H13347

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

DESCRIPTIVE REPORT

Type of Survey:	Navigable Area
Registry Number:	H13347

LOCALITY

State(s):	Maine
General Locality:	Gulf of Maine
Sub-locality:	Mistaken Ground Vicinity

2020

CHIEF OF PARTY
LCDR Megan Guberski

LIBRARY & ARCHIVES

Date:

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:
HYDROGRAPHIC TITLE SHEET	**H13347**

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):	**Maine**
General Locality:	**Gulf of Maine**
Sub-Locality:	**Mistaken Ground Vicinity**
Scale:	**40000**
Dates of Survey:	**03/09/2020 to 09/29/2020**
Instructions Dated:	**03/05/2020**
Project Number:	**OPR-A366-FH-19**
Field Unit:	**NOAA Ship *Ferdinand R. Hassler***
Chief of Party:	**LCDR Megan Guberski**
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 H13347

Project: OPR-A366-FH-19

Locality: Gulf of Maine

Sublocality: Mistaken Ground Vicinity

Scale: 1:40000

March 2020 - September 2020

NOAA Ship *Ferdinand R. Hassler*

Chief of Party: LCDR Megan Guberski

A. Area Surveyed

The survey is located in Mistaken Ground Vicinity, ME

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
43° 32' 25.78" N 69° 49' 53.7" W	43° 23' 37.27" N 69° 11' 34.8" W

Table 1: Survey Limits

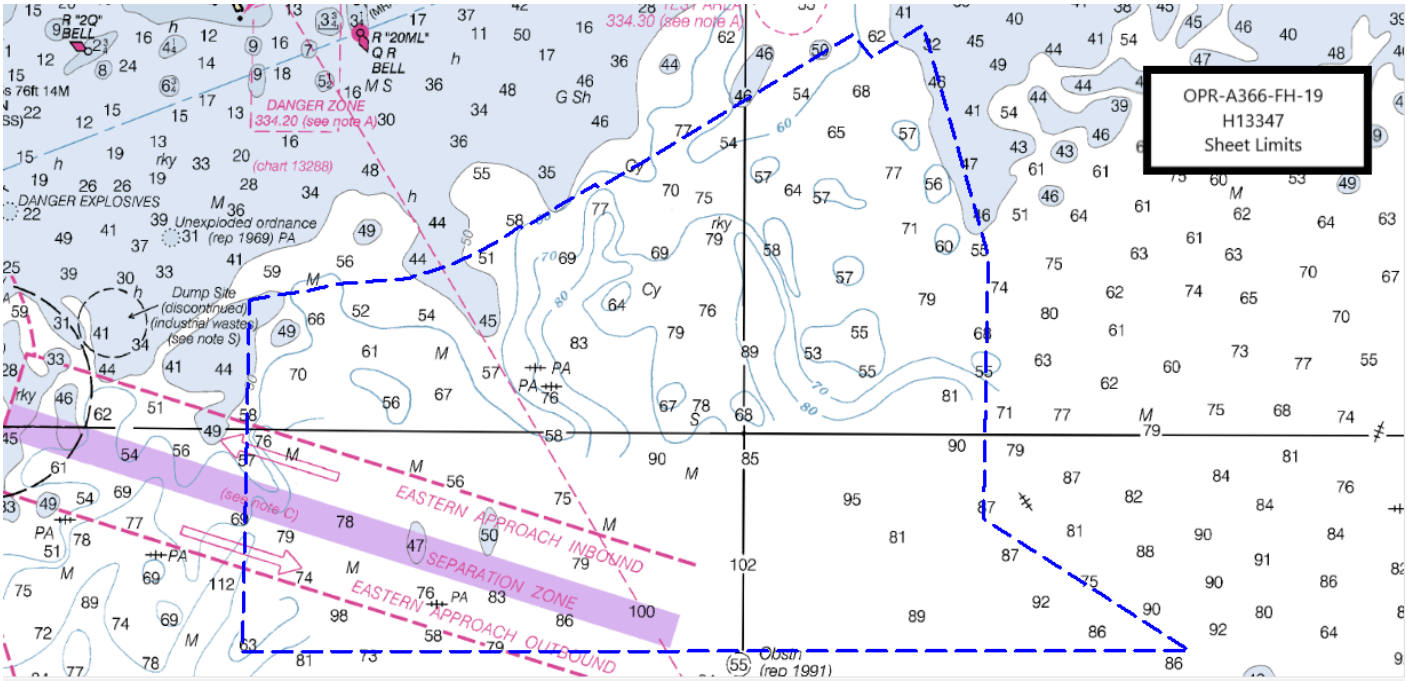


Figure 1: H3347 sheet limits (in blue) overlaid onto Chart 13260

Data were acquired to the survey limits in accordance with the requirements in the Project Instructions and the March 2020 NOS Hydrographic Surveys Specifications and Deliverables (HSSD).

A.2 Survey Purpose

Mistaken Ground is a 580 square nautical miles project off the coast of Maine and includes the Eastern Approach to Portland Harbor. Portland Harbor supports container, fuel, and cruise ships and is one of the largest sources of home heating fuel for the region. The majority of the charted data is from 1835. Acquiring this data will complete the coverage for the National Bathymetric Source (NBS) database for this region, providing modern bathymetric data for updating of National Ocean Service (NOS) nautical charting products to increase maritime safety.

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

Data acquired in H13347 meet multibeam echo sounder (MBES) coverage requirements for complete coverage, as required by the 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

Table 2: Survey Coverage

Due to time restraints, the entire assigned area was not able to be surveyed.

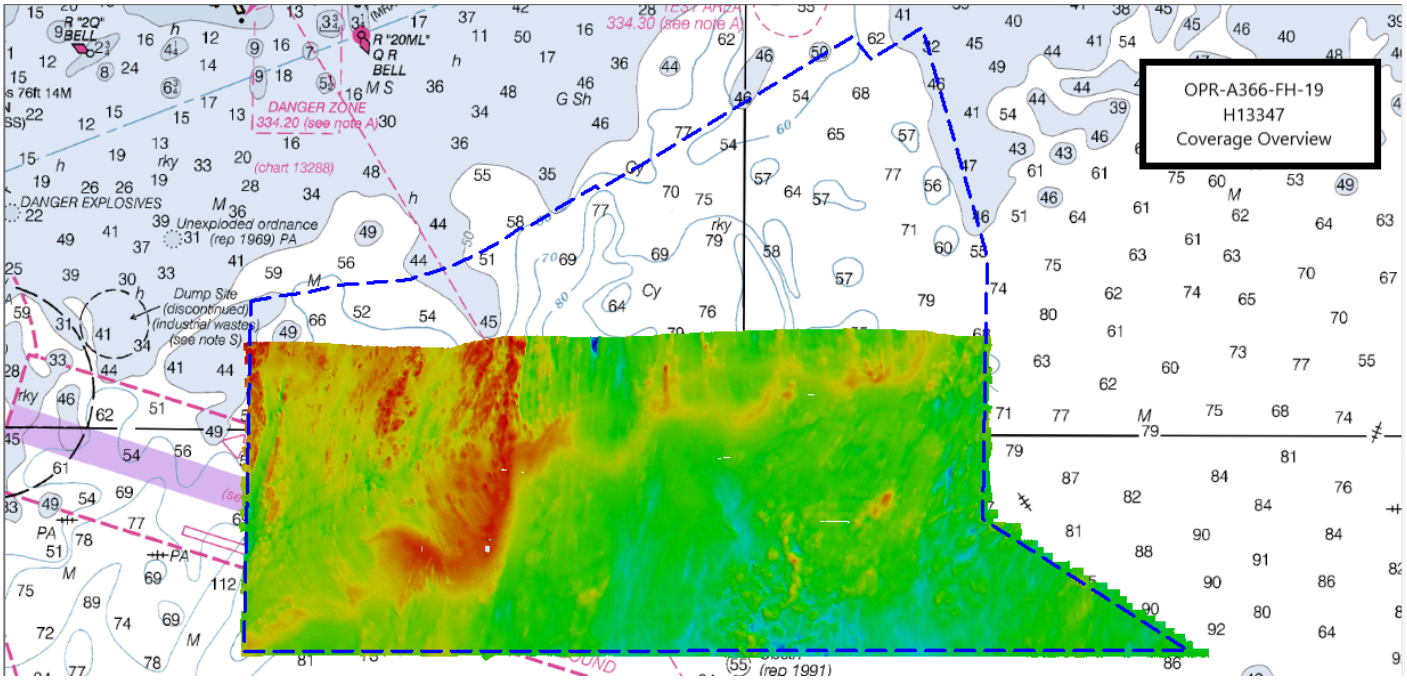


Figure 2: H3347 survey coverage overlaid onto Chart 13260

A.6 Survey Statistics

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

	HULL ID	*S-250*	*Total*
LNM	**SBES Mainscheme**	0	0
	MBES Mainscheme	1032.93	1032.93
	Lidar Mainscheme	0	0
	SSS Mainscheme	0	0
	SBES/SSS Mainscheme	0	0
	MBES/SSS Mainscheme	0	0
	SBES/MBES Crosslines	16.49	16.49
	Lidar Crosslines	0	0
Number of Bottom Samples			0
Number Maritime Boundary Points Investigated			0
Number of DPs			0
Number of Items Investigated by Dive Ops			0
Total SNM			209.51

Table 3: Hydrographic Survey Statistics

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

Survey Dates	Day of the Year
03/09/2020	69
03/10/2020	70

Survey Dates	Day of the Year
03/11/2020	71
03/12/2020	72
09/25/2020	269
09/26/2020	270
09/27/2020	271
09/28/2020	272
09/29/2020	273

Table 4: Dates of Hydrography

SAR reviewer added the missing survey dates of 03/09/2020 - 03/12/2020.

B. Data Acquisition and Processing

B.1 Equipment and Vessels

Refer to the OPR-A366-FH-20 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 the 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

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, 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/deeper) and 95% of nodes falling within +/- 0.58 meters. For the respective depths, the difference surface was compared to the allowable NOAA uncertainty standards. In total, 99.5% of the depth differences between H13347 mainscheme and crossline data were within allowable NOAA uncertainties.

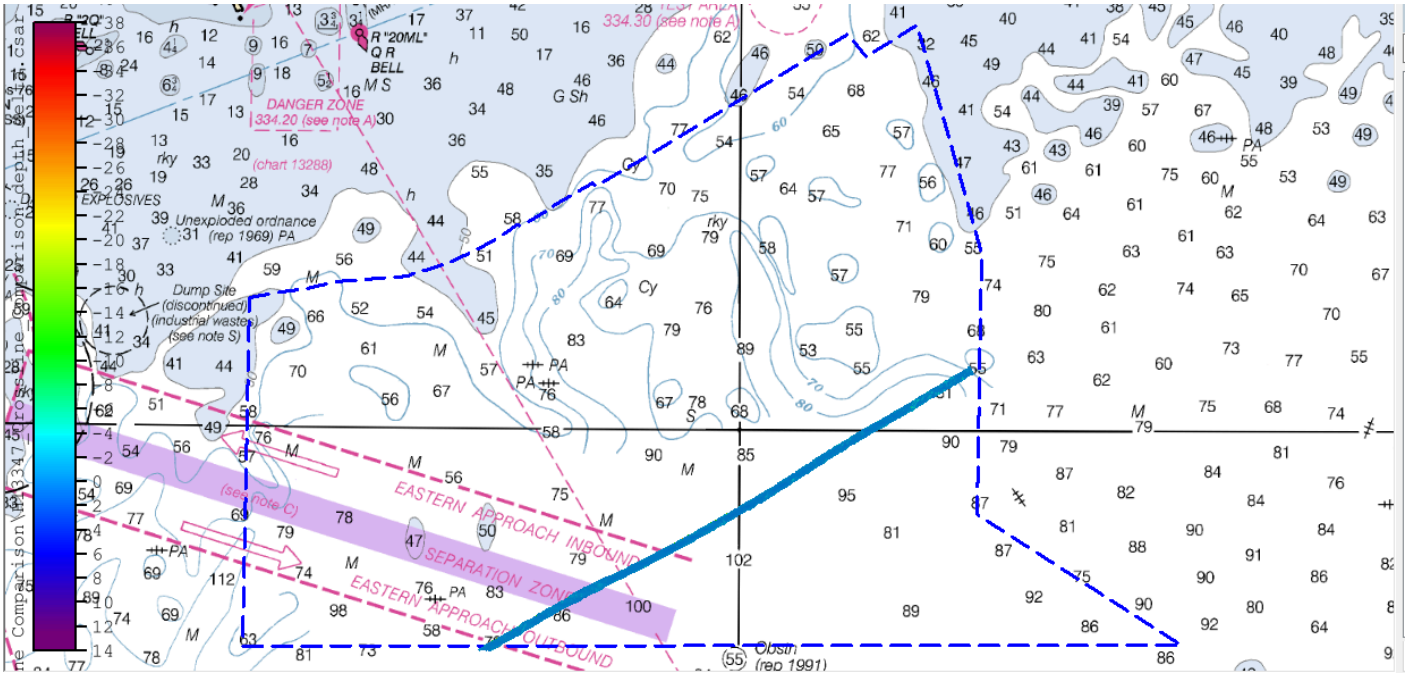
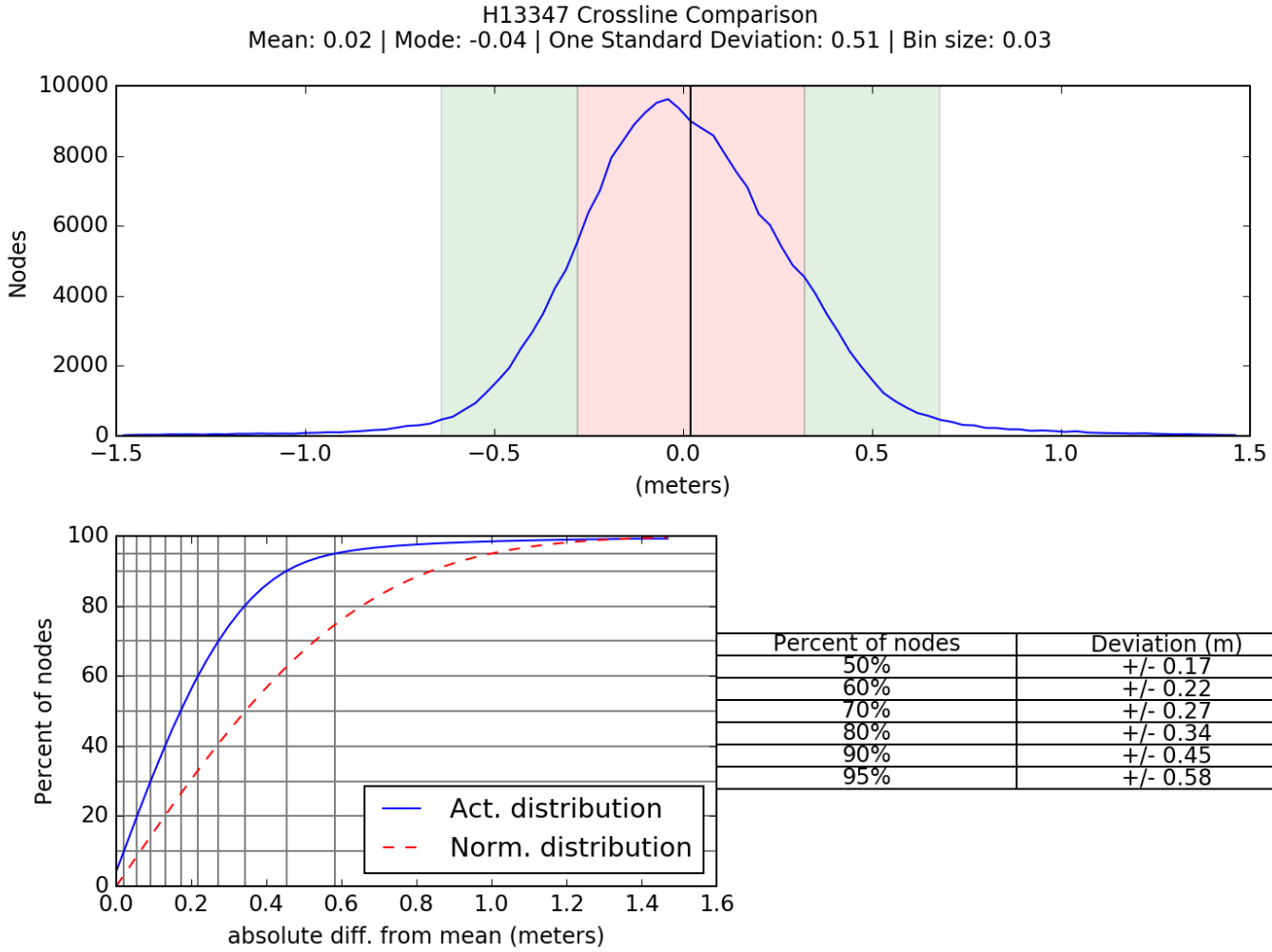


Figure 3: Overview of H13347 Crosslines



Percent of nodes	Deviation (m)
50%	+/- 0.17
60%	+/- 0.22
70%	+/- 0.27
80%	+/- 0.34
90%	+/- 0.45
95%	+/- 0.58

Figure 4: H13347 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	N/A	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 H13347. 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

H13347 junctions with one adjacent surveys from this project, H13333. Data overlap between H13347 and H13333 was achieved. These areas of overlap between surveys were reviewed in CARIS HIPS and SIPS by surface differencing (at equal resolutions) to assess surface agreement. The multibeam data were also examined in CARIS Subset Editor for consistency and agreement. The junctions with H13333 are generally within/exceed the NOAA allowable uncertainty in their areas of overlap. For all junctions with H13333, a negative difference indicates H13347 was shoaler and a positive difference indicates H13333 was deeper.

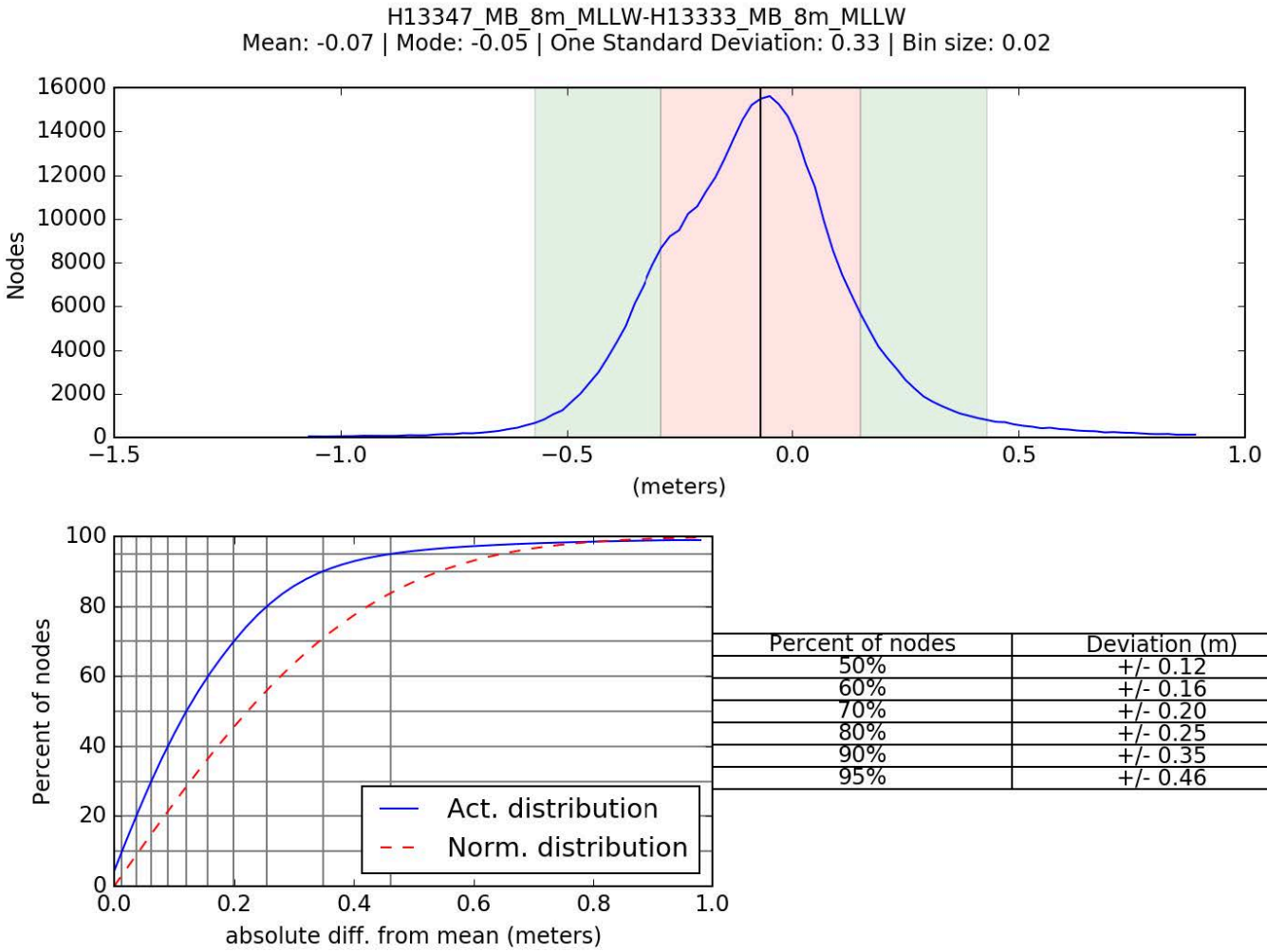
The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H13333	1:4000	2019	FH	S

Table 9: Junctioning Surveys

H13333

Surface differencing in CARIS HIPS and SIPS was used to assess junction agreement between the surface from H13347 and the surface from H13333. The statistical analysis of the difference surface shows a mean of -0.07 meters with 95% of the nodes having a maximum deviation of +/- 0.46 meters, as seen in Figure X. It was found that 99.5% of nodes are within NOAA allowable uncertainty.



Percent of nodes	Deviation (m)
50%	+/- 0.12
60%	+/- 0.16
70%	+/- 0.20
80%	+/- 0.25
90%	+/- 0.35
95%	+/- 0.46

Figure 5: Difference surface statistics between H13347 and H13333 (8 meter surface)

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 90 minutes, guided by observation of the surface sound speed and targeted to deeper areas. 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

H13347 data were reviewed in CARIS HIPS and SIPS for holidays in accordance with Section 5.2.2.3 of the HSSD. 26 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. Due to time constraints and the ending of the field season, all the holidays areas were not able to be surveyed.

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 H13347.

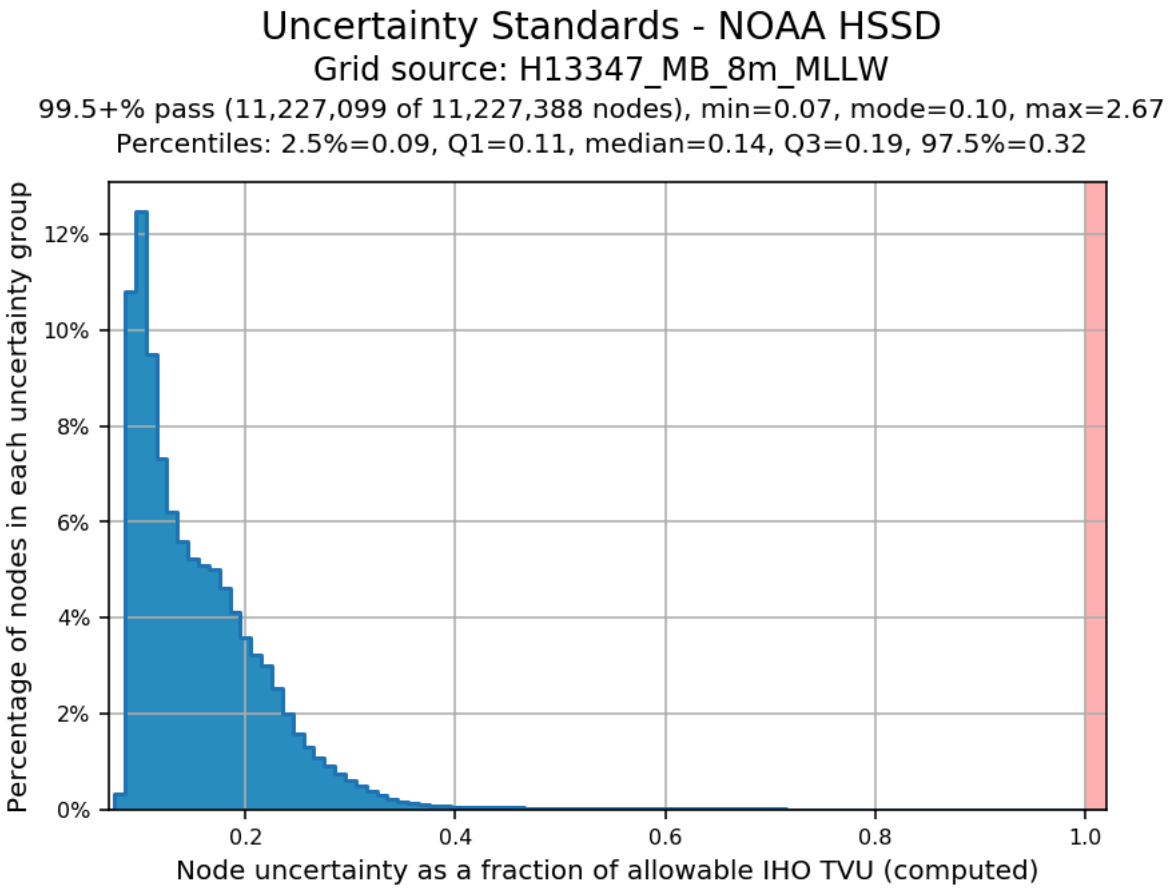


Figure 6: H13347 Allowable uncertainty statistics

B.2.11 Density

The surface was analyzed using the HydrOffice QC Tools Grid QA feature to determine compliance with specifications. Density requirements for H13347 were achieved with at least 99.5+% of surface nodes containing five or more soundings as required by HSSD Section 5.2.2.3.

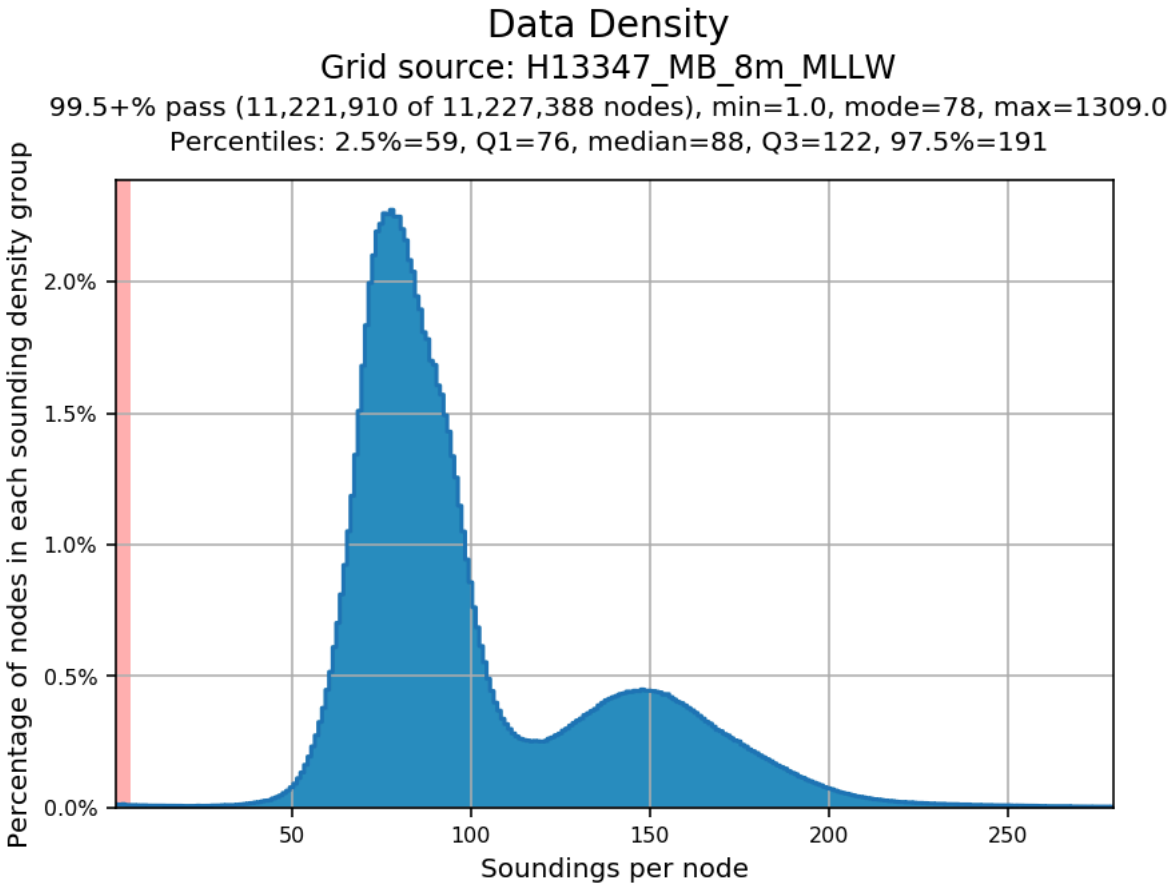


Figure 7: H13347 Data density statistics

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 the Kongsberg systems. All backscatter were processed to GSF files and a floating point mosaic was created by the field unit via Fledermaus FMGT 7.9.4. See Figure XX for a greyscale representation of the complete 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 and SIPS	11.2.3

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	7.9.4

Table 11: Primary imagery data processing software

The following Feature Object Catalog was used: NOAA Profile Version 2020.

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
H13347_MB_VR_MLLW.csar	CARIS Raster Surface (CUBE)	Variable Resolution	63.29 meters - 237.88 meters	NOAA_VR	Complete MBES

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H13347_MB_VR_MLLW_Final.csar	CARIS Raster Surface (CUBE)	Variable Resolution	63.29 meters - 237.88 meters	NOAA_VR	Complete MBES

Table 12: Submitted Surfaces

The NOAA CUBE parameters defined in the HSSD were used for the creation of all CUBE surfaces for H13347. 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.

Field unit had labeled the surface names above as H13347_MB_8m_MLLW and H13347_MB_8m_MLLW_Final. The names, resolution, depth ranges, and surface parameters have all been corrected to match the VR surfaces.

B.5.3 Data Logs

Data acquisition and processing notes are included in the acquisition and processing logs, and additional processing such as final separation model reduction and sound speed application are noted in the H13347 Data Log spreadsheet. All data logs are submitted digitally in the Separates I folder.

C. Vertical and Horizontal Control

Additional information discussing the vertical or horizontal control for this survey can be found in the accompanying HVCR.

C.1 Vertical Control

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

ERS Datum Transformation

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

Method	Ellipsoid to Chart Datum Separation File
ERS via VDATUM	OPR-A366-FH-20_NAD83_VDatum_MLLW

Table 13: ERS method and SEP file

ERS methods were used as the final means of reducing H13347 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 19.

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 H13347 as no DGPS stations were available for real-time horizontal control.

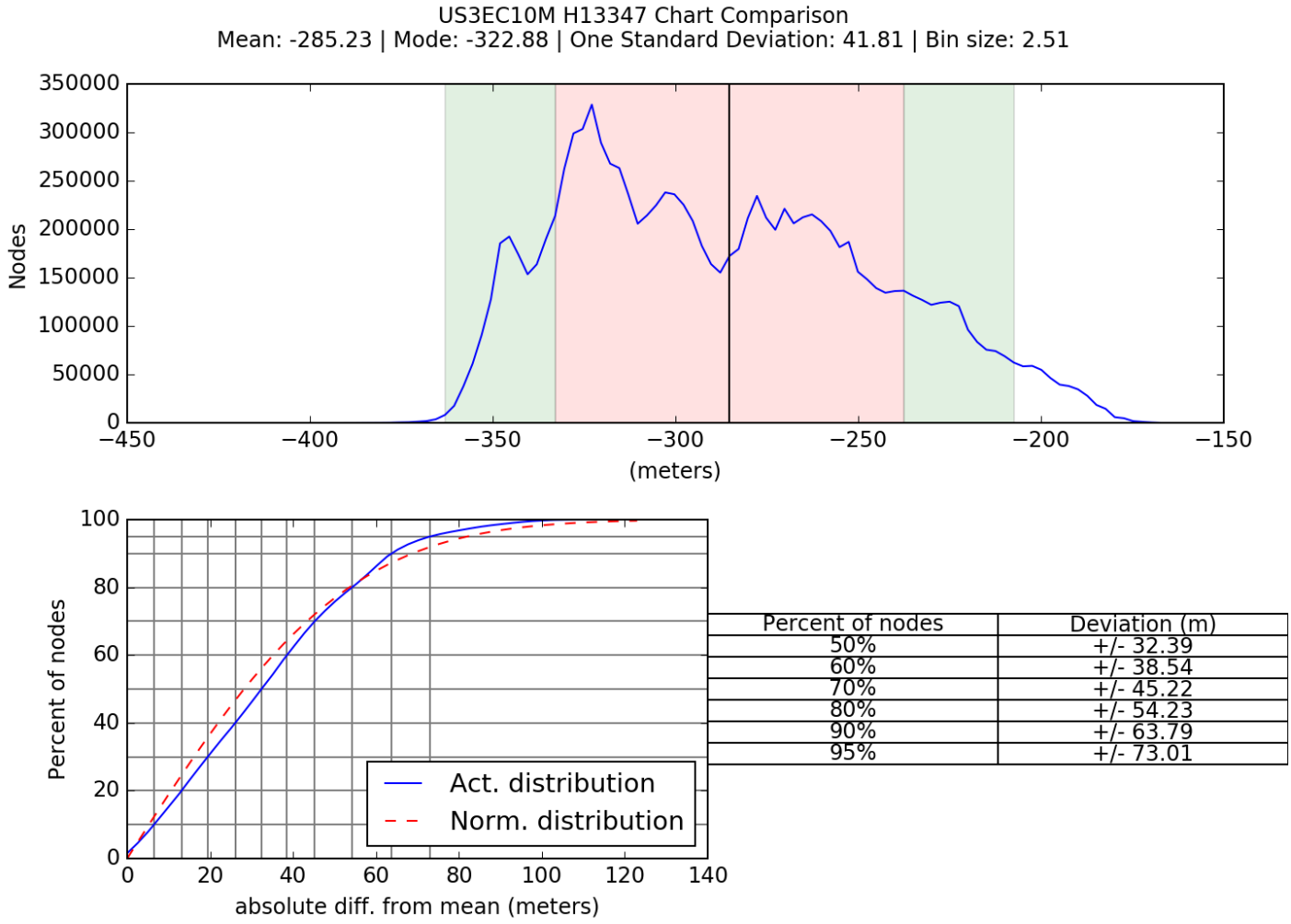
D. Results and Recommendations

D.1 Chart Comparison

A comparison was performed between survey H13347 and ENC US3EC10M 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 H13347.

All data from H13347 should supersede charted data. In general, surveyed soundings agree with the majority charted depths, however there is a large gap in the current coverage with no charted soundings.



Percent of nodes	Deviation (m)
50%	+/- 32.39
60%	+/- 38.54
70%	+/- 45.22
80%	+/- 54.23
90%	+/- 63.79
95%	+/- 73.01

Figure 8: Difference surface statistics between H13347 and interpolated TIN surface from US3EC10M

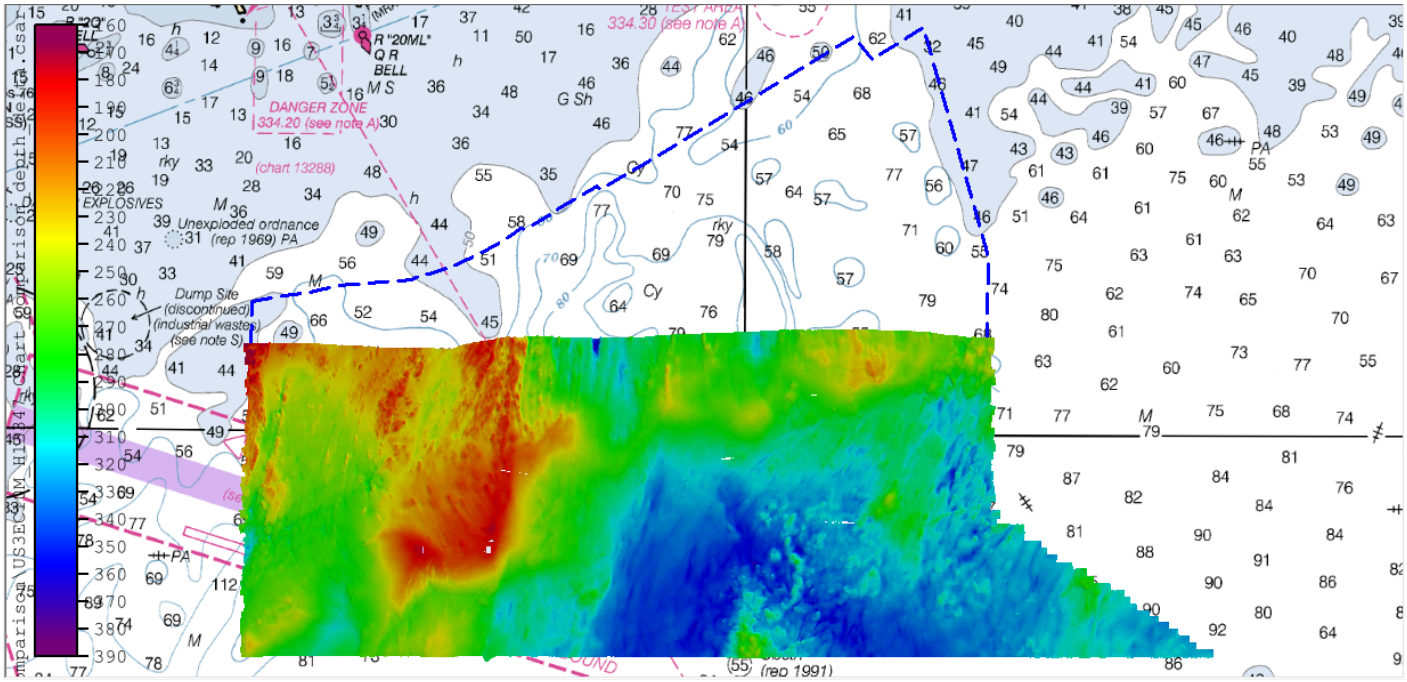


Figure 9: Difference surface between H13347 and interpolated TIN surface from US3EC10M

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
US3EC10M	1:378838	43	08/04/2020	08/04/2020

Table 14: Largest Scale ENCs

D.1.2 Shoal and Hazardous Features

No shoals or potentially hazardous features exist for this survey.

D.1.3 Charted Features

No charted features exist for this survey.

D.1.4 Uncharted Features

No uncharted features exist for this survey.

D.1.5 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.2 Additional Results

D.2.1 Aids to Navigation

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

D.2.2 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.2.3 Bottom Samples

No bottom samples were required for this survey.

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 or Environmental Conditions

No abnormal seafloor 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 Recommendations

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

D.2.11 ENC Scale Recommendations

No new ENC scales 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 Megan Guberski	Chief of Party	11/18/2020	GUBERSKI.MEGAN.REBECCA.1283261189 Digitally signed by GUBERSKI.MEGAN.REBECCA.1283261189 Date: 2020.11.24 08:52:43 -05'00'
LT Steven Wall	Field Operations Officer	11/18/2020	WALL.STEVEN.JAMES.1459978298 Digitally signed by WALL.STEVEN.JAMES.1459978298 Date: 2020.12.14 13:11:54 Z

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>

Survey Registry Update OPR-A366-FH-19 Mistaken Ground, ME

2 messages

Daniel Garatea - NOAA Federal <daniel.garatea@noaa.gov> Mon, Feb 3, 2020 at 6:17 PM
To: "OPS.Ferdinand Hassler - NOAA Service Account" <ops.ferdinand.hassler@noaa.gov>, Starla Robinson - NOAA Federal <Starla.Robinson@noaa.gov>, Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>

Hello, For the continuation of OPR-A366-FH-19 this March, please use registry number H13347 for the area not already surveyed last year.

--
Daniel Garatea
Physical Scientist
Office of Coast Survey -- Hydrographic Surveys Division -- Operations
National Oceanic and Atmospheric Administration
Office (240) 533-0046 -- Mobile (585) 201-8822
daniel.garatea@noaa.gov

Click here for a StoryMap of 2020 NOAA Hydrographic Surveys

50 Years of Science, Service, and Stewardship

Starla Robinson - NOAA Federal <Starla.Robinson@noaa.gov> Mon, Feb 3, 2020 at 8:24 PM
To: Daniel Garatea - NOAA Federal <daniel.garatea@noaa.gov>
Cc: "OPS.Ferdinand Hassler - NOAA Service Account" <ops.ferdinand.hassler@noaa.gov>, Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>

OPS,

Please copy this official guidance into your communications folder for documentation of the additional registry sheet.

Thank you
Starla
[Quoted text hidden]
--
Starla D. Robinson, Physical Scientist
NOS - OCS - Hydrographic Survey Division - Operations Branch
National Oceanic Atmospheric Administration
Pronouns: she / her or nuetral
Office: ***240-533-0034*** ***(Updated 6/13/17)***
Cell: 360-689-1431
Website Acquisition: HSD Planned Hydrographic Surveys
Website Planning: OCS Survey Plans

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

OPR-A366-FH-19, Sheet H13347 data for NCEI

2 messages

Steven Wall - NOAA Federal <steven.j.wall@noaa.gov> Thu, Oct 8, 2020 at 5:15 PM
To: "NODC.Submissions" <NODC.Submissions@noaa.gov>, "OPS.Ferdinand Hassler - NOAA Service Account" <ops.ferdinand.hassler@noaa.gov>

Good Afternoon,

I hope this message finds you well.

Please see the attached compressed folders with data from sheet H13347, Mistaken Ground.

Very Respectfully,
-Steven W.

--
Steven Wall LT/NOAA
Field Operations Officer
NOAA Ship Ferdinand R. Hasseler
UNH Judd Gregg Marine Complex
29 Wentworth Road New Castle, NH 03854
Mailing: P.O. Box 632 New Castle, NH 03854
Cell (732) 266-3917
Ship Cell: (603) 812-8748
VOIP: (541) 867-8935
Iridium: (808) 851-3826

2 attachments

OPR-A366-FH-19_H13347_1.zip
421K

OPR-A366-FH-19_H13347_2.zip
219K

Steven Wall - NOAA Federal <steven.j.wall@noaa.gov> Thu, Oct 8, 2020 at 6:59 PM
To: "NODC.Submissions" <NODC.Submissions@noaa.gov>, "OPS.Ferdinand Hassler - NOAA Service Account" <ops.ferdinand.hassler@noaa.gov>

Good Afternoon,

Please see the attached files sent earlier for OPR-A366-FH-19, sheet H13347 with the proper file names.

Very Respectfully,
-Steve W.
[Quoted text hidden]

2 attachments

OPR-A366-FH-19_20201008_2.zip
219K

OPR-A366-FH-19_20201008_1.zip
421K

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

H13347_Survey_Outline

1 message

OPS.Ferdinand Hassler - NOAA Service Account <ops.ferdinand.hassler@noaa.gov> Mon, Dec 14, 2020 at 3:39 PM
To: _NOS OCS Survey Outlines <survey.outlines@noaa.gov>

Good MOrning,

I hope this message finds you well, and that you and your family had a peaceful Thanksgiving holiday.

Please see the attached .000 file as the survey outline for OPR-A366-FH-19, H13347.

V/r,
-Steve W

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

H13347_Survey_Outline.000
4816K