H12890

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

DESCRIPTIVE REPORT

Type of Survey:	Basic Hydrographic Survey
Registry Number:	H12890

LOCALITY

State(s):	New Jersey
General Locality:	Lower New York Harbor
Sub-locality:	Navesink River

2013 – 2014

CHIEF OF PARTY
Paul L. Donaldson

LIBRARY & ARCHIVES

Date:

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:
HYDROGRAPHIC TITLE SHEET	**H12890**

INSTRUCTIONS: The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

State(s):	**New Jersey**
General Locality:	**Lower New York Harbor**
Sub-Locality:	**Navesink River**
Scale:	**10000**
Dates of Survey:	**08/19/2013 to 01/18/2014**
Instructions Dated:	**05/23/2013**
Project Number:	**OPR-B310-KR1-13**
Field Unit:	**Leidos (formerly SAIC)**
Chief of Party:	**Paul L. Donaldson**
Soundings by:	**Multibeam Echo Sounder Singlebeam Echo Sounder**
Imagery by:	**Side Scan Sonar Multibeam Echo Sounder Backscatter**
Verification by:	**Atlantic Hydrographic Branch**
Soundings Acquired in:	**meters at Mean Lower Low Water**

Remarks:

H12890 has been designated as a subset of H12587.

Contract: DG133C-08-CQ-0003 Contractor: Leidos 221 Third Street, Newport, RI 02840 USA Subcontractors: Alpine Ocean Seismic Survey, Inc., 155 Hudson Avenue, Norwood NJ 07648; Divemasters, Inc., 15 Pumpshire Road, Toms River, NJ 08753; Rotator Staffing Services, 25 Kennedy Blvd., East Brunswick NJ 08816 Leidos Doc 14-TR-015

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 http://www.ncei.noaa.gov/.

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Descriptive Report to Accompany Survey H12890

Project: OPR-B310-KR1-13

Locality: Lower New York Harbor

Sublocality: Navesink River

Scale: 1:10000

August 2013 - January 2014

Leidos (formerly SAIC)

Chief of Party: Paul L. Donaldson

A. Area Surveyed

The area surveyed was a section of the Lower New York Harbor off New Jersey, Raritan Bay to Navesink River (Figure 1).

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
40° 29" 17.43' N 74° 15" 49.05' W	40° 21" 48.55' N 73° 58" 31.58' W

Table 1: Survey Limits

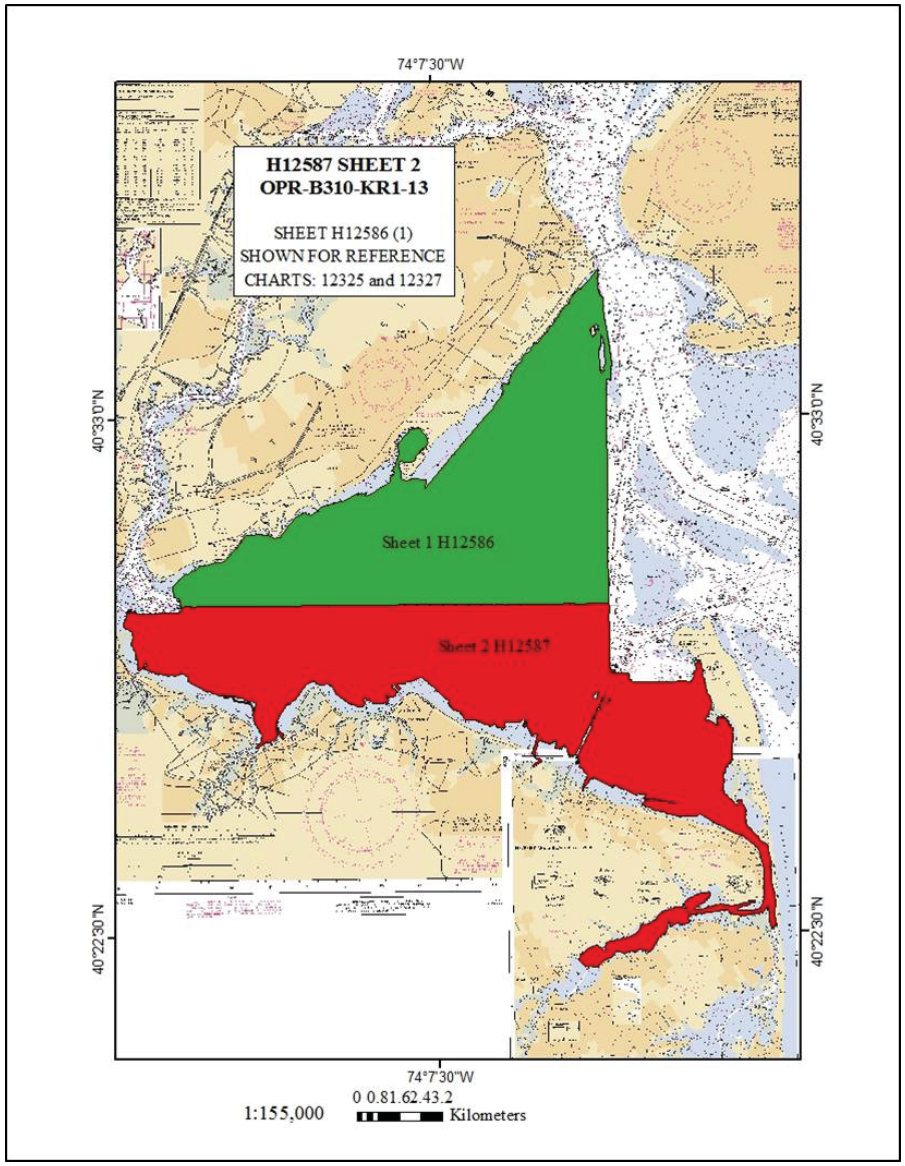

Figure 1: H12587 Survey Bounds

Survey Limits were acquired in accordance with the requirements in the Project Instructions and the HSSD.

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 covered approximately 49 square nautical miles (SNM) Critical and Priority 2 and 3 areas as identified in the 2012 NOAA Hydrographic Survey Priorities (NHSP) document. This project was 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.

Leidos, formerly Science Applications International Corporation (SAIC), warrants only that the survey data acquired by Leidos and delivered to NOAA under Contract DG133C-08-CQ-0003 reflects the state of the sea floor in existence on the day and at the time the survey was conducted.

H12587 was surveyed in accordance with the following documents:
1. Project Instructions, OPR-B310-KR1-13, dated 23 May 2013
2. Tides and Water Levels Statement of Work OPR-B310-KR1-2013 New York Harbor and Approaches, NY and NJ, dated 13 March 2013
3. NOS Hydrographic Specifications and Deliverables, April 2013, released 18 April 2013 (HSSD)

A.4 Survey Coverage

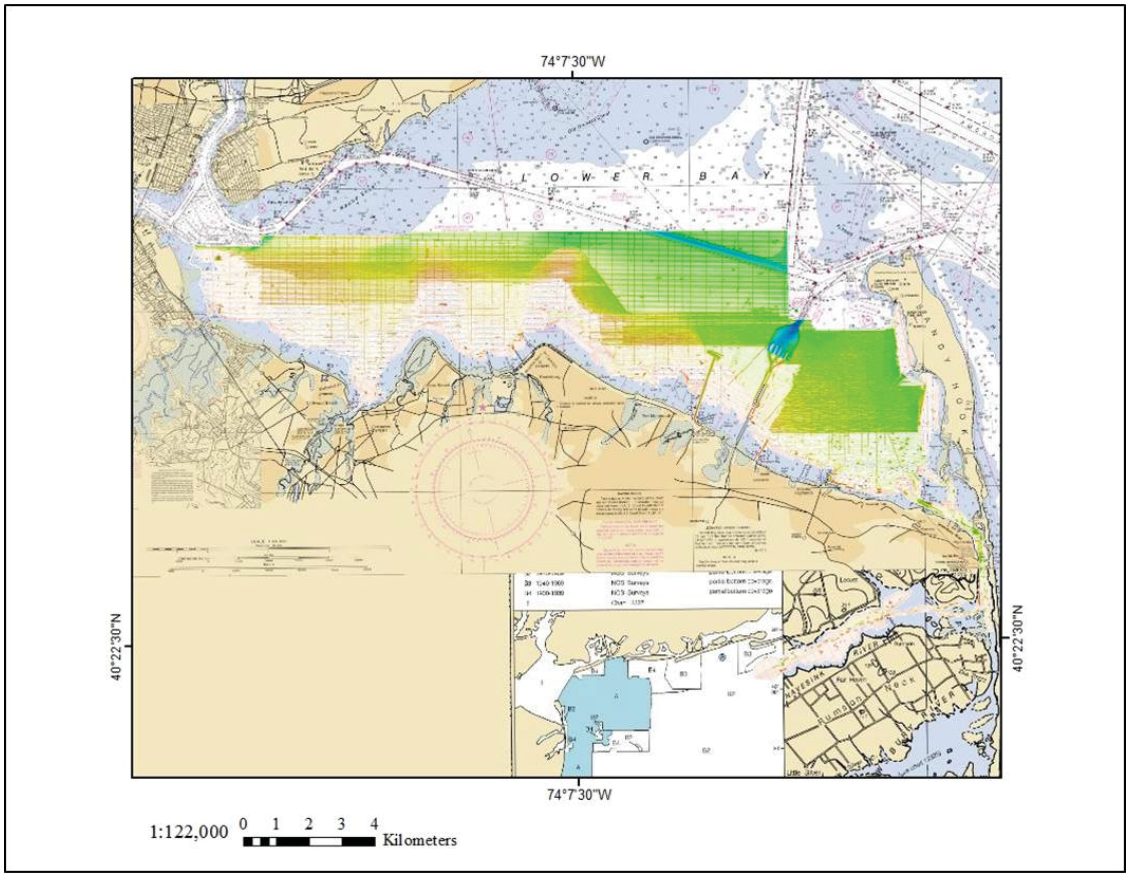

Figure 2: Final Bathymetry Coverage for H12587

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

A.5 Survey Statistics

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

	HULL ID	*M/V Atlantic Surveyor*	*R/V Oyster Bay*	*R/V Henry Hudson*	*Total*
LNM	**SBES Mainscheme**	0	0	0	0
	MBES Mainscheme	0	0	0	0
	Lidar Mainscheme	0	0	0	0
	SSS Mainscheme	0	0	0	0
	SBES/MBES Combo Mainscheme	0	1406.11	0	1406.11
	SBES/SSS Combo Mainscheme	0	1261.50	0	1261.50
	MBES/SSS Combo Mainscheme	255.08	144.61	876.40	1276.09
	SBES/MBES Combo Crosslines	20.97	119.15	72.19	212.31
	Lidar Crosslines	0	0	0	0
Number of Bottom Samples					74
Number AWOIS Items Investigated					20
Number Maritime Boundary Points Investigated					0
Number of DPs					0
Number of Items Items Investigated by Dive Ops					0
Total Number of SNM					28.59

Table 2: Hydrographic Survey Statistics

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

Survey Dates	Julian Day Number	Survey Dates	Julian Day Number
08/19/2013	231	09/19/2013	262
08/20/2013	232	09/20/2013	267
08/21/2013	233	09/23/2013	268
08/22/2013	234	09/24/2013	278
08/23/2013	235	09/25/2013	279
08/24/2013	236	10/05/2013	286
08/25/2013	237	10/06/2013	287
08/26/2013	238	10/13/2013	289
08/27/2013	239	10/14/2013	293
08/28/2013	240	10/16/2013	294
08/29/2013	241	10/20/2013	295
08/30/2013	242	10/22/2013	297
08/31/2013	243	10/24/2013	326
09/01/2013	244	11/22/2013	329
09/02/2013	245	11/25/2013	330
09/03/2013	246	11/26/2013	337
09/04/2013	247	12/03/2013	338
09/05/2013	248	12/04/2013	339
09/06/2013	249	12/05/2013	340
09/07/2013	250	12/06/2013	342
09/08/2013	251	12/08/2013	344
09/09/2013	252	12/10/2013	345
09/10/2013	253	12/11/2013	350
09/11/2013	254	12/16/2013	351
09/12/2013	255	12/17/2013	352
09/13/2013	256	12/21/2013	355
09/14/2013	257	01/11/2014	355
09/15/2013	258	01/12/2014	011
09/16/2013	259	01/13/2014	012
09/17/2013	260	01/16/2014	013
09/18/2013	261	01/18/2014	016

Table 1: Dates of Hydrography

B. Data Acquisition and Processing

B.1 Equipment and Vessels

Leidos used their ISS-2000 software on a Windows XP platform to acquire these survey data. Survey planning and data analysis were conducted using the Leidos SABER software on Red Hat Enterprise 5 Linux platforms. L-3 Klein 3000 side scan data and L-3 Klein 3900 side scan data were collected on a Windows XP platform using L-3 Klein's SonarPro software. Subsequent processing and review of the side scan data, including the generation of coverage mosaics, were accomplished using SABER.

A detailed description of the systems and vessels used to acquire and process these data is included in the Data Acquisition and Processing Report (DAPR) for OPR-B310-KR1-13, previously delivered with the H12586 Descriptive Report (DR) on 16 April 2014. There were no variations from the equipment configuration described in the DAPR.

B.1.1 Vessels

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

Hull ID	*M/V Atlantic Surveyor*	*R/V Oyster Bay*	*R/V Henry Hudson*
LOA	110 feet	30 feet	45 feet
Draft	9 feet	3 feet	3 feet

Table 4: Vessels Used

The M/V Atlantic Surveyor was used to collect multibeam sonar (RESON 7125 SV), side scan sonar (L-3 Klein 3000), and sound speed data during twenty-four hours per day survey operations.

Twelve hours per day survey operations were conducted from the R/V Oyster Bay and the R/V Henry Hudson. The R/V Oyster Bay was used to collect singlebeam (Odom echo sounder, 19 August to 20 October 2013), multibeam (RESON 8101 ER, 22 November 2013 to 18 January 2014), side scan sonar (L-3 Klein 3000), and sound speed data. The R/V Henry Hudson was used to collect multibeam (RESON 8101 ER) side scan sonar (L-3 Klein 3900, 24 August to 20 October 2013 and L-3 Klein 3000, 21 October to 24 October 2013), and sound speed data.

A detailed description of the vessels used is included in Section A of the Data Acquisition and Processing Report (DAPR).

B.1.2 Equipment

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

Manufacturer	Model	Type
RESON	SeaBat 7125 SV	MBES
RESON	8101 ER	MBES
Odom	CVM	SBES
L-3 Klein	3000	SSS
L-3 Klein	3900	SSS
Applanix	POS/MV 320	Positioning and Attitude System
Trimble	Probeacon	Positioning System
Brooke Ocean Technology	MVP-30	Sound Speed System
Seabird	SBE-19	Sound Speed System

Table 5: Major Systems Used

A detailed description of the equipment installed on each vessel is included in Section A of the Data Acquisition and Processing Report (DAPR).

B.2 Quality Control

B.2.1 Crosslines

Crosslines, acquired for this survey, totalled 8.4% of mainscheme acquisition.

There were 212.31 linear nautical miles of crosslines and 2537.59 linear nautical miles of main scheme lines surveyed on H12587. This resulted in crossline mileage approximately 8.4% of the main scheme mileage which meets the requirement (Section 5.2.4.3 of the HSSD) to achieve at least eight percent for a multibeam or singlebeam survey using set line spacing. For efficiency, the main scheme line orientation varied throughout the survey area. Crosslines were oriented between 45° and 90° of the main scheme lines and were spaced in order to result in linear mileage that was 8% of the main scheme mileage.

In the field, hydrographers conducted daily comparisons of main scheme to near nadir crossline data to ensure that no systematic errors were introduced and to identify potential problems with the survey systems. After the application of all correctors and completion of final processing in the office, separate two-meter CUBE PFM grids were built. One grid contained the full valid swath (±60° from nadir) of main scheme multibeam or singlebeam data and the other included only the near nadir swath (±5° from nadir) or singlebeam crossline data. Separate main scheme and crossline grids were created for each vessel and sonar used for acquisition, M/V Atlantic Surveyor RESON 7125 SV multibeam, R/V Oyster Bay Odom

singlebeam, R/V Oyster Bay RESON 8101 ER multibeam, and R/V Henry Hudson RESON 8101 ER multibeam. Difference grids were then generated by subtracting one grid from the other.

The SABER Frequency Distribution tool was used to analyze the difference grids. All comparisons fell within the requirement defined in Section 5.2.4.3 of the HSSD which states that at least 95% of the depth difference values are to be within the maximum allowable total vertical uncertainty. Figure 3 summarizes the results for each comparison. See Separates II for a complete discussion of the analysis and tabular results.

DIFFERENCE GRID	IHO 1A Maximum Allowable Uncertainty for the range of depths	Percent of Depth differences less than IHO Order 1A Maximum
M/V Atlantic Surveyor 7125 SV Multibeam Main to Cross	0.501 – 0.539	100.00%
R/V Oyster Bay Singlebeam Main to Cross	0.500 – 0.510	99.92%
R/V Oyster Bay 8101 ER Multibeam Main to Cross	0.501 – 0.527	99.83%
R/V Henry Hudson 8101 ER Multibeam Main to Cross	0.501 – 0.538	100.00%
M/V Atlantic Surveyor 7125 SV Multibeam Main to *R/V Oyster Bay* Singlebeam Main	0.502 – 0.506	100.00%
M/V Atlantic Surveyor 7125 SV Multibeam Main *to R/V Oyster Bay* 8101 ER Multibeam Main	0.504 – 0.524	98.52%
M/V Atlantic Surveyor 7125 SV multibeam Main to *R/V Henry Hudson* 8101 ER Multibeam Main	0.501 – 0.520	100.00%
R/V Oyster Bay Singlebeam Main to *R/V Oyster Bay* 8101 ER Multibeam Main	0.500 – 0.535	99.40%
R/V Oyster Bay 8101 ER Multibeam Main to *R/V Henry Hudson* 8101 ER Main Multibeam	0.500 – 0.532	99.97%
R/V Oyster Bay Singlebeam Main to *R/V Henry Hudson* 8101 ER Multibeam Main	0.500 – 0.534	99.86%

Figure 3: Summary of Crossing Analysis

B.2.2 Uncertainty

The Total Propagated Uncertainty (TPU) model that Leidos has adopted had its genesis at the Naval Oceanographic Office (NAVOCEANO), and is based on the work by Rob Hare and others ("Error Budget Analysis for NAVOCEANO Hydrographic Survey Systems, Task 2 FY 01", 2001, HSRC FY01 Task 2 Final Report). Once the TPU model is applied to the GSF bathymetry data, each beam is attributed with the horizontal uncertainty and the vertical uncertainty at the 95% confidence level. For specific details on the use and application of the SABER Total Propagated Uncertainty model, see Section B.1 in the DAPR.

The vertical and horizontal uncertainty values that were estimated by the TPU model for individual multibeam and singlebeam soundings varied little across the dataset, tending to be most affected by beam

angle in the multibeam data. During application of horizontal and vertical uncertainties to the GSF files, individual beams where either the horizontal or vertical uncertainty exceeded the maximum allowable IHO S-44 5th edition Order 1a specifications were flagged as invalid. As a result, all individual soundings used in development of the final CUBE depth surface had modeled vertical and horizontal uncertainty values at or below the allowable IHO S-44 5th edition, Order 1a uncertainty.

During the creation of the CUBE surface, two separate vertical uncertainty surfaces are calculated by the SABER software. One surface contains the standard deviation of all soundings that are contributing to the CUBE hypothesis (Hyp. StdDev) and the other contains the average of the vertical uncertainty of all soundings contributing to the CUBE hypothesis (Hyp. AvgTPE). A third vertical uncertainty surface is generated from the larger value of these two uncertainties at each node and is referred to as the Hypothesis Final Uncertainty. For specific details on this process see Section B.2 of the DAPR.

For H12587 two two-meter surfaces are being delivered; one, which contains all multibeam and singlebeam data while the other contains only the singlebeam data. Throughout this report, the two-meter with all multibeam and singlebeam is referenced as the final surface.

The final two-meter PFM CUBE surface contained final vertical uncertainties that ranged from 0.270 to 1.709 meters. The IHO Order 1a maximum allowable vertical uncertainty was calculated to range between 0.501 to 0.540 meters, based on the minimum CUBE depth (0.220 meters) and maximum CUBE depth (15.725 meters). The SABER Check PFM Uncertainty function was used to highlight all instances in the Hypothesis Final Uncertainty surface where a given node exceeded the IHO Order 1a allowable vertical uncertainty for the CUBE depth at that node. The final two-meter PFM CUBE surface contained 6081 individual CUBE nodes with final vertical uncertainties that exceeded IHO Order 1a allowable vertical uncertainty. The two-meter singlebeam only PFM CUBE surface contained 749 individual nodes with final vertical uncertainties that exceed the IHO Order 1a maximum allowable uncertainty. The nodes that exceed the IHO Order 1a allowable vertical uncertainty for the CUBE depth are located on steep slopes and around features where there is a high variability in the depth soundings. This is more prevalent in areas where only singlebeam data were acquired where the sparseness of the data combined with the variability of the depth yielded higher uncertainties.

The SABER Check PFM Uncertainty function was also run on each of the 30 half-meter feature PFM Hypothesis Final Uncertainty surfaces. The results are listed in Figure 4 and Figure 5. As expected, there are higher numbers of nodes that exceed uncertainty limits due to the smaller node resolution and the high variability of sounding depths around features.

The SABER Frequency Distribution tool was also used to review the Hypothesis Final Uncertainty surface within the final two-meter grids and 30 half-meter resolution PFM grids. The results show that in the final two-meter PFM, 99.69% of all nodes had final uncertainties less than or equal to 0.300 meters. Review of the Hypothesis Final Uncertainty Surface for the two-meter singlebeam only PFM showed 99.78% of all nodes had final uncertainties less than or equal to 0.300 meters In the 30 individual feature PFM grids, at least 94.08% of all grid nodes contained total vertical uncertainties of 0.300 meters or less.

Feature Area	Feature Number(s)	Number of CUBE nodes which exceed IHO Order 1a	Percent of Nodes with TVU ≤ 0.300
1	507, 508, 509, 510, 543, 545, 546	29	99.63
2	501, 502, 503, 504, 505, 506	3	99.75
3	491, 492, 495, 498	4	99.89
4	484, 485, 486, 488	3	99.96
5	370, 371, 376, 378, 379, 380, 384, 385, 478, 479, 480, 481, 483	218	99.80
6	372, 373, 374	34	99.80
7	365, 366, 368	38	99.76
8	364, 615, 616	13	99.10
9	411, 416, 417, 419, 423, 476	62	99.65
10	409, 361, 475, 405, 406, 330, 342, 360, 359, 246, 343, 402, 326, 328, 327, 329, 357, 356, 355, 354, 323, 345, 350, 341, 352, 318, 348, 314, 316, 306, 313, 321, 319, 320, 308, 309	10085	94.08
11	288, 286, 285, 657, 283	416	98.92
12	609, 610, 611, 612, 613, 614, 277, 275, 175, 176, 474, 178	342	99.75
13	278, 279	86	99.63
14	105, 567, 550, 548, 195, 551, 191, 566, 552, 170, 553, 670, 598, 599, 600, 601, 558, 602, 603, 604, 605, 606, 607, 554, 555, 556, 563, 559, 168, 560, 540, 561, 163, 164, 564, 565, 597	393	99.66
15	334, 333, 335, 513, 94, 93	27	99.96

Figure 4: Number of Nodes Exceeding the Allowable IHO Order 1a Uncertainty in the Feature BAG Files 1 of 30 through 15 of 30

Feature Area	Feature Number(s)	Number of CUBE nodes which exceed IHO Order 1a	Percent of Nodes with TVU ≤ 0.300
16	582, 585, 111, 127, 117, 123, 586, 587	292	99.88
17	541, 542, 388, 116, 118, 115, 204, 338, 203, 110, 119, 124, 162, 140, 138, 45, 43	43	100.00
18	129, 135, 655, 653, 651, 652, 126, 50, 158, 219, 46, 145, 48, 44	1970	99.93
19	592, 596, 590, 595, 589, 184, 650, 159, 665, 666, 221, 91, 95, 85, 220	58	99.99
20	245, 244, 240, 239, 86, 37, 236, 237, 235, 234, 153, 238, 232, 231, 242, 258, 243, 257, 263, 397, 256, 248, 255, 230, 393, 223, 270, 83, 249, 228, 265, 392, 266, 391, 267, 227, 250, 253, 390, 399, 226, 252, 225, 224, 268, 269	14128	98.70
21	55, 56, 16, 40, 222, 17, 38, 58, 102, 150, 31, 18, 19, 20, 21, 22	242	99.87
22	88, 209, 206, 210, 430, 208, 450, 648, 646, 647, 447, 448, 171, 460, 211, 401, 461, 451, 454, 462, 400, 457	142	99.95
23	658, 446, 60, 35, 172, 442, 439, 443, 431, 435, 436, 28, 173, 87, 659, 661, 660, 438, 437, 644, 100, 618	163	100.00
24	8, 14, 6, 26, 7, 15	128	99.99
25	621, 620, 619, 622, 574, 573, 642, 570, 571, 641, 569, 568, 623, 662, 663, 664, 463	41	99.98
26	29, 515, 471, 470, 466, 64, 465, 30, 200, 70	46	100.00
27	667, 631, 630, 628, 532, 638, 636, 627, 626, 533, 535, 534	14	99.96
28	536, 577, 639, 575, 640, 576, 77, 201, 202, 643	20	100.00
29	155, 516, 65, 519, 520, 73, 624, 154, 579, 522, 523, 578, 538, 539, 537, 530, 531	41	100.00
30	63, 625, 104, 518, 517, 635, 524, 632, 525, 529, 633	62	99.95

Figure 5: Number of Nodes Exceeding the Allowable IHO Order 1a Uncertainty in the Feature BAG Files 16 of 30 through 30 of 30

B.2.3 Junctions

An analysis of H12587 junctions with contemporary surveys H12586, H11399, and H11709 was performed. Figure 6 shows the general locality of H12587 as it relates to the sheets for which junctions were performed. Details for H12586, H11399, and H11709 are listed in Table 6. See Separates II for a complete discussion of the junction results and tabular listings.

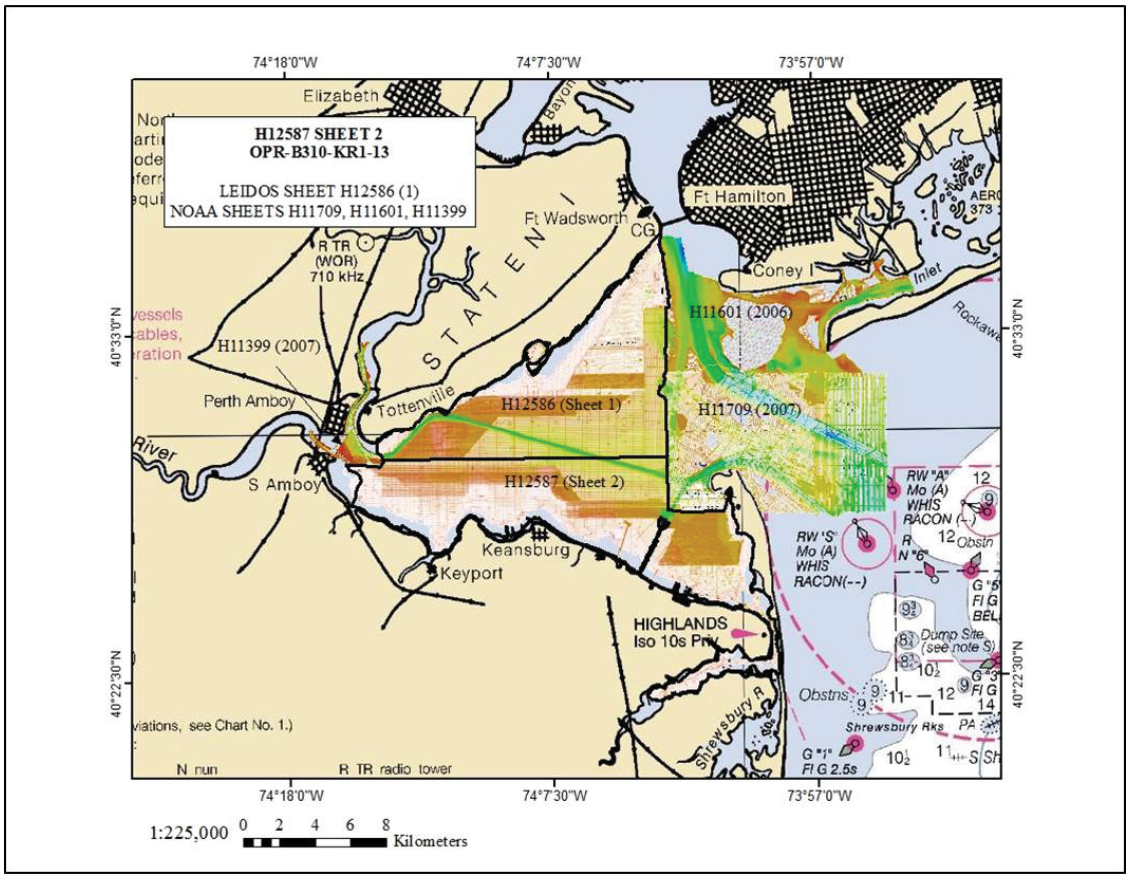

Figure 6: General Locality of H12587 Junction Areas with Contemporary Surveys H12586, H11399, H11601, and H11709

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H12586	1:10000	2014	Leidos	N
H11399	1:10000	2008	Navigation Response Team 5	W
H11709	1:10000	2007	NOAA Ship THOMAS JEFFERSON	E

Table 6: Junctioning Surveys

H12586

H12587 junctions with H12586 to the North. 99% of the soundings differ by +/-0.15 meters

H11399

H12587 junctions with H11399 to the West. 99% of the soundings differ by +/-2.50 meters. The larger deltas in comparisons were isolated to the overlap area common with the Great Beds Reach and Ward Point Secondary Channel. Differences within the common areas outside of the maintained channels resulted in soundings differing by +/- 0.50 meters 99% of the time.

H11709

H12587 junctions with H11709 to the East. 95% of the soundings differ by +/-1.10 meters. The larger deltas in comparisons were isolated to the overlap area common with the Naval Weapons Station Earle turning basin, Terminal Channel, and Raritan Bay East Reach Channel. Differences within the common areas outside of the maintained channels resulted in soundings differing by +/- 0.40 meters 99% of the time.

B.2.4 Sonar QC Checks

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

B.2.5 Equipment Effectiveness

There were no conditions or deficiencies that affected equipment operational effectiveness.

B.2.6 Factors Affecting Soundings

There were no other factors that affected corrections to soundings.

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: On the M/V Atlantic Surveyor, the MVP-30 was used to collect sound speed profile (SSP) data. SSP data were obtained at intervals frequent enough to meet depth accuracy requirements. Section 5.2.3.3 of the HSSD requires that if the sound speed measured at the sonar head differs by more than two meters/second from the commensurate profile data, then another cast shall be acquired. There were times when the sound speed values exceeded the two meters/second threshold due to the local temporal and tidal variability. During these times, several profiles were acquired and reapplied in an effort to reduce these effects. The product of this effort resulted in the final data bearing no significant artifacts due to sound speed differences.

On the R/V Oyster Bay the Seabird CTD was used to collect sound speed profile (SSP) data. SSP data were acquired at least twice per day. Additional SSP data were obtained during the day as necessary to ensure that depth accuracy requirements were met.

On the R/V Henry Hudson the Seabird CTD was used to collect sound speed profile (SSP) data. SSP data were acquired at least twice per day. Additional SSP data were obtained during the day as necessary to ensure that depth accuracy requirements were met.

Additional information can be found in Section A.8 of the DAPR.

A total of 265 sound speed profiles were applied to online data for H12587. All profiles that were applied for online bathymetry data collection were acquired within the bounds of the survey area. Please refer to the DAPR for specific details regarding acquisition (Section A.8) and application (Section C.1.3) of sound speed profiles.

Confidence checks of the sound speed profile casts were conducted periodically (approximately once per week) by comparing at least two consecutive casts taken with different SV and P Smart Sensors, an SV and P Smart Sensors and a CTD, or two different CTDs. Fourteen sound speed confidence checks were conducted during H12587 and the results can be found in Separates II within the "Comparison Cast Log" section.

Sound speed profiles were obtained for four different survey purposes. The "Sound Speed Profile Log" section of Separates II is a cumulative report detailing each cast associated with H12587, as collected from the three different survey platforms. The log is separated by the purpose of the applied cast; with individual tables for "Used for Bathymetry" (online bathymetry), "Used for Comparison", "Used for Lead Line", and "Used for Closing". Additionally, in a separate folder on the delivery drive (H12587/Data/Processed/SVP/CARIS_SSP), there are eight (.svp) files. Four files for CTD sound speed data and four files for MVP sound speed data. These eight files contain concatenated SSP data that has been formatted for use in CARIS. The CARIS SSP files are designated based on the purpose of the cast and their filenames match the tables within the sound speed profile log. All sound speed profile files are delivered with the H12587 delivery data and are broken out into sub-folders, which correspond to the purpose of each cast.

B.2.8 Coverage Equipment and Methods

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

B.2.9 Coverage Analysis

The Project Instructions specified coverage in depths greater than four meters as "200% SSS with concurrent Set Line Spacing, SBES or MBES with Backscatter, or Object Detection MBES with Backscatter" and in depths two to four meters as "100% SSS with concurrent Set Line Spacing, SBES or MBES with Backscatter, or Object Detection MBES with Backscatter". To achieve this coverage:

· The M/V Atlantic Surveyor used a towed L-3 Klein 3000 side scan sonar set to a 50-meter range in depths greater than approximately five meters. Main scheme line spacing was 40 meters.
· The R/V Oyster Bay used a bow mounted L-3 Klein 3000 side scan sonar set to a 25-meter range in depths less than approximately five meters. Main scheme line spacing was 20 meters in depths to approximately four meters. Main scheme line spacing was 40 meters in depths less than approximately four meters.
· The R/V Henry Hudson used a bow mounted L-3 Klein 3900 side scan sonar set to a 30-meter range or a bow mounted L-3 Klein 3000 side scan sonar set to a 25-meter range in depths less than five meters. Main scheme line spacing was 20 meters.

This survey scenario provided a consistent 200% coverage to depths slightly less than four meters and 100% coverage in depths from two to four meters. This combination of line spacing and range settings resulted in up to 20 meters of overlap between adjacent lines in depths greater than four meters and up to five meters of overlap in depths less than four meters.

The SABER Gapchecker routine was used to flag bathymetry data gaps exceeding the allowable limit of three contiguous nodes. Additionally, the entire surface was visually scanned for holidays at various points during the data processing effort. Additional survey lines were run to fill any holidays that were detected. A final review of the CUBE Depth surface in the two-meter grid containing all multibeam and singlebeam showed that valid depths exist in 100% of the nodes and there were no areas where three or more nodes sharing adjacent sides lacked data.

All grids were examined for the number of soundings contributing to the chosen CUBE hypotheses for each node by running SABER's Frequency Distribution tool on the Hypothesis Number of Soundings (Hyp # Soundings) surface of the PFM grid. The Hyp # Soundings surface reports the number of soundings that were used to compute the chosen hypothesis. Analysis of the H12587 final two-meter containing all multibeam and singlebeam PFM grid revealed that 99.53% of all nodes contained three or more soundings; satisfying the requirements for set line spacing surveys, as specified in Section 5.2.2.3 of the HSSD. Analysis of the two-meter singlebeam only PFM grid revealed that 98.66% of all nodes contained three or more soundings.

Analysis of the 30 half-meter PFM grids showed that all but thirteen had at minimum of 95% of all individual nodes contained three or more soundings to meet object detection coverage (HSSD Section 5.2.2.1). These thirteen half-meter PFM grids are detailed below.

H12587_features_area1_50cm_MLLW PFM used to generate the delivered BAG 1 of 30 had 93.71% of the nodes contained three or more soundings. This PFM was built around seven individual features and includes a large amount of singlebeam data between the features. Each feature was covered with multibeam and analysis of the nodes in the multibeam coverage for each feature results in a minimum of 98.78% of the nodes contained three or more soundings.

H12587_features_area2_50cm_MLLW PFM used to generate the delivered BAG 2 of 30 had 90.72% of the nodes contained three or more soundings. This PFM was built around six individual features and includes a large amount of singlebeam data between the features. Each feature was covered with multibeam and analysis of the nodes in the multibeam coverage for each feature results in a minimum of 99.59% of the nodes contained three or more soundings.

H12587_features_area3_50cm_MLLW PFM used to generate the delivered BAG 3 of 30 had 94.07% of the nodes contained three or more soundings. This PFM was built around four individual features and includes a large amount of singlebeam data between the features. Each feature was covered with multibeam and analysis of the nodes in the multibeam coverage for each feature results in a minimum of 99.76% of the nodes contained three or more soundings.

H12587_features_area4_50cm_MLLW PFM used to generate the delivered BAG 4 of 30 had 91.86% of the nodes contained three or more soundings. This PFM was built around four individual features and includes a large amount of singlebeam data between the features. Each feature was covered with multibeam and analysis of the nodes in the multibeam coverage for each feature results in a minimum of 99.54% of the nodes contained three or more soundings.

H12587_features_area5_50cm_MLLW PFM used to generate the delivered BAG 5 of 30 had 93.74% of the nodes contained three or more soundings. This PFM was built around thirteen individual features and includes a large amount of singlebeam data between the features. Each feature was covered with multibeam and analysis of the nodes in the multibeam coverage for each feature results in a minimum of 99.53% of the nodes contained three or more soundings.

H12587_features_area6_50cm_MLLW PFM used to generate the delivered BAG 6 of 30 had 94.77% of the nodes contained three or more soundings. This PFM was built around three individual features and includes a large amount of singlebeam data between the features. Each feature was covered with multibeam and analysis of the nodes in the multibeam coverage for each feature results in a minimum of 99.59% of the nodes contained three or more soundings.

H12587_features_area7_50cm_MLLW PFM used to generate the delivered BAG 7 of 30 had 93.12% of the nodes contained three or more soundings. This PFM was built around three individual features and includes a large amount of singlebeam data between the features. Each feature was covered with multibeam and analysis of the nodes in the multibeam coverage for each feature results in a minimum of 99.61% of the nodes contained three or more soundings.

H12587_features_area9_50cm_MLLW PFM used to generate the delivered BAG 9 of 30 had 93.32% of the nodes contained three or more soundings. This PFM was built around six individual features and includes a large amount of singlebeam data between the features. Each feature was covered with multibeam and analysis of the nodes in the multibeam coverage for each feature results in a minimum of 99.28% of the nodes contained three or more soundings for four of the six features. Two of the features were populated with outer beam data resulting in a minimum of 96.68% of the nodes containing three or more soundings.

H12587_features_area13_50cm_MLLW PFM used to generate the delivered BAG 13 of 30 had 92.79% of the nodes contained three or more soundings. This PFM was built around two individual features and includes a large amount of singlebeam data between the features. Each feature was covered with multibeam and analysis of the nodes in the multibeam coverage for each feature results in a minimum of 99.66% of the nodes contained three or more soundings.

H12587_features_area14_50cm_MLLW PFM used to generate the delivered BAG 14 of 30 had 92.16% of the nodes contained three or more soundings. This PFM was built around thirty seven individual features and includes a large amount of singlebeam data between the features. Each feature was covered with

multibeam and analysis of the nodes in the multibeam coverage for each feature results in a minimum of 99.02% of the nodes contained three or more soundings.

H12587_features_area15_50cm_MLLW PFM used to generate the delivered BAG 15 of 30 had 93.42% of the nodes contained three or more soundings. This PFM was built around six individual features and includes a large amount of singlebeam data between the features. Each feature was covered with multibeam and analysis of the nodes in the multibeam coverage for each feature results in a minimum of 99.53% of the nodes contained three or more soundings.

H12587_features_area25_50cm_MLLW PFM used to generate the delivered BAG 25 of 30 had 89.94% of the nodes contained three or more soundings. This PFM was built around seventeen individual features and includes a large amount of singlebeam data between the features. Each feature was covered with multibeam and analysis of the nodes in the multibeam coverage for each feature results in a minimum of 99.53% of the nodes contained three or more soundings for sixteen of the seventeen features. One of the features was populated with outer beam data resulting in a minimum of 99.31% of the nodes containing three or more soundings.

H12587_features_area27_50cm_MLLW PFM used to generate the delivered BAG 27 of 30 had 89.72% of the nodes contained three or more soundings. This PFM was built around twelve individual features and includes a large amount of singlebeam data between the features. Each feature was covered with multibeam and analysis of the nodes in the multibeam coverage for each feature results in a minimum of 99.68% of the nodes contained three or more soundings for eleven of the twelve features. One of the features was populated with outer beam data resulting in a minimum of 98.93% of the nodes containing three or more soundings.

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

In accordance with the April 2013 NOS HSSD and the Project Instructions, Leidos collected multibeam backscatter with all GSF data acquired by the RESON 7125 SV and RESON 8101 ER. The multibeam settings used for each system were checked to ensure acceptable quality standards were met and to avoid any acoustic saturation of the backscatter data. The multibeam backscatter data acquired by each system was written to the GSF in real-time by ISS-2000 and are delivered in the final GSF files for each sheet.

B.5 Data Processing

B.5.1 Software Updates

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

Manufacturer	Name	Version	Service Pack	Hotfix	Installation Date	Use
Leidos	SABER	5.1.4.6.5			04/18/2014	Processing
Leidos	SABER	5.1.4.6.6			04/23/2014	Processing

Table 7: Software Updates

The following Feature Object Catalog was used: NOAA Extended Attribute Files V5-2.

There were two software configuration changes after the DAPR was submitted. SABER version 5.1.4.6.5 was installed on 18 April 2014 for general processing. SABER version 5.1.4.6.6 was installed on 23 April 2014 and was used for side scan contact XML merging.

B.5.2 Surfaces

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

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H12587_MB_VB_2m_MLLW	BAG	2 meters	0.220 meters - 15.725 meters	N/A	MBES TracklineSBES Set Line Spacing
H12587_VB_2m_MLLW	BAG	2 meters	0.220 meters - 14.542 meters	N/A	MBES TracklineSBES Set Line Spacing
H12587_MB_VB_50cm_MLLW_1of30	BAG	50 centimeters	0.624 meters - 7.918 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_2of30	BAG	50 centimeters	1.280 meters - 3.480 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_3of30	BAG	50 centimeters	1.199 meters - 3.172 meters	N/A	Object Detection

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H12587_MB_VB_50cm_MLLW_4of30	BAG	50 centimeters	1.683 meters - 5.803 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_5of30	BAG	50 centimeters	0.363 meters - 5.770 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_6of30	BAG	50 centimeters	1.183 meters - 3.391 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_7of30	BAG	50 centimeters	0.756 meters - 5.450 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_8of30	BAG	50 centimeters	0.755 meters - 6.736 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_9of30	BAG	50 centimeters	1.237 meters - 5.766 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_10of30	BAG	50 centimeters	0.680 meters - 8.755 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_11of30	BAG	50 centimeters	0.910 meters - 7.009 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_12of30	BAG	50 centimeters	1.130 meters - 7.679 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_13of30	BAG	50 centimeters	0.510 meters - 6.951 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_14of30	BAG	50 centimeters	0.320 meters - 6.478 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_15of30	BAG	50 centimeters	4.157 meters - 6.361 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_16of30	BAG	50 centimeters	1.450 meters - 7.260 meters	N/A	Object Detection

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H12587_MB_VB_50cm_MLLW_17of30	BAG	50 centimeters	1.206 meters - 5.893 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_18of30	BAG	50 meters	0.703 meters - 7.449 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_19of30	BAG	50 centimeters	1.179 meters - 7.059 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_20of30	BAG	50 centimeters	0.525 meters - 14.938 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_21of30	BAG	50 centimeters	3.732 meters - 15.751 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_22of30	BAG	50 centimeters	0.461 meters - 6.116 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_23of30	BAG	50 centimeters	0.685 meters - 6.360 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_24of30	BAG	50 centimeters	5.648 meters - 15.747 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_25of30	BAG	50 centimeters	0.433 meters - 4.070 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_26of30	BAG	50 centimeters	3.050 meters - 10.691 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_27of30	BAG	50 centimeters	0.220 meters - 3.410 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_28of30	BAG	50 centimeters	1.457 meters - 4.724 meters	N/A	Object Detection
H12587_MB_VB_50cm_MLLW_29of30	BAG	50 centimeters	0.629 meters - 5.156 meters	N/A	Object Detection

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H12587_MB_VB_50cm_MLLW_30of30	BAG	50 centimeters	0.829 meters - 10.815 meters	N/A	Object Detection
H12587_ss_1_100	SSS Mosaic	1 meters	-	N/A	100% SSS
H12587_ss_2_100	SSS Mosaic	1 meters	-	N/A	200% SSS

Table 8: Submitted Surfaces

A PFM CUBE Depth surface was used to assess and document multibeam and singlebeam survey coverage. The CUBE depth is populated with either the node's chosen hypothesis or the depth of a feature or designated sounding set by the hydrographer, which overrides the chosen hypothesis. The range of CUBE depths in H12587 was from 0.220 meters (0 feet, 0.290-meter uncertainty) to 15.725 meters (51 feet, 0.280-meter uncertainty). Section 5.2.2.3 of the HSSD requires a four-meter grid resolution for depths ranging from zero meters to 40 meters for set line spacing surveys. Due to the range of depths encountered on this project, Leidos requested and was granted permission to deliver all final grids at the higher two-meter node resolution. Therefore, final CUBE surfaces for H12587 were generated at two-meter grid node resolution. Over significant features, CUBE surfaces were generated at half-meter grid node resolution to meet the object detection specifications defined in Section 5.2.2.1 of the HSSD. Three hundred and ninety significant features were identified in H12587 and 30 half-meter resolution PFM grids were generated to cover these 390 features. Data within the half-meter resolution CUBE PFM grids also remain in the two-meter CUBE PFM grid.

The final gridded bathymetry data are delivered as Bathymetric Attributed Grids (BAG). The BAG files were exported from CUBE PFM grids as detailed in Section B.2.4 of the DAPR.

As of the date of delivery of H12587, CARIS does not support version 1.5.1 BAGs with optional surfaces. Therefore, BAG version 1.1.0 files are delivered. Since the BAG version 1.1.0 files only contain two surfaces, the standard CUBE Depth and Final Hyp. Uncertainty, BAGs will be delivered with the additional surfaces delivered as supplemental non-standard BAG files. These additional BAG files were generated through the same process as the standard BAG files. The version 1.1.0 BAG format only allows for a Depth surface and an Uncertainty surface. Therefore, each of the non-standard BAG files were created with the CUBE Depth values populating the Depth surface of the BAG and each of the additional group surfaces listed below populating the Uncertainty surface of the BAG. Non-standard BAG files for this project are only delivered for the two-meter resolution grids.

Please note when reviewing these additional, non-standard version 1.1.0 BAG files the file name designates the layer that populates the Uncertainty layer of the BAG (Figure 7). Please also note that when displayed the two layers of the BAG remain named Depth and Uncertainty. These non-standard BAGs are provided for review purposes only and are not intended to be used as archival products. These additional surfaces are referred to as Elevation Solution Group surfaces and Node Group surfaces.

Note that by definition, BAG files contain elevations not depths however; many software packages display a BAG elevation surface as a depth (positive values indicating water depth).

The Elevation Solution Group is made up of the following three surfaces:

· shoal elevation - the elevation value of the least-depth measurement selected from the sub-set of measurements that contributed to the elevation solution.
· number of soundings - the number of elevation measurements selected from the sub-set of measurements that contributed to the elevation solution.
· stddev - the standard deviation computed from all elevation values which contributed to any hypothesis within the node. Note that the stddev value is computed from all measurements contributing to the node, whereas shoal elevation and number of soundings relate only to the chosen elevation solution.

The Node Group is made up of the following two surfaces:

· hypothesis strength - the CUBE computed strength of the chosen hypothesis.
· number of hypotheses - the CUBE computed number of hypotheses.

BAG File Name	Comments
H12587_MB_VB_2m_MLLW_CUBE_Depth_Node_Std_Dev	Standard Deviation (Elevation Solution) of 2.0-meter BAG
H12587_MB_VB_2m_MLLW_CUBE_Depth_Hyp_Nmbr_of_Sndgs	Number of Soundings (Elevation Solution) of 2.0-meter BAG
H12587_MB_VB_2m_MLLW_CUBE_Depth_Node_Shoal_Depth	Shoal Depth (Elevation Solution) of 2.0-meter BAG
H12587_MB_VB_2m_MLLW_CUBE_Depth_Node_Hyp_Str	Hypothesis Strength (Node Group) of 2.0-meter BAG
H12587_MB_VB_2m_MLLW_CUBE_Depth_Node_Nmbr_of_Hyp	Number of Hypotheses (Node Group) of 2.0-meter BAG
H12587_VB_2m_MLLW_CUBE_Depth_Node_Std_Dev	Standard Deviation (Elevation Solution) of 2.0-meter BAG
H12587_VB_2m_MLLW_CUBE_Depth_Hyp_Nmbr_of_Sndgs	Number of Soundings (Elevation Solution) of 2.0-meter BAG
H12587_VB_2m_MLLW_CUBE_Depth_Node_Shoal_Depth	Shoal Depth (Elevation Solution) of 2.0-meter BAG
H12587_VB_2m_MLLW_CUBE_Depth_Node_Hyp_Str	Hypothesis Strength (Node Group) of 2.0-meter BAG
H12587_VB_2m_MLLW_CUBE_Depth_Node_Nmbr_of_Hyp	Number of Hypotheses (Node Group) of 2.0-meter BAG

Figure 7: Summary of Non-standard H12587 BAG Files

B.5.3 Side Scan Coverage Analysis

For all details regarding side scan data processing, see Section B.3 of the DAPR. The Project Instructions required 200% side scan coverage with concurrent set line spacing multibeam or singlebeam data for depths greater than four meters and 100% side scan coverage with set line spacing multibeam or singlebeam for water depths of two to four meters. The 200% side scan coverage was verified by generating two separate 100% coverage mosaics at one-meter cell size resolution as specified in Section 8.3.1 of the HSSD. The first and second 100% coverage mosaics were independently reviewed using tools in SABER to verify data quality and swath coverage. Both coverage mosaics are determined to be complete and sufficient to meet the

requirements contained within the Project Instructions. The mosaics are delivered as TIFF (.tif) images with accompanying world files (.tfw).

· H12587_ss_1_100_mosaic
· H12587_ss_2_100_mosaic

Side scan sonar contacts were investigated and confirmed using SABER Contact Review. All side scan sonar contacts and accompanying images are delivered in one of two Side Scan Sonar Contacts S-57 files. The main side scan sonar contact S-57 file contains all side scan contacts with the exception of contacts identified as moorings. This S-57 file does contain polygons delineating the extents of the mooring fields support by the data. A separate supplemental S-57 file containing side scan contacts of individual moorings, as point objects, and the polygons delineating the extents of the mooring fields is also delivered. One exception to this is the large Naval Weapons Station Earle mooring buoy, which is delivered as a point MORFAC object in the Final Feature File S-57.

C. Vertical and Horizontal Control

No vertical or horizontal controls were established, recovered, or occupied during data acquisition for OPR-B310-KR1-13, which includes H12587. Therefore a Horizontal and Vertical Control Report was not required.

C.1 Vertical Control

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

Standard Vertical Control Methods Used:

Discrete Zoning

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

Station Name	Station ID
Sandy Hook, NJ	8531680

Table 9: NWLON Tide Stations

File Name	Status
8531680_verified_082013_012014.tid	Verified Observed

Table 10: Water Level Files (.tid)

File Name	Status
B310KR12013CORP.zdf	Final

Table 11: Tide Correctors (.zdf or .tc)

No final tide note was provided by the NOAA Center for Operational Oceanographic Products and Services (CO-OPS). Leidos is not required to have a final tide note from CO-OPS for H12587 however, a final tide note has been provided by Leidos in Appendix I.

The Tides Statement of Work specified NOAA tide station 8531680 Sandy Hook, NJ as the source for water level correctors. A full explanation of the tide zone assessment is detailed in Section C.4 of the DAPR. For H12587, 8531680 Sandy Hook, NJ was the source of all final verified water level heights for determining correctors to soundings. All data for H12587 were contained within sixteen tide zones (NY1, NY7, NY9, SHB0, SHB1, SHB2, SHB3, SHB4, SHB5, SHB6, SHB7, SHB11, SHB13, SHB14, SHB15, and SHB16) which were provided from NOAA.

Leidos did not revise the delivered tide zones for tide station 8531680 Sandy Hook, NJ as the water level zoning parameters in the file B310KR12013CORP.zdf, provided by National Ocean Service (NOS) were deemed adequate for the application of observed verified water levels. As a result, they were accepted as final and applied to all H12587 bathymetry data.

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.

Please refer to the DAPR for details regarding all antenna and transducer offsets.

Horizontal positioning of the multibeam or singlebeam transducer by the POS/MV was verified by frequent comparison checks against an independent DGPS system. During survey data acquisition, the ISS-2000 real-time system provided a continuous view of the positioning comparison between the POS/MV and the Trimble DGPS. An alarm was triggered within ISS-2000 if the comparisons were not within an acceptable range. Any soundings with total horizontal uncertainties exceeding the maximum allowable IHO S-44 5th Edition Order 1a specifications were flagged as invalid and therefore not used in the CUBE Depth calculations. Daily positioning confidence checks for H12587 were conducted several times throughout the

day and a daily value is presented as a table within Separates I, “Daily Positioning Confidence Checks” for each vessel. Daily positioning confidence checks for the M/V Atlantic Surveyor were within 0.57 meters, the R/V Oyster Bay were within 1.04 meters, and the R/V Henry Hudson were within 2.80 meters.

The following DGPS Stations were used for horizontal control:

DGPS Stations
Sandy Hook, NJ (286 kHz)
Moriches, NY (293 kHz)

Table 12: USCG DGPS Stations

D. Results and Recommendations

D.1 Chart Comparison

The chart comparisons were conducted using the Leidos SABER software to view the BSB raster charts with overlain data for H12587 such as the CUBE gridded surface, selected soundings, contacts, and features. Charting recommendations for depths follow Section 5.1.2 of the HSSD where depths and uncertainties are to be rounded by standard arithmetic rounding (round half up) and accompanying chart depth units are rounded using NOAA cartographic rounding (0.75 round up). All CUBE depths and uncertainty values are provided to millimeter precision.

For ENC comparisons, a combination of Jeppesen’s dKart Inspector, SevenCs’ SeeMyDENC, and CARIS’ EasyView were used in conjunction with SABER.

United States Coast Guard (USCG) District 1 Local Notice to Mariners publications were reviewed for changes subsequent to the date of the Hydrographic Survey Project Instructions and before the end of survey (as specified in Section 8.1.4 of the HSSD). The Notice to Mariners reviewed were from week 22/13 (29 May 2013) until week 03/14 (21 January 2014).

D.1.1 Raster Charts

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

Chart	Scale	Edition	Edition Date	LNM Date	NM Date
12325	1:15000	4	06/2012	04/08/2014	03/22/2014
12331	1:15000	32	01/2010	04/08/2014	04/05/2014
12401	1:15000	11	10/2011	04/01/2014	04/12/2014

Table 13: Largest Scale Raster Charts

12325

Chart 12325 covers the survey area from 40° 25’ 26.00”N 074° 03’ 47.55”W to 40° 21’ 49.25”N 073° 58’ 32.60”W.

Depths in the Leonardo Harbor Channel were generally 4-5 feet deeper than the tabulated controlling depths.

Depths in the Shrewsbury River Highlands Reach Channel were generally 1-8 feet deeper than the tabulated controlling depths.

Depths in the Navesink River Barley Point Reach and Fair Haven Reach Channels were generally 1-9 feet deeper than the tabulated controlling depths.

CUBE depths within sheet H12587 were generally within ±3 feet of the charted depths except for the following area.

Shoaling was found in an area centered approximately 40° 24’ 41.70”N 073° 59’ 26.30”W with a radius of approximately 130 meters. The area was covered with 200% side scan and resulting singlebeam coverage. Charted depths in this area are 13 to 19 feet. CUBE depths in this area were 4 to 10 feet.

The charted depth curves (6-foot, 12-foot, and 18-foot) throughout H12587 were generally found to be in agreement with the survey data. Most were found to be located within 200 meters of their charted locations.

The charted submerged pile in approximately 40° 22’ 10.25”N 074° 02’ 24.55”W was not found. The area around the submerged pile was covered with 100% side scan with resulting singlebeam.

The charted submerged pile in approximately 40° 22’ 12.25”N 074° 02’ 04.80”W was not found. The area around the submerged pile was covered with 100% side scan with resulting singlebeam.

Of the ten charted Markers from approximately 40° 22’ 46.68”N 074° 01’ 06.07”W to 40° 22’ 41.85”N 074° 00’ 51.45”W six were found by side scan (Features 385 and 785 through 789). These private aids

to navigation mark the entrance to the Rumsford, NJ, marina facilities from the Fair Haven Reach of the Navesink River. They are included in the S-57 Final Feature File.

The charted groins from approximately 40° 22’ 50.50”N 073° 59’ 31.45”W to approximately 40° 22’ 51.30”N 073° 59’ 13.40”W were found as charted by side scan.

The charted groin from approximately 40° 22’ 52.35”N 073° 59’ 03.65”W to approximately 40° 22’ 53.05”N 073° 58’ 56.95”W was found as charted by side scan.

The charted dangerous ruins area from approximately 40° 23’ 48.90”N 073° 58’ 47.55”W to approximately 040° 23’ 47.85”N 073° 58’ 39.50”W were found by side scan and partial multibeam coverage.

The charted dangerous wreck labeled PA in approximately 40° 24’ 04.40”N 073° 58’ 49.45”W was not found. The area around the wreck was covered by 200% side scan and multibeam coverage. One contact was found (OB_20132491106069001) in 40° 24’ 03.98”N 073° 58’ 49.32”, approximately 15 meters south of the charted wreck. The contact could not be identified as a wreck and was classified as insignificant in the multibeam investigations.

The two charted piles in approximately 40° 24’ 37.85”N 073° 59’ 53.30”W and approximately 40° 24’ 37.25”N 073° 59’ 53.30”W were not found. The area around the piles was covered with 200% side scan and resulting singlebeam.

The charted exposed wreck labeled PA in approximately 40° 25’ 10.30”N 074° 00’ 06.75”W was not found. The area around the wreck was partially covered with 100% side scan. No wrecks were visible in the area during the survey.

The charted 5-foot dangerous obstruction labeled Obstn in approximately 40° 24’ 57.15”N 074° 00’ 57.80”W was found. Two obstructions (Features 548 and 549) 20 meters apart were found. The shoalest (Feature 548) has a least depth of 4 feet (1.211 meters, 0.270 meter uncertainty) in 40° 24’ 56.37”N 074° 00’ 57.64”W, approximately 25 meters south of the charted obstruction.

The charted 3-foot dangerous obstruction labeled Obstns in approximately 40° 24’ 54.80”N 074° 00’ 57.75”W was found. An obstruction (Feature 550) with a least depth of 3 feet (1.0261 meters, 0.280 meter uncertainty) in 40° 24’ 54.57”N 074° 00’ 57.94”W, approximately 10 meters south-southwest of the charted obstruction.

The charted 1-foot dangerous sounding labeled pier ruins in approximately 40° 24’ 53.20”N 074° 00’ 57.95”W was found. Pier ruins (Feature 674) was found by side scan in 40° 24’ 53.27”N 074° 00’ 58.25”W, approximately 5 meters west of the charted dangerous sounding.

The four charted submerged piles centered in approximately 40° 25’ 10.50”N 074° 02’ 01.30”W were found. Numerous submerged pilings were found in the area. The shoalest (Feature 168) had a least depth of 9 feet (2.844 meters, 0.270 meter uncertainty) in 40° 25’ 11.07”N 074° 02’ 02.00”W, approximately 20 meters north-northwest of the approximate center of the four charted submerged piles.

The four charted piles centered in approximately 40° 25’ 04.75”N 074° 01’ 58.10”W were not found. The area around the piles was covered with 100% side scan and resulting singlebeam and multibeam coverage.

The charted pile in approximately 40° 25’ 05.90”N 074° 02’ 01.85”W was not found. The area around the pile was covered with 100% side scan and resulting singlebeam and multibeam coverage.

The offshore end of the charted submerged ruined pier in approximately 40° 25’ 19.80”N 074° 02’ 09.40” was found by side scan. The area was covered with 200% side scan and resulting singlebeam coverage.

The offshore end of the charted submerged ruins and dolphins in approximately 40° 25’ 24.00”N 074° 02’ 25.30” W was not found. The area was covered with 200% side scan and resulting singlebeam coverage.

The offshore end of the charted submerged ruined pier from approximately 40° 25’ 29.10”N 074° 02’ 30.55”W to approximately 40° 25’ 25.60”N 074° 02’ 32.50”W was found by side scan. The area was covered with 200% side scan and resulting singlebeam coverage.

The two charted submerged dolphins in approximately 40° 25’ 29.30”N 074° 02’ 30.35”W and approximately 40° 25’ 29.90”N 074° 02’ 28.00”W were not found. The area around the submerged dolphins was covered by 200% side scan and resulting singlebeam and multibeam coverage.

The charted dolphin in approximately 40° 25’ 28.45”N 074° 02’ 29.75”W was found as a submerged pile (contact OB_2013287113216500). Additional obstructions were found by side scan in the area and therefore not covered completely due to safety concerns.

The charted platform labeled Platform PA in approximately 40° 25’ 29.75”N 074° 02’ 29.70”W was not found. The area around the platform was covered by 200% side scan and resulting singlebeam and multibeam coverage.

The charted dangerous rock in 40° 23’ 06.91”N 073° 58’ 43.56”W was not found. The area around the charted rock was covered by 200% side scan and resulting singlebeam coverage. A CUBE depth of 1.856 meters was found by singlebeam.

All AWOIS items on this chart are discussed in Section D.1.3.

All new uncharted features found, assigned AWOIS items, and charted feature updates are documented in the Final Feature File (S-57).

12331

Chart 12331 covers the survey area from 40° 29’ 15.85”N 074° 07’ 36.30”W to 40° 26’ 19.75”N 074° 15’ 43.55”W.

Depths in the Keyport Harbor Channel, Reach A and Reach B, were generally 1-2 feet deeper than the tabulated controlling depths.

Depths in the Raritan Bay Ward Point Secondary Channel were generally 2-10 feet deeper than the tabulated controlling depths.

Depths in the Raritan River Great Beds Reach and South Amboy Reach Channels were generally 1-6 feet deeper than the tabulated controlling depths.

CUBE depths within sheet H12587 were generally 1 to 3 feet deeper than the charted depths.

The charted depth curves (6-foot, 12-foot, 18-foot, and 30-foot) throughout H12587 were generally found to be in agreement with the survey data. Most were found to be located within 200 meters of their charted locations with the following exceptions.

The 6-foot depth curve from approximately 40° 28’ 52.60”N 074° 15’ 32.65”w to approximately 40° 28’ 18.77”N 074° 15’ 19.70”W was found up to 500 meters west of the charted position.

The 6-foot depth curve from 40° 26’ 46.25”N 074 11’ 59.54”W to 40° 26’ 58.50”N 074° 12’ 16.50”W was found up to 500 meters west of the charted position.

The 6-foot depth curve from approximately 40° 27’ 38.90”N 074° 08’ 38.50”W to approximately 40° 28’ 08.00”N 074° 07’ 36.00”W was found up to 900 meters south of the charted position.

The 12-foot depth curve from approximately 40° 28’ 52.70”N 074° 13’ 55.90”W to approximately 40° 28’ 28.25”N 074° 11’ 00.50”W was found up to approximately 1200 meters south of its charted position.

The charted dangerous obstruction with a danger circle and labeled Obstn in approximately 40° 28’ 58.00”N 074° 14’ 44.10”W was from Danger To Navigation Report 1. This report was based on side scan data and visual observation of an exposed obstruction on 08 September 2013 (Julian Day 240). On 15 September (Julian Day 258) the obstruction was found in approximately 40° 28’ 57.10”N 074° 14’ 35.40”W approximately 200 meters east of the reported position. On 19 September 2013 (JD 262) the obstruction was found in approximately 40° 28’ 54.45”N 074° 14’ 27.90”W approximately 400 meters east of the reported position. On 23 September 2013 (JD 267) the obstruction was found in approximately 40° 28’ 51.75”N 074° 14’ 02.80”W approximately 1000 meters east of the reported position. On 07 October 2013 (Julian Day 280) the obstruction could not be found. Multibeam and side scan data collected on 10 December 2013 (Julian Day 344) disproved the obstruction in the charted position. Additional information and correspondence can be found in Appendix II.

The charted dangerous wreck labeled PA (Rep 2012) in approximately 40° 28’ 05.45”N 074° 15’ 16.90”W was found by side scan (Feature 668) in 40°28’ 05.77”N 074° 15’ 16.82”W, approximately 10 meter north of the charted position. Least depth was not determined for safety reasons.

The charted exposed wreck labeled (Rep 1984) in approximately 40° 28’ 30.40”N 074° 10’ 20.43”W was not found. The charted area was covered by 200% side scan data and resulting multibeam.

The charted dangerous wreck in approximately 40° 27’ 52.78”N 074° 15’ 01.68”W was found in less than two meters of water in its charted position by side scan. The wreck was not covered by bathymetry data due to safety concerns.

The charted dangerous wreck labeled PA (Rep 2012) in approximately 40° 28’ 35.17”N 074° 14’ 35.95”W was found as an obstruction (Feature 517) with a least depth of 9 feet (2.719 meters, 0.280 meter uncertainty) in 40° 28’ 34.60”N 074° 14’ 35.75”W, approximately 20 meters south of the charted position.

The charted sewer outfall pipe in approximately 40° 27’28.40”N 074° 13’ 32.08”W was found within the side scan data (contact OB_20132412016092300) in 40° 27’ 28.85”N 074° 13’ 33.00”W, approximately 27 meters northwest of the charted position.

The charted pile in 40° 27’17.38”N 074° 08’ 55.15”W was not found. The area was covered by 100% side scan coverage.

All AWOIS items on this chart are discussed in Section D.1.3.

All new uncharted features found, assigned AWOIS items, and charted feature updates are documented in the Final Feature File (S-57).

12401

Chart 12401 covers the survey area from 40° 29’ 15.50”N 073°58’ 46.20”W to 40° 24’ 15.00”N 074° 08’ 19.5”W.

Depths in the Raritan Bay East Reach Channel were generally 2-5 feet deeper than the tabulated controlling depths.

Depths in the southwest end of the Chapel Hill South Channel were generally 2-5 feet deeper than the tabulated controlling depths.

Depths in the west end of the Sandy Hook Channel (Bayside) were generally 1-10 feet deeper than the tabulated controlling depths.

Depths in the Leonardo Harbor Channel were generally 0-10 feet deeper than the tabulated controlling depths.

Depths in the Belford Harbor (Shoal Harbor) Channel were generally 4-5 feet deeper than the tabulated controlling depths.

Depths in the Lower Bay Terminal Channel (Navy) were generally 2-12 feet deeper than the tabulated controlling depths.

Depths in the Turning Basin (Navy) were generally 3-6 feet shoaler than the tabulated controlling depths. In the southeast corner of the Turning Basin, in the vicinity of Pier 2, depths were generally 10-13 feet shoaler

than the tabulated controlling depths. Note that the polygon defining the turning basin on ENC US5NY18M does not include Pier 2. Also on ENC US5NY18M the depth range for the turning basin is 36 to 59 feet (10.9 to 18.2 meters) which differs from the controlling depths presented on chart 12401 (45 feet, 13.7 meters).

CUBE depths within sheet H12587 were generally within ±3 feet of the charted depths except for the following two areas.

Shoaling was found in an area centered approximately 40° 24’ 41.70”N 073° 59’ 26.30”W with a radius of approximately 130 meters. The area was covered with 200% side scan and resulting singlebeam coverage. Charted depths in this area are 13 to 19 feet. CUBE depths in this area were 4 to 10 feet.

CUBE depths of 10 to 14 feet were found in an area approximately 800 by 220 meters oriented 130° - 310° centered approximately 40° 26’ 59.20”N 074° 08’ 31.20”W. Charted depths in this area are 3-4 feet.

The charted depth curves (6-foot 12-foot, 18-foot, and 30-foot) throughout H12587 were generally found to be in agreement with the survey data. Most were found to be located within 300 meters of their charted locations with the following two exceptions.

The charted 18-foot depth curve from approximately 40° 27’ 19.70”N 074° 02' 27.45"W to approximately 40° 26’ 47.70”N 074° 01’ 10.50”W was found approximately 300 to 1200 meters south and west of its charted position.

The charted 18-foot sounding and surrounding 18-foot depth curve in approximately 40° 27’ 26.85”N 074° 02’ 27.60”W was not found. The area was covered with 200% side scan and 100% multibeam. CUBE depths in the area were 20 to 21 feet.

The charted fish trap area centered approximately 40° 27’ 10.59”N 074° 00’ 46.62”W was not found to have fixed fishing gear but was active in surface fishing for clams. There were obstructions (DTON 9) identified in the northwest corner of the fish trap area. A fish weir was present just south of the charted fish trap area. By the completion of the H12587 survey the fish weir was removed and the area was covered by multibeam and 200% side scan. Submerged remains of the fish weir were found and submitted as DTON 24 (Feature 219).

The two charted piles in approximately 40° 24’ 37.85”N 073° 59’ 53.30”W and approximately 40° 24’ 37.25”N 073° 59’ 53.30”W were not found. The area around the piles was covered with 200% side scan and resulting multibeam and singlebeam.

The charted exposed wreck labeled PA in approximately 40° 25’ 10.30”N 074° 00’ 06.75”W was not found. The area around the wreck was partially covered with 100% side scan. No wrecks were visible in the area during the survey.

The charted 5-foot dangerous obstruction labeled Obstn in approximately 40° 24’ 57.15”N 074° 00’ 57.80”W was found. Two obstructions (Features 548 and 549) 20 meters apart were found. The shoalest (Feature 548) has a least depth of 4 feet (1.211 meters, 0.270 meter uncertainty) in 40° 24’ 56.37”N 074° 00’ 57.64”W, approximately 25 meters south of the charted obstruction.

The charted 3-foot dangerous obstruction labeled Obstns in approximately 40° 24’ 54.80”N 074° 00’ 57.75”W was found. An obstruction (Feature 550) with a least depth of 3 feet (1.0261 meters, 0.280 meter uncertainty) in 40° 24’ 54.57”N 074° 00’ 57.94”W, approximately 10 meters south-southwest of the charted obstruction.

The charted 1-foot dangerous sounding labeled pier ruins in approximately 40° 24’ 53.20”N 074° 00’ 57.95”W were found. Pier ruins (Feature 674) were found by side scan in 40° 24’ 53.27”N 074° 00’ 58.25”W, approximately 5 meters west of the charted dangerous sounding.

The four charted submerged pilings centered in approximately 40° 25’ 10.50”N 074° 02’ 01.30”W were found. Numerous submerged pilings were found. The shoalest (Feature 168) had a least depth of 9 feet (2.844 meters 0.270 meter uncertainty) in 40° 25’ 11.07”N 074° 02’ 02.00”W, approximately 20 meters north-northwest of the approximate center of the four charted submerged piles.

The four charted piles centered in approximately 40° 25’ 04.75”N 074° 01’ 58.10”W were not found. The area around the piles was covered with 100% side scan and resulting singlebeam and multibeam coverage.

The charted pile in approximately 40° 25’ 05.90”N 074° 02’ 01.85”W was not found. The area around the pile was covered with 100% side scan and resulting singlebeam and multibeam coverage.

The offshore end of the charted submerged ruined pier in approximately 40° 25’ 19.80”N 074° 02’ 09.40” was found by side scan. The area was covered with 200% side scan and resulting singlebeam coverage.

The offshore end of the charted submerged ruins and dolphins in approximately 40° 25’ 24.00”N 074° 02’ 25.30” W was not found. The area was covered with 200% side scan and resulting singlebeam coverage.

The offshore end of the charted submerged ruined pier from approximately 40° 25’ 29.10”N 074° 02’ 30.55”W to approximately 40° 25’ 25.60”N 074° 02’ 32.50”W was found by side scan. The area was covered with 200% side scan and resulting singlebeam coverage.

The two charted submerged dolphins in approximately 40° 25’ 29.30”N 074° 02’ 30.35”W and approximately 40° 25’ 29.90”N 074° 02’ 28.00”W were not found. The area around the submerged dolphins was covered by 200% side scan and resulting singlebeam and multibeam coverage.

The charted dolphin in approximately 40° 25’ 28.45”N 074° 02’ 29.75”W was found as a submerged pile (contact OB_2013287113216500). Additional obstructions were found by side scan in the area and therefore not covered completely due to safety concerns.

The charted platform labeled Platform PA in approximately 40° 25’ 29.75”N 074° 02’ 29.70”W was not found. The area around the platform was covered by 200% side scan and resulting singlebeam and multibeam coverage.

The charted pipe labeled Pipe PA in approximately 40° 26’ 52.44”N 074° 06’ 30.50”W was found by side scan. An exposed pipe (Feature 818) was found by side scan in 40° 26’ 51.95”N 074° 06’ 31.68”W, approximately 30 meters southwest of the charted position.

All AWOIS items on this chart are discussed in Section D.1.3.

All new uncharted features found, assigned AWOIS items, and charted feature updates are documented in the Final Feature File (S-57).

D.1.2 Electronic Navigational Charts

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

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US5NJ11M	1:15000	31	05/01/2013	02/12/2014	NO
US5NJ15M	1:15000	12	01/02/2014	02/07/2014	NO
US5NY18M	1:15000	31	12/13/2013	04/03/2014	NO

Table 14: Largest Scale ENCs

US5NJ11M

Chart US5NJ11M covers the survey area from 40° 29’ 18.00”.00”N 074° 07’ 35.90”W to 40° 26’ 19.75”N 074° 15’ 43.55”W.

Depths in the Keyport Harbor Channel, Reach A and Reach B, were generally 0.3-0.8 meters deeper than the depth range value 1 (DRVAL1) for the dredged area.

Depths in the Raritan Bay Ward Point Secondary Channel were generally 0.6-3.0 meters deeper than the depth range value 1 (DRVAL1) for the dredged area.

Depths in the Raritan River Great Beds Reach and South Amboy Reach Channels were generally 0.3-2.0 meters deeper than the depth range value 1 (DRVAL1) for the dredged area.

CUBE depths within sheet H12587 were generally 0.3-1.0 meter deeper than the charted depths.

The charted depth curves (1.8-meter, 3.6-meter, 5.4-meter, and 9.1-meter) throughout H12587 were generally found to be in agreement with the survey data. Most were found to be located within 200 meters of their charted locations with the following exceptions.

The 1.8-meter depth curve was found to differ from the charted position in the following areas:

The 1.8-meter depth curve from 40° 28’ 52.40”N 074° 15’ 32.56”W to 40° 28’ 17.40”N 074° 15’ 18.66”W was found up to 500 meters west of the charted position.

The 1.8-meter depth curve from 40° 26’ 46.25”N 074 11’ 59.82”W to 40° 26’ 58.59”N 074° 12’ 16.78”W was found up to 500 meters west of the charted position.

The 1.8-meter depth curve from 40° 27’ 38.87”N 074° 08’ 38.44”W to 40° 28’ 07.52”N 074° 07’ 35.90”W was found up to 900 meters south of the charted position.

The 3.6-meter depth curve from 40° 28’ 52.77”N 074° 13’ 55.71”W to 40° 28’ 28.24”N 074° 10’ 59.98”W was found up to approximately 1200 meters south of its charted position.

The charted dangerous submerged obstruction in 40° 28’ 58.00”N 074° 14’ 44.10”W was from Danger To Navigation Report 1. This report was based on side scan data and visual observation of an exposed obstruction on 08 September 2013 (Julian Day 240). On 15 September (Julian Day 258) the obstruction was found in approximately 40° 28’ 57.10”N 074° 14’ 35.40”W approximately 200 meters east of the reported position. On 19 September 2013 (JD 262) the obstruction was found in approximately 40° 28’ 54.45”N 074° 14’ 27.90”W approximately 400 meters east of the reported position. On 23 September 2013 (JD 267) the obstruction was found in approximately 40° 28’ 51.75”N 074° 14’ 02.80”W approximately 1000 meters east of the reported position. On 07 October 2013 (Julian Day 280) the obstruction could not be found. Multibeam and side scan data collected on 10 December 2013 (Julian Day 344) disproved the obstruction in the charted position. Additional information and correspondence can be found in Appendix II.

The charted dangerous submerged wreck in approximately 40° 27’ 52.73”N 074° 15’ 01.69”W was found in less than two meters of water in its charted position by side scan. The wreck was not covered by bathymetry data due to safety concerns.

The charted dangerous submerged wreck in 40° 28’ 05.43”N 074° 15’ 16.92”W was found by side scan (Feature 668) in 40°28’ 05.77”N 074° 15’ 16.82”W, approximately 10 meter north of the charted position. Least depth was not determined for safety reasons.

The charted dangerous submerged wreck in 40° 28’ 35.18”N 074° 14’ 35.99”W was found as an obstruction (Feature 517) with a least depth 2.719 meters (0.280 meter uncertainty) in 40° 28’ 34.60”N 074° 14’ 35.75”W, approximately 20 meters south of the charted position.

The charted sewer outfall pipe in approximately 40° 27’28.38”N 074° 13’ 32.00”W was found within the side scan data (contact OB_20132412016092300) in 40° 27’ 28.85”N 074° 13’ 33.00”W, approximately 27 meters northwest of the charted position.

The charted pile in 40° 27’17.38”N 074° 08’ 55.15”W was not found. The area was covered by 100% side scan coverage.

The charted always dry wreck labeled in 40° 28’ 30.48”N 074° 10’ 20.40”W was not found. The charted area was covered by 200% side scan data and resulting multibeam.

All AWOIS items on this chart are discussed in Section D.1.3.

All new uncharted features found, assigned AWOIS items, and charted feature updates are documented in the Final Feature File (S-57).

US5NJ15M

Chart US5NJ15M covers the survey area from 40° 24’ 15.00”N 073° 58’ 32.60”W to 40° 21’ 49.25”N 074° 03’ 47.55”W.

Depths in the Shrewsbury River Highlands Reach Channel were generally 0.5-2.5 meters deeper than the depth range value1 (DRVAL1) for the dredged area.

Depths in the Navesink River Barley Point Reach and Fair Haven Reach Channels were generally 0.3-3.0 meters deeper than the depth range value1 (DRVAL1) for the dredged area.

CUBE depths within sheet H12587 were generally within ±1 meters of the charted depths except for the following area.

The charted depth curves (1.8-meter, 3.6-meter, and 5.4-meter) throughout H12587 were generally found to be in agreement with the survey data. Most were found to be located within 200 meters of their charted locations.

The charted submerged snag/stump in 40° 22’ 10.22”N 074° 02’ 24.55”W was not found. The area around the submerged pile was covered with 100% side scan with resulting multibeam.

The charted submerged snag/stump in 40° 22’ 12.25”N 074° 02’ 04.77”W was not found. The area around the submerged pile was covered with 100% side scan with resulting multibeam.

Six of the charted ten special purpose marks from 40° 22’ 46.68”N 074° 01’ 06.05”W to 40° 22’ 41.48”N 074° 00’ 52.90”W were found by side scan (Features 385 and 785 through 789). These private aids to navigation mark the entrance to the Rumsford, NJ, marina facilities from the Fair Haven Reach of the Navesink River. They are included in the S-57 Final Feature File.

The charted submerged groins from 40° 22’ 50.53”N 073° 59’ 31.51”W to 40° 22’ 50.66”N 073° 59’ 29.66”W and 40° 22’ 50.14”N 073° 59’ 24.73”W to 40° 22’51.58”N 73° 59’ 10.80”W were found as charted by side scan.

The charted submerged groin from 40° 22’ 52.35”N 073° 59’ 03.62”W to 40° 22’ 53.04”N 073° 58’ 56.76”W was found as charted by side scan.

The charted ruined jetty area from 40° 23’ 49.01”N 073° 58’ 47.52”W to 040° 23’ 48.02”N 073° 58’ 39.55”W was found by side scan and partial multibeam coverage.

The charted dangerous submerged wreck in 40° 24’ 04.44”N 073° 58’ 49.49”W was not found. The area around the wreck was covered by 200% side scan and multibeam coverage. One contact was found (OB_20132491106069001) in 40° 24’ 03.98”N 073° 58’ 49.32”, approximately 15 meters south of the

charted wreck. The contact could not be identified as a wreck and was classified as insignificant in the multibeam investigations.

The charted underwater rock which covered and uncovers and an unknown depth in 40° 23’ 06.91”N 073° 58’ 43.56”W was not found. The area around the charted rock was covered by 200% side scan and resulting singlebeam coverage. A CUBE depth of 1.856 meters was found by singlebeam.

All AWOIS items on this chart are discussed in Section D.1.3.

All new uncharted features found, assigned AWOIS items, and charted feature updates are documented in the Final Feature File (S-57).

US5NY18M

ENC US5NY18M covers the survey area from 40° 29’ 15.50”N 073°58’ 46.30”W to 40° 24’ 15.00”N 074° 07’ 03.00”W.

Depths in the Raritan Bay East Reach Channel were generally 0.6-1.5 meters deeper than the depth range value 1 (DRVAL1) for the dredged area.

Depths in the southwest end of the Chapel Hill South Channel were generally 0.6-1.5 meters deeper than depth range value 1 (DRVAL1) for the dredged area.

Depths in the west end of the Sandy Hook Channel (Bayside) were generally 0.3-3.0 meters deeper than the depth range value 1 (DRVAL1) for the dredged area.

Depths in the Leonardo Harbor Channel were generally 0-3 meters deeper than the depth range value 1 (DRVAL1) for the dredged area.

Depths in the Belford Harbor (Shoal Harbor) Channel were generally 1.0-1.5 meters deeper than the depth range value 1 (DRVAL1) for the dredged area.

Depths in the Lower Bay Terminal Channel (Navy) were generally 0.6-3.5 meters deeper than the depth range value 1 (DRVAL1) for the dredged area.

Depths in the Turning Basin (Navy) were generally 1-2 meters deeper than depth range value 1 (DRVAL1) and 4.0-6.0 meters shoaler than the depth range value 2 (DRVAL2) for the depth area. Note that the polygon defining the Turning Basin (Navy) does not include the area around Pier 2 where raster chart 12401 includes the area around Pier 2. Also on the raster chart the Controlling depth is tabulated as 45 feet where on ENC US5NY18M the depth range values are 10.9 to 18.2 meters (36–59 feet).

CUBE depths within sheet H12587 were generally within ±1.0 meters of the charted depths except for the following two areas.

Shoaling was found in an area centered approximately 40° 24’ 41.70”N 073° 59’ 26.30”W with a radius of approximately 130 meters. The area was covered with 200% side scan and resulting singlebeam coverage.

Charted depths in this area were 3.9 to 5.7 meters. CUBE depths in this area were 1.570 to 3.102 meters. CUBE depths of 2.698 to 4.522 feet were found in an area approximately 800 by 220 meters oriented 130° - 310° centered approximately 40° 26’ 59.10”N 074° 06’ 31.20”W. Charted depths in this area were 0.9 meters.

The charted depth curves (1.8-meter, 3.6-meter, 5.4-meter, and 9.1-meter) throughout H12587 were generally found to be in agreement with the survey data. Most were found to be located within 300 meters of their charted locations with the following two exceptions.

The charted 5.4-meter depth curve from 40° 27’ 19.65”N 074° 02' 27.37"W to 40° 26’ 47.55”N 074° 01’ 10.22”W was found approximately 300 to 1200 meters south and west of its charted position.

The charted 5.4-meter sounding and surrounding 5.4-meter depth curve in 40° 27’ 26.79”N 074° 02’ 27.43”W was not found. The area was covered with 200% side scan and 100% multibeam. CUBE depths in the area were 6.222 to 6.560 meters.

The two charted piles in 40° 24’ 37.77”N 073° 59’ 53.41”W and 40° 24’ 37.12”N 073° 59’ 53.44”W were not found. The area around the piles was covered with 200% side scan and resulting singlebeam.

The charted exposed wreck in 40° 25’ 10.20”N 074° 00’ 06.60”W was not found. The area around the wreck was partially covered with 100% side scan. No wrecks were visible in the area during the survey.

The charted dangerous obstruction with a depth of 1.5 meters in 40° 24’ 57.22”N 074° 00’ 57.78”W was found. Two obstructions (Features 548 and 549) 20 meters apart were found. The shoalest (Feature 548) has a least depth of 1.211 meters (0.270 meter uncertainty) in 40° 24’ 56.37”N 074° 00’ 57.64”W, approximately 25 meters south of the charted obstruction.

The charted dangerous obstruction with a depth of 0.9 meters in 40° 24’ 54.82”N 074° 00’ 57.67”W was found. An obstruction (Feature 550) with a least depth of 1.0261 meters (0.280 meter uncertainty) was found in 40° 24’ 54.57”N 074° 00’ 57.94”W, approximately 10 meters south-southwest of the charted obstruction.

The charted dangerous obstruction in 40° 24’ 53.21”N 074° 00’ 57.97”W was found. Pier ruins (Feature 674) were found by side scan in 40° 24’ 53.27”N 074° 00’ 58.25”W, approximately 5 meters west of the charted dangerous sounding.

The four charted submerged obstructions centered in approximately 40° 25’ 10.50”N 074° 02’ 01.30”W were found. Numerous submerged pilings were found. The shoalest (Feature 168) had a least depth of 2.844 meters (0.270 meter uncertainty) in 40° 25’ 11.07”N 074° 02’ 02.00”W, approximately 20 meters north-northwest of the approximate center of the four charted submerged piles.

The four charted piles centered in approximately 40° 25’ 04.75”N 074° 01’ 58.10”W were not found. The area around the piles was covered with 100% side scan and resulting singlebeam and multibeam coverage.

The charted pile in 40° 25’ 05.93”N 074° 02’ 01.84”W was not found. The area around the pile was covered with 100% side scan and resulting singlebeam and multibeam coverage.

The offshore end of the charted submerged pier from 40° 25’ 20.68”N 074° 02’ 09.74”W to 40° 25’ 18.79”N 074° 03’ 09.77”W was found by side scan. The area was covered with 200% side scan and resulting singlebeam coverage.

The offshore end of the charted submerged pier from 40° 25’ 24.83”N 074° 02’ 26.11”W to 40° 25’ 21.96”N 074° 02’ 24.49”W was not found. The area was covered with 200% side scan and resulting singlebeam coverage.

The two charted submerged dolphins in 40° 24’ 24.45N 074° 02’ 24.12”W and 40° 25’ 25.16”N 074° 02’ 26.27”W were not found. The area was covered with 200% side scan and resulting singlebeam coverage.

The offshore end of the charted submerged pier from 40° 25’ 29.47”N 074° 02’ 29.50”W to 40° 25’ 26.96”N 074° 02’ 31.98”W was found by side scan. The area was covered with 200% side scan and resulting singlebeam coverage.

The two charted submerged dolphins in 40° 25’ 29.28”N 074° 02’ 30.32”W and 40° 25’ 28.88”N 074° 02’ 27.99”W were not found. The area around the submerged dolphins was covered by 200% side scan and resulting singlebeam and multibeam coverage.

The charted dolphin in 40° 25’ 28.42”N 074° 02’ 29.83”W was found as a submerged pile (contact OB_2013287113216500). Additionally obstructions were found by side scan in the area and therefore not covered completely due to safety concerns.

The charted offshore platform in 40° 25’ 29.13”N 074° 02’ 29.64”W was not found. The area around the platform was covered by 200% side scan and resulting singlebeam and multibeam coverage.

The charted pile in 40° 26’ 52.44”N 074° 06’ 30.48”W was found by side scan. An exposed pipe (Feature 818) was found by side scan in 40° 26’ 51.95”N 074° 06’ 31.68”W, approximately 30 meters southwest of the charted position.

The charted fish trap area and structures centered approximately 40° 27’ 10.59”N 074° 00’ 46.62”W was not found to have fixed fishing gear but was active in surface fishing for clams. There were obstructions (DTON 9) identified in the northwest corner of the fish trap area. A fish weir was present just south of the charted fish trap area. By the completion of the survey the fish weir was removed and the area was covered by multibeam and 200% side scan. Submerged remains of the fish weir were found and submitted as DTON 24 (Feature 219).

All AWOIS items on this chart are discussed in Section D.1.3.

All new uncharted features found, assigned AWOIS items, and charted feature updates are documented in the Final Feature File (S-57).

D.1.3 AWOIS Items

All assigned and information AWOIS item updates are included in the Final Feature File (S-57).

AWOIS 1573 was found by side scan only. The area around this information only AWOIS was covered by 200% side scan to approximately the 3.0-meter depth curve and 100% side scan from approximately the 3.0-meter depth curve to approximately the 1.5-meter depth curve, and singlebeam. Wreckage (Feature 673) was found in 40° 22' 41.03"N 074° 01' 12.80"W and was identified in two side scan contacts (OB_20132791654244200 and OB_20132791702417900) approximately ten meters southwest of charted position. CUBE depths in the area were 1.5 to 1.6 meters and unsafe for multibeam operations.

AWOIS 1577 was not found. The area around this information only AWOIS area was covered by 200% side scan to approximately the 1.5-meter depth curve, 100% side scan from approximately the 1.5-meter depth curve to approximately the 1.2-meter depth curve, and singlebeam. No objects were found within 100 meters of the charted position in the survey coverage.

AWOIS 2447 was not found. The area west of this information only AWOIS area was covered by 200% side scan and resulting singlebeam to approximately the 1.8-meter depth curve (approximately 210 meters from the charted position), 100% side scan coverage and resulting singlebeam from approximately the 1.8-meter depth curve to approximately the 1.5-meter depth curve (approximately 140 meters from the charted position. No objects were found within the survey coverage.

AWOIS 2448 was observed visually. The area west and south of this information only AWOIS was covered by 200% side scan to approximately the 2.1-meter depth curve (approximately 130 meters from the charted position), 100% side scan from approximately the 2.1-meter depth curve to approximately the 1.5-meter depth curve (approximately 55 meters from the charted position), and resulting singlebeam. A photograph of the object is included in the S-57 Final Feature File.

AWOIS 2449 was found. Approximately 95 meters of the eastern part of the 200-meter search radius was covered by 200% side scan; 100% side scan coverage of approximately 130 meters of the northern, eastern, and western parts of the search radius; and resulting singlebeam and multibeam coverage. The entire area was not covered due to safety reasons. Two debris mounds were found by side scan (OB_20132541828322200 and OB_20132361532016700) inside the search radius. Pier ruins were found by side scan and singlebeam (Feature 658) with a least depth of 3 feet (1.100 meters, 0.290 meter uncertainty) in 40° 26' 57.89"N 074° 05' 12.36"W. This feature is approximately 275 meters 008° from the reported position, but inside the charted pier ruins area.

AWOIS 2450 was not found. The 200-meter search radius was covered by 200% side scan and resulting singlebeam. One insignificant side scan contact (OB_20132541850542101) with an estimated height of 0.33 meters in CUBE depths of 1.9 to 2.0 meters was identified inside the search area.

AWOIS 2460 was found. The 50-meter search radius was covered with 200% side scan with resulting singlebeam and multibeam coverage. A wreck (Feature 178) with a least depth of 7 feet (2.294 meters, 0.280 meter uncertainty) in 40° 24' 42.38"N 073° 59' 54.09"W was found approximately 40 meters west of the charted position.

AWOIS 2461 was not found. The 200-meter search radius was covered with 200% side scan coverage and resulting multibeam and singlebeam coverage. No features were found within the search area.

AWOIS 2462 was found. The 200-meter search radius was covered with 200% side scan and resulting singlebeam and multibeam coverage; except for approximately a 75-meter section in the northwest where the Naval Weapons Station Earle Pier is encompassed in the search area. An obstruction (Feature 390) with a least depth of 9 feet (2.819 meters, 0.280 meter uncertainty) was found in 40° 26' 14.11"N 074° 03' 31.51"W approximately 150 meters (at 182°) from the charted position.

AWOIS 2463 was found. The 200-meter search radius was covered with 200% side scan coverage and resulting singlebeam and multibeam coverage. An obstruction (Feature 334) with a least depth of 14 feet (4.418 meters, 0.280 meter uncertainty) was found in 40° 25' 14.94"N 074° 00' 23.14"W approximately 100 meters (at 341°) from the charted position.

AWOIS 3337 was found. Half of the 100-meter search radius was covered with 200% side scan and resulting singlebeam and multibeam coverage. The Naval Weapons Station Earle Pier is encompassed in the western half of the search area. A wreck (Feature 227) that covers and uncovers was found in 40° 26' 24.29"N 074° 03' 32.97"W.

AWOIS 6833 was not found. The area approximately 25 meters north and east of this information only AWOIS was covered with 200% side scan and resulting singlebeam and multibeam coverage. No wrecks were found inside the coverage area nor were there any visible wrecks observed by the survey crew.

AWOIS 7546 was not investigated during this survey. The charted position was in CUBE depths less than approximately 5 feet (1.5 meters) and unsafe for survey operations.

AWOIS 9756 was found. The area around this information only AWOIS was covered by 200% side scan and resulting singlebeam and multibeam coverage. An obstruction (Feature 153) with a least depth of 13 feet (3.911 meters, 0.380 meter uncertainty) was found in 40° 27' 12.39"N 074° 02' 41.61"W approximately in the charted position.

AWOIS 10650 was not found. The 50-meter search radius was covered with 200% side scan and resulting singlebeam and multibeam coverage. No features inside the search area were found.

AWOIS 10662 was not found. The 200-meter search radius was covered with 200% side scan and resulting singlebeam and multibeam coverage. No wrecks inside the search area were found.

AWOIS 10664 was not found. The 200-meter search radius was covered with 200% side scan and resulting singlebeam and multibeam coverage. No wrecks inside the search area were found.

AWOIS 12967 was found. The area around this information only AWOIS area was covered with 200% side scan and resulting singlebeam and multibeam coverage. Seven objects were found and investigated within approximately 350 meters of the charted position. The closest to the charted position is an insignificant obstruction (Feature 102) with a least depth of 19 feet (5.974 meters, 0.280 meter uncertainty) in 40° 27' 37.30"N 074° 03' 36.73"W approximately 25 meters south of the charted position. A shoaler obstruction

(Feature 58) with a least depth of 17 feet (5.264 meters, 0.280 meter uncertainty) in 40° 27’ 38.06”N 074° 03’ 27.94”W was found approximately 200 meters east of the charted position.

AWOIS 12968 was found. The area around this information only AWOIS was covered with 200% side scan and resulting multibeam. An obstruction (Feature 8) with a least depth of 22 feet (6.861 meters, 0.270 meter uncertainty) in 40° 29’ 03.83”N 074° 03’ 08.57”W was found approximately 395 meters (at 009°) from the charted position.

AWOIS 13232 was found. The area around the information only AWOIS was covered by 200% side scan and resulting singlebeam and multibeam coverage. An obstruction (Feature 127) with a least depth of 12 feet (3.714 meters, 0.280 meter uncertainty) was found in 40° 26’ 04.18”N 074° 00’ 21.80”W approximately 10 meters north of the charted position.

AWOIS 13233 was found. The area around this information only AWOIS was covered with 200% side scan and resulting singlebeam and multibeam coverage. A wreck (Feature 94) with a least depth of 16 feet (4.980 meter, 0.280 meter uncertainty) was found in 40° 25’ 53.98”N 074° 00’ 39.11”W approximately 10 meters (at 145°) from the charted position.

D.1.4 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.5 Charted Features

All charted features labeled PA, ED, PD, or Rep not assigned as an AWOIS item and investigated are discussed in Section D.1 for each chart.

D.1.6 Uncharted Features

See the S-57 Final Feature File for all the details and recommendations regarding new uncharted features investigated.

D.1.7 Dangers to Navigation

The following DTON reports were submitted to the processing branch:

DTON Report Name	Date Submitted
H12587_dton1.000	2013-09-11
H12587_dton2.000	2013-09-11
H12587_dton3.000	2013-09-13
H12587_dton4.000	2013-09-13
H12587_dton5.000	2013-09-23
H12587_dton6.000	2013-09-26
H12587_dton7.000	2013-09-26
H12587_dton8.000	2013-10-16
H12587_dton9.000	2013-11-15
H12587_dton10.000	2013-11-15
H12587_dton11.000	2013-11-15
H12587_dton12.000	2013-11-15
H12587_dton13.000	2013-12-12
H12587_dton14.000	2013-12-12
H12587_dton15.000	2013-12-12
H12587_dton16.000	2013-12-12
H12587_dton17.000	2013-12-12
H12587_dton18.000	2013-12-12
H12587_dton19.000	2014-01-30
H12587_dton20.000	2014-01-30
H12587_dton21.000	2014-02-03
H12587_dton22.000	2014-02-03
H12587_dton23.000	2014-02-04
H12587_dton24.000	2014-02-04
H12587_dton25.000	2014-02-06
H12587_dton26.000	2014-02-06
H12587_dton27.000	2014-02-06
H12587_dton28.000	2014-03-27

Table 15: DTON Reports

Leidos submitted twenty-eight Danger to Navigation Reports (DTON) in S-57 format. Copies of the Atlantic Hydrographic Branch (AHB) verification email and Atlantic Hydrographic Branch reports, in PDF format, submitted to the Nautical Data Branch (NDB)/Marine Chart Division (MCD) are included in a sub-directory within Appendix II of this Data Report. Note that H12587_dton6.000, as submitted by Leidos, was not submitted by AHB to MCD. More information about this is contained in Appendix II.

D.1.8 Shoal and Hazardous Features

No shoals or potentially hazardous features exist for this survey.

D.1.9 Channels

H12857 covered sections of the Raritan Bay Channel (East Reach, Great Beds Reach, and Ward Point Secondary Channel sections), Keyport Harbor Channel (Reach A and B), Belford Harbor Channel (Reach A, B, and C), Leonardo Harbor Channel, Naval Weapons Station Earle turning basin, part of the Terminal Channel, Shrewsbury River (Highlands Reach), and Navesink River (Barley Point Reach and Fair Haven Reach). Survey depths were generally one to six feet (0.5 to 2.0 meters) deeper than the tabulated controlling depths but as much as twelve feet deeper than the tabulated controlling depths for the Naval Weapons Station Earle Terminal Channel. Depths in the turning basin (Navy) were generally 3-6 feet shoaler than the tabulated controlling depths. In the southeast corner of the turning basin, in the vicinity of Pier 2, depths were generally 10-13 feet shoaler than the tabulated controlling depths. Note that the polygon defining the turning basin on ENC US5NY18M does not include Pier 2. Also on ENC US5NY18M the depth range for the turning basin is 36 to 59 feet (10.9 to 18.2 meters) which differs from the controlling depths presented on chart H12401 (45 feet, 13.7 meters).

D.1.10 Bottom Samples

In accordance with both the Project Instructions and Section 7.1 of the HSSD, bottom characteristics were obtained for H12587. Bottom characteristics were acquired at the locations proposed in the Project Reference File (PRF) by NOAA. From the PRF, Leidos modified the position of two bottom samples that were located outside the 2-meter inshore depth limit as defined in the Project Instructions. Leidos did not modify any other locations from the recommended locations provided by NOAA. Seventy-four samples were collected. Bottom characteristics are included in the H12587 S-57 Final Feature File, H12587_FFF.000, within the Seabed Area (SBDARE) object and are classified according to the requirements set forth in Appendix 10 of the HSSD. In addition to being maintained within the S-57 Final Feature File, bottom characteristic results are represented in Appendix II of this document. Bottom characteristics obtained for H12587 are sufficient to be used to update the respective charts.

D.2 Additional Results

D.2.1 Shoreline

Shoreline was not assigned in the Hydrographic Survey Project Instructions or Statement of Work.

D.2.2 Prior Surveys

The junction analysis with the contemporary 2013-2014 H12586 survey, and the contemporary 2007 and 2008 H11399 and H11709 surveys was conducted and the results are presented in section B.2.3 of this Report.

D.2.3 Aids to Navigation

One hundred fifty one (151) Aids to Navigation (ATONs) exist for this survey of which 76 were USCG maintained aids to navigation, which are not included in the S-57 Final Feature File as called for in the HSSD. The 75 ATONs that are included in the S-57 Final Feature File are as follows:

· 2 Beacon, Special Purpose (BCNSPP)
· 2 Buoy, Isolated Danger (BOYISD)
· 12 Buoy, Lateral (BOYLAT)
· 40 Buoy, Special Purpose General (BOYSPP)
· 19 Daymarks (DAYMAR)

The individual Feature Correlator Sheets for all ATONs are presented as JPEG files in the Multimedia folder and are named by the feature number. Individual Feature Correlator Sheets for USCG maintained ATONs are presented as JPEG files in the Multimedia folder (Features 677, 679, 680, 682, 690–700, 702, 703, 709, 713, 714, 716–724, 726–736, 738–740, 743–753, 755–775, and 784).

Each USCG maintained ATON was compared to the United States Coast Guard List Volume II Atlantic Coast, updated through LNM week: 01/14.

All USCG maintained ATONs were found to serve their intended purpose. A few ATONs were found to differ slightly from their charted position but is consistent with the cautionary notes indicating buoys may be relocated or removed and to see the U.S. Coast Guard Light List for details.

D.2.4 Overhead Features

The fixed Highlands Bridge over the Shrewsbury River and the fixed and bascule sections of the Oceanic Bridge over the Navesink River exist and are adequately charted. Charted clearances on the Highlands Bridge is 61 feet (18.50 meters) and on the Oceanic Bridge charted clearance is 22 feet (6.70 meters). Actual clearance was not surveyed.

D.2.5 Submarine Features

Insignificant side scan contacts were made on what may be exposed sections of pipeline on chart 12401. One pipeline, approximately 260 meters in length, is located northwest of Point Comfort (Features 660 and 661). A pipeline was located in the Belford Harbor Channel just south of navigational aid red nun number 8 (contact OB_20132541628517100) continuing into Belford Harbor to the junction of Reach B and C (contact OB_201325417143700). The charted sewer outfall pipe in approximately 40° 27'28.40"N 074° 13' 32.08"W was found within the side scan data (contact OB_20132412016092300) in 40° 27' 28.85"N 074° 13' 33.00"W, approximately 27 meters northwest of the charted position. During the survey, dredge operations began in the vicinity of Horseshoe Cove. Numerous dredge pipes were established within the area centered around 40° 26' 27.76"N 074° 00' 06.25"W. The existence of the dredge pipes in the side scan, singlebeam, and multibeam data were variable as the dredge pipes were being installed and moved throughout the survey. Nine sections of dredge pipe are identified within the S-57 Final Feature File.

D.2.6 Ferry Routes and Terminals

Three uncharted ferry terminals exist within H12587:

· Atlantic Highlands Terminal in approximately 40° 25' 12.05"N 074° 02' 05.20"W.
· Conners Highlands Terminal in approximately 40° 24' 32.76"N 073° 59' 44.54"W.
· USCG Fort Hancock Ferry Terminal in approximately 40° 27' 52.55"N 074° 00' 26.48"W (seasonal 30 June to Labor Day).

One charted ferry terminal was found in approximately 40° 26' 00.30"N 074° 04' 44.65"W (Belford Harbor), see Features 822, 948, and 949.

These ferry terminals are included in the S-57 Final Feature File as Shoreline Construction objects (SCLONS), with notes referencing the name of the terminal in the Remarks attribute, and identified with a label "Ferry Terminal".

There were no charted Ferry Routes.

D.2.7 Platforms

No platforms exist for this survey.

D.2.8 Significant Features

Within the charted circular Pipeline Area centered in approximately 40° 28' 52.25"N 074° 15' 11.90"W four regularly spaced deep approximately 7-meter deep holes were found, Feature 8. CUBE depths in these holes were 10.1 to 10.6 meters with surrounding depths of approximately 3.0 to 3.3 meters, Figure 9. Survey operations in this area on Julian Day 267 and 344 reported that there were four visible areas of upwelling on

the water surface. This is the approximate location of the Middlesex County Utilities Authority (MCUA) wastewater outfall.

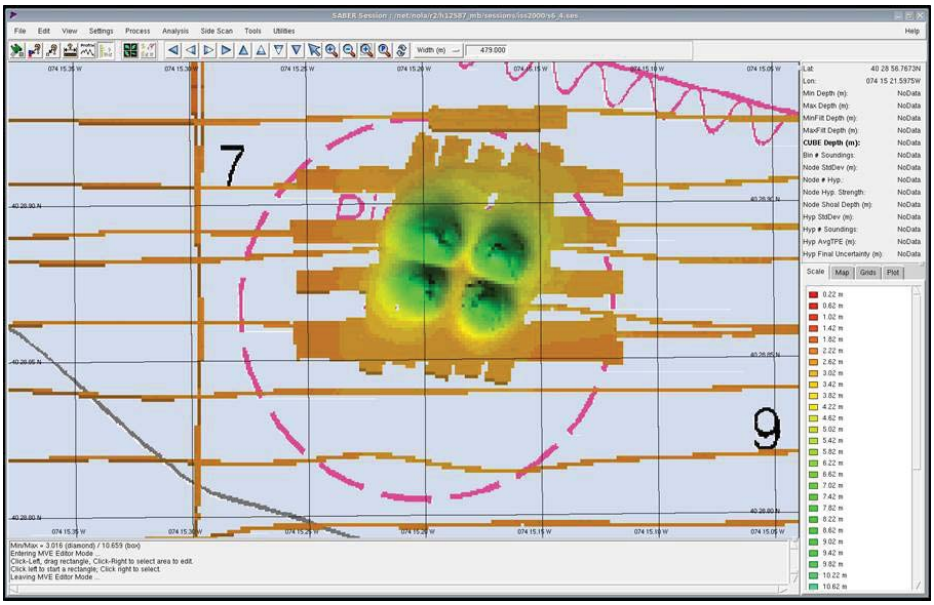

Figure 8: Four 7-meter Deep Holes in Vicinity of Charted Circular Pipeline Area

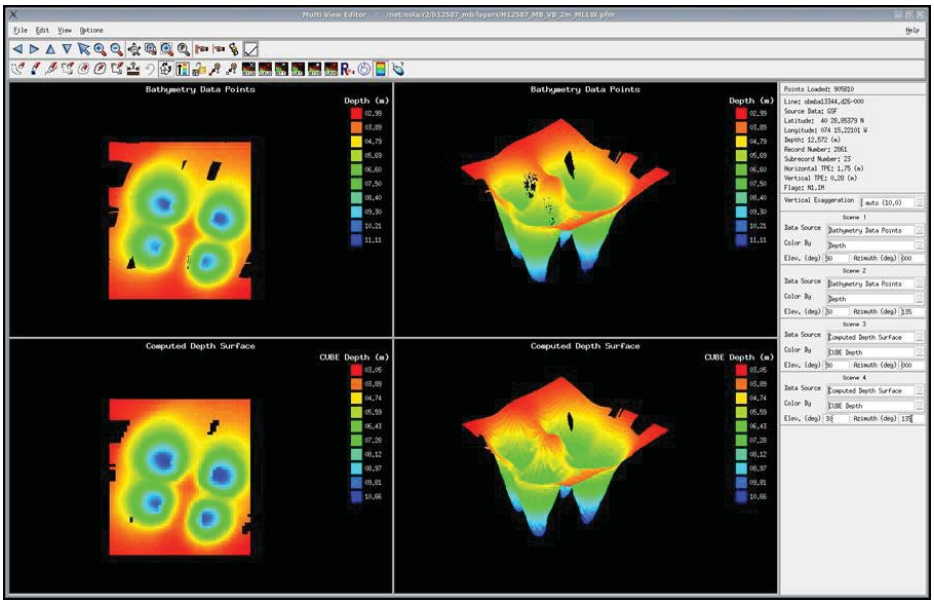

Figure 9: MultiView Editor of Four 7-meter Deep Holes in Vicinity of Charted Circular Pipeline

D.2.9 Construction and Dredging

During the H12587 survey dredge operations began in the vicinity of Horseshoe Cove centered around 40° 26’ 27.76”N 074° 00’ 06.25”W. The existence of the dredge pipes in the side scan, singlebeam, and

multibeam data were variable as the dredge pipes were being installed and moved throughout the survey. Nine sections of dredge pipe are identified within the S-57 Final Feature File.

D.2.10 Designated Soundings

Designated soundings were used to help better preserve the shallowest sounding relative to the computed depth surface. Separate flags exist in the Generic Sensor Format (version 3.04) for designated soundings and features. All depths flagged as features and designated soundings override the CUBE best estimate of the depth in the final BAG files. Both the designated soundings and features flags as defined within GSF are mapped to the same HDCS flag when ingested into CARIS (PD_DEPTH_DESIGNATED_MASK).

Thirty-nine designated soundings were set for H12587 to preserve the least depth on non-significant objects. The difference between the least depth of these objects and the CUBE depth was more than one-half the maximum allowable total vertical uncertainty at that depth.

D.2.11 Final Feature S-57 File

Included with H12587 delivery is the S-57 Final Feature File, H12587_FFF.000. Details on how this file was generated and quality controlled can be found in Section B.2.6 of the DAPR. The S-57 feature file delivered for H12587 contains millimeter precision for the value of sounding (VALSOU) attribute. As specified in Section 8.2 of the HSSD, the S-57 feature file is in the WGS84 datum and is unprojected with all depth units in meters. All of the features found in H12587 are retained within the S-57 Final Feature File.

Feature Correlator sheets were exported as an image file (.jpg) and is included in the S-57 Final Feature File under the NOAA Extended Attribute field “images” where applicable. The polygons that delineate the mooring fields from the supplemental Mooring Buoy S-57 File are also included within this Final Feature S-57 File.

D.2.12 Side Scan Sonar Contacts S-57 File

Included with H12587 delivery is the Side Scan Sonar Contact S-57 File, H12587_SSCon.000. Details on how this file was generated and quality controlled can be found in Section B.2.6 of the DAPR. As specified in Section 8.2 of the HSSD, the S-57 feature file is in the WGS84 datum and is unprojected with all depth units in meters.

All side scan contacts with the exception of contacts identified as moorings are retained within the Side Scan Sonar Contact S-57 File. This file does contain the polygons delineating the extents of the mooring fields. For each contact included in this S-57 file, a JPEG image of the side scan contact is included under the NOAA Extended Attribute field “images”.

D.2.13 Mooring Buoy S-57 File

As requested by AHB, Leidos also generated a supplemental S-57 file to present the side scan contacts based on the individual mooring buoys and polygons that delineate the mooring fields that were observed within H12587 (H12587_MORFAC.000). One exception is the large Naval Weapons Station Earle mooring buoy, which is delivered as a point MORFAC object in the Final Feature File S-57.

Details on how the H12587_MORFAC file was generated, attributed, and quality controlled can be found in Section B.3.5 of the DAPR. For each contact included in this S-57 file, a JPEG image of the side scan contact is included under the NOAA Extended Attribute field “images”. This supplemental Mooring Buoy S-57 file is delivered in a sub-directory of the S-57_Features directory named, “Mooring_Field_Side_Scan_Sonar_Contacts”.

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.

Report Name	Report Date Sent
Data Report, H12586	2014-04-16
Data Acquisition and Processing Report	2014-04-16

Approver Name	Approver Title	Approval Date	Signature
Paul L. Donaldson	Lead Hydrographer	29 April 2014	Paul L. Donaldson Digitally signed by Paul L. Donaldson DN: cn=Paul L. Donaldson, o=Marine Survey and Engineering Solutions, ou=Leidos, email=paul.l.donaldson@leidos.com, c=US Date: 2014.04.29 13:56:05 -04'00'

F. Table of Acronyms

Acronym	Definition
AHB	Atlantic Hydrographic Branch
ATON	Aid to Navigation
AWOIS	Automated Wreck and Obstruction Information System
BAG	Bathymetric Attributed Grid
CO-OPS	Center for Operational Products and Services
CORS	Continually Operating Reference Station
CTD	Conductivity Temperature Depth
CSF	Composite Source File
CUBE	Combined Uncertainty and Bathymetry Estimator
DAPR	Data Acquisition and Processing Report
DGPS	Differential Global Positioning System
DP	Detached Position
DR	Descriptive Report
DTON	Danger to Navigation
ENC	Electronic Navigational Chart
FFF	Final Feature File
GAMS	GPS Azimuth Measurement Subsystem
GPS	Global Positioning System
HSD	Hydrographic Surveys Division
HSSD	Hydrographic Survey Specifications and Deliverables
HVCR	Horizontal and Vertical Control Report
IHO	International Hydrographic Organization
IMU	Inertial Motion Unit
LNM	Local Notice to Mariners
LNM	Linear Nautical Miles
MCD	Marine Chart Division
MHW	Mean High Water
MLLW	Mean Lower Low Water
NAD 83	North American Datum of 1983
NM	Notice to Mariners
NOAA	National Oceanic and Atmospheric Administration

Acronym	Definition
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Service
OCS	Office of Coast Survey
MBES	Multibeam Echosounder
POS/MV	Position and Orientation System for Marine Vessels
PRF	Project Reference File
SBES	Singlebeam Echosounder
SNM	Square Nautical Miles
SSS	Side Scan Sonar
SSP	Sound Speed Profiler
TPU	Total Propagated Uncertainty
USCG	United Stated Coast Guard
UTM	Universal Transverse Mercator
ZDF	Zone Definition File

APPENDIX I

TIDES AND WATER LEVELS

APPENDIX I. TIDES AND WATER LEVELS

Field Tide Note
A field tide note was not required for H12587.

Final Tide Note
Observed verified water levels for the station in Sandy Hook, NJ (8531680) were downloaded from the NOAA Tides and Currents web site. Water Level correctors were prepared for each zone using the **SABER Create Water Level Files** software. The **SABER Apply Correctors** software applied the water level data to the multibeam data according to the zone containing the nadir beam of each ping.

Please refer to the H12587 Descriptive Report Section C.1 for details regarding final tides for H12587. The water level zoning correctors, based entirely on Sandy Hook, NJ (8531680), were applied to all multibeam data for H12587.

No final tide note was provided by NOAA Center for Operational Oceanographic Products and Services (CO-OPS), Leidos is not required to have a final tide note from CO-OPS.

The on-line times for acquisition of valid hydrographic data are presented in the Abstract Times of Hydrography, H12587 (Table A-1).

Abstract Times of Hydrography

Project: OPR-B310-KR1-13
Registry No.: H12587
Contractor Name: Leidos
Date: 28 April 2014
Sheet Designation: 1
Inclusive Dates: 19 August 2013 - 18 January 2014
Field work is complete.

Begin Date	Begin Julian Day	Begin Time	End Date	End Julian Day	End Time
8/19/2013	231	12:45:06	8/19/2013	231	21:07:15
8/20/2013	232	12:10:40	8/20/2013	232	18:29:18
8/21/2013	233	11:34:48	8/21/2013	233	20:18:57
8/22/2013	234	17:22:38	8/22/2013	234	20:46:01
8/23/2013	235	11:28:35	8/23/2013	235	20:20:51
8/24/2013	236	11:48:53	8/24/2013	236	21:54:56
8/25/2013	237	11:17:11	8/25/2013	237	20:45:18
8/26/2013	238	11:19:58	8/26/2013	238	20:43:40
8/27/2013	239	11:17:09	8/27/2013	239	21:36:02
8/28/2013	240	11:03:10	8/28/2013	240	20:49:09
8/29/2013	241	11:16:00	8/29/2013	241	21:47:34
8/30/2013	242	11:38:11	8/30/2013	242	20:24:00
8/31/2013	243	11:15:23	8/31/2013	243	21:30:26

Begin Date	Begin Julian Day	Begin Time	End Date	End Julian Day	End Time
9/01/2013	244	11:27:08	9/01/2013	244	21:21:48
9/02/2013	245	11:50:09	9/02/2013	245	20:56:43
9/03/2013	246	11:40:53	9/06/2013	249	21:51:08
9/07/2013	250	10:52:05	9/07/2013	250	21:12:13
9/08/2013	251	08:30:23	9/09/2013	252	21:25:56
9/10/2013	253	11:28:10	9/10/2013	253	20:24:01
9/11/2013	254	10:56:23	9/11/2013	254	21:32:40
9/12/2013	255	10:56:06	9/12/2013	255	20:57:09
9/13/2013	256	11:59:20	9/13/2013	256	20:58:16
9/14/2013	257	11:08:12	9/14/2013	257	21:45:50
9/15/2013	258	10:53:34	9/15/2013	258	21:28:05
9/16/2013	259	10:47:57	9/16/2013	259	20:58:36
9/17/2013	260	11:15:19	9/17/2013	260	20:15:10
9/18/2013	261	11:05:49	9/18/2013	261	21:07:59
9/19/2013	262	11:02:40	9/19/2013	262	20:34:46
9/20/2013	263	11:00:17	9/20/2013	263	21:09:38
9/23/2013	266	15:22:40	9/23/2013	266	21:13:21
9/24/2013	267	11:09:34	9/24/2013	267	20:40:20
9/25/2013	268	11:16:47	9/25/2013	268	20:13:01
9/26/2013	278	10:48:11	9/26/2013	278	20:54:25
9/27/2013	279	10:55:33	9/27/2013	279	20:31:03
10/13/2013	286	12:05:46	10/13/2013	286	21:39:44
10/14/2013	287	11:13:30	10/14/2013	287	14:53:35
10/15/2013	289	11:13:24	10/15/2013	289	22:27:39
10/20/2013	293	11:06:50	10/20/2013	293	20:05:46
10/21/2013	294	11:48:14	10/21/2013	294	20:32:26
10/22/2013	295	14:26:22	10/22/2013	295	19:38:49
10/24/2013	297	11:12:34	10/24/2013	297	20:08:09
11/22/2013	326	15:16:08	11/22/2013	326	21:19:44
11/25/2013	329	11:30:28	11/25/2013	329	21:42:27
11/26/2013	330	10:57:04	11/26/2013	330	21:30:20
12/03/2013	337	11:36:28	12/03/2013	337	22:40:13
12/04/2013	338	11:29:30	12/04/2013	338	22:19:25
12/05/2013	339	12:28:15	12/05/2013	339	22:05:50
12/06/2013	340	12:03:36	12/06/2013	340	22:08:28
12/08/2013	342	13:28:44	12/08/2013	342	22:32:04
12/10/2013	344	12:13:00	12/10/2013	344	21:40:44
12/11/2013	345	11:42:03	12/11/2013	345	21:42:16
12/16/2013	350	14:42:20	12/16/2013	350	22:09:31
12/17/2013	351	12:55:12	12/17/2013	351	19:34:39
12/18/2013	352	12:47:58	12/18/2013	352	22:43:37
12/21/2013	355	20:26:11	12/21/2013	355	22:02:11
1/11/2014	011	13:34:17	1/11/2014	011	13:52:27
1/12/2014	012	13:08:14	1/12/2014	012	17:54:56

Begin Date	Begin Julian Day	Begin Time	End Date	End Julian Day	End Time
1/13/2014	013	13:06:43	1/13/2014	013	22:15:35
1/16/2014	016	17:16:55	1/16/2014	016	20:58:39
1/18/2014	018	14:20:56	1/18/2014	018	16:28:53

Table A-1: Abstract Times of Hydrography, H12587

Transmittal Letter to CO-OPS

A transmittal letter to CO-OPS was not required for H12587.

Other Correspondence Relating to Tides

There is no other correspondence relating to tides and/or water levels.

APPENDIX II

SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCE

APPENDIX II. SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCE

This appendix is comprised of two sections. The first section contains copies of email exchanges between Leidos and NOAA concerning various aspects of the survey, data processing, and submittal topics.

In addition, all DTON recommendation files (PDF file only) and verification e-mails from NDB (e.g. DREG registration e-mail), have been provided as stand-alone PDF files in the following folder of Descriptive Report Appendices:

II_Supplemental_Survey_Records_&_Correspondence

Note that DTON #6 as submitted by Leidos was not submitted by AHB to MCD. More information about this is contained in an email below dated Thursday, September 26, 2013 1:54 PM from Castle Parker of AHB.

The second section contains the tabular summary of the bottom characteristic results for this sheet.

CORRESPONDENCE

From: Mark Lathrop [mailto:mark.t.lathrop@noaa.gov]
Sent: Monday, June 03, 2013 2:12 PM
To: Evans, Rhodri E.
Subject: Re: NY-NJ Project Instructions

Rod,

We would like to keep the backscatter requirement with the understanding that if it is not practicable you would state so in the DR.

Mark

Sent from my iPhone

On Jun 3, 2013, at 1:20 PM, "Evans, Rhodri E." <RHODRI.E.EVANS@saic.com> wrote:
Mark,

We notice that the PI's call for either SBES or MBES for the NY-NJ survey. If MBES is used then backscatter is required. Can you please confirm whether the backscatter data is a firm requirement? We anticipate data quality challenges in the very shallow water depth regime of much of the survey area, and plan to use MBES on 1 or 2 of the 3 planned survey boats.

Thanks, Rod.

From: Mark Lathrop [mailto:mark.t.lathrop@noaa.gov]
Sent: Wednesday, June 05, 2013 9:51 AM
To: Evans, Rhodri E.
Subject: Re: NY-NJ Project Instructions

Rod,

I am not in the office and so cannot reference these items, but I can offer the following guidance.

These are unresolved items and so need to be addressed. That being said, it is the hydrographer in the field's judgement whether or not it is safe for the crew, vessel or equipment to approach a particular item. An explanation in the DR will be sufficient if an AWOIS item cannot be fully resolved. So, if a visual (photo) search is all you can do just say so in the DR.

We routinely deal with hazardous areas in places such as Alaska and have found that it is better to make these judgements in the field rather than the office.

Mark

Sent from my iPhone

On Jun 5, 2013, at 8:37 AM, "Evans, Rhodri E." <RHODRI.E.EVANS@saic.com> wrote:
Mark,

We have additional questions on the AWOIS items on the NY-NY project:

H12587 (Sheet 2) has the following three assigned AWOIS items requiring Full Search that fall in depths less than 2-meters:

2449 is an area of Submerged Pier Ruins in depths of 2-5 feet, techniques are VS, S2, or ES
2450 is an area of Submerged Pier Ruins in depths of 3-4 feet, techniques are VS, S2, or ES
7546 is a wreck labeled ED (Existence Doubtful) in depths of 3-5 feet techniques are VS, S2, ES, or SD

NOTE On Techniques:

VS = Visual search (bottom visible in clear water or area uncovered at chart datum)
ES = Single beam echo sounder
S2 = 200 % sidescan coverage
SD = Disproval may be acquired by verifiable salvage documentation.

Questions:

1. When more than one technique is listed, is it the option of the contractor to use one or more of the techniques, or do all have to be used?
2. SAIC considers AWOIS items 2449 and 2450 to represent a risk and hazard to survey operations. Can these two items be changed to “Information Only”? Otherwise SAIC can only attempt a Visual Search of the areas.
3. SAIC considers AWOIS item 7546 in water depths that are too shallow for survey operations and thus presents an risk and hazard to survey operations. Can this item be changed to “Information Only”? Otherwise SAIC may only attempt a Visual Search of the area.

Please advise us at your earliest opportunity.

Thanks, Rod.

From: Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>
Sent: Thursday, September 26, 2013 1:54 PM
To: Davis, Gary R.
Cc: Lucy Hick - NOAA Federal; Mark T Lathrop
Subject: RE: OPR-B310-KR1-13 Danger to Navigation Reports 6 and 7 for H12587

Good Day Gary,
AHB will submit DtoN #7. We will not submit DtoN #6 based upon the least depth and the three sounding charted depths, two of which are shoaler. Standby for the submission,hopefully today.
Thanks for your continued efforts.
Gene

From: Davis, Gary R. [mailto:GARY.R.DAVIS@saic.com]
Sent: Thursday, September 26, 2013 1:34 PM
To: ahb.dton@noaa.gov; Mark.T.Lathrop
Cc: Gene Parker; Evans, Rhodri E.; Quintal, Rebecca T.; DONALDSON, PAUL L.; Infantino, Jason; BERNIER, BRIDGET W.
Subject: OPR-B310-KR1-13 Danger to Navigation Reports 6 and 7 for H12587

Mark,

Please find attached two (2) Danger to Navigation Reports.
- H12587 DTON #6
- H12587 DTON #7

The files for each DTON submission are contained in a separate zip file. Each Zip file contains the following files:
- One (1) S-57 file (*.000)
- Image files that are referenced in the S-57 file (*.jpg)

Please contact me if there are any questions or problems with the attached files.

Regards,
Gary R. Davis

Gary R. Davis CH | SAIC
Chief Hydrographer | Marine Survey and Engineering Solutions
Phone: (401)847-4210 |Fax: (401)847-1585
gary.r.davis@saic.com | saic.com
Science Applications International Corporation
221 Third Street, Building A
Newport, RI 02840

From: Abigail Higgins - NOAA Federal [mailto:abigail.higgins@noaa.gov]
Sent: Thursday, October 10, 2013 3:25 PM
To: Davis, Gary R.
Cc: Gene Parker; Quintal, Rebecca T.; Mark.T.Lathrop; Donaldson, Paul L.
Subject: Re: OPR-B310_KR1-13 Danger to Navigation Reports for H12587

Hi Gary,

I have heard back from MCD, and they feel like the majority of the objects are around the edge of the harbor so it is not necessary to submit them to change the note. However, they did note that one of the objects was in the channel, and wanted that one to be submitted as a DtoN.

The general guidance is that for this small boat harbor, items around the of the harbor do not need to be submitted, but items in the channel or other navigable areas should be submitted as DtoNs.

Take care,
Abigail

On Wed, Oct 9, 2013 at 10:17 AM, Davis, Gary R. <GARY.R.DAVIS@leidos.com> wrote:

Abigail,

We are seeking advice from AHB regarding Danger to Navigation Reports for H12587 in the area of Great Kills Harbor on charts 12331 and 12402.

One of the survey vessels has stated surveying inside this area, and on the first day at least 10 uncharted wrecks and obstructions were identified in the harbor (see attached image). Our plan is collect additional data before submitting any DtoNs to AHB. Our concern is that there may be several uncharted wrecks an obstructions throughout the harbor which should be submitted as DtoNs and charted, however, since the vessel can only survey this area during high tides so it may take several days before we have a really good idea of which one will require a DtoN.

Both charts contain a “NOTE D: Numerous uncharted pilings may exist throughout Great Kills Harbor”. Is there a procedure whereby we can recommend an update to NOTE D to say:

“Numerous uncharted pilings, wrecks, and obstructions may exist throughout Great Kills Harbor”

We feel that this may be warranted until we can review all the survey data and submit DtoNs as necessary.

Your recommendations as to how to proceed are greatly appreciated.

Regards,
Gary R. Davis

Gary R. Davis CH | Leidos
Chief Hydrographer
Marine Survey and Engineering Solutions
Phone: (401)847-4210
gary.r.davis@leidos.com | Leidos.com

From: Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>
Sent: Tuesday, November 05, 2013 10:23 AM
To: Mark Lathrop - NOAA Federal
Cc: Michael Gonsalves - NOAA Federal; Abigail Higgins; Davis, Gary R.; Jeffrey Ferguson - NOAA Federal
Subject: RE: H12587 DTON 1 Update

Mark,
Good. The LEIDOS field unit has already checked out the original location and did not find the object; this investigation took place during the last week of October. The lack of locating the object was what prompted Gary Davis' response within the email trail below. Since the object appeared to be moving as evident with drag scours, I would not want to issue an Anti-DtoN to remove from the chart, as it was moving and is somewhere scooting across the sea floor. AHB Chief and I discussed this yesterday and think conservative action would be to get MCD to apply PA Position Approximate to the feature. We then could resolve the feature during HCell processing, which would detail deleting the charted feature. Leaving it on the chart as PA would at least notify the mariner that something is still out there.

I want to confirm this with AHB Chief prior to taking the next step. Standby.
Thanks for your input.
Gene

From: Mark Lathrop - NOAA Federal [mailto:mark.t.lathrop@noaa.gov]
Sent: Tuesday, November 05, 2013 10:07 AM
To: Castle Parker - NOAA Federal
Subject: Re: H12587 DTON 1 Update

Gene,
Just talked with Mike G. He and Jeff have discussed this and feel that the best course would be to have SAIC take a pass over the original DTON site to confirm that the obstruction is no longer there and issue an Anti-DTON if warranted. Perhaps we may hear from the CG and COE about this in the near future.

I'll let SAIC know.
Mark

On Tue, Nov 5, 2013 at 8:04 AM, Castle Parker - NOAA Federal
<castle.e.parker@noaa.gov>
wrote:
Roger that. Want to confer with Mike G and if so will set up a conference call.
Thanks.
gp

From: Mark Lathrop - NOAA Federal [mailto:mark.t.lathrop@noaa.gov]
Sent: Tuesday, November 05, 2013 8:03 AM

To: Castle Parker - NOAA Federal
Cc: Davis, Gary R.; Michael Gonsalves - NOAA Federal; Abigail Higgins
Subject: Re: H12587 DTON 1 Update

Gene,
I'm working from home today, so just let me know if we want to have a teleconference.
Mark

On Mon, Nov 4, 2013 at 12:26 PM, Castle Parker - NOAA Federal
<castle.e.parker@noaa.gov>
wrote:
Gary,
We have maybe a couple of options. I would like to have a brief meeting with HSD OPS Branch Chief and Mark Lathrop, along with AHB Chief to discuss actions. Bearing in mind that your survey team could not relocate the feature, we could contact Marine Chart Division and revise the object to a Position Approximate. PA features usually have 1km radius for search areas and AHB cannot authorize your field team to survey that area without getting HSD OPS involved. I feel that since LEIDOS has surveyed the area once, and then checked the existence once again, enlarging the search area is additional task order or in excess of the survey work already completed. It's tough to keep track of something that appeared to be moving along the sea floor.

Mike, I think that we should have a brief meeting to discuss this feature and actions. Abigail Higgins is not available till later this afternoon and possibly in the morning. Any additional hydro is not considered part of the current task order and we should discuss before indicating the add on work.

I have discussed this situation with AHB Chief and feel the most prudent action would be to have MCD add PA to the charted feature. The current charted location has been searched and LEIDOS has disproved the H12587 DtoN 1 feature. We could handle the chart removal during the survey processing and HCell at AHB.

I have also attached the DtoN PDF for review. It is item #1 located in 40-28-58N 074-14-44.1W.

Mike, think about this and get back with me concerning meeting if you feel that it would be beneficial.
Regards,
Gene Parker

From: Davis, Gary R. [mailto:GARY.R.DAVIS@leidos.com]
Sent: Monday, November 04, 2013 11:54 AM
To: Castle Parker - NOAA Federal
Subject: RE: H12587 DTON 1 Update

Gene,

We have not heard from either the USCG or USACOE on any action taken to remove this object. I contacted the USCG and they confirmed that the information was given to the USACOE with a request that it be removed. But they did not receive any notification from the Corps that it was removed. I contacted the Corps and they had no record of the object being removed.

During the last week of October both survey vessels searched the area and could not locate the object.

What I the best course of action for us to take at this time?

Gary

From: Castle Parker - NOAA Federal [mailto:castle.e.parker@noaa.gov]
Sent: Monday, September 16, 2013 11:43 AM
To: Davis, Gary R.
Cc: Quintal, Rebecca T.; Infantino, Jason; Abigail Higgins
Subject: RE: H12587 DTON 1

Thanks Gary! Keep us posted as if the object is salvaged and removed, we will probably want to submit an Anti-DtoN to Nautical Data Branch and Marine Chart Division. The SAIC submission of the Danger was processed and submitted to NDB on 09/13/2013; I havenot received a registration email from MCD as of yet.

Thanks for SAIC's continued charting efforts.
Regards,
Gene

From: Davis, Gary R. [mailto:GARY.R.DAVIS@saic.com]
Sent: Monday, September 16, 2013 10:58 AM

To: Gene Parker
Cc: Quintal, Rebecca T.; Infantino, Jason
Subject: FW: H12587 DTON 1

UPDATE:

I just talked to the local Coast Guard unit (Chris Hudak 718-354-4354) to report the object discussed below. They will be checking on the availability of a US Army Corps of Engineers vessel to remove the object or they may dispatch one of their own vessels. In addition they will be broadcasting a Danger to Mariners.

I have also requested that Mr. Hudak keep us informed of the any actions or removal of the object.

Gary

From: Davis, Gary R.
Sent: Monday, September 16, 2013 10:43 AM
To: Gene Parker
Cc: Quintal, Rebecca T.; Infantino, Jason
Subject: H12587 DTON 1

Gene,

Last week we submitted DTON 1 for H12587, for an obstruction that covers and uncovers in 40 28 58.0N/074 14 44.1”W. The date was 28 August (Julian Day 240). On 15 September (Julian Day 258) the survey vessel reported that the obstruction has moved approximately 200 meters east and is now in 40 28 57.1/074 14 35.4. The sidescan imagery shows a drag scar where the object is in contact with the bottom. We suspect that the object is not firmly attached to the bottom and may be slowly moving with the tides and currents or was physically moved by another vessel. In either case we will check on the position again over the next several days to verify if it is moving with the currents or not.

In either case we plan to contact the local Coast Guard unit to see if they can remove the object. We will keep you updated on the status of this DTON.

Do you have any recommendations or need any additional information from us at this time?

Regards,
Gary R. Davis

Gary R. Davis CH | SAIC
Chief Hydrographer | Marine Survey and Engineering Solutions
Phone: (401)847-4210 |Fax: (401)847-1585

gary.r.davis@saic.com | saic.com
Science Applications International Corporation
221 Third Street, Building A
Newport, RI 02840

From: Castle Parker - NOAA Federal [mailto:castle.e.parker@noaa.gov]
Sent: Thursday, March 06, 2014 10:14 AM
To: Davis, Gary R.
Cc: Mark Lathrop - NOAA Federal
Subject: RE: Mooring Buoys

Good day Gary,
I conferred with AHB Chief this morning and we think that if the feature file contains a polygon of the mooring buoys, and if the deliverables contain a digital file (S57 format) of the insignificant mooring buoys, then we'll be OK with this. The polygon representing the area of the mooring buoys should have parity with the collection of insignificant mooring buoy contacts. Are these mooring buoys seasonal? And, the intent is small boat mooring such as recreational crafts? Ensure this is described or documented in the descriptive report.

Thanks for the opportunity for input.
Regards,
Gene

From: Davis, Gary R. [mailto:GARY.R.DAVIS@leidos.com]
Sent: Tuesday, March 04, 2014 10:08 AM
To: Castle Parker - NOAA Federal
Subject: RE: Mooring Buoys

Gene,

Thanks for taking the time to respond during you vacation. Sorry I interrupted the family time. Sounds like something that should be done more than once a year. But then again the once a year adventure can more enjoyable.

For now we will plan on generating an S57 file of insignificant sidescan contacts made on just the mooring buoys. We are flexible in how to report these objects, should this change based on your discussions with AHB Chief and Carto Team .

Have fun skiing and a safe trip back to VA.

Gary

From: Castle Parker - NOAA Federal [mailto:castle.e.parker@noaa.gov]
Sent: Monday, March 03, 2014 4:56 PM
To: Davis, Gary R.
Cc: Abigail Higgins; Edward Owens - NOAA Federal
Subject: Re: Mooring Buoys

Good Day Gary,
I'm glad that I'm not experiencing your New England weather! Although, SE Virginia is having adverse weather today and have closed operations earlier in the day. Me, I'm currently in Colorado visiting family and have been enjoying the snow on the mountain skiing. My once a year adventure! I will be back in the office on Wednesday.

Regarding all the mooring buoys, I would like to spatially see where the buoys reside, such that during the charting process the arrangement and location could lead the HCell compiler to create and/or compare the charted polygons for the mooring areas to that as documented by the survey. Would it be possible for SAIC to add these features in a group of insignificant SS contacts? An S57 format file would be ideal, or at the least if the locations were in a spreadsheet (xlsx) or even a text file. I think AHB could work with either format.

I will confer with AHB Chief and AHB Carto Team Lead once I get back to the office. For now, I would prefer to have the features accounted in either a digital spatial format, spreadsheet, or text file. I will confer with others and get back with you on the final request.

Thanks, and try to stay warm!
Regards,
Gene

On Mon, Mar 3, 2014 at 7:35 AM, Davis, Gary R. <GARY.R.DAVIS@leidos.com> wrote:
Gene,

Good morning. I hope the winter snows are kinder to you than they have been here in New
England.

I have a question about identification of mooring buoys as sidescan contacts in a hydro survey.

In both Task Order 9 sheets (H12587 and H12587) the survey covered charted several designated mooring areas where the mooring buoys have been identified in the sidescan imagery. Should these be set as significant sidescan contacts or just noted in the sidescan log?

With 200% sidescan coverage in these areas there would be several hundred significant sidescan contacts on mooring buoys. It is not a problem for us to make these contacts but we do not want to over burden AHB with an excessive number of contacts if they are not necessary. We will identify these mooring areas in the Data Reports and include them as S57 objects in the final delivery.

Your response and insight is greatly appreciated.

Regards,
Gary R. Davis

Gary R. Davis CH | Leidos
Chief Hydrographer
Marine Survey and Engineering Solutions
Phone: (401)847-4210
gary.r.davis@leidos.com | Leidos.com

From: Mark Lathrop - NOAA Federal <mark.t.lathrop@noaa.gov>
Sent: Friday, April 04, 2014 10:37 AM
To: Quintal, Rebecca T.
Cc: Evans, Rod E.; abigail.higgins@noaa.gov; Castle Eugene Parker (castle.e.parker@noaa.gov); Davis, Gary R.; Bernier, Bridget W.
Subject: Re: BAG files

Rebecca,
Gene reports that your BAG delivery recommendations are the only workable solution and are acceptable for AHB. I will accept his expertise and approve this method for H12587 and H12587.
Mark

On Thu, Apr 3, 2014 at 6:13 PM, Quintal, Rebecca T. <REBECCA.T.QUINTAL@leidos.com> wrote:
Mark,

For the upcoming TO-09 Sheet 1 (H12587) delivery we have identified over 430 bathymetry features and 175 separate areas that require a 0.5-meter resolution grid to be delivered. We had planned to deliver all BAG files (a 2-meter resolution for the entire sheet and the 0.5-meter resolution feature areas) in BAG version 1.5.1 which was released by ONSGW on 08/20/2012. BAG version 1.5.1 is the version that was developed in order to included not only the original 2 surfaces (depth and uncertainty), but also 5 optional child surfaces as described below:

1. depth - the CUBE computed depth solution

2. uncertainty - the greater value of the CUBE standard deviation or the Average TPU surfaces in the PFM
3. shoal depth - the depth value of the least-depth measurement selected from the sub-set of measurements that contributed to the depth solution
4. number of soundings - the number of depth measurements selected from the sub-set of measurements that contributed to the depth solution
5. stddev - the standard deviation computed from all depth values which contributed to the node
6. hypothesis strength - the CUBE computed strength of the chosen hypothesis
7. number of hypotheses - the CUBE computed number of hypotheses

We had been told by CARIS that they supported BAG version 1.4.0 in HIPS/SIPS 7.1 (service pack 2, hotfix 6) and 8.1.7, and BAG version 1.5.1 in BDB version 4.0.9. However, today we got clarification that CARIS does not support the child layers in version 1.5.1. Apparently there is no CARIS product that currently supports the optional child layers for BAG 1.5.1 or later version of BAG. Also, today we got clarification from Gene Parker that BAG 1.4.0 is not supported in CARIS 7.1.

For our 2012 surveys we delivered separate non-standard BAGs where each BAG was populated with the depth in the BAG depth surface and then the uncertainty surface was populated with one of the child layers. This meant that we delivered 6 total BAGs for each grid area (one standard and 5 non-standard).

However, for the significant number of 0.5-meter feature BAGs required for these complex Hurricane Sandy sheets that would equal:

175 feature areas * 6 BAGS = 1,050 total feature BAGs.

This is an very large number, and also unfortunate. If BAG version 1.5.1 was fully supported by CARIS all of the information could be contained within 175 BAGs.

Question 1:
Since we have successfully delivered previous sheets in BAG version 1.1.0, and that version is supported by CARIS 7 and 8, we are asking if it is acceptable if we deliver the entire sheet at 2-meter node resolution as 6 separate BAG files (one standard, and five non-standard), as BAG version 1.1.0 does not include the child layers.
1. Standard BAG (v1.1.0) (depth and uncertainty)
2. Non-standard BAG (v1.1.0) with depth populated in the depth surface and the uncertainty surface populated as shoal depth
3. Non-standard BAG (v1.1.0) with depth populated in the depth surface and the uncertainty surface populated as number of soundings
4. Non-standard BAG (v1.1.0) with depth populated in the depth surface and the uncertainty surface populated as stddev
5. Non-standard BAG (v1.1.0) with depth populated in the depth surface and the uncertainty surface populated as hypothesis strength

6. Non-standard BAG (v1.1.0) with depth populated in the depth surface and the uncertainty surface populated as number of hypotheses

Question 2:
Further we are asking if it is acceptable to deliver the 175 feature grids at 0.5-meter node resolution only in version 1.1.0 as standard BAGs only (i.e. only the depth and uncertainty surfaces will be delivered).

We are hoping that the review of the data (including child layers) can be performed on the 2-meter resolution grids. The higher resolution grids are still available just not with all of the child layers. In both the 2-meter and 0.5-meter resolution grids, the designated sounding (i.e. the feature) will over-ride the CUBE estimate.

Please let us know if these 2 requests are acceptable, or if you would like further information. BTW, the second sheet for TO-09 (H12587) is even more complex with even more 0.5-meter grids most likely required so we would like to do the same for that sheet as what is decided for sheet 1.

Thank you,
-Rebecca

Rebecca T. Quintal | Leidos
Hydrographic Survey & Data Solutions Manager
Marine Survey & Engineering Solutions
phone: 401.848.4607
mobile: 401.829.6242
rebecca.t.quintal@leidos.com

NOTE: All DTON recommendation files (PDF file only) and verification e-mails from NDB (e.g. DREG registration e-mail), have been provided as stand-alone PDF files in the following folder of Descriptive Report Appendices:

II_Supplemental_Survey_Records_&_Correspondence

BOTTOM CHARACTERISTICS

There were seventy-four bottom samples taken to verify the bottom types charted for H12587. Table A-1 compares information from each sample collected to the charted bottom type within 2,000 meters, if available. Charts 12325, 12331 and 12401 were used for comparison; this chart is the largest scale chart that covers the entire survey area. A photograph of each bottom sample is included the Final Feature File (S-57). Please note that the recommended bottom sample location for bottom sample 12 was plotted on land and therefore Leidos moved the recommended location to approximately 750 meters NW of recommended position. Also note that bottom sample 70 was taken approximately 450 meters west of the recommended location due to a shoal water depth. It is recommended that the bottom types charted be updated where necessary based on the information collected during the latest survey.

Sample Number	Bottom Sample Position (NAD83)		Year/ Julian Day Sample Collected	Observed Bottom Type	CUBE Depth of Bottom Sample (m)	Depth Uncert. (m)	Chart #	Charted Bottom Type
	Latitude (N)	Longitude (W)						
H12587_BS_01	40 28 24.92	074 14 51.50	2013/238	br M Sh	2.935	0.290	12331	h S
H12587_BS_02	40 28 45.59	074 14 41.04	2013/238	stk bk M	3.144	0.290	12331	so M
H12587_BS_03	40 27 58.42	074 14 01.93	2013/238	br m S Sh	2.951	0.290	12331	h S
H12587_BS_04	40 28 25.31	074 14 01.74	2013/238	stk bk M fne S Sh	3.216	0.270	12331	so M
H12587_BS_05	40 29 03.40	074 14 01.79	2013/238	br M Sh	5.049	0.280	12331	so M
H12587_BS_06	40 27 45.21	074 13 13.46	2013/238	stk br M Sh	3.361	0.290	12331	so
H12587_BS_07	40 28 23.51	074 13 11.95	2013/238	stk br M Sh	3.473	0.290	12331	so
H12587_BS_08	40 29 04.56	074 13 08.68	2013/238	br M fne S	4.302	0.290	12331	so
H12587_BS_09	40 27 47.08	074 12 14.75	2013/238	stk br M Sh	3.528	0.290	12331	so
H12587_BS_10	40 28 25.04	074 12 19.69	2013/238	br M Sh fne S	3.971	0.280	12331	so
H12587_BS_11	40 29 03.86	074 12 18.47	2013/238	brk S br M	4.144	0.290	12331	h
H12587_BS_12	40 26 40.77	074 11 55.56	2013/293	br M	1.288	0.290	12331	h
H12587_BS_13	40 27 06.57	074 11 56.82	2013/293	br M	3.011	0.290	12331	h
H12587_BS_14	40 27 45.20	074 11 28.21	2013/238	stk br M fne S brk Sh	3.670	0.290	12331	so
H12587_BS_15	40 28 24.88	074 11 28.85	2013/238	stk bk M	4.289	0.280	12331	h
H12587_BS_16	40 29 03.47	074 11 27.35	2013/238	stk bk M brk Sh	5.640	0.290	12331	so
H12587_BS_17	40 28 24.96	074 10 36.11	2013/238	m br S P	2.210	0.290	12331	
H12587_BS_18	40 29 03.75	074 10 35.42	2013/238	m br S brk Sh	4.703	0.290	12331	h

Sample Number	Bottom Sample Position (NAD83)		Year/ Julian Day Sample Collected	Observed Bottom Type	CUBE Depth of Bottom Sample (m)	Depth Uncert. (m)	Chart #	Charted Bottom Type
	Latitude (N)	Longitude (W)						
H12587_BS_19	40 27 44.48	074 09 47.38	2013/238	m br S brk Sh	3.477	0.290	12331	h
H12587_BS_20	40 28 23.05	074 09 46.42	2013/238	fne br S brk Sh	3.689	0.290	12331	h
H12587_BS_21	40 29 02.64	074 09 44.83	2013/238	Sh fne br S	5.211	0.280	12331	h
H12587_BS_22	40 27 43.46	074 08 57.18	2013/238	br M fne S brk Sh	3.757	0.290	12331	
H12587_BS_23	40 28 23.28	074 08 55.95	2013/238	br M brk Sh	4.381	0.280	12331	h S
H12587_BS_24	40 29 02.53	074 08 53.37	2013/238	br M fne S	5.465	0.280	12331	S Sh
H12587_BS_25	40 28 23.35	074 08 05.50	2013/238	m br S brk Sh P	2.656	0.290	12331/ 12401	h S
H12587_BS_26	40 29 01.11	074 08 04.29	2013/238	bk M	6.695	0.270	12331/ 12401	so M
H12587_BS_27	40 27 45.77	074 07 14.69	2013/238	br fne S brk Sh	3.274	0.290	12401	
H12587_BS_28	40 28 23.37	074 07 17.74	2013/238	fne br S brk Sh	4.844	0.280	12401	M
H12587_BS_29	40 29 01.14	074 07 12.96	2013/238	stk br M	7.281	0.270	12401	h S
H12587_BS_30	40 27 06.32	074 06 23.30	2013/238	m br S brk Sh	3.340	0.290	12401	S Sh
H12587_BS_31	40 27 43.41	074 06 24.42	2013/238	m br S brk Sh	3.916	0.290	12401	
H12587_BS_32	40 28 21.52	074 06 21.45	2013/238	stk bk M brk Sh	5.984	0.270	12401	
H12587_BS_33	40 29 00.85	074 06 20.35	2013/238	bk M	7.766	0.270	12401	
H12587_BS_34	40 27 03.56	074 05 32.48	2013/238	m br S brk Sh	3.173	0.290	12401	
H12587_BS_35	40 27 42.75	074 05 32.89	2013/238	m br S brk Sh P	4.932	0.280	12401	S
H12587_BS_36	40 28 23.20	074 05 34.64	2013/238	stk bk M fne S brk Sh	6.550	0.270	12401	M Sh
H12587_BS_37	40 29 00.47	074 05 31.37	2013/238	stk bk M	7.686	0.270	12401	
H12587_BS_38	40 27 04.21	074 04 41.52	2013/238	br m S brk Sh	3.367	0.290	12401	
H12587_BS_39	40 27 44.19	074 04 42.98	2013/238	br M brk Sh	5.852	0.290	12401	
H12587_BS_40	40 28 21.66	074 04 41.31	2013/238	bk M	6.656	0.270	12401	M
H12587_BS_41	40 28 53.71	074 04 40.39	2013/238	stk br M	7.950	0.270	12401	
H12587_BS_42	40 26 23.39	074 03 51.29	2013/238	fne br S brk Sh	2.739	0.290	12401	S

Sample Number	Bottom Sample Position (NAD83)		Year/ Julian Day Sample Collected	Observed Bottom Type	CUBE Depth of Bottom Sample (m)	Depth Uncert. (m)	Chart #	Charted Bottom Type
	Latitude (N)	Longitude (W)						
H12587_BS_43	40 27 04.28	074 03 55.21	2013/238	br M fne S brk Sh	5.316	0.290	12401	M Sh
H12587_BS_44	40 27 42.29	074 03 49.78	2013/238	stk br M brk Sh	6.030	0.280	12401	M Sh
H12587_BS_45	40 28 21.21	074 03 49.89	2013/238	stk br M	6.864	0.270	12401	M
H12587_BS_46	40 28 59.63	074 03 49.39	2013/238	br M Sh	7.774	0.270	12401	M Sh
H12587_BS_47	40 22 03.36	074 03 18.68	2013/286	bk M brk Sh	2.519	0.290	12325	M
H12587_BS_48	40 25 44.72	074 03 00.48	2013/234	bk M brk Sh	3.774	0.290	12325/ 12401	S
H12587_BS_49	40 26 24.36	074 02 58.90	2013/234	bk M	4.620	0.290	12401	M
H12587_BS_50	40 26 49.67	074 02 34.18	2013/234	bk M	5.255	0.280	12401	M Sh
H12587_BS_51	40 27 42.13	074 03 00.34	2013/238	br fne S brk Sh	6.099	0.280	12401	M
H12587_BS_52	40 28 20.45	074 02 57.21	2013/238	br M	7.464	0.270	12401	M
H12587_BS_53	40 29 01.42	074 03 00.13	2013/238	br M	6.987	0.270	12401	S Sh
H12587_BS_54	40 22 22.54	074 02 14.59	2013/286	bk M Sh	2.297	0.290	12325	M
H12587_BS_55	40 25 46.14	074 02 07.24	2013/234	bk M	5.073	0.290	12325/ 12401	M
H12587_BS_56	40 26 22.74	074 02 08.95	2013/234	br M	5.190	0.280	12401	
H12587_BS_57	40 27 00.92	074 02 07.16	2013/234	br M brk Sh	5.727	0.280	12401	M Sh
H12587_BS_58	40 22 49.99	074 01 22.38	2013/286	bk M Sh	4.431	0.290	12325	M
H12587_BS_59	40 25 03.95	074 01 19.22	2013/232	bk M fne S brk Sh	3.275	0.290	12325/ 12401	M
H12587_BS_60	40 25 44.94	074 01 17.16	2013/234	bk M	5.513	0.290	12325/ 12401	M
H12587_BS_61	40 26 22.79	074 01 17.38	2013/234	br M	5.638	0.280	12401	M Sh
H12587_BS_62	40 27 02.15	074 01 12.5	2013/234	bk M Sh	5.848	0.280	12401	M
H12587_BS_63	40 22 54.67	074 00 25.59	2013/286	m br S brk Sh	3.682	0.290	12325	bk Sh
H12587_BS_64	40 25 09.15	074 00 34.79	2013/232	fne br S Si	4.803	0.290	12325/ 12401	M
H12587_BS_65	40 25 43.56	074 00 28.17	2013/232	bk stk M	5.610	0.290	12325/ 12401	M
H12587_BS_66	40 26 22.01	074 00 28.24	2013/234	bk M	6.104	0.280	12401	M Sh
H12587_BS_67	40 27 13.01	074 00 38.86	2013/234	bk M	6.619	0.280	12401	M Sh
H12587_BS_68	40 22 58.46	073 59 41.35	2013/286	m br S brk Sh	4.398	0.280	12325	bk Sh
H12587_BS_69	40 25 04.70	073 59 28.32	2013/286	Sh crs br S	3.141	0.290	12325/ 12401	S
H12587_BS_70	40 25 46.11	073 59 54.26	2013/286	m br S brk Sh	1.868	0.290	12325/ 12401	M
H12587_BS_71	40 26 21.64	073 59 54.83	2013/234	m br S brk Sh	3.078	0.290	12401	S
H12587_BS_72	40 22 47.50	073 58 39.13	2013/278	m br S P	3.568	0.290	12325	

Sample Number	Bottom Sample Position (NAD83)		Year/ Julian Day Sample Collected	Observed Bottom Type	CUBE Depth of Bottom Sample (m)	Depth Uncert. (m)	Chart #	Charted Bottom Type
	Latitude (N)	Longitude (W)						
H12587_BS_73	40 23 30.38	073 58 41.82	2013/278	m br S P	4.423	0.290	12325	
H12587_BS_74	40 24 22.03	073 59 06.16	2013/278	m br S brk Sh	5.925	0.290	12325/ 12401	

Table A-1: H12587 Bottom Characteristics

From: Quintal, Rebecca T.
To: Castle Parker - NOAA Federal
Cc: Matthew Jaskoski - NOAA Federal; Evans, Rod E.; Davis, Gary R.; Donaldson, Paul L.; Bernier, Bridget W.; Mark Lathrop - NOAA Federal
Subject: RE: H12586 and H12587 Deviation documentation inquiry
Date: Friday, August 08, 2014 1:47:25 PM

Gene,

Thanks for the clarification below and the discussion just now.

We will proceed with regenerating the following for H12587:

- Version 1.1.0 BAG at 2-meter resolution with Multibeam data ONLY. The CUBE depth will populate the depth surface of the BAG and Uncertainty surface of the BAG will be populated with the Hypothesis Final Uncertainty as described below:
  - Two separate uncertainty surfaces are calculated by the SABER software, Hypothesis Standard Deviation and Hypothesis Average Total Propagated Uncertainty (Average TPU). The Hypothesis Standard Deviation is a measure of the general agreement between all of the soundings that contributed to the best hypothesis for each node. The Hypothesis Average TPU is the average of the vertical uncertainty component for each sounding that contributed to the best hypothesis for the node. A third uncertainty surface is generated from the larger of these two uncertainties at each node and is referred to as the Hypothesis Final Uncertainty.
- Version 1.1.0 BAG at 2-meter resolution Single beam ONLY. The shoal sounding will populating the depth surface of the BAG, and that particular sounding's vertical uncertainty value populating the Uncertainty surface of the BAG.

It takes a little time to create the source grids for the entire sheet (PFM grids), and then we will convert to BAG and QC, but I will start the processing today and give you an update on where things stand next week.

We understand that the resubmittal will only be required for the 2-meter surfaces and that no non-standard BAGs will be required. And, we apologize for the discrepancy. Thanks for marking this section of the HSSD for clarity. It will help for the future!

Thank you!
-Rebecca

From: Castle Parker - NOAA Federal [mailto:castle.e.parker@noaa.gov]
Sent: Friday, August 08, 2014 10:35 AM
To: Quintal, Rebecca T.
Cc: Matthew Jaskoski - NOAA Federal; Evans, Rod E.; Davis, Gary R.; Donaldson, Paul L.; Bernier, Bridget W.; Mark Lathrop - NOAA Federal
Subject: RE: H12586 and H12587 Deviation documentation inquiry

Hello and good morning,
Thanks for the quick response. Yes this is about the VBES grid sourcing the shoal layer; the source of VBES also affects the MB-VB combined grid (both source the depth (elevation) Cubed layer). AHB/HSD does need the VBES grid to source the shoal layer and to be separate from the MBES grid. That being said, means the combined MBES and VBES sources the depth layer as well. The MBES grid needs to be resubmitted sourcing only the MBES data with the depth layer as the source as normal with MB data.

AHB has H12586 covered with revised grids, so there's nothing to do with that survey. However, H12587's review has not started. If Leidos will resubmit the MB 2m only and the VB 2m only grids, I will overwrite the previous submission. In the future with mixed MB and VB, the development grids do not need to contain VB data as those depths are represented by the VB only grid and should only contain MB data. AHB is not going to ask to resubmit the 30 development grids.

I'm sorry for this misunderstanding. HSSD is not explicitly clear with the specification in terms of wording and have marked this subject for clarity.
To summarize… AHB is requesting the following:
VBES grid = standalone VB data, sourcing the shoal layer (shoal biased) 2m resolution
MBES grid = standalone MB data, sourcing the depth layer (Cube uncertainty biased) 2m resolution

AHB appreciates your extra efforts. If questions remain, please respond or call me (757.441.6746 ext. 115).

Thanks and regards,
Gene

From: Quintal, Rebecca T. [mailto:REBECCA.T.QUINTAL@leidos.com]
Sent: Friday, August 08, 2014 9:18 AM
To: Castle Parker - NOAA Federal
Cc: Matthew Jaskoski - NOAA Federal; Evans, Rod E.; Davis, Gary R.; Donaldson, Paul L.; Bernier, Bridget W.
Subject: RE: H12586 and H12587 Deviation documentation inquiry

Gene,

Hello. So I think the question is in regards to a separate shoal depth surface for the single beam data?

I am looking at our deliverables directory and under the folder "BAG_version_1.1.0" we delivered a separate surface of just single beam data (H12586_VB_2m_MLLW.bag); however, looking at the metadata the depth surface is populated with the CUBE depth not the shoal depth. Under the folder "Non-Standard_BAG_Files_NOT_FOR_ARCHIVAL" we did deliver a shoal depth surface of just the single beam data (H12586_VB_2m_MLLW_CUBE_Depth_Node_Shoal_Depth.bag); however this is in a non-standard BAG format.

I do not find any correspondence where we asked for a deviation, so this seems to be a misunderstanding. We can certainly deliver a standard version 1.1.0 BAG of the shoal depth of just the single beam data. BTW, I looked at H12587 and it was delivered the same way. Let me know if I have the question right and how best to proceed.

Thanks,
-Rebecca

From: Castle Parker - NOAA Federal [mailto:castle.e.parker@noaa.gov]
Sent: Thursday, August 07, 2014 3:13 PM
To: Quintal, Rebecca T.
Cc: Matthew Jaskoski - NOAA Federal
Subject: H12586 and H12587 Deviation documentation inquiry

Good day Rebecca,
AHB is in the final stages of survey review for H12586. I acknowledge the grid deviation from HSSD concerning the grid resolution change from 4m resolution to 2m resolution for the set line spacing. Do you have any documentation for the deviation with regards to HSSD Section 5.2.2.3, specifically referencing HSSD page 88 and in regards to the "Notes on Set Line Spacing coverage with Single Beam:"

Notes on Set Line Spacing coverage with Single Beam:

- Due to the potentially sparser sounding sets produced by single beam echosounders, statistical methods for estimating depth (such as CUBE or CARIS Uncertainty Weighted Grids) yield less certain results with single beam than multibeam. Thus, NOAA requires that all single beam sounding sets be fully "cleaned" (e.g., all "fliers" and other erroneous soundings removed) prior to creation of gridded bathymetric products and that grids be computed with a "shoal" layer.

I would like to know if HSD OPS granted the deviation or is this coming back to a misunderstanding.
Appreciate your input.
Regards,
Gene

Castle Eugene Parker
NOAA Office of Coast Survey
Atlantic Hydrographic Branch
Hydrographic Team Lead/ Physical Scientist
castle.e.parker@noaa.gov
office (757) 441-6746 x115

APPENDIX III

SURVEY FEATURES REPORT

AWOIS = 2
DTON = 5
Wrecks = 13

AWOIS Feature Report

Registry Number: H12890
State: New Jersey
Locality: Lower New York Harbor
Sub-locality: Navesink River
Project Number: OPR-B310-KR1-13
Survey Dates: 08/19/2013 - 01/18/2014

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
12325	4th	10/01/2008	1:15,000 (12325_1)	[L]NTM: ?
12324	33rd	03/01/2008	1:40,000 (12324_1)	[L]NTM: ?
12326	50th	05/01/2006	1:80,000 (12326_1)	[L]NTM: ?
12300	47th	05/01/2008	1:400,000 (12300_1)	[L]NTM: ?
13006	34th	05/01/2007	1:675,000 (13006_1)	[L]NTM: ?
5161	13th	10/01/2003	1:1,058,400 (5161_1)	[L]NTM: ?
13003	49th	04/01/2007	1:1,200,000 (13003_1)	[L]NTM: ?
14500	27th	10/01/2002	1:1,500,000 (14500_1)	[L]NTM: ?

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

Features

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	AWOIS #15773	Wreck	0.60 m	40° 22' 41.4" N	074° 01' 12.9" W	1573
1.2	AWOIS #1577	Wreck	[None]	40° 22' 55.4" N	073° 59' 22.3" W	1577
2.1	AWOIS #15773	Wreck	0.60 m	40° 22' 41.4" N	074° 01' 12.9" W	---
2.2	AWOIS #1577	Wreck	[None]	40° 22' 55.4" N	073° 59' 22.3" W	---

1 - AWOIS Features

1.1) AWOIS #15773

Feature for AWOIS Item #1573

Search Position:	40° 22' 41.4" N, 074° 01' 12.9" W
Historical Depth:	0.60 m
Search Radius:	[unknown]
Search Technique:	Type: UNKNOWN, Itemstatus: COMPLETED, Searchtype: INFORMATION, Technique:
Technique Notes:	

History Notes:

History

HISTORY CL1350/67--SP-AMC-12-67 DEFICIENCY SURVEY; DANGEROUS SUNKEN WK OF A 30-35 FT BOAT COVERED 2 FT AT MLW WAS FOUND AT POS.40-22-40.2N 74-01-15.0W WK WAS ORIENTED NNE-SSW. MONTHLY ACTIVITIES REPORT 7/26/82--WRECK FOUND AT POS.40-22-40.9N 74-01-14.5 BY R/AZ AND BOTTOM DRAG 2.4 FT LD BY SOUNDING POLE IN 3.3 FT OF WATER. RECOMMENDS SHIFTING CHARTED POSITION OF WRECK.
H1016/82--OPR-B259-HSB-82; PSR ITEM 4; 10 METER LINE SPACING WITH ONE BOAT OTTER BOARD CHAIN SWEEP; SNAG WITHIN 30 METERS OF CHARTED POSITION; 4 FT LEAST DEPTH (POLE SOUNDING) IN SURROUNDING WATER OF 4 FT; MAY NOT BE LD; HYDROGRAPHER AND EVALUATOR RECOMMEND RETAIN 2 FT AND RELOCATING WK TO LAT 40-22-40.87N LONG 74-01-14.47W. (UPDATED MSM 1/87)

Survey Summary

Survey Position:	40° 22' 41.4" N, 074° 01' 12.9" W
Least Depth:	0.60 m (= 1.97 ft = 0.328 fm = 0 fm 1.97 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-279.17:02:42.000 (10/06/2013)
Dataset:	H12890_AWOIS_Report.000
FOID:	0_ 0000028573 00001(FFFE00006F9D0001)
Charts Affected:	12325_1, 12324_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: Wreckage with no significant height was found by side scan with an approximate size of 0.6x0.3m in area of charted wreck. It was determined to be too dangerous to obtain multibeam coverage. AWOIS 1573. Feature 673.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12890_AWOIS_Report.000	0_ 0000028573 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart wreck.

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

2ft (12325_1, 12324_1, 12326_1)

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

0.6m (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

INFORM - Feature 673 - Position derived from side scan data only

NINFOM - Retain wreck.

QUASOU - 6:least depth known

SORDAT - 20060400

SORIND - US,US,graph,Chart 12325

TECSOU - 2:found by side scan sonar

VALSOU - 0.600 m

WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Feature was ensonified with 200% SSS. Feature was verified at the surveyed position by SSS. Least depth was not obtained by MBES. Depth inferred from SSS. Defer the final charting disposition to AHB Compile Team. Compile: Concur. Given no new least depth from MBES and new position differs by less than 2mm at chart scale, recommend to retain dangerous wreck as charted.

Feature Images

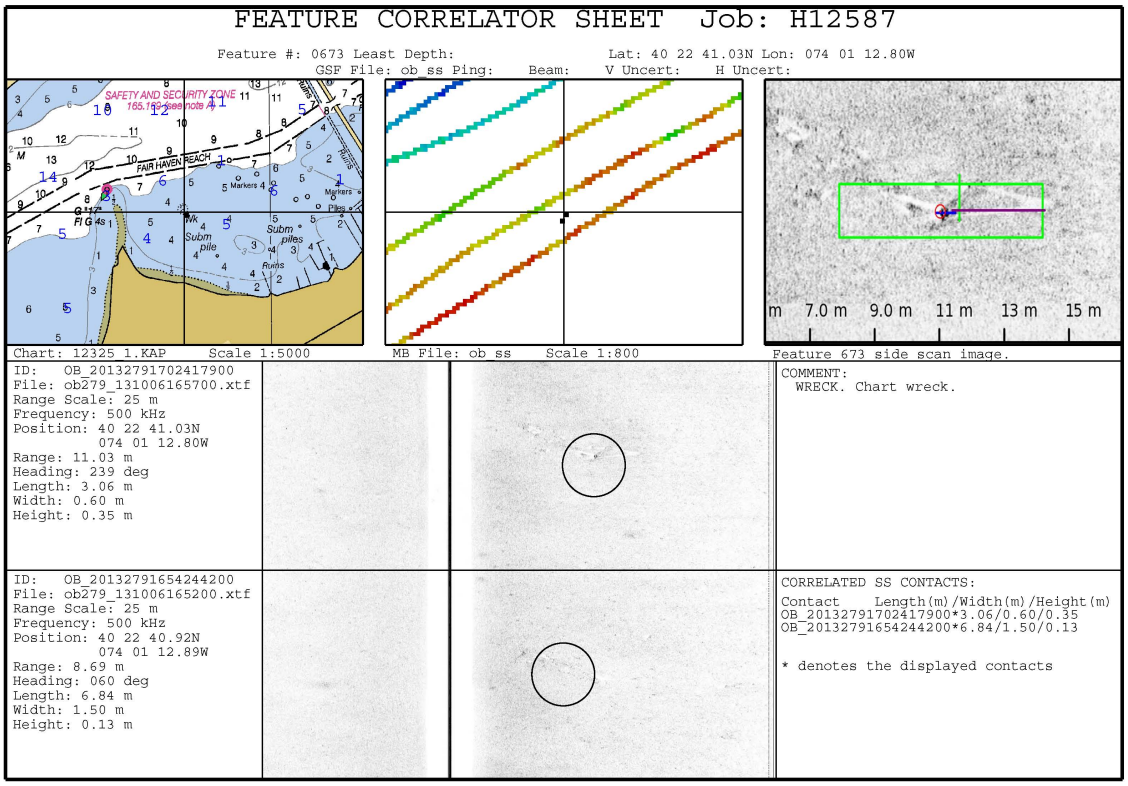

Figure 1.1.1

1.2) AWOIS #1577

Feature for AWOIS Item #1577

Search Position:	40° 22' 55.4" N, 073° 59' 22.3" W
Historical Depth:	[None]
Search Radius:	[unknown]
Search Technique:	Type: UNKNOWN, Itemstatus: COMPLETED, Searchtype: INFORMATION, Technique:
Technique Notes:	

History Notes:

History

01577 HISTORY H5616/34--LOCATED AT POS.40-22-54.8N 73-59-23.3W DESCRIBED ON SS AS SIDE OF OLD WRECK. CL1350/67--SP-AMC-12-67 DEFICIENCY SURVEY; DANGEROUS REMAINS OF A WOODEN VESSEL FOUND COVERED 1 FT AT MLW AT POS.40-22-54N 73-59-24W ORIENTED IN A NORTH SOUTH DIRECTION. MONTHLY ACTIVITIES REPORT 7/26/82--WRECK FOUND AT POS.40-22-55.2N 73-59-24W BY R/AZ AND BOTTOM DRAG 3.6 FT LD BY SOUNDING POLE IN 5.6 FT OF WATER. WK VISIBLE FROM SURFACE AND LIES N-S 35-40 FT LONG. RECOMMENDS SHIFTING CHARTED POSITION OF WRECK. H10016/82--OPR-B259-HSB-82; PSR ITEM 2; 10 METER LINE SPACING WITH ONE BOAT OTTER BOARD CHAIN SWEEP; WK LIES IN 5 FT OF WATER AT MLW; LEAST DEPTH OF 3.0 FT AT MLW (POLE SOUNDING); NORTH-SOUTH ORIENTATION; EVALUATOR RECOMMENDS CHARTING 3 WK IN LAT 40-22-55N LONG 73-59-23.68W. (UPDATED MSM 1/87) SURVEY REQUIREMENTS NOT ASSIGNED

Survey Summary

Survey Position:	40° 22' 55.4" N, 073° 59' 22.3" W
Least Depth:	[None]
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2006-091.00:00:00.000 (04/01/2006)
Dataset:	H12890_AWOIS_Report.000
FOID:	0_ 0000028572 00001(FFFE00006F9C0001)
Charts Affected:	12325_1, 12324_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: No objects were found within 100 meters of the charted position in the survey coverage. However; the entire search area was not covered due to water depth; therefore retain AWOIS 1577 position as charted.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12890_AWOIS_Report.000	0_ 0000028572 00001	0.00	000.0	Primary

Hydrographer Recommendations

Update attributes. Retain position as charted.

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes:

CATWRK - 2:dangerous wreck

INFORM - Wreck was not found in partial survey coverage.

NINFOM - Retain wreck.

QUASOU - 8:value reported (not surveyed)

SORDAT - 20060400

SORIND - US,US,graph,Chart 12325

WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Feature was NOT fully ensonified with object detect SSS of MBES. Defer the final charting disposition to AHB Compile Team. Compile: Feature not addressed due to shallow, hazardous conditions. Recommend to retain charted wreck.

DTON Feature Report

Registry Number: H12890
State: New Jersey
Locality: Lower New York Harbor
Sub-locality: Navesink River
Project Number: OPR-B310-KR1-13
Survey Dates: 08/19/2013 - 01/18/2014

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
12325	4th	10/01/2008	1:15,000 (12325_1)	[L]NTM: ?
12327	101st	04/01/2008	1:40,000 (12327_1)	[L]NTM: ?
12324	33rd	03/01/2008	1:40,000 (12324_1)	[L]NTM: ?
12326	50th	05/01/2006	1:80,000 (12326_1)	[L]NTM: ?
12300	47th	05/01/2008	1:400,000 (12300_1)	[L]NTM: ?
13006	34th	05/01/2007	1:675,000 (13006_1)	[L]NTM: ?
5161	13th	10/01/2003	1:1,058,400 (5161_1)	[L]NTM: ?
13003	49th	04/01/2007	1:1,200,000 (13003_1)	[L]NTM: ?
14500	27th	10/01/2002	1:1,500,000 (14500_1)	[L]NTM: ?

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

Features

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	DTON #23	Obstruction	0.62 m	40° 22' 16.6" N	074° 02' 53.1" W	---
1.2	DTON #16	Wreck	1.18 m	40° 23' 05.3" N	074° 00' 44.8" W	---
1.3	DTON #17	Obstruction	2.79 m	40° 23' 55.1" N	073° 58' 46.1" W	---
1.4	DTON #14	Obstruction	2.94 m	40° 22' 56.4" N	073° 58' 42.7" W	---
1.5	DTON #22	Obstruction	2.44 m	40° 23' 23.0" N	073° 58' 42.1" W	---
2.1	DTON #16	Wreck	1.18 m	40° 23' 05.3" N	074° 00' 44.8" W	---

1 - Dangers To Navigation

1.1) DTON #23

DANGER TO NAVIGATION

Survey Summary

Survey Position:	40° 22' 16.6" N, 074° 02' 53.1" W
Least Depth:	0.62 m (= 2.05 ft = 0.341 fm = 0 fm 2.05 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	1981-001.01:01:01.001 (01/01/1981)
Dataset:	H12890_DTON_Report.000
FOID:	0_ 0000028569 00001(FFFE00006F990001)
Charts Affected:	12325_1, 12324_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

OBSTRN/remrks: DTON 23.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12890_DTON_Report.000	0_ 0000028569 00001	0.00	000.0	Primary

Hydrographer Recommendations

Update depth.

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

2ft (12325_1, 12324_1, 12326_1)

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

0.6m (5161_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	EXPSOU - 2:shoaler than range of depth of the surrounding depth area
	INFORM - Feature 507 -DTON 23. GSF File: obmba13342.d30; Ping: 8266; Beam: 10; Depth: 0.624m; Time: 20:27:05.13; H. Uncert.: 1.730m; V. Uncert.: 0.270m.
	NATSUR - 1:mud

NINFOM - Chart obstruction.

QUASOU - 6:least depth known

SORDAT - 20131208

SORIND - US,US,reprt,DD-24257

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

VALSOU - 0.624 m

WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Feature was ensonified with object detect SSS and MBES. Feature is considered significant and verified as per survey data. Defer the final charting disposition to AHB Compile Team. Compile: Concur. Chart new obstruction with revised position and least depth.

Feature Images

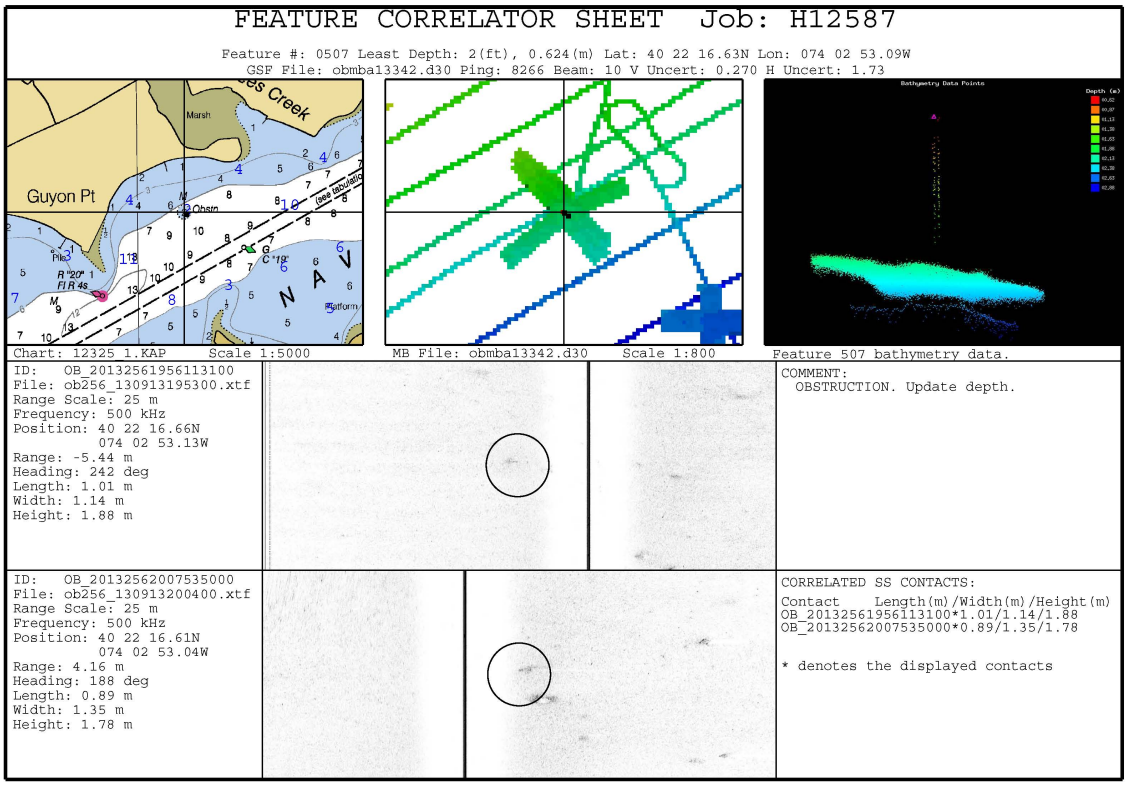

Figure 1.1.1

1.2) DTON #16

DANGER TO NAVIGATION

Survey Summary

Survey Position:	40° 23' 05.3" N, 074° 00' 44.8" W
Least Depth:	1.18 m (= 3.88 ft = 0.647 fm = 0 fm 3.88 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	1981-001.01:01:01.001 (01/01/1981)
Dataset:	H12890_DTON_Report.000
FOID:	0_ 0000028566 00001(FFFE00006F960001)
Charts Affected:	12325_1, 12324_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: Approximately 6.5x1.9m wreck sitting upright in an east/west orientation in 2.3m of water. Wreck was submitted as DTON 16.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12890_DTON_Report.000	0_ 0000028566 00001	0.00	000.0	Primary

Hydrographer Recommendations

Update attributes. Retain position as charted.

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

4ft (12325_1, 12324_1, 12326_1)

0 ¾fm (12300_1, 13006_1, 13003_1, 14500_1)

1.2m (5161_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	INFORM - Feature 373 - GSF File: obmba13338.d24; Ping: 18314; Beam: 87; Depth: 1.183m; Time: 15:31:15.84; H. Uncert.: 1.420m; V. Uncert.: 0.270m.
	NINFOM - Chart wreck.

QUASOU - 6:least depth known

SORDAT - 20130912

SORIND - US,US,reprt,DD-24075

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

VALSOU - 1.183 m

WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Feature was ensonified with object detect SSS and MBES. Feature is considered significant and verified as per survey data. Defer the final charting disposition to AHB Compile Team. Compile: Concur. Feature updated with new position and least depth. Chart new wreck.

Feature Images

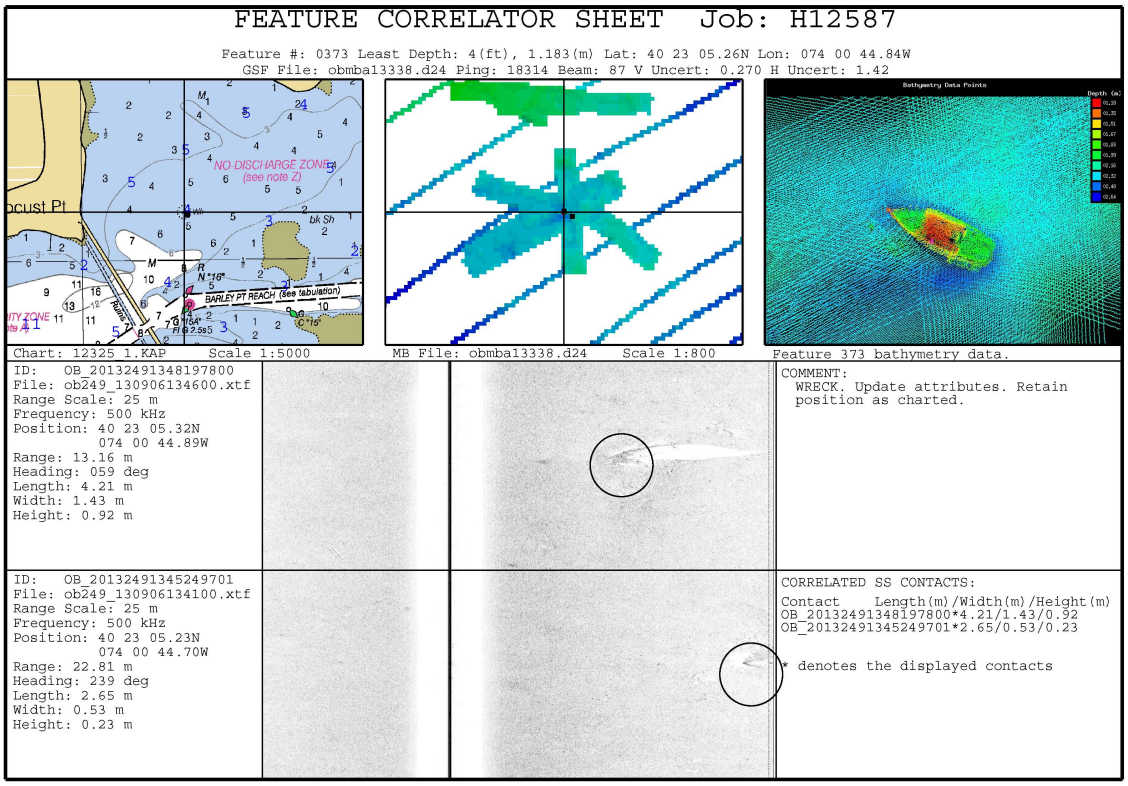

Figure 1.2.1

1.3) DTON #17

DANGER TO NAVIGATION

Survey Summary

Survey Position:	40° 23' 55.1" N, 073° 58' 46.1" W
Least Depth:	2.79 m (= 9.15 ft = 1.525 fm = 1 fm 3.15 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	1981-001.01:01:01.001 (01/01/1981)
Dataset:	H12890_DTON_Report.000
FOID:	0_ 0000028568 00001(FFFE00006F980001)
Charts Affected:	12325_1, 12324_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

OBSTRN/remrks: DTON 17.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12890_DTON_Report.000	0_ 0000028568 00001	0.00	000.0	Primary

Hydrographer Recommendations

Update depth.

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

9ft (12325_1, 12324_1, 12327_1, 12326_1)

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

2.8m (5161_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	INFORM - Feature 313 -DTON 17. GSF File: obmba13337.d24; Ping: 2777; Beam: 59; Depth: 2.789m; Time: 15:31:04.57; H. Uncert.: 1.480m; V. Uncert.: 0.280m.
	NATSUR - 1:mud
	NINFOM - Chart obstruction.

QUASOU - 6:least depth known

SORDAT - 20131205

SORIND - US,US,reprt,DD-24075

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

VALSOU - 2.789 m

WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Feature was ensonified with object detect SSS and MBES. Feature is considered significant and verified as per survey data. Defer the final charting disposition to AHB Compile Team. Compile: Concur. Chart obstruction with new position and least depth.

Feature Images

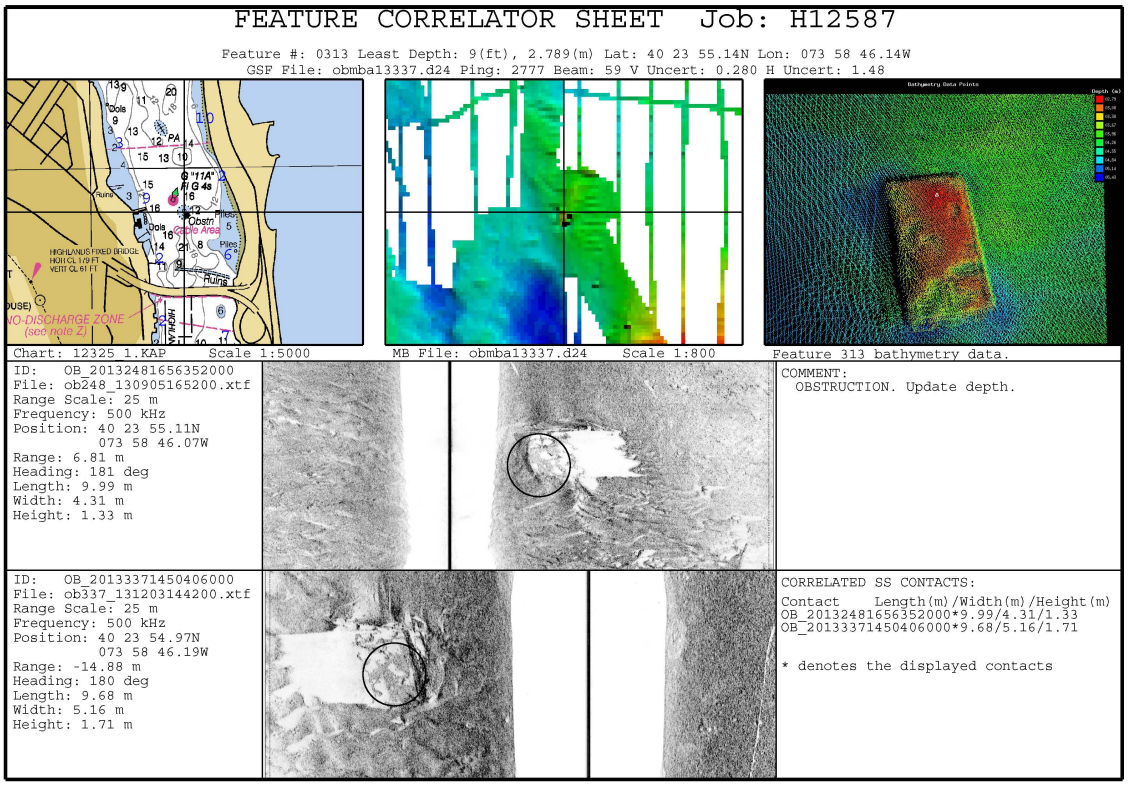

Figure 1.3.1

1.4) DTON #14

DANGER TO NAVIGATION

Survey Summary

Survey Position:	40° 22' 56.4" N, 073° 58' 42.7" W
Least Depth:	2.94 m (= 9.63 ft = 1.605 fm = 1 fm 3.63 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	1981-001.01:01:01.001 (01/01/1981)
Dataset:	H12890_DTON_Report.000
FOID:	0_ 0000028567 00001(FFFE00006F970001)
Charts Affected:	12325_1, 12324_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

OBSTRN/remrks: DTON 14.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12890_DTON_Report.000	0_ 0000028567 00001	0.00	000.0	Primary

Hydrographer Recommendations

Update depth.

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

10ft (12325_1, 12324_1, 12326_1)

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

2.9m (5161_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	INFORM - Feature 423 -DTON 14. GSF File: obmba13339.d23; Ping: 10096; Beam: 46; Depth: 2.936m; Time: 17:46:35.05; H. Uncert.: 1.680m; V. Uncert.: 0.280m. NATSUR - 4:sand NINFOM - Chart obstruction.

QUASOU - 6:least depth known

SORDAT - 20131205

SORIND - US,US,reprt,DD-24075

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

VALSOU - 2.936 m

WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Feature was ensonified with object detect SSS and MBES. Feature is considered significant and verified as per survey data. Defer the final charting disposition to AHB Compile Team. Compile: Chart new obstruction with revised position and least depth.

Feature Images

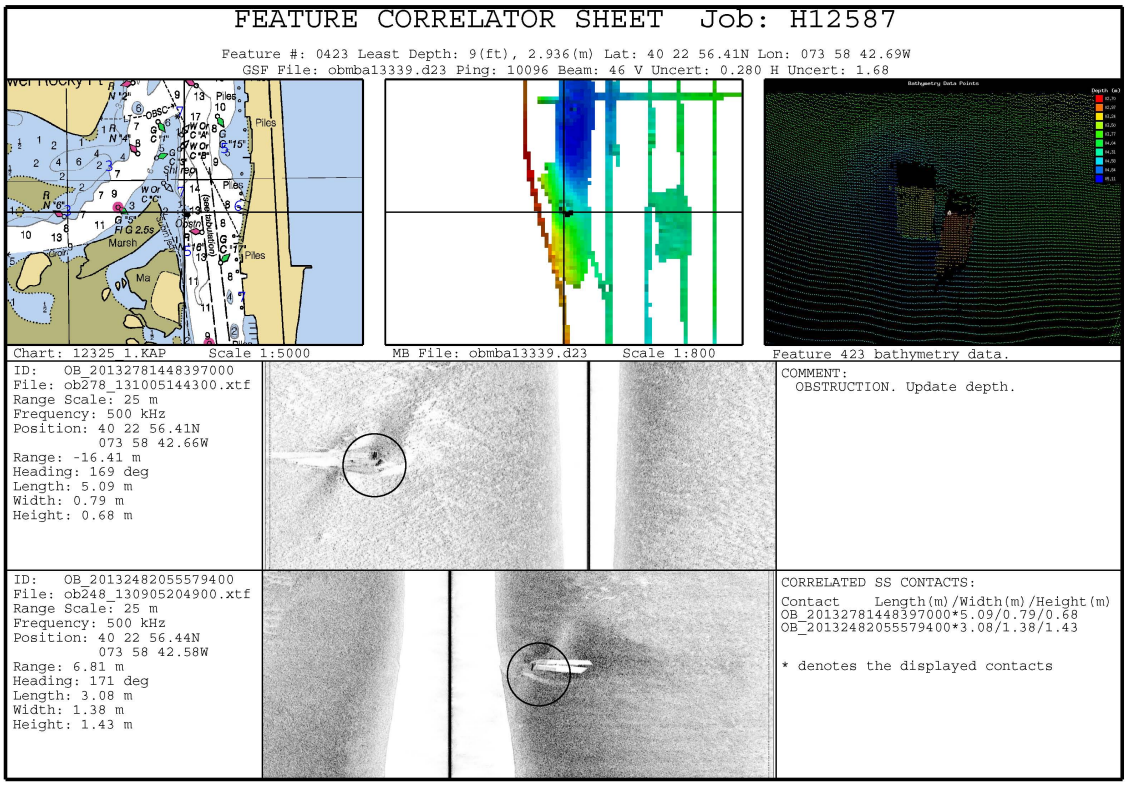

Figure 1.4.1

1.5) DTON #22

DANGER TO NAVIGATION

Survey Summary

Survey Position:	40° 23' 23.0" N, 073° 58' 42.1" W
Least Depth:	2.44 m (= 8.02 ft = 1.336 fm = 1 fm 2.02 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	1981-001.01:01:01.001 (01/01/1981)
Dataset:	H12890_DTON_Report.000
FOID:	0_ 0000028565 00001(FFFE00006F950001)
Charts Affected:	12325_1, 12324_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

OBSTRN/remrks: DTON 22.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12890_DTON_Report.000	0_ 0000028565 00001	0.00	000.0	Primary

Hydrographer Recommendations

Update depth.

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

8ft (12325_1, 12324_1, 12326_1)

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

2.4m (5161_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	CATOBS - 1:snag / stump
	INFORM - Feature 409 -DTON 22. GSF File: obmba13339.d15; Ping: 5369; Beam: 11; Depth: 2.444m; Time: 16:27:42.42; H. Uncert.: 1.860m; V. Uncert.: 0.270m.
	NATSUR - 4:sand

NINFOM - Chart obstruction.

QUASOU - 6:least depth known

SORDAT - 20131205

SORIND - US,US,reprt,DD-24256

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

VALSOU - 2.444 m

WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Feature was ensonified with object detect SSS and MBES. Feature is considered significant and verified as per survey data. Defer the final charting disposition to AHB Compile Team. Compile: Concur. Chart obstruction with revised position and least depth.

Feature Images

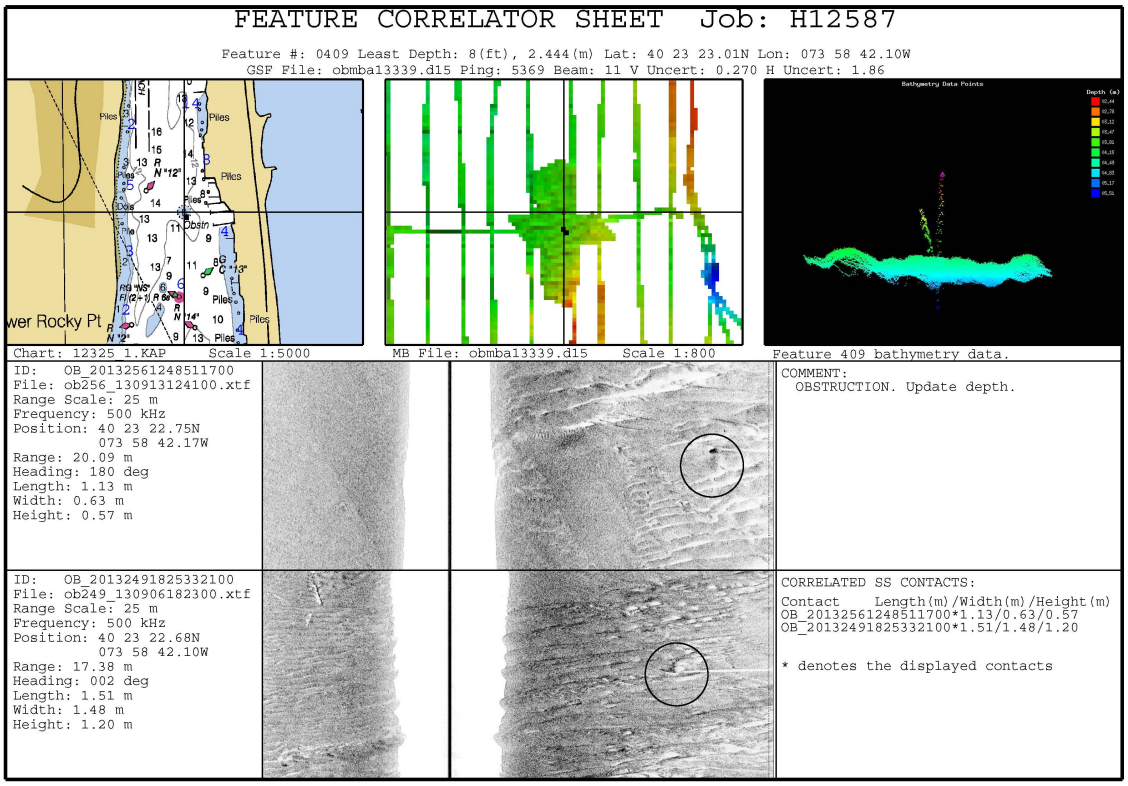

Figure 1.5.1

WRECKS Feature Report

Registry Number: H12890
State: New Jersey
Locality: Lower New York Harbor
Sub-locality: Navesink River
Project Number: Lower New York Harbor
Survey Dates: 08/19/2013 - 01/18/2014

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
12325	4th	10/01/2008	1:15,000 (12325_1)	[L]NTM: ?
12327	101st	04/01/2008	1:40,000 (12327_1)	[L]NTM: ?
12324	33rd	03/01/2008	1:40,000 (12324_1)	[L]NTM: ?
12326	50th	05/01/2006	1:80,000 (12326_1)	[L]NTM: ?
12300	47th	05/01/2008	1:400,000 (12300_1)	[L]NTM: ?
13006	34th	05/01/2007	1:675,000 (13006_1)	[L]NTM: ?
5161	13th	10/01/2003	1:1,058,400 (5161_1)	[L]NTM: ?
13003	49th	04/01/2007	1:1,200,000 (13003_1)	[L]NTM: ?
14500	27th	10/01/2002	1:1,500,000 (14500_1)	[L]NTM: ?

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

Features

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	3 ft Wk New	Wreck	0.90 m	40° 21' 59.8" N	074° 03' 07.5" W	---
1.2	6 ft Wk New	Wreck	1.79 m	40° 22' 19.5" N	074° 02' 36.1" W	---
1.3	5 ft Wk New	Wreck	1.75 m	40° 22' 16.3" N	074° 02' 16.1" W	---
1.4	13 ft Wk New	Wreck	4.01 m	40° 22' 38.3" N	074° 01' 49.6" W	---
1.5	2 ft Wk New	Wreck	[None]	40° 23' 15.3" N	074° 00' 36.6" W	---
1.6	15 ft Wk New	Wreck	3.57 m	40° 22' 59.2" N	073° 59' 43.4" W	---
1.7	6 ft Wk New	Wreck	1.88 m	40° 23' 03.6" N	073° 59' 24.7" W	---
1.8	5 ft Wk New	Wreck	1.60 m	40° 23' 25.8" N	073° 58' 50.5" W	---

1.9	7ft Wk New	Wreck	2.07 m	40° 23' 40.6" N	073° 58' 50.0" W	---
1.10	16 ft Wk New	Wreck	5.08 m	40° 23' 29.3" N	073° 58' 44.1" W	---
2.1	2 ft Wk	Wreck	0.60 m	40° 22' 41.4" N	074° 01' 12.9" W	1573
2.2	3 ft Wk	Wreck	[None]	40° 22' 55.4" N	073° 59' 22.3" W	1577
3.1	4 ft Wk	Wreck	1.18 m	40° 23' 05.3" N	074° 00' 44.8" W	---

1 - New Features

1.1) 3 ft Wk New

Survey Summary

Survey Position:	40° 21' 59.8" N, 074° 03' 07.5" W
Least Depth:	0.90 m (= 2.94 ft = 0.490 fm = 0 fm 2.94 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	1981-001.01:01:01.001 (01/01/1981)
Dataset:	H12890_WRECKS_Report.000
FOID:	0_ 0000028588 00001(FFFE00006FAC0001)
Charts Affected:	12325_1, 12324_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: Intact wreck lying upright approximately 5m long and 2m wide in 2.0m of water.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12890_WRECKS_Report.000	0_ 0000028588 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart sounding and label Wk. See Feature 547.

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

3ft (12325_1, 12324_1, 12326_1)

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

0.9m (5161_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	INFORM - Feature 546 - GSF File: obmba13345.d30; Ping: 5319; Beam: 1; Depth: 0.897m; Time: 21:30:01.69; H. Uncert.: 1.380m; V. Uncert.: 0.270m.
	NINFOM - Chart wreck.
	QUASOU - 6:least depth known
	SORDAT - 20140118

SORIND - US,US,graph,H12890

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

VALSOU - 0.897 m

WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Feature was ensonified with object detect SSS and MBES. Feature is considered significant and verified as per survey data. Defer the final charting disposition to AHB Compile Team. Compile: Concur. Chart new dangerous wreck.

Feature Images

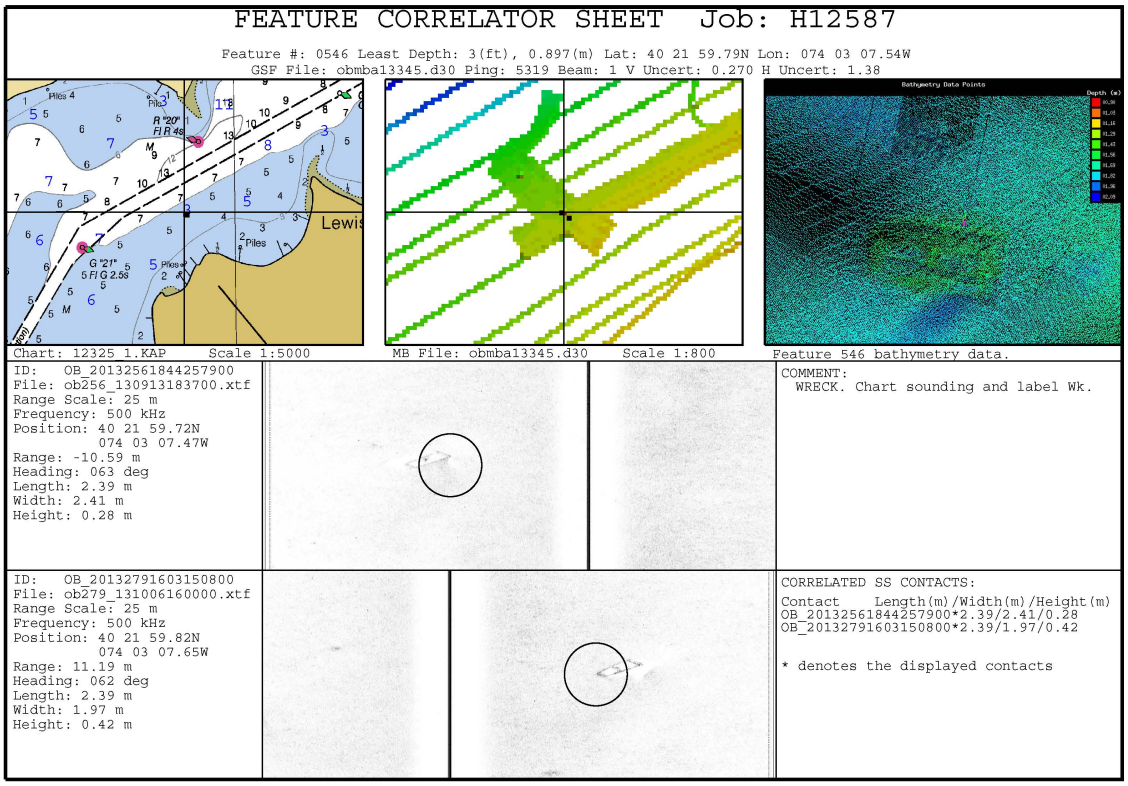

Figure 1.1.1

1.2) 6 ft Wk New

Survey Summary

Survey Position:	40° 22' 19.5" N, 074° 02' 36.1" W
Least Depth:	1.79 m (= 5.87 ft = 0.979 fm = 0 fm 5.87 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	1981-001.01:01:01.001 (01/01/1981)
Dataset:	H12890_WRECKS_Report.000
FOID:	0_ 0000028586 00001(FFFE00006FAA0001)
Charts Affected:	12325_1, 12324_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: Upside down intact wreck lying in a northeast/southwest orientation approximately 1.7x5m in 2.8m of water.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12890_WRECKS_Report.000	0_ 0000028586 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart sounding and label Wk.

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

6ft (12325_1, 12324_1, 12326_1)

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

1.8m (5161_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	INFORM - Feature 506 - GSF File: obmba13342.d29; Ping: 24839; Beam: 85; Depth: 1.790m; Time: 20:13:13.27; H. Uncert.: 1.620m; V. Uncert.: 0.280m.
	NINFOM - Chart wreck.
	QUASOU - 6:least depth known
	SORDAT - 20140118

SORIND - US,US,graph,H12890

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

VALSOU - 1.790 m

WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Feature was ensonified with object detect SSS and MBES. Feature is considered significant and verified as per survey data. Defer the final charting disposition to AHB Compile Team. Compile: Concur. Chart new dangerous wreck.

Feature Images

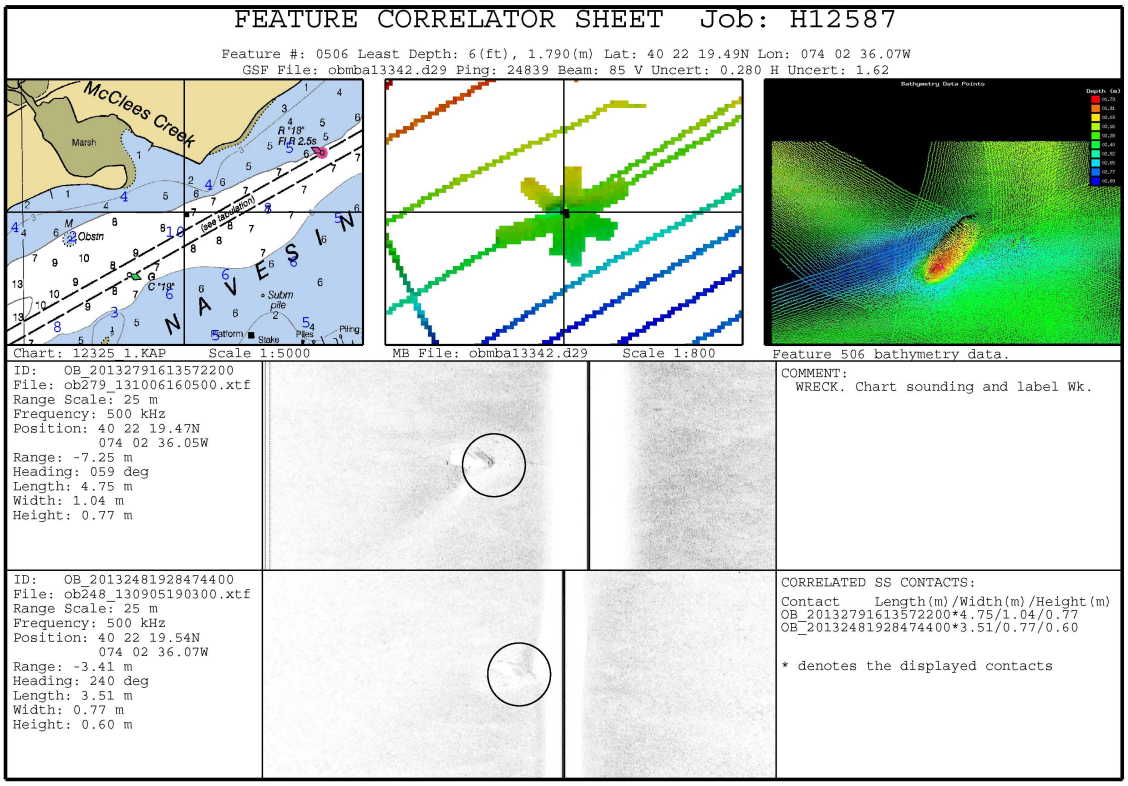

Figure 1.2.1

1.3) 5 ft Wk New

Survey Summary

Survey Position:	40° 22' 16.3" N, 074° 02' 16.1" W
Least Depth:	1.75 m (= 5.75 ft = 0.959 fm = 0 fm 5.75 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	1981-001.01:01:01.001 (01/01/1981)
Dataset:	H12890_WRECKS_Report.000
FOID:	0_ 0000028587 00001(FFFE00006FAB0001)
Charts Affected:	12325_1, 12324_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: Upright intact wreck lying in a north northwest/south southeast orientation approximately 1x2m in 2.2m of water.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12890_WRECKS_Report.000	0_ 0000028587 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart sounding and label Wk.

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

6ft (12325_1, 12324_1, 12326_1)

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

1.8m (5161_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	INFORM - Feature 503 - GSF File: obmba13342.d28; Ping: 13120; Beam: 87; Depth: 1.753m; Time: 19:41:52.41; H. Uncert.: 1.490m; V. Uncert.: 0.280m.
	NINFOM - Chart wreck.
	QUASOU - 6:least depth known
	SORDAT - 20140118

SORIND - US,US,graph,H12890

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

VALSOU - 1.753 m

WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Feature was ensonified with object detect SSS and MBES. Feature is considered significant and verified as per survey data. Defer the final charting disposition to AHB Compile Team. Compile: Concur. Chart new dangerous wreck.

Feature Images

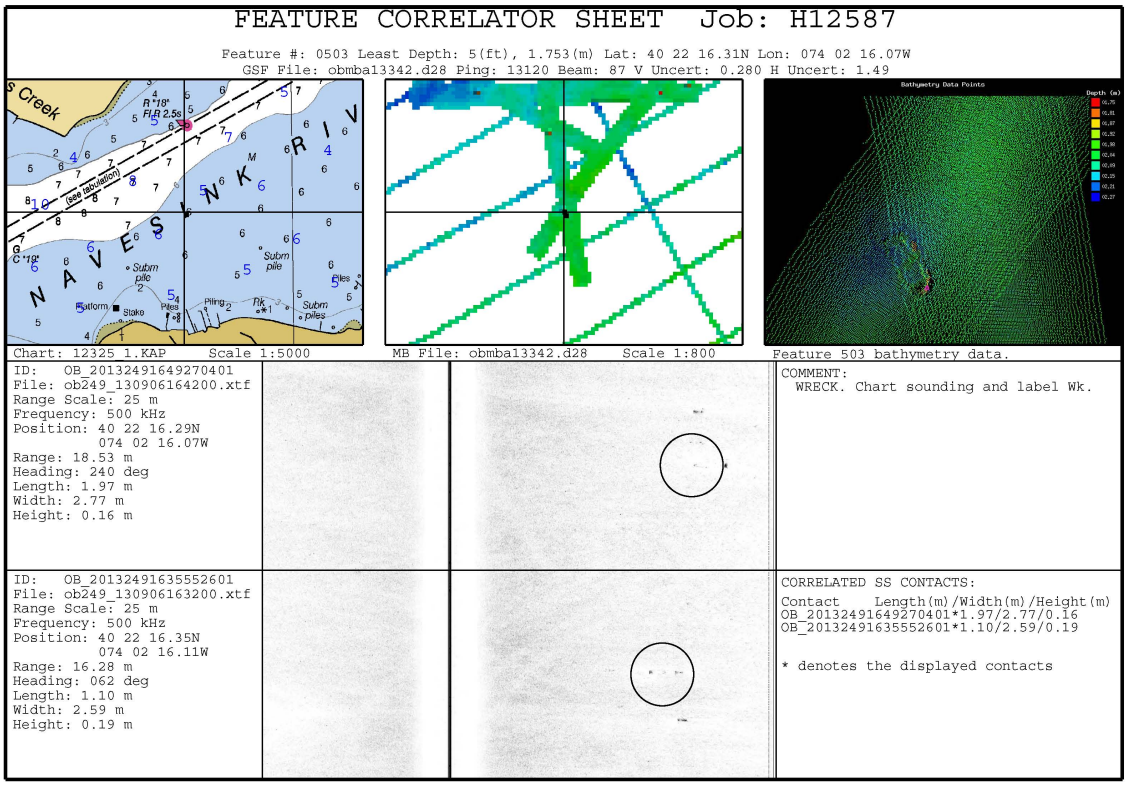

Figure 1.3.1

1.4) 13 ft Wk New

Survey Summary

Survey Position:	40° 22' 38.3" N, 074° 01' 49.6" W
Least Depth:	4.01 m (= 13.15 ft = 2.191 fm = 2 fm 1.15 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	1981-001.01:01:01.001 (01/01/1981)
Dataset:	H12890_WRECKS_Report.000
FOID:	0_ 0000028585 00001(FFFE00006FA90001)
Charts Affected:	12325_1, 12324_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: Wreck lying in a northwest/southeast orientation approximately 1.8x4m in 4.9m of water.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12890_WRECKS_Report.000	0_ 0000028585 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart sounding and label Wk.

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

13ft (12325_1, 12324_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:	CATWRK - 2:dangerous wreck
	INFORM - Feature 488 - GSF File: obmba13342.d23; Ping: 24992; Beam: 57; Depth: 4.007m; Time: 18:32:04.34; H. Uncert.: 1.400m; V. Uncert.: 0.280m.
	NINFOM - Chart wreck.
	QUASOU - 6:least depth known
	SORDAT - 20140118

SORIND - US,US,graph,H12890

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

VALSOU - 4.007 m

WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Feature was ensonified with object detect SSS and MBES. Feature is considered significant and verified as per survey data. Defer the final charting disposition to AHB Compile Team. Compile: Concur. Chart new dangerous wreck.

Feature Images

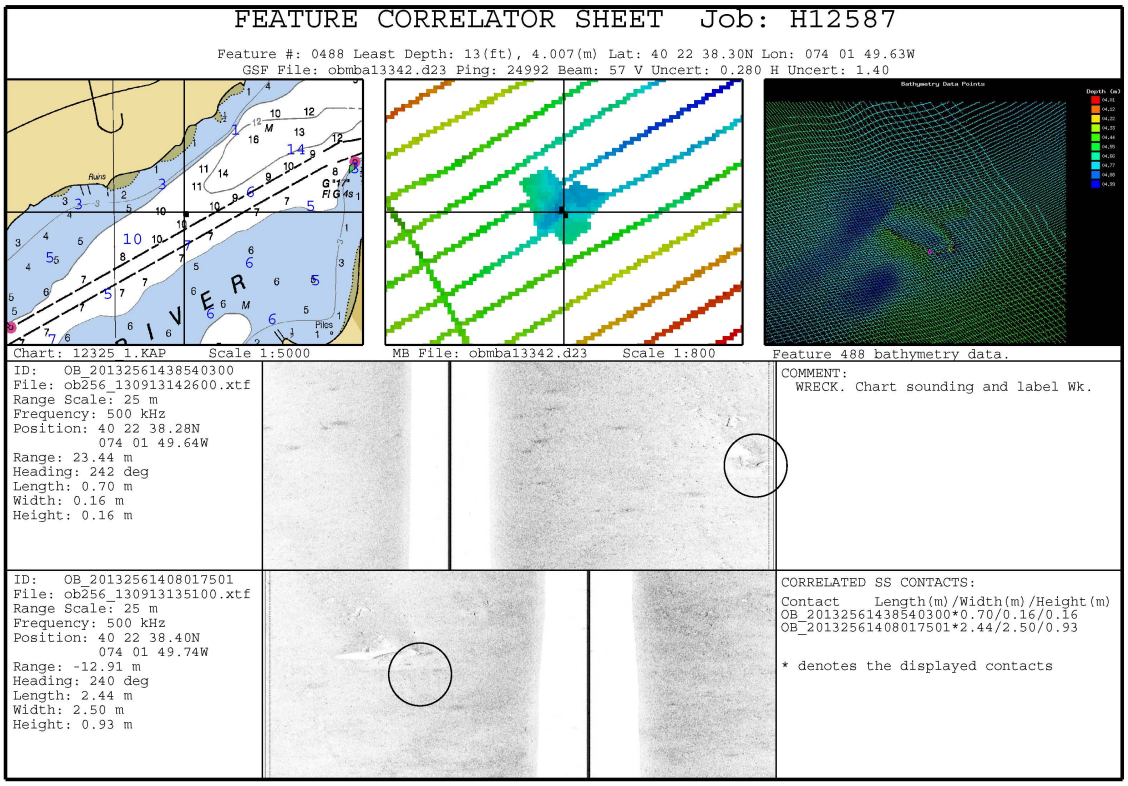

Figure 1.4.1

1.5) 2 ft Wk New

Survey Summary

Survey Position:	40° 23' 15.3" N, 074° 00' 36.6" W
Least Depth:	[None]
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-249.14:13:53.000 (09/06/2013)
Dataset:	H12890_WRECKS_Report.000
FOID:	0_ 0000028580 00001(FFFE00006FA40001)
Charts Affected:	12325_1, 12324_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: Wreck found by side scan it was determined that it was too dangerous to obtain multibeam coverage.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12890_WRECKS_Report.000	0_ 0000028580 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart wreck.

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	INFORM - Feature 669 - Position derived from side scan data only
	NINFOM - Chart wreck.
	QUASOU - 9,2:value reported (not confirmed),depth unknown
	SORDAT - 20140118
	SORIND - US,US,graph,H12890
	TECSOU - 2:found by side scan sonar
	WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Feature was ensonified with 200% SSS. Feature was verified at the surveyed position by SSS. Least depth was not obtained by MBES. Depth inferred from SSS. Defer the final charting disposition to AHB Compile Team. Compile: Concur. Chart new dangerous wreck.

Feature Images

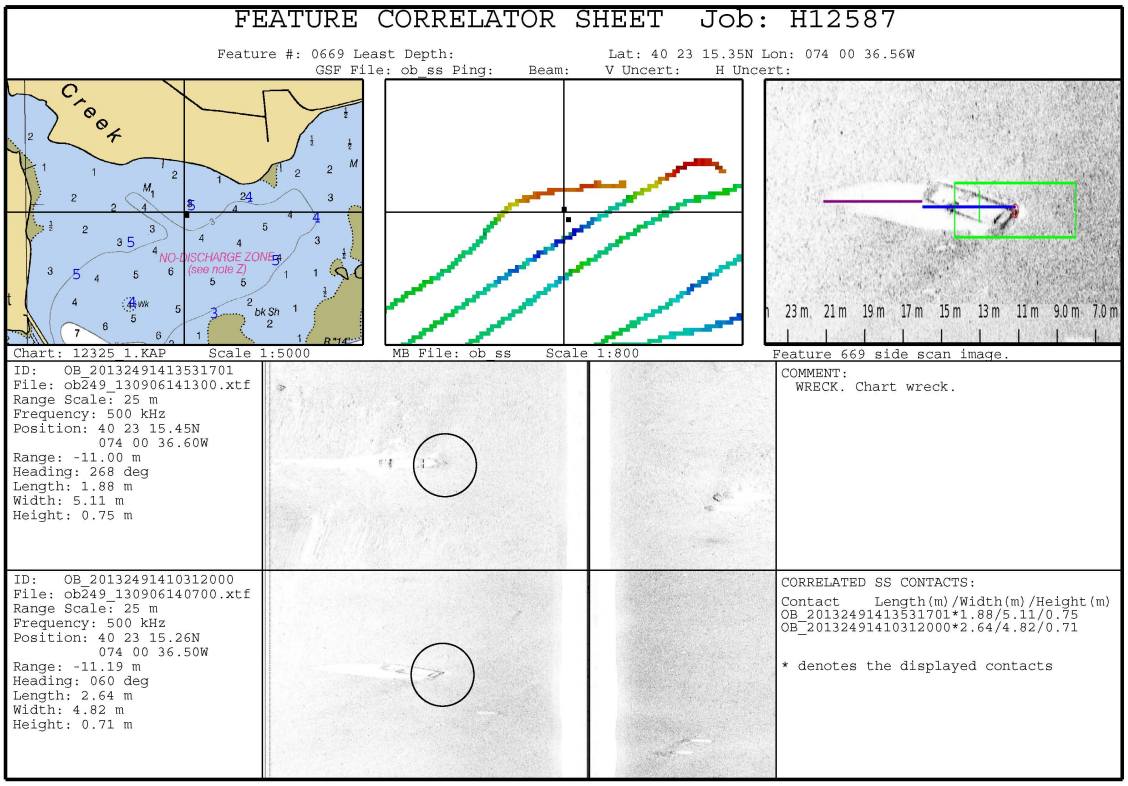

Figure 1.5.1

1.6) 15 ft Wk New

Survey Summary

Survey Position:	40° 22' 59.2" N, 073° 59' 43.4" W
Least Depth:	3.57 m (= 11.70 ft = 1.950 fm = 1 fm 5.70 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	1981-001.01:01:01.001 (01/01/1981)
Dataset:	H12890_WRECKS_Report.000
FOID:	0_ 0000028583 00001(FFFE00006FA70001)
Charts Affected:	12325_1, 12324_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: Approximately 5.2x1.8m wreck sitting upright in 5.5m of water. There is approximately 0.8m of scour along the northwest side of the wreck.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12890_WRECKS_Report.000	0_ 0000028583 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart sounding and label Wk.

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

12ft (12325_1, 12324_1, 12326_1)

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

3.6m (5161_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	INFORM - Feature 365 - GSF File: obmba13338.d17; Ping: 29133; Beam: 27; Depth: 3.567m; Time: 14:05:36.31; H. Uncert.: 1.460m; V. Uncert.: 0.280m.
	NINFOM - Chart wreck.
	QUASOU - 6:least depth known
	SORDAT - 20140118

SORIND - US,US,graph,H12890

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

VALSOU - 3.567 m

WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Feature was ensonified with object detect SSS and MBES. Feature is considered significant and verified as per survey data. Defer the final charting disposition to AHB Compile Team. Compile: Concur. Chart new dangerous wreck.

Feature Images

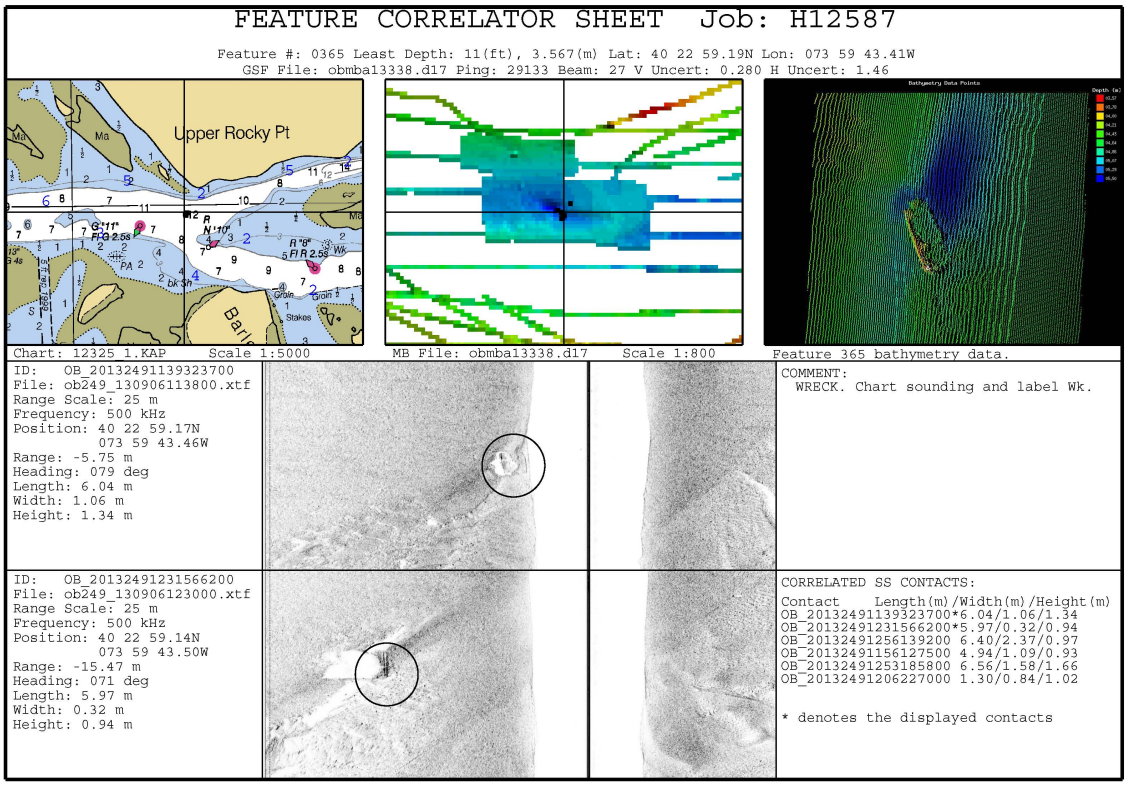

Figure 1.6.1

1.7) 6 ft Wk New

Survey Summary

Survey Position:	40° 23' 03.6" N, 073° 59' 24.7" W
Least Depth:	1.88 m (= 6.15 ft = 1.025 fm = 1 fm 0.15 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	1981-001.01:01:01.001 (01/01/1981)
Dataset:	H12890_WRECKS_Report.000
FOID:	0_ 0000028582 00001(FFFE00006FA60001)
Charts Affected:	12325_1, 12324_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: Approximately 5.2x2.2m wreck sitting upside down in 3.5m of water.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12890_WRECKS_Report.000	0_ 0000028582 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart sounding and label Wk.

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

6ft (12325_1, 12324_1, 12326_1)

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

1.9m (5161_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	INFORM - Feature 368 - GSF File: obmba13338.d20; Ping: 5547; Beam: 29; Depth: 1.875m; Time: 14:27:29.95; H. Uncert.: 1.460m; V. Uncert.: 0.280m.
	NINFOM - Chart wreck.
	QUASOU - 6:least depth known
	SORDAT - 20140118

SORIND - US,US,graph,H12890

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

VALSOU - 1.875 m

WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Feature was ensonified with object detect SSS and MBES. Feature is considered significant and verified as per survey data. Defer the final charting disposition to AHB Compile Team. Compile: Concur. Chart new dangerous wreck.

Feature Images

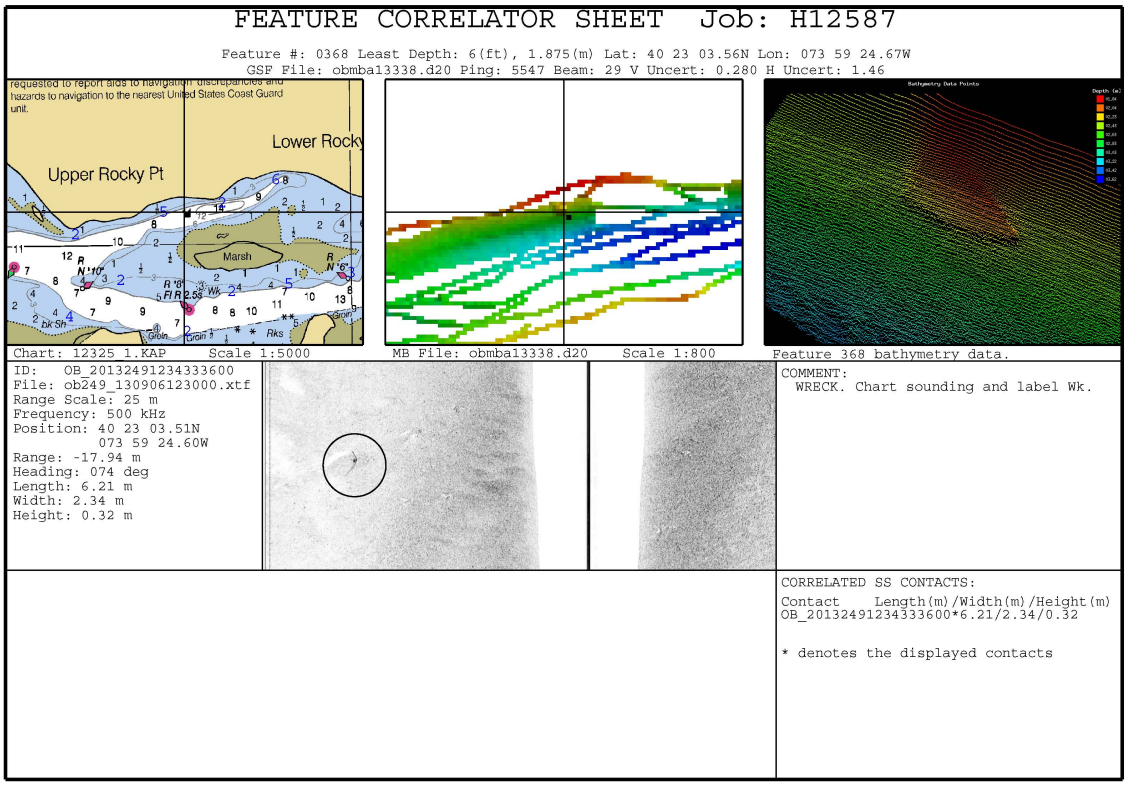

Figure 1.7.1

1.8) 5 ft Wk New

Survey Summary

Survey Position:	40° 23' 25.8" N, 073° 58' 50.5" W
Least Depth:	1.60 m (= 5.26 ft = 0.876 fm = 0 fm 5.26 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	1981-001.01:01:01.001 (01/01/1981)
Dataset:	H12890_WRECKS_Report.000
FOID:	0_ 0000028579 00001(FFFE00006FA30001)
Charts Affected:	12325_1, 12324_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: Wreck lying in an east/west orientation approximately 4.0x1.8m in 2.9m of water.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12890_WRECKS_Report.000	0_ 0000028579 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart sounding and label Wk.

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

5ft (12325_1, 12324_1, 12326_1)

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

1.6m (5161_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	INFORM - Feature 475 - GSF File: obmba13342.d10; Ping: 9164; Beam: 29; Depth: 1.602m; Time: 15:51:07.72; H. Uncert.: 1.470m; V. Uncert.: 0.280m.
	NINFOM - Chart wreck.
	QUASOU - 6:least depth known
	SORDAT - 20140118

SORIND - US,US,graph,H12890

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

VALSOU - 1.602 m

WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Feature was ensonified with object detect SSS and MBES. Feature is considered significant and verified as per survey data. Defer the final charting disposition to AHB Compile Team. Compile: Concur. Chart new dangerous wreck.

Feature Images

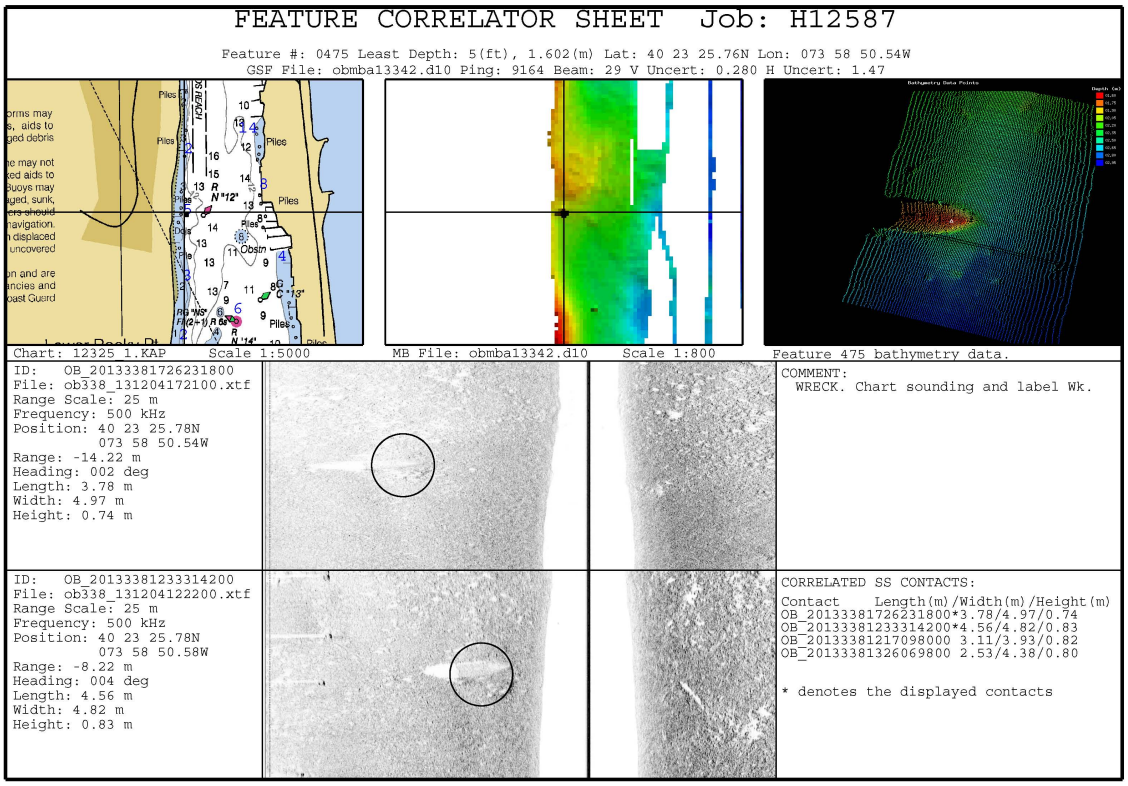

Figure 1.8.1

1.9) 7ft Wk New

Survey Summary

Survey Position:	40° 23' 40.6" N, 073° 58' 50.0" W
Least Depth:	2.07 m (= 6.80 ft = 1.134 fm = 1 fm 0.80 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	1981-001.01:01:01.001 (01/01/1981)
Dataset:	H12890_WRECKS_Report.000
FOID:	0_ 0000028578 00001(FFFE00006FA20001)
Charts Affected:	12325_1, 12324_1, 12327_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: A wreck like object approximately 3.2mx1.2m in size and about 12.5 meters apart from Feature 344.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12890_WRECKS_Report.000	0_ 0000028578 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart sounding and label Wk. See Feature 344.

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

7ft (12325_1, 12324_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:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	INFORM - Feature 356 - GSF File: obmba13338.d14; Ping: 785; Beam: 91; Depth: 2.073m; Time: 13:23:50.22; H. Uncert.: 1.670m; V. Uncert.: 0.280m.
	NINFOM - Chart wreck.
	QUASOU - 6:least depth known

SORDAT - 20140118

SORIND - US,US,graph,H12890

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

VALSOU - 2.073 m

WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Feature was ensonified with object detect SSS and MBES. Feature is considered significant and verified as per survey data. Defer the final charting disposition to AHB Compile Team. Compile: Concur. Chart new dangerous wreck.

Feature Images

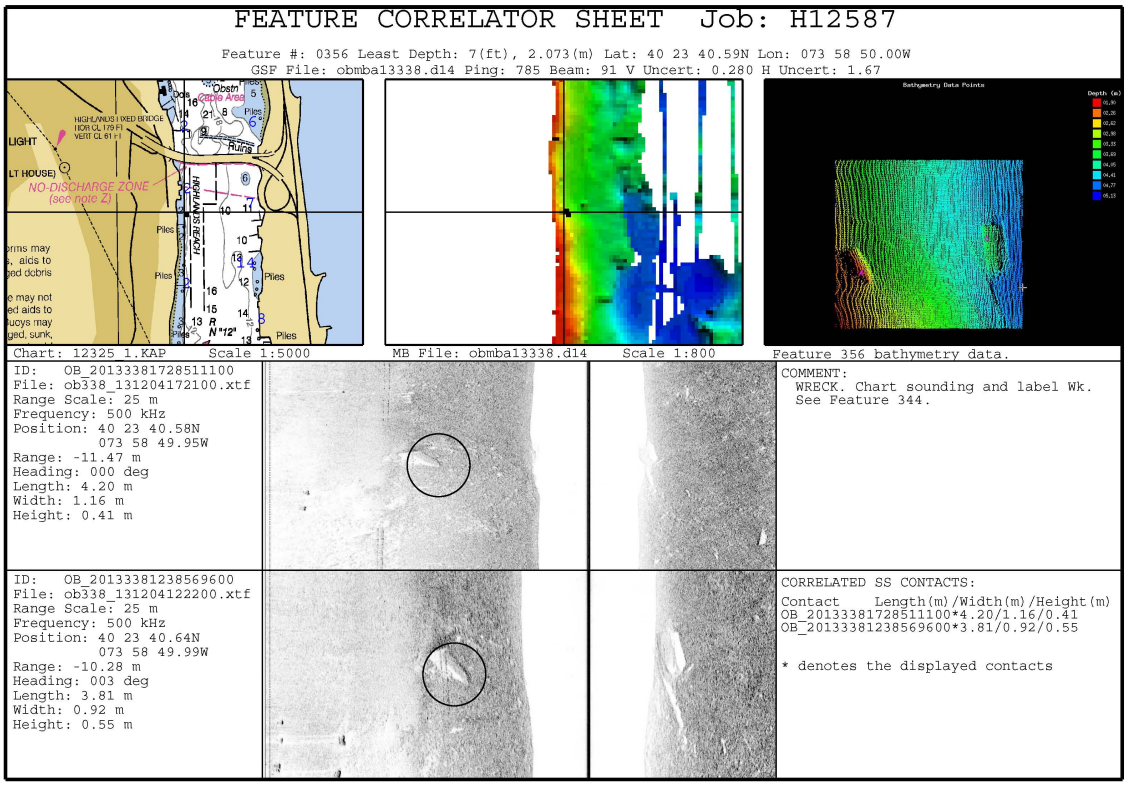

Figure 1.9.1

1.10) 16 ft Wk New

Survey Summary

Survey Position:	40° 23' 29.3" N, 073° 58' 44.1" W
Least Depth:	5.08 m (= 16.66 ft = 2.777 fm = 2 fm 4.66 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	1981-001.01:01:01.001 (01/01/1981)
Dataset:	H12890_WRECKS_Report.000
FOID:	0_ 0000028576 00001(FFFE00006FA00001)
Charts Affected:	12325_1, 12324_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: A wreck like object approximately 3.4mx1.8m found in the Shrewsbury River.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12890_WRECKS_Report.000	0_ 0000028576 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart sounding and label Wk.

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

17ft (12325_1, 12324_1, 12326_1)

2 ¾fm (12300_1, 13006_1, 13003_1, 14500_1)

5.1m (5161_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	INFORM - Feature 405 - GSF File: obmba13339.d06; Ping: 26845; Beam: 47; Depth: 5.078m; Time: 13:04:08.67; H. Uncert.: 1.450m; V. Uncert.: 0.280m.
	NINFOM - Chart wreck.
	QUASOU - 6:least depth known
	SORDAT - 20140118

SORIND - US,US,graph,H12890

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

VALSOU - 5.078 m

WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Feature was ensonified with object detect SSS and MBES. Feature is considered significant and verified as per survey data. Defer the final charting disposition to AHB Compile Team. Compile: Concur. Chart new dangerous wreck.

Feature Images

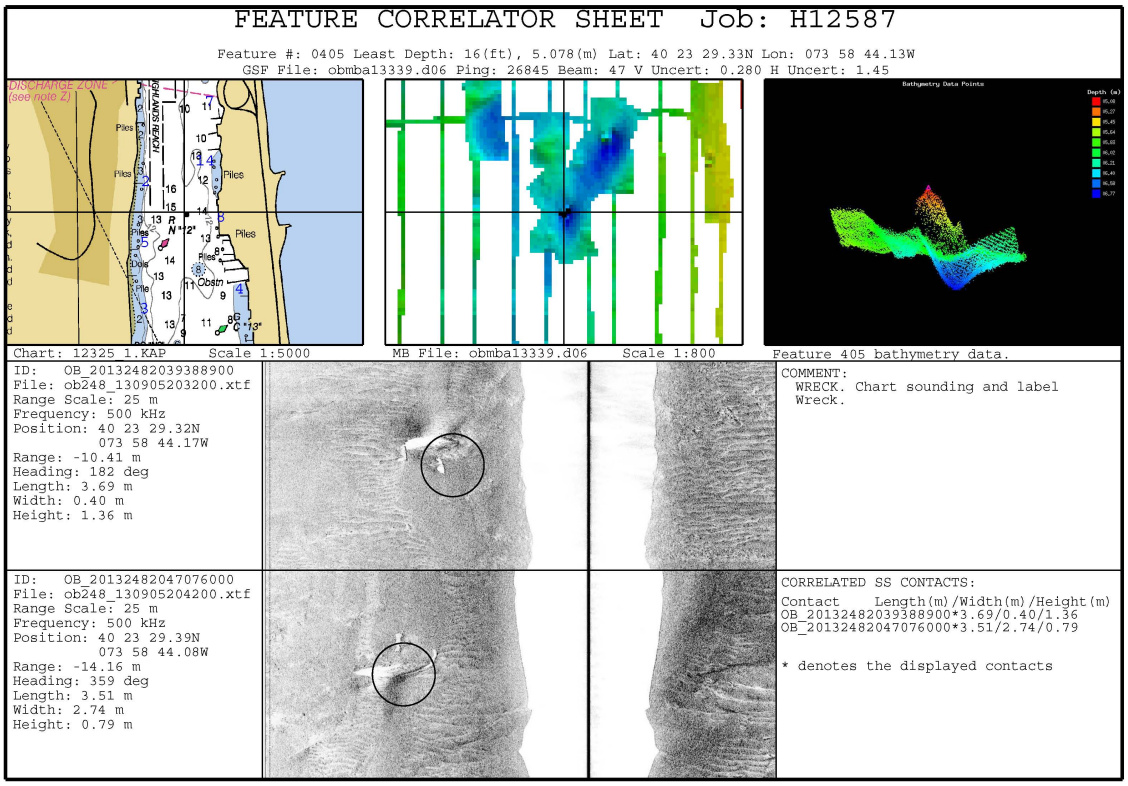

Figure 1.10.1

2 - AWOIS Features

2.1) 2 ft Wk

Feature for AWOIS Item #1573

Search Position:	40° 22' 41.4" N, 074° 01' 12.9" W
Historical Depth:	0.60 m
Search Radius:	[unknown]
Search Technique:	Type: UNKNOWN, Itemstatus: COMPLETED, Searchtype: INFORMATION, Technique:
Technique Notes:	

History Notes:

History

HISTORY CL1350/67--SP-AMC-12-67 DEFICIENCY SURVEY; DANGEROUS SUNKEN WK OF A 30-35 FT BOAT COVERED 2 FT AT MLW WAS FOUND AT POS.40-22-40.2N 74-01-15.0W WK WAS ORIENTED NNE-SSW. MONTHLY ACTIVITIES REPORT 7/26/82--WRECK FOUND AT POS.40-22-40.9N 74-01-14.5 BY R/AZ AND BOTTOM DRAG 2.4 FT LD BY SOUNDING POLE IN 3.3 FT OF WATER. RECOMMENDS SHIFTING CHARTED POSITION OF WRECK.
H1016/82--OPR-B259-HSB-82; PSR ITEM 4; 10 METER LINE SPACING WITH ONE BOAT OTTER BOARD CHAIN SWEEP; SNAG WITHIN 30 METERS OF CHARTED POSITION; 4 FT LEAST DEPTH (POLE SOUNDING) IN SURROUNDING WATER OF 4 FT; MAY NOT BE LD; HYDROGRAPHER AND EVALUATOR RECOMMEND RETAIN 2 FT AND RELOCATING WK TO LAT 40-22-40.87N LONG 74-01-14.47W. (UPDATED MSM 1/87)

Survey Summary

Survey Position:	40° 22' 41.4" N, 074° 01' 12.9" W
Least Depth:	0.60 m (= 1.97 ft = 0.328 fm = 0 fm 1.97 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-279.17:02:42.000 (10/06/2013)
Dataset:	H12890_WRECKS_Report.000
FOID:	0_ 0000028584 00001(FFFE00006FA80001)
Charts Affected:	12325_1, 12324_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: Wreckage with no significant height was found by side scan with an approximate size of 0.6x0.3m in area of charted wreck. It was determined to be too dangerous to obtain multibeam coverage. AWOIS 1573. Feature 673.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12890_WRECKS_Report.000	0_ 0000028584 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart wreck.

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

2ft (12325_1, 12324_1, 12326_1)

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

0.6m (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

INFORM - Feature 673 - Position derived from side scan data only

NINFOM - Retain wreck.

QUASOU - 6:least depth known

SORDAT - 20060400

SORIND - US,US,graph,Chart 12325

TECSOU - 2:found by side scan sonar

VALSOU - 0.600 m

WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Feature was ensonified with 200% SSS. Feature was verified at the surveyed position by SSS. Least depth was not obtained by MBES. Depth inferred from SSS. Defer the final charting disposition to AHB Compile Team. Compile: Concur. Given no new least depth from MBES and new position differs by less than 2mm at chart scale, recommend to retain dangerous wreck as charted.

Feature Images

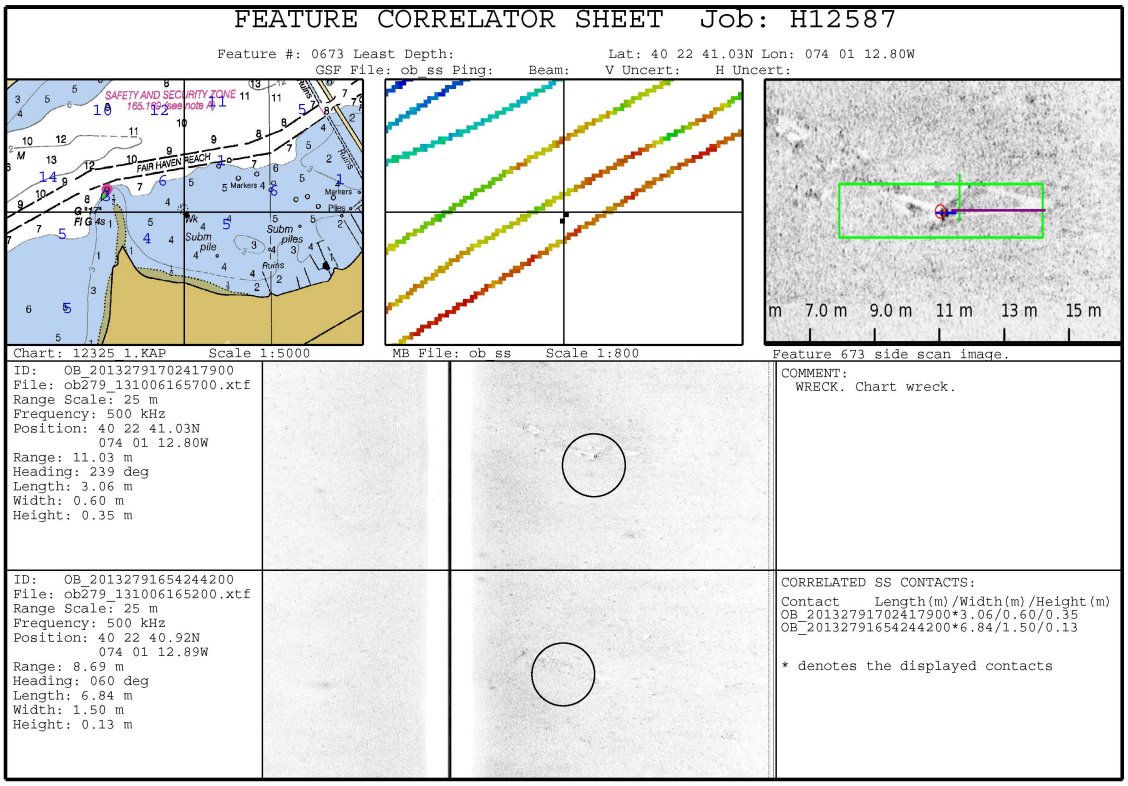

Figure 2.1.1

2.2) 3 ft Wk

Feature for AWOIS Item #1577

Search Position:	40° 22' 55.4" N, 073° 59' 22.3" W
Historical Depth:	[None]
Search Radius:	[unknown]
Search Technique:	Type: UNKNOWN, Itemstatus: COMPLETED, Searchtype: INFORMATION, Technique:
Technique Notes:	

History Notes:

History

01577 HISTORY H5616/34--LOCATED AT POS.40-22-54.8N 73-59-23.3W DESCRIBED ON SS AS SIDE OF OLD WRECK. CL1350/67--SP-AMC-12-67 DEFICIENCY SURVEY; DANGEROUS REMAINS OF A WOODEN VESSEL FOUND COVERED 1 FT AT MLW AT POS.40-22-54N 73-59-24W ORIENTED IN A NORTH SOUTH DIRECTION. MONTHLY ACTIVITIES REPORT 7/26/82--WRECK FOUND AT POS.40-22-55.2N 73-59-24W BY R/AZ AND BOTTOM DRAG 3.6 FT LD BY SOUNDING POLE IN 5.6 FT OF WATER. WK VISIBLE FROM SURFACE AND LIES N-S 35-40 FT LONG. RECOMMENDS SHIFTING CHARTED POSITION OF WRECK. H10016/82--OPR-B259-HSB-82; PSR ITEM 2; 10 METER LINE SPACING WITH ONE BOAT OTTER BOARD CHAIN SWEEP; WK LIES IN 5 FT OF WATER AT MLW; LEAST DEPTH OF 3.0 FT AT MLW (POLE SOUNDING); NORTH-SOUTH ORIENTATION; EVALUATOR RECOMMENDS CHARTING 3 WK IN LAT 40-22-55N LONG 73-59-23.68W. (UPDATED MSM 1/87) SURVEY REQUIREMENTS NOT ASSIGNED

Survey Summary

Survey Position:	40° 22' 55.4" N, 073° 59' 22.3" W
Least Depth:	[None]
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2006-091.00:00:00.000 (04/01/2006)
Dataset:	H12890_WRECKS_Report.000
FOID:	0_ 0000028577 00001(FFFE00006FA10001)
Charts Affected:	12325_1, 12324_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: No objects were found within 100 meters of the charted position in the survey coverage. However; the entire search area was not covered due to water depth; therefore retain AWOIS 1577 position as charted.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12890_WRECKS_Report.000	0_ 0000028577 00001	0.00	000.0	Primary

Hydrographer Recommendations

Update attributes. Retain position as charted.

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes:

CATWRK - 2:dangerous wreck

INFORM - Wreck was not found in partial survey coverage.

NINFOM - Retain wreck.

QUASOU - 8:value reported (not surveyed)

SORDAT - 20060400

SORIND - US,US,graph,Chart 12325

WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Feature was NOT fully ensonified with object detect SSS of MBES. Defer the final charting disposition to AHB Compile Team. Compile: Feature not addressed due to shallow, hazardous conditions. Recommend to retain charted wreck.

3 - Dangers To Navigation

3.1) 4 ft Wk

DANGER TO NAVIGATION

Survey Summary

Survey Position:	40° 23' 05.3" N, 074° 00' 44.8" W
Least Depth:	1.18 m (= 3.88 ft = 0.647 fm = 0 fm 3.88 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	1981-001.01:01:01.001 (01/01/1981)
Dataset:	H12890_WRECKS_Report.000
FOID:	0_ 0000028581 00001(FFFE00006FA50001)
Charts Affected:	12325_1, 12324_1, 12326_1, 12300_1, 13006_1, 5161_1, 13003_1, 14500_1

Remarks:

WRECKS/remrks: Approximately 6.5x1.9m wreck sitting upright in an east/west orientation in 2.3m of water. Wreck was submitted as DTON 16.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12890_WRECKS_Report.000	0_ 0000028581 00001	0.00	000.0	Primary

Hydrographer Recommendations

Update attributes. Retain position as charted.

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

4ft (12325_1, 12324_1, 12326_1)

0 ¾fm (12300_1, 13006_1, 13003_1, 14500_1)

1.2m (5161_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	INFORM - Feature 373 - GSF File: obmba13338.d24; Ping: 18314; Beam: 87; Depth: 1.183m; Time: 15:31:15.84; H. Uncert.: 1.420m; V. Uncert.: 0.270m.
	NINFOM - Chart wreck.

QUASOU - 6:least depth known

SORDAT - 20130912

SORIND - US,US,reprt,DD-24075

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

VALSOU - 1.183 m

WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Feature was ensonified with object detect SSS and MBES. Feature is considered significant and verified as per survey data. Defer the final charting disposition to AHB Compile Team. Compile: Concur. Feature updated with new position and least depth. Chart new dangerous wreck.

Feature Images

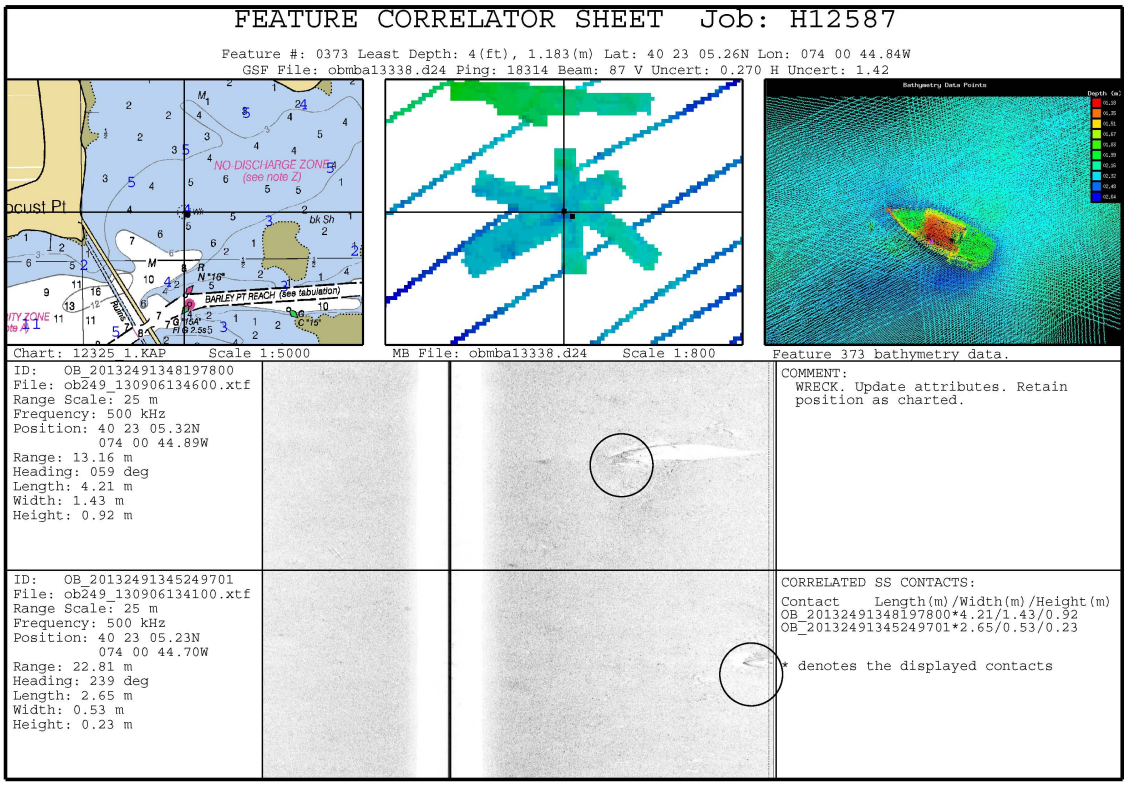

Figure 3.1.1

APPROVAL PAGE

H12890

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 NCEI for archive

- H12890_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12890_GeoImage.pdf

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

Digitally signed by COUSINS.JASMINE.LYN.1242470776
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=NOAA, cn=COUSINS.JASMINE.LYN.1242470776
Date: 2017.01.30 09:45:01 -05'00'

Approved:_____

Lieutenant Commander Briana Welton, NOAA
Chief, Atlantic Hydrographic Branch