H12979

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

DESCRIPTIVE REPORT

Type of Survey:	Navigable Area
Registry Number:	H12979

LOCALITY

State(s):	Florida
General Locality:	Northeastern Florida
Sub-locality:	20NM due East of Nassau Sound

2018

CHIEF OF PARTY
LCDR Mark Blankenship, CO/FH

LIBRARY & ARCHIVES

Date:

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:
HYDROGRAPHIC TITLE SHEET	**H12979**

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):	**Florida**
General Locality:	**Northeastern Florida**
Sub-Locality:	**20NM due East of Nassau Sound**
Scale:	**40000**
Dates of Survey:	**09/25/2018 to 10/06/2018**
Instructions Dated:	**08/06/2018**
Project Number:	**OPR-G343-FH-18**
Field Unit:	**NOAA Ship *Ferdinand R. Hassler***
Chief of Party:	**LCDR Mark Blankenship, CO/FH**
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 17N, MLLW. All references to other horizontal or vert cal 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 H12979

Project: OPR-G343-FH-18

Locality: Northeastern Florida

Sublocality: 20NM due East of Nassau Sound

Scale: 1:40000

September 2018 - October 2018

NOAA Ship *Ferdinand R. Hassler*

Chief of Party: LCDR Mark Blankenship, CO/FH

A. Area Surveyed

The area is located in Jacksonville, FL within the sub locality of 20NM due East of Nassau Sound.

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
30° 36' 41.15" N 81° 7' 31.69" W	30° 24' 26.73" N 80° 56' 30.72" W

Table 1: Survey Limits

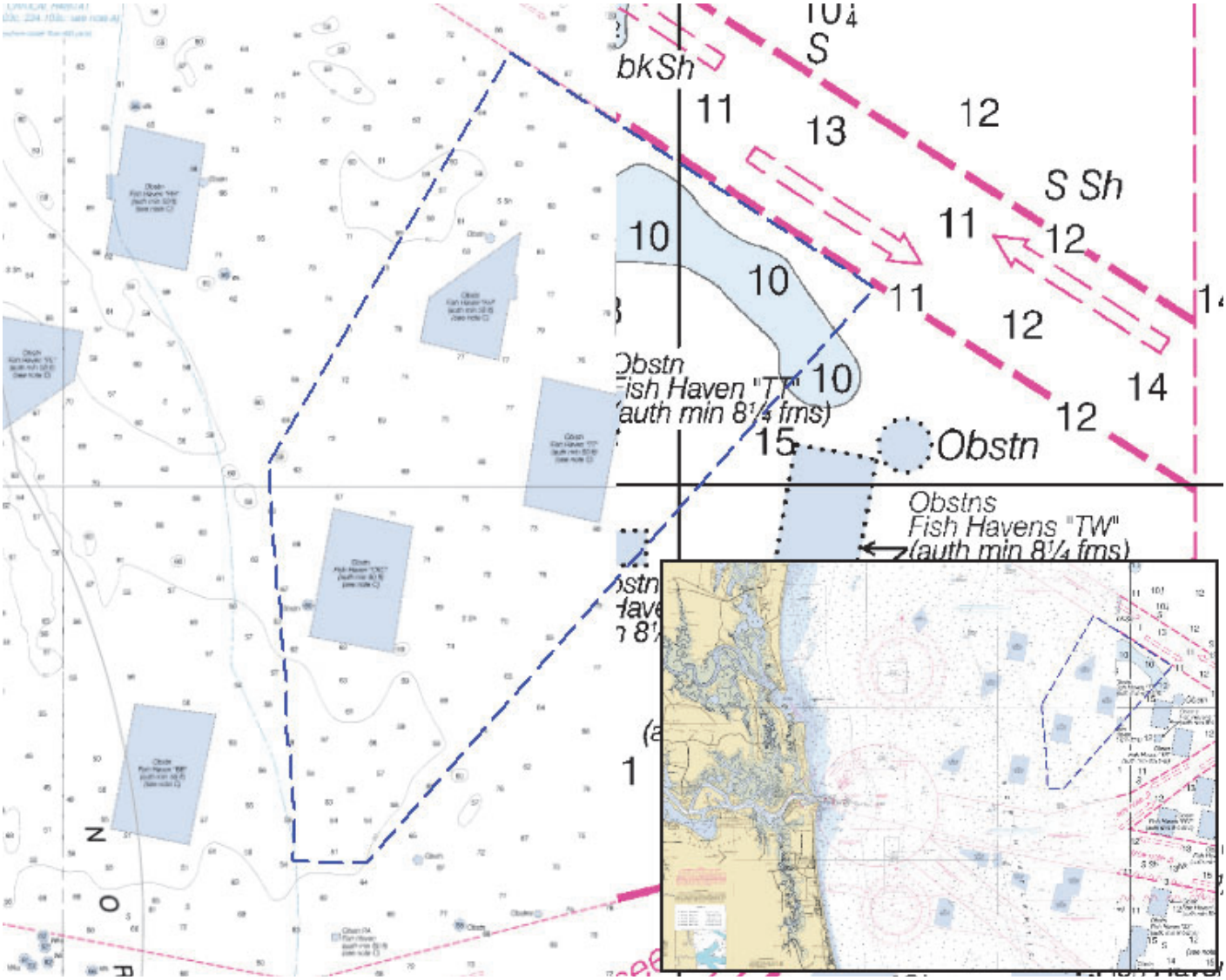


Figure 1: Assigned survey limits of H12979

Data were acquired to the survey limits in accordance with the requirements in the Project Instructions and the 2018 NOS Hydrographic Surveys Specifications and Deliverables (HSSD).

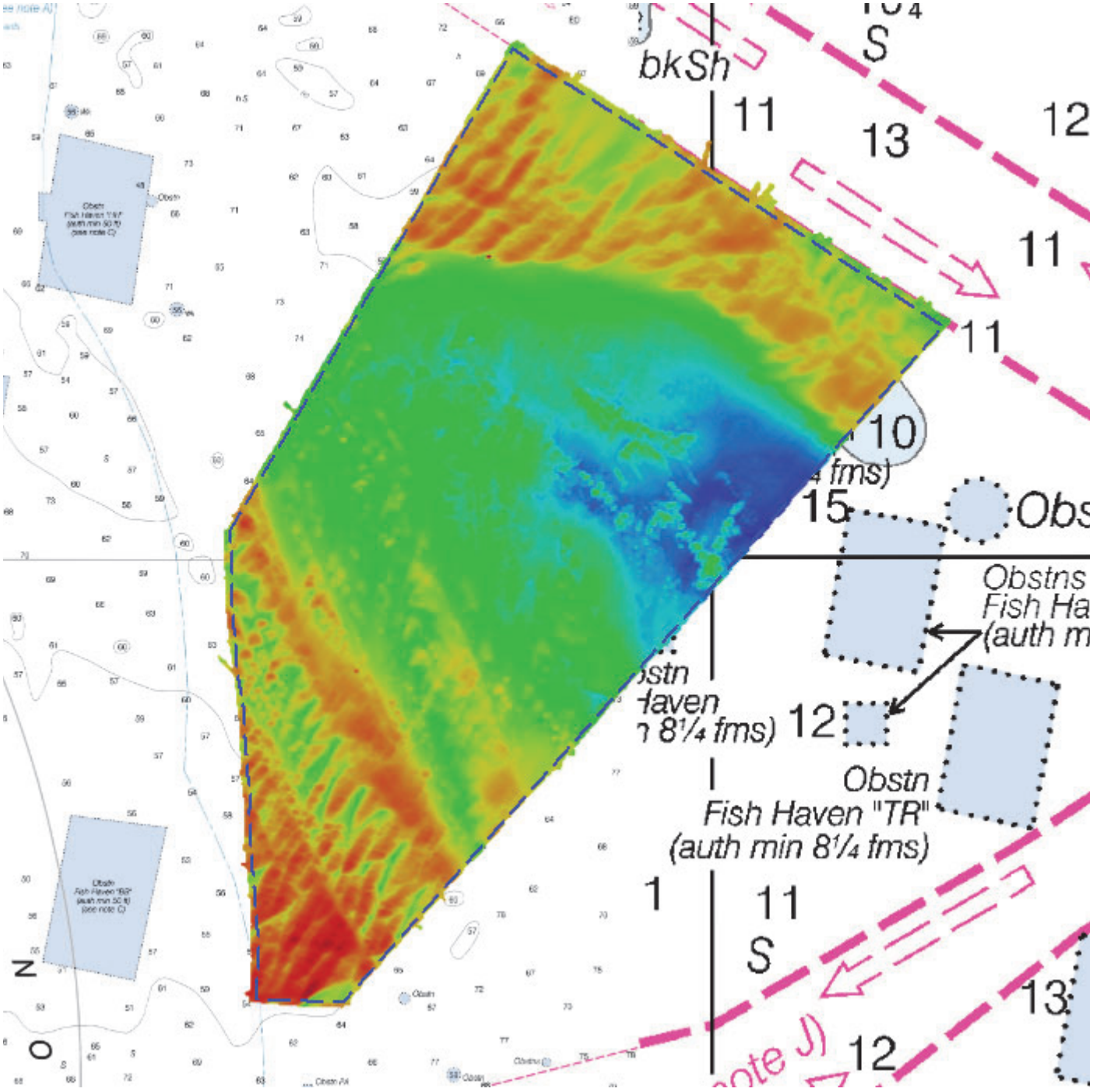


Figure 2: H12979 survey extents with respect to survey limits

A.2 Survey Purpose

Maintaining maritime commerce to the Port of Jacksonville is critical for the economic vitality and security of the region. In 2013, shipping activity directly provided over 9,600 jobs and either induced or indirectly produced more than 14,000 more amounting to an estimated $1.8 billion in personal wages. In 2016, more than 18 million tons of waterborne commerce and almost 800,000 containers moved through the port. As

well, the Naval Station Mayport, home of the Navy's 4th Fleet is located near the mouth of the St. Johns River and provides for national defense and brings an additional 17,000 military and civilian jobs to the region.

To accommodate anticipated growth, the harbor is undergoing a greater than $700 million expansion project which will widen the river channel and turning basin, deepening them from 40 to 47 feet to support fully-loaded new Panamax class vessels. To assure adequate underkeel clearance for these deeper draft vessels, this survey will provide modern bathymetry to update 1970s vintage surveys in the approaches to the harbor. The data acquired will supersede Coast Survey charts and products, improving maritime safety and enhancing the regional economy and protecting the environment. Survey data from this project is intended to supersede all prior survey data in the common area.

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

All multibeam echo sounder (MBES) data were acquired to complete coverage requirements as specified in the 2018 HSSD.

A.4 Survey Coverage

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

Water Depth	Coverage Required
All waters in survey area	Complete Coverage (Refer to HSSD Section 5.2.2.3)
All waters in survey area	All MBES acquisition requires backscatter (refer to HSSD Section 6.2)

Table 2: Survey Coverage

Complete Coverage requirements were met for data acquisition on the entirety of the H12979 survey area as listed above and as specified in the 2018 HSSD.

Thirty five (35) holidays occur within sheet H12979. The majority of the holidays were due to lack of overlap in coverage and were on average 6-8 meters in length. No holidays exist over the tops of potentially significant features. Due to mechanical issues with life saving equipment, the ship did not have an opportunity to cover these gaps in coverage.

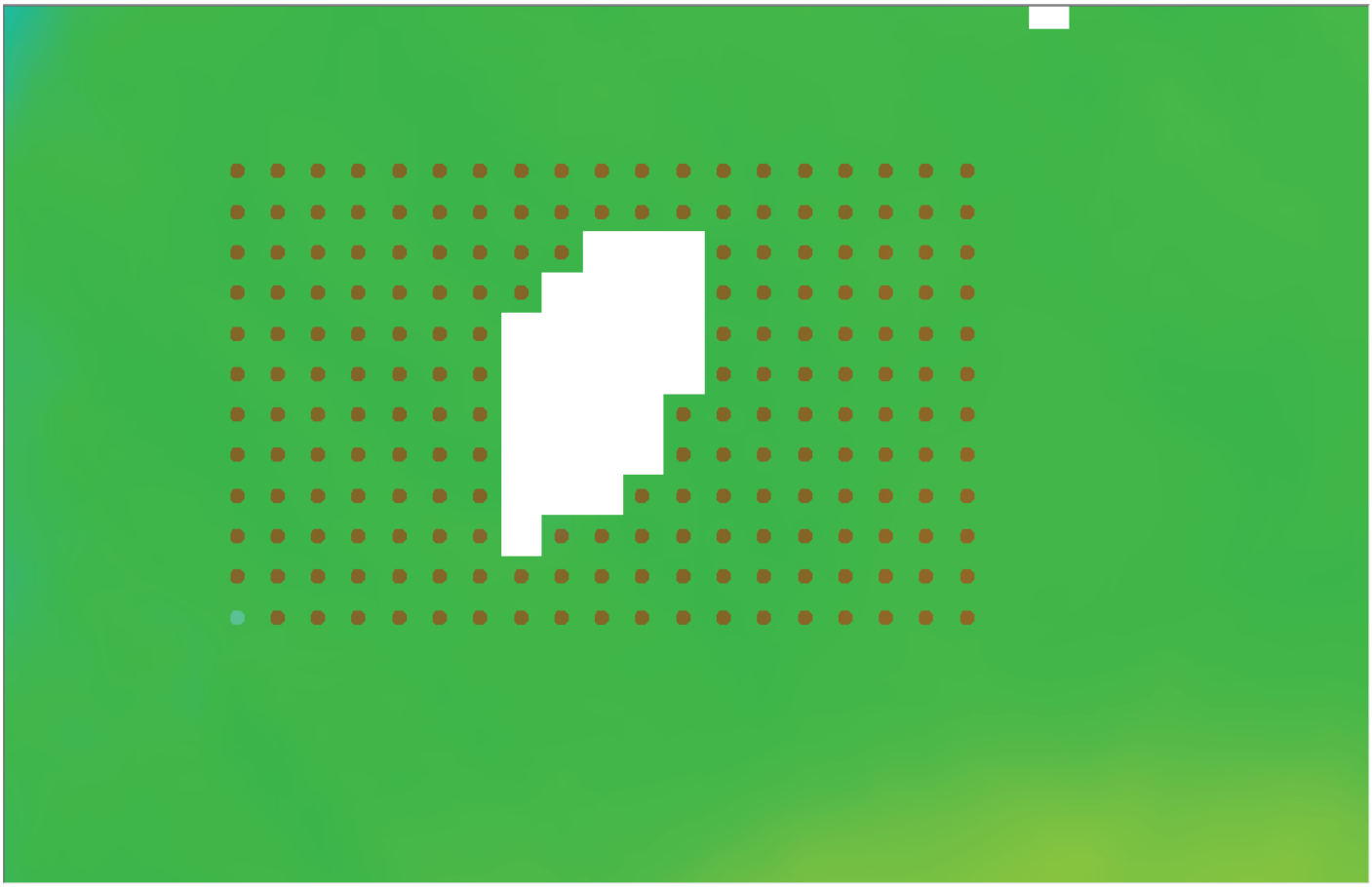


Figure 3: Holiday example with 1m surrounding nodes selected

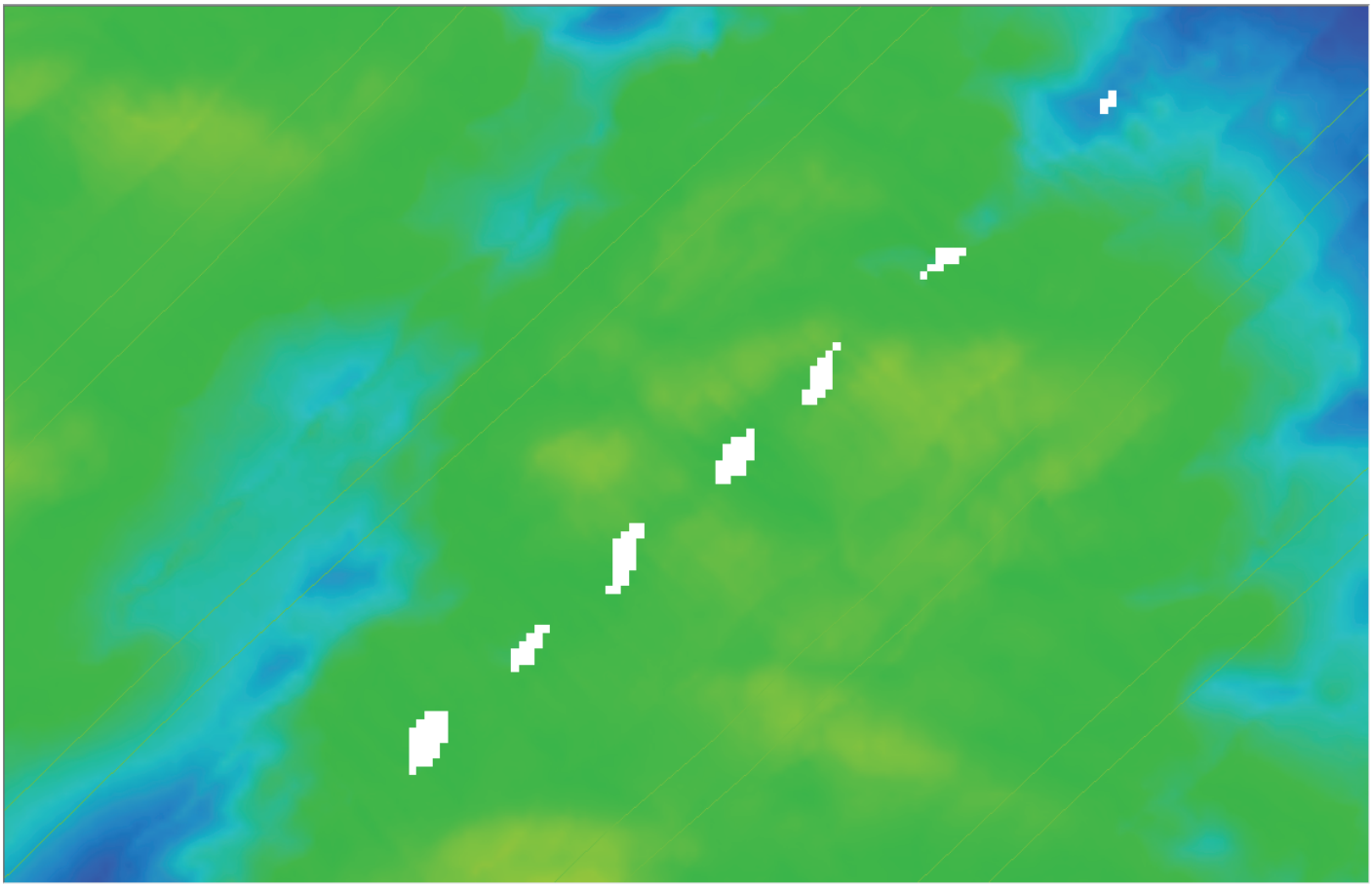


Figure 4: Holiday example overview due to lack of overlap in coverage

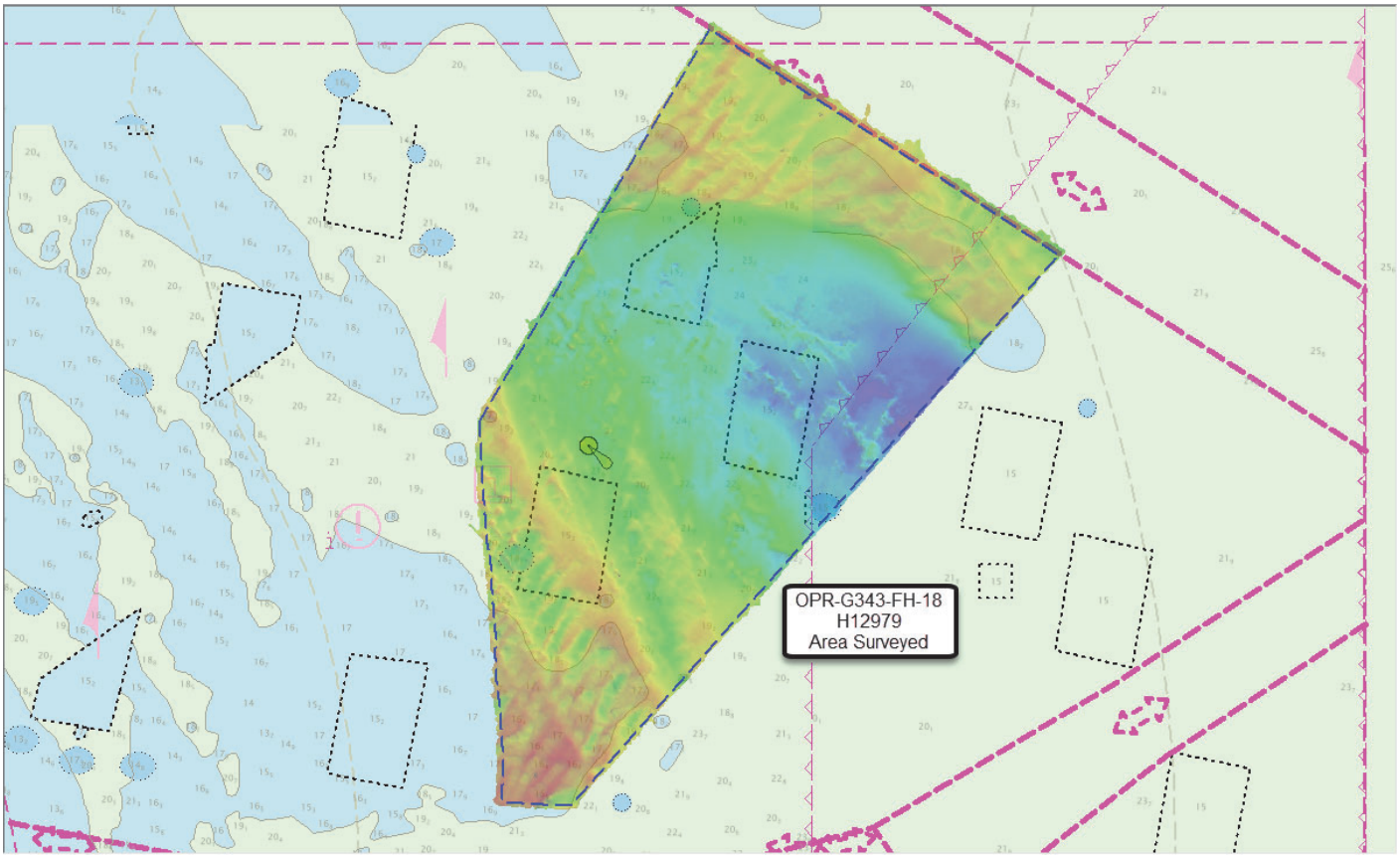


Figure 5: H12979 Survey Coverage

A.5 Survey Statistics

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

	HULL ID	*S250*	*2702*	*Total*
LNM	**SBES Mainscheme**	0	0	0
	MBES Mainscheme	903.5	0	903.5
	Lidar Mainscheme	0	0	0
	SSS Mainscheme	0	0	0
	SBES/SSS Mainscheme	0	0	0
	MBES/SSS Mainscheme	0	0	0
	SBES/MBES Crosslines	45.7	8.5	54.2
	Lidar Crosslines	0	0	0
Number of Bottom Samples				6
Number Maritime Boundary Points Investigated				0
Number of DPs				0
Number of Items Investigated by Dive Ops				0
Total SNM				50.87

Table 3: Hydrographic Survey Statistics

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

Survey Dates	Day of the Year
09/25/2018	268
09/26/2018	269

Survey Dates	Day of the Year
09/27/2018	270
10/02/2018	275
10/03/2018	276
10/04/2018	277
10/05/2018	278
10/06/2018	279

Table 4: Dates of Hydrography

The majority of mainscheme and crossline survey lines were run with the dual-head Reson 7125 multibeam echo sounder. Linear nautical miles were calculated from the S-250 starboard sonar (S250S) plus the 2702 R2Sonic sonar.

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. Additional information to supplement sounding and survey data, and any deviations from the DAPR are discussed in the following sections.

B.1.1 Vessels

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

Hull ID	*S250*	*2702*
LOA	37.7 meters	8.4 meters
Draft	3.77 meters	0.76 meters

Table 5: Vessels Used

Figure 6: NOAA Ship Ferdinand R. Hassler

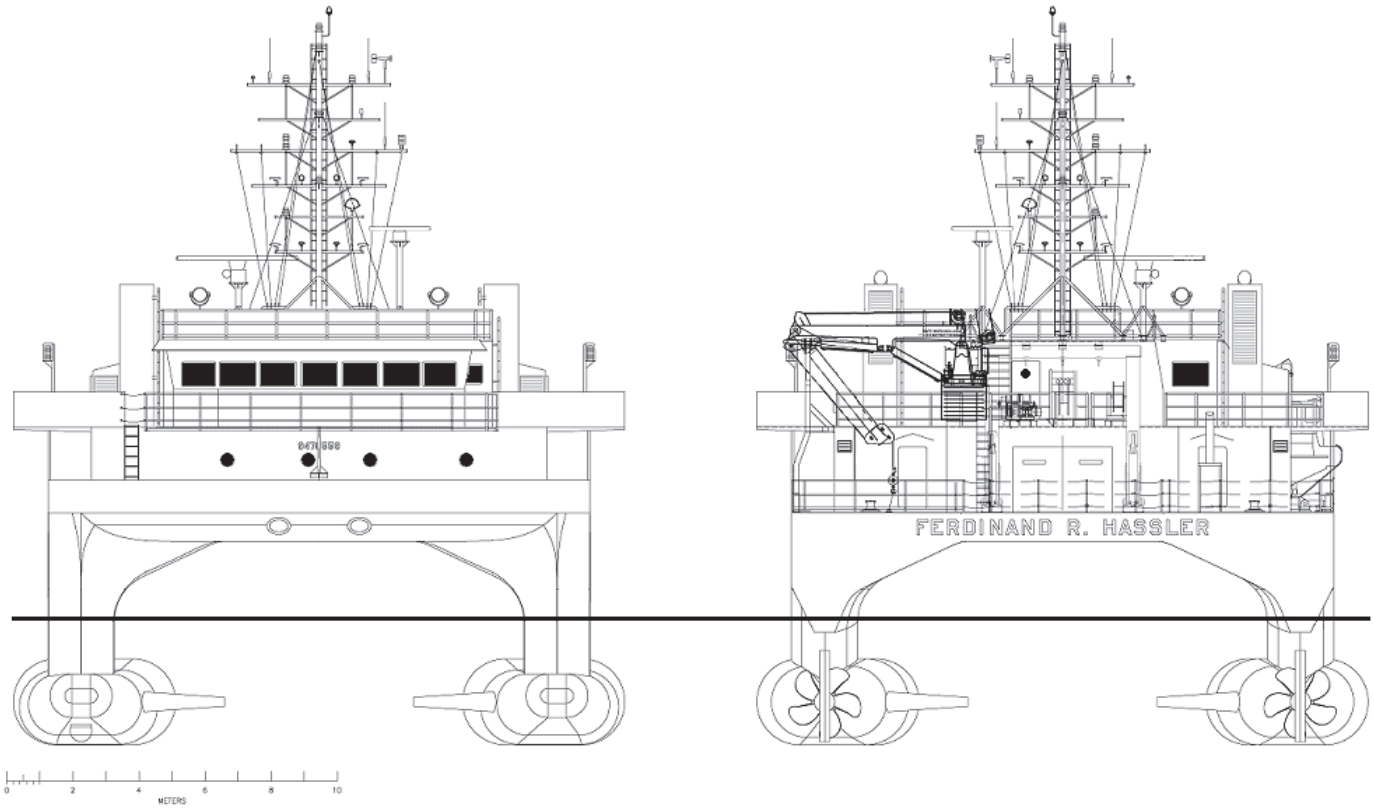


Figure 7: NOAA Ship Ferdinand R. Hassler drawing

Figure 8: Hydrographic Launch 2702

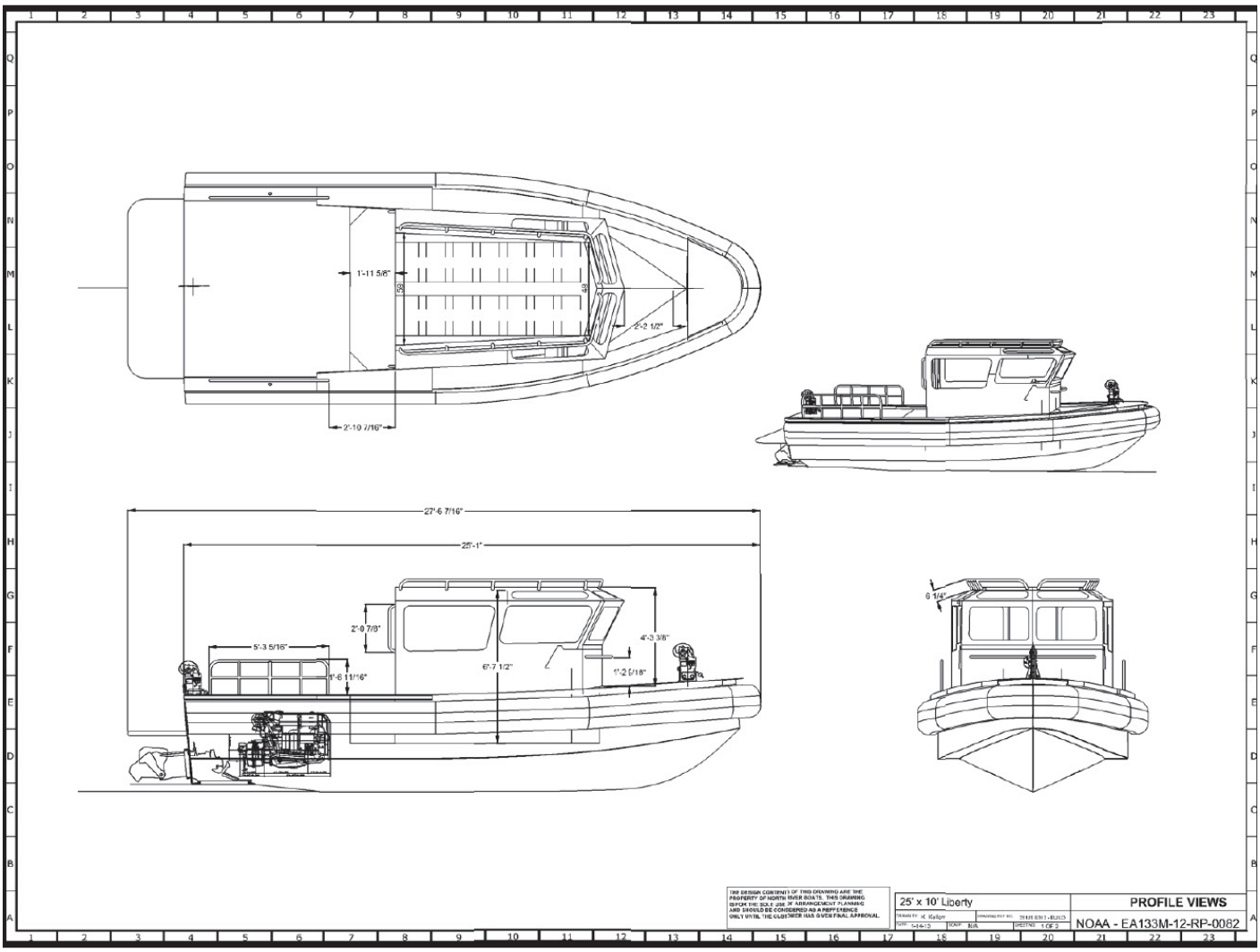


Figure 9: Hydrographic Launch 2702 drawing

NOAA Ship FERDINAND R. HASSLER (S250) acquired the majority of soundings during operations for H12979 and hydrographic survey launch 2702 was utilized to collect soundings on a few crosslines and one bottom sample.

B.1.2 Equipment

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

Manufacturer	Model	Type
Teledyne RESON	SeaBat 7125 SV2	MBES
Applanix	POS MV 320 v5	Positioning and Attitude System
ODIM Brooke Ocean	MVP200	Sound Speed System
ODIM Brooke Ocean	Micro-CTD	Conductivity, Temperature, and Depth Sensor
Teledyne RESON	SVP 70	Sound Speed System
Sea-Bird Scientific	SBE 19plus V2	Conductivity, Temperature, and Depth Sensor
R2Sonic	2024	MBES

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 6.00% of mainscheme acquisition.

To evaluate crossline agreement, two surfaces of 2-meter grid resolution were created; one from the crossline depths, the other from the mainscheme depths. These two surfaces were differenced and statistics generated using the Pydro Compare Surfaces tool and results reviewed in CARIS HIPS & SIPS. The statistical analysis of the differences between the mainscheme and crossline surfaces is shown below. The range of depth difference between mainscheme and crossline surfaces is between -4.0 and 1.0 meters. The average difference between the surfaces is 0.02 meters with a standard deviation of 0.09 meters; 95% of nodes agree within +/- 0.18 meters of the mean.

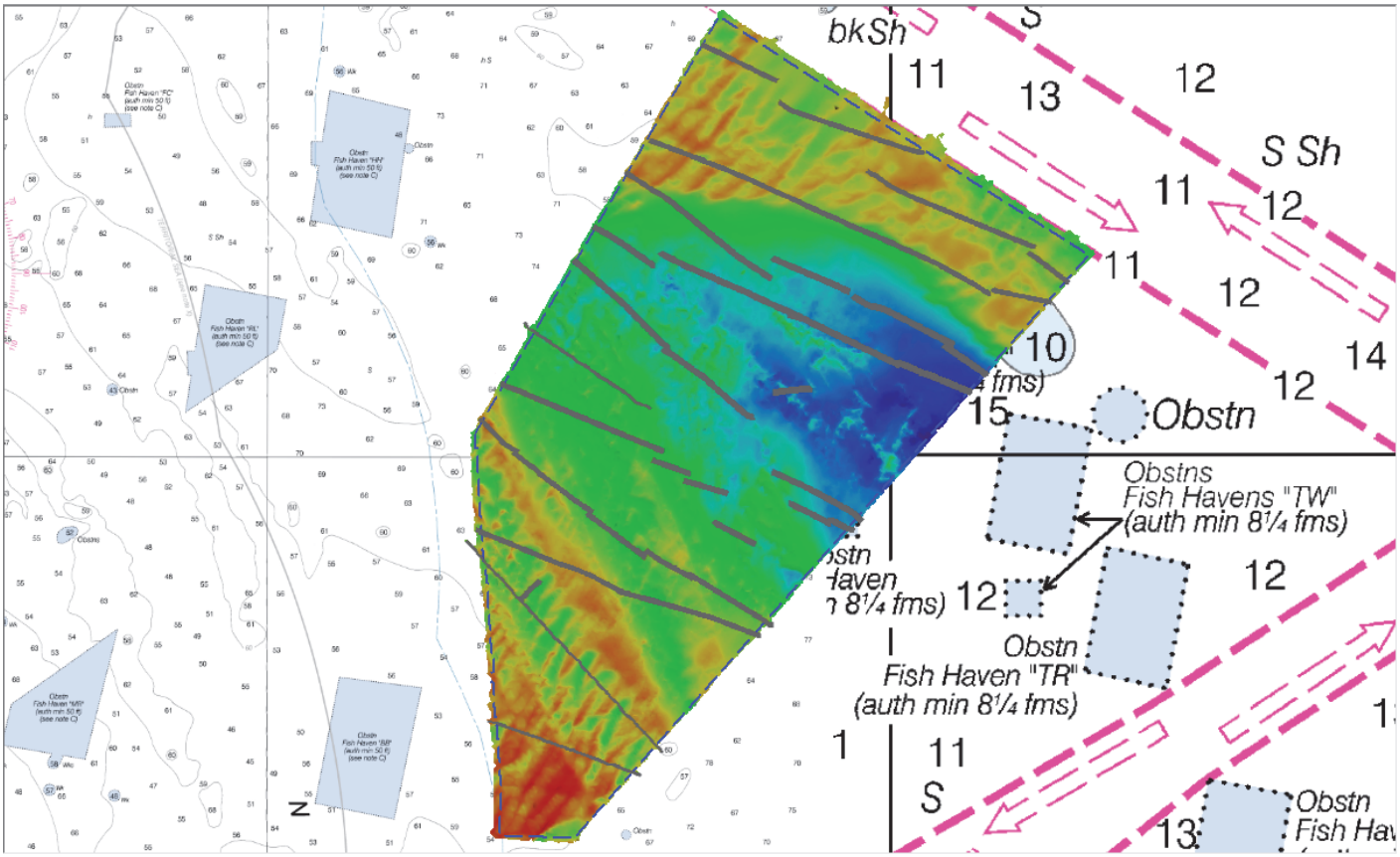
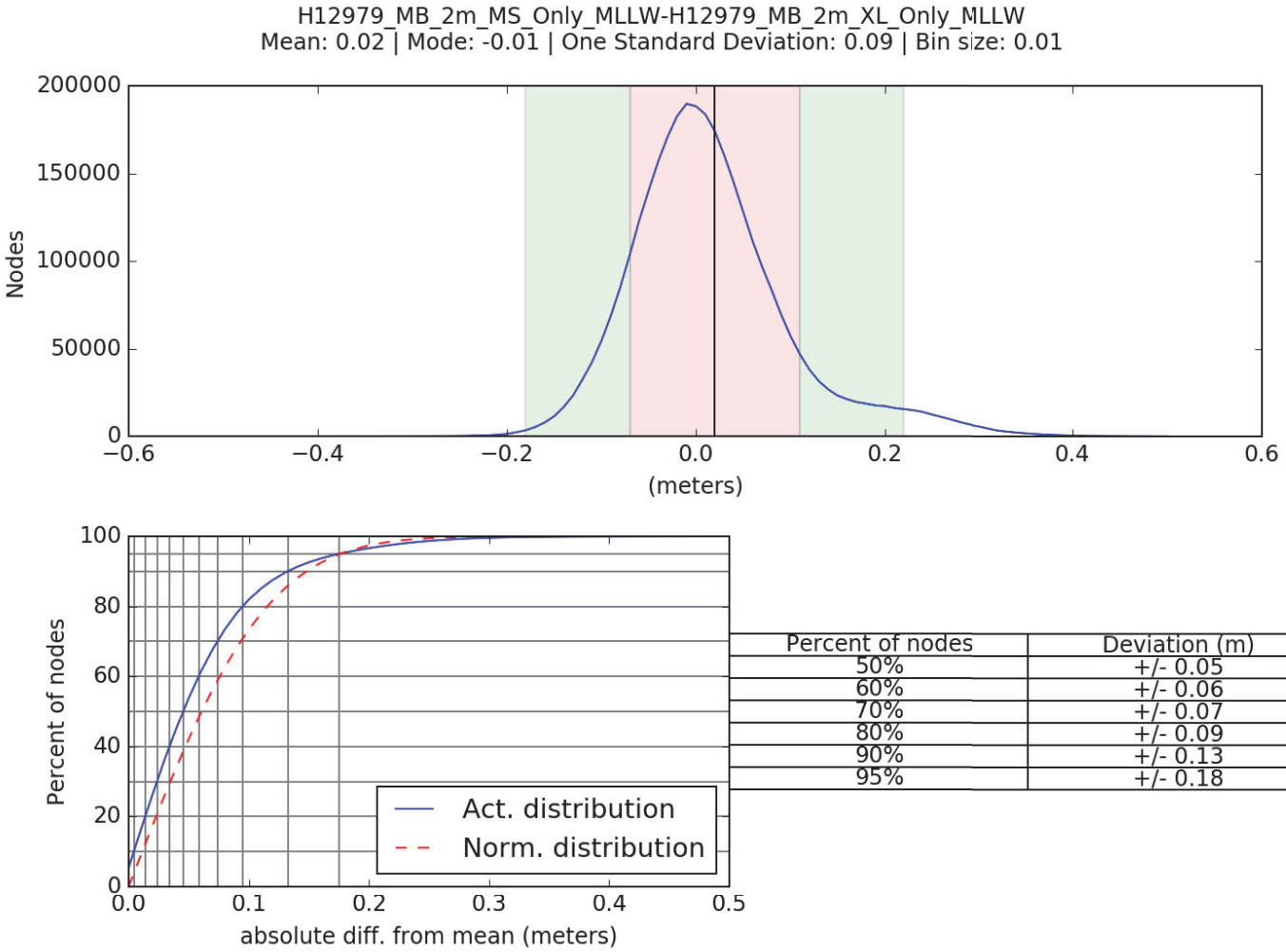


Figure 10: H12979 Crossline Coverage



Percent of nodes	Deviation (m)
50%	+/- 0.05
60%	+/- 0.06
70%	+/- 0.07
80%	+/- 0.09
90%	+/- 0.13
95%	+/- 0.18

Figure 11: H12979 Crossline difference statistical analysis

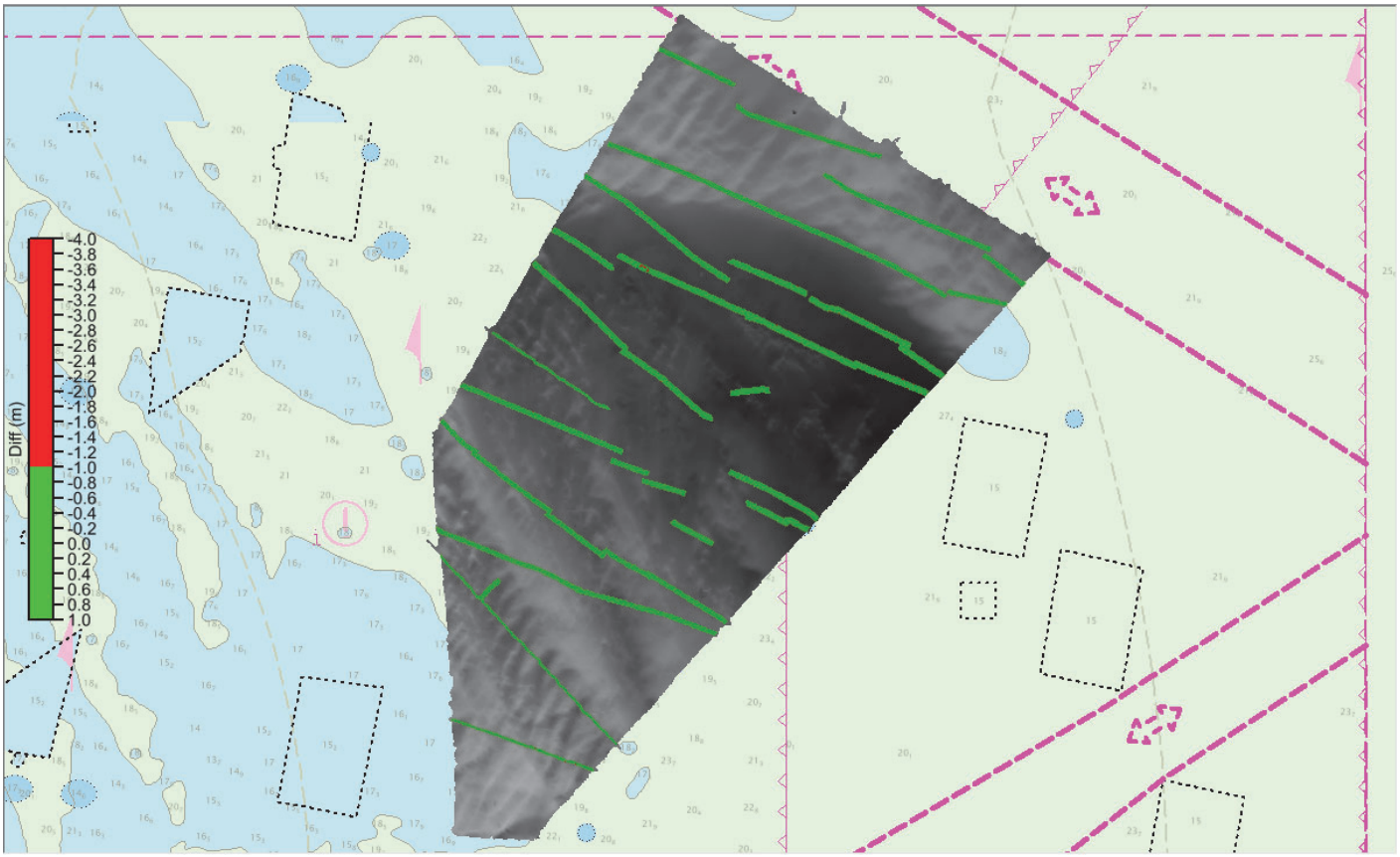


Figure 12: H12979 Mainscheme - Crossline Difference

B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

Method	Measured	Zoning
ERS via VDATUM	0 meters	0.10 meters

Table 7: Survey Specific Tide TPU Values.

Hull ID	Measured - CTD	Measured - MVP	Surface
S250	1.0 meters/second	1.0 meters/second	0.5 meters/second
2702	1.0 meters/second	1.0 meters/second	0.5 meters/second

Table 8: Survey Specific Sound Speed TPU Values.

B.2.3 Junctions

H12979 junctions with H13131 from this current project (OPR-G343-FH-18) and three surveys from prior projects (H12099, H12977 and H12978). Survey H13131 was acquired as part of this current project in 2018 by the Ferdinand R. Hassler. Surveys H12977 and H12978 were acquired in 2017 by the Ferdinand R. Hassler, and survey H12099 was acquired in 2009 by SAIC on the M/V Atlantic Surveyor. During H12979 survey operations, MBES sounding data overlap was achieved with each adjacent survey. Junction analysis was performed between H12979 and each adjacent survey by comparing surfaces of equal resolutions using the Pydro Compare Surfaces tool to generate the difference surfaces and statistics and using CARIS HIPS and SIPS to display the difference surfaces for review. For all junction comparisons, a negative depth difference indicates that H12979 is shoaler and a positive difference indicates that H12979 is deeper.

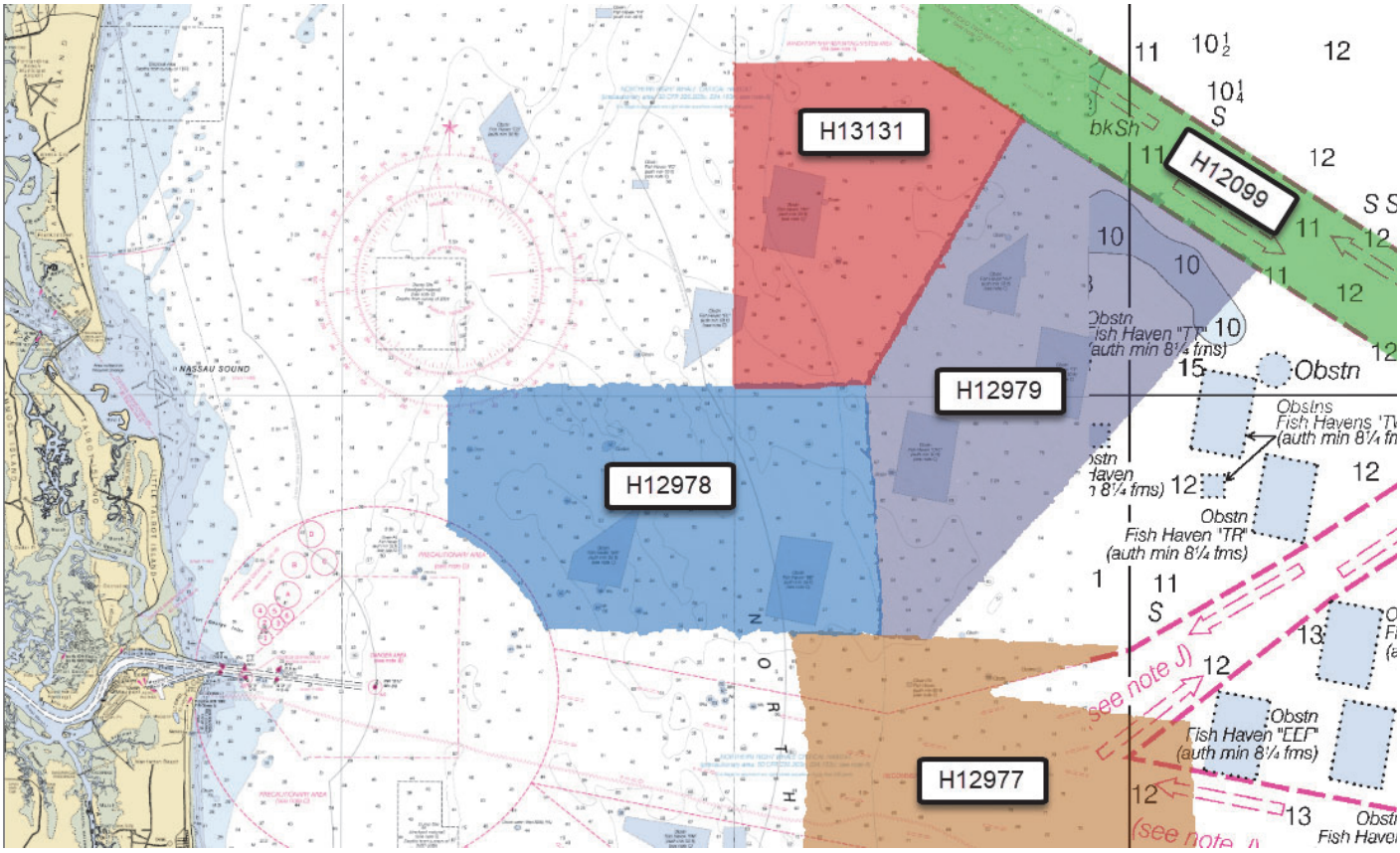


Figure 13: H12979 Junction Overview

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H12099	1:20000	2009	SAIC	NE
H12977	1:40000	2017	NOAA Ship FERDINAND R. HASSLER	S
H12978	1:40000	2017	NOAA Ship FERDINAND R. HASSLER	W
H13131	1:40000	2018	NOAA Ship FERDINAND R. HASSLER	NW

Table 9: Junctioning Surveys

H12099

The range of depth difference between H12979 and H12099 is -0.5 to 0.6 meters. The average difference is 0.04 meters with a standard deviation of 0.12 meters; 95% of the differenced nodes are within +/- 0.23 meters of the mean. Junction overlap ranges from ~130m to ~200m.

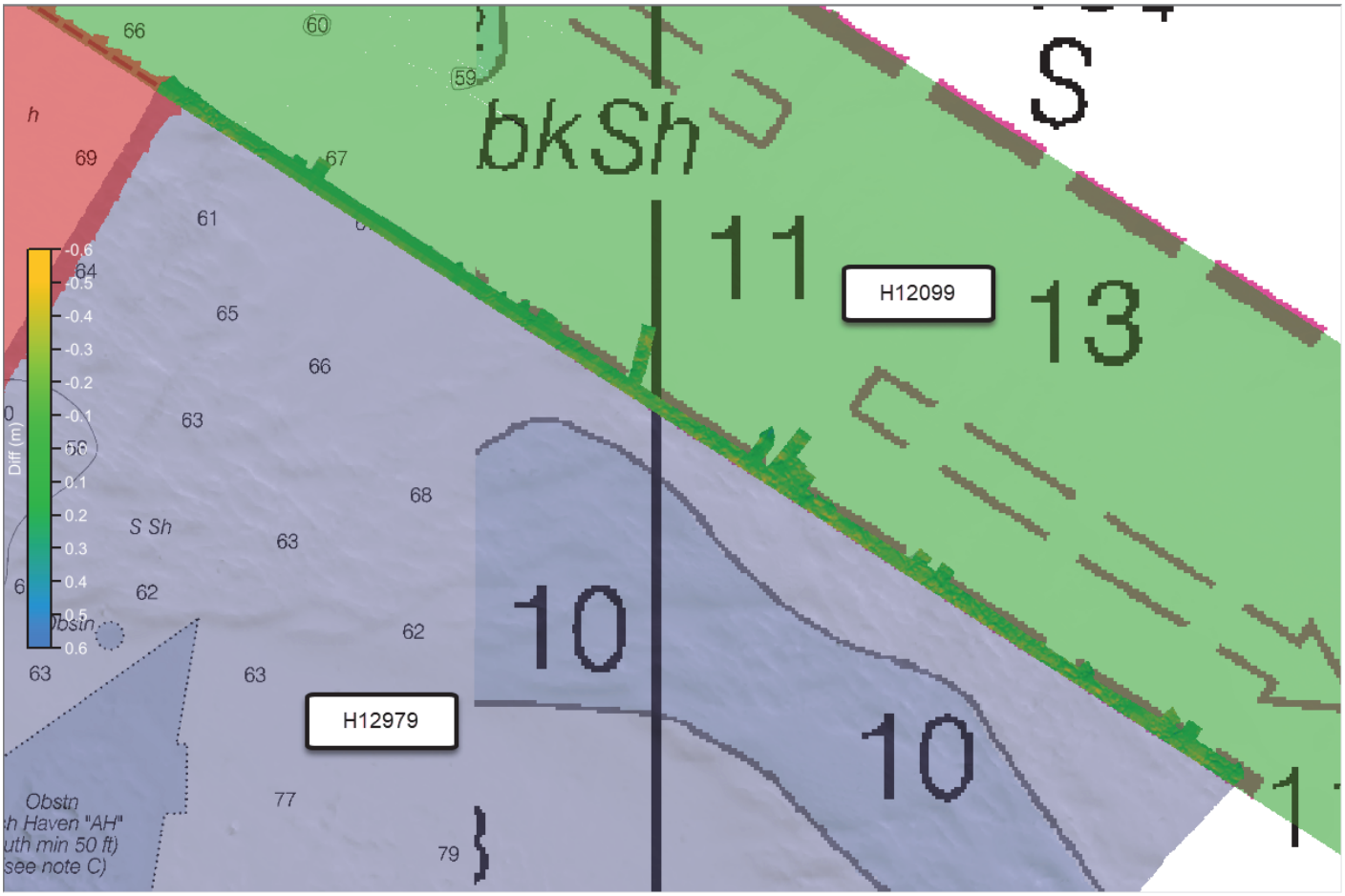
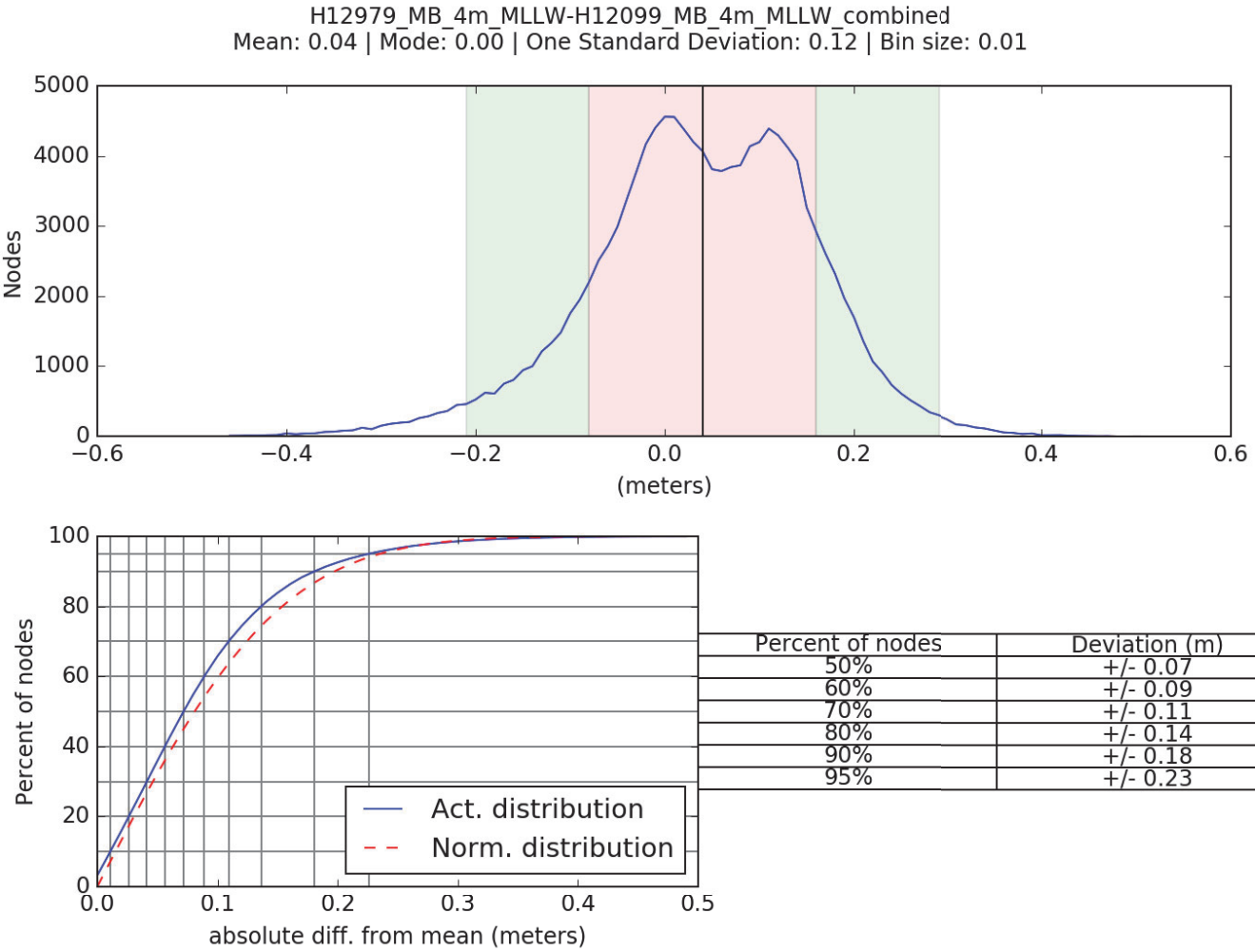


Figure 14: Junction between H12979 and H12099



Percent of nodes	Deviation (m)
50%	+/- 0.07
60%	+/- 0.09
70%	+/- 0.11
80%	+/- 0.14
90%	+/- 0.18
95%	+/- 0.23

Figure 15: Difference Surface Statistics for H12979 and H12099

H12977

The range of depth difference between H12979 and H12977 is -0.4 to 0.4 meters. The average difference is -0.01 meters with a standard deviation of 0.09 meters; 95% of the differenced nodes are within +/- 0.17 meters of the mean. Junction overlap ranges from ~90m to ~180m.

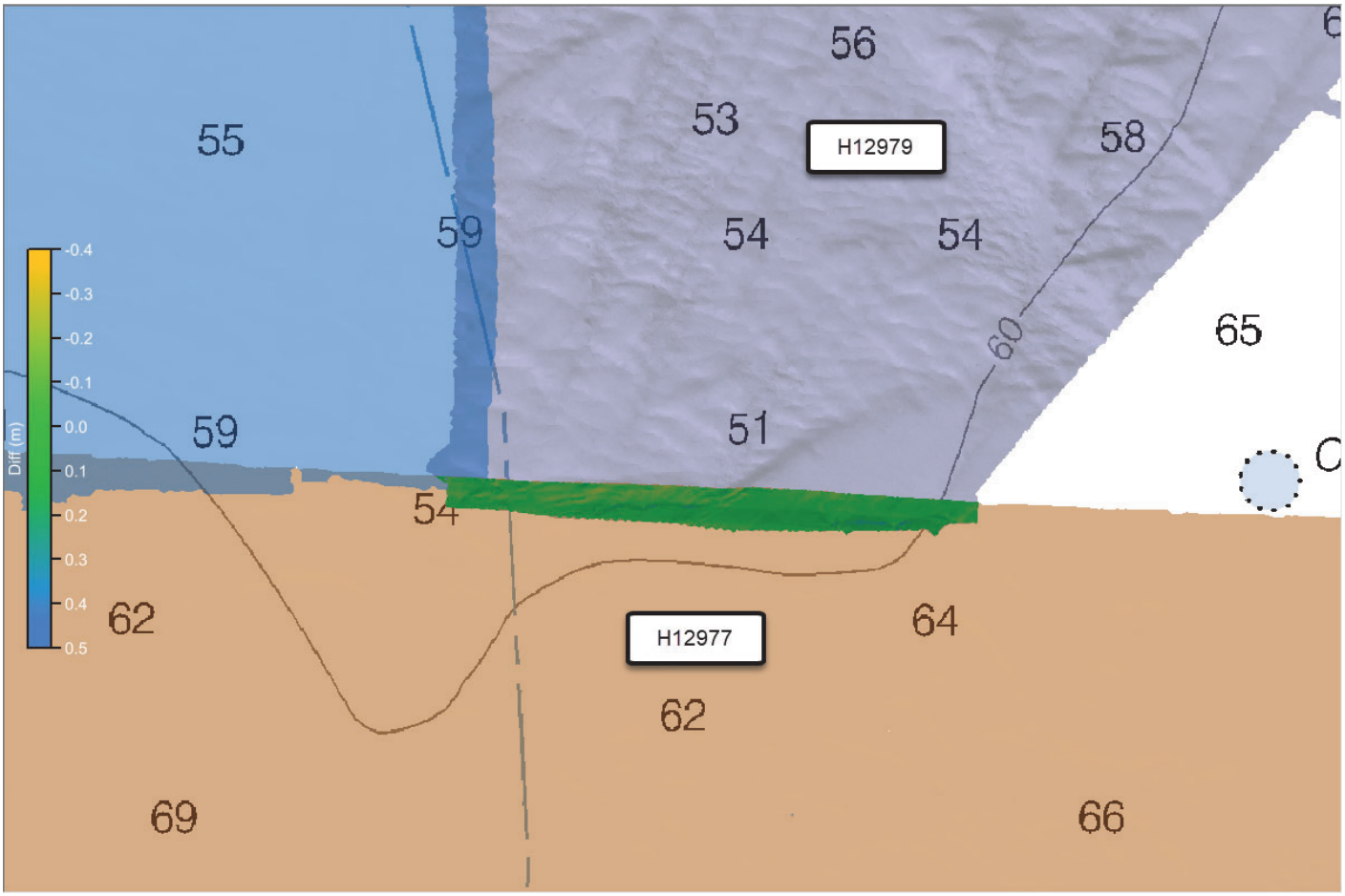
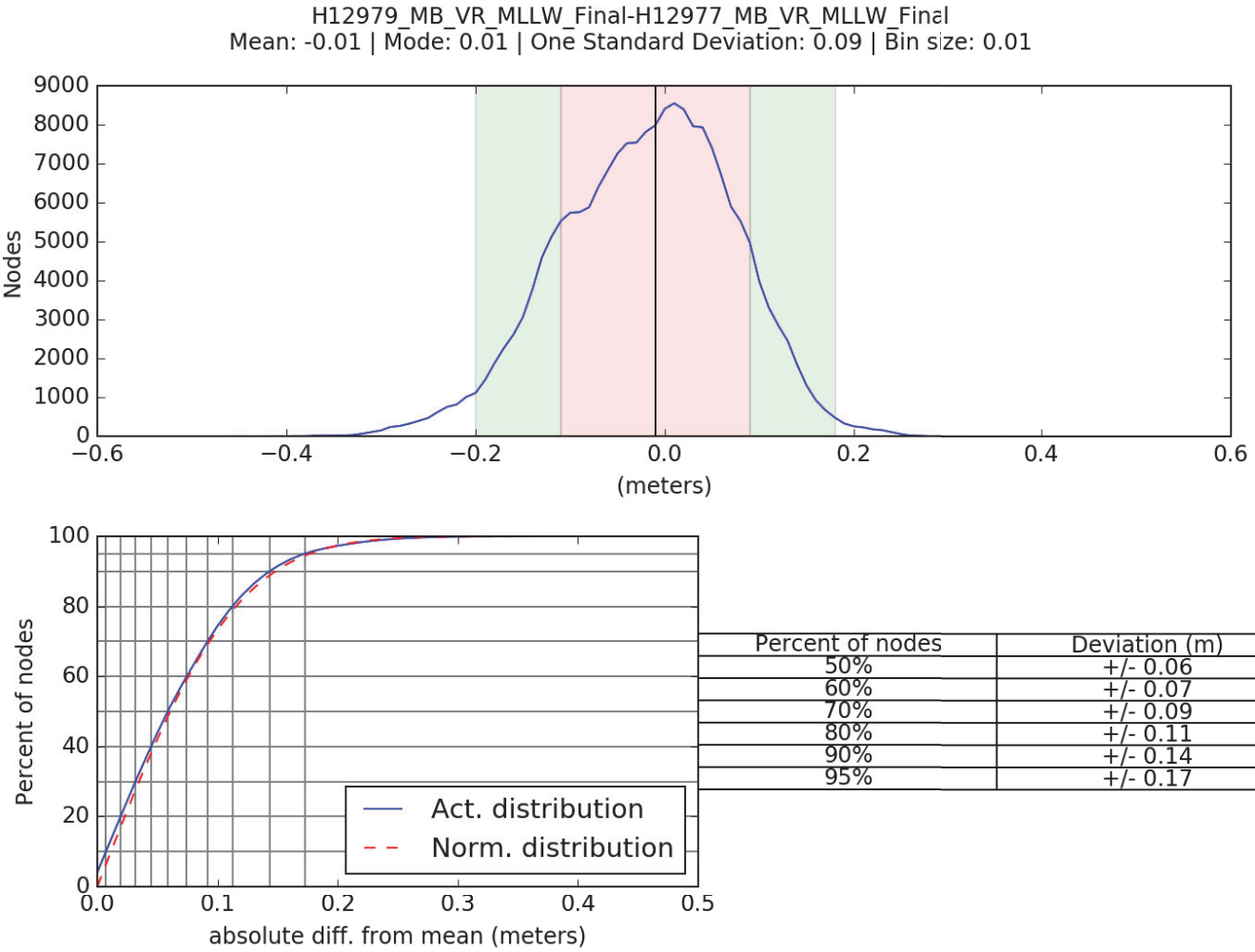


Figure 16: Junction between H12979 and H12977



Percent of nodes	Deviation (m)
50%	+/- 0.06
60%	+/- 0.07
70%	+/- 0.09
80%	+/- 0.11
90%	+/- 0.14
95%	+/- 0.17

Figure 17: Difference Surface Statistics for H12979 and H12977

H12978

The range of depth difference between H12979 and H12978 is -0.9 to 0.9 meters. The average difference is 0.03 meters with a standard deviation of 0.08 meters; 95% of the differenced nodes are within +/- 0.15 meters of the mean. Junction overlap ranges from ~90m to ~160m.

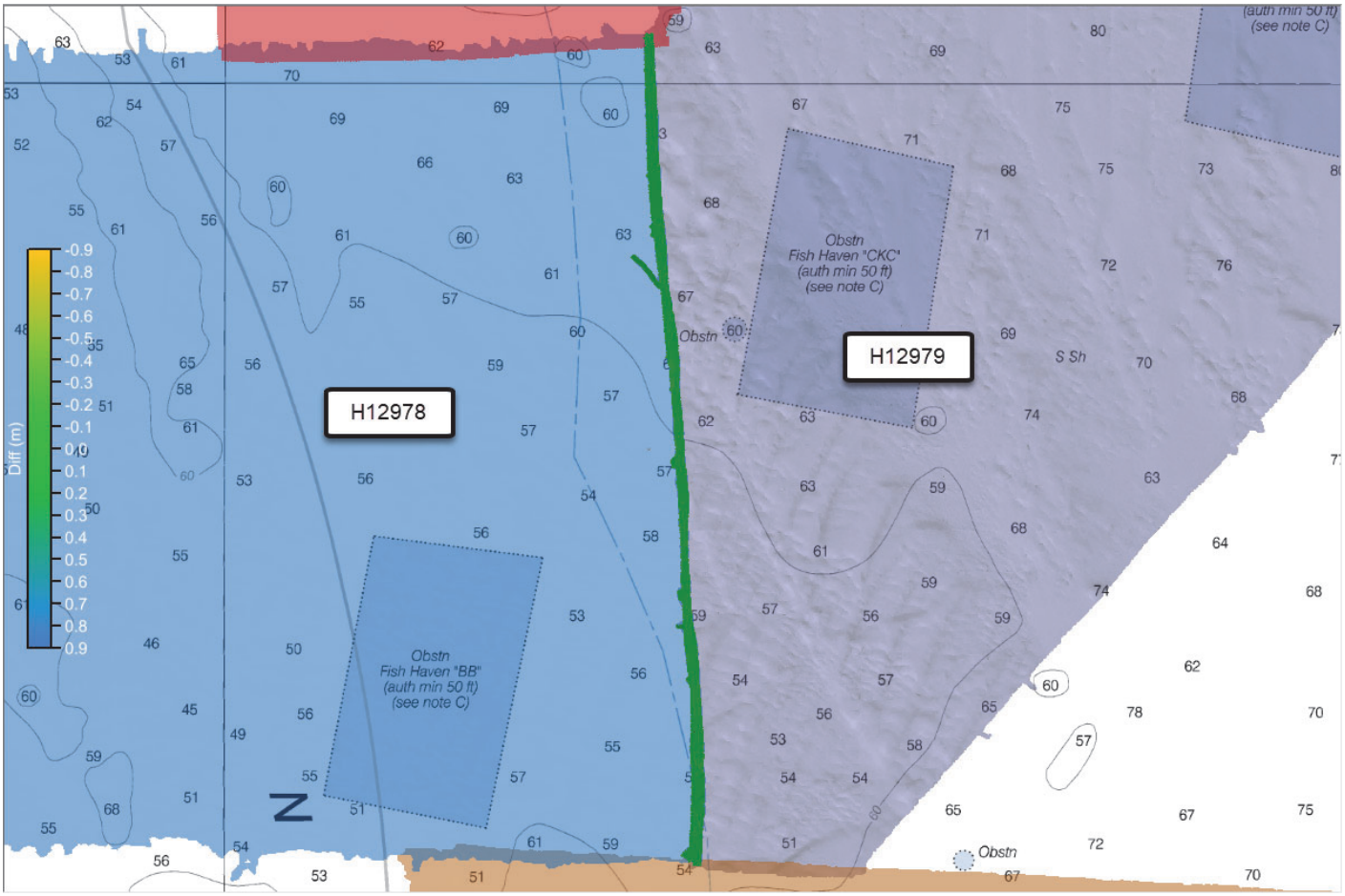
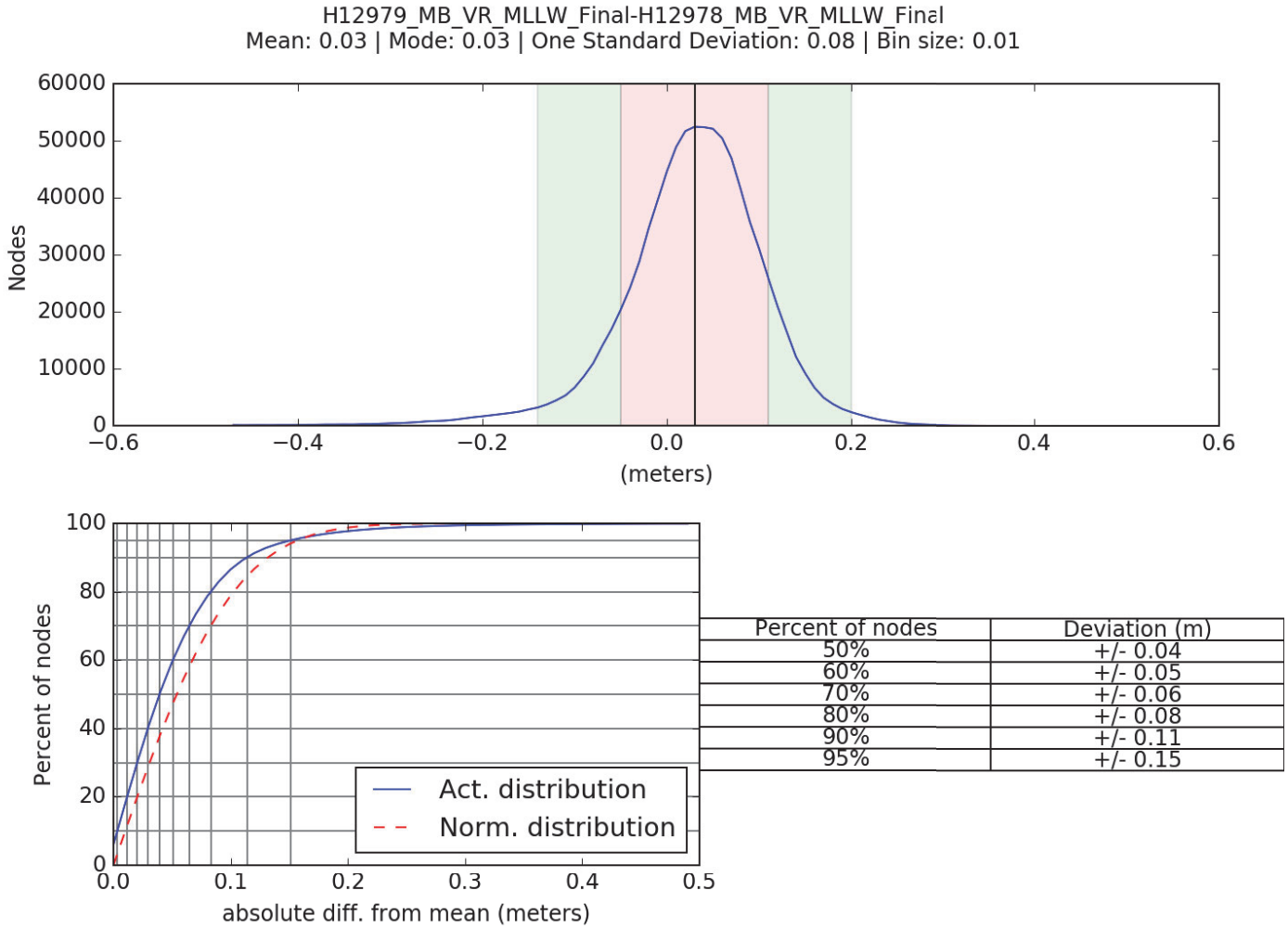


Figure 18: Junction between H12979 and H12978



Percent of nodes	Deviation (m)
50%	+/- 0.04
60%	+/- 0.05
70%	+/- 0.06
80%	+/- 0.08
90%	+/- 0.11
95%	+/- 0.15

Figure 19: Difference Surface Statistics for H12979 and H12978

H13131

The range of depth difference between H12979 and H13131 is -0.92 to 0.64 meters. The average difference is -0.01 meters with a standard deviation of 0.05 meters; 95% of the differenced nodes are within +/- 0.09 meters of the mean. Junction overlap ranges from ~150m to ~400m.

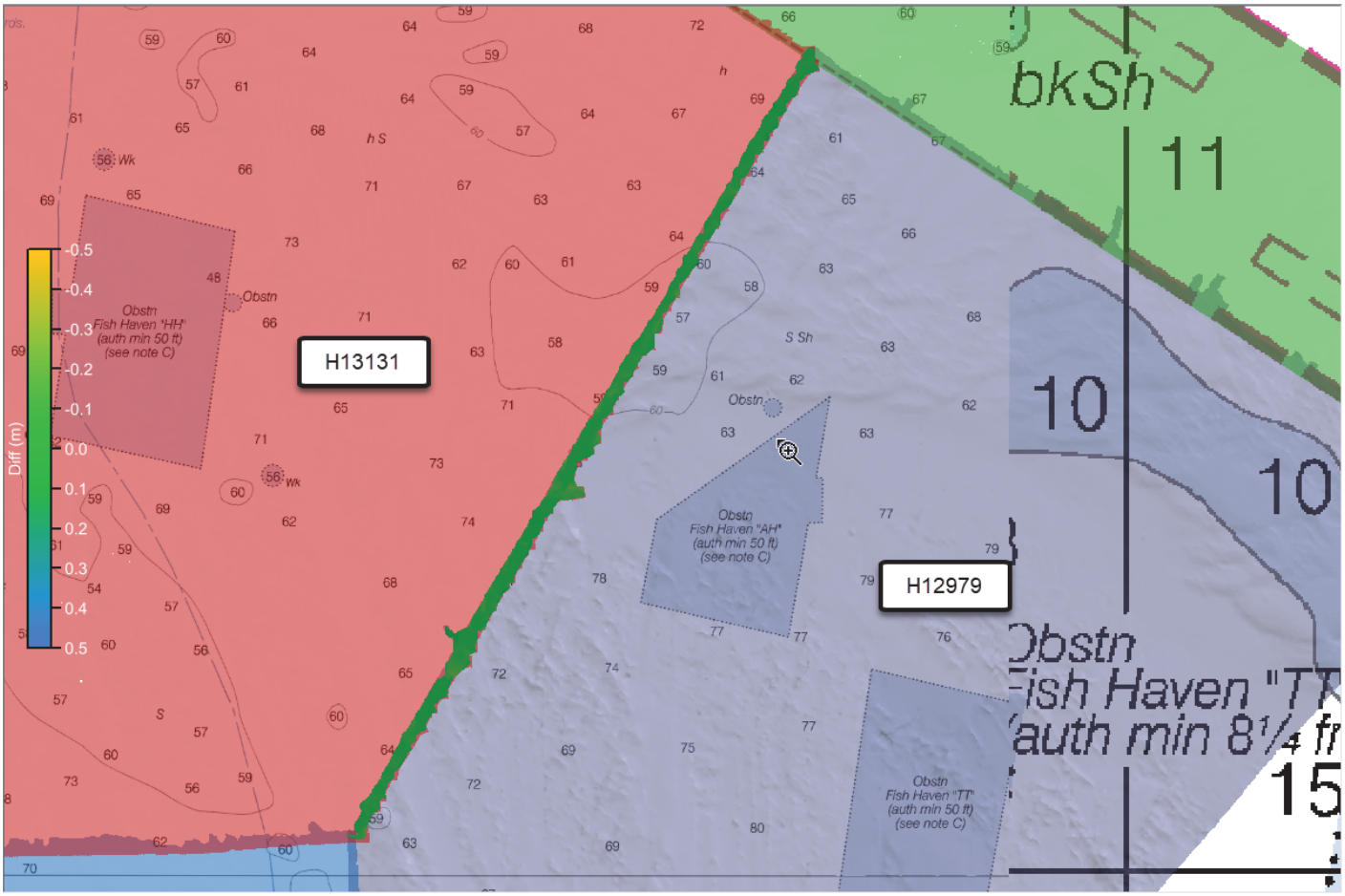
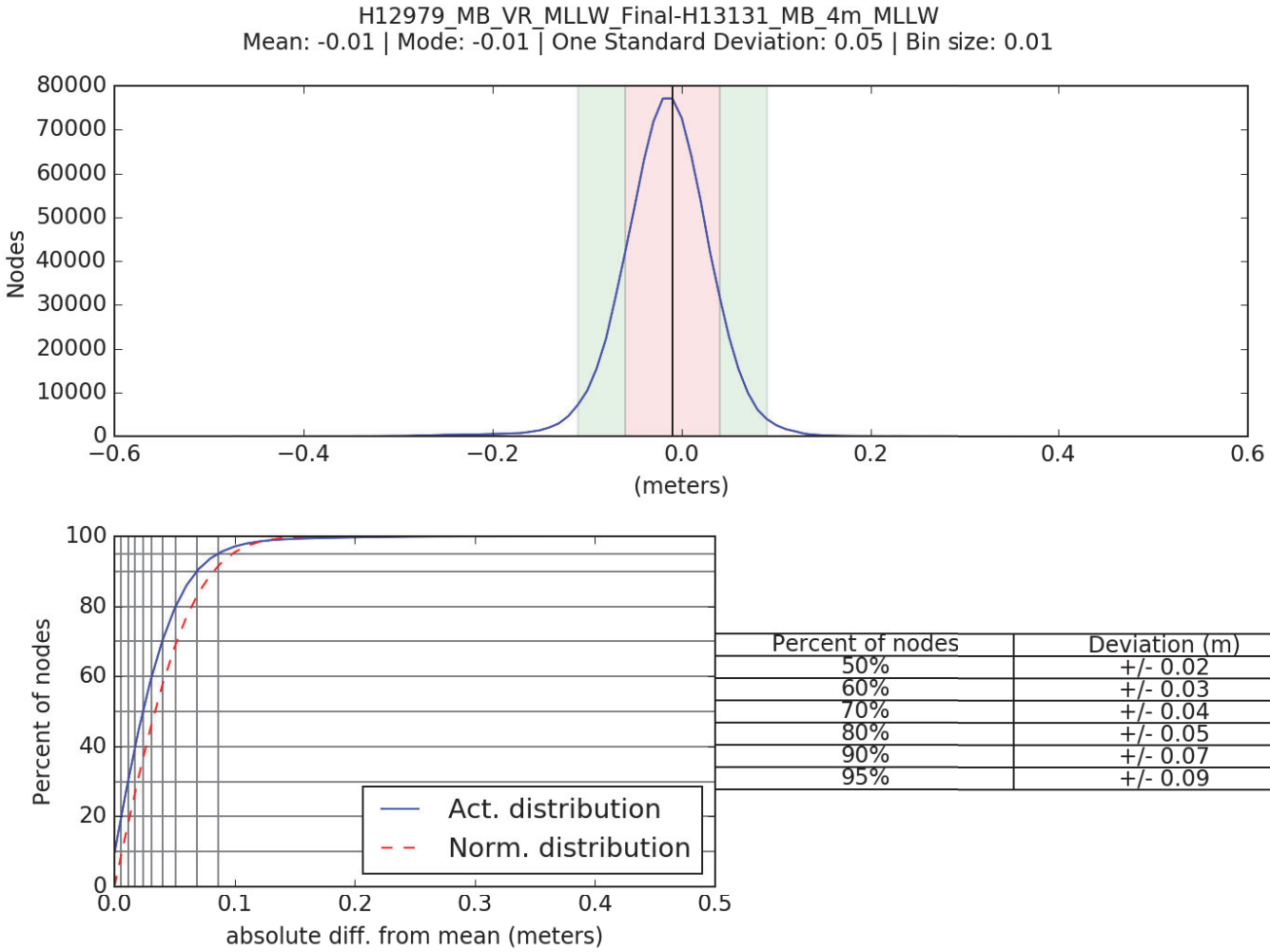


Figure 20: Junction between H12979 and H13131



Percent of nodes	Deviation (m)
50%	+/- 0.02
60%	+/- 0.03
70%	+/- 0.04
80%	+/- 0.05
90%	+/- 0.07
95%	+/- 0.09

Figure 21: Difference Surface Statistics for H12979 and H13131

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

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

B.2.6 Factors Affecting Soundings

There were no other factors that affected corrections to soundings.

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: Sound speed casts were acquired approximately every 2 hours or as judged necessary by the field hydrographer, but not at an interval greater than four hours.

During acquisition operations a total of 67 sound speed measurements were collected. Sixty six (66) using the Moving Vessel Profiler (MVP 200 with Micro-CTD) on Ferdinand R. Hassler (S250) and one (1) using a Sea-Bird SBE 19plus V2 CTD on launch 2702. Sound speed corrections were applied in CARIS HIPS/SIPS using the Nearest in Distance Within Time (NIDWT) option with a maximum time of 4 hours.

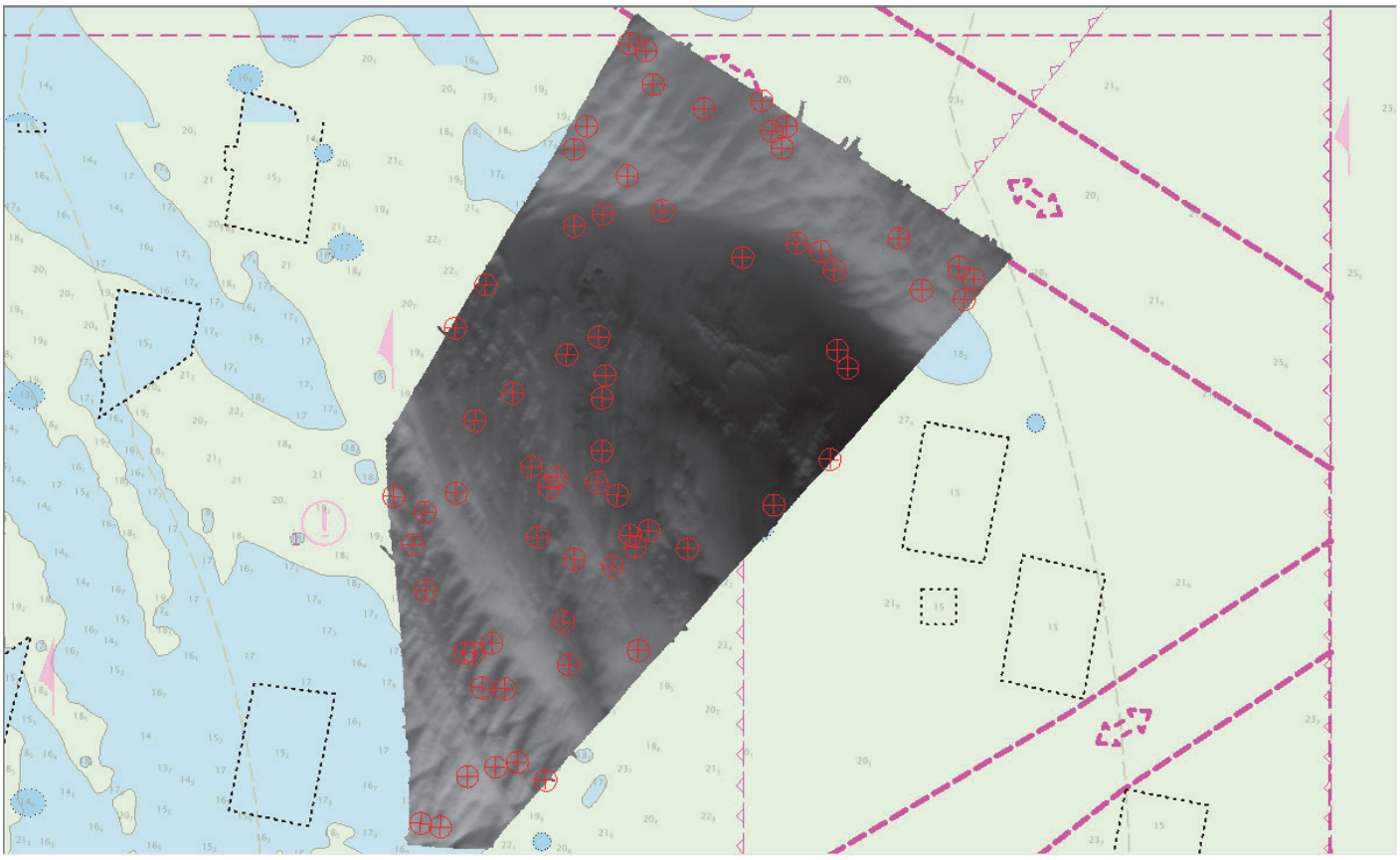


Figure 22: H12979 sound speed profile locations

B.2.8 Coverage Equipment and Methods

As required by the Project Instructions and 2018 HSSD section 5.2.2.3, complete coverage was achieved using the dual head Reson 7125 MBES systems. All areas surveyed met the coverage requirement with the exception of the holidays described in section A.4 of this report.

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 Backscatter was recorded within the Reson .s7k files. Backscatter was processed in accordance with Hydrographic Technical Directive (HTD) 2018-3 using QPS Fledermaus GeoCoder Toolbox (FMGT) software.

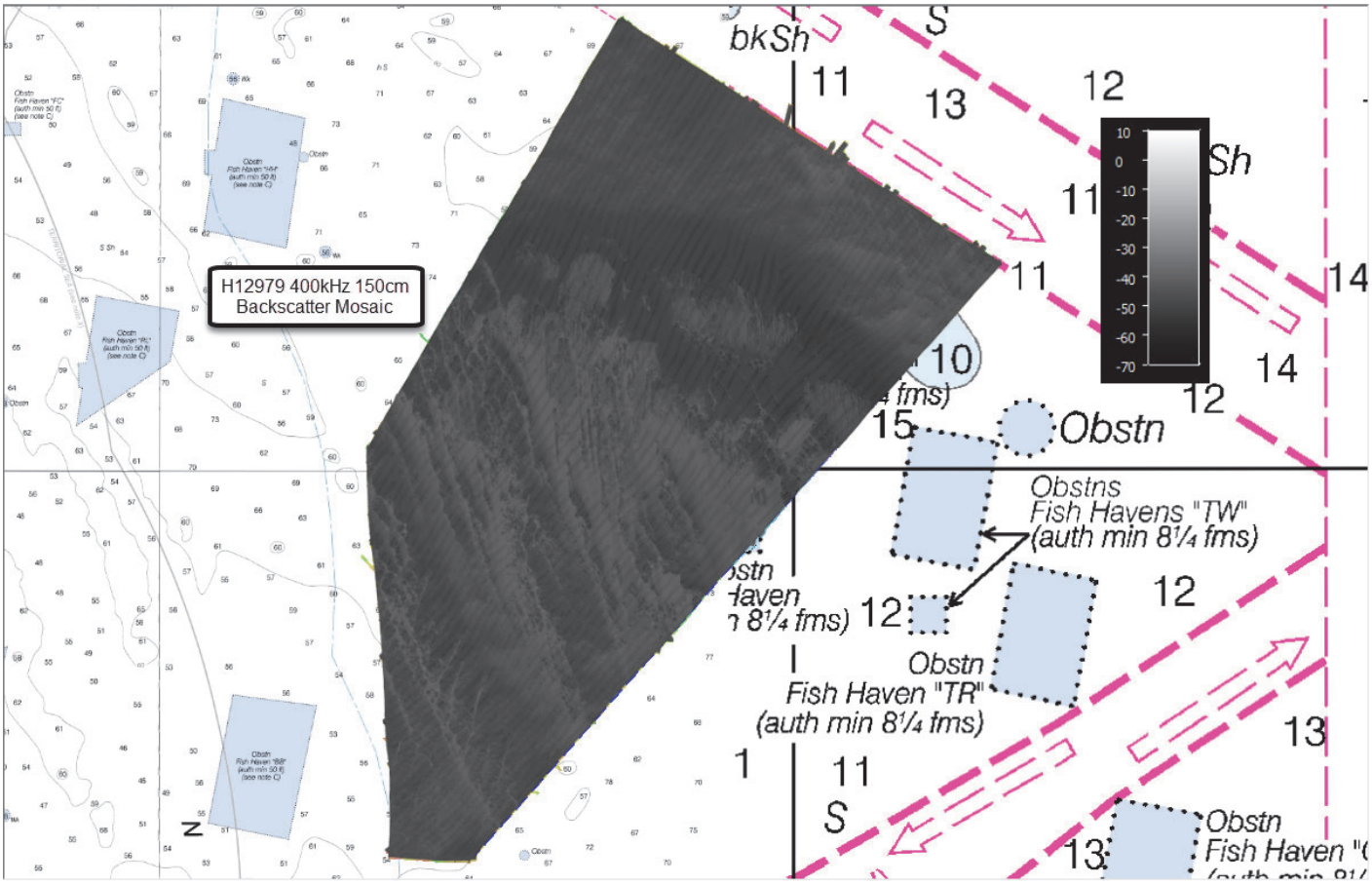


Figure 23: H12979 400kHz, 150cm Backscatter Mosaic

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
Caris	HIPS/SIPS	10.4.4

Table 10: Primary bathymetric data processing software

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

Manufacturer	Name	Version
QPS	Fledermaus - FMGT	7.8.3

Table 11: Primary imagery data processing software

The following Feature Object Catalog was used: NOAA Profile V_5_8.

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
H12979_MB_VR_MLLW	CARIS VR Surface (CUBE)	Variable Resolution	16.5 meters - 29.3 meters	NOAA_VR	Complete MBES
H12979_MB_VR_MLLW_Final	CARIS VR Surface (CUBE)	Variable Resolution	16.5 meters - 29.3 meters	NOAA_VR	Complete MBES

Table 12: Submitted Surfaces

A density analysis was run using the VR finalized surface to calculate the number of soundings per surface node. The results determined that greater than 99.5% of all nodes contained five or more soundings which meets the data density specifications. A TVU analysis was run using the VR finalized surface. The results determined that greater than 99.5% of nodes were within IHO allowable Total Vertical Uncertainty for Order 1a surveys.

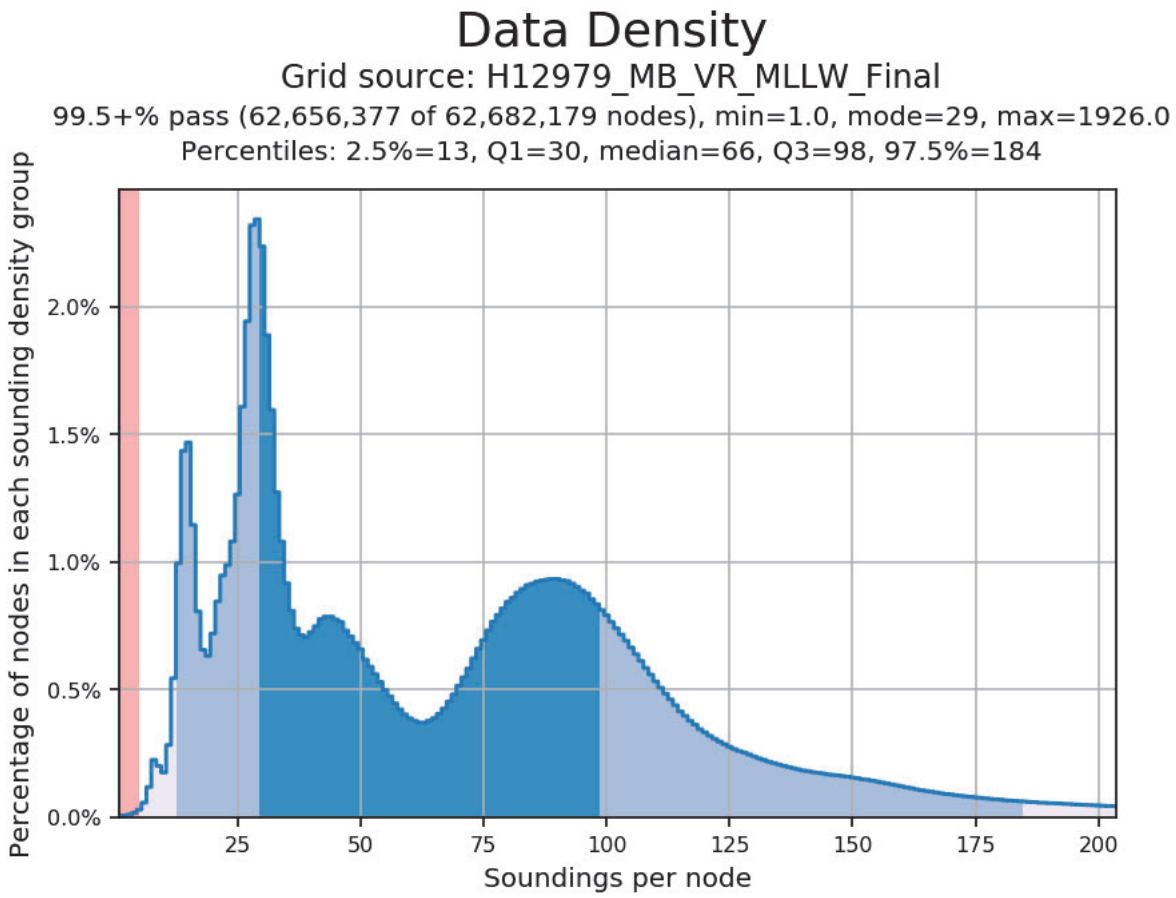


Figure 24: Data density of the H12979 VR finalized surface

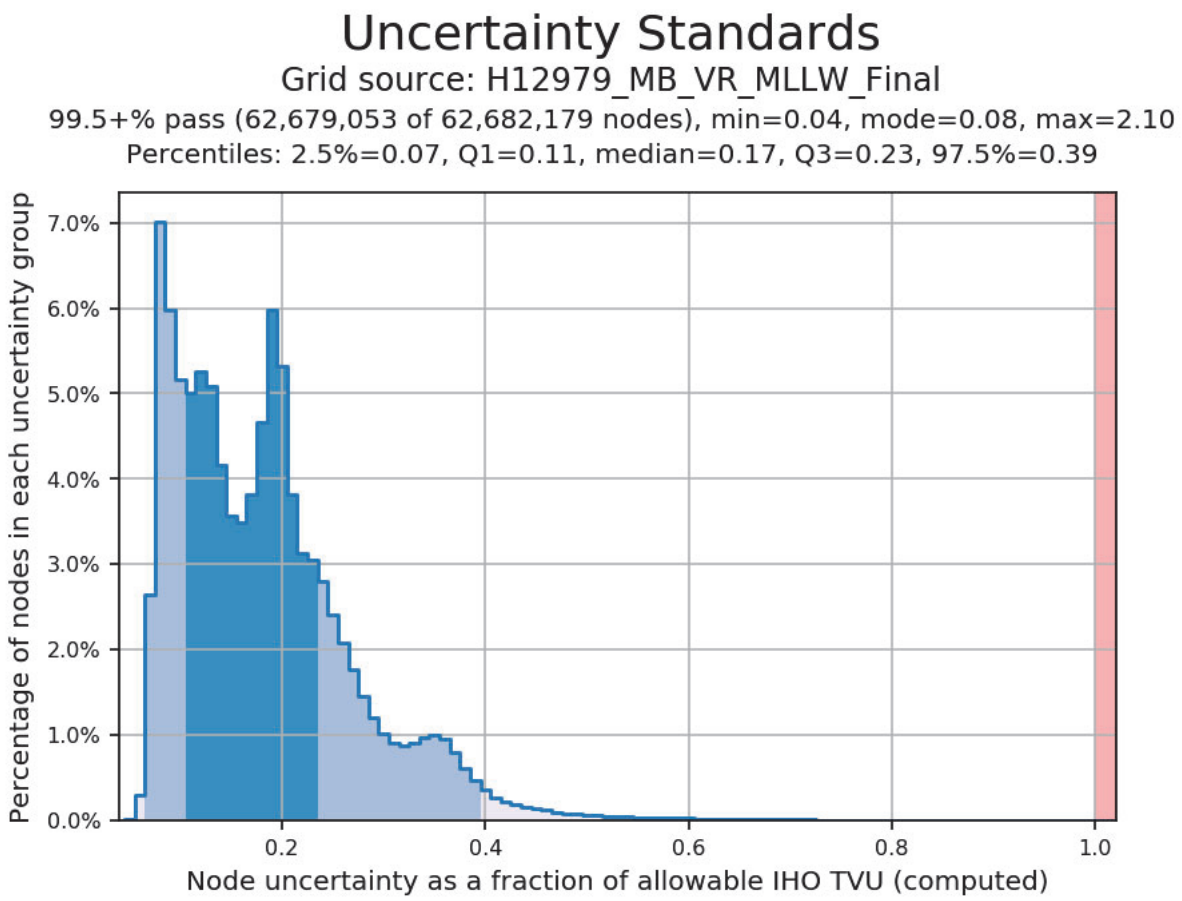


Figure 25: Total Vertical Uncertainty statistics in the H12979 VR finalized surface

B.5.3 Designated Soundings

H12979 contains three (3) designated soundings in accordance with 2018 HSSD Section 5.2.1.2.3. Zero (0) designated soundings represent DTON's, and three (3) designated soundings were selected to accurately represent the seafloor in those locations. Two (2) designated soundings occur over "New" Obstruction features and one (1) designated sounding occurs over an existing "Retain" Obstruction (Fish Haven) feature and are addressed in the Final Feature File.

C. Vertical and Horizontal Control

All data for survey H12979 have been reduced to Mean Lower Low Water (MLLW) using documented VDatum techniques documented in the DAPR. The 'Ferdinand R. Hassler' is equipped with Applanix POS/MV position and orientation systems on the port and starboard hulls. Correctors are derived using a Precise Point Positioning (PPP) approach. The POS/MV data was post-processed in Applanix POSPac MMS using

the Applanix RTX service to produce Smoothed Best Estimates of Trajectory (SBETs) and RMS uncertainty files using the method of Post Processed Precise Point Positioning (5P). Additional information discussing the vertical or horizontal control for this survey can be found in the accompanying DAPR.

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_Sep-shapefile_xyNAD83-MLLW_geoid12b.csar

C.2 Horizontal Control

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

The projection used for this project is Projected UTM 17N.

D. Results and Recommendations

D.1 Chart Comparison

Survey soundings from H12979 were generated from a variable resolution CUBE surface in CARIS HIPS and SIPS and compared with the soundings from the largest scale Electronic Navigational Charts visually in CARIS HIPS/SIPS and using the Pydro Chart Adequacy tools (CA Tools). Contours from H12979 were also generated and visually compared with the charted contours from the largest scale Electronic Navigational Charts. Of the six (6) soundings that were flagged by using the triangle rule, all differences were less than 2 meters. Three (3) of the six (6) soundings flagged are over features which will are already adequately charted.

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?
US3GA10M	1:449659	37	10/26/2018	10/26/2018	NO
US4FL50M	1:80000	21	10/26/2018	10/26/2018	NO

Table 13: Largest Scale ENCs

US3GA10M

ENC US3GA10M generally compares well with survey H12979. The surveyed 18.2 meter (60 foot) contour generally agrees in the southern portion of the survey area but has apparently retreated and does not exist in the northern part of the surveyed area. H12979 surveyed depths are predominantly deeper. Soundings as surveyed agree to within 2 meters as compared with currently charted depths.

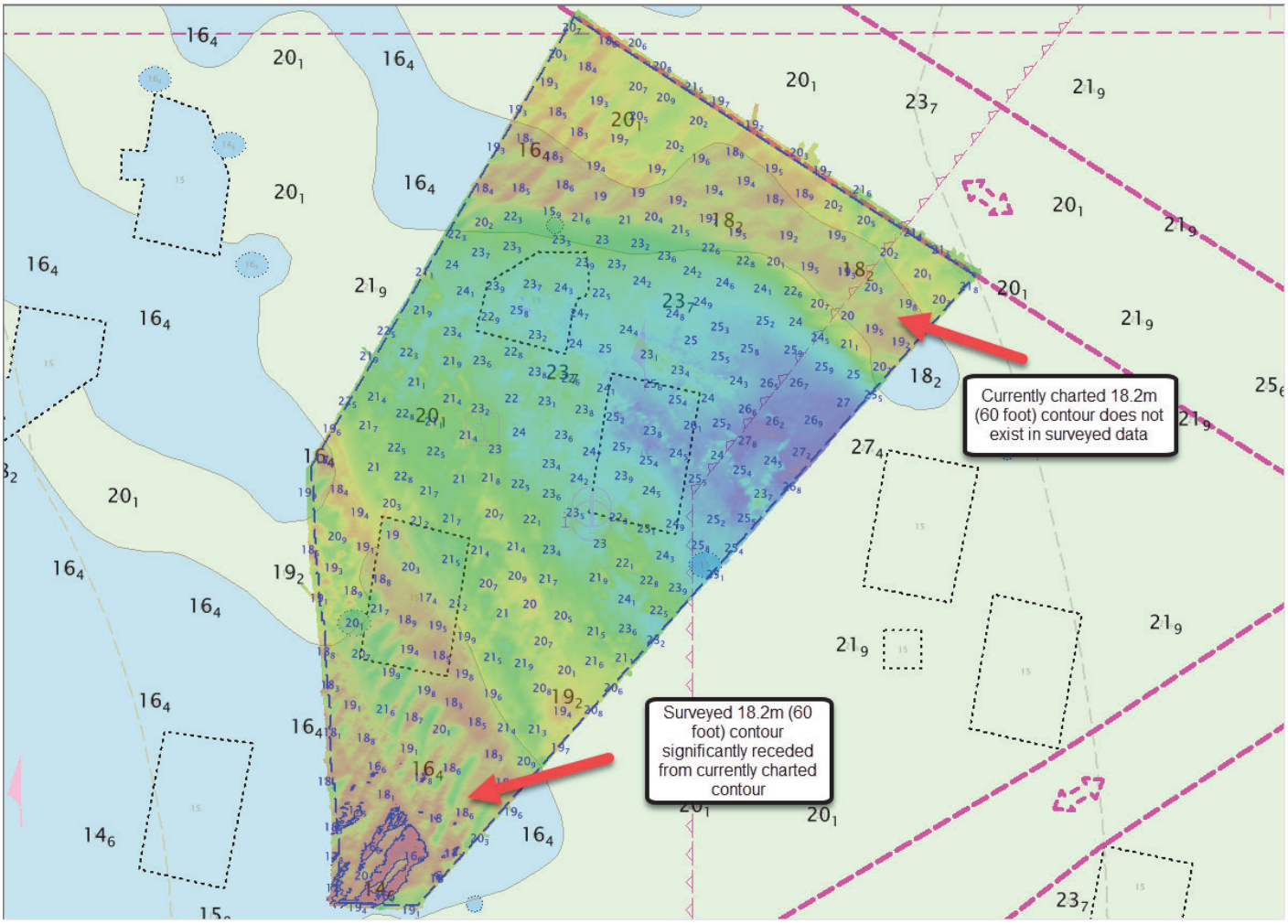


Figure 26: H12979 soundings and contours (blue) vs. ENC US3GA10M

US4FL50M

ENC US4FL50M generally compares well with survey H12979. The surveyed 18.2 meter (60 foot) contour generally agrees in the southern portion of the survey area but has appreciably retreated. Additionally, the surveyed 18.2 meter (60 foot) contour does not exist in the northwestern part of the surveyed area. H12979 surveyed depths are predominantly deeper. Soundings as surveyed agree to within 2 meters as compared with currently charted depths.

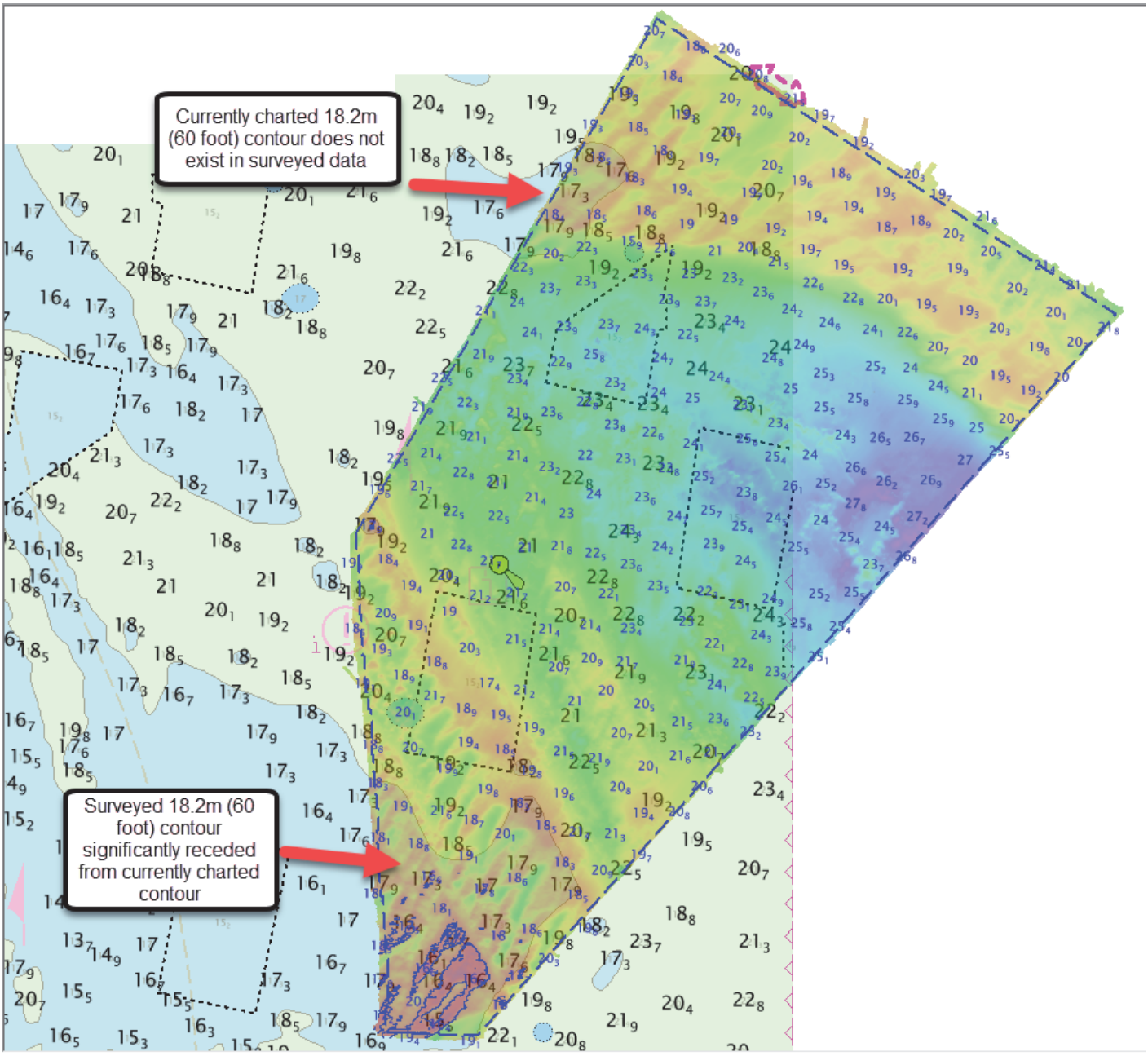


Figure 27: H12979 soundings and contours (blue) vs. ENC US4FL50M

D.1.2 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.3 Charted Features

All charted features were investigated as part of the H12979 survey and are addressed in the Final Feature File.

D.1.4 Uncharted Features

Three (3) "New" obstruction features were added to the Final Feature File. Two "New" obstruction features are updated positions and depths for existing recommended "Delete" obstruction features and one "New" obstruction feature is previously uncharted. All are addressed in the Final Feature File.

The "New" obstruction feature located at Latitude 30-33-37.29N, Longitude 081-03-05.20W has a least depth of 16.7 meters. The hydrographer consulted with the Operations Officer and Commanding Officer on the Ferdinand R. Hassler and this feature was determined not to be classified as a DTON due to its proximity to other controlling features (fish haven to the SE, 60 foot contour to the NW, clear traffic lanes to the NE, charted obstruction to the SE, and expected draft of vessels in the area). Please see correspondence regarding this determination in the \Descriptive_Report\Appendices \II_Supplemental_Survey_Records_Correspondence folder.

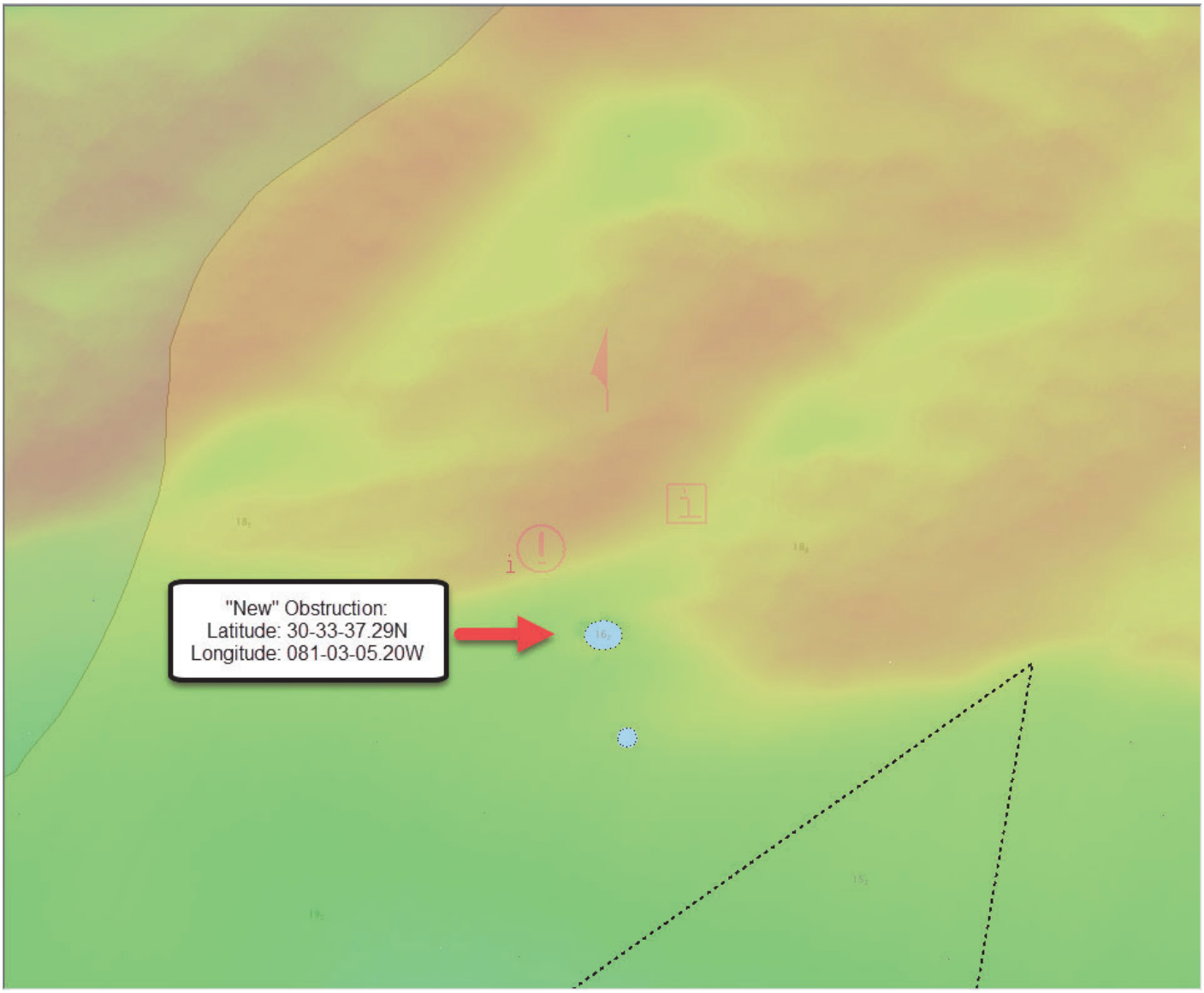


Figure 28: H12979 "New" OBSTRN Feature - Non DTON Lat: 30-33-37.29N Lon: 081-03-05.20W

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

Six (6) bottom samples were acquired as part of H12979 and are addressed in the Final Feature File. No images were collected on two (2) bottom sample locations due to difficult environmental conditions.

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 (1) charted ATON (Buoy and Light) were not observed during survey operations. This ATON exists only on ENC USFL50M, not on ENC US3GA10M or RNC's 11480 and 11488. This discrepancy was reported using NOAA online chart discrepancy reporting website. A response was received regarding this discrepancy and correspondence can be found in the \Descriptive_Report\Appendices \II_Supplemental_Survey_Records_Correspondence folder.

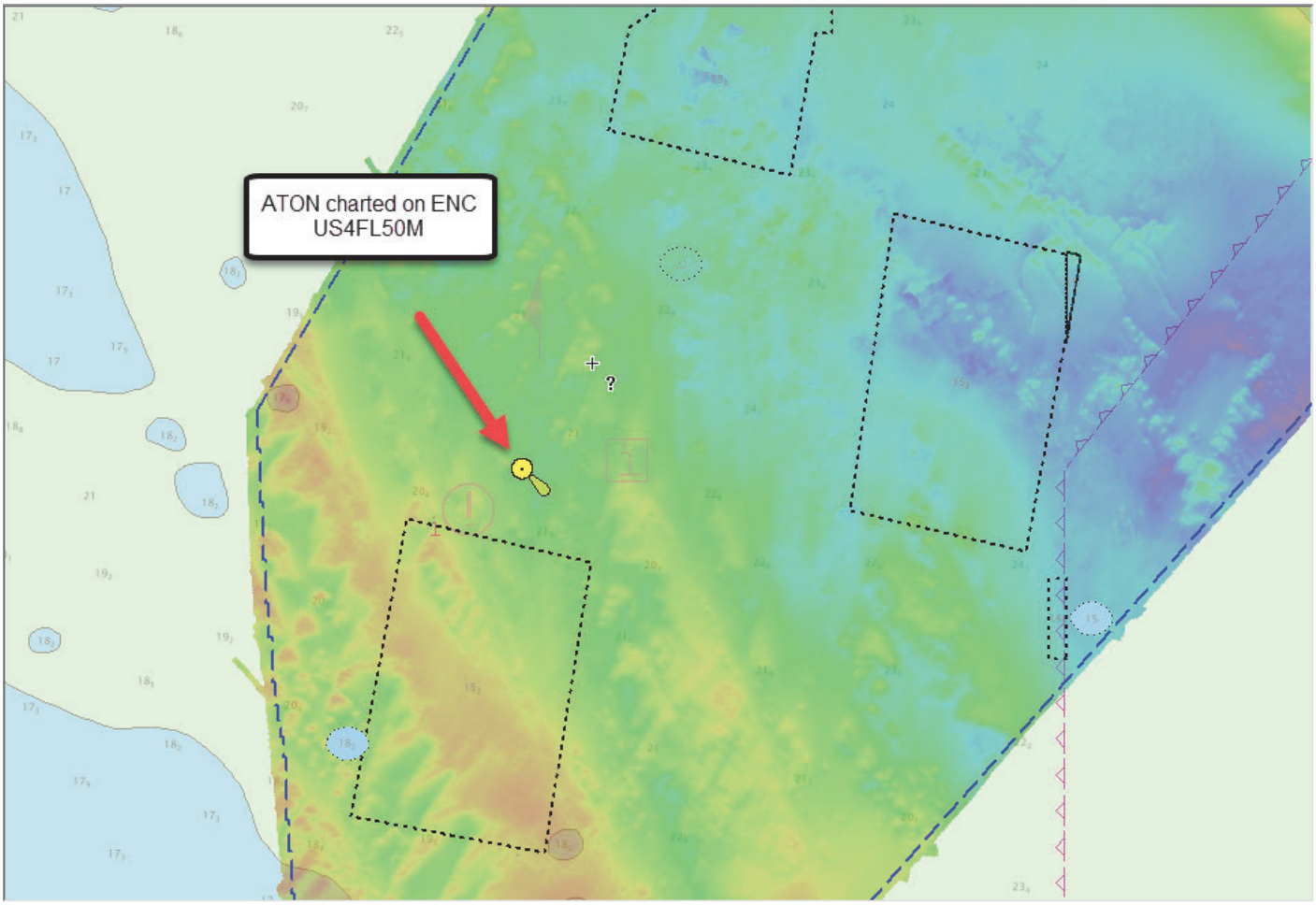


Figure 29: H12979 ATON on ENC US4FL50M

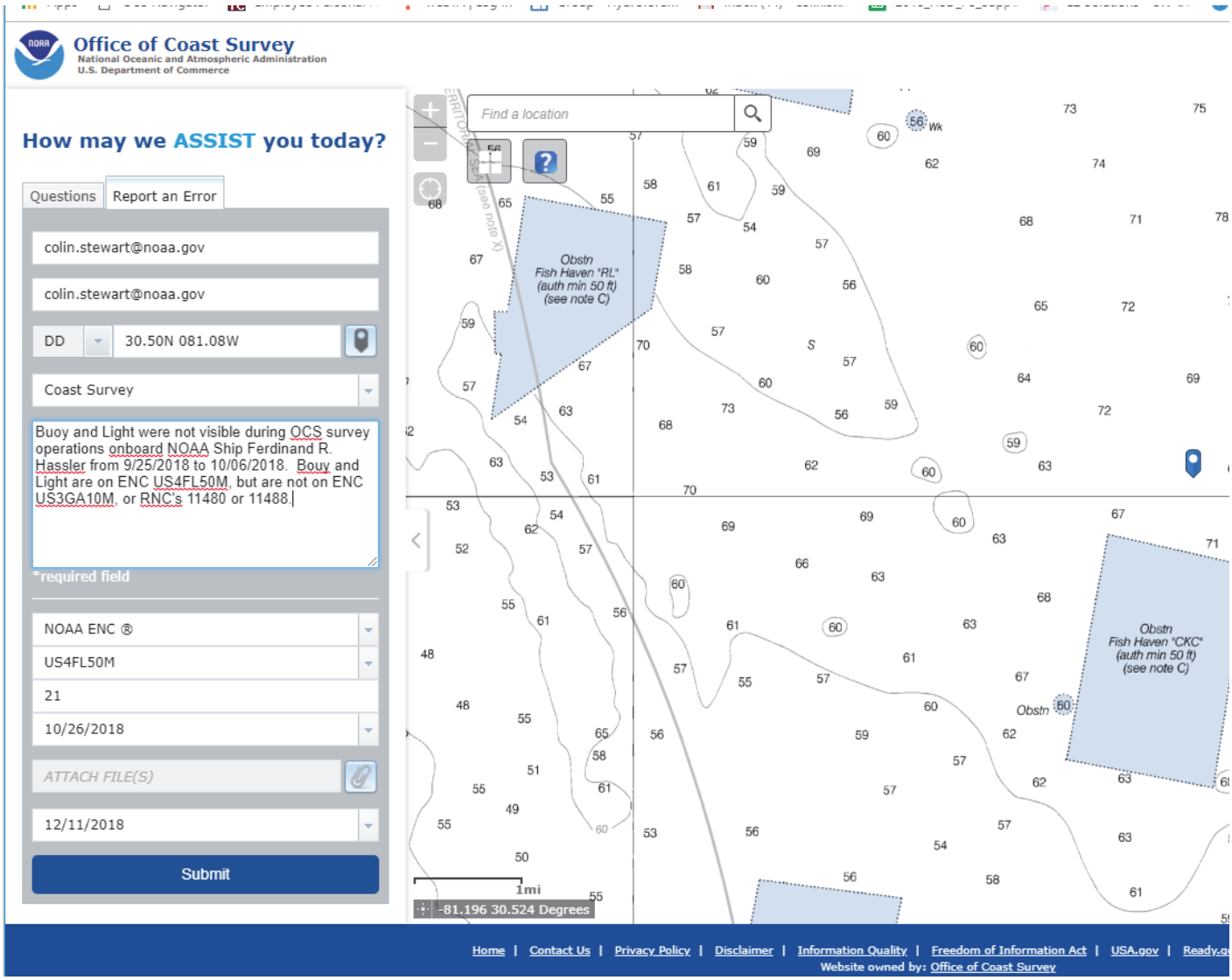


Figure 30: H12979 ATON Chart Discrepancy Report

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

No ferry routes or terminals exist for this survey.

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.

Report Name	Report Date Sent
Data Acquisition and Processing Report	2019-06-12

Approver Name	Approver Title	Approval Date	Signature
Mark Blankenship, LCDR/NOAA	Chief of Party	06/12/2019	Digitally signed by BLANKENSHIP.MARK.ANTHONY.1052425537 Date: 2019.06.24 14:57:53 -04'00'
John R Kidd, LT/NOAA	Field Operations Officer	06/12/2019	2019.06.25 14:08:16 -04'00'
Colin Stewart	Sheet Manager	06/12/2019	Digitally signed by STEWART.COLIN.ROY.1265206723 Date: 2019.06.25 09:52:11 -07'00'

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	Continually Operating Reference Staiton
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
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
HSSD	Hydrographic Survey Specifications and Deliverables

Acronym	Definition
HSTP	Hydrographic Systems Technology Programs
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
NAIP	National Agriculture and Imagery Program
NALL	Navigable Area Limit Line
NM	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
PST	Physical Science Technician
RNC	Raster Navigational Chart
RTK	Real Time Kinematic
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
TPE	Total Propagated Error
TPU	Topside Processing Unit
USACE	United States Army Corps of Engineers
USCG	United Stated Coast Guard
UTM	Universal Transverse Mercator
XO	Executive Officer
ZDA	Global Positiong System timing message
ZDF	Zone Definition File

OPS.Ferdinand Hassler - NOAA Service Account <ops.ferdinand.hassler@noaa.gov>

H12979, H13095, and H13131 Survey Outline

1 message

OPS.Ferdinand Hassler - NOAA Service Account <ops.ferdinand.hassler@noaa.gov> Thu, Jun 13, 2019 at 6:29 PM
To: _NOS OCS Survey Outlines <survey.outlines@noaa.gov>
Cc: Douglas Wood - NOAA Federal <douglas.wood@noaa.gov>

Greetings

Please see attached survey outlines for OPR-D304-FH-18 H13095 and OPR-G343-FH-18 H13131 and H12979. My apologizes for not sending earlier.

LT John Kidd
Operations Officer, NOAA Ship FERDINAND R. HASSLER
ship's cell: 603-812-8748 * VOIP: 541-867-8935 * irridium: 808-851-3826

Shipyard Address (UPS/FedEx):
GMD Shipyard Corp. (Atten: NOAA Ship Hassler)
Brooklyn Navy Yard
63 Flushing Ave BLDG # 595 UNIT # 276
Brooklyn, NY 11205-1005

Physical Address (UPS/FedEx):
UNH Judd Gregg Marine Research Complex
29 Wentworth Rd
New Castle, NH 03854

Mailing Address:
PO Box 638, New Castle, NH 03854

3 attachments

- **H12979_Survey_Outline.000**
  867K
- **H13131_Survey_Outline.000**
  2427K
- **H13095_Survey_Outline.000**
  2427K

OPS.Ferdinand Hassler - NOAA Service Account <ops.ferdinand.hassler@noaa.gov>

Marine Mammal Observations

2 messages

OPS.Ferdinand Hassler - NOAA Service Account <ops.ferdinand.hassler@noaa.gov> Thu, Jun 13, 2019 at 3:24 PM
To: _NMFS AFSC NMML POP INFORMATION <pop.information@noaa.gov>
Cc: Douglas Wood - NOAA Federal <douglas.wood@noaa.gov>, _NOS OCS ECC <ocs.ecc@noaa.gov>

Greetings,

Please see attached document for marine mammal sightings during the 2018 field season.

LT Steven Wall
Operations Officer in Training, NOAA Ship FERDINAND R. HASSLER
ship's cell: 603-812-8748 * VOIP: 541-867-8935 * irridium: 808-851-3826

Shipyard Address (UPS/FedEx):
GMD Shipyard Corp. (Atten: NOAA Ship Hassler)
Brooklyn Navy Yard
63 Flushing Ave BLDG # 595 UNIT # 276
Brooklyn, NY 11205-1005

Physical Address (UPS/FedEx):
UNH Judd Gregg Marine Research Complex
29 Wentworth Rd
New Castle, NH 03854

Mailing Address:
PO Box 638, New Castle, NH 03854

FH_Marine Mammal Sightings_20190613.pdf
3639K

Blair Delean - NOAA Federal <blair.j.delean@noaa.gov> Thu, Jun 13, 2019 at 5:04 PM
To: "OPS.Ferdinand Hassler - NOAA Service Account" <ops.ferdinand.hassler@noaa.gov>
Cc: _NMFS AFSC NMML POP INFORMATION <pop.information@noaa.gov>, Douglas Wood - NOAA Federal <douglas.wood@noaa.gov>, _NOS OCS ECC <ocs.ecc@noaa.gov>

Excellent, thank you for your POP submission.

Very Respectfully,

LTJG Blair Delean, NOAA
Marine Mammal Laboratory
206.526.4048

[Quoted text hidden]

OPS.Ferdinand Hassler - NOAA Service Account <ops.ferdinand.hassler@noaa.gov>

NCEI Sound Speed Data

1 message

OPS.Ferdinand Hassler - NOAA Service Account <ops.ferdinand.hassler@noaa.gov> Thu, Jun 13, 2019 at 1:44 PM
To: "NODC.Submissions" <NODC.Submissions@noaa.gov>
Cc: Douglas Wood - NOAA Federal <douglas.wood@noaa.gov>

Greetings,

Please see attached .zip files containing sound speed data collected during last years projects, OPR-G343-FH-18 and OPR-D304-FH-18.

LT Steven Wall
Operations Officer in Training, NOAA Ship FERDINAND R. HASSLER
ship's cell: 603-812-8748 * VOIP: 541-867-8935 * irridium: 808-851-3826

Shipyard Address (UPS/FedEx):
GMD Shipyard Corp. (Atten: NOAA Ship Hassler)
Brooklyn Navy Yard
63 Flushing Ave BLDG # 595 UNIT # 276
Brooklyn, NY 11205-1005

Physical Address (UPS/FedEx):
UNH Judd Gregg Marine Research Complex
29 Wentworth Rd
New Castle, NH 03854

Mailing Address:
PO Box 638, New Castle, NH 03854

2 attachments

OPR-G343-FH-18_20190613.zip
717K

OPR-D304-FH-18_20190613.zip
1900K

OPS.Ferdinand Hassler - NOAA Service Account <ops.ferdinand.hassler@noaa.gov>

Sea Turtle Sightings

3 messages

OPS.Ferdinand Hassler - NOAA Service Account <ops.ferdinand.hassler@noaa.gov> Thu, Jun 13, 2019 at 3:24 PM
To: larisa.avens@noaa.gov, jeffrey.seminoff@noaa.gov, george.balazs@noaa.gov
Cc: Douglas Wood - NOAA Federal <douglas.wood@noaa.gov>, _NOS OCS ECC <ocs.ecc@noaa.gov>

Greetings,

Please see attached document for sea turtle sightings during the 2018 field season.

LT Steven Wall
Operations Officer in Training, NOAA Ship FERDINAND R. HASSLER
ship's cell: 603-812-8748 * VOIP: 541-867-8935 * irridium: 808-851-3826

Shipyard Address (UPS/FedEx):
GMD Shipyard Corp. (Atten: NOAA Ship Hassler)
Brooklyn Navy Yard
63 Flushing Ave BLDG # 595 UNIT # 276
Brooklyn, NY 11205-1005

Physical Address (UPS/FedEx):
UNH Judd Gregg Marine Research Complex
29 Wentworth Rd
New Castle, NH 03854

Mailing Address:
PO Box 638, New Castle, NH 03854

FH_Sea Turtle Sightings_20190613.pdf
947K

Mail Delivery Subsystem <mailer-daemon@googlemail.com> Thu, Jun 13, 2019 at 3:24 PM
To: ops.ferdinand.hassler@noaa.gov

Message not delivered

There was a problem delivering your message to **george.balazs@noaa.gov**. See the technical details below.

Final-Recipient: rfc822; george.balazs@noaa.gov
Action: failed

Status: 5.0.0
Last-Attempt-Date: Thu, 13 Jun 2019 08:24:16 -0700 (PDT)

---------- Forwarded message ----------
From: "OPS.Ferdinand Hassler - NOAA Service Account" <ops.ferdinand.hassler@noaa.gov>
To: larisa.avens@noaa.gov, jeffrey.seminoff@noaa.gov, george.balazs@noaa.gov
Cc: Douglas Wood - NOAA Federal <douglas.wood@noaa.gov>, _NOS OCS ECC <ocs.ecc@noaa.gov>
Bcc:
Date: Thu, 13 Jun 2019 15:24:01 +0000
Subject: Sea Turtle Sightings
Greetings,

Please see attached document for sea turtle sightings during the 2018 field season.

LT Steven Wall
Operations Officer in Training, NOAA Ship FERDINAND R. HASSLER
ship's cell: 603-812-8748 * VOIP: 541-867-8935 * irridium: 808-851-3826

Shipyard Address (UPS/FedEx):
GMD Shipyard Corp. (Atten: NOAA Ship Hassler)
Brooklyn Navy Yard
63 Flushing Ave BLDG # 595 UNIT # 276
Brooklyn, NY 11205-1005

Physical Address (UPS/FedEx):
UNH Judd Gregg Marine Research Complex
29 Wentworth Rd
New Castle, NH ----- Message truncated -----

Larisa Avens - NOAA Federal <larisa.avens@noaa.gov> Thu, Jun 13, 2019 at 6:23 PM
To: "OPS.Ferdinand Hassler - NOAA Service Account" <ops.ferdinand.hassler@noaa.gov>
Cc: Jeffrey Seminoff <jeffrey.seminoff@noaa.gov>, George Balazs - NOAA Federal <george.balazs@noaa.gov>, Douglas Wood - NOAA Federal <douglas.wood@noaa.gov>, _NOS OCS ECC <ocs.ecc@noaa.gov>

Good afternoon,
Thank you for passing along this information!

Best,
Larisa
[Quoted text hidden]
--
~~~~~~

Larisa Avens, Ph.D., Research Fishery Biologist
National Marine Fisheries Service, NOAA Beaufort Laboratory
101 Pivers Island Rd. Beaufort, NC 28516
Ph: 252-728-8747
http://www.sefsc.noaa.gov/labs/beaufort/
~~~~~~

From: nautical.charting@noaa.gov
To: colin.stewart@noaa.gov
Subject: OCS Inquiry 33046
Date: Wednesday, February 6, 2019 11:03:57 AM

OCS Inquiry: 33046

Original message: Buoy and Light were not visible during OCS survey operations onboard NOAA Ship Ferdinand R. Hassler from 9/25/2018 to 10/06/2018. Bouy and Light are on ENC US4FL50M, but are not on ENC US3GA10M, or RNC's 11480 or 11488. (ASSIST 4996)

OCS response: Mr. Stewart,

Thank you for your inquiry regarding the Scripps Wave Data Lighted Buoy CDIP STA 194, located on chart 11488 in position 30-30-00.18N, 081-04-48.001W. I have researched this item and determined that the correct position for this buoy is 30-00-00.18N, 081-04-48.001W. It does exist, and is charted correctly in that location on chart 11488. All effected ENC cells will be updated to show the correct position, and updates to those will be available ASAP.

Regards,
Kevin Jett

From: nautical.charting@noaa.gov
To: colin.stewart@noaa.gov
Subject: Status Reguarding Inquiry Number 33046
Date: Thursday, January 17, 2019 11:15:38 AM

Mr. Stewart,

Could you please send us a geographic position of your observation? Thanks,

Craig Winn

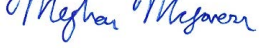
As part of the Paperwork Reduction Act, the Office of Management and Budget (OMB) would like us to ask for information from people who use the Nautical Discrepancy Reporting System. Please let us know what you think about the availability of data; frequency of collection; and the clarity of instructions and recordkeeping, disclosure, and reporting format. Also, please feel free to provide specific comments on whether we are asking for the appropriate information, and whether this is a burden on system users. You may submit comments to nautical.charting@noaa.gov.

APPROVAL PAGE

H12979

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:  MCGOVERN.MEGHAN.ELIZABETH.1284020495 2022.01.13 10:13:29 -05'00'

Commander Meghan McGovern, NOAA
Chief, Atlantic Hydrographic Branch