

H12654

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

**DESCRIPTIVE REPORT**

Type of Survey: Basic Hydrographic Survey

Registry Number: H12654

**LOCALITY**

State(s): Alabama

General Locality: Approaches to Mobile Bay

Sub-locality: North of Dauphin Island

**2014**

CHIEF OF PARTY  
Gary R. Davis

LIBRARY & ARCHIVES

Date:

**HYDROGRAPHIC TITLE SHEET**

**H12654**

**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: **North of Dauphin Island**

Scale: **20000**

Dates of Survey: **07/09/2014 to 10/12/2014**

Instructions Dated: **04/15/2014**

Project Number: **OPR-J312-KR-14**

Field Unit: **Leidos (formerly SAIC)**

Chief of Party: **Gary R. Davis**

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-0003.

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-004.

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 Geophysical Data Center (NGDC) and can be retrieved via <http://www.ngdc.noaa.gov/>.*

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## Descriptive Report to Accompany Survey H12654

Project: OPR-J312-KR-14

Locality: Approaches to Mobile Bay

Sublocality: North of Dauphin Island

Scale: 1:20000

July 2014 - October 2014

**Leidos (formerly SAIC)**

Chief of Party: Gary R. Davis

### A. Area Surveyed

The area surveyed was a section of Mobile Bay Approaches off Alabama (Figure 1). H12654 consisted of two separate survey areas. The main survey area north of Dauphin Island (referenced as H12654) and a 2 kilometer diameter circle around AWOIS 14571 (referenced as H12654A) which was approximately 24.5 kilometers southwest of the main survey area.

#### A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
30° 17' 31.64" N	30° 07' 20.59" N
88° 30' 48.93" W	88° 07' 23.20" W

*Table 1: Survey Limits*

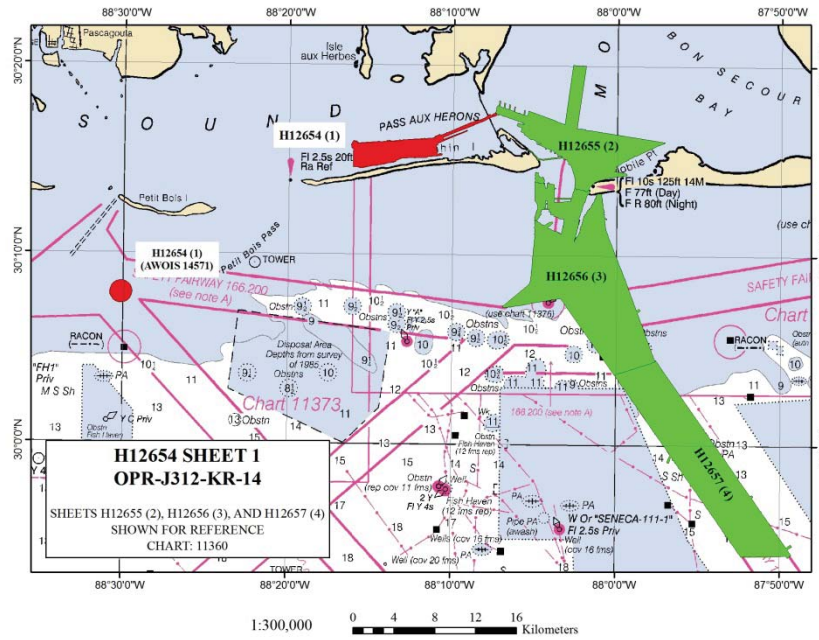


Figure 1: H12654 Survey Bounds

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.

H12654 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

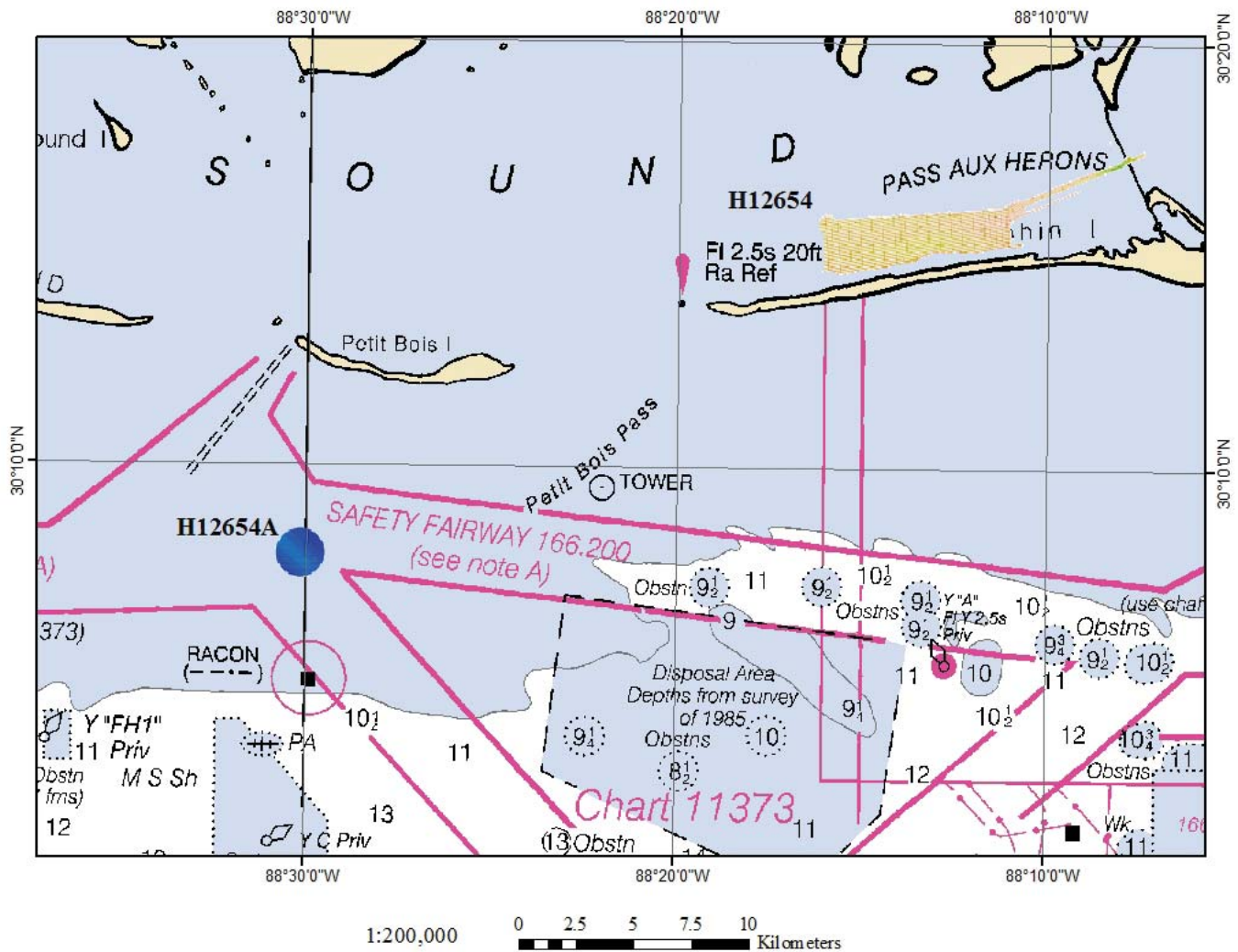


Figure 2: Final Bathymetry Coverage for H12654

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:

	<b>HULL ID</b>	<i>M/V Atlantic Surveyor</i>	<i>R/V Oyster Bay</i>	<i>Total</i>
<b>LNM</b>	<b>SBES Mainscheme</b>	0	0	0
	<b>MBES Mainscheme</b>	0	0	0
	<b>Lidar Mainscheme</b>	0	0	0
	<b>SSS Mainscheme</b>	0	0	0
	<b>SBES/MBES Combo Mainscheme</b>	0	0	0
	<b>SBES/SSS Combo Mainscheme</b>	0	0	0
	<b>MBES/SSS Combo Mainscheme</b>	46.93	271.71	318.64
	<b>SBES/MBES Combo Crosslines</b>	4.07	22.36	26.43
	<b>Lidar Crosslines</b>	0	0	0
<b>Number of Bottom Samples</b>				7
<b>Number AWOIS Items Investigated</b>				6
<b>Number Maritime Boundary Points Investigated</b>				0
<b>Number of DPs</b>				0
<b>Number of Items Items Investigated by Dive Ops</b>				0
<b>Total Number of SNM</b>				6.8

Table 2: Hydrographic Survey Statistics

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

<b>Survey Dates</b>	<b>Julian Day Number</b>
07/09/2014	190
07/10/2014	191
07/20/2014	201
07/21/2014	202
07/22/2014	203
07/23/2014	204
07/24/2014	205
07/25/2014	206
07/27/2014	208
08/19/2014	231
09/05/2014	248
09/09/2014	252
10/10/2014	283
10/12/2014	285

*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, concurrently delivered with this Descriptive Report. 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:

<b>Hull ID</b>	<i>M/V Atlantic Surveyor</i>	<i>R/V Oyster Bay</i>
<b>LOA</b>	110 feet	30 feet
<b>Draft</b>	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:

<b>Manufacturer</b>	<b>Model</b>	<b>Type</b>
RESON	Seabat 7125 SV	MBES
RESON	Seabat 8101 ER	MBES
L-3 Klein	3000	SSS
Applanix	POS/MV 320	Positioning and Attitude System
Trimble	Probeacon	Positioning and Attitude System
Brooke Ocean Technology	MVP-30	Sound Speed System
Seabird Electronics	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 8.3% of mainscheme acquisition.

There were 26.43 linear nautical miles of crosslines and 318.64 linear nautical miles of mainscheme lines surveyed on H12654. This resulted in crossline mileage approximately 8.3% 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. H12654 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 main scheme 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 ( $\pm 60^\circ$  from nadir) of mainscheme multibeam and the other included only the near nadir swath ( $\pm 5^\circ$  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 for the range of depths	Percent of Depth differences less than IHO Order 1A Maximum
M/V Atlantic Surveyor 7125 SV	0.523 – 0.553	100.00%
R/V Oyster Bay 8101 ER	0.500 – 0.513	100.00%

*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 of the H12654 survey area and contained final vertical uncertainties that ranged from 0.470 to 0.882 meters. The IHO Order 1a maximum allowable vertical uncertainty was calculated to range between 0.500 to 0.513 meters, based on the minimum CUBE depth (1.027 meters) and maximum CUBE depth (8.822 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 191 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.

The final two-meter PFM CUBE surface of the H12654A survey area contained final vertical uncertainties that ranged from 0.470 to 0.480 meters. The IHO Order 1a maximum allowable vertical uncertainty was calculated to range between 0.530 to 0.537 meters, based on the minimum CUBE depth (13.519 meters) and maximum CUBE depth (15.008 meters). The output from SABER Check PFM Uncertainty function showed that the final two-meter PFM CUBE surface contained no individual CUBE nodes with final vertical uncertainties that exceeded IHO Order 1a allowable vertical uncertainty.

The SABER Check PFM Uncertainty function was also run on each of the 22 half-meter Feature PFM Hypothesis Final Uncertainty surfaces. The results are listed in Figure 4. As expected, there were higher numbers of nodes that exceed uncertainty limits due to the smaller node resolution and the high variability of sounding depths around features.

The SABER Frequency Distribution Tool was also used to review the Hypothesis Final Uncertainty surface within the final two-meter grids and 22 half-meter resolution PFM grids. The results show that in the final two-meter PFM of the H12654 survey area 99.99% of all nodes had final uncertainties less than or equal to 0.500 meters. In the PFM of the H12654A survey area, 100.00% of all nodes had final uncertainties less than or equal to 0.500 meters. In the 22 individual Feature PFM grids, at least 99.65% 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 <= 0.5
1	1	0	100.0%
2	2, 70, 79	15	99.92%
3	3, 7, 74	0	100.0%
4	8, 13	0	100.0%
5	12, 35	1	100.0%
6	14, 75	16	99.94%
7	18, 20, 22, 36, 38, 78	33	99.86%
8	19, 47, 46, 48, 49, 50	23	99.96%
9	24, 44	6	99.93%
10	26, 30, 34, 62, 63	5	99.99%
11	28	0	100.0%
12	29, 32	20	99.85%
13	31	8	99.95%
14	33	0	100.0%
15	42, 69	0	100.0%
16	54	12	99.95%
17	55	56	99.65%
18	64	0	100.0%
19	65	0	100.0%
20	66, 67	14	99.97%
21	71, 72	5	99.99%
22	76	23	99.92%

*Figure 4: Number of Nodes Exceeding the Allowable IHO Order 1a Uncertainty in the Feature BAG Files 1 of 22 through 22 of 22*

### B.2.3 Junctions

H12654 does not junction with any completed contemporary surveys.

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H12655	1:20000	2014	Leidos	E

*Table 6: Junctioning Surveys*

## H12655

Analyses of the junction with sheet H12655 was not conducted as the processing efforts for this sheet were still ongoing.

### **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 times 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 39 sound speed profiles were applied to online data for H12654. All profiles that were applied for online bathymetry data collection were acquired within 1km 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. Twelve sound speed confidence checks were conducted during H12654 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 H12654, 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 (H12654/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 H12654 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 range scale. Mainscheme line spacing was 40 meters.

This combination of line spacing and range settings resulted in approximately 10 meters of side scan 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 grids containing all multibeam showed that there were no areas where three or more nodes sharing adjacent sides lacked data.

All grids were examined for the number of soundings contributing to the chosen CUBE hypotheses for each node by running SABER’s Frequency Distribution Tool on the Hypothesis Number of Soundings (Hyp # Soundings) surface of the PFM grid. The Hyp # Soundings surface reports the number of soundings that were used to compute the chosen hypothesis. Analysis of the H12654 final two-meter PFM grid revealed

that 99.49% of all nodes contained three or more soundings. Analysis of the final two-meter PFM grid of the H12654A area revealed that 99.85% of all nodes contained three or more soundings. Thus both two-meter PFMs satisfied the requirements for set line spacing surveys, as specified in Section 5.2.2.3 of the HSSD.

Analysis of the 22 half-meter PFM grids showed that all but one PFM grid had a minimum of 95% of all populated nodes contained five or more soundings to meet object detection coverage (HSSD Section 5.2.2.1). This half-meter PFM grid is detailed below.

H12654\_features\_area16\_50cm\_MLLW PFM, used to generate the delivered BAG 16 of 22, had 90.71% of the nodes contained five or more soundings. This PFM was built around two individual Features (11 and 54) and includes a large amount of non-overlapping outer beam multibeam data. Feature 54 is the shoalest and is recommended for charting. Each feature was covered with multibeam and analysis of the nodes in the multibeam coverage for Feature 54 results in a minimum of 98.89% of the nodes contained five or more soundings with no gaps over the top of either feature.

## **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 each 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
H12654_MB_2m_MLLW	BAG	2 meters	1.027 meters - 8.822 meters	N/A	MBES TracklineSBES Set Line Spacing
H12654A_MB_2m_MLLW	BAG	2 meters	13.519 meters - 15.008 meters	N/A	MBES TracklineSBES Set Line Spacing
H12654_MB_50cm_MLLW_1of22	BAG	50 centimeters	2.045 meters - 2.801 meters	N/A	Object Detection
H12654_MB_50cm_MLLW_2of22	BAG	50 centimeters	2.142 meters - 4.764 meters	N/A	Object Detection
H12654_MB_50cm_MLLW_3of22	BAG	50 centimeters	2.118 meters - 4.723 meters	N/A	Object Detection
H12654_MB_50cm_MLLW_4of22	BAG	50 centimeters	2.286 meters - 4.577 meters	N/A	Object Detection
H12654_MB_50cm_MLLW_5of22	BAG	50 centimeters	2.621 meters - 4.551 meters	N/A	Object Detection
H12654_MB_50cm_MLLW_6of22	BAG	50 meters	2.055 meters - 4.584 meters	N/A	Object Detection
H12654_MB_50cm_MLLW_7of22	BAG	50 centimeters	1.789 meters - 3.818 meters	N/A	Object Detection
H12654_MB_50cm_MLLW_8of22	BAG	50 centimeters	1.725 meters - 4.372 meters	N/A	Object Detection
H12654_MB_50cm_MLLW_9of22	BAG	50 centimeters	2.866 meters - 3.959 meters	N/A	Object Detection

<b>Surface Name</b>	<b>Surface Type</b>	<b>Resolution</b>	<b>Depth Range</b>	<b>Surface Parameter</b>	<b>Purpose</b>
H12654_MB_50cm_MLLW_10of22	BAG	50 centimeters	3.101 meters - 4.627 meters	N/A	Object Detection
H12654_MB_50cm_MLLW_11of22	BAG	50 centimeters	3.413 meters - 4.007 meters	N/A	Object Detection
H12654_MB_50cm_MLLW_12of22	BAG	50 centimeters	2.723 meters - 4.868 meters	N/A	Object Detection
H12654_MB_50cm_MLLW_13of22	BAG	50 centimeters	3.658 meters - 4.910 meters	N/A	Object Detection
H12654_MB_50cm_MLLW_14of22	BAG	50 centimeters	3.811 meters - 4.327 meters	N/A	Object Detection
H12654_MB_50cm_MLLW_15of22	BAG	50 centimeters	3.300 meters - 3.899 meters	N/A	Object Detection
H12654_MB_50cm_MLLW_16of22	BAG	50 centimeters	1.891 meters - 8.953 meters	N/A	Object Detection
H12654_MB_50cm_MLLW_17of22	BAG	50 centimeters	2.696 meters - 6.427 meters	N/A	Object Detection
H12654_MB_50cm_MLLW_18of22	BAG	50 centimeters	3.459 meters - 4.065 meters	N/A	Object Detection
H12654_MB_50cm_MLLW_19of22	BAG	50 centimeters	3.592 meters - 4.359 meters	N/A	Object Detection
H12654_MB_50cm_MLLW_20of22	BAG	50 centimeters	2.958 meters - 4.865 meters	N/A	Object Detection
H12654_MB_50cm_MLLW_21of22	BAG	50 centimeters	3.666 meters - 5.903 meters	N/A	Object Detection
H12654_MB_50cm_MLLW_22of22	BAG	50 centimeters	2.814 meters - 4.597 meters	N/A	Object Detection

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H12654_ss_1_100_mosaic	SSS Mosaic	1 meters	-	N/A	100% SSS
H12654_ss_2_100_mosaic	SSS Mosaic	1 meters	-	N/A	200% SSS
H12654A_ss_1_100_mosaic	SSS Mosaic	1 meters	-	N/A	100% SSS
H12654A_ss_2_100_mosaic	SSS Mosaic	1 meters	-	N/A	200% SSS

*Table 7: Submitted Surfaces*

For H12654, the CUBE Depth surface from two PFM grids were 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 H12654 was from 1.027 meters (3 feet, 0.470-meter uncertainty) to 15.008 meters (49 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 dual coverage requirements of the project, Leidos requested and was granted permission to deliver all final grids at the higher two-meter node resolution. Therefore, the final CUBE surface for H12654 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. Forty-eight significant features were identified in H12654 and 22 half-meter resolution CUBE PFM grids were generated to cover these forty-eight features. Data within the half-meter resolution CUBE PFM grids also remain in the two-meter CUBE PFM grids.

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 of the two survey areas 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. All 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).

· H12654\_ss\_1\_100\_mosaic

- H12654\_ss\_2\_100\_mosaic
- H12654A\_ss\_1\_100\_mosaic
- H12654A\_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 H12654. 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 H12654 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 H12654, 8735180 Dauphin Island, AL, or 8741533 Pascagoula NOAA Lab, MS, were the source of all final verified water level heights for determining correctors to soundings. All data for H12654 were contained within five tide zones (CGM46, CGM47, CGM122, GB2, and GB3) 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 H12654 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:

<b>DGPS Stations</b>
English Turn, LA (293 kHz)
Eglin (AFB), FL (295 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 H12654 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 52/14 (31 December 2014).

H12594 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	LNМ Date	NM Date
11373	1:80000	51	01/2014	12/23/2014	01/03/2015
11374	1:40000	37	10/2013	12/23/2014	12/27/2014
11377	1:40000	10	01/2013	12/23/2014	01/03/2015
11378	1:40000	38	04/2013	12/16/2014	01/03/2015

*Table 12: Largest Scale Raster Charts*

#### 11373

Chart 11373 covers the entire H12654A survey area and the H12654 survey area west of 088° 15' 00.00"W.

CUBE depths within sheet H12654 were generally within  $\pm 2$  feet of the charted depths.

The charted 12-foot depth curve throughout H12654 was generally found to be in agreement with the survey data.

The Intracoastal Waterway project depth is 12 feet from Carrabelle, Florida to New Orleans, LA. No depths less than 12 feet were found in the surveyed section of the Intracoastal Waterway.

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

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

#### 11374

Chart 11374 covers the H12654 survey area west of 088° 10' 40.00"W.

CUBE depths within sheet H12654 were generally within  $\pm 2$  feet of the charted depths.

The charted 12-foot depth curve throughout H12654 was generally found to be in agreement with the survey data.

The charted submerged dangerous obstruction labeled "Obstn (7 ft)" in approximately 30° 15' 46.87"N 088° 14' 49.28"W was not found.

The charted platform in approximately 30° 15' 37.77"N 088° 14' 52.10"W was not found.

The charted submerged dangerous wreck with a least depth of 12 feet in approximately 30° 14' 56.24"N 088° 13' 53.02"W was found (Feature 63) in 30° 14' 56.65"N 088° 13' 53.37"W with a least depth of 12 feet (3.757 meters, 0.470 meter uncertainty).

The charted submerged dangerous obstruction with least depth of 8 feet in approximately 30° 15' 12.27"N 088° 12' 33.76"W was from DTON 2.

The charted submerged dangerous obstruction with least depth of 8 feet in approximately 30° 15' 17.91"N 088° 12' 59.29"W was from DTON 3.

The Intracoastal Waterway project depth is 12 feet from Carrabelle, Florida to New Orleans, LA. No depths less than 12 feet were found in the surveyed section of the Intracoastal Waterway.

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

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

### 11377

Chart 11377 covers the H12654 survey area east of 088° 10' 00.00"W.

CUBE depths within sheet H12654 were generally within  $\pm 2$  feet of the charted depths.

The charted submerged dangerous obstruction with least depth of 13 feet in approximately 30° 17' 19.00"N 088° 07' 55.03"W was found (Feature 55) with a least depth of 13 feet (3.901 meters, 0.470 meter uncertainty) in 30° 17' 18.89"N 088° 07' 55.59"W.

The Intracoastal Waterway project depth is 12 feet from Carrabelle, Florida to New Orleans, LA. No depths less than 12 feet were found in the surveyed section of the Intracoastal Waterway.

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

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

### 11378

Chart 11378 covers the H12654 survey area east of 088° 12' 57.00"W.

CUBE depths within sheet H12654 were generally within  $\pm 2$  feet of the charted depths.

The charted 12-foot depth curve throughout H12654 was generally found to be in agreement with the survey data.

The charted submerged dangerous obstruction with least depth of 8 feet in approximately 30° 15' 12.35"N 088° 12' 33.78"W was from DTON 3.

The charted submerged dangerous obstruction with least depth of 13 feet in approximately 30° 17' 19.00"N 088° 07' 55.03"W was found (Feature 55) with a least depth of 13 feet (3.901 meters, 0.470 meter uncertainty) in 30° 17' 18.89"N 088° 07' 55.59"W.

The Intracoastal Waterway project depth is 12 feet from Carrabelle, Florida to New Orleans, LA. No depths less than 12 feet were found in the surveyed section of the Intracoastal Waterway.

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

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

### D.1.2 Electronic Navigational Charts

The following are the largest scale ENC's, which cover the survey area:

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US4MS12M	1:80000	21	11/09/2012	04/22/2014	NO
US5MS21M	1:40000	29	08/12/2014	11/17/2014	NO
US5AL13M	1:40000	36	12/16/2014	01/12/2015	NO
US5AL12M	1:40000	23	08/08/2014	08/29/2014	NO

*Table 13: Largest Scale ENC's*

#### US4MS12M

Chart US4MS12M covers the entire H12654A survey area and the H12654 survey area west of 088° 15' 36.52"W.

CUBE depths within sheet H12654 were generally within  $\pm 0.4$  meters of the charted depths.

The charted 3.6-meter depth curve throughout H12654 was generally found to be in agreement with the survey data.

The Gulf Coast Intracoastal Waterway project depth is 3.6 meters. No CUBE depths less than 3.6 meters were found in the surveyed section of the Intracoastal Waterway.

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

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

#### US5MS21M

Chart US5MS21M covers the H12654 survey area west of 088° 12' 57.50"W.

CUBE depths within sheet H12654 were generally within  $\pm 0.4$  meters of the charted depths.

The charted 3.6-meters depth curve throughout H12654 was generally found to be in agreement with the survey data.

The charted submerged dangerous obstruction with a least depth of 2.1 meters in 30° 15' 46.93"N 088° 14' 49.40"W was not found.

The charted platform in 30° 15' 37.89"N 088° 14' 52.32"W was not found.

The charted submerged dangerous wreck with a least depth of 3.6 meters in 30° 14' 56.30"N 088° 13' 53.12"W was found (Feature 63) in 30° 14' 56.65"N 088° 13' 53.37"W with a least depth of 3.757 meters (12 feet, 0.470 meter uncertainty).

The charted submerged dangerous obstruction with least depth of 3.4 meters in 30° 15' 18.00"N 088° 12' 59.30"W was from DTON 3.

The Intracoastal Waterway project depth is 3.6 meters. No CUBE depths less than 3.6 meters were found in the surveyed section of the Intracoastal Waterway.

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

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

#### US5AL13M

Chart US5AL13M covers the H12654 survey area east of 088° 10' 00.00"W.

CUBE depths within sheet H12654 were generally within  $\pm 0.4$  meters of the charted depths.

The charted submerged dangerous obstruction with least depth of 3.9 meters in 30° 17' 18.90"N 088° 07' 55.70"W was found (Feature 55) with a least depth of 3.901 meters (13 feet, 0.470 meter uncertainty) in 30° 17' 18.89"N 088° 07' 55.59"W.

The Intracoastal Waterway Pass Aux Herons Channel controlling depth is 3.6 meters. No depths less than 3.6 meters were found in the surveyed section of the Intracoastal Waterway Pass Aux Herons Channel.

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

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

### US5AL12M

Chart US5AL12M covers the H12654 survey area from 088° 10' 00.00"N to 088° 12' 57.50"W.

CUBE depths within sheet H12654 were generally within ±0.4 meters of the charted depths.

The charted submerged dangerous obstruction with least depth of 2.4 meters in 30° 15' 12.40"N 088° 12' 33.80"W was from DTON 2.

The Intracoastal Waterway Pass Aux Heron Channel depth is 3.6 meters. No depths less than 3.6 meters were found in the surveyed section of the Intracoastal Waterway.

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

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

### **D.1.3 AWOIS Items**

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

There were seven full investigation AWOIS features assigned to H12654.

AWOIS 3437 was not found. The 300-meter search radius was investigated with 200% side scan and resulting multibeam coverage. No wrecks inside the search area were found. An obstruction (Feature 77) with a least depth of 2.949 meters (0.470 meter uncertainty) was found in 30° 15' 40.18"N 088° 16' 00.88"W, approximately 180 meters south of the charted wreck.

AWOIS 3441 was found. The 50-meter search radius was investigated with 200% side scan and resulting multibeam coverage. Submerged piles, Feature 75, with a least depth of 6 feet (2.055 meters, 0.470-meter uncertainty) was found in 30° 16' 01.85"N 088° 12' 34.64"W, approximately 115 meters 065° from the charted position.

AWOIS 12352 was found. Approximately the southern two-thirds of the 100-meter search radius was investigated with 200% side scan and resulting multibeam coverage. A submerged wreck, Feature 12, with a least depth of 12 feet (3.783 meters, 0.470-meter uncertainty) was found in 30° 16' 55.93"N 088° 08' 57.39"W, approximately 85 meters 190° from the charted position

AWOIS 12353 was not investigated, as it was in depths that were too shallow for safe survey operations.

AWOIS 12356 was not found. The 300-meter search radius was investigated with 200% side scan and resulting multibeam coverage. No features inside the search area were found. USCG Green Can Buoy 27 (Light List Number 34205) was found at the center of the search area.

AWOIS 12358 was not found. The 300-meter search radius was investigated with 200% side scan and resulting multibeam coverage. Three features (66, 67, and 68) were located inside the search radius. The shoalest was Feature 67 with a least depth of 9 feet (2.958 meters, 0.470 meter uncertainty) in 30° 15' 42.24"N 088° 15' 36.42"W.

AWOIS 14571 was not found. The 400-meter radius was investigated with 200% side scan and resulting multibeam. 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
H12654_dton1.000	2014-08-01
H12654_dton2.000	2014-08-01
H12654_dton3.000	2014-08-01

*Table 14: DTON Reports*

Leidos submitted three Danger to Navigation Reports (DTON) in S-57 format. Danger to Navigation Report 1 was not submitted by the Atlantic Hydrographic Branch (AHB) to the Nautical Data Branch (NDB)/Marine Chart Division (MCD). Copies of the AHB verification email and AHB reports, in PDF format, submitted (Danger to Navigation Reports 2 and 3) 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 8000 x 300 meter rectangular spoil area approximately 200 meters south of and parallel to the Intracoastal Waterway from approximately 30° 15' 50.35"N 088° 11' 00.40"W to 30° 15' 26.80"N 088° 15' 58.20"W was covered with 200% side scan and resulting multibeam. CUBE depths in the spoil area ranged from 2.524 to 4.261 meters.

### D.1.9 Channels

H12654 covered the Intracoastal Waterway from approximately 30° 17' 28.75"N 088° 07' 23.76"W to approximately 30° 15' 42.36"N 088° 16' 11.23"W. The Intracoastal Waterway project depth is 12 feet from Carrabelle, Florida to New Orleans, LA. No depths less than 12 feet were found in the surveyed section of the Intracoastal Waterway. CUBE depths in the Intracoastal Waterway were generally between 12 and 14 feet (3.6 to 4.5 meters). CUBE depths up to 25 feet (7.8 meters) were found west of the Dauphin Island Parkway bridge from approximately 30° 17' 20.93"N 088° 07' 43.75"W to approximately 30° 16' 59.98"N 088° 08' 35.51"W.

### D.1.10 Bottom Samples

In accordance with both the Project Instructions and Section 7.1 of the HSSD, bottom characteristics were obtained for H12654. Bottom characteristics were acquired at seven of the ten locations proposed in the Project Reference File (PRF) by NOAA. Three proposed bottom sample locations were in depths that were too shallow for safe survey operations.

- 30° 16' 12.76"N 088° 07' 30.32"W
- 30° 17' 01.85"N 088° 08' 54.40"W

· 30° 15' 51.14"N 088° 08' 41.00"W

Leidos did not modify any bottom sample locations from those provided by NOAA. Bottom characteristics collected during H12654 are included in the H12654 S-57 Final Feature File, H12654\_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**

No prior survey comparisons exist for this survey.

### **D.2.3 Aids to Navigation**

Thirty-six (36) Aids to Navigation (ATONs) exist for this survey. Thirty-three were USCG maintained Aids to Navigation, and are not included in the S-57 Final Feature File as called for in the HSSD. Three were privately maintained and mark the northern extents of a charted fish haven. The three privately maintained ATONS are included in the S-57 Final Feature File, as Beacon, Special Purpose (BCNSPP).

The individual Feature Correlator Sheets for all ATONs are presented as JPEG files in the Multimedia folder and are named by the feature number. Individual Feature Correlator Sheets for USCG maintained ATONs are presented as JPEG files in the Multimedia folder (Features 85 - 117).

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, except where noted below.

On 21 July 2014 (JD 202) survey operations noted that Pass Aux Herons Daybeacon 38 (LLNR 34285) (Feature 101) was on station serving its intended purpose. Subsequent survey operations on 10 October 2014 (JD 283, the last day of survey operations in this area) noted that the Daybeacon was no longer present, Leidos observed submerged piles (Feature 76) near the position of the Daybeacon. USCG District 8 Local Notice to Mariners for Week 41/14, 15 October 2014, reported that the Daybeacon was destroyed and temporarily replaced with an unlit buoy. USCG District 8 Local Notice to Mariners for Week 42/14, 22 October 2014, reported that the Daybeacon was rebuilt.



#### **D.2.4 Overhead Features**

The fixed bridge and overhead power cables over the Intracoastal Waterway in approximately 30° 17' 21.05"N 088° 07' 43.29"W are adequately charted. Charted clearance for both the bridge and overhead cables is 93 feet (28.3 meters). Actual clearance was not surveyed.

#### **D.2.5 Submarine Features**

Side scan contacts were made on what may be trenches from repair work on sections of a charted pipeline. One trench, approximately 200 meters in length, is located north of platform North Dauphin Island Tract 73 (Features 80). A second trench approximately 145 meters long starts southwest of the platform and junctions with the first trench at side scan contact OB 2014/205 17:49:29.39 (0), approximately 75 meters north of the platform. These trenches are delivered in the S-57 Final Feature File as Pipeline, (PIPSOL) objects; Features 120 and 121.

#### **D.2.6 Ferry Routes and Terminals**

No ferry routes or terminals exist for this survey.

#### **D.2.7 Platforms**

Two platforms exist for this survey. North Dauphin Island Tract 73, Feature 80, in approximately 30° 15' 29.23"N 088° 13' 35.84"W. DIGP AST-73, Feature 81, in approximately 30° 15' 13.94"N 088° 13' 33.33"W. These platforms are delivered in the S-57 Final Feature File, Offshore Platform (OFSPLF) objects.

#### **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.

#### **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).

Eight designated soundings were set for H12654 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 H12654 delivery is the S-57 Final Feature File, H12654\_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 H12654 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 H12654 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 H12654 delivery is the Side Scan Sonar Contact S-57 File, H12654\_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”.

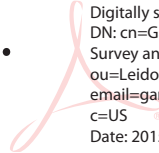
## E. Approval Sheet

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

Approver Name	Approver Title	Approval Date	Signature
Gary R. Davis	Chief Hydrographer	01/16/2015	 <p>Digitally signed by Gary R. Davis            DN: cn=Gary R. Davis, o=Marine            Survey and Engineering Solutions,            ou=Leidos,            email=gary.r.davis@leidos.com,            c=US            Date: 2015.01.14 11:12:44 -05'00'</p>

## F. Table of Acronyms

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

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

<b>Acronym</b>	<b>Definition</b>
<b>PRF</b>	Project Reference File
<b>PS</b>	Physical Scientist
<b>PST</b>	Physical Science Technician
<b>RNC</b>	Raster Navigational Chart
<b>RTK</b>	Real Time Kinematic
<b>SBES</b>	Singlebeam Echosounder
<b>SBET</b>	Smooth Best Estimate and Trajectory
<b>SNM</b>	Square Nautical Miles
<b>SSS</b>	Side Scan Sonar
<b>ST</b>	Survey Technician
<b>SVP</b>	Sound Velocity Profiler
<b>TCARI</b>	Tidal Constituent And Residual Interpolation
<b>TPU</b>	Total Propagated Error
<b>TPU</b>	Topside Processing Unit
<b>USACE</b>	United States Army Corps of Engineers
<b>USCG</b>	United States Coast Guard
<b>UTM</b>	Universal Transverse Mercator
<b>XO</b>	Executive Officer
<b>ZDA</b>	Global Positioning System timing message
<b>ZDF</b>	Zone Definition File

APPENDIX I  
TIDES AND WATER LEVELS

## APPENDIX I. TIDES AND WATER LEVELS

### Field Tide Note

A field tide note was not required for H12654.

### 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 H12654 Descriptive Report Section C.1 for details regarding final tides for H12654. The water level zoning correctors, based entirely on Pascagoula, MS (8741533) and Dauphin Island, AL (8735180), were applied to all multibeam data for H12654.

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, H12654 (Table A-1).

### Abstract Times of Hydrography

**Project:** OPR-J312-KR-14

**Registry No.:** H12654

**Contractor Name:** Leidos

**Date:** 16 January 2015

**Sheet Designation:** 1

**Inclusive Dates:** 09 July 2014 – 12 October 2014

Field work is complete.

Begin Date	Begin Julian Day	Begin Time	End Date	End Julian Day	End Time
07/09/2014	190	20:40:53	07/10/2014	191	09:17:01
07/20/2014	201	12:54:02	07/20/2014	201	20:10:16
07/21/2014	202	12:12:19	07/21/2014	202	21:19:47
07/22/2014	203	12:46:51	07/22/2014	203	21:27:49
07/23/2014	204	12:14:22	07/23/2014	204	21:34:42
07/24/2014	205	12:26:19	07/24/2014	205	21:21:04
07/25/2014	206	12:10:12	07/25/2014	206	20:55:06
07/27/2014	208	13:05:57	07/27/2014	208	20:06:17
08/19/2014	231	17:12:48	08/19/2014	231	21:13:16
09/05/2014	248	12:20:07	09/05/2014	248	17:20:20
09/09/2014	252	17:30:49	09/09/2014	252	17:49:59
10/10/2014	283	14:55:51	10/10/2014	283	20:07:41



<b>Begin Date</b>	<b>Begin Julian Day</b>	<b>Begin Time</b>	<b>End Date</b>	<b>End Julian Day</b>	<b>End Time</b>
10/12/2014	285	12:07:56	10/12/2014	285	13:14:23

*Table A-1: Abstract Times of Hydrography, H12654*

**Transmittal Letter to CO-OPS**

A transmittal letter to CO-OPS was not required for H12654.

**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 file (PDF file only) and verification e-mail 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

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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](mailto: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](mailto:lori.powdrell@noaa.gov)]  
**Sent:** Tuesday, May 20, 2014 2:46 PM  
**To:** Quintal, Rebecca T.  
**Cc:** [Michael.Gonsalves@noaa.gov](mailto: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 shoreline files and get you the updated information.

Let me know if you have any other questions.

Thanks,  
Lori

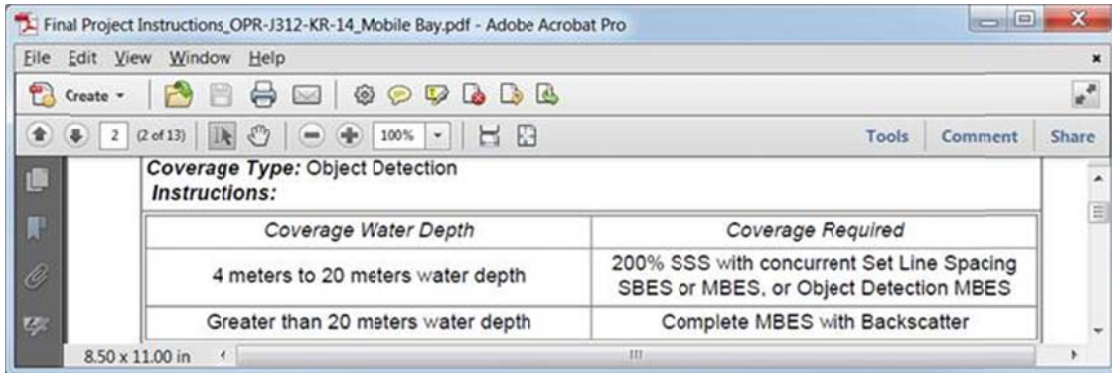
On Fri, May 16, 2014 at 10:05 AM, Quintal, Rebecca T.  
<[REBECCA.T.QUINTAL@leidos.com](mailto:REBECCA.T.QUINTAL@leidos.com)> wrote:

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

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**Rebecca T. Quintal | Leidos**

Hydrographic Survey & Data Solutions Manager  
Marine Survey & Engineering Solutions  
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mobile: [401.829.6242](tel:401.829.6242)  
[rebecca.t.quintal@leidos.com](mailto:rebecca.t.quintal@leidos.com)



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From: Lori Powdrell - NOAA Federal <[lori.powdrell@noaa.gov](mailto: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](mailto: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](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](mailto:REBECCA.T.QUINTAL@leidos.com)> wrote:  
Lori,

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

<i>Coverage Water Depth</i>	<i>Coverage Required</i>
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

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**Rebecca T. Quintal | Leidos**

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Marine Survey & Engineering Solutions  
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mobile: [401.829.6242](tel:401.829.6242)  
[rebecca.t.quintal@leidos.com](mailto:rebecca.t.quintal@leidos.com)



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**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](mailto: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

From: Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>  
Sent: Wednesday, January 14, 2015 8:52 AM  
To: Davis, Gary R.  
Cc: Quintal, Rebecca T.  
Subject: RE: H12654 DtoN #2-3 Submission to NDB/MCD

Good day Gary,

No worries. DtoN 1 was not submitted to Nautical Data Branch based upon the current charted disposition of several obstructions in the immediate vicinity. I failed to respond to Leidos with this decision. Bearing in mind the submitted feature is new and will be included in the HCell, the numerous charted obstructions offshore minimize the dangerous aspects with the 6ft OBSTRN. Therefore, it was not submitted.

Regards,  
Gene

From: Davis, Gary R. [mailto:GARY.R.DAVIS@leidos.com]  
Sent: Tuesday, January 13, 2015 3:53 PM  
To: Castle Parker - NOAA Federal  
Cc: Quintal, Rebecca T.  
Subject: RE: H12654 DtoN #2-3 Submission to NDB/MCD

Gene,

Good afternoon.

As we were going the final checks of data for the H12654 delivery we noticed that we did not have a record of AHB's decision on DtoN 1 that was submitted on 01 August 2014, at the same time as DtoN 2 and 3.

Sorry for the oversight on our part and the late notice. Would you please advise us of AHB's decision on H12654 DtoN1 at your convenience?

Thanks  
Gary

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**From:** [Castle Parker - NOAA Federal](#)  
**To:** [Tim Osborn - NOAA Federal](#)  
**Cc:** [Matthew Jaskoski - NOAA Federal](#); [Michael Gonsalves - NOAA Federal](#); [Corey Allen - NOAA Federal](#); [Lori Powdrell - NOAA Federal](#); ["Jasmine Cousins - NOAA Federal"](#)  
**Subject:** H12654 Features within the USACE ICW  
**Date:** Wednesday, August 26, 2015 8:12:00 AM  
**Attachments:** [H12654 Features within USACE ICW.pdf](#)

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Good day Tim,

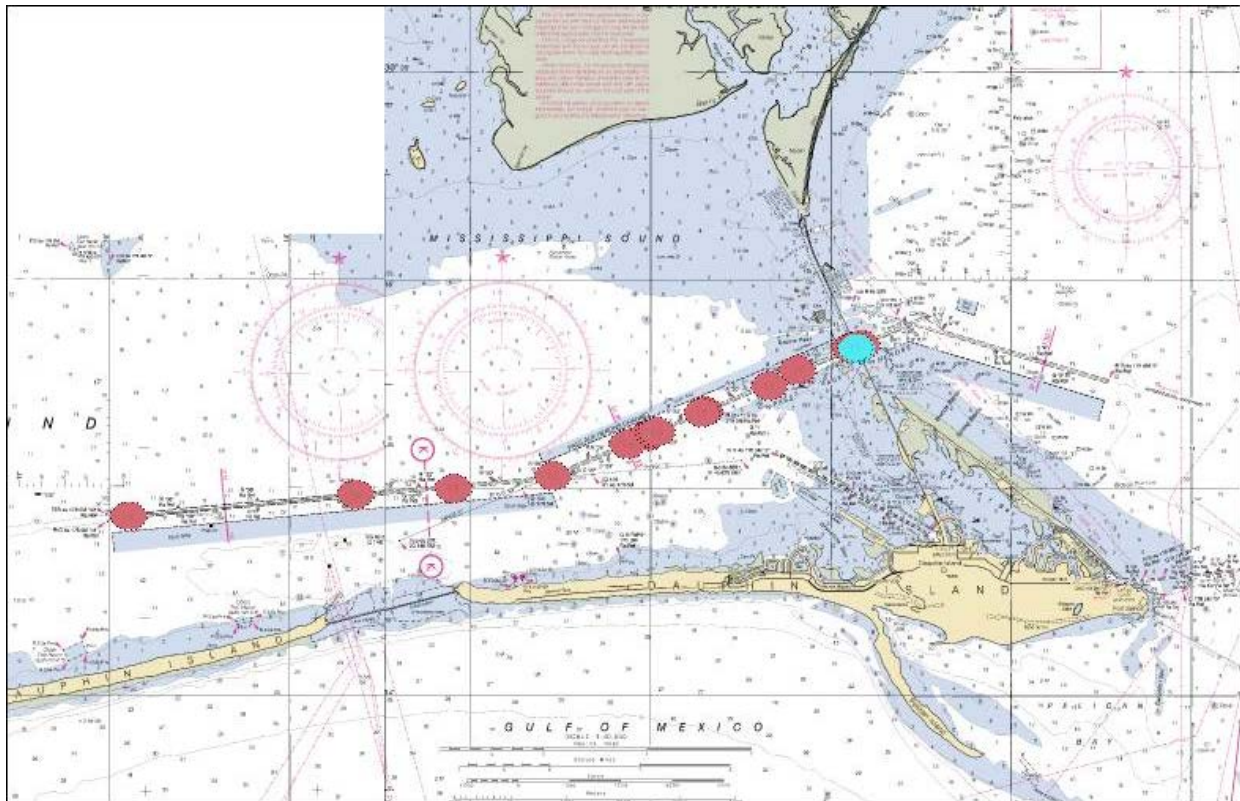
AHB has recently completed the Survey Acceptance Review for survey H12654 Approaches to Mobile Bay. The field unit had observed features within the USACE channel (ICW) that I want to forward to you for information and to pass to the USACE as recent survey results. The features are all below the 12ft ICW channel depth limit or located slightly outside the defined channel limits. AHB does not determine that any of the features pose a hazard to surface navigation. Based upon our protocol, AHB is passing this information to you.

Please respond if you have any questions.

Regards,

Gene Parker

*Castle Eugene Parker*  
NOAA Office of Coast Survey  
Atlantic Hydrographic Branch  
Hydrographic Team Lead / Physical Scientist  
[castle\\_e.parker@noaa.gov](mailto:castle_e.parker@noaa.gov)  
office (757) 441-6746 x115



**From:** [Matthew Jaskoski - NOAA Federal](#)  
**To:** [Tim Osborn - NOAA Federal](#)  
**Cc:** [Edward Owens - NOAA Federal](#); [Castle Parker - NOAA Federal](#); [Bryan Chauveau - NOAA Federal](#)  
**Subject:** Encroaching Shoal in GIWW (Pass Aux Herons Channel) near R "14"  
**Date:** Friday, September 25, 2015 9:23:39 AM  
**Attachments:** [GIWW 5 ft. Shoal in Channel 2.jpg](#)  
[GIWW 5 ft. Shoal in Channel.jpg](#)

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Hey Tim,  
during processing of some hydro data we came across an encroaching shoal on the red side of Pass Aux Herons Ch. The least depth on the shoal is ~5FT (in close proximity to the buoy). The survey was conducted from 07/09/2014 to 10/12/2014 - I'm not sure if there is dredging going on in the channel currently or at any time after October 2014. The ENC has the current project depth from 11/28/2006, and at 12FT.

Attached are two images of the shoal (the LAT/LONG of the shoal sounding is in the bottom left of the image). Pending feedback from the USACE, we don't currently plan to add the sounding to the chart.

regards,  
Matt

Lieutenant Commander Matthew Jaskoski, NOAA  
Chief, Atlantic Hydrographic Branch  
439 W. York St.  
Norfolk, VA 23510  
Office: 757-441-6746 x200  
Cell: 757-647-3356



**From:** [Matthew Jaskoski - NOAA Federal](#)  
**To:** [Bryan Chauveau - NOAA Federal](#)  
**Cc:** [Edward Owens - NOAA Federal](#)  
**Subject:** Re: GIWW 5 ft. sounding in Pas Aux Herons Channel charted 12 ft. clearance  
**Date:** Friday, September 25, 2015 9:17:38 AM

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Will do,

nice find,

Jasko

Lieutenant Commander Matthew Jaskoski, NOAA  
Chief, Atlantic Hydrographic Branch  
439 W. York St.  
Norfolk, VA 23510  
Office: 757-441-6746 x200  
Cell: 757-647-3356

On Thu, Sep 24, 2015 at 5:07 PM, Bryan Chauveau - NOAA Federal  
<[bryan.chauveau@noaa.gov](mailto:bryan.chauveau@noaa.gov)> wrote:

Commander,

Attached are the two images showing the Latitude and Longitude of the 5 ft. sounding identified in survey H12654 encroaching into the GIWW Pass Aux Herons USACE dredged channel which is charted with a 12 ft. clearance, please forward this to the Navigation Manager for the 8<sup>th</sup> Coast Guard District.

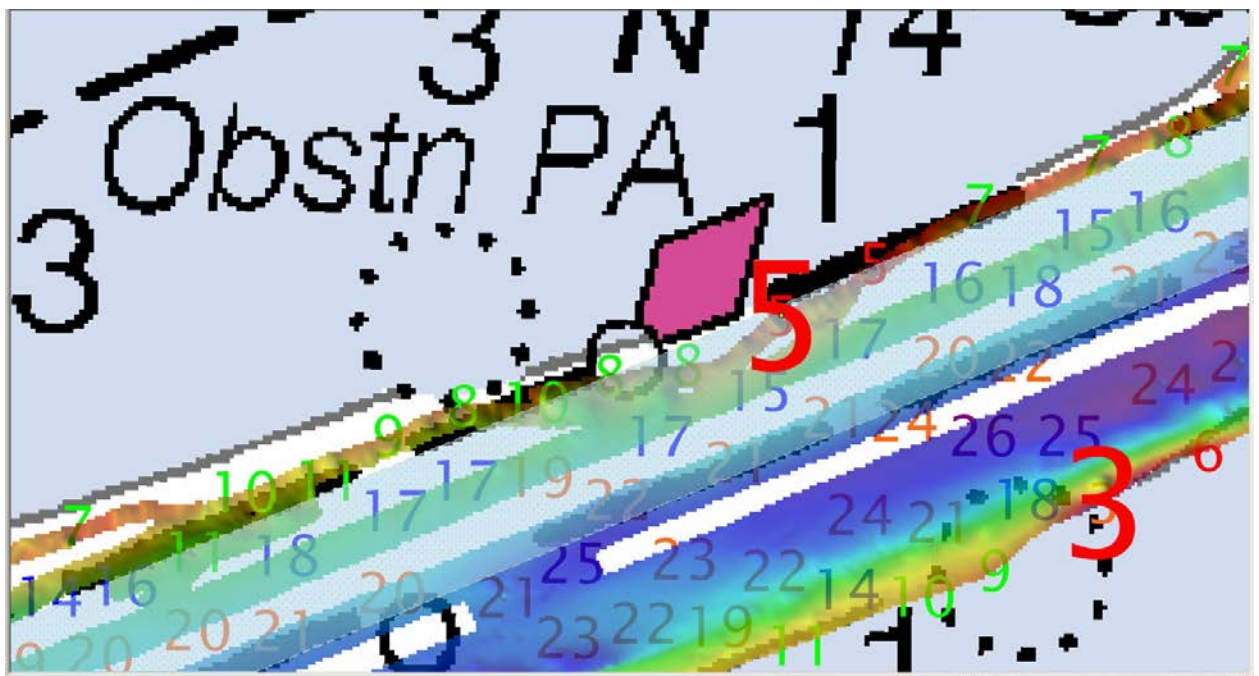
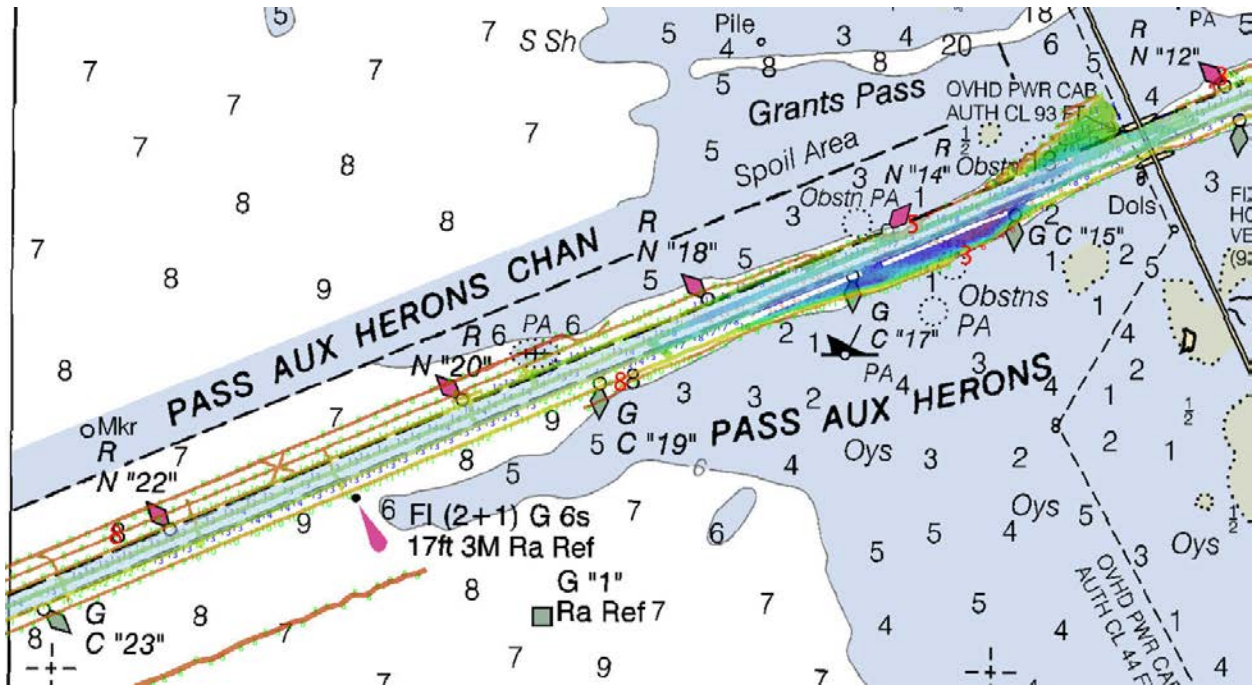
The dates of data acquisition for survey H12654 were from 07/09/2014 to 10/12/2014, and the ENC states the dredged channel data as 11/28/2006.

The 5 ft. sounding is located at Latitude 30-17-12.204N and Longitude 88-08-11.180W and is the shoalest point of the shoaling encroaching into the Pas Aux Herons Channel near buoy N "14".

Bryan Chauveau

Physical Scientist

Atlantic Hydrographic Branch, NOAA



Name	Geometry	Latitude	Longitude	Depth	Object Type	Collection	Area	Length	Display Priority	Unique ID	Remarks	Recomme...	Coordinates	Latitude	Longitude	Z (ft)	Distanc...
Sounding	Sounding	30-17-12.204N	089-09-11.180W	5.561	Geographic	N/A	N/A	N/A	6				1	30-17-12.2...	089-09-11.1...	5.561	

APPENDIX III  
SURVEY FEATURES REPORT

AWOIS - six  
Dangers to Navigation - three  
Maritime Boundary - none  
Wrecks - four

# H12654 Features Report

**Registry Number:** H12654  
**State:** Alabama  
**Locality:** Approaches to Mobile Bay  
**Sub-locality:** North of Dauphin Island  
**Project Number:** OPr-J312\_KR-14  
**Survey Dates:** 12/05/2001 - 10/12/2014

## Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11374	38th	05/01/2015	1:40,000 (11374_1)	USCG LNM: 7/7/2015 (9/8/2015) NGA NTM: 4/9/2011 (9/12/2015)
11377	10th	01/01/2013	1:40,000 (11377_1)	USCG LNM: 7/21/2015 (8/4/2015) NGA NTM: 7/31/2010 (8/8/2015)
11378	38th	04/01/2013	1:40,000 (11378_6)	USCG LNM: 7/21/2015 (8/4/2015) NGA NTM: 12/13/1997 (8/8/2015)
11376	53rd	08/01/2008	1:80,000 (11376_1)	[L]NTM: ?
11373	52nd	05/01/2015	1:80,000 (11373_1)	USCG LNM: 9/8/2015 (9/8/2015) NGA NTM: 4/9/2011 (9/12/2015)
11366	11th	01/01/2008	1:250,000 (11366_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	add Obstruction DtoN 3	Obstruction	2.72 m	30° 15' 18.0" N	088° 12' 59.3" W	---
1.2	add Obstruction DtoN 2	Obstruction	1.73 m	30° 15' 12.4" N	088° 12' 33.8" W	---
1.3	add Wreck	Wreck	1.79 m	30° 15' 16.2" N	088° 10' 50.0" W	---
1.4	add Wreck	Wreck	3.76 m	30° 14' 56.6" N	088° 13' 53.4" W	---
1.5	add Wreck	Wreck	2.12 m	30° 16' 26.6" N	088° 10' 25.6" W	---

1.6	AWOIS 14571 - delete Obstruction (rep 2009) PA	GP	[None]	30° 07' 55.0" N	088° 30' 10.0" W	---
1.7	AWOIS 12356 - delete Obstruction PA	GP	[None]	30° 16' 09.8" N	088° 10' 52.0" W	---
1.8	AWOIS 12352 retain Wreck PA	Wreck	[None]	30° 16' 58.0" N	088° 08' 56.9" W	---
1.9	AWOIS 3441 - add Obstruction	Obstruction	2.06 m	30° 16' 01.8" N	088° 12' 34.6" W	---
1.10	AWOIS 3437 - delete Wreck PA	GP	[None]	30° 15' 46.0" N	088° 15' 58.5" W	---
1.11	AWOIS 12358 - delete Wreck PA	GP	[None]	30° 15' 39.6" N	088° 15' 44.4" W	---

## 1.1) add Obstruction DtoN 3

### DANGER TO NAVIGATION

#### Survey Summary

**Survey Position:** 30° 15' 18.0" N, 088° 12' 59.3" W  
**Least Depth:** 2.72 m (= 8.93 ft = 1.489 fm = 1 fm 2.93 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2014-208.16:55:50.000 (07/27/2014)  
**Dataset:** H12654\_Feature\_Report.000  
**FOID:** 0\_0001970594 00001(FFFE001E11A20001)  
**Charts Affected:** 11374\_1, 11376\_1, 1115A\_1, 11360\_1, 11006\_1, 411\_1

#### Remarks:

OBSTRN/remrks: Submerged pile approximately 0.30m in diameter extending out of the bottom at approximately 90 degrees. Object is 1.70m high in 4.42m of water. There is approximately 0.10m of scour around the object.

#### Feature Correlation

Source	Feature	Range	Azimuth	Status
H12654_Feature_Report.000	0_0001970594 00001	0.00	000.0	Primary

#### Hydrographer Recommendations

Feature 32 -DTON 3. MB File: obmba14208.d17; Ping: 4348; Beam: 18; Depth: 2.723m; Time: 16:55:50.19; H. Uncert.: 1.410m; V. Uncert.: 0.470m.

Update position and least depth of obstruction.

#### Cartographically-Rounded Depth (Affected Charts):

9ft (11374\_1, 11376\_1)

1 ½fm (1115A\_1, 11360\_1, 11006\_1, 411\_1)

#### S-57 Data

**Geo object 1:** Obstruction (OBSTRN)

**Attributes:** CATOBS - 1:snag / stump

INFORM - Feature 32 -DTON 3. MB File: obmba14208.d17; Ping: 4348; Beam: 18; Depth: 2.723m; Time: 16:55:50.19; H. Uncert.: 1.410m; V. Uncert.: 0.470m.

NINFOM - add Obstruction DtoN

QUASOU - 6:least depth known

SORDAT - 20141012

SORIND - US,US,graph,H12654

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

VALSOU - 2.723 m

WATLEV - 3:always under water/submerged

## Office Notes

**SAR:** Feature has been verified at the surveyed position with 200% SSS and MBES development coverage. Defer final charting disposition to AHB Compilation Team.

**Compile:** add Obstruction DtoN

### Feature Images

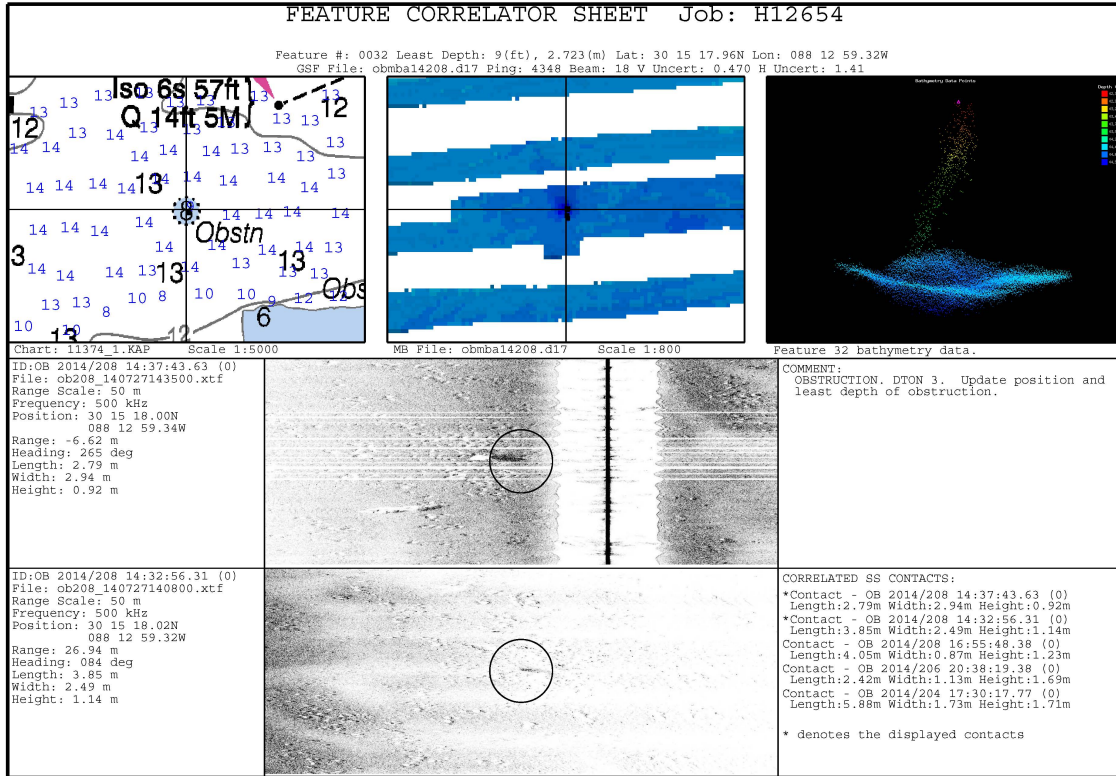


Figure 1.1.1



**1.2) add Obstruction DtoN 2**

**DANGER TO NAVIGATION**

**Survey Summary**

**Survey Position:** 30° 15' 12.4" N, 088° 12' 33.8" W  
**Least Depth:** 1.73 m (= 5.66 ft = 0.943 fm = 0 fm 5.66 ft)  
**TPU ( $\pm 1.96\sigma$ ):** **THU (TPEh)** [None] ; **TVU (TPEv)** [None]  
**Timestamp:** 2014-204.15:11:42.000 (07/23/2014)  
**Dataset:** H12654\_Feature\_Report.000  
**FOID:** 0\_0001970593 00001(FFFE001E11A10001)  
**Charts Affected:** 11374\_1, 11378\_6, 11376\_1, 1115A\_1, 11360\_1, 11006\_1, 411\_1

**Remarks:**

OBSTRN/remrks: Submerged pile approximately 0.30m in diameter extending out of the bottom at approximately 90 degrees. Object is 2.38m high in 4.11m of water. There is approximately 0.20m of scour around the object.

**Feature Correlation**

Source	Feature	Range	Azimuth	Status
H12654_Feature_Report.000	0_0001970593 00001	0.00	000.0	Primary

**Hydrographer Recommendations**

Feature 19 -DTON 2. MB File: obmba14204.d08; Ping: 6537; Beam: 5; Depth: 1.725m; Time: 15:11:42; H. Uncert.: 1.34m; V. Uncert.: 0.470m.

Update position and least depth of obstruction.

**Cartographically-Rounded Depth (Affected Charts):**

5ft (11374\_1, 11378\_6, 11376\_1)

1fm (1115A\_1, 11360\_1, 11006\_1, 411\_1)

**S-57 Data**

**Geo object 1:** Obstruction (OBSTRN)

**Attributes:** CATOBS - 1:snag / stump

INFORM - Feature 19 -DTON 2. MB File: obmba14204.d08; Ping: 6537; Beam: 5; Depth: 1.725m; Time: 15:11:42; H. Uncert.: 1.34m; V. Uncert.: 0.470m.

NINFOM - add Obstruction DtoN

QUASOU - 6:least depth known

SORDAT - 20141012

SORIND - US,US,graph,H12654

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

VALSOU - 1.725 m

WATLEV - 3:always under water/submerged

## Office Notes

SAR: Feature was ensonified with 200% object detection SSS and MBES. Feature is considered significant and has been verified. DTON submission was applied to both the RNC and ENC. VALSOU revised to reflect updated least known depth with final tides applied. VALSOU updated to reflect revised least known depth with final tides applied. Charted RNC 8 ft sounding requires update to 5 ft based on new least depth. Defer the final charting disposition to AHB Compile Team. Defer the final charting disposition to AHB Compile Team.

Compile: Add Obstruction DtoN 2

### Feature Images

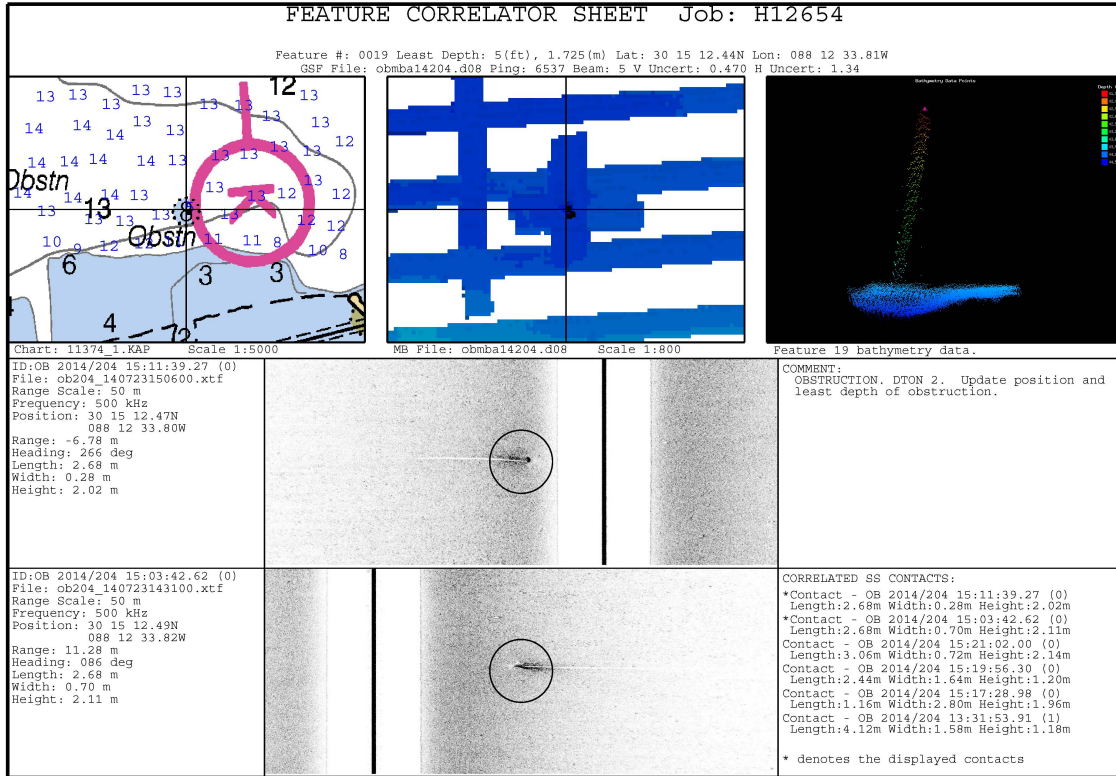


Figure 1.2.1

### 1.3) add Wreck

#### Survey Summary

**Survey Position:** 30° 15' 16.2" N, 088° 10' 50.0" W  
**Least Depth:** 1.79 m (= 5.87 ft = 0.978 fm = 0 fm 5.87 ft)  
**TPU (±1.96σ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2014-204.15:36:09.000 (07/23/2014)  
**Dataset:** H12654\_Feature\_Report.000  
**FOID:** 0\_0001970597 00001(FFFE001E11A50001)  
**Charts Affected:** 11374\_1, 11378\_6, 11376\_1, 1115A\_1, 11360\_1, 11006\_1, 411\_1

**Remarks:**

WRECKS/remrks: Upside down flat bottom wreck. Approximately 2.8 x 8.5m. Wreck is 0.19m high in 2.98m of water. Deeper object Feature 21 is approximatley 150m E.

#### Feature Correlation

Source	Feature	Range	Azimuth	Status
H12654_Feature_Report.000	0_0001970597 00001	0.00	000.0	Primary

#### Hydrographer Recommendations

Feature 20 - DTON 1. MB File: obmba14204.d11; Ping: 2945; Beam: 3; Depth: 1.789m; Time: 15:36:09; H. Uncert.: 1.31m; V. Uncert.: 0.470m.

Chart wreck.

**Cartographically-Rounded Depth (Affected Charts):**

6ft (11374\_1, 11378\_6, 11376\_1)

1fm (1115A\_1, 11360\_1, 11006\_1, 411\_1)

#### S-57 Data

**Geo object 1:** Wreck (WRECKS)

**Attributes:** CATWRK - 2:dangerous wreck

INFORM - Feature 20 - DTON 1. MB File: obmba14204.d11; Ping: 2945; Beam: 3; Depth: 1.789m; Time: 15:36:09; H. Uncert.: 1.31m; V. Uncert.: 0.470m.

NINFOM - add Wreck  
QUASOU - 6:least depth known  
SORDAT - 20141012  
SORIND - US,US,graph,H12654  
TECSOU - 3:found by multi-beam  
VALSOU - 1.789 m  
WATLEV - 3:always under water/submerged

### **Office Notes**

SAR: Feature has been verified at the surveyed position with 200% SSS and MBES development coverage. Defer final charting disposition to AHB Compilation Team.

Compile: add Wreck

### Feature Images

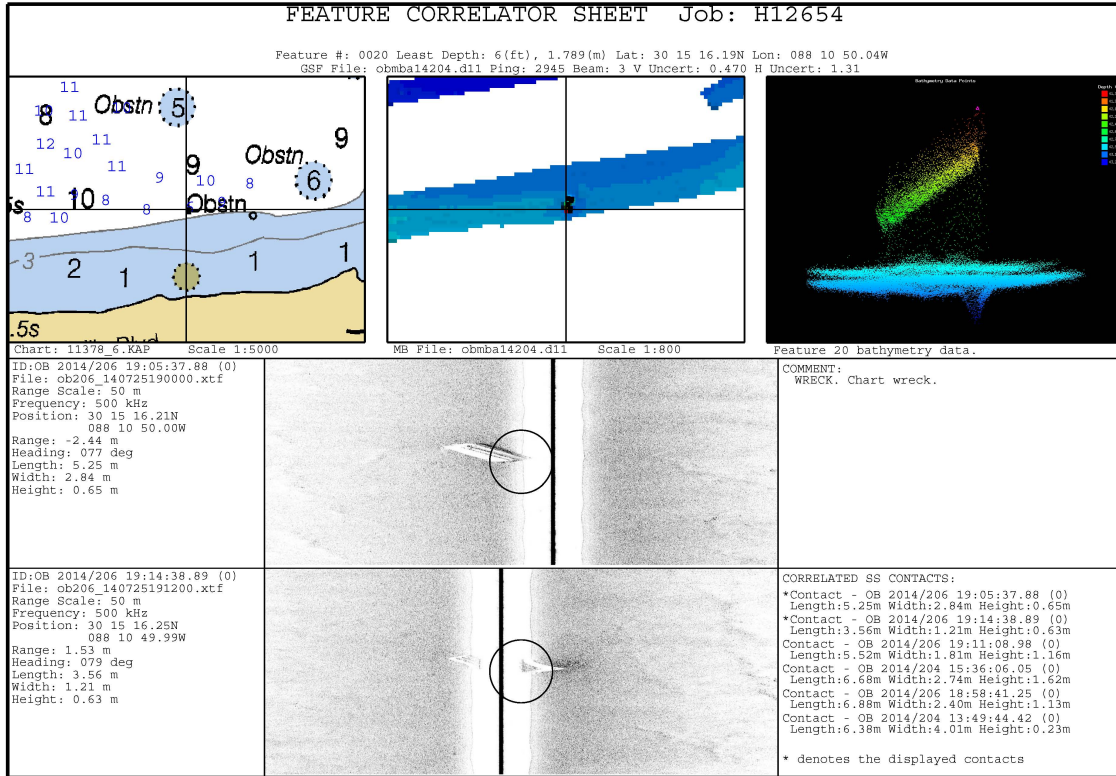


Figure 1.3.1

## 1.4) add Wreck

### Survey Summary

**Survey Position:** 30° 14' 56.6" N, 088° 13' 53.4" W  
**Least Depth:** 3.76 m (= 12.33 ft = 2.054 fm = 2 fm 0.33 ft)  
**TPU ( $\pm 1.96\sigma$ ):** **THU (TPEh)** [None] ; **TVU (TPEv)** [None]  
**Timestamp:** 2014-248.15:50:36.000 (09/05/2014)  
**Dataset:** H12654\_Feature\_Report.000  
**FOID:** 0\_0001970596 00001(FFFE001E11A40001)  
**Charts Affected:** 11374\_1, 11376\_1, 1115A\_1, 11360\_1, 11006\_1, 411\_1

#### Remarks:

WRECKS/remrks: Approximately 1.5 x 14.4m remains of a deteriorated and mostly buried wreck approximately 0.46m high in 4.22m of water.

### Feature Correlation

Source	Feature	Range	Azimuth	Status
H12654_Feature_Report.000	0_0001970596 00001	0.00	000.0	Primary

### Hydrographer Recommendations

Update position and least depth of wreck.

#### Cartographically-Rounded Depth (Affected Charts):

12ft (11374\_1, 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 - Feature 63 - MB File: obmba14248.d34; Ping: 12637; Beam: 16; Depth: 3.757m;  
 Time: 15:50:36.38; H. Uncert.: 1.110m; V. Uncert.: 0.470m.  
 NINFOM - add Wreck  
 QUASOU - 6:least depth known  
 SORDAT - 20141012  
 SORIND - US,US,graph,H12654

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

VALSOU - 3.757 m

WATLEV - 3:always under water/submerged

## Office Notes

SAR: Feature has been verified at the surveyed position with 200% SSS and MBES development coverage. Defer final charting disposition to AHB Compilation Team.

Compile: add Wreck



### Feature Images

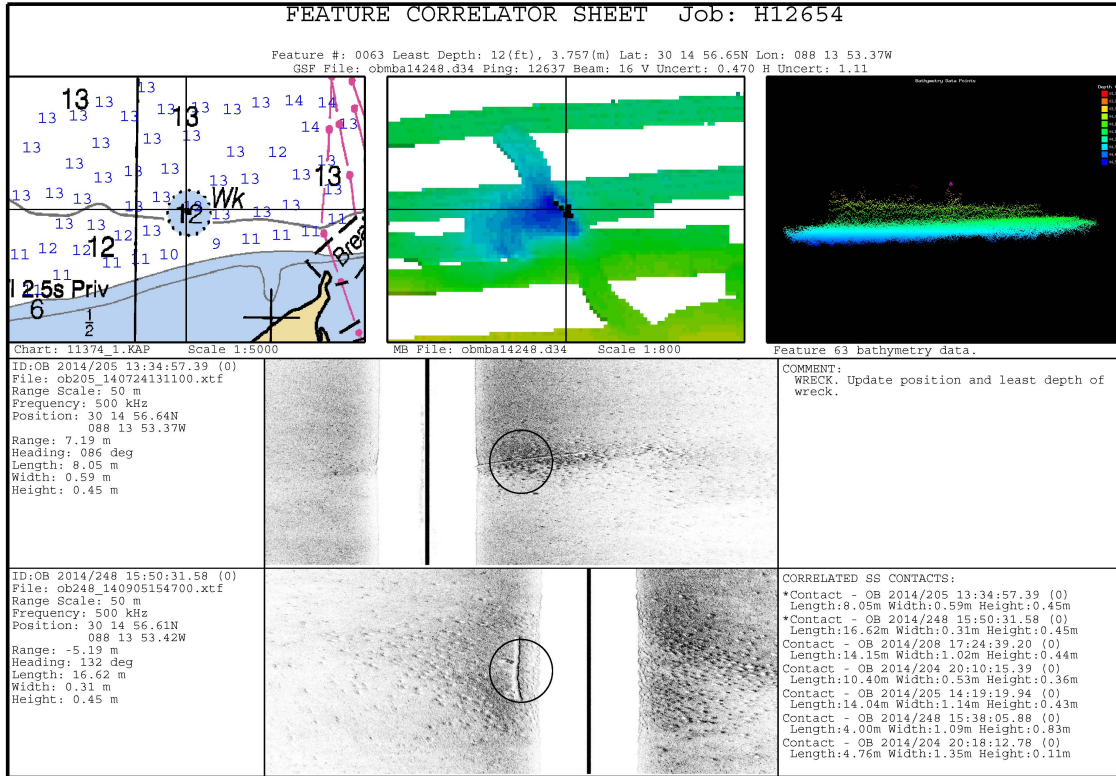


Figure 1.4.1

## 1.5) add Wreck

### Survey Summary

**Survey Position:** 30° 16' 26.6" N, 088° 10' 25.6" W  
**Least Depth:** 2.12 m (= 6.95 ft = 1.158 fm = 1 fm 0.95 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2014-283.16:19:12.000 (10/10/2014)  
**Dataset:** H12654\_Feature\_Report.000  
**FOID:** 0\_0001970595 00001(FFFE001E11A30001)  
**Charts Affected:** 11378\_6, 11376\_1, 1115A\_1, 11360\_1, 11006\_1, 411\_1

#### Remarks:

WRECKS/remrks: Deteriorated wreck approximately 4.4 x 10.2m. Wreck is approximately 0.77m high in 2.88m of water.

### Feature Correlation

Source	Feature	Range	Azimuth	Status
H12654_Feature_Report.000	0_0001970595 00001	0.00	000.0	Primary

### Hydrographer Recommendations

Chart wreck.

#### Cartographically-Rounded Depth (Affected Charts):

7ft (11378\_6, 11376\_1)

1fm (1115A\_1, 11360\_1, 11006\_1, 411\_1)

### S-57 Data

**Geo object 1:** Wreck (WRECKS)

**Attributes:** CATWRK - 2:dangerous wreck

INFORM - Feature 74 - MB File: obmba14283.d39; Ping: 10767; Beam: 53; Depth: 2.118m; Time: 16:19:12.40; H. Uncert.: 1.420m; V. Uncert.: 0.470m.

NINFOM - add Wreck

QUASOU - 6:least depth known

SORDAT - 20141012

SORIND - US,US,graph,H12654

TECSOU - 3:found by multi-beam

VALSOU - 2.118 m

WATLEV - 3:always under water/submerged

## Office Notes

SAR: Feature has been verified at the surveyed position with 200% SSS and MBES development coverage. Defer final charting disposition to AHB Compilation Team.

Compile: Add Wreck

### Feature Images

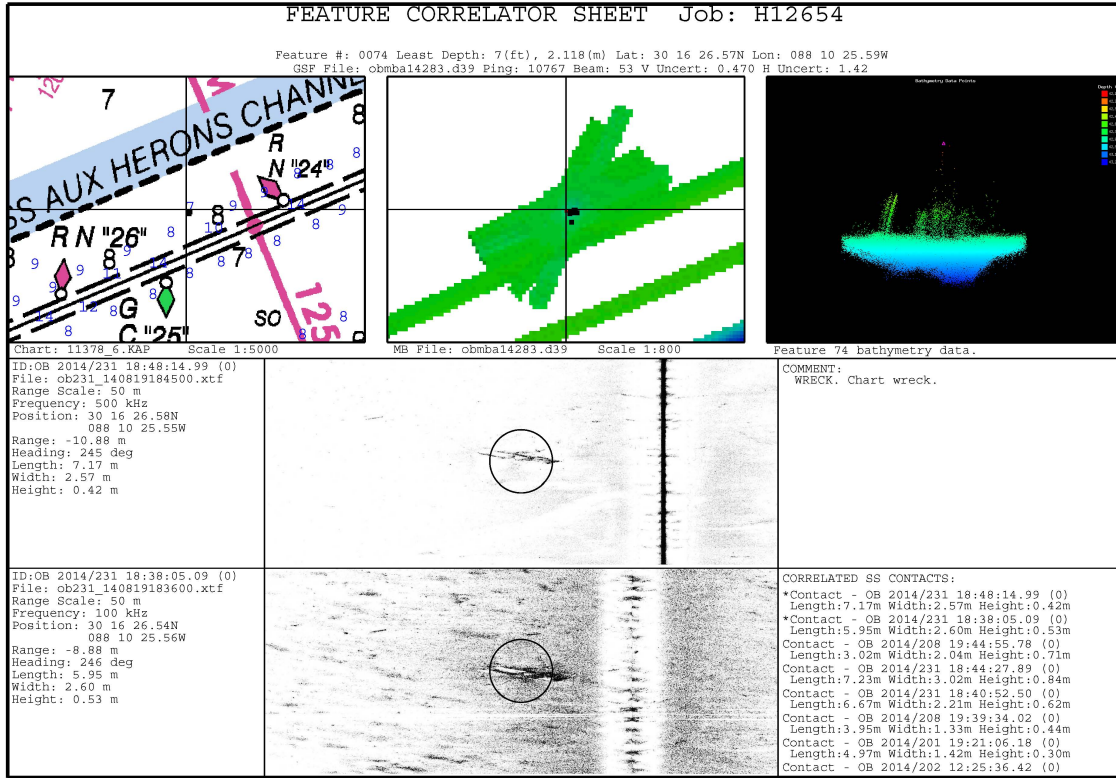


Figure 1.5.1

## 1.6 AWOIS 14571 - delete Obstruction (rep 2009) PA

### Survey Summary

**Survey Position:** 30° 07' 55.0" N, 088° 30' 10.0" W  
**Least Depth:** [None]  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2009-045.00:00:00.000 (02/14/2009)  
**Dataset:** H12654\_AWOIS.000  
**FOID:** 0\_0001970668 00001(FFFE001E11EC0001)  
**Charts Affected:** 11373\_1, 11366\_1, 1115A\_1, 11360\_1, 11006\_1, 411\_1

#### Remarks:

##### History

\*\*\*\* 1/28/09 correspondence letter to Chief Hydrographic Surveys Division from the Commander of the USCG D8; (see SURF 090002) On January 19 2009 the M/T Olympic Spirit II reportedly struck a submerged obstruction in a safety fairway off the coast of Mississippi in approximate position 30-07-55.2N 088-30-09.6W. The draft of the vessel was reported to be approximately 39 feet. I am requesting you conduct a survey of this area in the interest of safe navigation. Please contact Mr. David Ledet of my staff at (504) 671-2116 with the results of the survey. NM7/09--NGA: Add Danger circle Obsn rep (2009) [K40] (PA) 30°07 55N 88°30 10W (position apparently rounded of off by NGA see above from USCG)

\$CSYMB/remrks: The 400-meter radius was investigated with 200% side scan and resulting multibeam coverage.

\$CSYMB/invreq: Type: OBSTRUCTION; Itemstatus: ASSIGNED; Searchtype: FULL; Technique: S2 SWMB

### Feature Correlation

Source	Feature	Range	Azimuth	Status
H12654_AWOIS.000	0_0001970668 00001	0.00	000.0	Primary
OPR-J312-KR-14_PRF.000	0_0001970672 00001	12.34	240.0	Secondary (grouped)
OPR-J312-KR-14_PRF.000	0_0001970670 00001	12.34	240.0	Secondary (grouped)
OPR-J312-KR-14_PRF.000	0_0001970671 00001	388.17	067.7	Secondary (grouped)
OPR-J312-KR-14_PRF.000	0_0001970673 00001	983.17	072.3	Secondary (grouped)

### Hydrographer Recommendations

Remove obstruction.

## S-57 Data

**Geo object 1:** Cartographic symbol (\$CSYMB)

**Attributes:** INFORM - No features were found within the search area.

NINFOM - delete Obstruction (rep 2009) PA

SORDAT - 20141012

SORIND - US,US,graph,H12654

## Office Notes

SAR: Feature was disproved with 200% SSS and partial MBES coverage. The search radius was fully covered.

Compile: delete Obstruction (rep 2009) PA

## 1.7) AWOIS 12356 - delete Obstruction PA

### Survey Summary

**Survey Position:** 30° 16' 09.8" N, 088° 10' 52.0" W  
**Least Depth:** [None]  
**TPU (±1.96σ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2008-214.00:00:00.000 (08/01/2008)  
**Dataset:** H12654\_AWOIS.000  
**FOID:** 0\_0001970661 00001(FFFE001E11E50001)  
**Charts Affected:** 11374\_1, 11378\_6, 11376\_1, 1115A\_1, 11360\_1, 11006\_1, 411\_1

**Remarks:**

History

" HISTORY LNM-34/03--ADD SYMBOL: ""SUBMERGED OBSTRUCTION (PA)"" (CGD8 136-03) 30/16/09.278N - 088/10/52.063W. (ENTERED 3/04 SPS) \*\*\*PER TELCON WITH USCG CG MOORING LOSTIN APPROXIMATE POSITION 30-16-09.3N 088-10-52.1W CG COULD NOT LOCATE AS OF 8/15/03. (UPDATED 4/04 SPS). H11304-- OPR-J373-NRT1-04; Item search area was partial covered due to shallow water depth. (Updated CEH 12/2008)"

\$CSYMB/remrks: The 300-meter search radius was investigated with 200% side scan and resulting multibeam coverage. No features inside the search area were found. USCG Green Can Buoy 27 (Light List Number 34205) was found at the center of the search area. AWOIS 12356.

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

### Feature Correlation

Source	Feature	Range	Azimuth	Status
H12654_AWOIS.000	0_0001970661 00001	0.00	000.0	Primary
OPR-J312-KR-14_PRF.000	0_0001970650 00001	17.27	009.0	Secondary (grouped)
OPR-J312-KR-14_PRF.000	0_0001970656 00001	17.27	009.0	Secondary (grouped)

### Hydrographer Recommendations

Remove obstruction.

### S-57 Data

**Geo object 1:** Cartographic symbol (\$CSYMB)  
**Attributes:** INFORM - No features were found within the search area.

NINFOM - delete Obstruction PA

SORDAT - 20141012

SORIND - US,US,graph,H12654

## Office Notes

SAR: Feature was disproved at the charted position with 200% SSS. The search radius was fully covered.

Compile: delete Obstruction PA



## 1.8) AWOIS 12352 retain Wreck PA

### Survey Summary

**Survey Position:** 30° 16' 58.0" N, 088° 08' 56.9" W  
**Least Depth:** [None]  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2013-001.00:00:00.000 (01/01/2013)  
**Dataset:** H12654\_AWOIS.000  
**FOID:** 0\_0001970663 00001(FFFE001E11E70001)  
**Charts Affected:** 11377\_1, 11378\_6, 11376\_1, 1115A\_1, 11360\_1, 11006\_1, 411\_1

#### Remarks:

##### History

HISTORY LNM-23/86--A 17 FOOT P/C HAS BEEN REPORTED SUNK 100 YARDS NORTH AND 100 YARDS EAST OF PASS AUX HERONS CHANNEL BUOY 20 IN APPROXIMATE POSITION 30-16-57N 88-08-57W (ENTERED 3/04 SPS) H11304-- OPR-J373-NRT1-04; Item was partially covered during the SSS investigation. Retain as charted. (Updated CEH 12/2008)

WRECKS/remrks: Feature was not able to be disproved as the full search radius was only partially covered.

### Feature Correlation

Source	Feature	Range	Azimuth	Status
H12654_AWOIS.000	0_0001970663 00001	0.00	000.0	Primary
OPR-J312-KR-14_PRF.000	0_0001970649 00001	9.22	025.5	Secondary (grouped)
OPR-J312-KR-14_PRF.000	0_0001970652 00001	9.22	025.5	Secondary (grouped)

### Hydrographer Recommendations

HTL: Approximately 24m of the northwestern search radius was not covered with the 200SSS. No contacts were located at the charted location. The feature to the south was submitted as a wreck, but the bathymetry data is not interpreted as a wreck by HTL. Bearing in mind the search area not covered is within the 6ft depth curve and is navigationally constrained within the area with no coverage, the existing data common to the charted symbology has disproved the existence of a 17ft personal craft. Therefore HTL recommends to delete the AWOIS 12352 wreck PA from the chart.

### 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

QUASOU - 2:depth unknown

SORDAT - 201301

SORIND - US,US,graph,Chart 11377

WATLEV - 3:always under water/submerged

## Office Notes

SAR: Feature was not able to be disproved as the full search radius was only partially covered. Field unit incorrectly verified feature 70 m to the south as AWOIS item #12352. Recommend to retain AWOIS #12352 as charted. Defer final charting disposition to AHB Compilation Team.

Compile: Retain Wreck as charted.

### Feature Images

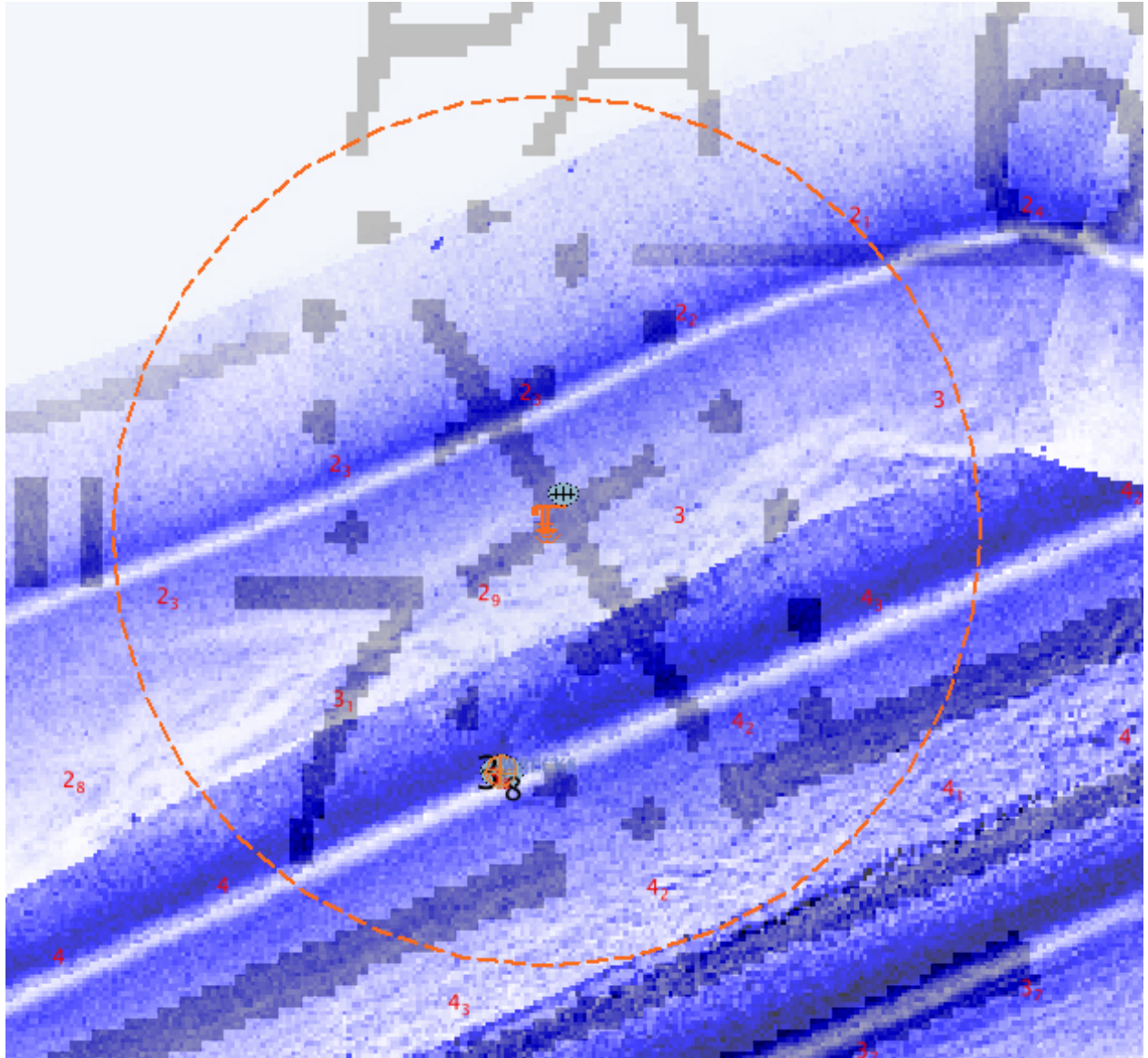


Figure 1.8.1

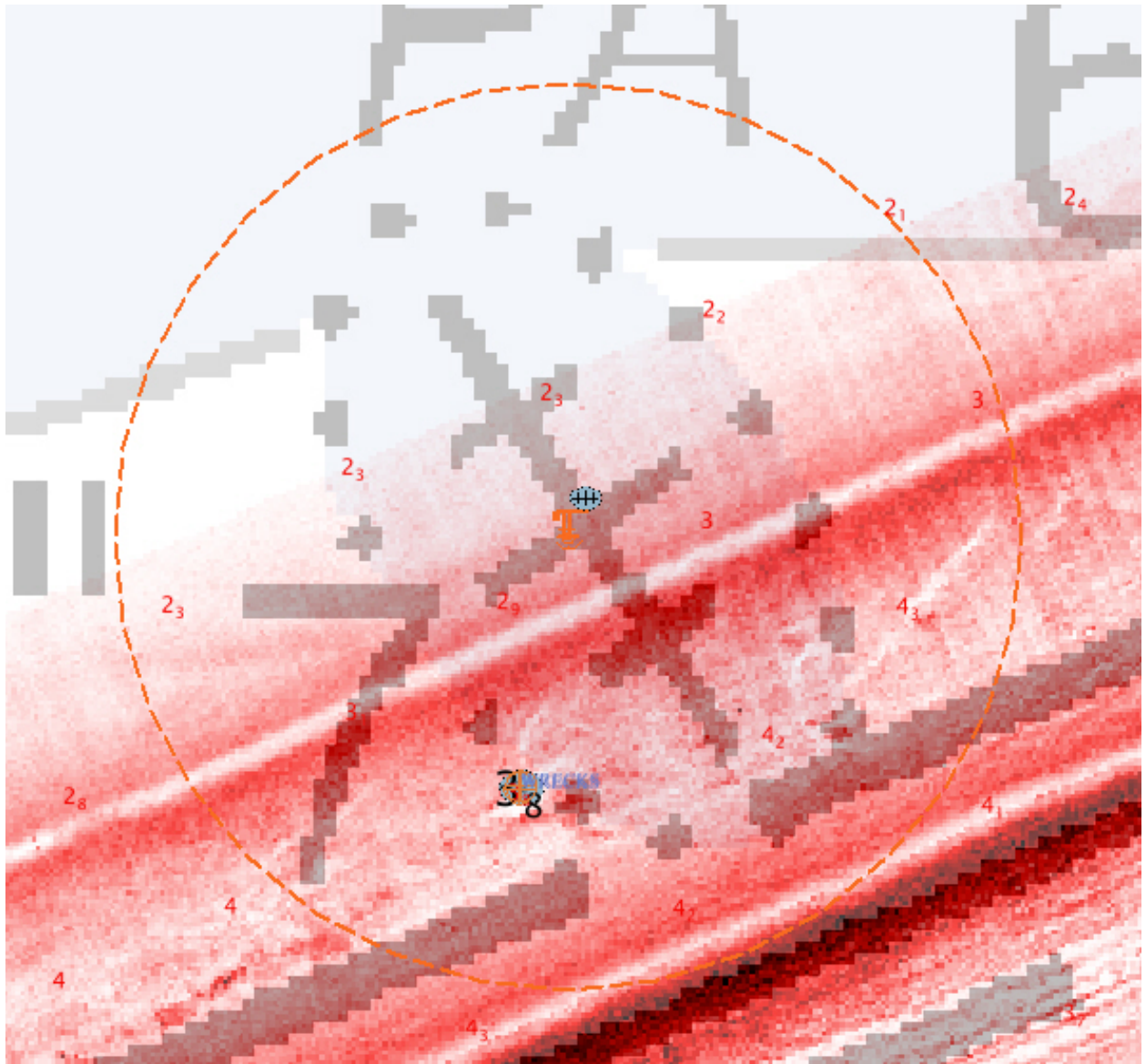


Figure 1.8.2

## 1.9) AWOIS 3441 - add Obstruction

### Survey Summary

**Survey Position:** 30° 16' 01.8" N, 088° 12' 34.6" W  
**Least Depth:** 2.06 m (= 6.74 ft = 1.124 fm = 1 fm 0.74 ft)  
**TPU ( $\pm 1.96\sigma$ ):** **THU (TPEh)** [None] ; **TVU (TPEv)** [None]  
**Timestamp:** 2014-285.00:00:00.000 (10/12/2014)  
**Dataset:** H12654\_Features.000  
**FOID:** US 0000806134 00001(0226000C4CF60001)  
**Charts Affected:** 11374\_1, 11378\_6, 11376\_1, 1115A\_1, 11360\_1, 11006\_1, 411\_1

#### Remarks:

##### History

" LNM34/80(8/13/80)-- 8TH CGD; REPORTED A PILING 50 TO 75FT SOUTHWEST OF PASS AUX HERONS BUOY 32 EXTENDING 8"" ABOVE WATER. (PILE PA). SCALED IN LAT 30-15-59N LONG.88-12-36N AT 1:40 000 (CHT 11374-A) D65/D78/84-87--OPR-J482-84; NEITHER VERIFIED NOR DISPROVED. (UPDATE 3/89 LQ) H11304-- OPR-J373-NRT1-04; The item was not fully investigated due to the shallow depths. Retain as charted. (Updated CEH 12/2008)"

\$CSYMB/remrks: AWOIS # 3441 was disproved at the charted location with 200% SSS and partial MBES coverage. Submerged pile was located 65 m to the north.

### Feature Correlation

Source	Feature	Range	Azimuth	Status
H12654_Features.000	US 0000806134 00001	0.00	000.0	Primary
H12654_AWOIS.000	0_0001970659 00001	62.68	030.8	Secondary (grouped)
OPR-J312-KR-14_PRF.000	0_0001970655 00001	74.95	029.1	Secondary (grouped)
OPR-J312-KR-14_PRF.000	0_0001970648 00001	74.95	029.1	Secondary (grouped)

### Hydrographer Recommendations

Delete submerged pile at charted location.

#### Cartographically-Rounded Depth (Affected Charts):

6ft (11374\_1, 11378\_6, 11376\_1)

1fm (1115A\_1, 11360\_1, 11006\_1, 411\_1)

## S-57 Data

**Geo object 1:** Obstruction (OBSTRN)  
**Attributes:** NINFOM - add Obstruction  
QUASOU - 6:least depth known  
SORDAT - 20141012  
SORIND - US,US,graph,H12654  
VALSOU - 2.055 m  
WATLEV - 3:always under water/submerged

## Office Notes

SAR: Feature disproved at charted location with 200% SSS and partial MBES coverage. The assigned search radius was centered 11.5 m south of the actual charted ENC position.

Compile: Delete submerged pile at charted location. Add Obstruction at present survey location.

## 1.10) AWOIS 3437 - delete Wreck PA

### Survey Summary

**Survey Position:** 30° 15' 46.0" N, 088° 15' 58.5" W  
**Least Depth:** [None]  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2008-275.00:00:00.000 (10/01/2008)  
**Dataset:** H12654\_Delete\_Features.000  
**FOID:** US 0000166219 00001(02260002894B0001)  
**Charts Affected:** 11374\_1, 11373\_1, 11376\_1, 1115A\_1, 11360\_1, 11006\_1, 411\_1

**Remarks:**

History

" HISTORY NM7/63(811)--NAVAL HYDRO. OFFICE; REPORTED THE M/V ""RUDDIE O"" SUNK IN 7.5 FT IN APPROXIMATELY LAT.30-15-45N LONG.88-16-00W. SIX FEET OF WHEEL HOUSE IS REPORTED ABOVE THE WATER. SOURCE UNKNOWN--SUBM. WRECK; SAME POSITION. D65/D78/84-87--OPR-J482-84; NEITHER VERIFIED NOR DISPROVED. (UPDATE 3/89 LQ) H11304--OPR-J373-NRT1-04; The entire search area was not surveyed due to water depth. Retain as charted. (Updated CEH 12/2008)"

\$CSYMB/remrks: The 300-meter search radius was investigated with 200% side scan and resulting multibeam coverage. No features inside the search area were found. AWOIS 3437.

\$CSYMB/invreq: Type: RUDDIE O; Itemstatus: ASSIGNED; Searchtype: FULL; Technique: S2 MBES SD ES VS

### Feature Correlation

Source	Feature	Range	Azimuth	Status
H12654_Delete_Features.000	US 0000166219 00001	0.00	000.0	Primary
H12654_AWOIS.000	0_ 0001970662 00001	0.00	000.0	Secondary (grouped)
OPR-J312-KR-14_PRF.000	0_ 0001970647 00001	42.56	077.8	Secondary (grouped)
OPR-J312-KR-14_PRF.000	0_ 0001970653 00001	42.56	077.8	Secondary (grouped)

### Hydrographer Recommendations

Remove wreck.

## S-57 Data

**Geo object 1:** Cartographic symbol (\$CSYMB)

**Attributes:** INFORM - No features were found within the search area.

NINFOM - delete Wreck PA

SORDAT - 20141012

SORIND - US,US,graph,H12654

## Office Notes

SAR: Feature (wreck PA) was disproved with 200% SSS and partial coverage multibeam. The search radius was fully covered.

Compile: delete Wreck PA



## 1.11) AWOIS 12358 - delete Wreck PA

### Survey Summary

**Survey Position:** 30° 15' 39.6" N, 088° 15' 44.4" W  
**Least Depth:** [None]  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2001-339.00:00:00.000 (12/05/2001)  
**Dataset:** H12654\_Delete\_Features.000  
**FOID:** US 0000166212 00001(0226000289440001)  
**Charts Affected:** 11374\_1, 11373\_1, 11376\_1, 1115A\_1, 11360\_1, 11006\_1, 411\_1

**Remarks:**

History

HISTORY LNM-54/92--ADD DANGEROUS WRECK BLUE TINT AND LABEL: PA AT 30-15-39.600N - 088-15-44.400W. LNM LANGUAGE SUBMITTED BY NOS BASED ON CORPS SURVEY (BP-177141) WHICH DEPICTS WRECK. (ENTERED 3/04 SPS) H11304-- OPR-J373-NRT1-04; Item was not fully investigated. Retain as charted. (Updated CEH 12/2008)

\$CSYMB/remrks: The 300-meter search radius was investigated with 200% side scan and resulting multibeam coverage. Three Features (66; 67; and 68) were located inside the search radius. The shoalest was Feature 67 with a least depth of 2.958m. AWOIS 12358.

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

### Feature Correlation

Source	Feature	Range	Azimuth	Status
H12654_Delete_Features.000	US 0000166212 00001	0.00	000.0	Primary
OPR-J312-KR-14_PRF.000	0_0001970651 00001	0.00	000.0	Secondary (grouped)
OPR-J312-KR-14_PRF.000	0_0001970654 00001	0.00	000.0	Secondary (grouped)
H12654_AWOIS.000	0_0001970660 00001	0.00	000.0	Secondary (grouped)

### Hydrographer Recommendations

Remove wreck.

### S-57 Data

**Geo object 1:** Cartographic symbol (\$CSYMB)

**Attributes:**      INFORM - Features were found within the search area however Leidos determined the observed Features were not the AWOIS item.  
                          NINFOM - delete Wreck PA  
                          SORDAT - 10141012  
                          SORIND - US,US,graph,H12654

### **Office Notes**

SAR: AWOIS #12358 disproved at survey position with 200% SSS and partial MBES coverage. The 300 m search radius was fully covered. Significant features 230 m to the E/NE are considered independent of the AWOIS item.

Compile: Delete Wreck PA

APPROVAL PAGE

H12654

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

The following products will be sent to NGDC for archive

- H12654\_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12654\_GeoImage.pdf

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

Approved: \_\_\_\_\_

**Lieutenant Commander Matthew Jaskoski, NOAA**  
Chief, Atlantic Hydrographic Branch