

H13058

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

DESCRIPTIVE REPORT

Type of Survey: Navigable Area

Registry Number: H13058

LOCALITY

State(s): North Carolina
Virginia

General Locality: Approaches to Chesapeake Bay

Sub-locality: 4 NM Northeast of Currituck Beach

2017

CHIEF OF PARTY
Commander Chris van Westendorp, NOAA

LIBRARY & ARCHIVES

Date:

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION		REGISTRY NUMBER:
HYDROGRAPHIC TITLE SHEET		H13058
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):	North Carolina Virginia	
General Locality:	Approaches to Chesapeake Bay	
Sub-Locality:	4 NM Northeast of Currituck Beach	
Scale:	40000	
Dates of Survey:	07/16/2017 to 07/25/2017	
Instructions Dated:	07/11/2017	
Project Number:	OPR-D304-TJ-17	
Field Unit:	NOAA Ship <i>Thomas Jefferson</i>	
Chief of Party:	Commander Chris van Westendorp, NOAA	
Soundings by:	Multibeam Echo Sounder	
Imagery by:	Side Scan Sonar	
Verification by:	Atlantic Hydrographic Branch	
Soundings Acquired in:	meters at Mean Lower Low Water	
Remarks:		

The purpose of this survey is to provide contemporary surveys to update National Ocean Service (NOS) nautical charts. All separates are filed with the hydrographic data. Any revisions to the Descriptive Report (DR) generated during office processing are shown in bold red italic text. The processing branch maintains the DR as a field unit product, therefore, all information and recommendations within the body of the DR are considered preliminary unless otherwise noted. The final disposition of surveyed features is represented in the OCS nautical chart update products. All pertinent records for this survey, including the DR, are archived at the National Centers for Environmental Information (NCEI) and can be retrieved via <https://www.ncei.noaa.gov/>.

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Descriptive Report to Accompany Survey H13058

Project: OPR-D304-TJ-17

Locality: Approaches to Chesapeake Bay

Sublocality: 4 NM Northeast of Currituck Beach

Scale: 1:40000

July 2017 - July 2017

NOAA Ship *Thomas Jefferson*

Chief of Party: Commander Chris van Westendorp, NOAA

A. Area Surveyed

Hydrographic survey H13058 was completed as specified by hydrographic survey project instructions OPR-D304-TJ-17, signed 11 July 2017. This survey extends approximately 4 nautical miles northeast of Currituck Beach in the approaches to the Chesapeake Bay (Table 1 and Figure 1).

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
36° 35' 54.11" N 75° 48' 49.1" W	36° 25' 27.63" N 75° 41' 43.31" W

Table 1: Survey Limits

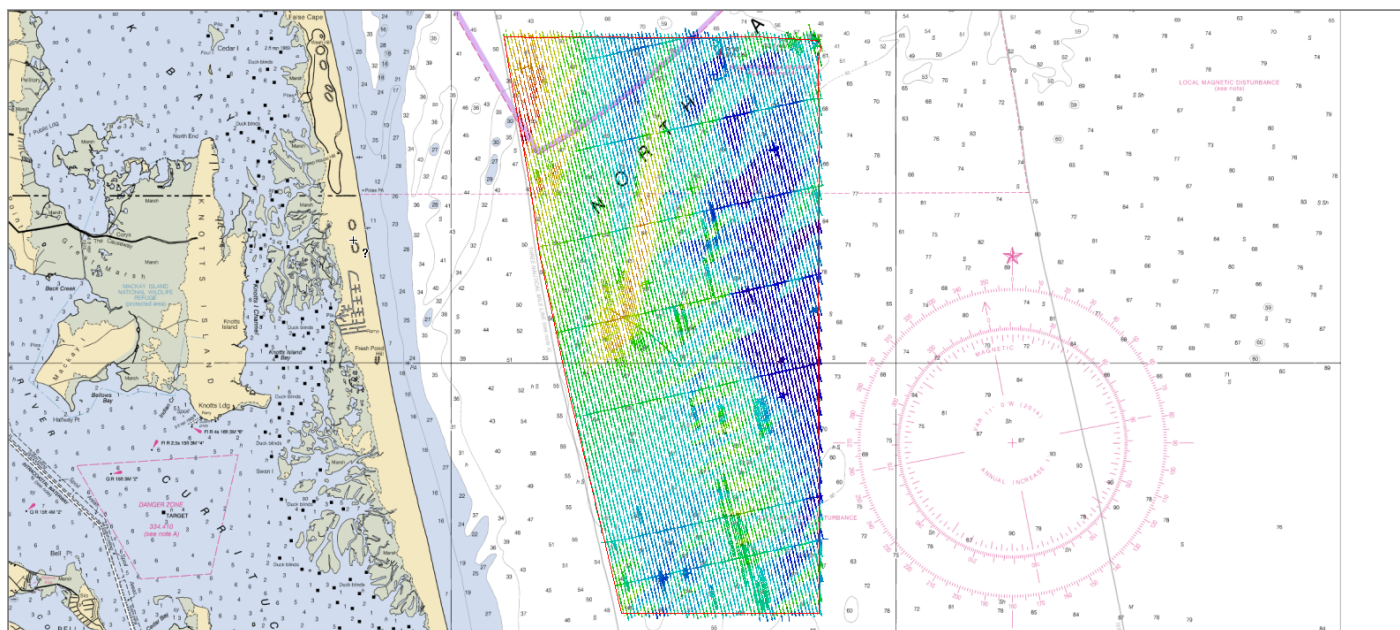


Figure 1: H13058 Survey Extents

Additional side scan sonar (SSS) imagery, multibeam echosounder (MBES) data, and water column data were collected over a known charted wreck in the northeastern corner of survey H13058. The charted wreck was last surveyed by Thomas Jefferson in 2011 (Figure 2).

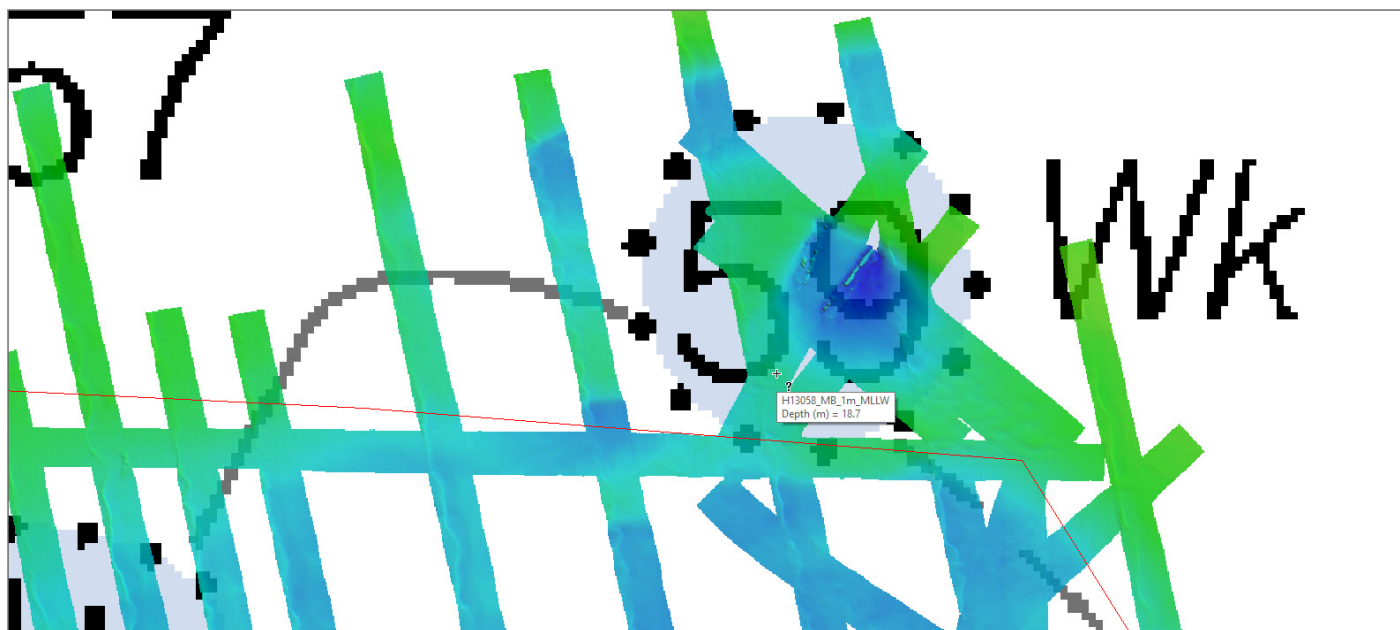


Figure 2: Charted wreck outside survey extent (red line)

A.2 Survey Purpose

The purpose of this project is to provide contemporary surveys to update National Ocean Service nautical charts and products. The project area has not been surveyed since the 1920s, and this hydrographic survey will bring needed chart updates for the area. Survey data from this project are intended to supersede all prior survey data in the common area.

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

A Survey Coverage

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

Water Depth	Coverage Required
All Waters	Complete Coverage was met by acquiring 100% SSS with concurrent MBES (Figures 3 and 4); refer to Hydrographic Survey Specifications and Deliverables 2017 (HSSD) Section 5.2.2.3.

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

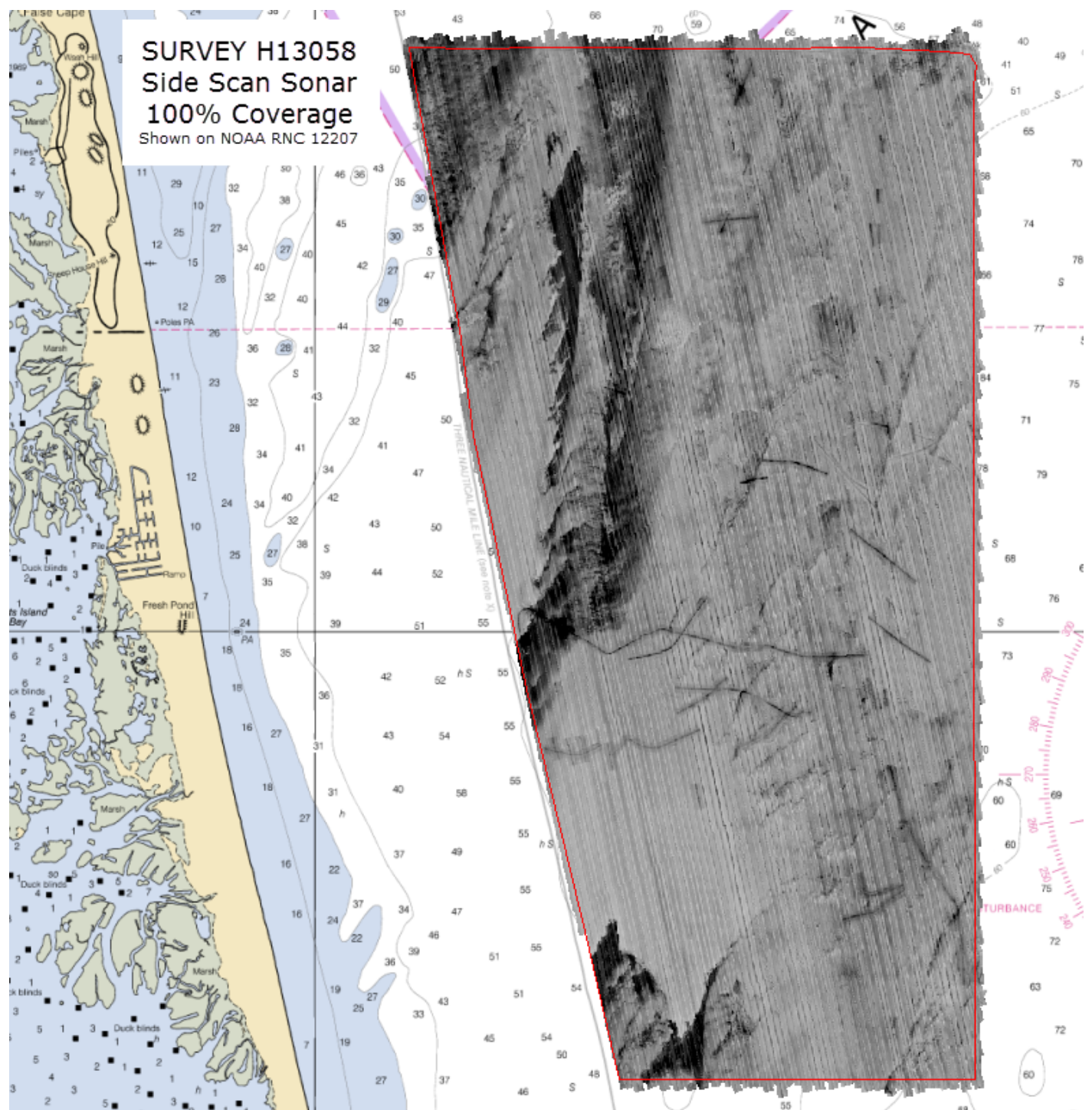


Figure 3: 100% SSS Coverage Mosaic

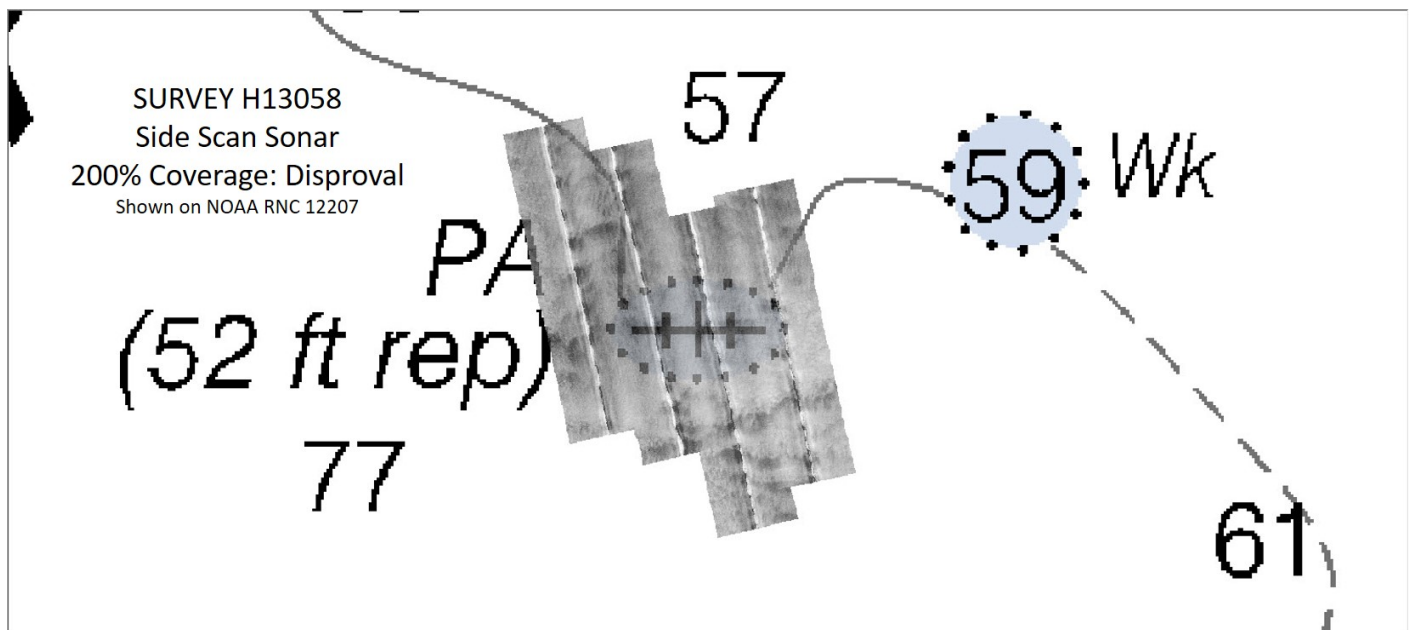


Figure 4: 200% SSS Coverage Mosaic

A.5 Survey Statistics

The following table lists the mainscheme and crossline acquisition mileage for this survey (Table 2):

	HULL ID	<i>S222</i>	<i>Total</i>
LNM	SBES Mainscheme	0	0
	MBES Mainscheme	25.4	25.4
	Lidar Mainscheme	0	0
	SSS Mainscheme	33.4	33.4
	SBES/SSS Mainscheme	0	0
	MBES/SSS Mainscheme	729.5	729.5
	SBES/MBES Crosslines	35.1	35.1
	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			50

Table 2: Hydrographic Survey Statistics

The following table lists the specific dates of data acquisition for this survey (Table 3):

Survey Dates	Day of the Year
07/16/2017	197
07/17/2017	198

Survey Dates	Day of the Year
07/18/2017	199
07/19/2017	200
07/20/2017	201
07/21/2017	202
07/22/2017	203
07/23/2017	204
07/24/2017	205
07/25/2017	206

Table 3: Dates of Hydrography

B. Data Acquisition and Processing

B.1 Equipment and Vessels

Refer to the Data Acquisition and Processing Report (DAPR) for a complete description of data acquisition and processing systems, survey vessels (Table 4), 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	S222
LOA	208 feet
Draft	15 feet

Table 4: Vessels Used

The following data were acquired: Kongsberg EM 2040 MBES soundings, MBES backscatter data, Klein 5000 V2 SSS data, Moving Vessel Profiler 100 (MVP) sound velocity profiles, and Applanix POS/MV version 5 position and attitude data. All equipment is outlined (Table 5).

B.1.2 Equipment

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

Manufacturer	Model	Type
Kongsberg	EM 2040	MBES
Klein	5000 V2	SSS
Applanix	POS/MV v5	Positioning and Attitude System
Trimble	GA830	Positioning System
Rolls Royce	MVP100	Sound Speed System
AML Oceanographic	Micro CTD	Conductivity, Temperature, and Depth Sensor
Valeport	MODUS SVS Thruhull	Sound Speed System

Table 5: Major Systems Used

B.2 Quality Control

B.2.1 Crosslines

MBES crosslines totaled 4.65% of mainscheme acquisition for H13058. Crosslines were compared to mainscheme using a difference surface, created in Caris HIPS and SIPS 10.3. A 1m Combined Uncertainty and Bathymetric Estimator (CUBE) surface was created using mainscheme lines, while a second 1m CUBE surface was created using crosslines, and the two surfaces were differenced. The difference ranged from -0.8m to 0.5m with a mean of 0.0m and standard deviation of 0.1m (Figure 5). The minimum and maximum difference values from the surface comparison occurred in refraction areas (Figure 6), which are discussed in detail in Section B.2.6. Survey H13058 crossline analysis complies with Section 5.2.4.3 of the HSSD.

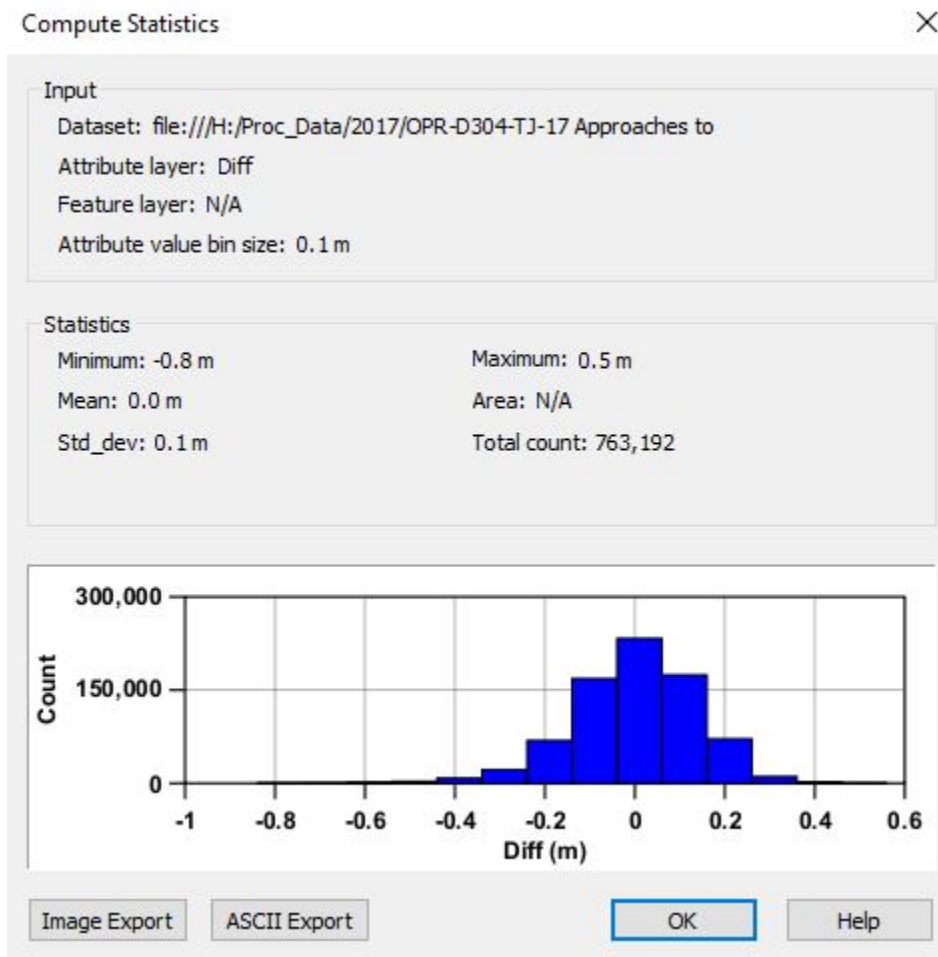


Figure 5: H13058 crossline to mainscheme depth difference surface statistics

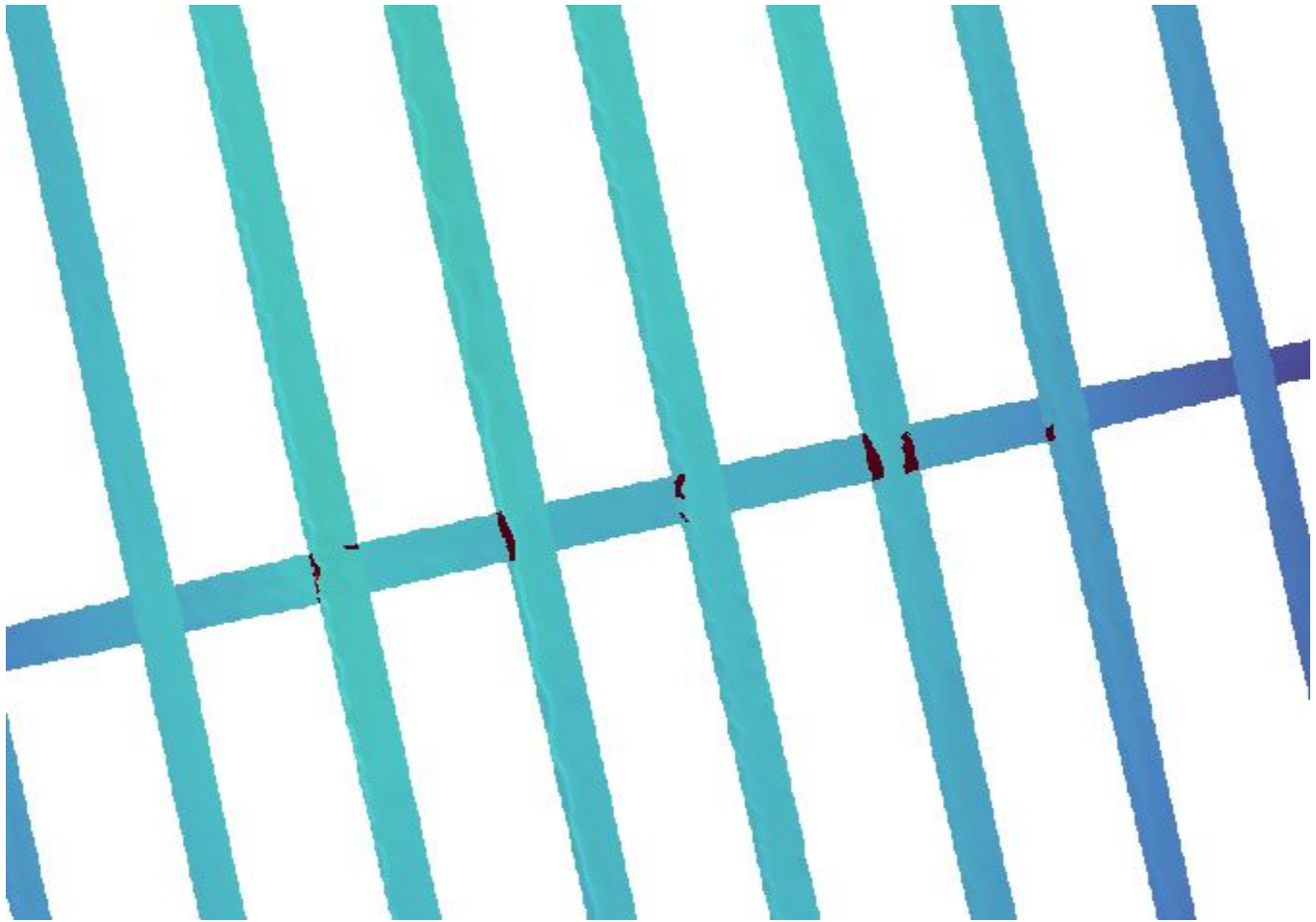


Figure 6: The minimum and maximum differences occur in refraction problem areas (refer to section B.2.6).

B.2.2 Uncertainty

The following survey specific parameters were used for this survey (Tables 6 and 7):

Method	Measured	Zoning
ERS via VDATUM	0.11 meters	0.09 meters

Table 6: Survey Specific Tide TPU Values.

Hull ID	Measured - CTD	Measured - MVP	Surface
S222	0 meters/second	2 meters/second	0.5 meters/second

Table 7: Survey Specific Sound Speed TPU Values.

For the surface H13058_MB_1m_MLLW_final (a 1m CUBE surface), 99.9% of nodes meet IHO order 1 uncertainty standards (Figure 7). Out of 75,344,233 nodes, 84 did not meet IHO order 1 standards. The 84 nodes that exceed IHO order 1 uncertainty are generally located on outer beams of the MBES swath (Figure 8).

Refer to the DAPR for ship specific uncertainty calculation standards and procedures.

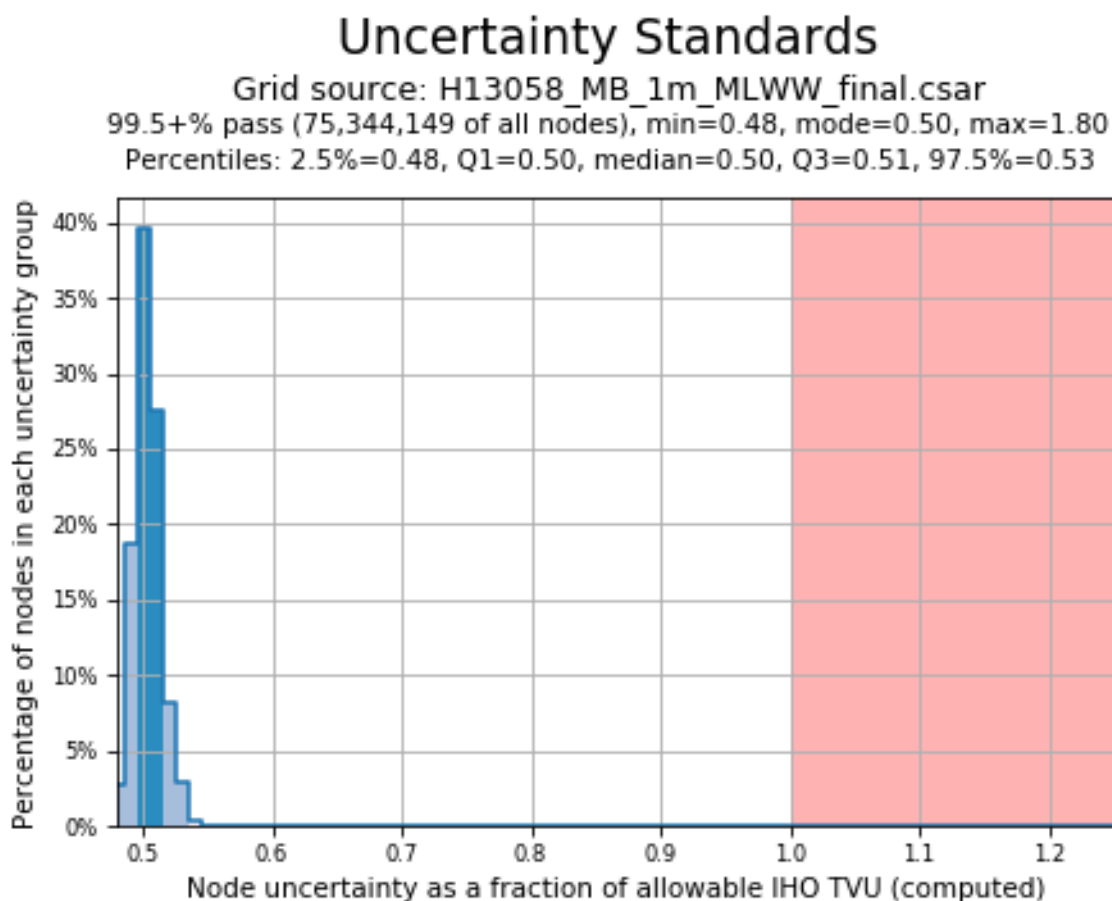
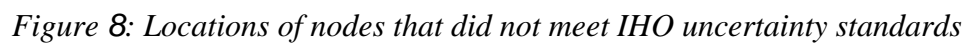


Figure 7: Uncertainty Standards



The survey was compared with three junctions acquired by NOAA Ship *Thomas Jefferson* and NOAA Ship *Ferdinand Hassler* during the 2011 and 2015 field seasons, respectively (Table 8). Depth comparisons were

made using a CARIS HIPS generated difference surface as a check that the sonar systems and application of correctors were in agreement within 0.3m.

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H12341	1:20000	2011	NOAA Ship <i>Thomas Jefferson</i>	N
H12342	1:20000	2011	NOAA Ship <i>Thomas Jefferson</i>	N
H12843	1:40000	2015	NOAA Ship <i>Ferdinand R. Hassler</i>	E

Table 8: Junctioning Surveys

H12341

The difference between survey H13058 and the junction survey H12341 (Figure 9) ranged from -3.0m to 3.0m. The mean was -0.2m and the standard deviation was 0.5m (Figure 10). The minimum and maximum difference values between H13058 and H12341 are due to an observed 20m horizontal shift in the edge of a bathymetric depression, and edge fliers in the H12341 grid in the vicinity of a charted 59-foot wreck (Figure 11).

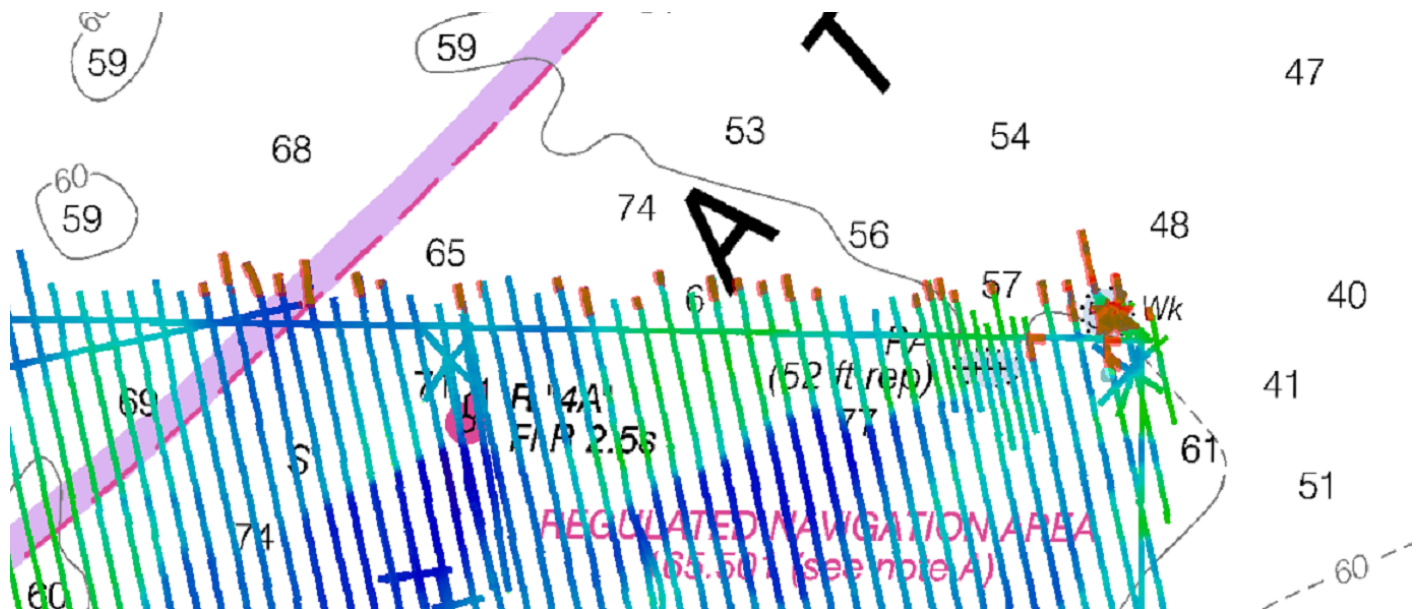


Figure 9: H13058 - H12341 difference results

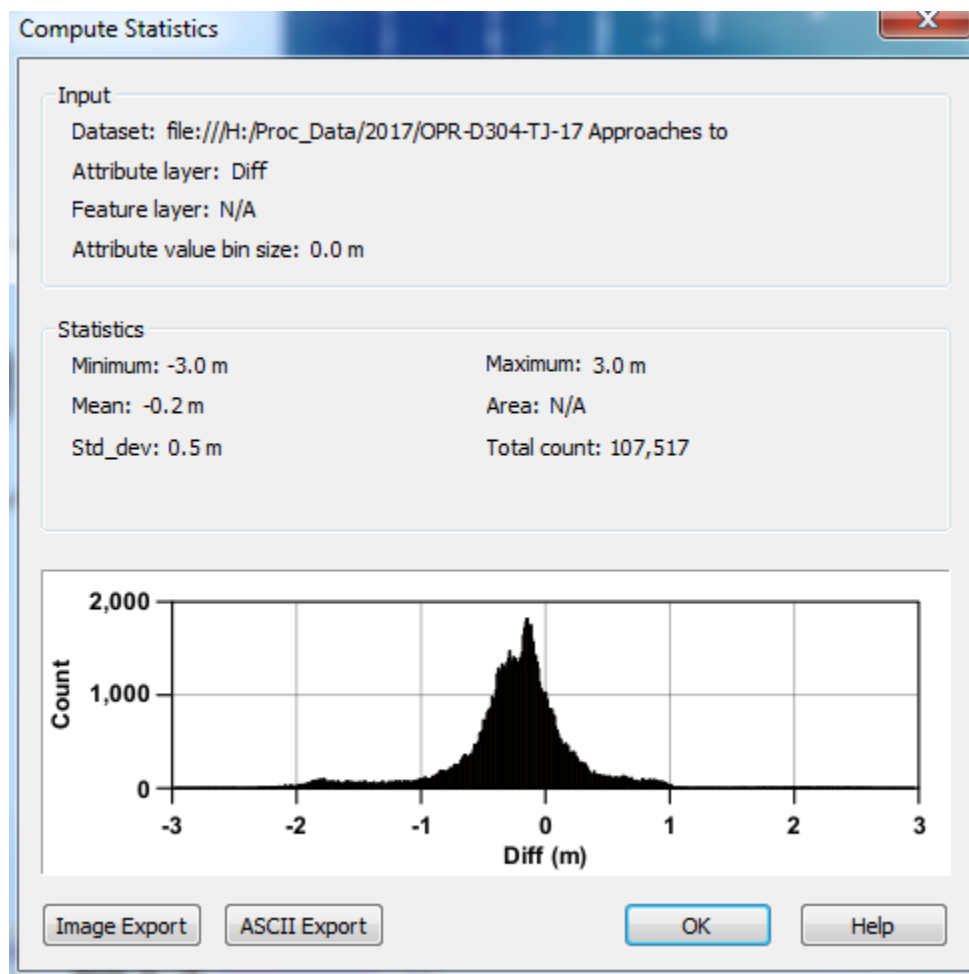


Figure 10: H13058 - H12341 statistics

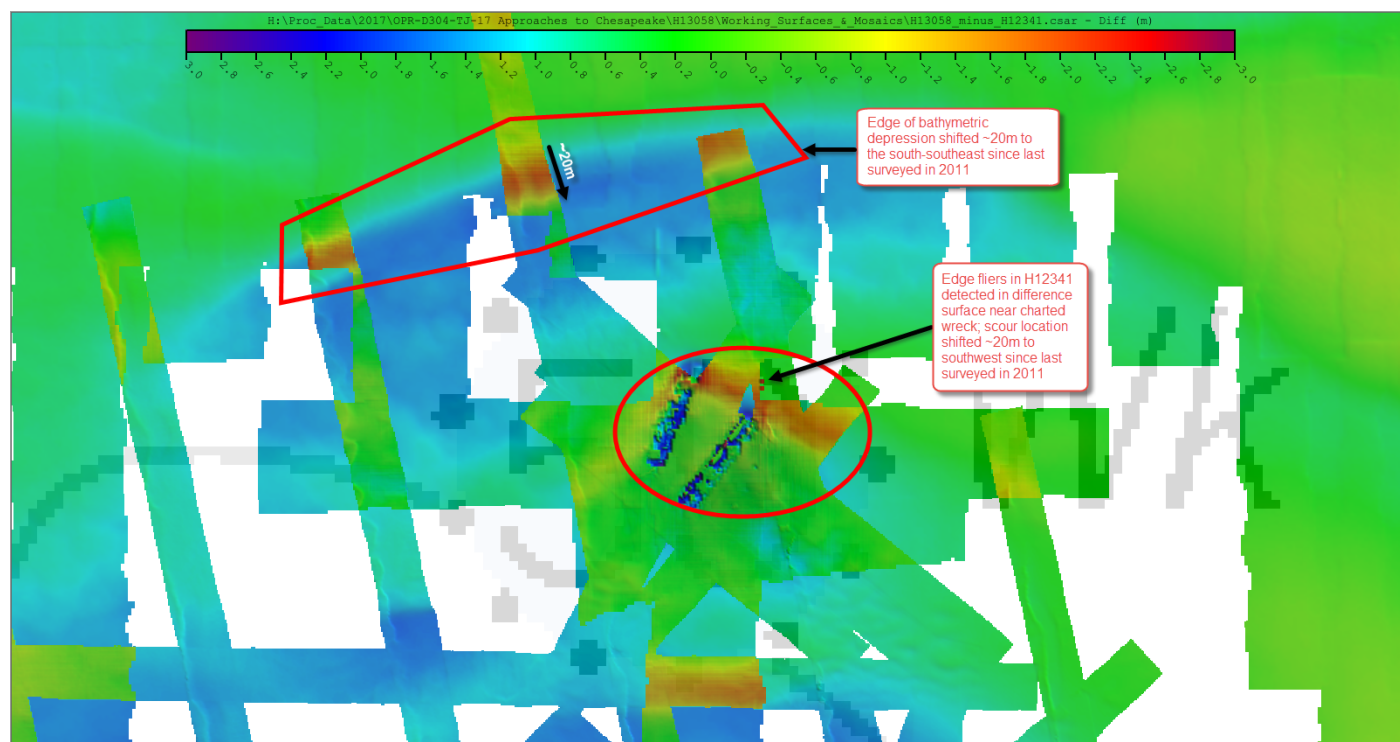


Figure 11: Junction difference between H13058 and H12341

H12342

The difference between survey H13058 and the junction survey H12342 (Figure 12) ranged from -1.2m to 1.0m. The mean was 0.0m and the standard deviation was 0.2m (Figure 13).

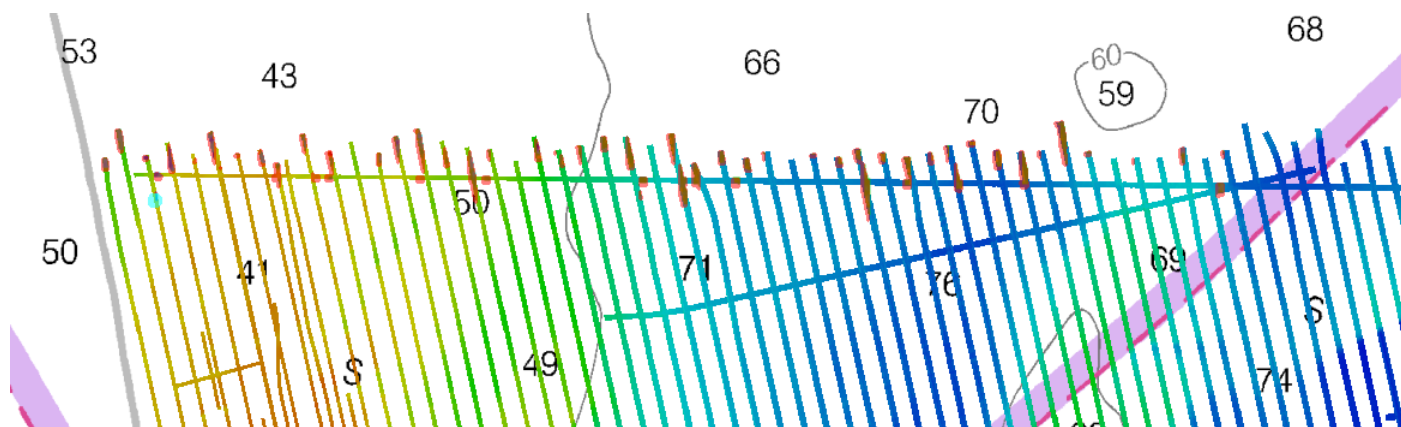


Figure 12: H13058 - H12342 difference results

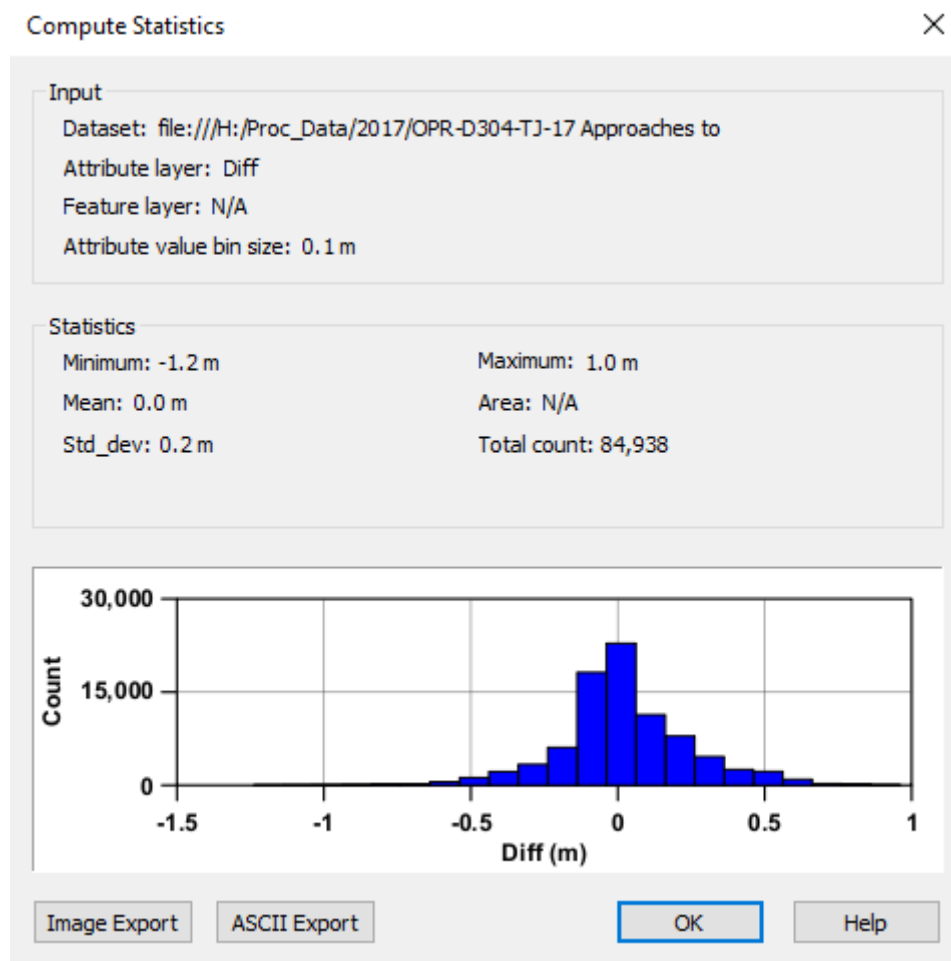
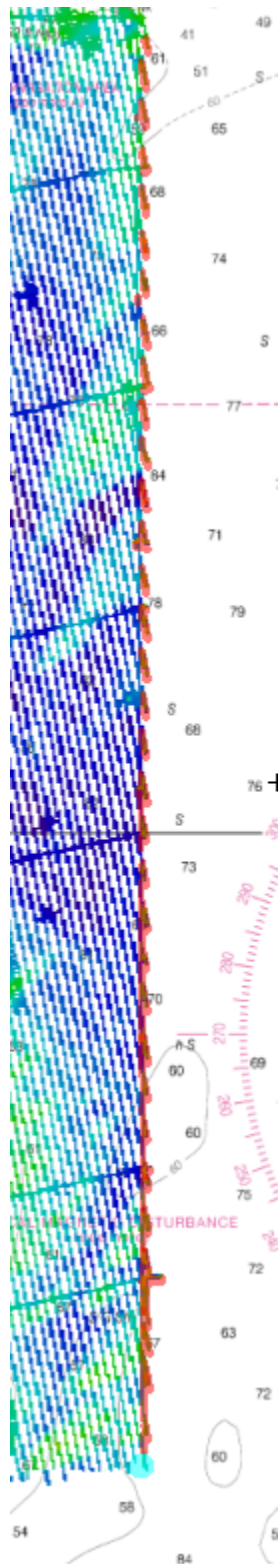


Figure 13: H13058 - H12342 statistics

H12843

The difference between survey H13058 and the junction survey H12843 (Figure 14) ranged from -1.0m to 1.0m. The mean was 0.1m and the standard deviation was 0.2m (Figure 15).



17

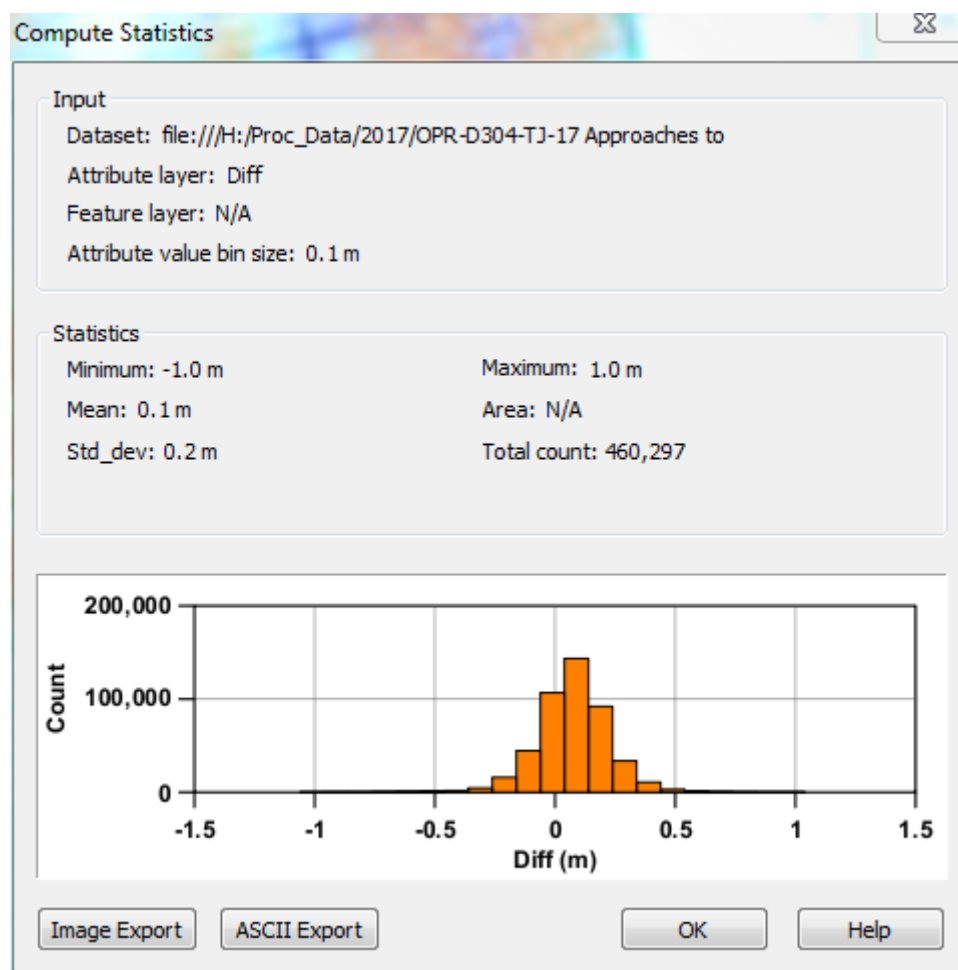


Figure 15: H13058 - H12843 statistics

B.2.4 Sonar QC Checks

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

B.2.5 Equipment Effectiveness

MBES Artifact

For further details on MBES artifact refer to the DAPR.

B.2.6 Factors Affecting Soundings

Oceanographic layering affecting sound speed

Data revealed abundant sound speed artifacts due to a distinctly stratified and variable section of the water column that fluctuated above and below the transducer face. Data from Descriptive Reports (DR) H12341, H12342, and H12843 corroborate previously documented environmental conditions; a steep sound velocity gradient regularly migrated throughout the uppermost 10m of the water column and accounted for up to 30 m/s differential in sound speed. The steepest gradient was frequently located at or near MBES transducer depth (Figure 16). MVP casts were taken at frequent intervals (every 15 to 30 minutes), but the location and extreme variability in sound speed layer depth rendered additional casts ineffective. The artifact is realized as a wavy irregularity in the along-track direction of the MBES data (Figure 17).

A direct result of the sound speed gradient is also evident in refraction artifacts throughout the SSS data. Refraction issues were mitigated by collecting data in splits to cover SSS holidays. Areas where refraction existed after additional SSS splits were acquired are located at 36°34'40.8"N/075°48'3.6"W (Figure 18), 36°34'55.7"N/075°47'32.4"W (Figure 19), 36°31'1.2"N/075°45'57.6"W (Figure 20), and 36°30'18.0"N/075°46'15.6"W (Figure 21).

Contributions from Hydrographic Systems and Technology Branch (HSTB) and University of New Hampshire Joint Hydrographic Center and Center for Coastal and Ocean Mapping (UNH-JHC/CCOM) note that the data artifact could be due to a variety of factors. The most likely cause is a highly variable sound speed profile in both the horizontal and vertical orientations. The sound speed refraction profile is not consistent across the MBES swaths, providing further evidence that the artifact is due to a dynamic oceanographic environment.

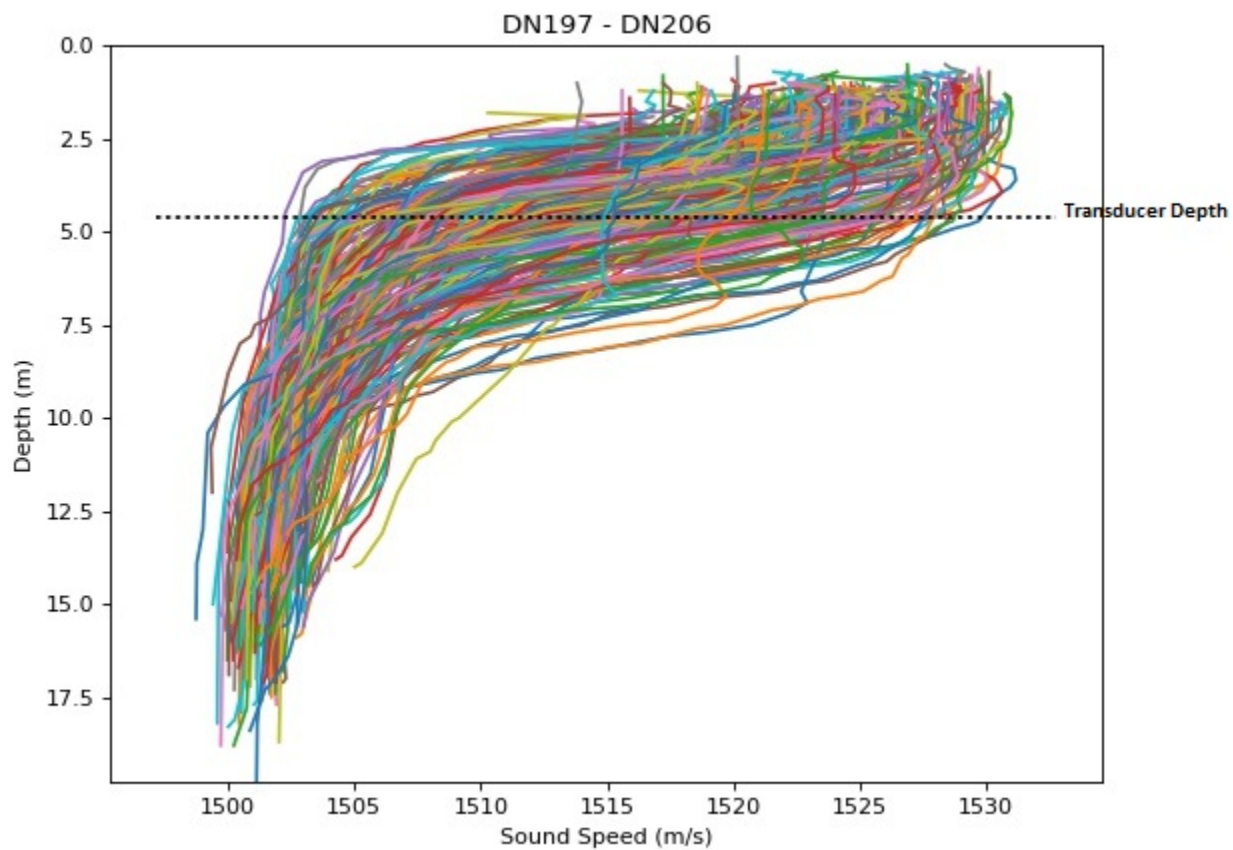


Figure 16: Sound speed cast comparison

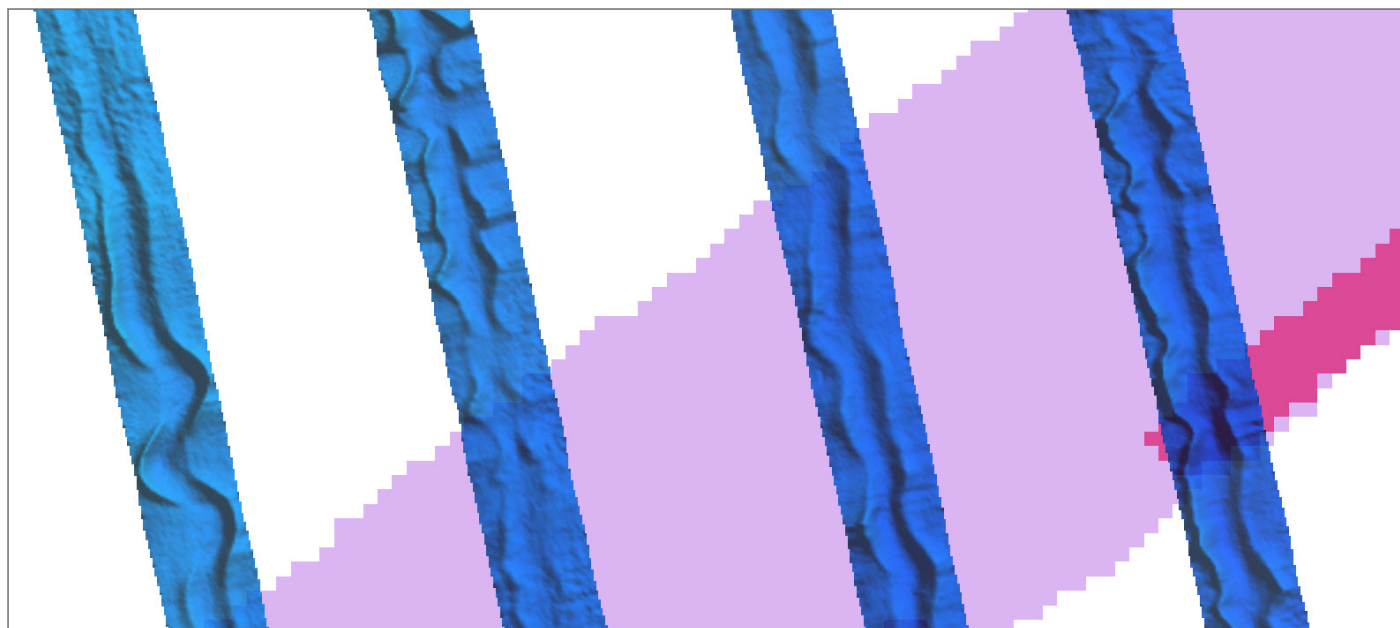


Figure 17: Wavy MBES data due to sound speed artifact

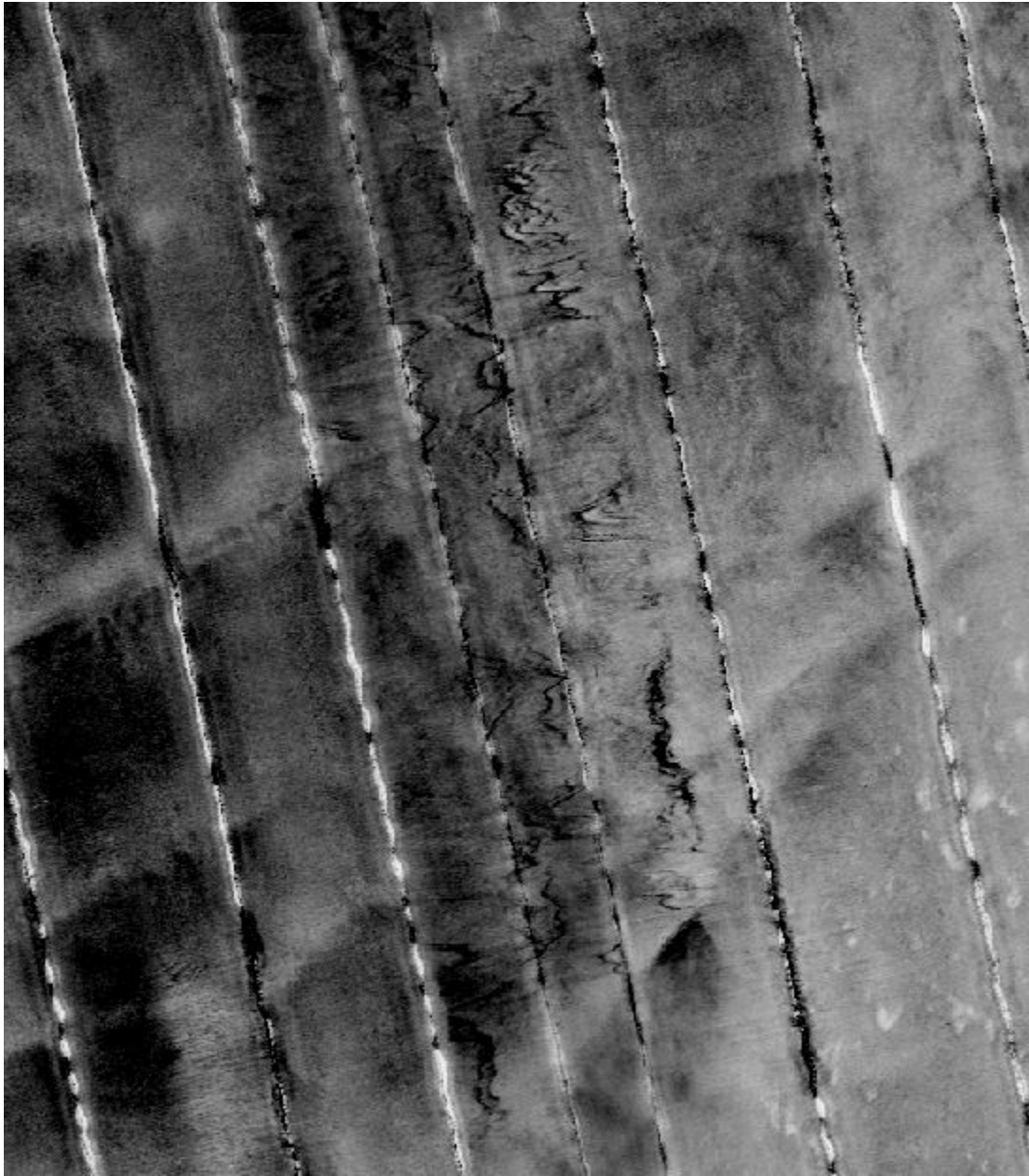


Figure 18: Refraction in SSS due to sound speed artifact at 36°34'40.8"N/075°48'3.6"W

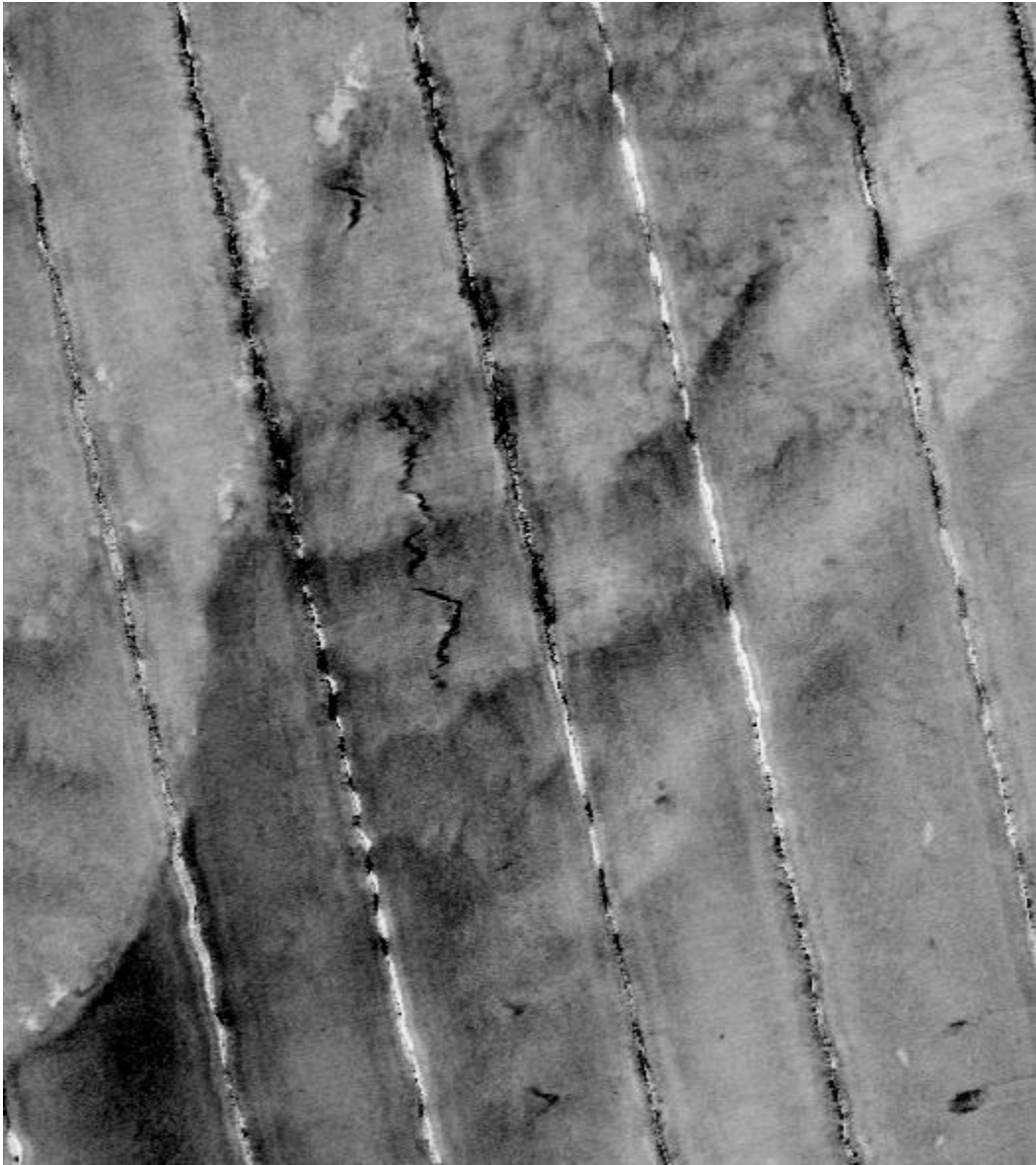


Figure 19: Refraction in SSS due to sound speed artifact at 36°34'55.7"N/075°47'32.4"W

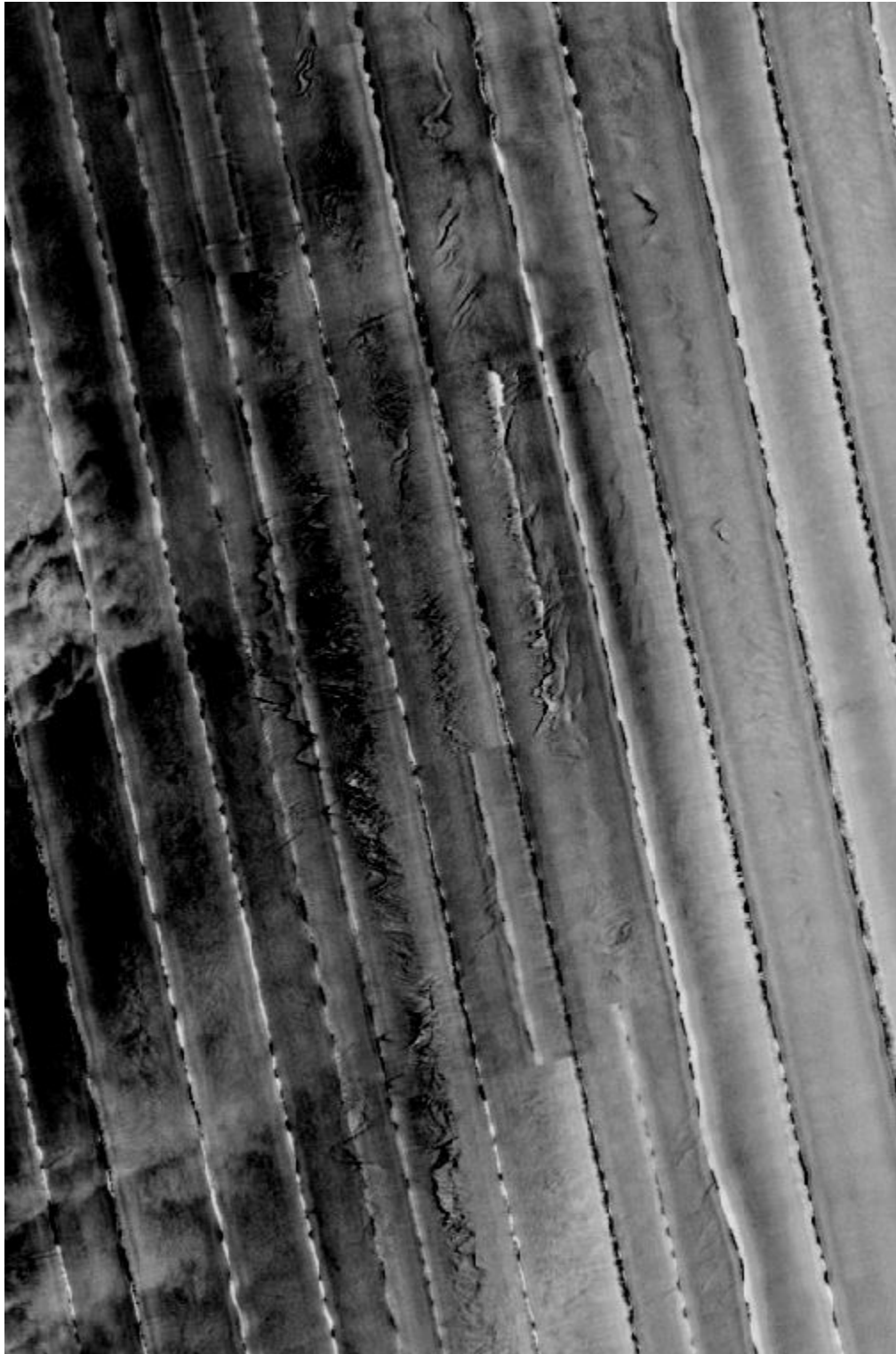


Figure 20: Refraction in SSS due to sound speed artifact at 36°31'1.2"N/075°45'57.6"W

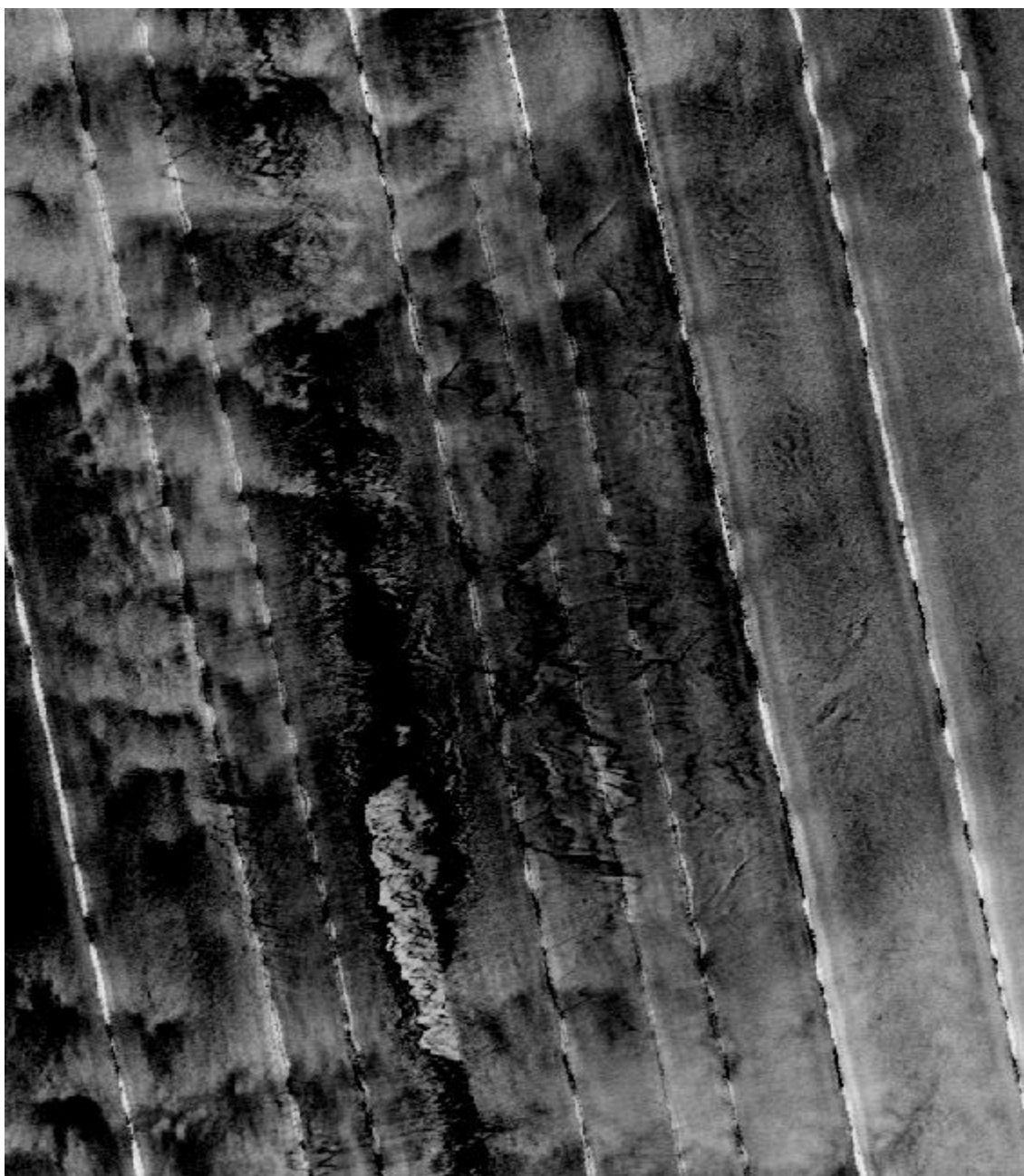


Figure 21: Refraction in SSS due to sound speed artifact at 36°30'18.0"N/075°46'15.6"W

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: Casts taken every 15-30 minutes.

Sound speed casts of the water column were conducted approximately every 15-30 minutes using a MVP (Figure 22). Areas of dynamic fluctuation and a sound speed artifact mitigation strategy resulted in more frequent casts, but casts were relatively ineffective at resolving the artifact noted in B.2.6.

One MVP cast was taken about 370m outside the survey area (Figure 23).

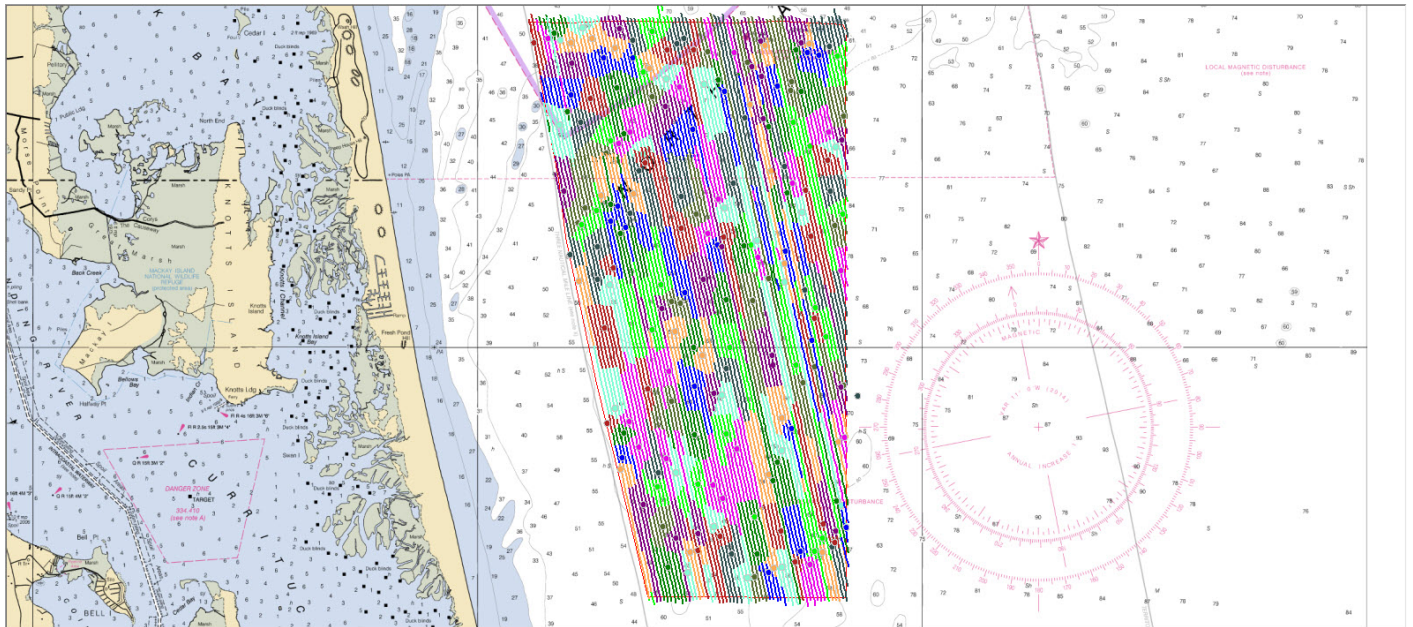


Figure 22: H13058 geographic distribution of sound speed casts

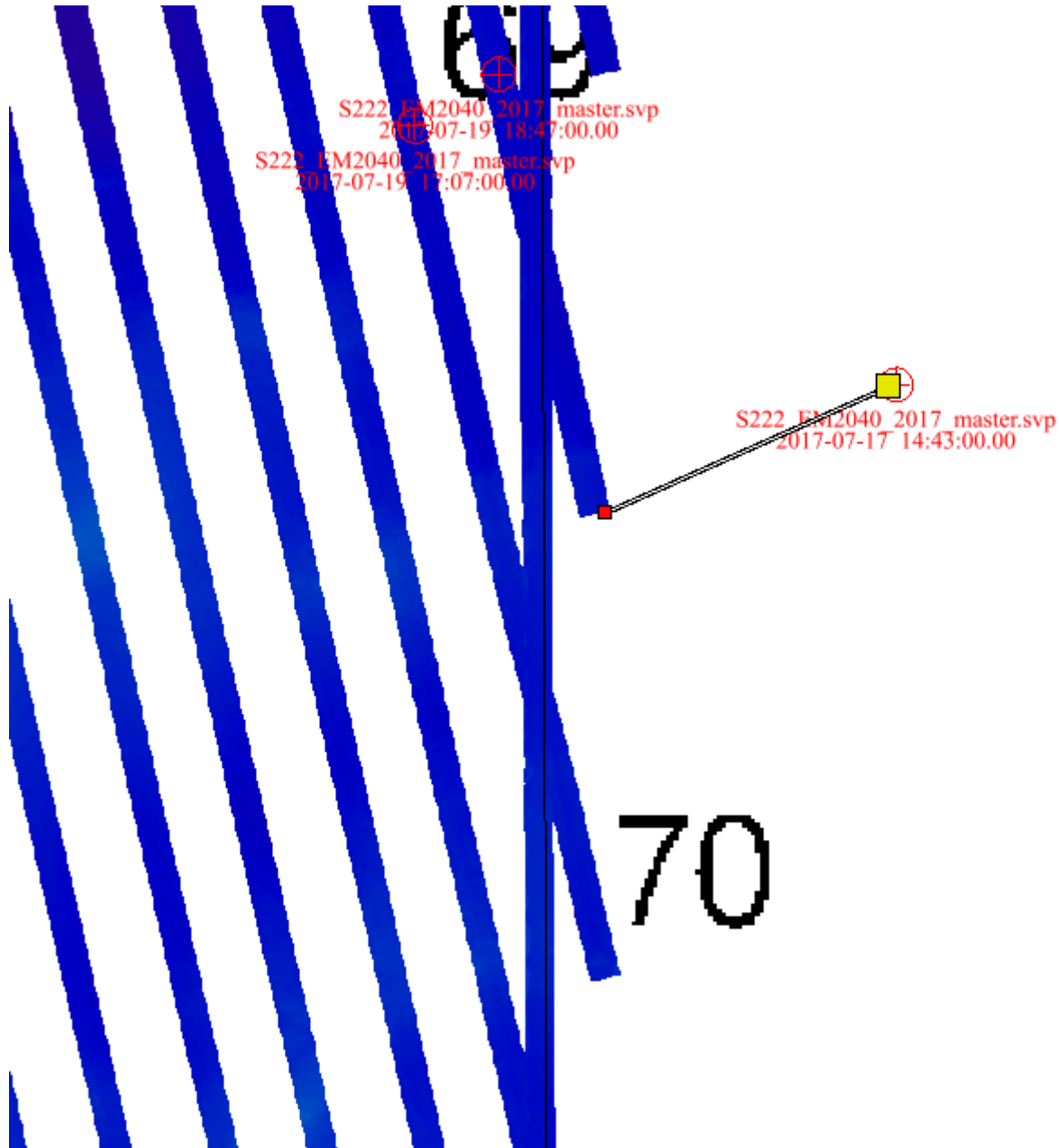


Figure 23: H13058 distant MVP cast

B.2.8 Coverage Equipment and Methods

Refer to Section A.4 and B.1.2. of this report for survey equipment and methods used to meet coverage requirements for this project.

B.3 Echo Sounding Corrections

B.3.1 Corrections to Echo Soundings

All data reduction procedures conform to those detailed in the DAPR, with the following exception: Due to an anomaly during the acquisition of SSS on day numbers 199 and 200, 35 SSS lines were processed differently than the documented processing method in the DAPR. This method is outlined in Appendix_II of the DR: SDFtoXTF SSS processing procedure.pdf. Lines processed with this method are denoted with a line number suffix _BF0V12_2 in the Caris HIPS file.

B.3.2 Calibrations

No additional calibrations were conducted after the initial system calibration discussed in the DAPR.

B.4 Backscatter

Backscatter was processed by the field unit per the DAPR and submitted to the Atlantic Hydrographic Branch (AHB). *Do not concur. The deliverable submission did not include the backscatter mosaic or the FMGT project. Backscatter data was processed and mosaic created at AHB.*

B.5 Data Processing

B.5.1 Primary Data Processing Software

The following software program was the primary program used for bathymetric data processing (Table 9):

Manufacturer	Name	Version
Caris	HIPS/SIPS	10.3

Table 9: Primary bathymetric data processing software

The following software program was the primary program used for imagery data processing (Table 10):

Manufacturer	Name	Version
CARIS	HIPS/SIPS	10.3

Table 10: Primary imagery data processing software

The following software program was the primary program used for imagery data processing (Table 11):

Manufacturer	Name	Version
QPS	Fledermaus Geocoder Tool (FMGT)	7.4.0

Table 11: Primary imagery data processing software

The following Feature Object Catalog was used: NOAA Extended Attribute Files V 5.6.

B.5.2 Surfaces

The following surfaces and/or BAGs were submitted to the Processing Branch (Table 12):

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H13058_MB_1m_MLLW.csar	CARIS Raster Surface (CUBE)	1 meters	9.0 meters - 24.7 meters	NOAA_1m	Complete MBES
H13058_MB_1m_MLLW_final.csar	CARIS Raster Surface (CUBE)	1 meters	9.0 meters - 24.7 meters	NOAA_1m	Complete MBES
H13058_SSS_1m_100	SSS Mosaic	1 meters	0 meters - 0 meters	N/A	100% SSS
H13058_SSS_Disproval	SSS Mosaic	1 meters	0 meters - 0 meters	N/A	200% SSS

Table 12: Submitted Surfaces

The submitted MBES 1m surface for survey H13058 meets density requirements for complete coverage as described in Section 5.2.2.3 of the HSSD (Figure 24). For further discussion, see section A.4 of this report.

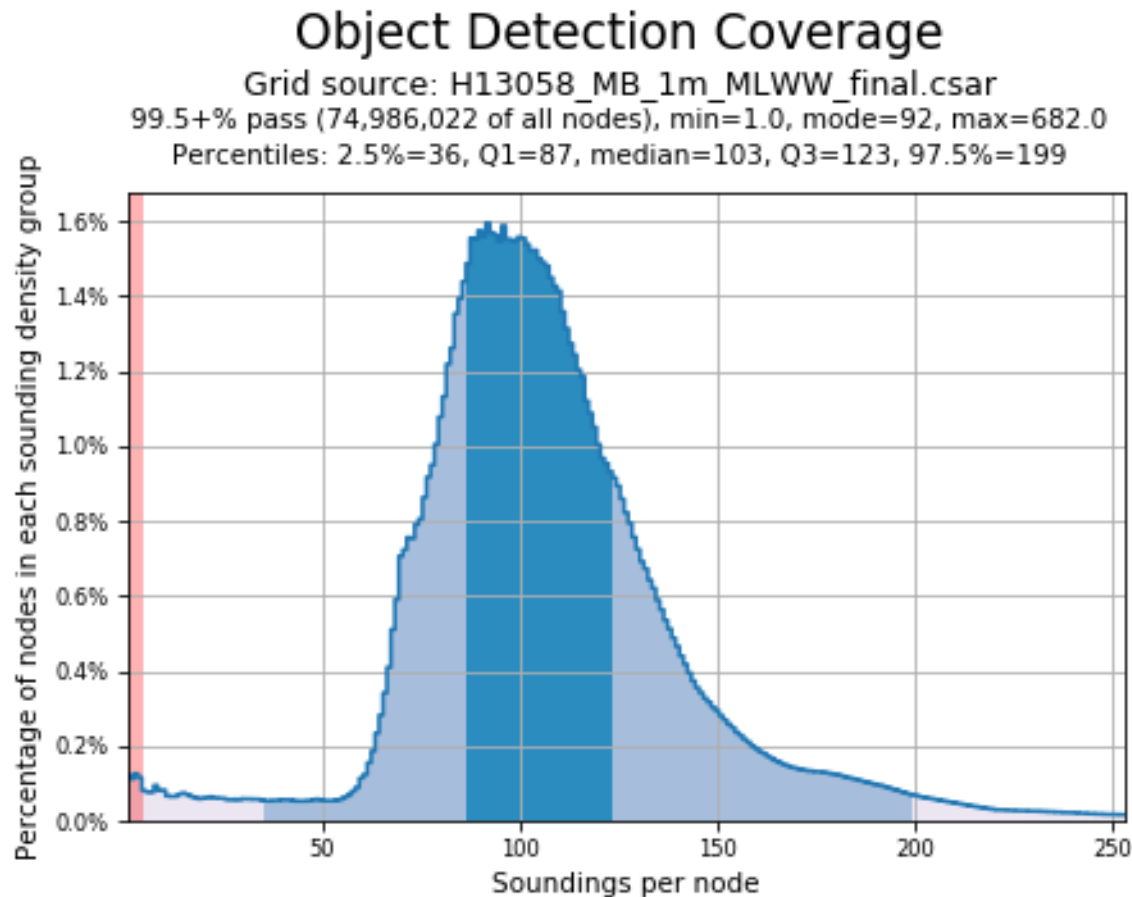


Figure 24: Object Detection Density Requirements Plot for H13058

B.5.3 Surface Fliers

Fliers were detected using HSTB Pydro QC tools, as well as an in-house ArcGIS script used to augment the Pydro QC Tools. H13058_MB_1m_MLLW_final grid was scanned for fliers at 50cm tolerance. All potential fliers were flagged and scanned; confirmed fliers were cleaned. Remaining flagged nodes were found to be part of the sound speed artifact.

B.5.4 Side Scan Sonar Holidays

There were two holidays discovered in the SSS mosaic (Figure 25). The largest holiday in the southern portion of the sheet is 2.9m x 19.3m.

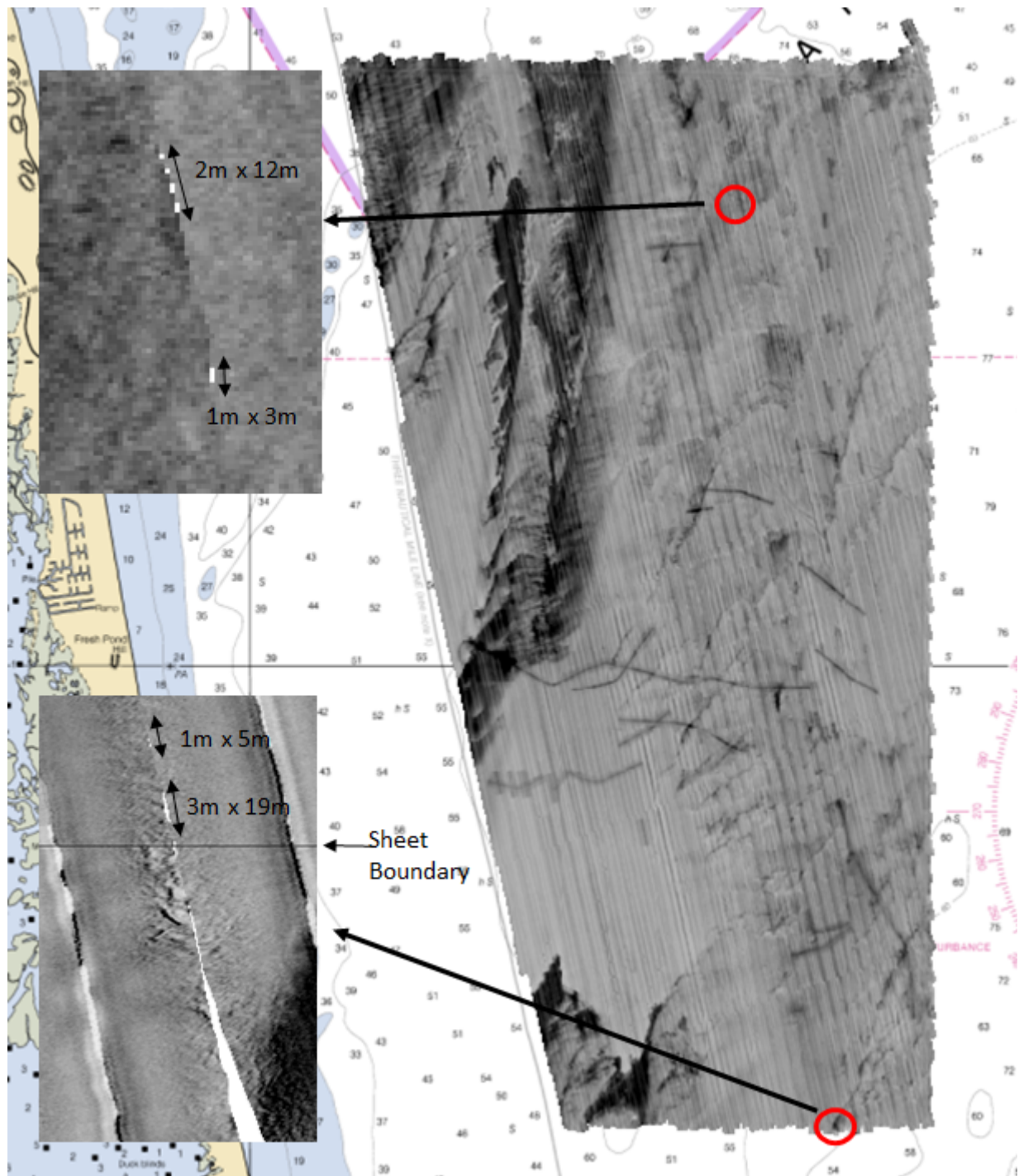


Figure 25: H13058 SSS Holidays

C. Vertical and Horizontal Control

Additional information discussing the vertical or horizontal control for this survey can be found in the accompanying Horizontal and Vertical Control Report (HVCR).

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:

sep_outline_WGS_84_ACHARE_Polygon_xyWGS84-MLLW_geoid12a.csar

Sounding elevations relative to the ellipsoid were collected through real time precise point positioning (PPP) via Fugro Marinestar services, as detailed in the DAPR and HVCR.

C.2 Horizontal Control

The horizontal datum for this project is World Geodetic System of 1984 (WGS 84).

The projection used for this project is UTM 18N.

Horizontal positioning was collected through real time precise point positioning (PPP) via Fugro Marinestar services, as detailed in the DAPR and HVCR.

D. Results and Recommendations

D.1 Chart Comparison

Surveyed soundings were compared to existing charted soundings by using PydroExplorer's QC Tools DtoN Scanner application. Current Electronic Navigational Chart (ENC) soundings were compared to a dense shoal-biased sounding selection from H13058. PydroExplorer QC Tools DtoN Scanner identifies survey soundings with a shoal discrepancy as compared to the largest scale chart, evaluated via the "triangle rule." The tool creates a triangulated irregular network (TIN) from the ENC soundings (and feature value of soundings, if present). Survey soundings are categorized within the TIN triangles, and if any survey sounding is shallower than the three triangle vertex soundings, it is flagged. Results from H13058 compared to ENC soundings and features from US4NC32M yielded several possible chart discrepancies (Figure 26).

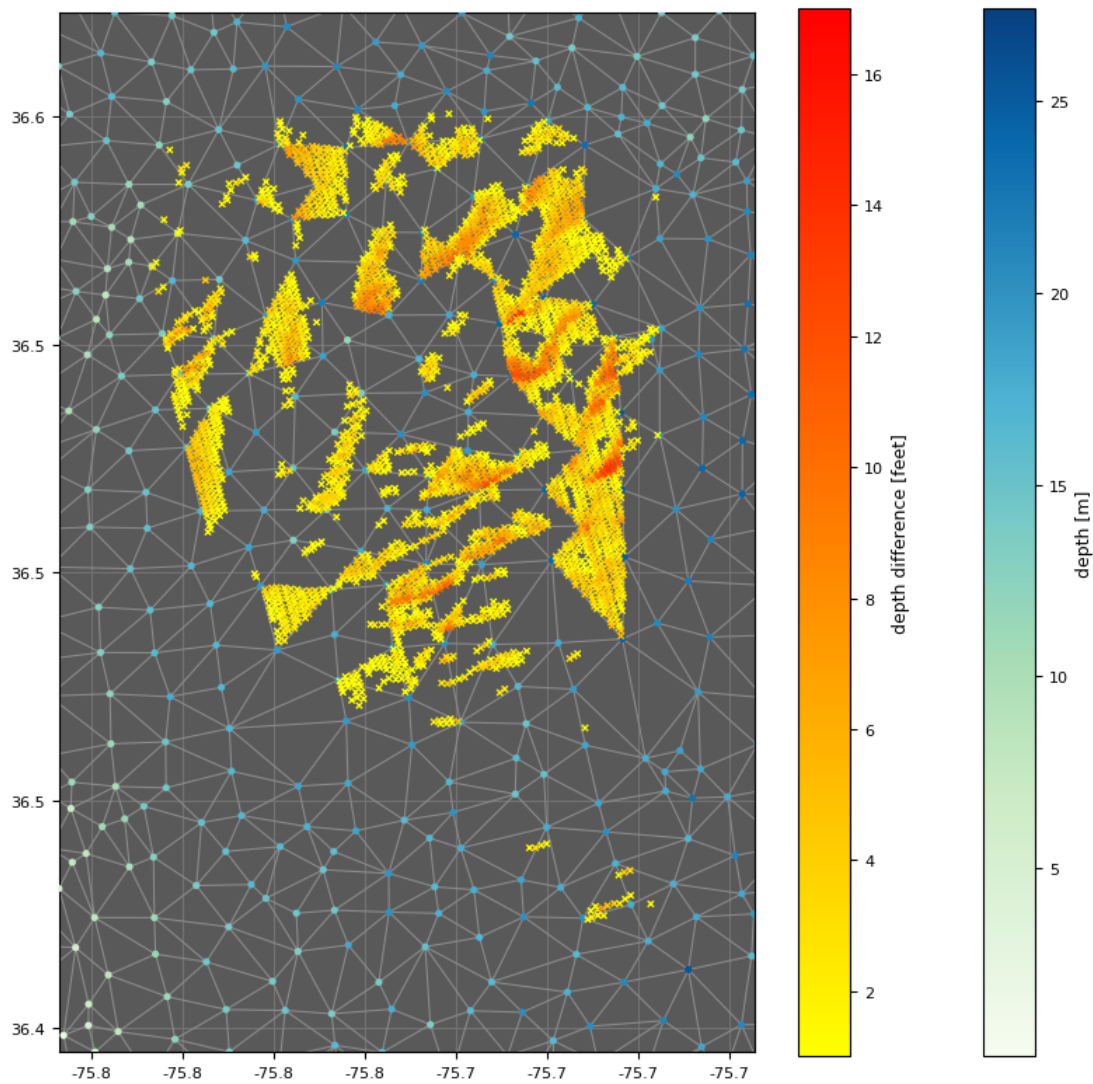


Figure 26: H13058 DtoN Scan chart discrepancy results ranging from 0.3m to greater than 5m

D.1.1 Electronic Navigational Charts

The following are the largest scale ENC's, which cover the survey area (Table 13):

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US4NC32M	1:80000	13	09/22/2017	10/30/2017	NO

Table 13: Largest Scale ENC's

US4NC32M

NOAA ENC US4NC32M covers the entire area of survey H13058 at a scale of 1:80,000. Any changes to assigned features derived from the ENC can be found in the final feature file (FFF) included with this report. Approximately 15% of the surveyed depths varied from the charted depths by greater than 0.3 meters, with most significant changes in the center, north, and northeastern sectors of the survey area. Areas with the most significant depth differences from charted depth ranged from 2.4m to greater than 4.8m as noted in Section D.1.

D.1.2 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.3 Charted Features

One 52-foot PA wreck was charted within the limits of survey H13058 and disproved using 200% SSS. For full details on the feature investigation, see the FFF submitted with this report.

D.1.4 Uncharted Features

One new dangerous wreck was found in survey H13058. See the FFF for further information.

D.1.5 Shoal and Hazardous Features

Shoaling was observed in the northwest survey area limits; refer to the DtoN Report, Appendix II, for further information.

D.1.6 Channels

A danger zone exists in the northwest portion of the sheet. Refer to ENC US4NC32M and Coast Pilot 4 for more information.

D.1.7 Bottom Samples

No bottom samples were required for this survey.

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

For more information on the comparison of H13058 with prior surveys, refer to section D.1 of this report.

D.2.3 Aids to Navigation

One ATON R "4A" Fl R 2.5s was investigated and is on station serving its intended purpose.

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

Changes in sound speed throughout the water column were the most significant environmental condition observed and investigated. For more information on environmental conditions, refer to Section B.2.6.

D.2.9 Construction and Dredging

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

D.2.10 New Survey Recommendation

Due to the oceanographic and environmental conditions relating to sound speed, the hydrographer recommends not surveying this area during the summer months.

D.2.11 Inset Recommendation

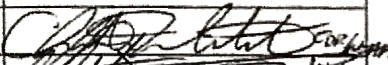

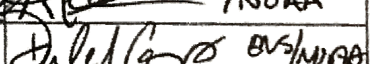
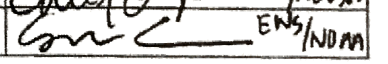

No new insets are recommended for this area.

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 and Specifications Deliverables Manual, 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 Chris van Westendorp	Commanding Officer	12/19/2017	
LT Matthew Forrest	Field Operations Officer	12/19/2017	
LT Anthony Klemm	Field Operations Officer	12/19/2017	 LT/NOAA
ENS Dale Gump	Sheet Manager	12/19/2017	 ENS/NOAA
ENS Sydney Catoire	Assistant Sheet Manager	12/19/2017	 ENS/NOAA

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 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
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 2017

Acronym	Definition
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
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
PRF	Project Reference File

Acronym	Definition
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
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 States Coast Guard
UTM	Universal Transverse Mercator
XO	Executive Officer
ZDA	Global Positioning System timing message
ZDF	Zone Definition File

APPENDIX I

TIDES AND WATER LEVELS

APPENDIX II

SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCE



H13058: Request for Deliverable Modification

17 messages

Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>

Sun, Aug 20, 2017 at 8:43 PM

To: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>

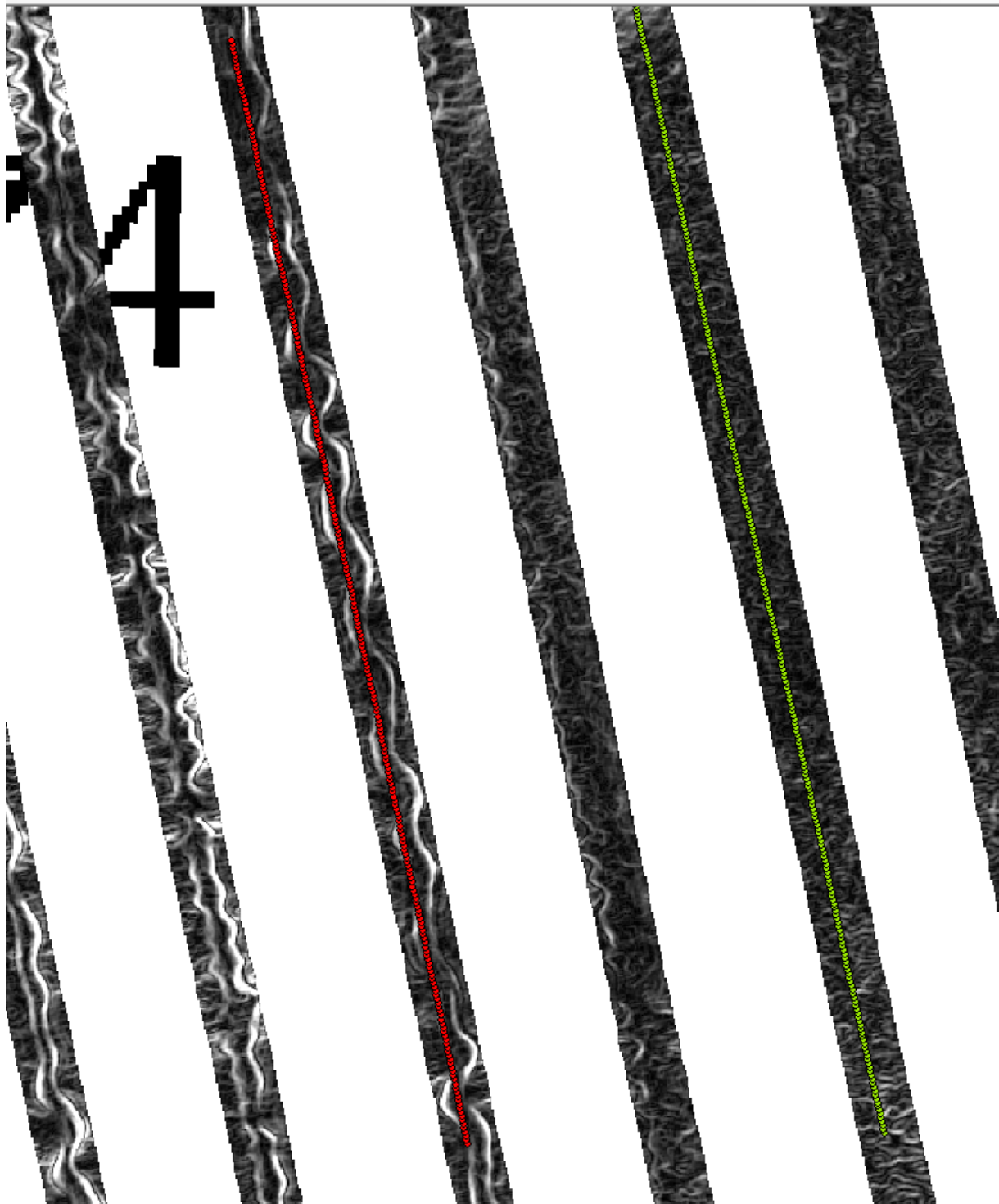
Cc: _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>

Martha,

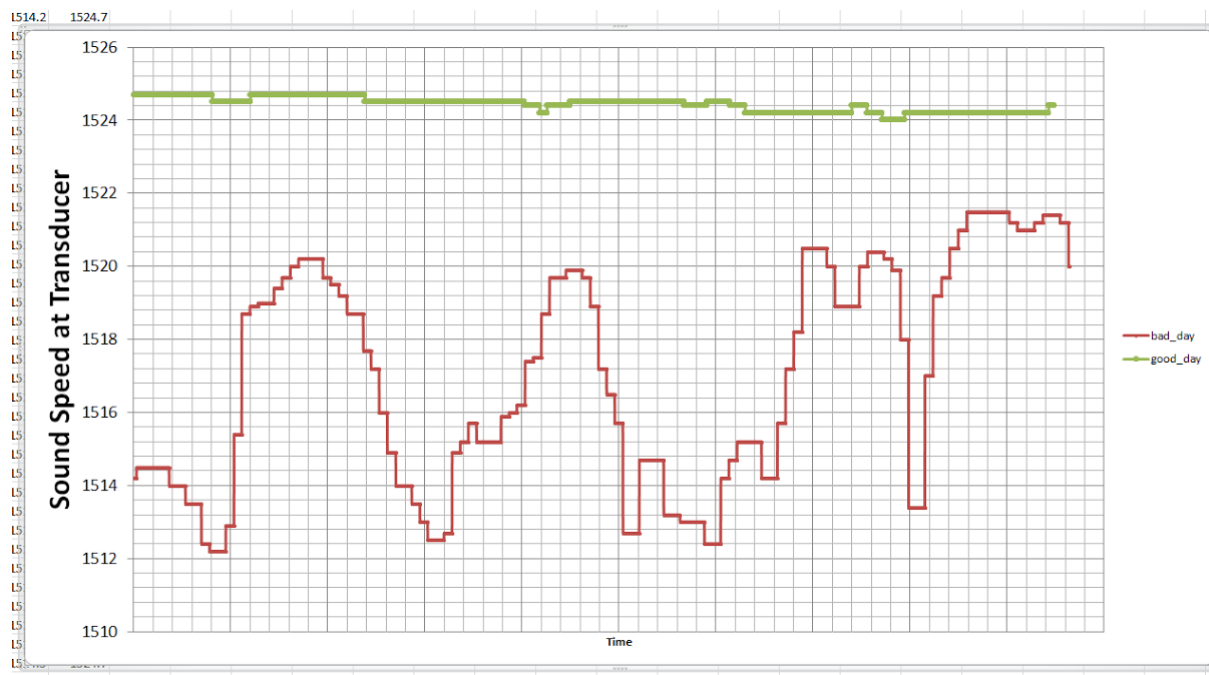
TJ requests a modification to normal deliverable requirements for MBES surfaces owing to an outer beam SV artifact throughout bathymetry on H13058.

TJ surveyed H13058 per project instructions. Bathymetry acquired with the ship's Kongsberg EM2040 showed a significant outer beam artifact (see below images for the more egregious examples of this artifact).

The error manifests as an intermittent "waviness" in the data. Analysis leads us to believe the artifact is related to sound speed issues in the area. Furthermore, there is strong correlation with direction of seas/weather; the artifact is consistently located and/or most severe on the vessel's windward side, notwithstanding vessel heading and speed through the water. See the example images below.

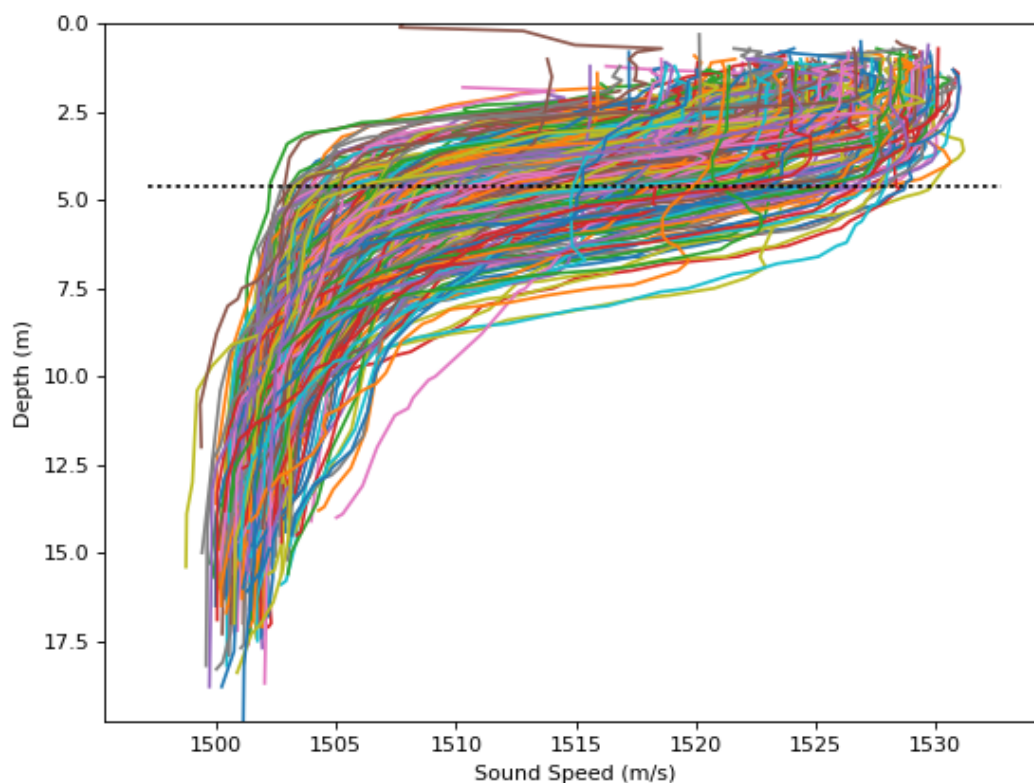


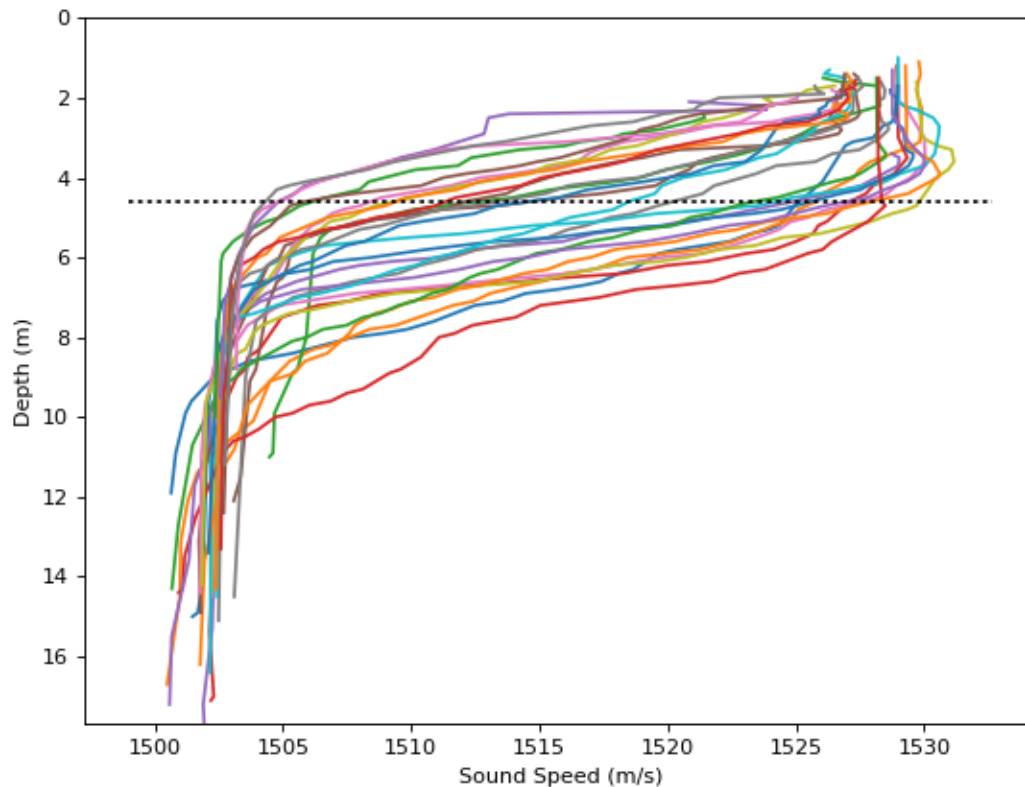
The two lines on the right (east) side represent "good" lines (those with minimal SV artifacts). The three on the left (west) side represent "bad" lines (those with a significant SV artifact). Internal analysis shows direct correlation with sea state.



The above plot shows a record of the surface sound speed (extracted from the Kongsberg .all file) on the two days from which the previous image was generated. The lower red line shows the extreme variation in sound speed incurred by the vessel's motion in the water column owing to rougher seas, while the upper green line shows the effect of a calmer day, during which vessel motion was far less pronounced.

Several days of project SVP data are shown on the following plot. The first plot is for all casts in the sheet, and the second plot is all casts for DN198. The black dashed line indicates transducer depth





As shown a large sound speed gradient exists within the 4-7m depth range. We believe this variability is due to extreme fresh water incursion from Chesapeake Bay during tidal cycles, which has also been noted in previous TJ surveys just north of the survey area.

Data in H13058 were impacted by a combination of factors. (1) Our sound speed sampling regime (average of ~27 casts per day, ~42 minutes between casts) may not have been frequent enough to adequately correct for observed issues. (2) Given the severity of the "velocicline" (as we've taken to calling it) in the area, combined with 38cm vertical offset between the ship's Valeport surface sound speed sensor and MBES face, vessel motion alone could (did) cause refraction errors at the time of acquisition (i.e. the Valeport and Kongsberg were located in *two different masses of water* based on vessel attitude).

We decided to continue acquisition despite this artifact, since historical knowledge revealed these issues are part of doing business in this area. SSS data were of good quality, and nadir depths were checking on crosslines.

With the above in mind, a separate issue forces this request for deviation. The ship's Kongsberg EM2040 currently operates in a degraded mode, stemming from an as-yet unidentified "waviness" issue in the outer beams. Per HSTB recommendation, we limit EM2040 acquisition to 45 degrees from nadir (total swath width of 90 degrees), resulting in MBES not adequately covering the SSS nadir gap in some survey areas. Even after running these nadir gaps as holidays, we still ended up with the SV-related issue in the MBES data; normal filtering of outer beams down would cost even more on nadir gap coverage, resulting in failure to meet coverage requirements.

We propose the following: **deliver two separate MBES surfaces; one filtered to 10 degrees off nadir for use as bathymetric data, and a second surface at full swath with the artifact intact to be used for object detection.** Onboard assessment of this approach yielded expected results: a narrow-swath surface with low uncertainty and high-quality bathymetry; and a full-swath surface that fully ensonifies objects not visible in the SSS nadir. Atlantic Hydrographic Branch personnel (including PS Clint Marcus) were consulted on this issue and concur this both significantly improves charted bathymetry (1860s and 1920s-era) and provides satisfactory coverage.

We respectfully request to deviate from HSSD requirements and deliver two MBES surfaces with sufficient justification in the Descriptive Report to account for presence of and describe purpose of each.

We look forward to your response, and I will be more than happy to address any questions/concerns you may have. Thank you!

V/r,

--

LT Matthew Forrest, NOAA
Operations Officer
NOAA Ship Thomas Jefferson
439 W York St
Norfolk, VA 23510
Tel: (757) 647-0187
Iridium: (808) 434-2706

Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>

Wed, Aug 23, 2017 at 11:36 AM

To: Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>

Cc: _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>

Matt,

Sorry for the delay in response, I just got back into the office this week. Could please you send me (or drop in Google drive) the side scan mosaics and grids for this survey? I need a little more context for this.

Thanks,
Martha

[Quoted text hidden]

Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>

Wed, Aug 23, 2017 at 4:12 PM

To: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>

Cc: _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>

Martha,

They are uploading now. It will take, at the current transfer rate, probably two days for them to be uploaded.

In the meanwhile, are there any questions that we can answer about our request? Thanks!

V/r,

Forrest

[Quoted text hidden]

Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>

Wed, Aug 23, 2017 at 4:49 PM

To: Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>

Cc: _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>

Thanks, I know getting large files off the ship is a huge hassle. I do have a few questions...

- I assume by saying your SSS data were of good quality, that you were able to get the fish below the "velociclyne," and there were no issues with the data, correct?

- Were there any developments and if so, did you have the same refraction issue with gaps or did you sufficiently overlap or reduce your swath to ensure the best quality data?

- Can you identify a holiday plan for it to meet spec? What I am asking is what would be the level of effort to make it meet spec if you had time to get back to the area?

Thanks,
Martha

[Quoted text hidden]

Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov> Fri, Aug 25, 2017 at 9:30 AM

To: Martha Herzog - NOAA Federal <martha.hertzog@noaa.gov>

Cc: _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>

Martha,

Thanks for understanding- many of the individual files are uploaded now, but the final parts are currently sitting at a 101+ hour completion time. They're going to this [location](#). To answer your questions:

1. SSS is clean. We had some minimal thermocline issues that we dealt with as holidays; coverage is good on the mosaic.
2. Our developments and splits showed minimal SV issues.
3. Re-acquisition, at a one-to-one rate (that is, simply re-running the lines that we have already run), would require around 300LNM of further acquisition. Time-wise, this would be around 2-3 full ship days. Unfortunately, there is no guarantee that re-acquisition at a different time would resolve the larger issue of the enormous sound speed change that we're seeing, as it can largely be traced directly to the tidal cycles of and fresh water outflow from the Chesapeake Bay.

Sorry I took so long to respond. I hope this helps. Thanks!

V/r,

Forrest

[Quoted text hidden]

Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov> Mon, Aug 28, 2017 at 10:08 AM

To: Martha Herzog - NOAA Federal <martha.hertzog@noaa.gov>

Cc: _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>

Martha,

Our MBES surface has completed uploading at the Google Drive link I sent you, and the SSS mosaic is still uploading. Will a TIF of SSS data work for you? Thank you!

V/r,

Forrest

[Quoted text hidden]

Martha Herzog - NOAA Federal <martha.hertzog@noaa.gov> Mon, Aug 28, 2017 at 5:19 PM

To: Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>

Cc: _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>

Hi Forrest,

Yes, a georeferenced TIF will work for the SSS.

Thank you for uploading them; I know it is a hassle. The only thing I'm missing is the .csar0 for the H13058_SSS_1m_100.csar. Do you mind passing that along?

Thanks,
Martha

[Quoted text hidden]

Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov> Mon, Aug 28, 2017 at 7:25 PM
To: Martha Herzog - NOAA Federal <martha.hertzog@noaa.gov>
Cc: _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>

Martha,

The TIF is uploading at this time. It should be ready by tomorrow morning. Thank you!

V/r,

Forrest
[Quoted text hidden]

Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov> Tue, Aug 29, 2017 at 9:40 AM
To: Martha Herzog - NOAA Federal <martha.hertzog@noaa.gov>
Cc: _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>

Martha,

The TIF is ready for download.

V/r,

Forrest
[Quoted text hidden]

Martha Herzog - NOAA Federal <martha.hertzog@noaa.gov> Tue, Aug 29, 2017 at 12:32 PM
To: Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>
Cc: _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>

Thanks Forrest.

I want to make sure I have the issue correct - the waviness of the data is caused by the ship's EM2040 and the sound speed refraction issue compounds it.

If so, I have a few questions:

- From what I can see from the grids, the sound speed refraction and MBES sensor artifact for the reduced swath is on the order of 0.2 - 0.6m, correct?

- Aside from suggesting a reduced swath, did HSTB have any other solutions or recommendations? The bump/wave doesn't always seem to be all the way at the end of the swath. It does appear that you'd have to reduce your swath to something ridiculous like 10 degrees in most areas to get rid of the artifact.

- I've never seen "degraded mode" in SIS. Is it just a SIS warning that something is failing or is it something more specific?

- Is there an area where more casts were taken, and did that mitigate the issues for that area?

- Was Cast Time used?

- Am I seeing a heave artifact in some lines? Have delayed heave and SBETs have been applied to all lines?

- If the ship MBES (or a component of it) is failing and not allowing your data to meet spec, what is your plan moving forward for future surveys?

Thanks,
Martha

[Quoted text hidden]

Anthony Klemm - NOAA Federal <anthony.r.klemm@noaa.gov>

Tue, Aug 29, 2017 at 2:24 PM

To: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>

Cc: Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>, _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>

Hi Martha,

To try and clear up some of your questions, I think it's best to set up a call. Are you available for a phone call at 1545? If so, what number is best to reach you?

Best regards,
Anthony

LT Anthony Klemm, NOAA
NOAA Ship *Thomas Jefferson*
[439 W York Street](#)
[Norfolk, VA 23510](#)

Learn about NOAA nautical charts - www.nauticalcharts.noaa.gov

[Quoted text hidden]

Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>

Tue, Aug 29, 2017 at 2:32 PM

To: Anthony Klemm - NOAA Federal <anthony.r.klemm@noaa.gov>

Cc: Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>, _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>

The time is good for me but let me check to see if Corey wants in on the call. He is in a meeting until about that time.

Thanks,
Martha

[Quoted text hidden]

Anthony Klemm - NOAA Federal <anthony.r.klemm@noaa.gov>

Tue, Aug 29, 2017 at 2:51 PM

To: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>

Cc: Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>, _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>

OK. Just let us know.

Best,
Anthony

LT Anthony Klemm, NOAA
NOAA Ship *Thomas Jefferson*
439 W York Street
Norfolk, VA 23510

Learn about NOAA nautical charts - www.nauticalcharts.noaa.gov

[Quoted text hidden]

Martha Herzog - NOAA Federal <martha.herzog@noaa.gov> Tue, Aug 29, 2017 at 3:08 PM
To: Anthony Klemm - NOAA Federal <anthony.r.klemm@noaa.gov>
Cc: Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>, _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>

Let's schedule for then. My office number is [240-533-0028](tel:240-533-0028) and cell is [206-658-3649](tel:206-658-3649).

[Quoted text hidden]

Martha Herzog - NOAA Federal <martha.herzog@noaa.gov> Tue, Aug 29, 2017 at 4:59 PM
To: Anthony Klemm - NOAA Federal <anthony.r.klemm@noaa.gov>
Cc: Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>, _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>

Thanks for the call everyone. I have one last request...could you please send me a concatenated SVP file?

To move things along, Corey and I'll will speak with the only one who has the actual authority around here (Rick Brennan) tomorrow.

Thanks,
Martha

[Quoted text hidden]

Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov> Tue, Aug 29, 2017 at 5:37 PM
To: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Cc: Anthony Klemm - NOAA Federal <anthony.r.klemm@noaa.gov>, _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>


Martha,

Please see attached.

V/r,

Forrest

[Quoted text hidden]

 **S222_EM2040_2017_master.svp**
227K

Martha Herzog - NOAA Federal <martha.herzog@noaa.gov> Wed, Aug 30, 2017 at 11:01 AM
To: Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>
Cc: Anthony Klemm - NOAA Federal <anthony.r.klemm@noaa.gov>, _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Dale Gump -

NOAA Federal <dale.gump@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>

Thanks Forrest.

I briefly talked with Brennan on this and said he'd get back to us on this. Hurricane Harvey response/prep is taking precedent over absolutely everything at the moment.

Thanks,
Martha

[Quoted text hidden]



SEP Model uncertainty

2 messages

Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>

Mon, Jul 17, 2017 at 7:05 PM

To: Martha Herzog - NOAA Federal <martha.hertzog@noaa.gov>

Cc: _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>

Martha,

Our Pls for D304 don't have an uncertainty value for the separation model. Can you provide one, or at least verify the number of 8.7cm that I'm finding online? Thanks!

V/r,

Forrest

--

LT Matthew Forrest, NOAA
Operations Officer
NOAA Ship Thomas Jefferson
439 W York St
Norfolk, VA 23510
Tel: (757) 647-0187
Iridium: (808) 434-2706

Martha Herzog - NOAA Federal <martha.hertzog@noaa.gov>

Mon, Jul 17, 2017 at 8:09 PM

To: Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>

Cc: _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>

Hi Forrest,

For VDatum, we get our SEP model values from here. https://vdatum.noaa.gov/docs/est_uncertainties.html. It looks like 8.7cm should work.

Thanks,
Martha

[Quoted text hidden]



Anthony Klemm - NOAA Federal <anthony.r.klemm@noaa.gov>

H13058 DToN report

2 messages

Dale Gump - NOAA Federal <dale.gump@noaa.gov>

Wed, Aug 30, 2017 at 4:14 PM

To: ahb.dton@noaa.gov, OCS.NDB@noaa.gov, Starla.Robinson@noaa.gov, Corey.Allen@noaa.gov, Ryan Wartick <ryan.wartick@noaa.gov>, tara.wallace@noaa.gov

Cc: "CO.Thomas Jefferson - NOAA Service Account" <co.thomas.jefferson@noaa.gov>, Allison Stone - NOAA Federal <allison.c.stone@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, _OMAO MOA ChiefST Thomas Jefferson <chiefst.thomas.jefferson@noaa.gov>, syndey.catoire@noaa.gov

ALCON,

Please find the subj. ref. documents attached. Please let me know if you have any questions or concerns.

Vr,
ENS Gump

--

Very Respectfully,

ENS Dale J. Gump, NOAA
Junior Officer, NOAA Ship Thomas Jefferson
Ship Land Line: [757-441-6322](tel:757-441-6322)
Ship Cell: [757-647-0187](tel:757-647-0187)
Ship Iridium: [808-434-2706](tel:808-434-2706)

Follow NOAA Ship Thomas Jefferson on Facebook!
<https://www.facebook.com/NOAAShipThomasJefferson>



H13058_DToN_submit.zip
1075K

OCS NDB - NOAA Service Account <ocs.ndb@noaa.gov>

Thu, Aug 31, 2017 at 2:18 PM

To: Dale Gump - NOAA Federal <dale.gump@noaa.gov>

Cc: _NOS OCS HSD AHB Danger to Navigation <ahb.dton@noaa.gov>, Starla Robinson - NOAA Federal <Starla.Robinson@noaa.gov>, Corey Allen <Corey.Allen@noaa.gov>, Ryan Wartick - NOAA Federal <ryan.wartick@noaa.gov>, Tara Wallace <Tara.Wallace@noaa.gov>, _NMAO MOA CO Thomas Jefferson <CO.Thomas.Jefferson@noaa.gov>, Allison Stone - NOAA Federal <allison.c.stone@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <OPS.Thomas.Jefferson@noaa.gov>, _OMAO MOA ChiefST Thomas Jefferson <ChiefST.Thomas.Jefferson@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, _NOS OCS PBA Branch <ocs.pba@noaa.gov>, _NOS OCS PBB Branch <ocs.pbb@noaa.gov>, _NOS OCS PBC Branch <ocs.pbc@noaa.gov>, _NOS OCS PBD Branch <ocs.pbd@noaa.gov>, _NOS OCS PBE Branch <ocs.pbe@noaa.gov>, _NOS OCS PBG Branch <ocs.pbg@noaa.gov>, Castle E Parker <Castle.E.Parker@noaa.gov>, James M Crocker <James.M.Crocker@noaa.gov>, Matt Kroll <Matt.Kroll@noaa.gov>, NSD Coast Pilot <coast.pilot@noaa.gov>, Pearce Hunt <Pearce.Hunt@noaa.gov>, PHB Chief <PHB.Chief@noaa.gov>

DD-28738 has been registered by the Nautical Data Branch and directed to Products Branch E for processing.

The DtoNs reported are two shoals the Chesapeake Bay, VA.

The following charts are affected:

12205 kapp 528

12207 kapp 548

The following ENC is affected:

US4NC32M

References:

H13058

OPR-D304-TJ-17

This information was discovered and submitted by the crew of the NOAA Ship *Thomas Jefferson*.

Nautical Data Branch/Marine Chart Division/
Office of Coast Survey/National Ocean Service/

Contact: ocs.ndb@noaa.gov



[Quoted text hidden]



H13058_DToN_submit.zip

1075K



Crosslines for D304

2 messages

Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>

Mon, Jul 10, 2017 at 11:36 AM

To: Martha Herzog - NOAA Federal <martha.hertzog@noaa.gov>

Cc: _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>

Martha,

We have an HSSD question for you related to upcoming ops on D304. In the new HSSD, it states that crosslines shall be no more than 1km apart. For our upcoming sheet, this puts us at 11% crossline mileage, well in excess of HSSD mileage requirements. Given that this will take us a significant amount of time that we could be using for mainscheme, is there any "give" in HSSD's 1km spacing requirement that would allow us to widen the gap between crosslines? Thanks!

V/r,

Forrest

--

LT Matthew Forrest, NOAA
Operations Officer
NOAA Ship Thomas Jefferson
439 W York St
Norfolk, VA 23510
Tel: (757) 647-0187
Iridium: (808) 434-2706

Martha Herzog - NOAA Federal <martha.hertzog@noaa.gov>

Mon, Jul 10, 2017 at 5:13 PM

To: Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>

Cc: _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>

Forrest,

That seems reasonable. I'll get something more official out to you soon.

Thanks,
Martha

[Quoted text hidden]



OPR-D304-TJ-17 Apparent Sound Velocity artifact in TJ EM2040 data

7 messages

Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>

Sun, Jul 23, 2017 at 10:06 AM

To: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>, Corey Allen - NOAA Federal <Corey.Allen@noaa.gov>

Cc: Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>, Briana Hillstrom - NOAA Federal <Briana.Hillstrom@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, Matthew Sharr - NOAA Federal <matthew.sharr@noaa.gov>, John Doroba - NOAA Federal <john.doroba@noaa.gov>

Hi all,

So....There is an artifact in the TJ data that we believe is caused by a large pycnocline in the water column. The transducer face sits directly in the layer and we think this is causing the data to be adversely affected. The magnitude of error is in the range of up to a meter. The data passes all density and uncertainty checks, but the outer beams can be up to a meter shoaler than the nadir depths.

Changes in the artifact can be seen from two different days in the 2D subset image attached, which leads us to believe that this is an environmental issue and not mathematical (HVF/TPU) or mechanical (camera placement), those are 3 of the prevailing hypotheses.

The TJ is currently collecting 2040 data in Single Sector Center mode with the swath width dialed in to 45/45 already. I feel that further filtering the data will effectively make this a VBES survey and the MBES may not entirely cover the nadir gap of the SSS.

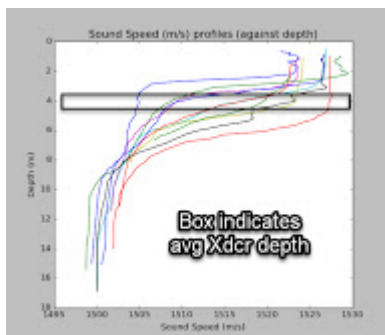
We have tried testing to see if it is speed related (it's not), I have tested lines with different SVC methods such as not using Surface Sound Speed, Beam angle, different distance and time methods, increasing the SV uncertainty during TPU.

The main concern is that the data will be unusable. Is it possible to still use the data but assign a lower CATZOC?

The ship is currently collecting holidays and developments so we have some buffer time.

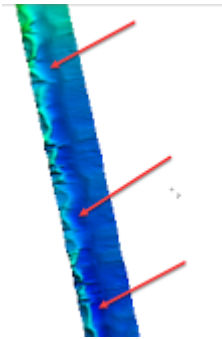
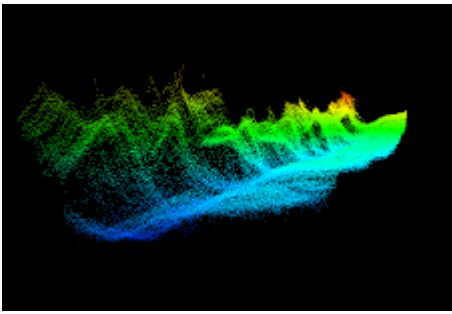
Sincerely,
Clint Marcus
Physical Scientist
NOAA Office of Coast Survey
Atlantic Hydrographic Branch
Office: (757) 364-7706
Cell: (541) 264-6406

4 attachments

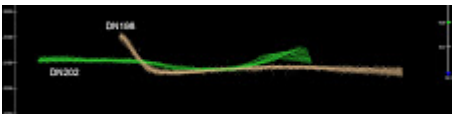


SoundVelocity_204 Xdcr depth.jpg
59K

SV error in 3D subset.png
77K



SV error in surface.png
108K



SoundVelocity_198_202 2D.jpg
95K

Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>

Sun, Jul 23, 2017 at 10:10 AM

To: Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>

Cc: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>, Corey Allen - NOAA Federal <Corey.Allen@noaa.gov>, Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>, Briana Hillstrom - NOAA Federal <Briana.Hillstrom@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, Matthew Sharr - NOAA Federal <matthew.sharr@noaa.gov>, John Doroba - NOAA Federal <john.doroba@noaa.gov>

All,

To follow on with Clint's comments, the ship has seen this problem in the past in this area (a 2011 survey with which we junction reported the same issue using a different SSVS and MBES configuration). We strongly believe that it is simply a result of a dynamic water column and vessel motion within it; speaking with Glen Rice, it appears that the only way to compensate for this would be an engineering solution that would require re-fitting the vessel in dry dock. This is not believed to be a problem that will persist on future projects.

V/r,

Forrest

[Quoted text hidden]

--

LT Matthew Forrest, NOAA
Operations Officer
NOAA Ship Thomas Jefferson
439 W York St
Norfolk, VA 23510
Tel: (757) 647-0187
Iridium: (808) 434-2706

Briana Hillstrom - NOAA Federal <briana.hillstrom@noaa.gov>

Sun, Jul 23, 2017 at 3:41 PM

To: Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>

Cc: Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>, Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>, Corey Allen - NOAA Federal <Corey.Allen@noaa.gov>, Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>,

_OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, Matthew Sharr - NOAA Federal <matthew.sharr@noaa.gov>, John Doroba - NOAA Federal <john.doroba@noaa.gov>

Can TJ tow side scan below X-ocline?

Sent from my iPhone

[Quoted text hidden]

Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>

Sun, Jul 23, 2017 at 3:44 PM

To: Briana Hillstrom - NOAA Federal <briana.hillstrom@noaa.gov>

Cc: Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>, Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>, Corey Allen - NOAA Federal <Corey.Allen@noaa.gov>, Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, Matthew Sharr - NOAA Federal <matthew.sharr@noaa.gov>, John Doroba - NOAA Federal <john.doroba@noaa.gov>

Hi Bri,

So the problem here is in the MBES. We have been able to get the SSS below the layer, for the most part and are picking up refraction holidays.

Thanks,

Clint Marcus
Physical Scientist
NOAA Office of Coast Survey
Atlantic Hydrographic Branch
Office: (757) 364-7706
Cell: (541) 264-6406

[Quoted text hidden]

Briana Hillstrom - NOAA Federal <briana.hillstrom@noaa.gov>

Sun, Jul 23, 2017 at 4:40 PM

To: Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>

Cc: Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>, Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>, Corey Allen - NOAA Federal <Corey.Allen@noaa.gov>, Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, Matthew Sharr - NOAA Federal <matthew.sharr@noaa.gov>, John Doroba - NOAA Federal <john.doroba@noaa.gov>

So the side scan is not affected and the MBES portion of the swath you are using is fine (meets IHO order 1)? When you say "otter beams" do you mean those launched at the already narrowed 45 deg?

Sent from my iPhone

[Quoted text hidden]

Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>

Sun, Jul 23, 2017 at 5:28 PM

To: Briana Hillstrom - NOAA Federal <briana.hillstrom@noaa.gov>

Cc: Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>, Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>, Corey Allen - NOAA Federal <Corey.Allen@noaa.gov>, Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, Matthew Sharr - NOAA Federal <matthew.sharr@noaa.gov>, John Doroba - NOAA Federal <john.doroba@noaa.gov>

The SSS has it's own refraction issues, as per usual and we are addressing those with additional coverage. The MBES is showing data that is in order of up to 1m greater at the "otter" beams (whoops) than the "true" seafloor at nadir (as seen in the attached images), which does not meet IHO specifications. Yes, that's at the already narrowed 45/45.

Clint Marcus
Physical Scientist
NOAA Office of Coast Survey
Atlantic Hydrographic Branch
Office: (757) 364-7706
Cell: (541) 264-6406

[Quoted text hidden]

Matthew Sharr - NOAA Federal <matthew.sharr@noaa.gov>

Mon, Jul 24, 2017 at 9:12 AM

To: Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>

Cc: Briana Hillstrom - NOAA Federal <briana.hillstrom@noaa.gov>, Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>, Martha Herzog - NOAA Federal <martha.hertzog@noaa.gov>, Corey Allen - NOAA Federal <Corey.Allen@noaa.gov>, Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>, John Doroba - NOAA Federal <john.doroba@noaa.gov>

I know this doesn't help with the data already collected, but if you have time maybe try running a line in normal sector mode and not narrowed to 45/45, and see if the artifacts appear further out. Might be worth a shot to see if you can manipulate where the artifact occurs (hopefully inside SSS coverage).

Very respectfully,
-Matt

ENS Matthew B. Sharr, NOAA
NOAA OCS, Hydrographic Systems and Technology Branch
Field Support Liaison - East
439 West York St.
Norfolk, VA 23510
Office: (757) 364-7709

[Quoted text hidden]



H13058 - Temp 120 day survey deliverable requirement suspension

9 messages

Martha Herzog - NOAA Federal <martha.herzog@noaa.gov> Thu, Aug 31, 2017 at 5:10 PM
To: _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, "LT Matthew Forrest, NOAA" <matthew.r.forrest@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Corey Allen <corey.allen@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>
Cc: _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>

Forrest,

We are still evaluating the your data issue in H13058, but do not want you to be held accountable for the time we are taking to count against your delivery date. Once we make a decision, we'll either resume the 120 day count or come up with a new delivery date.

Thanks,
Martha

Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov> Thu, Aug 31, 2017 at 5:15 PM
To: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>
Cc: _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Corey Allen <corey.allen@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>

Martha,

We appreciate the concession. We'll be standing by for more information. Thank you!

V/r,

Forrest

[Quoted text hidden]

--

LT Matthew Forrest, NOAA
Operations Officer
NOAA Ship Thomas Jefferson
439 W York St
Norfolk, VA 23510
Tel: (757) 647-0187
Iridium: (808) 434-2706

Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov> Thu, Aug 31, 2017 at 5:27 PM
To: Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>
Cc: _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>

Dale, Sydney,

Please make sure a copy of this email is placed in your Supplemental Correspondence folder. Thanks!

R,

Forrest

On Thu, Aug 31, 2017 at 9:10 PM, Martha Herzog - NOAA Federal <martha.herzog@noaa.gov> wrote:

[Quoted text hidden]

--

LT Matthew Forrest, NOAA
Operations Officer
NOAA Ship Thomas Jefferson
439 W York St
Norfolk, VA 23510
Tel: (757) 647-0187
Iridium: (808) 434-2706

Dale Gump - NOAA Federal <dale.gump@noaa.gov>

Thu, Aug 31, 2017 at 5:29 PM

To: Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>

Cc: _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>

FOO,

Roger, it's already there. I think this is a minor victory. Thanks for the email!

Cheers,
Dale

[Quoted text hidden]

--

Very Respectfully,

ENS Dale J. Gump, NOAA
Junior Officer, NOAA Ship Thomas Jefferson
Ship Land Line: [757-441-6322](tel:757-441-6322)
Ship Cell: [757-647-0187](tel:757-647-0187)
Ship Iridium: [808-434-2706](tel:808-434-2706)

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<https://www.facebook.com/NOAAShipThomasJefferson>



Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>

Thu, Oct 5, 2017 at 12:51 PM

To: _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>

Cc: Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Corey Allen <corey.allen@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>

Anthony,

With consultation from AHB, we have come to some decisions about how to handle the data for H13058. AHB ran the MBES data through QC tools and the old "IHOness." Most of the data passed with some exceptions, most notably one development in the NE corner. Please submit the normal HSSD required deliverables for the survey.

Your last day of acquisition for H13058 was July 25, the 120 day submission requirement was suspended August 30th, with 37 days passing between the two dates. Let's resume the clock today, October 5th with 83 days remaining for the submission deadline of 12/27/2017.

Please let me know any concerns with this.

Thanks,
Martha

[Quoted text hidden]

Anthony Klemm - NOAA Federal <anthony.r.klemm@noaa.gov>

Thu, Oct 5, 2017 at 1:20 PM

To: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>

Cc: _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Corey Allen <corey.allen@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>

Martha,

Thank you for providing an update. We will proceed by submitting the normal HSSD 2017 deliverables. I'm glad we can start working on this again.

Best regards,
Anthony

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

Learn about NOAA nautical charts - www.nauticalcharts.noaa.gov

[Quoted text hidden]

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

Sun, Nov 5, 2017 at 5:40 PM

To: Megan Greenaway - NOAA Federal <megan.greenaway@noaa.gov>

Cc: _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Corey Allen <corey.allen@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>

Megan,

I noticed that our working delivery expectation date for survey H13058 is different than what is shown on the Survey Delivery Status dashboard.

We are tracking a submission deadline of 12/27/2017.

See below for information about the deadline change.

- Charles

[Quoted text hidden]

--

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

Megan Greenaway - NOAA Federal <megan.greenaway@noaa.gov>

Mon, Nov 6, 2017 at 12:20 PM

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

Cc: _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Corey Allen <corey.allen@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>

Thanks for following up Charles. I would prefer to not modify Survey Tracker but I will create a calculation in Tableau for H13058 so the 120 date is correct. I am on travel this week so I will not get to it until next week.

Thanks again,

Megan

[Quoted text hidden]

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

Mon, Nov 6, 2017 at 2:59 PM

To: Megan Greenaway - NOAA Federal <megan.greenaway@noaa.gov>

Cc: _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>, Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Corey Allen <corey.allen@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, _OMAO MOA CO Thomas Jefferson <co.thomas.jefferson@noaa.gov>

Thanks. We're not worried that much about it. Just wanted to make sure everyone is tracking the same thing. - Charles

[Quoted text hidden]



Anthony Klemm - NOAA Federal <anthony.r.klemm@noaa.gov>

D-304-TJ-17 H13058 Survey Outline

1 message

Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>

Thu, Jul 27, 2017 at 12:55 PM

To: _NOS OCS Survey Outlines <survey.outlines@noaa.gov>

Cc: Dale Gump - NOAA Federal <dale.gump@noaa.gov>, Sydney Catoire - NOAA Federal <sydney.catoire@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <ops.thomas.jefferson@noaa.gov>, _OMAO MOA ChiefST Thomas Jefferson <chiefst.thomas.jefferson@noaa.gov>

All,

Please find attached the survey outline for H13058, part of D-304-TJ-17. Thank you!

V/r,

LT Forrest

--

LT Matthew Forrest, NOAA
Operations Officer
NOAA Ship Thomas Jefferson
439 W York St
Norfolk, VA 23510
Tel: (757) 647-0187
Iridium: (808) 434-2706

 **H13058_Survey_Outline.000**
7K



Anthony Klemm - NOAA Federal <anthony.r.klemm@noaa.gov>

Fwd: Thomas Jefferson 2017 NODC Files

2 messages

Tracy McMillan - NOAA Federal <tracy.mcmillan@noaa.gov>

Tue, Jan 23, 2018 at 12:46 PM

To: Anthony Klemm - NOAA Federal <anthony.r.klemm@noaa.gov>, Allison Stone - NOAA Federal <allison.c.stone@noaa.gov>, "ChiefST.Thomas Jefferson - NOAA Service Account" <chiefst.thomas.jefferson@noaa.gov>

I apologize for not sending this Friday. I didn't see your email until I had already left for the day. H12961 and H12962 didn't have any issues to correct so I assume they were added to the database already. I will work on the issues found with the other sheets from the season after our content review. Again, I'm sorry for the delay.

Tracy

----- Forwarded message -----

From: **Tracy McMillan - NOAA Federal** <tracy.mcmillan@noaa.gov>

Date: Tue, Jan 2, 2018 at 8:29 AM

Subject: Thomas Jefferson 2017 NODC Files

To: "NODC.Submissions" <nodc.submissions@noaa.gov>

Cc: Sam Greenaway <Samuel.Greenaway@noaa.gov>

Attached are all the NODC files from the Thomas Jefferson for the 2017 Field season.

Please let me know if there are any issues.

Thank you,

Tracy McMillan

tracy.mcmillan@noaa.gov

 **NODC_2017.zip**
4039K

Anthony Klemm - NOAA Federal <anthony.r.klemm@noaa.gov>

Tue, Jan 23, 2018 at 12:59 PM

To: Tracy McMillan - NOAA Federal <tracy.mcmillan@noaa.gov>

Tracy,

Perfect. Thanks for forwarding this on.

Best,
Anthony

LT Anthony Klemm, NOAA
Field Operations Officer
NOAA Ship *Thomas Jefferson*
439 W York Street
Norfolk, VA 23510
[757-647-0187](tel:757-647-0187)

Learn about NOAA nautical charts - www.nauticalcharts.noaa.gov

[Quoted text hidden]



Jacquelyn Putnam - NOAA Federal <jacquelyn.putnam@noaa.gov>

Thomas Jefferson Marine Species Training Notice

2 messages

Jacquelyn Putnam - NOAA Federal <jacquelyn.putnam@noaa.gov>

Mon, Jul 10, 2017 at 5:54 PM

To: _NOS OCS ECC <ocs.ecc@noaa.gov>

Cc: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>

Good Afternoon,

Please see the attached for a list of NOAA Ship *Thomas Jefferson's* personnel that have completed Marine Species Awareness Training.

Thank you in advance,

--

ENS Jacquelyn Putnam, NOAA

Junior Officer, NOAA Ship *Thomas Jefferson*

Ship Land Line: [757-441-6322](tel:757-441-6322)

Ship Cell: [757-647-0187](tel:757-647-0187)

Ship Iridium: [808-434-2706](tel:808-434-2706)

Jacquelyn.Putnam@noaa.gov



2017TrainedObservers.pdf

130K

Jay Nunenkamp - NOAA Federal <jay.nunenkamp@noaa.gov>

Mon, Jul 10, 2017 at 5:56 PM

To: Jacquelyn Putnam - NOAA Federal <jacquelyn.putnam@noaa.gov>

Cc: _NOS OCS ECC <ocs.ecc@noaa.gov>, Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>

Received, thank you.

Sincerely,

Jay Nunenkamp

Environmental Compliance Coordinator

Office of Coast Survey, National Ocean Service

[240-533-0118](tel:240-533-0118)

SSMC3 Room 6513

[Quoted text hidden]



Jacquelyn Putnam - NOAA Federal <jacquelyn.putnam@noaa.gov>

2017 HSRR Leg Marine Mammal Sightings

1 message

Jacquelyn Putnam - NOAA Federal <jacquelyn.putnam@noaa.gov>
To: _NMFS AFSC NMML POP INFORMATION <pop.information@noaa.gov>

Fri, Jul 14, 2017 at 3:33 PM

Afternoon,

Attached is the marine mammal sightings for NOAA Ship Thomas Jefferson during HSRR testing in the Chesapeake Bay area. Hard copies have been mailed.

R,

--

ENS Jacquelyn Putnam, NOAA

Junior Officer, NOAA Ship *Thomas Jefferson*

Ship Land Line: [757-441-6322](tel:757-441-6322)

Ship Cell: [757-647-0187](tel:757-647-0187)

Ship Iridium: [808-434-2706](tel:808-434-2706)

Jacquelyn.Putnam@noaa.gov



2017HSRRLegMMSightings.pdf

648K



UNITED STATES DEPARTMENT OF
COMMERCE
National Oceanic and Atmospheric
Administration

Office of Marine and Aviation Operations
NOAA Ship *Thomas Jefferson* (S222)
439 West York St, Norfolk, VA 23510

1/18/2018

MEMORANDUM FOR: Starla Robinson
Project Manager, OPR-G329-TJ-17
Hydrographic Surveys Division Operations Branch

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

THROUGH: Lieutenant Anthony Klemm, NOAA
Operations Officer, NOAA Ship *Thomas Jefferson* KLEMM.ANTHONY.ROSS.1392701601

SUBJECT: Waiver request – crossline spacing

Digitally signed by
KLEMM.ANTHONY.ROSS.1392701601
DN: c=US, o=U.S. Government, ou=DoD,
ou=PKI, ou=NOAA,
cn=KLEMM.ANTHONY.ROSS.1392701601
Date: 2018.01.24 08:04:31 -05'00'

Thomas Jefferson requests a waiver of the Hydrographic Surveys Specifications and Deliverables requirement that crosslines are collected within 1 kilometer of each other for survey H12961. In order to meet this distance requirement, the crossline mileage exceeds more than 8% of the mainscheme lineal mileage.

Justification

In the limited survey time, more emphasis should be given to mainscheme data collection. Collecting the HSSD required 4% crosslines of mainscheme lineal mileage will suffice.

Decision

HERZOG.MARTHA.C.13658
99530
Signed for Starla Robinson
2018.07.18 08:28:58 -04'00'

Waiver is: Granted

Denied

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






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

12/14/2017

MEMORANDUM FOR: Martha Herzog
Project Manager, OPR-D304-TJ-17
Hydrographic Surveys Division Operations Branch

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

SUBJECT: Waiver request – WGS84 Datum

VAN WESTENDORP, CHRISTIAAN.HENRY.1012828175
c=US, o=U.S. Government, ou=DoD, ou=PKI,
ou=NOAA, cn=VAN
WESTENDORP, CHRISTIAAN.HENRY.1012828175
2017.12.15 13:06:56 -05'00'

Thomas Jefferson requests a waiver of the HSSD 2017 Section 2.2 Horizontal Datum requirement to acquire and deliver survey data for project OPR-D304-TJ-17 in WGS84 rather than NAD83.

Justification

Retaining the current procedure and configurations will reduce the possibility of errors.

Decision



HERZOG.MARTHA.C.1
365899530
2017.12.15 13:34:27
-05'00'

Waiver is: Granted

Denied

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






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

12/14/2017

MEMORANDUM FOR: Martha Herzog
Project Manager, OPR-D304-TJ-17
Hydrographic Surveys Division Operations Branch

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

SUBJECT: Waiver request – Submission of single resolution depth surface

VAN
WESTENDORP,CHRISTIAAN,HENRY.1012828175
c=US, o=U.S. Government, ou=DoD, ou=PMO,
ou=NOAA, cn=VAN
WESTENDORP,CHRISTIAAN,HENRY.1012828175
2017.12.15 13:35:29 -0500

Thomas Jefferson requests a waiver of the HSSD 2017 Section 5.2.2.3: Complete coverage multibeam surface grid-resolution thresholds requirement. *Thomas Jefferson* requests approval to submit a single 1m resolution CUBE multibeam surface for H13058, in spite of depths ranging from 9m – 24m.

Justification

The grid nodes with a depth greater than 20m have an average ping density of 87 pings/node, which is sufficient to meet minimum required sounding density requirements at the 1m grid size.

Decision



HERZOG.MARTHA.C.1
365899530
2017.12.15 13:35:16
-05'00'

Waiver is: Granted

Denied

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



APPROVAL PAGE

H13058

Data meet or exceed current specifications as certified by the OCS survey acceptance review process. Descriptive Report and survey data except where noted are adequate to supersede prior surveys and nautical charts in the common area.

The following products will be sent to NCEI for archive

- Descriptive Report
- Collection of Bathymetric Attributed Grids (BAGs)
- Collection of backscatter mosaics
- Processed survey data and records
- GeoPDF of survey products

The survey evaluation and verification has been conducted according current OCS Specifications, and the survey has been approved for dissemination and usage of updating NOAA's suite of nautical charts.

Approved: _____

Commander Briana W. Hillstrom, NOAA
Chief, Atlantic Hydrographic Branch