H13057

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

DESCRIPTIVE REPORT

Type of Survey: Basic Hydrographic Survey

Registry Number: H13057

LOCALITY

State(s): Louisiana

General Locality: Northern Gulf of Mexico

Sub-locality: 40 NM Southeast of Sabine Bank

2017

CHIEF OF PARTY
Alex T. Bernier

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

REGISTRY NUMBER:

HYDROGRAPHIC TITLE SHEET

H13057

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:	**Northern Gulf of Mexico**
Sub-Locality:	**40 NM Southeast of Sabine Bank**
Scale:	**40000**
Dates of Survey:	**11/08/2017 to 12/03/2017**
Instructions Dated:	**06/28/2017**
Project Number:	**OPR-K371-KR-17**
Field Unit:	**Leidos**
Chief of Party:	**Alex T. Bernier**
Soundings by:	**Multibeam Echo Sounder**
Imagery by:	**Side Scan Sonar Multibeam Echo Sounder Backscatter**
Verification by:	**Atlantic Hydrographic Branch**
Soundings Acquired in:	**meters at Mean Lower Low Water**

Remarks:

Contract: EA-133C-14-CQ-0033/T-0003.

Contractor: Leidos, 221 Third Street, Newport, RI 02840 USA.

Subcontractors: Divemasters, Inc., 15 Pumpshire Road, Toms River, NJ 08753; OARS, 8705 Shoal Creek Blvd, Suite 109, Austin, TX 78757.

Leidos Doc. 18-TR-015.

All times were recorded in UTC.

Data were collected in UTM Zone 15.

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

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Descriptive Report to Accompany Survey H13057

Project: OPR-K371-KR-17

Locality: Northern Gulf of Mexico

Sublocality: 40 NM Southeast of Sabine Bank

Scale: 1:40000

November 2017 - December 2017

Leidos

Chief of Party: Alex T. Bernier

A. Area Surveyed

The area surveyed was a section of the Gulf of Mexico south of Calcasieu Pass, LA (Figure 1).

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
28° 55' 15.18" N 093° 26' 33.33" W	28° 50' 01.10" N 093° 15' 13.61" W

Table 1: Survey Limits

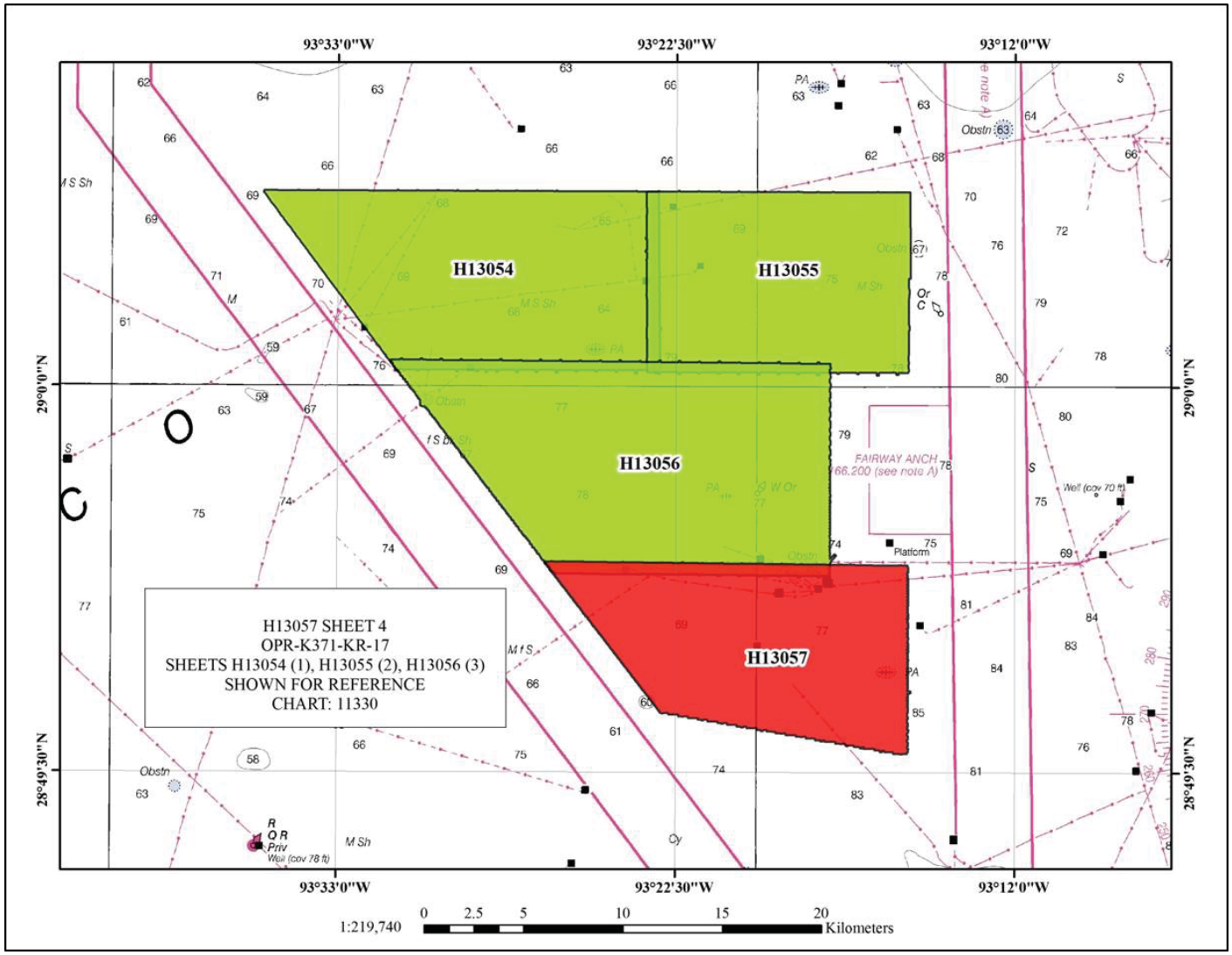

Figure 1: H13057 Survey Bounds

Survey limits were acquired in accordance with the requirements in the Project Instructions and the Hydrographic Surveys Specifications and Deliverables (HSSD).

A.2 Survey Purpose

The purpose of this survey is to provide contemporary surveys to update National Ocean Service (NOS) nautical charting products. This survey will take place in the vicinity of Sabine, TX and Cameron, LA. This survey will help to complete the safe passage fairway of heavy traffic from Sabine Pass and Calcasieu Pass to safety offshore. Completion of charting in this area will allow many other lanes of traffic to become safe for navigation. The Calcasieu Shipping Channel connects Lake Charles, LA to the offshore areas of the Gulf of Mexico. This is a major shipping channel from the Gulf of Mexico to the Port of Lake Charles and extends over 30 miles. The size of ships using Calcasieu Channel has increased steadily from the 1920's

along with the amount of transportation of materials for processing by the large refinery in Lake Charles, such as gasoline, natural gas, and chemicals. Similarly, this survey would connect the Sabine Passageway to safety offshore in the Gulf of Mexico. Current charts indicate there is high vessel traffic along this route. This survey will allow this vessel traffic safe passage to offshore Gulf of Mexico. The project will also cover approximately 154 square nautical miles of high priority survey area identified in the 2017 Hydrographic Health model. The addition of a modern survey in this area will allow for the updating of modern charts and improve the hydro health of the area.

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

Leidos warrants only that the survey data acquired by Leidos and delivered to NOAA under Contract EA-133C-14-CQ-0033 reflects the state of the sea floor in existence on the day and at the time the survey was conducted.

H13057 was surveyed in accordance with the following documents:
1. Project Instructions, OPR-K371-KR-17, dated 28 June 2017
2. Hydrographic Surveys Specifications and Deliverables (HSSD), April 2017
3. OPR-K371-KR-17 Statement of Work, dated 10 May 2017

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	Complete Coverage (refer to HSSD Section 5.2.2.3).
All waters in survey area	All MBES acquisition requires backscatter acquisition (refer to HSSD Section 6.2).

Leidos chose to achieve the coverage requirement using Complete Coverage, Option B (100% side scan sonar coverage with concurrent multibeam). Survey coverage achieved was in accordance with the requirements in the Project Instructions and the HSSD (Figure 2).

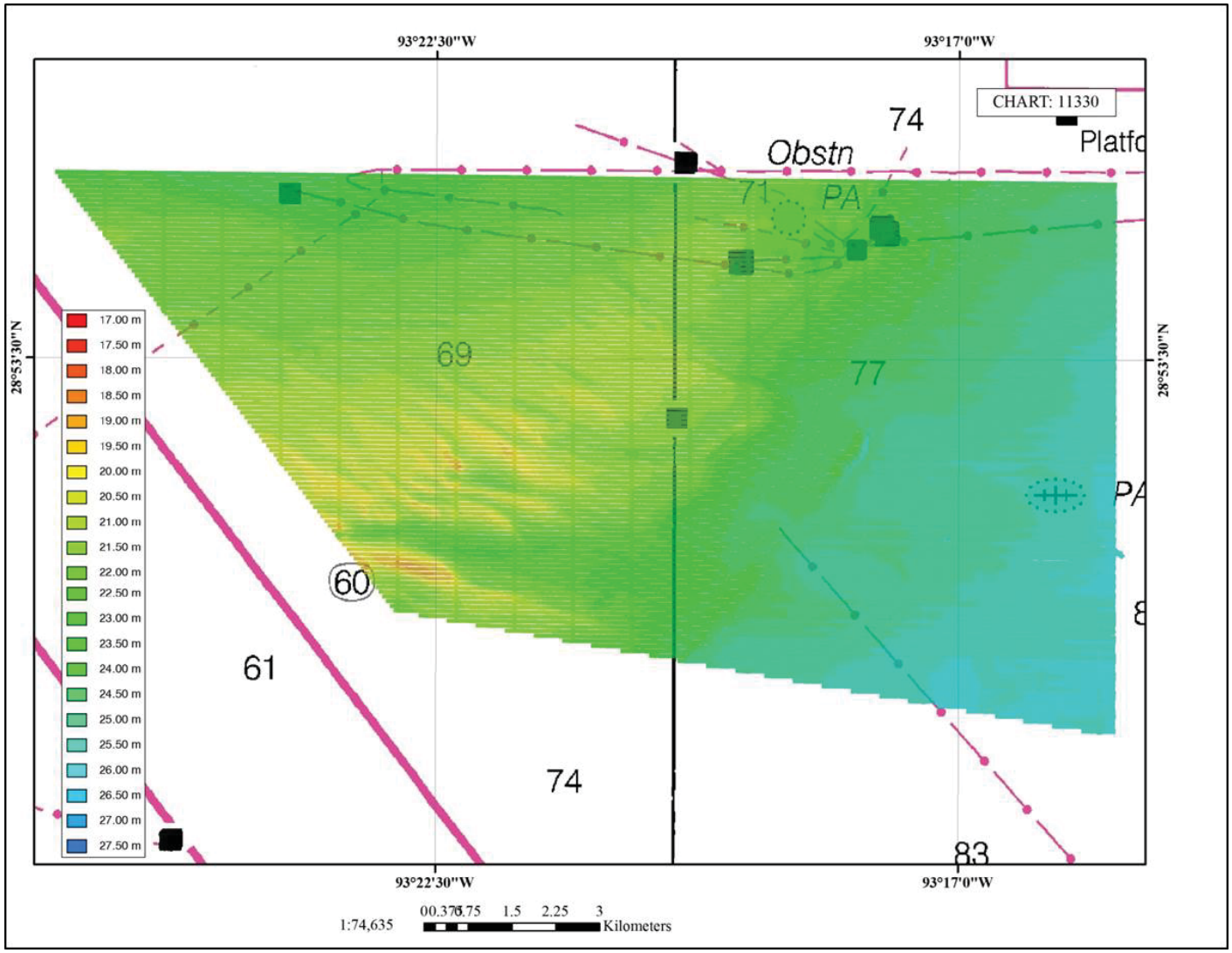

Figure 2: Final Bathymetry Coverage for H13057

A.5 Survey Statistics

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

	HULL ID	*M/V Atlantic Surveyor*	*Total*
LNM	**SBES Mainscheme**	0	0
	MBES Mainscheme	0	0
	Lidar Mainscheme	0	0
	SSS Mainscheme	0	0
	SBES/SSS Mainscheme	0	0
	MBES/SSS Mainscheme	924.47	924.47
	SBES/MBES Crosslines	70.24	70.24
	Lidar Crosslines	0	0
Number of Bottom Samples			3
Number Maritime Boundary Points Investigated			0
Number of DPs			0
Number of Items Investigated by Dive Ops			0
Total SNM			37

Table 2: Hydrographic Survey Statistics

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

Survey Dates	Day of the Year
11/08/2017	312
11/10/2017	314
11/11/2017	315
11/12/2017	316
11/13/2017	317
11/14/2017	318
11/15/2017	319
11/16/2017	320
11/17/2017	321
11/18/2017	322
12/02/2017	336
12/03/2017	337

Table 3: Dates of Hydrography

B. Data Acquisition and Processing

B.1 Equipment and Vessels

Leidos used their ISS-2000 software on a Windows 7 platform to acquire these survey data. Survey planning and data analysis were conducted using the Leidos SABER software on Red Hat Enterprise 6 Linux platforms. Klein 3000 side scan sonar (SSS) data were collected on a Windows 7 platform using Klein's SonarPro software. Subsequent processing and review of the SSS data, including the generation of coverage mosaics, were accomplished using SABER.

A detailed description of the systems and vessel used to acquire and process these data is included in the Data Acquisition and Processing Report (DAPR) for OPR-K371-KR-17, delivered previously with Data Report H13054 on 16 February 2018. There were no variations from the equipment configuration described in the DAPR.

B.1.1 Vessels

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

Hull ID	*M/V Atlantic Surveyor*
LOA	110 feet
Draft	9 feet

Table 4: Vessels Used

Figure 3: M/V Atlantic Surveyor

The M/V Atlantic Surveyor (Figure 3) was used to collect multibeam echo sounder (MBES) (RESON SeaBat 7125 SV), side scan sonar (SSS) (Klein 3000), and sound speed data during twenty-four hours per day survey operations.

A detailed description of the vessel used is included in Section A of the DAPR.

B.1.2 Equipment

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

Manufacturer	Model	Type
Teledyne RESON (RESON)	SeaBat 7125 SV	MBES
Klein Marine Systems, Inc. (Klein)	3000	SSS
Applanix	POS/MV 320 V5	Positioning and Attitude System
Trimble	Probeacon	Positioning System
AML Oceanographic	MVP30	Sound Speed System

Table 5: Major Systems Used

A detailed description of the equipment installed is included in Section A of the DAPR.

B.2 Quality Control

B.2.1 Crosslines

Multibeam/single beam echo sounder/side scan sonar crosslines acquired for this survey totaled 7.60% of mainscheme acquisition.

There were 70.24 linear nautical miles of crosslines and 924.47 linear nautical miles of mainscheme lines surveyed on H13057. This resulted in crossline mileage of approximately 7.60% of the mainscheme mileage, which meets the requirement to achieve approximately four percent of mainscheme mileage for a Complete Coverage multibeam survey (Section 5.2.4.3 of the HSSD). H13057 requirements were for Complete Coverage, Option B, based on the classifications defined in Section 5.2.2.3 of the HSSD.

The mainscheme lines were oriented 90°/270° and spaced 80 meters apart. Crosslines were oriented 0°/180° and spaced 1000 meters apart or less. Refer to the “Multibeam Processing Log” section within Separates I for information on the delineation of mainscheme and crossline data files.

Refer to Separates II for details about how the crossing analysis was performed and a complete discussion of the analysis and tabular results. Figure 4 summarizes the comparison results.

Difference Grid	Minimum and Maximum CUBE Depth (meters) of Crossline Grid	IHO Order 1A Maximum Allowable Uncertainty (meters) for the Range of Depths	Percentage of Depth Differences Less than IHO Order 1A Maximum Allowable Uncertainty
M/V Atlantic Surveyor Multibeam Crossline (Class 1) to Mainscheme	19.386 – 26.176	0.560 - 0.605	100.00

Figure 4: Summary of Crossing Analysis

B.2.2 Uncertainty

For specific details on the use and application of the SABER Total Propagated Uncertainty (TPU) model, see Section B.1 in the DAPR. Once the TPU model was applied to the GSF bathymetry data, each beam was attributed with the horizontal uncertainty and the vertical uncertainty at the 95% confidence level. The vertical and horizontal uncertainty values, estimated by the TPU model for individual multibeam soundings, varied little across the dataset, tending to be most affected by beam angle. Individual soundings that had vertical and horizontal uncertainty values above IHO S-44 5th Edition, Order 1a were flagged as invalid during the uncertainty attribution.

As discussed in Section B.2 of the DAPR, SABER generates two vertical uncertainty surfaces; the Hypothesis Standard Deviation (Hyp. StdDev) and the Hypothesis Average Total Propagated Uncertainty (Hyp. AvgTPU). A third vertical uncertainty surface is generated from the larger value of these two uncertainties at each node and is referred to as the Hypothesis Final Uncertainty (Hyp. Final Uncertainty).

The final H13057 two-meter PFM CUBE surface contained final vertical uncertainties that ranged from 0.470 to 0.929 meters. The IHO Order 1a maximum allowable vertical uncertainty was calculated to range between 0.550 to 0.618 meters, based on the minimum CUBE depth (17.548 meters) and maximum CUBE depth (27.966 meters). The SABER Check PFM Uncertainty function was used to highlight all instances in the Hyp. Final Uncertainty surface where a given node exceeded the IHO Order 1a allowable vertical uncertainty for the CUBE depth at that node. The final H13057 two-meter PFM CUBE surface contained 221 individual CUBE nodes with final vertical uncertainties that exceeded IHO Order 1a allowable vertical uncertainty. Of the nodes that exceeded the IHO Order 1a allowable vertical uncertainty, all were associated with objects, steep slopes associated with depressions and rocky reef outcroppings.

The SABER Frequency Distribution Tool was used to review the Hyp. Final Uncertainty surface within the final H13057 two-meter PFM grid. The results showed that in the final two-meter PFM grid, 99.99% of all nodes had final uncertainties less than or equal to 0.480 meters.

The final H13057 one-meter PFM CUBE surface contained final vertical uncertainties that ranged from 0.470 to 0.891 meters. The IHO Order 1a maximum allowable vertical uncertainty was calculated to range between 0.550 to 0.584 meters, based on the minimum CUBE depth (17.548 meters) and maximum CUBE

depth (23.162 meters). The SABER Check PFM Uncertainty function was used to highlight all instances in the Hyp. Final Uncertainty surface where a given node exceeded the IHO Order 1a allowable vertical uncertainty for the CUBE depth at that node. The final H13057 one-meter PFM CUBE surface contained three individual CUBE nodes with final vertical uncertainties that exceeded IHO Order 1a allowable vertical uncertainty, which were all associated with Feature 06.

The SABER Frequency Distribution Tool was used to review the Hyp. Final Uncertainty surface within the final H13057 one-meter PFM grid. The results showed that in the final one-meter PFM grid, 100.00% of all nodes had final uncertainties less than or equal to 0.480 meters.

B.2.3 Junctions

As requested in the Project Instructions, analyses of the H13057 junctions with specified surveys were performed. Figure 5 shows the general locality of H13057 as it relates to the sheets to which junctions were performed. Details for each survey are listed in Table 6. For H10889 the final smooth sheet XYZ data (irregular spacing) were downloaded from the NCEI website, and a 150-meter average grid was generated and used for comparison in SABER to the final CUBE depths of H13057. This cell size was a deviation from the processing procedure described within the DAPR (OPR-K371-KR-17_DAPR.pdf) delivered from Leidos to NOAA on 16 February 2018. The 150-meter cell size was due to the sparse XYZ data coverage in the southwestern area of the surface. For the H12188 and H13056 comparisons, the junction was performed against the final respective BAG file for each sheet.

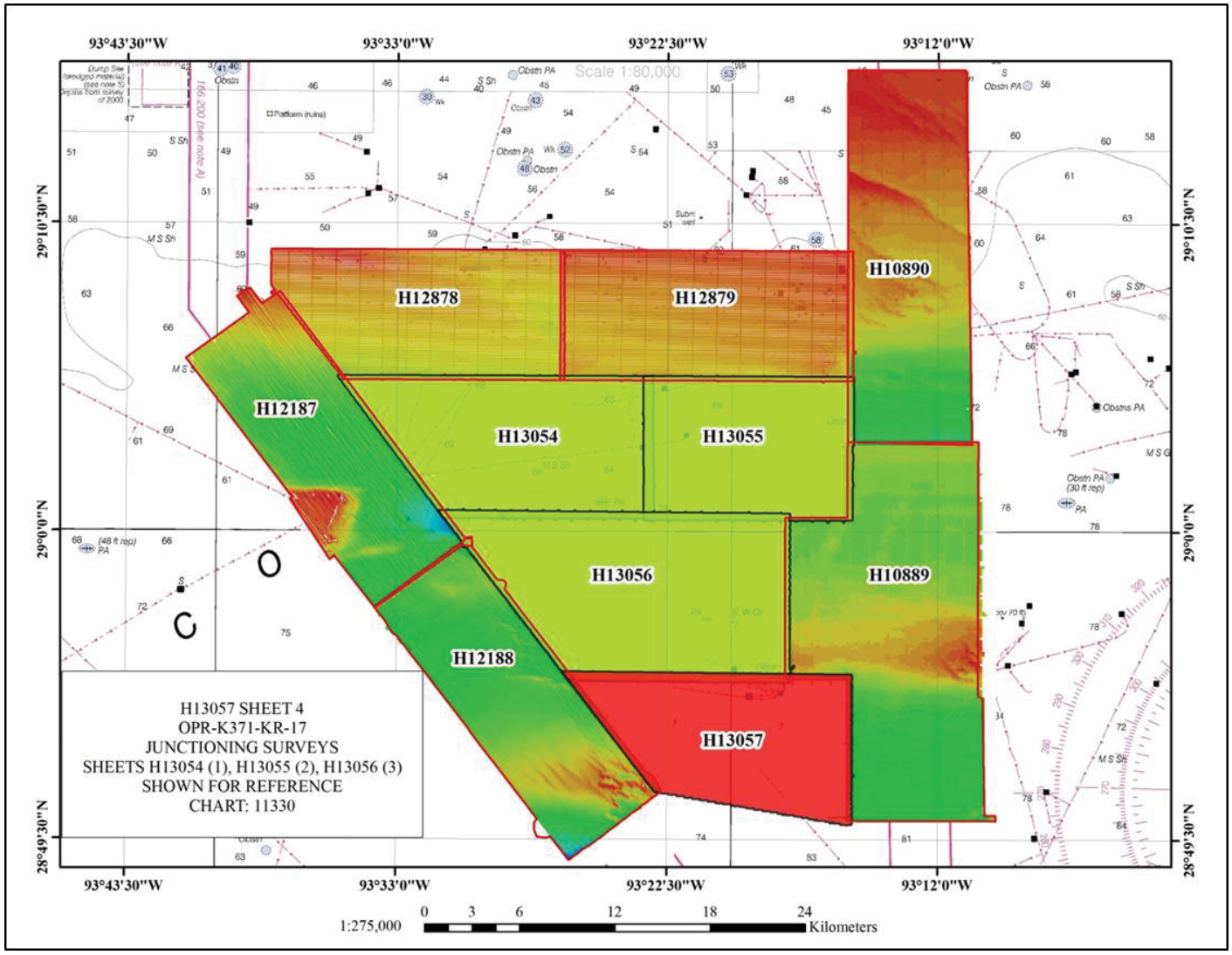

Figure 5: General Locality of H13057 with Junctioning Surveys

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H10889	1:20000	1999	C and C Technologies, Inc.	E
H12188	1:40000	2010	NOAA Ship Thomas Jefferson	W
H13056	1:40000	2017	Leidos, Inc.	N

Table 6: Junctioning Surveys

H10889

H13057 junctions with H10889 to the east; 100.00% of the comparisons agreed within ±1.266 meters.

H12188

H13057 junctions with H12188 to the west; 100.00% of the comparisons agreed within ±0.998 meters.

H13056

H13057 junctions with H13056 to the north; 100.00% of the comparisons agreed within ±1.091 meters.

B.2.4 Sonar QC Checks

Sonar system quality control checks were conducted as detailed in Section A.5 of the DAPR.

B.2.5 Equipment Effectiveness

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

B.2.6 Factors Affecting Soundings

During data acquisition on H13057 there were intermittent local weather events producing increased winds and sea state. Occasionally during the localized weather events, the water levels within the survey area differed slightly from the water level gauge located at Calcasieu Pass, LA. The artifact was seen in the multibeam CUBE surface and generally ranged between 10 to 15 centimeters when present (Figure 6). In addition, during these intermittent weather events, some residual heave artifacts were visible in the data and ranged from 10 to 15 centimeters. However, these occasional vertical offsets and heave artifacts were within the IHO Order 1a allowable vertical uncertainty for the H13057 water depths.

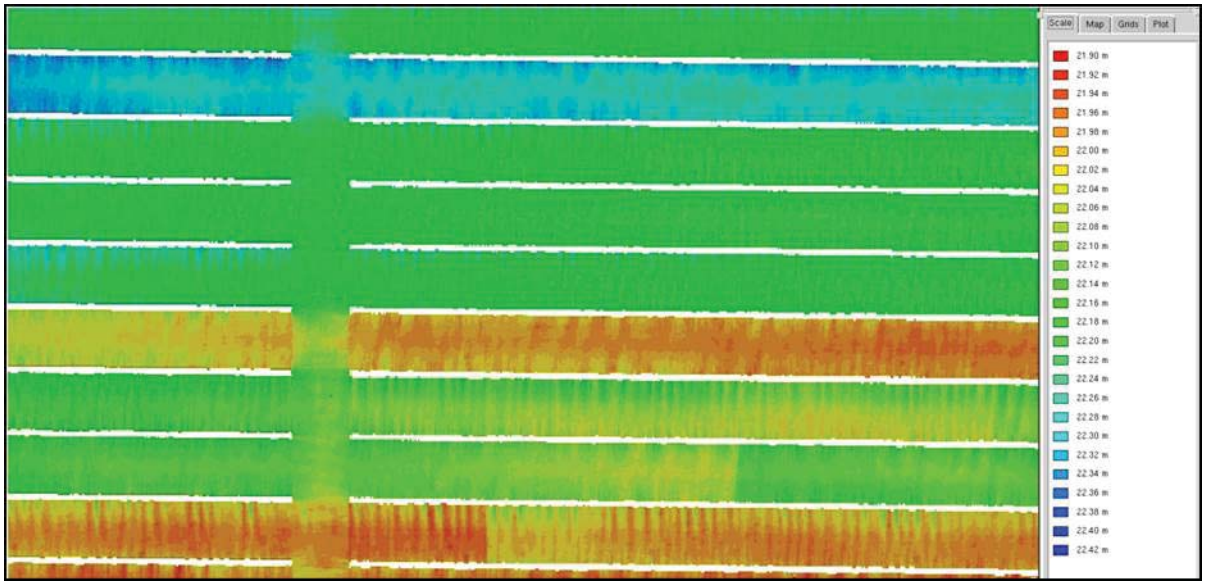

Figure 6: CUBE Depth Delta and Heave Artifacts Resulting from Local Weather Events

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: On the M/V Atlantic Surveyor, the MVP30 was used to collect sound speed profile (SSP) data. SSP data were obtained at intervals frequent enough to meet depth accuracy requirements. Section 5.2.3.3 of the HSSD requires that if the sound speed measured at the sonar head differs by more than two meters/second from the commensurate profile data, then another cast shall be acquired. There were times when the sound speed values exceeded the two meters/second threshold due to the local temporal and tidal variability. During these times, several profiles were acquired and reapplied in an effort to reduce these effects. The product of this effort resulted in the final data bearing no significant artifacts due to sound speed differences.

All sound speed profiles applied for online bathymetry data collection were acquired within the bounds of the survey area. Please refer to the DAPR for specific details regarding acquisition (Section A.7) and application (Section C.1.3) of sound speed profiles.

Confidence checks of the sound speed profile casts were conducted by comparing at least two consecutive casts taken with different SSP sensors. Three sound speed confidence checks were conducted during H13057 and the results can be found in Separates II within the “Comparison Cast Log” section.

All individual SSP files are delivered with the H13057 data and are broken out into sub-folders, which correspond to the purpose of each cast. Also, all individual SSP files for H13057 have been concatenated into four separate files based on the purpose of the cast, provided in CARIS format files (.svp), and delivered under (H13057/Data/Processed/SVP/CARIS_SSP) on the delivery drive. In addition sound speed data for the entire OPR-K371-KR-17 project were submitted to NCEI following the NetCDF template format as specified in Section 8.3.6 of the HSSD, refer to Separates II for more details.

B.2.8 Coverage Equipment and Methods

All equipment and survey methods are detailed in the DAPR.

B.2.9 Multibeam Coverage Analysis

Leidos chose to achieve the coverage requirement using 100% side scan sonar coverage with concurrent multibeam bathymetry. To achieve this coverage, the M/V Atlantic Surveyor used a towed Klein 3000 SSS set to a 50-meter range scale. Mainscheme line spacing was 80 meters, which ensured 100% SSS coverage.

The HSSD stated that 100% SSS coverage was insufficient to disprove a charted feature. Therefore, Leidos reviewed the Composite Source File (CSF), BSB charts, and ENC charts and completed an additional 100% SSS coverage, and resulting MBES coverage over charted objects not found during survey in order to verify disproval in accordance with Section 7.3.4 in the HSSD. A disproval search radius was determined from the investigation requirement attribute (invreq) in the OPR-K371-KR-17_CSF_final.000 CSF, or from additional correspondence between Leidos and NOAA as documented within Appendix II of this Data Report. For all charted objects within the assigned Survey Limits of H13057, each object's disproval data covered an area of at least the assigned disproval search radius.

The SABER Gapchecker routine was used to flag MBES data gaps within the CUBE surface. Additionally, the entire surface was visually scanned for holidays at various points during the data processing effort. Additional survey lines were run to fill any holidays that were detected. A final review of the CUBE Depth surface of the H13057 two-meter PFM containing all MBES data showed that there were no three by three node gaps. The CUBE Depth surface of the H13057 one-meter PFM also contains 100% MBES coverage with no three by three node gaps.

The final H13057 CUBE PFMs were examined for the number of soundings contributing to the chosen CUBE hypotheses for each node by running SABER's Frequency Distribution Tool on the Hypothesis Number of Soundings (Hyp. # Soundings) surface. The Hyp. # Soundings surface reports the number of soundings that were used to compute the chosen hypothesis. Analysis of the H13057 final two-meter CUBE PFM grid revealed that 99.12% of all nodes contained five or more soundings while the final one-meter CUBE PFM revealed that 97.41% of all nodes contained five or more soundings; satisfying the requirements for complete coverage surveys, Option B, as specified in Section 5.2.2.3 of the HSSD.

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

All sounding systems were calibrated as detailed in the DAPR.

B.4 Backscatter

Side Scan Sonar (SSS) Coverage Analysis: For all details regarding SSS data processing, see Section B.3 of the DAPR. Leidos chose to adhere to the coverage requirements in the Project Instructions using Complete Coverage, Option B (100% side scan sonar coverage with concurrent multibeam). The HSSD stated that 100% SSS coverage was insufficient to disprove a charted feature. Therefore, 100% SSS coverage was collected and verified for the entire survey area, and an additional 100% SSS coverage was collected over CSF assigned objects, and charted objects that were not found, to verify disproval. Leidos generated two separate coverage mosaics at one-meter cell size resolution as specified in Section 8.2.1 of the HSSD. The first 100% and second 100% disproval coverage mosaics were independently reviewed using tools in SABER to verify data quality and swath coverage. The SABER Gapchecker routine was used to flag data gaps within each of the 100% SSS coverage mosaics. Additionally, the entirety of each SSS surface was visually scanned for holidays at various points during the data processing effort. Additional survey lines were run to fill any holidays that were detected. Both coverage mosaics are determined to be complete and sufficient to meet the requirements contained within the Project Instructions and HSSD. The mosaics are delivered as TIFF (.tif) images with accompanying world files (.tfw), refer to Table 7.

Multibeam Echo Sounder Seafloor Backscatter: In accordance with the HSSD and Project Instructions, Leidos collected MBES backscatter with all GSF data acquired by the RESON SeaBat 7125 SV. The MBES settings used were checked to ensure acceptable quality standards were met and to avoid any acoustic saturation of the backscatter data. The MBES backscatter data acquired were written to the GSF in real-time by ISS-2000 and are delivered in the final GSF files for this sheet. Per the Project Instructions, backscatter data were not processed by Leidos and no additional products were produced.

B.5 Data Processing

B.5.1 Primary Data Processing Software

The following Feature Object Catalog was used: NOAA Extended Attribute File V5-4.

The primary data processing software used for both bathymetry and imagery was SABER. There were no software configuration changes after the DAPR was submitted.

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
H13057_MB_2m_MLLW_Final	BAG	2 meters	17.548 meters - 27.966 meters	N/A	Complete Coverage, Option B (100% side scan sonar coverage with concurrent multibeam)
H13057_MB_1m_MLLW_Final	BAG	1 meters	17.548 meters - 23.162 meters	N/A	Complete Coverage, Option B (100% side scan sonar coverage with concurrent multibeam)
H13057_SSS_1m_100	SSS Mosaic (.tif;.tfw)	1 meters	0 meters - 0 meters	N/A	100% SSS
H13057_SSS_Disproval	SSS Mosaic (.tif;.tfw)	1 meters	0 meters - 0 meters	N/A	200% SSS Charted Object Disproval

Table 7: Submitted Surfaces

The CUBE Depth surface of the H13057 two-meter PFM was used to assess and document multibeam survey coverage. SABER populates the CUBE depth with either the node's chosen hypothesis or the depth of a feature or designated sounding set by the hydrographer, which overrides the chosen hypothesis. The range of CUBE depths of the H13057 two-meter PFM was from 17.548 meters (57.572 feet; 0.470 meters Total Vertical Uncertainty [TVU]) to 27.966 meters (91.752 feet; 0.477 meters TVU). Complete Coverage Section 5.2.2.3 of the HSSD requires two-meter grid resolution for depths ranging from 18 meters to 40 meters, and therefore a two-meter PFM CUBE Depth grid was generated for the entire H13057 surface (H13057_MB_2m_MLLW_Final.bag). In accordance with Section 5.2.2.3 of the HSSD and direction from our NOAA COR on 13 February 2018 (included in Appendix II of this Report), a small one-meter PFM CUBE Depth surface (H13057_MB_1m_MLLW_Final.bag) was generated over the single feature with a least depth less than 18 meters (Feature 06; 17.548 meters depth). The range of CUBE depths the H13057 one-meter PFM was from 17.548 meters (57.572 feet; 0.470 meters TVU) to 23.162 meters (75.991 feet; 0.470 meters TVU).

The final gridded bathymetry data are delivered as a Bathymetric Attributed Grid (BAG). The BAG files were exported from the CUBE PFM grid as detailed in Section B.2.5 of the DAPR.

C. Vertical and Horizontal Control

No vertical or horizontal controls were established, recovered, or occupied during data acquisition for OPR-K371-KR-17, which includes H13057. Therefore, a Horizontal and Vertical Control Report was not required.

C.1 Vertical Control

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

Traditional Methods Used:

Discrete Zoning

The following National Water Level Observation Network (NWLON) stations served as datum control for this survey:

Station Name	Station ID
Calcasieu Pass, LA	8768094

Table 8: NWLON Tide Stations

File Name	Status
8768094_verified_09012017_12042017.tid	Verified Observed

Table 9: Water Level Files (.tid)

File Name	Status
K371KR2017CORP_Rev.zdf	Final

Table 10: Tide Correctors (.zdf or .tc)

No final tide note was provided by the NOAA Center for Operational Oceanographic Products and Services (CO-OPS). Leidos is not required to have a final tide note from CO-OPS for H13057 however, a final tide note has been provided by Leidos in Appendix I.

The Tides Statement of Work specified NOAA tide station 8768094 Calcasieu Pass, LA as the source for water level correctors for OPR-K371-KR-17. A full explanation of the tide zone assessment is detailed in Section C.4 of the DAPR. For H13057, 8768094 Calcasieu Pass, LA was the source of all final verified water level heights for determining correctors to soundings. All data for H13057 that contributed to the final CUBE surfaces were contained within three tide zones (WGM75, WGM76, and WGM88) which were provided by NOAA.

Leidos did not revise the delivered tide zones for tide station 8768094 Calcasieu Pass, LA as the water level zoning parameters in the file K371KR2017CORP_Rev.zdf, provided by National Ocean Service (NOS) were deemed adequate for the application of observed verified water levels. As a result, they were accepted as final and applied to all H13057 bathymetry data.

C.2 Horizontal Control

The horizontal datum for this project is North American Datum of 1983 (NAD83) 2011 realization 2010 (NAD83(2011)2010.0).

The projection used for this project is UTM Zone 15, North.

Please refer to the DAPR for details regarding all antenna and transducer offsets.

During survey data acquisition, the ISS-2000 real-time system provided a continuous view and automatic monitoring of position accuracies. An alarm was triggered within ISS-2000 if any accuracy thresholds were not within a predefined range in accordance with specifications of the HSSD. Any soundings with total horizontal uncertainties exceeding the maximum allowable IHO S-44 5th Edition Order 1a specifications were flagged as invalid and therefore were not used in the CUBE depth calculations.

The following DGPS Stations were used for horizontal control:

DGPS Stations
English Turn, LA (293 kHz)
Angleton, TX (301 kHz)

Table 11: USCG DGPS Stations

D. Results and Recommendations

D.1 Chart Comparison

The chart comparisons were conducted using a combination of SABER and CARIS' EasyView. Charting recommendations for depths follow Section 5.1.2 of the HSSD where depths and uncertainties are to be rounded by standard arithmetic rounding (round half up).

United States Coast Guard (USCG) District 8 Local Notice to Mariners publications were reviewed for changes subsequent to the date of the Project Instructions and before the end of survey (as specified in Section 8.1.4 of the HSSD). The Notice to Mariners reviewed were from week 26/17 (28 June 2017) until week 49/17 (06 December 2017).

H13057 data met data accuracy standards and bottom coverage requirements. Recommend updating the common areas of all charts using data from this survey. Charting recommendations for all features found, and updates to charted features, are documented in the H13057 S-57 FFF. Additional charted objects such as submarine pipelines and platforms are discussed in later sections.

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?
US3GC02M	1:250000	31	09/29/2017	03/01/2018	NO

Table 12: Largest Scale ENCs

US3GC02M

ENC US3GC02M covers the H13057 survey area in its entirety.

CUBE depths within sheet H13057 generally agreed with the charted depths across the survey area with observed depths generally within ±1.0m.

D.1.2 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.3 Charted Features

Two charted objects, a dangerous wreck with depth unknown and an obstruction with depth unknown, were charted within the survey bounds. This charted non-dangerous wreck was assigned in the CSF, OPR-K371-KR-17_CSF_final.000, and is charted on ENC US3GC02M and Raster 11330. This wreck was labeled as PA in the OPR-K371-KR-17_CSF_final.000 and on Raster chart 11330. No significant features were found within the assigned search radius for the charted dangerous wreck. The charted obstruction was also assigned in the CSF, OPR-K371-KR-17_CSF_final.000, and is charted on ENC US3GC02M and Raster 11330. This obstruction was labeled as PA in the OPR-K371-KR-17_CSF_final.000 and on Raster chart 11330. No significant features were found within the assigned search radius for the charted obstruction. The details resulting from final processing of the data and recommendations are captured in the H13057 S-57 FFF.

D.1.4 Uncharted Features

See the H13057 S-57 FFF for all the details and recommendations regarding new uncharted features investigated. Additionally, there was a rocky reef outcropping identified within H13057 and found to cover an area of approximately 1800 meters by 200 meters in a northwest / southeast orientation from 29° 53’ 25.89” N, 093° 19’ 39.60” W to 29° 53’ 05.35” N, 093° 18’ 35.87” W (Figure 7). The extents of the area covered by the reef consisted of many groupings of individual outcroppings spread across areas of flat sandy seafloor, with CUBE depths on top of the reef general within ±3 meters of the surrounding survey depths (Figure 8). In accordance with Section 7.3.2 of the HSSD, these rock outcroppings were appropriately represented in the submitted surface and are not included in the FFF.

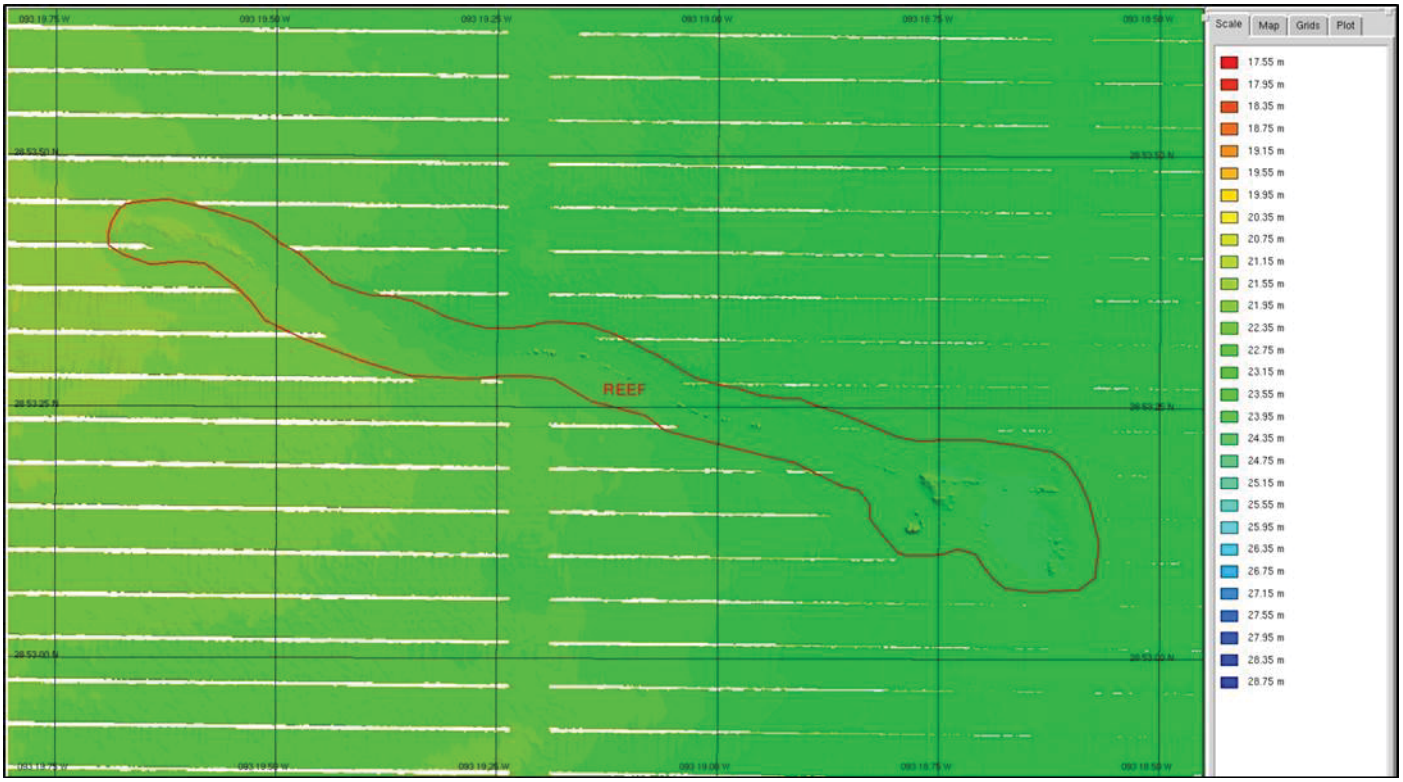

Figure 7: Rocky Reef Outcropping Identified Within H13057

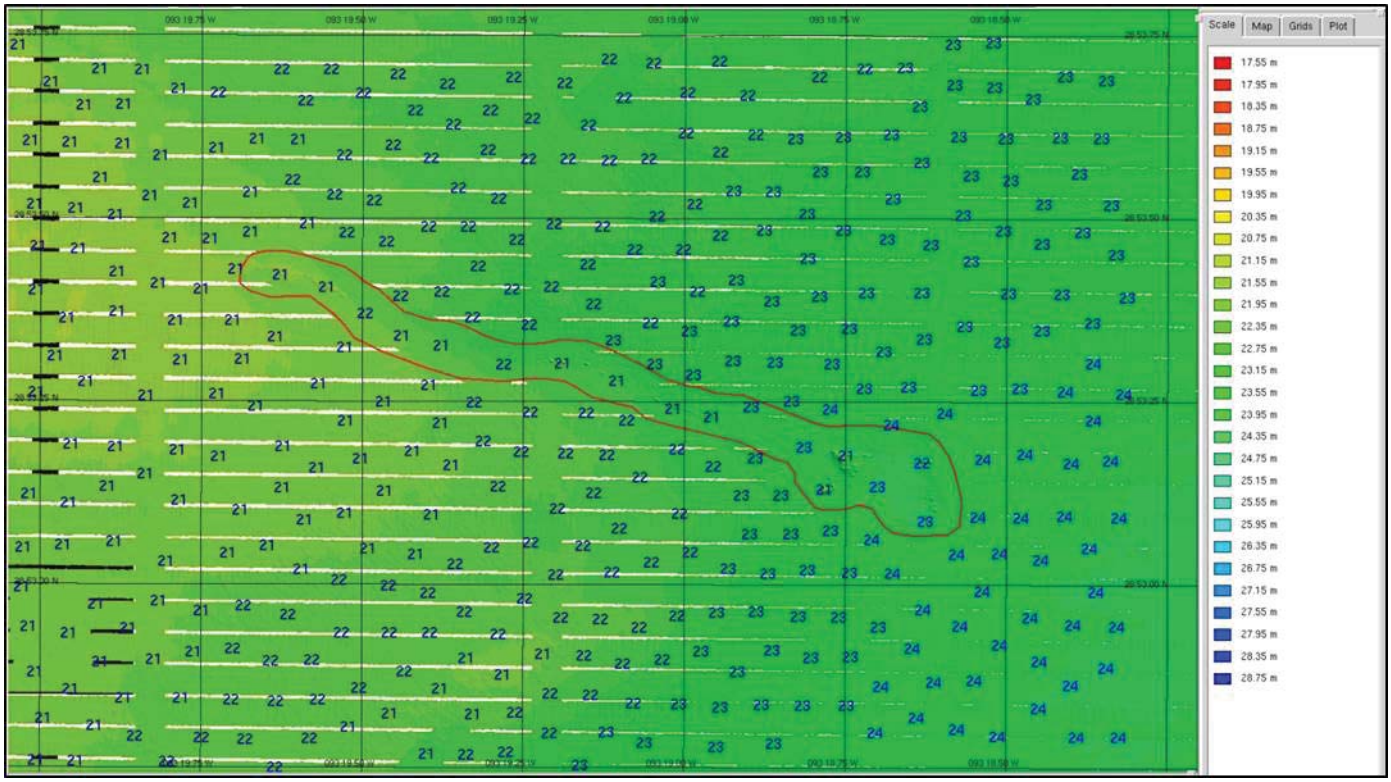

Figure 8: CUBE Depth Selected Soundings (meters) Relative to H13057 Reef and Surrounding Area

D.1.5 Shoal and Hazardous Features

There were no significant shoals or hazardous features within the area covered by this survey area other than those discussed in Section D.1.4.

Leidos submitted one Danger to Navigation Report (DTON) for H13057 in S-57 format to the Atlantic Hydrographic Branch (AHB) which was subsequently submitted to the Nautical Data Branch (NDB) and Marine Chart Division (MCD) on 07 March 2018, and registered by the NDB and directed to Products Branch G for processing on 08 March 2018. A copy of the DTON recommendation files and DTON verification email, in PDF format, are included in Appendix II of this Data Report. Figure 9 details the submitted DTON and the associated Feature number and object class in the S-57 FFF.

DTON Report Name	Date Submitted to AHB	AHB submitted to MCD	NDB Registration	Feature Number	S-57 Object Class
H13057_DTON01.000	2018-03-07	2018-03-07	2018-03-08	06	OBSTRN

Figure 9: DTON Reports

D.1.6 Channels

There were no channels within the area covered by this survey.

D.1.7 Bottom Samples

In accordance with both the Project Instructions and Section 7.2.3 of the HSSD, bottom characteristics were obtained for H13057. Bottom characteristics were acquired at three locations, two of which were assigned in the Project Reference File (PRF) by NOAA. Leidos did not modify the bottom sample locations from the location proposed by NOAA in the PRF. A third bottom sample was collected after review of the side scan data indicated a change in reflectivity which was approximately 3.8 kilometers from the closest assigned bottom sample location. Bottom characteristics collected during H13057 are included in the H13057 S-57 FFF, named H13057_FFF.000, within the Seabed Area (SBDARE) object and are classified according to the requirements set forth in Appendix H of the HSSD. In addition to the still images of the seafloor and sediment obtained for each bottom sample, which are referenced in the H13057_FFF.000, short videos of the seafloor at each bottom sample location are included on the delivery drive under the folder H13057/Data/Processed/Multimedia.

D.2 Additional Results

D.2.1 Shoreline

All features in the CSF within the assigned Survey Limits of H13057 were resolved. There were no assigned features inshore of the NALL.

D.2.2 Prior Surveys

Junction analysis with prior surveys H10899, H12188, and H13056 (collected in 1999, 2010, and 2017 respectfully) were conducted, and the results are presented in Section B.2.3 of this Data Report and within Separates II.

D.2.3 Aids to Navigation

There were no aids to navigation that fell within this survey area.

D.2.4 Overhead Features

There were no overhead features within this survey area.

D.2.5 Submarine Features

Eighteen pipeline (PIPSOL) objects (Features 07-24) are delivered in the S-57 FFF to represent sections of pipeline found within the bounds of H13057. Eight pipeline objects (Features 17-24) are line objects depicting charted buried pipelines of which evidence of existence was observed in the side scan data only. The remaining ten pipeline objects (Features 07-16) are line objects depicting exposed pipelines of which evidence of existence was observed in the side scan data and multibeam data. Additional charted pipelines fall within the Survey Limits; however, the multibeam and side scan data do not show evidence of them.

One gas seep was also identified within the SSS and MBES data of H13057. The seep was found at 28° 53’ 32.89” N, 093° 23’ 58.47” W, and identified within the MBES and SSS data to have a form and morphology typical of ascending gas or bubble plumes, but was not found associated with any charted or observed uncharted pipelines or wellheads. The MBES data associated with the seep have been flagged as invalid and therefore were not used in the CUBE depth calculations. SSS contacts were retained on the seep location and are included in the Side Scan Sonar Contact S-57 File, H13057_SSCon.000.

In accordance with HSSD Section 1.7, the one seep and all ten exposed pipelines found within H13057 were submitted as Non-DTON Seep and Pipeline Reports. The email correspondence for Leidos’ submission of the H13057 Non-DTON Seep and Pipeline Reports is included within Appendix II of this Data Report. Figure 10 provides details regarding the Non-DTON Seep and Pipeline Reports, including the associated Feature number and object class in the H13057 S-57 FFF.

Non-DTON Seep and Pipeline Report	Date Leidos submitted to AHB (COR)	Feature Number	S-57 Object Class
H13057_Seep_01	2018-03-12	N/A	N/A
H13057_ExposedPipelines_02	2018-03-12	07	PIPSOL
H13057_ExposedPipelines_03	2018-03-12	08	PIPSOL
H13057_ExposedPipelines_04	2018-03-12	09	PIPSOL
H13057_ExposedPipelines_05	2018-03-12	10	PIPSOL
H13057_ExposedPipelines_06	2018-03-12	11	PIPSOL
H13057_ExposedPipelines_07	2018-03-12	12	PIPSOL
H13057_ExposedPipelines_08	2018-03-12	13	PIPSOL
H13057_ExposedPipelines_09	2018-03-12	14	PIPSOL
H13057_ExposedPipelines_10	2018-03-12	15	PIPSOL
H13057_ExposedPipelines_11	2018-03-12	16	PIPSOL

Figure 10: Non-DTON Seep and Pipeline Reports

D.2.6 Platforms

There were six assigned offshore platform objects in the CSF, OPR-K371-KR-17_CSF_final.000, provided on 17 July 2017, which fell within the Survey Limits of H13057. All of the assigned platforms were charted on ENC US3GC02M and Raster 11330. There were no platforms visible above the waterline and the charted platforms were not found during survey operations so disproval surveys were conducted. The charted platforms were covered by 200% side scan and resulting multibeam over an area with a radius of at least 80 meters. There was no evidence of the platforms existence in the side scan or multibeam data. See the S-57 FFF, H13057_FFF.000, Offshore Platform (OFSPLF) objects, for details and charting recommendations on the charted platform.

D.2.7 Ferry Routes and Terminals

No ferry routes or terminals exist within this survey area.

D.2.8 Abnormal Seafloor and/or Environmental Conditions

No abnormal seafloor or environmental conditions, as defined in Section 8.1.4 of the HSSD, exist within this survey area other than those discussed in Sections B.2.6 and Section D.1.4.

D.2.9 Construction and Dredging

No construction or dredging exists for this survey area.

D.2.10 New Survey Recommendation

No new survey recommendations are made for the area surrounding this survey area.

D.2.11 Designated Soundings

Designated soundings were used to help better preserve the shallowest sounding relative to the computed depth surface. Separate flags exist in the Generic Sensor Format (version 3.06) for designated soundings and features. All depths flagged as features and designated soundings override the CUBE best estimate of the depth in the final BAG files. Both the designated sounding and feature flags, as defined within GSF, are mapped to the same HDCS flag when ingested into CARIS (PD_DEPTH_DESIGNATED_MASK).

No GSF designated sounding flags were set for H13057. GSF feature flags were set on significant features within H13057, and all information is contained in the H13057 S-57 FFF.

D.2.12 Final Feature S-57 File

Included with H13057 delivery is the S-57 FFF, H13057_FFF.000. Details on how this file was generated and quality controlled can be found in Section B.2.6 of the DAPR. The S-57 FFF delivered for H13057 contains millimeter precision for the value of sounding (VALSOU) attribute. As specified in Section 2.2 of the HSSD, the S-57 FFF is in the WGS84 datum and is unprojected with all depth units in meters. All significant, and recommended for charting, features found in H13057 are included within the S-57 FFF.

In accordance with the HSSD, Leidos addressed all assigned objects within the bounds of H13057 from the provided CSF S-57 file in the S-57 FFF.

For each feature contained in the FFF (S-57), the Feature Correlator Sheet was exported as an image file (.jpg) and is included in the S-57 FFF under the NOAA Extended Attribute field “images”.

D.2.13 Side Scan Sonar Contacts S-57 File

Included with the H13057 delivery is the Side Scan Sonar Contact S-57 File, H13057_SSCon.000. Details on how this file was generated and quality controlled can be found in Section B.3.5 of the DAPR. As specified in Section 2.2 of the HSSD, the S-57 file is in the WGS84 datum and is unprojected with all depth units in meters.

Side scan sonar contacts were investigated and confirmed using SABER Contact Review. All side scan contacts are retained within the Side Scan Sonar Contact S-57 File. For each contact included in this S-57 file, a JPEG image of the side scan contact is included under the NOAA Extended Attribute field “images”.

D.2.14 Coast Pilot Review Report

In accordance with the Project Instructions and HSSD Section 8.1.3, a Coast Pilot Review was performed for OPR-K371-KR-17. Within the Coast Pilot Field Report (OPR-K371-KR-17CoastPilotReport.pdf) provided by NOAA to Leidos on 17 July 2017, there were no assigned investigation items or paragraphs affected. Therefore, Leidos reviewed and updated the actual Coast Pilot paragraphs as possible for the survey areas, port of call, and areas frequently transited. Updates were made to the Coast Pilot paragraphs as defined in the HSSD Section 8.1.3 and incorporated in to a consolidated Coast Pilot Review Report (OPR-K371-KR-17_Coast Pilot Review Report.pdf) which was submitted to NOAA on 09 February 2018. The email correspondence for Leidos' submission of the H13057 Coast Pilot Review Report is included within Appendix II of this Data Report.

D.2.15 Inset Recommendation

No inset recommendations are made for the area covered by this survey.

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

The survey data meets or exceeds requirements as set forth in the Hydrographic Surveys Specifications and Deliverables, Project Instructions, and the OPR-K371-KR-17 Statement of Work. These data are adequate to supersede charted data in their common areas. This survey is complete and no additional work is required with the exception of deficiencies noted in the Descriptive Report. Previously, or concurrently, submitted deliverables for OPR-K371-KR-17 are provided in the table below.

Report Name	Report Date Sent
OPR-K371-KR-17_Marine_Species_Awareness_Training_Video_Log.pdf	2018-02-07
OPR-K371-KR-17_Coast Pilot Review Report.pdf	2018-02-09
OPR-K371-KR-17_DAPR.pdf	2018-02-16
H13054_DR.pdf	2018-02-16
H13055_DR.pdf	2018-02-27
OPR-K371-KR-17_Marine_Mammal_Observation_Log.pdf	2018-03-09
OPR-K371-KR-17_OCS_Sea_Turtle_Observation_Log.pdf	2018-03-09
OPR-K371-KR-17_20180309.zip (NCEI Sound Speed Data)	2018-03-09
H13056_DR.pdf	2018-03-20

Approver Name	Approver Title	Approval Date	Signature
Alex T. Bernier	Lead Hydrographer	03/29/2018	Alex T. Bernier Digitally signed by Alex T. Bernier DN: cn=Alex T. Bernier, o=Marine Survey and Engineering Solutions, ou=Leidos, email=alex.t.bernier@leidos.com, c=US Date: 2018.03.22 11:48:41 -04'00'

APPENDIX I

TIDES AND WATER LEVELS

APPENDIX I. TIDES AND WATER LEVELS

Field Tide Note

A field tide note was not required for H13057.

Final Tide Note

Observed verified water levels for the station in Calcasieu Pass, LA (8768094) were downloaded from the NOAA Tides and Currents web site. Water Level correctors were prepared for each zone using the **SABER Create Water Level Files** software. The **SABER Apply Correctors** software applied the water level data to the multibeam data according to the zone containing the nadir beam of each ping.

Please refer to the H13057 Descriptive Report Section C.1 for details regarding final tides for H13057. The water level zoning correctors applied to all multibeam data for H13057 were based entirely on Calcasieu Pass, LA (8768094).

No final tide note was provided by NOAA Center for Operational Oceanographic Products and Services (CO-OPS), Leidos is not required to have a final tide note from CO-OPS.

The on-line times for acquisition of valid hydrographic data are presented in the Abstract Times of Hydrography, H13057 (Table A-1).

Abstract Times of Hydrography

Project: OPR-K371-KR-17
Registry No.: H13057
Contractor Name: Leidos
Date: 29 March 2018
Sheet Designation: 4
Inclusive Dates: 08 November 2017 – 03 December 2017
Field work is complete.

Begin Date	Begin Julian Day	Begin Time	End Date	End Julian Day	End Time
11/08/2017	312	15:14:25	11/08/2017	312	22:53:45
11/10/2017	314	23:23:21	11/13/2017	317	14:51:35
11/14/2017	318	01:51:29	11/18/2017	322	01:09:00
12/02/2017	336	17:49:31	12/03/2017	337	12:53:39

Table A-1: Abstract Times of Hydrography, H13057

Transmittal Letter to CO-OPS

A transmittal letter to CO-OPS was not required for H13057.

Request for Approved Tides/Water Levels Letter

A Request for Approved Tides/Water Levels letter was not required for H13057.

Other Correspondence Relating to Tides

There is no other correspondence relating to tides and/or water levels.

APPENDIX II

SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCE

APPENDIX II. SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCE

This Appendix contains copies of email exchanges between Leidos and NOAA concerning various aspects of the survey, data processing, and submittal topics.

In addition, the following standalone files have been provided in the II_Supplemental_Survey_Records_&_Correspondence folder of Descriptive Report Appendices:

- The DTON recommendation files (*.zip file) submitted by AHB to MCD's NDB, which references one uncharted 58ft obstruction (unburied and elevated pipeline):
  - H13057_DtoN1_58ft_Obstrn.zip
- The associated verification e-mail from NDB for the DTON:
  - H13057_DtoN1_NDB_Verification_58ft_Obstruction_email.pdf
- Non-DTON Seep and Pipeline Reports and overall image for one seep and ten exposed pipelines:
  - H13057_Seep_01.zip
  - H13057_ExposedPipeline_02.zip
  - H13057_ExposedPipeline_03.zip
  - H13057_ExposedPipeline_04.zip
  - H13057_ExposedPipeline_05.zip
  - H13057_ExposedPipeline_06.zip
  - H13057_ExposedPipeline_07.zip
  - H13057_ExposedPipeline_08.zip
  - H13057_ExposedPipeline_09.zip
  - H13057_ExposedPipeline_10.zip
  - H13057_ExposedPipeline_11.zip
  - H13057_Seep_and_ALL_ExposedPipelines_Chart_11330.png
- OPR-K371-KR-17_Marine_Species_Awareness_Training_Video_Log.pdf

Note that this document includes correspondence through 1:00 PM on 19 March 2018.

CORRESPONDENCE

From: Kathryn Pridgen - NOAA Federal [mailto:kathryn.pridgen@noaa.gov]
Sent: Monday, May 15, 2017 12:40 PM
To: Evans, Rod E. <RHODRI.E.EVANS@leidos.com>
Cc: Emily Clark - NOAA Federal <emily.clark@noaa.gov>; Lepore, Christine A. <Christine.A.Lepore@leidos.com>; Quintal, Rebecca T. <REBECCA.T.QUINTAL@leidos.com>
Subject: Re: EXTERNAL: Request for Task Order Quote, Sabine and Vicinity

Hi Rod,

I have some answers for the questions you sent us regarding some of the features assigned in the CSF for OPR-K371-KR-17 Sabine and Vicinity. My answers are in red.

Topic 1: Assigned Pipelines:

The pipelines provided in the CSF all had an assignment (asgnmt) attributed as "assigned". The investigation requirements (invreq) state: "See Section 1.6.2 for Elevated Pipeline guidance or Section 1.7 for Non-DTON Exposed Pipeline guidance. If pipeline is not elevated or exposed, include in FFF with descrp = retain. "

Leidos referred to Sections 1.62 and 1.7 which do not reference any S-57 FFF attribution or multibeam coverage requirements, as they discuss the submittal of an exposed pipeline or gas seep.

The orange part: Only applies if the pipeline is exposed or elevated, then it qualifies as a DTON and then it should be disproved using the disproval coverage (200% SSS)

The yellow part: If the pipeline is unexposed (as I think the ones assigned in the CSF are), then include in FFF with descrp=retain, and use normal coverage as assigned by the rest of the sheet (in this case complete coverage: 100% SSS with multibeam or 100% MBES)

I am going to change the invreq in the final CSF to read: "If the pipeline is exposed or elevated See Section 1.6.2 for Elevated Pipeline guidance or Section 1.7 for Non-DTON Exposed Pipeline guidance. If pipeline is not exposed, then include in FFF with descrp=retain, coverage requirements are the same as the sheet."

For the pipelines assigned in the CSF, they are only applicable within the sheet limits and as long as it is not exposed it should be follow the coverage requirements of the sheet, not DTON disproval coverage requirements.

Note that several of the provided pipelines extend beyond the bounds of the OPR-K371-KR-17 project limits.

Question:

1. What are the coverage requirements for these assigned pipelines? 100% complete coverage if not exposed.

a. Are we trying to prove or disprove the pipelines? Therefore needing 100% multibeam coverage or 200% SSS coverage? If yes, would we therefore need to perform a route survey over the pipeline within the PRF survey bounds? Would we need to extend the survey beyond the OPR-K371-KR-17 project limits? We are trying to prove unexposed pipelines within the sheet limits. We do not need to extend the survey beyond the sheet limits.

b. Or is the complete coverage Option B (100% side scan coverage with concurrent multibeam) for the sheet as a whole sufficient "coverage" over these assigned items? Yes. Complete coverage.

Topic 2: Object disproval:

Platforms are also assigned in the provided CSF. The invreq states "If visually confirmed, include in FFF with descrp=retain. If not visible, conduct a feature disproval (Section 7.3.4) and if disproved, include in FFF with descrp = delete." Note that the HSSD 2017 does not provide a search radius for disproval, and one was not indicated in the CSF for platforms.

Question:

1. Is there a defined search radius for features that do not have a position qualifier? In the 2016 Project Instructions there was the following text, "..and all other features without a position qualifier will have a search radius of 80 meters."

For platforms the disproval radius is 80m. The PA radius is specified in the invreq and is different from the platform disproval radius.

I hope this answers your questions. I am available to answer any more that you have. I am in the office this week, but then going to sea for the next two weeks. I will not have phone access but should be able to answer emails.

Thank you,
Katy

Kathryn "Katy" Pridgen
Physical Scientist
NOAA-HSD OPS
301-713-2702 ext 178
kathryn.pridgen@noaa.gov

On Thu, May 4, 2017 at 9:20 AM, Evans, Rod E. <RHODRI.E.EVANS@leidos.com> wrote:

Emily and Katy,

Thank you for granting an additional 2 weeks to the proposal deadline to now be through May 30, 2017.

Also, thanks for the CSF and PRF files for OPR-K371-KR-17 Sabine and Vicinity. We have the following questions regarding the CSF file sent for TO-03:

Topic 1: Assigned Pipelines:

The pipelines provided in the CSF all had an assignment (asgnmt) attributed as “assigned”. The investigation requirements (invreq) state: "See Section 1.6.2 for Elevated Pipeline guidance or Section 1.7 for Non-DTON Exposed Pipeline guidance. If pipeline is not elevated or exposed, include in FFF with descrp = retain. "

Leidos referred to Sections 1.62 and 1.7 which do not reference any S-57 FFF attribution or multibeam coverage requirements, as they discuss the submittal of an exposed pipeline or gas seep.

Note that several of the provided pipelines extend beyond the bounds of the OPR-K371-KR-17 project limits.

Question:

1. What are the coverage requirements for these assigned pipelines?

a. Are we trying to prove or disprove the pipelines? Therefore needing 100% multibeam coverage or 200% SSS coverage? If yes, would we therefore need to perform a route survey over the pipeline within the PRF survey bounds? Would we need to extend the survey beyond the OPR-K371-KR-17 project limits?

b. Or is the complete coverage Option B (100% side scan coverage with concurrent multibeam) for the sheet as a whole sufficient “coverage” over these assigned items?

Topic 2: Object disproval:

Platforms are also assigned in the provided CSF. The invreq states “If visually confirmed, include in FFF with descrp=retain. If not visible, conduct a feature disproval (Section 7.3.4) and if disproved, include in FFF with descrp = delete." Note that the HSSD 2017 does not provide a search radius for disproval, and one was not indicated in the CSF for platforms.

Question:

1. Is there a defined search radius for features that do not have a position qualifier? In the 2016 Project Instructions there was the following text, "..and all other features without a position qualifier will have a search radius of 80 meters."

Thanks, Rod.

Rod Evans Ph.D | Leidos
Branch Manager (Marine Survey and Engineering Solutions Branch)
Survey & Marine Operations Business Area Manager
Maritime Solutions Division
phone: 401.848.4783
evansrh@leidos.com | leidos.com/natsec
"What would an ocean be without a monster lurking in the dark? It would be like sleep without dreams."
— Werner Herzog

From: Kathryn Pridgen - NOAA Federal [mailto:kathryn.pridgen@noaa.gov]
Sent: Wednesday, May 03, 2017 10:18 AM
To: Emily Clark - NOAA Federal
Cc: Lepore, Christine A.; Evans, Rod E.; Quintal, Rebecca T.
Subject: Re: EXTERNAL: Request for Task Order Quote, Sabine and Vicinity

Christine,

Here are the CSF and PRF files for OPR-K371-KR-17 Sabine and Vicinity.

Katy

Kathryn "Katy" Pridgen
Physical Scientist
NOAA-HSD OPS
301-713-2702 ext 178
kathryn.pridgen@noaa.gov

On Wed, May 3, 2017 at 9:36 AM, Emily Clark - NOAA Federal <emily.clark@noaa.gov> wrote:

Good Morning,

I know Katy sent some additional files yesterday afternoon, not sure if those are what you are requesting. For some reason I am unable to open the attachments. If you didn't receive or need additional information Katy will certainly be able to provide.

There is no issue in granting an extension through May 30 for receipt of your proposal. Just keep in mind that will push the award date out until sometime later in July.

Thanks
v/r,
Emily

On Wed, May 3, 2017 at 8:28 AM, Lepore, Christine A. <Christine.A.Lepore@leidos.com> wrote:

Good morning Emily,

Thank you for forwarding the Request for Task Order Quote, Sabine and Vicinity. Leidos has reviewed the Request for Task Order and in order to build our survey plans for this proposal (i.e. exact survey bounds and assigned objects), Leidos respectfully requests that NOAA provide the Composite Source File (CSF) and Project Reference File (PRF). Leidos will propose an autonomous capability which will require additional time to create and review, therefore, we respectfully request a two (2) week extension to the proposal due date of 16 May 2017 to 30 May 2017.

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

Thank you,
Christine

From: Emily Clark - NOAA Federal [mailto:emily.clark@noaa.gov]
Sent: Tuesday, May 02, 2017 12:55 PM
To: Lepore, Christine A. <Christine.A.Lepore@leidos.com>
Cc: Kathryn Pridgen - NOAA Federal <kathryn.pridgen@noaa.gov>
Subject: EXTERNAL: Request for Task Order Quote, Sabine and Vicinity

Good Afternoon,

Please see the attached Statement of Work and Project Instructions requesting a hydrographic survey of Sabine and Vicinity under contract EA-133C-14-CQ-0033.

Katy Pridgen will be acting as COR under the resulting Task Order.

Please submit your approach and pricing no later than 3:00 ET on May 16, 2017. Any discussions, questions, or communication necessary to reach a final proposal shall be inclusive of myself and the COR from this point forward.

Thanks
--
v/r,
Emily Clark
Contract Specialist, NOAA AGO
Eastern Region Acquisition Division
Supporting National Ocean Service
200 Granby Street, Suite 815
Norfolk, VA 23510
Phone: 757-441-6875

From: Kathryn Pridgen - NOAA Federal [mailto:kathryn.pridgen@noaa.gov]
Sent: Monday, July 17, 2017 10:37 AM
To: Evans, Rod E. <RHODRI.E.EVANS@leidos.com>
Cc: Quintal, Rebecca T. <REBECCA.T.QUINTAL@leidos.com>; Emily Clark - NOAA Federal <emily.clark@noaa.gov>; Russell Quintero - NOAA Federal <russell.quintero@noaa.gov>; Corey Allen - NOAA Federal <corey.allen@noaa.gov>
Subject: Re: EXTERNAL: Award EA-133C-14-CQ-0033 T-0003
Attachment: Package.zip

Rod,
Here is the package of the final files needed for Sabine.

Please let me know if you have any questions,
Katy

Kathryn "Katy" Pridgen
Physical Scientist
NOAA-HSD OPS
240-533-0033
kathryn.pridgen@noaa.gov

On Fri, Jul 14, 2017 at 3:01 PM, Evans, Rod E. <RHODRI.E.EVANS@leidos.com> wrote:
Good afternoon Katy,

For TO03, please confirm or provide at your earliest convenience:

- Please confirm that the CSF and PRF files provided by Emily Clark on 23 June 2017 named OPR-K371-KR-17_CSF_new.000 and OPR-K371-KR-17_PRF_new.000 are the final CSF and PRF files. If not, can the final files please be provided?
- Tides *.ZDF file (i.e. tide zone coordinates);
- Coast Pilot report/excerpts to be updated.

Thanks again, Rod.

Rod Evans Ph.D | Leidos
Branch Manager (Marine Survey and Engineering Solutions Branch)
Survey & Marine Operations Business Area Manager
Maritime Solutions Division

phone: 401.848.4783
evansrh@leidos.com | leidos.com/natsec
"What would an ocean be without a monster lurking in the dark? It would be like sleep without dreams."
— Werner Herzog

From: Emily Clark - NOAA Federal [mailto:emily.clark@noaa.gov]
Sent: Friday, July 14, 2017 10:35 AM
To: Evans, Rod E.; Lepore, Christine A.; Wise, Michael J.; Kathryn Pridgen - NOAA Federal
Subject: EXTERNAL: Award EA-133C-14-CQ-0033 T-0003

Good Morning,

Attached is awarded task order EA-133C-14-CQ-0033 T-0003. COR designation MEMO is also attached for Katy's signature.

Please respond showing receipt of this award at your earliest convenience.

Thanks

--
v/r,

Emily Clark
Contract Specialist, NOAA AGO
Eastern Region Acquisition Division
Supporting National Ocean Service
200 Granby Street, Suite 815
Norfolk, VA 23510
Phone: 757-441-6875

From: Kathryn Pridgen - NOAA Federal [kathryn.pridgen@noaa.gov]
Sent: Wednesday, November 29, 2017 3:33 PM
To: Evans, Rod E. [US-US]
Subject: EXTERNAL: New OCS website

Rod,
A new website has been published for the HSD Standards and Requirements webpage:

https://www.nauticalcharts.noaa.gov/publications/standards-and-requirements.html

On this webpage you will find the following downloads:

- NOAA Hydrographic Specifications and Deliverables
- XML Descriptive Report schema release package

Please refer to the documents on this webpage for your current 2018 task order.

Thanks,
Katy

Kathryn "Katy" Pridgen
Physical Scientist
NOAA-HSD OPS
240-533-0033
kathryn.pridgen@noaa.gov

From: Quintal, Rebecca T. [US-US]
Sent: Thursday, December 21, 2017 10:33 AM
To: 'Kathryn Pridgen - NOAA Federal' <kathryn.pridgen@noaa.gov>; 'survey.outlines@noaa.gov' <survey.outlines@noaa.gov>; 'starla.robinson@noaa.gov' <starla.robinson@noaa.gov>
Cc: Rhodri E. Evans <rhodri.e.evans@leidos.com>; Paul Donaldson <PAUL.L.DONALDSON@leidos.com>; Bridget Bernier <bridget.w.bernier@leidos.com>; Bernier, Alex T. [US-US] <ALEX.T.BERNIER@leidos.com>
Subject: Survey Outlines for final 2 Sheets on OPR-K371-KR-17 (H13056 and H13057)
Attachments: H13056_Survey_Outline.000, H13057_Survey_Outline.000

Katy,

Please find attached the Survey Outline files for H13056 (Sheet 3) and H13057 (Sheet 4), from OPR-K371-KR-17, Sabine, LA, Task Order-0003.

The survey outlines have been generated as S-57 Feature Object Class M_COVR in .000 format (WGS84 datum, un-projected) as specified in the April 2017 HSSD (Section 8.1.2).

Please let me know if you have any questions.

Thank you,
-Rebecca

Rebecca T. Quintal | Leidos
Hydrographic Survey & Data Solutions Manager
Marine Survey & Engineering Solutions
office: 401.848.4607
mobile: 401.829.6242
rebecca.t.quintal@leidos.com

From: Kathryn Pridgen - NOAA Federal [mailto:kathryn.pridgen@noaa.gov]
Sent: Monday, January 29, 2018 2:15 PM
To: Evans, Rod E. [US-US] <RHODRI.E.EVANS@leidos.com>; Quintal, Rebecca T. [US-US] <REBECCA.T.QUINTAL@leidos.com>
Subject: EXTERNAL: Follow up on some questions on HSSD

Rod and Rebecca,

We have being working on addressing all the tickets submitted about the HSSD and updating the new version of the HSSD coming out soon. I wanted to follow up with you about some of the questions that you submitting that I can answer one on one that do not really warrant a change to the HSSD. See below, my answers are in bold:

1. Section 7.5.2, "NOAA Extended Attributes" (Pg. 98): Under "sftype" the option of CROWDSOURCE is not listed in the provided table.

    a. [Note this was also the case in 2016, we found it by using the NOAA Extended Attribute library; all of the 2016 wellheads were CROWDSOURCE].

    Please use to remarks section to explain the that these features are wellheads under the SORIND attribute. Wellheads do not need to be attributed in sftype as they are not ATONs, DTON, maritime boundary point, or LIDAR feature.

1. Section 8.1.4, "Descriptive Report (DR)" (Pg. 111): Abnormal Seafloor or Environmental Conditions section

    a. Leidos observed in the 2016 Schema that the section header for this part of the DR had not been updated to reflect the change in HSSD. Is there going to be a new schema?

"Abnormal Seafloor or Environmental Conditions" section is not in HSSD online schema. It is in the zip file on this page: https://nauticalcharts.noaa.gov/publications/standards-and-requirements.html

1. Appendix J (Pg. 146): Under Processed/Sonar_Data/HXXXXX

a. Please confirm this is where the multibeam, side scan, and delayed heave files would be delivered?

Delayed Heave is a raw .000 from the POS so it goes under preprocess

b. Is there a requirement on naming convention of sub-directories?

There is no naming convention for subdirectories.

c. Is there a requirement to separate out mainscheme and crossline data into sub-directories?

Crosslines and mainscheme don't need to be in different directories

Let me know if you have any additional questions. I hope the processing of data is going well!!

Katy

Kathryn "Katy" Pridgen
Physical Scientist
NOAA-HSD OPS
240-533-0033
kathryn.pridgen@noaa.gov

From: Kathryn Pridgen - NOAA Federal [mailto:kathryn.pridgen@noaa.gov]
Sent: Friday, February 02, 2018 12:20 PM
To: Bernier, Bridget W. [US-US] <BRIDGET.W.BERNIER@leidos.com>
Cc: Quintal, Rebecca T. [US-US] <REBECCA.T.QUINTAL@leidos.com>; Evans, Rod E. [US-US] <RHODRI.E.EVANS@leidos.com>; Donaldson, Paul L. [US-US] <PAUL.L.DONALDSON@leidos.com>; Bernier, Alex T. [US-US] <ALEX.T.BERNIER@leidos.com>; Tiffany Squyres - NOAA Federal <Tiffany.Squyres@noaa.gov>; Christina Fandel - NOAA Federal <christina.fandel@noaa.gov>; Corey Allen - NOAA Federal <corey.allen@noaa.gov>
Subject: Re: EXTERNAL: Re: Questions about XML schema

Bridget
It is fine to submit the survey with the PDF saying "A.Survey Coverage" instead of "A.4"
Please include this email in your correspondence folder in the deliverable.

Katy

Kathryn "Katy" Pridgen
Physical Scientist
NOAA-HSD OPS
240-533-0033
kathryn.pridgen@noaa.gov

On Fri, Feb 2, 2018 at 12:08 PM, Bernier, Bridget W. <BRIDGET.W.BERNIER@leidos.com> wrote:

Katy,

After we received your email, we downloaded the 2017 schema from the link you provided on 30 January.

We no longer receive the warning message about the Appendices.xsd (Question 3).

However, when we convert to PDF we are still seeing that the section Survey Coverage is listed as “A. Survey Coverage” not “A.4 Survey Coverage” (Question 2).

When we compared the DR_Stylesheet.xslt file between when we downloaded them, they are both dated 10/2/2017. All other files in the zip file we downloaded 30 January are dated 1/9/2018.

Again, this is really more bringing the item to your attention, but we are just confirming that this is okay to submit as is?

Thanks,
-Bridget

From: Quintal, Rebecca T. [US-US]
Sent: Wednesday, January 31, 2018 11:11 AM
To: Kathryn Pridgen - NOAA Federal <kathryn.pridgen@noaa.gov>
Cc: Evans, Rod E. [US-US] <RHODRI.E.EVANS@leidos.com>; Bernier, Bridget W. [US-US] <BRIDGET.W.BERNIER@leidos.com>; Donaldson, Paul L. [US-US] <PAUL.L.DONALDSON@leidos.com>; Bernier, Alex T. [US-US] <ALEX.T.BERNIER@leidos.com>; Tiffany Squyres - NOAA Federal <Tiffany.Squyres@noaa.gov>; Christina Fandel - NOAA Federal <christina.fandel@noaa.gov>; Corey Allen - NOAA Federal <corey.allen@noaa.gov>
Subject: Re: EXTERNAL: Re: Questions about XML schema

Thank you Katy. We have downloaded the latest version of the schema and will use it with no further cost to NOAA.

Thank you!
-Rebecca

Sent from Email+ secured by MobileIron

From: "Kathryn Pridgen - NOAA Federal" <kathryn.pridgen@noaa.gov>
Date: Tuesday, January 30, 2018 at 4:06:22 PM
To: "Quintal, Rebecca T. [US-US]" <REBECCA.T.QUINTAL@leidos.com>
Cc: "Evans, Rod E. [US-US]" <RHODRI.E.EVANS@leidos.com>, "Bernier, Bridget W. [US-US]" <BRIDGET.W.BERNIER@leidos.com>, "Donaldson, Paul L. [US-US]" <PAUL.L.DONALDSON@leidos.com>, "Bernier, Alex T. [US-US]" <ALEX.T.BERNIER@leidos.com>, "Tiffany Squyres - NOAA Federal" <Tiffany.Squyres@noaa.gov>, "Christina Fandel - NOAA Federal" <christina.fandel@noaa.gov>, "Corey Allen - NOAA Federal" <corey.allen@noaa.gov>
Subject: EXTERNAL: Re: Questions about XML schema

Rebecca,

Following your request, Leidos may use the 2017_01 version of the schema. The 2017_01 schema was recently updated (Jan 29, 2018) to include the Appendices.xsd (Question 3) file as well as address the "Survey Coverage" text issue (Question 2). If Leidos chooses to use the 2017_01 schema, they must download the latest version of the schema from the OCS website. Otherwise, version 2016_01 should be referenced. Given this request to use the 2017_01 schema was issued by Leidos, it is the government's understanding use of the 2017_01 schema for OPR-K371-KR-17 will not result in any additional cost. If this is not the case, Leidos must use the 2016_01 version of the schema as originally required in the task order.

In response to question 4, given this project requires discrete tides, your solution for producing a valid XML file in light of the required ERS fields is acceptable. A dummy value may also be used for the final tides requested date. We have logged both of these issues in our help desk ticketing system and will resolve them as soon as possible.

Please include this email in the correspondence folder in the final deliverable to facilitate communications with AHB.

Thank you

Katy

Kathryn "Katy" Pridgen
Physical Scientist
NOAA-HSD OPS
240-533-0033
kathryn.pridgen@noaa.gov

On Mon, Jan 29, 2018 at 2:20 PM, Quintal, Rebecca T.
<REBECCA.T.QUINTAL@leidos.com> wrote:
Hello Katy,

We have started working with the XML Schema in preparation for our upcoming deliveries on OPR-K371-KR-17 and we have the following questions.

1. Our OPR-K371-KR-17 Project Instructions indicate that we are to use "NOAA XML Hydrographic Reports, Version 2016_1", however we took a look at the 2017 XML Schema (final_2017_01) and found that there were several fixes that we are hoping to take advantage of for our OPR-K371-KR-17 submittals.
    a. Is it acceptable that we deliver the OPR-K371-KR-17 DRs using the 2017 XML Schema (final_2017_01)?

2. When the XML is converted using the provided stylesheet, there is a section that has an incomplete header
    a. The Section is listed in the PDF as "A Survey Coverage" instead of "A.4 Survey Coverage"
    b. This section is also incomplete in the Table of Contents
    c. This is really more bringing the item to your attention, but we are just confirming that this is okay to submit as is?

3. Missing file
    a. Upon creating the XML in Altova XMLSpy from the provided files in the final_2017_01 zip file, we receive the following error message:

The schemas referenced by xsi:schemaLocation or xsi:noNamespaceSchemaLocation attributes at element <dr:descriptiveReport> are valid with warnings.

Unable to load a schema from 'Appendices.xsd'.

I/O operation on file 'M:\charlie\NOAA_Louisiana_2017\XML_Schema\final_2017_01\Appendices.xsd' failed.

Details

System Error 2: The system cannot find the file specified.

    i. Note within final_2017_01 zip file there was no Appendices.xsd file. (The schema files were downloaded from the NOAA website 22 January 2018)

   b. We would like to confirm that the XML we create is still valid for NOAA even with this warning message.

4. As in the XML Schema we used to deliver our OPR-K371-KR-16 surveys, we have found sections having to do with ERS surveys in the 2017 XML Schema that we are having trouble with;
   a. The fields were under Vertical Control "VDATUM_or_constantSep" and under Horizontal Control " PPK", both of which are related to ERS surveys, and OPR-K371-KR-17 surveys used traditional tides (zoning).
   b. The solution last year was the following, based on guidance received from Christina Fandal on 09 January 2017, Leidos was able to validate the XML by attributing the above fields as "False" for the "used" field, and attributing the "methodsUsed" with a "dummy" option from the drop-down.
      i. Is this approach acceptable for the OPR-K371-KR-17 surveys as well, traditional tides (zoning) were also used.

5. An additional field in the 2017 schema, that we also encountered in the 2016, was the dates for the final tides submitted and received.
   a. As Leidos does not submit a request for final tides, is it acceptable for Leidos to use a generic date of 1970-01-01?

Thank you,
-Rebecca

Rebecca T. Quintal | Leidos
Hydrographic Survey & Data Solutions Manager
Marine Survey & Engineering Solutions
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mobile: 401.829.6242
rebecca.t.quintal@leidos.com

From: Bernier, Alex T. [US-US]
Sent: Wednesday, February 07, 2018 9:43 AM
To: ocs.ecc@noaa.gov
Cc: kathryn.pridgen@noaa.gov; starla.robinson@noaa.gov; Evans, Rod E. [US-US] <RHODRI.E.EVANS@leidos.com>; Quintal, Rebecca T. [US-US] <REBECCA.T.QUINTAL@leidos.com>; Donaldson, Paul L. [US-US] <PAUL.L.DONALDSON@leidos.com>; Bernier, Bridget W. [US-US] <BRIDGET.W.BERNIER@leidos.com>
Subject: OPR-K371-KR-17 Marine Species Awareness Training
Attachments: OPR-K371-KR-17_Marine_Species_Awareness_Training_Video_Log.pdf

Per section 1.5 of the April 2017 NOS Hydrographic Surveys Specifications and Deliverables, please find attached the Marine Species Awareness Training log. The attached log captures a list of trained marine mammal observers and the date each observer viewed the training video as required under NOAA hydrographic survey contract EA-133C-14-CQ-0033, project number OPR-K371-KR-17, Task Order 0003 (Sabine and Vicinity).

Please contact me if there are any questions or problems with the attached.

Alex Bernier | Leidos
Lead Hydrographer | Marine Scientist
Marine Survey & Engineering Solutions
office: 401.848.4726
mobile: 508.494.3485
alex.t.bernier@leidos.com | leidos.com

From: Bernier, Alex T. [US-US]
Sent: Friday, February 09, 2018 4:18 PM
To: OCS.NDB@NOAA.GOV; Coast.Pilot@NOAA.GOV
Cc: kathryn.pridgen@noaa.gov; starla.robinson@noaa.gov; Evans, Rod E. [US-US] <RHODRI.E.EVANS@leidos.com>; Quintal, Rebecca T. [US-US] <REBECCA.T.QUINTAL@leidos.com>; Donaldson, Paul L. [US-US] <PAUL.L.DONALDSON@leidos.com>; Bernier, Bridget W. [US-US] <BRIDGET.W.BERNIER@leidos.com>
Subject: OPR-K371-KR-17 Coast Pilot Review Report
Attachments: OPR-K371-KR-17_Coast Pilot Review Report.pdf

Please find attached the Coast Pilot Review Report for Contract: EA-133C-14-CQ-0033, Project Number OPR-K371-KR-17, Task Order 0003 (Sabine and Vicinity). The one attached .pdf file submitted addresses the Coast Pilot Field Report delivered to Leidos for OPR-K371-KR-17, and a separate review of the text of the actual Coast Pilot paragraphs.

Please contact me if there are any questions or problems with the attached.

Alex Bernier | Leidos
Lead Hydrographer | Marine Scientist
Marine Survey & Engineering Solutions
office: 401.848.4726
mobile: 508.494.3485
alex.t.bernier@leidos.com | leidos.com

From: Kathryn Pridgen - NOAA Federal [mailto:kathryn.pridgen@noaa.gov]
Sent: Tuesday, February 13, 2018 10:13 AM
To: Quintal, Rebecca T. [US-US] <REBECCA.T.QUINTAL@leidos.com>
Subject: EXTERNAL: Re: Feature Coverage Grid Resolution Question

Rebecca,
For this surface please submit a 2m grid as the 2017 HSSD states that a complete coverage 2m grid covers depths of 18-40m. If there are any features shoaler than 18m (17.9m), then please submit a 1m grid.

Complete coverage in 2017 HSSD:

Depth Range (m)	Resolution (m)
0-20	1
18-40	2
36-80	4
72-160	8
144-320	16

I hope that helps!

Thanks
Katy

Kathryn "Katy" Pridgen
Physical Scientist
NOAA-HSD OPS
240-533-0033
kathryn.pridgen@noaa.gov

On Mon, Feb 5, 2018 at 11:53 PM, Quintal, Rebecca T.
<REBECCA.T.QUINTAL@leidos.com> wrote:

Hello Katy,

As we are finalizing our Sheet 1 (H13054) deliverables, we have identified an additional question regarding coverage grid resolution.

Leidos surveyed OPR-K371-KR-17 to *Complete Coverage, Option B: 100% side scan sonar coverage with concurrent multibeam* (HSSD 5.2.2.3*)* specifications. Within the *Option B* section is the statement that "*Multibeam sonar data shall follow complete coverage multibeam coverage specifications."*

Within the HSSD 5.2.2.3 *Option A: Complete Coverage Multibeam* section, grid resolution thresholds are defined. As the final min/max CUBE depths for H13054 were 18.753m/24.890m respectfully, the final BAG surface for H13054 was binned at a 2m

node resolution to meet the Option A grid-resolution threshold of "*18m-40m Depth Range = 2m Resolution*".

Also within the HSSD 5.2.2.3 *Option A: Complete Coverage Multibeam* section, is the statement that "*All significant shoals or features found in waters less than 20 m shall be developed to complete coverage standards (i.e. 1 m resolution surface in depths 0-20 m).*" Within the data of H13054, Leidos has identified two significant features with a least depth of less than 20m, both of which were found in surrounding water depths of 20m or greater. The following information details these significant features:

1. H13054 Feature #1, Least depth = 19.997m, Surrounding Water Depth = approximately 21.050m

2. H13054 Feature #4, Least depth = 18.753m, Surrounding Water Depth = approximately 20.900m

Would NOAA like Leidos to provide separate 1m node resolution BAG's for the examples listed above (and any other cases that may exist on the additional sheets of OPR-K371-KR-17) where the feature was found in surrounding water depths of 20m or greater but has a least depth point of less than 20m?

Thank you,
-Rebecca

Rebecca T. Quintal | Leidos
Hydrographic Survey & Data Solutions Manager
Marine Survey & Engineering Solutions
office: 401.848.4607
mobile: 401.829.6242
rebecca.t.quintal@leidos.com

From: Kathryn Pridgen - NOAA Federal [mailto:kathryn.pridgen@noaa.gov]
Sent: Tuesday, February 13, 2018 10:17 AM
To: Quintal, Rebecca T. [US-US] <REBECCA.T.QUINTAL@leidos.com>
Subject: EXTERNAL: Re: Horizontal and Vertical Control Report

Rebecca,
Yes this procedure will work just fine.

Katy

Kathryn "Katy" Pridgen
Physical Scientist
NOAA-HSD OPS
240-533-0033
kathryn.pridgen@noaa.gov

On Wed, Feb 7, 2018 at 1:33 PM, Quintal, Rebecca T. <REBECCA.T.QUINTAL@leidos.com> wrote:

Hello Katy,

Based on previous feedback, Leidos has not submitted a Horizontal and Vertical Control Report for surveys that did not require vertical control stations to be installed or recovered and/or horizontal control station installed. Instead we have included a Readme.txt file in the Horizontal_&_Vertical_Control_Report folder stating along the lines of: "No vertical or horizontal controls were established, recovered, or occupied during the survey. Vertical and horizontal control specifics are discussed in each sheet's DR."

For OPR-K371-KR-17 no vertical or horizontal control stations were installed, recovered or occupied. However, we wanted to confirm with you that this is still acceptable for OPR-K371-KR-17 to not deliver a HVCR.

Let us know if you would like to discuss.

Thank you,
-Rebecca

Rebecca T. Quintal | Leidos
Hydrographic Survey & Data Solutions Manager
Marine Survey & Engineering Solutions
office: 401.848.4607
mobile: 401.829.6242
rebecca.t.quintal@leidos.com
leidos

From: Bernier, Alex T. [US-US]
Sent: Wednesday, March 07, 2018 1:35 PM
To: ahb.dton@noaa.gov; kathryn.pridgen@noaa.gov; starla.robinson@noaa.gov
Cc: Evans, Rod E. [US-US] <RHODRI.E.EVANS@leidos.com>; Quintal, Rebecca T. [US-US] <REBECCA.T.QUINTAL@leidos.com>; Donaldson, Paul L. [US-US] <PAUL.L.DONALDSON@leidos.com>; Bernier, Bridget W. [US-US] <BRIDGET.W.BERNIER@leidos.com>
Subject: OPR-K371-KR-17 Danger to Navigation Report 01 for H13057
Attachments: H13057_DTON01.zip

Please find attached one Danger to Navigation Report:

- H13057 DTON #1

The files for the DTON submission are provided within a single zip folder containing:

- One (1) S-57 file (*.000)
- Image files that are referenced within the S-57 file (*.jpg)

Please note that the submitted DTON contains one OBSTRN feature which is represented as a line object. The least depth (17.548m, 57.572ft, 0.470m TVU) of the DTON is located at 28^0 54” 16.93’N, 093^0 19” 33.13’W, as encompassed within the line object.

Please feel free to contact us if there are any questions with the attached file.

Thank you,

Alex Bernier | Leidos
Lead Hydrographer | Marine Scientist
Marine Survey & Engineering Solutions
office: 401.848.4726
mobile: 508.494.3485
alex.t.bernier@leidos.com | leidos.com

From: OCS NDB - NOAA Service Account [mailto:ocs.ndb@noaa.gov]
Sent: Thursday, March 08, 2018 4:01 PM
To: Castle E Parker <Castle.E.Parker@noaa.gov>
Cc: Briana Welton <Briana.Hillstrom@noaa.gov>; Kathryn Pridgen - NOAA Federal <kathryn.pridgen@noaa.gov>; Christina Fandel - NOAA Federal <christina.fandel@noaa.gov>; Bernier, Alex T. [US-US] <ALEX.T.BERNIER@leidos.com>; Donaldson, Paul L. [US-US] <PAUL.L.DONALDSON@leidos.com>; Quintal, Rebecca T. [US-US] <REBECCA.T.QUINTAL@leidos.com>; Bernier, Bridget W. [US-US] <BRIDGET.W.BERNIER@leidos.com>; _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>; Charles Porter - NOAA Federal <charles.porter@noaa.gov>; James M Crocker <James.M.Crocker@noaa.gov>; Ken Forster <Ken.Forster@noaa.gov>; Kevin Jett - NOAA Federal <kevin.jett@noaa.gov>; Matt Kroll <Matt.Kroll@noaa.gov>; Michael Gaeta <Michael.Gaeta@noaa.gov>; NSD Coast Pilot <coast.pilot@noaa.gov>; PHB Chief <PHB.Chief@noaa.gov>; Tara Wallace <Tara.Wallace@noaa.gov>
Subject: EXTERNAL: Fwd: H13057 DtoN #1 58ft Obstruction Submission to NDB
Attachments: H13057_DtoN1_58ft_Obstrn.zip

DD-29335 has been registered by the Nautical Data Branch and directed to Products Branch G for processing.

The DtoN reported is an obstruction (exposed pipeline) in the Gulf of Mexico.

The following charts are affected:
11330 kapp 195
11340 kapp 49

The following ENC is affected:
US3GC02M

References:
H13057
OPR-K371-KR-17

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
NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

---------- Forwarded message ----------
From: **Castle Parker - NOAA Federal** <castle.e.parker@noaa.gov>
Date: Wed, Mar 7, 2018 at 3:51 PM
Subject: H13057 DtoN #1 58ft Obstruction Submission to NDB
To: OCS NDB - NOAA Service Account <ocs.ndb@noaa.gov>, pipelines@bsee.gov
Cc: Briana Hillstrom - NOAA Federal <Briana.Hillstrom@noaa.gov>, Kathryn Pridgen - NOAA Federal <kathryn.pridgen@noaa.gov>, Christina Fandel - NOAA Federal <christina.fandel@noaa.gov>, "Bernier, Alex T." <ALEX.T.BERNIER@leidos.com>,

"Donaldson, Paul L." <PAUL.L.DONALDSON@leidos.com>, "Quintal, Rebecca T." <REBECCA.T.QUINTAL@leidos.com>, "Bernier, Bridget W." <BRIDGET.W.BERNIER@leidos.com>

Good day,

Please find attached a compressed file for H13057 DtoN Report #1, containing one uncharted 58ft obstruction (unburied and elevated pipeline) intended for submission to Nautical Data Branch (NDB) and Marine Chart Division (MCD) for chart application.

The information originates from a NOAA contract field unit and was submitted to the Atlantic Hydrographic Branch (AHB) for review and submission. The contents of the attached file were generated at AHB. The attached file contains a DtoN Letter (PDF), associated image files, and a Pydro XML file.

If you have any questions, please contact me via email or phone 757-364-7472. Thank you for your assistance with this matter.

Respectfully,
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) 364-7472

From: Donaldson, Paul L. [US-US]
Sent: Friday, March 09, 2018 11:30 AM
To: NODC.submissions@noaa.gov
Cc: kathryn.pridgen@noaa.gov; starla.robinson@noaa.gov; Evans, Rod E. [US-US] <RHODRI.E.EVANS@leidos.com>; Quintal, Rebecca T. [US-US] <REBECCA.T.QUINTAL@leidos.com>; Bernier, Bridget W. [US-US] <BRIDGET.W.BERNIER@leidos.com>; Bernier, Alex T. [US-US] <ALEX.T.BERNIER@leidos.com>
Subject: OPR-K371-KR-17 NetCDF Sound Speed Data Files
Attachments: OPR-K371-KR-17_20180309.zip

In accordance with Section 8.3.6 of the Hydrographic Surveys Specifications and Deliverables, please find attached one zip file (OPR-K371-KR-17_20180309.zip) containing sound speed data in the NetCDF format used for Leidos hydrographic surveys under project number OPR-K371-KR-17 (Contract: EA-133C-14-CQ-0033 T- 0003, Sabine and Vicinity, Sheets 1-4).

All individual sound speed profile files are delivered with the required .nc file extension and fields are populated with the project, survey, survey unit, and instrument. In addition, sound speed data files are broken out into four sub-folders, which correspond to the purpose of each cast as indicated below

- OPR-K371-KR-17_NCEI_Used_for_Lead_Line
- OPR-K371-KR-17_NCEI_Used_for_Final_Surfaces
- OPR-K371-KR-17_NCEI_Used_for_Comparison
- OPR-K371-KR-17_NCEI_Used_for_Closing

Please contact me if there are any questions or problems with the attached.

Thank you,

Paul Donaldson

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From: Donaldson, Paul L. [US-US]
Sent: Friday, March 09, 2018 11:33 AM
To: OCS.ECC@noaa.gov; larisa.avens@noaa.gov
Cc: kathryn.pridgen@noaa.gov; starla.robinson@noaa.gov; Evans, Rod E. [US-US] <RHODRI.E.EVANS@leidos.com>; Quintal, Rebecca T. [US-US] <REBECCA.T.QUINTAL@leidos.com>; Bernier, Bridget W. [US-US] <BRIDGET.W.BERNIER@leidos.com>; Bernier, Alex T. [US-US] <ALEX.T.BERNIER@leidos.com>
Subject: OPR-K371-KR-17 (Contract: EA-133C-14-CQ-0033 T- 0003, Sabine and Vicinity, Sheets 1-4) Sea Turtle Observations
Attachments: OPR-K371-KR-17_OCS_Sea_Turtle_Observation_Log.pdf

In accordance with Section 1.5 of the Hydrographic Surveys Specifications and Deliverables, please find attached the Sea Turtle Observations Delivery for OPR-K371-KR-17 (Contract: EA-133C-14-CQ-0033 T- 0003, Sabine and Vicinity, Sheets 1-4).

The attached .pdf file submitted is of the individual Sea Turtle Observation Log generated throughout the duration of OPR-K371-KR-17.

Please contact me if there are any questions or problems with the attached.

Thank you,

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From: Donaldson, Paul L. [US-US]
Sent: Friday, March 09, 2018 11:34 AM
To: pop.information@noaa.gov
Cc: kathryn.pridgen@noaa.gov; starla.robinson@noaa.gov; Evans, Rod E. [US-US] <RHODRI.E.EVANS@leidos.com>; Quintal, Rebecca T. [US-US] <REBECCA.T.QUINTAL@leidos.com>; Bernier, Bridget W. [US-US] <BRIDGET.W.BERNIER@leidos.com>; Bernier, Alex T. [US-US] <ALEX.T.BERNIER@leidos.com>
Subject: OPR-K371-KR-17 (Contract: EA-133C-14-CQ-0033 T- 0003, Sabine and Vicinity, Sheets 1-4) Marine Mammal Observations
Attachments: OPR-K371-KR-17_Marine_Mammal_Observation_Log.pdf

In accordance with Section 1.5 of the Hydrographic Surveys Specifications and Deliverables, please find attached the Marine Mammal Observations Delivery for OPR-K371-KR-17 (Contract: EA-133C-14-CQ-0033 T- 0003, Sabine and Vicinity, Sheets 1-4).

The attached .pdf file submitted is a compilation of the individual Marine Mammal Observation Logs generated throughout the duration of OPR-K371-KR-17.

Please contact me if there are any questions or problems with the attached.

Thank you,

-Paul Donaldson

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From: Bernier, Alex T. [US-US]
Sent: Monday, March 12, 2018 4:03 PM
To: kathryn.pridgen@noaa.gov; starla.robinson@noaa.gov
Cc: Evans, Rod E. [US-US] <RHODRI.E.EVANS@leidos.com>; Quintal, Rebecca T. [US-US] <REBECCA.T.QUINTAL@leidos.com>; Bernier, Bridget W. [US-US] <BRIDGET.W.BERNIER@leidos.com>; Donaldson, Paul L. [US-US] <PAUL.L.DONALDSON@leidos.com>
Subject: OPR-K371-KR-17 Non-DTON Seep and Pipeline Report for H13057
Attachments: H13057_Seep_and_ALL_ExposedPipelines_Chart_11330.png, H13057_Seep_01.zip, H13057_ExposedPipeline_02.zip, H13057_ExposedPipeline_03.zip, H13057_ExposedPipeline_04.zip, H13057_ExposedPipeline_05.zip, H13057_ExposedPipeline_06.zip, H13057_ExposedPipeline_07.zip, H13057_ExposedPipeline_08.zip, H13057_ExposedPipeline_09.zip, H13057_ExposedPipeline_10.zip, H13057_ExposedPipeline_11.zip

In accordance with Section 1.7 of the Hydrographic Surveys Specifications and Deliverables, please find below and attached the Non-DTON Seep and Pipeline Report for H13057 (OPR-K371-KR-17, Contract: EA-133C-14-CQ-0033 T- 0003, Sabine and Vicinity).

While surveying in the Gulf of Mexico on Project Number OPR-K371-KR-17 Leidos discovered one seep and ten sections of exposed pipeline within the area of Registry Number H13057. The features were found through analysis of the MBES and SSS data and determined to have a signature discernibly consistent with that of an exposed pipeline, and in one case a form and morphology typical of ascending gas or bubble plumes. Many of the identified exposed pipelines were found to have continuous lengths of alternating exposed and buried sections. All ten exposed pipeline features were within close proximity of currently charted pipelines, however in some cases, were found to deviate from the currently charted locations along the lengths of identified sections. The details of the seep and each exposed pipeline are as follows and images of each are contained in the attached zip directories.

- H13057 Seep #1 was found at 28^0 53” 32.89’N, 093^0 23” 58.47’W, on Julian Day 337 (December 03, 2017) at 1136 UTC. This feature was found to have a signature discernibly consistent of a gas seep, but was not found associated with any charted or observed uncharted pipelines or wellheads.

- H13057 Exposed Pipeline #2 consists of multiple alternating exposed / buried sections covering approximately 3200 meters from 28° 54” 37.36’N, 093° 16” 59.89’W, to 28° 53” 43.12’N, 093° 15” 19.47’W. This feature is in a NW/SE orientation with the shoalest depth identified on Julian Day 315 (11 November 2017) at 1344 UTC and is approximately 0.84m high in 24.18m of water (23.336m least depth). The identified shoalest depth is associated with a charted

WSW/ENE pipeline. The exposed and buried pipeline identified is in a NW/SE orientation and was found to extend away from the charted WSW/ENE pipeline.

- H13057 Exposed Pipeline #3 consists of multiple alternating exposed / buried sections covering approximately 3050 meters from 28° 54" 43.82'N, 093° 18" 26.70'W, to 28° 53" 37.73'N, 093° 19" 10.63'W. This feature was found to have a section running in a NW/SE orientation for approximately 700 meters which then curves to a NE/SW orientation and continuing for approximately 2,350 meters. The shoalest depth was identified on Julian Day 315 (11 November 2017) at 2144 UTC and is approximately 0.81m high in 22.65m of water (21.838m least depth). The northern 700-meter section is associated with a charted NW/SE pipeline, but then the exposed and buried pipeline continues to the SW away from the currently charted pipelines. The shoalest depth is located at the junction of Exposed Pipeline #11 discussed below.

- H13057 Exposed Pipeline #4 consists of multiple alternating exposed / buried sections covering approximately 600 meters from 28° 54" 50.41'N, 093° 18" 00.71'W, to 28° 54" 39.69'N, 093° 18" 14.78'W. This feature is generally in a NE/SW orientation with the shoalest depth identified on Julian Day 316 (12 November 2017) at 0957 UTC and is approximately 0.16m high in 22.50m of water (22.340m least depth). H13057 Exposed Pipeline #4 is associated with multiple charted pipelines, however does not directly follow or match the charted pipelines.

- H13057 Exposed Pipeline #5 consists of exposed and buried sections covering approximately 200 meters from 28° 54" 38.49'N, 093° 17" 51.94'W, to 28° 54" 37.21'N, 093° 17" 58.83'W. This feature is in a general NE/SW orientation with the shoalest depth identified on Julian Day 316 (12 November 2017) at 1000 UTC and is approximately 0.15m high in 22.73m of water (22.580m least depth). H13057 Exposed Pipeline #5 is associated with a charted pipeline between two charted platforms, however does not directly follow or match the charted pipeline.

- H13057 Exposed Pipeline #6 consists of exposed and buried sections covering approximately 980 meters from 28° 54" 27.72'N, 093° 18" 11.39'W, to 28° 54" 24.64'N, 093° 18" 47.32'W. This feature is in a general E/W orientation with the shoalest depth identified on Julian Day 316 (12 November 2017) at 1045 UTC and is approximately 0.35m high in 22.61m of water (22.262m least depth). H13057 Exposed Pipeline #5 is in the general area of multiple charted pipelines, however does not directly follow or match the charted pipelines.

- H13057 Exposed Pipeline #7 consists of multiple alternating exposed / buried sections covering approximately 3100 meters from 28° 54" 47.36'N, 093° 19" 46.50'W, to 28° 53" 58.26'N, 093° 18" 26.38'W. This feature was found to have a section of pipeline running in a NW/SE orientation for approximately 2000 meters which curves to a N/S orientation. The shoalest depth was identified on

Julian Day 337 (03 December 2017) at 0710 UTC and is approximately 0.85m high in 22.07m of water (21.218m least depth). The NW/SE section is associated with a charted pipeline, but is no longer associated with any charted pipelines once it curves due south.

- H13057 Exposed Pipeline #8 consists of exposed and buried sections covering approximately 700 meters from 28° 54" 32.50'N, 093° 18" 08.79'W, to 28° 54" 43.12'N, 093° 18" 31.72'W. This feature is in a general NW/SE orientation with the shoalest depth identified on Julian Day 315 (11 November 2017) at 1859 UTC and is approximately 0.03m high in 22.47m of water (22.440m least depth). H13057 Exposed Pipeline #8 is in the general area of multiple charted pipelines, however does not directly follow or match the charted pipelines.

- H13057 Exposed Pipeline #9 consists of exposed and buried sections covering approximately 160 meters from 28° 54" 33.62'N, 093° 18" 22.47'W, to 28° 54" 29.32'N, 093° 18" 20.30'W. This feature is in a general N/S orientation with the shoalest depth identified on Julian Day 316 (12 November 2017) at 1011 UTC and is approximately 0.06m high in 22.55m of water (22.492m least depth). H13057 Exposed Pipeline #9 is in the general area of multiple charted pipelines, however does not directly follow or match the charted pipelines.

- H13057 Exposed Pipeline #10 consists of mainly buried evidence of a pipeline's existence, with one exposed section observed. The buried and exposed sections cover approximately 1680 meters from 28° 55" 03.80'N, 093° 17" 15.11'W, to 28° 54" 32.84'N, 093° 18" 06.13'W. This feature is in a NE/SW orientation. The exposed section of pipeline was observed at the southwestern extent, and found extending down a slope and into a large depression in the seafloor. The shoalest depth of the exposed section was identified on Julian Day 337 (03 December 2017) at 0055 UTC and is approximately 0.37m high in 24.271m of water (23.904m least depth). H13057 Exposed Pipeline #10 is near an area of multiple charted pipelines and platforms, however does not directly follow or match the charted pipelines.

- H13057 Exposed Pipeline #11 consists of multiple alternating exposed / buried sections covering approximately 2225 meters from 28° 54" 41.75'N, 093° 17" 09.55'W, to 28° 54" 17.91'N, 093° 18" 25.83'W. This feature is in a general NE/SW orientation. The shoalest depth was identified on Julian Day 315 (11 November 2017) at 2144 UTC and is approximately 0.81m high in 22.65m of water (21.838m least depth). H13057 Exposed Pipeline #11 is in the general area of multiple charted pipelines, however does not directly follow or match the charted pipeline positions. The identified shoalest depth is located at the junction of Exposed Pipeline #3 discussed above.

Please contact me if there are any questions with the information above or attached image files.

Thank you,

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APPROVAL PAGE

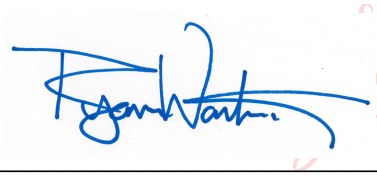
H13057

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
- Bottom samples
- 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.

Approved: 
Digitally signed by WARTICK.RYAN.AUGUSTUS.1100903608
Date: 2019.08.19 10:16:16 -04'00'

Lieutenant Commander Ryan Wartick, NOAA
Chief, Atlantic Hydrographic Branch