

H13144

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

**DESCRIPTIVE REPORT**

Type of Survey: Navigable Area

Registry Number: H13144

**LOCALITY**

State(s): Puerto Rico

General Locality: San Juan and Ponce and Vicinities

Sub-locality: 8.5 NM SE of Bahia de Ponce

**2018**

CHIEF OF PARTY  
Christiaan van Westendorp, CAPT/NOAA

LIBRARY & ARCHIVES

Date:

**HYDROGRAPHIC TITLE SHEET**

**H13144**

**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): **Puerto Rico**

General Locality: **San Juan and Ponce and Vicinities**

Sub-Locality: **8.5 NM SE of Bahia de Ponce**

Scale: **5000**

Dates of Survey: **10/17/2018 to 11/02~~5~~/2018**

Instructions Dated: **06/15/2018**

Project Number: **OPR-I369-TJ-18**

Field Unit: **NOAA Ship *Thomas Jefferson***

Chief of Party: **Christiaan van Westendorp, CAPT/NOAA**

Soundings by: **Multibeam Echo Sounder**

Imagery by: **Multibeam Echo Sounder Backscatter**

Verification by: **Atlantic Hydrographic Branch**

Soundings Acquired in: **meters at Mean Lower Low Water**

**Remarks:**

*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 19N, MLLW. All references to other horizontal or vertical datums in this report are applicable to the processed hydrographic data provided by the field unit.*

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## Descriptive Report to Accompany Survey H13144

Project: OPR-I369-TJ-18

Locality: San Juan and Ponce and Vicinities

Sublocality: 8.5 NM SE of Bahia de Ponce

Scale: 1:5000

October 2018 - November 2018

**NOAA Ship *Thomas Jefferson***

Chief of Party: Christiaan van Westendorp, CAPT/NOAA

### A. Area Surveyed

Survey H13144 extends from the vicinity of the Isla de Caja de Muertos, PR (approximately 3 NM south-east of Bahia de Ponce) to the south of Bahia de Jobos, PR (approximately 3 NM south of Bahia de Jobos and 19 NM south-east of Bahia de Ponce). The survey was conducted in accordance with coverage requirements in Project Instruction OPR-I369-TJ-18.

#### A.1 Survey Limits

Data were acquired within the following survey limits (Table 1 and Figure 1):

Northwest Limit	Southeast Limit
17° 56' 16.95" N 66° 32' 29.51" W	17° 51' 20.39" N 66° 13' 30.3" W

*Table 1: Survey Limits*

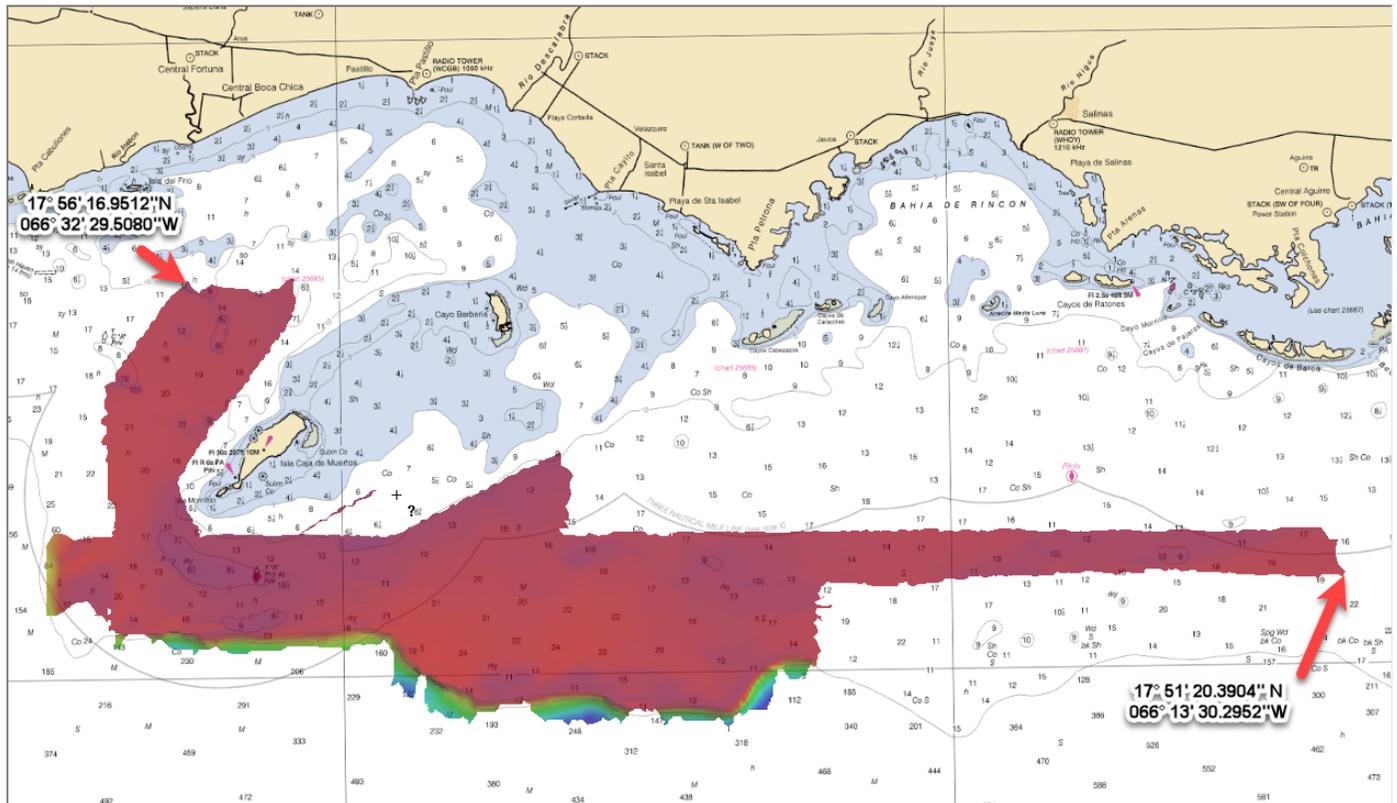
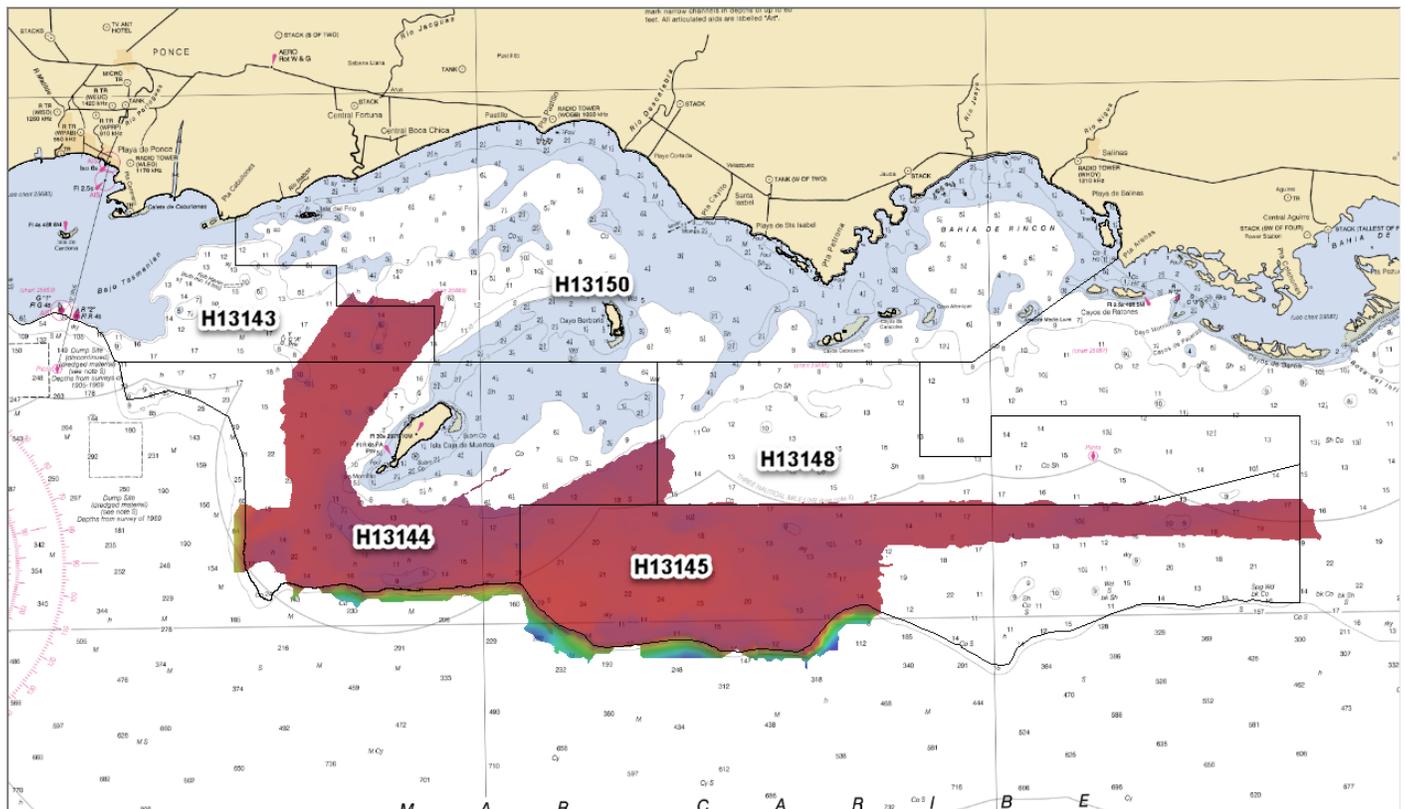


Figure 1: H13144 survey area plotted on NOAA chart 25677

The sheet limits for H13144 were adjusted for efficiency of acquisition operations and to account for platform availability. The adjusted sheet limits were approved by the Project Manager. See Project Correspondence and Figure 2 below.



*Figure 2: Digital Terrain Map of the entirety of H13144, which was expanded to cover portions of several originally assigned survey sheets*

## A.2 Survey Purpose

The economy for the 3.3 million Americans in the territory of Puerto Rico is largely ocean dependent. Approximately 7% of the jobs in Puerto Rico are directly involved in ocean related services accounting for over \$920 million in wages. The island also imports 85% of its foodstuffs and virtually all of its energy products. Currently, only a small percentage of its coasts and critical harbors have been surveyed with modern, high-resolution sounding or hydrographic LiDAR devices. In 2017 the island was damaged by two major hurricanes; in response, the NOAA ship *Thomas Jefferson* conducted emergency sidescan and multibeam surveys of seven port facilities to locate storm related obstructions and damage to the channels. A follow up to some of these ports and pilot areas, combined with a survey of the surrounding coastline, is necessary to verify that dangerous obstructions have been removed prior to updating nautical charts.

## A.3 Survey Quality

The entire survey is adequate to supersede previous data.

## A.4 Survey Coverage

The following table lists the coverage requirements for this survey as assigned in the project instructions (Table 2):

<b>Water Depth</b>	<b>Coverage Required</b>
All waters in survey area	Complete Coverage (Refer to HSSD Section 5.2.2.3)

*Table 2: Survey Coverage*

Survey coverage was in accordance with the requirements listed above and in the HSSD.

## A.5 Survey Statistics

The following table lists the mainscheme and crossline acquisition mileage for this survey (Table3):

	<b>HULL ID</b>	<i>S222</i>	<i>Total</i>
<b>LNM</b>	<b>SBES Mainscheme</b>	0	0
	<b>MBES Mainscheme</b>	837.94	837.94
	<b>Lidar Mainscheme</b>	0	0
	<b>SSS Mainscheme</b>	0	0
	<b>SBES/SSS Mainscheme</b>	0	0
	<b>MBES/SSS Mainscheme</b>	0	0
	<b>SBES/MBES Crosslines</b>	59.89	59.89
	<b>Lidar Crosslines</b>	0	0
<b>Number of Bottom Samples</b>			0
<b>Number Maritime Boundary Points Investigated</b>			0
<b>Number of DPs</b>			0
<b>Number of Items Investigated by Dive Ops</b>			0
<b>Total SNM</b>			40.93

*Table 3: Hydrographic Survey Statistics*

The following table lists the specific dates of data acquisition for this survey (Table 4):

<b>Survey Dates</b>	<b>Day of the Year</b>
10/17/2018	290
10/18/2018	291

<b>Survey Dates</b>	<b>Day of the Year</b>
10/19/2018	292
10/20/2018	293
10/21/2018	294
10/22/2018	295
10/23/2018	296
10/24/2018	297
10/25/2018	298
10/31/2018	304
11/01/2018	305
11/02/2018	306
11/03/2018	307
11/04/2018	308
11/05/2018	309

*Table 4: Dates of Hydrography*

## **B. Data Acquisition and Processing**

### **B.1 Equipment and Vessels**

Refer to the Data Acquisition and Processing Report (DAPR) for a complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods. Any deviations from the DAPR for this survey are noted in this report.

#### **B.1.1 Vessels**

The following vessels were used for data acquisition during this survey (Table 5):

<b>Hull ID</b>	<i>S222</i>
<b>LOA</b>	208 feet
<b>Draft</b>	15 feet

*Table 5: Vessels Used*

## B.1.2 Equipment

The following major systems were used for data acquisition during this survey (Table 6):

<b>Manufacturer</b>	<b>Model</b>	<b>Type</b>
Kongsberg Maritime	EM 710	MBES
Kongsberg Maritime	EM 2040	MBES
Rolls Royce	MVP100	Sound Speed Profiling System
AML Oceanographic	Micro-CTD	Conductivity, Temperature, and Depth Sensor
Applanix	POS MV 320 v5	Positioning and Attitude System
Valeport	Thru-Hull SVS	Sound Speed Sensor

*Table 6: Major Systems Used*

## B.2 Quality Control

### B.2.1 Crosslines

Multibeam/single beam echo sounder/side scan sonar crosslines acquired for this survey totaled 7.15% of mainscheme acquisition.

Multibeam echo sounder (MBES) crosslines acquired for this survey totaled 7.14% of mainscheme MBES mileage.

S222 collected 59.89 linear nautical miles of MBES crosslines. A Variable Resolution (VR) surface of mainscheme data and a VR surface of crossline data were differenced - the resulting mean was 0.02m and the standard deviation 0.47m. Visual inspection of the difference surface and statistical analysis of the difference surface revealed no issue in the data (Figure 3 below). The relatively large standard deviation value associated with the difference surface is attributed to large difference values observed in the very deep and very steep shelf areas of the survey area.

Crosslines were not collected over the eastern most section of the survey due to end-of-season time constraints (Figure 4 below). Mainscheme data are consistent with no apparent significant artifacts. A comparison of data in the Eastern section of the sheet with data in the adjoining cross-lined section indicates data are consistent with each other.

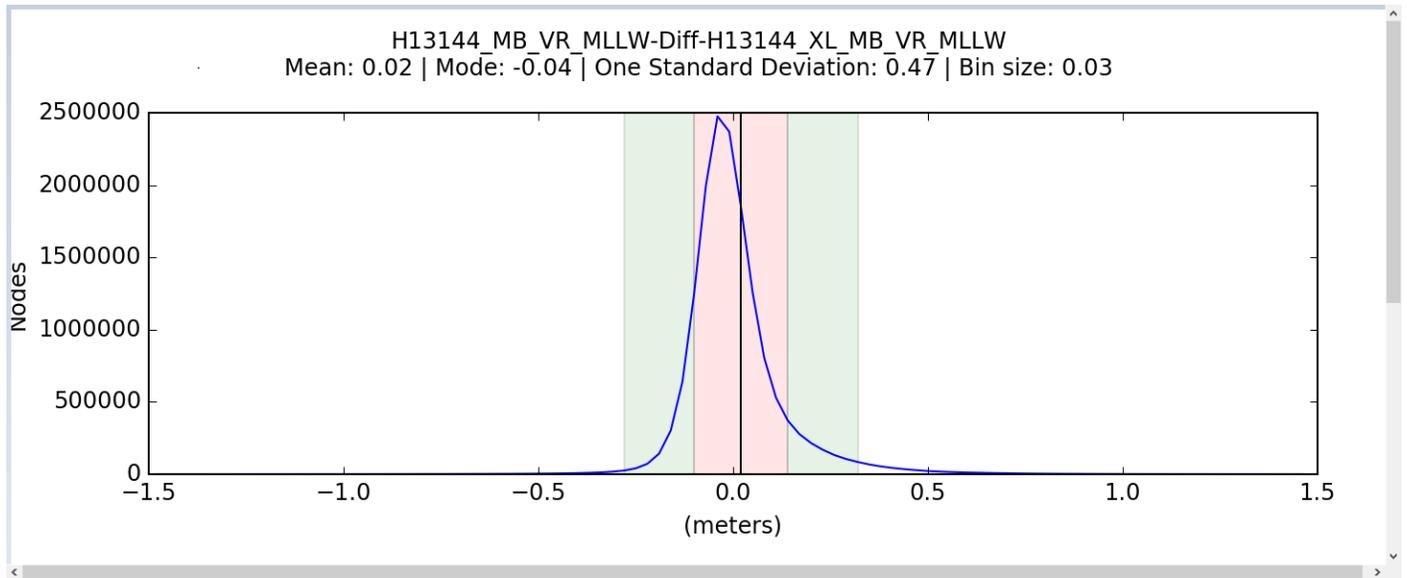


Figure 3: Crossline-mainscheme comparison statistics

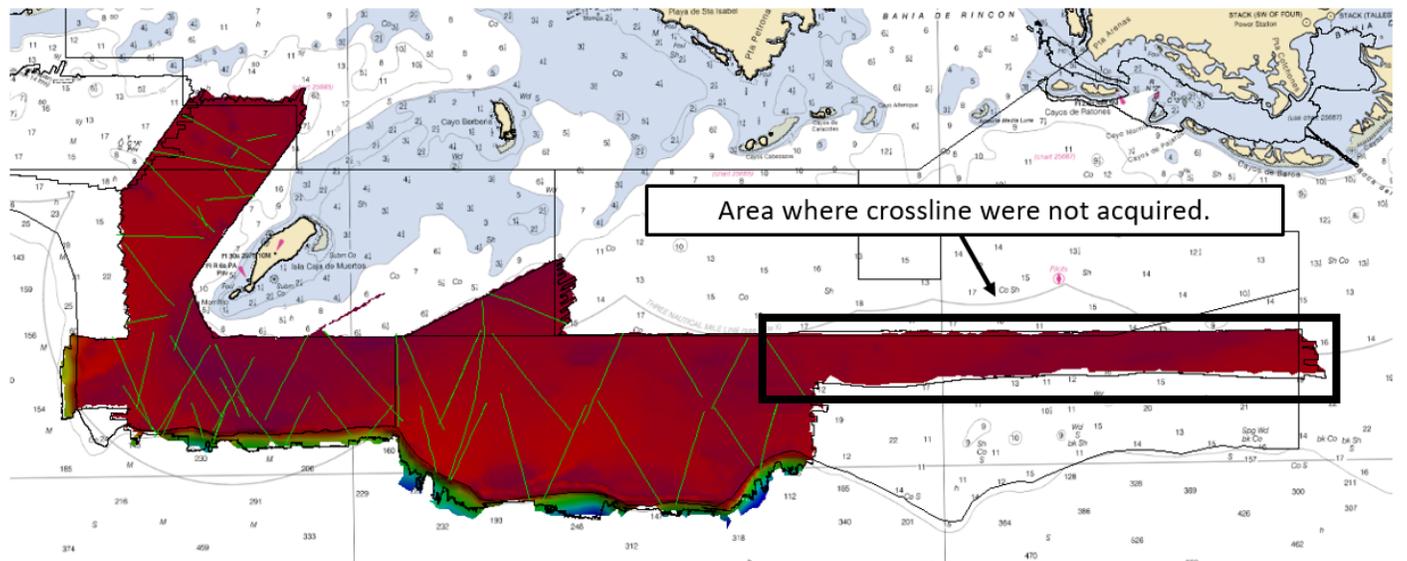


Figure 4: Eastern area of the sheet where crosslines were not acquired

**B.2.2 Uncertainty**

The following survey specific parameters were used for this survey (Table 7 and 8):

<b>Method</b>	<b>Measured</b>	<b>Zoning</b>
ERS via VDATUM	0.08 meters	0.12 meters

*Table 7: Survey Specific Tide TPU Values.*

<b>Hull ID</b>	<b>Measured - CTD</b>	<b>Measured - MVP</b>	<b>Surface</b>
S222	4 meters/second	2 meters/second	0.200 meters/second

*Table 8: Survey Specific Sound Speed TPU Values.*

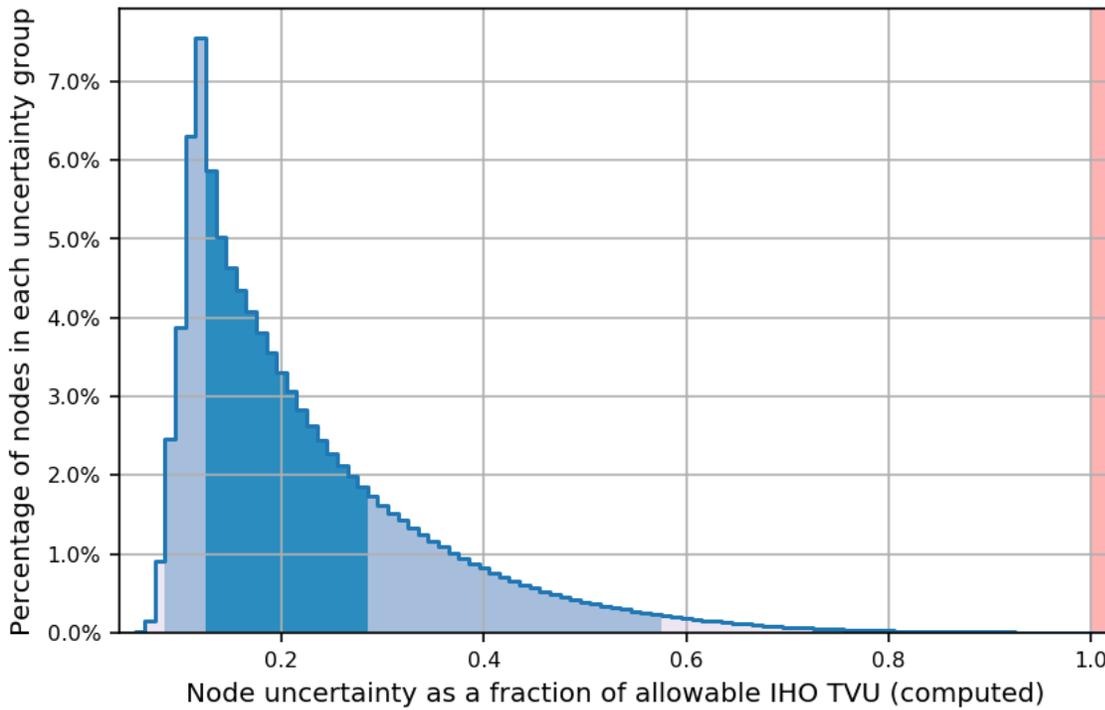
The bathymetric surface's uncertainty layer is compliant with HSSD 2018 uncertainty standards. Over 99.5% of all nodes pass uncertainty standards (Figure 5 below).

## Uncertainty Standards

Grid source: H13144\_MB\_VR\_MLLW\_Final

99.5+% pass (133,364,930 of 133,424,945 nodes), min=0.04, mode=0.12, max=6.92

Percentiles: 2.5%=0.09, Q1=0.13, median=0.19, Q3=0.28, 97.5%=0.57



*Figure 5: H13144 uncertainty statistics*

### B.2.3 Junctions

There were a total of two contemporary surveys that junctioned with Survey H13144 including H13143 and H12935.

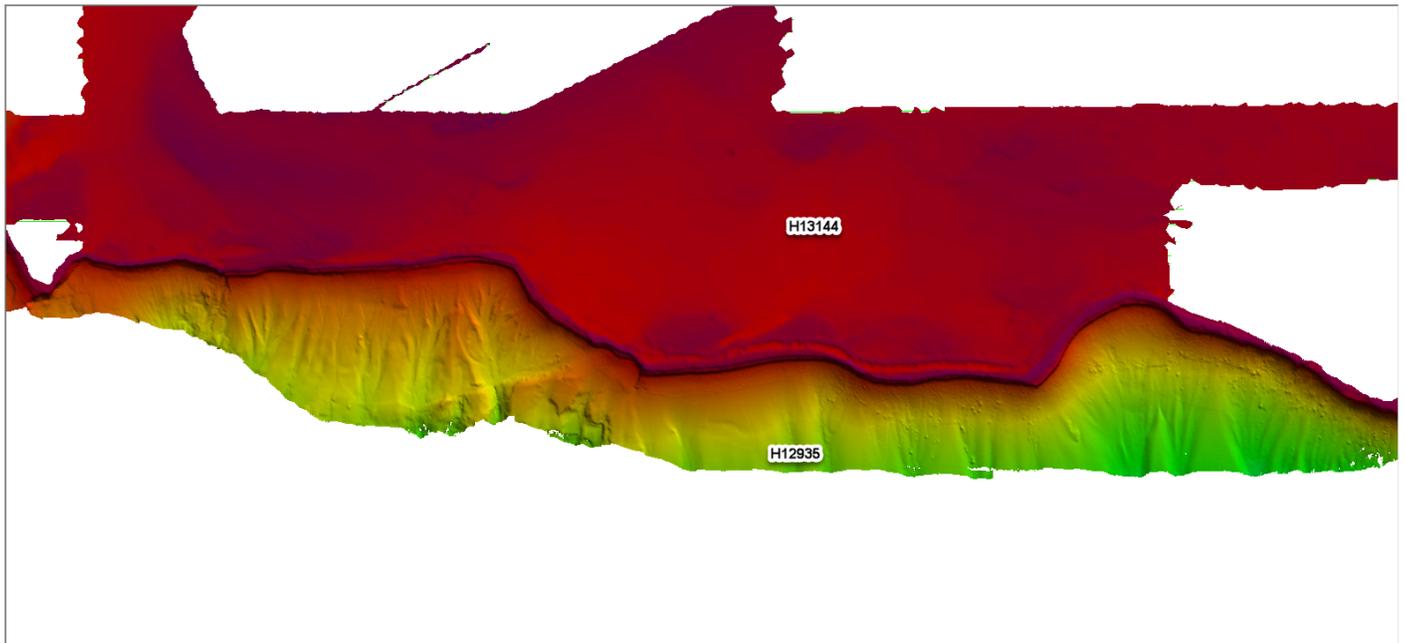
The following junctions were made with this survey (Table 9):

Registry Number	Scale	Year	Field Unit	Relative Location
H12935	1:40000	2016	NOAA Ship NANCY FOSTER	SE
H13143	1:5000	2018	NOAA Ship THOMAS JEFFERSON	W

*Table 9: Junctioning Surveys*

H12935

The difference between surveys H13144 and H12935 ranged from -23m to 15m. The mean was -2.23m and the standard deviation 6.60m. Most of the overlap between the two surveys is over an area characterized by a very pronounced and deep sloping shelf. The depths of the shelf range from 28m to greater than 200m. The relatively large difference values are attributed to (1) the nature of differencing a VR surface with a Single Resolution surface and (2) the fact that most overlap between the two surveys occurred over a relatively steep slope area. See Figures 6 and 7 below.



*Figure 6: Deep slope present where H13144 and H12935 junction*

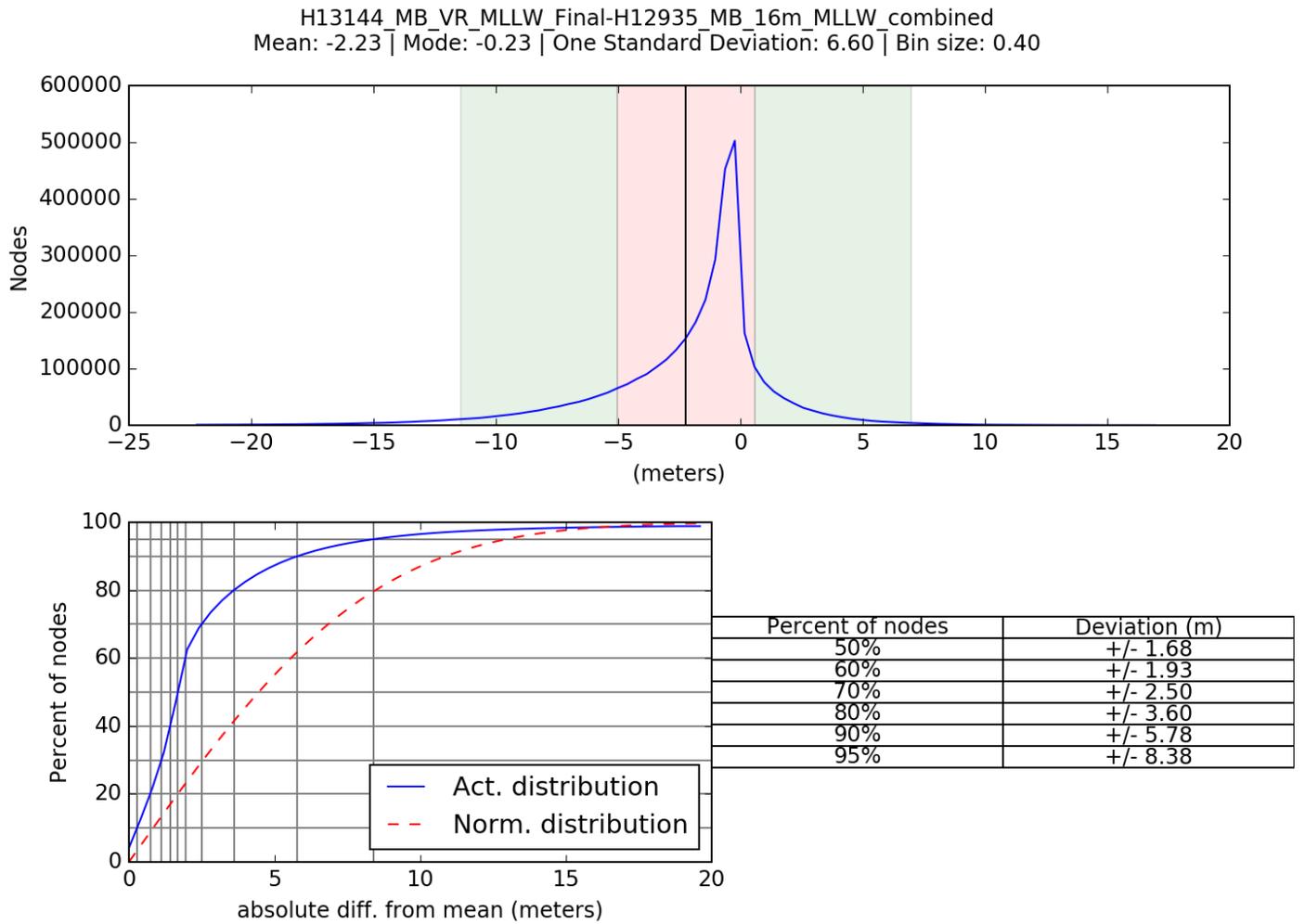
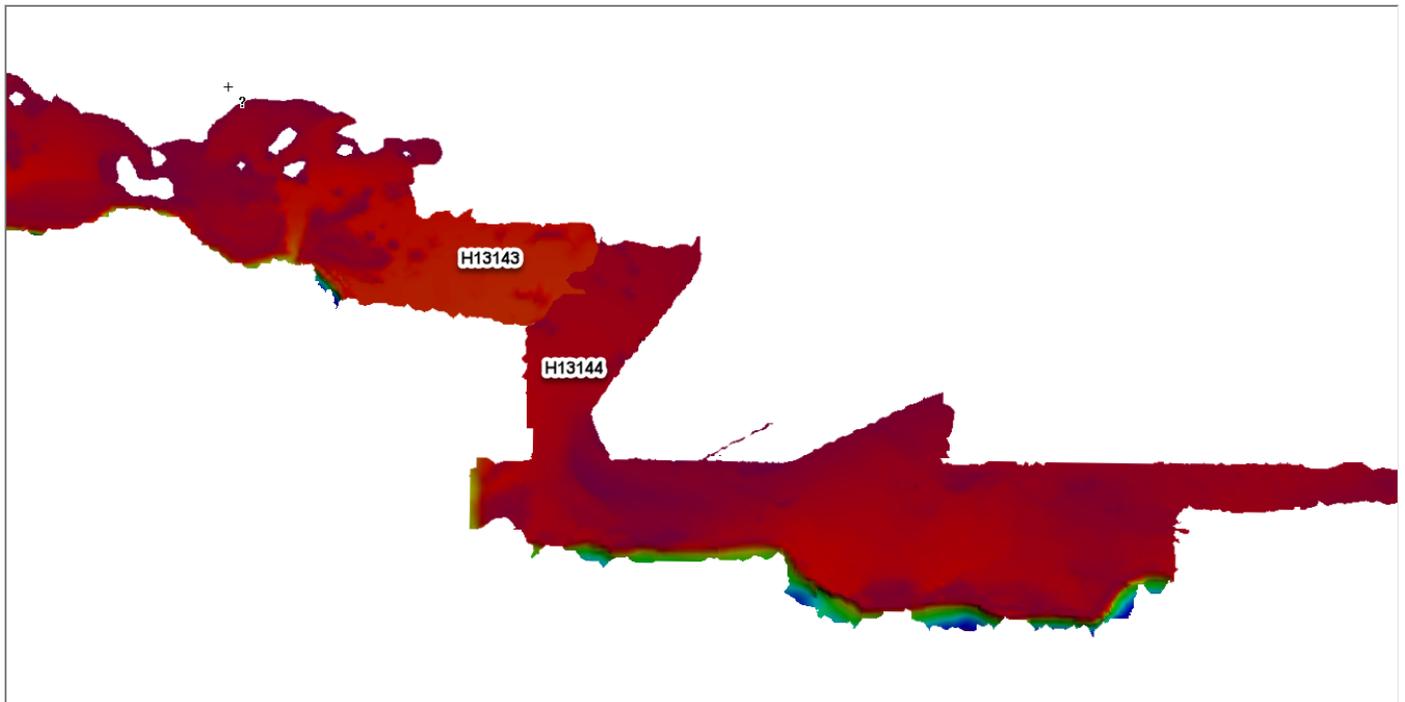


Figure 7: H13144 and H12935 surface difference comparison statistics

H13143

The difference between surveys H13144 and H13143 ranged from -0.5m to 0.5m. The mean was 0.03m and the standard deviation 0.08m (Figures 8 and 9).



*Figure 8: H13143 junctions at the northwest corner of H13144*

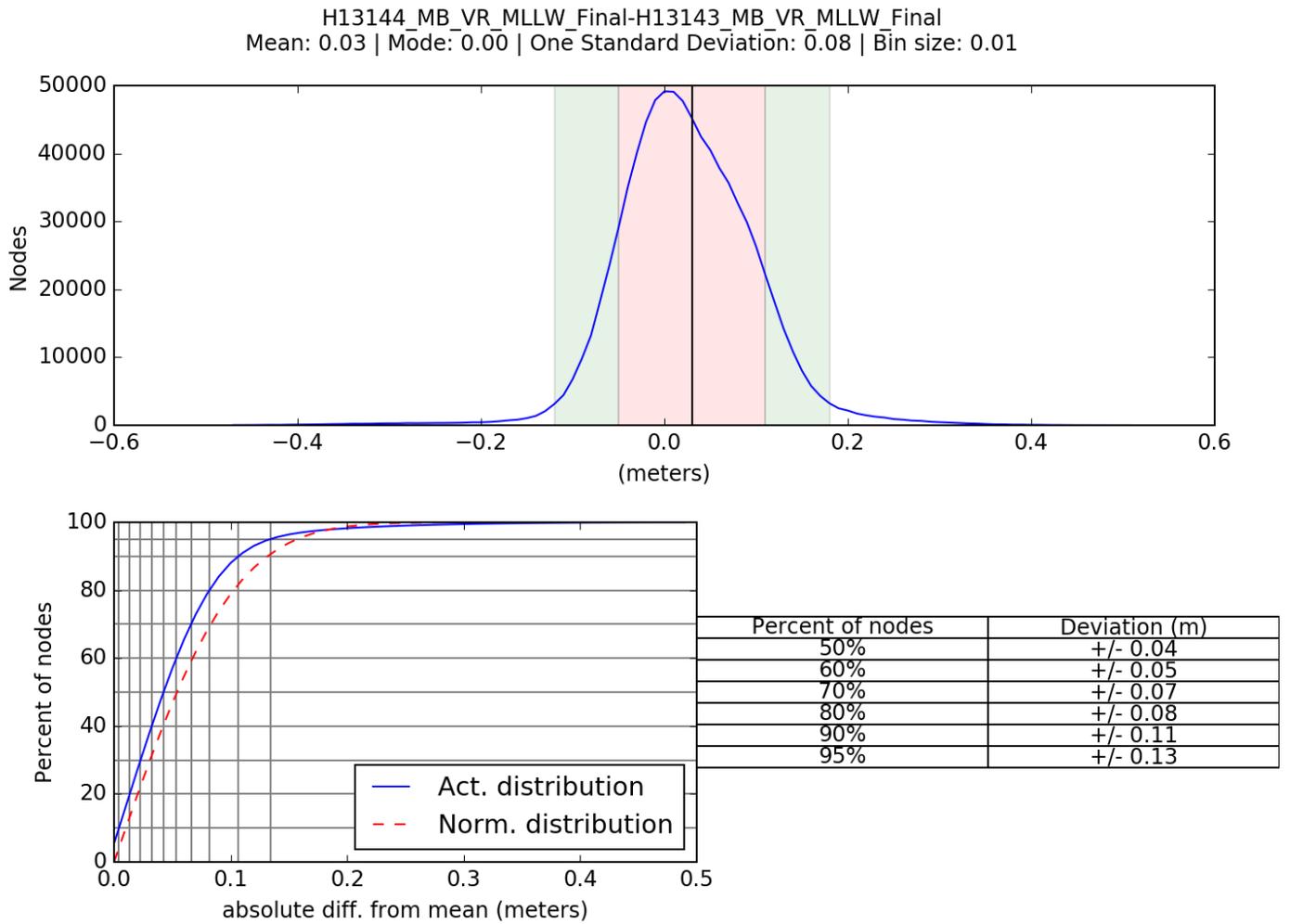


Figure 9: H13144 and H13143 surface difference comparison statistics

### B.2.4 Sonar QC Checks

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

### **B.2.5 Equipment Effectiveness**

#### MBES Artifact

An MBES artifact is sometimes present in the outer beams of data collected during certain sea conditions. See the DAPR for further information.

### **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: A total of 112 sound velocity measurements were taken within the boundaries of survey H13144. Sound speed profiles were acquired from S222 in accordance with HSSD 2018 standards. Casts were taken approximately every hour using a Rolls Royce Brooke Ocean MVP 100 with efforts made to evenly distribute the casts spatially and temporally across the survey area. There were two casts taken outside the survey area; these casts provide data representative of the conditions found within the survey area and are appropriate for use. Comparisons were made by the survey watch to assess sound speed variation in the water column and conduct casts accordingly. See Figures 10, 11, and 12 below.

All MVP casts were concatenated into a vessel master file and applied to MBES data in real time.

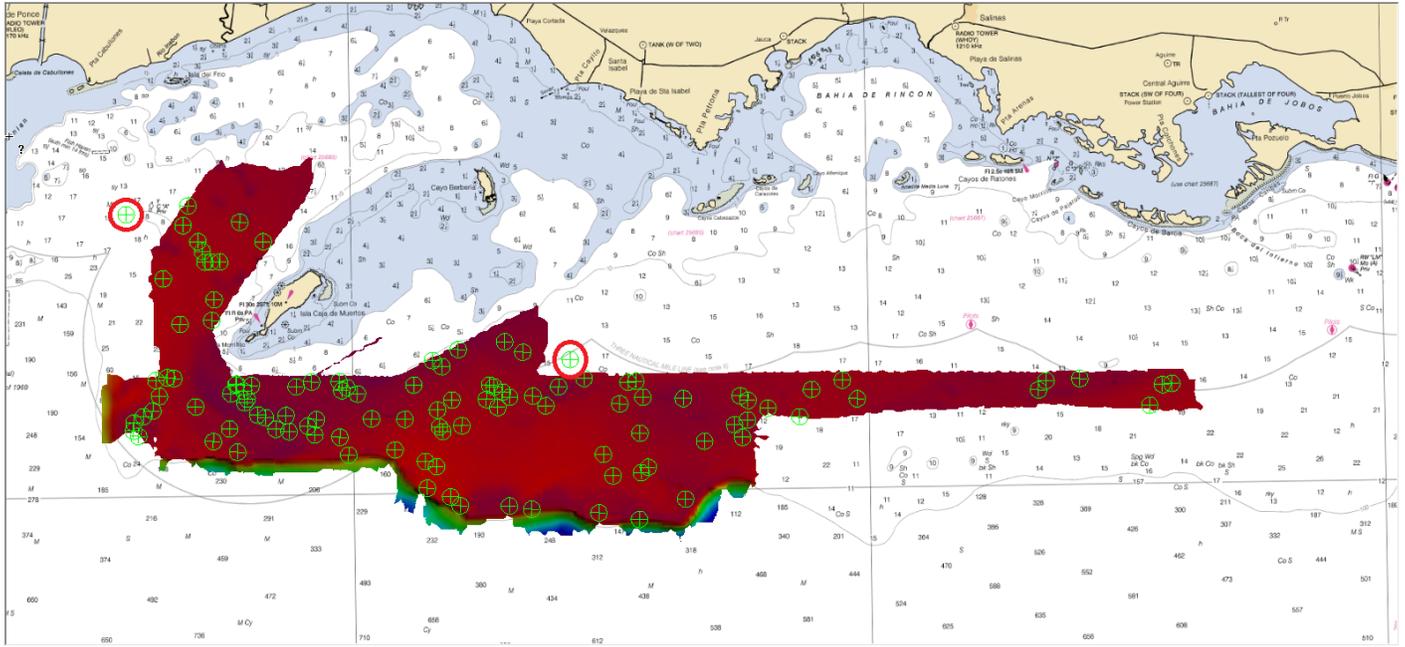


Figure 10: Distribution of SVP data on survey H13144

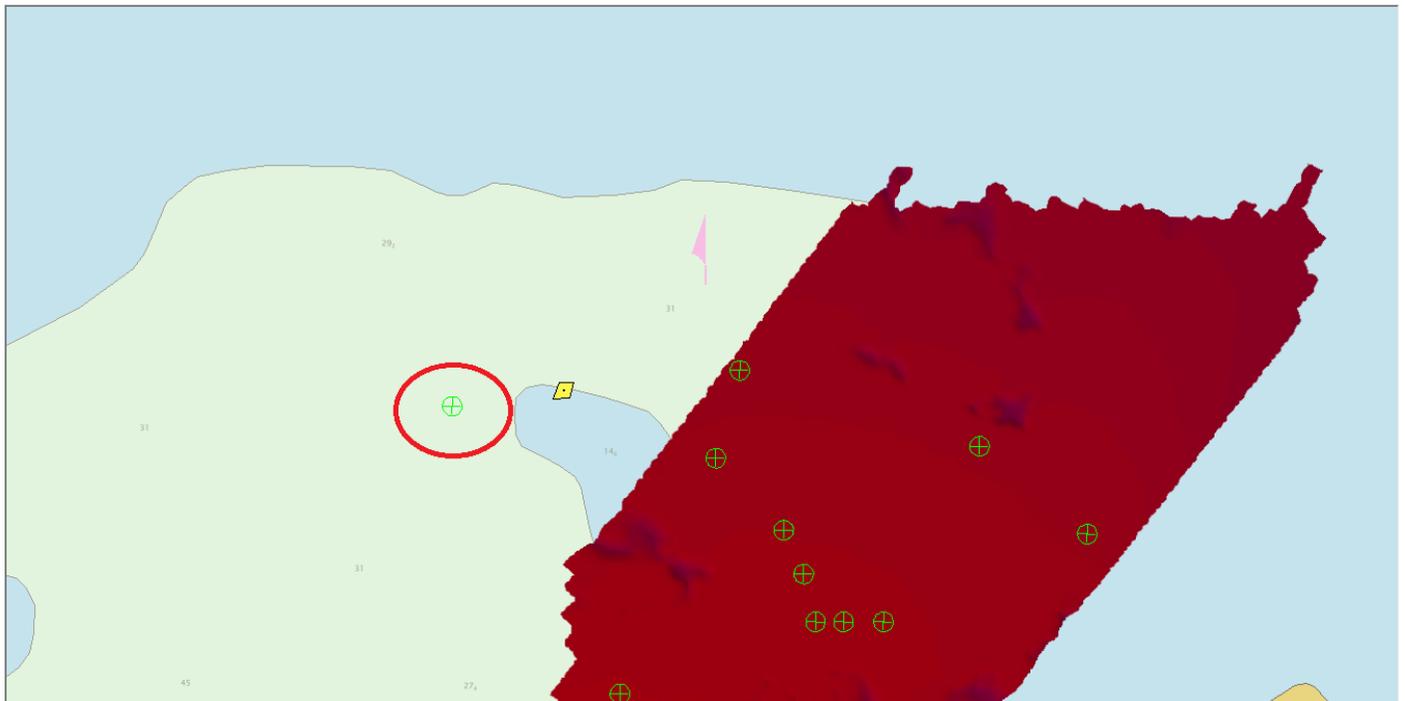


Figure 11: MVP cast was taken about 1500m outside of the survey limits



*Figure 12: MVP cast was taken about 500m outside of the survey limits*

## **B.2.8 Coverage Equipment and Methods**

Complete coverage MBES was acquired by S222 using a Kongsberg EM2040 MBES and a Kongsberg EM710 MBES in accordance with HSSD 2018.

## **B.3 Echo Sounding Corrections**

### **B.3.1 Corrections to Echo Soundings**

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

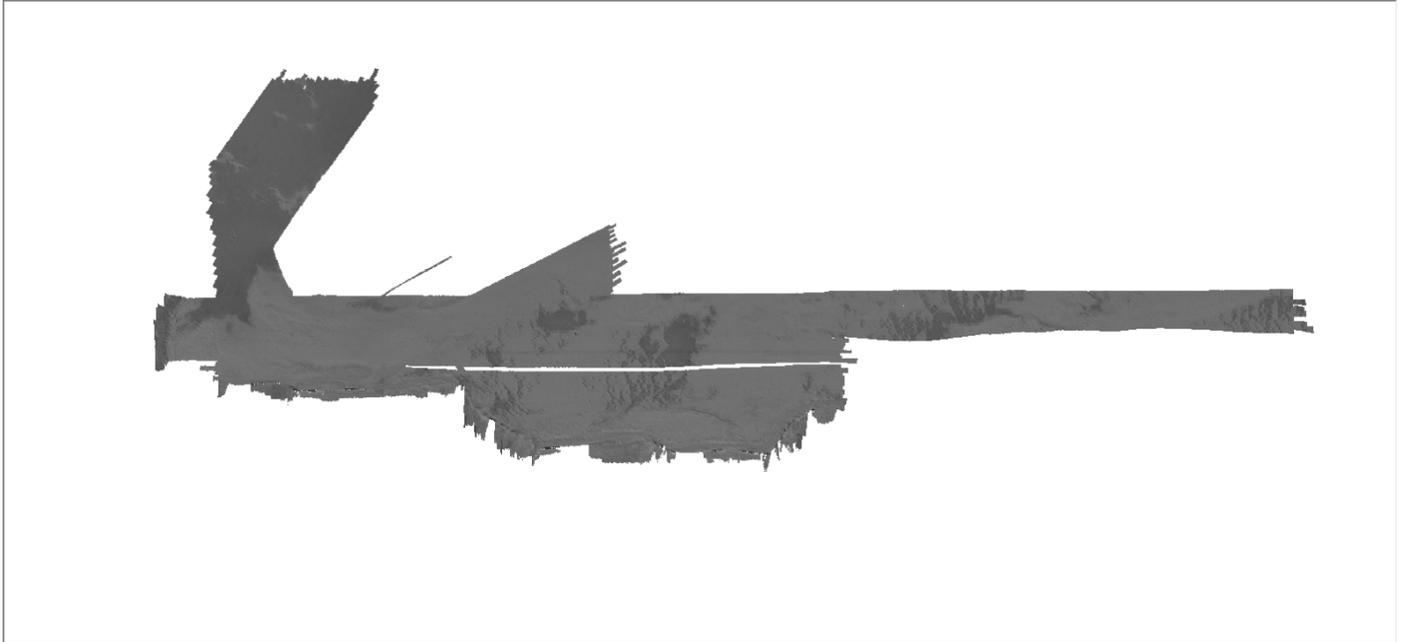
### **B.3.2 Calibrations**

All sounding systems were calibrated as detailed in the DAPR.

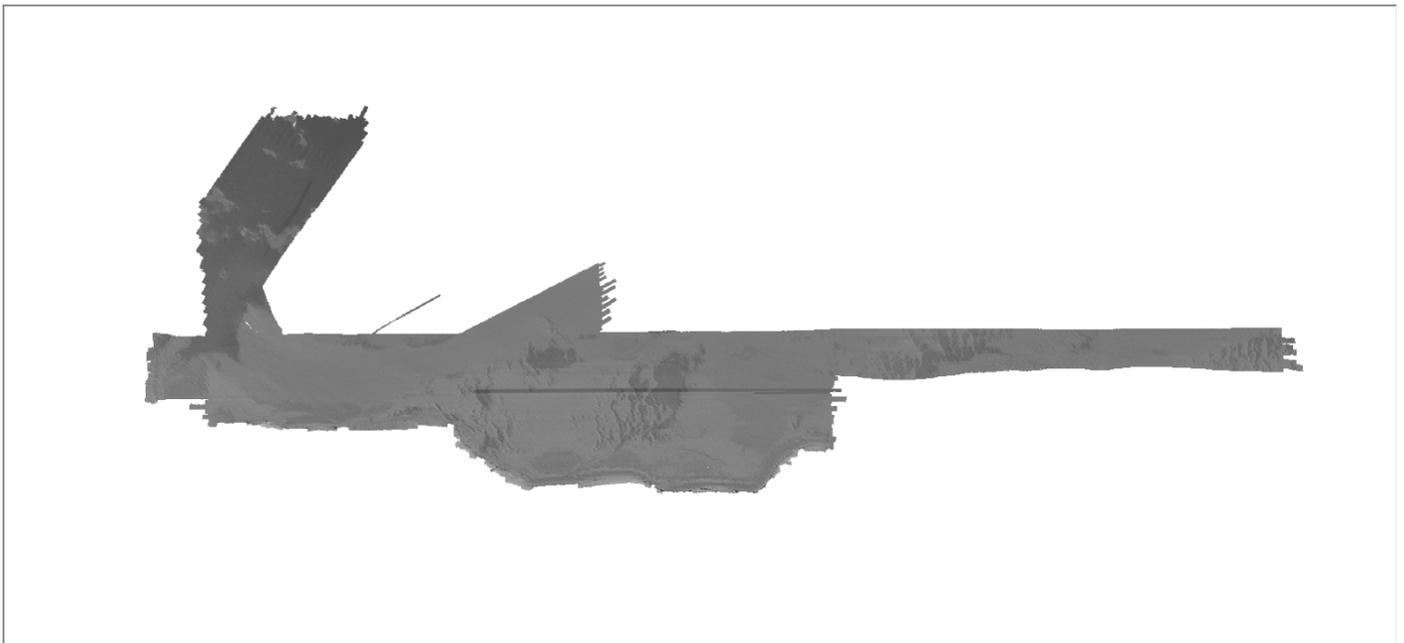
## **B.4 Backscatter**

Raw MBES Backscatter was logged for the Kongsberg MBES systems. Backscatter was processed in QPS Fledermaus GeoCoder Toolbox FMGT software. Geotiffs files of the processed backscatter data are included in the final processed data package.

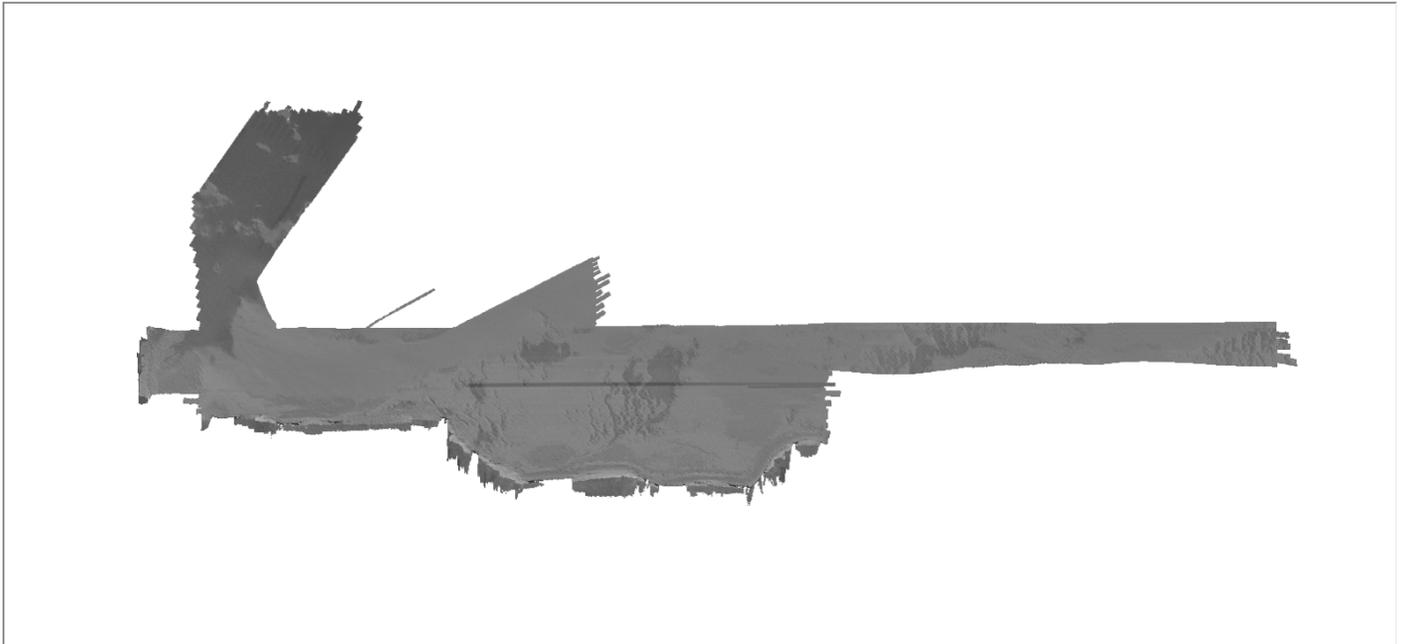
Backscatter data were collected with both the Kongsberg EM710 and Kongsberg EM2040. Gaps in along track backscatter coverage exist in the individual backscatter mosaics; full backscatter coverage was obtained when both mosaics are combined. See Figures 13, 14, and 15 below.



*Figure 13: S222's 70-100 kHz multibeam acoustic backscatter at 1m resolution*



*Figure 14: S222's 300kHz multibeam acoustic backscatter at 1m resolution*



*Figure 15: Combined multibeam acoustic backscatter at 1m resolution*

## B.5 Data Processing

### B.5.1 Primary Data Processing Software

The following Feature Object Catalog was used: NOAA Profile Version 5.8.

NOAA Profile Version 5.8 was used when processing the data in CARIS HIPS and SIPS 10.4.

### B.5.2 Surfaces

The following surfaces and/or BAGs were submitted to the Processing Branch (Table 10):

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H13144_MB_VR_MLLW_Final	CARIS VR Surface (CUBE)	Variable Resolution	11.4* meters - 510.1* meters	NOAA_VR	Complete MBES
H13144_MB_VR_MLLW	CARIS VR Surface (CUBE)	Variable Resolution	11.4* meters - 510.1* meters	NOAA_VR	Complete MBES

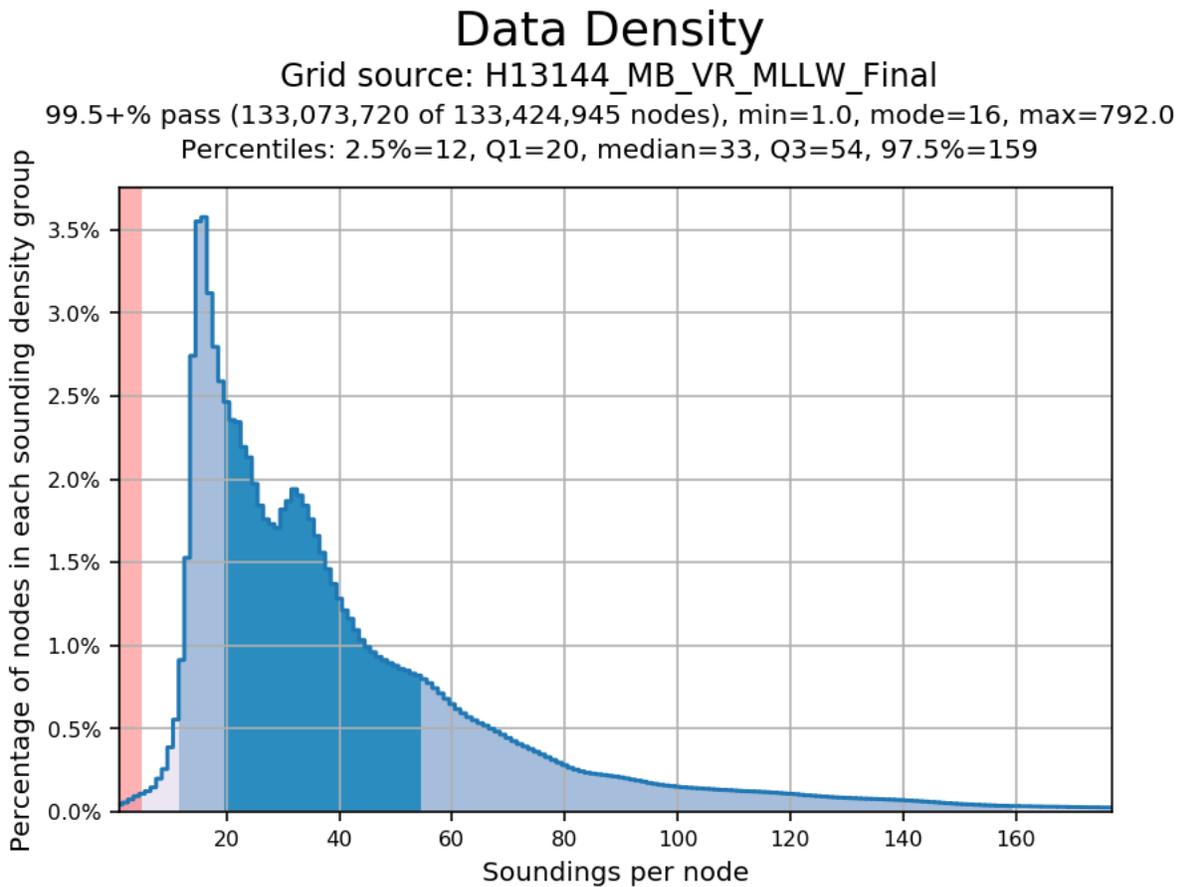
*\*Depth range of grids 11.561m - 510.705m*

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H13144_MBAB_1m_S222_70kHz_1of2	MB Backscatter Mosaic	1 meters	11.4 meters - 510.1 meters	N/A	MBES Backscatter
H13144_MBAB_1m_S222_300kHz_2of2	MB Backscatter Mosaic	1 meters	11.4 meters - 510.1 meters	N/A	MBES Backscatter

*Table 10: Submitted Surfaces*

### **B.5.3 Data Density**

Complete Coverage requirements were met by Complete Coverage Multibeam coverage (Option A) as specified in section 5.2.2.3 of the HSSD. All MBES data for H13144 meet density requirements per the HSSD (Figure 16).



*Figure 16: H13144 data density statistics*

## C. Vertical and Horizontal Control

No Vertical and Horizontal Control Report was required for this survey.

### C.1 Vertical Control

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

#### ERS Methods Used:

ERS via VDATUM

#### Ellipsoid to Chart Datum Separation File:

VDatum-WGS84\_ACHARE\_Polygon\_ACHARE\_Polygon\_xyWGS84-MLLW\_geoid12b

All soundings were reduced to MLLW using ERS via VDATUM in accordance with the procedures outlined in the DAPR.

## C.2 Horizontal Control

The horizontal datum for this project is North American Datum 1983.

The projection used for this project is Projected UTM 19N.

## D. Results and Recommendations

### D.1 Chart Comparison

A chart comparison was conducted between survey H13144 soundings and previously charted ENC soundings in accordance with the procedures outlined in the DAPR.

#### D.1.1 Electronic Navigational Charts

The following are the largest scale ENCs, which cover the survey area (Table 11):

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US5PR45M	1:20000	4	03/23/2015	03/23/2013	NO
US5PR42M	1:20000	14	02/25/2016	02/25/2015	NO
US4PR41M	1:100000	10	06/29/2016	06/29/2016	NO

*Table 11: Largest Scale ENCs*

#### US5PR45M

Sounding sets derived from H13144 bathymetric surfaces generally agreed with soundings from ENC US5PR45M. Relatively large localized sounding differences (from 6-14m) were observed, but all instances were located in deep areas characterized by dynamic bathymetry and no instances are navigationally significant. No DTONs were identified. Minor updates to the cartographic representation of sounding values and sounding locations are recommended.

### US5PR42M

Sounding sets derived from H13144 bathymetric surfaces generally agreed with soundings from ENC US5PR42M. Relatively large localized sounding differences (from 2-14m) were observed, but all instances were located in deep areas characterized by dynamic bathymetry and no instances are navigationally significant. No DTONs were identified. Minor updates to the cartographic representation of sounding values and sounding locations are recommended.

### US4PR41M

Sounding sets derived from H13144 bathymetric surfaces generally agreed with soundings from ENC US4PR41M. No DTONs were identified. Minor updates to the cartographic representation of sounding values and sounding locations are recommended.

## **D.1.2 Maritime Boundary Points**

No Maritime Boundary Points were assigned for this survey.

## **D.1.3 Charted Features**

One charted buoy existed within the extents of the area surveyed. The buoy was found to be off-station. See Section D.2.3 below.

## **D.1.4 Uncharted Features**

No uncharted features exist for this survey.

## **D.1.5 Shoal and Hazardous Features**

No shoals or potentially hazardous features exist for this survey.

## **D.1.6 Channels**

No channels exist for this survey. There are no designated anchorages, precautionary areas, safety fairways, traffic separation schemes, pilot boarding areas, or channel and range lines within the survey limits.

### **D.1.7 Bottom Samples**

Bottom samples were assigned for this survey, but were not acquired.

## **D.2 Additional Results**

### **D.2.1 Shoreline**

Shoreline was not assigned in the Hydrographic Survey Project Instructions or Statement of Work.

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

No prior survey comparisons exist for this survey.

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

One charted buoy existed within the area surveyed. The buoy was found to be off-station by approximately 2km. An ATON discrepancy report was submitted to the USCG, the Project Manager, and the regional Navigation Manager in accordance with HSSD requirements. See the Final Feature File and Appendix II (Supplemental Survey Records and Correspondence) of this report for further information.

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

No overhead features exist for this survey.

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

No submarine features exist for this survey.

### **D.2.6 Platforms**

No platforms exist for this survey.

### **D.2.7 Ferry Routes and Terminals**

A shallow draft ferry was observed transitting regularly between Ponce and a resort located on the south end of the Isla de Caja de Muertos. Local authorities should be contacted for additional information and to determine the need for a charted ferry route.

**D.2.8 Abnormal Seafloor and/or Environmental Conditions**

No abnormal seafloor and/or environmental conditions exist for this survey.

**D.2.9 Construction and Dredging**

No present or planned construction or dredging exist within the survey limits.

**D.2.10 New Survey Recommendation**

No new surveys or further investigations are recommended for this area.

**D.2.11 Inset Recommendation**

No new insets are recommended for this area.

## E. Approval Sheet

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

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

The survey data meets or exceeds requirements as set forth in the NOS Hydrographic Surveys Specifications and Deliverables, Field Procedures Manual, Letter Instructions, and all HSD Technical Directives. These data are adequate to supersede charted data in their common areas. This survey is complete and no additional work is required with the exception of deficiencies noted in the Descriptive Report.

Approver Name	Approver Title	Approval Date	Signature
Christiaan van Westendorp, CAPT/NOAA	Chief of Party	03/14/2019	 VAN WESTENDORP.CHRISTIAAN.HENRY.1012828175 2019.03.14 15:03:08 -04'00'
Charles Wisotzkey, LT/NOAA	Field Operations Officer	03/14/2019	 Digitally signed by WISOTZKEY.CHARLES.JUSTIN.1300819660 Date: 2019.04.08 08:35:14 -04'00'
Kevin Brown, Hydrographic Survey Technician	Sheet Manager	03/14/2019	BROWN.KEVIN.WAYNE.1542797920  Digitally signed by BROWN.KEVIN.WAYNE.1542797920 Date: 2019.04.01 18:19:02 Z

## F. Table of Acronyms

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

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

<b>Acronym</b>	<b>Definition</b>
<b>PRF</b>	Project Reference File
<b>PS</b>	Physical Scientist
<b>PST</b>	Physical Science Technician
<b>RNC</b>	Raster Navigational Chart
<b>RTK</b>	Real Time Kinematic
<b>SBES</b>	Singlebeam Echosounder
<b>SBET</b>	Smooth Best Estimate and Trajectory
<b>SNM</b>	Square Nautical Miles
<b>SSS</b>	Side Scan Sonar
<b>SSSAB</b>	Side Scan Sonar Acoustic Backscatter
<b>ST</b>	Survey Technician
<b>SVP</b>	Sound Velocity Profiler
<b>TCARI</b>	Tidal Constituent And Residual Interpolation
<b>TPE</b>	Total Propagated Error
<b>TPU</b>	Topside Processing Unit
<b>USACE</b>	United States Army Corps of Engineers
<b>USCG</b>	United States Coast Guard
<b>UTM</b>	Universal Transverse Mercator
<b>XO</b>	Executive Officer
<b>ZDA</b>	Global Positioning System timing message
<b>ZDF</b>	Zone Definition File



Charles Wisotzkey - NOAA Federal <charles.j.wisotzkey@noaa.gov>

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## ATON discrepancy for H13144 - SE of Bahia de Ponce

1 message

---

**Charles Wisotzkey - NOAA Federal** <charles.j.wisotzkey@noaa.gov> Tue, Mar 12, 2019 at 11:21 AM  
To: Louis Licate - NOAA Federal <louis.licate@noaa.gov>, Christina Belton - NOAA Federal <christina.belton@noaa.gov>, \_OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, \_OMAO MOA ChiefST Thomas Jefferson <chiefst.thomas.jefferson@noaa.gov>, Kevin Brown - NOAA Federal <kevin.w.brown@noaa.gov>

In accordance with Section 1.6.2.2. of HSSD 2018:

Please see below and attached.

Thank you for your input! The information you have provided has been processed and is shown below. You should print it for your information and so that you can remember the specifics of this outage in case we have to call you to gather more information.

You may return to our [home page](#) or click on your browser's BACK button to return to the page from which you came.

**Name:** Charles Wisotzkey

**Email Address:** [charles.j.wisotzkey@noaa.gov](mailto:charles.j.wisotzkey@noaa.gov)

**Telephone number:** 2108965025

**Waterway/Area/State:** Isla de Caja de Muertos, Puerto Rico

**Your Vessel's Name:** NOAA Ship THOMAS JEFFERSON

**Type of Vessel:**

**DOC#/ HIN / VIN / State #:**

**AID Name (from Light List):**

**Light List Number (LLNR):**

**Structure Discrepancy:** None

**Buoy Discrepancy:** Off Station

**Lighted ATON Discrepancy:** None

**Other type of discrepancy:**

**Hazard** No

**Comments:** University of Puerto Rico Data Lighted Buoy A located south of Isla de Caja de Muertos was observed to be offstation by this unit in NOV 2018. Current location: 17.86310 N 066.51050. Location of buoy is reported in real-time at: [http://gyre.umeoce.maine.edu/data/gomoos/buoy/php/historical\\_rt\\_download.php?mooring\\_id=PR111&buffer\\_name=diagnostics&project=gomoos](http://gyre.umeoce.maine.edu/data/gomoos/buoy/php/historical_rt_download.php?mooring_id=PR111&buffer_name=diagnostics&project=gomoos)

This buoy has been offstation since Maria.

- Charles

--

LT Charles J. Wisotzkey, NOAA  
NOAA Ship Thomas Jefferson (S-222)

---

**H13144\_ATON\_discrepancy\_1.pdf**  
98K



Charles Wisotzkey - NOAA Federal <charles.j.wisotzkey@noaa.gov>

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## Coast Pilot Review Report for OPR-I369-TJ-18 Puerto Rico Ports

1 message

---

**Charles Wisotzkey - NOAA Federal** <charles.j.wisotzkey@noaa.gov> Fri, Apr 12, 2019 at 10:54 AM  
To: OCS NDB - NOAA Service Account <ocs.ndb@noaa.gov>, \_NOS OCS NSD Coast Pilot <coast.pilot@noaa.gov>  
Cc: Christina Belton - NOAA Federal <christina.belton@noaa.gov>, \_OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, \_OMAO MOA ChiefST Thomas Jefferson <chiefst.thomas.jefferson@noaa.gov>

All,

Please see attached Coast Pilot Review Notes (OPR-I369-TJ-18\_Coast Pilot Review Report.pdf).

The only suggested edits concern the entry for the port of Las Mareas and are in Paragraph 508.

Entries referencing depths should be updated in accordance with submitted bathy grids.

--

LT Charles J. Wisotzkey, NOAA  
NOAA Ship Thomas Jefferson (S-222)

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### 2 attachments

 **OPR-I369-TJ-18CoastPilotReport\_original.pdf**  
2311K

 **OPR-I369-TJ-18\_Coast Pilot Review Report.pdf**  
2264K



ChiefST.Thomas Jefferson - NOAA Service Account <chiefst.thomas.jefferson@noaa.gov>

---

## Survey Outlines for project OPR\_I369\_TJ\_18

1 message

---

**Charles Wisotzkey - NOAA Federal** <charles.j.wisotzkey@noaa.gov>

Wed, Nov 7, 2018 at 7:30 PM

To: survey.outlines@noaa.gov

Cc: Christina Belton - NOAA Federal <christina.belton@noaa.gov>, \_OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, \_OMAO MOA ChiefST Thomas Jefferson <chiefst.thomas.jefferson@noaa.gov>, michael hewlett - NOAA Federal <michael.hewlett@noaa.gov>, Joshua Hiteshew - NOAA Federal <joshua.hiteshew@noaa.gov>, Kevin Brown - NOAA Federal <kevin.w.brown@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, Jacquelyn Putnam - NOAA Federal <jacquelyn.putnam@noaa.gov>

All concerned,

Survey outlines for all surveys conducted by TJ on project OPR\_I369\_TJ\_18 attached; the files can also be downloaded from the following link:

<https://drive.google.com/open?id=1QDb9YsXRQvIXX8y6o0ct2bMhJjQ-uhfm>

- Charles

--

LT Charles J. Wisotzkey, NOAA  
NOAA Ship Thomas Jefferson (S-222)

---

 **OPR\_I369\_TJ\_18\_Survey\_Outlines\_20181107.zip**  
8471K



Charles Wisotzkey - NOAA Federal <charles.j.wisotzkey@noaa.gov>

---

## OPR-I369-TJ-18 NCEI Data

2 messages

---

**Calandria DeCastro** <calandria.m.decastro@noaa.gov>

Thu, Mar 21, 2019 at 1:43 PM

To: \_NODC Submissions <nodc.submissions@noaa.gov>

Cc: ops.thomas.jefferson@noaa.gov, Christina Belton - NOAA Federal <christina.belton@noaa.gov>

Good afternoon,

Attached is the NCEI Sound Speed Data for Project OPR-I369-TJ-18.

V/r,

--

LT Calandria DeCastro, NOAA  
OPS in Training, NOAA Ship *Thomas Jefferson*  
Ship Land Line: 757-441-6322  
Ship Cell: 757-647-0187  
Ship Iridium: 808-434-2706

---

 **OPR-I369\_TJ-18\_20190321.zip**  
1582K

---

**Charles Wisotzkey - NOAA Federal** <charles.j.wisotzkey@noaa.gov>

Fri, Apr 5, 2019 at 10:58 AM

To: \_OMAO MOA ChiefST Thomas Jefferson <chiefst.thomas.jefferson@noaa.gov>

[Quoted text hidden]

--

LT Charles J. Wisotzkey, NOAA  
NOAA Ship Thomas Jefferson (S-222)

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 **OPR-I369\_TJ-18\_20190321.zip**  
1582K



Charles Wisotzkey - NOAA Federal <charles.j.wisotzkey@noaa.gov>

---

## Coast Pilot Review Report for OPR-I369-TJ-18 Puerto Rico Ports

1 message

---

**Charles Wisotzkey - NOAA Federal** <charles.j.wisotzkey@noaa.gov> Fri, Apr 12, 2019 at 10:54 AM  
To: OCS NDB - NOAA Service Account <ocs.ndb@noaa.gov>, \_NOS OCS NSD Coast Pilot <coast.pilot@noaa.gov>  
Cc: Christina Belton - NOAA Federal <christina.belton@noaa.gov>, \_OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, \_OMAO MOA ChiefST Thomas Jefferson <chiefst.thomas.jefferson@noaa.gov>

All,

Please see attached Coast Pilot Review Notes (OPR-I369-TJ-18\_Coast Pilot Review Report.pdf).

The only suggested edits concern the entry for the port of Las Mareas and are in Paragraph 508.

Entries referencing depths should be updated in accordance with submitted bathy grids.

--

LT Charles J. Wisotzkey, NOAA  
NOAA Ship Thomas Jefferson (S-222)

---

### 2 attachments

 **OPR-I369-TJ-18CoastPilotReport\_original.pdf**  
2311K

 **OPR-I369-TJ-18\_Coast Pilot Review Report.pdf**  
2264K



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
Office of Marine and Aviation Operations,  
Marine Operation Center-Atlantic, NOAA Ship *Thomas Jefferson*  
Norfolk, Virginia 23510

April 16, 2018

MEMORANDUM FOR: Jay Nunenkamp  
Environmental Compliance Coordinator, NOAA Office of Coast  
Survey

FROM: ENS Jacquelyn Putnam, NOAA  
Junior Officer, NOAA Ship *Thomas Jefferson*

SUBJECT: Recipients of Marine Species Awareness Training

The following personnel of NOAA Ship *Thomas Jefferson* completed the required Marine Species Awareness Training (MSAT) on April 4, 2018:

- LCDR Meghan McGovern
- LT Anthony Klemm
- LT Charles Wisotzkey
- ENS Dale Gump
- ENS Sydney Catoire
- ENS Garrison Grant
- ENS Jacquelyn Putnam
- ENS Taylor Krabiell
- JUE Sharon Gilliam
- EU Andy Medina
- WP Michael Wilson
- ET Thomas Loftin
- ET Richard Conway
- CHST Allison Stone
- HST Kim Glomb
- HST Joshua Hiteshew
- HST Tracey McMillan
- HAST Kevin Brown
- CB Bernard Pouser
- BGL Robert Bayliss
- SS Francine Grains
- SS James Brzostek



- AB Patrick Osborn
- AB Tom Bascom
- AB Stephen Lovett
- GVA Joshua Thompson
- CC Ace Burke
- 2C Patrick Fennel
- 2C Nester Poblete



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
Office of Marine and Aviation Operations  
NOAA Ship *Thomas Jefferson* (S222)  
439 West York St, Norfolk, VA 23510

August 7, 2018

MEMORANDUM FOR: Christina Belton  
Project Manager, OPR-I369-TJ-18  
Hydrographic Surveys Division Operations Branch

FROM: Commander Chris van Westendorp, NOAA  
Commanding Officer, NOAA Ship *Thomas Jefferson*

SUBJECT: Waiver request to modify OPR-I369-TJ-18 sheet extents

*Thomas Jefferson* requests a waiver of Project Instructions OPR-I369-TJ-18 based on available lidar.

#### Justification

In consultation with the Chief of AHB and with assistance from AHB's PS James Miller in planning for OPR-I369-TJ-18 (Puerto Rico), we discovered high quality topobathy lidar datasets (1m DEMs) from the USACE CZMIL system, flown in 2016. Combined with the RSD lidar datasets also available on NOAA's Digital Coast data repository, we created a 5m lidar DEM in common areas with our assigned project. We assess that existing lidar coverage satisfies Coast Survey's requirements in non-object detection areas of OPR-I369-TJ-18 due to observed high quality of existing and relatively recently acquired datasets available, especially in 200m set line spacing requirement areas (outlined green in Figure 1).

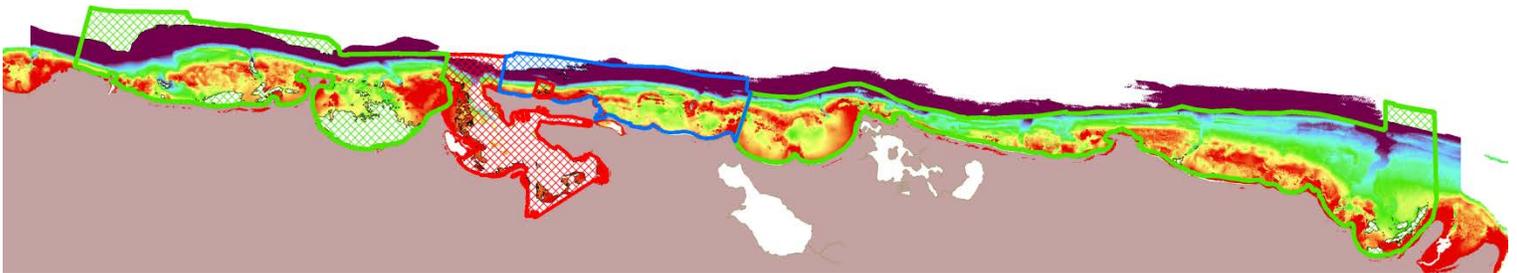


Figure 1: Extents of USACE and RSD lidar coverage overlapping H13041

We intend/propose to clip the assigned sheets with set line spacing and complete coverage requirements to existing lidar coverage extents that have been preliminarily reviewed (ESDRed) by PS James Miller and deemed suitable for charting. For sheets with object detection requirements, the lidar will be used for reconnaissance and to outline the 3.5m NALL. In the areas clipped to lidar coverage, we will identify assigned features to investigate where safe and practicable to do so, more fully developing significant features and providing proper hydrographic feature attribution.



We also intend to collect adequate overlap in junction areas, and identify lidar data areas for small reference surfaces and further empirical accuracy evaluation.

Similarly, one southern assigned complete coverage sheet significantly overlaps with the eastern edge of recently acquired EM710 MBES from a *Nancy Foster* mapping project (NCCOS, preliminary products shared by Tim Battista). We intend to junction with the NF survey data and clip our sheet extent accordingly (Figure 2):

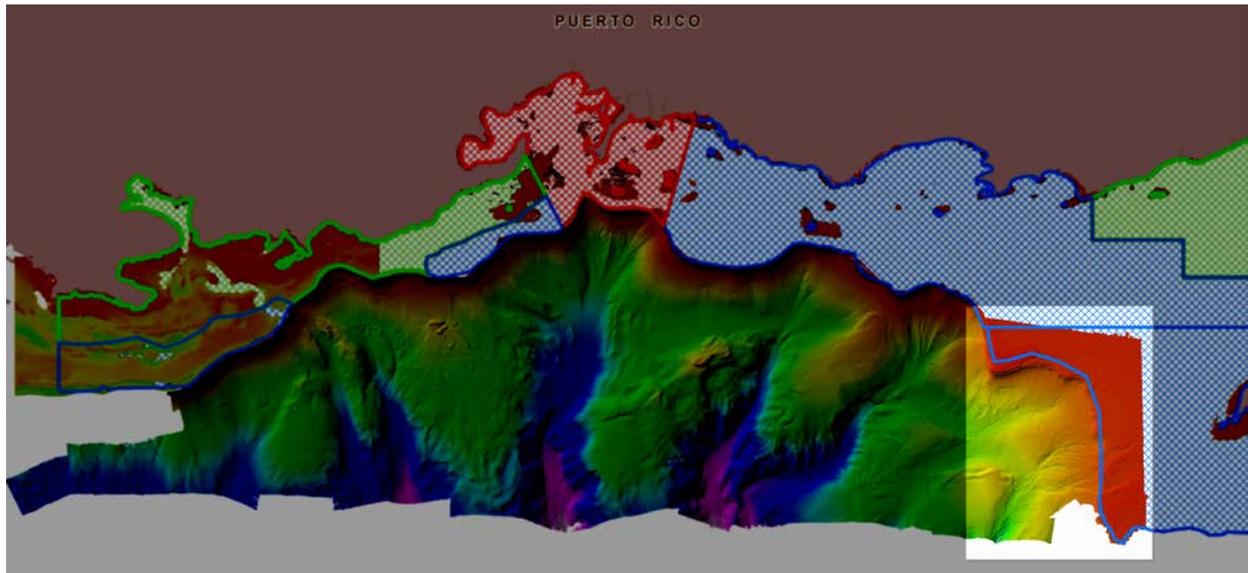


Figure 2: *Nancy Foster* survey extents overlapping H13144

These actions will reduce the assigned project area from 308 SNM to ~250 SNM. The Chief of AHB and I agree that using this existing high quality data increases operational safety, efficiency, and overall productivity.

Decision

Waiver is:

\_\_\_\_\_  
Granted

\_\_\_\_\_  
Denied

cc: Chief, HSD OPS  
Chief, AHB  
OPS, *Thomas Jefferson*  
HCST, *Thomas Jefferson*



Charles Wisotzkey - NOAA Federal &lt;charles.j.wisotzkey@noaa.gov&gt;

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**Waiver request for OPR-I369-TJ-18 sheet limit modification**

2 messages

---

**Anthony Klemm - NOAA Federal** <anthony.r.klemm@noaa.gov> Tue, Aug 7, 2018 at 7:25 PM  
To: Christina Belton - NOAA Affiliate <christina.belton@noaa.gov>, Corey personal cell Allen <corey.allen@noaa.gov>  
Cc: \_OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Briana Welton - NOAA Federal <Briana.Hillstrom@noaa.gov>, James Miller <james.j.miller@noaa.gov>

Christina and Corey,

Attached is the waiver request we discussed earlier over the phone. Please let me know if you have any questions or would like more information.

Best regards,  
Anthony

LT Anthony Klemm, NOAA  
Field Operations Officer  
NOAA Ship *Thomas Jefferson*  
439 W York Street  
Norfolk, VA 23510  
757-647-0187

Learn about NOAA nautical charts - [www.nauticalcharts.noaa.gov](http://www.nauticalcharts.noaa.gov)

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 **OPR-I369-TJ-18 sheet limit waiver request.pdf**  
282K

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**Christina Belton - NOAA Federal** <christina.belton@noaa.gov> Mon, Aug 13, 2018 at 7:04 AM  
To: Anthony Klemm - NOAA Federal <anthony.r.klemm@noaa.gov>  
Cc: Corey personal cell Allen <corey.allen@noaa.gov>, \_OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Briana Welton - NOAA Federal <Briana.Hillstrom@noaa.gov>, James Miller <james.j.miller@noaa.gov>

Hi Anthony,  
Looks good. The signed waiver is attached.  
Many Thanks,  
Christina

Christina Belton  
Physical Scientist  
Operations Branch  
Hydrographic Surveys Division  
Office of Coast Survey, NOAA  
**240-533-0057**  
[christina.belton@noaa.gov](mailto:christina.belton@noaa.gov)

[Quoted text hidden]

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 **OPR-I369-TJ-18 sheet limit waiver request\_signed.pdf**  
298K



APPROVAL PAGE

H13144

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 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