H12655

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

DESCRIPTIVE REPORT

Type of Survey:	Basic Hydrographic Survey
Registry Number:	H12655

LOCALITY

State(s):	Alabama
General Locality:	Approaches to Mobile Bay
Sub-locality:	2NM South of Fort Gaines

2014

CHIEF OF PARTY
Deborah M. Smith

LIBRARY & ARCHIVES

Date:

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:
HYDROGRAPHIC TITLE SHEET	**H12655**

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):	**Alabama**
General Locality:	**Approaches to Mobile Bay**
Sub-Locality:	**2NM South of Fort Gaines**
Scale:	**20000**
Dates of Survey:	**07/29/2014 to 10/10/2014**
Instructions Dated:	**04/15/2014**
Project Number:	**OPR-J312-KR-14**
Field Unit:	**Leidos (formerly SAIC)**
Chief of Party:	**Deborah M. Smith**
Soundings by:	**Multibeam 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:

Contract: DG133C-08-CQ-0008.

Contractor: Leidos 221 Third Street, Newport, RI 02840 USA.

Subcontractors: Divemasters, Inc., 15 Pumpshire Road, Toms River, NJ 08753; Offshore Analysis & Research Solutions, 8705 Shoal Creek Blvd, Suite 109, Austin, TX 78757.

Leidos Doc 15-TR-005.

All times were recorded in UTC.

Data was collected in UTM Zone 16.

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 H12655

Project: OPR-J312-KR-14

Locality: Approaches to Mobile Bay

Sublocality: 2NM South of Fort Gaines

Scale: 1:20000

July 2014 - October 2014

Leidos (formerly SAIC)

Chief of Party: Deborah M. Smith

A. Area Surveyed

The area surveyed was a section of Mobile Bay Approaches off Alabama (Figure 1).

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
30° 20’ 35.79” N 088° 07’ 42.02” W	30° 12’ 58.45” N 087° 56’ 49.26” W

Table 1: Survey Limits

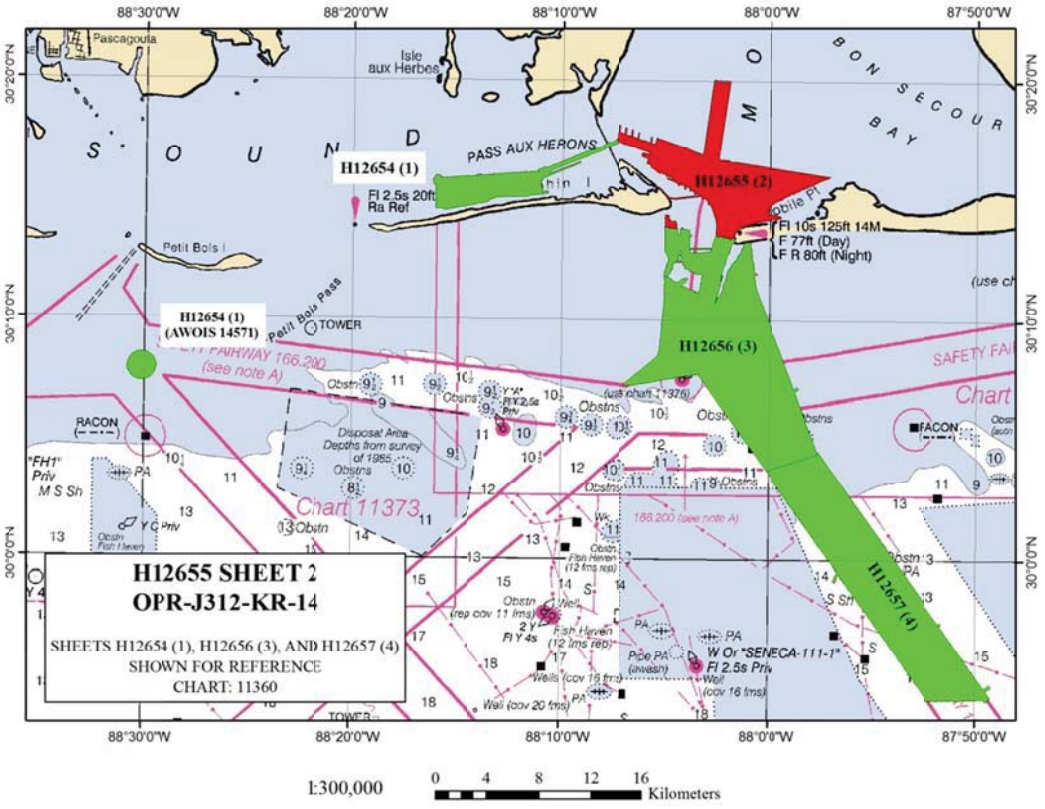


Figure 1: H12655 Survey Bounds

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

A.2 Survey Purpose

The purpose of this survey is to update existing NOS nautical charts. This project will cover approximately 100 square nautical miles in the Approaches to Mobile Bay as designated in NOAA Hydrographic Survey Priorities, 2013 edition.

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.

H12655 was surveyed in accordance with the following documents:
1. Project Instructions, OPR-J312-KR-14, dated 15 April 2014
2. NOS Hydrographic Specifications and Deliverables, April 2014

A.4 Survey Coverage

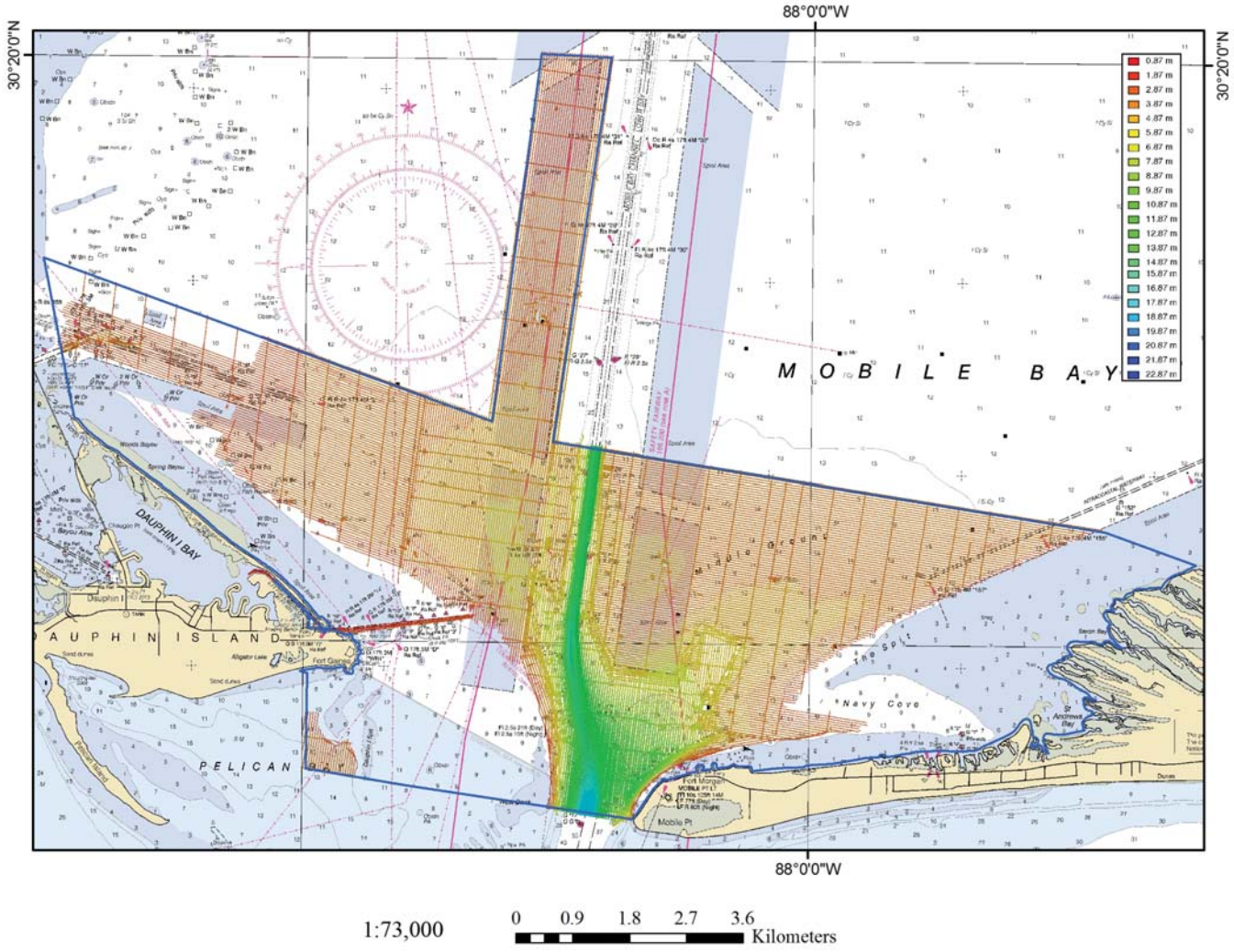


Figure 2: Final Bathymetry Coverage for H12655

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*	*Total*
LNM	**SBES Mainscheme**	0	0	0
	MBES Mainscheme	0	0	0
	Lidar Mainscheme	0	0	0
	SSS Mainscheme	0	0	0
	SBES/MBES Combo Mainscheme	0	0	0
	SBES/SSS Combo Mainscheme	0	0	0
	MBES/SSS Combo Mainscheme	132.97	691.59	824.56
	SBES/MBES Combo Crosslines	7.6	60.41	68.01
	Lidar Crosslines	0	0	0
Number of Bottom Samples				15
Number AWOIS Items Investigated				5
Number Maritime Boundary Points Investigated				0
Number of DPs				0
Number of Items Items Investigated by Dive Ops				0
Total Number of SNM				15.98

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
07/29/2014	210	08/23/2014	235
07/30/2014	211	08/24/2014	236
07/31/2014	212	08/27/2014	239
08/01/2014	213	08/28/2014	240
08/02/2014	214	08/29/2014	241
08/03/2014	215	08/30/2014	242
08/04/2014	216	08/31/2014	243
08/06/2014	218	09/01/2014	244
08/07/2014	219	09/02/2014	245
08/08/2014	220	09/05/2014	248
08/09/2014	221	09/07/2014	250
08/10/2014	222	09/08/2014	251
08/12/2014	224	09/09/2014	252
08/13/2014	225	09/10/2014	253
08/16/2014	228	09/14/2014	257
08/17/2014	229	10/09/2014	282
08/20/2014	232	10/10/2014	283
08/22/2014	234		

Table 3: Dates of Hydrography

B. Data Acquisition and Processing

B.1 Equipment and Vessels

Leidos used their ISS-2000 software on a Windows 7 platform to acquire these survey data. Survey planning and data analysis were conducted using the Leidos SABER software on Red Hat Enterprise 6 Linux platforms. L-3 Klein 3000 side scan data were collected on a Windows 7 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-J312-KR-14, delivered on 16 January 2015. 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***
LOA	110 feet	30 feet
Draft	9 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. The R/V Oyster Bay was used to collect multibeam (RESON 8101 ER), side scan sonar (L-3 Klein 3000), 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
L-3 Klein	3000	SSS
Applanix	POS/MV 320	Positioning and Attitude System
Trimble	Probeacon	Positioning System
Brooke Ocean Technology	MVP-30	Sound Speed System
SeaBird	SBE-19	Conductivity, Temperature, and Depth Sensor

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 8.2% of mainscheme acquisition.

There were 68.01 linear nautical miles of crosslines and 824.56 linear nautical miles of mainscheme lines surveyed on H12655. This resulted in crossline mileage approximately 8.2% of the mainscheme mileage which meets the requirement (Section 5.2.4.3 of the HSSD) to achieve at least eight percent for a multibeam survey using set line spacing. H12655 requirements were for set line spacing in water depths less than 20 meters and full multibeam coverage in depths greater than 20 meters. The greater of the two requirements for crossline comparisons defined in Section 5.2.4.3 of the HSSD was therefore used. For efficiency, the mainscheme line orientation varied throughout the survey area. Crosslines were oriented between 45° and 90° of the mainscheme lines and were spaced in order to result in linear mileage that was greater than 8% of the mainscheme mileage.

In the field, hydrographers conducted daily comparisons of mainscheme 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 mainscheme multibeam and the other included only the near nadir swath (±5° from nadir) crossline data. Separate

mainscheme and crossline grids were created for each vessel and sonar used for acquisition, M/V Atlantic Surveyor RESON 7125 SV multibeam and R/V Oyster Bay 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 (Meters) for the Range of Depths	Percent of Depth Differences Less than IHO Order 1A Maximum
All Multibeam Mainscheme to Crosslines (class 1 only)	0.500 – 0.555	100
M/V Atlantic Surveyor 7125 SV Mainscheme *to* Crosslines *(Class 1)*	0.500 – 0.555	99.93
R/V Oyster Bay 8101 ER Mainscheme *to* Crosslines *(Class 1)*	0.500 – 0.555	99.97
M/V Atlantic Surveyor 7125 SV Multibeam *to R/V Oyster Bay* 8101 ER Multibeam	0.500 – 0.555	99.98

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 soundings varied little across the dataset, tending to be most affected by beam angle. 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.

The final two-meter PFM CUBE surface contained final vertical uncertainties that ranged from 0.470 to 1.185 meters. The IHO Order 1a maximum allowable vertical uncertainty was calculated to range between 0.500 to 0.557 meters, based on the minimum CUBE depth (0.996 meters) and maximum CUBE depth (18.923 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 2,513 individual CUBE nodes with final vertical uncertainties that exceeded IHO Order 1a allowable vertical 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. A large number of these nodes fell on a pipeline trench (Feature 111 and 112) that crosses most of the survey area running north south.

The SABER Check PFM Uncertainty function was also run on each of the eleven half-meter feature PFM Hypothesis Final Uncertainty surfaces. The results are listed in Figure 4. 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 used to review the Hypothesis Final Uncertainty surface within the final two-meter grids and eleven half-meter resolution PFM grids. The results show that in the final two-meter PFM, 99.54% of all nodes had final uncertainties less than or equal to 0.470 meters. In the eleven individual feature PFM grids, at least 98.05% of all grid nodes contained total vertical uncertainties of 0.500 meters or less.

Feature Area	Feature Numbers	Number of CUBE Nodes Exceeding IHO Order 1a	Percent of Nodes with TVU <= 0.500 (Meters)
1	16, 18, 19, 20, 81, 83, 86	18	100
2	21	6	99.46
3	25, 95	32	99.73
4	6, 8, 88	158	99.59
5	108	12	99.54
6	5, 12, 58, 77	411	98.05
7	64	0	100.00
8	1, 3, 4, 38, 40, 41, 89, 101	376	99.32
9	93, 94	80	99.28
10	66, 67	155	99.08
11	13, 59, 70, 71, 91	149	99.35

Figure 4: Number of Nodes Exceeding the Allowable IHO Order 1a Uncertainty in the Feature BAG Files 1 of 11 through 11 of 11

B.2.3 Junctions

An analysis of H12655 junctions with contemporary surveys H12654 and H12656 were performed. Figure 5 shows the general locality of H12655 as it relates to the sheets for which junctions were performed. Details for H12654 and H12656 are listed in Table 6. See Separates II for a complete discussion of the junction results and tabular listings.

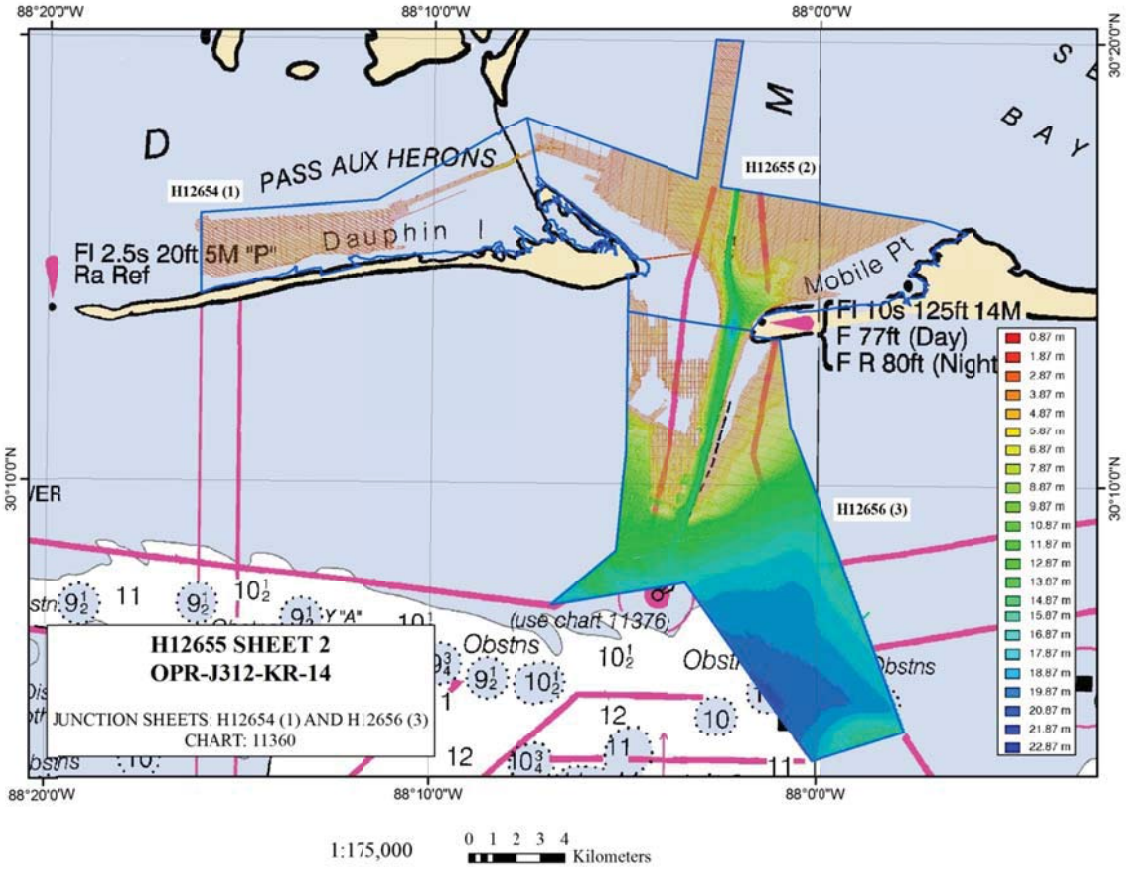


Figure 5: General Locality of H12655 with Contemporary Surveys H12654 and H12656

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H12654	1:20000	2014	Leidos	W
H12656	1:20000	2014	Leidos	S

Table 6: Junctioning Surveys

H12654

H12655 junctions with H12654 to the west; 99.10% of the soundings differ by ±0.14 meters.

H12656

H12655 junctions with H12656 to the South; 99.09% of the soundings differ by ±0.25 meters.

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 but generally three or more time per day. 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.7 of the DAPR.

A total of 103 sound speed profiles were applied to online data for H12655. All profiles that were applied for online bathymetry data collection were acquired within one kilometer of the bounds of the survey area. Please refer to the DAPR for specific details regarding acquisition (Section A.7) 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&P Smart Sensors, an SV&P Smart Sensor and a CTD, or two different CTDs. Sixteen sound speed confidence checks were conducted during H12655 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 H12655, as collected from the 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 (H12655/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 have 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 H12655 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 between four meters and twenty meters as “200% SSS with concurrent Set Line Spacing, SBES or MBES, or Object Detection MBES” and in depths greater than twenty meters as “Complete 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 scale. Mainscheme line spacing was 40 meters, which insured complete multibeam coverage in waters greater than approximately 14.1 meters.
· The R/V Oyster Bay used a bow mounted L-3 Klein 3000 side scan sonar set to a 50-meter. Mainscheme line spacing was 40 meters.

This combination of line spacing and range settings resulted in approximately ten meters of overlap between adjacent lines to ensure at least 200% side scan coverage was achieved.

The SABER Gapchecker routine was used to flag multibeam 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 showed that there were no areas where three or more nodes sharing adjacent sides lacked data.

A final review of the CUBE Depth surface in the 11 half-meter grids showed that there were no areas where three or more nodes sharing adjacent sides lacked data over significant features.

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 H12655 final two-meter PFM grid revealed that 99.19% 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 11 half-meter PFM grids showed that at least 95% of all individual nodes contained five or more soundings to meet object detection coverage (HSSD Section 5.2.2.1).

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 2014 NOS HSSD and 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 this sheet.

B.5 Data Processing

B.5.1 Software Updates

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

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

B.5.2 Surfaces

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

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H12655_MB_2m_MLLW	BAG	2 meters	0.996 meters - 18.923 meters	N/A	MBES TracklineSBES Set Line Spacing
H12655_MB_50cm_MLLW_1of11	BAG	50 centimeters	2.473 meters - 4.785 meters	N/A	Object Detection
H12655_MB_50cm_MLLW_2of11	BAG	50 centimeters	2.699 meters - 3.809 meters	N/A	Object Detection
H12655_MB_50cm_MLLW_3of11	BAG	50 centimeters	1.942 meters - 4.181 meters	N/A	Object Detection
H12655_MB_50cm_MLLW_4of11	BAG	50 centimeters	4.105 meters - 11.871 meters	N/A	Object Detection
H12655_MB_50cm_MLLW_5of11	BAG	50 centimeters	4.020 meters - 6.025 meters	N/A	Object Detection
H12655_MB_50cm_MLLW_6of11	BAG	50 centimeters	3.797 meters - 11.536 meters	N/A	Object Detection
H12655_MB_50cm_MLLW_7of11	BAG	50 centimeters	3.246 meters - 5.024 meters	N/A	Object Detection
H12655_MB_50cm_MLLW_8of11	BAG	50 centimeters	1.592 meters - 11.257 meters	N/A	Object Detection
H12655_MB_50cm_MLLW_9of11	BAG	50 centimeters	2.855 meters - 6.284 meters	N/A	Object Detection
H12655_MB_50cm_MLLW_10of11	BAG	50 centimeters	5.223 meters - 7.632 meters	N/A	Object Detection

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H12655_MB_50cm_MLLW_11of11	BAG	50 centimeters	2.753 meters - 10.372 meters	N/A	Object Detection
H12655_ss_1_100_mosaic	SSS Mosaic	1 meters	-	N/A	100% SSS
H12655_ss_2_100_mosaic	SSS Mosaic	1 meters	-	N/A	200% SSS

Table 7: Submitted Surfaces

A PFM CUBE Depth surface was used to assess and document multibeam 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 H12655 was from 0.996 meters (3.268 feet, 0.470-meter uncertainty) to 18.923 meters (62.083 feet, 0.470-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. Due to the duel coverage requirements of the survey, Leidos requested and was granted permission to deliver all final grids at the higher two-meter node resolution. Therefore, the final CUBE surface for H12655 was 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. Thirty-six significant features were identified in H12655 and 11 half-meter resolution PFM grids were generated to cover these 36 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.2.5 of the DAPR.

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 less than 20 meters and complete multibeam coverage with backscatter data in waters greater than 20 meters. 200% side scan coverage was collected and verified for the entire survey area 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).

· H12655_ss_1_100_mosaic
· H12655_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 the Side Scan Sonar Contacts S-57 file; for specifics refer to Section D.2.12.

C. Vertical and Horizontal Control

No vertical or horizontal controls were established, recovered, or occupied during data acquisition for OPR-J312-KR-14, which includes H12655. 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
Dauphin Island, AL	8735180
Pascagoula NOAA Lab, MS	8741533

Table 8: NWLON Tide Stations

File Name	Status
8735180_verified_072014_to_102014.tid	Verified Observed
8741533_verified_072014_to_102014.tid	Verified Observed

Table 9: Water Level Files (.tid)

File Name	Status
J312KR2014CORP.zdf	Final

Table 10: 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 H12655 however, a final tide note has been provided by Leidos in Appendix I.

The Tides Statement of Work specified NOAA tide stations 8735180 Dauphin Island, AL and 8741533 Pascagoula NOAA Lab, MS as the sources for water level correctors. A full explanation of the tide zone assessment is detailed in Section C.4 of the DAPR. For H12655, 8735180 Dauphin Island, AL and 8741533 Pascagoula NOAA Lab, MS were the source of all final verified water level heights for determining correctors to soundings. All data for H12655 were contained within seven tide zones (CGM44A, CGM44, CGM45, CGM46A, CGM46, CGM47, and CGM48) which were provided from NOAA.

Leidos did not revise the delivered tide zones for tide stations 8735180 Dauphin Island, AL and 8741533 Pascagoula NOAA Lab, MS as the water level zoning parameters in the file J312KR2014CORP.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 H12655 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 16, North.

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

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 were not used in the CUBE Depth calculations.

The following DGPS Stations were used for horizontal control:

DGPS Stations
English Turn, LA (293 kHz)
Eglin (AFB), FL (295 kHz)
Millers Ferry, AL (320 kHz)

Table 11: 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 H12655 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 8 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 26/14 (02 July 2014) until week 04/15 (28 January 2015).

H12655 data meet data accuracy standards and bottom coverage requirements. Recommend updating the common areas of all charts using data from this survey. Charting recommendations for all features are provided in the S-57 Final Feature File.

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
11377	1:40000	10	01/2013	01/03/2015	01/03/2015

Table 12: Largest Scale Raster Charts

11377

Chart 11377 covers the entire extents of the survey area.

CUBE depths within sheet H12655 agreed with the charted depths and were generally within ±1 foot of the charted depths.

The charted depth curves (12-foot, 18-foot, and 30-foot) throughout H12655 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 pile labeled “Pile PA” in approximately 30° 17’ 37.54”N 088° 07’ 16.24”W was not found. A small object (Feature 16) was found approximately 55 meters to the southwest of the charted pile.

The charted pipes labeled “Pipes PA” in approximately 30° 15’ 13.35”N 088° 03’ 05.86”W were not found. An exposed pile (Feature 127) was found in 30° 15’ 13.94”N 088° 03’ 08.83”W along the southwest corner of the charted platform (Feature 128) in approximately 30° 15’ 14.91”N 088° 03’ 07.97”W.

The charted “Shoal PA (6 ft rep 1991)” in approximately 30° 15’ 09.91”N 088° 03’ 49.92”W was not found however the area was not covered with 100% multibeam coverage.

The charted 8-foot obstruction in approximately 30° 14’ 01.25”N 088° 01’ 07.82”W was found to be a submerged dangerous wreck (Feature 41) in 30° 14’ 00.75”N 088° 01’ 07.52”W with a least depth of 7.884 feet (2.403 meters, 0.470 uncertainty).

The charted exposed wreck in approximately 30° 14’ 05.92”N 088° 00’ 36.57”W was not observed to be visible above the water. The wreck was not surveyed due to depths that were too shallow for safe survey operations.

The charted mooring in approximately 30° 15’ 22.88”N 088° 03’ 14.95”W was not found.

The charted “W Or Priv” aid in approximately 30° 17’ 29.77”N 088° 07’ 04.98”W was not found.

The charted “Sign” in approximately 30° 17’ 58.15”N 088° 07’ 02.47’W was reported by the field crew on JD 210 at 19:44:01 to be an exposed pile with no sign present. This area was not covered by survey data as it was beyond the 4-meter survey limit.

The charted private aid labeled “W Bn” in approximately 30° 18’ 03.32”N 088° 07’ 07.63’W was reported by the field crew on JD 210 at 19:44:01 as not being present. This area was not covered by survey data as it was beyond the 4-meter survey limit.

The two charted private aids “W Bn” in approximately 30° 17’ 49.03”N 088° 07’ 06.74”W and 30° 17’ 40.20”N 088° 07’ 06.07”W were not found.

The charted private aid labeled “W Bn” in approximately 30° 16’ 42.50”N 088° 05’ 55.11’W was reported by the field crew on JD 213 at 20:13:01 as not being present. This area was not covered by survey data as it was beyond the 4-meter survey limit.

The four charted private aids “W Bn” that fell within survey coverage in approximately 30° 16’ 34.70”N 088° 05’ 42.66”W and extending southeast to approximately 30° 16’ 11.44”N 088° 05’ 05.97”W were not found.

All platforms and charted wells on this chart are discussed in Section D.2.7.

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

All submarine features on this chart that fell within the survey data are discussed in Section D.2.5.

All channels on this chart that fell within the survey data are discussed in Section D.1.9.

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?
US5AL13M	1:40000	36	12/16/2014	12/16/2014	NO

Table 13: Largest Scale ENCs

US5AL13M

ENC US5AL13M covers the entire survey area

CUBE depths within sheet H12655 were generally within ±0.5 meters of the charted depths.

The charted pile in 30° 17’ 37.46”N 088° 07’ 16.23”W was not found. A small object (Feature 16) was found approximately 55 meters to the southwest of the charted pile.

The charted pipes in 30° 15’ 13.23”N 088° 03’ 05.83”W were not found. An exposed pile (Feature 127) was found in 30° 15’ 13.94”N 088° 03’ 08.83”W along the southwest corner of the charted platform (Feature 128) in approximately 30° 15’ 14.91”N 088° 03’ 07.97”W.

The charted caution area identifying a depth of 1.8 meters/6 feet Shoal reported in 1991 in 30° 15’ 09.65”N 088° 03’ 50.09”W was not found however the area was not covered with 100% multibeam coverage.

The charted depth curves (3.6-meter, 5.4-meter, and 9.1-meter) throughout H12655 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 2.4-meter dangerous obstruction in 30° 14’ 01.00”N 088° 01’ 07.80”W was found to be a submerged dangerous wreck (Feature 41) in 30° 14’ 00.75”N 088° 01’ 07.52”W with a least depth of 2.403 meters (7.884 feet, 0.470 uncertainty).

The charted exposed wreck in 30° 14’ 05.80”N 088° 00’ 36.60”W was not observed to be visible above the water. The wreck was not surveyed due to depths that were too shallow for safe survey operations.

The charted white and blue mooring/warping facility and light object in 30° 15’ 22. 75”N 088° 03’ 14.90”W with sign: EXXON-MOBIL was not found.

The charted white and orange special purpose buoy in 30° 17’ 29.69”N 088° 07’ 04.85”W was not found.

The charted special purpose beacon notice mark in 30° 17’ 58.03”N 088° 07’ 02.36’W was reported by the field crew on JD 210 at 19:44:01 to be an exposed pile with no sign present. This area was not covered by survey data as it was beyond the 4-meter survey limit.

The charted special purpose beacon (Alabama Oyster Reed Daybeacon) in 30° 18’ 03.50”N 088° 07’ 07.53’W was reported by the field crew on JD 210 at 19:44:01 as not being present. This area was not covered by survey data as it was beyond the 4-meter survey limit.

The two charted special purpose beacons (Alabama Oyster Reed Daybeacon) in approximately 30° 17’ 48.91”N 088° 07’ 06.90”W and 30° 17’ 40.19”N 088° 07’ 06.08”W were not found.

The four charted special purpose beacons (Alabama Oyster Reed Daybeacon) that fall within survey coverage in approximately 30° 16’ 34.68”N 088° 05’ 42.55”W and extending southeast to approximately 30° 16’ 11.38”N 088° 05’ 06.21”W were not found.

All platforms and charted wells on this chart are discussed in Section D.2.7.

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

All submarine features on this chart that fell within the survey data are discussed in Section D.2.5.

All channels on this chart that fell within the survey data are discussed in Section D.1.9.

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 AWOIS updates are included in the Final Feature File (S-57).

There were five full investigations AWOIS features assigned to H12655.

AWOIS 3523 was not found. The 200-meter search radius was investigated with 200% side scan and resulting multibeam coverage, except along the southern edge where only 100% side scan coverage was attained due to water depths less than four meters. Within the AWOIS search area two platforms connected by a catwalk were found (Features 116 and 128). No structures matching the AWOIS description of "4 pile clusters" were found. Additional obstructions and exposed pipelines were found within the AWOIS search radius and are not significant for charting due to their proximity to the platforms.

AWOIS 7145 was not found. The 150-meter search radius was investigated with 200% side scan and resulting multibeam coverage. Along the southeast edge only 100% side scan coverage was attained due to water depths being too shallow for safe survey operations. The ATON YC "T" charted in approximately 30° 13' 48.99"N 088° 01' 37.49"W was found (Feature 157) in 30° 13' 47.75"N 088° 01' 36.07"W.

AWOIS 7147 was not found. The 200-meter search radius was investigated with 200% side scan and resulting multibeam coverage except along the southeast edge where the depths were too shallow for safe survey operations.

AWOIS 12360 was found. The search radius of 100-meters was investigated with 200% side scan and resulting multibeam. A group of four large rocks (Feature 89) were found in 30° 14' 11.00"N 088° 00' 44.97"W with a least depth of 2.245m, 0.470m uncertainty.

AWOIS 15165 was not found. The 200-meter search radius was investigated with 200% side scan and resulting multibeam coverage. No features inside the search area were found.

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
h12655_dton1.000	2014-08-05
h12655_dton2.000	2014-08-05
h12655_dton3.000	2014-08-06
h12655_dton4.000	2014-09-08
h12655_dton5.000	2014-09-08
h12655_dton6.000	2014-09-18
h12655_dton7.000	2014-09-18

Table 14: DTON Reports

Leidos submitted seven 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.

D.1.8 Shoal and Hazardous Features

The approximately 7200 x 900 meter rectangular spoil area approximately 750 meters west of and parallel to the Mobile Bay Channel Lower Bay from approximately 30° 19’ 52.84”N 088° 02’ 24.65”W to 30° 16’ 38.88”N 088° 02’ 56.13”W was covered with 200% side scan and resulting multibeam. CUBE depths in the spoil area were from 3.565 to 6.200 meters.

The southern 600 meters of the approximately 7200 x 900 meter rectangular spoil area approximately 750 meters east of and parallel to the Mobile Bay Channel Lower Bay from approximately 30° 19’ 45.51”N 088° 00’ 52.00”W to 30° 16’ 14.98”N 088° 01’ 22.76”W was covered with 200% side scan and resulting multibeam. CUBE depths in the covered area were from 3.970 to 4.552 meters.

The northern 3200 meters of the approximately 4000 x 1000 meter rectangular spoil area approximately 800 meters west of and parallel to the Mobile Bay Channel Lower Bay from approximately 30° 16’ 27.93”N 088° 02’ 52.93”W to 30° 14’ 36.34”N 088° 03’ 11.63”W was covered with 200% side scan and resulting multibeam. CUBE depths in the covered area were from 2.708 to 7.439 meters.

The approximately 2800 x 1100 meter rectangular spoil area approximately 800 meters east of and parallel to the Mobile Bay Channel Lower Bay from approximately 30° 16’ 04.92”N 088° 01’ 23.65”W to 30° 14’ 46.47”N 088° 01’ 37.85”W was covered with 200% side scan and resulting multibeam. CUBE depths in the spoil area were from 3.613 to 7.215 meters.

The eastern 1400 meters of the approximately 4400 x 450 meter rectangular spoil area approximately 330 meters south of and parallel to the Intracoastal Waterway from approximately 30° 17’ 21.81”N 088° 07’ 14.92”W to 30° 16’ 44.66”N 088° 05’ 01.10”W was covered with 200% side scan and resulting multibeam. CUBE depths in the covered area were from 3.176 to 4.034 meters.

D.1.9 Channels

H12655 covered the Intracoastal Waterway from approximately 30° 16’ 04.01”N 087° 57’ 33.89”W to approximately 30° 17’ 28.67”N 088° 07’ 25.23”. The Intracoastal Waterway project depth is 12 feet from Carrabelle, Florida to New Orleans, Louisiana. CUBE depths in the Intracoastal Waterway were generally between 12 and 14 feet (3.6 to 4.5 meters). Except in an area where CUBE depths of 10 to 11 feet (3.0 to 3.5 meters) were found from approximately 30° 17’ 06.90”N 088° 05’17.15 to approximately 30° 17’ 26.07”N 088° 06’ 35.68”W. Depths deeper than 14 feet (4.5 meters) were found where the Intracoastal Waterway crosses the Mobile Bay Channel.

H12655 covered the Mobile Bay Channel Lower Bay from approximately 30° 13’ 30.83”N 088° 02’ 08.40”W to approximately 30° 16’ 41.44”N 088° 02’ 07.60”W. Tabulated controlling depths are Left Outside Quarter 42.7 feet (13.000 meters), Middle Half 45 feet (13.700 meters), and Right Outside Quarter 42.5 feet (12.900 meters). CUBE depths were generally 2 to 5 feet (1.5 to 2.0 meters) deeper than the tabulated controlling depths

CUBE depths within the Drury Pass Channel and Dauphin Island Channel were found to be less than the 4-meter inshore limit called for in the Project Instructions however; Leidos transited from the dock through these channels to reach Sheet 2 (H12655) and Sheet 3 (H12656), and noted depths less than the tabulated depths. Leidos therefore collected and is delivering data for these channels.

H12655 covered the Fort Gains Entrance Channel/ Dauphin Island Channel from approximately 30° 15’ 13.50”N 088° 03’ 22.75”W to 30° 15’ 06.00”N 088° 04’ 47.74”W. Controlling depths in Fort Gains Entrance Channel/ Dauphin Island Channel are 3 feet by 150 feet (May 2014). CUBE depths in the channel were 3 to 16 feet (1.00 to 5.0 meters).

H12655 covered part of the Fort Gains Anchorage Basin from approximately 30° 15’ 06.00”N 088° 04’ 46.97”W to 30° 15’ 11.15”N 088° 04’ 54.32”W. CUBE depths in the anchorage basin were 3 to 21 feet (1.0 to 6.3 meters).

H12655 covered the Drury Pass Channel from approximately 30° 15’ 11.15”N 088° 04’ 54.32”W to 30° 15’ 33.60”N 088° 05’ 33.11”W. Controlling depths for Pass Drury Channel are 5 feet for a width of 40 feet (May 2014). CUBE depths in the channel were 4 to 10 feet (1.3 to 3.5 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 H12655. Bottom characteristics were acquired at the fifteen locations proposed in the Project

Reference File (PRF) by NOAA. Leidos modified two bottom sample locations from the locations provided by NOAA due to water depths that were unsafe for survey operations:
· 30° 15’ 20.20”N 087° 57’ 14.00”W moved to 30° 15’ 24.40’N 087° 58’ 32.40”W
· 30° 14’ 19.20’N 087° 58’ 25.07”W moved to 30° 14’ 23.80’N 087° 59’ 54.30”W

Bottom characteristics collected during H12655 are included in the H12655 S-57 Final Feature File, H12655_FFF.000, within the Seabed Area (SBDARE) object and are classified according to the requirements set forth in Appendix H of the HSSD.

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 2014 surveys, H12654 and H12656, were conducted and the results are presented in Section B.2.3 of this Report.

D.2.3 Aids to Navigation

Forty-three (43) Aids to Navigation (ATONs) exist for this survey. Forty were USCG maintained Aids to Navigation, and are not included in the S-57 Final Feature File as called for in the HSSD. The three privately maintained ATONS that are included in the S-57 Final Feature File are as follows:

· 2 Beacon, Special Purpose (BCNSPP) – Features 130 and 167
· 1 Buoy, Special Purpose (BOYSSP) – Feature 168

The individual Feature Correlator Sheets for all ATONs are presented as JPEG files in the Multimedia folder and are named by the feature number, including the USCG maintained ATONs (Features 131 – 166 and 169 – 172).

Each USCG maintained ATON was compared to the United States Coast Guard List Volume IV Gulf Of Mexico, updated through LNM week: 52/14.

All USCG maintained ATONs were found to serve their intended purpose with two exceptions.

· The USCG ATON R N “10” charted in approximately 30° 17’ 35.03”N 088° 07’ 10.97”W was not found.
· The USCG ATON YC “T” charted in approximately 30° 13’ 48.99”N 088° 01’ 37.49”W was found (Feature 157) in 30° 13’ 47.75”N 088° 01’ 36.07”W. The wreck it is marking was not found (see AWOIS description 7145 in Section D.1.3 for more details).

D.2.4 Overhead Features

No overhead features exist for this survey.

D.2.5 Submarine Features

Five pipeline (PIPSOL) and one cable (CBLSUB) objects are delivered in the S-57 Final Feature File to represent what are presumed to be sections of pipelines and one exposed cable. Both the multibeam and side scan data were used to determine the sections of pipeline and cable found within H12655 data.

Pipeline (Feature 111) was identified by a trench approximately 1 meter deep with sections of exposed pipeline and crosses north to south for a distance of approximately 5km from 30° 16’ 56.39”N 088° 03’ 13.71”W to 30° 14’ 57.98”N 088° 02’ 58.22”W. An example of an exposed section of pipeline can be found approximately 30° 15’ 05.09”N 088° 02’ 46.79”N to 30° 15’ 37.19”N 088° 03’ 35.05”N.

Pipeline (Feature 112) was identified by a trench approximately 1 meter deep and starts at platform (Feature 126) and then runs south for approximately 1700m meters along a charted pipeline to 30° 17’ 04.42”N 088° 03’ 10.05”W.

Pipelines (Features 113 and 114) are shallow trenches starting at a platform (Feature 128) then running south for approximately 275 meters and 380 meters respectively along a charted pipeline.

Pipeline (Feature 97) is a small 20 meter section of uncharted exposed pipeline.

Additional charted pipelines fall within the survey coverage however the multibeam and side scan data do not show evidence of them.

D.2.6 Ferry Routes and Terminals

The Ferry Route running from Dauphin Island to Fort Morgan is adequately charted.

D.2.7 Platforms

Ten platforms were found within the bounds of H12655 and are identified in Table 15. Two platforms were not charted (Features 116 and 126). Both platforms are connected to charted platforms (Features 128 and 129, respectfully). Together the charted and uncharted platforms cover a significant area and therefore the uncharted platforms are also recommended for charting. See the S-57 Final Feature File, H12655_FFF.000, Offshore Platform (OFSPLF) objects, for details of each platform and charting recommendations.

The charted platform in approximately 30° 15’ 15.16”N 088° 01’ 17.90”W was not found.

The charted platform in approximately 30° 15’ 06.07”N 088° 01’ 18.24”W was not found.

The charted obstruction submerged wellhead in approximately 30° 15’ 52.76”N 088° 03’ 57.28”W was found (Feature 93) 53 meters to the southwest in 30° 15’ 51.60”N 088° 03’ 58.92”W. A special purpose buoy (Feature 168) was found 30 meters north of Feature 93 in 30° 15’ 52.55”N 088° 03’ 58.80”W.

The charted obstruction wellhead in approximately 30° 15’ 41.99”N 088° 01’ 25.76”W was not found. A large platform (Feature 123) was found in 30° 15’ 40.56”N 088° 01’ 26.11”W.

Feature Number	Platform Name	Description	Latitude	Longitude
116	Exxon Mobil Production Mobile Bay BLK 76-AUX State Lease 347 & 349	Connected to platform Exxon Mobil Production M.B. BLK 76-A AL. S/L 347 & 349 (Feature 128). Both platforms together span an area approximately 140 x 20 meters.	30 15 17.98N	088 03 08.07W
117	Platform 615 #3 BLK 78 Permit #11416-05-71 Legacy Resources Baldwin County	A well structure approximately 7.0 x 7.0m.	30 16 00.58N	087 58 25.49W
118	Exxon Mobil Production Mobile Area BLK 77 BC State Lease 348	Has helicopter deck. There are three exposed cylindrical piles extending out to the west.	30 15 00.50N	087 59 44.84W
119	Exposed well	Exposed well surrounded by four exposed piles at each corner approximately 10m from the well.	30 17 13.29N	088 04 05.31W
120	Exxon Mobil M.B. BLK 95E AL S/L 350	Platform has nine exposed cylindrical metal piles extending out from the southwest corner of the platform. See Feature 121 for the farthest pile from this platform.	30 14 27.57N	088 01 00.12W
123	Exxon Mobil M.B. BLK 77-B AL S/L 348	Exposed pile (Feature 122) was found approximately 30 meters southeast of the platform.	30 15 40.56N	088 01 26.11W
125	Legacy Resources CO. L.P. Mobile Bay 62C.	Yellow and grey platform.	30 17 43.64N	088 02 49.75W
126	Exxon Mobil Production M.B. BLK 62 AA S/L 534	Platform connects to smaller satellite platform (Feature 129) in the southeast corner. Four exposed metal cylindrical piles extend east from the smaller platform. The platforms and piles cover an area of approximately 50 x 180m.	30 17 47.26N	088 02 43.85W
128	Exxon Mobil Production M.B. BLK 76-A AL. S/L 347 & 349	Connected to platform Exxon Mobil Production Mobile Bay BLK 76-AUX State Lease 347 & 349 (Feature 116).	30 15 14.91N	088 03 07.97W
129	Exxon Mobil Production MB. BLK 62 AA S/L 534	Small platform connecting to the southeast corner of larger platform (Feature 126). Four exposed metal piles extend east from this platform. The platforms and piles cover an area of approximately 50 x 180m. Danger Sign Poisonous Gas Hydrogen Sulfide.	30 17 45.79N	088 02 41.00W

Figure 6: List of Platforms within H12655

D.2.8 Significant Features

No significant features exist for this survey.

D.2.9 Construction and Dredging

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

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
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

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 3.06) 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).

Nine designated soundings were set for H12655 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 H12655 delivery is the S-57 Final Feature File, H12655_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 H12655 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 H12655 are retained within the S-57 Final Feature File.

For each feature contained in the Final Feature File (S-57), the Feature Correlator Sheet was exported as an image file (.jpg) and is included in the S-57 Final Feature File under the NOAA Extended Attribute field “images”.

D.2.12 Side Scan Sonar Contacts S-57 File

Included with H12655 delivery is the Side Scan Sonar Contact S-57 File, H12655_SSCon.000. Details on how this file was generated and quality controlled can be found in Section B.3.5 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 are retained within the Side Scan Sonar Contact S-57 File. 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”.

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
OPR-J312-KR-14_DAPR.pdf	2015-01-16
H12654_DR.pdf	2015-01-16
H12656_DR.pdf	2015-02-02

Approver Name	Approver Title	Approval	Signature
Deborah M. Smith	Lead Hydrographer	2015-02-11	Deborah M. Smith Digitally signed by Deborah M. Smith DN: cn=Deborah M. Smith, o=Marine Survey and Engineering Solutions, ou=Leidos, email=deborah.m.smith@leidos.com, c=US Date: 2015.02.05 16:20:57 -05'00'

APPENDIX I

TIDES AND WATER LEVELS

APPENDIX I. TIDES AND WATER LEVELS

Field Tide Note

A field tide note was not required for H12655.

Final Tide Note

Observed verified water levels for the stations in Pascagoula, MS (8741533) and Dauphin Island, AL (8735180), 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 H12655 Descriptive Report Section C.1 for details regarding final tides for H12655. The water level zoning correctors, based entirely on Pascagoula, MS (8741533) and Dauphin Island, AL (8735180), were applied to all multibeam data for H12655.

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, H12655 (Table A-1).

Abstract Times of Hydrography

Project: OPR-J312-KR-14
Registry No.: H12655
Contractor Name: Leidos
Date: 15 April 2014
Sheet Designation: 2
Inclusive Dates: 29 July 2014 – 10 October 2014
Field work is complete.

Begin Date	Begin Julian Day	Begin Time	End Date	End Julian Day	End Time
07/29/2014	210	18:32:24	07/29/2014	210	21:26:52
07/30/2014	211	18:15:10	07/30/2014	211	21:16:14
07/31/2014	212	12:22:19	07/31/2014	212	21:33:00
08/01/2014	213	12:12:53	08/01/2014	213	21:32:51
08/02/2014	214	12:24:40	08/02/2014	214	21:31:52
08/03/2014	215	12:17:26	08/03/2014	215	17:16:15
08/04/2014	216	21:36:39	08/04/2014	216	21:44:06
08/06/2014	218	11:48:25	08/07/2014	219	08:35:35
08/08/2014	220	15:59:51	08/08/2014	220	20:10:43
08/09/2014	221	14:06:57	08/09/2014	221	20:49:17
08/10/2014	222	12:21:25	08/10/2014	222	21:14:43
08/12/2014	224	12:12:56	08/12/2014	224	20:39:20

Begin Date	Begin Julian Day	Begin Time	End Date	End Julian Day	End Time
08/13/2014	225	16:33:08	08/13/2014	225	21:20:49
08/16/2014	228	12:14:30	08/16/2014	228	21:16:10
08/17/2014	229	13:25:21	08/17/2014	229	18:17:37
08/20/2014	232	12:07:32	08/20/2014	232	21:21:36
08/22/2014	234	11:58:12	08/22/2014	234	16:20:56
08/23/2014	235	12:14:07	08/23/2014	235	21:29:23
08/24/2014	236	12:12:57	08/24/2014	236	21:20:53
08/27/2014	239	17:57:51	08/27/2014	239	21:30:24
08/28/2014	240	12:18:04	08/28/2014	240	21:28:03
08/29/2014	241	14:35:57	08/29/2014	241	21:49:02
08/30/2014	242	12:31:24	08/30/2014	242	17:02:35
08/31/2014	243	12:15:50	08/31/2014	243	21:37:37
09/01/2014	244	12:20:57	09/01/2014	244	18:09:25
09/02/2014	245	11:36:10	09/02/2014	245	21:51:34
09/05/2014	248	19:30:22	09/05/2014	248	21:13:34
09/07/2014	250	17:53:37	09/07/2014	250	21:13:47
09/08/2014	251	12:16:18	09/08/2014	251	21:42:49
09/09/2014	252	14:16:20	09/09/2014	252	16:38:47
09/10/2014	253	16:51:30	09/10/2014	253	20:35:53
09/14/2014	257	12:20:00	09/14/2014	257	12:58:01
10/09/2014	282	12:20:56	10/09/2014	282	21:30:41
10/10/2014	283	12:28:53	10/10/2014	283	14:06:15
10/10/2014	283	21:31:49	10/10/2014	283	22:15:43

Table A-1: Abstract Times of Hydrography, H12655

Transmittal Letter to CO-OPS

A transmittal letter to CO-OPS was not required for H12655.

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 contains copies of email exchanges between Leidos and NOAA concerning various aspects of the survey, data processing, and submittal topics.

In addition, the 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

Also, in accordance to HSSD Section 7.4 (Coast Pilot Data), the Coast Pilot products are included in Appendix II as stand-alone PDF files. These files are also provided in a Coast_Pilot_Review folder under Project_Reports in accordance with HSSD Appendix J.

CORRESPONDENCE

From: Lori Powdrell - NOAA Federal <lori.powdrell@noaa.gov>
Sent: Thursday, May 29, 2014 2:05 PM
To: Quintal, Rebecca T.
Cc: Michael.Gonsalves@noaa.gov; Evans, Rod E.; Davis, Gary R.; Donaldson, Paul L.; Bernier, Bridget W.
Subject: Re: Summary of OPR-J312-KR-14 telecom yesterday
Attachments: OPR-J312-KR-14_CSF.000; OPR-J312-KR-14_PRF.000

Rebecca,

Please see the updated CSF and PRF files, I added the AWOIS information for 2 items (on the far west side of Sheet 1), I am not sure why this information wasn't included in the first place. The other 3 AWOIS items that were mentioned should not have been included, they are going to be in very shallow water so you don't need to worry about them (they are located in Dauphin Island Bay, Sheet 1).

Please let me know if you have another other quesitons or if anything else is missing.

Thanks,
Lori

On Tue, May 20, 2014 at 3:36 PM, Quintal, Rebecca T. <REBECCA.T.QUINTAL@leidos.com> wrote:

Lori,

Great. Thanks for getting us feedback so quickly.

-Rebecca

From: Lori Powdrell - NOAA Federal [mailto:lori.powdrell@noaa.gov]
Sent: Tuesday, May 20, 2014 2:46 PM
To: Quintal, Rebecca T.
Cc: Michael.Gonsalves@noaa.gov; Evans, Rod E.; Davis, Gary R.; Donaldson, Paul L.; Bernier, Bridget W.
Subject: Re: Summary of OPR-J312-KR-14 telecom yesterday

Rebecca,

Please see my comments below on your questions:

5. Three bottom samples are in the same location.

- Please delete the 2 extra bottom samples in your files. I will delete them on my end as well. That way the processing branch will not receive a copy of data at any point with these extra bottom samples.

8. Page 134 of the 2014 HSSD states that AWOIS History in a .txt file will be provided with the PRF.

- These text files are attached (PDF)

9. Page 114 of the 2014 HSSD states: "The AWOIS point (CRANE) shall not be included in the FFF. The exception to this rule is if the hydrographer cannot verify an AWOIS item because of safety or if the AWOIS item is inshore of the NALL ("Completed" items only). In this case the CRANE feature shall be included in the FFF attributed with Description(descrp) = "Not Addressed" and Remarks = "reason not addressed".

- Yes, you should put the CRANE feature into the FFF if the AWOIS item was not verified due to safety or if the feature is inshore of the NALL. The CRANE feature is just a place holder which carries all of the attribution. There are times when an area is cluttered with features and it is not clear which feature the AWOIS item is referring to. Therefore, the hydrographer should put the CRANE feature into the FFF with a "not addressed" comment.

10. Section 7.4 (Coast Pilot Data) in the 2014 HSSD does not indicate the preferred format of the report.

- The preferred format is PDF

11. Page 115 of the 2014 HSSD it states "A copy of the Coast Pilot products shall be included in Appendix II of the Descriptive Report." But on Page 181 (Contractor Data Directory Structure) it shows a new folder called Coast_Pilot_Review under Project_Reports.

- We will fix the requirement for next year's Specs but we will ask that you follow this year's requirements and include them twice. The 2015 Specs will only require that you include them in the folder, Coast_Pilot_Review

12. The example naming convention for Other Correspondence provided on page 117 of the 2014 HSSD "H12345_Bomb_Ordinance_Area.pdf" seems to suggest that each correspondence should be provided as a separate PDF file. Leidos has been submitting a single PDF of all of the correspondence (see attached example).

- all of the Other Correspondence can be submitted as one PDF. In the 2015 HSSD text will change to:

  Other Correspondence (if applicable)

(Note: All Other Correspondence should be combined into one PDF):

Format: <Survey Registry Number>_Other_Correspondence.pdf

Example: "H12345_Other_Correspondence.pdf "

15. Page 150 of the 2014 HSSD states that "The following reports shall be included on the submitted data drive in a clearly labeled directory"… "The latest Project Instructions, including any changes and the original Project Reference Files/Composite Source Files as submitted by HSD Operations Branch."

- I still need a definite answer here, this was a request to add to this year's Specs but we need to discuss if it is necessary to include this at all since the processing branches have access to the original files already.

I will also look into the AWOIS items that are incorrect in the shorline files and get you the updated information.

Let me know if you have any other questions.

Thanks,
Lori

On Fri, May 16, 2014 at 10:05 AM, Quintal, Rebecca T. <REBECCA.T.QUINTAL@leidos.com> wrote:

Hello Lori and Mike,

Thank you for the productive meeting yesterday to discuss OPR-J312-KR-14 (Contract: DG133C-08-CQ-0003; TO-10). This email is an attempt to capture the questions and answers that were discussed during our telecom. Please let me know if I left anything out or if I didn't quite get it right. I put the answers to the questions in green font.

1. Lori shared the Survey Requests covering OPR-J312-KR-14 via Live Meeting the and offered to email them to Leidos.

    a. Email received Thu 5/15/2014 1:25 PM. Thank you!

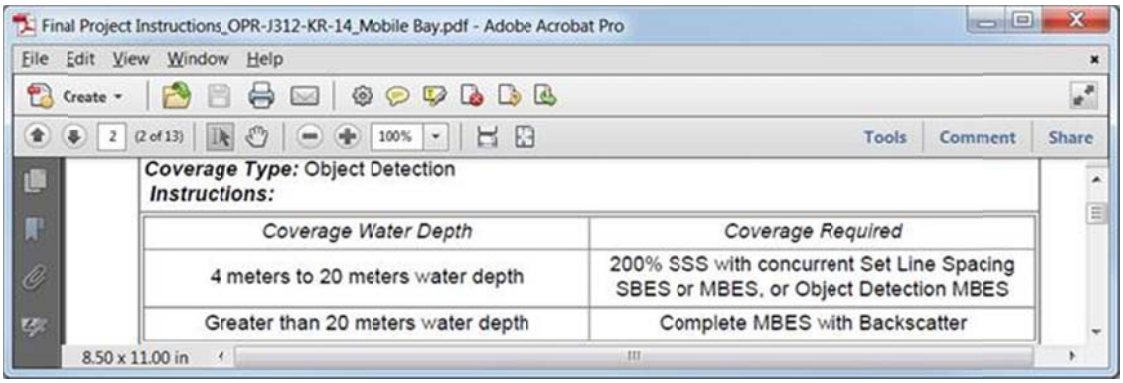
2. The SOW references the 2013 edition of the HSSD.

    a. Question: May Leidos perform the survey and deliver to the 2014 edition?

    b. Answer: Yes

3. NOAA confirmed that while the Project Instructions state "Object Detection" under the Coverage Type, the actual Coverage Requirements outlines below for the two water Depth regimes are what is actually required. I.E. 200% SSS with concurrent Set Line Spacing SBES or

MBES, or Object Detection MBES for 4-20 meters water depth; and Complete MBES with Backscatter for >20 meters water depth.



4. Approximately 11 bottom samples are inshore of the NALL (4 meter depth) line.

    a. Question: Can we move the locations to depths that we can get to?

    b. Answer: Yes

5. Three bottom samples are in the same location.

    a. Question: Should we just perform one bottom sample at that location?

    b. Answer: only one bottom sample at that location is necessary.

6. On assigned AWOIS items in the Investigation Requirements attribute (invreq) there are multiple search techniques; such as S2, ES, MBES, SD, VS.

    a. Question: Are all techniques required or will any one of the techniques satisfy coverage?

    b. Answer: only one technique is required.

7. Many of the assigned features in the CSF are well inshore of the NALL (4 meter depth) line.

    a. Question: What are the expectations for the assigned features in the CSF file in shore of the NALL(4 meter depth) line?

    b. Answer: Assigned features in shore of NALL line are not required to be collected.

    c. Question: Are photographs sufficient for exposed features inshore of the NALL line and therefore only observed at a distance? This would include approximate positioning.

    d. Answer: Yes

8. Page 134 of the 2014 HSSD states that AWOIS History in a .txt file will be provided with the PRF.

a. Question: Ledios did not receive the text files. Please send.

b. Answer: NOAA will email.

9. Page 114 of the 2014 HSSD states: "The AWOIS point (CRANE) shall not be included in the FFF. The exception to this rule is if the hydrographer cannot verify an AWOIS item because of safety or if the AWOIS item is inshore of the NALL ("Completed" items only). In this case the CRANE feature shall be included in the FFF attributed with Description(descrp) = "Not Addressed" and Remarks = "reason not addressed".

a. Question: Should we actually be delivering CRANE objects (from the PRF) in the FFF, or should it actually be the object (WRECKS, OBSTRN, etc.) from the ENC?

b. Answer: NOAA will look into and get back to us.

10. Section 7.4 (Coast Pilot Data) in the 2014 HSSD does not indicate the preferred format of the report.

a. Should the report be in PDF or Word format etc?

b. Answer: NOAA will look into and get back to us.

11. Page 115 of the 2014 HSSD it states "A copy of the Coast Pilot products shall be included in Appendix II of the Descriptive Report." But on Page 181 (Contractor Data Directory Structure) it shows a new folder called Coast_Pilot_Review under Project_Reports.

a. Question: From reading what is being asked for it seemed like the Coast Pilot Report is a project wide report (i.e. not a separate report for each sheet) and therefore it does make sense for it to be delivered only once and to be delivered under Project Reports instead of under the appendices of a specific sheet. Is this correct?

b. Answer: NOAA will look into and get back to us.

12. The example naming convention for Other Correspondence provided on page 117 of the 2014 HSSD "H12345_Bomb_Ordinance_Area.pdf" seems to suggest that each correspondence should be provided as a separate PDF file. Leidos has been submitting a single PDF of all of the correspondence (see attached example).

a. Question: Should supplemental Correspondence be submitted as individual PDF files for each correspondence?

b. Answer: NOAA will look into and get back to us.

13. Lori confirmed that progress sketches only need to be delivered via TOMIS and not emailed as well.

a. Question: Were there any changes to the Excel file format?

b. Answer: Yes there were additions made for processing once the data acquisition phase is over. NOAA sent the latest version of the Excel file via email on Fri 5/16/2014 8:11 AM. There may be further revisions, and the COR will send if there are.

c. Question: Ledios has been sending in a ESRI map of the progress (similar to what was required years ago) as a previous COR found it helpful. Is this still beneficial for Ledios to submit?

d. Answer: Yes, if Leidos doesn't mind generating the graphic it would still be beneficial.

14. Page 122 of the 2014 HSSD states that: "All images and other linked files shall be included in a folder named "SupportFiles" and shall be reference in the XML file using relative path names. Both the XML file and the SupportFiles folder shall be submitted as a single zip file, named according to the Registry Number of the Survey (ex: H12345.zip).

a. Question: So on the delivery drive, under the Directory Example: OPR-D302-KR-13_Coastal_Virginia\H12559\Data\Descriptive_Report\Report there will be 2 files: 1) a PDF file of the report and 2) a zip file that contains the XML and a folder called SupportFiles that contains the images and files referenced in the XML?

b. Answer: Yes.

15. Page 150 of the 2014 HSSD states that "The following reports shall be included on the submitted data drive in a clearly labeled directory"… "The latest Project Instructions, including any changes and the original Project Reference Files/Composite Source Files as submitted by HSD Operations Branch."

a. Question: Page 181 (Contractor Data Directory Structure) does not list a folder to put the SOW, PI, PRF, and CSF into. It seems that these files should be delivered under Project_Reports for this. Is there a preferred naming convention for this folder?

b. Answer: NOAA will look into and get back to us.

16. Leidos mentioned that we will need the Pascagoula (8741533) and Dauphin Island (8735180) tide gauges added to the Hydro Hot List. Leidos will send a spate email request for this once we get closer to starting the survey acquisition.

I think that about covers it. Please let me know if there are any clarifications needed to what I have listed above.

Thanks again for the meeting!
-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

From: Lori Powdrell - NOAA Federal <lori.powdrell@noaa.gov>
Sent: Wednesday, September 10, 2014 11:49 AM
To: Quintal, Rebecca T.
Cc: Evans, Rod E.
Subject: Re: Question about node resolution for OPR-J312-KR-14

Rebecca,

I spoke to Gene, at AHB, and he agreed to accept the 2m resolutions for the set line spacing coverage.

Thank you,
Lori

On Wed, Sep 10, 2014 at 9:31 AM, Quintal, Rebecca T. <REBECCA.T.QUINTAL@leidos.com> wrote:
Hi Lori,

Since the PI calls for Complete MBES Coverage for water depths greater than 20 meters water and HSSD calls for 2-meter node resolution for the 18-40 meters it just made sense to deliver the shallower data to 2-meters node resolution too. It seems strange to deliver the shallow water to a larger node resolution than the deeper depths. So that was our thinking for delivering the whole sheet(s) at 2-meter node resolution.

Thanks for following up with AHB on this!
-Rebecca

From: Lori Powdrell - NOAA Federal [mailto:lori.powdrell@noaa.gov]
Sent: Wednesday, September 10, 2014 7:23 AM
To: Quintal, Rebecca T.
Cc: Evans, Rod E.
Subject: Re: Question about node resolution for OPR-J312-KR-14

Rebecca,

I apologize for the delay in my response. I spoke to a few people about this request and my initial response is that there is no problem delivering the grids at a 2 meter node resolution but I would like to know why you chose to create the 2 meter node resolution instead of the 4 meter. I also would like to talk to AHB before giving you the go-ahead just in case they have a different thought.

Thanks,
Lori

On Fri, Sep 5, 2014 at 10:28 AM, Quintal, Rebecca T.
<REBECCA.T.QUINTAL@leidos.com> wrote:
Lori,

The OPR-J312-KR-14 project instructions require the following:

Coverage Water Depth	*Coverage Required*
4 meters to 20 meters water depth	200% SSS with concurrent Set Line Spacing SBES or MBES, or Object Detection MBES
Greater than 20 meters water depth	Complete MBES with Backscatter

Leidos has collected 200% SSS with concurrent Set Line Spacing and MBES in water depths from 4 meters to 20 meters; and deeper since the majority of the survey area fell in the 4-20 meter water depth range. We have complete MBES coverage from approximately 16 meters or deeper.

The HSSD Set Line spacing node resolution (Section 5.2.2.3 Set Line Spacing) is 4 meters for 0-40 meters water depth. Then the Complete Multibeam coverage requirement (Section 5.2.2.2 Complete Multibeam Coverage) is 1-meter node resolution for 0-20 meters water depth, 2- meter node resolution for 18-40 meters water depth, and 4-meter node resolution for 36-40 meters water depth.

The combination of the HSSD specs and the PI requirements seems to indicate that we should create 4-meter resolution grids for 0-20 meters water depth (set lines spacing) and 2-meter node resolution grids for 18-40 meters water depth (complete MBES). Is it acceptable to deliver grids at 2-meter node resolution for all water depths?

Thanks,
-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

From: Lori Powdrell - NOAA Federal [mailto:lori.powdrell@noaa.gov]
Sent: Tuesday, September 30, 2014 2:48 PM
To: Quintal, Rebecca T.
Subject: Re: Summary of OPR-J312-KR-14 telecom yesterday

Rebecca,

I am sorry I haven't gotten back to you on this yet. A lot of people are out of the office this time of year and I wanted to run it by them before giving you an answer. You do not have to worry about added these files to the submitted data drive, the latest files are already provided by the COR.

We will look into updating the 2015 Specs to clear that up.

Thanks,
Lori

On Thu, Sep 25, 2014 at 4:14 PM, Quintal, Rebecca T.
<REBECCA.T.QUINTAL@leidos.com> wrote:

Lori,

Hello. I'm just checking in on the one remaining item from our exchange this spring.

15. Page 150 of the 2014 HSSD states that "The following reports shall be included on the submitted data drive in a clearly labeled directory"… "The latest Project Instructions, including any changes and the original Project Reference Files/Composite Source Files as submitted by HSD Operations Branch."

- I still need a definite answer here, this was a request to add to this year's Specs but we need to discuss if it is necessary to include this at all since the processing branches have access to the original files already.

Do you know if we should create a new folder under the Project_Reports directory for the PI, SOW, PRF and CSF files?

Thanks!
-Rebecca

From: Castle Parker - NOAA Federal [mailto:castle.e.parker@noaa.gov]
Sent: Monday, January 12, 2015 7:39 AM
To: Bernier, Bridget W.
Cc: Quintal, Rebecca T.; Matthew Jaskoski - NOAA Federal
Subject: RE: BAG files

Hello and good morning Bridget,
Regarding 2gb BAG, I don't think will be a problem. We encountered CSAR grid with file size over 7.4gb and encounter a bit slower read time and that's the only negative experience. So I don't think the 2gb BAG will cause problems. When AHB generates the final BAG from the CSAR grid, compression is on. If nothing changes within the bathy data and thus grid update is not required, the submitted BAGs are considered as the source and I think the BAG are re-exported to contain the revised metadata. Currently we cannot revise the metadata and thus the re-export. So far I have not viewed any negative aspects from a compressed BAG.

If you want to post (ftp) a text BAG, let me know where to download and we'll check it out.
Thanks and have a GREAT day!
Gene

From: Bernier, Bridget W. [mailto:BRIDGET.W.BERNIER@leidos.com]
Sent: Friday, January 09, 2015 11:52 AM
To: Gene Parker
Cc: Quintal, Rebecca T.
Subject: RE: BAG files

Hi Gene,

How is everything going? I hope well.

I wanted to touch base with you regarding BAGs prior to our first delivery for the Task Order 10 work, which will be next week. CARIS made the release for Hips&Sips (version 8.1.11) which includes the update for the BAG display.

From our largest sheet the BAG file, version 1.5.1 with optional surfaces, when not compressed is 2.0GB. Is this size allowable for the delivery?

If that is too large, we can continue to split the BAGs as we have done in the past. What is the allowable file size, so that we can ensure that the total number of BAGs is manageable?

Also, would you like BAGs to be compressed or not compressed?

Sample BAG files can be provided if that would be helpful.

Thanks!
-Bridget

Pass Aux Herons Buoy RN 10 Missing

Registry Number: H12655
State: Alabama
Locality: Approaches to Mobile Bay
Sub-locality: 2NM South of Fort Gaines
Project Number: OPR-J312-KR-14
Survey Date: 01/01/2013

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11378	35th	03/01/2008	1:40,000 (11378_6)	[L]NTM: ?
11377	10th	01/01/2013	1:40,000 (11377_1)	USCG LNM: 5/13/2014 (5/27/2014) NGA NTM: 7/31/2010 (6/7/2014)
11376	57th	01/01/2014	1:80,000 (11376_1)	USCG LNM: 5/27/2014 (5/27/2014) NGA NTM: 11/19/2005 (6/7/2014)
11360	43rd	11/01/2008	1:456,394 (11360_1)	[L]NTM: ?
1115A	43rd	11/01/2008	1:456,394 (1115A_1)	[L]NTM: ?
11006	32nd	08/01/2005	1:875,000 (11006_1)	[L]NTM: ?
411	52nd	09/01/2007	1:2,160,000 (411_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	Nav Aid Missing: RN 10 Pass Aux Herons Buoy 10	GP	[None]	30° 17' 34.9" N	088° 07' 11.0" W	---

1.1) Nav Aid Missing: RN 10 Pass Aux Herons Buoy 10

Survey Summary

Survey Position: 30° 17' 34.9" N, 088° 07' 11.0" W

Least Depth: [None]

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

Timestamp: 2013-001.00:00:00.000 (01/01/2013)

Dataset: H12655 Missing RN 10 Nav Aid.000

FOID: 0_ 0001903425 00001(FFFE001D0B410001)

Charts Affected: 11377_1, 11378_6, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

Pass Aux Herons Buoy 10 was not found at the charted location.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12655 Missing RN 10 Nav Aid.000	0_ 0001903425 00001	0.00	000.0	Primary

Hydrographer Recommendations

Forward information to GOM Regional Navigation Manager.

S-57 Data

Geo object 1: Buoy, lateral (BOYLAT)

Attributes:

BOYSHP - 1:conical (nun, ogival)

CATLAM - 2:starboard-hand lateral mark

COLOUR - 3:red

INFORM - Charted R N 10 found missing.

OBJNAM - Pass Aux Herons Buoy 10

SORDAT - 201301

SORIND - US,US,graph,Chart 11377

STATUS - 1:permanent

Office Notes

Descriptive Report: "· The USCG ATON R N 10 charted in approximately 30°17'35.03"N 088°07'10.97"W was not found." The submitted data does not include the nav aid at the charted location. AHB is forwarding this information to the Gulf of Mexico Regional Navigation Manager in order to pass this information to the USCG.

Feature Images

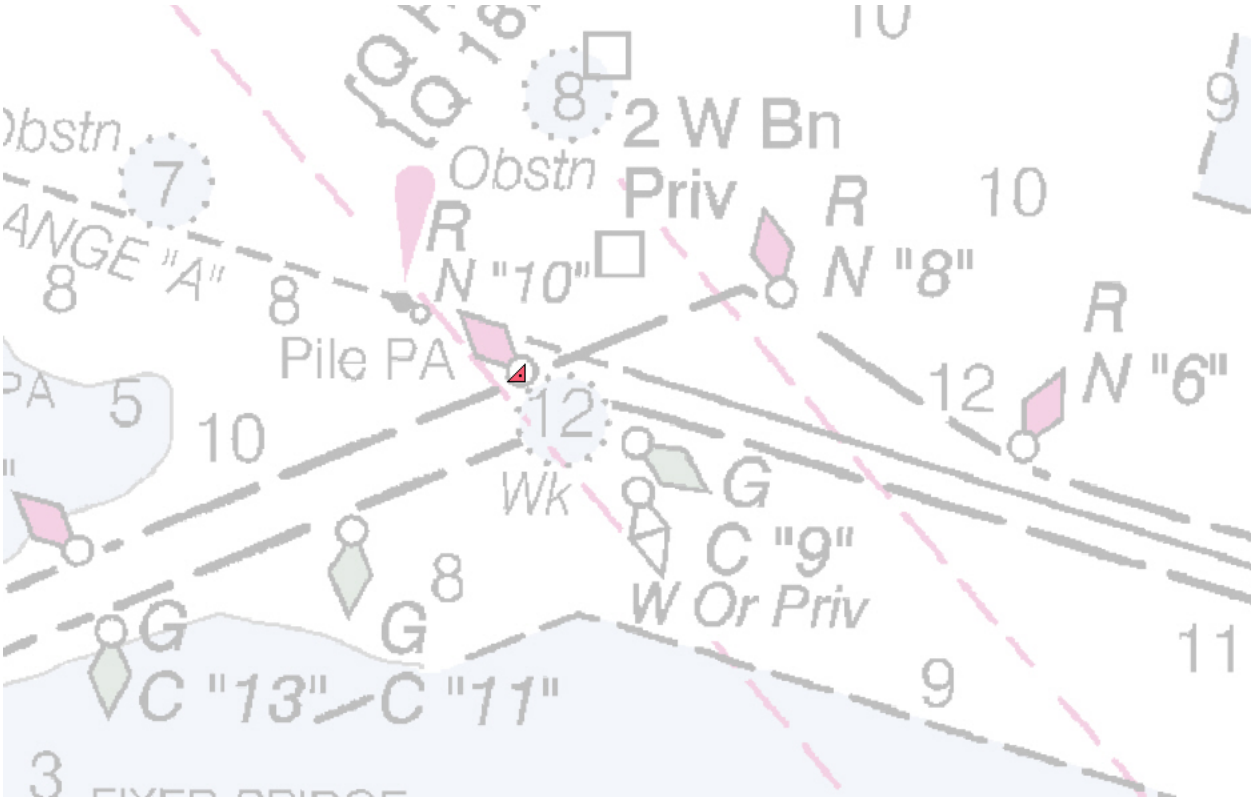


Figure 1.1.1

APPENDIX III

SURVEY FEATURES REPORT

AWOIS - five
Dangers to Navigation - seven
Maritime Boundary - none
Wrecks - one (AWOIS #15165)

H12655 AWOIS Features Report

Registry Number: H12655
State: Alabama
Locality: Approaches to Mobile Bay
Sub-locality: 2 NM South of Fort Gaines
Project Number: OPR-J312-KR-14
Survey Dates: 01/01/1981 - 09/25/2007

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11378	35th	03/01/2008	1:40,000 (11378_7) 1:40,000 (11378_6)	[L]NTM: ?
11377	7th	10/01/2007	1:40,000 (11377_1)	[L]NTM: ?
11376	53rd	08/01/2008	1:80,000 (11376_1)	[L]NTM: ?
11360	43rd	11/01/2008	1:456,394 (11360_1)	[L]NTM: ?
1115A	43rd	11/01/2008	1:456,394 (1115A_1)	[L]NTM: ?
11006	32nd	08/01/2005	1:875,000 (11006_1)	[L]NTM: ?
411	52nd	09/01/2007	1:2,160,000 (411_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 #15165 - Retain Wreck	Wreck	[None]	30° 16' 54.0" N	088° 05' 60.0" W	15165
1.2	AWOIS #3523 - disproved	Obstruction	4.42 m	30° 15' 14.6" N	088° 03' 09.0" W	3523
1.3	AWOIS #7145 - disproved	GP	[None]	30° 13' 48.7" N	088° 01' 38.0" W	7145
1.4	AWOIS #7147 - disproved	GP	[None]	30° 13' 54.7" N	088° 01' 32.0" W	7147
1.5	AWOIS #12360 - Retain Rk	Rock	2.25 m	30° 14' 11.0" N	088° 00' 45.0" W	12360

1.1) AWOIS #15165 - Retain Wreck

Survey Summary

Survey Position: 30° 16' 54.0" N, 088° 05' 60.0" W

Least Depth: [None]

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

Timestamp: 2007-268.00:00:00.000 (09/25/2007)

Dataset: H12655_AWOIS_Features.000

FOID: 0_ 0002756563 00001(FFFE002A0FD30001)

Charts Affected: 11377_1, 11378_6, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

History

OPR-J312-KR-14-- WRECK CHARTED SOURCE UNKNOWN

Type: UNKNOWN, Itemstatus: ASSIGNED, Searchtype: FULL, Technique: MBES S2

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12655_AWOIS_Features.000	0_ 0002756563 00001	0.00	000.0	Primary
H12655_AWOIS_Features.000	0_ 0002756562 00001	8.86	300.7	Secondary (grouped)
H12655_AWOIS_Features.000	0_ 0002756557 00001	9.69	343.8	Secondary (grouped)

Hydrographer Recommendations

The 200-meter search radius was investigated with 200% side scan and resulting multibeam coverage.

WRECKS/remrks: Remove wreck.

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 2:dangerous wreck

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

INFORM - No features were found within the search area.

QUASOU - 2:depth unknown

SORDAT - 20070925

SORIND - US,US,reprt,8thCGD;LNM 39/07

WATLEV - 3:always under water/submerged

Office Notes

SAR: AWOIS search area not fully covered. Recommend to retain.

Compile: Retain Wreck (AWOIS #15165)

1.2) AWOIS #3523 - disproved

Survey Summary

Survey Position:	30° 15' 14.6" N, 088° 03' 09.0" W
Least Depth:	4.42 m (= 14.50 ft = 2.417 fm = 2 fm 2.50 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	1981-001.01:01:01.001 (01/01/1981)
Dataset:	H12655_AWOIS_Features.000
FOID:	0_ 0002756564 00001(FFFE002A0FD40001)
Charts Affected:	11377_1, 11378_6, 11378_7, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

History

HISTORY LNM46/82--USCG; REPORTED 4 PILE CLUSTERS IN LAT.30-15-13N LONG.88-03-08W. PERMANENTLY ESTABLISHED DISPLAYING 4 QUICK FLASHING WHITE LIGHTS AND FOG SIGNAL. ADDED DOLPHIN PA. AT 1:40 000. (CHT 11378-B) D65/D78/84-87--OPR-J482-84; NEITHER VERIFIED NOR DISPROVED AND PLATFORM IS CHARTED ON 1988 EDITION OF CHART INSTEAD OF DOLPHIN PA. (UPDATE 3/89 LQ) SURVEY REQUIREMENTS

Type: OBSTRUCTION, Itemstatus: ASSIGNED, Searchtype: FULL, Technique: MBES S2

OBSTRN/remrks: Small object approximately 0.7m high in 5.1m of water. Platform Feature 128 is 28m northeast.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12655_AWOIS_Features.000	0_ 0002756564 00001	0.00	000.0	Primary
H12655_AWOIS_Features.000	0_ 0002756553 00001	37.64	316.3	Secondary (grouped)
H12655_AWOIS_Features.000	0_ 0002756558 00001	37.64	316.3	Secondary (grouped)

Hydrographer Recommendations

No chart. See Feature 128.

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

15ft (11377_1, 11378_6, 11378_7, 11376_1)

2 ½fm (1115A_1, 11360_1, 11006_1, 411_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	INFORM - Feature 106 - MB File: obmba14283.d68; Ping: 2756; Beam: 74; Depth: 4.420m; Time: 21:35:09.52; H. Uncert.: 1.490m; V. Uncert.: 0.470m.
	NINFOM - 3525.txt
	QUASOU - 6:least depth known
	SORDAT - 20141010
	SORIND - US,US,graph,H12655
	TECSOU - 2,3:found by side scan sonar,found by multi-beam
	VALSOU - 4.420 m
	WATLEV - 3:always under water/submerged

Office Notes

SAR: Feature ensonified with SSS and resulting MB. Verified per survey data.

Compile: Feature not of significant height, do not chart. AWOIS 3523 is considered disproved.

Feature Images

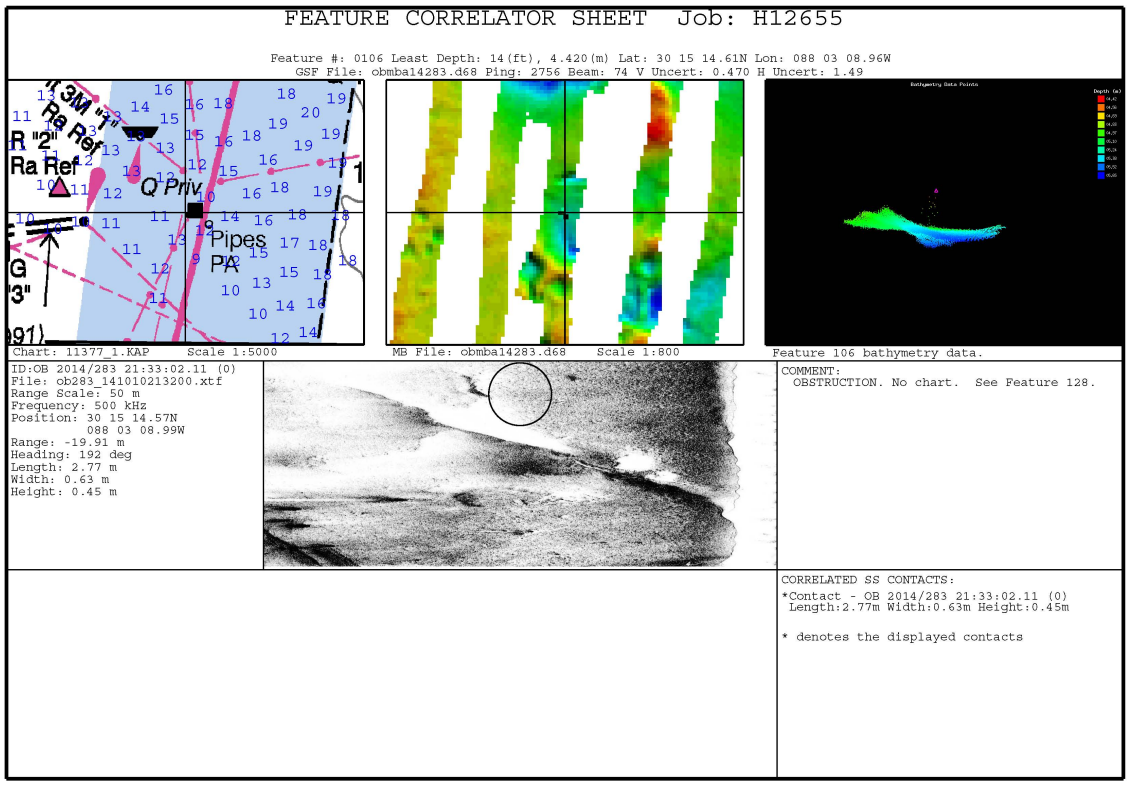


Figure 1.2.1

1.3) AWOIS #7145 - disproved

Survey Summary

Survey Position: 30° 13' 48.7" N, 088° 01' 38.0" W

Least Depth: [None]

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

Timestamp: 1981-001.00:00:00.000 (01/01/1981)

Dataset: H12655_AWOIS_Features.000

FOID: 0_ 0002756554 00001(FFFE002A0FCA0001)

Charts Affected: 11377_1, 11378_6, 11378_7, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

History

UNKNOWN SOURCE--SUBM DANGEROUS WK MARKED BY WHITE/ORANGE BUOY. SCALED IN LAT 30-13-48N; LONG 88-01-38W. D65/D78/84-87--OPR-J482-84; NEITHER VERIFIED NOR DISPROVED DURING THIS CES. (ENTERED 3/89 LQ) H11305-- OPR-J373-NRT1-04; The 200% SSS investigation was inadaquate for feature disproval. Reatain as charted. (Updated CEH 3/2009)

CRANES/invreq: Type: UNKNOWN, Itemstatus: ASSIGNED, Searchtype: FULL (150m), Technique: S2 ES MBES SD

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12655_AWOIS_Features.000	0_ 0002756554 00001	0.00	000.0	Primary
H12655_AWOIS_Features.000	0_ 0002756559 00001	0.00	000.0	Secondary (grouped)

Hydrographer Recommendations

[None]

S-57 Data

Geo object 1: Crane (CRANES)

Attributes: RADIUS - 150.0 m

TXTDSC - 7145.TXT

Office Notes

SAR: Disproved via 200% SSS.

Compile: Delete Wreck, AWOIS #7145 disproved.

1.4) AWOIS #7147 - disproved

Survey Summary

Survey Position: 30° 13' 54.7" N, 088° 01' 32.0" W

Least Depth: [None]

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

Timestamp: 1981-001.00:00:00.000 (01/01/1981)

Dataset: H12655_AWOIS_Features.000

FOID: 0_ 0002756555 00001(FFFE002A0FCB0001)

Charts Affected: 11377_1, 11378_6, 11378_7, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

History

HISTORY UNKNOWN SOURCE--SUBM DANGEROUS WRECK (PA) SCALED IN LAT. 30-13-54N; LONG 88-01-32W. D65/D78/84-87--OPR-J482-84; SUBM WRECK (PA) NEITHER VERIFIED NOR DISPROVED DURING THIS CES. (ENTERED 3/89 LQ) H11305-- OPR-J373-NRT1-04; Limited by depth not all of the search area was investigated. Retain as charted. (Updated CEH 3/2009)

CRANES/invreq: Type: UNKNOWN, Itemstatus: ASSIGNED, Searchtype: FULL (200m), Technique: S2 MBES ES DI VS SD

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12655_AWOIS_Features.000	0_ 0002756555 00001	0.00	000.0	Primary
H12655_AWOIS_Features.000	0_ 0002756560 00001	0.00	000.0	Secondary (grouped)

Hydrographer Recommendations

[None]

S-57 Data

Geo object 1: Crane (CRANES)

Attributes: RADIUS - 200.0 m

TXTDSC - 7147.TXT

Office Notes

SAR: Disproved via 200% SSS.

Compile: Delete Wreck PA, AWOIS #7147 disproved.

1.5) AWOIS #12360 - Retain Rk

Survey Summary

Survey Position:	30° 14' 11.0" N, 088° 00' 45.0" W
Least Depth:	2.25 m (= 7.37 ft = 1.228 fm = 1 fm 1.37 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	1981-001.01:01:01.001 (01/01/1981)
Dataset:	H12655_AWOIS_Features.000
FOID:	0_ 0002756567 00001(FFFE002A0FD70001)
Charts Affected:	11377_1, 11378_6, 11378_7, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

History

HISTORY NOS LETTER CL480/60-- ROCK PILE DISCOVERED BY EAST COAST FIELD PARTY. A LEAST DEPTH OF 7.2 FEET WAS DETERMINED BY LEADLINE. POSITIONAL INFORMATION IN LETTER DOES NOT AGREE WITH CHARTED POSITION. POSITION GIVEN HERE WAS SCALED OFF CURRENT CHART. (ENTERED 3/04 SPS) H11305-- OPR-J373-NRT1-04; Item was not investigated. Retain as charted. (Updated CEH 3/2009)

Type: OBSTRUCTION, Itemstatus: ASSIGNED, Searchtype: FULL (100m), Technique: SD S2 MBES ES DI

UWTROC/remrks: Group of four large rocks. The shoalest rock is approximately 31.0 x 28.0m and approximately 3.5m high in 5.2m of water.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12655_AWOIS_Features.000	0_ 0002756567 00001	0.00	000.0	Primary
H12655_AWOIS_Features.000	0_ 0002756556 00001	17.44	152.6	Secondary (grouped)
H12655_AWOIS_Features.000	0_ 0002756561 00001	17.44	152.6	Secondary (grouped)

Hydrographer Recommendations

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

7ft (11377_1, 11378_6, 11378_7, 11376_1)

1 ¼fm (1115A_1, 11360_1, 11006_1, 411_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)

Attributes: INFORM - Feature 089 -AWOIS 12360. MB File: obmba14250.d69; Ping: 5894; Beam: 10: Depth: 2.245m; Time: 20:22:18.33; H. Uncert.: 1.390m: V. Uncert.: 0.470m.

QUASOU - 6:least depth known

SORDAT - 20141010

SORIND - US,US,graph,H12655

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

VALSOU - 2.245 m

WATLEV - 3:always under water/submerged

Office Notes

SAR: Feature ensonified with 200%SSS and resulting MB. Verified per survey data.

Compile: Chart Rk in new position (AWOIS #12360)

Feature Images

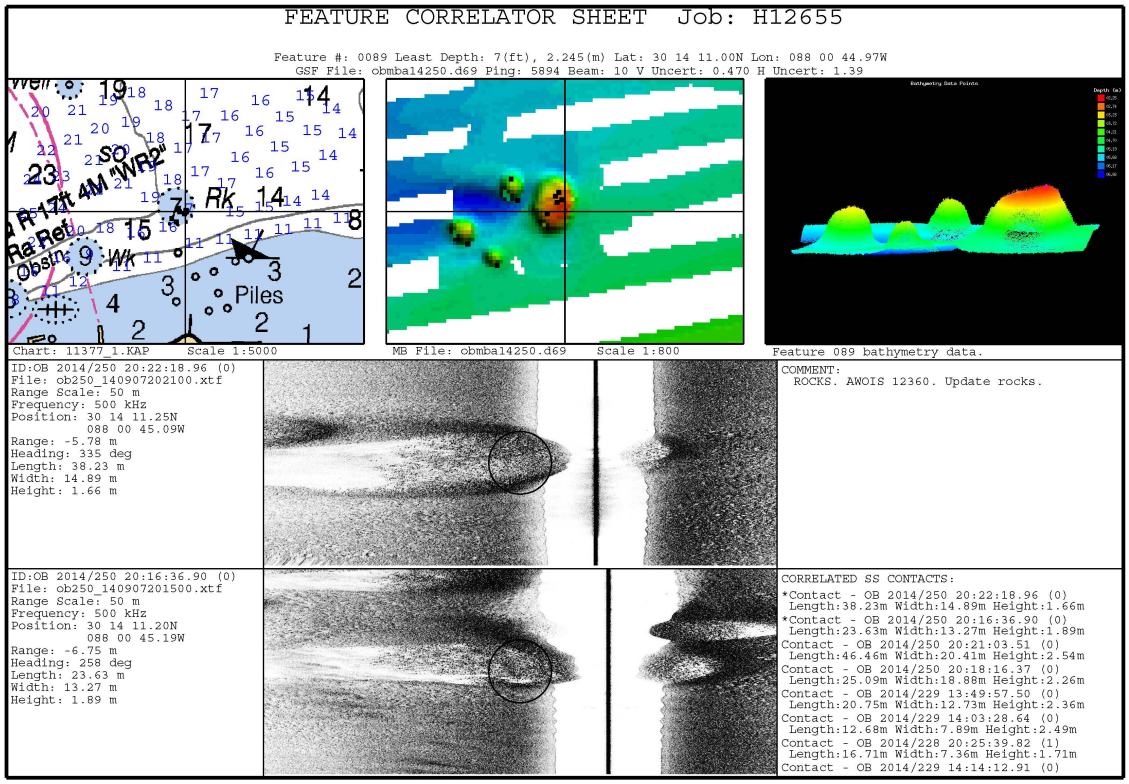


Figure 1.5.1

H12655 DtoN 1-3

Registry Number: H12655
State: Alabama
Locality: Approaches to MoBile Bay
Sub-locality: 2NM South of Fort Gaines
Project Number: OPR-J312-KR-14
Survey Dates: 07/31/2014 - 08/01/2014

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11378	35th	03/01/2008	1:40,000 (11378_6)	[L]NTM: ?
11377	10th	01/01/2013	1:40,000 (11377_1)	USCG LNM: 5/13/2014 (5/27/2014) NGA NTM: 7/31/2010 (6/7/2014)
11376	57th	01/01/2014	1:80,000 (11376_1)	USCG LNM: 5/27/2014 (5/27/2014) NGA NTM: 11/19/2005 (6/7/2014)
11360	43rd	11/01/2008	1:456,394 (11360_1)	[L]NTM: ?
1115A	43rd	11/01/2008	1:456,394 (1115A_1)	[L]NTM: ?
11006	32nd	08/01/2005	1:875,000 (11006_1)	[L]NTM: ?
411	52nd	09/01/2007	1:2,160,000 (411_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	12ft Wreck	Wreck	3.70 m	30° 17' 33.3" N	088° 07' 09.0" W	---
1.2	6ft Obstruction	Obstruction	1.96 m	30° 16' 01.9" N	088° 04' 49.7" W	---
1.3	-1ft Obstruction MHW (Pile covers and uncovers)	Obstruction	-0.30 m	30° 16' 03.2" N	088° 04' 36.9" W	---

1.1) 12ft Wreck

DANGER TO NAVIGATION

Survey Summary

Survey Position:	30° 17' 33.3" N, 088° 07' 09.0" W
Least Depth:	3.70 m (= 12.15 ft = 2.025 fm = 2 fm 0.15 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2014-212.12:16:12.000 (07/31/2014)
Dataset:	H12655 DtoN 1-3.000
FOID:	US 0003398595 00001(02260033DBC30001)
Charts Affected:	11377_1, 11378_6, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

WRECKS/remrks: Deteriorated wreck approximately 11.3 x 4.7 m located in the Intracoastal Waterway between buoys GC 9 and RN 10. The wreck is approximately 0.7 m high in depths of approximately 4.5 m. Feature is reduced to MLLW based on verified tides and positioned using NAD-83.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12655 DtoN 1-3.000	US 0003398595 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart sounding danger circle and label WK.

Cartographically-Rounded Depth (Affected Charts):

12ft (11377_1, 11378_6, 11376_1)

2fm (1115A_1, 11360_1, 11006_1, 411_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	INFORM - DTON1 MB File: obmba14212.d03; Ping: 4895; Beam: 88; Depth: 3.703m; Time: 12:16:11.63; H. Uncert.: 1.540m; V. Uncert.: 0.470m.
	QUASOU - 6:least depth known

SORDAT - 20140731

SORIND - US,US,graph,H12655

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

VALSOU - 3.703 m

WATLEV - 3:always under water/submerged

Office Notes

This danger submission is preliminary. No data has been provided to AHB for verification. Feature will be reviewed and verified once the survey data has been submitted. All depths have been corrected to chart datum MLLW. The horizontal datum is NAD83.

Feature Images

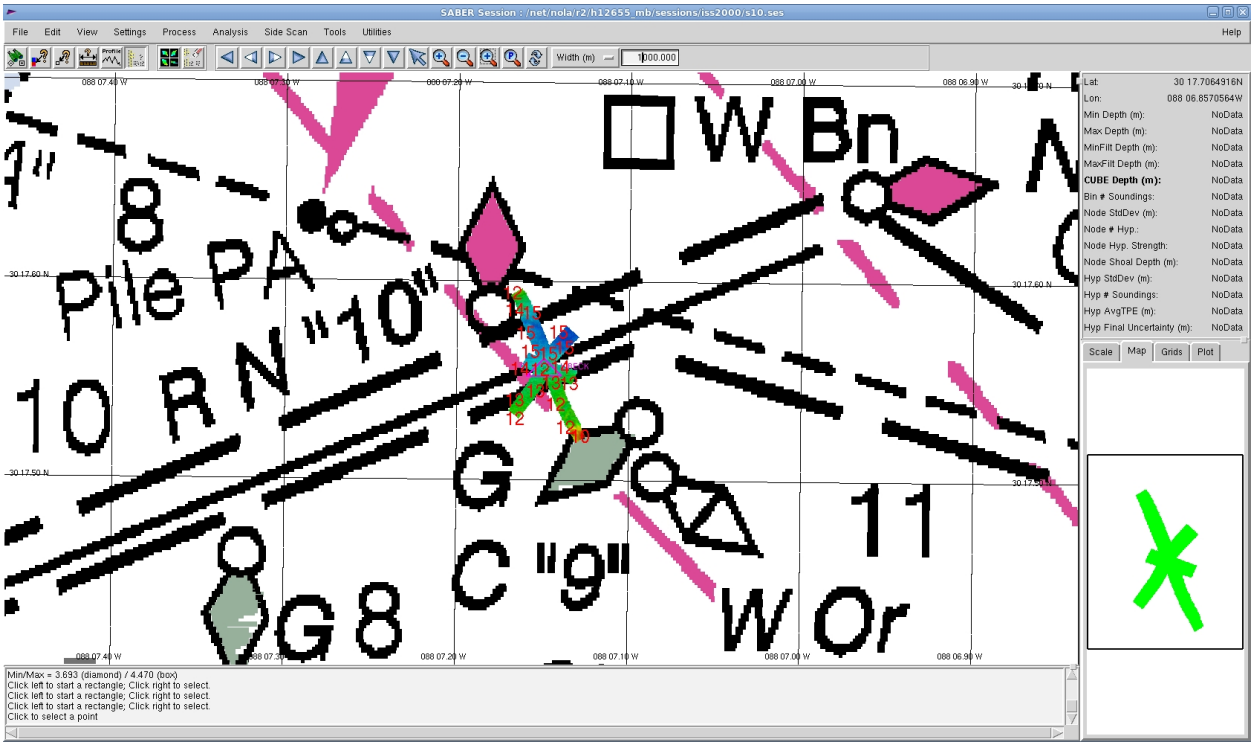


Figure 1.1.1

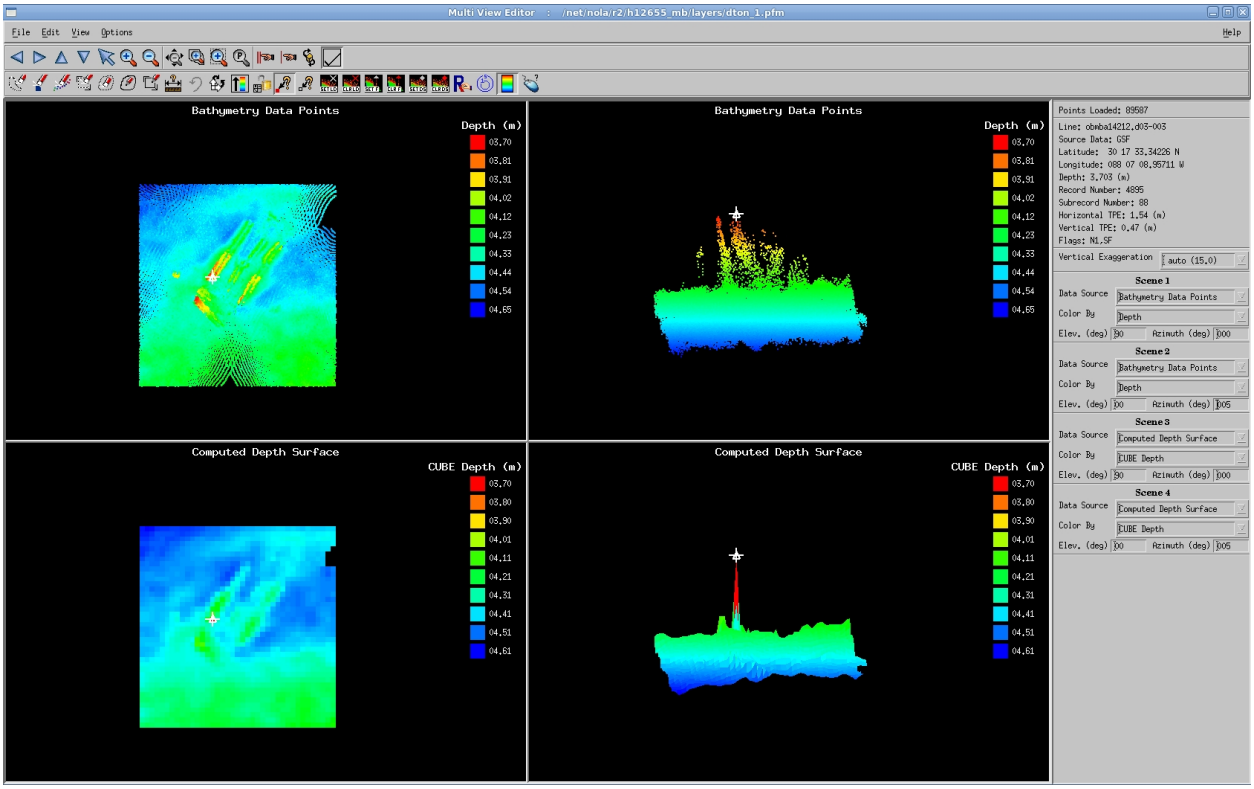
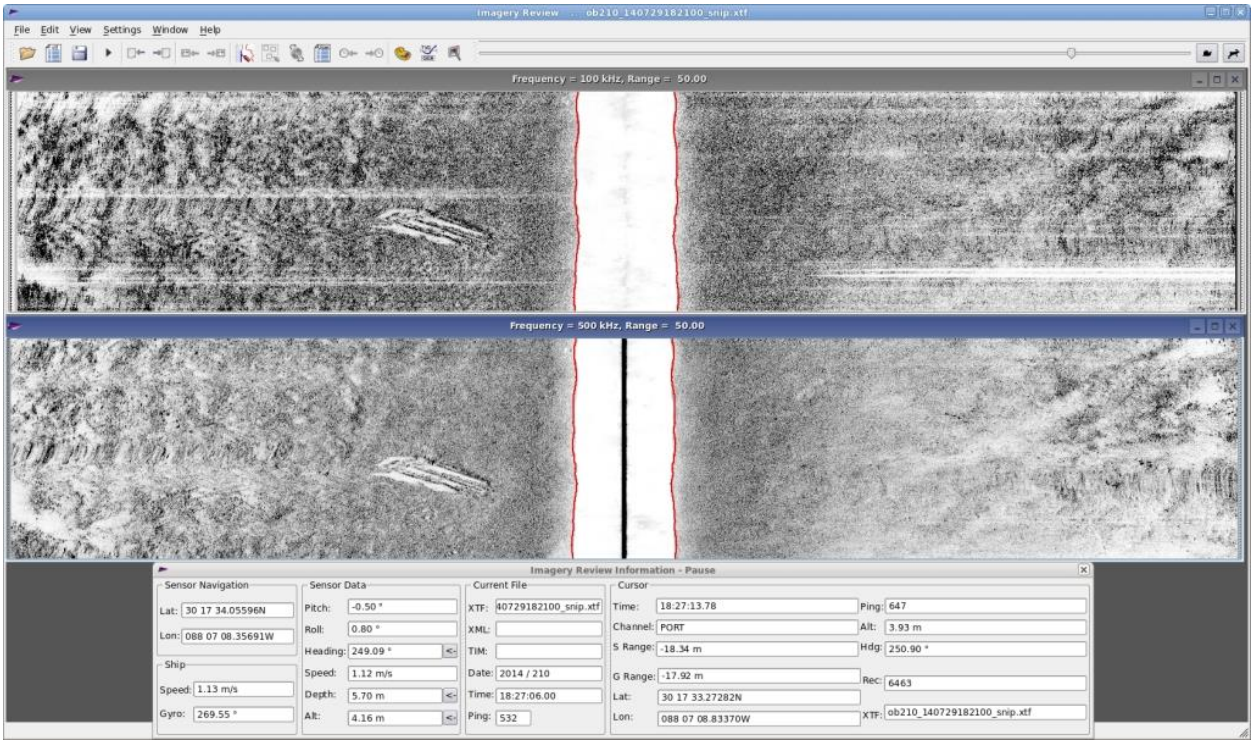


Figure 1.1.2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File Edit View Settings Window Help
Frequency = 100 kHz, Range = 50.00
Frequency = 500 kHz, Range = 50.00
Imagery Review Information - Pause
Sensor Navigation
Lat: 30 17 34.05596N
Lon: 088 07 08.35691W
Ship
Speed: 1.13 m/s
Gyro: 269.55 °
Sensor Data
Pitch: -0.50 °
Roll: 0.80 °
Heading: 249.09 °
Speed: 1.12 m/s
Depth: 5.70 m
Alt: 4.16 m
Current File
XTF: 40729182100_snip.xtf
XML:
TIM:
Date: 2014 / 210
Time: 18:27:06.00
Ping: 532
Cursor
Time: 18:27:13.78
Ping: 647
Channel: PORT
Alt: 3.93 m
S Range: -18.34 m
Hdg: 250.90 °
G Range: -17.92 m
Rec: 6463
Lat: 30 17 33.27282N
Lon: 088 07 08.83370W
XTF: ob210_140729182100_snip.xtf

Figure 1.1.3

1.2) 6ft Obstruction

DANGER TO NAVIGATION

Survey Summary

Survey Position:	30° 16' 01.9" N, 088° 04' 49.7" W
Least Depth:	1.96 m (= 6.44 ft = 1.073 fm = 1 fm 0.44 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2014-213.17:51:28.000 (08/01/2014)
Dataset:	H12655 DtoN 1-3.000
FOID:	US 0003398596 00001(02260033DBC40001)
Charts Affected:	11377_1, 11378_6, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

OBSTRN/remrks: Rectangular object approximately 2 x 2 m. The object is approximately 1.9 m high in depths of approximately 3.8 m. Feature is reduced to MLLW based on predicted tides and positioned using NAD-83.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12655 DtoN 1-3.000	US 0003398596 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart sounding danger circle and label OBSTN.

Cartographically-Rounded Depth (Affected Charts):

6ft (11377_1, 11378_6, 11376_1)

1fm (1115A_1, 11360_1, 11006_1, 411_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	INFORM - DTON2 MB File: obmba14213.d33; Ping: 7908; Beam: 42; Depth: 1.962m; Time: 17:51:27.86; H. Uncert.: 1.140m; V. Uncert.: 0.490m.
	QUASOU - 6:least depth known
	SORDAT - 20140801

SORIND - US,US,graph,H12655

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

VALSOU - 1.962 m

WATLEV - 3:always under water/submerged

Office Notes

This danger submission is preliminary. No data has been provided to AHB for verification. Feature will be reviewed and verified once the survey data has been submitted. All depths have been corrected to chart datum MLLW. The horizontal datum is NAD83.

Feature Images

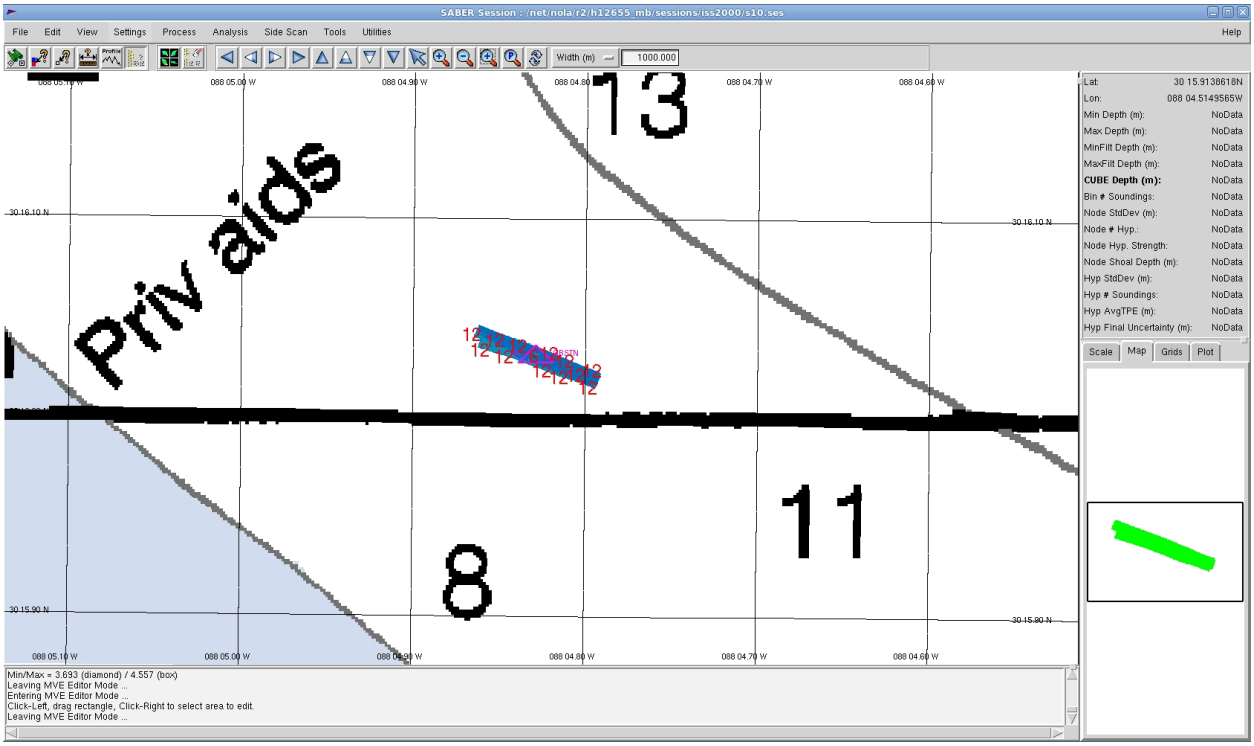

Figure 1.2.1

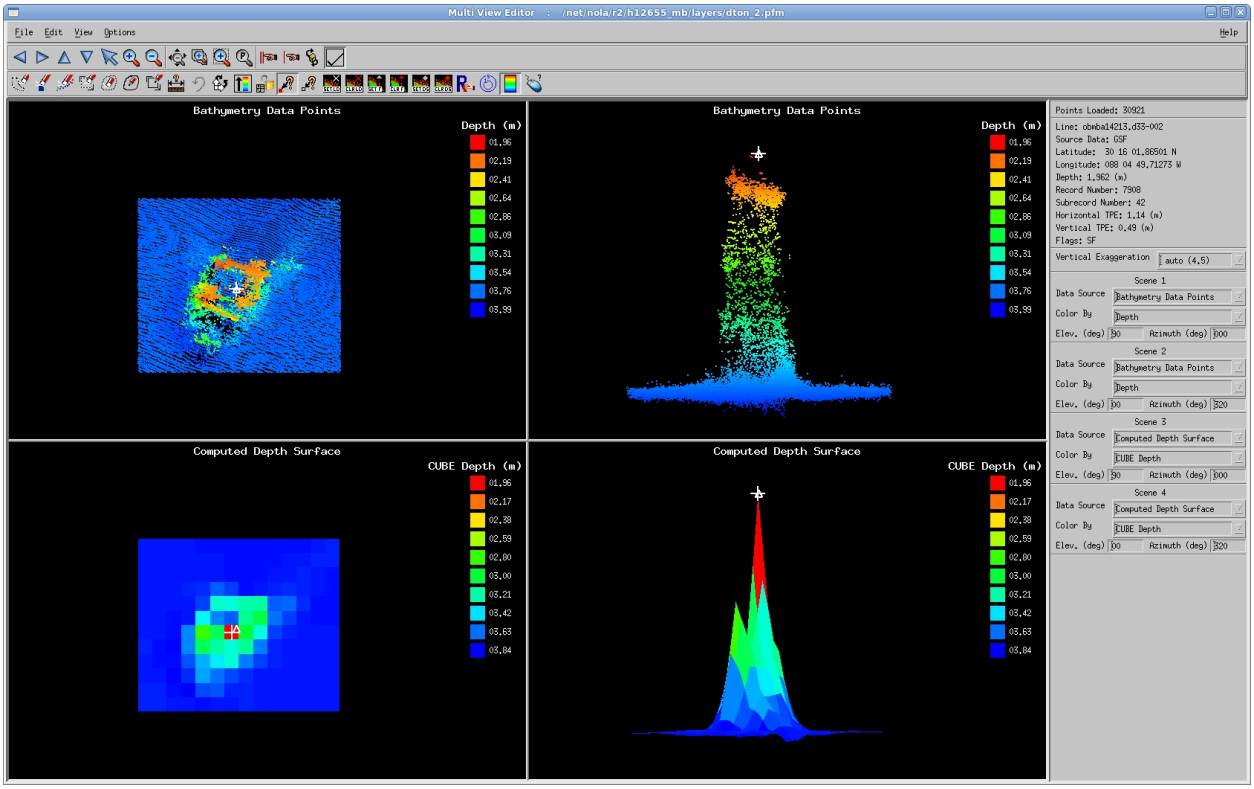

Figure 1.2.2

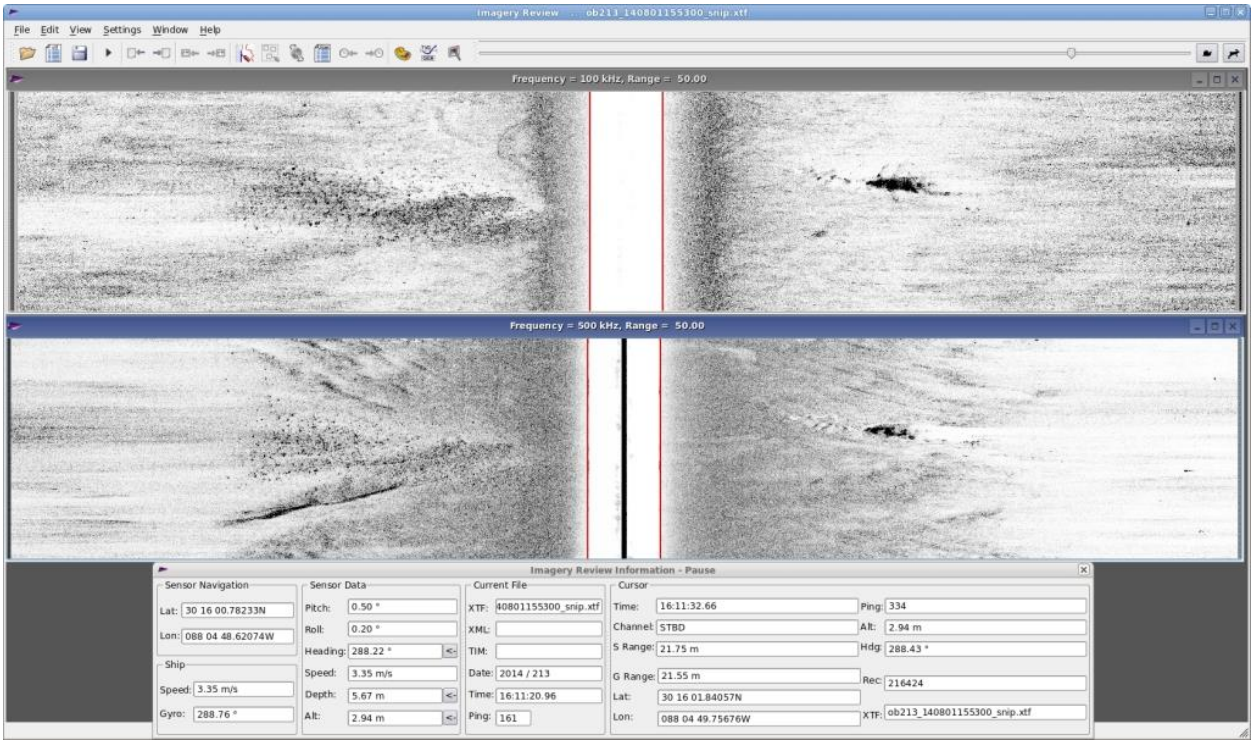
Imagery Review
File Edit View Settings Window Help
Frequency = 100 kHz, Range = 50.00
Frequency = 500 kHz, Range = 50.00
Imagery Review Information - Pause
Sensor Navigation
Lat: 30 16 00.78233N
Lon: 088 04 48.62074W
Ship
Speed: 3.35 m/s
Gyro: 288.76 °
Sensor Data
Pitch: 0.50 °
Roll: 0.20 °
Heading: 288.22 °
Speed: 3.35 m/s
Depth: 5.67 m
Alt: 2.94 m
Current File
XTF: 40801155300_snip.xtf
XML:
TIM:
Date: 2014 / 213
Time: 16:11:20.96
Ping: 161
Cursor
Time: 16:11:32.66
Ping: 334
Channel: STBD
Alt: 2.94 m
S Range: 21.75 m
Hdg: 288.43 °
G Range: 21.55 m
Rec: 216424
Lat: 30 16 01.84057N
Lon: 088 04 49.75676W
XTF: ob213_140801155300_snip.xtf

Figure 1.2.3

1.3) -1ft Obstruction MHW (Pile covers and uncovers)

DANGER TO NAVIGATION

Survey Summary

Survey Position:	30° 16' 03.2" N, 088° 04' 36.9" W
Least Depth:	-0.30 m (= -1.00 ft = -0.167 fm = 0 fm 5.00 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2014-213.17:23:00.000 (08/01/2014)
Dataset:	H12655 DtoN 1-3.000
FOID:	US 0003398601 00001(02260033DBC90001)
Charts Affected:	11377_1, 11378_6, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

OBSTRN/remrks: Exposed pile approximately 0.5 m in diameter. The pile is exposed approximately -0.3 m at MHW and positioned from multibeam data using NAD-83.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12655 DtoN 1-3.000	US 0003398601 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart Obstruction, a pile that covers and uncovers -1ft at MHW.

Cartographically-Rounded Depth (Affected Charts):

0ft (11377_1, 11378_6, 11376_1)

-1 ¾fm (1115A_1, 11360_1, 11006_1, 411_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	INFORM - DTON3 Pile exposed approximately -0.3 meters at MHW. Position derived from multibeam data.
	SORDAT - 20140801
	SORIND - US,US,graph,H12655
	TECSOU - 3:found by multi-beam

VALSOU - -0.305 m

WATLEV - 4:covers and uncovers

Office Notes

This danger submission is preliminary. No data has been provided to AHB for verification. Feature will be reviewed and verified once the survey data has been submitted. All depths have been corrected to chart datum MLLW. The horizontal datum is NAD83.

Feature Images

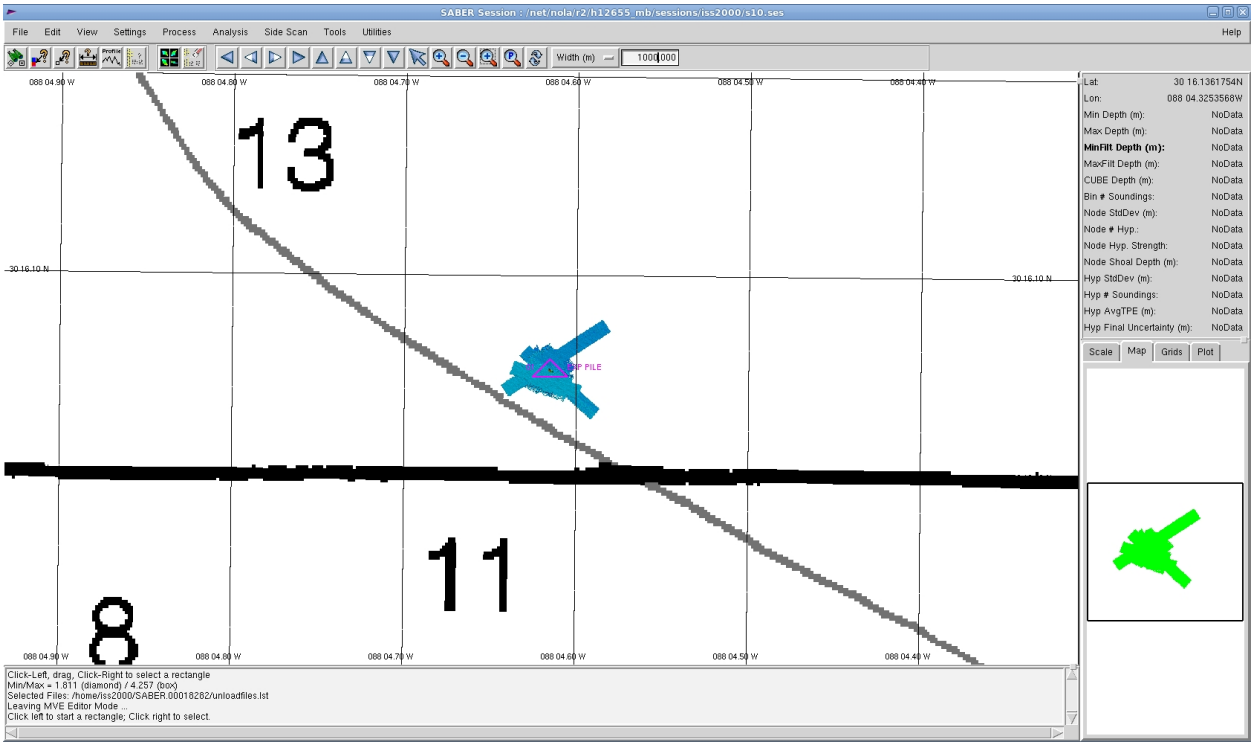

Figure 1.3.1

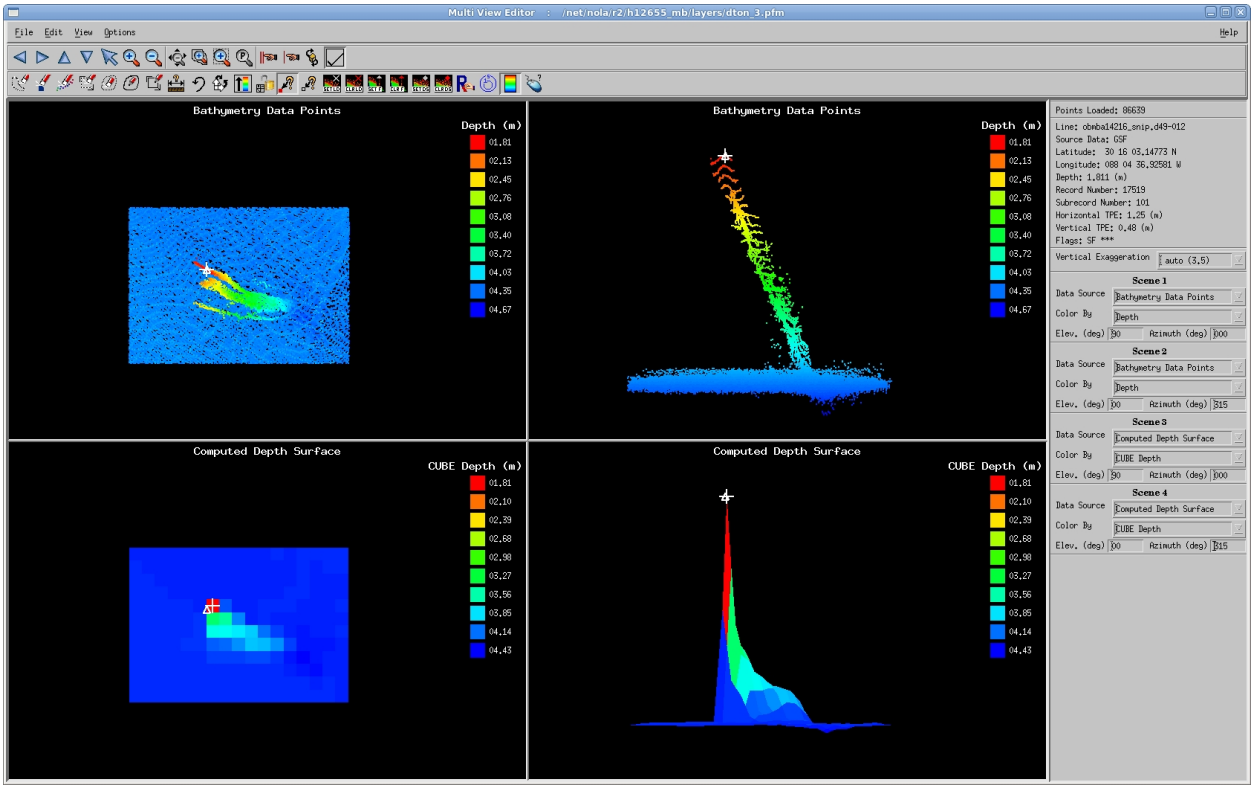

Figure 1.3.2

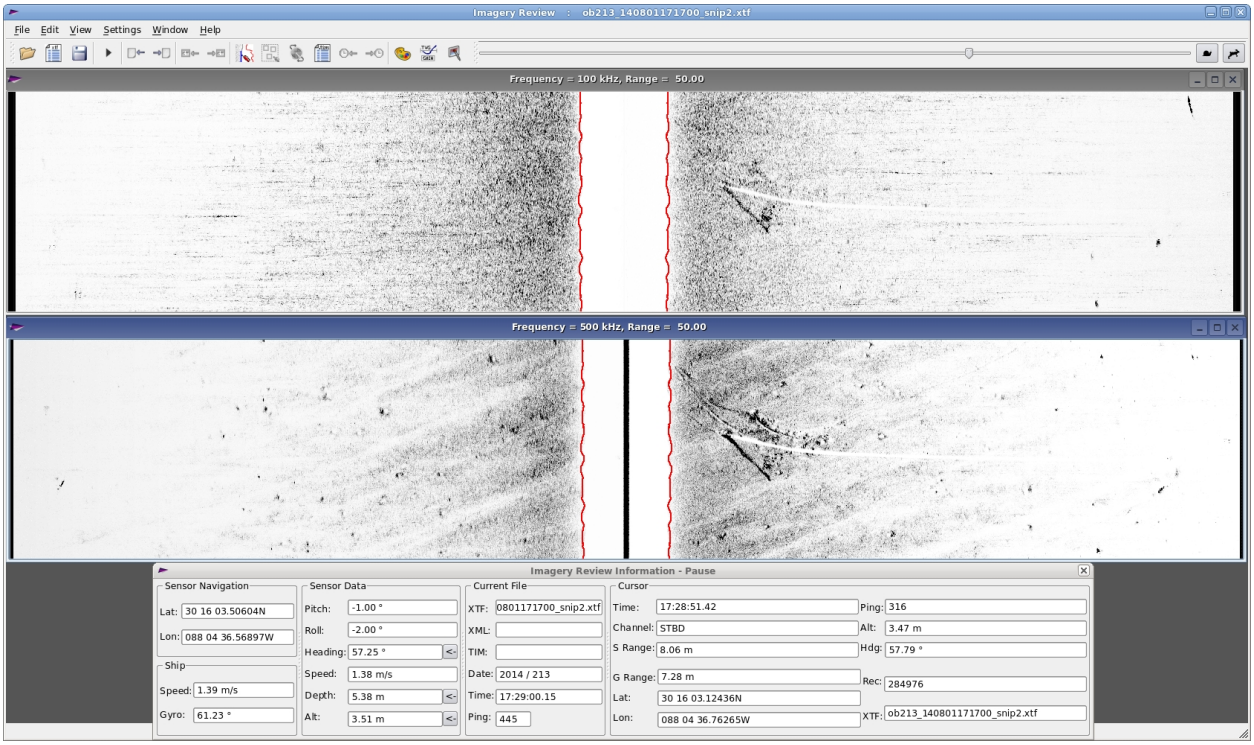
Imagery Review : ob213_140801171700_snip2.xtf
File Edit View Settings Window Help
Frequency = 100 kHz, Range = 50.00
Frequency = 500 kHz, Range = 50.00
Imagery Review Information - Pause
Sensor Navigation
Lat: 30 16 03.50604N
Lon: 088 04 36.56897W
Ship
Speed: 1.39 m/s
Gyro: 61.23 °
Sensor Data
Pitch: -1.00 °
Roll: -2.00 °
Heading: 57.25 °
Speed: 1.38 m/s
Depth: 5.38 m
Alt: 3.51 m
Current File
XTF: 0801171700_snip2.xtf
XML:
TIM:
Date: 2014 / 213
Time: 17:29:00.15
Ping: 445
Cursor
Time: 17:28:51.42
Ping: 316
Channel: STBD
Alt: 3.47 m
S Range: 8.06 m
Hdg: 57.79 °
G Range: 7.28 m
Rec: 284976
Lat: 30 16 03.12436N
Lon: 088 04 36.76265W
XTF: ob213_140801171700_snip2.xtf

Figure 1.3.3

Figure 1.3.4

H12655 DtoN 4-5

Registry Number: H12655
State: Alabama
Locality: Approaches to MoBile Bay
Sub-locality: 2NM South of Fort Gaines
Project Number: OPR-J312-KR-14
Survey Dates: 08/06/2014 - 08/09/2014

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11378	35th	03/01/2008	1:40,000 (11378_7) 1:40,000 (11378_6)	[L]NTM: ?
11377	10th	01/01/2013	1:40,000 (11377_1)	USCG LNM: 5/13/2014 (5/27/2014) NGA NTM: 7/31/2010 (6/7/2014)
11376	57th	01/01/2014	1:80,000 (11376_1)	USCG LNM: 5/27/2014 (5/27/2014) NGA NTM: 11/19/2005 (6/7/2014)
11360	43rd	11/01/2008	1:456,394 (11360_1)	[L]NTM: ?
1115A	43rd	11/01/2008	1:456,394 (1115A_1)	[L]NTM: ?
11006	32nd	08/01/2005	1:875,000 (11006_1)	[L]NTM: ?
411	52nd	09/01/2007	1:2,160,000 (411_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	26ft Wreck	Wreck	7.95 m	30° 14' 03.2" N	088° 01' 32.4" W	---
1.2	22ft Obstruction	Obstruction	6.83 m	30° 14' 17.1" N	088° 01' 26.3" W	---

1.1) 26ft Wreck

DANGER TO NAVIGATION

Survey Summary

Survey Position:	30° 14' 03.2" N, 088° 01' 32.4" W
Least Depth:	7.95 m (= 26.08 ft = 4.347 fm = 4 fm 2.08 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2014-218.20:39:24.000 (08/06/2014)
Dataset:	H12655 DtoN 4-5.000
FOID:	US 0003745801 00001(0226003928090001)
Charts Affected:	11377_1, 11378_6, 11378_7, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

WRECKS/remrks: Wreck approximately 9 m x 3.5 m located in a charted Anchorage for Explosives area (Chart 11377). The wreck is approximately 2.14 m high in depths of approximately 10 m. Feature is reduced to MLLW based on verified tides and positioned using NAD-83.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12655 DtoN 4-5.000	US 0003745801 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart sounding danger circle and label Wk.

Cartographically-Rounded Depth (Affected Charts):

26ft (11377_1, 11378_6, 11378_7, 11376_1)

4 ¼fm (1115A_1, 11360_1, 11006_1, 411_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	INFORM - DTON5 MB File: asmba14218.d43; Ping: 9115; Beam: 86; Depth: 7.950m; Time: 20:39:23.693; H. Uncert.: 1.430m; V. Uncert.: 0.470m.
	QUASOU - 6:least depth known

SORDAT - 20140806

SORIND - US,US,graph,H12655

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

VALSOU - 7.950 m

WATLEV - 3:always under water/submerged

Office Notes

This danger submission is preliminary. No data has been provided to AHB for verification. Feature will be reviewed and verified once the survey data has been submitted. All depths have been corrected to chart datum MLLW. The horizontal datum is NAD83.

Feature Images

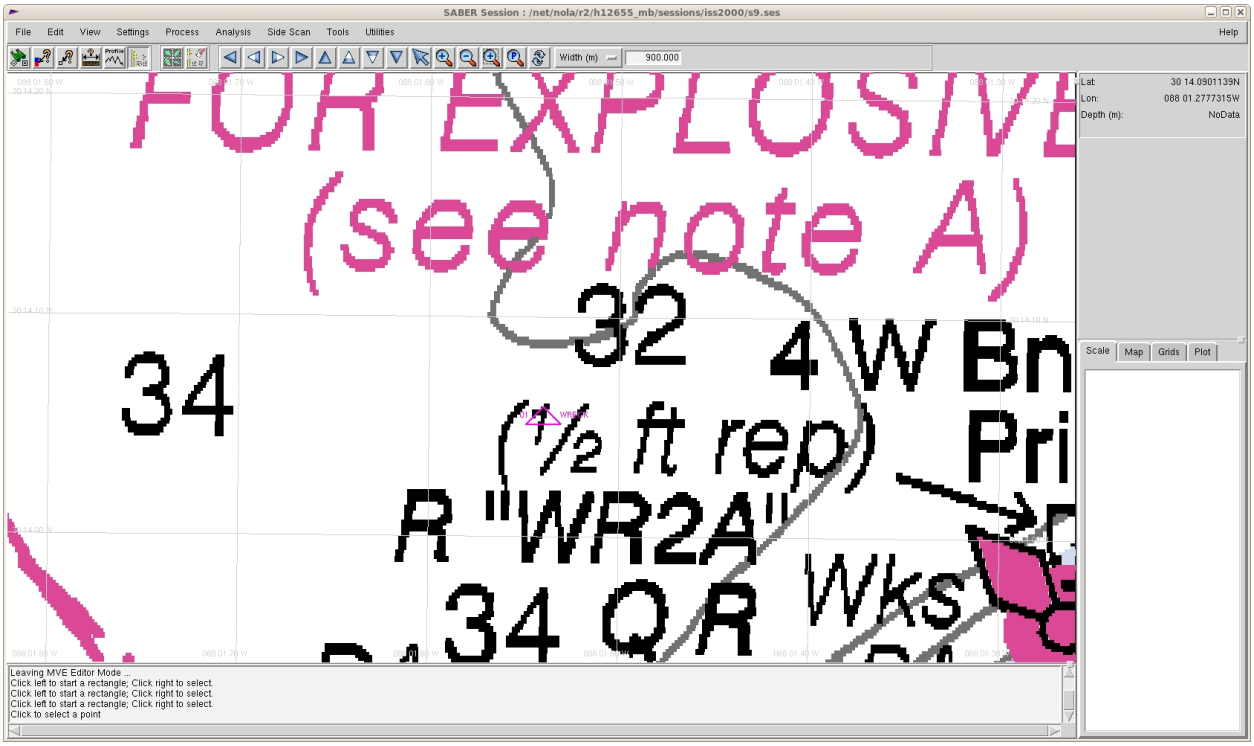

Figure 1.1.1

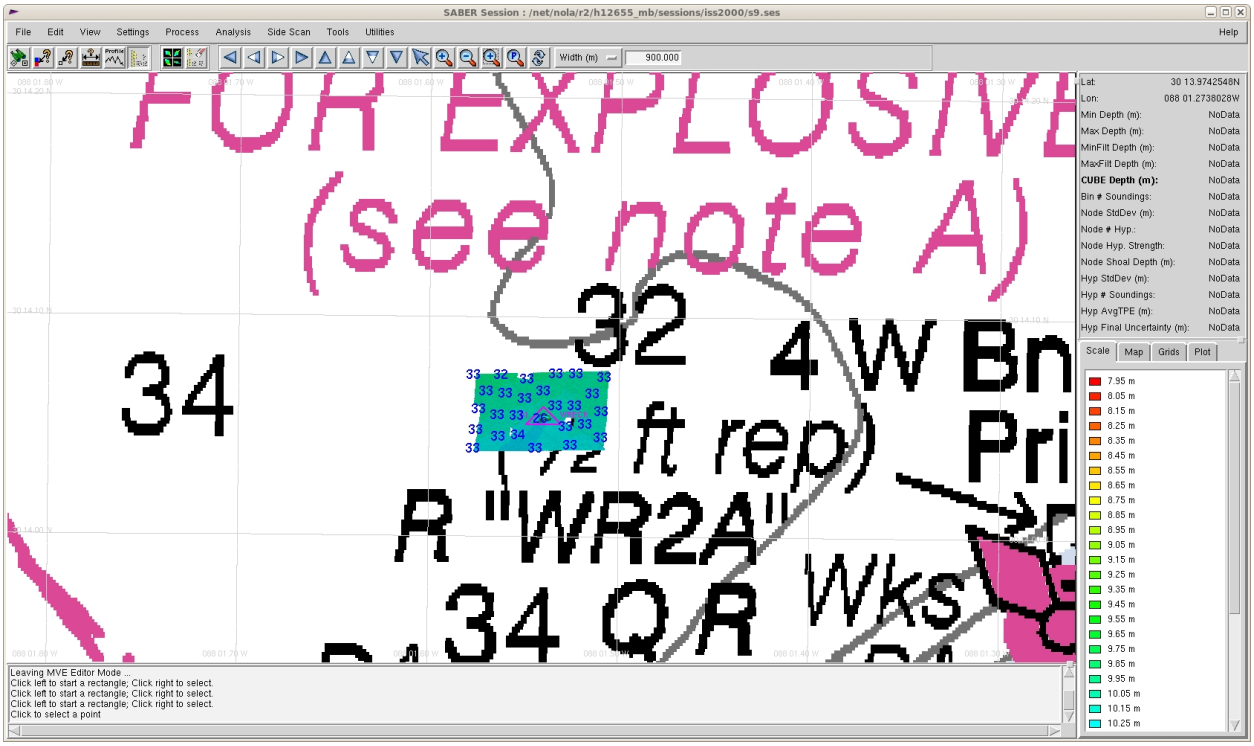

Figure 1.1.2

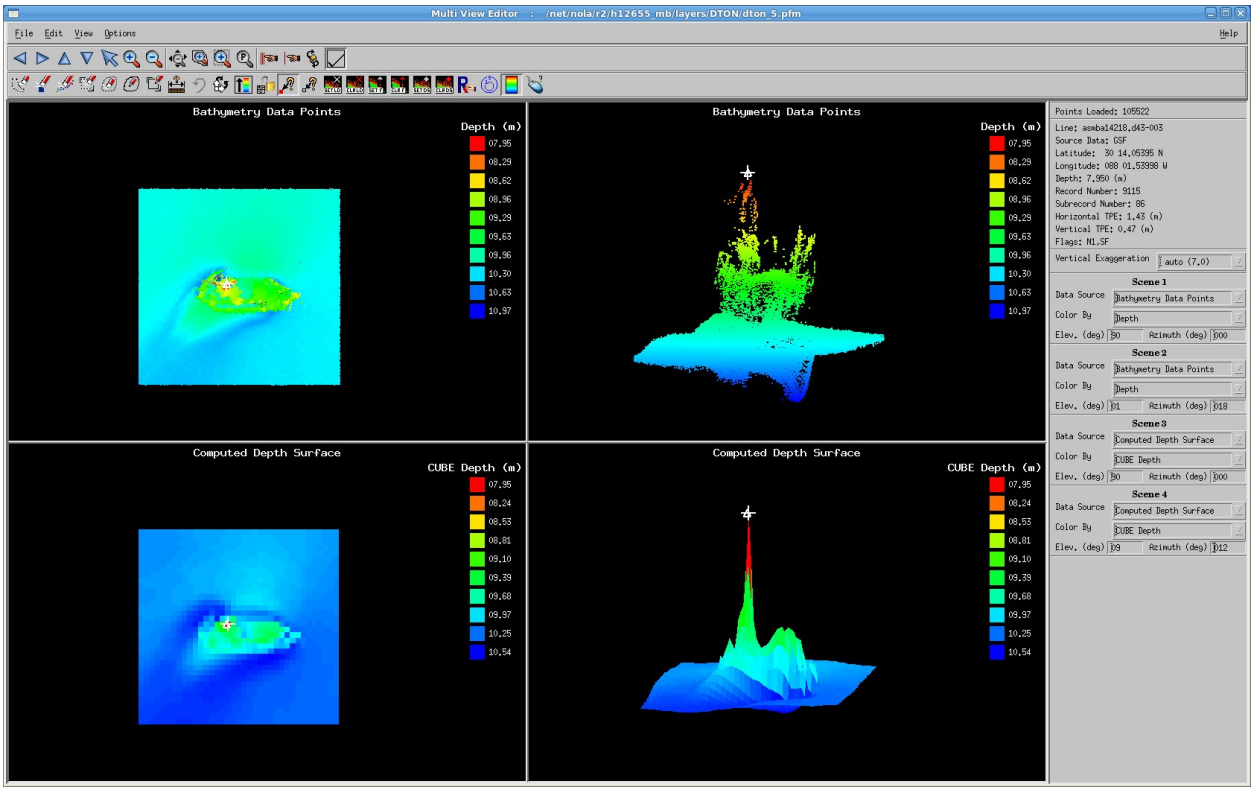

Figure 1.1.3

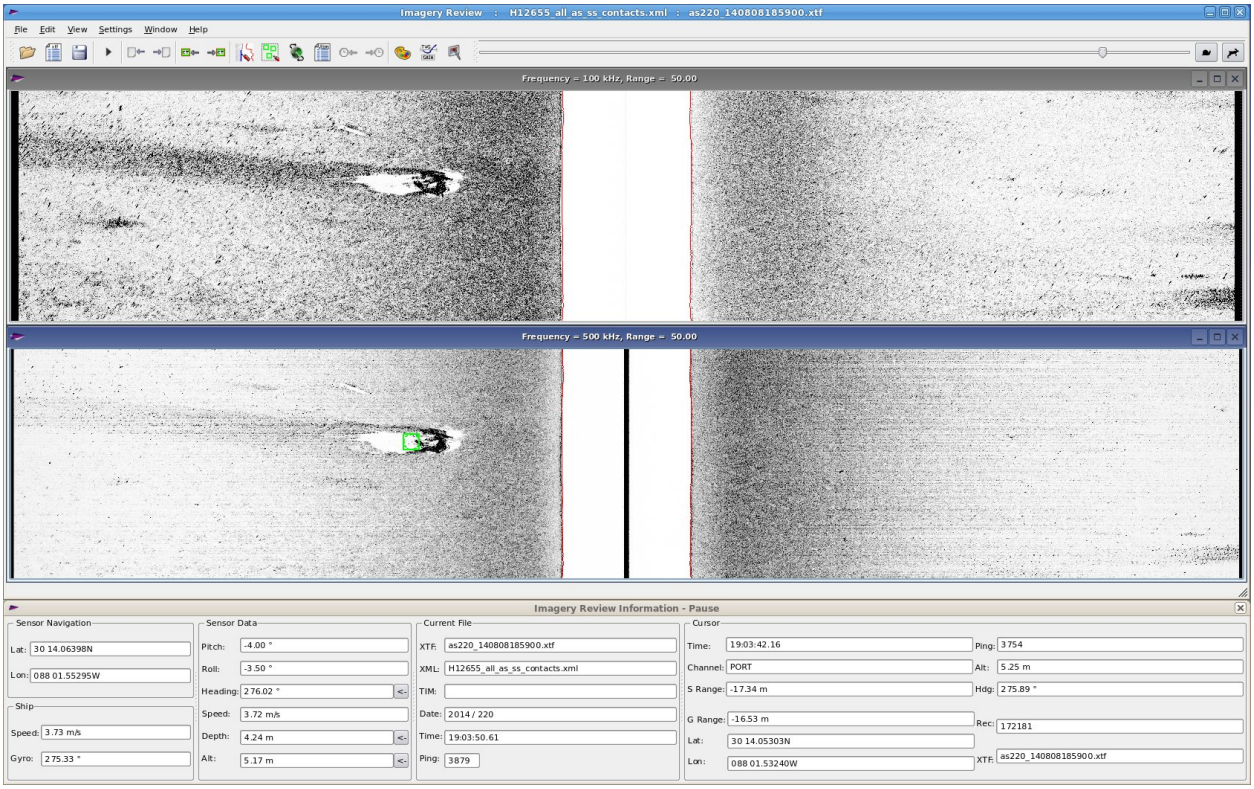

Figure 1.1.4

1.2) 22ft Obstruction

DANGER TO NAVIGATION

Survey Summary

Survey Position:	30° 14' 17.1" N, 088° 01' 26.3" W
Least Depth:	6.83 m (= 22.40 ft = 3.733 fm = 3 fm 4.40 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2014-221.20:24:08.000 (08/09/2014)
Dataset:	H12655 DtoN 4-5.000
FOID:	US 0003745800 00001(0226003928080001)
Charts Affected:	11377_1, 11378_6, 11378_7, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

OBSTRN/remrks: Rectangular object approximately 2.8 x 1.4 m located in a charted Anchorage for Explosives area (Chart 11377). The object is approximately 1.7 m high in depths of approximately 8.5 m. Feature is reduced to MLLW based on verified tides and positioned using NAD-83.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12655 DtoN 4-5.000	US 0003745800 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart sounding danger circle and label Obstn.

Cartographically-Rounded Depth (Affected Charts):

22ft (11377_1, 11378_6, 11378_7, 11376_1)

3 ¾fm (1115A_1, 11360_1, 11006_1, 411_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	INFORM - DTON4 MB File: asmba14221.d58; Ping: 11494; Beam: 170; Depth: 6.827m; Time: 20:24:07.595; H. Uncert.: 1.38m; V. Uncert.: 0.47m.
	QUASOU - 6:least depth known
	SORDAT - 20140809

SORIND - US,US,graph,H12655

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

VALSOU - 6.827 m

WATLEV - 3:always under water/submerged

Office Notes

This danger submission is preliminary. No data has been provided to AHB for verification. Feature will be reviewed and verified once the survey data has been submitted. All depths have been corrected to chart datum MLLW. The horizontal datum is NAD83.

Feature Images

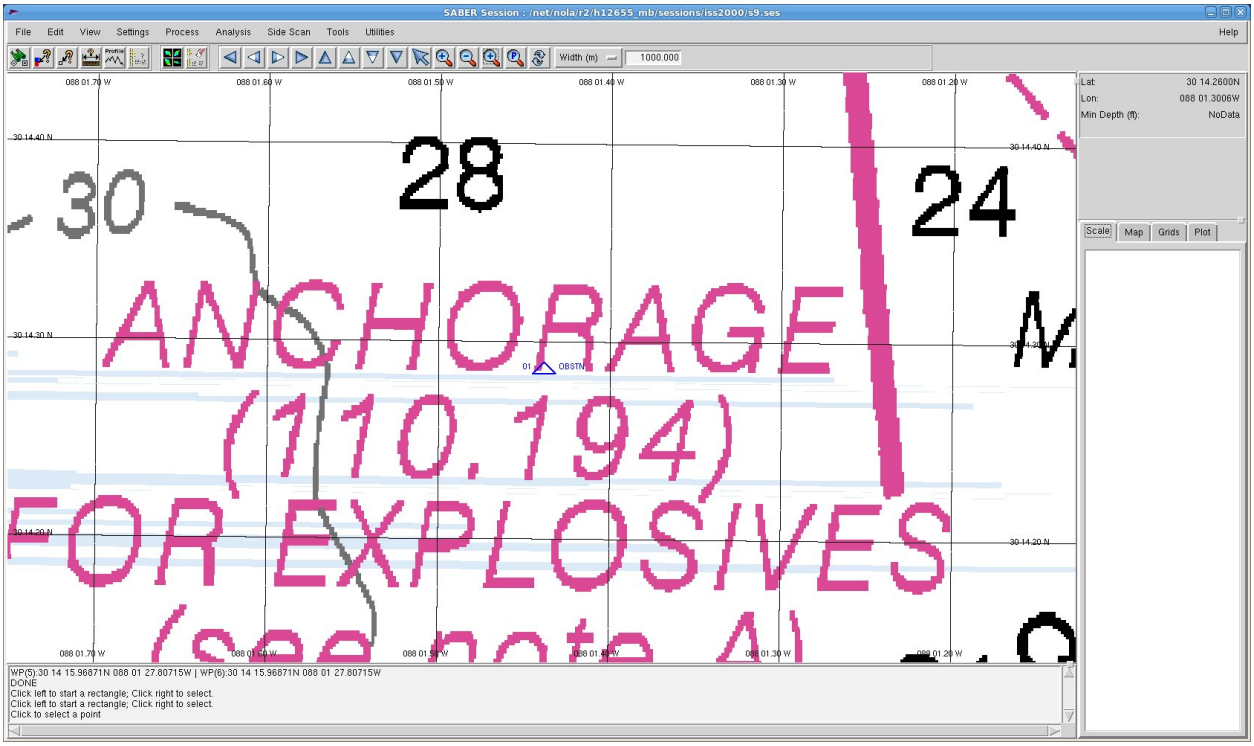

Figure 1.2.1

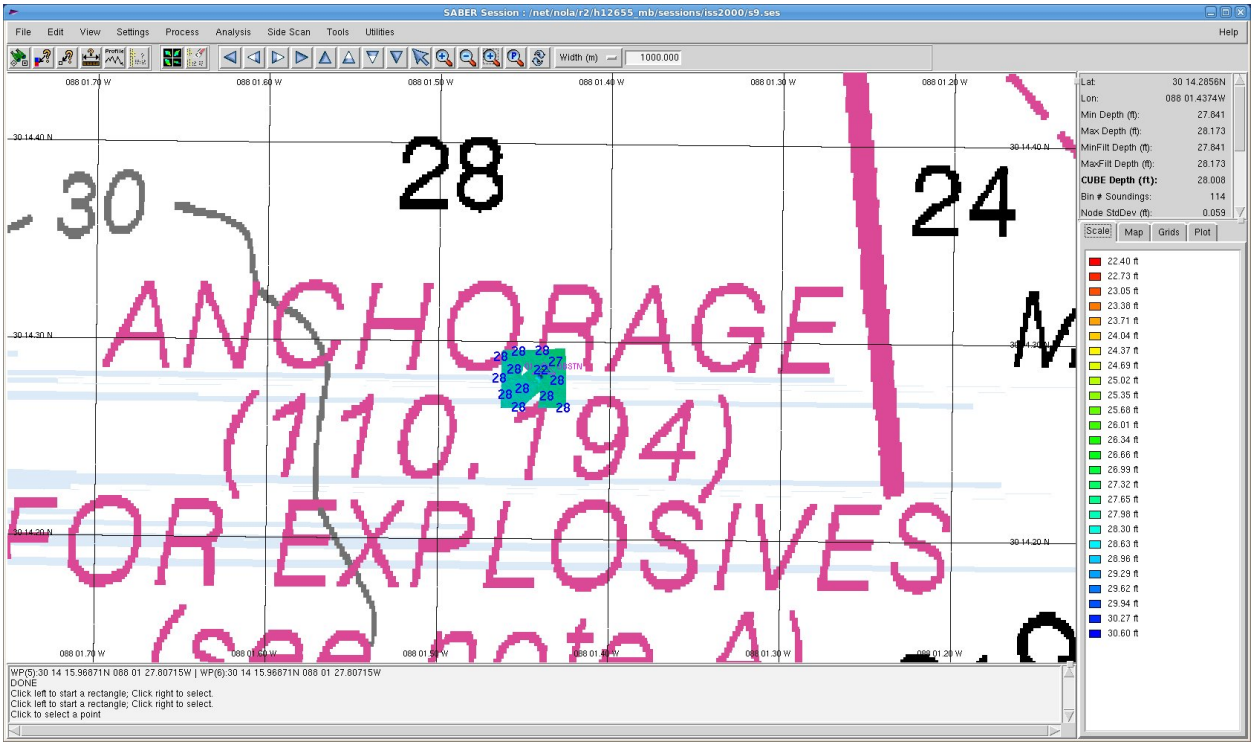

Figure 1.2.2

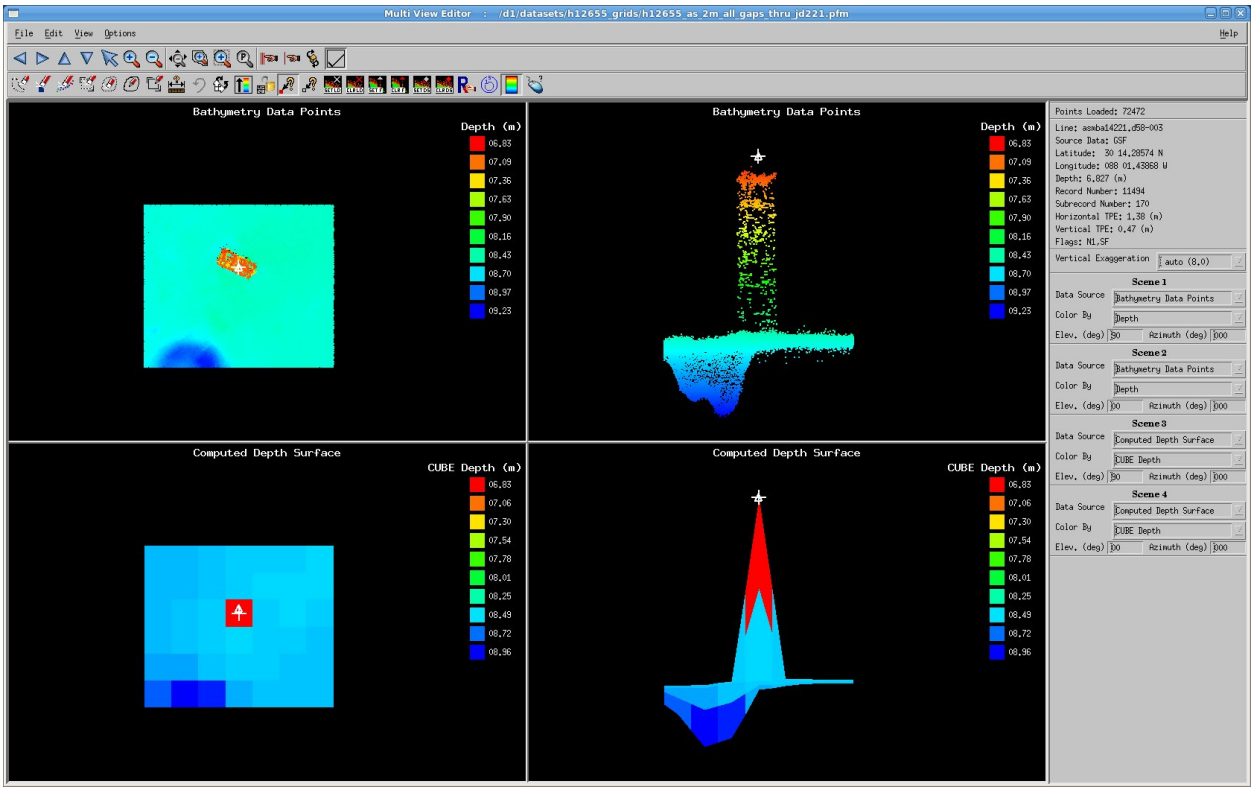

Figure 1.2.3

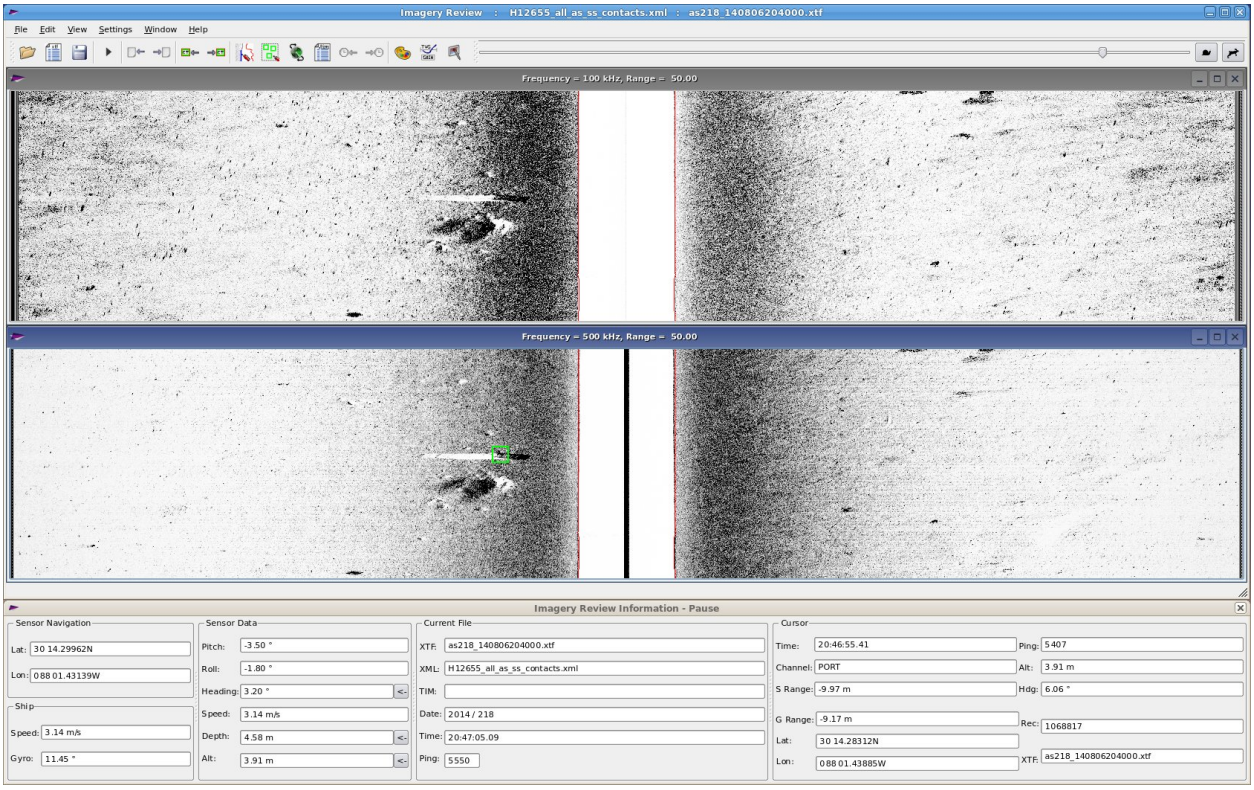

Figure 1.2.4

H12655 DtoN 6 and 7

Registry Number: H12655
State: Alabama
Locality: Approaches to Mobile Bay
Sub-locality: 2NM South of Fort Gaines
Project Number: OPR-J312-KR-14
Survey Date: 09/14/2014

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11378	35th	03/01/2008	1:40,000 (11378_6)	[L]NTM: ?
11377	10th	01/01/2013	1:40,000 (11377_1)	USCG LNM: 5/13/2014 (5/27/2014) NGA NTM: 7/31/2010 (6/7/2014)
11376	57th	01/01/2014	1:80,000 (11376_1)	USCG LNM: 5/27/2014 (5/27/2014) NGA NTM: 11/19/2005 (6/7/2014)
11360	43rd	11/01/2008	1:456,394 (11360_1)	[L]NTM: ?
1115A	43rd	11/01/2008	1:456,394 (1115A_1)	[L]NTM: ?
11006	32nd	08/01/2005	1:875,000 (11006_1)	[L]NTM: ?
411	52nd	09/01/2007	1:2,160,000 (411_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	21ft Obstruction	Obstruction	6.52 m	30° 15' 44.1" N	088° 02' 20.9" W	---
1.2	25ft Obstruction	Obstruction	7.79 m	30° 16' 17.2" N	088° 02' 07.1" W	---

1.1) 21ft Obstruction

DANGER TO NAVIGATION

Survey Summary

Survey Position:	30° 15' 44.1" N, 088° 02' 20.9" W
Least Depth:	6.52 m (= 21.40 ft = 3.567 fm = 3 fm 3.40 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2014-257.12:38:06.000 (09/14/2014)
Dataset:	H12655 DtoN 6-7.000
FOID:	US 0000000310 00001(0226000001360001)
Charts Affected:	11377_1, 11378_6, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

OBSTRN/remrks: Rectangular object approximately 1.4x1.2m with a rounded top located approximately 60m west of the Mobile Bay Channel. The object is approximately 1.0m high in depths of approximately 7.5m. Feature is reduced to MLLW based on verified tides and positioned using NAD-83.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12655 DtoN 6-7.000	US 0000000310 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart sounding danger circle and label Obstn.

Cartographically-Rounded Depth (Affected Charts):

21ft (11377_1, 11378_6, 11376_1)

3 ½fm (1115A_1, 11360_1, 11006_1, 411_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	INFORM - DTON7 MB File: asmba14257.d09; Ping: 2785; Beam: 164; Depth: 6.524m; Time: 12:38:06.02; H. Uncert.: 1.33m; V. Uncert.: 0.47m.
	QUASOU - 6:least depth known
	SORDAT - 20140914

SORIND - US,US,graph,H12655

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

VALSOU - 6.524 m

WATLEV - 3:always under water/submerged

Office Notes

This danger submission is preliminary. No data has been provided to AHB for verification. Feature will be reviewed and verified once the survey data has been submitted. All depths have been corrected to chart datum MLLW. The horizontal datum is NAD83.

Feature Images

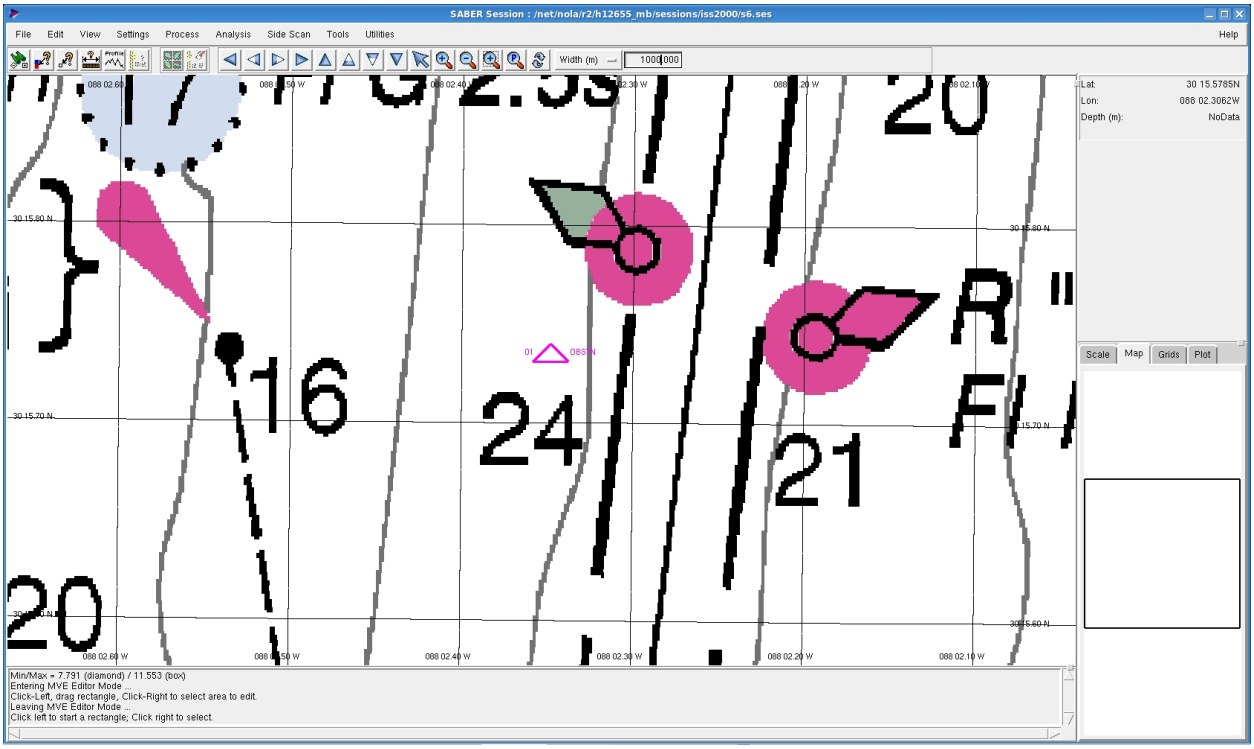

Figure 1.1.1

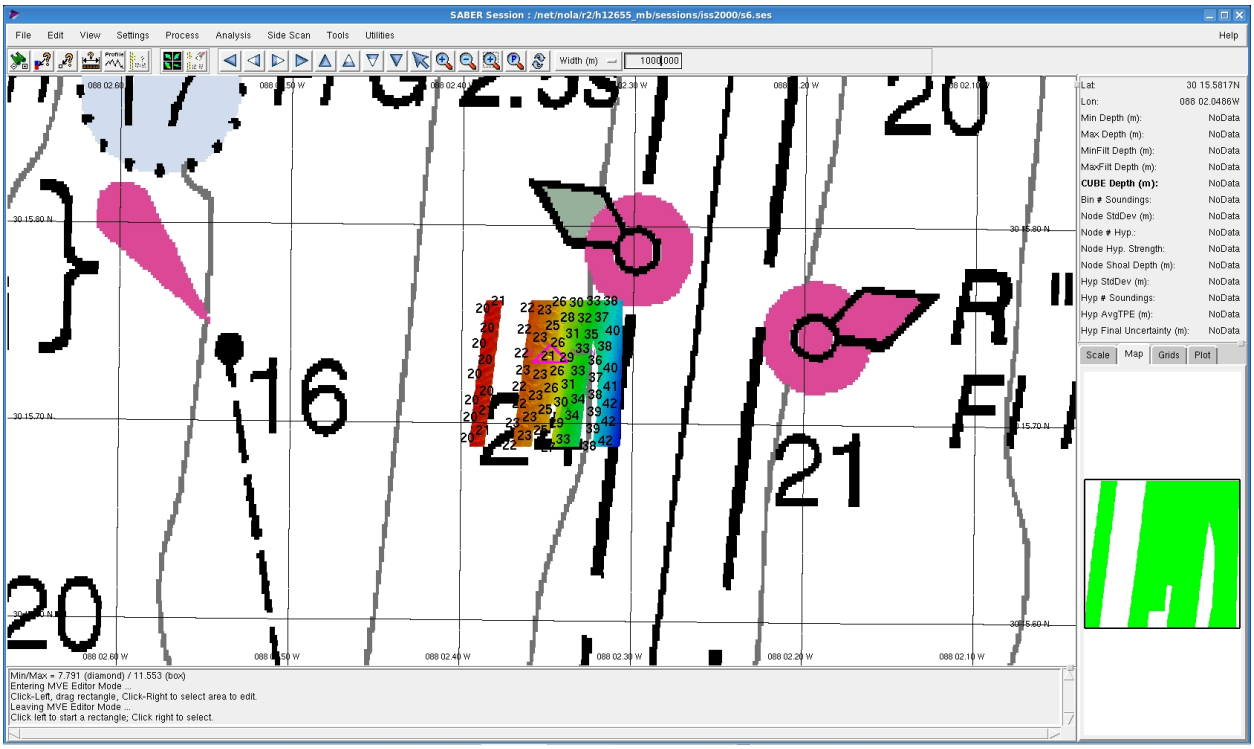

Figure 1.1.2

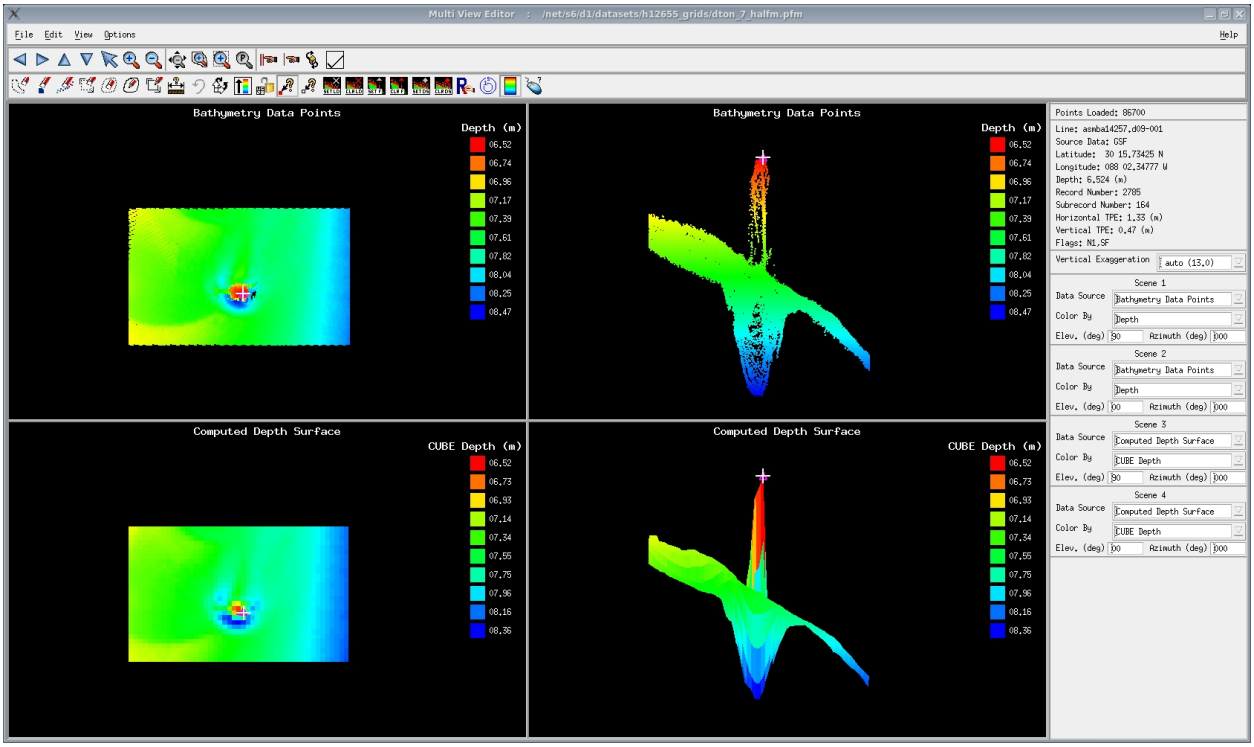

Figure 1.1.3

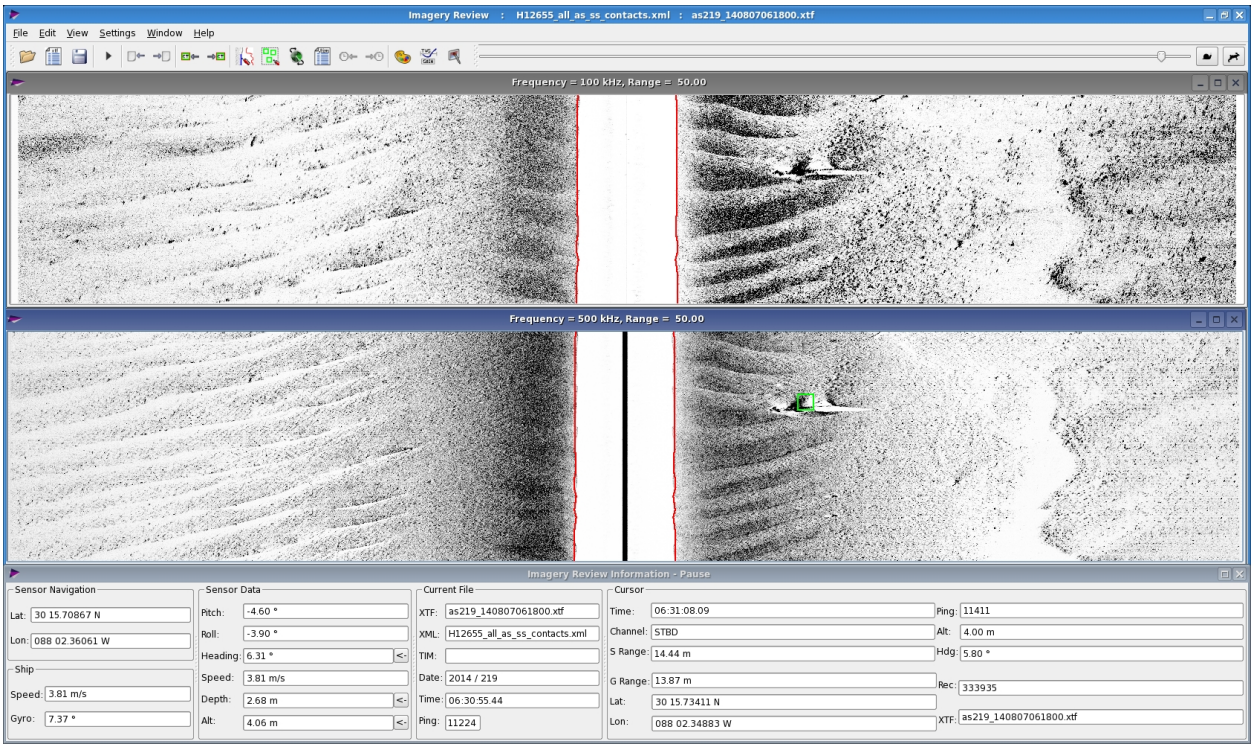

Figure 1.1.4

1.2) 25ft Obstruction

DANGER TO NAVIGATION

Survey Summary

Survey Position:	30° 16' 17.2" N, 088° 02' 07.1" W
Least Depth:	7.79 m (= 25.56 ft = 4.260 fm = 4 fm 1.56 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2014-257.12:52:21.000 (09/14/2014)
Dataset:	H12655 DtoN 6-7.000
FOID:	US 0000000309 00001(0226000001350001)
Charts Affected:	11377_1, 11378_6, 11376_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

OBSTRN/remrks: Multiple rectangular objects approximately 1.5x0.5x4.0m in an area approximately 100x25m approximately 45m east of the Mobile Bay Channel. The shoalest is nearly vertical in depths approximately 9. 9m. A second vertical object is located approximately 90m south in depths approximately 9.5m.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12655 DtoN 6-7.000	US 0000000309 00001	0.00	000.0	Primary

Hydrographer Recommendations

Chart sounding danger circle and label Obstns.

Cartographically-Rounded Depth (Affected Charts):

25ft (11377_1, 11378_6, 11376_1)

4 ¼fm (1115A_1, 11360_1, 11006_1, 411_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	INFORM - DTON6 MB File: asmba14247.d12; Ping: 1482; Beam: 425 Depth: 7.792m; Time: 12:52:20.93; H. Uncert.: 1.30m; V. Uncert.: 0.47m.
	QUASOU - 6:least depth known

SORDAT - 20140914

SORIND - US,US,graph,H12655

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

VALSOU - 7.791 m

WATLEV - 3:always under water/submerged

Office Notes

This danger submission is preliminary. No data has been provided to AHB for verification. Feature will be reviewed and verified once the survey data has been submitted. All depths have been corrected to chart datum MLLW. The horizontal datum is NAD83.

Feature Images

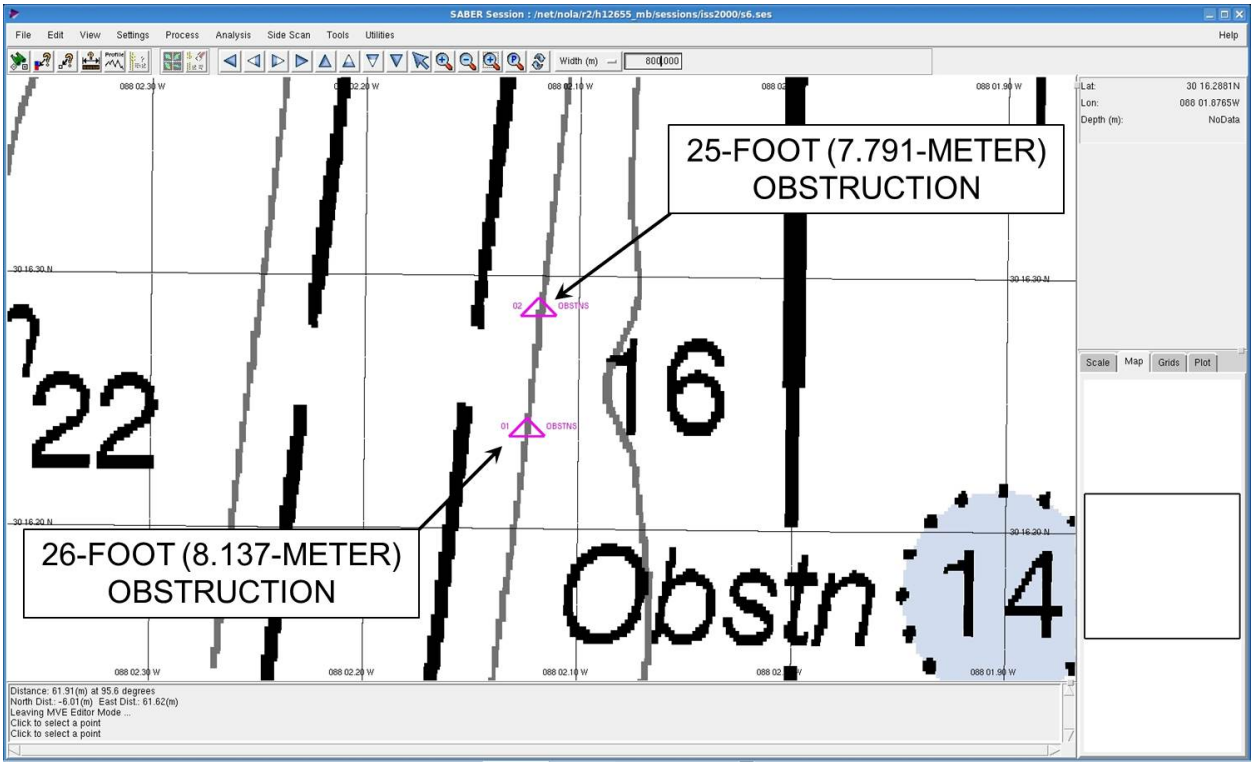

Figure 1.2.1

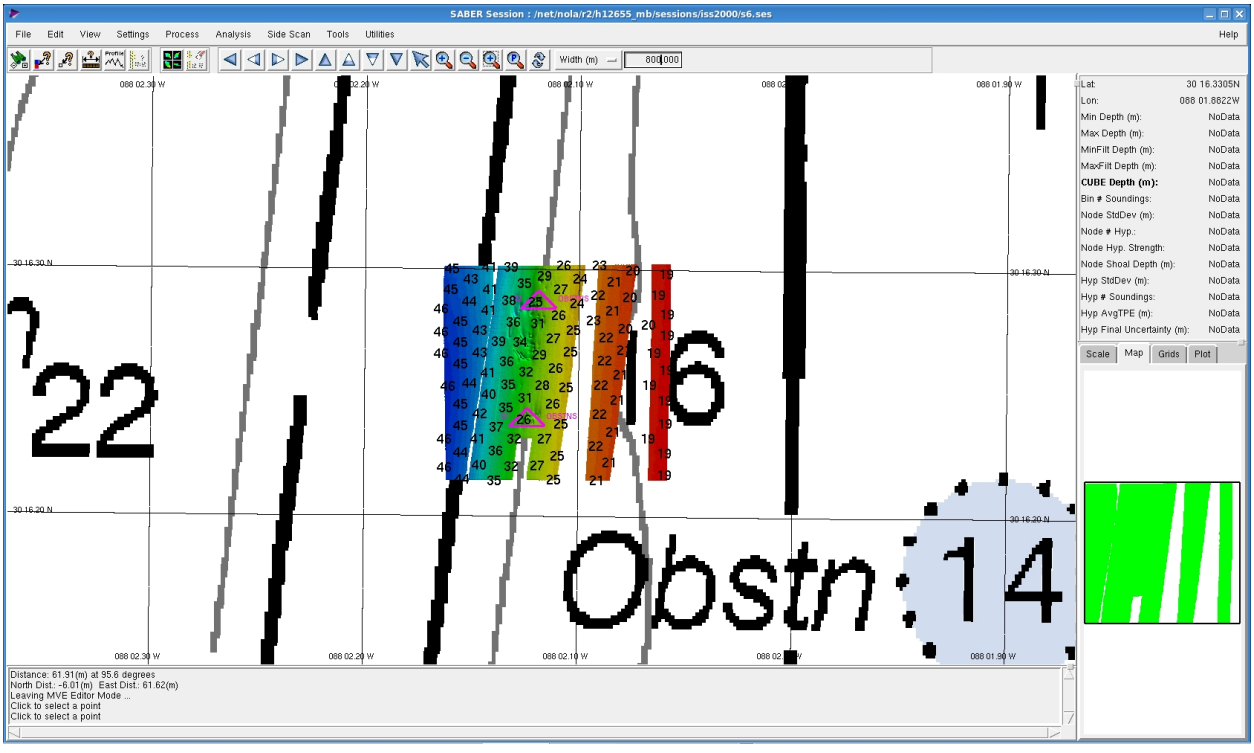

Figure 1.2.2

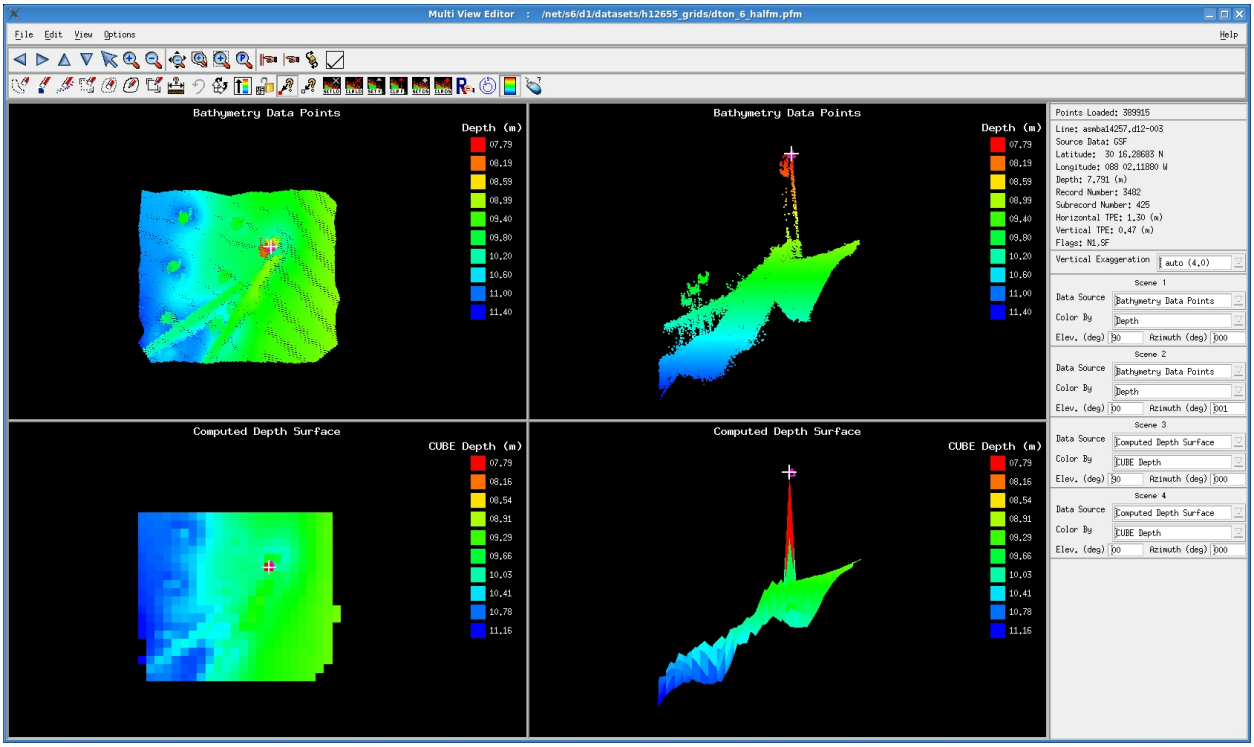

Figure 1.2.3

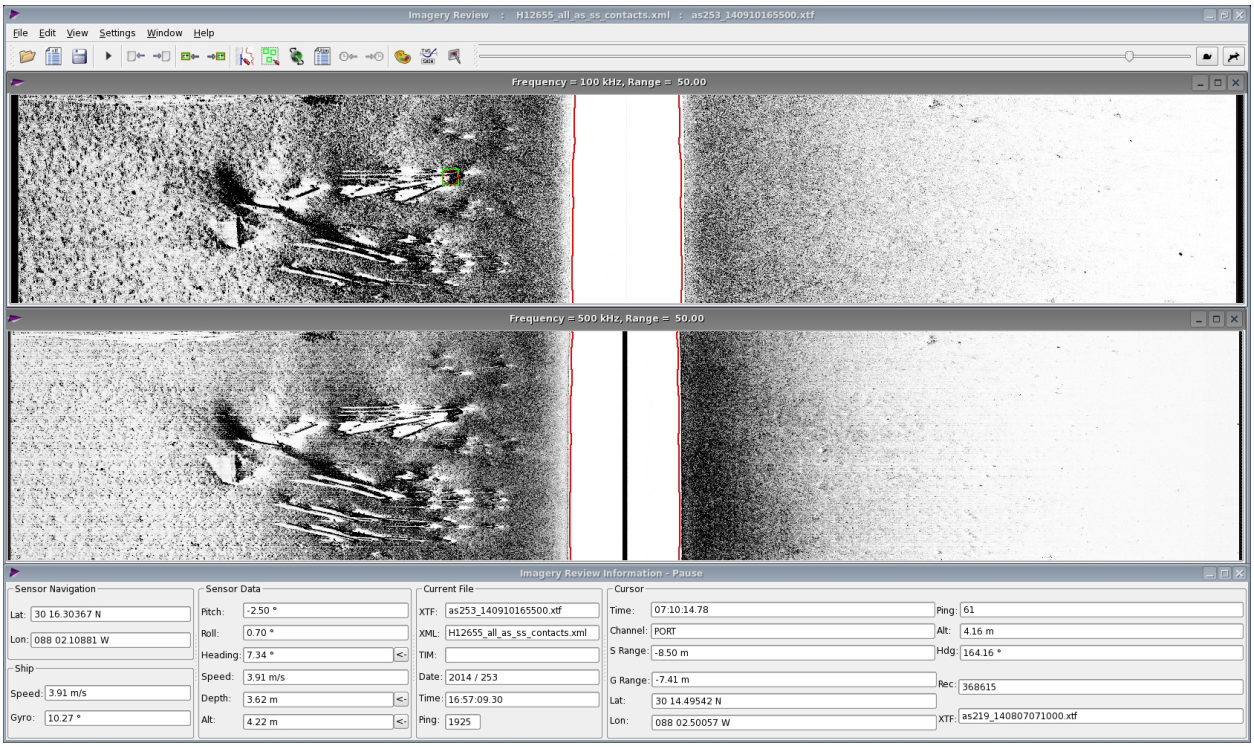

Figure 1.2.4

APPROVAL PAGE

H12655

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

- H12655_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12655_H12656_H12657_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 Jasmine Cousins
DN: cn=Jasmine Cousins, o=NOAA, ou=Atlantic Hydrographic Branch, email=jasmine.cousins@noaa.gov, c=US
Date: 2016.09.26 11:50:46 -04'00'

Approved:_____

Lieutenant Commander Brianna Welton, NOAA
Chief, Atlantic Hydrographic Branch