H13213

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

DESCRIPTIVE REPORT

Type of Survey:	Basic Hydrographic Survey
Registry Number:	H13213

LOCALITY

State(s):	Texas
General Locality:	Port Arthur, Texas
Sub-locality:	9 NM WSW of Texas Point

2019

CHIEF OF PARTY
Paul L. Donaldson

LIBRARY & ARCHIVES

Date:

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:
HYDROGRAPHIC TITLE SHEET	**H13213**

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, Texas**
Sub-Locality:	**9 NM WSW of Texas Point**
Scale:	**20000**
Dates of Survey:	**04/24/2019 to 09/25/2019**
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. 19-TR-040. 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

List of Tables

List of Figures

Descriptive Report to Accompany Survey H13213

Project: OPR-K371-KR-19

Locality: Port Arthur, Texas

Sublocality: 9 NM WSW of Texas Point

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 west southwest of Texas Point, TX (Figure 1).

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
29° 38' 42.83" N 93° 57' 10.44" W	29° 31' 18.09" N 93° 47' 55.86" W

Table 1: Survey Limits

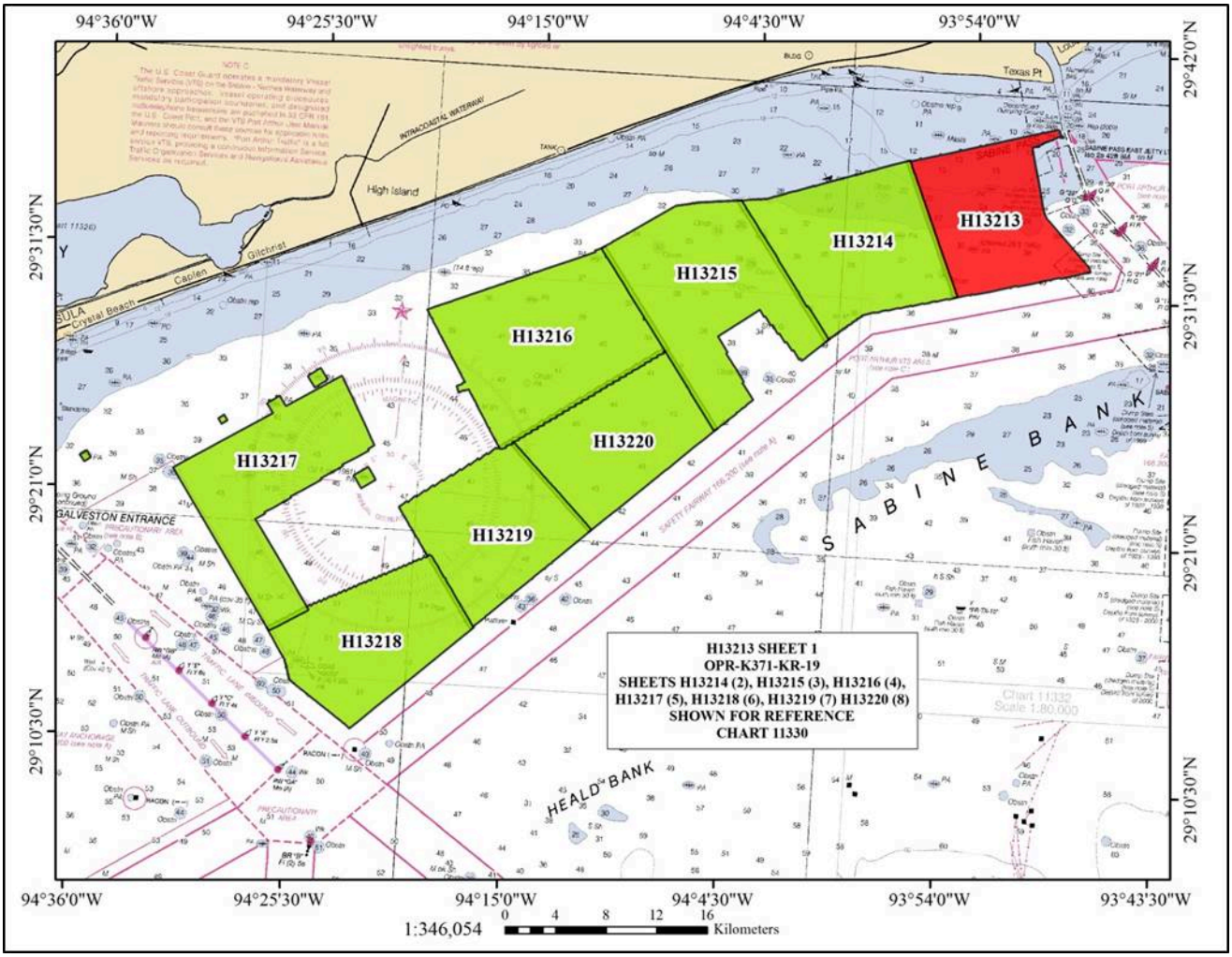


Figure 1: H13213 Survey Bounds

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

A.2 Survey Purpose

The purpose of this survey is to provide contemporary surveys to update National Ocean Service (NOS) nautical charting products. Port Arthur, located on the Gulf of Mexico Intra-costal 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 hazard 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.

H13213 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).

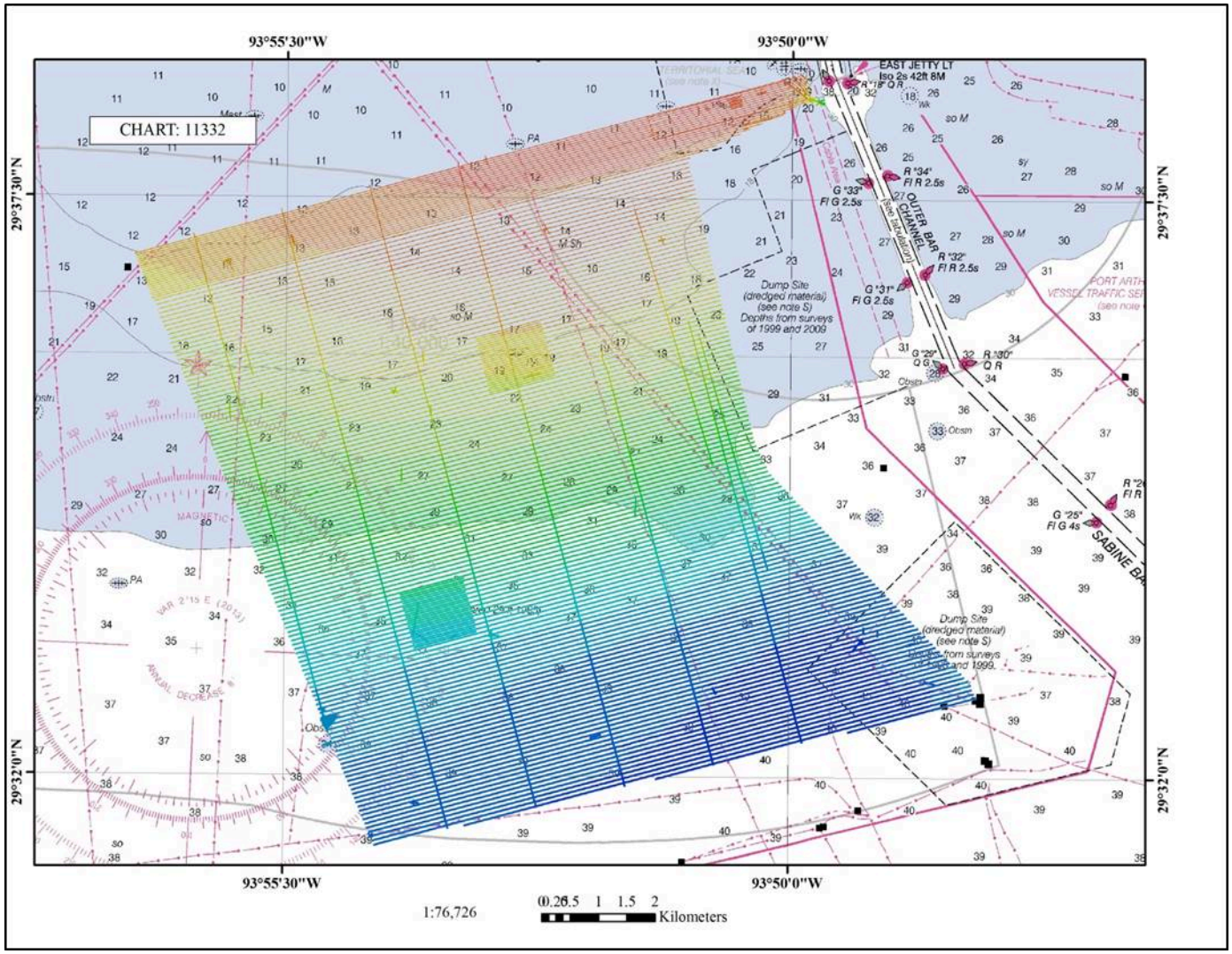


Figure 2: Final Bathymetry Coverage for H13213

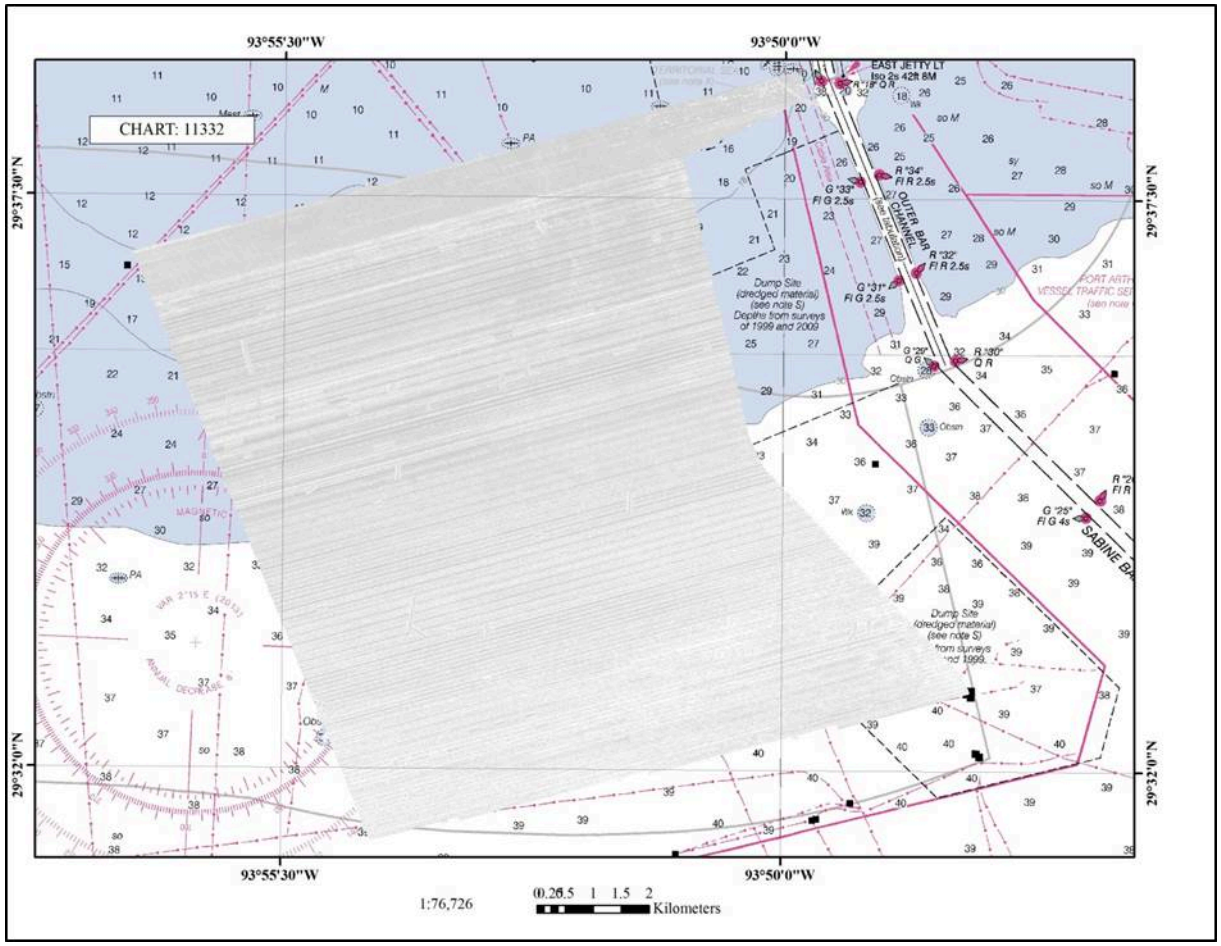


Figure 3: Final Side Scan Coverage for H13213 (100% coverage)

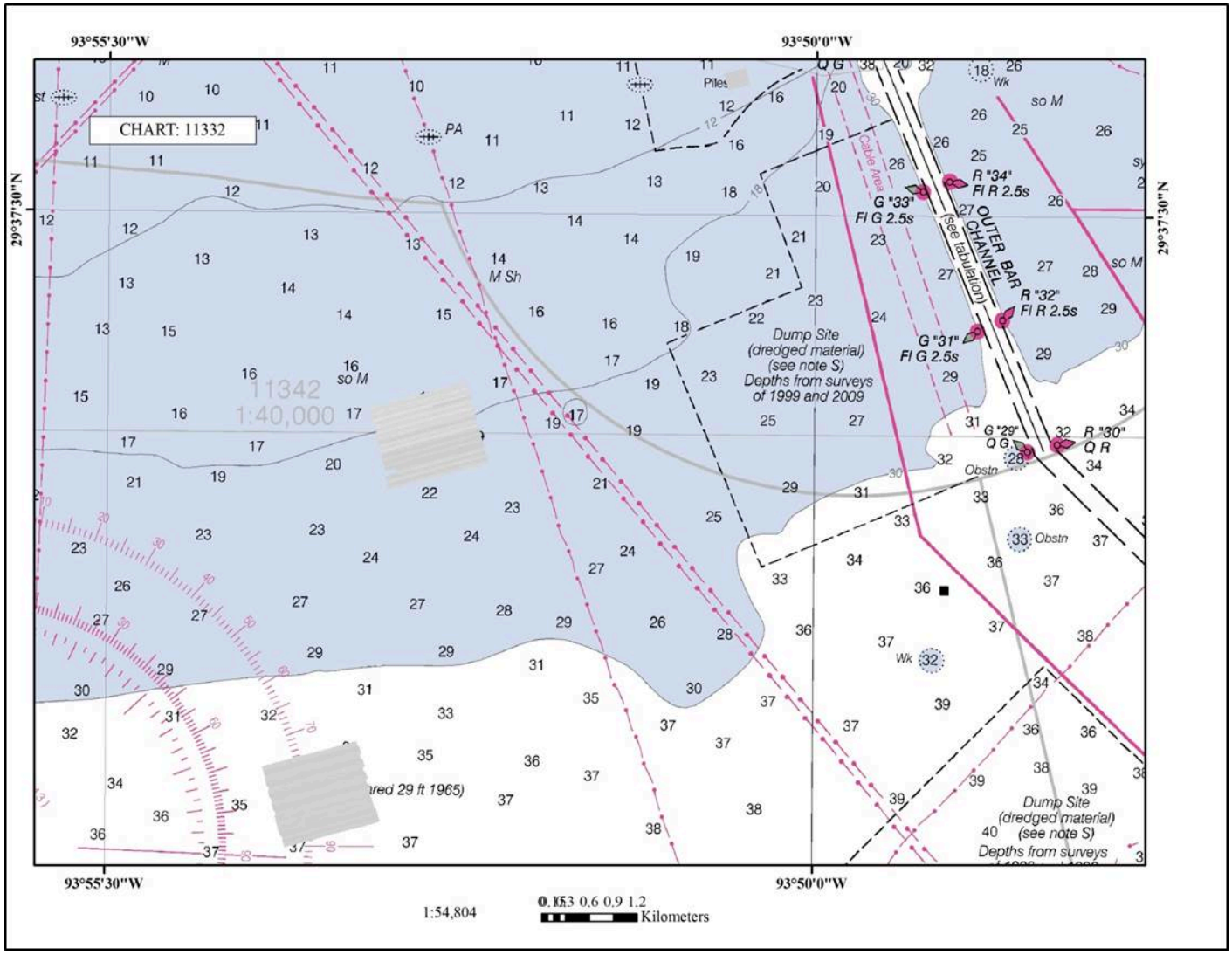


Figure 4: Final Side Scan Coverage for H13213 (disproval coverage)

A.6 Survey Statistics

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

	HULL ID	*M/V Atlantic Surveyor*	*Total*
LNM	**SBES Mainscheme**	0	0
	MBES Mainscheme	0	0
	Lidar Mainscheme	0	0
	SSS Mainscheme	0	0
	SBES/SSS Mainscheme	0	0
	MBES/SSS Mainscheme	889.36	889.36
	SBES/MBES Crosslines	37.56	37.56
	Lidar Crosslines	0	0
Number of Bottom Samples			3
Number Maritime Boundary Points Investigated			0
Number of DPs			0
Number of Items Investigated by Dive Ops			0
Total SNM			33

Table 3: Hydrographic Survey Statistics

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

Survey Dates	Day of the Year
04/24/2019	114

Survey Dates	Day of the Year
04/25/2019	115
04/26/2019	116
04/27/2019	117
04/28/2019	118
04/29/2019	119
05/14/2019	134
08/01/2019	213
08/02/2019	214
08/03/2019	215
08/06/2019	218
08/07/2019	219
09/23/2019	266
09/24/2019	267
09/25/2019	268

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

A detailed description of the systems and vessel used to acquire and process these data is included in the Data Acquisition and Processing Report (DAPR) for OPR-K371-KR-19, delivered concurrently with the Descriptive Report for 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	*M/V Atlantic Surveyor*
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	EM 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 4.22% 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
M/V Atlantic Surveyor Multibeam one-meter Crossline (Class 1) to one-meter Mainscheme	5.256 – 12.783	0.505 – 0.527	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	0.00 meters	0.122 meters

Table 7: Survey Specific Tide TPU Values.

Hull ID	Measured - CTD	Measured - MVP	Measured - XBT	Surface
M/V Atlantic Surveyor	N/A meters/second	1.0 meters/second	N/A 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 H13213 one-meter PFM CUBE surface contained final vertical uncertainties that ranged from 0.260 meters to 0.586 meters. The IHO Order 1a maximum allowable vertical uncertainty was calculated to range between 0.504 to 0.527 meters, based on the minimum CUBE depth (4.961 meters) and maximum CUBE depth (12.902 meters). Results from the SABER Check PFM Uncertainty function identified that there was one node in the final H13213 one-meter PFM CUBE surface with final vertical uncertainties that exceeded IHO Order 1a allowable vertical uncertainty. This node was associated with a discrete object. The SABER Frequency Distribution Tool was also used to review the Hyp. Final Uncertainty surface within the final H13213 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 0.510 meters. There was one node that exceeded 0.510 meters; which was associated with a discrete object.

B.2.3 Junctions

As requested in the Project Instructions, analyses of the H13213 junctions with adjacent surveys were performed. There were three assigned prior surveys provided by NOAA under OPR-K371-KR-19 that junction H13213. Figure 7 shows the general locality of H13213 as it relates to the sheets to which junctions were performed. Details for each survey are listed in Table 7. Note that analysis of the junctions with sheet H13214 was not conducted, as processing efforts for that sheet were still ongoing. Refer to Separates II for details about how the junction analyses were performed and a complete discussion of each analysis and tabular results.

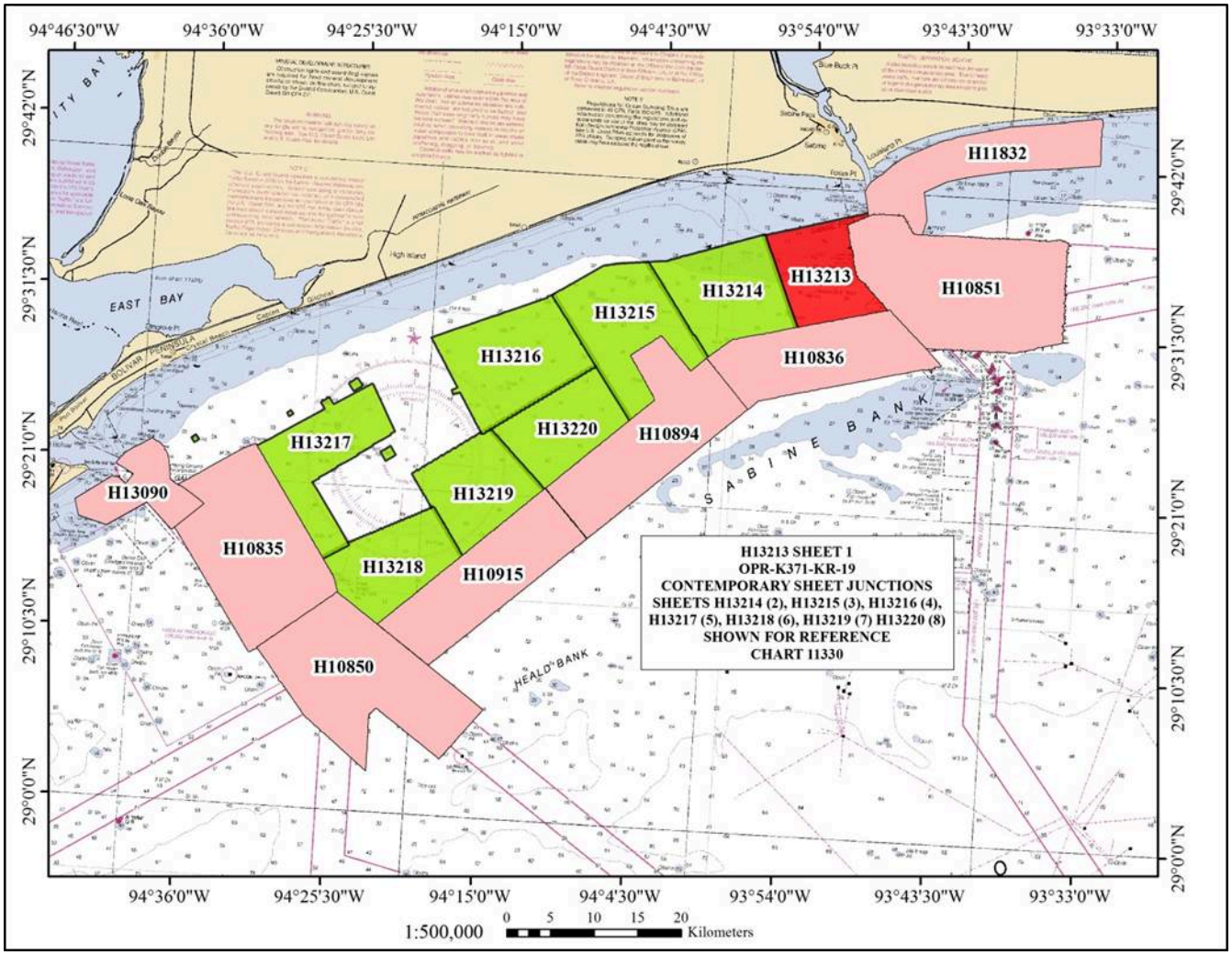


Figure 7: General Locality of H13213 with Junctioning Surveys

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H11832	1:10000	2008	C&C	E
H10836	1:20000	1998	Fugro Pelagos, Inc.	S
H10851	1:20000	1998	C&C	E

Table 9: Junctioning Surveys

H11832

H11832 junctions with H13213 to the east; 100.00% of the comparisons agreed within ±0.511 meters, within the calculated maximum allowable TVU of 0.52 meters.

H10836

H10836 junctions with H13213 to the south; 93.72% of the comparisons agreed within ±0.53 meters, the calculated maximum allowable TVU.

H10851

H10851 junctions with H13213 to the east; 86.55% of the comparisons agreed within ±0.53 meters, the calculated maximum allowable TVU.

B.2.4 Sonar QC Checks

Sonar system quality control checks were conducted as detailed in the DAPR.

B.2.5 Equipment Effectiveness

Turbidity Impacts

H13213 survey area was located just west of the Sabine Pass entrance. As a result, H13213 survey occasionally experienced zones of increased suspended sediments in discrete water masses during local weather events. Interactions could be seen in the side scan sonar record as an increase in the signal returns. At the interface boundaries of suspended sediments and “clear” water, the transition was seen in the side scan record as a discrete tide line (Figure 8) and was noted within the Side Scan Review Log (Separates I).

In all cases, if the increased signal return of the side scan sonar inhibited the ability to discern a 1x1x1-meter object, the data were reacquired.

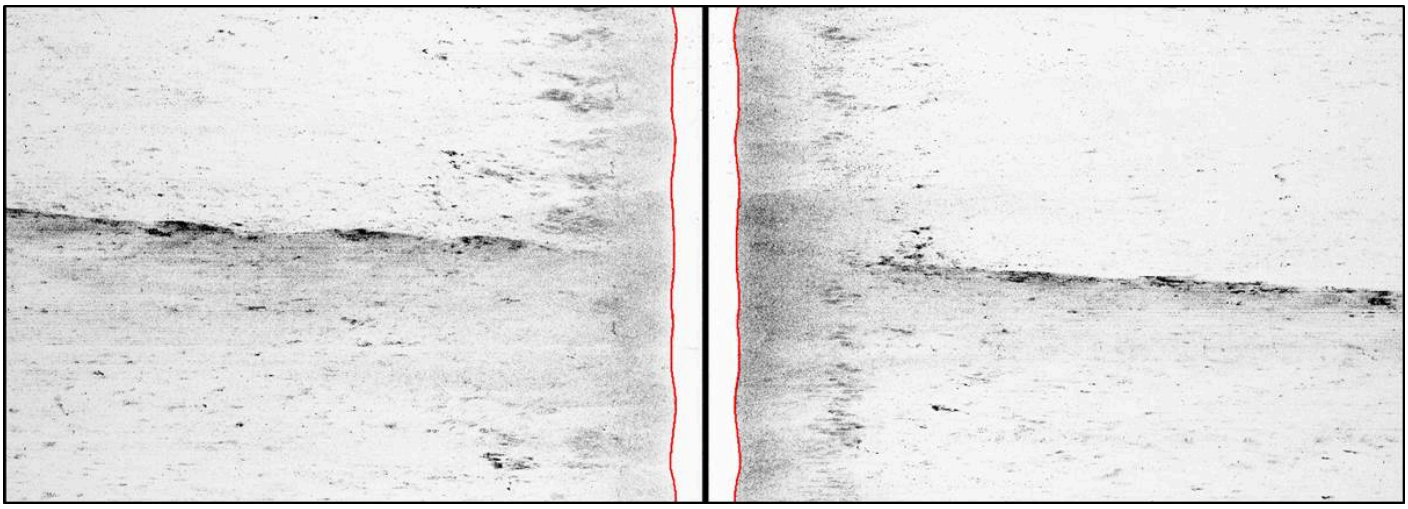


Figure 8: Suspended Sediment Water Transition to "Clean" Water in Side Scan Sonar Record

B.2.6 Factors Affecting Soundings

Turbidity Impacts

H13213 survey area was located just west of the Sabine Pass entrance. As a result, H13213 survey occasionally experienced zones of increased suspended sediments in discrete water masses during local weather events. As discussed these zones were seen in the side scan record and additionally was seen within the multibeam sonar data as a slight scattering of the bottom returns at the sediment water interface. When present, it resulted in a residual depth variation of approximately 10 centimeters, which was within the vertical uncertainty for the water depths (Figure 9).

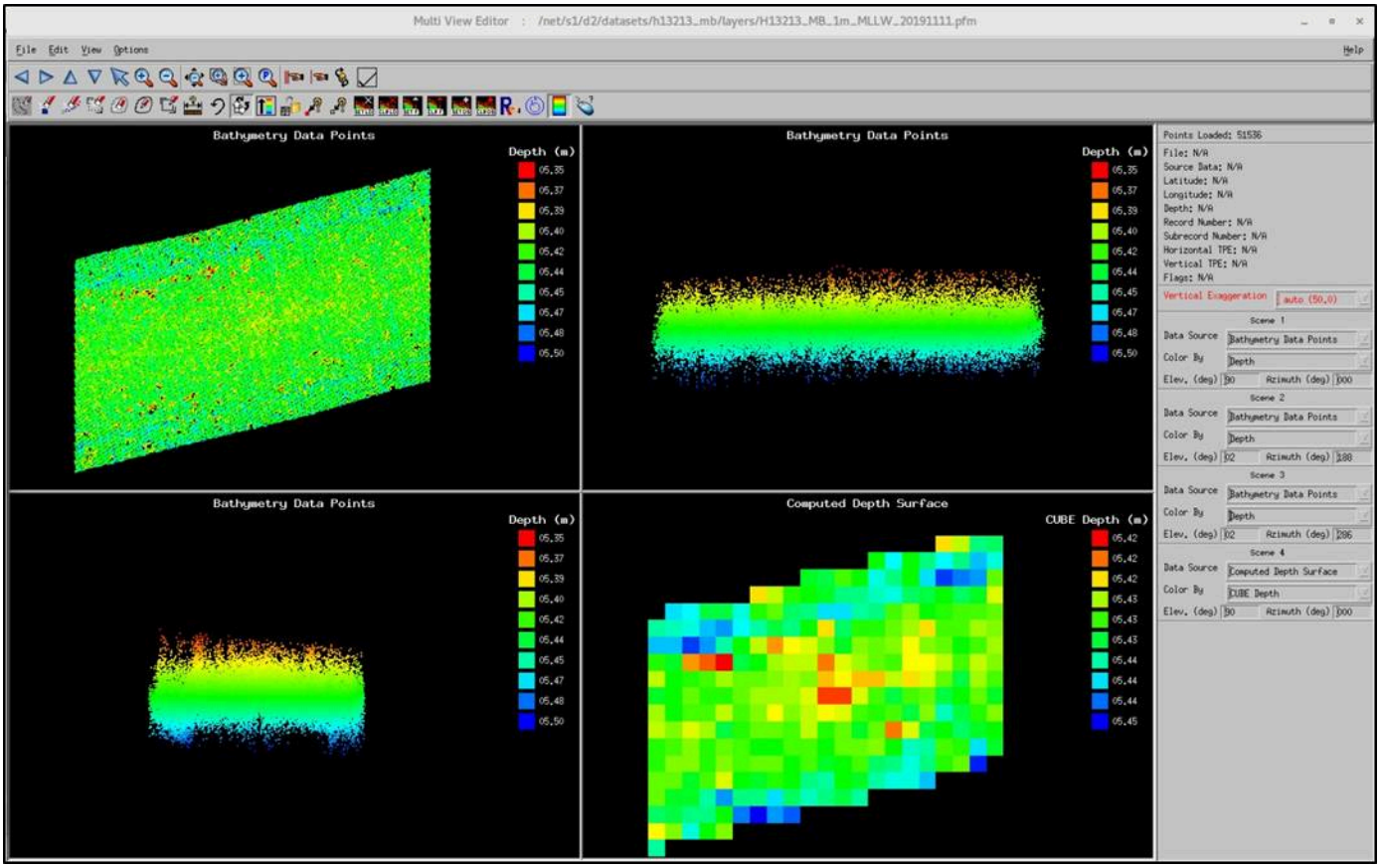


Figure 9: Residual Ten Centimeter Artifact Resulting From Suspended Sediments Shown at 50 Times Exaggeration for Illustration Purposes

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: On the M/V Atlantic Surveyor, the MVP30 was used to collect sound speed profile (SSP) data, 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. There were times when the sound speed values exceeded the two meters/second threshold due to the local temporal and tidal variability. During these times, several profiles were acquired and reapplied in an effort to reduce these effects. The product of this effort resulted in the final data bearing no significant artifacts due to sound speed differences.

All sound speed profiles applied for online bathymetry data collection were acquired within 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 H13213 and the results can be found in Separates II within the "Comparison Cast Log" section.

All individual SSP files are delivered with the H13213 data and are broken out into sub-folders, which correspond to the purpose of each cast. Also, all individual SSP files for H13213 have been concatenated into four separate files based on the purpose of the cast, provided in CARIS format files (.svp), and delivered under (H13213/Processed/SVP/CARIS_SSP) on the delivery drive. In addition, sound speed data for the entire OPR-K371-KR-19 project will be submitted to NCEI following the NetCDF template format as specified in Section 8.3.6 of the HSSD.

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 25-meter or 50-meter range scales. Mainscheme line spacing was 40 meters and 80 meters respectively, which ensured 100% SSS coverage.

The HSSD stated that 100% SSS coverage was insufficient to disprove a charted feature. Therefore, Leidos reviewed the Composite Source File (CSF), BSB charts, and ENC charts and completed an additional 100% SSS coverage, and resulting MBES coverage over charted and assigned objects not found during survey in order to verify disproval in accordance with Section 7.3.4 in the HSSD. A disproval search radius was 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 and is documented within the H13213 S-57 FFF. For all charted objects within the assigned H13213 Statement of Work (SOW), each object's 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 H13213 one-meter PFM showed that there were no holidays as defined for complete coverage surveys in Section 5.2.2.3 of the HSSD.

The final H13213 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 H13213 Hyp. # Soundings surface of the final

H13213 one-meter PFM, revealed that 99.40% 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 and charted objects that were not found, to verify disproval. Leidos generated two separate coverage mosaics at one-meter cell size resolution as specified in Section 8.2.1 of the HSSD. The first 100% and second 100% disproval coverage mosaics were independently reviewed using tools in SABER to verify data quality and swath coverage. The SABER Gapchecker routine was used to flag data gaps within each of the 100% SSS coverage mosaics. Additionally, the entirety of each SSS surface was visually scanned for holidays at various points during the data processing effort. Additional survey lines were run to fill any holidays that were detected. Both coverage mosaics are determined to be complete and sufficient to meet the requirements contained within the Project Instructions and HSSD. The mosaics are delivered as single georeferenced raster files for each 100 percent coverage, as 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	5.4.0.22.3

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. There were no software configuration changes after the DAPR was submitted.

B.5.2 Surfaces

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

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H13213_MB_1m_MLLW_Final_1_of_2	BAG	1 meters	8.014 meters - 12.902 meters	N/A	Complete Coverage, Option B (100% side scan sonar coverage with concurrent multibeam)

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H13213_MB_1m_MLLW_Final_2_of_2	BAG	1 meters	4.961 meters - 9.914 meters	N/A	Complete Coverage, Option B (100% side scan sonar coverage with concurrent multibeam)
H13213_SSSAB_1m_100kHz_1of2	SSS Mosaic (.tif)	1 meters	0.00 meters - 0.00 meters	N/A	100% SSS
H13213_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 H13213 at one-meter resolution.

The CUBE Depth surface of the final H13213 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 H13213 one-meter PFM was from 4.961 meters (16.276 feet; 0.260 meters Total Vertical Uncertainty [TVU]) to 12.902 meters (42.329 feet; 0.260 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 H13213_MB_1m_MLLW_1of1.bag that replaces the H13213_MB_1m_MLLW_Final-X_of_2 multibeam bathymetry grids submitted by the field unit. The H13213_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 OPR-K371-KR-19 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 publications were reviewed for changes subsequent to the date of the Project Instructions and before the end of survey (as specified in

Section 8.1.4 of the HSSD). The Notice to Mariners reviewed were from week 19/19 (27 March 2019) until week 48/19 (27 November 2019).

H13213 data met data accuracy standards and bottom coverage requirements. Recommend updating the common areas of all charts using data from this survey. Charting recommendations for new features, and updates to charted features, are documented in the H13213 S-57 FFF. Additional charted objects such as submarine pipelines and platforms are discussed in later sections.

D.1.1 Electronic Navigational Charts

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

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US5TX72M	1:40000	44	10/04/2019	11/04/2019	NO
US4TX71M	1:80000	37	11/08/2019	11/08/2019	NO

Table 14: Largest Scale ENCs

US5TX72M

ENC US5TX72M covers the H13213 survey area from 29° 36’ 00.77”N northward.

CUBE depths within H13213 were generally deeper than charted depths across the survey area, with observed depths generally 1.5m to 2.0m deeper than the charted depths (Figure 10). Within the H13213 survey area, the observed 5.4-meter depths have migrated north beyond the currently charted 3.6-meter contour, as observed in Figure 11 which shows the charted 3.6-meter and 5.4-meter contours from ENC US5TX72M as compared to the final CUBE Depth selected soundings observed from the H13213 survey.

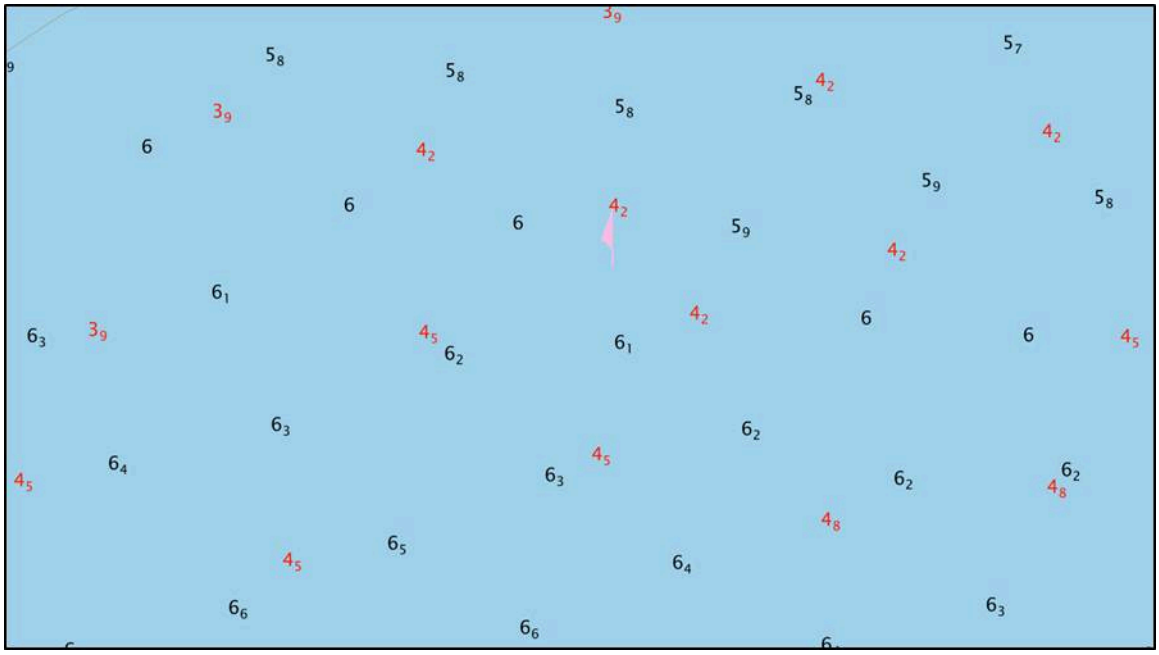


Figure 10: ENC US5TX72M Charted Soundings (red) with H13213 CUBE Depth Selected Soundings (black)

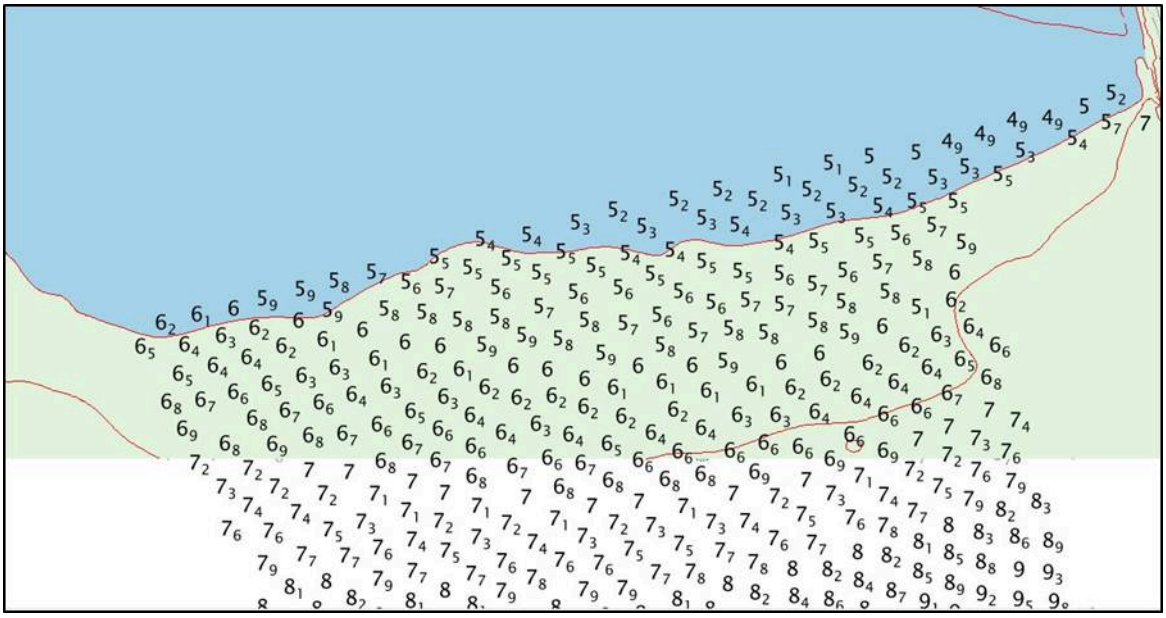


Figure 11: ENC US5TX72M Charted 3.6-Meter and 5.4-Meter Contours (red) with H13213 CUBE Depth Selected Soundings (black)

US4TX71M

ENC US4TX71M covers the H13213 survey area from 29° 36’ 00.77”N southward.

CUBE depths within H13213 were generally deeper than charted depths in the northern areas but agreed in the southern portion of the survey area (Figure 12). Within the H13213 survey area, the observed 5.4-meter depths have migrated north beyond the currently charted 5.4-meter contour, however, the charted 9.1-meter depth contour is generally in good agreement with observed depths except in the eastern edge of the survey coverage (Figure 13).

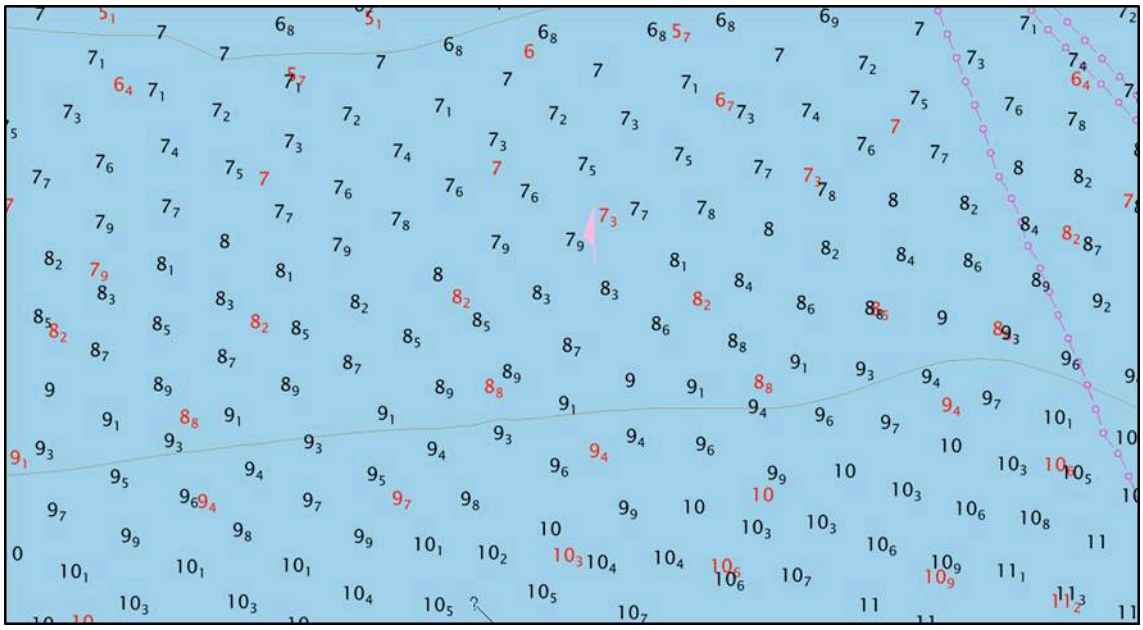


Figure 12: ENC US4TX71M Charted Soundings (red) with H13213 CUBE Depth Selected Soundings (black)

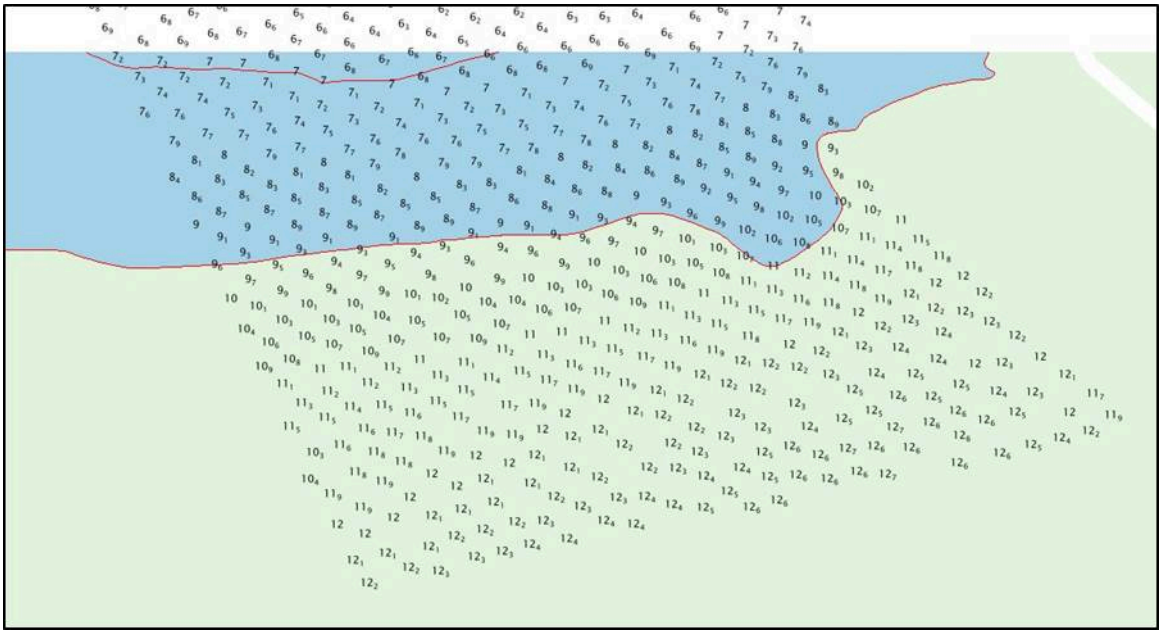


Figure 13: ENC US4TX71M Charted 5.4-Meter and 9.1-Meter Contours (red) with H13213 CUBE Depth Selected Soundings (black)

D.1.2 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.3 Charted Features

There were four charted features which were assigned in the final CSF, Final_OPR-K371-KR-19_CSF.000, within the SOW of H13213. See the H13213 S-57 FFF for all the details and recommendations regarding these features.

There was one charted pile and one charted wreck on ENC US5TX72M. Search area with radii of at least 80 meters and 470 meters respectively was covered with 200% SSS and MBES. No features were found within the data covering the extents of either search radius.

The two remaining assigned features were charted on ENC US4TX71M. These two wrecks, charted as dangerous always under water/submerged, were covered with 200% SSS and 100% MBES over an area with a radius of at least 470 meters. No features were found within the data covering the extents of either search radius.

During survey operations, Leidos observed that the western jetty of the Sabine Pass entrance was submerged or mostly submerged for much of its length while the eastern jetty of the Sabine Pass entrance was observed

above the water line (Figure 14). Observations were made near a high tide on JD 267. These jetties both fall outside the assigned H13213 SOW and due to safety concerns were not investigated further by Leidos. The Sabine Pass west jetty is charted on ENC US5TX72M as a shoreline construction object, category of pier as jetty, and attributed water level of always dry (Figure 15).

Figure 14: Sabine Pass Entrance Illustrating the East Jetty (Background) and the West Jetty (Foreground)

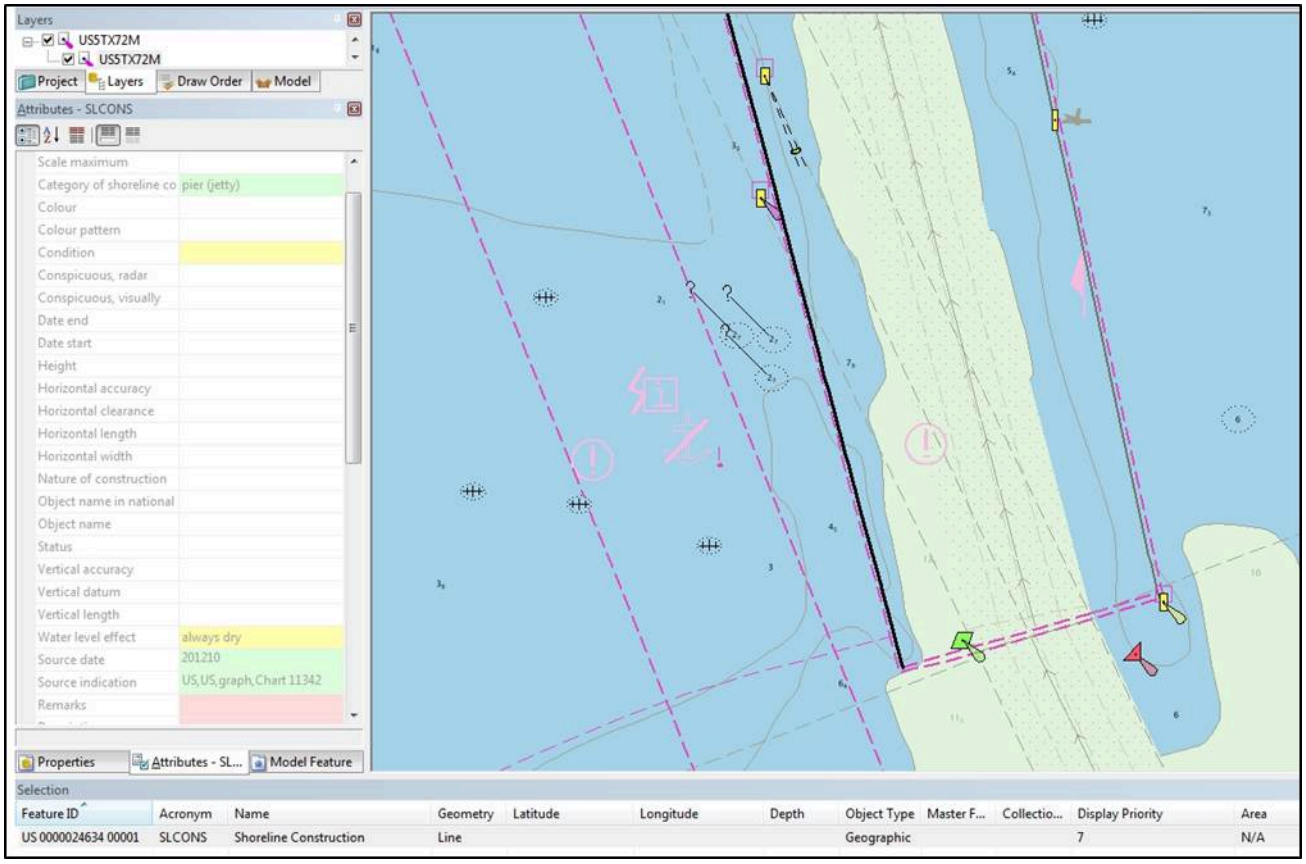


Figure 15: Sabine Pass West Jetty (Black Line) Charted as Always Dry on ENC US5TX72M

D.1.4 Uncharted Features

See the H13213 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 the Danger to Navigation (DTON) described below.

Leidos submitted one DTON for H13213 consisting of an uncharted wreck in S-57 format to the Atlantic Hydrographic Branch (AHB) on 02 May 2019 which was subsequently submitted to the Nautical Data Brach (NDB) and Marine Chart Division (MCD) on 06 May 2019. Per Section 1.6.1 of the 2019 HSSD, the DTON submission package for this uncharted wreck was submitted with the DTON attributed as an obstruction to ensure that a potentially sensitive feature was not added to the chart without undergoing review by the State Historic Preservation Officer. A copy of the email correspondence for Leidos' submission of H13213 DTON

Report is included within Appendix II of this Descriptive Report. Figure 16 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-57 Object Class in the S-57 FFF
H13213_DTON_01.000	2019-05-02	2019-05-06	DD-30823	01	WRECK

Figure 16: DTON Report

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 H13213. Bottom characteristics were acquired at the three 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 H13213 are included in the H13213 S-57 FFF, named H13213_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 H13213_FFF.000 and are included on the delivery drive under the folder H13213/ Processed/Multimedia.

D.2 Additional Results

D.2.1 Shoreline

All features in the CSF within the assigned Survey Limits of H13213 were resolved. There were no assigned features inshore of the NALL.

D.2.2 Aids to Navigation

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

D.2.3 Overhead Features

There were no overhead features within this survey area.

D.2.4 Submarine Features

One charted exposed pipeline and one seep were found within the bounds of H13213. In accordance with HSSD Section 1.7, the exposed pipeline and seep found within H13213 were submitted as a Seep and Pipeline Report. The email correspondence for Leidos' submission of the H13213 Seep and Pipeline Report is included within Appendix II of this Descriptive Report. The identified exposed pipeline is included in the S-57 FFF. Assigned PIPSOL objects from the CSF, Final_OPR-K371-KR-19_CSF.000, are captured in the S-57 FFF.

The one seep identified within the SSS and MBES data of H13213 was found at 29° 35' 38.99" N 093° 54' 19.13" W, and identified within the MBES and SSS data to have a form and morphology typical of ascending gas or bubble plumes, but was not found associated with any charted or observed uncharted pipelines or wellheads. The MBES data associated with the seep have been flagged as invalid and therefore were not used in the CUBE depth calculations. SSS contacts were retained on the seep location and are included in the Side Scan Sonar Contact S-57 File, H13213_SSCon.000.

D.2.5 Platforms

There were no offshore platform objects assigned in the CSF, Final_OPR-K371-KR-19_CSF.000, provided on 18 March 2019, which fell within the SOW for H13213.

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 except as previously discussed in sections B.2.5 and B.2.6 of this report.

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 shallowest 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).

D.2.11 Final Feature S-57 File

Included with H13213 delivery is the S-57 FFF, H13213_FFF.000. Details on how this file was generated and quality controlled can be found in the DAPR. The S-57 FFF delivered for H13213 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 H13213 are included within the S-57 FFF.

In accordance with the HSSD, Leidos addressed all assigned objects within the bounds of H13213 from the provided CSF S-57 file in the S-57 FFF.

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

D.2.12 Side Scan Sonar Contacts S-57 File

Included with the H13213 delivery is the Side Scan Sonar Contact S-57 File, H13213_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 Appendix II of this Descriptive Report.

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	2019-12-04

Approver Name	Approver Title	Approval Date	Signature
Paul L. Donaldson	Chief Hydrographer	12/06/2019	Paul L Donaldson Digitally signed by: Paul L Donaldson DN: CN = Paul L Donaldson C = US O = Leidos OU = A01427E0000015C7EA9ADE2000073EC Date: 2019.12.05 08:12:46 -05'00'

F. Table of Acronyms

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

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

Acronym	Definition
PRF	Project Reference File
PS	Physical Scientist
RNC	Raster Navigational Chart
RTK	Real Time Kinematic
RTX	Real Time Extended
SBES	Singlebeam Echosounder
SBET	Smooth Best Estimate and Trajectory
SNM	Square Nautical Miles
SSS	Side Scan Sonar
SSSAB	Side Scan Sonar Acoustic Backscatter
ST	Survey Technician
SVP	Sound Velocity Profiler
TCARI	Tidal Constituent And Residual Interpolation
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 H13213.

Final Tide Note

Per the Project Instructions H13213, 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.: H13213
Contractor Name: Leidos
Date: 06 December 2019
Sheet Designation: 1
Inclusive Dates: 24 April 2019 – 25 September 2019
Field work is complete.

Begin Date	Begin Julian Day	Begin Time	End Date	End Julian Day	End Time
24 April 2019	114	12:09:11	24 April 2019	114	23:59:59
25 April 2019	115	00:00:00	25 April 2019	115	08:02:12
25 April 2019	115	15:16:35	25 April 2019	115	23:59:59
26 April 2019	116	00:00:00	26 April 2019	116	23:59:59
27 April 2019	117	00:00:00	27 April 2019	117	23:59:59
28 April 2019	118	00:00:00	28 April 2019	118	23:59:59
29 April 2019	119	00:00:00	29 April 2019	119	02:59:23
14 May 2019	134	03:19:44	14 May 2019	134	21:23:19
01 August 2019	213	12:33:20	01 August 2019	213	23:59:59
02 August 2019	214	00:00:00	02 August 2019	214	23:59:59
03 August 2019	215	00:00:00	03 August 2019	215	01:09:09
06 August 2019	218	17:47:06	06 August 2019	218	23:59:59
07 August 2019	219	00:00:00	07 August 2019	219	00:10:49
23 September 2019	266	11:51:38	23 September 2019	266	23:09:37
24 September 2019	267	14:19:48	24 September 2019	267	23:59:59
25 September 2019	268	00:00:00	25 September 2019	268	05:52:49

Table A-1: Abstract Times of Hydrography, H13213

Transmittal Letter to CO-OPS
A transmittal letter to CO-OPS was not required for H13213.

Request for Approved Tides/Water Levels Letter
A "Request for Approved Tides/Water Levels" letter was not required for H13213.

Other Correspondence Relating to Tides
Please refer to the Project Correspondence directory for correspondence related to water levels for H13213.

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

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.GRABOWSKI.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

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

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

From:	OCS NDB - NOAA Service Account
To:	Castle E Parker
Cc:	AHB Chief; Kathryn Pridgen - NOAA Federal; Bernier, Alex T. [US-US]; Donaldson, Paul L. [US-US]; Bernier, Bridget W. [US-US]; Nadeau, Richard C. [US-US]; Markham, Erin E. [US-US]; Tim Osborn; _NOS OCS PBA Branch; _NOS OCS PBB Branch; _NOS OCS PBC Branch; _NOS OCS PBD Branch; _NOS OCS PBE Branch; _NOS OCS PBG Branch; Charles Porter - NOAA Federal; Chris Libeau; James M Crocker; Ken Forster; Kevin Jett - NOAA Federal; Matt Kroll; Michael Gaeta; NSD Coast Pilot; PHB Chief; Tara Wallace; William Winner
Subject:	EXTERNAL: Fwd: H13213 DtoN #1 Submission to NDB
Date:	Monday, May 6, 2019 3:49:29 PM
Attachments:	H13213_DtoN_1.zip

DD-30823 has been registered by the Nautical Data Branch and directed to Products Branch G for processing.

The DtoN reported is an obstruction approximately 9 nautical miles southwest of Texas Point, TX.

The following charts have been assigned to the record:
11332 kapp 125
11341 kapp 124
11330 kapp 195
11340 kapp 49

The following ENCs have been assigned to the record:
US4TX71M
US3GC02M

References:
H13213
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

---------- Forwarded message ---------
From: **Castle Parker - NOAA Federal** <castle.e.parker@noaa.gov>
Date: Mon, May 6, 2019 at 11:38 AM
Subject: H13213 DtoN #1 Submission to NDB
To: OCS NDB - NOAA Service Account <ocs.ndb@noaa.gov>
Cc: AHB Chief - NOAA Service Account <ahb.chief@noaa.gov>, Kathryn Pridgen - NOAA Federal <kathryn.pridgen@noaa.gov>, Bernier, Alex T. <ALEX.T.BERNIER@leidos.com>, Donaldson, Paul L. <PAUL.L.DONALDSON@leidos.com>, Bernier, Bridget W. <BRIDGET.W.BERNIER@leidos.com>, <RICHARD.C.NADEAU@leidos.com>, Markham, Erin <ERIN.MARKHAM@leidos.com>, Tim Osborn - NOAA Federal <tim.osborn@noaa.gov>

Good day,

Please find attached a compressed file for H13213 DtoN Report #1, containing one uncharted 34ft obstruction. The feature is submitted to Nautical Data Branch (NDB) and Marine Chart Division (MCD) and intended for chart application. The uncharted feature is located approximately 9.42nm SW of Texas Point.

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

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

Respectfully,

Gene Parker

Castle Eugene Parker

NOAA Office of Coast Survey

Atlantic Hydrographic Branch

Hydrographic Team Lead / Physical Scientist

castle.e.parker@noaa.gov

office (757) 364-7472

From: Donaldson, Paul L. [US-US]
Sent: Thursday, November 7, 2019 3:03 PM
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 H13213: Exposed Pipelines and Seeps
Attachments: H13213_Exposed_Pipeline_Images.zip

Leidos Proprietary

In accordance with Section 1.7 of the Hydrographic Surveys Specifications and Deliverables, please find below the Non-DTON Pipeline/Seep Report for H13213 (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 one section of exposed charted pipeline and one seep within the area of Registry Number H13213. 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 and seep. The exposed pipeline feature was within close proximity of a currently charted pipeline. The one seep feature identified within H13213 was not in close proximity of a currently charted pipeline. Review of the multibeam and side scan sonar data did not indicate the presence of a pipeline within the general area. The details of the features are as follows and images of each are contained in the attached zip directory.

1. H13213 Exposed Pipeline #01 is approximately 10 meters in length from 29° 33’ 17.84”N 093° 49’ 13.35”W to 29° 33’ 18.10” N 093° 49’ 13.09”W and consist of exposed pipeline on either side of a mound associated with a charted pipeline junction. This feature is in an approximate 42°/222°orientation and was identified in the multibeam sonar data on Julian Day 266 (23 September 2019) at 17:24 UTC with a depth of 11.917 meters. The exposed pipeline is associated with a charted pipeline junction on RNC 11332.
2. H13213 Seep #01, approximately at 29° 35’ 38.99”N 093° 54’ 19.13”W, with a least depth acquired of 2.798m, was identified in multibeam and side scan sonar data on multiple Julian Days (JD 267 and JD 268, 24 and 25 September 2019 respectively). The identified seep is not associated with charted platforms or charted pipelines. Review of the side scan sonar data and multibeam sonar data do not indicated the presence of a pipeline in the area.

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

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

Castle Parker - NOAA Federal

Subject: FW: Project Review: 202006242

---------- Forwarded message ---------
From: <noreply@thc.state.tx.us>
Date: Wed, Feb 5, 2020 at 1:12 PM
Subject: Project Review: 202006242
To: <ahb.chief@noaa.gov>, <reviews@thc.state.tx.us>

TEXAS HISTORICAL COMMISSION
real places telling real stories

Re: Project Review under Section 106 of the National Historic Preservation Act and/or the Antiquities Code of Texas
THC Tracking #202006242
National Oceanic and Atmospheric Administration - H13213
9 NM WSW of Texas Point

Dear Client:
Thank you for your submittal regarding the above-referenced project. This response represents the comments of the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission (THC), pursuant to review under Section 106 of the National Historic Preservation Act.

The review staff led by Amy Borgens has completed its review and has made the following determinations based on the information submitted for review:
We have the following comments: The positions of acoustic targets 1.1, 1.2, and 1.3 do not correlate to any recorded Texas archeological sites. Furthermore the data presented in the Feature Report does not suggest these are historic shipwreck sites. Based upon the available information, the Texas Historical Commission does not have any concerns for presenting these targets on navigation charts or including them in AWOIS.

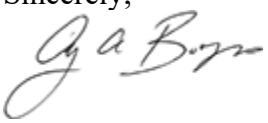
We look forward to further consultation with your office and hope to maintain a partnership that will foster effective historic preservation. Thank you for your cooperation in this review process and for your efforts to preserve the irreplaceable heritage of Texas. If you have any questions concerning our review or if we can be of further assistance, please email the following reviewers: amy.borgens@thc.texas.gov

This response has been sent through the electronic THC review and compliance system (eTRAC). Submitting your project via eTRAC eliminates mailing delays and allows you to check the status of the review, receive an electronic response, and generate reports on your submissions. For more information, visit http://thc.texas.gov/etrac-system.

Sincerely,

For Mark Wolfe, State Historic Preservation Officer
Executive Director, Texas Historical Commission

Sincerely,



For Mark Wolfe, State Historic Preservation Officer
Executive Director, Texas Historical Commission

Please do not respond to this email.

From: Brian Mohr - NOAA Federal
To: Bernier, Bridget W. [US-US]
Subject: EXTERNAL: Re: Survey Outlines for OPR-K371-KR-19 (H13213, H13214, and H13219)
Date: Thursday, October 24, 2019 6:27:14 AM

Thank you Bridget, I will get **H13213**, **H13214** and **H13219** survey outlines appended into SURDEX shortly.

Brian Mohr
Data Manager
Hydrographic Surveys Division
brian.mohr@noaa.gov
(240)-533-0026

On Wed, Oct 23, 2019 at 3:31 PM 'Bernier, Bridget W.' via _NOS OCS Survey Outlines <survey.outlines@noaa.gov> wrote:

> Katy,
>
> Please find attached the Survey Outline files for H13213 (Sheet 1), H13214 (Sheet 2), and H13219 (Sheet 7) 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
>
>

From: Bernier, Bridget W. [US-US]
To: "survey.outlines@noaa.gov"; Kathryn Pridgen (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 (H13213, H13214, and H13219)
Date: Wednesday, October 23, 2019 3:31:26 PM
Attachments: H13213_Survey_Outline.000
H13214_Survey_Outline.000
H13219_Survey_Outline.000

Katy,

Please find attached the Survey Outline files for H13213 (Sheet 1), H13214 (Sheet 2), and H13219 (Sheet 7) 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

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

Fax: 401.849.1585

Email: paul.l.donaldson@leidos.com

221 Third Street, Building A

Newport, RI 02840 USA

Leidos.com

--

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

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

APPROVAL PAGE

H13213

The survey data meet or exceed the current requirements of the Office of Coast Survey hydrographic data review process and may be used to update NOAA products. The following survey products will be archived at the National Centers for Environmental Information:

- Descriptive Report
- Collection of Bathymetric Attributed Grids (BAGs)
- Collection of acoustic backscatter mosaics
- Bottom samples
- Geospatial PDF of survey products

Approved: Meghan McGovern Digitally signed by MCGOVERN.MEGHAN.ELIZABETH.1284020495 Date: 2021.07.27 13:59:38 -04'00'

Commander Meghan McGovern, NOAA
Chief, Atlantic Hydrographic Branch