

H12879

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

**DESCRIPTIVE REPORT**

Type of Survey: Basic Hydrographic Survey

Registry Number: H12879

**LOCALITY**

State(s): Louisiana

General Locality: Gulf of Mexico

Sub-locality: 38 NM South of Calcasieu Pass

**2016**

CHIEF OF PARTY  
Paul L. Donaldson

LIBRARY & ARCHIVES

Date:

**HYDROGRAPHIC TITLE SHEET**

**H12879**

**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: **Gulf of Mexico**

Sub-Locality: **38 NM South of Calcasieu Pass**

Scale: **40000**

Dates of Survey: **08/12/2016 to 09/29/2016**

Instructions Dated: **05/12/2016**

Project Number: **OPR-K371-KR-16**

Field Unit: **Leidos**

Chief of Party: **Paul L. Donaldson**

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-0002.

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. 17-TR-006.

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 H12879

Project: OPR-K371-KR-16

Locality: Gulf of Mexico

Sublocality: 38 NM South of Calcasieu Pass

Scale: 1:40000

August 2016 - September 2016

**Leidos**

Chief of Party: Paul L. Donaldson

### 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:

<b>Northwest Limit</b>	<b>Southeast Limit</b>
29° 09' 36.65" N 093° 26' 40.09" W	29° 05' 06.79" N 093° 15' 12.78" W

*Table 1: Survey Limits*

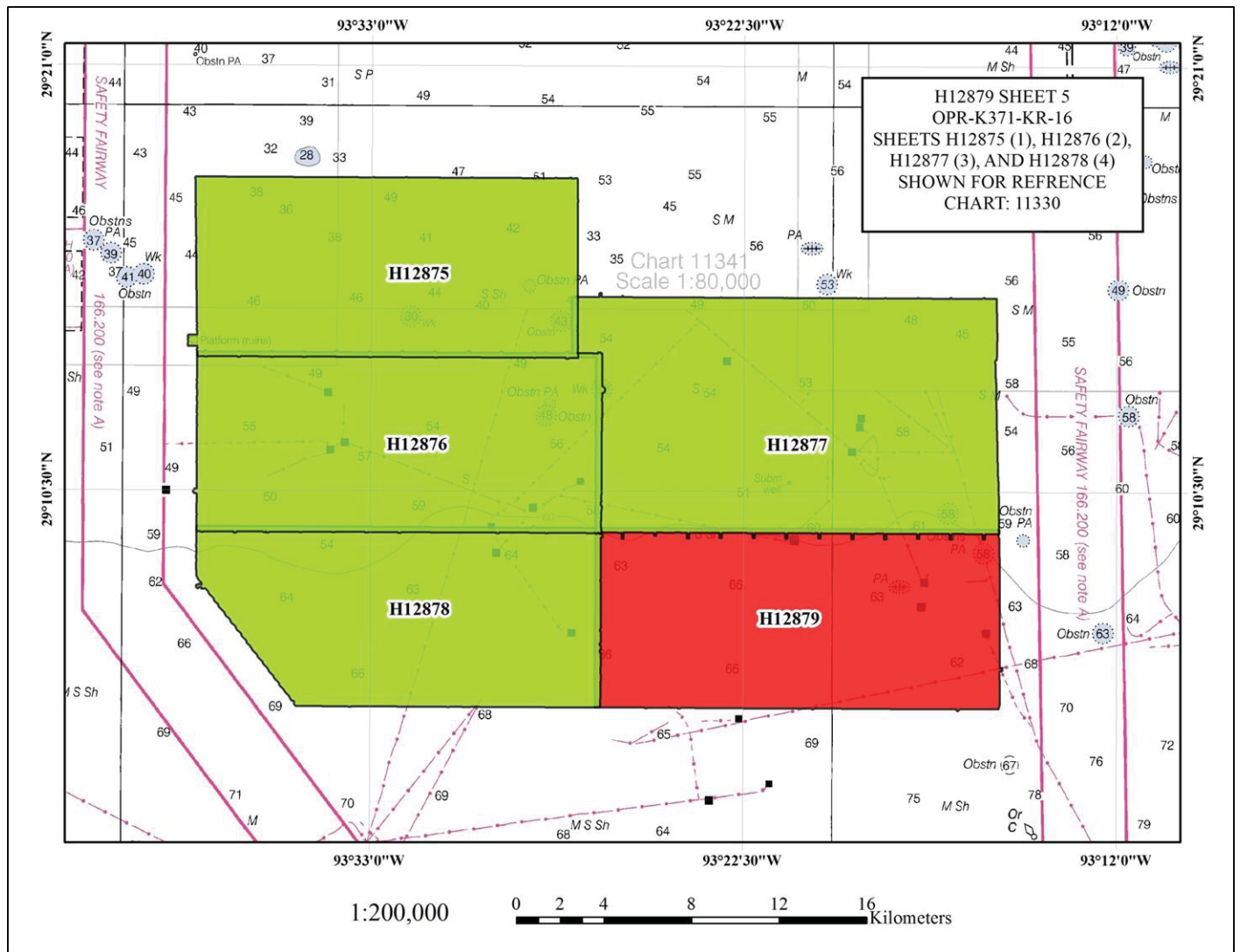


Figure 1: H12879 Survey Bounds

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

## A.2 Survey Purpose

The purpose of this survey is to update existing NOS nautical charts. This project is located in a highly trafficked critical area south of the Louisiana coast as designated in the 2012 NOAA Hydrographic Survey Priorities.

## 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.

H12879 was surveyed in accordance with the following documents:

1. Project Instructions, OPR-K371-KR-16, dated 12 May 2016
2. NOS Hydrographic Surveys Specifications and Deliverables (HSSD), March 2016
3. OPR-K371-KR-16 Statement of Work, dated 12 May 2016

#### 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.	Either A) Complete MBES with backscatter, OR B) 100% SSS with concurrent set line spacing MBES with backscatter. Note: Complete MBES is sufficient for both determination of least depth identified with SSS and for disproving a feature – 100% SSS is insufficient to disprove a feature. Refer to Section 6.1.2 of the HSSD to confirm proper SSS acquisition parameters. Gaps in SSS coverage should be treated as gaps in MBES coverage and addressed accordingly.

Leidos chose to achieve the coverage requirement using 100% side scan sonar with concurrent set line spacing multibeam echo sounder with backscatter. Survey coverage was in accordance with the requirements in the Project Instructions and the HSSD.



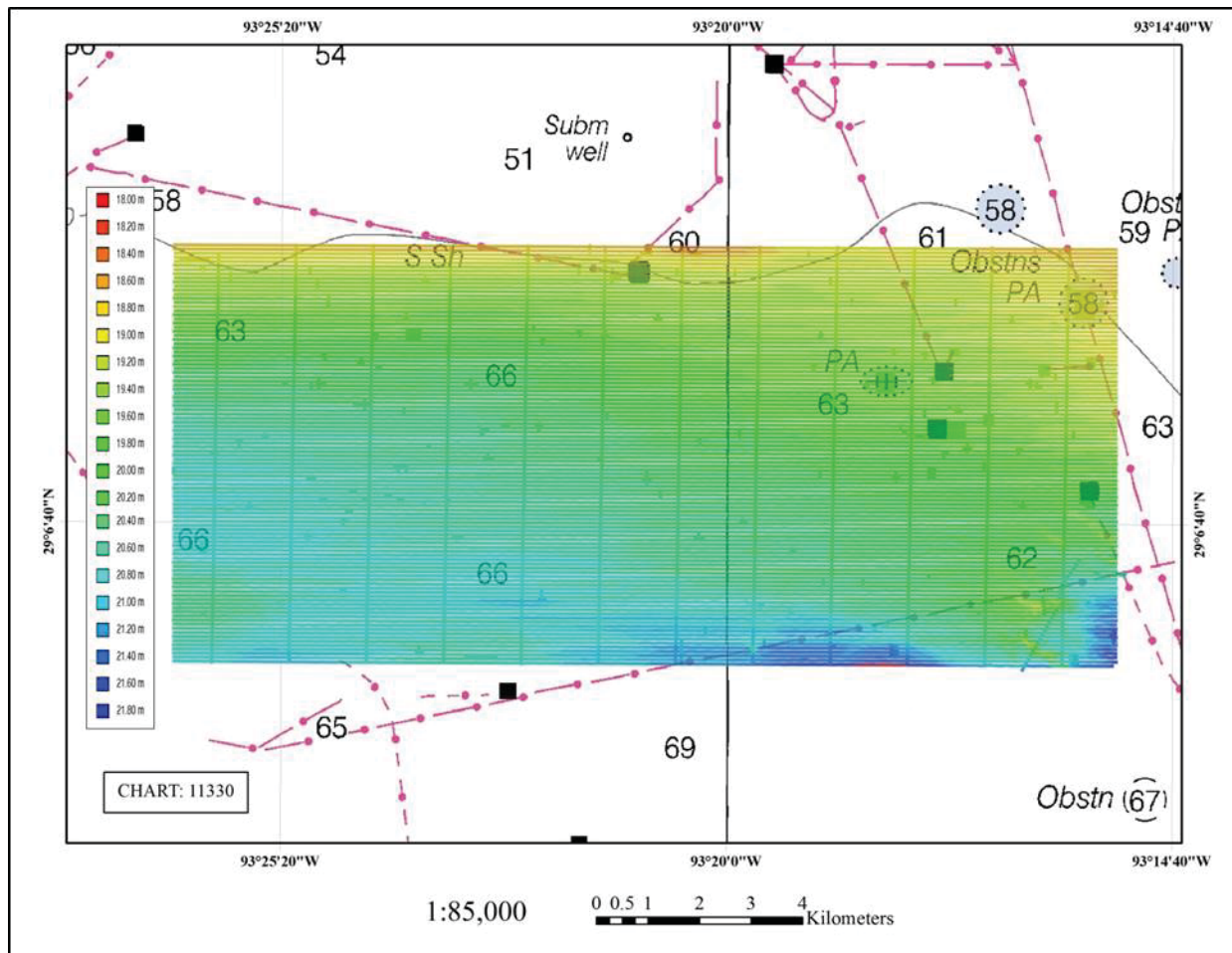


Figure 2: Final Bathymetry Coverage for H12879

### A.5 Survey Statistics

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

	<b>HULL ID</b>	<i>M/V Atlantic Surveyor</i>	<b>Total</b>
<b>LNM</b>	<b>SBES Mainscheme</b>	0	0
	<b>MBES Mainscheme</b>	0	0
	<b>Lidar Mainscheme</b>	0	0
	<b>SSS Mainscheme</b>	0	0
	<b>SBES/SSS Mainscheme</b>	0	0
	<b>MBES/SSS Mainscheme</b>	1061.75	1061.75
	<b>SBES/MBES Crosslines</b>	53.47	53.47
	<b>Lidar Crosslines</b>	0	0
<b>Number of Bottom Samples</b>			6
<b>Number Maritime Boundary Points Investigated</b>			0
<b>Number of DPs</b>			0
<b>Number of Items Investigated by Dive Ops</b>			0
<b>Total SNM</b>			44.07

*Table 2: Hydrographic Survey Statistics*

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

<b>Survey Dates</b>	<b>Day of the Year</b>
08/12/2016	225
08/16/2016	229
08/17/2016	230
08/18/2016	231
08/19/2016	232
08/20/2016	233
08/21/2016	234
08/22/2016	235
08/23/2016	236
08/24/2016	237
08/25/2016	238
08/26/2016	239
08/27/2016	240
09/29/2016	273

*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. L-3 Klein 3000 side scan data were collected on a Windows 7 platform using L-3 Klein's SonarPro software. Subsequent processing and review of the side scan 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-16, delivered on 13 January 2017. 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:

<b>Hull ID</b>	<i>M/V Atlantic Surveyor</i>
<b>LOA</b>	110 feet
<b>Draft</b>	9 feet

*Table 4: Vessels Used*

The M/V Atlantic Surveyor was used to collect multibeam sonar (RESON SeaBat 7125 SV), side scan sonar (L-3 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:

<b>Manufacturer</b>	<b>Model</b>	<b>Type</b>
RESON	SeaBat 7125 SV	MBES
L-3 Klein	3000	SSS
Applanix	POS/MV 320 V5	Positioning and Attitude System
Trimble	Probeacon	Positioning System
ODIM Brooke Ocean	MVP-30	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

Crosslines acquired for this survey totaled 5.04% of mainscheme acquisition.

There were 53.47 linear nautical miles of crosslines and linear nautical miles of mainscheme lines surveyed on H12879. This resulted in crossline mileage of approximately 1061.75 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). H12879 requirements were for complete coverage, Option B, based on the classifications defined in Section 5.2.2 of the HSSD; “100% side scan sonar coverage with concurrent multibeam bathymetry collection with complete coverage multibeam developments (i.e. 1m grid resolution in 0-20m depth range) of contacts and features.”

The mainscheme lines were oriented 90°/270° and spaced 80 meters apart. Crosslines were oriented 0°/180° and spaced 1500 meters apart. Refer to the “Multibeam Processing Log” section within Separates I for information on the delineation of mainscheme and crossline data files.

In the field, hydrographers conducted daily comparisons of mainscheme to near nadir crossline data to ensure that no systematic errors were introduced, and to identify potential problems with the survey systems. After the application of all correctors and completion of final processing in the office, separate one-meter grids were built. One grid contained the full valid swath ( $\pm 60^\circ$  from nadir, Class 2) of mainscheme multibeam and the other included only the near nadir swath ( $\pm 5^\circ$  from nadir, Class 1) crossline data. Difference grids were then generated by subtracting one grid from the other.

The SABER Frequency Distribution Tool was used to analyze the difference grids. All comparisons fell within the requirement defined in Section 5.2.4.3 of the HSSD, which states that at least 95% of the depth difference values are to be within the maximum allowable total vertical uncertainty. Figure 3 summarizes the comparison results. See Separates II for a complete discussion of the analysis and tabular results.

<b>DIFFERENCE GRID</b>	<b>Minimum and Maximum CUBE Depth (Meters) of Crossline Grid</b>	<b>IHO 1A Maximum Allowable Uncertainty (Meters) for the Range of Depths</b>	<b>Percent of Depth Differences Less than IHO Order 1A Maximum</b>
<i>M/V Atlantic Surveyor</i> Multibeam Crossline (Class 1) to Mainscheme	18.478 – 21.650	0.555 – 0.574	100

*Figure 3: Summary of Crossing Analysis*

## **B.2.2 Uncertainty**

The Total Propagated Uncertainty (TPU) model that Leidos has adopted had its genesis at the Naval Oceanographic Office (NAVOCEANO), and is based on the work by Rob Hare and others (“Error Budget Analysis for NAVOCEANO Hydrographic Survey Systems, Task 2 FY 01”, 2001, HSRC FY01 Task 2 Final Report). Once the TPU model is applied to the GSF bathymetry data, each beam is attributed with the horizontal uncertainty and the vertical uncertainty at the 95% confidence level. For specific details on the use and application of the SABER Total Propagated Uncertainty model, see Section B.1 in the DAPR.

The vertical and horizontal uncertainty values that were estimated by the TPU model for individual multibeam soundings varied little across the dataset, tending to be most affected by beam angle. During

application of horizontal and vertical uncertainties to the GSF files, individual beams where either the horizontal or vertical uncertainty exceeded the maximum allowable IHO S-44 5th Edition Order 1a specifications were flagged as invalid. As a result, all individual soundings used in development of the final CUBE depth surface had modeled vertical and horizontal uncertainty values at or below the allowable IHO S-44 5th Edition, Order 1a uncertainty.

During the creation of the CUBE surface, two separate vertical uncertainty surfaces are calculated by the SABER software. One surface contains the standard deviation of all soundings that are contributing to the CUBE hypothesis (Hyp. StdDev), and the other contains the average of the vertical uncertainty of all soundings contributing to the CUBE hypothesis (Hyp. AvgTPE). 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. For specific details on this process, see Section B.2 of the DAPR.

The final one-meter PFM CUBE surface contained final vertical uncertainties that ranged from 0.470 – 0.712 meters. The IHO Order 1a maximum allowable vertical uncertainty was calculated to range between 0.554 to 0.576 meters, based on the minimum CUBE depth (18.385 meters) and maximum CUBE depth (22.037 meters). The SABER Check PFM Uncertainty function was used to highlight all instances in the Hypothesis Final Uncertainty surface where a given node exceeded the IHO Order 1a allowable vertical uncertainty for the CUBE depth at that node. The final one-meter PFM CUBE surface contained 19 individual CUBE nodes with final vertical uncertainties that exceeded IHO Order 1a allowable vertical uncertainty. Of the 19 nodes that exceed the IHO Order 1a allowable vertical uncertainty for the CUBE depth, 15 nodes were associated with a single scour while the remaining four nodes were associated with a single feature (Feature 01).

The SABER Frequency Distribution Tool was used to review the Hypothesis Final Uncertainty surface within the final one-meter PFM grid. The results show that in the final one-meter PFM grid, 99.99% of all nodes had final uncertainties less than or equal to 0.500 meters.

### **B.2.3 Junctions**

An analysis of H12879 junctions with contemporary surveys was performed. Figure 4 shows the general locality of H12879 as it relates to the contemporary sheets for which junction analysis was performed. Table 6 provides details for each contemporary sheet junction analysis performed. See Separates II for a complete discussion of the junction results and tabular listings.



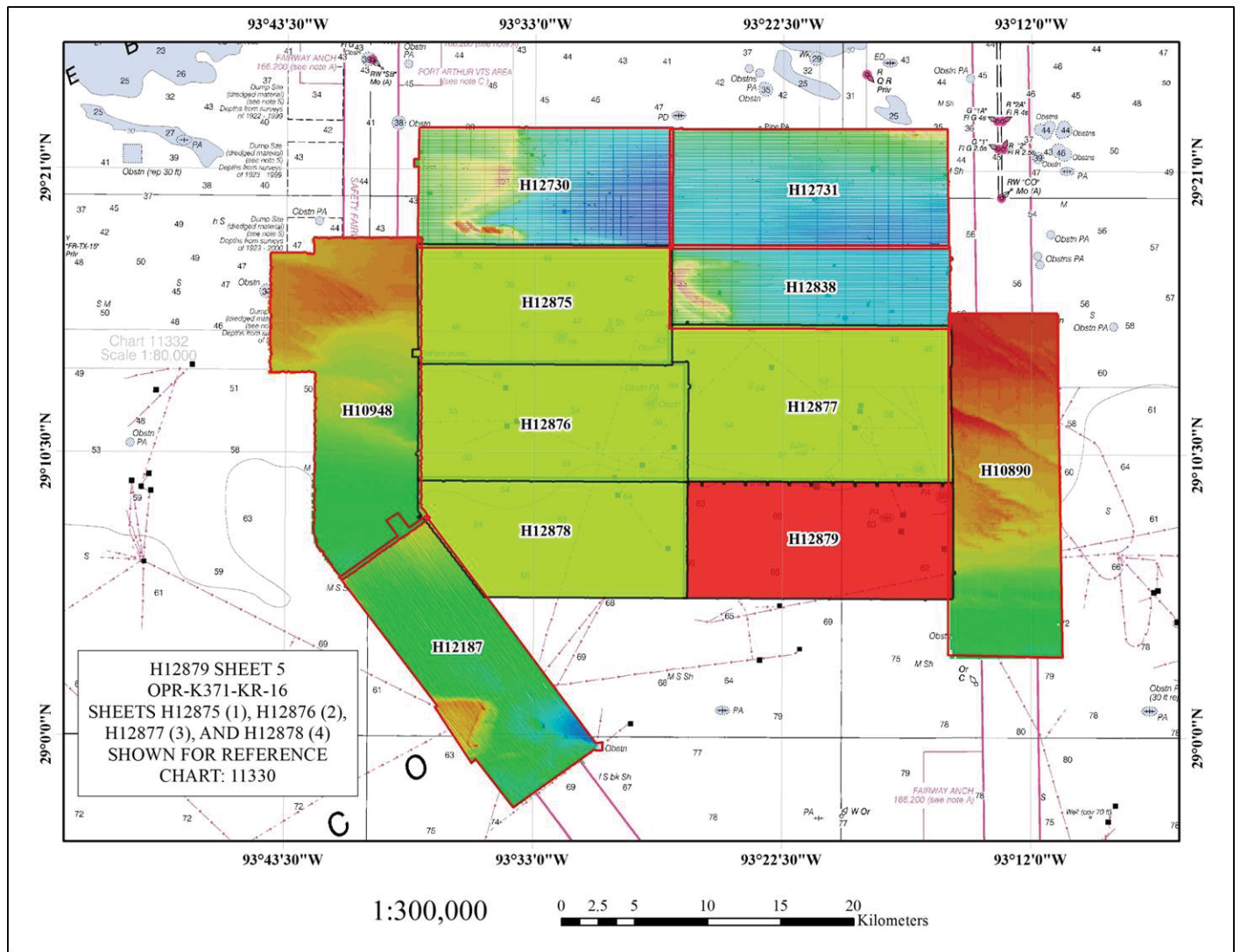


Figure 4: General Locality of H12879 with Contemporary Surveys

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H10890	1:20000	1999	C and C Technologies, Inc.	E
H12876	1:40000	2016	Leidos, Inc.	NW
H12877	1:40000	2016	Leidos, Inc.	N
H12878	1:40000	2016	Leidos, Inc.	W

Table 6: Junctioning Surveys

H10890

H12879 junctions with H10890 to the east; 95.08% of the comparisons agreed within  $\pm 0.540$  meters.

H12876

H12879 junctions with H12876 to the northwest; 100.00% of the comparisons agreed within  $\pm 0.221$  meters.

H12877

H12879 junctions with H12877 to the north; 100.00% of the comparisons agreed within  $\pm 0.350$  meters.

H12878

H12879 junctions with H12878 to the west; 100.00% of the comparisons agreed within  $\pm 0.430$  meters.

**B.2.4 Sonar QC Checks**

Sonar system quality control checks were conducted as detailed in Section A.5, Multibeam Systems and Operations, 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**

Localized weather events produced a difference in water levels between the survey area and the water level gauge. The artifact was seen in the multibeam CUBE surface and generally ranged between 10 to 15 centimeters when present (Figure 5). Additionally, positional scatter resulting from normal DGPS variability was sometimes visible in the sounding data for discrete features with multiple passes. Figure 6 represents small positional differences of 1.6 meters over a discrete object from three separate passes. This horizontal offset was not always present as depicted in Figure 7, which shows two passes over a distinct object which align quite well (within 0.3 meters). These occasional vertical and horizontal offsets observed within H12879 were within the IHO Order 1a allowable vertical and horizontal uncertainty for these water depths.



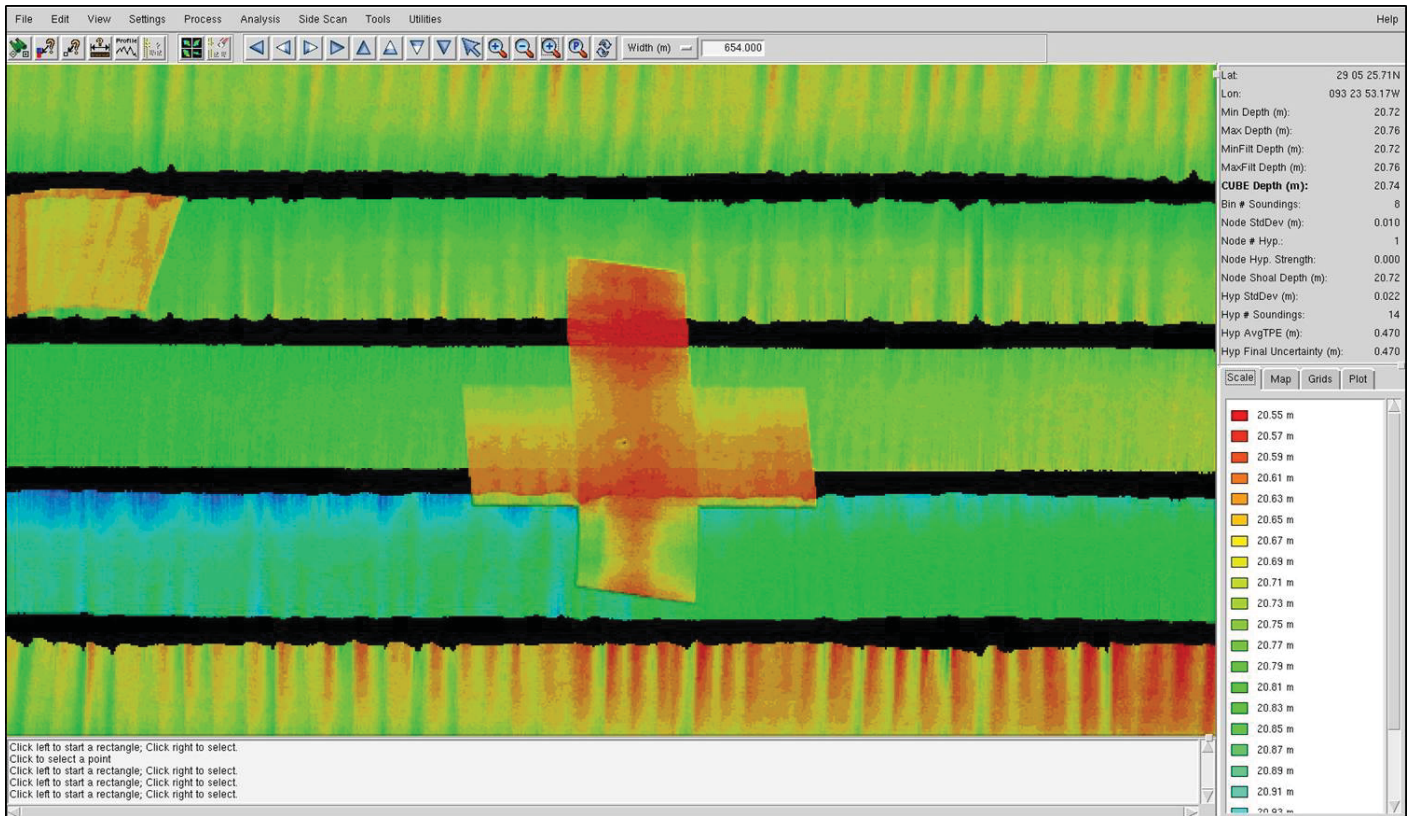


Figure 5: CUBE Depth Delta and Heave Artifacts Resulting From Local Weather Events

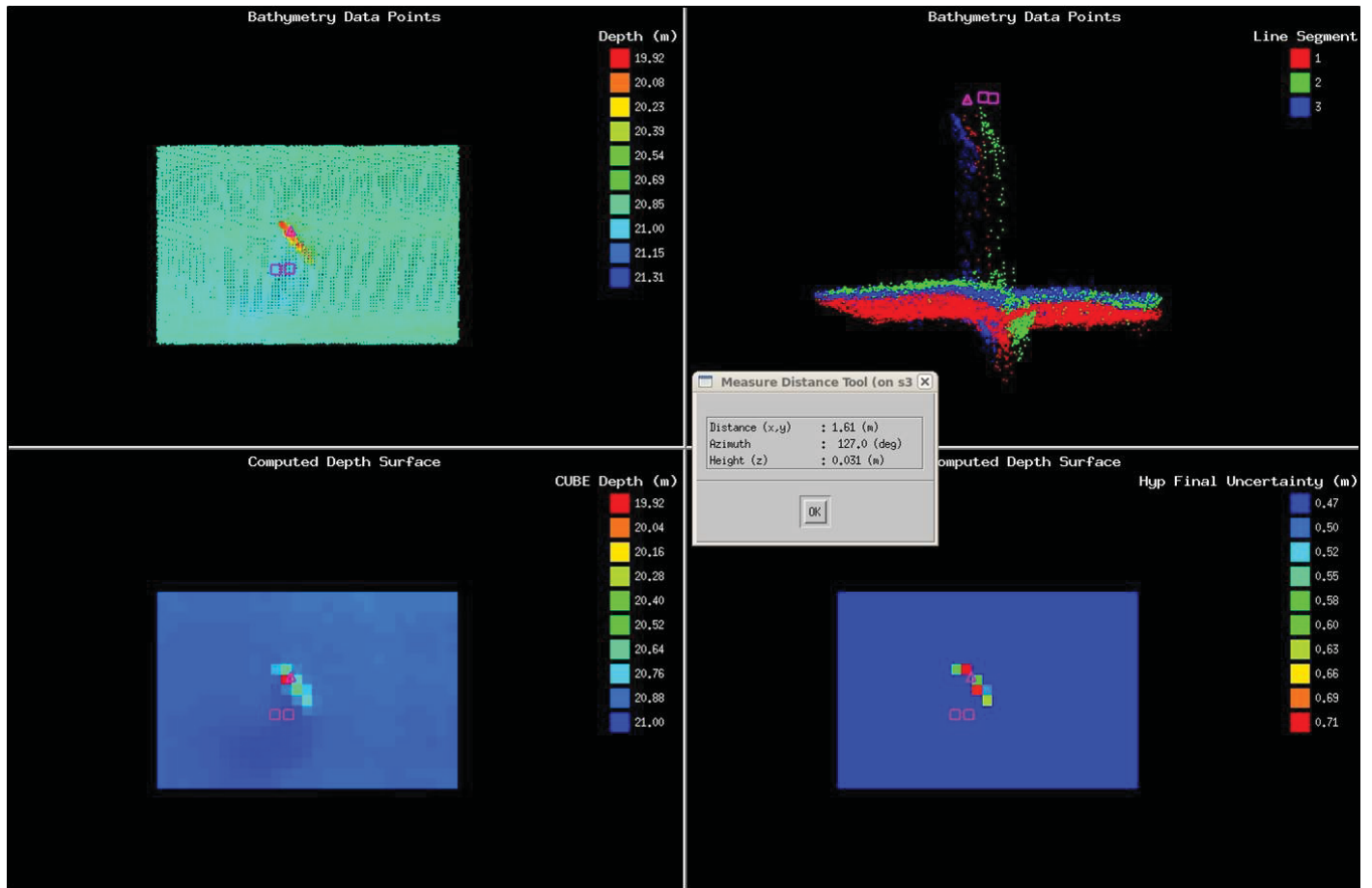


Figure 6: DGPS Positional Variation Between Passes

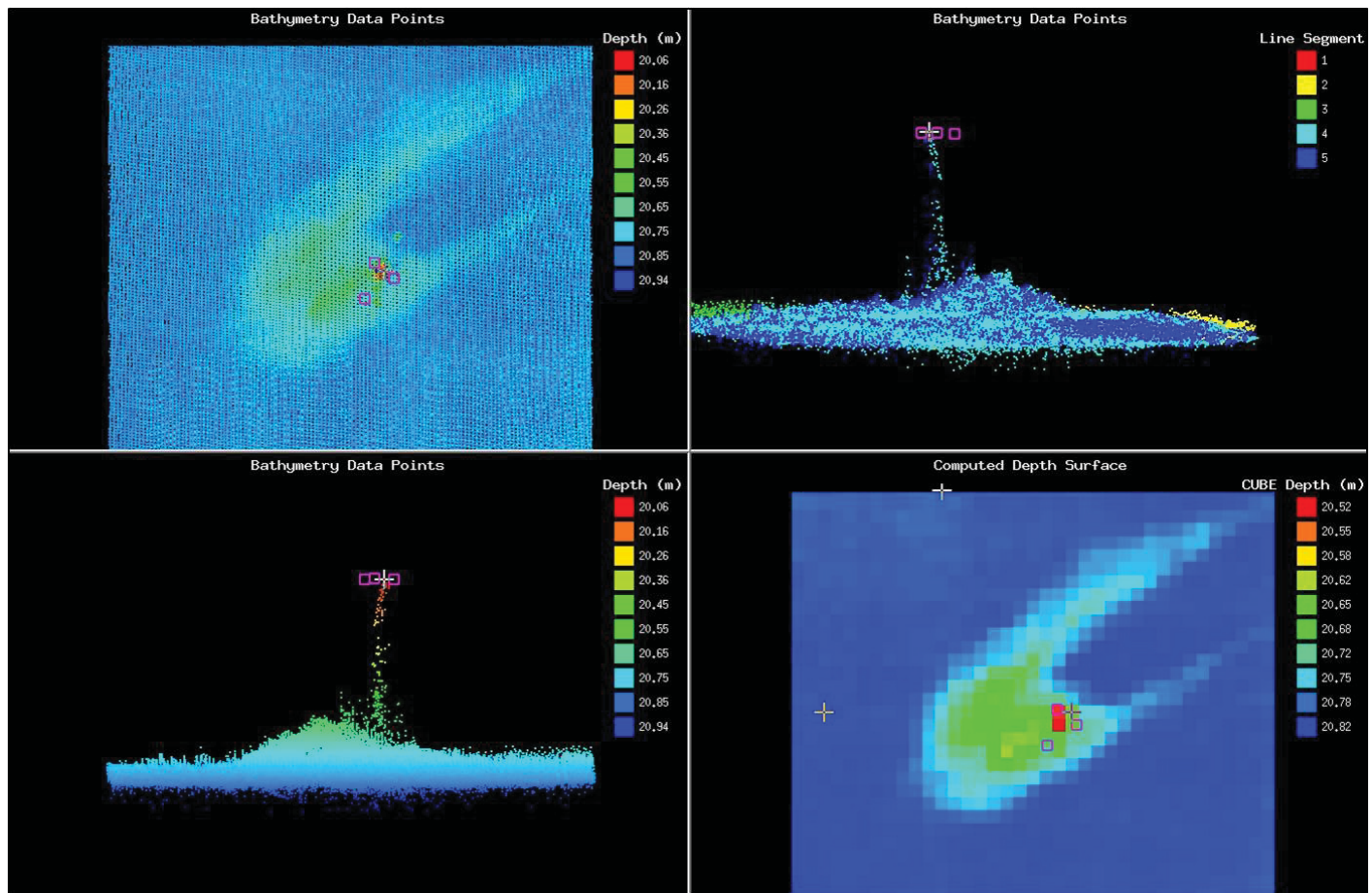


Figure 7: No DGPS Positional Variation Between Multiple Passes and Multiple Headings

### B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: On the M/V Atlantic Surveyor, the MVP-30 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 SVP Smart Sensors. Five sound speed confidence checks were conducted during H12879 and the results can be found in Separates II within the “Comparison Cast Log” section.

All individual sound speed profile files are delivered with the H12879 data and are broken out into sub-folders, which correspond to the purpose of each cast. Also, all individual sound speed profiles for H12879 have been concatenated into four separate files based on the purpose of the cast, provided in CARIS format files (.svp), and delivered under (H12879/Data/Processed/SVP/CARIS\_SSP) on the delivery drive. In addition sound speed data for OPR-K371-KR-16 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 with concurrent set line spacing multibeam echo sounder with backscatter. To achieve this coverage, the M/V Atlantic Surveyor used a towed L-3 Klein 3000 side scan sonar set to a 50-meter range scale. Mainscheme line spacing was 80 meters, which ensured 100% side scan coverage.

Both the Project Instructions and the HSSD stated that 100% side scan 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% side scan coverage, and resulting multibeam coverage over common charted objects not found during survey in order to verify disproval. A radius was determined from the Project Instructions, which stated, “In the case of the unassigned offshore oil platforms within the survey area, should the field unit observe that the feature is not visible, then a formal disproval is required. For the purposes of disproval, charted features labeled with a “PA” will have a search radius of 160 meters, a “PD” will have a search radius of 240 meters, and all other features without a position qualifier will have a search radius of 80 meters.” For the wellheads assigned in the final CSF file, coverage requirements for disproval were provided via email from NOAA on 16 June 2016 stating “If the obstruction is not found, in cases where 100% SSS with concurrent multibeam is being used as the primary coverage technique, a 50m disproval search radius using a technique described in Section 7.3.4 is necessary.”

The SABER Gapchecker routine was used to flag multibeam 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 one-meter PFM containing all multibeam data showed that there were a few instances where a three by three node gap exists. However, these were not considered holidays in the final multibeam CUBE surface as these instances generally resulted from either the holiday line data being slightly offset from the original line due to vessel line steering, or the swath width of the holiday lines being reduced compared to the original line due to water level differences.

All grids 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 of the one-meter CUBE PFM. The Hyp # Soundings surface reports the number of soundings that were used to compute the chosen hypothesis. Analysis of the H12879 final one-meter PFM grid revealed that 98.23% 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 Coverage Analysis: For all details regarding side scan data processing, see Section B.3 of the DAPR. Leidos chose to adhere to the coverage requirements in the Project Instructions with 100% side scan coverage with concurrent set line spacing MBES with backscatter. Both the Project Instructions and the HSSD stated that 100% side scan was insufficient to disprove a charted feature. Therefore, 100% side scan coverage was collected and verified for the entire survey area, and an additional 100% coverage was collected over charted objects that were not found, and CSF assigned objects, 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% side scan sonar 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. 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 multibeam backscatter with all GSF data acquired by the RESON SeaBat 7125 SV. The multibeam settings used were checked to ensure acceptable quality standards were met and to avoid any acoustic saturation of the backscatter data. The multibeam 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
H12879_MB_1m_MLLW_Final_1of2	BAG	1 meters	19.264 meters - 22.037 meters	N/A	Concurrent set line spacing MBES
H12879_MB_1m_MLLW_Final_2of2	BAG	1 meters	18.385 meters - 20.945 meters	N/A	Concurrent set line spacing MBES
H12879_SSS_1m_100	SSS Mosaic (.tif;.tfw)	1 meters	0 meters - 0 meters	N/A	100% SSS
H12879_SSS_Disproval	SSS Mosaic (.tif;.tfw)	1 meters	0 meters - 0 meters	N/A	200% SSS Charted Object Disproval

*Table 7: Submitted Surfaces*

A PFM CUBE Depth surface was used to assess and document multibeam survey coverage. The CUBE depth is populated 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 in H12879 was from 18.385 meters (60.318 feet, 0.470-meter uncertainty) to 22.037 meters (72.300 feet, 0.480-meter uncertainty). Complete Coverage Section 5.2.2.3 of the HSSD requires a one-meter grid resolution for depths ranging from zero meters to 20 meters, and a two-meter grid resolution for depths ranging from 18 meters to 40 meters. Based on the depth range of H12879, Leidos asked NOAA for permission to deliver the entire surface of H12879 at the one-meter grid resolution. On September 22, 2016 the NOAA Hydrographic Survey Department Operations branch granted a waiver to Leidos for OPR-K371-KR-16, allowing Leidos to

submit surfaces for H12879 that are gridded at 1m resolutions despite depths being deeper than 20m. This waiver is included within the supplemental correspondence (Appendix II) of this Data Report.

The final gridded bathymetry data are delivered as Bathymetric Attributed Grids (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-16, which includes H12879. 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_01June16_to_04Oct16.tid	Verified Observed

Table 9: Water Level Files (.tid)

File Name	Status
K371KR2016CORP.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 H12879 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-16. A full explanation of the tide zone assessment is detailed in Section C.4 of the DAPR. For H12879, 8768094 Calcasieu Pass, LA was the source of all final verified water level heights for determining correctors to soundings. All data for H12879 were contained within two tide zones (WGM393 and WGM398) which were provided from 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 K371KR2016CORP.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 H12879 bathymetry data.

## **C.2 Horizontal Control**

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

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 of the positioning comparison between the POS/MV and the Trimble DGPS. An alarm was triggered within ISS-2000 if the comparisons were not within an acceptable range. 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:

<b>DGPS Stations</b>
English Turn, LA (293 kHz)
Angleton, TX (301 kHz)
Aransas Pass, TX (304 kHz)

*Table 11: USCG DGPS Stations*

## **D. Results and Recommendations**

### **D.1 Chart Comparison**

The chart comparisons were conducted using the Leidos SABER software to view the BSB raster charts with overlain data for H12879 such as the CUBE surface, selected soundings, contacts, and features. 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).

For ENC comparisons, a combination of CARIS' EasyView and SABER were used.

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 22/16 (01 June 2016) until week 40/16 (05 October 2016).

H12879 data meet 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 H12879 S-57 FFF. Additional charted objects such as submarine pipelines and platforms are discussed in later sections.

#### **D.1.1 Raster Charts**

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

<b>Chart</b>	<b>Scale</b>	<b>Edition</b>	<b>Edition Date</b>	<b>LNM Date</b>	<b>NM Date</b>
11330	1:250000	22	04/2013	03/18/2017	03/18/2017

*Table 12: Largest Scale Raster Charts*

11330

Chart 11330 covers the H12879 survey area in its entirety.

CUBE depths within sheet H12879 were generally one to three feet shoaler than surveyed depths.

The charted 60 foot contour within the northern extents of the survey bounds was not found except for one small discrete location where sixty foot depths were found approximately 700 meters north of the charted contour location.

All new uncharted features found, and updates to charted features, are documented in the H12879 S-57 Final Feature File (FFF).

**D.1.2 Electronic Navigational Charts**

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

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US3GC02M	1:250000	27	10/27/2014	02/28/2017	NO

*Table 13: Largest Scale ENC's*

US3GC02M

ENC US3GC02M covers the H12879 survey area in its entirety.

CUBE depths within sheet H12879 agreed with the charted depths across most of the survey area and were generally within  $\pm 1$  meter of the charted depths.

The charted 18.2 meter contour across the northern section of the survey was not observed within the extents of hydrography.

**D.1.3 Maritime Boundary Points**

No Maritime Boundary Points were assigned for this survey.

#### D.1.4 Charted Features

Two charted objects were present within the survey bounds, a charted dangerous wreck with depth unknown and a charted 17.600 meter obstruction. No significant features were found within the search radius for either of the charted features. The details resulting from final processing of the data and recommendations are captured in the H12879 S-57 FFF.

#### D.1.5 Uncharted Features

See the H12879 S-57 FFF for all the details and recommendations regarding new uncharted features investigated.

#### D.1.6 Dangers to Navigation

There were no Danger to Navigation Reports (DTON) submitted for H12879.

Per guidance from Atlantic Hydrographic Branch (AHB), via email correspondence 20 January 2016, exposed pipelines should not be submitted as DTONs but as Feature Reports, in S-57 format. Leidos submitted one Feature Report in S-57 format to AHB, 01 March 2017, which AHB forwarded to the Office of Coast Surveys Navigation Manager. The Feature Report contained four separate sections of exposed pipeline. Figure 8 provides a list of Feature Reports and their associated Feature number and object class in the H12879 S-57 FFF.

Feature Report	Leidos submitted to AHB	Feature Number	S-57 Object Class
H12879 Feature Report 01.000	2017-03-01	5 and 6	N/A

*\*NOTE: Multiple reported sections of exposed pipeline were incorporated into a single line object in Feature 6.*

*Figure 8: Feature Report Submitted to AHB*

#### D.1.7 Shoal and Hazardous Features

There were no significant shoals or hazardous features within the area covered by H12879 other than those discussed in Sections D.1.5 and D.1.6.

#### D.1.8 Channels

There were no channels within the area covered by H12879.

### **D.1.9 Bottom Samples**

In accordance with both the Project Instructions and Section 7.2.2 of the HSSD, bottom characteristics were obtained for H12879. Bottom characteristics were acquired at six locations, five of which were assigned in the Project Reference File (PRF) by NOAA. Leidos did not modify any bottom sample locations from the locations proposed by NOAA in the PRF. A sixth 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 H12879 are included in the H12879 S-57 FFF, named H12879.FFF.000, within the Seabed Area (SBDARE) object and are classified according to the requirements set forth in Appendix H of the HSSD.

## **D.2 Additional Results**

### **D.2.1 Shoreline**

All features within the CSF were resolved. There were no assigned features inshore of the NALL.

### **D.2.2 Prior Surveys**

Junction analysis with prior surveys H10890, H12876, H12877, and H12878 (collected in 1999 and 2016, respectfully) were conducted, and the results are presented in Section B.2.3 of this Data Report and Separates II.

### **D.2.3 Aids to Navigation**

There were no aids to navigation that fell within the area of H12879.

### **D.2.4 Overhead Features**

There were no overhead features within the H12879 survey area.

### **D.2.5 Submarine Features**

Five pipeline (PIPSOL) objects (Features 5-9) are delivered in the S-57 FFF to represent sections of pipeline found, utilizing both multibeam and side scan data, within the bounds of H12879. See Section D.1.6 for additional information. Additional charted pipelines fall within the survey coverage; however, the multibeam and side scan data do not show evidence of them.

## **D.2.6 Ferry Routes and Terminals**

No ferry routes or terminals exist within the H12879 survey area.

## **D.2.7 Platforms**

There were no assigned offshore platform objects in the CSF, OPR-K371-KR-16\_CSF\_Version2.000, provided on 16 June 2016, which fell within the H12879 survey area. However, there were four charted platforms within the H12879 SOW area; each of these was associated with an assigned obstruction (wellhead) within the OPR-K371-KR-16\_CSF\_Version2.000 file. The four charted platforms were not found during survey operations and 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 and no platforms were visible above the waterline. See the S-57 FFF, H12879.FFF.000, Offshore Platform (OFSPLF) objects, for details and charting recommendations on each charted platform.

## **D.2.8 Significant Features**

During data acquisition on H12879 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 (10 to 15 centimeters) from the water level gauge located at Calcasieu Pass, LA. In addition, during these intermittent weather events, some residual heave artifacts resulting from increased sea states were present. The observed heave artifacts ranged from 10 to 15 centimeters. However, the vertical offsets and heave artifacts observed were within the IHO Order 1a allowable vertical and horizontal uncertainty for the H12879 water depths. See Section B.2.6 for more information regarding the water level offsets and heave artifacts.

No abnormal seafloor or environmental conditions, as defined in Section 8.1.4 of the HSSD, exist within the H12879 survey area.

## **D.2.9 Construction and Dredging**

No construction or dredging exists for the H12879 survey.

## **D.2.10 New Survey Recommendation**

No new survey recommendations are made for the area surrounding the H12879 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 H12879. Only GSF feature flags were set on significant features within H12879, and all information is contained in the H12879 S-57 FFF.

#### **D.2.12 Final Feature S-57 File**

Included with H12879 delivery is the S-57 FFF, H12879.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 H12879 contains millimeter precision for the value of sounding (VALSOU) attribute. As specified in Section 8.2 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 H12879 are included within the S-57 FFF.

In accordance with the HSSD, Leidos addressed all assigned objects within the bounds of H12879 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 H12879 delivery is the Side Scan Sonar Contact S-57 File, H12879.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 8.2 of the HSSD, the S-57 feature 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**

A Coast Pilot Review Report for OPR-K371-KR-16 was not required per guidance from the NOAA COR (see 06 June 2016 email in Appendices II Supplemental Survey Records and Correspondence). The Coast Pilot was reviewed for the port of call and areas frequently transited, and no changes are recommended.

#### **D.2.15 Assigned Wellheads**

On 16 June 2016, NOAA delivered OPR-K371-KR-16\_CSF\_Version2.000 which contained fourteen wellhead features within the H12879 survey bounds requiring investigation (See Appendix II). All wellhead locations were covered in accordance with Section 7.3.4 of the HSSD with a minimum of 200% side scan

data and resulting multibeam data. A minimum of a 50-meter disproval search radius was covered as specified in the correspondence dated 16 June 2016. No wellheads were found at the fourteen assigned locations surveyed as part of H12879.

#### **D.2.16 Inset Recommendation**

No inset recommendations are made for the area covered by the H12879 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 NOS Hydrographic Surveys Specifications and Deliverables, Project Instructions, and the OPR-K371-KR-16 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 submitted deliverables for OPR-K371-KR-16 are provided in the table below.

Report Name	Report Date Sent
OPR-K371-KR-16_DAPR.pdf	2017-01-13
H12875_DR.pdf	2017-01-13
H12876_DR.pdf	2017-02-03
H12877_DR.pdf	2017-03-03
H12878_DR.pdf	2017-03-31
OPR-K371-KR-16_Marine_Mammal_Observation_Log_1of2.pdf	2017-04-11
OPR-K371-KR-16_Marine_Mammal_Observation_Log_2of2a.pdf	2017-04-12
OPR-K371-KR-16_Marine_Mammal_Observation_Log_2of2b.pdf	2017-04-12
OPR-K371-KR-16_20170412.zip (NCEI Sound Speed Data)	2017-04-12

Approver Name	Approver Title	Approval Date	Signature
Paul L. Donaldson	Chief Hydrographer	04/21/2017	Paul L. Donaldson  Digitally signed by Paul L. Donaldson Date: 2017.04.18 08:49:28 -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 H12879.

### 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 H12879 Descriptive Report Section C.1 for details regarding final tides for H12879. The water level zoning correctors applied to all multibeam data for H12879 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, H12879 (Table A-1).

### Abstract Times of Hydrography

**Project:** OPR-K371-KR-16

**Registry No.:** H12879

**Contractor Name:** Leidos

**Date:** 21 April 2017

**Sheet Designation:** 5

**Inclusive Dates:** 12 August 2016 – 29 September 2016

Field work is complete.

Begin Date	Begin Julian Day	Begin Time	End Date	End Julian Day	End Time
08/12/2016	225	03:15:49	08/12/2016	225	04:37:55
08/16/2016	229	23:47:51	08/18/2016	231	02:04:59
08/19/2016	232	21:21:18	08/27/2016	240	00:53:07
09/29/2016	273	17:24:57	09/29/2016	273	22:18:25

Table A-1: Abstract Times of Hydrography, H12879

### Transmittal Letter to CO-OPS

A transmittal letter to CO-OPS was not required for H12879.

### Other Correspondence Relating to Tides

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

APPENDIX II

SUPPLEMENTAL SURVEY RECORDS  
AND CORRESPONDENCE

In accordance with HSSD Section 1.4.1, below is a list of trained marine mammal observers for OPR-K371-KR-16.

## Marine Species Awareness Training Video Log

NAME	DATE
Rex LeBeau	07/31/2015
Paul Donaldson	07/31/2015
Dorena S Vogel	08/17/2015
Dan McGovern	08/31/2015
Alex Bernier	09/10/2015
Bridget Bernier	09/14/2015
Libby Rhyne	08/06/2015
Erin Markham	09/15/2015
Tim Mayer	09/15/2015
Jason Infantino	08/17/2015
Jennifer Wilson	09/15/2015
Brett Goldenbloom	09/16/2015
Deborah Smith	09/16/2015
Andrea O'Brien	09/16/2015
Richard Nadeau	08/01/2015
Allan Quintal	10/09/2015
Blake Walker	10/20/2015
Tyler Brouillette (OARS)	10/29/2015
Kyle W. Ford (OARS)	09/29/2015
Christopher McCooey	10/26/2015
Stewart Kaczynski	01/23/2016
Patrick Berube	05/03/2016
Michael Cole	08/14/2015
Lucas Cappellini	05/10/2016
Adam Bamford	07/18/2016
Chris Englert	07/18/2016
Michael Zuba	08/01/2016
Chris Sevestakis (Divemasters)	08/21/2015
Henry Dollman (Divemasters)	08/21/2015
Vincent Borrelli (Divemasters)	05/07/2016
Matt Spears (Divemasters)	08/28/2015
Fred Derry (Divemasters)	08/29/2015
Sean Davies (Divemasters)	08/28/2015

## **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 four standalone PDF files have been provided in the II\_Supplemental\_Survey\_Records\_&\_Correspondence folder of Descriptive Report Appendices:

- A report to the Office of Coast Surveys Gulf of Mexico Regional Navigation Manager regarding exposed pipelines.
  - H12879 Unbuired Pipelines Report.pdf
- The NOAA Marine Species Awareness Training Video Log
  - NOAA Marine Species Awareness Training Video Log.pdf

Note that this document includes correspondence through 3:30 PM on 12 April 2017.

## CORRESPONDENCE

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**From:** Mark Lathrop - NOAA Federal [<mailto:mark.t.lathrop@noaa.gov>]  
**Sent:** Friday, May 27, 2016 11:33 AM  
**To:** Evans, Rod E.  
**Subject:** Re: Leidos

Rod,

The 2016 Task Order 2 data can be in NAD83 for the entirety of the project, deliverables included.

Mark

On Thu, May 26, 2016 at 4:15 PM, Evans, Rod E. <[RHODRI.E.EVANS@leidos.com](mailto:RHODRI.E.EVANS@leidos.com)> wrote:

Mark,

Further to our phone conversation, please also confirm via email that this decision also applies right through to the deliverables (i.e. that the 2016 TO02 delivered data are also NAD83)?

Regards, Rod.

**From:** Mark Lathrop - NOAA Federal [<mailto:mark.t.lathrop@noaa.gov>]  
**Sent:** Thursday, May 26, 2016 3:23 PM  
**To:** Evans, Rod E.  
**Subject:** Re: Leidos

Rod,

For 2016 hydrographic surveys, you are authorized to survey in NAD83.

Mark

On Thu, May 26, 2016 at 10:38 AM, Evans, Rod E. <[RHODRI.E.EVANS@leidos.com](mailto:RHODRI.E.EVANS@leidos.com)> wrote:

Mark,

Further to yesterday's dialog on the HSSD 2016 requirements for WGS84, can you please call me at your convenience?

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](tel:401.848.4783)

[evansrh@leidos.com](mailto:evansrh@leidos.com)<mailto:[evansrh@leidos.com](mailto:evansrh@leidos.com)> | [leidos.com/natsec](http://www.leidos.com/natsec)<<http://www.leidos.com/natsec>>

"What would an ocean be without a monster lurking in the dark? It would be like sleep without dreams."

— Werner Herzog

[[cid:image001.png@01D00D48.234D0180](#)]

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**From:** Mark Lathrop - NOAA Federal [<mailto:mark.t.lathrop@noaa.gov>]  
**Sent:** Thursday, June 02, 2016 10:24 AM  
**To:** Evans, Rod E.; George Reynolds; Andrew Orthmann; Arthur Wright; David Neff; David Millar; Jon Dasler; Tara Levy  
**Cc:** Michael Gonsalves - NOAA Federal; \_NOS OCS HSD OPS  
**Subject:** Caris support files  
**Attachments:** Caris\_Support\_Files\_5\_4.piz

NOAA Hydrographic Contractors

Please find attached the latest version (5.4) of the Caris Support Files. The 'zip' extension was changed to 'piz' for email purposes. The updates for this version can be found in the included change list. NOAA provides these support files to all of our NOAA hydrographic contractors as a convenience, whether they are Caris users or not. Use of these files is not required, but may aid users in meeting the 2016 HSSD. Please contact your COR with any questions.

Regards,

Mark

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**From:** Evans, Rod E.  
**Sent:** Monday, June 06, 2016 10:29 AM  
**To:** 'Mark Lathrop (Mark.T.Lathrop@noaa.gov)'  
**Cc:** Quintal, Rebecca T  
**Subject:** Leidos questions for NOAA COR regarding TO-02

Mark,

We have the following two questions for the acquisition phase of TO-02 (Sabine):

1. Can the Coast Pilot report/excerpts be provided to Leidos?
2. Can an updated CSF file be provided that includes the wellheads (i.e. all assigned objects)?

We have more questions regarding the deliverables, but will ask these later as they are not immediate issues.

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](mailto:evansrh@leidos.com) | [leidos.com/natsec](http://leidos.com/natsec)

*“What would an ocean be without a monster lurking in the dark? It would be like sleep without dreams.”*  
— Werner Herzog



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**From:** Mark Lathrop - NOAA Federal [mailto:mark.t.lathrop@noaa.gov]  
**Sent:** Monday, June 06, 2016 12:09 PM  
**To:** Evans, Rod E.  
**Cc:** Quintal, Rebecca T.  
**Subject:** Re: Leidos questions for NOAA COR regarding TO-02  
**Attachments:** OPR-K371-KR-16\_CSF.000; OPR-K371-KR-16\_PRF.000

Rod,

My apologies. I thought I had already sent the S57 files. I have attached the latest versions.

As your survey lies between the two safety fairways and is offshore of Sabine Bank, there are no relevant excerpts in the Coast Pilot.

Mark

On Mon, Jun 6, 2016 at 10:28 AM, Evans, Rod E. <[RHODRIE.EVANS@leidos.com](mailto:RHODRIE.EVANS@leidos.com)> wrote:  
Mark,

We have the following two questions for the acquisition phase of TO-02 (Sabine):

1. Can the Coast Pilot report/excerpts be provided to Leidos?
2. Can an updated CSF file be provided that includes the wellheads (i.e. all assigned objects)?

We have more questions regarding the deliverables, but will ask these later as they are not immediate issues.

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](tel:401.848.4783)  
[evansrh@leidos.com](mailto:evansrh@leidos.com)<mailto:[evansrh@leidos.com](mailto:evansrh@leidos.com)> | [leidos.com/natsec](http://www.leidos.com/natsec)<<http://www.leidos.com/natsec>>

"What would an ocean be without a monster lurking in the dark? It would be like sleep without dreams."

— Werner Herzog

[\[cid:image001.png@01D00D48.234D0180\]](#)

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**From:** Mark Lathrop - NOAA Federal [mailto:mark.t.lathrop@noaa.gov]  
**Sent:** Tuesday, June 14, 2016 4:04 PM  
**To:** Quintal, Rebecca T.  
**Cc:** Evans, Rod E.; Donaldson, Paul L.  
**Subject:** Re: FW: Leidos questions for NOAA COR regarding TO-02

Rebecca,

The wellheads are assigned. You can make a global change to the CSF. I can make it as well but not until next Monday so if you'd rather, please go ahead and make the change. I don't know what's going on with the 35-meter offset. I can't look at it until next week but it's definitely a systematic error. I do see the out-of-bounds obstruction. Please disregard.

More later,

Mark

On Tue, Jun 14, 2016 at 3:36 PM, Quintal, Rebecca T.  
<[REBECCA.T.QUINTAL@leidos.com](mailto:REBECCA.T.QUINTAL@leidos.com)> wrote:

Mark,

Hello. We have reviewed the new CSF file and the previously provided shape files of the wellhead locations.

**There are several issues that we found:**

1. There is an additional obstruction in this CSF file which is not assigned but falls within H12730 (Task Order 001), position: 29.354167N, 093.633333W.
2. The new obstruction wellhead objects are not marked as assigned in the CSF.
3. There is a positional offset between the previous wellheads and the wellheads in the CSF. It appears there is a consistent positional shift between the shape file position and the CSF, the CSF wellheads are shifted to the north west; magnitude of approximately 25-35 meters (see attached graphic. The squares are the wellhead obstructions from the new CSF. The springs in green are the objects from the shape file). Some example offsets are:
  - a. Northern most NW corner-
    - i. Shape file: 29.296057N, -93.611909W
    - ii. CARIS CSF: 29.296316N, 093.612093W
    - iii. Difference= 33.82m azimuth = 328.09degrees

b. SE corner

- i. Shape file: 29.086897N, -93.263929W
- ii. CARIS CSF: 29.087165N, 093.264106W
- iii. Difference = 34.34m, azimuth = 239.88degrees

c. Northern most NE corner

- i. Shape file: 29.244009N, -093.301690W
- ii. CARIS CSF: 29.244211N, 093.301787W
- iii. Difference 24.29m, azimuth 337.16degrees

**Questions:**

1. Please confirm that the obstruction which falls on H12730 does not need to be addressed for the OPR-K371-KR-16 sheets.
2. Please confirm if the wellheads are supposed to be assigned.
3. Please confirm the true positions of the wellheads as our survey plans were generated with a 50-meter radius and with a 35-meter positional offset, will need to be repositioned, if the wellheads are indeed assigned.

Thank you,

-Rebecca

**From:** Mark Lathrop - NOAA Federal [mailto:[mark.t.lathrop@noaa.gov](mailto:mark.t.lathrop@noaa.gov)]

**Sent:** Monday, June 06, 2016 12:09 PM

**To:** Evans, Rod E.

**Cc:** Quintal, Rebecca T.

**Subject:** Re: Leidos questions for NOAA COR regarding TO-02

Rod,

My apologies. I thought I had already sent the S57 files. I have attached the latest versions.

As your survey lies between the two safety fairways and is offshore of Sabine Bank, there are no relevant excerpts in the Coast Pilot.

Mark

On Mon, Jun 6, 2016 at 10:28 AM, Evans, Rod E. <[RHODRI.E.EVANS@leidos.com](mailto:RHODRI.E.EVANS@leidos.com)> wrote:

Mark,

We have the following two questions for the acquisition phase of TO-02 (Sabine):

1. Can the Coast Pilot report/excerpts be provided to Leidos?
2. Can an updated CSF file be provided that includes the wellheads (i.e. all assigned objects)?

We have more questions regarding the deliverables, but will ask these later as they are not immediate issues.

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](tel:401.848.4783)  
[evansrh@leidos.com](mailto:evansrh@leidos.com)<mailto:[evansrh@leidos.com](mailto:evansrh@leidos.com)> | [leidos.com/natsec](http://www.leidos.com/natsec)<<http://www.leidos.com/natsec>>

"What would an ocean be without a monster lurking in the dark? It would be like sleep without dreams."  
— Werner Herzog

[[cid:image001.png@01D00D48.234D0180](#)]

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**From:** Michael Gonsalves - NOAA Federal [mailto:michael.gonsalves@noaa.gov]  
**Sent:** Thursday, June 16, 2016 5:52 PM  
**To:** Quintal, Rebecca T.  
**Cc:** Evans, Rod E.; Donaldson, Paul L.; Mark Lathrop - NOAA Federal; Kathryn Pridgen - NOAA Federal; Katrina Wyllie - NOAA Federal  
**Subject:** Re: NOAA TO-02 - well heads.  
**Attachments:** OPR-K371-KR-16\_CSF\_Version2.000

Hey Rebecca,

Sorry about the mix-up, please use the attached file with respect to a CSF. Some additional guidance on the file is described below.

Please let us know if you have any further questions.

Very respectfully,  
~~ michael.gonsalves, LCDR/NOAA  
HSD Operations Branch, Chief

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

**From:** Katrina Wyllie - NOAA Federal <[katrina.wyllie@noaa.gov](mailto:katrina.wyllie@noaa.gov)>  
**Date:** Thu, Jun 16, 2016 at 5:39 PM  
**Subject:** email back to Leidos  
**To:** Michael Gonsalves - NOAA Federal <[michael.gonsalves@noaa.gov](mailto:michael.gonsalves@noaa.gov)>

The CSF file that you have been working with has the correct positions of the BSSE wellheads. The attached CSF file has been edited to include the appropriate attributes for these features (including the assignment flag) and to remove a handful of wellheads that were duplicated. The charted obstruction PA in sheet H12875 was included in the CSF as assigned.

To reiterate guidance for these wellheads:

For assigned BSSE wellheads (OBSTRN CATOBS=2):

1. If the obstruction is found and considered a danger to navigation, develop the feature (7.3.3), designate the feature (7.4), submit it as a DtoN (1.5), and include it in the FFF (7.3).
2. If the obstruction is found and merits individual cartographic representation, develop the feature (7.3.3), designate it (7.4), and submit in FFF (7.3).

**Note:** if the obstruction is deeper than 20m then it is highly unlikely to merit individual cartographic representation.

3a. If the obstruction is found and does not merit cartographic representation, do not investigate it as a feature. Include it in the FFF with "descrip = delete" and "remrks=obstruction addressed as represented in the surface"

3b. Additionally, if the obstruction is found and does not merit cartographic representation but the grid is not adequately representing a reliable least depth, follow the guidance in HSSD Section 5.2.1.2.3 to designate an estimated least depth.

4. If the obstruction is not found, in cases where 100% SSS with concurrent multibeam is being used as the primary coverage technique, a 50m disproval search radius using a technique described in Section 7.3.4 is necessary.

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From: Mark Lathrop - NOAA Federal [mark.t.lathrop@noaa.gov]  
Sent: Wednesday, June 29, 2016 1:27 PM  
To: Evans, Rod E.  
Cc: Kathryn Pridgen - NOAA Federal  
Subject: new point of contact

Rod,

I just want to remind you that your new point of contact for T02 will be Katy Pridgen. Please direct all task order correspondence to her.

Thanks,  
Mark

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**From:** "Michael Gonsalves - NOAA Federal" <[michael.gonsalves@noaa.gov](mailto:michael.gonsalves@noaa.gov)>  
**Date:** Thursday, July 21, 2016 at 5:09:58 PM  
**To:** "Michael Gonsalves - NOAA Federal" <[michael.gonsalves@noaa.gov](mailto:michael.gonsalves@noaa.gov)>  
**Cc:** "Eric Berkowitz - NOAA Federal" <[eric.w.berkowitz@noaa.gov](mailto:eric.w.berkowitz@noaa.gov)>, "Richard Brennan - NOAA Federal" <[Richard.T.Brennan@noaa.gov](mailto:Richard.T.Brennan@noaa.gov)>, "Lorraine Robidoux - NOAA Federal" <[lorraine.robidoux@noaa.gov](mailto:lorraine.robidoux@noaa.gov)>, "John Nyberg - NOAA Federal" <[John.Nyberg@noaa.gov](mailto:John.Nyberg@noaa.gov)>, "Mike Aslaksen - NOAA Federal" <[mike.aslaksen@noaa.gov](mailto:mike.aslaksen@noaa.gov)>, "Samuel Greenaway" <[Samuel.Greenaway@noaa.gov](mailto:Samuel.Greenaway@noaa.gov)>, "Russell Proctor - NOAA Federal" <[russell.proctor@noaa.gov](mailto:russell.proctor@noaa.gov)>, "\_OMAO MOP CO Rainier" <[CO.Rainier@noaa.gov](mailto:CO.Rainier@noaa.gov)>, "\_OMAO MOP CO Fairweather" <[co.fairweather@noaa.gov](mailto:co.fairweather@noaa.gov)>, "CO.Thomas Jefferson - NOAA Service Account" <[co.thomas.jefferson@noaa.gov](mailto:co.thomas.jefferson@noaa.gov)>, "CO.Ferdinand Hassler - NOAA Service Account" <[co.ferdinand.hassler@noaa.gov](mailto:co.ferdinand.hassler@noaa.gov)>, "Evans, Rod E." <[RHODRIE.EVANS@leidos.com](mailto:RHODRIE.EVANS@leidos.com)>, "George Reynolds" <[ggr@oceansurveys.com](mailto:ggr@oceansurveys.com)>, "Andrew Orthmann" <[aorthmann@terrasond.com](mailto:aorthmann@terrasond.com)>, "Arthur Wright" <[artw@wassoc.com](mailto:artw@wassoc.com)>, "David Neff" <[david@etracinc.com](mailto:david@etracinc.com)>, "Millar, David FPI" <[dmillar@fugro.com](mailto:dmillar@fugro.com)>, "Deam Moyles" <[dmoyles@fugro.com](mailto:dmoyles@fugro.com)>, "Jon Dasler" <[jld@deainc.com](mailto:jld@deainc.com)>, "Tara Levy" <[tlevy@oceanengineering.com](mailto:tlevy@oceanengineering.com)>, "\_NOS OCS HSD OPS" <[hsd.ops@noaa.gov](mailto:hsd.ops@noaa.gov)>, "\_NOS OCS HSD AHB" <[nos.ahb.allpersonnel@noaa.gov](mailto:nos.ahb.allpersonnel@noaa.gov)>, "\_NOS OCS HSD PHB" <[nosphb@noaa.gov](mailto:nosphb@noaa.gov)>  
**Subject:** Hydrographic Technical Directive 2016-3: Horizontal Datums for hydrographic surveys  
**Attachments:** HTD2016-03\_RevisionOfHorizontalDatum-signed.pdf

Greetings,

The attached Hydrographic Technical Directive (HTD) provides a revision to the horizontal datum requirement, as stated in the 2016 Hydrographic Surveys Specifications and Deliverables. This HTD changes the requirement from WGS84 to NAD83, which brings us into compliance with other civilian federal agencies (see the document for further details).

If there are any questions or concerns about meeting this specification, please consult with your HSD Project Manager or Contracting Officer's Representative.

Very respectfully,  
~~ michael.gonsalves, LCDR/NOAA  
HSD Operations Branch, Chief

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**From:** Kathryn Pridgen - NOAA Federal [kathryn.pridgen@noaa.gov]  
**Sent:** Wednesday, July 27, 2016 4:12 PM  
**To:** Evans, Rod E.  
**Subject:** Re: H12876 Exposed/Unburied Pipelines  
**Attachments:** Exposed\_Pipeline\_Reporting\_Procedure.pdf

Rod,

I have looked into how to designate pipelines that are not a danger to navigation. I absolutely agree that the HSSD needs to clarify instructions for pipeline features.

The guidance I received is that for those types of pipelines are "sort of" DTONs.

In this case, the Danger submission process is what we use to relay information to the Nav Manager in order to relay the information to the USCG and pipeline owners, but in this case since its not a danger to surface navigation a full DTON report and chart update will not be necessary. These exposed pipeline features that are not a danger to surface navigation should be to not attribute as DtoN, but as a new feature and the DtoN attribute for special feature type should be dropped.

Keeping these -pipeline feature submissions in the feature file is OK as it would assist with an explanation for a depth change that is honored in the grid. Once submitted our processing branch will take any submission similar and generate the report via Pydro and submit to the Nav Manager.

An additional reference for this guidance can be found at Nautical Chart Manual Vol. 1, version 2016.4 dated 6/16/2016, Section 4.13.8.

Does this help a bit? Ill look into making the guidance in the HSSD for next year more clear.

Thanks  
Katy Pridgen

Kathryn Pridgen  
Physical Scientist  
NOAA-HSD OPS  
301-713-2702 ext 178  
[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)

On Tue, Jul 26, 2016 at 2:08 PM, Evans, Rod E. <[RHODRI.E.EVANS@leidos.com](mailto:RHODRI.E.EVANS@leidos.com)> wrote:

Thanks! Rod.

**From:** Kathryn Pridgen - NOAA Federal [mailto:[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)]  
**Sent:** Tuesday, July 26, 2016 2:06 PM

**To:** Evans, Rod E.  
**Subject:** Re: H12876 Exposed/Unburied Pipelines

Rod,

I am attempting to get some more clarity on the pipeline/DTON deliverable issues. Ill let you know what I find out!

Katy Pridgen

Kathryn Pridgen  
Physical Scientist  
NOAA-HSD OPS  
301-713-2702 ext 178  
[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)

On Tue, Jul 26, 2016 at 1:49 PM, Evans, Rod E. <[RHODRI.E.EVANS@leidos.com](mailto:RHODRI.E.EVANS@leidos.com)> wrote:

Katy,

So far, we only asked questions on TO-02 that were data collection related. We decided to wait until Mark Lathrop retired to ask the deliverables questions. We plan to get those questions to you this week.

We have had some dialog here in Newport on your comments on exposed pipelines. As far as the exposed pipeline DTONS go, our interpretation of the HSSD for the exposed pipelines is that since the bullet mentioning exposed pipelines does not have a qualifier stating "dangerous to surface navigation" (as the last bullet in the list on page 6 of the 2016 HSSD), therefore this means "any" exposed or "any" leaking pipeline. Perhaps some clarifying language could be added to this section of the HSSD on the next go around. If you would prefer us to generate a "Feature Report" for any other exposed or leaking pipelines discovered on TO-02 (that are not a danger to surface navigation) we would be happy to do so.

Please advise.

Thanks, Rod.

**From:** Evans, Rod E.  
**Sent:** Tuesday, July 26, 2016 12:18 PM  
**To:** 'Kathryn Pridgen - NOAA Federal'; Quintal, Rebecca T.; Bernier, Bridget W.; Donaldson, Paul L.; Bernier, Alex T.  
**Cc:** Michael Gonsalves - NOAA Federal; Christina Fandel - NOAA Federal  
**Subject:** RE: H12876 Exposed/Unburied Pipelines

Katy,

We are pleased to “meet” you! We undertook the normal round of questions and answers with Mark Lathrop prior to and after award of Task Order 1 and 2. This included the opportunity to review and comment on the HSSD 2016.

I have noted your comments on the DTON below, and we will discuss amongst the team here in Newport.

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](mailto:evansrh@leidos.com) | [leidos.com/natsec](http://leidos.com/natsec)

*“What would an ocean be without a monster lurking in the dark? It would be like sleep without dreams.”*

— Werner Herzog



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**From:** Kathryn Pridgen - NOAA Federal [<mailto:kathryn.pridgen@noaa.gov>]  
**Sent:** Tuesday, July 26, 2016 11:48 AM  
**To:** Quintal, Rebecca T.; Bernier, Bridget W.; Donaldson, Paul L.; Bernier, Alex T.; Evans, Rod E.  
**Cc:** Michael Gonsalves - NOAA Federal; Christina Fandel - NOAA Federal  
**Subject:** Fwd: H12876 Exposed/Unburied Pipelines

Rod et al.,

Hello all Leidos Folks! I wanted to formally introduce myself, I am Katy Pridgen and I will be the Project Manager for Task Order 2 this year. I have been at sea for the past few weeks, so thankfully Christy helped me out with Task order 1 and 2. I am now back in the office and available to answer any questions or issues that should arise during this survey.

Quick question, before Mark Lathrop retired, did you receive a project pre-brief for either Task Order 1 or 2? I ask because I wanted to make sure that you were informed of any updates to the HSSD 2016 that may affect your survey.

Also, a quick note to the DTONs that were submitted recently. A DTON does not need to be submitted if the feature or pipeline is not a danger to surface navigation. If it is not a danger to surface navigation (considering the overall depth and draft of vessel traffic over the feature), the feature can be submitted but for information only. This may be useful for the navigation manager (Tim Osborn) to be made aware of so that he can inform local mariners of the feature even if it will be later be represented on the chart.

Here is the guidance for DTON submissions from the HSSD 2016:

Dangers to Navigation shall be recommended for:

- Significant uncharted rocks, shoals, wrecks, and obstructions
- Depths from the present survey which are found to be significantly shoaler than charted depths or features, and are navigationally significant (typically depths of 11 fathoms (66 feet) or less)
- Uncharted or inadequately charted clearances for bridges and overhead cables or pipelines
- A fixed or floating aid to navigation found to be off station to an extent that the aid does not serve its purpose adequately
- A fixed or floating aid showing significantly different characteristics than those charted or described in the

Light List

- Exposed or leaking submerged pipelines
- Other submerged or visible features, or conditions considered dangerous to surface navigation

Thank you and please contact me if you have any questions.

Katy Pridgen

Kathryn Pridgen  
Physical Scientist  
NOAA-HSD OPS  
301-713-2702 ext 178  
[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)

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

From: **Castle Parker - NOAA Federal** <[castle.e.parker@noaa.gov](mailto:castle.e.parker@noaa.gov)>  
Date: Mon, Jul 25, 2016 at 7:33 AM

Subject: H12876 Exposed/Unburied Pipelines

To: Tim Osborn - NOAA Federal <[tim.osborn@noaa.gov](mailto:tim.osborn@noaa.gov)>

Cc: Christina Fandel - NOAA Federal <[christina.fandel@noaa.gov](mailto:christina.fandel@noaa.gov)>, Kathryn Pridgen - NOAA Federal <[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)>, "Quintal, Rebecca T."

<[REBECCA.T.QUINTAL@leidos.com](mailto:REBECCA.T.QUINTAL@leidos.com)>, "Bernier, Bridget W."

<[BRIDGET.W.BERNIER@leidos.com](mailto:BRIDGET.W.BERNIER@leidos.com)>, "Donaldson, Paul L."

<[PAUL.L.DONALDSON@leidos.com](mailto:PAUL.L.DONALDSON@leidos.com)>, "Bernier, Alex T."

<[ALEX.T.BERNIER@leidos.com](mailto:ALEX.T.BERNIER@leidos.com)>, Jasmine Cousins - NOAA Federal

<[jasmine.cousins@noaa.gov](mailto:jasmine.cousins@noaa.gov)>, [Emily.Clark@noaa.gov](mailto:Emily.Clark@noaa.gov)

Good day Tim,

Leidos has found several exposed and unburied pipeline sections within survey H12876 33 NM South of Calcasieu Pass. These features are not going to be submitted to Nautical Data Branch for chart application. The information submitted by Leidos follows Danger submission protocol, however these features within this report are not dangers to surface navigation and is intended for informational purposes only. The features are attributed as OBSTRN (obstruction) as Pydro does not recognize PIPSOL object class which is not included in the Pydro feature object catalog.

For your reference, the following image is a general chart view of the area:



Regards,

Gene

*Castle Eugene Parker*

*NOAA Office of Coast Survey*

*Atlantic Hydrographic Branch*

*Hydrographic Team Lead / Physical Scientist*

[castle.e.parker@noaa.gov](mailto:castle.e.parker@noaa.gov)

*office (757) 441-6746 x115*

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**From:** Christina Fandel - NOAA Federal [mailto:christina.fandel@noaa.gov]  
**Sent:** Monday, August 08, 2016 11:06 AM  
**To:** Evans, Rod E.  
**Cc:** Kathryn Pridgen - NOAA Federal; Quintal, Rebecca T.  
**Subject:** Re: Questions for NOAA COR on Leidos Task Orders

Rod,

Thank you for the clarification.

Christy

On Mon, Aug 8, 2016 at 10:11 AM, Evans, Rod E. <[RHODRIE.EVANS@leidos.com](mailto:RHODRIE.EVANS@leidos.com)> wrote:

Christina,

Attached is an email from Mark stating that “there are no relevant excerpts in the Coast Pilot”, therefore we did not receive one to update. We had not planned to submit one for TO-0002.

Regards, Rod.

**From:** Evans, Rod E.  
**Sent:** Monday, August 08, 2016 9:37 AM  
**To:** 'Christina Fandel - NOAA Federal'  
**Cc:** Kathryn Pridgen - NOAA Federal  
**Subject:** RE: Questions for NOAA COR on Leidos Task Orders

Christina,

Thank you. I will pass to the team here in Newport.

-Rod.

**From:** Christina Fandel - NOAA Federal [mailto:christina.fandel@noaa.gov]  
**Sent:** Monday, August 08, 2016 9:20 AM  
**To:** Evans, Rod E.  
**Cc:** Kathryn Pridgen - NOAA Federal

**Subject:** Re: Questions for NOAA COR on Leidos Task Orders

Hi Rod,



I wanted to provide some additional correspondence in reference to questions 4 and 6. If you discover any inconsistencies between the CSF and ENC, please follow the previous guidance but also contact your COR so we may assist in resolving any issues.

Additionally, in reference to question 6, the NCEI sound speed delivery requirement includes all sound speed data that were applied to multibeam depths on the project data drives and is not restricted to CTD data. Given Mark's previous guidance and the requirements as listed in the project instructions for OPR-K371-KR-15, we will not request non-CTD sound speed data be delivered to NCEI for this project. However, for OPR-K371-KR-16, please submit all sound speed data to NCEI in accordance with HSSD 2016 Section 8.3.6.

Finally, did you receive a Coast Pilot Investigation Report for OPR-K371-KR-16?

Thank you and please let us know if you have any additional questions,

Christy

On Wed, Aug 3, 2016 at 1:17 PM, Evans, Rod E. <[RHODRIE.EVANS@leidos.com](mailto:RHODRIE.EVANS@leidos.com)> wrote:

Katy,

Thanks. I will pas to the team here in Newport to review.

Regards, Rod.

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**From:** Kathryn Pridgen - NOAA Federal [[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)]  
**Sent:** Wednesday, August 03, 2016 12:53 PM  
**To:** Evans, Rod E.; Christina Fandel - NOAA Federal  
**Subject:** Re: Questions for NOAA COR on Leidos Task Orders

Rod,

So I gotten a few answers for you. I am very glad to hear you figured out the problems with getting the most up to date charts, that solves one problem! Here are some answers for you from our processing branch about how they would like you to proceed with some of the other problems you were having.

**General Questions:**

2. Can multiple DTONs be submitted in a single .000 file? For example, on OPR-K371-KR-15, H12731, we just submitted 3 uncharted platforms as DTONs. Each platform was in a separate .000 file and was incrementally named as DTON3, DTON4 and DTON5. Could the three platforms have been submitted in a single .000 file or should

they always be in separate .000 files? **Yes. Combine in one S57 file all features for DtoN review and possible chart application.**

3. If Leidos submits a DTON, but that DTON is not submitted from AHB to MCD as a DTON, should Leidos populate the “sftype” attribute in the Final Feature File (FFF) as DTON or leave blank?

The best practice would be that if the DtoN was not submitted to NDB and MCD, the FFF should not have the feature attributed as DtoN (sftype) as it was not officially submitted as a Danger (similar to exposed pipelines that are not a danger to surface navigation; descrp would be new.

## 2016 HSSD Questions:

### 4. 2016 HSSD Page 129, Section 7.4.1 S-57 Attribution

a. When delivering features from the CSF in the final feature file (FFF) as either an update or delete, should the position and all attributes be from the CSF or should they be from the ENC (note they frequently do not match).

The CSF is the source of the investigations per the Project Instructions and directions from HSD OPS. Objects that you are recommending to be deleted should maintain the original attribution per the assigned feature file, the CSF. Any updates to a feature need to be made would be sourced to the survey based upon revising either attributions, or shape (geometry), or revising the object class. The survey is the source of the update.

If there is a difference between the CSF and the ENC please include the ENC object and attribute the remarks to define the situation in relation to the survey. Although the ENC object was not assigned in the CSF, comparison to current editions are prudent and the action in the FFF is dependent upon the survey findings and results.

Does this help to answer some of your issues. If you have any other questions please let me know and I will get you an answer!

Thanks!

Katy Pridgen

Kathryn Pridgen  
Physical Scientist  
NOAA-HSD OPS  
[301-713-2702 ext 178](tel:301-713-2702)  
[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)

On Tue, Aug 2, 2016 at 4:06 PM, Evans, Rod E. <[RHODRIE.EVANS@leidos.com](mailto:RHODRIE.EVANS@leidos.com)> wrote:

Christina and Katy,

UPDATE: We have downloaded ENC charts again and the problem discussed in Question #1 below seems to have been resolved. The issue date for US4LA14M now is: 22 July 2016 and the issue date for US4LA10M is now: 21 July 2016. The two platforms that had “appeared” on the charts downloaded on 26 July 2016, are now no longer on US4LA14M. So it appears that the issue was found and already resolved. We have removed reference to the platforms in question in our H12731 Final Feature File.

Thanks, Rod.

**From:** Evans, Rod E.  
**Sent:** Monday, August 01, 2016 1:46 PM  
**To:** 'christina.fandel@noaa.gov' ([christina.fandel@noaa.gov](mailto:christina.fandel@noaa.gov)); Kathryn Pridgen - NOAA Federal ([kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)) ([kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov))  
**Cc:** Quintal, Rebecca T.; Donaldson, Paul L.; Bernier, Bridget W.  
**Subject:** Questions for NOAA COR on Leidos Task Orders

Christina and Katy,

We have several questions we have that are applicable to either TO-001, TO-002 or both. Please note that there are also two attachments to this email.

Thanks,

-Rod.

#### **ENC updates Questions:**

1. In the process of working up final chart comparisons for H12731 and H12838 under OPR-K371-KR-15 (TO-0001), we have compared our survey results to recently downloaded charts. We believe that recent ENC downloads may have ENCs that are older than previously downloaded versions. For H12731, this results in two charted platforms on US4LA14M that were not in our CSF file, not in previous versions of US4LA14M, and are also not charted on the raster charts. Due to this, formal disapprovals were not undertaken as part of the H12731 survey. We can therefore just discuss these findings in the Descriptive Report, however we are asking if it is possible that the recently posted ENCs are older versions than were posted in May of 2016? See attached document that provides much more information along with screen grabs.

#### **General Questions:**

2. Can multiple DTONs be submitted in a single .000 file? For example, on OPR-K371-KR-15, H12731, we just submitted 3 uncharted platforms as DTONs. Each platform was in a separate .000 file and was incrementally named as DTON3, DTON4 and DTON5. Could the three platforms have been submitted in a single .000 file or should they always be in separate .000 files?
3. If Leidos submits a DTON, but that DTON is not submitted from AHB to MCD as a DTON, should Leidos populate the “sftype” attribute in the Final Feature File (FFF) as DTON or leave blank?

## 2016 HSSD Questions:

4. **2016 HSSD Page 129, Section 7.4.1 S-57 Attribution**
  - a. When delivering features from the CSF in the final feature file (FFF) as either an update or delete, should the position and all attributes be from the CSF or should they be from the ENC (note they frequently do not match).
5. **2016 HSSD Section 6.1.3.3 Side Scan Sonar Contact Attribution:** How does prmsec Primary/Secondary relate status of contact during correlation? I.E. When should you use primary vs. secondary? Note we have always attributed all contacts as primary in the past.
6. **2016 HSSD Section 8.3.6 Other Data; NCEI Sound Speed Data.** Does the requirement to deliver in the NCEI format apply to only CTD data or to all sound speed data?
  - a. Note that the OPR-K371-KR-16 Project Instructions state “Submit all **Conductivity, Temperature, and Depth (CTD)** data to the National Oceanographic Center (NODC)...”
  - b. While the 2016 HSSD states “**Sound speed data** must be submitted to NCEI following the NetCDF template format outlined on the NCEI website at <http://www.nodc.noaa.gov/access/dataformats.html>...”
  - c. Note, we asked about this for OPR-K371-KR-15 (2015 HSSD) and the answer was “**Only deliver CTD data.**” See attached correspondence.

---

### 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](tel:401.848.4783)  
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*“What would an ocean be without a monster lurking in the dark? It would be like sleep without dreams.”*

— Werner Herzog



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

From: "Evans, Rod E." <[RHODRIE.EVANS@leidos.com](mailto:RHODRIE.EVANS@leidos.com)>  
To: Mark Lathrop - NOAA Federal <[mark.t.lathrop@noaa.gov](mailto:mark.t.lathrop@noaa.gov)>  
Cc: "Quintal, Rebecca T." <[REBECCA.T.QUINTAL@leidos.com](mailto:REBECCA.T.QUINTAL@leidos.com)>  
Date: Mon, 6 Jun 2016 16:40:40 +0000  
Subject: RE: Leidos questions for NOAA COR regarding TO-02

Thanks Mark.

-Rod.

**From:** Mark Lathrop - NOAA Federal [mailto:[mark.t.lathrop@noaa.gov](mailto:mark.t.lathrop@noaa.gov)]  
**Sent:** Monday, June 06, 2016 12:09 PM  
**To:** Evans, Rod E.  
**Cc:** Quintal, Rebecca T.  
**Subject:** Re: Leidos questions for NOAA COR regarding TO-02

Rod,

My apologies. I thought I had already sent the S57 files. I have attached the latest versions.

As your survey lies between the two safety fairways and is offshore of Sabine Bank, there are no relevant excerpts in the Coast Pilot.

Mark

On Mon, Jun 6, 2016 at 10:28 AM, Evans, Rod E. <[RHODRIE.EVANS@leidos.com](mailto:RHODRIE.EVANS@leidos.com)> wrote:

Mark,

We have the following two questions for the acquisition phase of TO-02 (Sabine):

1. Can the Coast Pilot report/excerpts be provided to Leidos?
2. Can an updated CSF file be provided that includes the wellheads (i.e. all assigned objects)?

We have more questions regarding the deliverables, but will ask these later as they are not immediate issues.

Thanks, Rod.

Rod Evans Ph.D | Leidos  
Branch Manager (Marine Survey and Engineering Solutions Branch)  
Survey & Marine Operations Business Area Manager  
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"What would an ocean be without a monster lurking in the dark? It would be like sleep without dreams."

— Werner Herzog

[[cid:image001.png@01D00D48.234D0180](#)]

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**From:** Kathryn Pridgen - NOAA Federal [mailto:kathryn.pridgen@noaa.gov]  
**Sent:** Thursday, September 22, 2016 2:33 PM  
**To:** Evans, Rod E.  
**Cc:** christina.fandel@noaa.gov; Donaldson, Paul L.; Quintal, Rebecca T.; Bernier, Bridget W.; Corey Allen - NOAA Federal  
**Subject:** Re: Leidos Question

Leidos,

The Hydrographic Survey Department Operations branch grants a waiver to Leidos for OPR-K371-KR-16. According to the Depth Range and Resolution table in the HSSD, Section 5.2.2.3, surfaces with depths ranging from 1-20m should be gridded at 1m resolutions and surfaces with depths of 18-40m should be gridded at 2m. This waiver allows Leidos to submit surfaces for surveys H12878 and H12879 that are gridded at 1m resolutions despite depths being deeper than 20m.

Based on data collected to date on the five sheets for TO-0002, there are two sheets that currently have depths deeper than 20 meters.

- H12878 CUBE min/max = 16.883m/21.443m
- H12879= CUBE min/max = 18.385m/22.037m

As just the southern section of both H12878 and H12879 are deeper than 20 meters the Operations Branch is allowing the entirety of both sheets to be gridded at a 1m resolution.

This waiver can be applied on surfaces with depths ranging from 0-23m to be gridded at a 1m resolution for this project, as long as the density of nodes on the higher resolution gridded surface is supported (i.e. no holidays exist in the higher gridded resolution surfaces).

Please include this email in the supplemental correspondence Appendix of the DR with the correspondence files.

Respectfully,  
Katy Pridgen

Kathryn Pridgen  
Physical Scientist  
NOAA-HSD OPS  
301-713-2702 ext 178  
[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)

On Mon, Sep 12, 2016 at 10:50 AM, Evans, Rod E. <[RHODRI.E.EVANS@leidos.com](mailto:RHODRI.E.EVANS@leidos.com)> wrote:

Katy,

We greatly appreciate your time to visit us for a most useful day last week. Here is the question on node resolution that we discussed:

Based on data collected to date on the five sheets for TO-0002, there are two sheets that have currently have depths deeper than 20 meters (H12878 and H12879).

- H12878 CUBE min/max = 16.883m/21.443m
- H12879= CUBE min/max = 18.385m/22.037m

Based on the Depth Range and Resolution table in the HSSD, Section 5.2.2.3, the node resolution should be 1 meter from 0-20 meters depth and 2-meter resolution from 18-40 meters depth. As just the southern section of both H12878 and H12879 are deeper than 20 meters, is it acceptable for Leidos to submit only 1-meter resolution grids for all five TO-0002 sheets?

Thank you,

-Rod.

**Rod Evans Ph.D | Leidos**

**Branch Manager (Marine Survey and Engineering Solutions Branch)  
Survey & Marine Operations Business Area Manager  
Maritime Solutions Division**

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— Werner Herzog*



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**From:** Donaldson, Paul L.  
**Sent:** Friday, October 28, 2016 4:48 PM  
**To:** kathryn.pridgen@noaa.gov; christina.fandel@noaa.gov; survey.outlines@noaa.gov  
**Cc:** Evans, Rod E.; Quintal, Rebecca T.; Bernier, Bridget W.; Bernier, Alex T.  
**Subject:** OPR-K371-KR-16 Survey Outlines for H12875, H12876, H12877, H12878, H12879  
**Attachments:** OPR-K371-KR-16\_Survey\_Outlines.zip

Katy,

Please find attached the Survey Outline files for H12875 (Sheet 1), H12876 (Sheet 2), H12877 (Sheet 3), H12878 (Sheet 4) and H12879 (Sheet 5), from OPR-K371-KR-16, Sabine, LA, Task Order-0002.

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 March 2016 HSSD (Section 8.1.2).

Please let me know if you have any questions.

Thank you,

Paul Donaldson

Paul L. Donaldson CH (NSPS #241)|Leidos  
Survey Operations Coordinator/Chief Hydrographer  
Phone: 401.848.4757  
Mobile: 860.857.8802  
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221 Third Street, Building A  
Newport, RI 02840 USA  
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**From:** Kathryn Pridgen - NOAA Federal [mailto:kathryn.pridgen@noaa.gov]  
**Sent:** Tuesday, November 15, 2016 3:59 PM  
**To:** Quintal, Rebecca T.  
**Subject:** Re: Question about Section 5.1.2 Units and Rounding in 2016 HSSD

That sounds like a great plan!  
Katy

---

Kathryn "Katy" Pridgen  
Physical Scientist  
NOAA-HSD OPS  
301-713-2702 ext 178  
[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)

On Tue, Nov 15, 2016 at 3:57 PM, Quintal, Rebecca T.  
<[REBECCA.T.QUINTAL@leidos.com](mailto:REBECCA.T.QUINTAL@leidos.com)> wrote:

Katy,

Okay, it sounds like since NOAA is moving to exclusive arithmetic rounding, and a rounding method is not specifically mentioned for RNC comparisons, then we should just go ahead and do arithmetic rounding for all depth units (English and metric) and document accordingly in our DRs. If that is acceptable then that is what we will do.

Looking forward to seeing the new 2017 HSSD!

Thanks,  
-Rebecca

**From:** Kathryn Pridgen - NOAA Federal [mailto:[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)]  
**Sent:** Tuesday, November 15, 2016 3:35 PM  
**To:** Quintal, Rebecca T.  
**Subject:** Re: Question about Section 5.1.2 Units and Rounding in 2016 HSSD

Rebecca,

It is still required to do a direct comparison to RNCs depth as stated in the 2016 HSSD. We took that sentence on cartographic rounding out of the 2016 HSSD on purpose as we are no longer doing cartographic rounding, instead we are moving toward using arithmetic rounding. As of the 2016 Specs we are not specifying which method to use, only specifying that an RNC comparison should be conducted. Please document your RNC comparison methods and results in the final deliverable. We anticipate addressing much of this in the new 2017 Specs update, so keep an eye out. I will be in

touch soon on changes to the 2017 HSSD and we would always appreciate any feedback from Leidos on the changes.

I hope you have a great day!

Katy Pridgen

---

Kathryn "Katy" Pridgen  
Physical Scientist  
NOAA-HSD OPS  
[301-713-2702 ext 178](tel:301-713-2702)  
[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)

On Tue, Nov 15, 2016 at 2:59 PM, Quintal, Rebecca T. <[REBECCA.T.QUINTAL@leidos.com](mailto:REBECCA.T.QUINTAL@leidos.com)> wrote:

Katy,

Hello. We notice in the 2016 HSSD that the following sentence has been removed from Section 5.1.2 Units and Rounding compared to previous versions of the HSSD: "These values may be accompanied by the equivalent depth value in chart units with NOAA cartographic rounding (0.75 round value) applied if direct comparison with charted depths is required."

However, we note that Section 8.1.4 Descriptive Report (DR); subsection D.1 Chart Comparisons, still requires comparison to "all of the largest scale corresponding bathymetric products available (e.g. Electronic Navigational Charts (ENCs) and **Raster Nautical Charts (RNCs)**).

We are assuming if we need to discuss depths on raster charts (i.e. depths in feet) in our chart comparison sections that we are still to use the cartographic rounding (0.75 round value). Can you please confirm?

Thank you,  
-Rebecca

---

**Rebecca T. Quintal | Leidos**  
Hydrographic Survey & Data Solutions Manager  
Marine Survey & Engineering Solutions  
office: [401.848.4607](tel:401.848.4607)  
mobile: [401.829.6242](tel:401.829.6242)

[rebecca.t.quintal@leidos.com](mailto:rebecca.t.quintal@leidos.com)



---

**From:** Evans, Rod E.  
**Sent:** Thursday, December 01, 2016 3:57 PM  
**To:** Kathryn Pridgen - NOAA Federal  
**Cc:** christina.fandel@noaa.gov; Donaldson, Paul L.; Bernier, Bridget W.; Quintal, Rebecca T.  
**Subject:** RE: Leidos Status Report

Thank you Katy. We returned the signed Mod to TO02 last week to your CO in Norfolk, VA.

Many thanks, Rod.

---

**From:** Kathryn Pridgen - NOAA Federal [kathryn.pridgen@noaa.gov]  
**Sent:** Thursday, December 01, 2016 3:51 PM  
**To:** Evans, Rod E.  
**Cc:** [christina.fandel@noaa.gov](mailto:christina.fandel@noaa.gov); Donaldson, Paul L.; Bernier, Bridget W.; Quintal, Rebecca T.  
**Subject:** Re: Leidos Status Report

Rod,  
Those deadlines look fine, we did officially get the delivery deadlines extended to April 30, 2017 for Task Order 2.

Katy

-----  
Kathryn "Katy" Pridgen  
Physical Scientist  
NOAA-HSD OPS  
301-713-2702 ext 178  
[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)

On Thu, Dec 1, 2016 at 1:31 PM, Evans, Rod E. <[RHODRIE.EVANS@leidos.com](mailto:RHODRIE.EVANS@leidos.com)> wrote:

Katy,

Please find below our Status Report via email referencing Contract: EA-133C-14-CQ-0033 T-0002, Sabine, LA, Sheets 1-5 (OPR-K371-KR-16):

Data processing is ongoing in Newport, RI and we plan on the following delivery dates for each sheet with a revised PoP through the end of April 2017:

- *H12875 (Sheet 1) – 13 January 2017*
- *H12876 (Sheet 2) – 03 February 2017*
- *H12877 (Sheet 3) – 03 March 2017*
- *H12878 (Sheet 4) – 31 March 2017*
- *H12879 (Sheet 5) – 21 April 2017*

Please advise if these delivery dates are acceptable to you?

Rebecca Quintal and I look forward to meeting RDML Smith at our *Leidos* Long Beach, MS facility at 10.30 a.m. on Wednesday, December 7th, 2016. Our primary theme will be autonomy for hydrographic survey.

Regards, Rod.

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



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**From:** Jay Nunenkamp - NOAA Federal [mailto:jay.nunenkamp@noaa.gov]  
**Sent:** Tuesday, December 27, 2016 8:19 AM  
**To:** Donaldson, Paul L.  
**Cc:** kathryn.pridgen@noaa.gov; christina.fandel@noaa.gov; Quintal, Rebecca T.; Bernier, Bridget W.; Evans, Rod E.  
**Subject:** Re: Marine Species Awareness Training

Paul:

Received, thank you.

Sincerely,

Jay Nunenkamp  
Environmental Compliance Coordinator  
Office of Coast Survey, National Ocean Service  
301-713-2770 x158  
SSMC3 Room 6215

On Fri, Dec 23, 2016 at 2:39 PM, Donaldson, Paul L.  
<[PAUL.L.DONALDSON@leidos.com](mailto:PAUL.L.DONALDSON@leidos.com)> wrote:

Per section 1.4.1 of the March 2016 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-16, Task Order 0002 (Sabine, LA).

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

Paul L. Donaldson CH (NSPS #241)|Leidos

Survey Operations Coordinator/Chief Hydrographer  
Phone: [401.848.4757](tel:401.848.4757)  
Mobile: [860.857.8802](tel:860.857.8802)  
Fax: [401.849.1585](tel:401.849.1585)  
Email: [paul.l.donaldson@leidos.com](mailto:paul.l.donaldson@leidos.com)

221 Third Street, Building A  
Newport, RI 02840 USA  
Leidos.com

**From:** Donaldson, Paul L.  
**Sent:** Friday, December 23, 2016 2:39 PM  
**To:** 'jay.nunenkamp@noaa.gov'  
**Cc:** 'kathryn.pridgen@noaa.gov'; 'christina.fandel@noaa.gov'; Quintal, Rebecca T.; Bernier, Bridget W.; Evans, Rod E.  
**Subject:** Marine Species Awareness Training  
**Attachments:** Safety\_Manual\_marine\_species\_awareness\_training\_log.docx

Per section 1.4.1 of the March 2016 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-16, Task Order 0002 (Sabine, LA).

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

Paul L. Donaldson CH (NSPS #241)|Leidos  
Survey Operations Coordinator/Chief Hydrographer  
Phone: 401.848.4757  
Mobile: 860.857.8802  
Fax: 401.849.1585  
Email: [paul.l.donaldson@leidos.com](mailto:paul.l.donaldson@leidos.com)

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Newport, RI 02840 USA  
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**From:** Quintal, Rebecca T.  
**Sent:** Thursday, December 22, 2016 10:40 AM  
**To:** Kathryn Pridgen - NOAA Federal (kathryn.pridgen@noaa.gov)  
**Cc:** Rhodri E. Evans; Bridget Bernier; Paul Donaldson  
**Subject:** 2016 XML Schema validation questions

Hello Katy,

We have found 2 sections of the 2016 XML Schema that we are having trouble with; both having to do with ERS surveys.

1. Under Vertical Control, "VDATUM\_or\_constantSep" we were able to attribute the "used" field as False, however in order to get it to validate we have to select a "methodsUsed".
2. Under Horizontal Control, "PPK" we were able to attribute the "used" field as False, however in order to get it to validate we needed to select a "methodsUsed". We tried deleting the "methodsUsed" and this still caused the XML to not validate.

We used traditional tides (zoning) for all of our OPR-K371-KR-16 surveys. Can you tell us how we should populate these fields?

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](mailto:rebecca.t.quintal@leidos.com)





---

**From:** Quintal, Rebecca T.  
**Sent:** Monday, January 09, 2017 3:40 PM  
**To:** 'Christina Fandel - NOAA Federal'; Kathryn Pridgen - NOAA Federal  
**Cc:** Rhodri E. Evans  
**Subject:** RE: 2016 XML Schema validation questions

Christy,

Thank you for looking into this. We will plan to populate dummy values in the PPK/VDATUM fields and will include a Read\_Me.txt in the Descriptive\_Report\Report folder as well as this email chain in our supplemental correspondence.

Thank you!  
-Rebecca

**From:** Christina Fandel - NOAA Federal [<mailto:christina.fandel@noaa.gov>]  
**Sent:** Monday, January 09, 2017 3:20 PM  
**To:** Kathryn Pridgen - NOAA Federal; Quintal, Rebecca T.  
**Subject:** Re: 2016 XML Schema validation questions

Hi Rebecca,

After referencing the 2016 schema, it is clear this was an oversight on my part. The PPK and VDATUM\_or\_ConstantSep fields should not be required if the method was unused. Katy has graciously submitted a help desk ticket to have this resolved in the next update, to be released some time in late February/early March.

In the meantime, I have updated our internal validation tool to ignore the PPK/VDATUM fields if designated as unused. As such, when your XML file is submitted, it should validate at AHB. If you would like, you may populate the PPK/VDATUM fields with a dummy value. I will email Gene at AHB as well to reach out to me first if any issues are encountered with validating this XML file.

Christy

On Mon, Jan 9, 2017 at 2:38 PM, Kathryn Pridgen - NOAA Federal <[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)> wrote:

That didnt work to validate the XML for Leidos.

---

Kathryn "Katy" Pridgen  
Physical Scientist  
NOAA-HSD OPS

[301-713-2702 ext 178](tel:301-713-2702)  
[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)

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

**From:** Quintal, Rebecca T. <[REBECCA.T.QUINTAL@leidos.com](mailto:REBECCA.T.QUINTAL@leidos.com)>  
**Date:** Mon, Jan 9, 2017 at 2:35 PM  
**Subject:** RE: 2016 XML Schema validation questions  
**To:** Kathryn Pridgen - NOAA Federal <[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)>  
**Cc:** "Bernier, Bridget W." <[BRIDGET.W.BERNIER@leidos.com](mailto:BRIDGET.W.BERNIER@leidos.com)>

Hmmm... Didn't work.

We took the template that we had been using and filled out the table for sound speed uncertainty - then removed the text under "VDATUM or constantSep" as well as "PPK" and left the fields set to false. The XML will not validate. We still get the error message that "(a blank answer) is not allowed.

We removed the sound speed uncertainty information cells (which is how we planned to make our final XML) and left the cells (above) blank and it still fails.

What would you like to try from here?

Thanks!  
-Rebecca

**From:** Kathryn Pridgen - NOAA Federal [mailto:[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)]  
**Sent:** Monday, January 09, 2017 2:09 PM  
**To:** Quintal, Rebecca T.  
**Subject:** Re: 2016 XML Schema validation questions

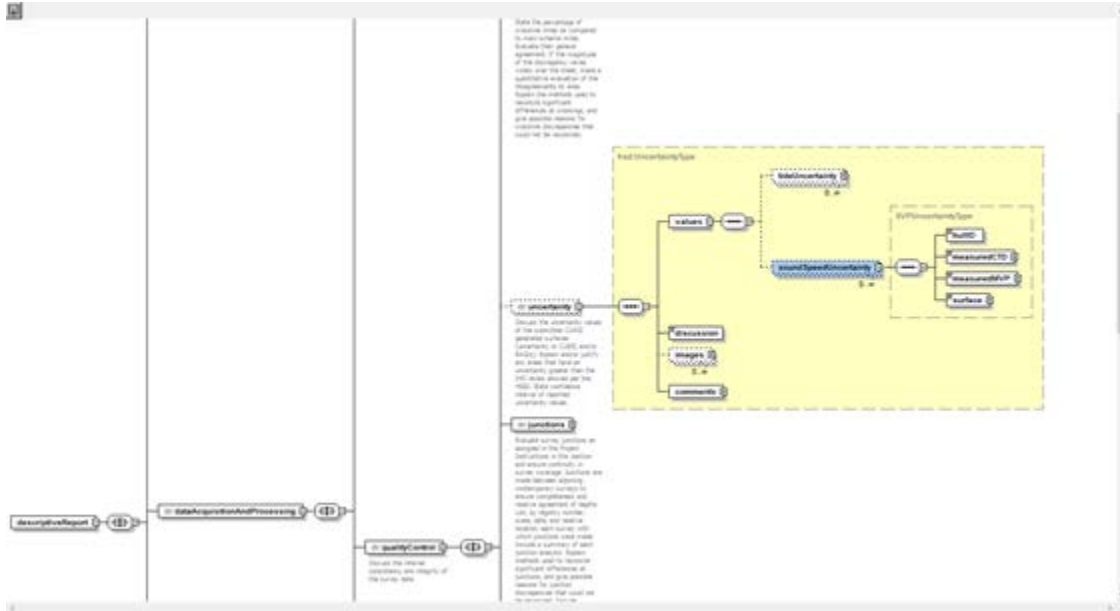
Rebecca,

So we have looked at the XML document and you are correct that that the XML document will not validate. We hope to have this issue address in the next iteration of the XML schema. For now, please fill in the "VDATUM\_or\_constantSep" as well as the PPK fields as false if they were not used. The reason we found for the XML is not validating is that under the Data Acquisition and processing tab, the sound speed uncertainty values need to be populated (Hull ID, Measured CTD, Measured MVP and Surface). I think that if those fields are populated and the "VDATUM\_or\_constantSep" and the PPK fields are set to false since they were not used, the XML will validate.

Let me know if that does the trick!  
Katy

-----  
Kathryn "Katy" Pridgen  
Physical Scientist

NOAA-HSD OPS  
[301-713-2702 ext 178](tel:301-713-2702)  
[kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)



--  
Physical Scientist  
Hydrographic Surveys Division  
Office of Coast Survey, NOAA  
[Christina.Fandel@noaa.gov](mailto:Christina.Fandel@noaa.gov)  
(301) 713 - 2702 x 133

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**From:** Donaldson, Paul L.  
**Sent:** Wednesday, March 01, 2017 10:43 AM  
**To:** castle.e.parker@noaa.gov  
**Cc:** kathryn.pridgen@noaa.gov; christina.fandel@noaa.gov; Quintal, Rebecca T.; Bernier, Bridget W.; Evans, Rod E.  
**Subject:** OPR-K371-KR-16 H12879 Exposed Pipeline Feature Report 01  
**Attachments:** H12879\_Feature\_Report\_01.zip

Gene,

Leidos has generated the attached Feature Report to provide information for AHB to submit to the OCS Navigation Manager and any other appropriate parties.

The Feature Report for H12879 details four separate exposed sections of pipelines. The four features were found to be adequately charted. This report was generated with the intent of notification to the pipeline owner for reburial.

The zip file (H12879\_Feature\_Report\_01.zip) contains the following files:

- Image files that are referenced in the S-57 file (\*.jpg) for exposed pipelines 1-4

Please let me know if you have any questions.

Thank you,

Paul L. Donaldson CH (NSPS #241) | Leidos  
Survey Operations Coordinator/Chief Hydrographer  
Phone: 401.848.4757  
Mobile: 860.857.8802  
Fax: 401.849.1585  
Email: [paul.l.donaldson@leidos.com](mailto:paul.l.donaldson@leidos.com)

221 Third Street, Building A  
Newport, RI 02840 USA  
Leidos.com

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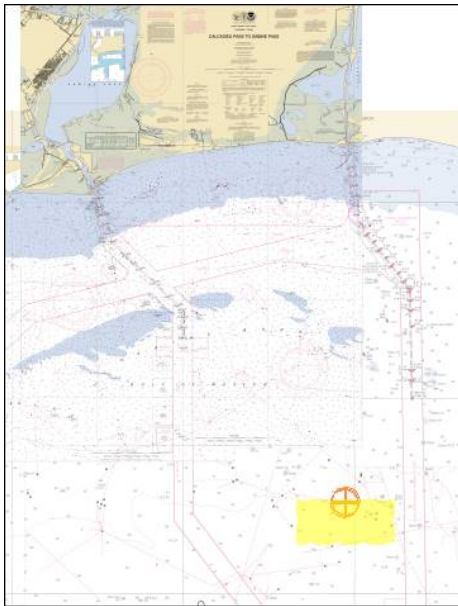
**From:** Castle Parker - NOAA Federal [mailto:castle.e.parker@noaa.gov]  
**Sent:** Wednesday, March 01, 2017 1:34 PM  
**To:** Tim Osborn - NOAA Federal  
**Cc:** Kathryn Pridgen - NOAA Federal; Briana Welton - NOAA Federal; Christina Fandel - NOAA Federal; Donaldson, Paul L.; Quintal, Rebecca T.; Bernier, Bridget W.  
**Subject:** H12879 Unburied Pipelines  
**Attachments:** H12879 Unbuired Pipelines Report.pdf

Good day Tim,

An HSD contract field unit has submitted a group of four exposed and unburied pipelines that are located within the limits of survey H12879. Please reference the attached document that details the location of the exposed pipelines and the included data images. The intent of this email is to provide documentation of the survey results and to forward to the proper authorities relaying the exposed pipeline situation. The image below is an overall view of the survey area related to objects noted in the attached report; the yellow highlighted area is survey limits for H12879.

Please respond if you need additional information.

Regards,  
Gene



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

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**From:** Tim Osborn - NOAA Federal [mailto:tim.osborn@noaa.gov]  
**Sent:** Wednesday, March 01, 2017 1:46 PM  
**To:** Castle Parker - NOAA Federal  
**Cc:** Kathryn Pridgen - NOAA Federal; Briana Welton - NOAA Federal; Christina Fandel - NOAA Federal; Donaldson, Paul L.; Quintal, Rebecca T.; Bernier, Bridget W.  
**Subject:** Re: H12879 Unburied Pipelines

Gene

Thank you and will forward

Tim

On Mar 1, 2017, at 12:34 PM, Castle Parker - NOAA Federal <[castle.e.parker@noaa.gov](mailto:castle.e.parker@noaa.gov)> wrote:

Good day Tim,

An HSD contract field unit has submitted a group of four exposed and unburied pipelines that are located within the limits of survey H12879. Please reference the attached document that details the location of the exposed pipelines and the included data images. The intent of this email is to provide documentation of the survey results and to forward to the proper authorities relaying the exposed pipeline situation. The image below is an overall view of the survey area related to objects noted in the attached report; the yellow highlighted area is survey limits for H12879.

Please respond if you need additional information.

Regards,  
Gene

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

<H12879 Unbuired Pipelines Report.pdf>

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**From:** Donaldson, Paul L.  
**Sent:** Tuesday, April 04, 2017 10:51 AM  
**To:** NODC.submissions@noaa.gov  
**Cc:** christina.fandel@noaa.gov; Quintal, Rebecca T.; Bernier, Bridget W.  
**Subject:** OPR-K371-KR-16 NetCDF Sound Speed Data Files  
**Attachments:** OPR-K371-KR-16\_20170404.zip

In accordance with Section 8.3.6 of the NOS Hydrographic Surveys Specifications and Deliverables dated March 2016, please find attached one zip file (OPR-K371-KR-16\_20170404.zip) containing sound speed data in the NetCDF format used for Leidos hydrographic surveys under project number OPR-K371-KR-16.

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.

- H12879\_Used\_for\_MB
- H12879\_Used\_for\_Comparison
- H12879\_Used\_for\_Lead\_Line
- H12879\_Used\_for\_Closing

Do not hesitate to contact me or Rebecca Quintal ([REBECCA.T.QUINTAL@leidos.com](mailto:REBECCA.T.QUINTAL@leidos.com)) if there are any questions or problems encountered with the zip file.

Thank you,

Paul Donaldson

Paul L. Donaldson CH (NSPS #241) | Leidos  
Survey Operations Coordinator/Chief Hydrographer  
Phone: 401.848.4757  
Mobile: 860.857.8802  
Fax: 401.849.1585  
Email: [paul.l.donaldson@leidos.com](mailto:paul.l.donaldson@leidos.com)

221 Third Street, Building A  
Newport, RI 02840 USA  
Leidos.com

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**From:** Christopher Paver - NOAA Federal [mailto:christopher.paver@noaa.gov]  
**Sent:** Monday, April 10, 2017 10:14 AM  
**To:** Donaldson, Paul L.  
**Cc:** Quintal, Rebecca T.; Bernier, Bridget W.  
**Subject:** Re: OPR-K371-KR-16 NetCDF Sound Speed Data Files

Dear Paul,

Thank you for your latest submission of profile data. We have processed the data and found one issue that needs resolved before we can archive.

Each file contains the value "sensor: SVP, probe type: ISS" for the instrument global attribute. Adding a sub-attribute name in an attribute is not recommended and cannot be processed in our current system.

Please remove the sub-attributes from the instrument global attribute field and resubmit the package. If the make/model of the SVP is ISS, then feel free to change the value to "ISS SVP". Also, in your resubmission email, please include the meaning/reference of the acronym "ISS".

Regards,  
Chris

On Tue, Apr 4, 2017 at 10:51 AM, Donaldson, Paul L. <[PAUL.L.DONALDSON@leidos.com](mailto:PAUL.L.DONALDSON@leidos.com)> wrote:

In accordance with Section 8.3.6 of the NOS Hydrographic Surveys Specifications and Deliverables dated March 2016, please find attached one zip file (OPR-K371-KR-16\_20170404.zip) containing sound speed data in the NetCDF format used for Leidos hydrographic surveys under project number OPR-K371-KR-16.

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- H12879\_Used\_for\_MB
- H12879\_Used\_for\_Comparison
- H12879\_Used\_for\_Lead\_Line
- H12879\_Used\_for\_Closing

Do not hesitate to contact me or Rebecca Quintal ([REBECCA.T.QUINTAL@leidos.com](mailto:REBECCA.T.QUINTAL@leidos.com)) if there are any questions or problems encountered with the zip file.



Thank you,  
Paul Donaldson

Paul L. Donaldson CH (NSPS #241)|Leidos  
Survey Operations Coordinator/Chief Hydrographer  
Phone: [401.848.4757](tel:401.848.4757)  
Mobile: [860.857.8802](tel:860.857.8802)  
Fax: [401.849.1585](tel:401.849.1585)  
Email: [paul.l.donaldson@leidos.com](mailto:paul.l.donaldson@leidos.com)

221 Third Street, Building A  
Newport, RI 02840 USA  
Leidos.com

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Chris Paver, Oceanographer  
NOAA/NCEI  
1315 East-West Hwy  
Silver Spring MD 20910  
Phone: 301-713-4910  
[www.ncei.noaa.gov](http://www.ncei.noaa.gov)

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**From:** Quintal, Rebecca T.  
**Sent:** Tuesday, April 11, 2017 2:24 PM  
**To:** 'pop.information@noaa.gov'  
**Cc:** Kathryn Pridgen - NOAA Federal (kathryn.pridgen@noaa.gov); Rhodri E. Evans; Paul Donaldson; Bernier, Alex T.; Bridget Bernier  
**Subject:** OPR-K371-KR-16 - (Contract: EA-133C-14-CQ-0033 T-0002, Sabine, LA, Sheets 1-5) - Marine Mammal Observations Delivery - 1 of 2  
**Attachments:** OPR-K371-KR-16\_Marine\_Mammal\_Observation\_Log\_1of2.pdf

Please find attached a Marine Mammal Observations Delivery for OPR-K371-KR-16 (Contract: EA-133C-14-CQ-0033 T-0002, Sabine, LA, Sheets 1-5).

The attached .pdf file submitted is a partial compilation of the individual Marine Mammal Observation Logs generated throughout the duration of OPR-K371-KR-16. This file is 1 of 2 that will be sent.

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

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](mailto:rebecca.t.quintal@leidos.com)



---

**From:** Quintal, Rebecca T.  
**Sent:** Tuesday, April 11, 2017 2:26 PM  
**To:** 'pop.information@noaa.gov'  
**Cc:** Kathryn Pridgen - NOAA Federal (kathryn.pridgen@noaa.gov); Rhodri E. Evans; Paul Donaldson; Bernier, Alex T.; Bridget Bernier  
**Subject:** OPR-K371-KR-16 - (Contract: EA-133C-14-CQ-0033 T-0002, Sabine, LA, Sheets 1-5) - Marine Mammal Observations Delivery - 2 of 2  
**Attachments:** OPR-K371-KR-16\_Marine\_Mammal\_Observation\_Log\_2of2.pdf

Please find attached a Marine Mammal Observations Delivery for OPR-K371-KR-16 (Contract: EA-133C-14-CQ-0033 T-0002, Sabine, LA, Sheets 1-5).

The attached .pdf file submitted is a partial compilation of the individual Marine Mammal Observation Logs generated throughout the duration of OPR-K371-KR-16. This file is 2 of 2 that will be sent.

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

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](mailto:rebecca.t.quintal@leidos.com)



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**From:** Quintal, Rebecca T.  
**Sent:** Wednesday, April 12, 2017 1:26 PM  
**To:** NODC.submissions@noaa.gov  
**Cc:** Kathryn Pridgen - NOAA Federal (kathryn.pridgen@noaa.gov); Rhodri E. Evans; Paul Donaldson; Bridget Bernier; 'Christopher Paver - NOAA Federal'  
**Subject:** RE: OPR-K371-KR-16 NetCDF Sound Speed Data Files  
**Attachments:** OPR-K371-KR-16\_20170412.zip

Hello. It was brought to our attention that the attribution of the probe type in our NetCDF data submission was not compatible with the current NOAA system. We have updated the attribution and are therefore resubmitting the NetCDF sound speed data in the following attached zip file:

OPR-K371-KR-16\_20170412.zip

Please let me know if there are any issues encountered with this submission.

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](mailto:rebecca.t.quintal@leidos.com)

**From:** Donaldson, Paul L.  
**Sent:** Tuesday, April 04, 2017 10:51 AM  
**To:** [NODC.submissions@noaa.gov](mailto:NODC.submissions@noaa.gov)  
**Cc:** [christina.fandel@noaa.gov](mailto:christina.fandel@noaa.gov); Quintal, Rebecca T.; Bernier, Bridget W.  
**Subject:** OPR-K371-KR-16 NetCDF Sound Speed Data Files

In accordance with Section 8.3.6 of the NOS Hydrographic Surveys Specifications and Deliverables dated March 2016, please find attached one zip file (OPR-K371-KR-16\_20170404.zip) containing sound speed data in the NetCDF format used for Leidos hydrographic surveys under project number OPR-K371-KR-16.

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.

- H12879\_Used\_for\_MB

- H12879\_Used\_for\_Comparison
- H12879\_Used\_for\_Lead\_Line
- H12879\_Used\_for\_Closing

Do not hesitate to contact me or Rebecca Quintal ([REBECCA.T.QUINTAL@leidos.com](mailto:REBECCA.T.QUINTAL@leidos.com)) if there are any questions or problems encountered with the zip file.

Thank you,

Paul Donaldson

Paul L. Donaldson CH (NSPS #241)|Leidos  
Survey Operations Coordinator/Chief Hydrographer  
Phone: 401.848.4757  
Mobile: 860.857.8802  
Fax: 401.849.1585  
Email: [paul.l.donaldson@leidos.com](mailto:paul.l.donaldson@leidos.com)

221 Third Street, Building A  
Newport, RI 02840 USA  
Leidos.com

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**From:** Quintal, Rebecca T.  
**Sent:** Wednesday, April 12, 2017 2:56 PM  
**To:** 'pop.information@noaa.gov'  
**Cc:** Kathryn Pridgen - NOAA Federal (kathryn.pridgen@noaa.gov); Rhodri E. Evans; Paul Donaldson; Bernier, Alex T.; Bridget Bernier  
**Subject:** RE: OPR-K371-KR-16 - (Contract: EA-133C-14-CQ-0033 T-0002, Sabine, LA, Sheets 1-5) - Marine Mammal Observations Delivery - 2 of 2  
**Attachments:** OPR-K371-KR-16\_Marine\_Mammal\_Observation\_Log\_2of2a.pdf

Hello all,

It appears that the 2of2 email (attachment was 19 MB) was never received by at least one person at NOAA. We have therefore broken the 2of2 file into a 2of2a and 2of2b file. I have attached the 2of2a file to this email and will be sending another email shortly with the last file (2of2b).

Acknowledgment of receipt is appreciated.

Thank you!  
-Rebecca

**From:** Quintal, Rebecca T.  
**Sent:** Tuesday, April 11, 2017 2:26 PM  
**To:** 'pop.information@noaa.gov'  
**Cc:** Kathryn Pridgen - NOAA Federal ([kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)); Rhodri E. Evans; Paul Donaldson; Bernier, Alex T.; Bridget Bernier  
**Subject:** OPR-K371-KR-16 - (Contract: EA-133C-14-CQ-0033 T-0002, Sabine, LA, Sheets 1-5) - Marine Mammal Observations Delivery - 2 of 2

Please find attached a Marine Mammal Observations Delivery for OPR-K371-KR-16 (Contract: EA-133C-14-CQ-0033 T-0002, Sabine, LA, Sheets 1-5).

The attached .pdf file submitted is a partial compilation of the individual Marine Mammal Observation Logs generated throughout the duration of OPR-K371-KR-16. This file is 2 of 2 that will be sent.

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

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](mailto:rebecca.t.quintal@leidos.com)



---

**From:** Quintal, Rebecca T.  
**Sent:** Wednesday, April 12, 2017 3:01 PM  
**To:** 'pop.information@noaa.gov'  
**Cc:** Kathryn Pridgen - NOAA Federal (kathryn.pridgen@noaa.gov); Rhodri E. Evans; Paul Donaldson; Bernier, Alex T.; Bridget Bernier  
**Subject:** FW: OPR-K371-KR-16 - (Contract: EA-133C-14-CQ-0033 T-0002, Sabine, LA, Sheets 1-5) - Marine Mammal Observations Delivery - 2 of 2  
**Attachments:** OPR-K371-KR-16\_Marine\_Mammal\_Observation\_Log\_2of2b.pdf

Please find attached the 2of2b file.

Appreciate acknowledgment of receipt for this file as well.

Thank you!  
-Rebecca

**From:** Quintal, Rebecca T.  
**Sent:** Wednesday, April 12, 2017 2:56 PM  
**To:** 'pop.information@noaa.gov'  
**Cc:** Kathryn Pridgen - NOAA Federal ([kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)); Rhodri E. Evans; Paul Donaldson; Bernier, Alex T.; Bridget Bernier  
**Subject:** RE: OPR-K371-KR-16 - (Contract: EA-133C-14-CQ-0033 T-0002, Sabine, LA, Sheets 1-5) - Marine Mammal Observations Delivery - 2 of 2

Hello all,

It appears that the 2of2 email (attachment was 19 MB) was never received by at least one person at NOAA. We have therefore broken the 2of2 file into a 2of2a and 2of2b file. I have attached the 2of2a file to this email and will be sending another email shortly with the last file (2of2b).

Acknowledgment of receipt is appreciated.

Thank you!  
-Rebecca

**From:** Quintal, Rebecca T.  
**Sent:** Tuesday, April 11, 2017 2:26 PM  
**To:** 'pop.information@noaa.gov'  
**Cc:** Kathryn Pridgen - NOAA Federal ([kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)); Rhodri E. Evans; Paul Donaldson; Bernier, Alex T.; Bridget Bernier  
**Subject:** OPR-K371-KR-16 - (Contract: EA-133C-14-CQ-0033 T-0002, Sabine, LA, Sheets 1-5) - Marine Mammal Observations Delivery - 2 of 2



Please find attached a Marine Mammal Observations Delivery for OPR-K371-KR-16 (Contract: EA-133C-14-CQ-0033 T-0002, Sabine, LA, Sheets 1-5).

The attached .pdf file submitted is a partial compilation of the individual Marine Mammal Observation Logs generated throughout the duration of OPR-K371-KR-16. This file is 2 of 2 that will be sent.

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

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](mailto:rebecca.t.quintal@leidos.com)



---

**From:** Blair Delean - NOAA Federal [mailto:blair.j.delean@noaa.gov]  
**Sent:** Wednesday, April 12, 2017 3:23 PM  
**To:** Quintal, Rebecca T.  
**Subject:** EXTERNAL: Re: FW: OPR-K371-KR-16 - (Contract: EA-133C-14-CQ-0033 T-0002, Sabine, LA, Sheets 1-5) - Marine Mammal Observations Delivery - 2 of 2

Rebecca,

Looks like both came through. Thanks!

Very Respectfully,

LTJG Blair Delean, NOAA  
Marine Mammal Laboratory  
206.526.4048

On Wed, Apr 12, 2017 at 12:01 PM, Quintal, Rebecca T.  
<[REBECCA.T.QUINTAL@leidos.com](mailto:REBECCA.T.QUINTAL@leidos.com)> wrote:

Please find attached the 2of2b file.

Appreciate acknowledgment of receipt for this file as well.

Thank you!

-Rebecca

**From:** Quintal, Rebecca T.  
**Sent:** Wednesday, April 12, 2017 2:56 PM  
**To:** '[pop.information@noaa.gov](mailto:pop.information@noaa.gov)'  
**Cc:** Kathryn Pridgen - NOAA Federal ([kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)); Rhodri E. Evans; Paul Donaldson; Bernier, Alex T.; Bridget Bernier  
**Subject:** RE: OPR-K371-KR-16 - (Contract: EA-133C-14-CQ-0033 T-0002, Sabine, LA, Sheets 1-5) - Marine Mammal Observations Delivery - 2 of 2

Hello all,

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Thank you!

-Rebecca

**From:** Quintal, Rebecca T.

**Sent:** Tuesday, April 11, 2017 2:26 PM

**To:** '[pop.information@noaa.gov](mailto:pop.information@noaa.gov)'

**Cc:** Kathryn Pridgen - NOAA Federal ([kathryn.pridgen@noaa.gov](mailto:kathryn.pridgen@noaa.gov)); Rhodri E. Evans; Paul Donaldson; Bernier, Alex T.; Bridget Bernier

**Subject:** OPR-K371-KR-16 - (Contract: EA-133C-14-CQ-0033 T-0002, Sabine, LA, Sheets 1-5) - Marine Mammal Observations Delivery - 2 of 2

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

Thank you,

-Rebecca

---

**Rebecca T. Quintal | Leidos**

Hydrographic Survey & Data Solutions Manager

Marine Survey & Engineering Solutions

office: [401.848.4607](tel:401.848.4607)

mobile: [401.829.6242](tel:401.829.6242)

[rebecca.t.quintal@leidos.com](mailto:rebecca.t.quintal@leidos.com)



---

**From:** Donaldson, Paul L.  
**Sent:** Tuesday, April 04, 2017 10:51 AM  
**To:** [NODC.submissions@noaa.gov](mailto:NODC.submissions@noaa.gov)  
**Cc:** [christina.fandel@noaa.gov](mailto:christina.fandel@noaa.gov); Quintal, Rebecca T.; Bernier, Bridget W.  
**Subject:** OPR-K371-KR-16 NetCDF Sound Speed Data Files

In accordance with Section 8.3.6 of the NOS Hydrographic Surveys Specifications and Deliverables dated March 2016, please find attached one zip file (OPR-K371-KR-16\_20170404.zip) containing sound speed data in the NetCDF format used for Leidos hydrographic surveys under project number OPR-K371-KR-16.

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- H12879\_Used\_for\_Lead\_Line
- H12879\_Used\_for\_Closing

Do not hesitate to contact me or Rebecca Quintal ([REBECCA.T.QUINTAL@leidos.com](mailto:REBECCA.T.QUINTAL@leidos.com)) if there are any questions or problems encountered with the zip file.

Thank you,

Paul Donaldson

Paul L. Donaldson CH (NSPS #241)|Leidos  
Survey Operations Coordinator/Chief Hydrographer  
Phone: [401.848.4757](tel:401.848.4757)  
Mobile: [860.857.8802](tel:860.857.8802)  
Fax: [401.849.1585](tel:401.849.1585)  
Email: [paul.l.donaldson@leidos.com](mailto:paul.l.donaldson@leidos.com)

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Newport, RI 02840 USA  
[Leidos.com](http://Leidos.com)

APPROVAL PAGE

H12879

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

- H12879\_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12879\_GeoImage.pdf

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

Approved: \_\_\_\_\_

**Commander Briana Hillstrom, NOAA**  
Chief, Atlantic Hydrographic Branch