

H12789

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

DESCRIPTIVE REPORT

Type of Survey: Navigable Area

Registry Number: H12789

LOCALITY

State(s): Louisiana

General Locality: Approaches to Atchafalaya Bay, LA

Sub-locality: 18 NM SSW of Point Au Fer off the
coast of Louisiana, USA.

2015

CHIEF OF PARTY
Tara Levy

LIBRARY & ARCHIVES

Date:

HYDROGRAPHIC TITLE SHEET

H12789

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: **Approaches to Atchafalaya Bay, LA**

Sub-Locality: **18 NM SSW of Point Au Fer off the coast of Louisiana, USA.**

Scale: **40000**

Dates of Survey: **09/06/2015 to 02/18/2016**

Instructions Dated: **07/14/2015**

Project Number: **OPR-K379-KR-15**

Field Unit: **C&C Technologies, An Oceaneering International Company**

Chief of Party: **Tara Levy**

Soundings by:

Imagery by:

Verification by: **Atlantic Hydrographic Branch**

Soundings Acquired in: **meters at Mean Lower Low Water (MLLW).**

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 <https://www.ncei.noaa.gov/>.

Descriptive Report to Accompany Survey H12789

Project: OPR-K379-KR-15

Locality: Approaches to Atchafalaya Bay, LA

Sublocality: 18 NM SSW of Point Au Fer

Scale: 1:40000

September 6, 2015 – February 18, 2016

R/V Sea Scout & R/V C-Ghost

Chief of Party: Tara Levy

A. Area Surveyed

The survey area is located 18 NM SSW of Point Au Fer off the coast of Louisiana, USA.

A.1. Survey Limits

Data was acquired within the following survey limits:

Northwest Limit	Southeast Limit
29.101 N	29.000 N
91.500 W	91.421 W

Table 1: Survey Limits

Survey limits were designed as outlined in the Project Instructions and the HSSD.

A.2. Survey Purpose

The purpose of this survey is to provide contemporary data to update National Ocean Service (NOS) nautical charting products. Survey H12789 covers 24.21 square nautical miles (SNM) near the Atchafalaya River. The river is the only expanding river delta in North America and the Port of Morgan City has been working to deepen and maintain the channel. The project area potentially covers altered area where depth contours may have migrated.

A.3. Survey Quality

The entire survey is adequate to supersede previous data.

A.4. Survey Coverage

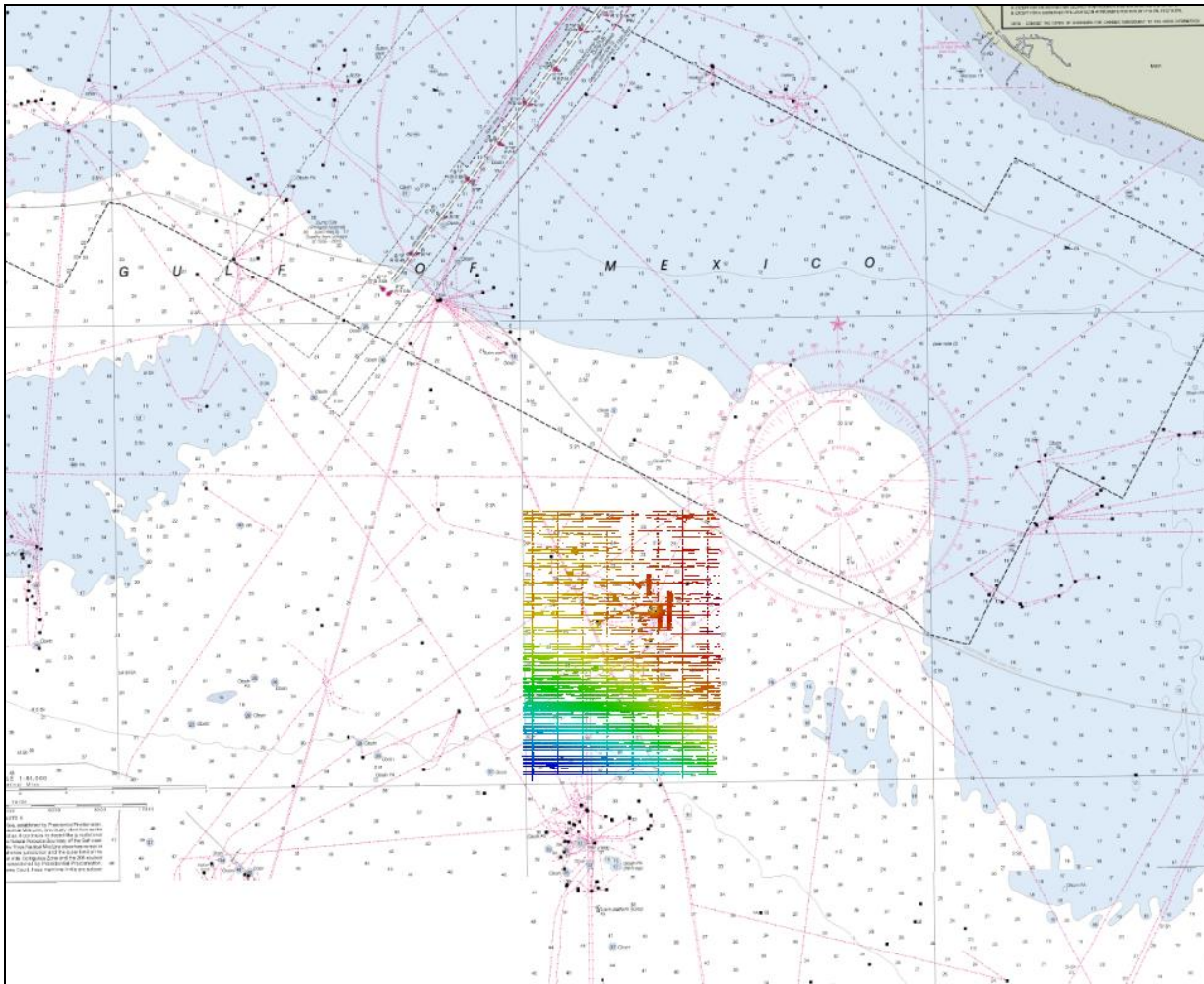


Figure 1. H12789 Survey Coverage

Survey coverage for H12789 (Figure 1) was collected in accordance with the requirements outlined in the Project Instructions and HSSD (2015). 100% side scan sonar (SSS) coverage was acquired with concurrent multibeam echosounder (MBES) data. A combination of complete MBES with backscatter and/or water column data and/or SSS data was collected for feature investigations.

A.5. Survey Statistics

The following table lists the mainscheme and crossline acquisition mileage for this survey. Note that investigations, reruns and feature disproval lines are excluded from the totals. Detached positions include position fixes associated with bottom samples, CTDs, offshore structures and leadlines.

	Hull ID	1237094	JQN00023E707	Total
LNM	SBES Mainscheme	0	0	0
	MBES Mainscheme	0	0	0
	SSS Mainscheme	0	0	0
	SBES/MBES Combo Mainscheme	0	0	0
	SBES/SSS Combo Mainscheme	0	0	0
	MBES/SSS Combo Mainscheme	647.92	0	647.92
	SBES/MBES Combo Crosslines	48.58	0	48.58
	Lidar Crosslines	0	0	0
Number of Bottom Samples		8	0	8
Number of DPs		59	4	63
Number of Items Investigated by Dive OPs		0	0	0
Total Number of SNM		24.21	0	24.21

Table 2: Hydrographic Survey Statistics

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

15/09/06
15/09/07
15/09/08
15/09/09
15/09/10
15/09/11
15/09/14
15/09/15
15/09/16
15/09/17
15/09/18
15/09/19
15/09/20
15/09/21
15/09/25
15/09/26
15/09/29
15/09/30
15/10/04
15/10/05
15/10/06
15/10/08
15/10/09
15/10/10
15/10/11
16/01/08
16/01/12
16/01/13
16/01/14
16/01/19
16/01/24
16/01/30
16/02/17
16/02/18

Table 3: Dates of Hydrography

B. Data Acquisition and Processing

B.1. Equipment and Vessels

Refer to the OPR-K379-KR-15 Data Acquisition and Processing Report (DAPR) for additional information regarding survey systems as well as operational, processing and quality control procedures. A summary of the equipment and vessels used for this survey is provided below.

B.1.1. Vessels

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

Hull ID	1237094	JQN00023E707
LOA	40.84 meters	9.14 meters
Draft	1.98 meters	0.76 meters

Table 4: Vessels Used

B.1.2. Equipment

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

Manufacturer	Model	Type
Kongsberg	EM2040C	MBES
Kongsberg	EM3002	MBES
Klein	5000 V2	SSS
EdgeTech	4200 P	SSS
Coda Octopus	F180	Attitude and Positioning System
C-Nav	3050	Positioning System
AML	SV•Xchange	Sound Speed System
YSI Electronics	600R-BCR-C-T	Sound Speed System
Sea-Bird Electronics, Inc.	SBE 19 and SBE 19 Plus	Sound Speed System

Table 5: Major Systems Used

B.2. Quality Control

B.2.1. Crosslines

Crosslines were run perpendicular to mainscheme lines so that quality control statistics could be performed on the data after completion of mainscheme survey lines. The total crossline miles were 48.58 NM and the total mainline miles were 647.92 NM; investigations, reruns and feature disapproval lines were not included in mainline totals. The crosslines comprise 7.5 percent of the total main line miles.

Mainlines were compared to crosslines for which there was overlapping data using C & C's proprietary Hydromap software. The graphs generated from the comparison show the mean

difference, RMS difference and confidence interval for each beam. Refer to the DAPR for additional information and Separates II Digital Data for sample graphical documentation.

The surface difference tool in CARIS HIPS was used to evaluate crossline and mainscheme line agreement; investigations were not included in the comparisons. The mainline BASE surface was used as Surface 1 and the crossline BASE surface as Surface 2. Statistical information about the difference surface was generated using the compute statistics tool (Figure 2). The analysis shows that greater than 99% of depth difference values are between ± 0.35 meters. This is well within the maximum allowable TVU for the depths of the comparison area (6.40 – 11.18 m) which ranges from $\pm 0.510 - \pm 0.521$ m.

Statistical crossline information was also generated by comparing each of the crosslines to the depth layer of the 1-m BASE surface of the mainscheme survey lines using the CARIS QC report utility. In general, greater than 99% of crossline soundings fall within the selected Order 1a survey order, as outlined in the CARIS User Manual. Crossline comparisons generated with the CARIS QC report utility as well as the difference BASE surface are shown in the Separates II Digital Data\Checkpoint Summary & Crossline Comparisons folder.

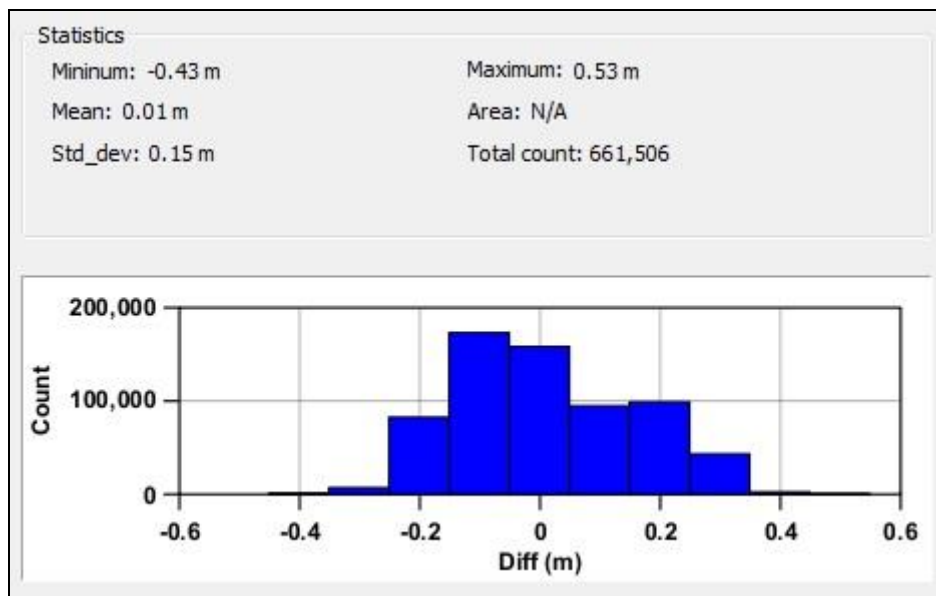


Figure 2. Crossline comparison statistical information and histogram output from CARIS compute statistics tool.

B.2.2. Junctions

Registry Number	Scale	Year	Field Unit	Relative Location
H12556	1:40,000	2013	C & C Technologies, Inc.	S
H12557	1:40,000	2013	C & C Technologies, Inc.	SW
H12787	1:40,000	2015	C & C Technologies, Inc. An Oceanering International Company	N
H12788	1:40,000	2015	C & C Technologies, Inc. An Oceanering International Company	NW
H12790	1:40,000	2015	C & C Technologies, Inc. An Oceanering International Company	W
H12791	1:40,000	2015	C & C Technologies, Inc. An Oceanering International Company	SE

Table 6. Junctioning Surveys

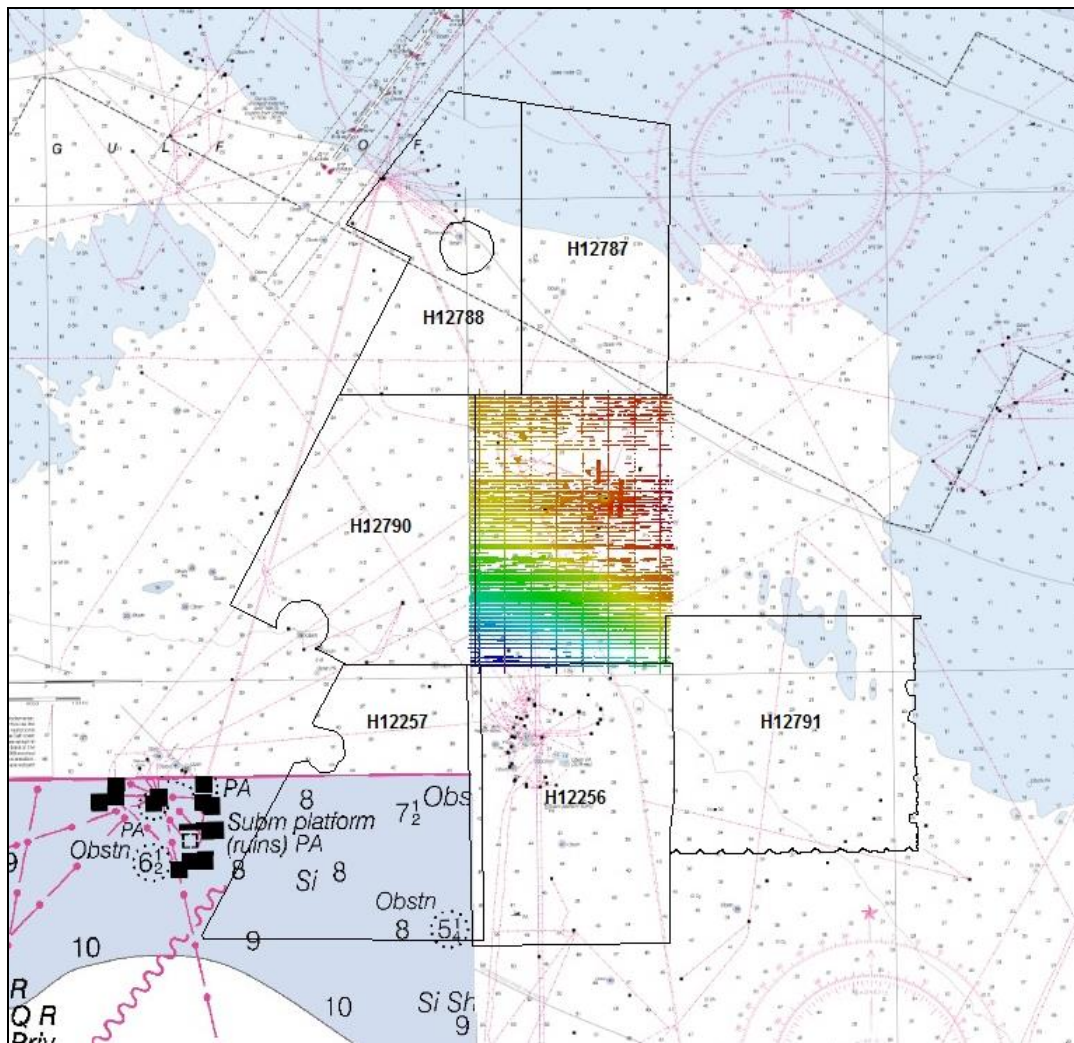


Figure 3. H12789 Junctions.

The areas of overlap between contemporary and past surveys (Figure 3) were evaluated using the CARIS Difference Tool to ensure the general agreement of depths between survey areas. Junction analyses were conducted using 1 meter BASE surfaces. If necessary, data was further reviewed in CARIS Subset Editor.

H12556

The southern margin of H12789 borders the northern margin of H12556. Figure 4 shows statistical information for the junction generated with the CARIS compute statistics tool. The difference values demonstrate that the depths from H12556 are slightly deeper than depths from H12789. Motion artifacts within the H12556 bathymetric surface contribute to the larger depth differences (-0.40 to -0.66 m). Over 98% of the depth differences are between -0.38 and 0.12 meters.

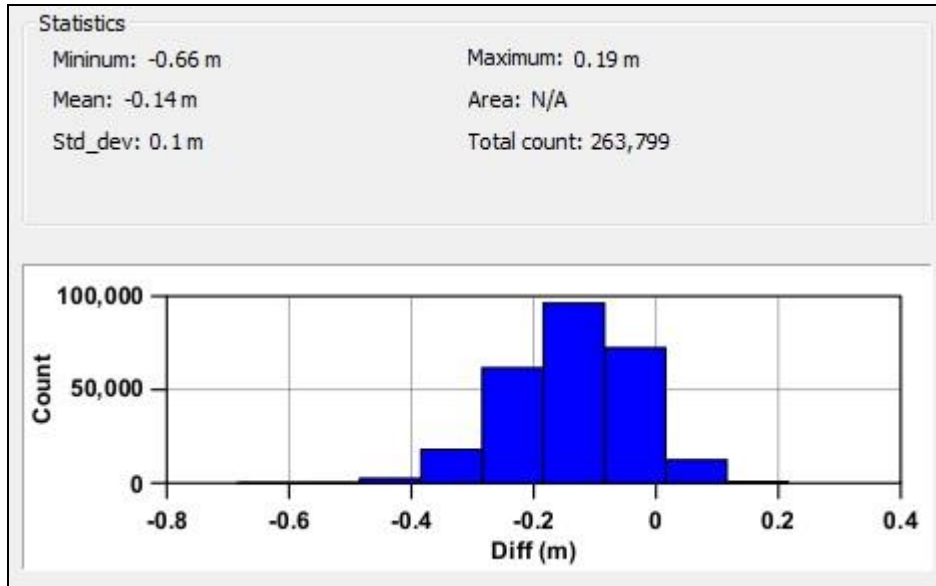


Figure 4. Statistical information and histogram output from CARIS Compute Statistics tool for the difference surface generated between the 1 meter surfaces of H12556 and H12789.

H12257

The southwest margin of H12789 borders the northeast margin of H12557. Figure 5 shows statistical information for the junction generated with the CARIS compute statistics tool. There is very little overlap, but the difference values demonstrate that the depths from H12789 are slightly deeper than depths from H12557, with 100% of the depth differences between -0.02 and 0.17 m.

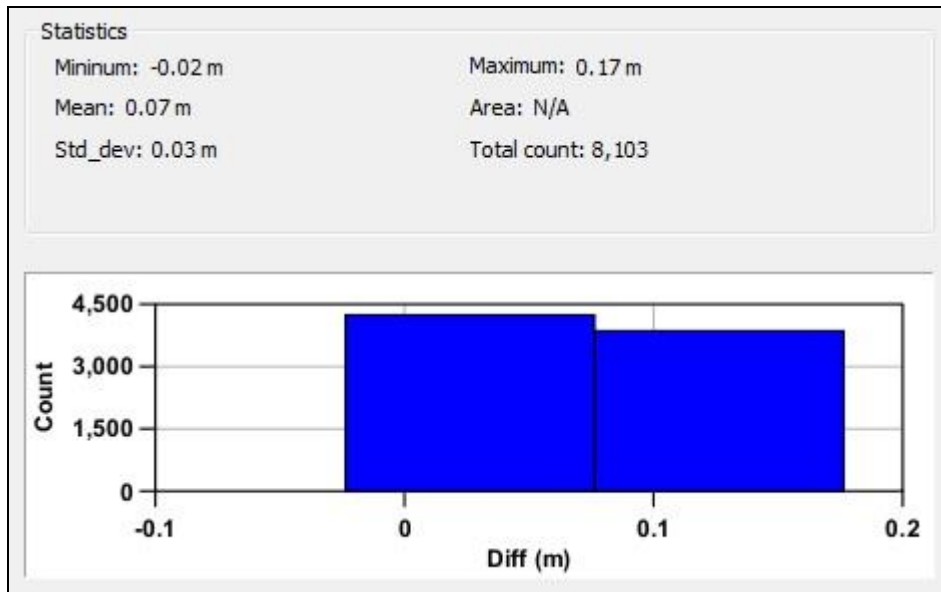


Figure 5. Statistical information and histogram output from CARIS Compute Statistics tool for the difference surface generated between the 1 meter surfaces of H12257 and H12789.

H12787

The northern margin of H12789 borders the southern margin of H12787. Figure 6 shows statistical information for the junction generated with the CARIS compute statistics tool. In general, depths from H12787 match well with H12789, with the majority of depths agreeing to within ± 0.10 meters.

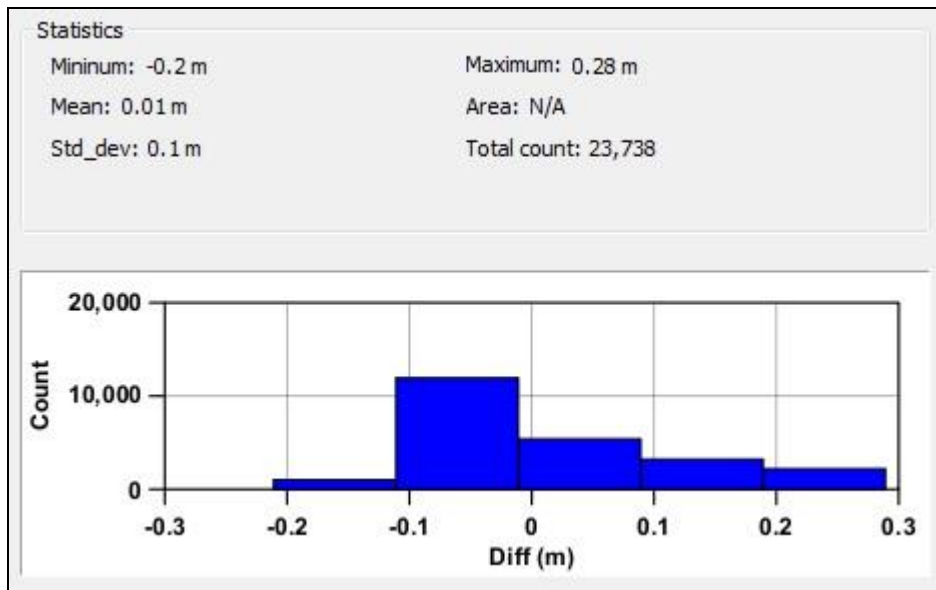


Figure 6. Statistical information and histogram output from CARIS Compute Statistics tool for the difference surface generated between the 1 meter surfaces of H12787 and H12789.

H12788

The northwest margin of H12789 borders the southeast margin of H12788. Figure 7 shows statistical information for the junction generated with the CARIS compute statistics tool. Although there is minimal overlap between surveys, surveyed depths from H12788 are slightly deeper than those of H12789, with differences ranging from -0.28 to -0.04 meters.

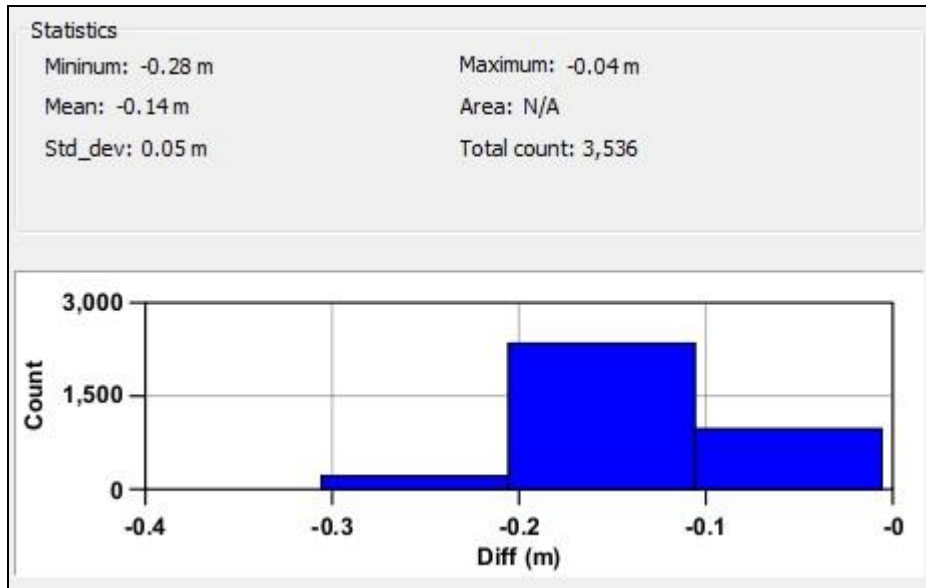


Figure 7. Statistical information and histogram output from CARIS Compute Statistics tool for the difference surface generated between the 1 meter surfaces of H12788 and H12789.

H12790

The western margin of H12789 borders the eastern margin of H12790. Figure 8 shows statistical information for the junction generated with the CARIS compute statistics tool. Surveyed depths from H12790 compare well with those from H12789, with over 99% of depths agreeing to within ± 0.25 m.

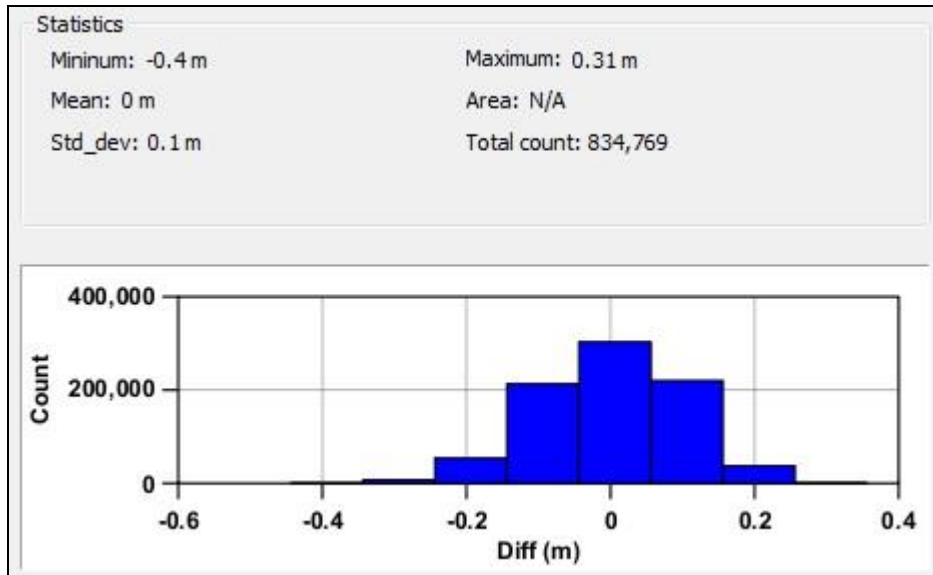


Figure 8. Statistical information and histogram output from CARIS Compute Statistics tool for the difference surface generated between the 1 meter surfaces of H12790 and H12789.

H12791

The southeast margin of H12789 borders the northwest margin of H12791. Figure 9 shows statistical information for the junction generated with the CARIS compute statistics tool. Surveyed depths from H12789 generally compare fairly well with those from H12791, with over 99% of depths agreeing to within ± 0.4 m. This comparison is preliminary and at the time of reporting, the H12791 bathymetric surface was not fully cleaned or finalized and the large outliers evident in Figure 9 are likely due to erroneous data. Refer to the H12791 Descriptive Report for a more detailed comparison.

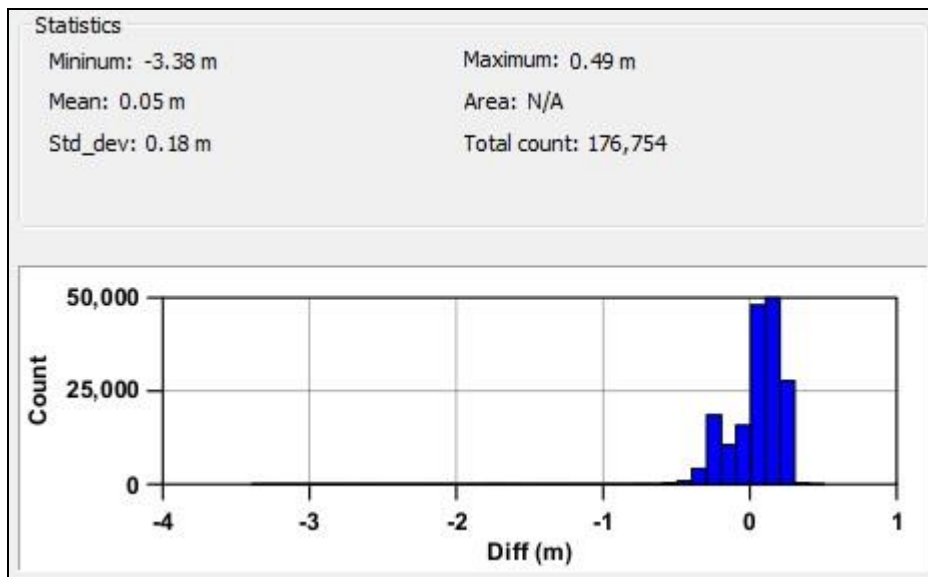


Figure 9. Statistical information and histogram output from CARIS Compute Statistics tool for the difference surface generated between the 1 m surfaces of H12791 (preliminary) and H12789.

B.2.3. Sonar QC Checks

Odom single beam echosounders were continuously operated and monitored during the survey as an independent check on the multibeam bottom-detect. The R/V *Sea Scout* (Hull ID 1237094) is equipped with an Echotrac MK III, and the R/V *C-Ghost* (Hull ID JQN00023E707) is equipped with an ODOM Hydrotrac.

B.2.4. Equipment Effectiveness

If necessary, the angle of the multibeam sonars were modified in order to moderate the effects of factors such as increased sea state or to increase coverage; any changes are documented in the acquisition logs. 80 meter line spacing with operation of the SSS at 50 m range ensured 100% SSS coverage. Split lines were run in the event that environmental factors limited the effective range of the side scan sonar.

B.2.5. Factors Affecting Soundings

Weather, sea state, water column sound speed, thermoclines and fish/marine life were all temporary factors that affected the data periodically throughout the duration of the survey; these are noted in the acquisition and processing logs.

B.2.6. Sound Speed Methods

Sea Bird Electronics SBE19 and SBE19plus CTDs were used for speed of sound measurements in the water column. Casts were conducted at least twice daily on board the R/V *Sea Scout*, at least once daily on board the R/V *C-Ghost* and more often as needed. The multibeam data was corrected for the water column sound speed in real-time using the SIS control software. To determine the sound speed at the transducers, an Endeco YSI sonde was used on board the R/V *C-Ghost* and an AML SV•Xchange was used on board the R/V *Sea Scout*. The sound speed data and confidence checks are located in Separates II Digital Data\Sound Speed Data Summary.

B.2.7. Coverage Equipment and Methods

Complete Coverage, Option 2: SSS data and concurrent MBES data, was acquired in the survey area, as outlined in the HSSD (2015). 100% SSS coverage was acquired in accordance with the requirements stated in the project instructions for this survey. On board the R/V *Sea Scout*, MBES data was acquired with a Kongsberg EM2040C echosounder and on board the R/V *C-Ghost*, data was acquired with a Kongsberg EM3002 echosounder. A Klein 5000 V2 side scan sonar was used aboard the R/V *Sea Scout* and an EdgeTech 4200P side scan sonar was used aboard the R/V *C-Ghost*. In addition to MBES and backscatter data, water column and side scan sonar data were acquired over the majority of investigation items.

B.2.8. Density

According to section 5.2.2.2 of the HSSD (2015) at least 80% of all nodes on the surface shall be populated with at least 5 soundings for Complete Coverage Option 2 surveys. The Compute Statistics tool in CARIS HIPS was used to generate statistics about the density child layer for the following surface: H12789_MB_1m_MLLW_Final (Figure 10). A bin size of 1 was used and the data exported in ASCII format. The number of nodes in the first 4 bins were added together to determine the number of nodes that contain less than 5 soundings.

The H12789_MB_1m_MLLW_Final surface contains a total of 29,531,315 nodes and 29,394,983 nodes contain at least 5 soundings. Therefore, greater than 99% of all nodes on the surface contain at least 5 soundings.

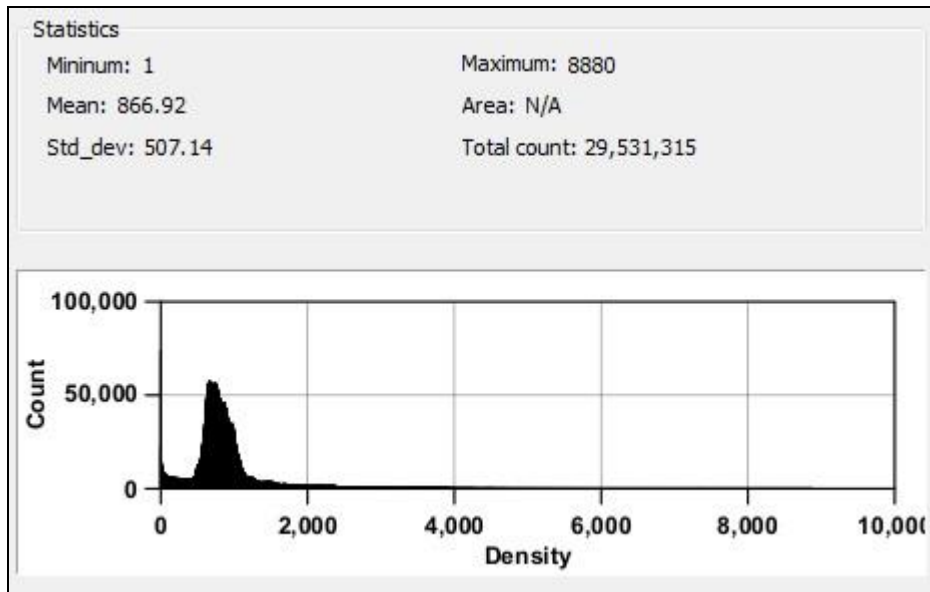


Figure 10. Statistical information about the density child layer of the H12789_MB_1m_MLLW_Final BASE surface, generated from the CARIS Compute Statistics tool.

B.2.9. Uncertainty

Uncertainty of all components of the sounding measurement are included in the CARIS vessel file and detailed in the DAPR.

The following survey specific parameters were used for this survey.

Measured	Zoning
0.037 m	0.075 m
0.1873 m	0.000 m

Table 7: Survey specific tide TPU values

Hull ID	Measured - CTD	Measured - MVP	Surface
1237094	2.00 m/s	n/a	0.8 m/s
JQN00023E707	2.00 m/s	n/a	0.8 m/s

Table 8: Survey specific sound speed TPU values

CARIS HIPS was used to compute the Total Propagated Uncertainty (TPU) for each sounding. For data collected in 2015 and processed with final verified tides and the zoning file, specific parameters are shown in the first row in Table 7. For data collected in 2016 and processed using ellipsoid derived vertical correctors, the parameters are shown in the second row of Table 7.

An Uncertainty layer child layer is generated during BASE surface creation that shows the uncertainty at each node of the surface. For additional review and quality control, two new layers were generated for each BASE surface that would become a finalized BASE surface. The two new layers were generated for the following surface: H12789_MB_1m_MLLW. The first layer

was named <TVU_Maximum> and shows the maximum TVU at each node. The following formula was used during layer creation:

$$\sqrt{(0.5^2) + (0.013 * Depth)^2}$$

The second layer generated was named <Uncertainty_QC> and defined as the difference between the TVU_Maximum and Uncertainty layers. Positive values indicate that the uncertainty is less than the TVU_Maximum and that the data meet specifications, while negative values indicate that the uncertainty is greater than the TVU_Maximum and that the data do not meet specifications. The two layers could have been combined into one for the Uncertainty_QC, as shown below for the finalized surfaces, but the TVU_Maximum layer also aided in determining the designation or examination status of critical soundings.

The uncertainty for the H12789_MB_1m_MLLW BASE surface ranges from 0.20 – 0.46 meters. The Uncertainty_QC layer of the BASE surface shows all positive values, which demonstrates that all uncertainty values are less than the maximum TVU for each node.

An Uncertainty_QC_Final layer was also generated for all finalized surfaces, defined by the equation below:

$$\sqrt{(0.5^2) + (0.013 * Depth)^2} - Uncertainty$$

The uncertainty for the H12789_MB_1m_MLLW_Final surface ranges from 0.20 to 1.04 meters. A text file was exported from CARIS and run through a python script to determine the percentage of Uncertainty_QC_Final values that are less than zero, which indicates that the uncertainty values at those nodes exceed specifications.

Analysis of the Uncertainty_QC_Final layer for the H12789_MB_1m_MLLW_Final BASE surface indicates that less than 0.00001% of the nodes have an uncertainty greater than the maximum allowable TVU.

Note that when the surfaces are finalized, the TVU_Maximum and Uncertainty_QC layers are retained but Uncertainty_QC layer does not reflect the new Uncertainty values of the finalized surface. These layers can be removed, but if the finalized BASE surface is recomputed, it appears that these layers will be regenerated (after closing and re-opening the project). For this reason, the layers were not removed from the finalized surfaces.

B.3. Echo Sounding Corrections

B.3.1. Corrections to Echo Soundings

All corrections to echo sounding (instrument corrections, static and dynamic draft, speed of sound, and attitude corrections) follow the procedures outlined in the accompanying Data Acquisition and Processing Report (DAPR).

B.3.2. Calibrations

Prior to initiating survey operations, a standard patch test was performed for each vessel to determine correctors for pitch, roll, and heading (additional calibrations were performed as necessary). Squat and settlement tests were also conducted to determine the dynamic draft of the vessels. Refer to the Data Acquisition and Processing Report for additional information.

B.4. Backscatter

Backscatter was logged within each raw Kongsberg EM file. This data was imported during CARIS conversion and reviewed when necessary. The EM2040C data was unable to be processed in CARIS 9.0. CARIS service request correspondence indicates that EM2040C data can be processed in CARIS version 9.1 but this has yet to be tested internally. All backscatter was imported and a mosaic generated using FMGT version 7.5.1. However, processing limitations necessitated that the survey area be sub-divided for mosaic generation.

B.5. Data Processing

B.5.1. Software updates

Software updates are detailed in the DAPR. No further software updates occurred after the submission of the DAPR.

The following Feature Object Catalog was used: NOAA Extended Attribute Files V5_3_2.

B.5.2. Surfaces

The following CARIS surfaces were submitted: A 1 meter surface (un-finalized and finalized) was generated to fulfill the Complete Coverage requirement for this survey, and 1 meter BASE surfaces were generated for the crosslines and mainlines separately in order to conduct the crossline comparison analysis.

Surface Name	Surface Type	Resolution	Depth Range	Purpose
H12789_MB_1m_MLLW	Uncertainty	1 m	6.40 – 11.18 m	QC/Complete Coverage
H12789_MB_1m_MLLW_Final	Uncertainty	1 m	6.35 – 11.18 m	Complete Coverage
H12789_MB_Mainlines_1m_MLLW	Uncertainty	1 m	6.40 – 11.18 m	QC
H12789_MB_Crosslines_1m_MLLW	Uncertainty	1 m	6.54 – 10.96 m	QC

Table 9: CARIS surfaces

B.5.3. Data Quality Control

After initial data cleaning, the surfaces were reviewed a second time for fliers using the standard deviation layer and the 3D display window, when necessary. Higher standard deviation is generally associated with bathymetric features, contacts and/or areas of bathymetric change. Areas of noisy MBES data, although cleaned, can also show higher standard deviation. The highest standard deviation of 0.57 m of the H12789_MB_1m_MLLW surface is located at 29.030 N, 91.498 W and associated with a contact that was submitted as a DtoN for this survey.

B.5.4. Additional Data Processing Notes

When initially opening the project on a new computer with a new directory letter, CARIS cannot resolve the data sources for day 150925 (Figure 11). The user must reset the raw data location for this day only (Figure 12). This does not appear to affect data processing in any way.

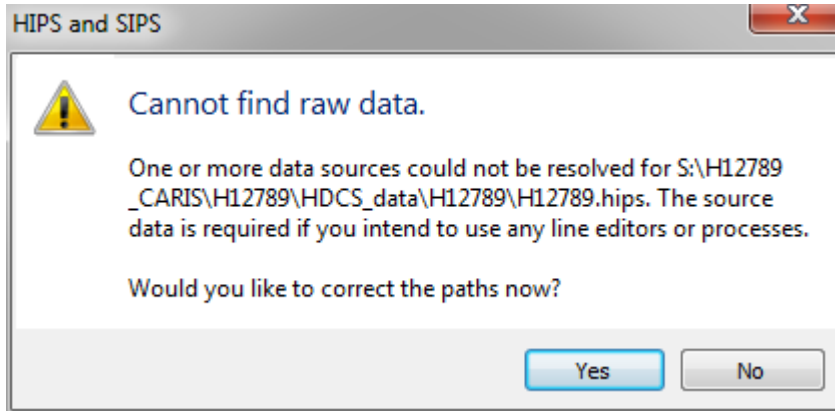


Figure 11. Display window from CARIS upon initially opening the project on a new computer/different directory.

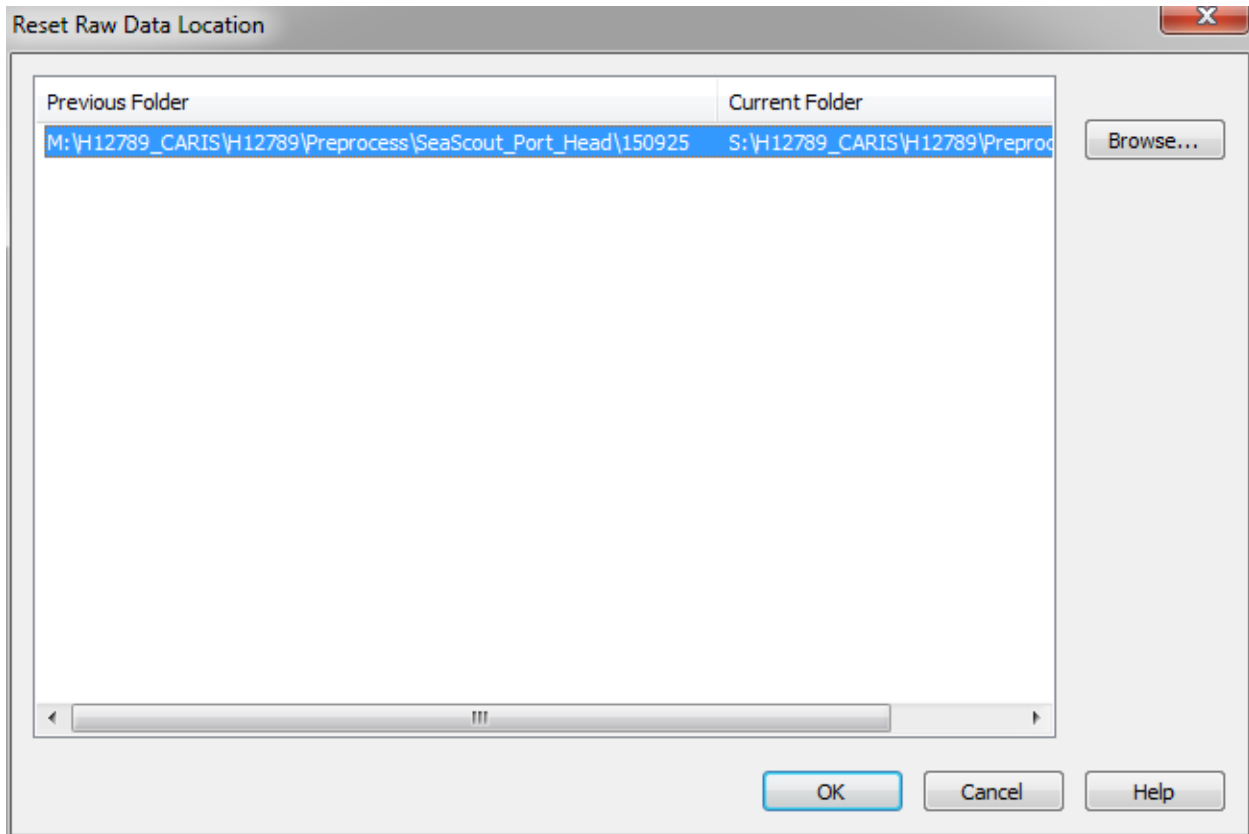


Figure 12. Reset raw data location window.

C. Vertical and Horizontal Control

A complete description of the horizontal and vertical control for the OPR-K379-KR-15 surveys is located within the accompanying Horizontal and Vertical Control Report (HVCR). A summary of the horizontal and vertical control is provided below.

C.1. Vertical Control

The vertical datum for this survey is Mean lower low water (MLLW).

C.1.1. Standard Vertical Control Methods Used:

C.1.1.1. *Discrete Zoning*

The following National Water Level Observation Network (NWLON) station(s) served as datum control of this survey.

Station Name	Station ID
LAWMA, Amerada Pass, LA	8764227

Table 10. Tide Stations

File Name	Status
8764227.tid	Verified

Table 11. Water Level Files (.tid)

File Name	Status
K379KR2015CORP.zdf	Final

Table 12: Tide Correctors (.zdf)

Preliminary zoning is accepted as the final zoning for project OPR-K379-KR-15 as outlined in the Tides and Water Levels Statement of Work section 1.5.1. This zoning was used for data collected in 2015 only.

C.1.1.2. *VDATUM*

The files (Ellipsoid to Chart Datum) used to correct the 2016 data are: GPS_HAE_Reduction_to_MLLW_CGghost.tid and GPS_HAE_Reduction_to_MLLW_SeaScout.tid

Data collected in 2016 was corrected using primary C-Nav GPS ellipsoid heights reduced to MLLW. Refer to the DAPR for a detailed explanation.

C.2. Horizontal Control

The horizontal datum for this project is the North American Datum of 1983 (NAD83). All survey products are referenced to the Universal Transverse Mercator (UTM) zone 15 N, meters, projection.

C.2.1. PPK

Post- Processed Kinematic (PPK) GPS data was not used during post processing.

C.2.2. PPP

C & C Technologies' C-Nav network was used during survey operations. The C-Nav® Corrections Service is a global system for the distribution of dynamic DGNSS Precise Point Positioning corrections.

C.2.3. RTK

Real Time Kinematic DGPS was not used during survey operations.

C.2.4. DGPS

C & C Technologies' C-Nav network was used during survey operations. The C-Nav GPS systems aboard the vessels receive corrections through the C-Nav Subscription Services. This is "a premier worldwide subscription service providing 5 cm or better positioning accuracy. GNSS corrections are broadcast via Inmarsat geostationary satellites, providing highly accurate and reliable positioning coverage from 72 degrees north to 72 degrees south latitude." (<http://www.cnavgnss.com/products>)

D. Results and Recommendations

D.1. Chart Comparison

A combination of user defined color range charts and a selected sounding layer were used to compare surveyed soundings to charted depths. The selected sounding layer was generated as shoal-biased with a single defined radius of 150 meters.

D.1.1. Raster Charts

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

Chart	Scale	Edition	Edition Date	LNM Date	NM Date
11340	458596	79	02/2016	03/22/2016	03/26/2016
11351	80000	43	03/2012	03/22/2016	03/26/2016
11356	80000	41	07/2014	03/22/2016	03/26/2016

Table 13. Largest Scale Raster Charts

11340

One Local Notice to Mariner was issued within the survey bounds subsequent to the date of the project instructions and before the end of the survey. LNM 45/15, 8th Dist was posted on 11/5/2015 to add a 4 ¼ fathom obstruction at 29.030 N, 91.498 W. This LNM correlates to H12789_DtoN2, which was submitted by C&C Technologies in October of 2015. The last Local Notice to Mariners reviewed was LNM 12/16 8th Dist for Chart: 11340, Current Edition: 79 Print Date: Feb. /2016, Mississippi River to Galveston.

Surveyed soundings range from 3.50 – 6.11 fathoms. Depths increase from north to south within the survey area. The 5 fathom contour runs through the southwest portion of the survey area on chart 11340. Surveyed soundings indicate that the 5 fathom contour has shifted northeast of the currently charted position (Figure 13). There is one 3 ¾ fathom charted depth aside from the charted obstruction in the survey area. Figure 14 shows that surveyed soundings are slightly deeper than the charted depth.

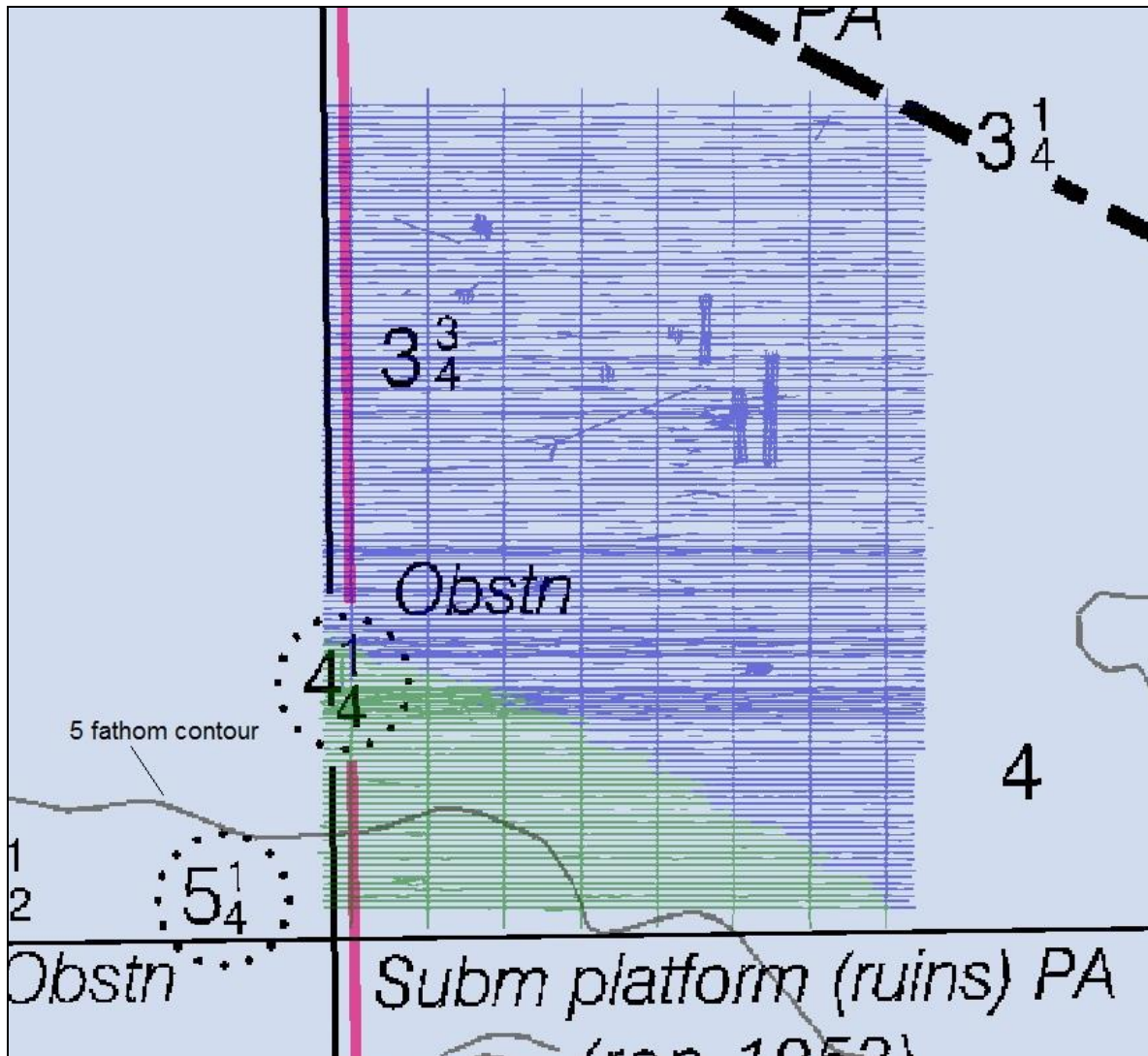


Figure 13. Comparison between surveyed soundings and the charted 5 fathom contour for chart 11340. Blue represents area where surveyed soundings are 0 – 5 fathoms (29.75 feet or 9.066 meters) and green represents area where surveyed soundings are greater than 5 fathoms.

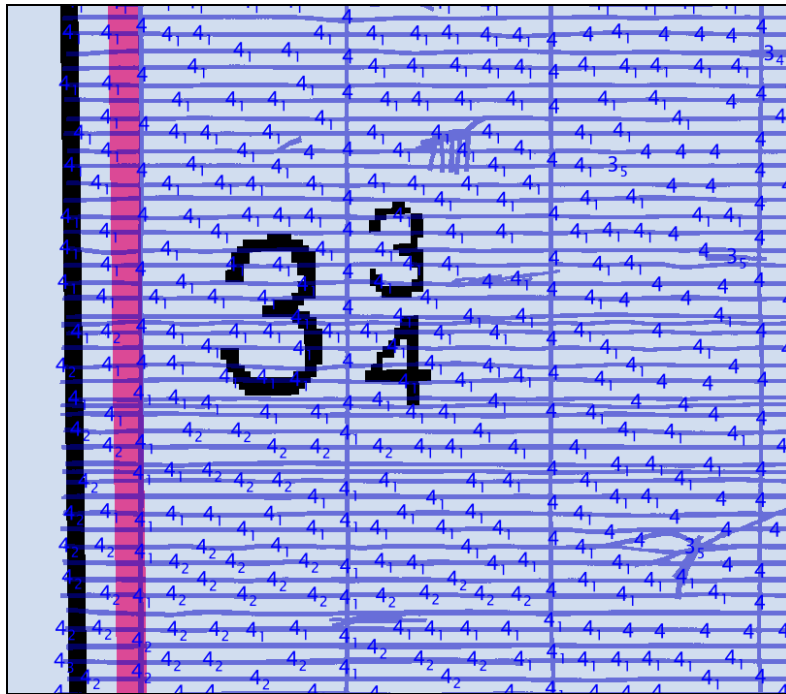


Figure 14. Surveyed soundings compared to the 3 ½ fathom charted depth.

11351

Two (2) Local Notice to Mariners (LNM) were issued within the survey bounds subsequent to the date of the project instructions and before the end of the survey. LNM 03/16, 8th Dist was posted on 1/28/2016 to add a platform at 29.009 N, 91.485 W. This LNM was issued before the last date of survey, but after the main survey lines were completed. Because of this, the platform is not present in the survey data but should remain on the chart. LMN 45/15, 8th Dist was posted on 11/12/2015 to add a 25 foot obstruction at 29.030 N, 91.498 W. This LNM correlates to H12789_DtoN2, which was submitted by C&C in October of 2015. The last Local Notice to Mariners reviewed was LNM 06/16 8th Dist for Chart: 11351, Current Edition: 43, Print Date: Mar. /2012, Point au Fer to Marsh Island.

Surveyed soundings are generally 1 – 2 feet deeper than charted depths, though there are some areas where the difference is up to 4 feet (Figure 15). In the northeastern corner of the survey area surveyed soundings match well with charted depths or are 1 – 2 feet shallower (Figure 16). The charted 30 foot contour extends through the southwest part of the survey area. Surveyed soundings indicate that this contour has shifted northeast of the currently charted position (Figure 17).

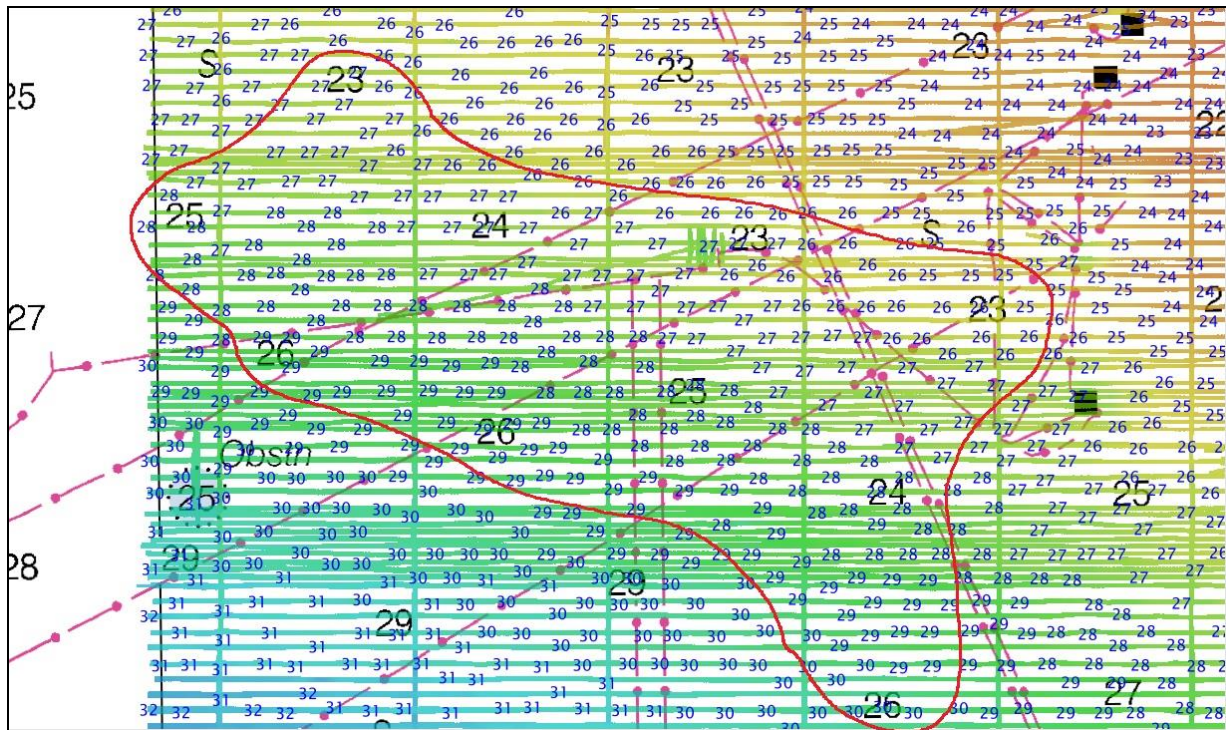


Figure 15. Comparison of H12789 surveyed soundings to charted depths on 11351. Chart is overlain with bathymetry and selected soundings in blue. Surveyed soundings in red polygon are up to 4 feet deeper than charted depths.

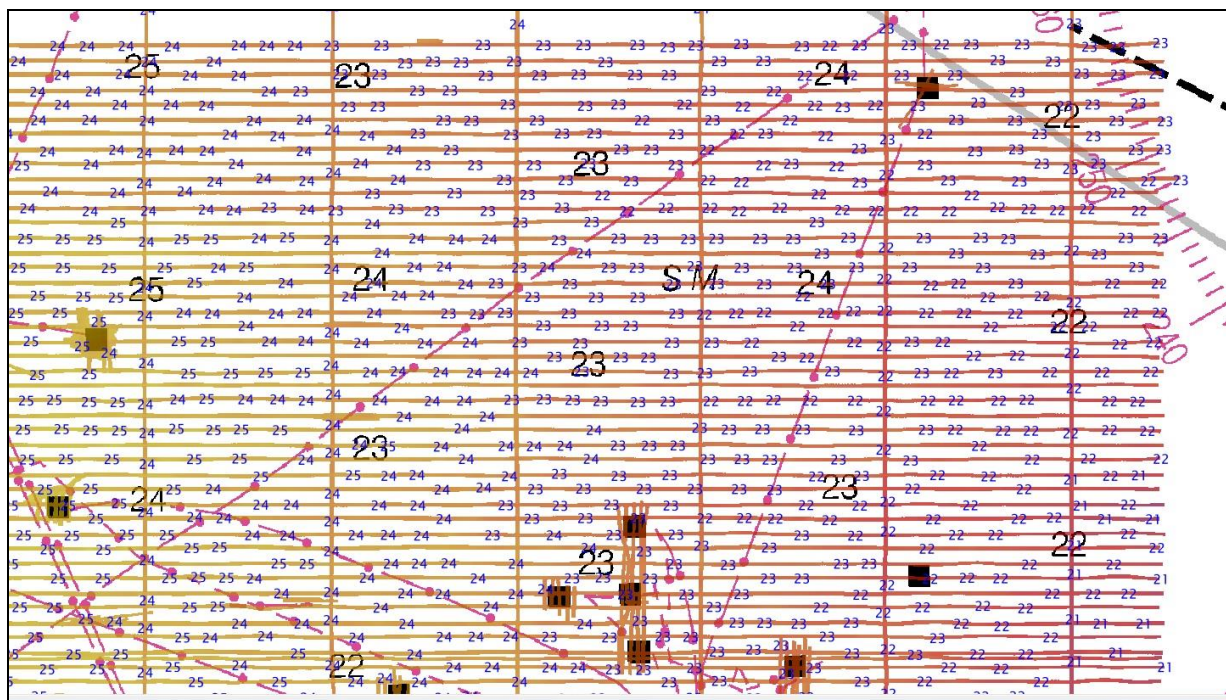


Figure 16. Comparison of H12789 surveyed soundings to charted depths on 11351 in northeast corner of survey area. Chart is overlain with bathymetry and selected soundings in blue. Surveyed soundings generally match charted depths or are 1 – 2 feet shallower.

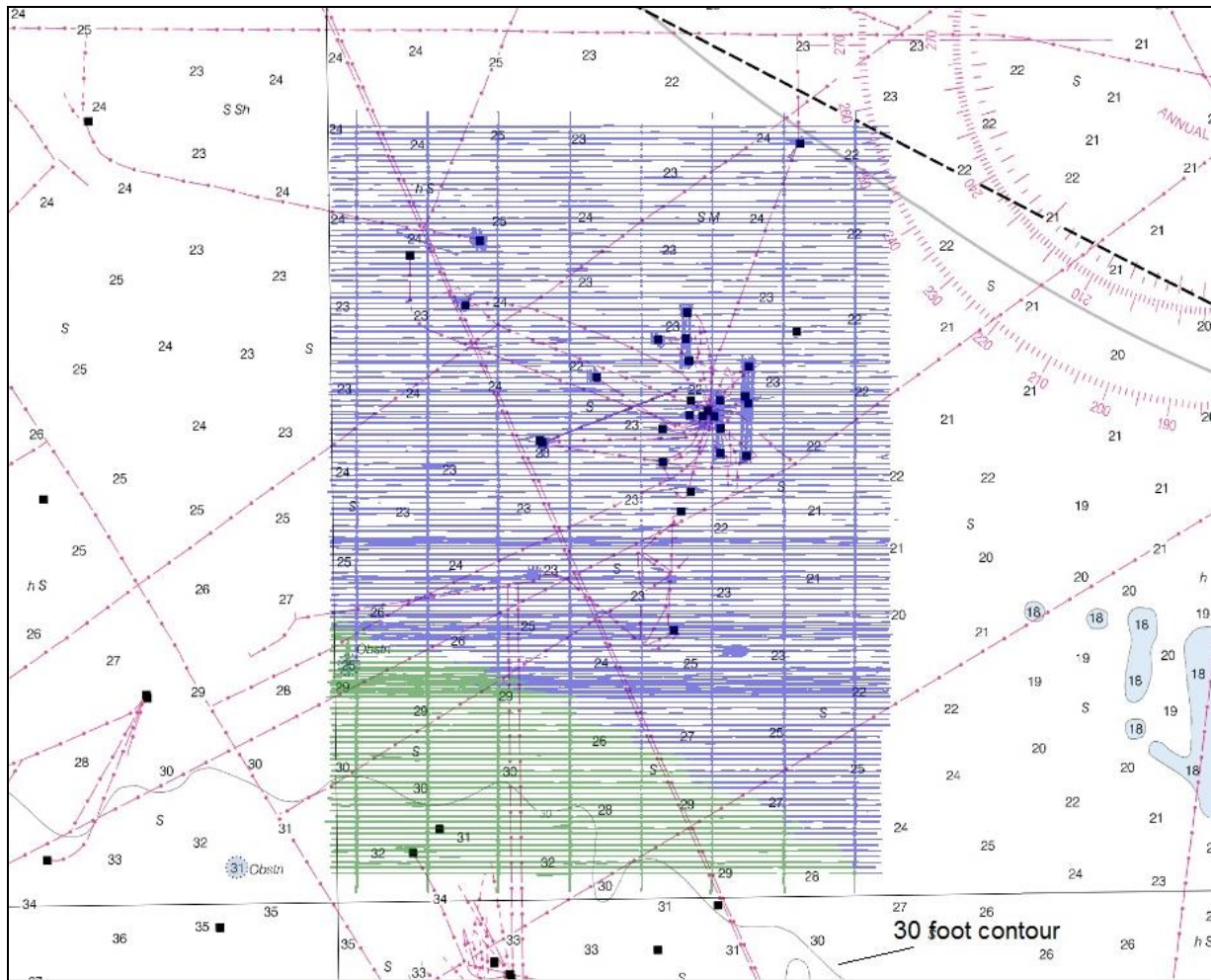


Figure 17. Comparison between surveyed soundings and the 30 foot contour on chart 11351. Blue represents areas where surveyed soundings are less than 29.75 feet (9.066 m), and green represents areas where surveyed soundings are 29.75 feet and greater.

11356

There is a large area of overlap between charts 11351 and 11356 and the two LNM issued within the survey area for chart 11351 are the same for chart 11356. Refer to the chart 11351 comparison for a detailed description of these two Local Notices to Mariners. The last Local Notice to Mariners reviewed was LNM 03/16 8th Dist for Chart: 11356, Current Edition: 41, Print Date: Jul. /2014, Isle Dernieres to Point au Fer

Charted depths on 11356 are generally the same or very similar to those on 11351. The depth comparison for 11351 is also valid for 11356, including comparisons with the charted 30-foot contour.

D.1.2. Electronic Navigational Charts

ENC Name	Scale	Edition	Update Application Date	Issue Date	Preliminary
US4LA21M	80000	27	2015-03-25	2016-02-02	NO

Table 14. Largest Scale ENCs

US4LA21M

The depths and contours on ENC US4LA21M generally match those of Chart 11351. The observations made between surveyed soundings and charted depths for Chart 11351 are valid for the ENC.

D.1.3. AWOIS Items

AWOIS item investigations were not assigned for this project.

D.1.4. Maritime Boundary Points

No Maritime Boundary Points were assigned for investigation within H12789 survey bounds.

D.1.5. Charted Features

Chart 11340

There is one 4 ¼ fathom obstruction charted within the survey area which correlates to H12789_DtoN2, which was submitted by C & C Technologies in October of 2015. Refer to the Final Feature File for additional information.

Chart 11351

There are 31 charted platforms and numerous charted pipelines within the survey area (refer to sections D.2.6 and D.2.4, respectively for additional information). There is also one 25 foot obstruction charted within the survey area which correlates to H12789_DtoN2 submitted and accepted for this survey. Refer to the Final Feature File for additional information.

Chart 11356

Generally, features on chart 11356 match the charted features on 11351. There are, however, a few pipelines on chart 11356 that are not present on chart 11351, and several platform positions vary. Refer to section D.2.6 for addition information regarding platforms.

US4LA21M

The charted pipelines on ENC US4LA21M match those of RNC 11351. The 25 foot obstruction is also present on the ENC. The majority of platform positions are consistent with RNC 11351 although there are a couple differences. Refer to section D.2.6 for addition information regarding platforms.

D.1.6. Uncharted Features

One uncharted obstruction was found during survey operations and submitted as a DtoN. Refer to section D.1.7 and the Final Feature File for more information.

D.1.7. Dangers to Navigation

One Danger to Navigation was submitted and accepted for H12789. Refer to the Final Feature File for additional information.

D.1.8. Shoal and Hazardous Features

No additional shoal or hazardous features were observed visually or within survey data that have not been discussed in sections D.1.6, D.1.7, D.2.4, D.2.6 or D.2.7.

D.1.9. Channels

No channels are currently charted within the survey limits, and none were observed during survey operations.

D.1.10. Bottom Samples

Eight bottom samples were collected within the limits of H12789.

D.2. Additional Results

D.2.1. Shoreline Verification

Shoreline Verification was not assigned for this survey.

D.2.2. Prior Surveys

Prior survey data was not required to be evaluated for this survey.

D.2.3. Aids to Navigation

No Aids to Navigation are currently charted within the survey area, and none were observed either visually or within survey data.

D.2.4. Overhead Features

Overhead features do not exist for this survey.

D.2.5. Submarine Features

Numerous submarine pipelines are charted within the survey area, and several potential exposures were observed in the survey data (SSS and MBES) and further investigated. Refer to the Final Feature File and SSS contact list for additional information. In addition to pipeline exposures, contacts were identified that are potentially associated with pipelines, for example, mats covering pipelines. Refer to the SSS contact list and examined and designated soundings for additional information

D.2.6. Ferry Routes and Terminals

No ferry routes or terminals are currently charted within the survey limits, and none were observed during survey operations.

D.2.7. Platforms

The platforms charted on RNC 11351, RNC 11356 and ENC US4LA21M can vary in position and amount. There are 31 platforms charted on both 11351 and 11356 within the bounds of H12789. However, the charts show a differing orientation of a cluster of three platforms (Figures 18 and 19). There is a platform charted to the west of this cluster on 11351 that is not found on 11356 located at 29.061 N, 91.449 W (Figures 18 and 19). In addition, there is a cluster of potentially three platforms on 11356 that are represented by only two platforms on chart 11351 (Figures 20 and 21).

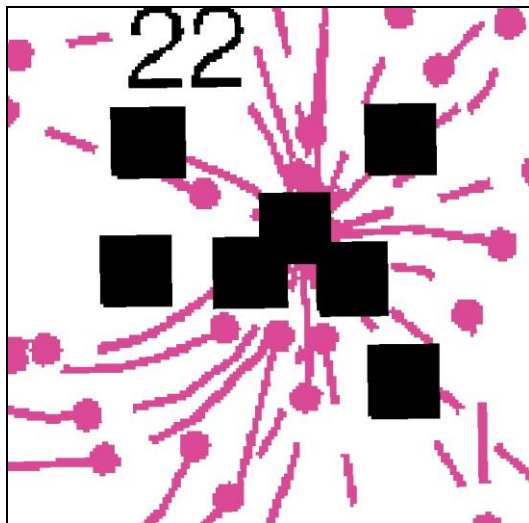


Figure 18. Platform cluster located on chart 11351.

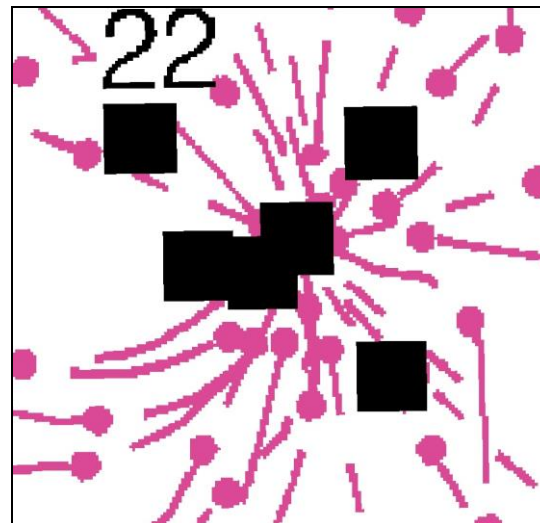


Figure 19. Platform cluster located on chart 11356.

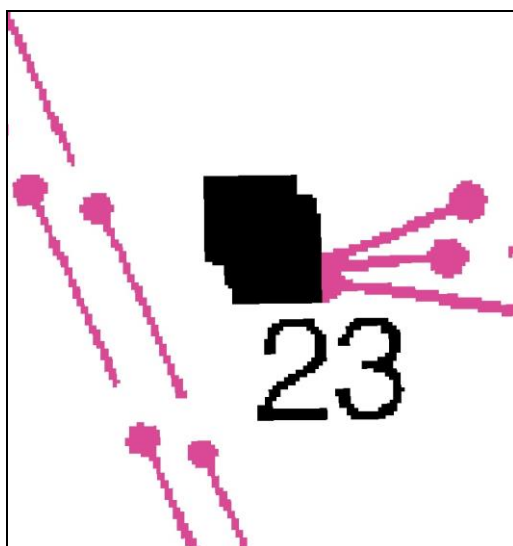


Figure 20. Three platforms charted in close proximity on 11356.

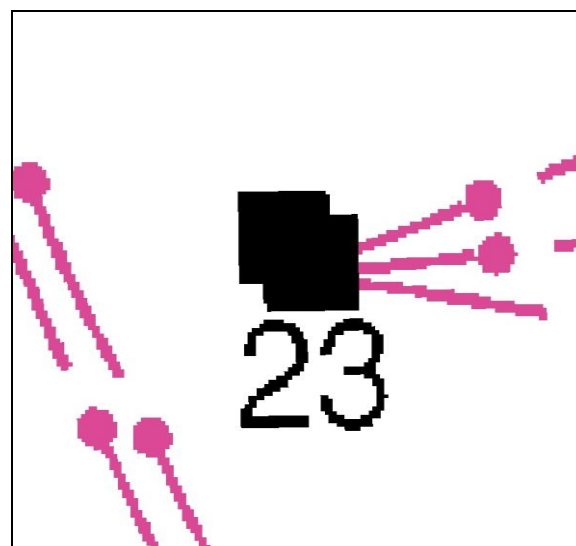


Figure 21. Two platforms charted on 11351.

Thirty-three platforms exist on ENC US4LA21M within the bounds of H12789. These most closely correspond to those on chart 11351. However, there is one charted platform on 11351 that is not represented on the ENC (29.062 N, 91.450 W), and two platforms on the ENC that are not represented on chart 11351 (29.048 N, 91.450 W and 29.042 N, 91.452 W). Two platforms exist on the ENC at one charted platform location on 11351 at 29.058 N, 91.470 W.

There are 37 platforms within the CSF file provided with the Project Instructions. Several of these platforms are not charted on 11351, 11356, or ENC US4LA21M. There are two charted platforms present on 11351 that are not present in the CSF file.

Refer to the Final Feature File for detailed platform information. Survey observations are summarized below:

Eleven platforms were observed visually and within survey data. There are 28 platforms from the RNC's, ENC and/or CSF file that the hydrographer recommends removing from the chart as there were no platforms observed visually or within survey data in the vicinity.

One charted platform is associated with a Local Notice to Mariners (LNM) that was issued within the survey area. LNM 03/16, 8th Dist, posted on 1/28/2016 to add a platform at 29.009 N, 91.485 W was issued after main lines were completed and the platform does not appear in the survey data. This platform should remain as charted.

D.2.8. Significant Features

The Final Feature File includes seven (7) obstructions that were not submitted as Dangers to Navigation. These obstructions meet the minimum measurement requirements for the Final Feature File.

Three water column anomalies were discovered during the survey and submitted for information purposes. Data representative of the anomaly were rejected from the CARIS project. The anomalies have been included in the Final Feature File.

Platform disprovals of either 100% MBES or 200% SSS data were conducted over all charted platforms that were not present either visually or within survey data (refer to the S-57 file in Detached_Positions\RemovedPlatforms for additional information). Several contacts were identified where platforms have been removed. Refer to the Final Feature File, SSS contact list and examined and designated soundings for additional information.

D.2.9. Construction and Dredging

No active dredging or construction was observed during survey operations.

D.3. Recommendations

D.3.1. New Survey Recommendations

No new surveys or investigations are recommended for this area.

D.3.2. Inset Recommendations

No new insets are recommended for this area.

E. Approval Sheet

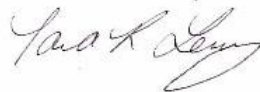
LETTER OF APPROVAL

REGISTRY NUMBER H12789

This report is respectfully submitted.

Field operations contributing to the accomplishment of the H12789 survey were conducted under my direct supervision with frequent personal checks of progress and adequacy. This report and CARIS project have been closely reviewed and are considered complete and adequate as per the Statement of Work.

This report is accompanied by the Data Acquisition and Processing Report for project OPR-K379-KR-15.



Tara Levy
Chief of Party
C & C Technologies
April 2016



Nicole Galloway
Geoscientist
C & C Technologies
April 2016

APPENDIX I
TIDES AND WATER LEVELS

FINAL TIDE NOTE and FINAL TIDE ZONING CHART

DATE: April 2016

HYDROGRAPHIC BRANCH: Atlantic

HYDROGRAPHIC PROJECT: OPR-K379-KR-15

HYDROGRAPHIC SHEET: H12789

LOCALITY: Approaches to Atchafalaya Bay

TIME PERIOD: September 6, 2015 – February 18, 2016

TIDE STATION USED: 8764227 LAWMA, LA

Lat. 29° 26.9' N Lon. 91° 20.3' W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.00 m

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.53 m

REMARKS: RECOMMENDED ZONING

Use zones identified as: WGM278, WGM279, WGM280

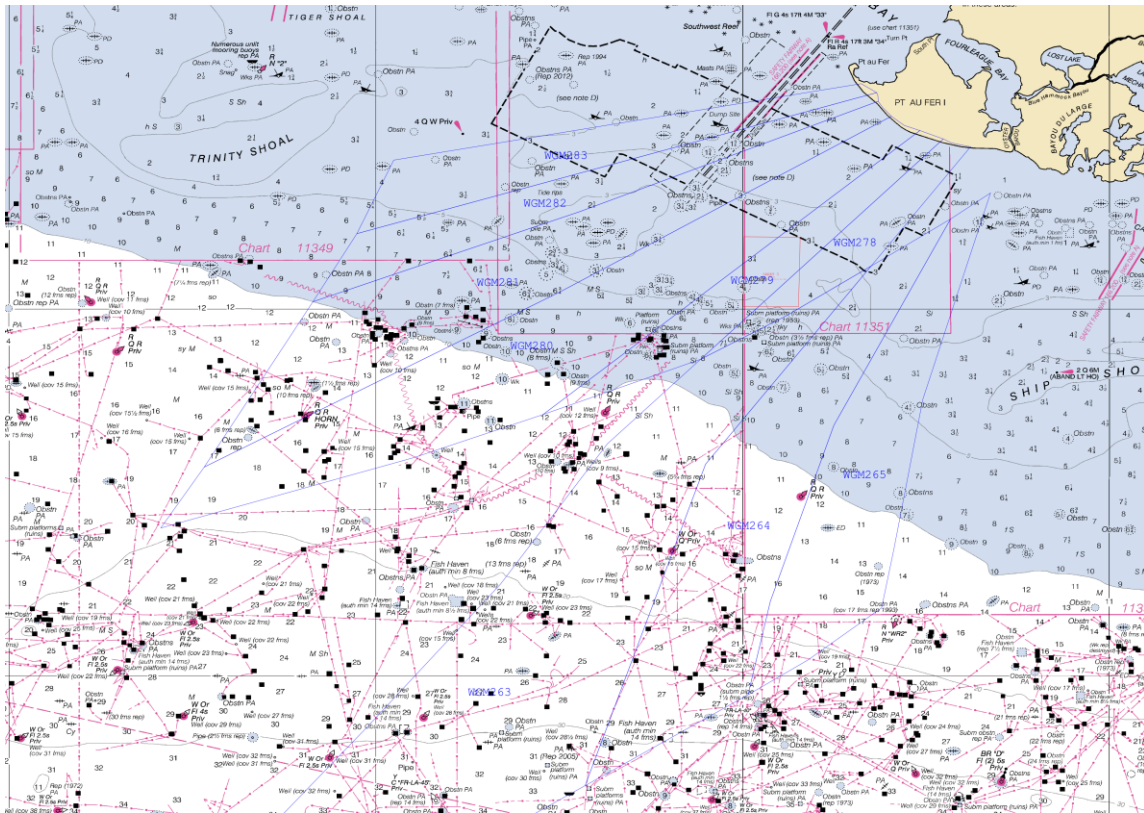


Figure 1. Final Tidal Zoning Chart

Note 1: Provided time series data are six minute time series data in meters, relative to MLLW and Greenwich Mean Time (GMT).

Note 2: For final processing, tidal zoning correctors were applied to verified observed data, acquired from the NOAA Tides and Currents website.

Note 3: For final processing of data collected in 2016, ellipsoid derived vertical correctors were applied

APPENDIX II

SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCE

FW water column anomalies observed in H12789 of OPR-K379-KR-15.txt

Subject:

FW: water column anomalies observed in H12789 of OPR-K379-KR-15

From:

Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>

Date:

3/25/2016 3:25 PM

To:

Tim Osborn - NOAA Federal <tim.osborn@noaa.gov>

CC:

Starla Robinson - NOAA Federal <Starla.Robinson@noaa.gov>, Lucy Hick - NOAA Federal <lucy.hick@noaa.gov>, Christina Fandel - NOAA Federal <christina.fandel@noaa.gov>, Matthew Jaskoski - NOAA Federal <matthew.jaskoski@noaa.gov>, Nicole Galloway <ngalloway@oceanengineering.com>, Tara Levy <tlevy@oceanengineering.com>, Kayla Johnson - NOAA Affiliate <kayla.johnson@noaa.gov>

Tim,

C&C has submitted water column anomalies which are interpreted as gas seeps. The image below has an overview and the attached document details the specific location and seep. AHB is passing this information as an FYI. If you have additional questions or need other products please respond.

Regards and enjoy your Easter weekend.

Gene

Castle Eugene Parker

NOAA Office of Coast Survey

Atlantic Hydrographic Branch

Hydrographic Team Lead / Physical Scientist

castle.e.parker@noaa.gov

office (757) 441-6746 x115

From: Nicole Galloway [mailto:ngalloway@oceanengineering.com]

Sent: Thursday, March 24, 2016 11:47 AM

To: Gene Parker; Starla Robinson - NOAA Federal; Lucy Hick - NOAA Federal; Christina Fandel - NOAA Federal

Cc: Tara Levy; Duplechin, Jason

Subject: water column anomalies observed in H12789 of OPR-K379-KR-15

Good morning,

Three potential water column anomalies were observed within survey data from H12789 of project OPR-K379-KR-15. Attached is a zip file containing a .hob file, an S-57 file and associated images.

This data will be rejected in the project because it does not represent the seafloor, but a discussion will be added to the DR and the features will be added to the Final Feature File.

Please let us know if there is any other information you require.

FW water column anomalies observed in H12789 of OPR-K379-KR-15.txt

Thank-you,
Nikki

--

Best regards,

Nicole Galloway

Geoscientist

Phone (+1) 337 210 0000 ext. 3519

Mobile (+1) 603 978 7211

ngalloway@oceanengineering.com

730 E. Kaliste Saloom Road | Lafayette, LA | USA, Tel (+1) 337 210 0000 |
oceanengineering.com

This email is confidential, may be privileged, and should be read or retained only by the intended recipient. If you have received this email in error, please immediately notify me, delete it from your system and do not retain any copies. Thank you for your cooperation.

Attachments:

H12789_ForInfoOnly_waterColumnAnomalies.pdf 2.7 MB



Erin Weller - NOAA Federal <erin.weller@noaa.gov>

H12789 Exposed/Unburied Pipelines

2 messages

Erin Weller - NOAA Federal <erin.weller@noaa.gov>

Wed, Mar 29, 2017 at 3:44 PM

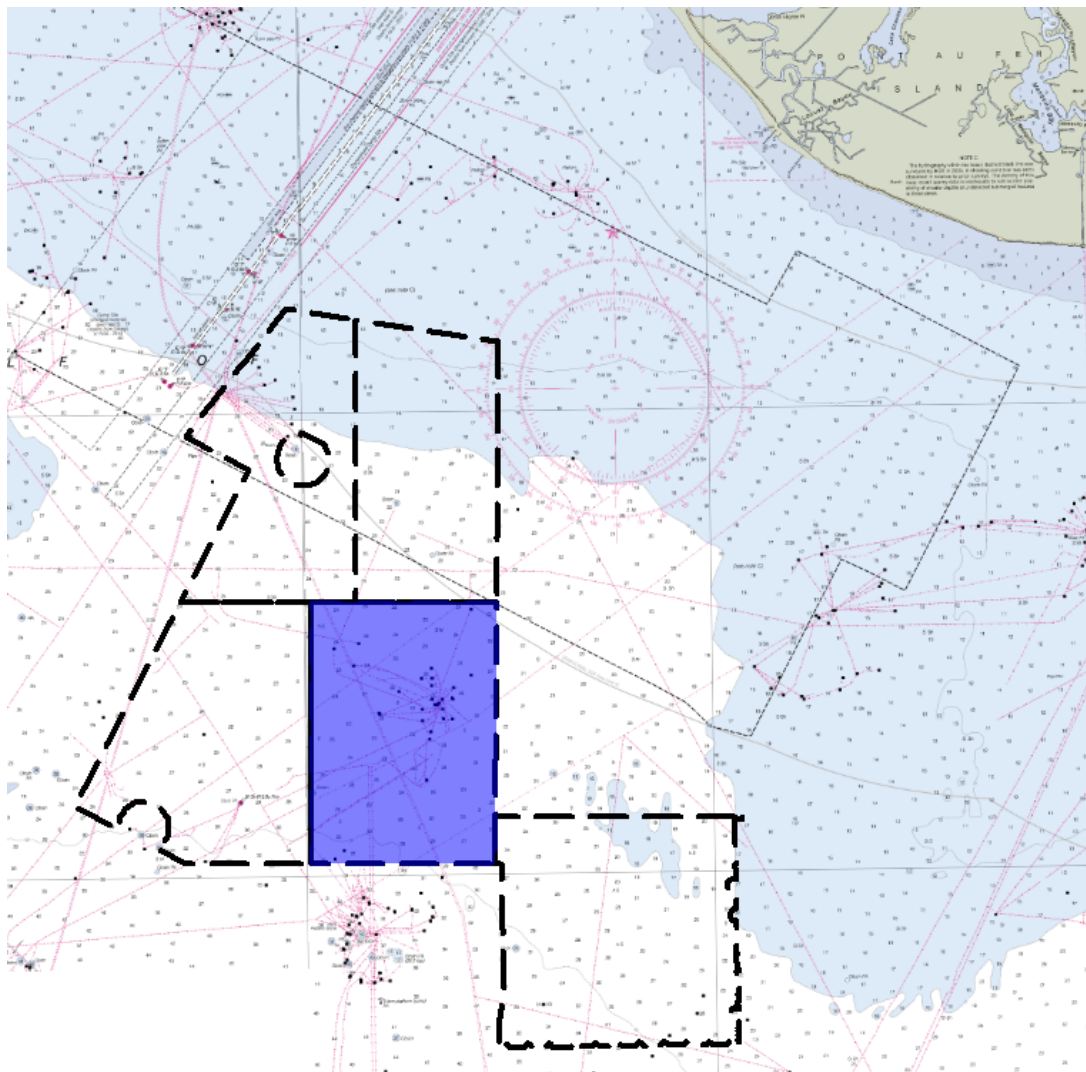
To: Tim Osborn - NOAA Federal <tim.osborn@noaa.gov>

Cc: Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>, Briana Welton - NOAA Federal <briana.welton@noaa.gov>, AHB Chief - NOAA Service Account <ahb.chief@noaa.gov>, Starla Robinson - NOAA Federal <starla.robinson@noaa.gov>, Kathryn Pridgen - NOAA Federal <kathryn.pridgen@noaa.gov>

Good day Tim,

An HSD contract field unit has submitted a group of 27 exposed and unburied pipelines that are located within the limits of survey H12789. Please reference the attached report that describes the location of the exposed pipelines with associated information and images. The intent of this report is to provide documentation of the exposed pipelines for the proper authorities. The image below is an overview of the project area with the limits of survey H12789 highlighted in purple.

Please let me know if you have any questions or need additional information.



Regards,
Erin C. Weller
Physical Scientist
NOAA's National Ocean Service
Office of Coast Survey, Hydrographic Survey Division

Atlantic Hydrographic Branch

[757.441.6746](tel:757.441.6746) ext. 101

 **H12789_exposed_pipelines.pdf**
13653K

Tim Osborn - NOAA Federal <tim.osborn@noaa.gov>

Wed, Mar 29, 2017 at 4:19 PM

To: Erin Weller - NOAA Federal <erin.weller@noaa.gov>

Cc: Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>, Briana Welton - NOAA Federal <briana.welton@noaa.gov>, AHB Chief - NOAA Service Account <ahb.chief@noaa.gov>, Starla Robinson - NOAA Federal <starla.robinson@noaa.gov>, Kathryn Pridgen - NOAA Federal <kathryn.pridgen@noaa.gov>

Erin

That is certainly impressive in seeing that report within this one area.

Thank you and this has been forwarded.

Tim

[Quoted text hidden]

--

Tim Osborn, NOAA

[337-254-5933](tel:337-254-5933)

tim.osborn@noaa.gov

H12789 Unlit Platform.txt

Subject:
H12789 Unlit Platform
From:
Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>
Date:
11/20/2015 12:13 PM
To:
Tim Osborn - NOAA Federal <tim.osborn@noaa.gov>
CC:
Matthew Jaskoski - NOAA Federal <matthew.jaskoski@noaa.gov>, Christina Fandel - NOAA Federal <christina.fandel@noaa.gov>, Starla Robinson - NOAA Federal <Starla.Robinson@noaa.gov>, nicole.galloway@cctechnol.com, Tara Levy <tara.levy@cctechnol.com>, Tiffany Squyres - NOAA Federal <tiffany.squyres@noaa.gov>

Good day Tim,

C&C had submitted a feature as a DtoN, an offshore platform that is unlit. AHB did not submit this feature to Nautical Data Branch and Marine Chart Division as the platform is charted. AHB is submitting this report to you for informational purposes, with the intent to notify the owner and any other responsible parties regarding the unlit status of the platform.

Please review the attached document and forward this information to the proper authorities. If you need additional information or product, please respond.

Thanks and regards,

Gene Parker

Castle Eugene Parker
NOAA Office of Coast Survey
Atlantic Hydrographic Branch
Hydrographic Team Lead / Physical Scientist
castle.e.parker@noaa.gov
office (757) 441-6746 x115

Attachments:
H12789 Unlit Platform GOM.pdf 14.6 MB

Re H12789 Danger to Navigation #2 Submission to NDB.txt

Subject:

Re: H12789 Danger to Navigation #2 Submission to NDB

From:

OCS NDB - NOAA Service Account <ocs.ndb@noaa.gov>

Date:

10/29/2015 10:15 AM

To:

Vanessa Miller - NOAA Federal <vanessa.miller@noaa.gov>

CC:

Matthew Jaskoski - NOAA Federal <matthew.jaskoski@noaa.gov>, Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>, Michael Gonsalves - NOAA Federal <michael.gonsalves@noaa.gov>, Starla Robinson - NOAA Federal <starla.robinson@noaa.gov>, Christina Fandel - NOAA Federal <christina.fandel@noaa.gov>, Tim Osborn - NOAA Federal <tim.osborn@noaa.gov>, Nicole Galloway <nicole.galloway@ccotechnol.com>, Tiffany Squyres - NOAA Federal <tiffany.squyres@noaa.gov>, ahb.dton@noaa.gov, NSD Coast Pilot <coast.pilot@noaa.gov>, Benjamin K Evans - NOAA Federal <Benjamin.K.Evans@noaa.gov>, James Crocker - NOAA Federal <James.M.Crocker@noaa.gov>, Matt Kroll - NOAA Federal <Matt.Kroll@noaa.gov>, Nautical Data Branch <OCS.NDB@noaa.gov>, Tara Wallace - NOAA Federal <Tara.Wallace@noaa.gov>, Pearce Hunt - NOAA Federal <Pearce.Hunt@noaa.gov>, _NOS OCS PBA Branch <ocs.pba@noaa.gov>, _NOS OCS PBB Branch <ocs.pbb@noaa.gov>, _NOS OCS PBC Branch <ocs.pbc@noaa.gov>, _NOS OCS PBD Branch <ocs.pbd@noaa.gov>, _NOS OCS PBE Branch <ocs.pbe@noaa.gov>, _NOS OCS PBG Branch <ocs.pbg@noaa.gov>

L-1595/15 and DD-26903 have been registered by the Nautical Data Branch and directed to Products Branch G for processing.

The DtoN reported is 25-foot obstruction located in the Gulf of Mexico, approximately 18 NM SSW of Point Au Fer, LA.

The following charts are affected:

11351 kapp 63

11356 kapp 62

11340 kapp 49

The following ENC's are affected:

US4LA21M

US3LA02M

References:

H12789

OPR-K379-KR-15

This information was discovered by a NOAA contractor and was submitted by AHB.

Nautical Data Branch/Marine Chart Division/
Office of Coast Survey/National Ocean Service/
Contact: ocs.ndb@noaa.gov

On Thu, Oct 29, 2015 at 8:24 AM, Vanessa Miller - NOAA Federal <vanessa.miller@noaa.gov> wrote:

Good Day,

Please find attached a zip file for survey H12789 DtoN report #2 for submission to Nautical Data Branch (NDB) and Marine Chart Division (MCD). This Danger submission contains one 25ft Obstruction.

Re H12789 Danger to Navigation #2 Submission to NDB.txt

The information originates from a NOAA contractor C&C Technologies and was submitted to the Atlantic Hydrographic Branch (AHB) for review and processing. The contents of the attached winzip file were generated at AHB. The attached zip file contains a DtoN Letter (PDF), associated image files, and a Pydro XML file.

If you have any questions, please direct them back to me via email or phone (757-441-6747 x 102).

Thank you for your assistance with this matter.

Respectfully,

Vanessa Self Miller
Hydrographer/Physical Scientist
Atlantic Hydrographic Branch
439 West York St.
Norfolk, VA 23510
757-441-6746 x102

Attachments:
H12789_DtoN#2.zip 773 KB

Re H12789 depth differences.txt

Subject:

Re: H12789 depth differences

From:

Tara Levy <tlevy@oceanering.com>

Date:

4/5/2016 3:00 PM

To:

Starla Robinson - NOAA Federal <starla.robinson@noaa.gov>

CC:

Nicole Galloway <ngalloway@oceanering.com>, Lucy Hick - NOAA Federal <lucy.hick@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Christina Fandel - NOAA Federal <christina.fandel@noaa.gov>, Emily Clark - NOAA Federal <emily.clark@noaa.gov>, Michael Gonsalves - NOAA Federal <michael.gonsalves@noaa.gov>

Good Afternoon Starla,

The depths processed with the new method do not affect the least depths on anything navigationally significant.

Thank you,

--

Best regards,

Tara Levy

Division Manager ~NOAA

Direct (+1) 337-210-0612

Mobile (+1) 337-296-3029

tlevy@oceanering.com

<https://dl.dropboxusercontent.com/u/55795651/logo.gif>

730 E Kaliste Saloom Rd | Lafayette, Louisiana | USA, Tel (+1) 337 210 0000 |
??
oceanering.com

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Thank you for your cooperation.

On 4/1/2016 11:32 AM, Tara Levy wrote:

> Starla,

> The standard medium filter that was used for the HAE data values only is as follows:

>

> Sort the data from low to high

> Take the middle value

>

> The offsets applied to the HAE were relative to the CRP.

>

> The dynamic draft was not accounted for in the HAE. It could have been, as the static draft was, but we chose not to include it.

>

> I can have the information regarding if the new method affected the least depths on anything that is navigationally significant either later on today or Monday. Currently we are running CARIS processing.

> --

> Best regards,

> Tara Levy

> Division Manager ~NOAA

>

Re H12789 depth differences.txt

> Direct (+1) 337-210-0612
> Mobile (+1) 337-296-3029
> tlevy@oceanengineering.com
>
> <https://dl.dropboxusercontent.com/u/55795651/logo.gif>
>
> 730 E Kaliste Saloom Rd | Lafayette, Louisiana | USA, Tel (+1) 337 210 0000 |
> ??
> oceanengineering.com
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> recipient.
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> me, delete it from your system and do not retain any copies.
> Thank you for your cooperation.
> On 3/31/2016 5:33 PM, Starla Robinson - NOAA Federal wrote:
>> Hello Tara,
>>
>> would you please clarify what you mean by a "standard medium filter",
>> describing the process using a ranges of numbers for the correctors, filters, and
>> offsets?
>>
>> Correct me if I am wrong:
>> The dynamic draft correctors were applied as normal in the hvf.
>> In the GPS water levels, dynamic draft is present in the HAE signal.
>> Does that mean the dynamic draft will be double applied?
>>
>> Are there any navigationally significant features in the region that the least
>> depth was determined using this method? If so is there a general shoal or deep
>> bias?
>>
>> Thanks,
>> Starla
>>
>> On Tue, Mar 29, 2016 at 9:51 AM, Tara Levy <tlevy@oceanengineering.com> wrote:
>>
>> Starla,
>>
>> The higher frequency noise was removed using a standard medium filter with
>> no time window specified (due to using a small data set). A larger data set would
>> have been filtered with a sliding time window.
>>
>> The static draft component was applied, interpolated across the readings
>> taken during the survey. The dynamic draft (squat offsets) were only applied in
>> the vessel file in CARIS.
>>
>> The corrections were applied to the data in CARIS as a .tid file in the
>> form of [date, time, vertical correction] which was brought into CARIS in place
>> of the 8764227 tide file.
>>
>>
>> --
>> Best regards,
>> Tara Levy
>> Division Manager ~NOAA
>>
>> Direct (+1) 337-210-0612
>> Mobile (+1) 337-296-3029
>> tlevy@oceanengineering.com
>>
>> <https://dl.dropboxusercontent.com/u/55795651/logo.gif>
>>
>> 730 E Kaliste Saloom Rd | Lafayette, Louisiana | USA, Tel (+1) 337 210

Re H12789 depth differences.txt

0000 |

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>> me, delete it from your system and do not retain any copies.
>> Thank you for your cooperation.
>> On 3/28/2016 4:33 PM, Starla Robinson - NOAA Federal wrote:
>>> Hello Tara and Nikki,
>>>
>>> we had a meeting today to review Oceaneering's approach to resolving
chart datum and agreed it sounds good in principle. Please provide more detailed
documentation on the manner in which you filtered out the higher frequency noise;
whether the draft offset included both static and dynamic components; and the
manner in which you apply these correctors in CARIS (EG: Custom HVF?).
>>>
>>> Thank you,
>>> Starla
>>>
>>> On Tue, Mar 22, 2016 at 4:55 PM, Nicole Galloway
<ngalloway@oceaneering.com> wrote:
>>>
>>> Good afternoon Lucy,
>>>
>>> we have conducted internal testing using ellipsoid derived vertical
corrections utilizing the following basic workflow:
>>>
>>> - process/extract the HAE data from the GPS
>>> - filter and reduce the HAE data to remove data spikes, outliers,
and higher frequency noise
>>> - process the HAE data through VDatum to convert from ITRF08 into
MLLW referenced height values
>>> - apply static vertical offset to reduce antenna height to CRP
>>> - apply draft offset relative to time to reduce height from CRP
to water line
>>> - re-sample data set to construct a uniform time series to use as
a tide
>>>
>>> we reprocessed all January data from H12789 and compared the surface
to a surface comprised of all mainlines collected in 2015 with the following
results:
>>>
>>>
>>> The vertical uncertainty of the C-Nav 3050 using C-Nav subscription
service corrections is 15 cm (95% CI) and the maximum cumulative uncertainty of
the VDATUM region used (Louisiana/Mississippi) is 17.1 cm (68% CI). With this
information we calculated the final uncertainty as shown below.
>>>
>>>
>>> This was used as the tide measurement error in CARIS with no zoning
error applied.
>>>
>>>
>>> Not all data has been processed with the updated TPU but a sample
shows that the Dp TPU is 0.391 m.
>>>
>>> This is higher than the data processed with the tide TPU values
(sample shown below).
>>>

Re H12789 depth differences.txt

>>>
>>> The uncertainty of the data processed with ellipsoid vertical corrections is still within specification and the depths compare to the 2015 data well. We plan to move forward processing utilizing the above methodology.

>>>
>>> Please let us know if you have any questions.
>>> Thank-you,
>>> Tara & Nikki

>>> On 3/16/2016 12:18 PM, Lucy Hick - NOAA Federal wrote:
>>>> Tara & Nikki,

>>>> Thank you for forwarding the data comparison documents. HSD Ops has consulted with CO-OPS regarding the verified data from the LAWMA NWLON station. CO-OPS has confirmed that the published verified data meets their standards and that the water-level event in the data is "real", confirmed by data analysis of the redundant sensors and comparisons to neighboring stations.

>>>> Based on the analysis presented in your documents, it would appear the bulk of the data collected in January is out of specification as prescribed in the SOW and the HSSD. We are interested in hearing how Oceaneering intends to address this issue including any potential impacts to timeliness or data quality.

>>>>
>>>> Best Regards,
>>>> Lucy

>>>> On Wed, Mar 16, 2016 at 11:51 AM, Tara Levy <tlevy@oceanengineering.com> wrote:

>>>> Good morning,
>>>> I just wanted to check back in with you and see if you have had some time to look at the information we sent you on Friday or if you need anything else from us.

>>>> We are collecting our GPS with Nav Com corrections.

>>>> If we could have a phone call this afternoon or tomorrow that would be great.

>>>> Thank you,

>>>> --
>>>> Best regards,
>>>> Tara Levy
>>>> Division Manager ~NOAA

>>>> Direct (+1) 337-210-0612
>>>> Mobile (+1) 337-296-3029
>>>> tlevy@oceanengineering.com

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>>>> me, delete it from your system and do not retain any copies.
>>>> Thank you for your cooperation.
>>>> On 3/10/2016 2:07 PM, Starla Robinson - NOAA Federal wrote:
>>>> Hello Tara and Nikki,
>>>>
>>>> CO-OPs had posted verified 6-minute data for LAWMA that fixes
>>>> the break between January 25 to February 29! It should be good. Do you still
>>>> want to meet tomorrow or wait to see if this fixes the data?
>>>>
>>>> Thanks,
>>>> Starla
>>>>
>>>> On Tue, Mar 8, 2016 at 2:23 PM, Tara Levy
<tlevy@oceanengineering.com> wrote:
>>>>
>>>> Starla,
>>>>
>>>> Friday in the AM works best for both Nikki and me.
>>>>
>>>> --
>>>> Best regards,
>>>> Tara Levy
>>>> Division Manager ~NOAA
>>>>
>>>> Direct (+1) 337-210-0612
>>>> Mobile (+1) 337-296-3029
>>>> tlevy@oceanengineering.com
>>>>
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>>>> Thank you for your cooperation.
>>>> On 3/8/2016 1:14 PM, Starla Robinson - NOAA Federal wrote:
>>>> COOPs should have their assessment done this week. Should
>>>> we set up a time to talk Friday? When is a good time?
>>>>
>>>> Thank you,
>>>> Starla
>>>>
>>>> On Tue, Mar 8, 2016 at 12:04 PM, Nicole Galloway
<ngalloway@oceanengineering.com> wrote:
>>>>
>>>> Hi Starla,
>>>>
>>>> At this point in Sheet 3 we are ready to do our final
>>>> review of investigations and contacts with respect to the MB and most of the MB
>>>> investigations were completed in the January, which comprise the data in question
>>>> with depth differences described below.
>>>>
>>>> We would like to confirm whether it is OK to proceed
>>>> with Sheet 3 with the verified tide data on the NOAA tides and currents website
>>>> prior to January 24th or if we need to wait for COOPs to finish their assessment.

Re H12789 depth differences.txt

>>>>>
>>>>>
discuss?

Can we set up a phone call for later this week to

>>>>>
>>>>>
>>>>>

Thanks!
Nikki

>>>>>
>>>>>
>>>>>

On 3/8/2016 9:29 AM, Starla Robinson - NOAA Federal

wrote:
>>>>>
>>>>>

Hello Nikki,

>>>>>
>>>>> COOPs are reviewing the waterlevels right now, and
should have an answer in the next day or so. They assure us we will have either
verified tides or an alternative zoning file by March 17th. I will let you know
when we know more.

>>>>>
>>>>>
>>>>>

Thanks,
Starla

>>>>>
>>>>>
>>>>>

On Tue, Mar 8, 2016 at 9:40 AM, Nicole Galloway
<ngalloway@oceanengineering.com> wrote:

>>>>>
>>>>>
>>>>>

Good morning,

>>>>>
>>>>> We have some concerns regarding the data in
H12789 that is potentially related to tides. The majority of data for H12789 was
collected between September 6 - October 11, 2015 but some additional clean-up
work was conducted between January 8 - January 30, 2016. We noticed some
discrepancy in the depths between data collected in 2015 and data collected in
2016 and investigated further. A surface was generated for the 2016 work and
compared to the crosslines collected between 9/7/2015 and 9/26/2015. Below is a
screen capture of the difference surface.

>>>>>
>>>>>
>>>>>

>>>>> Some of these differences are large, >70 cm, and
we think there may be a correlation to the tide data (below image for January).
We are waiting on verified tides for data collected after 1/24/2016, but the tide
signature before and after the 24th look similar. We would like to confirm the
usage of verified tide data prior to the 24th.

>>>>>
>>>>>
>>>>>

Thank-you for your attention to this,
Nikki

>>>>>
>>>>>
>>>>>

--

>>>>>
>>>>>
>>>>>

Best regards,

>>>>>
>>>>>
>>>>>

Nicole Galloway
Geoscientist
Phone (+1) 337 210 0000 ext. 3519
Mobile (+1) 603 978 7211

>>>>>
>>>>>
>>>>>

ngalloway@oceanengineering.com
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>>>>>
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>>>

>>>

>>>

>>>

>>>

>>> --
>>> Starla D. Robinson, Physical Scientist
>>> NOS - OCS - HSD - Operations Branch
>>> National Oceanic Atmospheric Administration
>>> Office: 301-713-2702 x125
>>> Cell: 360-689-1431

>>

>>

>>

>>

>> --

>> Starla D. Robinson, Physical Scientist
>> NOS - OCS - HSD - Operations Branch
>> National Oceanic Atmospheric Administration
>> Office: 301-713-2702 x125
>> Cell: 360-689-1431

>

From: [Tim Osborn - NOAA Federal](#)
To: [Castle Parker - NOAA Federal](#)
Cc: [Matthew Jaskoski - NOAA Federal](#); [Christina Fandel - NOAA Federal](#); [Starla Robinson - NOAA Federal](#); nicole.galloway@cctechnol.com; [Tara Levy](#); [Tiffany Squyres - NOAA Federal](#)
Subject: Re: H12789 Unlit Platform
Date: Friday, November 20, 2015 2:13:57 PM

Gene

Thank you. It has been forwarded.

Tim

On Nov 20, 2015, at 12:14 PM, Castle Parker - NOAA Federal <castle.e.parker@noaa.gov> wrote:

Good day Tim,
C&C had submitted a feature as a DtoN, an offshore platform that is unlit. AHB did not submit this feature to Nautical Data Branch and Marine Chart Division as the platform is charted. AHB is submitting this report to you for informational purposes, with the intent to notify the owner and any other responsible parties regarding the unlit status of the platform.

Please review the attached document and forward this information to the proper authorities. If you need additional information or product, please respond.

Thanks and regards,
Gene Parker

*Castle Eugene Parker
NOAA Office of Coast Survey
Atlantic Hydrographic Branch
Hydrographic Team Lead / Physical Scientist
castle.e.parker@noaa.gov
office (757) 441-6746 x115*

<H12789 Unlit Platform GOM.pdf>

From: [Castle Parker - NOAA Federal](#)
To: [Starla Robinson - NOAA Federal](#)
Cc: [Briana Welton - NOAA Federal](#)
Subject: RE: H12789 DR cover and title sheet
Date: Tuesday, February 21, 2017 8:39:00 AM

Thanks Starla! I will update the DR to the appropriate survey.
Appreciate your assistance.
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) 441-6746 x115

From: Starla Robinson - NOAA Federal [mailto:starla.robinson@noaa.gov]
Sent: Friday, February 17, 2017 1:01 PM
To: Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>; Briana Welton - NOAA Federal <briana.welton@noaa.gov>
Subject: Fwd: H12789 DR cover and title sheet

----- Forwarded message -----

From: Galloway, Nicole <ngalloway@oceanengineering.com>
Date: Fri, Feb 17, 2017 at 9:30 AM
Subject: Re: H12789 DR cover and title sheet
To: Starla Robinson - NOAA Federal <starla.robinson@noaa.gov>
Cc: Tara Levy <tlevy@oceanengineering.com>

Good morning Starla,

Attached you will find four zip files. Three of them should be provided as Google links because they were too big to actually attach. Upon sending the email, I selected the option so only the recipients of the email could view them, which requires the recipients to have a Google account. Please let me know if you have any trouble downloading them and I can send the link a different way.

There is an updated XML folder with a PDF generated and individual cover and title sheets for H12787, H12788, H12790 and H12791.

Please let us know if you need anything else.

Thank-you and have a great weekend!
Nikki

[H12971.zip](#)Error! Filename not specified.

[H12787.zip](#)Error! Filename not specified.

On Thu, Feb 16, 2017 at 3:29 PM, Starla Robinson - NOAA Federal

<starla.robinson@noaa.gov> wrote:
[H12788.zip](#)Error! Filename not specified.

Ahead of time. Thanks. - Starla

On Thu, Feb 16, 2017 at 4:22 PM, Galloway, Nicole <ngalloway@oceanneering.com>
wrote:

Thank-you, Starla,

Would you like us to submit them ahead of time in the same manner as H12789, or wait
for the request?

Nikki

On Thu, Feb 16, 2017 at 1:21 PM, Starla Robinson - NOAA Federal

<starla.robinson@noaa.gov> wrote:

Thanks Nikki,

You probably know, but if there are any other DR's with covers missing, AHB will ask
for those.

Best of luck,
Starla

On Thu, Feb 16, 2017 at 12:02 PM, Galloway, Nicole <ngalloway@oceanneering.com>
wrote:

Good morning Starla,

Attached is a zip file containing a slightly revised H12789_XML folder. We were
having some issues with our XML workflow at the time of the 2015 submissions
(mainly with the export to PDF). This has since been remedied, and in the
H12789_XML folder you will find a H12789_DR PDF created using the 2014-02
stylesheet which contains the DR cover and title sheets. I also extracted these pages
from the PDF and attached them as separate files.

Please let us know if this is adequate to meet you request.

Thanks!

Nikki

On Thu, Feb 16, 2017 at 9:58 AM, Starla Robinson - NOAA Federal <starla.robinson@noaa.gov> wrote:

Hello Tara and Nikki,

Could you send us the DR Cover and title sheet for H12789?

Thank you,
Starla

----- Forwarded message -----

From: **Erin Weller - NOAA Federal** <erin.weller@noaa.gov>
Date: Thu, Feb 9, 2017 at 2:02 PM
Subject: H12789 DR cover and title sheet
To: Starla Robinson - NOAA Federal <starla.robinson@noaa.gov>
Cc: Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>, Briana Welton - NOAA Federal <briana.welton@noaa.gov>

Hi Starla,

Will you please request the DR Cover and Title Sheet for H12789 from Oceaneering?

Thank you,
Erin C. Weller
Physical Scientist
NOAA's National Ocean Service
Office of Coast Survey, Hydrographic Survey Division
Atlantic Hydrographic Branch
[757.441.6746 ext. 101](tel:757.441.6746)

--

*Starla D. Robinson, Physical Scientist
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Cell: [360-689-1431](tel:360-689-1431)
Website: [HSD Planned Hydrographic Surveys](http://HSD.PlannedHydrographicSurveys)*

--

Best regards,

Nicole Galloway
Geoscientist
Direct [\(+1\) 337 261 0660](tel:+13372610660) ext. 3519
Mobile (+1) 603 978 7211

ngalloway@oceanearing.com

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--

Best regards,

Nicole Galloway

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Office: 301-713-2702 x125

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Website: [HSD Planned Hydrographic Surveys](#)

APPROVAL PAGE

H12789

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

- H12789_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12789_GeoImage.pdf

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

Approved: _____

Lieutenant Commander Briana Welton Hillstrom, NOAA
Chief, Atlantic Hydrographic Branch