H12643

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

DESCRIPTIVE REPORT

Type of Survey:	Basic Hydrographic Survey
Registry Number:	H12643

LOCALITY

State(s):	Massachusetts
General Locality:	Buzzards Bay and Nantucket Sound
Sub-locality:	Great Hill Pt to Converse Pt

2015

CHIEF OF PARTY
Shepard M. Smith, CAPT/NOAA

LIBRARY & ARCHIVES

Date:

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

REGISTRY NUMBER:

HYDROGRAPHIC TITLE SHEET

H12643

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):	**Massachusetts**
General Locality:	**Buzzards Bay and Nantucket Sound**
Sub-Locality:	**Great Hill Pt to Converse Pt**
Scale:	**10000**
Dates of Survey:	**09/28/2015 to 10/12/2015**
Instructions Dated:	**07/21/2015**
Project Number:	**OPR-B367-TJ-15**
Field Unit:	**NOAA Ship *Thomas Jefferson***
Chief of Party:	**Shepard M. Smith, CAPT/NOAA**
Soundings by:	**Multibeam Echo Sounder**
Imagery by:	**Side Scan Sonar Multibeam Echo Sounder Backscatter**
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 H12643

Project: OPR-B367-TJ-15

Locality: Buzzards Bay and Nantucket Sound

Sublocality: Great Hill Pt to Converse Pt

Scale: 1:10000

September 2015 - October 2015

NOAA Ship *Thomas Jefferson*

Chief of Party: Shepard M. Smith, CAPT/NOAA

A. Area Surveyed

The H12643 survey area is Great Hill Pt to Converse Pt, in Buzzards Bay and Nantucket Sound, Massachusetts. This survey corresponds to Sheet "2" in the sheet layout provided with the Project Instructions (Figure 1). The area covers the Cleveland Ledge Channel before it enters Hog Island Channel. At the discretion of the Chief of Party, the channel was included during data acquisition of this survey.

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
41° 42' 14.81" N 70° 42' 54.61" W	41° 36' 56.23" N 70° 41' 21.67" W

Table 1: Survey Limits

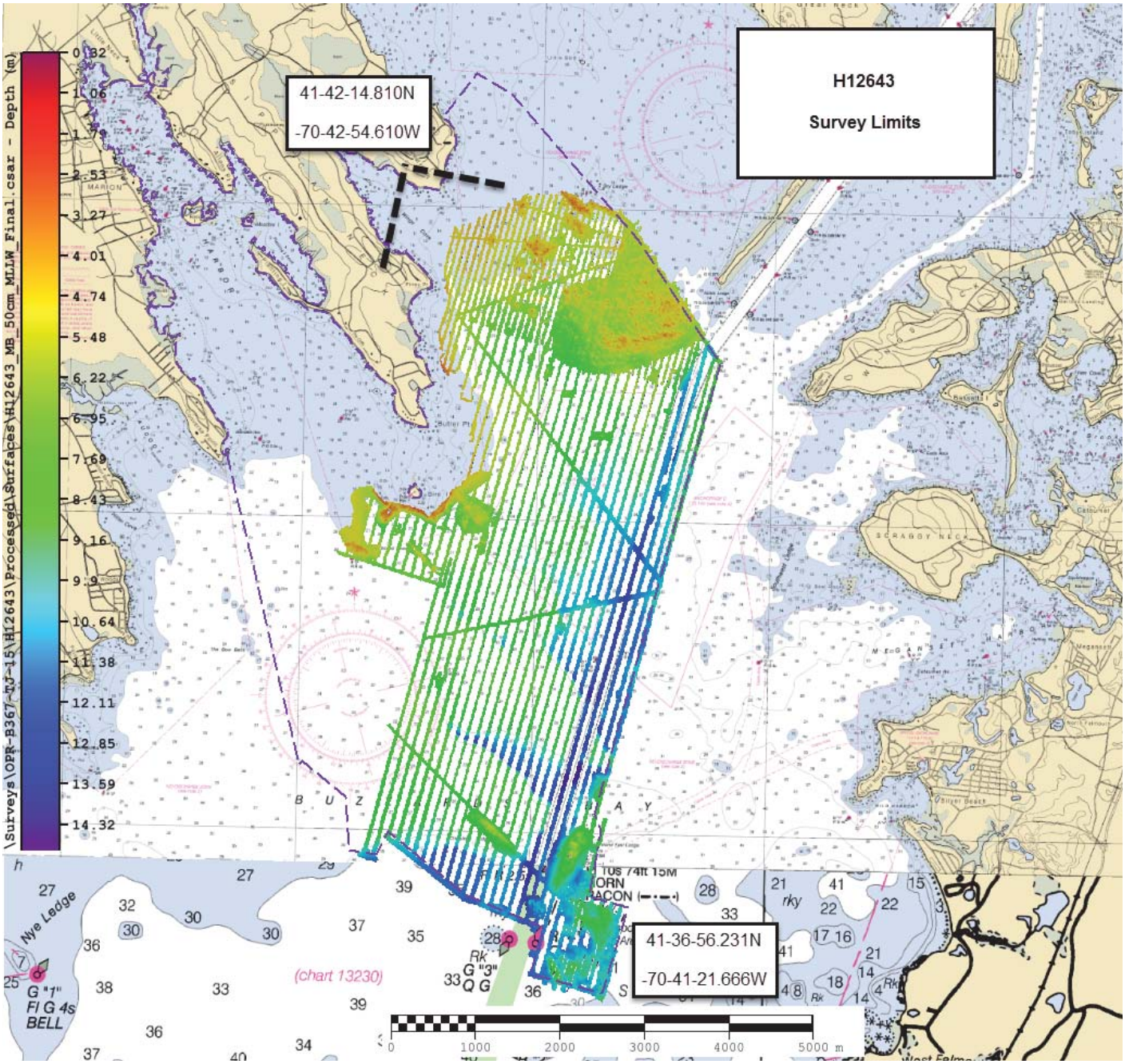


Figure 1: H12643 Survey limits were acquired in accordance with the requirements in the Project Instructions and the HSSD on Charts 13236 and 13218 with some alterations on the western portion of the sheet.

Data acquisition deviated from the survey limits specified in the Project Instructions (Figure 2). Due to IT complications involving the ship's network causing time constraints, only the eastern half of the originally proposed survey was completed.

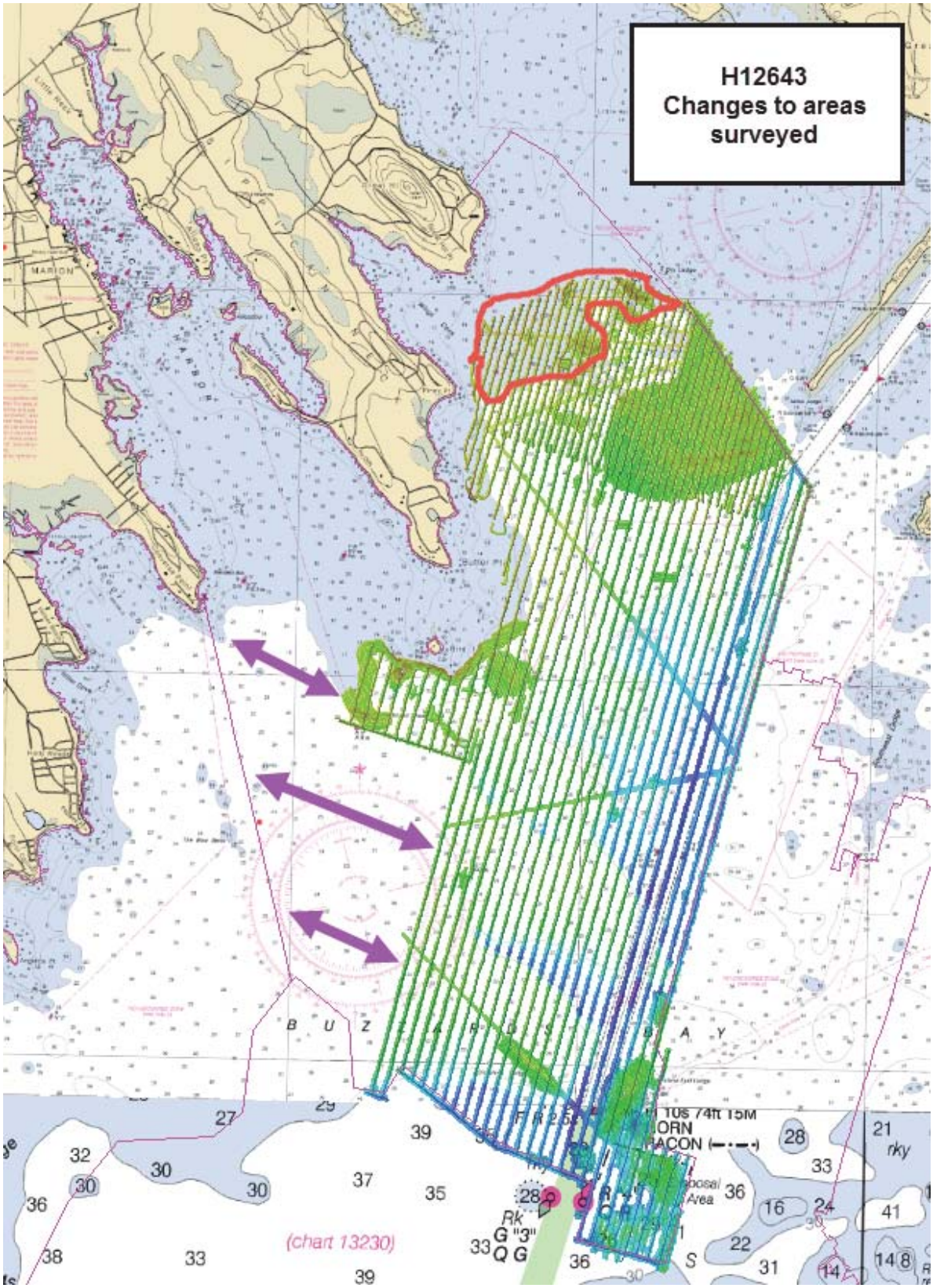


Figure 2: H12643 Assigned survey limits are in pink, shown in relation to Charts 13236 and 13218. Pink arrows indicate assigned survey area not covered due to IT complications. Red circle indicates the area surveyed past the 6- meter curve into shoaler water at the discretion of Chief of Operations after reviewing AIS traffic data.

A.2 Survey Purpose

This project is being conducted in support of NOAA's Office of Coast Survey to provide contemporary hydrographic data in order to update the nautical charting products within Buzzards Bay and Nantucket Sound and reduce the survey backlog. The need for nautical chart updates is due to expanding commerce and modernization of vessel traffic, increasing the use of larger deeper draft double-hull barges. In addition, this area has been identified for possible installation of marine transmission cable routes, while offshore waters have been designated for wind energy development. Updated hydrographic surveys will help advance these projects as well as provide updated soundings for related commerce activities, such as equipment transport.

A.3 Survey Quality

The entire survey is adequate to supersede previous data. ***Concur with conditions. H12643 did not entirely achieve object detection requirements throughout the survey area. Areas where object detection requirements were not acheived are represented by an M_QUAL with a category of zone of confidence in data (CATZOC) of B rather than A1.***

A.4 Survey Coverage

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

Water Depth	Coverage Required
H12643: all waters in the survey area.	Inshore Limit:The inshore limit of hydrography will be the farthest offshore of the following: (1) the 6-meter depth contour or (2) the line defined by the distance seaward from the MHW line which is equivalent to 0.8 millimeters at the scale of the largest scale nautical chart. Complete coverage, as defined in section 5.2.2 of the HSSD.

Complete multibeam echosounder (MBES) coverage was achieved within the limits of hydrography (Figures 3 and 4) as specified in the Project Instructions with some exceptions (Figures 5, 6, 7, and 8).

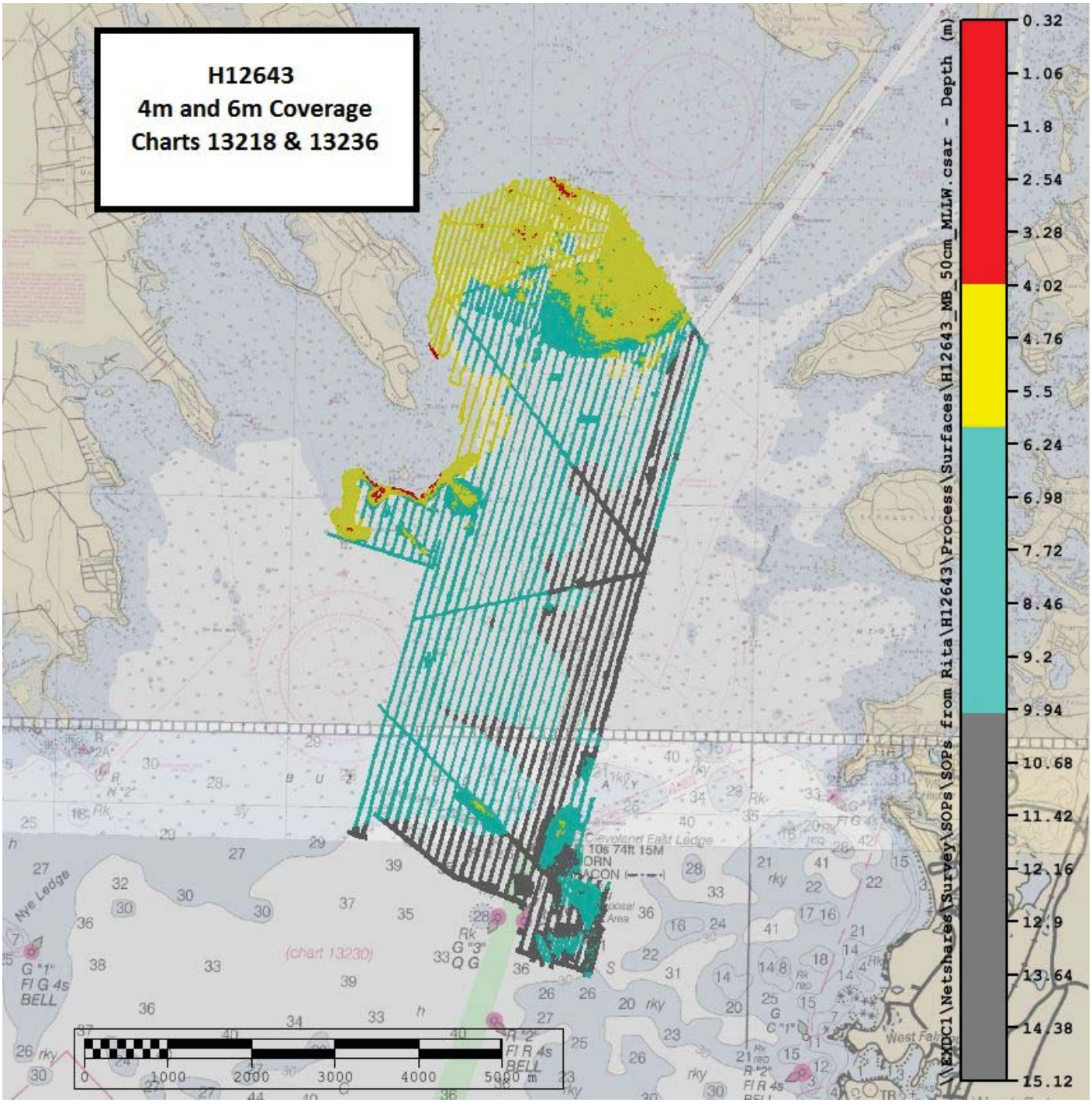


Figure 3: H12643 12ft (yellow) and 18 ft (green) contour development in relation to Charts 13236 and 13218.

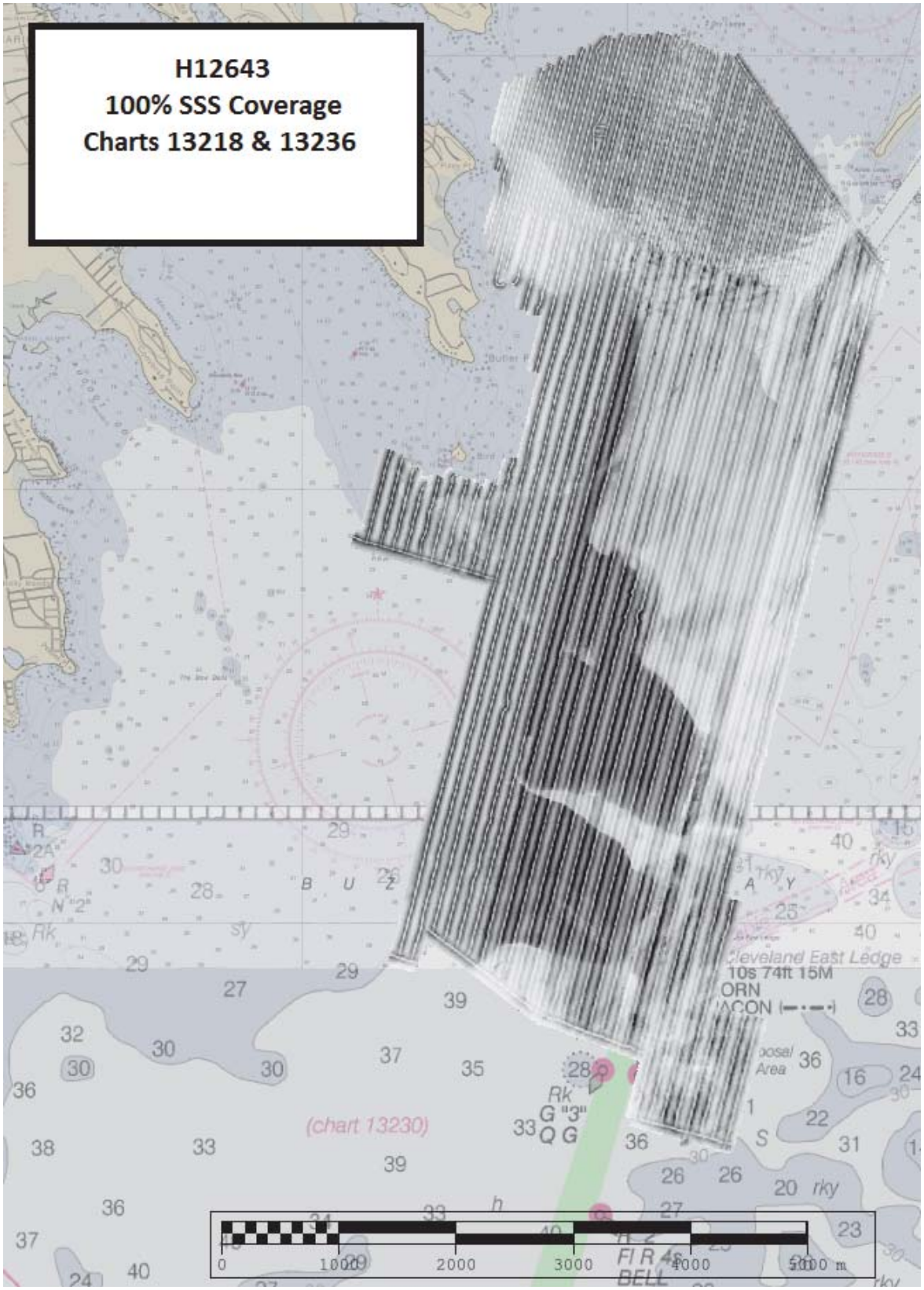


Figure 4: H12643 100% SSS coverage in relation to Charts 13236 and 13218.

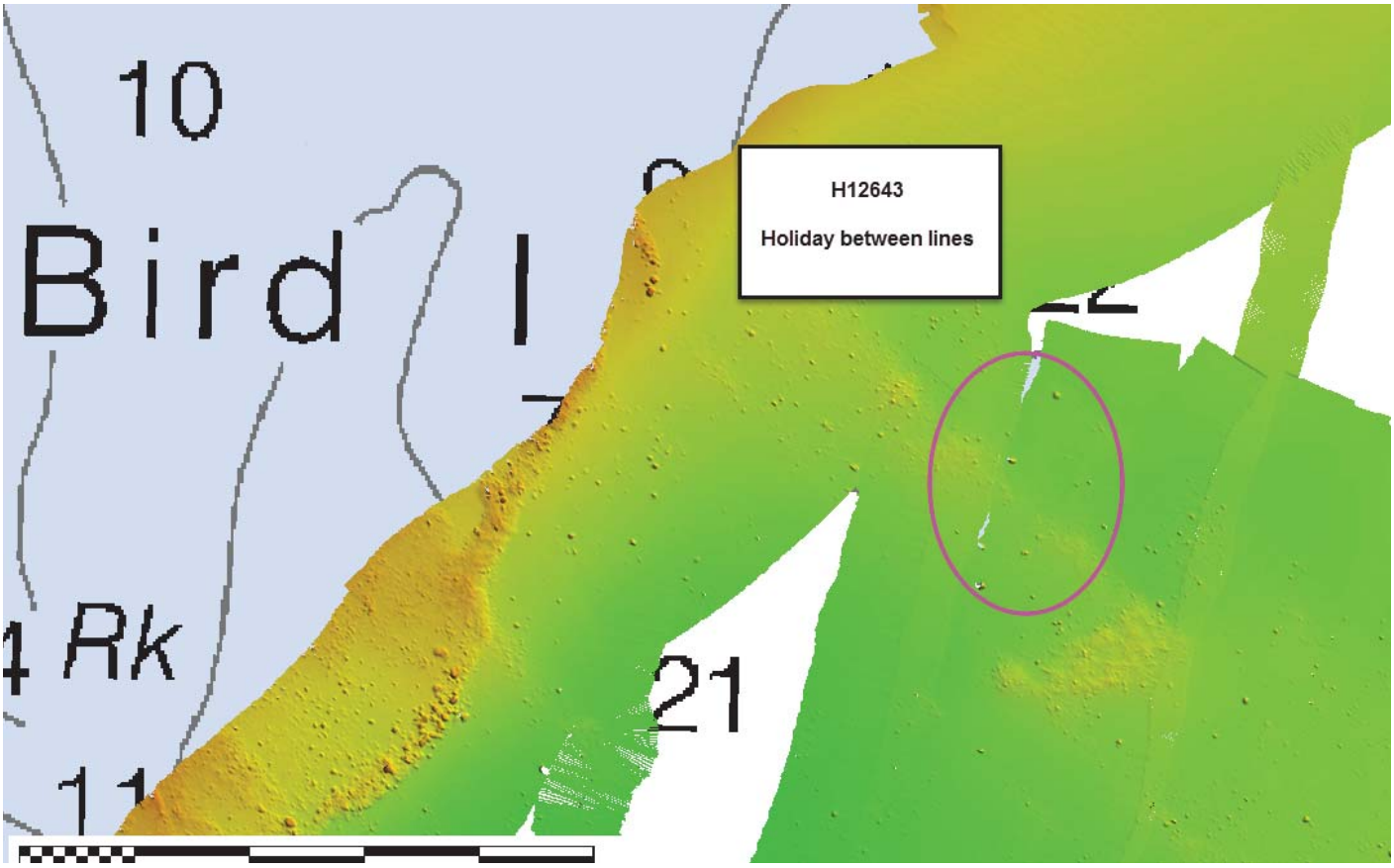


Figure 5: H12643 Holiday located east of Bird Island.

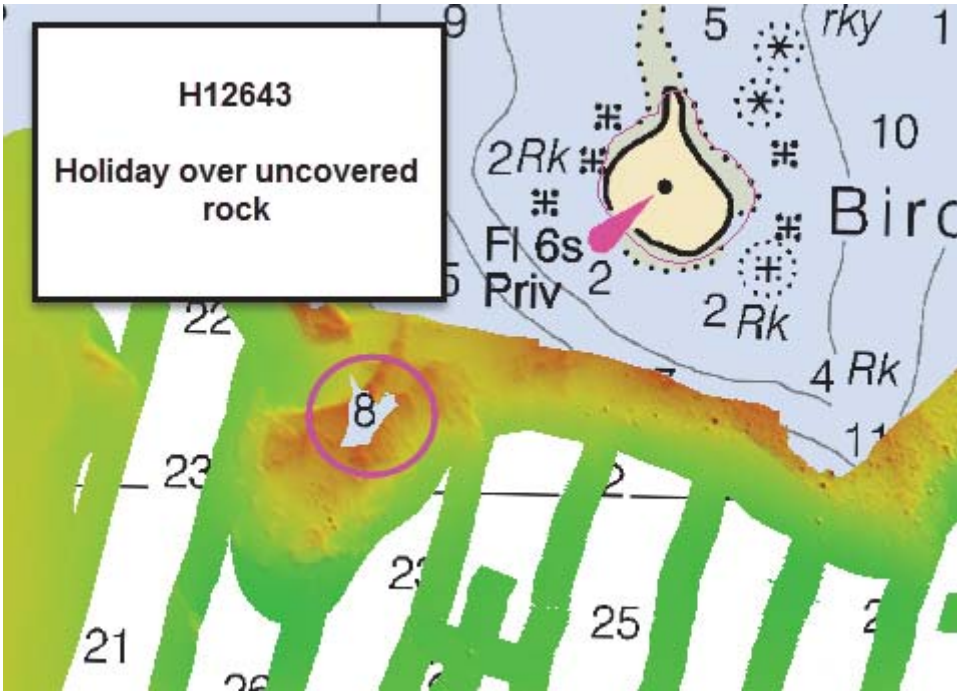


Figure 6: H12643 Holiday over uncovered rock located southwest of Bird Island. This rock was too dangerous to acquire further data.

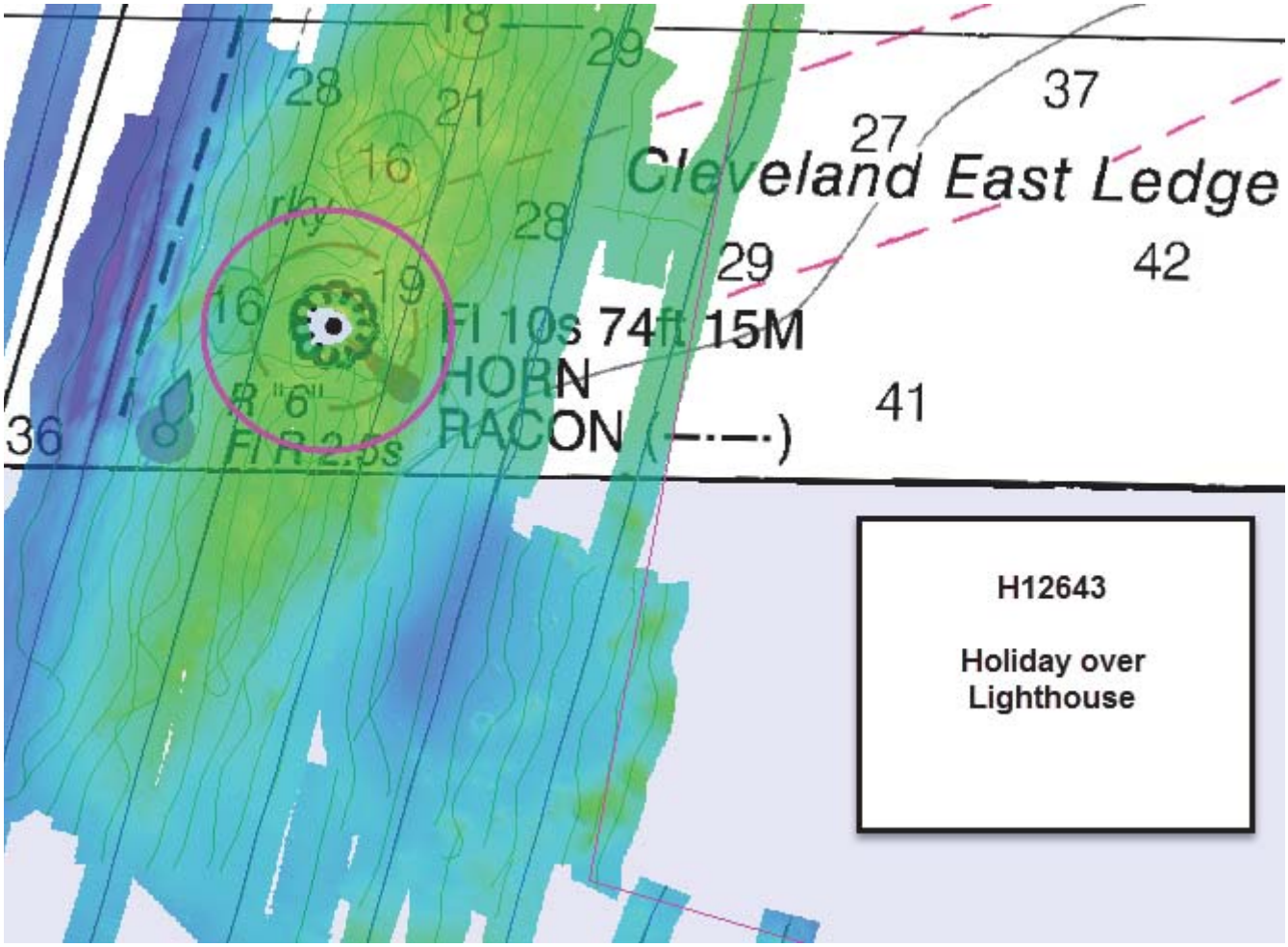


Figure 7: H12643 Holiday over lighthouse.

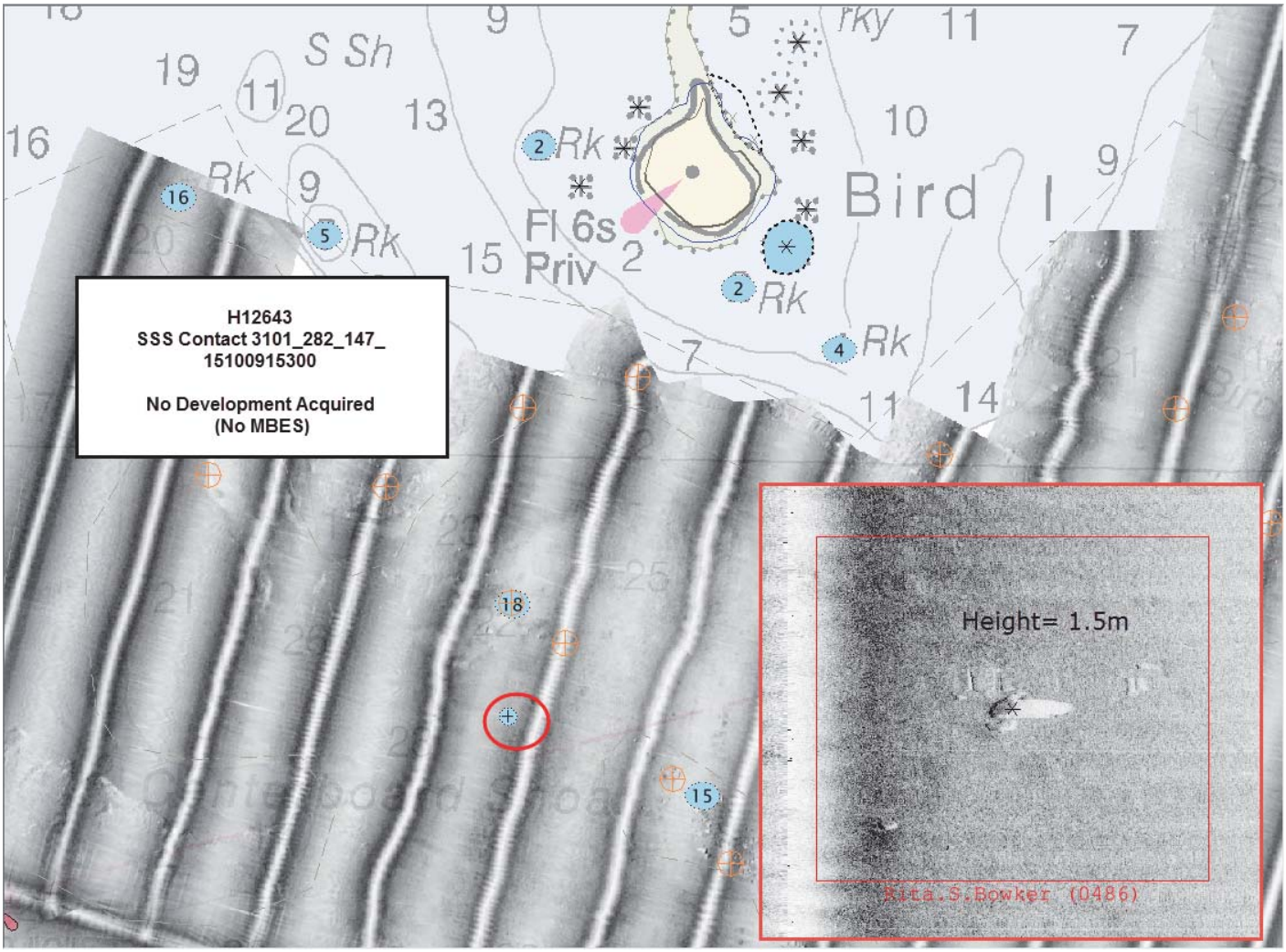


Figure 8: Sidescan sonar contact 1.5 meter height with no development; subsequently no mbes data. This contact is in a fairly flat area in a depth of water that is deeper than the surrounding shoal soundings.

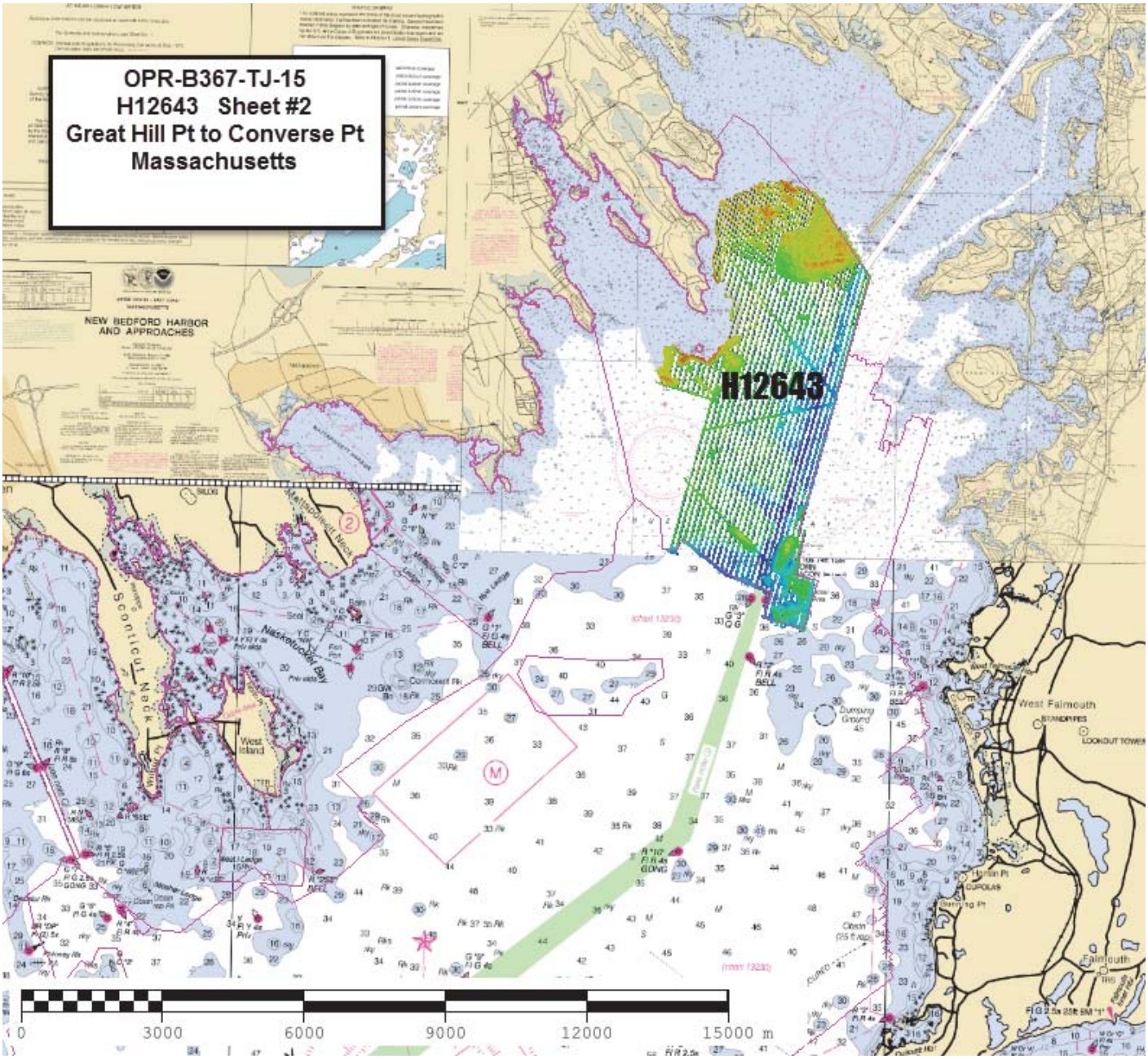


Figure 9: H12643 Survey outline.

A.5 Survey Statistics

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

	HULL ID	*3101*	*3102*	*Total*
LNM	SBES Mainscheme	0	0	0
	MBES Mainscheme	100.905	137.81	238.715
	Lidar Mainscheme	0	0	0
	SSS Mainscheme	67.2	64.95	132.15
	SBES/SSS Mainscheme	0	0	0
	MBES/SSS Mainscheme	0	0	0
	SBES/MBES Crosslines	9.502	0	9.502
	Lidar Crosslines	0	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				7.288

Table 2: Hydrographic Survey Statistics

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

Survey Dates	Day of the Year
09/28/2015	271
09/29/2015	272

Survey Dates	Day of the Year
10/09/2015	282
10/11/2015	284
10/12/2015	285

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	*3101*	*3102*
LOA	31 feet	31 feet
Draft	5.2 feet	5.2 feet

Table 4: Vessels Used

Data were acquired by NOAA Ship Thomas Jefferson Hydrographic Survey Launch 3101 and Hydrographic Survey Launch 3102. HSL 3101 acquired multibeam data, side scan sonar data, sound velocity data, and position and attitude data. HSL 3102 acquired multibeam data, side scan sonar data, sound velocity data, position and attitude data.

B.1.2 Equipment

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

Manufacturer	Model	Type
Reson	7125-SV1	MBES
Reson	7125-SV2	MBES
Reson	SV-71	Sound Speed System
Seabird	Seacat 19+	Conductivity, Temperature, and Depth Sensor
Applanix	POSM/V v5	Positioning and Attitude System

Table 5: Major Systems Used

B.2 Quality Control

B.2.1 Crosslines

Crosslines acquired for this survey totaled 3.98% of mainscheme acquisition.

The Thomas Jefferson HSL 3101 collected 9.502 linear nautical miles of MBES crosslines, equating to 3.98% of mainscheme MBES data (Figure 10). All crosslines and most of the mainscheme data for survey H12643 utilized the Reson 7125 SV2 echosounder system.

Crosslines were compared to mainscheme by creating a difference surface in Caris Hips and Sips from a 50- centimeter CUBE surface created using strictly mainscheme lines. An additional 50- centimeter surface was created using only crosslines. The two surfaces were then differenced. A total of 1,361,247 nodes were examined in this process with a mean of - 0.03 meter and standard deviation of 0.13 meter as seen in Figure 11. Survey H12643 complies with section 5.2.4.3 of the HSSD (2015 ed).

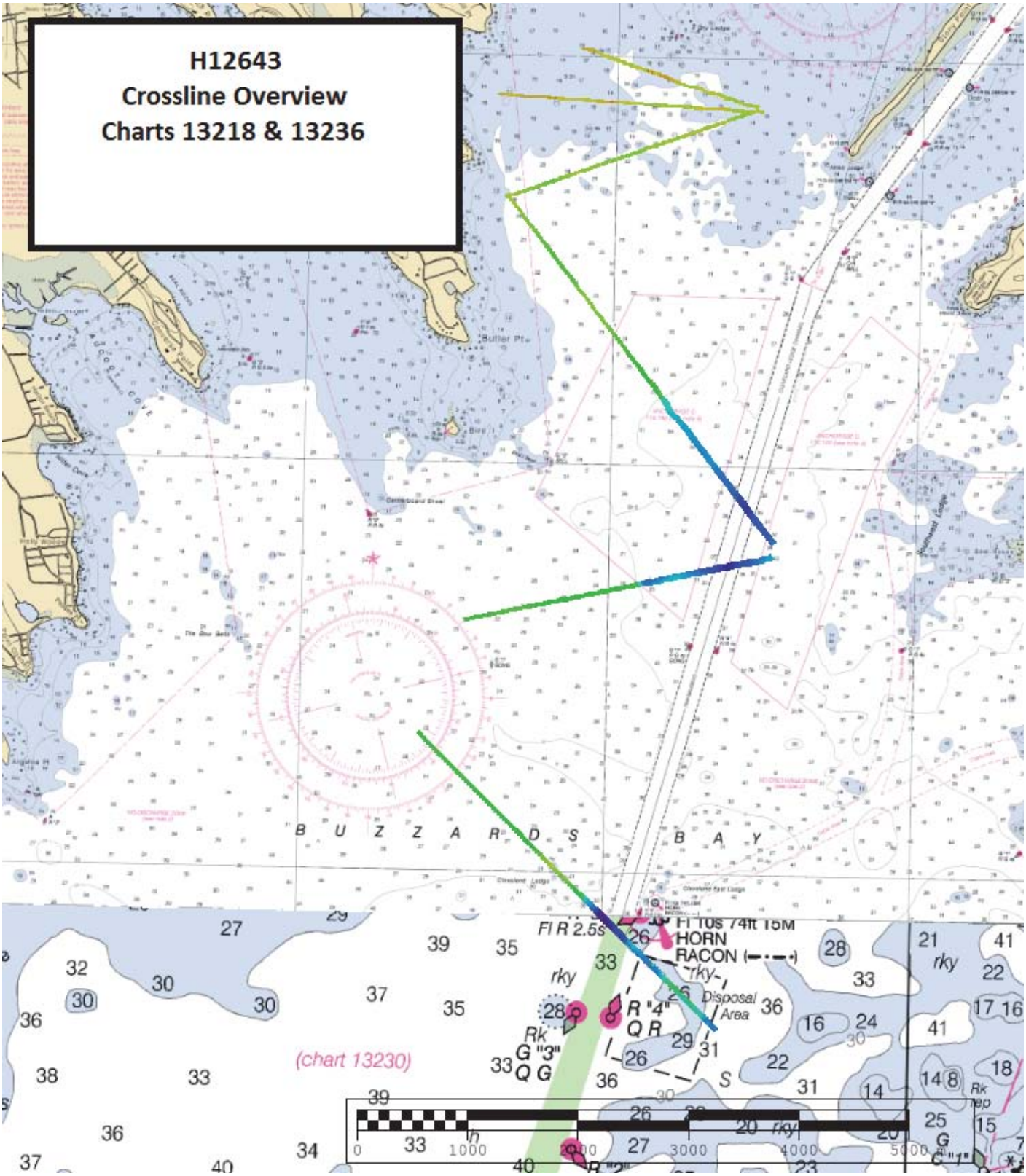


Figure 10: H12643 Crossline overview on charts 13218 & 13236.

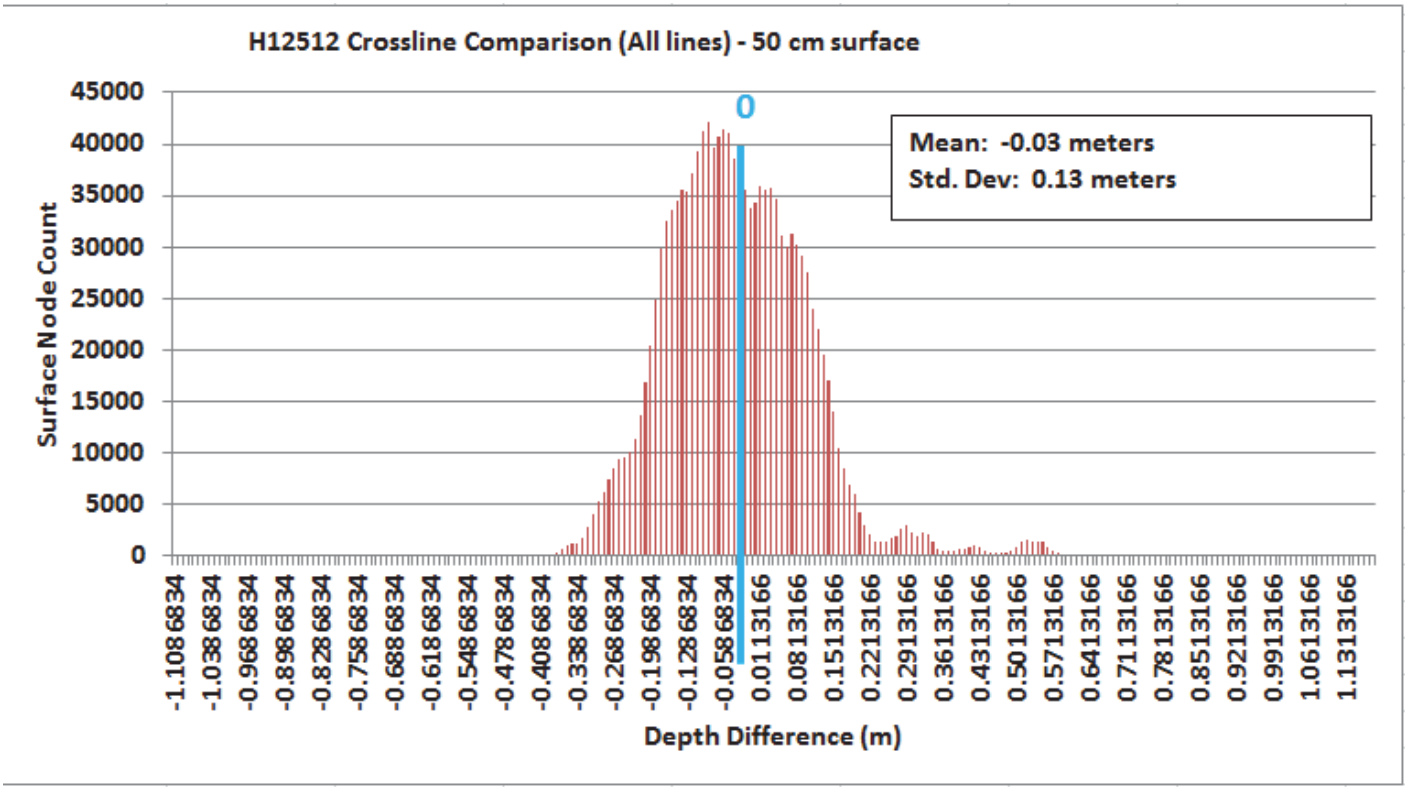


Figure 11: H12643 Crossline difference surface statistics from a 50- centimeter surface. Mainscheme lines minus crossline difference surface on charts 13218 & 13236.

B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

Measured	Zoning	Method
0 meters	0.102 meters	VDATUM
0 meters	0 meters	TCARI

Table 6: Survey Specific Tide TPU Values

Hull ID	Measured - CTD	Measured - MVP	Surface
3101	4 meters/second	NA meters/second	0.2 meters/second
3102	4 meters/second	NA meters/second	0.2 meters/second

Table 7: Survey Specific Sound Speed TPU Values

Total Propagated Uncertainty values for survey H12643 were derived using a combination of: real time uncertainties for vessel motion; a priori values for equipment and vessel characteristics; a priori value for the separation model used to reduce soundings to chart datum; and field assigned values for sound speed uncertainties (Figure 12). The realtime uncertainties for vessel motion include roll, pitch, gyro, navigation, and elevation. The uncertainties in these measurements were recorded as part of the Marine Star 5P solution and were applied to the soundings via an SBET RMS file generated by Applanix POSPac.

Uncertainties for sonar mounting and vessel speed were based on Appendix 4, table 4.9 of the NOAA Field Procedures Manual (FPM) (ed 2015). These were applied to the data via the CARIS HIPS Hydrographic Vessel File. The uncertainty associated with the VDatum separation model was supplied by the Hydrographic Services Division's Operations Branch, and is listed under the Zoning (see Table 6).

Finally, the uncertainty associated with sound speed measurements were based on the frequency and location of CTD casts, in accordance with the guidance set by Appendix 4 of the FPM (ed 2014) (see Table 7).

The entire data set is an ellipsoidally referenced survey where all data had 5P SBET solutions applied. Due to satellite dropout on DN272, a few further steps were necessary for good solution and application to the data. An explanation is included below. One other day, DN 284 was interpolated between 16:00 until 16:45 due to acquiring while in VBS mode.

On DN272, after breaking line 3102-272-183-1540 HSL 3102 came alongside S221 for a crew transfer. According to the POSPac AutoQC , after sitting alongside the ship HSL 3102 continued surveying, in Marinestar GNSS mode, but probably still did not have phase lock and were still converging on a solution. After consulting Jack Riley at HSTB, it was determined that after the Pydro update in July 2015, for the area we were surveying, it would be plausible to interpolate for more than one hour (interpreting the datum separation; which we know to be flat) and reapplying heave modeled tides and dynamic draft effects to recover what the SBET would have been if the datum separation were consistent, as we know in effect it has to be; allowing the data to default to a tide datum solution (Figure 13). Therefore, we interpolated in two places, the left yellow circle where there was a major satellite dropout beginning approximately 16:00 UTC and the right yellow circle due to a POS data outage beginning 16:50 UTC (Figure 14), which includes lines 3102_272_: 183_1616, 182_1629, 182_1649, 182_1701, 066_1709, 181_1714, 181_1734, and 180_1756 .

During the development of a 32 foot sounding, there is a 0.57 meter maximum offset (the majority of the offset being approximately 0.47 meters) with high standard deviation values. HSL 3102 line 272_186_1331 is 0.57 meters above HSL 3101 lines 284_064_1620 and 284_065_1618. The majority of the surface is within the 0.5 meter specification, although the IHO Order 1 in the outer beam areas is greater than the allowable IHO (red lines on the bottom right of Figure 15). In performing an actual IHO Order 1 layer check, there is very little speckling. There are no major features in the area to be impacted.

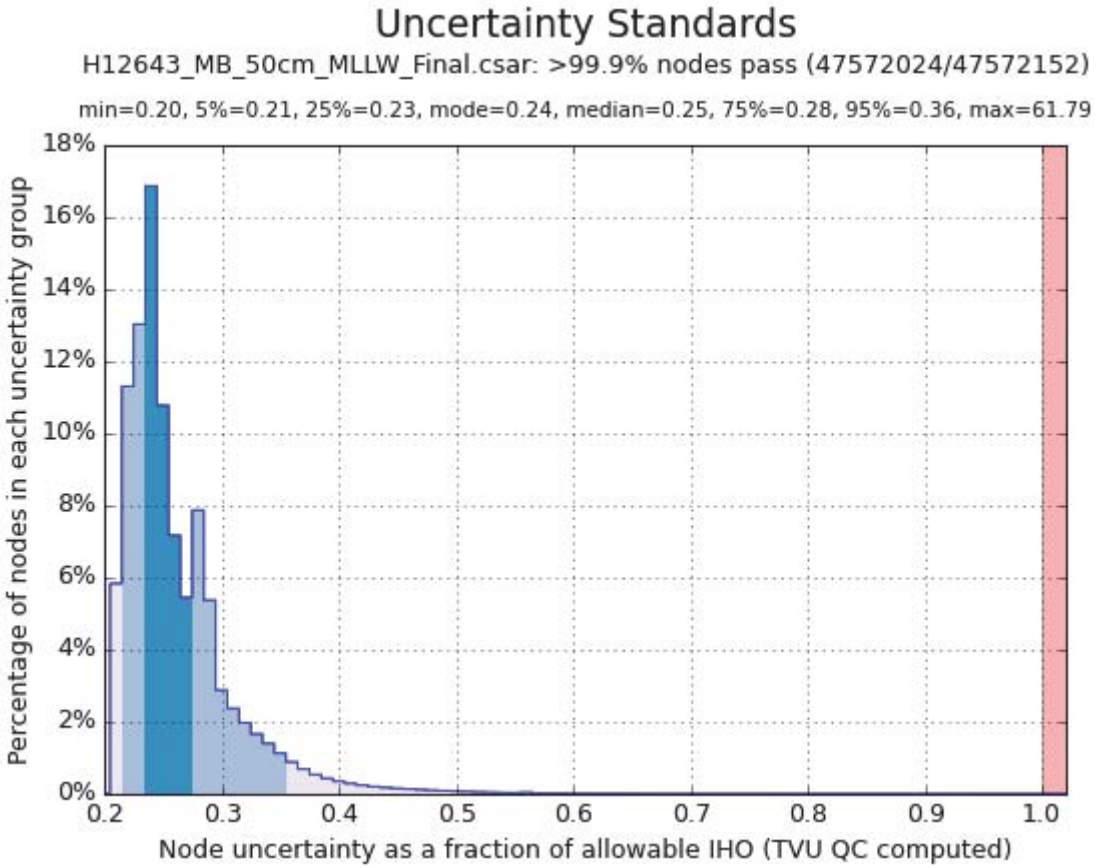


Figure 12: H12643 Total vertical uncertainty.

Figure 13: The original POSPac Automated QC identifying the dropout in the PDOP/SVs section, which includes lines 3102_272_: 183_1616, 182_1629, 182_1649, 182_101, 066_1709, 181_1714, 181_1734, and 180_1756 .

Figure 14: The POSPac Auto QC after interpolations. Notice the two yellow circles highlighting where interpolation occurred at 16:00 and 16:50 UTC, which includes lines 3102_272_: 183_1616, 182_1629, 182_1649, 182_101, 066_1709, 181_1714, 181_1734, and 180_1756.

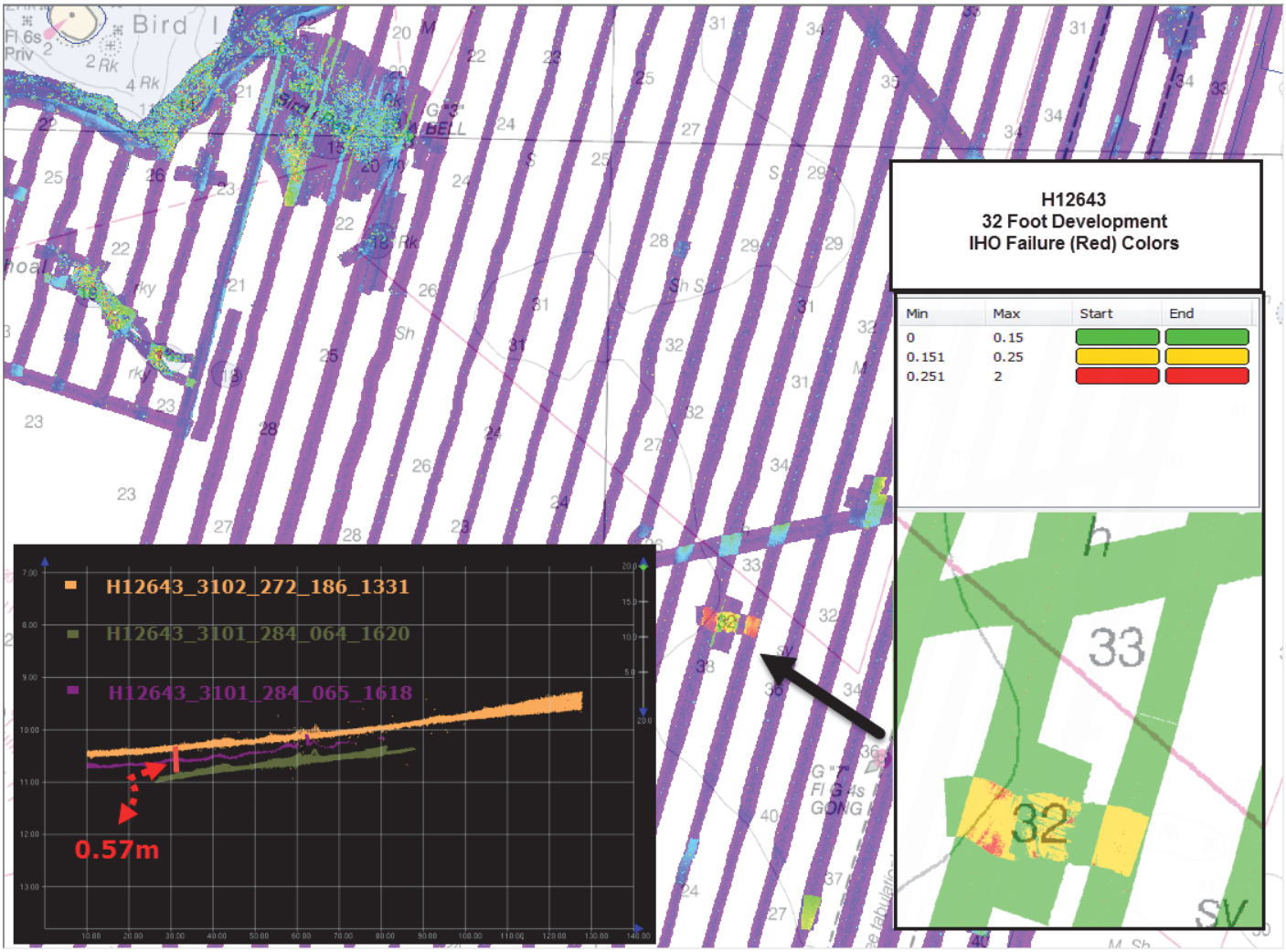


Figure 15: Development with high standard deviation values that results in minimal outstanding IHO Order 1 failures, particularly in the outer beams. There is a bust of the 0.5m offset.

B.2.3 Junctions

There are no contemporary surveys that junction with this survey that have occurred within the last 10 years. Although FOO659, a 2015 field examination performed for the USGS, had one crossline that overlapped H12643 750 meters; which does not provide enough information to make an adequate junction comparison.

There are no contemporary surveys that junction with this survey.

B.2.4 Sonar QC Checks

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

B.2.5 Equipment Effectiveness

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

B.2.6 Factors Affecting Soundings

Possible Effects of Sea State

Throughout all of H12643 there is an offset of approximately 0.11 to 0.18 meters as seen in Figure 16. Some areas have outer beam sonar blow out due to sound speed refraction on the order of 0.93 meters, which has been cleaned out (Figure 17). This may be due to inclement weather and/ or general offsets caused by equipment.

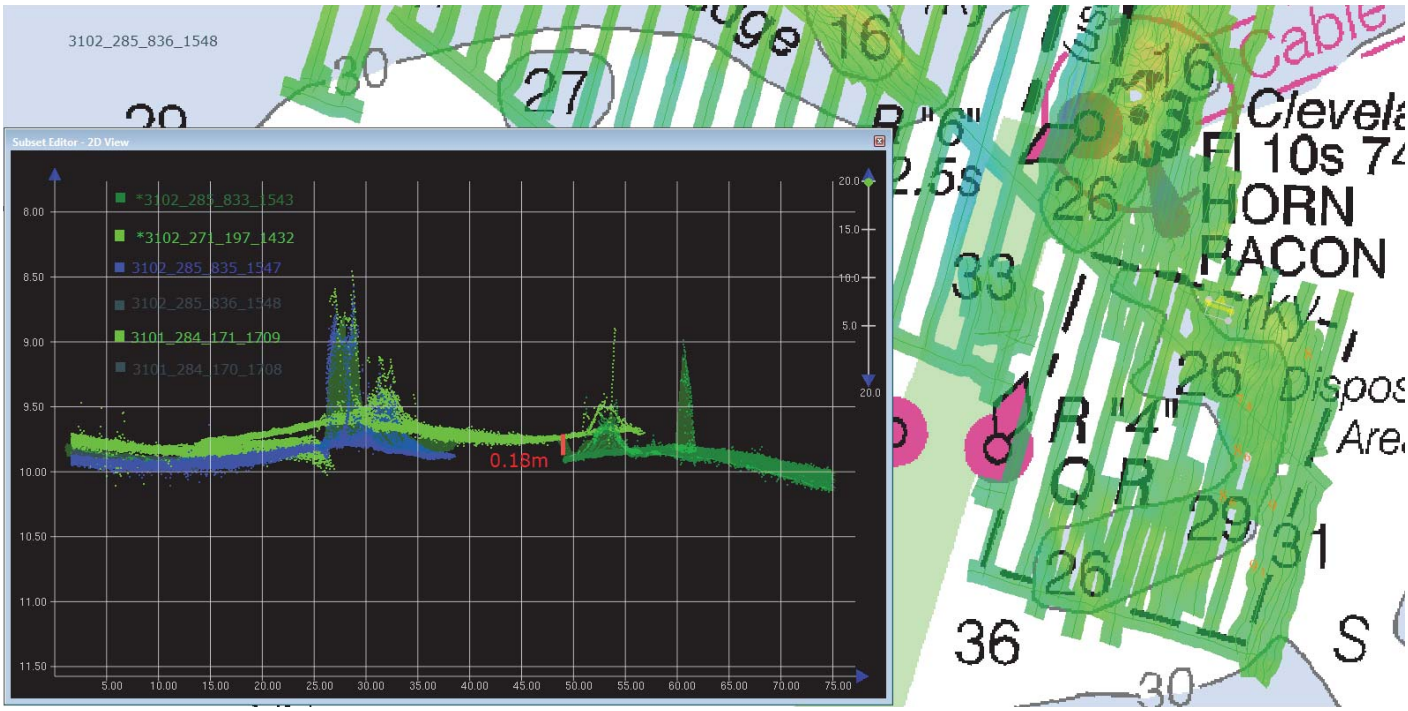


Figure 16: H12643 0.11 to 0.18 meter Average offset throughout the survey, which still keeps the survey within specs.

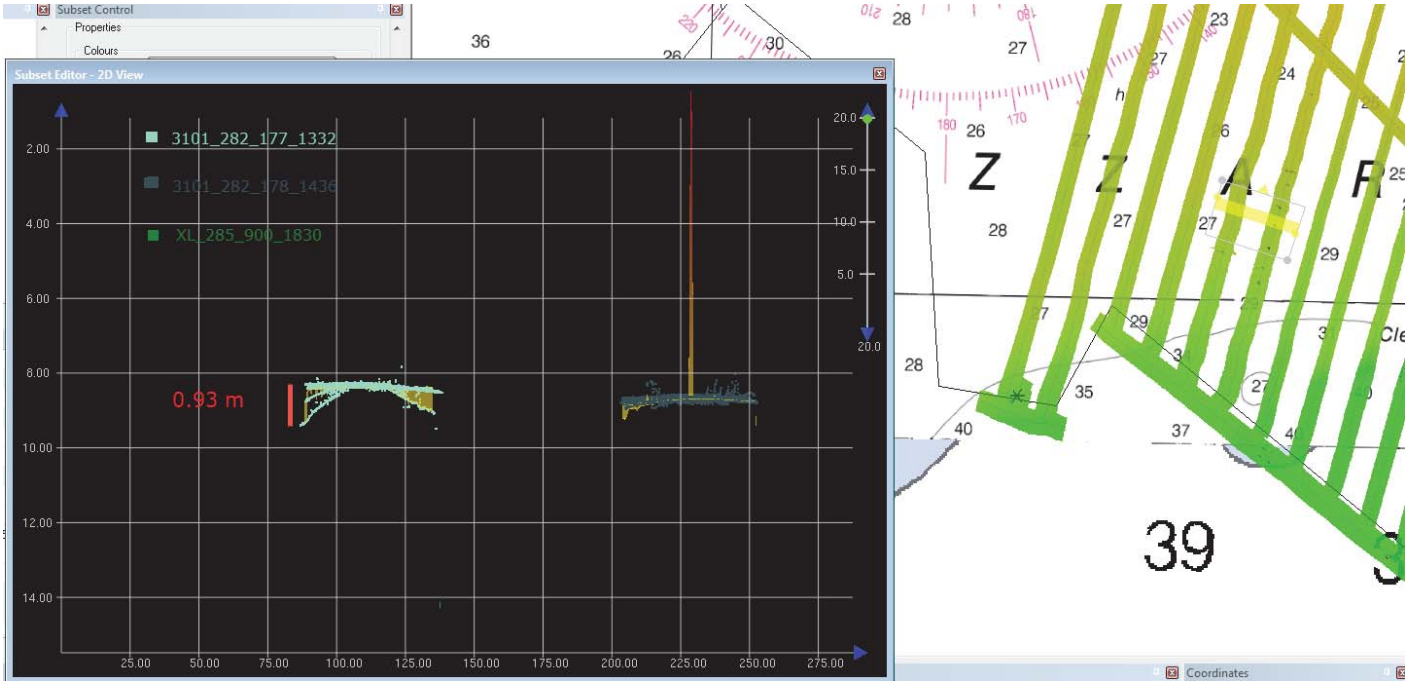


Figure 17: H12643 Outer beam sonar blow out example, due to sound speed refraction.

Addressing Fliers as a Result of Branch SARScan

As a result of AHB performing a SARScan and finding an issue with fliers in H12643, Command decided 25- centimeter surfaces over the rocky seabed areas would be appropriate to discover and eliminate fliers. A total of 10 25- centimeter surfaces were developed (Figure 18) and had at least two instances of Flier Finder run on the finalized surfaces. This method reduced the number of fliers found in the surface of these areas, but Flier Finder still selects features as well as the offsets.

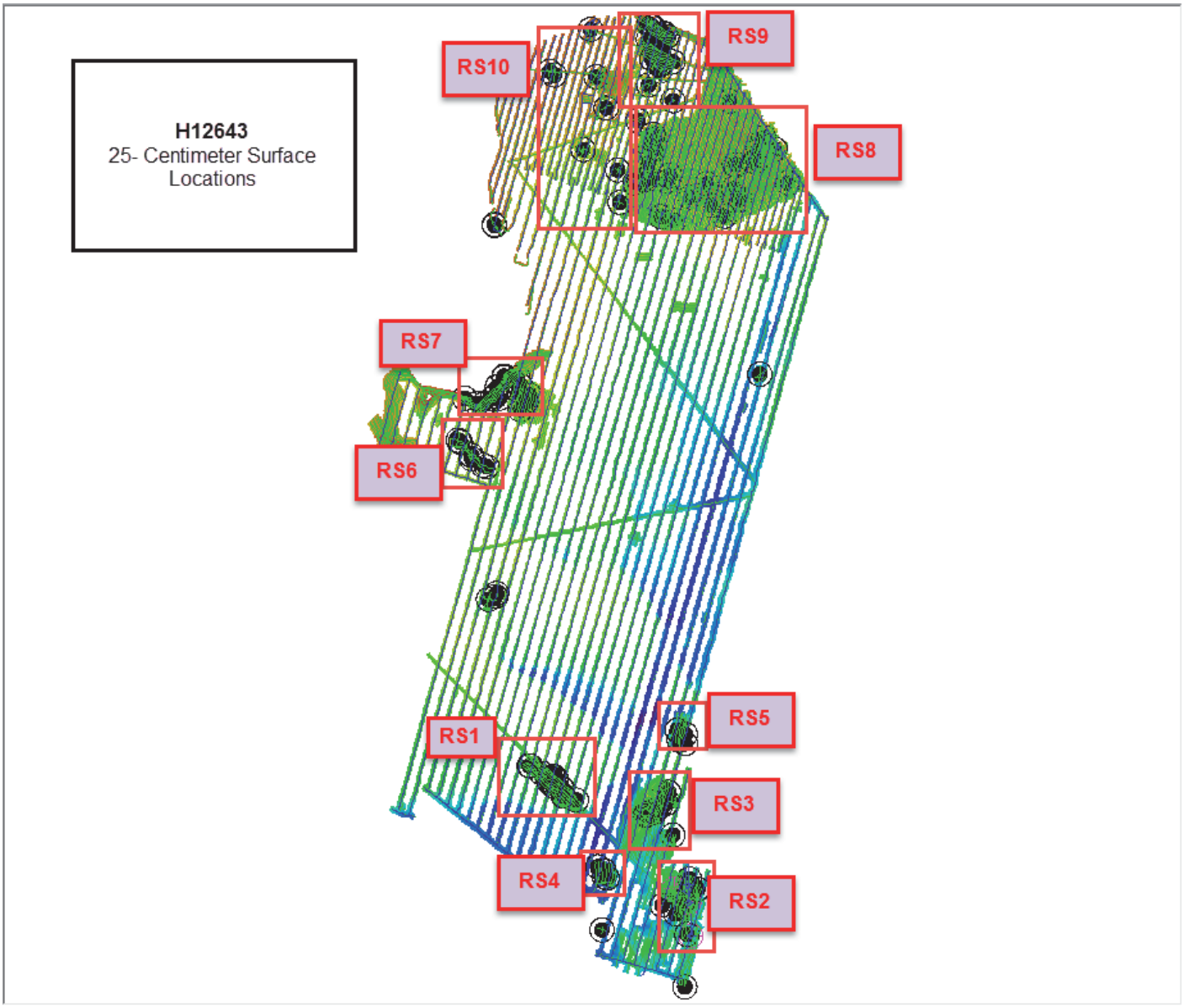


Figure 18: 25- Centimeter gridded areas delineate the regions over rocky seabed areas where fliers have been an issue, particularly in areas with numerous features.

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: Sound Speed Cast Frequency: Sound speed profiles were acquired using SBE-19 plus CTD probes at discrete locations within the survey area at four hour intervals or more frequently when observed surface sound speed values changed significantly (approximately 3-meters per second), or when surveying in a new area. A single sheet-wide concatenated SVP file was created and applied to all H12643 survey lines using the "Nearest in distance within (4 hours) Time" profile selection method. A total of 34 SVP casts were taken and applied (Figure 19).

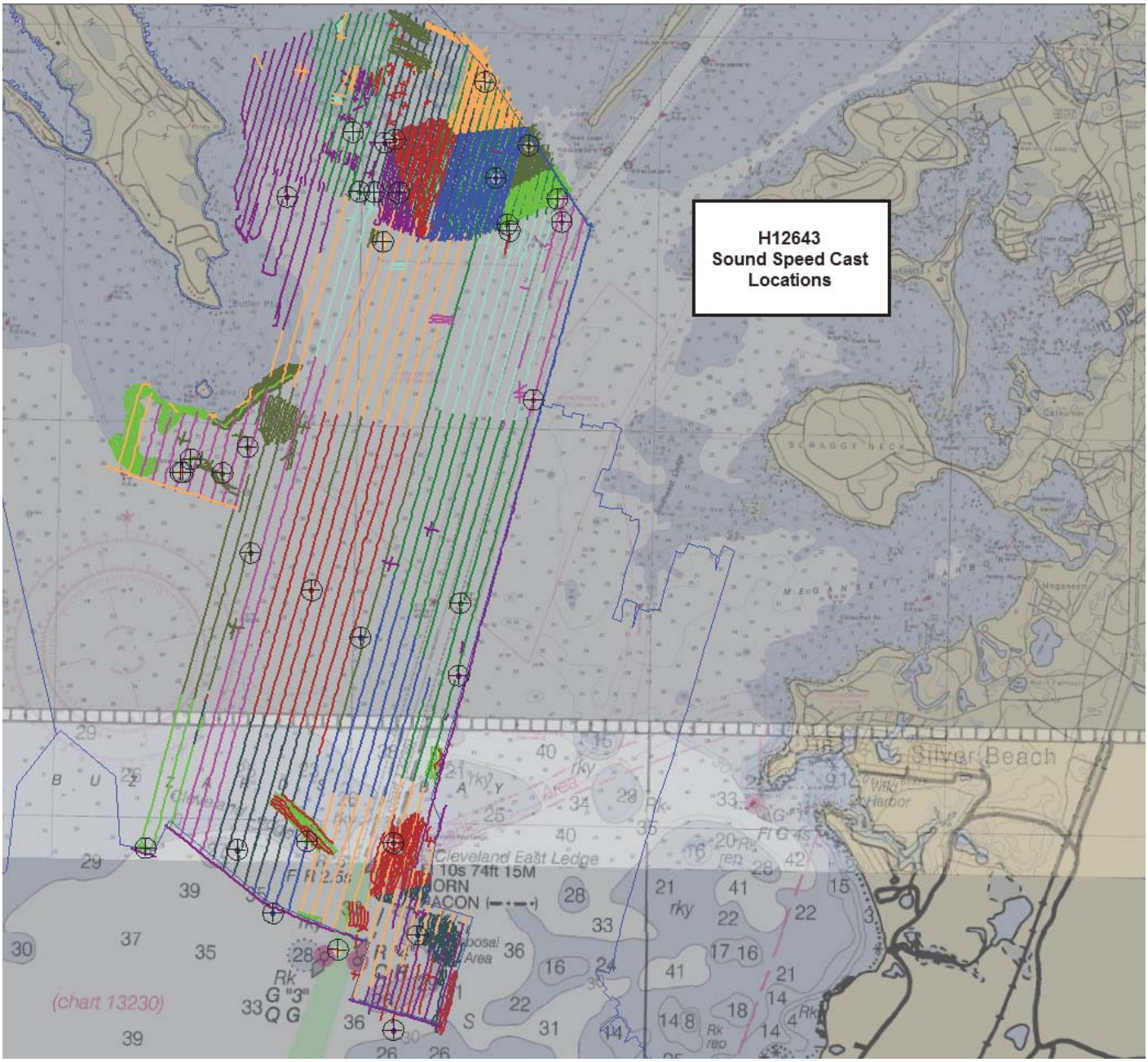


Figure 19: Survey H12643 Sound speed locations with the lines denoted by the color of the applied cast location.

B.2.8 Coverage Equipment and Methods

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

B.2.9 Data Density

Data acquired on survey H12643 met complete multibeam coverage requirements, including the 5 soundings per node data density requirements outlined in section 5.2.2.2 of the Hydrographic Survey Specifications and Deliverables Manual (HSSDM) (Figure 20).

Areas of low density primarily occurred where data was acquired during foul weather and along the edges of lines since the majority of the survey was 100% set line spacing (Figure 21). These areas are mainly located in the flats where there are minimal rocks. However the data is adequate to supersede the chart. These areas were inspected in CARIS HIPS and SIPS Subset Editor, and it was determined that the surface honored the seafloor.

In order to extract descriptive statistics of the data density achievements, the density layer of the 50-centimeter finalized surface was queried within Pydro64 (v5092) Contribs "Finalized CSAR QA" script (Figure 22). Overall, 98.5% of the nodes satisfied data density requirements.

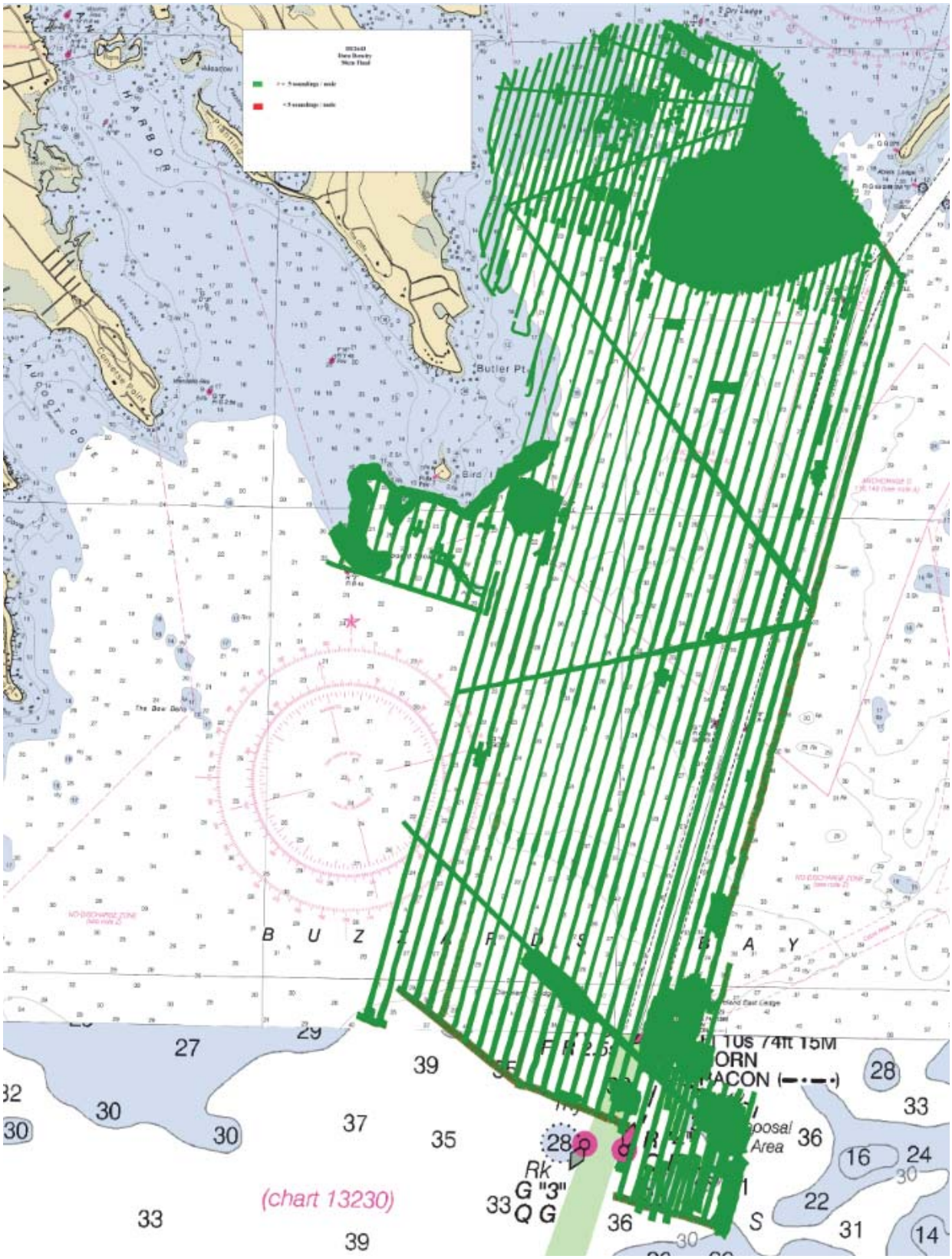


Figure 20: H12643 Density overview.

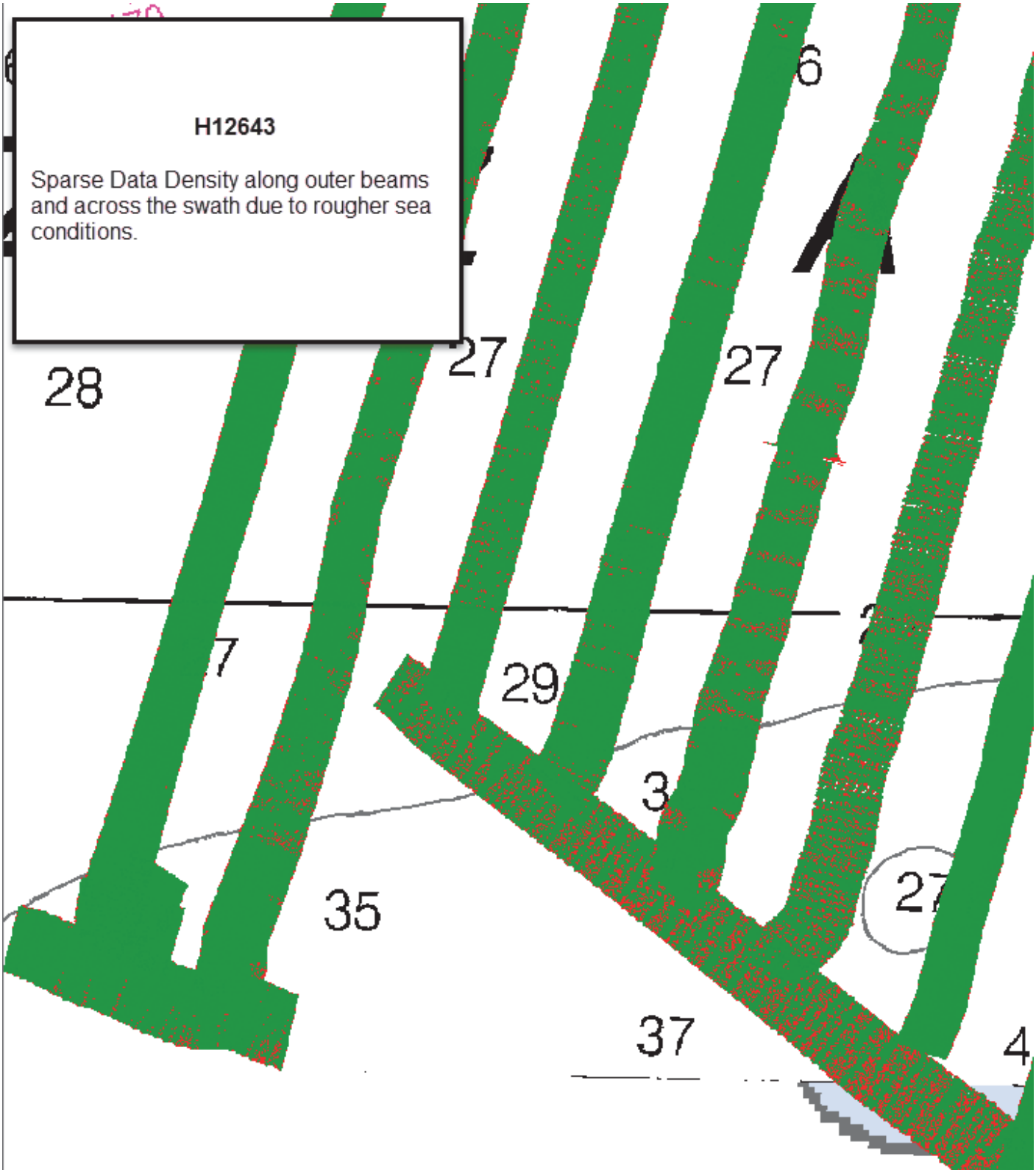


Figure 21: H12643 Closeup of sparse density area.

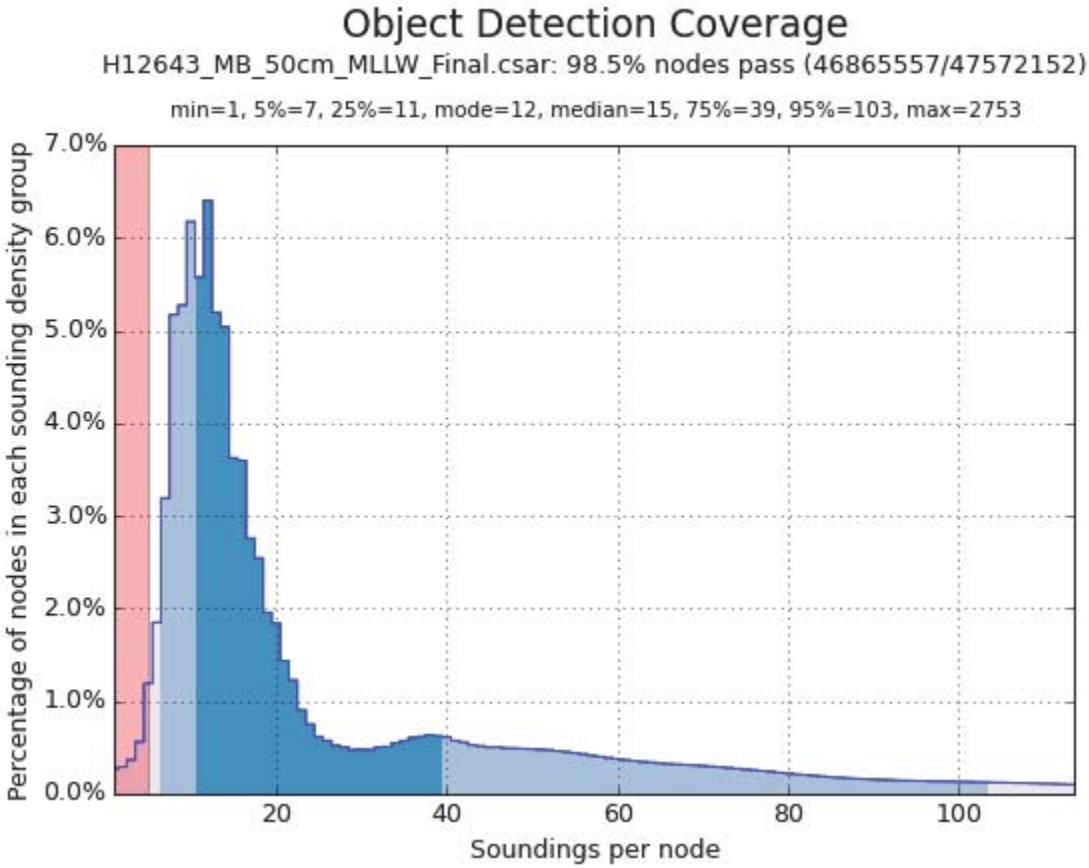


Figure 22: H12643 Object detection density results.

B.2.10 Multibeam Developed Rocky Seabed Areas

Survey H12643 was a mix of side scan sonar with concurrent multibeam data along with proposed rocky seabed areas delineated with 100% multibeam (outlined in dotted black). The rocky seabed areas were filled in with multibeam in order to find accurate least depths for that area (Figure 23).

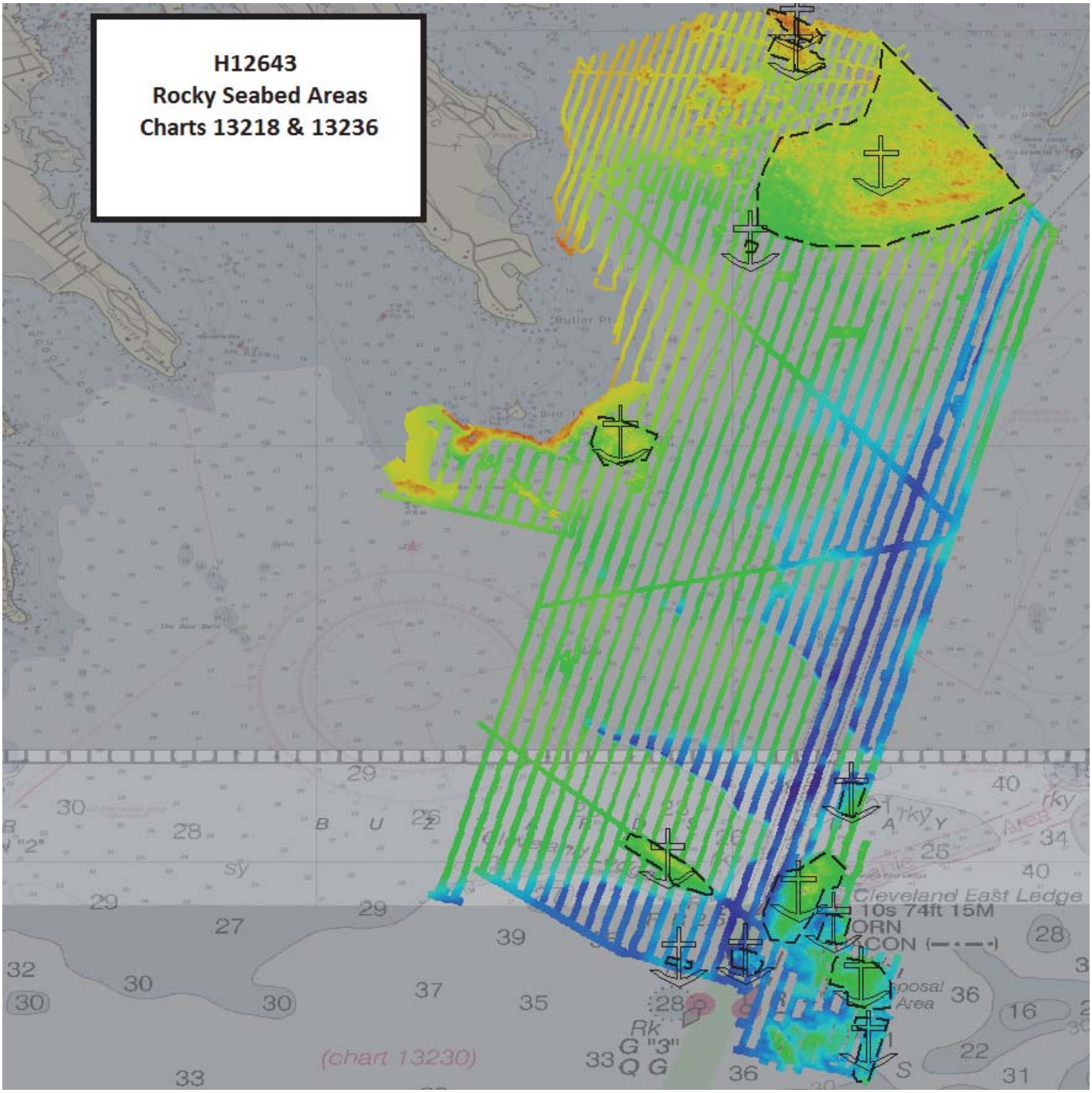


Figure 23: H12643 Proposed rocky seabed areas that include high concentrations of rocks are outlined in dotted black with an anchor over top.

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 a 7k file and has been sent to the Processing Branch. One line per vessel, per day was processed aboard the Thomas Jefferson in order to assess and ensure quality. No deficiencies were noted.

B.5 Data Processing

B.5.1 Primary Data Processing Software

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

Manufacturer	Name	Version
Caris	HIPS/SIPS	v17-20

Table 8: Primary bathymetric data processing software

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

Manufacturer	Name	Version
Caris	HIPS/SIPS	v17-20

Table 9: Primary imagery data processing software

The following Feature Object Catalog was used: NOAA Profile V_5_3_3

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
H12643_SSS_100_50cm	SSS Mosaic	0.5 meters	-	N/A	100% SSS
H12643_MB_50cm_MLLW	CUBE	0.5 meters	0 meters - 20 meters	NOAA_0.5m	Object Detection
H12643_MB_50cm_MLLW_Final	CUBE	0.5 meters	0 meters - 20 meters	NOAA_0.5m	Object Detection
H12643_MB_25cm_MLLW_RS1	CUBE	0.25 meters	0 meters - 20 meters	N/A	Object Detection
H12643_MB_25cm_MLLW_RS1_Final	CUBE	0.25 meters	0 meters - 20 meters	N/A	Object Detection
H12643_MB_25cm_MLLW_RS2	CUBE	0.25 meters	0 meters - 20 meters	N/A	Object Detection
H12643_MB_25cm_MLLW_RS2_Final	CUBE	0.25 meters	0 meters - 20 meters	N/A	Object Detection
H12643_MB_25cm_MLLW_RS3	CUBE	0.25 meters	0 meters - 20 meters	N/A	Object Detection
H12643_MB_25cm_MLLW_RS3_Final	CUBE	0.25 meters	0 meters - 20 meters	N/A	Object Detection
H12643_MB_25cm_MLLW_RS4	CUBE	0.25 meters	0 meters - 20 meters	N/A	Object Detection
H12643_MB_25cm_MLLW_RS4_Final	CUBE	0.25 meters	0 meters - 20 meters	N/A	Object Detection
H12643_MB_25cm_MLLW_RS5	CUBE	0.25 meters	0 meters - 20 meters	N/A	Object Detection
H12643_MB_25cm_MLLW_RS5_Final	CUBE	0.25 meters	0 meters - 20 meters	N/A	Object Detection
H12643_MB_25cm_MLLW_RS6	CUBE	0.25 meters	0 meters - 20 meters	N/A	Object Detection
H12643_MB_25cm_MLLW_RS6_Final	CUBE	0.25 meters	0 meters - 20 meters	N/A	Object Detection
H12643_MB_25cm_MLLW_RS7	CUBE	0.25 meters	0 meters - 20 meters	N/A	Object Detection

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H12643_MB_25cm_MLLW_RS7_Final	CUBE	0.25 meters	0 meters - 20 meters	N/A	Object Detection
H12643_MB_25cm_MLLW_RS8	CUBE	0.25 meters	0 meters - 20 meters	N/A	Object Detection
H12643_MB_25cm_MLLW_RS8_Final	CUBE	0.25 meters	0 meters - 20 meters	N/A	Object Detection
H12643_MB_25cm_MLLW_RS9	CUBE	0.25 meters	0 meters - 20 meters	N/A	Object Detection
H12643_MB_25cm_MLLW_RS9_Final	CUBE	0.25 meters	0 meters - 20 meters	N/A	Object Detection
H12643_MB_25cm_MLLW_RS10	CUBE	0.25 meters	0 meters - 20 meters	N/A	Object Detection
H12643_MB_25cm_MLLW_RS10_Final	CUBE	0.25 meters	0 meters - 20 meters	N/A	Object Detection

Table 10: Submitted Surfaces

B.5.3 Designated Soundings

Designated soundings were selected in accordance with 5.2.1.2 of the Field Procedures Manual in order to override the gridded CUBE surfaces in areas in which the shoal-most sounding was not accurately modeled. A total of 137 designated soundings were selected for H12643 as shown in Figure 24.

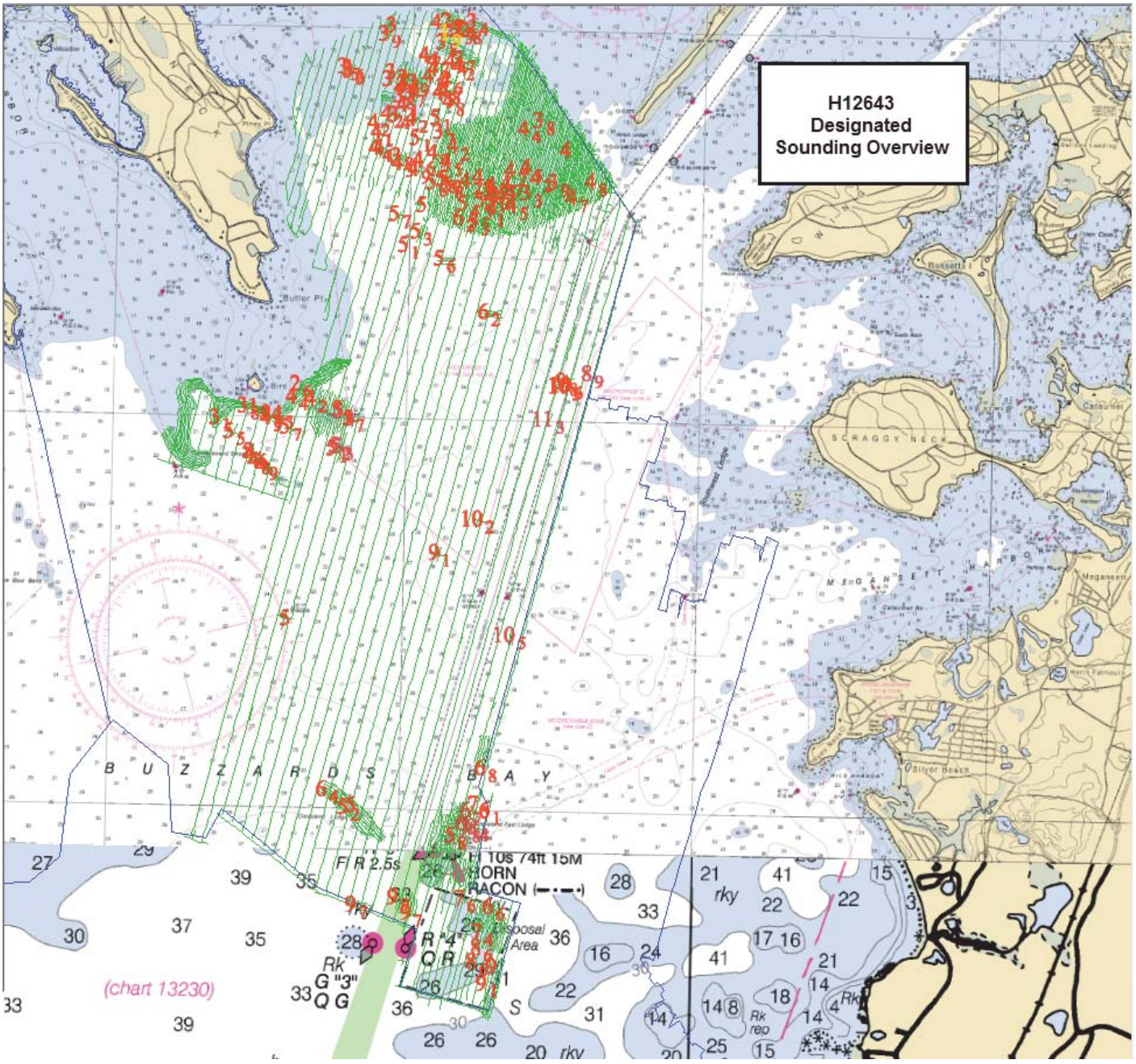


Figure 24: H12643 Designated sounding overview.

B.5.4 Final Feature File Addition of Arched Feature

An arched feature located 41-39-37.32N and 70-41-21.00W (Figure 25) has been added to the final feature file as an Obstruction in 9.511 meters of water, with a height of 1.815 meters off the seafloor as seen in Figure 26. The obstruction is seen in the SSS imagery as seen in Figure 27. A contact has been added to the SSS file and updated in the .hob file.

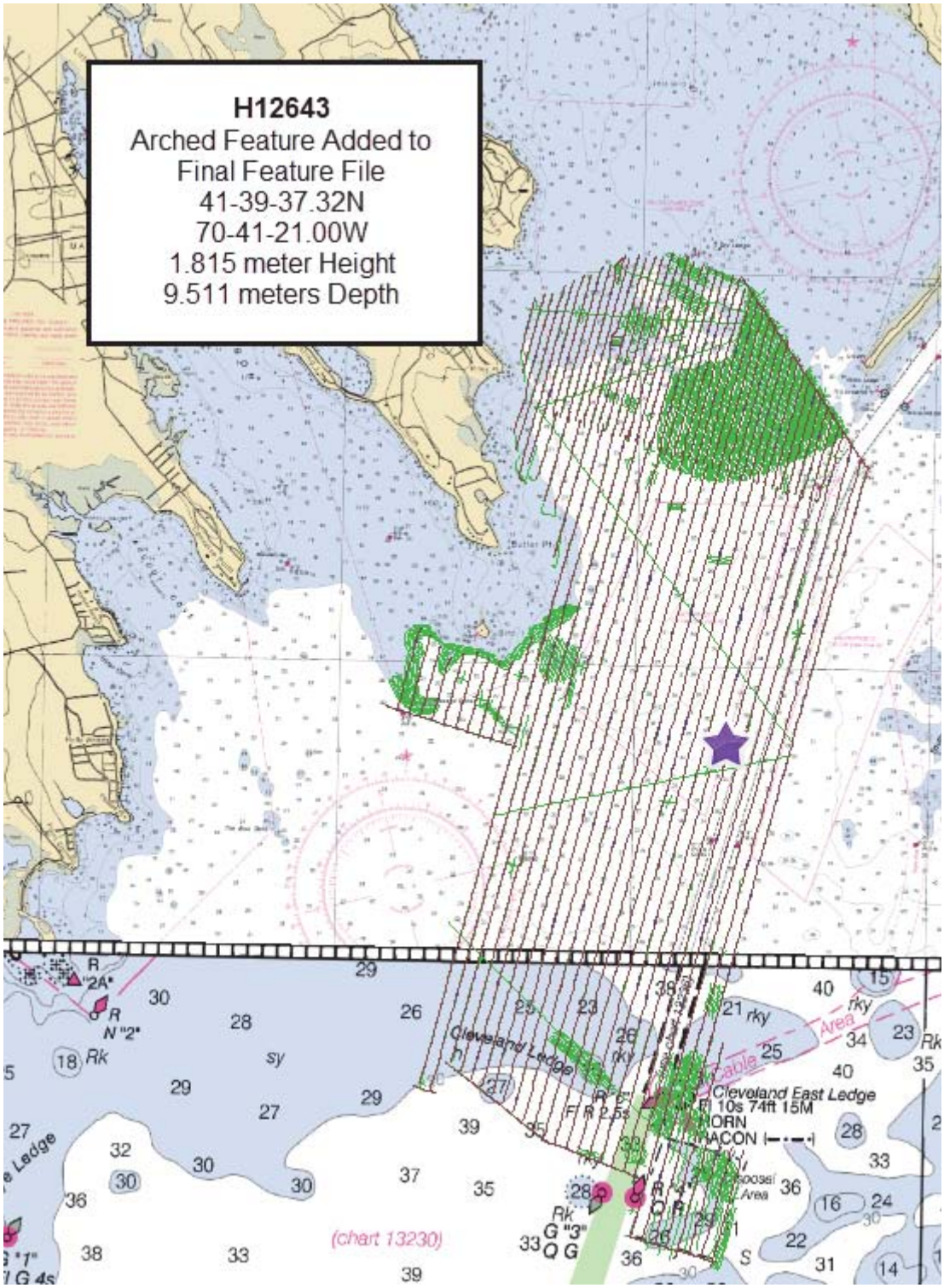


Figure 25: General location of arch added to Final Feature File.

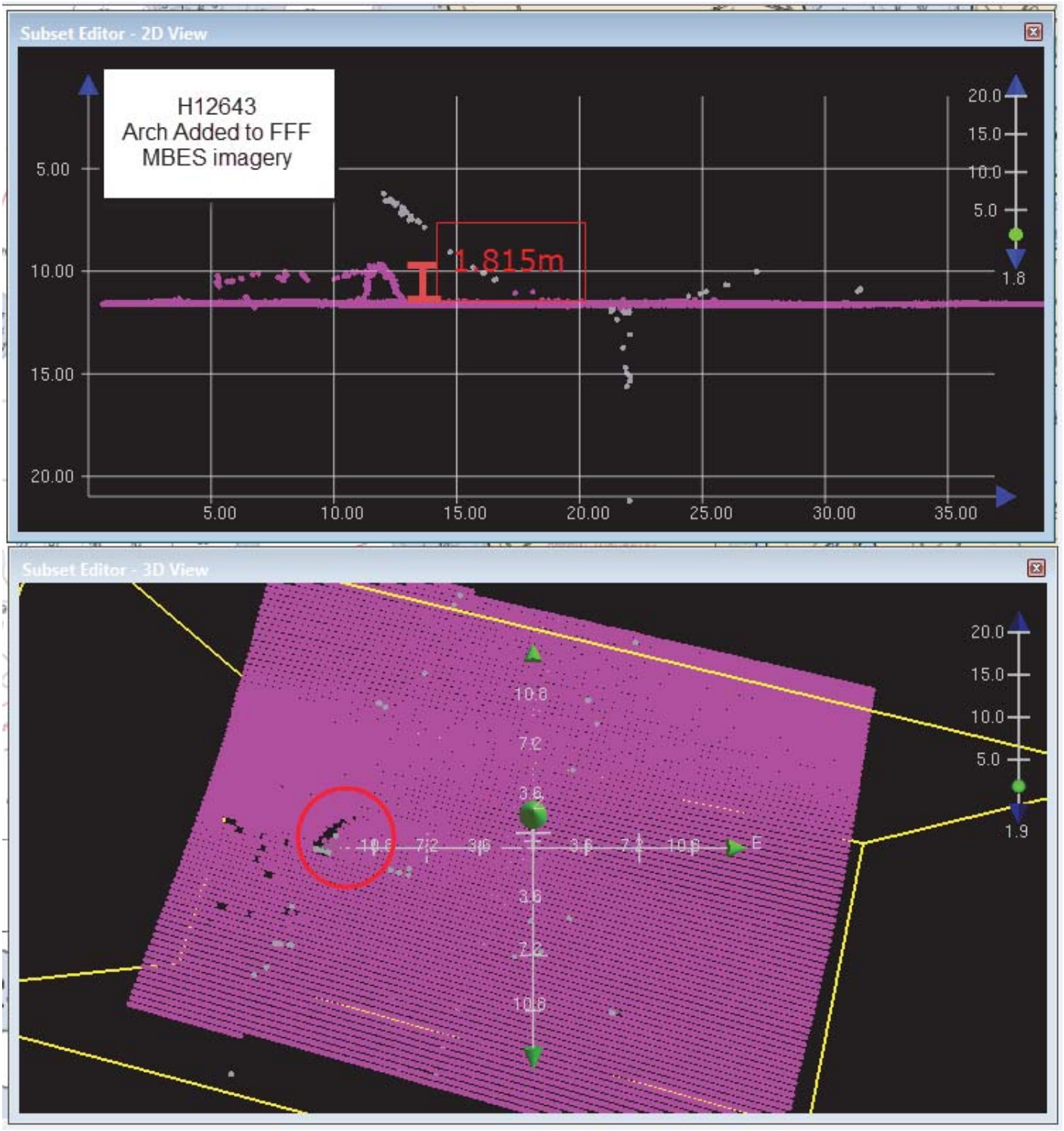
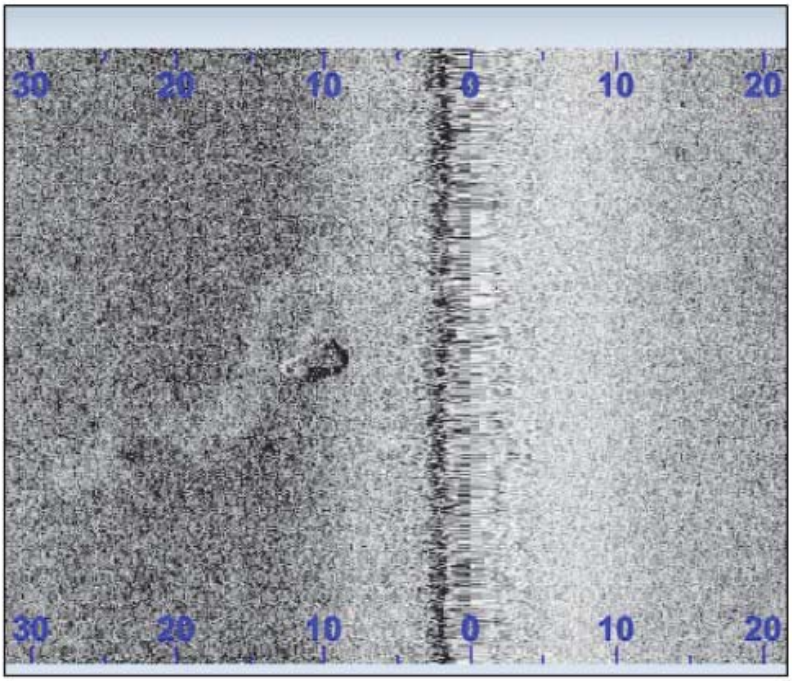


Figure 26: Arch with height 1.815 meters noted in MBES.



H12643
SSS Image of Arch Added to FFF as an Obstruction

Figure 27: Arch seen in SSS imagery. Contact has been added.

C. Vertical and Horizontal Control

No HVCR submitted with this survey.

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
Newport, RI	8452660
Nantucket Island, MA	8449130

Table 11: NWLON Tide Stations

File Name	Status
8452660	Final Approved
8449130	Final Approved

Table 12: Water Level Files (.tid)

File Name	Status
B367TJ2015.tc	Final

Table 13: Tide Correctors (.zdf or .tc)

A request for final approved tides was sent to N/OPS1 on 10/22/2015. The final tide note was received on 10/29/2015.

Non-Standard Vertical Control Methods Used:

VDatum

Ellipsoid to Chart Datum Separation File:

Version: 3.2; Geoid: 2012; Area: NY, CT, RI; Area Version:2; Sep Uncertainty: 10.2cm

C.2 Horizontal Control

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

The projection used for this project is 19 North.

D. Results and Recommendations

D.1 Chart Comparison

A comparison was performed between the ENC and survey H12643 via a difference surface using an TIN surface of ENC soundings at 200- meter resolution, against an interpolated TIN surface of the surveyed

soundings and compared to charted contours (as seen in Figures 28 through 33) . Overall, contours based on surveyed values agree with charted values.

Figure 32 denotes areas in which the current survey is shoaler than charted ENC soundings. While Figure 33 denotes areas in which the current survey is deeper than charted ENC soundings.

Descriptions of specific feature investigation data are included in the Final Feature File.

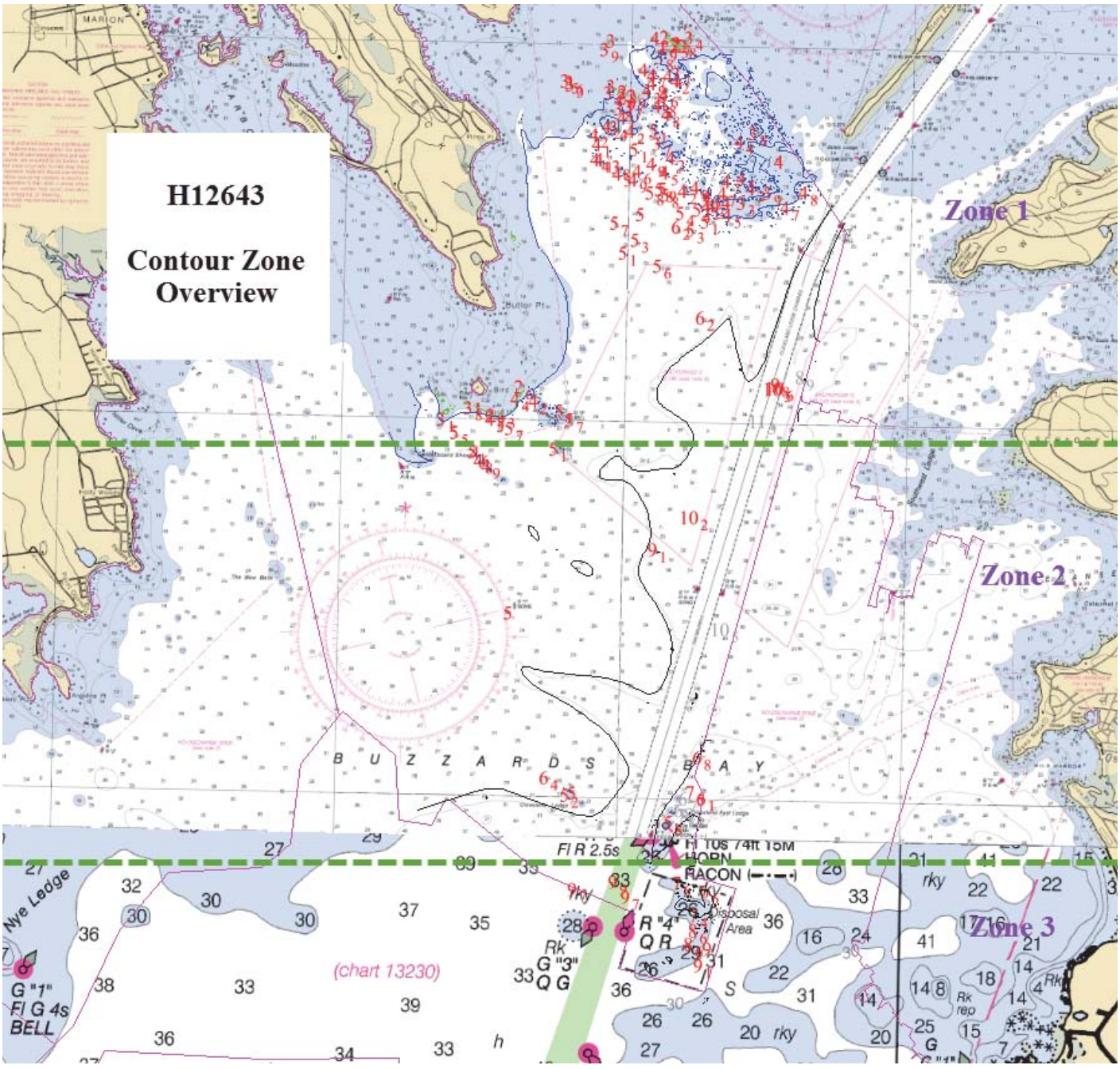


Figure 28: H12643 Contour zone overview on charts 13218 and 13236 for Figures 25 through 27.

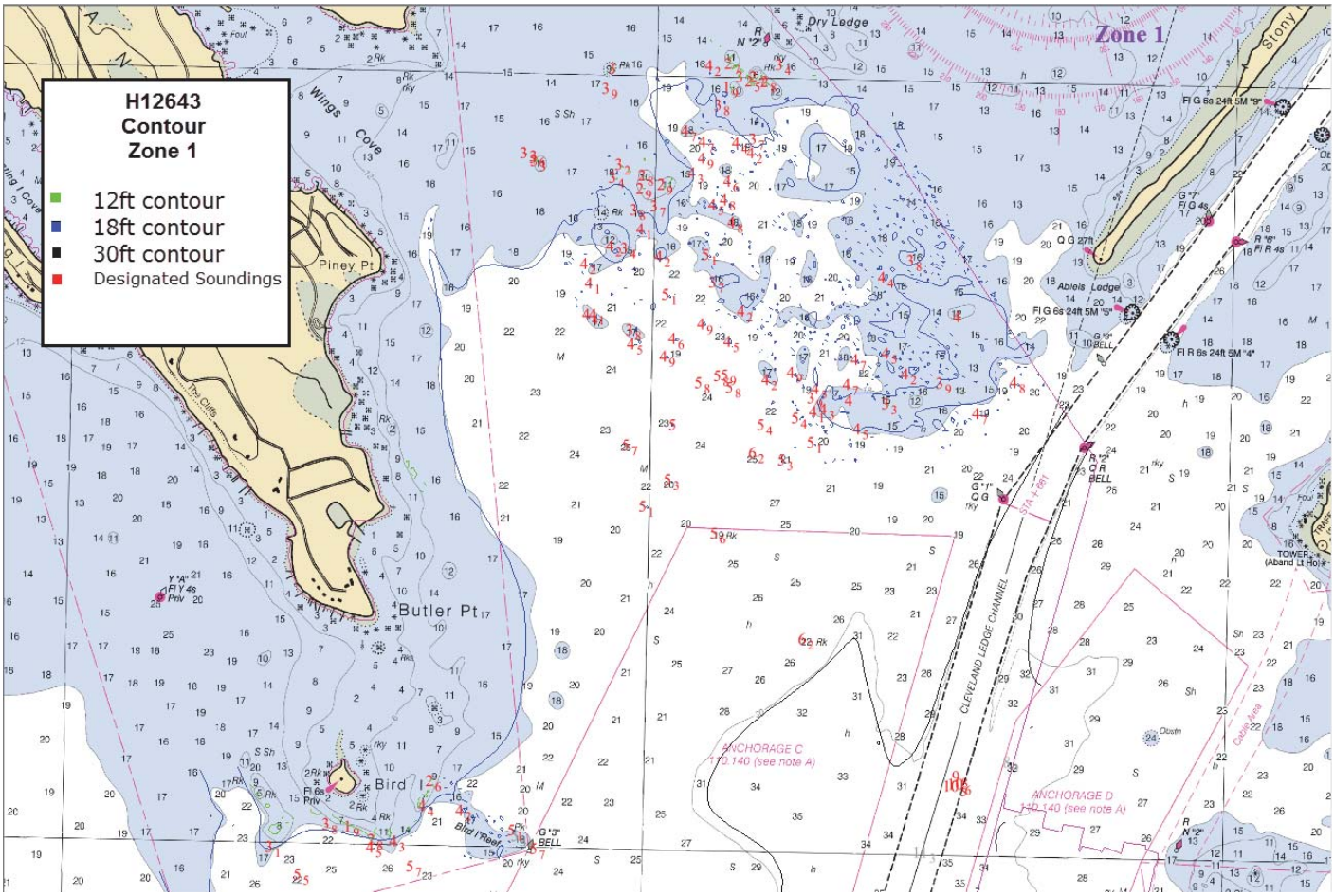


Figure 29: H12643 Contour zone 1 overview on chart 13236, including designated soundings from the finalized surface. 12 Foot contours correspond well to the chart. Overall, the 18 foot contours correspond to the chart. There is some minor variation in the northern section of the survey. The 30 foot contours correspond well to the chart in this zone.

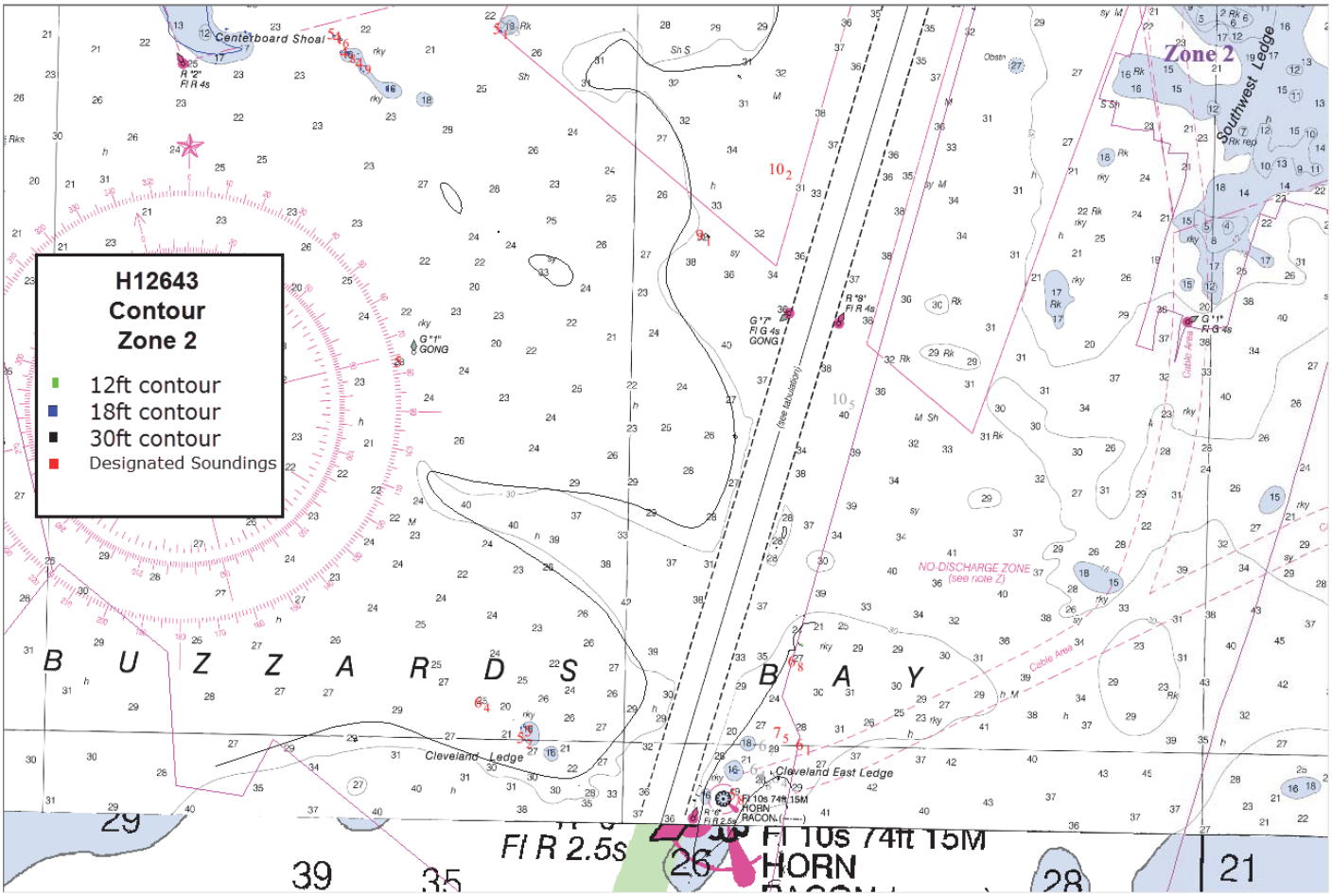


Figure 30: H12643 Contour zone 2 overview on charts 13236 and 13218, including designated soundings from the finalized surface. The 18 foot and 30 foot contours correspond well to the charts, with some slight shifting and variation in the southeast section of the survey.

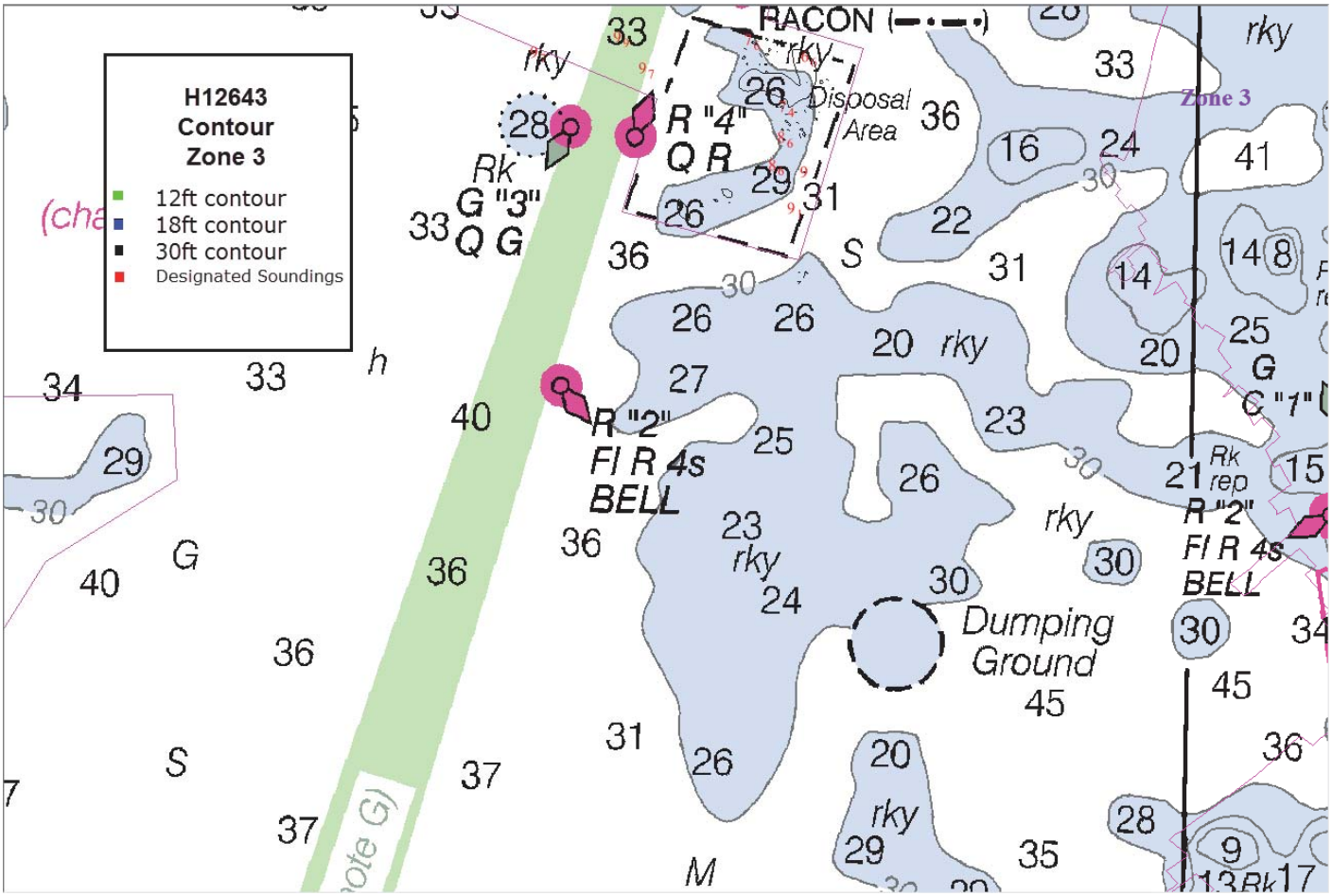


Figure 31: H12643 Contour zone 3 overview on charts 13236 and 13218, including designated soundings from the finalized surface. The 30 foot surveyed contours deviate from the 30 foot charted contours in the disposal area south of the lighthouse RACON.

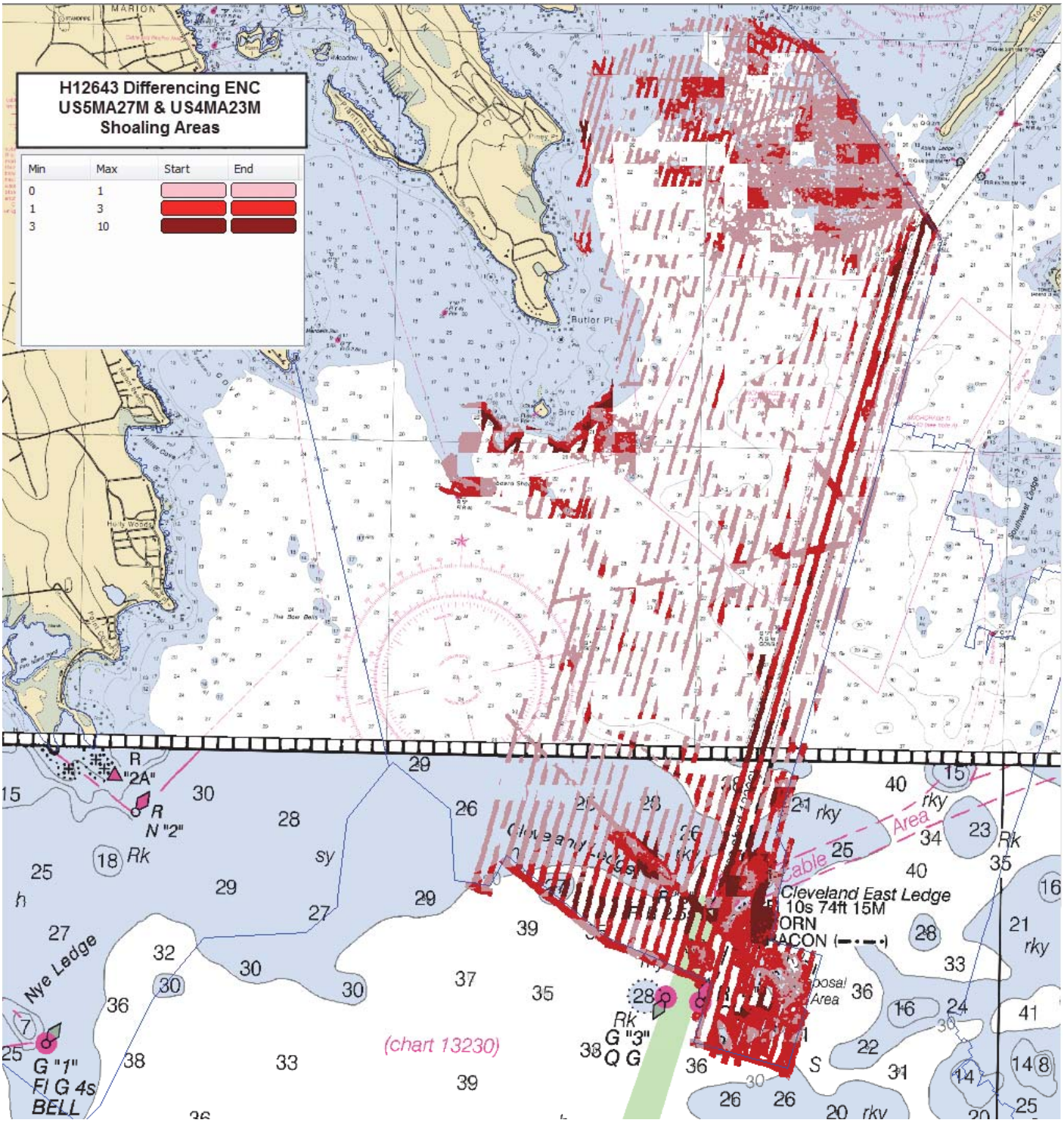


Figure 32: Chart comparison between survey H12643 and ENC US5MA27M and US4MA23M noting shoaling surveyed depths. Red/maroon areas are shoaler by > 1 meter. All other locations generally agree to within 1-2 meters.

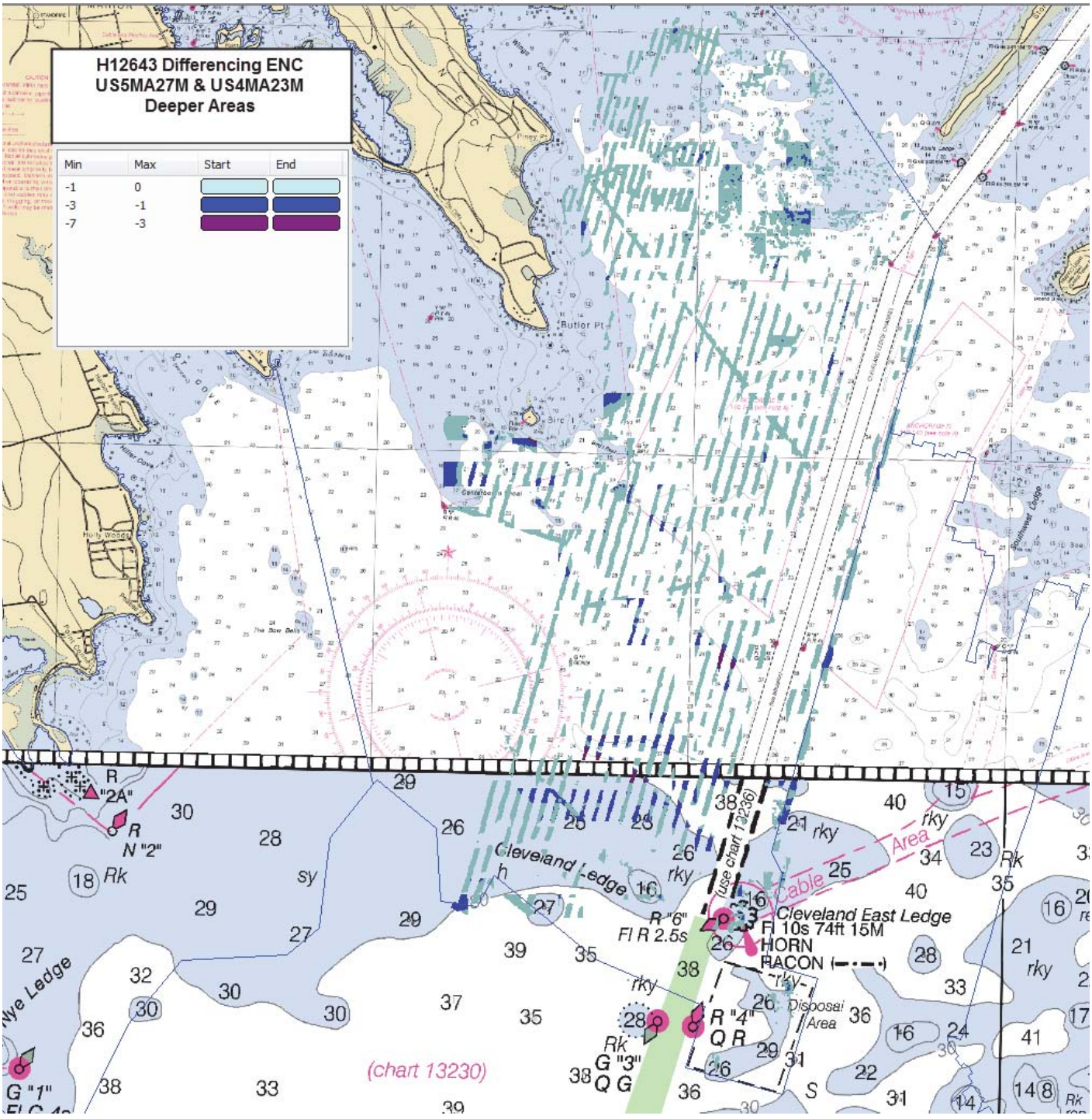


Figure 33: Chart comparison between survey H12643 and ENC US5MA27M and US4MA23M noting deeper surveyed depths. Blue/purple areas are deeper by > 1 meter. All other locations generally agree to within 1-2 meters.

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
13236	1:20000	31	04/2012	11/17/2015	11/21/2015
13218	1:80000	42	07/2013	11/17/2015	11/21/2015

Table 14: Largest Scale Raster Charts

13236

Soundings between Chart 13236 and ENC US5MA27M were found to agree to within 1 meters.

13218

Soundings between Chart 13218 and ENC US4MA23M were found to agree to within 2 meters.

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?
US5MA27M	1:20000	2	02/02/2016	02/16/2016	NO
US4MA23M	1:80000	28	08/25/2015	08/25/2015	NO

Table 15: Largest Scale ENCs

US5MA27M

A comparison was performed between ENC US5MA27M and survey H12643 via a difference surface between a TIN surface of ENC soundings, against a 50-cm finalized BASE surface. Analysis showed the current survey to be generally shoaler than the charted ENC soundings. ENC US5MA27M coincides with raster Chart 13236. The majority of depths and contours on the ENC match the raster.

US4MA23M

A comparison was performed between ENC US4MA23M and survey H12643 via a difference surface between a TIN surface of ENC soundings, against a 50-cm finalized BASE surface. Analysis showed the current survey to be generally deeper than the charted ENC soundings. ENC US4MA23M coincides with raster Chart 13218. The depths and contours on the ENC match the raster.

D.1.3 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.4 Charted Features

No charted features exist for this survey.

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

On the western side of the sheet, southwest of Bird Island, is a charted 8 foot rock which due to safety reasons remains unsurveyed during the time of surveying. To the east of Bird Island, is Bird Island Reef with multiple 4.2- to 4.9- meter soundings. On the northern end of the sheet, is a charted 9 foot rock with current survey soundings of 3.4 meters. East of the charted 9 foot rock, approximately 575 meters away is a charted 11 foot sounding which actually has a current survey charted least depth of 3 meters (9.84 feet). Directly south of the 3 meter rock (charted 11 feet), is a charted 10 foot feature with a current least depth of 1.9 meters (6.23 feet). Figure 34 identifies the above locations.

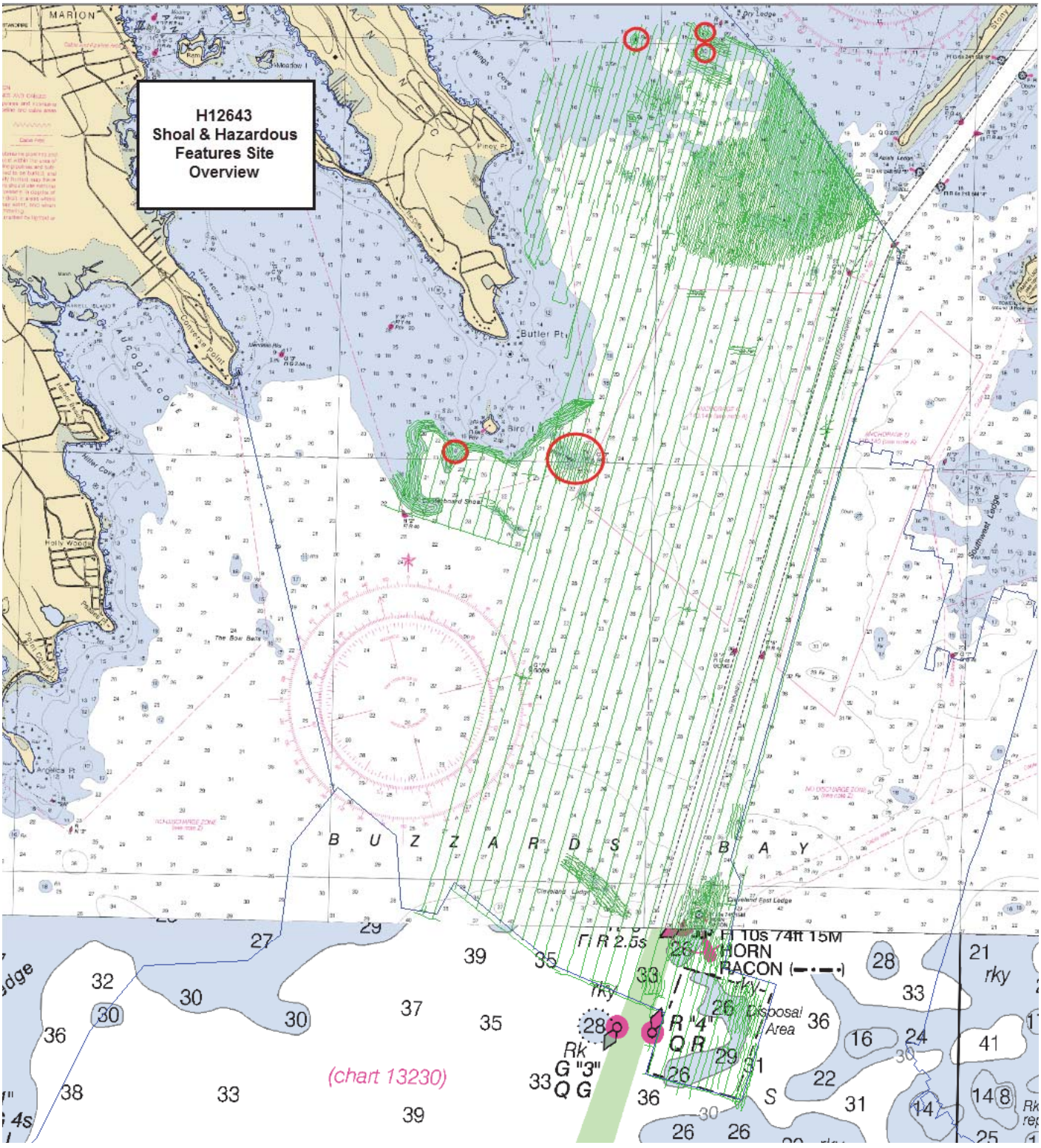


Figure 34: H12643 Shoal and hazardous feature locations on charts 13218 and 13236.

D.1.8 Channels

Channels, designated anchorages, precautionary areas, safety fairways, traffic separation schemes, pilot boarding areas, and/or channel and range lines exist within the survey limits, but were not investigated.

D.1.9 Bottom Samples

No bottom samples were required for this survey.

D.2 Additional Results

D.2.1 Shoreline

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

D.2.2 Prior Surveys

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

D.2.3 Aids to Navigation

Aids to navigation (ATONs) exist for this survey, but were not investigated.

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

No Significant Features exist for this survey.

D.2.9 Construction and Dredging

Present and/or planned construction or dredging exists within the survey limits, but was not investigated. On November 19, 2015, a contract was awarded by the U.S. Army Corps of Engineers, New England District to perform maintenance dredging and advance maintenance dredging of the Cape Cod Canal, projected to begin early January 2016. The southernmost area of dredge work may be in the northeast section of the H12643 survey, leading into the East Mooring Basin east of Hog Island.

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
Shepard M. Smith, CAPT/NOAA	Chief of Party	03/24/2016	SMITH.SHEPARD.M.1006778930 Digitally signed by SMITH.SHEPARD.M.1006778930 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=NOAA, cn=SMITH.SHEPARD.M.1006778930 Date: 2016.04.21 11:53:35 -04'00'
Joseph K. Carrier, LT/NOAA	Field Operations Officer	03/24/2016	DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=NOAA, cn=CARRIER.JOSEPH.KELSO.III.1155373152 Date: 2016.04.21 15:35:06 Z
Rita S. Bowker	Sheet Manager	03/24/2016	Date: 2016.04.21 16:43:36 Z

F. Table of Acronyms

Acronym	Definition
AHB	Atlantic Hydrographic Branch
AST	Assistant Survey Technician
ATON	Aid to Navigation
AWOIS	Automated Wreck and Obstruction Information System
BAG	Bathymetric Attributed Grid
BASE	Bathymetry Associated with Statistical Error
CO	Commanding Officer
CO-OPS	Center for Operational Products and Services
CORS	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

APPENDIX I

TIDES AND WATER LEVELS

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : October 29, 2015

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: OPR-B367-TJ-2015(Revised)
HYDROGRAPHIC SHEET: H12643

LOCALITY: Great Hill Pt to Converse Pt,Buzzards Bay and Nantucket Sound,MA
TIME PERIOD: September 28 - October 12, 2015

TIDE STATION USED: 8449130 Nantucket Island,MA
Lat.41° 17.1' N Long. 70° 05.8' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.985 meters

TIDE STATION USED: 8452660 Newport, RI
Lat. 41° 30.3' N Long. 71° 19.6' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.099 meters

REMARKS: RECOMMENDED GRID

Please use the TCARI grid "B367TJ2015_FTN.tc" as the final grid for project OPR-B367-TJ-2015(Revised), H12643, during the time period of September 28 and October 12, 2015.

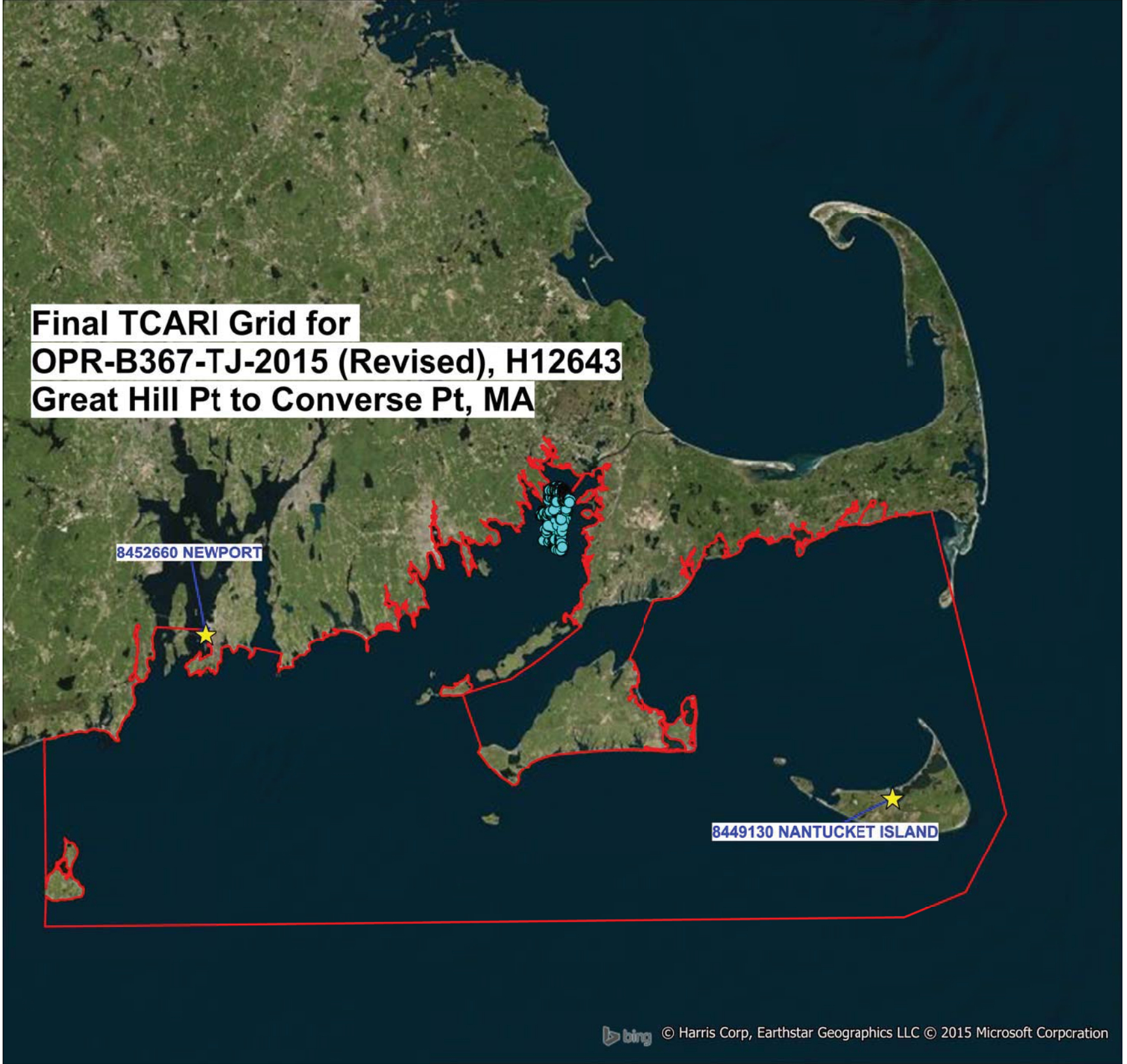
Refer to attachments for grid information.

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: 2015.11.03 07:53:09 -05'00'

CHIEF, PRODUCTS AND SERVICES BRANCH


Final TCARI Grid for
OPR-B367-TJ-2015 (Revised), H12643
Great Hill Pt to Converse Pt, MA
8452660 NEWPORT
8449130 NANTUCKET ISLAND
bing © Harris Corp, Earthstar Geographics LLC © 2015 Microsoft Corporation

APPENDIX II

SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCE

Joseph Carrier - NOAA Federal <joseph.carrier@noaa.gov>

H12642 - Request for Change to Requirements

7 messages

Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov> Mon, Jan 11, 2016 at 4:18 PM
To: Patrick Keown - NOAA Federal <patrick.keown@noaa.gov>
Cc: Matthew Jaskoski - NOAA Federal <matthew.jaskoski@noaa.gov>, Shep Smith - NOAA Federal <shep.smith@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, "ChiefST.Thomas Jefferson - NOAA Service Account" <chiefst.thomas.jefferson@noaa.gov>, Allison Stone - NOAA Federal <allison.c.stone@noaa.gov>

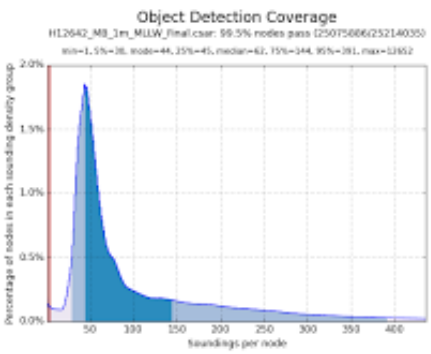
Patrick,

Upon discussion with LCDR Jaskoski, we would like to request an allowance for deviation from specifications for survey H12642, part of B-367-TJ-15.

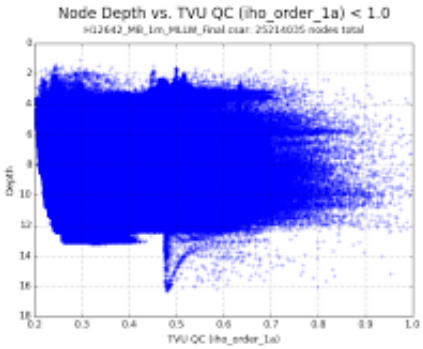
It has been observed by the sheet manager that the 1m surface required by specs is not accurately honoring depths. A 50cm grid, however, was found to more accurately model the least depths over objects. While the normal course of action in this situation is to designate soundings over those areas, such action would result in 70-100 designated soundings throughout the survey. While density requirements for object detection were not met in deeper areas, there exists 200% side scan over these areas to show a lack of features, as well as sufficient soundings to accurately represent depths. In shallower areas, density specifications were exceeded, and features were developed appropriately. Our request, therefore, is to deliver to AHB a 50cm surface for H12642. There are no depths greater than 17m on the survey. In addition, I would like to inquire whether this 50cm surface is sufficient for charting purposes, or, should you approve this step, if we should deliver an additional 1m surface. I have attached the density histogram for a 50cm surface for the whole survey, showing 99.5% of nodes passing density requirements, as well as the plot of the uncertainty for the surface. Finally, there is attached a screengrab of the density layer, with the minimum value set to 1 and the maximum to 5 (the purple areas shown in it being areas where density exceeds 5 pings/node). Thank you!

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

3 attachments



H12642_MB_1m_MLLW_Final_Density.png
44K



H12642_MB_1m_MLLW_Final_DepthVsTVU_QC.png
87K

H12642 Density.jpg
377K

Patrick Keown - NOAA Federal <patrick.keown@noaa.gov> Wed, Jan 13, 2016 at 2:15 PM
To: Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>
Cc: Matthew Jaskoski - NOAA Federal <matthew.jaskoski@noaa.gov>, Shep Smith - NOAA Federal <shep.smith@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, "ChiefST.Thomas Jefferson - NOAA Service Account" <chiefst.thomas.jefferson@noaa.gov>, Allison Stone - NOAA Federal <allison.c.stone@noaa.gov>

Forrest,

One quick question...The first attachment shows the 99.5% of nodes passing like you stated but the file name in front of that is the 1m. Is that a typo?

Thanks,

Patrick A. Keown
Physical Scientist
Hydrographic Surveys Division
Office of Coast Survey, NOAA
Office: 301-713-2702 x 107
"Don't taunt the alligator until you've crossed the creek"
[Quoted text hidden]

LT Matthew Forrest, NOAA <matthew.r.forrest@noaa.gov> Wed, Jan 13, 2016 at 4:10 PM
To: Patrick Keown - NOAA Federal <patrick.keown@noaa.gov>
Cc: Matthew Jaskoski - NOAA Federal <matthew.jaskoski@noaa.gov>, Shep Smith - NOAA Federal <shep.smith@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, "ChiefST.Thomas Jefferson - NOAA Service Account" <chiefst.thomas.jefferson@noaa.gov>, Allison Stone - NOAA

Federal <allison.c.stone@noaa.gov>

Patrick,

The wrong ones were originally produced; we'll have the correct ones shortly (we don't have power at the moment). Sorry about the mix-up.

V/r,

Forrest

[Quoted text hidden]

Patrick Keown - NOAA Federal <patrick.keown@noaa.gov> Wed, Jan 13, 2016 at 4:17 PM
To: "LT Matthew Forrest, NOAA" <matthew.r.forrest@noaa.gov>
Cc: Matthew Jaskoski - NOAA Federal <matthew.jaskoski@noaa.gov>, Shep Smith - NOAA Federal <shep.smith@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, "ChiefST.Thomas Jefferson - NOAA Service Account" <chiefst.thomas.jefferson@noaa.gov>, Allison Stone - NOAA Federal <allison.c.stone@noaa.gov>

No problem at all.

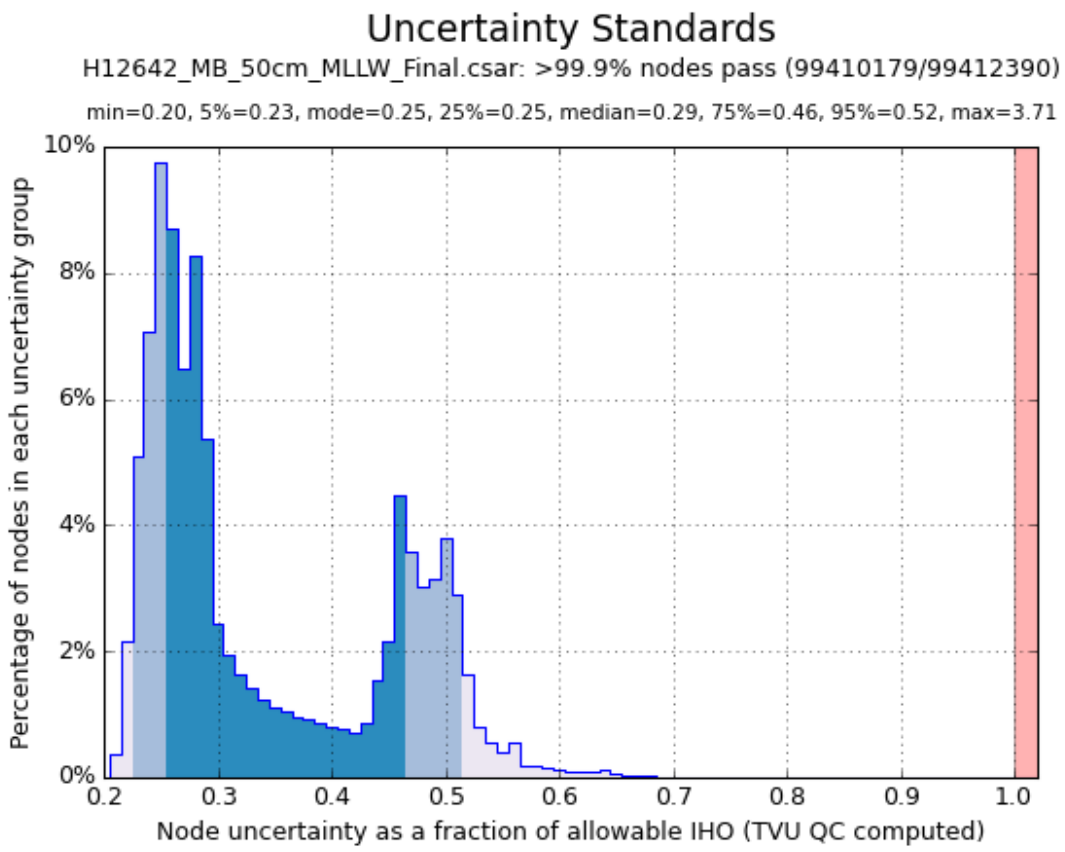
Patrick A. Keown
Physical Scientist
Hydrographic Surveys Division
Office of Coast Survey, NOAA
Office: 301-713-2702 x 107
"Don't taunt the alligator until you've crossed the creek"

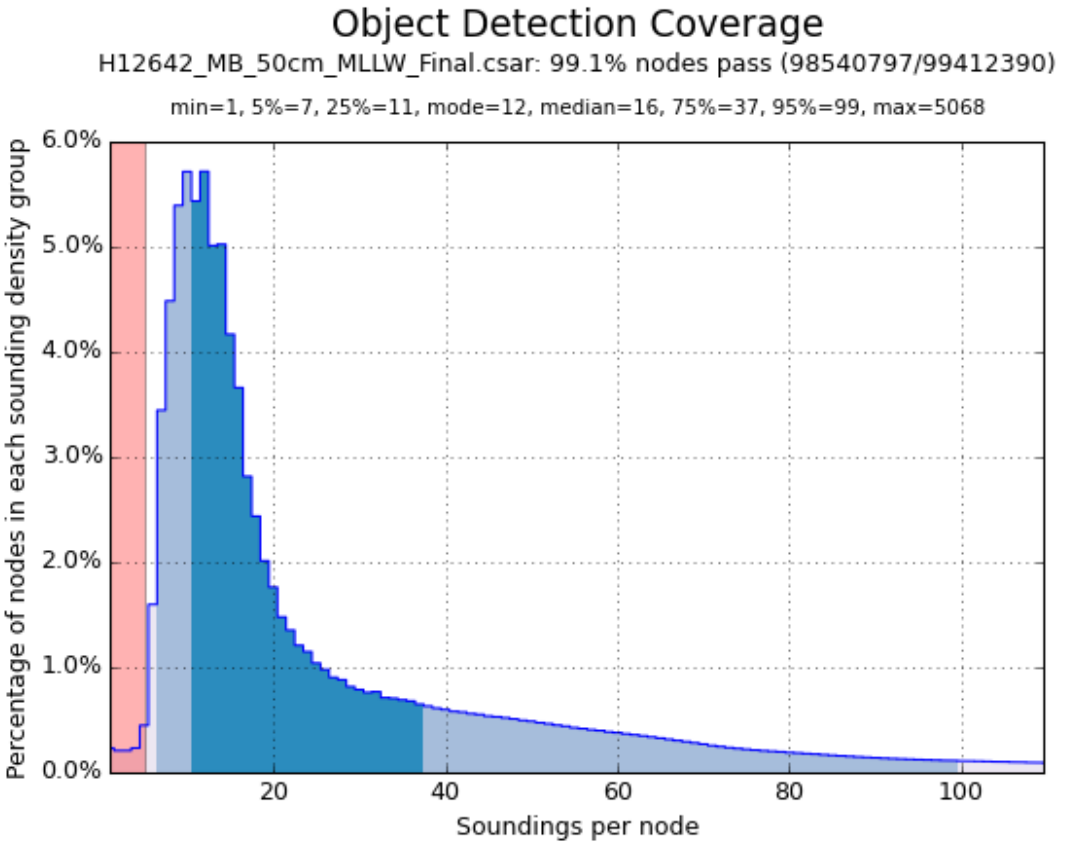
[Quoted text hidden]

Allison Stone - NOAA Federal <allison.c.stone@noaa.gov> Thu, Jan 14, 2016 at 12:19 PM
To: Patrick Keown - NOAA Federal <patrick.keown@noaa.gov>
Cc: "LT Matthew Forrest, NOAA" <matthew.r.forrest@noaa.gov>, Matthew Jaskoski - NOAA Federal <matthew.jaskoski@noaa.gov>, Shep Smith - NOAA Federal <shep.smith@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, "ChiefST.Thomas Jefferson - NOAA Service Account" <chiefst.thomas.jefferson@noaa.gov>

All-

Please find correct stats below. Sorry for the mix up...





Respectfully,

[Quoted text hidden]

--

Allison C. Stone
Hydrographic Senior Survey Technician

NOAA Ship *Thomas Jefferson*

"The sea, once it casts its spell, holds one in its net of wonder forever" Jacques Cousteau

---

Patrick Keown - NOAA Federal <patrick.keown@noaa.gov> Thu, Jan 14, 2016 at 3:09 PM
To: Allison Stone - NOAA Federal <allison.c.stone@noaa.gov>
Cc: "LT Matthew Forrest, NOAA" <matthew.r.forrest@noaa.gov>, Matthew Jaskoski - NOAA Federal <matthew.jaskoski@noaa.gov>, Shep Smith - NOAA Federal <shep.smith@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, "ChiefST.Thomas Jefferson - NOAA Service Account" <chiefst.thomas.jefferson@noaa.gov>

Thanks,

I will get an answer by the end of the day.

Patrick A Keown
Physical Scientist
Hydrographic Surveys Division
Office of Coast Survey, NOAA
Office: 301-713-2702 x 107
"Don't taunt the alligator until you've crossed the creek"

On Jan 14, 2016, at 7:19 AM, Allison Stone - NOAA Federal <allison.c.stone@noaa.gov> wrote:

> All-
>
> Please find correct stats below. Sorry for the mix up...
>
> <H12642_MB_50cm_MLLW_Final_TVU_QC.png>
> <H12642_MB_50cm_MLLW_Final_Density.png>
>
> Respectfully,
> [Quoted text hidden]

Patrick Keown - NOAA Federal <patrick.keown@noaa.gov> Thu, Jan 14, 2016 at 7:47 PM
To: Allison Stone - NOAA Federal <allison.c.stone@noaa.gov>
Cc: "LT Matthew Forrest, NOAA" <matthew.r.forrest@noaa.gov>, Matthew Jaskoski - NOAA Federal <matthew.jaskoski@noaa.gov>, Shep Smith - NOAA Federal <shep.smith@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, "ChiefST.Thomas Jefferson - NOAA Service Account" <chiefst.thomas.jefferson@noaa.gov>

TJ,

Based on all the information presented, OPS concurs with the submission of the 50cm surface. With that said, all density requirements for the 50cm surface should be adhered to (which based on the stats provided they appear to). Please let me know if you have any other questions.

Thanks,

Patrick A. Keown
Physical Scientist
Hydrographic Surveys Division
Office of Coast Survey, NOAA
Office: 301-713-2702 x 107
"Don't taunt the alligator until you've crossed the creek"

[Quoted text hidden]

Joseph Carrier - NOAA Federal <joseph.carrier@noaa.gov>

Fwd: DR Summary Example

3 messages

Patrick Keown - NOAA Federal <patrick.keown@noaa.gov> Tue, Aug 4, 2015 at 9:26 PM
To: "OPS.Thomas Jefferson - NOAA Service Account" <OPS.Thomas.Jefferson@noaa.gov>, Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>

Patrick A. Keown
Physical Scientist
NOS - OCS - HSD
National Oceanic Atmospheric Administration
Office: 301-713-2702 x 107
"Don't taunt the alligator until you've crossed the creek"

---------- Forwarded message ----------
From: **Cassandra Bongiovanni - NOAA Affiliate** <cassandra.bongiovanni@noaa.gov>
Date: Tue, Aug 4, 2015 at 4:22 PM
Subject: DR Summary Example
To: Patrick Keown - NOAA Federal <patrick.keown@noaa.gov>, Jeffery Marshall - NOAA Federal <jeffery.marshall@noaa.gov>

Hi Patrick, Jeff,
I have attached a DR Summary that was submitted for the State of Maine 2014 data as an example.
Let me know if you have any questions.
Thanks,
Cassie Bongiovanni

W00288_DRSummary_signed_AA.pdf
1455K

Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov> Thu, Aug 6, 2015 at 12:54 PM
To: Joseph Carrier - NOAA Federal <joseph.carrier@noaa.gov>

Joe,

I've finally had a chance to look over this, and it seems like it might fit our needs fairly well. We can remove a lot of information, such as uncertainty values and processing description, and replace it with "refer to DAPR for G-380-TJ-15" lines. I can get started on moving forward with it soon, if you'd like.

V/r,

Forrest
[Quoted text hidden]
--
LTJG Matthew Forrest, NOAA
Operations Officer in Training
NOAA Ship Thomas Jefferson
439 W York St
Norfolk, VA 23510

Tel: (757) 647-0187
Iridium: (808) 434-2706

Joseph Carrier - NOAA Federal <joseph.carrier@noaa.gov> Thu, Aug 6, 2015 at 1:16 PM
To: Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>

Matt,

Please do, let's work on getting the NMFS survey submitted next week.

Thanks,
Joe

Very respectfully,
Joe Carrier, LT/NOAA

Field Operation's Officer, NOAA Ship *Thomas Jefferson*
439 West York Street
Norfolk, VA 23510
cell: (757) 647-0187
voip: (541) 867-8927
fax: (757) 512-8295
http://www.moc.noaa.gov/tj/
[Quoted text hidden]

Joseph Carrier - NOAA Federal <joseph.carrier@noaa.gov>

Fwd: Meeting with Maine Marine Patrol - *Penobscot Bay timing request*

3 messages

Meghan McGovern - NOAA Federal <meghan.mcgovern@noaa.gov> Mon, Aug 10, 2015 at 2:24 PM
To: "CO.Thomas Jefferson - NOAA Service Account" <co.thomas.jefferson@noaa.gov>
Cc: "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, Russell Proctor - NOAA Federal <russell.proctor@noaa.gov>

Hi CO,

Just wanted to pass along this correspondence from a couple months ago for your awareness. Although, 'correspondence' would imply I got a response or acknowledgement of some kind, which I did not. I recently heard about your upcoming yard period which I guess would push the ship more toward peak gear season.

Maine Marine Patrol has a close working relationship with the fishing community so they will be a great resource moving forward.

V/r,
Meghan

---------- Forwarded message ----------
From: **Meghan McGovern - NOAA Federal** <meghan.mcgovern@noaa.gov>
Date: Mon, Jun 22, 2015 at 4:01 PM
Subject: Meeting with Maine Marine Patrol - *Penobscot Bay timing request*
To: Patrick Keown - NOAA Federal <patrick.keown@noaa.gov>, Kristen Crossett - NOAA Federal <kristen.crossett@noaa.gov>, Michael Gonsalves - NOAA Federal <michael.gonsalves@noaa.gov>, Corey Allen - NOAA Federal <Corey.Allen@noaa.gov>
Cc: Dawn Forsythe - NOAA Federal <dawn.forsythe@noaa.gov>

All,

Positive meeting with Maine Marine Patrol today in Augusta. They are happy to see improvements in communications over the past year - the stakeholder letters, the LNMs, the subscription service, etc. One important note:

When I mentioned our next Maine survey work was likely Penobscot Bay in 2016, they were hoping that the timing could be adjusted to avoid peak fishing gear densities. They mentioned specifically March/April/May, earlier in the season, would be overwhelmingly better than later in the season. Of course, the winter would be good too but we discussed certain limitations with that idea.

Just wanted to get this on everyone's radar early and often. Thanks!

V/r,
meghan

--

Meghan McGovern, LT/NOAA
Office of Coast Survey
Navigation Services Division
28 Tarzwell Drive
Narragansett, RI 02882
Tel: 401-782-3252
Cell: 401-545-0174

Fax: 401-782-3292
nauticalcharts.noaa.gov

--

Meghan McGovern, LT/NOAA
Office of Coast Survey
Navigation Services Division
28 Tarzwell Drive
Narragansett, RI 02882
Tel: 401-782-3252
Cell: 401-545-0174
Fax: 401-782-3292
nauticalcharts.noaa.gov

Shep Smith - NOAA Federal <shep.smith@noaa.gov> Mon, Aug 10, 2015 at 3:06 PM
To: Meghan McGovern - NOAA Federal <meghan.mcgovern@noaa.gov>
Cc: "CO.Thomas Jefferson - NOAA Service Account" <co.thomas.jefferson@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, Russell Proctor - NOAA Federal <russell.proctor@noaa.gov>

Meghan,

Roger. Not sure what Ops shares with you, but our current schedule for next year does not have Pen Bay on it at all. It probably says Jax, but will likely be Savannah, post yard period.

We are working on maturing the Z-boats, which are intended to be pot-friendly for shallow water work. The concept could be extended to deeper water as well, though not by next year.

Shep

CAPT Shepard M. Smith, NOAA
Commanding Officer, NOAA Ship Thomas Jefferson
National Oceanic and Atmospheric Administration

[Quoted text hidden]

TJ FY2015-16-July22.xlsx
30K

Meghan McGovern - NOAA Federal <meghan.mcgovern@noaa.gov> Mon, Aug 10, 2015 at 3:11 PM
To: Shep Smith - NOAA Federal <shep.smith@noaa.gov>
Cc: "CO.Thomas Jefferson - NOAA Service Account" <co.thomas.jefferson@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, Russell Proctor - NOAA Federal <russell.proctor@noaa.gov>

Yeah I was afraid of that. Pen Bay has been put off year after year much to the dismay of the pilots.

I'll go back to my corner...

V/r,

Meghan

[Quoted text hidden]

From: Matthew Forrest - NOAA Federal
To: Castle Parker - NOAA Federal
Subject: Fwd: NODC file 2015
Date: Monday, November 07, 2016 9:51:02 AM

---------- Forwarded message ----------
From: **ChiefST.Thomas Jefferson - NOAA Service Account**
<chiefst.thomas.jefferson@noaa.gov>
Date: Tue, Apr 5, 2016 at 5:20 PM
Subject: NODC file 2015
To: "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>

NODC files for 2015 have been zipped and sent to NODC.submissions@noaa.gov
and cc to Sam Greenaway as per FPM on 04/05/2016

--
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

Joseph Carrier - NOAA Federal <joseph.carrier@noaa.gov>

Notice of Planned Hydrographic Survey Operations in Buzzards Bay and Nantucket Sound

4 messages

Patrick Keown - NOAA Federal <patrick.keown@noaa.gov> Fri, Sep 11, 2015 at 5:52 PM
To: harbormaster@town.rockport.ma.us
Cc: Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Michael Gonsalves - NOAA Federal <michael.gonsalves@noaa.gov>, Meghan McGovern - NOAA Federal <Meghan.McGovern@noaa.gov>, Patrick Keown - NOAA Federal <patrick.keown@noaa.gov>, "CO.Thomas Jefferson - NOAA Service Account" <CO.Thomas.Jefferson@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>

Dear Mrs. Lesch,

I work with NOAA's Office of Coast Survey and am writing to inform you that the NOAA Ship Thomas Jefferson will be extending survey operations in Buzzards Bay and Nantucket Sound. They will now be sailing in the area until October 16th, 2015. They originally planned to depart the area before October but due to unforeseen mechanical issues they need to stay into mid-October.

Please see the attached Notification of Planned Hydrographic Surveying, which includes an image of the planned area of operations. If you have any questions regarding this notification, please contact:

LT Meghan McGovern, NOAA
Northeast Navigation Manager
(401) 728-3252, meghan.mcgovern@noaa.gov

Thank you for your time and consideration in this matter.

Respectfully,

Patrick A. Keown
Physical Scientist
Hydrographic Surveys Division
Office of Coast Survey, NOAA
Office: 301-713-2702 x 107
"Don't taunt the alligator until you've crossed the creek"

OPR-B367-TJ-15_Notice of Planned Hydrographic Survey Operations_MA Harbormasters.pdf
840K

Patrick Keown - NOAA Federal <patrick.keown@noaa.gov> Fri, Sep 11, 2015 at 5:52 PM
To: saklob@aol.com
Cc: Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Michael Gonsalves - NOAA Federal <michael.gonsalves@noaa.gov>, Meghan McGovern - NOAA Federal <Meghan.McGovern@noaa.gov>, Patrick Keown - NOAA Federal <patrick.keown@noaa.gov>, "CO.Thomas Jefferson - NOAA Service Account" <CO.Thomas.Jefferson@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>

Dear Mr. Mataronas,

I work with NOAA's Office of Coast Survey and am writing to inform you that the NOAA Ship Thomas Jefferson will be extending survey operations in Buzzards Bay and Nantucket Sound. They will now be sailing in the area until October 16th, 2015. They originally planned to depart the area before October but due

to unforeseen mechanical issues they need to stay into mid-October.

Please see the attached Notification of Planned Hydrographic Surveying, which includes an image of the planned area of operations. If you have any questions regarding this notification, please contact:

LT Meghan McGovern, NOAA
Northeast Navigation Manager
(401) 728-3252, meghan.mcgovern@noaa.gov

Thank you for your time and consideration in this matter.

Respectfully,

Patrick A. Keown
Physical Scientist
Hydrographic Surveys Division
Office of Coast Survey, NOAA
Office: 301-713-2702 x 107
"Don't taunt the alligator until you've crossed the creek"

OPR-B367-TJ-15_Notice of Planned Hydrographic Survey Operations_RI Lobstermen.pdf
825K

Patrick Keown - NOAA Federal <patrick.keown@noaa.gov> Fri, Sep 11, 2015 at 5:53 PM
To: Beth.Casoni@lobstermen.com
Cc: Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Michael Gonsalves - NOAA Federal <michael.gonsalves@noaa.gov>, Meghan McGovern - NOAA Federal <Meghan.McGovern@noaa.gov>, "CO.Thomas Jefferson - NOAA Service Account" <CO.Thomas.Jefferson@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>

Dear Ms. Casoni,

I work with NOAA's Office of Coast Survey and am writing to inform you that the NOAA Ship Thomas Jefferson will be extending survey operations in Buzzards Bay and Nantucket Sound. They will now be sailing in the area until October 16th, 2015. They originally planned to depart the area before October but due to unforeseen mechanical issues they need to stay into mid-October.

Please see the attached Notification of Planned Hydrographic Surveying, which includes an image of the planned area of operations. If you have any questions regarding this notification, please contact:

LT Meghan McGovern, NOAA
Northeast Navigation Manager
(401) 728-3252, meghan.mcgovern@noaa.gov

Thank you for your time and consideration in this matter.

Respectfully,

Patrick A. Keown
Physical Scientist
Hydrographic Surveys Division
Office of Coast Survey, NOAA
Office: 301-713-2702 x 107
"Don't taunt the alligator until you've crossed the creek"

OPR-B367-TJ-15_Notice of Planned Hydrographic Survey Operations_MA Lobstermen.pdf
830K

Beth Casoni <beth.casoni@lobstermen.com> Fri, Sep 11, 2015 at 6:05 PM
To: Patrick Keown - NOAA Federal <patrick.keown@noaa.gov>
Cc: Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Michael Gonsalves - NOAA Federal <michael.gonsalves@noaa.gov>, Meghan McGovern - NOAA Federal <Meghan.McGovern@noaa.gov>, "CO.Thomas Jefferson - NOAA Service Account" <CO.Thomas.Jefferson@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>

Patrick,

Thank you for the updated information. We will publish this in our October newspaper and forward. If there is anything else we can do let me know.

Kind regards,

Beth Casoni, *Executive Director*

Massachusetts Lobstermen's Association

8 Otis Place~Scituate, MA 02066

o. 781-545-6984 c. 508-738-1245

www.lobstermen.com

From: Patrick Keown - NOAA Federal [mailto:patrick.keown@noaa.gov]
Sent: Friday, September 11, 2015 1:53 PM
To: Beth Casoni
Cc: Corey Allen - NOAA Federal; Michael Gonsalves - NOAA Federal; Meghan McGovern - NOAA Federal; CO.Thomas Jefferson - NOAA Service Account; OPS.Thomas Jefferson - NOAA Service Account
Subject: Notice of Planned Hydrographic Survey Operations in Buzzards Bay and Nantucket Sound

[Quoted text hidden]

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Coast Survey
Silver Spring, Maryland 20910-3282

September 11, 2015

Rosemary Lesch
Massachusetts Harbormasters Association
39 School Street
Rockport, MA 01966
harbormaster@town.rockport.ma.us

Dear Ms. Lesch,

The National Oceanic and Atmospheric Administration (NOAA) Ship *Thomas Jefferson* will be conducting hydrographic survey operations within Buzzards Bay and Nantucket Sound from July through September 2015.

A map showing the planned survey area is attached; however you may also find a three year plan of NOAA's hydrographic survey activities here. These planned survey operations are subject to change due to weather and logistical constraints. It is the intent of NOAA to coordinate with local regulatory authorities and lobstermen so survey operations can be conducted with minimal interference to lobster fishing.

A hydrographic survey of this type requires that *Thomas Jefferson* tow a side scan sonar towfish approximately 20 to 60 feet off the bottom in some areas of this region. The towfish is approximately five feet in length, five inches in diameter, and towed by a cable. Side scan sonar and multibeam sonar systems will acquire detailed data of the bottom, delineating and obtaining least depths of potential hazards to navigation. Multibeam sonar data will also be collected by two 29-foot aluminum survey launches. Please Note: These survey launches do not tow any sonar equipment. Their sonar equipment is rigidly mounted to the aluminum hulls.

It is understood that a high density of pots may be in the area during survey operations. The personnel of *Thomas Jefferson* will exercise every caution while surveying to avoid entanglement of lobster pots. If a lobster pot does become entangled, *Thomas Jefferson* will immediately take action to stop the vessel and clear the pot lines from the sonar gear.

An email subscription list has been established to provide updates to interested parties on the activities of NOAA ships performing hydrographic survey work and document any changes in schedule indicated above. To subscribe click here, or navigate to NOAA's Office of Coast Survey webpage and follow the link to "Sign up for our newsletter". After entering your email address and appropriate contact information, select the "Survey updates for fishing community" email list.

If you have any questions on the survey operations or general comments on how we may approach an effective coordination effort, please contact our Navigation Manager for the Northeast, LT Meghan McGovern at (401) 782-3252 or Meghan.McGovern@noaa.gov.

Tort Claims Procedure

Fishermen that suspect damaged or lost gear as a result of an interaction with a NOAA Ship performing a hydrographic survey should complete a Standard Form 95 (SF-95), *Claim for Damage, Injury, or Death*. The claimant must complete sections 1-2, 6-9 and 11-19 of the SF-95, making sure to include:

- the location of the damaged or missing gear in latitude and longitude (NAD83),
- the date the gear was set,
- the date the gear was determined to be damaged or missing,
- a description of what gear was damaged or lost,
- fair-market value of the damaged or missing gear.

Signed and completed claim forms shall be submitted to the above referenced Navigation Manager. After review of the claim by the Navigation Manager and the Hydrographic Surveys Division, the claim will be forwarded to the Office of General Counsel for formal adjudication. Claimants should expect an adjudication process lasting approximately three to six months.

Links referenced above

Newsletter Subscription
http://visitor.r20.constantcontact.com/manage/optin?v=001WY2H_3RLHWqbwLQo0UF9xXy551Rjk9679j45N-2I5-rl58XqVD7LtDHoqyYj8Uz03z7aaLICkpAV2CuDNZtKaOf_2wZSt3Sg

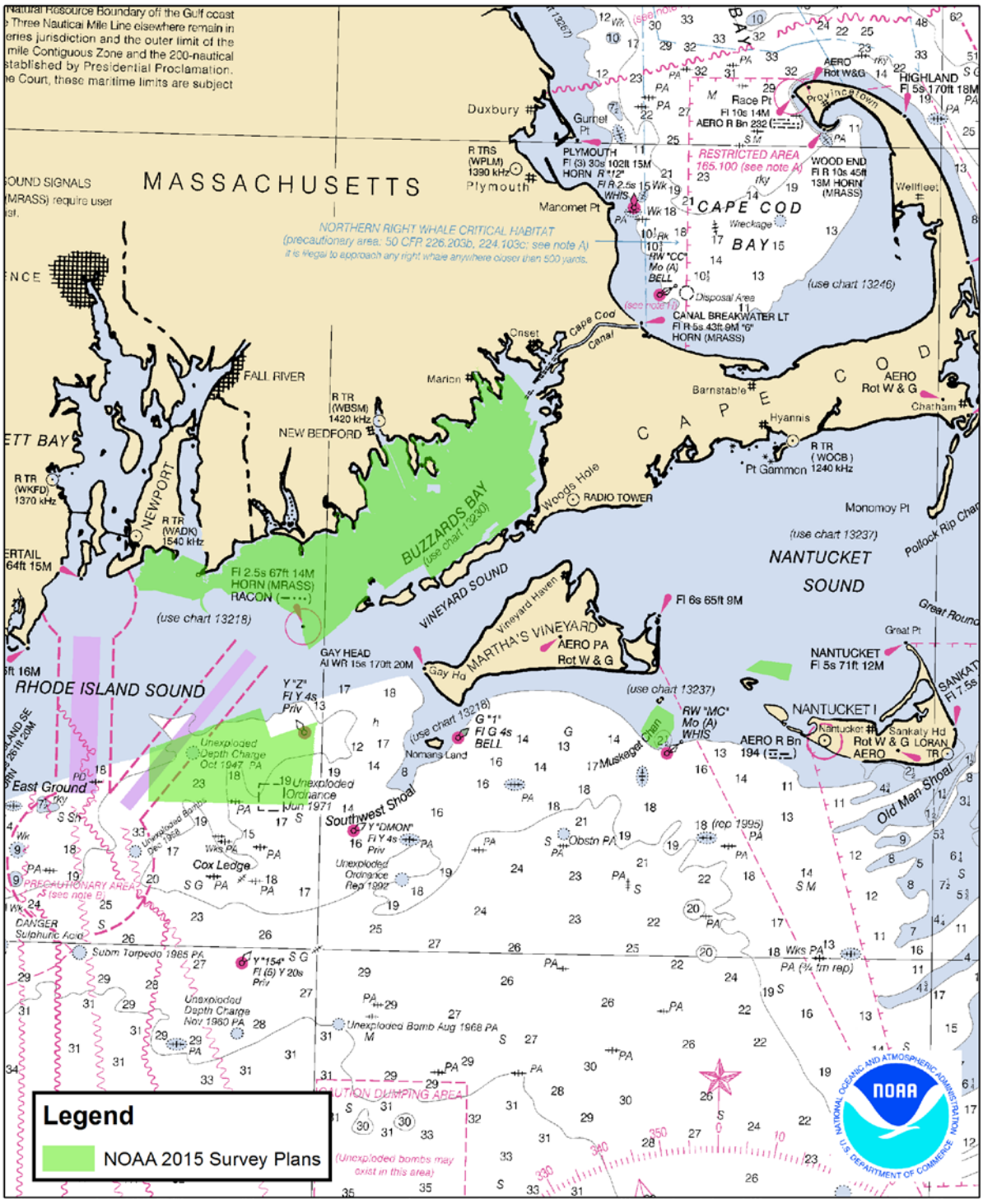
Survey Areas ArcGIS Online
http://www.arcgis.com/home/webmap/viewer.html?webmap=dccb3599aa8d414e83c1989d62ec93a0

SF-95
http://www.justice.gov/sites/default/files/civil/legacy/2011/11/01/SF-95.pdf

Sincerely,

Corey Allen
Team Lead, Hydrographic Surveys Division
NOAA, National Ocean Service
(301) 713-2702 x119
Corey.Allen@noaa.gov

NOAA Ship Thomas Jefferson
Buzzards Bay Project Layout
July 13, 2015 - October 16, 2015



Joseph Carrier - NOAA Federal <joseph.carrier@noaa.gov>

Re: 2007 JALBTCX data

5 messages

Michael Gonsalves - NOAA Federal <michael.gonsalves@noaa.gov> Tue, Sep 1, 2015 at 8:40 PM
To: Mark Lathrop - NOAA Federal <mark.t.lathrop@noaa.gov>, Patrick Keown - NOAA Federal <patrick.keown@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>
Cc: "CO.Thomas Jefferson - NOAA Service Account" <co.thomas.jefferson@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <OPS.Thomas.Jefferson@noaa.gov>

Hey Mark,

That's interesting that we missed that dataset. Before we start down the rabbit hole of whether 2007 lidar could find all the features we would wish to find, I would be interested to know how this dataset coincides with the 6m inshore limit. Would you please contour the 6m curve? We can then take if from there.

Cheers!
~~ mike.g.

On Tue, Sep 1, 2015 at 3:15 PM, Mark Lathrop - NOAA Federal <mark.t.lathrop@noaa.gov> wrote:

> Hi Mike,
>
> The TJ has, among its officially prescribed junctioning data, some JALBTCX Lidar flown in 2007 straddling current surveys H12643 and H12644. I've attached a screengrab. I believe it is a 4-meter grid. What we would like to know is, to what extent can the ship use this survey in fulfilling its mission. From what I've seen, the data match quite well with the chart, with the exception of a couple of rocks that warrant further investigation.
>
> If the TJ simply ignored this survey we could end up duplicating a lot of effort, especially at a time when the field season is being cut short. On the other hand, if they were to verify the data by running crosslines and shoal and rock investigations they could save a bit of time. If HSD/IOCM could try to find the backstory on this it seems to me we could at least use it in some capacity.
>
> On the other hand if the data's no good they need to know that too.
>
> Mark

Shep Smith - NOAA Federal <shep.smith@noaa.gov> Tue, Sep 1, 2015 at 9:15 PM
To: Michael Gonsalves - NOAA Federal <michael.gonsalves@noaa.gov>
Cc: Mark Lathrop - NOAA Federal <mark.t.lathrop@noaa.gov>, Patrick Keown - NOAA Federal <patrick.keown@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, "CO.Thomas Jefferson - NOAA Service Account" <co.thomas.jefferson@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <OPS.Thomas.Jefferson@noaa.gov>

Mike,

The version of the lidar I downloaded from Digital Coast is in NAVD88. In order to have a reasonable depth comparison, either to the chart or to the survey required depths, we will need a SEP model from NAVD88 to MLLW for the project area. Is that something your team can make for us?

Thanks,

Shep

CAPT Shepard M. Smith, NOAA
Commanding Officer, NOAA Ship Thomas Jefferson
National Oceanic and Atmospheric Administration

[Quoted text hidden]

Michael Gonsalves - NOAA Federal <michael.gonsalves@noaa.gov> Tue, Sep 1, 2015 at 10:03 PM
To: Shep Smith - NOAA Federal <shep.smith@noaa.gov>
Cc: Mark Lathrop - NOAA Federal <mark.t.lathrop@noaa.gov>, Patrick Keown - NOAA Federal <patrick.keown@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, "CO.Thomas Jefferson - NOAA Service Account" <co.thomas.jefferson@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <OPS.Thomas.Jefferson@noaa.gov>

Yes, we can cook up such a SEP model. Though, depending on the format of the data you obtained from Digital Coast, you might have an easier time running the entire dataset through VDatum. I tried to pull the dataset myself, but Digital coast is down at the moment. Out of curiosity, how does it spatially compare with the charted 30-foot contour.

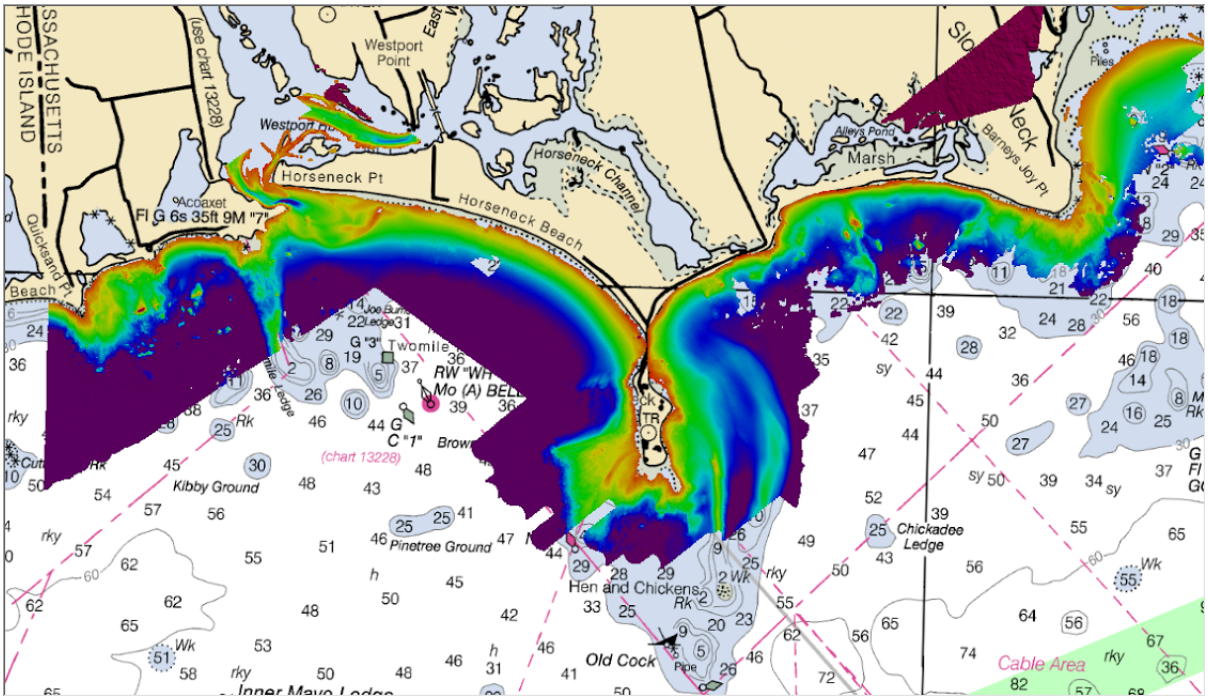
~~ mike.g.
[Quoted text hidden]

Shepard Smith <shep.smith@noaa.gov> Wed, Sep 2, 2015 at 12:13 AM
To: Michael Gonsalves - NOAA Federal <michael.gonsalves@noaa.gov>
Cc: Mark Lathrop - NOAA Federal <mark.t.lathrop@noaa.gov>, Patrick Keown - NOAA Federal <patrick.keown@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, "CO.Thomas Jefferson - NOAA Service Account" <co.thomas.jefferson@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <OPS.Thomas.Jefferson@noaa.gov>

It seemed to get pretty deep, probably about 10m, but some big holes-weed, waves, glint, turbidity, don't know. There are definitely a few uncharted features in it. Once we get the datum straight, there are probably some DTONs from it alone.

Captain Shepard Smith, NOAA
[Quoted text hidden]

Shep Smith - NOAA Federal <shep.smith@noaa.gov> Wed, Sep 2, 2015 at 1:46 PM
To: Michael Gonsalves - NOAA Federal <michael.gonsalves@noaa.gov>
Cc: Mark Lathrop - NOAA Federal <mark.t.lathrop@noaa.gov>, Patrick Keown - NOAA Federal <patrick.keown@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, "CO.Thomas Jefferson - NOAA Service Account" <co.thomas.jefferson@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <OPS.Thomas.Jefferson@noaa.gov>



Here is the coverage, colored 0-30 ft. In some places it went deeper, many offshore shoals not covered, but basically solid coverage along shore.

CAPT Shepard M. Smith, NOAA
Commanding Officer, NOAA Ship Thomas Jefferson
National Oceanic and Atmospheric Administration

[Quoted text hidden]

Joseph Carrier - NOAA Federal <joseph.carrier@noaa.gov>

Request for Separation Model for Narragansett Bay

3 messages

Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov> Tue, Aug 11, 2015 at 8:00 PM
To: _NOS OCS HSD OPS <hsd.ops@noaa.gov>
Cc: "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>

All,

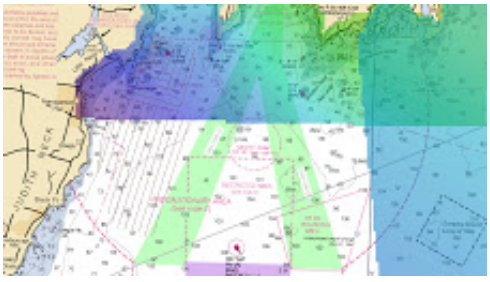
I would like to request an expansion of our existing separation model for Narragansett Bay. TJ is currently engaged in search operations for a sunken fishing boat, and our work has our launch working in areas not covered by the current separation model. I've attached images of the area, and I've also included a shapefile of the area we'd like the separation model expanded to include. Please let me know if there's any more information needed. Thank you!

V/r,

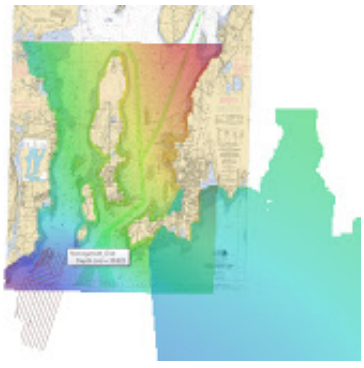
LTJG Matthew Forrest

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

6 attachments



Narragansett_Sep_Model_Expansion Area 1.jpg
305K



Narragansett_Sep_Model_Expansion Area 2.jpg
154K

Narragansett_Sep_Model_Expansion_ACHARE_Polygon.dbf
8K

Narragansett_Sep_Model_Expansion_ACHARE_Polygon.shp
1K

Narragansett_Sep_Model_Expansion_ACHARE_Polygon.shp_rxl
1K

Narragansett_Sep_Model_Expansion_ACHARE_Polygon.shx
1K

Patrick Keown <patrick.keown@noaa.gov> Tue, Aug 11, 2015 at 8:29 PM
To: Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>
Cc: _NOS OCS HSD OPS <hsd.ops@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>

Matt,

I will have a product for you tomorrow AM.

Thanks,

Patrick A. Keown
Chief (Acting), Customer Affairs Branch
NOS - OCS - NSD
National Oceanic Atmospheric Administration
Office: 301-713-2730 x 179
Cell: 301-789-3075
"Don't taunt the alligator until you've crossed the creek"
[Quoted text hidden]

<Narragansett_Sep_Model_Expansion_ACHARE_Polygon.dbf>

<Narragansett_Sep_Model_Expansion_ACHARE_Polygon.shp>

<Narragansett_Sep_Model_Expansion_ACHARE_Polygon.shp_rxl>

<Narragansett_Sep_Model_Expansion_ACHARE_Polygon.shx>

<Narragansett_Sep_Model_Expansion Area 1.jpg>

<Narragansett_Sep_Model_Expansion Area 2.jpg>

Patrick Keown - NOAA Federal <patrick.keown@noaa.gov> Wed, Aug 12, 2015 at 3:03 PM
To: Matthew Forrest - NOAA Federal <matthew.r.forrest@noaa.gov>
Cc: _NOS OCS HSD OPS <hsd.ops@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>

TJ 4th & Ops,

Please see attached. I expanded the area a little more than your original request in case the search expands. Please let me know if you need anything else.

Thanks,

Patrick A. Keown
Physical Scientist
NOS - OCS - HSD
National Oceanic Atmospheric Administration
Office: 301-713-2702 x 107
"Don't taunt the alligator until you've crossed the creek"
[Quoted text hidden]

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2 attachments

TJ_Narraganset_Expansion_Reg.csar
127K

TJ_Narraganset_Expansion_Reg.csar0
901K

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of Marine and Aviation Operations,
Marine Operation Center-Atlantic, NOAA Ship Thomas Jefferson
Norfolk, Virginia 23510

August 10, 2015

MEMORANDUM FOR: Captain Eric W. Berkowitz
Chief, Hydrographic Surveys Division

FROM: Captain Shepard M. Smith, NOAA
Commanding Officer, NOAA Ship Thomas Jefferson

SUBJECT: NOAA Ship *Thomas Jefferson* ERZT Checkline Analysis

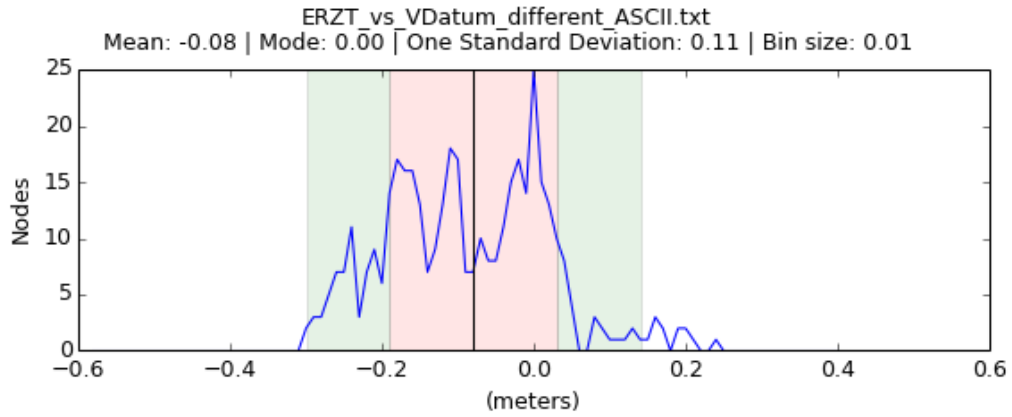
Under the project instructions OPR-B367-TJ-15, the NOAA Ship *Thomas Jefferson* (TJ) was tasked with surveying in Buzzards Bay, MA by referencing the vertical datum to the ellipse.

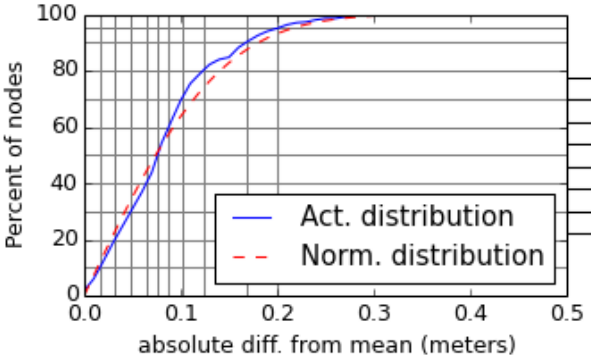
In 2015, the crew of the *Thomas Jefferson*, with support from the Atlantic Hydrographic Branch (AHB), Hydrographic Systems Technical Programs (HSTP), and Hydrographic Surveys Division (HSD), collaborated to evaluate different methods of surveying to the ellipse. The ship and launches were integrated with Fugro's Marinestar-XP service, which provides a 1 sigma accuracy of approximately +/- 10cm in the horizontal and +/-15cm in the vertical planes using a combination of GPS satellites and geostationary communications satellites. The end goal being the use of this instead of data from traditional CORS base stations. Testing and subsequent integration of the Post Processed Precise Point Positioning (5P) method has proven efficient, accurate and reliable.

As a base check, to ensure that surveying to the ellipse would be accurate and adhere to Hydrographic Survey Specifications and Deliverables, HSD requested that the TJ perform crosslines that could be used to test traditional Ellipsoidally Referenceced Zoned Tides (ERZT) versus VDatum. In an effort to comply with HSD's request, upon arrival to the Buzzards Bay working grounds, TJ performed 10 crosslines that they used for this checkline analysis. The result of the analysis are stated below and attached to this memo.

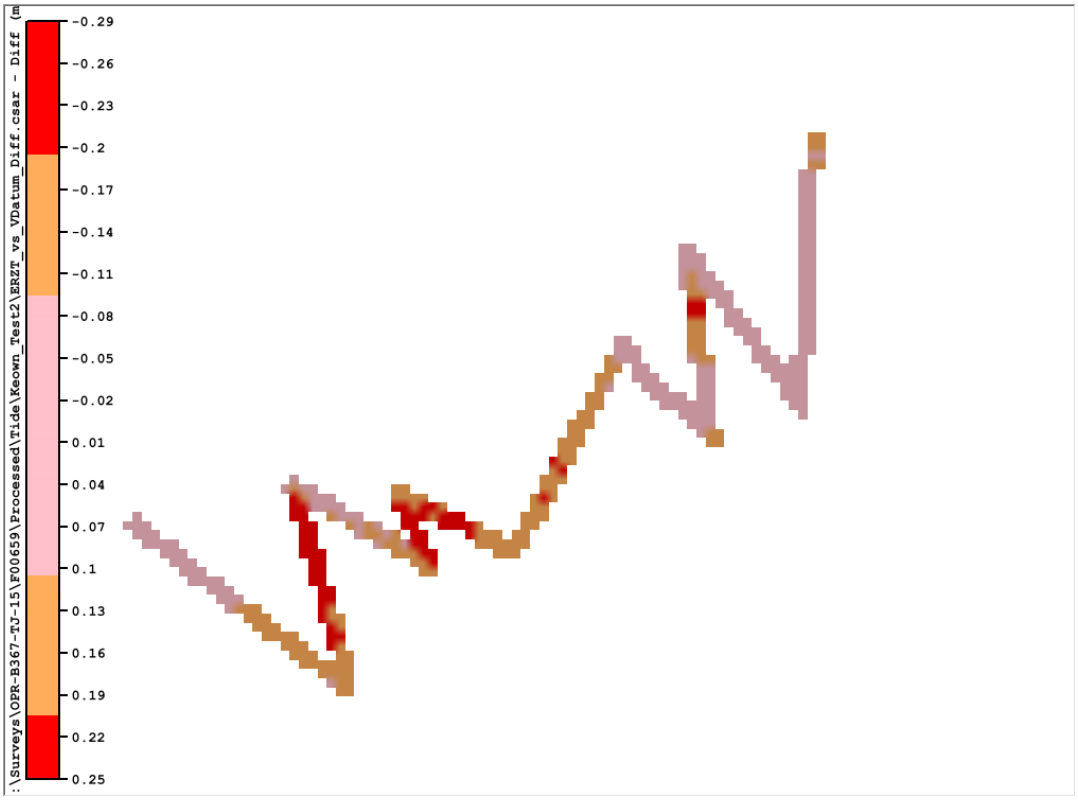
Using an ERZT comparison with Survey F00659, the observed vertical solution demonstrated parity with the regional VDatum separation model provided by HSD Operations, giving confidence that SBET solutions created from 5P were and will be satisfactory. Further, the reduced processing times associated with 5P allowed TJ survey personnel to more quickly identify problematic lines within the survey, thereby reducing bottlenecks and increasing efficiency. TJ has established a backup workflow if there is extensive communication loss of MarineStar data (>8min). In those circumstances, the ship will either resurvey lines or utilize IAPPK.

Below are the results of the checkline analysis. Overall 95% of the nodes were +/- 0.20 m standard deviation. With these results, TJ would like to continue surveying in Buzzards Bay by referencing the vertical datum to the ellipse.





Percent of nodes	Deviation (m)
50%	+/- 0.08
60%	+/- 0.09
70%	+/- 0.10
80%	+/- 0.12
90%	+/- 0.17
95%	+/- 0.20



APPROVAL PAGE

H12643

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

- H12643_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12643_GeoImage.pdf

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.

Briana Welton Hillstrom

Digitally signed by HILLSTROM.BRIANA.WELTON.1267667531
Date: 2019.01.30 11:06:32 -05'00'

Approved: _____

Lieutenant Commander Briana Welton, NOAA
Chief, Atlantic Hydrographic Branch