

H13218

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

DESCRIPTIVE REPORT

Type of Survey: Navigable Area

Registry Number: H13218

LOCALITY

State(s): Texas

General Locality: Port Arthur, TX

Sub-locality: 17 NM ESE of Galveston Bay Entrance

2019

CHIEF OF PARTY
Paul L. Donaldson

LIBRARY & ARCHIVES

Date:

HYDROGRAPHIC TITLE SHEET

H13218

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): **Texas**

General Locality: **Port Arthur, TX**

Sub-Locality: **17 NM ESE of Galveston Bay Entrance**

Scale: **20000**

Dates of Survey: **04/10/2019 to 09/21/2019**

Instructions Dated: **02/21/2019**

Project Number: **OPR-K371-KR-19**

Field Unit: **SAIC**

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/TO-0005. 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. 20-TR-003. All times were recorded in UTC. Data were collected in North American Datum of 1983 (NAD83) 2011 realization 2010 (NAD83(2011)2010.0), UTM Zone 15N.

Any revisions to the Descriptive Report (DR) applied during office processing are shown in red italic text. The DR is maintained as a field unit product, therefore all information and recommendations within this report are considered preliminary unless otherwise noted. The final disposition of survey data is represented in the NOAA nautical chart products. All pertinent records for this survey are archived at the National Centers for Environmental Information (NCEI) and can be retrieved via <https://www.ncei.noaa.gov/>.

Products created during office processing were generated in NAD83 UTM 15N, MLLW. All references to other horizontal or vertical datums in this report are applicable to the processed hydrographic data provided by the field unit.

Table of Contents

<u>A. Area Surveyed</u>	<u>1</u>
<u>A.1 Survey Limits</u>	<u>1</u>
<u>A.2 Survey Purpose</u>	<u>2</u>
<u>A.3 Survey Quality</u>	<u>3</u>
<u>A.4 Survey Coverage</u>	<u>3</u>
<u>A.6 Survey Statistics</u>	<u>7</u>
<u>B. Data Acquisition and Processing</u>	<u>9</u>
<u>B.1 Equipment and Vessels</u>	<u>9</u>
<u>B.1.1 Vessels</u>	<u>10</u>
<u>B.1.2 Equipment</u>	<u>11</u>
<u>B.2 Quality Control</u>	<u>11</u>
<u>B.2.1 Crosslines</u>	<u>11</u>
<u>B.2.2 Uncertainty</u>	<u>12</u>
<u>B.2.3 Junctions</u>	<u>13</u>
<u>B.2.4 Sonar QC Checks</u>	<u>14</u>
<u>B.2.5 Equipment Effectiveness</u>	<u>15</u>
<u>B.2.6 Factors Affecting Soundings</u>	<u>15</u>
<u>B.2.7 Sound Speed Methods</u>	<u>15</u>
<u>B.2.8 Coverage Equipment and Methods</u>	<u>15</u>
<u>B.2.9 Multibeam Coverage Analysis</u>	<u>16</u>
<u>B.3 Echo Sounding Corrections</u>	<u>16</u>
<u>B.3.1 Corrections to Echo Soundings</u>	<u>16</u>
<u>B.3.2 Calibrations</u>	<u>17</u>
<u>B.4 Backscatter</u>	<u>17</u>
<u>B.5 Data Processing</u>	<u>17</u>
<u>B.5.1 Primary Data Processing Software</u>	<u>17</u>
<u>B.5.2 Surfaces</u>	<u>18</u>
<u>C. Vertical and Horizontal Control</u>	<u>20</u>
<u>C.1 Vertical Control</u>	<u>20</u>
<u>C.2 Horizontal Control</u>	<u>20</u>
<u>D. Results and Recommendations</u>	<u>21</u>
<u>D.1 Chart Comparison</u>	<u>21</u>
<u>D.1.1 Electronic Navigational Charts</u>	<u>21</u>
<u>D.1.2 Maritime Boundary Points</u>	<u>22</u>
<u>D.1.3 Charted Features</u>	<u>22</u>
<u>D.1.4 Uncharted Features</u>	<u>23</u>
<u>D.1.5 Shoal and Hazardous Features</u>	<u>23</u>
<u>D.1.6 Channels</u>	<u>23</u>
<u>D.1.7 Bottom Samples</u>	<u>23</u>
<u>D.2 Additional Results</u>	<u>24</u>
<u>D.2.1 Shoreline</u>	<u>24</u>
<u>D.2.2 Aids to Navigation</u>	<u>24</u>
<u>D.2.3 Overhead Features</u>	<u>24</u>

D.2.4 Submarine Features	24
D.2.5 Platforms	24
D.2.6 Ferry Routes and Terminals	26
D.2.7 Abnormal Seafloor and/or Environmental Conditions	26
D.2.8 Construction and Dredging	26
D.2.9 New Survey Recommendation	26
D.2.10 Designated Soundings	26
D.2.11 Final Feature S-57 File	27
D.2.12 Side Scan Sonar Contacts S-57 File	27
D.2.13 Coast Pilot Review Report	27
D.2.14 Inset Recommendation	28
E. Approval Sheet	29
F. Table of Acronyms	31

List of Tables

Table 1: Survey Limits	1
Table 2: Survey Coverage	4
Table 3: Hydrographic Survey Statistics	8
Table 4: Dates of Hydrography	9
Table 5: Vessels Used	10
Table 6: Major Systems Used	11
Table 7: Survey Specific Tide TPU Values	12
Table 8: Survey Specific Sound Speed TPU Values	12
Table 9: Junctioning Surveys	14
Table 10: Primary bathymetric data processing software	18
Table 11: Primary imagery data processing software	18
Table 12: Submitted Surfaces	19
Table 13: ERS method and SEP file	20
Table 14: Largest Scale ENC's	21

List of Figures

Figure 1: H13218 Survey Bounds	2
Figure 2: Final Bathymetry Coverage for H13218	5
Figure 3: Final Side Scan Coverage for H13218 (100% coverage)	6
Figure 4: Final Side Scan Coverage for H13218 (disproval coverage)	7
Figure 5: M/V Atlantic Surveyor	10
Figure 6: Summary of Crossing Analysis	11
Figure 7: General Locality of H13218 with Junctioning Surveys	13
Figure 8: ENC US4TX52M Charted Soundings (red) with H13218 CUBE Depth Selected Soundings (black)	22
Figure 9: DTON Reports	23
Figure 10: Platforms within H13218	26

Descriptive Report to Accompany Survey H13218

Project: OPR-K371-KR-19

Locality: Port Arthur, TX

Sublocality: 17 NM ESE of Galveston Bay Entrance

Scale: 1:20000

April 2019 - September 2019

SAIC

Chief of Party: Paul L. Donaldson

A. Area Surveyed

The area surveyed was a section of the Gulf of Mexico east southeast of Galveston Bay Entrance, Texas (Figure 1).

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
29° 19' 2.54" N 94° 26' 52.66" W	29° 11' 26.99" N 94° 16' 50.72" W

Table 1: Survey Limits

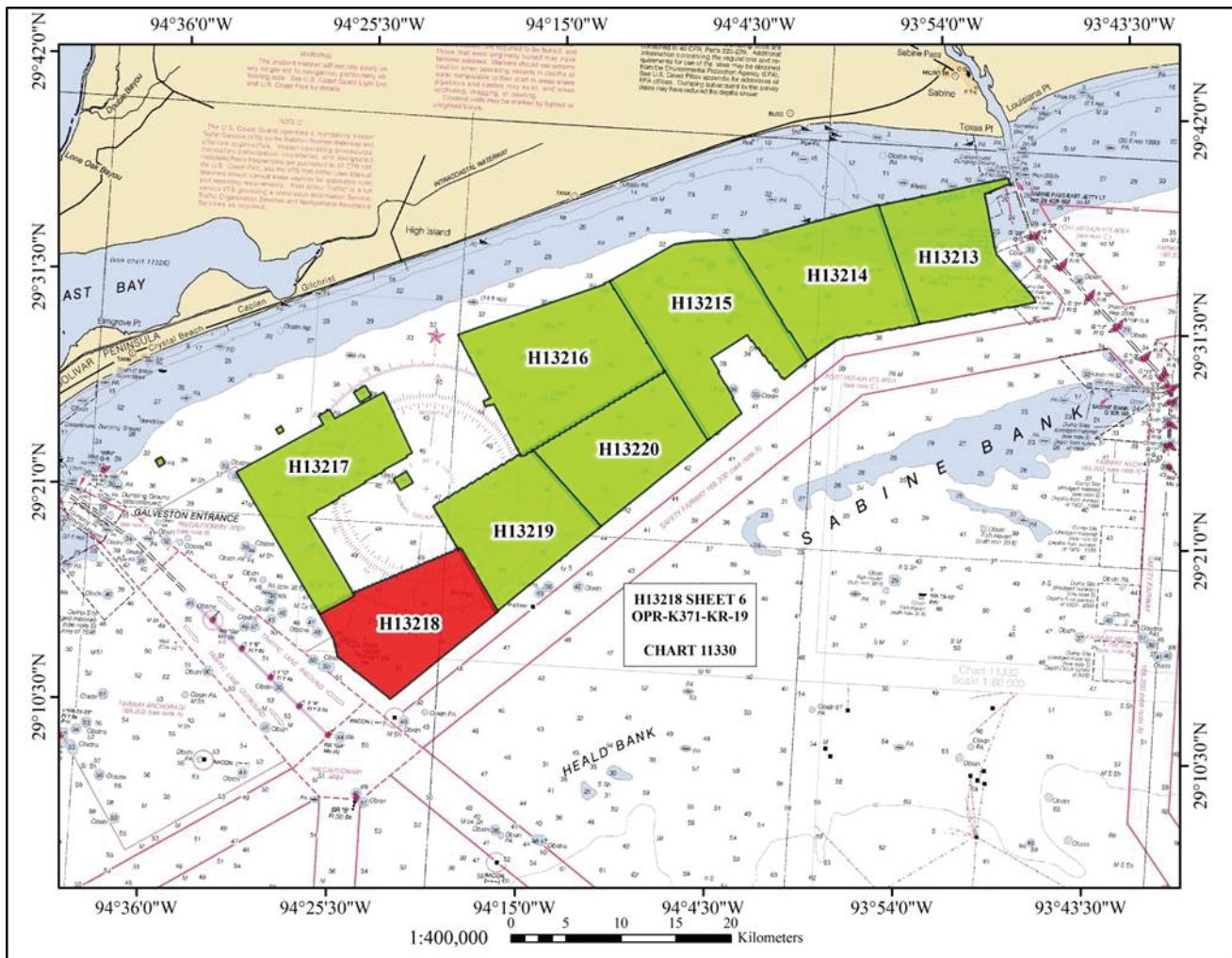


Figure 1: H13218 Survey Bounds

Survey limits were acquired in accordance with the requirements in the Project Instructions and the Hydrographic Surveys Specifications and Deliverables (HSSD), March 2019.

A.2 Survey Purpose

The purpose of this survey is to provide contemporary surveys to update National Ocean Service (NOS) nautical charting products. Port Arthur, located on the Gulf of Mexico Intra-coastal Waterway in Texas, is home to a large refinery network (1). The Port of Port Arthur hosts the Motiva refinery, the largest oil refinery in the United States (2). Traffic flow through the Port is heavy and in 2010, an oil spill occurred from an oil tanker and barge collision spilling 450,000 gallons of oil into the Sabine/Neches waterway (3). This busy seaport has also been hit by several hurricanes. On August 29, 2017, Hurricane Harvey hit Port Arthur bringing upwards of 40 inches of rainfall and widespread flooding to the area (4). This Hurricane had the potential to change the seafloor of the Port which sees over 35 million tons of vessel traffic (5).

To continue to promote safe passage of traffic through the Port, this project will survey 286 square nautical miles (SNM) of seafloor in Port Arthur. The survey will address concerns of migrating shoals and exposed hazards by updating bathymetry and positions of hazards and reducing the risk to navigation. Survey data from this project is intended to supersede all prior survey data in the common area and will provide contemporary data to update National Ocean Service (NOS) nautical charting products.

Citations

1. <https://www.portarthurtx.gov/236/About-Us>
2. "Tropical Storm Harvey Closes America's Biggest Refinery". *Maritime Executive*. 30 August 2017. Retrieved 31 August 2017.
3. Gonzalez, Angel (24 January 2010). "Oil Spill Hits Texas Port". *The Wall Street Journal*. Retrieved 24 January 2010.
4. Harrington, Rebecca. "Flash floods send Texans into 'survival mode' as Harvey hits Port Arthur with 26 inches of rain in one day". *BusinessInsider.com*. Business Insider. Retrieved 30 August 2017.
5. The U.S. Waterway System, 2016 Transportation Facts & Information. Navigation and Civil Works Decision Support Center, U.S. Army Corps of Engineers.

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.

H13218 was surveyed in accordance with the following documents:

1. Project Instructions, OPR-K371-KR-19, dated 21 February 2019
2. Hydrographic Surveys Specifications and Deliverables (HSSD), March 2019
3. Waiver_2019 HSSD_signed.pdf, dated 05 November 2019
4. OPR-K371-KR-19 Statement of Work, dated 21 February 2019

A.4 Survey Coverage

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

Water Depth	Coverage Required
All waters in survey area	Complete Coverage (Refer to HSSD Section 5.2.2.3). Complete 6443 LNMs. Transit mileage and data which do not meet HSSD specifications shall not count towards the completion of the LNM. Notify the Project Manager/COR upon nearing completion. The final survey area shall be squared off and ensure the full investigation of any features within the surveyed extent. Project Manager/COR may adjust survey prioritization based on observed shoaling. Additional or fewer sheets may be assigned based on survey area achieved.

Table 2: Survey Coverage

Leidos chose to achieve the coverage requirement using Complete Coverage, Option B (100% side scan sonar coverage with concurrent multibeam). Survey coverage achieved was in accordance with the requirements in the Project Instructions and the HSSD (Figure 2 through Figure 4).

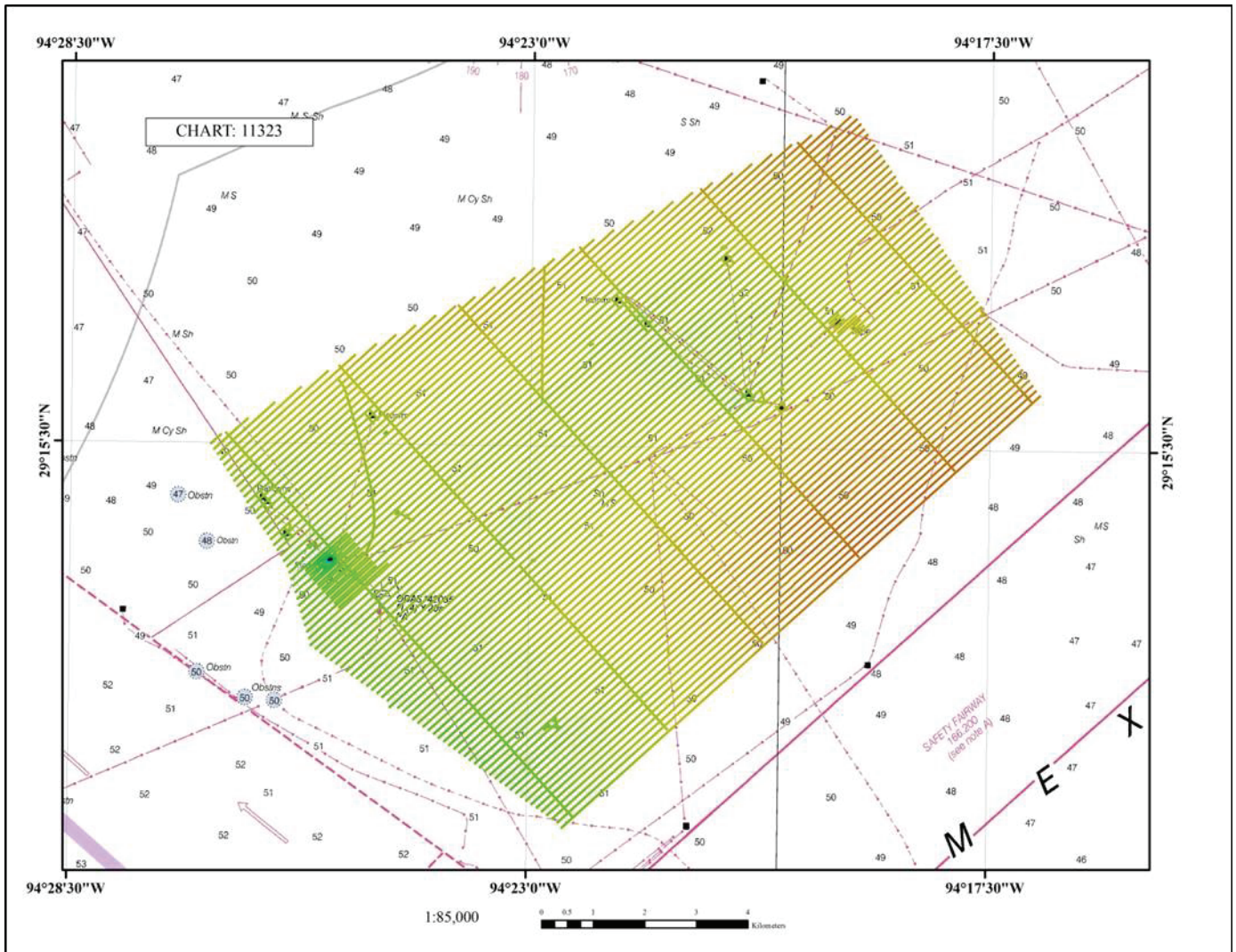


Figure 2: Final Bathymetry Coverage for H13218

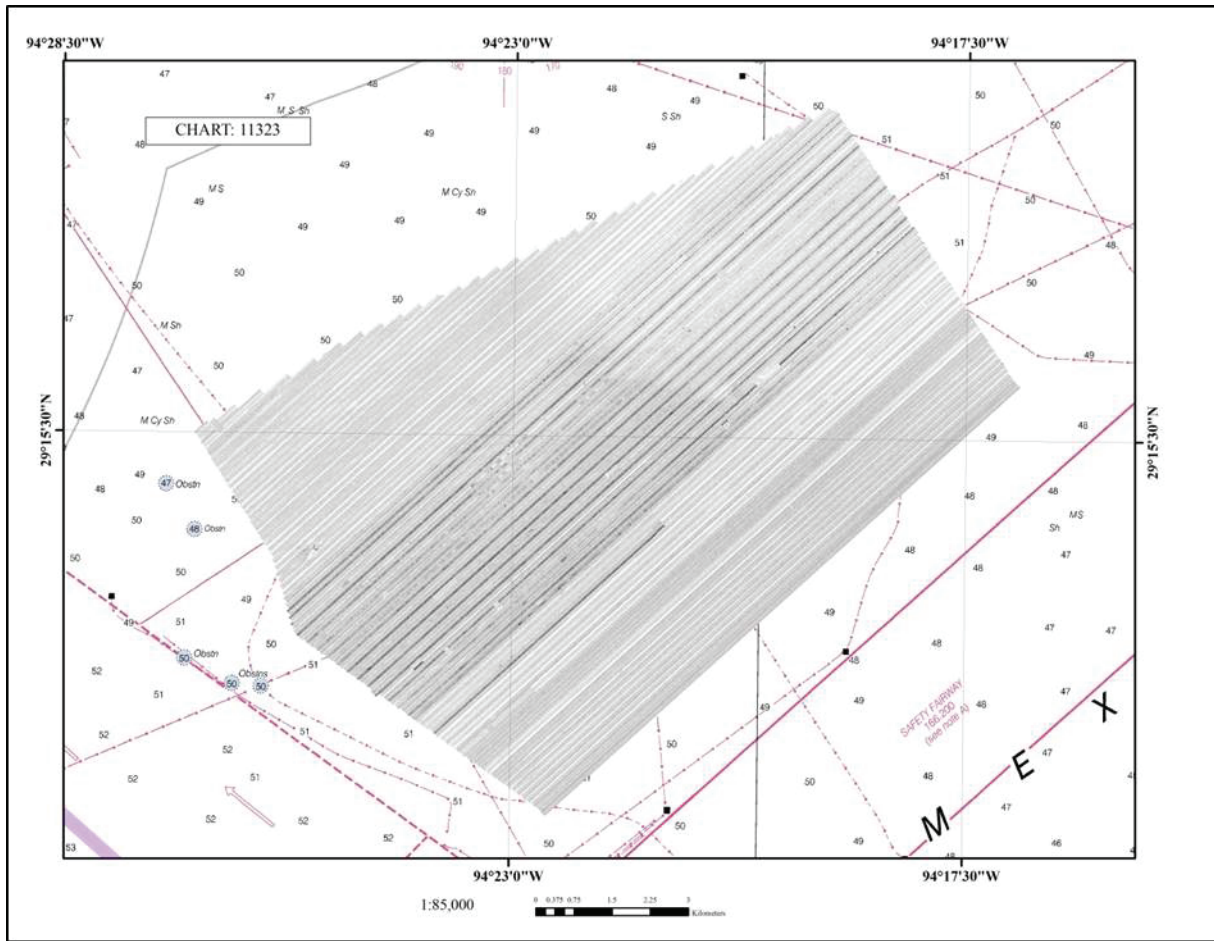


Figure 3: Final Side Scan Coverage for H13218 (100% coverage)

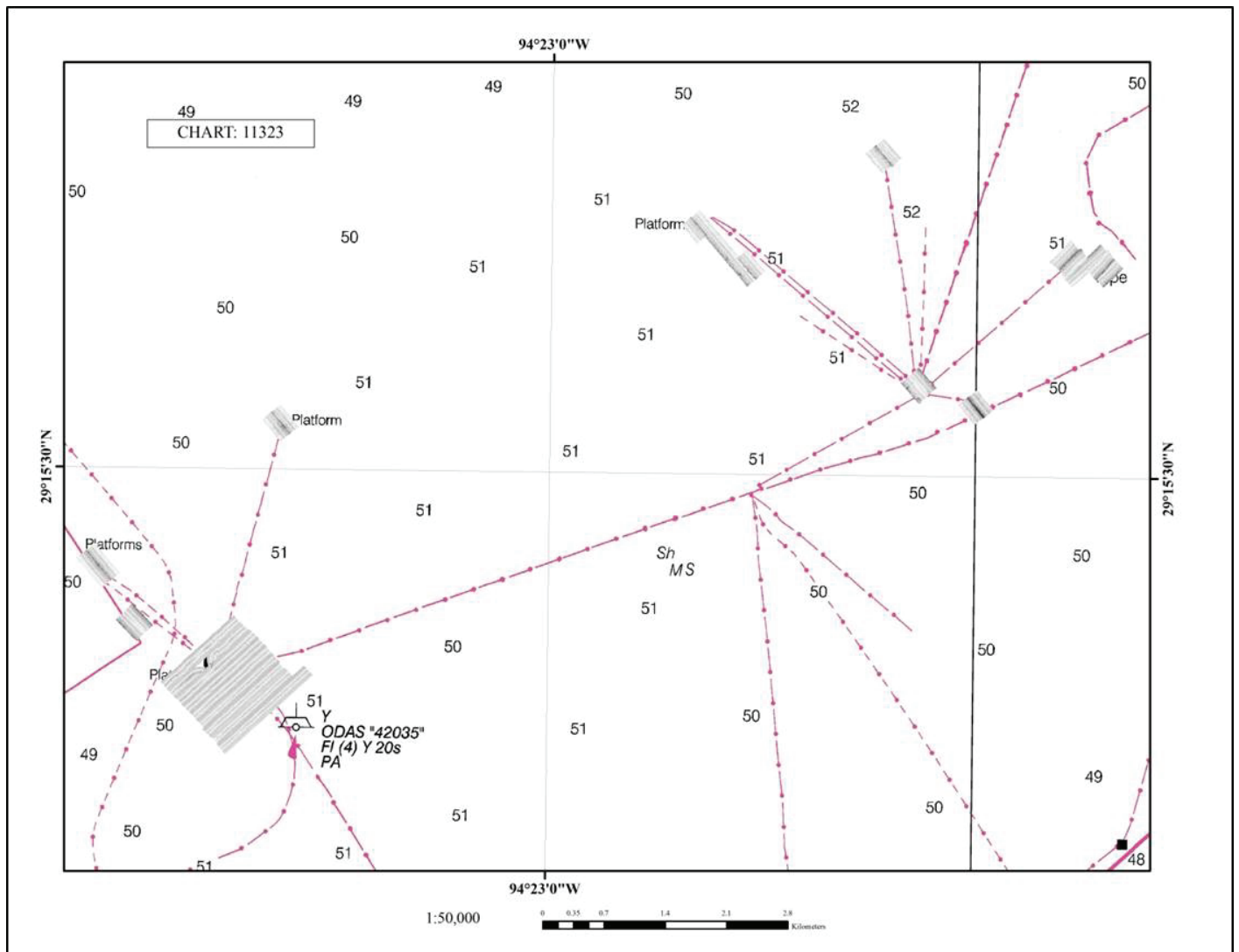


Figure 4: Final Side Scan Coverage for H13218 (disproval coverage)

A.6 Survey Statistics

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

	HULL ID	<i>M/V Atlantic Surveyor</i>	<i>Total</i>
LNM	SBES Mainscheme	0	0
	MBES Mainscheme	0	0
	Lidar Mainscheme	0	0
	SSS Mainscheme	0	0
	SBES/SSS Mainscheme	0	0
	MBES/SSS Mainscheme	621.24	621.24
	SBES/MBES Crosslines	28.27	28.27
	Lidar Crosslines	0	0
Number of Bottom Samples			2
Number Maritime Boundary Points Investigated			0
Number of DPs			0
Number of Items Investigated by Dive Ops			0
Total SNM			35

Table 3: Hydrographic Survey Statistics

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

Survey Dates	Day of the Year
04/10/2019	100

Survey Dates	Day of the Year
04/11/2019	101
04/12/2019	102
04/20/2019	110
04/21/2019	111
07/26/2019	207
07/28/2019	209
07/29/2019	210
07/30/2019	211
08/06/2019	218
08/17/2019	229
08/18/2019	230
09/15/2019	258
09/16/2019	259
09/20/2019	263
09/21/2019	264

Table 4: 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 7 Linux platforms. Klein 3000 side scan sonar (SSS) data were collected on a Windows 7 platform using Klein's SonarPro software. Subsequent processing and review of the SSS data, including the generation of coverage mosaics, were accomplished using SABER.

A detailed description of the systems and vessel used to acquire and process these data is included in the Data Acquisition and Processing Report (DAPR) for OPR-K371-KR-19, delivered previously with H13213. There were no variations from the equipment configuration described in the DAPR.

B.1.1 Vessels

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

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

Table 5: Vessels Used



Figure 5: M/V Atlantic Surveyor

The M/V Atlantic Surveyor (Figure 5) was used to collect multibeam echo sounder (MBES) (RESON SeaBat T50), side scan sonar (SSS) (Klein 3000), and sound speed data during twenty-four hours per day survey operations.

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

B.1.2 Equipment

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

Manufacturer	Model	Type
Teledyne RESON	SeaBat T50-R	MBES
Klein Marine Systems	System 3000	SSS
Applanix	POS MV 320 v5	Positioning and Attitude System
AML Oceanographic	MVP30	Sound Speed System
AML Oceanographic	MicroX SV	Sound Speed System

Table 6: Major Systems Used

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

B.2 Quality Control

B.2.1 Crosslines

Multibeam/single beam echo sounder/side scan sonar crosslines acquired for this survey totaled 4.55% of mainscheme acquisition.

Refer to Separates II for details about how the crossing analyses were performed and a complete discussion of each analysis and tabular results. Figure 6 summarizes the crossline comparison results.

Difference Grid	Minimum and Maximum CUBE Depth (meters) of Crossline Grid	IHO Order 1A Maximum Allowable Uncertainty (meters) for the Range of Depths	Percentage of Depth Differences Less than IHO Order 1A Maximum Allowable Uncertainty
<i>M/V Atlantic Surveyor</i> Multibeam one-meter Crossline (Class 1) to one-meter Mainscheme	15.115 – 15.884	0.537 – 0.541	100.00

Figure 6: Summary of Crossing Analysis

B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

Method	Measured	Zoning
ERS via VDATUM		0.122 meters

Table 7: Survey Specific Tide TPU Values.

Hull ID	Measured - CTD	Measured - MVP	Surface
M/V Atlantic Surveyor	N/A meters/second	1.0 meters/second	1.0 meters/second

Table 8: Survey Specific Sound Speed TPU Values.

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

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

The final H13218 one-meter PFM CUBE surface contained final vertical uncertainties that ranged from 0.260 meters to 0.678 meters. The IHO Order 1a maximum allowable vertical uncertainty was calculated to range between 0.535 to 0.549 meters, based on the minimum CUBE depth (14.646 meters) and maximum CUBE depth (17.427 meters). Results from the SABER Check PFM Uncertainty function identified that there were two nodes in the final H13218 one-meter PFM CUBE surface with final vertical uncertainties that exceeded IHO Order 1a allowable vertical uncertainty. Both nodes were associated with a deep scar in the bottom with uncertainties of 0.619 meters and 0.678 meters. The SABER Frequency Distribution Tool was also used to review the Hyp. Final Uncertainty surface within the final H13218 one-meter PFM grid, and the results showed that in the final one-meter PFM grid, 99.99% of all nodes had final uncertainties less than or equal to 0.520 meters.

B.2.3 Junctions

Per the Project Instructions, analyses of the H13218 junctions with adjacent surveys were performed. Junction analysis was conducted between H13218 and the surveys listed in Table 7. Figure 7 shows the general locality of H13218 as it relates to the sheets to which junctions were performed. Comparisons against H13219 are reported within the H13219 delivery (2020-01-17). Refer to Separates II for details about how junction analysis was performed and a complete discussion of the analysis and tabular results.

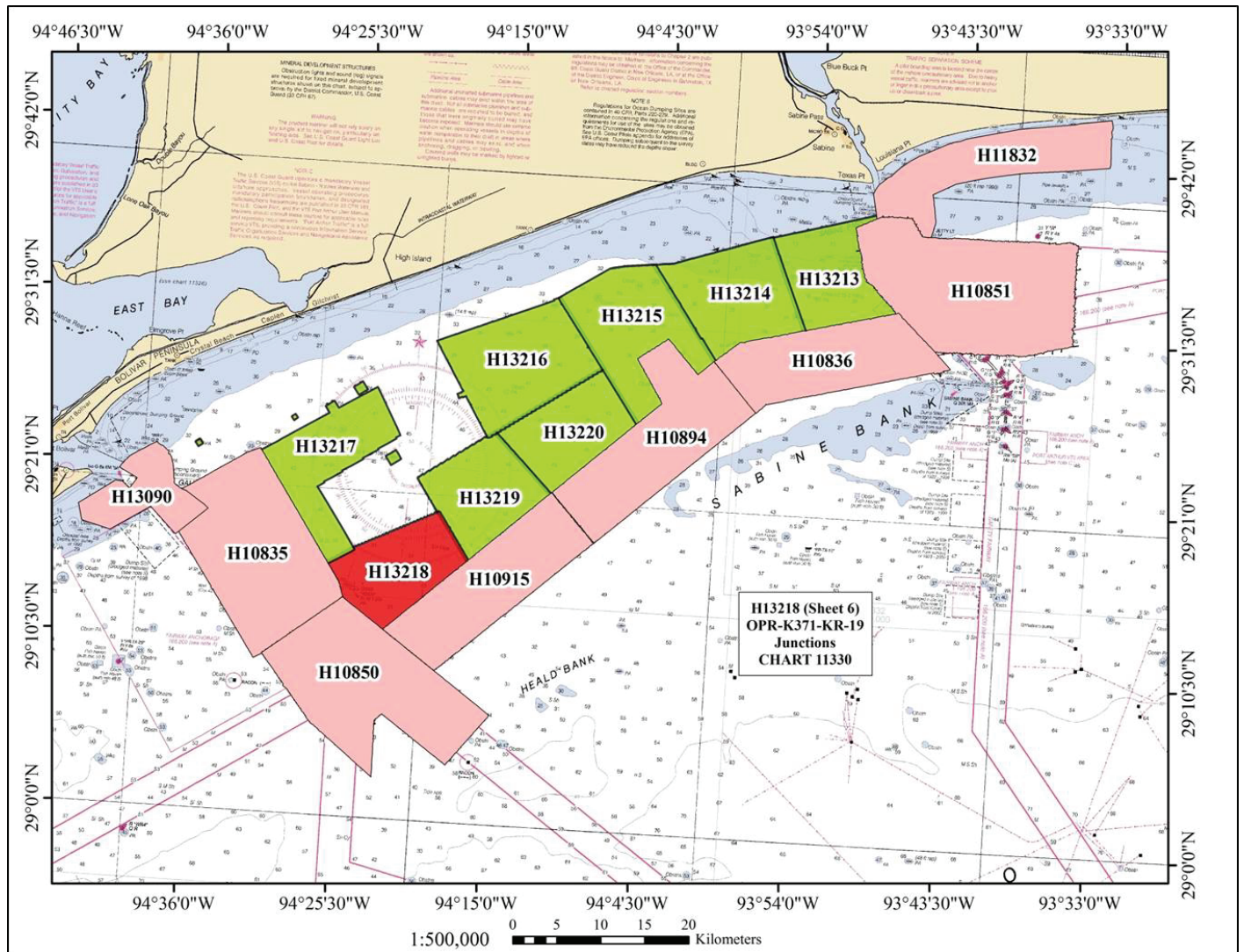


Figure 7: General Locality of H13218 with Junctioning Surveys

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H13217	1:40000	2019	Leidos	N
H10835	1:20000	1999	Leidos (formerly SAIC)	NW
H10850	1:20000	1999	Leidos (formerly SAIC)	SW
H10915	1:20000	1999	Fugro Pelagos, Inc.	S

Table 9: Junctioning Surveys

H13217

H13218 junctions with H13217 to the north; 100% of the comparisons were ± 0.215 meters or less, within the calculated maximum allowable TVU of 0.540 meters.

H10835

H13218 junctions with H10835 to the northwest; 100% of the comparisons agreed within ± 0.721 meters while 71.12% of the comparison results fell within the calculated maximum allowable TVU of 0.542 meters.

H10850

H13218 junctions with H10850 to the southwest; 100% of the comparisons agreed within ± 0.616 meters while 99.98% of the comparison results fell within the calculated maximum allowable TVU of 0.542 meters.

H10915

H13218 junctions with H10915 to the south; 100% of the comparisons were ± 0.444 meters or less, within the calculated maximum allowable TVU of 0.541 meters.

B.2.4 Sonar QC Checks

Sonar system quality control checks were conducted as detailed in the DAPR and quality control checks conducted during H13218 are reported in Separates I.

B.2.5 Equipment Effectiveness

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

B.2.6 Factors Affecting Soundings

There were no other factors that affected corrections to soundings.

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: On the M/V Atlantic Surveyor, the MVP30 was the primary system used to collect sound speed profile (SSP) data, refer to the DAPR for additional details. 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.

All sound speed profiles applied for online bathymetry data collection were acquired within 500 meters of the bounds of the survey area as specified in Section 5.2.3.3 of the HSSD.

Confidence checks of the sound speed profile casts were conducted by comparing at least two consecutive casts taken with different SSP sensors. Six sound speed confidence checks were conducted during H13218 and the results can be found in Separates II within the “Comparison Cast Log” section.

All individual SSP files are delivered with the H13218 data and are broken out into sub-folders, which correspond to the purpose of each cast. Also, all individual SSP files for H13218 have been concatenated into four separate files based on the purpose of the cast, provided in CARIS format files (.svp), and delivered under (H13218/Processed/SVP/CARIS_SSP) on the delivery drive. In addition, sound speed data for the entire OPR-K371-KR-19 project have been submitted to NCEI following the NetCDF template format as specified in Section 8.3.6 of the HSSD, refer to Separates II for more details.

B.2.8 Coverage Equipment and Methods

All equipment and survey methods are detailed in the DAPR.

B.2.9 Multibeam Coverage Analysis

Leidos chose to achieve the coverage requirement using 100% side scan sonar coverage with concurrent multibeam bathymetry. To achieve this coverage, the M/V Atlantic Surveyor used a towed Klein 3000 SSS set to 75-meter range scale. Mainscheme line spacing was set to 120 meters, which ensured 100% SSS coverage.

The HSSD Section 7.3.4 stated that 100% SSS coverage was insufficient to disprove a charted feature. Therefore, Leidos reviewed the Composite Source File (CSF), BSB charts, and ENC charts and completed an additional 100% SSS coverage, and resulting MBES coverage over assigned objects not found during survey in order to verify disproval. A disproval search radius was developed as specified in the Project Reference File (PRF), Final_OPR-K371-KR-19_PRF.000 (provided on 18 March 2019), or following best practices if not specified. The disproval radius is documented within the H13218 S-57 FFF. For all assigned objects within the H13218 Statement of Work (SOW), each object's achieved disproval data covered an area of at least the assigned disproval search radius.

The SABER Gapchecker program was used to flag MBES data gaps within the CUBE surface. Additionally, the entire surface was visually scanned for holidays at various points during the data processing effort. Additional survey lines were run to fill any holidays that were detected. A final review of the CUBE Depth surface of the H13218 one-meter PFM showed that there were no holidays as defined for complete coverage surveys in Section 5.2.2.3 of the HSSD. Within the final CUBE surface, there were 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.

The final H13218 CUBE PFM was examined for the number of soundings contributing to the chosen CUBE hypotheses for each node by running SABER's Frequency Distribution Tool on the Hypothesis Number of Soundings (Hyp. # Soundings) surface. The Hyp. # Soundings surface reports the number of soundings that were used to compute the chosen hypothesis. Analysis of the H13218 Hyp. # Soundings surface of the final H13218 one-meter PFM revealed that 99.57% of all nodes contained five or more soundings; satisfying the requirements for complete coverage surveys, Option B, as specified in Section 5.2.2.3 of the HSSD.

B.3 Echo Sounding Corrections

B.3.1 Corrections to Echo Soundings

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

B.3.2 Calibrations

All sounding systems were calibrated as detailed in the DAPR.

B.4 Backscatter

Side Scan Sonar (SSS) Coverage Analysis: For all details regarding SSS data processing, see the DAPR. Leidos chose to adhere to the coverage requirements in the Project Instructions using Complete Coverage, Option B (100% side scan sonar coverage with concurrent multibeam). The HSSD stated that 100% SSS coverage was insufficient to disprove a charted feature. Therefore, 100% SSS coverage was collected and verified for the entire survey area, and an additional 100% SSS coverage was collected over CSF assigned objects that were not found, to verify disproval. Leidos generated two separate coverage mosaics at one-meter cell size resolution as specified in Section 8.2.1 of the HSSD. The first 100% and second 100% disproval coverage mosaics were independently reviewed using tools in SABER to verify data quality and swath coverage. The SABER Gapchecker routine was used to flag data gaps within each of the 100% SSS coverage mosaics. Additionally, the entirety of each SSS surface was visually scanned for holidays at various points during the data processing effort. Additional survey lines were run to fill any holidays that were detected. The H13218_SSSAB_1m_100kHz_2of2 SSS coverage had gaps in coverage resulting from the presence of a large platform that fell within an assigned wreck feature disproval area. Both coverage mosaics are determined to be complete and sufficient to meet the requirements contained within the Project Instructions and HSSD. Each 100 percent coverage mosaic is delivered as a single georeferenced raster file in floating point GeoTIFF format, as specified in Sections 8.2.1 and 8.3.3 in the HSSD.

Multibeam Echo Sounder Seafloor Backscatter: In accordance with the HSSD Section 6.2, Leidos collected MBES backscatter with all GSF data acquired. The MBES settings used were checked to ensure acceptable quality standards were met and to mitigate acoustic saturation of the backscatter data. The MBES backscatter data acquired were written to the GSF in real-time by ISS-2000 and are delivered in the final GSF files for this sheet. Per HSSD Section 6.2.1, as the Project Instructions did not state to evaluate the backscatter data; 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 software program was the primary program used for bathymetric data processing:

Manufacturer	Name	Version
Leidos	SABER	5.4.0.22.3

Table 10: Primary bathymetric data processing software

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

Manufacturer	Name	Version
Leidos	SABER	5.4.0.22.4

Table 11: Primary imagery 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. Subsequent to the delivery of the OPR-K371-KR-19 DAPR (submitted 2019-12-06), the SABER version was upgraded from 5.4.0.22.3 to 5.4.0.22.4 as captured in Table 9. There were no other changes from the software configuration as detailed in the DAPR.

B.5.2 Surfaces

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

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H13218_MB_1m_MLLW_Final-1_of_3	BAG	1 meters	15.089 meters - 16.255 meters	N/A	Complete Coverage, Option B (100% side scan sonar coverage with concurrent multibeam)
H13218_MB_1m_MLLW_Final-2_of_3	BAG	1 meters	14.646 meters - 17.427 meters	N/A	Complete Coverage, Option B (100% side scan sonar coverage with

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
					concurrent multibeam)
H13218_MB_1m_MLLW_Final-3_of_3	BAG	1 meters	15.080 meters - 16.437 meters	N/A	Complete Coverage, Option B (100% side scan sonar coverage with concurrent multibeam)
H13218_SSSAB_1m_100kHz_1of2	SSS Mosaic (.tif)	1 meters	0.00 meters - 0.00 meters	N/A	100% SSS
H13218_SSSAB_1m_100kHz_2of2	SSS Mosaic (.tif)	1 meters	0.00 meters - 0.00 meters	N/A	Second 100% SSS For Object Disproval

Table 12: Submitted Surfaces

Complete Coverage Section 5.2.2.3 of the HSSD requires one-meter node resolution for depths ranging from zero meters to 20 meters. Leidos generated CUBE PFM grids for H13218 at one-meter resolution.

The CUBE Depth surface of the final H13218 one-meter PFM (containing all valid depth data) was used to assess and document multibeam survey coverage. SABER populates the CUBE depth with either the node's chosen hypothesis or the depth of a feature or designated sounding set by the hydrographer, which overrides the chosen hypothesis. The range of CUBE depths of the H13218 one-meter PFM was from 14.646 meters (48.051 feet; 0.260 meters Total Vertical Uncertainty [TVU]) to 17.427 meters (57.175 feet; 0.380 meters TVU).

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

For the purposes of grid management, the Branch has created a single H13218_MB_1m_MLLW_1of1.bag that replaces the H13218_MB_1m_MLLW_Final-X_of_3 multibeam bathymetry grids submitted by the field unit. The H13218_MB_1m_MLLW_1of1.bag is the final deliverable to be used in charting products and for archive.

C. Vertical and Horizontal Control

Additional information discussing the vertical and horizontal control for this survey can be found in the DAPR.

C.1 Vertical Control

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

ERS Datum Transformation

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

Method	Ellipsoid to Chart Datum Separation File
ERS via VDATUM	OPR-K371-KR-19_NAD83_VDatum_MLLW.cov

Table 13: ERS method and SEP file

Refer to the DAPR for details regarding the application of VDatum to the MBES data files. No final tide note was provided from NOAA Center for Operational Oceanographic Products and Services (CO-OPS). While a final tide note was not required, a final tide note has been provided by Leidos in Appendix I.

C.2 Horizontal Control

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

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

PPP

The vessel kinematic data (POS/MV files) were post-processed in Applanix POSpac software using the Applanix PP-RTX solution to generate the Smoothed Best Estimate of Trajectory (SBET) solutions which were applied through SABER to the multibeam data. Refer to the DAPR for additional information and for details regarding all antenna and transducer offsets. 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.

D. Results and Recommendations

D.1 Chart Comparison

The chart comparisons were conducted using a combination of SABER and CARIS' HIPS and SIPS.

United States Coast Guard (USCG) District 8 Local Notice to Mariners (LNM) 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 LNM reviewed were from week 13/19 (27 March 2019) until week 01/20 (08 January 2020).

H13218 data met data accuracy standards and bottom coverage requirements. Leidos recommends updating the common areas of all charts using data from this survey. Charting recommendations for new features, and updates to charted features, are documented in the H13218 S-57 FFF. Additional charted objects such as submarine pipelines and platforms are discussed in later sections.

D.1.1 Electronic Navigational Charts

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

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US4TX52M	1:80000	29	12/09/2019	12/09/2019	NO

Table 14: Largest Scale ENC's

US4TX52M

ENC US4TX52M covers the entire H13218 survey area.

CUBE depths within H13218 agreed well with the charted depths across the contemporaneous survey area; observed depths were primarily within ± 0.3 meters of charted depths (Figure 8). There were no depth contours on ENC US4TX52M that fell within the H13218 survey area.

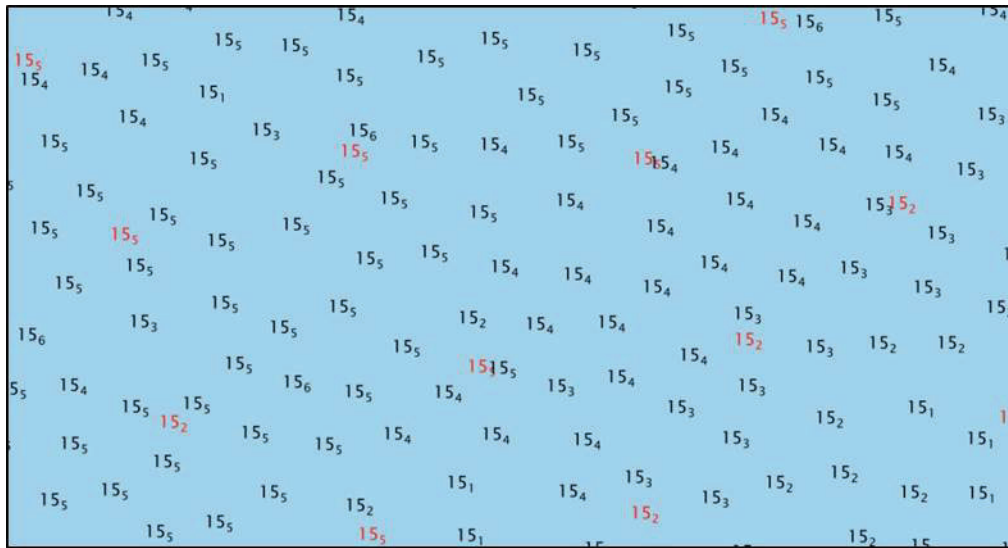


Figure 8: ENC US4TX52M Charted Soundings (red) with H13218 CUBE Depth Selected Soundings (black)

D.1.2 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.3 Charted Features

There were two assigned charted features in the final CSF (Final_OPR-K371-KR-19_CSF.000) within the SOW of H13218. See the H13218 S-57 FFF for all the details and recommendations regarding these features.

The one assigned pile, with a requirement to “investigate per HSSD section 7.3.1 and reference Section 7.5.1 PILPNT entry”, was not found during survey. A disproval area, with a radius of at least 80 meters centered at the CSF pile point position, was covered with 200% SSS and resulting MBES. There was no evidence of a pile in the SSS or MBES data.

The one assigned dangerous wreck, with a WATLEV of always under water/submerged and with a requirement to “investigate per HSSD Section 7.3.1 and use appropriate attribution, Section 7.5”, was covered by 200% SSS and resulting MBES across the assigned disproval area. No wreck was identified within the assigned disproval area, however a large platform complex consisting of four interconnected platforms (Features 12, 13, 14, and 15) was present within the northwestern segment of the disproval area.

D.1.4 Uncharted Features

See the H13218 S-57 FFF for all the details and recommendations regarding new uncharted features investigated.

D.1.5 Shoal and Hazardous Features

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

Leidos submitted one DTON for H13218. The DTON was submitted in S-57 format to the Atlantic Hydrographic Branch (AHB).

- DTON 01 was submitted on 15 January 2020, for two uncharted exposed pipelines. This DTON was submitted to Nautical Data Brach (NDB) and Marine Chart Division (MCD) on 17 January 2020.

Copies of the email correspondence for Leidos' submissions of H13218 DTON Report, as well as the DTON recommendation file, are included within Appendix II of this Descriptive Report. Figure 9 details the submitted DTON and the associated Feature number and object class in the S-57 FFF.

DTON Report Name	Date Submitted to AHB	AHB Submitted to NDB and MCD	NDB Registration	Feature Number(s)	S-57 Object Class in the S-57 FFF
H13218 DTON 01.000	2020-01-15	2020-01-17	DD-31919	04 and 08	PIPSOL

Figure 9: DTON Reports

D.1.6 Channels

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

D.1.7 Bottom Samples

In accordance with both the Project Instructions and Section 7.2.3 of the HSSD, bottom characteristics were obtained for H13218. Bottom characteristics were acquired at the two locations assigned in the PRF by NOAA. Leidos did not modify the bottom sample locations from the location proposed by NOAA in the PRF. Bottom characteristics collected during H13218 are included in the H13218 S-57 FFF, named H13218_FFF.000, within the Seabed Area (SBDARE) object, and are classified according to the requirements set forth in the HSSD. In addition, images of the sediment obtained for each bottom sample

are referenced in the H13218_FFF.000 and are included on the delivery drive under the folder H13218/Processed/Multimedia.

D.2 Additional Results

D.2.1 Shoreline

All features in the CSF within the assigned Survey Limits of H13218 were resolved. There were no assigned features inshore of the NALL.

D.2.2 Aids to Navigation

There was one buoy, NOAA Lighted Data Buoy 42035, assigned in the final CSF (Final_OPR-K371-KR-19_CSF.000) within the SOW of H13218, with a requirement to “investigate per HSSD Section 7.3.5 for ATON guidance. If located on station and serving intended purpose, include ATON in FFF with descrp = retain”. See the H13218 S-57 FFF for all the details and recommendations regarding the one assigned aid to navigation.

As the final position was derived from SSS data only, the positions within the S-57 FFF were retained from the position provided in the CSF.

D.2.3 Overhead Features

There were no overhead features within this survey area.

D.2.4 Submarine Features

Refer to Section D.1.5, as H13218 DTON 01 contained two sections of exposed uncharted pipelines. These pipelines are included in the S-57 FFF.

Six charted exposed pipelines were found within the bounds of H13218. In accordance with HSSD Section 1.7, the exposed pipelines were submitted as a Pipeline Report to BSEE. The email correspondence for Leidos’ submission of the H13218 Pipeline Report is included within Appendix II of this Descriptive Report. The identified exposed pipelines are included in the S-57 FFF. Assigned PIPSOL objects from the CSF, Final_OPR-K371-KR-19_CSF.000, are also captured in the S-57 FFF.

D.2.5 Platforms

There were thirteen assigned offshore platforms in the CSF, Final_OPR-K371-KR-19_CSF.000, which fell within the SOW for H13218. All of the assigned platforms were charted on ENC US4TX52M.

Investigation requirements for assigned platforms within the CSF, Final_OPR-K371-KR-19_CSF.000, stated to “Visually confirm feature object existence. If feature exists, include in FFF with descrp=retain. If feature is not visible, conduct a feature disproval (Section 7.3.4).”

Of the thirteen charted platforms assigned within the survey area for H13218, three platforms were visible above the waterline. In addition to the three assigned platforms that were visible within the survey area, an additional uncharted platform was present. All four platforms present within H13218 were interconnected via catwalks. No DTON was submitted for the additional uncharted platform as it is adequately charted as a result of the co-located charted platforms. The remaining ten assigned charted platforms were not found during survey operations therefore disproval surveys were conducted. The disproval surveys were conducted by collecting 200% SSS and resulting MBES over an area centered at the CSF platform position with a radius of at least 80 meters. Within the disproval radii, there was no evidence of a platform in the SSS or MBES data.

For platforms visible above the waterline, the surveyed position was derived from the SSS data. There were attribution revisions observed from survey data to the data from the CSF. In conjunction with the CSF investigation requirements, Leidos also followed direction from HSSD Section 7.5.2:

- “Update = Modification to attribution, geometry, and/or feature object class”

As the final position was derived from SSS data only, the positions within the S-57 FFF were retained from the position provided in the CSF. For these platforms, the descrp were set to Update; as there were attribution modifications observed during the H13218 survey. The attributes modified are documented within the S-57 FFF.

Figure 10 details the position provided from the CSF as well as each position, when present, from the H13218 data. The descrp Update only refers to attributes being modified within the S-57 FFF.

Position From OPR-K371-KR-19 CSF.000		Position Derived From Survey		Feature Number	S-57 FFF descrip value
Latitude	Longitude	Latitude	Longitude		
29° 16' 47.33"N	094° 21' 36.97"W	NOT PRESENT		N/A	DELETE
29° 17' 28.46"N	094° 20' 40.29"W	NOT PRESENT		N/A	DELETE
29° 14' 17.07"N	094° 25' 23.00"W	29° 14' 17.10"N	094° 25' 24.14" W	14	UPDATE
29° 14' 52.30"N	094° 26' 08.99"W	NOT PRESENT		N/A	DELETE
29° 14' 17.30"N	094° 25' 20.84"W	29° 14' 17.52"N	094° 25' 22.02" W	12	UPDATE
29° 14' 16.12"N	094° 25' 21.86"W	29° 14' 16.10"N	094° 25' 22.52" W	15	UPDATE
29° 17' 01.30"N	094° 21' 58.36"W	NOT PRESENT		N/A	DELETE
29° 15' 47.16"N	094° 24' 54.22"W	NOT PRESENT		N/A	DELETE
29° 15' 55.57"N	094° 20' 00.26"W	NOT PRESENT		N/A	UPDATE
29° 16' 03.63"N	094° 20' 24.18"W	NOT PRESENT		N/A	DELETE
29° 16' 49.01"N	094° 19' 20.08"W	NOT PRESENT		N/A	DELETE
29° 14' 55.07"N	094° 26' 12.44"W	NOT PRESENT		N/A	UPDATE
29° 14' 32.24"N	094° 25' 55.00"W	NOT PRESENT		N/A	UPDATE
N/A	N/A	29° 14' 16.80"N	094° 25' 22.24" W	13	NEW

Figure 10: Platforms within H13218

D.2.6 Ferry Routes and Terminals

No ferry routes or terminals exist within this survey area.

D.2.7 Abnormal Seafloor and/or Environmental Conditions

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

D.2.8 Construction and Dredging

No construction or dredging exists for this survey area.

D.2.9 New Survey Recommendation

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

D.2.10 Designated Soundings

Separate flags exist in the Generic Sensor Format (GSF) for a designated sounding and feature. During data analysis, designated soundings or feature flags are used to help better preserve the shoalest sounding

relative to the computed depth surface. 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). GSF feature flags were set on significant features within H13218, and all information is contained in the H13218 S-57 FFF.

D.2.11 Final Feature S-57 File

Included with the H13218 delivery is the S-57 FFF, H13218_FFF.000. Details on how this file was generated and quality controlled can be found in the DAPR. The S-57 FFF delivered for H13218 contains millimeter precision for the value of sounding (VALSOU) attribute. As specified in Section 2.2 of the HSSD, the S-57 FFF is in the WGS84 datum and is unprojected with all depth units in meters. All significant and recommended for charting features found in H13218 are included within the S-57 FFF.

In accordance with the HSSD, Leidos addressed all assigned objects from the provided CSF S-57 file that fell within the bounds of H13218 in the S-57 FFF.

D.2.12 Side Scan Sonar Contacts S-57 File

Included with the H13218 delivery is the Side Scan Sonar Contact S-57 File, H13218_SSCon.000. Details on how this file was generated and quality controlled can be found in the DAPR. As specified in Section 2.2 of the HSSD, the S-57 file is in the WGS84 datum and is unprojected with all depth units in meters.

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

D.2.13 Coast Pilot Review Report

In accordance with the Project Instructions and HSSD Section 8.1.3, a Coast Pilot Review was performed for OPR-K371-KR-19. Within the Coast Pilot Field Report (OPR-K371-KR-18CoastPilotReport.pdf) provided by NOAA to Leidos on 18 March 2019, it indicated that paragraphs 15 through 127 were relevant to the survey area of OPR-K371-KR-19 and there were no assigned investigation items. During survey, Leidos reviewed and updated the assigned and additional Coast Pilot paragraphs as possible for the survey area, port of call, and areas frequently transited. Leidos downloaded Coast Pilot 5 Chapter 10 from the Coast Pilot website, 47th Edition of Coast Pilot 5, dated 17 November 2019. Recommendations were documented using the text from the 47th Edition and are marked following the HSSD Section 8.1.3. Leidos followed NOAA’s strategy for designating omitted paragraphs as provided in the delivered Coast Pilot Field Report (OPR-K371-KR-18CoastPilotReport.pdf). Leidos submitted the Coast Pilot Field Report on 22 November 2019. The email correspondence for Leidos’ submission of the Coast Pilot Review Report is included within the Project Correspondence.

D.2.14 Inset Recommendation

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


E. Approval Sheet

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

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

The survey data meets or exceeds requirements as set forth in the Hydrographic Surveys Specifications and Deliverables, Project Instructions, and 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. Previously, or concurrently, submitted deliverables for OPR-K371-KR-19 are provided in the table below.

Report Name	Report Date Sent
OPR-K371-KR-19_Coast Pilot Review Report.pdf	2019-11-22
OPR-K371-KR-19_Marine_Species_Awareness_Training_Record.pdf	2019-11-22
OPR-K371-KR-19_DAPR.pdf	2019-12-06
H13213_DR.pdf	2019-12-06
H13214_DR.pdf	2019-12-13
H13216_DR.pdf	2019-12-20
H13215_DR.pdf	2020-01-06
H13217_DR.pdf	2020-01-08
H13213_DR_rev1.pdf	2020-01-15
H13214_DR_rev1.pdf	2020-01-15
H13215_DR_rev1.pdf	2020-01-15
H13216_DR_rev1.pdf	2020-01-15
H13217_DR_rev1.pdf	2020-01-15
H13220_DR.pdf	2020-01-15
OPR-K371-KR-19_20200116.zip (NCEI Sound Speed Data)	2020-01-16
OPR-K371-KR-19_Marine_Mammal_Observation_Logs_1of2.pdf, OPR-K371-KR-19_Marine_Mammal_Observation_Logs_2of2.pdf	2020-01-17
H13219_DR.pdf	2020-01-17

Approver Name	Approver Title	Approval Date	Signature
Paul L. Donaldson	Chief Hydrographer	01/21/2020	Paul L Donaldson  <small>Digitally signed by: Paul L. Donaldson DN: CN = Paul L. Donaldson C = US O = Leidos OU = A01427E0000015C7EA9ADE200007 3EE Date: 2020.01.21 15:48:25 -0500</small>

F. Table of Acronyms

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

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

Acronym	Definition
PRF	Project Reference File
PS	Physical Scientist
RNC	Raster Navigational Chart
RTK	Real Time Kinematic
RTX	Real Time Extended
SBES	Singlebeam Echosounder
SBET	Smooth Best Estimate and Trajectory
SNM	Square Nautical Miles
SSS	Side Scan Sonar
SSSAB	Side Scan Sonar Acoustic Backscatter
ST	Survey Technician
SVP	Sound Velocity Profiler
TCARI	Tidal Constituent And Residual Interpolation
TPU	Total Propagated Uncertainty
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
UTM	Universal Transverse Mercator
XO	Executive Officer
ZDF	Zone Definition File

APPENDIX I. TIDES AND WATER LEVELS**Field Tide Note**

A field tide note was not required for H13218.

Final Tide Note

Per the Project Instructions H13218 multibeam data were to be corrected to Mean Lower Low Water (MLLW) by utilizing ellipsoid referenced survey (ERS) techniques. Ellipsoid to chart datum transformation was accomplished through the use of the VDatum separation model. As the VDatum was used for the final datum transformation, no final tide note was provided nor required from NOAA.

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

Abstract Times of Hydrography

Project: OPR-K371-KR-19

Registry No.: H13218

Contractor Name: Leidos

Date: 21 January 2020

Sheet Designation: 6

Inclusive Dates: 10 April 2019 – 21 September 2019

Field work is complete.

Begin Date	Begin Julian Day	Begin Time	End Date	End Julian Day	End Time
10 April 2019	100	17:26:00	10 April 2019	100	23:59:59
11 April 2019	101	00:00:00	11 April 2019	101	02:14:00
12 April 2019	102	02:05:00	12 April 2019	102	23:05:00
20 April 2019	110	05:02:00	20 April 2019	110	23:59:59
21 April 2019	111	00:00:00	21 April 2019	111	17:18:00
26 July 2019	207	07:58:00	26 July 2019	207	16:39:00
28 July 2019	209	17:06:00	28 July 2019	209	23:59:59
29 July 2019	210	00:00:00	29 July 2019	210	23:59:59
30 July 2019	211	00:00:00	30 July 2019	211	14:58:00
06 August 2019	218	10:00:00	06 August 2019	218	14:29:00
17 August 2019	229	22:04:00	17 August 2019	229	23:59:59
18 August 2019	230	00:00:00	18 August 2019	230	10:51:00
15 September 2019	258	23:50:00	15 September 2019	258	23:59:59
16 September 2019	259	00:00:00	16 September 2019	259	18:12:00
20 September 2019	263	23:14:00	20 September 2019	263	23:59:59
21 September 2019	264	00:00:00	21 September 2019	264	09:10:00

Table A-1: Abstract Times of Hydrography, H13218

Transmittal Letter to CO-OPS

A transmittal letter to CO-OPS was not required for H13218.

Request for Approved Tides/Water Levels Letter

A “Request for Approved Tides/Water Levels” letter was not required for H13218.

Other Correspondence Relating to Tides

Please refer to the Project Correspondence directory for correspondence related to water levels for H13218.

- OPR-K371-KR-19_CSF_and_VDatum.pdf
- OPR-K371-KR-19_VDatum.pdf

APPENDIX II. SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCE

Refer to the Project Correspondence directory for copies of email exchanges between Leidos and NOAA, which concerned various aspects of survey, data processing, and submittal topics that encompassed either the entire OPR-K371-KR-19 project or multiple sheets.

This Appendix contains email exchanges unique to H13218. In addition, the following standalone files have been provided in the II_Supplemental_Survey_Records_Correspondence folder of the Descriptive Report Appendices:

- H13218_Charted_Exposed_Pipeline_Images.zip

Note that correspondence is complete through 08:00 AM on 21 January 2020.

CORRESPONDENCE

From: [Donaldson, Paul L. \[US-US\]](#)
To: ahb.dton@noaa.gov; [Kathryn Pridgen - NOAA Federal](#); [Castle Parker - NOAA Federal](#)
Cc: [Evans, Rhodri E. \[US-US\]](#); [Bernier, Bridget W. \[US-US\]](#); [Markham, Erin E. \[US-US\]](#); [Bernier, Alex T. \[US-US\]](#)
Subject: OPR-K371-KR-19 Danger to Navigation Report 01 for H13218
Date: Wednesday, January 15, 2020 1:18:37 PM
Attachments: [H13218 DTON 01.zip](#)

Leidos Proprietary

Please find attached one Danger to Navigation (DTON) Report:

- H13218 DTON 01

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

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

Please note that the submitted DTON contains two uncharted exposed pipelines (PIPSOL), which are represented as line objects. Leidos is submitting this DTON report per HSSD, Section 1.6.2.4, that "All uncharted pipelines shall be reported directly to NOAA using the process described in Section 1.6.3."

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

Paul L. Donaldson CH (NSPS #241) | Leidos
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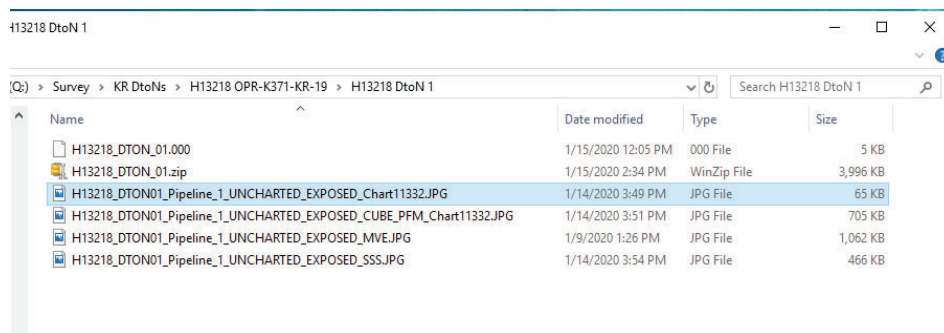
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From: [Jeffery Marshall - NOAA Federal](#)
To: [Donaldson, Paul L. \[US-US\]](#)
Cc: [Kathryn Pridgen - NOAA Federal](#); [Castle Parker - NOAA Federal](#); [Evans, Rhodri E. \[US-US\]](#); [Bernier, Bridget W. \[US-US\]](#); [Markham, Erin E. \[US-US\]](#); [Bernier, Alex T. \[US-US\]](#); [Clinton Marcus - NOAA Federal](#); [AHB Chief - NOAA Service Account](#)
Subject: EXTERNAL: Re: [WARNING: UNSCANNABLE EXTRACTION FAILED]OPR-K371-KR-19 Danger to Navigation Report 01 for H13218
Date: Wednesday, January 15, 2020 2:51:37 PM
Attachments: [H13218 DtoN 1 only four images from PIPSOL 1.png](#)
[H13218 DtoN 1 only four images from PIPSOL 1.png](#)

Paul,

Thank you for your danger to navigation submission for H13218. It appears the zip file sent has become corrupt in some way as I am unable to open the four (4) images associated with exposed pipe #2. Could you either please attempt to re-zip and send in full or just forward me the four (4) images corresponding with pipe #2. Attached is the output from H13218_DTON_01.zip that I was able to open.



Regards,
Jeff Marshall

On Wed, Jan 15, 2020 at 1:19 PM 'Donaldson, Paul L.' via [_NOS OCS HSD AHB Danger to Navigation <ahb.dton@noaa.gov>](#) wrote:

Leidos Proprietary

Please find attached one Danger to Navigation (DTON) Report:

- H13218 DTON 01

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

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

Please note that the submitted DTON contains two uncharted exposed pipelines (PIPSOL), which are represented as line objects. Leidos is submitting this DTON report per HSSD, Section 1.6.2.4, that “All uncharted pipelines shall be reported directly to NOAA using the process described in Section 1.6.3.”

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

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

Hydrographic Survey & Data Solutions Manager/Chief Hydrographer

Phone: 401.848.4757

Mobile: 401.261.7895

Mobile: 860.857.8802

Fax: 401.849.1585

Email: paul.l.donaldson@leidos.com

221 Third Street, Building A

Newport, RI 02840 USA

Leidos.com

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--

Jeff Marshall
Certified Hydrographer/Physical Scientist
NOAA's Office of Coast Survey
Atlantic Hydrographic Branch
439 West York St.
Norfolk, VA 23435
Office Phone: 757-364-7464
Telework Phone: 908-601-2940
Email: jeffery.marshall@noaa.gov

From: [Donaldson, Paul L. \[US-US\]](#)
To: [Jeffery Marshall - NOAA Federal](#)
Cc: [Kathryn Pridgen - NOAA Federal](#); [Castle Parker - NOAA Federal](#); [Evans, Rhodri E. \[US-US\]](#); [Bernier, Bridget W. \[US-US\]](#); [Markham, Erin E. \[US-US\]](#); [Bernier, Alex T. \[US-US\]](#); [Clinton Marcus - NOAA Federal](#); [AHB Chief - NOAA Service Account](#)
Subject: RE: EXTERNAL: Re: [WARNING: UNSCANNABLE EXTRACTION FAILED]OPR-K371-KR-19 Danger to Navigation Report 01 for H13218
Date: Wednesday, January 15, 2020 3:10:16 PM
Attachments: [H13218_DTON_01.zip](#)
[image001.png](#)

Leidos Proprietary

Jeff,

Please find attached a re-zipped file which contains all items contained within the initial delivery. If you have additional issues please let us know and we will insure you receive the required files.

Thank you,

Paul L. Donaldson CH (NSPS #241)|Leidos
Hydrographic Survey & Data Solutions Manager/Chief Hydrographer
Phone: 401.848.4757
Mobile: 401.261.7895
Mobile: 860.857.8802
Fax: 401.849.1585
Email: paul.l.donaldson@leidos.com

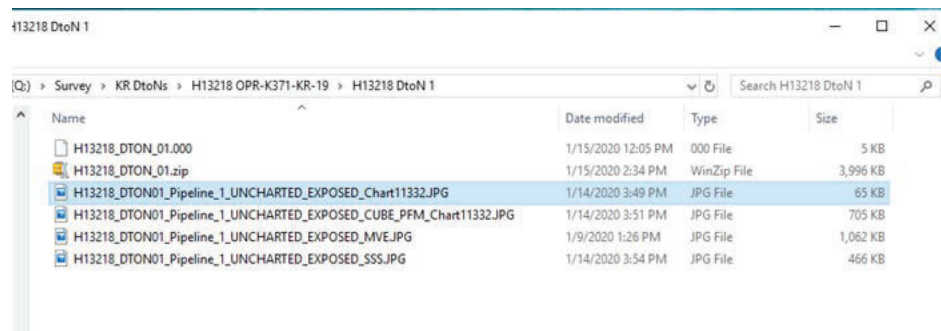
221 Third Street, Building A
Newport, RI 02840 USA
Leidos.com

From: Jeffery Marshall - NOAA Federal <jeffery.marshall@noaa.gov>
Sent: Wednesday, January 15, 2020 2:51 PM
To: Donaldson, Paul L. [US-US] <PAUL.L.DONALDSON@leidos.com>
Cc: Kathryn Pridgen - NOAA Federal <kathryn.pridgen@noaa.gov>; Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>; Evans, Rhodri E. [US-US] <RHODRI.E.EVANS@leidos.com>; Bernier, Bridget W. [US-US] <BRIDGET.W.BERNIER@leidos.com>; Markham, Erin E. [US-US] <ERIN.MARKHAM@leidos.com>; Bernier, Alex T. [US-US] <ALEX.T.BERNIER@leidos.com>; Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>; AHB Chief - NOAA Service Account <ahb.chief@noaa.gov>
Subject: EXTERNAL: Re: [WARNING: UNSCANNABLE EXTRACTION FAILED]OPR-K371-KR-19 Danger to Navigation Report 01 for H13218

Paul,

Thank you for your danger to navigation submission for H13218. It appears the zip file sent has become corrupt in some way as I am unable to open the four (4) images associated with exposed pipe #2. Could you either please attempt to re-zip and send in full or just forward me

the four (4) images corresponding with pipe #2. Attached is the output from H13218_DTON_01.zip that I was able to open.



Regards,
Jeff Marshall

On Wed, Jan 15, 2020 at 1:19 PM 'Donaldson, Paul L.' via _NOS OCS HSD AHB Danger to Navigation <ahb.dton@noaa.gov> wrote:

Leidos Proprietary

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- H13218 DTON 01

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- 8 Image files (*.png) that are referenced within the S-57 file

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Paul L. Donaldson CH (NSPS #241)|Leidos
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*Jeff Marshall
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Norfolk, VA 23435
Office Phone: 757-364-7464
Telework Phone: 908-601-2940
Email: jeffery.marshall@noaa.gov*

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From: [Jeffery Marshall - NOAA Federal](#)
To: [OCS NDB - NOAA Service Account](#)
Cc: [AHB Chief - NOAA Service Account](#); [Kathryn Pridgen - NOAA Federal](#); [Tim Osborn - NOAA Federal](#); [Donaldson, Paul L. \[US-US\]](#); [Markham, Erin E. \[US-US\]](#); [Bernier, Alex T. \[US-US\]](#); [Bernier, Bridget W. \[US-US\]](#); [pipelines@bsee.gov](#); [Castle Parker - NOAA Federal](#); [Evans, Rhodri E. \[US-US\]](#)
Subject: EXTERNAL: H13218 DtoN #1 Submission to NDB
Date: Thursday, January 16, 2020 7:40:43 AM
Attachments: [H13218 DtoN 1.zip](#)

Good day,

Please find attached compressed file for H13218 DtoN Report #1, containing two (2) uncharted pipeline sections. Both are uncharted and exposed pipeline sections located approximately 18.5 NM south of High Island, TX. Both are not recommended for chart application and are submitted per HSSD specification Section 1.6.2.4.

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

If you have any questions, please contact me via email or phone 757-364-7464. Thank you for your assistance with this matter.

Respectfully,
Jeff Marshall

--

Jeff Marshall
Certified Hydrographer/Physical Scientist
NOAA's Office of Coast Survey
Atlantic Hydrographic Branch
439 West York St.
Norfolk, VA 23435
Office Phone: 757-364-7464
Telework Phone: 908-601-2940
Email: jeffery.marshall@noaa.gov

From: [Jeffery Marshall - NOAA Federal](#)
To: [OCS NDB - NOAA Service Account](#)
Cc: [AHB Chief - NOAA Service Account](#); [Castle Parker - NOAA Federal](#); [Tim Osborn - NOAA Federal](#); [Kathryn Pridgen - NOAA Federal](#); [Bernier, Alex T. \[US-US\]](#); [Bernier, Bridget W. \[US-US\]](#); [Donaldson, Paul L. \[US-US\]](#); [Evans, Rhodri E. \[US-US\]](#); [Markham, Erin E. \[US-US\]](#); [Corey Allen - NOAA Federal](#)
Subject: EXTERNAL: Re: H13218 DtoN #1 Submission to NDB
Date: Friday, January 17, 2020 9:42:29 AM
Attachments: [H13218 DtoN 1.zip](#)

Good day NDB,

Please find the attached zip file with the *revised* H13218 DtoN #1 Report containing two (2) uncharted pipeline sections. Both are uncharted and exposed pipeline sections located approximately 18.5 NM south of High Island, TX. Both are not recommended for chart application and are submitted per HSSD specification Section 1.6.2.4.

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

If you have any questions, please contact me via email or phone 757-364-7464. Thank you for your assistance with this matter.

Respectfully,
Jeff Marshall

On Thu, Jan 16, 2020 at 3:15 PM OCS NDB - NOAA Service Account <ocs.ndb@noaa.gov> wrote:

Hi again, Jeff,

I just got a note back from the reviewer of this DtoN and he has the following feedback:

The date in the timestamp for each feature does not match the SORDAT for each feature. He needs to revise the report to reconcile the SORDAT and timestamp dates and resubmit the report to ocs.ndb.

Please take a look at the latest deliverable and address the issues.

Thanks again,
JW

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



On Thu, Jan 16, 2020 at 12:08 PM OCS NDB - NOAA Service Account <ocs.ndb@noaa.gov> wrote:

Thanks Jeff, much appreciated.

John

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



On Thu, Jan 16, 2020 at 10:32 AM Jeffery Marshall - NOAA Federal
<jeffery.marshall@noaa.gov> wrote:

Good day NDB,

Sorry for the initial oversight regarding incorrect feature time stamps.

Please find the attached zip file with the *revised* H13218 DtoN #1 Report containing two (2) uncharted pipeline sections. Both are uncharted and exposed pipeline sections located approximately 18.5 NM south of High Island, TX. Both are not recommended for chart application and are submitted per HSSD specification Section 1.6.2.4.

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If you have any questions, please contact me via email or phone 757-364-7464. Thank you for your assistance with this matter.

Respectfully,
Jeff Marshall

On Thu, Jan 16, 2020 at 9:37 AM OCS NDB - NOAA Service Account
<ocs.ndb@noaa.gov> wrote:

Jeff,

Please take a look at the Time Stamp dated 1/1/1981 for these DtoNs and revise the report as necessary. NDB will hold compilation until receipt of a revised report.

Thanks,

John

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



On Thu, Jan 16, 2020 at 7:40 AM Jeffery Marshall - NOAA Federal

<jeffery_marshall@noaa.gov> wrote:

Good day,

Please find attached compressed file for H13218 DtoN Report #1, containing two (2) uncharted pipeline sections. Both are uncharted and exposed pipeline sections located approximately 18.5 NM south of High Island, TX. Both are not recommended for chart application and are submitted per HSSD specification Section 1.6.2.4.

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If you have any questions, please contact me via email or phone 757-364-7464. Thank you for your assistance with this matter.

Respectfully,
Jeff Marshall

--

Jeff Marshall
Certified Hydrographer/Physical Scientist
NOAA's Office of Coast Survey
Atlantic Hydrographic Branch
439 West York St.
Norfolk, VA 23435
Office Phone: 757-364-7464
Telework Phone: 908-601-2940
Email: jeffery_marshall@noaa.gov

--

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Norfolk, VA 23435
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Telework Phone: 908-601-2940
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From: [Tim Osborn - NOAA Federal](#)
To: [Jeffery Marshall - NOAA Federal](#)
Cc: [OCS NDB - NOAA Service Account](#); [AHB Chief - NOAA Service Account](#); [Castle Parker - NOAA Federal](#); [Kathryn Pridgen - NOAA Federal](#); [Bernier, Alex T. \[US-US\]](#); [Bernier, Bridget W. \[US-US\]](#); [Donaldson, Paul L. \[US-US\]](#); [Evans, Rhodri E. \[US-US\]](#); [Markham, Erin E. \[US-US\]](#); [Corey Allen - NOAA Federal](#); [william.winner@noaa.gov](#); [Brian.Akers@noaa.gov](#); [Lucy Federal](#)
Subject: EXTERNAL: Re: H13218 DtoN #1 Submission to NDB
Date: Friday, January 17, 2020 10:10:55 AM

Thank you for this reporting.

On Jan 17, 2020, at 8:41 AM, Jeffery Marshall - NOAA Federal <jeffery.marshall@noaa.gov> wrote:

Good day NDB,

Please find the attached zip file with the *revised* H13218 DtoN #1 Report containing two (2) uncharted pipeline sections. Both are uncharted and exposed pipeline sections located approximately 18.5 NM south of High Island, TX. Both are not recommended for chart application and are submitted per HSSD specification Section 1.6.2.4.

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Thanks again,
JW

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Office of Coast Survey/[National Ocean Service](#)/
[National Oceanic and Atmospheric Administration](#)
[United States Department of Commerce](#)
Contact: ocs.ndb@noaa.gov



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John

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Office of Coast Survey/[National Ocean Service](#)/
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Jeff Marshall

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Jeff,

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Thanks,

John

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



On Thu, Jan 16, 2020 at 7:40 AM Jeffery Marshall - NOAA Federal
<jeffery_marshall@noaa.gov> wrote:

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Jeff Marshall

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Norfolk, VA 23435
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439 West York St.
Norfolk, VA 23435
Office Phone: 757-364-7464
Telework Phone: 908-601-2940
Email: jeffery.marshall@noaa.gov
<H13218_DtoN_1.zip>

From: [OCS NDB - NOAA Service Account](#)
To: [Jeffery Marshall - NOAA Federal](#)
Cc: [AHB Chief - NOAA Service Account](#); [Kathryn Pridgen - NOAA Federal](#); [Tim Osborn - NOAA Federal](#); [Donaldson, Paul L. \[US-US\]](#); [Markham, Erin E. \[US-US\]](#); [Bernier, Alex T. \[US-US\]](#); [Bernier, Bridget W. \[US-US\]](#); [pipelines@bsee.gov](#); [Castle Parker - NOAA Federal](#); [Evans, Rhodri E. \[US-US\]](#); [NSD Coast Pilot](#); [PHB Chief](#); [James M Crocker](#); [Matt Kroll](#); [Nautical Data Branch](#); [Tara Wallace](#); [Chris Libeau](#); [Ken Forster](#); [Michael Gaeta](#); [Charles Porter - NOAA Federal](#); [Kevin Jett - NOAA Federal](#); [William Winner](#); [_NOS OCS PBA Branch](#); [_NOS OCS PBB Branch](#); [_NOS OCS PBC Branch](#); [_NOS OCS PBD Branch](#); [_NOS OCS PBE Branch](#); [_NOS OCS PBG Branch](#)
Subject: EXTERNAL: Re: H13218 DtoN #1 Submission to NDB
Date: Friday, January 17, 2020 4:18:57 PM
Attachments: [H13218 DtoN 1.zip](#)

DD-31919 has been registered by the Nautical Data Branch and directed to Products Branch G for processing.

The DtoNs reported are two exposed, uncharted pipelines located approximately 18.5 NM south of High Island, TX.

The following charts have been assigned to the record:

11323 KAPP 126
11332 KAPP 125
11330 KAPP 195
11340 KAPP 49
11300 KAPP 178

The following ENC's have been assigned to the record:

US4TX52M
US3GC02M

References:

H13218
OPR-K371-KR-19

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

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



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If you have any questions, please contact me via email or phone 757-364-7464. Thank you for your assistance with this matter.

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Jeff Marshall

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Telework Phone: 908-601-2940
Email: jeffery.marshall@noaa.gov

From: [Donaldson, Paul L. \[US-US\]](#)
To: pipelines@bsee.gov
Cc: [Kathryn Pridgen - NOAA Federal](#); [Tim Osborn - NOAA Federal](#); [Evans, Rhodri E. \[US-US\]](#); [Bernier, Bridget W. \[US-US\]](#); [Bernier, Alex T. \[US-US\]](#); [Markham, Erin E. \[US-US\]](#)
Subject: OPR-K371-KR-19 H13218: Exposed Pipelines
Date: Wednesday, January 15, 2020 1:29:45 PM
Attachments: [H13218 Charted Exposed Pipeline Images.zip](#)

Leidos Proprietary

In accordance with Section 1.7 of the Hydrographic Surveys Specifications and Deliverables, please find below and attached the Non-DTON Pipeline Report for H13218 (Project: OPR-K371-KR-19, Contract: EA-133C-14-CQ-0033 TO-0005, Port Arthur Traffic Lanes, TX).

While surveying in Texas on Project Number OPR-K371-KR-19, Leidos discovered six sections of exposed charted pipeline within the area of Registry Number H13218. The features were found through analysis of the multibeam and side scan sonar data and determined to have a signature discernibly consistent with that of an exposed pipeline. All exposed pipeline features were within close proximity of currently charted pipelines. The details of each exposed pipeline are as follows and images of each are contained in the attached zip directories.

1. H13218 Exposed Pipeline #01 is approximately 10 meters in length and runs from 29° 17' 15.37"N 094° 19' 58.04"W to 29° 17' 15.69" N 094° 19' 57.98"W. This feature is oriented approximately 9°/189°, was identified in the multibeam sonar data on Julian Day 110 (20 April 2019) at 12:21 UTC with a depth of 15.275 meters, and is approximately 25cm shoaler than surrounding bathymetry. The exposed pipeline is associated with a charted pipeline on RNC 11323 and 11332.
2. H13218 Exposed Pipeline #02 is approximately 3.9 meters in length and runs from 29° 16' 00.18"N 094° 20' 23.29"W to 29° 16' 00.29"N 094° 20' 23.22"W. This feature is oriented approximately 29°/209°, was identified in the multibeam sonar data on Julian Day 207 (26 July 2019) at 14:16 UTC with a depth of 15.592m, and is approximately the same depth as the surrounding bathymetry. The exposed pipeline is associated with a charted pipeline on RNC 11323 and 11332.
3. H13218 Exposed Pipeline #03 is approximately 4.5 meters in length and runs from 29° 16' 07.33"N 094° 20' 15.02"W to 29° 16' 07.42"N 094° 20' 14.89"W. This feature is oriented approximately 54.5°/234.5°, was identified in the multibeam sonar data on Julian Day 207 (26 July 2019) at 14:17 UTC with a depth of 15.536m, and is approximately the same depth as the surrounding bathymetry. The exposed pipeline is associated with a charted pipeline on RNC 11323 and 11332.
4. H13218 Exposed Pipeline #04 is approximately 9.3 meters in length and runs from 29° 15' 59.00"N 094° 20' 11.47"W to 29° 15' 59.04" N 094° 20' 11.81"W. This feature is oriented approximately 99°/279°, was identified in the multibeam sonar data on Julian Day 209 (28 July 2019) at 19:23 UTC with a depth of 15.544 meters and is approximately the same depth as surrounding bathymetry. The exposed pipeline is associated with a charted pipeline on RNC 11323 and 11332.

5. H13218 Exposed Pipeline #05 is approximately 9.5 meters in length and runs from 29° 14' 25.64"N 094° 25' 35.71"W to 29° 14' 25.87"N 094° 25' 35.94"W. This feature is oriented approximately 138°/318°, was identified in the multibeam sonar data on Julian Day 259 (16 September 2019) at 16:35 UTC with a depth of 15.706m, and is approximately the same depth as the surrounding bathymetry. The exposed pipeline is associated with a charted pipeline on RNC 11323 and 11332.
6. H13218 Exposed Pipeline #06 is approximately 24.6 meters in length and runs from 29° 13' 23.37"N 094° 21' 19.17"W to 29° 13' 22.57"N 094° 21' 19.15"W. This feature is oriented approximately 178°/358°, was identified in the multibeam sonar data on Julian Day 264 (21 September 2019) at 08:46 UTC with a depth of 15.415m, and is approximately 8cm shoaler than surrounding bathymetry. The exposed pipeline is associated with a charted pipeline on RNC 11323.

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

Paul L. Donaldson CH (NSPS #241)|Leidos
Hydrographic Survey & Data Solutions Manager/Chief Hydrographer
Phone: 401.848.4757
Mobile: 401.261.7895
Mobile: 860.857.8802
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Email: paul.l.donaldson@leidos.com

221 Third Street, Building A
Newport, RI 02840 USA
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From: [Donaldson, Paul L. \[US-US\]](#)
To: pipelines@bsee.gov
Cc: [Kathryn Pridgen - NOAA Federal](#); [Tim Osborn - NOAA Federal](#); [Evans, Rhodri E. \[US-US\]](#); [Bernier, Bridget W. \[US-US\]](#); [Bernier, Alex T. \[US-US\]](#); [Markham, Erin E. \[US-US\]](#)
Subject: RE: OPR-K371-KR-19 H13218: Exposed Pipelines
Date: Wednesday, January 15, 2020 2:28:06 PM
Attachments: [H13218 Charted Exposed Pipeline Images.z](#)

Leidos Proprietary

It appears some recipients are having a problem with the previously delivered attached zip file. Therefore I am resending the file without the full extension. Please rename the file to .zip when saving.

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

Paul L. Donaldson CH (NSPS #241)|Leidos
Hydrographic Survey & Data Solutions Manager/Chief Hydrographer
Phone: 401.848.4757
Mobile: 401.261.7895
Mobile: 860.857.8802
Fax: 401.849.1585
Email: paul.l.donaldson@leidos.com

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

From: Donaldson, Paul L. [US-US]
Sent: Wednesday, January 15, 2020 1:28 PM
To: 'pipelines@bsee.gov' <pipelines@bsee.gov>
Cc: 'Kathryn Pridgen - NOAA Federal' <kathryn.pridgen@noaa.gov>; 'Tim Osborn - NOAA Federal' <tim.osborn@noaa.gov>; Evans, Rhodri E. [US-US] <RHODRI.E.EVANS@leidos.com>; Bernier, Bridget W. [US-US] <BRIDGET.W.BERNIER@leidos.com>; Bernier, Alex T. [US-US] <ALEX.T.BERNIER@leidos.com>; Markham, Erin E. [US-US] <ERIN.MARKHAM@leidos.com>
Subject: OPR-K371-KR-19 H13218: Exposed Pipelines

Leidos Proprietary

In accordance with Section 1.7 of the Hydrographic Surveys Specifications and Deliverables, please find below and attached the Non-DTON Pipeline Report for H13218 (Project: OPR-K371-KR-19, Contract: EA-133C-14-CQ-0033 TO-0005, Port Arthur Traffic Lanes, TX).

While surveying in Texas on Project Number OPR-K371-KR-19, Leidos discovered six sections of

exposed charted pipeline within the area of Registry Number H13218. The features were found through analysis of the multibeam and side scan sonar data and determined to have a signature discernibly consistent with that of an exposed pipeline. All exposed pipeline features were within close proximity of currently charted pipelines. The details of each exposed pipeline are as follows and images of each are contained in the attached zip directories.

1. H13218 Exposed Pipeline #01 is approximately 10 meters in length and runs from 29° 17' 15.37"N 094° 19' 58.04"W to 29° 17' 15.69" N 094° 19' 57.98"W. This feature is oriented approximately 9°/189°, was identified in the multibeam sonar data on Julian Day 110 (20 April 2019) at 12:21 UTC with a depth of 15.275 meters, and is approximately 25cm shoaler than surrounding bathymetry. The exposed pipeline is associated with a charted pipeline on RNC 11323 and 11332.
2. H13218 Exposed Pipeline #02 is approximately 3.9 meters in length and runs from 29° 16' 00.18"N 094° 20' 23.29"W to 29° 16' 00.29"N 094° 20' 23.22"W. This feature is oriented approximately 29°/209°, was identified in the multibeam sonar data on Julian Day 207 (26 July 2019) at 14:16 UTC with a depth of 15.592m, and is approximately the same depth as the surrounding bathymetry. The exposed pipeline is associated with a charted pipeline on RNC 11323 and 11332.
3. H13218 Exposed Pipeline #03 is approximately 4.5 meters in length and runs from 29° 16' 07.33"N 094° 20' 15.02"W to 29° 16' 07.42"N 094° 20' 14.89"W. This feature is oriented approximately 54.5°/234.5°, was identified in the multibeam sonar data on Julian Day 207 (26 July 2019) at 14:17 UTC with a depth of 15.536m, and is approximately the same depth as the surrounding bathymetry. The exposed pipeline is associated with a charted pipeline on RNC 11323 and 11332.
4. H13218 Exposed Pipeline #04 is approximately 9.3 meters in length and runs from 29° 15' 59.00"N 094° 20' 11.47"W to 29° 15' 59.04" N 094° 20' 11.81"W. This feature is oriented approximately 99°/279°, was identified in the multibeam sonar data on Julian Day 209 (28 July 2019) at 19:23 UTC with a depth of 15.544 meters and is approximately the same depth as surrounding bathymetry. The exposed pipeline is associated with a charted pipeline on RNC 11323 and 11332.
5. H13218 Exposed Pipeline #05 is approximately 9.5 meters in length and runs from 29° 14' 25.64"N 094° 25' 35.71"W to 29° 14' 25.87"N 094° 25' 35.94"W. This feature is oriented approximately 138°/318°, was identified in the multibeam sonar data on Julian Day 259 (16 September 2019) at 16:35 UTC with a depth of 15.706m, and is approximately the same depth as the surrounding bathymetry. The exposed pipeline is associated with a charted pipeline on RNC 11323 and 11332.
6. H13218 Exposed Pipeline #06 is approximately 24.6 meters in length and runs from 29° 13' 23.37"N 094° 21' 19.17"W to 29° 13' 22.57"N 094° 21' 19.15"W. This feature is oriented approximately 178°/358°, was identified in the multibeam sonar data on Julian Day 264 (21 September 2019) at 08:46 UTC with a depth of 15.415m, and is approximately 8cm shoaler than surrounding bathymetry. The exposed pipeline is associated with a charted pipeline on RNC 11323.

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

Paul L. Donaldson CH (NSPS #241)|Leidos
Hydrographic Survey & Data Solutions Manager/Chief Hydrographer
Phone: 401.848.4757
Mobile: 401.261.7895
Mobile: 860.857.8802
Fax: 401.849.1585
Email: paul.l.donaldson@leidos.com

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Newport, RI 02840 USA
Leidos.com

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Marine Species Awareness Training Record

In accordance with the Hydrographic Surveys Specifications and Deliverables (HSSD) March 2019 Section 1.5, below is a record of staff who participated in survey work for Leidos under NOAA contract EA-133C-14-CQ-0033, project number OPR-K371-KR-19, Task Order 0005 (Port Arthur Traffic Lanes). Individuals conducted training prior to the start of the filed season; new personnel conducted training upon arrival.

Marine Species Awareness Training Record

Name	Organization	Date
Jason Infantino	Leidos	03/22/2019
Dorena Vogel	Leidos	03/22/2019
Christopher Englert	Leidos	03/22/2019
Joshua Saunders	Leidos	03/22/2019
Capt. Chris Sevastakis	Divemasters	03/23/2019
Capt. Bernie Borrelli	Divemasters	03/23/2019
Capt. Henry Dollman	Divemasters	03/23/2019
Matthew Spears	Divemasters	03/23/2019
Sean Davies	Divemasters	03/23/2019
Jeffrey Adams	Leidos	03/25/2019
Allison Weide	Leidos	03/25/2019
Lucas Cappellini	Leidos	03/25/2019
Richard Nadeau	Leidos	03/26/2019
Paul Donaldson	Leidos	03/26/2019
Alex Bernier	Leidos	03/26/2019
Stewart Kaczynski	Leidos	03/27/2019
Peter Reheis	Leidos	03/27/2019
Michael Cole	Leidos	03/29/2019
Erin Markham	Leidos	04/02/2019
Timothy Mayer	Leidos	04/01/2019
Daniel McGovern	Leidos	04/04/2019
Lisa Hill	OARS	04/19/2019
Veronica Holton	OARS	05/11/2019

Name	Organization	Date
Brian Biggert	OARS	07/06/2019
Darina DeBenedictis	OARS	07/06/2019
Roland Brennan	OARS	07/27/2019
Capt. Fred Derry	Divemasters	08/07/2019



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of Marine and Aviation Operations
NOAA Ship *Fairweather* (S220)
1010 Stedman Street, Ketchikan, Alaska 99901

Date: 11/05/2019

MEMORANDUM FOR: Rod Evans
Leidos, Inc.

FROM: Kathryn Pridgen, NOAA
Project Manager, Hydrographic Surveys Division Operations Branch
OPR-K371-KR-19 Port Arthur Traffic Lanes

SUBJECT: Request – 2019 Hydrographic Survey Specifications and Deliverables

At Leidos' request, I, Kathryn Pridgen, as Project Manager and COR, on behalf of HSD OPS, allow the use of the 2019 Hydrographic Survey Specifications and Deliverables (HSSD) in lieu of the 2018 Hydrographic Survey Specifications and Deliverables as specified in the project instructions for this project, OPR-K371-KR-19 Port Arthur Traffic Lanes.

Justification

This will allow the projects deliverables to be submitted using the most up to date specifications and requirements as outlined in the 2019 version of the HSSD.

PRIDGEN.KATHRYN.GR
ABOWSKI.1392550549
Digitally signed by PRIDGEN.KATHRYN.GRABOWSKI.
1392550549
Date: 2019.11.05 13:56:54 -05'00'

Kathryn Pridgen
Project Manager and COR, NOAA
Hydrographic Survey Specifications and Deliverables



From: [Markham, Erin E. \[US-US\]](#)
To: NODC.submissions@noaa.gov
Cc: [Kathryn Pridgen - NOAA Federal](#); [Evans, Rhodri E. \[US-US\]](#); [Donaldson, Paul L. \[US-US\]](#); [Bernier, Alex T. \[US-US\]](#); [Bernier, Bridget W. \[US-US\]](#)
Subject: OPR-K371-KR-19 NetCDF Sound Speed Data Files
Date: Thursday, January 16, 2020 3:25:41 PM
Attachments: [image001.png](#)
[OPR-K371-KR-19_20200116.zip](#)

Leidos Proprietary

Good Afternoon,

In accordance with Section 8.3.6 of the Hydrographic Surveys Specifications and Deliverables (March 2019), please find attached one zip file (OPR-K371-KR-19_20200116.zip) containing sound speed data in the NetCDF format used for Leidos hydrographic surveys under project number OPR-K371-KR-19, Contract: EA-133C-14-CQ-0033 (Task Order: 05).

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

- OPR-K371-KR-19_NCEI_Used_for_Closing
- OPR-K371-KR-19_NCEI_Used_for_Comparison
- OPR-K371-KR-19_NCEI_Used_for_Final_Surfaces
- OPR-K371-KR-19_NCEI_Used_for_Lead_Line

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

Thank you,

Erin Markham | Leidos

Hydrographer
Marine Survey & Engineering Solutions
office: 401.848.4707
mobile: 914.282.8377
erin.e.markham@leidos.com



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From: [James Freed - NOAA Federal](#)
To: [Markham, Erin E. \[US-US\]](#)
Cc: [pop.information@noaa.gov](#); [ocs.ecc@noaa.gov](#); [Kathryn Pridgen - NOAA Federal](#); [Evans, Rhodri E. \[US-US\]](#); [Donaldson, Paul L. \[US-US\]](#); [Bernier, Alex T. \[US-US\]](#); [Bernier, Bridget W. \[US-US\]](#)
Subject: EXTERNAL: Re: OPR-K371-KR-19 (Contract: EA-133C-14-CQ-0033, Task Order: 05) Marine Mammal Observations Delivery - 2 of 2
Date: Friday, January 17, 2020 1:44:26 PM
Attachments: [pastedImage.png](#)

Good Afternoon,

Observations received! Thank you very much.

Very Respectfully,
Jim

On Fri, Jan 17, 2020 at 9:16 AM 'Markham, Erin' via _NMFS AFSC NMML POP INFORMATION <pop.information@noaa.gov> wrote:

Good Afternoon,

In accordance with Section 1.5 of the Hydrographic Surveys Specifications and Deliverables (March 2019), please find attached a Marine Mammal Observations delivery for OPR-K371-KR-19, Contract: EA-133C-14-CQ-0033 (Task Order: 05).

The attached .pdf file submitted is a partial compilation of the individual Marine Mammal Observation Logs generated throughout the duration of OPR-K371-KR-19. This file is 2 of 2 that will be sent.

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

Thank you,

Erin Markham | Leidos
 Hydrographer
 Marine Survey & Engineering Solutions
 office: 401.848.4707
 mobile: 914.282.8377
erin.e.markham@leidos.com



--
 LTJG James Freed
 Marine Mammal Laboratory
 Alaska Fisheries Science Center
 NMFS/NOAA
 (206) 526-4048

From: [Markham, Erin E. \[US-US\]](#)
To: pop.information@noaa.gov; ocs.ecc@noaa.gov
Cc: [Kathryn Pridgen - NOAA Federal](#); [Evans, Rhodri E. \[US-US\]](#); [Donaldson, Paul L. \[US-US\]](#); [Bernier, Alex T. \[US-US\]](#); [Bernier, Bridget W. \[US-US\]](#)
Subject: OPR-K371-KR-19 (Contract: EA-133C-14-CQ-0033, Task Order: 05) Marine Mammal Observations Delivery - 1 of 2
Date: Friday, January 17, 2020 12:08:26 PM
Attachments: [OPR-K371-KR-19 Marine Mammal Observation Logs 1of2.pdf](#)
[pastedImage.png](#)

Good Afternoon,

In accordance with Section 1.5 of the Hydrographic Surveys Specifications and Deliverables (March 2019), please find attached a Marine Mammal Observations delivery for OPR-K371-KR-19, Contract: EA-133C-14-CQ-0033 (Task Order: 05).

The attached .pdf file submitted is a partial compilation of the individual Marine Mammal Observation Logs generated throughout the duration of OPR-K371-KR-19. This file is 1 of 2 that will be sent.

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

Thank you,

Erin Markham | Leidos
Hydrographer
Marine Survey & Engineering Solutions
office: 401.848.4707
mobile: 914.282.8377
erin.e.markham@leidos.com



From: [Markham, Erin E. \[US-US\]](#)
To: pop.information@noaa.gov; ocs.ecc@noaa.gov
Cc: [Kathryn Pridgen - NOAA Federal](#); [Evans, Rhodri E. \[US-US\]](#); [Donaldson, Paul L. \[US-US\]](#); [Bernier, Alex T. \[US-US\]](#); [Bernier, Bridget W. \[US-US\]](#)
Subject: OPR-K371-KR-19 (Contract: EA-133C-14-CQ-0033, Task Order: 05) Marine Mammal Observations Delivery - 2 of 2
Date: Friday, January 17, 2020 12:11:05 PM
Attachments: [pastedImage.png](#)
[OPR-K371-KR-19 Marine Mammal Observation Logs 2of2.pdf](#)

Good Afternoon,

In accordance with Section 1.5 of the Hydrographic Surveys Specifications and Deliverables (March 2019), please find attached a Marine Mammal Observations delivery for OPR-K371-KR-19, Contract: EA-133C-14-CQ-0033 (Task Order: 05).

The attached .pdf file submitted is a partial compilation of the individual Marine Mammal Observation Logs generated throughout the duration of OPR-K371-KR-19. This file is 2 of 2 that will be sent.

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

Thank you,

Erin Markham | Leidos
Hydrographer
Marine Survey & Engineering Solutions
office: 401.848.4707
mobile: 914.282.8377
erin.e.markham@leidos.com



From: Richard Powell - NOAA Federal <richard.powell@noaa.gov>
Sent: Tuesday, November 26, 2019 6:20 AM
To: Donaldson, Paul L. [US-US]
Subject: EXTERNAL: Re: OPR-K371-KR-19 Coast Pilot Review Report

Paul,
Thanks for this report. I will track it and make sure it gets registered as source document with our data branch. Once registered, I will make the appropriate changes to Coast Pilot 5.
Have a good day!

Sincerely,

Richard Hodge Powell
Cartographer / Marine Information
Nautical Publications Branch
240-533-0060

National Oceanic and Atmospheric Administration
National Ocean Service
Office of Coast Survey

From: Laura Jeffery - NOAA Federal <laura.jeffery@noaa.gov>
Sent: Monday, November 25, 2019 9:13 AM
To: Donaldson, Paul L. [US-US]
Subject: EXTERNAL: Re: OPR-K371-KR-19 Coast Pilot Review Report

Thank you very much for your Coast Pilot 5 field report. We will have it registered and applied to the CP as soon as possible.

Happy Thanksgiving!

On Fri, Nov 22, 2019 at 4:02 PM 'Donaldson, Paul L.' via _NOS OCS NSD Coast Pilot <coast.pilot@noaa.gov> wrote:

Leidos Proprietary

Please find attached the Coast Pilot Review Report for Contract: EA-133C-14-CQ-0033, Project Number OPR-K371-KR-19, Task Order 0005 (Port Arthur Traffic Lanes). The one attached .pdf file addresses the Coast Pilot Field Report delivered to Leidos for OPR-K371-KR-19, and a separate review of the text within the 47th Edition of Coast Pilot 5, Chapter 10 paragraphs.

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

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

Hydrographic Survey & Data Solutions Manager/Chief Hydrographer

Phone: 401.848.4757

Mobile: 401.261.7895

Mobile: 860.857.8802

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Email: paul.l.donaldson@leidos.com

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--

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

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

From: Donaldson, Paul L. [US-US]
Sent: Friday, November 22, 2019 4:01 PM
To: 'OCS.NDB@noaa.gov'; 'Coast.Pilot@noaa.gov'
Cc: Kathryn Pridgen - NOAA Federal; Evans, Rhodri E. [US-US]; Bernier, Bridget W. [US-US]; Bernier, Alex T. [US-US]; Markham, Erin E. [US-US]
Subject: OPR-K371-KR-19 Coast Pilot Review Report
Attachments: OPR-K371-KR-19_Coast Pilot Review Report.pdf

Leidos Proprietary

Please find attached the Coast Pilot Review Report for Contract: EA-133C-14-CQ-0033, Project Number OPR-K371-KR-19, Task Order 0005 (Port Arthur Traffic Lanes). The one attached .pdf file addresses the Coast Pilot Field Report delivered to Leidos for OPR-K371-KR-19, and a separate review of the text within the 47th Edition of Coast Pilot 5, Chapter 10 paragraphs.

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

Paul L. Donaldson CH (NSPS #241) | Leidos
Hydrographic Survey & Data Solutions Manager/Chief Hydrographer
Phone: 401.848.4757
Mobile: 401.261.7895
Mobile: 860.857.8802
Fax: 401.849.1585
Email: paul.l.donaldson@leidos.com

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From: [Brian Mohr - NOAA Federal](#)
To: [Bernier, Bridget W. \[US-US\]](#)
Subject: Re: EXTERNAL: Re: Survey Outlines for OPR-K371-KR-19 (H13217 and H13218)
Date: Tuesday, October 22, 2019 4:16:46 PM
Attachments: [image002.png](#)

thank you Bridget. In the future just submitted the actual survey'd polys. I'll extract the inner polys and use them for the field submitted survey so no worries with this submission. Thank you again for getting back to me.

b

On Tue, Oct 22, 2019 at 3:40 PM Bernier, Bridget W.
<BRIDGET.W.BERNIER@leidos.com> wrote:

Hi Brian,

Inside our S-57 files we have the survey outline polygon stored attributed as M_COVR, Category of coverage 1 (available). We also generate a larger area file which is M_COVR category of coverage 2 (where we did not survey).

From your picture the inside lines represent the area which we surveyed. The larger colored blocks would be the areas of where we didn't perform survey.

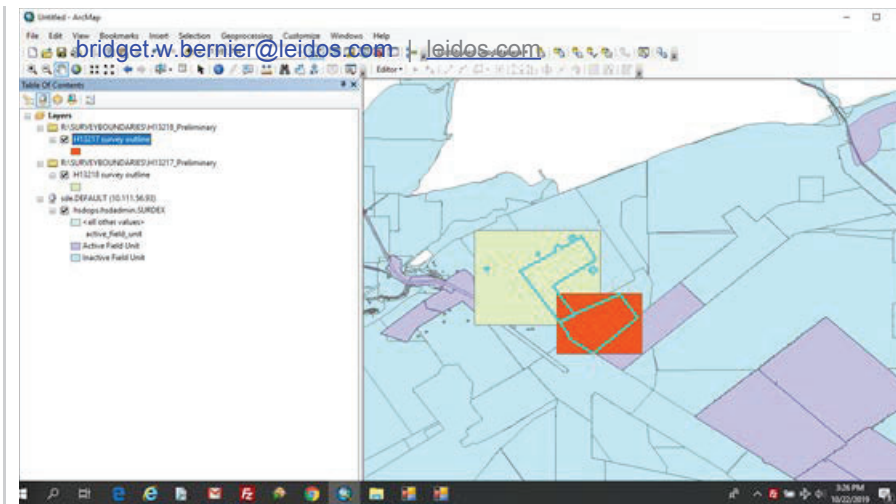
Would it be beneficial if we were to provide just the category of coverage 1 (available) polygon(s)?

Thanks,

-Bridget

From: Brian Mohr - NOAA Federal <brian.mohr@noaa.gov>
Sent: Tuesday, October 22, 2019 3:27 PM
To: Bernier, Bridget W. [US-US] <BRIDGET.W.BERNIER@leidos.com>
Subject: EXTERNAL: Re: Survey Outlines for OPR-K371-KR-19 (H13217 and H13218)

Bridget, could you verify what the actual survey extents of these outlines are? It looks like it is the interior polygon but I want to make sure.



On Mon, Oct 21, 2019 at 4:40 PM 'Bernier, Bridget W.' via _NOS OCS Survey Outlines <survey.outlines@noaa.gov> wrote:

Katy,

Please find attached the Survey Outline files for H13217 (Sheet 5) and H13218 (Sheet 6) from OPR-K371-KR-19, Port Arthur Traffic Lanes, Task Order-0005.

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 2019 HSSD (Section 8.1.2).

Please let me know if you have any questions.

Thanks,

-Bridget

Bridget W. Bernier | Leidos

Data Processing Manager

Marine Survey and Engineering Solutions

office: 401.848.4615 | mobile: 401.239.7847

bridget.w.bernier@leidos.com | leidos.com

Please consider the environment before printing this email.

From: [Kathryn Pridgen - NOAA Federal](#)
To: [Bernier, Bridget W. \[US-US\]](#)
Cc: survey.outlines@noaa.gov; [Evans, Rhodri E. \[US-US\]](#); [Donaldson, Paul L. \[US-US\]](#); [Bernier, Alex T. \[US-US\]](#); [Markham, Erin E. \[US-US\]](#)
Subject: EXTERNAL: Re: Survey Outlines for OPR-K371-KR-19 (H13217 and H13218)
Date: Tuesday, October 22, 2019 2:56:21 PM

Received, thank you.

Kathryn "Katy" Pridgen
Physical Scientist
NOAA-HSD OPS
240-533-0033
kathryn.pridgen@noaa.gov
Check out our [NOAA Story Maps!](#)

On Mon, Oct 21, 2019 at 4:40 PM Bernier, Bridget W.
<BRIDGET.W.BERNIER@leidos.com> wrote:

Katy,

Please find attached the Survey Outline files for H13217 (Sheet 5) and H13218 (Sheet 6) from OPR-K371-KR-19, Port Arthur Traffic Lanes, Task Order-0005.

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 2019 HSSD (Section 8.1.2).

Please let me know if you have any questions.

Thanks,

-Bridget

Bridget W. Bernier | Leidos

Data Processing Manager

Marine Survey and Engineering Solutions

office: 401.848.4615 | mobile: 401.239.7847

bridget.w.bernier@leidos.com | leidos.com

Please consider the environment before printing this email.

From: [Bernier, Bridget W. \[US-US\]](#)
To: ["survey.outlines@noaa.gov"](mailto:survey.outlines@noaa.gov); [Kathryn Pridgen \(kathryn.pridgen@noaa.gov\)](mailto:kathryn.pridgen@noaa.gov)
Cc: [Evans, Rhodri E. \[US-US\]](#); [Donaldson, Paul L. \[US-US\]](#); [Bernier, Alex T. \[US-US\]](#); [Markham, Erin E. \[US-US\]](#)
Subject: Survey Outlines for OPR-K371-KR-19 (H13217 and H13218)
Date: Monday, October 21, 2019 4:40:32 PM
Attachments: [H13217 Survey Outline.000](#)
[H13218 Survey Outline.000](#)

Katy,

Please find attached the Survey Outline files for H13217 (Sheet 5) and H13218 (Sheet 6) from OPR-K371-KR-19, Port Arthur Traffic Lanes, Task Order-0005.

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 2019 HSSD (Section 8.1.2).

Please let me know if you have any questions.

Thanks,
-Bridget

Bridget W. Bernier | Leidos

Data Processing Manager
Marine Survey and Engineering Solutions
office: 401.848.4615 | mobile: 401.239.7847
bridget.w.bernier@leidos.com | leidos.com

Please consider the environment before printing this email.

APPROVAL PAGE

H13218

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

The following products will be sent to NCEI for archive

- Descriptive Report
- Data Acquisition and Processing Report
- Collection of Bathymetric Attributed Grids (BAGs)
- Processed survey data and records
- Geospatial PDF of survey products
- Collection of side scan sonar mosaics
- Collection of backscatter mosaics

The survey evaluation and verification have 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 Meghan McGovern, NOAA
Chief, Atlantic Hydrographic Branch