H12980

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

DESCRIPTIVE REPORT

Type of Survey:	Navigable Area
Registry Number:	H12980

LOCALITY

State(s):	Florida
General Locality:	Northeastern Florida
Sub-locality:	25NM due East of Nassau Sound

2019

CHIEF OF PARTY
CDR Mark Blankenship, NOAA

LIBRARY & ARCHIVES

Date:

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:
HYDROGRAPHIC TITLE SHEET	**H12980**

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:	**25NM due East of Nassau Sound**
Scale:	**40000**
Dates of Survey:	**07/16/2019 to 08/13/2019**
Instructions Dated:	**05/16/2019**
Project Number:	**OPR-G343-FH-19**
Field Unit:	**NOAA Ship *Ferdinand R. Hassler***
Chief of Party:	**CDR Mark Blankenship, 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 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 H12980

Project: OPR-G343-FH-19

Locality: Northeastern Florida

Sublocality: 25NM due East of Nassau Sound

Scale: 1:40000

July 2019 - August 2019

NOAA Ship *Ferdinand R. Hassler*

Chief of Party: CDR Mark Blankenship, NOAA

A. Area Surveyed

The survey area is located 25NM due East of Nassau Sound, Florida.

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
30° 32' 59.45" N 81° 5' 3.42" W	30° 24' 19.8" N 80° 51' 18.4" W

Table 1: Survey Limits

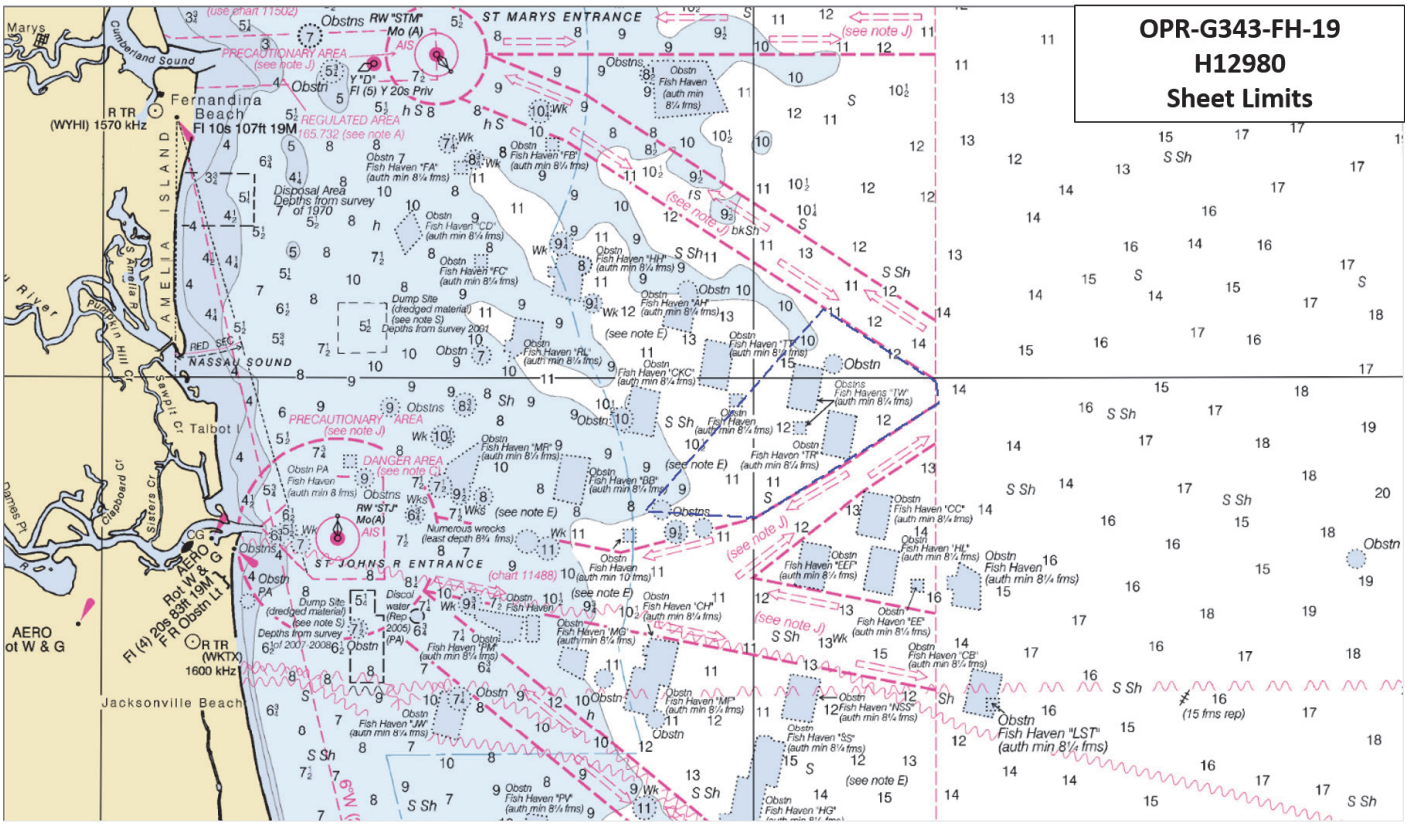


Figure 1: H12980 sheet limits (in blue) overlaid onto Chart 11480.

Data were acquired to the survey limits in accordance with the requirements in the Project Instructions and the March 2019 NOS Hydrographic Surveys Specifications and Deliverables (HSSD) as shown in Figure 2.

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, over 24,000 jobs were created by shipping activity amounting to an estimated $1.8 billion in personal wages. In 2017, 18.5 million tons of waterborne commerce and over 1.1 million 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 20,000 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 under keel 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.

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

Data acquired in H12980 meet multibeam echo sounder (MBES) coverage requirements for complete coverage, as required by the HSSD. This includes crosslines (see Section B.2.1), NOAA allowable uncertainty (see Section B.2.10), and density requirements (see Section B.2.11).

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)

Table 2: Survey Coverage

The entirety of H12980 was acquired with complete coverage, meeting the requirements listed above and in the HSSD. See Figure 2 for an overview of coverage.

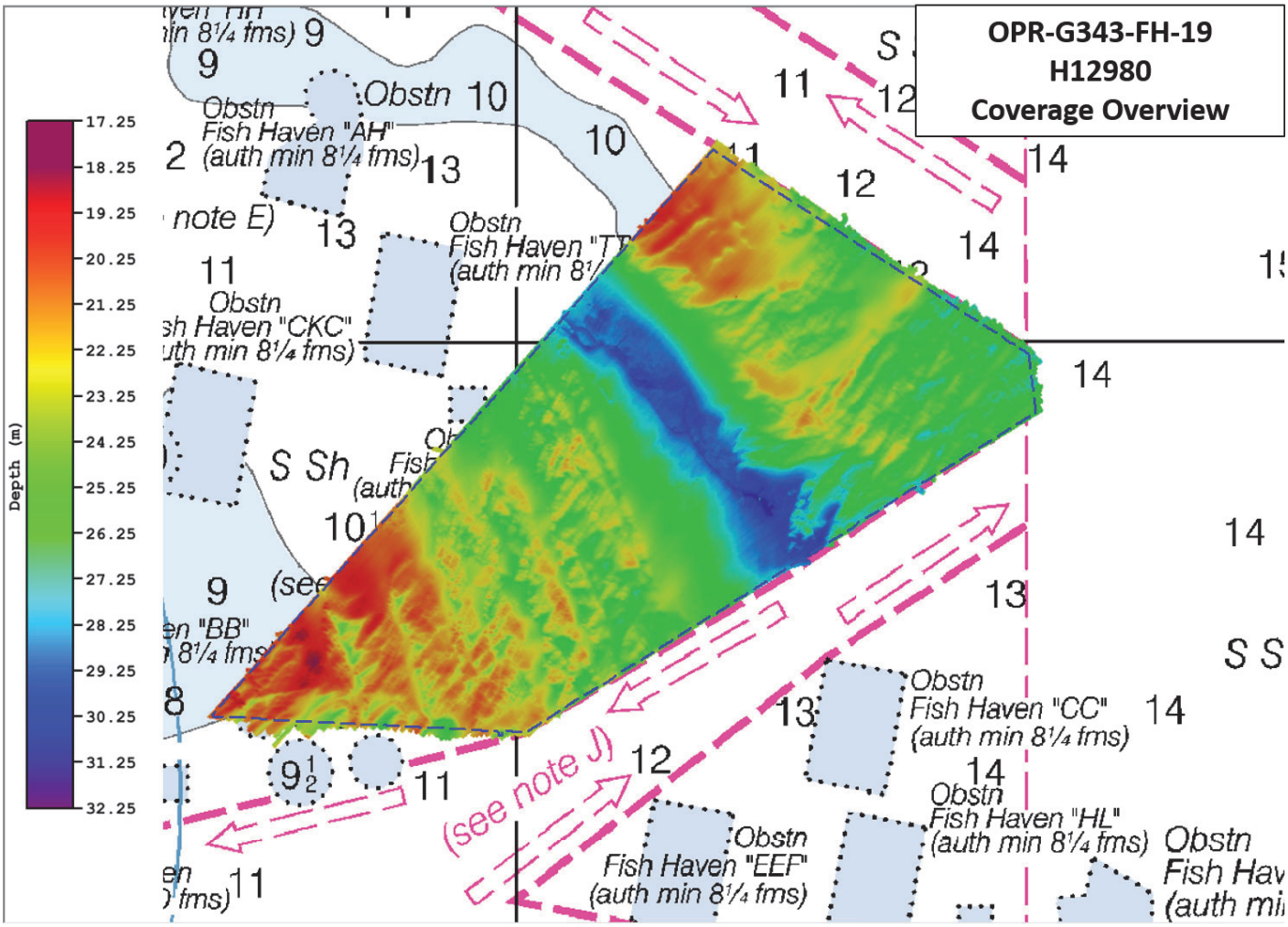


Figure 2: H12980 survey coverage overlaid onto Chart 11480.

A.6 Survey Statistics

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

	HULL ID	*S250*	*Total*
LNM	**SBES Mainscheme**	0	0
	MBES Mainscheme	1019.96	1019.96
	Lidar Mainscheme	0	0
	SSS Mainscheme	0	0
	SBES/SSS Mainscheme	0	0
	MBES/SSS Mainscheme	0	0
	SBES/MBES Crosslines	57.96	57.96
	Lidar Crosslines	0	0
Number of Bottom Samples			5
Number Maritime Boundary Points Investigated			0
Number of DPs			0
Number of Items Investigated by Dive Ops			0
Total SNM			46.47

Table 3: Hydrographic Survey Statistics

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

Survey Dates	Day of the Year
07/16/2019	197
07/17/2019	198

Survey Dates	Day of the Year
07/18/2019	199
07/19/2019	200
07/20/2019	201
07/21/2019	202
07/22/2019	203
07/23/2019	204
08/13/2019	225

Table 4: Dates of Hydrography

B. Data Acquisition and Processing

B.1 Equipment and Vessels

Refer to the OPR-G343-FH-19 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*
LOA	37.7 meters
Draft	3.77 meters

Table 5: Vessels Used

B.1.2 Equipment

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

Manufacturer	Model	Type
Kongsberg Maritime	EM 2040	MBES
AML Oceanographic	MVP200	Conductivity, Temperature, and Depth Sensor
Teledyne RESON	SVP 70	Sound Speed System
Applanix	POS MV 320 v5	Positioning and Attitude System

Table 6: Major Systems Used

The equipment was installed on the survey platform as follows: S250 utilizes two Kongsberg EM 2040 MBES, a POS MV v5 system for position and attitude, SVP 70 surface sound speed sensors, and AML Oceanographic MVP 200 for conductivity, temperature, and depth (CTD) casts.

B.2 Quality Control

B.2.1 Crosslines

Multibeam/single beam echo sounder/side scan sonar crosslines acquired for this survey totaled 5.68% of mainscheme acquisition.

Crosslines were collected, processed and compared in accordance with Section 5.2.4.2 of the HSSD. To evaluate crosslines, a surface generated via data strictly from mainscheme lines and a surface generated via data strictly from crosslines were created. From these two surfaces, a difference surface (mainscheme - crosslines = difference surface) was generated (Figure 3), and is submitted in the Separates II Digital Data folder. Statistics show the mean difference between depths derived from mainscheme data and crossline data was -0.04 meters (with mainscheme being shoaler) and 95% of nodes falling within +/- 0.16 meters (Figure 4). For the respective depths, the difference surface was compared to the allowable NOAA uncertainty standards. In total, 99.5+% of the depth differences between H12980 mainscheme and crossline data were within allowable NOAA uncertainties.

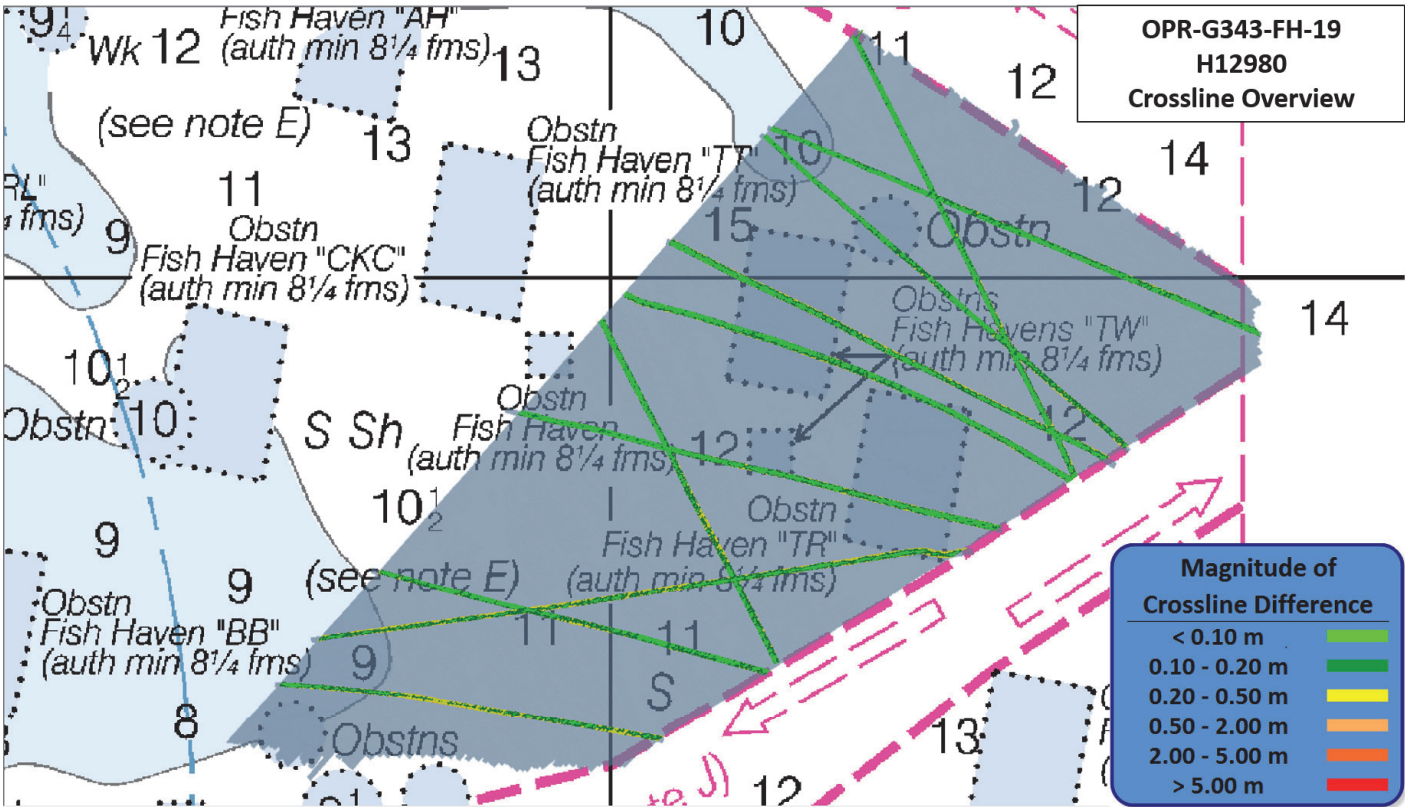
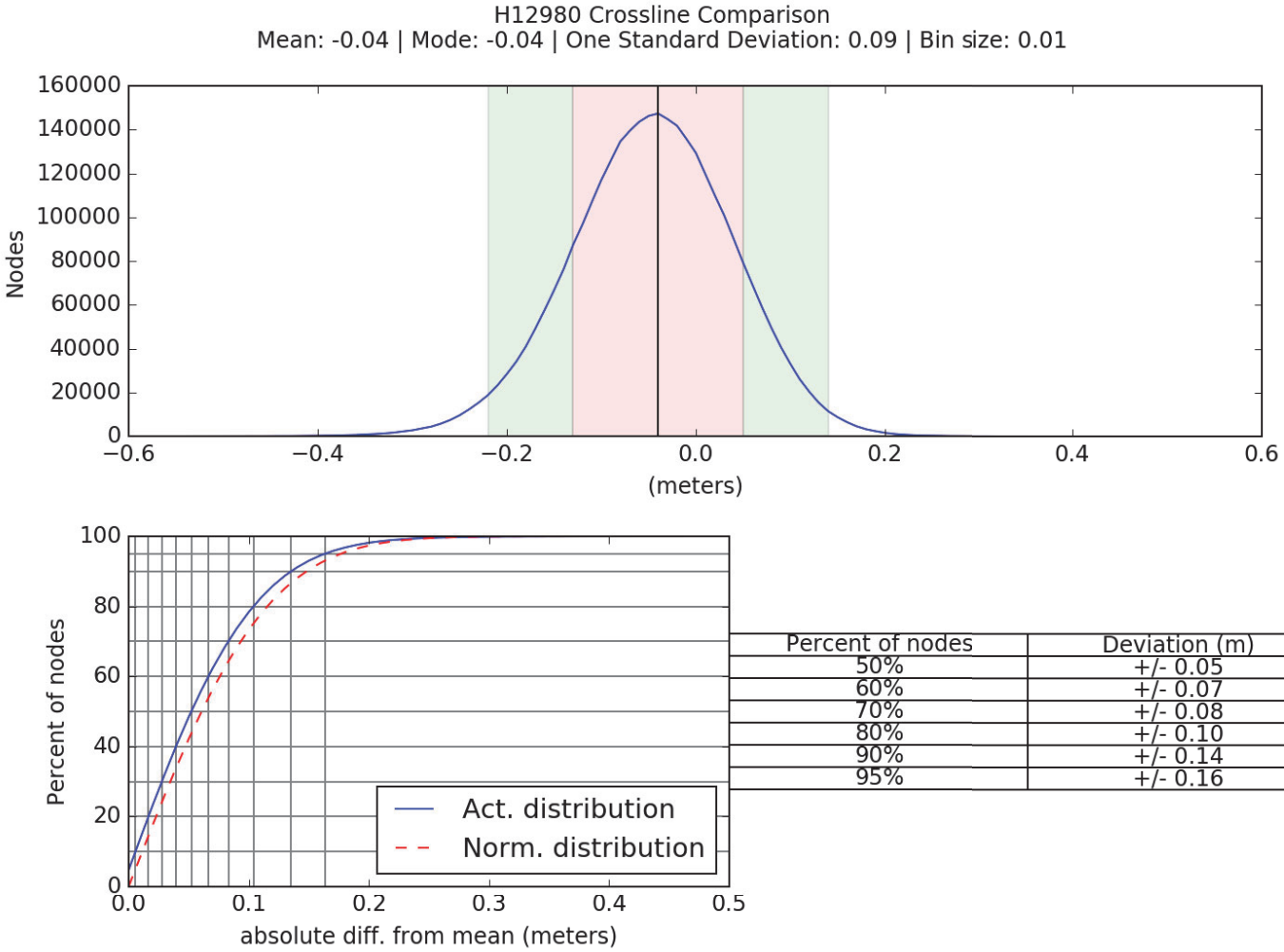


Figure 3: Overview of H12980 crosslines.



Percent of nodes	Deviation (m)
50%	+/- 0.05
60%	+/- 0.07
70%	+/- 0.08
80%	+/- 0.10
90%	+/- 0.14
95%	+/- 0.16

Figure 4: H12980 crossline and mainscheme difference statistics.

B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

Method	Measured	Zoning
ERS via VDATUM		0.1 meters

Table 7: Survey Specific Tide TPU Values.

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

Table 8: Survey Specific Sound Speed TPU Values.

In addition to the usual a priori estimates of uncertainty via device models for vessel motion and VDATUM, real-time and post-processed uncertainty sources were also incorporated into the depth estimates of survey H12980. Real-time uncertainties were provided via EM 2040 MBES data and Applanix Delayed Heave RMS. Following post-processing of the real-time vessel motion, recomputed uncertainties of vessel roll, pitch, gyro and navigation were applied in CARIS HIPS and SIPS via a Smoothed Best Estimate of Trajectory (SBET) RMS file generated in Applanix POSPac.

B.2.3 Junctions

H12980 junction with 4 adjacent surveys from prior projects, H11821, H12099, H12977 and H12979 as shown in Figure 5. Data overlap between H12980 and each adjacent survey was achieved. These areas of overlap between surveys were reviewed in CARIS HIPS and SIPS by surface differencing to assess surface agreement. The junctions with H12980 are generally within the NOAA allowable uncertainty in their areas of overlap. For all junctions with H12980, a negative difference indicates H12980 was shoaler and a positive difference indicates H12980 was deeper.

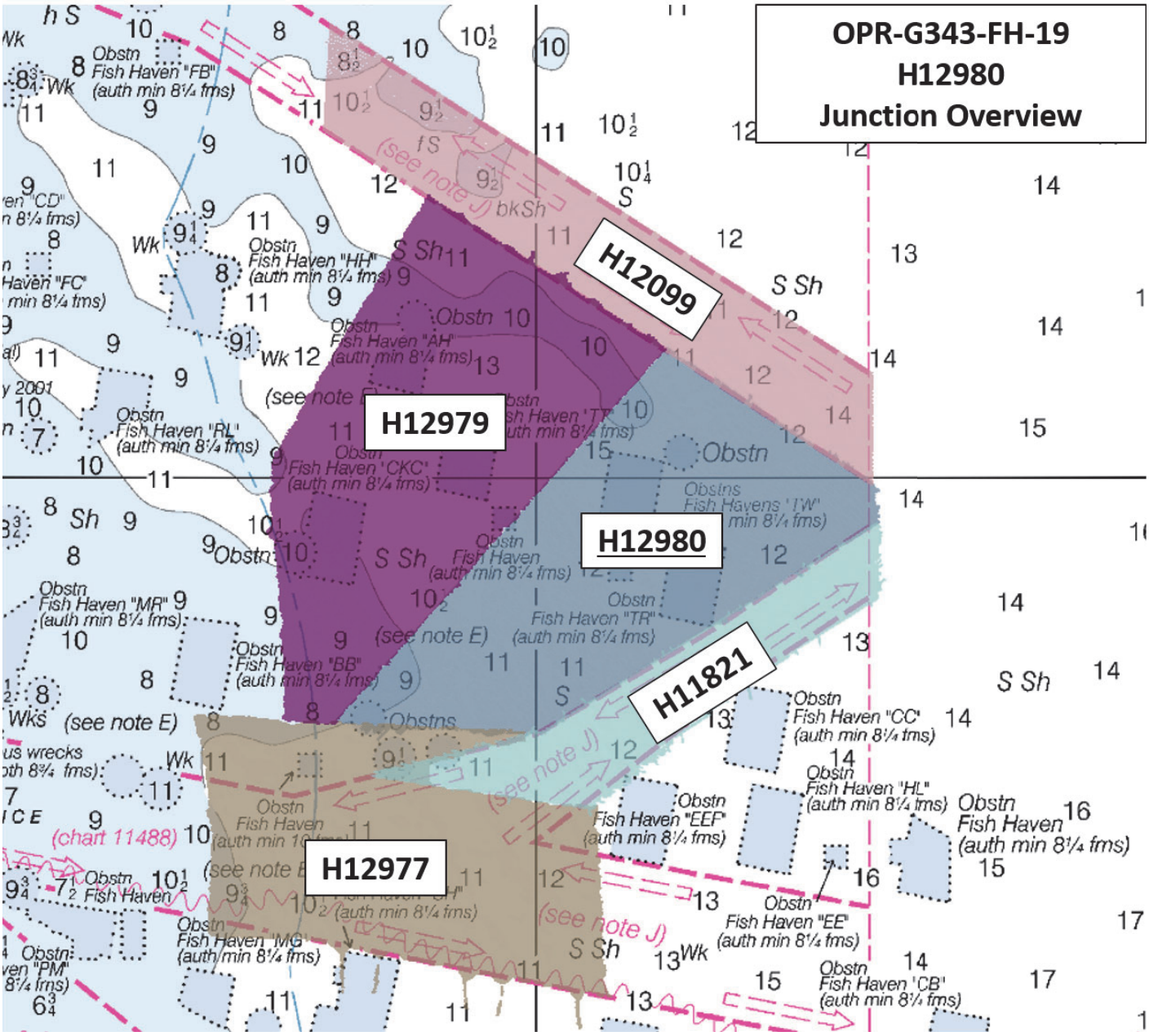


Figure 5: Overview of H12980 junction surveys.

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H11821	1:20000	2008	NOAA Ship THOMAS JEFFERSON	SE
H12099	1:20000	2009	SAIC	N
H12977	1:40000	2017	NOAA Ship FERDINAND R. HASSLER	S
H12979	1:40000	2018	NOAA Ship FERDINAND R. HASSLER	W

Table 9: Junctioning Surveys

H11821

Surface differencing in Pydro's Surface Comparison tool was used to assess junction agreement between the surface from H12980 and the surface from H11821 (Figure 6). The statistical analysis of the difference surface shows a mean of 0.03 meters with 95% of the nodes having a maximum deviation of +/- 0.32 meters, as seen in Figure 7. It was found that 99.5+% of nodes are within NOAA allowable uncertainty.

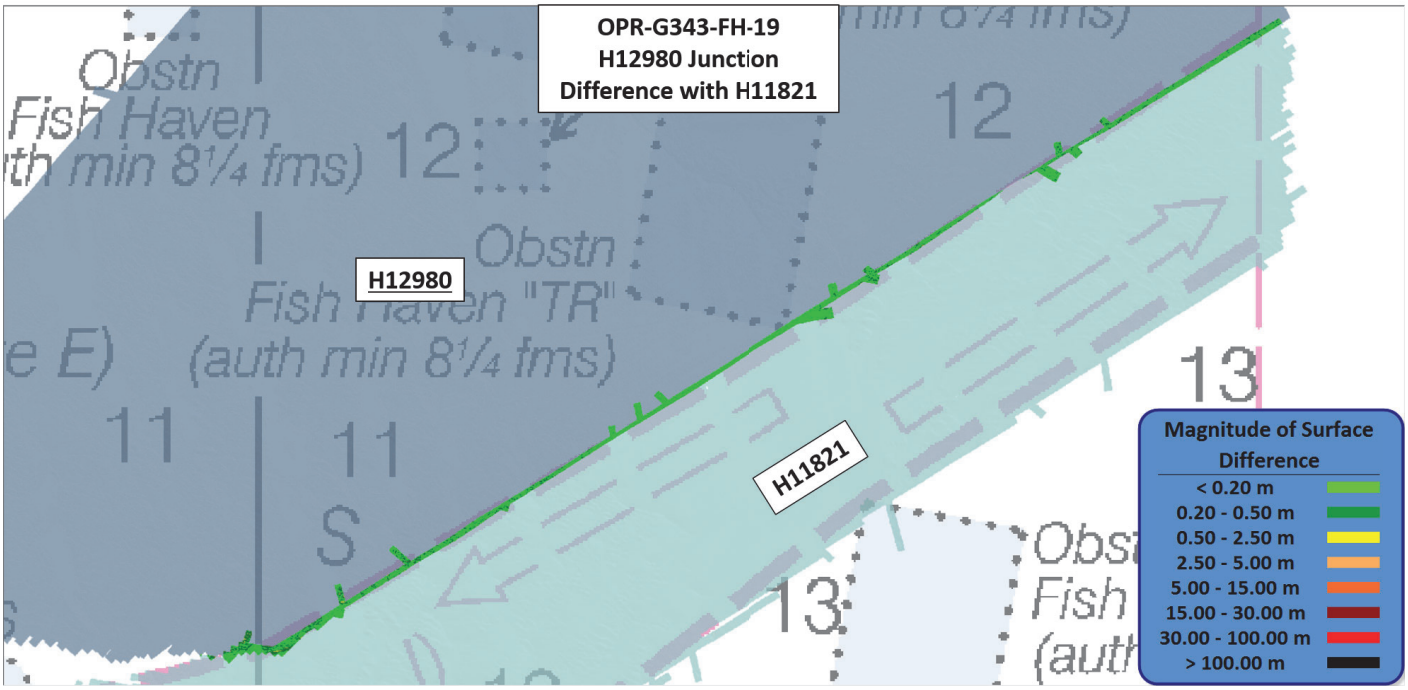
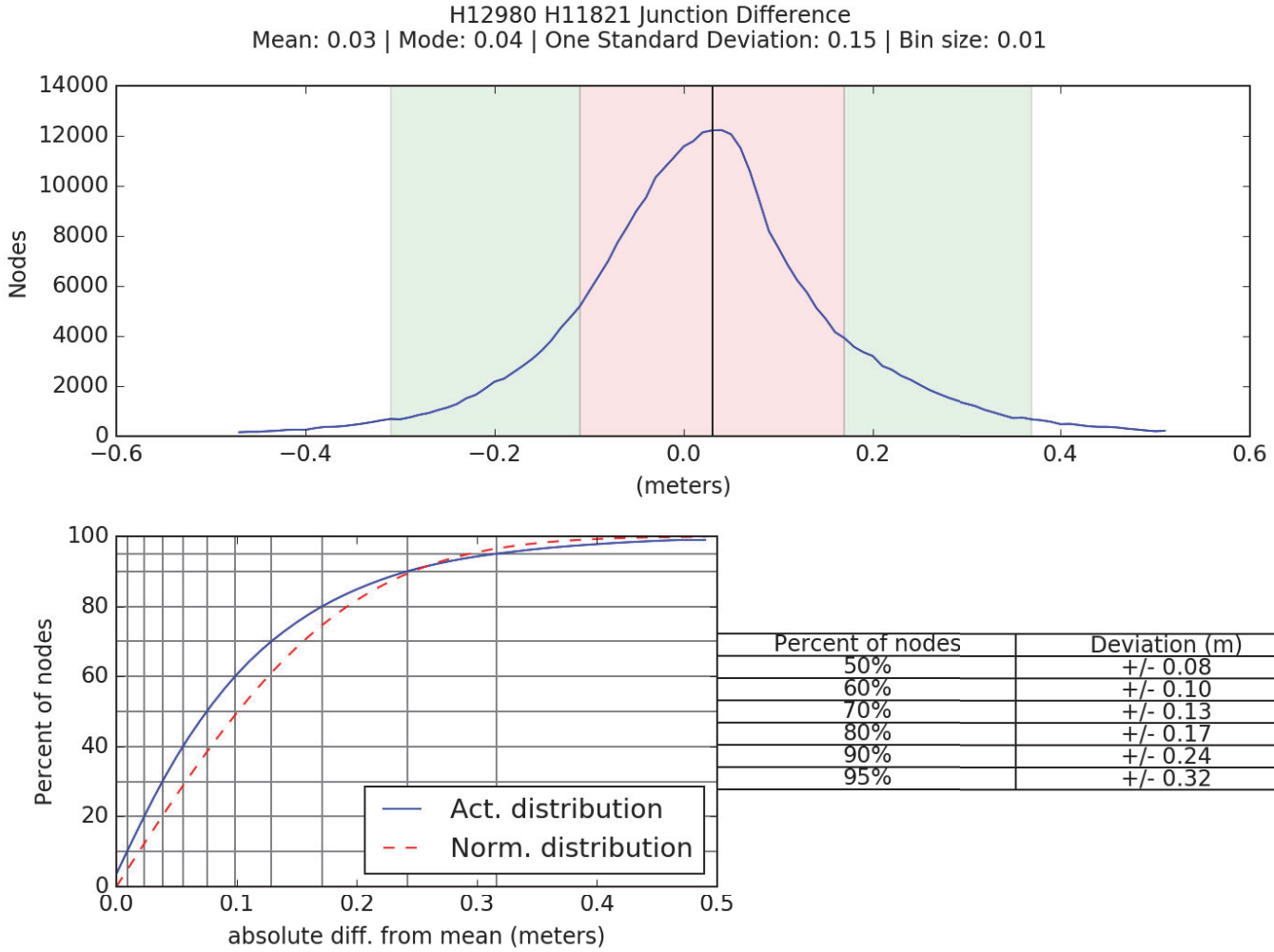


Figure 6: Difference surface between H12980 (blue) and junctioning survey H11821 (teal).



Percent of nodes	Deviation (m)
50%	+/- 0.08
60%	+/- 0.10
70%	+/- 0.13
80%	+/- 0.17
90%	+/- 0.24
95%	+/- 0.32

Figure 7: Difference surface statistics between H12980 and H11821.

H12099

Surface differencing in Pydro's Surface Comparison tool was used to assess junction agreement between the surface from H12980 and the surface from H12099 (Figure 8). The statistical analysis of the difference surface shows a mean of -0.06 meters with 95% of the nodes having a maximum deviation of +/- 0.23 meters, as seen in Figure 9. It was found that 99.5+% of nodes are within NOAA allowable uncertainty.

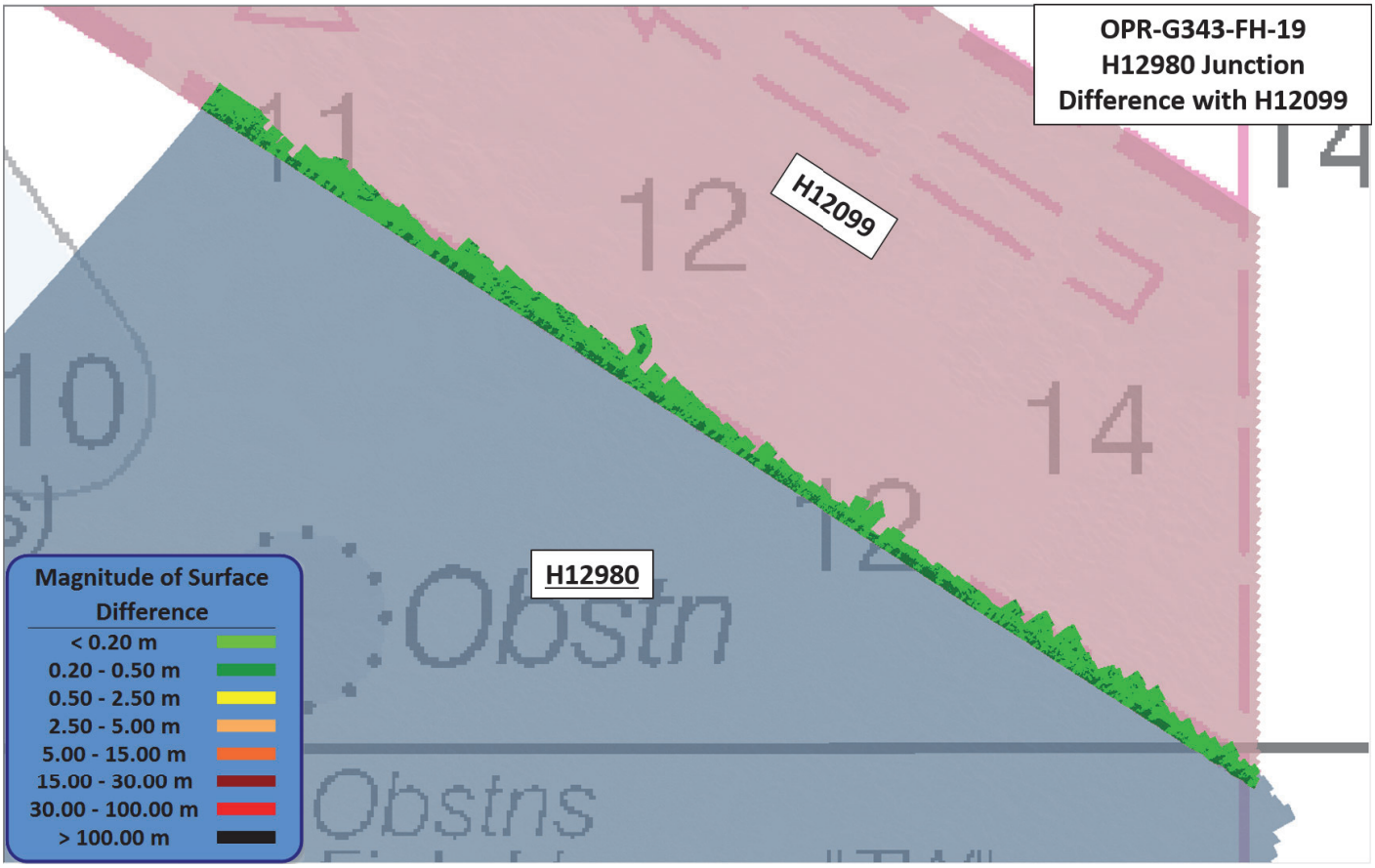
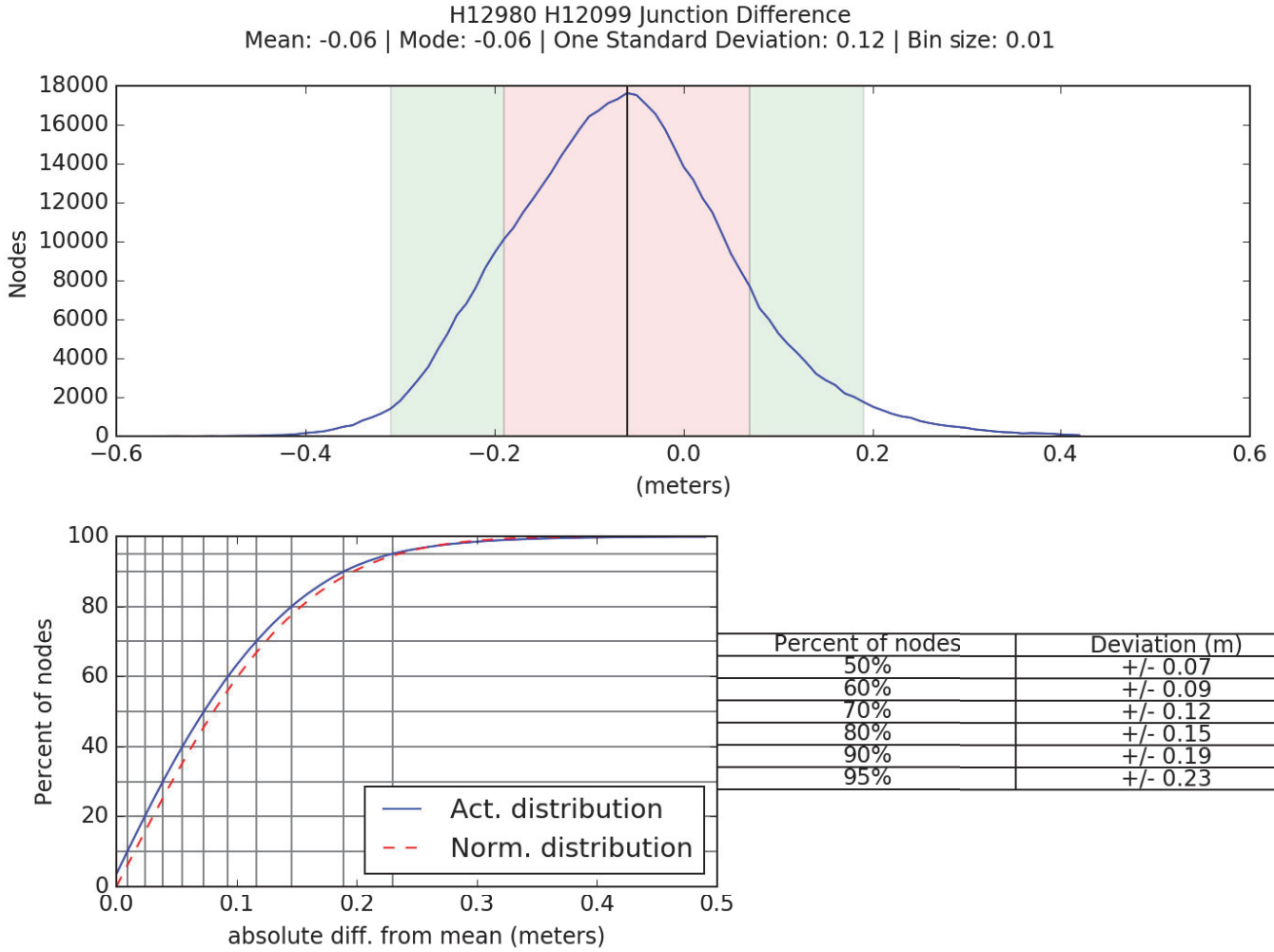


Figure 8: Difference surface between H12980 (blue) and junctioning survey H12099 (pink).



Percent of nodes	Deviation (m)
50%	+/- 0.07
60%	+/- 0.09
70%	+/- 0.12
80%	+/- 0.15
90%	+/- 0.19
95%	+/- 0.23

Figure 9: Difference surface statistics between H12980 and H12099.

H12977

Surface differencing in Pydro's Surface Comparison tool was used to assess junction agreement between the surface from H12980 and the surface from H12977 (Figure 10). A VR surface was created for survey H12980 for junction comparison purposes. The statistical analysis of the difference surface shows a mean of -0.03 meters with 95% of the nodes having a maximum deviation of +/- 0.17 meters, as seen in Figure 11. It was found that 100% of nodes are within NOAA allowable uncertainty.

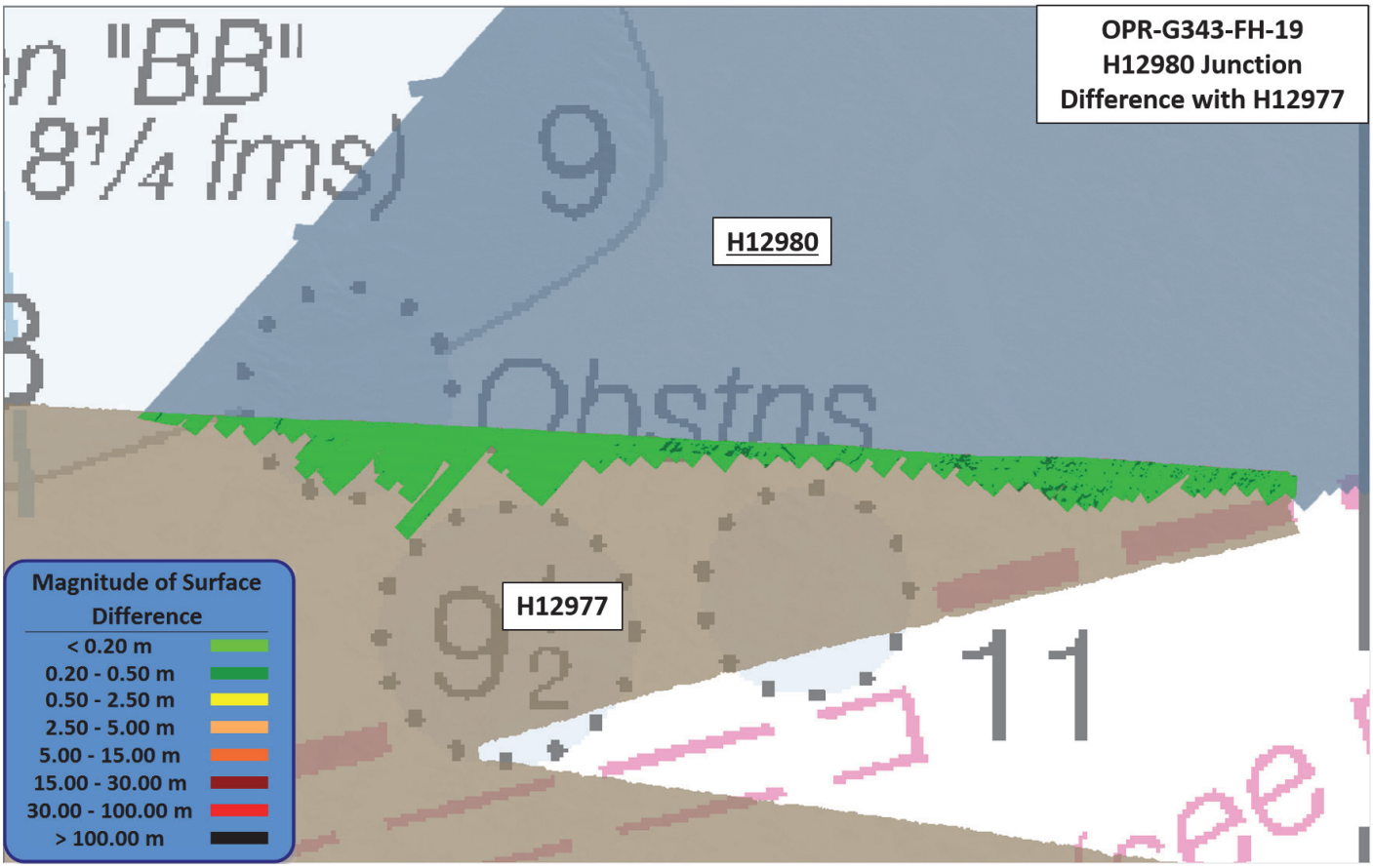
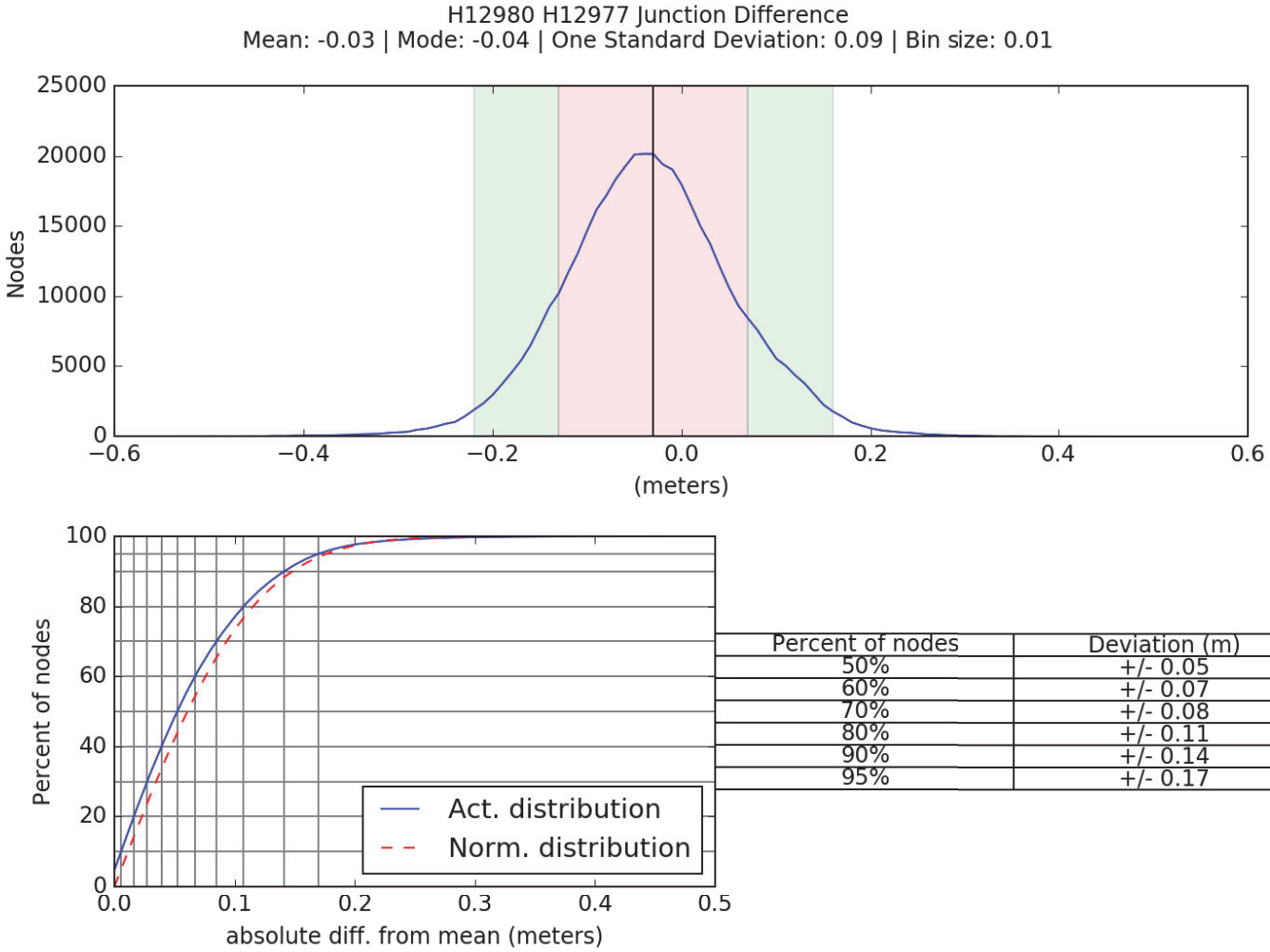


Figure 10: Difference surface between H12980 (blue) and junctioning survey H12977 (brown).



Percent of nodes	Deviation (m)
50%	+/- 0.05
60%	+/- 0.07
70%	+/- 0.08
80%	+/- 0.11
90%	+/- 0.14
95%	+/- 0.17

Figure 11: Difference surface statistics between H12980 and H12977.

H12979

Surface differencing in Pydro's Surface Compare tool was used to assess junction agreement between the surface from H12980 and the surface from H12979 (Figure 12). The statistical analysis of the difference surface shows a mean of -0.01 meters with 95% of the nodes having a maximum deviation of +/- 0.13 meters, as seen in Figure 13. It was found that 100% of nodes are within NOAA allowable uncertainty.

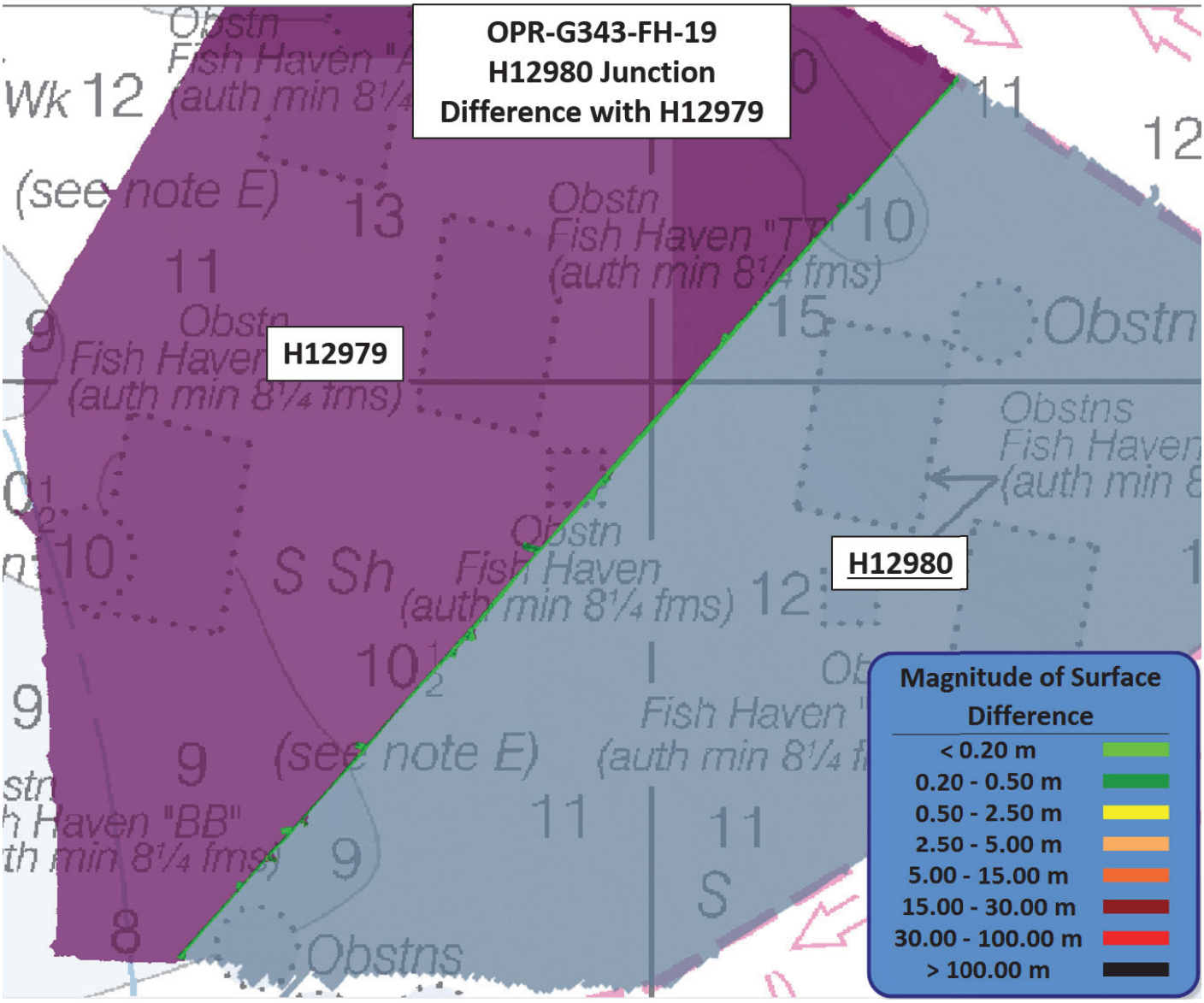
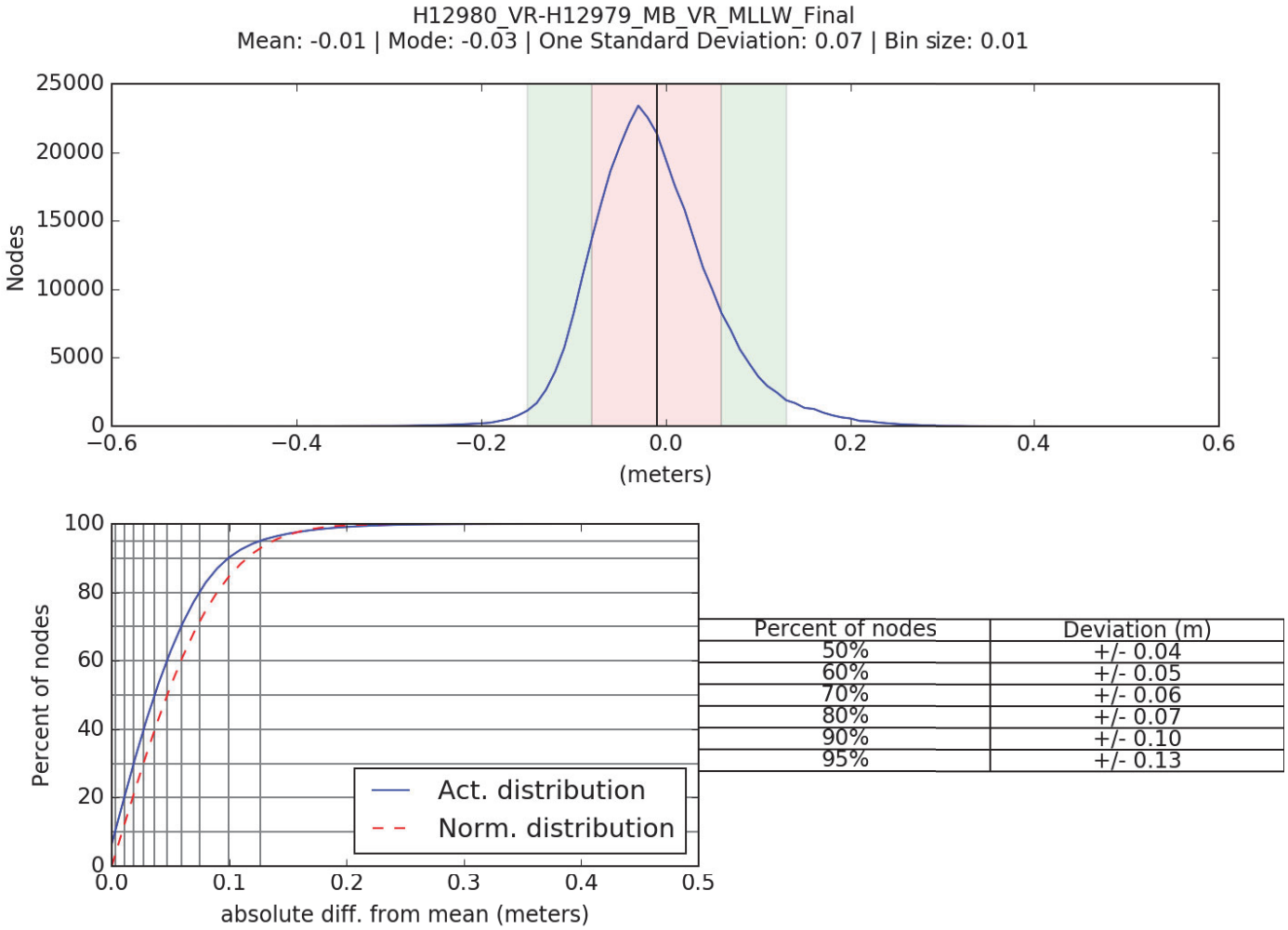


Figure 12: Difference surface between H12980 (blue) and junctioning survey H12979 (purple).



Percent of nodes	Deviation (m)
50%	+/- 0.04
60%	+/- 0.05
70%	+/- 0.06
80%	+/- 0.07
90%	+/- 0.10
95%	+/- 0.13

Figure 13: Difference surface statistics between H12980 and H12979.

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: MVP casts on S250 were conducted at an average interval of 70 minutes, guided by observation of the surface sound speed. All sound speed methods were used as detailed in the DAPR.

B.2.8 Coverage Equipment and Methods

All equipment and survey methods were used as detailed in the DAPR.

B.2.9 Holidays

H12980 data were reviewed in CARIS HIPS and SIPS for holidays in accordance with Section 5.2.2.3 of the HSSD. Zero holidays which meet the definition described in the HSSD for complete coverage were identified via HydrOffice QC Tools Holiday Finder tool. This tool automatically scans the surface for holidays as defined in the HSSD and was run in conjunction with a visual inspection of the surface by the hydrographer.

B.2.10 NOAA Allowable Uncertainty

The surface was analyzed using the HydrOffice QC Tools Grid QA feature to determine compliance with specifications. Overall, 99.5+% of nodes within the surface meet NOAA allowable uncertainty specifications for H12980.

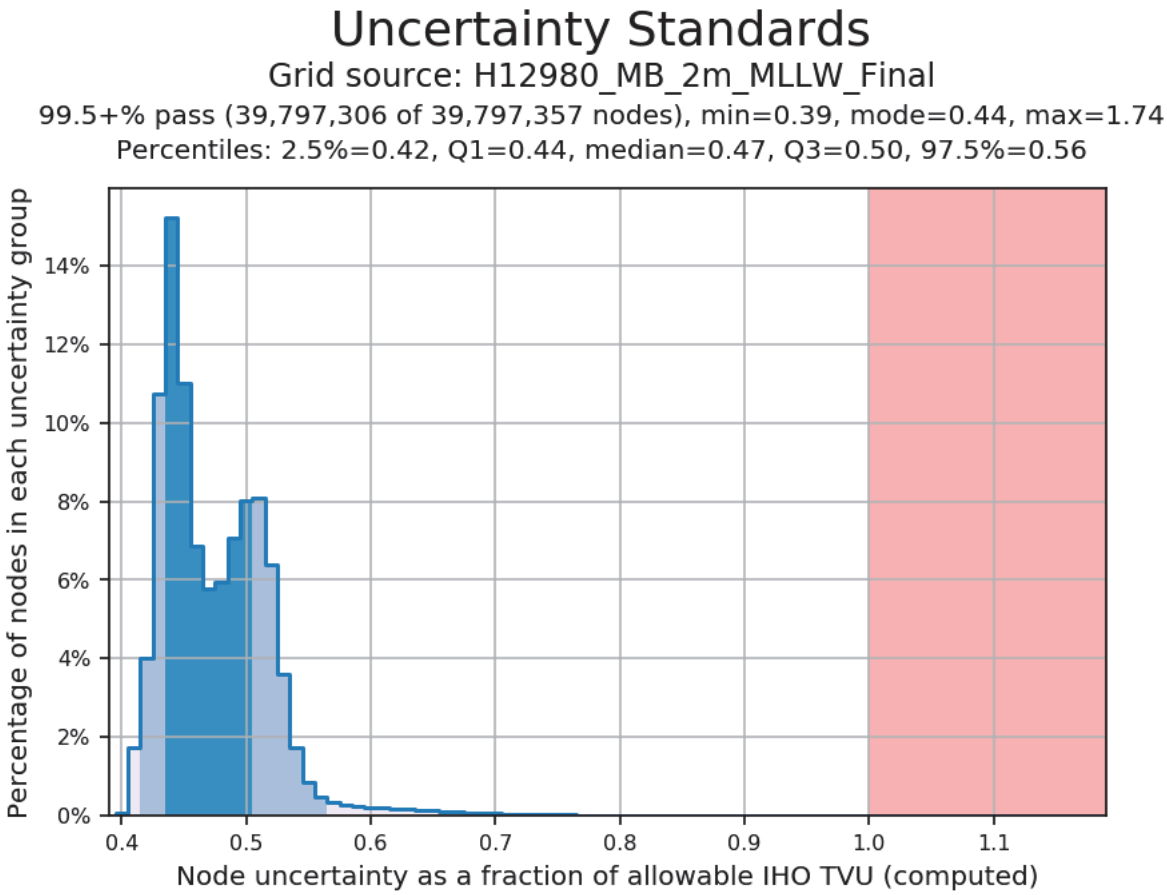


Figure 14: H12980 allowable uncertainty statistics.

B.2.11 Density

The surface was analyzed using the HydrOffice QC Tools Grid QA feature to determine compliance with specifications. Density requirements for H12980 were achieved with at least 99.5+% of surface nodes containing five or more soundings as required by HSSD Section 5.2.2.3.

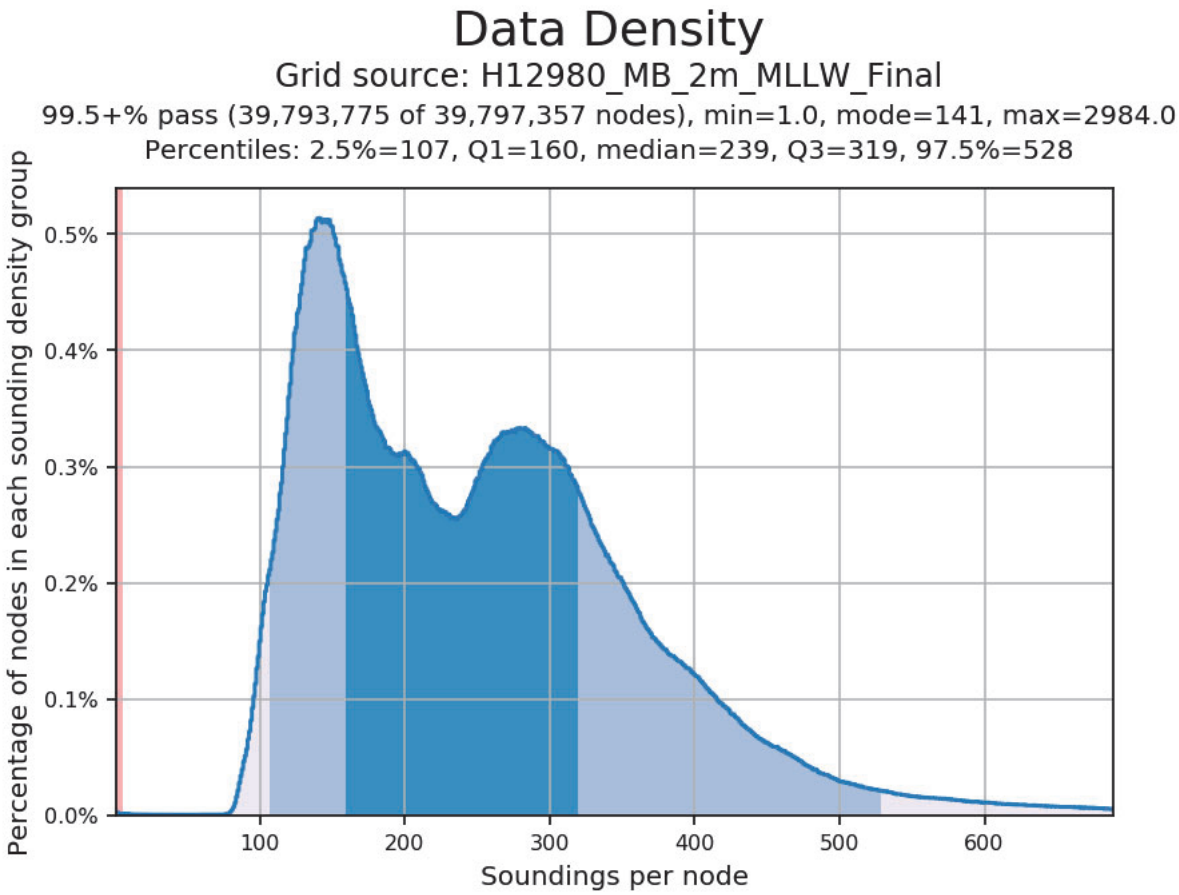


Figure 15: H12980 data density statistics.

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 data were stored in the .all file for Kongsberg systems. All backscatter were processed to GSF files and a floating point mosaic was created by the field unit via Fledermaus FMGT 7.8.6. See Figure 16 for a greyscale representation of the complete mosaic.

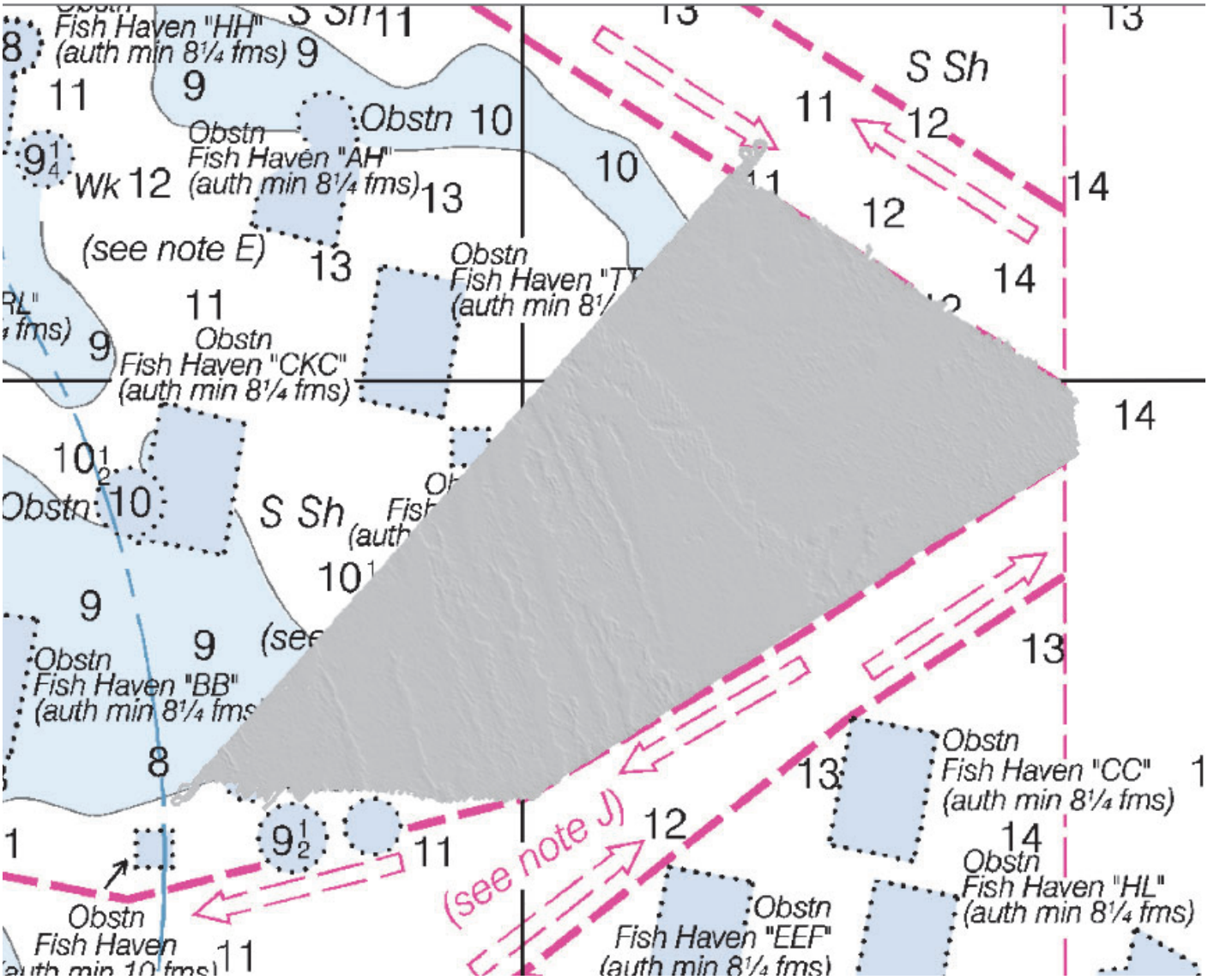


Figure 16: Backscatter mosaic for H12980.

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 and SIPS	10.4.16

Table 10: Primary bathymetric data processing software

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

Manufacturer	Name	Version
QPS	FMGT	7.8.6

Table 11: Primary imagery data processing software

The following Feature Object Catalog was used: Caris_Support_Files_2019v1.

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
H12980_MB_2m_MLLW	CARIS Raster Surface (CUBE)	2 meters	18.23 meters - 32.25 meters	NOAA_2m	Complete MBES
H12980_MB_2m_MLLW_Final	CARIS Raster Surface (CUBE)	2 meters	18.23 meters - 32.25 meters	NOAA_2m	Complete MBES

Table 12: Submitted Surfaces

The NOAA CUBE parameters defined in the HSSD were used for the creation of all CUBE surface for H12980. The surfaces have been reviewed where noisy data, or "fliers" are incorporated into the gridded solutions causing the surface to be shoaler or deeper than the true sea floor. Where these spurious soundings cause the gridded surface to vary from the reliably measured seabed by greater than the maximum allowable Total Vertical Uncertainty at that depth, the noisy data have been rejected by the hydrographer and the surface recomputed.

Flier Finder, part of the QC Tools package within HydrOffice, was used to assist the search for spurious soundings following gross cleaning. Flier Finder was run iteratively until all remaining flagged fliers were deemed to be valid aspects of the surface.

B.5.3 Data Logs

Data acquisition and processing notes are included in the acquisition and processing logs. All data logs are submitted digitally in the Separates I folder.

C. Vertical and Horizontal Control

Per Section 5.1.2.3 of the 2014 Field Procedures Manual, no Horizontal and Vertical Control Report has been generated for H12980.

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	2019Vdatum_ShapefileACHARE(A)_xyNAD83-MLLW_geoid12b.csar

Table 13: ERS method and SEP file

ERS methods were used as the final means of reducing H12980 to MLLW for submission.

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 17.

The following PPK methods were used for horizontal control:

- RTX

Vessel kinematic data were post-processed using Applanix POSPac processing software and RTX positioning methods described in the DAPR. Smoothed Best Estimate of Trajectory (SBET) and associated error (RMS) data were applied to all MBES data in CARIS HIPS and SIPS.

WAAS

During real-time acquisition, all platforms received correctors from the Wide Area Augmentation System (WAAS) for increased accuracies similar to USCG DGPS stations. WAAS and SBETs were the sole methods of positioning for H12980 as no DGPS stations were available for real-time horizontal control.

D. Results and Recommendations

D.1 Chart Comparison

A comparison was performed between survey H12980 and ENCs US3GA10M and US4FL50M using CARIS HIPS and SIPS. Sounding and contour layers were overlaid on the ENC to assess differences between the surveyed soundings and charted depths. ENC's were compared to the surface by extracting all soundings from the chart and creating an interpolated TIN surface which could be differenced with the surface from H12980.

All data from H12980 should supersede charted data. In general, surveyed soundings agree with the majority of charted depths. A full discussion follows below.

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	39	03/28/2019	08/02/2019	NO
US4FL50M	1:80000	22	06/19/2019	06/19/2019	NO

Table 14: Largest Scale ENCs

US3GA10M

Soundings from H12980 are in general agreement with charted depths on ENC US3GA10M, with most depths agreeing to 3 meters as shown in Figure 17. The largest differences are seen in the areas with fish havens as the charted depth is the controlling depth while the surveyed depth is the sea floor. Differences here range up to 15 meters and skew the difference surface statistics beyond usefulness.

A contour comparison was not possible as none of the surveyed depths are shoaler than the 18.2 meter contour. Therefore, the hydrographer recommends that the charted contour in the northern corner of the sheet be removed (Figure 17).

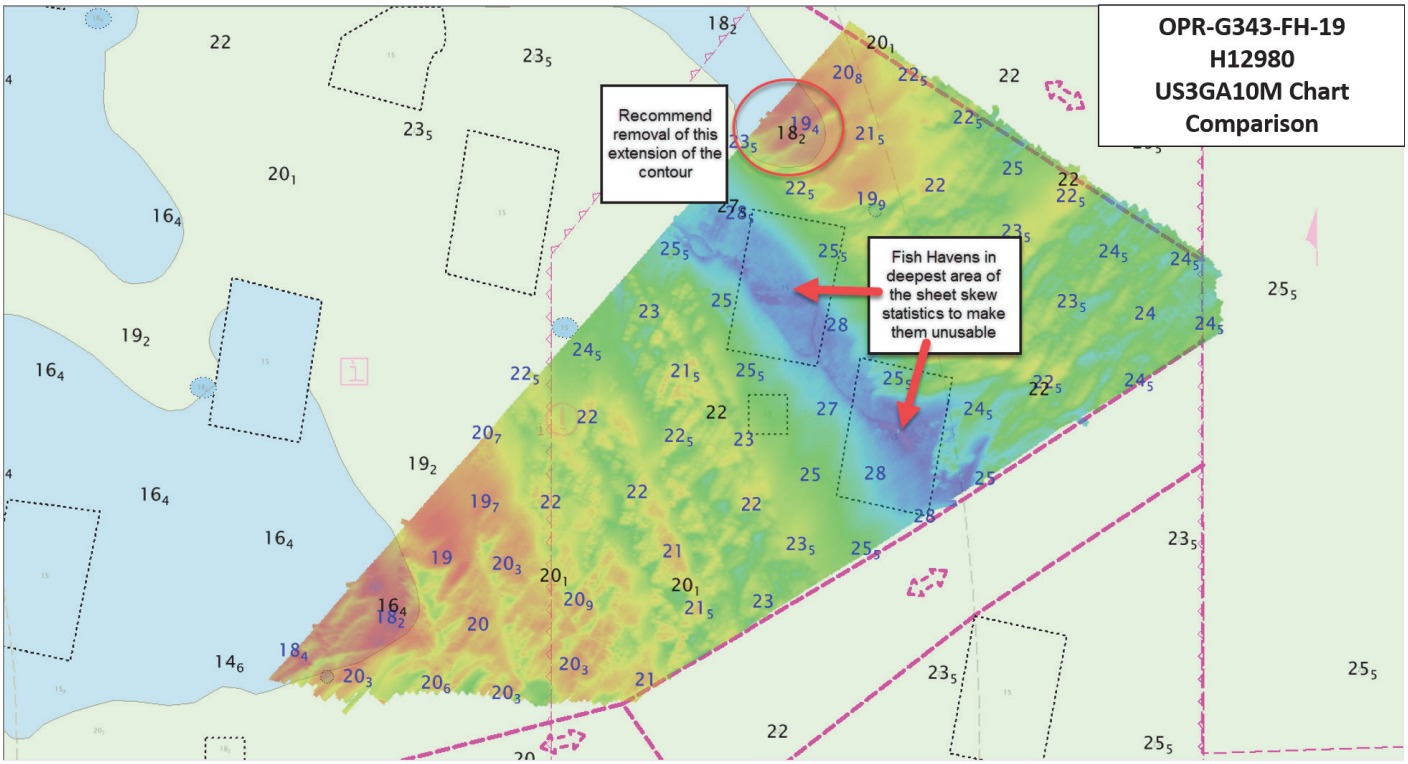


Figure 17: Overview of H12980 soundings (blue) overlaid onto ENC US3GA10M soundings (black).

US4FL50M

Soundings from H12980 are in general agreement with charted depths on ENC US4FL50M, with most depths agreeing to 3 meters as shown in Figure 18.

A contour comparison was not possible as none of the surveyed soundings were shoaler than the 18.2 meter contour. While the hydrographer recommends that the charted contours in the south western corner of the sheet be removed, it is important to note that there is minor shoaling in those charted areas (Figure 18). The

statistical analysis of the difference shows a mean of 1.30 meters with 95% of the nodes having a maximum deviation of +/- 3.11 meters, as seen in Figure 19.

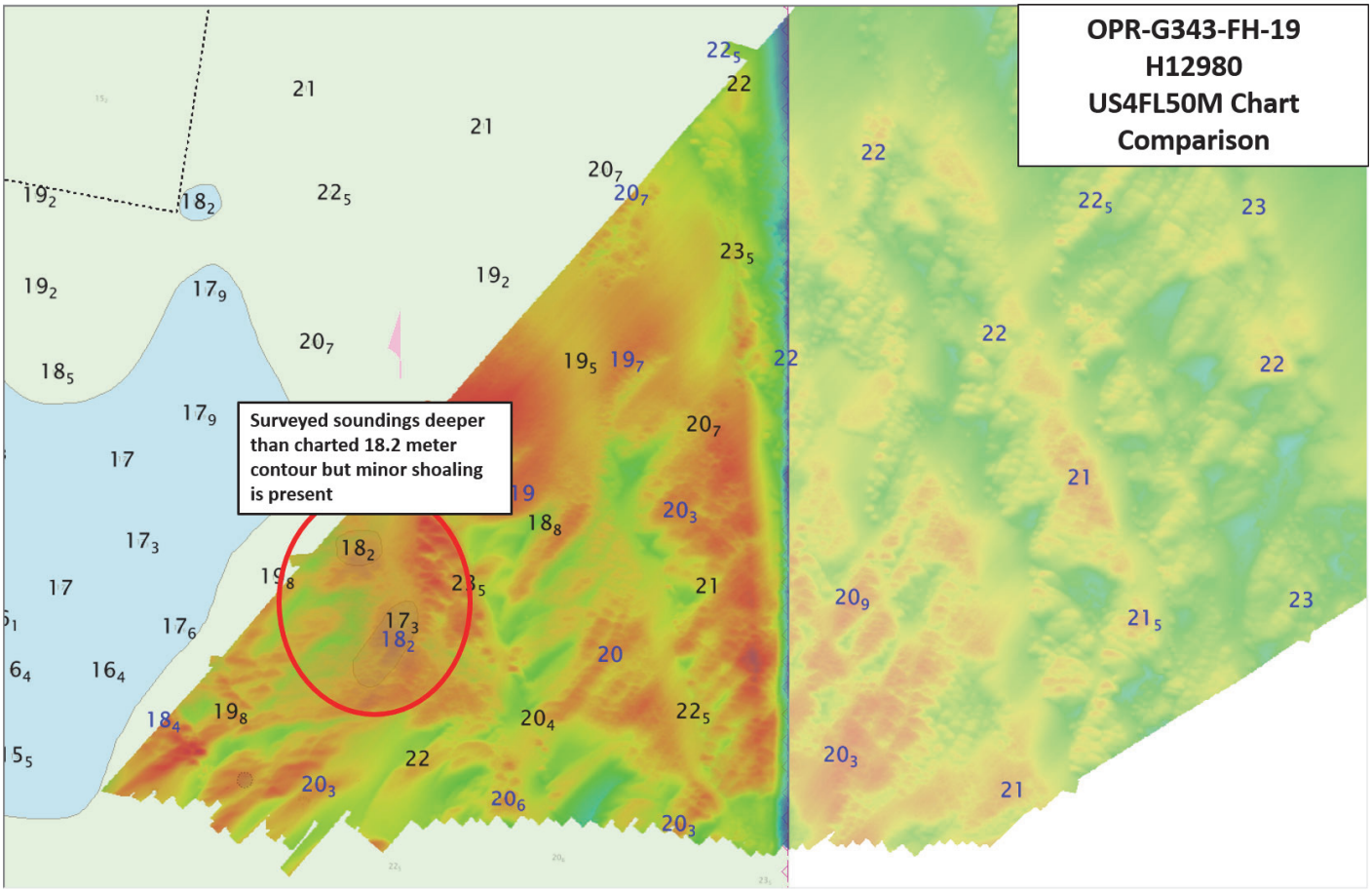
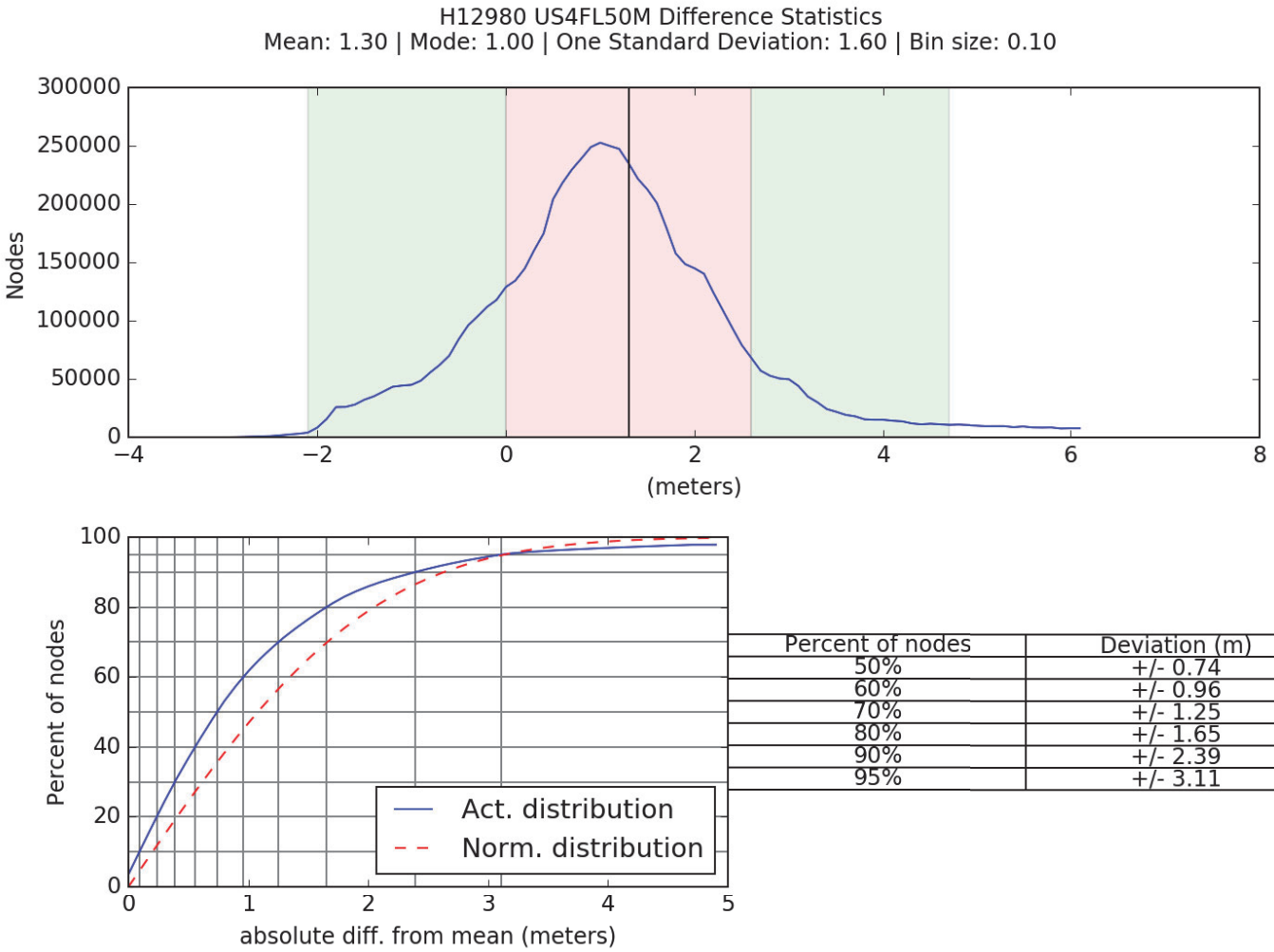


Figure 18: Overview of H12980 soundings (blue) overlaid onto ENC US4FL50M soundings (black).



Percent of nodes	Deviation (m)
50%	+/- 0.74
60%	+/- 0.96
70%	+/- 1.25
80%	+/- 1.65
90%	+/- 2.39
95%	+/- 3.11

Figure 19: H12980 and US4FL50M Difference Statistics.

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 H12980 survey and are addressed in the Final Feature File.

D.1.4 Uncharted Features

Survey H12980 has six (6) new features that are addressed in the H12980 Final Feature File. Of these features, there are five (5) new seabed areas and one (1) new obstruction.

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

Five (5) bottom samples were acquired in accordance with the Project Instructions for survey H12980. All bottom samples were entered in the H12980 Final Feature File. See Figure 19 for a graphical overview of sample locations

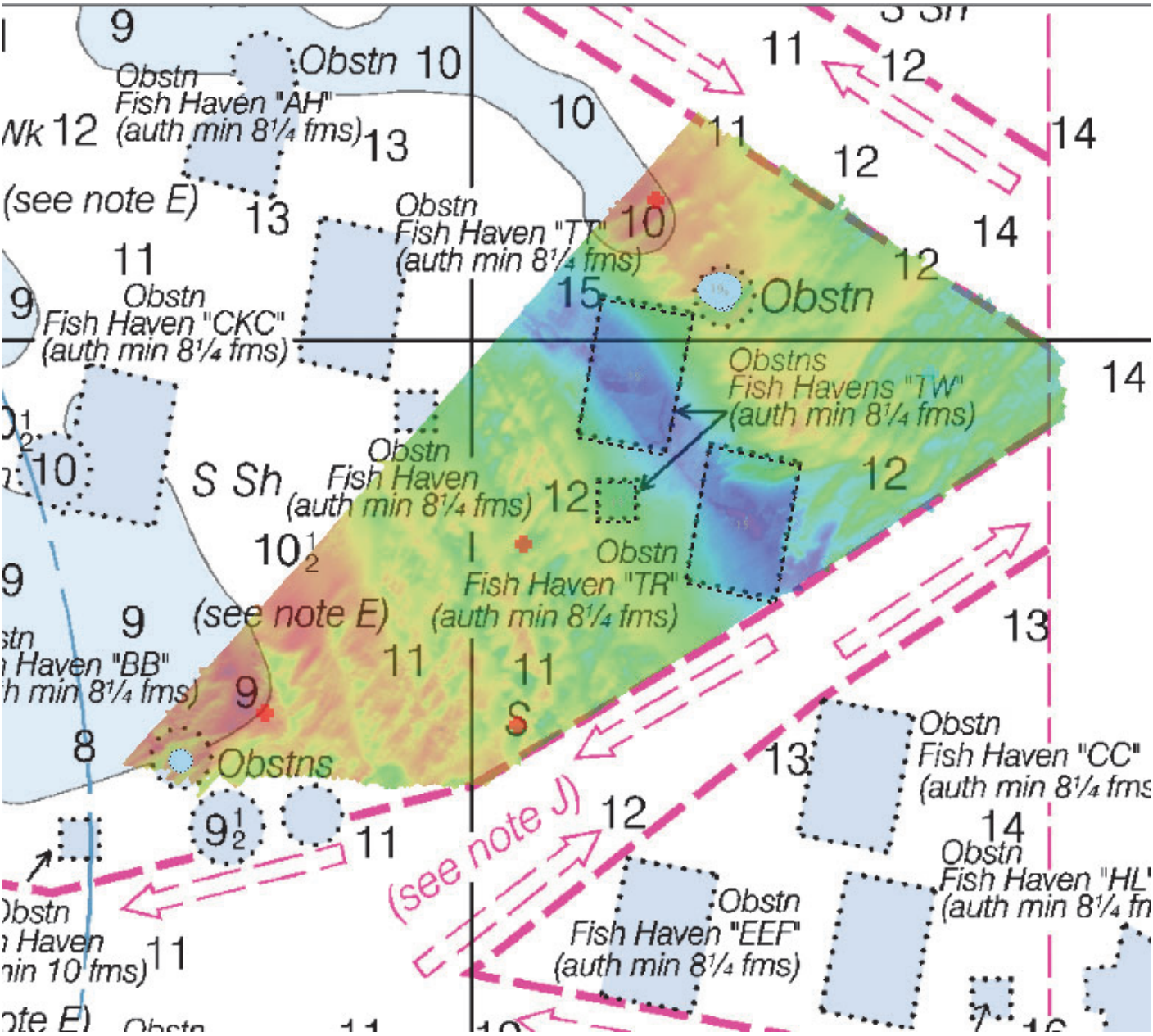


Figure 20: H12980 bottom sample locations.

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 Aids to Navigation

No Aids to navigation (ATONs) exist for this survey.

D.2.3 Overhead Features

No overhead features exist for this survey.

D.2.4 Submarine Features

No submarine features exist for this survey.

D.2.5 Platforms

No platforms exist for this survey.

D.2.6 Ferry Routes and Terminals

No ferry routes or terminals exist for this survey.

D.2.7 Abnormal Seafloor and/or Environmental Conditions

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

D.2.8 Construction and Dredging

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

D.2.9 New Survey Recommendation

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

D.2.10 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
CDR Mark Blankenship	Chief of Party	01/14/2020	
LT Steven Wall	Field Operations Officer	01/14/2020	

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

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

Sheet H12980 Survey Outline

3 messages

OPS.Ferdinand Hassler - NOAA Service Account <ops.ferdinand.hassler@noaa.gov> Sun, Aug 18, 2019 at 12:59 PM
To: _NOS OCS Survey Outlines <survey.outlines@noaa.gov>
Cc: Starla Robinson - NOAA Federal <Starla.Robinson@noaa.gov>, CO HASSLER <co.ferdinand.hassler@noaa.gov>, Rita Bowker - NOAA Federal <rita.s.bowker@noaa.gov>, Simon Swart - NOAA Federal <simon.e.swart@noaa.gov>

Good Afternoon,

Please see the attached 000 file as a submission for sheet H12980, OPR-G343-FH-19.

Very Respectfully,
-Steve. W

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

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

H12980_Survey_Outline.000
211K

Brian Mohr - NOAA Federal <brian.mohr@noaa.gov> Wed, Aug 21, 2019 at 9:45 AM
To: "OPS.Ferdinand Hassler - NOAA Service Account" <ops.ferdinand.hassler@noaa.gov>

Thank you Steven, I will get **H12980** appended into SURDEX shortly.

Brian Mohr
Data Manager
Hydrographic Surveys Division
brian.mohr@noaa.gov
(240)-533-0026
[Quoted text hidden]

OPS.Ferdinand Hassler - NOAA Service Account <ops.ferdinand.hassler@noaa.gov> Wed, Aug 21, 2019 at 10:50 AM
To: CO HASSLER <co.ferdinand.hassler@noaa.gov>

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

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

[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> Tue, Nov 5, 2019 at 9:41 AM
To: "NODC.Submissions" <NODC.Submissions@noaa.gov>, Starla Robinson - NOAA Federal <Starla.Robinson@noaa.gov>
Cc: CO HASSLER <co.ferdinand.hassler@noaa.gov>

Greetings,

Please see attached .zip file containing sound speed data collected during this year's project: OPR-G343-FH-19.

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

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

OPR-G343-FH-19_20191105.zip
1269K

APPROVAL PAGE

H12980

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 2022.01.12 17:05:45 -05'00'

Commander Meghan McGovern, NOAA
Chief, Atlantic Hydrographic Branch