

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SERVICE

# DESCRIPTIVE REPORT

*Type of Survey* Hydrographic

*Field No.* David Evans and Associates, Inc.

*Registry No.* H12355

## LOCALITY

*State* Mississippi

*General Locality* Approaches to Mississippi Sound

*Sublocality* South of Little Dog Keys Pass

2011

CHIEF OF PARTY

Jonathan L. Dasler, PE (OR) , PLS (OR,CA)

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DATE \_\_\_\_\_

NOAA FORM 77-28 (11-72)	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  <b>HYDROGRAPHIC TITLE SHEET</b>	REGISTRY No  <b>H12355</b>
<b>INSTRUCTIONS</b> - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.		FIELD No <b>David Evans and Associates, Inc.</b>
State <u>Mississippi</u> General Locality <u>Approaches to Mississippi Sound</u> Sub-Locality <u>South of Little Dog Keys Pass</u> Scale <u>1:20,000</u> Date of Survey <u>July 12 to November 11, 2011</u> Instructions dated <u>June 2011</u> Project No. <u>OPR-J348-KR-11</u> Vessel <u>R/V Westerly</u> Chief of party <u>Jonathan L. Dasler, PE (OR), PLS (OR,CA)</u> Surveyed by <u>David Evans and Associates, Inc.</u> Soundings by echo sounder, hand lead, pole <u>RESON 7125, EdgeTech 4200-HFL</u> Graphic record scaled by <u>N/A</u> Graphic record checked by <u>N/A</u> Automated Plot <u>N/A</u> Verification by _____ Soundings in <u>Meters at MLLW</u>		
<b>REMARKS:</b> <u>NAD 83, UTM Zone 16, Meters, Times are UTC.</u> <u>The purpose of this contract is to provide NOAA with modern, accurate hydrographic survey data with which to update nautical charts of the assigned area.</u>		
<b>SUBCONSULTANTS:</b> <u>John Oswald &amp; Associates, LLC, 2000 E Dowling Rd, Anchorage, AK, 99507</u> <u>Zephyr Marine, 1575 Spinnaker Dr., Suite 105B, Ventura, CA 93001</u>		

*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. Revisions and Red notes were generated during office processing. The processing branch concurs with all information and recommendations in the DR unless otherwise noted. Page numbering may be interrupted or non-sequential. All pertinent records for this survey, including the Descriptive Report, are archived at the National Geophysical Data Center (NGDC) and can be retrieved via <http://www.ngdc.noaa.gov/>.*

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## Acronyms and Abbreviations

**AHB** - Atlantic Hydrographic Branch  
**AML** - Applied Microsystems, Ltd  
**ASCII** - American Standard Code for Information Interchange  
**AtoN** - Aids to Navigation  
**AWOIS** - Automated Wreck and Obstruction Information System  
**BAG** - Bathymetric Attributed Grid  
**CO-OPS** - Center for Operational Oceanographic Products and Services  
**CUBE** - Combined Uncertainty and Bathymetry Estimator  
**DAPR** - Data Acquisition and Processing Report  
**DEA** - David Evans and Associates, Inc.  
**DGPS** - Differential GPS  
**DN** - Day Number  
**DtoN** - Danger to Navigation  
**ENC** - Electronic Navigational Charts  
**ERS** - Ellipsoidal Referenced Survey  
**GPS** - Global Positioning System  
**HIPS** - Hydrographic Information Processing System  
**HSD** - Hydrographic Surveys Division  
**HSSD** - Hydrographic Surveys Specifications and Deliverables  
**IHO** - International Hydrographic Organization  
**kHz** - kilo Hertz  
**LNM** - Local Notice to Mariners  
**MCD** - Marine Chart Division  
**MLLW** - Mean Lower-Low Water  
**MVP** - Moving Vessel Profiler  
**NAD 83 (CORS96) (Epoch 2002.00)** - North American Datum of 1983 CORS96 realization, 2002 Epoch  
**NOAA** - National Oceanic and Atmospheric Administration  
**NOS** - National Ocean Service  
**NPS** - National Park Service  
**POS/MV** - Position and Orientation System for Marine Vessels  
**RNC** - Raster Nautical Chart  
**R/V** - Research Vessel  
**SBET** - Smoothed Best Estimate of Trajectory  
**StdDev** - Standard Deviation  
**SVP** - Sound Velocity Profiler  
**TPU** - Total Propagated Uncertainty  
**USCG** - United States Coast Guard

**Descriptive Report to Accompany Hydrographic Survey H12355**  
Project OPR-J348-KR-11 Approaches to Mississippi Sound, Mississippi  
South of Little Dog Keys Pass  
Scale 1:20,000  
July 2011 – November 2011  
**David Evans and Associates, Inc.**  
Lead Hydrographer: Jonathan L. Dasler

## **A. AREA SURVEYED**

David Evans and Associates, Inc. (DEA) conducted hydrographic survey operations in the Approaches to Mississippi Sound, MS. The survey area begins approximately 2 nautical miles south of the southern edge of Horn Island and extends southward approximately 4 nautical miles.

Survey H12355 was conducted in accordance with the *Statement of Work* (June 23, 2011) and *Hydrographic Survey Project Instructions* (June 22, 2011) for OPR-J348-KR-11. On December 13, 2011, DEA was directed to use Ellipsoidal Referenced Survey (ERS) methods for the reduction of survey data to chart datum via a signed memo from the Chief, Hydrographic Surveys Division (HSD). Approval of these methods was granted based on recommendations included with DEA's interim deliverables (submitted November 1, 2011) for the ERS/VDatum components of OPR-J348-KR-11, specified in the *Hydrographic Survey Project Instructions* (June 22, 2011). A copy of this memo is included in *OPR-J348-KR-11 Project Correspondence* of each survey's *Descriptive Report*.

The survey (Figure 1) consisted of 200% side scan sonar coverage with concurrent multibeam in waters 18 feet and deeper. The survey polygon *OPR-J348-11\_Sheets\_Feb\_region.shp* which was included with the *Hydrographic Survey Project Instructions* (June 22, 2011) was used to define the limits for each survey. The survey was conducted over 80-meter and 130-meter set line spacing per 100% coverage (50-meter and 75-meter side scan sonar ranges, respectively). Automated Wreck and Obstruction Information System (AWOIS) items and significant side scan contact investigations were acquired to meet object detection coverage requirements for multibeam surveys. The coverage area totaled 31.5 square nautical miles using a combination of side scan and multibeam to chart H12355.

Parts of the OPR-J348-KR-11 survey area fell within the Gulf Islands National Seashore. Scientific Research and Collecting Permit GUI5-2011-SCI-0055 was issued by the National Park Service (NPS) on July 5, 2011 which permitted bathymetric data collection and bottom sampling in the waters managed by the NPS. The permit also allowed for tide gauge installation on Ship Island and GPS base station installation on Ship and Horn Islands. A copy of the Scientific Research and Collecting Permit is included in the *OPR-J348-KR-11 Project Correspondence*.

Ten (10) bottom samples were acquired on July 12, 2011 (Day Number 193). Predetermined sample locations were included in the file *BottomSamples\_point.shp* provided by HSD. Eight (8) AWOIS items were assigned to this survey. Of the eight assigned items, two items were assigned as full investigation and six items were assigned as information only.

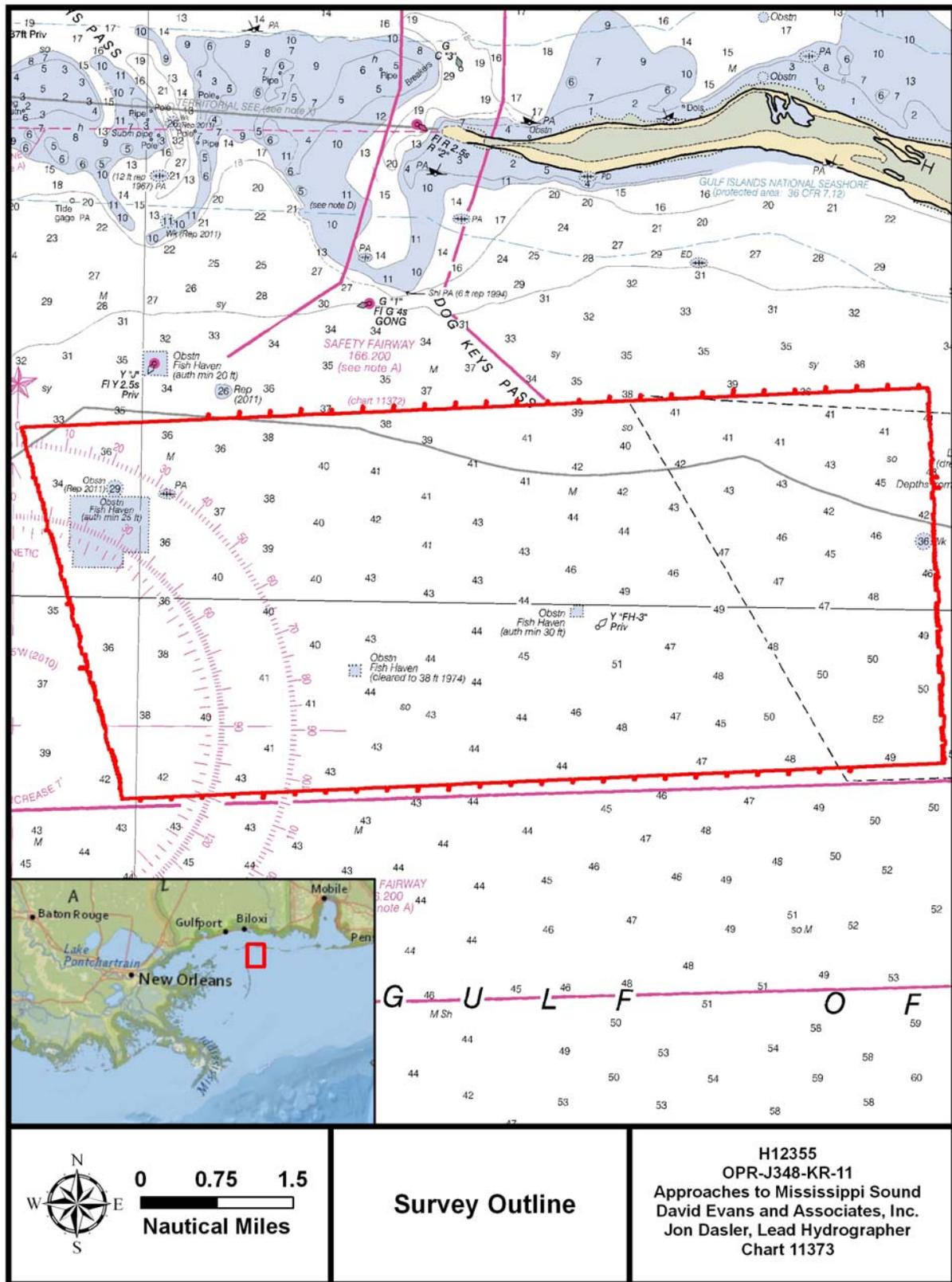


Figure 1. H12355 Survey Area

Data acquisition was conducted from July 12, 2011 (DN 201) to November 11, 2011 (DN 315). Table 1 lists specific dates of acquisition of survey data. In addition, dates of patch test data acquisition used to determine system biases in support of the survey are also shown and included in the digital deliverable, though survey data was not necessarily collected on those days.

**Table 1. H12355 Days of Acquisition**

<b>Dates of Acquisition</b>	
<b>Month</b>	<b>Dates</b>
July	12 ,20, 24, 31
August	21-31
September	7-11, 21
October	5
November	11
<b>Dates of Patch Test Acquisition</b>	
July	13
August	14, 26
September	7
November	11

Detailed survey statistics of H12355 are provided in Table 2.

**Table 2. H12355 Survey Statistics**

<b>Survey Statistics</b>	<b>Research Vessel (R/V) <i>Westerly</i></b>
MBES/SSS main scheme (nm)	919.4
Crosslines (MBES nm)	93.2
Number of item investigations that required additional survey effort	0
Total number of square nautical miles	31.5

## B. DATA ACQUISITION AND PROCESSING

### B1. Equipment

Equipment and vessels used for data acquisition and survey operations during this survey are listed below in Table 3.

**Table 3. R/V *Westerly* Equipment and Vessel Specifications**

<b>R/V <i>Westerly</i></b>	
	
IMO Number	1AR38CATK011
Official Number (O/N)	1231991
Builder	Armstrong Marine
Design	Catamaran
Year Built	2011
Weight	13 gross tons, 10 net tons
Length Overall	38'
Beam	16.5'
Draft, Maximum	4.6'
Cruising Speed	26 knots
Max Survey Speed	9 knots
Primary Echosounder	RESON 7125-SV2
Side Scan Sonar	Edgetech 4200-HFL
Sound Velocity Equipment	Reson AML Micro X Brooke Ocean MVP-30 with AML Smart SVP+ (Primary) Sea-Bird SEACAT SBE-19 CTD Profiler
Positioning & Attitude	Applanix POS/MV 320 v4

The R/V *Chinook*, which is described in the OPR-J348-KR-11 *Data Acquisition and Processing Report* (DAPR), was not utilized in the survey of H12355. There were no other vessel or equipment configurations used during data acquisition that deviated from those described in the DAPR.

## **B2. Quality Control**

Survey data show good internal consistency. On average weekly bar checks agreed better than 0.02 meters, with a maximum uncertainty of 0.04 meters at 95% confidence level, as shown in Appendix II of the DAPR. Results from both crossline analysis and final Combined Uncertainty and Bathymetry Estimator (CUBE) surface uncertainty both indicate good internal consistency of the multibeam data.

### **B2.a Crosslines**

A total of 93.2 nautical miles of crosslines, or 10.1% of all survey lines, were run for analysis of survey accuracy. Crosslines were run in a direction perpendicular to main scheme lines across the entire surveyed area, providing a good representation for analysis of consistency. All crosslines were used for crossline comparisons.

Crossline analysis was performed using the CARIS Hydrographic Information Processing System (HIPS) QC Report tool, which compares crossline data to a gridded surface and reports results by beam number. Crosslines were compared to a 1 meter CUBE surface encompassing mainscheme data for the entire survey area. The QC Report tabular outputs and plots are included in Separate II *Digital Data*. The results of the analysis meet the requirements as stated in the 2011 National Ocean Service (NOS) Hydrographic Surveys Specifications and Deliverables (HSSD).

Additional crossline analysis was performed by computing a 1 meter CUBE surface from the crossline data. The surface was then differenced from a 1 meter CUBE surface comprised of all main scheme, fill, and investigation data. The resultant difference surfaces were exported using the Base Surface to American Standard Code for Information Interchange (ASCII) function and statistics were compiled on the ASCII data. The crossline analysis included over 2,009,507 node comparisons and an average difference of 0.00 meters across all depths between the crossline surface and the main scheme surface, with 0.10 meters of uncertainty at the 95% confidence level.

### **B2.b Uncertainty**

During HIPS processing, the "greater of the two" option was selected, where the calculated uncertainty from total propagated uncertainty (TPU) is compared to the standard deviation (StdDev) of the soundings influencing the node and where the greater value is assigned as the final uncertainty of the node. The uncertainty of the finalized surface increased for nodes where the StdDev of the node was greater than the total propagated uncertainty. The resulting calculated uncertainty values of all nodes in the finalized surface range from 0.33 meters to 0.66 meters.

To determine if surface grid nodes met IHO Order 1 specification, a ratio of the final node uncertainty to the allowable uncertainty at that depth was determined. As a percentage, this value represents the amount of error budget utilized by the uncertainty value at each node. Values over 100% fail to meet specification.

As shown in Table 4, both uncertainty and the allowable error utilized have low average values and a tight StdDev. The maximum values, however, are outliers that fail to meet specification. For the 1 meter CUBE surface, 27 nodes out of 48,866,133 failed to meet specification.

**Table 4. CUBE Uncertainty**

CUBE Finalized Uncertainty Statistics						
	Uncertainty (m)			Allowable error utilized		
	Average	StdDev	Maximum	Average	StdDev	Maximum
1m CUBE	0.33	0.005	0.66	64%	0.01%	126%

The 27 nodes which failed to meet specification were carefully reviewed in CARIS HIPS. Thirteen (13) nodes were located in the fish haven on the western side of the survey area, and 14 nodes were located in the fish haven on the eastern side of the survey area. Reviewing the underlying data in subset showed good agreement between survey lines with no anomalies. The high standard deviation, which resulted in the nodes being reported as out of specification, is considered an artifact of gridding data over point features. As a result, all nodes are considered within specification and no area within the survey exceeds International Hydrographic Organization (IHO) Order 1 specifications for depth accuracy.

**B2.c Junctions**

Survey H12355 junctions with OPR-J348-KR-11 surveys H12353 to the east, H12354 to the north, H12356 to the west and prior National Oceanic and Atmospheric Administration (NOAA) survey H11545 to the south. At the time of writing, junction analysis with survey H12356 had not been completed. Junction analysis between H12355 and H12356 will be discussed in the respective Descriptive Report.

One (1) meter finalized surfaces from surveys H12353 and H12354 were compared to the H12355 surface using CARIS Bathy DataBase. The resultant difference surface was exported to ASCII and statistics were compiled on the ASCII data. Both junctions agreed well, with a mean difference of -0.02 meters and 0.01 meters with surfaces from surveys H12353 and H12354, respectively. Statistics of each junction comparison are listed below in Table 5. A qualitative review of the junction showed no anomalous areas in either junction.

**Table 5. Results of Junction Analysis of prior NOAA Surveys with H12355**

Survey Junction Sheet	Junction Direction	Number of Nodes Compared	Minimum Depth Difference (m)	Maximum Depth Difference (m)	Mean Depth Difference of Nodes (m)	Standard Deviation of Nodes (m)
H12353	East	231524	-0.22	0.14	-0.02	0.05
H12354	North	601513	-0.20	0.22	0.01	0.03
H11545	South	469424	-0.41	0.65	0.07	0.12

A Bathymetric Attributed Grids (BAG) for survey H11545 was downloaded from NOAA’s Nation Geophysical Data Center. The 1 meter finalized H12355 surface was compared to the prior survey using the same methodology to generate statistics. The junction agreed reasonably well, with a mean difference of 0.07 meters. Statistics of the junction comparison are listed below in Table 5. A qualitative review of the junction showed no anomalous areas in junctions to surveys H12354 and H11545. It should be noted that the H11545 area was surveyed in 2006 and compiled using traditional discrete tidal zoning while H12355 was compiled using ERS methods.

**B2.d Sonar System Quality Checks**

Quality control is discussed in detail in Section B of the DAPR. The results from the positioning system comparison and bar-to-multibeam comparison are included in Separate I *Processing Logs*. The sound velocity profile (SVP) sensor weekly evaluation table can be found in Separate II *Sound Speed Data* of this report. Multibeam data were reviewed at multiple levels of data processing including: CARIS HIPS conversion, subset editing, and analysis of anomalies revealed in CUBE surfaces. Submerged significant features identified during survey operations were noted in the acquisition logs, saved to Isis cursor log files, and then displayed during HIPS editing to act as a check during feature compilation. In addition to the field interpretation of side scan contacts, two independent post-processing reviews of the side-scan data were conducted, and all significant contacts or potentially significant contacts tracked in a custom database.

**B2.e Unusual Conditions or Data Degradation**

Occasional loss of bottom tracking was observed in the multibeam sonar onboard the R/V *Westerly*, possibly due to sheet cavitation sporadically blanking the sonar’s transmit array. The resulting erroneous depths were manually removed during multibeam data processing. This error seldom resulted in a CUBE surface node of low density, and in no instance left a full swath three node holiday.

**B2.f Object Detection and Coverage Requirements**

Survey speeds were maintained to meet or exceed object detection requirements throughout the survey.

Demonstration of 200% side scan sonar coverage was achieved by producing two separate 100% 1 meter resolution mosaics. Mosaics were thoroughly reviewed for holidays and areas of poor quality coverage due to biomass, vessel wakes, or other factors. A fill plan was created for holidays and poor quality coverage areas in water depths greater than 18 feet.

Multibeam data were acquired in conjunction with side scan sonar collection. A fill plan was created for all holidays greater than three nodes long that extended across the entire multibeam track line.

The sounding density requirement of 95% of all nodes, populated with at least five soundings per node, was verified by exporting the density child layer of each CUBE surface to an ASCII text file and compiling statistics on the density values. More than 98.6% of all final CUBE surface nodes contained five or more soundings. Density statistics of individual item investigation surfaces using Complete Coverage requirements were reviewed and all surpassed the 95% requirement.

### **B3. Corrections to Echo Soundings**

Data reduction procedures for survey H12355 are detailed in the DAPR. For detailed information pertaining to applied filters, refer to the multibeam processing logs in Separate I *Processing Logs*.

#### **B3.a Deviations from DAPR**

There were no deviations from the OPR-J348-KR-11 DAPR.

#### **B3.b Additional Calibration Tests**

No additional calibration tests were conducted beyond those discussed in the OPR-J348-KR-11 DAPR.

### **B4. Data Processing (Data Representation)**

#### **B4.a Multibeam**

Bathymetric grids were created relative to Mean Lower Low Water (MLLW) in CUBE format using complete coverage and object detection resolutions described in the NOS HSSD (April 2011).

Since the entire survey was contained within a single depth range as defined in the NOS HSSD (April 2011), no depth thresholds were applied during surface finalization.

Duplicate bathymetric grids relative to the North American Datum of 1983 (NAD83) (CORS96) were generated by subtracting the VDatum derived separation model used during tide correction from the bathymetric grids.

Table 6 lists the CUBE surfaces submitted with this survey. The surface named “\_INV,” is a combined surface comprised of all investigation data at object detection resolution. In addition a field sheet and surface was submitted for each of the 11 significant individual investigations. The name of each individual investigation field sheet corresponds to the primary side scan sonar

contact name. When reviewing the CUBE surface for the entire survey, one additional sounding was designated over an object that was not significant in order to have the final CUBE surface accurately represent the seafloor in accordance with NOS HSSD.

**Table 6. H12355 Multibeam Surfaces**

Surface Name	Resolution
H12355_1m_MLLW_1of2	1.0m
H12355_50cm_MLLW_INV_2of2	0.5m
H12355_1m_NAD83CORS96_1of2	1.0m
H12355_50cm_NAD83CORS96_INV_2of2	0.5m

#### **B4.b Side Scan**

Side scan sonar mosaics were created for each 100% coverage at 1 meter resolution. Mosaics submitted with this survey are listed in Table 7.

**Table 7. H12355 Side Scan Mosaics**

Mosaic Name	Resolution
H12355_SSS_100	1.0m
H12355_SSS_200	1.0m

### **C. HORIZONTAL AND VERTICAL CONTROL**

A complete description of the horizontal and vertical control for survey H12355 can be found under the OPR-J348-KR-11 *Horizontal and Vertical Control Report*, submitted under separate cover. A complete description of Global Positioning System (GPS) post-processing methodology for survey H12355 can be found in the DAPR. A summary of horizontal and vertical control for this survey follows.

Real-time differential GPS navigation logged during acquisition was overwritten with a post-processed navigation solution, created from Applanix POSPac MMS using the SingleBase option. A GPS base station with a dual frequency (L1/L2) receiver was established on Horn Island, Mississippi to enable post-processing using Single Base solutions. The base station was strategically located near the project site in order to meet the 20-kilometer maximum baseline length for single base post-processing defined in the NOS HSSD (April 2011). NAD83 (CORS96) coordinates of the base station are included in the OPR-J348-KR-11 *Horizontal and Vertical Control Report*.

## C1. Vertical Control

The vertical datum for this project is MLLW. Soundings were reduced to MLLW using post-processed GPS derived water levels. The VDatum derived separation model, *MS\_Sound.bin*, was used to reduce NAD83 ellipsoid heights to MLLW as described in the DAPR. The separation model has been included in the digital deliverables.

Traditional discrete tidal zoning from water level stations was not used for sounding reduction in this survey, though zoning provided by the Center for Operational Oceanographic Products and Services (CO-OPS) and verified water level files for the survey have been included with the digital deliverables.

## C2. Horizontal Control

The horizontal datum for this project is NAD83 projected in UTM Zone 16. All of the real-time navigation data were collected in Differential GPS (DGPS) mode. DGPS corrections were received from the U.S. Coast Guard (USCG) beacon at English Turn, Louisiana (293 kHz) or from the secondary beacon at Eglin, Florida (295 kHz). During survey operations, some DGPS outages from the primary beacon occurred. The system was set up to automatically switch to the secondary beacon when the primary signal was lost. Real-time navigation data were overwritten by post-processed Smoothed Best Estimate of Trajectory (SBET) data referenced to NAD83 (CORS96) (2002).

## D. RESULTS AND RECOMMENDATIONS

### D1. Chart Comparison

#### D1.a Survey Agreement with Chart

During the course of data acquisition and processing, H12355 was compared to the largest scale raster navigation charts (RNCs) and electronic navigation charts (ENCs). Table 8 lists the charts and edition dates used for the chart comparison. The results of these comparisons are throughout this section.

**Table 8. Charts Compared to H12355**

Chart	Scale	Edition	Edition Date	Issue Date	Latest LNM	LNM Clear Date
11373	1:80,000	49	09/01/2010	---	08/12	02/21/2012
11374	1:40,000	36	02/01/2012	---	03/12	02/01/2012
US4MS12M	---	19	07/27/2011	02/10/2012	---	02/21/2012
US5MS21M	---	26	07/15/2011	02/10/2012	---	02/21/2012

The latest electronic and raster versions of the relevant charts were reviewed to ensure that all USCG Local Notice to Mariners (LNM) issued during survey acquisition, impacting the survey area, were applied and addressed by this survey. A 50-meter product surface was generated from ENC's of the largest scale charts covering the entire project area using the sounding layer, contour layer, and depth features. An additional 50-meter HIPS product surface of the entire survey area was generated from the finalized 1m CUBE surface. The chart comparison was conducted by creating and reviewing the resultant difference surface.

Contours and soundings generated from combined HIPS product surface were used to aid in the chart comparison. The product surfaces, contours, and soundings were created solely for the chart comparison and have not been submitted as a final deliverable.

Surveyed H12355 depths generally agree with charted depths within 2 feet throughout most of the survey area (Figure 2) with some areas differing by 2 to 5 feet. Surveyed depths are 2 to 5 feet shallower than charted depths toward the eastern and middle survey area, with the greatest difference occurring over a charted 51-foot sounding. Surveyed depths are 2 to 5 feet deeper toward the southwestern corner of the survey area. Areas within the charted fish havens (*Obstrn Fish Haven auth min 25ft* and *Obstrn Fish Haven auth min 30ft*) are deeper than charted by 10 to 15 feet with the exception of obstructions within the fish haven.

The apparent deepening by 5 to 10 feet surrounding the charted wreck on the eastern edge of the sheet is an artifact of the tinning process using Caris Bathy DataBASE.

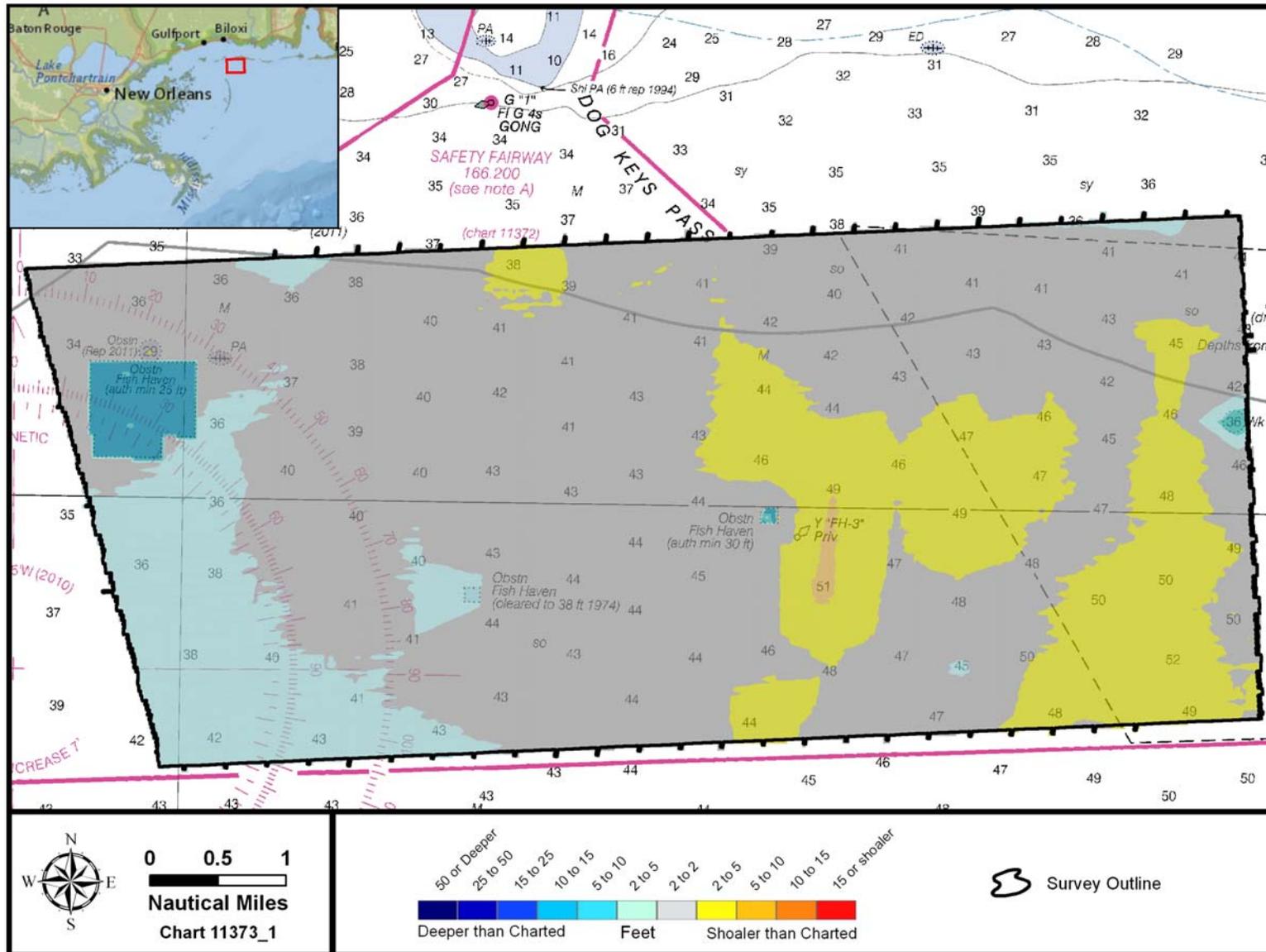


Figure 2. Depth Difference Between H12355 and Combined ENC's

### D1.b Comparison to Significant Shoals

Survey H12355 contains no significant shoals.

### D1.c Comparison to Charted Features

Two (2) AWOIS items were assigned for full investigation within survey H12355. Two (2) AWOIS items were assigned for information only. A complete description of these investigations is available in Appendix II *Survey Feature Report*.

Chart 11373 includes an *Obstrn Fish Haven (cleared to 38 ft 1974)* which is charted as an area. This fish haven is charted as a 37-foot point OBSTRN on corresponding ENC US4MS12M. Chart 11366 and corresponding ENC US2GC14M both depict this obstruction as an area. The hydrographer recommends charting the fish haven obstruction as an area feature on ENC US4MS12M. No obstructions were observed within this charted fish haven during the H12355 survey.

All charted features are listed by field charting action in Appendix II *Survey Feature Report* and included in the S-57 feature file. Charted features that were included in the assigned feature file that are outside of the survey coverage were not addressed by the survey and have been omitted from the final feature file.

### D1.d Comparison of Soundings in Designated Anchorages and Along Channels

H12355 survey area does not contain any anchorage areas, maintained navigation channels or channel lines.

### D1.e New Submerged Features

New submerged features are listed in tabular format in Appendix II *Survey Feature Report* and in the S-57 feature file.

### D1.f Dangers to Navigation (DtoN)

One (1) DtoN was located during survey H12355 and has been submitted to Atlantic Hydrographic Branch (AHB). The DtoN, which has been reviewed by AHB, is included in the S-57 feature file and should be charted as depicted in the file. The charting status of the DtoN at time of Descriptive Report submission is included in Table 9. The DtoN report and related correspondence is located in Appendix I *Danger to Navigation Reports*.

**Table 9. H12355 DtoN Charting Status**

DtoN	Feature	Applied to Raster Chart	Applied to ENC	AHB Submitted to MCD
1	Obstruction	Yes	Yes	Yes

## **D2. Additional Results**

### **D2.a Shoreline Investigations**

Shoreline investigation was not required for OPR-J348-KR-11.

### **D2.b Comparison with Prior Surveys**

No comparison with prior survey was conducted.

### **D2.c Aids to Navigation (AtoN)**

Charted buoy *Priv Y "FH-3"* was not found during the survey and is considered disproved. The buoy is listed with the attribute "delete" in the feature file.

### **D2.d Overhead Clearance**

There are no overhead bridges, cables, or other structures which would impact overhead clearance in the survey area.

### **D2.e Cables, Pipelines and Offshore Structures**

There were no charted or observed drilling structures, production platforms, or well heads within the survey area. There were also no charted submarine cables or pipelines.

### **D2.f Environmental Conditions Impacting the Quality of the Survey**

From September 1 through 4, 2011 (DN244 to DN247), Tropical Storm Lee impacted the survey area. When comparing survey data collected following the tropical storm to data collected before the storm, only differences in bottom reflectance were observed in numerous areas across the survey sheet. There were no noticeable changes in depths following the tropical storm. The differences in bottom reflectance are apparent in the mosaics of the side scan sonar data.

### **D2.g Construction Projects**

No active construction projects were observed in H12355 survey area.

### **D2.h Bottom Characteristics**

Ten (10) bottom samples were acquired within the survey H12355 limits per the locations indicated in the *BottomSamples\_point.shp* file provided by NOAA. Results are in Appendix V *Supplemental Survey Records and Correspondence*.

### **E. LETTER OF APPROVAL**

The letter of approval for this report and accompanying data follows on the next page.

### **F. SUPPLEMENTAL REPORTS**

Listed below are supplemental reports submitted separately that contain additional information relevant to this survey:

<u><b>Title</b></u>	<u><b>Submittal Date</b></u>
OPR-J348-KR-11 Data Acquisition and Processing Report	February 21, 2012
OPR-J348-KR-11 Horizontal and Vertical Control Report	TBD



DAVID EVANS  
AND ASSOCIATES INC.

**LETTER OF APPROVAL**

OPR-J348-KR-11  
REGISTRY NO. H12355

This report and the accompanying data are respectfully submitted.

Field operations contributing to the accomplishment of survey H12355 were conducted under my direct supervision with frequent personal checks of progress and adequacy. This report and associated data have been closely reviewed and are considered complete and adequate as per the OPR-J348-KR-11 *Statement of Work Statement* (June 2011) and *Hydrographic Survey Project Instructions* dated June 22, 2011.

Digitally signed by Jon Dasler  
DN: cn=Jon Dasler,  
email=jld@deainc.com, o=David  
Evans and Associates, Inc., c=US  
Date: 2012.03.09 13:58:55 -08'00'

---

Jonathan L. Dasler, PE (OR), PLS (OR, CA)  
ACSM/THSOA Certified Hydrographer  
Chief of Party

Digitally signed by Jason Creech  
DN: cn=Jason Creech, o=David  
Evans and Associates, Inc., ou,  
email=jasc@deainc.com, c=US  
Date: 2012.03.09 13:58:30 -08'00'

---

Jason Creech  
Lead Hydrographer

David Evans and Associates, Inc.  
November 2011

APPENDIX I  
TIDES AND WATER LEVELS

- None

## APPENDIX II

# SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCE



OPR-J348-KR-11  
H12355 Bottom Samples

David Evans and Associates, Inc.  
2801 SE Columbia Way, Ste. 130  
Vancouver, WA 98661  
Phone: 360-314-3200  
Fax: 360-314-3250

Sample ID	Target Name	Time (UTC)	Date	Longitude (W)	Latitude (N)	COLOR	NATSUR	NATQUA
16	BS 16	17:31:13	7/12/2011	88/49/37.650	30/11/21.750	4,1	3,17	1,4
17	BS 17	17:37:56	7/12/2011	88/50/06.486	30/10/18.948	4,2	2,1	6,1
18	BS 18	20:19:30	7/12/2011	88/47/04.596	30/10/23.520	4	1	6
19	BS 19	20:26:42	7/12/2011	88/45/46.062	30/11/21.804	4	1	6
20	BS 20	17:46:12	7/12/2011	88/49/19.074	30/08/30.948	4,2	2,1	6,1
21	BS 21	20:09:02	7/12/2011	88/44/04.290	30/10/26.472	4,2	1,3	6,1
22	BS 22	17:58:02	7/12/2011	88/46/33.870	30/08/40.866	7	1	1
23	BS 23	18:08:20	7/12/2011	88/43/30.990	30/08/52.314	2,4	3,1	1,1
24	BS 24	18:16:41	7/12/2011	88/41/37.950	30/09/47.178	4	1	1
25	BS 25	19:57:43	7/12/2011	88/41/23.568	30/11/29.652	4,2	1,3	6,1

# APPENDIX III

## SURVEY FEATURES REPORT

"

F VqP u/"qpg  
CY QKJ/"gki j v  
Y tgemu/"ugg'CY QKJ  
O ctkklo g'Dqwpf ctkgu/"pqqg

## Appendix III - DtoNs

**Registry Number:** H12355  
**State:** Mississippi  
**Locality:** Approached to Mississippi Sound  
**Sub-locality:** South of Little Dog Keys Pass  
**Project Number:** P{R-J348-KR-11  
**Survey Dates:** 20110712 - 20111111

### Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11373	47th	10/01/2008	1:80,000 (11373_1)	[L]NTM: ?
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	29ft_obstruction	Obstruction	8.99 m	30° 11' 04.6" N	088° 50' 17.7" W	---

## 1.1) 29ft\_obstruction

### DANGER TO NAVIGATION

#### Survey Summary

**Survey Position:** 30° 11' 04.6" N, 088° 50' 17.7" W  
**Least Depth:** 8.99 m (= 29.51 ft = 4.918 fm = 4 fm 5.51 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2011-315.00:00:00.000 (11/11/2011)  
**Dataset:** H12355\_DtoN\_Compiled.000  
**FOID:** US 0001413294 00001(0226001590AE0001)  
**Charts Affected:** 11373\_1, 11366\_1, 1115A\_1, 11360\_1, 11006\_1, 411\_1

#### Remarks:

OBSTRN/remrks: FS 238-203758-S. DtoN #1.1. Object rising approximately 2.2m above the natural bottom just north of a charted fish haven.

#### Feature Correlation

Source	Feature	Range	Azimuth	Status
H12355_DtoN_Compiled.000	US 0001413294 00001	0.00	000.0	Primary

#### Hydrographer Recommendations

[None]

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

29ft (11373\_1)

4 ¾fm (1115A\_1, 11360\_1, 11006\_1, 411\_1)

4fm 5ft (11366\_1)

#### S-57 Data

**Geo object 1:** Obstruction (OBSTRN)  
**Attributes:** NINFOM - Add obstruction  
 QUASOU - 6:least depth known  
 SORDAT - 20111111

SORIND - US,US,graph,H12355

TECSOU - 3:found by multi-beam

VALSOU - 8.994 m

WATLEV - 3:always under water/submerged

## Office Notes

SAR: Ensonified with object detection MBES and 200% SSS feature is real. Compile: Feature does exist.  
Delete charted 29 ft obstruction and add new 29 ft obstruction.

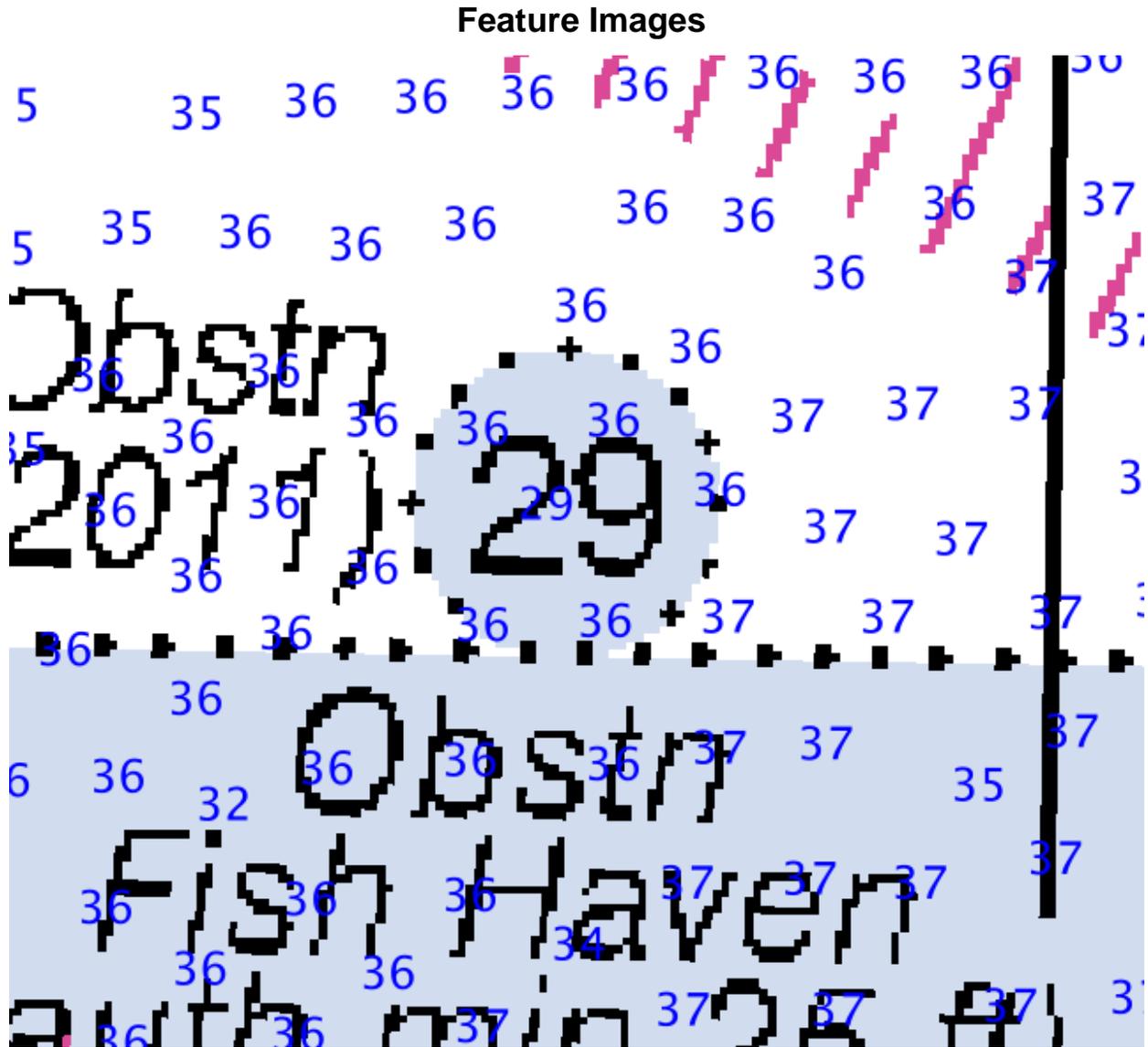


Figure 1.1.1

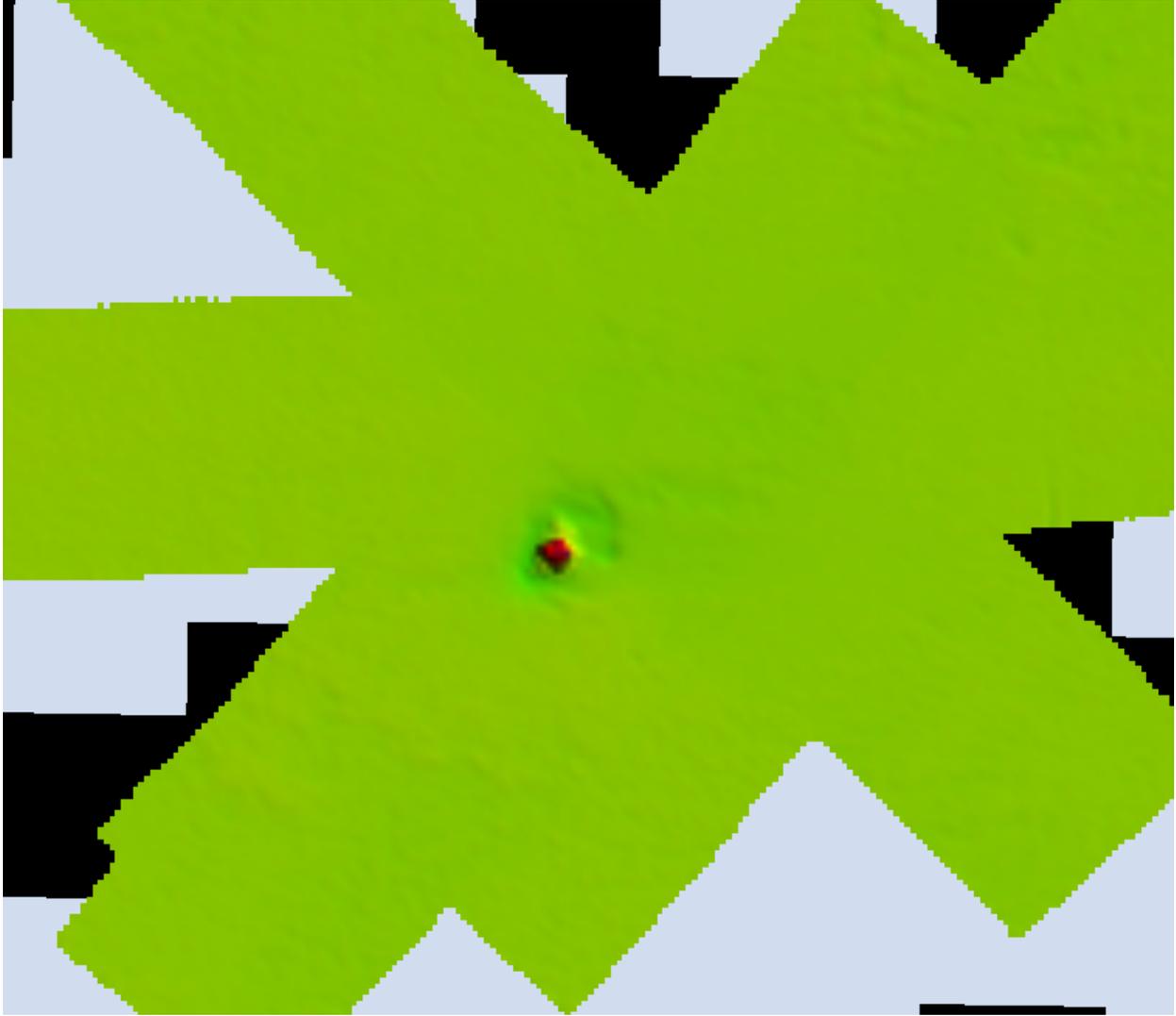
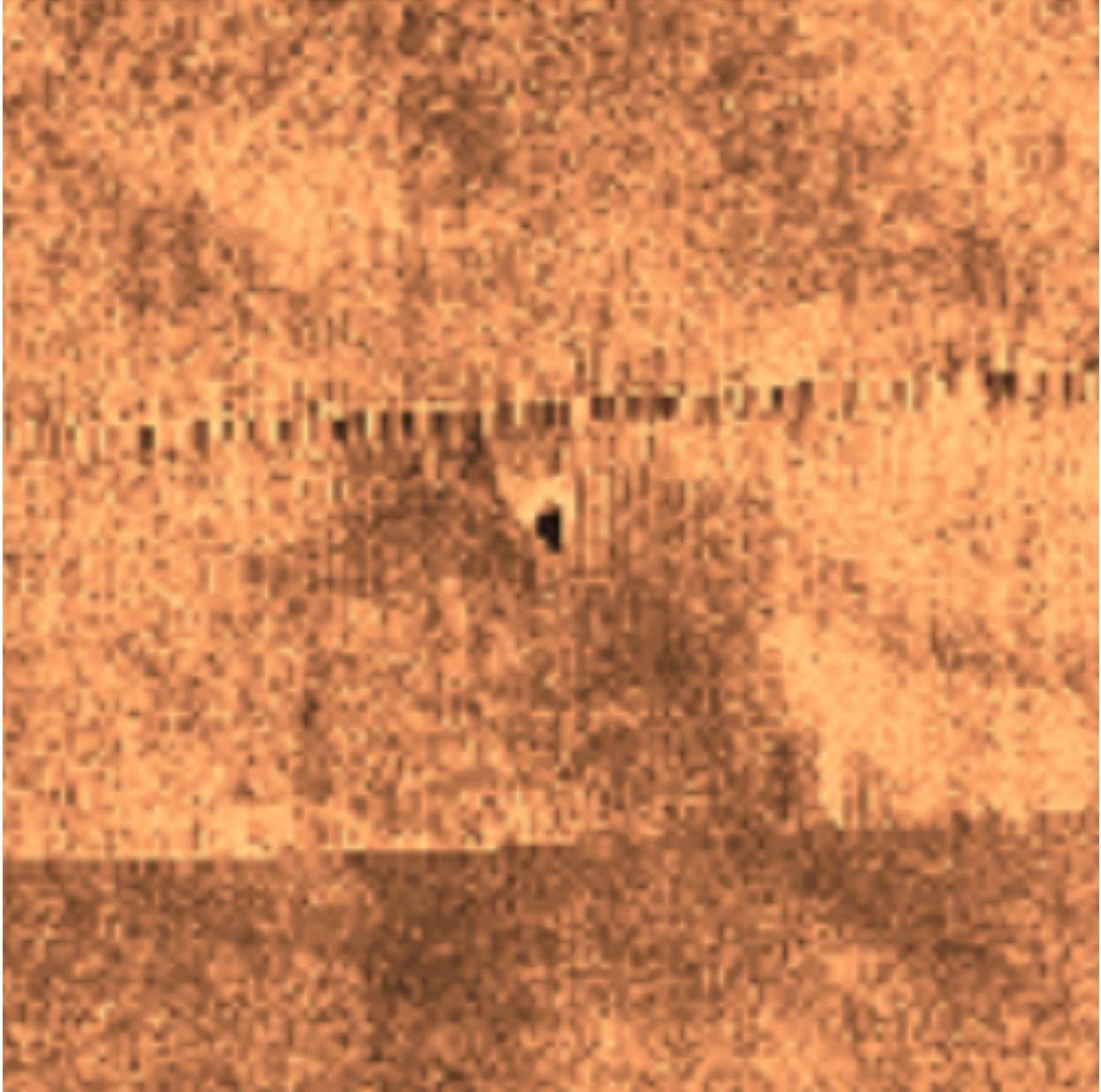


Figure 1.1.2



*Figure 1.1.3*

# H12355 AWOIS Feature Report

**Registry Number:** H12355  
**State:** Mississippi  
**Locality:** Approached to Mississippi Sound  
**Sub-locality:** South of Little Dog Keys Pass  
**Project Number:** P{R-J348-KR-11  
**Survey Date:** 11/11/2011

## Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11374	34th	10/01/2007	1:40,000 (11374_1)	[L]NTM: ?
11373	47th	10/01/2008	1:80,000 (11373_1)	[L]NTM: ?
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	EVA LOUISE	AWOIS	[no data]	[no data]	[no data]	---
1.2	UNKNOWN wreck 36ft	AWOIS	[no data]	[no data]	[no data]	---
1.3	CAMAR -	AWOIS	[no data]	[no data]	[no data]	---
1.4	NORTH SEA	AWOIS	[no data]	[no data]	[no data]	---
1.5	UNKNOWN Wreck PA	AWOIS	[no data]	[no data]	[no data]	---
1.6	31ft_wreck	Wreck	9.38 m	30° 10' 32.0" N	088° 50' 27.1" W	5853
1.7	32ft_wreck	Wreck	9.73 m	30° 09' 55.8" N	088° 45' 03.0" W	7489
1.8	40ft Obstruction	Obstruction	12.38 m	30° 09' 55.2" N	088° 44' 57.7" W	7488

# **1 - Charted Features**

## 1.1) AWOIS #5852 - EVA LOUISE

### No Primary Survey Feature for this AWOIS Item

**Search Position:** 30° 09' 15.7" N, 088° 47' 30.1" W  
**Historical Depth:** [None]  
**Search Radius:** 0  
**Search Technique:** [None]  
**Technique Notes:** [None]

#### History Notes:

##### SURVEY REQUIREMENT COMMENTS

INVESTIGATION SHOULD DETERMINE IF DUMPING HAS ACTUALLY OCCURED ì  
ON WRECK. IF EXISTENCE OF WRECK IS SUSPECTED, A LD IS REQUIRED. ì  
IF A GENERAL RUBBLE FIELD IS INDICATED WITHOUT INDICATION OF ì  
WRECK AND CHARTED REPORTED LEAST DEPTH (29 FT) IS VALID (IE. NO ì  
LESSER DEPTHS SUSPECTED), THEN NO FURTHER INVESTIGATION REQUIRED.

##### HISTORY

NM32/60--F/V EVA LOUISE, MAST VISIBLE, REP. SUNK IN APPROX. ì  
LAT. 30-09-15N, LONG. 88-47-30W. FLASHING WHITE LIGHT (3 SEC.) ì  
AND 55 GAL. DRUM PAINTED GREEN, MARK SITE.

NM12/62--LIGHT AND DRUM MARKING WRECK OF EVA LOUISE REP. MISSING. MAST ì  
REP. NO LONGER VISIBLE. MARINERS ADVISED TO PROCEED WITH CAUTION ì  
IN AREA.

CL1453/69--COE; APPLICATION FOR PROPOSED FISH HAVENS BY ì  
MISSISSIPPI GULF FISHING BANK, INC. P.O. DRAWER CC, BILOXI, MISSISSIPPI, 39533, ì  
WALTER F. FOUNTAIN, SECRETARY. PERMIT ISSUED ON JAN 8, ì  
1970. FISH HAVEN NO. 3 TO BE LOCATED IN LAT. 30-09-12N, LONG. ì  
88-47-30W. HAVEN WILL CONTAIN A CIRCULAR AREA OF APPROX. 1 (ONE) ì  
ACRE OF AUTO. BODIES, APPLIANCES, CULVERT PIPE, ABANDONED OIL ì  
PIPELINE, RIP RAP, AND CONCRETE RUBBLE. LOCATION(S) SELECTED DUE ì  
TO PRESENCE OF "SUNKEN BOATS" AT THE SITES.

CL674/73-BILOXI CHAMBER OF COMMERCE TO COE (WALTER F. FOUNTAIN, ì  
SECRETARY OF MISS. GULF FISHING BANKS, INC. TO FRANCIS STEVENS, ì  
PERMITS DEPT. COE); HAVEN BEING WORKED ON PERIODICALLY; HEIGHT ì  
ABOVE BOTTOM "SHOULD NOT EXCEED 5 FEET" AND NEVER BE GREATER ì

THAN EXISTING HAZARD OR WRECK. (REF. CL1453/69 CANCELLED).

NM31/73--FISH HAVEN EST. IN LAT. 30-09-16N, LONG. 88-47-31W.

LNM37/73--REPEATS ABOVE NM31/73 INFO.

LNM17/75--FISHING REEF BUOYS FH3 AND FH6 PREVIOUSLY REP. EST. ì  
"TO MARK SUNKEN LIBERTY SHIP HULLS" HAVE BEEN DISCONTINUED. FH3 ì  
NOW MARKED BY FISHING REEF LIGHTED BUOY FH3 FL 4 SEC. IN LAT. ì  
30-09-12N, LONG. 88-47-30W IN 44 FEET WITH "CLEARANCE OF 29 FEET" ì  
REP. OVER REEF AT MLW.

CL75/76--PROPOSED REVISED FISH HAVEN LOCATION; PROPOSED NEW ì  
LOCATION IN LAT. 30-09-04N, LONG. 88-44-05W. THIS LOCATES A ì  
SUNKEN LIBERTY SHIP HULK WHICH WAS SUNK ACCIDENTLY BEFORE ì  
REACHING THE ORIGINAL PERMITTED SITE (LAT. 30-09-12N, LONG. ì  
88-47-30W). 29 FEET OVER HULK IN 44 FEET. ORIGINAL SITE IS A ì  
CHARTED SUNKEN WRECK (THE "EVA LOUISE"). NO FURTHER REEF MATERIALS ì  
ARE TO BE ADDED TO THIS CHARTED WRECK SITE. PLANS ARE TO SINK ì  
ANOTHER LIBERTY SHIP HULL AT REVISED LOCATION. \*\* NOTE: THIS NEW ì  
POSITION IS INCORRECT. SEE CL921/76 BELOW FOR CORRECT POSITION.

LNM9/76--FH3 BUOY POS. CORRECTED TO LAT. 30-09-45N, LONG. ì  
88-44-05W.

CL921/76--CORRECT POSITION OF FISH HAVEN IS LAT. 30-09-45N, ì  
LONG. 88-44-54W. SINKING OF ONE (1) ADDITIONAL LIBERTY HULK IS ì  
STILL PROPOSED AT THIS SITE. CLEARANCE OVER REEF IS 31 FEET AT ì  
MLW IN 46 FEET.

CL535/79--NAVOCEANO REPORT; FISH HAVEN CONSISTING OF TWO (2) ì  
LIBERTY SHIP HULKS LOCATED BY SIDE SCAN SONAR (EG) IN 1977 ì  
DURING A TRAINING EXERCISE (HYSURCH I). THIS WAS IDENTIFIED AS THE ì  
"WATER HOUSE REEF" IN LAT. 30-09.77N, LONG. 88-44.93W. "CLEARANCE ì  
DEPTH OF 30 FEET". ("TECHNICAL NOTE, RELOCATION OF MISSISSIPPI ì  
FISH HAVENS WITH SIDE SCAN SONAR AND LORAN-C; A PRELIMINARY REPORT ì  
", APRIL, 1979-UNVERIFIED DATA). LORAN-C POSITION (ASSUME ì  
OBSERVED RATES) 9930 CHAIN; W=13035.6, Z=68465.7.

LNM21/79--LIGHTED BUOY "FH3" IN LAT. 30-09-06N, LONG. ì  
88-44-05W DELETED. CORRECT LEGEND FOR "WATER HOUSE FISH HAVEN" IN ì  
LAT. 30-09-46.2N, LONG. 88-44-55.8W TO "REP MIN DEPTH 30 FT".

LNM31/80--MISSISSIPPI GULF FISHING BANK LIGHTED BUOY "FH-3" (LIG ì  
HT LIST NO. 156.40) EST. IN APPROX. POS. LAT. 30-09-45N, LONG. ì

88-44-48W IN 45 FEET. QK FL, PAINTED ORANGE AND WHITE. LEAST 30 FEET CLEAR DEPTH OVER FISHING BANK IS 30 FEET. LNM32/80--BUOY "FH-3" (LL 156.40) DISPLAYS A FL 4 SEC LIGHT WITH RADAR REFLECTOR. (UP. 3/3/89, SJV) FE309WD/74--OPR-479-RU/HE-74; FORMERLY H-9420WD, MODIFIED EVALUATION REPORT; NOT LOCATED BUT CLEARED IN TWO DIRECTIONS BY 38 FEET, 1 MILE MIN. RADIUS. EVALUATOR RECOMMENDS RETAIN AS CHARTED WITH LABEL (CLEARED TO 38 FEET, 1974). (ITEM NO 56) FE313SS/88--OPR-J433-RU/HE-88; 200% SIDE SCAN SONAR INVESTIGATION NEGATIVE. HYDROGRAPHER RECOMMENDS BOTH WRECK SYMBOL AND "FISH HAVEN" LABEL BE DELETED LOCAL SEA GRANT PERSONNEL RESPONSIBLE FOR MONITORING FISH HAVEN PROGRAM HAD NO KNOWLEDGE OF ITEM. EVALUATOR RECOMMENDS DELETING DANGEROUS SUNKEN WRECK PA BUT RETAINING LABEL "FISH HAVEN, OBSTRUCTION". ADD (CLEARED TO 38FT 1974) IN ACCORDANCE WITH RECOMMEDATION CONTAINED IN FE-309WD/74.

DESCRIPTION

01 F/V EVA LOUISE, 71.3 FT. L., 13.6 FT. W., 7.0 FT. DEEP, 46 GT, 29 NT; BUILT 1925 E. BOOTHBAY MAINE; WOOD CONSTRUCTION, 130 HP; OWNER, RUTH W. HUDSON; HOME PORT, KEY WEST, FLORIDA.  
 01 F/V EVA LOUISE COLLIDED WITH F/V ALGARVIO (222 GT, 500 HP, STEEL HULL) OFF SHIP ISLAND, MISSISSIPPI ON JULY 11, 1960.  
 OPR-J348-KR-11--F/V EVA LOUISE LOCATED WITHIN FISH HAVEN

### Survey Summary

**Charts Affected:** 11373\_1, 11366\_1, 1115A\_1, 11360\_1, 11006\_1, 411\_1

**Remarks:**

DEA CF #51 Fish Haven. AWOIS 5852. No evidence of the vessel EVA LOUISE was observed within the AWOIS radius or Fish Haven area (RNC only).

### Feature Correlation

Source	Feature	Range	Azimuth	Status
AWOIS_EXPORT	AWOIS # 5852	0.00	000.0	Primary

## Hydrographer Recommendations

Chart Fish Haven as an area object as depicted on chart 11373 or by official permitting documentation.

### S-57 Data

[None]

### Office Notes

SAR: Defer to compiler for final charting disposition

Compile: The dominant wreck feature, AWOIS #5852 vessel Eva Louise, documented as existing within the confines of the fish haven located at( Lat. 30-09-19.9 N, Long. 088-47-31.5 W) AWOIS #5852 is considered disproved. The wreck is currently uncharted, consistent with being within the fish haven area object on the RNC and as a fish haven point feature object on the ENC. Retain charted fish haven as an area object as depicted on RNC and consider revising the point feature to an area feature on the ENC. Additionally, recommend reapplication of fish haven source to authorized minimum, if available, to replace currently charted "(cleared to 38 ft 1974)." Shoalest depths from present survey in the fish haven area are 42 feet as is the surrounding area. Currently, fish haven area does not contain any significant features and does not pose any hazard to navigation.

## 1.2) AWOIS #7064 - UNKNOWN wreck 36ft

### No Primary Survey Feature for this AWOIS Item

**Search Position:** 30° 10' 40.7" N, 088° 41' 05.3" W  
**Historical Depth:** [None]  
**Search Radius:** 250  
**Search Technique:** MB,S2,VI  
**Technique Notes:** [None]

#### History Notes:

##### HISTORY

FE329SS/89-- OPR-J433-RU-88; DANGEROUS SUNKEN WRECK LOCATED BY ì  
SSS IN LAT. 30-10-40.02N, LONG. 88-41-05.24W. LD 36 FEET BY ì  
PNEUMATIC DEPTH GAUGE TAKEN ON THE FOREDECK "WHERE THE HOUSE HAD ì  
BEEN". NO MASTS OR SPARS RISING ABOVE THIS POINT. DIVERS DESCRIBE ì  
A 38-FOOT STEEL HULLED VESSEL, 15 FEET WIDE SITTING UPRIGHT ON ì  
THE BOTTOM IN 45 FEET. RECOMMEND DELETING CHARTED DANGEROUS ì  
SUNKEN WRECK (COVERED 37 FEET) AND CHARTING A 36 WK WITH A DANGER ì  
CURVE IN PRESENT SURVEY POSITION. (UP 3/29/90, SJV)

##### DESCRIPTION

\*\*\*\* MESSAGE NOAA SHIP CHAPMAN TO CGD8 JULY 1988; SUNKEN WRECK,  
DANGEROUS TO SURFACE NAVIGATION LOCATED IN LAT. 30-10.61N  
LONG. 88-41.11W, 3.3 NM SOUTH OF HORN IS. LORAN-C RATES  
(7980 CHAIN) W= 12360.1 X=29558.9 Y=47065.0. FIBERGLASS  
AND STEEL. 38FT. LOA, 15FT. BEAM, LD 37FT. IN 45FT. DIVER  
OPR-J348-KR-11--DANGEROUS WRECK

### Survey Summary

**Charts Affected:** 11374\_1, 11373\_1, 11366\_1, 1115A\_1, 11360\_1, 11006\_1, 411\_1

#### Remarks:

DEA CF #53. AWOIS 7064 was disproved by 200% side scan coverage from surveys H12355 and H12356.

## Feature Correlation

Source	Feature	Range	Azimuth	Status
AWOIS_EXPORT	AWOIS # 7064	0.00	000.0	Primary

## Hydrographer Recommendations

[None]

## S-57 Data

[None]

## Office Notes

SAR: Area ensonified with 200% SSS. No feature found. SAR: No wreck observed in MB or SSS. AWOIS 7064 search radius covered by surveys H12355 and H12356. No wreck observed in H12355. Considered as disproved.

Compile: Delete disproved charted dangerous wreck, least depth 36 ft.

### 1.3) AWOIS #2808 - CAMAR -

#### No Primary Survey Feature for this AWOIS Item

**Search Position:** 30° 08' 54.7" N, 088° 44' 12.1" W  
**Historical Depth:** [None]  
**Search Radius:** 0  
**Search Technique:** [None]  
**Technique Notes:** [None]

#### History Notes:

##### HISTORY

LNM41/80--F/V CAMAR AND F/V NORTH SEA PARTIALLY SUNK DUE TO COLLISION, STERNS EXTEND OUT OF WATER IN APPROX. POS. LAT. 30-08.9N, LONG. 88-44.2W. BOTH VESSELS MARKED WITH TEMP. LIGHTED BUOYS. SALVAGE OPERATIONS IN PROGRESS. CHARTED AS VISIBLE WRECK.

LNM48/81--F/V CAMAR AND F/V NORTH SEA PREVIOUSLY REPORTED SUNK (ABOVE). F/V CAMAR REPORTED BROKEN UP AND NO DEBRIS FOUND WHILE THE F/V NORTH SEA WAS MOVED TO DEEPER WATER, POSITION UNKNOWN. SYMBOL REVISED TO DANGEROUS SUBM. WRECK, ED. (SEE AWOIS NO. 02809)

FE313/88/SS--OPR-J433-RU/HE-88; 200% SIDE SCAN SONAR COVERAGE NEGATIVE. CONSIDERED DISPROVED BY HYDROGRAPHER AND EVALUATOR. EVALUATOR RECOMMENDS DELETING THE CHARTED DANGEROUS SUNKEN WRECKS ED. ALSO RECOMMENDS MOVING CHARTED FISH HAVEN (REP MIN DEPTH 30FT) TO LAT. 30-09-55.06N, LONG 88-44-00.66W (SEE AWOIS 2809, 7488, AND 7489 FOR ADDITIONAL INFO.)

### Survey Summary

**Charts Affected:** 11373\_1, 11366\_1, 1115A\_1, 11360\_1, 11006\_1, 411\_1

#### Remarks:

[None]

### Feature Correlation

Source	Feature	Range	Azimuth	Status
AWOIS_EXPORT	AWOIS # 2808	0.00	000.0	Primary

## Hydrographer Recommendations

[None]

### S-57 Data

[None]

### Office Notes

Feature was already disproved in AWOIS database, and deleted from chart. Survey findings agree with former disproval.

## 1.4) AWOIS #2809 - NORTH SEA

### No Primary Survey Feature for this AWOIS Item

**Search Position:** 30° 08' 54.7" N, 088° 44' 12.1" W  
**Historical Depth:** [None]  
**Search Radius:** 0  
**Search Technique:** [None]  
**Technique Notes:** [None]

#### History Notes:

##### HISTORY

LN41/80--F/V NORTH SEA AND F/V CAMAR PARTIALLY SUNK DUE TO COLLISION, STERNS EXTEND OUT OF WATER IN APPROX. POS. LAT. 30-08.9N, LONG. 88-44.2 W. BOTH VESSELS MARKED WITH TEMP. LIGHTED BUOYS. SALVAGE OPERATIONS IN PROGRESS. CHARTED AS VISIBLE WRECK.

LN48/81--F/V NORTH SEA AND F/V CAMAR PREVIOUSLY REPORTED SUNK (ABOVE). F/V CAMAR REPORTED BROKEN UP AND NO DEBRIS FOUND WHILE THE F/V NORTH SEA. WAS MOVED TO DEEPER WATER, POSITION UNKNOWN SYMBOL REVISED TO DANGEROUS SUBM. WRECK, ED. (SEE AWOIS NO. 02808)

FE313SS/88--OPR-J433-RU/HE-88; 200% SIDE SCAN SONAR COVERAGE NEGATIVE. CONSIDERED DISPROVED BY HYDROGRAPHER AND EVALUATOR. EVALUATOR RECOMMENDS DELETING THE CHARTED DANGEROUS SUNKEN WRECKS ED. ALSO RECOMMENDS MOVING CHARTED FISH HAVEN (REP MIN DEPTH 30FT) TO LAT 30-09-55.06N, LONG 88-44-00.66N. (SEE AWOIS NOS. 2808, 7488, AND 7489 FOR ADDITIONAL INFO)  
(UP 10/11/89 SJV)

##### SURVEY REQUIREMENTS

FULL--VERIFY OR DISPROVE THROUGH 200% SIDE SCAN SONAR SEARCH OR WIRE DRAG INVESTIGATION, 1.5NM MIN. RADIUS. LD REQUIRED IF FOUND.

ASSIGNED: OPR J433-RU/HE-88. (FOUND, FE-315, PROCESSING INCOMPLETE)

OPR-J348-KR-11--DISPROVED

## Survey Summary

**Charts Affected:** 11373\_1, 11366\_1, 1115A\_1, 11360\_1, 11006\_1, 411\_1

**Remarks:**

[None]

## Feature Correlation

Source	Feature	Range	Azimuth	Status
AWOIS_EXPORT	AWOIS # 2809	0.00	000.0	Primary

## Hydrographer Recommendations

[None]

## S-57 Data

[None]

## Office Notes

Feature was already disproved in AWOIS database, and deleted from chart. Survey findings agree with former disproval.

## 1.5) AWOIS #14901 - UNKNOWN Wreck PA

### No Primary Survey Feature for this AWOIS Item

**Search Position:** 30° 11' 01.2" N, 088° 49' 42.3" W  
**Historical Depth:** 10.67 m  
**Search Radius:** 200  
**Search Technique:** MB,S2,VI  
**Technique Notes:** [None]

#### History Notes:

LNM 21/03 5/21/2003--36FT S/V HEIR APPARENT, SUNK. UNIT UNABLE TO LOCATE.

### Survey Summary

**Charts Affected:** 11373\_1, 11366\_1, 1115A\_1, 11360\_1, 11006\_1, 411\_1

#### Remarks:

DEA CF #52. AWOIS 14901 was disproved by 200% side scan coverage.

### Feature Correlation

Source	Feature	Range	Azimuth	Status
AWOIS_EXPORT	AWOIS # 14901	0.00	000.0	Primary

### Hydrographer Recommendations

[None]

### S-57 Data

[None]

### Office Notes

SAR: Area ensounded with 200% SSS. No feature (wreck) found. Associated with AWOIS 14901, 36ft sailing vessel "HEIR". Source LNM 21/03 05/21/2003.

Compile: Delete disproved charted dangerous wreck PA, least depth unknown.

## 1.6) US 0000000417 00001 / H12355\_AWOIS\_features\_eo.000

### Primary Feature for AWOIS Item #5853

**Search Position:** 30° 10' 32.3" N, 088° 50' 26.5" W  
**Historical Depth:** 8.53 m  
**Search Radius:** 0  
**Search Technique:** [None]  
**Technique Notes:** [None]

#### History Notes:

##### SURVEY REQUIREMENT COMMENTS

INVESTIGATION SHOULD DETERMINE IF CHARTED AUTH. MIN. DEPTH OF 34 FT. IS VALID. LD REQUIRED IF DEPTH(S) OVER HAVEN ARE LESS THAN CHARTED AUTH. MIN. NATURE AND SIZE OF BARGES SUNK ON HAVEN INDICATE LESSER DEPTHS MAY BE EXPECTED. (FOUND, PROCESSING INCOMPLETE, FE-313WD)

##### HISTORY

CL921/59--COE TO GULFPORT CHAMBER OF COMMERCE, SNAPPER BANKS COMMITTEE, P.O. BOX 1021, GULFPORT MISSISSIPPI (JACK MOODY); AUTHORIZATION TO ESTABLISH A SNAPPER BANK. BARGE LOADED WITH AUTO TIRES WILL BE SUNK ALONG SIDE AN EXISTING WRECK WHICH IS 113 FT. LONG, 40 FT. WIDE, IN 36 FT.

NM46/59--NOT AVAILIABLE.

CL804/86--COE TO NOS (RONALD A. KRIZMAN, OPS. DIV. TO JAMES DAILEY, N/CG2222); COPY OF LETTER FROM SEA GRANT ADVISORY SERVICE (RON LUKENS, BILOXI) TO COE (ERIC A. ROBERTSON, MOBILE); BARGE SUNK BY EXPLOSIVES ON EXISTING SITE, 195 FT. LONG, 35 FT. WIDE, 12 FT. HIGH, LOADED WITH CONCRETE RUBBLE IN LAT. 30-10.3N, LONG. 88-50.4W. PERMIT TO REPLENISH UNDER 10-YEAR MAINTENANCE PLAN EXISTING 5-ACRE ART. REEF IN LAT. 30-10.31N, LONG. 88-50.37W (FORMERLY DESIGNATED MD82-00014-D); MIN. CLEARANCE 34 FT. MLW (PER TONY ROBERTSON, COE, ON 10/31/86); NEW PERMIT NO.

MD86-00008-F

NM8/87--DELETE FISH HAVEN SYMBOL AND BLUE TINT IN LAT. 30-10-31N, LONG. 88-50-37W, AND ADD OBSTRUCTION FISH HAVEN (AUTH

MIN DEPTH 34 FT) IN LAT. 30-10-18N, LONG. 88-50-24W.

FE309WD/74--OPR-479-RU/HE-74; FORMERLY H-9420WD/74; MODIFIED EVALUATION REPORT; ITEM NO. 55; NOT LOCATED BUT CHARTED POSITION CLEARED BY 34 FEET. EVALUATION RECOMMENDS RETAINING AS CHARTED WITH LABEL (CLEARED TO 34 FEET 1974).

CL804/86--COE TO NOS (RONALD A. KRIZMAN, OPS. DIV. TO JAMES DAILEY, N/CG2222); COPY OF LETTER FROM SEA GRANT ADVISORY SERVICE (RON LUKENS, BILOXI) TO COE (ERIC A. ROBERTSON, MOBILE); BARGE SUNK BY EXPLOSIVES ON EXISTING SITE, 195FT. LONG, 35FT WIDE, 12FT. HIGH LOADED WITH CONCRETE RUBBLE IN LAT. 30-10-3N, LONG 88-50-47W. PERMIT TO REPLENISH UNDER 10-YEAR MAINTENANCE PLAN EXISTING 5-ACRE ART. REEF IN LAT 30-10.31N, LONG 88-50-37W (FORMERLY DESIGNATED MD 82-00014-D); MIN. CLEARANCE 34FT. MLW (PER TONY ROBERTSON, COE ON 10/31/86); NEW PERMIT NO. MD 86-0008-F. NM8/87--DELETE FISH HAVEN SYMBOL BLUE TINT IN LAT 30-10-31N, LONG 88-50-37W, AND ADD OBSTRUCTION FISH HAVEN (AUTH MIN DEPTH 34FT) IN LAT 30-10-18N, LONG 88-50-24W.

CL417/88--NOAA SHIP RUDE TO CGD8; LD OF 27.7FT. OBTAINED IN LAT 30-10-32.273N, LONG 88-50-26.469W, OR 444 METERS NNW OF CHARTED FISH HAVEN. LORAN-C RATES 12263.9 AND 47063.3.

LNM21/88--RELOCATE SYMBOL "OBSTRUCTION FISH HAVEN" IN 30-10-18N, 88-50-24W TO 30-10-32.3N, 88-50-26.5W. CHANGE LEGEND TO READ "OBSTRUCTION FISH HAVEN MIN DEPTH 27.7FT).

FE313SS/88--OPR-J433-RU/HE-88; ITEM LOCATED BY ECHO SOUNDER. LD OF 28.0FT. LOCATED IN LAT 30-10-32.27N, LONG 88-50-26.47W. (PNEUMATIC DEPTH GAUGE). WRECK IS APPROX. 444 METERS NORTH OF CHARTED FISH HAVEN. (31 ST EDITION CHART 11373). EVALUATOR RECOMMENDS CHARTING A DANGEROUS SUNKEN WRECK AS SURVEYED (28 WK). BASED ON THE SIDE SCAN SONAR INVESTIGATION CONDUCTED BY THE FIELD UNIT AFTER LOCATING THE BARGE THE EVALUATOR ALSO RECOMMENDS MOVING THE CHARTED FISH HAVEN TO THE BARGE'S POSITION AND DELETING THE LEGEND (AUTH MIN 34FT). ADDITIONALLY, THE RECOMMENDATION IN SECTION 7.A.3 OF THE EVALUATION REPORT FOR FE-309WD/74 TO RETAIN THE CHARTED FISH HAVEN OBSTRUCTION PA IN LAT 30-10-5N, LONG 88-50.6W SHOULD BE DISREGARDED. (UP 10/11/89 SJV)

## Survey Summary

**Survey Position:** 30° 10' 32.0" N, 088° 50' 27.1" W  
**Least Depth:** 9.38 m (= 30.77 ft = 5.128 fm = 5 fm 0.77 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2011-315.00:00:00.000 (11/11/2011)  
**Dataset:** H12355\_AWOIS\_features\_eo.000  
**FOID:** US 0000000417 00001(0226000001A10001)  
**Charts Affected:** 11373\_1, 11366\_1, 1115A\_1, 11360\_1, 11006\_1, 411\_1

### Remarks:

WRECKS/remrks: FS 237-195746-S. DEA CF #49 Fish Haven. AWOIS 5853. Object rising approximately 2.0m above the natural bottom in a charted fish haven.

## Feature Correlation

Source	Feature	Range	Azimuth	Status
H12355_AWOIS_features_eo.000	US 0000000417 00001	0.00	000.0	Primary
AWOIS_EXPORT	AWOIS # 5853	18.66	244.2	Secondary (grouped)

## Hydrographer Recommendations

[None]

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

31ft (11373\_1)

5fm (1115A\_1, 11360\_1, 11006\_1, 411\_1)

5fm 1ft (11366\_1)

## S-57 Data

**Geo object 1:** Wreck (WRECKS)  
**Attributes:** CATWRK - 2:dangerous wreck  
 QUASOU - 6:least depth known  
 SORDAT - 20111111  
 SORIND - US,US,graph,H12355  
 TECSOU - 3,2:found by multi-beam,found by side scan sonar  
 VALSOU - 9.378 m

WATLEV - 3:always under water/submerged

## Office Notes

SAR: Ensonified with object detection MBES and 200% SSS feature is real.

Compile: Feature located inside charted fish haven and does not exceed authorized minimum depth.  
Feature should remain uncharted.

## Feature Images

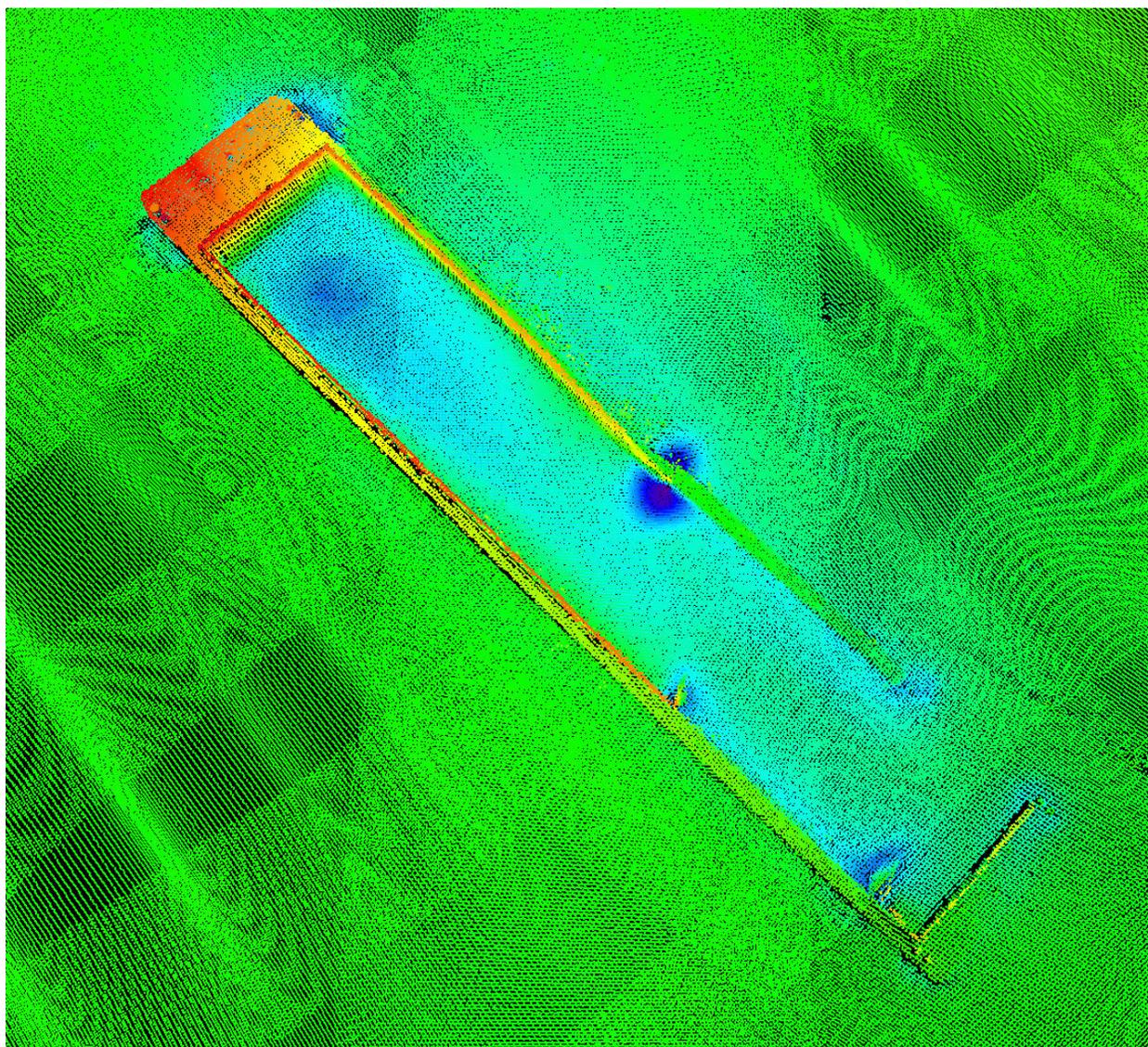


Figure 1.6.1

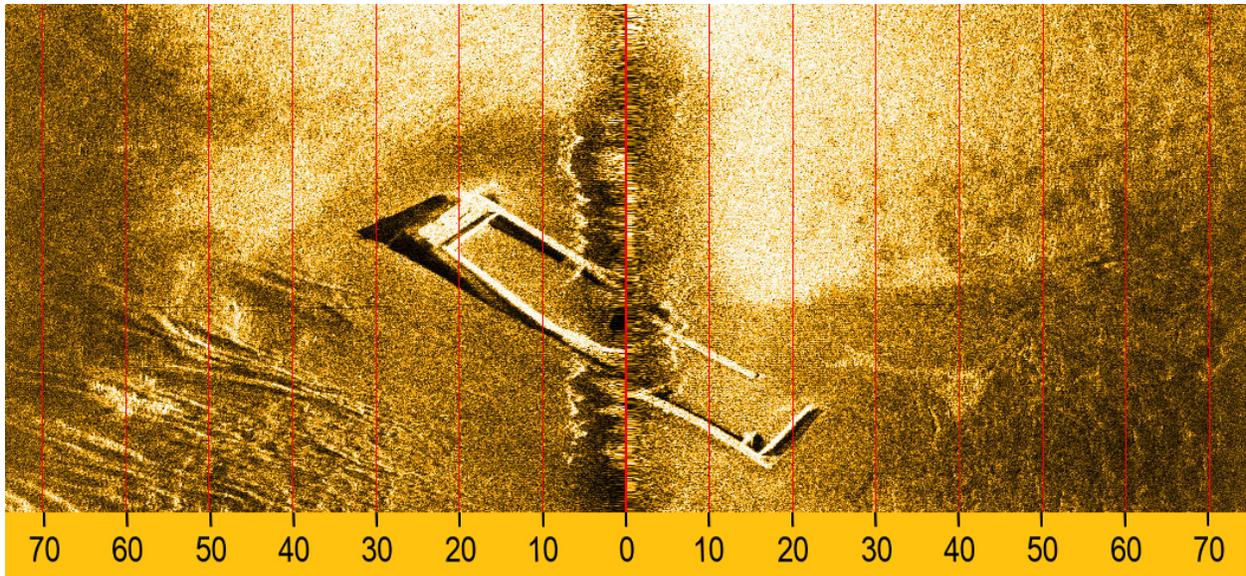


Figure 1.6.2

## 1.7) US 0000000418 00001 / H12355\_AWOIS\_features\_eo.000

### Primary Feature for AWOIS Item #7489

**Search Position:** 30° 09' 55.3" N, 088° 45' 02.7" W  
**Historical Depth:** 9.45 m  
**Search Radius:** 0  
**Search Technique:** [None]  
**Technique Notes:** [None]

#### History Notes:

##### HISTORY

FE313SS/88--OPR-J433-RU/HE-88; WRECK IN LAT 30-09-55.34N, LONG 88-45-02.68W LOCATED WHILE SEARCHING FOR AWOIS NOS. 2808 AND 2809. PNEUMATIC DEPTH GAUGE LD OF 31 FT. WRECK DESCRIBED AS A LIBERTY SHIP HULL, COMPLETELY CUT AWAY 2 FEET ABOVE THE WATER LINE. 450 FT. LONG, 50 FT. WIDE LYING LEVEL AT 42 FEET ON A SOFT SILTY BOTTOM. THIS WRECK (AND ADJACENT AWOIS NO 7488) IS APPROX. 340 METERS NW OF A CHARTED FISH HAVEN. EVALUATOR RECOMMENDS MOVING CHARTED FISH HAVEN (REP MIN DEPTH 30FT) TO THE AVERAGE POSITION OF THESE TWO WRECKS. RETAIN CHARTED NOTATION. VESSELS SUNK AS A FISH HAVEN BY MISSISSIPPI GULF FISHING BANKS INC. (ENT 10/10/89 SJV) LORAN-C RATES (7980 CHAIN) W=12317.4, Y=47061.5  
 OPR-J348-KR-11--OBSTN LOCATED WITHIN FISH HAVEN

### Survey Summary

**Survey Position:** 30° 09' 55.8" N, 088° 45' 03.0" W  
**Least Depth:** 9.73 m (= 31.94 ft = 5.323 fm = 5 fm 1.94 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2011-315.00:00:00.000 (11/11/2011)  
**Dataset:** H12355\_AWOIS\_features\_eo.000  
**FOID:** US 0000000418 00001(0226000001A20001)  
**Charts Affected:** 11373\_1, 11366\_1, 1115A\_1, 11360\_1, 11006\_1, 411\_1

#### Remarks:

WRECKS/remrks: FS 236-160841-S. DEA CF #50 Fish Haven. AWOIS 7489. Wreck rising approximately 4.1m above the natural bottom in a charted fish haven.

## Feature Correlation

Source	Feature	Range	Azimuth	Status
H12355_AWOIS_features_eo.000	US 0000000418 00001	0.00	000.0	Primary
AWOIS_EXPORT	AWOIS # 7489	15.25	328.7	Secondary (grouped)

## Hydrographer Recommendations

[None]

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

32ft (11373\_1)

5 ¼fm (1115A\_1, 11360\_1, 11006\_1, 411\_1)

5fm 2ft (11366\_1)

## S-57 Data

**Geo object 1:** Wreck (WRECKS)  
**Attributes:** CATWRK - 2:dangerous wreck  
 QUASOU - 6:least depth known  
 SORDAT - 20111111  
 SORIND - US,US,graph,H12355  
 TECSOU - 3,2:found by multi-beam,found by side scan sonar  
 VALSOU - 9.734 m  
 WATLEV - 3:always under water/submerged

## Office Notes

**SAR:** Ensonified with object detection MBES and 200% SSS feature is real.

**Compile:** Feature located inside charted fish haven and does not exceed authorized minimum depth. Feature should remain uncharted.

## Feature Images

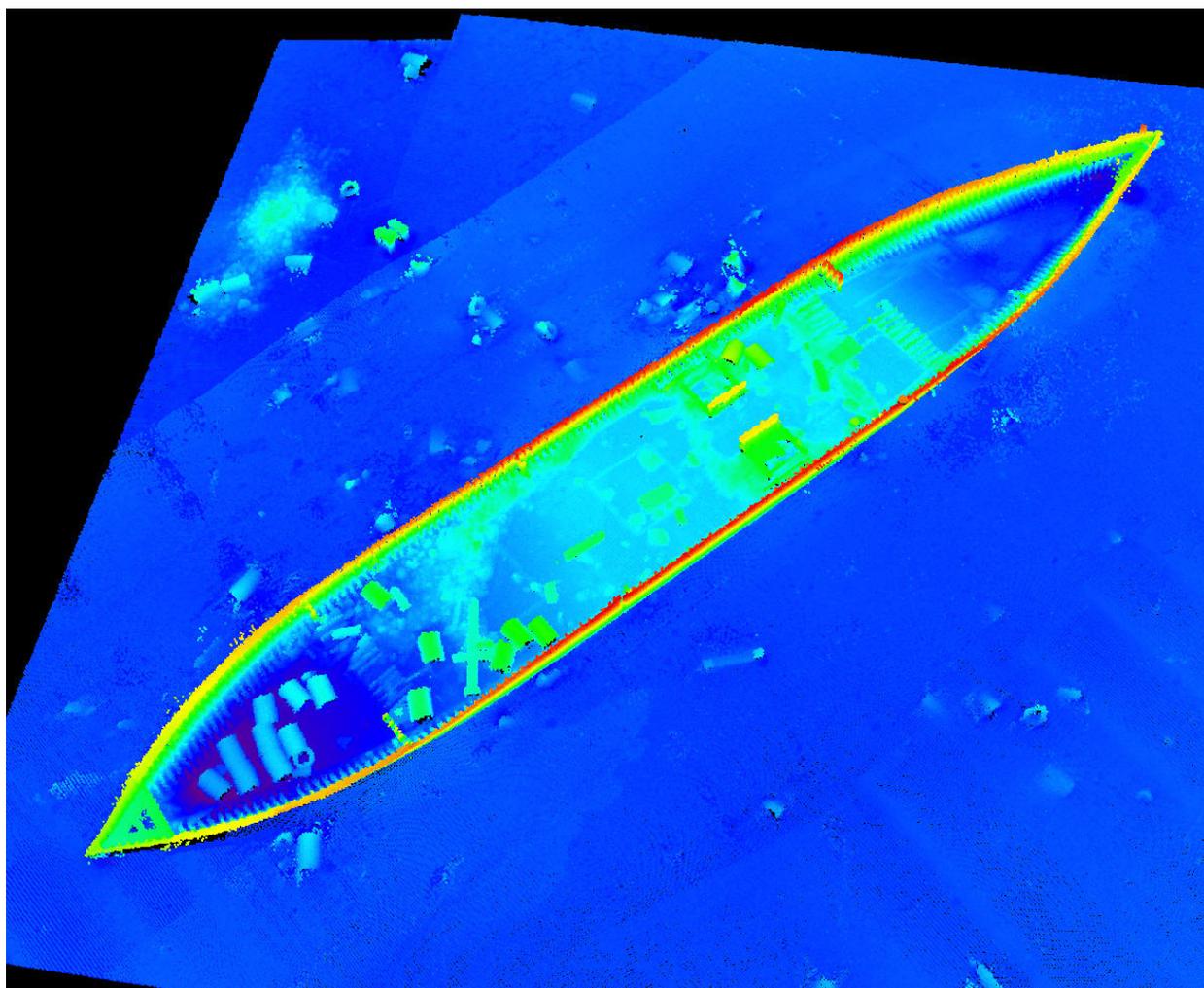


Figure 1.7.1

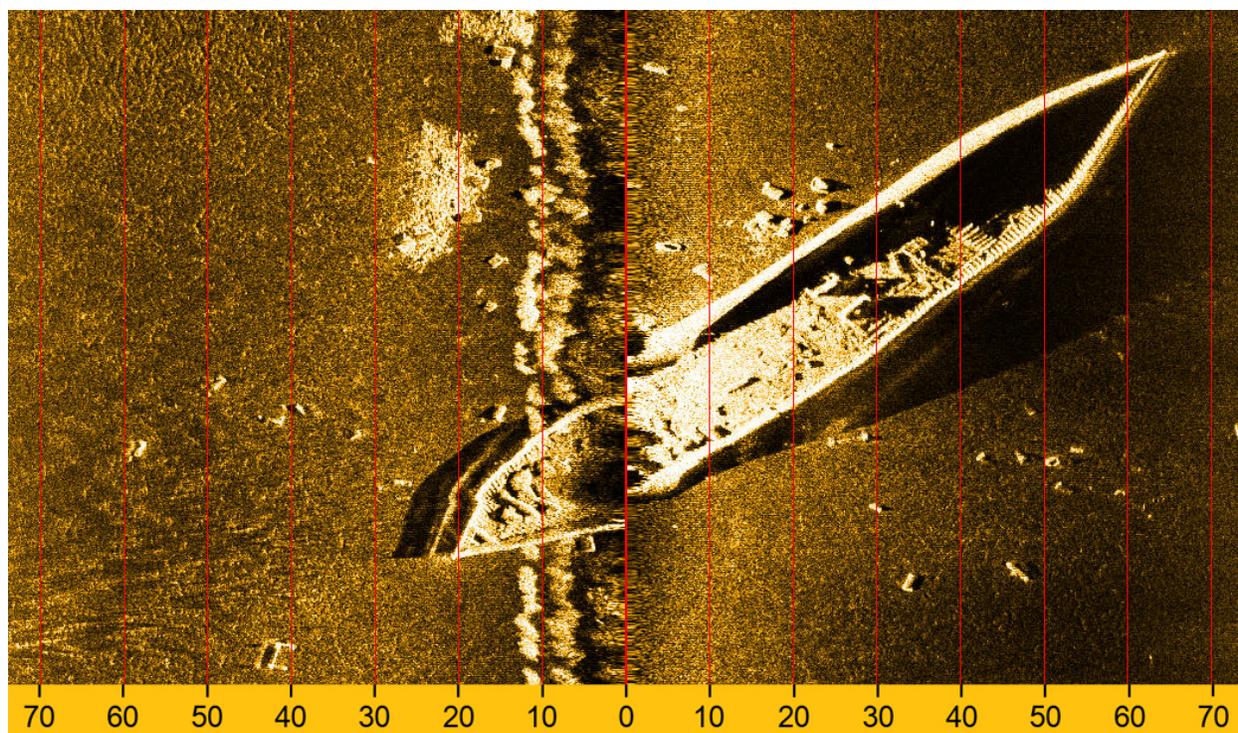


Figure 1.7.2

## 1.8) US 0000000419 00001 / H12355\_AWOIS\_features\_eo.000

### Primary Feature for AWOIS Item #7488

**Search Position:** 30° 09' 54.8" N, 088° 44' 58.6" W  
**Historical Depth:** 9.45 m  
**Search Radius:** 0  
**Search Technique:** [None]  
**Technique Notes:** [None]

#### History Notes:

##### HISTORY

FE313SS/88--OPR-J433-RU/HE-88; WRECK LOCATED IN LAT 30-09-54.78N, LONG 88-44-58.63W. WHILE SEARCHING FOR AWOIS NOS. 2808 AND 2809. PNEUMATIC DEPTH GAUGE LD OF 31FT WRECK DESCRIBED AS A LIBERTY SHIP HULL, COMPLETELY CUT AWAY 2 FEET ABOVE THE WATER LINE. 450 FT. LONG, 50 FT. WIDE. LYING LEVEL AT 42 FEET ON A SOFT SILTY BOTTOM. THIS WRECK (AND AWOIS 7489) IS APPROX. 340 METERS NW OF A CHARTED FISH HAVEN. EVALUATOR RECOMMENDS MOVING CHARTED FISH HAVEN (REP MIN DEPTH 30FT) TO THE AVERAGE POSITION OF THESE TWO WRECKS. RETAIN CHARTED NOTATION. (ENT 10/10/89 SJV) LORAN-C RATES (7980 CHAIN) W=12320.0, Y=47061.6  
OPR-J348-KR-11--OBSTN LOCATED WITHIN FISH HAVEN

### Survey Summary

**Survey Position:** 30° 09' 55.2" N, 088° 44' 57.7" W  
**Least Depth:** 12.38 m (= 40.63 ft = 6.772 fm = 6 fm 4.63 ft)  
**TPU ( $\pm 1.96\sigma$ ):** THU (TPEh) [None] ; TVU (TPEv) [None]  
**Timestamp:** 2011-315.00:00:00.000 (11/11/2011)  
**Dataset:** H12355\_AWOIS\_features\_eo.000  
**FOID:** US 0000000419 00001(0226000001A30001)  
**Charts Affected:** 11373\_1, 11366\_1, 1115A\_1, 11360\_1, 11006\_1, 411\_1

#### Remarks:

OBSTRN/remrks: FS 250-162806-P. DEA CF #50 Fish Haven. AWOIS 7488. Object rising approximately 1.3m above the natural bottom in a charted fish haven.

## Feature Correlation

Source	Feature	Range	Azimuth	Status
H12355_AWOIS_features_eo.000	US 0000000419 00001	0.00	000.0	Primary
AWOIS_EXPORT	AWOIS # 7488	27.59	065.0	Secondary (grouped)

## Hydrographer Recommendations

[None]

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

40ft (11373\_1)

6 ¾fm (1115A\_1, 11360\_1, 11006\_1, 411\_1)

6fm 4ft (11366\_1)

## S-57 Data

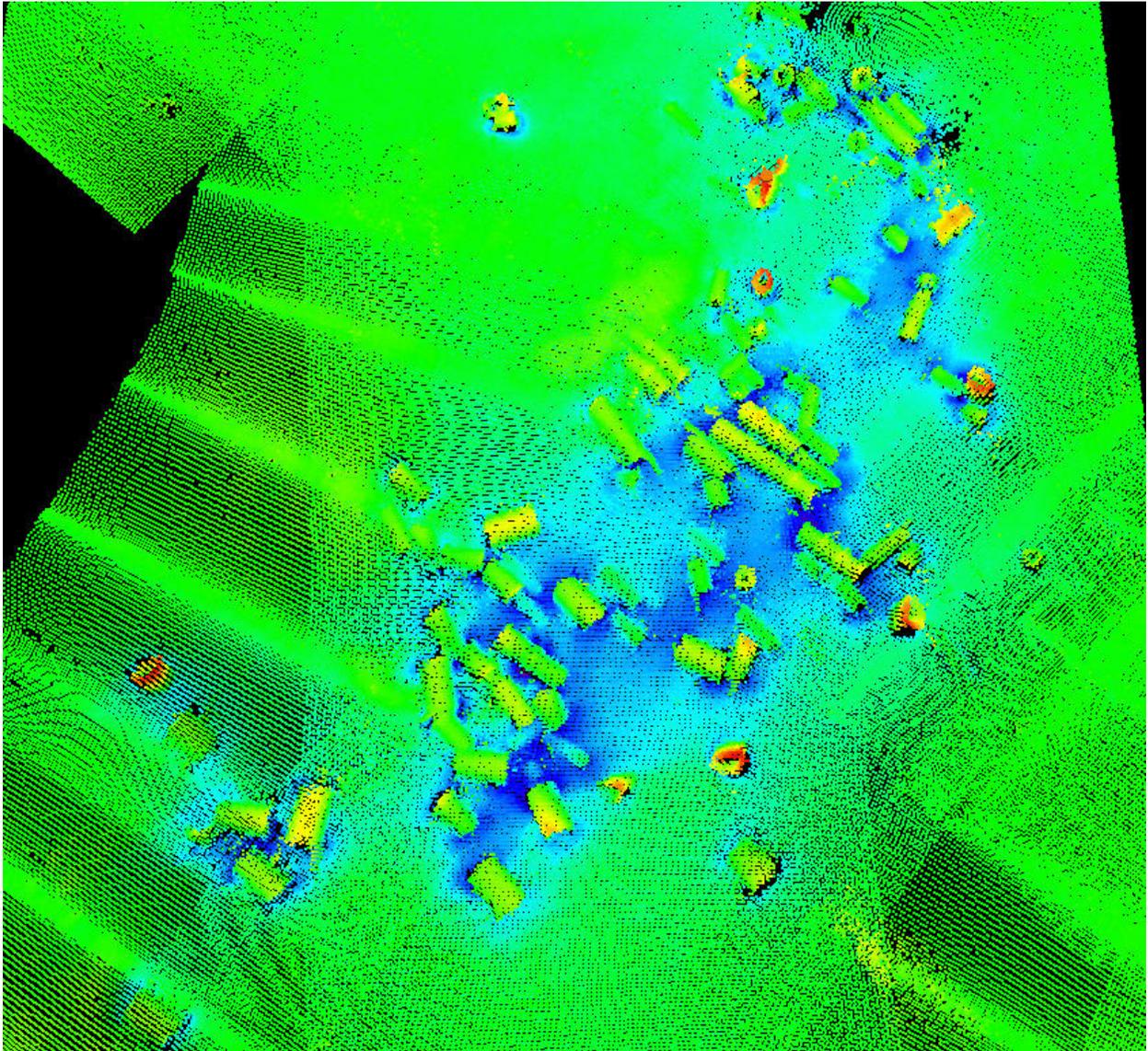
**Geo object 1:** Obstruction (OBSTRN)  
**Attributes:** QUASOU - 6:least depth known  
 SORDAT - 20111111  
 SORIND - US,US,graph,H12355  
 TECSOU - 3:found by multi-beam  
 VALSOU - 12.384 m  
 WATLEV - 3:always under water/submerged

## Office Notes

SAR: Ensonified with object detection MBES and 200% SSS feature is real.

Compile: Feature located inside charted fish haven and does not exceed authorized minimum depth. Feature should remain uncharted.

## Feature Images



*Figure 1.8.1*

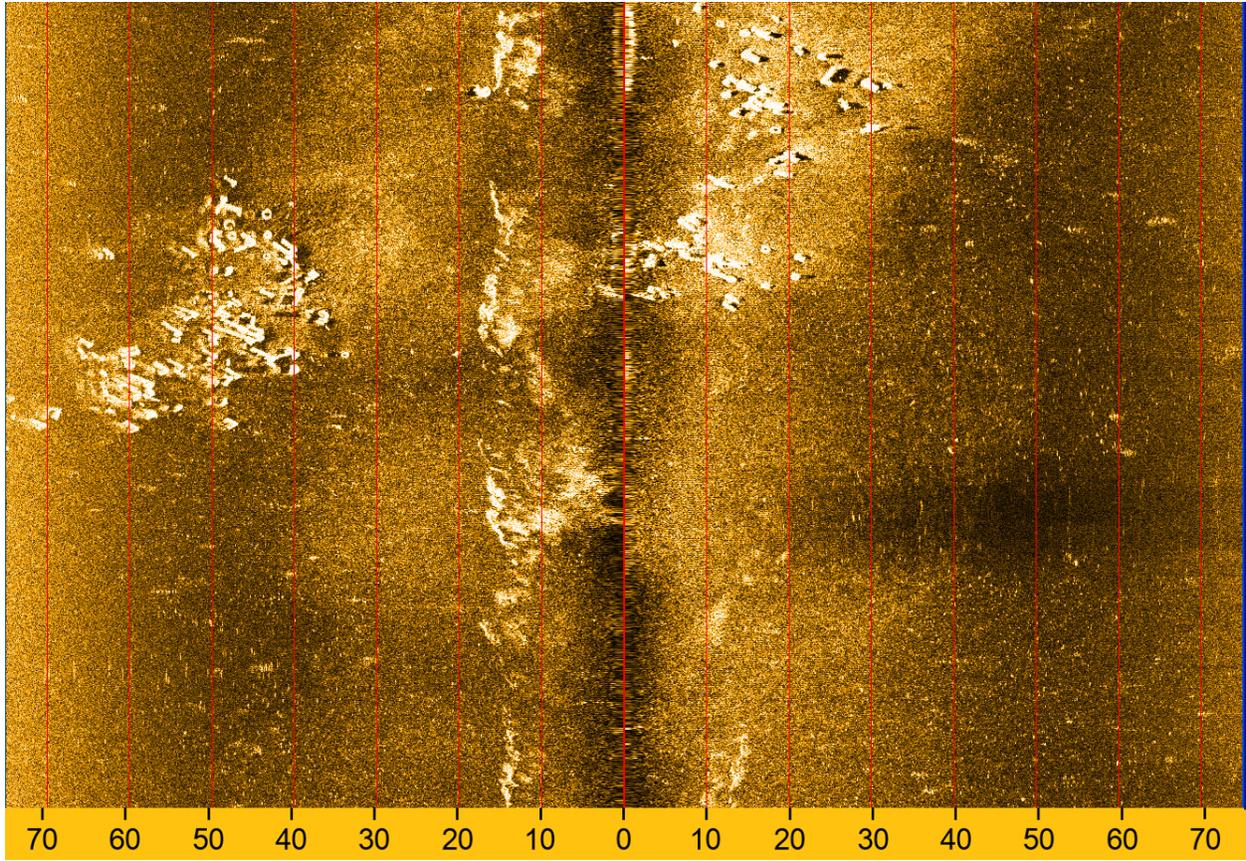


Figure 1.8.2



APPROVAL PAGE

H12355

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

- H12355\_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12355\_GeoImage.pdf

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



Digitally signed by  
HIGGINS.ABIGAIL.SARAH.1267671750  
DN: c=US, o=U.S. Government, ou=DoD,  
ou=PKI, ou=NOAA,  
cn=HIGGINS.ABIGAIL.SARAH.1267671750  
Date: 2012.11.30 16:30:19 -05'00'

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

**LT Abigail Higgins, NOAA**  
Chief, Atlantic Hydrographic Branch