H12367

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

DESCRIPTIVE REPORT

Type of Survey:	Navigable Area
Registry Number:	H12367

LOCALITY

State(s):	Maryland
General Locality:	Chesapeake Bay
Sub-locality:	5 NM East by Southeast of Cedar Pt.

2013

CHIEF OF PARTY
LTJG Daniel Smith, NOAA

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Date:

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

REGISTRY NUMBER:

HYDROGRAPHIC TITLE SHEET

H12367

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):	**Maryland**
General Locality:	**Chesapeake Bay**
Sub-Locality:	**5 NM East by Southeast of Cedar Pt.**
Scale:	**10000**
Dates of Survey:	**06/15/2011 to 12/19/2012**
Instructions Dated:	**06/13/2012**
Project Number:	**OPR-E349-BH2-12**
Field Unit:	**NOAA R/V *Bay Hydro II***
Chief of Party:	**LTJG Daniel Smith, NOAA**
Soundings by:	**Multibeam Echo Sounder Singlebeam Echo Sounder**
Imagery by:	**Side Scan Sonar**
Verification by:	**Pacific 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. Notes in red were generated during office processing. The processing branch concurs with all information and recommendations in the DR unless otherwise noted. Page numbering may be interrupted or non-sequential. All pertinent records for this survey, including the Descriptive Report, are archived at the National Geophysical Data Center (NGDC) and can be retrieved via http://www.ngdc.noaa.gov/.

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Descriptive Report to Accompany Survey H12367

Project: OPR-E349-BH2-12

Locality: Chesapeake Bay

Sublocality: 5 NM East by Southeast of Cedar Pt.

Scale: 1:10000

June 2011 - December 2012

NOAA R/V *Bay Hydro II*

Chief of Party: LTJG Daniel Smith, NOAA

A. Area Surveyed

The survey area is located in Central Chesapeake Bay within the sub-locality of 5NM East by Southeast of Cedar Pt.

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
38° 18" 8.06' N 76° 13" 12.98' W	38° 11" 20.09' N 76° 17" 6.67' W

Table 1: Survey Limits

Survey Limits were acquired in accordance with the requirements in the Project Instructions and the HSSD.

A.2 Survey Purpose

The purpose of this survey is to supersede all bathymetry, seafloor features, and bottom characteristics within the assigned survey area for updating of National Ocean Service (NOS) nautical charts 12230, 12233, 12261, and 12264. This survey will cover approximately 11 SNM of critical survey area as designated in NOAA Hydrographic Survey Priorities (NHSP).

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

A.4 Survey Coverage

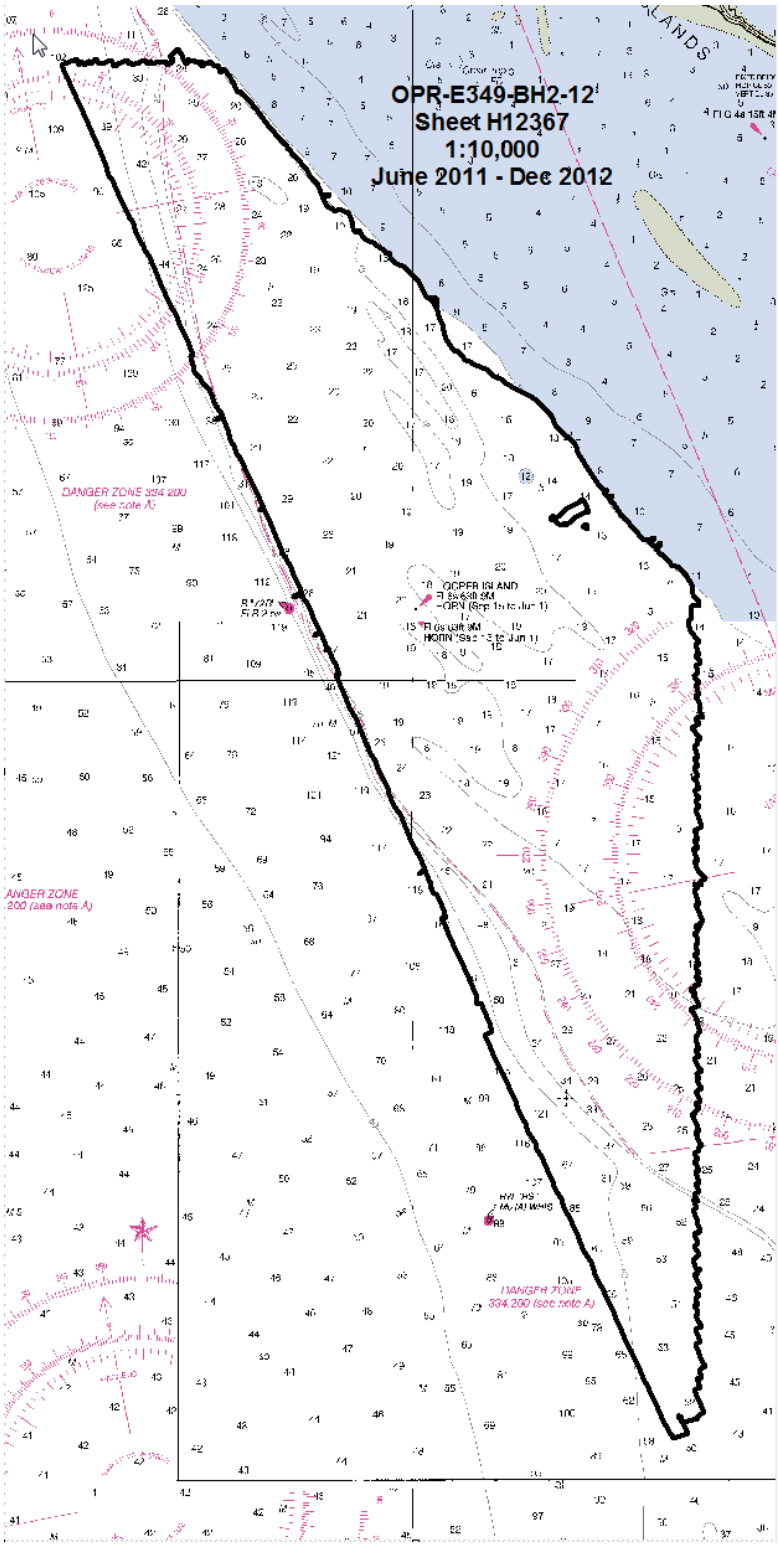


Figure 1: H12367 Survey Outline

Survey Coverage was in accordance with the requirements in the Project Instructions and the HSSD.

A.5 Survey Statistics

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

	Vessel	***S5401***	***Total***
LNM	**SBES Mainscheme**	3.6	3.6
	MBES Mainscheme	2.48	2.48
	Lidar Mainscheme	0	0
	SSS Mainscheme	12.86	12.86
	SBES/MBES Combo Mainscheme	0	0
	SBES/SSS Combo Mainscheme	353.97	353.97
	MBES/SSS Combo Mainscheme	0	0
	SBES/MBES Combo Crosslines	38.67	38.67
	Lidar Crosslines	0	0
Number of Bottom Samples			3
Number AWOIS Items Investigated			0
Number Maritime Boundary Points Investigated			0
Number of DPs			0
Number of Items Items Investigated by Dive Ops			0
Total Number of SNM			8.093

Table 2: Hydrographic Survey Statistics

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

Survey Dates	Julian Day Number
06/15/2011	166
06/28/2012	180
08/06/2012	219
08/14/2012	227
08/15/2012	228
08/20/2012	233
08/21/2012	234
08/22/2012	235
08/23/2012	236
08/27/2012	240
08/29/2012	242
08/30/2012	243
09/06/2012	250
09/11/2012	255
09/12/2012	256
09/13/2012	257
10/24/2012	298
11/15/2012	320
12/19/2012	354

Table 3: Dates of Hydrography

On 15 June 2011, the three bottom samples were acquired for sheet H12367. The bottom samples were acquired so far in advance because sheet H12367 was originally part of sheet H12304 and all bottom samples were acquired at the same time. Later, sheet H12304 was split and sheet H12367 was created with the three bottom samples already having been acquired.

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

The R/V Bay Hydro II collected all Multibeam data, Side Scan Sonar data, Single Beam data, Sound Velocity data, and Attitude data for Survey H12367.

B.1.2 Equipment

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

Manufacturer	**Model**	**Type**
ODOM	Echotrac CV-200	SBES
RESON	SeaBat 7125	MBES
Klein	5000 Lightweight	SSS
Applanix	POS M/V V4	Positioning and Attitude System
Sea-Bird	19+	Sound Speed System
ODOM	Digi-Bar Pro	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.

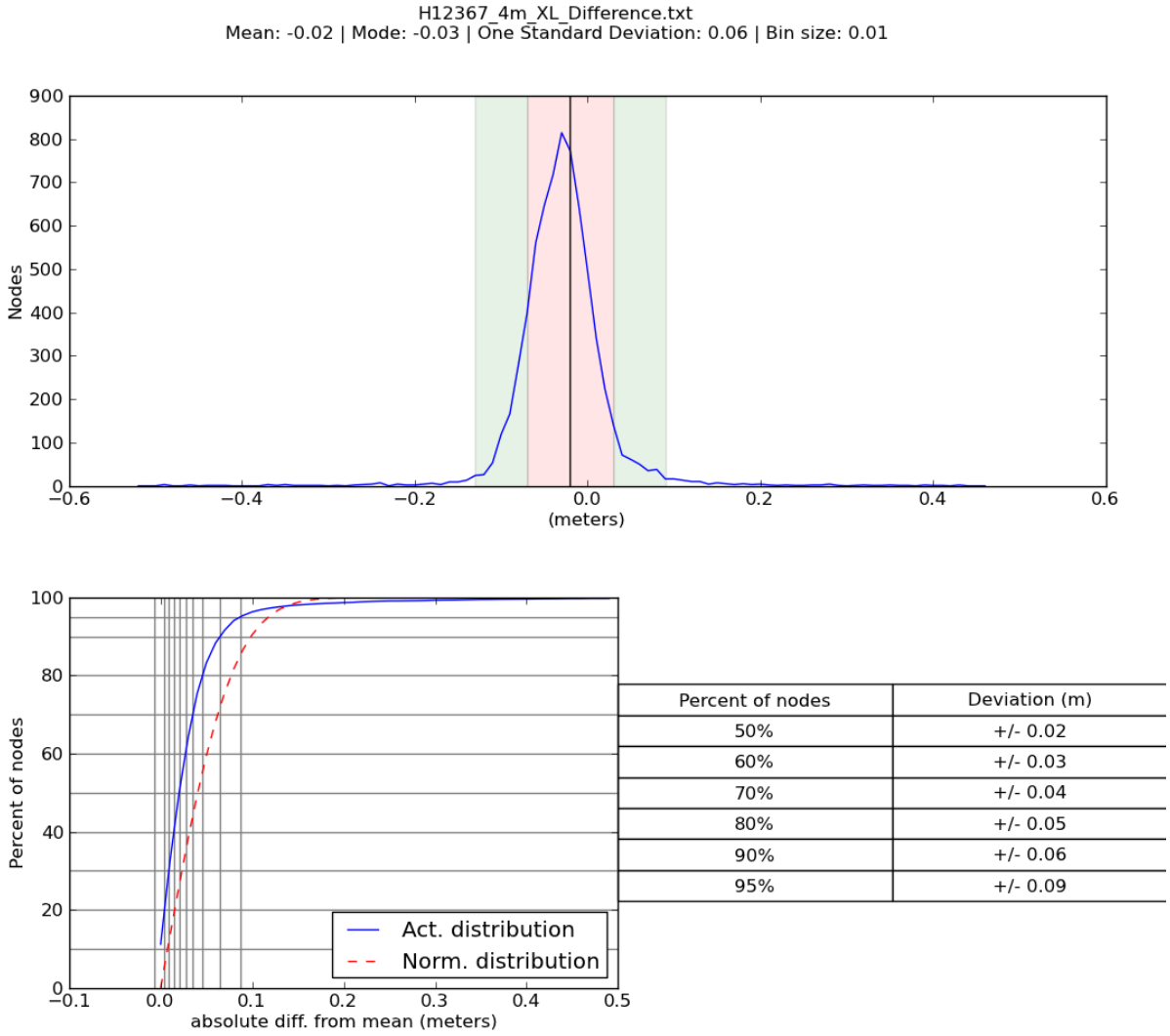
B.2 Quality Control

B.2.1 Crosslines

Crosslines, acquired for this survey, totalled 10.74% of mainscheme acquisition.

Crosslines were collected, processed and compared in accordance with section 5.2.4.3 of the HSSD. The R/V Bay Hydro II collected 38.67 linear nautical miles of SBES crosslines, equating to 10.74% of main scheme data.

Surface differencing in CARIS Bathy DataBASE was used to assess crossline agreement with main scheme lines. A difference surface between a 4-meter uncertainty surface made with main scheme lines only and a 4-meter uncertainty surface made with crosslines only was produced. This difference surface is submitted digitally in the Separates II folder. The two surfaces agree within plus or minus 0.14 meters in 95% of all nodes and the maximum difference between any two nodes is 1 meter.



Percent of nodes	Deviation (m)
50%	+/- 0.02
60%	+/- 0.03
70%	+/- 0.04
80%	+/- 0.05
90%	+/- 0.06
95%	+/- 0.09

Figure 2: Statistical representation of differences between crossline and mainscheme surfaces.

B.2.2 Uncertainty

Hull ID	Measured - CTD	Measured - MVP	Surface
S5401	4.0 meters/second	N/A meters/second	0.5 meters/second

Table 6: Survey Specific Sound Speed TPU Values

Survey H12367 used a Tidal Constituent and Residual Interpolation (TCARI) grid to apply tidal correctors. TCARI automatically calculates the error associated with water level interpolation, which is then included in

the Total Propagated Uncertainty for the survey. For this reason, no Tidal Uncertainty values were entered into CARIS.

B.2.3 Junctions

No junction surveys were provided in the Project Instructions for OPR-E349-BH2-12, however sheet H12304 bounds to the west of this survey. The junction agreement is generally within the total allowable vertical uncertainty in their common areas and depths for all surfaces. Data overlap between the two surveys was achieved; see figure 3 for areas of overlap.

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H12304	1:10000	2012	NOAA R/V BAY HYDRO II	W

Table 7: Junctioning Surveys

H12304

Surface differencing in CARIS HIPS and SIPS was used to assess junction agreement between H12367_4m_combined and H12304_4m_combined surface. Agreement between the two surfaces was generally close, see figure 4 for statistical information. Differences of greater than one meter between the surfaces is attributed to the high change in slope in those areas.

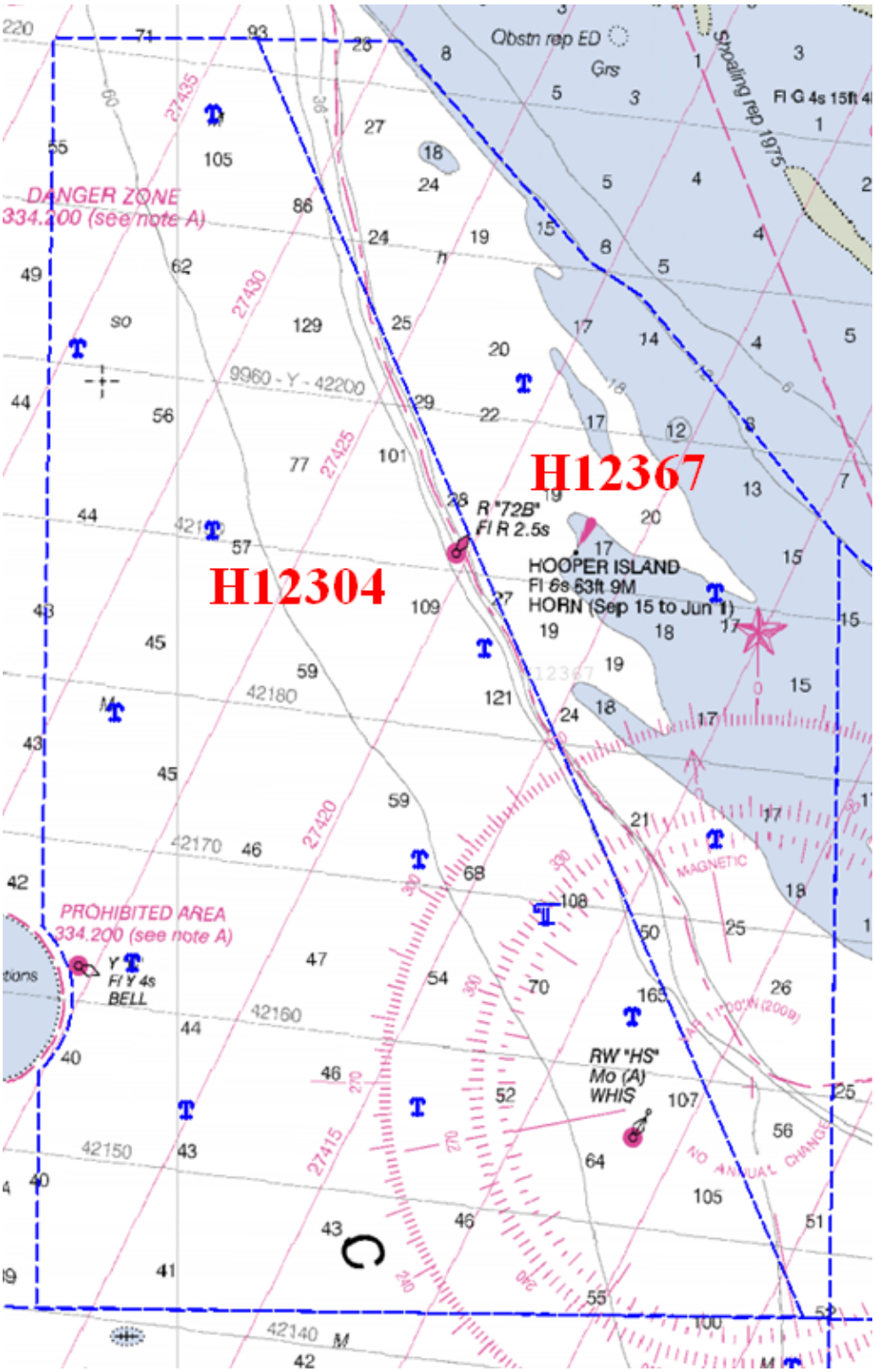


Figure 3: Junctions between H12367 and H12304.

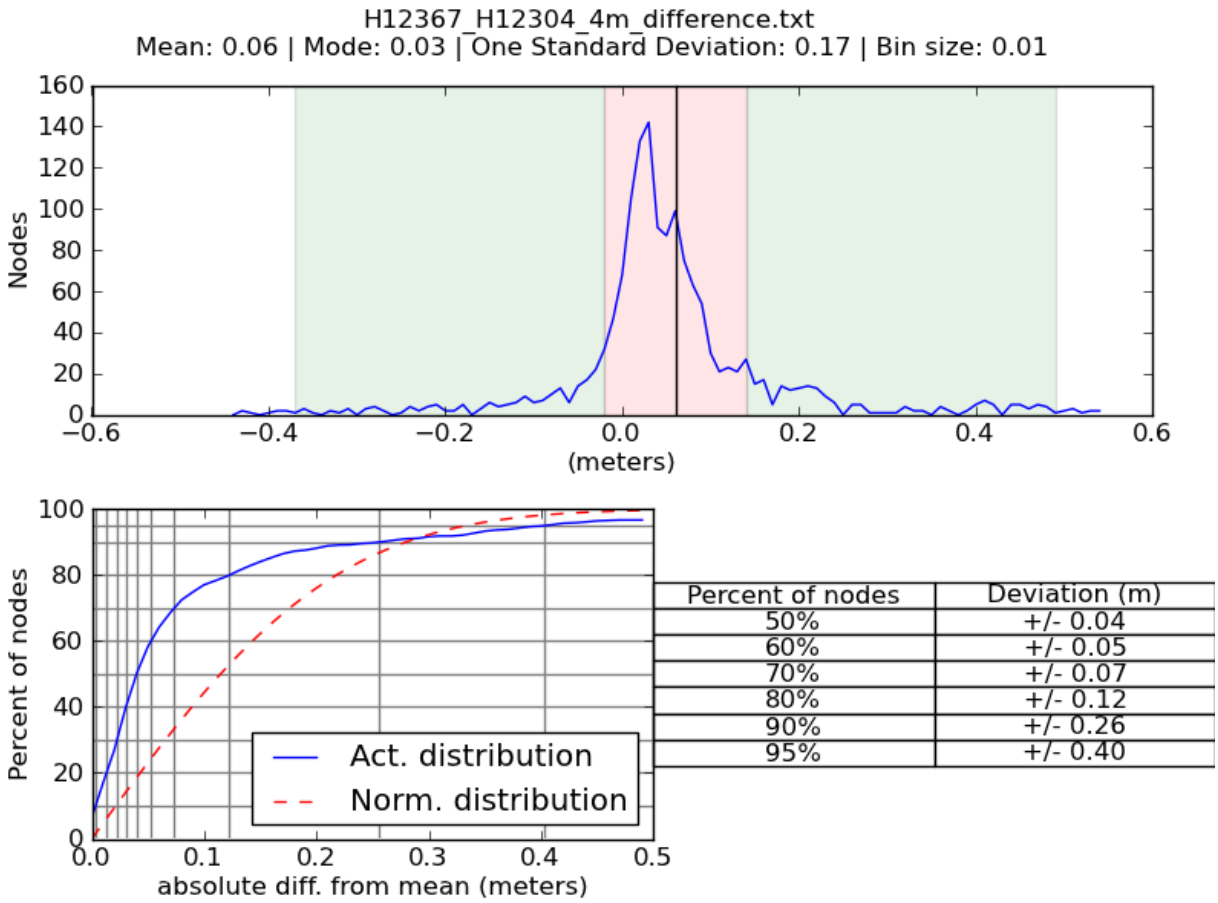
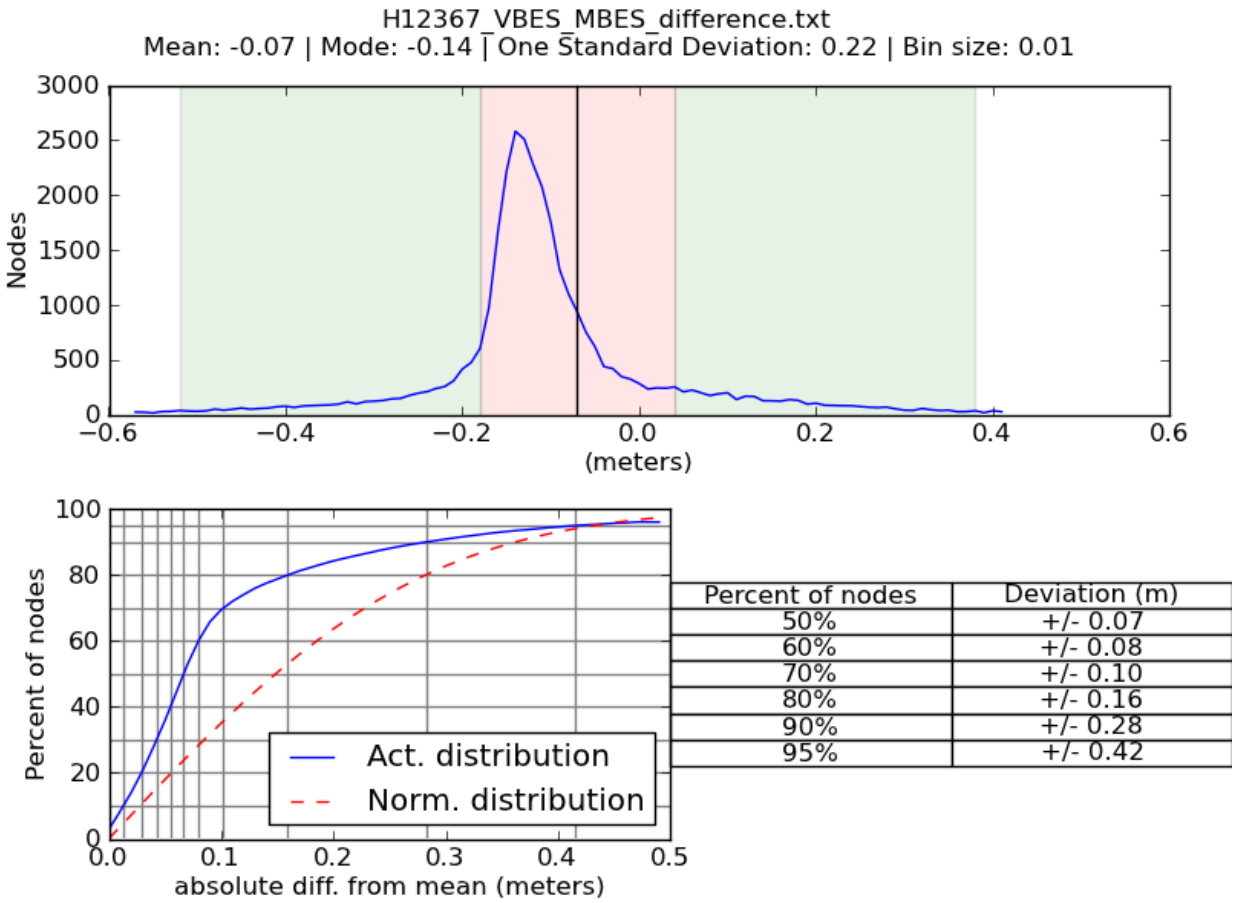


Figure 4: Statistical representation of differences for the junction between H12367 and H12304.

B.2.4 Sonar QC Checks

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

In addition to this, the MBES and VBES data acquired on sheet H12367 were compared to each other to verify they fall within IHO Order 1 TVU specifications. The statistical analysis of the comparison is shown below in Figure 5.



Percent of nodes	Deviation (m)
50%	+/- 0.07
60%	+/- 0.08
70%	+/- 0.10
80%	+/- 0.16
90%	+/- 0.28
95%	+/- 0.42

Figure 5: Statistical analysis of comparison between VBES and MBES data acquired on sheet H12367.

B.2.5 Equipment Effectiveness

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

B.2.6 Factors Affecting Soundings

There were no other factors that affected corrections to soundings.

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: Surface sound speed was collected in real time and integrated into the RESON 7125 bathymetric data.

Sound Velocity Profile casts were generally acquired at approximately four hour intervals when acquiring multibeam data and weekly for vertical beam data. Sound speed values were then applied to data in CARIS

HIPS. For both multibeam and vertical beam data, the Nearest in Time option was used. Distribution of sound velocity casts is shown in Figure 6.

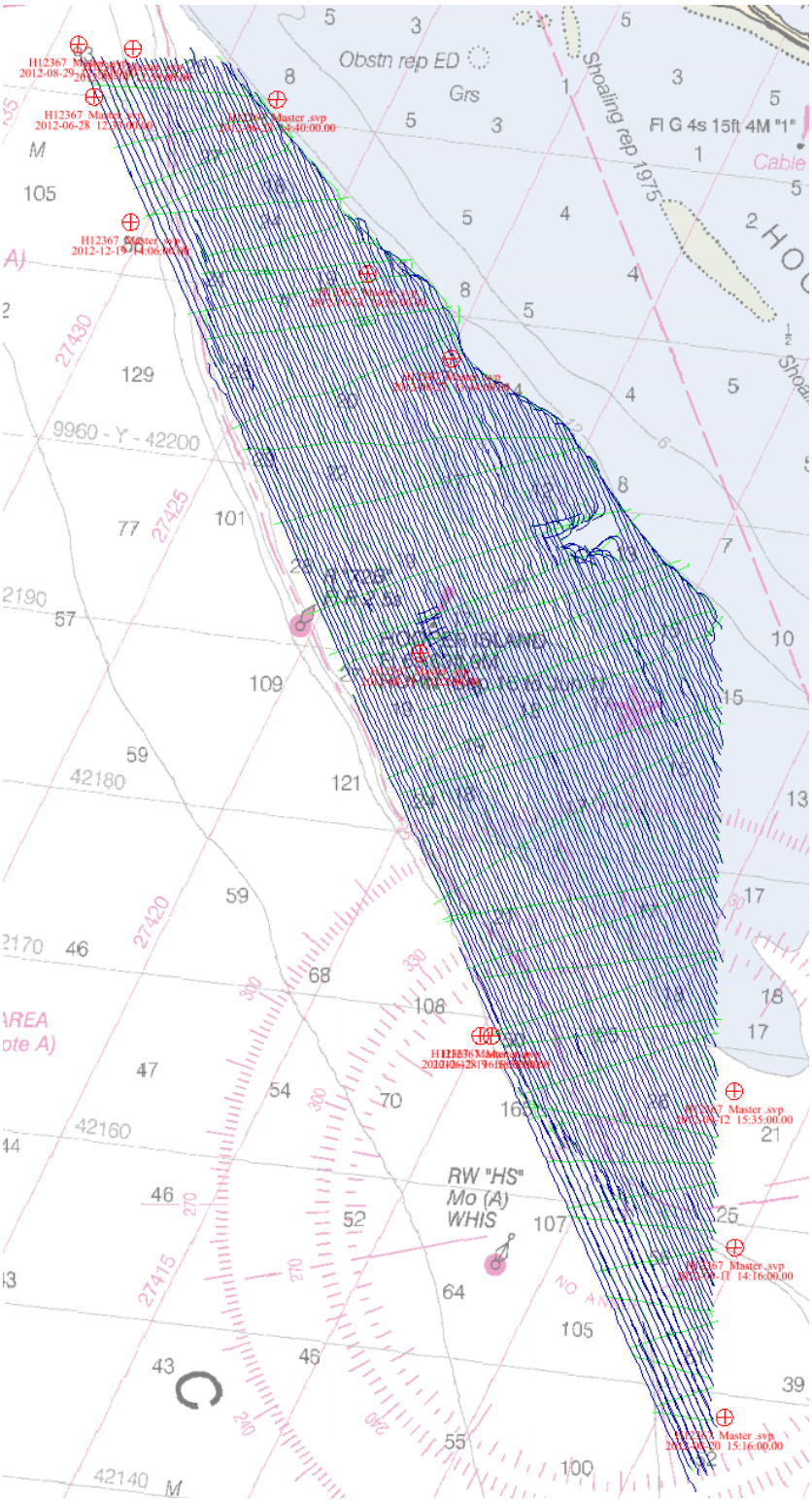


Figure 6: H12367 SVP cast distribution

B.2.8 Coverage Equipment and Methods

The Bay Hydro II does not have an operational cable counter. Thus, the crew of the Bay Hydro II marked the SSS cable with tape to accurately identify the cable out measurement and input that into the acquisition software in real time. When the cable was originally marked, it was only marked up to 30 meters of cable out. This was sufficient for the majority of the acquisition of sheet H12367, except in water deeper than approximately 100 ft. In these areas, with the cable out being limited to 30 meters, the altitude sometimes was greater than 20% of the range scale and therefore did not meet specification for object detection. This was limited to the extreme southwest corner of the sheet H12367.

In developing the survey for compilation, the reviewer was advised to reject the depth soundings beyond 30m. The area deeper than 30m was insignificant and had already been compiled in its entirety by the contemporary survey to the west, H12304. Taken together, H12367 and H12304 adequately cover all areas assigned for charting updates, and allows this survey to have a complete object detection coverage.

B.2.9 IHO Uncertainty

The data meet the accuracy specifications as stated in the NOS Hydrographic Surveys Specifications and Deliverables (HSSD) dated April 2012, see Standards Compliance Review in Appendix V.

The areas of high uncertainty are all located along the western edge of sheet H12367 where there is a steep downslope which increases uncertainty of soundings.

B.2.10 Density

Density requirements were met for the 1m MBES finalized surface and the 4m VBES finalized surface with at least 96.59% of finalized surface nodes containing five or more soundings. Density requirements were not met for the 50cm MBES finalized surface. Only 84.01% of finalized surface nodes contained five or more soundings. This is due to the fact that the only MBES collected on sheet H12367 was for developments. Many of the nodes were only populated with outer beams from the MBES and therefore were low in density. All nodes containing the least depth of a feature had five or more soundings. See Standards Compliance Review, Appendix V.

B.2.11 Holiday Assessment

Set spaced VBES was acquired with concurrent SSS for the entire survey area. Both 100% SSS mosaic and 200% SSS mosaic had holidays that are attributed to fish weirs in the survey area (Fig 7).

Neither SSS mosaic reached the eastern sheet limit boundary continuously due to the fact that the NALL (Navigable Area Limit Line) was established to be westward of the sheet limit boundary in those areas (Fig 8).

Numerous small holidays were noted each SSS mosaic. Most occurred along sheet limit edges where SSS lines were acquired at an angle to the sheet limit and were not extended far enough to prevent holidays.

A table was created noting the positions of all other holidays located in the interior of each mosaic and is included in Appendix V.

Some holidays were also present at the western sheet limit. After comparing with the mosaics from sheet H12304, which junctions with sheet H12367 to the west, it was found that there is adequate overlap along the western sheet limit.

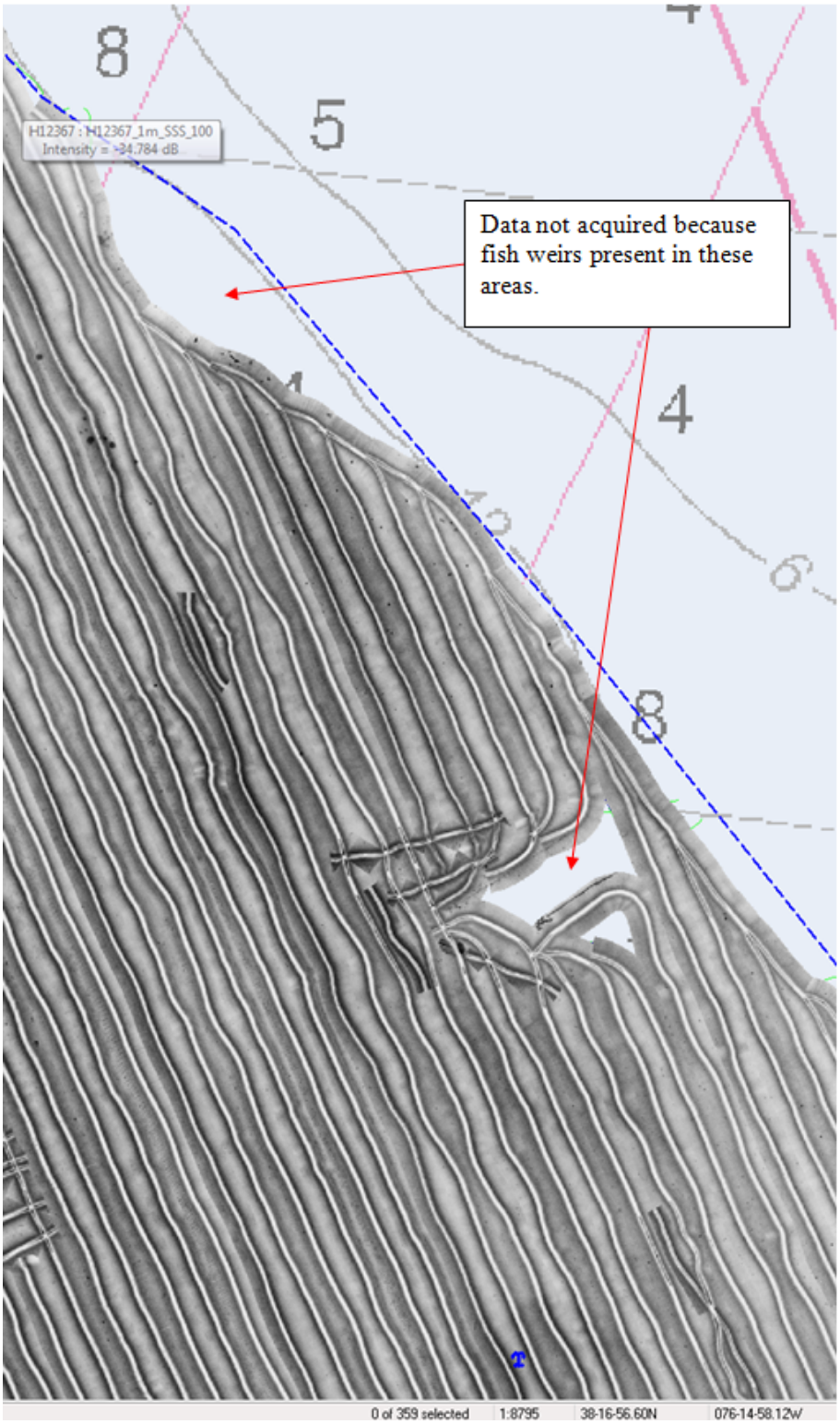


Figure 7: Holidays present in the SSS mosaics because of fish weirs in the survey area.

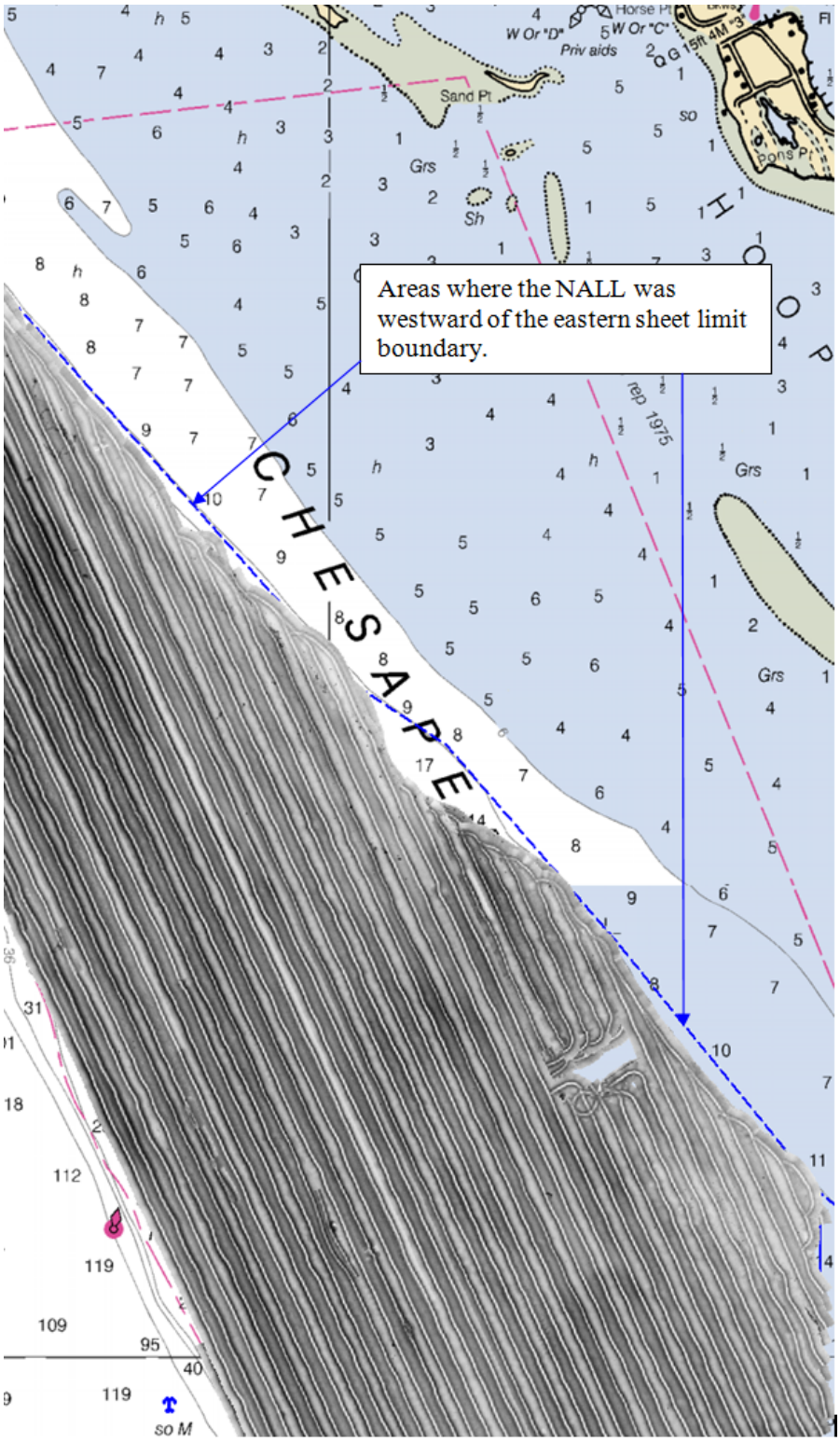


Figure 8: Holidays present in the SSS mosaics as the NALL was westward of the eastern sheet limit boundary.

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

The following calibrations were conducted after the initial system calibration discussed in the DAPR:

Calibration Type	Date	Reason
Patch Test	2012-10-24	It was discovered that offsets from the reference point to the IMU were recorded in both the POS-MV and the HIPS Vessel File. These offsets were removed from the HVF, so a new patch test was performed and was used in all subsequent acquisition days.
Patch Test	2012-10-24	It was discovered that offsets from the reference point to the IMU were recorded in both the POS-MV and the HIPS Vessel File. These offsets were removed from the HVF, so a new patch test was performed and was used in all subsequent acquisition days.

Table 8: Calibrations not discussed in the DAPR.

A patch test was conducted during the acquisition of sheet H12367.

B.4 Backscatter

Backscatter was logged as 7k files and submitted directly to NGDC, and is not included with the data submitted to the Branch.

The survey area does not contain sufficient MBES coverage to create a backscatter mosaic. In a follow-up correspondence, the field indicated that there was no backscatter submitted to NGDC for this survey.The email can be found in the DR Appendix II - The email is appended to this report.

B.5 Data Processing

B.5.1 Software Updates

There were no software configuration changes after the DAPR was submitted.

The following Feature Object Catalog was used: NOAA Extended Attribute Files V5.2

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
H12367_1m_SSS_100	SSS Mosaic	1 meters	-	N/A	100% SSS
H12367_1m_SSS_200	SSS Mosaic	1 meters	-	N/A	200% SSS
H12367_4m_VBES	BASE Uncertainty	4 meters	-	N/A	MBES TracklineSBES Set Line Spacing
H12367_4m_VBES_Final	BASE Uncertainty	4 meters	-	N/A	MBES TracklineSBES Set Line Spacing
H12367_50cm_MBES	CUBE	50 centimeters	-	NOAA_0.5m	Object Detection
H12367_50cm_MBES_Final_0to20	CUBE	50 centimeters	0 meters - 20 meters	NOAA_0.5m	Object Detection
H12367_1m_MBES	CUBE	1 meters	-	NOAA_1m	Object Detection
H12367_1m_MBES_Final_19to40	CUBE	1 meters	19 meters - 40 meters	NOAA_1m	Object Detection

Table 9: Submitted Surfaces

The surfaces have been reviewed where noisy data, or 'fliers' are incorporated into the gridded solution causing the surface to be shoaler than the true seafloor. 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 noisy data have been rejected and the surface recomputed.

A four meter resolution Uncertainty surface was created all set line spacing VBES data regardless of depth, in accordance with HSSD April 2012 section 5.2.2.3. The VBES surface was finalized to calculate the final uncertainty and to apply designated soundings, not to set a depth range.

The NOAA CUBE parameters mandated in HSSD were used for the creation of all CUBE BASE surfaces in survey H12367. All MBES data was acquired as developments of SSS contacts. For this reason, all MBES data was processed in accordance with object detection standards as set forth in HSSD section 5.2.2.1. The resolutions for MBES surfaces of 50cm and 1m and associated depth ranges meet object detection standards.

Two separate SSS mosaics were created to complete the 200% SSS coverage that was required. The 200% lines were acquired at half the line spacing as the first 100% coverage, as specified in the Field Procedures Manual section 2.5.3.1.2.

C. Vertical and Horizontal Control

No additional horizontal or vertical control was conducted for this project, so no HVCR is included with this report.

C.1 Vertical Control

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

Standard Vertical Control Methods Used:

TCARI

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

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

Table 10: NWLON Tide Stations

File Name	Status
8577330_verified.tid	Final Approved
8635750_verified.tid	Final Approved
8571421_verified.tid	Final Approved

Table 11: Water Level Files (.tid)

File Name	Status
E349BH2012.tc	Final
H12367.tc	Final

Table 12: Tide Correctors (.zdf or .tc)

A request for final approved tides was sent to N/OPS1 on 12/20/2012. The final tide note was received on 01/24/2013.

Two different TCARI tide corrector files were provided by CO-OPS for processing of final tides. The file E349BH2012.tc was provided to be used as the final grid between June 28 and October 28, 2012 and was controlled by 8577330 Solomons Island, 8571421 Bishops Head, and 8635750 Lewisetta.

The file H12367.tc was provided to be used as the final grid between October 29, 2012 and December 19, 2012 and was controlled by 8571421 Bishops Head and 8635750 Lewisetta. After October 28, 2012, the stability of 8577330 Solomons Island is in question because of the effects of Hurricane Sandy.

The only bathymetry data collected after October 28, 2012 using the adjusted TCARI grid was the MBES developments. As noted in section B.2.4 a comparison was performed between the MBES and VBES data. This in turn was also a comparison between the two different TCARI grids and the comparison concluded that the data were within the TVU for IHO Order 1 (Figure 5).

Tide note is appended to this report.

C.2 Horizontal Control

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

The projection used for this project is 18N.

The following DGPS Stations were used for horizontal control:

DGPS Stations
Annapolis, MD (301 kHz)

Table 13: USCG DGPS Stations

D. Results and Recommendations

D.1 Chart Comparison

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
12230	1:80000	65	10/2011	04/09/2013	04/13/2013
12233	1:40000	37	01/2007	04/09/2013	04/13/2013
12261	1:40000	30	12/2012	04/09/2013	04/13/2013
12264	1:40000	31	01/2013	04/09/2013	04/13/2013

Table 14: Largest Scale Raster Charts

12230

Sounding agreement between surveyed soundings on sheet H12367 and charted depths on chart 12230 were generally within two feet with most surveyed soundings being slightly deeper than the charted depth. One notable exception is at the 17 foot charted depth at position 38-16.57'N, 076-14.95'W where the soundings were surveyed at 21 feet and 22 feet (Fig 11).

Contours generated in CARIS BASE Editor generally approximate the charted 30, 36, and 60 foot contours. The 18 foot contour generated in CARIS BASE Editor is generally further inshore than the charted 18 foot contour (Fig 12).

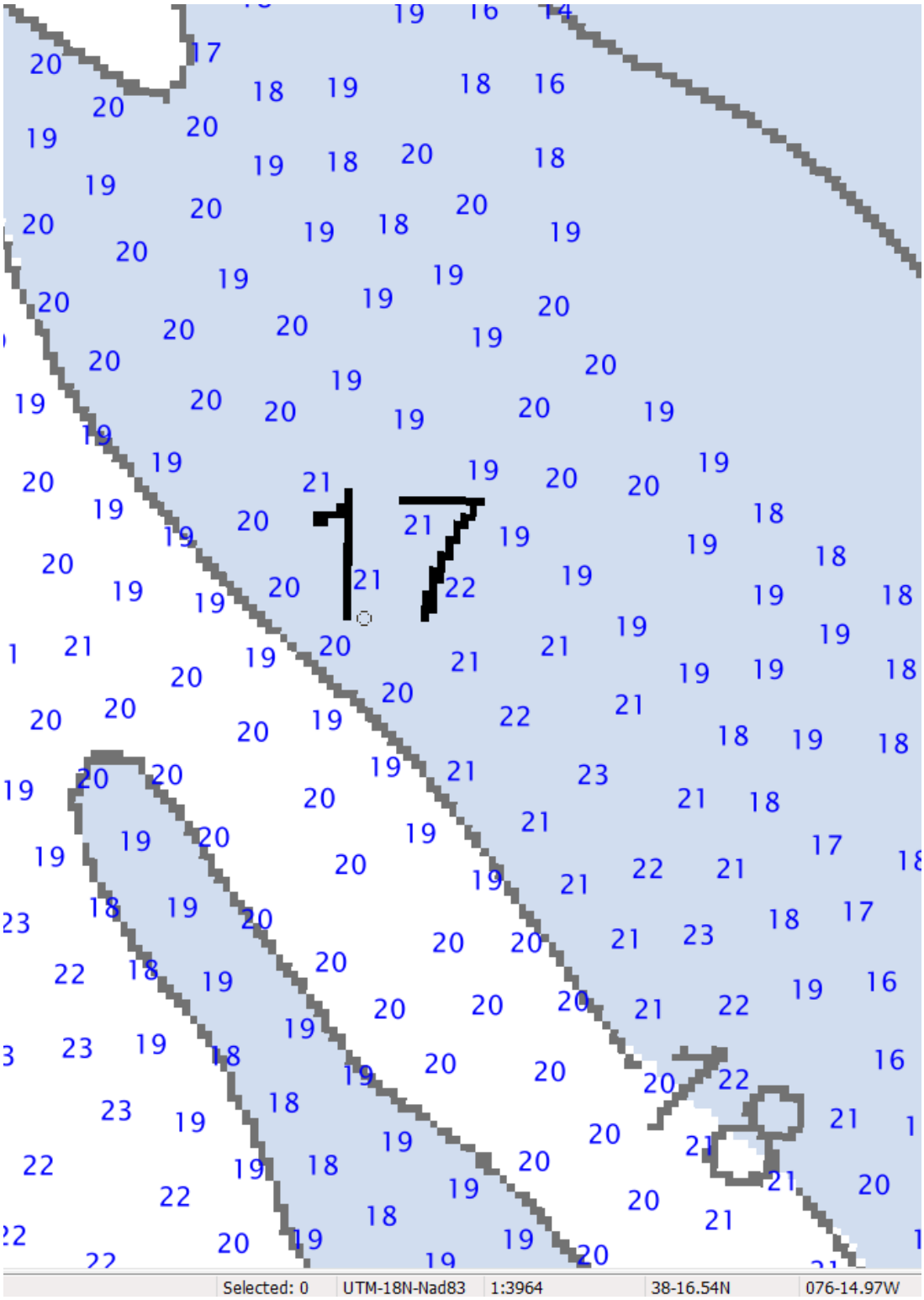


Figure 9: Chart 12230 comparison between surveyed soundings and charted depths.

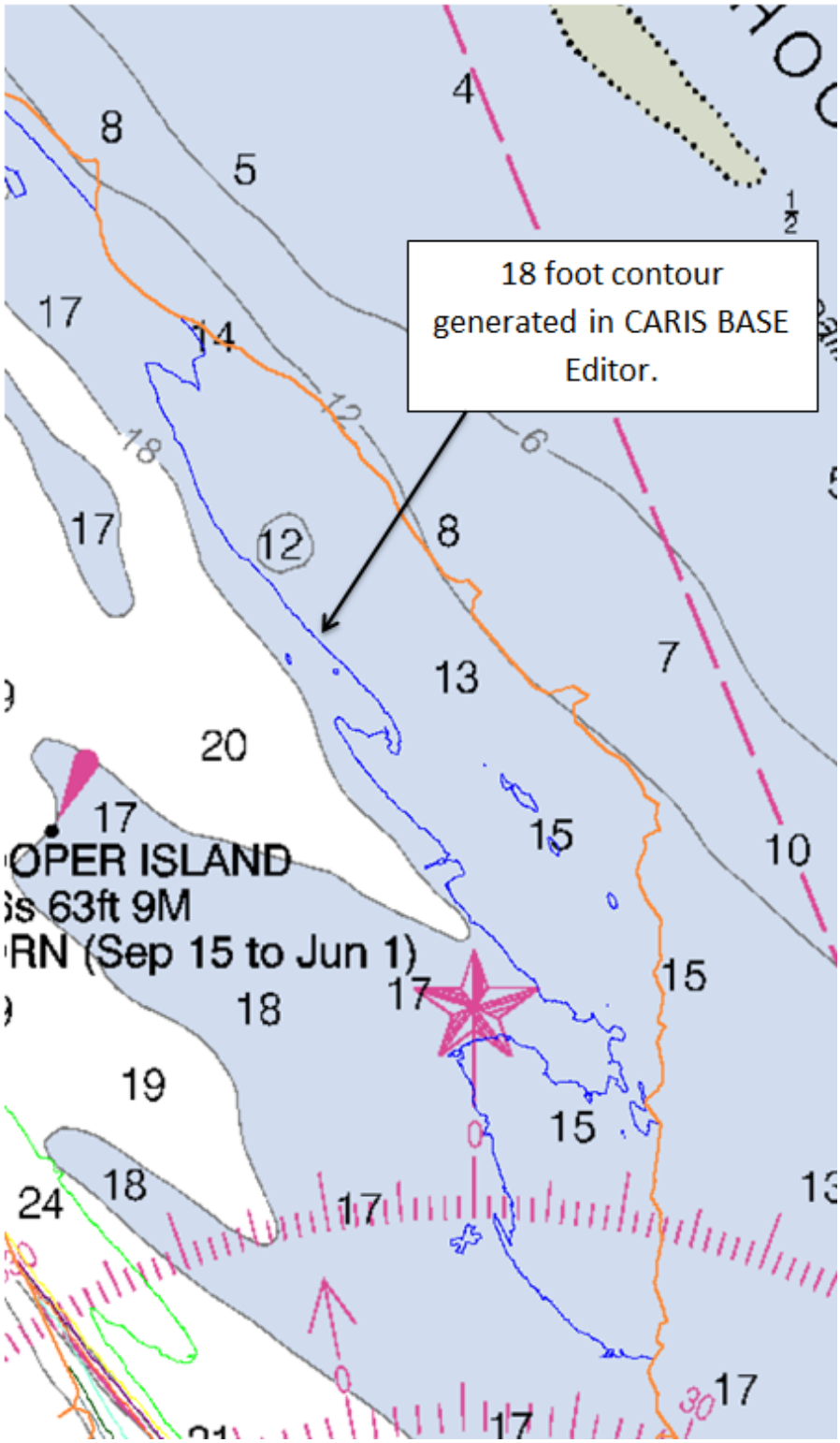


Figure 10: Chart 12230 comparison between surveyed and charted 18 foot contour.

12233

Sounding agreement between surveyed soundings on sheet H12367 and charted depths on chart 12233 were generally within two feet with most surveyed soundings being slightly deeper than the charted depth. One notable exception is the 12 foot charted depth at position 38-16.05'N, 076-14.72'W where the soundings were surveyed at 15 feet and 16 feet (Fig 13).

Contours generated in CARIS BASE Editor generally approximate the charted 30, 36, and 60 foot contours. The 18 foot contour generated in CARIS BASE Editor is generally further inshore than the charted 18 foot contour (Fig 14).

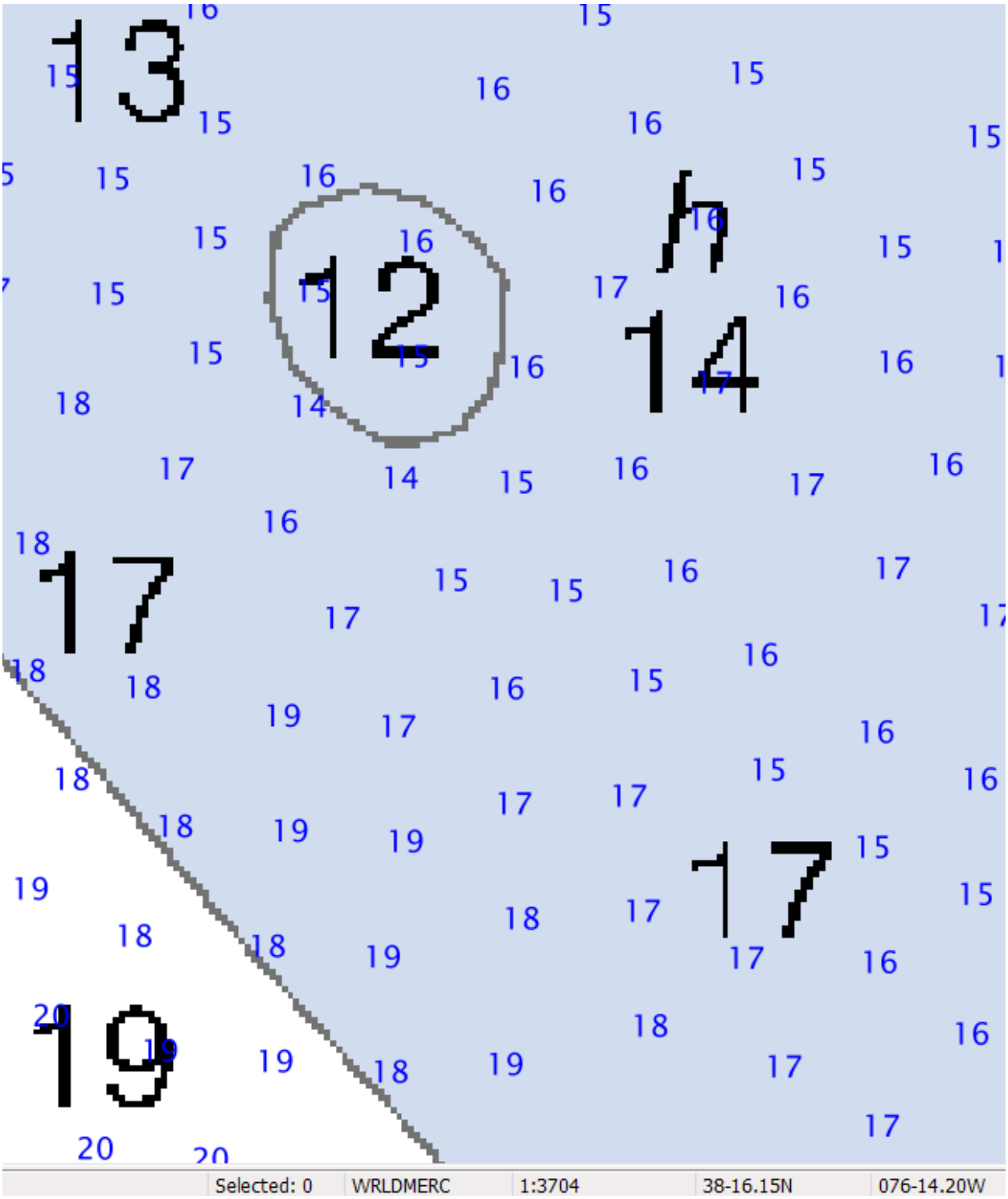


Figure 11: Chart 12233 comparison between surveyed soundings and charted depths.

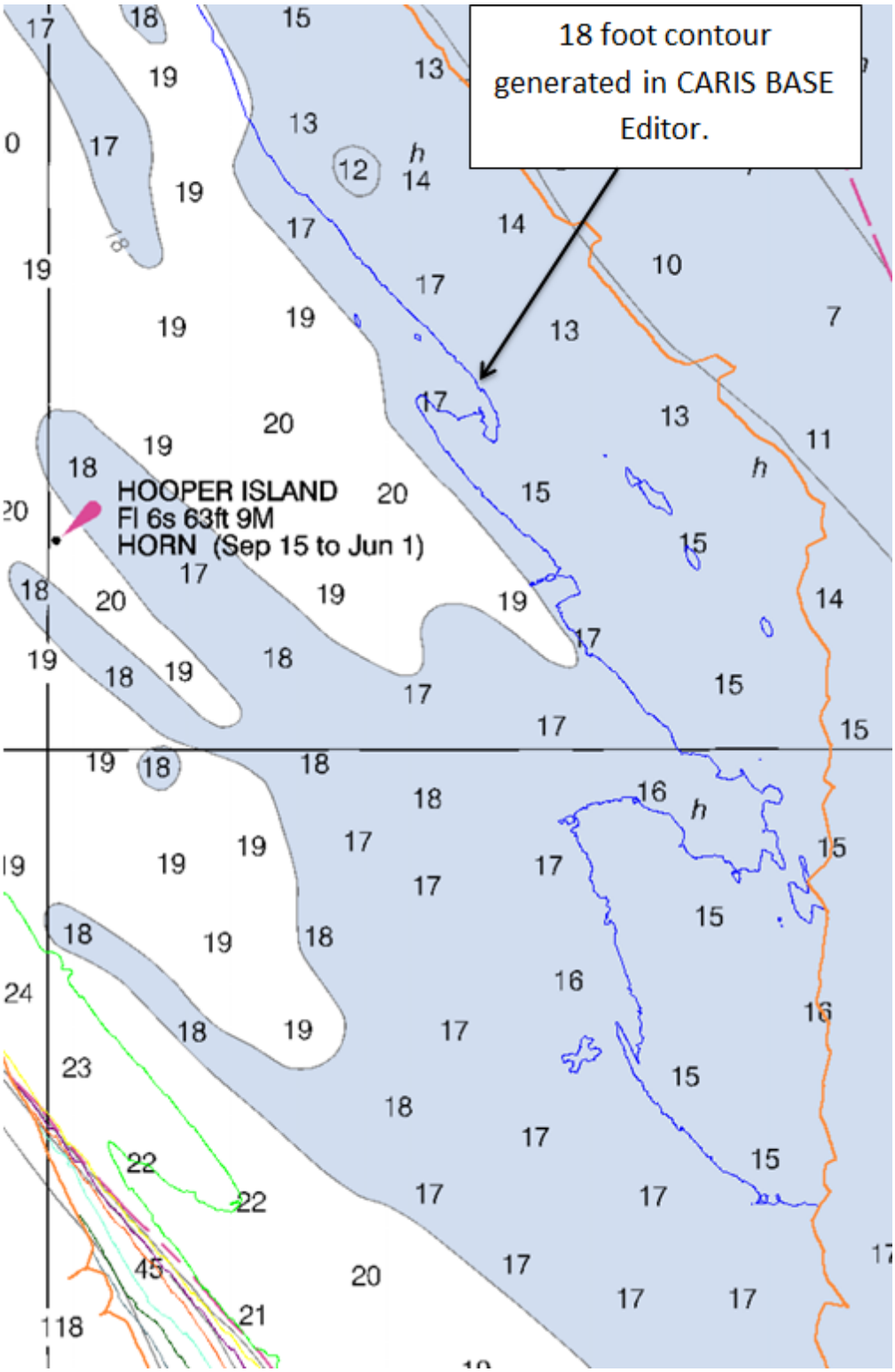


Figure 12: Chart 12233 comparison between surveyed and charted 18 foot contour.

12261

Sounding agreement between surveyed soundings on sheet H12367 and charted depths on chart 12261 were generally within two feet with most surveyed soundings being slightly deeper than the charted depth. Notable exceptions are listed below.

The 17 foot charted depth at position 38-16.56'N, 076-04.96'W has a surveyed sounding of 21 feet (Fig 15).
The 12 foot charted depth at position 38-16.04'N, 076-14.29'W has a surveyed sounding of 15 feet (Fig 16).
The 37 foot charted depth at position 38-12.68'N, 076-13.75'W has a surveyed sounding of 59 feet (Fig 17).

Contours generated in CARIS BASE Editor generally approximate the charted 30, 36, and 60 foot contours. The 18 foot contour generated in CARIS BASE Editor is generally further inshore than the charted 18 foot contour (Fig 18).

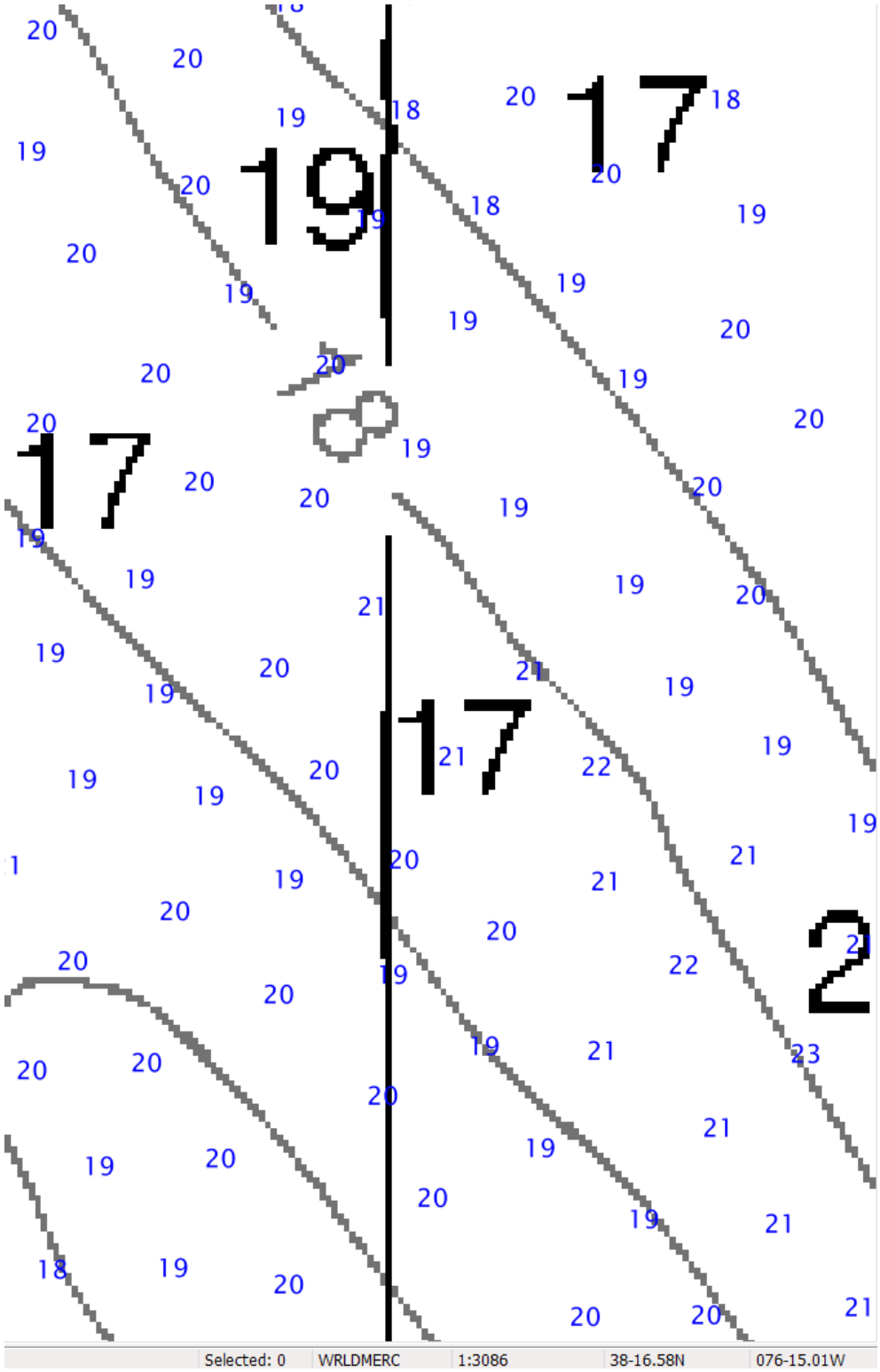


Figure 13: Chart 12261 comparison between surveyed soundings and charted depths.

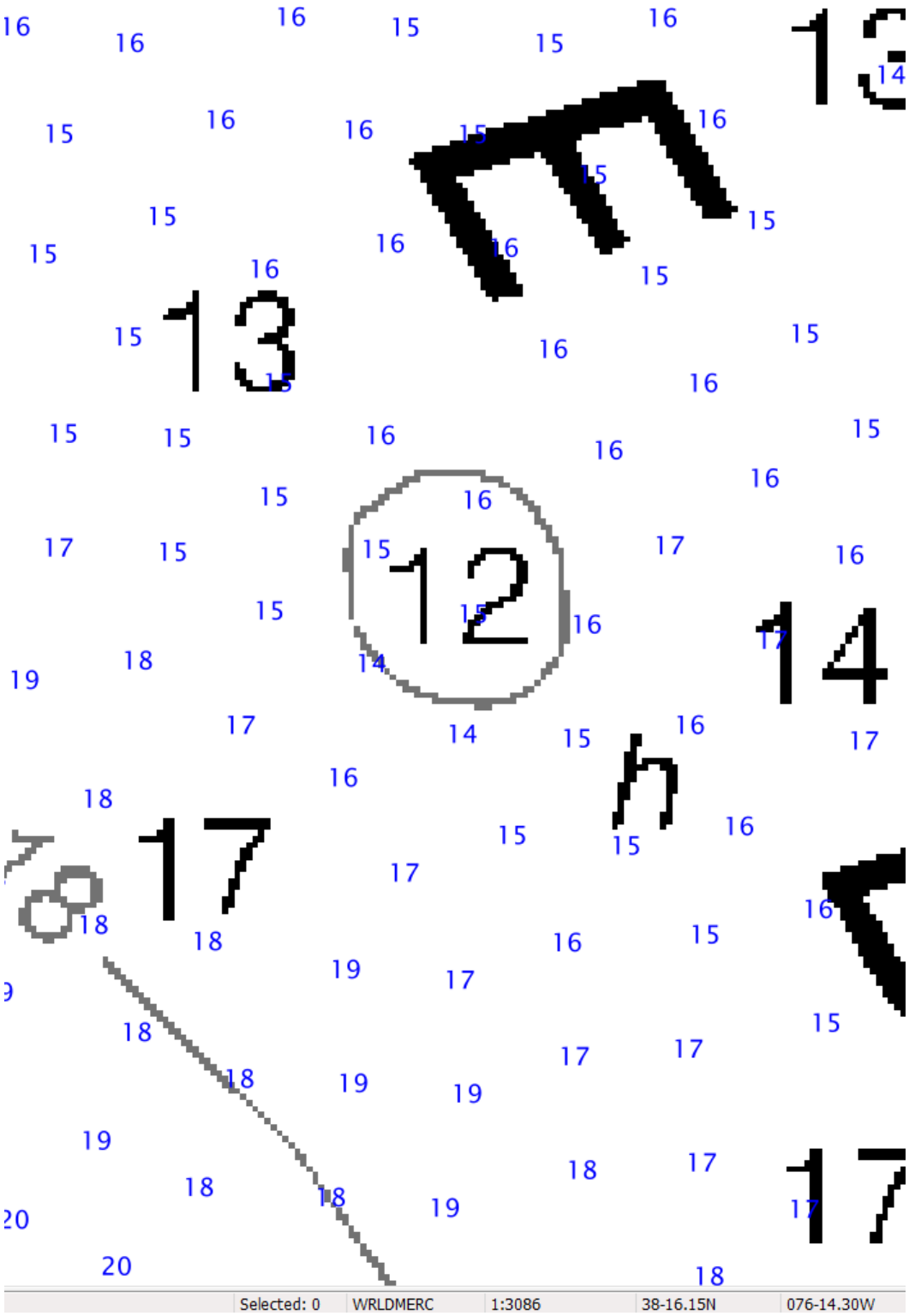


Figure 14: Chart 12261 comparison between surveyed soundings and charted depths.

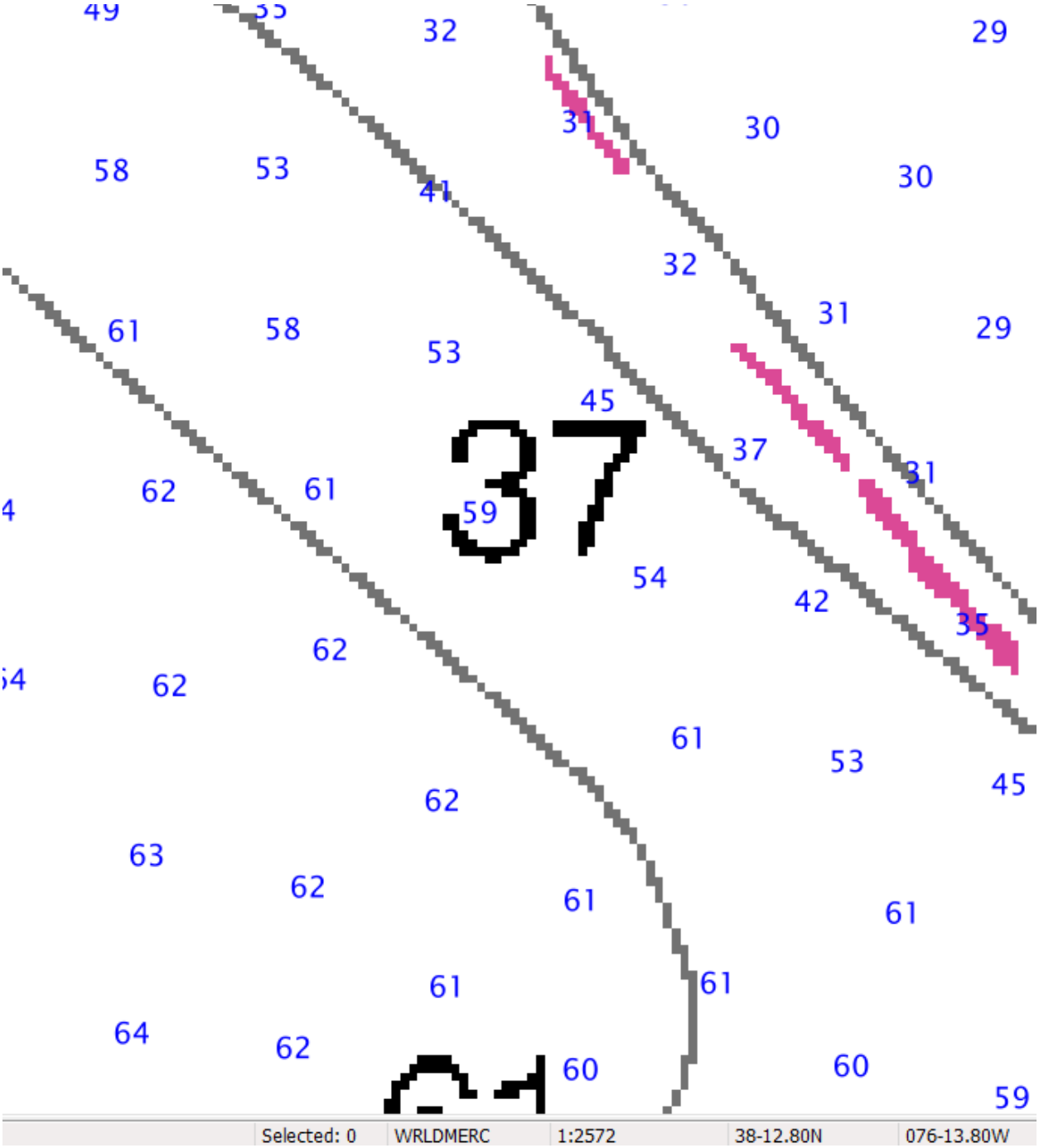


Figure 15: Chart 12261 comparison between surveyed soundings and charted depths.

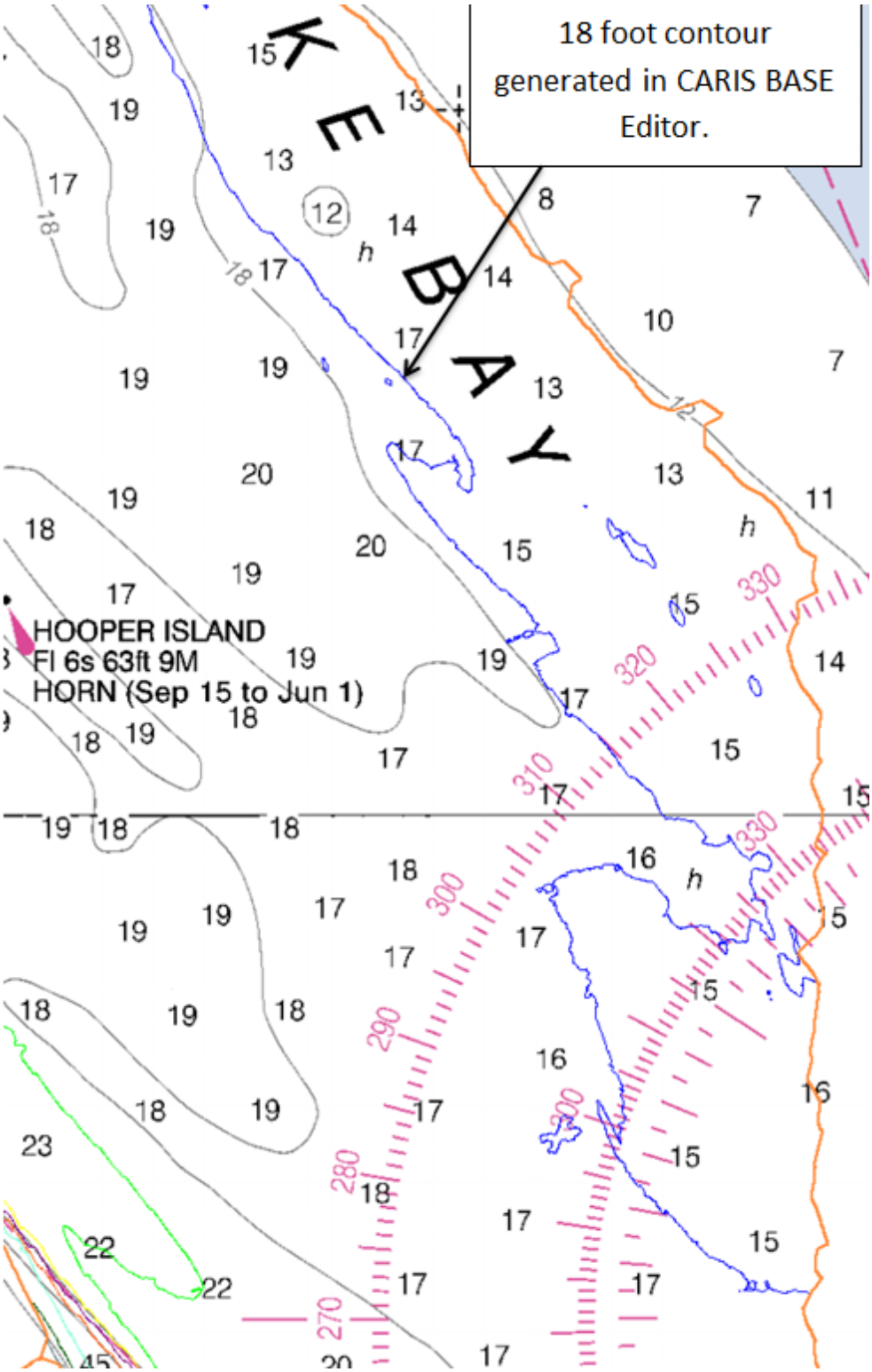


Figure 16: Chart 12261 comparison between surveyed and charted 18 foot contour.

12264

Sounding agreement between surveyed soundings on sheet H12367 and charted depths on chart 12264 were generally within two feet with most surveyed soundings being slightly deeper than the charted depth. Notable exceptions are listed below.

The 17 foot charted depth at position 38-16.55'N, 076-14.96'W has a surveyed sounding of 21 feet (Fig 19). The 12 foot charted depth at position 38-16.02'N, 076-14.28'W has a surveyed sounding of 15 feet (Fig 20).

Contours generated in CARIS BASE Editor generally approximate the charted 36 and 60 foot contours. The 18 and 30 foot contours generated in CARIS BASE Editor is generally further inshore than the charted 18 and 30 foot contours (Fig 21).

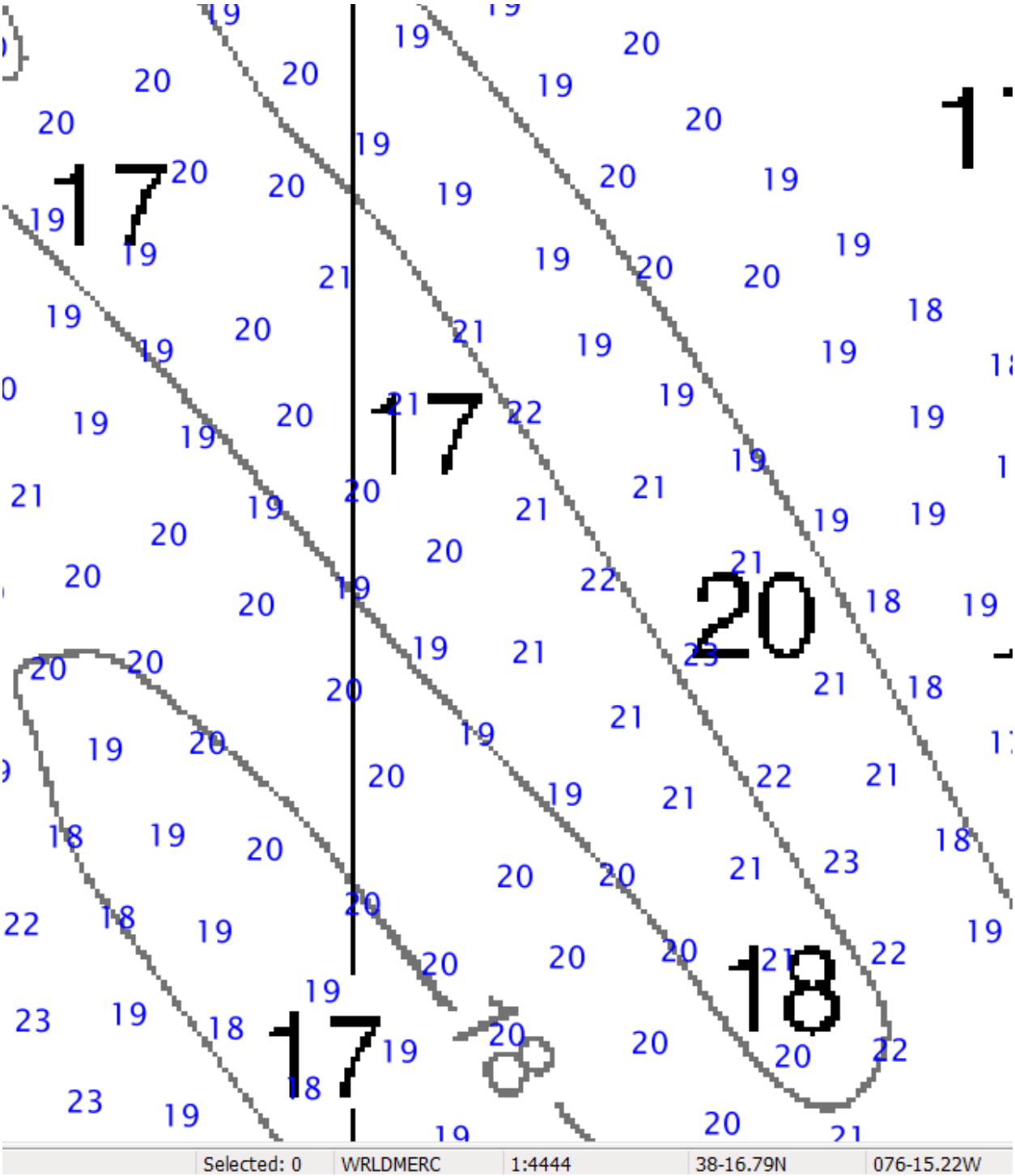


Figure 17: Chart 12264 comparison between surveyed soundings and charted depths.

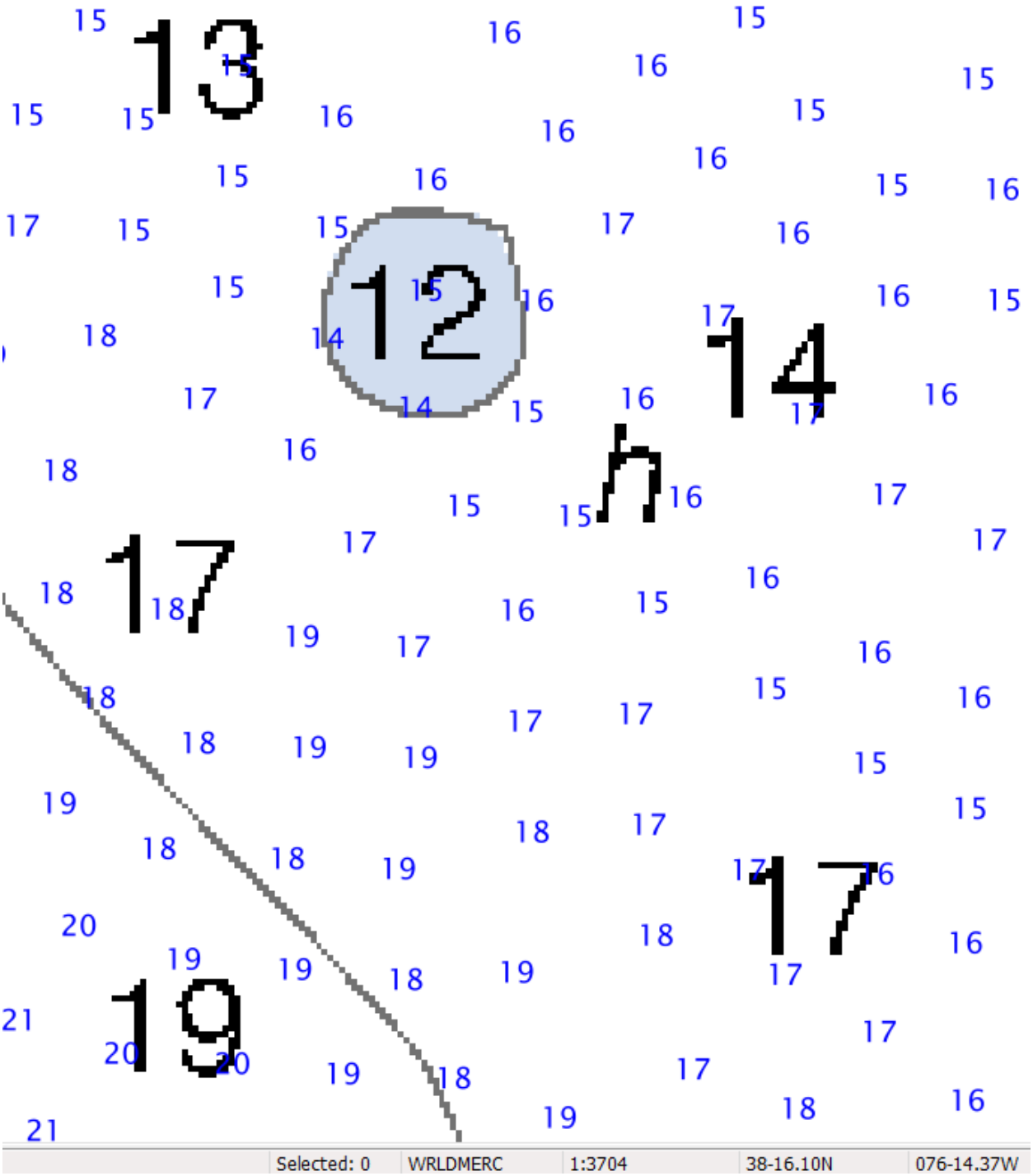


Figure 18: Chart 12264 comparison between surveyed soundings and charted depths.

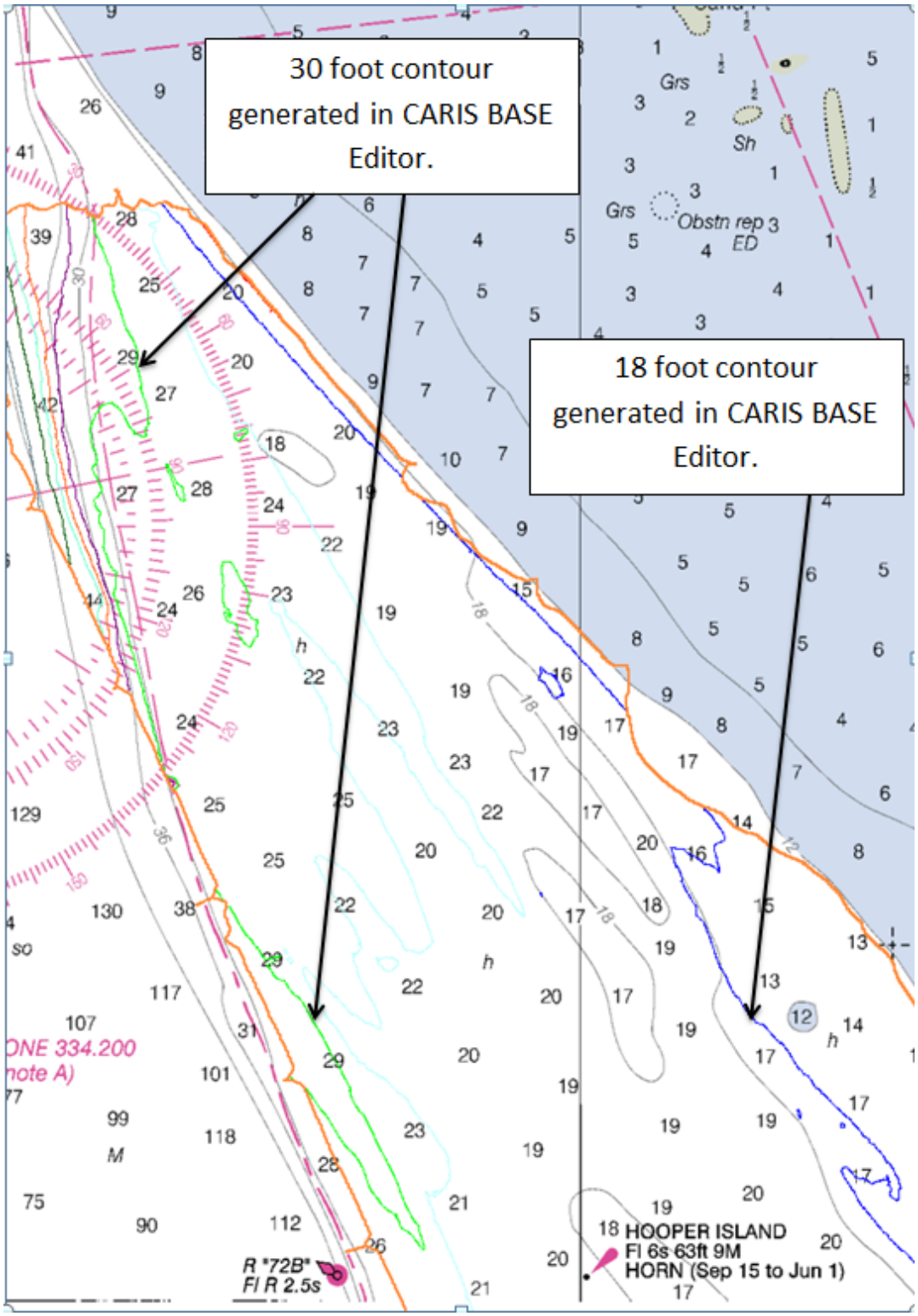


Figure 19: Chart 12264 comparison between surveyed and charted 18 and 30 foot contours.

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?
US5MD21M	1:40000	18	02/19/2013	03/21/2013	NO
US5VA22M	1:40000	23	10/26/2012	03/14/2013	NO

Table 15: Largest Scale ENCs

US5MD21M

ENC US5MD21M depths match RNC 12264 and RNC 12261 therefore all RNC comparisons stated in D.1.1 apply to US5MD21M.

US5VA22M

ENC US5VA22M depths match RNC 12233, RNC 12261, and RNC 12264 therefore all RNC comparisons stated in D.1.1 apply to US5VA22M.

D.1.3 AWOIS Items

No AWOIS items exist for this survey.

D.1.4 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.5 Charted Features

No charted features exist for this survey.

D.1.6 Uncharted Features

No uncharted features exist for this survey.

D.1.7 Dangers to Navigation

No Danger to Navigation Reports were submitted for this survey.

D.1.8 Shoal and Hazardous Features

No shoals or potentially hazardous features exist for this survey.

D.1.9 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.1.10 Bottom Samples

Three bottom characteristics are included in the chart update product.

D.2 Additional Results

D.2.1 Shoreline

A limited shoreline verification was performed in accordance with the project instructions. All assigned attributes inside the sheet limits were verified. Other features included in the Composite Source File were verified if possible even if they were not assigned. Three features included in the Composite Source File were not included in the Final Feature File in accordance with HSSD section 8.2 as they were directly associated with U.S. Coast Guard maintained ATONs.

Refer to H12367_Final_Feature_File.000 for further information.

D.2.2 Prior Surveys

Prior survey comparisons exist for this survey, but were not investigated.

D.2.3 Aids to Navigation

One ATON was investigated but not positioned as it was not assigned. It was found to be serving its intended purpose and the characteristics observed matched the chart and Light List.

D.2.4 Overhead Features

Overhead features do not exist for this survey.

D.2.5 Submarine Features

Submarine features do not 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

No significant features exist for this survey.

D.2.9 Construction and Dredging

There is no present or planned construction or dredging within the survey limits.

D.2.10 New Survey Recommendations

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

D.2.11 New Inset Recommendations

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, Standing and Letter Instructions, and all HSD Technical Directives. These data are adequate to supersede charted data in their common areas. This survey is complete and no additional work is required with the exception of deficiencies noted in the Descriptive Report.

Report Name	Report Date Sent
Data Acquisition and Processing Report	2013-05-20
Coast Pilot Report	2013-04-19

Approver Name	Approver Title	Approval Date	Signature
LTJG Daniel D. Smith	Chief of Party	05/17/2013	SMITH.DANIEL.DUNNINGTON.1392691517 2013.05.17 10:26:48 -04'00'
Mr. Robert W. Mowery	Senior Survey Technician	05/17/2013	Digitally signed by Robert W. Mowery DN: cn=Robert W. Mowery, o=BAY HYDROGRAPHER, ou=NOAA/NOS/OCS/NSD/NRB, email=Robert.Mowery@noaa.gov, c=US Date: 2013.05.17 10:27:35 -04'00'

F. Table of Acronyms

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

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

Adam Argento - NOAA Federal <adam.argento@noaa.gov>

H12367 Backscatter

Daniel Smith - NOAA Federal <daniel.d.smith@noaa.gov> Mon, Oct 28, 2013 at 5:11 AM
To: Adam Argento - NOAA Federal <adam.argento@noaa.gov>

Adam,

I looked back through our records and I have no indication that backscatter was actually submitted to NGDC. This must have been a carry over from an old DR and was an oversight on our part when we reviewed it before submission. Sorry for giving you this inaccurate information.

Daniel
[Quoted text hidden]
--
LTJG Daniel Smith
OIC Bay Hydro II
14485 Dowell Road
Solomons, MD 20688
Boat Cell: 240-638-6637
Personal Cell: 218-340-6312

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : January 24, 2013

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: OPR-E349-BH2-2012
HYDROGRAPHIC SHEET: H12367

LOCALITY: 5NM East by Southeast of Cedar Pt, Chesapeake Bay, MD
TIME PERIOD: June 28 - December 19, 2012

TIDE STATION USED: 8577330 Solomons Island, MD
Lat.38° 19.0' 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: 8571421 Bishops Head, MD
Lat. 38° 13.2' N Long. 76° 2.3' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.573 meters

Tide STATION USED: 8635750 Lewisetta, VA
Lat. 37° 59.8' 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 "E349BH2012.tc" as the final grid for project OPR-E349-BH2-2012, H12367, during the time period between June 28 and October 28, 2012 (before Hurricane Sandy) and controlled by 8577330 Solomons Island, 8571421 Bishops Head, and 8635750 Lewisetta.

Please use the TCARI grid "H12367.tc" as the final grid for project OPR-E349-BH2-2012, H12367, during the time period between October 29 and December 19, 2012 and controlled only by 8571421 Bishops Head and 8635750 Lewisetta because the stability of 8577330 Solomons Island is in question due to Hurricane Sandy.

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.1365860250

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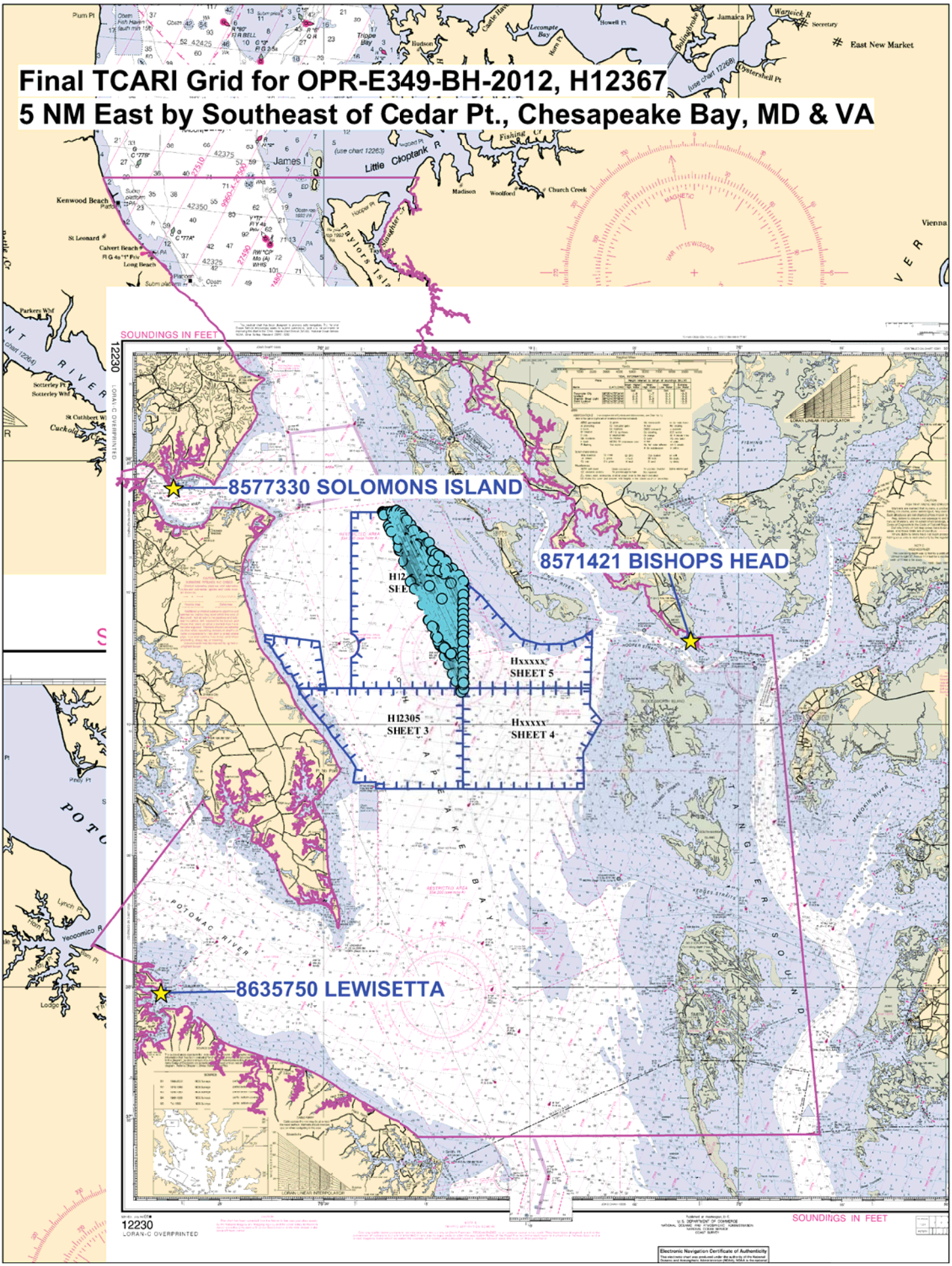
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=OTHER, cn=HOVIS.GERALD.THOMAS.1365860250
Date: 2013.01.25 14:14:30 -05'00'

CHIEF, PRODUCTS AND SERVICES BRANCH


Final TCARI Grid for OPR-E349-BH-2012, H12367
5 NM East by Southeast of Cedar Pt., Chesapeake Bay, MD & VA
8577330 SOLOMONS ISLAND
8571421 BISHOPS HEAD
8635750 LEWISETTA
H12
SHEET
Hxxxxx
SHEET 5
H12305
SHEET 3
Hxxxxx
SHEET 4
SOUNDINGS IN FEET
12230
LORAN-C OVERPRINTED
Electronic Navigation Certificate of Authenticity

APPROVAL PAGE

H12367

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 NGDC for archive

- H12367_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12367_GeoImage.pdf

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

Digitally signed by HOLMBERG.PETER.SCOTT.1365886101
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=OTHER, cn=HOLMBERG.PETER.SCOTT.1365886101
Date: 2014.06.04 09:49:21 -07'00'

Approved:_____

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.

Benjamin K. Evans
2014.06.04 16:51:54
-07'00'

Approved:_____

LCDR Benjamin K. Evans, NOAA
Chief, Pacific Hydrographic Branch