H12857

NOAA Form 76-35A

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

DESCRIPTIVE REPORT

Type of Survey:	Navigable Area
Registry Number:	H12857

LOCALITY

State:	Maryland
General Locality:	Chesapeake Bay
Sub-locality:	South of Hooper Island

2016

CHIEF OF PARTY
LTJG Sarah L Chappel, NOAA

LIBRARY & ARCHIVES

Date:

NOAA FORM 77-28 (11-72)	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:
HYDROGRAPHIC TITLE SHEET		**H12857**

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:	**Maryland**
General Locality:	**Chesapeake Bay**
Sub-Locality:	**South of Hooper Island**
Scale:	**1: 10,000**
Dates of Survey:	**10/04//2016 to 01/03/2017**
Instructions Dated:	**10/25/2011**
Project Number:	**OPR-E349-BH2-16**
Field Unit:	**NOAA R/V *Bay Hydro II***
Chief of Party:	**LTJG Sarah L Chappel, NOAA**
Soundings by:	**Multibeam Echo Sounder**
Imagery by:	**Side Scan Sonar (SSS)**
Verification by:	**Pacific Hydrographic Branch**
Soundings Acquired in:	**meters at Mean Lower Low Water**
H-Cell Compilation Units:	***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 http://www.ncei.noaa.gov/.

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Descriptive Report to Accompany Survey H12857

Project: OPR-E349-BH2-16

Locality: Chesapeake Bay

Sublocality: South of Hooper Island

Scale: 1:10000

October 2016 - January 2017

NOAA R/V *Bay Hydro II*

Chief of Party: LTJG Sarah L Chappel, NOAA

A. Area Surveyed

The survey area is located in the central portion of the Chesapeake Bay. An overview of the geographic location of H12857 is shown in Figure 1. Sheet limits were altered and approved by the Project Manager to only include the area surveyed (Figure 2). The survey team was unable to complete the original sheet, as planned, due to personnel shortages, hardware and software malfunctions, and weather delays.

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
38° 11' 32.6" N 76° 13' 15.23" W	38° 11' 23.59" N 76° 7' 4.08" W

Table 1: Survey Limits

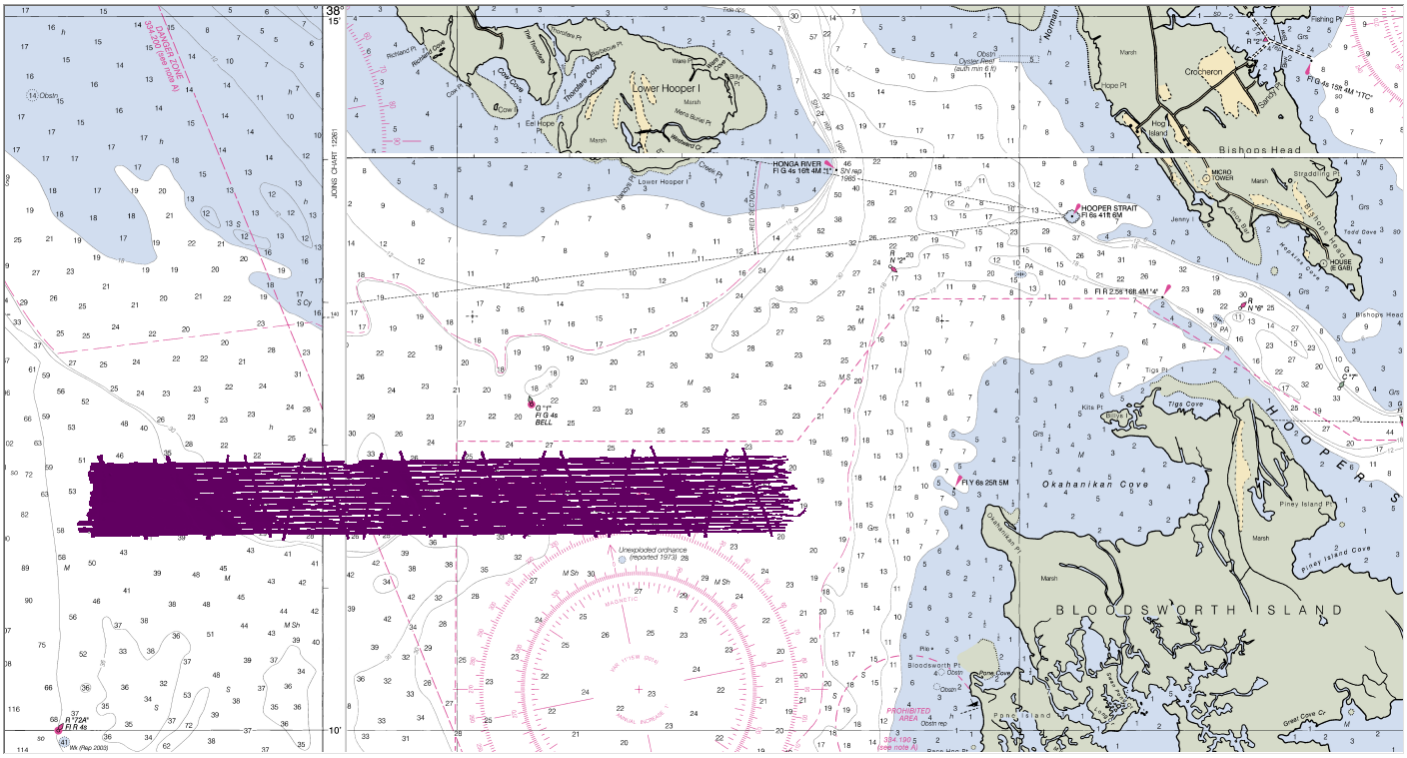


Figure 1: General location of H12857 (in purple) overlaid onto Chart 12231, Chart 12233, and Chart 12261.

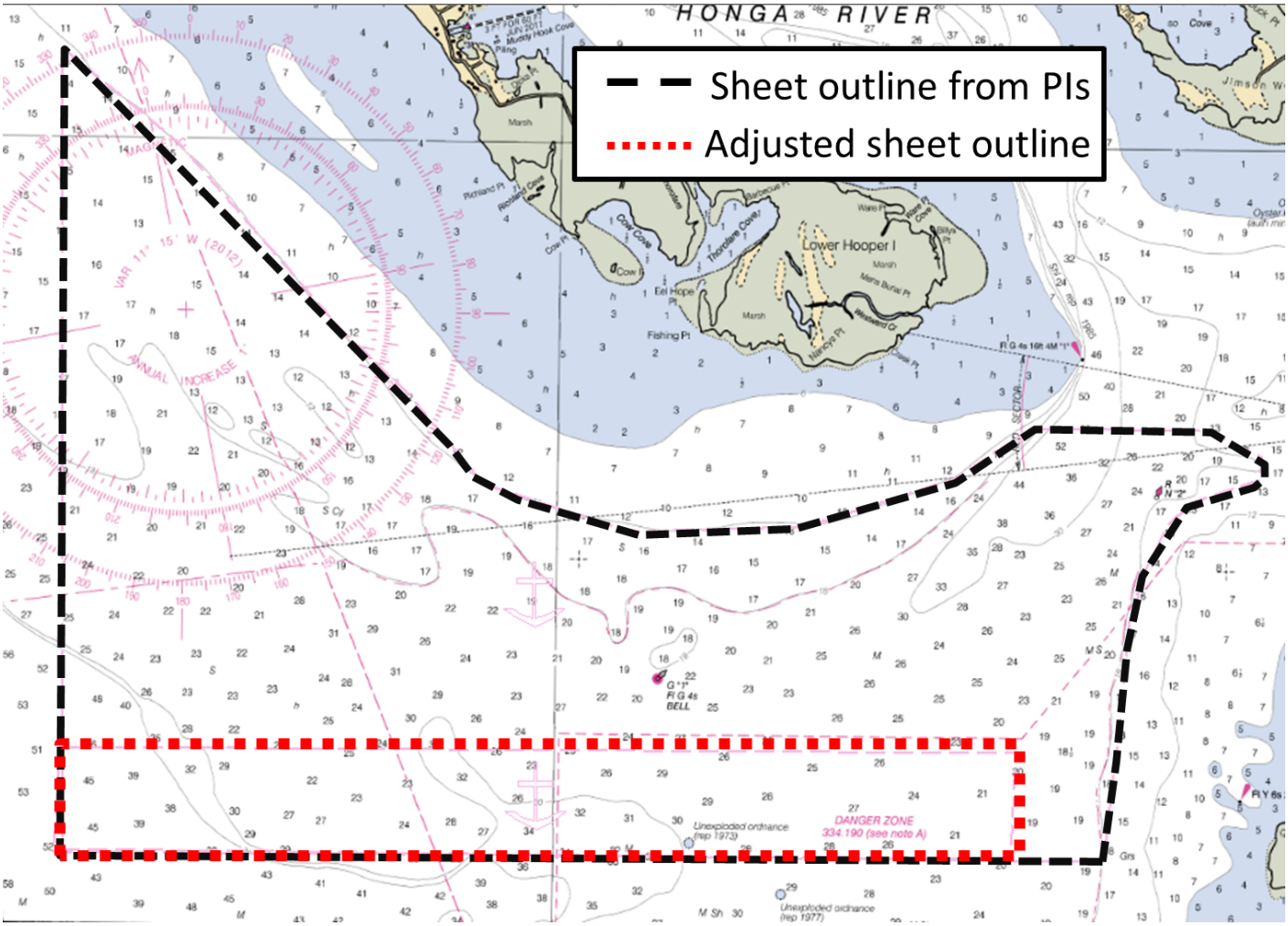


Figure 2: H12857 adjusted approved sheet size (red) and original PI sheet size (black) on Chart 12261.

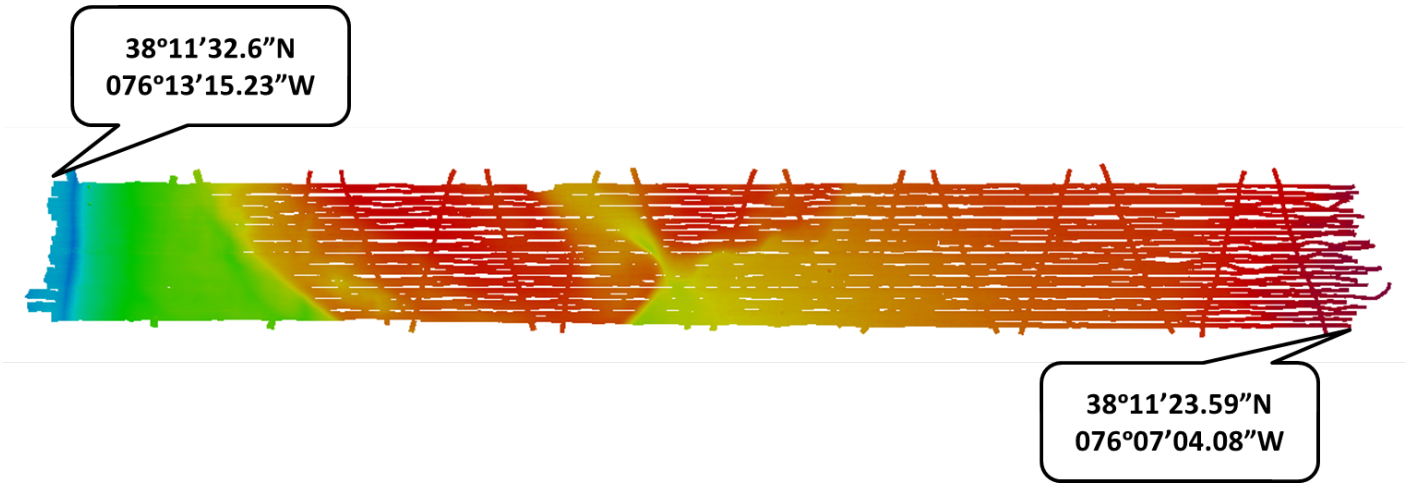


Figure 3: H12857 survey limits.

Survey limits were adjusted and approved. See Section A and Figure 2 for further information.

A.2 Survey Purpose

The intent of this survey is to supersede all bathymetry, seafloor features, and bottom characteristics within the assigned survey area as defined by these instructions for updating of NOAA Charts 12231, 12233, 12261 and 12264 . This project covers approximately 30 SNM of critical survey area as designated in NOAA Hydrographic Survey Priorities.

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

Data acquired in H12857 meet multibeam echo sounder (MBES) coverage requirements for object detection, including the five soundings per node data density requirements in section 5.2.2.2 of the Hydrographic Surveys Specifications and Deliverables (HSSD). In order to extract descriptive statistics of the data density achievements, the finalized surface is examined in HydrOffice QC Tools (Figure 4). Overall, the required data density was achieved in 99% of the nodes.

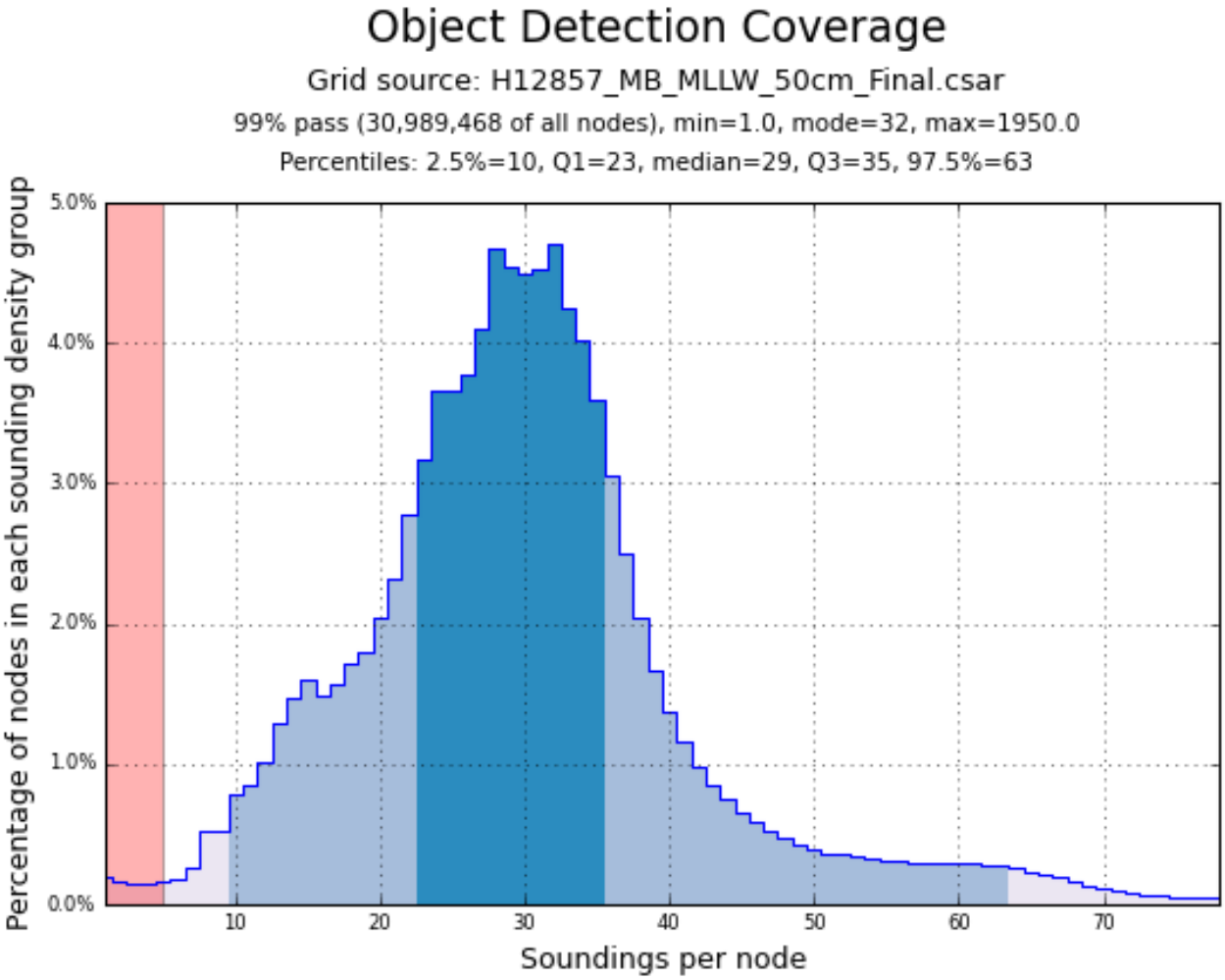


Figure 4: Graph showing the percentage of nodes satisfying the five sounding density requirements for H12857.

A.4 Survey Coverage

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

Water Depth	Coverage Required
0-20 meters	Object Detection

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

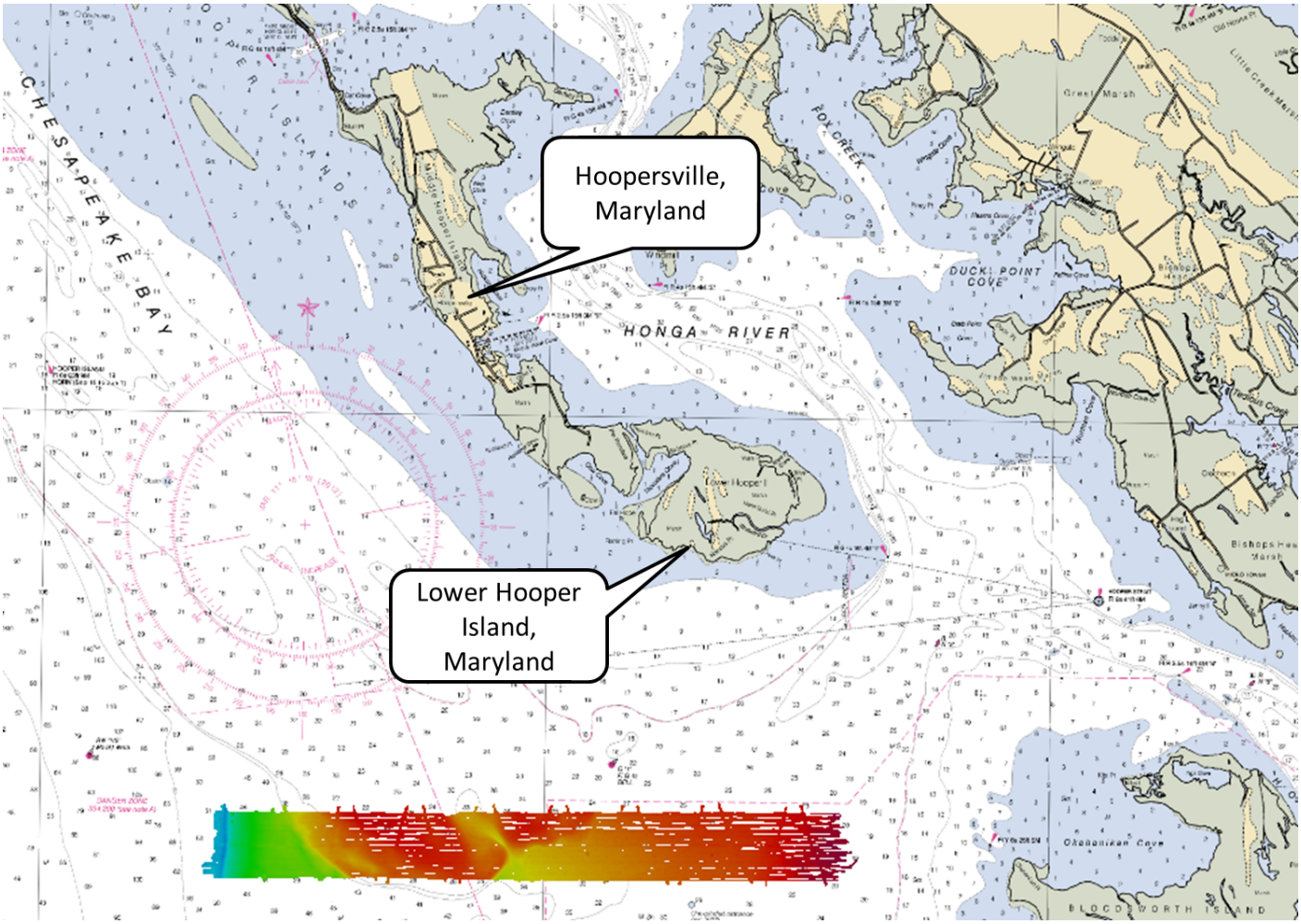


Figure 5: General Location of H12857 overlaid onto Chart 12261. Survey area shown using 0.5 meter MBES surface.

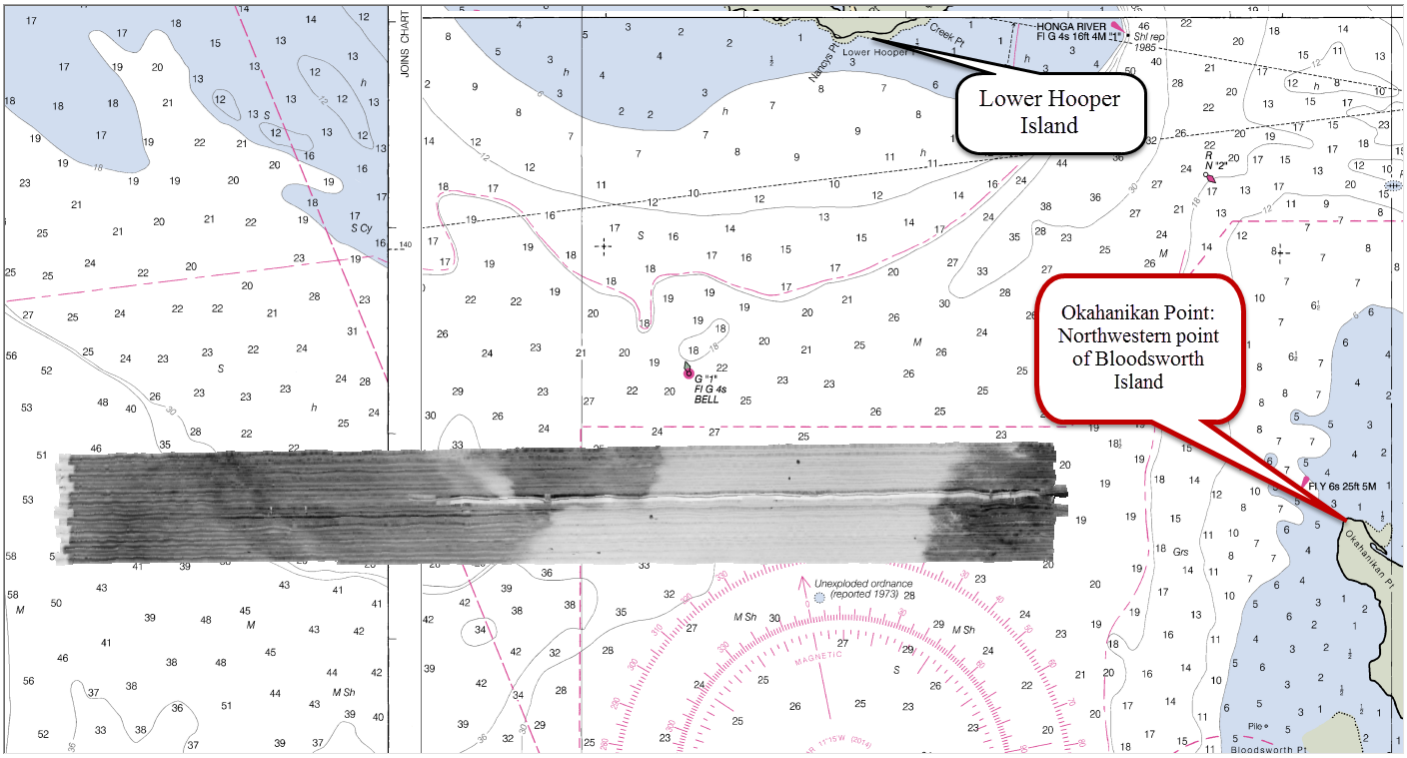


Figure 6: H12857 200% side scan mosaic overlaid onto Chart 12231, Chart 12233, and Chart 12261, 1m resolution.

A.5 Survey Statistics

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

	HULL ID	*S5401*	*Total*
LNM	**SBES Mainscheme**	0	0
	MBES Mainscheme	0	0
	Lidar Mainscheme	0	0
	SSS Mainscheme	0	0
	SBES/SSS Mainscheme	0	0
	MBES/SSS Mainscheme	123.74	123.74
	SBES/MBES Crosslines	10.71	10.71
	Lidar Crosslines	0	0
Number of Bottom Samples			2
Number Maritime Boundary Points Investigated			0
Number of DPs			0
Number of Items Investigated by Dive Ops			0
Total SNM			2.56

Table 2: Hydrographic Survey Statistics

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

Survey Dates	Day of the Year
10/04/2016	278
11/03/2016	308

Survey Dates	Day of the Year
11/08/2016	313
11/16/2016	321
11/28/2016	333
12/05/2016	340
12/06/2016	341
01/03/2017	3

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, 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	***S5401***
LOA	17.3 meters
Draft	1.8 meters

Table 4: Vessels Used

BAY HYDRO II collected all multibeam, side scan sonar, sound speed, attitude data, and bottom samples for H12857.

B.1.2 Equipment

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

Manufacturer	Model	Type
Kongsberg	EM2040	MBES
EdgeTech	4200	SSS
Applanix	POS M/V V5	Positioning and Attitude System
SonTek	CastAway	Sound Speed System
Valeport	MiniSVS	Sound Speed System

Table 5: Major Systems Used

Vessel configurations, equipment operations, and data acquisition and processing were consistent with specifications described in the DAPR.

B.2 Quality Control

B.2.1 Crosslines

Crosslines acquired for this survey totaled 8.66% of mainscheme acquisition.

Multibeam crosslines were collected, processed, and compared in accordance with Section 5.2.4.3 of the HSSD. Crossline totals were 10.7 LNM and 8.66% of mainscheme coverage; this coverage exceeds the 8.0% requirement for object detection MBES/SSS.

To evaluate crosslines, a 50cm CUBE surface using strictly mainscheme lines and a 50cm CUBE surface using strictly crosslines were created. From these two surfaces, a difference surface (mainscheme - crosslines = difference surface) was generated at a 50cm resolution. Statistics show the mean difference between the depths derived from mainscheme and crosslines was 0.01 meters with a standard deviation of 0.05 meters (Figure 7). The difference surface was also compared to the IHO allowable total vertical uncertainty (TVU) standards. In total, 99.9% of the depth differences between H12857 mainscheme and cross line data met HSSD TVU standards (Figure 8).

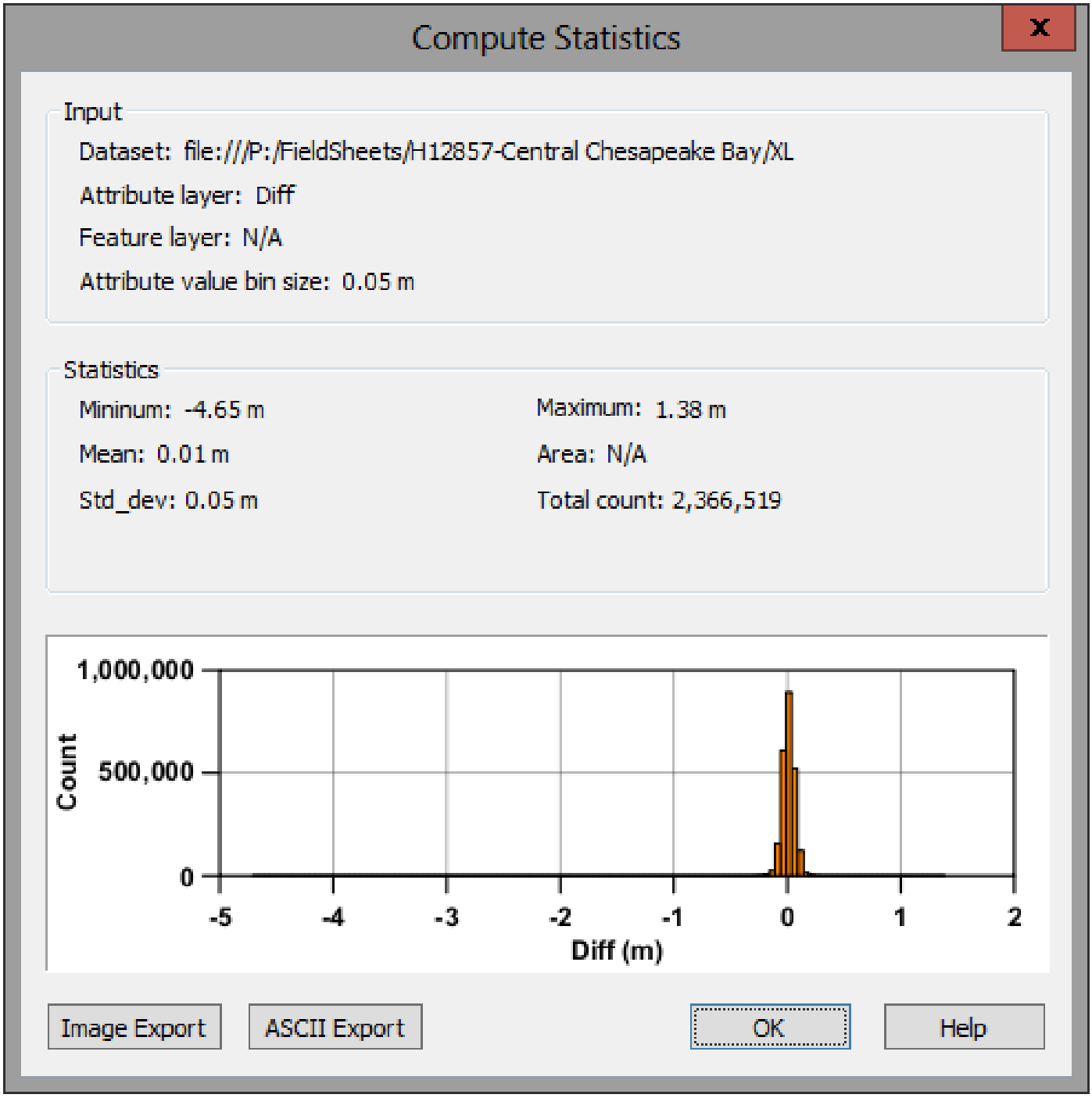


Figure 7: H12857 crossline comparison with mainscheme lines.

Depth range	IHO Order	Number of nodes	Nodes satisfying IHO accuracy	Percent nodes satisfying IHO accuracy
Less than 100m	Order 1	2,366,519	2,364,609	99.9%

Figure 8: Summary table indicating percentage of difference surface nodes between H12857 mainscheme and crossline data that met HSSD allowable TVU standards.

B.2.2 Uncertainty

Hull ID	Measured - CTD	Measured - MVP	Surface
S5401	0.5 meters/second	N/A meters/second	0.2 meters/second

Table 6: Survey Specific Sound Speed TPU Values.

In addition to the a priori estimates of sound speed uncertainty, real-time and post-processed uncertainty sources were incorporated into the depth estimates of H12857. Real-time uncertainties from the Kongsberg EM2040 were recorded and applied in CARIS. Applanix TrueHeave files recorded an estimate of the heave uncertainty and these the files were applied in CARIS.

Uncertainty values of the submitted finalized surface were calculated in Pydro QC Tools. (Figure 9). Overall 99.5% by node of H12857 met the accuracy requirements stated in Section 5.1.3 of the HSSD.

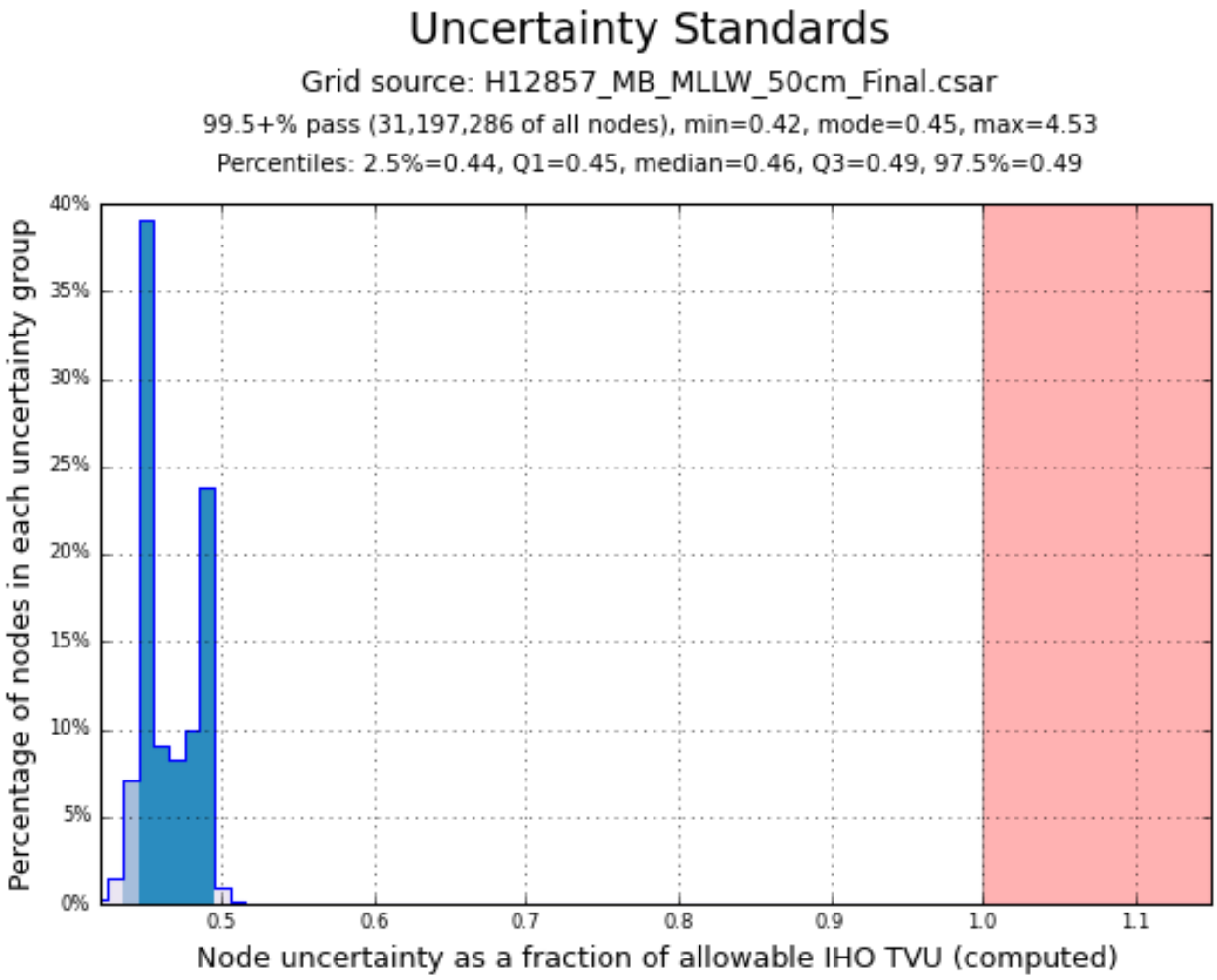


Figure 9: Summary table shows the percent of nodes that satisfy the IHO accuracy level.

B.2.3 Junctions

Two junction comparisons were completed for H12857 (Figure 10). Depth comparisons were performed using the CARIS Difference Surface and and CARIS Compute Statistics tool.

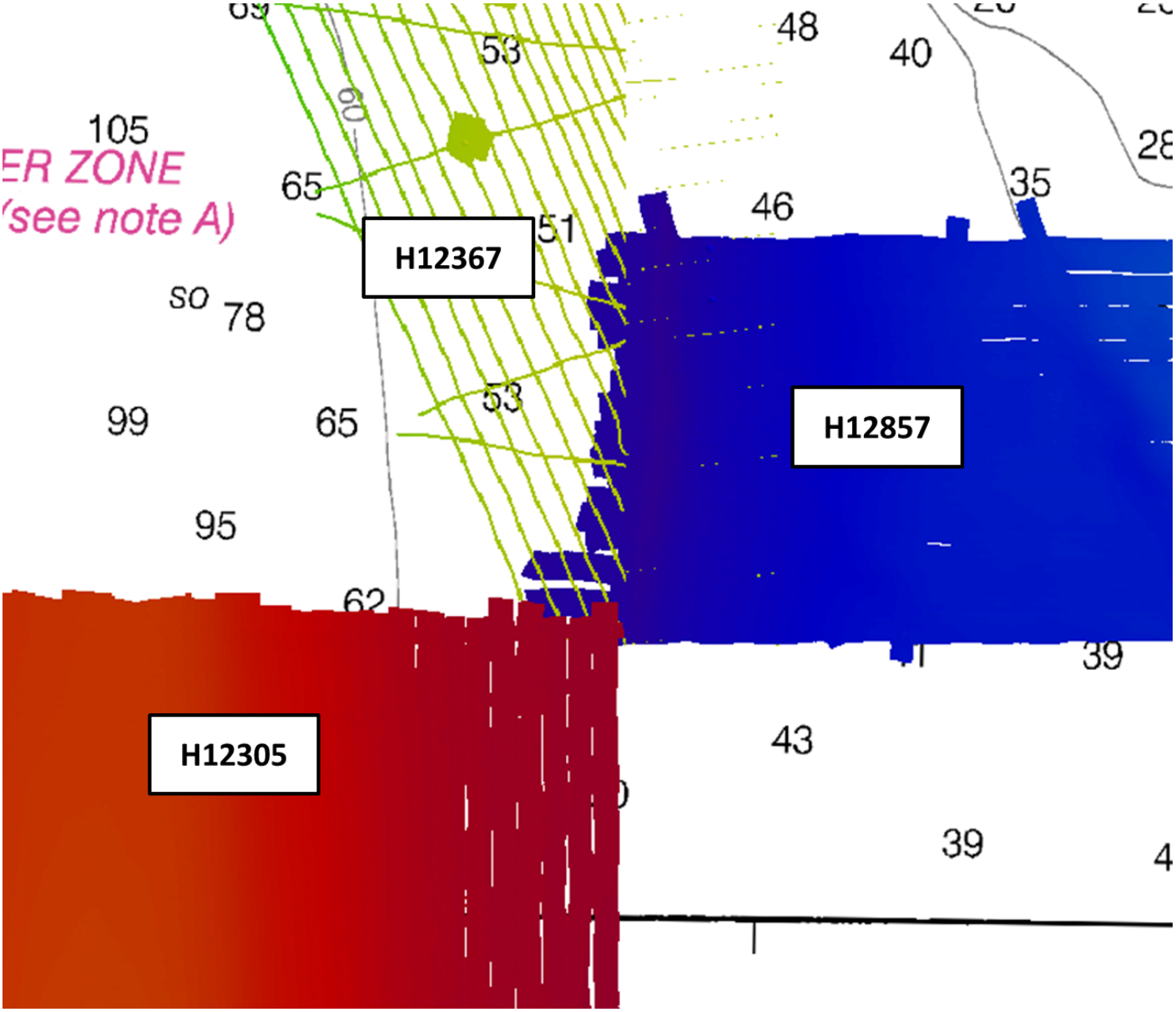


Figure 10: Junction survey locations for H12857 overlaid onto Chart 12261.

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H12367	1:10000	2012	NOAA R/V BAY HYDRO II	W
H12305	1:10000	2013	NOAA R/V BAY HYDRO II	SW

Table 7: Junctioning Surveys

H12367

H12367 junctions with approximately 975 meters along the western edge of H12857 (Figure 11). The junction averages 50 meters of east/west overlap. The difference surface between the 50cm resolution H12857 surface and the 4m resolution H12367 surface show a strong depth agreement. The difference range is -2.13 to 0.61 meters with a mean of -0.09 meters (H12367 being deeper) and a standard deviation of 0.3 meters (Figure 12).

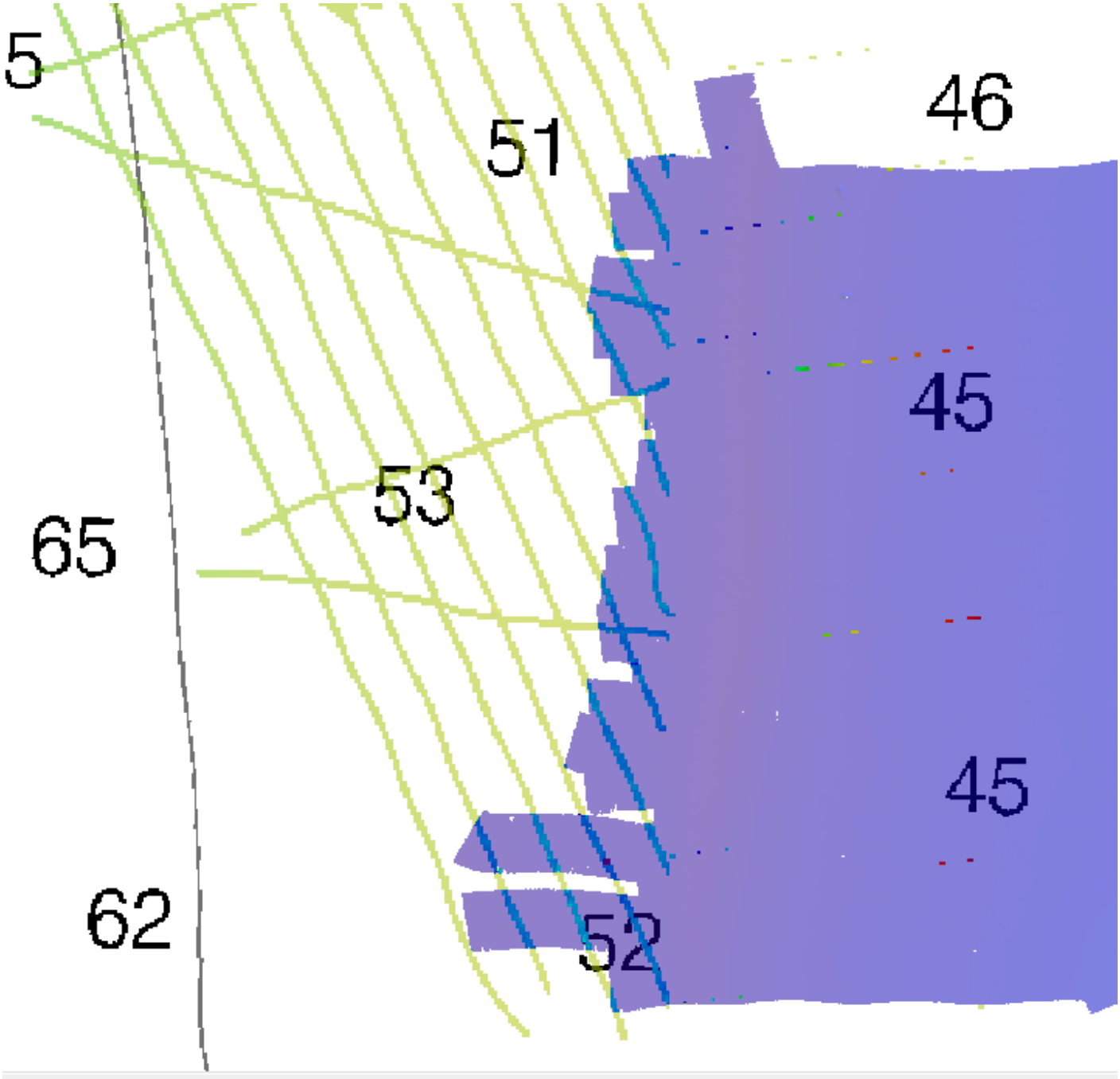


Figure 11: Difference surface between H12857 (blue) and junction survey H12367 (green) overlaid onto Chart 12261.

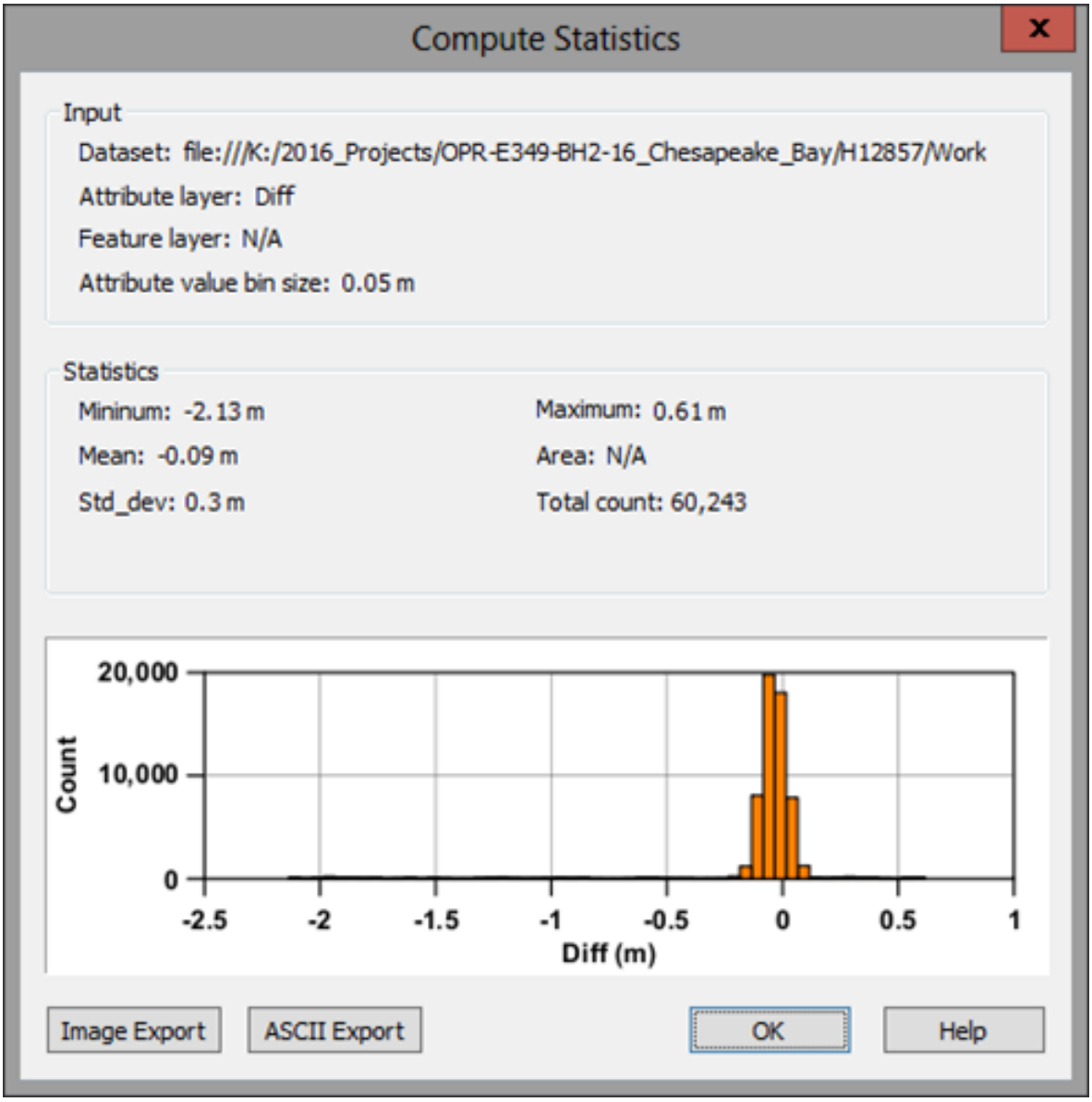


Figure 12: Difference surface statistics between H12857 and H12367.

H12305

H12305 junctions with approximately 150 meters at the southwest corner of H12857 (Figure 13). The difference surface between the 50cm resolution H12857 surface and the 4m resolution H12305 surface show a strong depth agreement. The difference range is -0.36 to 0.39 meters with a mean of 0.04 meters (H12305 being shoaler) and a standard deviation of 0.1 meters (Figure 14).

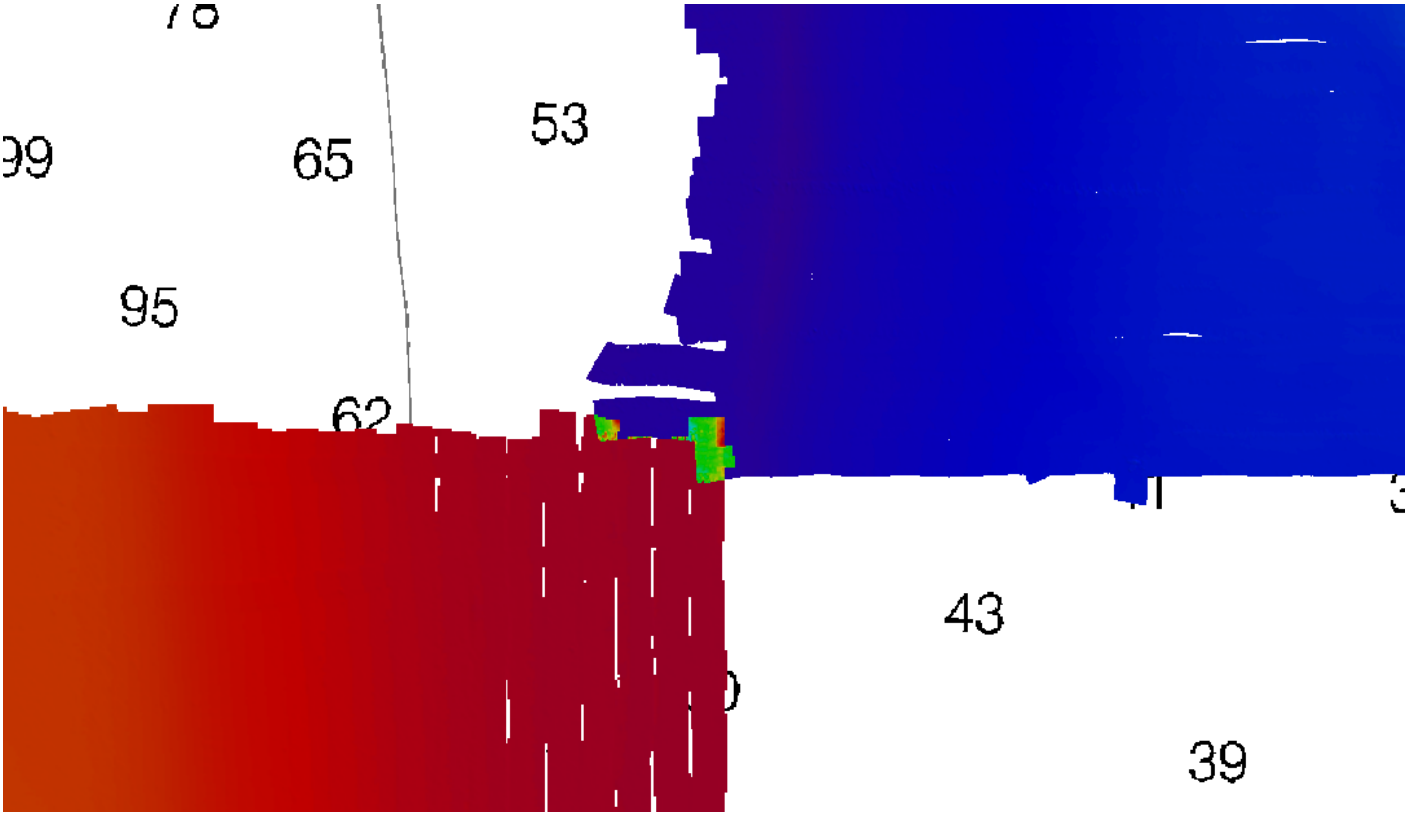


Figure 13: Difference surface between H12857 (blue) and junction survey H12305 (red) overlaid onto Chart 122661.

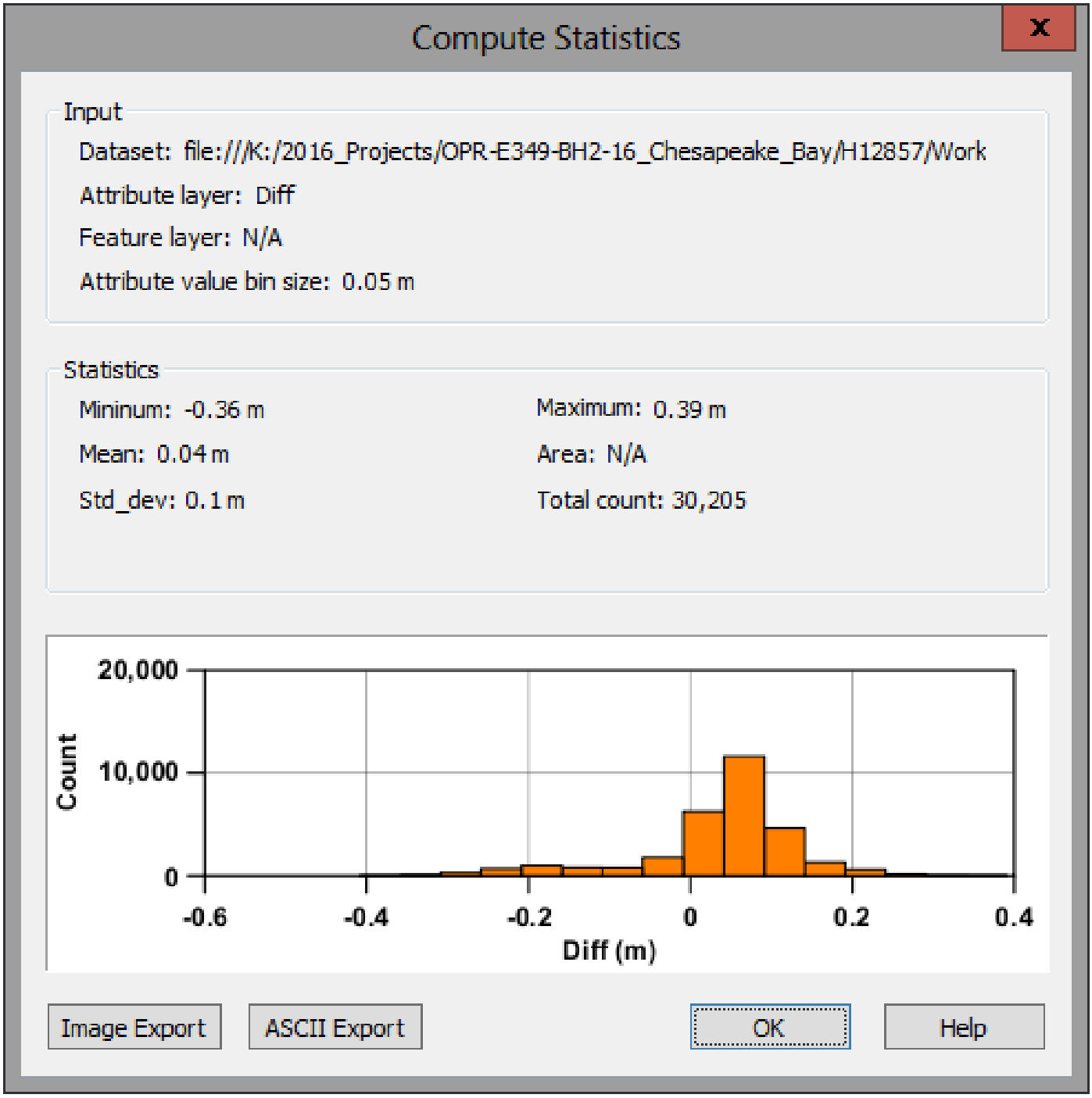


Figure 14: Difference surface statistics between H12857 and H12305.

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

POS M/V

There were several instances during survey operations that Bay Hydro II experienced discrepancies in the POS accuracy, which halted data acquisition. The anomaly was related to an aging cable connecting the IMU and the POS topside unit. The image below, taken when the vessel was not moving, shows the significant drift in altitude, as well as incorrect speed and heading readings (Figure 15). The immediate remediation was to discontinue logging the POS file, reboot the system, then continue to survey on a new POS file. This temporary work-around reduced efficiency but allowed for continued survey operations. This anomaly resulted in one MBES holiday in the project that the team was unable to reacquire, however, 200% SSS coverage was still achieved.

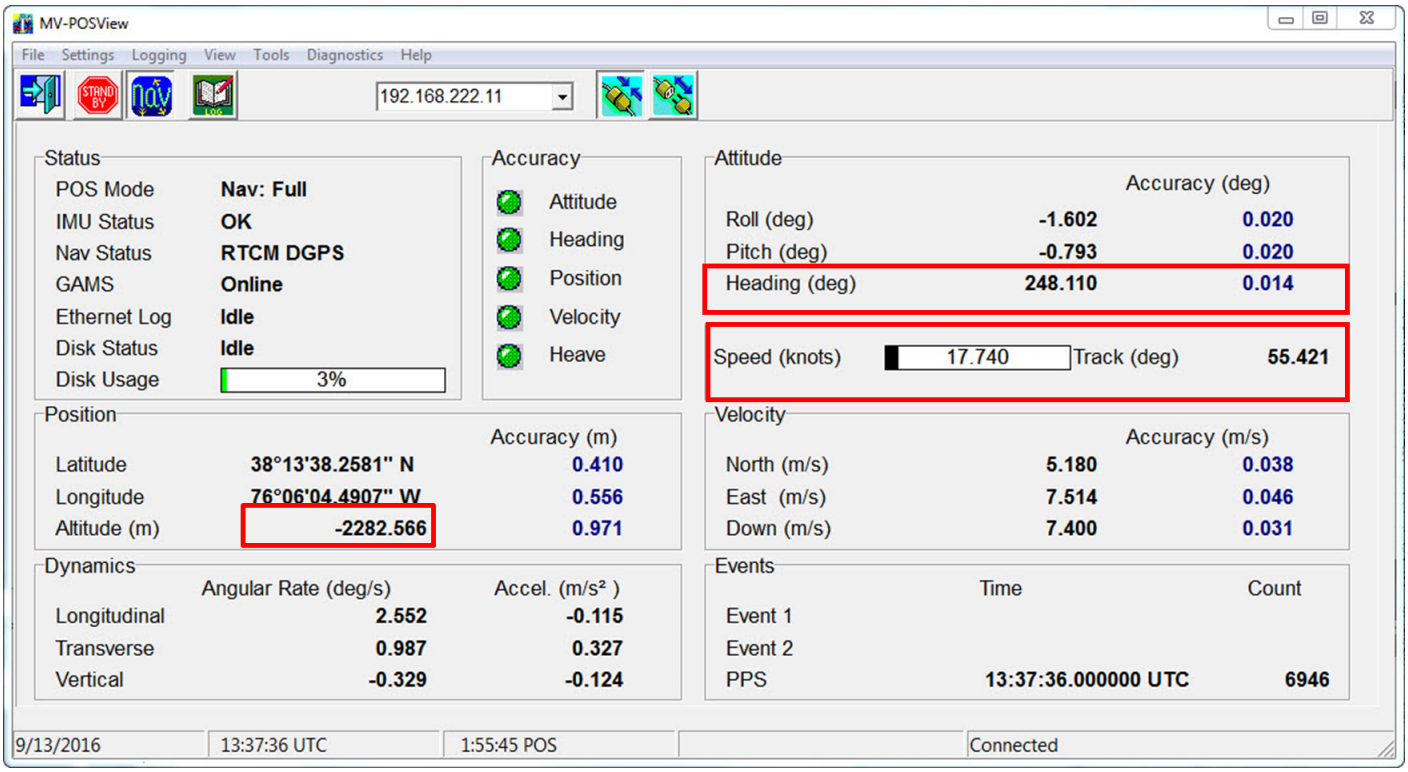


Figure 15: Screen grab of POS data when anomaly occurred. Red boxes outline the incorrect values.

B.2.6 Factors Affecting Soundings

Bathymetric artifacts introduced by marine life in concurrent MBES/SSS acquisition

On two occasions, a large school of fish and/or other marine life prohibited the MBES to identify the true seafloor while conducting concurrent MBES/SSS acquisition. This interference resulted in artifacts in the processed data which did not accurately represent the seafloor (examples Figure 16 & 17). Removal of artifacts in the MBES surface introduce gaps in coverage. During concurrent MBES/SSS acquisition, SSS is

the primary source for object detection and MBES data is collected only for an along track depth record for chart comparison. Therefore, as long as the gaps in coverage do not extend across the entire MBES swath, they do not limit the ability to adequately verify charted depths.

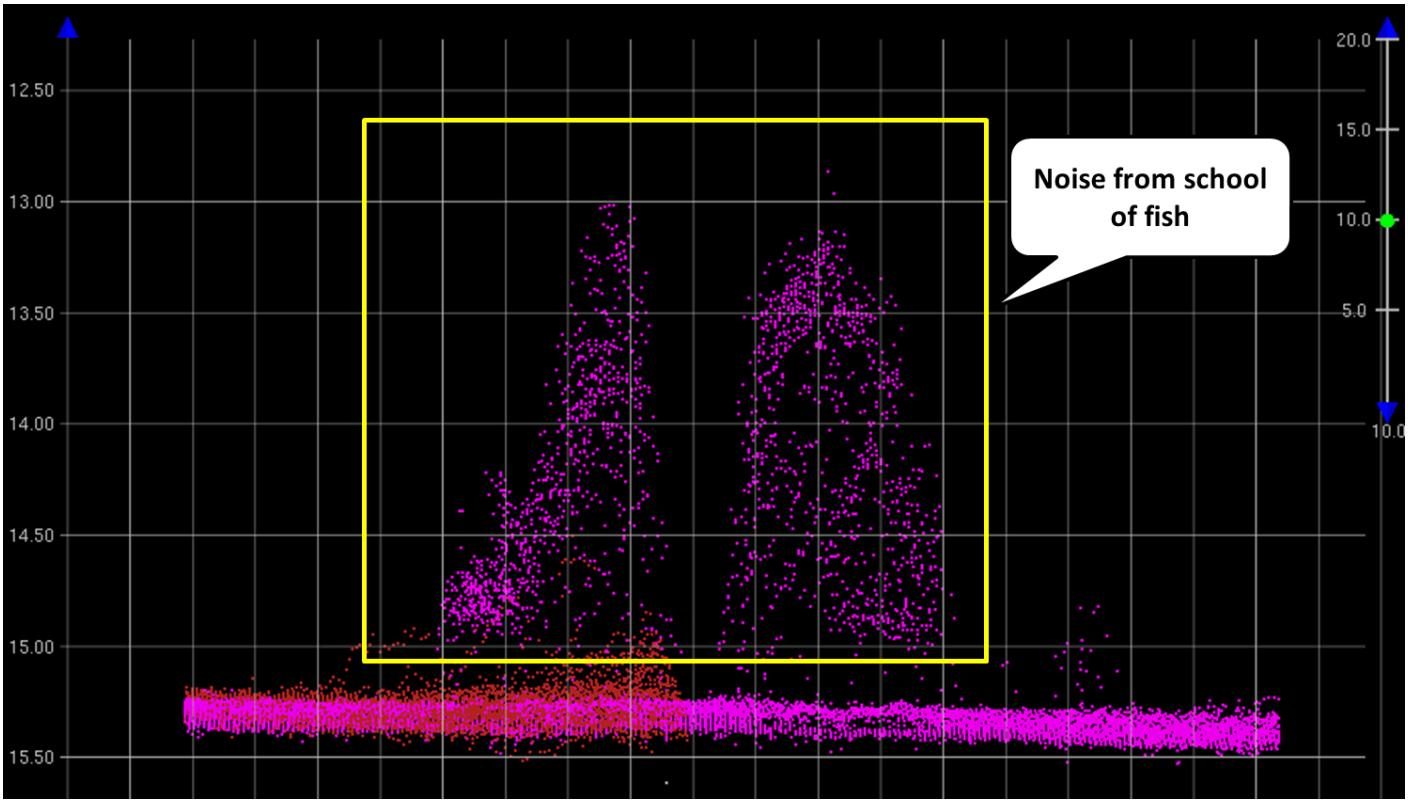


Figure 16: Water column artifacts caused by marine life that inhibit true bottom detection. Yellow box indicates water column noise.

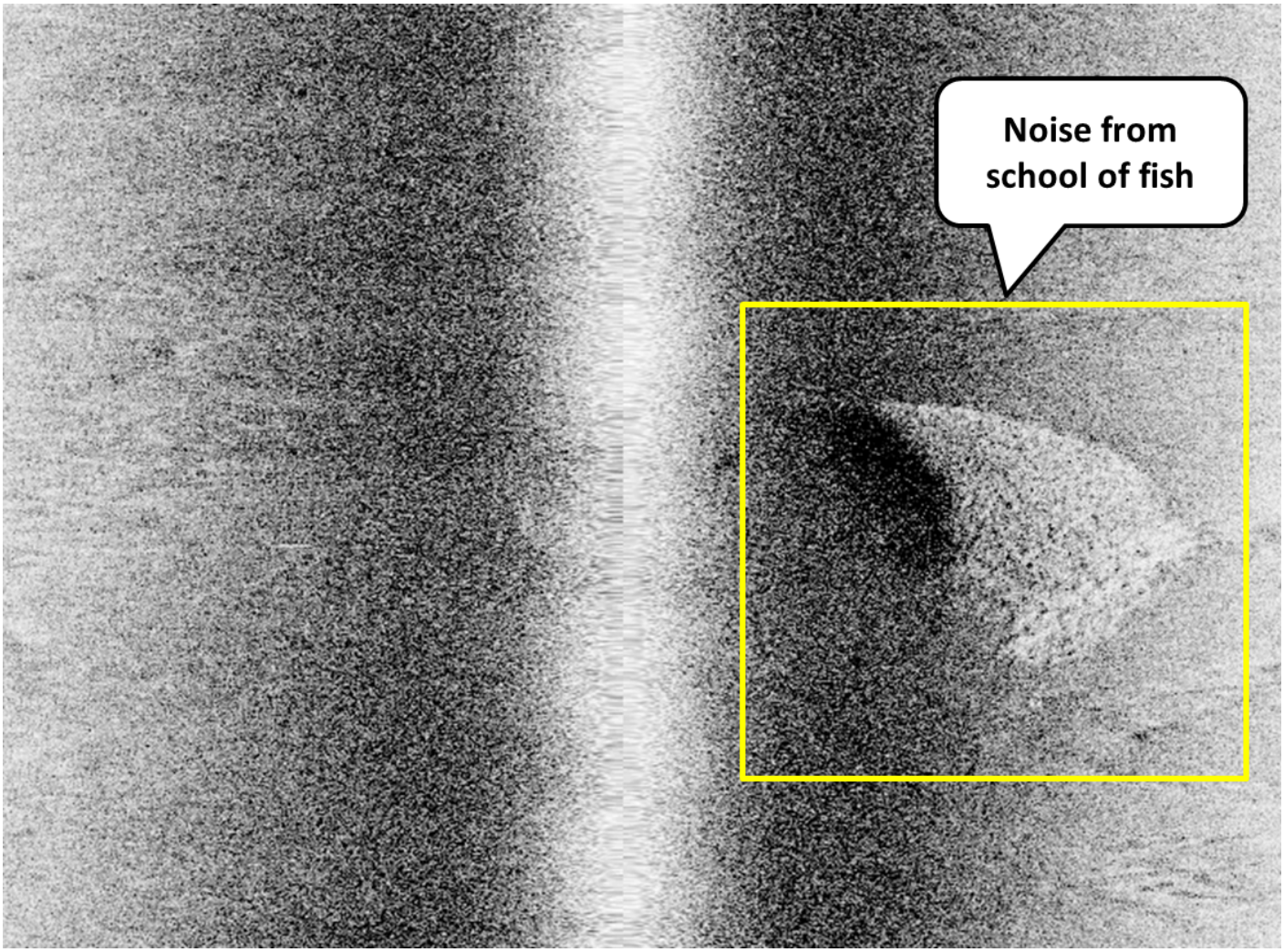


Figure 17: SSS imagery of school of fish associated with noisy bathymetry. Yellow box indicates water column noise.

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: Surface sound speed was collected real time and integrated into the Kongsberg EM2040 bathymetric data.

Sound speed casts were acquired via CTD at the start and end of each survey day, as well as throughout the day to assure accurate representation for the survey area. This resulted in a cast every two to three hours, well within the four hour requirement outlined in the HSSD. The distribution of sound speed casts is shown below (Figure 18). Casts were applied using the "Nearest in Distance with Time" with a three hour time window. The hydrographer found this method to more accurately represent the sound speed within the survey limits of H12857.

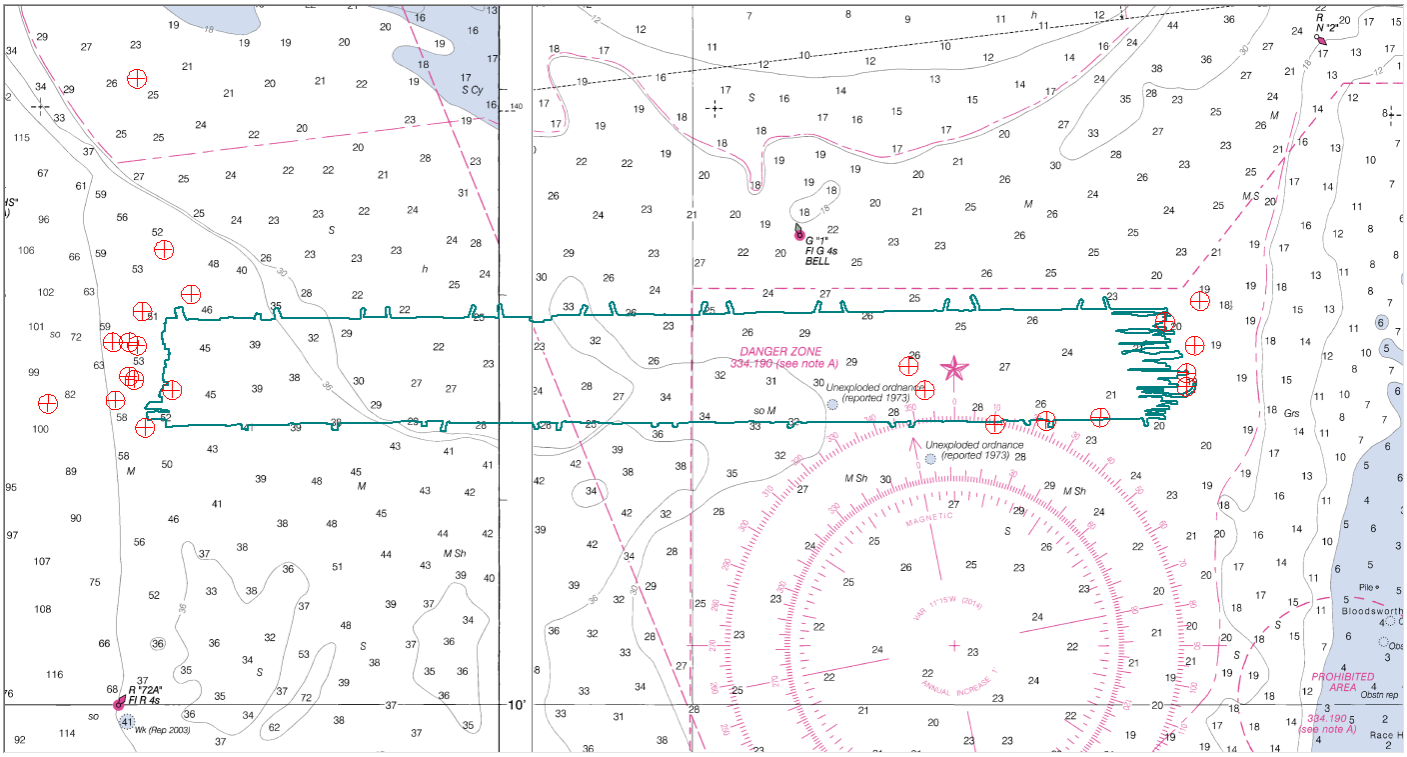


Figure 18: Sound speed profiles acquired for H12857, shown in red overlaid onto Charts 12231, Chart 12233, and Chart 12261.

SAR: The Log Viewer in HIPS shows that the sound speed was applied Nearest in Distance within 4 hours.

B.2.8 Coverage Equipment and Methods

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

B.2.9 Holiday Assessment

H12857 survey area was completed with 200% SSS and concurrent MBES. No holidays were found in the 100% or 200% SSS; however, one 213m holiday was identified in the MBES data. This holiday was caused by the POS issue discussed in Section B.2.5. This holiday occurred at the end of the survey day, and it was determined at the time, to reacquire it at a later time. Due to weather restrictions and timing, this holiday was not reacquired.

All gaps in coverage are identified and digitized in a "H12857_Holidays.000" file accompanying this submission.

B.3 Echo Sounding Corrections

B.3.1 Corrections to Echo Soundings

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

B.3.2 Calibrations

All sounding systems were calibrated as detailed in the DAPR.

B.4 Backscatter

Raw Backscatter was logged as .all files and sent to the Pacific Hydrographic Branch. Backscatter was not processed by the field unit.

B.5 Data Processing

B.5.1 Primary Data Processing Software

The following Feature Object Catalog was used: NOAA Profile V_5_4. There were no software configuration changes after the DAPR was submitted.

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
H12857_MB_50cm_MLLW	CUBE	50 centimeters	6.19 meters - 20.16 meters	NOAA_0.5m	Object Detection
H12857_MB_50cm_MLLW_Final	CUBE	50 centimeters	6.19 meters - 20.16 meters	NOAA_0.5m	Object Detection
H12857_SSS_1m_200	SSS Mosaic	1 meters	-	N/A	200% SSS
H12857_SSS_1m_100	SSS Mosaic	1 meters	-	N/A	100% SSS

Table 8: Submitted Surfaces

The surfaces were reviewed where noisy data, or 'fliers', are incorporated into the gridded solution, causing the surface to be shoaler than the true sea floor. Where these spurious soundings cause the gridded surface to be shoaler than the reliably measured seabed by greater than the maximum allowable vertical uncertainty at that depth, the noise was rejected and the surface recomputed. Due to "skunk striping" MBES, some noisy data is still prevalent in the surfaces. The hydrographer cleaned the data to the best of their ability, to avoid "drawing" the bottom.

B.5.3 Side Scan Sonar Acquisition: Towfish Flown Outside Standard Depth Range

Through the course of the survey, the SSS towfish depth occasionally fell outside the recommended 8-20% depth of range scale as stated in the HSSD 6.1.2.3 due to bathymetric features (shoals and contour slopes). As these deviations were minimal and of short duration, the hydrographer feels they do not negatively impact data quality. The specific lines of data that were out of specifications were recorded in the Acquisition log.

C. Vertical and Horizontal Control

Vertical control was achieved via TCARI grid for processing and submission. Horizontal control was achieved real time via DGPS.

C.1 Vertical Control

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

Traditional Methods Used:

TCARI

The following National Water Level Observation Network (NWLON) stations served as datum control for this survey:

Station Name	Station ID
Bishops Head, MD	8571421
Lewisetta, VA	8635750
Solomons Island, MD	8577330

Table 9: NWLON Tide Stations

There was no Water Level file associated with this survey.

File Name	Status
E349BH22016_Preliminary.tc	Final

Table 10: Tide Correctors (.zdf or .tc)

A request for final approved tides was sent to N/OPS1 on 01/10/2017. The final tide note was received on 01/23/2017.

C.2 Horizontal Control

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

The projection used for this project is UTM-18N.

The following DGPS Stations were used for horizontal control:

DGPS Stations
Annapolis, MD (301 kHz)

Table 11: USCG DGPS Stations

D. Results and Recommendations

D.1 Chart Comparison

Chart comparisons were conducted for RNC Chart 12231, Chart 12233, and Chart 12261; and ENC US5VA21M and US5VA22M.

A sounding selection in feet was created at a scale of 1:10000 meters from the H12857 50cm resolution surface for comparison with the area's RNC and ENC charts. The soundings were visually inspected to identify any discrepancies.

Overall, comparisons between H12857 and Charts 12231, 12233, and 12261, and ENC US5VA21M and US5VA22M showed good agreement with no gross discrepancies.

D.1.1 Raster Charts

The following are the largest scale raster charts, which cover the survey area:

Chart	Scale	Edition	Edition Date	LNM Date	NM Date
12231	1:40000	31	05/2016	02/27/2017	12/22/2016
12233	1:40000	38	01/2014	02/27/2017	12/15/2016
12261	1:40000	31	01/2017	02/27/2017	02/16/2017

Table 12: Largest Scale Raster Charts

12231

H12857 is generally within one foot of the soundings from Chart 12231. In the western area of the survey, west of the charted 30ft contour, H12857 soundings were one foot deeper than Chart 12231 (Figure 19). Comparison of the 30ft surveyed and charted contours show up to 400m of easterly movement (indicated by black arrows in Figure 20).

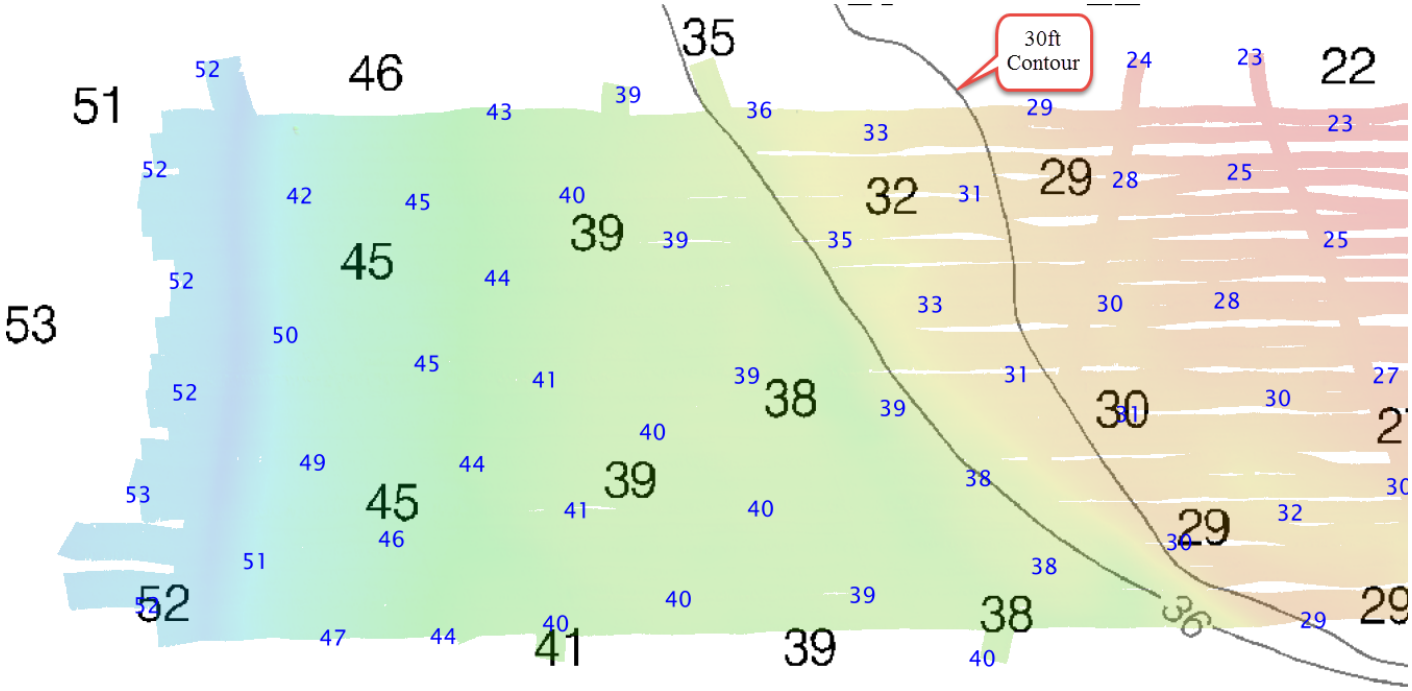


Figure 19: H12857 soundings (blue), compared with soundings from Chart 12231 (black). Sounding are in feet.

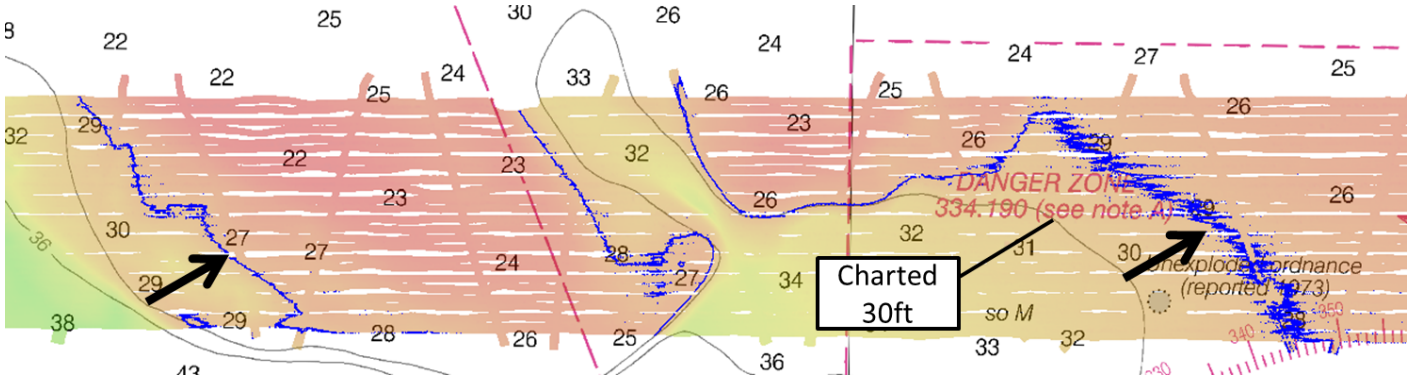


Figure 20: H12857 30ft contour (blue) compared to charted 30ft contour (gray) on Chart 12231.

12233

H12857 is generally within one foot of the soundings from Chart 12233, with H12857 sounding being deeper (Figure 21).

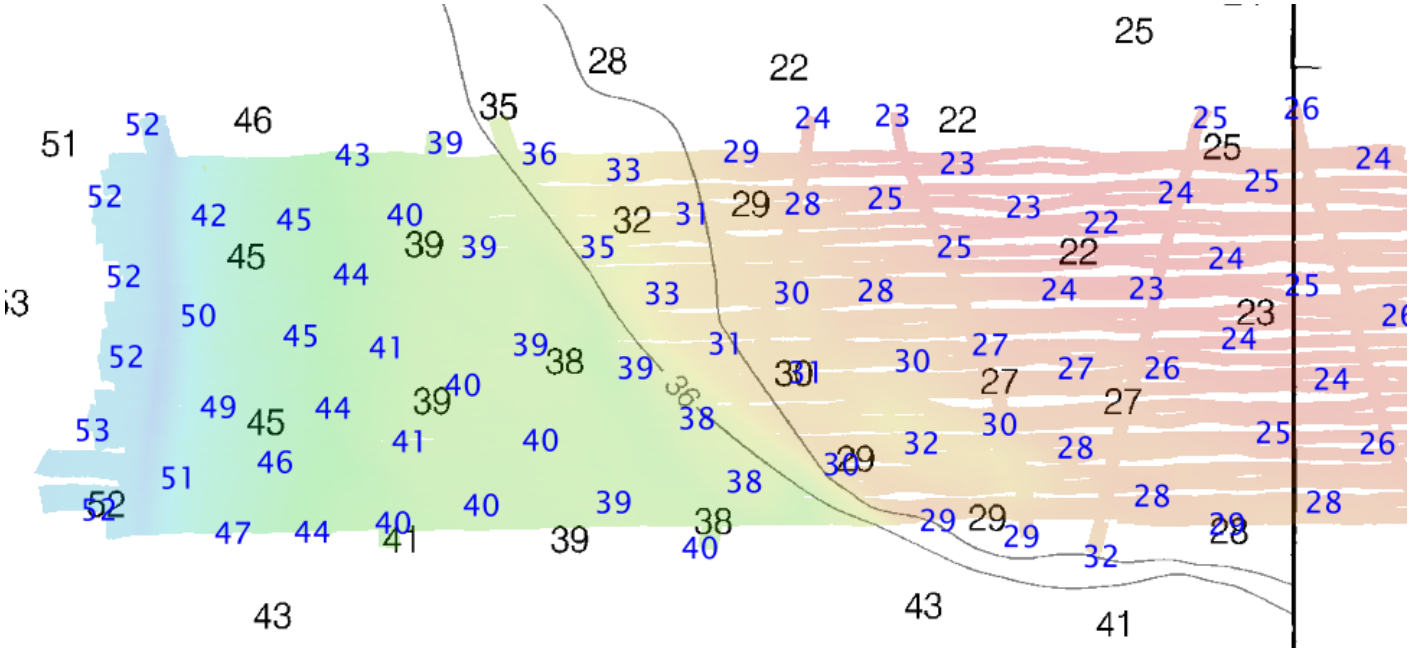


Figure 21: H12857 soundings (Blue), compared with soundings from Chart 12233 (Black). Sounding are in feet.

12261

H12857 is generally within 1-2ft of the soundings from Chart 12261, with H12857 soundings being deeper (see Figure 22).

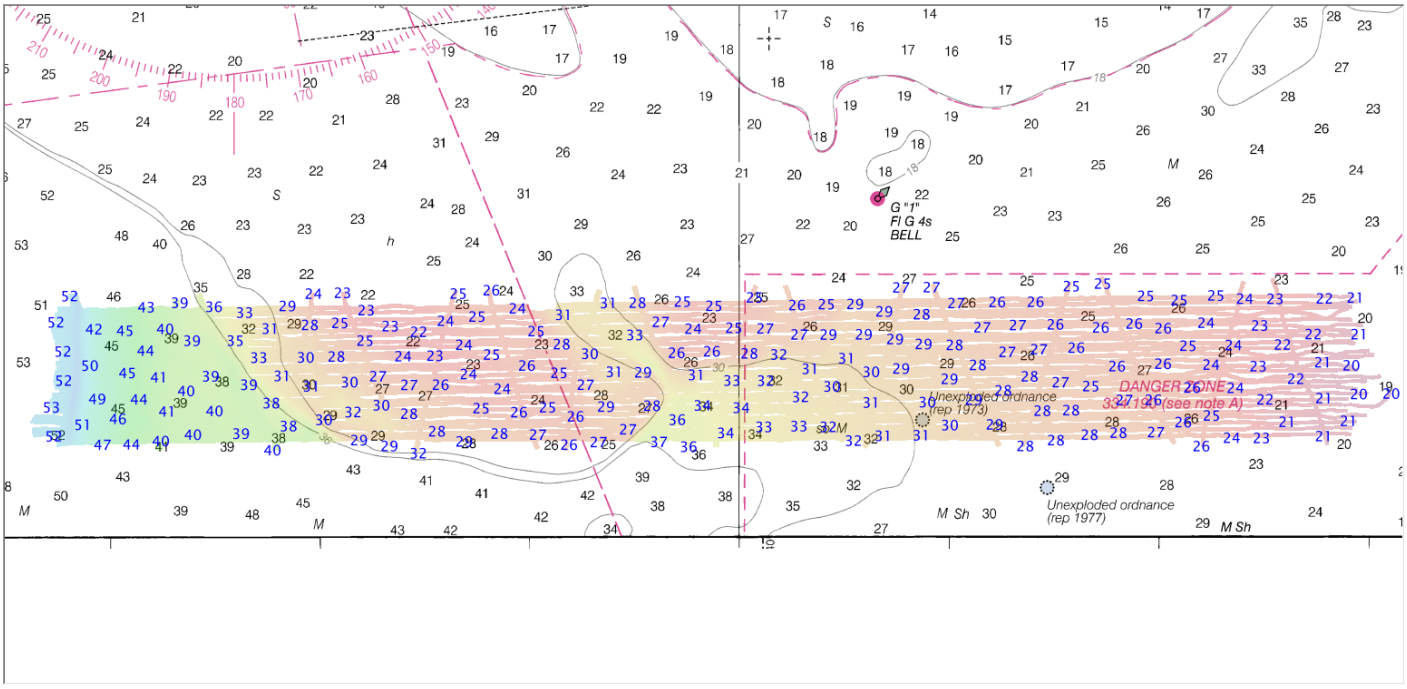


Figure 22: H12857 soundings (Blue), compared with soundings from Chart 12261 (Black). Sounding are in feet.

D.1.2 Electronic Navigational Charts

The following are the largest scale ENCs, which cover the survey area:

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US5VA21M	1:40000	19	11/01/2016	11/01/2016	NO
US5VA22M	1:40000	27	11/07/2016	11/07/2016	NO

Table 13: Largest Scale ENCs

US5VA21M

The sounding selection comparison has the same results as raster Chart 12261 (Figure 22).

US5VA22M

The sounding selection comparison has the same results as raster Chart 12261 (Figure 22).

D.1.3 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.4 Charted Features

There was one charted "unexploded ordnance" reported in 1973. This feature was investigated and found to be 450m northeast of the charted position. Further detail can be found in the Final Feature Final accompanying this report. The hydrographer recommends moving this obstruction to the position designated in the Final Feature File (Figure 23).

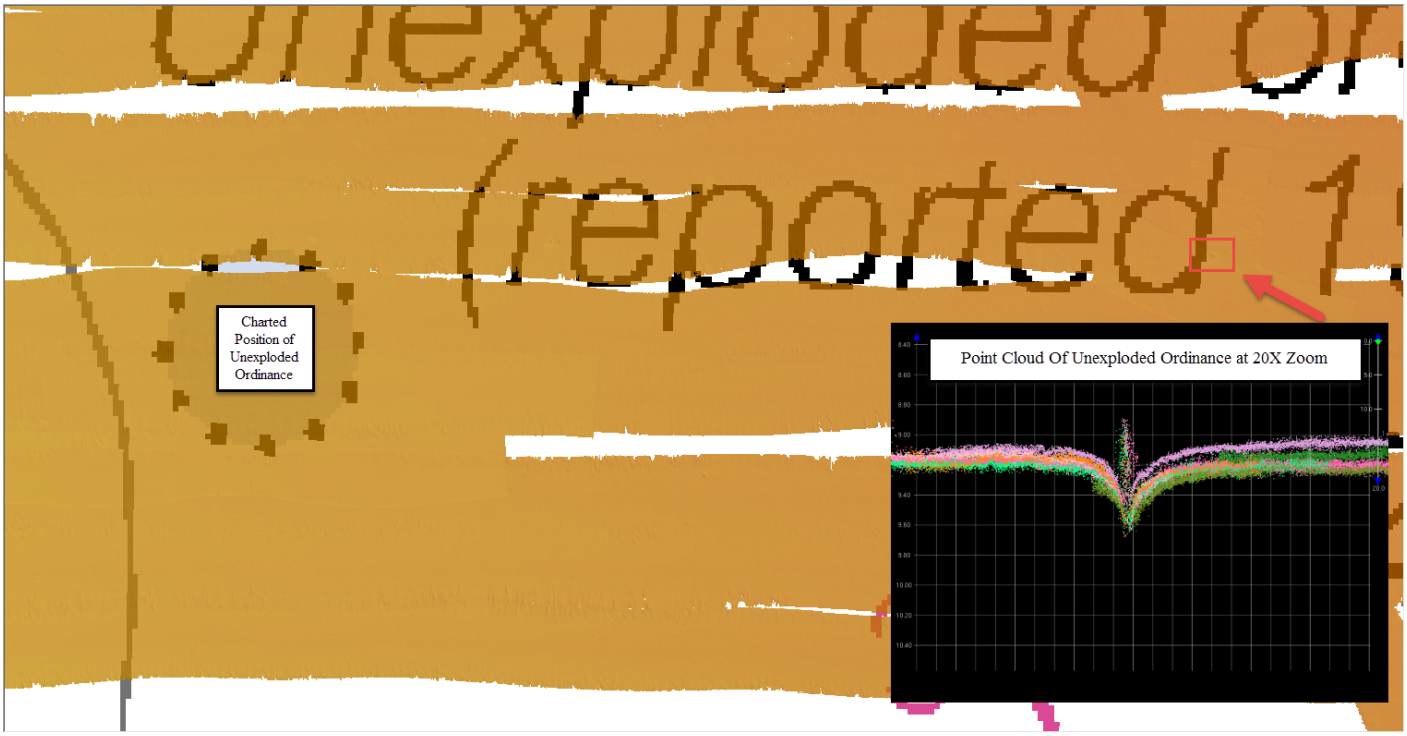


Figure 23: Difference in position of charted "unexploded ordnance" obstruction and position determined by H12857 MBES data.

D.1.5 Uncharted Features

No uncharted features exist for this survey.

D.1.6 Dangers to Navigation

No Danger to Navigation Reports were submitted for this survey.

D.1.7 Shoal and Hazardous Features

No shoals or potentially hazardous features exist for this survey.

D.1.8 Channels

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

D.1.9 Bottom Samples

Two bottom samples were acquired for this survey and are detailed in the Final Feature File accompanying this report. (Figure 24).

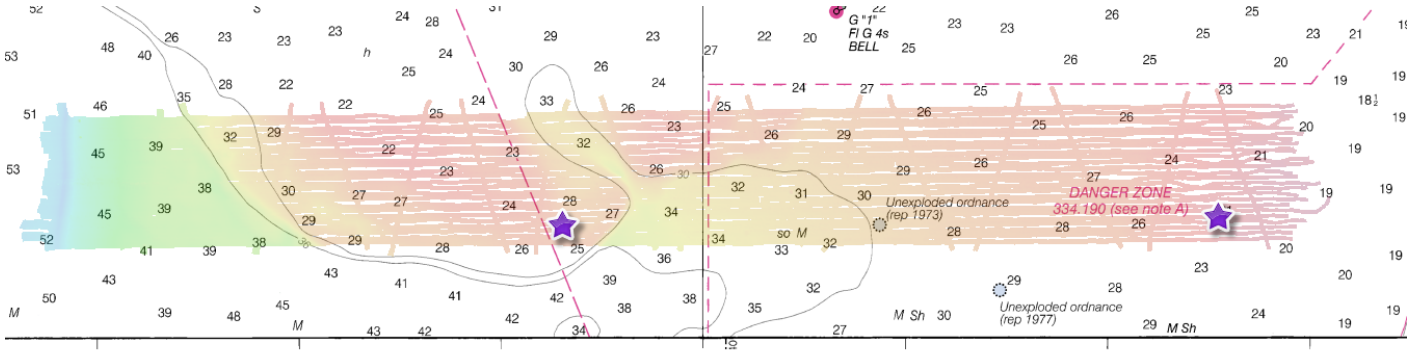


Figure 24: Bottom samples position depicted by a purple star for H12857 overlaid onto Chart 12261.

D.2 Additional Results

D.2.1 Shoreline

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

D.2.2 Prior Surveys

No prior survey comparisons exist for this survey.

D.2.3 Aids to Navigation

No Aids to navigation (ATONs) exist 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 Ferry Routes and Terminals

No ferry routes or terminals exist for this survey.

D.2.7 Platforms

No platforms exist for this survey.

D.2.8 Significant Features

Two side scan sonar contacts were identified. Both contacts were seen in only one SSS pass and not present in MBES data. Both contacts were deemed insignificant.

D.2.9 Construction and Dredging

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

D.2.10 New Survey Recommendation

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

D.2.11 Inset Recommendation

No new insets are recommended for this area.

E. Approval Sheet

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

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

The survey data meets or exceeds requirements as set forth in the NOS Hydrographic Surveys 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
LTJG Sarah Chappel, NOAA	Chief of Party	03/02/2017	CHAPPEL.SARAH.LYNN.1472631272 Digitally signed by CHAPPEL.SARAH.LYNN.1472631272 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=NOAA, cn=CHAPPEL.SARAH.LYNN.1472631272 Date: 2017.03.13 11:09:47 -04'00'
Robert Mowery, NOAA	Senior Survey Technician	03/02/2017	MOWERY.ROBERT.WILLIAM.1379754488 Digitally signed by MOWERY.ROBERT.WILLIAM.1379754488 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=OTHER, cn=MOWERY.ROBERT.WILLIAM.1379754488 Date: 2017.03.13 09:48:48 -04'00'

OCS BHII - NOAA Service Account <ocs.bhii@noaa.gov>

BHII Survey/Hardware Schedule and Adjustments

3 messages

OCS BHII - NOAA Service Account <ocs.bhii@noaa.gov> Thu, Nov 10, 2016 at 8:09 AM
To: Chief NRB OCS - NOAA Service Account <chief.nrb.ocs@noaa.gov>, Christopher Hare <christopher.hare@noaa.gov>, Michael Annis - NOAA Federal <michael.j.annis@noaa.gov>

Good morning, CDR Jablonski, Chris, and Mike -

BHII underwent intense operational planning yesterday to determine our schedule for surveying, processing, hardware/software changes, and personnel availability. We decided on the following plan of action:

In order to facilitate a smooth transition to new computers with Windows 10 and integrate our new Kongsberg processing unit, we are scheduling these integrations January/February. Due to training schedules, January will be unlikely to see any survey days. Recognizing that, our goal is to have all current surveys off the boat before the transition takes place.

Our two Hudson sheets and small Severn River field investigation (to be done in December) do not present any foreseeable issues or delays in finalizing and packaging by the end of January.

Our on-going Chesapeake sheet (H12857) will not be completed by that time. **We are requesting an adjustment to the existing sheet limits.** Attached please find .PNG and .HOB file with the requested new sheet limits. This adjustment would leave us with approximately five more days of survey this calendar year (4 days for 200% on current SSS coverage, and a day for holidays, XLs, and bottom samples). This new sheet size would enable us to finish acquisition, request tides, and do the majority of processing of the data before our shift to Windows 10 and the new Kongsberg PU. In addition, the new sheet size would prevent us from needing to do our 2017 HSRR in the winter. We would be able to integrate the new computers and PU and then undergo our HSRR as soon as the weather allows.

After our 2017 HSRR and test/eval of new systems is completed, we would then begin acquisition on the Chesapeake Project until we depart for the Hudson River Project. Understanding that the Hudson Project is our main priority, we want to be certain our new computers and PU are fully integrated and error-free before acquisition begins on that project. The 2017 Chesapeake project will be a good opportunity to smooth out any errors in the equipment in the Spring, before heading North.

Chris - please let me know if we can adjust the sheet limits, per our request.
Mike - please let me know if you foresee any issues with Kongsberg w.r.t. the proposed timeframe.

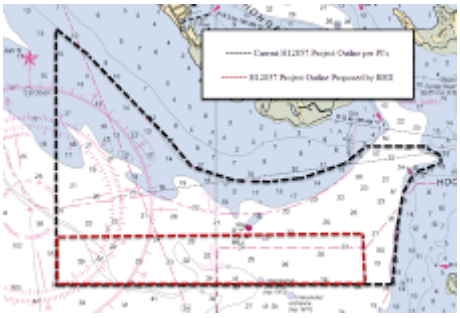
Very respectfully,

Sarah

--
R/V Bay Hydro II
14485 Dowell Road
PO Box 157
Solomons, MD 20688
Work cell: 240.638.6637
OCS.BHII@noaa.gov

2 attachments

H12857 Proposed Project Outline.png
284K



H12857_Proposed_Project_Outline.hob
2K

Michael Annis - NOAA Federal <michael.j.annis@noaa.gov> Thu, Nov 10, 2016 at 8:30 AM
To: OCS BHII - NOAA Service Account <ocs.bhii@noaa.gov>
Cc: Chief NRB OCS - NOAA Service Account <chief.nrb.ocs@noaa.gov>, Christopher Hare <christopher.hare@noaa.gov>

Sarah-

I've been in contact with KUTI about the trade in time frame. They don't seem to be in a rush to get the old one back. I passed along the proposed rough schedule date to them to make sure there are no issues.

Best-

Mike A

Michael J. Annis
Physical Scientist
NOAA Office of Coast Survey
1315 East West Highway
SSMC3 room 6325
Silver Spring, MD 20910
NEW NUMBER 301-713-2730 x167

[Quoted text hidden]

Chief NRB OCS - NOAA Service Account <chief.nrb.ocs@noaa.gov> Tue, Nov 15, 2016 at 11:06 AM
To: OCS BHII - NOAA Service Account <ocs.bhii@noaa.gov>
Cc: Christopher Hare <christopher.hare@noaa.gov>, Michael Annis - NOAA Federal <michael.j.annis@noaa.gov>, Michael Davidson - NOAA Federal <michael.davidson@noaa.gov>

Sarah,

This sounds like a reasonable plan to all up here. (Hopefully it also coincides with your personal planned down time.) We WANT teams to square off their surveys at the end of the year to get that submitted. The data doesn't do anyone any good sitting on the boat.

R,
Holly

On Thu, Nov 10, 2016 at 8:09 AM, OCS BHII - NOAA Service Account <ocs.bhii@noaa.gov> wrote:
[Quoted text hidden]

NOAA Field Unit trained Marine Mammal Observers

Name	Date of training
LTJG Sarah L. Chappel	07/01/2015
Robb Mowery	02/17/2016
Matthew Carter	03/28/2016
LT Andrew Close	02/11/2016

UNITED STATES DEPARMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : January 17, 2017

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: OPR-E349-BH2-2016
HYDROGRAPHIC SHEET: H12857

LOCALITY: South of Hooper Island, Chesapeake Bay
TIME PERIOD: October 04, 2016 - Jannuary 03, 2017

TIDE STATION USED: 8571421 Bishops Head, MD
Lat.38° 13.2' N Long. 76° 02.3' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.575 meters

TIDE STATION USED: 8577330 Solomons Island, MD
Lat. 38° 19.3' N Long. 76° 27.1' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.405 meters

Tide STATION USED: 8635750 Lewisetta, VA
Lat. 37° 59.7' Long. 76° 27.9' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.416 meters

REMARKS: RECOMMENDED GRID

Please use the TCARI grid "E349BH22016.tc" as the final grid for project OPR-E349-BH2-2016, H12857, during the time period between October 04, 2016 to January 03, 2017.

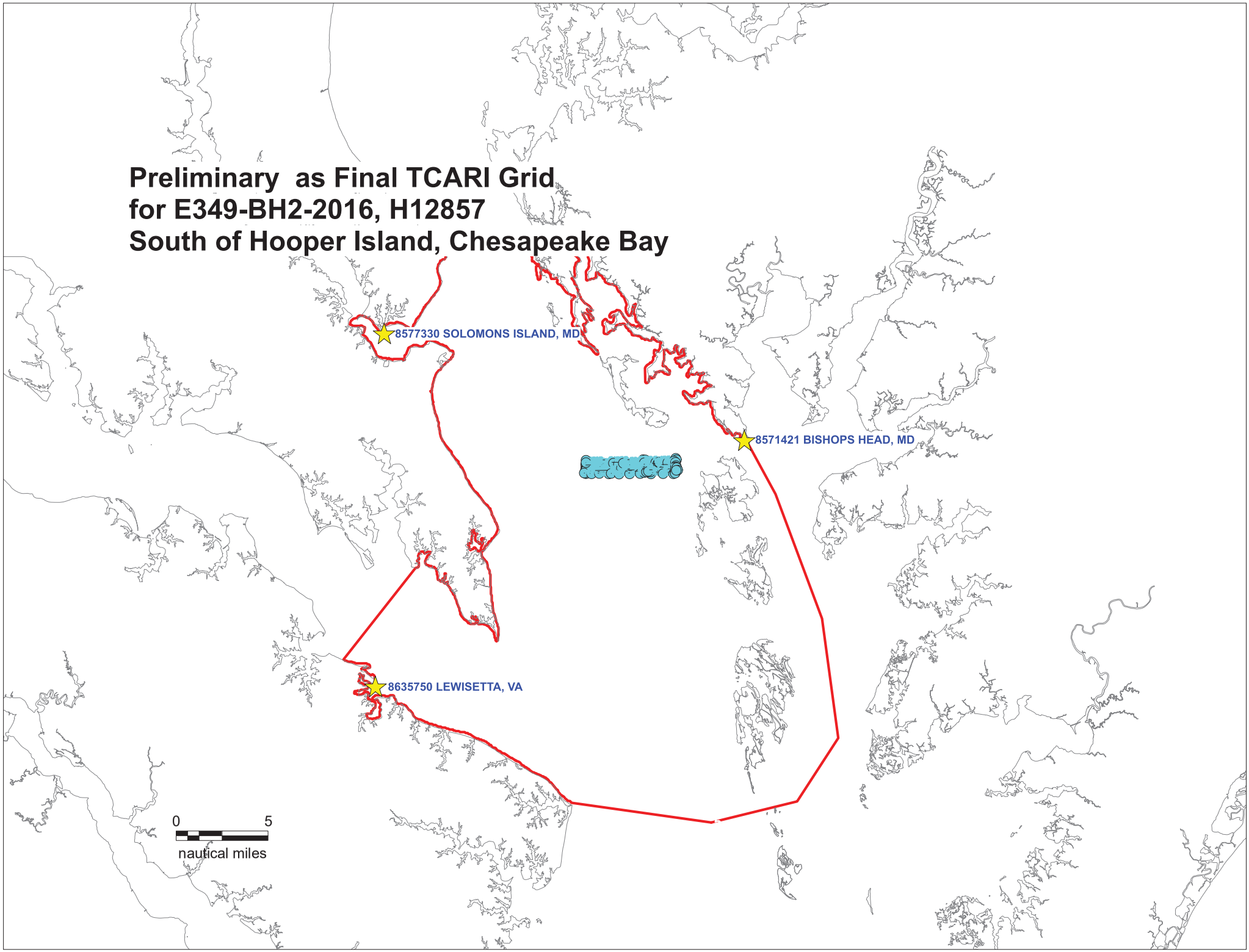
Refer to attachments for grid information.

Note 1: Provided time series data are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time on the 1983-2001 National Tidal Datum Epoch (NTDE).

HOVIS.GERALD.THOMAS.JR.1365860250

Digitally signed by HOVIS.GERALD.THOMAS.JR.1365860250
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=OTHER, cn=HOVIS.GERALD.THOMAS.JR.1365860250
Date: 2017.01.23 12:30:51 -05'00'

CHIEF, PRODUCTS AND SERVICES BRANCH


Preliminary as Final TCARI Grid
for E349-BH2-2016, H12857
South of Hooper Island, Chesapeake Bay
8577330 SOLOMONS ISLAND, MD
8571421 BISHOPS HEAD, MD
8635750 LEWISETTA, VA
0
5
nautical miles

APPROVAL PAGE

H12857

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

- H12857 _DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12857 _GeoImage.pdf

The survey evaluation and verification has been conducted according current OCS Specifications.

Approved: Digitally signed by Peter Holmberg
Reason: I am approving this document
Date: 2018.06.29 12:53:06 -07'00'

Peter Holmberg
Cartographic Team Lead, Pacific Hydrographic Branch

The survey has been approved for dissemination and usage of updating NOAA's suite of nautical charts.

Approved: LCDR /NOAA Digitally signed by HAUSER.OLIVIA.A.1275636009
Date: 2018.06.29 11:09:47 -07'00'

LCDR Olivia Hauser, NOAA
Chief, Pacific Hydrographic Branch

F. Table of Acronyms

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

Acronym	Definition
HSTP	Hydrographic Systems Technology Programs
HSX	Hypack Hysweep File Format
HTD	Hydrographic Surveys Technical Directive
HVCR	Horizontal and Vertical Control Report
HVF	HIPS Vessel File
IHO	International Hydrographic Organization
IMU	Inertial Motion Unit
ITRF	International Terrestrial Reference Frame
LNM	Local Notice to Mariners
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

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