deepening trend over Nova Scotia Bar were highlighted in blue with a 50-cm CUBE surface overlaid on RNC 12350 in the background.

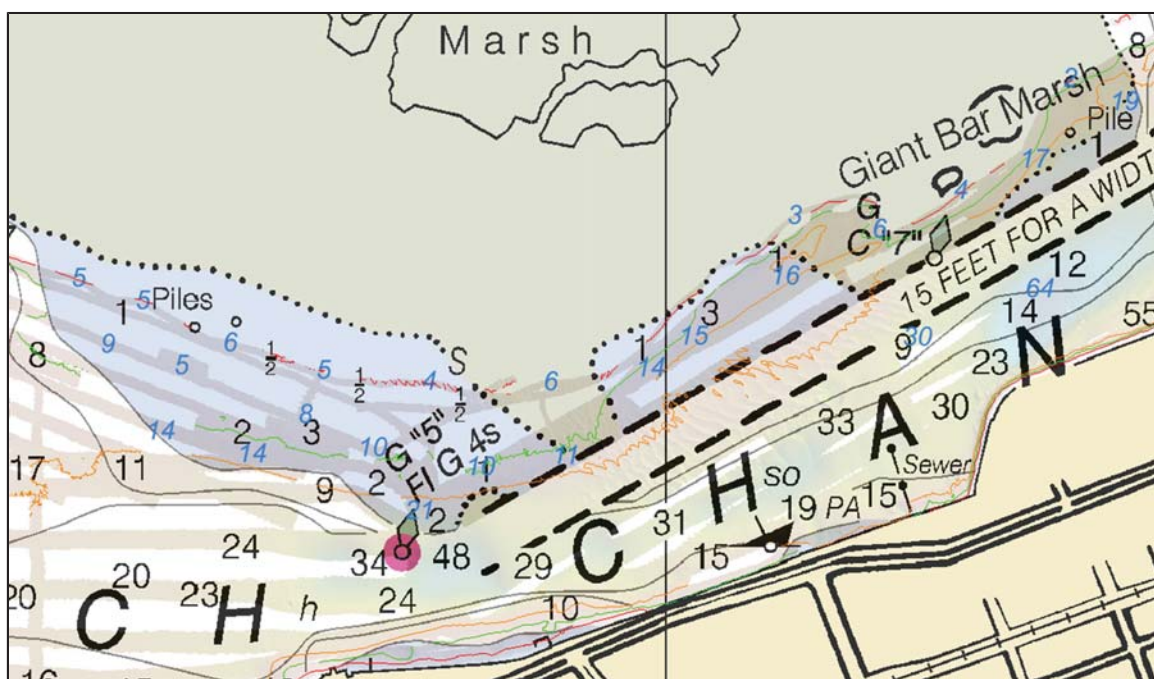


Figure 13: Contours generated from the H12604 MBES data (6' in red, 12' in green, and 18' in orange) are shown in reference to northern Beach Channel. Representative soundings of the deepening trend over Little Egg and Giant Bar Marsh were highlighted in blue with a 50-cm CUBE surface overlaid on RNC 12350 in the background.

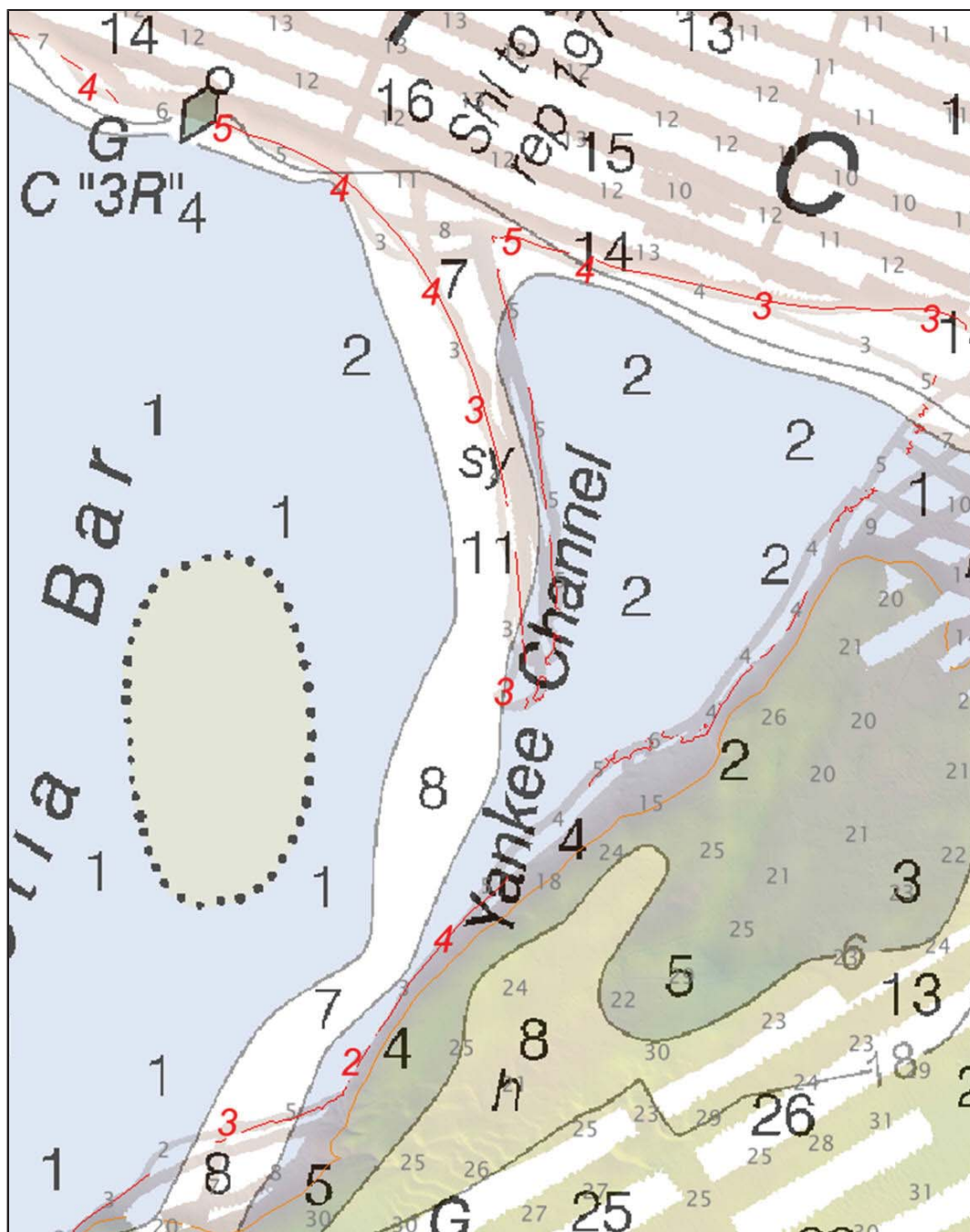


Figure 14: Contours generated from the H12604 MBES data (6' in red and 18' in orange) are shown in reference to Yankee Channel. Representative soundings of the shoaling trend over were highlighted in red with a 50-cm CUBE surface overlaid on RNC 12350 in the background.

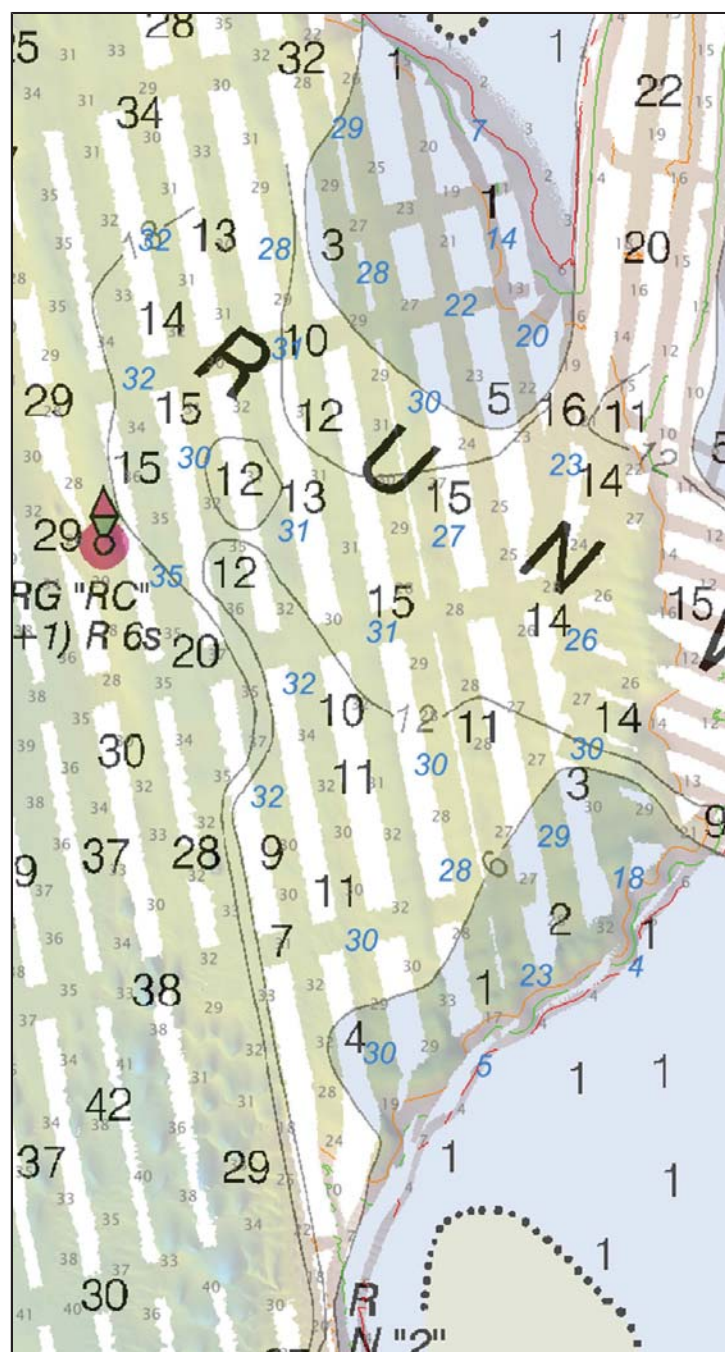
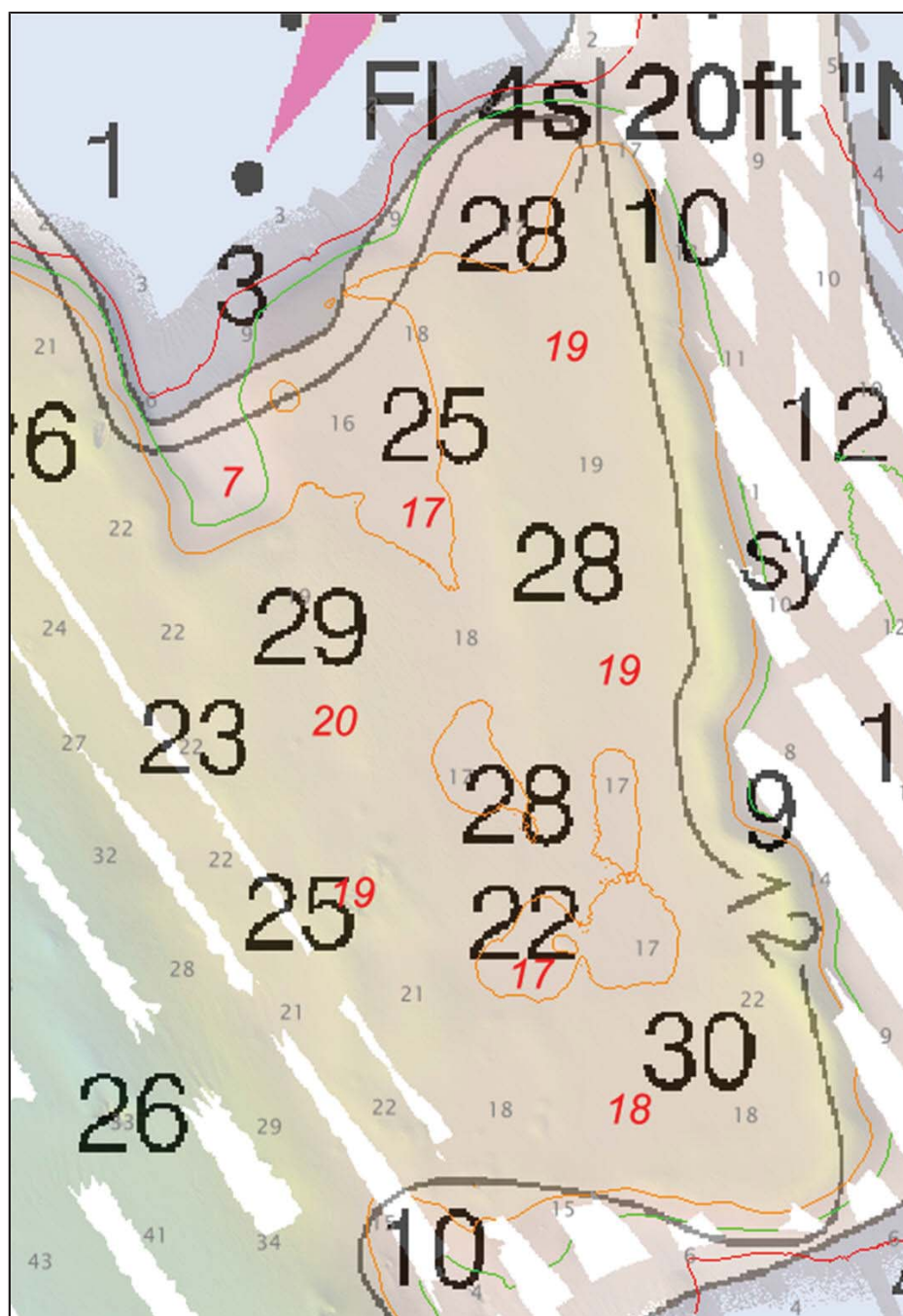


Figure 15: Contours generated from the H12604 MBES data (6' in red, 12' in green, and 18' in orange) are shown in reference to the western entrance to Runway Channel. Representative soundings of the deepening trend were highlighted in blue with a 50-cm CUBE surface overlaid on RNC 12350 in the background.



38

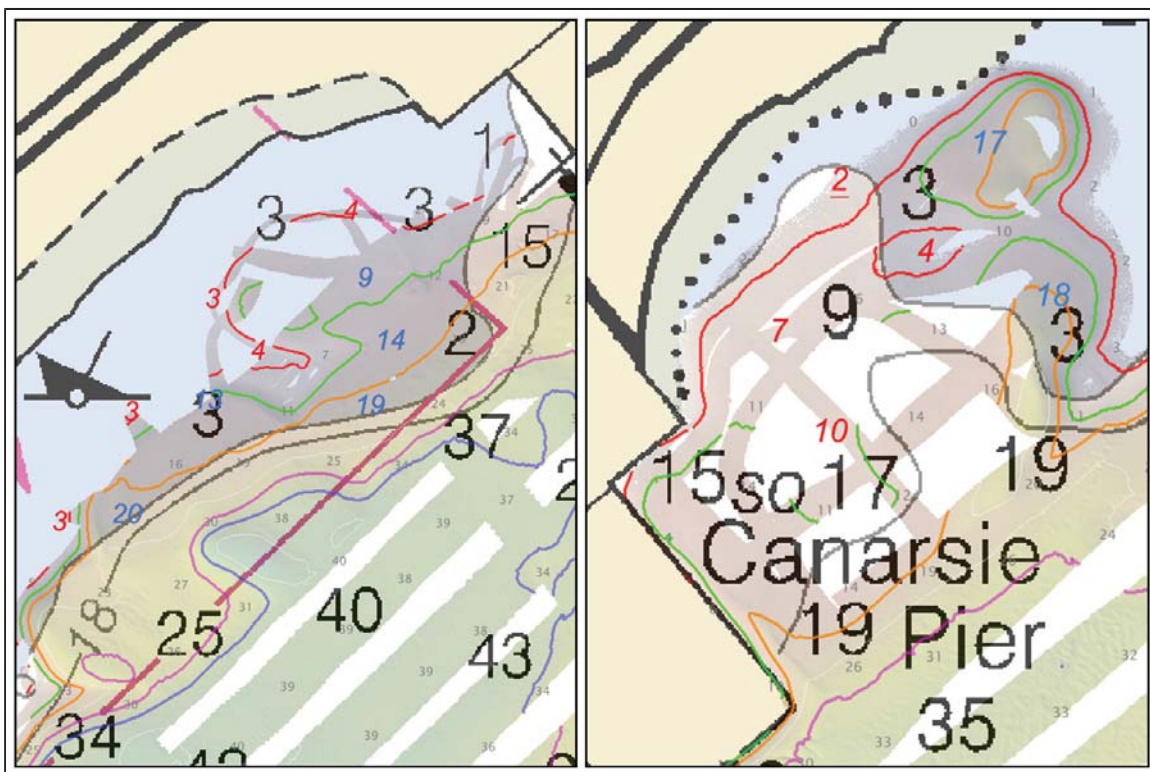


Figure 17: Contours generated from the H12604 MBES data (6' in red, 12' in green, 18' in orange, 30' in pink, and 36' in blue) are shown in reference to the charted contours and soundings surrounding Canarsie Pier. Representative soundings of the shoaling and deepening trends were highlighted in red and blue with a 50-cm CUBE surface overlaid on RNC 12350 in the background.

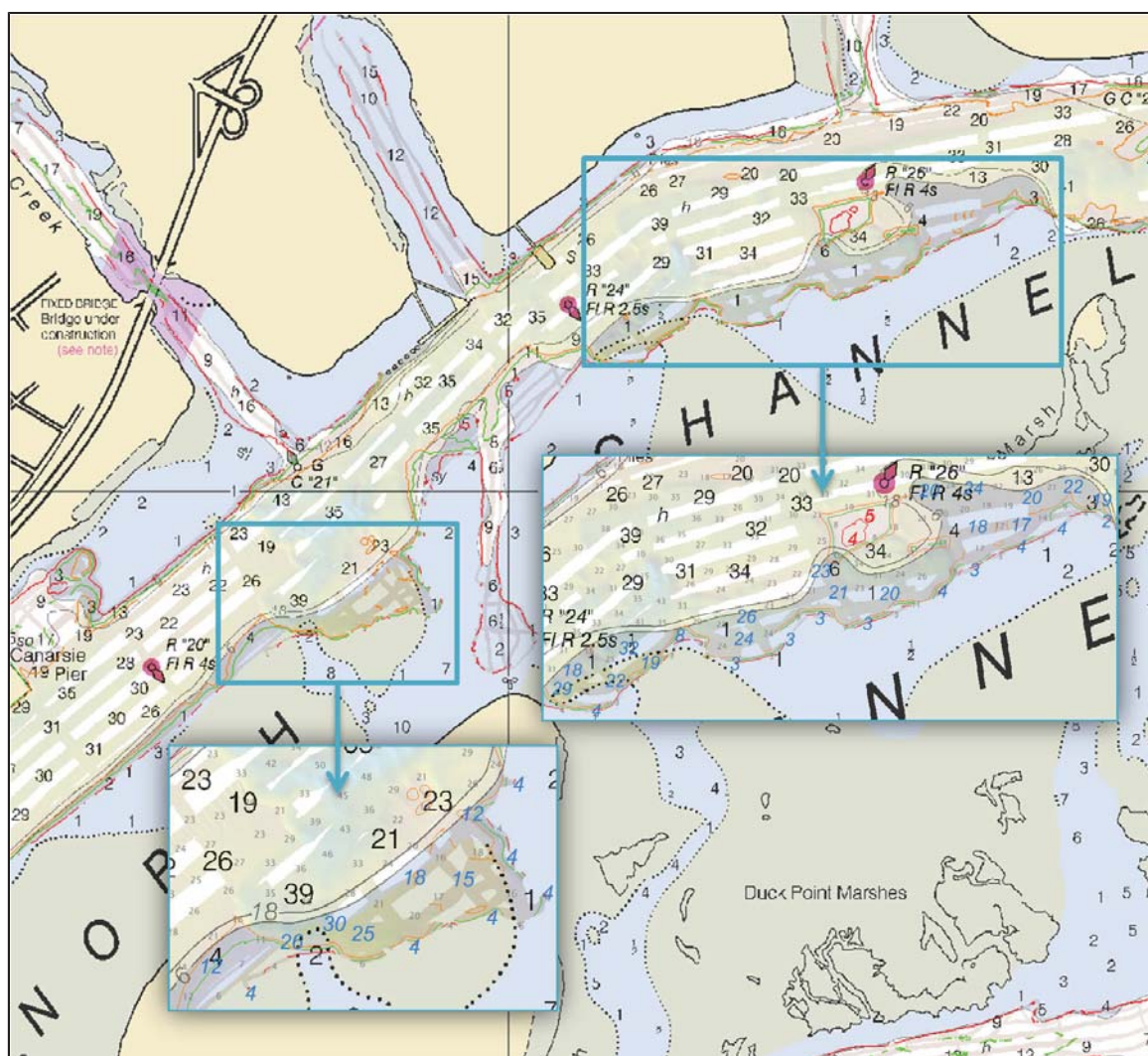


Figure 18: Contours generated from the H12604 MBES data (6' in red, 12' in green, and 18' in orange) are shown in reference to North Channel. Representative soundings of the shoaling and deepening trends were highlighted in red and blue with a 50-cm CUBE surface overlaid on RNC 12350 in the background.

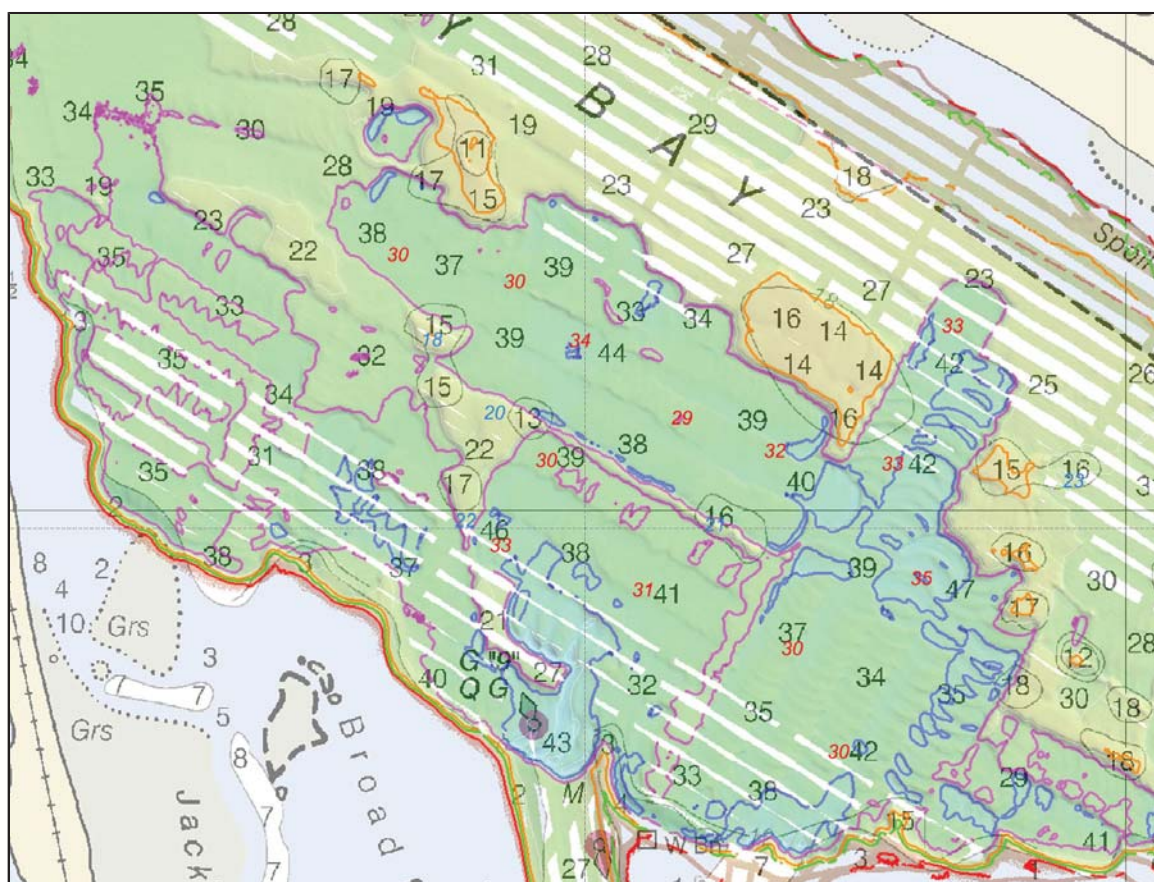


Figure 19: Evidence of past dredging was apparent in Grassy Bay as highlighted by contours generated from the H12604 MBES data (6' in red, 12' in green, 18' in orange, 30' in pink, and 36' in blue) overlaid on a 50-cm CUBE surface with RNC 12350 in the background. Representative soundings of the shoaling and deepening trends were highlighted in red and blue .

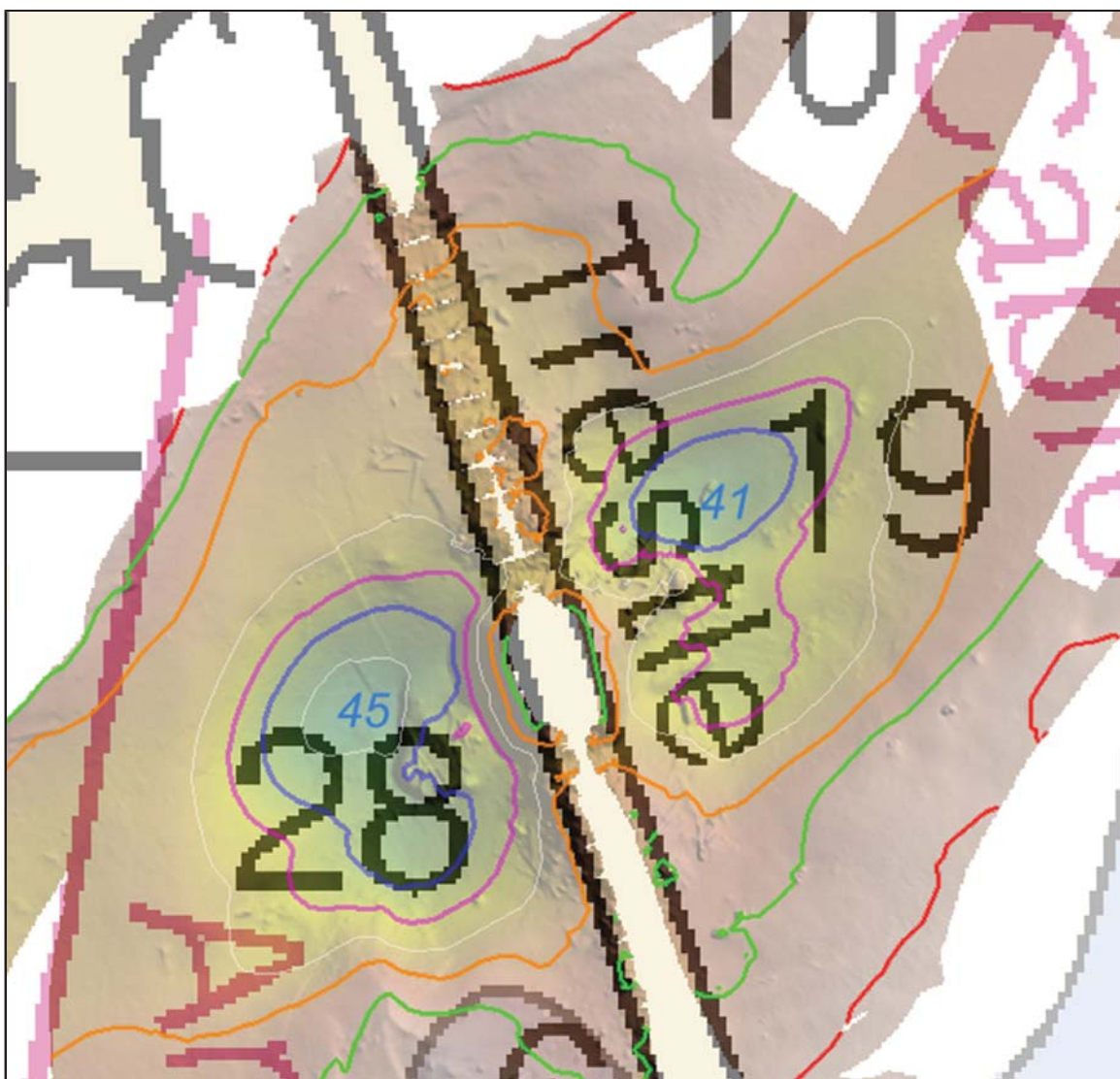


Figure 20: Scour was identified at the base of the Trestle bridge in East Broad Channel. Two deep holes were surveyed to the east and west of the bridge highlighted with contours generated from the H12604 MBES data (6' in red, 12' in green, 18' in orange, 30' in pink, and 36' in blue) and a 50-cm CUBE surface overlaid on RNC 12350. Soundings representing the maximum surveyed depth within the holes were colored in blue.

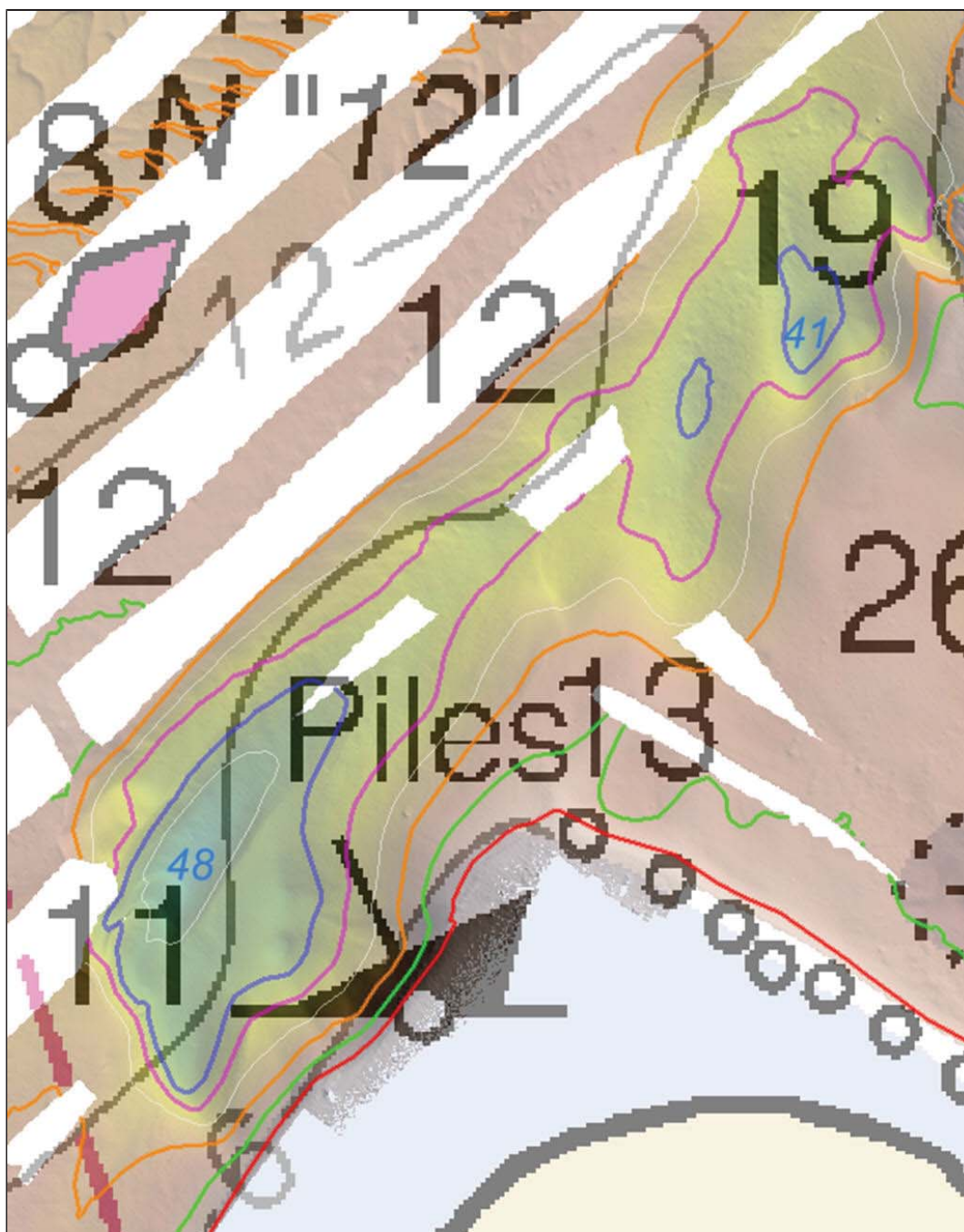


Figure 21: Two deep holes were surveyed near the entrance to Vernam Basin. The holes are highlighted by the contours generated from the H12604 MBES data (6' in red, 12' in green, 18' in orange, 30' in pink, and 36' in blue) and a 50-cm CUBE surface overlaid on RNC 12350. Soundings representing the maximum surveyed depth within the holes were colored in blue.

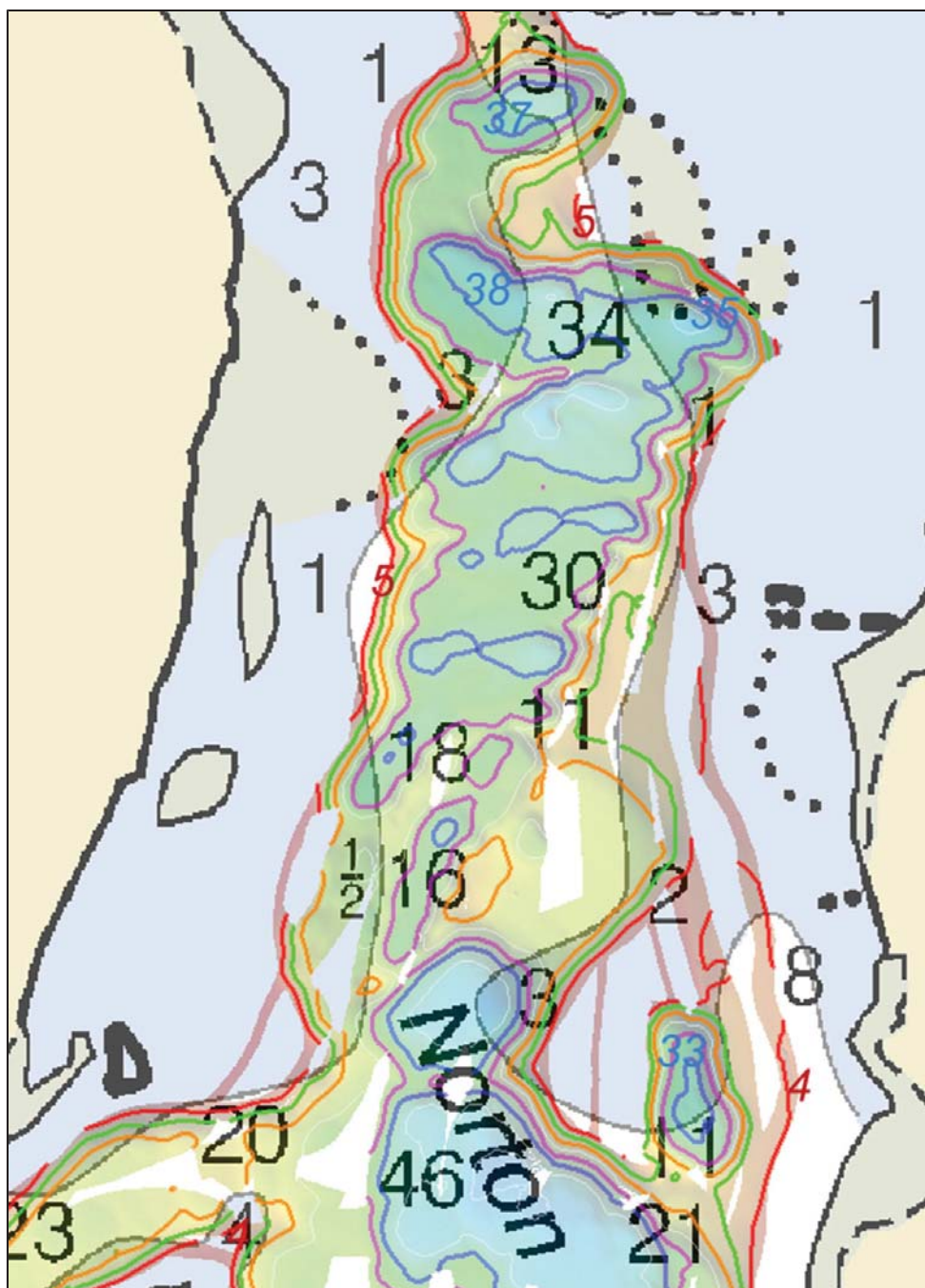


Figure 22: Contours generated from the H12604 MBES data (6' in red, 12' in green, 18' in orange, 30' in pink, and 36' in blue) are shown in reference to Norton Basin. Representative soundings of the shoaling and deepening trends are highlighted in red and blue with a 50-cm CUBE surface overlaid on RNC 12350 in the background.

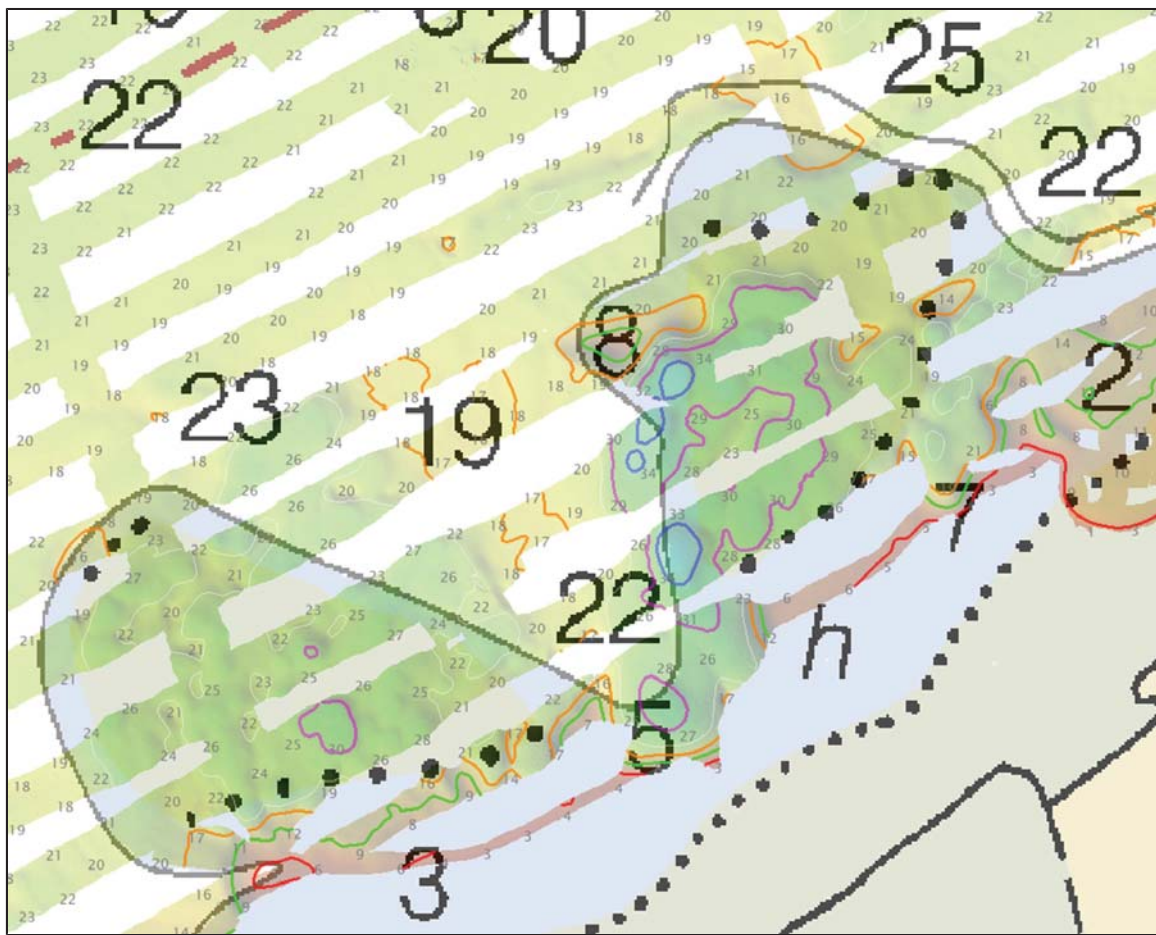


Figure 23: Contours generated from the H12604 MBES data (6' in red, 12' in green, 18' in orange, 30' in pink, and 36' in blue) are shown in reference to the southern side of Head of Bay. Significant deepening was surveyed over two charted shoals with a new 8-foot shoal reported as a DtoN.

D.1.2 Electronic Navigational Charts

The following table summarizes pertinent epoch details about the largest scale ENC's assigned for the survey area.

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US5NY1CM	1:10000	35	03/31/2014	05/29/2014	NO
US5NY19M	1:15000	20	07/06/2012	06/06/2014	NO
US5NY50M	1:20000	18	05/03/2013	06/11/2014	NO

Table 17: Largest Scale Electronic Charts

US5NY1CM

There was good agreement between the surveyed depths and the ENC depths, with soundings matching in general within 3 feet. One area of significant change was noted at the base of the western pylon of the Verrazano Narrows Bridge. The charted 6-foot contour on the shoreward side of the western bridge pier (40-36-12.82N, 074-03-10.84W) was disproved with object detection MBES coverage with surveyed depths measuring over 12 feet.

US5NY19M

The findings from the chart comparison of survey data with ENC US5NY19M were identical to the results from the chart comparisons for the portions of RNC 12402 and RNC 12350 that coincide with ENC US5NY19M. The charted soundings, contours and features on the ENC and RNCs matched. Therefore, refer to the chart comparisons for the RNCs for information regarding discrepancies between charted and surveyed data.

US5NY50M

The results from the chart comparison between survey H12604 and ENC US5NY50M were identical to the comparison with RNC 12350 as the charted soundings, contours and features on the ENC and RNC matched. Therefore, see the chart comparison for RNC 12350 for information regarding discrepancies between charted and surveyed data. During chart comparisons and the generation of the FFF, a horizontal shift in position was noted between charted coastline and shoreline features on the ENC and the positions on the RNC. This position disparity was first identified in the CSF which was generated from the ENC. For the majority of Jamaica Bay, the ENC coastline and shoreline features were shifted approximately 5 meters northwest from the RNC position (Figure 24). Survey data, both MBES and SSS, confirm the RNC's coastline and shoreline feature positioning.

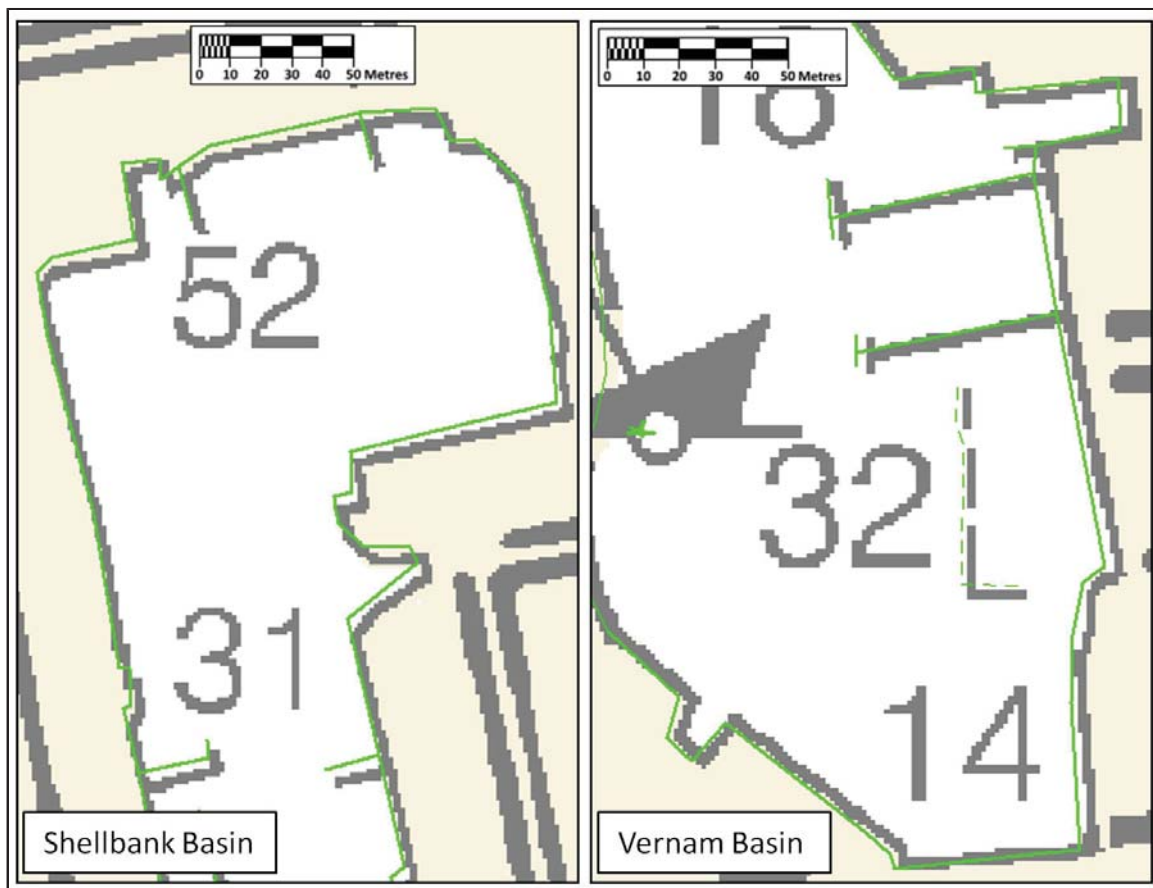


Figure 24: The figure highlights two examples from Jamaica Bay where a horizontal shift between the coastline and shoreline features in the CSF colored in green and the coastline as charted on RNC 12350 was apparent. The CSF was generated from ENC US5NY50M.

D.1.3 AWOIS Items

There were 41 AWOIS items assigned for Full Investigation and 38 AWOIS items provided for Information Only within Survey H12604. Wherever practical AWOIS item search areas were investigated employing 200% SSS coverage along with coincidental MBES coverage. This approach was discussed and approved in an e-mail from the COR on November 27, 2013. In many cases a given AWOIS item existed in shallow water adjacent to the shoreline, such that a significant portion of the search area was on land. In these instances, coverage was obtained as far inshore as possible given the water depth. At times the outer range of the SSS was utilized along with operation of the MBES system in the side-looking configuration to ensonify as much of the search area as possible. Several AWOIS items charted within intertidal zones were not investigated because the water depth was too shallow for safe navigation. Individual AWOIS item investigation results, with one exception, are discussed in the FFF, with investigation techniques documented in the Remarks field and supporting images appended when applicable.

Of all the assigned AWOIS Items only one was not addressed in the Final Feature File: #2744. Per the AWOIS History, Item #2744 was originally reported as a wreck in 1960 and was investigated in 1979 without discovery. It is not represented on the chart (ENC or RNC) and a wreck feature was not included in the CSF. The AWOIS search area defined by a 100-meter radius was developed with 200% SSS and concurrent MBES coverage. No evidence of a wreck was found within the search area. It is recommended that the AWOIS item be removed from the database or the investigation requirement changed from Full to Information Only.

The AWOIS History is as follows: NM37/60(4525)--NM37/60(4525)--SPEED BOAT, SUNK IN 27 FT OF WATER ABOUT 830 YDS, 192 DEG FROM CONEY ISLAND LIGHT. CL560/68--USCG; CG UNABLE TO LOCATE WRECK W/SOUNDER AND LEADLINE. (CHARTED SYMBOL REVISED TO PD) H9820/79--NOAA SHIP WHITING; NO INDICATION OF WRECK AFTER ES SEARCH WITH REDUCED MAIN SCHEME 45M LINE SPACING AND WITH UNCONTROLLED STAR PATTERN SEARCH. RECOMMEND TO RETAIN UNTIL INVESTIGATED BY WIRE DRAG. UPDATED 6/00 MCR.

D.1.4 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.5 Charted Features

All charted features not specifically assigned as AWOIS items, but assigned within the CSF were addressed in the S-57 Final Feature File.

D.1.6 Uncharted Features

No uncharted features from miscellaneous sources were provided for investigation for survey H12604. However, a substantial number of new, uncharted wrecks and obstructions were identified and are included in the S-57 Final Feature File.

D.1.7 Dangers to Navigation

The following DTON reports were submitted to the processing branch:

DTON Report Name	Date Submitted
H12604_DtoN_#1.000	2013-10-29
H12604_DtoN_#2.000	2013-10-29
H12604_DtoN_#3.000	2013-10-29
H12604_DtoN_#4.000	2013-10-29
H12604_DtoN_#5.000	2014-05-29
H12604_DtoN_#6.000	2014-05-21
H12604_DtoN_#7.000	2014-05-21
H12604_DtoN_#8.000	2014-05-21
H12604_DtoN_#9.000	2014-05-21
H12604_DtoN_#10.000	2014-05-21
H12604_DtoN_#11.000	2014-05-21
H12604_DtoN_#12.000	2014-05-21
H12604_DtoN_#13.000	2014-05-21
H12604_DtoN_#14.000	2014-05-29
H12604_DtoN_#15.000	2014-06-02
H12604_DtoN_#16.000	2014-06-03
H12604_DtoN_#17.000	2014-06-03
H12604_DtoN_#18.000	2014-06-03
H12604_DtoN_#19.000	2014-06-03
H12604_DtoN_#20.000	2014-06-03
H12604_DtoN_#21.000	2014-06-05
H12604_DtoN_#22.000	2014-06-05
H12604_DtoN_#23.000	2014-06-06
H12604_DtoN_#24.000	2014-06-06
H12604_DtoN_#25.000	2014-06-16

Table 18: DTON Reports

Danger to Navigation reports were delivered via e-mail to AHB from the home office as intensive processing of Survey H12604 progressed. OSI DtoNs were submitted based on guidance in Section 8.1.3 of the HSSD. Many of the OSI DtoN submissions contain numerous features and/or soundings that were grouped into single DtoN deliveries according to charted sub-areas, e.g. OSI DtoN Report #1 was comprised of 33 individual

uncharted wrecks and obstructions within East Mill Basin represented in appended eight (8) chartlets. The features OSI selected as DtoNs, as submitted to the COR and the AHB DtoN e-mail account, are included in the H12604 FFF. AHB considered groups of OSI DtoN submittals and repackaged those that they selected as worthy of forwarding to the Nautical Data Branch (NDB). For this reason DtoN number designations found in the FFF for this survey are not in sync with DtoN number designations submitted to NDB by AHB. The .PDF version of AHB DtoN recommendations submitted to NDB along with transmittal e-mails and NDB response are included in DR Appendix II. AHB does not appear to have submitted a DtoN recommendation having the number designation of #4. In summary, DtoN recommendations by AHB to NDB include #1, #2, #3, #5, #6, #7, #8, #9, #10, #11, #12, #13, and #25.

D.1.8 Shoal and Hazardous Features

Multiple charted shoals were investigated within the extents of Survey H12604. On the RNCs, shoals were identified with annotations such as "Shoaling" or "Rep Shoal 1984" or as caution areas. For the ENC's, shoals were classified with the S-57 object class CTNARE (Caution Area) as point or area features with the INFORM (Information) field updated to identify the hazard. The results of the investigated charted shoals and caution areas within Survey H12604 are as follows:

A caution area charted in ENC US5NY19M coincided with the limits of Chapel Hill North Channel; the INFORM field stated the following: "Sporadic [sic] shoal obstructions exist within the channel but are not charted. Consult the Corps of Engineers for location of obstructions [sic]." The portion of the caution area that intersected H12604 was developed with 200% SSS and concurrent MBES coverage. Survey data confirmed the caution area statement of the existence of sporadic shoal obstructions within the channel. All significant obstructions were developed with object detection MBES coverage and were included in the FFF. It is recommended that the spelling errors within the charted Caution Area's INFORM field be corrected.

A shoal within Rockaway Inlet with the note "Shl to 3ft rep (1980)" was positioned at 40-34-22.57 N, 73-55-25.93 W in ENC US5NY50M and on RNC 12350. Partial MBES coverage (set line spacing) was obtained over the shoal along with 200% SSS coverage. The least depth recorded in the vicinity of the reported shoal was 9 feet (2.85 meters, ± 0.40 TPU) at 40-34-22.25 N, 73-55-29.92 W. No indication of a 3-foot shoal was found by survey H12604. It is recommended that the shoal and caution area be removed from the RNC and ENC respectively.

Shoaling was charted (RNC 12350, ENC US5NY50M) within Plumb Beach Channel at 40-34-28.77 N, 73-54-35.81 W, with a shoal area delineated with a charted 6-foot contour. Partial MBES coverage (set line spacing) was obtained over the shoal along with 200% SSS coverage. The surveyed 6-foot contour differed significantly from the charted contour, indicating that the size of the shoal has diminished (Figure 25). It is recommended that the surveyed 6-foot contour be used to update the extents of the charted shoal.

A shoal within Runway Channel with the note "Shl to 3 ft rep 1976" was positioned at 40-35-28.73 N, 73-51-41.43 W in ENC US5NY50M and on RNC 12350. Partial MBES coverage (set line spacing) was obtained over the shoal along with 200% SSS coverage. The least depth recorded in the vicinity of the reported shoal was on a new obstruction located at 40-35-25.33 N, 73-51-36.73 W with a least depth of 10 feet (3.01 meters, ± 0.40 TPU). No indication of a 3-foot shoal was found by survey H12604. It is recommended that the shoal be removed from the chart.

A shoal south of Goose Pond Marsh with the note "Shl rep 1983" was positioned at 40-36-29.56 N, 73-49-15.72 W in ENC US5NY50M and on RNC 12350. The shoal was verified with partial MBES coverage. The least depth surveyed over the charted shoal was 0 feet (-0.02 meters, ± 0.40 TPU) at 40-36-29.74 N, 73-49-15.68 W. It is recommended that the charted soundings be updated with the surveyed depths.

A shoal within Winhole Channel with the note "Shl rep 1981" was positioned at 40-36-50.37 N, 73-48-24.97 W in ENC US5NY50M and on RNC 12350. The reported shoal did not specify a depth, however, a charted 6-foot contour directly south of the reported shoal, surrounding the charted lighted daymark, was verified with partial MBES coverage. The least depth surveyed over the charted shoal was 4 feet (1.18 meters, ± 0.41 TPU) at 40-36-47.64 N, 73-48-28.11 W. It is recommended that the charted 6-foot contour be updated with the surveyed depths.

A shoal at the entrance to Shellbank Basin with the note "Shl rep 1981" was positioned at 40-38-55.73 N, 73-50-10.43 W in ENC US5NY50M and on RNC 12350. No depth was reported for the shoal; however, the RNC was colored blue at the entrance to the basin which according to U.S. Chart 1 indicates depths less than 10 feet. Surveyed depths within the charted blue area agreed with the 8-foot depth charted at the entrance to the Basin (40-38-53.53 N, 73-50-09.58 W); therefore, it is recommended that the shoal annotation and caution area be removed from the RNC and ENC respectively.

A shoal area was located north of Plumb Beach Channel with the note "Shl Rep 1974" in ENC US5NY50M and on RNC 12350 in the approximate location of 40-34-43 N, 73-54-40 W. Partial MBES coverage (set line spacing) was obtained over the reported shoal/caution area along with 200% SSS coverage. Surveyed depths over the shoal/caution area ranged between 1 and 36 feet (Figure 26). It is recommended that the charted contours be updated with the survey data and the shoal and caution area be removed from the RNC and ENC respectively.

A caution area included in ENC US5NY50M corresponded with NOTE B on RNC 12350 which stated "Wrecks reported submerged at MHW in Mill and Gerritsen Creeks." The caution area and note was verified with MBES and SSS data as multiple wrecks and obstructions were developed within the creeks. The individual wrecks, obstructions, and wreck areas are included in the FFF. It is recommended that the caution area and note be retained as charted.

A caution area in ENC US5NY50M buffering a ruined bridge in Mill Creek was verified. The caution area was centered on 40-35-54.70N, 73-54-57.16W and the INFORM field stated: "Mariners are advised to exercise caution in this area as some parts of the bridge structure have fallen into the water and are an obstruction to navigation." The bridge ruins were verified visually and with MBES and SSS data. Multiple wrecks were also positioned in the vicinity of the bridge ruins. It is recommended that a magenta-shaded caution area be added to the RNC.

A caution area in ENC US5NY50M included the majority of Shell Bank Creek with the INFORM field stating: "There are dangerous pilings and remains of ruined barges along the south side of Shell Bank Creek." The caution area was verified with MBES and SSS data, but it is recommended that the Information statement be updated to include the entirety of Shell Bank Creek, not just the south side. Within the survey area of H12604, Shell Bank Creek was one of the most hazardous areas for navigation. It is recommended that the caution area be retained as charted and that a danger note be added to the RNC.

Three caution areas (on the ENC and RNC) were charted beneath the bridges in Gerritsen Inlet and at the entrances to Fresh Creek and Paerdegat Basin. The INFORM field for the caution areas stated: "Fixed and floating obstructions, some submerged, may exist within the magenta tinted bridge construction area. Mariners are advised to proceed with caution." Construction was ongoing on the bridges at the time of survey and research into public documentation related the construction to a New York City Department of Transportation (NYCDOT) project titled "Reconstruction of Seven Bridges on the Belt Parkway." The NYCDOT project documentation may be downloaded at the following web address: http://www.nyc.gov/html/dot/downloads/pdf/beltpkwybrgs_eng.pdf. Survey data, both SSS and MBES, verified the caution areas within Fresh Creek and Paerdegat Basin, as multiple obstructions were reported beneath the bridges in the FFF. Construction in Gerritsen Inlet was in its preliminary stage during data acquisition; no significant hazards were present beneath this bridge at the time of survey. However, photos reported on the Belt Parkway Facebook page (<https://www.facebook.com/beltparkway>) on July 16, 2014 indicate that construction has advanced significantly with new bridge piers currently under construction. It is recommended that the caution areas be retained as charted.

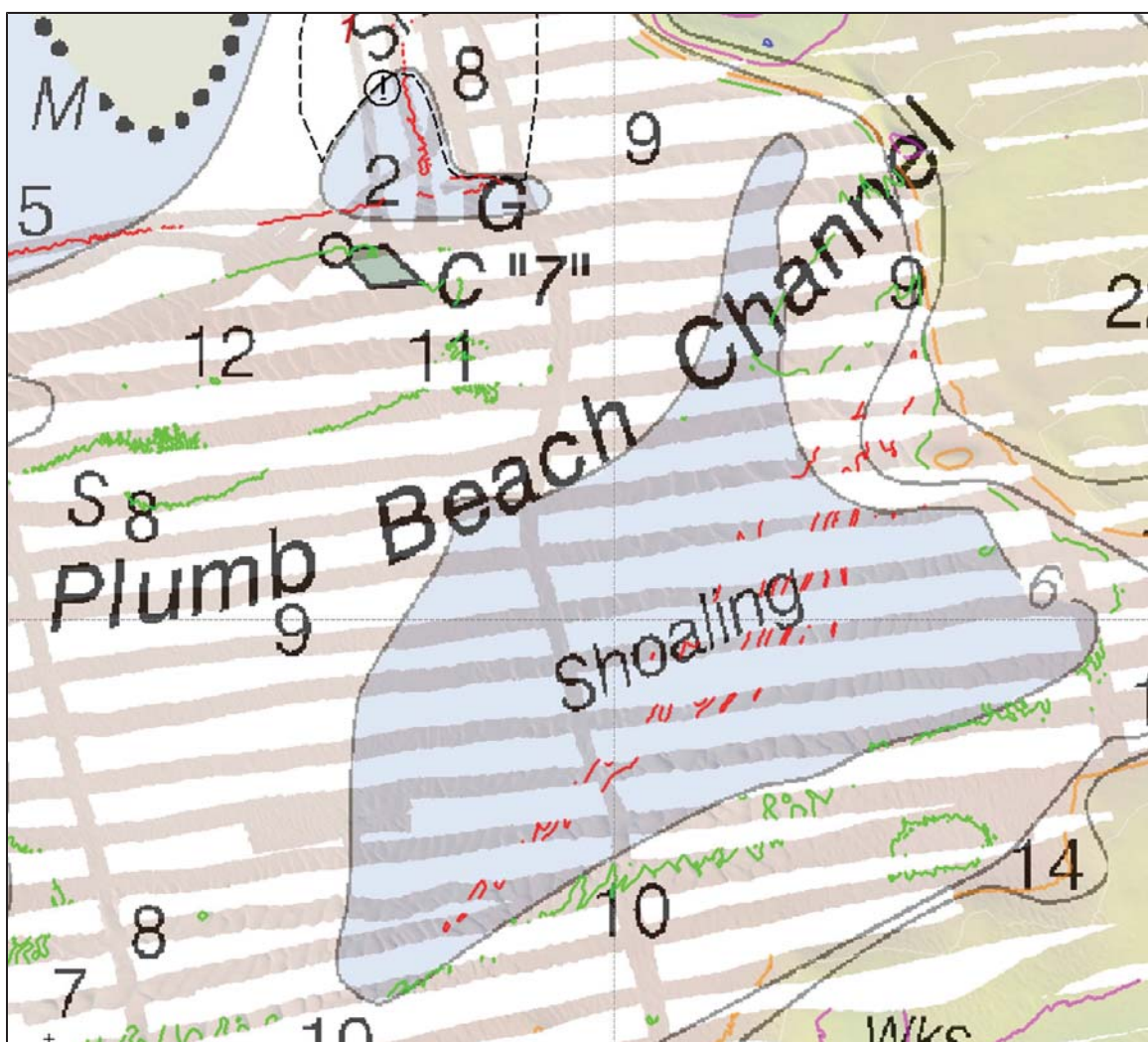


Figure 25: The extents of the Plumb Beach Channel shoal have changed significantly compared to the charted shoal as highlighted by contours derived from H12604 MBES data (6' in red, 12' in green, 18' in orange, and 30' in pink). In the background, a 50-cm CUBE surface is overlaid on RNC 12350.

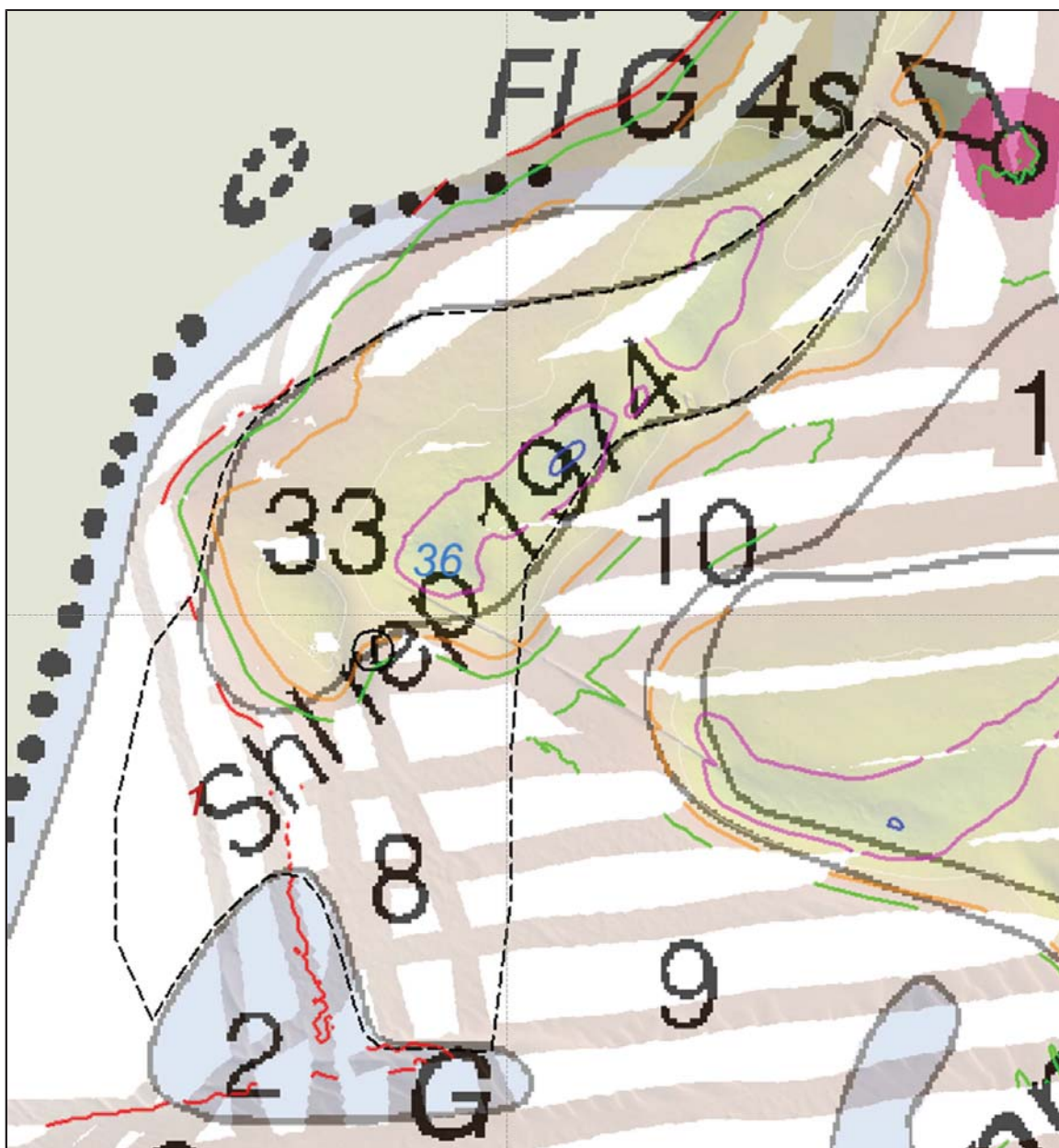


Figure 26: A charted shoal has changed significantly from the chart as highlighted by contours derived from H12604 MBES data (6' in red, 12' in green, 18' in orange, 30' in pink, and 36' in blue) compared with the charted caution area (black dashed line). In the background, a 50-cm CUBE surface is overlaid on RNC 12350.

D.1.9 Channels

Tabulated Depths and Controlling Depths:

Within the boundary of Survey H12604, RNC 12402 includes two Federal Channels, Ambrose Channel and Chapel Hill North Channel (Figure 27), and a controlling depth tabulation for each channel. These channels are each attributed as "fairway" and "dredged area" on ENC US5NY19M. No portion of Chapel Hill South Channel was covered by Survey H12604.

NM 49/13 (7 December 2013) includes a new tabulation of controlling depths for Ambrose Channel and Chapel Hill Channel (Figure 28). The depth tabulation table change is effected on RNC 12402 (downloaded June 13, 2014). However, it appears that some of this information is obsolete and should be superseded by information contained in NY Army Corps of Engineers "Report of Channel Conditions" dated 3 March 2014. This report, shown in Figure 29, states that controlling depths along the entirety of the Ambrose Channel project are greater than 50 feet. In fact the project depth is now 53 feet. The report may be downloaded at the following web address: http://www.nan.usace.army.mil/Portals/37/docs/civilworks/ConDep/CDR_2014/Apr14/Ambrose%20CDR.pdf. The change in controlling depths is likely due to the ongoing NY and NJ Harbor Deepening Project. Furthermore, the report suggests that the channel is longer than depicted on RNC 12402 and ENC US5NY19M. Specifically, the report states that "Reach D" of Ambrose Channel extends landward of the Verrazano Narrows Bridge a distance of approximately 620 meters (2,050 feet). In researching this topic OSI corresponded with the NY Army Corps of Engineers (NY COE) who e-mailed the Ambrose Channel coordinates for inclusion in this report. Figure 30 and Figure 31 depict graphically and in tabular format the new Ambrose Channel extents. OSI used the Corpscon 6.0.1 software to convert the channel coordinates from their native format (NY, Long Island, SPCS, NAD83, US Feet) into UTM Zone 18 N, NAD83, Meters for the purposes of QA/QC and to prepare the figure shown herein. A slight shift is noted when comparing the converted channel lines (as converted with Corpscon 6.01.) and the currently charted channel lines. The "new" channel limits plot approximately 6-10 meters west of the charted channel in the CARIS Notebook window used during this review.

The following discussion of tabulated depths pertains only to areas surveyed. As such, the majority of Ambrose Channel and a portion of Chapel Hill North Channel are not considered in this discussion. The "new" Ambrose Channel boundaries provided by the NY COE were considered during this analysis.

As mentioned above the charted Ambrose Channel tabulation is obsolete. The results of Survey H12604 are in keeping with controlling depths listed in the NY COE "Report of Channel Conditions" dated 3 March 2014 in that there is "sporadic edge shoaling" along both the Left and Right Outside Quarters. In general, the channel is largely maintained to a depth of greater than 53 feet with only "sporadic edge shoaling" apparent at the very outer edges of the channel. There are no detached shoals within the channel shallower than 53 feet within the area surveyed. There were many features identified within the bounds of the surveyed sections of Ambrose Channel. Only three features had heights over 1-meter tall (a significant contact per the HSSD) and none of the significant features are shallower than 53 feet. One of the three features is represented as a charted obstruction on the chart being used for this analysis. Given that OSI's survey data verifies the channel controlling depths from the NY COE Report of Channel Conditions, it is recommended that the data included in the NY COE report be used to supersede the tabulated depths on RNC 12402. This will necessitate an expansion of the charted tabulation to accommodate Ambrose Channel Reaches A-D. Charting changes to the

Ambrose Channel boundary as well as the channel controlling depth tabulation should be propagated to all adjacent and overlapping RNC and ENC products.

Corps of Engineers controlling depths and channel data are not available for review online for Chapel Hill North Channel. As such the foregoing discussion considers the depth tabulation and bounds for Chapel Hill North Channel as charted on RNC 12402. The Chapel Hill North Channel project is approximately 300 meters (1000 feet) wide and 30 feet deep. The channel area surveyed consists of depths largely greater than 30 feet with the following exceptions:

The Left Outside Quarter (in the area surveyed) has three obstructions shallower than 30 feet. The shoalest of these has a depth of 27 feet (8.21 meters, ± 0.40 TPU) at position 40-32-56.15 N, 073-02-11.21 W. It is recommended that the tabulated controlling depth for the Left Outside Quarter be listed as 26.9 feet which is more conservative, i.e. shoaler than the currently tabulated value of 28.9 feet.

The Left Inside Quarter (in the area surveyed) has three obstructions shallower than 30 feet. The shoalest of these has a depth of 28 feet (8.53 meters, ± 0.40 TPU) at position 40-32-24.04 N, 073-02-16.34 W. It is recommended that the tabulated controlling depth for the Left Inside Quarter be listed as 28.0 feet which is more conservative, i.e. shoaler than the currently tabulated value of 29.5 feet.

The Right Inside Quarter has (in the area surveyed) has two obstructions shallower than 30 feet. The shoalest of these has a depth of 26 feet (8.03 meters, ± 0.40 TPU) at position 40-32-24.22 N, 073-02-11.20 W. It is recommended that the tabulated controlling depth for the Right Inside Quarter be listed as 26.3 feet which is more conservative, i.e. shoaler than the currently tabulated value of 29.4 feet.

The Right Outside Quarter has (in the area surveyed) has one obstructions shallower than 30 feet. The obstruction has a depth of 26 feet (8.14 meters, ± 0.40 TPU) at position 40-32-44.91 N, 073-02-02.56 W. It is recommended that the tabulated controlling depth for the Right Outside Quarter be listed as 26.7 feet which is more conservative, i.e. shoaler than the currently tabulated value of 27.7 feet.

Maintained Channels:

Within the boundary of Survey H12604, RNC 12350 does not include any tabulated/controlling depths. However, there are four channels/fairways shown on this chart having charted, depth notations within the charted channels. The four areas are each attributed as Fairway (FAIRWY) and Dredged area (DRGARE) on ENC US5NY50M. A discussion of charted depth notations versus as-surveyed depths found in each of the charted channels follows.

A rectangular charted Fairway/Dredged area was developed with partial MBES coverage (set line spacing) at the southern entrance to Island Channel, between Barren Island and Nova Scotia Bar. Figure 32 depicts a 0.5-meter CUBE surface colored by depth range overlaid on RNC 12350. Red shading indicates depths less than 28 feet and green shading indicates depths 28 feet and greater. As seen in this figure, the majority of depths are greater than 28 feet. However, as there are some depths less than 28 feet the notation, "28 ft rep 1977" is no longer appropriate. The purpose of this charted, maintained channel area and Fairway is not known to the OSI analysts. Lacking information to the contrary, it is recommended that the controlling depth-marked channel area ("28 ft rep 1977")/Dredged Area and adjacent Fairway area are be removed from the chart and replaced with representative shoal soundings and/or contours at the appropriate density and scale for RNC 12350.

A channel was charted on RNC 12350 within the eastern section of Beach Channel with the annotation of "15 FEET FOR A WIDTH OF 200 FT MAR - APR 1998." The channel is represented as a Fairway/Dredged area in the ENC. Figure 33 depicts a 0.5-meter CUBE surface colored by depth range overlaid on RNC 12350. Red shading indicates depths less than 15 feet and green shading indicates depths 15 feet and greater. As seen in this figure the majority of depths are greater than 15 feet. There are no significant shoals or obstructions within the charted channel; however, there are a few locations where the edges of the charted 200 foot wide channel are shoaling. The red-shaded areas impinging on the edge of the 200 foot wide channel represent depths approximately 12 feet and greater with the majority of these red-shaded depths greater than 14 feet. Practically speaking the defined channel is appropriate as charted. As such, OSI has no specific recommendation for re-charting this channel. A few options to consider for dealing with the minor discrepancy include: 1) decrease the charted controlling depth, 2) decrease the width of the charted channel, 3) notify the Corps of Engineers in the hope that maintenance dredging is performed to rectify the minimal discrepancy, 4) retain as charted.

A channel was charted on RNC 12350 within the western section of Grass Hassock Channel with the annotation of "15 FT MAR - APR 1998." The channel is represented as a Fairway/Dredged area in the ENC. Figure 34 depicts a 0.5-meter CUBE surface colored by depth range overlaid on RNC 12350. Red shading indicates depths less than 15 feet and green shading indicates depths 15 feet and greater. As seen in this figure the majority of depths are greater than 15 feet. There are no significant shoals or obstructions within the charted channel. However, there are a few locations where the edges of the charted channel are shoaling. The red-shaded areas impinging on the edge of the channel represent depths approximately 12 feet and greater with the majority of these red-shaded depths greater than 14 feet. Practically speaking the defined channel is appropriate as charted. As such, OSI has no specific recommendation for re-charting this channel. A few options to consider for dealing with the minor discrepancy include: 1) decrease the charted controlling depth, 2) decrease the width of the charted channel, 3) notify the Corps of Engineers in the hope that maintenance dredging is performed to rectify the minimal discrepancy, 4) retain as charted.

A channel was charted on RNC 12350 within Negro Bar Channel and Motts Basin with the annotation of "15 FT CENTERLINE MAR - APR 1998." The channel is represented as a Fairway/Dredged area in the ENC. Figure 35 depicts a 0.5-meter CUBE surface colored by depth range overlaid on RNC 12350. Red shading indicates depths less than 15 feet and green shading indicates depths 15 feet and greater. For Negro Bar Channel, including the northern spur of the charted channel (north of Inwood), the majority of depths are greater than 15 feet. There are no significant shoals or obstructions within these portions of the charted channel however there are numerous new, uncharted obstructions on the periphery of the channel north of the Inwood peninsula. Red-shaded depths that impinge on the charted channel represent depths approximately 10.5 feet and greater with the majority of these red-shaded depths greater than 13 feet. OSI has no specific recommendation for re-charting these channel sections except that the new obstructions should be charted. In fact, the notation of "15 FT CENTERLINE" is appropriate.

The Motts Basin Channel has more significant shoaling at the head of the channel (eastern end). In general, the Motts Basin Channel is accurately charted, i.e. the notation "15 FT CENTERLINE" is appropriate. However, the implication of the dashed channel lines to the navigator is that there is 15 feet of water out to the black dashed channel lines. As with the other charted channels discussed above there is some shoaling on the edges of the Motts Basin Channel. This shoaling is more pronounced at the eastern end of Motts Basin. Minor shoaling to a depth of approximately 12 feet was surveyed over the portion of the channel from the red nuns (both numbered "2") to the turn at the green can "5." The charted 13 foot obstruction in this reach of the channel

is still present. The portion of Motts Basin Channel east of green can #5 has new, uncharted obstructions within and outside the channel. The shoaling in the far eastern end of the channel (less than 15 feet of water) impinges upon almost half of the width of the charted channel. At the far southeastern extent of the charted channel, over the black dashed channel line, the depth is approximately 2 feet MLLW. It is recommended that the new obstructions are charted and that the channel lines and notations are removed from Motts Basin east of green can "5". Because the area will be so thick with symbols, a few individual soundings and contours may have to convey general depths to the navigator. In the event that the Corps of Engineers or local municipality dredges this area the channel lines could be reinstated.

Anchorage:

Within the boundary of Survey H12604, RNC 12402 and ENC US5NY19M depict six charted anchorage areas three of which, "Special Anchorages" in Sheepshead Bay, are also found on RNC 12350. RNC 12402 does not depict depths in Sheepshead Bay therefore an anchorage area discussion is not warranted. The three remaining anchorage areas depicted on RNC 12402 (ENCs US5NY19M and US5NY1CM) within Survey H12604 include a portion of General Anchorage Area 28, a portion of General Anchorage Area 24, and the entirety of General Anchorage Area 25.

General Anchorage Area 28

This anchorage is on the western side of NY Lower Bay and is bound by Staten Island to the west and various channel and anchorage area lines to the east. Surveyed depths show good general agreement with charted depths. It is anticipated that charted depths will be updated with the contemporary survey data. A number of new obstructions within this area were identified during Survey H12604. The obstructions will likely be added to the chart upon NOAA's review of the FFF. General Anchorage Area 28 is relatively large in relation to RNC 12402. The placement of the anchorage area numbers "28" in six locations within the anchorage seems appropriate. In fact, these notations draw the eye of the RNC chart user to logical locations for anchoring, i.e. out of the local channels and in areas not impeded by cable areas or fish trap areas. Review of this anchorage area as charted on RNC 12402 (and ENC US5NY19M and US5NY1CM) as well as General Anchorage Area 27 (not within Survey H12604) has revealed that while the anchorage area number notations, i.e. "28" and "27" are logically placed the bounding polygons that describe the anchorage areas overlap a number of charted cable areas and fish trap areas. This charting practice does not seem prudent. It is recommended that the bounding polygons for General Anchorage Areas 28 and 27 are subdivided on both the RNC and ENC products such that the "approved" locations are not in conflict with the local utilities crossing the waterway or local fishing operations that may deploy fishing gear in the fish trap area. In this case the placement of additional anchorage area number notations, i.e. "28" and "27", are added to the chart to help define the subdivided anchorage areas.

The review of RNC 12402 anchorages areas also reveals that the polygon defining General Anchorage Area 28 extends under the Verrazano Narrows Bridge essentially touching the west side of the western bridge pier and extending further north to meet the shoreline at the south side of Fort Wadsworth. This may be a result of cartographic convenience however the placement of the anchorage area under the bridge is in conflict with national security regulations as shown in this excerpt from the Code of Federal Regulations 33 CFR 165.169 - "Safety and Security Zones: New York Marine Inspection Zone and Captain of the Port Zone. All waters within 25 yards of any bridge pier or abutment, overhead power cable tower, pier or tunnel ventilators south of the Troy, NY Locks. - Vessels may transit through any portion of the zone that extends into the navigable channel for the sole purpose of direct and expeditious transit through the zone so long as they remain within

the navigable channel, maintain the maximum safe distance from the waterfront facility and do not stop or loiter within the zone." Clearly, anchoring a vessel under the bridge is contrary to the regulation previously quoted. Furthermore, any vessel anchored under the bridge or nearby Fort Wadsworth, regardless of the exact distance from the structures, will unnecessarily incite the local authorities into action. It is recommended that the northern boundary of General Anchorage Area 28 is moved south of the Verrazano Narrows Bridge.

General Anchorage Area 24

This anchorage is on the west side of lower New York Harbor. The southern end of this anchorage terminates just north of the Verrazano Narrows Bridge. The anchorage is actually outside of the assigned survey area, but because the survey vessel ventured into the anchorage it is included in this discussion. What little of OSI's sounding data that overlaps the anchorage area is in keeping with the charted depths. The anchorage area as charted on RNC 12402 and ENC US5NY1CM overlaps the boundary of the nearby charted cable area. In practice it is unlikely that a large vessel would anchor within the narrow overlap area. Therefore, if merely for charting aesthetics, it is recommended that the southern extent of this anchorage area is recharted to run parallel to and outside of the charted cable area.

General Anchorage Area 25

This anchorage is in Gravesend Bay and bound by Ambrose Channel to the west. Surveyed depths show good general agreement with charted depths. It is anticipated that charted depths will be updated with the contemporary survey data. A number of new obstructions within this area were identified by Survey H12604. The obstructions will likely be added to the chart upon NOAA's review of the FFF. The polygon shape of the anchorage area does not conflict with any other charted features, e.g. cable or pipeline areas. This area appears to be appropriately charted.

Two items attributed "ACHARE" or Anchorage Areas on ENC US5NY19M do not appear to be valid features. The ENC-charted features are at the approximate position of 40-35-37 N, 074-03-37 W. OSI has no charting recommendation for these items as their purpose is not obvious.

Within the boundary of Survey H12604, RNC 12350 and ENC's US5NY19M and US5NY50M depict five charted "Special Anchorage" areas three of which are in Sheepshead Bay. With a few inconsequential exceptions the surveyed depths in Sheepshead Bay are similar or slightly deeper than charted depths. However, there were a number of new obstructions and wrecks identified within Sheepshead Bay. Between the generally deeper surveyed depths and the numerous new obstructions in Sheepshead Bay, the updated charted soundings for this area will likely entail a near total update. The two eastern Sheepshead Bay Special Anchorage areas in particular are the site of many new wrecks and obstructions. Based on review of aerial imagery and observations noted by the field team it appears that the two eastern Special Anchorage areas are used as mooring fields for recreational boats. The single western Special Anchorage area in Sheepshead Bay is devoid of mooring balls. Despite the myriad obstructions the Sheepshead Bay Special Anchorage areas appear suitable for their intended use. As such there is no specific charting recommendation for these areas.

The two remaining Special Anchorage areas depicted on RNC 12350 are located in the northwest corner of North Channel and on the west side of East Broad Channel respectively. The North Channel Special Anchorage area is located adjacent to Canarsie Beach. The majority of this area was not ensonified with MBES as much of the area was too shallow to access with the survey vessel. The utility of the Canarsie Beach Special Anchorage

area is questionable as both aerial imagery and field observations suggest that much of the area is uncovered to dry at low tide. OSI offers no specific charting recommendation for this area. Within the East Broad Channel Special Anchorage Area surveyed depths show generally good agreement with the few charted soundings in this area. However the 6-foot contour will shift shoreward when new soundings are applied. A number of new features were identified in this area during Survey H12604. The northern end of the East Broad Channel Special Anchorage area overlaps a charted cable area. It is recommended that the northern end of the polygon defining this Special Anchorage area is moved outside and parallel to the charted cable area boundary.

Range Lines:

A small portion of the Ambrose Channel Range Line crosses the southwestern portion of the H12604 survey area. This range was not observed in the field. However, according to the USCG Light List, back and front range lights are functional. The other range line depicted on RNC 12402 is the Swash Channel Range. Again, the USCG Light List indicates that these lights are functional. The USCG Light List defined characteristic for each range light discussed is equal to the as-charted characteristic.

Precautionary Areas, Pilot Boarding Areas and Traffic Separation Schemes do not exist within Survey H12604.

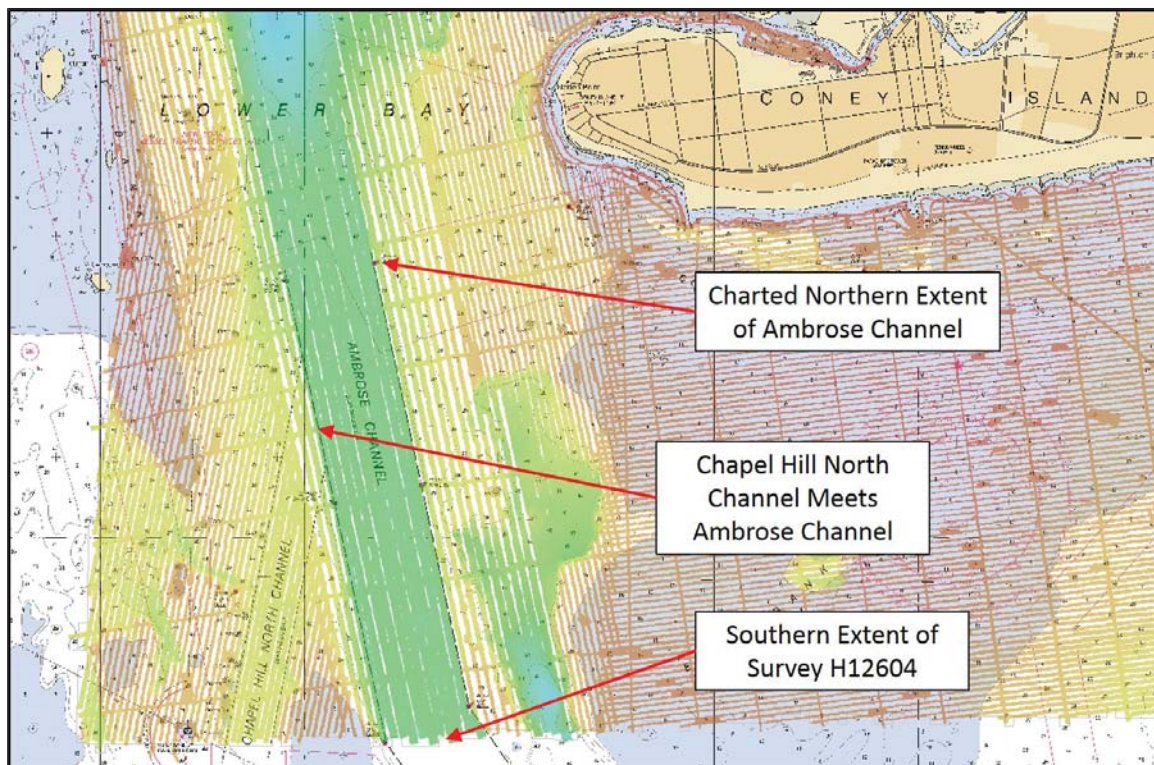


Figure 27: This figure points out the as-charted locations of Ambrose Channel and Chapel Hill Channel in relation to the H12604 survey area. A MBES shaded relief coverage was overlaid on RNC 12402.

Chart 12402

NM 49/13

LOWER BAY AND CHAPEL HILL CHANNEL DEPTHS TABULATED FROM SURVEYS BY THE CORPS OF ENGINEERS - REPORT OF JUN 2013 AND SURVEYS TO MAR 2013								
CONTROLLING DEPTHS FROM SEAWARD IN FEET AT MEAN LOWER LOW WATER (MLLW)						PROJECT DIMENSIONS		
NAME OF CHANNEL	LEFT OUTSIDE QUARTER	LEFT INSIDE QUARTER	RIGHT INSIDE QUARTER	RIGHT OUTSIDE QUARTER	DATE OF SURVEY	WIDTH (FEET)	LENGTH (NAUT. MILES)	DEPTH MLLW (FEET)
LOWER BAY: AMBROSE CHANNEL	39.9	45.9	45.8	41.7	4-03	2000	9.2	45
CHAPEL HILL: SOUTH CHANNEL (A)	*29.7	*28.9	*30.4	*21.4	3-13	1000	2.6	30
NORTH CHANNEL (A)	*28.9	*29.5	*29.4	*27.7	3-13	1000	2.2	30
A. AN * DENOTES A SHOAL OBSTRUCTION. SPORADIC SHOAL OBSTRUCTIONS EXIST WITHIN THE CHANNEL BUT ARE NOT CHARTED. CONSULT CORPS OF ENGINEERS FOR LOCATION OF OBSTRUCTIONS. NOTE - CONSULT THE CORPS OF ENGINEERS FOR CHANGES SUBSEQUENT TO THE ABOVE INFORMATION								

Figure 28: NM 49/13 (7 December 2013) - New Controlling Depth Tabulation for Ambrose Channel and Chapel Hill Channel.

REPORT OF CHANNEL CONDITIONS 400 FEET WIDE OR GREATER (ER 1130-2-306)						PAGE	1 OF 1	
TO: The Record						DATE 3 March 2014		
FROM: U.S. Army Corps of Engineers 26 Federal Plaza, ATTN: CENAN-OP-ST New York, NY 10278-0090								
RIVER/HARBOR NAME AND STATE: New York Harbor, Ambrose Channel, New York						MINIMUM DEPTHS IN CHANNEL ENTERING FROM SEAWARD		
NAME OF CHANNEL	DATE OF SURVEY	AUTHORIZED PROJECT			LEFT OUTSIDE QUARTER (feet)	LEFT INSIDE QUARTER (feet)	RIGHT INSIDE QUARTER (feet)	RIGHT OUTSIDE QUARTER (feet)
		WIDTH (feet)	LENGTH (nmiles)	DEPTH (feet)				
REACH A: From the channel entrance in the Atlantic Ocean to approximately 6,170 feet landward of GREEN 3 W/LT.	Map 139 Pg 1-7 of 17; 16,18,21-23,25-29 March 2013 and 1-5,24,26-27 April 2013	2000	5.1	53	53.4	54.4	54.4	52.0
REACH B: From approximately 6,170 feet landward of GREEN 3 W/LT to approximately 90 feet landward of RED 14 W/LT at channel's first bend.	Map 139 Pg 7-11 of 17; 16,18,21-23,25-29 March 2013 and 1-5,24,26-27 April 2013	2000	4.2	53	55.3	53.9	53.5	52.5
REACH C: From channel's first bend approximately 90 feet landward of RED 14 W/LT to approximately 315 feet seaward of RED 22 W/LT.	Map 139 Pg 11-14 of 17; 16,18,21-23,25-29 March 2013 and 1-5,24,26-27 April 2013	2000	2.6	53	52.8	54.0	54.1	52.7
REACH D: From approximately 315 feet seaward of RED 22 W/LT to approximately 2,050 feet landward of the Verrazano Narrows Bridge.	Map 139 Pg 14-17 of 17; 16,18,21-23,25-29 March 2013 and 1-5,24,26-27 April 2013	2000	2.9	53	51.7	54.5	54.6	54.5

REMARKS:

- All depths in Mean Lower Low Water (MLLW).
- Channel length is in nautical miles.

AMBROSE CHANNEL:

- REACH A:** Sporadic edge shoaling exists in the Right Outside Quarter beginning approximately 6,320 feet seaward of GREEN 3 W/LT, and extends landward approximately 6,220 feet. The maximum shoal width within these parameters is approximately 20 feet.
- REACH B:** Sporadic edge shoaling exists in the Right Outside Quarter beginning approximately 6,000 feet seaward of RED 8 W/LT, and extends landward to a point approximately 820 feet seaward of RED 10 W/LT. The maximum shoal width within these parameters is approximately 15 feet.
- REACH C:** Sporadic edge shoaling exists in the Left Outside Quarter along the entire length of this reach. The maximum shoal width within these parameters is approximately 31 feet. Sporadic edge shoaling also exists in the Right Outside Quarter beginning approximately 580 feet landward of the start of this reach and extends to a point approximately 1,090 feet seaward of the end of this reach. The maximum shoal width within these parameters is approximately 22 feet.
- REACH D:** Sporadic edge shoaling exists in the Left Outside Quarter beginning approximately 480 feet seaward of GREEN 21 W/LT AND GONG and extends landward to a point approximately 4,600 feet seaward of the Verrazano Narrows Bridge. The maximum shoal width within these parameters is approximately 39 feet.

ENG FORM 4020-R, Nov 90 EDITION OF JUL 59 IS OBSOLETE (Proponent: CECW-QM)

Figure 29: NY Corps of Engineers Report of Channel Conditions for Ambrose Channel dated 3 March 2014.

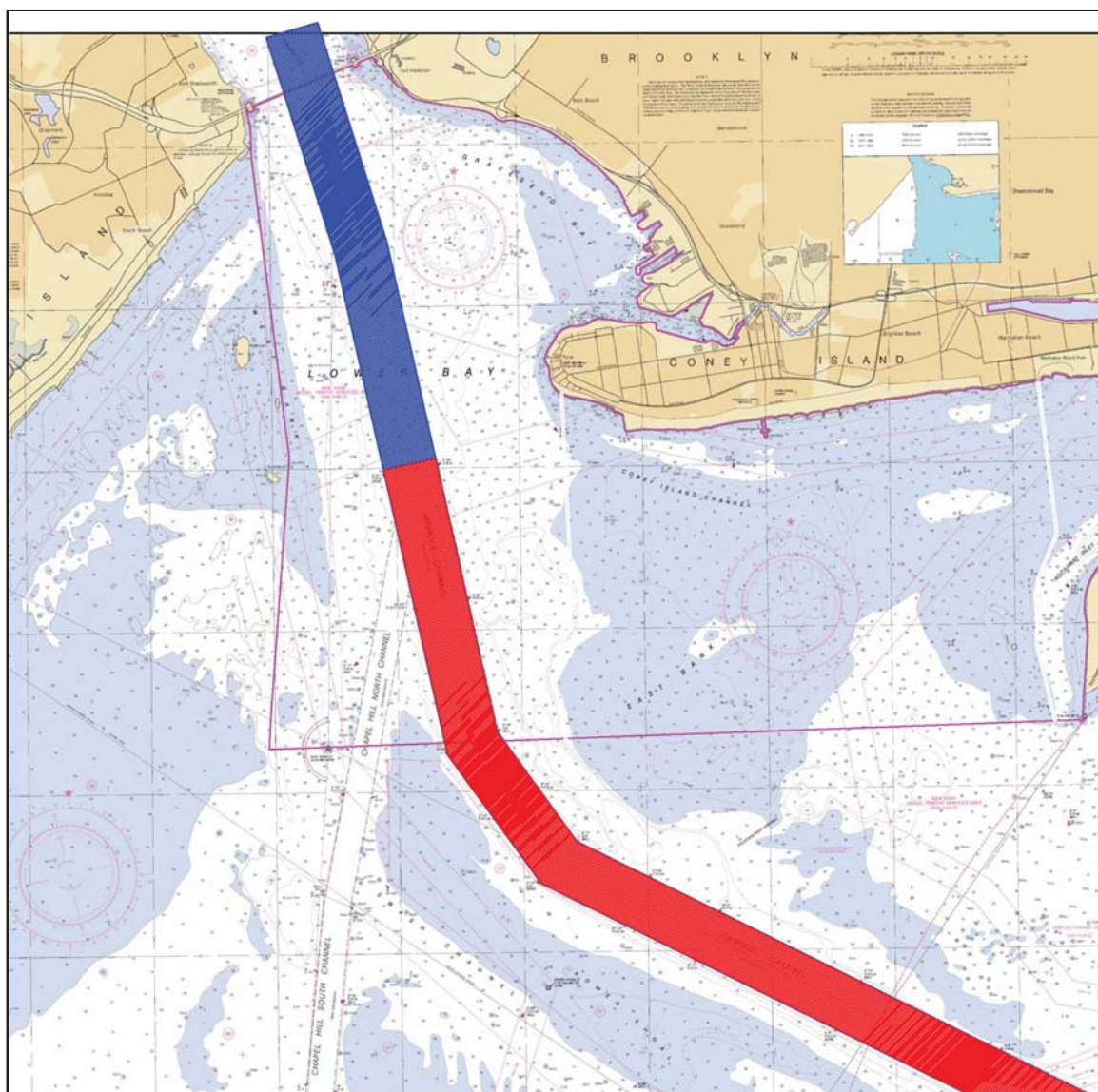


Figure 30: This figure highlights Ambrose Channel as currently charted (red hatch) and as defined by the NY Corps of Engineers (blue hatch) overlaid on RNC 12402. The assigned limits of Survey H12604 are shown as a magenta line.

Ambrose Channel Coordinates per NY Corps of Engineers e-mail dated July 30, 2014						
Ambrose Channel Turning Point	Per NY Corps of Engineers Long Island SPCS Zone 3104, NAD83, US Feet		Conversion to UTM Zone 18 N, NAD83, Meters using Corpscon 6.0.1		Conversion to Geographic Coordinates, NAD83 using Corpscon 6.0.1	
	Easting	Northing	Easting	Northing	Latitude	Longitude
EV1	972,239.15	162,516.54	580,932.99	4,496,208.70	40-36-45.858	074-02-35.735
E2	974,737.90	154,257.87	581,722.91	4,493,701.08	40-35-24.263	074-02-03.294
E3	978,673.88	135,803.38	582,985.96	4,488,091.93	40-32-21.921	074-01-12.222
E4	981,617.55	131,666.42	583,897.15	4,486,841.65	40-31-41.047	074-00-34.089
E8	1,016,642.53	113,834.73	594,630.31	4,481,529.54	40-28-44.635	073-53-00.829
WV1	970,312.78	161,977.27	580,347.93	4,496,037.72	40-36-40.520	074-03-00.709
W2	972,799.36	153,758.81	581,133.99	4,493,542.31	40-35-19.324	074-02-28.418
W3	976,804.25	134,981.24	582,419.16	4,487,834.98	40-32-13.792	074-01-36.434
W4	980,272.63	130,106.86	583,492.76	4,486,361.83	40-31-25.635	074-00-51.502
W8	1,015,735.15	112,052.43	594,359.99	4,480,983.36	40-28-27.035	073-53-12.601

Figure 31: Tabulation of Ambrose Channel turning points per NY Corps of Engineers e-mail dated July 30, 2014.

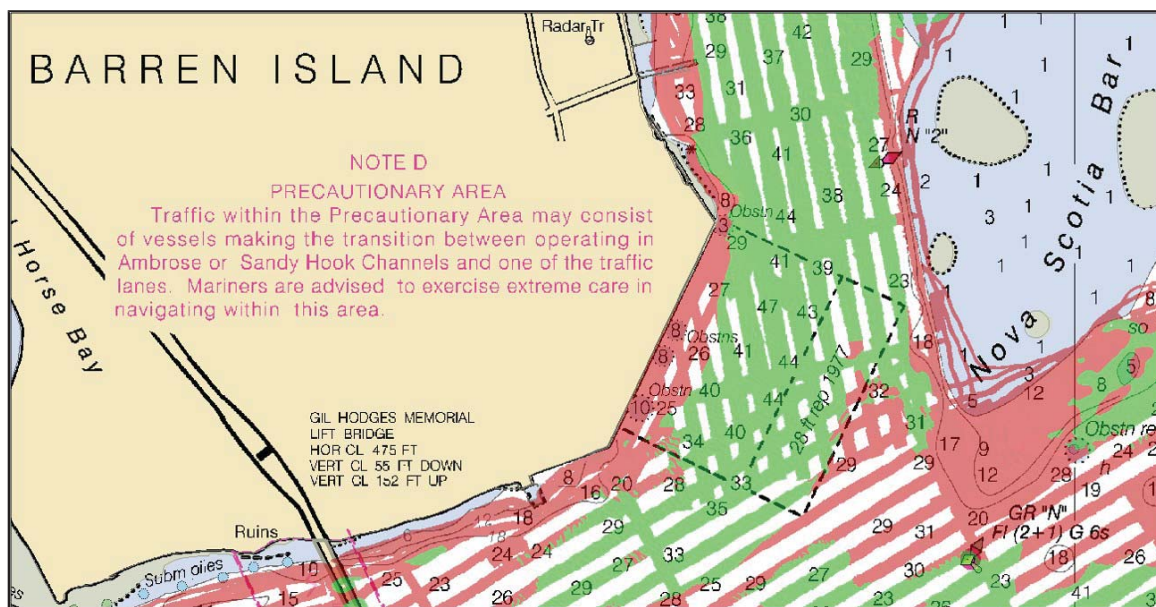


Figure 32: The charted Fairway/Dredged area east of Barren Island is shown on RNC 12350, overlaid with a 50-cm CUBE surface colored by depth range. Depths less than 28 feet are shaded in red and depths 28 feet and greater are shaded green.

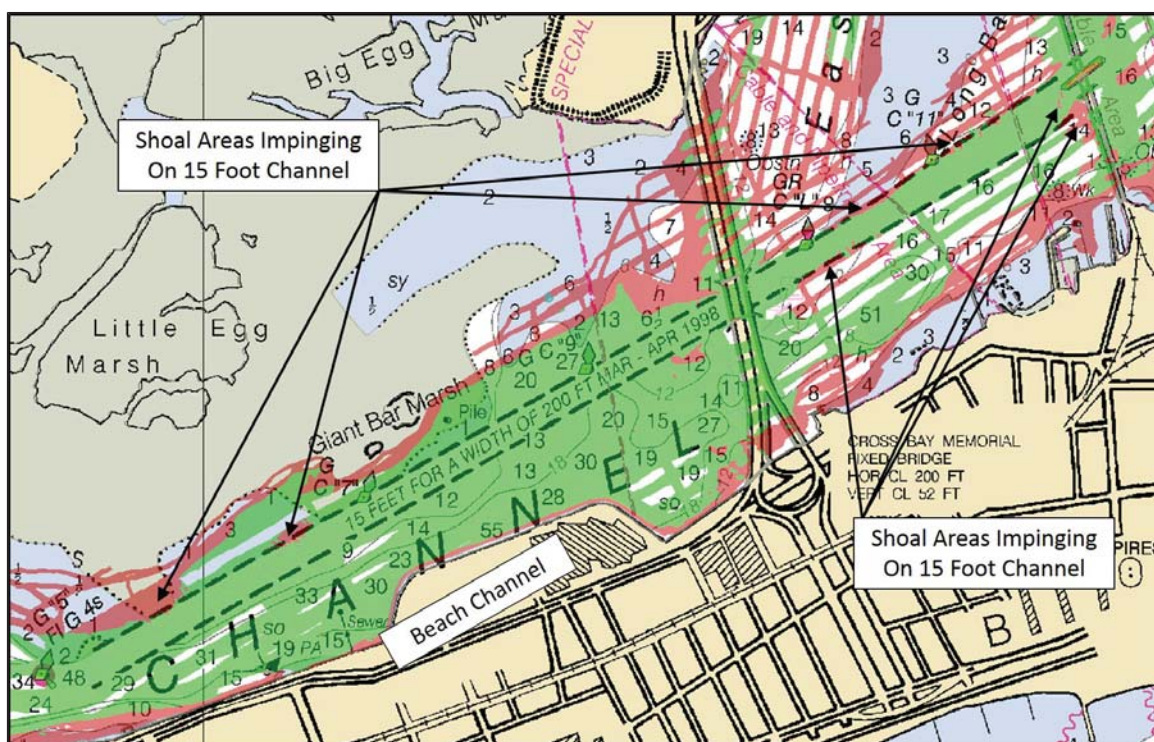


Figure 33: The charted Channel/Fairway within Beach Channel is shown on RNC 12350, overlaid with a 50-cm CUBE surface colored by depth range. Depths less than 15 feet are shaded in red and depths 15 feet and greater are shaded green.

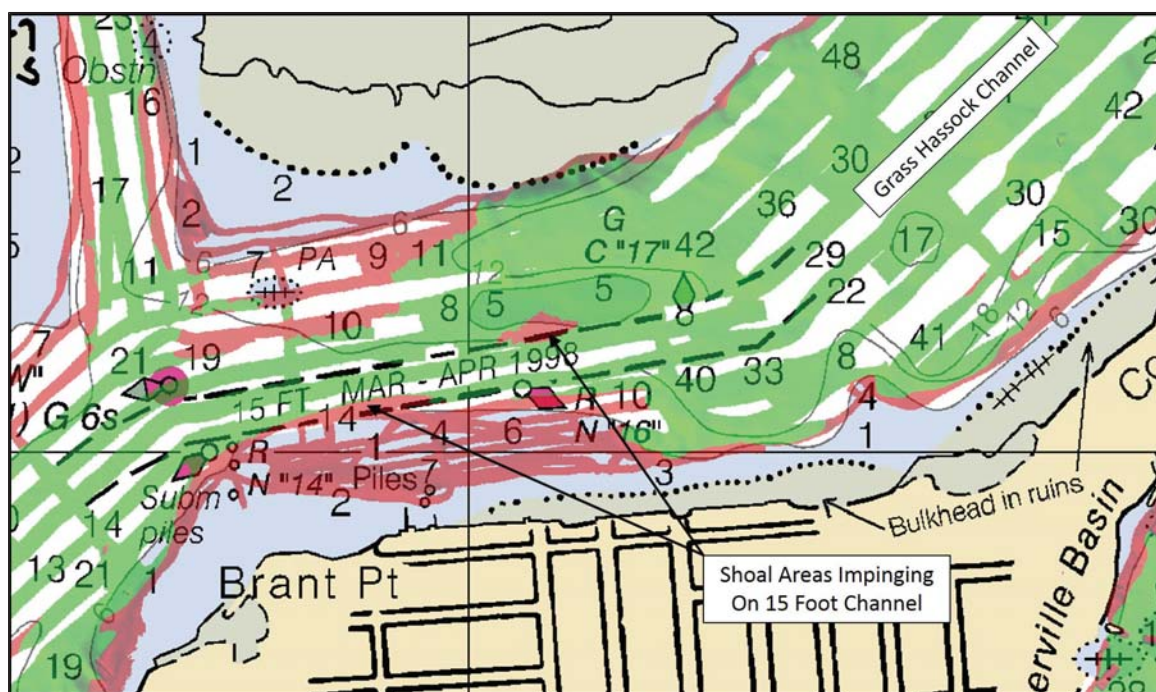


Figure 34: The charted Channel/Fairway within Grass Haddock Channel is shown on RNC 12350, overlaid with a 50-cm CUBE surface colored by depth range. Depths less than 15 feet are shaded in red and depths 15 feet and greater are shaded green.

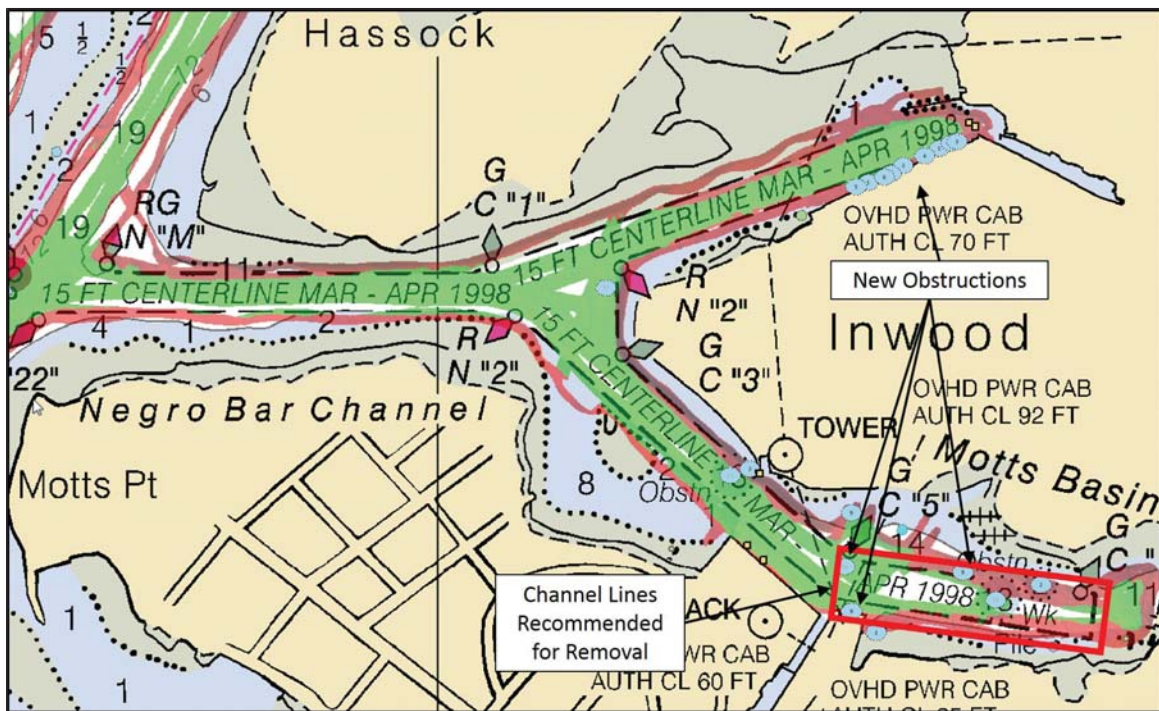


Figure 35: The charted Channel/Fairway within Negro Bar Channel and Motts Basin is shown on RNC 12350, overlaid with a 50-cm CUBE surface colored by depth range. Depths less than 15 feet are shaded in red and depths 15 feet and greater are shaded green.

D.1.10 Bottom Samples

Fifty-one (51) bottom samples were acquired to determine bottom characteristics. Most bottom samples were acquired in close proximity to the recommended positions included in the Project Reference File (PRF), provided with the OPR-B310-KR2-13 Project Instructions. However, a few assigned sample locations were inaccessible to the survey vessel due to shallow water/no water conditions at the assigned location. In these cases a sample was acquired as closely as practical to the assigned location. In practice a sediment sampler was manually deployed over the gunwale to acquire seafloor sediment samples. Bottom sample locations were logged in a target file in HYPACK SURVEY. Once the sample was on deck it was photographed and classified based on the criteria outlined in Appendix 10, Bottom Classification, in the HSSD.

A position and description of each sample are provided as attributed SBDARE objects in the FFF. Digital images with identification reference numbers are submitted with the survey data and referenced in the NOAA extended attributes 'images' field.

D.2 Additional Results

D.2.1 Shoreline

Per the Project Instructions, a limited shoreline verification was accomplished by verifying, disproving, or updating all "Assigned" features from the CSF. Charted shoreline features that were not assigned, but were within the survey area and were found to be disproved or significantly changed (e.g. ruined piers, disproved pilings, charted pipelines), were also addressed. The assigned charted shoreline features and all new features found by Survey H12604 were included in the S-57 attributed Final Feature File: H12604.FFF.000. Feature attribution was completed per section 8.2 S-57 Format Features Deliverables of the HSSD. Images accompanying the FFF were included within the Multimedia folder.

D.2.2 Prior Surveys

Prior survey data exist for this survey area, but was neither assigned nor specifically investigated. However, as a QA/QC check of MBES data acquired during Survey H12604 OSI did a surface-to-surface comparison using the contemporary data and BAG data from NOAA's 2006 Survey H11601. The results of the comparison are shown graphically in Figure 36. As the color shading demonstrates there is general good agreement between surveys with the exception of areas dredged since 2006 and, as expected, sporadic, isolated shoaling areas throughout the overlapping survey area presumably related to sediment transport.

A review of US Geologic Survey (USGS) topographic maps for Jamaica Bay highlighted areas of historic landfill within the survey area, specifically in charted areas that fell within the Source B3 sections indicated in the RNC 12350 Source Diagram. Source B3 survey data spanned from 1940 to 1969, and included chart areas Mill Basin, Grassy Bay and Head of Bay. According to the USGS topo maps, between 1947 and 1969, these areas in particular within Jamaica Bay were subjected to large scale landfill projects to create a new residential neighborhood in Mill Basin (Figure 37) and to create JFK International Airport which is bounded to the south by Grassy Bay and Head of Bay (Figure 38). These massive land-generating changes could account for a number of the deepening trends noted in Head of Bay and the historic dredge marks in Grassy Bay.

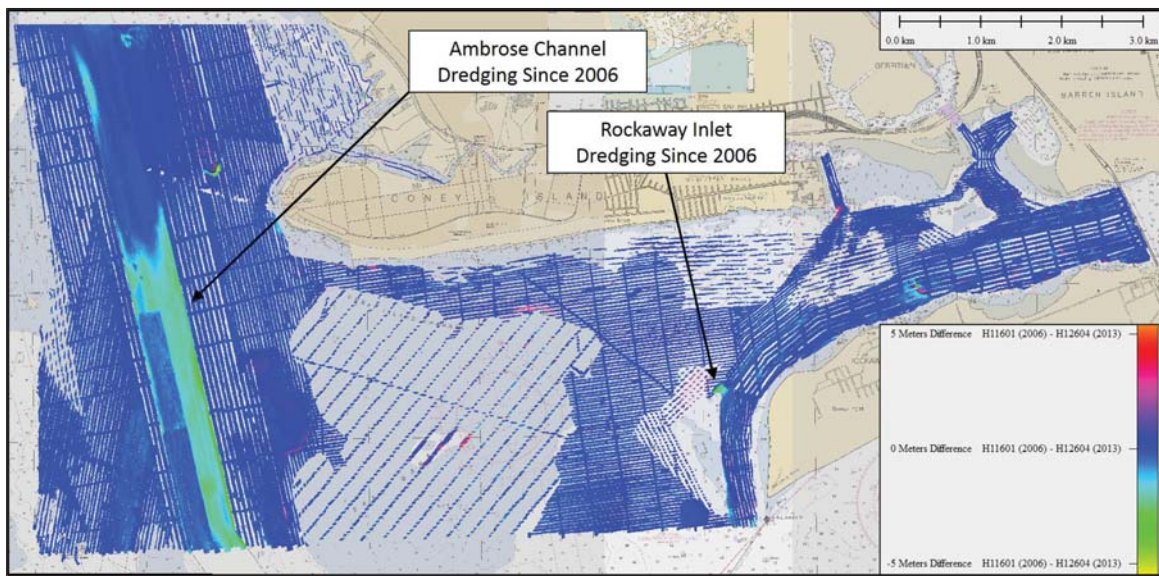


Figure 36: A shaded relief depth difference map displaying the results of a surface-to-surface subtraction of Survey H12604 (2013) MBES data from Survey H11601 (2006) MBES data.

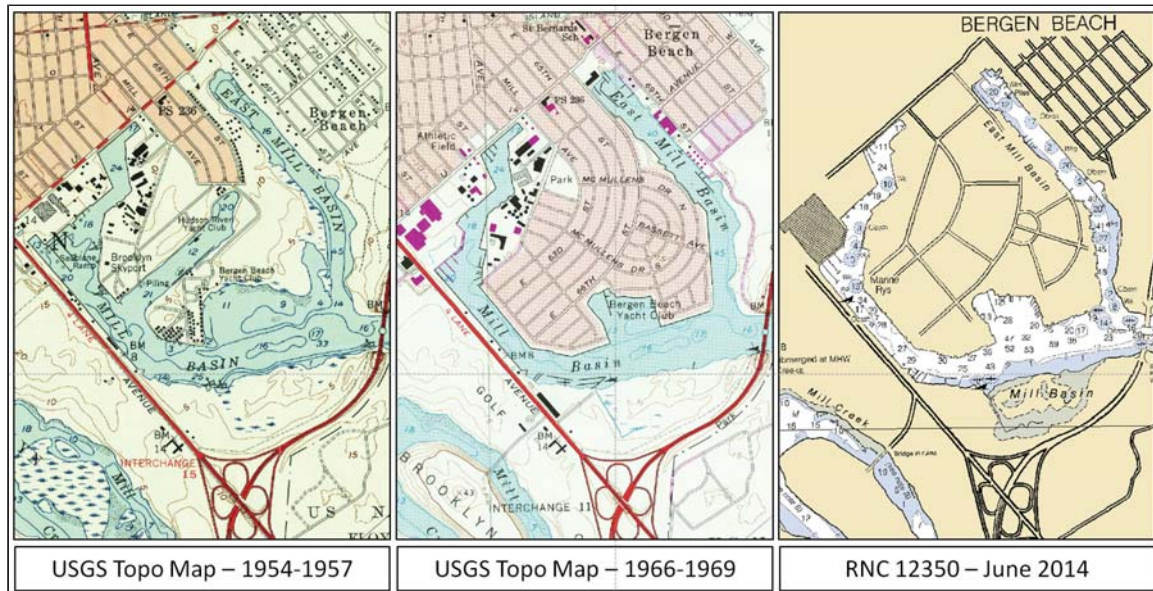


Figure 37: Historic USGS topographic maps were compared alongside RNC 12350 to show landfill changes within Mill Basin.

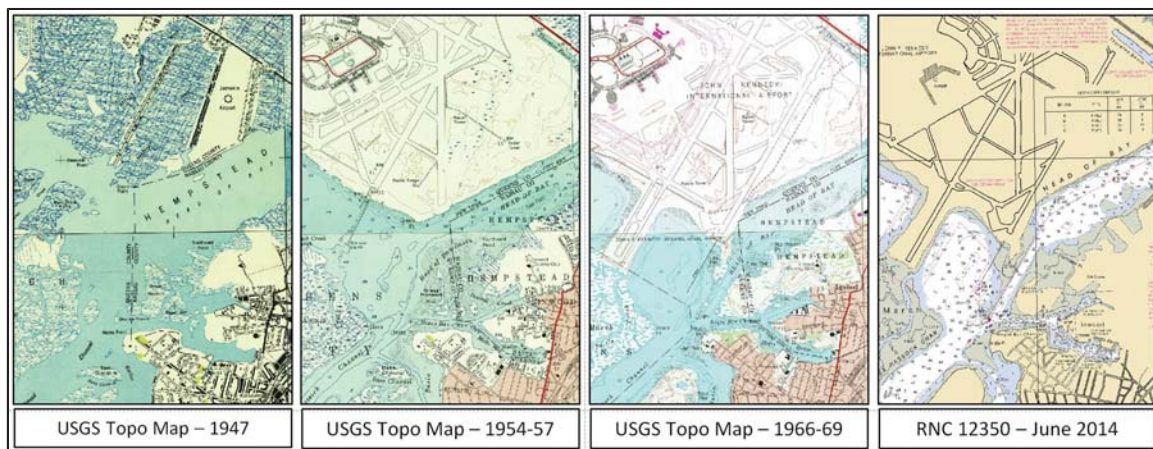


Figure 38: Historic USGS topographic maps were compared alongside RNC 12350 to show landfill changes in the waters surrounding JFK International Airport.

D.2.3 Aids to Navigation

Aids to Navigation (ATONs) listed in the project CSF were investigated during Survey H12604. The Light List was used to confirm ATON light and sound characteristics depicted on the assigned RNC/ENC charts and listed in the Project CSF. Investigation techniques included:

- Visual Observation of ATON during daylight hours.
- Positioning of buoy clump weight if visible in MBES and/or SSS data.
- Review of current 2014 USCG Light List V1.
- Review of appropriate LNM and NM.

The majority of ATONs included in the CSF were found at their charted position and appear to serve their intended purpose. Discrepancies and observations are discussed below.

The block for charted buoy Green Can #7 in Rockaway Inlet (Light List #34230) was positioned in SSS imagery and the buoy was observed visually on October 23, 2013 off station from its charted position, but very close to the Light List-defined position of 40-33-12.99 N, 073-56-45.20 W. The chart correction section of LNM 37/13 (11 September 2013) indicates that Rockaway Inlet Buoy 7 should be relocated from its charted position to the position defined in the Light List which was in the vicinity of its surveyed position. The buoy was most likely moved to accommodate dredging in Rockaway Inlet that coincided with the dates of data acquisition for H12604. LNM 11/14 (19 March 2014) Chart Correction section indicates that the buoy was relocated to 40-33-16.88 N, 073-56-47.36 W which is its charted position. It is recommended that the buoy be retained as charted.

The block for charted buoy Green Lighted Buoy #9 in Rockaway Inlet (Light List # 34240) was positioned in SSS imagery and the buoy was observed visually on October 16, 2013 off station from its charted position, but very close to the Light List-defined position of 40-33-30.70 N, 073-56-26.78 W. The chart correction section of LNM 37/13 (11 September 2013) indicates that Rockaway Inlet Buoy 9 should be relocated from

its charted position to the position defined in the Light List which was in the vicinity of its surveyed position. The buoy was most likely moved to accommodate dredging in Rockaway Inlet that coincided with the dates of data acquisition for H12604. LNM 11/14 (19 March 2014) Chart Correction section indicates that the buoy was relocated to 40-33-29.16 N, 073-56-32.88 which is its charted position. It is recommended that the buoy be retained as charted

The charted yellow light which marks a sewer outfall structure at position 40-33-57.26 N, 073-55-50.77 W was not observed in the field nor in a single photo taken by the field team (Figure 39); therefore, neither the light's existence nor character can be confirmed. The light is not listed in the USCG Light List. Based on data collected during Survey H12604 it appears that the position of the light and the sewer diffuser "roundhouse" structure marking the end of the charted sewer pipe is slightly mis-charted. It is recommended that the existence and character (if existing) of the charted light is confirmed and charted accordingly. It is further recommended that if no light exists that the symbol be removed from the chart and that the center of the structure be charted at position 40-33-58.00 N, 073-55-50.88 W which is approximately 23 meters NNE of the currently charted position.

The charted buoy position of Green Can #13 in North Channel (Light List #34720) differed from the current Light List-defined position of 40-37-02.45 N, 073-53-31.52 W, which closely agrees with the as-surveyed position. It is recommended that the Green Can "13" buoy position be updated to the Light List position.

The Winhole Channel Shoal Daybeacon at position 40-37-42.26 N, 073-48-34.34 W (LL#34585) was observed during the survey. However, LNM 8/14 (26 February 2014) states that the Daybeacon was damaged and LNM 16/14 (23 April 2014) through 19/14 (14 May 2014) state that the Daybeacon is scheduled to be removed on 28 April 2014. It is recommended that AHB consults LNM and/or NM subsequent to June 14, 2014 to check on status of this ATON.

A new position was surveyed for the Winhole Channel Light 3 charted at position 40-36-46.12 N, 073-48-28.41 W (LL#34565) which matched the Light List-defined location. The light and day shape were positioned with SSS coverage at 40-36-47.3 N, 73-48-29.8 W approximately 48 meters northwest of the charted position. It is recommended that the Winhole Channel Light 3 and the accompanying daymark (DAYMAR) and lateral beacon (BCNLAT) ENC features be updated to the surveyed position.

The "Kennedy Airport Dock Light C" charted at position 40-37-52.38 N, 073-47-53.70 W (LL#34605) was not observed in the field. The pier on which the light is charted was in a damaged condition (Figure 40). The Light List does not reflect this discrepancy. None of the LNM or NM consulted for this review mention the discrepancy. It is recommended that the light symbol be removed from the chart and the USCG notified of the missing light such that it can be removed from the Light List and such that the USCG can follow up with the JFK Airport.

The "Kennedy Airport Dock Light F" at position 40-37-05.40 N, 073-46-32.64 W (LL#34610) was not observed in the field. The pier on which the light is reported to exist is approximately 130 meters shorter than the charted length. A light was observed on the end of the existing pier which is believed to be a red light based on the color of the lens. However, its character was not determined as it was only observed during the day. The exact position of the light is not known. Its approximate position is 40-37-09.3 N, 073-46-30.5 W. The Light List does not reflect this discrepancy. None of the LNM or NM consulted for this review mention the

discrepancy. It is recommended that a consultation be had with the USCG and/or the JFK Airport and the light be updated to its current position if, in fact, the light shown in Figure 41 is meant to replace the missing light.

The buoy position of the red/green nun "M" in Grass Hassock Channel (Light List #34490) should be updated to the current Light List-defined position of 40-36-54.60 N, 073-46-20.03 W, which closely agrees with the surveyed position.

The lighted buoy #23 in Grass Hassock Channel at position 40-36-54.60 N, 073-46-25.55 W was observed to be a green lighted buoy as charted. The Light List states that this buoy, #34485, is "replaced by can from Nov. 15 to Apr. 15th." The buoy is properly charted. It is recommended that the ENC buoy INFORM field be updated with a note regarding the buoy's winter status.

The position of the red nun #30 in Head of Bay (Light List #34545) should be updated to the current Light List-defined position at 40-37-49.64 N, 073-45-17.62 W, which closely agrees with the surveyed position.

LNM 40/13 (2 October 2013) through 44/13 (30 October 2013) suggest that red nun #22 (LL#34480) in Grass Hassock Channel is "off station." The buoy block was imaged with SSS on October 28, 2013 and observed on the surface on the same date. All observations, electronic and visual, suggest that the buoy was very close to its intended location, i.e. not "off station" and, in fact, serves its intended purpose. It is recommended that subsequent LNM are consulted to check on the status of this buoy.

The security zone on the southern perimeter of JFK Airport is marked by a number of uncharted fixed and floating aids to navigation consisting of white security zone cans, white security zone lighted buoys, and pilings holding security zone signage. These aids are neither charted nor included in the USCG Light List. Neither their presence in the water nor their absence from the chart or Light List creates a Danger to Navigation, as such the aids are discussed herein. The fixed and floating JFK Airport security zone aids observed during the survey are included in the FFF. Typical fixed and floating security zone aids are depicted in Figure 42. The character of the lights on the lighted security buoys and/or piling security markers is not known.



Figure 39: A photo of the Sewer Outfall Diffuser "Roundhouse" located within Rockaway Inlet. The charted light was not observed on the diffuser structure.



Figure 40: A photo of a damaged pier which was the supposed location of missing "Kennedy Airport Dock Light "C" (LL#34605).



Figure 41: A photo of a red light on a dock house nearby the charted location of missing "Kennedy Airport Dock Light "F" (LL#34610).



Figure 42: Photos of typical fixed and floating JFK security zone aids to navigation.

D.2.4 Overhead Features

Overhead features exist for this survey, but were not investigated. Bridges and overhead cables were included in the project CSF but were not attributed "assigned". As such, they were not specifically investigated during the limited shoreline verification. Neither bridge horizontal clearances nor bridge or overhead cable vertical clearances were confirmed.

That said, OSI completed a review of bridges and overhead cables during home office processing using still photos, shoreline video, and contemporary aerial imagery, specifically NOAA's Post-Hurricane Sandy orthophoto dataset. To the extent possible MBES and SSS data were consulted to confirm the charted position of bridges. With the exception of the Hendrix Creek Bridge noted below, all bridge and overhead cable features are visible in the photos, video, or aerial imagery. The results of the OSI bridge and overhead cable observations are discussed below.

Two bridges appeared to be under construction during the period of the survey. These bridges include the Gerritsen Inlet Bridge at approximate position 40-35-10 N, 073-54-45 W and the Fresh Creek Bridge at position 40-38-19 N, 073-52-42. Both bridges are noted as "Under Construction" on RNC 12350.

The bridge crossing the mouth of Paerdegat Basin at approximate position 40-37-20 N, 073-53-48 W appears to be at the end phase of construction. There are now two spans crossing the mouth of the Basin whereas there was only one span previously. This area is marked as "Under Construction" on RNC 12350. Figure 43, a screen capture of NOAA's Post-Hurricane Sandy orthophoto dataset, shows the two new bridge spans flanking the older span. During the survey the center span was no longer visible and is assumed to have been removed as part of the construction of the two flanking spans. The new bridge piers, as identified with MBES and SSS, are included in the FFF. Although construction activity was not observed during the survey, according to LNM 20/14 (21 May 2014) construction is presumably still underway as it is scheduled to be completed by Fall 2014.

The Hendrix Creek Bridge, charted at approximate position 40-38-48 N, 073-52-29 W was not captured in project photos or video nor was it ensonified with MBES or SSS. However, contemporary orthophotos indicated that the bridge is still in use and charted properly.

Aside from the Paerdegat Basin Bridge, mentioned above, in general, the position of all bridge and overhead cable features appears to be charted properly.



Figure 43: Aerial imagery captured the change in the Paerdegat Basin Bridge from one span to two spans during Belt Parkway construction.

D.2.5 Submarine Features

Submarine features exist for this survey, but were not investigated. Cable and Pipeline Areas were included in the project CSF but were not attributed "assigned". As such, they were not specifically investigated during Survey H12604. However, OSI conducted a review of possible submarine features during home office processing using still photos and shoreline video acquired during the survey as well as contemporary aerial imagery and MBES/SSS data.

Numerous uncharted linear features that could be cable segments or pipeline segments or dredge pipe segments, or debris were observed in MBES and SSS data throughout the survey area. These features, if of significant height or character, are included in the FFF. OSI has no reason to believe that seemingly random linear features are associated with uncharted cable or pipeline installations.

There were also a number of linear features that fall within charted cable and pipeline corridors. The majority of these features are not worthy of discussion as they are 1) insignificant in relation to surrounding depths, 2) extremely short in relation to a given cable or pipeline corridor and 3) may or may not be actual cable or pipeline segments, i.e. their presence within the charted corridor may be merely coincidental. Noteworthy cable and/or pipeline features are discussed below.

Within North Channel there exists a linear feature suggestive of a damaged, abandoned, dredge pipeline. Discontinuous segments of a linear pipe-like feature are observed in both MBES and SSS data. BirdsEye perspective aerial imagery available on the Microsoft Bing Maps website shows a pipe-like feature consistent with the MBES and SSS findings. The linear feature is oriented generally NNW-SSE and appears to make shore fall nearby the abandoned pier on the northeast corner of Canarsie Pol. A plan view of the feature, as identified in MBES and SSS data as well as aerial imagery is shown in Figure 44. Within the MBES and SSS data the feature appears to extend between the following geographic locations: 40-38-03 N, 073-52-10 W to 40-37-45 N, 073-52-03 W. As mentioned above OSI has no reason to believe that this is a permanent pipeline installation. There are no charted pipeline corridors within North Channel. The feature is being documented to afford AHB an opportunity for further inquiry if desired.

OSI DtoN #25 described what appears to be an uncharted outfall pipe extending offshore from the ocean-facing beach on Coney Island at approximate position 40-34-16 N, 073-58-23 W. The presumed outfall is nominally 2 meters above the surrounding seafloor and extends over 200 meters offshore from the beach (Figure 45). The outfall is not seen above the water line (on the beach) in OSI's shoreline photography or in available online aerial imagery. However, a shadow of the outfall is visible under water in BirdsEye perspective on the Microsoft Bing Maps aerial imagery. It is recommended that the true nature of the pipe is determined and charted accordingly. This pipe was mentioned in NOAA's Descriptive Report for Survey H11601.

A pair of charted sewer pipes beginning near Sheepshead Bay and ending in Rockaway Inlet were imaged many times with MBES and SSS (east and west pipeline features). In this area two charted pipeline symbols run parallel to one another at a distance of approximately 82 meters along the route (Figure 46). The east pipeline feature falls between the charted pipeline symbols in this area while the west pipeline feature falls 25 to 50 meters west of the western-most pipeline symbol alignment. The surveyed distance between the east pipeline feature and the west pipeline feature is between 85 and 110 meters. The east pipeline was mentioned as "not correctly positioned" in NOAA's Descriptive Report for Survey H11601. The pipeline chart symbol that appears to represent the west pipeline ends in the vicinity of the charted shoreline construction (sewer diffuser

outfall) at the CSF-defined and charted position 40-33-57.26 N, 073-55-50.77 W. However, based on review of MBES data, it is possible that the west pipeline extends further to the SSW than charted. A feature exists in this area that was attributed as a sewer outfall diffuser in the FFF. The feature, located at approximate position 40-33-51 N, 073-55-59 W, falls almost exactly in line with other west pipeline features, i.e. it is reasonable to assume that the interpreted diffuser is associated with and possibly connected to the west pipeline. In this case the pipeline symbol should be extended to meet the outfall diffuser.

The east pipeline feature appears to terminate at the charted shoreline construction sewer outfall diffuser locally known as a "roundhouse" structure. The east pipeline appears to have been recently reconstructed at its southern terminus. According to an article found during online research (<http://www.sheepsheadbites.com/2013/01/sailors-rejoice-dep-nixes-destruction-of-roundhouse-navigational-aid-plans-improvements/>) the "roundhouse" at the southern end of the east pipeline previously served as a sewage outfall diffuser. Construction on a new diffuser that began in 2011 made the roundhouse diffuser obsolete. The roundhouse was left in place due to local mariners concerns, i.e. it has become a navigation landmark used by local boaters. The presumed new east pipeline diffuser, as seen in Figure 47, falls within the charted pipeline "corridor". As mentioned in the ATON section of this report it appears that the charted position of the structure could be changed to the surveyed position of 40-33-58.00 N, 073-55-50.88 W which is approximately 23 meters NNE of the currently charted position of the privately maintained yellow flashing light and roundhouse.

What appears to be an uncharted, submarine cable extends between the southern point of land that is west of Shellbank Basin and the northern extent of the western fork of Rulers Bar Hassock (Figure 48). The cable runs parallel to and west of the existing Cross Bay Boulevard Bridge at the eastern end of North Channel. Portions of a cable-like feature were ensonified with both MBES and SSS for almost the entire distance between cable crossing signs that exist on the landfall areas described above. The signs, shown in the upper panel of Figure 49, are located at approximate position 40-38-18.7 N, 073-49-59.4 W and 40-38-44.4 N, 073-50-13.2 W. It is recommended that a new cable area is added to the chart in the area west of the Cross Bay Boulevard Bridge described above. The recommended cable area will intersect an existing rectangular charted cable area which, curiously, is detached from land.

OSI DtoN #14 is an exposed section of what appears to be a cable within a charted cable area west of a swing bridge. The DtoN position of the obstruction is 40-35-47.22 N, 073-48-40.83 W.

The majority of cable and/or pipeline area landfalls/crossings are without signage indicating that a cable or pipeline landfall/crossing exists. Photos of the cable and pipeline signs that were encountered during Survey H12604 are shown in Figures 49 through 52.

A pair of pipeline crossing signs exist within Bergen Basin. There is no charted indication of a pipeline crossing in the area. The signs are located adjacent to a "tank farm" on land in an airport security zone. Figure 51 shows the signs and a chartlet image from RNC 12350. It is recommended that a pipeline area be added to the chart in this area.

An uncharted pipeline crossing may exist in Fresh Creek. An illegible sign that is very suggestive of a utility crossing warning sign was observed on the NE bank of Fresh Creek in the vicinity of the bridge which crosses the creek (Figure 52). Due to the fact that there are charted pipeline crossings that span the two neighboring creeks (Paerdegat Basin and Hendrix Creek) and that the illegible sign falls in line with the adjacent creek's pipeline crossings, it is not unreasonable to conclude that the same pipeline crosses Fresh Creek. It

is recommended that the existence of a pipeline crossing Fresh Creek is investigated and, if present, charted accordingly.

An uncharted pipeline system has been installed in Shellbank Basin. According to news reports the Shellbank Basin Destratification Facility consists of a compressor house which pumps compressed air through over 3,000 feet of "tubing laid across the basin floor". According to the April 30, 2014 "Quarterly Progress Report" issued by the City of New York Department of Environmental Protection Bureau of Engineering Design & Construction (CSO Order on Consent DEC Case # CO2-20110512-25, Modification to CO2-20000107-8), The Destratification Facility is a permanent diffused-air bubble mixing system at Shellbank Basin designed to eliminate temperature stratification during the summer season, which leads to poor water quality conditions in the basin, odors and marine life kills. MBES and SSS data acquired during Project OPR-B310-KR2-13 confirms the existence of small diameter pipe apparently terminating at the compressor house which is located at approximate position 40-39-39.5 N, 073-50-23.7 W. During two visits to Shellbank Basin the facility was observed to be online and pumping air on November 3, 2013 (DN 307) and offline on December 14, 2013 (DN 348). Figure 53 depicts the general location of the pipes as found with MBES (pipe locations drawn in yellow for clarity). Images of the pipes found online suggest that they consist of +/- 2.5-inch HDPE pipe as seen in Figure 54, an image from a New York Times article published on February 26, 2012. However, MBES data suggests a slightly larger diameter. This may be due to a number of reasons including vessel navigation and/or tide modeling quality or marine growth on the pipes. Since the NY City "Quarterly Progress Report" states that the pipes are "permanent" it is recommended that pipes are charted as depicted in the FFF.

Given that submarine features were not specifically investigated, OSI is unable to state that "all submarine features exist as charted" as required in Section 8.1.4.D.2 of the HSSD.

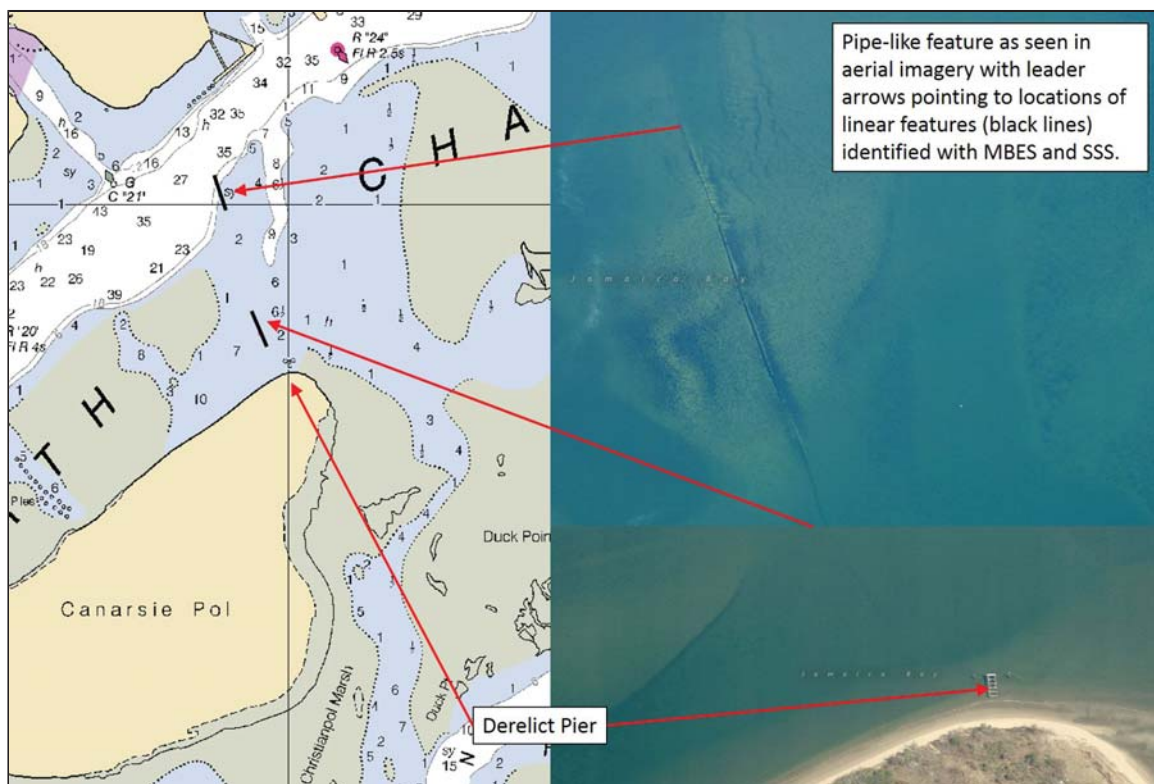


Figure 44: North Channel pipe feature making landfall on Canarsie Pol.

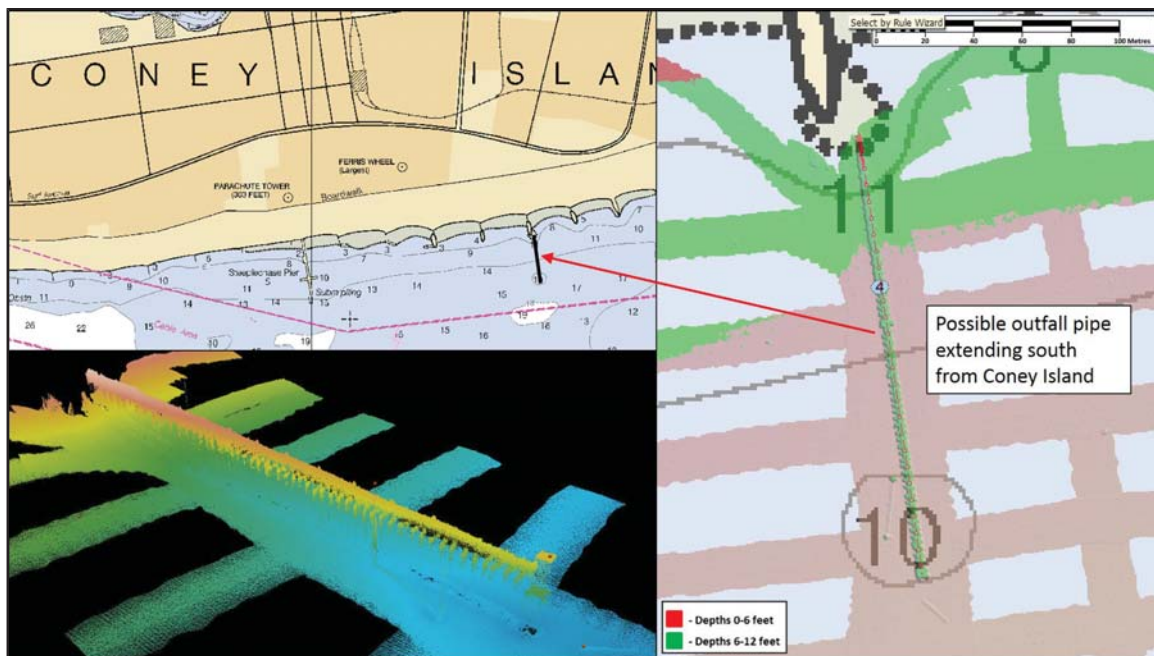


Figure 45: Uncharted outfall pipe on Coney Island Beach.

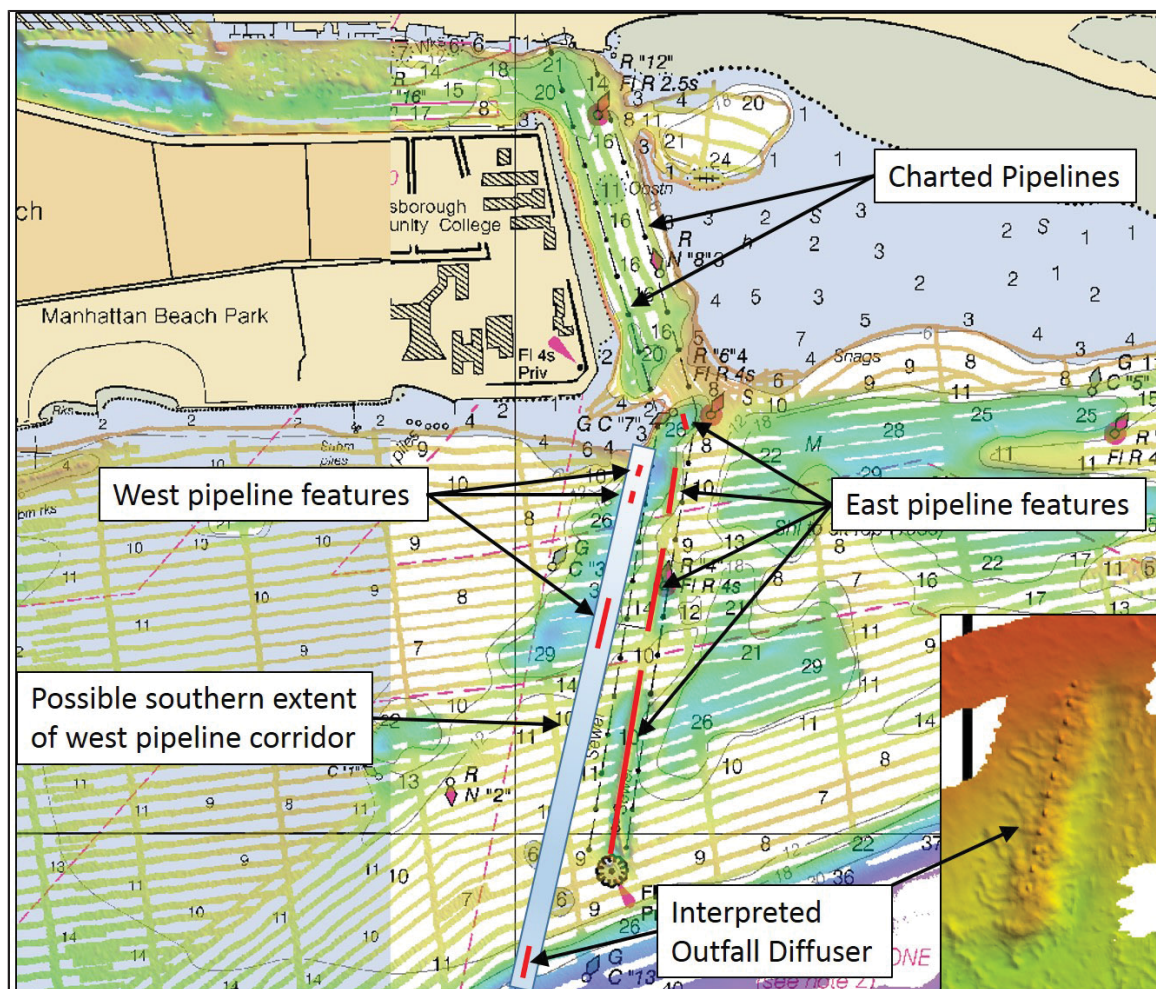


Figure 46: Rockaway Inlet Sewer Outfall pipelines overlaid by surveyed pipeline segments (in red) with RNC 12350 in the background.

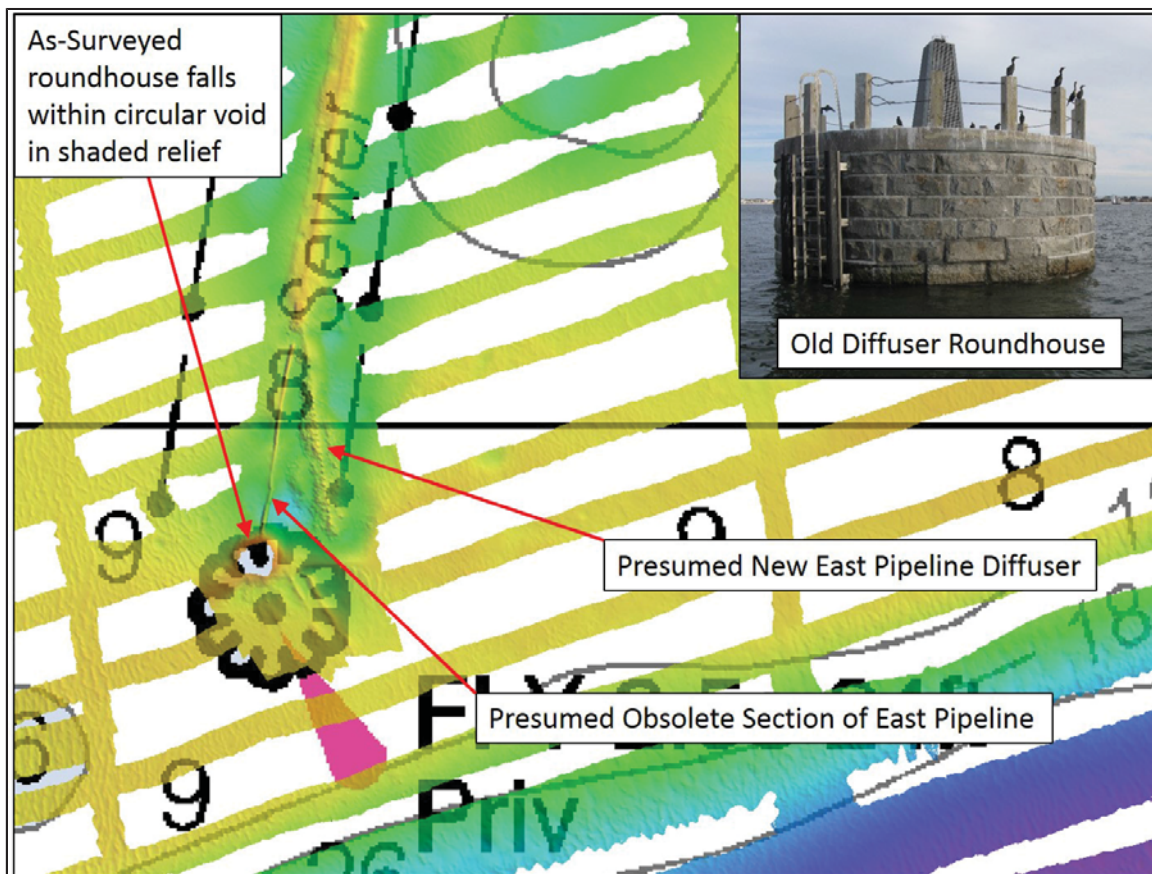
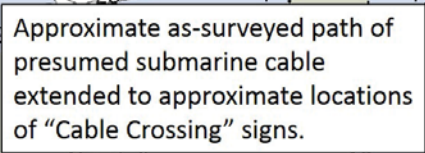


Figure 47: Rockaway Inlet charted sewer diffuser "Roundhouse", as-surveyed roundhouse position, and new diffuser pipe as seen in a 50-cm CUBE surface overlaid on RNC 12350.



84



Figure 49: Cable signs alongside the Cross Bay Blvd Bridge within North Channel.



Figure 50: Pipeline crossing signs observed on the shoreline within Survey H12604.

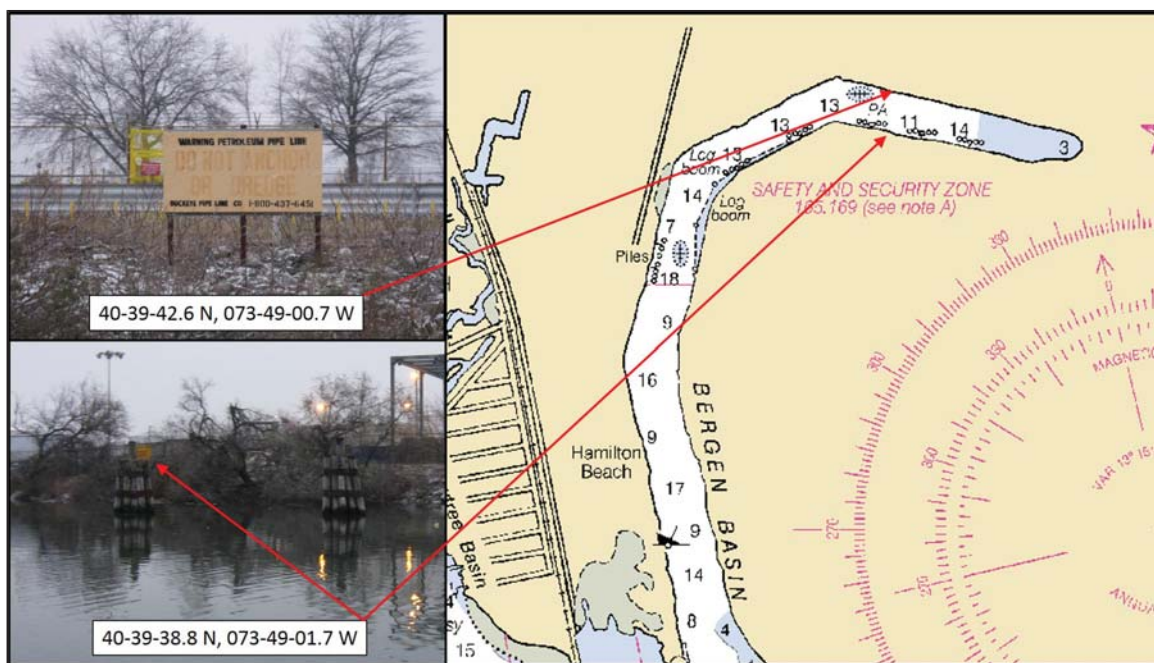


Figure 51: Pipeline signs indicate the presence of an uncharted pipeline in Bergen Basin.

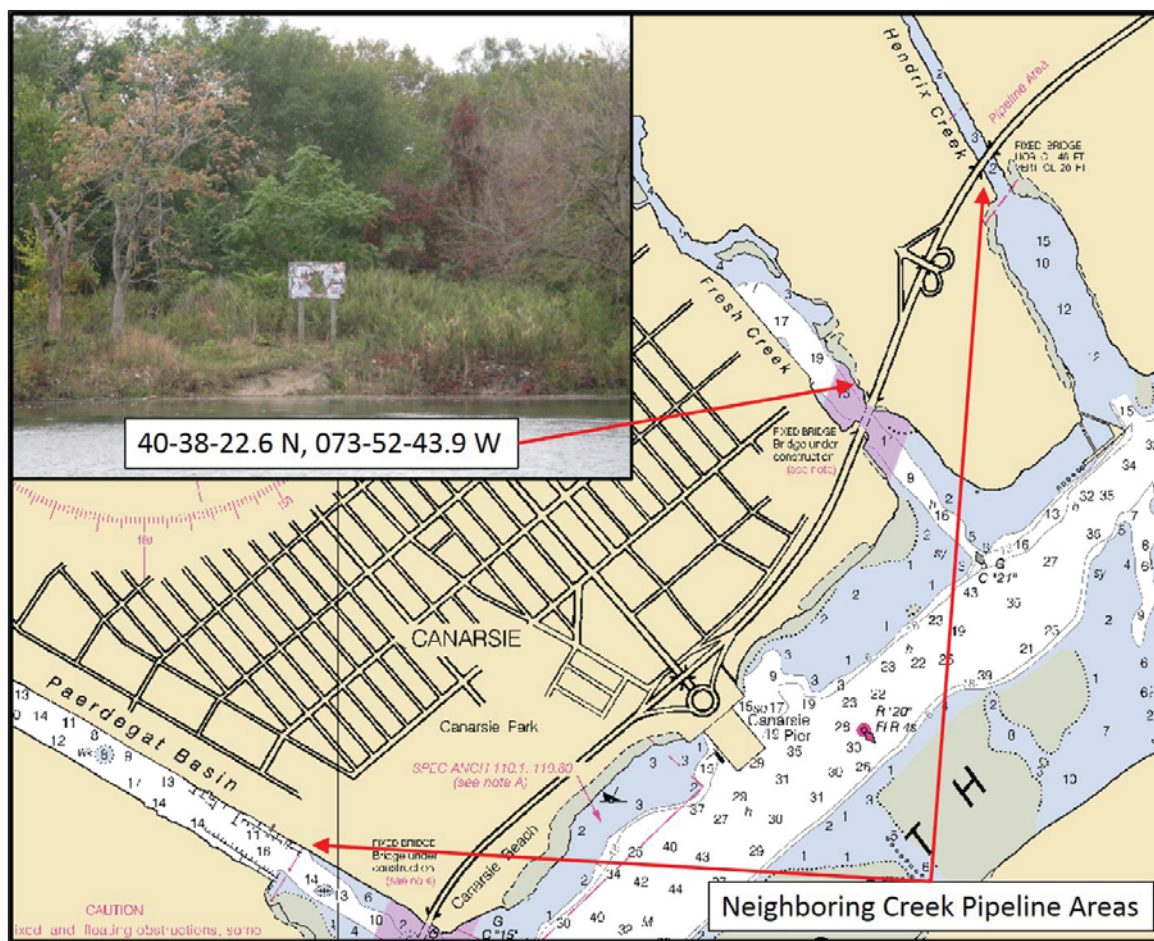


Figure 52: A vandalized sign indicates the possible presence of an uncharted pipeline within Fresh Creek.

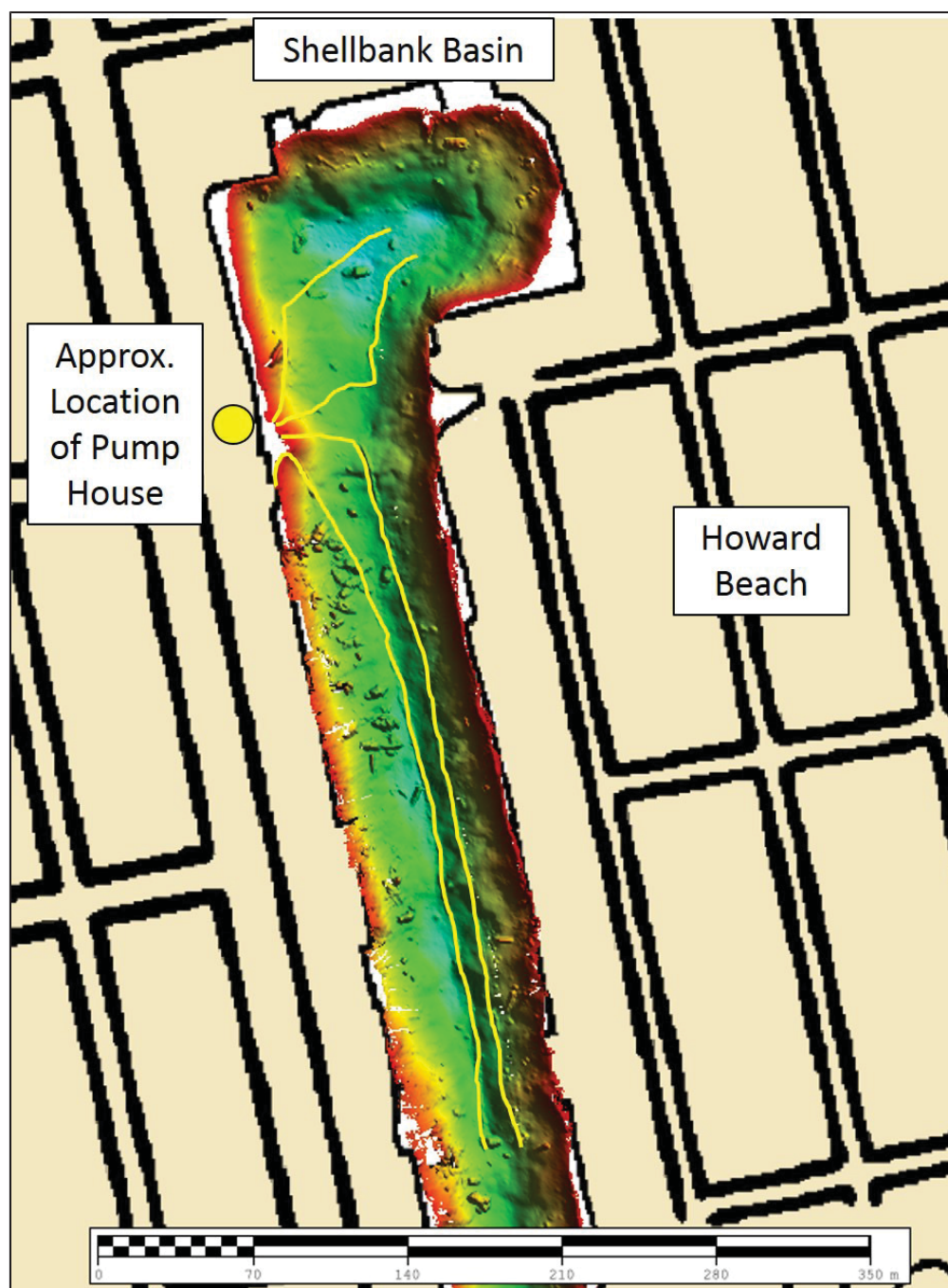


Figure 53: The location of the as-surveyed pipelines within Shellbank Basin were highlighted in yellow. In the background a 50-cm CUBE surface was overlaid on RNC 12350.

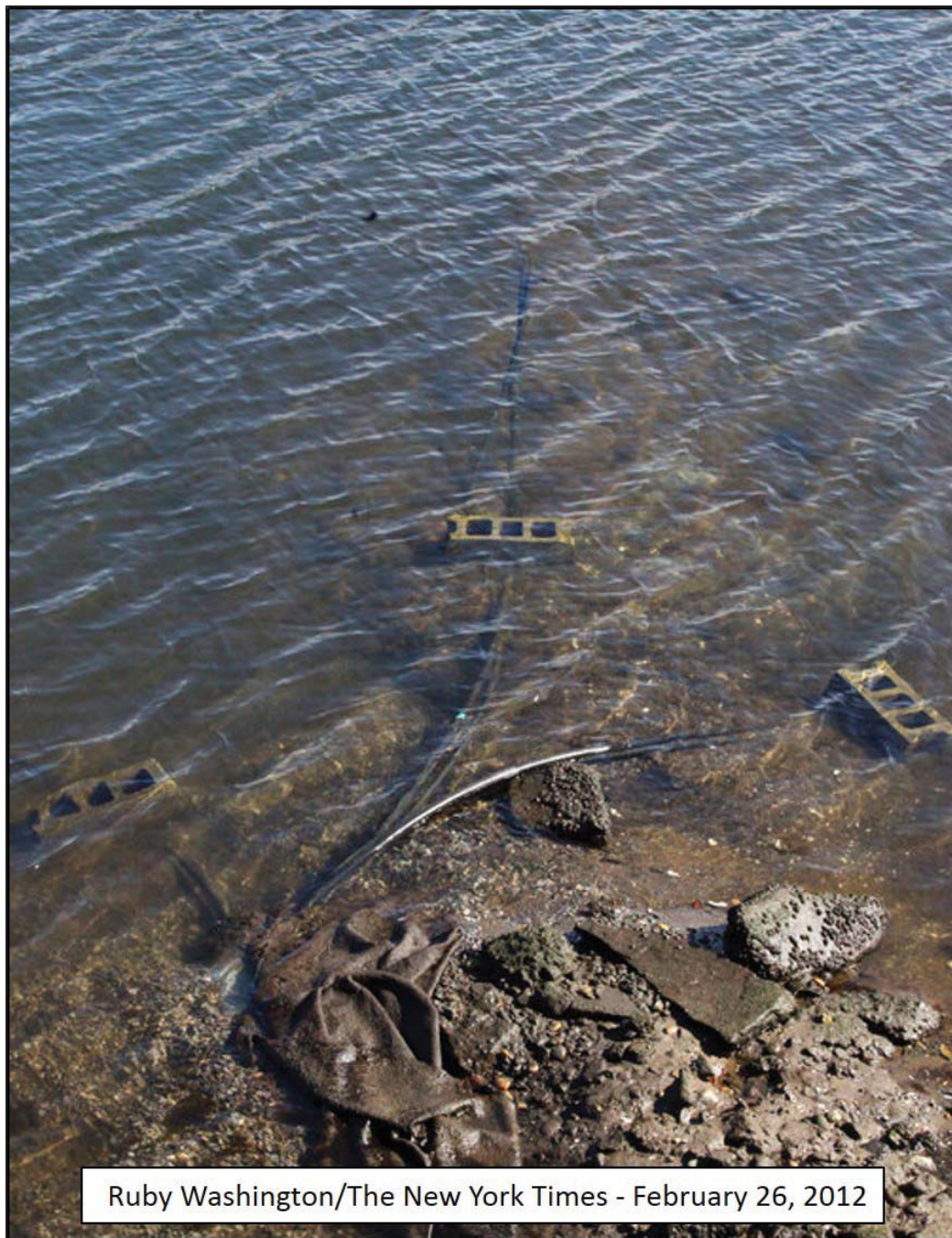


Figure 54: A photo obtained from a New York Time article of the Shellbank Basin diffused-air bubble mixing system pipes.

D.2.6 Ferry Routes and Terminals

Two uncharted ferry landings were observed within the boundary of Survey H12604. Ferries having landings within Survey H12604 include the SeaStreak Ferry and the New York Beach Ferry.

The SeaStreak Ferry Service operates between Rockaway Park, NY and the Brooklyn Army Terminal (<http://www.seastreakusa.com/viewpage.aspx?page=brooklyn>) and the New York Beach Ferry Service operates between Jacob Riis Park, Rockaway, NY and Pier 11 Wall Street, NY ferry (<http://www.newyorkbeachferry.com/index.htm>). The Sea Streak Ferry service appears to operate year round while the New York Beach Ferry appears to be a seasonal service.

The ferry landings and recently recorded routes are depicted in Figures 55 through 58 below. The "Marine Traffic" website (<https://www.marinetraffic.com/>) was used in producing the figures below. Specifically, recent vessel AIS (Automatic Identification System) vessel tracks are displayed to show the presumed routes used by these ferries. The landings falling within the bounds of Survey H12604 are located at the following geographic locations:

SeaStreak Ferry Service, Rockaway Park, NY - 40-35-03 N, 073-49-52 W.

New York Beach Ferry Service, Jacob Riis Park, Rockaway, NY 40-34-06 N, 073-53-05 W.

A number of other ferries were observed to transit through Survey H12604. Specifically, SeaStreak fast ferries were seen transiting north bound and south bound in Lower Bay south of the Verrazano-Narrows Bridge. The ferries are believed to be running routes between various berths in Manhattan, NY and Atlantic Highlands, and Sandy Hook, NJ. None of the routes described above are depicted on the NOAA charts assigned with this survey. However the fast ferry routes described in this paragraph do appear on mapping products available among other locations on the MarineTraffic.com website.

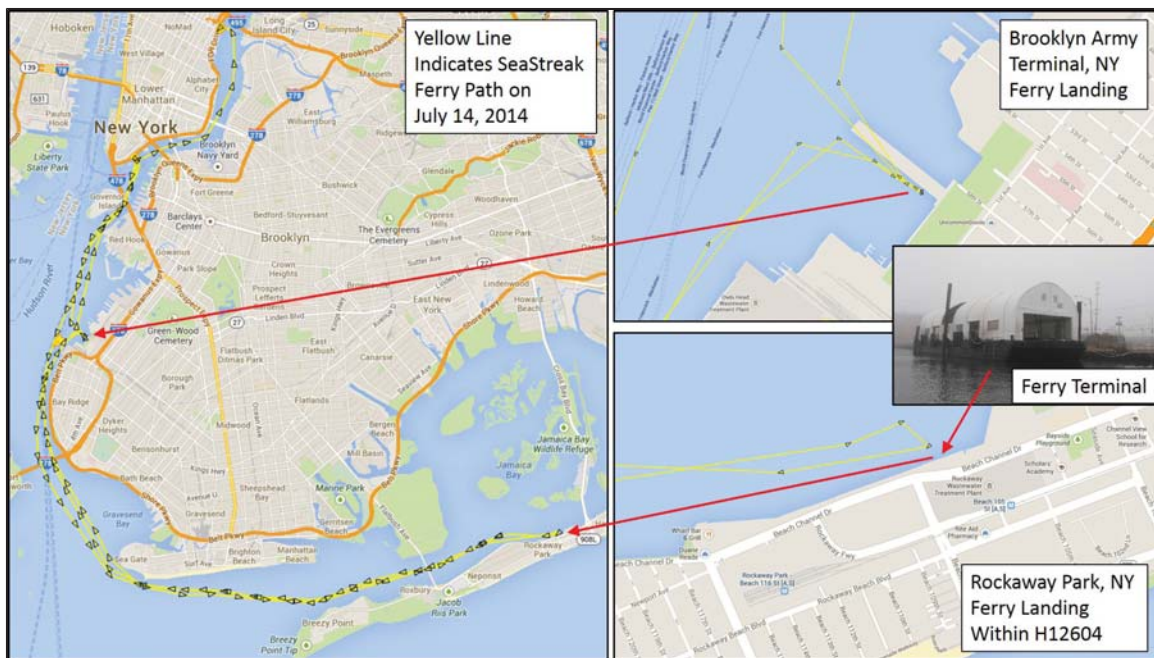


Figure 55: SeaStreak Ferry route between Rockaway Park, NY and various landings in Manhattan, NY.

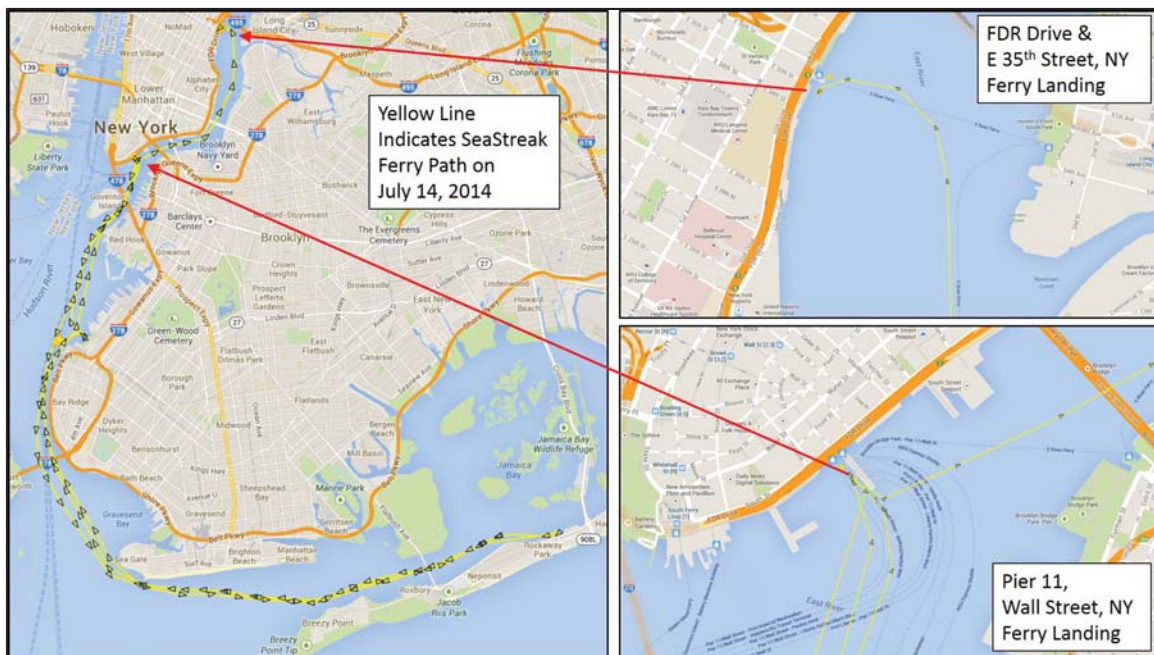


Figure 56: SeaStreak Ferry route between Rockaway Park, NY and various landings in Manhattan, NY.

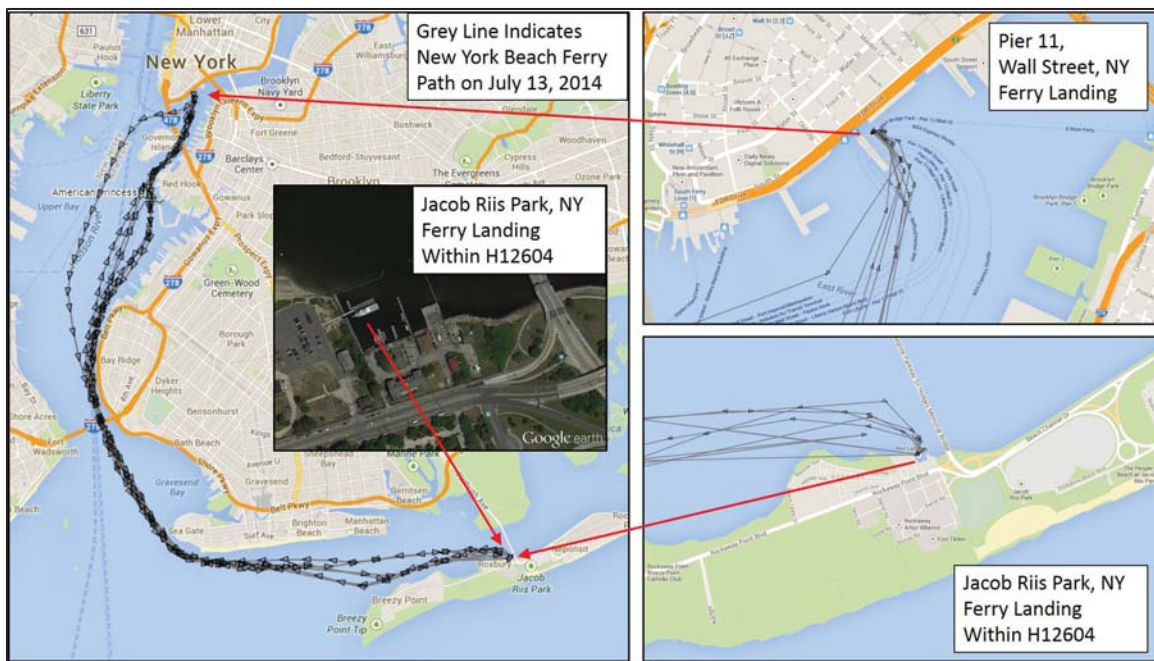


Figure 57: New York Beach Ferry route between Rockaway, NY and Pier 11, Wall Street, NY.

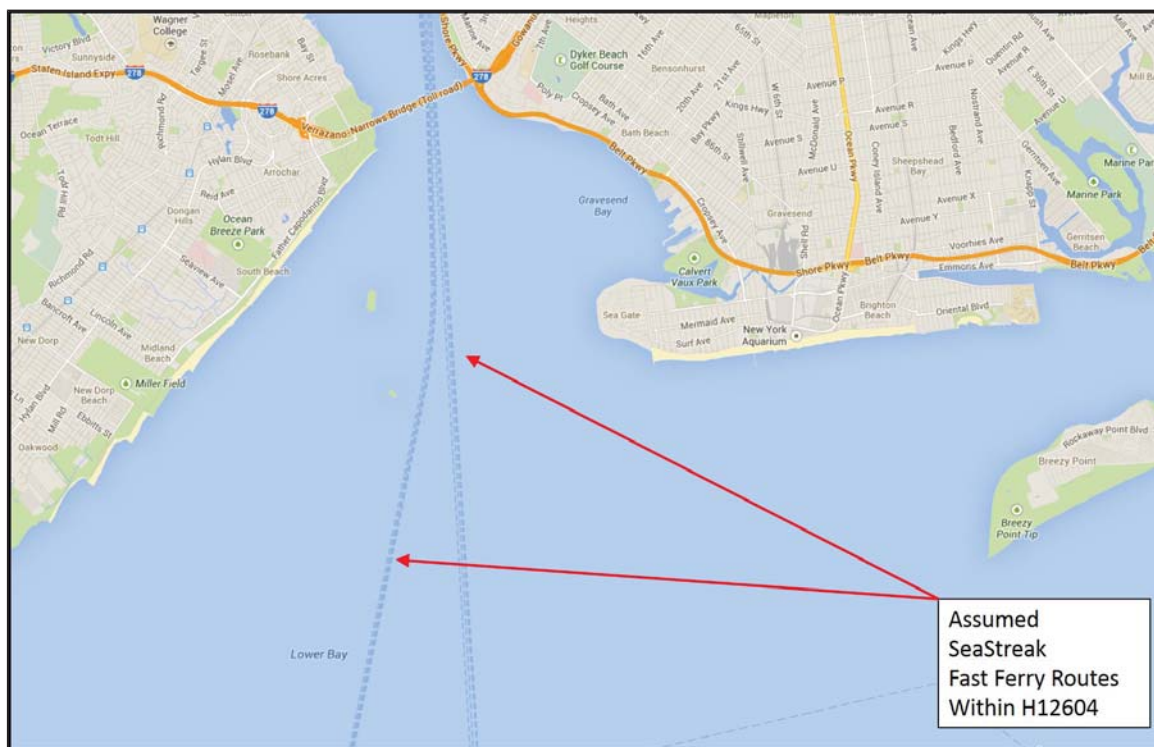


Figure 58: General path of SeaStreak fast ferries observed transiting through Survey H12604.

D.2.7 Platforms

No platforms exist for this survey.

D.2.8 Significant Features

Two dome-like, seafloor mounds were investigated within survey H12604. One mound was located within Mill Basin at 40-36-16.97 N, 73-54-19.39 W with a least depth of 13 feet (3.94 meters, ± 0.40 TPU) and the second mound was located within Shellbank Basin at 40-38-59.30 N, 73-50.11 W with a least depth of 4 feet (1.15 meters, ± 0.40 TPU) (Figure 59). The origin of the mounds is unknown, but the smooth dome-like shape is intriguing and could possibly be related to a natural geophysical phenomena.

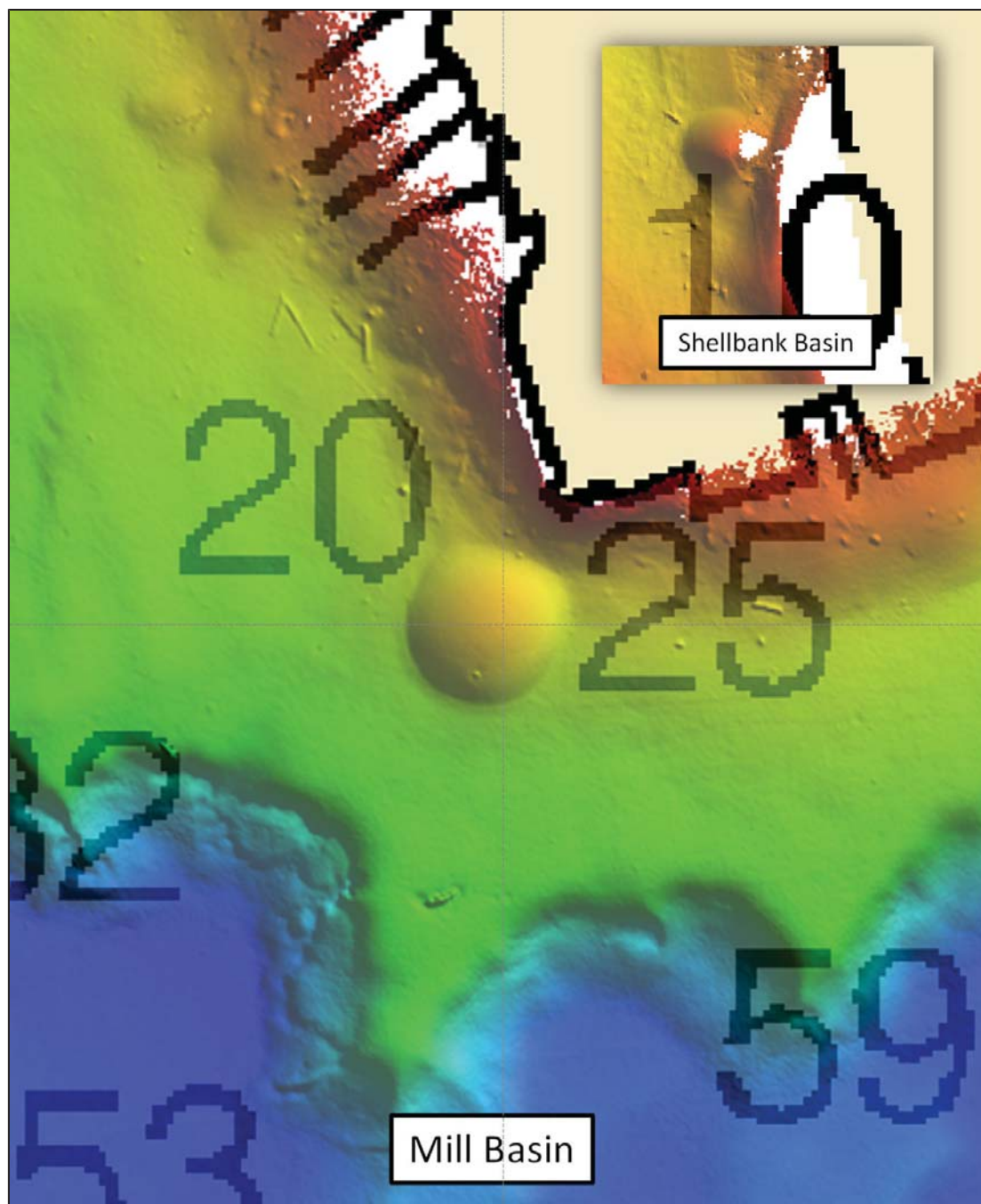


Figure 59: Two dome-like mounds were developed with MBES coverage within Survey H12604, shown in a 50-cm CUBE surface overlaid on RNC 12350.

D.2.9 Construction and Dredging

Pertinent bridge construction activity was noted in an earlier section of this report under the heading of Overhead Features.

Two suction dredging operations were observed within Survey H12604. Dredging was ongoing at the outset of the survey, but based on observation of dredging equipment movements it is believed to have been concluded before Survey H12604 operations were completed. Dredging was observed at the following general locations:

- Rockaway Inlet at approximate position 40-33-00 N, 073-56-48 W.
- The junction of Runway Channel and Beach Channel at approximate position 40-35-12 N, 073-51-15 W.

At the Rockaway Inlet location a submerged dredge pipe extended from the dredge site northwestward toward Coney Island as seen in Figure 60. The east-west mainscheme lines that intersect the submerged dredge pipe were acquired prior to the dredge departing the area. However, the area being dredged was surveyed after the dredge departed. Given this timing the dredged area has valid post-dredge coverage. Once the dredge and submerged dredge pipeline were removed from the area additional MBES data were acquired along the alignment of the recently removed dredge pipeline. This dataset demonstrates that the pipeline has been removed as only a seafloor depression remains where the pipeline once laid. The dredge pipeline is present as rejected soundings in the full density dataset; however, based on the additional MBES soundings referenced above, the dredge pipeline is not represented in the final CUBE surface. The pipe section was originally observed between the approximate positions 40-34-16 N, 073-58-52 W and 40-33-07 N, 073-57-03 W.

In the Runway Channel/Beach Channel junction area all MBES and SSS data were acquired after the dredge had departed the site. As such, valid post-dredge soundings were acquired. Again, the dredge pipe in this area was ensonified relatively early in the project with mainscheme line data, but it is not seen in MBES soundings acquired later in the project. Therefore, the pipe is not represented in the final CUBE surface. Like the pipe mentioned above, a shallow trench remains where the pipe once laid. The pipe section was originally observed between the approximate positions 40-35-05 N, 073-51-30 W and 40-35-11 N, 073-51-20 W.

A dock or similar structure was being constructed within Head of Bay across from Norton Point at the approximate position of 40-38-07 N, 073-44-54 W (Figure 61). The intended function and dimensions of the project are not known to OSI.

An extension to a roadway in the form of a steel bulkheaded pier may still be under construction in Norton Basin at approximate position 40-36-00 N, 073-46-16 W (Figure 62). The intended function and dimensions of the project are not known to OSI.

Based on information included in LNM 3/14 (21 January 2014) dredging and other construction activity was planned around the Belt Parkway (a.k.a. Shore Parkway) Bridge crossing Paerdegat Basin. The dredging was scheduled to start on January 31, 2014 which was after OSI completed Survey H12604. Further dredging is scheduled for areas within Paerdegat Basin as shown in Figure 63.

As properly represented on Chart 12350 which was downloaded on June 13, 2014, three bridges are currently scheduled to be under construction with construction end dates as early as Fall 2014 (Fresh Creek and Paerdegat Basin) and as late as Fall 2017 (Gerritsen Inlet). It is recommended that construction progress is monitored and final horizontal and vertical clearance values are charted once known. Figure 64 depicts the most recent LNM notifications reviewed during the chart comparison analysis.

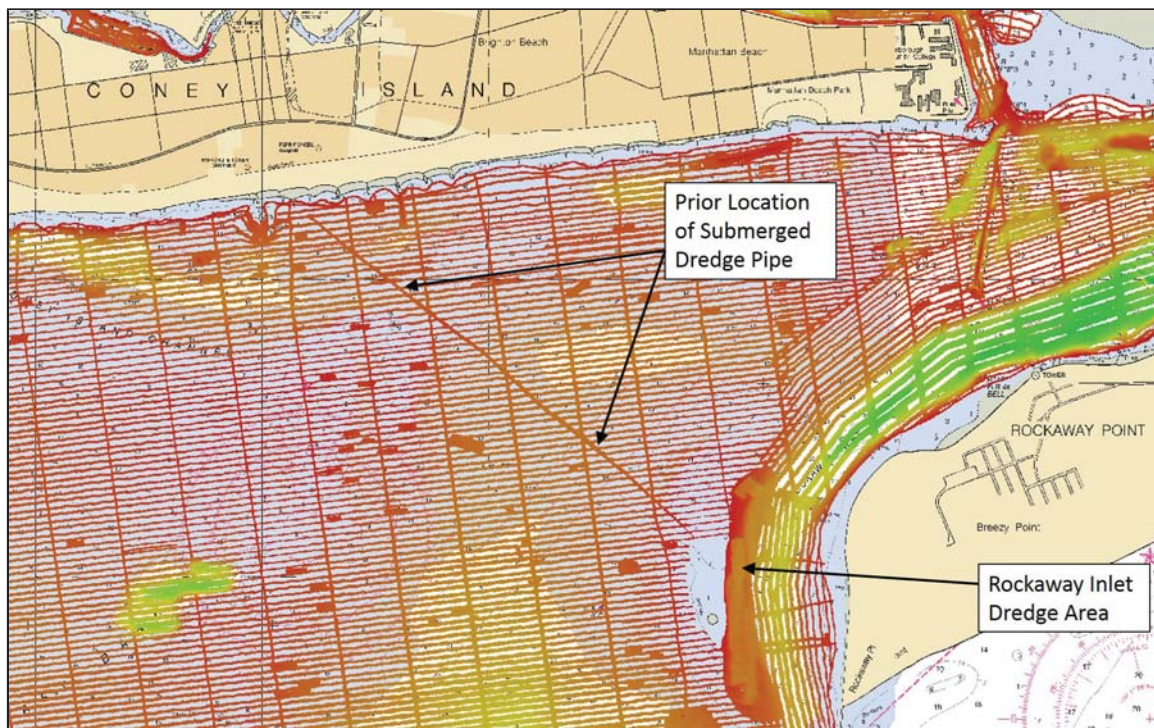


Figure 60: Rockaway Inlet dredge area and prior location of submerged pipeline highlighted represented in a 50-cm CUBE surface overlaid on RNC 12350.



Figure 61: Photos of a new dock or similar structure under construction in Head of Bay.



Figure 62: New steel bulkheaded pier under construction in Norton Basin.

NY-JAMAICA BAY-PAERDEGAT BASIN
 Cashman Dredging will be conducting maintenance dredging and bridge pile removals at the Belt Parkway Bridge over Paerdegat Basin from Jan 31 to Apr 30, 2014. Work hours are Mon-Fri, 0700-2359. A lighted turbidity curtain will be deployed around the bridge piles. Dredging will also be conducted at the NW end of the basin through Sep 30, 2014. The Dredge 385-44 (flexi float sectional barge), Crane Barge S Tobin, Pile Removal Barge SEI 33, assist tug Saratoga, and three hopper barges will be on scene. VHF CH 13, 14, 16, and 67 monitored. Vessels should use the Bergen Beach side of the channel for transits.
 LNM: 03/14

Figure 63: LNM 3/14 describing dredging and construction activities around Paerdegat Basin.

NEW YORK - JAMAICA BAY AND ROCKAWAY INLET - NORTH CHANNEL - FRESH CREEK - Bridge Replacement - Replacement of the Shore Parkway Bridge across Fresh Creek at mile 0.4 is in progress. Barges are operating in and out of the navigable channel during construction. A minimum of 15ft horizontal clearance will be free of obstruction at all times. Mariners can contact the contractor via marine radio VHF-FM 13/16 to have work equipment moved out of the channel. This project is scheduled to be completed by Fall 2014. Mariners are advised to plan ahead and transit the area with extreme caution.
 Chart 12350 LNM 20/14(CGD1)

NEW YORK - JAMAICA BAY AND ROCKAWAY INLET - PAERDEGAT BASIN - Bridge Replacement - Replacement of the Shore Parkway Bridge across Paerdegat Basin at mile 0.2 is in progress. A minimum of 50ft horizontal clearance and 27ft vertical clearance in MHW will be available through the navigation channel. Barges are operating in and out of the navigable channel during construction. Mariners can contact the contractor via marine radio VHF-FM 13/16 to have work equipment moved out of the channel. This project is scheduled to be completed by Fall 2014. Mariners are advised to plan ahead and transit the area with extreme caution.
 Chart 12350 LNM 20/14 (CGD1)

NEW YORK - JAMAICA BAY AND ROCKAWAY INLET - GERRITSEN INLET - Bridge Replacement - Replacement of the Shore (Belt) Parkway Bridge across Gerritsen Inlet at mile 0.0 is in progress. Barges are operating in and out of the navigable channel during construction. A minimum of 65ft horizontal clearance will be free of obstruction through the navigation channel at all times. Mariners can contact the Community Liaison Jonathan Joseph at 347-702-6430 extension 114 or cell 347-203-9530 for any construction information. This project is scheduled to be completed by October 30, 2017. Mariners are advised to plan ahead and transit the area with extreme caution.
 Chart 12350 LNM 20/14 (CGD1)

Figure 64: LNM 20/14 describing ongoing bridge construction within the bounds of Survey H12604.

D.2.10 Position Discrepancy Between Charted H12604 DtoNs and the LNM

The LNM review yielded two inconsistencies in charted feature positioning. LNM 23/14 (11 June 2014) includes numerous chart updates. Positions for new obstructions, wrecks, etc. listed in the LNM appear to be in keeping with DtoN Reports issued by OSI. However, symbols and shoal soundings for one charted obstruction and one charted wreck are not centered on the LNM suggested position. In these cases the LNM suggested position is equivalent to OSI's DtoN suggested position. It is possible that the charting "error" was intentional in these cases because the feature symbols, if charted accurately, could overlap adjacent buoy symbols. There is no major negative impact to the chart in the case that the changes from the LNM positions to the charted positions were intentional given that the symbols serve their intended purpose even if the surveyed positions are slightly modified. The discrepancy is being reported in the event the charting "error" was not intentional such that NDB is afforded notification of the variation. A description of the features as included in LNM 23/14 (11 June 2014) as well as OSI's DtoN recommendation follows:

LNM 23/14 (11 June 2014) - ADD - Obstruction in Feet; 9 Obstrn (NW-23892) - 40-34-55.400 N, 073-56-24.800 W.

OSI-DtoN #15-15 - 40-34-55.39 N, 073-56-24.80 W - An obstruction (a debris pile) surrounded by two wrecks and smaller obstructions was developed in the southwest corner of a charted (RNC 12350) Special Anchorage Area located within Sheepshead Bay. The obstruction and wrecks could pose a hazard to anchoring vessels.

LNM 23/14 (11 June 2014) - ADD – Wreck in Feet; 6 Wk (NOS NW-23892) - 40-34-56.400 N, 073-56-17.000 W.

OSI-DtoN #15-8 – 40-34-56.36 N, 073-56-17.02 W - A wreck was developed inside a charted (RNC 12350) Special Anchorage Area within Sheepshead Bay. The DtoN least depth is not significantly shallower than the charted depths; however, a wreck could pose a danger to anchored vessels. Multiple mooring buoys were in the area.

Figure 65 depicts the disparity between charted symbol positions and the LNM and DtoN recommended positions of the obstruction and wreck discussed above.

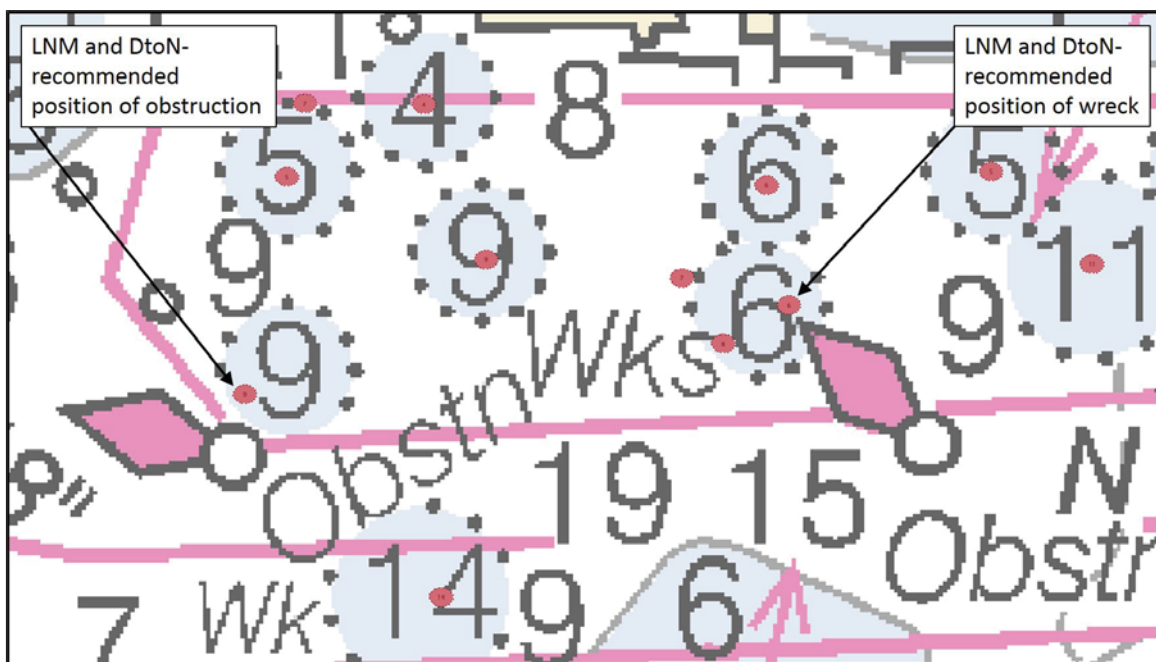


Figure 65: A chartlet displays the obstructions and wrecks submitted with OSI DtoN #15 highlighted in red and overlaid on the Sheepshead Bay Special Anchorage Area on RNC 12350 (downloaded June 13, 2014). There is a disparity between the submitted positions for two features, one wreck and one obstruction, and the charted positions.

D.2.11 Tidal Information Table Update RNC 12402

In association with Survey H12604 the tide study at Norton Point, Hook Creek, NY (851-6891) yielded new tide datum values for this station. It is recommended that the Tidal Information Table on RNC 12350 is updated to reflect the new datum values for Norton Point as seen in Figure 66.

TIDAL INFORMATION				
PLACE		Height referred to datum of soundings (MLLW)		
NAME	(LAT/LONG)	Mean Higher High Water	Mean High Water	Mean Low Water
Barren Island	(40°35'N/73°53'W)	feet 5.6	feet 5.2	feet 0.2
Beach Channel (bridge)	(40°35'N/73°49'W)	5.7	5.3	0.2
Norton Point (Head of Bay)	(40°38'N/73°45'W)	6.0	5.4	0.2
Canarsie	(40°38'N/73°53'W)	5.8	5.4	0.2
Dashes (- -) located in datum columns indicate unavailable datum values for a tide station. Real-time water levels, tide predictions, and tidal current predictions are available on the Internet from http://tidesandcurrents.noaa.gov .				
(Jun 2011)				
T I D A L D A T U M S				
Tidal datums at NORTON POINT, HOOK CREEK based on:				
LENGTH OF SERIES: 4 MONTHS				
TIME PERIOD: September 2013 - December 2013				
TIDAL EPOCH: 1983-2001				
CONTROL TIDE STATION: 8531680 SANDY HOOK				
Elevations of tidal datums referred to Mean Lower Low Water (MLLW), in METERS:				
MEAN HIGHER HIGH WATER	MHHW	=	1.887	
MEAN HIGH WATER	MHW	=	1.783	
MEAN SEA LEVEL	MSL	=	0.932	
MEAN TIDE LEVEL	MTL	=	0.924	
MEAN LOW WATER	MLW	=	0.064	
MEAN LOWER LOW WATER	MLLW	=	0.000	

Currently Charted
Tidal Datums for
Norton Point, Head of
Bay (feet)

Updated Tidal
Datums for Norton
Point, Hook Creek, NY
(meters)

Figure 66: Currently Charted and Recommended Updated Tidal Datum Values for Norton Point, Hook Creek, NY

D.2.12 New Survey Recommendation

Refer to recommendations offered in the preceding paragraphs.

D.2.13 New Inset Recommendation

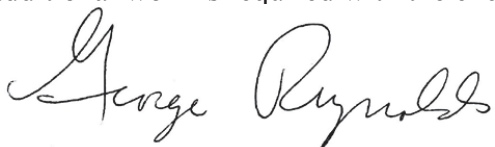
No new insets are recommended for this area.

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.



Digitally signed by George G. Reynolds
Date: 2014.08.28 16:51:19 -04'00'

Approver Name	Approver Title	Approval Date	Signature
George G. Reynolds	Chief of Party	08/28/2014	

APPENDIX I

TIDES AND WATER LEVELS

Abstract of Times of Hydrography

The table below, “Abstract of Times of Hydrography,” summarizes the days in which data were collected that contribute to the final accepted data set.

Date	Day Number	Min. Time UTC	Max. Time UTC
09/21/2013	264	13:32:09	22:10:54
09/22/2013	265	13:07:02	21:32:48
09/23/2013	266	12:58:15	22:26:27
09/24/2013	267	18:07:13	19:55:04
09/25/2013	268	13:19:21	22:06:10
09/26/2013	269	12:52:07	21:15:38
09/27/2013	270	13:10:24	20:56:04
09/28/2013	271	13:11:00	21:43:01
09/29/2013	272	12:24:38	21:01:22
09/30/2013	273	13:05:19	22:00:17
10/01/2013	274	13:45:45	22:10:49
10/02/2013	275	12:49:44	21:27:40
10/03/2013	276	15:09:18	22:00:51
10/04/2013	277	12:19:52	20:57:51
10/05/2013	278	12:11:40	21:33:51
10/06/2013	279	12:16:42	21:53:02
10/07/2013	280	12:35:49	17:19:38
10/08/2013	281	12:07:56	21:56:09
10/09/2013	282	12:30:10	21:35:17
10/10/2013	283	13:47:01	20:37:33
10/11/2013	284	12:40:08	22:03:16
10/12/2013	285	13:47:02	21:00:26
10/13/2013	286	12:05:48	21:34:27
10/14/2013	287	12:06:46	21:51:38
10/15/2013	288	12:18:47	21:05:14
10/16/2013	289	11:58:59	20:31:48
10/17/2013	290	12:02:24	20:56:27
10/18/2013	291	12:19:14	19:34:19
10/20/2013	293	12:44:57	20:24:04
10/21/2013	294	12:04:21	19:56:26
10/22/2013	295	14:07:45	19:51:09
10/23/2013	296	12:06:04	21:24:05
10/24/2013	297	13:00:47	19:06:15
10/25/2013	298	12:52:10	21:20:31
10/26/2013	299	12:31:34	20:41:45
10/27/2013	300	12:16:07	21:11:34

Date	Day Number	Min. Time UTC	Max. Time UTC
10/28/2013	301	13:06:08	20:52:47
10/29/2013	302	12:20:31	21:44:15
10/30/2013	303	12:32:27	21:23:45
10/31/2013	304	12:26:18	18:18:41
11/02/2013	306	12:28:13	21:28:55
11/03/2013	307	12:41:21	20:23:51
11/04/2013	308	12:28:40	20:01:16
11/05/2013	309	12:51:45	20:43:22
11/06/2013	310	12:36:02	21:00:43
11/07/2013	311	14:28:48	21:11:51
11/08/2013	312	12:41:37	20:34:09
11/09/2013	313	12:37:56	20:40:46
11/10/2013	314	12:21:32	18:41:11
11/11/2013	315	11:57:58	20:56:57
11/12/2013	316	12:45:45	21:15:07
11/13/2013	317	12:00:43	21:22:38
11/14/2013	318	12:05:21	21:51:46
11/15/2013	319	11:56:38	20:38:27
11/16/2013	320	12:14:09	21:23:47
11/17/2013	321	11:57:55	20:49:40
11/18/2013	322	14:10:22	21:27:31
11/19/2013	323	12:49:54	15:28:58
11/20/2013	324	13:02:07	21:12:19
11/21/2013	325	12:46:22	19:50:00
11/22/2013	326	12:39:48	18:03:22
11/23/2013	327	13:28:05	21:01:08
12/04/2013	338	12:40:53	21:28:03
12/05/2013	339	12:26:26	21:10:06
12/06/2013	340	12:42:58	21:00:19
12/07/2013	341	12:24:13	21:07:00
12/08/2013	342	12:26:46	20:47:59
12/09/2013	343	13:15:44	20:25:32
12/10/2013	344	15:34:02	21:26:59
12/11/2013	345	14:08:24	21:28:28
12/12/2013	346	19:02:50	21:52:26
12/13/2013	347	12:27:15	20:52:40
12/14/2013	348	12:19:22	21:15:24
12/15/2013	349	12:36:58	17:47:01
12/16/2013	350	12:17:32	21:20:47
12/17/2013	351	12:19:19	21:21:16
12/18/2013	352	13:12:52	19:20:41
12/19/2013	353	12:17:29	18:42:17

Tide and Zoning Discussion

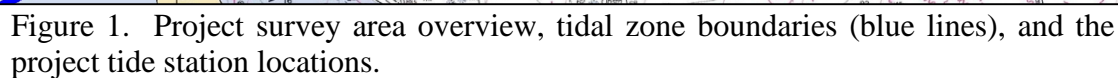
Per the Project Instructions, the survey was controlled by two tide stations: 1) the NOS-NOAA Sandy Hook, NJ (853-1680) station and, 2) short term, subordinate station Norton Point, NY (851-6891), installed and operated by OSI and OSI's tides subcontractor JOA Surveys of Anchorage, AK. Preliminary tidal zoning provided by NOAA CO-OPS in the Tides SOW was superseded by final zoning produced by JOA Surveys. The final zoning scheme, "OPR-B310-KR2-13-20140401.zdf" as well as Norton Point, NY water levels were accepted by CO-OPS in a letter dated May 28, 2014. Final project data are delivered with verified tides applied using the zoning file discussed above. These support data are included with the deliverables for this survey in the "HVCr" directory.

Based on the results of cross line analysis, it appears that the time and range factors as provided in the final zoning scheme are adequate.

Coordinated Universal Time (UTC) was used to annotate the tide records and all other data obtained in this project.

Table 2
Final Accepted Tide Zones for Project OPR-B310-KR2-13

Zone	Time Correction (minutes)	Range Correction
SH1	0	1.02
SH2	6	1.06
SH3	6	1.01
NP0	0	1.00
NP1	-6	0.98
NP2	0	0.99
NP3	-6	0.96
NP4	-6	0.98
NP5	-12	0.96
NP6	-6	0.97
NP7	-12	0.95
NP8	-12	0.93
NP9	-18	0.91



Letters Transmitting Tide Data to CO-OPS



MARINE AND FRESHWATER
SURVEY SERVICES

OCEAN SURVEYS, INC.

129 MILL ROCK ROAD EAST
OLD SAYBROOK, CT 06475

TEL. (860) 388-4631 FAX (860) 388-5879
www.oceansurveys.com

January 28, 2014

CO-OPS Ocean Engineering Team (OET).
1305 East-West Highway
Silver Spring, MD 20910

SUBJECT: TRANSMITTAL OF TIDE STATION INSTALLATION REPORT for 8516891
NORTON POINT, JAMAICA BAY, NEW YORK

The installation report for tide station 8516891 Norton Point, Hook Creek, Jamaica Bay, NY has been posted to our ftp site for retrieval. Station 8516891 was installed as a subordinate tide station in support of hydrographic survey project OPR-B310-KR-13. The information you will need to retrieve the report is listed below:

Host: [ftp-oceansurveys.egnyte.com](ftp://oceansurveys.egnyte.com)

Username: [osi-noaa\\$oceansurveys](#)

Password: NewYorkSurveys

File name: /Shared/Project-Folders/NOAA/8516891 Norton Point Install Report 20131001.rar

Sincerely,

John R. Bean Jr.
Hydrographer

JRB/lf
Enclosures

• OLD SAYBROOK, CT • METAIRIE, LA • NORTHBROOK, IL •



MARINE AND FRESHWATER
SURVEY SERVICES

OCEAN SURVEYS, INC.

129 MILL ROCK ROAD EAST
OLD SAYBROOK, CT 06475

TEL. (860) 388-4631 FAX (860) 388-5879
www.oceansurveys.com

February 11, 2014

CO-OPS Ocean Engineering Team (OET).
1305 East-West Highway
Silver Spring, MD 20910

SUBJECT: TRANSMITTAL OF TIDE STATION REMOVAL REPORT for 8516891
NORTON POINT, JAMAICA BAY, NEW YORK

The removal report for tide station 8516891 Norton Point, Hook Creek, Jamaica Bay, NY has been posted to our ftp site for retrieval. Station 8516891 was installed as a subordinate tide station in support of hydrographic survey project OPR-B310-KR-13. The information you will need to retrieve the report is listed below:

Host: [ftp-oceansurveys.egnyte.com](ftp://oceansurveys.egnyte.com)

Username: [osi-noaa\\$oceansurveys](#)

Password: NewYorkSurveys

File name: /Shared/Project-Folders/NOAA/8516891 Norton Point Removal Report
20140210.rar

Sincerely,

John R. Bean Jr.
Hydrographer

JRB/lf
Enclosures

• OLD SAYBROOK, CT • METAIRIE, LA • NORTHBROOK, IL •



MARINE AND FRESHWATER
SURVEY SERVICES

OCEAN SURVEYS, INC.

129 MILL ROCK ROAD EAST
OLD SAYBROOK, CT 06475

TEL. (860) 388-4631 FAX (860) 388-5879
www.oceansurveys.com

April 11, 2014

NOAA/National Ocean Service/CO-OPS
Chief, Engineering Division
N/OPS1 - SSMC4, Station 6531
1305 East-West Highway
Silver Spring, MD 20910

SUBJECT: TRANSMITTAL OF TIDE ZONING REPORT, PROJECT OPR-B310-KR2-13,
NEW YORK HARBOR AND APPROACHES, NY

Dear Chief,

The tide zoning report and supporting files for Project OPR-B310-KR2-13 is forwarded via e-mail. The attached compressed file, "OPR-B310-KR2-13_Tide_Zoning_Report.ZIP", contains the following:

- This transmittal letter;
- Tide zoning report in .PDF format;
- CARIS compatible .ZDF file;
- Various required GIS files;
- Tabulation of water level data referenced in the report and used in creating the updated zoning scheme.

Please don't hesitate to contact me if you have any questions.

Regards,

Robert M. Wallace Jr.
Hydrographer

RMW/ms
Enclosures

• OLD SAYBROOK, CT • METAIRIE, LA • NORTHBROOK, IL •

**OCS Contractor Validation Memo
B310KR22013**



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Center for Operational Oceanographic Products and Services
Silver Spring, MD 20910

Date: May 28th, 2014

TO: LCDR Michael Gonsalves
Chief, Operations Branch
Hydrographic Services Division
Office of Coast Survey

FROM: Gerald Hovis
Chief, Products and Services Branch
Oceanographic Division
CO-OPS

RE: Validation of Zoning supplied in support of OPR-B310-KR2-2013, New York Harbor and Approaches, NY & NJ

HOVIS.GERALD.
LD.THOMAS.
1365860250

Digitally signed by
HOVIS.GERALD.THOMAS.136586
0250
DN: c=US, o=U.S. Government,
ou=DoD, ou=PKI, ou=OTHER,
cn=HOVIS.GERALD.THOMAS.136
5860250
Date: 2014.05.30 15:23:41 -04'00'

Ocean Survey Incorporated (OSI) submitted discrete tidal zoning for validation by CO-OPS based on subordinate water level data collected at Norton Point 8516891. CO-OPS finds the water level data as well as discrete zoning submitted in support of OPR-B310-KR2-2013 to be valid and meet the requirements under NOS Specifications and Deliverables.

CO-OPS bases its validation of the contractor supplied zoning on the following reasons:

1. OSI's method to develop final zoning geometry and tide correctors is reasonable
2. The 2-sigma standard deviation of the difference between OSI's final tidal zoning and CO-OPS generated TCARI grid in the survey area is within 0.17 meters.
3. The estimate of total propagated error within the survey area using OSI's final tidal zoning and provided zoning station water level data (USGS water level gauges and BMPG) is within 0.13 meters.

CO-OPS offers the following recommendation:

- Although it is not required to generate new tidal zone geometry when HWI, LWI, and MN contours are created, it is recommended to do so. Designing tidal zoning to roughly mirror the co-phase and co-range contours of a given area will allow for better precision when determining the HWI, LWI, and MN values for each particular zone. This will, in turn, allow for more precision in determining the time and range corrector values for each particular zone. OSI is encouraged to develop new zoning geometry when new or updated co-range and co-phase contours are generated.

CC:
Jeff Ferguson
Patrick Burke
Michael Brown
LT Abigail Higgins
Castle "Gene" Parker
LCDR Ben Evans
Laura Rear McLaughlin
Corey Allen
Cristina Urizar



Tides Statement of Work

Content within the Tides Statement of Work was superseded by the final Hydrographic Survey Project Instructions which stated that it was only necessary to install one subordinate tide station, Norton Point, NY (851-6891).

TIDES STATEMENT OF WORK
OPR-B310-KR2-2013 New York Harbor and Approaches, NY
(4/10/2013 CFL)

1.0. TIDES AND WATER LEVELS

1.1. Specifications

Tidal data acquisition, data processing, tidal datum computation and final tidal zoning shall be performed utilizing sound engineering and oceanographic practices as specified in National Ocean Service (NOS) Hydrographic Surveys Specifications and Deliverables (HSSD), dated April 2012.

1.2. Vertical Datums

The tidal datums for this project are Chart Datum, Mean Lower Low Water (MLLW) and Mean High Water (MHW). Soundings are referenced to MLLW and heights of overhead obstructions (bridges and cables) are referenced to MHW.

1.2.1. The Hydro Hot List (HHL)

Please contact CO-OPS' Hydrographic Planning Team (HPT) at nos.coops.hpt@noaa.gov and CO-OPS' Operational Engineering Team (OET) at nos.coops.oetteam@noaa.gov at least three business days before survey operations begin, and within 1 business day after survey operations are completed so that the appropriate CO-OPS National Water Level Observation Network (NWLON) control water level station(s), as well as any required subordinate station(s), is/are added to or removed from the CO-OPS Hydro Hotlist (HHL) (<http://tidesandcurrents.noaa.gov/hydro>). Include start and end survey dates, full project number (e.g. OPR-H355-TJ-10), and control and subordinate station numbers. The notification must be sent to both teams as OET is responsible for configuring the station in the CO-OPS data base and HPT manages the addition and removal of stations from the HHL.

Station	Station ID	Control or Subordinate	Type (e.g. NWLON, PORTS®, etc)	Comment
Sand Hook	8531680	Control	NWLON	

Table 1: All stations that need to be added to the HHL in support of B310-KR2-2013

This project requires a subordinate installation. Therefore, please contact OET and HPT via e-mail at least three business days before the subordinate stations are installed and send the site report listing the DCP and sensor serial numbers and GOES satellite information so that stations can be configured in the database and also can be added to HHL. For station removal, inform OET and HPT 3 business days prior to the actual removal of a station and confirm with OET upon final station removal.

It is important to know that the addition of a water level station to the HHL ensures the station is monitored by CORMS and any problems are reported daily. However, platforms should view the HHL each morning of active survey operations and click on the eyeball icon to double check that there are no problems with the required stations on that day. If a platform notices problems with data on their survey day of operation, please contact HPT at nos.coops.hpt@noaa.gov, CORMS at CORMS@noaa.gov, and their respective headquarters point of contact at HSD or NSD. Stations on the HHL are given priority for maintenance should a station cease normal operation during scheduled times of hydrography. CO-OPS will notify a field unit within 1 business day if a HHL water level station ceases operation during scheduled times of hydrography. This is in addition to the daily CORMS report that CORMS sends to NOAA field units, if the field unit's e-mail address is added to the CORMS daily e-mail list. To be added to the CORMS daily HHL report, the platform should contact CO-OPS' Data Monitoring and Analysis Team (DMAT) at nos.co-ops.dmat@noaa.gov and request to be added.

If the stations are listed on HHL, then weekly priority processing will occur and, for those water level stations, verified 6-minute water level data will be made available every week on Monday or Tuesday. If Monday happens to be a federal holiday, then the 6-minute verified water level data will be made available on the following Tuesday or Wednesday.

1.3. Tide Reducer Stations

The operating water level station at Sandy Hook, NJ (8531680) will also provide water level reducers for this project. Therefore it is critical that they remain in operation during the survey.

1.3.1. CO-OPS Long Term Water Level Station Operation Maintenance

The operating National Water Level Observation Network (NWLON) station at Sandy Hook, NJ (8531680) serves as datum control for the short-term stations Norton Point (8516891), North Channel Bridge (8517201), Coney Island (8517741) and Beach Channel (8517137) for the survey area. Therefore, it is critical that this station remain in operation during all periods of hydrography.

During periods of hydrography, CO-OPS is only responsible for the operation and maintenance of NWLON control stations and the contractor is responsible for the maintenance and operations of all contractor installed (tertiary) stations. The contractor is required to monitor the NWLON control water level data via the CO-OPS Web site at <http://tidesandcurrents.noaa.gov/hydro.shtml> or through regular communications with the OCS COTR or the OCS COTR's CO-OPS authorized point of contact (Colleen Roche at 301-713-2897 x137 or via e-mail: nos.coops.oetteam@noaa.gov) before and during operations. The OCS COTR or the COTR's CO-OPS authorized point of contact (Colleen Roche) will serve as liaison between the contractor and NOS/CO-OPS to confirm operation of this station and to ensure the acquisition of NWLON control water level data during periods of hydrography. Problems or concerns regarding the acquisition of valid water level data identified by the contractor shall be communicated with the OCS COTR or the COTR's CO-OPS authorized point of contact (Colleen Roche) to coordinate the appropriate course of action to be taken such as gauge repair and/or developing contingency plans for hydrographic survey operations.

1.3.2. Subordinate Station Requirements

For this project, it will be necessary to install and continuously operate a water level measurement system (tide gauge) at a subordinate station location. This station will provide information on tidal datums, water level reducers, refinement of final zoning and harmonic constituents for predictions.

The station listed in Section 1.2.1. will provide control for datum computation at the subordinate station by using the NOS method of comparison of simultaneous observations.

CO-OPS has also identified additional sites for other programs such as the NOS VDatum program which develops VDatum models that will support future surveys. Subordinate stations Coney Island (8517741), Beach Channel (8517137), and North Channel Bridge (8517201) should be installed in support of the VDatum program in the area of New York Harbor and Approaches.

A 30-day minimum of continuous data acquisition is required. For the subordinate stations, data must be collected throughout the entire survey period in specified areas for which it is applicable, from 4 hours before to 4 hours after the period of hydrography and not less than 30 continuous days. This is necessary to facilitate the computation of an accurate datum reference as per NOS standards.

Additionally, supplemental and/or back-up stations may also be necessary based upon the complexity of the hydrodynamics and/or the severity of environmental conditions of the project area. The installation of additional stations is left to the discretion of the contractor, subject to the approval of the COTR.

The following subordinate stations are to be installed:

<u>Station Number</u>	<u>Station Name</u>	<u>Latitude(N)</u>	<u>Longitude(W)</u>
8516891	Norton Point	40° 38' 6.0"	073° 44' 48.1"
8517137	Beach Channel	40° 35' 17.9"	073° 49' 12.0"
8517201	North Channel Bridge	40° 38' 42.0"	073° 50' 12.1"
8517741	Coney Island	40° 34' 12.0"	073° 58' 59.9"

1.3.3. Tide Component Error Estimation

The estimated tidal error contribution to the total survey error in the area of New York Harbor and Approaches, NY cannot be computed due to a lack of available water level time series data bounding the survey area. However, we compared extrapolated water level curves using The Battery (8518750) as control, and Sandy Hook (8531680) as control. The root mean square (RMS) of the differences between the two sets of corrected water level curves is 0.20 m. The value of $RMS \times 2$, which is 0.20 m, may be served as a rough guesstimate of the zoning error for the survey area but should not be confused with an official estimate of total propagated error.

1.3.4. Water Level Records: Submit water level data, such as leveling records, field reports, and any other relevant data/reports, including the data downloaded onto diskette/CD within 1 week after the end of each month or the end of hydrography to CO-OPS/Engineering Division (ED). Refer to Section 1.1.

1.3.4.1. Water level records should be forwarded to the following address:

NOAA/National Ocean Service/CO-OPS
Chief, Engineering Division
N/OPS1 - SSMC4, Station 6531
1305 East-West Highway
Silver Spring, MD 20910

1.3.5. Recover all historical bench marks at each required subordinate water level station. If any bench marks are destroyed or not found, install new bench marks to replace them. In the event of a new station with no historical marks, installation of a minimum of five bench marks will be required. Third-order levels from the tide staff or sensor to a minimum of five bench marks (including the primary bench mark) are required at the beginning and end of the survey period. See Section 1.1. for clarification of requirements.

1.3.5.1. Hand held GPS latitude and longitude positions on all historical subordinate water level station bench marks are required. In addition, one of the subordinate water level station bench marks shall be selected for high accuracy static differential GPS observations to obtain ties between the tidal datums and GPS derived datums. Refer to Section 1.1 for further details on the GPS positioning requirements.

1.3.6. Operate the water level stations listed in Section 1.3.1. of this Statement of Work for the following hydrographic area(s) or zone(s):

<u>Station Number</u>	<u>Hydrographic Area(s) or Zone(s)</u>
8516891	Entire Survey except NY1 and NY3
8517137	Entire Survey (VDatum)
8517201	Entire Survey (VDatum)
8517741	Entire Survey (VDatum)

1.4. Zoning

1.4.1. The water level station at Sandy Hook, NJ (8531680) is the reference station for preliminary tides for hydrography in the area of New York Harbor and Approaches, NY. The time and height correctors listed below for applicable zones should be applied to the preliminary data at the station indicated during the acquisition and preliminary processing phases of this project. **Preliminary data may be retrieved in one month increments over the internet from the CO-OPS SOAP web services at <http://opendap.co-ops.nos.noaa.gov/axis/text.html>.** The contractor must notify the COTR or the COTR's authorized representative immediately of any problems concerning the preliminary water levels. Preliminary data are six-minute time series data relative to MLLW in metric units on Greenwich Mean Time. For the time corrections, a negative (-) time correction indicates that the time of tide in that zone is earlier than (before) the preliminary tides at the reference station. A positive (+) time correction indicates that the time of tide in that zone is later than (after) the water levels at the reference station. For height corrections, the water level heights **relative to MLLW** at the reference station are multiplied by the range ratio to estimate the water level heights relative to MLLW in the applicable zone.

<u>Zone</u>	<u>Time Corrector(mins)</u>	<u>Range Ratio</u>	<u>Predicted Reference Station</u>
NY1	-6	x1.01	8531680
NY2	-6	x1.04	8531680
NY3	+6	x1.00	8531680
NY2A	+12	x1.09	8531680
NY2B	+24	x1.09	8531680
NY2C	+30	x1.11	8531680
NY2D	+42	x1.09	8531680
NY2E	+54	x1.11	8531680
NY2F	+24	x1.11	8531680
NY2G	+42	x1.12	8531680
NY2H	+54	x1.12	8531680
NY2J	+42	x1.14	8531680

1.4.2. Polygon nodes and water level corrections referencing Sandy Hook, NJ (8531680) are provided. Zoning diagrams, created in MapInfo®, are provided digitally to assist with the zoning. Longitude and latitude coordinates are in decimal degrees. Negative (-) longitude is a MapInfo® representation of West longitude.

“Preliminary” data for the control water level station, Sandy Hook, NJ (8531680), are available in near real-time and verified data will be available on a weekly basis for the previous week. These water level data may be obtained from CO-OPS SOAP web services at <http://opendap.co-ops.nos.noaa.gov/axis/text.html>.

1.4.3 Zoning Diagram(s)

Zoning diagrams, created in MapInfo® and Adobe PDF, are provided in digital format to assist with the zoning in section 1.4.1.

1.5. Final Zoning

1.5.1. For final processing, develop final zoning incorporating water level datums and data from the required subordinate stations and apply tidal zoning correctors to “verified” observed data of the NOS control station and/or the final processed data of the subordinate stations. The final zoning scheme in MapInfo® or ArcView® digital format and all data utilized in its development shall be documented and submitted to CO-OPS at the address referenced in section 1.3.3.1. Refer to Section 1.1. for details.



APPENDIX II

SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCE

From: Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>
Sent: Thursday, August 07, 2014 1:06 PM
To: George Reynolds
Subject: FW: SS contact file examples
Attachments: H12396_SSCon.000; H12413_SSS_contacts.000

From: Castle Parker - NOAA Federal [mailto:castle.e.parker@noaa.gov]
Sent: Tuesday, December 03, 2013 12:50 PM
To: 'George Reynolds'
Cc: Paul Turner - NOAA Federal; Abigail Higgins
Subject: SS contact file examples

Good day George,

Talking with Paul Turner this morning, he mentioned that you are requesting example of the side scan contact file. Currently the specs for populating the specific attributes, starts in HSSD Section 8.3.2 it states to use the specs for attribution listed in HSSD Section 8.2 Feature Attribution. The specific specs is on page 139 of HSSD 2013. Reference image below.

Bear in mind the H12396 example is a 2012 survey and H12413 example is a 2013 deliverable.

All side scan contact images should reside in the Multimedia folder; all image links should point to that directory and only list the name of the image file in the "image" attribute. The contact attributed "image" is name only and relative path to the multimedia folder; the image name is all that is necessary. If the contact image has an absolute data path, AHB would have to re-link all the image files, deleting the path and leaving the image name.

If you (OSI) have an example file, or whenever OSI generates a contact file, send it to me and I will review. Hope this is what you are requesting. If not, please respond.

Regards,
Gene

From: David Scharff - NOAA Federal <david.scharff@noaa.gov>
Sent: Thursday, March 28, 2013 3:57 PM
To: George Reynolds
Subject: Re: Jamaica Bay Discussion Topics

Hi George,

We discussed your project this morning, here is what I have so far regarding your questions:

- 1) Any temporary features (e.g. temporary moorings) do not need to be addressed. If you cannot access an area because of obstructions such as mooring fields it would be acceptable to make a statement in the DR discussing the reason for the data gap.
- 2) You will not need to identify docks, we will acquire these features using airborne data.
- 3) Same as #2
- 4) We are looking into this. I will get back to you with more guidance.
- 5) That would be acceptable. FYI - the inshore requirements for this project have changed, it is now 100% SSS from 2-4 meters with concurrent MB, and 200% SSS for 4+ meters with concurrent MB. Sorry I just found this out today.
- 6) Refer to new requirements (#5).
- 7) This approach would be acceptable.

Dave

On Wed, Mar 27, 2013 at 12:34 PM, George Reynolds <ggr@oceansurveys.com> wrote:

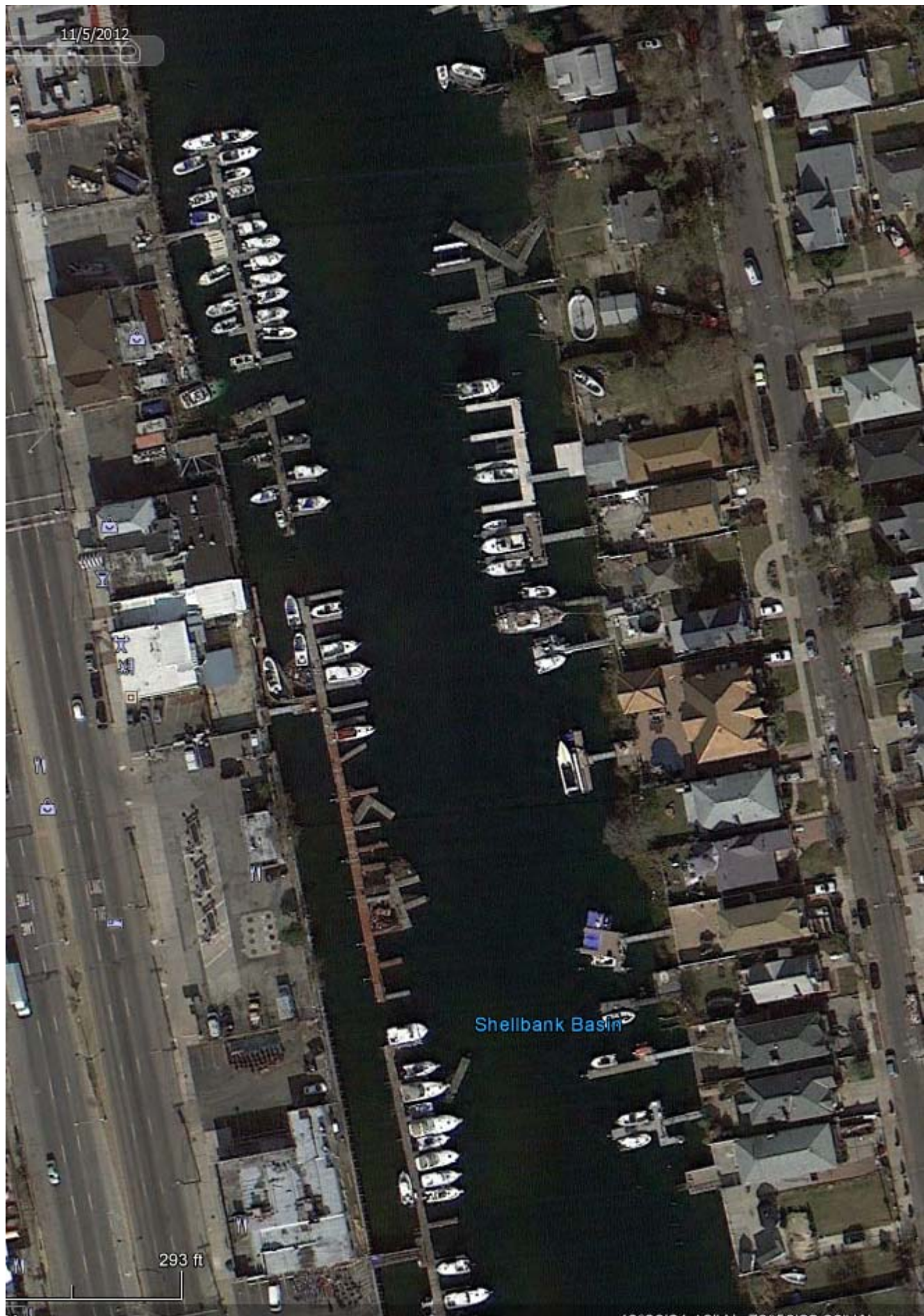
Hi Lori, David

We have a few questions regarding the level of mapping effort NOAA will require in specific sections of the study area. The images below are provided to aid our discussion.

Moorings and Docks



11/5/2012



1) There are numerous moorings deployed in reaches of the study area. What will the SOW require to capture chart information in these areas?

A few possible approaches may include:

- treat as a development area and include any significant anchor weights in the final surface
- locate each mooring
- make a general statement in the DR discussing the presence of a mooring field
- provide an approximate mooring field perimeter polyline

2) There are numerous docks that appear to extend out into depths greater than 2 meters. What level of mapping will be required to locate these features.

A few possible approaches may include:

- Locate every piling using GPS receivers
- Locate the structures with SSS
- Locate structures with MB
- Locate structures with a laser scan system

3) There are also docks that appear to be located in less than 2 meters of water. Is there a requirement to locate these structures?

Booms and Containment Areas



4) There are cases where containment booms cross the waterway. We assume that the survey will extend into these blocked areas. If so, will NOAA be able to provide a letter of introduction that we can transmit to State and City Departments along with interested private property owners as needed in attempt to gain access to these restricted reaches?

Other Items

5) We would propose to meet the 200% side scan coverage in 4 meters of water by running the shore most or shoalest line twice (once as a 100% line and again as a 200% line). Would this be acceptable?

- 6) There may be cases where it may be more efficient to run “single beam” lines using the MB system. In these cases, we would process and present only the MB Nadir data. Would this be an acceptable approach?
- 7) There may also be operational efficiency realized by acquiring side looking multibeam data along channel banks. Specifically, banks with relatively short shallow water expanses of less than 4 meters. Would side looking multibeam data be acceptable in these areas?

Thanks

George

George Reynolds

Ocean Surveys, Inc.

129 Mill Rock Road East

Old Saybrook, CT 06475

[860 388 4631 Ext 112](tel:8603884631)

www.oceansurveys.com

From: Paul Turner - NOAA Federal <paul.turner@noaa.gov>
Sent: Wednesday, November 27, 2013 2:25 PM
To: David Somers
Cc: George Reynolds
Subject: Re: H12604 Questions

Good morning Dave-

With regard to questions 1, I can get you an example of a contact point deliverable next Monday when I'm back in the office.

200% SSS is sufficient to disprove so long as is no detectable 'contact' within the imagery within the search radius. So if you covered with 200% sss and you do not see anything, this item will be considered disproved. I assume you ran concurrent MB during SSS operations?

And regarding AWOIS 15127, if you surveyed what you can safely access around the item then that should be sufficient. No need to risk the safety of the crew or survey vessel and you can just document that you were unable to completely cover the search radius due to shallow, unsafe conditions and remain debris. So no further investigations are required.

I am out of the office today but can be reached on my cell phone if you would like to discuss any of the items in more detail. 301-802-1631.

Happy Thanksgiving!

Paul

On Wed, Nov 27, 2013 at 9:11 AM, David Somers <dts@oceansurveys.com> wrote:

Paul,

We have a few questions:

1. For 2013, side scan sonar contact point deliverable has changed to an S-57 file. For our clarification, the correlation information goes in the remrks field? Could you provide us with an example?
2. Just confirming that 200% side scan sufficient to disprove an "full investigation" AWOIS item?
3. For AWOIS 15127, the center and a large portion of search radius lies within a piling field from a former marina that existed in 1990s and appears to be shoaler than 2 meters. This area is also covered by an assigned "foul area". We believe that we have surveyed to the extent of safe navigation and have acquired side scan that covers the perimeter of the relic marina. We also have several low tide photos. Please see attached jpg, the red swath coverage is shoaler than 2m. We would recommend marking this whole area "ruins", is any further investigation required?

Thanks,
Dave

--

Paul Turner
Physical Scientist
NOAA - Office of Coast Survey

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

Castle Parker - NOAA Federal

From: Paul Turner - NOAA Federal
Sent: Monday, December 29, 2014 1:39 PM
To: George Reynolds
Cc: Castle Eugene Parker; Michael Gonsalves - NOAA Federal; Tiffany Squyres - NOAA Federal
Subject: Re: H12604 and H12607 Request for a Deviation from the 2013 HSSD regarding "images" attribution

Good afternoon George-

HSD understands and approves your request to deviate from the Hydrographic Surveys Specifications and Deliverables with regard to associating an image with every S-57 feature object. Upon consultation with the Atlantic Hydrographic Branch, the outlined approach of attaching images to those objects considered navigationally significant is sufficient for this project.

Please consider this email formal approval from HSD and I've cc'd Gene Parker from AHB to include this as Supplemental Correspondence for H12604 and H12607.

Thanks,

Paul

On Mon, Dec 22, 2014 at 4:57 PM, George Reynolds <ggr@oceansurveys.com> wrote:

Hi Paul, Gene:

Thanks for taking the time to talk with us this morning regarding S57 images associated with the Jamaica Bay and East Rockaway Inlet surveys.

OSI initiated this call to continue our dialog regarding the project deliverables for these unique surveys. During the call, we discussed whether it was necessary for OSI to attach images to all features that were submitted with the S-57 Final Feature Files (FFF) for these post Sandy Surveys.

The FFF for Survey H12604 contained 3209 features, and the FFF for Survey H12607 contained 1546 features. As OSI was building the FFFs for these surveys, images were not attached for every feature, with judgment calls made based on the object's significance relative to the massive volume of features identified within the survey area. The tables below break down the feature type count for each survey and identify the number of features that do and do not have images attached, according to feature type.

OSI is requesting a deviation from the Specifications and Deliverables S57 requirements for Surveys H12604 and H12607. We request that the above approach to producing FFFs be allowed for these two surveys.

Survey H12604 Jamaica Bay			
Feature type	Feature count	With images	Without images
BOYSPP	23	1	22
CBLSUB	1	0	1
COALNE	2	1	1
FNCLNE	1	1	0
LIGHTS	1	0	1
LNDARE	7	3	4
MORFAC	66	40	26
OBSTRN	908	505	403
PILPNT	1292	394	898
PIPSOL	8	8	0
PYLONS	1	0	1
SBDARE	52	51	1
SLCONS	144	95	49
UWTROC	34	12	22
WRECKS	669	538	131
Total	3209	1649	1560

Survey H12607 East Rockaway			
Feature type	Feature count	With images	Without images
BOYSPP	3	2	1
CBLARE	2	2	0
CBLSUB	3	3	0
COALNE	2	0	2
LNDARE	9	0	9
LNDRGN	1	1	0
MORFAC	25	10	15
OBSTRN	289	130	159
OFSPLF	2	0	2
PILPNT	1071	37	1034
PIPSOL	12	12	0

SBDARE	12	12	0
SLCONS	64	25	39
WRECKS	51	44	7
Total	1546	278	1268

Thank you for your time this morning and your consideration of this request.

Thanks

George

--

Paul Turner
Physical Scientist
NOAA - Office of Coast Survey

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

APPENDIX III

SURVEY FEATURES REPORT

AWOIS:	45
Maritime Boundaries:	0

Note: DTONs and Wrecks are too numerous to include in this report. DTONs and Wrecks reports are recorded at the Atlantic Hydrographic Branch.

1 - AWOIS Features

1.1) US 0001004616 00001 / H12604_AWOIS.000**Feature for AWOIS Item #15129****Search Position:** 40° 34' 03.2" N, 074° 02' 52.4" W**Historical Depth:** 0.92 m**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 34' 03.2" N, 074° 02' 52.4" W**Least Depth:** 0.92 m (= 3.02 ft = 0.504 fm = 0 fm 3.02 ft)**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 2013-274.00:00:00.000 (10/01/2013)**Dataset:** H12604_AWOIS.000**FOID:** US 0001004616 00001(0226000F54480001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

OBSTRN/remrks: A second obstruction was developed approximately 30 meters northwest of the charted (RNC 12402) 4-foot obstruction, one of two large mounds. The AWOIS history incorrectly reports the obstructions as a wreck. AWOIS history is as follows: LNM09/12, USCG District 1-- Added "4" wreck and "Rep (2012)" in approx LAT 40-34-1.61N / LONG 074-02-51.78W. (ENT 6/4/13 PTT).

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004616 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that an obstruction symbol be added to the chart at the surveyed least depth.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

3ft (12402_1, 12327_1, 12326_1)

0 ½fm (12300_1, 13006_1, 13003_1, 14500_1)

0.9m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20131220

SORIND - US,US,graph,H12604

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 0.922 m

WATLEV - 3:always under water/submerged

Feature Images

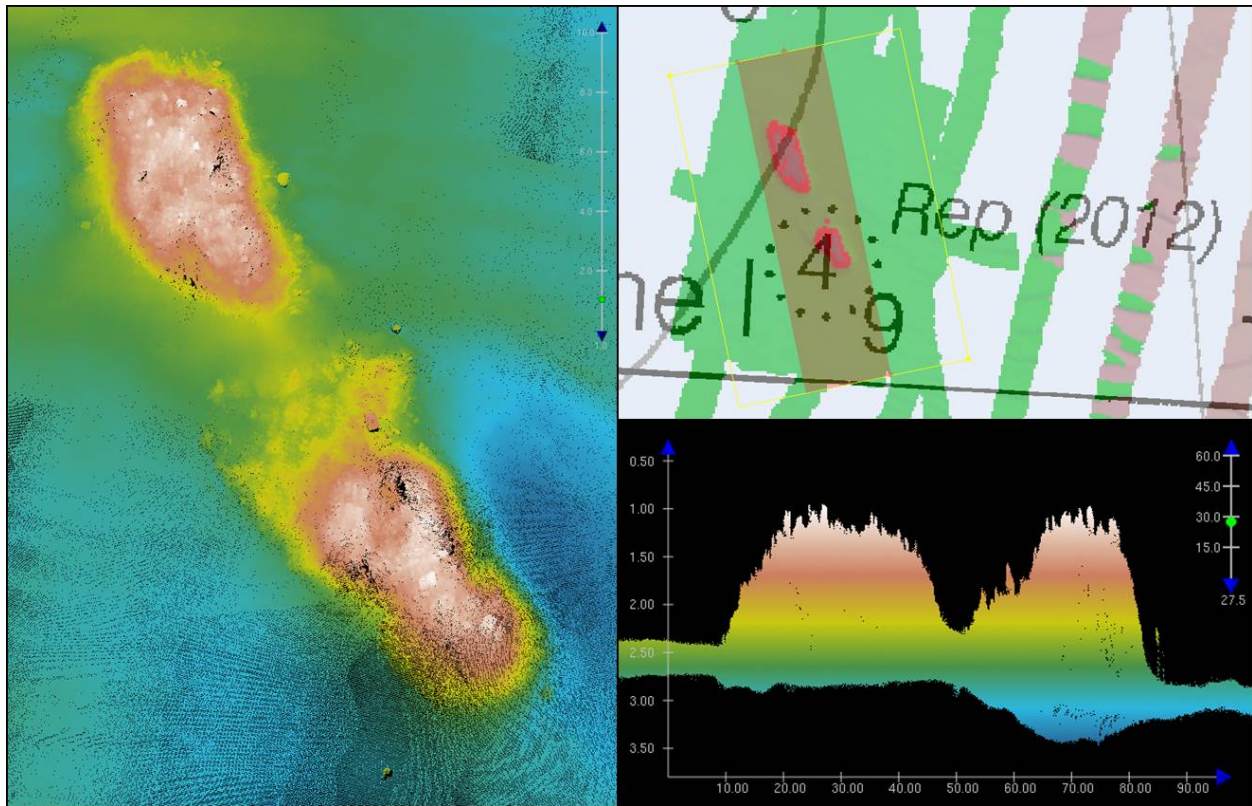


Figure 1.1.1

1.2) US 0001004632 00001 / H12604_AWOIS.000

Feature for AWOIS Item #15129

Search Position: 40° 34' 01.9" N, 074° 02' 51.5" W

Historical Depth: 0.95 m

Search Radius: [unknown]

Search Technique: [unknown]

Technique Notes:

History Notes:

[unknown]

Survey Summary

Survey Position: 40° 34' 01.9" N, 074° 02' 51.5" W

Least Depth: 0.95 m (= 3.11 ft = 0.518 fm = 0 fm 3.11 ft)

TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]

Timestamp: 2013-274.00:00:00.000 (10/01/2013)

Dataset: H12604_AWOIS.000

FOID: US 0001004632 00001(0226000F54580001)

Charts Affected: 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

OBSTRN/remrks: A charted obstruction was verified, however, a new position and a new least depth were developed with object detection MBES coverage. The obstruction appears to be two large mounds within the circular area defined by the 100 meter search radius. The AWOIS history incorrectly reports the obstruction as a wreck. AWOIS history is as follows: LNM09/12, USCG District 1-- Added "4" wreck and "Rep (2012)" in approx LAT 40-34-1.61N / LONG 074-02-51.78W. (ENT 6/4/13 PTT).

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004632 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the charted 4-foot obstruction position and depth be updated with the surveyed least depth and position.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

3ft (12402_1, 12327_1, 12326_1)

0 ½fm (12300_1, 13006_1, 13003_1, 14500_1)

0.9m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: NINFOM - SAR: Obstruction verified with 200% side scan sonar.

QUASOU - 6:least depth known

SORDAT - 20131220

SORIND - US,US,graph,H12604

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 0.948 m

WATLEV - 3:always under water/submerged

Feature Images

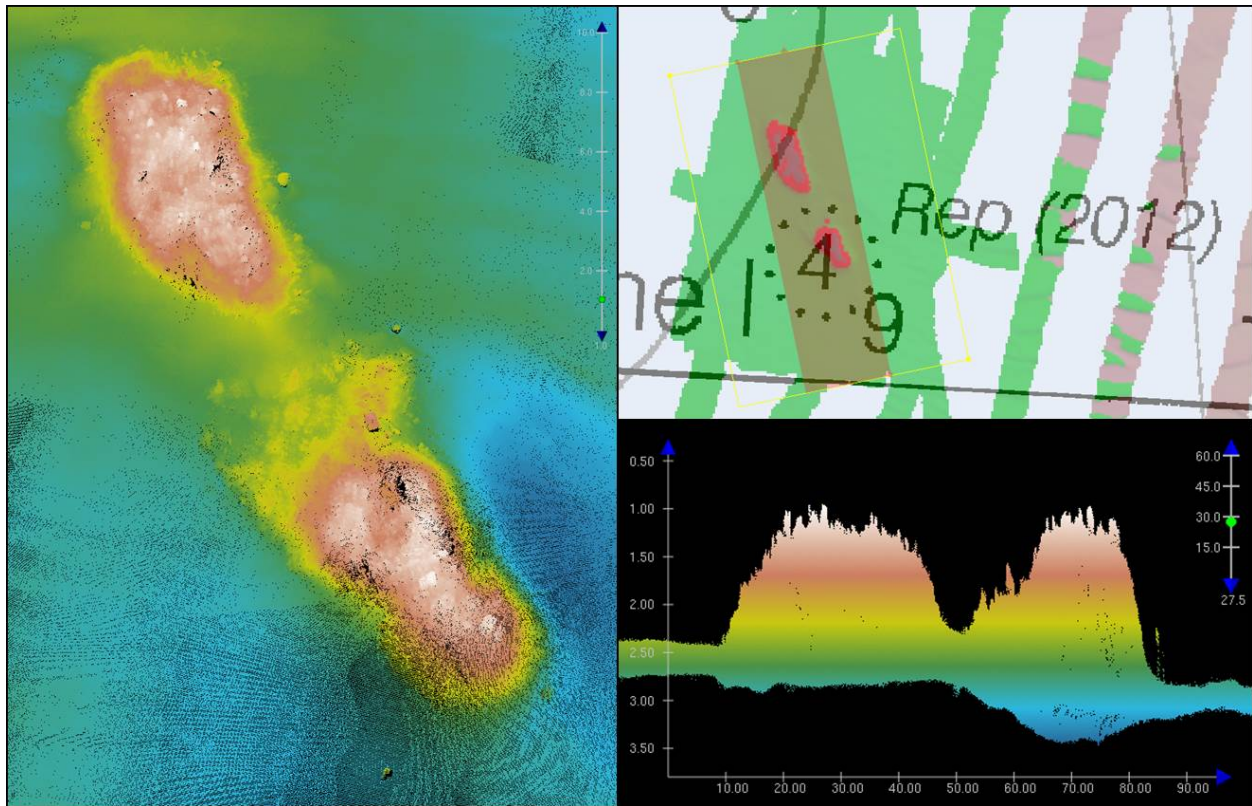


Figure 1.2.1

1.3) US 0001125420 00001 / H12604_AWOIS.000

Feature for AWOIS Item #15130

Search Position: 40° 34' 38.5" N, 074° 02' 41.0" W

Historical Depth: [None]

Search Radius: [unknown]

Search Technique: [unknown]

Technique Notes:

History Notes:

[unknown]

Survey Summary

Survey Position: 40° 34' 38.5" N, 074° 02' 41.0" W

Least Depth: [None]

TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]

Timestamp: 2012-339.00:00:00.000 (12/04/2012)

Dataset: H12604_AWOIS.000

FOID: US 0001125420 00001(022600112C2C0001)

Charts Affected: 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: A charted wreck PA (Rep 2012) was disproved with 200% SSS Coverage acquired within the circular area defined by a 100 meter search radius. No wreck features were identified within the search area. One obstruction that appears to be a tree/snag was developed on the southwest edge of the search area. The AWOIS history is as follows: LNM49/12, USCG District 1--Wreck PA (Rep 2012) added in approx LAT 40-34-38.5N / LONG 074-02-41.0W. (ENT PTT 6/4/13).

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001125420 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the wreck PA (Rep 2012) be removed from the chart.

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 2:dangerous wreck
SORDAT - 20121204
SORIND - US,US,reprt,1stCGD,LNM 49/12
WATLEV - 3:always under water/submerged

1.4) US 0001004610 00001 / H12604_AWOIS.000

Feature for AWOIS Item #9712

Search Position: 40° 32' 47.9" N, 074° 02' 37.3" W

Historical Depth: 3.98 m

Search Radius: [unknown]

Search Technique: [unknown]

Technique Notes:

History Notes:

[unknown]

Survey Summary

Survey Position: 40° 32' 47.9" N, 074° 02' 37.3" W

Least Depth: 3.98 m (= 13.05 ft = 2.175 fm = 2 fm 1.05 ft)

TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]

Timestamp: 2013-274.00:00:00.000 (10/01/2013)

Dataset: H12604_AWOIS.000

FOID: US 0001004610 00001(0226000F54420001)

Charts Affected: 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: A charted wreck's position was verified, however, a new least depth was developed with object detection MBES coverage. The large wreck has a rectangular shape surrounded by scattered debris. The AWOIS History is as follows: NM31/70-- CHAPEL HILL NORTH CHANNEL - BUOY - WRECK INFORMATION; BUOY ESTABLISHED TO MARK SUBMERGED WRECK; WRECK COVERED 1/2 FOOT. LNM10/71-- CORRECTION; LIGHT BUOY 15A ESTABLISHED IN 18 FEET, 1,050 YARDS, 359 DEG. FROM WEST BANK LIGHT. BUOY IS 20 YARDS 090 DEG. FROM SUBMERGED DRY DOCK COVERED 1/2 FOOT. POSITION OF WRECK SCALED FROM CHART 12327 IN APPROX. LAT. 40-32-48.8N, LONG. 74-02-35.9W. (ENT 3/26/96, SJV) H11601/06-- HYDROGRAPHER RECOMMENDS ADDING TO WRECK A LEAST DEPTH OF 14 FEET IN LAT. 40/32/47.9N LONG. 74/2/37.3W (NAD83). (ENTERED 12/23/08, EAN)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004610 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the charted 14-foot Wk depth be updated with the surveyed least depth.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

13ft (12402_1, 12327_1, 12326_1)

2 ¼fm (12300_1, 13006_1, 13003_1, 14500_1)

4.0m (5161_1)

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: QUASOU - 6:least depth known

SORDAT - 20131220

SORIND - US,US,graph,H12604

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 3.978 m

WATLEV - 3:always under water/submerged

Feature Images

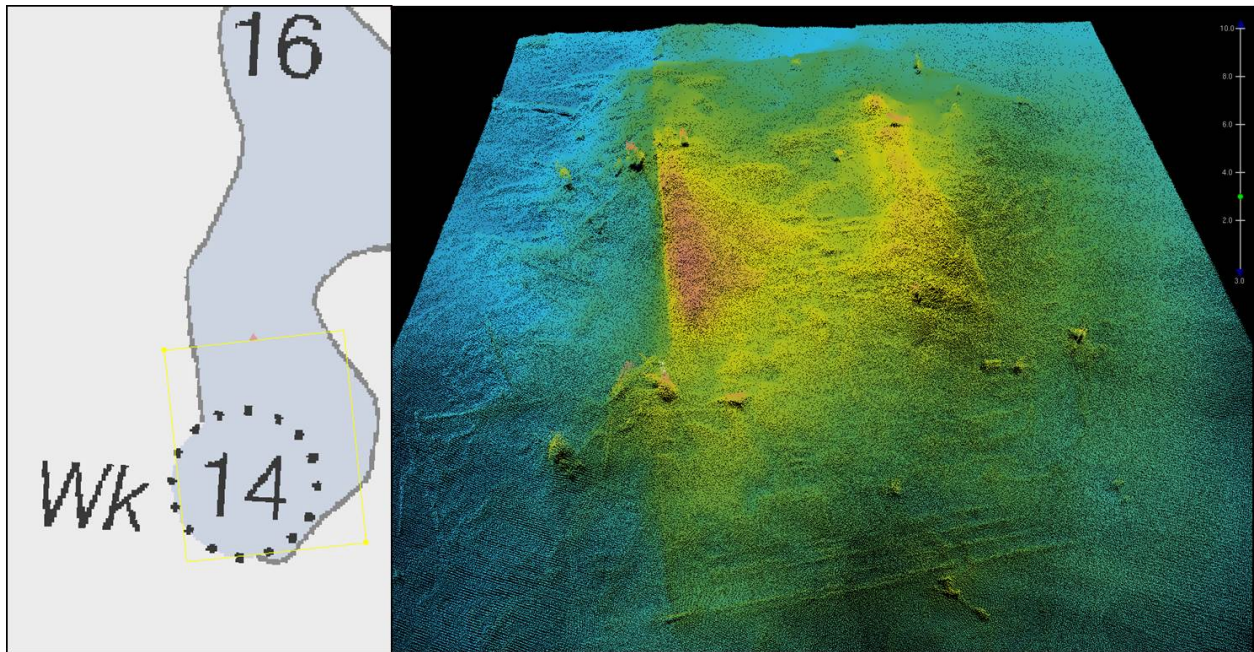


Figure 1.4.1

1.5) US 0001004629 00001 / H12604_AWOIS.000**Feature for AWOIS Item #14503****Search Position:** 40° 34' 55.8" N, 074° 02' 36.5" W**Historical Depth:** 6.92 m**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 34' 55.8" N, 074° 02' 36.5" W**Least Depth:** 6.92 m (= 22.69 ft = 3.782 fm = 3 fm 4.69 ft)**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 2006-295.00:00:00.000 (10/22/2006)**Dataset:** H12604_AWOIS.000**FOID:** US 0001004629 00001(0226000F54550001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

OBSTRN/remrks: A charted obstruction's position and least depth were verified with 200% SSS and object detection MBES coverage. The AWOIS history follows: H11601/2006; NOS-- Survey located an obstruction with a least depth of 6.90 m (22.6 ft) at Lat. 40/34/55.8N Long. 73/2/36.5W (NAD83). (Entered 3/16/09, EAN)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004629 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the Obstrn be retained as charted.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

23ft (12402_1, 12327_1, 12326_1)

3 $\frac{3}{4}$ fm (12300_1, 13006_1, 13003_1, 14500_1)

6.9m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20061022

SORIND - US,US,graph,H-11601

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 6.917 m

WATLEV - 3:always under water/submerged

Feature Images

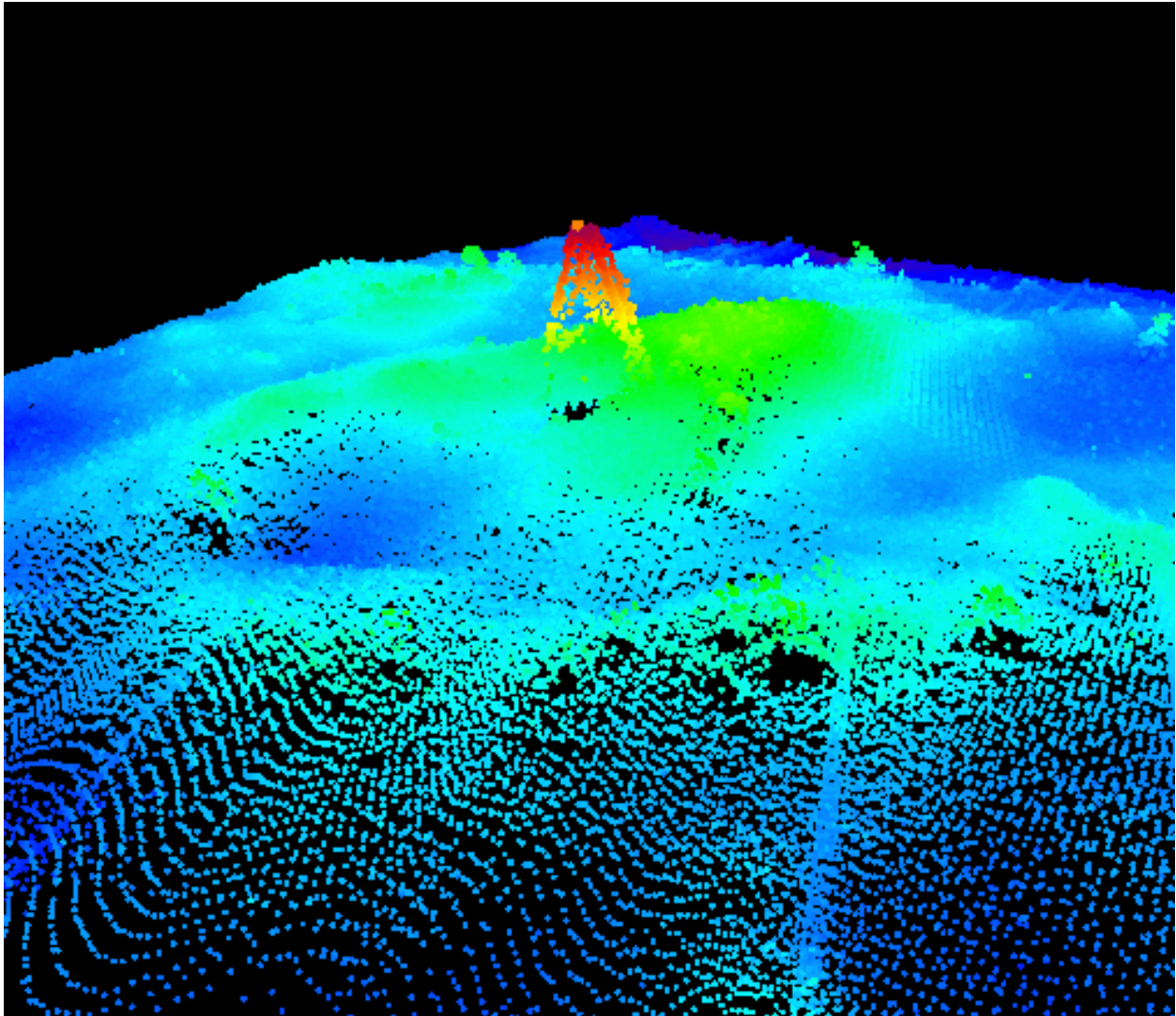


Figure 1.5.1

1.6) US 0001004606 00001 / H12604_AWOIS.000

Feature for AWOIS Item #14502

Search Position: 40° 34' 34.6" N, 074° 02' 34.5" W

Historical Depth: 6.23 m

Search Radius: [unknown]

Search Technique: [unknown]

Technique Notes:

History Notes:

[unknown]

Survey Summary

Survey Position: 40° 34' 34.6" N, 074° 02' 34.5" W

Least Depth: 6.23 m (= 20.45 ft = 3.409 fm = 3 fm 2.45 ft)

TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]

Timestamp: 2006-295.00:00:00.000 (10/22/2006)

Dataset: H12604_AWOIS.000

FOID: US 0001004606 00001(0226000F543E0001)

Charts Affected: 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: The charted wreck was verified with 200% SSS and 100% MBES coverage. The AWOIS History is as follows: H11601/2006; NOS-- Survey located dangerous wreck with a least depth of 6.11 m (20 ft) at Lat. 40/34/34.6N Long. 74/2/34.5W (NAD83). (Entered 3/16/09, EAN)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004606 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the 20-ft Wk be retained as charted.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

20ft (12402_1, 12327_1, 12326_1)

3 ½fm (12300_1, 13006_1, 13003_1, 14500_1)

6.2m (5161_1)

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 2:dangerous wreck

QUASOU - 6:least depth known

SORDAT - 20061022

SORIND - US,US,graph,H-11601

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 6.234 m

WATLEV - 3:always under water/submerged

Feature Images

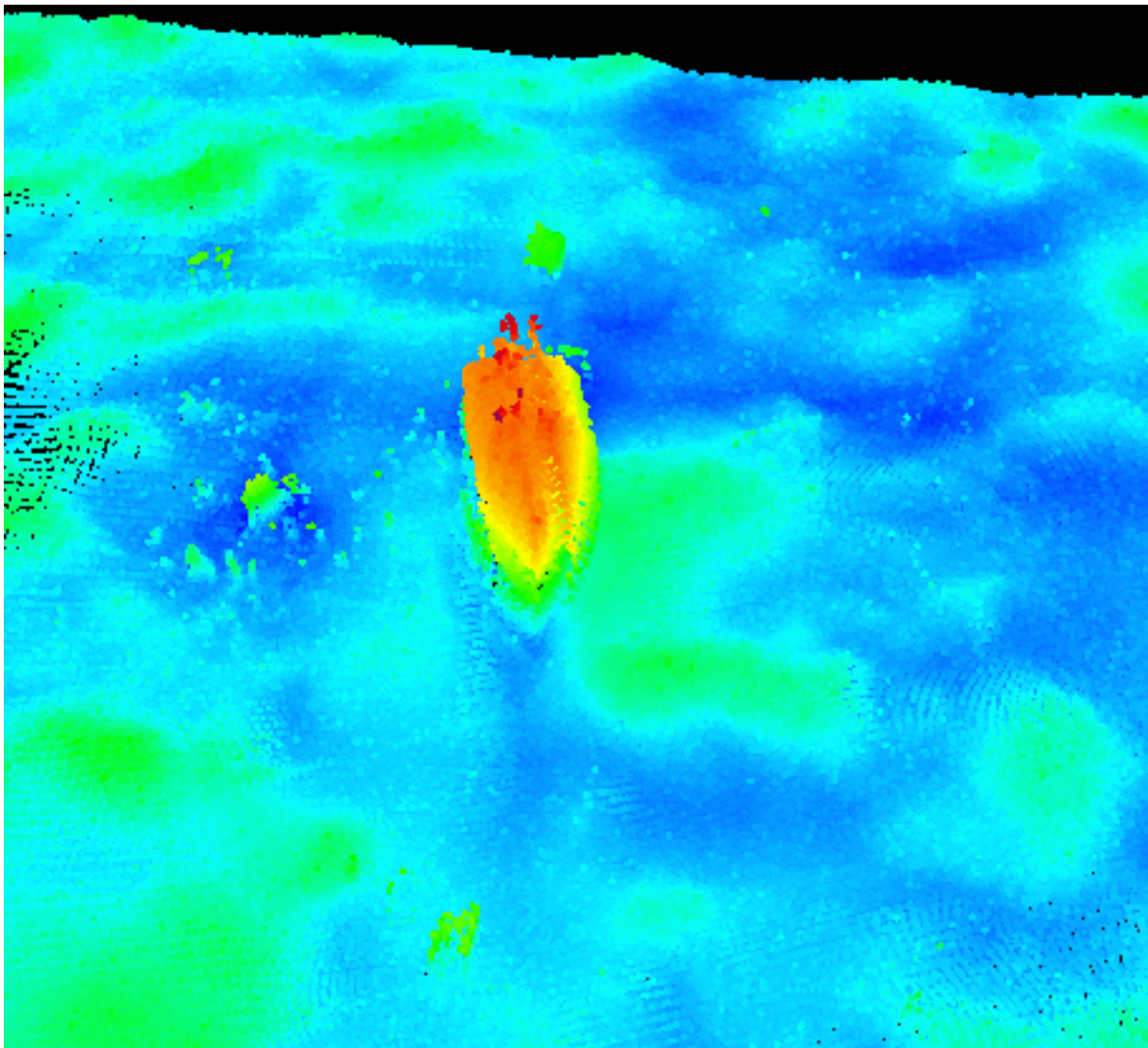


Figure 1.6.1

1.7) US 0001004626 00001 / H12604_AWOIS.000

Feature for AWOIS Item #14518

Search Position: 40° 34' 33.6" N, 074° 02' 33.4" W

Historical Depth: 5.80 m

Search Radius: [unknown]

Search Technique: [unknown]

Technique Notes:

History Notes:

[unknown]

Survey Summary

Survey Position: 40° 34' 33.6" N, 074° 02' 33.4" W

Least Depth: 5.80 m (= 19.03 ft = 3.172 fm = 3 fm 1.03 ft)

TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]

Timestamp: 2006-295.00:00:00.000 (10/22/2006)

Dataset: H12604_AWOIS.000

FOID: US 0001004626 00001(0226000F54520001)

Charts Affected: 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

OBSTRN/remrks: The charted obstruction was verified with 200% SSS and 100% MBES coverage. The AWOIS History is as follows: H11601/2006;NOS-- Survey located a dangerous obstruction with a least depth of 5.58 m (18.3 ft) at Lat. 40/34/33.6N Long. 74/2/33.4W (NAD83). (Entered 3/17/09, EAN)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004626 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the Obsn be retained as charted.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

19ft (12402_1, 12327_1, 12326_1)

3 ¼fm (12300_1, 13006_1, 13003_1, 14500_1)

5.8m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: EXPSOU - 2:shoaler than range of depth of the surrounding depth area

QUASOU - 6:least depth known

SORDAT - 20061022

SORIND - US,US,graph,H-11601

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 5.801 m

WATLEV - 3:always under water/submerged

Feature Images

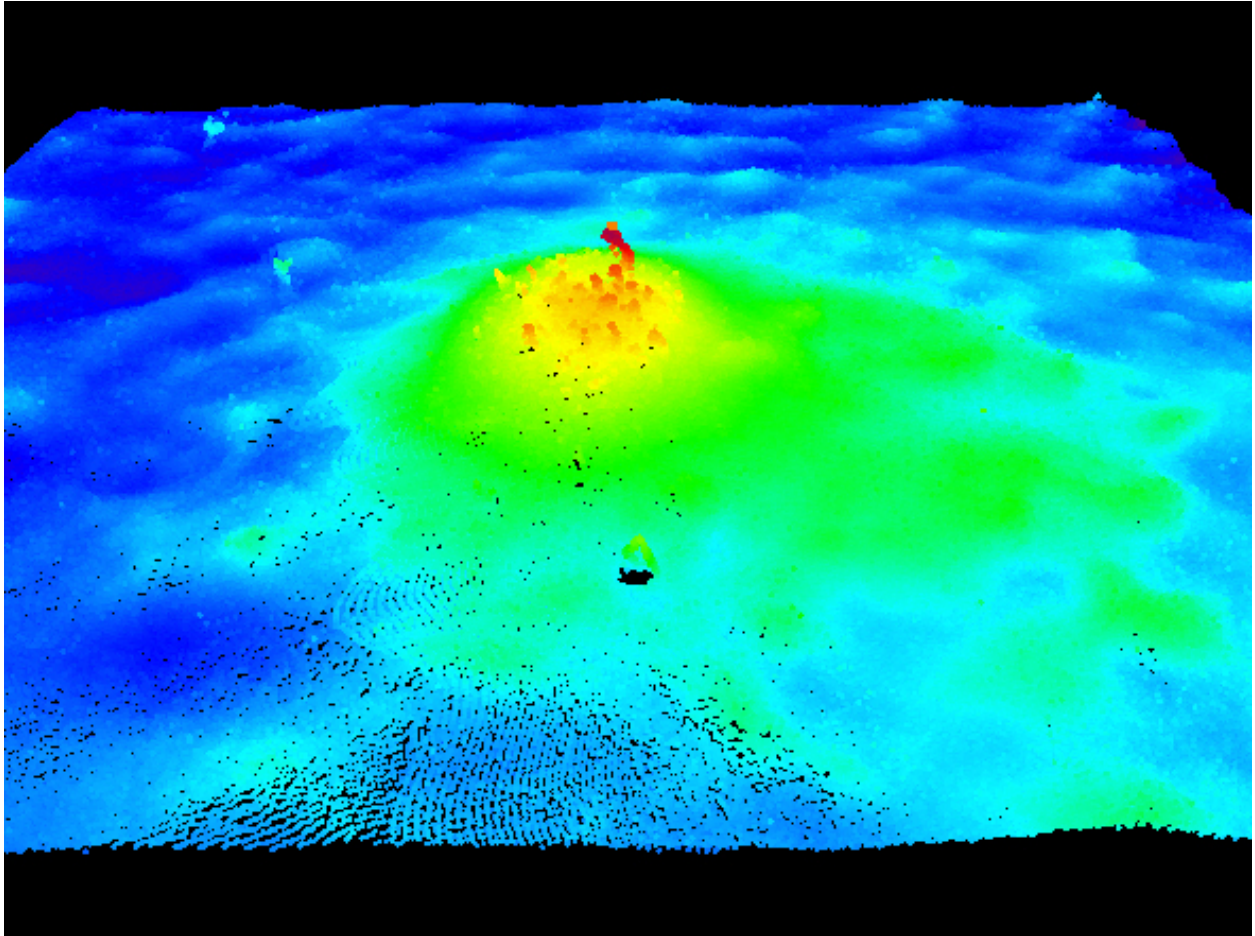


Figure 1.7.1

1.8) US 0001004613 00001 / H12604_AWOIS.000**Feature for AWOIS Item #14512****Search Position:** 40° 33' 03.2" N, 074° 02' 29.5" W**Historical Depth:** 4.16 m**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 33' 03.2" N, 074° 02' 29.5" W**Least Depth:** 4.16 m (= 13.66 ft = 2.276 fm = 2 fm 1.66 ft)**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 2012-355.00:00:00.000 (12/20/2012)**Dataset:** H12604_AWOIS.000**FOID:** US 0001004613 00001(0226000F54450001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

OBSTRN/remrks: A charted obstruction's position and least depth were verified with object detection MBES coverage. It appears that the obstruction is a sunken channel buoy. The AWOIS history is as follows: H11601/2006;NOS-- Survey located a dangerous obstruction with a least depth of 4.16 m (13.7 ft) at Lat. 40/33/3.16N Long. 74/2/29.54W (NAD83). (Entered 3/17/09, EAN)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004613 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the Obstrn be retained as charted.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

14ft (12402_1, 12327_1, 12326_1)

2 ¼fm (12300_1, 13006_1, 13003_1, 14500_1)

4.2m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: EXPSOU - 2:shoaler than range of depth of the surrounding depth area

QUASOU - 6:least depth known

SORDAT - 20121220

SORIND - US,US,graph,H12604

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 4.163 m

WATLEV - 3:always under water/submerged

Feature Images

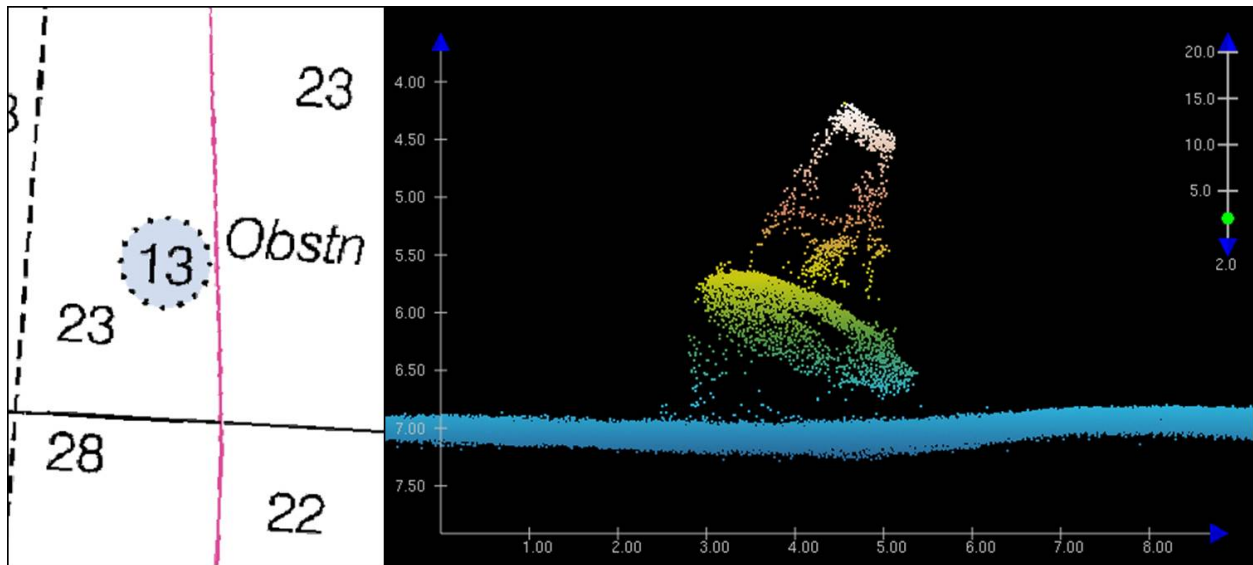


Figure 1.8.1

1.9) US 0001004609 00001 / H12604_AWOIS.000**Feature for AWOIS Item #9708****Search Position:** 40° 32' 26.8" N, 074° 02' 20.6" W**Historical Depth:** 6.53 m**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 32' 26.8" N, 074° 02' 20.6" W**Least Depth:** 6.53 m (= 21.41 ft = 3.569 fm = 3 fm 3.41 ft)**TPU ($\pm 1.96\sigma$):** **THU (TPEh)** [None] ; **TVU (TPEv)** [None]**Timestamp:** 2009-195.00:00:00.000 (07/14/2009)**Dataset:** H12604_AWOIS.000**FOID:** US 0001004609 00001(0226000F54410001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

OBSTRN/remrks: A charted obstruction reported as "rip rap sized stone" located west of the Chapel Hill North Channel (not within the channel as the AWOIS history reported) was identified with 200% SSS and investigated with MBES. A new least depth was developed which matches that originally reported by the USACE in the AWOIS history. The shape of the obstruction and foul area do not properly align with the axis of the linear obstruction feature. The AWOIS History is as follows: CL1219/94-- LETTER, USACE, OPS DIVISION, TO N/CG2211 DATED JULY 28, 1994. COE INVESTIGATION LOCATED AN AREA OF RIP RAP SIZED STONE APPROXIMATELY 100 FT. X 50 FT. IN APPROX. POSITION LAT. 40-32-22N, LONG. 74-02-17W (LORAN TD'S = 27021.6; 43762.5. DEPTH OVER ITEM WAS 30 - 32 FEET AT MLW AND IS LOCATED IN THE MAIN SHIP CHANNEL/CHAPEL HILL FEDERAL NAVIGATION PROJECT. SINCE DEEPEST DRAFTS USING AREA ARE MAINLY BARGES THERE IS NO PLAN TO REMOVE THE OBSTRUCTION IN THE IMMEDIATE FUTURE. CONTACT CONCERNING THIS MATTER IS HAL HAWKINS, CHIEF, TECHNICAL SUPPORT SECTION AT 212-264-0164. (ENT 3/26/96, SJV) FE00434/97-- OPR-C399-RU; 6 SIGNIFICANT CONTACTS DETECTED AND DEVELOPED WITH SHALLOW WATER MULTIBEAM SONAR. WESTERN 60 METERS OF AWOIS CIRCLE NOT ADDRESSED DUE TO PRESENCE OF WEST BANK LIGHT HOUSE. EVALUATOR RECOMMENDS DELETING CHARTED 30-FOOT OBSTRUCTION AND NOTE "RKS REP, 1994" AND CHART THE FOLLOWING OBSTRUCTIONS: 22OBSTN (6.8 METERS) IN LAT. 40-32-27.03N, LONG. 74-02-11.47W; 27OBSTN (8.2 METERS) IN LAT. 40-32-24.32N, LONG. 74-02-11.47W; AND 27OBSTN (8.3 METERS) IN LAT. 40-32-16.49N, LONG. 74-02-13.34W. (UP 12/17/98, SJV) H11601/06-- Hydrographer

recommended deleting charted 22 ft obstruction and adding a 21 ft obstruction with a height of 1.06 m at position Lat. 40/32/27.1N Long. 74/2/22.8W (NAD83). (Entered 3/17/09, EAN)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004609 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the Obstrn least depth be updated with surveyed depths and the obstruction area extents be updated using the SSS Mosaics and MBES surfaces.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

21ft (12402_1, 12327_1, 12326_1)

3 ½fm (12300_1, 13006_1, 13003_1, 14500_1)

6.5m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: CATOBS - 6:foul area

QUASOU - 6:least depth known

SORDAT - 20090714

SORIND - US,US,graph,H12604

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 6.527 m

WATLEV - 3:always under water/submerged

Feature Images

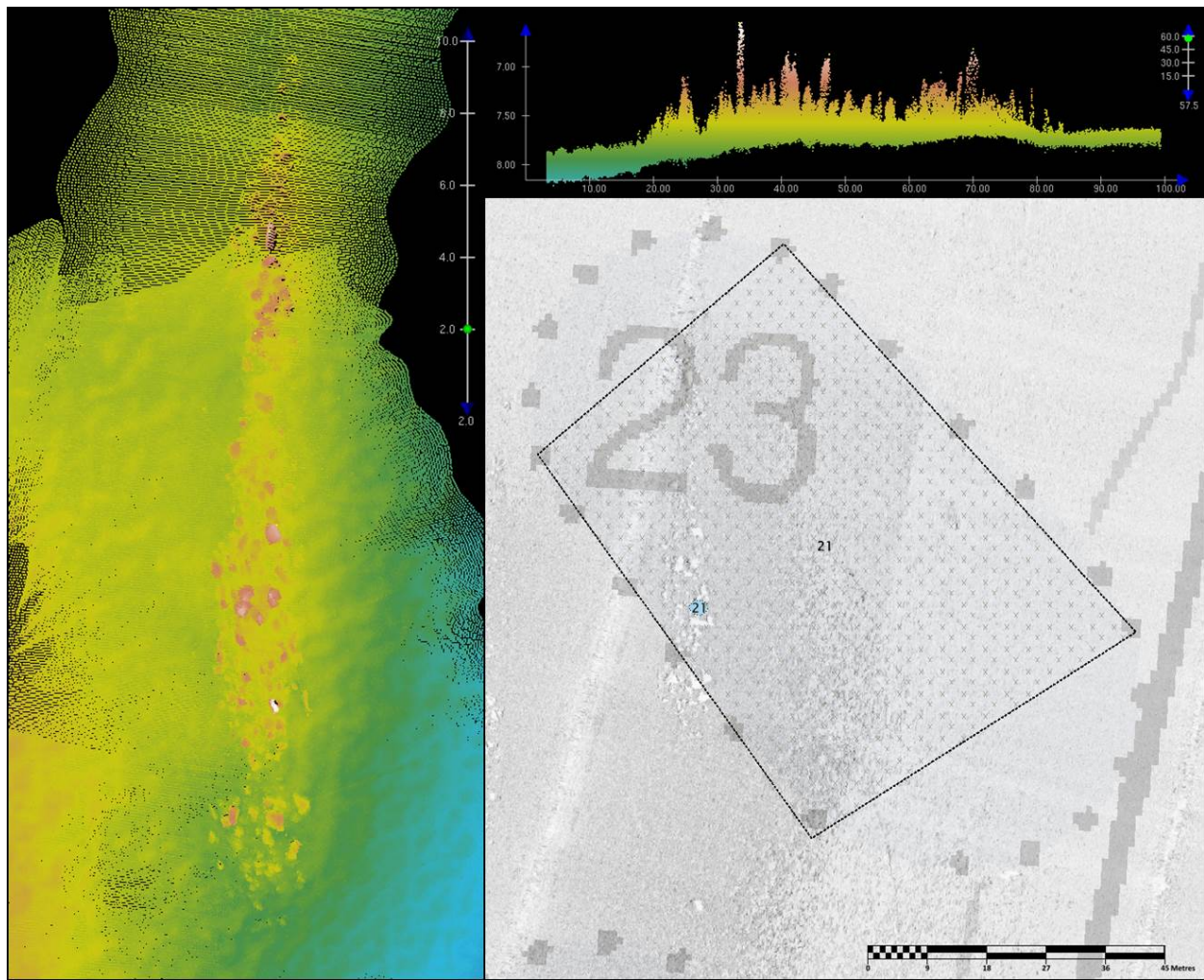


Figure 1.9.1

1.10) US 0001125419 00001 / H12604_AWOIS.000**Feature for AWOIS Item #13250****Search Position:** 40° 36' 26.1" N, 074° 02' 20.8" W**Historical Depth:** 16.70 m**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 36' 26.1" N, 074° 02' 20.8" W**Least Depth:** 16.70 m (= 54.79 ft = 9.132 fm = 9 fm 0.79 ft)**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 2006-282.00:00:00.000 (10/09/2006)**Dataset:** H12604_AWOIS.000**FOID:** US 0001125419 00001(022600112C2B0001)**Charts Affected:** 12334_1, 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

OBSTRN/remrks: A charted obstruction, an NOS current meter, located in the vicinity of the Verrazano Bridge was disproved with 200% SSS and object detection MBES. The AWOIS History is as follows: LNM 11/05 (3/15/05) -- NOS REINSTALLED A CURRENT METER AT 40/36/26.1N 74/02/20.82 LOCATED ON EAST SIDE OF THE NARROWS APPROX 120 YDS SOUTH OF THE BRIDGE (ENT 05/25/05, SME)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001125419 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the 55-foot Obstrn be removed from the chart.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

55ft (12334_1, 12402_1, 12327_1, 12326_1)

9 ¼fm (12300_1, 13006_1, 13003_1, 14500_1)

16.7m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: EXPSOU - 1:within the range of depth of the surrounding depth area

QUASOU - 6:least depth known

SORDAT - 20061009

SORIND - US,US,graph,H-11600

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 16.700 m

WATLEV - 3:always under water/submerged

1.11) US 0001004631 00001 / H12604_AWOIS.000**Feature for AWOIS Item #14511****Search Position:** 40° 33' 45.4" N, 074° 02' 20.3" W**Historical Depth:** 7.24 m**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 33' 45.4" N, 074° 02' 20.3" W**Least Depth:** 7.24 m (= 23.74 ft = 3.956 fm = 3 fm 5.74 ft)**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 2013-354.00:00:00.000 (12/20/2013)**Dataset:** H12604_AWOIS.000**FOID:** US 0001004631 00001(0226000F54570001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

OBSTRN/remrks: A charted obstruction's position and least depth were verified with 200% SSS and 100% MBES coverage. The AWOIS History is as follows: H11601/2006;NOS-- Survey located a dangerous obstruction with a least depth of 7.22 m (23.7 ft) at Lat. 40/33/45.4N Long. 74/2/20.3W (NAD83). (Entered 3/17/09, EAN)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004631 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the Obstn be retained as charted.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

24ft (12402_1, 12327_1, 12326_1)

4fm (12300_1, 13006_1, 13003_1, 14500_1)

7.2m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20131220

SORIND - US,US,graph,H-11601

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 7.235 m

WATLEV - 3:always under water/submerged

Feature Images

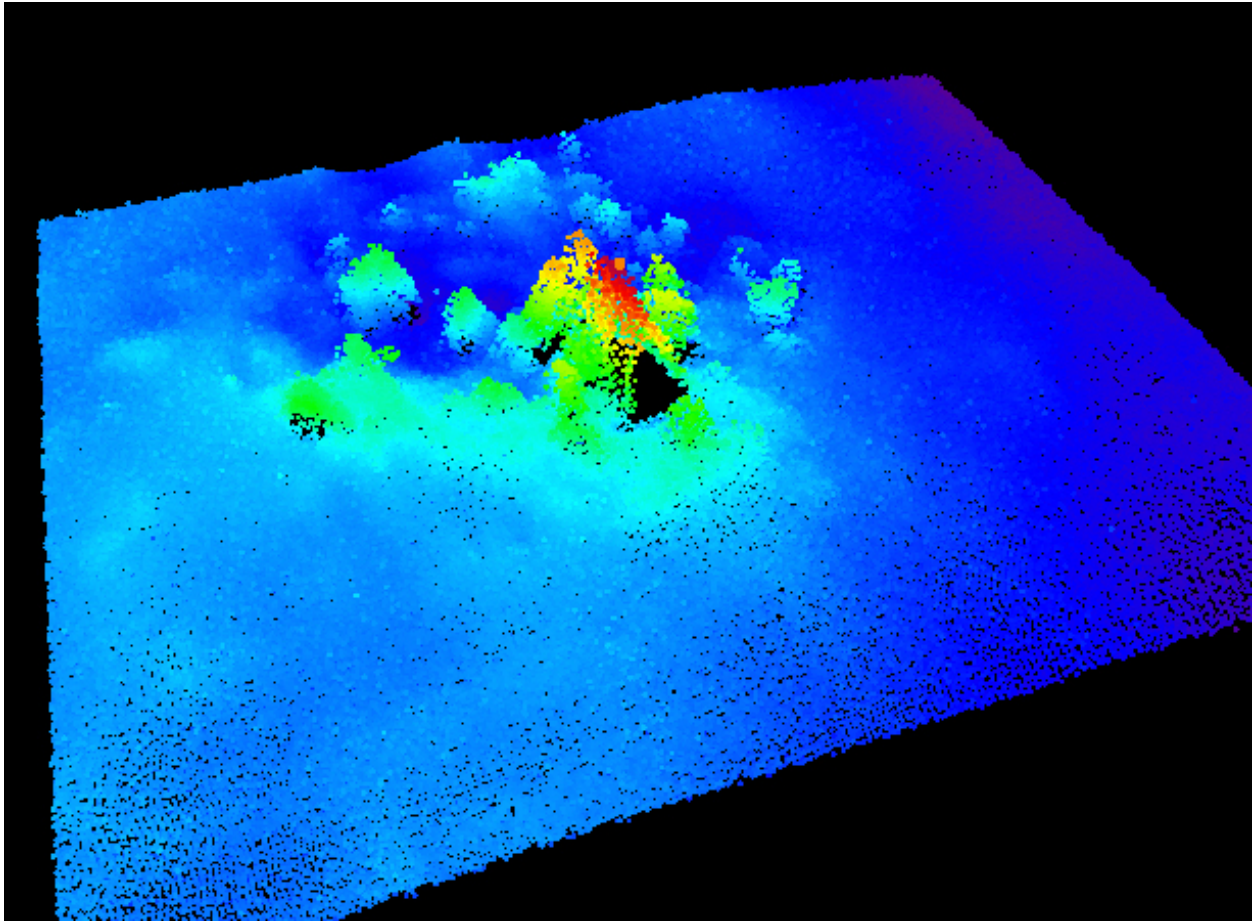


Figure 1.11.1

1.12) US 0001004624 00001 / H12604_AWOIS.000**Feature for AWOIS Item #****Search Position:** 40° 33' 57.7" N, 074° 02' 19.7" W**Historical Depth:** 7.47 m**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 33' 57.7" N, 074° 02' 19.7" W**Least Depth:** 7.47 m (= 24.49 ft = 4.082 fm = 4 fm 0.49 ft)**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 2013-354.00:00:00.000 (12/20/2013)**Dataset:** H12604_AWOIS.000**FOID:** US 0001004624 00001(0226000F54500001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

OBSTRN/remrks: A charted obstruction's position and least depth were verified with 200% SSS and 100% MBES coverage. The AWOIS History is as follows: H11601/2006;NOS-- Survey located a dangerous obstruction with a least depth of 7.29 m (23.9 ft) at Lat. 40/33/57.7N Long. 74/2/19.7W (NAD83). Office recommends deleting 23 Obstruction and danger curve and adding 24 Obstruction with a danger curve. (Entered 3/17/09, EAN)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004624 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the obstruction be retained as charted.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

24ft (12402_1, 12327_1, 12326_1)

4fm (12300_1, 13006_1, 13003_1, 14500_1)

7.5m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20131220

SORIND - US,US,graph,H12604

VALSOU - 7.466 m

WATLEV - 3:always under water/submerged

Feature Images

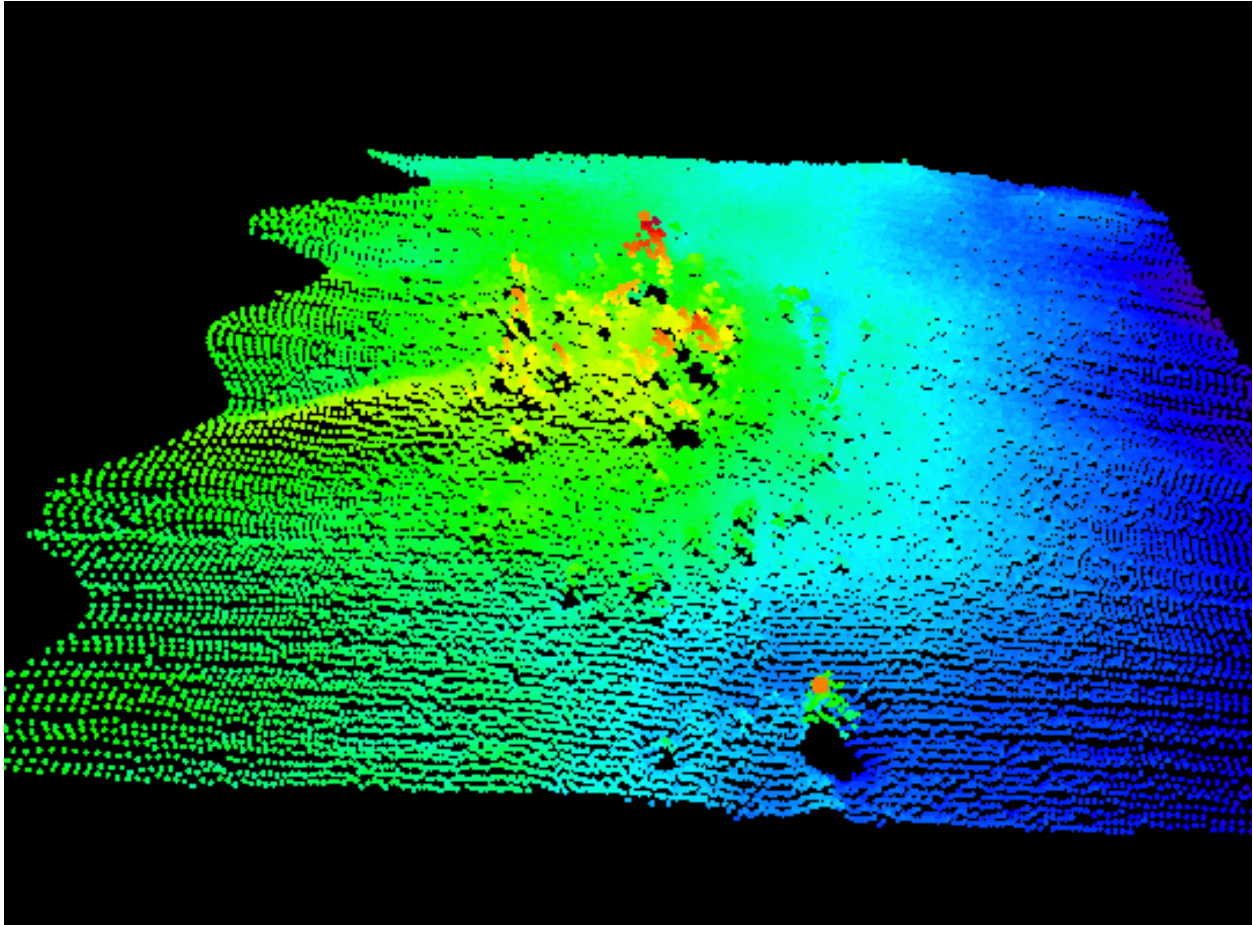


Figure 1.12.1

1.13) US 0001004625 00001 / H12604_AWOIS.000

Feature for AWOIS Item #14527

Search Position: 40° 32' 25.7" N, 074° 02' 18.7" W

Historical Depth: 8.87 m

Search Radius: [unknown]

Search Technique: [unknown]

Technique Notes:

History Notes:

[unknown]

Survey Summary

Survey Position: 40° 32' 25.7" N, 074° 02' 18.7" W

Least Depth: 8.87 m (= 29.09 ft = 4.848 fm = 4 fm 5.09 ft)

TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]

Timestamp: 2014-178.21:05:55.000 (06/27/2014)

Dataset: H12604_AWOIS.000

FOID: US 0001004625 00001(0226000F54510001)

Charts Affected: 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

OBSTRN/remrks: An obstruction was located within Chapel Hill North Channel with 200% SSS coverage. It appears to be a pile of rocks with insignificant height (less than 1 meter tall). Partial MBES coverage was obtained over the feature. The obstruction position was selected from the SSS mosaic. A caution area was charted on ENC US5NY19M that coincides with the channel; the information field states: "Sporadic shoal obstructions exist within the channel but are not charted. Consult the Corps of Engineers for location of obstructions." The AWOIS History is as follows: H11601/2006;NOS-- Survey located an obstruction with a least depth of 9.33 m (28 ft) at Lat. 40/32/25.7N Long. 74/2/18.9W (NAD83). The obstruction was found in Chapel Hill North Channel rising 2 feet above the channel controlling depth. (Entered 3/18/09, EAN)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004625 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that an obstruction symbol be added to the chart.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

29ft (12402_1, 12327_1, 12326_1)

4 $\frac{3}{4}$ fm (12300_1, 13006_1, 13003_1, 14500_1)

8.9m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 1:depth known

SORDAT - 20131220

SORIND - US,US,graph,H12604

TECSOU - 2:found by side scan sonar

VALSOU - 8.866 m

WATLEV - 3:always under water/submerged

Feature Images

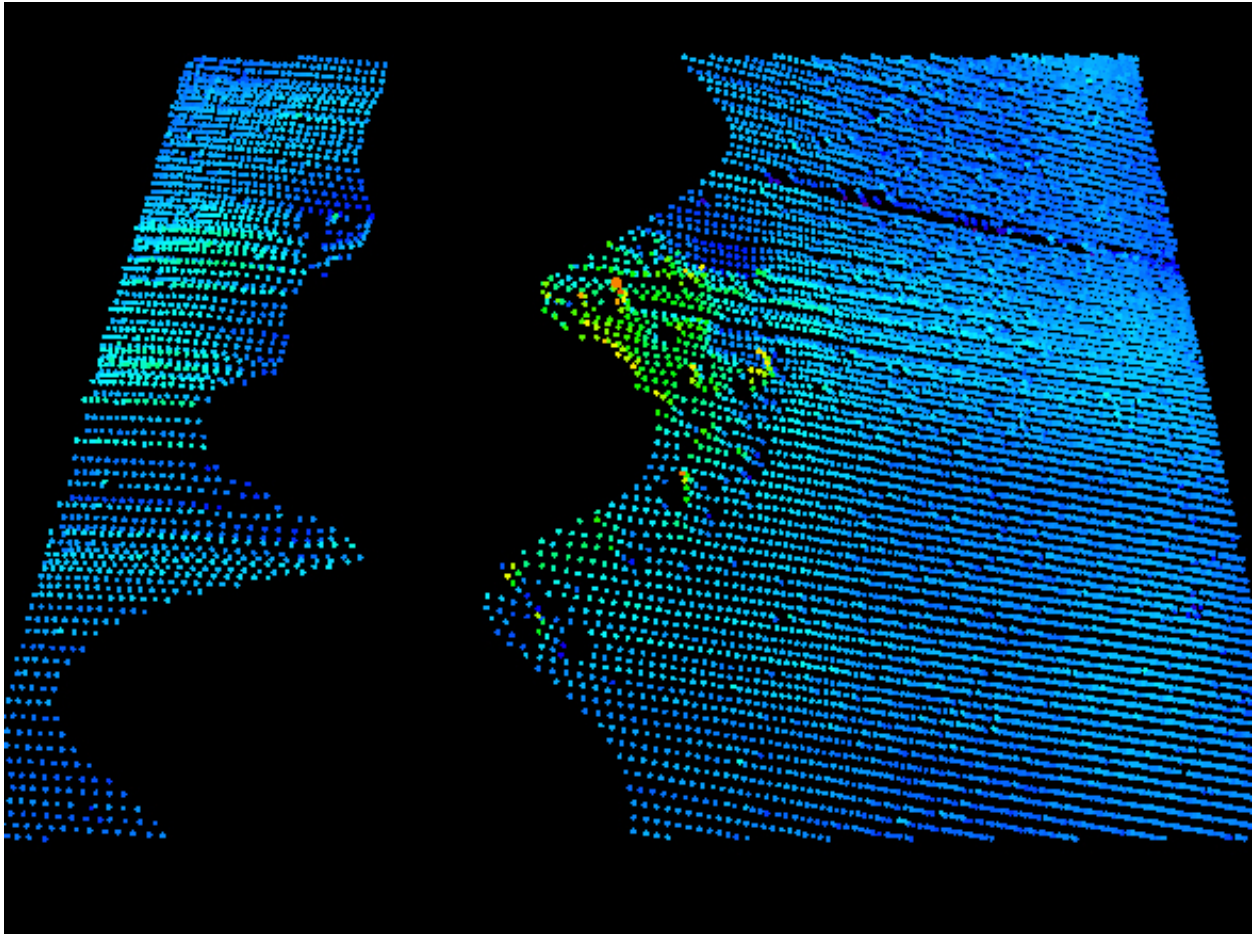


Figure 1.13.1

1.14) US 0001004630 00001 / H12604_AWOIS.000

Feature for AWOIS Item #14537

Search Position: 40° 35' 30.6" N, 074° 02' 10.2" W

Historical Depth: 23.04 m

Search Radius: [unknown]

Search Technique: [unknown]

Technique Notes:

History Notes:

[unknown]

Survey Summary

Survey Position: 40° 35' 30.6" N, 074° 02' 10.2" W

Least Depth: 23.04 m (= 75.59 ft = 12.598 fm = 12 fm 3.59 ft)

TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]

Timestamp: 2006-295.00:00:00.000 (10/22/2006)

Dataset: H12604_AWOIS.000

FOID: US 0001004630 00001(0226000F54560001)

Charts Affected: 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: A charted wreck in Lower Bay was verified by survey H12604. The AWOIS History is as follows: H11601/2006;NOS-- Survey located a wreck (approximately 3.5 m in height) with a least depth of 25.3 m (76 ft) at Lat. 40/35/30.6N Long. 74/2/10.2W (NAD83). (Entered 3/18/09, EAN)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004630 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the wreck be retained as charted.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

76ft (12402_1, 12327_1, 12326_1)

13ft (12300_1, 13006_1, 13003_1, 14500_1)

23m (5161_1)

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 1:non-dangerous wreck

NINFOM - Add wreck

QUASOU - 6:least depth known

SORDAT - 20061022

SORIND - US,US,graph,H-11601

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 23.039 m

WATLEV - 3:always under water/submerged

Feature Images

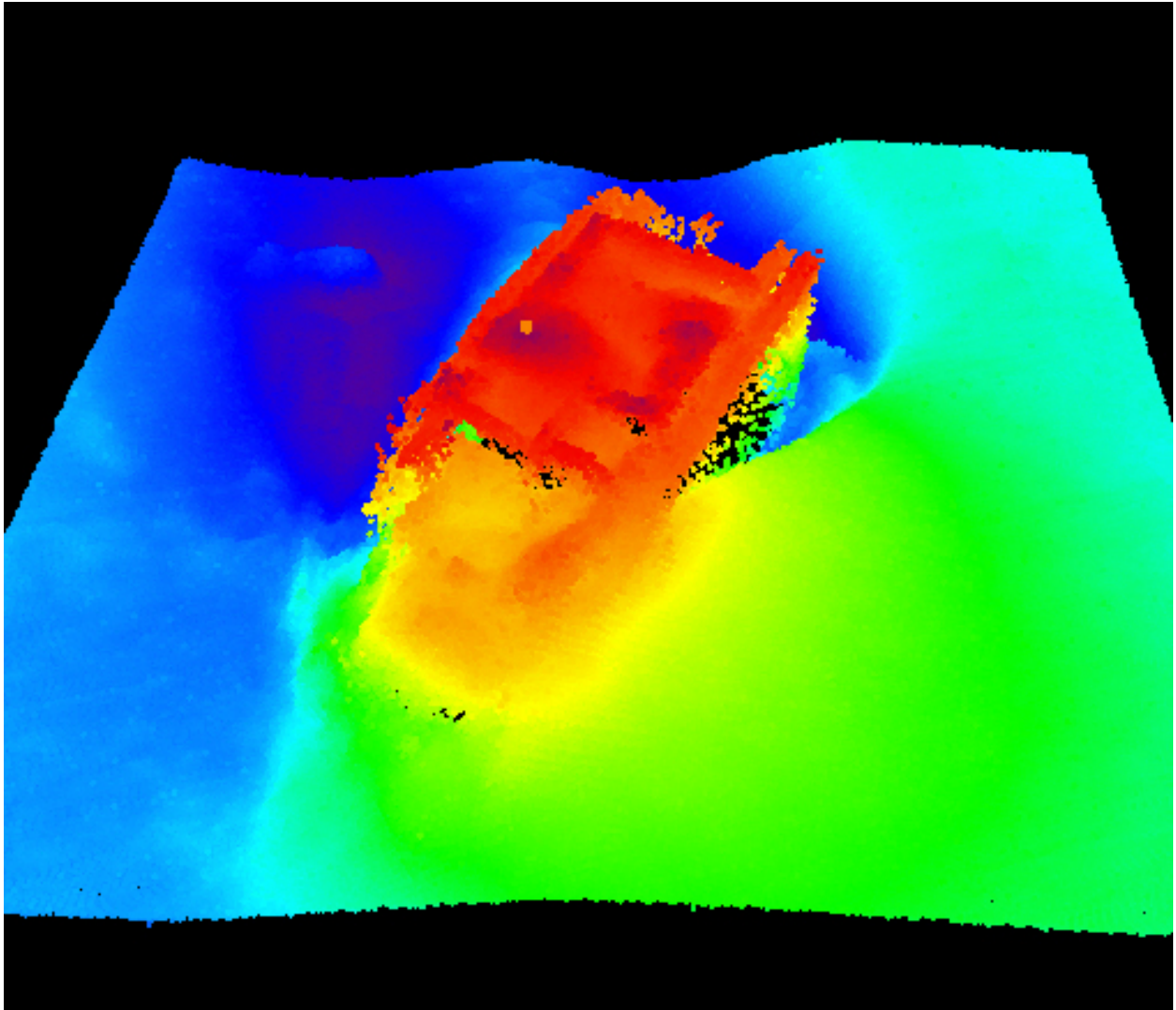


Figure 1.14.1

1.15) US 0001004607 00001 / H12604_AWOIS.000**Feature for AWOIS Item #14505****Search Position:** 40° 33' 37.3" N, 074° 02' 09.1" W**Historical Depth:** 8.44 m**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 33' 37.3" N, 074° 02' 09.1" W**Least Depth:** 8.44 m (= 27.67 ft = 4.612 fm = 4 fm 3.67 ft)**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 2013-274.00:00:00.000 (10/01/2013)**Dataset:** H12604_AWOIS.000**FOID:** US 0001004607 00001(0226000F543F0001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

OBSTRN/remrks: A charted obstruction's position was verified with object detection MBES coverage, however, a new least depth was found. The AWOIS History is as follows: H11601/2006;NOS-- Survey located dangerous obstruction with least depth 8.48 m (27.8 ft) at Lat. 40/33/37.3N Long. 74/2/9.1W (NAD83). (Entered 3/16/09, EAN)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004607 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the charted 28-ft Obstn be updated with the surveyed least depth.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

28ft (12402_1, 12327_1, 12326_1)

4 ½fm (12300_1, 13006_1, 13003_1, 14500_1)

8.4m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20131220

SORIND - US,US,graph,H12604

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 8.435 m

WATLEV - 3:always under water/submerged

Feature Images

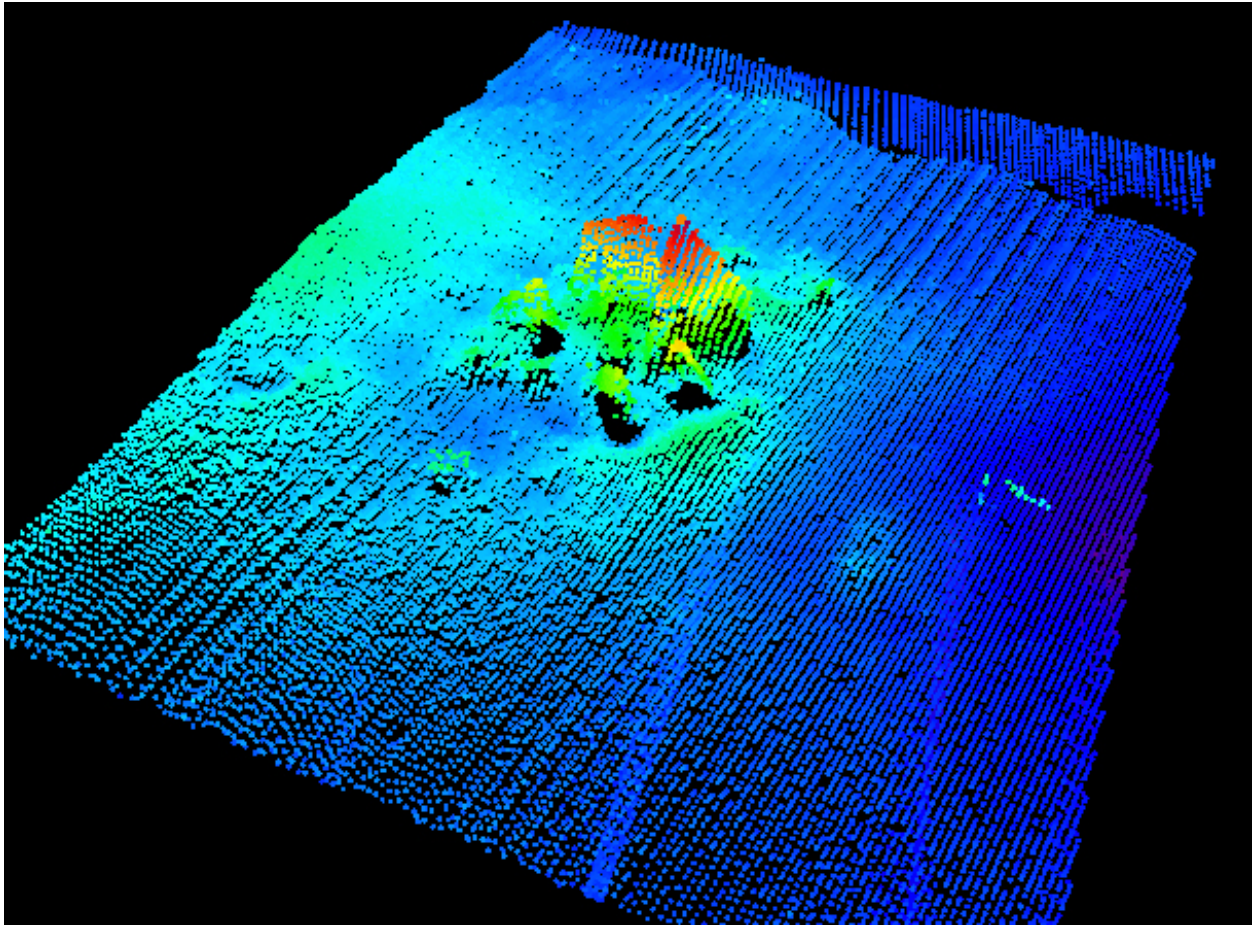


Figure 1.15.1

1.16) US 0001125418 00001 / H12604_AWOIS.000**Feature for AWOIS Item #13410****Search Position:** 40° 36' 27.9" N, 074° 02' 07.4" W**Historical Depth:** [None]**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 36' 27.9" N, 074° 02' 07.4" W**Least Depth:** [None]**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 1996-321.00:00:00.000 (11/16/1996)**Dataset:** H12604_AWOIS.000**FOID:** US 0001125418 00001(022600112C2A0001)**Charts Affected:** 12334_1, 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

WRECKS/remrks: A charted wreck southeast of the Verrazano-Narrows Bridge was disproved with 200% SSS coverage. Multiple small obstructions were visible within the search area defined by the 100 meter radius; however, the features appear to be primarily tires. No wrecks were identified in the vicinity of the wreck's charted position. The AWOIS History is as follows: UNKNOWN SOURCE -- SUBMERGED DANGEROUS WRECK NOW CHARTED IN POSITION 40°36'27.52" N 074°02'07.27" W (NAD 83). UPDATED 12/7/2005 JCM

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001125418 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the wreck symbol be removed from the chart.

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 2:dangerous wreck

QUASOU - 2:depth unknown

SORDAT - 19961116

SORIND - US,US,graph,Chart 12334

TECSOU - 2,3:found by side scan sonar,found by multi-beam

WATLEV - 3:always under water/submerged

1.17) US 0001004608 00001 / H12604_AWOIS.000

Feature for AWOIS Item #14528

Search Position: 40° 33' 10.3" N, 074° 01' 03.9" W

Historical Depth: 7.04 m

Search Radius: [unknown]

Search Technique: [unknown]

Technique Notes:

History Notes:

[unknown]

Survey Summary

Survey Position: 40° 33' 10.3" N, 074° 01' 03.9" W

Least Depth: 7.04 m (= 23.11 ft = 3.852 fm = 3 fm 5.11 ft)

TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]

Timestamp: 2013-354.00:00:00.000 (12/20/2013)

Dataset: H12604_AWOIS.000

FOID: US 0001004608 00001(0226000F54400001)

Charts Affected: 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: A charted wreck in Lower Bay was verified with object detection MBES coverage. The AWOIS History is as follows: H11601/2006;NOS-- Survey located a wreck (approximately 1.4 m in height) with a least depth of 7.05 m (23.1 ft) at Lat. 40/33/10.3N Long. 74/1/3.8W (NAD83). (Entered 3/18/09, EAN).

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004608 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the wreck be retained as charted.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

23ft (12402_1, 12327_1, 12326_1)

3 $\frac{3}{4}$ fm (12300_1, 13006_1, 13003_1, 14500_1)

7.0m (5161_1)

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 2:dangerous wreck

QUASOU - 6:least depth known

SORDAT - 20131220

SORIND - US,US,graph,H12604

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 7.044 m

WATLEV - 3:always under water/submerged

Feature Images

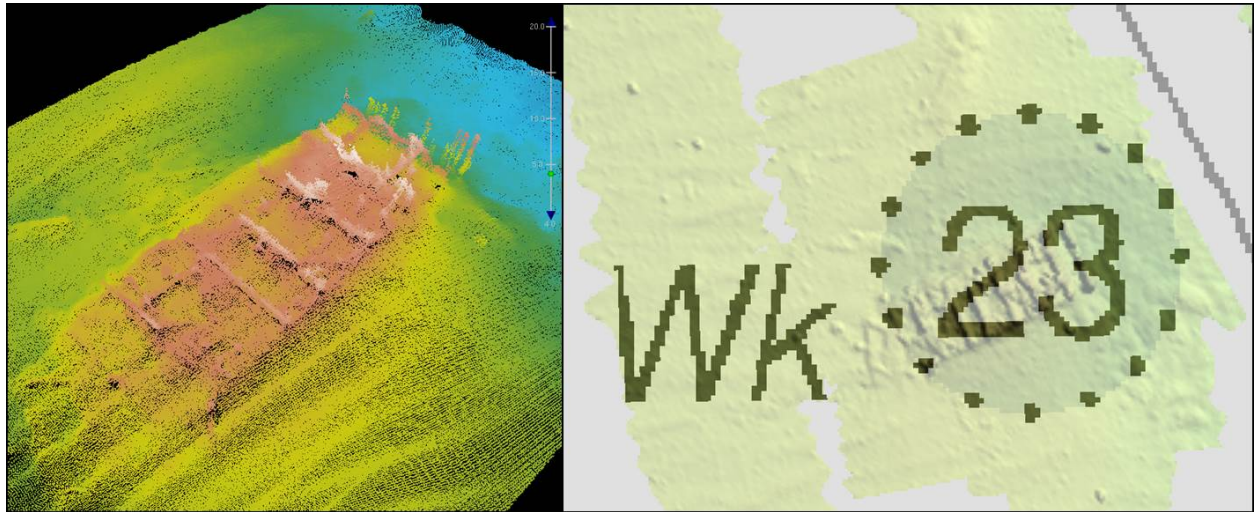


Figure 1.17.1

1.18) US 0001004620 00001 / H12604_AWOIS.000

Feature for AWOIS Item #9718

Search Position: 40° 35' 19.1" N, 074° 01' 00.8" W

Historical Depth: 4.70 m

Search Radius: [unknown]

Search Technique: [unknown]

Technique Notes:

History Notes:

[unknown]

Survey Summary

Survey Position: 40° 35' 19.1" N, 074° 01' 00.8" W

Least Depth: 4.70 m (= 15.41 ft = 2.568 fm = 2 fm 3.41 ft)

TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]

Timestamp: 2013-305.00:00:00.000 (11/01/2013)

Dataset: H12604_AWOIS.000

FOID: US 0001004620 00001(0226000F544C0001)

Charts Affected: 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: The position of a charted wreck next to Gravesend Bay Channel Buoy 1 was verified; however, a new least depth was developed with object detection MBES coverage. The wreck is a crane resting on a barge. It is located within an AWOIS search area. AWOIS History is as follows: HISTORY SAME AS AWOIS 2747 LNM13/71-- NEW YORK HARBOR - GRAVESEND BAY - GRAVESEND BAY WRECK LIGHTED BUOY "WRG" ESTABLISHED IN 31 FEET, 1,570 YARDS, 343 DEG. FROM CONEY ISLAND LIGHT (LLNR 1590); BLACK/RED HOR. BANDS, BLACK UPPERMOST, 1 QK FL W LOCATED 10 YARDS, 289 DEG. FROM SUNKEN DERRICK BARGE; ABOUT 8 FEET OF WATER OVER BOOM. (ENT 4/2/96, SJV)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004620 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the charted 17-foot Wk be updated with the surveyed least depth.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

15ft (12402_1, 12327_1, 12326_1)

2 ½fm (12300_1, 13006_1, 13003_1, 14500_1)

4.7m (5161_1)

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 2:dangerous wreck

NINFOM - 15ft Wk (crane)

QUASOU - 6:least depth known

SORDAT - 20131220

SORIND - US,US,graph,H12604

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 4.697 m

WATLEV - 3:always under water/submerged

Feature Images

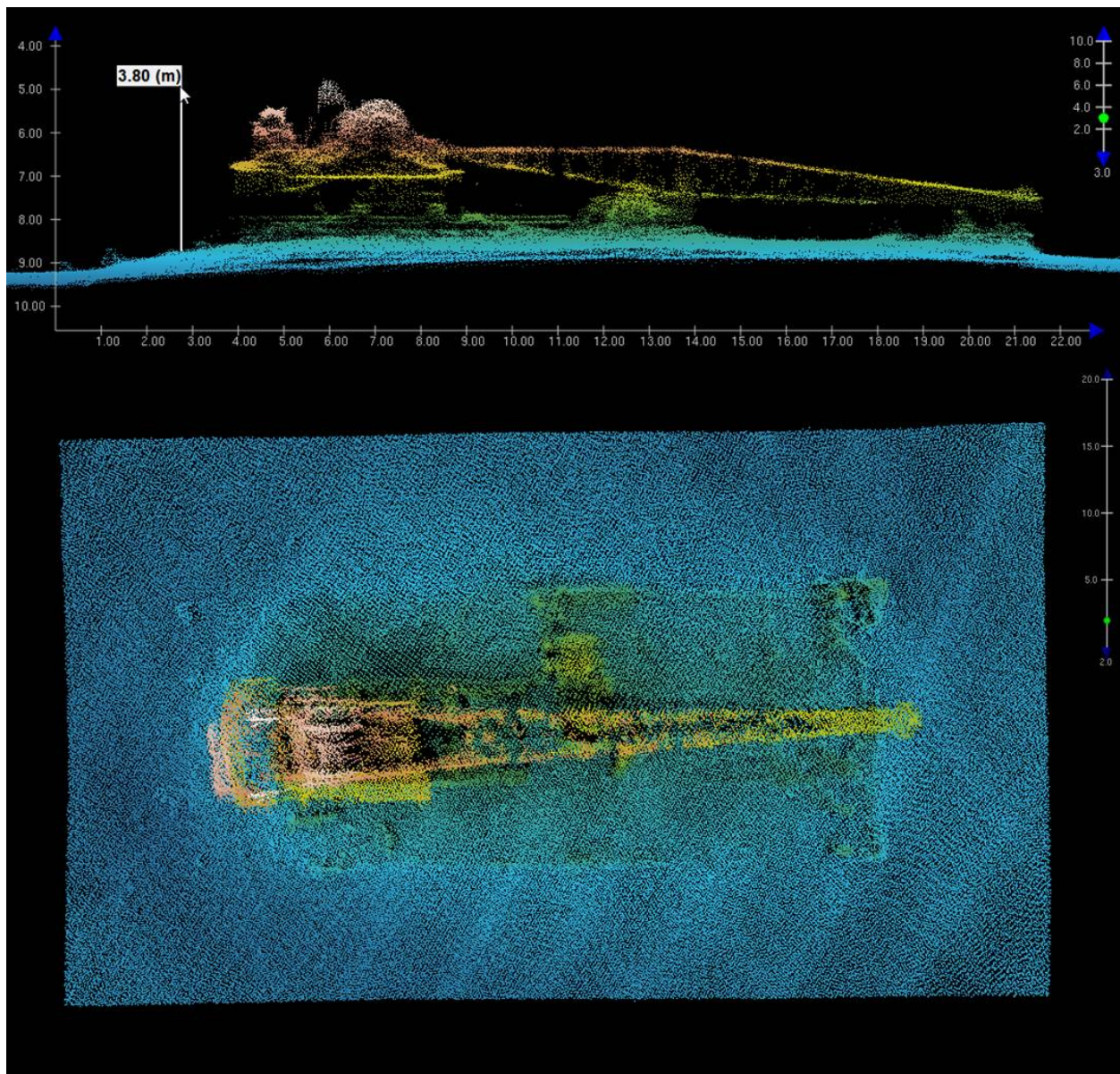


Figure 1.18.1

1.19) US 0001004628 00001 / H12604_AWOIS.000**Feature for AWOIS Item #9718****Search Position:** 40° 35' 20.1" N, 074° 00' 57.7" W**Historical Depth:** 7.33 m**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 35' 20.1" N, 074° 00' 57.7" W**Least Depth:** 7.33 m (= 24.06 ft = 4.009 fm = 4 fm 0.06 ft)**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 2006-305.00:00:00.000 (11/01/2006)**Dataset:** H12604_AWOIS.000**FOID:** US 0001004628 00001(0226000F54540001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

WRECKS/remrks: A charted wreck in the vicinity of Gravesend Bay Channel Buoy 1 was verified with object detection MBES coverage. The wreck is located within an AWOIS search area. The AWOIS History is as follows: HISTORY SAME AS AWOIS 2747 LNM13/71-- NEW YORK HARBOR - GRAVESEND BAY - GRAVESEND BAY WRECK LIGHTED BUOY "WRG" ESTABLISHED IN 31 FEET, 1,570 YARDS, 343 DEG. FROM CONEY ISLAND LIGHT (LLNR 1590); BLACK/RED HOR. BANDS, BLACK UPPERMOST, 1 QK FL W LOCATED 10 YARDS, 289 DEG. FROM SUNKEN DERRICK BARGE; ABOUT 8 FEET OF WATER OVER BOOM. (ENT 4/2/96, SJV)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004628 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the 24-foot Wk be retained as charted.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

24ft (12402_1, 12327_1, 12326_1)

4fm (12300_1, 13006_1, 13003_1, 14500_1)

7.3m (5161_1)

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 2:dangerous wreck

NINFOM - Add wreck

QUASOU - 6:least depth known

SORDAT - 20061101

SORIND - US,US,graph,H-11400

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 7.332 m

WATLEV - 3:always under water/submerged

Feature Images

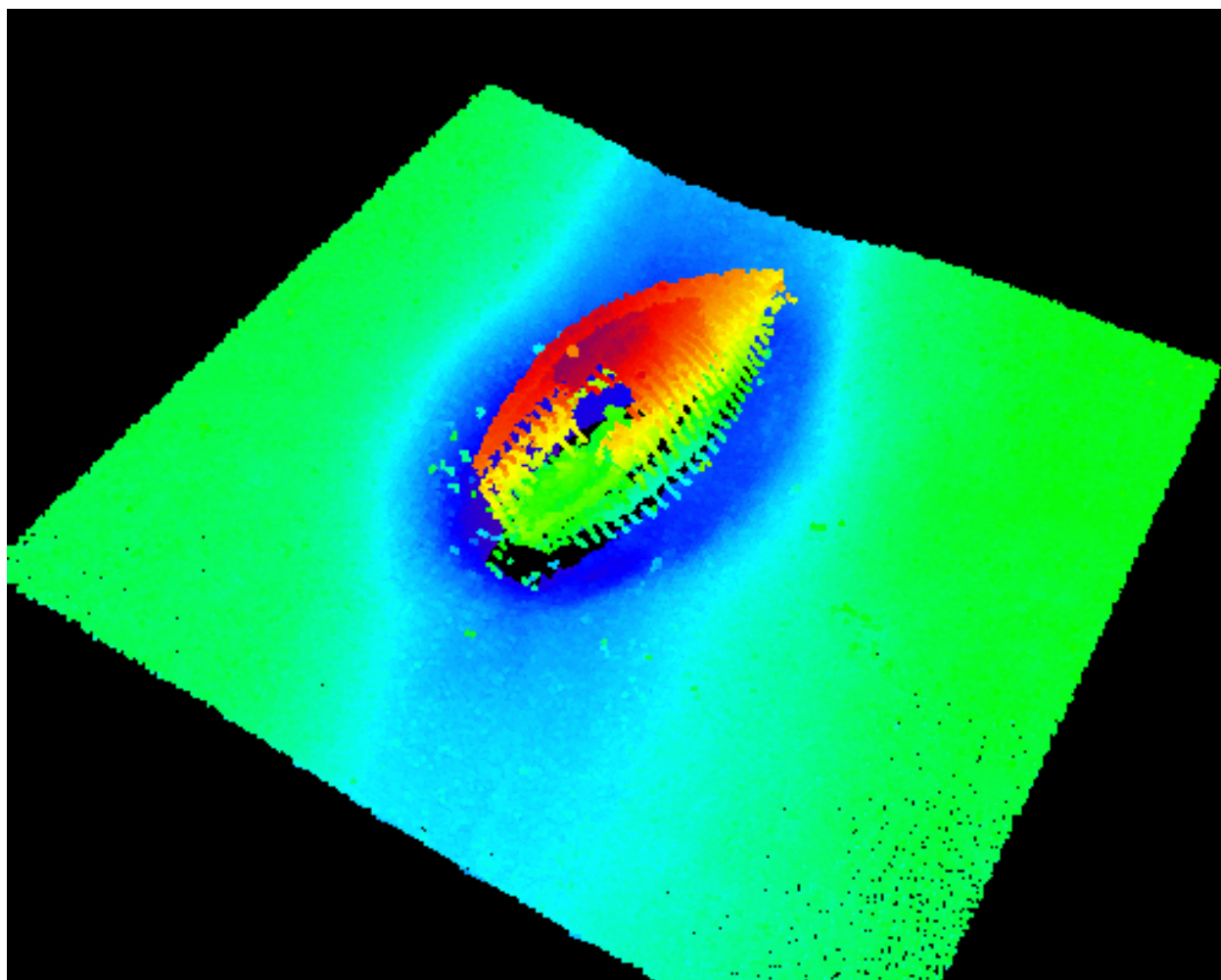


Figure 1.19.1

1.20) US 0001004611 00001 / H12604_AWOIS.000**Feature for AWOIS Item #14524****Search Position:** 40° 33' 47.7" N, 074° 00' 53.8" W**Historical Depth:** 6.31 m**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 33' 47.7" N, 074° 00' 53.8" W**Least Depth:** 6.31 m (= 20.70 ft = 3.450 fm = 3 fm 2.70 ft)**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 2013-354.00:00:00.000 (12/20/2013)**Dataset:** H12604_AWOIS.000**FOID:** US 0001004611 00001(0226000F54430001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

OBSTRN/remrks: A 1-meter tall obstruction was verified with object detection MBES coverage in Lower Bay. The AWOIS History is as follows: H11601/2006;NOS-- Survey located an obstruction with a least depth of 6.19 m (20.3 ft) at Lat. 40/33/47.7N Long. 74/0/53.8W (NAD83). (Entered 3/18/09, EAN)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004611 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the obstruction be retained as charted.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

21ft (12402_1, 12327_1, 12326_1)

3 ½fm (12300_1, 13006_1, 13003_1, 14500_1)

6.3m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20131220

SORIND - US,US,graph,H12604

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 6.309 m

WATLEV - 3:always under water/submerged

Feature Images

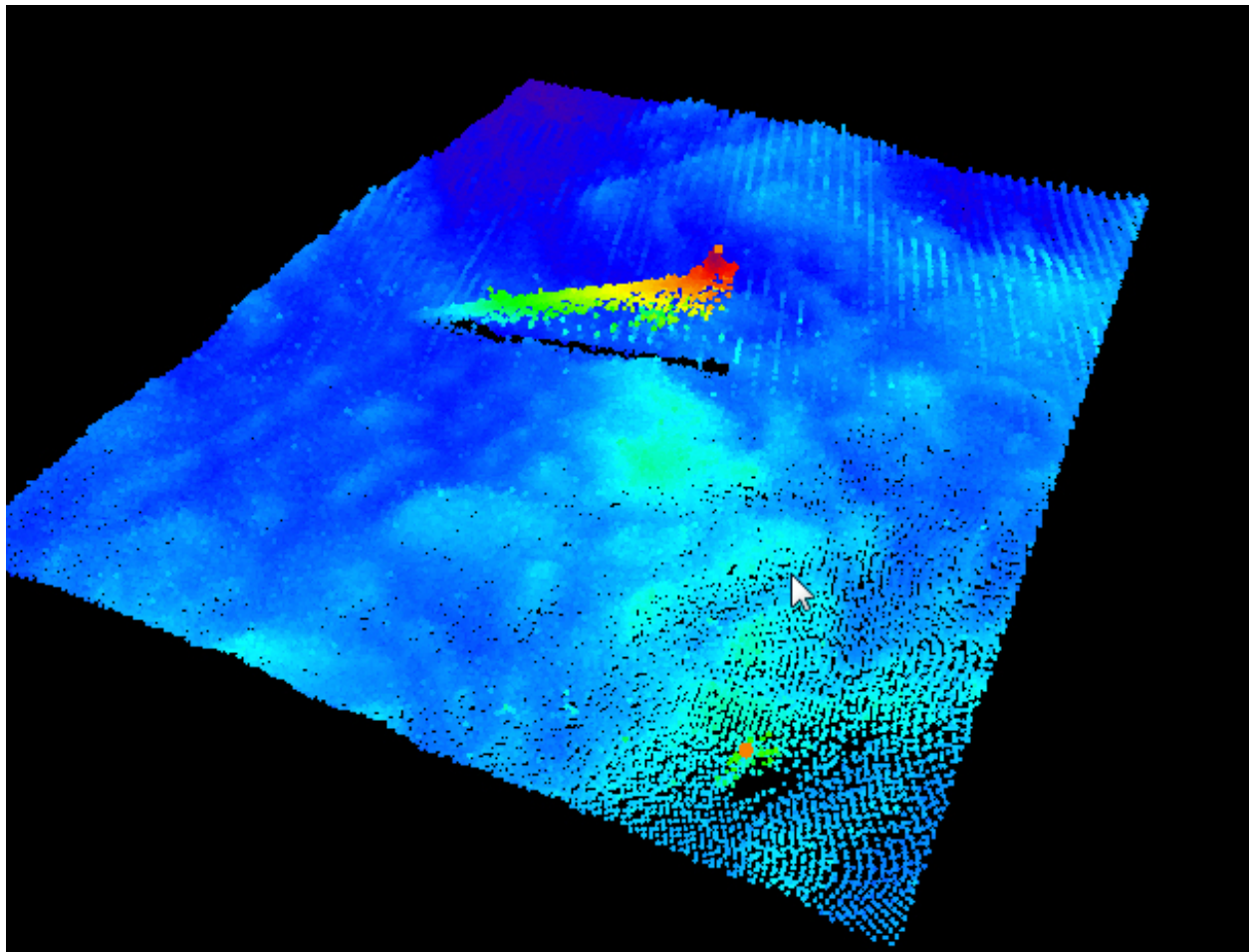


Figure 1.20.1

1.21) US 0001125428 00001 / H12604_AWOIS.000**Feature for AWOIS Item #9720****Search Position:** 40° 34' 40.9" N, 074° 00' 52.5" W**Historical Depth:** [None]**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 34' 40.9" N, 074° 00' 52.5" W**Least Depth:** [None]**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 1997-312.00:00:00.000 (11/08/1997)**Dataset:** H12604_AWOIS.000**FOID:** US 0001125428 00001(022600112C340001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

WRECKS/remrks: The wreck PA offshore of Norton Point was disproved with 200% SSS coverage. A submerged dolphin was identified approximately 20 meters south of the charted wreck position, however, there was no evidence of a wreck found within the AWOIS search area defined by a 200 meter radius. The AWOIS History is as follows: SOURCE UNKNOWN-- FIRST CHARTED IN 1987. POSITION SCALED FROM CHART 12327 IN APPROX. LAT. 40-34-41N, LONG. 74-00-54W. (ENT 4/2/96, SJV)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001125428 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the Wreck PA be removed from the chart.

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 2:dangerous wreck
QUASOU - 2:depth unknown
SORDAT - 19971108
SORIND - US,US,graph,chart 12402
TECSOU - 2:found by side scan sonar
WATLEV - 3:always under water/submerged

1.22) US 0001125429 00001 / H12604_AWOIS.000**Feature for AWOIS Item #13502****Search Position:** 40° 34' 40.7" N, 074° 00' 50.2" W**Historical Depth:** [None]**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 34' 40.7" N, 074° 00' 50.2" W**Least Depth:** [None]**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 2006-121.00:00:00.000 (05/01/2006)**Dataset:** H12604_AWOIS.000**FOID:** US 0001125429 00001(022600112C350001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

MORFAC/remrks: A charted submerged dolphin was disproved with 200% SSS coverage. A possible submerged piling was developed approximately 25 meters east of the charted dolphin position alongside a rock jetty. The AWOIS History is as follows: H07046/45 -- SUBM DOL NOW CHARTED IN POSITION: 40 34 40.74 N, 074 00 50.10 W (NAD 83). UPDATED 2/23/2006 JCM.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001125429 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the submerged dolphin is removed from the chart.

S-57 Data

Geo object 1: Mooring/warping facility (MORFAC)

Attributes: CATMOR - 1:dolphin
CONDTN - 2:ruined
SORDAT - 20060500
SORIND - US,US,graph,chart 12402
WATLEV - 3:always under water/submerged

1.23) US 0001125430 00001 / H12604_AWOIS.000

Feature for AWOIS Item #13503

Search Position: 40° 34' 38.2" N, 074° 00' 49.5" W

Historical Depth: [None]

Search Radius: [unknown]

Search Technique: [unknown]

Technique Notes:

History Notes:

[unknown]

Survey Summary

Survey Position: 40° 34' 38.2" N, 074° 00' 49.5" W

Least Depth: [None]

TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]

Timestamp: 2006-121.00:00:00.000 (05/01/2006)

Dataset: H12604_AWOIS.000

FOID: US 0001125430 00001(022600112C360001)

Charts Affected: 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

MORFAC/remrks: The charted submerged dolphin west of Norton Point was disproved with 200% SSS coverage. The AWOIS History is as follows: H07046/45 -- SUBM DOL NOW CHARTED IN POSITION: 40 34 28.25 N, 074 00 49.53 W (NAD 83). UPDATED 2/23/2006 JCM.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001125430 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the submerged dolphin symbol be removed from the chart.

S-57 Data

Geo object 1: Mooring/warping facility (MORFAC)

Attributes: CATMOR - 1:dolphin
CONDTN - 2:ruined
SORDAT - 20060500
SORIND - US,US,graph,chart 12402
WATLEV - 3:always under water/submerged

1.24) US 0001004622 00001 / H12604_AWOIS.000

Feature for AWOIS Item #14504

Search Position: 40° 33' 46.8" N, 074° 00' 44.9" W

Historical Depth: 4.85 m

Search Radius: [unknown]

Search Technique: [unknown]

Technique Notes:

History Notes:

[unknown]

Survey Summary

Survey Position: 40° 33' 46.8" N, 074° 00' 44.9" W

Least Depth: 4.85 m (= 15.90 ft = 2.650 fm = 2 fm 3.90 ft)

TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]

Timestamp: 2013-354.00:00:00.000 (12/20/2013)

Dataset: H12604_AWOIS.000

FOID: US 0001004622 00001(0226000F544E0001)

Charts Affected: 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

OBSTRN/remrks: A charted obstruction located in Lower Bay was verified with object detection MBES coverage. It appears to be a pipe segment. AWOIS History is as follows: H11601/2006; NOS-- Survey located a dangerous obstruction (a possible barge or barrel) with a least depth of 4.80 m (15.7 ft) at Lat. 40/33/46.8N Long. 74/0/44.9W (NAD 83). (Entered 3/16/09, EAN)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004622 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the obstruction be retained as charted.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

16ft (12402_1, 12327_1, 12326_1)

2 $\frac{3}{4}$ fm (12300_1, 13006_1, 13003_1, 14500_1)

4.8m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: EXPSOU - 2:shoaler than range of depth of the surrounding depth area

QUASOU - 6:least depth known

SORDAT - 20131220

SORIND - US,US,graph,H12604

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 4.847 m

WATLEV - 3:always under water/submerged

Feature Images

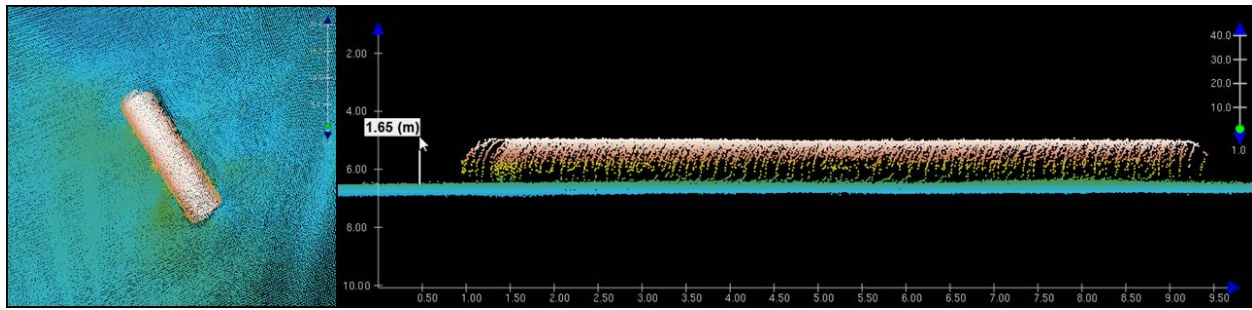


Figure 1.24.1

1.25) US 0001125427 00001 / H12604_AWOIS.000**Feature for AWOIS Item #13498****Search Position:** 40° 34' 55.9" N, 074° 00' 30.1" W**Historical Depth:** [None]**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 34' 55.9" N, 074° 00' 30.1" W**Least Depth:** [None]**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 1997-312.00:00:00.000 (11/08/1997)**Dataset:** H12604_AWOIS.000**FOID:** US 0001125427 00001(022600112C330001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

OBSTRN/remrks: A charted obstruction, a piling per the AWOIS history, was disproved with 200% SSS coverage. It was not possible to investigate the entire AWOIS Search Area defined by a 50 meter radius due to the shallow water. Several pilings were identified on the beach, significantly inshore of the navigable area. AWOIS History is as follows: H09859/81 -- PILE NOW CHARTED IN POSTION: 40 34 56.02 N, 074 00 30.01 W (NAD 83).UPDATED 2/23/2006 JCM.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001125427 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the obstruction be removed from the chart.

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 2:depth unknown

SORDAT - 19971108

SORIND - US,US,graph,chart 12402

WATLEV - 3:always under water/submerged

1.26) US 0001004621 00001 / H12604_AWOIS.000**Feature for AWOIS Item #9758****Search Position:** 40° 34' 01.6" N, 074° 00' 27.3" W**Historical Depth:** 3.07 m**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 34' 01.6" N, 074° 00' 27.3" W**Least Depth:** 3.07 m (= 10.09 ft = 1.681 fm = 1 fm 4.09 ft)**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 2013-354.00:00:00.000 (12/20/2013)**Dataset:** H12604_AWOIS.000**FOID:** US 0001004621 00001(0226000F544D0001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

OBSTRN/remrks: A charted obstruction south of Coney Island was verified with 200% SSS and object detection MBES coverage. The feature is not a wreck as implied in the AWOIS history. AWOIS History is as follows: H-5734/34-- 12-13-FOOT DEPTHS IN AREA OF 9-FOOT SOUNDING BELOW. H-7864/50-- 9-FOOT SOUNDING PLOTTED ON SMOOTH SHEET. H-9820/79-- OPR-B139-WH; CHARTED 9-FOOT SOUNDING CONSIDERED BY EVALUATOR TO BE LD ON A WRECK AND NOT ON A SHOAL. THE WRECK WAS CONSIDERED LOCATED AND IDENTIFIED BY THE PRESENT SURVEY ACCORDING TO THE QUALITY CONTROL COMMENTS. HOWEVER, THE HYDROGRAPHER PROVIDED NO INFORMATION IN THE DESCRIPTIVE REPORT TO SUBSTANTIATE THIS CLAIM. IN ADDITION, A 12-FOOT SOUNDING IS PLOTTED ON THE SMOOTH SHEET WITH "WK" AT THE PRIOR 9-FOOT POSITION. CHARTED AS A 9 WK ON CHART 12402, 5TH EDITION. THE 9-FOOT DEPTH IS CONTAINED WITHIN A 12-FOOT DEPTH CURVE AND NOT A DANGER CURVE. (ENT 5/21/96, SJV) H11601/06-- HYDROGRAPHER RECOMMENDS DELETING CHARTED WRECK AND REPLACING WITH OBSTRUCTION SYMBOL WITH UPDATED LEAST DEPTH OF 10 FEET IN LAT. 40/34/1.5N LONG. 74/00/26.3W (NAD83). (ENTERED 12/23/08, EAN)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004621 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the obstruction be retained as charted.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

10ft (12402_1, 12327_1, 12326_1)

1 $\frac{3}{4}$ fm (12300_1, 13006_1, 13003_1, 14500_1)

3.1m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes:

- EXPSOU - 2:shoaler than range of depth of the surrounding depth area
- QUASOU - 6:least depth known
- SORDAT - 20131220
- SORIND - US,US,graph,H12604
- TECSOU - 2,3:found by side scan sonar,found by multi-beam
- VALSOU - 3.074 m
- WATLEV - 3:always under water/submerged

Feature Images

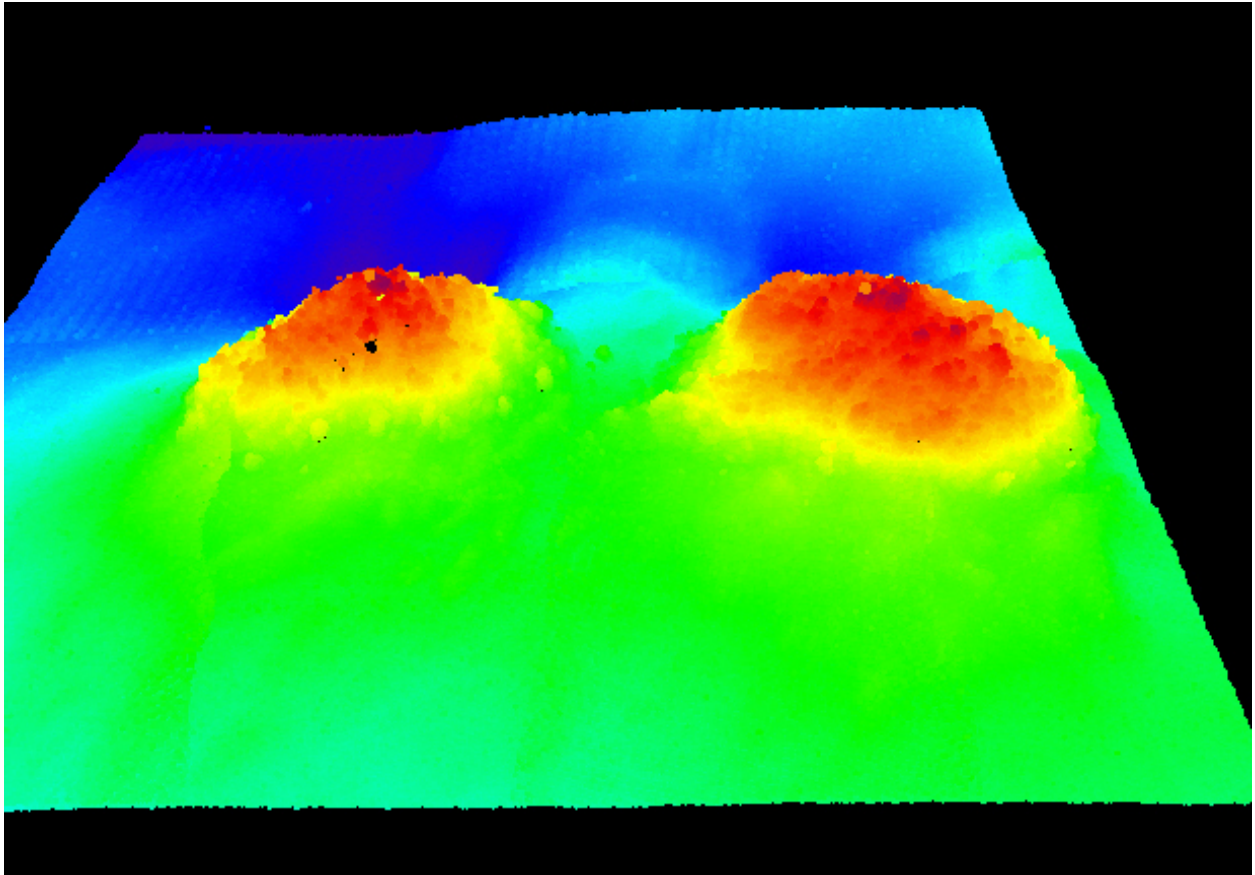


Figure 1.26.1

1.27) US 0001125432 00001 / H12604_AWOIS.000

Feature for AWOIS Item #13506

Search Position: 40° 34' 18.2" N, 074° 00' 18.5" W

Historical Depth: [None]

Search Radius: [unknown]

Search Technique: [unknown]

Technique Notes:

History Notes:

[unknown]

Survey Summary

Survey Position: 40° 34' 18.2" N, 074° 00' 18.5" W

Least Depth: [None]

TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]

Timestamp: 1997-312.00:00:00.000 (11/08/1997)

Dataset: H12604_AWOIS.000

FOID: US 0001125432 00001(022600112C380001)

Charts Affected: 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

OBSTRN/remrks: A charted obstruction, reported as a piling in the AWOIS History, was disproved with 200% SSS Coverage and partial MBES within the AWOIS search area. No obstructions were identified within the charted Obsn's vicinity. AWOIS History is as follows: H09820/79 -- PILE NOW CHARTED IN POSITION: 40 34 18.30 N, 074 00 18.37 W (NAD 83). UPDATED 2/23/2006 JCM.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001125432 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the Obsn/Piling be removed from the chart.

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 2:depth unknown

SORDAT - 19971108

SORIND - US,US,graph,chart 12402

TECSOU - 2,3:found by side scan sonar,found by multi-beam

WATLEV - 3:always under water/submerged

1.28) US 0001004619 00001 / H12604_AWOIS.000**Feature for AWOIS Item #13497****Search Position:** 40° 34' 59.2" N, 074° 00' 16.5" W**Historical Depth:** 3.12 m**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 34' 59.2" N, 074° 00' 16.5" W**Least Depth:** 3.12 m (= 10.24 ft = 1.707 fm = 1 fm 4.24 ft)**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 2013-274.00:00:00.000 (10/01/2013)**Dataset:** H12604_AWOIS.000**FOID:** US 0001004619 00001(0226000F544B0001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

OBSTRN/remrks: A charted submerged piling was found to be incorrectly positioned. Multiple post like features with insignificant heights (< 1 meter) were identified with 200% SSS coverage in the vicinity of the charted submerged piling within the area defined by the 50 meter search radius. The new position represents the tallest of the identified post features. AWOIS History is as follows: H09859/81 -- PILE NOW CHARTED IN POSITION: 40 34 59.90 N, 074 00 17.41 W (NAD 83).UPDATED 2/23/2006 JCM.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004619 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the submerged piling be moved to the surveyed position.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

10ft (12402_1, 12327_1, 12326_1)

1 $\frac{3}{4}$ m (12300_1, 13006_1, 13003_1, 14500_1)

3.1m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: CATOBS - 1:snag / stump

QUASOU - 6:least depth known

SORDAT - 20131220

SORIND - US,US,graph,H12604

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 3.122 m

WATLEV - 3:always under water/submerged

Feature Images

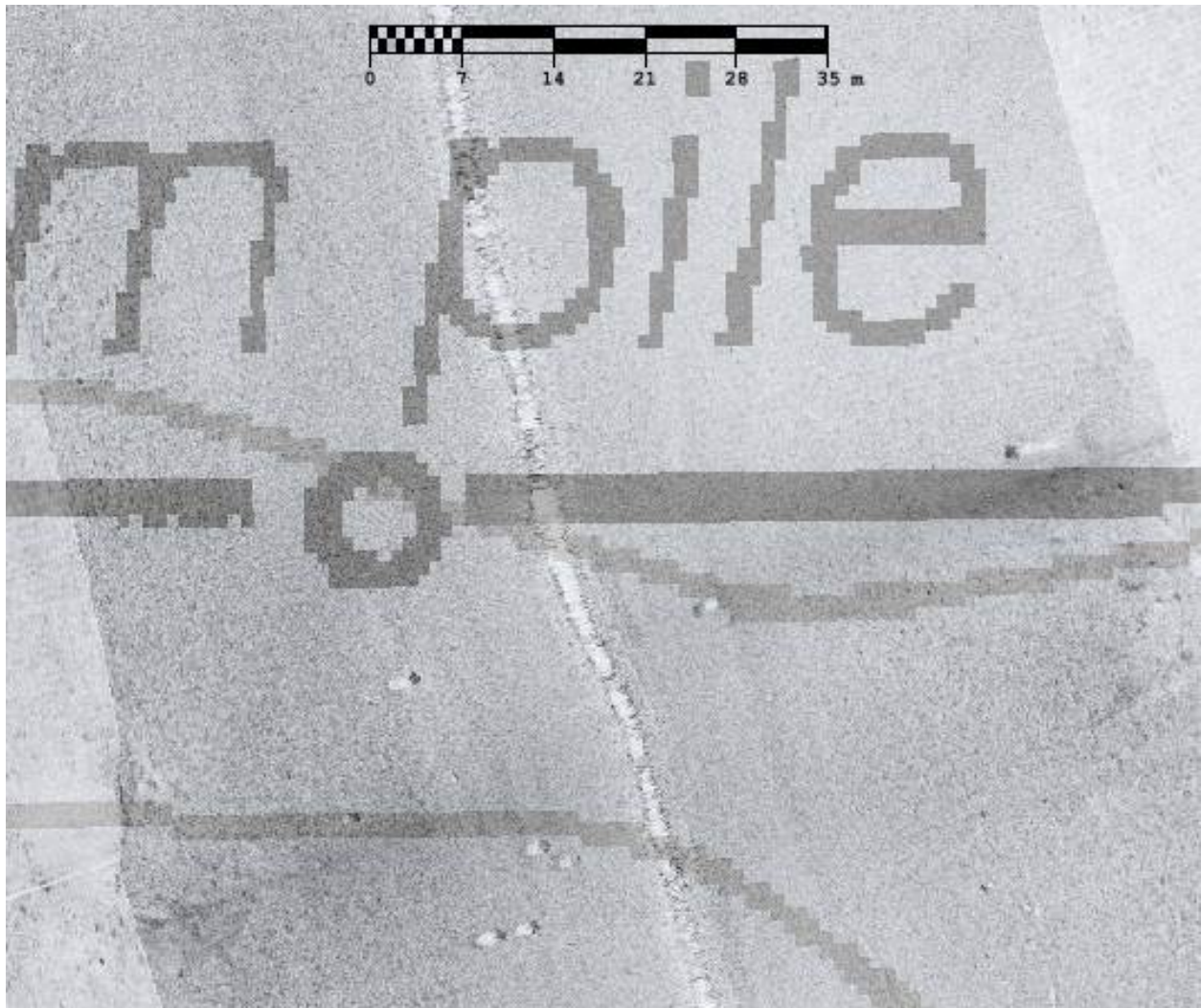


Figure 1.28.1

1.29) US 0001125433 00001 / H12604_AWOIS.000

Feature for AWOIS Item #15131

Search Position: 40° 33' 41.5" N, 074° 00' 15.7" W

Historical Depth: [None]

Search Radius: [unknown]

Search Technique: [unknown]

Technique Notes:

History Notes:

[unknown]

Survey Summary

Survey Position: 40° 33' 41.5" N, 074° 00' 15.7" W

Least Depth: [None]

TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]

Timestamp: 2005-319.00:00:00.000 (11/15/2005)

Dataset: H12604_AWOIS.000

FOID: US 0001125433 00001(022600112C390001)

Charts Affected: 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: The charted wreck was disproved with 200% SSS coverage. No obstructions or wrecks were identified within the area defined by the 100 meter AWOIS search radius. The AWOIS history is as follows: LNM46/05, USCG District 1--Dangerous Wreck PA charted approx LAT 40-33-41.4N / 074-00-15.6W. (ENT PTT 6/4/13).

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001125433 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the wreck PA (Rep 2005) be removed from the chart.

S-57 Data

Geo object 1: Wreck (WRECKS)
Attributes: CATWRK - 2:dangerous wreck
INFORM - Reported
SORDAT - 20051115
SORIND - US,US,reprt,1stCGD,LNM 46/05
TECSOU - 2:found by side scan sonar
WATLEV - 3:always under water/submerged

1.30) US 0001125425 00001 / H12604_AWOIS.000**Feature for AWOIS Item #13494****Search Position:** 40° 34' 59.1" N, 074° 00' 06.0" W**Historical Depth:** [None]**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 34' 59.1" N, 074° 00' 06.0" W**Least Depth:** [None]**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 1997-312.00:00:00.000 (11/08/1997)**Dataset:** H12604_AWOIS.000**FOID:** US 0001125425 00001(022600112C310001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

PILPNT/remrks: A charted pile located in the southeast end of Gravesend Bay was disproved with 200% SSS coverage. The AWOIS History is as follows: H07046/45 -- PILE NOW CHARTED IN POSITION: 40 34 59.14 N, 074 00 05.91 W (NAD 83). UPDATED 2/23/2006 JCM.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001125425 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the pile symbol be removed from the chart.

S-57 Data

Geo object 1: Pile (PILPNT)
Attributes: CATPLE - 3:post
SORDAT - 19971108
SORIND - US,US,graph,chart 12402

1.31) US 0001125426 00001 / H12604_AWOIS.000**Feature for AWOIS Item #15128****Search Position:** 40° 35' 03.2" N, 074° 00' 04.7" W**Historical Depth:** [None]**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 35' 03.2" N, 074° 00' 04.7" W**Least Depth:** [None]**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 2000-008.00:00:00.000 (01/08/2000)**Dataset:** H12604_AWOIS.000**FOID:** US 0001125426 00001(022600112C320001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

WRECKS/remrks: A charted wreck PA was disproved at its charted position. Two small wrecks were identified within the AWOIS search area and developed with object detection MBES coverage. AWOIS history is as follows: Unknown Source -- Wreck PA currently charted in LAT 40-35-3.23N / LONG 074-00-04.66W. Carried forward during development of chart 12402 in 1988. (ENT 6/5/13 PTT).

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001125426 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the wreck be deleted at its charted position and two wreck symbols be added to the chart.

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 2:dangerous wreck

QUASOU - 2:depth unknown

SORDAT - 20000108

SORIND - US,US,graph,chart 12402

TECSOU - 2,3:found by side scan sonar,found by multi-beam

WATLEV - 3:always under water/submerged

Feature Images

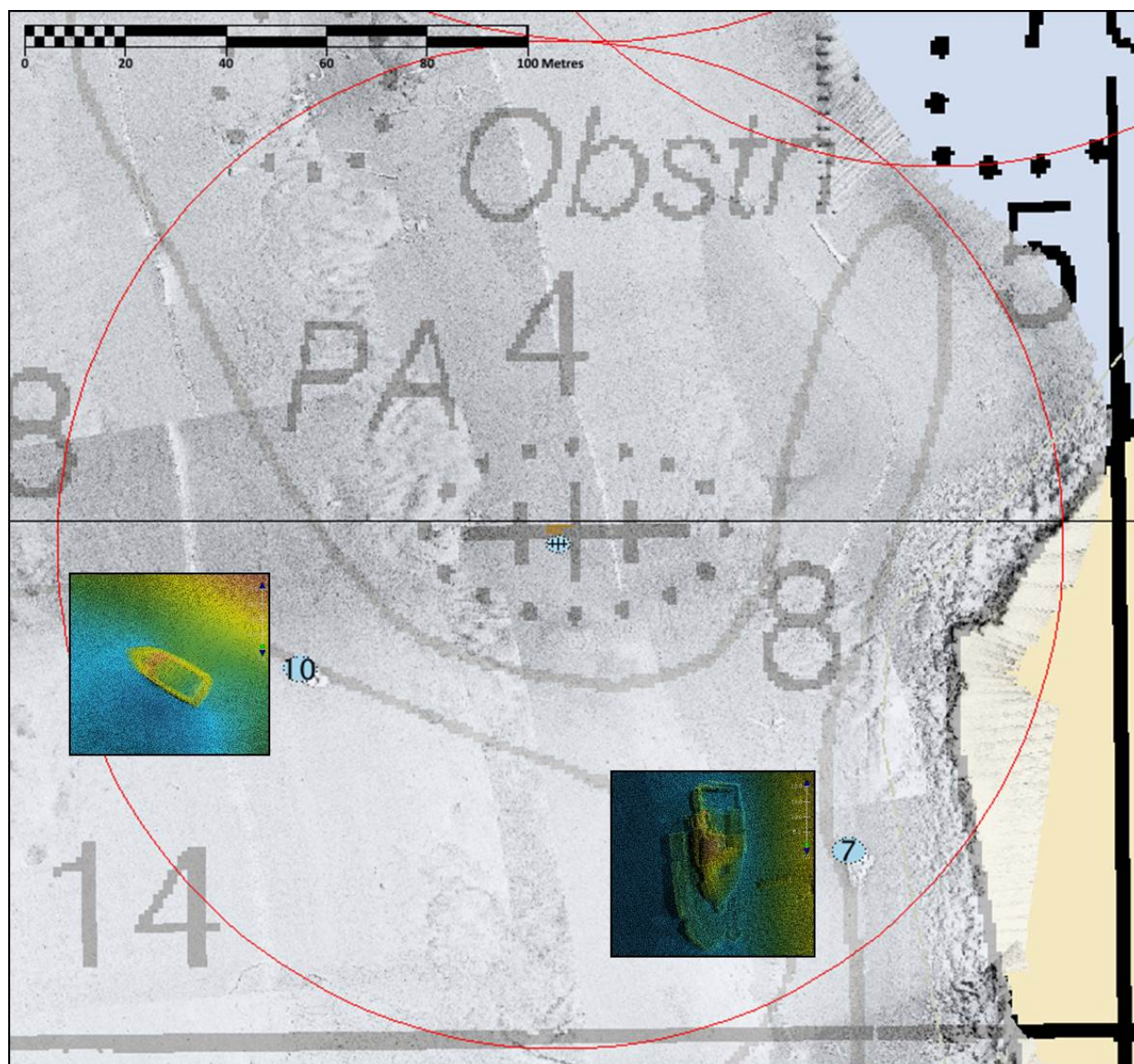


Figure 1.31.1

1.32) US 0001125423 00001 / H12604_AWOIS.000

Feature for AWOIS Item #15126

Search Position: 40° 35' 09.7" N, 074° 00' 04.2" W

Historical Depth: [None]

Search Radius: [unknown]

Search Technique: [unknown]

Technique Notes:

History Notes:

[unknown]

Survey Summary

Survey Position: 40° 35' 09.7" N, 074° 00' 04.2" W

Least Depth: [None]

TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]

Timestamp: 2000-008.00:00:00.000 (01/08/2000)

Dataset: H12604_AWOIS.000

FOID: US 0001125423 00001(022600112C2F0001)

Charts Affected: 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: A charted dangerous wreck PA was disproved with 200% SSS coverage over the portion of the AWOIS search area that could be safely navigated and that was not a land area. No evidence of a wreck was identified in the vicinity of its charted position. AWOIS History is as follows: Unknown Source -- Wreck PA currently charted in LAT 40-35-9.72N / LONG 074-00-04.22W. Carried forward during development of chart 12402 in 1988. (ENT 6/5/13 PTT)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001125423 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the wreck PA be removed from the chart.

S-57 Data

Geo object 1: Wreck (WRECKS)
Attributes: CATWRK - 2:dangerous wreck
QUASOU - 2:depth unknown
SORDAT - 20000108
SORIND - US,US,graph,chart 12402
TECSOU - 2:found by side scan sonar
WATLEV - 3:always under water/submerged

1.33) US 0001004633 00001 / H12604_AWOIS.000

Feature for AWOIS Item #13272

Search Position: 40° 35' 21.9" N, 074° 00' 01.7" W

Historical Depth: 2.12 m

Search Radius: [unknown]

Search Technique: [unknown]

Technique Notes:

History Notes:

[unknown]

Survey Summary

Survey Position: 40° 35' 21.9" N, 074° 00' 01.7" W

Least Depth: 2.12 m (= 6.97 ft = 1.162 fm = 1 fm 0.97 ft)

TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]

Timestamp: 2013-354.00:00:00.000 (12/20/2013)

Dataset: H12604_AWOIS.000

FOID: US 0001004633 00001(0226000F54590001)

Charts Affected: 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

OBSTRN/remrks: A charted obstruction area was confirmed with 200% SSS and object detection MBES coverage. The obstruction area is located alongside charted Gravesend Channel Buoy #5 and appears to be a mound of debris and post like obstructions that may be associated with a broken up wreck. A new least depth was developed and the area bounds were modified to include a piling-like obstruction. The obstruction area is located within the search area for AWOIS 13272, which was reported as a wreck (cabin cruiser Pat Rose). There was no evidence of a wreck in the vicinity and the AWOIS History references channel buoy 9. The buoy directly west of the obstruction area is channel buoy 5. The AWOIS item should be considered disproved with 200% SSS coverage. AWOIS History is as follows: NM34/61 -- THE CABIN CRUISER PAT ROSE HAS BEEN REPORTED SUNK ABOUT 155 YDS 279DEG 30MIN FROM GRAVESEND BAY CHANNEL BUOY 9 (40/35/21N 74/00/02W NAD27) (ENT. 06/02/05, SME)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004633 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the charted obstruction area depth be updated with the surveyed least depth.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

7ft (12402_1, 12327_1, 12326_1)

1 ¼fm (12300_1, 13006_1, 13003_1, 14500_1)

2.1m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: CATOBS - 6:foul area

EXPSOU - 2:shoaler than range of depth of the surrounding depth area

QUASOU - 9:value reported (not confirmed)

SORDAT - 20131220

SORIND - US,US,graph,H12604

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 2.125 m

WATLEV - 3:always under water/submerged

Feature Images

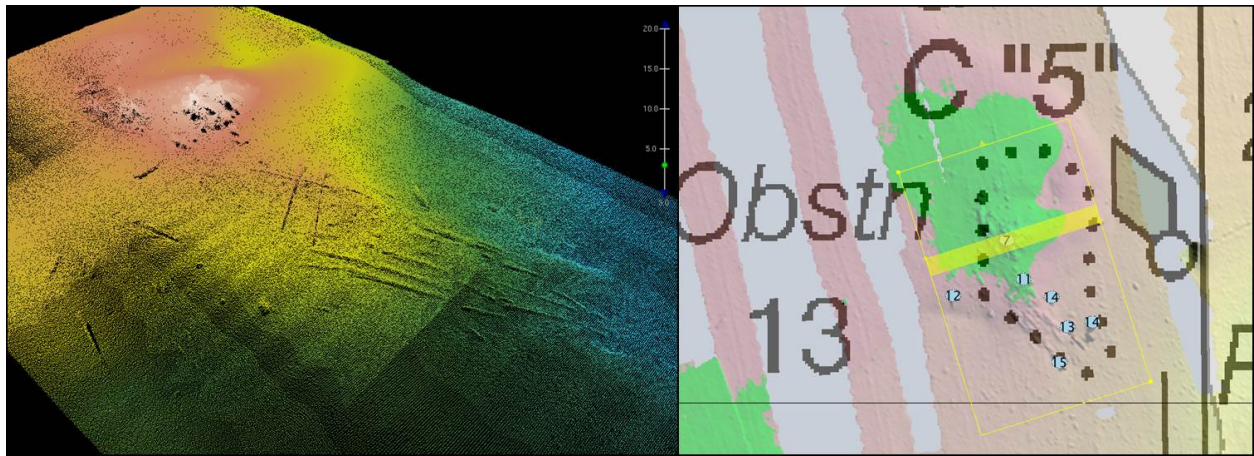


Figure 1.33.1

1.34) US 0001004627 00001 / H12604_AWOIS.000**Feature for AWOIS Item #13495****Search Position:** 40° 34' 52.6" N, 074° 00' 00.4" W**Historical Depth:** [None]**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 34' 52.6" N, 074° 00' 00.4" W**Least Depth:** [None]**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 2000-008.00:00:00.000 (01/08/2000)**Dataset:** H12604_AWOIS.000**FOID:** US 0001004627 00001(0226000F54530001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

WRECKS/remrks: The charted remains of a wreck were not addressed. The feature was located beyond the safe limits of hydrography to address with sonar. No visual evidence of a wreck was seen with shoreline photography. The AWOIS History is as follows: H09859/81 -- STRANDED WRECK NOW CHARTED IN POSITION: 40 34 53.00 N, 073 59 59.79 W (NAD 83). UPDATED 2/23/2006 JCM.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004627 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the wreck be retained as charted.

S-57 Data

Geo object 1: Wreck (WRECKS)
Attributes: CATWRK - 3:distributed remains of wreck
QUASOU - 2:depth unknown
SORDAT - 20000108
SORIND - US,US,graph,chart 12402
WATLEV - 4:covers and uncovers

Feature Images

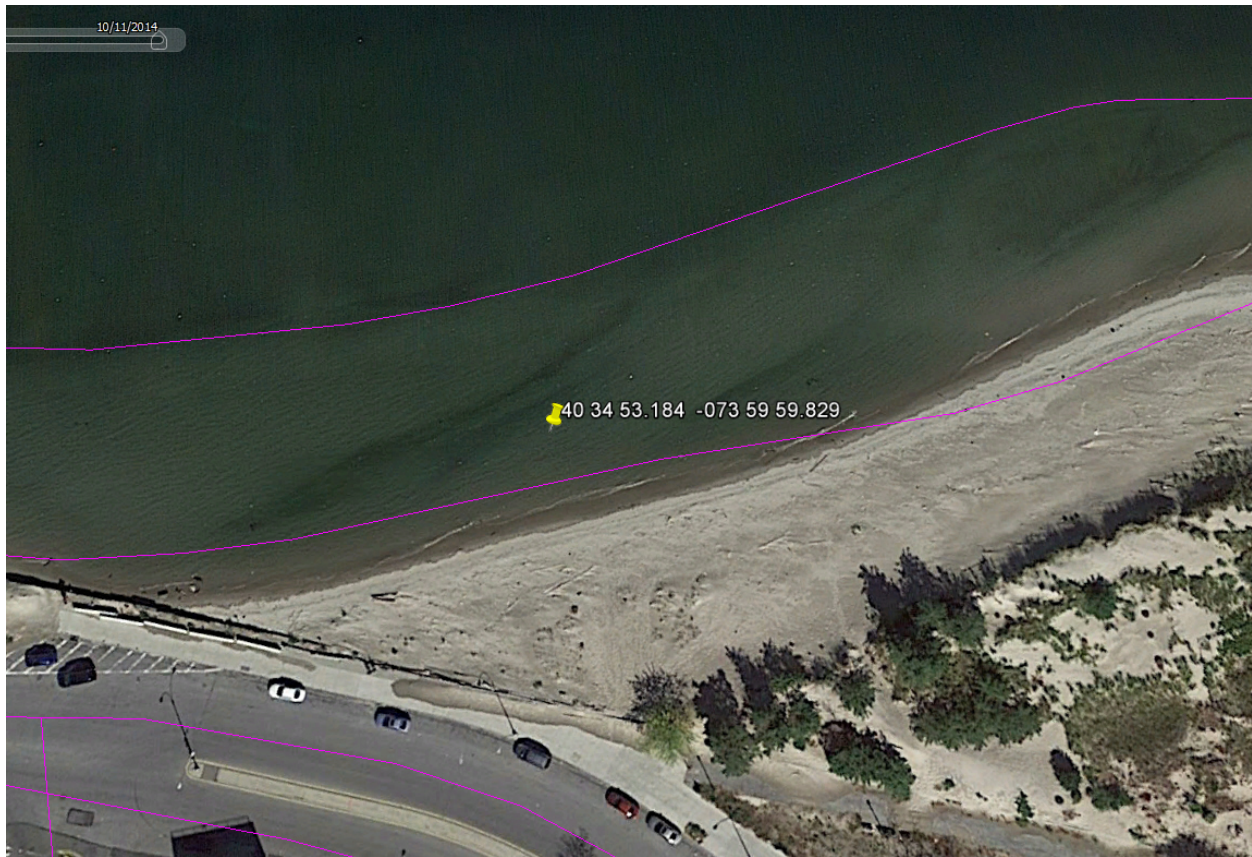


Figure 1.34.1

1.35) US 0001125422 00001 / H12604_AWOIS.000**Feature for AWOIS Item #13492****Search Position:** 40° 35' 11.2" N, 073° 59' 57.4" W**Historical Depth:** [None]**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 35' 11.2" N, 073° 59' 57.4" W**Least Depth:** [None]**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 2000-008.00:00:00.000 (01/08/2000)**Dataset:** H12604_AWOIS.000**FOID:** US 0001125422 00001(022600112C2E0001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

WRECKS/remrks: A charted dangerous wreck was disproved with 200% SSS coverage over the portion of the AWOIS search area that could be safely navigated and that was not a land area. No evidence of a wreck was identified in the vicinity of its charted position. AWOIS History is as follows: H07046/45 -- DANGEROUS SUBMERGED WRECK NOW CHARTED IN POSITION: 40 35 11.20 N, 073 59 57.32 W (NAD 83).UPDATED 2/23/2006 JCM.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001125422 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the wreck symbol be removed from the chart.

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 2:dangerous wreck
QUASOU - 2:depth unknown
SORDAT - 20000108
SORIND - US,US,graph,chart 12402
TECSOU - 2:found by side scan sonar
WATLEV - 3:always under water/submerged

1.36) US 0001125421 00001 / H12604_AWOIS.000**Feature for AWOIS Item #13273****Search Position:** 40° 35' 19.4" N, 073° 59' 56.6" W**Historical Depth:** [None]**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 35' 19.4" N, 073° 59' 56.6" W**Least Depth:** [None]**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 1997-312.00:00:00.000 (11/08/1997)**Dataset:** H12604_AWOIS.000**FOID:** US 0001125421 00001(022600112C2D0001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

WRECKS/remrks: A charted wreck was disproved with 200% SSS coverage within the portion of the AWOIS search area that did not extend onto land. A piling submitted as a DtoN was developed over the charted wreck symbol. There was no evidence of a wreck, specifically a sanitation barge, within the search area. The AWOIS History is as follows: LNM1/82 -- A CITY OF NY SANITATION BARGE HAS BEEN REPORTED SUNK OFF SOUTH SIDE OF THE MARINE TRANSFER STATION SANITATION PIER IN APPROX POSITION 40/35/19N 73/59/58W NAD27 (ENT. 06/02/05, SME)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001125421 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the wreck be removed from the chart.

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 2:dangerous wreck
QUASOU - 2:depth unknown
SORDAT - 19971108
SORIND - US,US,graph,chart 12402
TECSOU - 2:found by side scan sonar
WATLEV - 3:always under water/submerged

1.37) US 0001125424 00001 / H12604_AWOIS.000**Feature for AWOIS Item #13941****Search Position:** 40° 35' 12.5" N, 073° 59' 54.1" W**Historical Depth:** [None]**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 35' 12.5" N, 073° 59' 54.1" W**Least Depth:** [None]**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 2000-008.00:00:00.000 (01/08/2000)**Dataset:** H12604_AWOIS.000**FOID:** US 0001125424 00001(022600112C300001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

WRECKS/remrks: A charted wreck area was disproved with 200% SSS coverage. A ruined pier intersected with the wreck area, but was not included in its entirety. The AWOIS history is as follows: H07046/45 -- DANGEROUS SUBMERGED WRECK NOW CHARTED IN POSITION: 40 35 12.90 N, 073 59 54.24 W (NAD 83).UPDATED 2/23/2006 JCM.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001125424 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the wreck area be removed and the ruined pier be added to the chart.

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 3:distributed remains of wreck
QUASOU - 2:depth unknown
SORDAT - 20000108
SORIND - US,US,graph,chart 12402
TECSOU - 2:found by side scan sonar
WATLEV - 3:always under water/submerged

1.38) US 0001004623 00001 / H12604_AWOIS.000**Feature for AWOIS Item #14506****Search Position:** 40° 34' 10.2" N, 073° 59' 51.3" W**Historical Depth:** 3.12 m**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 34' 10.2" N, 073° 59' 51.3" W**Least Depth:** 3.12 m (= 10.25 ft = 1.708 fm = 1 fm 4.25 ft)**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 2013-354.00:00:00.000 (12/20/2013)**Dataset:** H12604_AWOIS.000**FOID:** US 0001004623 00001(0226000F544F0001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

OBSTRN/remrks: The charted obstruction's position and least depth were verified using 200% SSS and object detection MBES coverage. The AWOIS History is as follows: H11601/2006;NOS-- Survey found dangerous obstruction with a least depth of 2.83 m (9.27 ft) in Lat. 40/34/10.3N and Long. 73/59/51.4W (NAD83). (Entered 3/16/09, EAN).

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004623 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the obstruction be retained as charted.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

10ft (12402_1, 12327_1, 12326_1)

1 $\frac{3}{4}$ fm (12300_1, 13006_1, 13003_1, 14500_1)

3.1m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20131220

SORIND - US,US,graph,H12604

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 3.124 m

WATLEV - 3:always under water/submerged

1.39) US 0001004617 00001 / H12604_AWOIS.000**Feature for AWOIS Item #14525****Search Position:** 40° 33' 58.5" N, 073° 59' 42.5" W**Historical Depth:** 4.21 m**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 33' 58.5" N, 073° 59' 42.5" W**Least Depth:** 4.21 m (= 13.81 ft = 2.301 fm = 2 fm 1.81 ft)**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 2013-354.00:00:00.000 (12/20/2013)**Dataset:** H12604_AWOIS.000**FOID:** US 0001004617 00001(0226000F54490001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

OBSTRN/remrks: The charted obstruction's position and least depth were verified using 200% SSS and object detection MBES coverage. The AWOIS History is as follows: H11601/2006;NOS-- Survey located an obstruction with a least depth of 4.14 m (13.6 ft) at Lat. 40/33/58.5N Long. 73/59/42.5W (NAD83). (Entered 3/18/09, EAN)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004617 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the obstruction be retained as charted.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

14ft (12402_1, 12327_1, 12326_1)

2 ¼fm (12300_1, 13006_1, 13003_1, 14500_1)

4.2m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20131220

SORIND - US,US,graph,H12604

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 4.208 m

WATLEV - 3:always under water/submerged

Feature Images

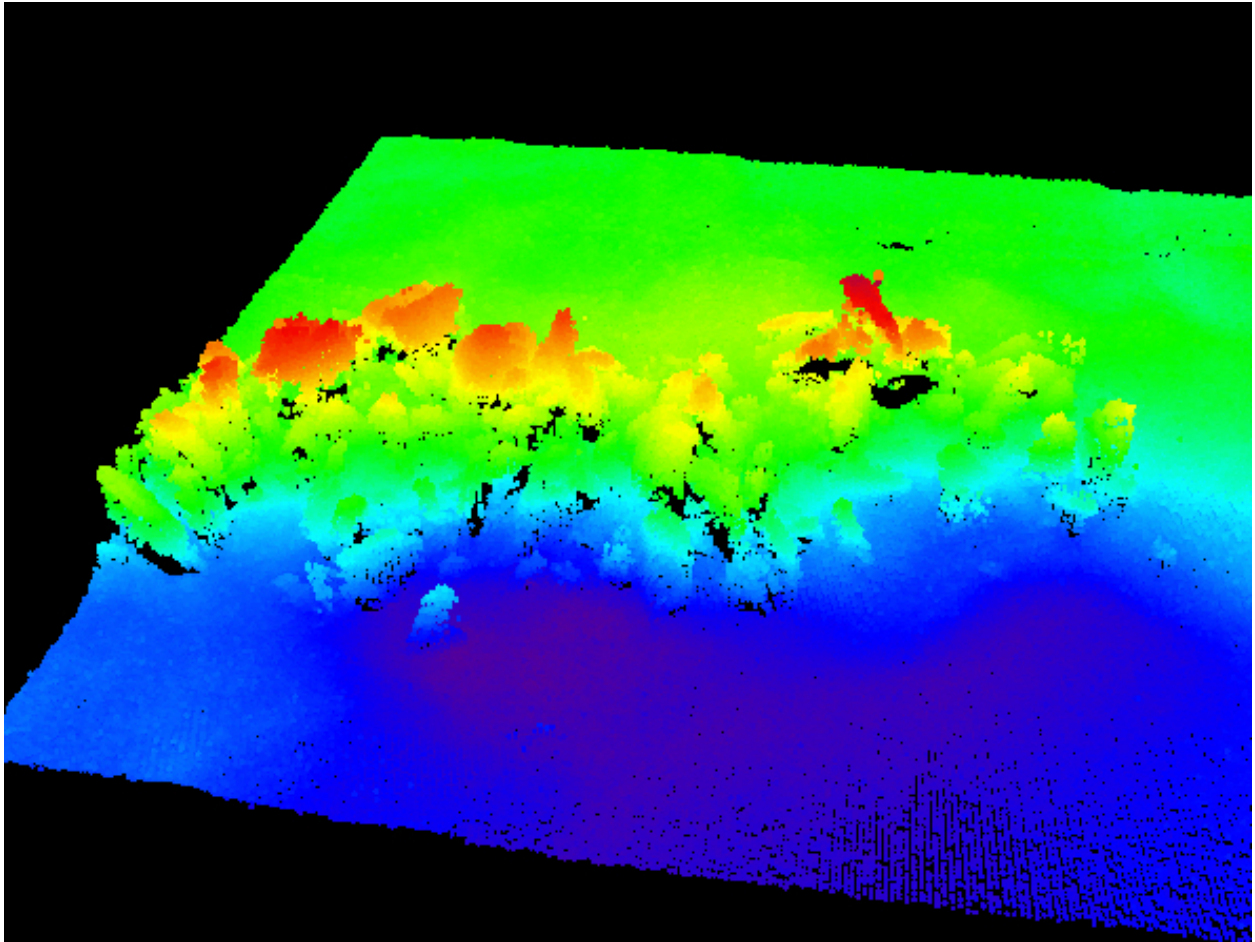


Figure 1.39.1

1.40) US 0001004615 00001 / H12604_AWOIS.000

Feature for AWOIS Item #13499

Search Position: 40° 34' 57.2" N, 073° 59' 41.5" W

Historical Depth: [None]

Search Radius: [unknown]

Search Technique: [unknown]

Technique Notes:

History Notes:

[unknown]

Survey Summary

Survey Position: 40° 34' 57.2" N, 073° 59' 41.5" W

Least Depth: [None]

TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]

Timestamp: 2013-354.00:00:00.000 (12/20/2013)

Dataset: H12604_AWOIS.000

FOID: US 0001004615 00001(0226000F54470001)

Charts Affected: 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: A charted wreckage area was verified and its extents were updated using the 200% SSS coverage. Multiple small and large wrecks and ruined docks were positioned with SSS imagery and visually captured with shoreline photography. AWOIS History is as follows: H09859/81 -- NUMEROUS SUNKEN AND VISIBLE WRECKS IN CONEY ISLAND CREEK AROUND POSITION: 40 34 53.00 N, 073 59 36.27 W (NAD 83). UPDATED 2/23/2006 JCM.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004615 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the wreckage area extents be updated with the recommended changes and be verified with aerial imagery or airborne data.

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 3:distributed remains of wreck
INFORM - Wreckage covers and uncovers
QUASOU - 1:depth known
SORDAT - 20131220
SORIND - US,US,graph,H12604
TECSOU - 2,3:found by side scan sonar,found by multi-beam
WATLEV - 1:partly submerged at high water

Feature Images



Figure 1.40.1

1.41) US 0001004614 00001 / H12604_AWOIS.000**Feature for AWOIS Item #14526****Search Position:** 40° 33' 56.8" N, 073° 59' 32.7" W**Historical Depth:** 4.80 m**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 33' 56.8" N, 073° 59' 32.7" W**Least Depth:** 4.80 m (= 15.74 ft = 2.623 fm = 2 fm 3.74 ft)**TPU ($\pm 1.96\sigma$):** **THU (TPEh)** [None] ; **TVU (TPEv)** [None]**Timestamp:** 2012-355.00:00:00.000 (12/20/2012)**Dataset:** H12604_AWOIS.000**FOID:** US 0001004614 00001(0226000F54460001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

OBSTRN/remrks: The charted obstruction's position and least depth were verified using 200% SSS and object detection MBES coverage.

The AWOIS History is as follows: H11601/2006;NOS-- Survey located an obstruction with a least depth of 5 m (15 ft) at Lat. 40/33/56.8N Long. 73/59/32.7W (NAD83). (Entered 3/18/09, EAN).

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004614 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the obstruction be retained as charted.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

16ft (12402_1, 12327_1, 12326_1)

2 ½fm (12300_1, 13006_1, 13003_1, 14500_1)

4.8m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20121220

SORIND - US,US,graph,H12604

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 4.797 m

WATLEV - 3:always under water/submerged

Feature Images

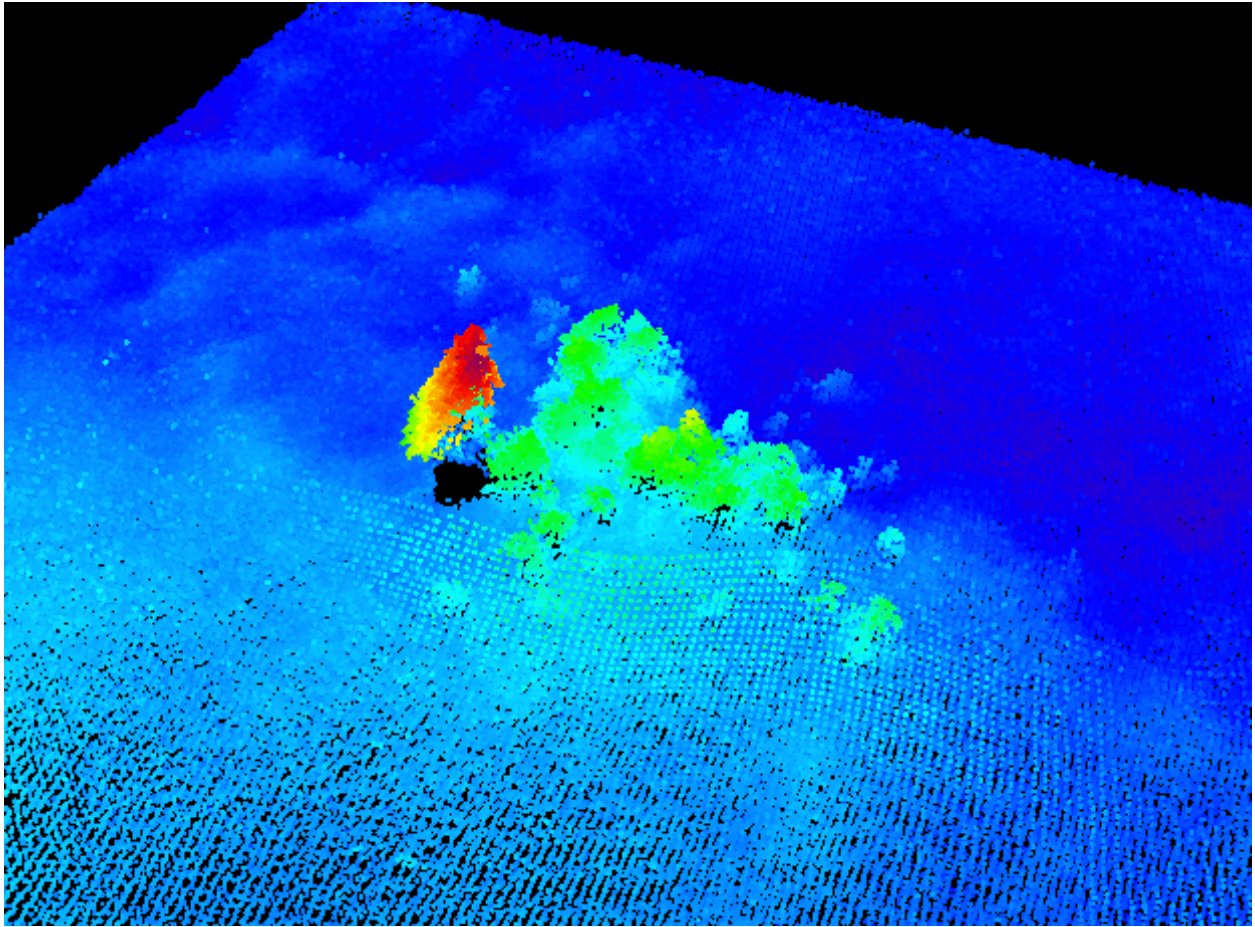


Figure 1.41.1

1.42) US 0001004612 00001 / H12604_AWOIS.000**Feature for AWOIS Item #13501****Search Position:** 40° 34' 48.1" N, 073° 59' 31.1" W**Historical Depth:** 2.30 m**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 34' 48.1" N, 073° 59' 31.1" W**Least Depth:** 2.30 m (= 7.55 ft = 1.259 fm = 1 fm 1.55 ft)**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 2013-305.00:00:00.000 (11/01/2013)**Dataset:** H12604_AWOIS.000**FOID:** US 0001004612 00001(0226000F54440001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

WRECKS/remrks: A charted wreck's position was confirmed in the bay north of Coney Island and a new least depth was developed with object detection MBES coverage. The AWOIS history references an obstruction PA, which is no longer on the chart. The AWOIS history is as follows: UNDETERMINED SOURCE -- OBSTN PA NOW CHARTED IN POSITION: 40 34 48.50 N, 073 59 33.53 W (NAD 83).UPDATED 2/23/2006 JCM.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004612 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the charted wreck be updated with the new surveyed least depth.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

8ft (12402_1, 12327_1, 12326_1)

1 ¼fm (12300_1, 13006_1, 13003_1, 14500_1)

2.3m (5161_1)

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 2:dangerous wreck

QUASOU - 6:least depth known

SORDAT - 20131220

SORIND - US,US,graph,H12604

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 2.302 m

WATLEV - 3:always under water/submerged

Feature Images

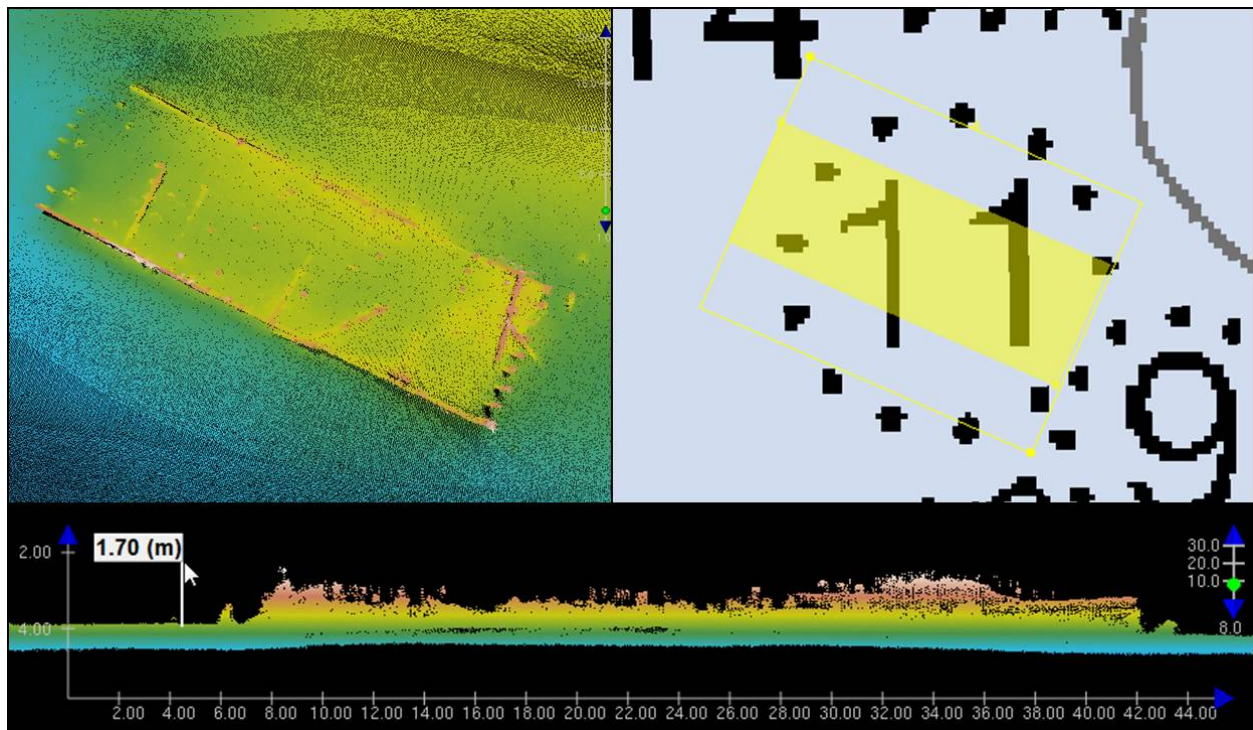


Figure 1.42.1

1.43) US 0001125434 00001 / H12604_AWOIS.000**Feature for AWOIS Item #9752****Search Position:** 40° 32' 32.2" N, 073° 59' 18.1" W**Historical Depth:** 2.70 m**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 32' 32.2" N, 073° 59' 18.1" W**Least Depth:** 2.70 m (= 8.86 ft = 1.476 fm = 1 fm 2.86 ft)**TPU ($\pm 1.96\sigma$):** **THU (TPEh)** [None] ; **TVU (TPEv)** [None]**Timestamp:** 1997-312.00:00:00.000 (11/08/1997)**Dataset:** H12604_AWOIS.000**FOID:** US 0001125434 00001(022600112C3A0001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

OBSTRN/remrks: The charted obstruction was disproved with 200% SSS coverage. The charted obstruction is assumed to be AWOIS item 9752; the obstruction is charted approximately 65 meters northwest of the corresponding AWOIS item in the PRF. No obstructions or wrecks were identified within the area defined by the 200 meter AWOIS search radius. The AWOIS item may be a redundant entry, a duplicate to the nearby AWOIS item 9753, which is also disproved. The AWOIS history is as follows: LNM42/74-- 34-FOOT TRAWLER "TSUNAMI" SALVAGED (FOREMOST INSURANCE COMPANY) IN APPROX. POSITION LAT. 40-32-30N, LONG. 73-59-18W. BOAT HAS BEEN RAISED AND TOWED AWAY. MARINERS ARE WARNED THAT A POSSIBILITY EXISTS THAT SOME PORTION OF THE WRECK MAY STILL REMAIN ABOVE THE BOTTOM. (ENT 5/1/96, SJV

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001125434 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the Obstrn be removed from the chart.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

9ft (12402_1, 12327_1, 12326_1)

1 ½fm (12300_1, 13006_1, 13003_1, 14500_1)

2.7m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: EXPSOU - 2:shoaler than range of depth of the surrounding depth area

QUASOU - 6:least depth known

SORDAT - 19971108

SORIND - US,US,graph,Chart-12402

VALSOU - 2.700 m

WATLEV - 3:always under water/submerged

1.44) US 0001125435 00001 / H12604_AWOIS.000**Feature for AWOIS Item #9753****Search Position:** 40° 32' 31.5" N, 073° 59' 11.5" W**Historical Depth:** 2.70 m**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 32' 31.5" N, 073° 59' 11.5" W**Least Depth:** 2.70 m (= 8.86 ft = 1.476 fm = 1 fm 2.86 ft)**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 1997-312.00:00:00.000 (11/08/1997)**Dataset:** H12604_AWOIS.000**FOID:** US 0001125435 00001(022600112C3B0001)**Charts Affected:** 12402_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

WRECKS/remrks: The charted wreck was disproved with 200% SSS coverage. The charted wreck is assumed to be AWOIS item 9753; the wreck is charted approximately 45 meters northeast of the corresponding AWOIS item in the PRF. No obstructions or wrecks were identified within the area defined by the 200 meter AWOIS search radius. The AWOIS item may be a redundant entry, a duplicate to the nearby AWOIS item 9752, which is also disproved. The AWOIS history is as follows: SOURCE UNKNOWN-- FIRST CHARTED IN 1983. POSITION SCALED IN LAT. 40-32-30N, LONG. 73-59-12W. (ENT 5/1/96, SJV)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001125435 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the wreck be removed from the chart.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

9ft (12402_1, 12327_1, 12326_1)

1 ½fm (12300_1, 13006_1, 13003_1, 14500_1)

2.7m (5161_1)

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 2:dangerous wreck

EXPSOU - 2:shoaler than range of depth of the surrounding depth area

QUASOU - 6:least depth known

SORDAT - 19971108

SORIND - US,US,graph,Chart 12402

VALSOU - 2.700 m

WATLEV - 3:always under water/submerged

1.45) US 0001004618 00001 / H12604_AWOIS.000**Feature for AWOIS Item #13270****Search Position:** 40° 34' 52.6" N, 073° 56' 30.7" W**Historical Depth:** 2.64 m**Search Radius:** [unknown]**Search Technique:** [unknown]**Technique Notes:****History Notes:**

[unknown]

Survey Summary**Survey Position:** 40° 34' 52.6" N, 073° 56' 30.7" W**Least Depth:** 2.64 m (= 8.65 ft = 1.441 fm = 1 fm 2.65 ft)**TPU ($\pm 1.96\sigma$):** THU (TPEh) [None] ; TVU (TPEv) [None]**Timestamp:** 2013-274.00:00:00.000 (10/01/2013)**Dataset:** H12604_AWOIS.000**FOID:** US 0001004618 00001(0226000F544A0001)**Charts Affected:** 12402_1, 12350_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1**Remarks:**

WRECKS/remrks: A wreck was developed with object detection MBES coverage in close proximity of a charted (RNC 12350) wreck PA located approximately 50 meters from the reported AWOIS wreck. No drying wrecks or wrecks that cover and uncover were identified in the vicinity of the charted wreck or within the AWOIS search area. Multiple vessels were moored in the anchorage area. The AWOIS History is as follows: CL-1395/89 -- USCG AUX. REPORT OF SUBMERGED WOOD HULL APPROX 30FT BY 8FT VISIBLE AT LOW TIDE NOT VISIBLE 2 TO 3 HRS AFTER MEAN LOW. LOCATED AT SHEEPSHEAD BAY SOUTH OF BUOY 18 AT BULKHEAD AT MANHATTAN BCH OPPOSITE SELLAMARIS BAIT STATION(ENT. 06/02/05, SME)

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12604_AWOIS.000	US 0001004618 00001	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the charted wreck PA be updated with the surveyed wreck's least depth, position and water level effect.

Arithmetically-Rounded Depth (Unit-wise Affected Charts):

9ft (12402_1, 12350_1, 12327_1, 12326_1)

1 ½fm (12300_1, 13006_1, 13003_1, 14500_1)

2.6m (5161_1)

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 2:dangerous wreck
QUASOU - 6:least depth known
SORDAT - 20131220
SORIND - US,US,graph,H12604
TECSOU - 2,3:found by side scan sonar,found by multi-beam
VALSOU - 2.636 m
WATLEV - 3:always under water/submerged

Feature Images

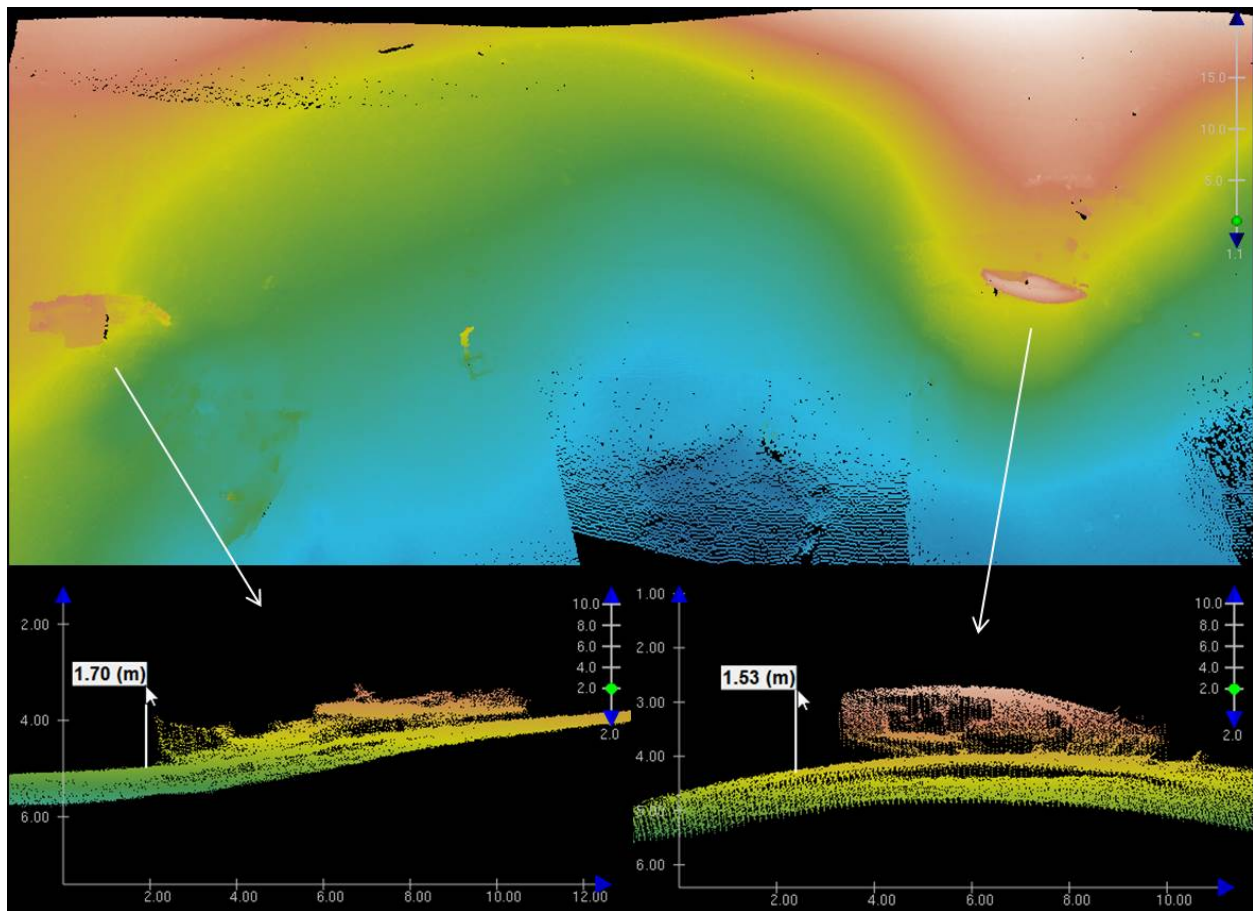


Figure 1.45.1

APPROVAL PAGE

H12604

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

- H12604_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12604_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 Briana Welton, NOAA
Chief, Atlantic Hydrographic Branch