

H12710

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

DESCRIPTIVE REPORT

Type of Survey: Basic Hydrographic Survey

Registry Number: H12710

LOCALITY

State(s): Mississippi

General Locality: Western Vicinity of Lake Borgne

Sub-locality: Gulfport Sound Channel

2014

CHIEF OF PARTY
Jonathan L. Dasler, PE, PLS, CH

LIBRARY & ARCHIVES

Date:

HYDROGRAPHIC TITLE SHEET

H12710

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

State(s): **Mississippi**

General Locality: **Western Vicinity of Lake Borgne**

Sub-Locality: **Gulfport Sound Channel**

Scale: **40000**

Dates of Survey: **11/19/2014 to 04/30/2015**

Instructions Dated: **08/29/2014**

Project Number: **OPR-J311-KR-14**

Field Unit: **David Evans and Associates, Inc.**

Chief of Party: **Jonathan L. Dasler, PE, PLS, CH**

Soundings by: **Reson 7125 SV2**

Imagery by: **EdgeTech 4200-HF**

Verification by: **Atlantic Hydrographic Branch**

Soundings Acquired in: **meters at Mean Lower Low Water**

Remarks:

NAD83, UTM Zone 16, Meters, Times are UTC. The purpose of this contract is to provide NOAA with modern, accurate hydrographic survey data with which to update nautical charts of the assigned area.

The purpose of this survey is to provide contemporary surveys to update National Ocean Service (NOS) nautical charts. All separates are filed with the hydrographic data. Any revisions to the Descriptive Report (DR) generated during office processing are shown in bold red italic text. The processing branch maintains the DR as a field unit product, therefore, all information and recommendations within the body of the DR are considered preliminary unless otherwise noted. The final disposition of surveyed features is represented in the OCS nautical chart update products. All pertinent records for this survey, including the DR, are archived at the National Centers for Environmental Information (NCEI) and can be retrieved via <https://www.ncei.noaa.gov/>.

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Descriptive Report to Accompany Survey H12710

Project: OPR-J311-KR-14

Locality: Western Vicinity of Lake Borgne

Sublocality: Gulfport Sound Channel

Scale: 1:40000

November 2014 - April 2015

David Evans and Associates, Inc.

Chief of Party: Jonathan L. Dasler, PE, PLS, CH

A. Area Surveyed

David Evans and Associates, Inc. (DEA) conducted hydrographic survey operations in the Gulfport Sound Channel and vicinity from the approximate location of Gulfport Ship Channel Light 57 south to the approximate location of Gulfport Ship Channel Lighted Buoy 25. Survey H12710 was conducted in accordance with the Statement of Work (July 9, 2014) and Hydrographic Survey Project Instructions (August 29, 2014).

The Hydrographic Survey Project Instructions reference the National Ocean Service (NOS) Hydrographic Surveys Specifications and Deliverables Manual (HSSD), April 2014 as the technical requirements for this project.

A.1 Survey Limits

Data were acquired within the following survey limits:

| Northwest Limit | Southeast Limit |
|-----------------------------------|--------------------------------------|
| 30° 20' 3.84" N 89° 4' 0.02" W | 30° 12' 54.49" N 88° 58' 57.29" W |

Table 1: Survey Limits

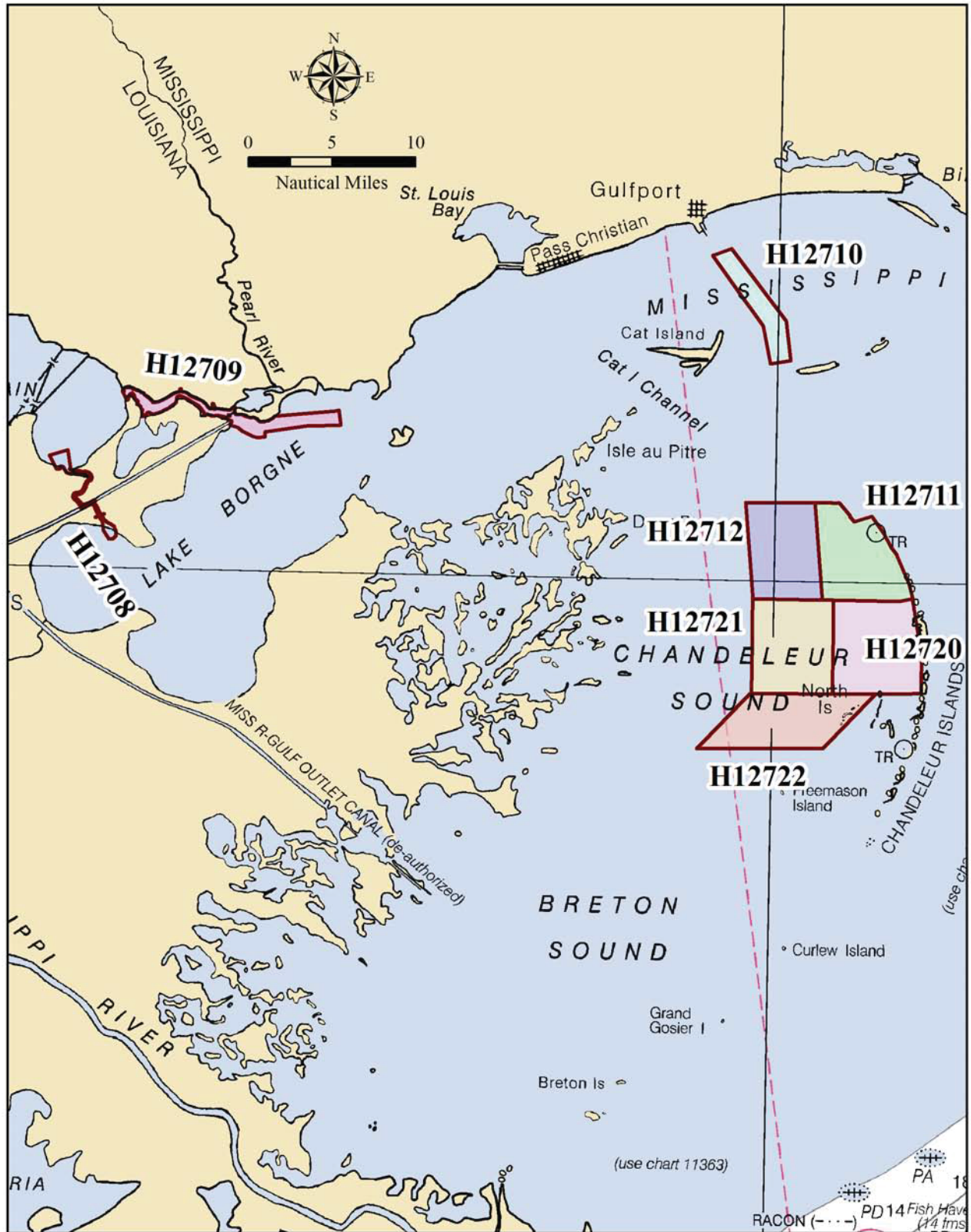


Figure 1: OPR-J311-KR-14 Assigned Survey Areas

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

A.2 Survey Purpose

The purpose of this project is to provide contemporary surveys to update National Ocean Service (NOS) nautical charting products. This project is located in an area subject to the influence of hurricanes on an annual basis, thus producing a very dynamic environment requiring frequent re-surveying. In addition, the tug and tow industry will be re-routed to the west of the Chandeleur Islands due to a Gulf Intracoastal Waterway West (GIWW) closure in the Summer of 2015. A large portion of the proposed alternative route for the tug and tow industry lies within the southern portion of this project area. This project will cover approximately 129 SNM of emerging critical areas and 4.5 SNM of priority 2 areas as identified in the 2012 NOAA Hydrographic Survey Priorities (NHSP). The project area is located in the vicinity of Lake Borgne, the Gulfport Sound Channel, and west of the Chandeleur Islands.

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

A.4 Survey Coverage

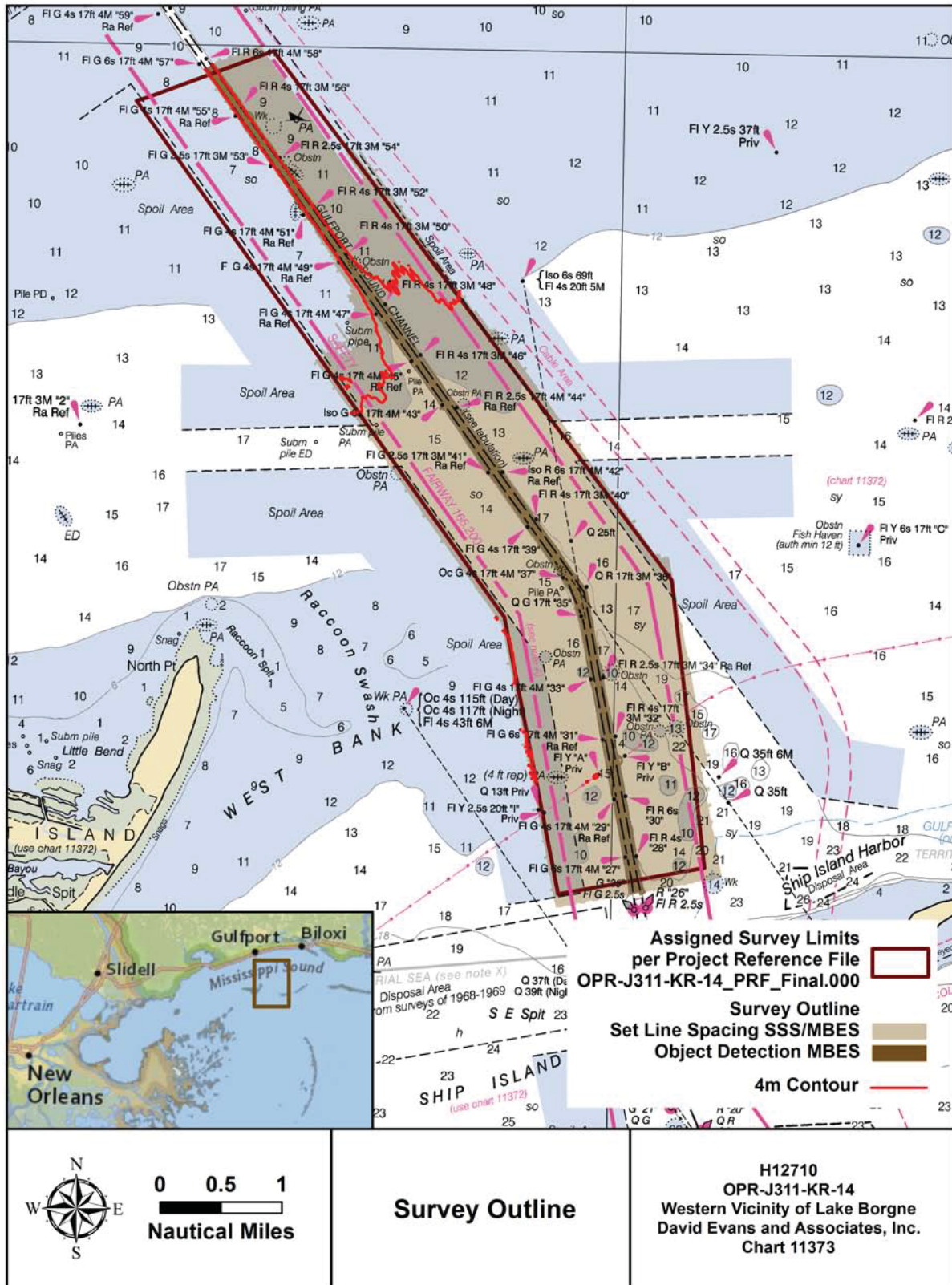


Figure 2: H12710 Survey Outline

The survey consisted of mixed coverage techniques using both Object Detection multibeam echosounder (MBES) and Set Line Spacing with 200% side scan sonar and concurrent MBES. Backscatter was collected with all MBES data. Object Detection MBES was acquired in the Gulfport Sound Channel where vessel traffic and the steep-sided dredged channel precluded safe and efficient side scan sonar acquisition. Significant side scan sonar contacts identified in the Set Line Spacing coverage were developed with multibeam sonar to meet Object Detection coverage requirements. The inshore limit of the survey was defined as the farthest offshore of either the surveyed 4-meter depth contour or the Navigable Area Limit Line (NALL) defined in the OPR-J311-KR-14 Project Reference File (PRF).

Due to a difference in the application of predicted tides in real-time during acquisition relative to finalized tides applied during processing, survey coverage extended past the surveyed 4-meter depth contour on the north side of the Gulfport Sound Channel. Survey coverage on the south side of the Gulfport Sound Channel ended at the surveyed 4-meter depth contour as required by the Project Instructions. The project's COTR was notified about the collection of the additional data when the H12710 survey outline was submitted.

DEA received a waiver to use the full sonar range when the towfish altitude was less than 8% of the range scale when operating at the 50-meter range scale. This waiver removed the minimum towfish height requirement at the 50-meter range scale as specified in Section 6.1.2.3 of the HSSD. A copy of the email correspondence granting this waiver is included in OPR-J311-KR-14 Project Correspondence.

A.5 Survey Statistics

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

| | HULL ID | <i>S/V Blake</i> | <i>Total</i> |
|---|---------------------------------|----------------------|--------------|
| LNM | SBES Mainscheme | 0 | 0 |
| | MBES Mainscheme | 142.17 | 142.17 |
| | Lidar Mainscheme | 0 | 0 |
| | SSS Mainscheme | 1.09 | 1.09 |
| | SBES/SSS Mainscheme | 0 | 0 |
| | MBES/SSS Mainscheme | 358.62 | 358.62 |
| | SBES/MBES Crosslines | 41.08 | 41.08 |
| | Lidar Crosslines | 0 | 0 |
| Number of Bottom Samples | | | 4 |
| Number of AWOIS Items Investigated | | | 0 |
| Number Maritime Boundary Points Investigated | | | 0 |
| Number of DPs | | | 0 |
| Number of Items Investigated by Dive Ops | | | 0 |
| Total SNM | | | 8.79 |

Table 2: Hydrographic Survey Statistics

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

| Survey Dates | Day of the Year |
|---------------------|------------------------|
| 11/19/2014 | 323 |
| 11/20/2014 | 324 |
| 12/02/2014 | 336 |
| 12/03/2014 | 337 |
| 12/04/2014 | 338 |
| 12/05/2014 | 339 |
| 12/06/2014 | 340 |
| 12/08/2014 | 342 |
| 01/11/2015 | 11 |
| 01/17/2015 | 17 |
| 01/18/2015 | 18 |
| 03/03/2015 | 62 |
| 03/04/2015 | 63 |
| 04/15/2015 | 105 |
| 04/30/2015 | 120 |

Table 3: Dates of Hydrography

B. Data Acquisition and Processing

B.1 Equipment and Vessels

The OPR-J311-KR-14 Data Acquisition and Processing Report (DAPR), previously submitted with survey H12708, details equipment and vessel information as well as data acquisition and processing procedures used during this survey. There were no vessel or equipment configurations used during data acquisition that deviated from those described in the DAPR.

B.1.1 Vessels

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

| | |
|----------------|------------------|
| Hull ID | <i>S/V Blake</i> |
| LOA | 83 feet |
| Draft | 4.5 feet |

Table 4: Vessels Used



Figure 3: S/V Blake

B.1.2 Equipment

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

| Manufacturer | Model | Type |
|----------------------|-----------------------------------|-----------------------------------|
| Reson | 7125 SV2 | MBES |
| Edgetech | 4200-HF | SSS |
| Applanix | POS/MV 320 v4 | Positioning & Attitude |
| Rolls Royce | MVP30-350 with AML Micro SVP&T | Primary Sound Speed Profiler |
| AML | Micro SV Exchange | Surface Sound Speed |
| Sea-Bird Electronics | SEACAT SBE 19-03 CTD | Secondary Sound Speed Profiler |
| AML | SV Plus V2 | Secondary Sound Speed Profiler |

Table 5: Major Systems Used

B.2 Quality Control

B.2.1 Crosslines

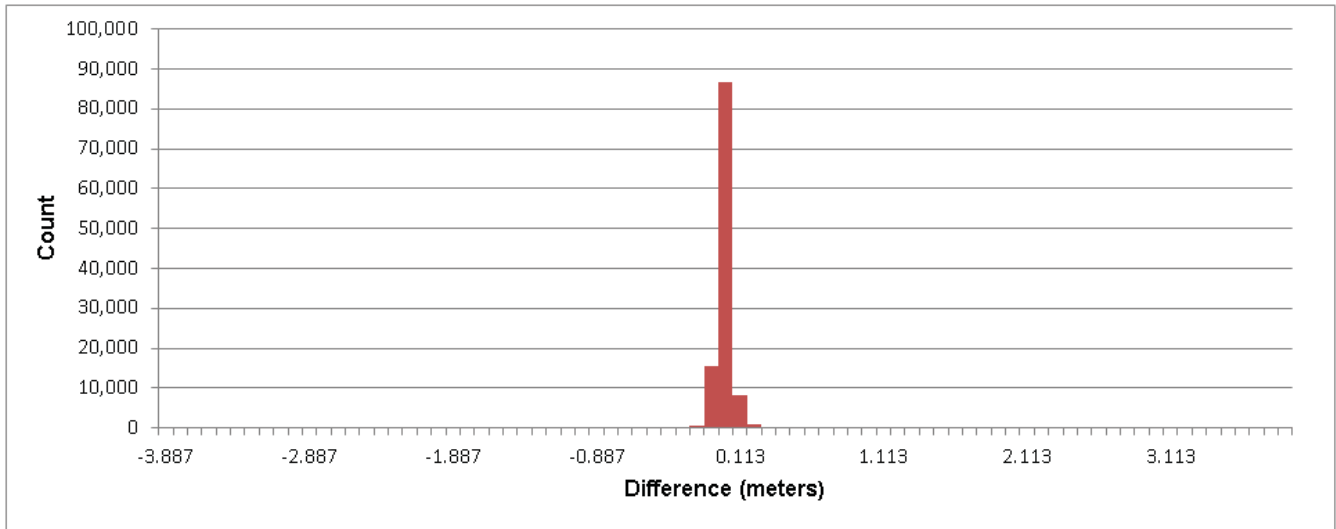
Crosslines acquired for this survey totaled 8% of mainscheme acquisition.

Crosslines were run in a direction perpendicular to main scheme lines across the entire surveyed area, providing a good representation for analysis of consistency. All crosslines were used for crossline comparisons.

Crossline analysis was performed using the CARIS Hydrographic Information Processing System (HIPS) Quality Control (QC) Report tool, which compares crossline data to a gridded surface and reports results by beam number. Crosslines were compared to a 4-meter CUBE surface encompassing mainscheme data for the entire survey area. The QC Report tabular output and plot are included in Separate II Digital Data. The results of the analysis meet the requirements as stated in the 2014 HSSD.

Additional crossline analysis was performed by computing a 4-meter CUBE surface from the crossline data. The surface was then differenced from a 4-meter surface comprised of all mainscheme, fill, and investigation data. The resultant difference surface was exported using the Base Surface to ASCII function and statistics were compiled on the ASCII data.

Results from the crossline to mainscheme difference analysis are depicted in Figure 4. All outliers from the difference analysis were reviewed in HIPS subset editor and found to occur in areas where the Gulfport Sound Channel was dredged in-between the acquisition of mainscheme and crossline data.



| | | | |
|----------|----------|---------------------|---------|
| Mean: | 0.01 m | Standard Deviation: | 0.095 m |
| Minimum: | -3.905 m | Bin size: | 0.1 m |
| Maximum: | 3.931 m | Number of Nodes: | 113,737 |

Figure 4: H12710 Crossline Differences

B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

| Measured | Zoning |
|--------------|--------------|
| 0.000 meters | 0.082 meters |

Table 6: Survey Specific Tide TPU Values

| Hull ID | Measured - CTD | Measured - MVP | Surface |
|-----------|-------------------|-----------------|-------------------|
| S/V Blake | n/a meters/second | 1 meters/second | 0.5 meters/second |

Table 7: Survey Specific Sound Speed TPU Values

Additional discussion of these parameters is included in the DAPR.

During surface finalization in HIPS, the "greater of the two" option was selected, where the calculated uncertainty from total propagated uncertainty (TPU) is compared to the standard deviation of the soundings influencing the node, and where the greater value is assigned as the final uncertainty of the node. The uncertainty of the finalized surfaces increased for nodes where the standard deviation of the node was greater than the total propagated uncertainty.

The resulting calculated uncertainty values of all nodes in the finalized 4-meter Set Line Spacing multibeam surface range from 0.172 meters to 0.371 meters with a standard deviation of 0.008 meters.

The uncertainty values of all nodes in the finalized 50-centimeter Object Detection multibeam surface covering Gulfport Sound Channel range from 0.172 meters to 1.528 meters with a standard deviation of 0.036 meters.

The uncertainty values of all nodes in the finalized combined 50-centimeter Object Detection multibeam surface over significant contacts range from 0.170 meters to 1.230 meters with a standard deviation of 0.026 meters.

To determine if surface grid nodes met International Hydrographic Organization (IHO) Order 1 specification, a ratio of the final node uncertainty to the allowable uncertainty at that depth was determined. As a percentage, this value represents the amount of error budget utilized by the uncertainty value at each node. Values greater than 100% indicate nodes exceeding the allowable IHO uncertainty.

For the 4-meter Set Line Spacing multibeam surface, the allowable uncertainty utilized ranges from 33% to 71%. The mean allowable uncertainty for the surface is 35% with a standard deviation of 0.016. In total 69 nodes out of 1,451,917 fail to meet specification.

For the 50-centimeter Object Detection multibeam surface, the allowable uncertainty utilized ranges from 33% to 301%. The mean allowable uncertainty for the surface is 35% with a standard deviation of 0.069. In total 64,156 nodes out of 18,493,642 fail to meet specification.

For the 50-centimeter combined Object Detection multibeam surface over significant contacts, the allowable uncertainty utilized ranges from 33% to 237%. The mean allowable uncertainty for the surface is 35% with a standard deviation of 0.051. In total 2,108 nodes out of 1,227,397 fail to meet specification.

Nodes that were reported out of specification were coincident with areas of high depth standard deviation with steep slopes or high relief such as the edge of the Gulfport Sound Channel or significant features. All uncertainty values were within allowable specification prior to surface finalization when standard deviation was incorporated into the solution when it was greater than the node uncertainty.

B.2.3 Junctions

Survey H12710 junctions with prior surveys H11618 and H11513. The Bathymetric Attributed Grids (BAGs) for these surveys were downloaded from NOAA's National Geophysical Data Center (NGDC) website for comparison with H12710. The 4-meter finalized H12710 surface was compared to the junction surveys by generating difference surfaces with CARIS Base Editor.

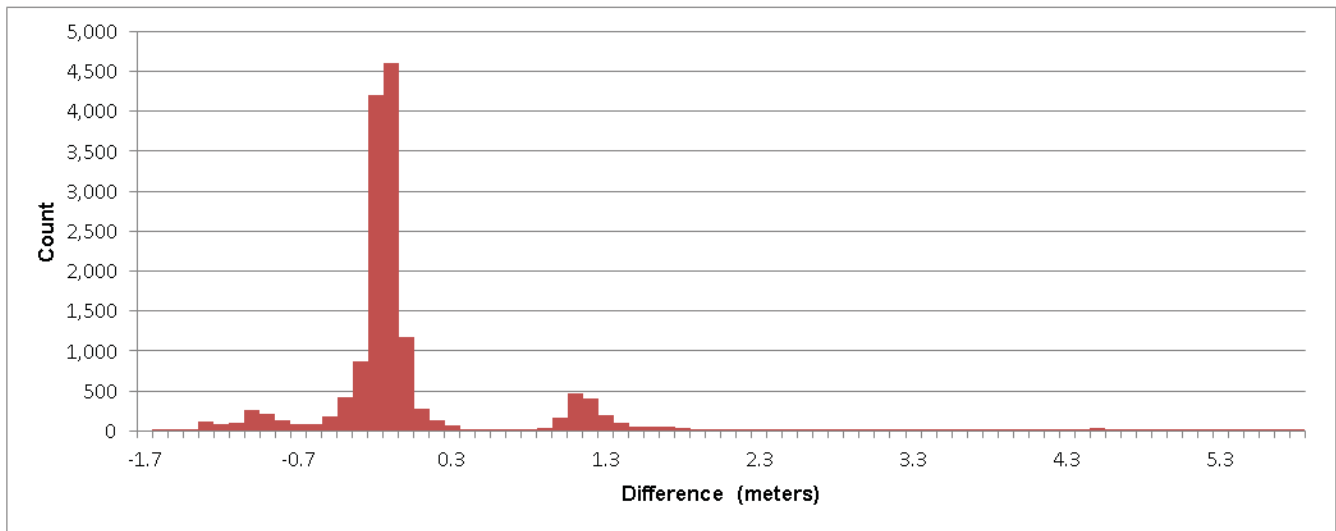
The following junctions were made with this survey:

| Registry Number | Scale | Year | Field Unit | Relative Location |
|-----------------|---------|------|----------------------------|-------------------|
| H11513 | 1:10000 | 2005 | NOAA Ship Thomas Jefferson | S |
| H11618 | 1:20000 | 2007 | C & C Technologies, Inc. | N |

Table 8: Junctioning Surveys

H11513

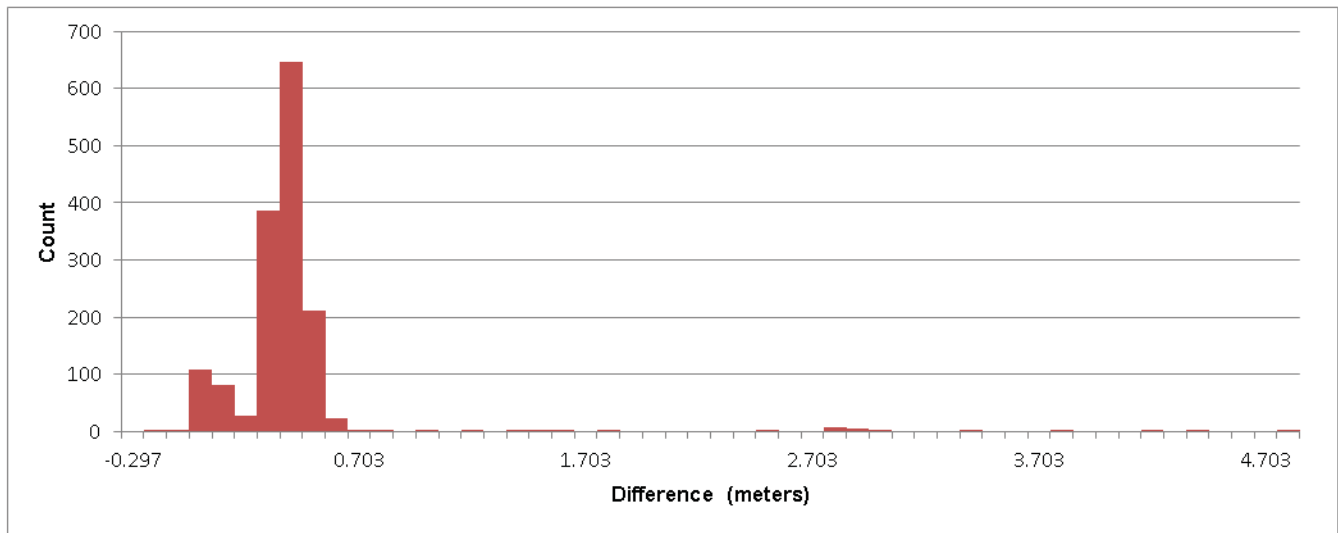
The H12710 survey area junctions with MBES survey H11513 along the southern end of the survey area. The maximum outliers (H12710 deeper than prior) occur within the Gulfport Sound Channel and likely result from dredging that has occurred since the prior survey in 2005. The minimum outliers (H12710 shoaler than prior) appear to be related to natural infill of the old Gulfport Sound Channel which lies to the east of its present day alignment. Results from this analysis are shown in Figure 5.



| | | | |
|----------|----------|---------------------|---------|
| Mean: | 0.1 m | Standard Deviation: | 0.925 m |
| Minimum: | -1.639 m | Bin size: | 0.1 m |
| Maximum: | 5.840 m | Number of Nodes: | 15,331 |

Figure 5: Junction results between H12710 4-meter and H11513 40-centimeter bathy grids H11618

The H12710 survey area junctions with vertical beam survey H11618 along the northern end of the survey area. The maximum outliers (H12710 deeper than prior) occur in the Gulfport Sound Channel where recent dredging has occurred. Other maximum differences located east of the channel appear to be associated with natural sediment migration. Results from this analysis are shown in Figure 6.



| | | | |
|----------|---------|---------------------|---------|
| Mean: | 0.390 m | Standard Deviation: | 0.397 m |
| Minimum: | -0.23 m | Bin size: | 0.1 m |
| Maximum: | 4.836 m | Number of Nodes: | 1,525 |

Figure 6: Junction results between H12710 4-meter and H11618 2-meter bathy grids

B.2.4 Sonar QC Checks

Quality control is discussed in detail in Section B of the DAPR. Results from weekly position checks and weekly multibeam bar checks are included in Separate I Acquisition and Processing Logs of this report. Sound speed checks can be found in Separate II Sound Speed Data Summary of this report.

Multibeam data were reviewed at multiple levels of data processing including: CARIS HIPS conversion, subset editing, and analysis of anomalies revealed in CUBE surfaces.

B.2.5 Equipment Effectiveness

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

B.2.6 Factors Affecting Soundings

Artifacts Resulting from DGPS Positioning

There are several areas within the H12710 survey where horizontal position offsets of up to 2 meters caused vertical artifacts in the sounding data (Figure 7). These were in areas of significant relief in the bottom such as the sides of the Gulfport Sound Channel or other large bottom features.

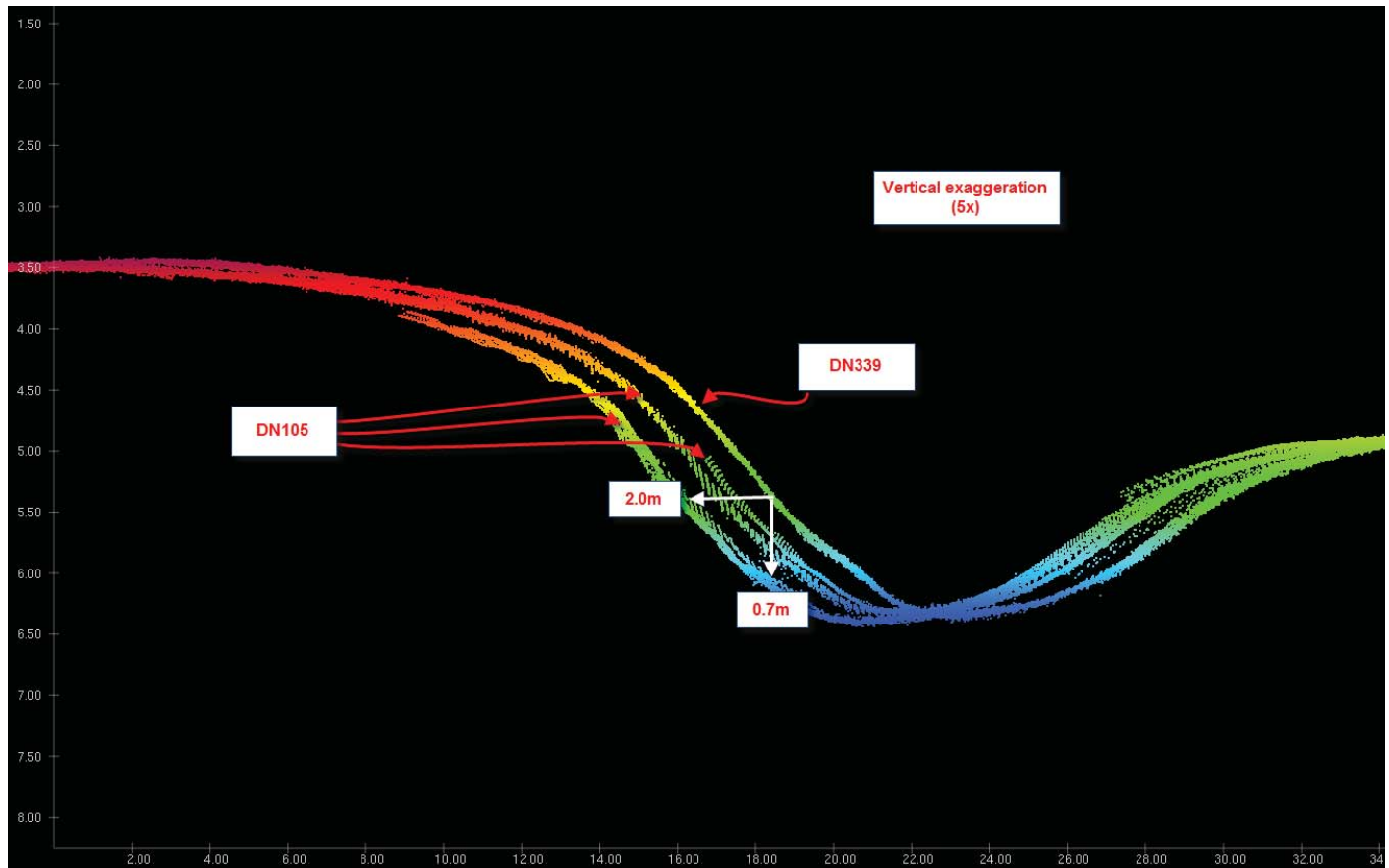


Figure 7: Example of vertical artifact caused by DGPS positioning

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: Approximately 15-minute intervals.

A Rolls Royce Moving Vessel Profiler (MVP) was the primary instrument used to acquire sound speed readings during multibeam operations. MVP sound speed readings were measured at approximately 15-minute intervals during survey operations. Additional discussion of sound speed methods can be found in the DAPR.

There are three sound speed profiles which are more than 250 meters outside of the survey area. These profiles were acquired with the survey vessel's MVP at the ends of survey lines prior to or after a line turn.

Casts are valid and have been applied to hydrography. Profile names: 1/20/14 14:38, 12/04/14 00:44, and 12/04/14 17:20.

Sound speed profiles 11/19/14 20:35 and 11/19/14 21:25 were taken in shallow water prior to data acquisition in Gulfport Channel where depths were deeper than the profiles. These casts have been rejected and the sampling period for survey line 2014BL3232123 extended to use the CARIS HIPS option of nearest in distance within 2-hours in order to incorporate neighboring sound speed profiles which extend to the full depth of sounding acquisition. There was little variation in the sound speed of the profiles in areas of overlapping depth in the upper water column among these casts. This adjustment removed significant sound speed artifacts from the multibeam data.

B.2.8 Coverage Equipment and Methods

Survey speeds were maintained to meet or exceed along-track sounding density and side scan sonar ensonification requirements.

Where 200% side scan coverage was required, demonstration of 200% coverage was achieved by producing two separate 100% 1-meter resolution mosaics. Mosaics were thoroughly reviewed for holidays and areas of poor quality coverage due to biomass, vessel wakes, or other factors. A fill plan was created in order to acquire side scan data where holidays and significant poor quality coverage existed. Significant side scan sonar contacts were developed with multibeam sonar to obtain a least depth of the contact using multibeam Object Detection coverage requirements.

Object Detection multibeam coverage was obtained in Gulfport Sound Channel. Fill lines were run on an as needed basis in order to fill holidays or to increase node density.

B.2.9 Density

Node density for each coverage technique used during the survey was verified by exporting the density child layer of the finalized CUBE surface to an ASCII text file and compiling statistics on the density values.

Node density for the Objected Detection coverage surface within the Gulfport Sound Channel met specification with 97.9% of all nodes populated with five or more soundings. The density requirement for the remainder of the survey area, which was surveyed with Set Line Spacing multibeam coverage, was achieved with 99.9% of all nodes populated with three or more soundings.

Density statistics for all but one individual item investigation surface surpassed the requirement that 95% of all nodes populated with at least five soundings. With a density value of 94%, the individual investigation surface (338-003117S_50cm_Final) failed to meet the 95% Objected Detection density requirement due to the incorporation of set line spacing skunk stipe data with low node density along the edges of the data. All nodes over the feature exceed density requirements and the least depth was determined with designated soundings from reliable data.

B.3 Echo Sounding Corrections

B.3.1 Corrections to Echo Soundings

Data reduction procedures for survey H12710 are detailed in the DAPR. Since submitting the DAPR the S/V Blake's MRU Alignment values, which are used in TPU computations, have been updated. These values are reported in Table 6 of the DAPR and DAPR Appendix II, and have been included in Figure 8 of this report. A summary of the multibeam processing logs is included Separate I Acquisition and Processing Logs of this report.

| Total Propagated Uncertainty | | |
|------------------------------|--------------|--|
| Field | Final Values | Source |
| MRU Align StdDev Gyro | 0.179 | Standard Deviation of OPR-J311-KR-14 patch test values for project |
| MRU Align StdDev Roll/Pitch | 0.094 | Standard Deviation of OPR-J311-KR-14 patch test values for project |

Figure 8: Revised S/V Blake MRU Alignment Values

B.3.2 Calibrations

No additional calibration tests were conducted beyond those discussed in the DAPR.

B.4 Backscatter

Multibeam backscatter was logged in Hypack 7K format and included with the H12710 digital deliverables. Data were processed periodically in CARIS HIPS to evaluate backscatter quality but the processed data is not included with the deliverables.

B.5 Data Processing

B.5.1 Software Updates

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

| Manufacturer | Name | Version | Service Pack | Hotfix | Installation Date | Use |
|--------------|------|---------|--------------|--------|-------------------|------------|
| CARIS | HIPS | 8.1 | 0 | 13 | 06/07/2015 | Processing |

Table 9: Software Updates

The following Feature Object Catalog was used: 5.3.2

B.5.2 Surfaces

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

| Surface Name | Surface Type | Resolution | Depth Range | Surface Parameter | Purpose |
|------------------------------------|--------------|----------------|----------------------------|-------------------|---|
| H12710_MB_4m_MLLW | CUBE | 4.0 meters | 3.05 meters - 12.97 meters | NOAA_4m | Multibeam sonar Set Line Spacing Coverage |
| H12710_MB_4m_MLLW_Final | CUBE | 4.0 meters | 1.15 meters - 12.97 meters | NOAA_4m | Finalized Multibeam sonar Set Line Spacing coverage |
| H12710_MB_50cm_MLLW | CUBE | 50 centimeters | 2.96 meters - 13.13 meters | NOAA_0.5m | Object Detection Coverage in Gulfport Sound Channel |
| H12710_MB_50cm_MLLW_Final | CUBE | 50 centimeters | 1.15 meters - 13.13 meters | NOAA_0.5m | Finalized Object Detection Coverage in Gulfport Sound Channel |
| H12710_MB_50cm_MLLW_combined | CUBE | 50 centimeters | 2.98 meters - 12.57 meters | NOAA_0.5m | Object Detection Coverage over Significant Contacts |
| H12710_MB_50cm_MLLW_combined_Final | CUBE | 50 centimeters | 1.15 meters - 12.57 meters | NOAA_0.5m | Finalized Object Detection Coverage over Significant Contacts |

| Surface Name | Surface Type | Resolution | Depth Range | Surface Parameter | Purpose |
|-------------------|--------------|------------|-------------|-------------------|-----------------------------|
| H12710_100Percent | Mosaic | 1 meters | - | N/A | First 100-percent coverage |
| H12710_200Percent | Mosaic | 1 meters | - | N/A | Second 100-percent coverage |

Table 10: Submitted Surfaces

Bathymetric grids were created relative to Mean Lower Low Water (MLLW) in CUBE format using Set Line Spacing and Object Detection resolution requirements as described in the HSSD.

The Set Line Spacing surfaces include all multibeam data acquired within the survey area. Surfaces at Object Detection resolution were created using mainscheme, crossline, and investigation data acquired within the Gulfport Sound Channel. Investigation lines for significant side scan contacts were not included in the Gulfport Sound Channel Object Detection resolution surfaces in areas of overlap between the two coverage techniques.

The 50-centimeter combined surfaces include all Set Line Spacing coverage investigation data at object detection resolution. Field sheets and surfaces were also submitted for all significant individual investigations. The name of the investigation field sheets correspond to the primary side scan sonar contact name. Least depths for all significant contact investigations were added to the final surface with a designated sounding. Staff at AHB provided guidance on surface generation prior to submittal of the survey.

Additional designated soundings were added to depth surfaces as necessary in order to accurately represent the seafloor in accordance with the NOS HSSD.

C. Vertical and Horizontal Control

A complete description of the horizontal and vertical control for survey H12710 can be found in the OPR-J311-KR-14 Horizontal and Vertical Control Report (HVCR), submitted under a separate cover. A summary of horizontal and vertical control for this survey follows.

C.1 Vertical Control

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

C.2 Horizontal Control

The horizontal datum for this project is North American Datum of 1983 (NAD83).

The projection used for this project is NAD83 UTM Zone 16 North.

During survey operations, some Differential Global Positioning System (DGPS) outages from the primary beacon (293 kHz) occurred. The system was manually switched to the secondary beacon (295 kHz) when the primary signal was lost. No data was acquired during DGPS beacon outages.

The following DGPS Stations were used for horizontal control:

| DGPS Stations |
|------------------------------------|
| English Turn, LA (293 kHz) |
| Eglin Air Force Base, FL (295 kHz) |

Table 11: USCG DGPS Stations

D. Results and Recommendations

D.1 Chart Comparison

The raster navigational chart (RNC) comparison was performed by manually comparing the RNCs covering the survey area to the corresponding electronic navigational charts (ENCs) and identifying discrepancies between the two chart formats.

The ENC chart comparison was performed using GIS methods to compute zonal statistics between soundings charted on each ENC and all finalized grid nodes within a predefined radius around the charted soundings. The 1:40,000 scale comparison used a 60-meter radius and the 1:80,000 scale comparison used at 120-meter radius. The chart comparison also included a review of all assigned charted features within the survey area.

The electronic and raster versions of the relevant charts used during the comparison were reviewed to check that all US Coast Guard (USCG) Local Notice to Mariners (LNMs) issued during survey acquisition and impacting the survey area were applied and addressed by this survey.

D.1.1 Raster Charts

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

| Chart | Scale | Edition | Edition Date | LNМ Date | NM Date |
|--------------|--------------|----------------|---------------------|-----------------|----------------|
| 11372 | 1:40000 | 35 | 09/2012 | 06/09/2015 | 06/20/2015 |
| 11372 | 1:40000 | 35 | 09/2012 | 06/09/2015 | 06/20/2015 |
| 11371 | 1:80000 | 40 | 03/2012 | 06/09/2015 | 06/20/2015 |
| 11373 | 1:80000 | 1 | 05/2015 | 05/01/2015 | 05/01/2015 |

Table 12: Largest Scale Raster Charts

11372

A few minor differences were found in the comparison between Small Craft Route Chart 11372_1 and US5MS11M within the H12710 survey area. A 9-foot sounding charted between the chart edge and Gulfport Ship Channel Light 52 on US5MS11M is not included on 11372_1. This sounding may have been purposely excluded from the RNC for cartographic purposes. There are also minor discrepancies in the alignments of the safety fairway and spoil areas.

11372

Small Craft Route Chart 11372_2 was compared to US5MS11M within the H12710 survey area. No differences were observed between the charts.

11371

There is a small area of overlap between coastal chart 11371_1 and US4MS10M along the northern border of the H12710 survey area. Gulfport Ship Channel Light 56 which fails near the junction between US4MS10M and US4MS12M is not charted on US4MS10M. This is an issue that should be addressed by the Marine Chart Division.

11373

Coastal chart 11373_1 was compared to US4MS12M within the H12710 survey area. At the northern end of the survey area there are minor discrepancies in the placement and value of several charted soundings. There is also a minor difference in the alignment of the safety fairway in this area. There are other minor

discrepancies in the placement and value of charted soundings in the middle of the survey area in the vicinity of Gulfport Ship Channel Lights 41, 42, 43 and 44.

D.1.2 Electronic Navigational Charts

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

| ENC | Scale | Edition | Update Application Date | Issue Date | Preliminary? |
|----------|---------|---------|-------------------------|------------|--------------|
| US5MS11M | 1:40000 | 45 | 12/09/2014 | 06/17/2015 | NO |
| US4MS10M | 1:80000 | 15 | 03/19/2015 | 03/19/2015 | NO |
| US4MS12M | 1:80000 | 22 | 12/17/2014 | 06/11/2015 | NO |

Table 13: Largest Scale ENC's

US5MS11M

In general, surveyed depths are between 0 to 5 feet deeper than charted. Significant differences in Gulfport Sound Channel, which range from 24 feet shoaler than charted to 28 feet deeper than charted, result from comparison of charted tabulated depths from a recent post-dredge survey to H12710 survey depths collected before dredging occurred.

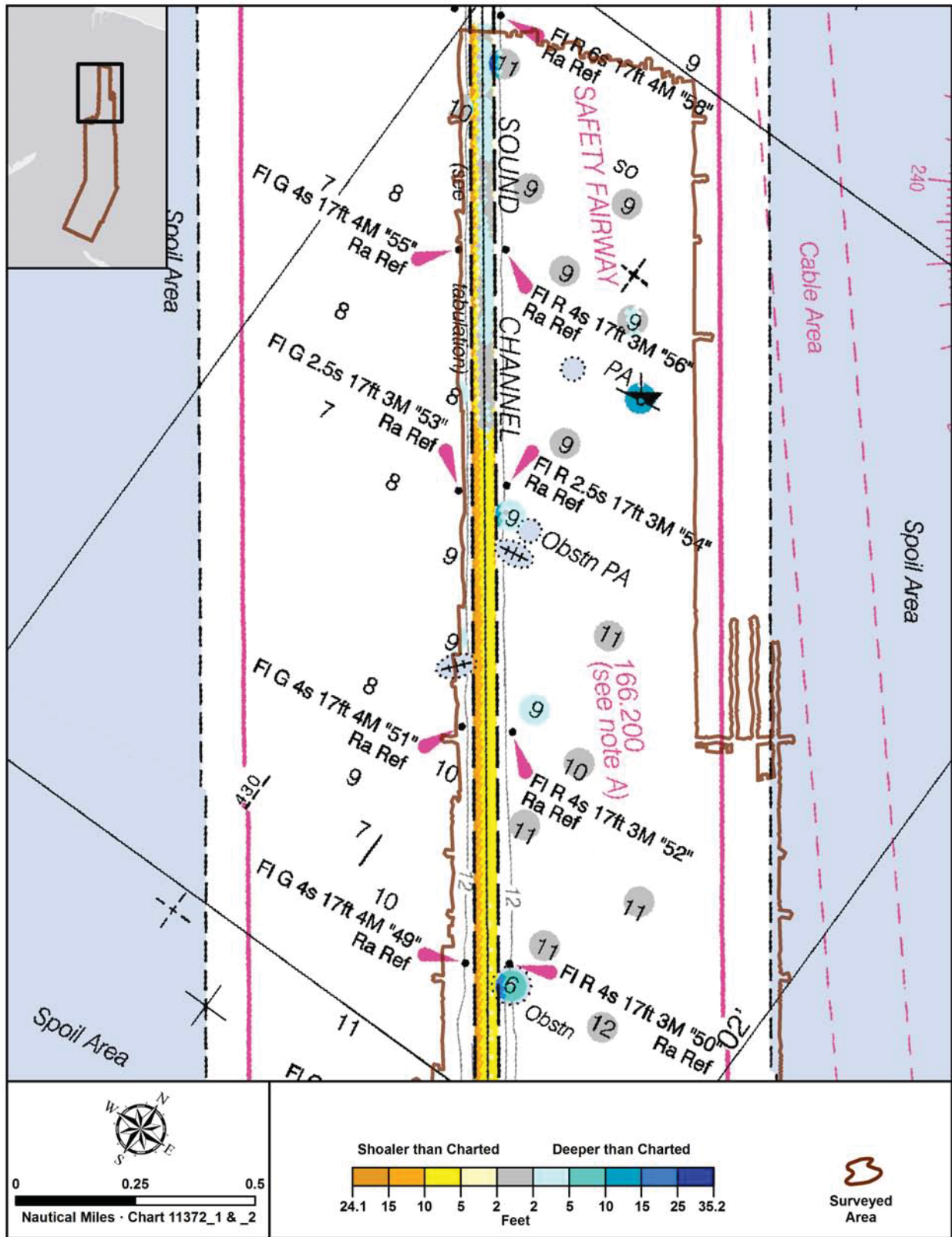


Figure 9: US5MS11M Charted Sounding Comparison (1 of 4)

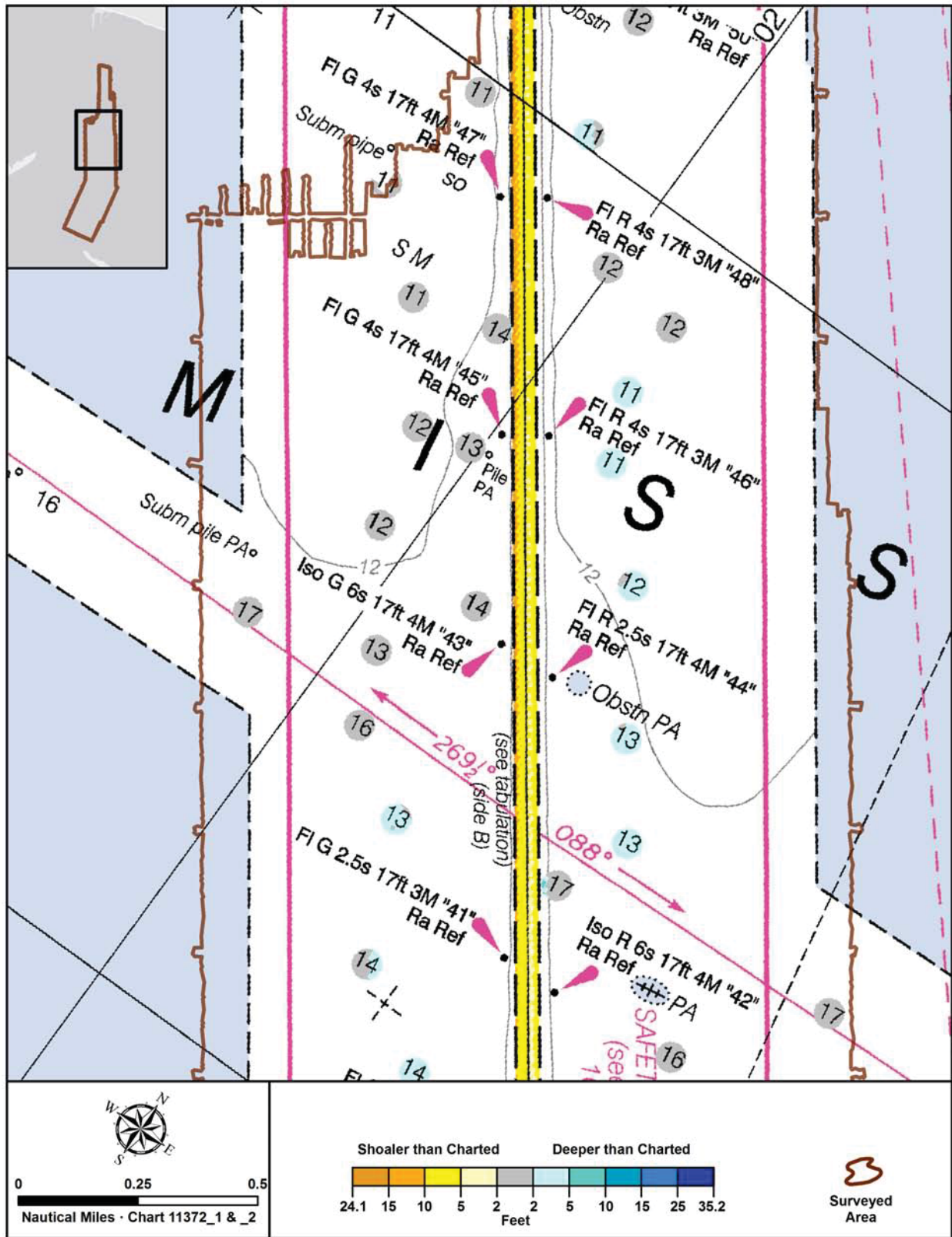


Figure 10: US5MS11M Charted Sounding Comparison (2 of 4)

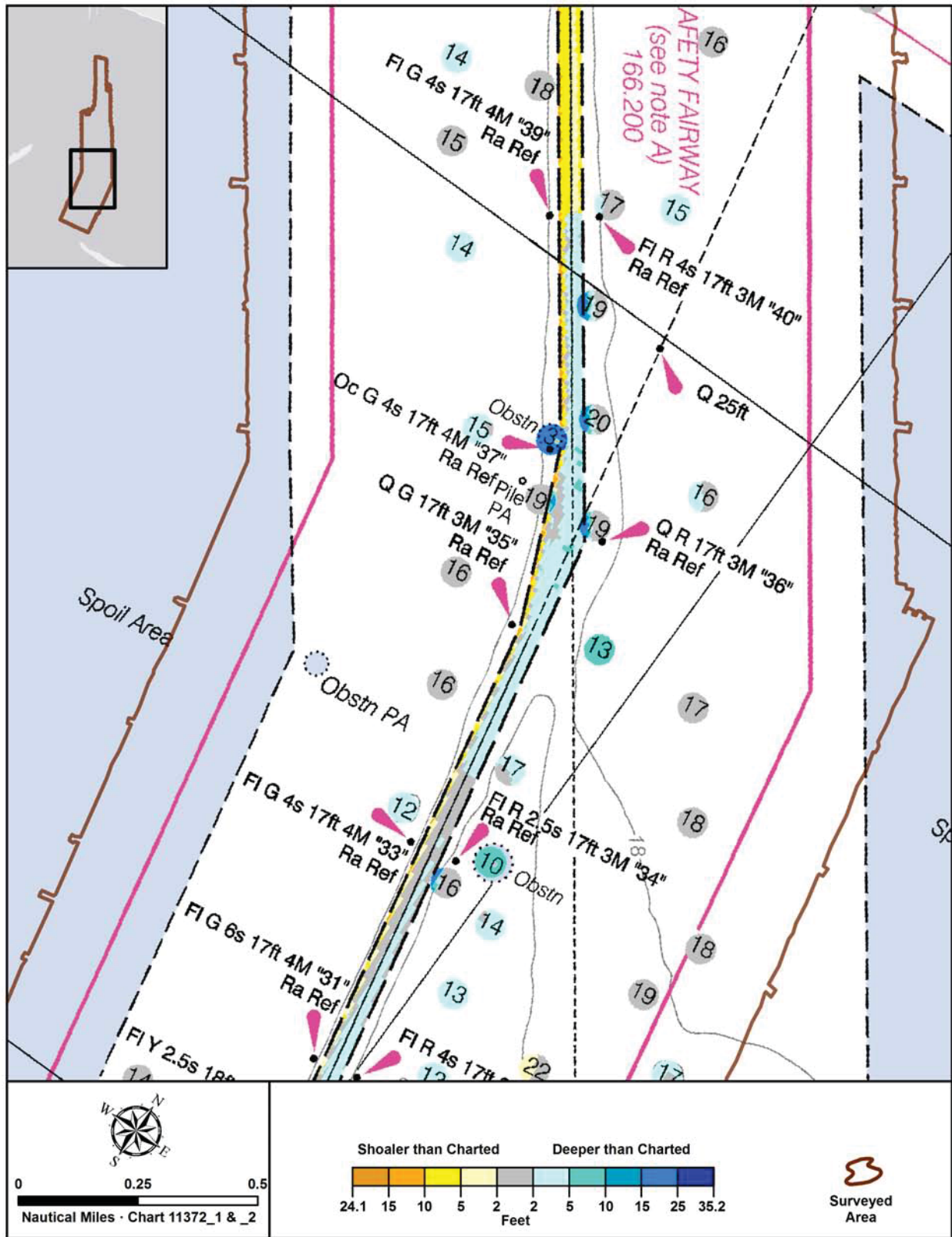


Figure 11: US5MS11M Charted Sounding Comparison (3 of 4)

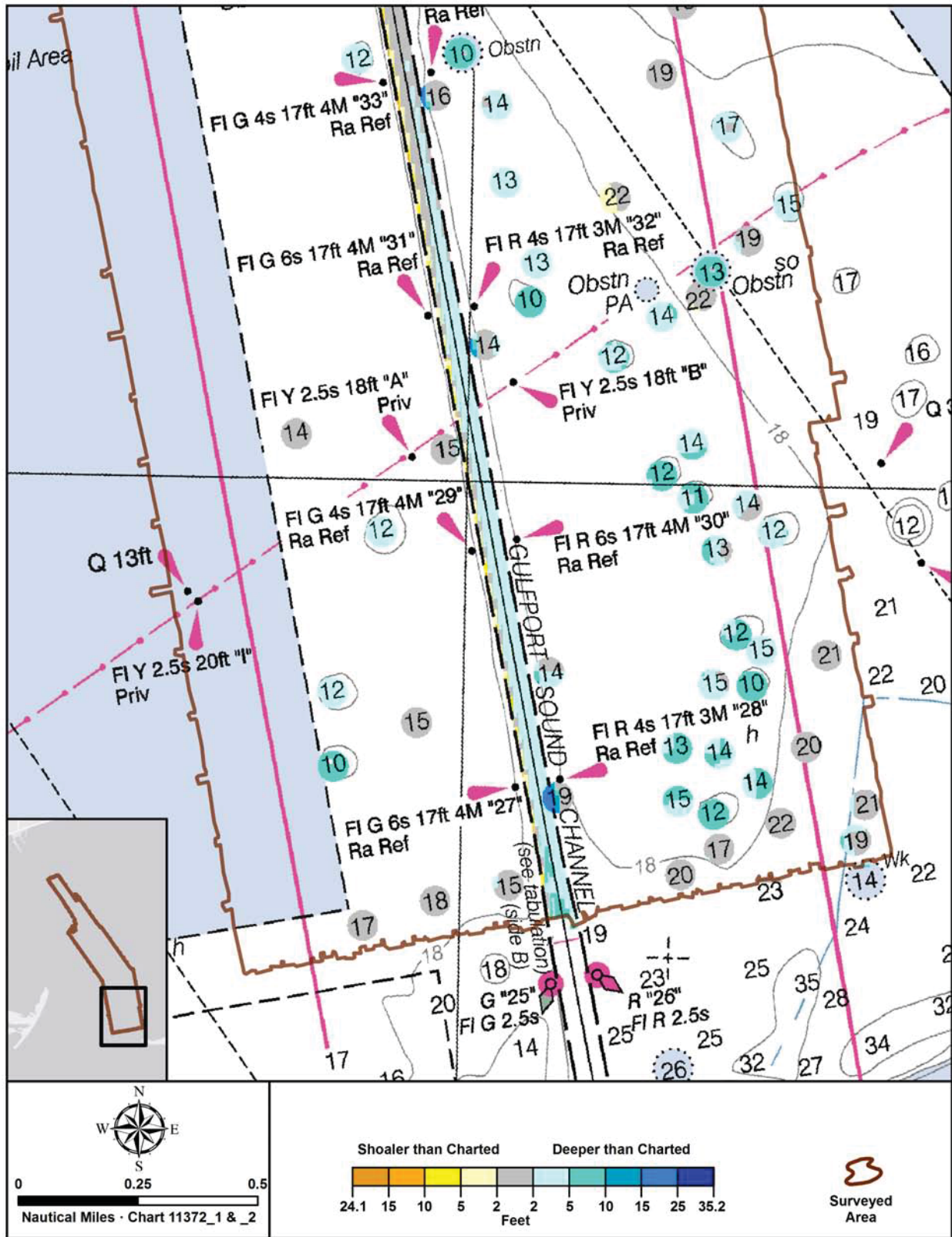


Figure 12: US5MS11M Charted Sounding Comparison (4 of 4)

US4MS10M

There are no soundings charted on US4MS10M within the survey area.

US4MS12M

With the exception of differences in the Gulfport Sound Channel comparison with US4MS12M shows similar results to the comparison with US5MS11M. The Gulfport Sound Channel DRVAL1 values for US4MS12M have not been updated to reflect the tabulated channel controlling depths from April 2015 which are published on the RNCs and used in the DRVAL1 values on US5MS11M.

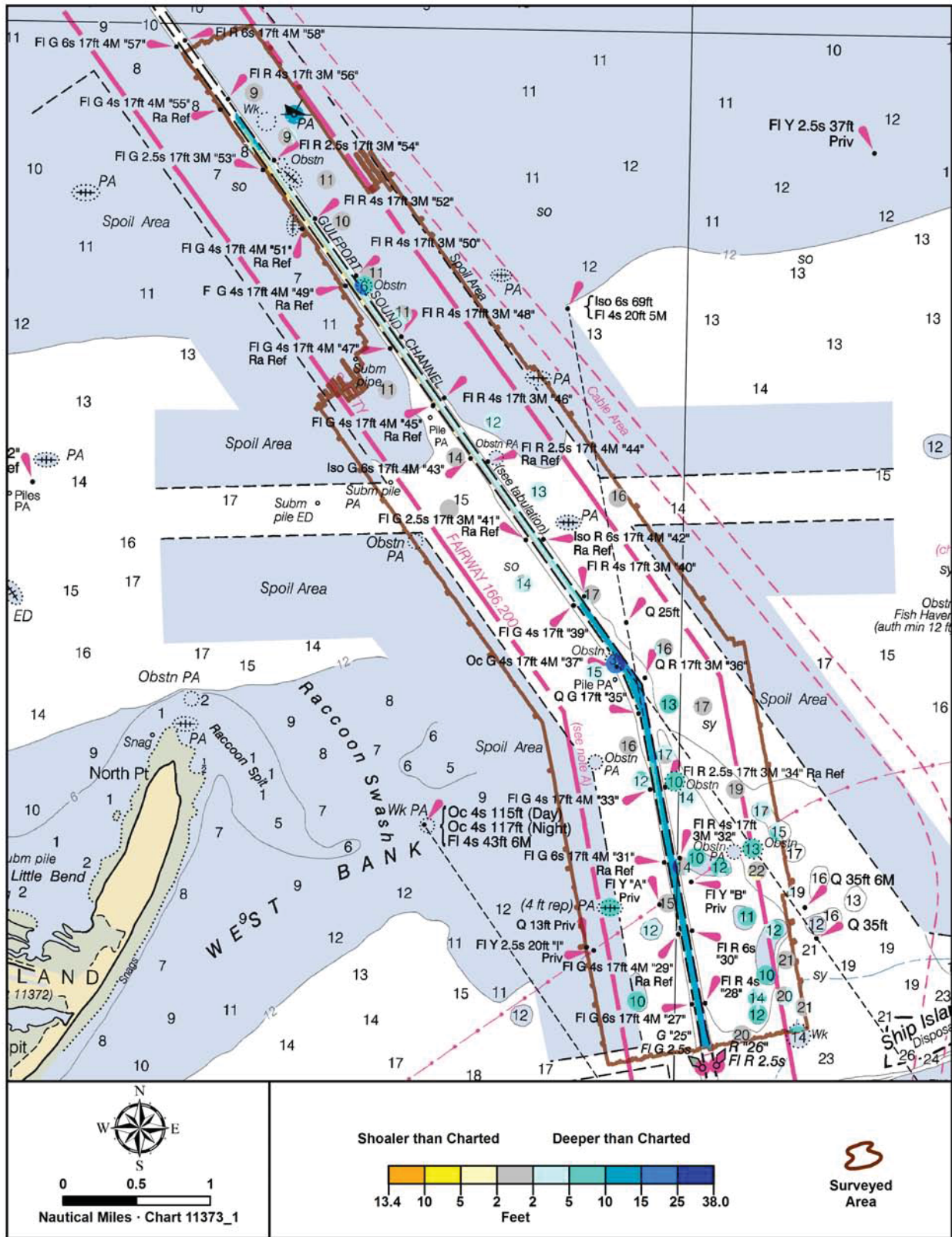


Figure 13: USAMS12M Charted Sounding Comparison

D.1.3 AWOIS Items

No AWOIS Items were assigned for this survey.

D.1.4 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.5 Charted Features

The Wreck showing hull or superstructure PA charted approximately 625 meters northeast of Gulfport Ship Channel Wreck Light 54 has been disproved by the survey. The feature has been included in the Final Feature File (FFF) with a description of 'Delete'.

The Obstruction PA charted approximately 200 meters southeast of Gulfport Ship Channel Light 54 has been disproved by the survey. This obstruction was included in the CSF with two features; one as depicted on the band 5 ENC and one as depicted on the band 4 ENC. Both features have been included in the FFF with description of 'Delete'.

The Wreck PA depth unknown charted approximately 1,200 meters east of Gulfport Ship Channel Light 46 has been disproved by the survey. The feature has been included in the FFF with a description of 'Delete'. This feature is not depicted on charts 11372 or US5MS11M.

The Pile PA charted approximately 150 meters southwest of Gulfport Ship Channel Light 45 has been disproved by the survey. This pile was included in the CSF with two features; one as depicted on the band 5 ENC and one as depicted on the band 4 ENC. Both features have been included in the FFF with description of 'Delete'.

The Obstruction PA charted approximately 100 meters east of Gulfport Ship Channel Light 44 has been disproved by the survey. The feature has been included in the FFF with a description of 'Delete'.

The Submerged Pile PA charted approximately 1,050 meters west of Gulfport Ship Channel Light 43 has been disproved by the survey. The feature has been included in the FFF with a description of 'Delete'.

The Obstruction PA charted approximately 1,400 meters west of Gulfport Ship Channel Light 41 has been disproved by the survey. The feature has been included in the FFF with a description of 'Delete'. This feature is not depicted on charts 11372 or US5MS11M.

The Wreck PA depth unknown charted approximately 375 meters northeast of Gulfport Ship Channel Light 42 has been disproved by the survey. The survey found an uncharted wreck approximately 45 meters to northwest of the disproved wreck. The Wreck PA depth unknown has been included in the FFF with a description of 'Delete'. A wreck depicting the surveyed wreck is included in the FFF with a description of 'New'.

The Pile PA charted approximately 175 meters south of Gulfport Ship Channel Light 37 has been disproved by the survey. The feature has been included in the FFF with a description of 'Delete'.

The Obstruction PA charted approximately 775 meters northwest of Gulfport Ship Channel Light 33 has been disproved by the survey. The feature has been included in the FFF with a description of 'Delete'.

The Obstruction PA charted approximately 700 meters east of Gulfport Ship Channel Light 32 has been disproved by the survey. The feature has been included in the FFF with a description of 'Delete'.

The Wreck PA (4 ft rep) charted approximately 625 meters west of Chevron Pipeline Light A has been disproved by the survey. The feature has been included in the FFF with a description of 'Delete'. This feature is not depicted on charts 11372 or US5MS11M.

D.1.6 Uncharted Features

All uncharted features are portrayed in the FFF as surveyed and attributed with the description of 'New'.

D.1.7 Dangers to Navigation

Four Dangers to Navigation (Dtons) reporting uncharted obstructions located outside of the Gulfport Sound Channel were submitted for this survey. These Dtons, which are submerged piles, were found in close proximity to fixed aids and appear to be remnants of the support piles of destroyed aids. All Dtons were added to the charts using preliminary survey data, including the use of predicted tides. The original application of Dton 2 on chart 11373 (1:80,000) depicted the obstruction symbol extending across the Gulfport Sound Channel giving false indication that the obstruction was inside rather than outside of the channel. Since notifying AHB about this issue, the chart has been updated to use a smaller obstruction symbol which does not completely cover the channel. The hydrographer originally recommended replacing the obstruction symbol with a submerged pile symbol.

D.1.8 Shoal and Hazardous Features

A shoal depicted by the 12-foot contour is charted to the sides of the Gulfport Sound Channel from Gulfport Ship Channel Light 44 to the northern edge of the survey area. The shoal has retreated landward. Surveyed depths in the vicinity of the charted 12-foot contour are 1 to 3 feet deeper than charted.

D.1.9 Channels

The Gulfport Sound Channel and Safety Fairway 166.200 pass through the survey area. The charted project depth of the Gulfport Sound Channel is 36 feet. The charted tabulated controlling depths for the channel were updated after a post-dredge survey of the channel was completed in April 2015. Discussion of dredging activities within the channel which occurred during H12710 survey operations is included in Section D.2.9 of this report. As mentioned in Section D.2.9, the April 2015 United States Army Corps of Engineers (USACE)

post-dredge survey should supersede the H12710 within the Gulfport Sound Channel. Figure 14 reports current and previously charted controlling depths as well as tabulated survey least depths for the channel. Figure 15 highlights areas where surveyed depths which are shoaler than the 36-foot charted project depth.

| Survey | Left Outside Quarter | Middle Half of Channel | Right Outside Quarter |
|---|----------------------|------------------------|-----------------------|
| H12710 Least Depths | 24.0 | 28.2 | 25.0 |
| Charted Controlling Depths (USACE 8-14) | 25.5 | 27.2 | 24.7 |
| Charted Controlling Depths (USACE 4-15) | 35.4 | 35.9 | 35.9 |

Figure 14: Gulfport Sound Channel Tabulated Controlling Depths

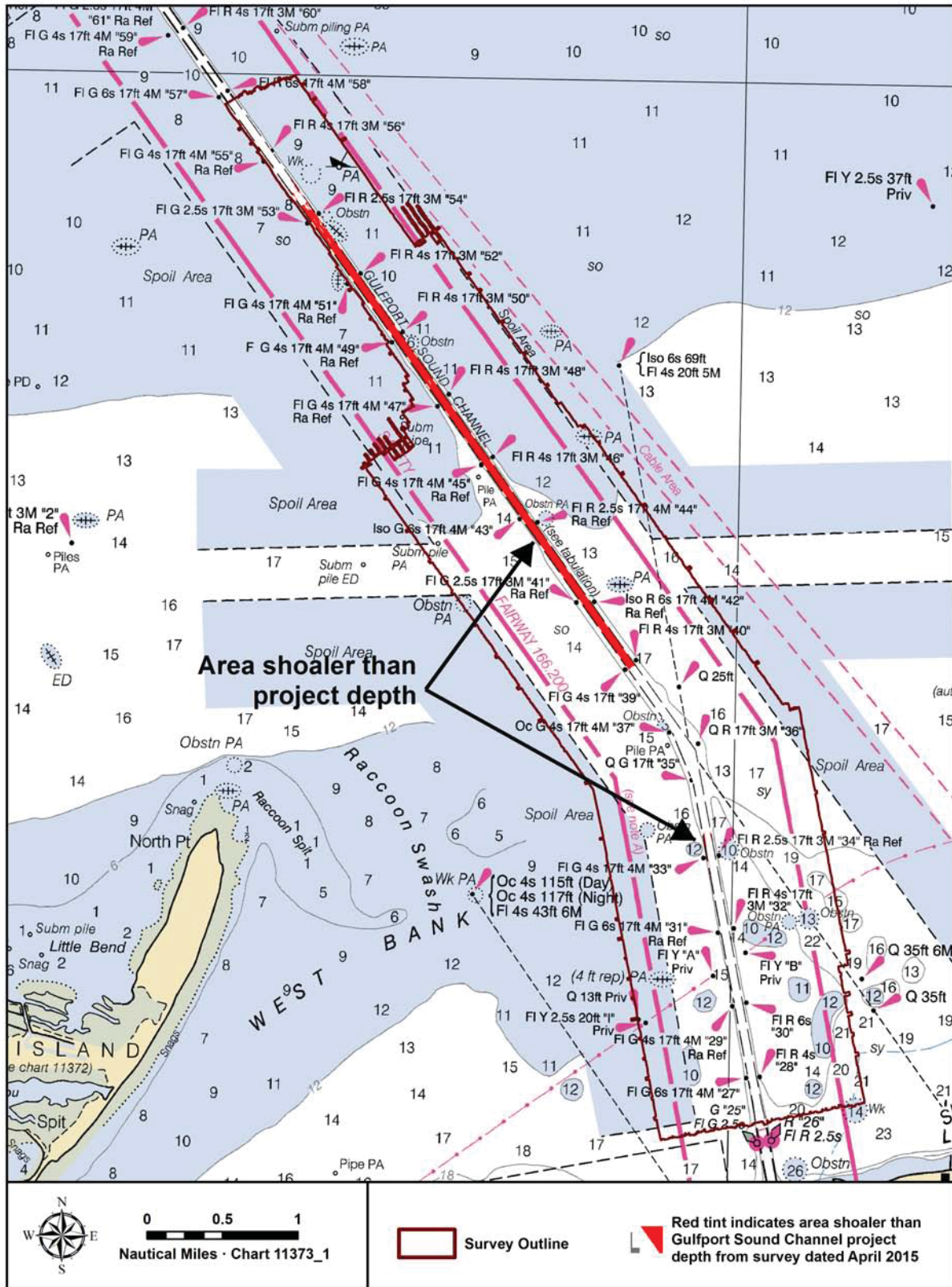


Figure 15: H12710 Depths Shoaler than Gulfport Sound Channel Project Depth

D.1.10 Bottom Samples

Four bottom samples were acquired on March 3, 2015 (DN062). The sampling plan followed suggested sample locations included in the PRF provided by the Hydrographic Surveys Division.

D.2 Additional Results

D.2.1 Shoreline

A shoreline investigation was not performed for this survey. The OPR-J311-KR-14 Project Instructions required a limited shoreline verification but the H12710 survey area does not junction with shoreline.

D.2.2 Prior Surveys

Other than the previously mentioned junction analysis no other comparisons with prior surveys were conducted.

D.2.3 Aids to Navigation

Numerous aids to navigation (AtoNs) are charted within the survey area, the majority of which mark the Gulfport Sound Channel. Submerged piles were located by the survey in close proximity to many of the fixed aids. It appears that these objects are remnants of the support piles of destroyed aids which have been replaced by the USCG. As discussed in the DtoN section, several of these piles were reported as DtoNs and are now charted using preliminary survey information.

As survey operations were wrapping up the USCG District 8 LNM reported Gulfport Ship Channel Light 45, Gulfport Ship Channel Light 47, Gulfport Ship Channel Light 49, and Gulfport Ship Channel Wreck Light WR54A, as destroyed. With the exception of Gulfport Ship Channel Wreck Light WR54A all lights were replaced shortly after they were reported as destroyed. The survey vessel returned to the survey area to determine if any remnants from the lights posed a hazard to navigation, but found no evidence of the light structures in the side scan sonar data. Gulfport Ship Channel Wreck Light WR54A has since been posted as discontinued in the LNM and removed from the charts.

Mississippi Sound Pipeline Light Cp-5 has been disproved by the survey. The beacon and light features have been included in the FFF with a description of 'Delete'.

All other aids were found to serve their intended purpose.

D.2.4 Overhead Features

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

D.2.5 Submarine Features

No submarine cables or tunnels were charted or located within the H12710 survey area. A charted pipeline runs through the southern end of the survey area. Evidence of the trench in which the pipeline was installed was visible in the multibeam and side scan sonar data. Within the survey area this pipeline is marked by Chevron Pipeline Light A and Chevron Pipeline Light B.

D.2.6 Ferry Routes and Terminals

There were no ferry routes or terminals within the survey area.

D.2.7 Platforms

No platforms were charted or located within the H12710 survey area.

D.2.8 Significant Features

There was no additional information of scientific or practical value observed during the survey. There were no unusual submarine features or anomalous tidal or environmental conditions observed during the survey that impacted the quality of the survey or worthy of charting.

D.2.9 Construction and Dredging

The USACE was actively dredging the Gulfport Sound Channel during survey operations. Evidence of dredging is visible in the survey data and bathymetric surfaces. Dredging activity impacted the quality of both MBES and side scan sonar data. Many areas required fill due to poor data quality or low node density caused by highly turbid waters surrounding active dredging. There are several locations where dredging occurred between the acquisition of overlapping data causing a significant discrepancy in the sounding data (Figure 16). Correspondence related to dredging is included in Appendix II of this report. The tabulated controlling depths for Gulfport Channel included on the latest version of the charts list April 2015 as the date of survey. This post dredge survey should supersede the H12710 survey within the Gulfport Sound Channel.

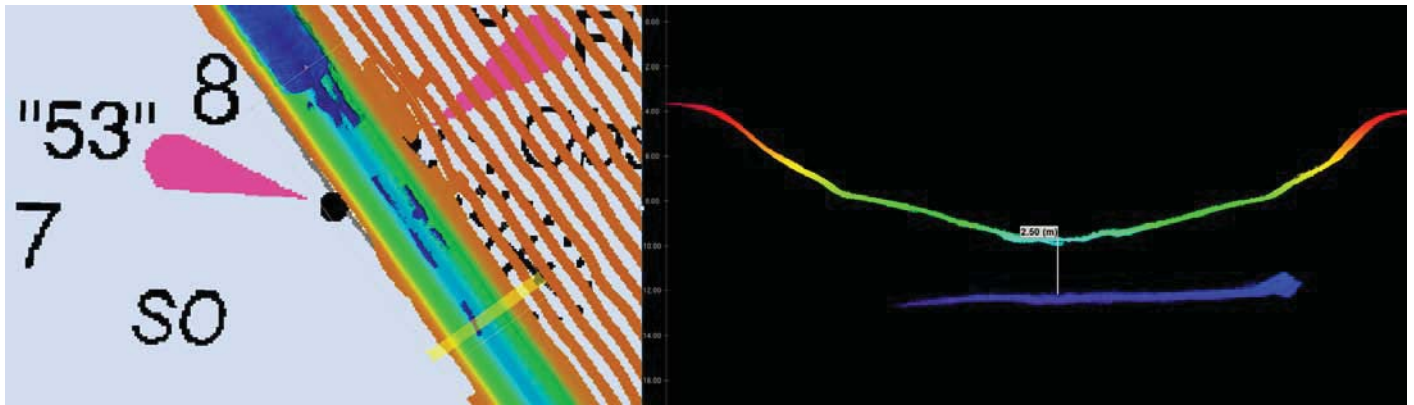


Figure 16: Example of Artifact in Survey Data from Dredging Activity

D.2.10 New Survey Recommendation

No new surveys or further investigations are recommended for this area.

D.2.11 Inset Recommendation

No new insets are recommended for this area.



E. Approval Sheet

As Chief of Party, field operations for this hydrographic survey were conducted under my direct supervision, with frequent personal checks of progress and adequacy. I have reviewed the attached survey data and reports.

All field sheets, this Descriptive Report, and all accompanying records and data are approved. All records are forwarded for final review and processing to the Processing Branch.

The survey data meets or exceeds requirements as set forth in the NOS Hydrographic Surveys and Specifications Deliverables Manual, Statement of Work, and Hydrographic Survey Project Instructions. These data are adequate to supersede charted data in their common areas. This survey is complete and no additional work is required.

| Report Name | Report Date Sent |
|--|------------------|
| Data Acquisition and Processing Report | 2015-04-24 |

| Approver Name | Approver Title | Approval Date | Signature |
|------------------------------------|--|---------------|--|
| Jonathan L. Dasler, PE, PLS, CH | NSPS/THSOA Certified Hydrographer, Chief of Party | 06/30/2015 |  <small>Digitally signed by Jon Dasler DN: cn=Jon Dasler, o=David Evans and Associates, Inc., ou=Marine Services Division, email=jld@deainc.com, c=US Date: 2015.06.30 15:05:41 -07'00'</small> |
| Jason Creech, CH | NSPS/THSOA Certified Hydrographer, Lead Hydrographer | 06/30/2015 |  <small>Digitally signed by Jason Creech DN: cn=Jason Creech, o=David Evans and Associates, Inc., ou=Marine Services Division, email=jasc@deainc.com, c=US Date: 2015.06.30 15:06:13 -07'00'</small> |

F. Table of Acronyms

| Acronym | Definition |
|----------------|---|
| AHB | Atlantic Hydrographic Branch |
| AST | Assistant Survey Technician |
| ATON | Aid to Navigation |
| AWOIS | Automated Wreck and Obstruction Information System |
| BAG | Bathymetric Attributed Grid |
| BASE | Bathymetry Associated with Statistical Error |
| CO | Commanding Officer |
| CO-OPS | Center for Operational Products and Services |
| CORS | Continually Operating Reference Station |
| CTD | Conductivity Temperature Depth |
| CEF | Chart Evaluation File |
| CSF | Composite Source File |
| CST | Chief Survey Technician |
| CUBE | Combined Uncertainty and Bathymetry Estimator |
| DAPR | Data Acquisition and Processing Report |
| DGPS | Differential Global Positioning System |
| DP | Detached Position |
| DR | Descriptive Report |
| DTON | Danger to Navigation |
| ENC | Electronic Navigational Chart |
| ERS | Ellipsoidal Referenced Survey |
| ERZT | Ellipsoidally Referenced Zoned Tides |
| FFF | Final Feature File |
| FOO | Field Operations Officer |
| FPM | Field Procedures Manual |
| GAMS | GPS Azimuth Measurement Subsystem |
| GC | Geographic Cell |
| GPS | Global Positioning System |
| HIPS | Hydrographic Information Processing System |
| HSD | Hydrographic Surveys Division |
| HSSD | Hydrographic Survey Specifications and Deliverables |

| Acronym | Definition |
|----------------|--|
| HSTP | Hydrographic Systems Technology Programs |
| HSX | Hypack Hysweep File Format |
| HTD | Hydrographic Surveys Technical Directive |
| HVCR | Horizontal and Vertical Control Report |
| HVF | HIPS Vessel File |
| IHO | International Hydrographic Organization |
| IMU | Inertial Motion Unit |
| ITRF | International Terrestrial Reference Frame |
| LNM | Local Notice to Mariners |
| LNM | Linear Nautical Miles |
| MCD | Marine Chart Division |
| MHW | Mean High Water |
| MLLW | Mean Lower Low Water |
| NAD 83 | North American Datum of 1983 |
| NAIP | National Agriculture and Imagery Program |
| NALL | Navigable Area Limit Line |
| NM | Notice to Mariners |
| NMEA | National Marine Electronics Association |
| NOAA | National Oceanic and Atmospheric Administration |
| NOS | National Ocean Service |
| NRT | Navigation Response Team |
| NSD | Navigation Services Division |
| OCS | Office of Coast Survey |
| OMAO | Office of Marine and Aviation Operations (NOAA) |
| OPS | Operations Branch |
| MBES | Multibeam Echosounder |
| NWLON | National Water Level Observation Network |
| PDBS | Phase Differencing Bathymetric Sonar |
| PHB | Pacific Hydrographic Branch |
| POS/MV | Position and Orientation System for Marine Vessels |
| PPK | Post Processed Kinematic |
| PPP | Precise Point Positioning |
| PPS | Pulse per second |

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

APPENDIX I
TIDES AND WATER LEVELS

H12710

TIMES OF HYDROGRAPHY

Project: OPR-J311-KR-14

Contractor Name: David Evans and Associates, Inc.

Date: April 15, 2015

Inclusive Dates: November 19, 2014 - April 15, 2015

Field work is complete

Time (UTC)

| Day Number | Date | Start Time | End Time |
|------------|------------|------------|----------|
| 323 | 11/19/2014 | 16:38:36 | 21:28:32 |
| 324 | 11/20/2014 | 12:47:14 | 23:24:40 |
| 336 | 12/02/2014 | 17:29:50 | 23:52:46 |
| 337 | 12/03/2014 | 0:19:26 | 23:54:46 |
| 338 | 12/04/2014 | 0:18:57 | 23:52:52 |
| 339 | 12/05/2014 | 0:14:12 | 23:43:06 |
| 340 | 12/06/2014 | 0:17:28 | 2:44:06 |
| 342 | 12/08/2014 | 23:06:53 | 23:17:53 |
| 11 | 01/11/2015 | 14:10:56 | 20:51:35 |
| 17 | 01/17/2015 | 23:19:46 | 23:54:09 |
| 18 | 01/18/2015 | 0:17:32 | 15:47:42 |
| 62 | 03/03/2015 | 19:07:53 | 21:52:10 |
| 63 | 03/04/2015 | 0:15:41 | 0:51:39 |
| 105 | 04/15/2015 | 0:15:26 | 3:09:18 |

H12710

FINAL TIDE NOTE

DATE: April 15, 2015

HYDROGRAPHIC BRANCH: Atlantic Hydrographic Branch

HYDROGRAPHIC PROJECT: OPR-J311-KR-14

HYDROGRAPHIC SURVEY: H12710

LOCALITY: Western Vicinity of Lake Borgne, LA

SUB-LOCALITY: Gulfport Sound Channel

TIME PERIOD ¹ : November 19, 2014 - April 15, 2015

TIDE STATIONS USED:

| <u>Station Name</u> | <u>Station ID</u> | <u>Type</u> | <u>Latitude</u> | <u>Longitude</u> |
|-----------------------------|-------------------|-------------|-----------------|------------------|
| Bay Waveland Yacht Club, MS | 8747437 | Control | 30° 19.6' N | 89° 19.5' W |

PLANE OF REFERENCE (MEAN LOWER LOW WATER) :

0.000m

HEIGHT OF MEAN HIGH WATER ABOVE PLANE OF REFERENCE:

0.497m

¹ Please refer to the comprehensive list in attached Times of Hydrography.

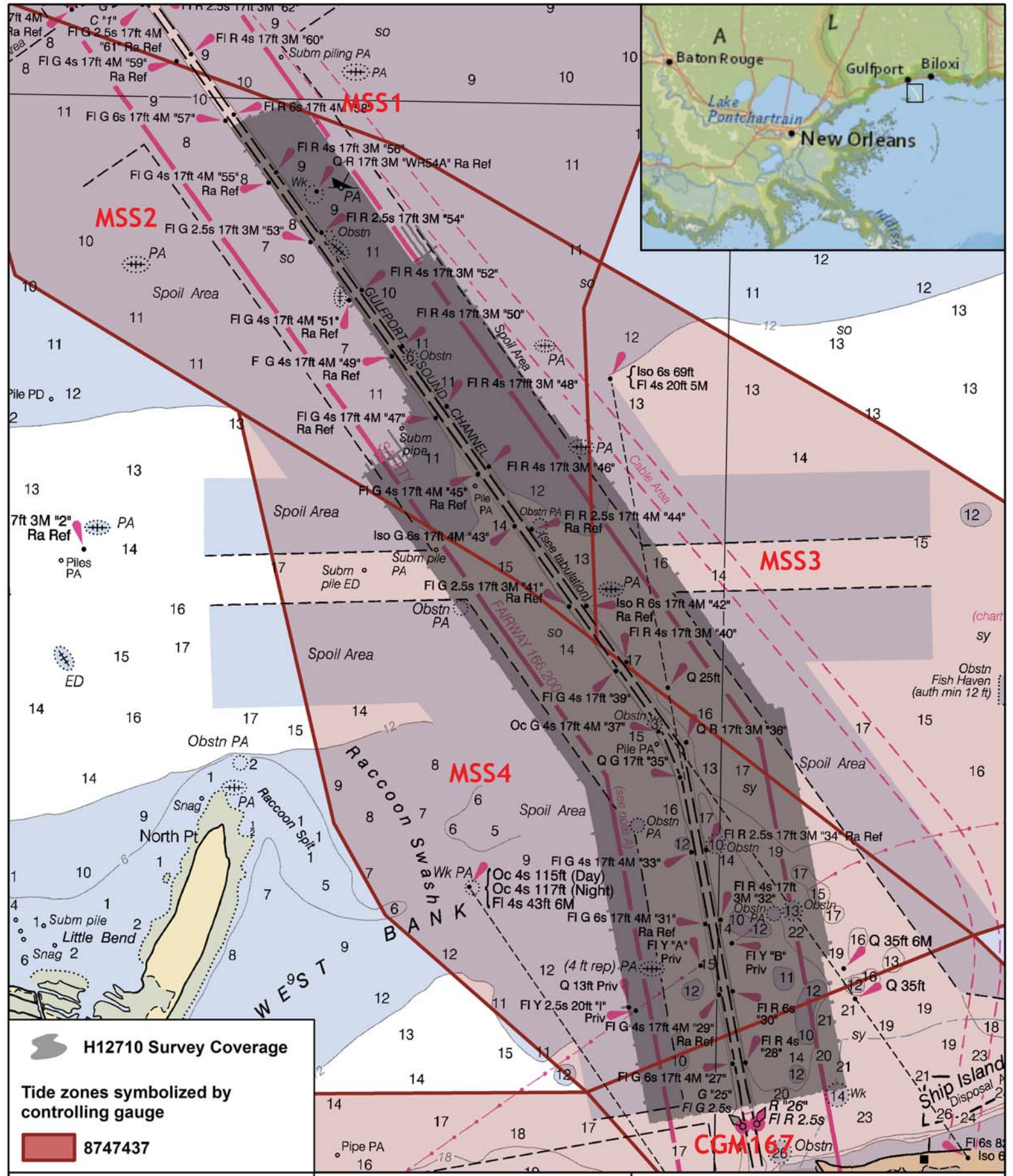
<http://tidesandcurrents.noaa.gov/benchmarks.html?id=8747437>

H12710

FINAL TIDE NOTE ZONING

| Zone | Time Corrector (Mins) | Range Ratio | Reference Station |
|-------------|----------------------------------|------------------------|------------------------------|
| CGM167 | -78 | 0.92 | 8747437 |
| MSS1 | -84 | 0.92 | 8747437 |
| MSS2 | -78 | 0.92 | 8747437 |
| MSS3 | -84 | 0.92 | 8747437 |
| MSS4 | -78 | 0.92 | 8747437 |

NOTE: Final soundings were reduced to chart datum using a revised version of the zoning scheme that was originally provided with the tides project instructions. The revision did not impact the zoning scheme covering the survey area.



H12710 Survey Coverage

Tide zones symbolized by controlling gauge

8747437

0 0.425 0.85
Nautical Miles

H12710
Final Tide Zoning Chartlet

OPR-J311-KR-14
Western Vicinity of Lake Borgne, LA
David Evans and Associates, Inc.
Chart 11373

APPENDIX II

SUPPLEMENTAL SURVEY RECORDS
AND CORRESPONDENCE

SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCE

Jason Creech

From: Christina Fandel - NOAA Federal <christina.fandel@noaa.gov>
Sent: Monday, September 22, 2014 1:22 PM
To: Jason Creech
Cc: Lori Powdrell - NOAA Federal; Jon Dasler
Subject: Re: Updated Tide Info
Attachments: GulfportHarborChannelStationing.jpg; GulfportHarborProjectMap.jpg

Hi Jason,

I have attached the maps I received from ACOE for their Gulfport Harbor dredging project. They currently have a pipeline dredge working in the Sound Channel and plan to work northward from Station 490+00. They are also planning on working from Station 635 +00 to Station 685 +00 and as you mentioned before do not plan to be finished until February. In November, they plan to have a hopper dredge working in the Bar Channel between Station 685+00 and Station 970+00, but this area lies outside of the project area.

Since the planned dredge area is only within a very narrow section of the planned survey area, we believe this survey may still be completed as planned.

Please let me know if you have any questions.

Christy

On Mon, Sep 22, 2014 at 8:21 AM, Christina Fandel - NOAA Federal <christina.fandel@noaa.gov> wrote:
Hi Jason,

Corey inquired with CO-OPS regarding the installation of the Chef Menteur tide gauge but has yet to hear anything. I will check in with him again today to see if there have been any developments over the weekend.

Christy

On Fri, Sep 19, 2014 at 4:22 PM, Jason Creech <Jasc@deainc.com> wrote:

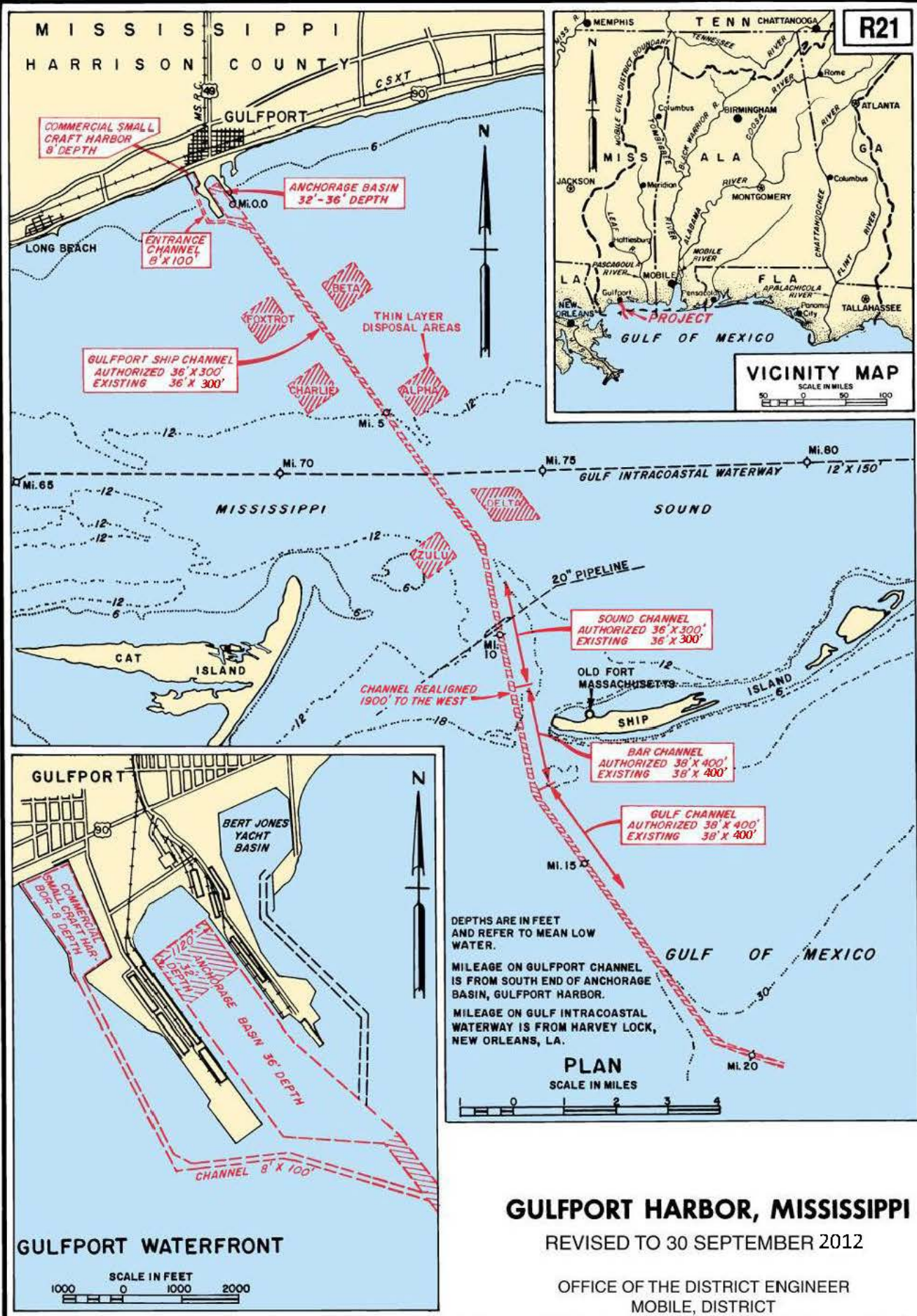
Hi Lori and Christy

We're starting the gauge installation for the project on Monday and are planning to start with the Rigolets to give us some more time to resolve the Chef Menteur gauge location issue. Do you know if there have been any updates since our call yesterday?

Thanks,

Jason

R21



From: Lori Powdrell - NOAA Federal [mailto:lori.powdrell@noaa.gov]
Sent: Wednesday, September 17, 2014 10:35 AM
To: Jason Creech
Cc: Jon Dasler; Christina Fandel - NOAA Federal
Subject: Re: Updated Tide Info

Jason,

Corey is discussing this with CO-OPs and we will get back to you asap.

Thanks

On Wed, Sep 17, 2014 at 8:34 AM, Jason Creech <Jasc@deainc.com> wrote:

Hi Lori

The CO-OPS site location for the Chef Mentuer gauge is not in the location that we have planned. We've been planning to install near the site of the historic Chef Mentuer site. Installing in the area encompassed by the ellipse will be a very difficult install which would likely require us to revisit the gauge plan for Chef Mentuer. In fact it may not be possible to install here at all. I'm still looking at the area but it's all within a bayou with no suitable locations for bench marks or fixed structures to fix a gauge to.

I've included a graphic showing our proposed site (which is on a University of New Orleans facility) and the site identified in the Tide Instructions. We have already performed reconnaissance at the UNO facility and located potential sites for deep rod benchmarks. We were unable to recover any of the historic tidal marks in the area.

Would HSD and CO-OPS we willing to modify the site location?

Thanks,

Jason



From: Lori Powdrell - NOAA Federal [mailto:lori.powdrell@noaa.gov]
Sent: Wednesday, September 17, 2014 4:05 AM
To: Jason Creech; Jon Dasler
Cc: Christina Fandel - NOAA Federal
Subject: Updated Tide Info

Jason,

Please see the updated Tide Statement of Work for OPR-J311-KR-14 Western Vicinity of Lake Borgne (Revised2).

Let me know if you have any quesitons.

Thanks,

Lori

--

Christy Fandel
Physical Scientist
Hydrographic Survey Division
Office of Coast Survey, NOAA
Christina.Fandel@noaa.gov
[\(301\) 713-2702 x178](tel:(301)713-2702x178)

--

Christy Fandel
Physical Scientist
Hydrographic Survey Division
Office of Coast Survey, NOAA
Christina.Fandel@noaa.gov
[\(301\) 713-2702 x178](tel:(301)713-2702x178)

Jason Creech

From: Christina Fandel - NOAA Federal <christina.fandel@noaa.gov>
Sent: Thursday, November 20, 2014 12:52 PM
To: Jason Creech
Subject: Dredging Update
Attachments: OPR-J311-KR-14_DredgingUpdate.zip

Hi Jason,

I spoke with Donald Greene who is managing the dredging project in the Gulfport Sound Channel. Within the survey area, they have completed about 25% of the planned dredging. I have attached an image outlining the area that has been completed relative to the sheet extents as well as the correspondence I have had with Don. Please let me know if you have any questions, thank you,

Christy

--

Christy Fandel
Physical Scientist
Hydrographic Survey Division
Office of Coast Survey, NOAA
Christina.Fandel@noaa.gov
(301) 713-2702 x178

Gulfport Sound Channel Dredging Correspondence

November 14, 2014

Christy,

Here is our latest update on the maintenance dredging at Gulfport Harbor:

Rough weather continues to hinder the dredge production.

We have completed work in the Sound Channel from Sta. 110+00 to Sta. 165+00. The dredge is currently around Sta. 170+00, down for weather. Our second pipeline dredge has departed the project.

At the Bar Channel, our pipeline dredge has completed Stas. 635+00 to 680+00, and only has 500 feet remaining which will be performed in a few weeks when good weather is present.

The hopper dredge still is expected to begin work on the Bar Channel (from Sta. 685+00 to Sta. 970+00) around the December/January time frame.

When do you expect to begin your surveying?

Please let me know if you have any questions.

Thanks

Don

October 31, 2014

Christy,

Here is an update on our progress for maintenance dredging at Gulfport Harbor.

Rough weather over the past few weeks has hindered our production. For the required work from inside the Anchorage Basin southward in the Sound Channel to Sta. 490+00, we have completed sections of the Sound Channel from Sta. 119+00 to Sta. 125+00 and Sta. 415+00 to Sta. 490+00.

One of the pipeline dredges just began work on the Bar Channel, the section from Sta. 635+00 to Sta. 685+00, and there productivity will be dependent upon favorable sea conditions.

A second pipeline arrived on the project last week and began dredging this weekend in the Sound Channel at Sta. 125+00 moving southward. This dredge is expected to be on the project for approximately 3 weeks.

The hopper dredge will probably begin work on the Bar Channel around the December/January time frame.

Please let me know if you have any questions.

Thanks



Don

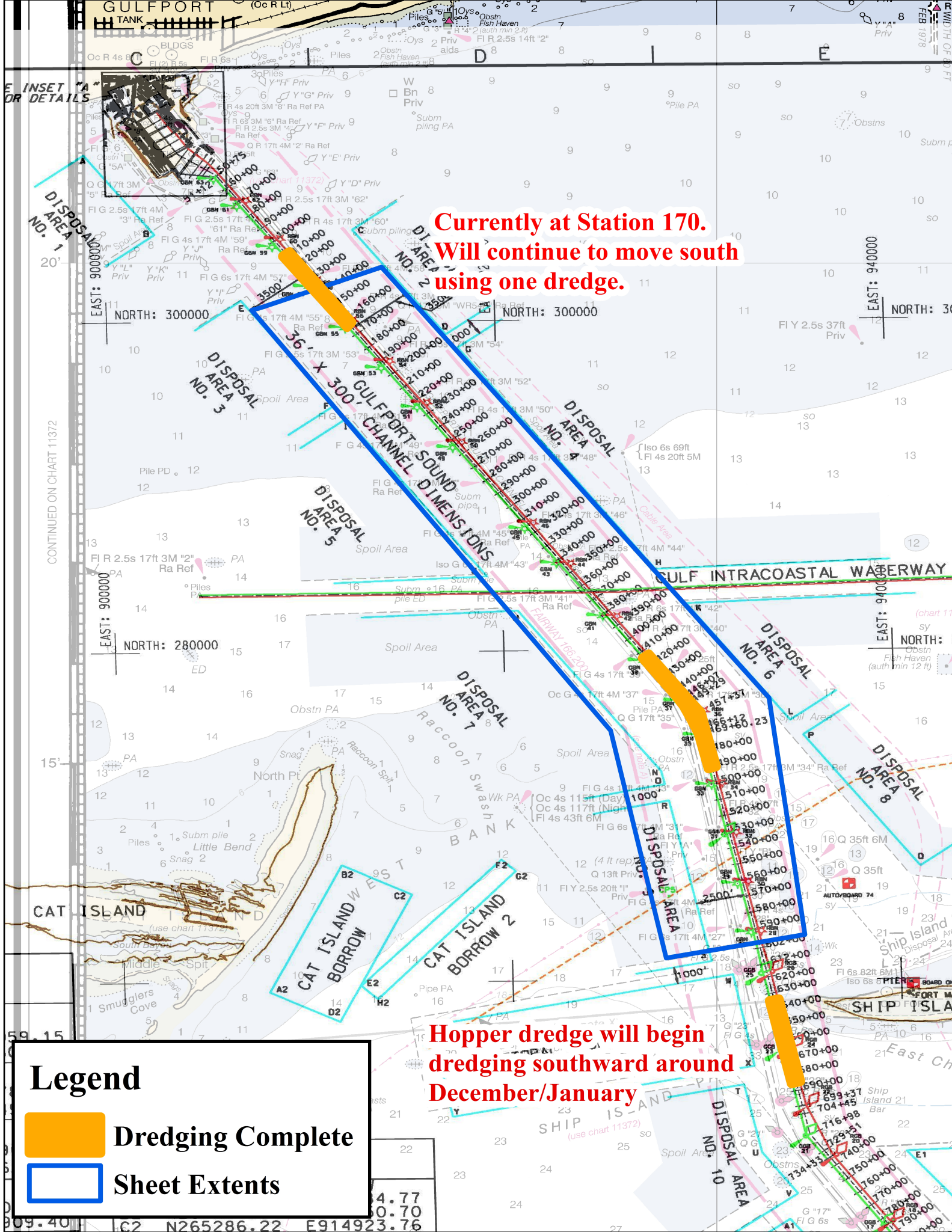
E INSET "A" FOR DETAILS

**Currently at Station 170.
Will continue to move south
using one dredge.**

**Hopper dredge will begin
dredging southward around
December/January**

Legend

-  Dredging Complete
-  Sheet Extents



APPROVAL PAGE

H12710

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

The following products will be sent to NCEI for archive

- H12710_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12710_GeoImage.pdf

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

Approved: _____

Lieutenant Commander Briana Welton, NOAA
Chief, Atlantic Hydrographic Branch