NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

Descriptive Report

Type of Survey *Shallow Water Multibeam Hydrographic and Side Scan Sonar Survey*
Project No. *OPR-J364-KR-09-D*
Registry No. *H12157*

Locality

State *Florida*
General Locality *Gulf of Mexico*
Sub-locality *12 NM SE of Pensacola Bay Entrance*

2010

George G. Reynolds

CHIEF OF PARTY

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HYDROGRAPHIC TITLE SHEET

REGISTRY NO.

H12157

State	*Florida*
General Locality	*Gulf of Mexico*
Sub-Locality	*12 NM SE of Pensacola Bay Entrance*
Scale	*1:10,000*
Date of Survey	*October 23, 2009 - May 11, 2010*
Instructions Dated	*September 21, 2009*
Project No.	*OPR-J364-KR-09-D*
Vessel	*R/V Able II - Registration Number CT4788BB* *R/V Ferrel – O.N. 1182802*
Chief of Party	*George G. Reynolds*
Surveyed By	*John G. Wetmur, Robert M. Wallace, Matthew T. Grennan, Bonnie L. Johnston, Andrew W. Payson, Michael D. Lincoln, John R. Bean, Kerry H. Cutler, Alexander G. Unrein, Joseph V. Tyler, John Ayer*
Soundings by echo sounder	*Reson Seabat 7101*
Verification by	*Michael J. Engels*
Soundings in	*Meters (MLLW)*

REMARKS: *All Times Recorded in UTC*

Data Recorded and Presented relative to UTM Zone 16 North

Original SOW modified by January 21, 2010 Amendment of Solicitation (Refer to Separate III of the Descriptive Report.)

Contractor: *Ocean Surveys, Inc.*
91 Sheffield St.
Old Saybrook, CT 06475

THE INFORMATION PRESENTED IN THIS REPORT AND THE ACCOMPANYING BASE SURFACE REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY OCEAN SURVEYS, INC. DURING THE PERIOD OF 23 OCTOBER 2009 TO 11 MAY 2010 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING AT THAT TIME. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO OSI.

The purpose of this survey is to provide contemporary surveys to update National Ocean Service (NOS) nautical charts. All separates are filed with the hydrographic data. Revisions and Rednotes were generated during office processing. The processing branch concurs with all information and recommendations in the DR unless otherwise noted. Page numbering ma y 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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DESCRIPTIVE REPORT TO ACCOMPANY HYDROGRAPHIC SURVEY H12157

Project Number OPR-J364-KR-09-D
May 11, 2010
Ocean Surveys, Inc. – *R/V Able II*, *R/V Ferrel*
Chief of Party: George G. Reynolds

INTRODUCTION

The purpose of this survey is to provide NOAA with modern, accurate hydrographic survey data to update the nautical chart safety fairway and anchorage areas southeast of Pensacola Bay Entrance, Florida (Figure 1).

A. AREA SURVEYED

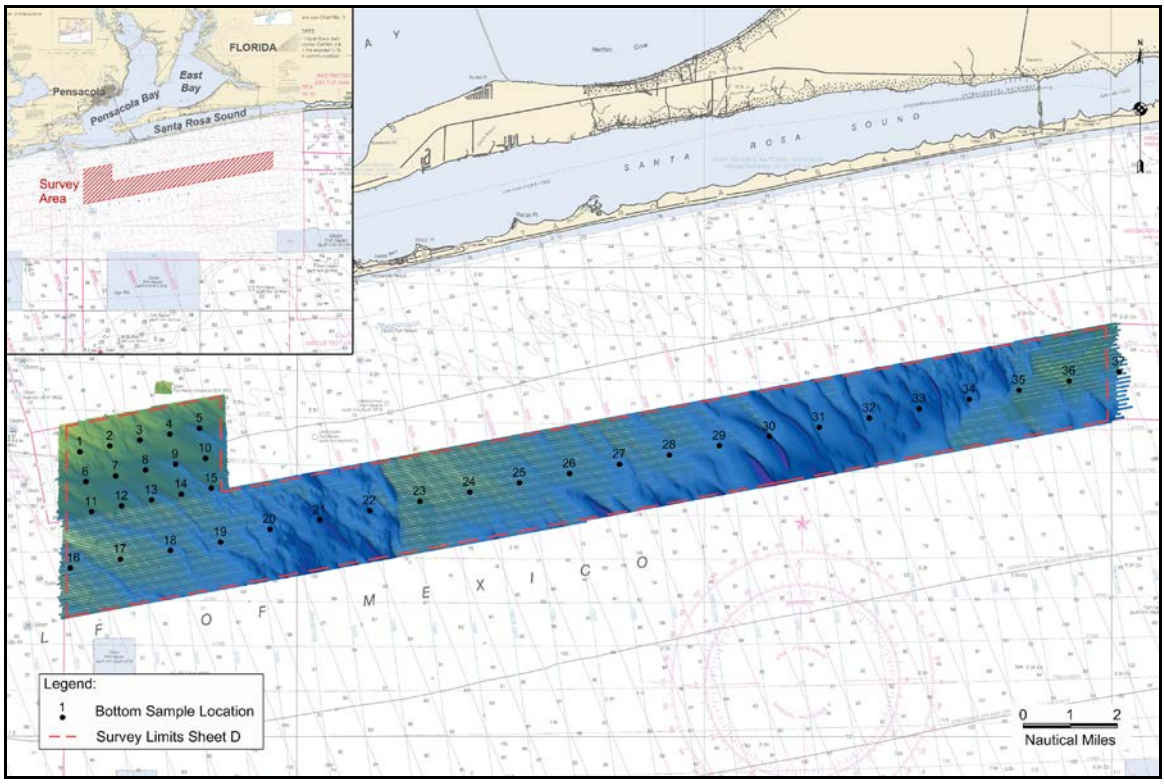

Figure 1. H12157 survey area overlain on RNC 11382. Multibeam colored by depth coverage image was developed from a 5-meter surface.

The original survey assignment was to provide hydrographic data for the Gulf of Mexico waters approximately 12 nautical miles southeast of Pensacola Bay entrance, Florida. The survey limits are primarily bound by Safety Fairway and Fairway Anchorage limits as set forth in the Hydrographic Survey Project Instructions (PLI) and Statement of Work (SOW). Contract modifications issued subsequent to the initial award (Amendment of Solicitation/Modification of Contract) increased the length of the survey area, within the safety fairway, eastward to a distance of approximately 24 nautical miles from the Pensacola Bay entrance. This survey junctions with contemporary Survey H12061 to the west and Survey H12236 to the east. Survey H12236 was conducted under a separate task order issued subsequent to completion of the surveys assigned for Project No. OPR-J364-KR-09. The general location of the survey limits are presented in Table 1.

The survey area includes the Safety Fairway and anchorage area southeast of Pensacola Bay and south of Santa Rosa Island. Survey data were acquired to meet requirements specified in the contract Statement of Work (SOW, September 21, 2009; amended January 21, 2010), and NOS Hydrographic Surveys Specifications and Deliverables, April 2009 (HSSD 2009). To this end, two hundred percent (200%) side scan sonar (SSS) coverage, with concurrent shallow water multibeam echo sounder (SWMB) coverage were acquired per "set line spacing" specifications. Additional SWMB coverage was obtained as necessary to provide a least depth for all significant SSS contacts and assigned AWOIS investigation items as appropriate. The final survey area covers 55.2 square nautical miles (Figure 1).

Table 1
General Location of Survey H12157

Northern Limit Latitude (N)	Southern Limit Latitude (N)	Western Limit Longitude (W)	Eastern Limit Longitude (W)
30-18-50	30-12-28	87-15-56	86-49-26

The mainscheme SSS/SWMB tracklines were run parallel to the safety fairway boundary lines (Figure 2). SSS tracklines were separated by one-half the distance required for 100% coverage plus an allowance for overlap and trackline maintenance. Trackline offset and accompanying SSS range scale settings are presented in Table 2. Survey trackline statistics are indicated in Table 3a and Table 3b.

Initial onsite system calibration was performed on October 23, 2009 for the *R/V Able II* and April 5, 2010 for the *R/V Ferrel*. Calibration data, mainscheme data, cross line data, significant target development, and bottom samples were acquired on the following dates: October 23, 2009; December 13, 15-16, 19-22, 2009; January 3-5, 8, 20, 22, 25, 31, 2010; February 7, 10, 14, 16-17, 22, 2010; April 5, 9-20, 30, 2010; May 9-11, 2010 [Calendar Day Numbers (DN) 296, 347, 349-350, 353-356 (2009) and 003-005, 008, 020, 022, 025, 031, 038, 041, 045, 047-048, 095, 099-110, 120, 129-131(2010)]. Thirty-seven (37) bottom samples were acquired on February 22, 2010 (DN 053).

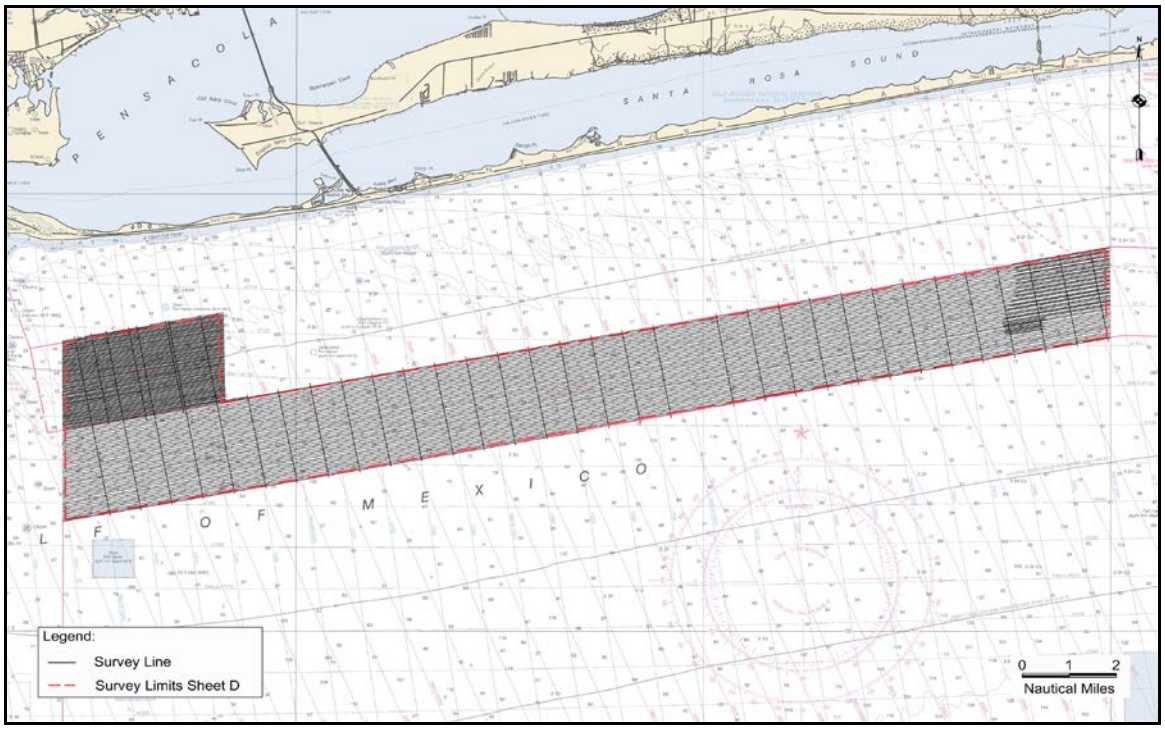

Figure 2. H12157 survey area with SSS/SWMB tracklines in black overlaid on RNC 11382.

Table 2
H12157 Survey Line Spacing

Area	Trackline Offset (meters)	SSS Range Scale (meters)
Fairway Anchorage	40	50
Safety Fairway	85	100

Table 3a
H12157 Survey Trackline Statistics for *R/V Able II*

Concurrent MB/SSS Lineal NM	Multibeam Only Lineal NM	Additional Developments Lineal NM	Cross Lines Lineal NM	Square Nautical Miles Covered	Bottom Samples Acquired
342.2	0.00	17.3	90.2	7.5	37

Table 3b
H12157 Survey Trackline Statistics for *R/V Ferrel*

Concurrent MB/SSS Lineal NM	Multibeam Only Lineal NM	Additional Developments Lineal NM	Cross Lines Lineal NM	Square Nautical Miles Covered	Bottom Samples Acquired
1091.9	15.9	90.4	35.3	47.7	0

B. DATA ACQUISITION AND PROCESSING

Refer to OPR-J364-KR-09 Data Acquisition and Processing Report (DAPR)* for a complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods. Additional information to supplement sounding and survey data, and any deviations from the DAPR* are included in this descriptive report.

B.1 Equipment

Survey operations were conducted from two platforms: OSI's *R/V Able II* and Reservoir Geophysical's *R/V Ferrel*. The *R/V Able II* is a 7.6-meter fiberglass vessel, with a 3-meter beam and 0.8-meter draft. The vessel is powered by twin 150 HP outboard engines. The *R/V Ferrel* is a 44.5-meter steel vessel, with a 9.8-meter beam and 1.8-meter draft powered by two 375 HP CAT D 353 diesel engines. Table 4 summarizes the primary equipment used to acquire SWMB and SSS data. All equipment was installed, calibrated and operated in accordance with the DAPR.

Table 4
H12157 Primary Survey Equipment

System	Manufacturer	Model/Version No.
Multibeam Echo Sounder	Reson	7101
Side Scan Sonar	Klein	3000/5000
Moving Vessel Profiler	ODIM	MVP30
Sound Speed Profiler	Sea-Bird	SeaCAT SBE 19
Sound Speed Profiler	Sea-Bird	SeaCAT SBE 19+
Sound Speed Sensor (Real-Time Surface Sound Speed)	Sea-Bird	MicroCAT SBE37
Primary Navigation DGPS	Applanix/Trimble	POS MV 320 V.4
Secondary Navigation DGPS	Trimble	MS750
Vessel Attitude and Heading	Applanix/Trimble	POS MV 320 V.4
Multibeam acquisition, trackline control, position fixing	HYPACK, Inc.	Survey (V 9.0- 9.1.0.0) and Hysweep (V 9.0.26.0) 2009
SSS acquisition	Chesapeake Technology, Inc.	SonarWiz Map V4.04.0061
U.S.C.G. Differential Beacon Receivers (2)	Trimble	Probeacon
Survey GPS	Trimble	5700
Bar Check	OSI	Lead Disk
SSS Cable Payout Indicator	Hydrographic Consultants	SCC16"
Tide Gauge	Hazen	HTG5000

Data filed with original field records.

The *R/V Able II* acquired SSS and SWMB data on December 15, 16, 19-21, 2009 and January 3-5, 2010 (DNs 349, 350, 353-355, 2009 and DNs 03-05, 2010). The *R/V Able II* acquired SWMB data on January 25, February 10, 16, 17, 2010 (DN 25, DN 41, and DNs 47-48, 2010) and collected bottom samples on February 22 (DN 53). The *R/V Able II* acquired all Fairway Anchorage data as well as cross line data for the entirety of Sheet D. Safety Fairway main scheme and item investigation data were acquired with the *R/V Ferrel*. The *R/V Ferrel* also acquired several miles of duplicate cross line data within the Safety Fairway to support "inter-vessel" QC analyses. The same Reson 7101 echo sounder was used to acquire SWMB from both platforms.

The primary deviation in survey methods between platforms was the incorporation of the ODIM Moving Vessel Profiler on the *R/V Ferrel*. Sea-Bird SeaCAT SBE 19/19+ profiler CTD units were used to acquire sound speed profiles aboard the *R/V Able II.* The SBE 19/19+ units were used on both vessels to acquire comparison cast data. Also, the *R/V Able II* employed a Klein 3000 SSS exclusively while the *R/V Ferrel* was equipped with a Klein 5000.

B.2 Quality Control

B.2.1 System Calibration

SWMB system calibration surveys (patch tests) were performed on each platform prior to the start of data acquisition. The initial patch test for the *R/V Able II* was performed on October 23, 2009 (DN 296) in Pensacola Bay, north of the survey area. Multiple interim patch tests were performed throughout the period of the small boat survey. A post-survey patch test was performed on February 23, 2010 (DN 054) to verify the original alignment values.

The initial patch test for the *R/V Ferrel* was performed on April 5, 2010 (DN 095) southeast of the entrance to Pensacola Bay. A post-survey patch test was performed on May 12 (DN 132) with to verify the original alignment values.

For both platforms, transducer draft and echo sounder function was confirmed by means of bar checks and "spot checks" with a calibrated lead line performed prior to the start of survey operations and at weekly intervals during the course of the survey.

B.2.2 SWMB Cross Lines

A total of 125.5 lineal nautical miles of cross line data were acquired. The *R/V Able II* collected cross line data on December 22, 2009 (DN 356) and February 14, 16, 17, 2010 (DNs 045, 047, 048) logging a total of 90.2 nautical miles of cross line information. On April 14 and 18, 2010 (DNs 104 and 108) the *R/V Ferrel* acquired a combined total of 35.3 nautical miles of cross line data. Cross line mileage equaled 8.75% of the 1434.1 nautical miles (nm) of mainscheme SWMB lines.

Statistical quality control information was generated by comparing each of the cross lines to the final combined 2-meter x 2-meter CARIS BASE (Bathymetry Associated with Statistical Error) surface. Cross line comparisons generated with the CARIS QC Report utility are presented in Separate IV. *

Cross line comparisons showed excellent agreement with the finalized BASE surface generated from the mainscheme survey lines. All cross line soundings considered in the analyses met IHO Order 1 uncertainty standards. Overall, there was good agreement between overlapping line and day-to-day sounding coverage as observed in the BASE surface depth and standard deviation layers.

B.2.3 Data Quality Review

B.2.3.1 CARIS BASE Surface Standard Deviation and Uncertainty

The standard deviation and uncertainty BASE surfaces were reviewed to direct sounding editing and evaluated to search for systematic errors, sporadic noise (fish, water column disturbances, etc.), and areas that warranted additional investigation (bathymetric features). In general, the final combined uncertainty BASE surfaces generated from the higher of the standard deviation or uncertainty values were appropriate for the bathymetric relief observed in the survey area. Highest standard deviation values were observed over rock and obstruction features and steep slopes. The CARIS QC BASE surface report utility was used to evaluate IHO uncertainty for the final combined 2-meter BASE surface. Results from the QC BASE surface report indicate that 99.9% of the nodes from the final combined 2-meter surface meet IHO Order 1 uncertainty specifications. QC BASE surface reports for all final surfaces are included in Separate IV. *

B.2.3.2 SSS Imagery and Contacts

Contacts with approximately 1-meter heights and greater were identified in 2 x 100% coverage SSS imagery and attributed with feature classifications and descriptive remarks if applicable. A custom CARIS ContactFeatures.hcf was created for feature classification when positioning contacts and is submitted with the session data. Contacts were classified according to SSS shadow height and surrounding depths as specified in the SOW and HSSD (Table 5). All contacts were correlated and evaluated in the CARIS HIPS/SIPS map window with respect to BASE surfaces, contours and charted information. Each significant contact was examined in the CARIS subset editor and a sounding was designated for the representative least depth of each contact (or Primary/Secondary contact pair). All significant contacts were developed with additional SWMB coverage to meet the object detection sounding density as specified in the HSSD 2009. A tabulation of all side scan contacts, individual contact images, and supporting correlation tools (spreadsheet and database format) is presented in Separate V.* Isolated shoal features that were outstanding or navigationally significant with respect to the surrounding depths are represented and attributed in the S-57 feature file (i.e. OBSTRN, WRECKS).

Data filed with original field records.

Table 5
Significant Contact Selection Criteria

Surrounding Depth or Area (meters)	Significant Contact Height (meters)
≤ 20	≥ 1.0
> 20	10% of surrounding depth

B.2.4 Survey Junctions

Survey H12157 junctions with contemporary Survey H12061 (2/23/2010, 1:10,000) to the west. There is an approximate overlap of 0.5 kilometer between bathymetric data from Surveys H12157 and H12061. Depths from the combined final 2-meter BASE surfaces from Surveys H12061 and H12157 were compared in CARIS HIPS. Further analysis consisting of a surface-to-surface comparison (Figure 3) and statistical analysis (Figure 4) was performed using 10-meter by 10-meter surfaces. Depths from H12157 showed excellent agreement with depths from H12061. Depth discrepancies generally equaled 20 centimeters or less and the average difference between surveys equaled -0.01 meters. ***Concur***

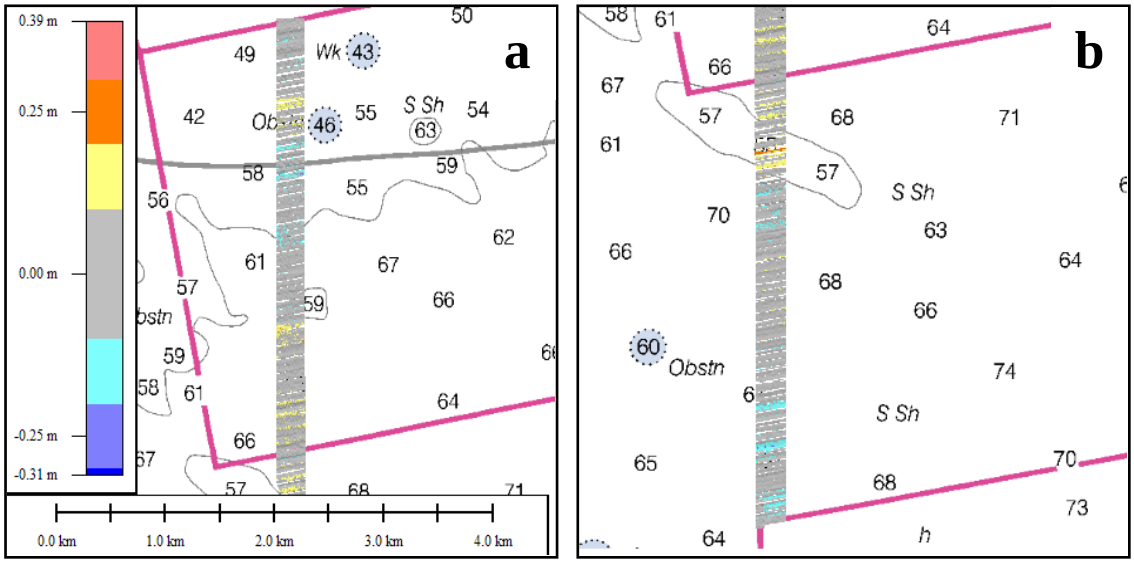

Figure 3. Surface-to-surface difference map comparing Survey H12157 to Survey H12061 overlaid on RNC 11382. Figure shows both the northern (a) and southern (b) areas of overlap. Difference values are based on 10-meter by 10-meter data sampling. Grey areas represent depth differences of less than 0.10 meters. Maximum difference is 0.39 meters. ***Concur***

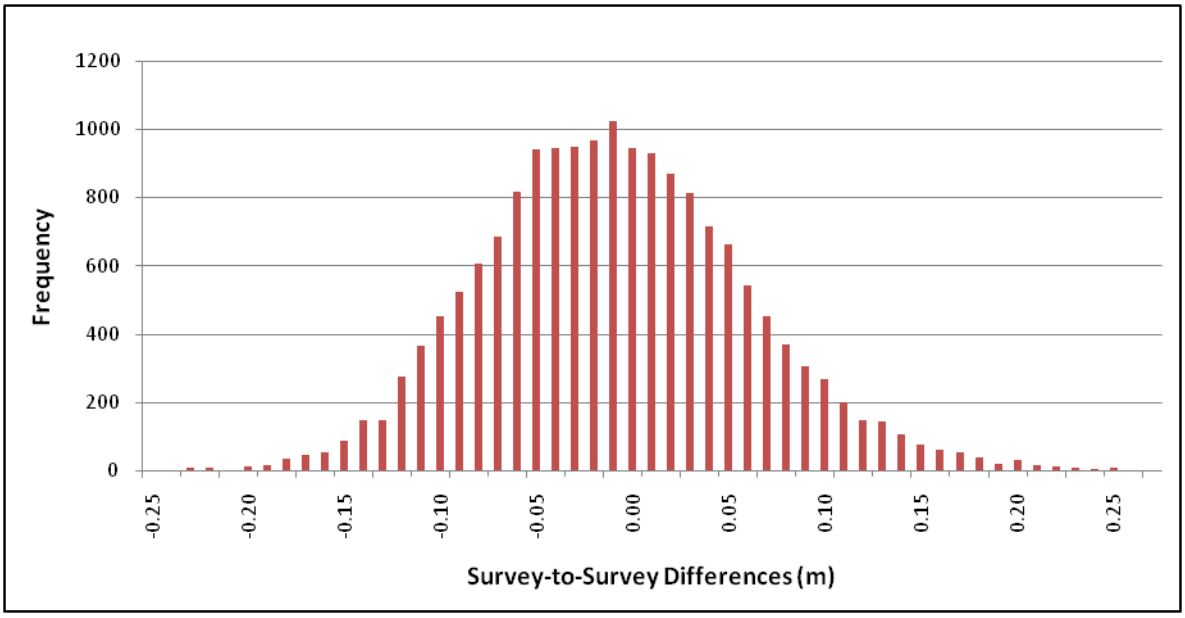

Figure 4. Surface-to-surface difference histogram comparing Survey H12157 to Survey H12061. Difference values are based on 10-meter by 10-meter data sampling. Average difference between surveys is -0.01 meters with a standard deviation of ± 0.07 meters. Ninety-five (95) percent of the difference values were within 2 sigma of the mean.

Survey H12157 also junctions with contemporary Survey H12236, completed subsequent to Project OPR-J364-KR-09. Junction details will be presented in the Descriptive Report for Survey H12236.

B.2.5 Unusual Conditions/Factors Affecting Soundings/Imagery

The sound speed profiles measured throughout the limits of Survey H12157 were variable, with changes up to 30 m/s in the water column. Sound speed changes in the water column were time and space dependent and were primarily attributed to the influx of fresh water from Pensacola Bay. This variability caused refraction in the side scan imagery and, at times of severe refraction, appeared to influence the outer beams of the multibeam swath. To ensure that this phenomenon did not compromise the quality of the final dataset, various steps were taken by both the collection team and the processing team.

Sound speed profiles were viewed real-time during acquisition to assist in identifying the depths where refraction may be more severe due to rapid changes in sound speed. “Plateaus” and “bulges” in the profile served as indicators of depths prone to higher refraction (Figure 5). These indicators allowed the SSS operator to fly the towfish at depths above or below the refractive lens while attempting to keep it within the altitude threshold specified in the HSSD 2009 (8-20% of the SSS range).

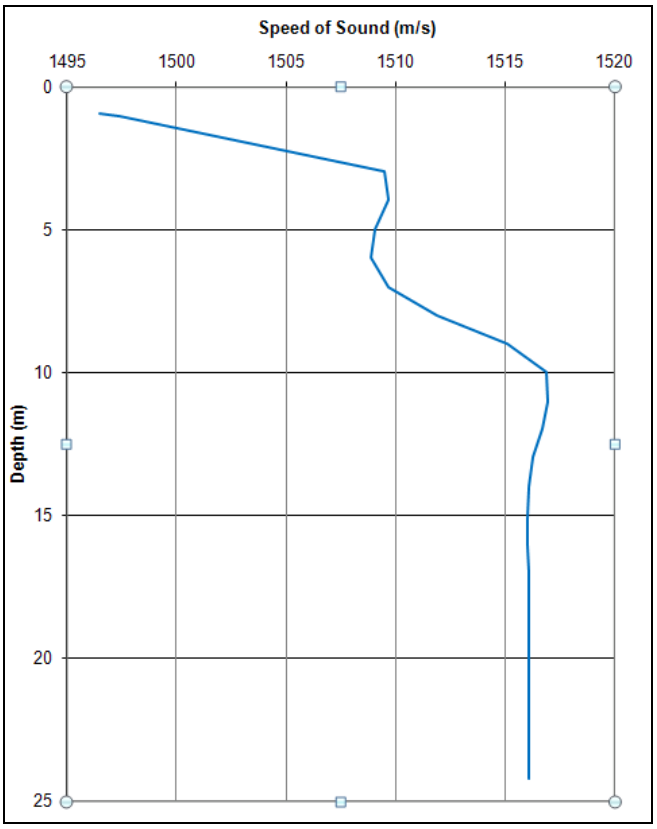

Figure 5. Representative sound speed profile from day 003-2010.

In areas of high refraction, flying the SSS fish a meter to a meter and a half below the threshold specified in the HSSD 2009 (8% of the SSS range) improved image quality. Confidence checks recorded throughout periods where the towfish was outside the specified depth range established that there was no degradation of image quality across the width of the SSS image. Contacts observed during these periods were subsequently investigated using the multibeam system. In some areas, flying the fish below the specified depth range did not help to improve image quality. In these areas, some of the SSS imagery was either rejected or filtered and subsequently reacquired or supplemented with infill lines run between the mainscheme lines. These steps were taken to ensure that 200% SSS coverage was achieved.

The variability in the sound speed profile also had an affect on the multibeam data. To overcome this problem, the field team took frequent sound speed casts to accurately portray the sound speed conditions. On certain days, as many as 57 sound speed profiles were acquired. Sound speed profiles were typically taken at both ends of a given survey area, as well as interspersed throughout, as appropriate. The frequency of MVP casts typically ranged from 20 to 60 minutes. Surface sound speed values were displayed in the HYSWEEP survey window and recorded in the data file. The surface values were monitored throughout the survey for variations that indicated a new sound speed profile was needed.

On April 10, 2010 (DN 100) the moving vessel profiler (MVP) winch controller experienced a malfunction, which was repaired on April 13, 2010 (DN 103). The Sea-Bird sound speed

profiler (comparison cast instrument) was used in place of the MVP until the repair was effected. The towfish/instrument package of the MVP was deployed once per day in "hand" mode alongside the Sea-Bird SBE19+. This comparison cast was completed to confirm proper function of the Sea-Bird SBE 19+.

The selected CARIS HIPS sound speed correction method was determined based on the spatial and temporal changes observed in the sound speed profiles over the course of the day. Based on the recommendation of the field team, some lines were corrected using individual casts. However, the majority of lines were sound speed corrected using CARIS HIPS' "Nearest in Distance Within Time" method. The day to day sound speed correction method is noted in the daily processing logs.

Despite the efforts taken to reduce sound speed artifacts, refraction effects were sometimes evident in the outerbeams. Multibeam swaths were filtered to 60, 55 or 50 degrees from nadir as warranted to reduce sound speed related uncertainty.

Throughout the processing phase of Survey H12157, care was taken to ensure that the area was fully developed with quality SSS imagery. Klein 3000 high frequency and low frequency SSS data were acquired aboard the *R/V Able II*. These data were converted and reviewed for refraction, surface noise, excessive motion or any other conditions that may impact the quality of the imagery prior to utilization. After the initial review, the high frequency SSS was determined to exhibit a better image quality and was selected to be fully processed for mainscheme SSS coverage. The low-frequency data are archived at OSI and not included in the digital deliverable.

The Klein 5000 employed on the *R/V Ferrel* is a single-frequency system. Therefore, the high-frequency imagery from the Klein 5000 were converted and processed for mainscheme SSS coverage.

During SWMB acquisition with the *R/V Ferrel*, the Reson 7101 would experience periodic bursts of motion-induced noise or "blowouts" that typically affected between 2 to 4 sequential profiles, and in most cases required the entire swath to be rejected in processing. Efforts were made to reduce this noise, including adjustments to system gain and power, in addition to the multibeam pole fairing that was installed to reduce cavitation effects. The frequency of the noise bursts would typically increase as sea-state worsened. Therefore, operations were suspended when the frequency or length of blowouts became too high.

All multibeam data were closely reviewed by the processor in CARIS HIPS using both the Swath Editor and Subset Editor to identify and remove the noisy data. The coverage surfaces were then reviewed for any holidays that exceeded the coverage requirement that no gaps in surfaces be greater than 3 nodes (HSSD 2009). Per e-mail correspondence with the COTR on September 16, 2009 (see Appendix V) OSI was instructed that grid resolutions of 2m for depths less than 20 meters and 4m for depths 20 - 40 meters are acceptable. If holidays were found that exceeded the tolerances, additional multibeam fill-in lines were collected. A final

holiday check was performed using, CARIS' BASE Surface QC Report and those results can be found in Separate IV.*

A five (5) second holiday was observed in the Applanix TrueHeave data during processing of line 2010FE1031041_325. All data impacted by the holiday were rejected, and a fill-in line was collected.

Large schools of fish and numerous pods of dolphins were frequently seen in both the multibeam and SSS data (Figures 6 and 7). Fish and dolphins were noted in the acquisition log by the field team, and these areas were carefully reviewed during data processing. If seen on only one side scan line, the contact was designated as fish. If visible in 200% side scan coverage with a significant height, the contact was investigated with object detection multibeam coverage to verify or disprove the presence of a feature.

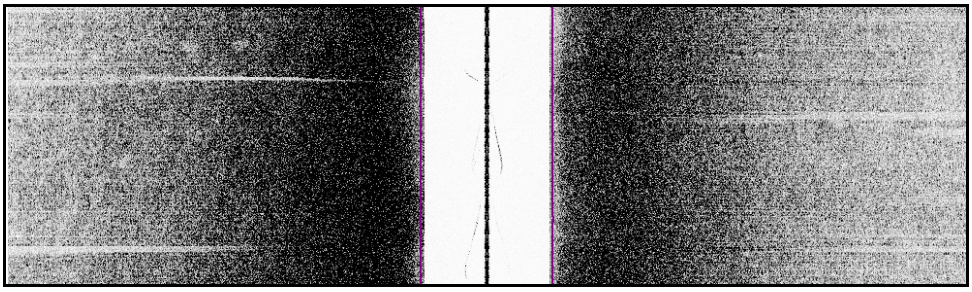

Figure 6. Example of dolphin activity captured in the side scan imagery.

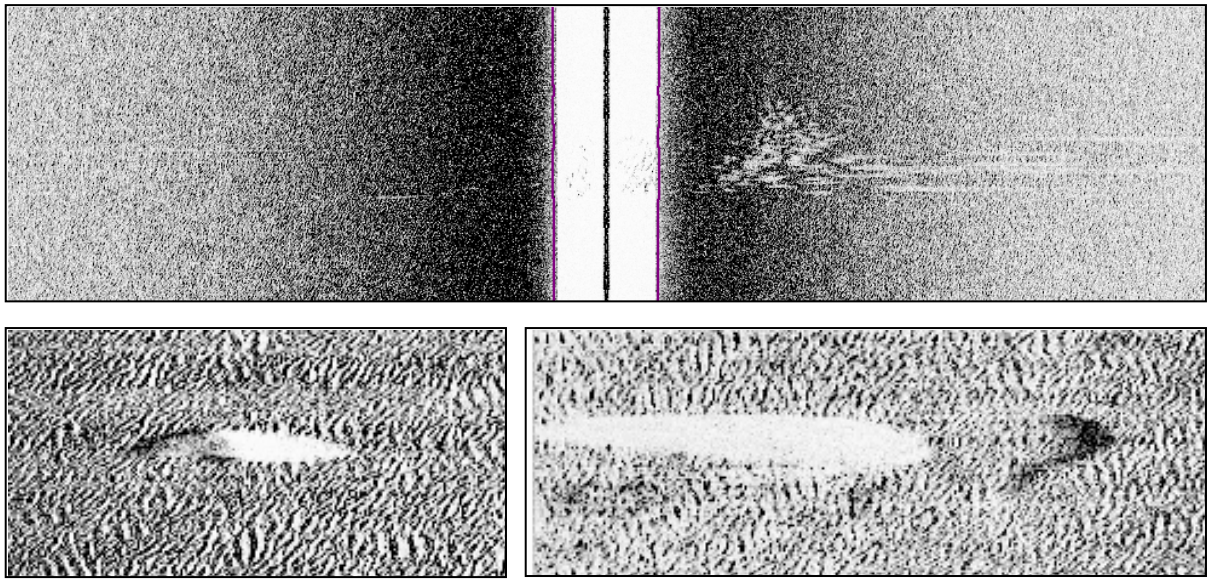

Figure 7. Examples of fish contacts captured in the side scan imagery.

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A time synchronization error, occurring upon system startup January 4, 2010 (DN 004) resulted in a 1-second offset between multibeam and attitude data for all runs acquired on this day. The problem was resolved by applying a 1-second delay (-1.00) in the Time Latency column of the 7101 HVF for DN 004.

Tide data were highly susceptible to local meteorological conditions. The observed tide data differed from the predicted tide data by up to 0.4 meters. Based on cross line and standard deviation surface analysis results, verified tides appear to model the tides correctly for the majority of the survey period. However, tidal offsets of up to 0.2 meters are apparent in the final combined BASE surface's standard deviation layer where survey lines junction over multiple days as shown in Figure 8. The vertical offsets do not exceed the allowable IHO Order 1 error budget at the survey depth of 20 meters (±0.56 meters).

OSI undertook a brief water level analysis in an attempt to understand and validate the vertical offset. Utilizing the Applanix POSPac MMS software, water level data, at the location of the survey vessel, were derived employing the Post-Processed Virtual Reference Station (PPVRS) technique. These water level data were compared to coincidental zone-corrected, verified water level data from the Pensacola tide gauge. The analysis in fact demonstrated that the departure of the PPVRS-derived water level data from the zone-corrected, verified water levels is generally consistent in magnitude and direction with the offset displayed in Figure 8.

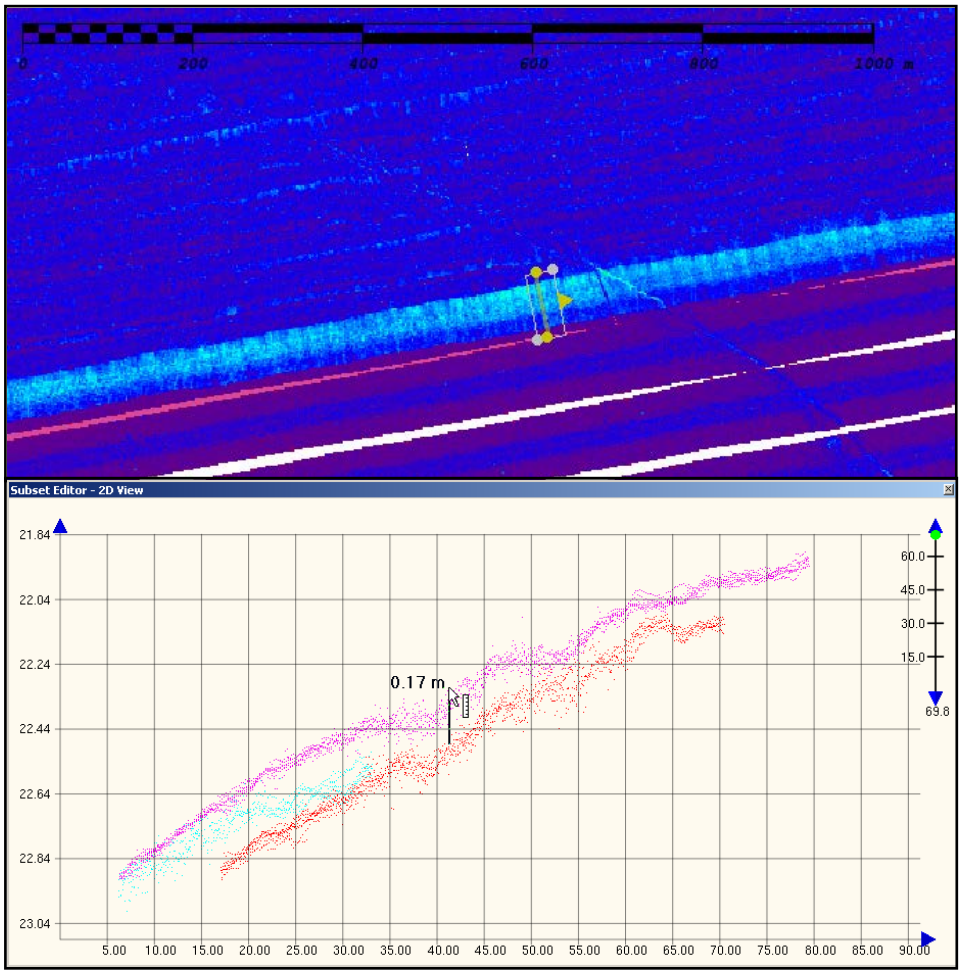


Figure 8. Tidal offset discrepancy between multibeam survey lines depicted on the standard deviation layer of the final combined 2-meter BASE surface.

The primary and backup Pensacola Tide Gauge experienced a data outage beginning on December 19, 2009 (DN 353) and ending on December 22, 2009 (DN 356) (Figure 9). The Center for Operational Oceanographic Products and Services (CO-OPS) produced verified tide data to fill the gap (Figure 10); however, SWMB data collected in the Fairway Anchorage between DN 353 and DN 355 were 0.1 – 0.2 meters shallower than data collected before and after the observed tide gap. The vertical offset is apparent in the standard deviation layer of the finalized BASE surface (Figure 11), but offset values do not exceed the allowable IHO Order 1 error budget at the survey depth of 20 meters (±0.56 meters).

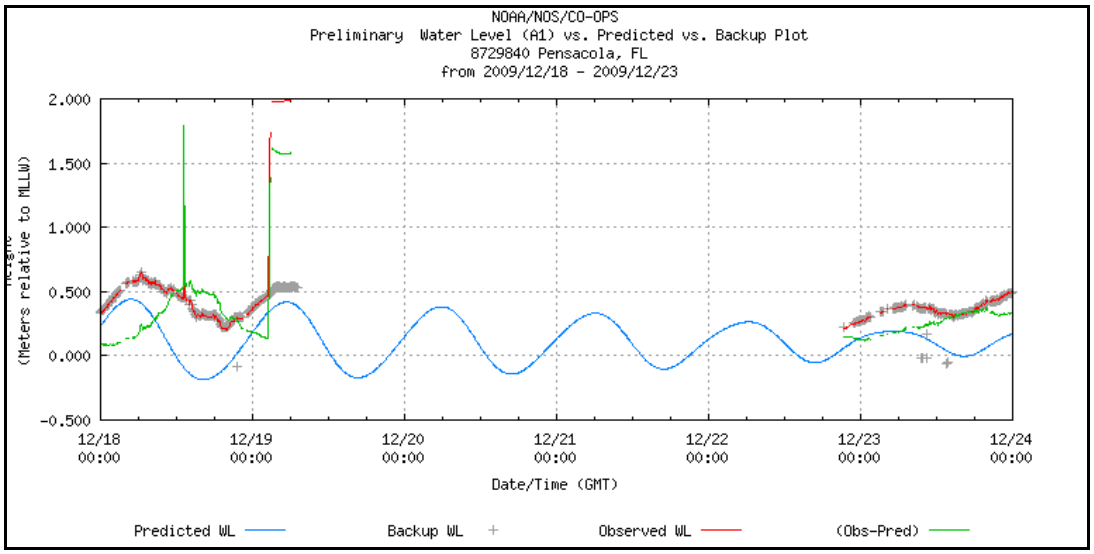


Figure 9. Water level plot from the NOAA Tides and Currents website displaying the preliminary tide data gap between December 19, 2009 and December 22, 2009.

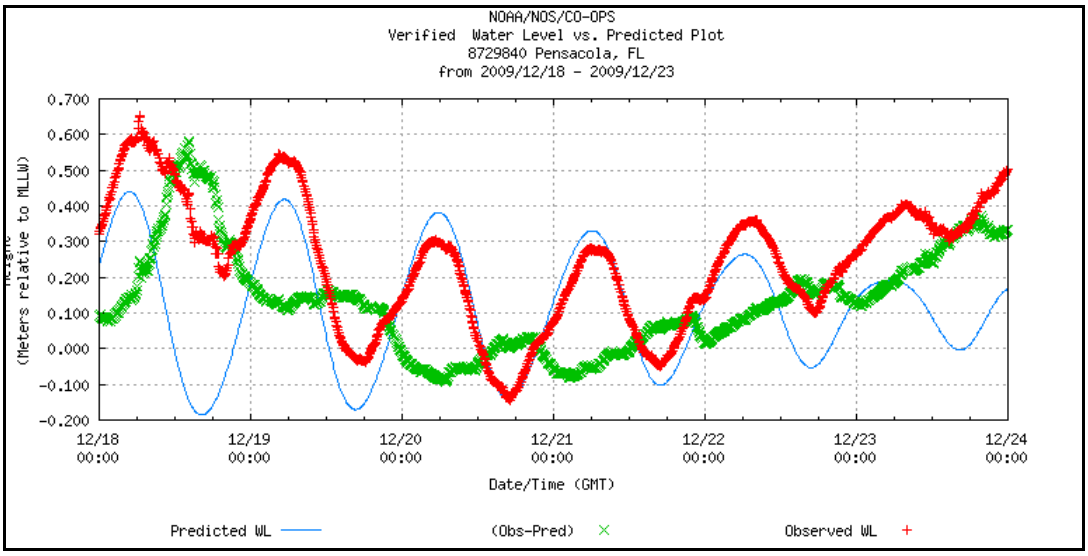


Figure 10. Water level plot from the NOAA Tides and Currents website displaying the verified tide data used to fill in the preliminary tide data gap displayed in Figure 9.

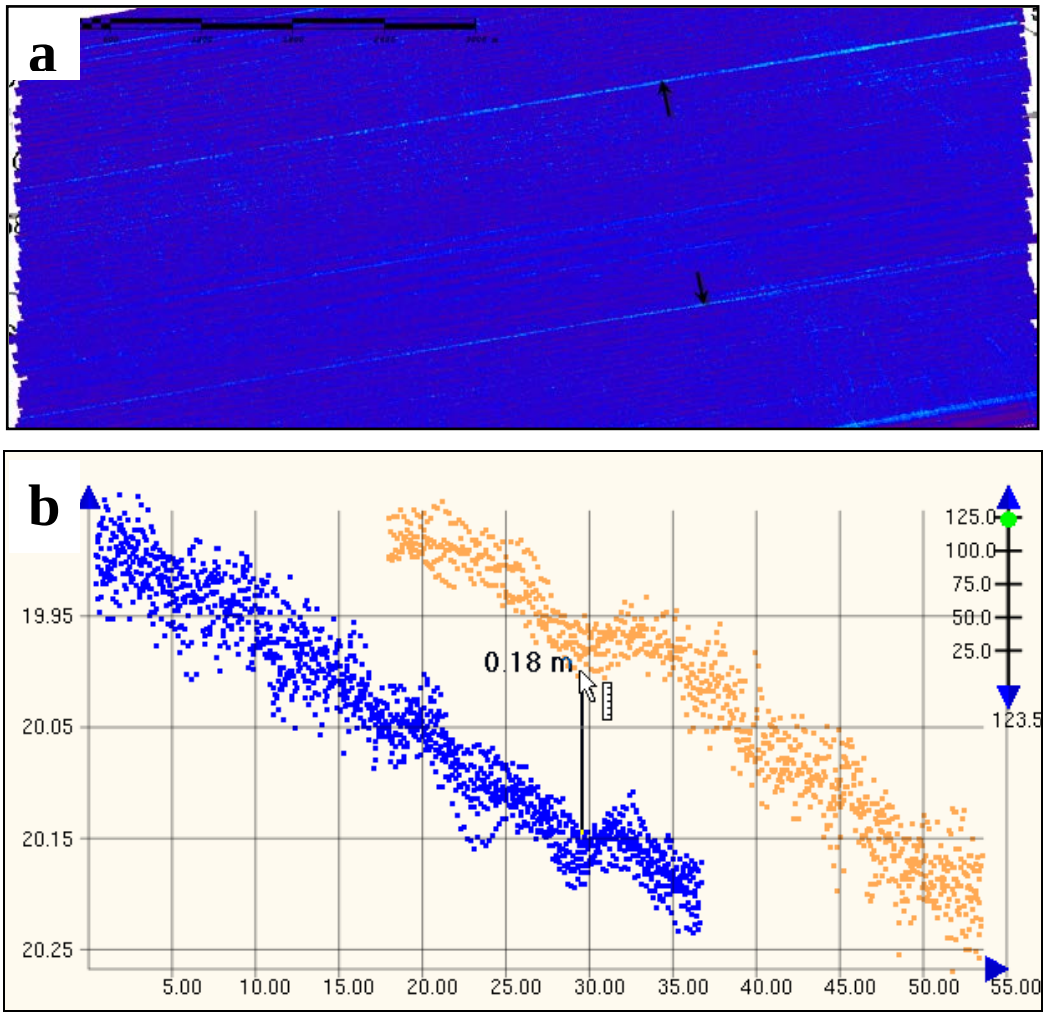


Figure 11. (a) The arrows highlight areas of high standard deviation in the final BASE surface due to a vertical offset in data acquired during the preliminary tide data gap displayed in Figure 9. (b) An example of the tidal offset shown in CARIS Subset Editor two-dimensional view. Soundings from DN 353 are colored in orange and soundings from DN 350 are colored in blue. All depths and distances are in meters.

B.2.6 Sounding Coverage, Equipment and Methods

As noted in Table 4, a Reson Model 7101 multibeam echosounder was employed to acquire sounding data. The system was configured to operate using 511 equidistant beams. Due to the shallow conditions throughout the site, the multibeam system ping rate was maintained at a relatively high rate. The combination of the high beam number and ping rate ensured the system had no trouble meeting mainscheme along track and grid node density requirements at typical survey speeds.

For contact developments requiring “Object Detection” coverage, the survey vessel was operated at a survey speed typically less than 6 knots. Multiple near-nadir passes were run

for each contact development to make certain that extremely dense, high quality soundings were available for least depth determination.

B.3 Corrections to Echo Soundings

Preliminary patch test values were calculated in the field and final values were verified in CARIS HIPS.

Corrections to echo soundings were performed in accordance with the DAPR.* However, on the *R/V Able II*, additional multibeam echo sounder calibrations were completed due to variability in roll alignment noted during preliminary processing. The minute roll offset variation is attributed to the act of deploying and recovering the transducer pole each day. Once the irregular roll offset was revealed, a routine of acquiring roll calibration data each day prior to data acquisition was instituted. The CARIS Hydrographic Vessel File (HVF) was updated when changes in the roll bias value were observed.

Alignment correctors for the *R/V Ferrel* remained unchanged for the duration of survey operations. Latency and attitude bias values calculated from the initial patch test were confirmed by a final patch test conducted after data acquisition was complete.

On the *R/V Able II*, all comparison casts taken with the Secondary CTD units were removed from the concatenated SVP files prior to sound speed correction of the multibeam data. The office processors' initials were appended to the end of the file name to indicate that the raw concatenated SVP file had been updated. Comparison cast data were not included in the concatenated SVP files generated aboard the *R/V Ferrel*.

B.3.1 Static Draft Corrections

Static draft measurements were measured prior to survey operations each day and recorded in the acquisition log. The static draft was also measured before and after each fueling. The CARIS vessel configuration file was updated with daily time tags and static draft values. Static draft corrections were applied during the merge process. Generally, the static draft values did not vary more than 0.02 meters on the *R/V Able II* and 0.1 meters on the *R/V Ferrel*.

B.4 Data Processing

B 4.1 Survey Coverage

This survey was conducted to develop 200% SSS coverage within the survey limits along with concurrent SWMB, aka "skunk stripe" bathymetry. Full multibeam coverage of the survey area was not required. All potentially significant features located with mainscheme SSS or SWMB were developed with high density, near nadir multibeam sonar data to meet the HSSD requirement for "Object Detection Coverage."

Data filed with original field records.

B 4.2 Coverage BASE Surfaces and Mosaics

Survey H12157 was divided into multiple field sheets (Figure 12 and Table 6) based upon final BASE surface resolutions and the number of nodes (limited by CARIS HIPS) per field sheet (less than 25 million nodes). The required grid resolution for mainscheme multibeam bathymetry was 2 meters for depths less than 20 meters and 4 meters for depths of 20-40 meters, per email correspondence from NOAA dated September 16, 2009 (see Appendix V). The 2-meter surfaces were generated in CARIS HIPS using the "Shallow Configuration" under the CUBE Parameters' Advanced settings menu.

In addition to the four mainscheme multibeam surfaces, 70 (seventy) small field sheets were created over features located during multibeam developments of side scan targets. The investigation item field sheets had approximate dimensions of 50 meters x 50 meters, with several field sheets made slightly larger where multiple features were located in close proximity to one another. BASE surfaces were generated using the CUBE algorithm and finalized within each field sheet at a grid resolution of 1-meter, which was the required grid size at depths less than 23 meters to demonstrate "Complete Multibeam Coverage" over side scan sonar target investigations, per the same email correspondence referenced in the above paragraph (see Appendix V).* The 1-meter BASE surfaces were generated with the CUBE algorithm, IHO Order 1, and with CUBE parameter settings configured such that only soundings that fell within a fixed radial distance of 0.71 meters of a node were used to calculate sounding density. In the event that no feature was located following item investigation with multibeam development lines or the feature height was navigationally insignificant at the survey depth, a field sheet was not generated over that investigation area.

A 2-meter combined sounding field sheet is also included in the deliverables. This sheet, "H12157_ Full_Combined", includes the gridded soundings from the four sub-area, 2-meter field sheets and the 70 item investigation fieldsheets listed in Table 6.

A 1-meter resolution coverage mosaic field sheet was created for each 100% SSS coverage.

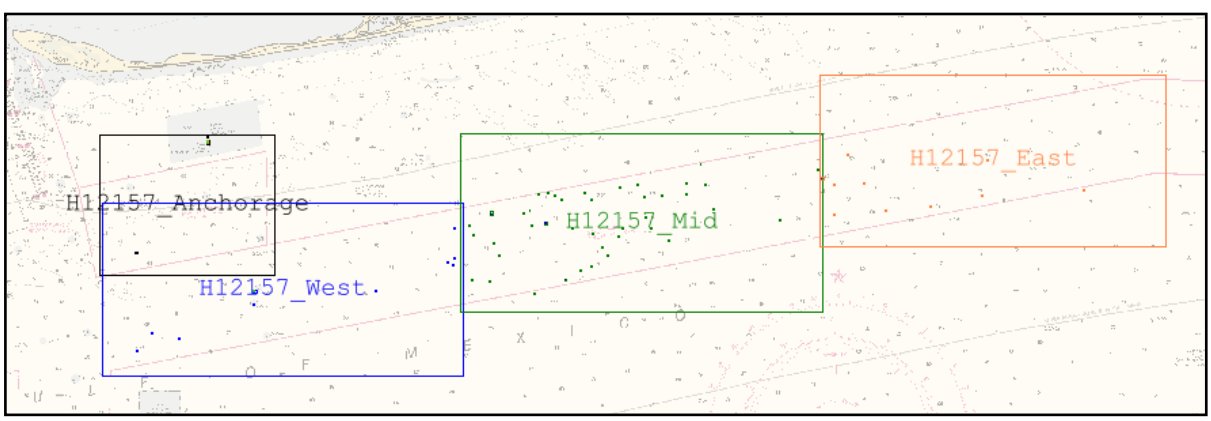


Figure 12. H12157 sub-area sounding field sheet layout.

Data attached to this report.

Table 6
H12157 Field Sheets

Field Sheet Name	Resolution (meters)	Depth Range (meters)	Type
H12157_Anchorage	2	12-26	SWMB coverage
H12157_West	2	14-32	SWMB coverage
H12157_Mid	2	17-35	SWMB coverage
H12157_East	2	18-34	SWMB coverage
Item_1_FS_Anchorage	1	13-15	SWMB coverage
Item_2_FS_Anchorage	1	13-17	SWMB coverage
Item_3_FS_Anchorage	1	18-19	SWMB coverage
Item_4_FS_West	1	19-20	SWMB coverage
Item_5_FS_West	1	20-22	SWMB coverage
Item_6_FS_West	1	20-23	SWMB coverage
Item_7_FS_West	1	23-25	SWMB coverage
Item_8_FS_West	1	22-25	SWMB coverage
Item_9_FS_West	1	20-21	SWMB coverage
Item_10_FS_West	1	19-21	SWMB coverage
Item_11_FS_West	1	19-21	SWMB coverage
Item_12_FS_West	1	18-19	SWMB coverage
Item_13_FS_Mid	1	18-20	SWMB coverage
Item_14_FS_Mid	1	18-20	SWMB coverage
Item_15_FS_Mid	1	19-20	SWMB coverage
Item_16_FS_Mid	1	19-20	SWMB coverage
Item_17_FS_Mid	1	18-20	SWMB coverage
Item_18_FS_Mid	1	19-21	SWMB coverage
Item_19_FS_Mid	1	21-22	SWMB coverage
Item_20_FS_Mid	1	24-27	SWMB coverage
Item_21_FS_Mid	1	23-25	SWMB coverage
Item_22_FS_Mid	1	22-24	SWMB coverage
Item_23_FS_Mid	1	21-23	SWMB coverage
Item_24_FS_Mid	1	22-24	SWMB coverage
Item_25_FS_Mid	1	23-24	SWMB coverage
Item_26_FS_Mid	1	21-22	SWMB coverage
Item_27_FS_Mid	1	22-24	SWMB coverage
Item_28_FS_Mid	1	20-22	SWMB coverage
Item_29_FS_Mid	1	20-21	SWMB coverage
Item_30_FS_Mid	1	19-21	SWMB coverage
Item_31_FS_Mid	1	19-21	SWMB coverage
Item_32_FS_Mid	1	19-21	SWMB coverage
Item_33_FS_Mid	1	21-23	SWMB coverage
Item_34_FS_Mid	1	21-23	SWMB coverage
Item_35_FS_Mid	1	20-21	SWMB coverage

Field Sheet Name	Resolution (meters)	Depth Range (meters)	Type
Item_36_FS_Mid	1	20-21	SWMB coverage
Item_37_FS_Mid	1	20-21	SWMB coverage
Item_38_FS_Mid	1	19-21	SWMB coverage
Item_39_FS_Mid	1	21-23	SWMB coverage
Item_40_FS_Mid	1	21-24	SWMB coverage
Item_41_FS_Mid	1	19-21	SWMB coverage
Item_42_FS_Mid	1	21-23	SWMB coverage
Item_43_FS_Mid	1	21-24	SWMB coverage
Item_44_FS_Mid	1	20-23	SWMB coverage
Item_45_FS_Mid	1	20-22	SWMB coverage
Item_46_FS_Mid	1	23-24	SWMB coverage
Item_47_FS_Mid	1	22-25	SWMB coverage
Item_48_FS_Mid	1	21-23	SWMB coverage
Item_49_FS_Mid	1	19-22	SWMB coverage
Item_50_FS_Mid	1	21-24	SWMB coverage
Item_51_FS_Mid	1	20-23	SWMB coverage
Item_52_FS_Mid	1	24-26	SWMB coverage
Item_53_FS_East	1	22-25	SWMB coverage
Item_54_FS_East	1	22-25	SWMB coverage
Item_55_FS_East	1	23-25	SWMB coverage
Item_56_FS_East	1	22-23	SWMB coverage
Item_57_FS_East	1	25-29	SWMB coverage
Item_58_FS_East	1	26-30	SWMB coverage
Item_59_FS_East	1	25-27	SWMB coverage
Item_60_FS_East	1	25-27	SWMB coverage
Item_61_FS_East	1	25-27	SWMB coverage
Item_62_FS_East	1	21-24	SWMB coverage
Item_63_FS_East	1	26-29	SWMB coverage
Item_64_FS_Mid	1	27-29	SWMB coverage
Item_65_FS_West	1	27-30	SWMB coverage
Item_66_FS_East	1	22-23	SWMB coverage
Item_67_FS_East	1	22-24	SWMB coverage
Item_68_FS_East	1	20-21	SWMB coverage
Item_69_FS_Mid	1	22-24	SWMB coverage
Item_70_FS_West	1	21-22	SWMB coverage
H12157_Full_Combined	2	all	SWMB coverage
H12157_SSS_100	1	all	SSS coverage
H12157_SSS_200	1	all	SSS coverage

C. VERTICAL AND HORIZONTAL CONTROL

C.1 Vertical Control

The vertical datum for this project is Mean Lower Low Water (MLLW). The National Water Level Observation Network (NWLON) station at Pensacola, FL (872-9840) served as datum control for Survey H12157.

The survey area is located within Zones CGM8 and CGM29 as provided in the preliminary tidal zoning scheme included with the project SOW CD.

OSI home office and field personnel monitored preliminary tide data available on the NOAA CO-OPS website. The NOAA Pensacola (872-9840) gauge experienced multiple small preliminary tide gaps that frequently occurred outside of periods of data acquisition and/or were less than one hour in length. A multi-day preliminary tide gap occurred between December 19 and 22, 2009 (DNs 353 and 356). This gap was filled by CO-OPS prior to issuance of verified tide data and is described in Section B.2.5.

Tide data were highly susceptible to local meteorological conditions. Observed tide values deviated from predicted tide values by up to 0.4 meters throughout the survey (Figure 13).

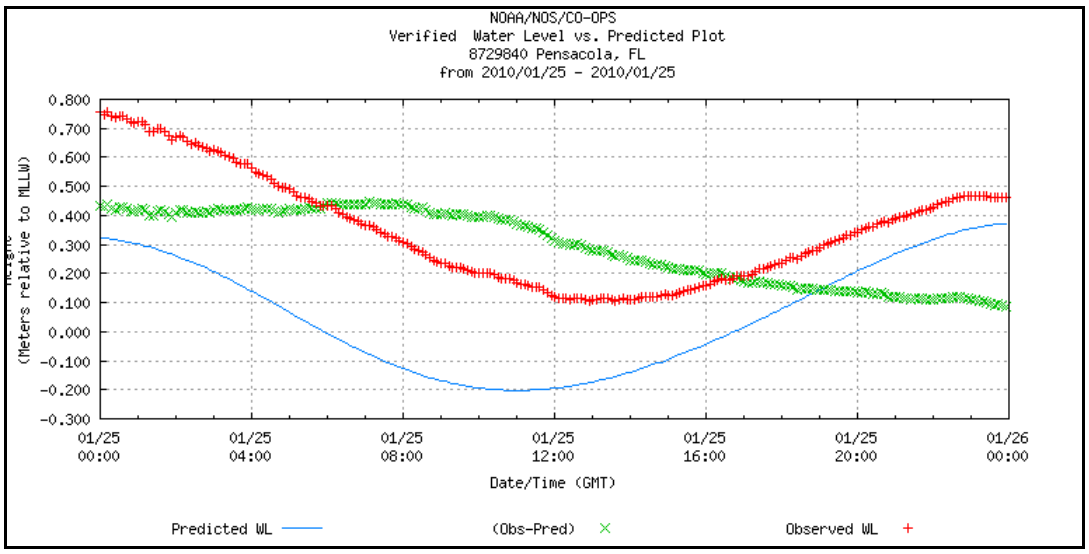


Figure 13. Deviation of the verified tide from the predicted tide due to local meteorological conditions, January 25, 2010 (DN 025).

Verified tides and zoning were applied during field operations.

C.2 Horizontal Control

The horizontal datum for this project is the North American Datum of 1983 (NAD83). All data products are referenced to Latitude/Longitude or Universal Transverse Mercator (UTM) Zone 16, meters.

All mainscheme line and item investigation position data were acquired using an Applanix POS-MV operating in Differential GPS (DGPS) mode. The unit was configured to receive USCG Differential beacon correctors from Eglin Air Force Base, FL. Differential beacon correctors from the U.S. Coast Guard station in Mobile Point, AL, were used by the secondary navigation system to facilitate real-time horizontal control confidence checks. Initial dynamic draft and patch calibration data (for each vessel) were acquired with the POS-MV operating in RTK GPS mode.

Prior to and during the course of the survey the accuracy of the primary positioning system was verified by means of a physical measurement to a project horizontal control point established at each vessel's berth. The horizontal control points were established using the National Geodetic Survey's Online Positioning Users Service (OPUS). Position confidence checks were accomplished daily for the *R/V Able II* and at least bi-weekly (during fuel or weather stops) for the *R/V Ferrel*. Refer to the DAPR* and Horizontal and Vertical Control Report (HVCR) for additional details.

D. RESULTS AND RECOMMENDATIONS *See Appendix III for final charting recommendations of all features.*

D.1 Chart Comparison

Chart comparisons were performed in CARIS HIPS/SIPS, Notebook and Easy View using surface models, contours and soundings that were generated from the combined final BASE surface. The latest editions of the NOAA NOS Raster Nautical Charts (RNC) and Electronic Nautical Charts (ENC) were downloaded from the NOAA Coast Survey WWW site (http://www.nauticalcharts.noaa.gov/) weekly during survey operations, and once the survey was completed. The RNCs and ENCs used for final comparisons, summarized in Table 7, were downloaded on June 15, 2010 and are submitted with the survey data.

The Local Notice to Mariners (LNM) and Notice to Mariners (NM) issued during the survey period (October 23, 2009 to May 11, 2010) were reviewed for significant updates. Coast Guard District 8 LNM 23/2010 (June 9, 2010) was the final notice reviewed for this project.

There are no aids to navigation within the project limits of Survey H12157.
Data filed with original field records.

Table 7
H12157 Affected Charts

Chart Number	Scale	Edition	ENC
1115A	1: 456,394	43rd, Nov./08	US3GC05M
11382	1:80,000	41th, May/10	US4FL71M
11383	1:30,000	51st, Jan./06	US5FL72M
11384	1:10,000	35th, Oct./06	US5FL73M

D.1.1 General Chart Comparison

In general, charted and surveyed depths agreed within 3 feet (1 meter). Specific differences are discussed in the detailed chart comparisons below.

- Many uncharted obstructions were surveyed in the Safety Fairway. Positions and least depths were developed with object detection SWMB coverage and are submitted with the S-57 feature file, H12157_S57_Features.000.*
- A majority of the charted obstructions and wrecks within the survey area were included as AWOIS investigation items and are discussed in detail under Appendix II - Survey Feature Report.*
- High-resolution data from this survey provide more detailed delineations of depth areas and individual features.

See Appendix III for final charting recommendations.

D.1.2 Detailed Chart Comparison and Charted Features ***See Appendix III for final charting recommendations.***

Chart 1115A (Soundings in Fathoms)

- H12157-1: The bounds of a Fairway Anchorage with an approximate location of 30-16-01N, 87-13-34W are not accurately charted relative to the larger scale charts in the area, RNCs 11382, 11383 and 11384. Unlike on the larger scale charts, the western border of the Fairway Anchorage on chart 1115A does not extend to the northwest-southeast oriented spur of the Safety Fairway leading to the Pensacola Bay entrance (Figure 14).

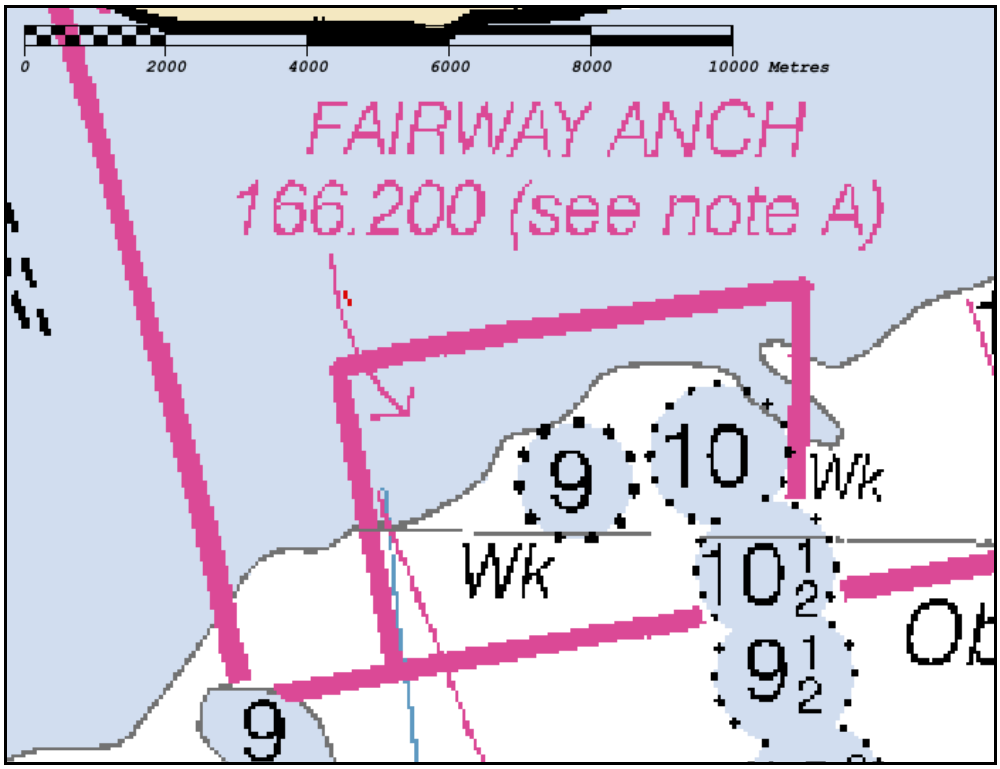


Figure 14. The charted Fairway Anchorage (RNC 1115A) does not accurately define the actual borders of the anchorage as depicted on the larger scale charts in the area. The western border of the anchorage should extend to the northwest-southeast oriented limit of the fairway. ***Concur***

Chart 11382. (Soundings in Feet)

- H12157-2: A57-foot Obstn charted at 30-14-17.71N, 87-12-02.09W, was disproved with 200% SSS and 100% SWMB. A rocky area located in the southwest portion of the charted obstruction was developed with object detection SWMB. The rocky area measures approximately 330 feet (100 meters) in width by 300 feet (91 meters) in length with a least depth of 71.6 feet (21.8 meters) at 30-14-13.25N, 87-12-07.13W (Figure 15). It is suggested that the charted obstruction be updated with the new survey position and least depth. ***See Appendix III for final charting recommendation.***

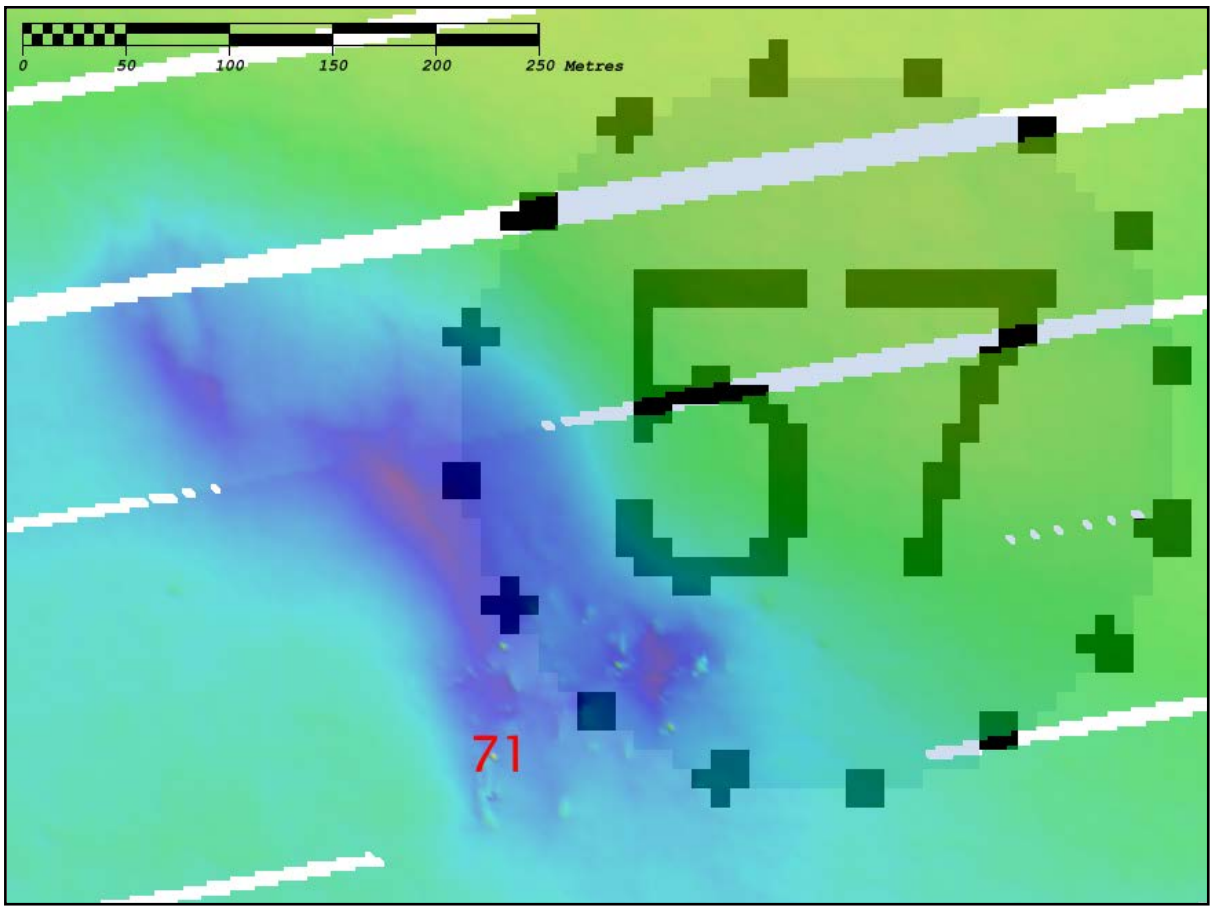


Figure 15. A rocky area surveyed over the southwest portion of a 57-foot obstruction symbol is displayed in a 2-meter BASE surface colored by depth and overlaid on RNC 11382. The location of the rocky area's least depth, 71 feet, is shown in red.

- H12157-3: A 65-foot Obstn charted at 30-13-58.52N, 87-12-09.35W was investigated with 200% SSS and object detection SWMB. Debris was observed in each of the side scan coverages and a least depth of 75.3 feet (22.9 meters) was developed at 30-13-56.94N, 87-12-07.38W. The surveyed least depth is

approximately 10 feet (3 meters) deeper than the charted safe clearance depth of 65 feet. It is suggested that the charted obstruction be updated with the new survey position and new least depth. See AWOIS Item #7078 in Appendix II - Survey Feature Report for additional information. ***See Appendix III for final charting recommendation.***

- H12157-4: A 68-foot Obstn charted at 30-13-16.75N, 87-11-48.39W and reported as a "Volkswagen bug" was disproved with 200% SSS and full SWMB. Within the charted obstruction symbol area, a least depth of 76.0 feet (23.2 meters) was surveyed at 30-13-15.35N. 087-11-47.11W. It is recommended that the obstruction symbol be removed from the chart. See AWOIS Item #8594 in Appendix II - Survey Feature Report for additional information. ***See Appendix III for final charting recommendation.***
- H12157-5: Three uncharted obstructions positioned approximately 1000 feet (3.75 mm at chart scale) apart from each other, centered at an approximate location of 30-14-53.85N, 87-07-12.21W were developed with 200% SSS and object detection SWMB. They were submitted as DTONs on June 30, 2010 (see Appendix I). Of the three obstructions, a least depth of 62.7 feet (19.1 meters) was surveyed at 30-14-52.89N, 87-07-18.89W and is positioned between charted soundings of 70, 93 and 98 feet (Figure 16). All three obstructions are included in the S57 Feature File (H12157_S57_Feature.000) as OBSTRN objects. ***See Appendix III for final charting recommendations.***

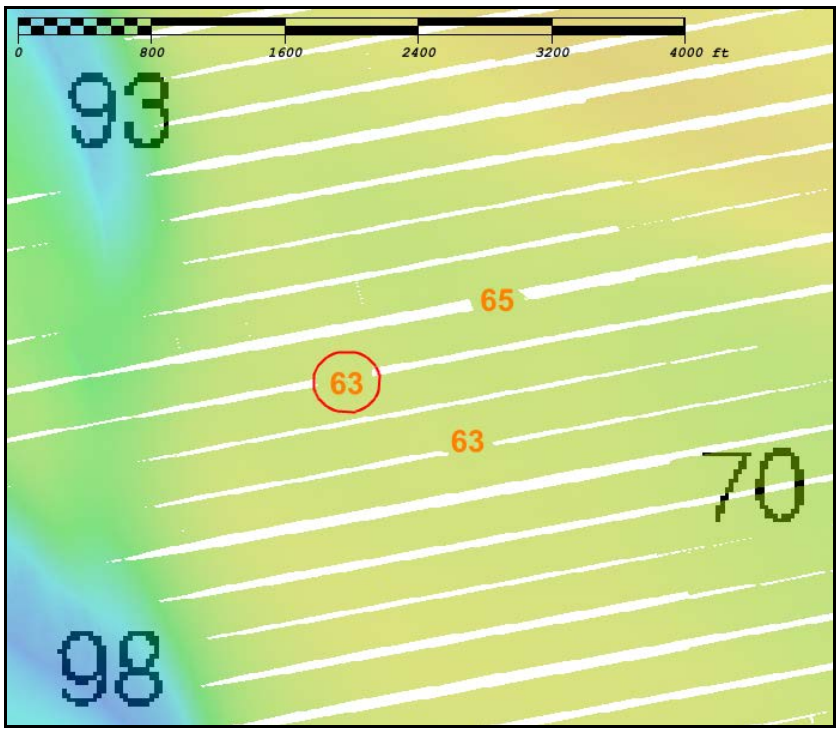


Figure 16. Three surveyed obstructions, shown as orange soundings, located within the fairway. The circled sounding represents the least depth of the three. Soundings

are displayed over a 2-meter BASE surface colored by depth and overlaid on RNC 11382.

- H12157-6: An uncharted obstruction with a least depth of 62.3 feet (19.0 meters) was developed at 30-14-28.76N, 87-06-42.30W with 200% SSS data and object detection SWMB coverage. The obstruction was positioned between charted depths of 69 and 70 feet. This item was submitted as a DTON on June 30, 2010 (see Appendix I). The obstruction is included in the S57 Feature File (H12157_S57_Feature.000) as an OBSTRN object. ***See Appendix III for final charting recommendations.***
- H12157-7: An uncharted obstruction with a least depth of 58.3 feet (17.8 meters) was developed at 30-15-00.59N, 87-06-00.59W with 200% SSS data and object detection SWMB coverage and submitted as a DTON on June 30, 2010 (see Appendix I). The obstruction is centered between three charted depths of 64, 63 and 74 feet. The obstruction is included in the S57 Feature File (H12157_S57_Feature.000) as an OBSTRN object. ***See Appendix III for final charting recommendations.***
- H12157-8: An uncharted obstruction with a least depth of 62.1 feet (18.9 meters) was developed at 30-16-33.76N, 87-00-53.56W with 200% SSS data and object detection SWMB coverage and submitted as a DTON on June 30, 2010 (see Appendix I). It is located in the vicinity of a charted 71-foot sounding positioned at 30-13-17.15N, 87-01-13.10W. The obstruction is included as an OBSTRN object in the S57 Feature File (H12157_S57_Feature.000). ***See Appendix III for final charting recommendations.***
- H12157-9: An uncharted obstruction with a least depth of 65.6 feet (20.0 meters) was developed at 30-17-00.20N, 87-00-59.79W with 200% SSS data and object detection SWMB coverage between charted depths of 71 and 70 feet. The new obstruction is located on the northern border of the Safety Fairway and it is included in the S57 Feature File (H12157_S57_Feature.000) as an OBSTRN object. ***See Appendix III for final charting recommendation.***
- H12157-10: A number of additional uncharted obstructions with approximate heights of 8 feet (2.4 meters) were identified in the Safety Fairway. The majority of the obstructions found in the Fairway had a strong side scan return and appeared to be tall, slender, triangular features (Figure 17). All obstructions with significant heights relative to the surrounding depth were included in the S-57 feature file (H12157_S57_Feature.000). Several obstructions were significantly shallower than charted soundings, however, their least depths exceeded 66 feet (20.1 meters). The discrepancies are listed below: ***See Appendix III for final charting recommendation.***
    - An obstruction with a least depth of 68.2 feet (20.8 meters) was developed at 30-16-19.27N, 86-53-59.51W in the vicinity of a charted 78-foot sounding.
    - An obstruction with a least depth of 73.6 feet (22.4 meters) was developed at 30-17-10.89N, 86-57-19.00W in the vicinity of a charted 80-foot sounding.
    - An obstruction with a least depth of 73.1 feet (22.3 meters) was developed at 30-16-34.13N, 86-56-56.03W between charted depths of 91, 84 and 93 feet.

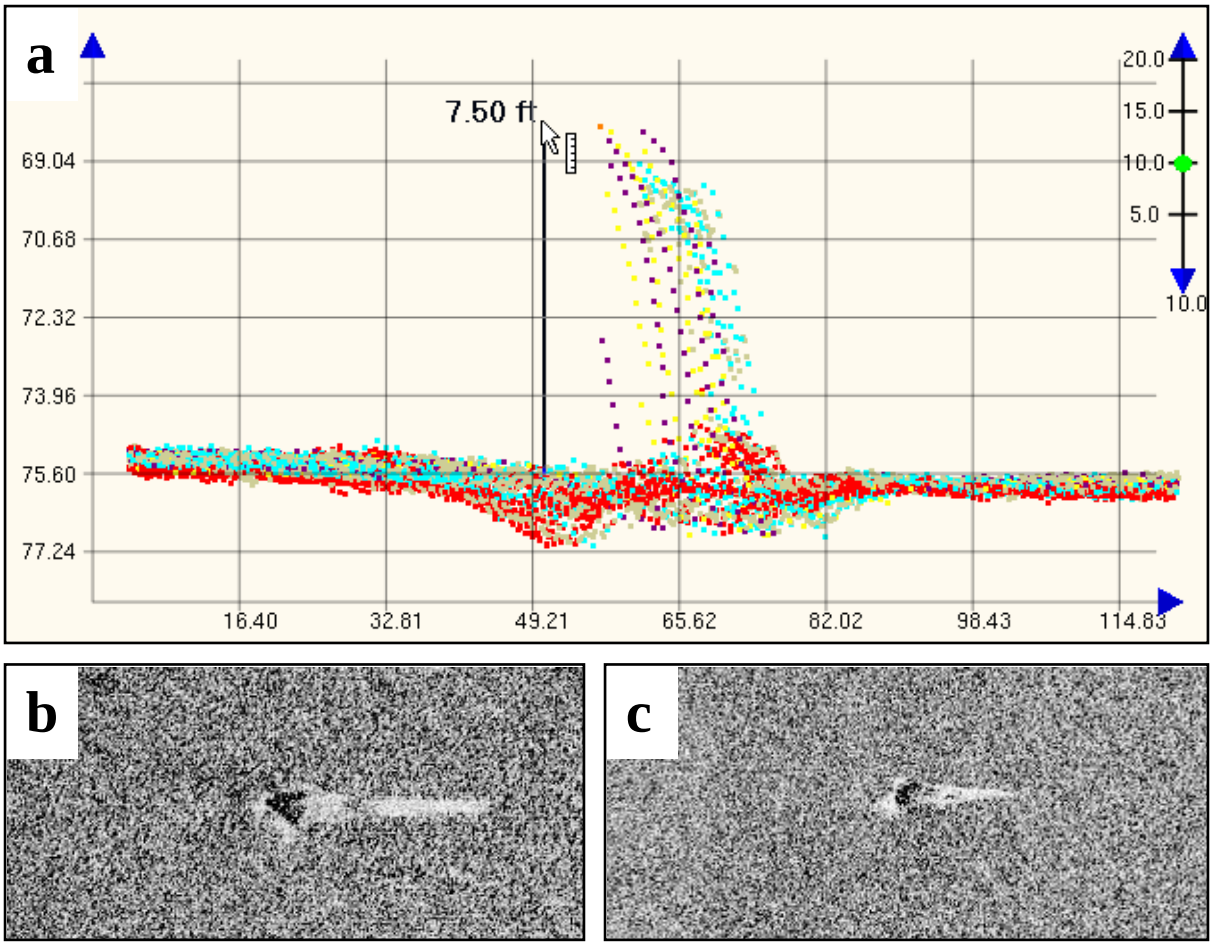


Figure 17. (a) An example of the triangular obstructions observed in the Safety Fairway displayed in CARIS HIPS Subset Editor with soundings colored by survey line; depth and distance units are in feet. (b, c) Side scan sonar imagery of the obstruction in figure (a) from two overlapping survey lines, contacts 104-09590004 and 107-16260001, respectively.

- H12157-11: A small portion of a Restricted Area south of Santa Rosa Island is located within the survey limits at the northeastern corner of the survey. Surveyed depths agreed within 2 feet (0.6 meter) of the charted depths, and no obstructions or features were observed. ***Concur***

- H12157-12: Two new shoals with least depths of 80.0 feet (24.4 meters) and 76.7 feet (23.4 meters) developed at 30-14-14.02N, 87-10-18.40W and 30-13-52.06N, 87-10-15.67W, respectively. Survey depths measuring 77-80 feet (23.5-24.4 meters) were developed between charted 87, 89 and 99-foot soundings (Figure 18).***Concur***

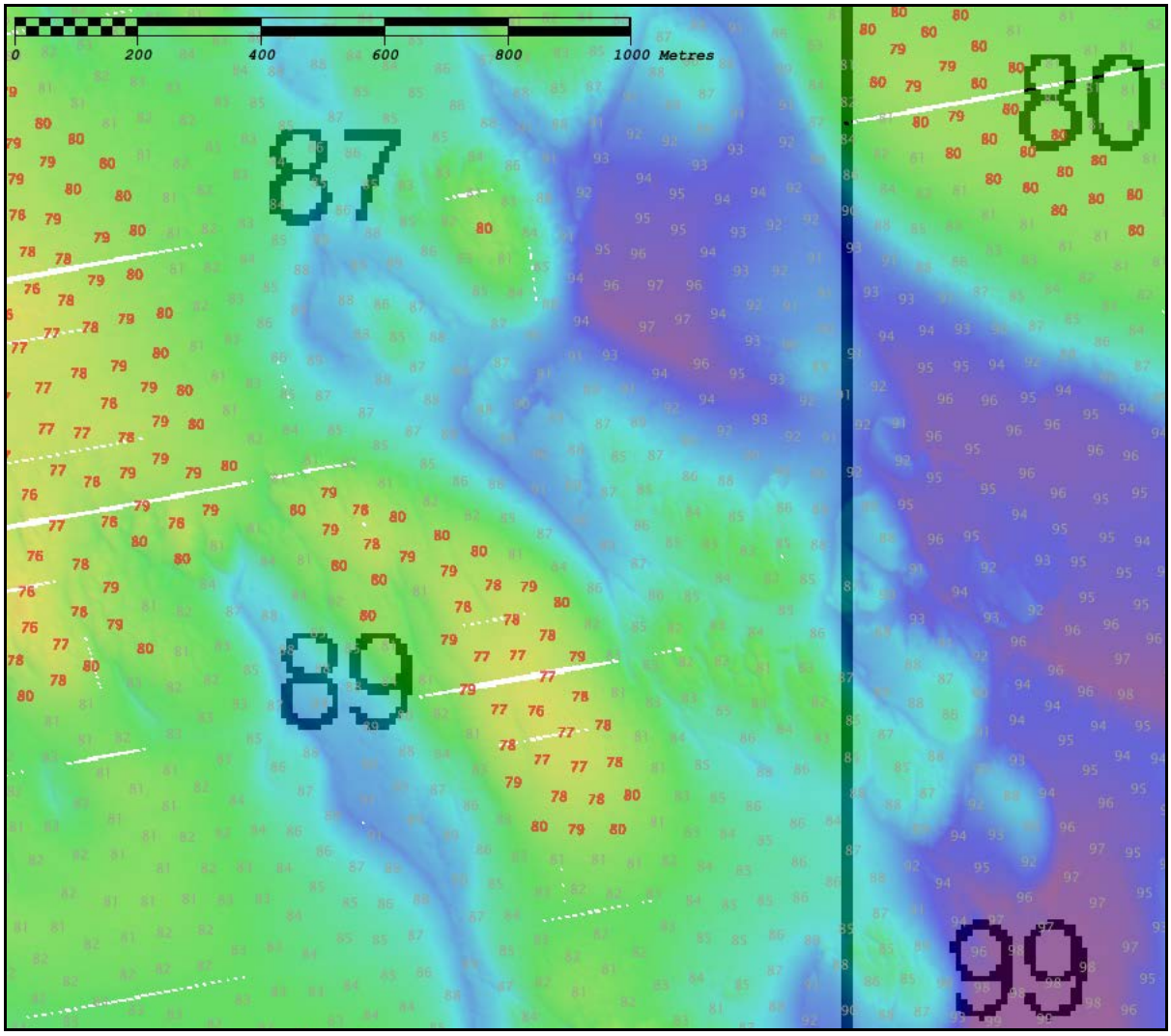


Figure 18. Survey depths ≤ 80 feet developed over the new shoals are highlighted in red and are overlain on a 2-meter BASE Surface colored by depth with RNC 11382 in the background. All depths are in feet.

- H12157-13: An assumed dredge borrow area is located within the northeast corner of the survey area centered at an approximate position of 30-18-17N, 86-50-56W (Figure 19). A least depth of 65.0 feet (19.8 meters) was developed at 30-18-13.70N, 86-51-21.46W. Surveyed depths were up to 9 feet (2.7 meters) deeper than charted depths. The assumed dredge borrow area is included in the S57 Feature File (H12157_S57_Feature.000) as a DRGARE object. ***Concur***

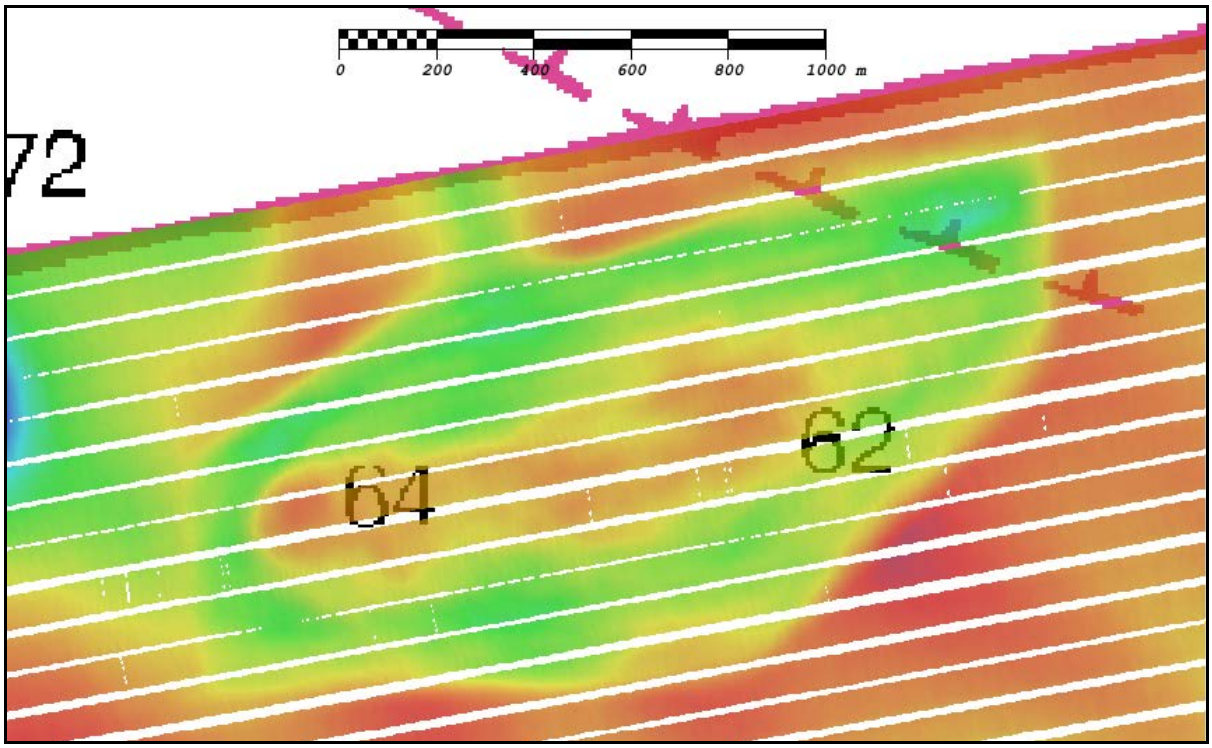


Figure 19. An assumed dredge borrow area observed in the northeast portion of the survey. Surveyed depths are up to 9 feet (2.7 meters) deeper than charted depths. A 2-meter BASE Surface colored by depth is overlaid on RNC 11382.

The chart features listed below were common to Charts 11382 and 11383. (Soundings in Feet)

- H12157-14: The charted 60-foot depth curve located within the Fairway Anchorage differs significantly from the 60-foot (18-meter) contour generated from survey H12157's final combined 2-meter BASE Surface. The surveyed 60-foot (18-meter) contour is predominantly positioned north of the charted 60-foot depth curve, with charted and surveyed positions differing up to 1500 feet (460 meters) (Figure 20). However, the majority of surveyed depths along the charted 60-foot depth curve agreed with the chart within 3 feet (1 meter). It is recommended that the position of the charted 60-foot depth curve be updated with surveyed depths. ***Concur***

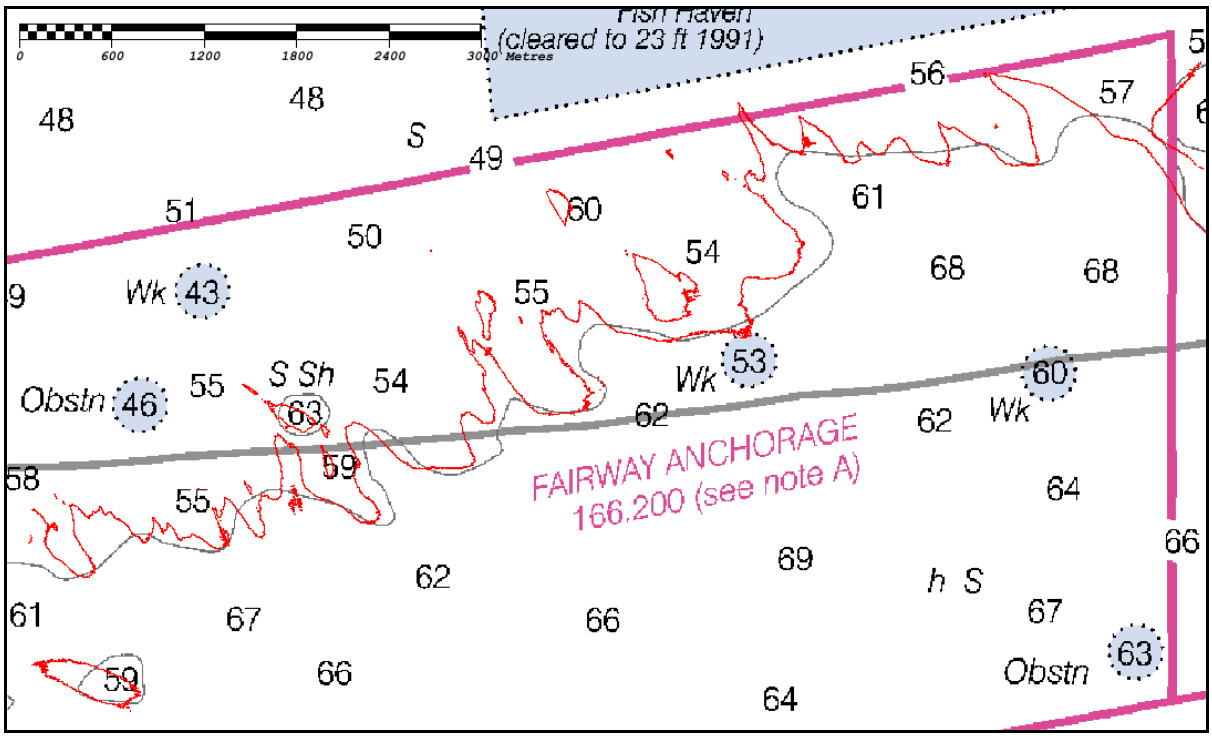


Figure 20. The surveyed 60-foot contour, shown above in red in reference to RNC 11382, is predominantly further north than the charted 60-foot depth curve.

- H12157-15: The surveyed 60-foot contour was approximately 900 feet (275 meters) seaward of the charted 60-foot depth curve at the approximate location of 30-15-46N, 087-15-03W (Figure 21). ***Concur***

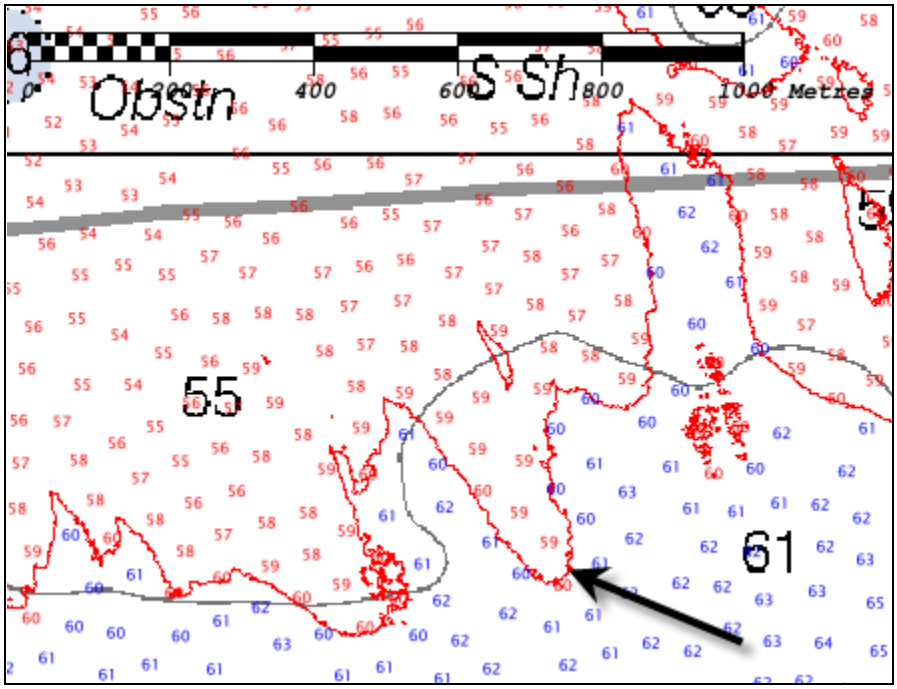


Figure 21. The surveyed 60-foot contour, shown in red in reference to RNC 11383, extends approximately 900 feet (275 meters) seaward of the charted 60-foot depth curve. Sounding and charted depths are in feet.

- H12157-16: Two 3.5-foot (1-meter) tall, uncharted obstructions with least depths of 59.4 feet (18.1 meters) and 61.1 feet (18.6 meters) were developed at 30-15-36.39N, 87-07-08.08W and 30-15-39.25N, 87-06-45.04W, respectively, with 200% SSS data and object detection SWMB coverage. The new obstructions are located between three charted 64-foot soundings (RNC 11382) and are included in the S57 Feature File (H12157_S57_Feature.000) as OBSTRN objects. ***See Appendix III for final charting recommendations.***

- H12157-17: A new shoal with a least depth of 68.6 feet (20.9 meters) developed at 30-15-05.31N, 87-07-55.64W was located between charted depths of 81, 86, 91 and 93 feet (Figure 22). The shoal is located approximately 2300 feet (700 meters) west of a ridge where seafloor depths abruptly change from an average of 90 to 65 feet, heading from west to east. ***Concur***

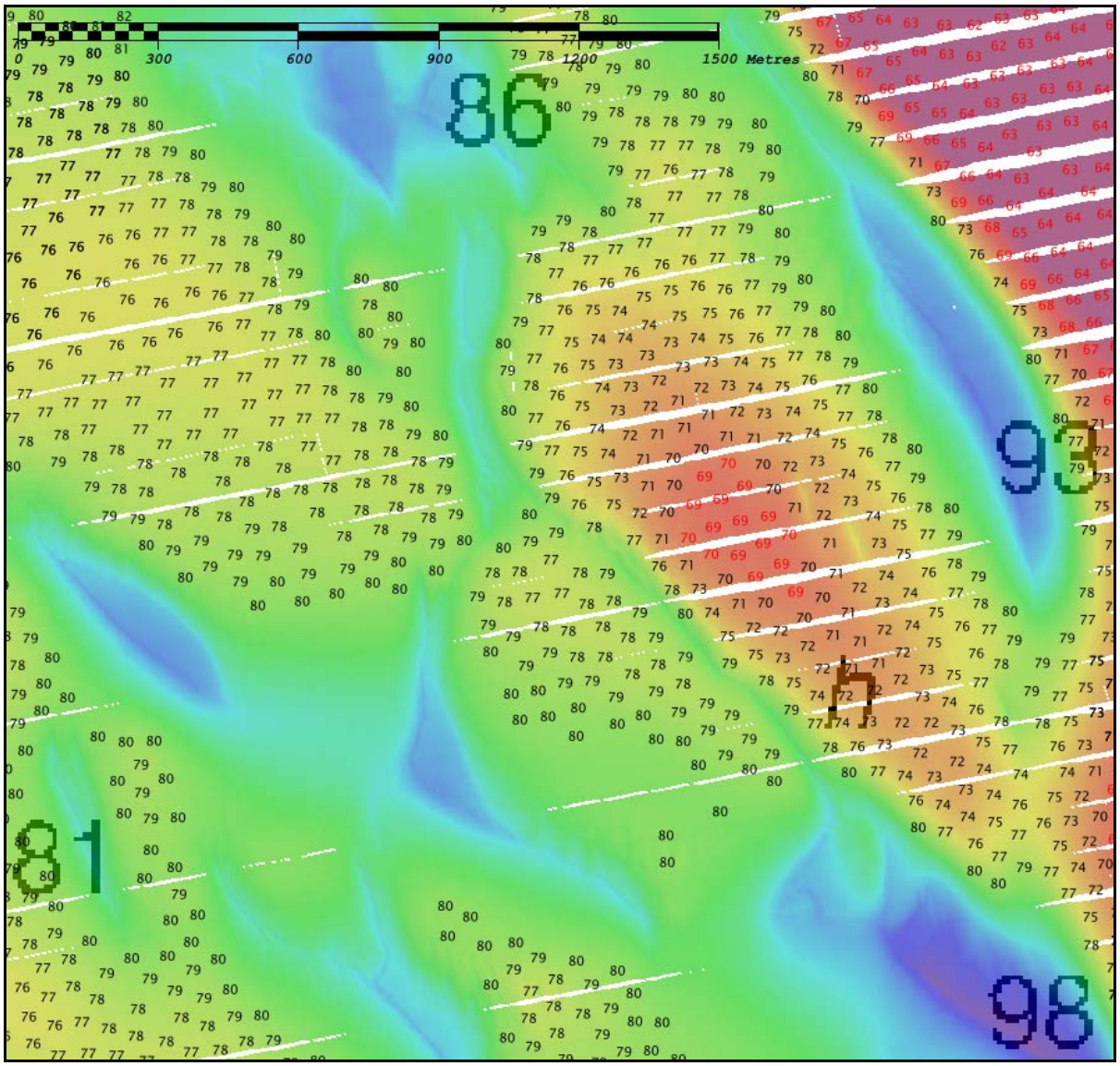


Figure 22. H12157 soundings ≤ 80 feet are overlain on a 2-meter BASE Surface colored by depth in reference to RNC 11382. Depths ≤ 70 feet surveyed over the top of the shoal are highlighted in red. All depths are in feet.

- H12157-18: A charted 46-foot Obstn positioned at 30-16-03.94N, 87-15-27.14W was disproved with 200% SSS and full SWMB. A least depth of 51.5 feet (15.7 meters) was surveyed at 30-16-04.22N, 87-15-28.34W. It is recommended that the obstruction symbol be removed from the chart. See AWOIS Item #8590 under Appendix II - Survey Feature Report for additional information. ***See Appendix III for final charting recommendation.***

- H12157-19: A charted 53-foot Wk positioned at 30-16-13.60N 87-13-28.37W was disproved with 200% SSS and full SWMB. A least depth of 60.7 feet (18.5 meters) was surveyed at 30-16-15.88N, 87-13-30.70W. It is recommended that the wreck symbol be removed from the chart. See AWOIS Item #8588 under Appendix II - Survey Feature Report for additional information. ***See Appendix III for final charting recommendation.***
    - H12157-20: A charted obstruction area labeled as "Fish Haven Wks (cleared 23 ft 1991) centered at approximate location 30-17-26.00N, 87-13-18.00W was investigated with 200% SSS and object detection SWMB. The obstruction is located inside an Obstn Fish Haven north of the Fairway Anchorage with an authorized minimum depth of 26 feet. Multiple objects and debris that appear to be in the shape of two wrecks were observed within and outside of the charted obstruction area (Figure 23) with a least depth of 41.7 feet (12.7 meters) developed at 30-17-29.66N, 87-13-18.07W. The objects are included as WRECKS in the H12157 S-57 feature file (H12157_S57_Features.000). It is suggested that the charted obstruction area be updated with the new survey position and least depth. See AWOIS Item #7074 under Appendix II - Survey Feature Report for additional information. ***See Appendix III for final charting recommendation.***

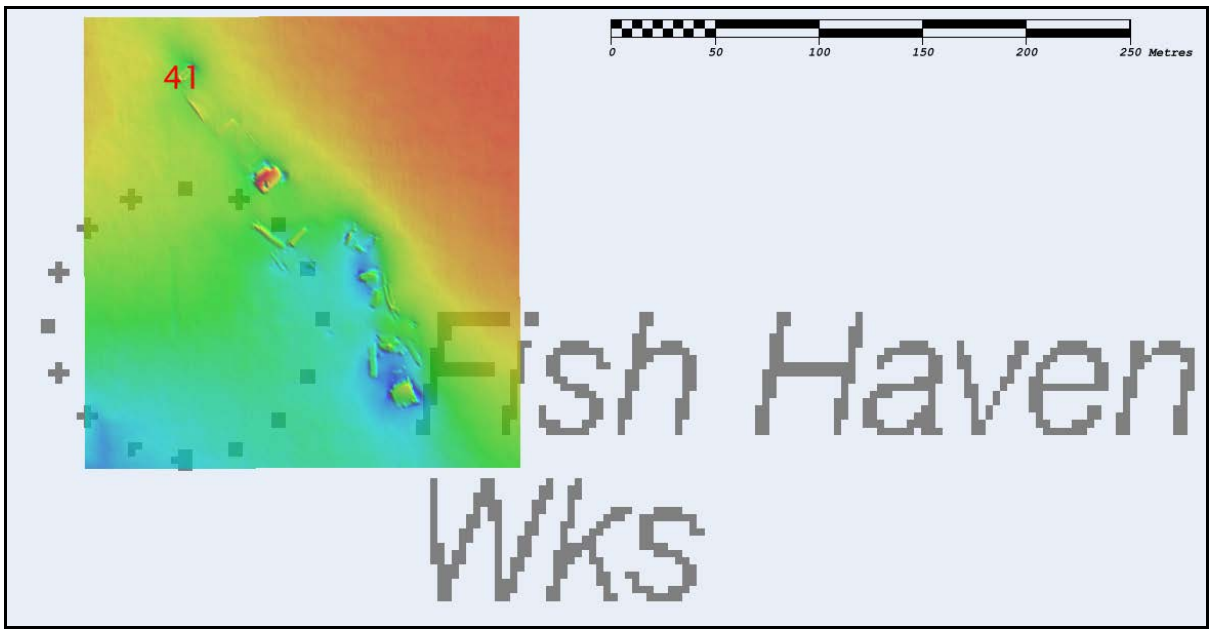


Figure 23. Wrecks and debris located within a fish haven north of the Fairway Anchorage are displayed in a 0.5-meter BASE surface colored by depth and overlaid on RNC 11383. The location of the wreck least depth of 41 feet is shown in red.

- H12157-21: An uncharted obstruction was located approximately 400 feet (120 meters) north of the developed least depth on AWOIS Item #7074. The obstruction was developed with object detection SWMB coverage and was observed in both side

scan coverages. A least depth of 43.0 feet (13.1 meters) was developed at 30-17-33.77N, 87-13-17.36W. This object is located outside of the search radius of AWOIS Item #7074 and outside of the obstruction area in Figure 23, but is located within the Obstn Fish Haven (auth min 26 ft). See AWOIS Item #7074 under Appendix II - Survey Feature Report for additional information. ***See Appendix III for final charting recommendation.***

- H12157-22: A 60-foot Wk charted at 30-16-09.39N, 87-12-23.94W was disproved with 200% SSS and full SWMB. A least depth of 64.3 feet (19.6 meters) was surveyed at 30-16-07.34N, 87-12-25.56W. It is recommended that the wreck symbol be removed from the chart. See AWOIS Item #8587 under Appendix II - Survey Feature Report for additional information. ***See Appendix III for final charting recommendation.***
- H12157-23: A 63-foot Obstn charted at 30-15-24.93N, 87-12-00.12W was disproved with 200% SSS and full SWMB. A least depth of 66.5 feet (20.3 meters) was surveyed at 30-15-25.01N, 87-12-01.00W. It is recommended that the obstruction symbol be removed from the chart. See AWOIS Item #8591 under Appendix II - Survey Feature Report for additional information. ***See Appendix III for final charting recommendation.***
- H12157-24: A rocky area centered at approximate location 30-15-50N, 87-09-43W was observed with 200% SSS and full SWMB in the vicinity of a charted 97 foot sounding. A least depth of 82.0 feet (25.0 meters) was surveyed at 30-14-56.11N, 87-09-52.00W. The rocky area is included as a SBDARE area in the H12157 S-57 feature file (H12157_S57_Features.000). ***Chart present survey depths.***
- H12157-25: A rocky area centered at approximate location 30-15-28N, 87-09-36W was observed with 200% SSS and full SWMB in the vicinity of a 72 foot sounding. A least depth of 83.4 feet (25.4 meters) was surveyed at 30-15-20.51N, 87-09-31.83W. The rocky area is included as a SBDARE area in the H12157 S-57 feature file (H12157_S57_Features.000). ***Chart present survey depths.***

The chart features listed below are common to Charts 11382, 11383 and 11384. (Soundings in Feet)

- H12157-26: The majority of a charted Fairway Anchorage approximately centered at 30-15-55N, 87-14-06W is located inside the H12157 survey limits. The westernmost section of the anchorage is included with Survey H12061. In general, surveyed and charted soundings agree within 3 feet (1 meter). No obstructions were found in the anchorage. A least depth of 43.9 feet (13.4 meters) at 30-16-35.51N, 87-15-42.94W was surveyed as part of the H12157 dataset. This shoal sounding falls just west of the western limit of Survey H12157. Survey H12061 identified a shoal sounding of 40.4 feet (12.3 meters) at 30-16-17.72N, 87-16-28.15W. This position falls within the Fairway Anchorage west of the western boundary of Survey H12157. ***Concur***

- H12157-27: A 43-foot Wk charted at 30-16-26.51N, 87-15-15.59W was disproved with 200% SSS and full SWMB. A least depth of 48.8 feet (14.9 meters) was surveyed at 30-16-25.49N, 87-15-18.44W. It is recommended that the wreck symbol be removed from the chart. See AWOIS Item #8589 under Appendix II - Survey Feature Report for additional information. ***See Appendix III for final charting recommendation.***

D.1.3 Controlling and Tabulated Depths

There are no charted channels located within the survey area. ***Concur***

D.1.4 AWOIS Items

There were ten (10) AWOIS item investigations assigned within the survey area (Table 8). All AWOIS items were investigated to the full extent possible using the recommended search techniques (e.g. VS, S2, MB).

Table 8
H12157 AWOIS Investigations

AWOIS Record	Latitude (N)	Longitude (W)	Description	Status
~~7074~~	~~30-17-25.72~~	~~87-13-16.89~~	~~Wreck – *"Barges"*~~	~~Verified~~
~~7078~~	~~30-13-56.17~~	~~87-12-08.47~~	~~Obstruction – *Concrete rubble*~~	~~Verified~~
~~8587~~	~~30-16-09.41~~	~~87-12-24.14~~	~~Wreck – *Submerged Runabout*~~	~~Disproved~~
~~8588~~	~~30-16-13.31~~	~~87-13-28.33~~	~~Wreck – *17 foot Runabout and debris*~~	~~Disproved~~
~~8589~~	~~30-16-26.79~~	~~87-15-15.61~~	~~Wreck – *12 foot skiff and debris*~~	~~Disproved~~
~~8590~~	~~30-16-03.58~~	~~87-15-27.08~~	~~Obstruction – *Metal caging*~~	~~Disproved~~
~~8591~~	~~30-15-24.75~~	~~87-11-59.91~~	~~Obstruction – *Tank drum cut in half*~~	~~Disproved~~
8592	30-13-29.56	87-14-46.49	Obstruction – *Car lying upright on seafloor*	Disproved
8593	30-12-46.51	87-15-38.93	Obstruction – *Car body surrounded by debris*	Disproved
~~8594~~	~~30-13-13.03~~	~~87-11-48.12~~	~~Obstruction – *Volkswagen bug with debris*~~	~~Disproved~~

See Appendix II – Survey Feature Report, for complete reporting on AWOIS Item investigation.
See Appendix III for final charting recommendations for all AWOIS items.

D.1.5 Danger to Navigation Reports

Three Danger to Navigation Reports were generated for six (6) features. A summary is presented in Table 9 and copies of the reports are included in Appendix I. ***See Appendix III for final charting recommendations of all DtoNs.***

Table 9
Dangers to Navigation

Item #	Feature	Depth Feet	Depth Meters	Latitude	Longitude	Description
~~1~~	~~Obstruction~~	~~62.1~~	~~18.9~~	~~30-16-33.76~~	~~87-00-53.56~~	~~Obstruction in Fairway Southeast of Pensacola Bay~~
~~2~~	~~Obstruction~~	~~62.7~~	~~19.1~~	~~30-14-52.89~~	~~87-07-18.89~~	~~Obstruction in Fairway Southeast of Pensacola Bay~~
3	Obstruction	63.2	19.3	30-14-49.47	87-07-10.62	Obstruction in Fairway Southeast of Pensacola Bay
4	Obstruction	64.6	19.7	30-14-57.83	87-07-08.60	Obstruction in Fairway Southeast of Pensacola Bay
~~5~~	~~Obstruction~~	~~62.3~~	~~19.0~~	~~30-14-28.76~~	~~87-06-42.30~~	~~Obstruction in Fairway Southeast of Pensacola Bay~~
~~6~~	~~Obstruction~~	~~58.3~~	~~17.8~~	~~30-15-00.59~~	~~87-06-00.59~~	~~Obstruction in Fairway Southeast of Pensacola Bay~~

D.2 Additional Results

D.2.1 Shoreline Verification

Shoreline verification was not required for this survey.

D.2.2 Comparison with Prior Surveys

A comparison with prior surveys was not required for this survey.

D.2.3 Aids to Navigation (ATON)

There were no Aids to Navigation within the survey area.

D.2.4 Restricted Data

Not applicable for this survey.

D.2.5 Other Data

D.2.5.1 Bottom Characteristics

Thirty-seven (37) bottom samples were acquired to determine bottom characteristics. Bottom samples were spaced at approximately 2000-meter intervals in accordance with the SOW. Additional bottom samples were acquired at approximately 1200-meter intervals within the charted anchorages. A table listing the positions and descriptions of the bottom samples is included in Appendix V. A position and description of each sample are provided as attributed SBDARE objects in the S-57 feature file (H12157_S57_Features.000/hob). Digital images with identification reference numbers are submitted with the survey data and referenced in the S-57 PICREP attribute.

D.2.6 S-57 Feature File

D.2.6.1 S-57 Chart Features File

Many uncharted obstructions and several wrecks were identified and delineated in the SSS data, SWMB data, and BASE surfaces. An S-57 feature file (H12157_S57_Features.000/.hob) was created to emphasize navigationally significant objects discovered during the survey, update charted objects and to provide information for these objects that could not be portrayed in the BASE surfaces. All S-57 features were attributed in accordance with guidance provided in the SOW and HSSD. Table 10 describes the attribute mapping for the S-57 feature file.

Table 10
S-57 Chart Features Attribute Mapping

S-57 Attribute	Value
VALSOU	Corrected least depth
TECSOU	Technique used to develop VALSOU
INFORM	Unique Critical Sounding ID
SORDAT	Survey Date
SORIND	Survey reference – registry ID
PICREP	Contact image file name
userid*	Unique Contact ID
remrks*	Acquisition or processing remarks
recomd*	Charting recommendations

*These attributes are available in the CARIS Notebook HOB file format.

D.2.6.2 S-57 Contact File

All contacts are submitted in an S-57 attributed Notebook HOB file of $CSYMB objects. Table 11 describes the attribute mapping for the S-57 contact file.

Table 11
S-57 Contact Attribute Mapping

S-57 Attribute	Value
INFORM	Corrected least depth (m)
SORDAT	Survey Date
SORIND	Survey reference – registry ID
PICREP	Contact image file name
TXTDSC	Unique Critical Sounding ID (Line-beam-ping)
userid*	Unique Contact ID (Line-ping-offset)
remrks*	Acquisition or processing remarks
recomd*	Charting recommendations

*These attributes are available in the CARIS Notebook HOB file format.

D.2.6.3 S-57 Critical Sounding File

All critical soundings are submitted in an S-57 attributed Notebook HOB file of $CSYMB objects. Table 12 describes the attribute mapping for the S-57 critical soundings file.

Table 12
S-57 Critical Soundings Attribute Mapping

S-57 Attribute	Value
INFORM	Corrected least depth (m)
SORDAT	Survey Date
SORIND	Survey reference – registry ID
PICREP	Contact or feature image file name
TXTDSC	Unique Contact ID (Line-ping-offset)
userid*	Unique Critical Sounding ID (Line-beam-ping)
remrks*	Acquisition or processing remarks
recomd*	Charting recommendations

*These attributes are available in the CARIS Notebook HOB file format.

E. APPROVAL SHEET

LETTER OF APPROVAL

REGISTRY NO. H12157

This report and the accompanying data are respectfully submitted.

Field operations contributing to the accomplishment of Survey H12157 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 Statement of Work.

George G. Reynolds
Ocean Surveys, Inc.
Chief of Party – H12157
August 15, 2011

Project-wide reports, the Data Acquisition and Processing Report (DAPR) and the Horizontal and Vertical Control Report (HVCR), were submitted with contemporary survey H12061 on August 24, 2010. They are named as follows:

Report Name	Date of Report
OPR-J364-KR-09_DAPR.pdf	August 18, 2010
OPR-J364-KR-09_HVCR.pdf	August 18, 2010

APPENDIX I

TIDES AND WATER LEVELS

Abstract of Times of Hydrography

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

Date	Day Number	Min. Time UTC	Max. Time UTC
12/15/09	349	14:22:57	22:17:25
12/16/09	350	17:06:35	22:38:44
12/19/09	353	13:34:33	23:16:52
12/20/09	354	14:13:07	20:57:43
12/21/10	355	13:00:46	23:06:58
12/22/10	356	16:29:32	17:54:07
01/03/10	3	17:30:52	22:55:13
01/04/10	4	13:06:23	20:04:39
01/05/10	5	13:08:29	21:53:20
01/25/10	25	16:13:42	19:51:09
02/10/10	41	18:49:56	21:05:51
02/14/10	45	14:18:51	19:48:26
02/16/10	47	13:43:23	22:53:54
02/17/10	48	14:08:23	16:39:05
04/09/10	99	05:03:45	23:45:32
04/10/10	100	01:54:40	23:03:49
04/11/10	101	00:18:27	23:41:05
04/12/10	102	00:34:21	23:26:18
04/13/10	103	00:46:03	23:09:19
04/14/10	104	00:20:40	23:05:09
04/15/10	105	00:17:13	20:00:37
04/16/10	106	03:08:25	23:24:58
04/17/10	107	00:18:25	23:31:20
04/18/10	108	00:15:29	07:52:52
04/30/10	120	04:48:25	08:23:46
05/09/10	129	02:28:53	23:44:12
05/10/10	130	00:35:54	08:44:11
05/11/10	131	07:51:55	15:05:50

The COTR was notified via e-mail and telephone communications that the OSI field team was ready to commence survey operations. The COTR subsequently instructed CO-OPS to begin providing OSI with verified tides. Email correspondence concerning the tide gauge follows.

From: George Reynolds [ggr@oceansurveys.com]
Sent: Monday, December 21, 2009 4:53 PM
To: 'Mark.T.Lathrop'
Cc: kathleen Jamison
Subject: FW: Pensacola On-Line Preliminary Tide Data unavailable

Hi Mark,

With Kathleen out of the office this week I thought we would pass along the following Pensacola gauge report to you as well.

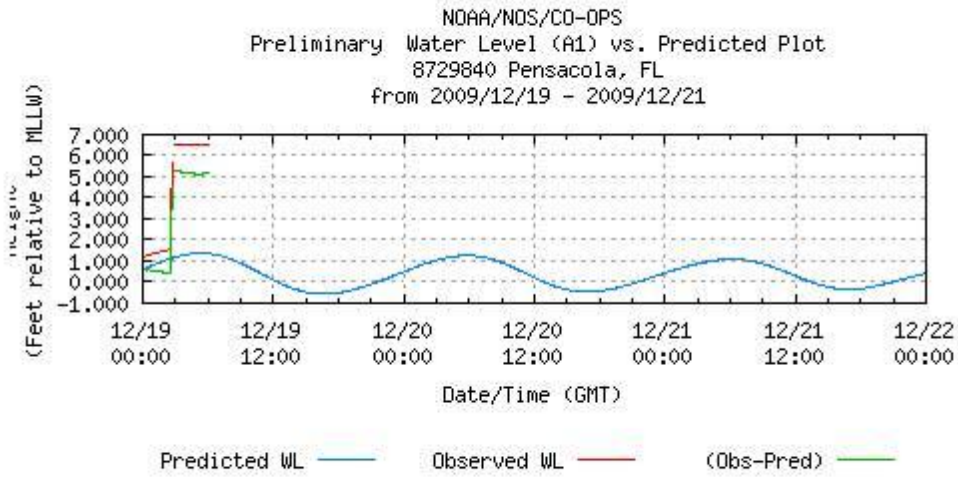
Thanks
George

Hi Kathleen,

The on-Line preliminary tide data has been unavailable since Saturday December 19 @ 02:30 GMT for the Pensacola Station (8729840).

Regards
George

Tide Data



Retrieve data from 20091217 through 20091219

Retrieve data from 20091221 through 20091223

From: Mark.T.Lathrop [mailto:Mark.T.Lathrop@noaa.gov]
Sent: Tuesday, December 22, 2009 9:49 AM
To: George Reynolds
Subject: Re: Pensacola Tide Gauge

George,

I have forwarded your message to CO-OPS. Unfortunately, the snowstorm shut down our office yesterday so we were not able to respond until today.

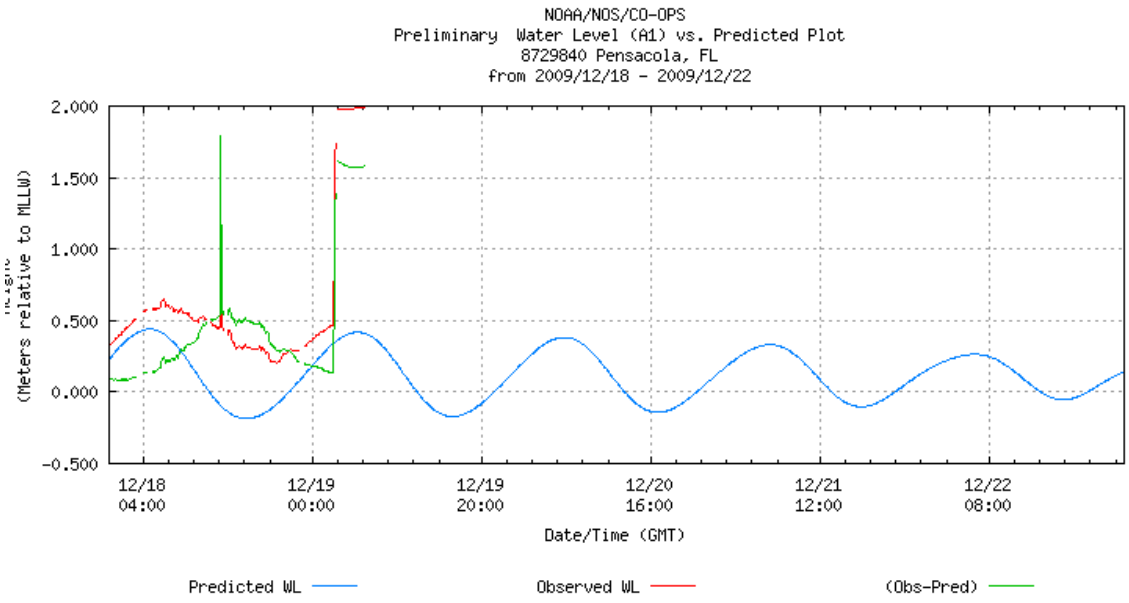
Mark

George Reynolds wrote:

Kathleen, Mark

Data from the Pensacola tide gauge has not posted since 0700 GMT on 12/19/09.

Regards
George



From: kathleen.jamison
To: George Reynolds
Subject: [Fwd: Re: [Fwd: Pensacola Tide Gauge]]
Date: Tuesday, December 29, 2009 11:50:30 AM

George,
Not sure if Mark Lathrop forwarded this to you while I was gone.
Kathleen

-------- Original Message --------
Subject: Re: [Fwd: Pensacola Tide Gauge]
Date: Tue, 22 Dec 2009 13:35:46 -0500
From: Thomas Landon <Thomas.Landon@noaa.gov>
To: Mark.T.Lathrop <Mark.T.Lathrop@noaa.gov>
CC: _NOS CO-OPS OET Team <nos.coops.oetteam@noaa.gov>, Kathleen Jamison <Kathleen.Jamison@noaa.gov>, _NOS CO-OPS DMAT <nos.co-ops.dmat@noaa.gov>, "_NOS.CO-OPS.HTP" <NOS.COOPS.HPT@noaa.gov>
References: <4B30DBCE.6000809@noaa.gov>

Our O&M contractor on the Gulf Coast has been notified, provided a quote for repairs, and has been authorized to proceed. I do not have a "by when" date that repairs will be made, but it should only be a matter of a couple days.
Tom

Mark.T.Lathrop wrote:
CO-OPS,

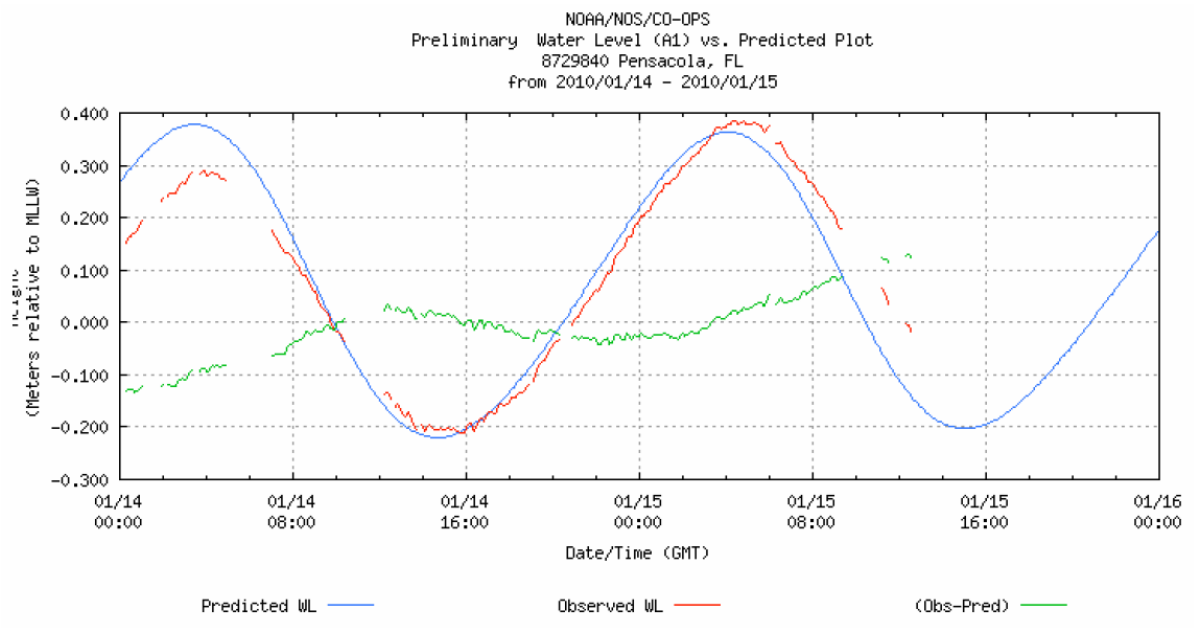
Please see the message below from our contractor, OSI, who is currently surveying off Pensacola.

Thanks,
Mark

From: George Reynolds
To: "kathleen.jamison"
Subject: Pensacola Tide Gauge Data Gaps 1/15/10
Date: Friday, January 15, 2010 10:03:05 AM

Hi Kathleen,
The Pensacola tide gauge appears to be experiencing data gaps ranging from six minutes to two hours.

George

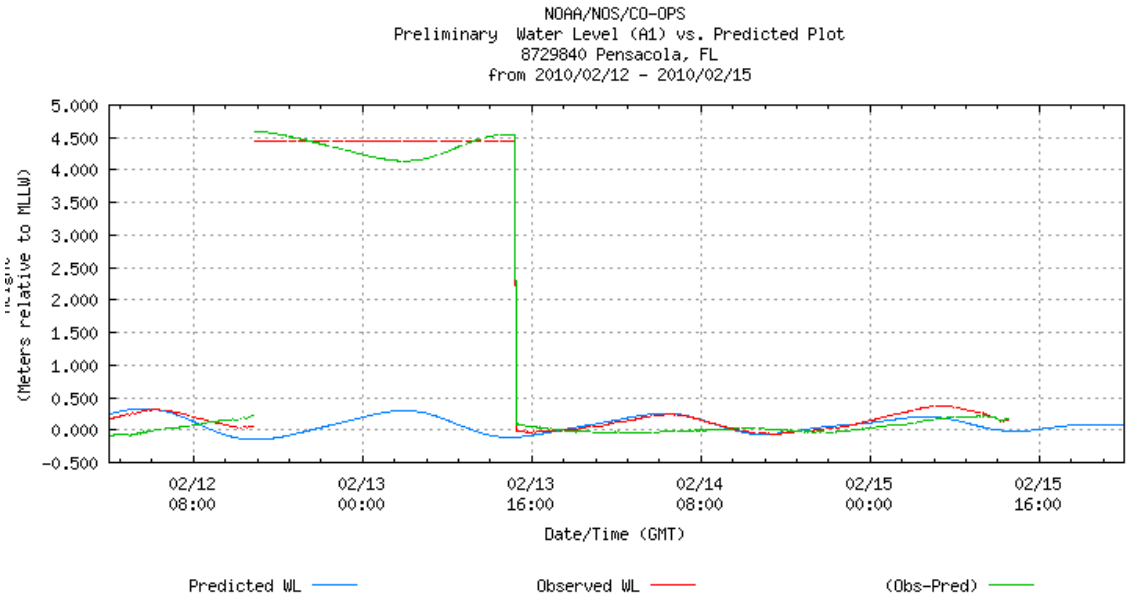


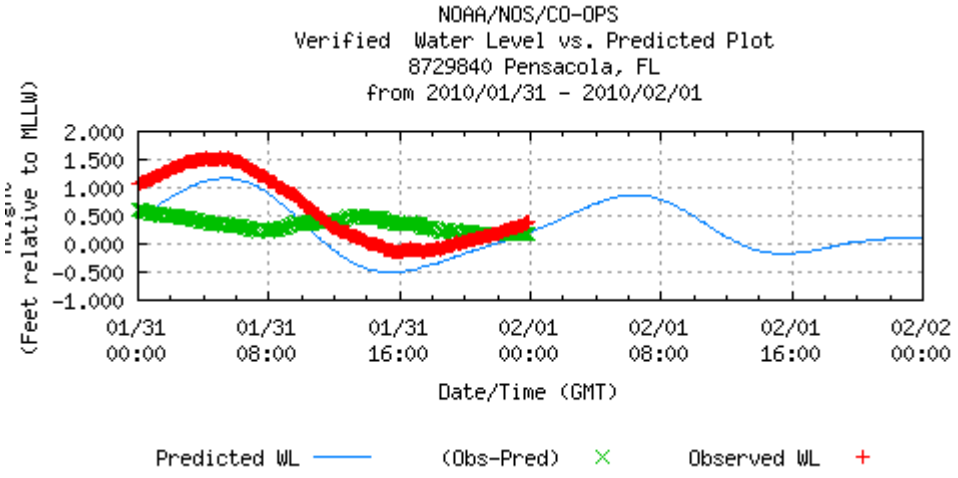
From: George Reynolds [mailto:ggr@oceansurveys.com]
Sent: Monday, February 15, 2010 8:24 AM
To: kathleen Jamison
Subject: Pensacola Tide Gauge

Hi Kathleen,

The Pensacola gage reported a data gap from 1348GMT 2/12/10 to 1424GMT 2/13/10. The gage appears to be working correctly this morning.

Regards
George



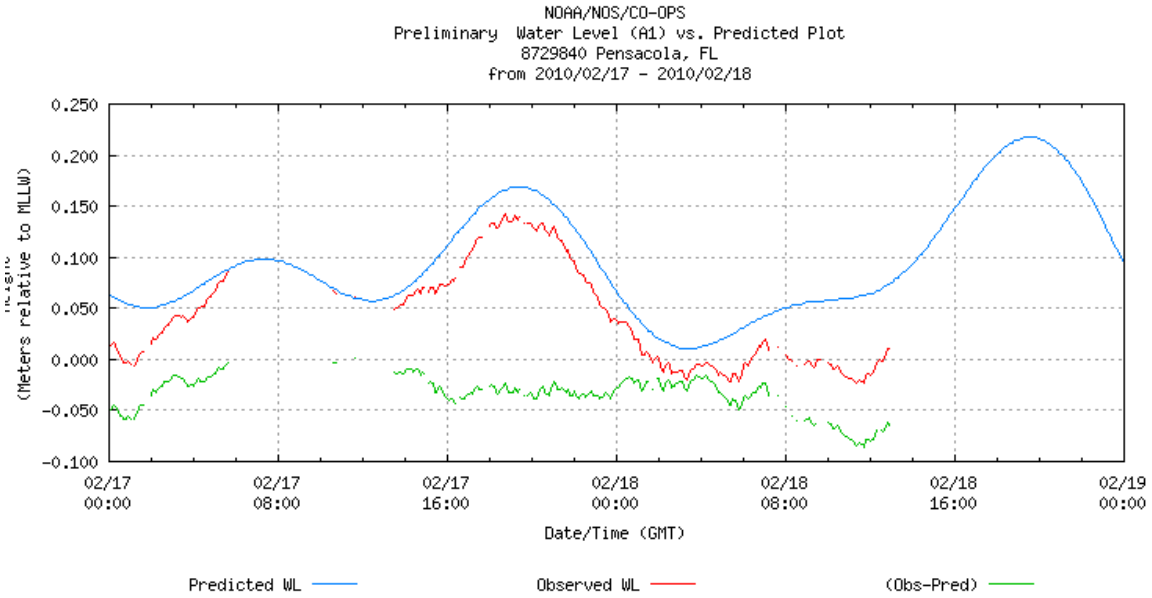


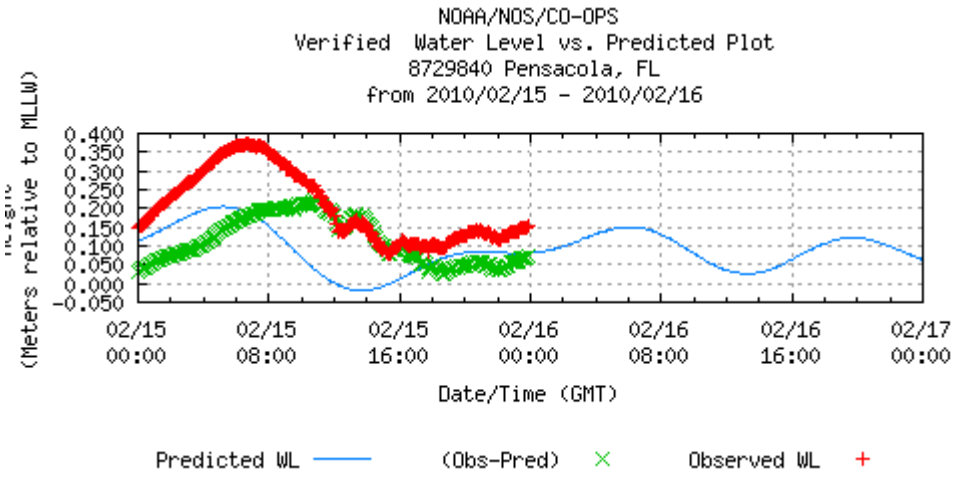
From: George Reynolds [ggr@oceansurveys.com]
Sent: Thursday, February 18, 2010 12:09 PM
To: kathleen Jamison
Subject: FW: Pensacola and Dauphin Island Tide Gauge Status and Forecast 2/18/10

Hi Kathleen,

The Pensacola gauge is reporting intermittent data gaps. A large gap occurs between 0542 GMT on 2/17/10 and 1324 GMT on 2/17/10.

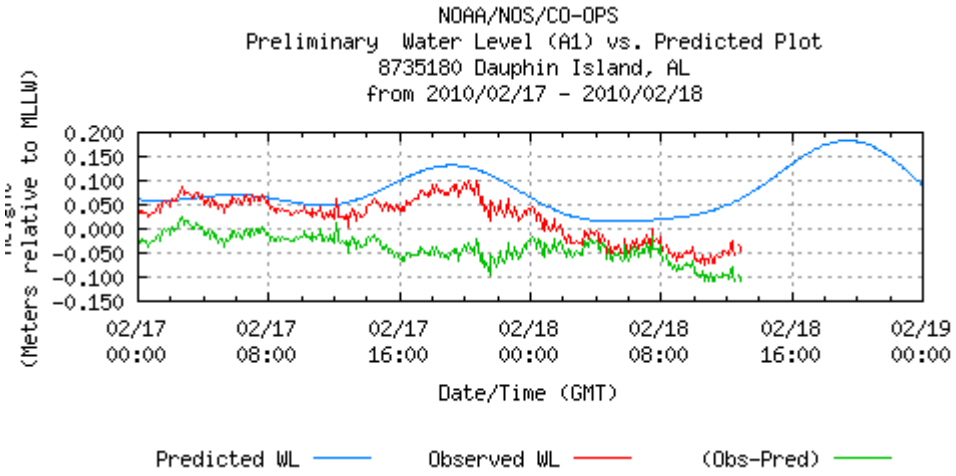
Regards
George



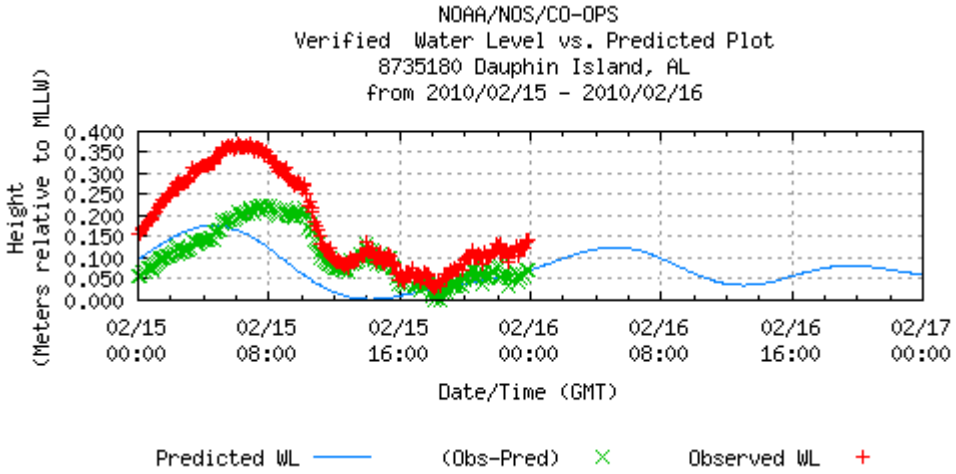


Verified tides are available through 2/15/10 (DN 046).

DAUPHIN ISLAND



Preliminary tides are available through today (DN049).



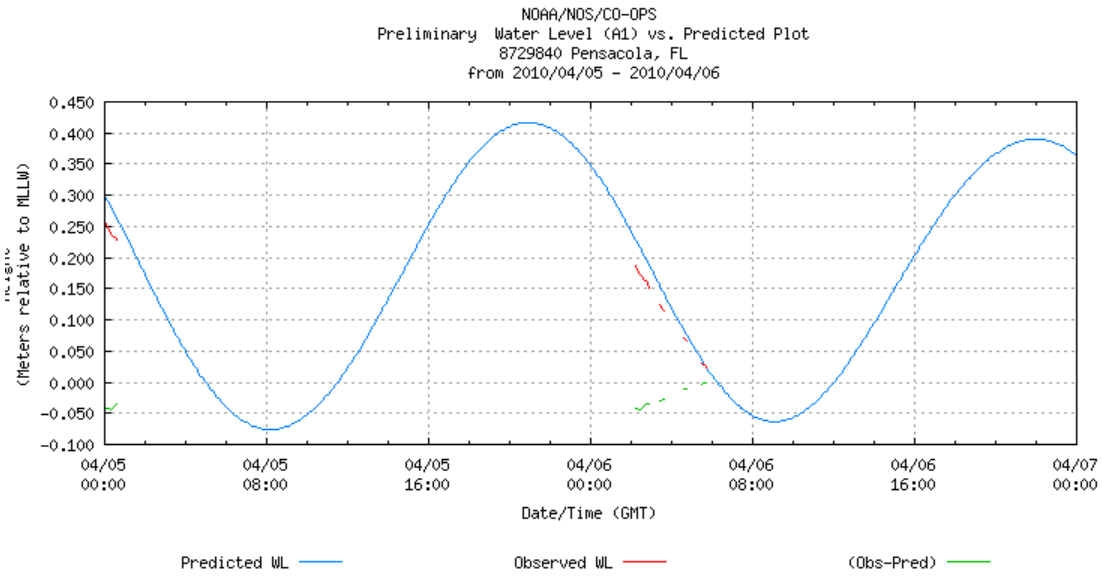
Verified tides are available through 2/15/10 (DN 046).

From: George Reynolds
To: kathleen Jamison
Subject: Pensacola Tide Gauge Inoperable 4/5/10
Date: Tuesday, April 06, 2010 11:45 AM

Hi Kathleen,

The Pensacola tide gauge has not reported preliminary water level data over the past 24 hours.

Regards
George



------Original Message------
From: Ben Evans
To: George Reynolds
Cc: Kathleen Jamison
Subject: Re: FW: Pensacola Tide Gauge Inoperable 4/5/10
Sent: Apr 7, 2010 7:35 AM

George,

I've passed this on to CO-OPS. In today's CORMS morning report, they noted that several stations have had similar outages, so this may simply be a satellite communications issue. I'll let you know what I hear back.

Ben

George Reynolds wrote:

Hi Ben,

I understand that Kathleen is out of the office this week. Please
pass this information on to Co-Ops when you can.

Thanks
George

George Reynolds
Ocean Surveys, Inc.

91 Sheffield St
Old Saybrook, CT 06475
860-388-4631 Ext 112
http://www.oceansurveys.com

From: George Reynolds [mailto:ggr@oceansurveys.com]
Sent: Tuesday, April 06, 2010 11:45 AM
To: kathleen Jamison
Subject: Pensacola Tide Gauge Inoperable 4/5/10

Hi Kathleen,

The Pensacola tide gauge has not reported preliminary water level data over the past 24 hours.

Regards
George

http://tidesandcurrents.noaa.gov/cgi-bin-mp/data_plot.cgi?mins=&datum=6&unit=0&stn=8729840&bdate=20100405&edate=20100406&data_type=wl&relative=&type=Tide%20Data&shift=g&plot_size=large&relative=&wl_sensor_hist=W1&plot_backup=
>
LCDR Ben Evans, NOAA
Chief, Data Acquisition and Control Branch (N/CS35) NOAA Office of Coast Survey
SSMC3, Station 6815
1315 East West Highway
Silver Spring, MD 20910
voice: (301) 713-2700 x111
fax: (301) 713-4533
cell: (240) 687-4602
From: ggr@oceansurveys.com [mailto:ggr@oceansurveys.com]
Sent: Thursday, April 08, 2010 12:26 PM
To: Bob Wallace; Michael J. Engels
Subject: Fw: PENSACOLA GOES TRANSMISSION ISSUES - update for 4/8

Brett's quick detective work by phone yesterday seems to have resolved the problems at Pensacola - thanks a bunch, Brett! Let's see if all goes well today. Back data was loaded yesterday and is available on the preliminary data web page.

No need for an emergency repair trip at this time, Brad and Marty.

George, you should be good to go with the surveying.

Tom

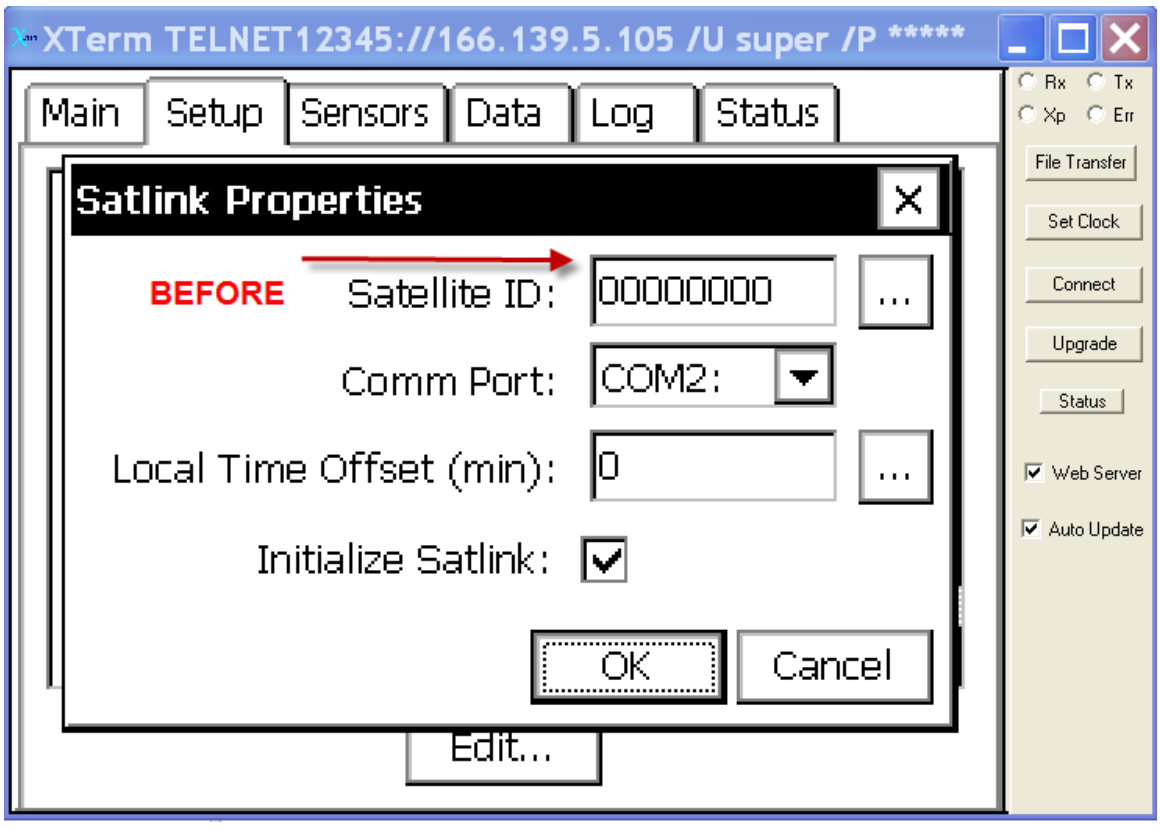
Brett Gregory wrote:
Hello,

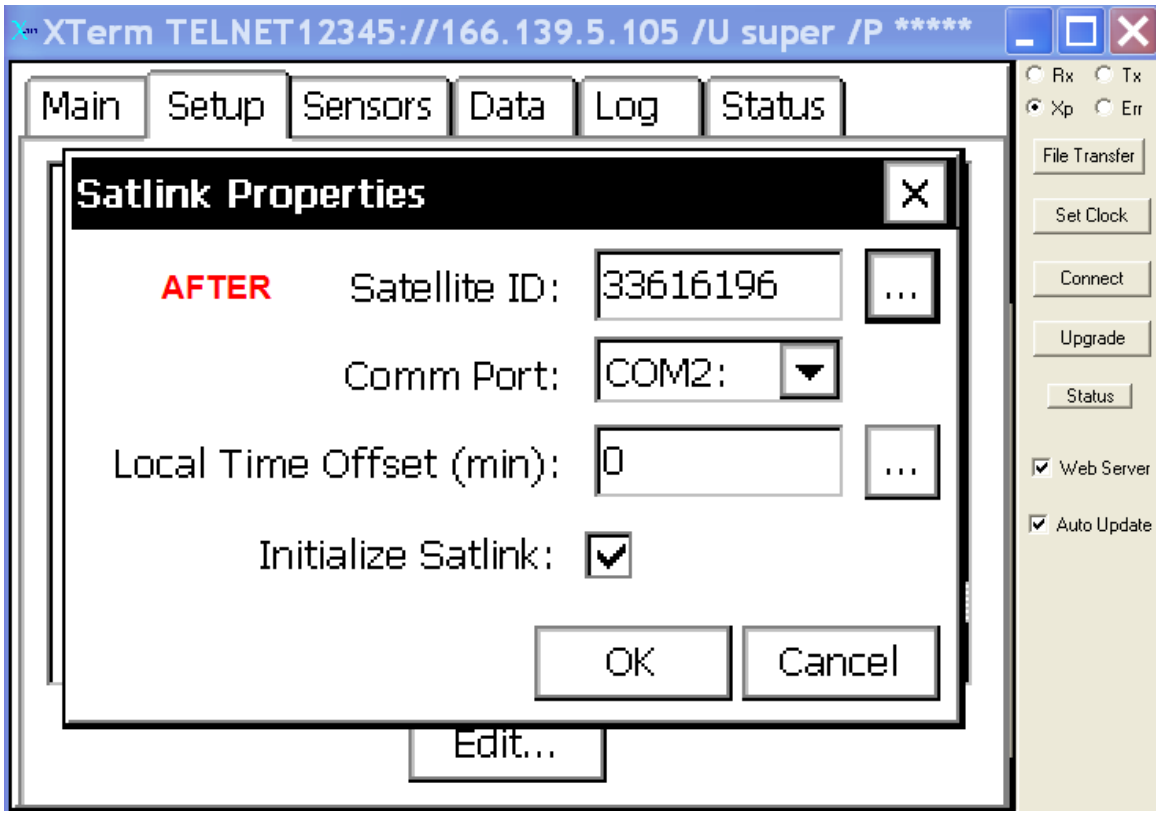
After checking the Satlink parameters I found that the Plat. ID was missing completely (see attached screen capture). I have also attached a screen of the time stamp on the setup file (12/22/2009 18:43:24).

Battery voltage was appended to the message as well (screen capture). Transmit time was off by one second (00:02:31) should be 00:2:30. I changed these settings and attached screens of the corrections, GOES transmissions should now resume.

Thanks,

Brett Gregory

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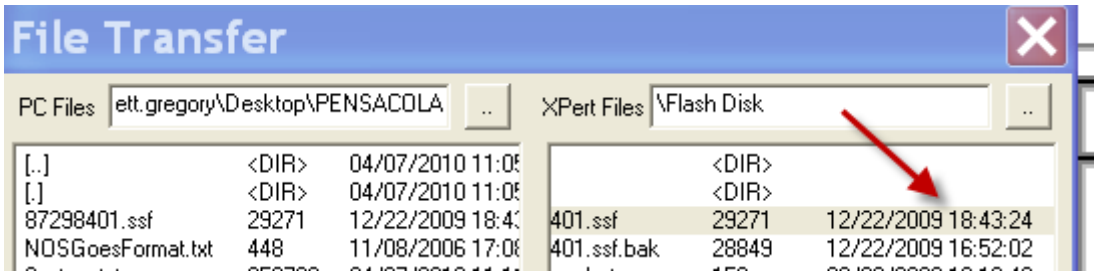
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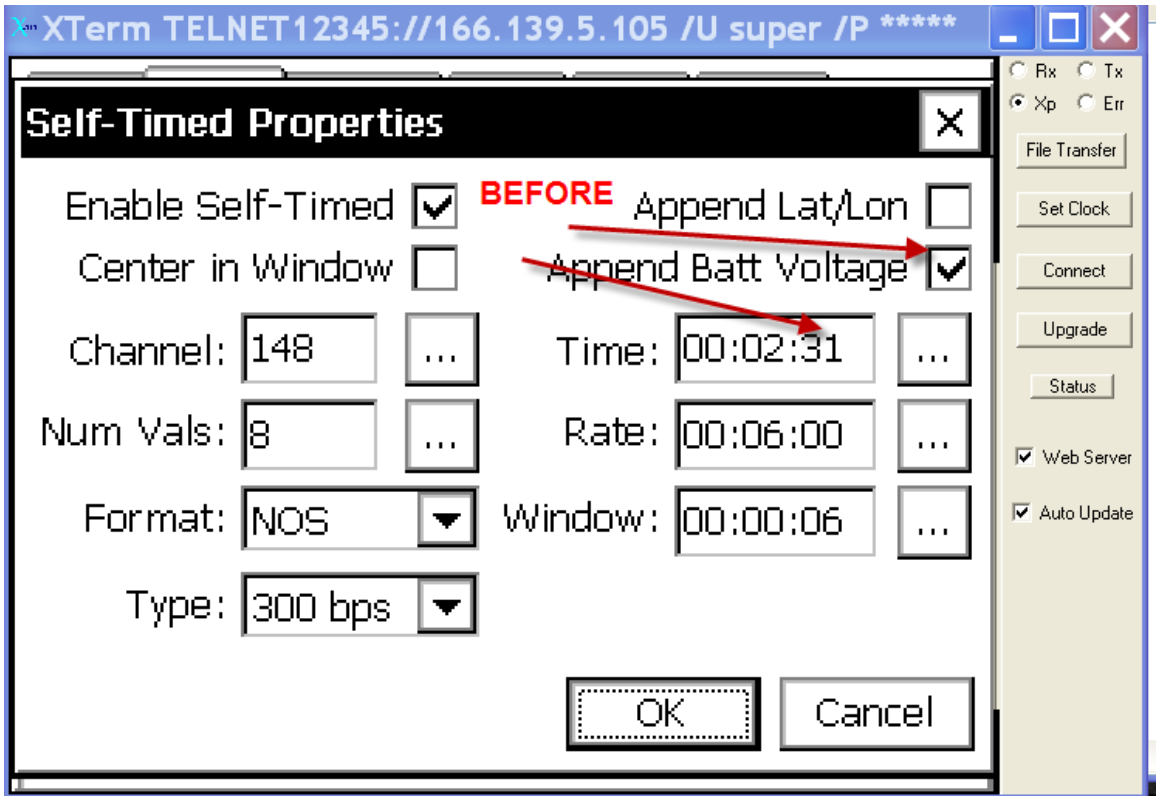
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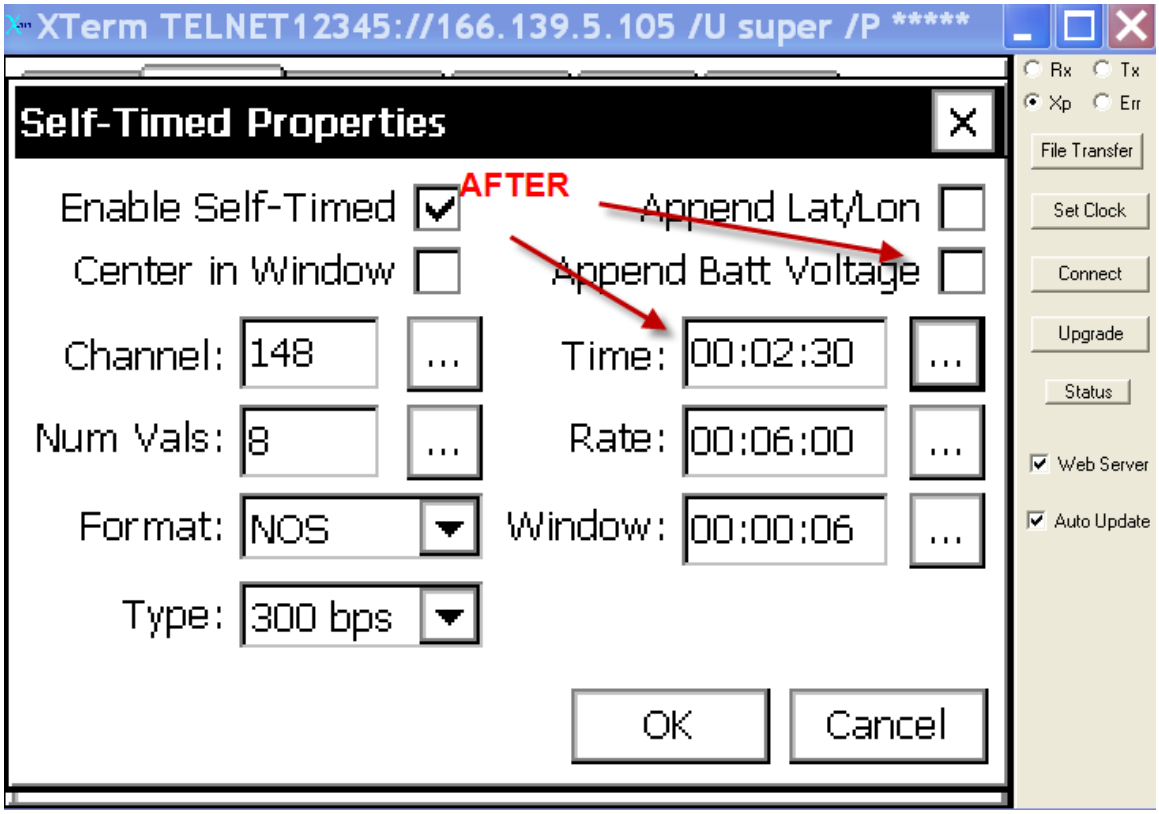
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Type: 300 bps
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Rx Tx
Xp Err
File Transfer
Set Clock
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--
Thomas F. Landon
National Water Level Program Product Lead
Engineering Division, CO-OPS
N/OPS1, SSMC4, Station 6409
1305 East West Highway
Silver Spring, MD 20910
301-713-2897 x191 v
301-713-4465 fx

-----Original Message-----
From: Hailemichael Teklai <Hailemichael.Teklai@noaa.gov>
Date: Thu, 08 Apr 2010 11:03:56
To: <Thomas.Landon@noaa.gov>
Cc: Brett Gregory<Brett.Gregory@noaa.gov>; OET OET<nos.coops.oetteam@noaa.gov>; Brad Wynn<Brad.Wynn@noaa.gov>; DMAT<nos.co-ops.dmat@noaa.gov>; _NOS CO-OPS CIL<CIL@noaa.gov>; DPT<nos.co-ops.dpteam@noaa.gov>; _NOS.CO-OPS.HTP<NOS.COOPS.HPT@noaa.gov>;
George Reynolds<ggr@oceansurveys.com>; Benjamin K Evans<Benjamin.K.Evans@noaa.gov>; Kathleen Jamison<Kathleen.Jamison@noaa.gov>
Subject: Re: PENSACOLA GOES TRANSMISSION ISSUES - update for 4/8

Data is being ingest for all sensors, but there multiple data gaps for all of the sensors for April 7th, 2010. However for April 8th, there are only a couple of single point data gaps, if any.

Hailemichael Teklai

Thomas.Landon@noaa.gov wrote:
Brett's quick detective work by phone yesterday seems to have resolved the problems at Pensacola - thanks a bunch, Brett! Let's see if all goes well today. Back data was loaded yesterday and is available on

the preliminary data web page.

No need for an emergency repair trip at this time, Brad and Marty.

George, you should be good to go with the surveying.

Tom

Brett Gregory wrote:

Hello,

After checking the Satlink parameters I found that the Plat. ID was missing completely (see attached screen capture). I have also attached a screen of the time stamp on the setup file (12/22/2009 18:43:24).

Battery voltage was appended to the message as well (screen capture). Transmit time was off by one second (00:02:31) should be 00:2:30. I changed these settings and attached screens of the corrections, GOES transmissions should now resume.

Thanks,
Brett Gregory

Thomas F. Landon
National Water Level Program Product Lead Engineering Division, CO-OPS
N/OPS1, SSMC4, Station 6409
1305 East West Highway
Silver Spring, MD 20910
301-713-2897 x191 v
301-713-4465 fx

Appendix II

Supplemental Survey Records and Correspondence

Bottom Samples

Bottom samples were obtained at required grid node locations (i.e. 2000 meters across site and 1200 meters in anchorages in water depth less than 100 feet per the HSSD 2009). Sediment grab locations are included as a separate S-57 feature file (H12157_Bottom_Samples.hob).

OSI Bottom Sample Designation	Latitude, N (NAD83)	Longitude, W (NAD83)	Depth (meters)	Description
D-01	30-16-03.95	87-15-19.34	16.9	Fine, Light Gray, Sand and Shells
D-02	30-16-11.56	87-14-35.36	16.5	Fine, Light Gray, Sand
D-03	30-16-18.88	87-13-51.25	18.8	Fine, Light Brown, Sand
D-04	30-16-26.66	87-13-07.35	19.0	Fine, Light Gray, Sand
D-05	30-16-34.17	87-12-22.90	21.3	Fine, Light Brown, Sand
D-06	30-15-25.59	87-15-10.65	19.7	Medium/Fine, Light Brown, Sand
D-07	30-15-33.28	87-14-26.40	19.1	Fine, Light Gray, Sand
D-08	30-15-40.80	87-13-42.46	19.7	Medium, Light Gray, Sand and Shells
D-09	30-15-48.31	87-12-58.21	22.8	Fine, Light Gray, Sand
D-10	30-15-55.95	87-12-14.37	19.8	Fine, Light Gray, Sand
D-11	30-14-47.58	87-15-01.81	20.9	Fine, Light Gray, Sand and Shells
D-12	30-14-54.99	87-14-17.69	20.0	Medium, Gray, Sand and Shells
D-13	30-15-02.57	87-13-33.78	20.7	Medium/Fine, Light Gray, Sand and Shells
D-14	30-15-10.12	87-12-49.67	20.5	Medium, Gray, Sand with Shells
D-15	30-15-17.65	87-12-05.53	24.4	Fine, Brown, Sand
D-16	30-13-35.30	87-15-33.22	21.0	Fine, Brown, Sand
D-17	30-13-46.95	87-14-19.47	19.4	Fine, Light Gray, Sand
D-18	30-13-57.95	87-13-05.99	22.3	Fine, Light Brown, Sand and Shells
D-19	30-14-08.93	87-11-51.94	23.2	Fine, Light Brown, Sand

OSI Bottom Sample Designation	Latitude, N (NAD83)	Longitude, W (NAD83)	Depth (meters)	Description
D-20	30-14-25.48	87-10-39.21	25.0	Fine, Light Brown and Gray, Sand
D-21	30-14-37.51	87-09-25.62	28.9	Coarse, Brown, Sand and Shells
D-22	30-14-49.46	87-08-12.49	26.1	Fine, Light Brown, Sand
D-23	30-15-01.17	87-06-58.45	20.6	Fine, Light Gray, Sand
D-24	30-15-13.08	87-05-44.93	20.4	Medium/Fine, Light Brown, Sand
D-25	30-15-24.98	87-04-31.19	21.6	Fine, Light Gray, Sand
D-26	30-15-36.96	87-03-17.84	22.4	Fine, Light Gray, Sand
D-27	30-15-48.73	87-02-04.21	23.3	Fine, Light Brown, Sand
D-28	30-16-00.59	87-00-50.70	23.1	Fine, Light Gray, Sand with Shells
D-29	30-16-12.44	86-59-36.93	24.3	Fine, Light Brown, Sand with Shells
D-30	30-16-24.24	86-58-23.48	29.9	Medium, Light Brown, Sand and Gray Clay
D-31	30-16-36.13	86-57-09.95	24.9	Fine, Light Gray, Sand
D-32	30-16-47.86	86-55-56.32	25.2	Fine, Orange/Yellow, Sand
D-33	30-16-59.65	86-54-42.44	26.6	Fine, Gray, Sand
D-34	30-17-11.47	86-53-28.83	25.1	Fine, Orange/Yellow, Sand
D-35	30-17-23.21	86-52-15.18	20.9	Fine, Yellowish Orange, Sand
D-36	30-17-35.01	86-51-01.61	19.4	Fine, Yellowish Orange, Sand
D-37	30-17-46.70	86-49-48.11	22.1	Fine, Yellowish Orange, Sand


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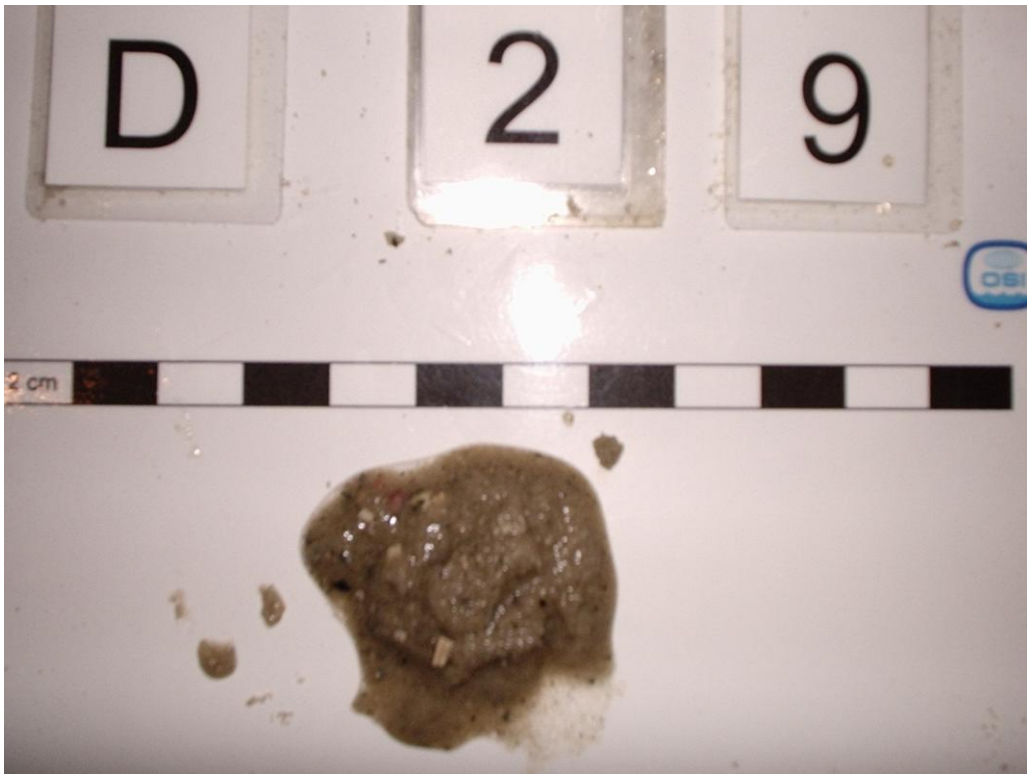
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Correspondence

E-mail correspondence between OSI and the COTR follows.

From: kathleen.jamison [mailto:Kathleen.Jamison@noaa.gov]
Sent: Wednesday, September 16, 2009 3:59 PM
To: George Reynolds
Subject: Specs & Deliverables requirements

Hi George,

After discussing the multibeam resolution requirements detailed in the 2009 Specs & Deliverables, 5.1.2, and taking into consideration your concerns about meeting some of the coverage specifications, we have decided on the following minimum requirements for your current project in the Gulf of Mexico:

For main scheme multibeam bathymetry acquired concurrently with 200% side scan coverage ("skunk stripe"):

* Grid resolutions of 2m for depths less than 20 meters and 4m for depths 20 - 40 meters are acceptable.
* Minimum sounding density shall be 3 soundings per node.
* Small holidays in the multibeam coverage due to mid-water targets or attitude dynamics are acceptable where adjacent soundings show no evidence of significant shoaling, and the 200% side scan coverage does not indicate the presence of a feature.

For multibeam developments of targets identified in side scan sonar:

* Coverage as per the "Complete Multibeam Coverage" specification (Section 5.1.2.2) over the feature and the immediate surrounding seabed.

Regarding tools for demonstrating sounding density:

* You may use any method to evaluate the density and resolution requirements you would like, provided that you can demonstrate these results to NOAA.
* For the purposes of this requirement, NOAA will not differentiate between the soundings actually falling within the square grid cell, and the soundings within the circular capture radius (provided the maximum sounding propagation distance is set to no greater than the grid resolution divided by sqrt(2), as required by the Specs and Deliverables)
* We note that the density layer feature in CARIS may be helpful.

Also very important:

1) The exemptions to the Specs & Deliverables listed above apply only to survey OPR-J364-KR-09. Any future projects must adhere to requirements detailed in the latest version of the Specs & Deliverables. Exemptions are granted only on a case-by-case basis.
2) All deviations from the Specs & Deliverables must be detailed in the Descriptive Report and DAPR as appropriate.

Please let me know if you have any further questions.

--
Kathleen Jamison
Physical Scientist, Data Acquisition Control Branch Hydrographic Surveys
Division NOAA Kathleen.Jamison@noaa.gov 301.713.2700 x109

From: "kathleen.jamison" <Kathleen.Jamison@noaa.gov>
Date: Fri, 23 Oct 2009 14:35:37
To: George Reynolds<ggr@oceansurveys.com>
Subject: Re: Pensacola Inlet Questions

George,

Here are the answers to your questions:

1) & 2) Yes, the assigned AWOIS items outside of the main survey area are still to be investigated. AWOIS search radii are independent of survey limits. The 4m inshore boundary rule for the regular survey area doesn't apply for AWOIS items. Safety is the number one guiding principle when investigating AWOIS items in shallow areas. As a general rule, the full area (as defined by the search radius in the AWOIS database) must be surveyed even if some or all falls outside the survey limits. However, this only applies if the area can be surveyed safely.
This is particularly important for items for which a portion of the search area falls inshore of the survey limits, such as the item (#436) located in the shallow area of Caucus Shoal. Please only survey the portion of the search area in which it is safe to operate, and explain any area that is not covered in the DR. For any of these AWOIS items that are located in areas shoaler than the survey limits, we would not second-guess the decision of the hydrographer and vessel operator if they determined that it was not safe to survey the portion of the search area inshore of the 4m contour. Additionally, note that some items may be investigated using visual inspection (VS) in the case where MB or SSS are too dangerous. For the items where only MB, S2 or S4 are listed as investigation technique options, use your best judgement -- if MB or SSS would be too dangerous, then a visual inspection, even if not listed as an option in the AWOIS database, would be better than nothing. The point of AWOIS items is often to confirm the existence of a charted feature, and this can sometimes be done with a visual inspection.

3) The coverage area for the main survey is contained within the limits of the project area as shown on the Project CD and as illustrated in the Project Instructions. When I wrote the instructions, I included a USCG request from over two years ago to survey "from LB12 through the turn and toward the Pensacola-Mobile cut." I was assuming that they meant part of the area that had been assigned, but upon a closer look, I'd like to get this confirmed. I'll contact our regional navigation manager down there next week to find out exactly what the Coast Guard meant (sometimes they speak a different language from us NOAA folk).
But as far as you are concerned, the survey area does not change, it is as you have it on the Project CD (with 4m curve as the inshore limit of the main survey).

I hope this answers your questions. I'll be in the office for all of next week for any questions you might have as you get started on the survey. Here's hoping for good weather!

Kathleen

George Reynolds wrote:
Hi Kathleen,

Thanks for your schedule update. By the way, there is no rush regarding the answers to our questions; we have several days of work to do before we commence data collection operations.

Regards
George

-----Original Message-----
From: kathleen.jamison [mailto:Kathleen.Jamison@noaa.gov]
Sent: Thursday, October 22, 2009 4:41 PM
To: George Reynolds
Subject: Re: Pensacola Inlet Questions

Hi George,

Sorry to just get back to you now. I'll need tomorrow morning to check on all three of these questions.

Another thing -- while we are on Continuing Resolution (CR) for FY10 at NOAA, we aren't able to schedule any new trips. I'd still like to come down the first week after Thanksgiving, but I may have to postpone, or book with just a week or two notice. I'm sorry about the inconvenience, but rest assured we will find a good time that works for everyone.

I'll get back in touch by tomorrow afternoon.

Kathleen

George Reynolds wrote:

Hi Kathleen,

We have a few questions to clarify survey tasks near Pensacola inlet.

Attached are two PDFs that can be referenced when considering the questions below.

1. There are 18 AWOIS items located outside of the assigned survey limits, six of which are well inside the inlet in very shallow or no water locations. At least one AWOIS item (#436) appears to fall within the survey area but on a very shallow area of Caucus Shoal. Please confirm that coverage for AWOIS items that fall outside of our survey area limits is required?

2. Is the offshore 4M contour an acceptable stopping point for the survey of Caucus Shoal?

3. Per the Project Instructions "Purpose and Location" section: "Additionally, the US Coast Guard has requested a survey at the entrance to Pensacola Bay due to shoaling from LB12 through the turn and toward the Pensacola-Mobile cut." Our assigned survey area does not extend north of LB12. (Note: The geographic name "Pensacola-Mobile Cut" is not shown on the RNC or ENC charts). Is coverage of this area required? If so please provide new survey boundary limits.

Thanks

George

--
Kathleen Jamison
Physical Scientist, Data Acquisition Control Branch Hydrographic Surveys
Division NOAA Kathleen.Jamison@noaa.gov 301.713.2700 x109

From: kathleen.jamison [mailto:Kathleen.Jamison@noaa.gov]
Sent: Friday, December 18, 2009 11:50 AM
To: George Reynolds
Subject: J364 Previously Surveyed Area

George,

Here is the previously surveyed area that will no longer be a part of your J364-KR-09 project. I will send you the new equivalent area to the east of the project area along the FL Safety Fairway when I return after the holiday, as well as any sheet adjustments to A, B or D.

--
Kathleen Jamison
Physical Scientist, Data Acquisition Control Branch Hydrographic Surveys Division NOAA Kathleen.Jamison@noaa.gov 301.713.2700 x109

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. Contract ID Code		Page 1	of Pages 2
2. Amendment/Modification No 001	3. Effective Date Jan 21, 2010	4. Requisition/Purchase Req. No. NCNJ3000-10-05092	5. Project No. (if applicable)

6. Issued By Code AJF00012
ACQUISITION & GRANTS OFFICE OFA6
1335 EAST-WEST HWY., SSMC-1 RM 6300

SILVER SPRING, MD 20910
CATHERINE A. PERREN 301-713-0820 164

7. Administered By (If other than Item 6) Code AJF50012
NOS/NMFS/OAR ACQUISITION DIVISION /OFA65
1305 EAST-WEST HWY., SSMC-4 RM 7141

SILVER SPRING, MD 20910

8. Name and Address of Contractor (No. Street, County, and Zip Code)

OCEAN SURVEYS, INC.
[illegible] SHEFFIELD STREET
OLD SAYBROOK CT 064752306

Vendor ID: 00012711
DUNS: 084798149

CAGE: 3Y156

Code Facility Code

(X) 9A. Amendment of Solicitation No.

9B. Date (See Item 11)

X 10A. Modification of Contract/Order No. DG133C-08-CQ-0007 T002

10B. Date (See Item 13) Jul 28, 2009

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

__ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers __ is extended __ is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing items 8 and 15, and returning ____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. Accounting and Appropriation Data (if required)
See Schedule $ 0.00

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

__ A. This change order is issued pursuant to: (Specify authority) The changes set forth in item 14 are made in the Contract Order No. in item 10A.

X B. The above numbered Contract/Order is modified to reflect the administrative changes (such as changes in paying office, appropriation date, etc.) Set forth in item 14, pursuant to the authority of FAR 43.103 (b)

__ C. This supplemental agreement is entered into pursuant to authority of:

__ D. Other (Specify type of modification and authority)

E. IMPORTANT: Contractor X is not, __ is required to sign this document and return ____ copies to the issuing office.

14. Description of Amendment/Modification (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

The above referenced task order is hereby modified as follows:

Add 14 square nautical miles to the east side of the survey area and remove 14 square nautical miles from the west side of the survey area.

Except as provided herein, all terms and conditions of the document referenced in item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. Name and Title of Signer (Type or Print)		16A. Name and title of Contracting Officer (Type or Print) JOHN WHITFIELD CONTRACT SPECIALIST john.whitfield@noaa.gov 301-713-0820 X135	
15B. Contractor/Offeror (Signature of person authorized to sign)	15C. Date Signed	16B. United States of America (Signature of Contracting Officer)	16C. Date Signed 1/28/10

NSN 7540-01-152-8070 30105 STANDARD FORM 30 (REV. 10-83)
PREVIOUS EDITIONS UNUSABLE Prescribed by GSA FAR (48 CFR) 53.243

SCHEDULE

Item No.	Supplies/Services	Quantity	Unit	Unit Price	Amount
0001	An an independent contractor and not as an agent of the Government, provide hydrographic survey of the Florida and Alabama Safety Fairways in the Gulf of Mexico using Side Scan Sonar and Multibeam Sonar. The following ecquipment is being added to this task order: Klein 5000 V1 Side Scan Sonar Contractor Signature Date Contractor Date Accounting and Appropriation Data: 14.09.Z8K6BHS.P00.0013.010301031.100900030 0000000.25130000.000000 US$ 3,013,668.43	1	EA	3,013,668.43	3,013,668.43

-----Original Message-----
From: kathleen.jamison [mailto:Kathleen.Jamison@noaa.gov]

Sent: Wednesday, March 17, 2010 12:10 PM
To: George Reynolds; Castle.E.Parker; Benjamin K Evans
Subject: Re: Pensacola Topics

George,

See embedded remarks below.

-Kathleen

George Reynolds wrote:

Hi Kathleen,

Just a couple of discussion topics that we would like your input on.

Data collection for Pensacola Sheet B is complete and we are compiling the final deliverables. We have also completed the DAPR for Sheet B data which were obtained from a small boat, thus the Sheet B DAPR covers only small boat operations. The remaining Sheets (A, C and D) will be completed using both small and large vessels. We are planning to write a separate DAPR that will cover large vessel operations. This approach will allow us to complete and deliver Sheet B products independently of Sheets A, C and D. Is this approach acceptable?

I spoke with Gene Parker about this one. He suggested that, along with the DR for Sheet B, you should submit a DAPR now, since it is really only Section A - equipment and vessels specs, offsets, system bias calibrations, etc - that will change. Then, you would submit an appended DAPR along with Sheets A, C and D. The appended DAPR would stand on record as the "final" DAPR with the small AND large boat information. That way there would be just one DAPR on the project, not two, which would cause less confusion down the line. AHB would prefer this option, since a staggered sheet submission is generally better anyway, as it allows the branch to review the initial sheet and report submission and reply with feedback.

As you know the specs and deliverables requires that sound speed profilers "must be recalibrated when the survey is complete if the completion date is later than six months from the date of last re-calibration." The sound speed instruments we employed during Sheet B operations are just outside the six-month window for re-calibration; one unit was 4 days and the 2nd unit was 12 days beyond the re-calibration due date on the last day of Sheet B data collection operations. (We are replacing both units with newly calibrated instruments for Sheets A, C and D). The Sheet B instruments passed the VelociWin comparison cast criteria throughout the survey including the last day of data collection operations. Given this information we request that NOAA extend the six-month re-calibration criteria by 12 days for Sheet B. This extension will allow us to move forward with the Sheet B DR without having to wait 4 to 6 weeks for Sea-Bird to issue re-calibration reports.

Along the same lines, it would be better to submit Sheet B and the DR as soon as possible to AHB rather than wait out the 4-6 weeks to get the calibration reports back for the small boat instruments. So, for this time only, you may forgo the re-calibration of the small boat CTDs, since they are only 4 and 12 days over the 6-month window and you are not planning to use them during the large boat operations. Instead, if you already have the newly calibrated instruments for Sheets A, C, and D, you could do a single comparison of the Sheet B instruments to the newly calibrated instruments to see that they provide the same results.

The Pensacola tide gage is reporting inconsistent data. No survey data are currently being impacted; however, now may be a good time to service the gage if CO-OPS thinks it is appropriate.

Co-ops said thanks for letting them know and they will keep an eye on it. If the issue doesn't resolve itself, HPT will determine whether the gaps are fillable or if they need to do any gauge repairs.

Regards,

George

--
Kathleen Jamison
Physical Scientist, Data Acquisition Control Branch Hydrographic Surveys Division NOAA
Kathleen.Jamison@noaa.gov 301.713.2700 x109

Subject: FW: Updated Survey Boundary for Sheets A and D
Date: Thursday, March 25, 2010 6:24:00 PM

Attachments: OPR-J364-KR-09-updated-boundary-per-012110-amendment.zip

George,

Yes, those are the correct survey boundaries. I had drawn the border slightly to the east, kind of near the "bend" in the fairway, but it doesn't really matter, since your survey for 2010 will continue and cover it somehow.

Kathleen

From: George Reynolds [mailto:ggr@oceansurveys.com]
Sent: Wednesday, March 24, 2010 4:41 PM
To: 'kathleen.jamison'
Subject: Updated Survey Boundary for Sheets A and D

Hi Kathleen,

Attached are shape files depicting our understanding of the new survey limits for Sheets A & D. We have updated the survey boundaries per Amendment No. 001 (Removed 14 square nautical miles on the west side and added 14 square nautical miles on the east side).

Please confirm that you are in agreement with revised boundaries.

The new easterly limit of Sheet D falls inside The Preliminary Tidal Zoning received for this project (OPR-J364-KR-2009), so no further tide zoning definitions should be required.

Thanks,
George

-----Original Message-----
From: kathleen.jamison [mailto:Kathleen.Jamison@noaa.gov]
Sent: Friday, April 30, 2010 5:31 PM
To: George Reynolds
Subject: Re: Answers

As per our phone discussion:

1) The "exceptions" we have given for the FY09 work does not apply to the FY10 survey work. If adjustments need to be made to the FY10 project requirements that conflict with the 2010 Specs & Deliverables, that will be done on a case-by-case basis.

2) We concur with each of your statements below (#1-4).

3) #4 is the only topic that also applies to the 2010 survey sheets - you do not need to add cross lines just to reach the 4% if you are doing re-runs or fill-ins to the original line spacing. If your cross lines do not meet the 4% requirement, please explain this in the DR briefly - you can cite this email as documented permission from your COTR (that goes for any variation from the specs that is discussed and approved by your COTR - just document it!).

Have a great weekend - tell your crew to stay safe and listen to the Coast Guard - I'll be keeping my eye on what's happening to Pensacola regarding the spill, but please let me know if you hear of any useful information from the scene.

Regards,
Kathleen

George Reynolds wrote:
> Hi Kathleen,
>
> Thanks for following up on our discussion topics.
>
> For your reference, the following is a copy of our notes from the meeting
> aboard the Ferrel.
>
> 1. In water depths of greater than 20 meters, occasional SSS refraction
> is not a concern assuming that line spacing results in "Complete multibeam
> coverage".
>
> 2. In water depths of ?20m, refraction is acceptable only if, by means
> of confidence checks along the line, we are able to determine that we can

> see features across the entire record. This will not apply in the event
> that the refraction is sporadic as we will not have a "standard" by which
to
> judge the effects of refraction. "Complete multibeam coverage" will not
> suffice to replace the object detection capabilities of the SSS in ?20m.
> Only "object detection multibeam coverage" would serve in place of SSS.
>
> 3. During skunk stripe SSS/MB surveying the multibeam density
> requirement in water depths 20M and less is 5 soundings/1m cell with cell
> size increasing to 5% of water depth after 20m per "complete multibeam
> coverage" standards. Due to our "exception", we are required to populate
> cells with three soundings (<20m water = 2m cell, >20m water =4m cell).
Per
> "complete multibeam coverage" standards, holidays may span no more than 3
> nodes (cells). Therefore, with the exception of the cases presented
below,
> we are allowed 6m of along track holiday in <20m and 12m of along track
> holiday in >20m before we have to go back and fill-in the holiday. NOAA
> suggested that "common sense" should also be one of the tools that we use
> when making decisions on this subject.
>
> Larger holidays than described above may be acceptable if:
> Exception 1: We have overlapping coverage from adjacent swaths that
> populate some of the cells that would have been populated by the swath
that
> experienced the blowout.
> Exception 2: We have partial coverage within the blowout area and
are
> able to confidently retain some of the soundings within the blowout.
>
> Again, common sense should prevail.
>
> 4. Tie line percentage requirement applies to the planned or proposed
> line plan, not the actual line plan implemented. In other words, if we
plan
> on line spacing for 100M SSS and end up having to do in-fills to meet
> coverage requirements due to site conditions (i.e refraction), no
> additional tie lines are required to reach the 4% lineal nautical miles
run
> for the additional trackline miles.
>
> If you have any questions on the above please let me know.
>
> Looking forward to talking with you later today.
>

> Regards
> George
>
>
> -----Original Message-----
> From: kathleen.jamison [mailto:Kathleen.Jamison@noaa.gov]
> Sent: Friday, April 30, 2010 9:15 AM
> To: George Reynolds
> Subject: Answers
>
> Hi George,
>
> I will give you a call shortly to follow up on this email. Now that you
> have worked out the degraded imagery issues in Sheet A (to where
> contacts can be reliably observed in the imagery), I'd like to clarify
> which questions you still would like official answers on.
>
> For now, I can confirm two issues that we discussed last week and/or on
> our site visit:
>
> 1) Modification to Project Instructions permitting substitution of
> "Complete" multibeam echosounder coverage for 200% side scan sonar with
> concurrent "Set Line Spacing" multibeam in depths greater than 20 m.
>
> 2) Task award for OPR-J364-KR-10. The official word from the
> contracting office is "on or before May 22," although I have emphasized
> to them that this area is a priority, and to award the task order as
> soon as possible, so I'm hoping for something closer to May 15, although
> of course I cannot say for sure.
>
> Will you be suspending operations or making modifications in the spill
> aftermath? I had thought there wouldn't be much worry in Pensacola, at
> least in the near term while the oil will hit land in Louisiana and
> doesn't seem to be moving north east, but then I read that Pensacola is
> constructing a boom for the bay. Needless to say, the spill is causing
> quite the stir around here as we scramble to make our resources
> available to the Coast Guard!

--
Kathleen Jamison
Physical Scientist, Data Acquisition Control Branch
Hydrographic Surveys Division
NOAA
Kathleen.Jamison@noaa.gov
301.713.2700 x109

-----Original Message-----
From: "kathleen.jamison" <Kathleen.Jamison@noaa.gov>
Date: Thu, 15 Jul 2010 11:42:22
To: George Reynolds<ggr@oceansurveys.com>
Cc: Lori Knell<Lori.Knell@noaa.gov>
Subject: Visit on Tuesday

Hi George,

Thanks so much for providing such a great office visit experience earlier this week. I believe we were able to accomplish quite a bit, and I appreciate your gathering Bob and Bonnie to help out with everything.

Here are a few answers to the DR Questions (with input from Gene Parker at AHB):

Q. Should OSI include charting recommendations for item investigations other than AWOIS items?
A. Yes, the hydrographer (OSI) should make charting recommendations whenever it would be helpful.

Q. Should the title sheet state “feet” or “meters” at the bottom of the page?
A. It should be listed as “meters” – all processing is done in metric, and should only be converted to feet or fathoms following H-Cell compilation at the production branch.

Q. Is there any reason to continue putting the bold blue registry number on the cover page? It is not required in the Specs & Deliverables or the Statement of Work.
A. No, it is not mandatory – this is a relic from the hard copy days when the DR was placed in a folder horizontally for reference.

Q. Should OSI submit difference surfaces (images, graphics and explanations) in the DR for survey junctions?
A. Yes – the images and graphics often say more than the text.

Q. Is there any requirement for OSI to make Coast Pilot or ATON Report (for MCD) submissions?
A. No, there is no requirement for contractors to make submit separate Coast Pilot or ATON Reports. A SAR question flagged as a yellow “Not Applicable” does not affect the SAR score.

Q. How much should the “correspondence” section in Appendix 5 contain?
A. Only pertinent and relative information, e.g., where the production branch or the COTR provides guidance regarding “exceptions” or changes in

deliverables as required by the Statement of Work or Specs & Deliverables. Do not include information regarding DTONs in Appendix 5 – Appendix 1 DTON Report is sufficient.

Let me know if there's a question I missed, or if you have any further questions. I'm also going to start cc'ing Lori Knell on these emails, since she will be taking over my COTR duties while I am on my detail.

--
Kathleen Jamison
Physical Scientist, Data Acquisition Control Branch Hydrographic Surveys Division NOAA Kathleen.Jamison@noaa.gov 301.713.2700 x109

APPENDIX III

SURVEY FEATURES REPORT

H12157 AWOIS FEATURES REPORT

Registry Number: H12157

State: Florida

Locality: GULF OF MEXICO

Sub-locality: 12 NM SE OF PENSACOLA BAY ENTRANCE

Project Number: OPR-J364-KR-09-D

Survey Date:

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11384	35th	10/01/2006	1:10,000 (11384_1)	[L]NTM: ?
11383	51st	01/01/2006	1:30,000 (11383_1)	[L]NTM: ?
11378	35th	03/01/2008	1:40,000 (11378_1)	[L]NTM: ?
11382	40th	02/01/2004	1:80,000 (11382_1)	[L]NTM: ?
11360	43rd	11/01/2008	1:456,394 (11360_1)	[L]NTM: ?
1115A	43rd	11/01/2008	1:456,394 (1115A_1)	[L]NTM: ?
11006	32nd	08/01/2005	1:875,000 (11006_1)	[L]NTM: ?
411	52nd	09/01/2007	1:2,160,000 (411_1)	[L]NTM: ?

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

Features

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	AWOIS #7074 - Disproved	AWOIS	[no data]	[no data]	[no data]	---
1.2	AWOIS #7078 - Disproved	AWOIS	[no data]	[no data]	[no data]	---
1.3	AWOIS #8587 - Disproved	AWOIS	[no data]	[no data]	[no data]	---
1.4	AWOIS #8588 - Disproved	AWOIS	[no data]	[no data]	[no data]	---
1.5	AWOIS #8589 - Disproved	AWOIS	[no data]	[no data]	[no data]	---
1.6	AWOIS #8590 - Disproved	AWOIS	[no data]	[no data]	[no data]	---
1.7	AWOIS #8591 - Disproved	AWOIS	[no data]	[no data]	[no data]	---
1.8	AWOIS #8592 - Disproved	AWOIS	[no data]	[no data]	[no data]	---
1.9	AWOIS #8593 - Disproved	AWOIS	[no data]	[no data]	[no data]	---

1.10	AWOIS #8594 - Disproved	AWOIS	[no data]	[no data]	[no data]	---

1 - AWOIS

1.1) AWOIS #7074 - AWOIS #7074 - Disproved

No Primary Survey Feature for this AWOIS Item

Search Position:	30° 17' 25.7" N, 087° 13' 16.9" W
Historical Depth:	7.01 m
Search Radius:	200
Search Technique:	S2, MB
Technique Notes:	[None]

History Notes:

HISTORY
CL332/73--COE; PERMIT FOR FISH HAVEN ISSUED TO SANTA ROSA
ISLAND AUTHORITY; 3 METAL BARGES, 14 X 35 X 195 FT., FILLED WITH
CONCRETE PIPE AND RUBBLE AT LAT 30-16-54N, LONG 87-10-24W; 55FT.
OVER REEF; NOS REPORTED REEF WAS LOCATED AT A DIFFERENT LOCATION
AND REQUESTED CLARIFICATION FROM COE; IT WAS DETERMINED THAT REEF
HAD BEEN ESTABLISHED IN THE WRONG LOCATION BUT THAT THIS LOCATION
BEST SERVED THE INTEREST OF NAVIGATION; PERMIT WAS REVISED TO
SHOW UNVERIFIED POSITION FOUND BY NOS; LAT 30-17-25N, LONG 87-13-13W (SEE
CL1168/74 BELOW); IN 45 FT. OF WATER; NO NEW AUTHORIZED CLEARANCE
PROVIDED SO CHARTED AS FISH HAVEN CLEARED BY 21.5 FT. BASED ON
PRELIMINARY INFORMATION FROM HECK.
CL1168/74--NOAA SHIP HECK; TELEX STATING FISH HAVEN WAS LOCATED
IN LAT 30-17-25.2N, LONG 87-13-13.2W AND HAD BEEN CLEARED BY 21.5
FT. (ENTERED MSD 10/90)
H9466/74WD--OPR-479-RU/HE-74; 3 BARGES, LOCATED IN LAT.
30-17-25N, LONG. 87-13-17W. VERIFIED CHARTED FISH HAVEN.
ESTIMATED HANG DEPTHS 23FT, MAXIMUM EFFECTIVE CLEARED DEPTH 21FT.
(ENTERED 1/89 SRB)
H9943/81--OPR-J217-HFP-81; FISH HAVEN, LOCALLY KNOWN AS
"BARGES", VERIFIED IN CHARTED POSITION; CONSISTS OF 3 BARGES;
SHOALEST SOUNDING OBTAINED IS 23 FT. (ENTERED MSD 12/90)

Survey Summary

Charts Affected: 11383_1, 11378_1, 11382_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

A charted obstruction area labeled as “Fish Haven Wks (cleared 23 ft 1991) centered at approximate location 30-17-26.00N, 87-13-18.00W was investigated with 200% SSS and object detection SWMB. The obstruction is located inside an Obstn Fish Haven north of the Fairway Anchorage with an authorized minimum depth of 26 feet. Multiple objects and debris that appear to be in the shape of two wrecks were observed within and outside of the charted obstruction area (Figure 23) with a least depth of 41.7 feet (12.7 meters) developed at 30-17-29.66N, 87-13-18.07W. The objects are included as WRECKS in the H12157 S-57 feature file (H12157_S57_Features.000).

Feature Correlation

Source	Feature	Range	Azimuth	Status
AWOIS_EXPORT	AWOIS # 7074	0.00	000.0	Primary

Hydrographer Recommendations

It is suggested that the charted obstruction area be updated with the new survey position and least depth.

S-57 Data

Geo object 1: Cartographic symbol ($CSYMB)

Office Notes

SAR: Feature within AWOIS 7074 search radius. Feature located within charted fish haven. WRECK verified as existing within survey data.

COMPILATION NOTES: Wreck feature found during survey operations. Feature depth deeper than authorized depth of Obstn Fish Haven (auth min 26ft). Delete Fish Haven Wks (cleared to 23ft 1991).

1.2) AWOIS #7078 - AWOIS #7078 - Disproved

No Primary Survey Feature for this AWOIS Item

Search Position: 30° 13' 56.2" N, 087° 12' 08.5" W

Historical Depth: [None]

Search Radius: 100

Search Technique: S2, MB

Technique Notes: [None]

History Notes:

H9466/74WD--OPR-479-RU/HE-74; 74FT ESTIMATED HANG, UNINVESTIGATED AND UNCLEARED. LOCATED IN LAT. 30-13-48N, LONG. 87-12-05W. CHARTED AS SUBM OBSTRUCTION. (ENTERED 1/89 SRB)

H10375/91--OPR-J452-HE; ITEM WAS INVESTIGATED WITH SIDE SCAN SONAR AND DIVER INVEST. THE ITEM WAS LOCATED IN POS. LAT.30-13-56.17N, LONG.87-12-08.47W (NAD 83) AND DETERMINED TO BE A PILE OF CONCRETE RUBBLE WITH PROTRUDING METAL PIPES ON ONE

SECTION. LEAST DEPTH BY DIVERS WAS 65FT (20 M). EVALUATOR RECOMMENDS TO CHART HAS A 20M OBSTR. (NO MENTION OF DANGER CURVE). (UPDATED 6/93 MCR)

Survey Summary

Charts Affected: 11382_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

H12157-3: A 65-foot Obstn charted at 30-13-58.52N, 87-12-09.35W was investigated with 200% SSS and object detection SWMB. Debris was observed in each of the side scan coverages and a least depth of 75.3 feet (22.9 meters) was developed at 30-13-56.94N, 87-12-07.38W. The surveyed least depth is approximately 10 feet (3 meters) deeper than the charted safe clearance depth of 65 feet.

Feature Correlation

Source	Feature	Range	Azimuth	Status
AWOIS_EXPORT	AWOIS # 7078	0.00	000.0	Primary

Hydrographer Recommendations

It is suggested that the charted obstruction be updated with the new survey position and new least depth.

S-57 Data

Geo object 1: Cartographic symbol ($CSYMB)

Office Notes

SAR: Update the depth and location based upon current survey data. Delete charted 65ft OBSTRN. Chart 75ft OBSTRN.

COMPILATION NOTE: Office processing determined that the feature is insignificant when compared to the surrounding depth data (only 2 feet off sea floor) and does not pose a threat to surface navigation that warrants being charted as a dangerous obstruction. Delete 65ft Obstn and danger curve. Chart 75ft depth.

1.3) AWOIS #8587 - AWOIS #8587 - Disproved

No Primary Survey Feature for this AWOIS Item

Search Position: 30° 16' 09.4" N, 087° 12' 24.1" W

Historical Depth: [None]

Search Radius: 100

Search Technique: S2, MB

Technique Notes: [None]

History Notes:

HISTORY

H10375/91--OPR-J452-HE; A 20 FT SUBM. RUNABOUT WAS LOCATED BY

SIDE SCAN SONAR / DIVER INVEST. IN POS. LAT.30-16-09.41N,

LONG.87-12-24.14W. LEAST DEPTH ON WRECK WAS 18.4M (MLLW). (ENTERED 6/93 MCR)

Survey Summary

Charts Affected: 11383_1, 11382_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

$CSYMB/remrks: A 60-foot Wk charted at 30-16-09.39N, 87-12-23.94W was disproved with 200% SSS and full SWMB. A least depth of 64.3 feet (19.6 meters) was surveyed at 30-16-07.34N, 87-12-25.56W. See AWOIS Item #8587 under Appendix II - Survey Feature Report for additional information.

AWOIS 8587 and charted 60ft Wreck considered disproved SS200 and SWMB.

Feature Correlation

Source	Feature	Range	Azimuth	Status
AWOIS_EXPORT	AWOIS # 8587	0.00	000.0	Primary

Hydrographer Recommendations

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

S-57 Data

Geo object 1: Cartographic symbol ($CSYMB)

Office Notes

SAR: AWOIS 8587 and charted 60ft Wreck considered disproved by SS200. The raster 60ft Wreck and the ENC US5FL72M charted locations differ by approximately 219m.

COMPILATION NOTES: Delete 60ft Wk and danger curve.

1.4) AWOIS #8588 - AWOIS #8588 - Disproved

No Primary Survey Feature for this AWOIS Item

Search Position: 30° 16' 13.3" N, 087° 13' 28.3" W

Historical Depth: [None]

Search Radius: 100

Search Technique: S2, MB

Technique Notes: [None]

History Notes:

HISTORY

H10375/91--OPR-J452-HE; A 17 FT RUNABOUT, SURROUNDED BY DEBRIS, ì

WAS FOUND BY SIDE SCAN SONAR IN LAT.30-16-13.31N, LONG.87-13-28.33W. ì

DIVER LEAST DEPTH ON WRECK WAS 53 FT (16.3M). (ENTERED 6/93 MCR)

Survey Summary

Charts Affected: 11383_1, 11382_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

Status: AWOIS item #8588 was disproved. It is charted as a 53-foot Wk (RNC 11383). The area defined by the 100-meter search radius was covered with 200% SSS and complete SWMB. No obstructions or wrecks were found by the side scan or multibeam sonar systems. The least depth surveyed within the AWOIS search area is 60.7 feet (18.5 meters) at 30-16-15.88N, 87-13-30.70W.

Feature Correlation

Source	Feature	Range	Azimuth	Status
AWOIS_EXPORT	AWOIS # 8588	0.00	000.0	Primary

Hydrographer Recommendations

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

S-57 Data

Geo object 1: Cartographic symbol ($CSYMB)

Office Notes

SAR: AWOIS 8588 considered disproved via SS200. Delete from chart. Raster chart Wk danger circle and depth is located over 235m from the AWOIS and ENC US5FL72M geographic location.

COMPILATION NOTES: Delete 53ft Wk and danger curve.

1.5) AWOIS #8589 - AWOIS #8589 - Disproved

No Primary Survey Feature for this AWOIS Item

Search Position: 30° 16' 26.8" N, 087° 15' 15.6" W

Historical Depth: 13.11 m

Search Radius: 100

Search Technique: S2, MB

Technique Notes: [None]

History Notes:

HISTORY

H10375/91--OPR-J452-HE; A 12 FT SKIFF, SURROUNDED BY VARIOUS DEBRIS,

WAS LOCATED BY SIDE SCAN SONAR IN POS. LAT.30-16-26.79N,

LONG.87-15-15.61W. LEAST DEPTH BY DIVERS WAS 43 FT (13.1M).

(ENTERED 6/93 MCR)

Survey Summary

Charts Affected: 11384_1, 11383_1, 11382_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

$CSYMB/remrks: A 43-foot Wk charted at 30-16-26.51N, 87-15-15.59W was disproved with 200% SSS and full SWMB. A least depth of 48.8 feet (14.9 meters) was surveyed at 30-16-25.49N, 87-15-18.44W. See AWOIS Item #8589 under Appendix II - Survey Feature Report for additional information.

Feature Correlation

Source	Feature	Range	Azimuth	Status
AWOIS_EXPORT	AWOIS # 8589	0.00	000.0	Primary

Hydrographer Recommendations

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

S-57 Data

Geo object 1: Cartographic symbol ($CSYMB)

Office Notes

SAR: Considered disproved by SS200 and SWMB.

$CSYMB/invreq: 100m radius AWOIS 8589- Considered disproved via SS200 within AWOIS 100m search radius.

COMPILATION NOTES: Delete 43ft Wk and danger curve.

1.6) AWOIS #8590 - AWOIS #8590 - Disproved

No Primary Survey Feature for this AWOIS Item

Search Position: 30° 16' 03.6" N, 087° 15' 27.1" W

Historical Depth: [None]

Search Radius: 50

Search Technique: S2, MB

Technique Notes: [None]

History Notes:

HISTORY

H10375/91--OPR-J452-HE; SIDE SCAN SONAR CONTACT DETERMINED BY DIVERS TO BE A RUSTY METAL CAGING AND LOCATED IN POS. LAT.30-16-03.58N, LONG.87-15-27.08W WITH LEAST DEPTH OF 46 FT (14.2M). (ENTERED 6/93 MCR)

Survey Summary

Charts Affected: 11383_1, 11382_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

A charted 46-foot Obstn positioned at 30-16-03.94N, 87-15-27.14W was disproved with 200% SSS and full SWMB. A least depth of 51.5 feet (15.7 meters) was surveyed at 30-16-04.22N, 87-15-28.34W. It is recommended that the obstruction symbol be removed from the chart. See AWOIS Item #8590 under Appendix II - Survey Feature Report for additional information.

Feature Correlation

Source	Feature	Range	Azimuth	Status
AWOIS_EXPORT	AWOIS # 8590	0.00	000.0	Primary

Hydrographer Recommendations

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

S-57 Data

Geo object 1: Cartographic symbol ($CSYMB)

Office Notes

SAR NOTES: Feature has been disproved with SSS and MBES within AWOIS search radius (50m).

COMPILATION NOTES: Delete 46ft Obstn and danger curve.

1.7) AWOIS #8591 - AWOIS #8591 - Disproved

No Primary Survey Feature for this AWOIS Item

Search Position: 30° 15' 24.8" N, 087° 11' 59.9" W

Historical Depth: 19.20 m

Search Radius: 50

Search Technique: S2, MB

Technique Notes: [None]

History Notes:

H10375/91--OPR-J4452-HE; SIDE SCAN SONAR CONTACT DETERMINED BY DIVERS TO BE A TANK DRUM CUT IN HALF, APPROX. 20FT X 6FT, IN POS. LAT.30-15-24.75N, LONG.87-11-59.91W. LEAST DEPTH WAS 63 FT (19.4M). (ENTERED 6/93 MCR)

Survey Summary

Charts Affected: 11383_1, 11382_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

Status: AWOIS Item #8591 was disproved. It is charted as a 63-foot Obstn (RNC 11383). The area defined by the 50-meter search radius was covered with 200% SSS and complete SWMB. No obstructions were found by the side scan or multibeam sonar systems. The least depth surveyed within the AWOIS search area is 66.5 feet (20.3 meters) at 30-15-25.01N, 87-12-01.00W.

Feature Correlation

Source	Feature	Range	Azimuth	Status
AWOIS_EXPORT	AWOIS # 8591	0.00	000.0	Primary

Hydrographer Recommendations

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

S-57 Data

Geo object 1: Cartographic symbol ($CSYMB)

Office Notes

AWOIS 8591 considered disproved via SS200 and SWMB. Delete from chart.

COMPILATION NOTES: Delete 63ft Obstn and danger curve.

1.8) AWOIS #8592 - AWOIS #8592 - Disproved

No Primary Survey Feature for this AWOIS Item

Search Position: 30° 13' 29.6" N, 087° 14' 46.5" W

Historical Depth: [None]

Search Radius: 50

Search Technique: S2, MB

Technique Notes: [None]

History Notes:

H10375/91--OPR-J452-HE; SIDE SCAN SONAR CONTACT DETERMINED BY DIVERS TO BE CAR LYING UPRIGHT ON THE BOTTOM IN POS. LAT.30-13-29.56N, LONG.87-14-46.48W. LEAST DEPTH BY DIVERS WAS 69 FT (21.1M). (ENTERED 6/93 MCR)

Survey Summary

Charts Affected: 11382_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

Status: AWOIS Item #8592 was disproved. It is reported as a car lying upright on the sea floor in the AWOIS database and the investigation area was adjacent to a charted 66-foot sounding (RNC 11382). The area defined by the 50-meter search radius was covered with 200% SSS and complete SWMB. No obstructions were found by the side scan or multibeam sonar systems. The least depth surveyed within the AWOIS search area is 70.1 feet (21.4 meters) at 30-13-27.98N, 87-14-46.11W.

Feature Correlation

Source	Feature	Range	Azimuth	Status
AWOIS_EXPORT	AWOIS # 8592	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the obstruction remain uncharted and the AWOIS item be removed from the investigation list.

S-57 Data

Geo object 1: Cartographic symbol ($CSYMB)

Office Notes

SAR: Considered disproved by SS200 and SWMB. The area defined by the 50-meter search radius was covered with 200% SSS and complete SWMB.

COMPILATION NOTES: Feature not shown on chart 11382, edition #41, 20100501. No change in charting.

1.9) AWOIS #8593 - AWOIS #8593 - Disproved

No Primary Survey Feature for this AWOIS Item

Search Position: 30° 12' 46.5" N, 087° 15' 38.9" W

Historical Depth: 20.42 m

Search Radius: 50

Search Technique: S2, MB

Technique Notes: [None]

History Notes:

HISTORY

H10375/91--OPR-J452-HE; SIDE SCAN SONAR CONTACT DETERMINED BY ì

DIVERS TO BE A CAR BODY, SURROUNDED BY DEBRIS IN POS. ì

LAT.30-12-46.51N, LONG.87-15-38.93W. LEAST DEPTH BY DIVERS WAS 67 ì

FT (20.5M). (ENTERED 6/93 MCR)

Survey Summary

Charts Affected: 11382_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

Status: AWOIS Item #8593 was disproved. It is reported as a car body surrounded by debris in the AWOIS database and the investigation area was adjacent to a 67-foot sounding (RNC 11382). The area defined by the 50-meter search radius was covered with 200% SSS and complete SWMB. No obstructions were found by the side scan or multibeam sonar systems. The least depth surveyed within the AWOIS search area is 70.5 feet (21.5 meters) at 30-12-45.71N, 87-15-39.12W.

Feature Correlation

Source	Feature	Range	Azimuth	Status
AWOIS_EXPORT	AWOIS # 8593	0.00	000.0	Primary

Hydrographer Recommendations

It is recommended that the obstruction remain uncharted and the AWOIS item be removed from the investigation list.

S-57 Data

Geo object 1: Cartographic symbol ($CSYMB)

Office Notes

SAR: Considered disproved by SS200 and SWMB. The area defined by the 50-meter search radius was covered with 200% SSS and complete SWMB.

COMPILATION NOTES: Feature not shown on chart 11382, edition #52, 20110401. No change in charting.

1.10) AWOIS #8594 - AWOIS #8594 - Disproved

No Primary Survey Feature for this AWOIS Item

Search Position: 30° 13' 13.0" N, 087° 11' 48.1" W

Historical Depth: [None]

Search Radius: 100

Search Technique: S2, MB

Technique Notes: [None]

History Notes:

H10375/91--OPR-J452-HE; SIDE SCAN SONAR CONTACT DETERMINED TO BE A VOLKSWAGEN BUG WITH SOME DEBRIS IN POS. LAT.30-13-13.03N, LONG.87-11-48.12W. DIVER LEAST DEPTH WAS 67 FT (20.8M). (ENTERED 6/93 MCR)

Survey Summary

Charts Affected: 11382_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

H12157-4: A 68-foot Obstn charted at 30-13-16.75N, 87-11-48.39W and reported as a “Volkswagen bug” was disproved with 200% SSS and full SWMB. Within the charted obstruction symbol area, a least depth of 76.0 feet (23.2 meters) was surveyed at 30-13-15.35N. 087-11-47.11W.

Feature Correlation

Source	Feature	Range	Azimuth	Status
AWOIS_EXPORT	AWOIS # 8594	0.00	000.0	Primary

Hydrographer Recommendations

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

S-57 Data

Geo object 1: Cartographic symbol ($CSYMB)

Office Notes

SAR: AWOIS 8594 considered disproved via SS200 and SWMB. 123m distance between the RNC and ENC location.

COMPILATION NOTES: Delete 68ft Obstn and danger curve.

H12157 DTON FEATURES REPORT

Registry Number: H12157
State: Florida
Locality: GULF OF MEXICO
Sub-locality: 12 NM SE OF PENSACOLA BAY ENTRANCE
Project Number: OPR-J364-KR-09-D
Survey Date: 05/11/2010

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11383	51st	01/01/2006	1:30,000 (11383_1)	[L]NTM: ?
11382	40th	02/01/2004	1:80,000 (11382_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	DTON #7 - 58ft Obstn	Obstruction	17.74 m	30° 15' 03.2" N	087° 15' 02.7" W	---
1.2	DTON #2 - 62ft Obstn -Disporved	Obstruction	19.11 m	30° 14' 52.9" N	087° 07' 18.9" W	---
1.3	DtoN #3 - Disproved	Obstruction	19.25 m	30° 14' 49.5" N	087° 07' 10.6" W	---
1.4	DTON #4 - Disproved	Obstruction	19.68 m	30° 14' 57.8" N	087° 07' 08.6" W	---
1.5	DTON #5 - 62ft Obstn - Disproved	Obstruction	18.98 m	30° 14' 28.8" N	087° 06' 42.3" W	---
1.6	DTON #6 - 58ft Obstn - Disproved	Obstruction	17.78 m	30° 15' 00.6" N	087° 06' 00.6" W	---
1.7	DTON #1 - 62ft Obstn - Disproved	Obstruction	18.92 m	30° 16' 33.8" N	087° 00' 53.6" W	---

1 - S57DR_DToN

1.1) DTON #7 - 58ft Obstn

DANGER TO NAVIGATION

Survey Summary

Survey Position: 30° 15' 03.2" N, 087° 15' 02.7" W

Least Depth: 17.74 m (= 58.20 ft = 9.700 fm = 9 fm 4.20 ft)

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

Timestamp: 2010-131.00:00:00.000 (05/11/2010)

Dataset: H12157_EXPORT_PSS.000

FOID: US 0000708220 00001(0226000ACE7C0001)

Charts Affected: 11383_1, 11382_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

OBSTRN/remrks: OBSTRN/remrks: feature not submitted in field unit feature file. Feature validated during AHB SAR.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12157_EXPORT_PSS.000	US 0000708220 00001	0.00	000.0	Primary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

58ft (11383_1, 11382_1)

9 ¾fm (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 - 20100511

SORIND - US,US,graph,H12157

VALSOU - 17.739 m

WATLEV - 3:always under water/submerged

Office Notes

Feature validated during AHB SAR as a feature.

COMPILATION NOTES: Delete 58ft Obstn Rep (2010) and danger curve. Add 58ft Obstn and danger curve.

Feature Images

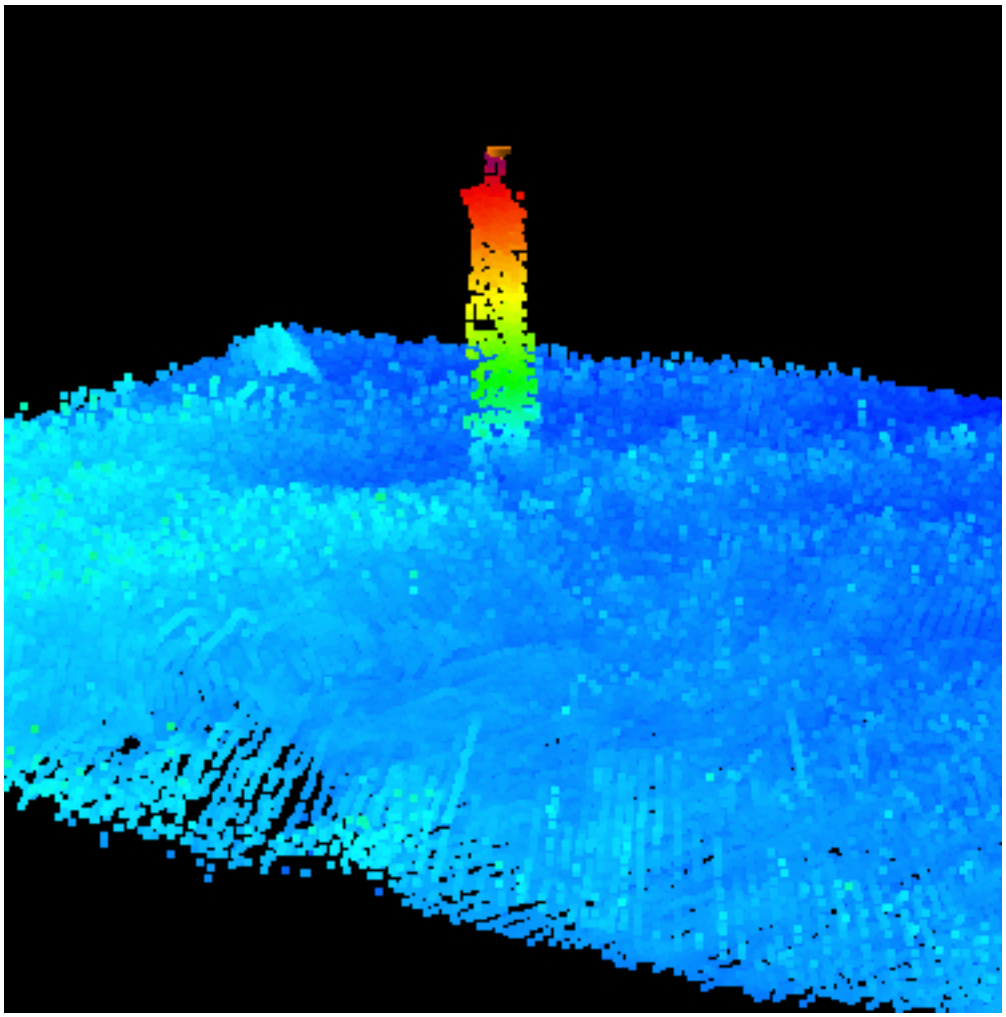

Figure 1.1.1

1.2) DTON #2 - 62ft Obstn -Disproved

DANGER TO NAVIGATION

Survey Summary

Survey Position: 30° 14' 52.9" N, 087° 07' 18.9" W

Least Depth: 19.11 m (= 62.70 ft = 10.449 fm = 10 fm 2.70 ft)

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

Timestamp: 2010-131.00:00:00.000 (05/11/2010)

Dataset: H12157_EXPORT_PSS.000

FOID: US 0000708222 00001(0226000ACE7E0001)

Charts Affected: 11382_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

OBSTRN/remrks: OBSTRN/remrks: Three uncharted obstructions positioned approximately 1000 feet (3.75 mm at chart scale) apart from each other, centered at an approximate location of 30- 14-53.85N, 87-07-12.21W were developed with 200% SSS and object detection SWMB. They were submitted as DTONs on June 30, 2010 (see Appendix I). Of the three obstructions, a least depth of 62.7 feet (19.1 meters) was surveyed at 30-14- 52.89N, 87-07-18.89W and is positioned between charted soundings of 70, 93 and 98 feet (Figure 16). All three obstructions are included in the S57 Feature File (H12157_S57_Feature.000) as OBSTRN objects.

SAR NOTES: This feature has been verified as real in SSS and MBES. It was shoalest of the "three uncharted" OBSTRNs and has been applied to updated raster.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12157_EXPORT_PSS.000	US 0000708222 00001	0.00	000.0	Primary

Hydrographer Recommendations

They were submitted as DTONs on June 30, 2010

Cartographically-Rounded Depth (Affected Charts):

62ft (11382_1)

10 ½fm (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 - 20100511

SORIND - US,US,graph,H12157

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

VALSOU - 19.110 m

WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: H12157-5_62ft OBSTRN_DtoN#2_retain This feature has been verified as real in SSS and MBES. It was shoalest of the "three uncharted" OBSTRNs and has been applied to updated raster.

COMPILATION NOTE: Office processing determined that the feature is insignificant and does not pose a threat to surface navigation that warrants being charted as an obstruction. Delete 62ft Obstn and danger curve. Add 62ft depth.

1.3) DtoN #3 - Disproved

DANGER TO NAVIGATION

Survey Summary

Survey Position: 30° 14' 49.5" N, 087° 07' 10.6" W

Least Depth: 19.25 m (= 63.16 ft = 10.526 fm = 10 fm 3.16 ft)

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

Timestamp: 2010-131.00:00:00.000 (05/11/2010)

Dataset: H12157_EXPORT_PSS.000

FOID: US 0000708225 00001(0226000ACE810001)

Charts Affected: 11382_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

OBSTRN/remrks: OBSTRN/remrks: Three uncharted obstructions positioned approximately 1000 feet (3.75 mm at chart scale) apart from each other, centered at an approximate location of 30- 14-53.85N, 87-07-12.21W were developed with 200% SSS and object detection SWMB. They were submitted as DTONs on June 30, 2010 (see Appendix I). Of the three obstructions, a least depth of 62.7 feet (19.1 meters) was surveyed at 30-14- 52.89N, 87-07-18.89W and is positioned between charted soundings of 70, 93 and 98 feet (Figure 16). All three obstructions are included in the S57 Feature File (H12157_S57_Feature.000) as OBSTRN objects.

SAR NOTES: Feature was verified as real in MBES and SSS. Of the 3 uncharted OBSTRNs, only the shoalest 62ft OBSTRN has been applied to updated raster. See Dton #2

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12157_EXPORT_PSS.000	US 0000708225 00001	0.00	000.0	Primary

Hydrographer Recommendations

They were submitted as DTONs on June 30, 2010

Cartographically-Rounded Depth (Affected Charts):

63ft (11382_1)

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

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: NINFOM - No change in charting.

QUASOU - 6:least depth known

SORDAT - 20100511

SORIND - US,US,graph,H12157

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

VALSOU - 19.250 m

WATLEV - 3:always under water/submerged

Office Notes

H12157-5_63ft OBSTRN_DtoN#3_uncharted; Not Submitted to MCD/NDB.

SAR NOTES: Feature was verified as real in MBES and SSS. Of the 3 uncharted OBSTRNs, only the shoalest 62ft OBSTRN has been applied to updated raster; DTON #2. Feature not submitted to MCD/NDB.

COMPILATION NOTE: Office processing determined that the feature is insignificant and does not pose a threat to surface navigation that warrants being charted as an obstruction. Do not chart.

1.4) DTON #4 - Disproved

DANGER TO NAVIGATION

Survey Summary

Survey Position: 30° 14' 57.8" N, 087° 07' 08.6" W

Least Depth: 19.68 m (= 64.57 ft = 10.761 fm = 10 fm 4.57 ft)

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

Timestamp: 2010-131.00:00:00.000 (05/11/2010)

Dataset: H12157_EXPORT_PSS.000

FOID: US 0000708226 00001(0226000ACE820001)

Charts Affected: 11382_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

OBSTRN/remrks: OBSTRN/remrks: Three uncharted obstructions positioned approximately 1000 feet (3.75 mm at chart scale) apart from each other, centered at an approximate location of 30- 14-53.85N, 87-07-12.21W were developed with 200% SSS and object detection SWMB. They were submitted as DTONs on June 30, 2010 (see Appendix I). Of the three obstructions, a least depth of 62.7 feet (19.1 meters) was surveyed at 30-14- 52.89N, 87-07-18.89W and is positioned between charted soundings of 70, 93 and 98 feet (Figure 16). All three obstructions are included in the S57 Feature File (H12157_S57_Feature.000) as OBSTRN objects.

SAR NOTES: Feature was verified as real in MBES and SSS. Of the 3 uncharted OBSTRNs, only the shoalest 62ft OBSTRN has been applied to updated raster. See Dton #2

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12157_EXPORT_PSS.000	US 0000708226 00001	0.00	000.0	Primary

Hydrographer Recommendations

They were submitted as DTONs on June 30, 2010

Cartographically-Rounded Depth (Affected Charts):

64ft (11382_1)

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

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: NINFOM - No change in charting.

QUASOU - 6:least depth known

SORDAT - 20100511

SORIND - US,US,graph,H12157

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

VALSOU - 19.680 m

WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: H12157-5_64ft OBSTRN_DTON#4_uncharted. Feature was verified as real in MBES and SSS. Of the 3 uncharted OBSTRNs, only the shoalest 62ft OBSTRN has been applied to updated raster; DTON #2. Feature not submitted to MCD/NDB.

COMPILATION NOTE: Office processing determined that the feature is insignificant and does not pose a threat to surface navigation that warrants being charted as an obstruction. Do not chart.

1.5) DTON #5 - 62ft Obstn - Disproved

DANGER TO NAVIGATION

Survey Summary

Survey Position: 30° 14' 28.8" N, 087° 06' 42.3" W

Least Depth: 18.98 m (= 62.27 ft = 10.378 fm = 10 fm 2.27 ft)

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

Timestamp: 2010-131.00:00:00.000 (05/11/2010)

Dataset: H12157_EXPORT_PSS.000

FOID: US 0000708223 00001(0226000ACE7F0001)

Charts Affected: 11382_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

OBSTRN/remrks: OBSTRN/remrks: An uncharted obstruction with a least depth of 62.3 feet (19.0 meters) was developed at 30-14-28.76N, 87-06-42.30W with 200% SSS data and object detection SWMB coverage. The obstruction was positioned between charted depths of 69 and 70 feet. This item was submitted as a DTON on June 30, 2010 (see Appendix I).

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12157_EXPORT_PSS.000	US 0000708223 00001	0.00	000.0	Primary

Hydrographer Recommendations

This item was submitted as a DTON on June 30, 2010

Cartographically-Rounded Depth (Affected Charts):

62ft (11382_1)

10 ¼fm (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 - 20100511

SORIND - US,US,graph,H12157

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

VALSOU - 18.980 m

WATLEV - 3:always under water/submerged

Office Notes

H12157-6_62ft OBSTRN_Dton#5_retain. SAR NOTES: Feature was verified as real in MBES and SSS. This 62ft DtoN has been added to updated

raster.

COMPILATION NOTE: Office processing determined that the feature is insignificant and does not pose a threat to surface navigation that warrants being charted as an obstruction. Delete 62ft Obstn and danger curve. Add 62ft depth.

1.6) DTON #6 - 58ft Obstn - Disproved

DANGER TO NAVIGATION

Survey Summary

Survey Position: 30° 15' 00.6" N, 087° 06' 00.6" W

Least Depth: 17.78 m (= 58.33 ft = 9.722 fm = 9 fm 4.33 ft)

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

Timestamp: 2010-131.00:00:00.000 (05/11/2010)

Dataset: H12157_EXPORT_PSS.000

FOID: US 0000708221 00001(0226000ACE7D0001)

Charts Affected: 11382_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

OBSTRN/remrks: OBSTRN/remrks: An uncharted obstruction with a least depth of 58.3 feet (17.8 meters) was developed at 30-15-00.59N, 87-06-00.59W with 200% SSS data and object detection SWMB coverage and submitted as a DTON on June 30, 2010 (see Appendix I). The obstruction is centered between three charted depths of 64, 63 and 74 feet. The obstruction is included in the S57 Feature File (H12157_S57_Feature.000) as an OBSTRN object.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12157_EXPORT_PSS.000	US 0000708221 00001	0.00	000.0	Primary

Hydrographer Recommendations

submitted as a DTON on June 30, 2010

Cartographically-Rounded Depth (Affected Charts):

58ft (11382_1)

9 ¾fm (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 - 20100511

SORIND - US,US,graph,H12157

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

VALSOU - 17.780 m

WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Feature was verified as real in MBES and SSS. DtoN has been added to updated Raster 11382. H12157-7_58ft OBSTRN_DtoN#6_retain

COMPILATION NOTE: Office processing determined that the feature is insignificant and does not pose a threat to surface navigation that warrants being charted as an obstruction. Delete 58ft Obstn and danger curve. Add 58ft depth.

1.7) DTON #1 - 62ft Obstn - Disproved

DANGER TO NAVIGATION

Survey Summary

Survey Position: 30° 16' 33.8" N, 087° 00' 53.6" W

Least Depth: 18.92 m (= 62.07 ft = 10.346 fm = 10 fm 2.07 ft)

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

Timestamp: 2010-131.00:00:00.000 (05/11/2010)

Dataset: H12157_EXPORT_PSS.000

FOID: US 0000708224 00001(0226000ACE800001)

Charts Affected: 11382_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

OBSTRN/remrks: OBSTRN/remrks: An uncharted obstruction with a least depth of 62.1 feet (18.9 meters) was developed at 30-16-33.76N, 87-00-53.56W with 200% SSS data and object detection SWMB coverage and submitted as a DTON on June 30, 2010 (see Appendix I). It is located in the vicinity of a charted 71-foot sounding positioned at 30-13-17.15N, 87- 01-13.10W.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12157_EXPORT_PSS.000	US 0000708224 00001	0.00	000.0	Primary

Hydrographer Recommendations

submitted as a DTON on June 30, 2010

Cartographically-Rounded Depth (Affected Charts):

62ft (11382_1)

10 ¼fm (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 - 20100511

SORIND - US,US,graph,H12157

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

VALSOU - 18.920 m

WATLEV - 3:always under water/submerged

Office Notes

SAR NOTES: Item was submitted as a DtoN and has been verified as real using SSS and MBES. This feature has been charted on updated raster. H12157-8_62ft OBSTRN_DtoN#1_retain

COMPILATION NOTE: Office processing determined that the feature is insignificant and does not pose a threat to surface navigation that warrants being charted as an obstruction. Delete 62ft Obstn and danger curve. Add 62ft depth.

APPROVAL PAGE

H12157

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

- H12157_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12157_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:_____

Digitally signed by Edward Owens
DN: cn=Edward Owens, o=NOAA, ou=AHB, email=Edward.Owens@noaa.gov, c=US
Date: 2012.05.31 12:19:40 -04'00'

Edward Owens, NOAA
Cartographic Team Lead
(Acting Cartographic Branch Chief)