H13189

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

DESCRIPTIVE REPORT

Type of Survey:	Navigable Area
Registry Number:	H13189

LOCALITY

State(s):	Louisiana
General Locality:	Mississippi River
Sub-locality:	Mississippi River, Vicinity of Mile 205 to 180

2018

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

LIBRARY & ARCHIVES

Date:

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:
HYDROGRAPHIC TITLE SHEET	**H13189**

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):	**Louisiana**
General Locality:	**Mississippi River**
Sub-Locality:	**Mississippi River, Vicinity of Mile 205 to 180**
Scale:	**5000**
Dates of Survey:	**08/14/2018 to 09/10/2019**
Instructions Dated:	**08/08/2019**
Project Number:	**OPR-J347-KR-18**
Field Unit:	**David Evans and Associates, Inc.**
Chief of Party:	**Jonathan L. Dasler, PE, PLS, CH**
Soundings by:	**Multibeam Echo Sounder**
Imagery by:	**Multibeam Echo Sounder Backscatter**
Verification by:	**Atlantic Hydrographic Branch**
Soundings Acquired in:	**meters at LW Reference Plane 2007**

Remarks:

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

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Descriptive Report to Accompany Survey H13189

Project: OPR-J347-KR-18

Locality: Mississippi River

Sublocality: Mississippi River, Vicinity of Mile 205 to 180

Scale: 1:5000

August 2018 - September 2019

David Evans and Associates, Inc.

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

A. Area Surveyed

David Evans and Associates, Inc. (DEA) conducted a hydrographic survey of the assigned area in the Mississippi River. Survey H13189 was conducted in accordance with the November 19, 2018 Statement of Work and Hydrographic Survey Project Instructions dated August 8, 2019.

The Hydrographic Survey Project Instructions reference the National Ocean Service (NOS) Hydrographic Surveys Specifications and Deliverables Manual (HSSD) (March, 2018) as the technical requirements for this project.

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
30° 17' 0.58" N 91° 10' 30.26" W	30° 7' 56.34" N 90° 59' 44.77" W

Table 1: Survey Limits

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

For this document, cardinal directions are generalized to river flow due to the winding nature of the Mississippi River. North is used for upriver and south is used for downriver. When facing downriver, the left bank is referenced as east, and the right bank is referenced as west.

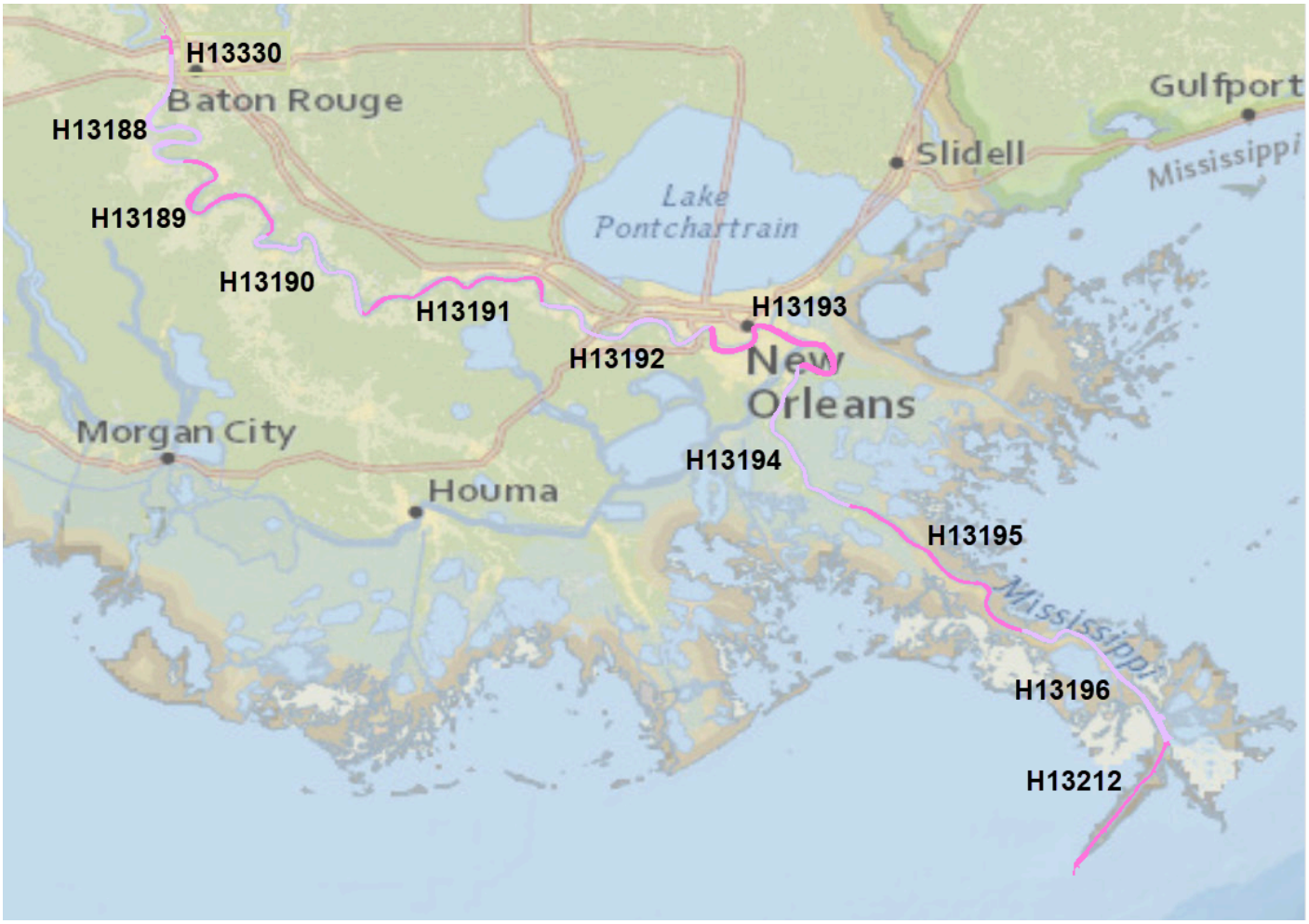


Figure 1: OPR-J347-KR-18 Survey Areas

A.2 Survey Purpose

The Ports of Southern Mississippi River represent the largest port complex in the world and one of the most heavily trafficked waterways in the United States. Annually, over 500 million tons of cargo is moved on the Lower Mississippi. This project area includes the Port of South Louisiana, the Port of New Orleans, the Port of Greater Baton Rouge, and Plaquemines Port, all ranking in the top 12 ports for annual tonnage in the United States. The Port of South Louisiana, river mile 114.9 to 168.5, is the largest tonnage port in the western hemisphere, handling approximately 262 million tons. The Port of New Orleans, river mile 81.2 to 114.9, handles approximately 90 million tons annually. The Port of Greater Baton Rouge, river mile 168.5 to 253, and Plaquemines Port, river mile 0 to 81.2, handle approximately 73 and 57 million tons annually, respectively.*

Critical Charting updates are needed for the Mississippi River, especially for areas outside of the U.S. Army Corps of Engineers (USACE) federally maintained channel areas. These areas outside of the federally maintained channel account for the majority of the navigable river and include ports and terminals essential for commerce and trade. The new bathymetric data in this project area, encompassing 89 SNM, will support

high resolution charting products for maritime commerce and update National Ocean Service (NOS) nautical charting products.

* U.S. Army Corps of Engineers, Navigation Data Center, Waterborne Commerce Statistics Center, Principal Ports of the United States, www.navigationdatacenter.us/data/datappor.htm

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

The river bottom is continuously changing due to currents, vessel propeller wash, dredging activity, construction and/or other factors present in the river environment. Changes in the river bed were observed during acquisition, primarily due to sediment migration. Section B.2.6 of this report further discusses these issues and impacts to the final deliverable data. In all cases the hydrographer has verified that soundings accurately depicted the river bed at the time of acquisition.

A.4 Survey Coverage

The following table lists the coverage requirements for this survey as assigned in the project instructions:

Water Depth	Coverage Required
All waters in survey area	Object Detection Coverage (HSSD Section 5.2.2.2)

Table 2: Survey Coverage

Project Instructions called for high resolution charting at 1:5,000 survey scale to support NOAA's Precision Navigation initiative for the Mississippi River including: Object Detection Coverage for all waters in the survey area to the 2-meter depth contour; Ellipsoid Reference Survey (ERS) using a custom separation model for the Mississippi River; verification of ATONs; assignment of shoreline and nearshore features (including bridges, overhead wires, revetments, assigned existing terminals, and all uncharted features) to be obtained by a vessel based mobile laser scanning technology and imaging system, or Mobile Mapping System (MMS); and delivery of LAS data referenced using ERS methods. Operational challenges included, but were not limited to: conducting surveys in a heavily congested industrial waterway; high river current velocities and transiting debris from high water levels; over 465 miles of shoreline surveys in restricted waters with small launch operations in close proximity to terminals, large barge fleets, wrecks, ruins, submerged piling, and numerous snags; minimal river access for provisioning and refueling; dynamic sediment migration exceeding 0.25 meters per hour in some areas; resolution of chart datum and revisions to the separation model; coordinating mapping efforts with ships at berth; dense fog; on-going dredging operations; and various navigational trials associated with a heavily trafficked industrial waterway. To mitigate these challenges and with the volume of shoreline operations required, survey operations were conducted during daylight hours only, AIS and internet vessel tracking systems were utilized, and continuous communications were made to terminal operators and vessel captains by radio and phone.

Object detection coverage was obtained over the survey area in depths greater than 2 meters relative to chart datum using 100% multibeam echosounder (MBES) and backscatter unless otherwise discussed in individual sections of this report. This coverage type follows Option A of the Object Detection Coverage requirement specified in Section 5.2.2 of the 2018 HSSD. Historic flooding of the Mississippi River during OPR-J347-KR-18 survey impacted safe operations in high currents and restricted operations. Many features were in locations that restricted a 90-degree pass due to strong currents and proximity to shoreline, fixed structures or barge fleeting. Further, flooding and strong river currents resulted in significant sediment migration during and between survey operations, evident on this survey sheet.

Unavoidable coverage gaps are evident in some areas and are primarily due to large barge fleeting areas. Other factors that blocked or impeded safe vessel operations resulting in data gaps included: berthed vessels that remained during survey operations; low wires behind structures; mooring lines; in-water facilities, ruins, and overgrown vegetation along shoreline. Significant efforts were expended to maximize coverage to the extent possible in these areas. Section B.2.10 of this report discusses issues restricting this survey coverage in greater detail. Figure 2 depicts the survey outline that was obtained for H13189.

The Project Instructions required the use of the MMS for scanning of bridges, overhead cables, and terminal facilities located in the survey area. These areas, which are depicted in Figure 3, were identified in the Project Reference File (PRF) as Anchorage area feature types (ACHARE). Overhead clearances of the assigned bridges and cables, discussed in D.2.3 Overhead Features, were computed from LAS data. MMS acquisition was expanded outside of these assigned areas to encompass the entire survey area in order to facilitate the survey, management, and reporting of all shoreline and nearshore features located within the project area.

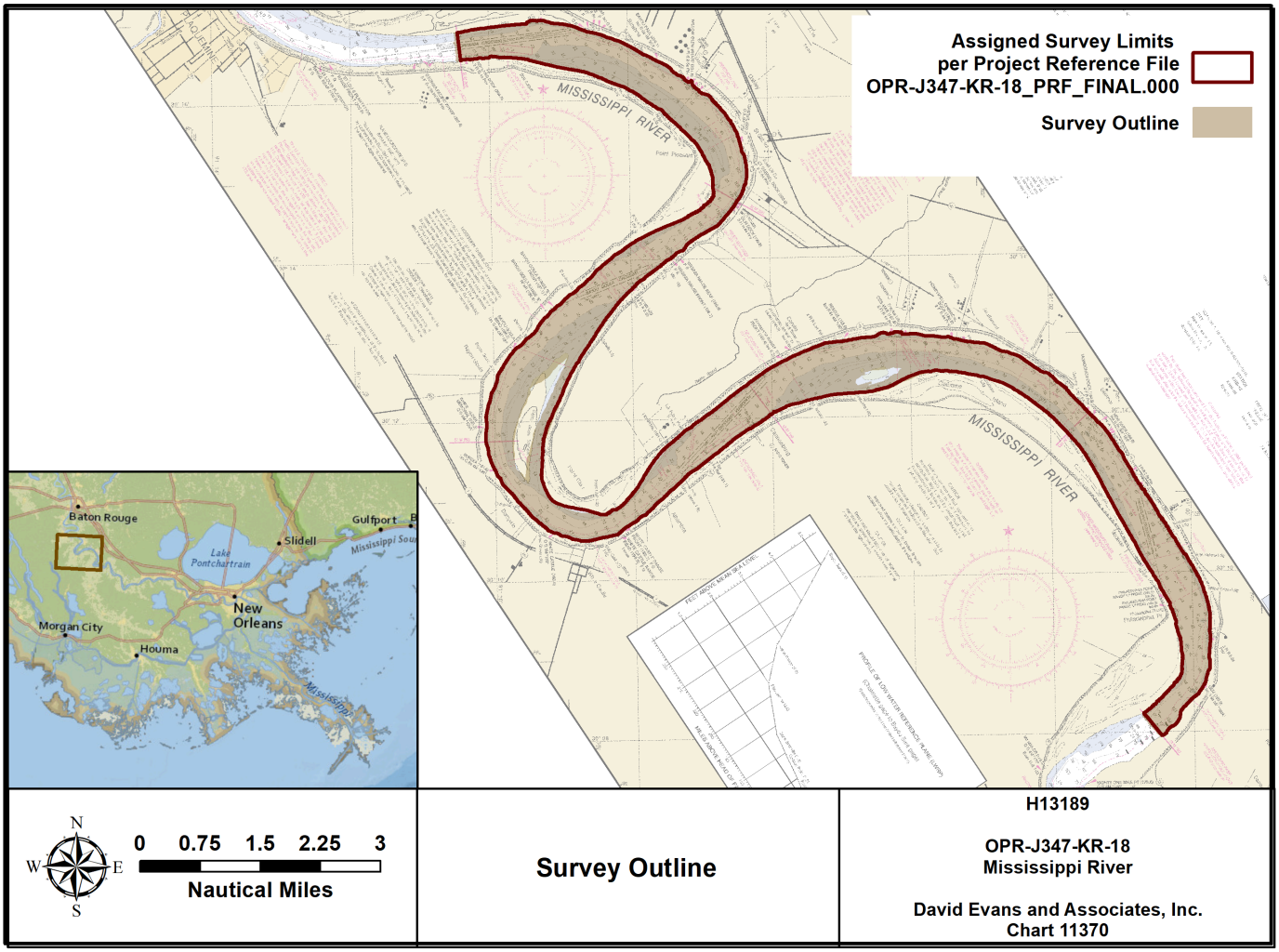


Figure 2: H13189 Survey Outline

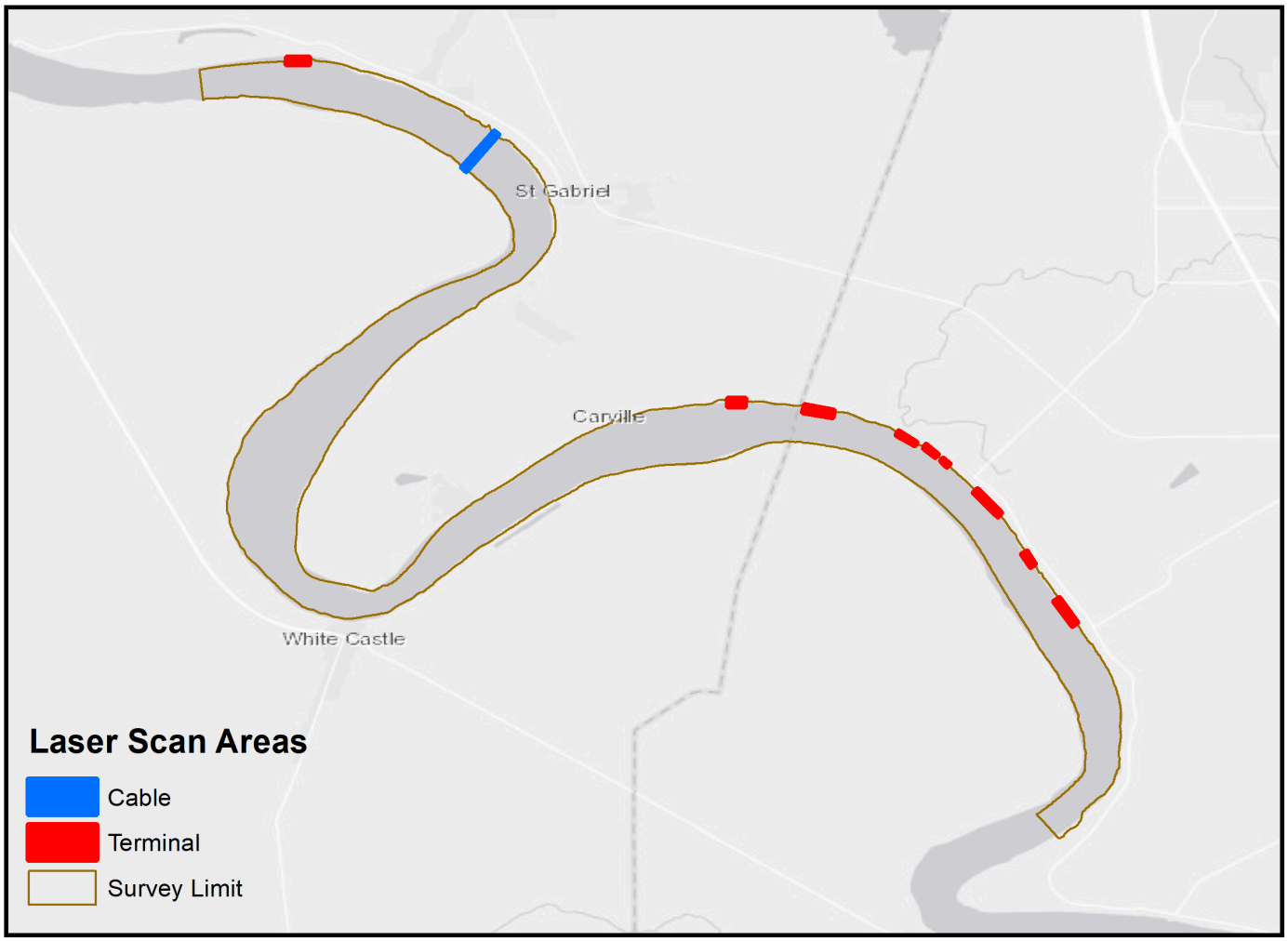


Figure 3: H13189 Assigned Mobile Mapping Areas

A.6 Survey Statistics

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

	HULL ID	*S/V Blake*	*RHIB Sigsbee*	*Total*
LNM	**SBES Mainscheme**	0	0	0
	MBES Mainscheme	342.16	216.86	559.02
	Lidar Mainscheme	54.49	0.00	54.49
	SSS Mainscheme	0	0	0
	SBES/SSS Mainscheme	0	0	0
	MBES/SSS Mainscheme	0	0	0
	SBES/MBES Crosslines	23.17	4.02	27.19
	Lidar Crosslines	0	0	0
Number of Bottom Samples				0
Number Maritime Boundary Points Investigated				0
Number of DPs				0
Number of Items Investigated by Dive Ops				0
Total SNM				9.57

Table 3: Hydrographic Survey Statistics

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

Survey Dates	Day of the Year
08/14/2018	226

Survey Dates	Day of the Year
08/15/2018	227
08/16/2018	228
08/17/2018	229
09/20/2018	263
09/21/2018	264
09/22/2018	265
09/24/2018	267
09/25/2018	268
09/26/2018	269
09/27/2018	270
09/29/2018	272
09/30/2018	273
10/07/2018	280
09/10/2019	253

Table 4: Dates of Hydrography

B. Data Acquisition and Processing

B.1 Equipment and Vessels

The OPR-J347-KR-18 Data Acquisition and Processing Report (DAPR), previously submitted with survey H13195, details equipment and vessel information as well as data acquisition and processing procedures. There were no vessel or equipment configurations used during data acquisition that deviated from those described in the DAPR except for sonar settings used during acquisition of some fill and investigation data. For fill and investigation lines conducted on September 10, 2019 (DN253), the dual-head multibeam system was operated in equi-angular (EA) mode, rather than equi-distant (ED) mode as described in the DAPR.

B.1.1 Vessels

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

Hull ID	*S/V Blake*	*RHIB Sigsbee*
LOA	83 feet	18 feet
Draft	4.5 feet	1.0 feet

Table 5: Vessels Used

Figure 4: S/V Blake

Figure 5: RHIB Sigsbee

B.1.2 Equipment

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

Manufacturer	Model	Type
Teledyne RESON	T50-R	MBES (dual head)
Teledyne RESON	T50-P	MBES
RIEGL	VUX 1HA	Primary mobile mapping laser scanner
RIEGL	z390i	Secondary laser scanner
Applanix	POS MV 320 v5	Positioning and Attitude System
Applanix	POS LV 620	Positioning and Attitude System (integrated with primary lidar system)
IXSEA	Hydrins	Positioning and Attitude System
Trimble	SPS851	Positioning System
Trimble	SPS855	Positioning System
Intuicom	RTK BridgeX	RTK Correctors Receiver
AML Oceanographic	MVP30-350 with AML Micro SVP&T	Sound Speed System
AML Oceanographic	SmartX	Sound Speed System
AML Oceanographic	BaseX	Sound Speed System
AML Oceanographic	Micro SV Xchange	Surface Sound Speed System
Sea-Bird Scientific	SBE 19+ SeaCAT CTD	Conductivity, Temperature, and Depth Sensor

Table 6: Major Systems Used

B.2 Quality Control

B.2.1 Crosslines

Multibeam/single beam echo sounder/side scan sonar crosslines acquired for this survey totaled 4.86% of mainscheme acquisition.

Lidar crosslines acquired for this survey totaled 0.00% of mainscheme acquisition.

Multibeam crosslines were run across the entire survey area to provide a varied spatial and temporal distribution for analysis of internal consistency within the survey data.

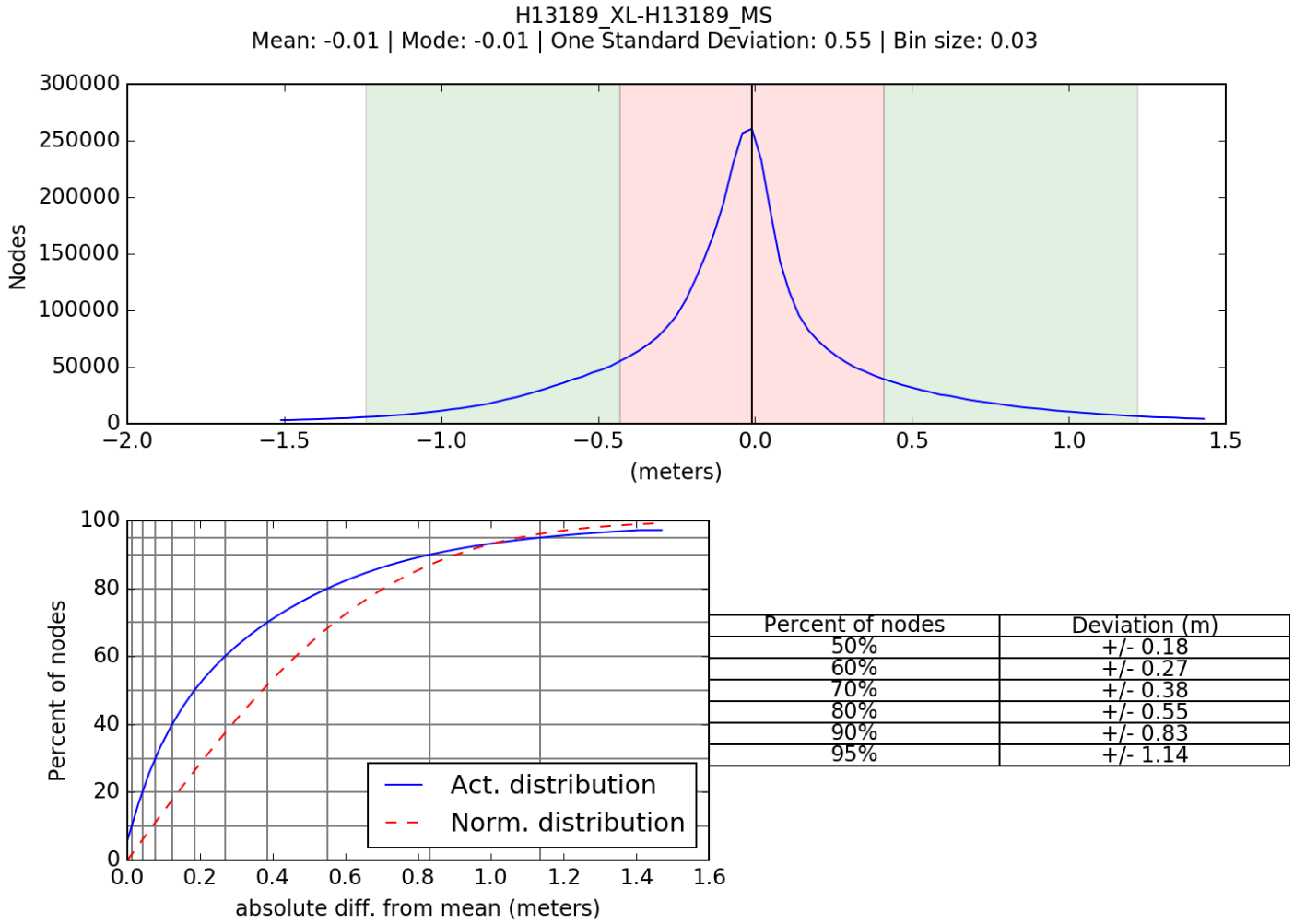
Crossline analysis was performed using the CARIS Hydrographic Information Processing System (HIPS) Quality Control (QC) Report tool, which compares crossline data to a gridded surface and reports results by beam number. Crosslines were compared to a 1-meter CUBE surface encompassing mainscheme, fill, and investigation data for the entire survey area. The QC Report tabular output and plots for both survey vessels are included in Separate II Checkpoint Summary and Crossline Comparison. For the S/V Blake the output and plot contain data from a dual-head system, beams 1 to 256 are from the starboard head while 257 to 512 are from the port head.

Due to significant sediment migration occurring within the survey area observed during the first three days of operations in survey area H13189, crosslines collection was adjusted to be conducted on the same day as mainscheme acquisition to minimize impact of the changing riverbed on crossline agreement for the remainder of this sheet. Before crossline acquisition was adjusted, this resulted in a time differential of 36 hours between mainscheme and crossline acquisition and significant change in the riverbed was apparent. Tests run prior to the 2019 flooding event showed sediment wave movement at a rate of 0.25 meters per hour with even higher rates observed during flooding. Even with these operational adjustments, crossline statistics from the S/V Blake, which operated in deeper water over the main channel, exceed International Hydrographic Organization (IHO) Order 1 specification as reported by the CARIS HIPS QC Report tool.

DEA performed an additional crossline analysis using the NOAA Pydro Compare Grids tool to analyze the differences between gridded mainscheme depths and gridded crossline depths. Input grids were 1-meter resolution CUBE surfaces of mainscheme and crossline depths. Results from the crossline to mainscheme difference analysis are depicted in Figures 6 and 7, units are represented in meters. Figure 7 depicts a difference surface portraying the sediment migration seen throughout the duration of survey. This figure details crosslines conducted at the end of survey, approximately 36 hours after the first mainscheme line was acquired. Change is significant in the sediment wave field with horizontal migration of up to 7 meters occurring between mainscheme and crossline acquisition. The shape of the waves is apparent in both the crossline/mainscheme difference image and multibeam hillshade. In the crossline difference image, overlaid on the final multibeam hillshade, shades of yellow and red indicate shoaling in meters and shades of blue indicate deepening in meters with both following the form of the wave field as sediment waves migrate. Shades of grey indicate areas that meet requirements and are generally outside the sediment wave field where there has been less change.

DEA remains confident that data consistency was maintained during acquisition based on swath to swath comparison of two vessel platforms and three sonars operating simultaneously in the same survey area. DEA confirmed that a systematic error, such as positioning or sound speed measurements, was not a factor leading to these large differences based on weekly system comparisons detailed in Separate I Acquisition and Processing Logs of this report. To further document the system performance, an additional crossline report was run on data acquired in the vicinity of Gulfport Channel, near the project’s mobilization grounds and outside of the influence of sediment migration. The output of this report confirms the S/V Blake’s sonar and acquisition and processing procedures are capable of acquiring data that exceeds IHO specification for Order 1 and Special Order as reported by the HIPS QC Report tool. Output from the report is included in Separate II Checkpoint Summary and Crossline Comparison.

This issue was not limited to this survey area; sediment migration affected the entire OPR-J347-KR-18 project area. Impacts of sediment migration are further discussed in section B.2.6 of this report.



Percent of nodes	Deviation (m)
50%	+/- 0.18
60%	+/- 0.27
70%	+/- 0.38
80%	+/- 0.55
90%	+/- 0.83
95%	+/- 1.14

Figure 6: H13189 Crossline Difference Distribution Summary Plot

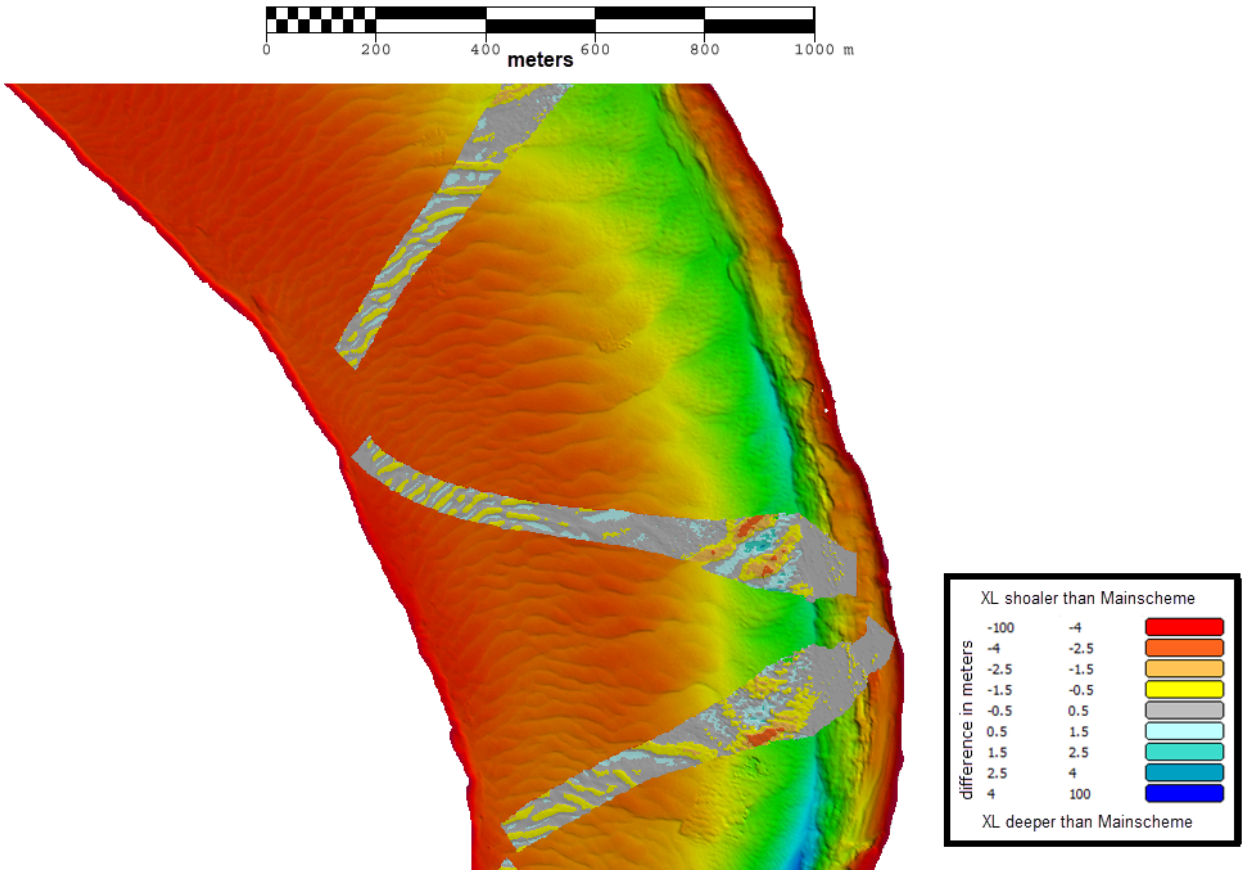


Figure 7: H13189 crossline difference surface overlayed on the multibeam hillshade highlighting sediment migration

B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

Method	Measured	Zoning
ERS via VDATUM	0.030 meters	0.084 meters

Table 7: Survey Specific Tide TPU Values.

Hull ID	Measured - CTD	Measured - MVP	Surface
S/V Blake	1.0 meters/second	1.0 meters/second	0.5 meters/second
RHIB Sigsbee	1.0 meters/second	N/A	0.5 meters/second

Table 8: Survey Specific Sound Speed TPU Values.

Additional discussion of these parameters is included in the DAPR. Sound speed profiles collected from the RHIB Sigsbee were acquired with a SBE 19+ SeaCAT CTD, an AML BaseX or an AML SmartX sound speed sensors. The S/V Blake used an AML BaseX to acquire sound speed measurements on September 10, 2019 (DN253). The measurement uncertainty for these sensors is listed in the CTD column in Table 8.

During surface finalization in HIPS, the "Greater of the two values" 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 TPU.

To determine if the surface grid nodes met IHO Order 1 specification, a ratio of the final node uncertainty to the allowable uncertainty at that depth was determined. As a percentage, this value represents the amount of error budget utilized by the total vertical uncertainty (TVU) at each node. Values greater than 100% indicate nodes exceeding the allowable IHO uncertainty. The resulting calculated TVU values of all nodes in the submitted finalized surfaces are shown in Figures 8 through 10.

The finalized surfaces include occasional large vertical uncertainties which exceed IHO Order 1 allowances. These high uncertainties were caused by introducing areas of high depth standard deviation associated with steep slopes when finalizing surfaces with the greater of the two option; and incorporating erroneous real-time sonar uncertainty values during TPU computation. On occasion, the real-time uncertainty logged during acquisition included a sounding with an extremely high depth uncertainty which was well outside of realistic values. During processing, an IHO filter was applied to all sounding data, with rejecting soundings exceeding IHO Order 1 thresholds for TVU. These rejected soundings have at times been reaccepted after thorough review by the hydrographer. This issue appears to have been caused by an unresolved software bug in either the sonar top side unit or acquisition system impacting the reported uncertainty, but not the actual depth.

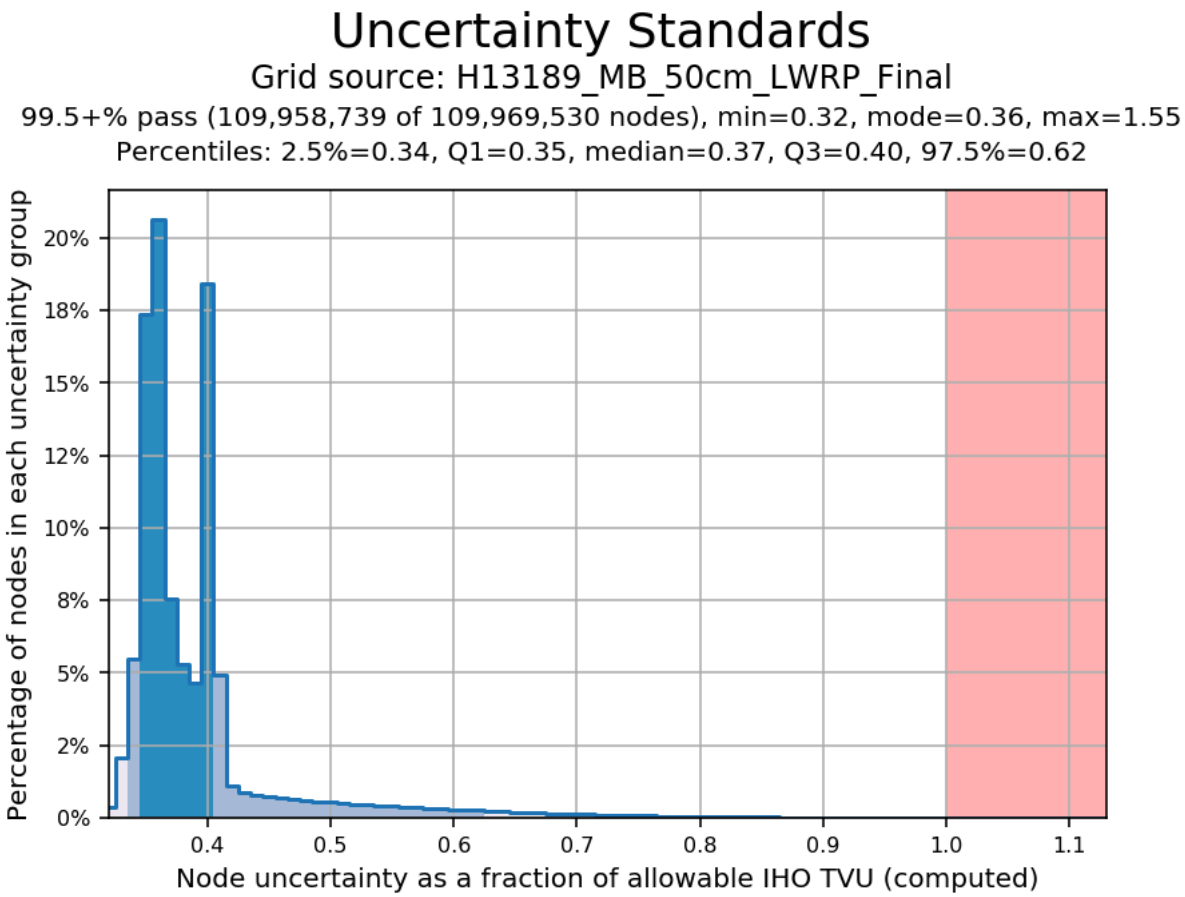


Figure 8: Node TVU statistics - 50cm finalized

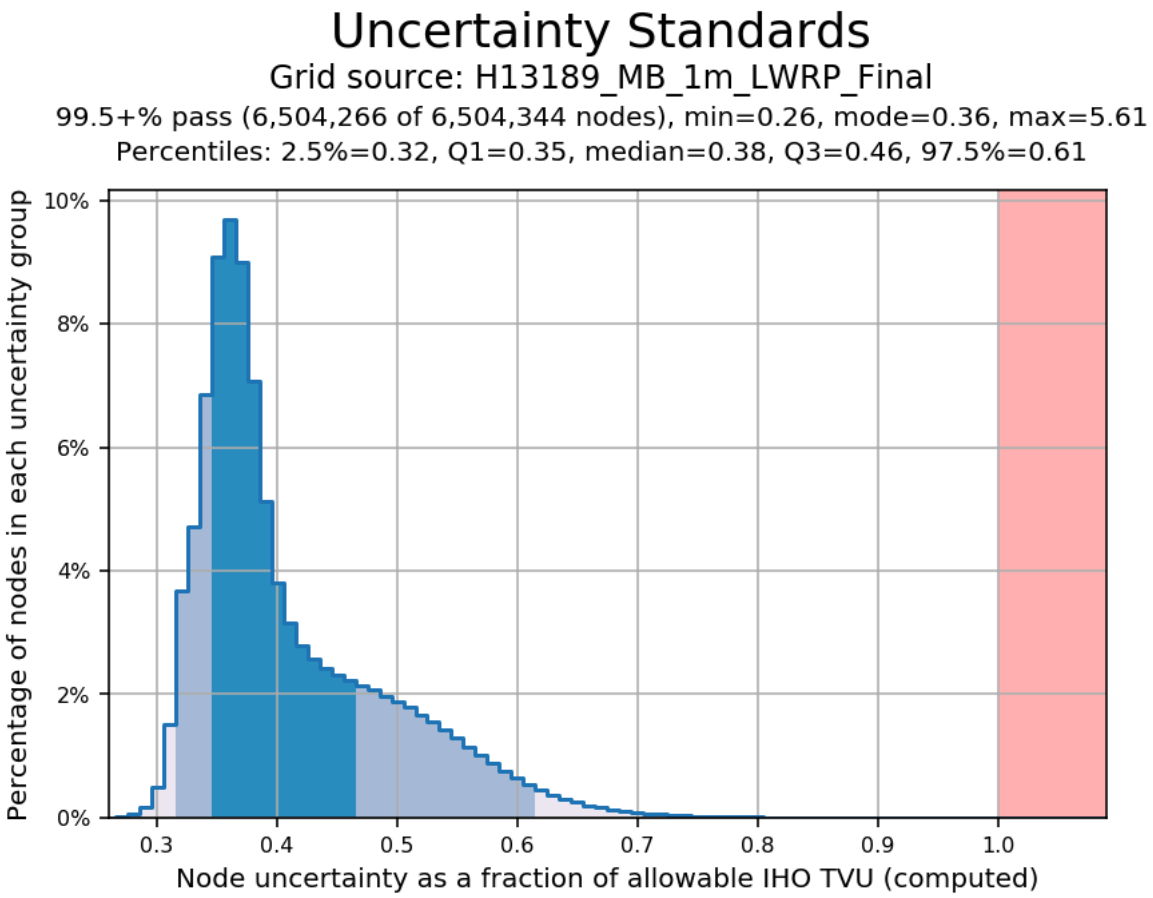


Figure 9: Node TVU statistics - 1m finalized

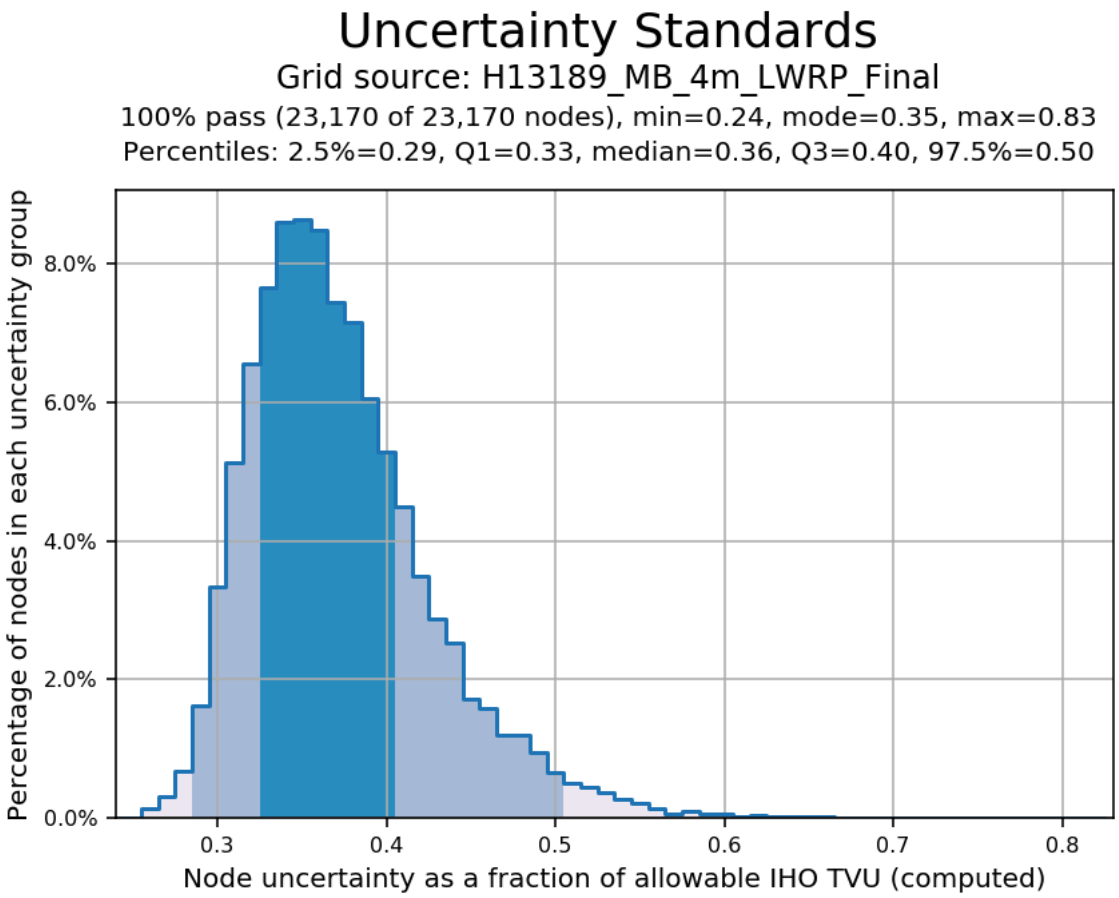


Figure 10: Node TVU statistics - 4m finalized

B.2.3 Junctions

Survey H13189 junctions with current surveys H13188 and H13190. No prior surveys were specified as junctions in the Project Instructions.

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H13188	1:5000	2018	David Evans & Associates, Inc.	N
H13190	1:5000	2018	David Evans & Associates, Inc.	S

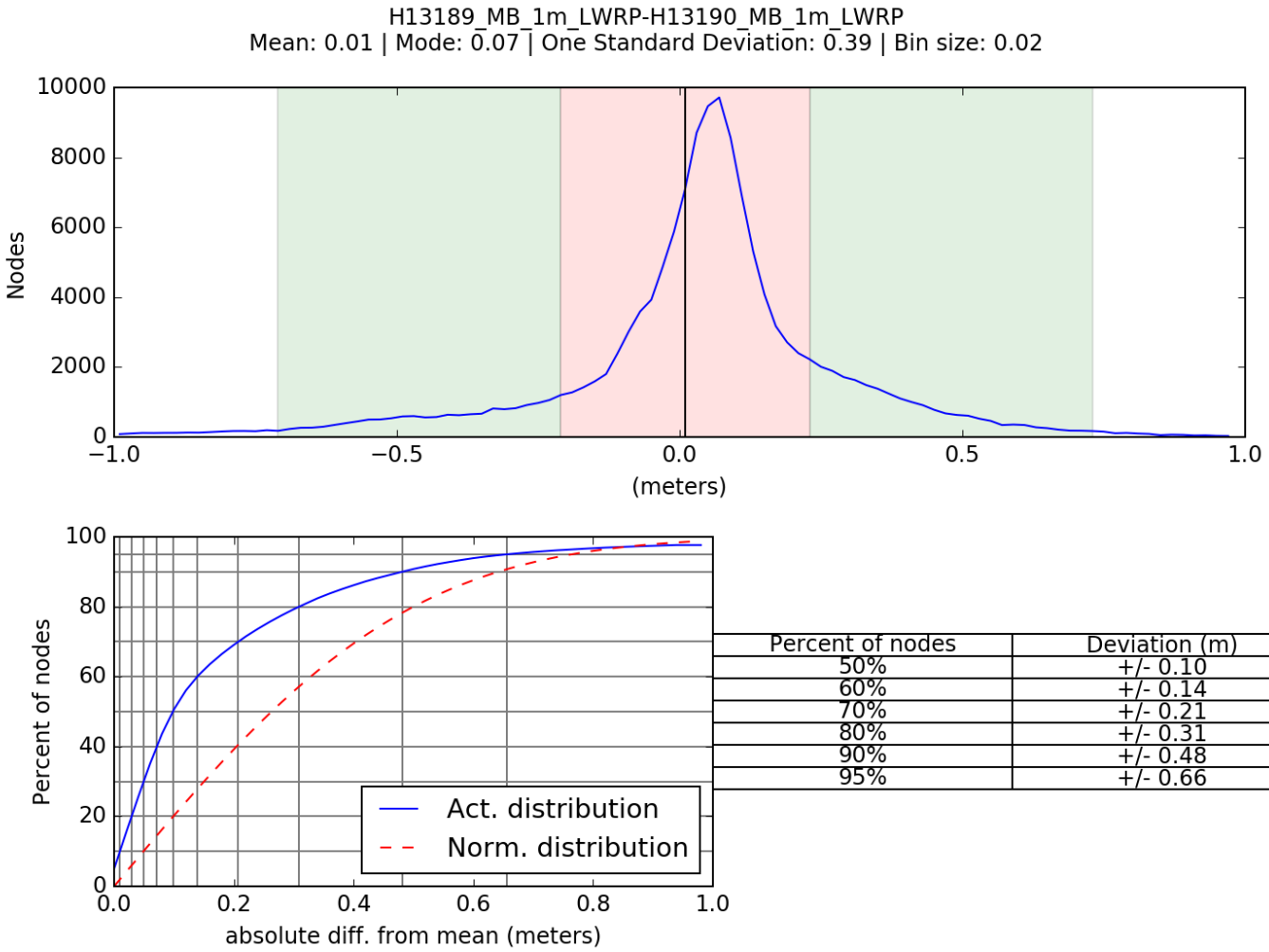
Table 9: Junctioning Surveys

H13188

At the time of writing, data from survey H13188 was still being processed. The Descriptive Report for H13188 will include the junction analysis with H13189.

H13190

Survey H13190 is also part of the OPR-J347-KR-18 survey project. The mean difference between H13189 and H13190 survey depths is one centimeter (H13189 deeper than H13190), shown in Figure 11. Major differences are representative of surveys impacted by sediment migration over time. Figure 12, represented in meters, shows the area of overlap with grey shades showing general agreement. Warmer colors represent H13189 survey depths shoaler than H13190, while cooler colors indicate H13189 survey depths deeper than H13190.



Percent of nodes	Deviation (m)
50%	+/- 0.10
60%	+/- 0.14
70%	+/- 0.21
80%	+/- 0.31
90%	+/- 0.48
95%	+/- 0.66

Figure 11: Distribution summary plot of survey H13189 1-meter vs H13190 1-meter

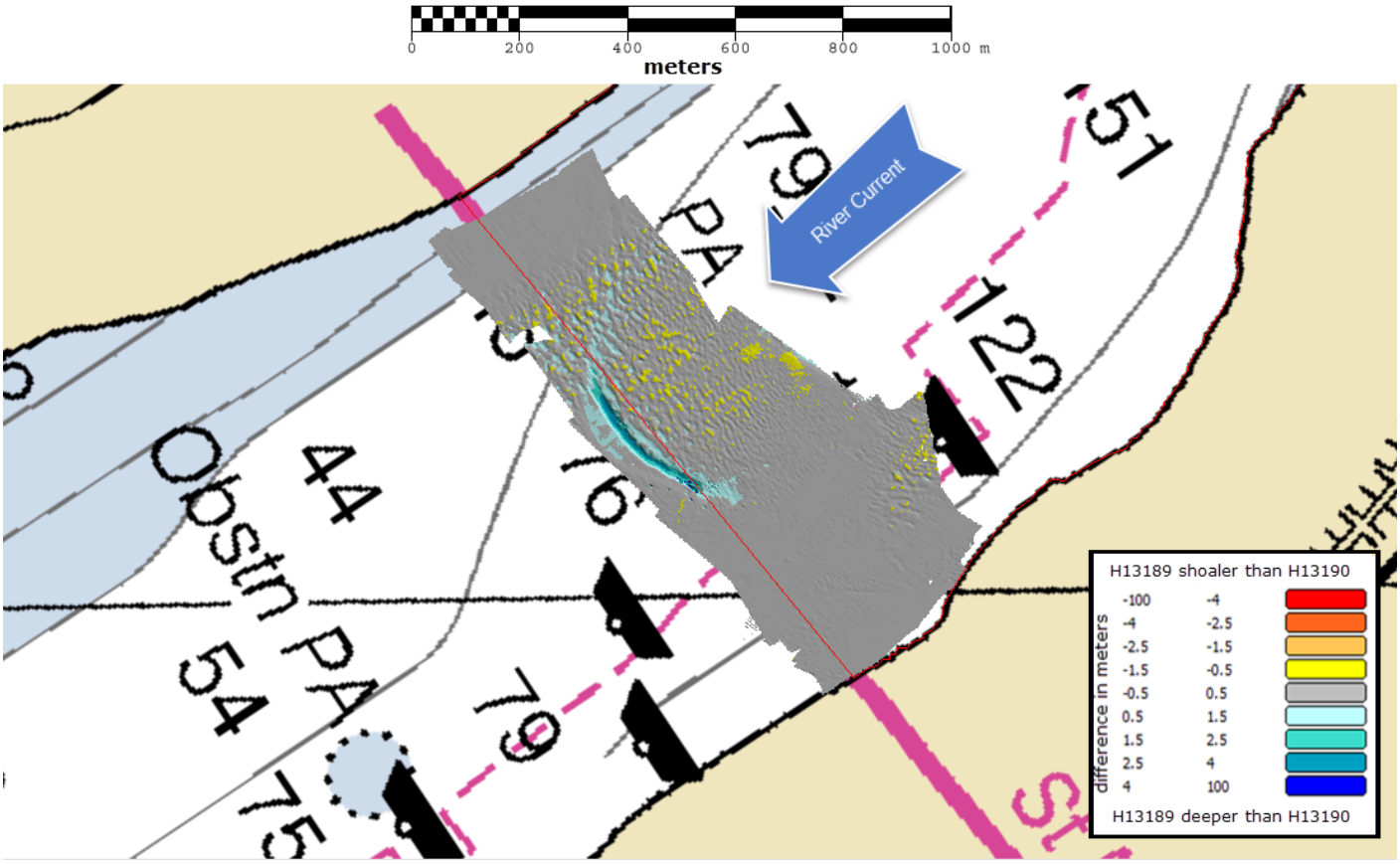


Figure 12: Junction difference surface between surveys H13189 1-meter and H13190 1-meter

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

<u>High Frequency artifact in dual-head MBES system</u>

High frequency artifacts are visible periodically in the data collected with the dual-head system on the S/V Blake. Despite extensive testing and troubleshooting of mount stability under a range of vessel motion

dynamics and speed, applied offsets, and application of patch tests bias, no single source of the artifact could be identified. The high frequency artifact was transient and unrelated to vessel dynamics and loading on sonar mounts at different speeds and induced rolling during testing and is periodically present in both sonars, with a higher magnitude observed on the port sonar. From the findings of the troubleshooting, it is the hydrographer's belief that this is not related to mount instability relative to the IMU of patch test bias values applied and may be related to minor transient timing issues in the dual head system relative to the application of motion data (primarily role). Under this assumption, the further away the sensor is from the ship reference point, the great the magnitude of the error. In this case, while the artifact negatively affects the aesthetic of the final surface deliverable, it is well within IHO specifications for this survey. Figures 13 and 14 display the artifact for the dual-head operations.

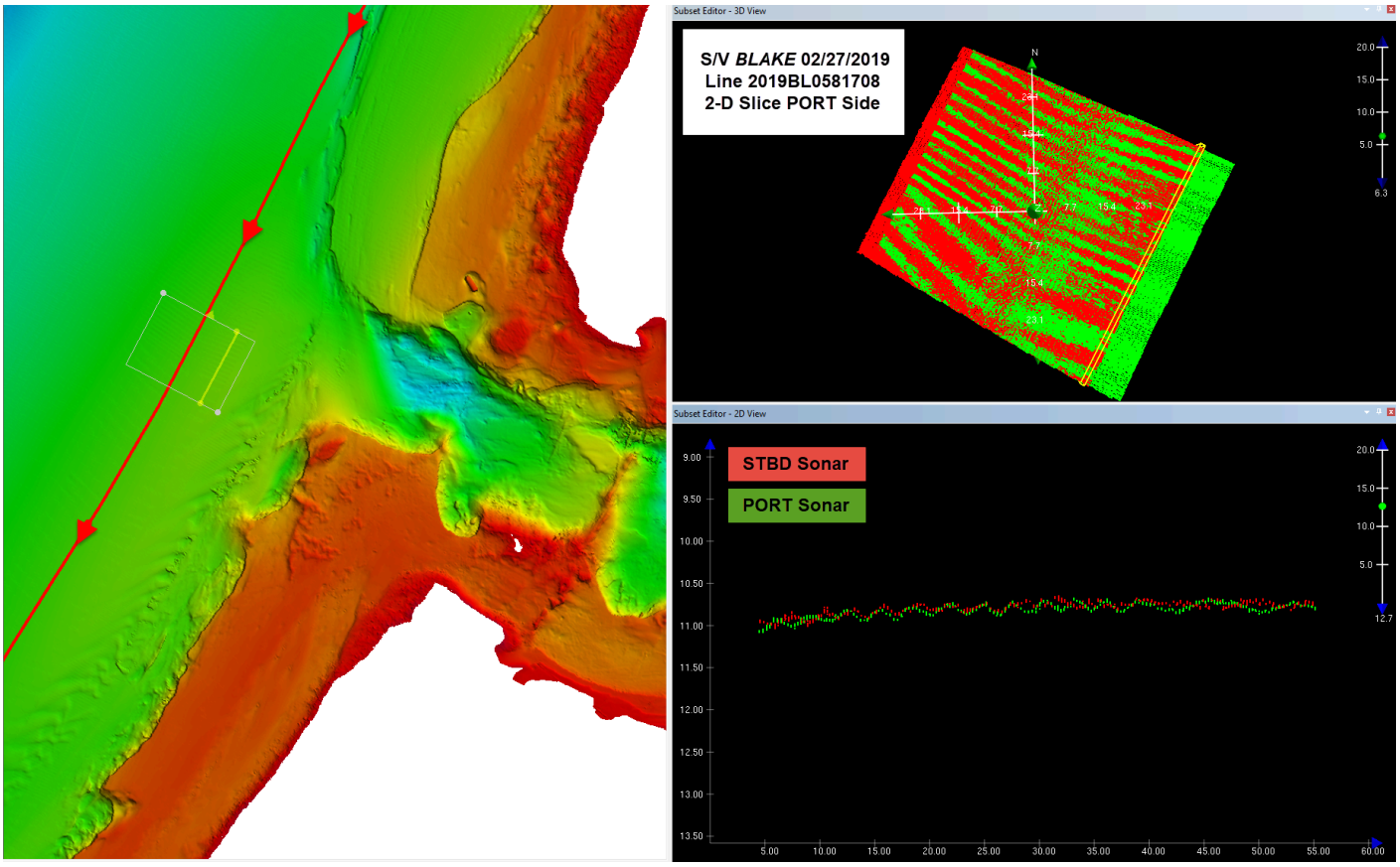


Figure 13: Example of high frequency artifact shown in surface and along track subset. Subsets of differing magnitudes between separate sonar heads of dual-head system shown on port side of swath (starboard beams shown in red, port beams in green)

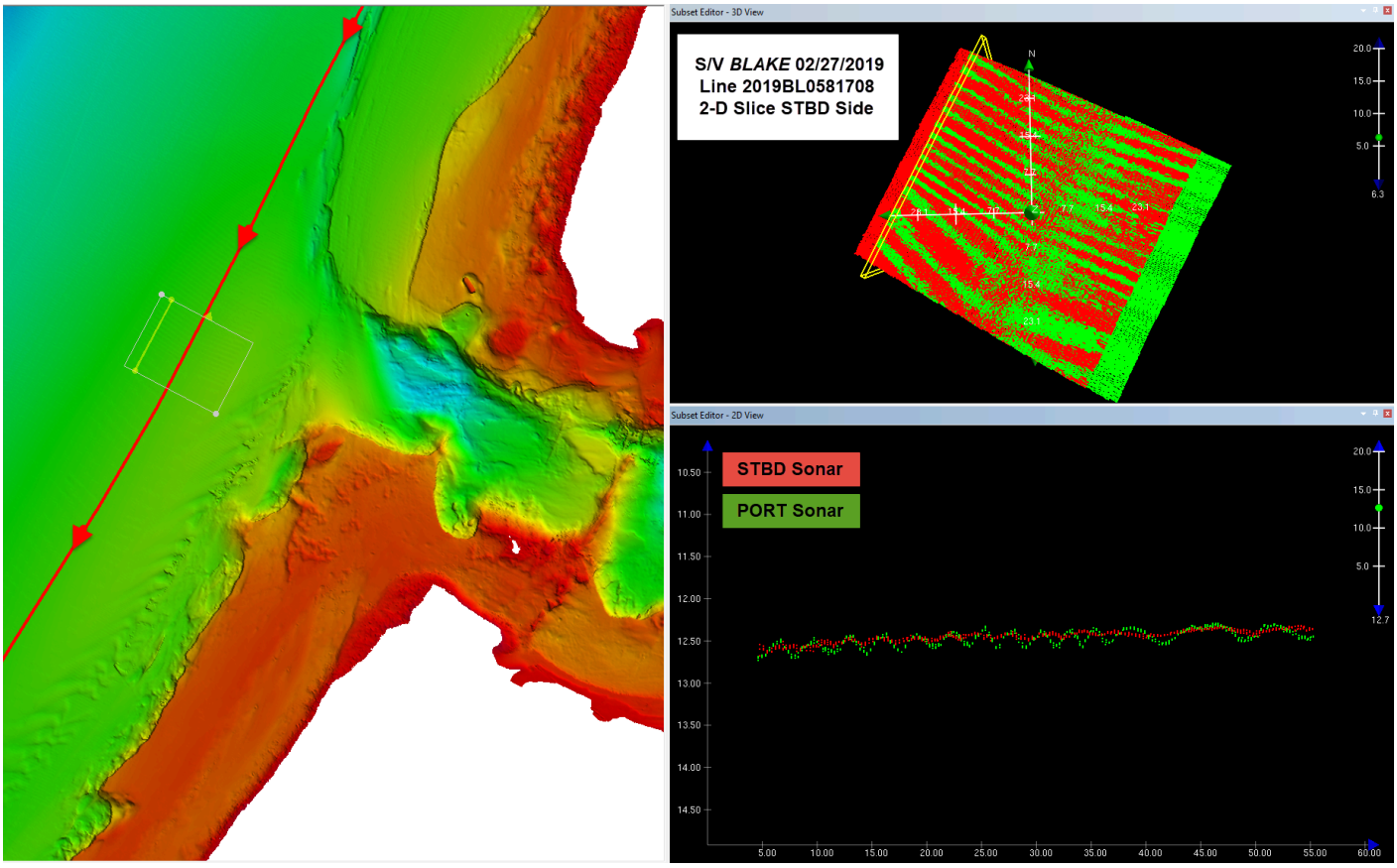


Figure 14: Example of high frequency artifact shown in surface and along track subset. Subsets of differing magnitudes between separate sonar heads of dual-head system shown on starboard side of swath (starboard beams shown in red, port beams in green)

Delayed Heave

Delayed heave was applied to data collected by the S/V Blake using the POS M/V .000 file logged during acquisition. This file is loaded using the CARIS Import Auxiliary Data tool. Delayed heave is chosen during the SVC and Merge processing steps.

On October 7th, 2018 (DN280), the S/V Blake has five lines that are submitted with real-time heave due to the small length of the fill lines collected during acquisition. The lines on DN280 with real-time heave applied include:
2018BL2801656
2018BL2801830
2018BL2801933
2018BL2802036
2018BL2802106

For the RHIB Sigsbee, delayed heave was obtained by using the post-processed Hydrins 'smart heave' solution. The data was exported to a custom *.txt file, loaded to the delayed heave HDCS using CARIS Generic Data Parser (GDP) utility and applied during the SVC and Merge processing steps.

B.2.6 Factors Affecting Soundings

Sediment Migration

Sediment migration on the river bottom was evident throughout the course of this survey. Crosslines and fill lines that were run hours after mainscheme acquisition still exceeded the allowable vertical uncertainty in some areas. Following guidance from HSD OPS and the Atlantic Hydrographic Branch, the hydrographer allowed the CUBE algorithm to estimate a gridded depth in these areas without manual cleaning of the sounding data. The submitted surface has numerous artifacts resulting from these areas of disagreement. When reviewed, soundings deemed as fliers were still rejected. It is the hydrographer's belief that the submitted depths were accurate at the time of the survey. Figure 15 shows an example of horizontal and vertical movement of approximately 6 meters in sediment waves that resulted in disagreement for H13189 submitted surfaces.

Some areas of the greatest disagreement have been noted in the H13189_Notes_for_Reviewer.hob file with the SNDWAV area feature class, submitted in Appendix II of this report. This is not an exhaustive list of areas but should detail those that show the major surface artifacts resulting from sediment migration.

In the vicinity of Baton Rouge, while in an area of significant sediment migration but prior to flood levels, a field test was conducted to attempt to quantify the amount of change the river bottom experienced at that time of survey. The same line was run upstream at similar speeds with time elapsing between subsequent passes. A subset of the results is shown in Figure 16. A high vertical exaggeration is used in Figure 16 to highlight the magnitude of the sediment migration. The hydrographer's best estimate is that the smaller waves on top are migrating at nearly 1 meter per hour while the larger waves, nearly 2 meters high, are migrating at 5 meters per day.

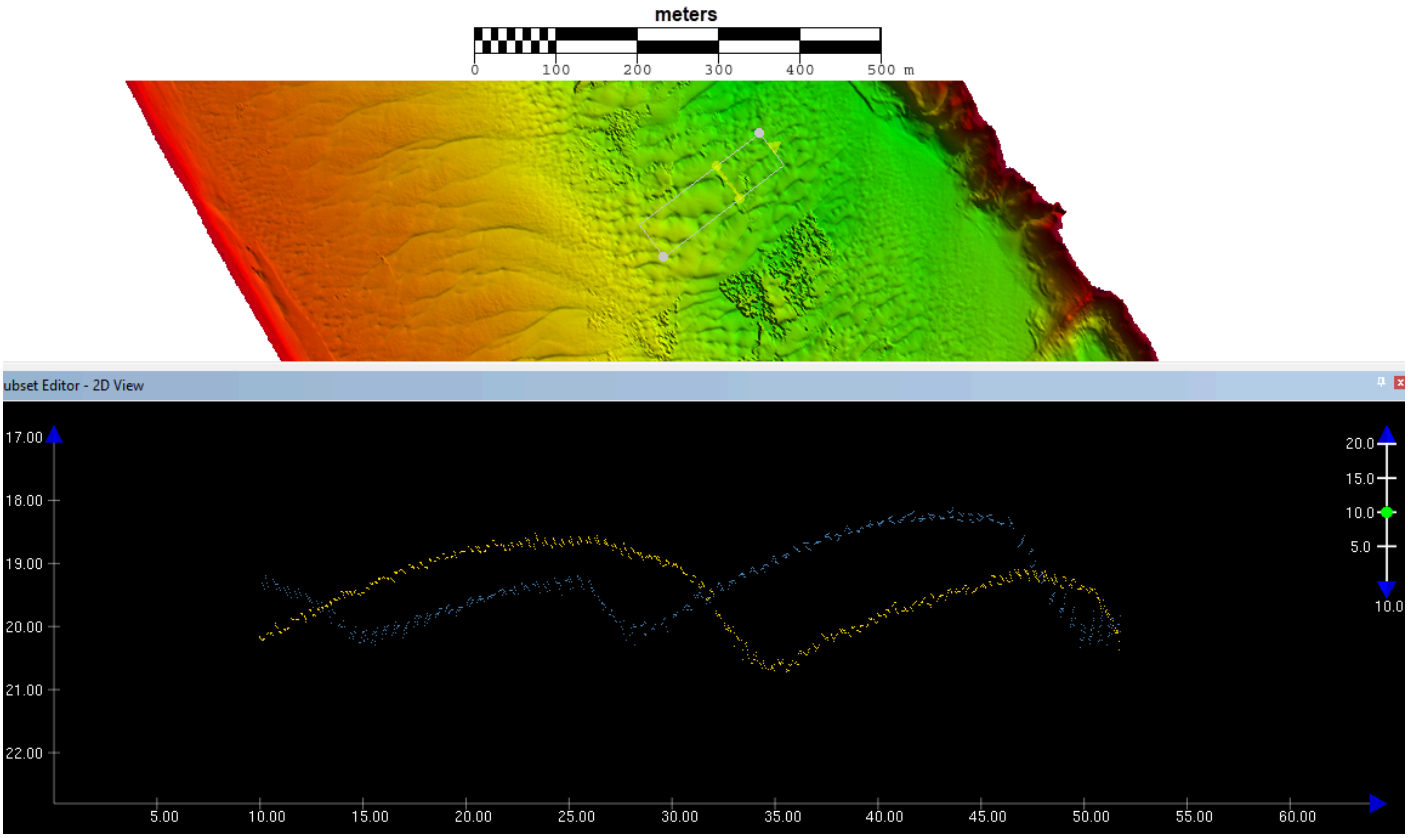


Figure 15: Example of artifacts caused by sediment migration during H13189 operations

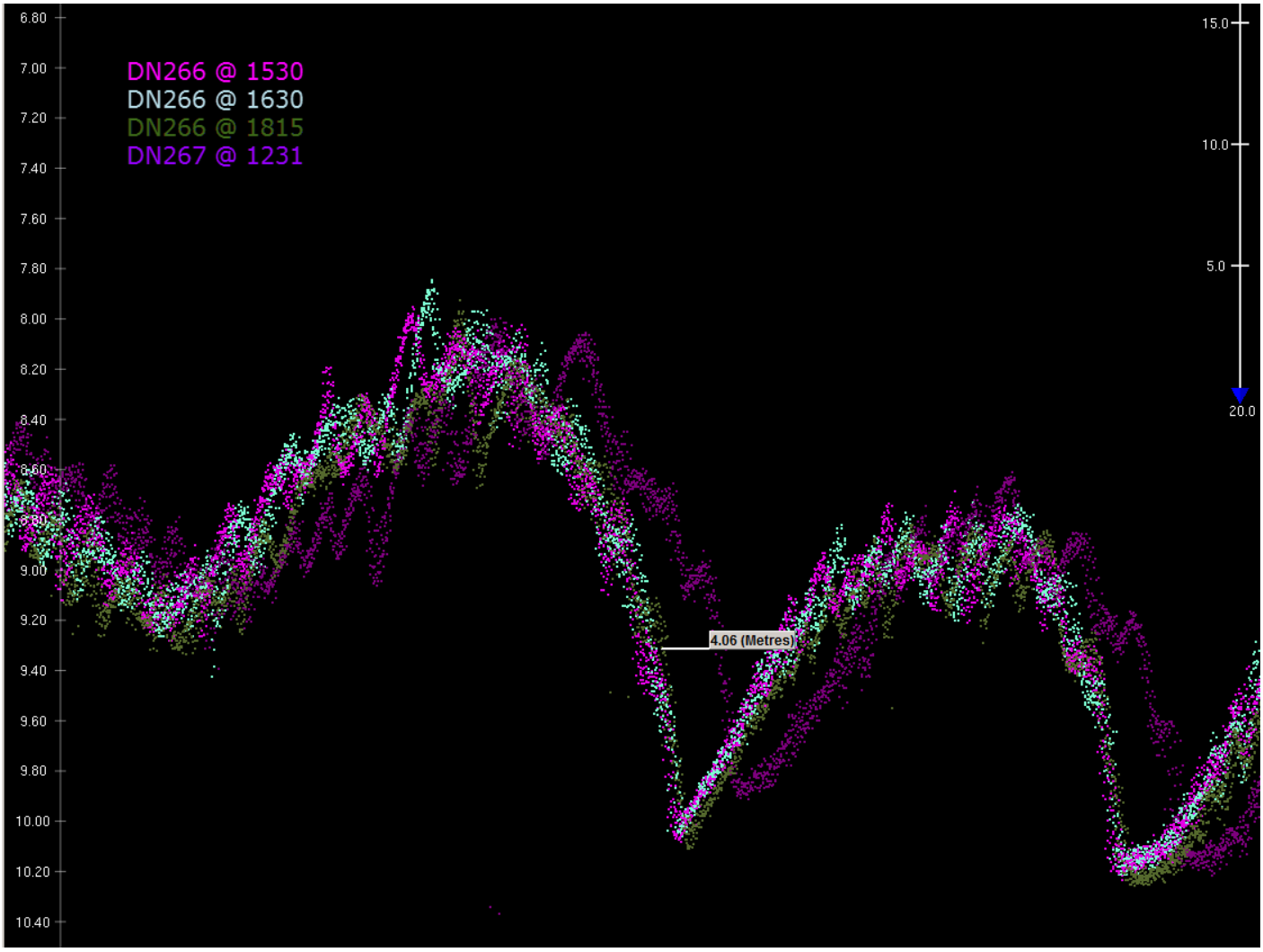


Figure 16: Along-track subset view of field test portraying river bottom changes due to sediment migration

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: Approximately four-hour intervals

An AML Oceanographic Moving Vessel Profiler (MVP) and an AML SmartX or a BaseX or a SBE19+ SeaCAT CTD were the primary instruments used to acquire sound speed readings during multibeam operations for the S/V Blake and the RHIB Sigsbee, respectively. Additional discussion of sound speed methods can be found in the DAPR.

For H13189 survey operations, sound speed was well mixed and varied negligibly, both temporally and spatially. Due to the consistent sound speed profile encountered in this reach of the river, sound speed profiles were measured at approximately one to two-hour intervals during survey operations. Sound speed

readings were applied in CARIS at a four-hour interval based on consistent profiles observed throughout the day of survey.

A majority of sound speed measurements were made within 250 meters of the planned survey boundary. On September 20, 2018 (DN263), RHIB Sigsbee was acquiring data in the adjacent survey extents of Registry Number H13188. The RHIB Sigsbee transitioned into opening survey acquisition in survey H13189 later in the day. Shortly after beginning H13189 acquisition, operations were stopped due to equipment malfunctions. No sound speed measurements were acquired within the survey extents of H13189. Nearest sound speed data in the survey area of H13188 were reviewed and found to be representative of the sound speeds in the survey area for H13189. Two casts in the vicinity of H13188 were applied to RHIB Sigsbee DN263 data for this survey.

During H13189 survey operations, the S/V Blake and RHIB Sigsbee did not consistently acquire a sound speed profile before starting acquisition each survey day. For most days, the time differential varied between start of acquisition and the first cast of the day. A sound speed profile was acquired prior to acquisition during RHIB Sigsbee operations on DN265 and DN270, and S/V Blake operations on DN253 (2019). As the Mississippi River is well mixed in this reach, there was no temporal or spatial variation in sound speed during acquisition in this reach of the river and sounding data were not impacted. Taking sound speed casts prior to and after acquisition was corrected as the survey operations progressed downstream.

B.2.8 Coverage Equipment and Methods

Survey speeds were typically maintained to meet or exceed along-track density requirements. However, due to swift current pushing the vessel downriver and the need to maintain maneuverability, combined with deep areas requiring expansion of the sonar range and thereby slowing the sonar ping rate, along-track low-density areas are occasionally present in the final data. These typically are narrow swaths centered along nadir and do not impact meeting density requirements for 95% of all nodes.

Mobile lidar coverage was obtained on the full extents of both river banks spanning the survey area.

B.2.9 Density

The sounding density requirement of 95% of all nodes, populated with at least five soundings per node, was verified by analyzing the density layer of each finalized surface. Individual surface results are stated in Figures 17 through 19.

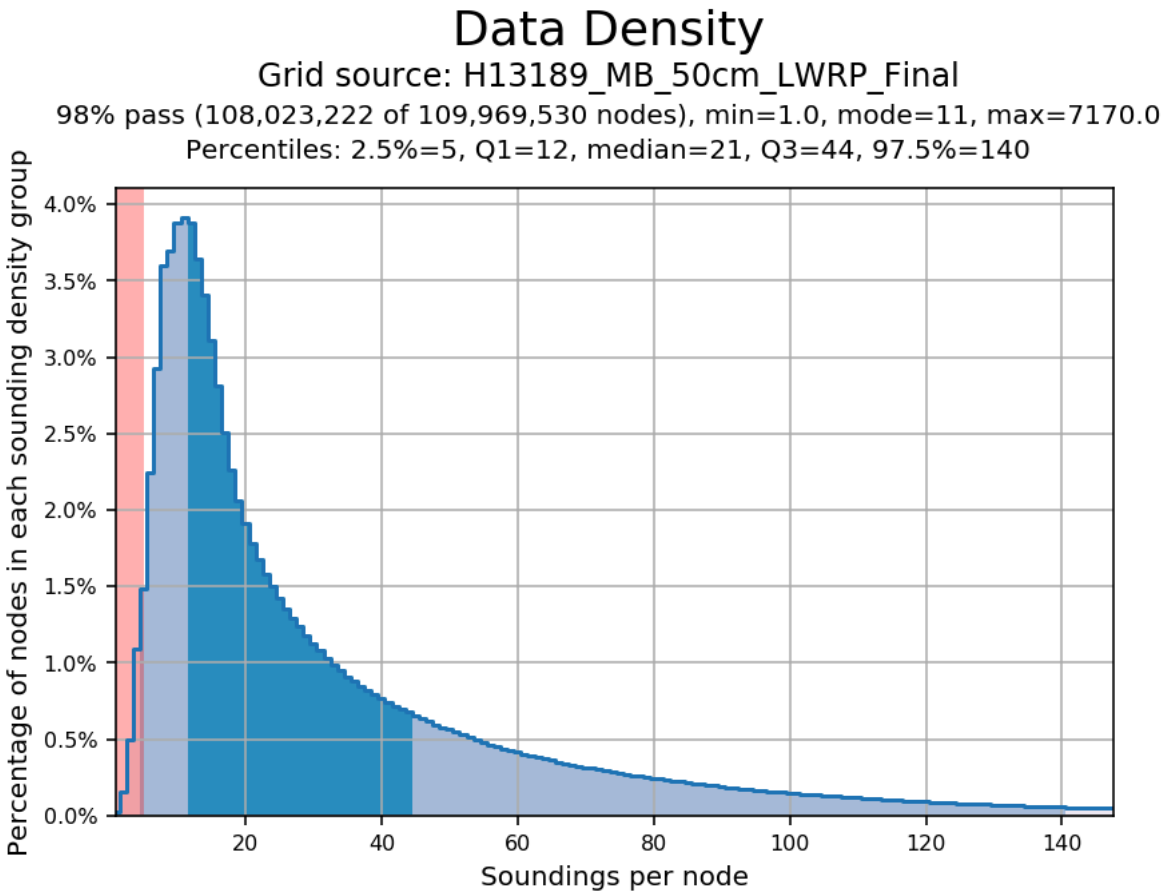


Figure 17: Node density statistics - 50cm finalized

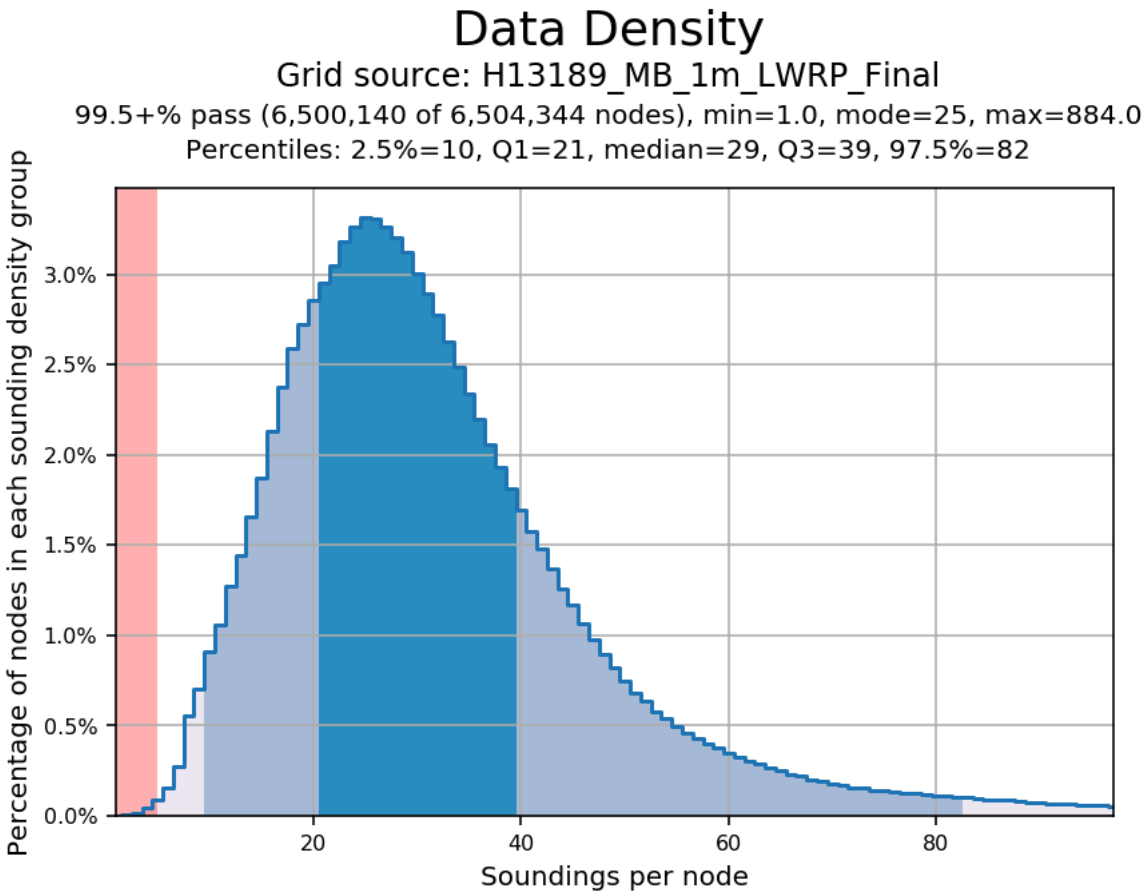


Figure 18: Node density statistics - 1m finalized

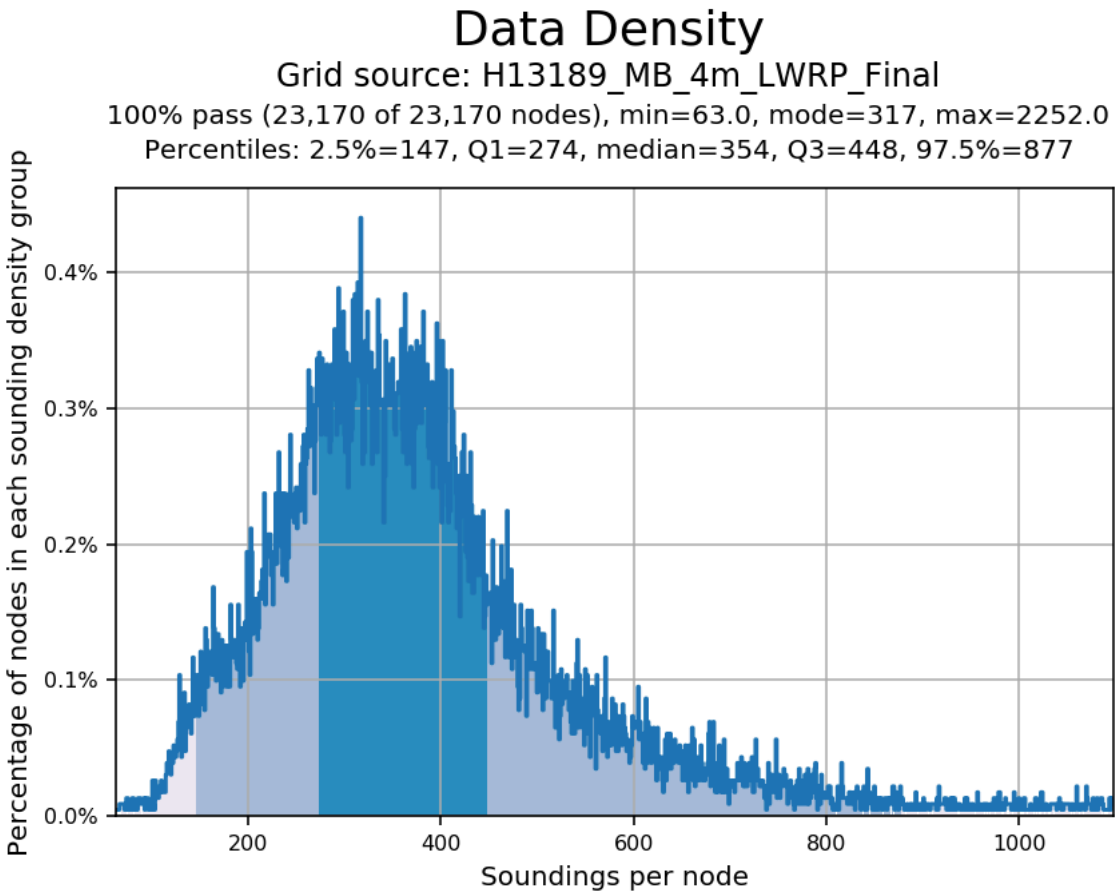


Figure 19: Node density statistics - 4m finalized

B.2.10 Data gaps in bathymetric coverage

Occasional data gaps in the final Object Detection surfaces exist due to operational restrictions at time of survey. These data gaps were further analyzed after acquisition and determined to be unattainable due to safety or other factors impacting vessel operations. Significant effort was expended during survey operations to maximize object detection coverage in these areas.

Some of the sources for these data gaps include:
- Holidays or 2-meter coverage gaps behind pier structures where the field unit was physically unable to operate, or safety concerns limited access.
- Holidays beyond the 2-meter curve (NALL) which were not further investigated due to safety concerns in shallow water.
- Holidays or 2-meter coverage gaps underneath barge fleets or anchored/moored vessels. These were revisited at least one other time in subsequent days. Typically, the field hydrographer would acquire data along the achievable extents of the gap, and document the existence of the barge fleet or vessel with targets and/or photos. AIS or internet-based vessel tracking tools were used to alert the field unit when vessels were underway.

- Holidays created beneath baring structures that met the area requirements were rejected in the survey data for final delivery.

Holidays that exist in the final surfaces have been noted in the H13189_Notes_for_Reviewer.hob with the cvrage area feature class, submitted in Appendix II, and attributed with remarks stating the contributing factor leading to the data gap. Areas were the 2-meter curve was not met are included in the H13189_Notes_for_Reviewer.hob with SLCONS feature class and attributed with remarks stating the contributing factor for this deficiency.

B.3 Echo Sounding Corrections

B.3.1 Corrections to Echo Soundings

All data reduction procedures conform to those detailed in the DAPR.

B.3.2 Calibrations

The following calibrations were conducted after the initial system calibration discussed in the DAPR:

Calibration Type	Date	Reason
Patch Test	2019-09-05	Remobilization of OPR-J347-KR-18 fieldwork

Table 10: Calibrations not discussed in the DAPR.

A patch test for the S/V Blake was conducted on September 5, 2019 (DN248) before recommencing acquisition on OPR-J347-KR-18. This patch test was not finalized by the office before submittal of the DAPR on September 20, 2019 and is included in the HVF submitted with this survey.

B.4 Backscatter

Multibeam backscatter was logged in Hypack 7k format and included with the H13189 digital deliverables. Data were processed periodically in CARIS HIPS to evaluate backscatter quality, but the processed data is not included with the deliverables. For dual-head MBES data on S/V Blake, individual 7k files were logged for each sonar head in order to better facilitate additional changes required between systems.

For data management purposes, the names of multibeam crosslines have been appended with the suffix _XL. This change was made to HIPS files only. The original file names of raw data files (Hypack HSX and 7k) have been retained.

B.5 Data Processing

B.5.1 Primary Data Processing Software

The following software program was the primary program used for bathymetric data processing:

Manufacturer	Name	Version
CARIS	HIPS/SIPS	10.4.5

Table 11: Primary bathymetric data processing software

The following Feature Object Catalog was used: NOAA Profile Version 5.7.

A detailed listing of all data processing software, including software used to process the mobile lidar data, is included in the DAPR.

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
H13189_MB_50cm_LWRP	CARIS Raster Surface (CUBE)	0.5 meters	-3.021 meters - 47.899 meters	NOAA_0.5m	Object Detection
H13189_MB_1m_LWRP	CARIS Raster Surface (CUBE)	1 meters	-2.964 meters - 47.748 meters	NOAA_1m	Object Detection
H13189_MB_4m_LWRP	CARIS Raster Surface (CUBE)	4 meters	-2.840 meters - 47.667 meters	NOAA_4m	Object Detection
H13189_MB_50cm_LWRP_Final	CARIS Raster Surface (CUBE)	0.5 meters	-3.148 meters - 20.000 meters	NOAA_0.5m	Object Detection

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H13189_MB_1m_LWRP_Final	CARIS Raster Surface (CUBE)	1 meters	18.000 meters - 40.000 meters	NOAA_1m	Object Detection
H13189_MB_4m_LWRP_Final	CARIS Raster Surface (CUBE)	4 meters	36.000 meters - 47.667 meters	NOAA_4m	Object Detection

Table 12: Submitted Surfaces

Bathymetric grids were created relative to LWRP in CUBE format using Object Detection resolution requirements as described in the HSSD.

B.5.3 Rejection of Fill and Investigation Data in Areas of Disagreement

Fill and investigation data were collected by the S/V Blake on September 10, 2019 (DN253). Due to historic flooding restricting access to these areas, there was approximately a 11.5-month stand down on survey operations after mainscheme acquisition. Areas of large disagreement exist in these data where the river bottom has greatly changed since the prior mainscheme collection. HSD staff provided guidance on how to address data that impacted the surface deliverables negatively for data acquired on DN253. To limit the effect on the surface, soundings collected on this fill and investigation day of survey that were in disagreement with previous acquisition have been rejected in subset editor. Investigation lines with soundings on a feature that remained intact over time were generally accepted, and the surrounding soundings on the seafloor that caused disagreement were rejected. Figure 20 illustrates an example of large disagreement of 5 meters between mainscheme acquisition and a fill line, 2019BL2531340. The following details how specific fill lines were processed.

Lines with all soundings completely rejected in subset editor:
2019BL2531325 (fill line, no feature present in holiday)
2019BL2531340 (fill line, no feature present in holiday)
2019BL2531405 (fill line, no feature present in holiday)
2019BL2531413
2019BL2531415

Lines with partially rejected soundings in areas of large disagreement:
2019BL2531216
2019BL2531221
2019BL2531231
2019BL2531253
2019BL2531315
2019BL2531353

All other lines collected on this day generally agree with the prior survey lines and were processed as discussed in the DAPR.

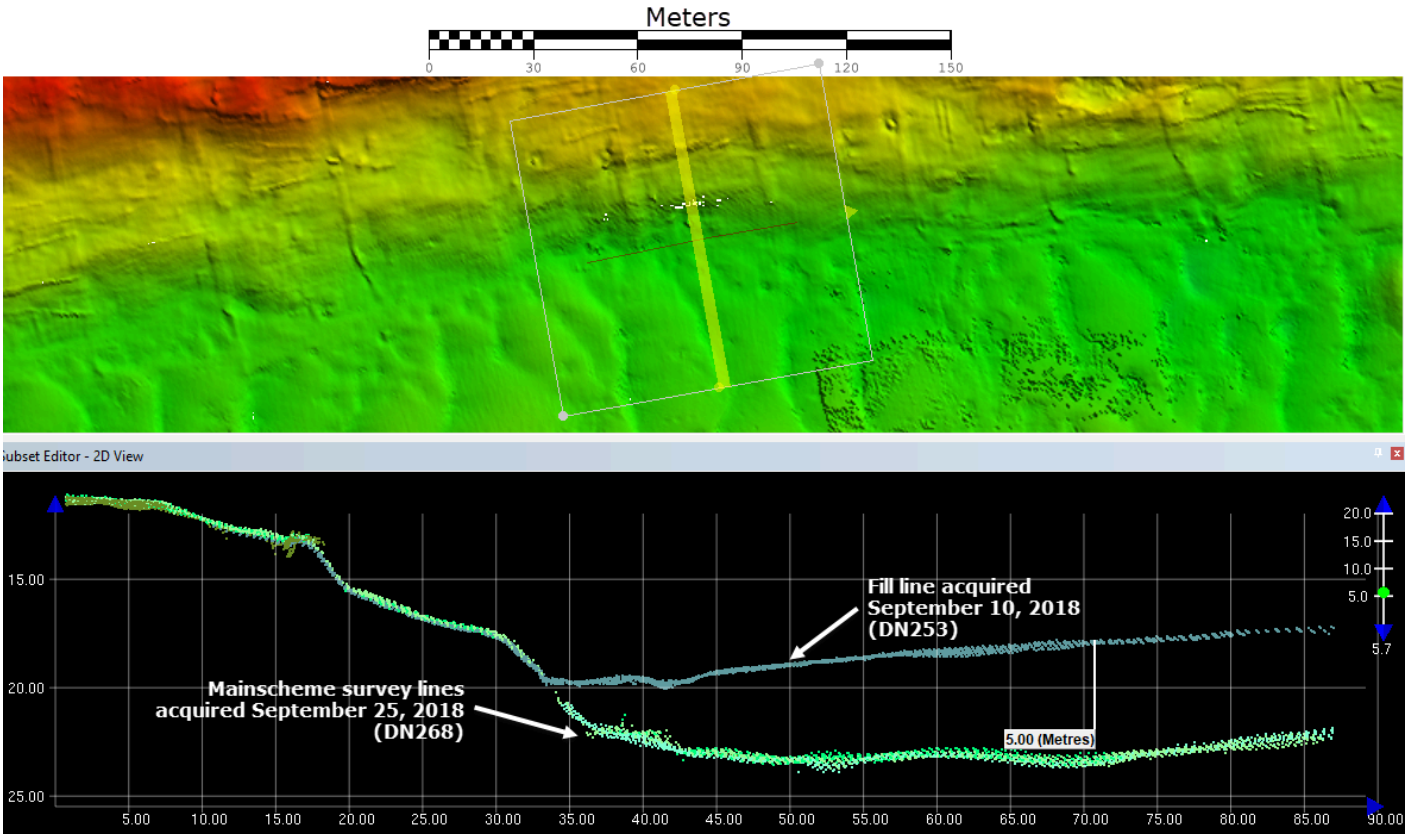


Figure 20: Example of large disagreement from rejected line 2019BL2531340

B.5.4 Designated Soundings

A total of 170 soundings in H13189 were designated in bathymetric data: 169 soundings to facilitate feature management for inclusion in the H13189 Final Feature File (FFF), and one sounding to override the gridded surface model.

B.5.5 CARIS HDCS Navigation Sources

During processing of S/V Blake HDCS lines, navigation information was imported from POS M/V .000 files while importing delayed heave, motion and associated RMS values. This navigation source, Applanix.ApplanixGroup1, is automatically applied at merge when it exists. However, when a CARIS project file is rebuilt, CARIS will report that the navigation source is the HDCSNav. This is a display issue only and does not change the navigation source.

This is not an issue for data collected by the RHIB Sigsbee, which relies on HDCS navigation, and does not apply logged navigation, motion and RMS.

Additionally, when a line is renamed, such as with the suffix _XL, the HDCSNav source disappears from the metadata display. Again, this appears to be a display issue only and does not change any navigation sources.

B.5.6 Mobile Laser Scanner Data

A vessel-based MMS was used to acquire lidar and imagery data along the survey area's shoreline in order to facilitate the survey, management, and reporting of shoreline and nearshore features. Processed LAS data from the laser scanner are included with the survey deliverables in the Processed directory. Imagery data collected by the MMS were used for feature interpretation during processing. Photos of individual features were extracted from the imagery data or taken during hydrographic survey operations and included with the images attribute in the FFF. If vessels at berth limited lidar data collection during initial MMS acquisition in high priority areas assigned in the Project Instructions, data were attempted to be reacquired using the secondary laser scanner during MBES survey operations. Further, supplemental photographs were taken of some features where the MMS imagery was not sufficient to accurately depict the feature.

C. Vertical and Horizontal Control

A complete description of the horizontal and vertical control for survey H13189 can be found in the OPR-J347-KR-18 Horizontal and Vertical Control Report (HVCR), to be submitted with the final survey for this project. A summary of horizontal and vertical control for this survey follows.

C.1 Vertical Control

The vertical datum for this project is LW Reference Plane 2007.

ERS Datum Transformation

The following ellipsoid-to-chart vertical datum transformation was used:

Method	Ellipsoid to Chart Datum Separation File
ERS via VDATUM	NAD83-LWRP2007_RM13.4_MLLW2012-2016_Geoid12B.csar

Table 13: ERS method and SEP file

While ERS via VDATUM is listed in Table 13, it was one of the limited options available in the XML DR schema's enumerated values. The separation model covering the H13189 survey area was constructed by the

HSD Operations Branch specifically for this survey project using NAVD88 (GEOID 2012B) to Mississippi River Low Water Reference Plane of 2007 (LWRP 2007) values published by USACE. Refer to the HVCR submitted under separate cover for additional information.

C.2 Horizontal Control

The horizontal datum for this project is North American Datum of 1983 (NAD 83).

The projection used for this project is Universal Transverse Mercator (UTM) Zone 15.

RTK

During acquisition, RTK correctors were obtained from Louisiana State University's (LSU) Center for Geoinformatics (C4G) service via a dedicated cellular modem. These correctors provided RTK level of accuracy for horizontal and vertical positions for all survey data. If a loss of service was experienced during acquisition it was noted by the field watch stander, and those data were further analyzed to be resurveyed. No prolonged outages were experienced during survey acquisition of H13189. Verification of the C4G Network correctors were conducted by the field unit at various monuments established by USACE along the shoreline of the OPR-J347-KR-18 project area. Methods, analysis and results of these monument check-ins are further documented in the project wide HVCR.

C.3 Additional Horizontal or Vertical Control Issues

C.3.1 Water Level Floats

Water level floats were conducted by the field unit at the location of each USACE or NOAA gauge within the OPR-J347-KR-18 project area. Methods, analysis and results of these floats are further documented in the project wide HVCR. In general, these floats helped identify issues between the USACE and NOAA datums and that of the LWRP 2007 separation model utilized during acquisition. These tests resulted in iterations to the model by NOAA, discussed in detail in the HVCR.

C.3.2 Separation model change and re-processing

As discussed in section C4 of the DAPR and the project wide HVCR, due to a revision of the separation model used during acquisition, all ERS water levels were reprocessed after the revised model was issued. Refer to section B4.c of the DAPR for an outline of the processing steps.

D. Results and Recommendations

D.1 Chart Comparison

The chart comparison was performed by comparing H13189 survey depths to a digital surface generated from electronic navigational charts (ENCs) covering the survey area. A 10-meter product surface was generated from a triangular irregular network (TIN) created from the ENC's soundings, depth contours, and depth features. An additional 10-meter HIPS product surface of the entire survey area was generated from the 4-meter CUBE surface. The chart comparison was conducted by creating and reviewing a difference surface using the ENC surface and survey surface as inputs. The chart comparison also included a review of all assigned charted features within the survey area. The results of the comparison are detailed below. Sediment migration and other river environmental conditions contribute to a continually changing river bottom resulting in large differences observed by the field unit daily.

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 Electronic Navigational Charts

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

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US6LA54M	1:12000	10	04/04/2019	04/04/2019	NO

Table 14: Largest Scale ENCs

US6LA54M

ENC US6LA54M covered the entire extents of survey H13189. Figures 21 through 32 show the magnitude of differences along the comparison area.

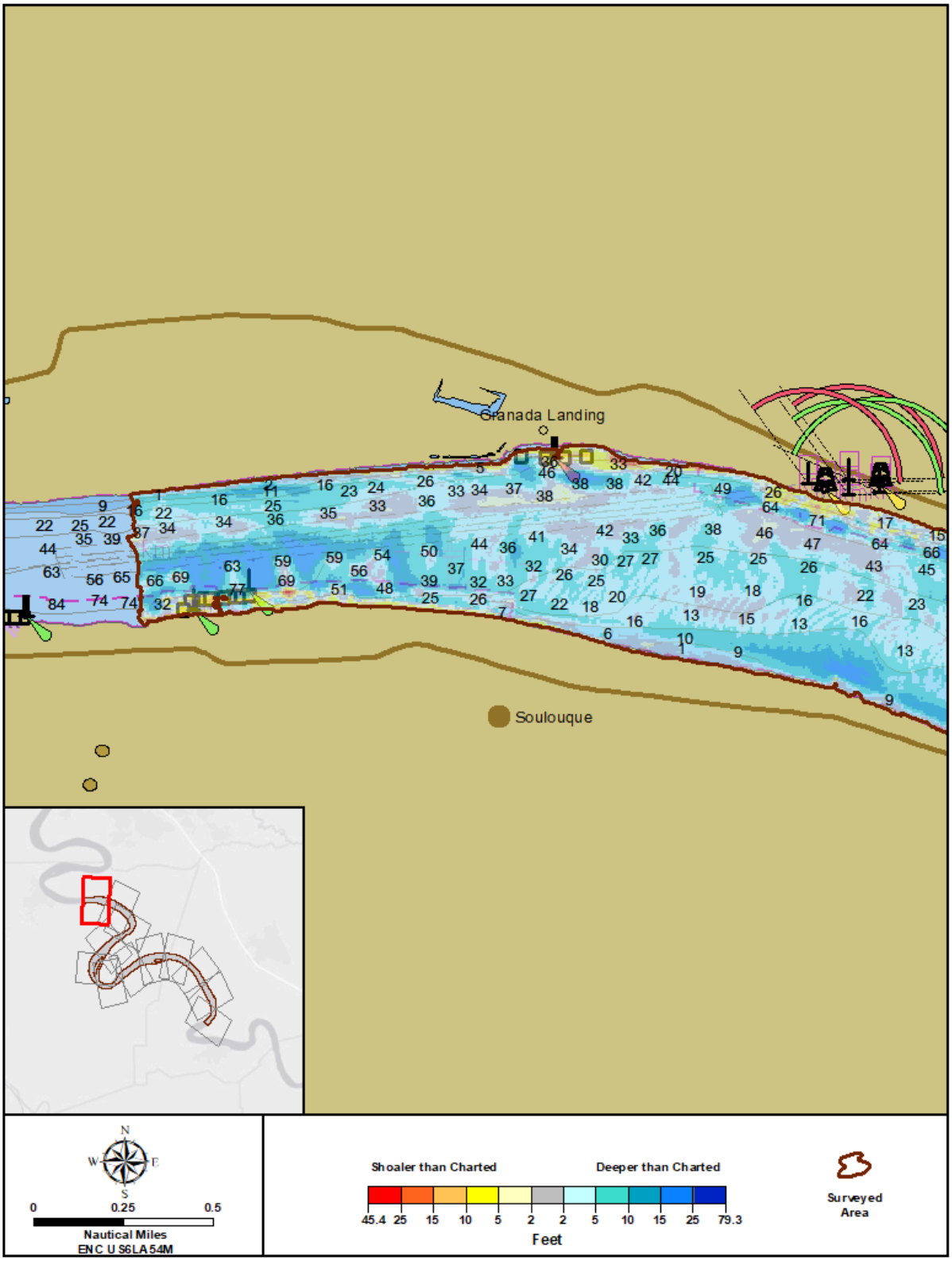


Figure 21: Depth difference between H13189 and chart US6LA54M, area 1 of 12

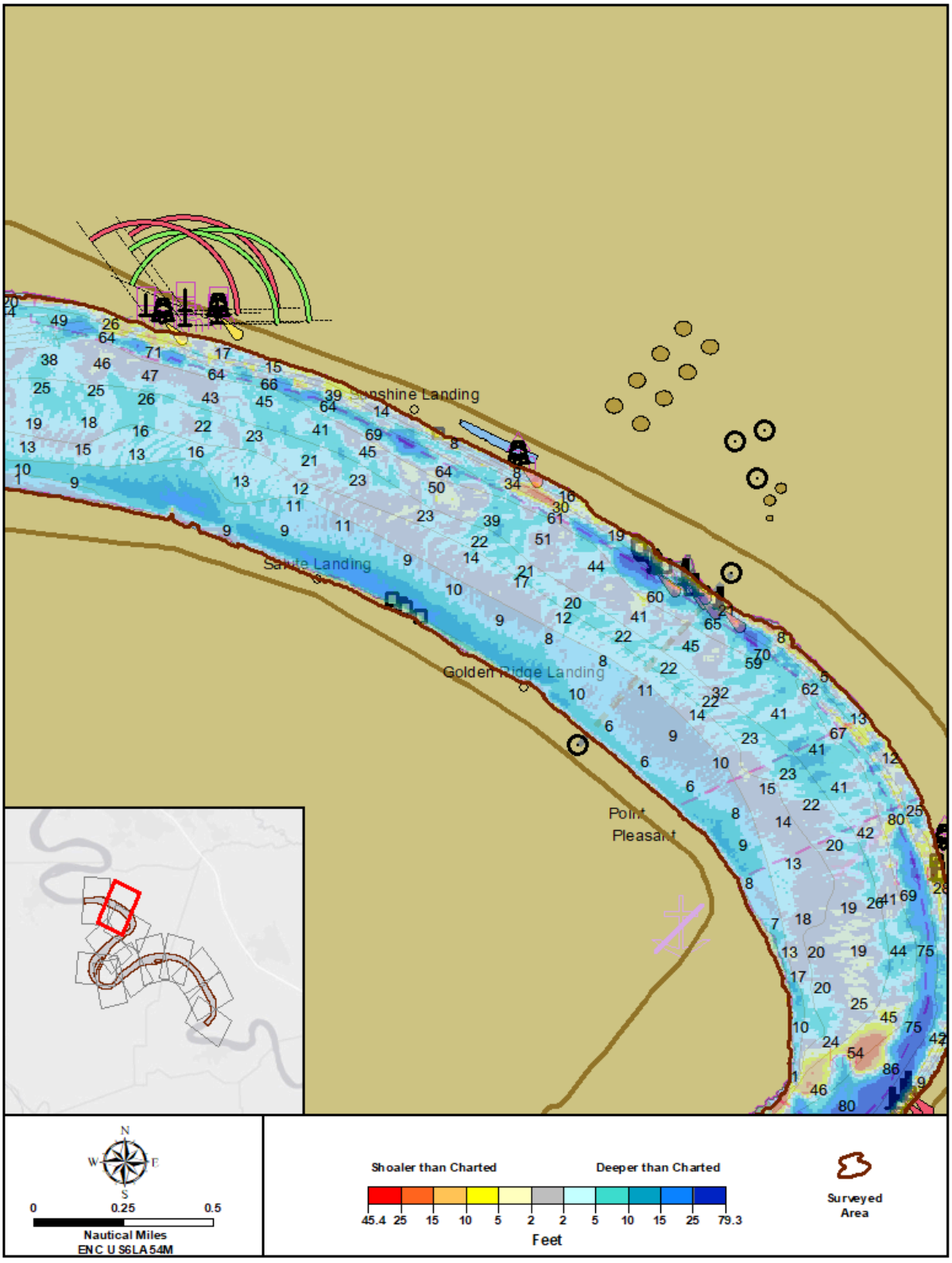


Figure 22: Depth difference between H13189 and chart US6LA54M, area 2 of 12

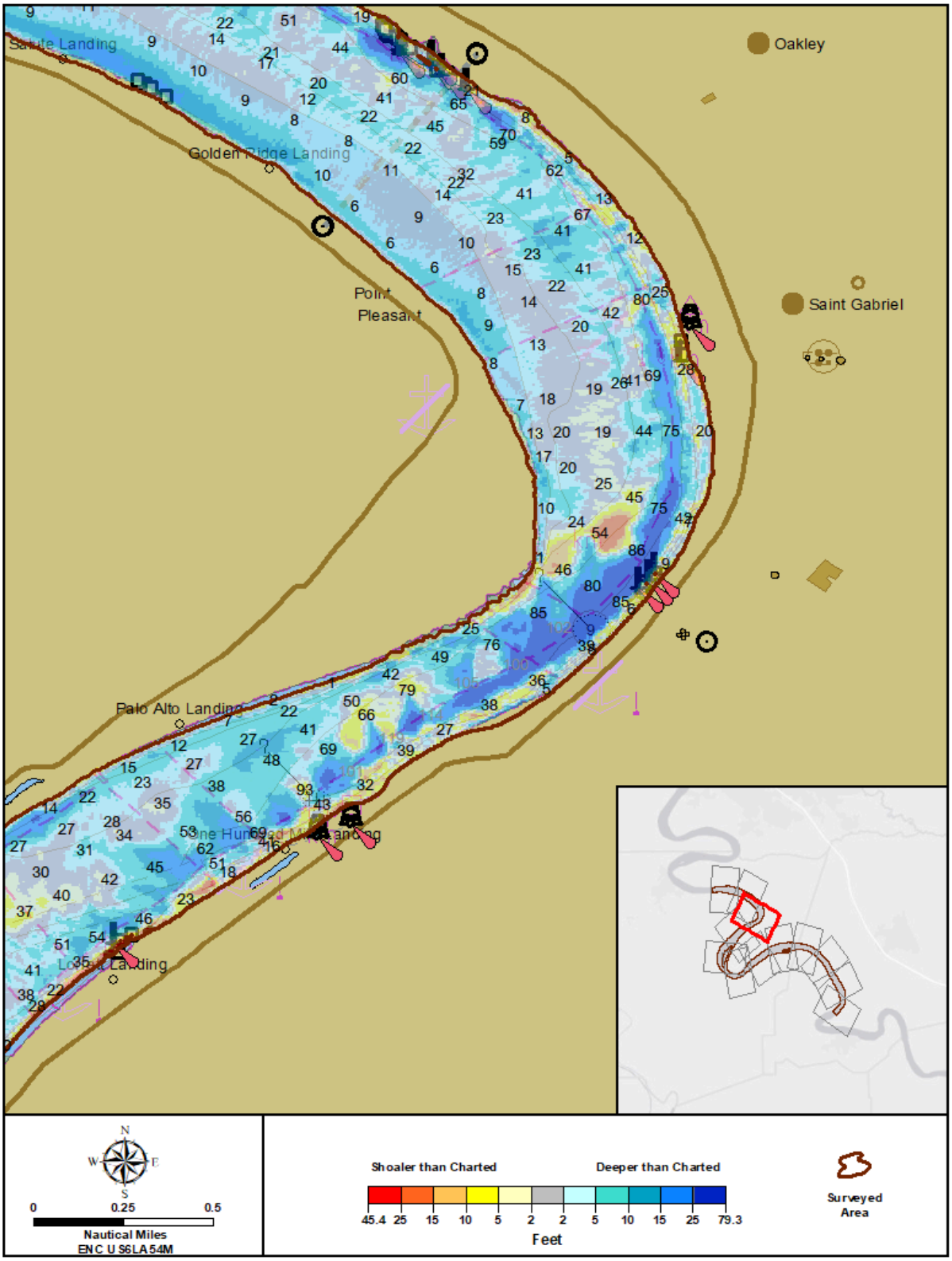


Figure 23: Depth difference between H13189 and chart US6LA54M, area 3 of 12

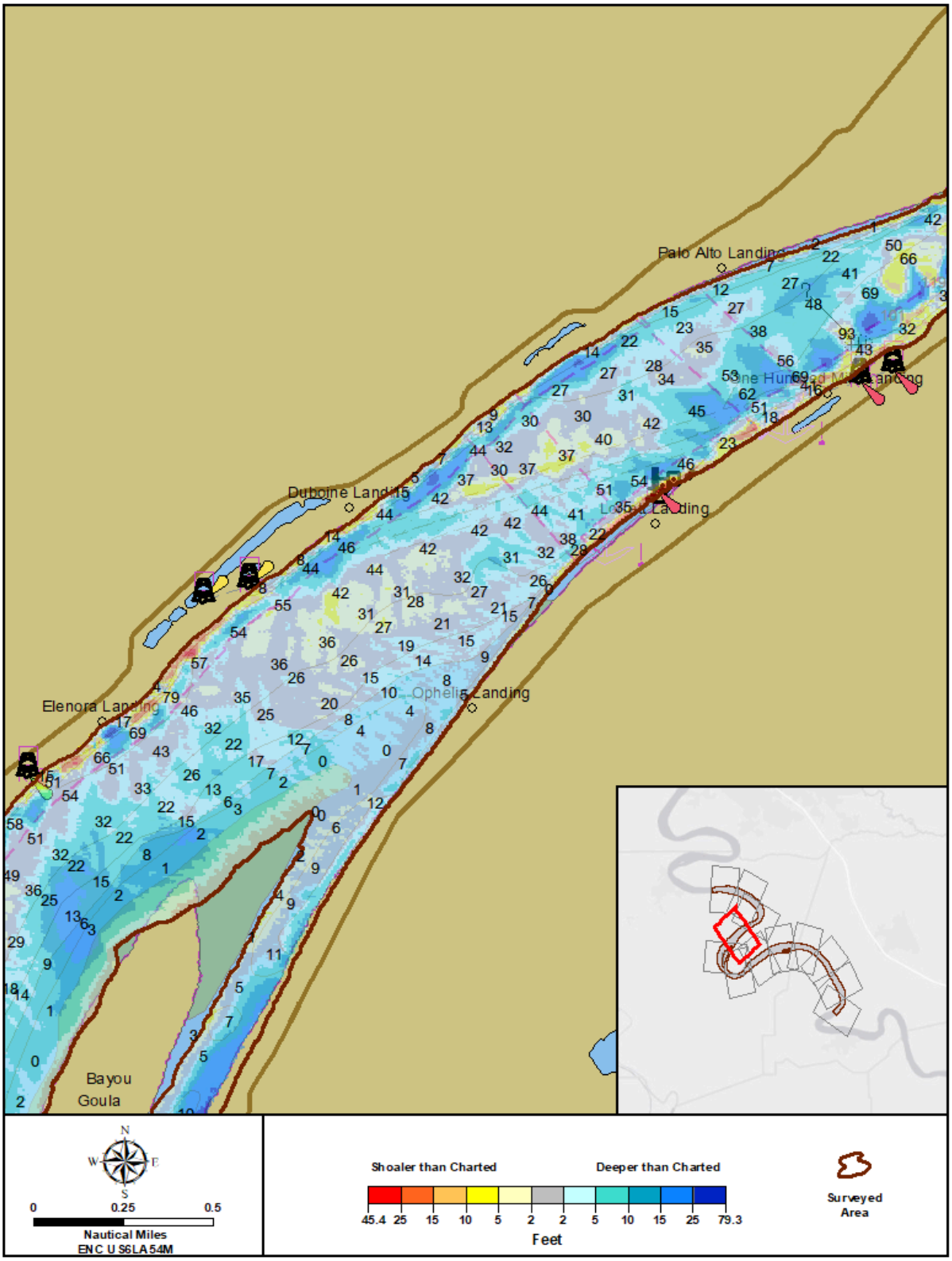


Figure 24: Depth difference between H13189 and chart US6LA54M, area 4 of 12

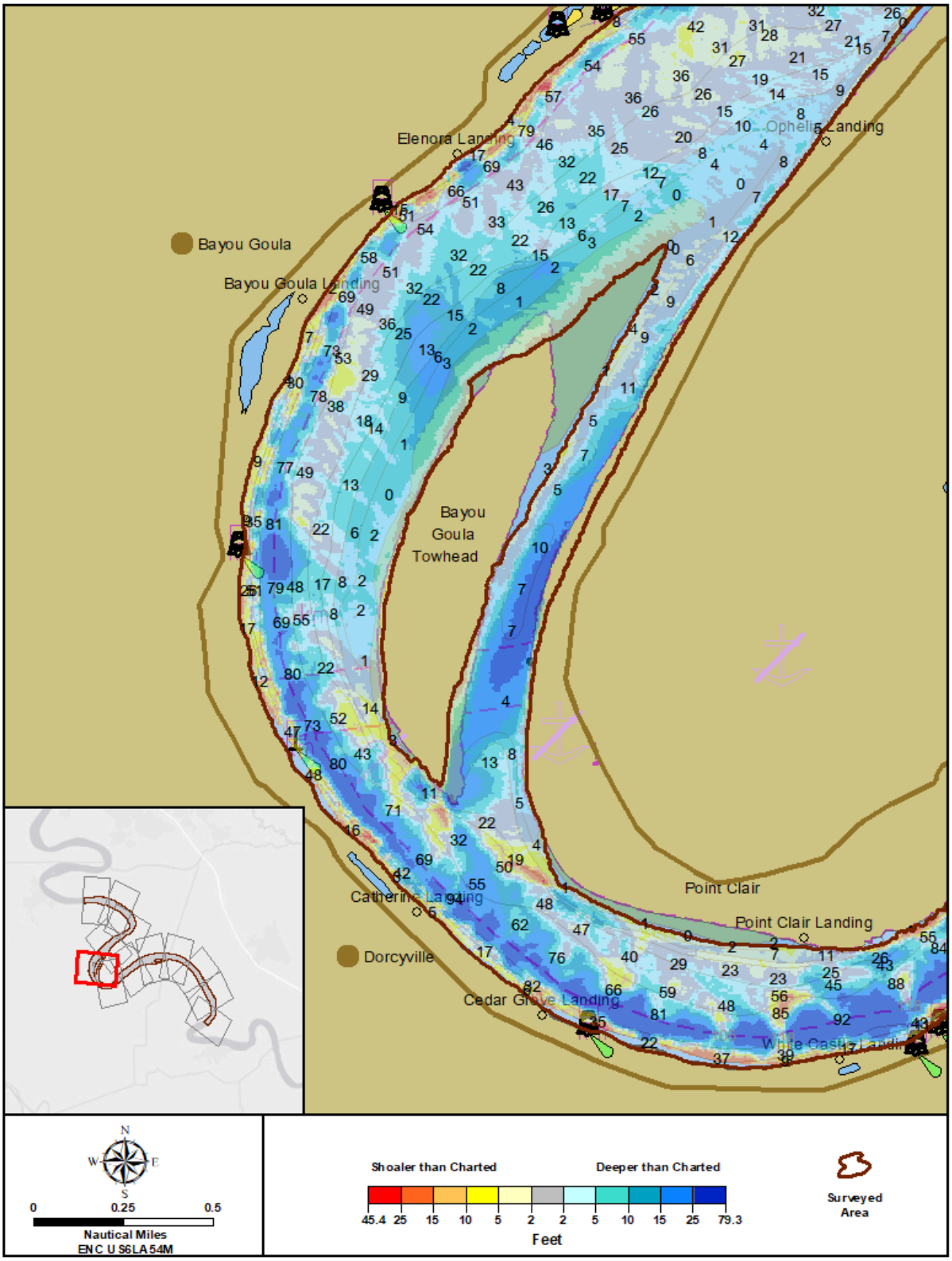


Figure 25: Depth difference between H13189 and chart US6LA54M, area 5 of 12

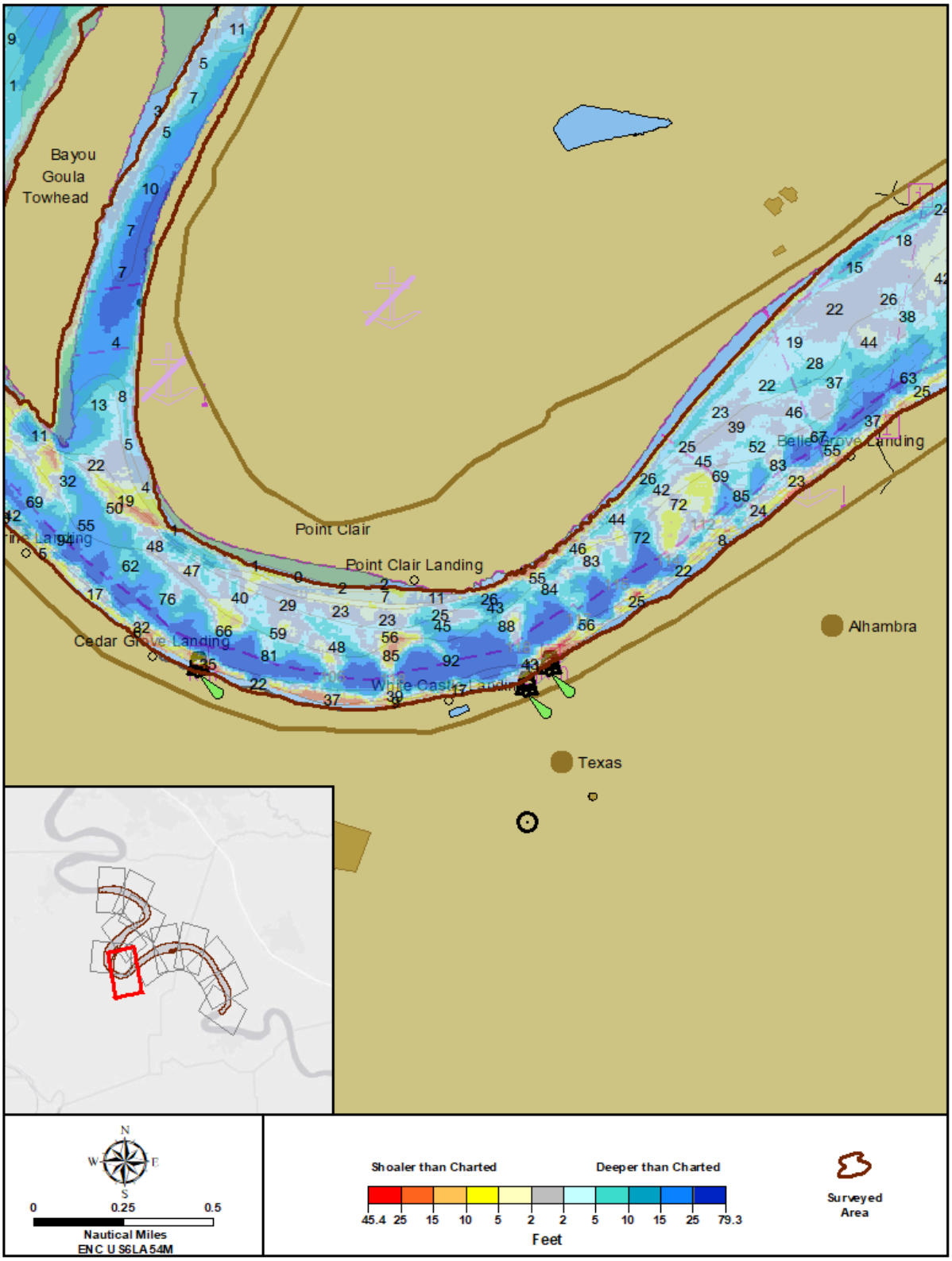


Figure 26: Depth difference between H13189 and chart US6LA54M, area 6 of 12

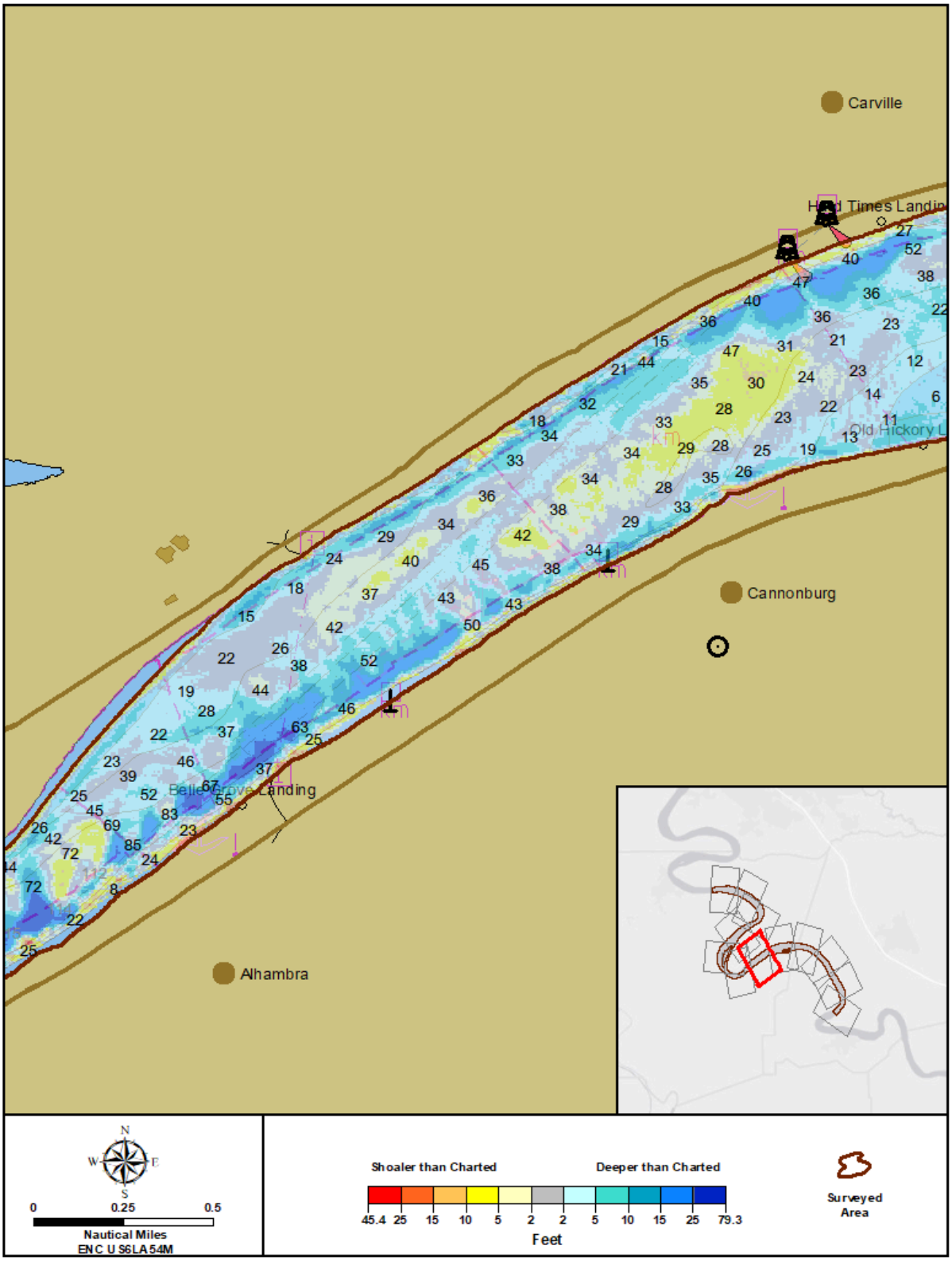


Figure 27: Depth difference between H13189 and chart US6LA54M, area 7 of 12

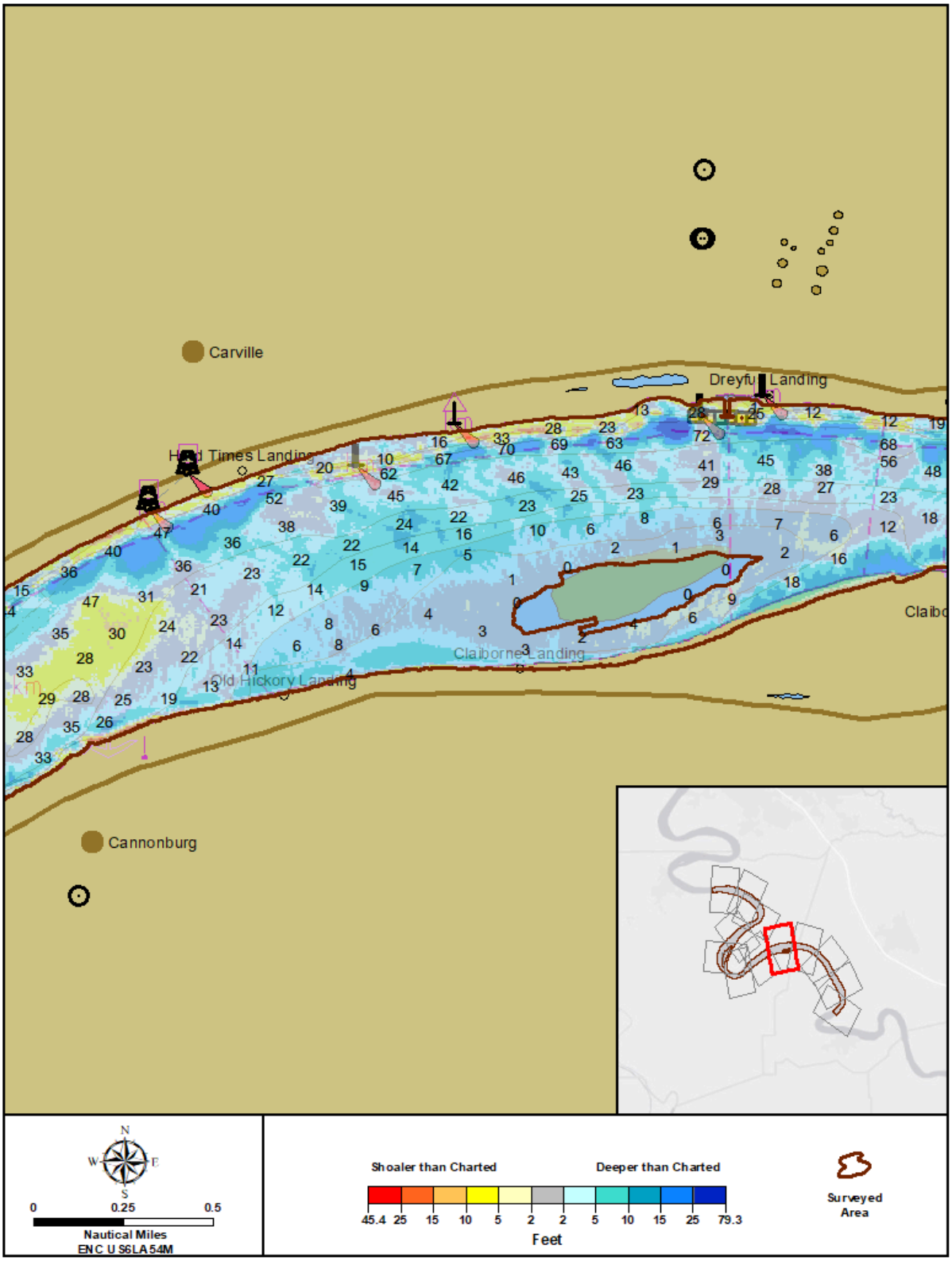


Figure 28: Depth difference between H13189 and chart US6LA54M, area 8 of 12

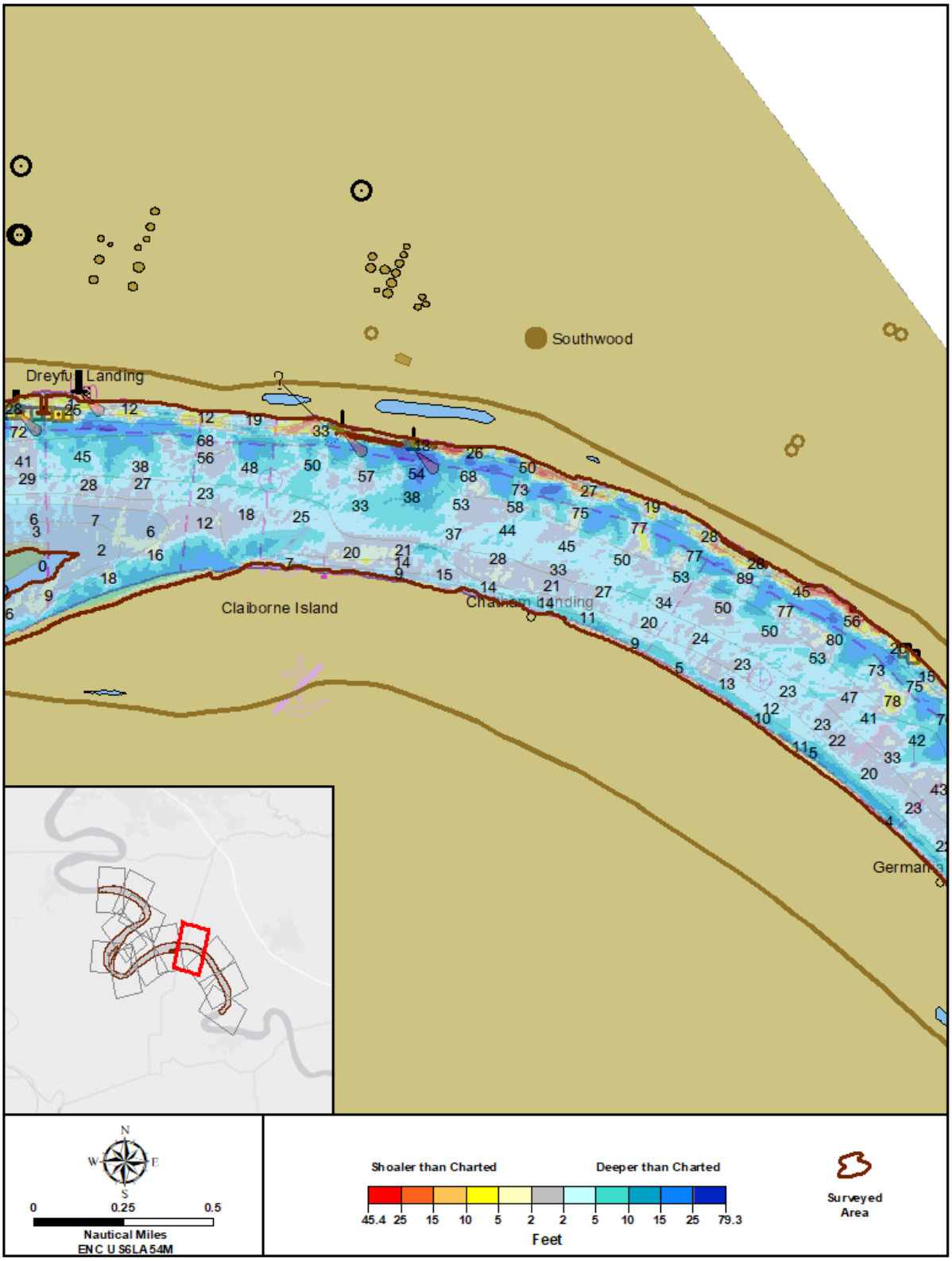


Figure 29: Depth difference between H13189 and chart US6LA54M, area 9 of 12

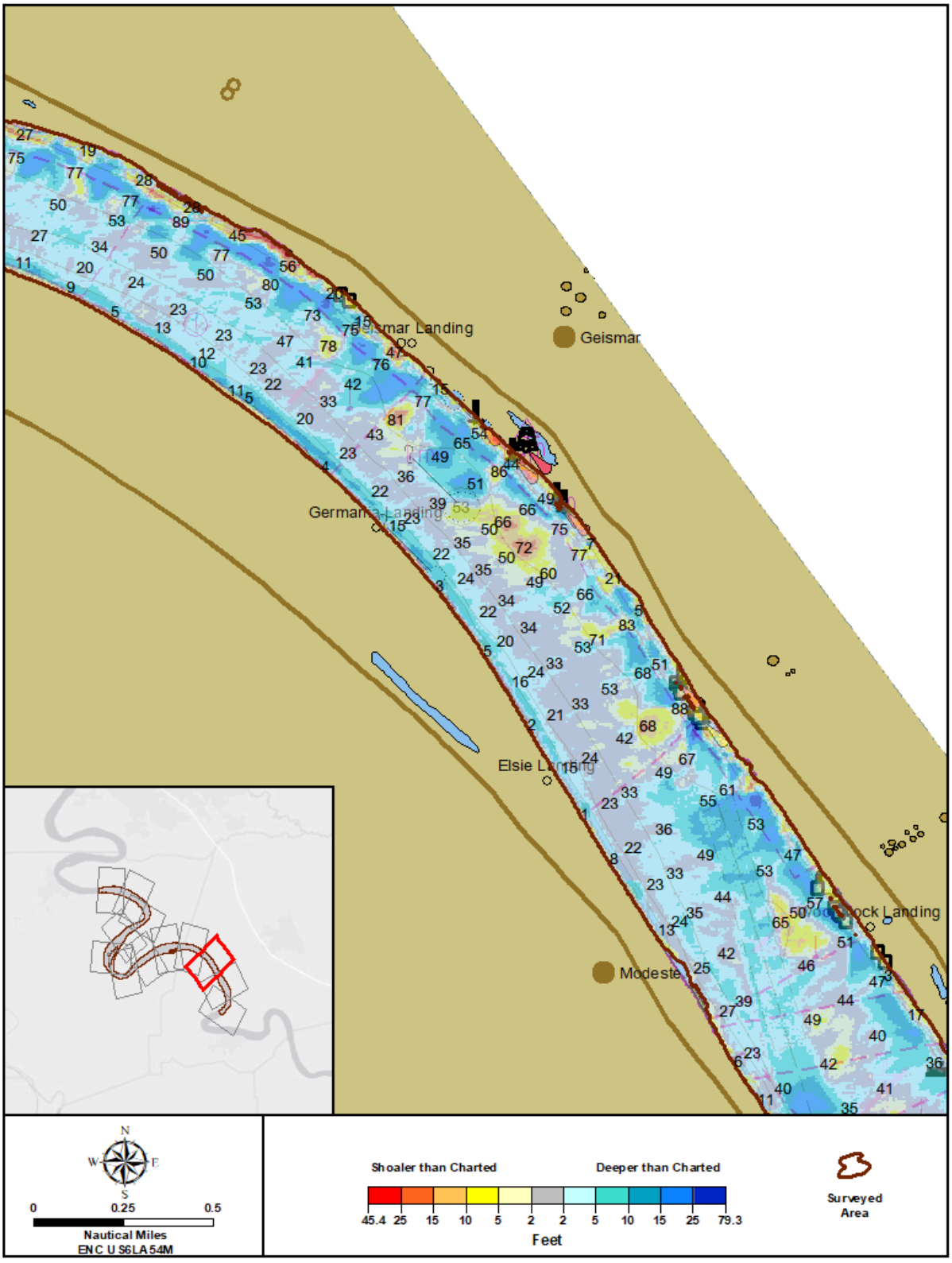


Figure 30: Depth difference between H13189 and chart US6LA54M, area 10 of 12

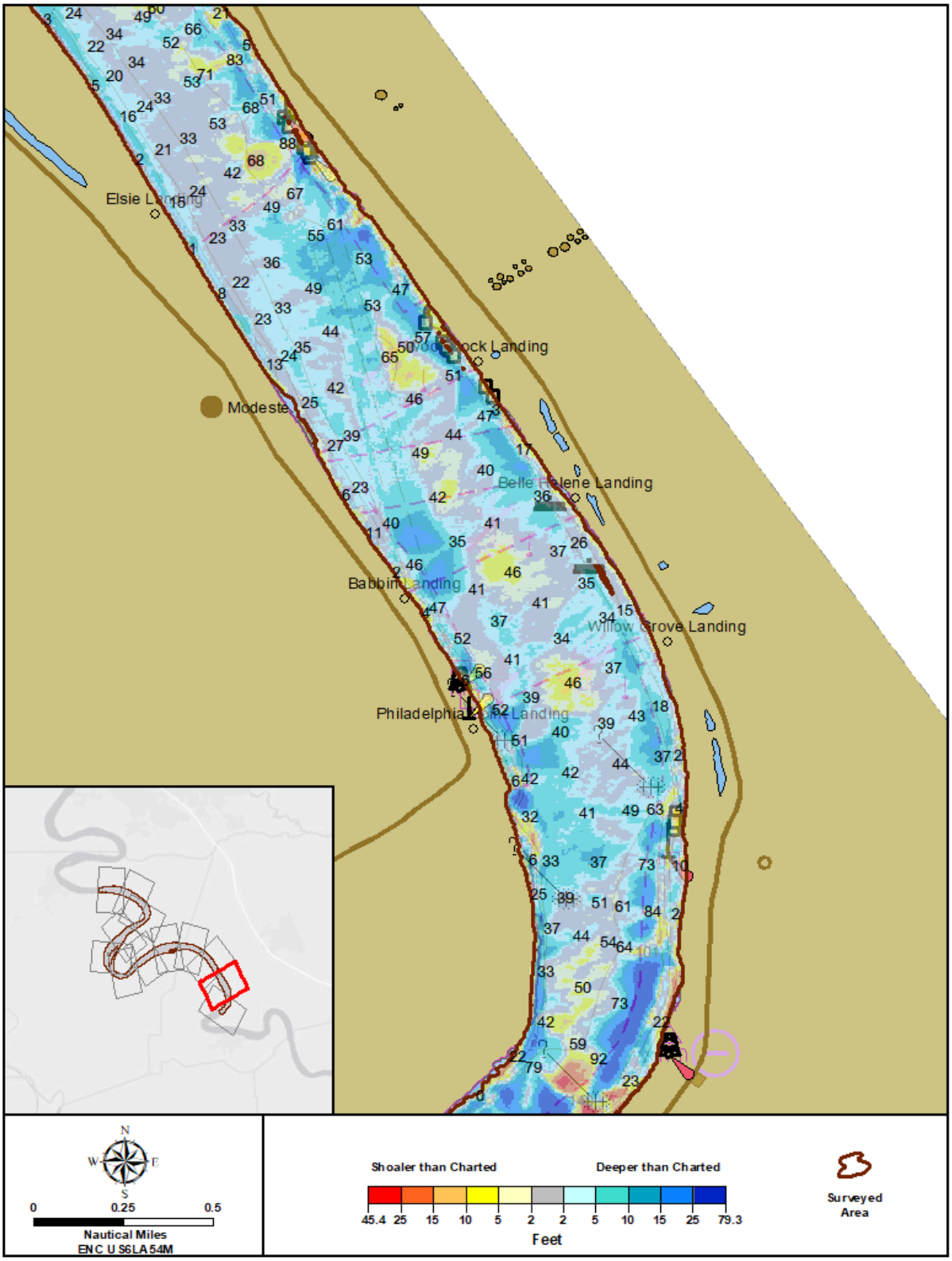


Figure 31: Depth difference between H13189 and chart US6LA54M, area 11 of 12

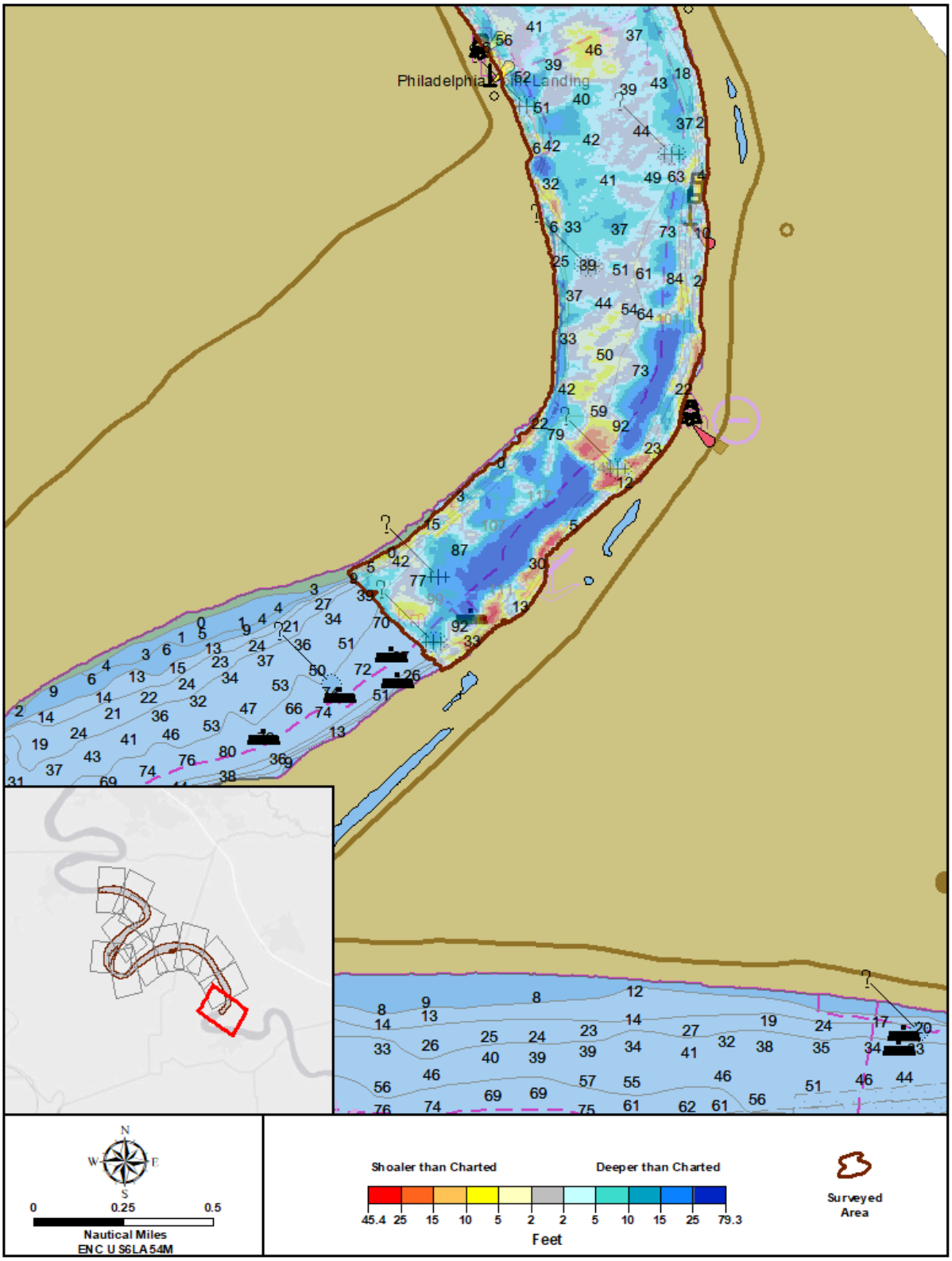


Figure 32: Depth difference between H13189 and chart US6LA54M, area 12 of 12

D.1.2 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.3 Charted Features

Numerous charted features exist within the limits of sheet H13189. All assigned features included in the project Composite Source File (CSF) have been addressed by the survey and are included in the FFF. Due to the large scale of the survey (1:5,000), many charted features have been recommended for deletion to be replaced by new higher resolution features digitized from the survey data. The hydrographer frequently requested guidance from HSD staff on appropriate depiction and attribution of features when the procedures set in the HSSD were insufficient to support the requirements of this precision navigation survey. Copies of this correspondence are included in Appendix II.

The survey area includes 16 charted features labeled Position Approximate (PA) and/or labeled Reported (rep).

- The Private Light PA, St. Gabriel Dock, along the east bank at mile 200.6 AHOP was relocated 61m north of the charted location by the survey.
- The Obstruction PA with least depth known charted along the east bank at mile 199.8 AHOP was disproved by the survey. Multiple new obstructions were found in the surrounding area of the charted Obstruction PA.
- The Wreck PA with depth unknown charted along the east bank at mile 198.9 AHOP was disproved by the survey. A new obstruction was found 55m to the northwest of the charted wreck PA.
- The Shoal rep 1981 charted mid river at mile 187.3 AHOP can be updated with surveyed depths.
- The Obstruction PA with depth unknown charted along the east bank at mile 187.2 AHOP was relocated by the survey.
- The Shoal rep 1981 charted along the west bank at mile 185.8 AHOP can be updated with surveyed depths.
- The Five Submerged Piles PA with depth unknown charted along the east bank at mile 185.1 AHOP were disproved by the survey.
- The Submerged Piles rep with depth unknown charted along the east bank at mile 185.0 AHOP were disproved by the survey.
- The Wreck PA 54ft rep with depth reported (not confirmed) charted mid river at mile 184.9 AHOP was disproved by the survey.
- The Submerged Dolphin PA with depth unknown charted along the west bank at mile 184.8 AHOP was disproved by the survey. Objects in the vicinity of the submerged dolphin PA do not meet the 1-meter height requirements in the HSSD for inclusion in the FFF.
- The Wreck PA with depth unknown charted along the west bank at mile 181.9 AHOP was disproved by the survey.
- The Wreck PA with depth unknown charted along the east bank at mile 181.8 AHOP was disproved by the survey.
- The Wreck PA with depth unknown charted mid river at mile 181.4 AHOP was disproved by the survey.
- The Wreck PA with depth unknown charted along the west bank at mile 180.8 AHOP was disproved by the survey.

- The Wreck PA with depth unknown charted mid river at mile 180.1 AHOP was disproved by the survey.
- The Wreck PA with depth unknown charted mid river at mile 180.0 AHOP was disproved by the survey.

All disproved features have been included in the FFF with a description of ‘Delete’. All new features have been included in the FFF depicting the feature as surveyed and with a description of ‘New’. The FFF includes assigned features, both baring and submerged, charted shoreward of the NALL that were too hazardous to survey. The baring features were either beyond the detection range of the MMS or obscured by river traffic, such as moored vessels or barge fleets. Multiple unsuccessful attempts were made to detect these outstanding obscured features. These features are included in the FFF with a description of 'Not Addressed'.

D.1.4 Uncharted Features

All uncharted features discovered during survey acquisition are addressed in the FFF. Refer to the FFF for additional information.

D.1.5 Shoal and Hazardous Features

No Dangers to Navigation (DtoNs) were submitted for this survey. Potential DtoNs are included as new features in the FFF. Because of the significant change that occurred within the project area since the last survey of the Mississippi River, HSD staff advised DEA to limit reporting of Dangers to Navigation to immediate hazards that could cause loss of life or impact waterborne commerce. Based on this direction, none of the new shoaling or features identified by the survey met the criteria to warrant an immediate DtoN report.

D.1.6 Channels

There are no pilot boarding areas within the limits of survey H13189.

The White Castle Anchorage is charted within the H13189 survey limits. MBES data acquired within this anchorage was carefully reviewed for features that could pose a risk to anchoring or navigation. No features were found using object detection MBES coverage within the anchorage area.

The charted Restricted Area, Eighty-one Mile Point VTS Special Area, was verified during survey operations.

Survey area H13189 contains the Granada, Bayou Goula, Alhambra, and Philadelphia Crossing Channels. According to the chart, the project depth for crossing channels is 45 feet (13.7 meters) for a width of 500 feet (152.4 meters). The controlling depths are published in Navigation Bulletins issued periodically by the New Orleans District Corps of Engineers, New Orleans, Louisiana. Crossing channels may be marked by buoys during low water. The crossing channels, using the project depth of 45 feet, are included in the chart comparison graphics, Figures 21, 24, 27, and 30-32. In general surveyed depths are deeper than the

project depths of the crossing channels but small areas of encroachment (portrayed by the yellow colors in the comparison graphics) can be seen in the Granada, Bayou Goula and Alhambra Crossing Channels.

There are 16 range lights associated with all crossing channels within the limits of survey H13189. Six Granada Range lights; upper, middle, and lower; front and rear, and two Virginia Range lights; front and rear, were surveyed at charted locations. Two Bayou Goula Range lights; front and rear, were surveyed approximately 9m south of charted locations and are included in the FFF with description = 'new'. Two White Castle Range lights; front and rear, were surveyed approximately 13m south of charted locations and are included in the FFF with description = 'new'. Both the Alahambra Range and Philadelphia Point Range front lights were surveyed at the charted locations while the rear lights were too far or blocked from the lidar sensor for accurate returns and not addressed with this survey.

D.1.7 Bottom Samples

No bottom samples were required for this survey.

D.2 Additional Results

D.2.1 Shoreline

Shoreline investigations were completed using mobile lidar and imagery survey techniques. Refer to the DAPR for additional information regarding the acquisition and processing of these data. All new and assigned features have been included in the sheet's FFF with appropriate comments and recommendations.

D.2.2 Aids to Navigation

Aids to Navigation (AtoNs) were investigated using mobile lidar and visual observations. AtoNs that were missing, damaged, or not serving their intended purpose were reported to the USCG via email on August 23, 2019, with additional items submitted November 18, 2019. Due to the large number of AtoNs requiring reporting, email was used for reporting instead of using the USCG Navigation Center's Online ATON Discrepancy Report as specified in the HSSD. This method was approved by the HSD Project Manager for this hydrographic survey. A copy of the email submittals are included in Appendix II. AtoNs have been included in the sheet's FFF with appropriate comments and recommendations.

D.2.3 Overhead Features

One overhead cable exists in the H13189 survey area. The Project Instructions required that this feature be scanned with a mobile lidar system during survey operations and that the published clearance height be compared to the surveyed clearance.

Clearances on the overhead cable was determined by using CARIS Base Editor to the identify the valid LAS point with the lowest elevation at the cable crossing. Because the LAS data extended on to shore, the search

area was limited to the portions of the cables spanning the river. The clearance was determined relative to the Mississippi River Low Water Reference Plane (2007).

Both the Raster Nautical Chart (RNC) and ENC for this area include charted clearance heights for the cable. The charted height is identical on the RNC and ENC, though the ENC does not note the vertical datum for the feature. The vertical datum for the cable listed on the RNC is the Mississippi River 1927 High Water Plane (HWP), which is over 44 feet above LWRP at Baton Rouge, LA. In order to make clearance heights more meaningful to chart users and ease the burden for the mariner to compute clearances from local water level gauge data, the hydrographer recommends charting all clearance heights relative to LWRP, not HWP. Water level data available for this stretch of the river are published by USACE relative to an approximation of LWRP. Other river systems, like the Columbia River in Oregon and Washington, use the low water gradient datum (chart datum) for charting of soundings and heights.

The overhead power cable is charted in the vicinity of Point Pleasant at mile 201.6 AHOP. Figure 33 includes a table comparing surveyed clearance heights relative to LWRP to charted clearance heights relative to HWP. Figure 34 graphically depict the result of the clearance analysis for the cable.

	Published Height (HWP) (ft)	Surveyed Height (LWRP) (ft)
Overhead Cable (201.6 AHOP)	165.7	212.4

Figure 33: H13189 Overhead Cable Clearances

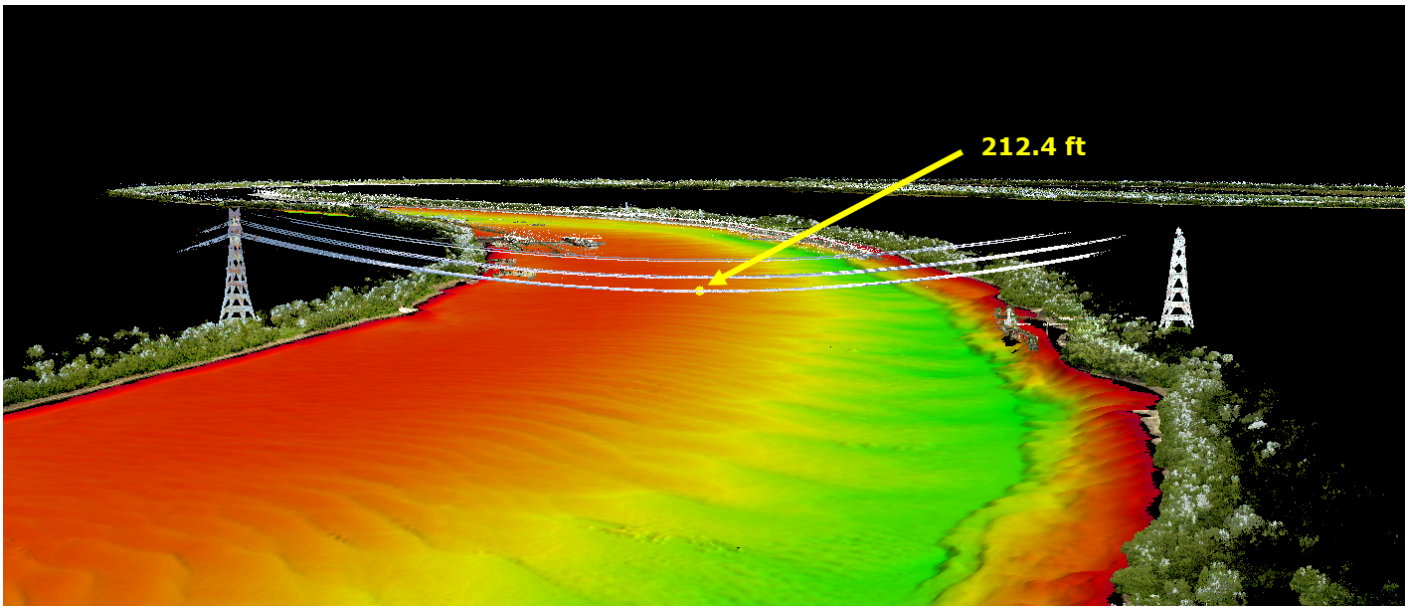


Figure 34: H13189 Overhead Cable Clearances (mile 201.6 AHOP, view looking upriver)

D.2.4 Submarine Features

All submarine features were investigated entirely using object detection MBES coverage.

The OPR-J347-HR-18 Project Instructions required that all revetments within the survey area be investigated and delineated in the FFF if detected in the MBES data. In most areas, revetments or sections of revetments are visible in the MBES data and surfaces. In areas where the charted revetments are not visible, the hydrographer is unable to determine if the revetment mats are not visible because they are no longer present, or if they have been buried by sediment. Revetment mats visible in the MBES data and extending beyond the limits of the PRF revetment polygons have been included in the FFF as obstruction area features. The VALSOU of each area obstruction has been populated with the minimum gridded depth within the obstruction area polygon. The HSD Project Manager and AHB personnel provided input on portrayal of revetments in the FFF. Correspondence related to this guidance is included in Appendix II.

There are two submerged cable areas, eleven submerged pipeline areas, and one sewer pipeline charted in the survey extents of H13189, where anchoring, trawling, and dragging are restricted. These precautionary areas and feature were surveyed using object detection MBES coverage techniques and carefully reviewed for any pipelines or cables that were exposed and pose a risk to navigation. Survey H13189 has twenty new pipeline sections included in the FFF.

A pipeline report included in Appendix II, was submitted to the BSEE on August 19, 2019, reporting sections of exposed or unburied pipeline visible in the MBES data. The reports indicate the positions of the start and end points of sections of what appear to be exposed pipelines based on interpretation of multibeam data. It is possible that some of the reported items include submerged outfalls and other linear features with a signature of a pipeline that are not associated with oil and gas infrastructure. Due to the inability to accurately depict the location and orientation of all exposed pipelines with a single line segment, these features have been included in the FFF should further action be required after survey submittal. It is not the hydrographer’s intention that these pipeline features be used as source information for charting without further validation of origin.

D.2.5 Platforms

No platforms exist for this survey.

D.2.6 Ferry Routes and Terminals

There is one ferry route that exists within the survey limits of H13189. The ferry route has not ben included in the FFF as specified in the feature’s CSF investigation requirements.

The White Castle to Carville Ferry (191.3 AHOP) is no longer in service. The ferry route was closed permanently on June 21, 2013. This was confirmed visually in the field and published by the Louisiana Department of Transportation and Development (DOTD). The hydrographer recommends removing the route from the ENC.

D.2.7 Abnormal Seafloor and/or Environmental Conditions

Evidence of large and quickly moving sediment waves were visible in the MBES data during acquisition. Refer to section B.2.6 of this report for additional information.

D.2.8 Construction and Dredging

Dredging activity was noted during acquisition on September 26-27, and 30, 2018, in the vicinity of the Philadelphia Crossing Channel. A dredge was in operation and dredging infrastructure was present during survey operations. From the bathymetric data it is not apparent if disagreement between subsequent days in this area is due to dredging or sediment migration. Dredging is apparent from the bathymetric coverage with a very distinct cut bank on the west side of the crossing area.

The area of active dredging was surveyed using object detection MBES coverage techniques and carefully reviewed. The area of disagreement in the MBES surface was documented in the H13189_Notes_for_Reviewer.hob file with SNDWAV area feature class with a remark of active dredging and sediment migration in the area, submitted in Appendix II of this report.

D.2.9 New Survey Recommendation

The hydrographer recommends that this area be resurveyed regularly due to the significant change in depths from sediment migration observed over the project timeline.

D.2.10 Barge Fleeting

Survey H13189 contained numerous areas where barge fleeting was present. This included both bank fleets and anchor fleets. These areas have been digitized from the MMS data and are included in the FFF with the MORFAC feature class with the recommendation of 'For info only'. Barge fleeting is continuously evolving and at any given time the barge fleet may be larger or smaller than the digitized areas submitted in the FFF. Barge fleets routinely limited the ability to reach the 2-meter survey coverage limits and resulted in unattainable holidays beneath the fleeting area. Figures 35 and 36 give project wide examples of the barge fleets experienced during survey operations.

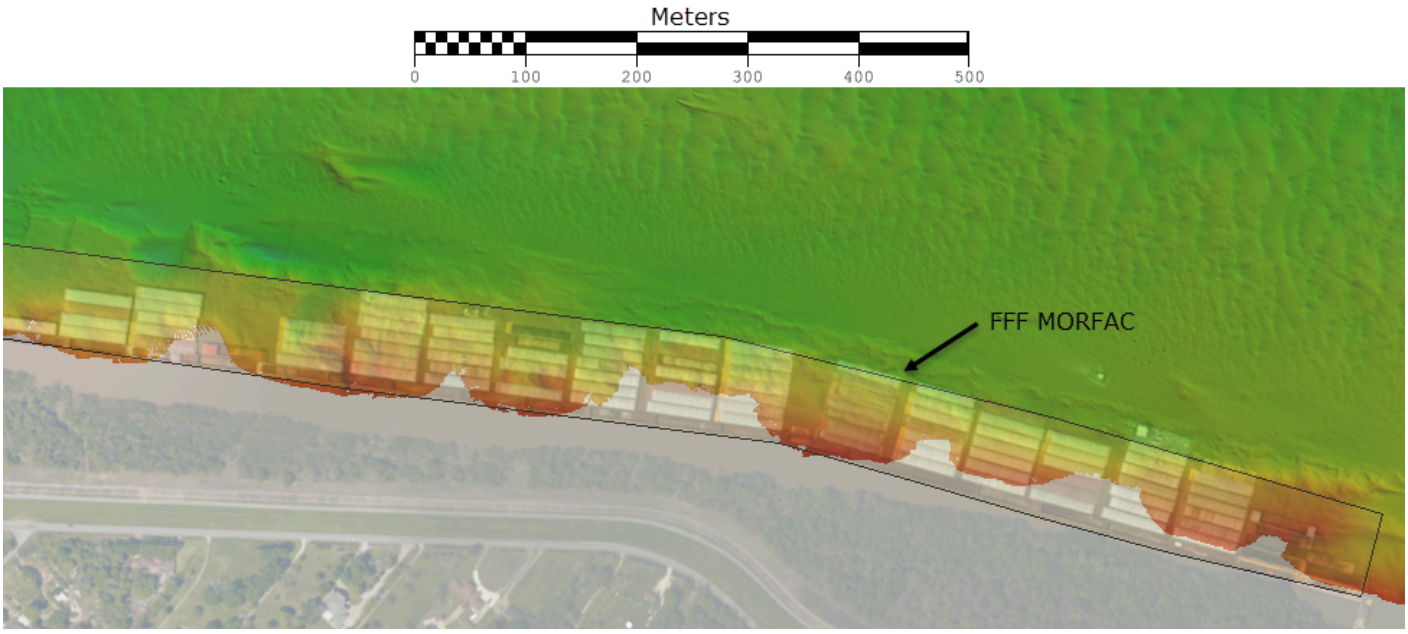


Figure 35: Survey data and barge fleet example found throughout the OPR-J347-KR-18 survey area

Figure 36: Photograph example of a barge fleet found throughout the OPR-J347-KR-18 survey 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, with the exception of the deficiencies outlined in this report. 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 Specifications and Deliverables, Field Procedures Manual, and Letter 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	2019-09-20
Coast Pilot Report	2019-07-11

Approver Name	Approver Title	Approval Date	Signature
Jonathan L. Dasler, PE, PLS, CH	NSPS/THSOA Certified Hydrographer, Chief of Party	12/06/2019	Digitally signed by Jon L. Dasler DN: cn=Jon L. Dasler, o=David Evans and Associates, Inc., ou, email=jld@deainc.com, c=US Date: 2019.12.06 08:14:53 -08'00'
Jason Creech, CH	NSPS/THSOA Certified Hydrographer, Charting Manager / Project Manager	12/06/2019	Digitally signed by Jason Creech DN: cn=Jason Creech, o=David Evans and Associates, Inc., ou, email=jasc@deainc.com, c=US Date: 2019.12.06 08:15:16 -08'00'
Callan McGriff, EIT	IHO Cat-A Hydrographer, Lead Hydrographer	12/06/2019	Digitally signed by Callan McGriff DN: cn=Callan McGriff, o=David Evans and Associates, Inc., ou, email=cemc@deainc.com, c=US Date: 2019.12.06 08:15:38 -08'00'
David T. Moehl, PLS, CH	NSPS/THSOA Certified Hydrographer, Lead Hydrographer	12/06/2019	Digitally signed by Dave Moehl DN: cn=Dave Moehl, o=David Evans and Associates, Inc., ou=Marine Services Division, email=dtm@deainc.com, c=US Date: 2019.12.06 08:16:03 -08'00'

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	Continuously 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
ERTDM	Ellipsoidally Referenced Tidal Datum Model
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

Acronym	Definition
HSSD	Hydrographic Survey Specifications and Deliverables
HSTB	Hydrographic Systems Technology Branch
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	Linear Nautical Miles
MBAB	Multibeam Echosounder Acoustic Backscatter
MCD	Marine Chart Division
MHW	Mean High Water
MLLW	Mean Lower Low Water
NAD 83	North American Datum of 1983
NALL	Navigable Area Limit Line
NTM	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
RNC	Raster Navigational Chart
RTK	Real Time Kinematic
RTX	Real Time Extended
SBES	Singlebeam Echosounder
SBET	Smooth Best Estimate and Trajectory
SNM	Square Nautical Miles
SSS	Side Scan Sonar
SSSAB	Side Scan Sonar Acoustic Backscatter
ST	Survey Technician
SVP	Sound Velocity Profiler
TCARI	Tidal Constituent And Residual Interpolation
TPE	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
ZDF	Zone Definition File

APPENDIX II
SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCE

DANGERS TO NAVIGATION REPORTS

NOT APPLICABLE

OTHER CORRESPONDENCE

SURVEY CORRESPONDENCE

AID TO NAVIGATION REPORTS

Jason Creech

From: Jason Creech
Sent: Friday, August 23, 2019 4:02 PM
To: Ussery, James C CIV; Boriskie, Timothy B CIV; Duane, Jesse L BMCS; Shaffer, Jeremy BMC; D08-DG-District-MarineInfo
Cc: Authement, Adam F BOSN3; Martha Herzog (martha.herzog@noaa.gov); Tim Osborn (Tim.Osborn@noaa.gov); Jon Dasler (Jld@deainc.com)
Subject: Mississippi River Aton Discrepancies - Mile 233 AHOP to Mile 22 BHOP
Attachments: H13188_USCG_AtoNs_RM_205_to_233.xlsx; H13189_USCG_AtoNs_RM_180_to_205.xlsx; H13190_USCG_AtoNs_RM_157_to_180.xlsx; H13191_USCG_AtoNs_RM_130_to_157.xlsx; H13192_USCG_AtoNs_RM_104_to_130.xlsx; H13193_USCG_AtoNs_RM_78_to_104.xlsx; H13194_USCG_AtoNs_RM_54_to_78.xlsx; H13196_USCG_AtoNs_RM_26_to_0.xlsx; H13212_USCG_AtoNs_RM_0_to_-22.xlsx

Hi Jim

We've completed our review of charted AtoNs located within our Mississippi River hydrographic project area and have generated AtoN Discrepancies reports for USCG. Similar to the report for Mile 54 AHOP to Mile 26 AHOP submitted on June 26, 2019, each attached spreadsheet includes new and missing ATONs as well any ATON found to be more than 2 meters out of position. All positions (Lat/Long in the spreadsheet) are referenced to NAD83(2011) and were extracted from our vessel mounted mobile mapping system (MMS) which relied on real-time kinematic GPS during acquisition. These surveys are part of NOAA's Precision Navigation initiative for the Mississippi River and will be used to generate new high resolution charts of the river.

I have attached excel spreadsheets listing the ATON discrepancies for each of the NOAA defined survey areas. Mile 54 AHOP to Mile 26 AHOP, which was previously submitted, has not been included.

H13188 - Mile 233 AHOP to Mile 205 AHOP
H13189 - Mile 205 AHOP to Mile 180 AHOP
H13190 - Mile 180 AHOP to Mile 157 AHOP
H13191 - Mile 157 AHOP to Mile 130 AHOP
H13192 - Mile 130 AHOP to Mile 104 AHOP
H13193 - Mile 104 AHOP to Mile 78 AHOP
H13194 - Mile 78 AHOP to Mile 54 AHOP
H13196 - Mile 26 AHOP to Mile 0 AHOP
H13212 - Mile 0 AHOP to Mile 22 BHOP

I've copied Martha Herzog, the NOAA Office of Coast Survey Project Manager for these surveys and Tim Osborn, the NOAA Central Gulf Coast Regional Navigation Manager on this email.

Please let me know if you have any questions.

Thanks,
Jason

Jason Creech, CH | Vice President, Nautical Charting Program Manager
David Evans and Associates, Inc.
2801 SE Columbia Way, Suite 130 | Vancouver, WA, 98661 | www.deainc.com

804.516.7829 | jasc@deainc.com

H13189_USCG_AtoNs_RM_180_to_205

Remark 1	Remark 2	Object Name	Latitude	Longtitude	Survey Date
LLNR 14982. New surveyed position using MMS data.	Beacon has been located approximately 228m north of charted location.	Matador Dock Lights	30-09-18.217N	090-59-46.532W	9/30/2018
LLNR 14982. New surveyed position using MMS data.	Beacon has been located approximately 179m north of charted location.	Matador Dock Lights	30-09-16.739N	090-59-46.758W	9/30/2018
Uncharted, lighted beacon surveyed using MMS data. Unable to determined light attribution during day ops.			30-10-32.480N	091-00-22.146W	9/30/2018
Uncharted, lighted beacon surveyed using MMS data. Unable to determined light attribution during day ops.			30-10-38.245N	091-00-26.506W	9/30/2018
LLNR 14993. New surveyed position using MMS data.	Beacon has been located approximately 8m northwest of charted location.	Basf Imtt Geismar Dolphin Light	30-11-14.910N	091-00-52.246W	9/30/2018
LLNR 14995. New surveyed position using MMS data.	Beacon has been located approximately 17m west of charted location.	Osca Barge Dock Light	30-11-43.581N	091-01-11.538W	9/30/2018
LLNR 14995. New surveyed position using MMS data.	Beacon has been located approximately 14m west of charted location.	Osca Barge Dock Light	30-11-44.846N	091-01-12.547W	9/30/2018
LLNR 15005. New surveyed position using MMS data.	Beacon has been located approximately 38m northwest of charted location.	Monochem Dock Light	30-11-53.084N	091-01-20.347W	9/30/2018
LLNR 15005. New surveyed position using MMS data.	Beacon has been located approximately 100m southeast of charted location.	Monochem Dock Light	30-11-56.259N	091-01-23.044W	9/30/2018
LLNR 15005. New surveyed position using MMS data.	Beacon has been located approximately 39m southeast of charted location.	Monochem Dock Light	30-11-57.597N	091-01-24.742W	9/30/2018
LLNR 15005. New surveyed position using MMS data.	Beacon has been located approximately 5m west of charted location.	Monochem Dock Light	30-11-58.554N	091-01-25.903W	9/30/2018
LLNR 15010. New surveyed position using MMS data.	Beacon has been located approximately 65m west of charted location.	Honeywell Chemical Dock Light	30-12-53.865N	091-03-12.873W	9/30/2018
LLNR 15010. New surveyed position using MMS data.	Beacon has been located approximately 25m west of charted location.	Honeywell Chemical Dock Light	30-12-55.987N	091-03-23.410W	9/30/2018
LLNR 15015. New surveyed position using MMS data.	Beacon has been located approximately 227m east of charted location.	Cos-Mar Light	30-12-59.151N	091-04-08.405W	9/30/2018
LLNR 15015. New surveyed position using MMS data.	Beacon has been located approximately 23m west of charted location.	Cos-Mar Light	30-12-59.565N	091-04-17.808W	9/30/2018
Uncharted buoy surveyed using MMS data.			30-12-37.839N	091-05-00.808W	9/30/2018
LLNR 15022. New surveyed position using MMS data.	Beacon has been located approximately 6m south of charted location.	Bear Industries Dolphin Lights	30-12-51.154N	091-05-14.461W	9/30/2018
LLNR 15105. New surveyed position using MMS data.	Beacon has been located approximately 62m north of charted location.	St. Gabriel Dock Light	30-15-21.636N	091-06-23.804W	9/30/2018
LLNR 15100. New surveyed position using MMS data.	Beacon has been located approximately 6m east of charted location.	Olin Dock Light	30-14-44.067N	091-06-28.314W	9/30/2018
LLNR 15100. New surveyed position using MMS data.	Beacon has been located approximately 14m southwest of charted location.	Olin Dock Light	30-14-42.499N	091-06-29.814W	9/30/2018
LLNR 15100. Charted beacon not observed visually or in MMS data.		Olin Dock Light	30-14-41.423N	091-06-31.262W	9/30/2018
Uncharted buoy surveyed using MMS data.			30-15-29.049N	091-06-52.011W	9/30/2018
LLNR 15115. New surveyed position using MMS data.	Beacon has been located approximately 58m northwest of charted location.	Willow Glenn Wharf Light	30-16-06.362N	091-07-01.447W	9/30/2018
LLNR 15115. New surveyed position using MMS data.	Beacon has been located approximately 27m northwest of charted location.	Willow Glenn Wharf Light	30-16-07.486N	091-07-03.125W	9/30/2018
LLNR 15115. New surveyed position using MMS data.	Beacon has been located approximately 32m southeast of charted location.	Willow Glenn Wharf Light	30-16-08.360N	091-07-05.084W	9/30/2018
LLNR 15115. New surveyed position using MMS data.	Beacon has been located approximately 60m west of charted location.	Willow Glenn Wharf Light	30-16-10.330N	091-07-07.949W	9/30/2018
LLNR 15115. New surveyed position using MMS data.	Beacon has been located approximately 35m west of charted location.	Willow Glenn Wharf Light	30-16-11.537N	091-07-09.911W	9/30/2018
LLNR 15115. New surveyed position using MMS data.	Beacon has been located approximately 50m north of charted location.	Willow Glenn Wharf Light	30-16-13.134N	091-07-10.982W	9/30/2018
LLNR 14550. New surveyed position using MMS data.	Beacon has been located approximately 104m northwest of charted location.	Kaiser Coke Dock Lights	30-16-13.945N	091-07-13.008W	9/30/2018
LLNR 15085. New surveyed position using MMS data.	Beacon has been located approximately 98m northeast of charted location.	Sunoco Terminal Dolphin Lights	30-13-43.571N	091-07-55.804W	9/30/2018
LLNR 15085. New surveyed position using MMS data.	Beacon has been located approximately 28m northeast of charted location.	Sunoco Terminal Dolphin Lights	30-13-42.336N	091-07-58.007W	9/30/2018
Uncharted, lighted beacon surveyed using MMS data. Unable to determined light attribution during day ops.			30-16-21.558N	091-08-30.940W	9/30/2018
Uncharted buoy surveyed using MMS data.			30-10-47.371N	091-08-31.661W	9/30/2018
Uncharted buoy surveyed using MMS data.			30-10-51.732N	091-09-04.302W	9/30/2018
LLNR 15155. New surveyed position using MMS data.	Beacon has been located approximately 145m east of charted location.	Petrounited Tanker Dock Lights	30-16-58.466N	091-09-13.252W	9/30/2018
LLNR 15155. New surveyed position using MMS data.	Beacon has been located approximately 147m west of charted location.	Petrounited Tanker Dock Lights	30-16-58.433N	091-09-24.188W	9/30/2018
Uncharted buoy surveyed using MMS data.			30-11-13.284N	091-09-35.295W	9/30/2018
Uncharted buoy surveyed using MMS data.			30-12-23.908N	091-09-40.118W	9/30/2018
Uncharted buoy surveyed using MMS data.			30-11-25.308N	091-09-45.339W	9/30/2018
Uncharted buoy surveyed using MMS data.			30-11-55.154N	091-09-50.716W	9/30/2018
LLNR 15060. Charted beacon not observed visually or in MMS data.		Eureka Light 195	30-11-23.538N	091-09-58.537W	9/30/2018
LLNR 15160. New surveyed position using MMS data.	Beacon has been located approximately 24m south of charted location.	Ashland Dock Light	30-16-35.488N	091-10-09.600W	9/30/2018
LLNR 15160. New surveyed position using MMS data.	Beacon has been located approximately 39m north of charted location.	Ashland Dock Light	30-16-34.185N	091-10-19.745W	9/30/2018

Jason Creech

From: Jason Creech
Sent: Monday, November 18, 2019 9:33 AM
To: Ussery, James C CIV; Boriskie, Timothy B CIV; Duane, Jesse L BMCS; Shaffer, Jeremy BMC; D08-DG-District-MarineInfo
Cc: Authement, Adam F BOSN3; Martha Herzog (martha.herzog@noaa.gov); Tim Osborn (Tim.Osborn@noaa.gov)
Subject: Mississippi River Aton Discrepancies - Mile 195 to Mile 190 AHOP
Attachments: Eureka Light 195_3D.png; White Alder Memorial Light 195A_3D.png; H13189 _USCG_AtoNs_RM_195_to_190.xlsx

Hi Jim

Using our Mississippi River survey data, we have determined that four other previously unreported aids were out of position at time of survey. Three of the aids were outside of the survey area and not assigned by NOAA for review but were captured in our MMS data and do not match the charted or published positions. The other aid (Eureka Light 195) was originally reported as not observed in our August 23rd report, but has recently been located in our data approximately 126m south of the charted location.

I've attached an AtoN Discrepancy report similar to reports we have submitted previously. All positions (Lat/Long in the spreadsheet) are referenced to NAD83(2011) and were extracted from our vessel mounted laser scanner which relied on real-time kinematic GPS during acquisition. I've also attached graphics of our data showing survey vs charted locations of Eureka Light 195 and White Alder Memorial Light 195A which were determined to be over 100 meters out of position.

I've copied Martha Herzog, the NOAA Office of Coast Survey Project Manager for this survey and Tim Osborn, the NOAA Central Gulf Coast Regional Navigation Manager.

Please let me know if you have any questions.

Thanks,
Jason

Jason Creech, CH | Vice President, Nautical Charting Program Manager
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t: 804.806.4440 | c: 804.516.7829 | jasc@deainc.com

H13189_USCG_AtoNs_RM_195_to_190

Remark 1	Remark 2	Object Name	Latitude	Longtitude	Survey Date
LLNR 15035. New surveyed position using MMS data.	Beacon has been located approximately 4m southeast of charted location.	White Castle Lower Anchorage	30-11-51.675N	091-06-19.149W	9/30/2018
LLNR 15040. New surveyed position using MMS data.	Beacon has been located approximately 5m north of charted location.	White Castle Upper Anchorage	30-11-28.414N	091-06-55.675W	9/30/2018
LLNR 15065. New surveyed position using MMS data.	Beacon has been located approximately 105m north of charted location.	White Alder Memorial Light 195A	30-11-59.686N	091-10-08.225W	9/30/2018
LLNR 15060. New surveyed position using MMS data.	Beacon has been located approximately 126m south of charted location.	Eureka Light 195	30-11-19.473N	091-09-59.181W	9/30/2018

Jason Creech

From: Jason Creech
Sent: Monday, August 19, 2019 5:26 PM
To: pipelines@bsee.gov
Cc: Martha Herzog (martha.herzog@noaa.gov); Tim Osborn (Tim.Osborn@noaa.gov); Jon Dasler (Jld@deainc.com); Angie Gobert (angie.gobert@bsee.gov)
Subject: Mississippi River Unburied Pipelines H13189 - Mile 205 AHOP to Mile 180 AHOP
Attachments: H13189_Exposed_Pipelines.zip; H13189_Exposed_Pipelines_for_BSEE.xlsx

Good Afternoon

While performing hydrographic surveys of the Mississippi River for NOAA Office of Coast Survey, David Evans and Associates, Inc. has discovered what appear to be multiple segments of unburied pipelines within survey area H13189 which extends from Mile 205 AHOP to Mile 180 AHOP. I have included a text description if each exposure below and attached two files supporting this report. Attached is a spreadsheet containing the locations of the start and end points of the segments and a zip file containing screen shots from our multibeam sonar data and overview maps of each exposure. This report is based on interpretation of multibeam sonar data. All reported exposures have the signature of a pipeline. All coordinates are relative to NAD83(2011) and listed in degrees minutes seconds (DMS). Angie Gobert, BSEE Chief, Supervisory Petroleum Engineer, Pipeline Section has provided input on the format of the spreadsheet and report.

Please let me know if you have any questions or require additional information. Martha Herzog, the NOAA Project Manager for these surveys, and Tim Osborn, the NOAA Central Gulf Coast Regional Navigation Manager have been copied on this email. Additional reports for other portions of the Mississippi River to follow.

Thank you,
Jason Creech

H13189_Pipelines_01_A is a segment of exposed pipeline approximately 105 feet in length with starting coordinates 30 12 15.912N, 91 02 25.868W and ending at 30 12 16.850N, 91 02 25.351W. The exposed segment has a bearing of 25 degrees and was identified in multibeam echosounder data acquired on September 30, 2018 (DN 273). The pipeline is located within a charted pipeline area and rises approximately 3 feet above the surrounding river bottom.

H13189_Pipelines_01_B is a segment of exposed pipeline approximately 51 feet in length with starting coordinates 30 12 15.850N, 91 02 25.627W and ending at 30 12 16.288N, 91 02 25.344W. The exposed segment has a bearing of 28 degrees and was identified in multibeam echosounder data acquired on September 30, 2018 (DN 273). The pipeline is located within a charted pipeline area and rises approximately 5 feet above the surrounding river bottom.

H13189_Pipelines_01_C is a segment of exposed pipeline approximately 65 feet in length with starting coordinates 30 12 15.863N, 91 02 24.980W and ending at 30 12 16.421N, 91 02 24.618W. The exposed segment has a bearing of 28 degrees and was identified in multibeam echosounder data acquired on September 30, 2018 (DN 273). The pipeline is located within a charted pipeline area and rises approximately 2 feet above the surrounding river bottom.

H13189_Pipelines_01_D is a segment of exposed pipeline approximately 208 feet in length with starting coordinates 30 12 14.880N, 91 02 24.236W and ending at 30 12 16.403N, 91 02 22.648W. The exposed segment has a bearing of 41 degrees and was identified in multibeam echosounder data acquired on September 30, 2018 (DN 273). The pipeline is located within a charted pipeline area and rises approximately 16 feet above the surrounding river bottom.

H13189_Pipelines_01_E is a segment of exposed pipeline approximately 101 feet in length with starting coordinates 30 12 14.823N, 91 02 24.169W and ending at 30 12 15.378N, 91 02 23.217W. The exposed segment has a bearing of 55

degrees and was identified in multibeam echosounder data acquired on September 30, 2018 (DN 273). The pipeline is located within a charted pipeline area and rises approximately 3 feet above the surrounding river bottom.

H13189_Pipelines_01_F is a segment of exposed pipeline approximately 24 feet in length with starting coordinates 30 12 16.403N, 91 02 21.397W and ending at 30 12 16.563N, 91 02 21.189W. The exposed segment has a bearing of 48 degrees and was identified in multibeam echosounder data acquired on September 30, 2018 (DN 273). The pipeline is located within a charted pipeline area and rises approximately 2 feet above the surrounding river bottom.

H13189_Pipelines_01_G is a segment of exposed pipeline approximately 287 feet in length with starting coordinates 30 12 14.721N, 91 02 23.973W and ending at 30 12 16.322N, 91 02 21.284W. The exposed segment has a bearing of 55 degrees and was identified in multibeam echosounder data acquired on September 30, 2018 (DN 273). The pipeline is located within a charted pipeline area and rises approximately 3 feet above the surrounding river bottom.

H13189_Pipelines_02_A is a segment of exposed pipeline approximately 122 feet in length with starting coordinates 30 10 03.190N, 91 00 03.319W and ending at 30 10 02.695N, 91 00 04.586W. The exposed segment has a bearing of 245 degrees and was identified in multibeam echosounder data acquired on September 27, 2018 (DN 270). The pipeline is located within a charted pipeline area and rises approximately 4 feet above the surrounding river bottom.

H13189_Pipelines_02_B is a segment of exposed pipeline approximately 58 feet in length with starting coordinates 30 10 02.752N, 91 00 03.338W and ending at 30 10 02.484N, 91 00 03.923W. The exposed segment has a bearing of 241 degrees and was identified in multibeam echosounder data acquired on September 27, 2018 (DN 270). The pipeline is located within a charted pipeline area and rises approximately 2 feet above the surrounding river bottom.

H13189_Pipelines_02_C is a segment of exposed pipeline approximately 99 feet in length with starting coordinates 30 10 02.168N, 91 00 02.673W and ending at 30 10 01.745N, 91 00 03.690W. The exposed segment has a bearing of 243 degrees and was identified in multibeam echosounder data acquired on September 27, 2018 (DN 270). The pipeline is located within a charted pipeline area and rises approximately 8 feet above the surrounding river bottom.

H13189_Pipelines_02_D is a segment of exposed pipeline approximately 60 feet in length with starting coordinates 30 10 01.843N, 91 00 03.420W and ending at 30 10 01.252N, 91 00 03.446W. The exposed segment has a bearing of 181 degrees and was identified in multibeam echosounder data acquired on September 27, 2018 (DN 270). The pipeline is located within a charted pipeline area and rises approximately 6 feet above the surrounding river bottom.

H13189_Pipelines_02_E is a segment of exposed pipeline approximately 38 feet in length with starting coordinates 30 10 00.960N, 91 00 03.255W and ending at 30 10 00.611N, 91 00 03.093W. The exposed segment has a bearing of 157 degrees and was identified in multibeam echosounder data acquired on September 27, 2018 (DN 270). The pipeline is located within a charted pipeline area and rises approximately 5 feet above the surrounding river bottom.

H13189_Pipelines_03_A is a segment of exposed pipeline approximately 41 feet in length with starting coordinates 30 10 31.045N, 91 00 20.941W and ending at 30 10 30.833N, 91 00 21.345W. The exposed segment has a bearing of 238 degrees and was identified in multibeam echosounder data acquired on September 27, 2018 (DN 270). The pipeline is located within a charted pipeline area and rises approximately 9 feet above the surrounding river bottom.

H13189_Pipelines_03_B is a segment of exposed pipeline approximately 41 feet in length with starting coordinates 30 10 29.938N, 91 00 19.743W and ending at 30 10 29.712N, 91 00 20.125W. The exposed segment has a bearing of 235 degrees and was identified in multibeam echosounder data acquired on September 27, 2018 (DN 270). The pipeline is located within a charted pipeline area and rises approximately 10 feet above the surrounding river bottom.

H13189_Pipelines_04_A is a segment of exposed pipeline approximately 50 feet in length with starting coordinates 30 11 02.567N, 91 00 42.102W and ending at 30 11 02.280N, 91 00 42.571W. The exposed segment has a bearing of 234 degrees and was identified in multibeam echosounder data acquired on September 27, 2018 (DN 270). The pipeline is located within a charted pipeline area and rises approximately 6 feet above the surrounding river bottom.

H13189_Pipelines_04_B is a segment of exposed pipeline approximately 53 feet in length with starting coordinates 30 11 02.261N, 91 00 41.995W and ending at 30 11 01.956N, 91 00 42.485W. The exposed segment has a bearing of 233 degrees and was identified in multibeam echosounder data acquired on September 27, 2018 (DN 270). The pipeline is located within a charted pipeline area and rises approximately 7 feet above the surrounding river bottom.

H13189_Pipeline_05 is a segment of exposed pipeline approximately 51 feet in length with starting coordinates 30 11 46.276N, 91 01 11.892W and ending at 30 11 45.907N, 91 01 12.285W. The exposed segment has a bearing of 222 degrees and was identified in multibeam echosounder data acquired on September 27, 2018 (DN 270). The pipeline is not located within a charted pipeline area and rises approximately 4 feet above the surrounding river bottom.

H13189_Pipeline_06 is a segment of exposed pipeline approximately 40 feet in length with starting coordinates 30 12 57.273N, 91 03 22.894W and ending at 30 12 56.898N, 91 03 23.040W. The exposed segment has a bearing of 198 degrees and was identified in multibeam echosounder data acquired on September 26, 2018 (DN 269). The pipeline is not located within a charted pipeline area and rises approximately 4 feet above the surrounding river bottom.

H13189_Pipelines_07_A is a segment of exposed pipeline approximately 31 feet in length with starting coordinates 30 15 11.706N, 91 06 20.084W and ending at 30 15 11.728N, 91 06 20.436W. The exposed segment has a bearing of 273 degrees and was identified in multibeam echosounder data acquired on September 21, 2018 (DN 264). The pipeline is not located within a charted pipeline area and rises approximately 6 feet above the surrounding river bottom.

H13189_Pipelines_07_B is a segment of exposed pipeline approximately 39 feet in length with starting coordinates 30 15 11.627N, 91 06 20.142W and ending at 30 15 11.649N, 91 06 20.590W. The exposed segment has a bearing of 272 degrees and was identified in multibeam echosounder data acquired on September 21, 2018 (DN 264). The pipeline is not located within a charted pipeline area and rises approximately 7 feet above the surrounding river bottom.

Jason Creech, CH | Vice President, Nautical Charting Program Manager
David Evans and Associates, Inc.
2801 SE Columbia Way, Suite 130 | Vancouver, WA, 98661 | www.deainc.com
804.516.7829 | jasc@deainc.com

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Jason Creech

From: Jason Creech
Sent: Wednesday, September 18, 2019 11:54 AM
To: 'survey.outlines@noaa.gov'
Cc: Martha Herzog (martha.herzog@noaa.gov)
Subject: OPR-J347-KR-18 Survey Outlines
Attachments: H13188_survey_outline.000; H13189_survey_outline.000; H13190_survey_outline.000; H13191_survey_outline.000; H13192_survey_outline.000; H13193_survey_outline.000; H13330_survey_outline.000

Good Morning

I have attached the remaining survey outlines for OPR-J347-KR-18 surveys. Outlines are included for the following surveys:

H13188
H13189
H13190
H13191
H13192
H13193
H13330

Thanks,
Jason

Jason Creech, CH | Vice President, Nautical Charting Program Manager
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PROJECT CORRESPONDENCE

NCEI SOUND SPEED DATA SUBMISSION

Jason Creech

From: Jason Creech
Sent: Thursday, September 26, 2019 8:48 AM
To: Christopher Paver - NOAA Federal
Cc: NODC.submissions@noaa.gov; Martha Herzog (martha.herzog@noaa.gov)
Subject: RE: OPR-J347-KR-18 NCEI Sound Speed Data
Attachments: OPR-J347-KR-18_20190926.zip

Hi Chris

I am resubmitting the OPR-J347-KR-18 sound speed data acquired in support of the Mississippi River hydrographic project. We have adjusted the instrument information based on your comments. Let me know if you need anything else.

Thanks,

Jason

Jason Creech, CH | Vice President, Nautical Charting Program Manager
David Evans and Associates, Inc.
2801 SE Columbia Way, Suite 130 | Vancouver, WA, 98661 | www.deainc.com
t: 804.806.4440 | c: 804.516.7829 | jasc@deainc.com

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From: Christopher Paver - NOAA Federal <christopher.paver@noaa.gov>
Sent: Thursday, September 19, 2019 3:00 PM
To: Jason Creech <Jasc@deainc.com>
Cc: NODC.submissions@noaa.gov; Martha Herzog (martha.herzog@noaa.gov) <martha.herzog@noaa.gov>
Subject: Re: OPR-J347-KR-18 NCEI Sound Speed Data

The information provided looks good. Thanks for being amicable.

Chris

On Thu, Sep 19, 2019 at 6:57 PM Jason Creech <Jasc@deainc.com> wrote:

> Hi Chris
>
> We can resubmit, no problem.
>
> Are the make and models that I provided acceptable? Should we include and serial number information?

Thanks
Jason

Jason Creech

From: Christopher Paver - NOAA Federal <christopher.paver@noaa.gov>
Sent: Thursday, September 19, 2019 2:45:28 PM
To: Jason Creech <Jasc@deainc.com>
Cc: NODC.submissions@noaa.gov <NODC.submissions@noaa.gov>; Martha Herzog (martha.herzog@noaa.gov) <martha.herzog@noaa.gov>
Subject: Re: OPR-J347-KR-18 NCEI Sound Speed Data

Hey Jason,
Thanks for the boat info.

The instrument controlled vocab mappings are basic on our end, e.g. XBT, SVP, etc... The important item is to ensure the submitted files have instrument make and model information so that we can make the mappings to controlled vocab. Adding this information will also enable future users to better understand the data. In some cases we find out that certain instruments weren't properly calibrated or otherwise, which can affect data quality.

Will you be able to add the instrument information to the files and resubmit?

Thanks,
Chris

On Thu, Sep 19, 2019 at 2:33 PM Jason Creech <Jasc@deainc.com> wrote:

> Hi Chris
>
> Thanks for the response. The Sigsbee is an 18-foot rigid hulled inflatable boat (RHIB) with a draft of 1 foot used during the hydrographic survey of the Mississippi River. It's MMSI number is 368061220.
>
> What are the available instruments in your mappings?
>
> We used the following instrumentation.
>
> AML Oceanographic MVP30-350 with Micro SVP&T
>
> AML Oceanographic Base X2
>
> AML Oceanographic SBE 19+ SeaCAT
>
> AML Oceanographic Smart X

Will replacing the instrument fields with this manufacture and model information suffice? Should we exclude the serial numbers?

Thanks,

Jason

From: Christopher Paver - NOAA Federal <christopher.paver@noaa.gov>
Sent: Thursday, September 19, 2019 9:38 AM
To: Jason Creech <Jasc@deainc.com>
Cc: NODC.submissions@noaa.gov; Martha Herzog (martha.herzog@noaa.gov) <martha.herzog@noaa.gov>
Subject: Re: OPR-J347-KR-18 NCEI Sound Speed Data

Hey Jason,

The OCS Survey Profile OPR-J347-KR-18 submission cannot be processed at this time as it contains instrument and platform information that has not been previously mapped to controlled vocabulary.

Instruments
25653
4962
5588
8704

Platform

SI SIGSBEE

With regards to the instruments, we would strongly recommend the instrument global attribute field contain at the very least a make/model. If possible, please update the applicable files and resubmit.

For the platform, please provide an email with unique identifying information, e.g. a combination of IMO, MMSI, Call Sign, Flag, dimensions, year built, etc.

Regards,

Chris

On Wed, Sep 18, 2019 at 4:05 PM Jason Creech <Jasc@deainc.com> wrote:

> Hello
>
> I have attached all sound speed data acquired in support of hydrographic project OPR-J347-KR-18. Data were acquired by David Evans and Associates, Inc. under contract to NOAA Office of Coast Survey.
>
> Please let me know if you have any questions on this submittal.
>
> Thanks,
>
> Jason

Jason Creech, CH | Vice President, Nautical Charting Program Manager

David Evans and Associates, Inc.

2801 SE Columbia Way, Suite 130 | Vancouver, WA, 98661 | www.deainc.com

804.516.7829 | jasc@deainc.com

--

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--
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--
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Phone: 360-314-3200
Fax: 360-314-3250

OPR-J347-KR-18
Marine Mammal Trained Observers

Inclusive Dates: 8/9/2018 - 4/30/2019
General Locality: Mississippi River

H Number	Sub Locality	Priority
H13188	Mississippi River, Vicinity of Mile 232.5 to 205	1
H13189	Mississippi River, Vicinity of Mile 205 to 180	2
H13190	Mississippi River, Vicinity of Mile 180 to 156.5	3
H13191	Mississippi River, Vicinity of Mile 156.5 to 130	4
H13192	Mississippi River, Vicinity of Mile 130 to 104.3	5
H13193	Mississippi River, Vicinity of Mile 104.3 to 78	6
H13194	Mississippi River, Vicinity of Mile 78 to 54	7
H13195	Mississippi River, Vicinity of Mile 54 to 26	8
H13196	Mississippi River, Vicinity of Mile 26 to 0	9
H13212	Mississippi River, Southwest Pass	10

Observer	Position	Training Video[1] Date
Brandon Harr	Survey Crew	8/3/2018
Callan McGriff	Survey Crew	7/31/2018
Daniel Prince	Survey Crew	8/20/2018
David Moehl	Survey Crew	8/7/2018
James Guilford	Survey Crew	10/25/2018
Jason Creech	Survey Crew	8/8/2018
Jason Dorfman	Survey Crew	8/22/2018
John Staly	Survey Crew	8/28/2018
Kathleen Slacht	Survey Crew	8/1/2018
Kori Ktona	Survey Crew	8/6/2018
Laura Rajnak	Survey Crew	7/31/2018
Sam Werner	Survey Crew	7/31/2018
Steven Loy	Survey Crew	3/13/2019
Tim McClinton	Survey Crew	8/6/2018
Chris Aaron	Vessel Crew	8/7/2018
George Hopkins	Vessel Crew	8/3/2018
Harry Stutzke	Vessel Crew	8/29/2018
Jarrod Leckich	Vessel Crew	8/3/2018
Jerry David Keith	Vessel Crew	8/3/2018
Ryan Willis	Vessel Crew	8/7/2018
Timothy Kennedy	Vessel Crew	8/3/2018

[1] Marine Species Awareness Training Video: https://www.youtube.com/watch?v=KKo3r1yVBBA

Jason Creech

From: OCS NDB - NOAA Service Account <ocs.ndb@noaa.gov>
Sent: Friday, July 12, 2019 11:30 AM
To: Laura Jeffery - NOAA Federal
Cc: Jason Creech; coast.pilot@noaa.gov; Martha Herzog (martha.herzog@noaa.gov); Richard.Powell@noaa.gov
Subject: Re: OPR-J347-KR-18 Coast Pilot Review Report

The report has been registered by NDB as L-331-2019.

Thanks,
Diane

Nautical Data Branch/Marine Chart Division/
Office of Coast Survey/National Ocean Service/
National Oceanic and Atmospheric Administration
United States Department of Commerce
Contact: ocs.ndb@noaa.gov

On Fri, Jul 12, 2019 at 10:21 AM Laura Jeffery - NOAA Federal <laura.jeffery@noaa.gov> wrote:

> Good morning Jason,
>
> Thank you for your updates - Coast Pilot 5 - Mississippi report. It will be registered and processed soon.
>
> Much appreciated! Have a great day.
>
> On Thu, Jul 11, 2019 at 1:26 PM Jason Creech <Jasc@deainc.com> wrote:
>
> > Good afternoon
> >
> > I have attached the Coast Pilot Review Report for hydrographic survey project OPR-J347-KR-18.
> >
> > Please let me know if you have any questions.
> >
> > Thanks,
> >
> > Jason

Jason Creech, CH | Vice President, Nautical Charting Program Manager

David Evans and Associates, Inc.

2801 SE Columbia Way, Suite 130 | Vancouver, WA, 98661 | www.deainc.com

804.516.7829 | jasc@deainc.com

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--
Laura B. Jeffery
Nautical Publications Branch/NOS
Cartographer/Reviewer
240-533-0073

NOAA-NOS-OCS-NSD-NPB
1315 E. West Hwy
SSMC3, Station 6315
Silver Spring, MD 20910

Jason Creech

From: Stacy Fullerton - NOAA Federal <stacy.fullerton@noaa.gov>
Sent: Tuesday, July 31, 2018 12:25 PM
To: Jon Dasler; Jason Creech
Cc: Kathryn Pridgen - NOAA Federal; Corey Allen - NOAA Federal; Martha Herzog - NOAA Federal; Eastern Operations Eastern Operations - NOAA Service Account
Subject: EA133C14CQ0037 Task Order 1305M218FNCNJ0138
Attachments: EA133C14CQ0037TO1305M218FNCNJ0138.pdf

Good Afternoon,

Please find the attached OF347 task order award document for survey of Port of South Louisiana, Port of New Orleans, Port of Greater Baton Rouge, and Plaquemines Port for your records/action.

Katy Pridgen is the appointed COR for this task order.

Please acknowledge receipt.

Thank you,

Stacy

--
Stacy Fullerton
Contract Specialist, NOAA, AGO
Eastern Acquisition Division
Supporting National Ocean Service
200 Granby Street, Suite 815
Norfolk, VA 23510
Phone: 757-441-3420
Fax: 757-441-3786

Jason Creech

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Tuesday, July 31, 2018 1:49 PM
To: Jason Creech; Jon Dasler; Kathryn Pridgen - NOAA Federal; Corey Allen; Stacy Fullerton - NOAA Federal
Subject: Mississippi
Attachments: OPR-J347-KR-18_Mississippi_River.zip

Jason,

Thanks for your call. And congratulations to DEA on the award!

I have attached the final Project Instructions, Statement of Work, CSF/PRF, Coast Pilot, separation model, and the template for the monthly report.

I am free anytime Wed-Fri for a pre-brief / kickoff meeting, please let me know when you and Jon have availability.

I'll be on leave August 6-10 with very limited access to email. Katy and/or Corey should be able to answer any questions you may have at that time.

I look forward to working with you,
Martha

Jason Creech

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Thursday, August 2, 2018 8:00 AM
To: Jason Creech
Cc: Jon Dasler; Kathryn Pridgen - NOAA Federal; Corey Allen; Stacy Fullerton - NOAA Federal
Subject: Re: Mississippi
Attachments: Caris_Support_Files_5_7.zip

Jon and Jason,

Thanks for calling in for the briefing and asking for clarifications.

1) I have attached the version 5.7 CARIS support files.

2) The monthly template you have is correct. A number of columns were intentionally removed from the Project Stats tab.

3) Just a reminder - the invoices should not to be included with the DR Appendices as listed in the next to last slide of the PDF. I simply added it to ensure you had the correct email.

4) If anyone aside from Jon or Jason will be providing images for the weekly by dropping files into the google drive, please let me know so we can add permissions for them.

Please let me know if you have any other questions.

Thanks,
Martha

On Thu, Aug 2, 2018 at 8:09 AM, Martha Herzog - NOAA Federal <martha.herzog@noaa.gov> wrote:

> Hi Everyone,
>
> I've attached a PDF of the briefing. It is also linked in the meeting invite.
>
> Martha
>
> On Wed, Aug 1, 2018 at 3:47 PM, Jason Creech <Jasc@deainc.com> wrote:
>
> > Hi Martha
> >
> > Tomorrow (Thursday) at 9am works.
> >
> > Thanks,

Jason

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Wednesday, August 1, 2018 12:24 PM
To: Jason Creech <Jasc@deainc.com>
Cc: Jon Dasler <Jld@deainc.com>; Kathryn Pridgen - NOAA Federal <kathryn.pridgen@noaa.gov>; Corey Allen <corey.allen@noaa.gov>; Stacy Fullerton - NOAA Federal <stacy.fullerton@noaa.gov>
Subject: Re: Mississippi

Hi Jason,

How about 9am Thursday (tomorrow)? I'll get back to you with a call-in number and give you a copy of the slides soon.

Martha

On Wed, Aug 1, 2018 at 2:46 PM, Jason Creech <Jasc@deainc.com> wrote:

> Thanks for the files Martha.
>
> Would 9am Thursday or Friday morning work for the kickoff meeting?
>
> Jason
>
> **From:** Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
> **Sent:** Tuesday, July 31, 2018 1:49 PM
> **To:** Jason Creech <Jasc@deainc.com>; Jon Dasler <Jld@deainc.com>; Kathryn Pridgen - NOAA Federal <kathryn.pridgen@noaa.gov>; Corey Allen <corey.allen@noaa.gov>; Stacy Fullerton - NOAA Federal

<stacy.fullerton@noaa.gov>
Subject: Mississippi

Jason,

Thanks for your call. And congratulations to DEA on the award!

I have attached the final Project Instructions, Statement of Work, CSF/PRF, Coast Pilot, separation model, and the template for the monthly report.

I am free anytime Wed-Fri for a pre-brief / kickoff meeting, please let me know when you and Jon have availability.

I'll be on leave August 6-10 with very limited access to email. Katy and/or Corey should be able to answer any questions you may have at that time.

I look forward to working with you,

Martha

Jon Dasler

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Tuesday, August 21, 2018 3:14 PM
To: Jon Dasler
Cc: Jason Creech; Stacy Fullerton - NOAA Federal; Kathryn Pridgen - NOAA Federal; Corey Allen
Subject: Re: Mississippi River, call summary
Attachments: OPR-J347-KR-18_PRF_FINAL_Aug21_18.000; OPR-J347-KR-18_CSF_FINAL_Aug21_18.000

Jon,

I've attached a new CSF and PRF. The CSF should now better reflect the chart updates. I also found a few 'unassigned' and 'for info only' features that had not been added, which won't really impact you but gives you an improved product. The same goes with the PRF. I found a few very small blunders where the survey limits hadn't correctly snapped to the shoreline. This shouldn't impact anything either.

Just to let you know, a new 2018 xml schema will be released to the OCS website soon. There is no requirement to use it as the PI states the 2017 version or newer.

I'll be on leave Wednesday - Friday. If anything arises, please contact Corey or I should be available by cell (206-658-3649)

Thanks,
Martha

On Mon, Aug 20, 2018 at 5:52 PM, Jon Dasler <Jld@deainc.com> wrote:

> Martha,
>
> That would be great. Thank you.

Jon L. Dasler, PE, PLS, CH | Senior Vice President, Director of Marine Services

David Evans and Associates, Inc. | Marine Services Division | www.deamarine.com

t: 360.314.3200 | c: 503.799.0168 | jld@deainc.com

DAVID EVANS AND ASSOCIATES INC. MARINE SERVICES

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Monday, August 20, 2018 11:02 AM
To: Jon Dasler <Jld@deainc.com>
Cc: Jason Creech <Jasc@deainc.com>; Stacy Fullerton - NOAA Federal <stacy.fullerton@noaa.gov>; Kathryn Pridgen - NOAA Federal <kathryn.pridgen@noaa.gov>; Corey Allen <corey.allen@noaa.gov>

Subject: Re: Mississippi River, call summary

Jon,

I'll do a run-through of the CSF and check for other new updates to the ENC and provide you with an updated CSF soon.

Martha

On Fri, Aug 17, 2018 at 5:51 PM, Jon Dasler <Jld@deainc.com> wrote:

> Martha,
>
> Thank you for the update and clarification. As an FYI, the items we passed along were just an example after we did another review against the new ENC release on sheet 6. A full review of features on the new ENC release should be

done over the entire project (sheets 1-5 and 7-9) and a revised project wide CSF provided. Is that something you are working on?

Regards,

Jon

Jon L. Dasler, PE, PLS, CH | Senior Vice President, Director of Marine Services

David Evans and Associates, Inc. | Marine Services Division | www.deamarine.com

t: 360.314.3200 | c: 503.799.0168 | jld@deainc.com

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Friday, August 17, 2018 9:56 AM
To: Jason Creech <Jasc@deainc.com>
Cc: Jon Dasler <Jld@deainc.com>; Stacy Fullerton - NOAA Federal <stacy.fullerton@noaa.gov>; Kathryn Pridgen -

NOAA Federal <kathryn.pridgen@noaa.gov>; Corey Allen <corey.allen@noaa.gov>
Subject: Re: Mississippi River, call summary

Hi Jason,

Thanks for passing these along. It looks like a new ENC was released 2 weeks ago which added the obstruction and a few mooring buoys. I'm perplexed by the wreck as doesn't seem to be on either US5LA37M or US6LA35M (or a smaller scale ENC).

I'll update the CSF and pass along a new one this afternoon.

For clarification of the second graphic, the CSF is correct here, no areas of rip-rap were (or should be) assigned for investigation. Breakwaters were assigned if they protruded into the survey area and potentially navigable water.

As for the separation model, there has been an update. Jack may be able to create a new separation model which extends further onshore if you would like to use it. I'll keep you updated on the status of it. There is no requirement to use it or submit data beyond what is required in the PI.

Thanks,
Martha

On Fri, Aug 17, 2018 at 10:38 AM, Jason Creech <Jasc@deainc.com> wrote:

> Hey Martha
>
> Understood on #s 1 and 2.

3. I've attached a few hobs and screengrabs which depict some examples of charted features we've located that aren't in the CSF.

4. We can set up a multipage map series with data driven pages if you are ok with that. This will require many pages (possibly one per sheet?) to show coverage due to the size and shape of the survey area.

Let me know if you have any questions or input. By the way, I will be out of the office from 8/20 to 9/4. Jon Dasler will be the primary POC until my return. We're also looking for dates for a site visit and will follow up later today.

Thanks,

Jason.

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Tuesday, August 14, 2018 2:14 PM
To: Jason Creech <Jasc@deainc.com>; Jon Dasler <Jld@deainc.com>
Cc: Stacy Fullerton - NOAA Federal <stacy.fullerton@noaa.gov>; Kathryn Pridgen - NOAA Federal <kathryn.pridgen@noaa.gov>; Corey Allen <corey.allen@noaa.gov>
Subject: Mississippi River, call summary

Hi Jason,

Thanks for your call. I just wanted to recap a few things we talked about to ensure we are all the same page.

1. Even though the laser scanner data collection goes beyond the project limits and the separation model, there is not need to submit any data beyond the project area. It sounds like the laser scanning data is truncated at the separation model boundary creating automated editing of the limits of the point cloud. That works for us.

2. There is only need to reference the laser scanner data to the LWRP, no need to have the data on another datum.

3. A few unassigned submerged and potentially other mis-assigned items were found in the CSF. This is an oversight on my part. Thank you for catching that. I'll review the CSF and provide you with a new version. You stated that you may have some locations of these and could possibly provide them, which would be useful for me in quickly correcting the error.

4. As for representing the long survey area on a one page pdf, I got an idea from Meredith Payne (who puts together the weekly hydro ship report). If you are using ArcGIS, data driven pages or map series may be an easy way to do it. (There is no requirement to do it like this, and other methods would also work.)

Thanks,

Martha

Jason Creech

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Monday, August 27, 2018 7:58 AM
To: Jon Dasler; Jason Creech; Kathryn Pridgen - NOAA Federal
Subject: Additional LWRP Sep Model
Attachments: NAD83-LWRP2007_MLLW12B_Buffered.zip

Jon and Jason,

Jack was able to extend the separation model by approximately 1 km (attached). He says the standard deviation of differences between original version and this buffered one is less than 1 cm.

Martha

Jason Creech

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Monday, October 15, 2018 4:43 PM
To: Jason Creech; Jon Dasler
Cc: Kathryn Pridgen - NOAA Federal
Subject: temp nav aids

Hi Jason,

Thanks for your call and updates.

I just double checked and the advice I gave you stands: temporary navigation aids such as those you described to me should **not** be included FFF. Noting them in the DR with any supplemental correspondence you have will suffice. Have you noted anything in any LNMs about the temp lights? (I just checked the latest LNM and didn't see anything about new placement of temp nav aids but did see a note about the first DTON obstruction made it in there.)

As far as laser scanning data, LAS data format will easily work for us.

Martha

Jason Creech

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Friday, November 9, 2018 9:47 AM
To: Jason Creech
Cc: Jon Dasler
Subject: Re: MS River sediment migration examples

I spoke with Gene and our consensus was to let CUBE grid as it may and document the sediment migration in the DR. Of course you can always edit or remove soundings if you feel one line or another better represents the seafloor than the gridding algorithm does. For instance in the example of the sediment slump on Across_track_1, based on your observations and knowledge of the environmental conditions, if you feel the sediment fill in will remain, then you can edit the soundings for the grid to represent the shoal.

You can also denote the areas of major changes in the feature file with SNDWAV areas. This would give parity with changed areas in the grid and a heads up to the branch (and mariner) that the depth may be variable.

Martha

On Thu, Nov 8, 2018 at 8:58 AM, Jason Creech <Jasc@deainc.com> wrote:

> Hi Martha
>
> I've attached a few screengrabs from HIPS showing the sediment migration issues we discussed last week during your site visit.
>
> As you can expect this issue is impacting our deliverable surfaces and will show up when AHB runs flier finder or uses other methods to locate line to line disagreement in the survey data. We plan to discuss in the DRs and add some images to make this issue apparent to the reviewer. Let me know if you or Gene have any other suggestions.
>
> Thanks,
>
> Jason
>
> **Jason Creech, CH** | Vice President, Nautical Charting Program Manager
>
> **David Evans and Associates, Inc.**

2801 SE Columbia Way, Suite 130 | Vancouver, WA, 98661 | www.deainc.com

804.516.7829 | jasc@deainc.com

ENERGY | LAND DEVELOPMENT | MARINE SERVICES | SURVEYING AND GEOMATICS | TRANSPORTATION | WATER AND ENVIRONMENT

Jason Creech

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Friday, November 16, 2018 12:55 PM
To: Jason Creech
Cc: Jon Dasler
Subject: Re: CSF/PRF
Attachments: GC_11369_for_info_only.000; OPR-J347-KR-18_PRF_MOD.000; OPR-J347-KR-18 _CSF_MOD.000

Hi Jason,

Thanks for the call and clearing up how you wanted the mod CSF/PRF delivered and the new GC for the original project area.

There is no need to add the GC features into the original 9 sheets. I attached it just for your information. The final CSF and PRF attached for the new modification areas (addition to sheet 1 and new sheet 10) contain the new GC features and will need to be verified.

Please let me know if you have any questions.

Martha

On Wed, Nov 14, 2018 at 2:20 PM Jason Creech <Jasc@deainc.com> wrote:

> Hi Martha
>
> If possible, we'd rather receive a CSF file with new features only. We've already extracted features from the original CSF for sheets 1-9, assigned some inhouse tracking codes, and starting attributing for delivery. Having to start from a new project wide CSF would get complicated. I just left a voicemail on this. Give me a call if you'd like to discuss.
>
> Thanks,
>
> Jason
>
> **From:** Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
> **Sent:** Wednesday, November 14, 2018 2:03 PM
> **To:** Jon Dasler <Jld@deainc.com>; Jason Creech <Jasc@deainc.com>
> **Subject:** CSF/PRF

Jon and Jason,

I have finished up a final version of CSF/PRF for the which includes the new GC. I just wanted to confirm that you would like the new GC features added to the original CSF for the sheets that have been already surveyed. This will add to the assigned feature count as I'm unable to remove the original features as there is no confirmation that they are no longer there, but it should reflect a number of piers a bit better.

If so, I'll go ahead and combine the files so there will be just one CSF and one PRF for Sheets 1-10.

I'm still waiting on Jack to finish the sep model for the added area but will get that to you when it is ready.

Thanks,

Martha

Jason Creech

From: Stacy Fullerton - NOAA Federal <stacy.fullerton@noaa.gov>
Sent: Monday, December 17, 2018 11:12 AM
To: Jon Dasler
Cc: Jason Creech; Kathryn Pridgen - NOAA Federal; Martha Herzog - NOAA Federal; Eastern Operations Eastern Operations - NOAA Service Account
Subject: Re: EA133C14CQ0037 1305M218FNCNJ0138 Modification P19001
Attachments: 18FNCNJ0138MODP19001- Executed.pdf

Hello,

Please find the attached fully executed modification for your records.

Thank you,

Stacy

On Thu, Dec 13, 2018 at 5:01 PM Jon Dasler <Jld@deainc.com> wrote:

> Stacy,
>
> Thank you for sending this. Attached is the signed modification P190001 to Contract EA133C-14-CQ-0037 Task Order 1305M218FNCNJ0138. Hope you have a great holiday season and are able to spend some quality time with family.
>
> Respectfully,
>
> Jon
>
> **Jon L. Dasler, PE, PLS, CH** | Senior Vice President, Director of Marine Services
>
> David Evans and Associates, Inc. | Marine Services Division | www.deamarine.com
>
> t: 360.314.3200 | c: 503.799.0168 | jld@deainc.com

DAVID EVANS AND ASSOCIATES INC.
MARINE SERVICES

Follow us on LinkedIn | Twitter | Facebook | YouTube

From: Stacy Fullerton - NOAA Federal <stacy.fullerton@noaa.gov>
Sent: Thursday, December 13, 2018 4:12 AM
To: Jason Creech <Jasc@deainc.com>; Jon Dasler <Jld@deainc.com>
Cc: Kathryn Pridgen - NOAA Federal <kathryn.pridgen@noaa.gov>; Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Subject: EA133C14CQ0037 1305M218FNCNJ0138 Modification P19001

Good Morning,

Please find the attached modification P19001 to Contract EA133C-14-CQ-0037 Task Order 1305M218FNCNJ0138. Please review, sign, and return a copy of the modification at your earliest convenience.

Respectfully,

Stacy

--

Stacy Fullerton
Contract Specialist, NOAA, AGO
Eastern Acquisition Division
Supporting National Ocean Service
200 Granby Street, Suite 815
Norfolk, VA 23510
Phone: 757-441-3420
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Fax: 757-441-3786

Jason Creech

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Tuesday, December 18, 2018 5:48 PM
To: Jason Creech
Subject: Mississippi feature questions

Hi Jason,

Thanks for your calls and setting up the meeting. There were a lot of good questions. I just want to ensure I answered all of your questions (aside from bridges.). I've copied your original questions in gray with my answers below in black. Please let me know if I can provide any other clarification.

Happy Holidays,
Martha

1. For SLCONS terminating at the river bank, should we digitize large features (>5m width) as a line or area features? We are not sure where and how to close areas terminating at the shoreline.

For SLCONS > 5m, digitizing them as line or area features is fine as there is no specific distinction in the HSSD about this. Looking at the ENC and speaking with MCD, generally intact piers are digitized as lines. Ruined, submerged, or covers/uncovers are digitized as areas. It is up to your discretion if you follow this logic.

Closing the pier (line or area feature) anywhere inland of the shoreline or at the COALNE is fine. We aren't very picky about this as long there isn't a gap of water between the pier and the shoreline.

2. MORFAC point features exist in the CSF in front of the SLCONS. They are large enough (>5m width) to be created as MORFAC area features. Where a SLCONS (pier) also exists, should we digitize

- a separate, adjacent MORFAC area (that shares an edge with the SLCONS area)
- a single SLCONS area that encompasses the MORFAC area
- a SLCONS area that encompasses the MORFAC area and then also create a MORFAC area on top of the SLCONS area
- Other?

I've gotten a second opinion on what to do with the MORFACs abut piers. It is fine to have the larger pier area include abutting MORFAC into the pier area as in the example.

3. In cases like this, should the SLCONS line features be deleted and redrawn as new or modify? Should the SLCONS be redrawn as multiple segments that extend only between the MORFAC/SCLONS areas?

The original SLCONS feature should be flagged as "delete" with your surveyed SLCONS as "new."
For a single line SLCONS, it is fine to digitize it through the MORFAC area (especially if the catwalk like structure extends through it) or create separate lines extending through the MORFACs as we don't have a spec for this distinction.

4. Should this set of fenders be digitized split into several sections (A) based on the SLCONS or connected into a single straight line (B)?

For fenders that are co-located with the MORFAC, there is no need for the added fenders. If they differ, then there may be a need depending on the difference in distance.

5. How should we digitize and attribute terminals with conveyors and covered areas?

It is fine to digitize the boathouses and conveyors. I checked the IHO ENC product specification which helps to answer the boathouse question:
https://www.iho.int/iho_pubs/standard/S-57Ed3.1/S-57_AppB.1_AnnA_UOC_e4.0.0_Jun14_EN.pdf
"For covered boathouses, any associated objects should be encoded as they exist in the "real world"; e.g. jetties as SLCONS, pontoons as PONTON, mooring posts as MORFAC. The roofed area may be covered by a BUISGL object of type area, with attribute INFORM = Boathouse or Boatshed. If the service being provided by the structure is known, object classes SMCFAC (see clause 4.6.5) or HRBFAC (see clause 4.6.1) may also be encoded."

AtoNs out of position

6. How far out of position be before we reposition in the FFF?

For non fixed aids such as those on buoys, anything > 5m or greater if that is what the swing radius or how far it may get pushed by current. This can be modified to much less if the hydrographer thinks it is imperative to navigation.

Technically we should be submitting any aid that is incorrectly positioned but we agreed at the start of the project that it would not be necessary to report every that is off by a little and not causing any impact to navigation in order for you not to have to report 1000 lights for each survey. We didn't define a little at the time.

I would definitely report the example in the ppt to the USGC as it is nowhere near the charted or light list location.

7. Should repositioned AtoNs be modify or delete/new?

Delete/New.

8. Should secondary features (fog signals, lights etc.) also be repositioned? In some cases lights on piers appear to be associated with a charted beacons that do not exist. The secondary features are incorrectly charted and the primary features do not exist (*see image for example*).

If you find that it does not exist, flag it as "delete" with an explanation in the remarks.

Subsequent features (fog signal, beacon, etc.) associated with the ATON should follow the position of the ATON. If you can't confirm the secondary feature, the remarks can be something like, "new position of ATON, fog signal not audibly observed at time of survey.

9. Should all repositioned AtoNs be reported to the USCG via the USCG Navigation Center's Online ATON Discrepancy Report?

Yes, for fixed ATONs especially for federal aids or for ATONs positions differing >5m. I'm not sure anyone quite expected this level of mis-positioning. Jason mentioned he would reach out to the USCG to see if reporting can be done in group format instead of by individual ATON. I'll keep asking around here if something else can be done.

I learned a little about the accuracy of light positioning some of which you may already know. While lights should be positioned to 3 decimal places, they often aren't depending on the original source (a zero or two or even three may represent the final decimal positions). For private lights, USCG just take sthe position of what is on the permit which

could variable. If the private light position changes and the USCG isn't notified or the light isn't re-permitted, the old position remains in the light list. What is populated in the ENC inform field is often just the comments from the light list. Most USGC districts simply just don't have the funding to validate all of the lights. If you are finding that the federal nav aids are off, this is problematic as those should be verified more often.

Bridges

10. We are digitizing the footings as surveyed using SLCONS and assume we are required to digitize the bridges depicting the surveyed extents using BRIDGE areas. Bridges charted on the ENCs are broken into multiple segments, each attributed with a clearance height or a value of Unknown. How should the BRIDGE segments be broken up (one per span, smaller increments for finer resolution clearance identification, other?

11. We plan to report the lowest clearance per BRIDGE area. Typically, the lowest clearance height on a bridge is right at the junction with a bridge pier. Should we use this height for BRIDGE areas junctioning with a pier when it is the lowest clearance value or offset the clearance height search towards the navigable channel?

FYI - the footing areas should be encoded as PYLONS as they are on the chart.
TBD on more guidance on bridges. I've passed on your bridge ppt adding the differing clearance height graphic to Corey who discuss with Rick Brennan and others on how we should proceed on this.

Hydrographic Survey Project Instructions

Project Name:	Mississippi River
Project Number:	OPR-J347-KR-18
Assigned Field Unit:	David Evans and Associates, Inc.
Assigned Processing Branch:	Atlantic Hydrographic Branch
Signed Date:	08/08/2019
Project Instructions Version:	Modification
Planned Acquisition Time:	Start Date: 08/2018 End Date: 09/2019
Delivery Dates:	Delivery date is the end of period of performance as indicated on the Task Order

Purpose and Location:

The Ports of Southern Mississippi River represent the largest part complex in the world and one of the most heavily trafficked waterways in the United States. Annually, over 500 million tons of cargo is moved on the Lower Mississippi. This project area includes the Port of South Louisiana, the Port of New Orleans, the Port of Greater Baton Rouge, and Plaquemines Port, all ranking in the top 12 ports for annual tonnage in the United States. The Port of South Louisiana, river mile 114.9 to 168.5, is the largest tonnage port in the western hemisphere, handling approximately 262 million tons. The Port of New Orleans, river mile 81.2 to 114.9, handles approximately 90 million tons annually. The Port of Greater Baton Rouge, river mile 168.5 to 253, and Plaquemines Port, river mile 0 to 81.2, handle approximately 73 and 57 million tons annually, respectively.1

Critical charting updates are needed for the Mississippi River especially for areas outside of the U.S. Army Corps of Engineers (USACE) federally maintained channel areas. These areas outside of the federally maintained channel account for the majority of the navigable river and include ports and terminals essential for commerce and trade. The new bathymetric data in this project area encompassing 88 SNM will support high resolution charting products for maritime commerce and update National Ocean Service (NOS) nautical charting products.

[1] U.S. Army Corps of Engineers, Navigation Data Center, Waterborne Commerce Statistics Center, Principal Ports of the United States, www.navigationdatacenter.us/data/datappor.htm

Supporting Documents:
Hydrography shall consist of Navigable Area Surveys in accordance with the following support documents.
NOS Hydrographic Surveys Specifications and Deliverables (HSSD), April 2018
Statement of Work (SOW), 2018
NOAA XML Hydrographic Reports, Schema Version 2017_01 or later

PERSONNEL SAFETY AND DATA QUALITY SHALL ALWAYS BE EMPHASIZED OVER DATA QUANTITY! THE HYDROGRAPHER SHALL NEVER SUBJECT PERSONNEL OR BOATS TO UNDUE RISKS AND HAZARDS.

Registry Details:

General Locality: Mississippi River

Registry Number	*Sheet Number*	*Sublocality*	*State or Territory*	*Scale*	*Estimated SNM*	*Instructions*
H13188	1	Mississippi River, Vicinity of Mile 232.5 to 205	Louisiana	5000	11	
H13189	2	Mississippi River, Vicinity of Mile 205 to 180	Louisiana	5000	10	
H13190	3	Mississippi River, Vicinity of Mile 180 to 156.5	Louisiana	5000	8	
H13191	4	Mississippi River, Vicinity of Mile 156.5 to 130	Louisiana	5000	10	
H13192	5	Mississippi River, Vicinity of Mile 130 to 104.3	Louisiana	5000	9	
H13193	6	Mississippi River, Vicinity of Mile 104.3 to 78	Louisiana	5000	9	
H13194	7	Mississippi River, Vicinity of Mile 78 to 54	Louisiana	5000	9	
H13195	8	Mississippi River, Vicinity of Mile 54 to 26	Louisiana	5000	11	
H13196	9	Mississippi River, Vicinity of Mile 26 to 0	Louisiana	5000	12	
H13212	10	Mississippi River, Southwest Pass	Louisiana	5000	7	

Registry Number	*Sheet Number*	*Sublocality*	*State or Territory*	*Scale*	*Estimated SNM*	*Instructions*
H13330	11	Mississippi River, Vicinity of Mile 235 to 232.5	Mississippi	5000	2	

Limits & Coverage:

Inshore Limit: The inshore limit is the surveyed 2 meter depth contour.

Coverage Requirements:

Coverage Water Depth	*Coverage Required*
All waters in survey area	Object Detection Coverage (Refer to HSSD Section 5.2.2.2)

Assigned Tasks

Acknowledgement:

The Project Manager for this project is Martha Herzog. The COR for this project is Kathryn Pridgen. The field unit shall acknowledge receipt of these instructions and submit any comments or questions via email to the Project Manager. Additionally, the Project Manager shall be included on all discussions or correspondence involving issues concerning the project.

Environmental Compliance Requirements

Comply with the marine mammal observation and reporting requirements in HSSD Section 1.5 and all Best Management Practices (BMPs) listed at the end of the Project Instructions.

Aids to Navigation (ATONs):

Any ATONs located within the survey area should be verified so that they serve their intended purpose in accordance with Section 7.3.5 of the HSSD.

Maritime Boundary Points (MBPs):

There are no Maritime Boundary investigation requirements for this project.

Bottom Samples:

There are no Bottom Sample investigation requirements for this project.

Chart Comparison:

Perform a chart comparison in accordance with Section 8.1.4 and D.1 of the HSSD. Use only the latest editions of the largest scale ENC. Resolve any discrepancies identified in the field and explain them in the Descriptive Report. The ENCs, listed below, were used in the preparation of these Project Instructions and accompanying project files.

Affected ENCs

ENC Name	*Scale*	*Edition*	*Update Application Date*	*Issue Date*	*Preliminary*
US6LA54M	12000	5	10/12/2017	10/12/2017	NO
US6LA53M	12000	5	03/23/2018	03/23/2018	NO
US6LA5AM	12000	3	09/21/2017	09/21/2017	NO
US5LA37M	15000	31	07/12/2017	07/12/2017	NO

Coast Pilot:

Perform a Coast Pilot Review as described in HSSD Section 8.1.3.

Dangers to Navigation (DTONs):

Response: Submit DTON reports in accordance with Section 1.6 of the HSSD to ahb.dton@noaa.gov with a CC to the assigned Project Manager. It is of paramount importance that DTONs be reported as soon as possible.

Historic Consultation Response: No Response from the Louisiana State Historical Preservation Officer.

Junctions:

Perform a junction analysis with the prior junctions listed below and current junctions. Refer to HSSD Sections 7.2 and 7.2.2.

Registry Number	*Scale*	*Year*	*Platform*	*Relative Location*
H12634	40000	2014	Oceaneering	S

Progress Reports:

Submit monthly progress reports no later than 5 days from the end of the reported month via TOMIS,Task Order Management and Information System. Prepare progress reports in accordance with HSSD Section 8.1.1.2. The Project Manager will provide a Monthly Progress Report template before the beginning of field operations. Submit a weekly acquisition progress report during field operations in accordance with section 8.1.1.1 of the HSSD.

Survey Outlines:

Generate a survey outline that shows the extent of hydrography for each survey in accordance with the HSSD, Section 8.1.2. Submit survey outlines to survey.outlines@noaa.gov with a CC to the Project Manager.

Special Data Handling Requirements:

ATTENTION: Contractor

If multibeam water column is used as a technique for feature development, deliver raw water column data files in addition to an appropriately attributed final feature file and final grids. If the least depth observed in the water column data is shoaler than the bathymetry, update the grid and Final Feature File accordingly using the water column least depth. Please contact the Project Manager with any questions.

ATTENTION: Contractor

Submit the raw point cloud data from the mobile laser scanner.

Horizontal Control Requirements:

Comply with the horizontal control requirements in Section 3 of the HSSD.

Vertical Control Requirements:

Comply with the vertical control requirements in Section 3 and 4 of the HSSD.

Ellipsoid Referenced Survey via Separation Model

This project has a requirement to acquire survey data vertically-referenced to the ellipsoid using the provided separation model. This separation model is derived from a combination of model constituents of USACE's 2007 Low Water Reference Plane (LWRP) and VDatum's Mean Lower Low Water (MLLW), supplemented with updated topography of the sea surface as modeled through Poor Man's VDatum (PMVD).

VDATUM Model

VDatum Version	Geoid	Area	Area Version	Separation Uncertainty
	2012	Baton Rouge to Head of Passes, Louisiana		8.4 centimeters

Shoreline and Nearshore Features:

Submit a Final Feature File in accordance with HSSD Section 7. All revetments shall be investigated and delineated in the Final Feature File. Charted revetment areas are provided in the Project Reference File (PRF) as "CRANES" for reference. Features in areas requiring precise positioning (i.e. same standards for features positioned by MBES) obtained by mobile laser scanning technology are included in the PRF as "ACHARE." Only anthropogenic features (piers, piles, etc.) are to be processed to obtain the precise position of these features, which will submitted as features in the Final Feature File. Also, validate all bridge height and overhead cables clearances with in these designated ACHARE areas. All features acquired with laser scanner shall be referenced to the ellipsoid. Contact the Project Manager if there are any questions regarding feature assignments and feature management. The Geographic Cells (GCs) below have not been applied to the latest edition of the ENCs listed above and is reflected in the provided PRF and CSF.

GC Number	*Horizontal Position Accuracy*
10878	5 meters at the 95% CI
GC Number	*Horizontal Position Accuracy*
10902	5 meters at the 95% CI
GC Number	*Horizontal Position Accuracy*
11275	5 meters at the 95% CI
GC Number	*Horizontal Position Accuracy*
11276	5 meters at the 95% CI
GC Number	*Horizontal Position Accuracy*
11315	5 meters at the 95% CI
GC Number	*Horizontal Position Accuracy*
11369	5 meters at the 95% CI

User Contacts

The following primary offices and persons shall be contacted at or near the beginning and end of the field operations to discuss survey objectives and accomplishment (Mandatory) or are listed for contact at the discretion of the Commanding Officer (Reference).

Project Manager
Martha Herzog
NOAA
Phone: 240-533-0028
Fax:
Email: martha.herzog@noaa.gov
Obligation: Mandatory

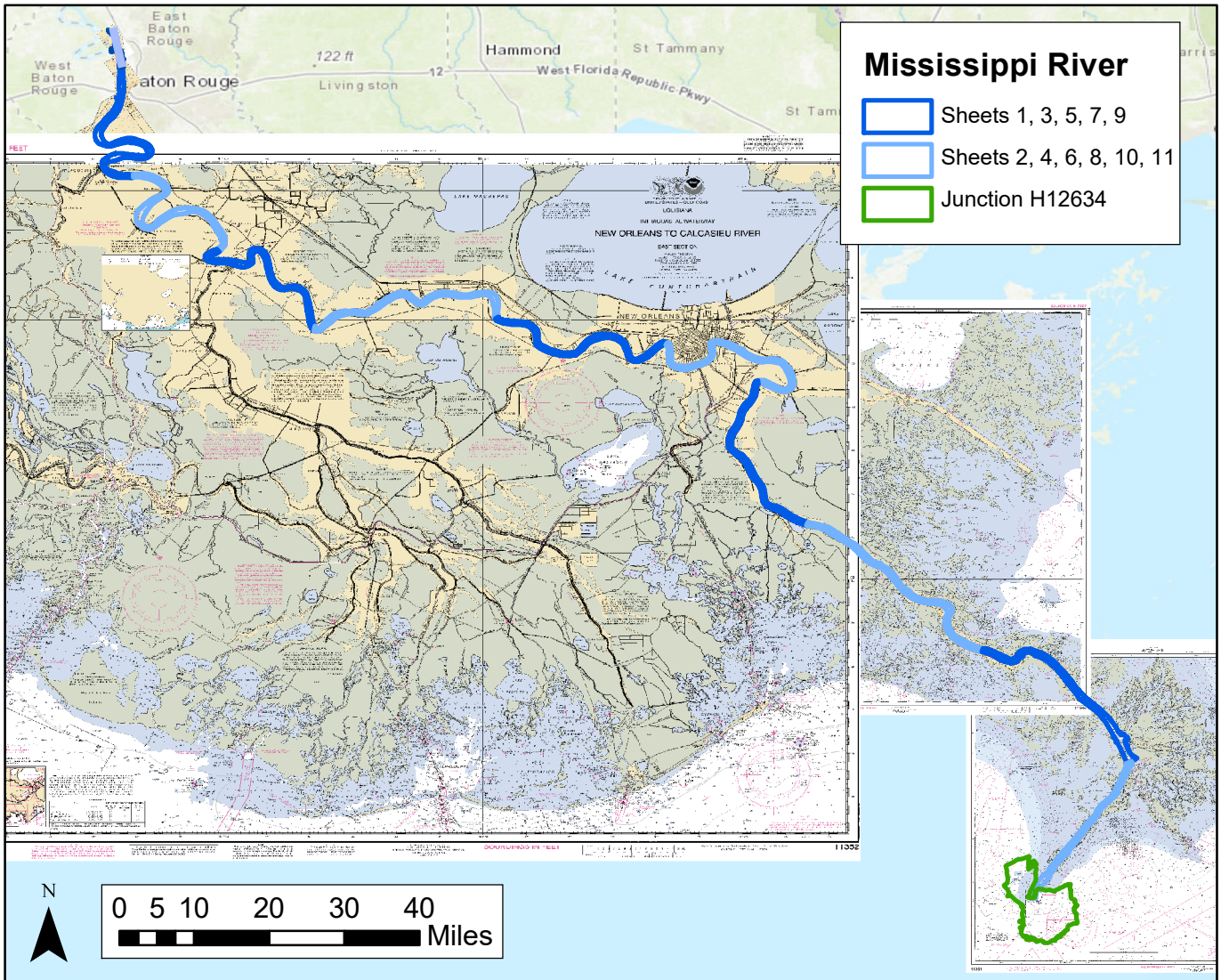
Contracting Officer's Representative
Kathryn Pridgen
NOAA
Phone: 240-533-0033
Fax:
Email: kathryn.pridgen@noaa.gov
Obligation: For Reference

Contracting Specialist
Stacy Fullerton
NOAA, Eastern Region Acquisition Division
Phone: 757-441-3420
Fax:
Email: stacy.fullerton@noaa.gov
Obligation: For Reference

Navigational Manager
Tim Osborn
NOAA
Phone: 337-291-2111
Fax:
Email: Tim.Osborn@noaa.gov
Obligation: For Reference

Hydrographic Survey
Mississippi River
OPR-J347-KR-18

Total SNM:97



Survey Number	Sheet Name	Priority	Scale	Est. SNM
H13188	Mississippi River, Vicinity of Mile 232.5 to 205	1	1:5000	13
H13189	Mississippi River, Vicinity of Mile 205 to 180	2	1:5000	10
H13190	Mississippi River, Vicinity of Mile 180 to 156.5	3	1:5000	8
H13191	Mississippi River, Vicinity of Mile 156.5 to 130	4	1:5000	10
H13192	Mississippi River, Vicinity of Mile 130 to 104.3	5	1:5000	9
H13193	Mississippi River, Vicinity of Mile 104.3 to 78	6	1:5000	9
H13194	Mississippi River, Vicinity of Mile 78 to 54	7	1:5000	9
H13195	Mississippi River, Vicinity of Mile 54 to 26	8	1:5000	11
H13196	Mississippi River, Vicinity of Mile 16 to 0	9	1:5000	12
H13212	Mississippi River, Southwest Pass	10	1:5000	7
H13330	Mississippi River, Vicinity of Mile 235 to 232.5	11	1:5000	2

INTERIM BEST MANAGEMENT PRACTICES (BMPS) FOR HYDROGRAPHIC SURVEYS

The following BMPs are based on the Endangered Species Act (ESA) mitigation and monitoring measures agreed to between the OCS Hydrographic Surveys Division (HSD) and the NMFS Office of Protected Resources (OPR-ESA) and documented in the April 30, 2013 Biological Opinion[1] and in a May 12, 2017 Letter of Concurrence for revised speed limits.[2] They were adopted in the context of the ESA, but include BMPs for marine mammals listed in the ESA ("depleted" under MMPA). OCS follows these BMPs during all OCS hydro work while MMPA compliance is underway. In all cases BMPs will be communicated to ship and boat crews via project instructions. Contractors will additionally be made aware of BMPs via contract RFPs.

Universal BMPs:

Vessel Speed Limits

- Vessels over 65 feet in overall length are limited to a speed of 13 knots or less at all times, unless a slower speed limit applies to the area (e.g., posted speed limits for the protection of manatees).
- Vessels of 65 feet in overall length or less are limited to a speed of 13 knots or less while mapping, unless a slower speed limit applies to the area.

Echo sounder Restrictions

- Avoid using sonar frequencies < 180 kHz when possible
    - Suspend **multibeam** sonar transmissions of < 125 kHz, when Southern Resident killer whales or Cook Inlet beluga whale are observed within hearing range (750 yards)
    - If **multibeam** sonar frequencies < 180 kHz must be employed, use echosounders at ≥ 50 kHz frequencies, with the lowest possible power and ping-rate
    - If **single beam** sonar frequencies < 180 kHz must be employed, use echo sounders at ≥ 30 kHz frequencies, with the lowest possible power and ping-rate and a 12° beam angle.
        - If **single beam** sonar frequencies < 30 kHz must be employed, suspend transmissions of 30 kHz or lower when ESA-listed cetacean species (whales, dolphins, and porpoises) are within hearing range (i.e., the 4.2 meter beam width).

Vessel Maintenance Requirements

- Meet all EPA Vessel General Permits and Coast Guard requirements
- Use anti-fouling coatings
- Clean hull regularly to remove aquatic nuisance species

[1] http://www.nmfs.noaa.gov/pr/consultation/opinions/biop_ocs_04302013.pdf

[2] *Concurrence Letter on Revised Protective Measures to be Followed during Coast Survey Operations*, NMFS Office of Protected Resources, May 12, 2017

- Avoid cleaners with nonylphenols
- Rinse anchor with high-powered hose after retrieval

Anchoring Restrictions

- Use designated anchorage area when available
- Use mapping data to anchor in mud or sand, to avoid anchoring on corals
- Minimize anchor drag

Visual Monitoring Requirements

- Maintain trained observers aboard all vessels; 100% observer coverage
- Make species identification keys (for marine mammals, sea turtles, corals, abalone, and seagrasses) available on all vessels

Animal Approach Restrictions

- Avoid nearshore surveys when Steller sea lions are observed onshore
- Avoid approaching within 100 yards of in-water pinnipeds (seals, sea lions, and walruses)
- When possible, suspend single beam sonar transmissions when ESA-listed pinnipeds (seals, sea lions, and walruses) are within hearing range (i.e., within the 4.2 meter beam width).
- Avoid approaching within 200 yards of cetaceans (whales, dolphins, and porpoises), 500 yards for right whales
- Suspend single beam sonar transmissions of 30 kHz or lower when ESA-listed cetaceans (whales, dolphins, and porpoises) are within hearing range (i.e., within the 4.2 meter beam width).
- Avoid approaching within 50 yards of sea turtles

<u>Survey Specific BMPs</u>

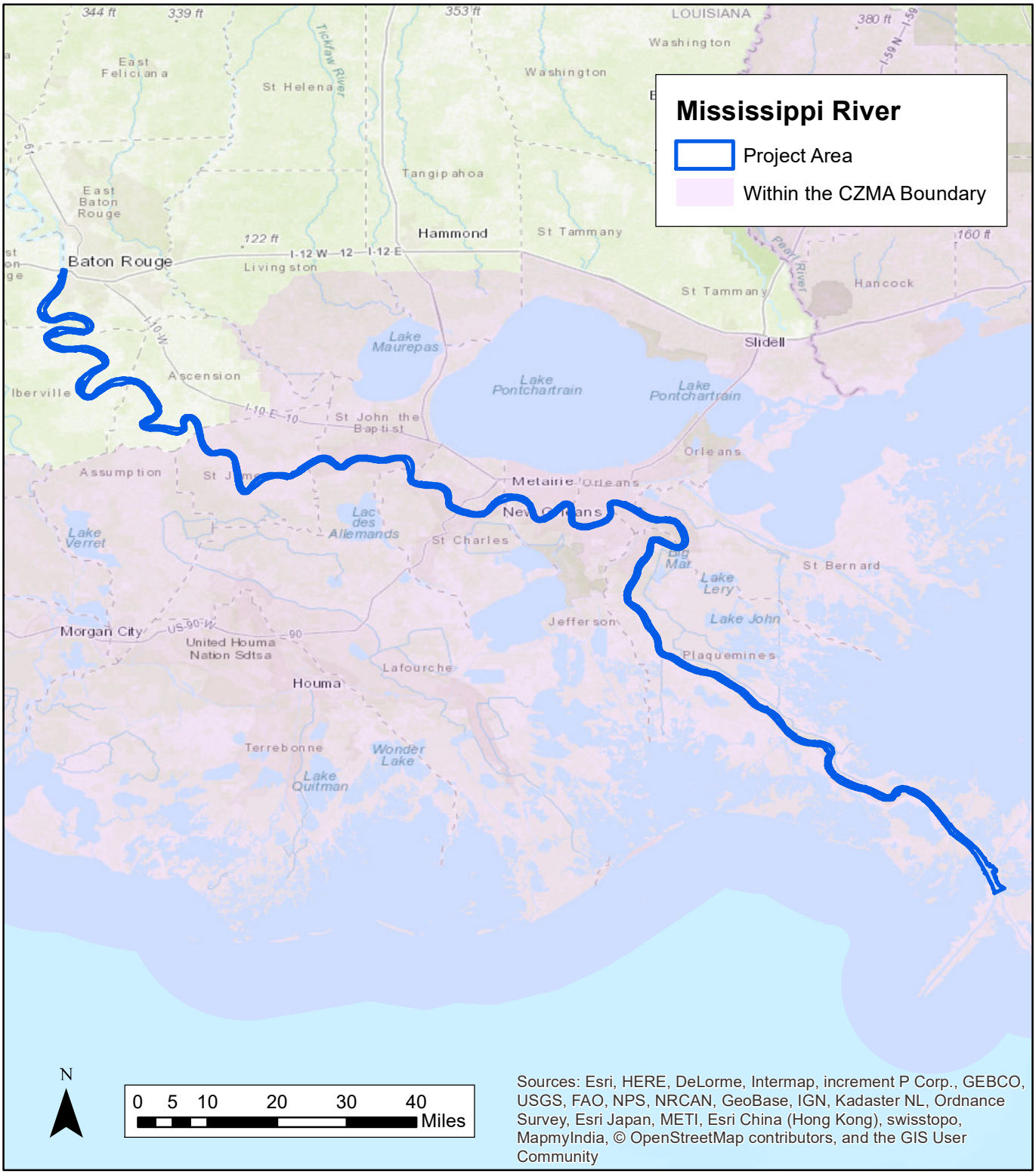
West Indian Manatee

- All work, equipment, and vessel operation should cease if a manatee is spotted within a 50-foot radius (buffer zone) of the active work area. Once the manatee has left the buffer zone on its own accord (manatees must not be herded or harassed into leaving), or after 30 minutes have passed without additional sightings of manatee(s) in the buffer zone, in-water work can resume under careful observation for manatee(s).
- If a manatee(s) is sighted in or near the project area, all vessels associated with the project should operate at "no wake/idle" speeds within the construction area and at all times while in waters where the draft of the vessel provides less than a four-foot clearance from the bottom. Vessels should follow routes of deep water whenever possible.

- Collisions with, injury to, or sightings of manatees should be immediately reported to the Service's Louisiana Ecological Services Office (337/291-3100) and the Louisiana Department of Wildlife and Fisheries, Natural Heritage Program (225/765-2821). Please provide the nature of the call (i.e., report of an incident, manatee sighting, etc.); time of incident/sighting; and the approximate location, including the latitude and longitude coordinates, if possible.

Hydrographic Survey
Mississippi River
OPR-J347-KR-18

Total SNM: 97



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Jason Creech

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Thursday, February 7, 2019 4:41 PM
To: Jason Creech
Subject: Re: OPR-J347-KR18 WEDKLP

Hi Jason,

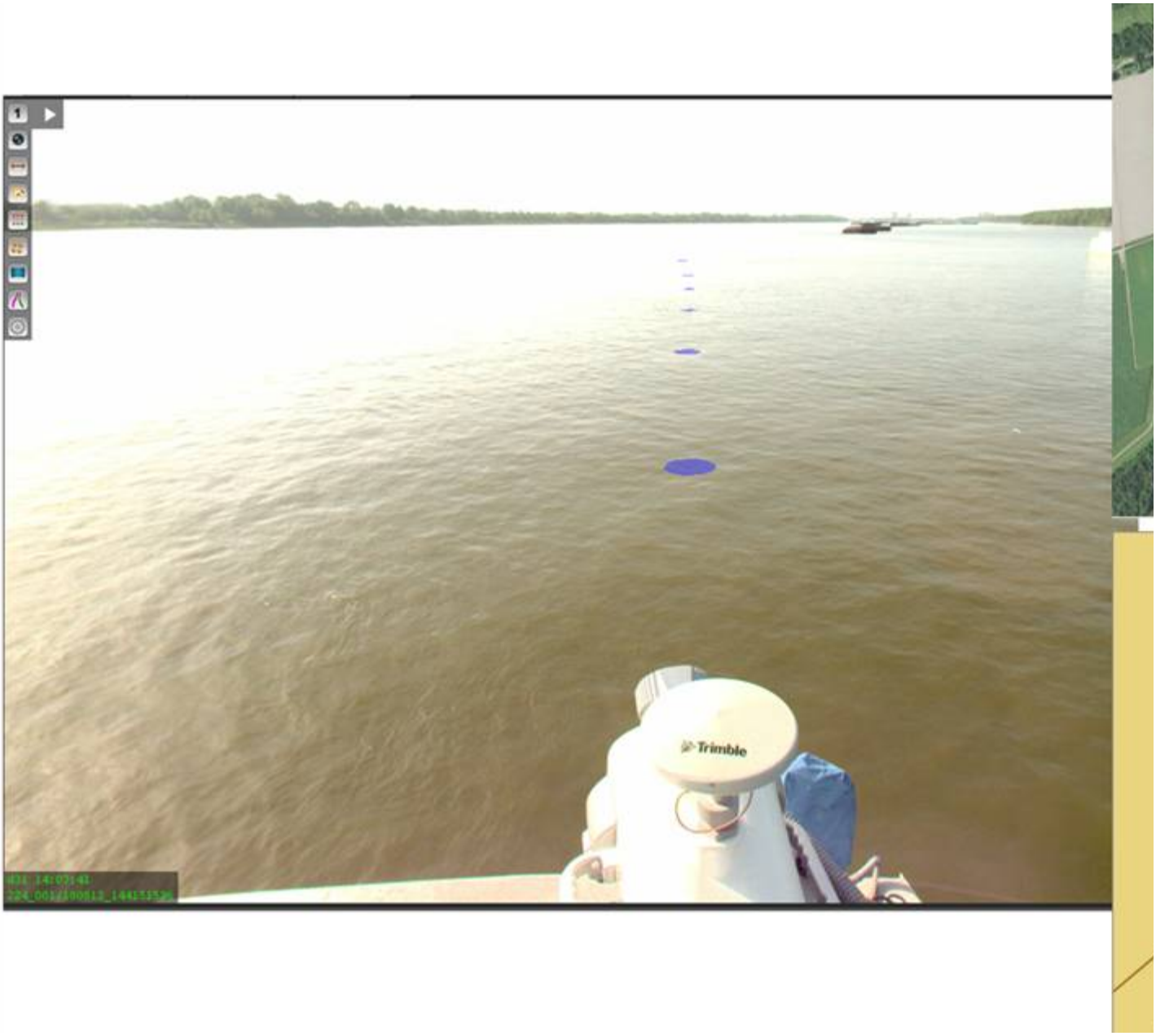
As for sea grass, if you see it, include it in the FFF. I'm assuming any sea grass may be a bit tricky to see. For the charted feature, if you can't truly delineate it, a retain should be fine for it. I wouldn't go to extraordinary lengths to hunt for it.

I'll be in the office until 5:30 and tomorrow will be working from home late morning - evening.

Martha

On Thu, Feb 7, 2019 at 4:23 PM Jason Creech <Jasc@deainc.com> wrote:

> Hi Martha
>
> I've got a quick question for you. What are the requirements for disproving or adding WEDKLP features for our Mississippi River survey? We have one WEDKLP (sea grass) feature assigned in our CSF and when reviewing the MMS imagery it looks like we are seeing some sort of submerged aquatic vegetation in the area (see example image below, the sea grass is hard to distinguish).
>
> Should seagrass of this nature be charted? If so do we need to attempt to delineate this patch in the FFF? Should we also be looking for other similar patches in the vicinity or project area. There is no is no seagrass impeding navigation or obscuring our ability to detect the bottom.
>
> So far we've been unable to pick this out of our MBES data but have not yet reviewed the backscatter.
>
> Thanks for any guidance you can offer.
>
> Jason



Jason Creech, CH | Vice President, Nautical Charting Program Manager

David Evans and Associates, Inc.

2801 SE Columbia Way, Suite 130 | Vancouver, WA, 98661 | www.deainc.com

804.516.7829 | jasc@deainc.com

Jason Creech

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Wednesday, February 20, 2019 9:47 AM
To: Jon Dasler
Cc: Jason Creech
Subject: Re: New Orleans District Dredging Update

Jon,

Thanks for the update on the dredging schedule. I assume the dredges are working in the channel and dumping the spoils just outside of the channel. Right now, I agree, continue working and let me know if you see anomalies in the data from the dredging. I've let Corey and others know of the situation, and will let you know if their opinion differs.

Martha

On Tue, Feb 19, 2019 at 5:59 PM Jon Dasler <Jld@deainc.com> wrote:

> Martha,
>
> I was finally able to connect with Michelle Kornick, New Orleans District Chief of Navigation. She relayed that they have been working hard on dredging to keep the channel open since December, primarily from river mile 10.5 Above Head of Passes (AHP) out to the Gulf. Currently there are seven dredges working the area which I have listed below. For reference, Sheet 10 starts at Head of Passes running to the Gulf and river miles are designated as Below Head of Passes (BHP). We have already surveyed to mile 0 at Head of Passes and above.
>
> Hopper dredge river mile 10.0 AHP To 10.5 AHP
>
> Hopper dredge river mile 4.5 AHP To 3.5 AHP
>
> Hopper dredge river mile 3.5 AHP To 2.0 AHP
>
> Cutter dredge river mile 1.5 AHP To 2.0 BHP – any miles designated as BHP are in sheet 10
>
> Hopper dredge river mile 1.0 AHP To 1.5 BHP
>
> Cutter dredge river mile 13.5 BHP To 18.0 BHP – only working problem areas
>
> Hopper dredge alternating between the following areas: river mile 9.5 BHP To 10.5 BHP and 18.0 BHP to 19.5 BHP
>
> Michelle anticipates this are will be worked through the end of high water (end of April, May or June) and they publish these work areas on their website. I have listed her contact information below:
>
> Michelle.s.kornick@usace.army.mil
>
> 504-862-1842

We are inclined to just continue working and move in to Sheet 10 next week but open to discussion. Let us know if you want to discuss this in more detail.

Jon

Jon L. Dasler, PE, PLS, CH | Senior Vice President, Director of Marine Services

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t: 360.314.3200 | c: 503.799.0168 | jld@deainc.com

Jason Creech

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Monday, April 8, 2019 8:54 AM
To: Jason Creech
Subject: Re: Barges and ATONs

Hi Jason,

I have more info...

4 & 5. Just the master feature (BCNLAT, etc) will suffice as MCD has all the slave attribution. There is no need to include the previous position, but I some info in the remarks whether it is a newly positioned or a brand new ATON would be helpful.

I hope this helps and please let me know if you have any questions.

Martha

On Fri, Apr 5, 2019 at 3:57 PM Martha Herzog - NOAA Federal <martha.herzog@noaa.gov> wrote:

> Hi Jason,
>
> Sorry for the delay, I was trying to get all of the questions fully answered, but here is a start.
>
> 1. Yes, continue digitizing the permanent barges as PONTON areas.
>
> 2. I received further clarification from MCD that is inline with the ENC encoding guide. Categorized the fleeting area as a mooring facility (MORFAC, CATMOR of "tie up wall, WATLEV = floating). You can also use a CTNARE coincident with the MORFAC to highlight it to the mariner, if you choose.
>
> 3. Making the updates to the SLCONS to PONTON is up to your discretion. If you can tell that moves with water level, then PONTON will more accurately represent the feature.
>
> 4.&5 I'm still waiting to hear what would work best for MCD.
>
> 6.& 7. I talked to Jack yesterday and he said he is working on the SEP. Hopefully we'll get it soon.
>
> 8. I think when we talked about the training wall in the past, the question was what to do about the ruined sections and the guidance hasn't changed. They will still be the same SLCONS class but the condition will be ruined. SLCONS, CATSLC=training wall, CONDTN=ruined. Please let me know if this doesn't quite fit with what you are seeing. You can also use WATLEV (always dry, submerged, etc.)
>
> On Tue, Apr 2, 2019 at 3:48 PM Jason Creech <Jasc@deainc.com> wrote:
>
> > Good morning Martha

Thanks for the feedback on these items. We've reviewed and have a few question before we proceed.

1. We have been digitizing barges that are clearly fixed to the shoreline with either piles or with gangways (offices on barges, floating docks) as area features. I just wanted to confirm that both of these feature types should be depicted as PONTON. The project CSF includes some PONTON features from a GC depicting barges fixed to the shoreline with gangways. I have attached a PowerPoint file showing examples of these items which we believe to be permanent/ semi-permanent features.
2. Should we provide a general delineation of areas of barge fleets observed at time of survey? I briefly discussed that as an option when speaking to Captain Brennan at US Hydro. This would allow us to continue to work through the MMS data without delay and would give MCD an idea of where barge fleets were observed during survey operations as they work to determine how best to chart this information. We could include a description of this process in the DRs and attribute the features accordingly. If this is something you'd like us to do, what feature type would you recommend using? These areas would also define areas where barges were observed but we couldn't determine with certainty whether they were permanently fixed along the shoreline.
3. The charts / CSF currently depict some permanent barge piers as SLCONS. Should we update the feature type to PONTON?
4. For the AtoNs, should the .000 file also include the Deleted feature (incorrect position) or will the new (correct) position suffice?
5. Should the AtoNs .000 include the master object only (ex BNCLAT) or master and slave (LIGHTS, DAYMAR) objects?

I also have a few other questions related to the project.

6. Is there any update on a high water datum for the project area? We are currently using the LWRP for all feature heights up river of Head of Passes.
7. Can you provide an estimate for when the new SEP model will be available. We're holding off on scheduling the restart of survey operations until we know when we will have the new model.
8. Did MCD provide any guidance on depictions of the numerous pile dikes / training walls within the survey area. We want to make sure these are properly delineated in the FFF and that we designate these features correctly. We're currently working up some data examples for internal use which I can provide if you like.

That's it for now. Thanks so much for all of your help sorting this out. And let me know if you'd like me to clarify any of our questions.

Jason

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Friday, March 29, 2019 12:53 PM
To: Jason Creech <Jasc@deainc.com>
Subject: Barges and ATONs

Hi Jason,

I finally was about to get a little more information out of MCD for the barges. They are currently looking into a way of delineating the fleeting areas. For barges that are permanent and have piles driven through them, PONTON (floating pier) should work well. Potentially the fleeting areas may be categorized at caution areas, but stand by for the final decision which should happen by the end of next week.

I know it has been a little difficult submitting forms for each ATON that needs repositioning. Could you send me a .000 of the newly position lights per sheet with an indicator (maybe in the INFORM) field of whether they are federally maintained or private? I'll pass these onto MCD who will then poke the USCG about correcting them. Since the USCG is the source authority, MCD will ultimately only take their position.

Thanks,

Martha

Jason Creech

From: Jack Riley - NOAA Federal <jack.riley@noaa.gov>
Sent: Friday, April 5, 2019 7:31 PM
To: Martha Herzog - NOAA Federal; Jason Creech
Cc: Corey Allen
Subject: NAD83-LWRP2007_MLLW12B_Buffered_Ext CSAR SEP
Attachments: NAD83-LWRP2007_MLLW12B_Buffered_Ext.zip

Hello Martha and Jason,

See attached for the buffered-extended (Baton Rouge Harbor & a bit more seaward of Pilot Station East, SW Pass per latest HSD survey limits). Took a little longer than I thought to get everything spun up again on my new computer in HSTB -- during my first week back from CO-OPS. Again, sorry for the delay! Happy to discuss in any follow-up.

Thanks,
Jack
--

Jack L. Riley
Coast Survey Development Lab
240-847-8271

Jason Creech

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Tuesday, April 30, 2019 11:19 AM
To: Jason Creech; Jon Dasler
Subject: Follow up to discussion on 4/26

Jason,

Thanks for your call on Friday. I am just following up

WATLEV - I spoke with Stacy, and if you would like to use the 2019 Spec for WATLEV, NOAA would need to issue a modification to the contract. I'm happy to discuss that more and proceed to make a mod if that is convenient for you.

Data under piers - I forwarded the graphics of removing data under the pier to Gene at AHB, He concurs with your method.

For features upriver of Head of Passes, there cannot be any "always dry" features as there is no MHW for the Mississippi. Even baring features at LWRP will have the WATLEV of covers and uncovers.

Training walls - I'm still in the process of double checking the guidance I gave you about the ruined training walls. I'll send a followup email on this.

Martha

Jason Creech

From: Jack Riley - NOAA Federal <jack.riley@noaa.gov>
Sent: Friday, May 3, 2019 10:06 PM
To: Jon Dasler
Cc: Jason Creech; Rick Brennan; Martha Herzog - NOAA Federal; Corey Allen; Glen Rice
Subject: Re: FW: Mississippi LWRP Survey Findings PowerPoint
Attachments: NAD83-LWRP2007_MLLW_Geoid12B.zip

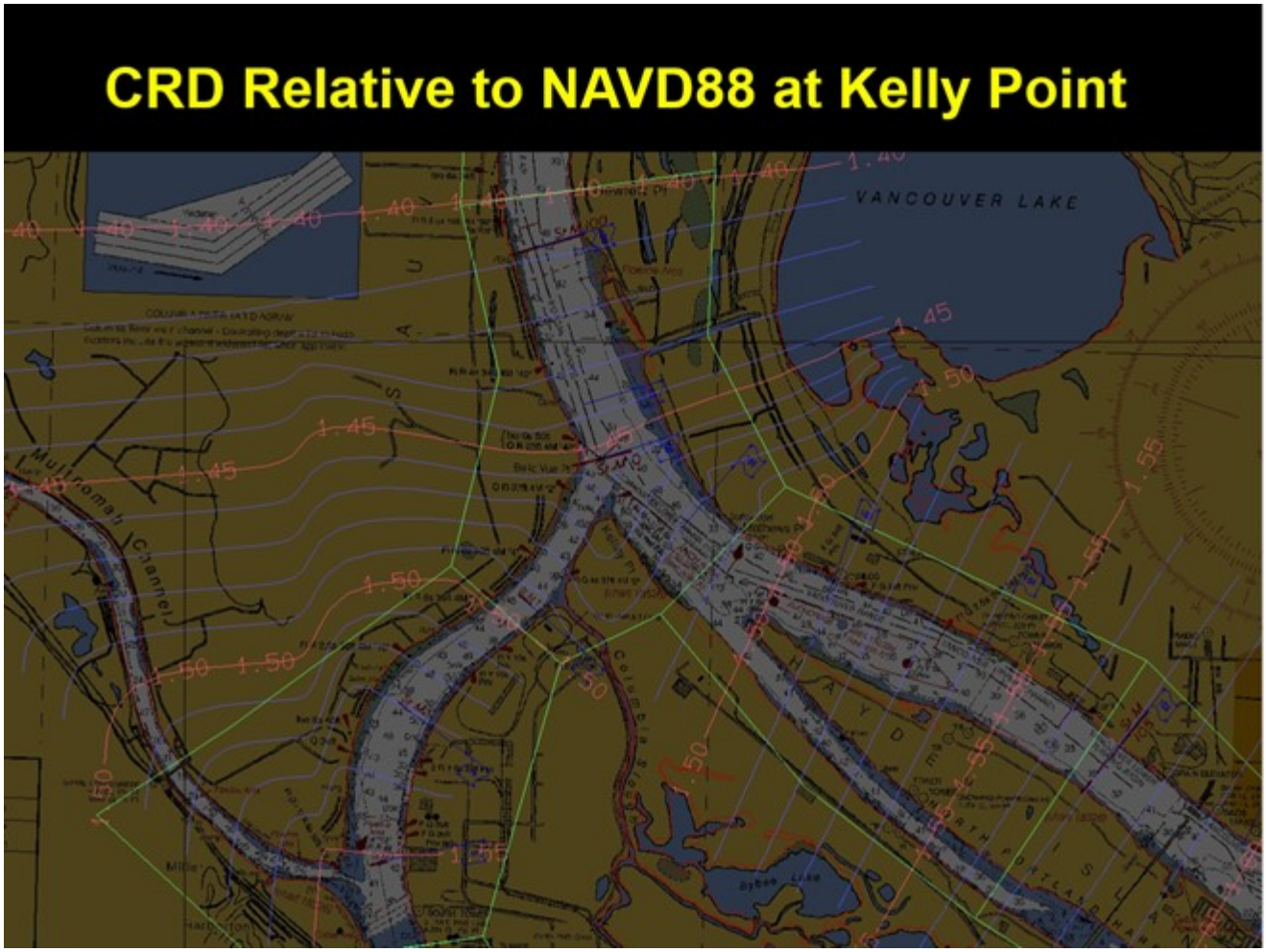
Jon,

See attached for the revised NAD83-LWRP2007/MLLW SEP [m] based upon/incorporating the unadulterated Geoid12B NAVD88, per our discussions through this evening.

Thanks,
Jack
--
Jack L. Riley
Coast Survey Development Lab
240-847-8271

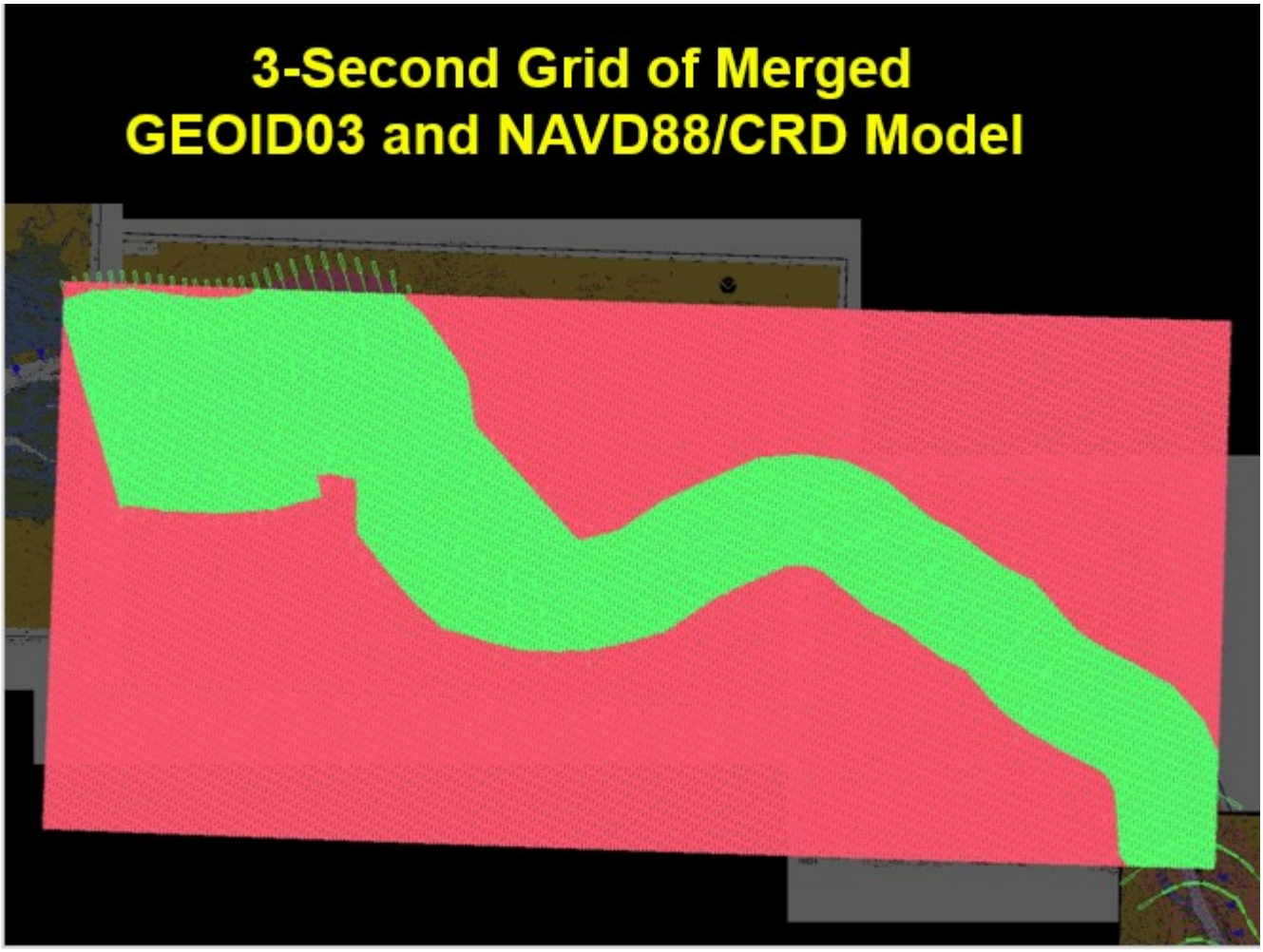
On Fri, May 3, 2019 at 7:48 PM Jon Dasler <Jld@deainc.com> wrote:

> Jack,
>
> I am still in the office if you want to call. I am not sure what you mean by “exclude the 2_D undulations perpendicular to the river”. The gradient model should be flat perpendicular to the river and include enough data points to capture geoid undulation when combining with the geoid model (100 meter of 3 arc second grid would be sufficient). Following is and example of the Triangular Irregular Network (TIN) model I generated for the Columbia River.



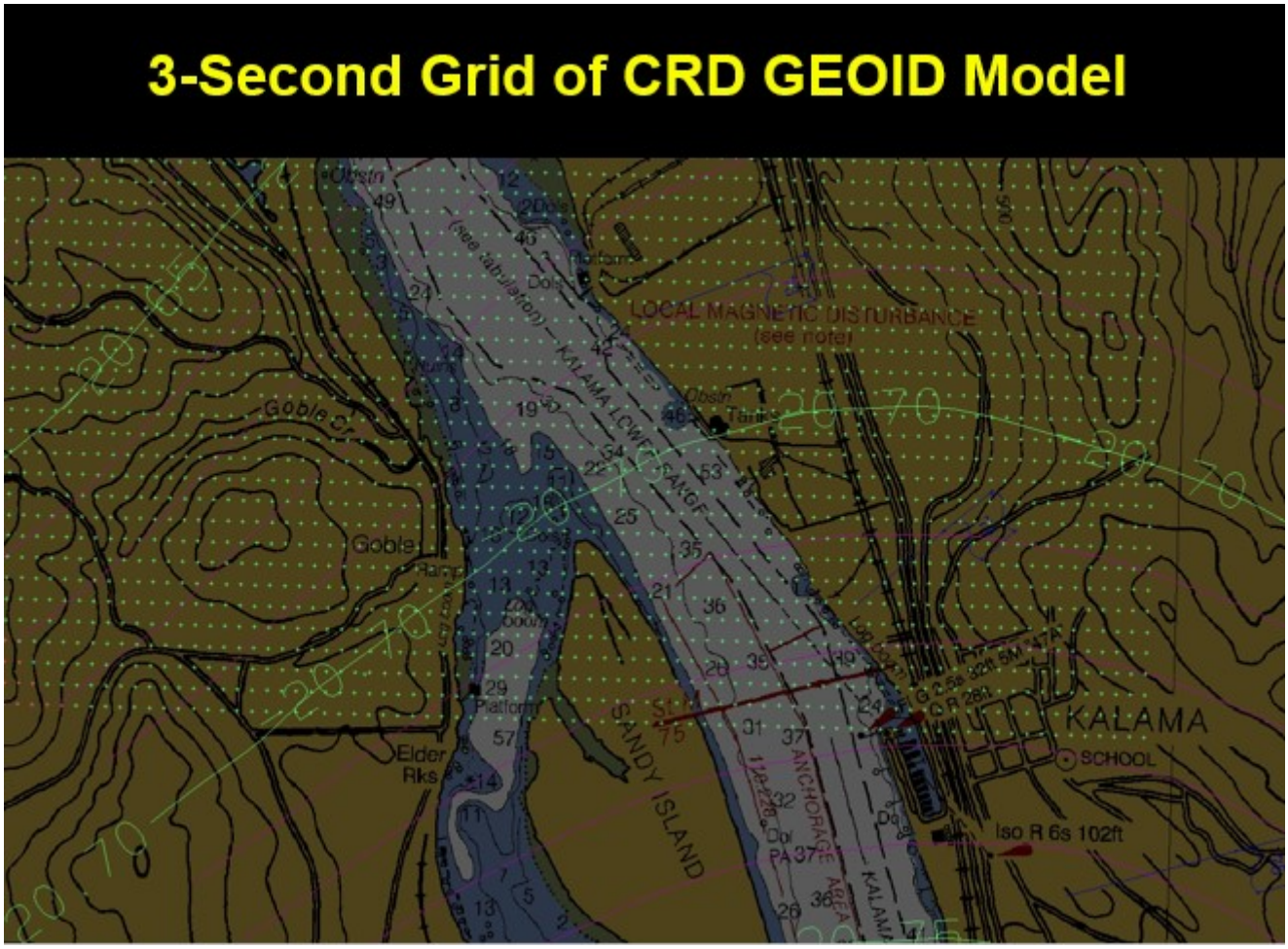
From that surface a 3 arc second grid was generated with values populated from the TIN and those grid values run through the Geoid model to develop

the separation model.



Resultant contours of separation model that incorporates the gradient datum on NAVD88 and the geoid model.

Resolution is sufficient to capture merging channel, river bends, and geoid undulations.



From: Jack Riley - NOAA Federal <jack.riley@noaa.gov>
Sent: Friday, May 03, 2019 4:31 PM
To: Jon Dasler <Jld@deainc.com>
Cc: Jason Creech <Jasc@deainc.com>; Rick Brennan <richard.t.brennan@noaa.gov>; Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>; Corey Allen <corey.allen@noaa.gov>; Glen Rice <glen.rice@noaa.gov>
Subject: Re: FW: Mississippi LWRP Survey Findings PowerPoint

Okay -- the point I missed was the need to include the high-resolution gradient along the river, but [continuing to] exclude the 2-D geoidal undulations perpendicular to the river center line. So while my 2-D LWRP-NAVD88 component is accurate to the hydraulic model (2-D "road" version of the orange line on the plot with the USACE's blue stepped line and SEP -minus- geoid-09 and -12 plot), I need to include more samples to track that gradient path. I can revise and provide a Geoid12B version as well.

I discussed this with HSD today and said I would follow-up with you (per above) and phone call too, if you're available -- anytime is potentially good for me, including through the weekend. We all agreed that the presentation at the meeting next week needs to be simplified in terms of these model details. The slide showing contours on your version of the existing LWRP NOAA Model is inaccurate and comparing the Geoid09-realized LWRP2007 to 12B profiles should be limited to support the argument that's the correct way to go with ellipsoidally-referenced LWRP2007 realization.

Assuming the Geoid12B-version of the revised SEP I will send generates consistent results with the revised comparisons you've computed, we should update that on the slides. LWRP most likely continues to be nearly linear down river from Venice. CO-OPS says LWRP=NAVD88 at HOP (MM 0) and that MLLW=LWRP ~MM 1 on SW Pass & ~MM2 on Pass a Loutre. Our SEP includes the LWRP zero at HOP and continues seaward on MLLW, overriding VDatum by making use of CO-OPS NAVD88 on MLLW corrected values at Pilots Station East (8760922) = +34.8 cm, and Devon Energy Facility (8760417) of +21.7 cm.

Glen Rice (cc'd) will be able to attend the meeting on behalf of NOAA as well. Glen is keen on getting familiar with vertical datum decisions in his primary role with HSTB as Technical Lead on the NOAA National Bathymetric Source Project.

Jack L. Riley

Coast Survey Development Lab

240-847-8271

On Fri, May 3, 2019 at 6:23 PM Jon Dasler <Jld@deainc.com> wrote:

> We did one more exercise to see how we would compare to USACE gauge observations if we backed out the NOAA separation model to obtain the original ellipsoid height observation and applied Geoid12B or Geoid09 and subtracted USACE NAVD88 elevation of LWRP to get LWRP. In general, using Geoid12B reduces the difference from gauges with the exceptions being Baton Rouge, New Orleans (Carrolton), Algiers Locks, and Venice. These difference are likely due to USACE applying LWRP offset to old datums (NGVD29, etc.) Although Venice comparison gets worse, this puts the observation much closer at the CO-OPS gauge at Pilottown which we missed by 0.7 feet. Using Geoid12B should drive this down to 0.2 feet or less. We do not have NAVD88 elevations below RM 11 AHP (Venice) for LWRP or MLLW. It would be good to get the CO-OPS NAVD88 elevations from recent maintenance observations. Attached is the full spread sheet to see how these values were computed. The text G12b & USACE LWRP implies that we used GEOID12B to get to NAVD88 from original ellipsoid observations and then applied the appropriate USACE NAVD88 elevation of LWRP based on river mile of the gauge to obtain LWRP water surface elevations.

Gauge	Ship Float G12b & USACE LWRP ft	G12b Delta from Ship Float ft	G12b Delta from Gauge ft	Ship Float G09 & USACE LWRP ft	G09 Delta from Ship Float ft	G09 Delta from Gauge ft
Baton Rouge	21.23	0.19	1.17	21.44	-0.02	0.96

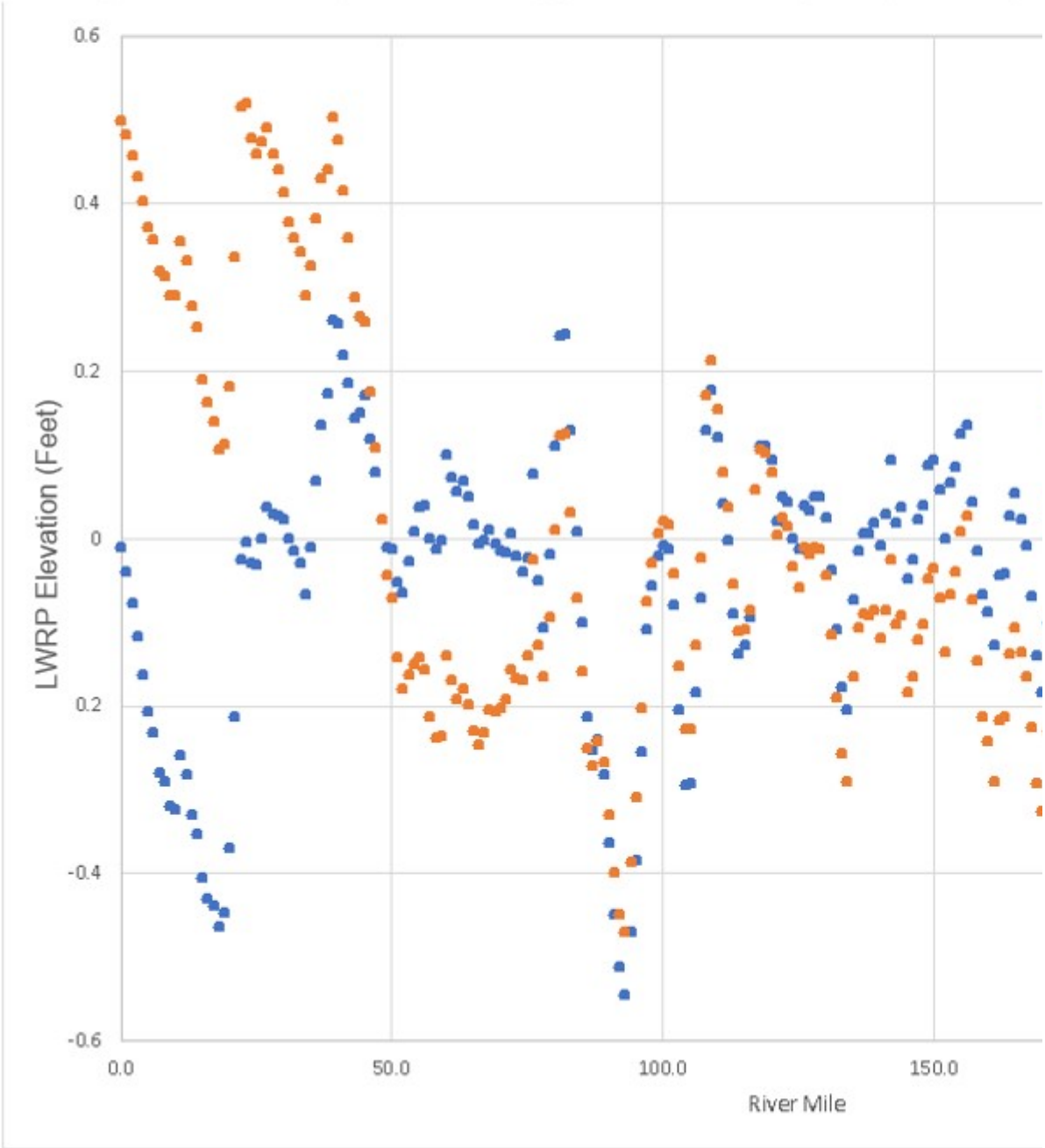
Donaldsonville	15.22	0.04	1.00	15.09	0.17	1.13
Reserve	11.27	-0.11	0.68	11.17	-0.01	0.78
BC NW	11.20	-0.04	0.85	11.13	0.03	0.92
Bonnet Carre	10.43	-0.06	0.65	10.38	-0.01	0.70
New Orleans	9.95	-0.11	0.97	10.00	-0.16	0.92
IHNC Lock	8.79	-0.56	0.39	8.88	-0.65	0.30
Algiers Lock	7.99	-0.21	0.72	7.99	-0.21	0.72
Alliance	4.94	-0.18	0.50	4.69	0.07	0.75
Pt a la Hache	6.36	0.00	0.42	6.33	0.03	0.45
Venice	2.16	0.50	0.40	2.77	-0.11	-0.21

From: Jon Dasler
Sent: Friday, May 03, 2019 1:24 PM
To: Jack Riley - NOAA Federal <jack.riley@noaa.gov>; Jason Creech <Jasc@deainc.com>
Cc: Rick Brennan <richard.t.brennan@noaa.gov>; Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>; Corey Allen <corey.allen@noaa.gov>; Glen Rice <glen.rice@noaa.gov>
Subject: RE: FW: Mississippi LWRP Survey Findings PowerPoint

Below is another example. In this case we took the NAVD88 values at the river mile positions provided by USACE for the LWRP gradient. We computed ellipsoid heights for each point by applying GEOID09 in one test and GEOID12B in another test. We then applied your separation model to the ellipsoid heights (GEOID09 blue points, GEOID12B orange points), which should result in a zero elevation LWRP for at least one of the models. We believe the GEOID12B more accurately defines what we surveyed using NAD83 (2011).

USACE Mississippi LWRP vs N

NOAA Model test using USACE River Mile with NAVD88 elevation of LWRP con
GEOID12B then ellipsoid height converted to LWRP using NOAA Model. All poin
Ellipsoid heights derived using GEOID12B approximates survey using NAD83(20



From: Jon Dasler
Sent: Friday, May 03, 2019 1:11 PM
To: 'Jack Riley - NOAA Federal' <jack.riley@noaa.gov>; Jason Creech <Jasc@deainc.com>
Cc: 'Rick Brennan' <richard.t.brennan@noaa.gov>; 'Martha Herzog - NOAA Federal' <martha.herzog@noaa.gov>; 'Corey Allen' <corey.allen@noaa.gov>; 'Glen Rice' <glen.rice@noaa.gov>
Subject: RE: FW: Mississippi LWRP Survey Findings PowerPoint

To follow on this discussion and our observations, the data points you used to model LWRP are shown in pink on the attached image with associated NAVD88 height of LWRP and river mile. Note that your river miles are off by approximately 4 miles. Your model values match close to the contours (contours have inverse values labeled) of the model we generated by subtracting the geoid model from your separation values (as they should). The circled points are USACE river miles with the assigned NAVD88 value of LWRP with associated rive mile. My assessment of this difference is that you may have used a low resolution model of the NAVD88 elevations defining LWRP and we are seeing artifacts from the geoid or "hydraulic geoid" you applied. In short, if a survey used a geoid model to obtain an NAVD88 orthometric height (call it 6) and applied the NAVD88 elevation of LWRP (call it 1), when applied 6-1=5. If you have a hydraulic geoid model (call it 7) and apply your model of LWRP (call it 2), when applied you should get the same answer 7-2=5. This should hold true for any point in the model.

From: Jon Dasler
Sent: Friday, May 03, 2019 12:39 PM
To: Jack Riley - NOAA Federal <jack.riley@noaa.gov>; Jason Creech <Jasc@deainc.com>
Cc: Rick Brennan <richard.t.brennan@noaa.gov>; Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>; Corey Allen <corey.allen@noaa.gov>; Glen Rice <glen.rice@noaa.gov>
Subject: RE: FW: Mississippi LWRP Survey Findings PowerPoint

Jack

I am not sure what you are using for a "hydraulic GEOID" or how you derived it but the NAVD88 elevations already define the hydraulic gradient. You just need to apply the geoid model to a high resolution model of the NAVD88 gradient to capture changes in the geoid. You should get the same separation at any point in the model when using an NAVD88 height of LWRP and using a GEOID model, generally how the gauge surveys were conducted. This is how the NAVD88 elevations of LWRP were originally defined, exactly the same as Columbia River Datum using a 3 second arc grid (roughly 100 meter grid) of CRD relative to NAVD88. The model of the river should be constructed first relative to the defining datum (NAVD88) using every point along the profile with equal elevations normal to the centerline profile (similar to a flat road surface). The result is the hydraulic gradient of the river relative to NAVD88. From there a high resolution grid is interpolated from the TIN model and the appropriate standard geoid model applied for a separation model from the appropriate datum, NAD83 (2011) in the case of the Mississippi River where the C4G network is being used for ellipsoid heights, to LWRP. At any point on the river the geoid model should be able to be subtracted to get the originally defined NAVD88 elevation of the LWRP gradient datum. This is exactly how the Columbia River model was generated with repeatable results at any gauge location or benchmark and allows for easy translation between NAVD88 and the gradient datum (CRD or NAVD88). To test this in your model, we took all the centerline data points with NAVD88 elevations of LWRP and added the GEOID09 and GEOID12B as two separate tests to obtain ellipsoid heights. We believe adding GEOID12B would more accurately represent ellipsoid heights relative to our survey

ellipsoid heights using NAD83(2011). From those ellipsoid heights (again how the gauges were surveyed) we subtract your separation model. The result is the undulation you see in the profile image attached.

We probably should have a conference call to discuss this in detail and I can pull up examples of Columbia River Datum modeling.

Jon

Jon L. Dasler, PE, PLS, CH | Senior Vice President, Director of Marine Services

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DAVID EVANS AND ASSOCIATES INC. MARINE SERVICES

From: Jack Riley - NOAA Federal <jack.riley@noaa.gov>
Sent: Friday, May 03, 2019 12:03 PM
To: Jon Dasler <Jld@deainc.com>; Jason Creech <Jasc@deainc.com>

Cc: Rick Brennan <richard.t.brennan@noaa.gov>; Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>; Corey Allen <corey.allen@noaa.gov>; Glen Rice <glen.rice@noaa.gov>
Subject: Re: FW: Mississippi LWRP Survey Findings PowerPoint

Jon and Jason,

I exported the LWRP2007-NAVD88 component from my TCARI solution and I am not seeing any oscillation in the LWRP profile. I see a monotonically-increasing function. There's also not much athwart variation (mm) in my LWRP -- consistent with a hydraulic datum. The NOAA NAD83-LWRP SEP is similarly hydraulic, where the USACE NAVD88-LWRP2007 values at the "risers" (staircase analogy; "treads" are the [constant] LWRP plateaus) are added to the local NAD83-NAVD88 to change the basis, and that is spatially interpolated (2-D Laplace). You are introducing all this tilt in your analysis when you un-apply the geoid to the *gridded* data. To recover the hydraulic LWRP you need to un-apply a linearly-interpolated "hydraulic geoid" differential surface.

Jack

--

Jack L. Riley

Coast Survey Development Lab

240-847-8271

On Fri, May 3, 2019 at 12:16 PM Jon Dasler <Jld@deainc.com> wrote:

> Jack
>
> Thank you for the response. I will be traveling to New Orleans on Monday at 3PM Pacific and will be at Stennis all day Tuesday. The meeting with New Orleans is at 10AM Central on Wednesday. Feel free to reach out to Jason and we can coordinate a conference call as needed.
>
> Jon

Jon L. Dasler, PE, PLS, CH | Senior Vice President, Director of Marine Services

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t: 360.314.3200 | c: 503.799.0168 | jld@deainc.com

From: Jack Riley - NOAA Federal <jack.riley@noaa.gov>
Sent: Friday, May 03, 2019 8:45 AM
To: Jon Dasler <Jld@deainc.com>
Cc: Rick Brennan <richard.t.brennan@noaa.gov>; Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Subject: Re: FW: Mississippi LWRP Survey Findings PowerPoint

Hello Jon,

Yes, I have received the email and downloaded the presentation. I am working to follow-up on things this afternoon leading up to a check-in with the HSD at 1600. We will check-in back with you ASAP afterwards, in advance of the meeting next Wednesday; expect some info this PM with some follow up as needed early next week.

Thanks,

Jack

--

Jack L. Riley

Coast Survey Development Lab

240-847-8271

On Fri, May 3, 2019 at 11:33 AM Jon Dasler <Jld@deainc.com> wrote:

> All,
>
> Just checking in to make sure you received my email yesterday and you were able to download the PowerPoint. Following is an image that further illustrates what we are seeing. The dark circles are USACE mile point and black text is the associated NAVD88 elevation of LWRP color coded by difference from NOAA model. The pink dots are points used in the NOAA model with associated NAVD88 elevation of LWRP. The white haloed points are contour labels of NAVD88 inverse values of LWRP. These should match the core centerline mile values. Let us know when you are available for a meeting.
>
> Jon
>
> **Jon L. Dasler, PE, PLS, CH** | Senior Vice President, Director of Marine Services
>
> David Evans and Associates, Inc. | Marine Services Division | www.deamarine.com
>
> t: 360.314.3200 | c: 503.799.0168 | jld@deainc.com
>
>

Jason Creech

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Friday, May 3, 2019 12:58 PM
To: Jason Creech
Cc: Jon Dasler
Subject: Re: OPR-J347-KR-18 Training Walls Southwest Pass

Hi Jason,

I have better guidance for the training walls/pile dikes.

There is no need to mark small segments of the training wall (especially less than 10m) each as submerged, cov/uncov, and dry. For instance, if most of it is ruined with only small, intact sections, you can label the entire thing as ruined.

If a ruined segment has a pile or two seaward and appears to have once to be a part of the training wall extend the ruined segment to the pile. It doesn't make sense to have obstructions at the end of nearly every training wall.

For the ruined training walls that have jogs, continue to mark the training wall with the jog at the least depth of the ruins.

Please let me know if you have questions. I'd be happy to explain run through this with your PowerPoint.

On Fri, Apr 26, 2019 at 1:03 PM Jason Creech <Jasc@deainc.com> wrote:

> Hi Martha
>
> As we work to complete sheet 10 (Southwest Pass) we are looking to finalize our procedures for depicting training walls in our survey data, finalized grids, and final feature file. As expected, there is a lot going on with these structures and we want to make sure we have a firm understanding of requirements and expectations. I've created a PowerPoint deck with some example training walls with images and screengrabs from HIPS subset. I've also added some first cuts at general representation in the FFF.
>
> If possible we'd like to schedule some time to have a web meeting to review and discuss these items. I've added some comments and notes to help explain what we are showing, but think a review in real time would be most beneficial.
>
> Would you be available later this afternoon or first thing next week for a meeting? In the meantime, I'm happy to address any questions you may have about the slides.
>
> Thanks,

Jason

Jason Creech, CH | Vice President, Nautical Charting Program Manager

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804.516.7829 | jasc@deainc.com

ENERGY | LAND DEVELOPMENT | MARINE SERVICES | SURVEYING AND GEOMATICS | TRANSPORTATION | WATER AND ENVIRONMENT

Jason Creech

From: Jason Creech
Sent: Monday, May 6, 2019 4:11 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: progress.sketches@noaa.gov; Kathryn Pridgen - NOAA Federal; Corey Allen; Stacy Fullerton - NOAA Federal; Tim Osborn (Tim.Osborn@noaa.gov); Tiffany Squyres - NOAA Federal
Subject: OPR-J347-KR-18 Weekly Progress Report 20190504

Hi Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 5/4/19. The coverage raster and coverage map have been uploaded to the Google Drive.

Last week we completed acquisition for Sheets 7, 8, 9 and 10 on the lower reaches of the project area. The Blake transited to Gulfport, MS on Wednesday and we are currently on standby waiting for the Mississippi River to drop to normal levels. As soon as the river recedes to safe levels, we will return to the project area and complete Sheets 1-6. We are evaluating the revision to the LWRP/MLLW SEP model and implications to applying to our MBES and MMS data which we reduced to chart datum in real time during survey operations.

Please let me know if you have any questions.

Thanks,
Jason

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804.516.7829 | jasc@deainc.com

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Jason Creech

From: Jason Creech
Sent: Tuesday, April 30, 2019 3:04 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: progress.sketches@noaa.gov; Kathryn Pridgen - NOAA Federal; Corey Allen; Stacy Fullerton - NOAA Federal; Tim Osborn (Tim.Osborn@noaa.gov); Tiffany Squyres - NOAA Federal
Subject: OPR-J347-KR-18 Weekly Coverage 20190427

Hi Martha

I've uploaded the coverage raster and coverage map for the week ending 4/27/19 to the Google drive.

Jason

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Jason Creech

From: Jason Creech
Sent: Monday, April 29, 2019 2:07 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: progress.sketches@noaa.gov; Kathryn Pridgen - NOAA Federal; Corey Allen; Stacy Fullerton - NOAA Federal; Tim Osborn (Tim.Osborn@noaa.gov); Tiffany Squyres - NOAA Federal
Subject: OPR-J347-KR-18 Weekly Progress Report 20190427

Hi Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 4/27/19. The coverage raster and coverage map will be uploaded to the Google Drive later today after the Blake is back in cellular data range.

Last week we continued acquisition on the lower section of sheet 10. As of today, we have completed all acquisition on Sheet 10 and our GPS equipment has been removed from the temporary base station at the Branch Pilot's House. The Blake will start transiting up river later today and will collect fill and investigations on Sheets 9, 8, and 7 in route to the Inner Harbor Navigation Canal in New Orleans which will be used on the return to Gulfport, MS. We currently expect to transit back to Gulfport on Wednesday. At this point, the lower section of the project area (Sheets 7-10) will be complete and we will need to wait on river levels to drop before returning the Sheets 1-6. NOAA's Lower Mississippi River Forecast Center is currently predicting river levels at Baton Rouge to be well above flood stage for the entirety of their 28-day long range forecast.

Please let me know if you have any questions.

Thanks,
Jason

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804.516.7829 | jasc@deainc.com

ENERGY | LAND DEVELOPMENT | MARINE SERVICES | SURVEYING AND GEOMATICS | TRANSPORTATION | WATER AND ENVIRONMENT

Jason Creech

From: Jason Creech
Sent: Monday, April 15, 2019 8:16 AM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: progress.sketches@noaa.gov; Kathryn Pridgen - NOAA Federal; Corey Allen; Stacy Fullerton - NOAA Federal; Tim Osborn (Tim.Osborn@noaa.gov); Tiffany Squyres - NOAA Federal
Subject: OPR-J347-KR-18 Weekly Progress Report 20190413

Hi Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 4/13/19. The coverage raster and coverage map have been uploaded to the Google Drive.

Last Friday we transited from Gulfport, MS back to the project area and resumed acquisition on Sheet 10. We've checked out all systems, including our temporary GPS station at the Branch Pilot's house and performed patch tests, for both vessels.

This week we plan to continue Sheet 10 acquisition and are hoping for favorable conditions for survey. We plan to be onsite until operations are complete for Sheets 7 - 10. We're still waiting for river levels to drop so we can safely complete Sheets 1 – 6. I'll see you later this morning to review some of our survey coverage questions.

Please let me know if you have any questions.

Thanks,
Jason

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Jason Creech

From: Jason Creech
Sent: Monday, April 1, 2019 4:44 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: progress.sketches@noaa.gov; Kathryn Pridgen - NOAA Federal; Corey Allen; Stacy Fullerton - NOAA Federal; Tim Osborn (Tim.Osborn@noaa.gov); Tiffany Squyres - NOAA Federal
Subject: OPR-J347-KR-18 Weekly Progress Report 20190330

Hello Martha

We have no acquisition to report for project OPR-J347-KR-18 for the week ending 3/30/19.

The Blake is still in Mississippi undergoing repairs. Last week we were able to complete the repairs to the generators and we have some additional repairs and maintenance scheduled this week. We plan to resume acquisition on Sheet 10 in the next few weeks and need to have the updated separation file before operations resume. We will return to the upper sheets to run some fill and investigations and the Sheet 1 mod area after the river stage returns to safe levels.

Please let me know if you have any questions.

Thanks and have a good week.
Jason

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Jason Creech

From: Jason Creech
Sent: Monday, March 25, 2019 3:54 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: progress.sketches@noaa.gov; Kathryn Pridgen - NOAA Federal; Corey Allen; Stacy Fullerton - NOAA Federal; Tim Osborn (Tim.Osborn@noaa.gov); Tiffany Squyres - NOAA Federal
Subject: OPR-J347-KR-18 Weekly Progress Report 20190323

Hello Martha

We have no acquisition for project OPR-J347-KR-18 to report for the week ending 3/23/19.

Our survey vessel Blake is currently in port in Mississippi after attending the US Hydrographic Conference in Biloxi last week. After the Blake's generators are repaired in the next few weeks we plan to resume acquisition in Southwest Pass to complete sheet 10. We're still monitoring river levels in the upper sheets to determine when we can safely return to the area for fill and investigation operations and to start acquisition in the Sheet 1 modification area up river of Baton Rouge.

Please let me know if you have any questions.

Thanks,
Jason

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Jason Creech

From: Jason Creech
Sent: Monday, March 18, 2019 4:03 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: 'progress.sketches@noaa.gov'; 'Kathryn Pridgen - NOAA Federal'; 'Corey Allen'; 'Stacy Fullerton - NOAA Federal'; 'Tim Osborn (Tim.Osborn@noaa.gov)'; 'Tiffany Squyres - NOAA Federal'
Subject: OPR-J347-KR-18 Weekly Progress Report 20190316

Hi Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 3/16/19. The coverage raster and coverage map have been uploaded to the Google Drive.

Similar to the past few weeks, last week was spent surveying Sheet 10. The Blake supported Sigsbee inshore operations with continued fog delays. On Thursday the Blake returned to Mississippi ahead of the US Hydrographic Conference in Biloxi.

We plan to begin repairs to the Blake's generators in the next few weeks and will be monitoring fog and river level forecast to determine the best time to return to the survey area to complete the project. Water levels at Baton Rouge are currently just under the record high. Based on information we are getting from forecasts and local users, we expect water levels to remain high this spring.

Thanks and have a good week. Please let me know if you have any questions.

Jason

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Jason Creech

From: Jason Creech
Sent: Monday, March 11, 2019 5:28 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: 'progress.sketches@noaa.gov'; 'Kathryn Pridgen - NOAA Federal'; 'Corey Allen'; 'Stacy Fullerton - NOAA Federal'; 'Tim Osborn (Tim.Osborn@noaa.gov)'; 'Tiffany Squyres - NOAA Federal'
Subject: OPR-J347-KR-18 Weekly Progress Report 20190309

Hi Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 3/9/19. The coverage raster and coverage map have been uploaded to the Google Drive.

Last week we continued with Sheet 10 acquisition. The Blake spent the week supporting the Sigsbee while it was working nearshore in and around the 2m limit and charted pile dikes which are abundant in Southwest Pass. Fog was still present but we were able to get in multiple days of survey with no weather delay time. We also had a scheduled port call on Wednesday 3/6/19.

This week we plan to continue Sheet 10 acquisition. Unlike last week, we anticipate fog to account for significant delay time this week. We will be returning to Mississippi at the end of the week for the US Hydrographic Conference and to make repairs to the Blake, including the replacement of two generators. These repairs will likely take 2-3 weeks and we anticipate being back online with Sheet 10 acquisition in early April. We will keep you posted on our acquisition plan in future weekly updates. Please let me know if you have any questions.

Thanks and have a good week.
Jason

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Jason Creech

From: Jason Creech
Sent: Monday, March 4, 2019 11:01 AM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: 'progress.sketches@noaa.gov'; 'Kathryn Pridgen - NOAA Federal'; 'Corey Allen'; 'Stacy Fullerton - NOAA Federal'; 'Tim Osborn (Tim.Osborn@noaa.gov)'; 'Tiffany Squyres - NOAA Federal'
Subject: OPR-J347-KR-18 Weekly Progress Report 20190302

Good morning Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 3/2/19. The coverage raster and coverage map have been uploaded to the Google Drive.

Last week started with a scheduled port call on Saturday 2/24/19. We then began mainscheme acquisition on Sheet 10 at the northern end of the survey area near Head of Passes. We continued to have down time due to thick fog on the river. We also installed the GPS base station at the Associated Branch Pilot house. We are still working to establish NAD83 (2011) coordinates for the base station to be used for project control.

This week we plan to continue Sheet 10 acquisition. We are anticipating a cold front to move through the project area which should alleviate the fog delays. We have another port call scheduled for Wednesday 3/6/19. Jon Dasler and I will be attending the HSRP meeting this week in DC and are looking forward to our meeting at your office Friday morning.

Thanks and have a good week.
Jason

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804.516.7829 | jasc@deainc.com

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Jason Creech

From: Jason Creech
Sent: Monday, February 25, 2019 4:06 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: 'progress.sketches@noaa.gov'; 'Kathryn Pridgen - NOAA Federal'; 'Corey Allen'; 'Stacy Fullerton - NOAA Federal'; 'Tim Osborn (Tim.Osborn@noaa.gov)'; 'Tiffany Squyres - NOAA Federal'
Subject: OPR-J347-KR-18 Weekly Progress Report 20190223

Hi Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 2/23/19. The coverage raster and coverage map have been uploaded to the Google Drive.

Last week we completed mainscheme acquisition on Sheet 9 and transited back up river to run fill and investigations within Sheets 7 and 8. Operations were still impacted by fog delays. At this time we feel Sheets 7 and 8 are complete pending a final review from our office staff. We have transferred the data to our Vancouver office for further review and continued processing.

This week we plan to complete Sheet 9 fill and investigations and start collecting Sheet 10 mainscheme. We've been in touch with the USACE and received a briefing on their dredge operations in the vicinity of Southwest Pass and Heads of Passes. At this time we are planning to continue survey operations and will document dredge activities and impacts to bathymetric data in the survey Descriptive Reports. Please let me know if you have any concerns.

We've also coordinated with the Associated Branch Pilots and plan to install a GPS base station at their pilot house upriver from the jetties. This is the same location as the CO-OPS gauge Pilots Station East, S.W. Pass, LA. The base station will be established for horizontal and vertical control and be set up to broadcast RTK corrections over radio to the survey vessels as well as log data internally. Installation, operation and quality control will follow requirements set in the 2017 HSSD. In addition, we plan to do vessel tide floats and gauge comparisons after install. The SEP model for the project that we have ends just downriver from this site so we will be unable to tide correct data beyond this point until we receive the modified file.

Thanks and have a good week.
Jason

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David Evans and Associates, Inc.
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804.516.7829 | jasc@deainc.com

Jason Creech

From: Jason Creech
Sent: Monday, February 18, 2019 3:20 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: progress.sketches@noaa.gov; Kathryn Pridgen - NOAA Federal; Corey Allen; Stacy Fullerton - NOAA Federal; Tim Osborn (Tim.Osborn@noaa.gov); Tiffany Squyres - NOAA Federal
Subject: OPR-J347-KR-18 Weekly Progress Report 20190216

Hi Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 2/16/19. The coverage raster and coverage map have been uploaded to the Google Drive. I've updated the coverage map template to include the new areas (Sheet 1 MOD and Sheet 10) so there are now 10 pages in the PDF.

Last week we continued acquisition on Sheet 9 and acquired laser scan data in Sheet 10 (not depicted in the MBES coverage map). Fog wasn't as bad as the week prior, but it did delay operations and reduce our survey productivity for the week. We had a scheduled port call on Thursday 2/14. As we mentioned during our call on Friday, we have seen numerous dredges operating in our project area in the vicinity of Head of Passes and Southwest Pass. According to the USACE, they will have seven dredges on site this week and expect to continue operations until June. We are working to get more details on the dredge plans.

This week we plan to complete Sheet 9 and will move back to Sheets 7 and 8 to run additional fill and investigations. We're watching the water level forecast for the upper sheets where we have outstanding fill and investigations as well as the need to survey the extended Sheet 1 area upriver from Baton Rouge. We've talked to staff from the Lower Mississippi River Forecast Center and local pilots who believe water levels could remain high in these areas until mid-April to mid-May. We will keep you posted on any updates to the forecast.

Thanks and have a good week.
Jason

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804.516.7829 | jasc@deainc.com

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Jason Creech

From: Jason Creech
Sent: Monday, February 11, 2019 6:12 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: 'progress.sketches@noaa.gov'; 'Kathryn Pridgen - NOAA Federal'; 'Corey Allen'; 'Stacy Fullerton - NOAA Federal'; 'Tim Osborn (Tim.Osborn@noaa.gov)'; 'Tiffany Squyres - NOAA Federal'
Subject: OPR-J347-KR-18 Weekly Progress Report 20190209

Hello Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 2/9/19. The coverage raster and coverage map have been uploaded to the Google Drive.

Last week we continued acquisition on Sheet 9. There was quite a bit of delay time due to thick fog within the project area. We had a scheduled port call on Monday 2/4.

This week we plan to complete Sheet 9 and hope to start Sheet 10 acquisition. We also have a port call on Thursday 2/14. We are still waiting to receive the extended separation model for Sheet 10. Not having will limit our ability to correct soundings to chart datum in real time. The version of the separation model that we are using ends at the jetties at the entrance to SW Pass and does not include the Sheet 1 mod area.

Let me know if you have any questions.

Thanks and have a good week.
Jason

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Jason Creech

From: Jason Creech
Sent: Monday, February 4, 2019 3:40 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: 'progress.sketches@noaa.gov'; 'Kathryn Pridgen - NOAA Federal'; 'Corey Allen'; 'Stacy Fullerton - NOAA Federal'; 'Tim Osborn (Tim.Osborn@noaa.gov)'; 'Tiffany Squyres - NOAA Federal'
Subject: OPR-J347-KR-18 Weekly Progress Report 20190202

Hi Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 2/2/19. The coverage raster and coverage map have been uploaded to the Google Drive.

Last week we completed acquisition for Sheet 8 and started Sheet 9 mainscheme. It's likely that we will need to return to Sheet 8 after we continue processing to pick up some additional fill and investigations. We had an incident where one of the Blake's sonars struck bottom while transiting from the Venice Marina. We avoided damage to or loss of the sonar due to the design of our mount which was fabricated to shear in the event of an impact. After the incident, we remounted the sonar and field tested the receiver using Reson software and procedures. Prior to continuing acquisition we ran a new patch test.

This week we plan to continue Sheet 9 acquisition. We were hoping to complete the sheet by week's end but dense fog is severely limiting our productivity. The fog isn't expected to lift for another 4 to 5 days. We're still watching water levels on the upper stretches of the river where we need to run final fill and investigation plans. Flooding is still expected until mid-month. We will need to receive an updated Separation Model prior to starting acquisition in the expanded project areas (Sheet 10 or Sheet 1).

Let me know if you have any questions.

Thanks,
Jason

Jason Creech, CH | Vice President, Nautical Charting Program Manager
David Evans and Associates, Inc.
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804.516.7829 | jasc@deainc.com

Jason Creech

From: Jason Creech
Sent: Monday, January 28, 2019 4:39 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: 'progress.sketches@noaa.gov'; 'Kathryn Pridgen - NOAA Federal'; 'Corey Allen'; 'Stacy Fullerton - NOAA Federal'; 'Tim Osborn (Tim.Osborn@noaa.gov)'; 'Tiffany Squyres - NOAA Federal'
Subject: OPR-J347-KR-18 Weekly Progress Report 20190126

Hello Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 1/26/19. The coverage raster and coverage map have been uploaded to the Google Drive.

Last week we continued survey operations in Sheet 8 and were able to complete mainscheme, cross lines and all known investigations. We will likely need to return to the sheet after we've completed preliminary processing of the data so we can run fill and additional investigations.

This week we plan to start Sheet 9 acquisition. As I mentioned last week, we're watching water level forecasts to determine when to return to Baton Rouge to survey the Sheet 1 modification area and pick up the last of the fill and investigations in the active sheets. River levels in the upper stretches of the project area continue to exceed flood stage and forecasts do not have the water levels at Baton Rouge falling below flood stage (35') until mid-February.

Don't hesitate to contact me if you have any questions.

Thanks,
Jason

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804.516.7829 | jasc@deainc.com

ENERGY | LAND DEVELOPMENT | MARINE SERVICES | SURVEYING AND GEOMATICS | TRANSPORTATION | WATER AND ENVIRONMENT

Jason Creech

From: Jason Creech
Sent: Monday, January 21, 2019 6:39 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: progress.sketches@noaa.gov; Kathryn Pridgen - NOAA Federal; Corey Allen; Stacy Fullerton - NOAA Federal; Tim Osborn (Tim.Osborn@noaa.gov); Tiffany Squyres - NOAA Federal
Subject: OPR-J347-KR-18 Weekly Progress Report 20190120

Hello Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 1/20/19. The coverage raster and coverage map have been uploaded to the Google Drive.

Last week we resumed survey operations for the project after our scheduled holiday break. The Blake transited from Gulfport, MS back to the project area on Monday. Tuesday was spent bringing all the crew onboard and running system checks and patch tests. Wednesday was the first day of actual data collection, with the start of Sheet 8.

This week we plan to continue Sheet 8 acquisition and have a scheduled port call on Friday (1/25/19). We're still evaluating water level forecasts to determine the best time to return to Baton Rouge to survey the Sheet 1 modification area and pick up the last fill and investigations in the active sheets. River levels in the upper stretches of the project area currently exceed flood stage.

We will continue to provide these reports each Monday during the government shutdown.

Thanks,
Jason

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ENERGY | LAND DEVELOPMENT | MARINE SERVICES | SURVEYING AND GEOMATICS | TRANSPORTATION | WATER AND ENVIRONMENT

Jason Creech

From: Jason Creech
Sent: Friday, December 21, 2018 9:34 AM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: 'progress.sketches@noaa.gov'; 'Kathryn Pridgen - NOAA Federal'; 'Corey Allen'; 'Stacy Fullerton - NOAA Federal'; 'Tim Osborn (Tim.Osborn@noaa.gov)'; 'Tiffany Squyres - NOAA Federal'
Subject: OPR-J347-KR-18 Weekly Progress Report 20181222

Hi Martha

Our survey is on stand down for the winter holidays so there was no acquisition or change in coverage this week. Survey operations are set to resume on Tuesday January 15th.

I'll be on leave next week but will be checking email and responding to phone calls.

Happy Holidays,

Jason

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ENERGY | LAND DEVELOPMENT | MARINE SERVICES | SURVEYING AND GEOMATICS | TRANSPORTATION | WATER AND ENVIRONMENT

Jason Creech

From: Jason Creech
Sent: Monday, December 17, 2018 5:32 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: progress.sketches@noaa.gov; Kathryn Pridgen - NOAA Federal; Corey Allen; Stacy Fullerton - NOAA Federal; Tim Osborn (Tim.Osborn@noaa.gov); Tiffany Squyres - NOAA Federal
Subject: OPR-J347-KR-18 Weekly Progress Report 20181215

Hi Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 12/15/18. The coverage raster and coverage map have been uploaded to the Google Drive.

Last week we completed mainscheme survey operations for Sheet 7 on Wednesday and the Blake retuned to its homeport in Gulfport, MS on Thursday. Operations will be shut down for the winter holidays and will resume on Tuesday January 15th.

This week we plan to continue with office data processing and review and are looking to schedule a web meeting with you to review new questions on digitizing and attributing features captured in our laser scan survey data. I will be sending a list of questions and potential times soon.

Happy Holidays,

Jason

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ENERGY | LAND DEVELOPMENT | MARINE SERVICES | SURVEYING AND GEOMATICS | TRANSPORTATION | WATER AND ENVIRONMENT

Jason Creech

From: Jason Creech
Sent: Monday, December 10, 2018 2:26 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: progress.sketches@noaa.gov; Kathryn Pridgen - NOAA Federal; Corey Allen; Stacy Fullerton - NOAA Federal; Tim Osborn (Tim.Osborn@noaa.gov); Tiffany Squyres - NOAA Federal
Subject: OPR-J347-KR-18 Weekly Progress Report 20181208

Hello Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 12/08/18. The coverage raster and coverage map have been uploaded to the Google Drive.

Last week we continued survey operations in the Sheet 7 survey area, ending the week near river mile 59. On Monday of last week the Blake transited upriver to New Orleans in advance of the Blake Open House on Tuesday. Admiral Smith, Captain Kretovic, and Tim Osborn were on hand for the Open House which was very successful and showcased the importance of this project. Survey operations resumed Wednesday.

This week we plan to continue Sheet 7 acquisition and anticipate completing the sheet by Thursday. Once complete, we will transit back to Gulfport MS for our scheduled shutdown for the winter holidays. Operations will resume with Sheet 8 acquisition on Tuesday January 15th.

Please let me know if you have any questions.

Thanks,
Jason

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ENERGY | LAND DEVELOPMENT | MARINE SERVICES | SURVEYING AND GEOMATICS | TRANSPORTATION | WATER AND ENVIRONMENT

Jason Creech

From: Jason Creech
Sent: Monday, December 3, 2018 2:05 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: 'progress.sketches@noaa.gov'; 'Kathryn Pridgen - NOAA Federal'; 'Corey Allen'; 'Stacy Fullerton - NOAA Federal'; 'Tim Osborn (Tim.Osborn@noaa.gov)'; Tiffany Squyres - NOAA Federal (tiffany.squyres@noaa.gov)
Subject: OPR-J347-KR-18 Weekly Progress Report 20181201

Hi Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 12/01/18. The coverage raster and coverage map have been uploaded to the Google Drive.

Survey operations resumed on Tuesday of last week. We started acquisition at RM 78 (the upriver end of Sheet 7) and worked down river to RM 66.

This week we plan to continue Sheet 7 survey operations. We are holding the Blake open house and survey demonstration on Tuesday so there will be no acquisition this day. Admiral Smith, Captain Kretovic, and Tim Osborn will be attending.

Please let me know if you have any questions.

Thanks,
Jason

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David Evans and Associates, Inc.
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804.516.7829 | jasc@deainc.com

ENERGY | LAND DEVELOPMENT | MARINE SERVICES | SURVEYING AND GEOMATICS | TRANSPORTATION | WATER AND ENVIRONMENT

Jason Creech

From: Jason Creech
Sent: Monday, November 26, 2018 3:37 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: progress.sketches@noaa.gov; Kathryn Pridgen - NOAA Federal; Corey Allen; Stacy Fullerton - NOAA Federal; Tim Osborn (Tim.Osborn@noaa.gov); Tiffany Squyres - NOAA Federal
Subject: OPR-J347-KR-18 Weekly Progress Report 20181124

Hello Martha

I hope that you had a nice Thanksgiving. Our survey operations were shut down for the holiday last week so there is no progress to report. I've uploaded new coverage files to the Google Drive which depict the same coverage as the previous week.

This week we plan to resume project acquisition. We'll be starting with Sheet 7 tomorrow after the Blake completes it's transit back to the survey area.

Please let me know if you have any questions.

Thanks,
Jason

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Jason Creech

From: Jason Creech
Sent: Friday, November 16, 2018 4:34 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: progress.sketches@noaa.gov; Kathryn Pridgen - NOAA Federal; Corey Allen; Stacy Fullerton - NOAA Federal; Tim Osborn (Tim.Osborn@noaa.gov); Tiffany Squyres - NOAA Federal (tiffany.squyres@noaa.gov)
Subject: OPR-J347-KR-18 Weekly Progress Report 20181117

Hi Martha

We started our scheduled stand down today so I'm submitting our Weekly Progress Report early. I've also uploaded the coverage raster and coverage map to the Google Drive.

The Blake and Sigsbee are tied up in Gulfport, MS after transiting from the project area. We were able to complete all known fill and investigations for Sheets 5 and 6 prior to ending operations for Thanksgiving.

We plan to transit back to the survey area on Monday 11/26 and will start Sheet 7 acquisition. Next week we will be busy in the office processing data and reviewing coverage ahead of the holiday.

I will be on leave next week but Jon will be available if you have any questions.

Thanks and Happy Thanksgiving,
Jason

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ENERGY | LAND DEVELOPMENT | MARINE SERVICES | SURVEYING AND GEOMATICS | TRANSPORTATION | WATER AND ENVIRONMENT

Jason Creech

From: Jason Creech
Sent: Tuesday, November 13, 2018 9:32 AM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: 'progress.sketches@noaa.gov'; 'Kathryn Pridgen - NOAA Federal'; 'Corey Allen'; 'Stacy Fullerton - NOAA Federal'; 'Tim Osborn (Tim.Osborn@noaa.gov)'; Tiffany Squyres - NOAA Federal (tiffany.squyres@noaa.gov)
Subject: OPR-J347-KR-18 Weekly Progress Report 20181110

Hi Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 11/10/18. The coverage raster and coverage map have been uploaded to the Google Drive.

The Blake and Sigsbee are still working to complete Sheets 5 and 6. Over the past week we've acquired additional laser scan data to fill holidays in the MMS survey and performed MBES investigations and fill. We also had a scheduled port call and crew rotation on Wednesday 11/7. We're still looking into the discrepancy we are seeing between our GPS water levels and USACE gauge readings relative to the LWRP. We have reached out to the USACE and expect to be provided with their GREBE System Gage Entry reports for the MS River gauges in the near future. This reports include notes on gauge calibrations, primary benchmarks, and vertical datum adjustments.

This week, we plan to continue acquisition on Sheets 5 and 6 and hope to complete these sheets ahead of our scheduled stand down for Thanksgiving. For this stand down in operations, the Blake will return to its home port in Gulfport, MS on Friday 11/16 and will remain there until Monday 11/26 when it will transit back to the project area.

Please let me know if you have any questions.

Thanks,
Jason

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Jason Creech

From: Jason Creech
Sent: Monday, November 5, 2018 3:59 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: 'progress.sketches@noaa.gov'; 'Kathryn Pridgen - NOAA Federal'; 'Corey Allen'; 'Stacy Fullerton - NOAA Federal'; 'Tim Osborn (Tim.Osborn@noaa.gov)'; Jon Dasler (Jld@deainc.com)
Subject: OPR-J347-KR-18 Weekly Progress Report 20181103

Hi Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 11/3/18. The coverage raster and coverage map have been uploaded to the Google Drive.

The Blake and Sigsbee continue to work their way down river. Last week we acquired data in Sheets 5 and 6, including some new laser scan data to fill holidays in our MMS survey. We also performed tide floats at USACE gauges and RTK shots on benchmarks in an attempt to resolve discrepancies we are seeing between ERS water levels relative to the LWRP computed with the SEP model and USACE gauge readings. We're still looking into this and plan to reach out to the USACE. We enjoyed having you and Corey onboard last week and appreciate your guidance on digiting and portraying the shoreline features captured by the MMS survey.

This week, we plan to continue acquisition on Sheets 5 and 6 and have a port call and crew rotation scheduled for Wednesday. We are also gathering the screengrabs you requested showing the impacts of the migrating riverbed on our data. We should have these to you tomorrow.

Please let me know if you have any questions.

Thanks,
Jason

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804.516.7829 | jasc@deainc.com

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Jason Creech

From: Jason Creech
Sent: Monday, October 29, 2018 4:54 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: 'progress.sketches@noaa.gov'; 'Kathryn Pridgen - NOAA Federal'; 'Corey Allen'; 'Stacy Fullerton - NOAA Federal'; 'Tim Osborn (Tim.Osborn@noaa.gov)'
Subject: OPR-J347-KR-18 Weekly Progress Report 20181027

Hello Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 10/27/18. The coverage raster and coverage map have been uploaded to the Google Drive.

Last week, we continued acquisition in Sheet 5 and began acquisition on the upriver stretch of Sheet 6. We are now working in the vicinity of New Orleans and seeing quite a bit of vessel traffic and fleeted barge movements. We're able to monitor vessel traffic and fill holidays as vessels and barges move.

This week, we plan to continue acquisition on Sheets 5 and 6. We're looking forward to having you and Corey onboard the Blake tomorrow. This should be a good opportunity to observe survey operations and see some of the challenges of surveying a busy river. We're also planning to ask some questions on proper depiction of shoreline features in the FFF. Our next port call is scheduled for Wednesday November 7th.

Please let me know if you have any questions. See you soon.

Thanks,
Jason

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804.516.7829 | jasc@deainc.com

Jason Creech

From: Jason Creech
Sent: Monday, October 22, 2018 3:17 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: progress.sketches@noaa.gov; Kathryn Pridgen - NOAA Federal; Corey Allen; Stacy Fullerton - NOAA Federal; Tim Osborn (Tim.Osborn@noaa.gov)
Subject: OPR-J347-KR-18 Weekly Progress Report 20181020

Hello Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 10/20/18. I've uploaded the coverage raster and coverage map to the Google Drive.

Last week, we completed fill and investigations for Sheets 3 and 4 and started acquisition in Sheet 5. We had a scheduled port call on Thursday 10/18 and ended the week in the vicinity of Good Hope, LA (RM 125). We also acquired some laser scan data to fill holidays at several assigned terminals. We submitted H13191 DtoN 01 reporting significant shoaling in the vicinity Belle Point. This danger has since been registered by the Nautical Data Branch.

This week we plan to continue Sheet 5 acquisition. We're also reviewing Sheets 1-4 for completeness. Our next port call is scheduled for Sunday October 28.

Please let me know if you have any questions.

Thanks,
Jason

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ENERGY | LAND DEVELOPMENT | MARINE SERVICES | SURVEYING AND GEOMATICS | TRANSPORTATION | WATER AND ENVIRONMENT

Jason Creech

From: Jason Creech
Sent: Monday, October 15, 2018 3:39 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: progress.sketches@noaa.gov; Kathryn Pridgen - NOAA Federal; Corey Allen; Stacy Fullerton - NOAA Federal; Tim Osborn (Tim.Osborn@noaa.gov)
Subject: OPR-J347-KR-18 Weekly Progress Report 20181013

Hi Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 10/13/18. I'm resending this email as my first attempt bounced back due the file sizes of the attachments. I've removed the coverage raster and coverage map attachments this time. These files have been uploaded to the Google Drive.

Last week was another good week of acquisition with some limited down time due to equipment issues. As we work down river towards New Orleans we are starting to see more vessel traffic and fleeted barges which has had some impact on our productivity. Last week we submitted H13188 DtoN 02 reporting significant shoaling in the vicinity Manchac Point and 13188 DtoN 03 reporting an uncharted obstruction. Both have since been registered by the Nautical Data Branch.

We are currently reviewing some shoaling we've identified in the H13191 (Sheet 4) survey area and anticipate submitting a danger in the coming days. This week we also plan to start performing fill and investigations for areas H13190 and H13191.

Please let me know if you have any questions.

Thanks,
Jason

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ENERGY | LAND DEVELOPMENT | MARINE SERVICES | SURVEYING AND GEOMATICS | TRANSPORTATION | WATER AND ENVIRONMENT

Jason Creech

From: Jason Creech
Sent: Monday, October 15, 2018 3:32 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: progress.sketches@noaa.gov; Kathryn Pridgen - NOAA Federal; Corey Allen; Stacy Fullerton - NOAA Federal; Tim Osborn (Tim.Osborn@noaa.gov)
Subject: OPR-J347-KR-18 Weekly Progress Report 20181013
Attachments: OPR_J347_KR_18_10_13_Blake.tiff; OPR-J347-KR-18_10_13.pdf

Hi Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 10/13/18. I've attached the coverage raster and coverage map for the week and have also uploaded the files to the Google Drive. These files have started getting large so this could be the last week that they are attached to email.

Last week was another good week of acquisition with some limited down time due to equipment issues. As we work down river towards New Orleans we are starting to see more vessel traffic and fleeted barges which has had some impact on our productivity. Last week we submitted H13188 DtoN 02 reporting significant shoaling in the vicinity Manchac Point and 13188 DtoN 03 reporting an uncharted obstruction. Both have since been registered by the Nautical Data Branch.

We are currently reviewing some shoaling we've identified in the H13191 (Sheet 4) survey area and anticipate submitting a danger in the coming days. This week we also plan to start performing fill and investigations for areas H13190 and H13191.

Please let me know if you have any questions.

Thanks,
Jason

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David Evans and Associates, Inc.
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804.516.7829 | jasc@deainc.com

ENERGY | LAND DEVELOPMENT | MARINE SERVICES | SURVEYING AND GEOMATICS | TRANSPORTATION | WATER AND ENVIRONMENT

Jason Creech

From: Jason Creech
Sent: Monday, October 8, 2018 4:22 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: progress.sketches@noaa.gov; Kathryn Pridgen - NOAA Federal; Corey Allen; Stacy Fullerton - NOAA Federal; Tim Osborn (Tim.Osborn@noaa.gov)
Subject: OPR-J347-KR-18 Weekly Progress Report 20181006
Attachments: OPR_J347_KR_18_10_06.tif; OPR-J347-KR-18_10_06.pdf

Hi Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 10/06/18. I've attached the coverage raster and coverage map for the week and have also uploaded the files to the Google Drive. I adjusted the format of our getotiff to match the HSSD requirements (Z-values positive down and no data cells of -9999).

We had another productive week last week and with the exception of a few days of fill and investigations feel that we have completed most of sheets 1, 2, and 3 (H13188, H13189, and H13190). We identified a few potential dangers to navigation which area currently under review in our office. In addition, we've come across multiple public floating aids within our survey area which are uncharted and also omitted from the USCG Light List. I contacted the USCG AtoNs group last week to inquire about these aids and was informed that the USCG uses the floating aids to mark shoals located during USACE surveys. The aids are permanently deployed but not permanently positioned so they aren't included in the Light List or meant to be charted. I'll follow up with you on guidance on how to handle these aids in our FFF.

This coming week we plan to wrap up fill and investigations on Sheets 1, 2 and 3 and start mainsheme acquisition on Sheet 4.

Please let me know if you have any questions.

Thanks,
Jason

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Jason Creech

From: Jason Creech
Sent: Monday, October 1, 2018 4:28 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: 'progress.sketches@noaa.gov'; 'Kathryn Pridgen - NOAA Federal'; 'Corey Allen'; 'Stacy Fullerton - NOAA Federal'; 'Tim Osborn (Tim.Osborn@noaa.gov)'; Jon Dasler (Jld@deainc.com)
Subject: OPR-J347-KR-18 Weekly Progress Report 20180929
Attachments: OPR_J347_KR_18_09_29.tiff; OPR-J347-KR-18_09_29.pdf

Hi Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 9/29/18. I've attached the coverage raster and coverage map for the week and have also uploaded the files to Google Drive.

Last week multibeam acquisition continued in the H13189 survey area (Sheet 2). The Blake also returned to Sheet 1 overnight to acquire laser scan fill in area where a ship had been at berth during previous scanning attempts. As Jon reported midweek, the Blake was hit while at anchor by a large tree that was floating down the river during a high water event. The strike caused the anchor line to sever which resulted in the loss of the anchor, 30-feet of chain, and line. All have since been recovered and the Blake and Sigsbee have moved down river to the H13190 survey area to avoid debris until the river stage drops. In addition, the Blake also had a successful scheduled in port including a crew transfer.

The plan for this week is to continue H13190 mainscheme acquisition and perform fill and investigations in the H13189 survey as were are able.

Please let me know if you have any questions.

Have a good week.
Jason

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Jason Creech

From: Jason Creech
Sent: Monday, September 17, 2018 4:02 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: progress.sketches@noaa.gov; Kathryn Pridgen - NOAA Federal; Corey Allen; Stacy Fullerton - NOAA Federal; Tim Osborn (Tim.Osborn@noaa.gov); Jon Dasler (Jld@deainc.com)
Subject: OPR-J347-KR-18 Weekly Progress Report 20180915
Attachments: OPR-J347-KR-18_09_15.pdf; OPR_J347_KR_18_09_15.tiff

Hi Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 9/15/18. I've attached the coverage raster and coverage map for the week and have also uploaded the files to Google Drive.

Last week multibeam acquisition continued in the H13188 survey area (Sheet 1) in the vicinity of Baton Rouge. The Blake switched over to support Sigsbee shallow water acquisition and fulltime data processing.

The plan for this week is to complete mainscheme acquisition for H13188 and start fill and investigations for the survey. If all goes well, we will likely also start H13189 (Sheet 2) acquisition using both survey vessels.

Please let me know if you have any questions.

Have a good week.
Jason

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804.516.7829 | jasc@deainc.com

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Jason Creech

From: Jason Creech
Sent: Monday, September 10, 2018 3:23 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: progress.sketches@noaa.gov; Kathryn Pridgen - NOAA Federal; Corey Allen; Stacy Fullerton - NOAA Federal; Tim Osborn (Tim.Osborn@noaa.gov); Jon Dasler (Jld@deainc.com)
Subject: OPR-J347-KR-18 Weekly Progress Report 20180908
Attachments: OPR-J347-KR-18_09_08.pdf; OPR_J347_KR_18_09_08.tiff

Hi Martha

Here is our Weekly Progress Report for project OPR-J347-KR-18 for the week ending 9/8/18. I've attached the coverage raster and coverage map for the week. The coverage map includes one page per survey sheet. Let me know if you have any feedback on this format.

Last week multibeam acquisition for the project began in the H13188 survey area (Sheet 1) in the vicinity of Baton Rouge. The Blake and RHIB Sigsbee worked between river miles 232.5 and 212. Tropical Storm Gordon passed with minimal impact to our operations.

The plan for this week is to continue the survey of H13188. The Blake will likely complete the deep water portions of this sheet later in the week and will switch over to support Sigsbee shallow water acquisition and fulltime data processing. As the Sigsbee works down river, it's possible that the Blake may start acquisition in Sheet 2. We're making headway with the processing of the MMS data and have over half of the data processed through LAS and imagery. The next step is to use this data to drive our baring feature management process and determine if and where fill data are required.

Please let me know if you have any questions.

Have a good week.
Jason

Jason Creech, CH | Vice President, Nautical Charting Program Manager
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804.516.7829 | jasc@deainc.com

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Jason Creech

From: Jason Creech
Sent: Tuesday, September 4, 2018 3:53 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: progress.sketches@noaa.gov; Kathryn Pridgen - NOAA Federal; Corey Allen; Stacy Fullerton - NOAA Federal; Tim Osborn (Tim.Osborn@noaa.gov); Jon Dasler (Jld@deainc.com)
Subject: OPR-J347-KR-18 Weekly Acquisition Progress Report 20180901

Hi Martha

Here is our Weekly Acquisition Progress Report for OPR-J347-KR-18 for the week ending 9/1/18.

Last week the Blake and RHIB Sigsbee were mobilized in Gulfport, MS and departed for the Mississippi River project area on Friday 8/31/18 after performing patch tests and other system tests. The Blake arrived in the H13188 survey area (Sheet 1) on Saturday where final system testing and weekly checks were performed. We have no survey coverage to report the week (through Saturday).

The plan for this week is to begin survey operations with the Blake and Sigsbee at the northern end of the H13188 survey area (RM 232.5). Both vessels will work down river as vessel traffic and river conditions allow. We are monitoring Tropical Storm Gordon and will take precautions as dictated by the storm's path.

Next week's Weekly Report will include a multibeam coverage graphic and floating point raster.

Please let me know if you have any questions.

Thanks,
Jason

Jason Creech, CH | Vice President, Nautical Charting Program Manager
David Evans and Associates, Inc.
2801 SE Columbia Way, Suite 130 | Vancouver, WA, 98661 | www.deainc.com
804.516.7829 | jasc@deainc.com

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Jon Dasler

From: Jon Dasler
Sent: Saturday, August 18, 2018 2:31 PM
To: Jason Creech; Martha Herzog (martha.herzog@noaa.gov)
Cc: progress.sketches@noaa.gov; Kathryn Pridgen - NOAA Federal; Corey Allen; Stacy Fullerton - NOAA Federal; Tim Osborn (Tim.Osborn@noaa.gov)
Subject: OPR-J347-KR-18 Weekly Acquisition Progress 20180818
Attachments: OPR-J347-KR-18_08_18.pdf

Hi Martha

Here is our Weekly Acquisition Progress Report for OPR-J347-KR-18 for the week ending 8/18/18.

Mobile mapping survey operations for the project were completed on Friday August 17th. The Blake has transited back to Gulfport, MS and arrived early on Saturday to demobilize the laser scanner and prepare for hydrographic survey operations. While both banks were scanned from RM 0 to RM 232.5, we do have some holidays in the data created by ships at berth. In some cases, we were able to fill holidays during the scanning effort after ships departed a berth but other holidays remain and will need to be filled during our hydrographic operations.

This week we will continue to prepare for the hydro survey mobilization.

As with last week's report, we have attached a graphic showing the general scanning coverage which is now complete for the project. We will use a map series to show multibeam coverage when we start submitting weekly reports for the hydro survey.

Please let me know if you have any questions.

Thanks,

Jon

Jon L. Dasler, PE, PLS, CH | Senior Vice President, Director of Marine Services
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Jason Creech

From: Jason Creech
Sent: Monday, August 13, 2018 1:56 PM
To: Martha Herzog (martha.herzog@noaa.gov)
Cc: progress.sketches@noaa.gov; Jon Dasler; Kathryn Pridgen - NOAA Federal; Corey Allen; Stacy Fullerton - NOAA Federal; Tim Osborn (Tim.Osborn@noaa.gov)
Subject: OPR-J348-KR-17 Weekly Acquisition Progress 20180811
Attachments: BR_5b.jpg; BR_6_7_b.jpg; CB_6_7_b.jpg; OPR-J347-KR-18 Weekly Progress 20180811.jpg

Hi Martha

Here is our Weekly Acquisition Progress Report for OPR-J347-KR-18 for the week ending 8/11/18.

Last week we mobilized the S/V Blake in Gulfport, MS for the mobile mapping survey. Calibration and testing of the sensor was completed on Wednesday and the Blake transited to New Orleans overnight. Scanning operations (first day of project acquisition) began on Thursday August 9th. From Thursday to end of day Saturday, we scanned the of left and right bank of the Mississippi River from RM 121.5 to RM 0; including three bridges, three overhead cables and two terminals which were assigned as ACHARE areas in the PRF. Scanning of the overhead features is relatively straightforward, but ships at berth have impacted our ability fully scan the assigned terminals. We are monitoring ship schedules and have been in touch with the vessels and hope that that these holidays can be filled when the Blake transits back downriver.

This week, scanning operations will continue with the Blake working upriver towards Baton Rouge with the hopes to complete the survey by the end of the week. The Blake will return to Gulfport after the scanning is complete and the MMS scanning equipment will be demobilized.

I have attached a graphic showing the general scanning coverage (RM 0 to RM 121.5) for last week. As previously discussed, I have not included a floating point raster for the laser scan data. We will start sending these files when hydrographic operations begin. However, I have included a few screen grabs of preliminary raw data to show the level of detail we have been able to capture during the survey.

Please let me know if you have any questions.

Thanks,
Jason

Jason Creech, CH | Vice President, Nautical Charting Program Manager
David Evans and Associates, Inc.
2801 SE Columbia Way, Suite 130 | Vancouver, WA, 98661 | www.deainc.com
804.516.7829 | jasc@deainc.com

Jason Creech

From: Jack Riley - NOAA Federal <jack.riley@noaa.gov>
Sent: Friday, June 7, 2019 8:01 PM
To: Jon Dasler; Jason Creech
Subject: Re: MLLW on NAVD88 Pilottown - BHP
Attachments: Miss_River_Miles_LWRP2007-NAVD88_StationsInput.txt

Jack L. Riley
Coast Survey Development Lab
240-847-8271

On Fri, May 31, 2019 at 7:51 AM Jack Riley - NOAA Federal <jack.riley@noaa.gov> wrote:

Hello Jon & Jason,

Some info for the meeting this morning.

Jack

---------- Forwarded message ---------
From: **Jack Riley - NOAA Federal** <jack.riley@noaa.gov>
Date: Thu, May 30, 2019 at 6:15 PM
Subject: Fwd: Mississippi River Mapping Meeting
To: Corey Allen <corey.allen@noaa.gov>, Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>

Datum values from CO-OPS; original (v1; see attachments for "NAVD88 on MLLW", so reversed sign below to show "MLLW on NAVD88" to align with plot convention) compared with recent values from CO-OPS to DEA (v2). Also, v3 for quick spot check by me.

MLLW on NAVD88 (Geoid12B)

Pilot Station East, SW Pass (8760922)
v1: -0.348 m = -1.14 ft = 13.7 in
v2: -0.222 m = -0.73 ft = 8.7 in
v3: BMs are not shown as published on the NWLON website, so used those available in WALI. I see v1 values using the two most recent BMs ('F' & 'G' set in 2010) and corresponding OPUS Shared Solutions (SS) ('F' @ 2018, 'G' 2015). I see values closer to v2 using older BMs ('C' & 'D' set in 2004) and corresponding OPUS SS ('C' 2012 @ , 'D' @ 2007)

Pilottown (8760721)
v1: +0.063 m = +0.21 ft = 2.5 in
v2: +0.162 m = +0.53 ft = 6.4 in
v3: I see values similar to v1 using BM 'D' (OPUS SS 2011) and v2 values using BM 'Pilot' (OPUS SS 2018).

Devon Energy, Pass a Loutre (8760417)
v1: -0.217 m = -0.71 ft = -8.5 in

v2: N/A
v3: I see values similar to v1 using one available BM ('A') having two OPUS SS.

---------- Forwarded message ---------
From: **Colleen Fanelli - NOAA Federal** <colleen.fanelli@noaa.gov>
Date: Wed, Oct 25, 2017 at 5:52 PM
Subject: Re: Mississippi River Mapping Meeting
To: Richard Brennan - NOAA Federal <richard.t.brennan@noaa.gov>
Cc: Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Craig Winn - NOAA Federal <craig.winn@noaa.gov>, David Wolcott - NOAA Federal <david.wolcott@noaa.gov>, Edward Myers - NOAA Federal <edward.myers@noaa.gov>, Gerald Hovis - NOAA Federal <gerald.hovis@noaa.gov>, Jack Riley - NOAA Federal <jack.riley@noaa.gov>, Janice Eisenberg <janice.eisenberg@noaa.gov>, Laura Rear McLaughlin - NOAA Federal <laura.rear.mclaughlin@noaa.gov>, MeiLing Freeman - NOAA Federal <meiling.freeman@noaa.gov>, Michael Michalski - NOAA Federal <michael.michalski@noaa.gov>, Samuel Greenaway - NOAA Service Account <samuel.greenaway@noaa.gov>, Stephen A. White <stephen.a.white@noaa.gov>, Zizang Yang - NOAA Federal <zizang.yang@noaa.gov>, John Nyberg - NOAA Federal <john.nyberg@noaa.gov>, Mike Aslaksen - NOAA Federal <mike.aslaksen@noaa.gov>

Rick,

We can say for certain that the point in-which MLLW is equal to LWRP occurs south of the Head of Passes (MM 0). We can provide an approximate location within the southwestern pass and eastern pass but we cannot provide anything for the southern (central) pass due to a lack of observations and orthometric ties within the Bird's Foot. We cannot pinpoint an exact transition point, however, and the red line on the attached graphics is a mathematical interpolation between only 3 data points along the river. The interpolation method used was a spline fit between the active stations Pilots Station (SW Pass) and Pilottown, and the historical station Devon Energy.

At Head of Passes (MM 0), LWRP = NAVD88. Each Pass within the Bird's Foot has it's own mile markers (MM). It is assumed that this remains the same south of Head of Passes for our purpose here. This the intersection point is labelled as "NAVD88 = MLLW". For the Southwest Pass, MLLW is equal to LWRP at approximately MM 1. For the Eastern Pass, MLLW is equal to LWRP at approximately MM 2.

I hope this helps.

~Colleen

--
Colleen Fanelli
Oceanographer, Hydrographic Planning Team Lead
NOAA/National Ocean Service
Center for Operational Oceanographic Products and Services
Station 7127
1305 East-West Highway N/OPS3
Silver Spring, MD 20910
Colleen.Fanelli@noaa.gov
Phone (NEW): (240) 533 - 0615

Jason Creech

From: Jack Riley - NOAA Federal <jack.riley@noaa.gov>
Sent: Friday, June 21, 2019 3:56 PM
To: Jon Dasler; Jason Creech
Cc: Corey Allen; Martha Herzog - NOAA Federal; Richard Brennan
Subject: Updated MLLW-LWRP Model by NOAA/USACE
Attachments: NAD83-LWRP2007_RM13.4_MLLW2012-2016_Geoid12B.zip

Hello Jon and Jason,

See attached for the revised NAD83 - sounding datum separation model for the Mississippi River (zipped CSAR NAD83-LWRP2007_RM13.4_MLLW2012-2016_Geoid12B). The demarcation line separating the sounding datum definitions of LWRP and MLLW is at river mile (RM) 13.4 (near Duvic, Boothville-Venice, LA; MICHELLA Iso R 6s 7M "14" is at RM 13.5), per agreement between NOAA and USACE. Sounding datum is LWRP upriver (north) of RM 13.4, and is MLLW downriver (south) of RM 13.4. Given the current realizations of LWRP (2007) and MLLW (2012-2016), there exists a step change in the sounding datum model at RM 13.4 of approximately 13.5 cm (5.3 in = 0.44 ft).

I also increased the precision of the defined USACE LWRP profile relative to NAVD88 in the separation model to honor better that component at the 0.01-ft (3 mm) level perpendicular to the nominal river course. Above RM 13.4, the old model and new model are practically the same: Mean difference (old-new) = 8 mm, standard deviation = 4 mm. Min difference (old-new) = -5 mm, max difference = 21 mm (2.1 cm). 99% of the differences are less than 1.5 cm. Below RM 13.4, the change from MLLW 2007-2011 (old model) to MLLW 2012-2016 (new model) is significant: mean = 6.9 cm, standard deviation = 6.3 cm, min = -9.1 cm, max = 17.1 cm.

Jack
--

Jack L. Riley
Coast Survey Development Lab
240-847-8271

Jason Creech

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Monday, July 8, 2019 11:31 AM
To: Jason Creech
Cc: Corey Allen (Corey.Allen@noaa.gov); Jon Dasler; Christina Fandel - NOAA Federal
Subject: Re: OPR-J347-KR-18 Feature Developments

Jason,

At this time, HSD will not issue a waiver to preclude development of required submerged features per HSSD Section 7.3.3.

In the event that these features are unsafe to complete a feature development per HSSD Section 7.3.3, then, if safe to approach, develop the feature by acquiring an additional line of multibeam data at an orientation as close to 90 degrees as practicable ensuring the safety of the vessel and crew. If it is unsafe to approach the feature, then the field unit is not required to conduct a feature investigation per the safety statement annotated in the Project Instructions. Should a feature development not meet the requirements of HSSD Section 7.3.3 due to safety concerns, populate the feature's remarks attribute accordingly.

Please let me know if you have any questions,
Martha

On Fri, Jun 28, 2019 at 2:17 PM Jason Creech <Jasc@deainc.com> wrote:

> Hi Corey
>
> Thanks for taking my call yesterday. As I mentioned, we currently have six of our ten Mississippi River surveys open due to the need to run feature developments as required by the 2018 HSSD. These are Sheets 1-6 which are upriver between Baton Rouge and New Orleans. Given the impacts on survey productivity of the historic flooding within this stretch of river, we've been exploring options to wrap up these outstanding surveys. Data were initially collected in these areas between September and mid-November of 2018. Since then, these areas have been above flood stage with strong currents in excess of 7 knots and USCG restrictions on traffic which has prevented us from safely completing the open sheets. Currently, the long range forecast for the project area has river levels exceeding flood stage for the entirety of the 28 day forecast.
>
> There are over 390 features that require a feature development with an independent perpendicular pass within these six survey sheets, most are close to the shoreline and near features that impede running perpendicular lines. After some recent discussions with Martha, we have reviewed these features and found that over 80% of them have a valid least depth that has been confirmed by more than one survey line. The remaining features only have data from a single line and require new data confirming the least depth. That said, due to the proximity of these features to the shoreline and high river flows, we are unsure if we can safely obtain an independent pass run perpendicular to mainscheme survey lines as required by the Specs.

We'd like to request a waiver for the survey, removing the requirement to acquire the additional feature development line when a feature's least depth can be confirmed by another survey line. This waiver would allow us to focus our efforts on investigating 70 or so outstanding features with least depths from a single pass and allow investigation of these features running survey lines at an orientation that is safe to the vessel crew. We're exploring options outside of using the S/V Blake and her RHIB to complete these feature developments.

I've attached two zip files containing some example screenshots from HIPS. In most cases, these features fall along the shoreline which makes the acquisition of perpendicular survey lines difficult and hazardous. In these examples, multibeam soundings are colored by survey line.

The For_Waiver zip file includes examples of features with valid least depths confirmed by multiple passes, just not one perpendicular to mainscheme. A waiver of the perpendicular requirement would allow us to use these surveyed least depths and forgo additional development.

The For_Investigation zip includes examples of features with data from only a single survey line. These features may require additional data acquisition. A waiver of the perpendicular requirement would allow acquisition of new data at a safe orientation.

Please let me know if you have any questions. Our overall goal is to complete these surveys safely and deliver the data and products in a timely manner.

Thanks,

Jason

Jason Creech, CH | Vice President, Nautical Charting Program Manager

David Evans and Associates, Inc.

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804.516.7829 | jasc@deainc.com

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--
Martha Herzog
NOAA Operations Team Lead | Operations Branch
Hydrographic Surveys Division | Office of Coast Survey
240-533-0028

Jason Creech

From: Kasey Whitfield - NOAA Affiliate <kasey.whitfield@noaa.gov>
Sent: Monday, July 29, 2019 12:33 PM
To: Eastern Operations Eastern Operations - NOAA Service Account; Jason Creech; Kathryn Pridgen - NOAA Federal; Christina Fandel - NOAA Federal
Subject: EA133C14CQ0037/1305M219FNCNJ0165 Mod P19001
Attachments: 4772_001.pdf

Good Afternoon,

Please find the attached fully executed no-cost administrative modification for the subject contract.

Respectfully,

Kasey

--
Kasey Whitfield
Contract Specialist, NOAA, AGO
Eastern Region Acquisition Division
Supporting the National Ocean Service
Contractor - I.M. Solutions, LLC
200 Granby Street, Room 800
Norfolk, VA 23510
Office: 757-605-7407

Jason Creech

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Tuesday, July 30, 2019 2:59 PM
To: Jason Creech
Subject: OPR-J347-KR-18

Jason,

Thanks for your call. To clarify the vertical control requirements in the project instructions - please reference all laser scanning data to the sounding datum using the provided LWRP-MLLW separation model.

Martha

--
Martha Herzog
NOAA Operations Team Lead | Operations Branch
Hydrographic Surveys Division | Office of Coast Survey
240-533-0028

Jason Creech

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Thursday, August 1, 2019 1:11 PM
To: Jason Creech
Cc: Jon Dasler
Subject: Re: OPR-J347-KR-18 Revetments

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Jason,

I checked with Gene and he concurs with adding new revetment ares to the FFF as obstructions. For VALSOU, the least death of the MBES data in the area of the area obstruction should work. QUASOU would likely be 'least depth known' and TECSOU would likely be 'found with multibeam.'
The charted revetments can be noted with a retain.

Please let me know if you had additional questions,
Martha

On Tue, Jul 30, 2019 at 5:36 PM Jason Creech <Jasc@deainc.com> wrote:

> Hi Martha
>
> I'm following up on our phone conversation from this afternoon. We are working to finish the portrayal of the revetment areas for the Mississippi River project and want to make sure we are meeting your needs and following contract guidance.
>
> As I mentioned, we are not able to accurately depict the true limits of the revetments as portions of the mats are frequently buried. In these cases we feel it is safer to retain vs delete these sections. I've included a screengrab below showing an example of a charted revetment (included in PRF not CSF) vs revetment extents visible in the survey data and have a few questions.
>
> 1. Should revetments be included in the FFF or a separate file? These were not included in the project CSF.
> 2. Regarding portrayal, is it acceptable to retain all revetments and include new polygons where revetments are surveyed outside of the charted area (red polygons below)? This is what I mentioned when we spoke on the phone. The PRF revetment Investigation requirements are as follows… "Investigate revetment per HSSD section 7.3.1. Unchanged revetment shall be encoded as RESARE with descrp = retain. Inaccurately charted or missing revetment shall be noted with descrp = delete with the new or changed revetment encoded as OBSTRN with descrp = new." As I mentioned, we aren't able to disprove the revetments with MBES data only. It's my understanding that revetments located outside of the known/ charted areas are an issue because ships have been anchoring on top of and damaging the revetment mats.

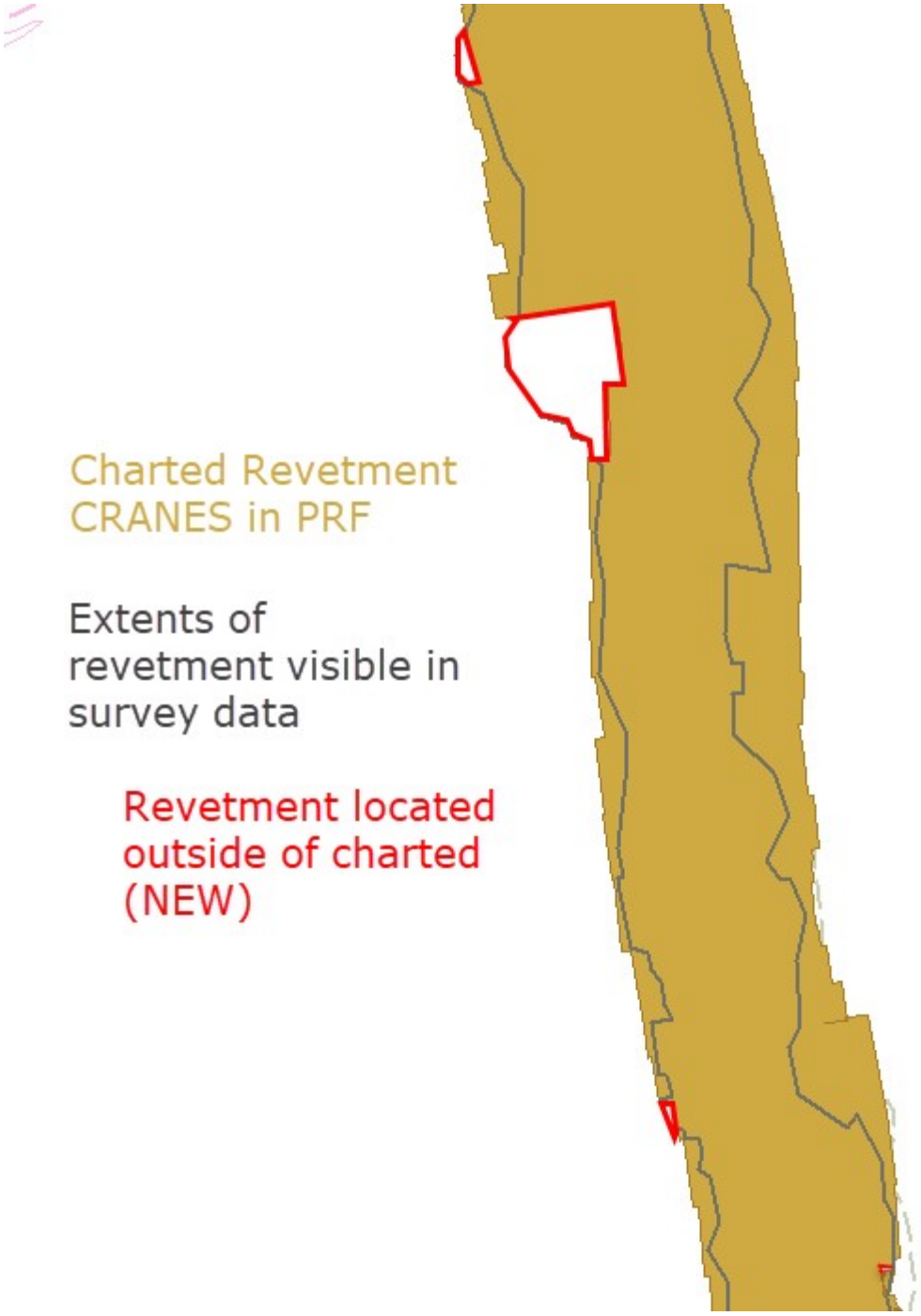
3. We wanted to verify that the feature encoding requirements are correct. Should new revetment areas be Obstruction areas? Obstructions have numerous mandatory attributes that we're unsure about populating when delineating revetments, including VALSOU.

I think that covers our questions.

Let me know if you'd like me to clarify anything.

Thanks,

Jason



Jason Creech, CH | Vice President, Nautical Charting Program Manager

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--
Martha Herzog
NOAA Operations Team Lead | Operations Branch
Hydrographic Surveys Division | Office of Coast Survey
240-533-0028

Jason Creech

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Wednesday, August 7, 2019 4:33 PM
To: Jason Creech
Subject: Marine mammal/turtle logs

Jason,

I received an answer from our Environmental Compliance Coordinator to your question of whether anything needs to be stated if no marine mammals/turtles were seen - no action or statement is needed.

Martha

--
Martha Herzog
NOAA Operations Team Lead | Operations Branch
Hydrographic Surveys Division | Office of Coast Survey
240-533-0028

Jason Creech

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Wednesday, August 7, 2019 12:39 PM
To: Jason Creech
Subject: Re: OPR-J347-KR-18 Training Walls Southwest Pass

Hi Jason,

Yes that works as attributing the entire thing as ruined.

On Tue, Aug 6, 2019 at 4:28 PM Jason Creech <Jasc@deainc.com> wrote:

> Thanks Martha
>
> Most of these are ruined and composed of sections of baring and submerged piles. We will not designate the submerged sections and will avoid breaking these up so there is a single feature in the FFF for each training wall. See example below to be attributed as ruined.
>
> Jason

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Tuesday, August 6, 2019 4:17 PM
To: Jason Creech <Jasc@deainc.com>
Subject: Re: OPR-J347-KR-18 Training Walls Southwest Pass

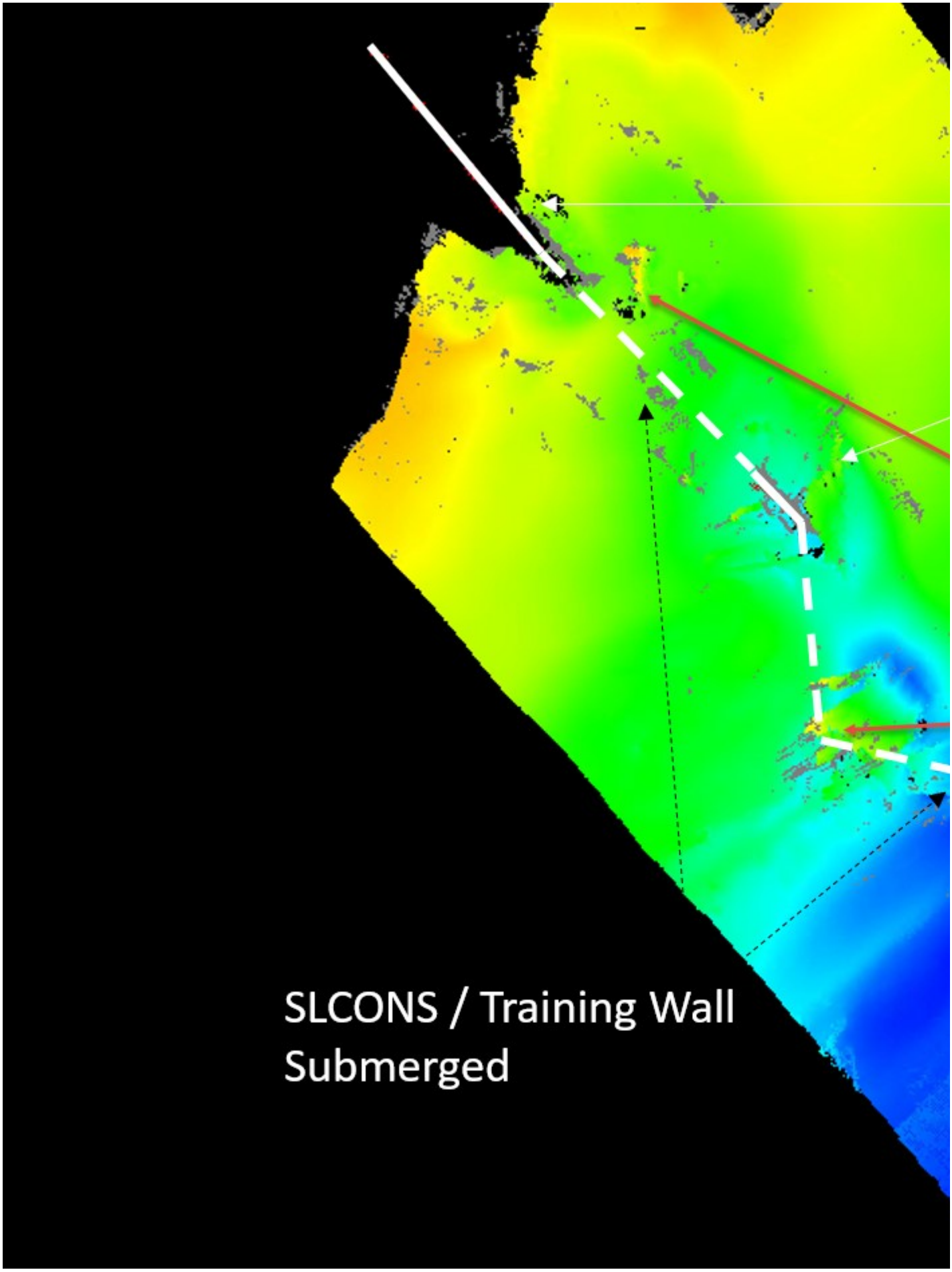
Hi Jason,

There is no need to designate every 2mm at survey scale (and please don't.) The ruined feature should take care of that as it is usually a baring feature.

As I stated in the earlier email above, there is no need to mark each small segment of the training wall as submerged, cov/uncov, and dry. For instance, if most of it is ruined with only small, intact sections, you can label the entire thing as ruined.

On Mon, Aug 5, 2019 at 4:07 PM Jason Creech <Jasc@deainc.com> wrote:

> Hi Martha
>
> We're working on our deliverables for Sheet 10 (SW Pass) and have a follow up question on the guidance you provided on training walls. Should the submerged sections of the training walls be designated so that the surface honors the least depths of the feature? Or does the fact that a ruined line feature is being digitized to depict the training wall put aside any designation requirement?
>
> I've included an example below (using a screengrab included in the slides I attached to this original email).
>
> Thanks for your guidance on this issue.
>
> Jason


SLCONS / Training Wall
Submerged

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Friday, May 3, 2019 12:58 PM
To: Jason Creech <Jasc@deainc.com>
Cc: Jon Dasler <Jld@deainc.com>
Subject: Re: OPR-J347-KR-18 Training Walls Southwest Pass

Hi Jason,

I have better guidance for the training walls/pile dikes.

There is no need to mark small segments of the training wall (especially less than 10m) each as submerged, cov/uncov, and dry. For instance, if most of it is ruined with only small, intact sections, you can label the entire thing as ruined.

If a ruined segment has a pile or two seaward and appears to have once to be a part of the training wall extend the ruined segment to the pile. It doesn't make sense to have obstructions at the end of nearly every training wall.

For the ruined training walls that have jogs, continue to mark the training wall with the jog at the least depth of the ruins.

Please let me know if you have questions. I'd be happy to explain run through this with your PowerPoint.

On Fri, Apr 26, 2019 at 1:03 PM Jason Creech <Jasc@deainc.com> wrote:

> Hi Martha
>
> As we work to complete sheet 10 (Southwest Pass) we are looking to finalize our procedures for depicting training walls in our survey data, finalized grids, and final feature file. As expected, there is a lot going on with these structures and we want to make sure we have a firm understanding of requirements and expectations. I've created a PowerPoint deck with some example training walls with images and screengrabs from HIPS subset. I've also added some first cuts at general representation in the FFF.

If possible we'd like to schedule some time to have a web meeting to review and discuss these items. I've added some comments and notes to help explain what we are showing, but think a review in real time would be most beneficial.

Would you be available later this afternoon or first thing next week for a meeting? In the meantime, I'm happy to address any questions you may have about the slides.

Thanks,

Jason

Jason Creech, CH | Vice President, Nautical Charting Program Manager

David Evans and Associates, Inc.

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804.516.7829 | jasc@deainc.com

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Martha Herzog

NOAA Operations Team Lead | Operations Branch

Hydrographic Surveys Division | Office of Coast Survey

240-533-0028

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Martha Herzog
NOAA Operations Team Lead | Operations Branch
Hydrographic Surveys Division | Office of Coast Survey
240-533-0028

Jason Creech

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Friday, August 9, 2019 4:04 PM
To: Jason Creech
Subject: Re: OPR-J347-KR-18 Training Walls Southwest Pass

Jason,

I'll add that if the ruined training wall has sections that are submerged, covers and uncovers, and dry, (or a combo of 2 of those), attribute the WATLEV with covers and uncovers.

Please let me know if you have any question,
Martha

On Wed, Aug 7, 2019 at 12:38 PM Martha Herzog - NOAA Federal <martha.herzog@noaa.gov> wrote:

> Hi Jason,
>
> Yes that works as attributing the entire thing as ruined.
>
> On Tue, Aug 6, 2019 at 4:28 PM Jason Creech <Jasc@deainc.com> wrote:
>
> > Thanks Martha
> >
> > Most of these are ruined and composed of sections of baring and submerged piles. We will not designate the submerged sections and will avoid breaking these up so there is a single feature in the FFF for each training wall. See example below to be attributed as ruined.
> >
> > Jason

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Tuesday, August 6, 2019 4:17 PM
To: Jason Creech <Jasc@deainc.com>
Subject: Re: OPR-J347-KR-18 Training Walls Southwest Pass

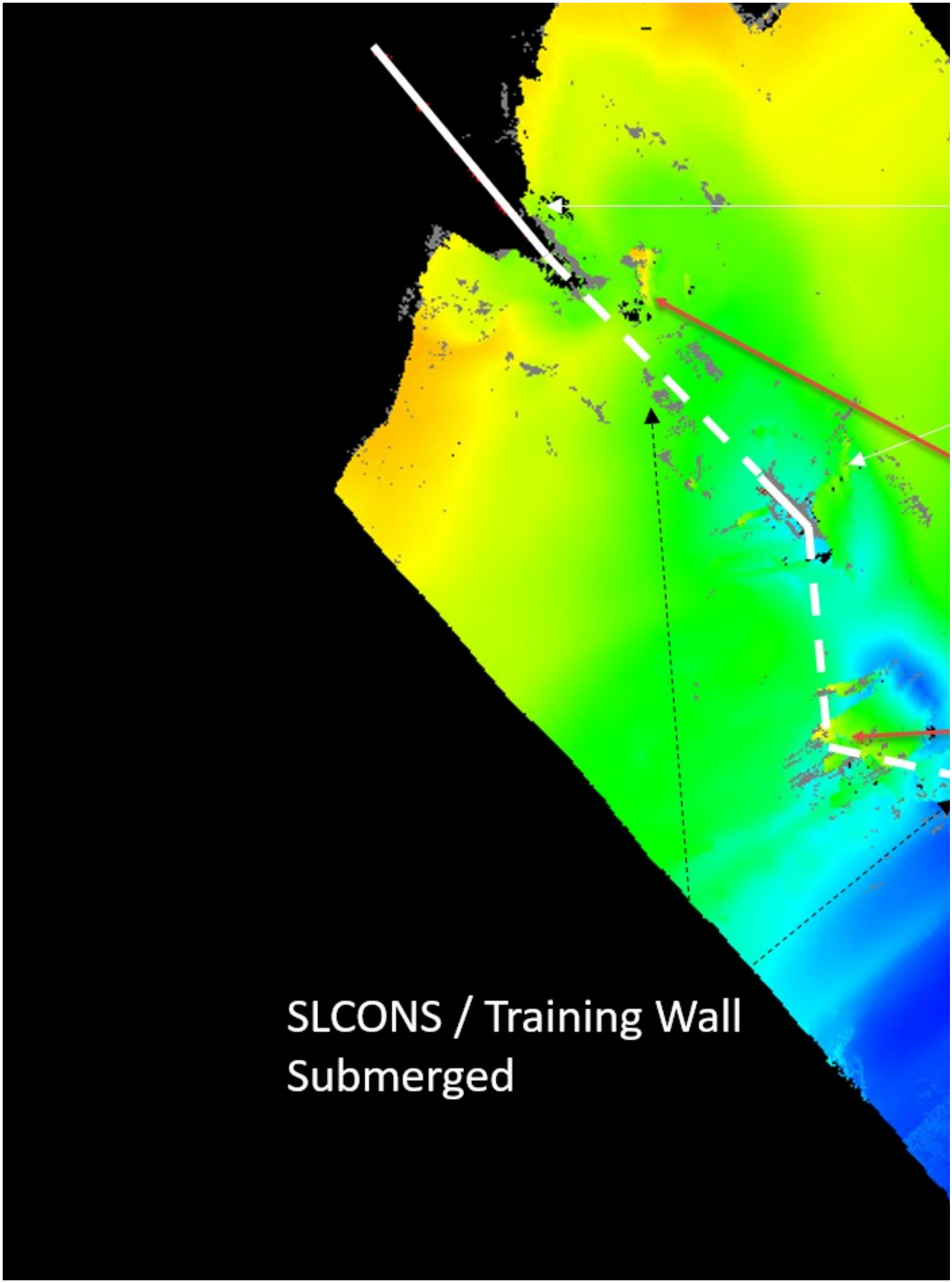
Hi Jason,

There is no need to designate every 2mm at survey scale (and please don't.) The ruined feature should take care of that as it is usually a baring feature.

As I stated in the earlier email above, there is no need to mark each small segment of the training wall as submerged, cov/uncov, and dry. For instance, if most of it is ruined with only small, intact sections, you can label the entire thing as ruined.

On Mon, Aug 5, 2019 at 4:07 PM Jason Creech <Jasc@deainc.com> wrote:

> Hi Martha
>
> We're working on our deliverables for Sheet 10 (SW Pass) and have a follow up question on the guidance you provided on training walls. Should the submerged sections of the training walls be designated so that the surface honors the least depths of the feature? Or does the fact that a ruined line feature is being digitized to depict the training wall put aside any designation requirement?
>
> I've included an example below (using a screengrab included in the slides I attached to this original email).
>
> Thanks for your guidance on this issue.
>
> Jason


SLCONS / Training Wall
Submerged

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Friday, May 3, 2019 12:58 PM
To: Jason Creech <Jasc@deainc.com>
Cc: Jon Dasler <Jld@deainc.com>
Subject: Re: OPR-J347-KR-18 Training Walls Southwest Pass

Hi Jason,

I have better guidance for the training walls/pile dikes.

There is no need to mark small segments of the training wall (especially less than 10m) each as submerged, cov/uncov, and dry. For instance, if most of it is ruined with only small, intact sections, you can label the entire thing as ruined.

If a ruined segment has a pile or two seaward and appears to have once to be a part of the training wall extend the ruined segment to the pile. It doesn't make sense to have obstructions at the end of nearly every training wall.

For the ruined training walls that have jogs, continue to mark the training wall with the jog at the least depth of the ruins.

Please let me know if you have questions. I'd be happy to explain run through this with your PowerPoint.

On Fri, Apr 26, 2019 at 1:03 PM Jason Creech <Jasc@deainc.com> wrote:

> Hi Martha
>
> As we work to complete sheet 10 (Southwest Pass) we are looking to finalize our procedures for depicting training walls in our survey data, finalized grids, and final feature file. As expected, there is a lot going on with these structures and we want to make sure we have a firm understanding of requirements and expectations. I've created a PowerPoint deck with some example training walls with images and screengrabs from HIPS subset. I've also added some first cuts at general representation in the FFF.

If possible we'd like to schedule some time to have a web meeting to review and discuss these items. I've added some comments and notes to help explain what we are showing, but think a review in real time would be most beneficial.

Would you be available later this afternoon or first thing next week for a meeting? In the meantime, I'm happy to address any questions you may have about the slides.

Thanks,

Jason

Jason Creech, CH | Vice President, Nautical Charting Program Manager

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804.516.7829 | jasc@deainc.com

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Martha Herzog

NOAA Operations Team Lead | Operations Branch

Hydrographic Surveys Division | Office of Coast Survey

240-533-0028

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Hydrographic Surveys Division | Office of Coast Survey
240-533-0028

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240-533-0028

Jason Creech

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Tuesday, August 13, 2019 9:31 AM
To: Jason Creech
Subject: Re: OPR-J347-KR-18 Submerged area features

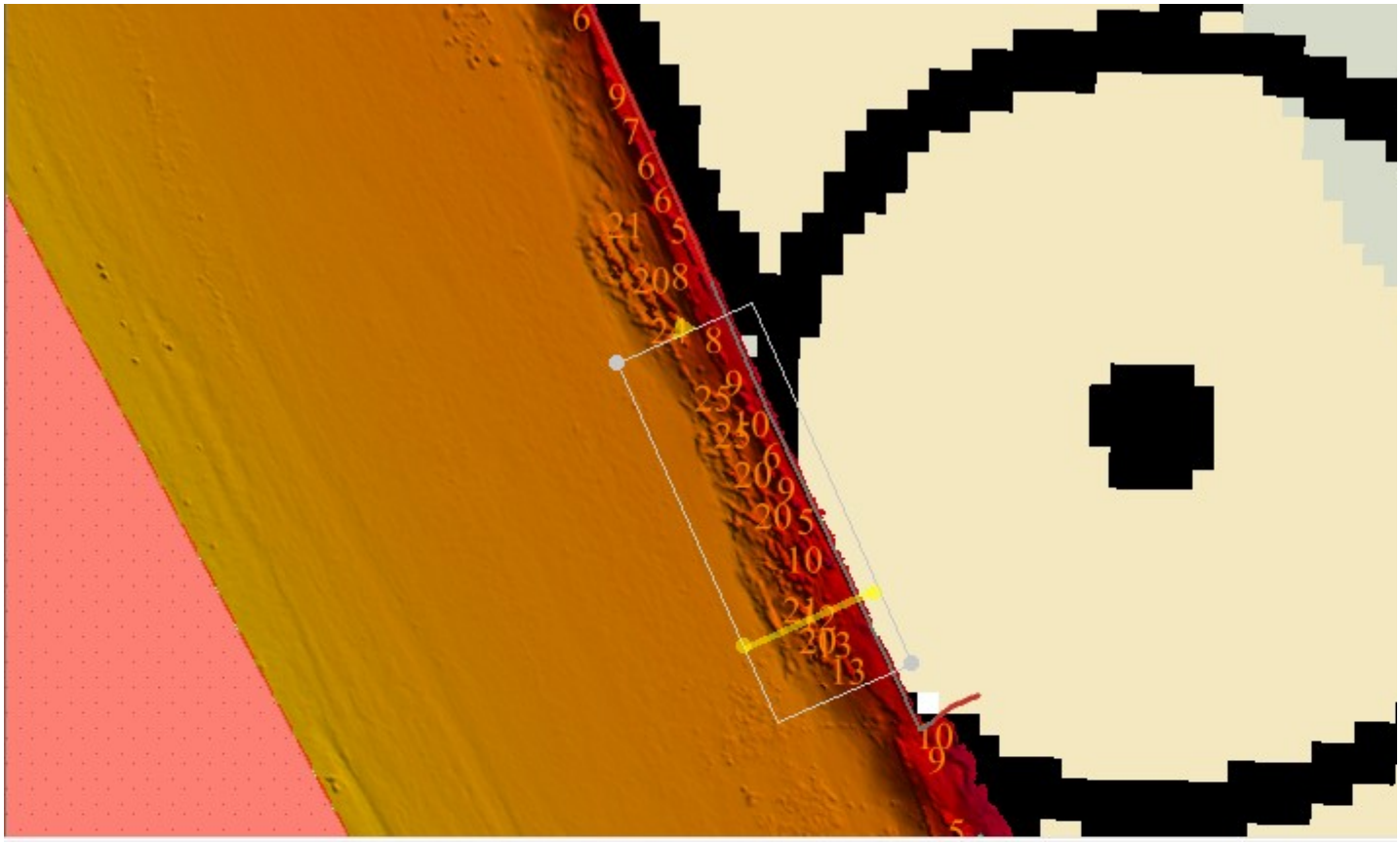
Hi Jason,

You can delineate an area of submerged piles as an area obstruction, and please only designate one sounding within the area. You can also depict a row of submerged piles with a line obstruction.

Please let me know if you have any other questions,
Martha

On Mon, Aug 12, 2019 at 5:10 PM Jason Creech <Jasc@deainc.com> wrote:

> Hi Martha
>
> We have a few questions regarding the use of submerged area features. We've been following the designated sounding distance specification of 2mm at survey scale (10 m) and minimum area requirement of 1mm (5 m).
>
> 1. When we use an area feature to depict items with horizontal dimensions greater than 5m, are we required to continue to follow the designated sounding rule (2mm at survey scale) or should only the shoalest depth within the area be designated? This impacts most if not all wrecks within our survey data and several potential obstruction areas (see image below).
> 2. We assume that it is acceptable to use obstruction area features to delineate large areas of submerged pilings. I've added some sample line work to depict the extents of a proposed obstruction area to the image below. Is this practice acceptable? This wouldn't be considered foul, as we have surveyed least depths on all of the submerged piles. Can we follow this same practice to depict a single row of submerged piles (not an area) with a line object?
>
> Thanks for the clarification on this.
>
> Jason



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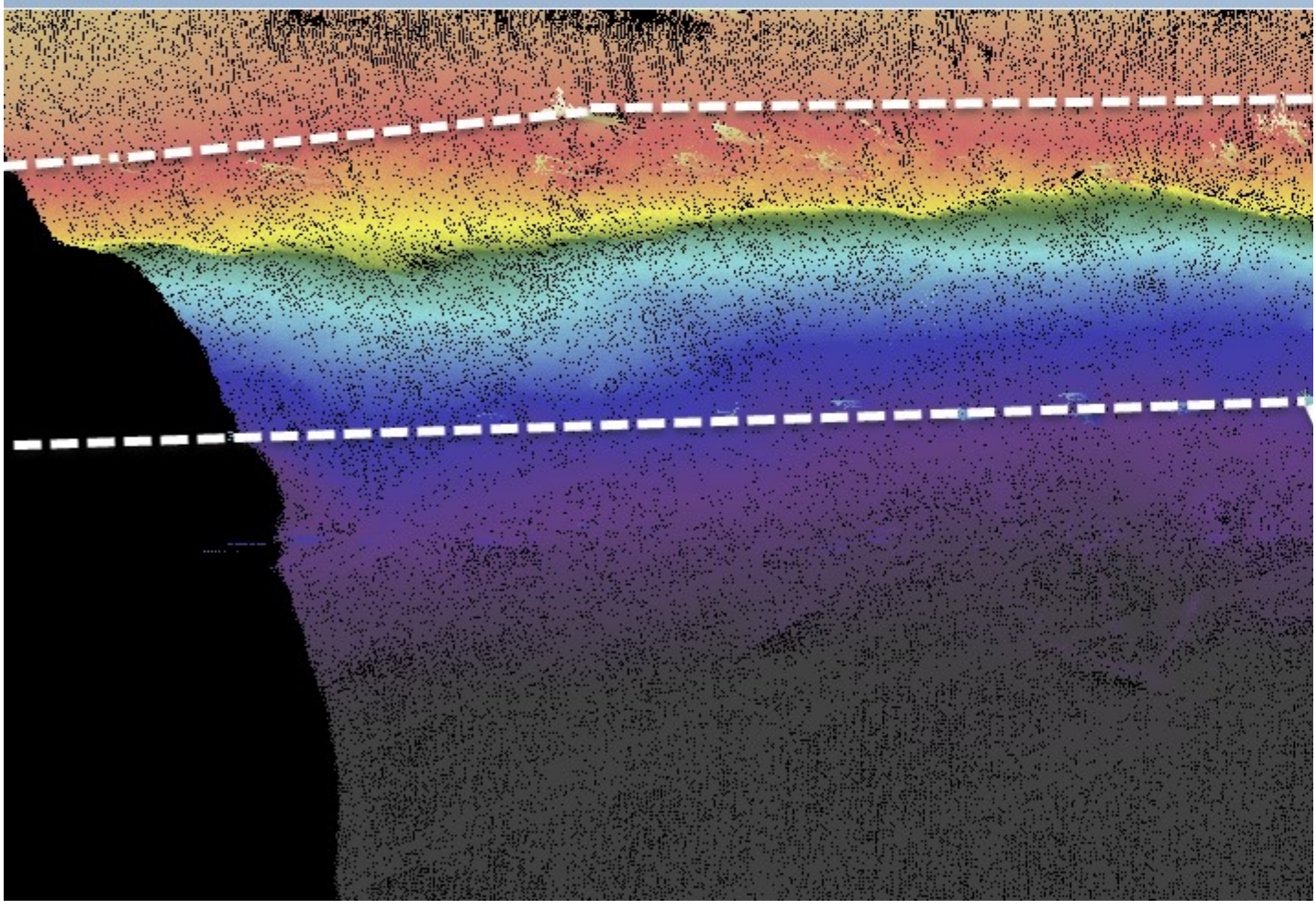

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NOAA Operations Team Lead | Operations Branch
Hydrographic Surveys Division | Office of Coast Survey
240-533-0028

Jason Creech

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Tuesday, August 13, 2019 1:27 PM
To: Jason Creech
Subject: Re: Questions on DR Appendices and Separates

Jason,

Please concatenate the Appendices as one PDF file. There may be cases where only one of the examples is provided, per HSSD section 8.1.
There is no need to add a Water Level Appendices for ERS surveys.
Please concatenate the correspondence into a single PDF. If there is a next time, I'll set set up a spreadsheet that will grow for each of these sorts of questions to have it all in once place.

Martha

On Tue, Aug 13, 2019 at 12:11 PM Jason Creech <Jasc@deainc.com> wrote:

> Hi Martha
>
> We have a few questions on DR Appendices and Separates
>
> 1. The 2018 HSSD has some inconsistencies in the way we are to create our Appendices and Separates. Page 102 of the HSSD (2018) has the Appendices broken out in to multiple pdf files (H12345_Tide_Request.pdf, <Survey Registry Number>_DTON_Report_unique#.pdf, etc.). Page 113 of the HSSD (2018) says to submit a single concatenated PDF file. What should we do for these?
>
> 2. What are the current requirements for submitting a DR Appendix 1 for ERS surveys? Do ERS surveys require Appendix 1, if so what pages are required? For our Mississippi River surveys, we can produce Times of Hydrography but we don't have information to populate a Tide Note. Should we create a page for this document (and others?) and say "Not Applicable, ERS Survey"?
>
> 3. We have a lot of Project related correspondence to include with our surveys, including guidance on many of our questions. Should "Project Correspondence" be a single concatenated PDF file or multiple individual files?
>
> Thanks,

Jason

Jason Creech, CH | Vice President, Nautical Charting Program Manager

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240-533-0028

Jason Creech

From: Jon Dasler
Sent: Thursday, August 15, 2019 6:10 PM
To: Jason Creech
Subject: Fwd: EA133C14CQ0037/1305M218FNCNJ0138 (T0005) Modification P19002
Attachments: image003.jpg; ATT00001.htm; Revised Final Project Instructions Aug. 2019.pdf; ATT00002.htm

Just got these.

Jon Dasler, PE, PLS
Director of Marine Services
David Evans and Associates, Inc.
360-314-3200
Mobile 503-799-0168
Email: jld@deainc.com
www.deamarine.com

Sent from my iPhone

Begin forwarded message:

> **From:** Nicole Lawson - NOAA Federal <nicole.lawson@noaa.gov>
> **Date:** August 15, 2019 at 2:41:06 PM MDT
> **To:** Jon Dasler <Jld@deainc.com>
> **Cc:** Kasey Whitfield - NOAA Affiliate <kasey.whitfield@noaa.gov>, Kathryn Pridgen - NOAA Federal <kathryn.pridgen@noaa.gov>, Christina Fandel - NOAA Federal <christina.fandel@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Martha Herzog <martha.herzog@noaa.gov>
> **Subject: Re: EA133C14CQ0037/1305M218FNCNJ0138 (T0005) Modification P19002**
>
> Good afternoon,
>
> All of the modified information was included in the modification Kasey sent out, but I have attached the revised Project Instructions for your information as well. Please let me know if you have any questions.
>
> Thanks,
> Nicole
>
> On Wed, Aug 14, 2019 at 10:19 AM Jon Dasler <Jld@deainc.com> wrote:
>
> > Thank you Kasey. We acknowledge receipt of the executed modification. Have a great day.
> >
> > Jon

Jon L. Dasler, PE, PLS, CH | Senior Vice President, Director of Marine Services

David Evans and Associates, Inc. | Marine Services Division | www.deamarine.com

t: 360.314.3200 | c: 503.799.0168 | jld@deainc.com

Jason Creech

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Wednesday, August 28, 2019 10:46 AM
To: Jason Creech
Subject: Re: Survey vs Project Correspondence

Hi Jason,

For all general project correspondence, you can simply add a "read me" file stating that all project correspondence was submitted with x survey. Correspondence specified such as Coast Pilot, and NCEI submissions need to be submitted with each survey as there are occasions where they can be for survey only instead of the entire project.

I hope this clarifies your questions.
Martha

On Wed, Aug 28, 2019 at 10:16 AM Jason Creech <Jasc@deainc.com> wrote:

> Hi Martha
>
> We are working on building our DR Appendices II and *Project Correspondence* documents for the Mississippi River surveys and have some questions about the current guidance on these reports. We've had quite a bit of communications during these surveys and we want to make sure that we deliver everything that is necessary and include in the proper report.
>
> I've looked through the Specs and see the following requirements for DR Appendix II. There is a mix of survey specific communications and project wide communications.
>
> DR Appendix II
>
> DtoNs
>
> Other
>
> Coast Pilot Review **(project)**
>
> Pipelines/ Seeps **(survey)**
>
> AtoNs **(survey)**

Channels **(survey)**

NCEI **(project)**

Progress Reports **(project)**

Survey Outlines **(survey/ project)**

Environmental Compliance **(project)**

Other Survey related communications **(survey / project)**

modified PIs, emails, phone calls)

Should project wide communications included in Separate II be duplicated in the *Project Correspondence* document?

Is the any *Project Correspondence* info that should not be included in Appendix II?

Should *Project Correspondence* be delivered with each survey or only once unless revised?

Thanks,

Jason

Jason Creech, CH | Vice President, Nautical Charting Program Manager

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Martha Herzog
NOAA Operations Team Lead | Operations Branch
Hydrographic Surveys Division | Office of Coast Survey
240-533-0028

Jason Creech

From: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Sent: Wednesday, October 2, 2019 5:25 PM
To: Jason Creech
Subject: Re: OPR-J347-KR-18 Recent fill and investigation data

Hi Jason,

I concur with your proposed plans of:
1 - rejecting the newer line if it grossly does not corroborate with your previously surveyed data (with the hope the geomorphological processes will return the river bottom to its normal very soon) and discuss the reasoning in the DR and
2 - consider the feature is not disproven with a single investigation line if the new line does not corroborate with your prior data.

Please let me know if you have any more questions,
Martha

On Tue, Oct 1, 2019 at 2:30 PM Jason Creech <Jasc@deainc.com> wrote:

> Hi Martha
>
> When we are transiting back from the H13330 survey area (Mississippi River Sheet 11, up river of Baton Rouge) we ran some fill and investigation lines with the Blake within Sheets 1-6.
>
> In some areas, the data fits well and has been added to our surveys without issue. In other areas, the bottom has changed considerably since the mainscheme lines were run last fall and winter. Integrating the new data is causing problems following two scenarios.
>
> 1. Fill run over small holidays where the bottom has changed significantly (up to 10 meters vertically) since mainscheme data were acquired. Incorporating the fill will cause artifacts in the gridded surfaces. We're proposing to reject the fill data and discuss in the DR. The fill data have been reviewed to make sure a feature was not present in the holiday.
> 2. A feature visible in the mainscheme data was not present during investigation. Should we keep the feature in the data and FFF as surveyed during mainscheme? We're not sure if it is acceptable to reject a newly surveyed feature based on a single investigation line.
>
> Again, these issues impact Sheet 1-6 (Baton Rouge to New Orleans). We're hoping to start submitting these surveys by the end of next week.

Thanks,

Jason

Jason Creech, CH | Vice President, Nautical Charting Program Manager

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Martha Herzog
NOAA Operations Team Lead | Operations Branch
Hydrographic Surveys Division | Office of Coast Survey
240-533-0028

Jason Creech

From: Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>
Sent: Wednesday, October 16, 2019 11:00 AM
To: Jason Creech
Cc: Martha Herzog - NOAA Federal; AHB Chief - NOAA Service Account
Subject: FW: Mississippi River Footings

Hello Jason,
Just got off the phone with Martha Herzog and we both agree to keep the bridge support foundations in the grid as you provided in the examples. I'm still waiting on a response from Tim Osborn for the Pilot's perspective, but that should stop us from the decision to include. Bearing in mind the change or deviation from HSSD, we are waiting on HSD OPS response on how to handle this deviation.

Thanks for bringing up this situation and the opportunity to respond.
Regards,
Gene

Castle Eugene Parker
NOAA Office of Coast Survey
Atlantic Hydrographic Branch
Hydrographic Team Lead / Physical Scientist
castle.e.parker@noaa.gov
office (757) 364-7472

From: Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>
Sent: Wednesday, October 16, 2019 10:25 AM
To: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>; Tim Osborn - NOAA Federal <tim.osborn@noaa.gov>
Cc: James Miller - NOAA Federal <james.j.miller@noaa.gov>; Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>; Jeffery Marshall - NOAA Federal <jeffery.marshall@noaa.gov>; AHB Chief - NOAA Service Account <ahb.chief@noaa.gov>; Jason Creech <Jasc@deainc.com>
Subject: FW: Mississippi River Footings

Good day,
Yesterday Jason Creech (DEA) presented a situation with the Mississippi River bridge foundations that have concrete footers that rise above the river bed, some foundations with significant height above the river floor. Select AHB personnel discussed this situation and agree with DEA about leaving the foundations in the bathy grid if the rise is significant. All of the soundings from the vertical support structure are rejected per HSSD. Leaving the soundings associated with the bridge support foundation is not in alignment with HSSD documented in Chap. 7 that states '*Data under charted man made features (e.g., piers, anchor chains) will be rejected and not included in delivered products.'* And, *'MBES data on pilings supporting and abutting piers and superstructures shall be rejected. The piers or structures shall be surveyed as shoreline construction (SLCONS) features.'*

Martha, this is a deviation from HSSD in that the foundation is not skin of the earth and would normally be rejected, but based upon the rise above the river bed can make the foundation least depth significant. If we keep the soundings related to the foundations in the data set and grid, do we want or need a waiver? This is a one-off situation with HSSD.

Question: Is the MS River surveys going to be used and sourced for BIENC products and if so, would it benefit the product to keep the footers in the grid. The depth curves of the BIENC would be reflective of the bridge footer foundation with multiple concentric depth curves.

Tim, would the Pilots that transit the area object to the concentric depth curves associated with the bridge support foundation if and when the BIENC is created. From a Pilot's point of view, is it beneficial to keep the foundation reflective within the bathy grid?

The first example below is associated with the Huey P Long Bridge (new Orleans) ; the scale within the images are metric values. We have review Marine Traffic and note that some bulk carriers have drafts that are close the minimum depth of the first example of the foundation at 10m depth. The second example appears to be the bridge at Wallace, LA.

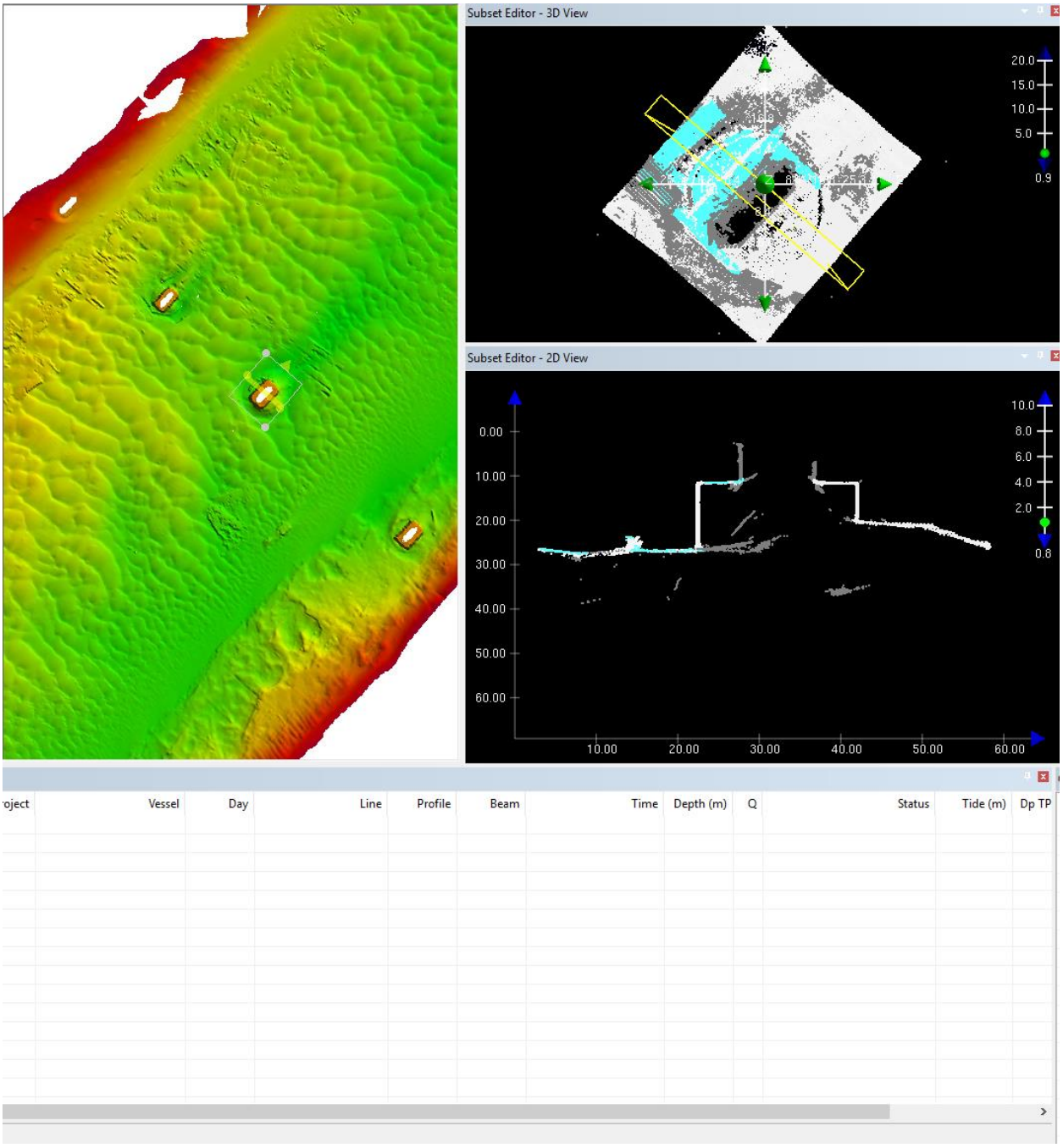
As it stands at the end of our conversation at AHB, we are inclined to leave the bridge support foundations included in the bathy grid. We would not create cartographic objects for the foundations and would not be included in the FFF as SLCONS shoreline construction.

Consideration and input is requested.
Thanks,
gp

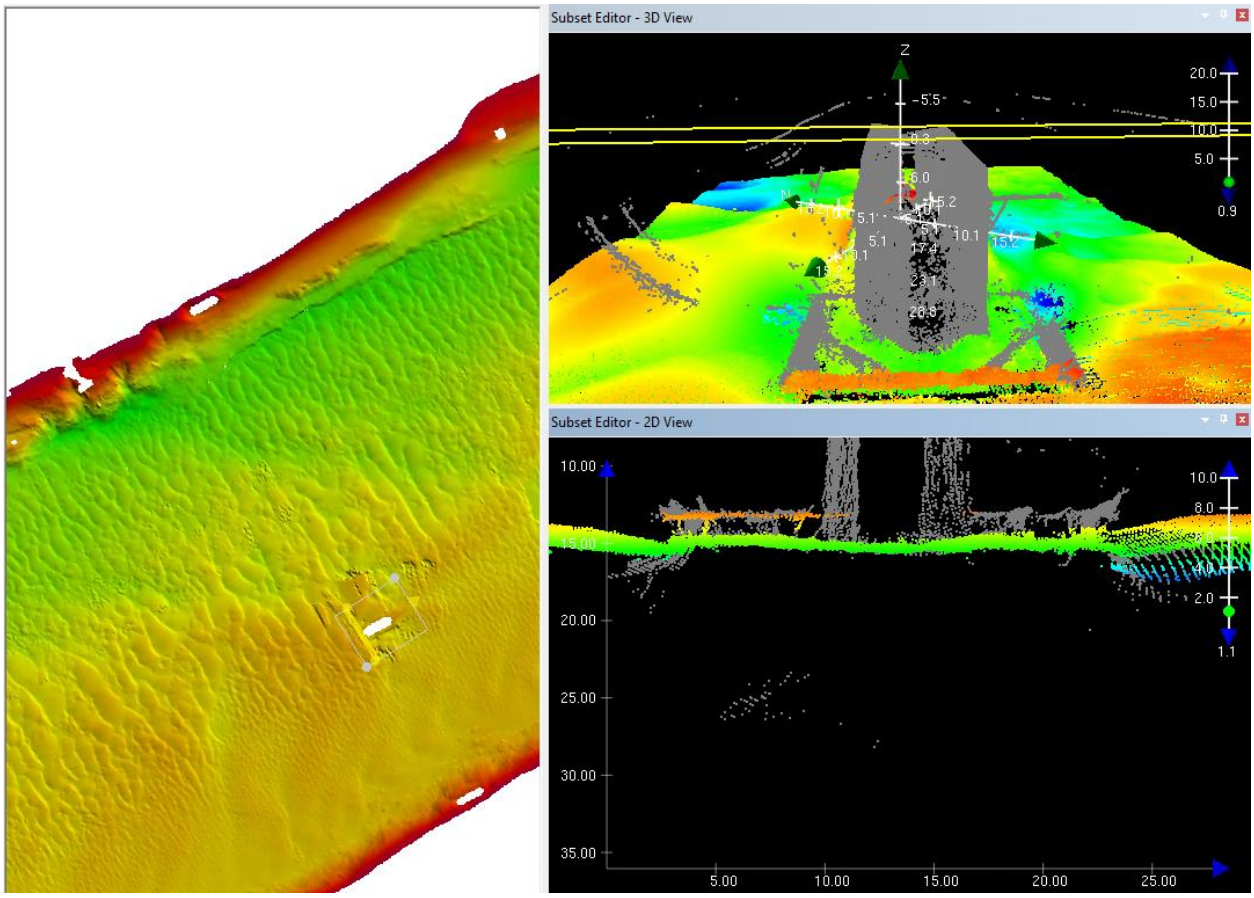
Castle Eugene Parker
NOAA Office of Coast Survey
Atlantic Hydrographic Branch
Hydrographic Team Lead / Physical Scientist
castle.e.parker@noaa.gov
office (757) 364-7472

From: Jason Creech <Jasc@deainc.com>
Sent: Tuesday, October 15, 2019 3:27 PM
To: castle.e.parker@noaa.gov
Subject: Mississippi River Footings

Examples included



oject	Vessel	Day	Line	Profile	Beam	Time	Depth (m)	Q	Status	Tide (m)	Dp TP



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APPROVAL PAGE

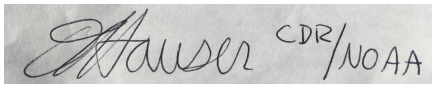
H13189

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

- Descriptive Report
- Collection of Bathymetric Attributed Grids (BAGs)
- Collection of backscatter mosaics
- Processed survey data and records
- GeoPDF of survey products

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.



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Approved:_____

Commander Olivia Hauser, NOAA
Chief, Pacific Hydrographic Branch