

H13298

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

DESCRIPTIVE REPORT

Type of Survey: Navigable Area

Registry Number: H13298

LOCALITY

State(s): Virginia

General Locality: Southern Chesapeake Bay

Sub-locality: White Shoal

2019

CHIEF OF PARTY
CDR Briana Hillstrom, NOAA

LIBRARY & ARCHIVES

Date:

HYDROGRAPHIC TITLE SHEET

H13298

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): **Virginia**

General Locality: **Southern Chesapeake Bay**

Sub-Locality: **White Shoal**

Scale: **10000**

Dates of Survey: **07/09/2019 to 12/21/2019**

Instructions Dated: **07/05/2019**

Project Number: **OPR-E350-TJ-19**

Field Unit: **NOAA Ship Thomas Jefferson (S222)**

Chief of Party: **CDR Briana Hillstrom, NOAA**

Soundings by: **Singlebeam Echo Sounder 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:

Any revisions to the Descriptive Report (DR) applied during office processing are shown in red italic text. The DR is maintained as a field unit product, therefore all information and recommendations within this report are considered preliminary unless otherwise noted. The final disposition of survey data is represented in the NOAA nautical chart products. All pertinent records for this survey are archived at the National Centers for Environmental Information (NCEI) and can be retrieved via <https://www.ncei.noaa.gov/>. Products created during office processing were generated in NAD83 UTM 18N, MLLW. All references to other horizontal or vertical datums in this report are applicable to the processed hydrographic data provided by the field unit.

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Descriptive Report to Accompany Survey H13298

Project: OPR-E350-TJ-19

Locality: Southern Chesapeake Bay

Sublocality: White Shoal

Scale: 1:10000

July 2019 - December 2019

NOAA Ship Thomas Jefferson (S222)

Chief of Party: CDR Briana Hillstrom, NOAA

A. Area Surveyed

Survey H13298 is located in the White Shoal are of the Chesapeake Bay, VA (Table 1 and Figure 1).

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
37° 3' 14.4" N 76° 35' 16.8" W	36° 55' 15.6" N 76° 24' 43.2" W

Table 1: Survey Limits

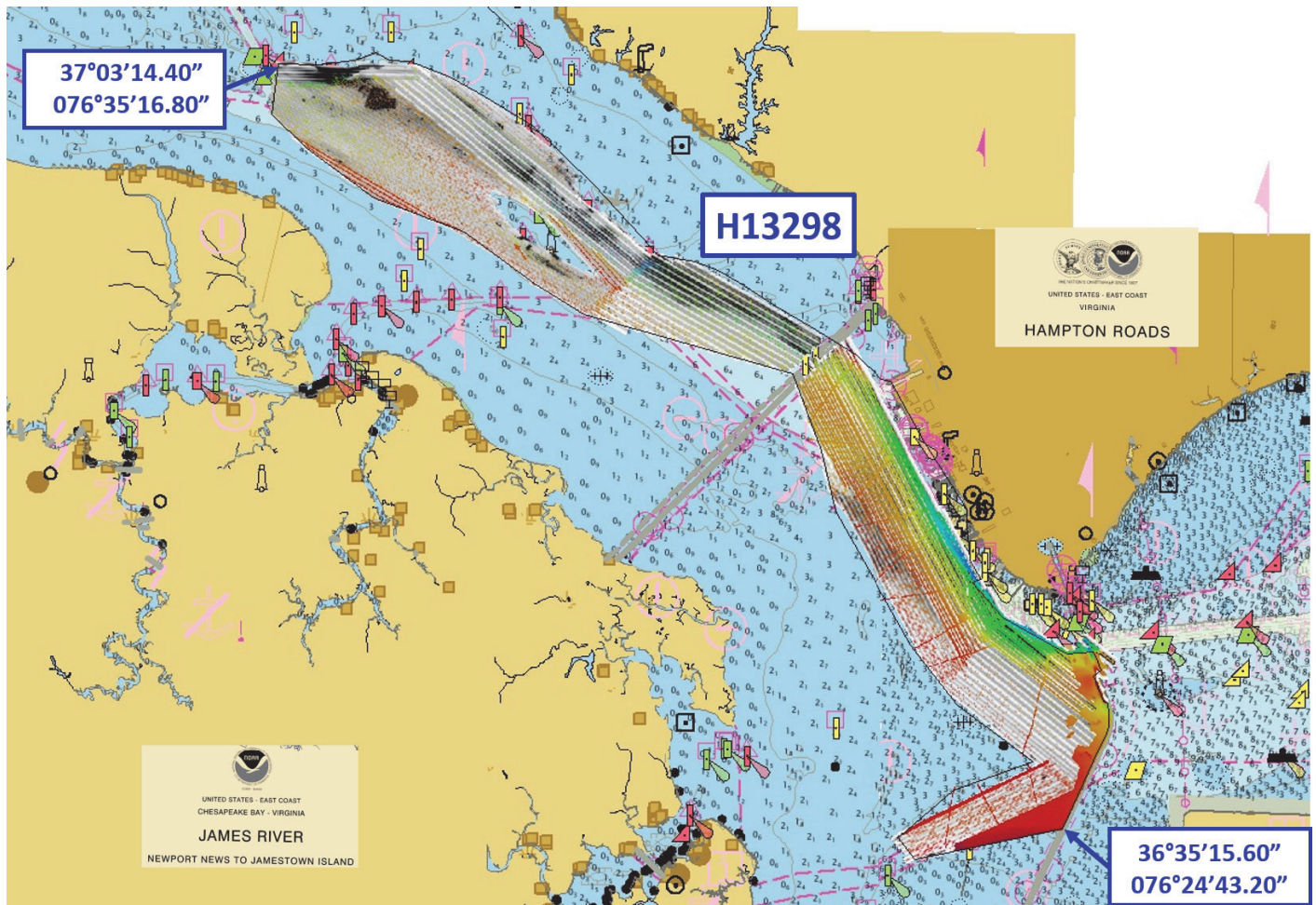


Figure 1: Survey layout for H13298, plotted over ENC US5VA15M and UA5VA25M. Black outline represents the survey limits set forth by the Project Instructions.

The Navigable Area Limit Line (NALL) was met within the limits of H13298 in the southern region around the Nansemond River Channel (Figure 2). Some areas were not surveyed to the NALL because the conditions within those areas were deemed too dangerous for survey operations (Figures 3 and 4, Areas A, B, C, and D). An area of the assigned survey limits was not surveyed due to the restriction of survey operations within a security area around Newport News Shipbuilding (Figure 5, Area E). Some areas of the assigned survey limits were not addressed due to operational time constraints (Figures 6 and 7).

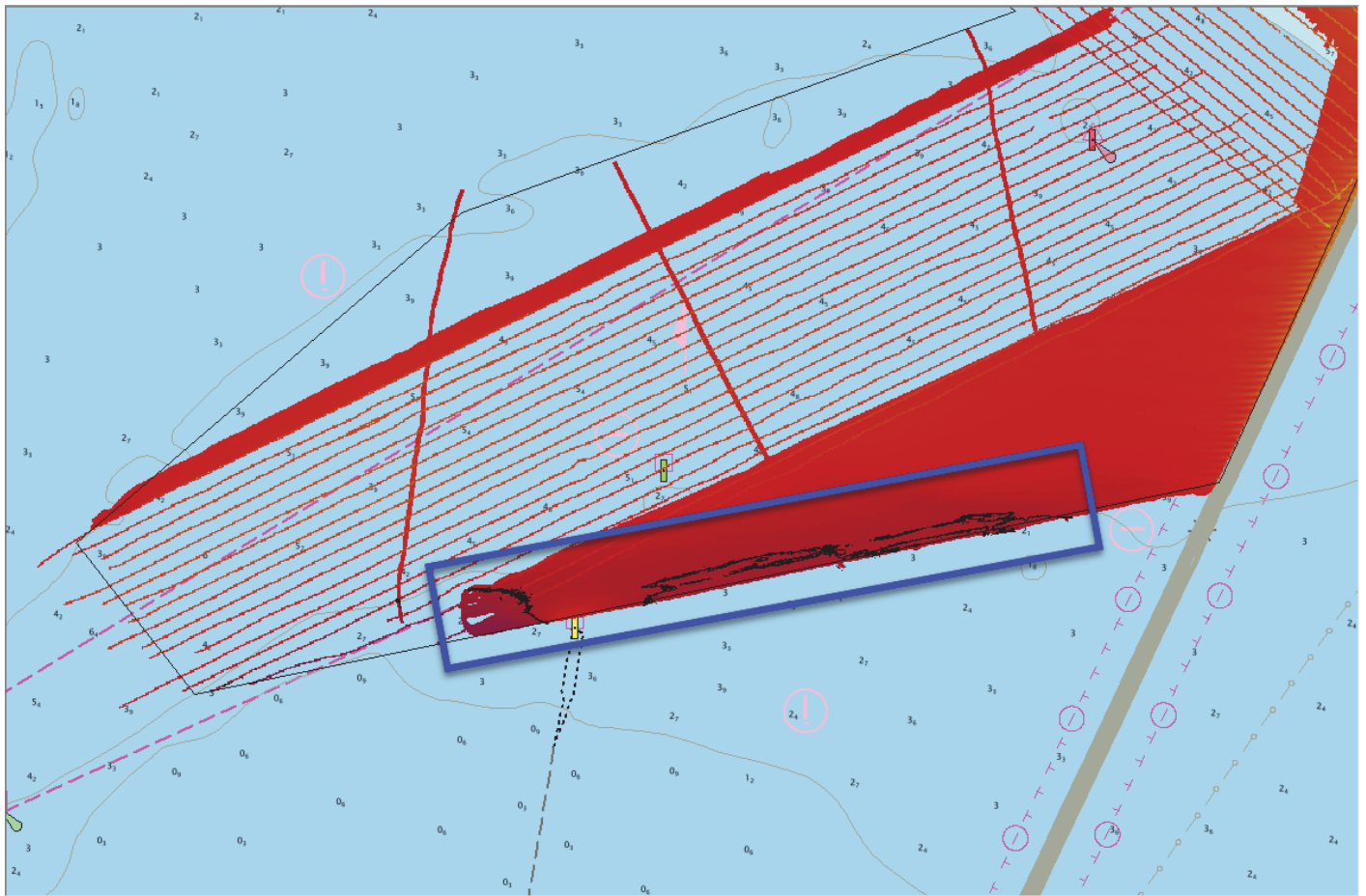


Figure 2: Area where the NALL was met within the limits of H13298. 3.5m depth contour shown in black.

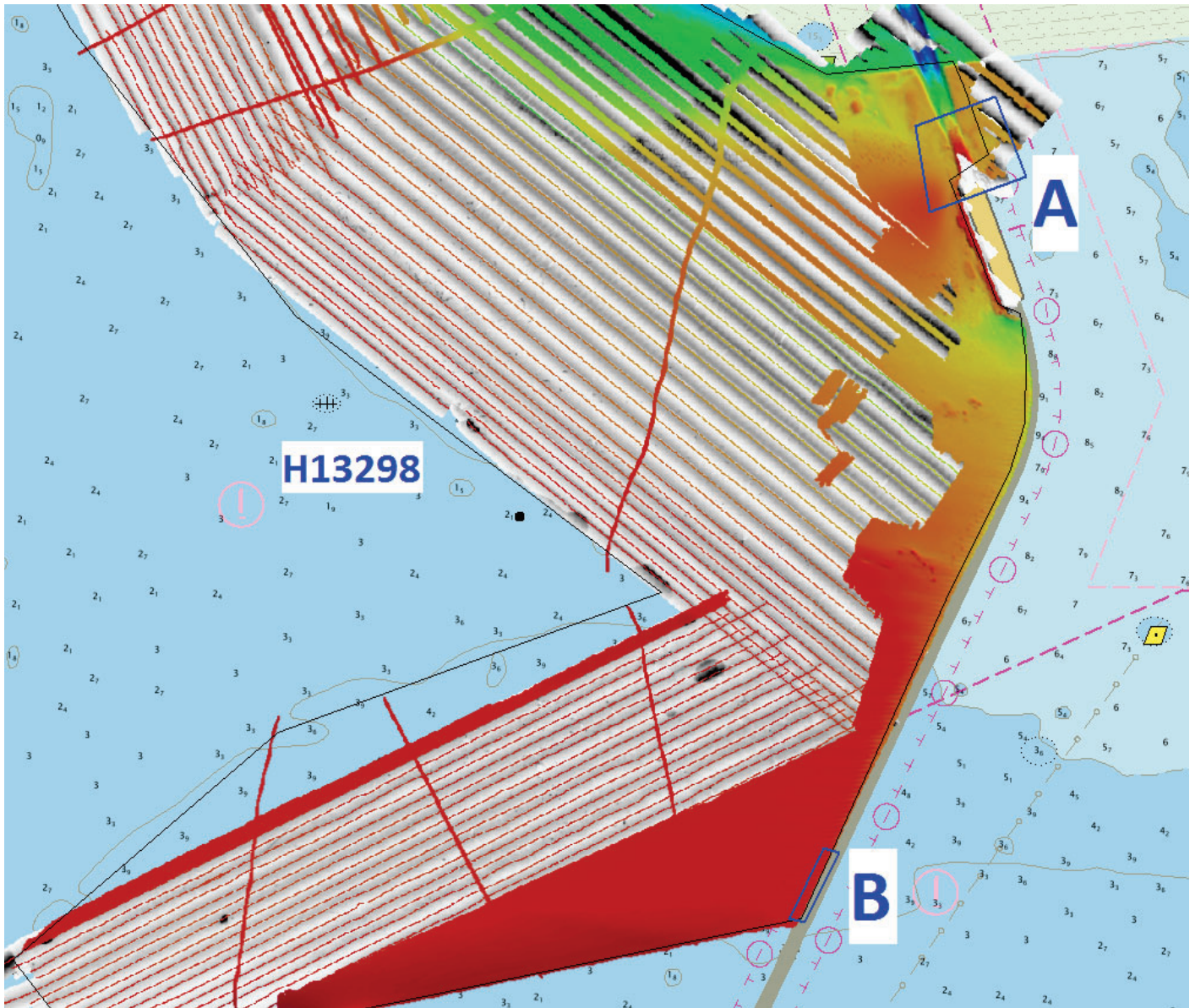


Figure 3: Survey limits were not met in areas A and B due to proximity to the Monitor Merrimac Memorial Bridge Tunnel.

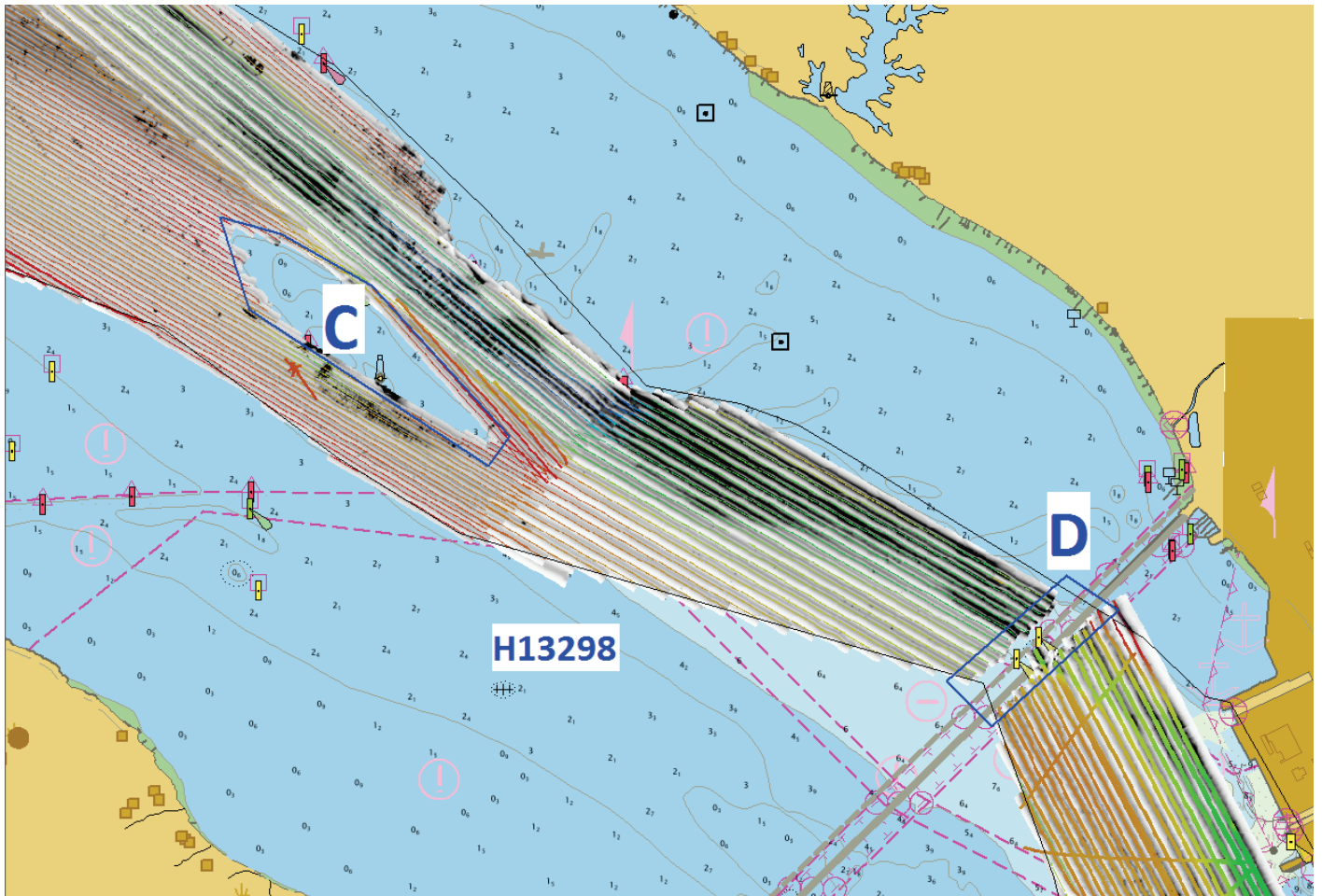


Figure 4: Survey limits were not met in areas C and D due to proximity to hazardous features.

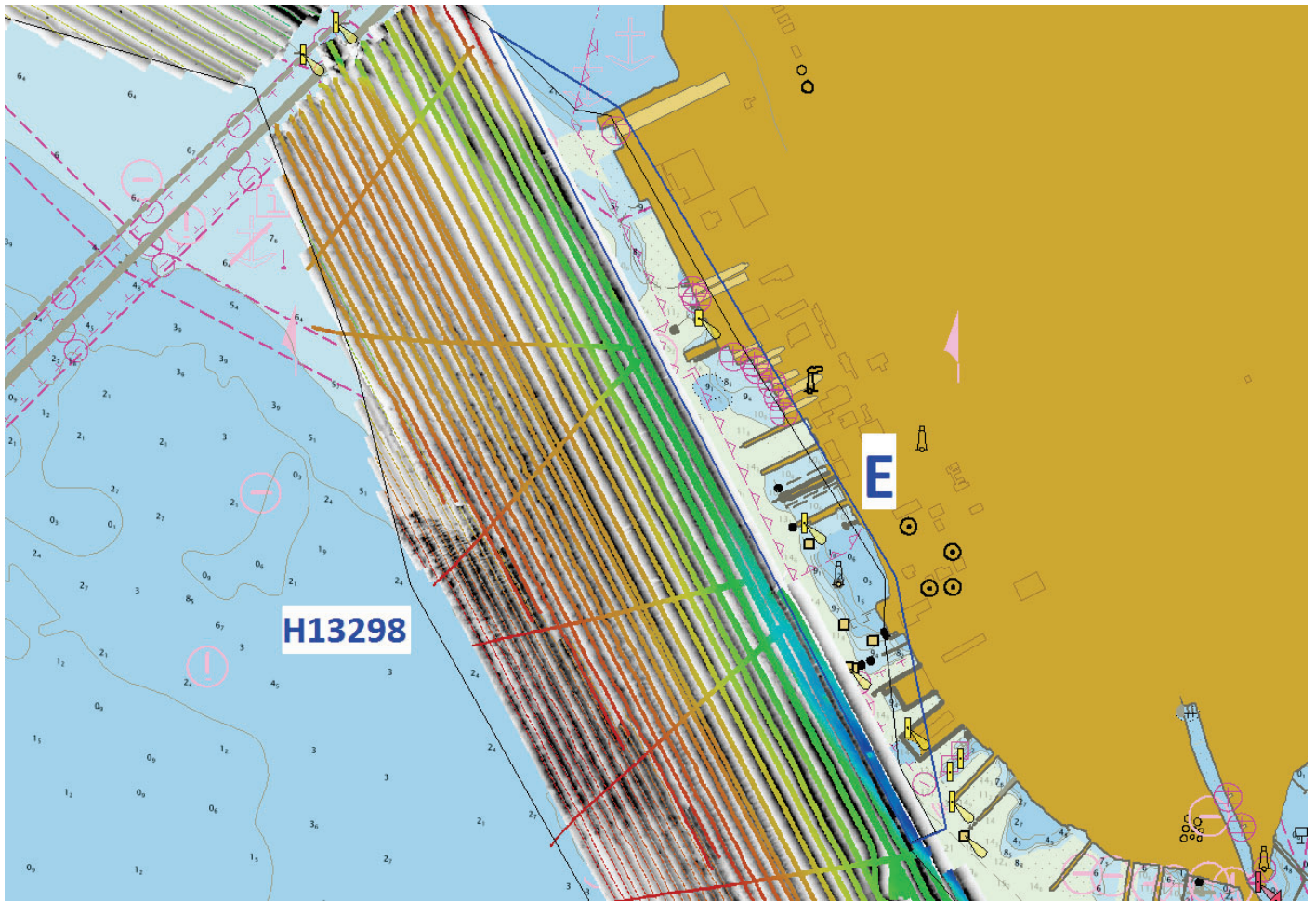


Figure 5: Survey limits were not met in the security area surrounding Newport News Shipbuilding in Area E.

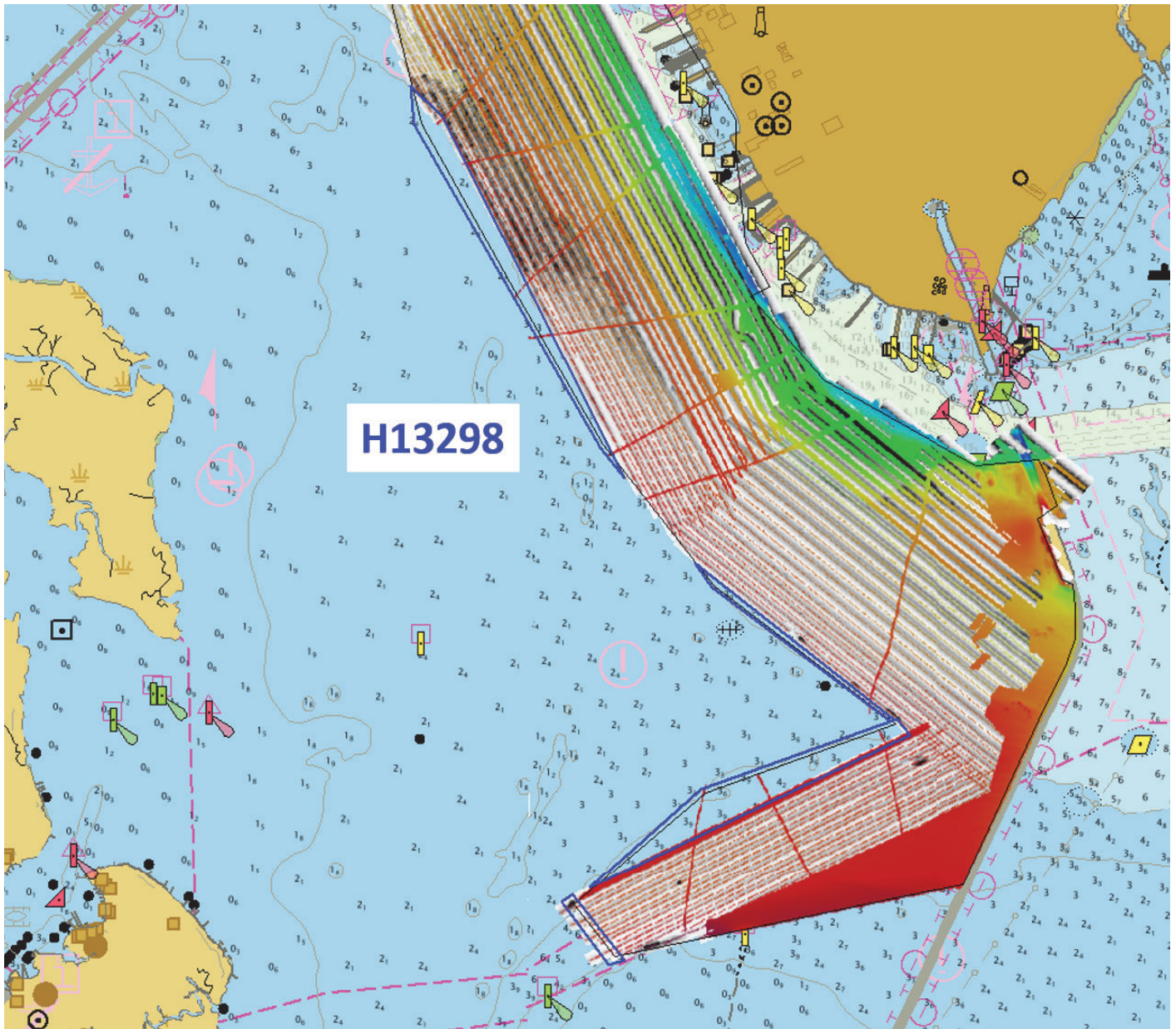


Figure 6: Survey limits were not met in the south east section of H13298 due to operational time constraints.

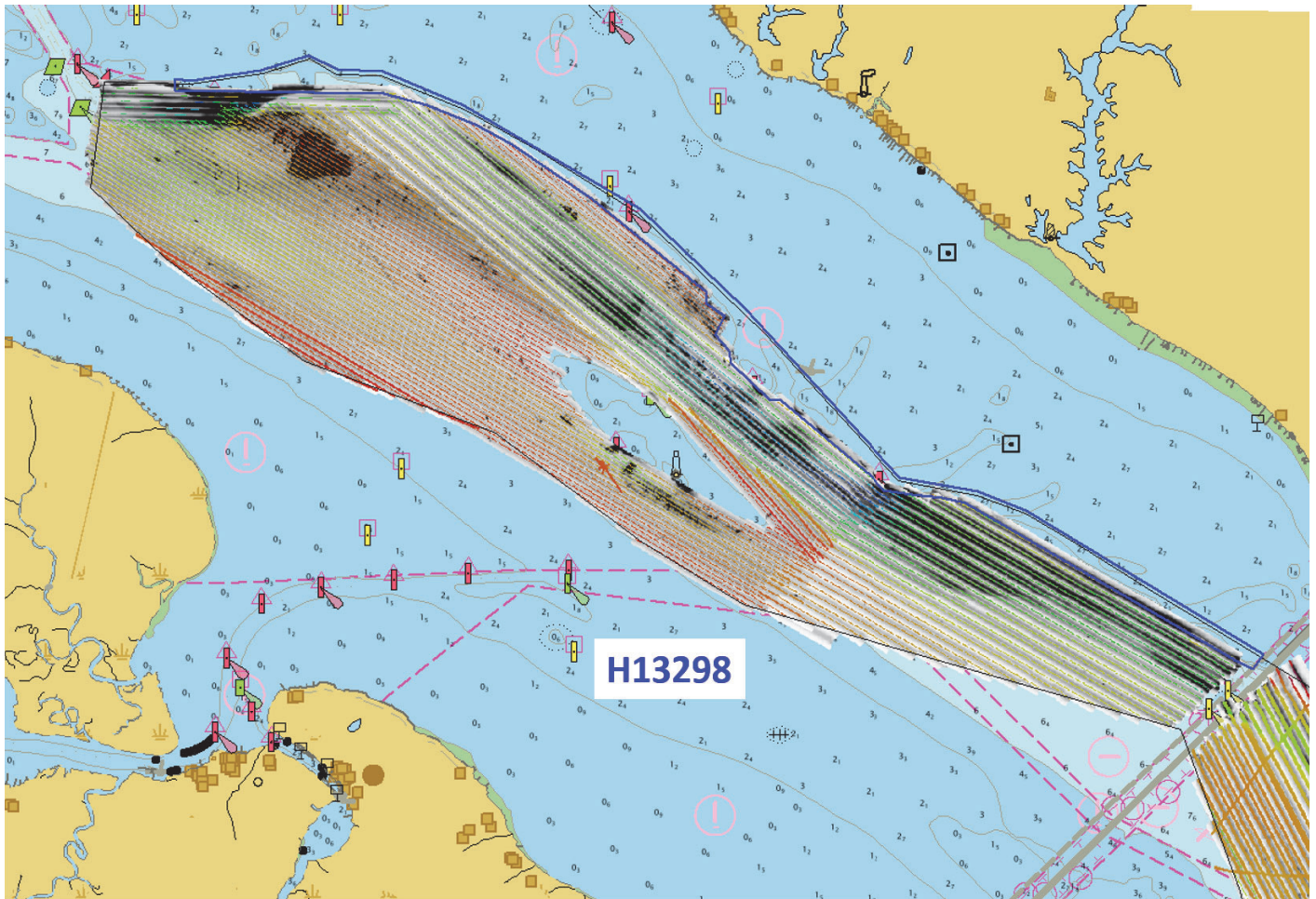


Figure 7: Survey limits were not met in the northern section of H13298 due to operational time constraints.

A.2 Survey Purpose

This project is located in the Chesapeake Bay in Virginia. The Chesapeake Bay is the largest of 130 estuaries in the United States. The Coast Guard is currently conducting a Waterways Assessment and Management Survey of the lower James River. This data will be used to assess if ATONs are correctly placed. Without recent hydrographic data, USCG lacks confidence that charted shoals are accurately positioned and is having a hard time producing a comprehensive report, and is thus looking forward to new data in the lower James River to update the latest surveys from 1945. This project will provide critical data for the updating of National Ocean Service (NOS) nautical charting products and services to increase maritime safety in the region. Survey data from this project is intended to supersede all prior survey data in the common area.

A.3 Survey Quality

The survey is partially adequate to supersede previous data.

Object detection coverage for H13298 was accomplished using three methods. These three methods are 100% bathymetric bottom coverage, 200% side scan sonar (SSS) coverage with concurrent multibeam, and 200% SSS coverage with concurrent single beam. See section A.4 Survey Coverage, B.2.8 Coverage Equipment and Methods, and B.5.2 Surfaces for a complete discussion.

A.4 Survey Coverage

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

Water Depth	Coverage Required
All waters in survey area	Object Detection Coverage

Table 2: Survey Coverage

Sections of H13298 were surveyed to object detection coverage by complete object detection multibeam echosounder (MBES) coverage (Figure 8) and by 200% side scan sonar (SSS) coverage with concurrent MBES (Figures 9 and 10), as specified in the Project Instructions (PI) and the Hydrographic Surveys Specifications and Deliverables (HSSD) dated March 2019. Sections of H13298 were also surveyed by 200% SSS coverage with concurrent singlebeam echosounder (SBES) (Figures 11 and 12) (see Appendix II for documentation in regards to use of the SBES). Six holidays exist in SSS coverage (Figures 13 and 14). Four of the holidays exist in the 100% coverage and two of the holidays exist in the 200% coverage. Five of the holidays are covered only once by SSS coverage and no indications of significant features were observed. The sixth holiday was not covered by either SSS coverage or MBES coverage; it is the southernmost holiday shown in Figure 13 and is located at 36°56'21.73"N 076°25'43.33"W. There are 26 holidays in the VR surface that covers the area of 100% MBES coverage. Twelve holidays are covered once by either 100% SSS or 200% SSS coverage, six are covered by both 100% SSS and 200% SSS coverage, and no indications of significant features were observed. The remaining eight MBES holidays are not covered by SSS (Figure 15). Four holidays were observed in SBES data. Two are located at 36°56'23.45"N 076°25'43.60"W where a barge was anchored during survey operations (Figure 16). The other two are located at 36°55'48.66"N 076°25'05.98"W and 37°00'39.66"N 076°29'44.12"W (Figures 16 and 17). Other data deficiencies exist in both the SSS and MBES due to equipment effectiveness and environmental factors; see sections B.2.5 Equipment Effectiveness and B.2.6 Factors Affecting Soundings for a complete discussion.

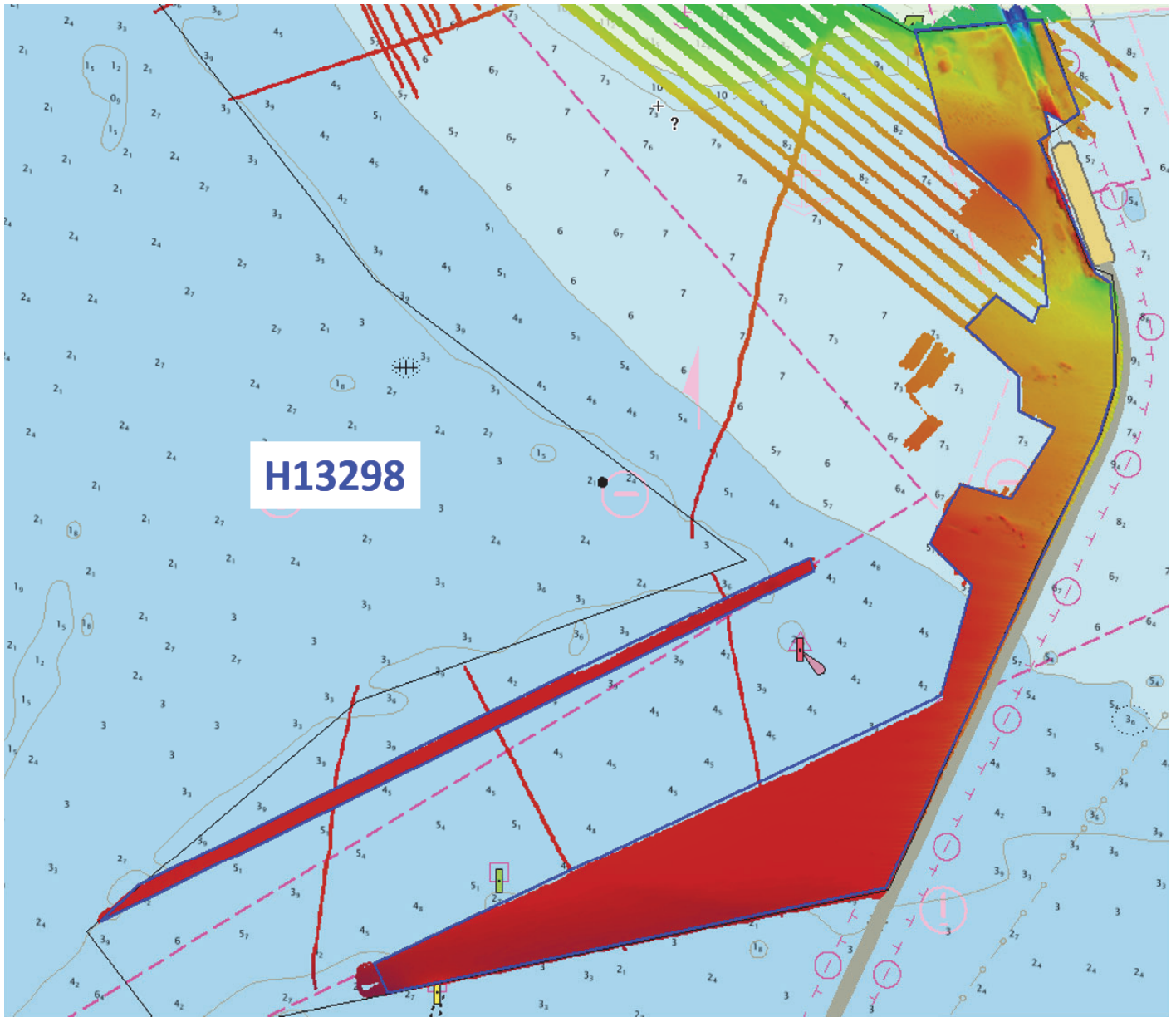


Figure 8: Areas outlined in blue represent 100% object detection MBES coverage for H13298.

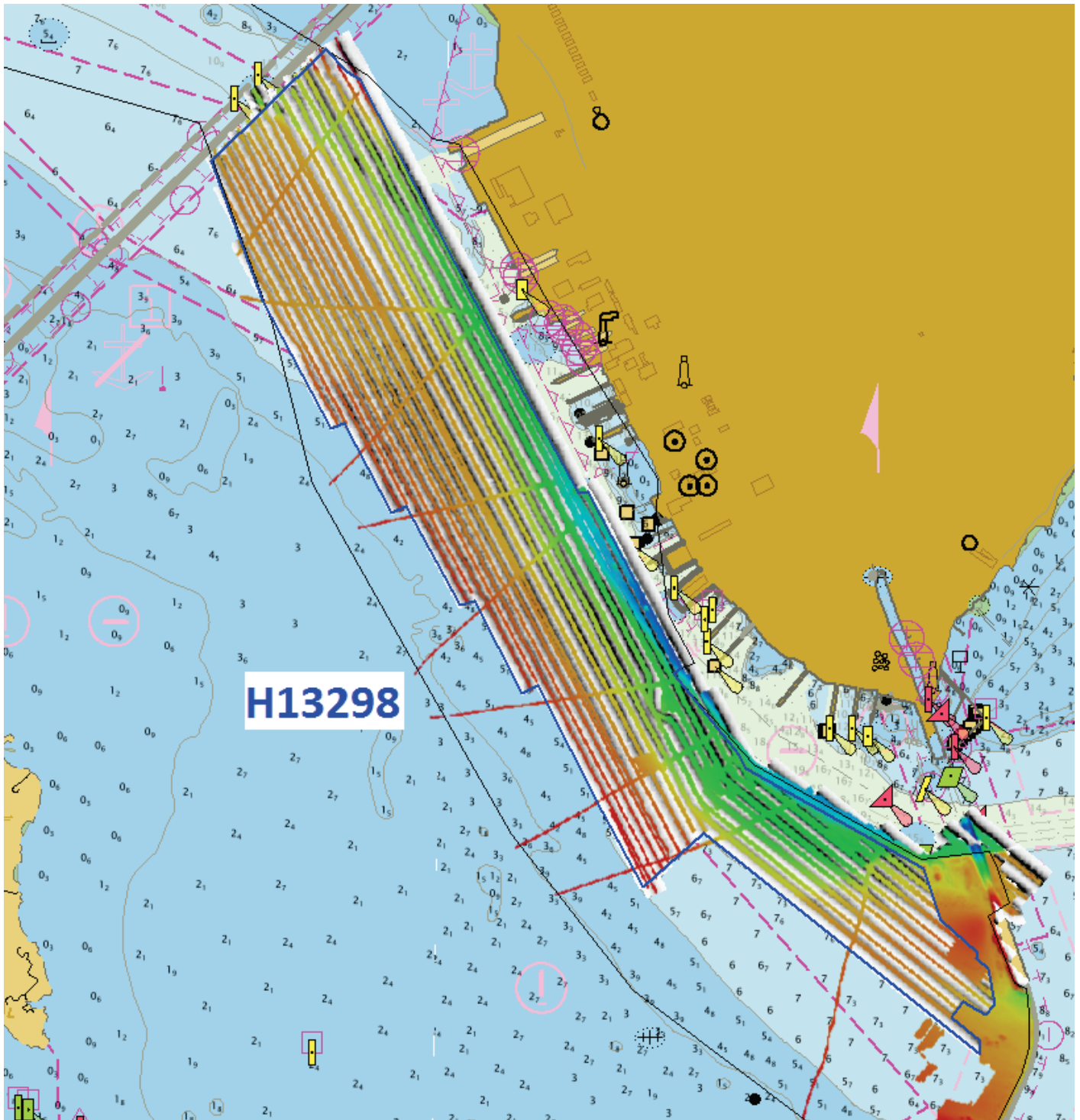


Figure 9: Area outlined in blue represents the southern portion of H13298 covered by SSS with concurrent MBES.

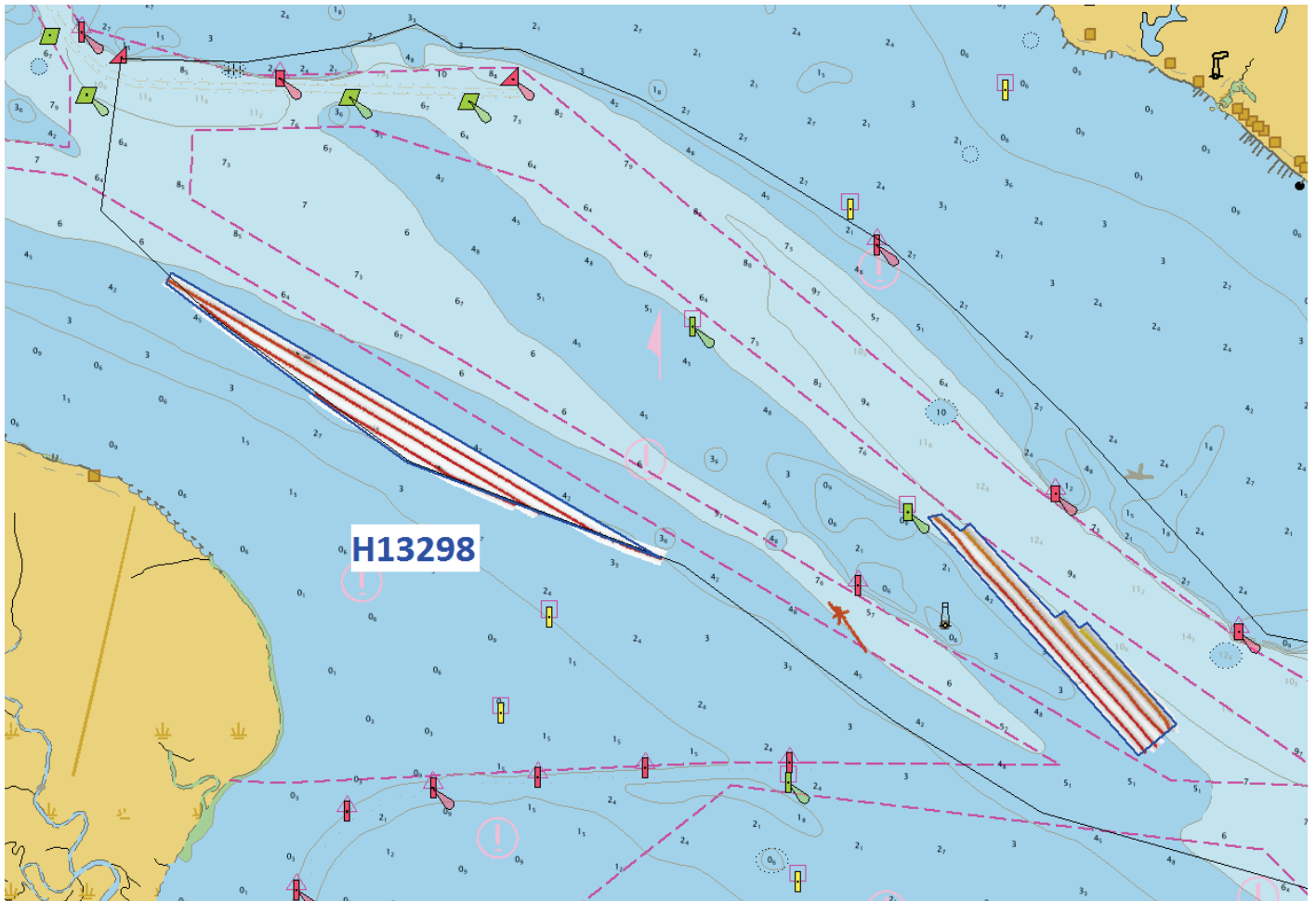


Figure 10: Area outlined in blue represents the northern portion of H13298 covered by SSS with concurrent MBES.

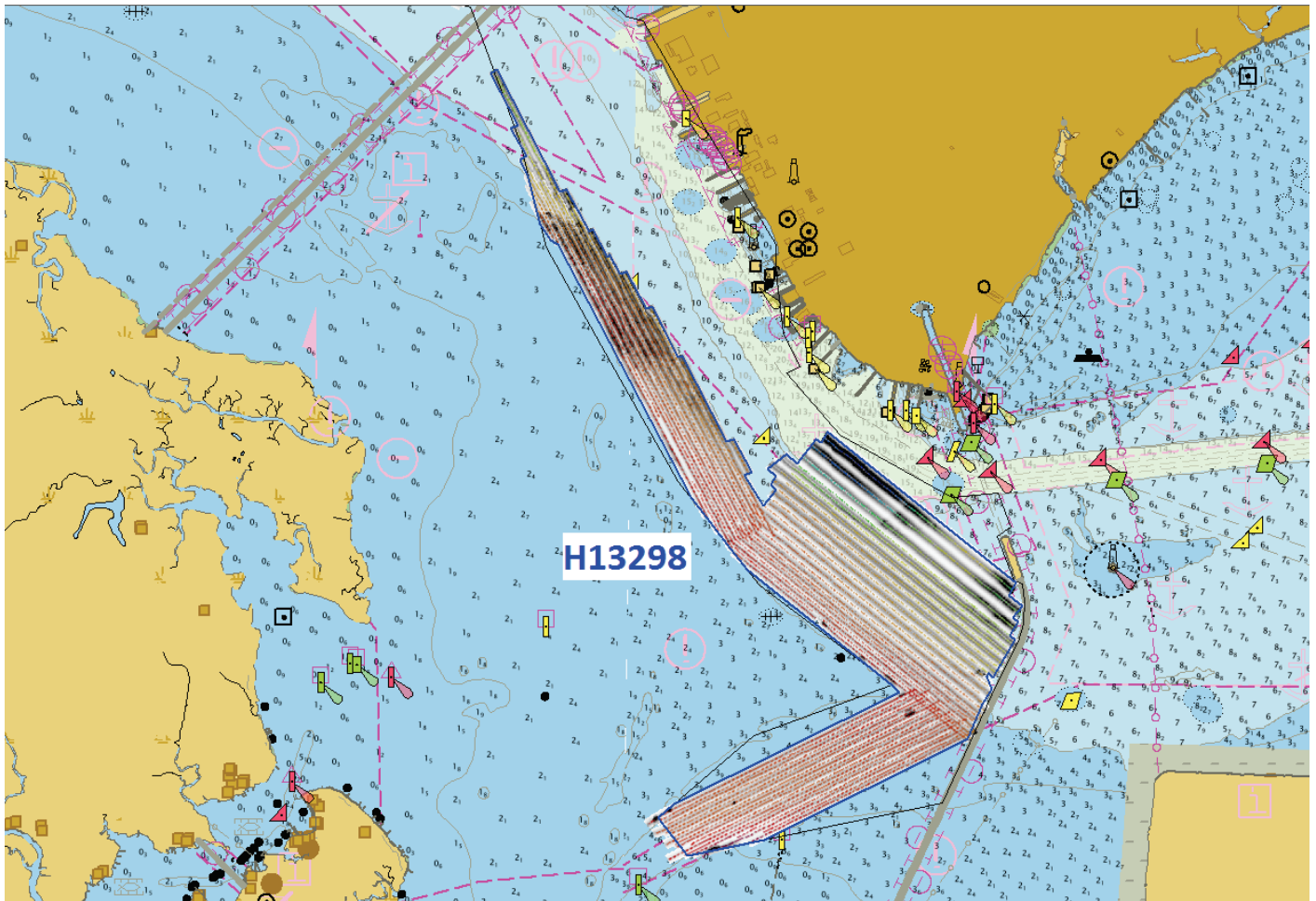


Figure 11: Area outlined in blue represents the southern portion of H13298 covered by SSS with concurrent SBES.

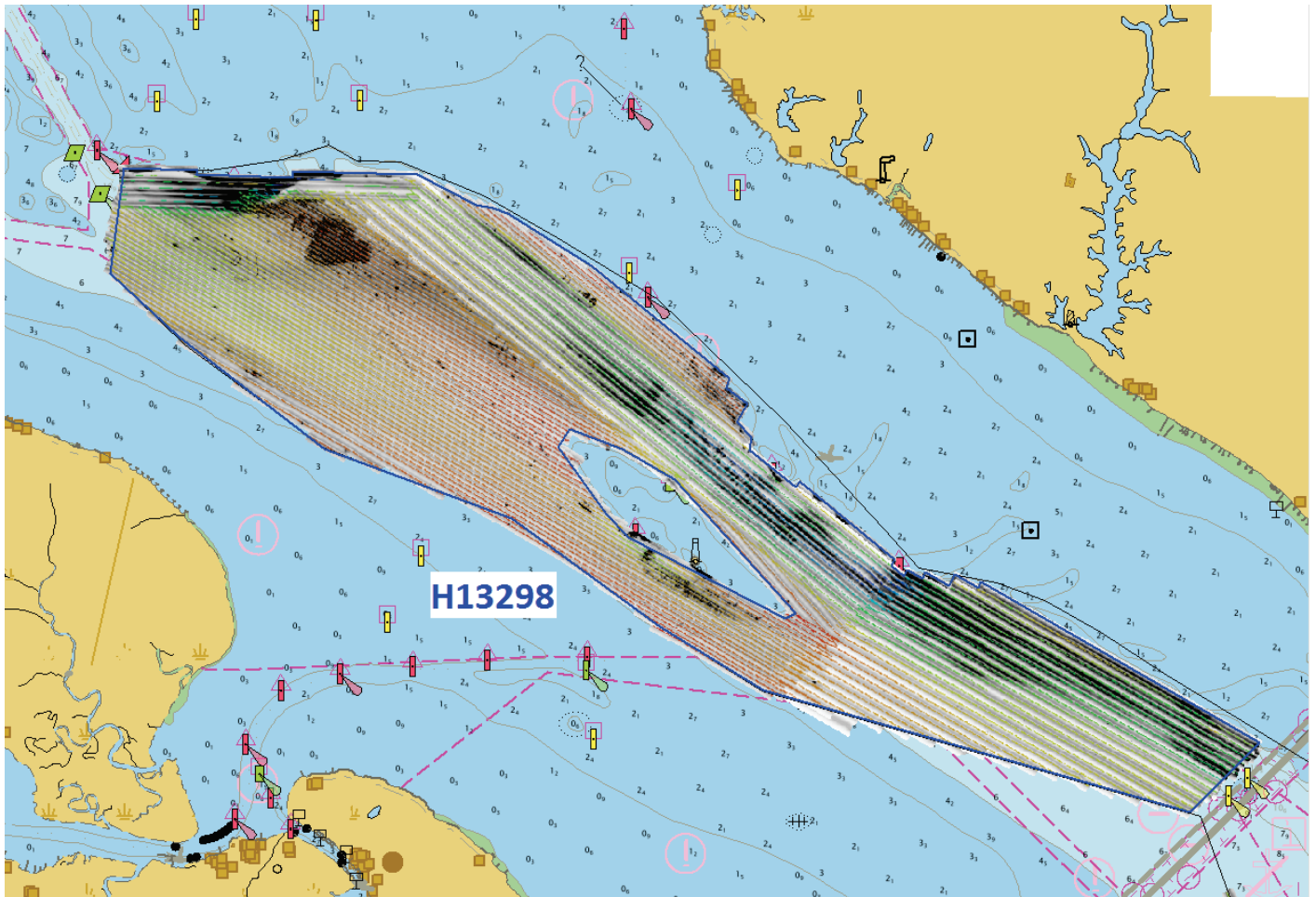


Figure 12: Area outlined in blue represents the northern portion of H13298 covered by SSS with concurrent SBES.

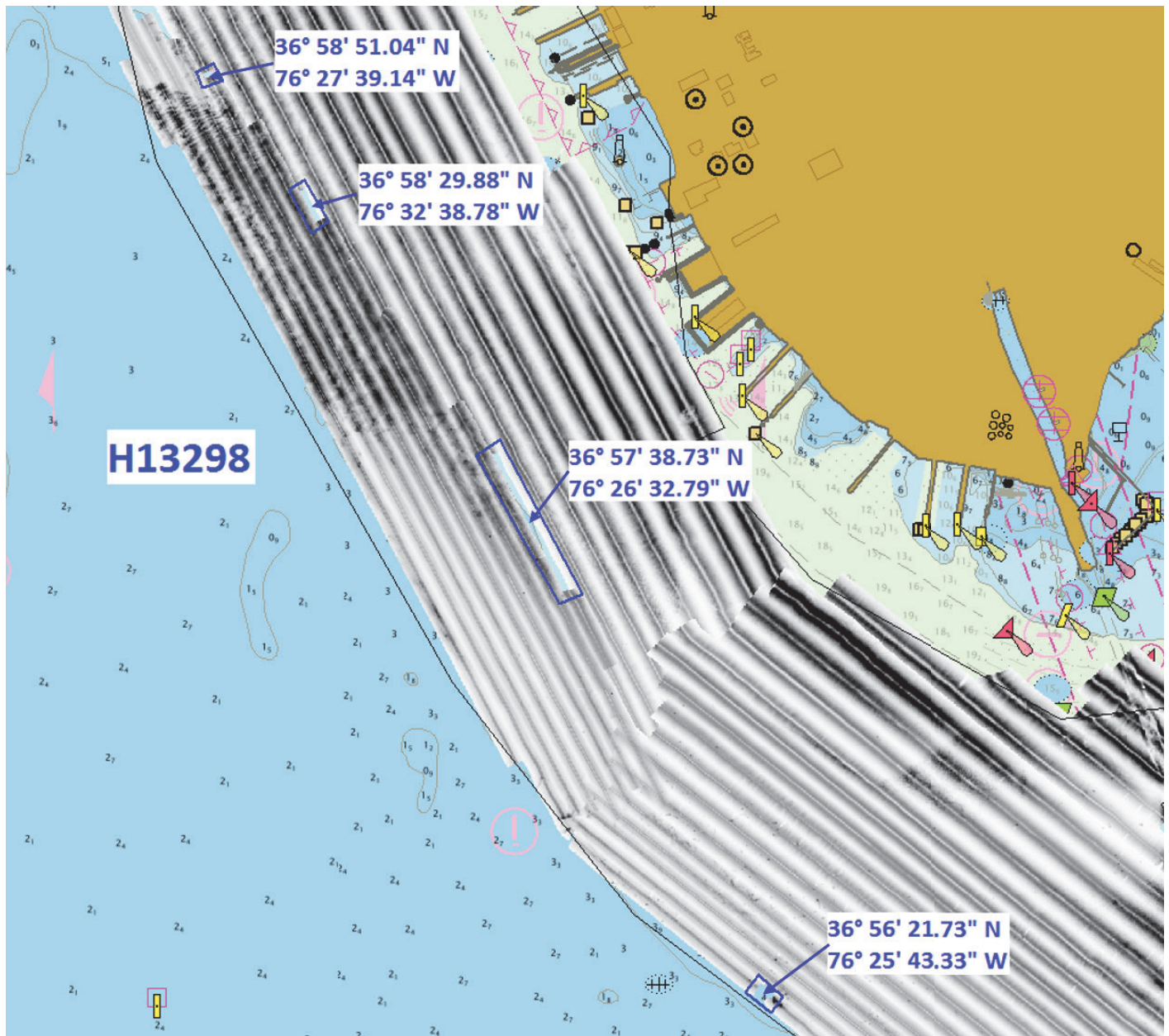


Figure 13: Holidays in 100% SSS coverage.

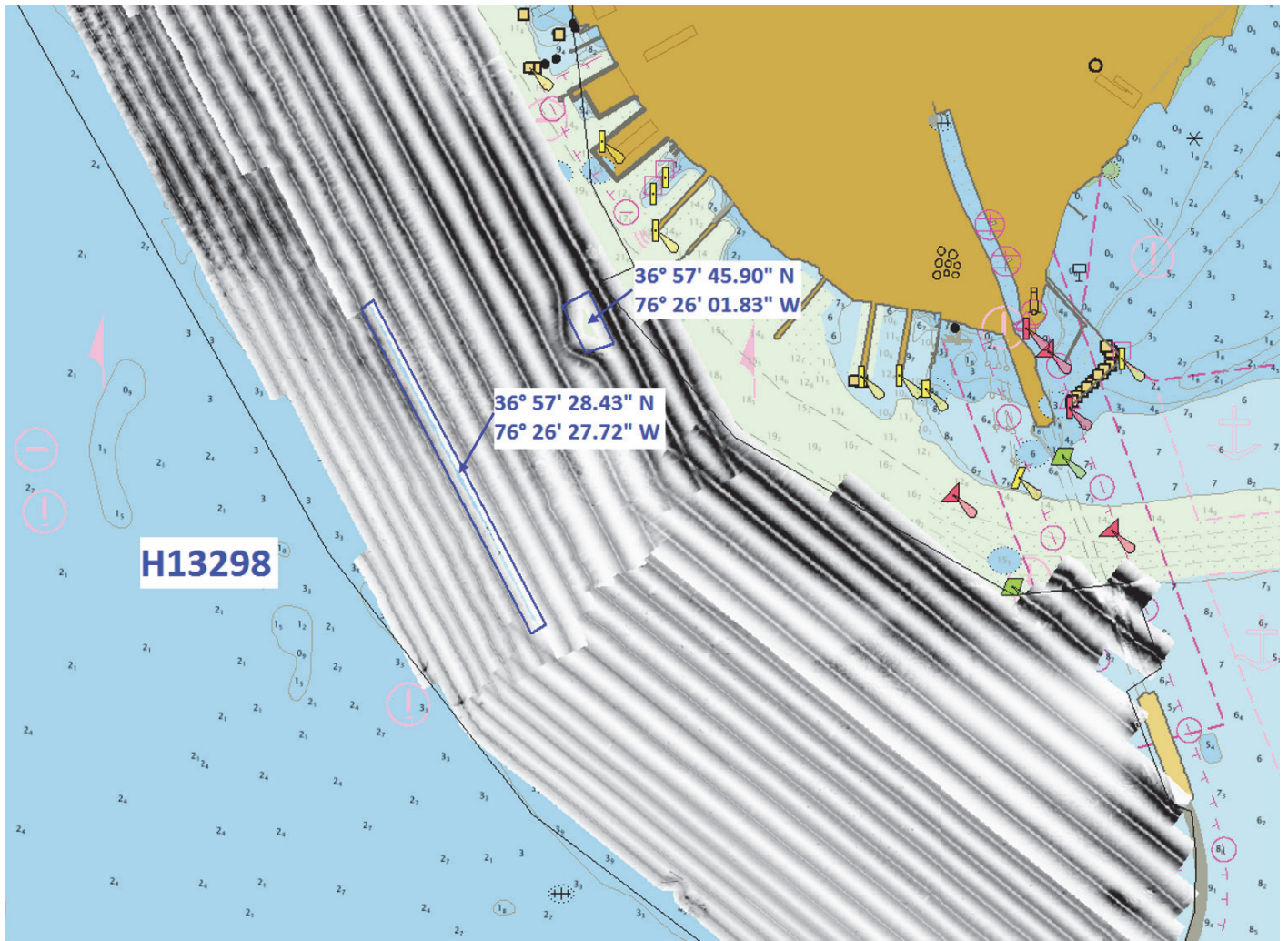


Figure 14: Holidays in 200% SSS coverage.

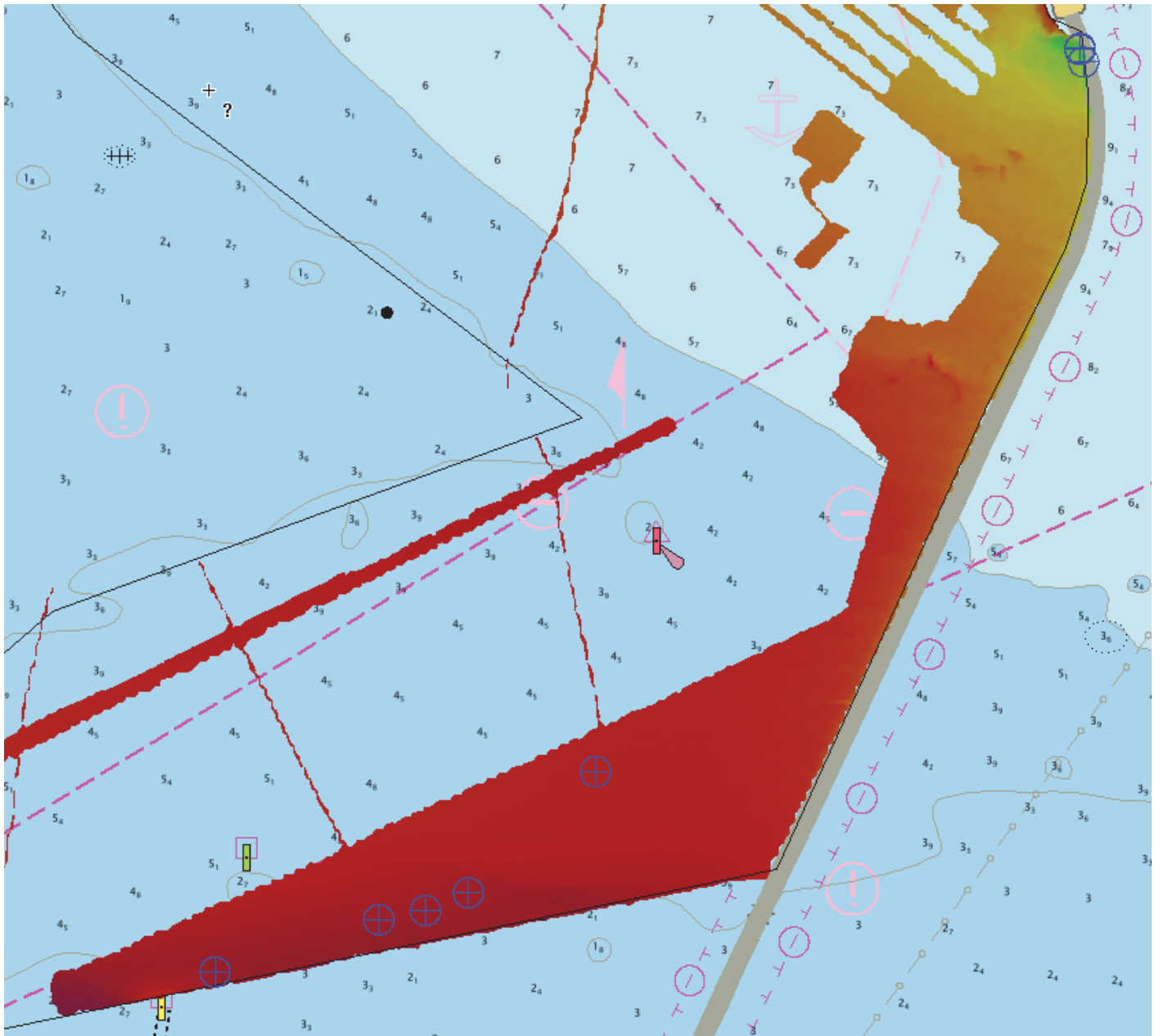


Figure 15: Holidays in complete coverage MBES not covered by SSS coverage.

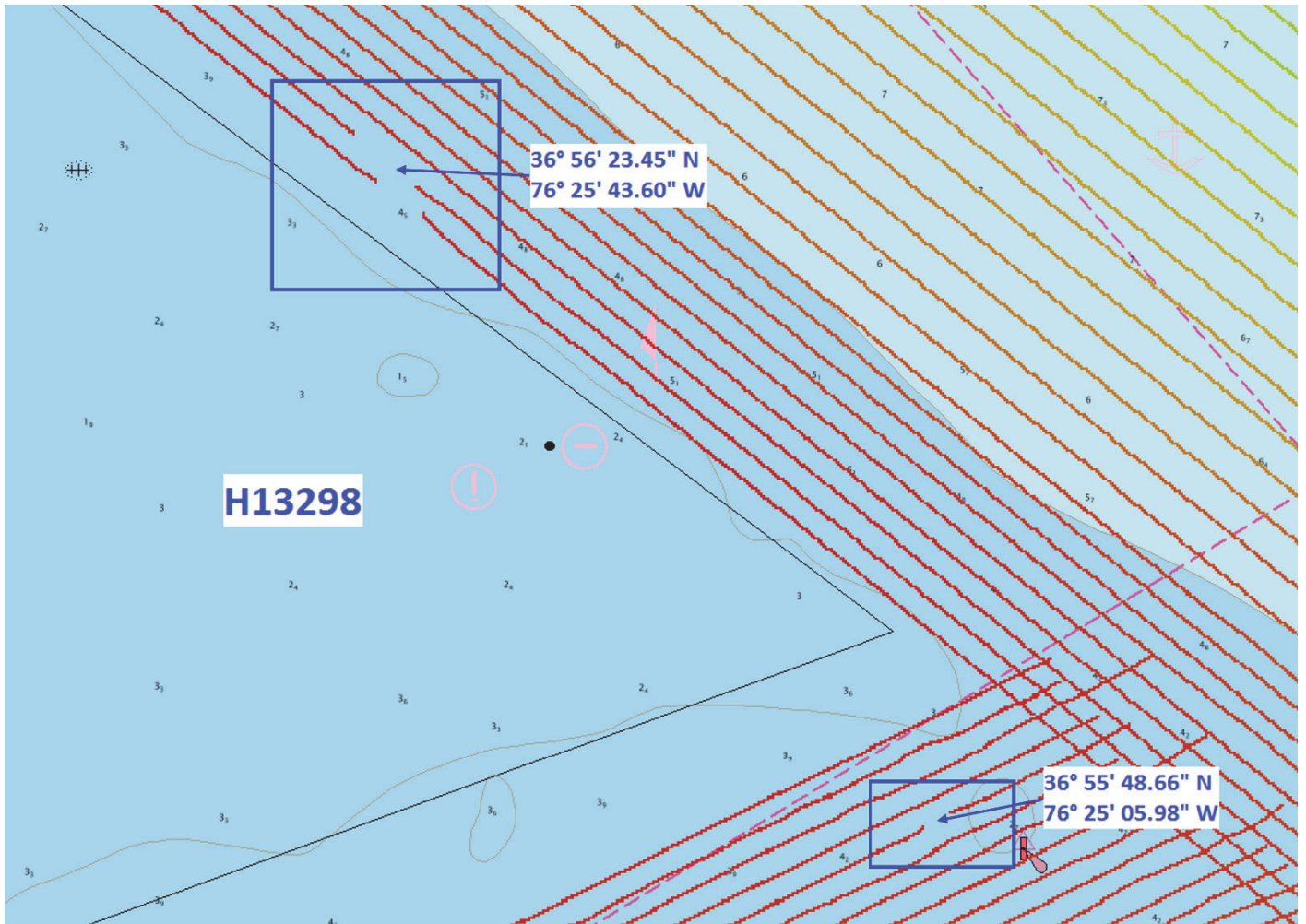


Figure 16: SBES holiday in the southern portion of H13298.

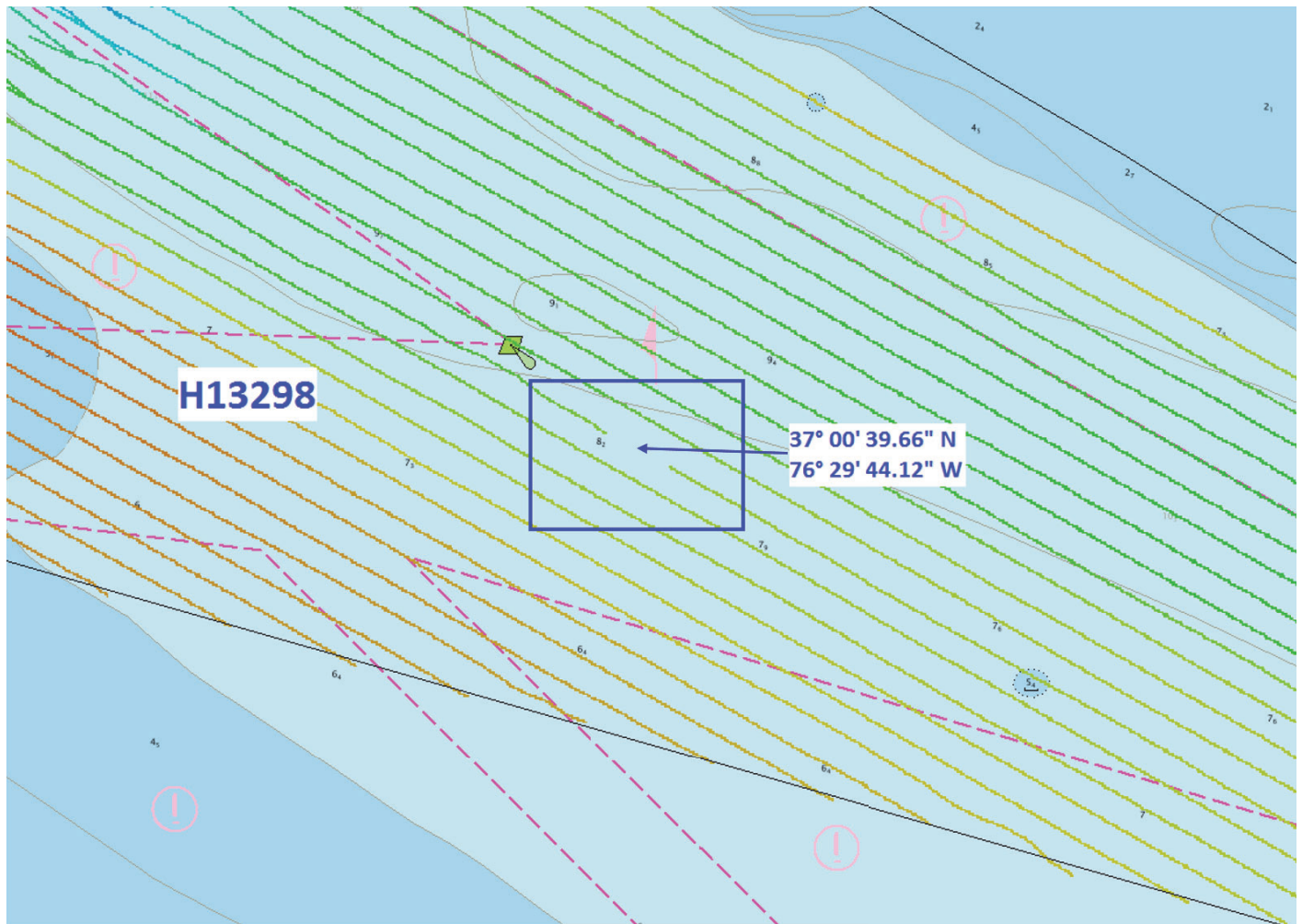


Figure 17: SBES holiday in the northern portion of H13298.

A.6 Survey Statistics

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

	HULL ID	2903	2904	Total
LNM	SBES Mainscheme	0	0	0
	MBES Mainscheme	2.36	133.7	136.06
	Lidar Mainscheme	0	0	0
	SSS Mainscheme	0	0	0
	SBES/SSS Mainscheme	352.91	0	352.91
	MBES/SSS Mainscheme	0	96.69	81.46
	SBES/MBES Crosslines	0	11.04	11.04
	Lidar Crosslines	0	0	0
Number of Bottom Samples			7	
Number Maritime Boundary Points Investigated			0	
Number of DPs			0	
Number of Items Investigated by Dive Ops			0	
Total SNM			11.44 12.29	

Table 3: Hydrographic Survey Statistics

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

Survey Dates	Day of the Year
07/09/2019	190
07/10/2019	191

Survey Dates	Day of the Year
07/11/2019	192
07/14/2019	195
07/15/2019	196
07/16/2019	197
07/17/2019	198
07/19/2019	200
07/22/2019	203
07/29/2019	210
07/30/2019	211
07/31/2019	212
08/01/2019	213
08/02/2019	214
08/04/2019	216
12/19/2019	353
12/21/2019	355

Table 4: 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	2903	2904
LOA	8.5 meters	8.5 meters
Draft	1.2 meters	1.2 meters

Table 5: Vessels Used

B.1.2 Equipment

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

Manufacturer	Model	Type
Kongsberg Maritime	EM 2040	MBES
EdgeTech	4200	SSS
Klein Marine Systems	System 5000	SSS
Applanix	POS MV 320 v5	Positioning and Attitude System
Sea-Bird Scientific	SBE 19plus V2	Conductivity, Temperature, and Depth Sensor
Velodyne LiDAR	VLP-16	Lidar System
Teledyne Odom Hydrographic	Echotrac CV200	SBES
Teledyne RESON	SVP 70	Sound Speed System

Table 6: Major Systems Used

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

B.2 Quality Control

B.2.1 Crosslines

Multibeam/single beam echo sounder/side scan sonar crosslines acquired for this survey totaled ~~1.89%~~* of mainscheme acquisition. ***1.935%**

Hydrographic Survey Launch 2904 collected 11.04 linear nautical miles of MBES crosslines in the southern portion of H13298 (Figure 18) which accounted for 3.35% of mainscheme acquisition in this area. Additional crosslines over the northern portion of the survey area were not collected due to operational time constraints. A 50cm single resolution Combined Uncertainty and Bathymetry Estimator (CUBE) surface of mainscheme data and a 50cm single resolution CUBE surface of crossline data were differenced. The resulting mean was -0.01m and the standard deviation was 0.03m (Figure 20). Visual inspection and statistical analysis of the difference surface indicated no systematic issues.

There were no crosslines acquired by the single beam echosounder. Agreement in observed depths between the MBES and SBES systems was evaluated by creating a 4m single resolution CUBE surface of SBES data and a 50cm single resolution CUBE surface of MBES data (including crosslines). See Figure 19 for a sample area where SBES coverage overlaps MBES coverage. The entire MBES surface was used in order to maximize the number of nodes being compared (10,242 nodes versus only 1,274 nodes when using only MBES crosslines). The two surfaces were differenced and the resulting mean was -0.02m and the standard deviation was 0.05m indicating acceptable agreement between the systems (Figure 21).

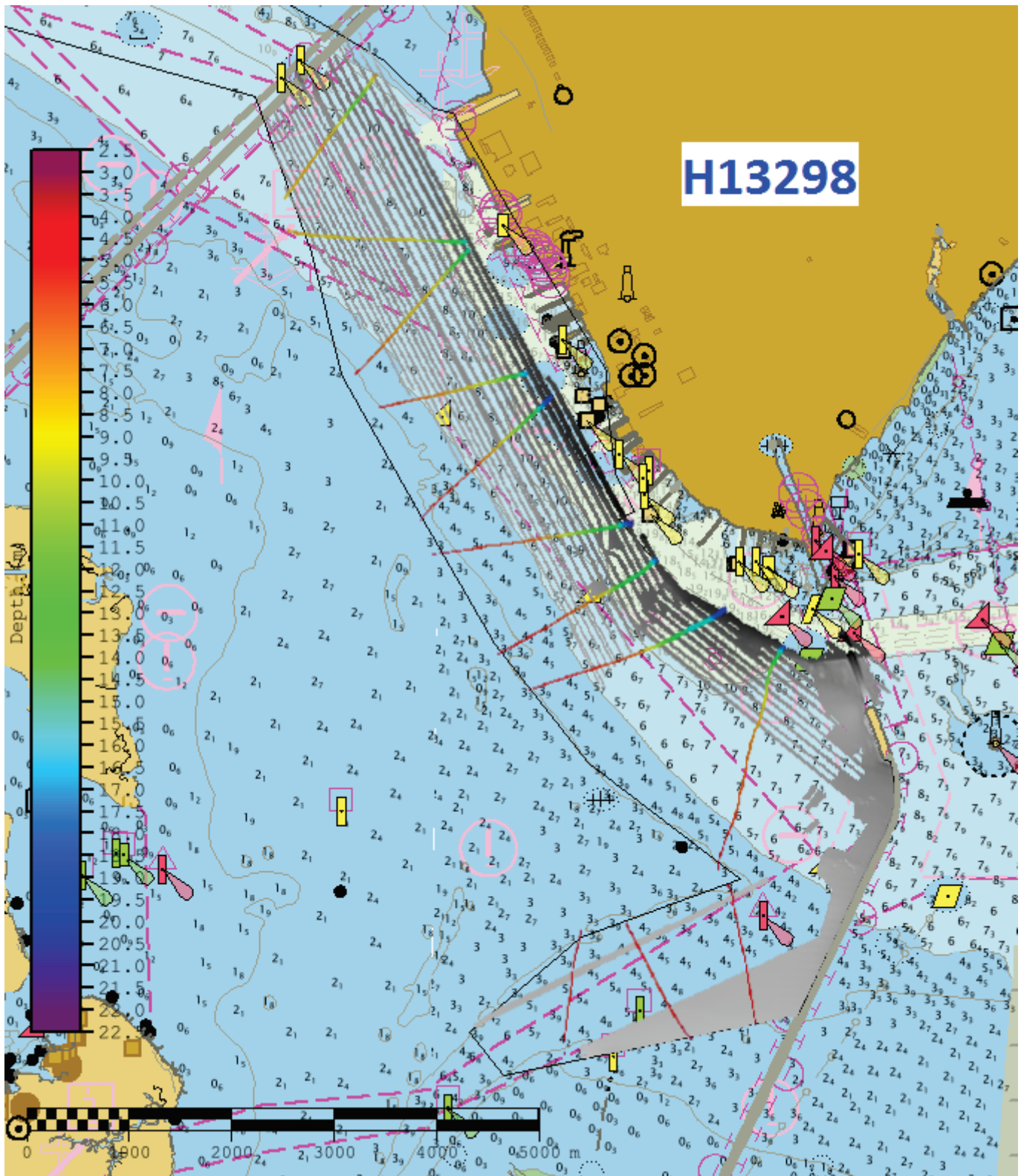


Figure 18: H13298 MBES crossline data, shown in color, overlaid on mainscheme MBES data, shown in greyscale.

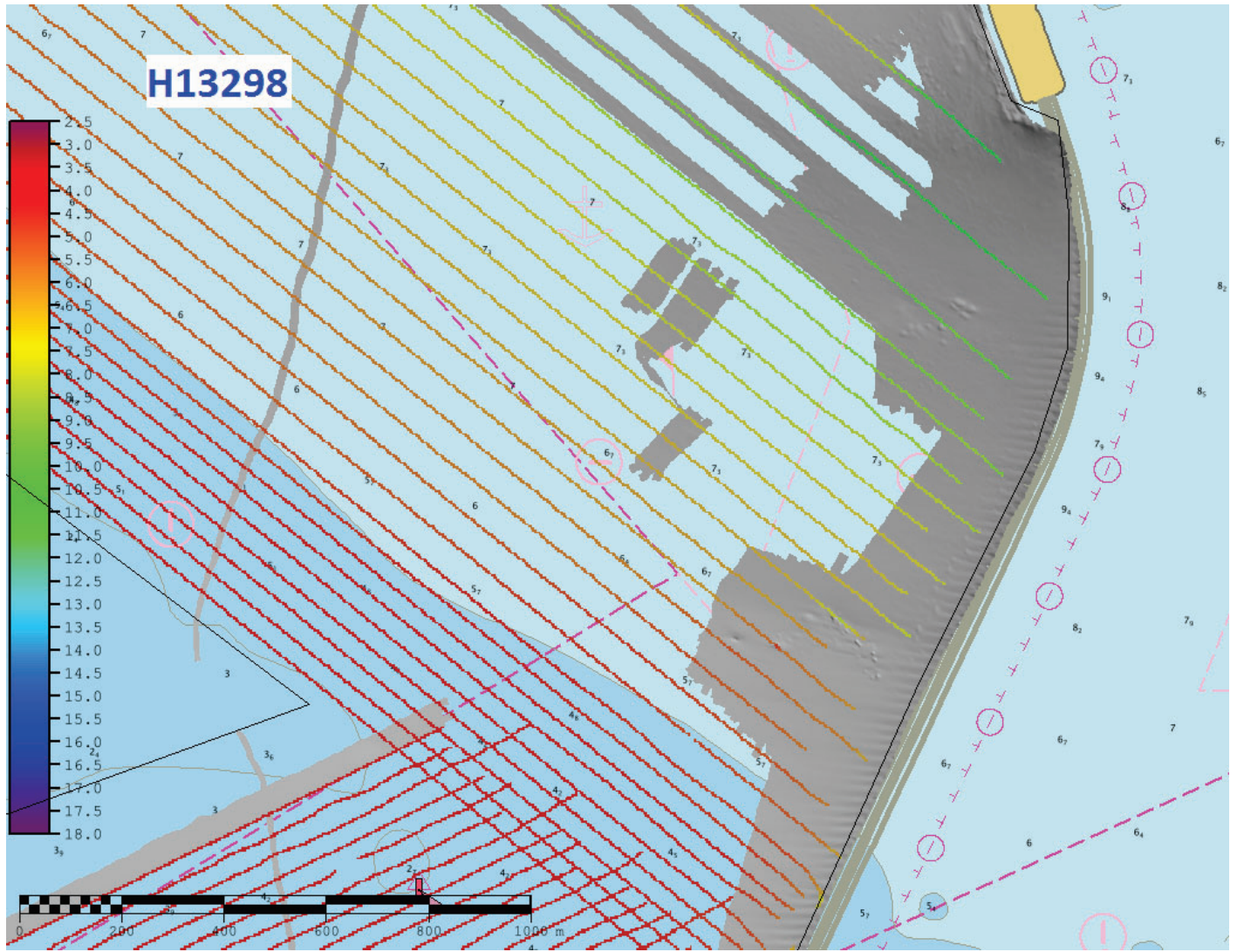


Figure 19: Example area of SBES lines, shown in color, overlaid on mainscheme MBES data, shown in greyscale.

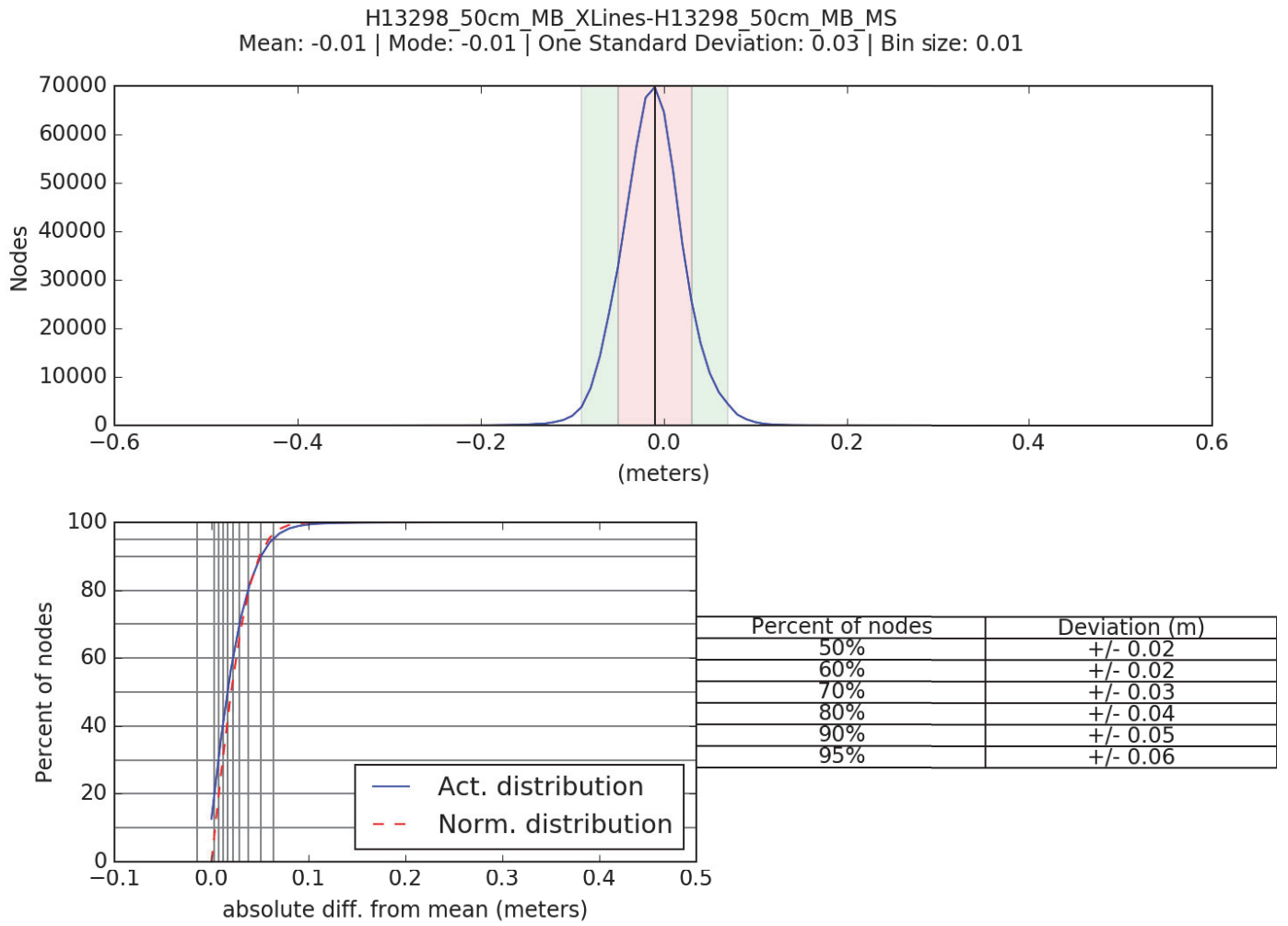


Figure 20: H13298 crossline/MBES mainscheme comparison statistics.

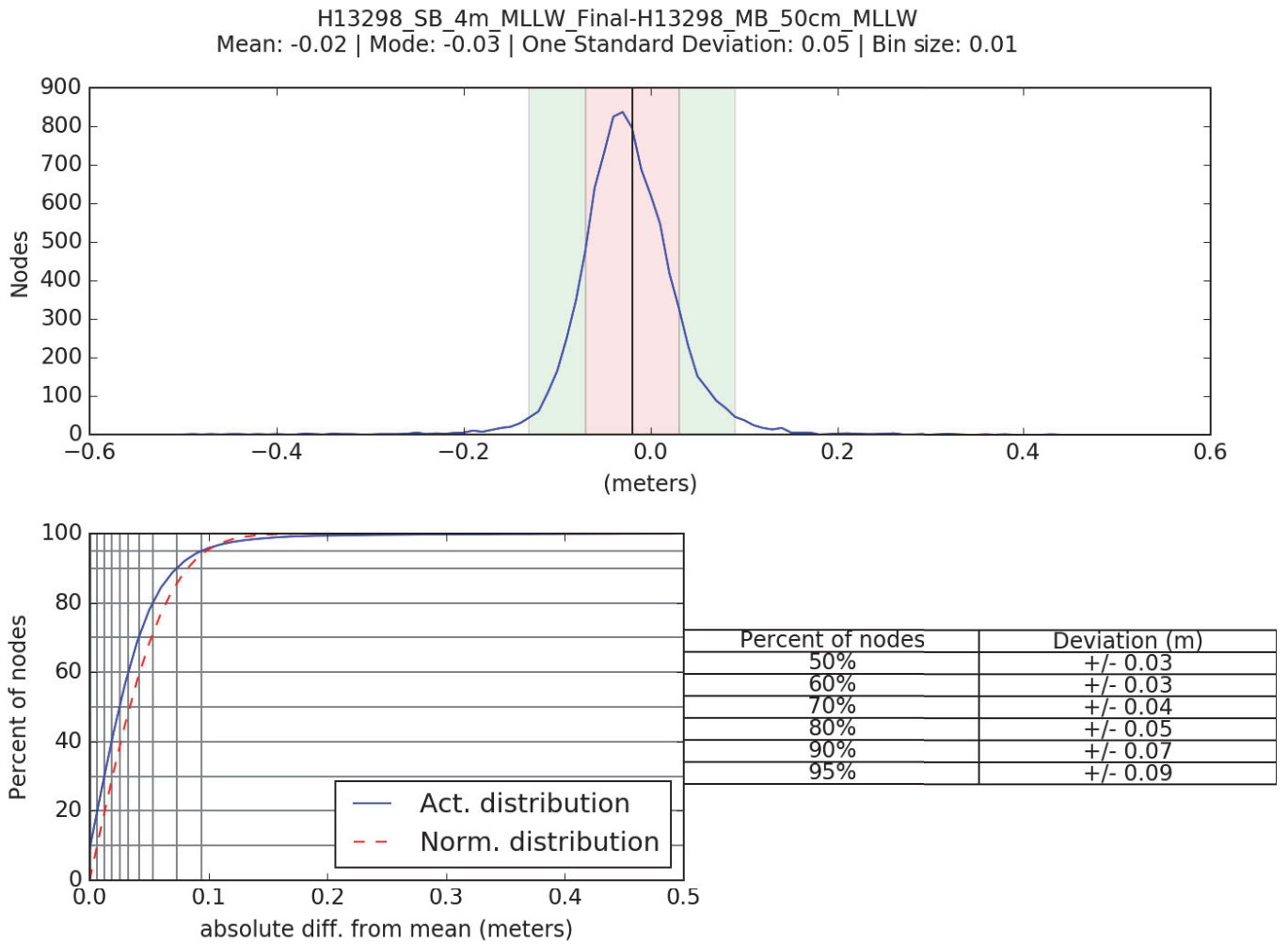


Figure 21: H13298 SBES/MBES comparison statistics.

B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

Method	Measured	Zoning
ERS via VDATUM	0.00 meters	0.090 meters

Table 7: Survey Specific Tide TPU Values.

Hull ID	Measured - CTD	Measured - MVP	Surface
2903	4 meters/second	N/A	0.2 meters/second
2904	4 meters/second	N/A	0.2 meters/second

Table 8: Survey Specific Sound Speed TPU Values.

The MBES and SBES bathymetric surfaces' uncertainty layer is compliant with HSSD 2019 uncertainty standards. Over 99.5% of all nodes pass uncertainty standards (Figures 22 and 23).

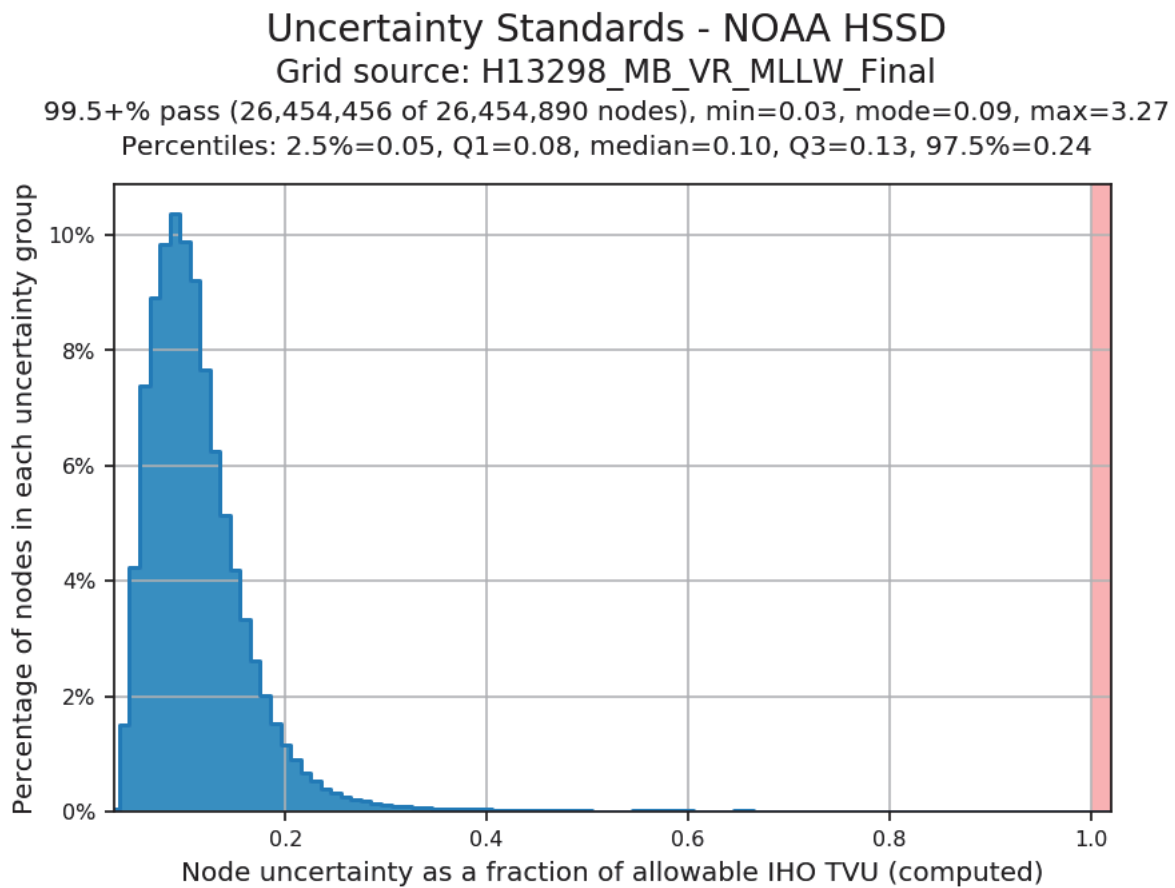


Figure 22: H13298 MBES surface uncertainty standards.

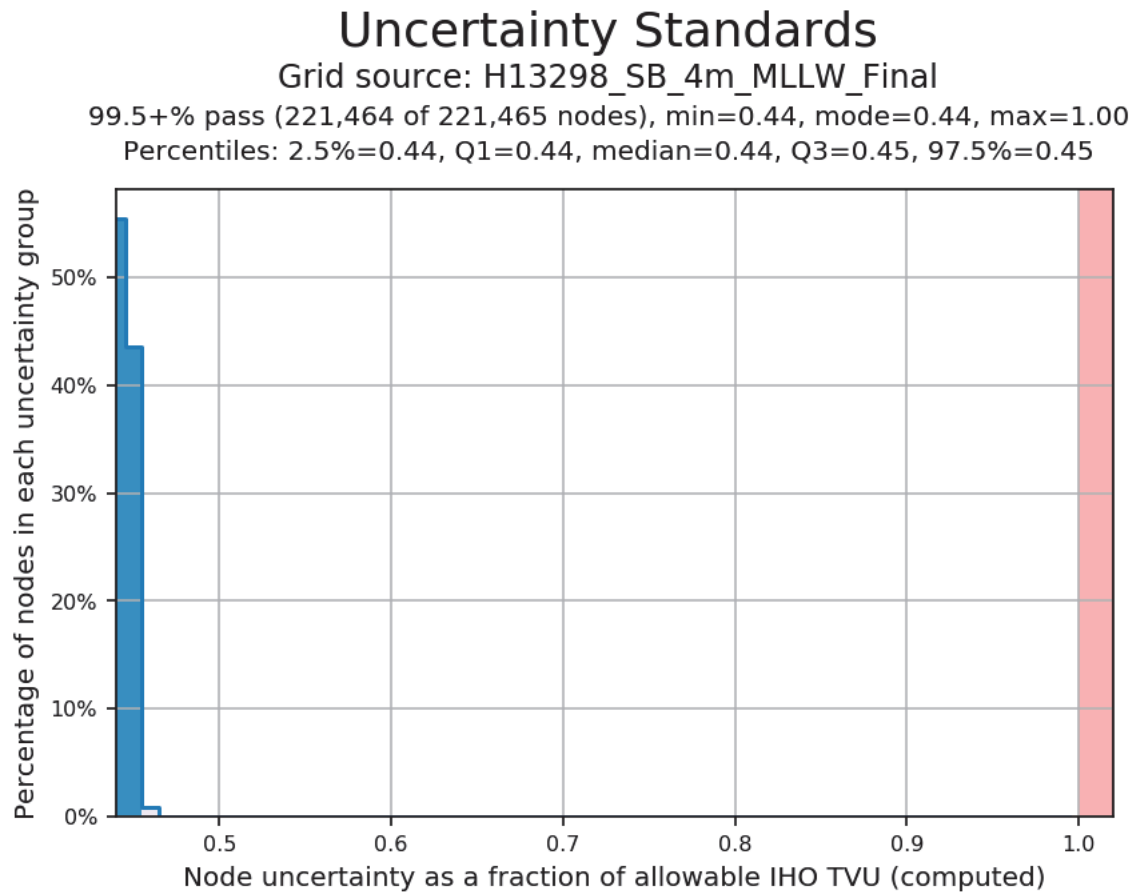


Figure 23: H13298 SBES surface uncertainty standards.

B.2.3 Junctions

There are no existing surveys that junction with H13298 at this time.

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

Side scan cable chafe.

Beginning on Julian day number 192, an anomaly was noticed in the starboard channel of the Edgetech 4200 side scan data for HSL 2903 (Figure 24). This anomaly persisted on all lines collected with the system through Julian day number 198. The Edgetech was then removed and replaced with a Klein 5000 system. During the equipment swap, an area of the Edgetech cable was found chafed with inner wires exposed.

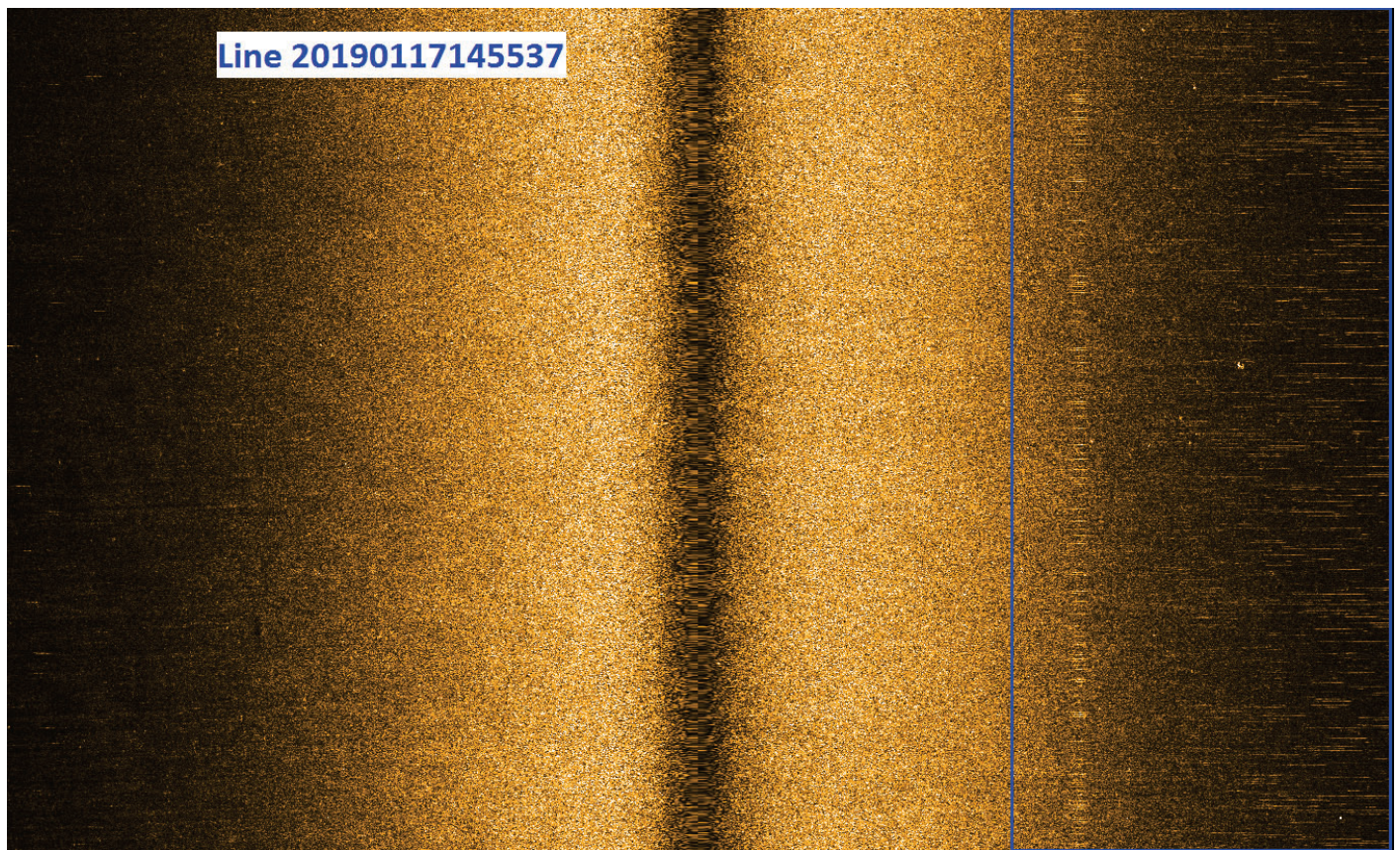


Figure 24: Example of data anomaly caused by cable chafe outlined in blue box.

Backward SSS compass.

At some point during Julian day numbers 193-194, the initialization file for the Edgetech 4200 side scan TPU was updated on both HSL 2903 and 2904. However, the compass settings were incorrect and resulted in the data for Julian day numbers 195, 196, 197, 198, and 203 having a reciprocal heading (180 degrees off true heading). The lines from these days were re-processed using the heading information from the vessels instead of the towfish that resulted in the heading data. The compass settings in the initialization files were

corrected within the Edgetech TPU per manufacturer recommendation and data collected beginning on Julian day number 216 was processed using the compass information from the towfish.

Starboard MBES swath interacting with side scan mount.

The location of the side scan mount on HSL 2904 was found to interfere with the MBES swath. This can be seen as a "step" in the data in the outer swath on the starboard side for all lines collected on Julian day numbers 190, 191, and 192 (Figures 25 and 26). Swath Editor was used to filter beams 383-400 to exclude them from the surface. The starboard swath angle was adjusted to 45° for acquisition on Julian day numbers 197-216 so that the MBES swath would not interact with the side scan mount. The side scan mount was removed prior to data acquisition on Julian day numbers 353 and 355, therefore the starboard swath angle was adjusted back to 65°.

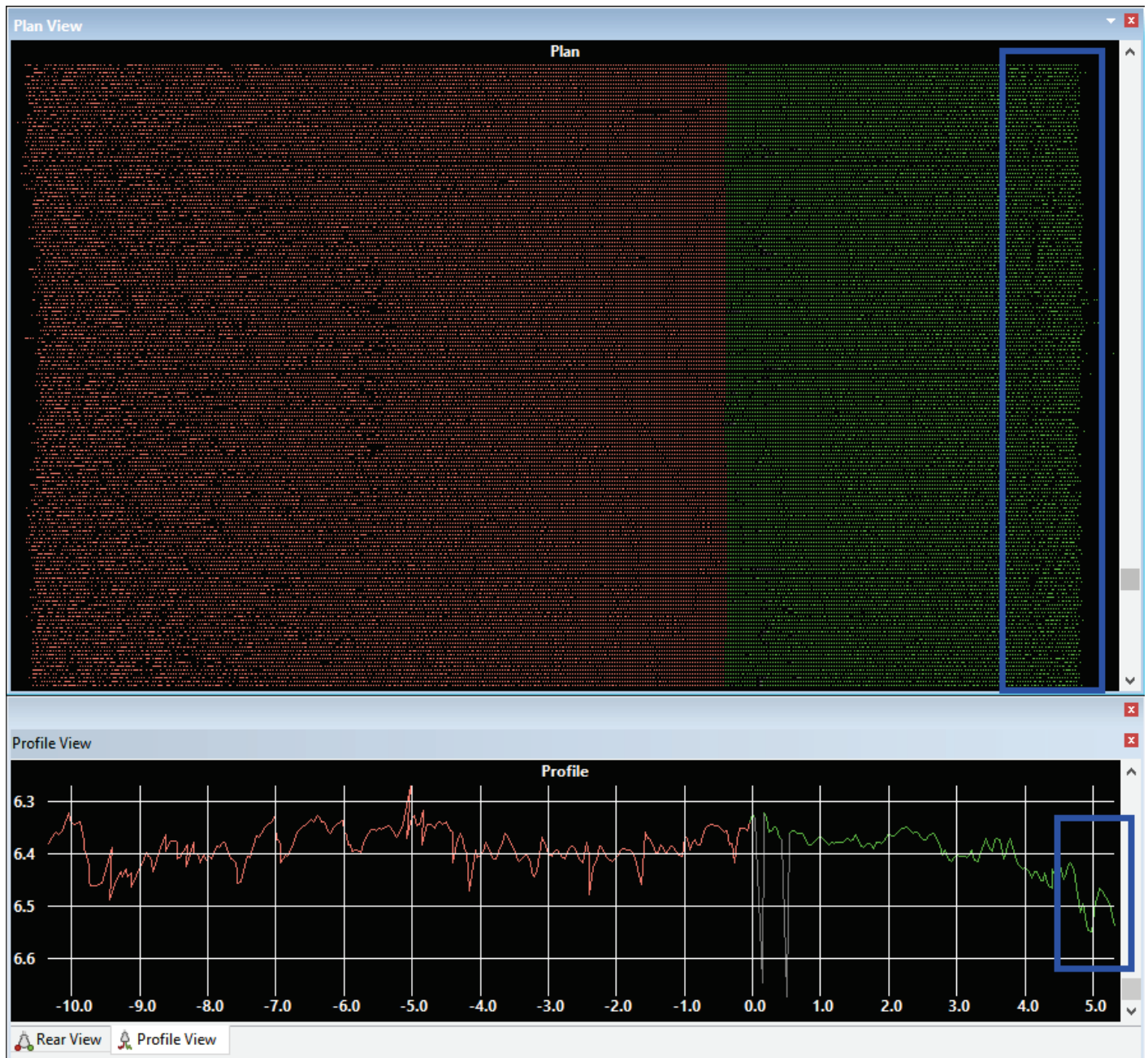


Figure 25: Example of "step" seen in the outer starboard beams caused by MBES swath interacting with the side scan mount. Example is from line 0056_20190711_155136_2904_EM2040 as seen in Swath Editor.

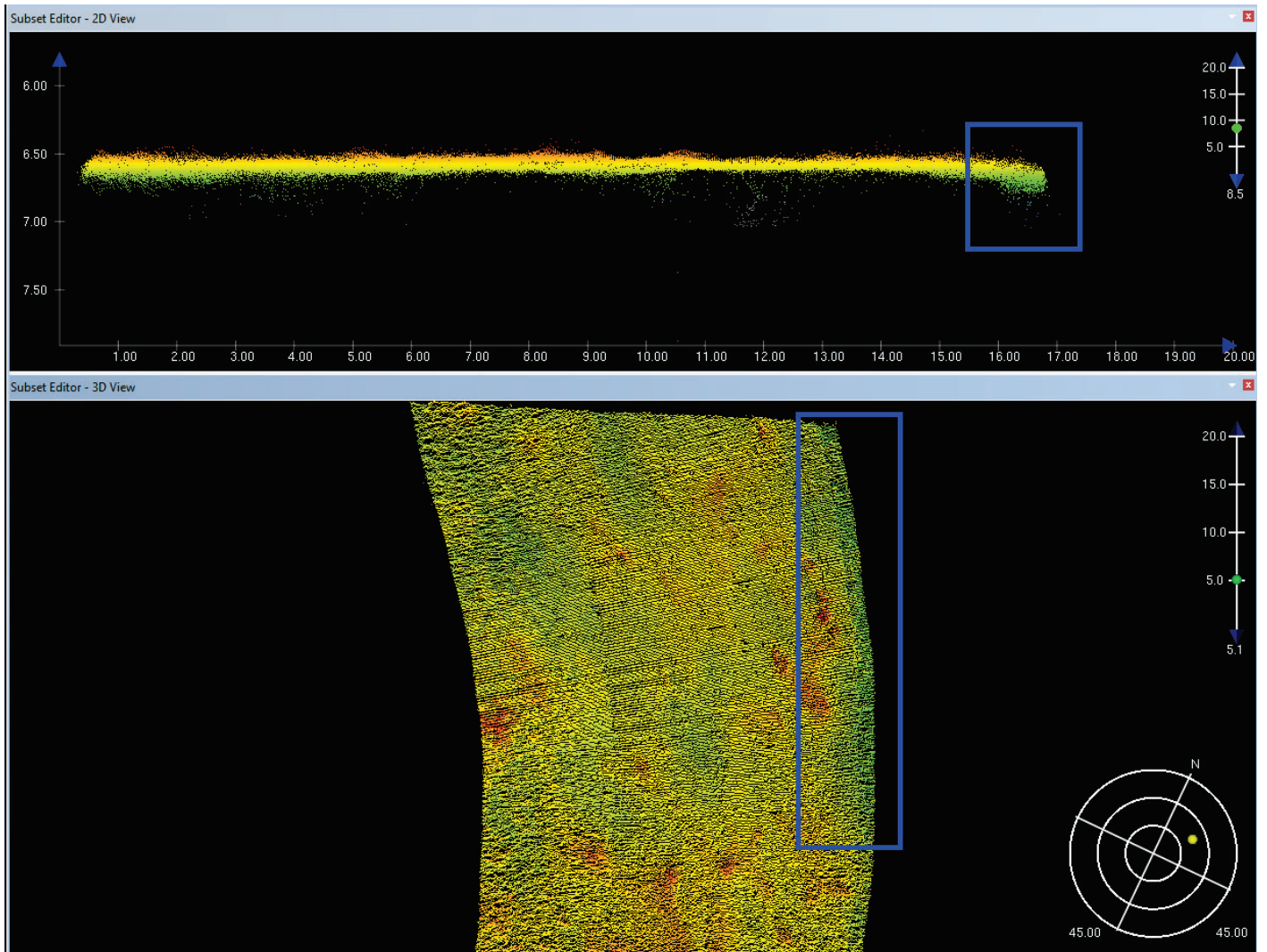


Figure 26: Example of "step" seen in the outer starboard beams caused by MBES swath interacting with the side scan mount. Example is from line 0056_20190711_155136_2904_EM2040 as seen in Subset Editor.

MBES subbottom return near nadir.

A subbottom return was observed in the near-nadir region of HSL 2904 MBES data (Figures 27 and 28). This return was present in all lines collected with 2904 and does not appear to affect the surface. Subset Editor was used to reject this data.

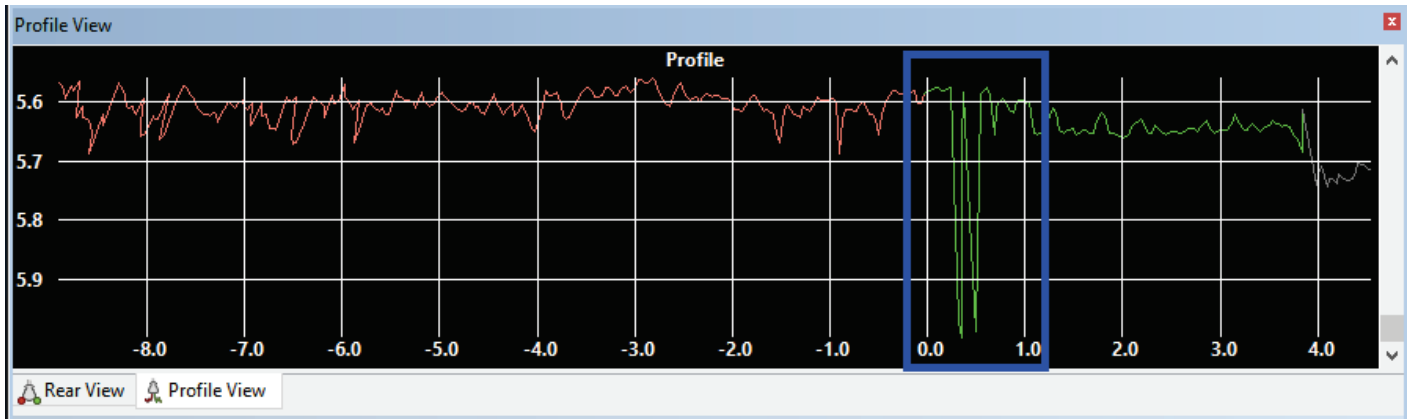


Figure 27: Example of subbottom return in near-nadir region of HSL 2904 MBES data as seen in Swath Editor. Example is from line 0056_20190711_155136_2904_EM2040.

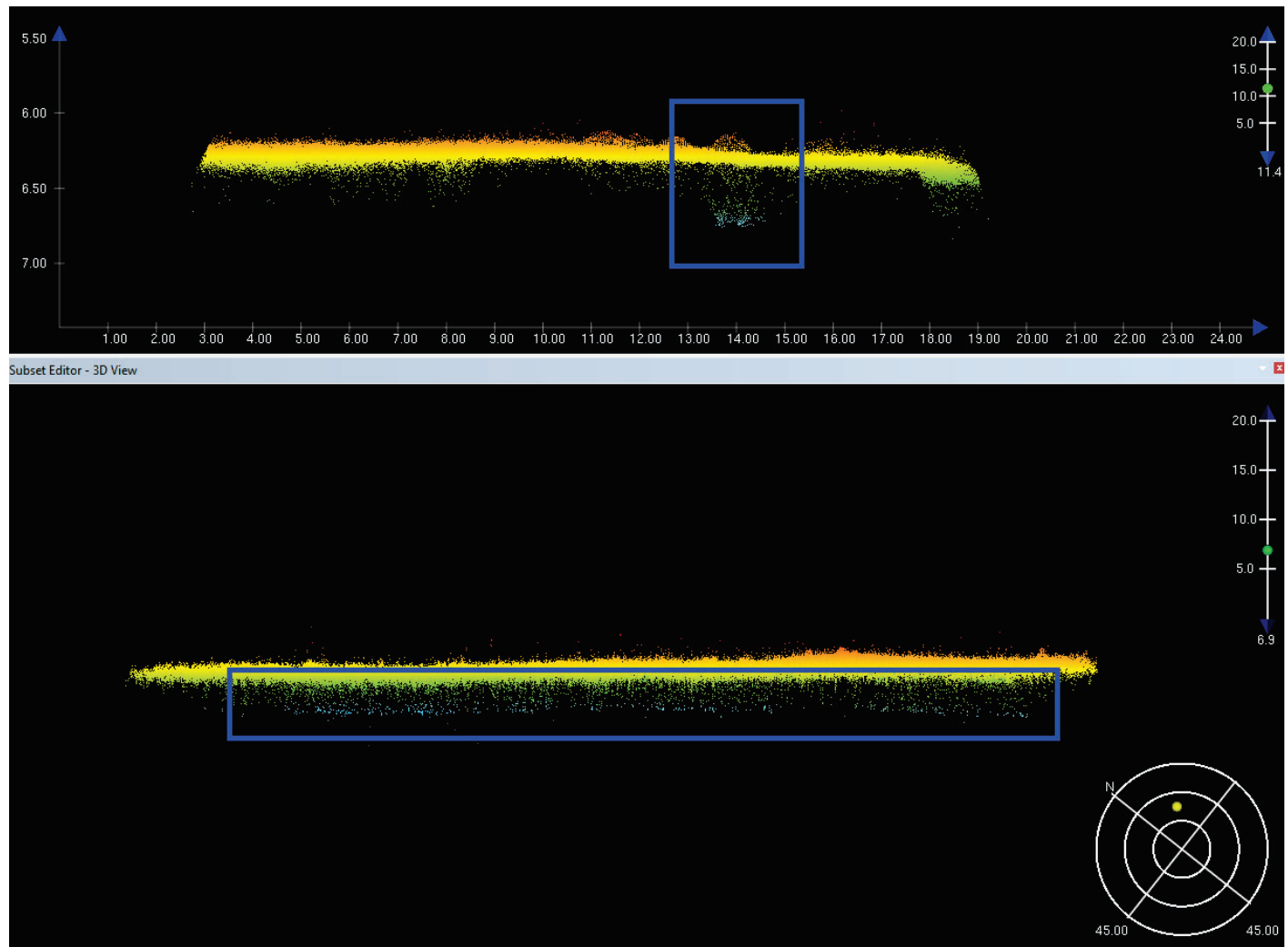


Figure 28: Example of subbottom return in near-nadir region of HSL 2904 MBES data as seen in Subset Editor. Example is from line 0056_20190711_155136_2904_EM2040.

B.2.6 Factors Affecting Soundings

Refraction seen in SSS data.

H13298 is located in a tidal river area that frequently exhibits stratification due to temperature and salinity differences. This layering greatly affects sound speed and results in refraction in the SSS imagery. The side scan towfish are hull-mounted on HSLs 2903 and 2904 and therefore cannot be lowered below the thermocline or halocline. Figures 29 and 30 show a representative area of refraction with associated profiles from a CTD cast. The CTD cast was conducted on Julian day number 190 at 1800 UTC and the section of side scan data started on Julian day number 190 at 1808 UTC. This area is located at 36°57'09.18"N 076°25'57.37"W. Areas of refraction were seen in the data from both vessels and on multiple days,

particularly in the middle to northern extents of the survey. The refraction observed throughout the survey area was not severe enough to impede the detection of a 1m x 1m x 1m object. Figure 31 was taken from line 20190717174533H collected by HSL 2903 and shows a crab pot visible through an area of refraction. The crab pots encountered in the survey area were smaller than 1m x 1m x 1m.

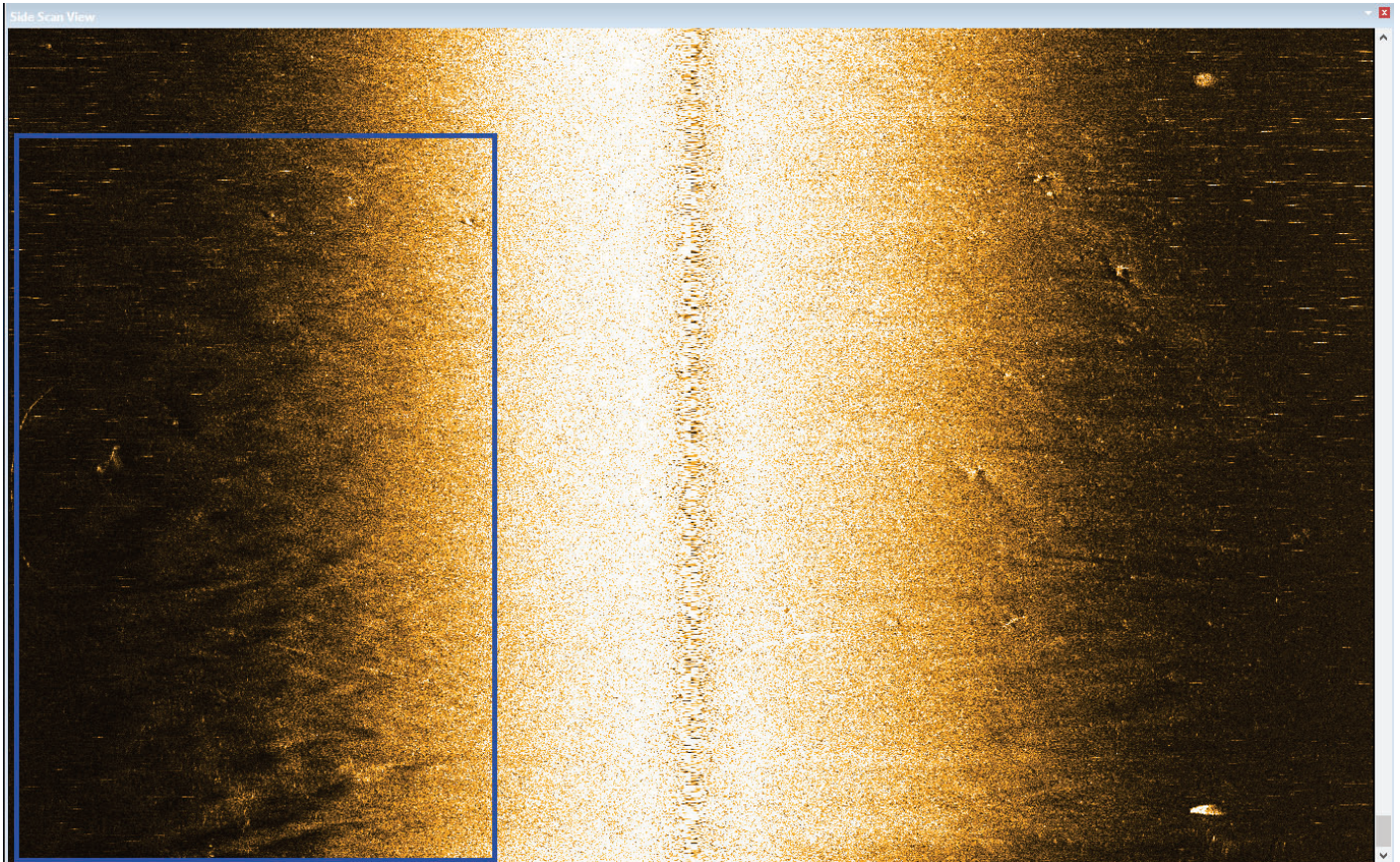


Figure 29: Example of refraction seen in SSS imagery. This example is from HSL 2904 line 20190709180922H and is located at 36°57'09.18"N 076°25'57.37"W.

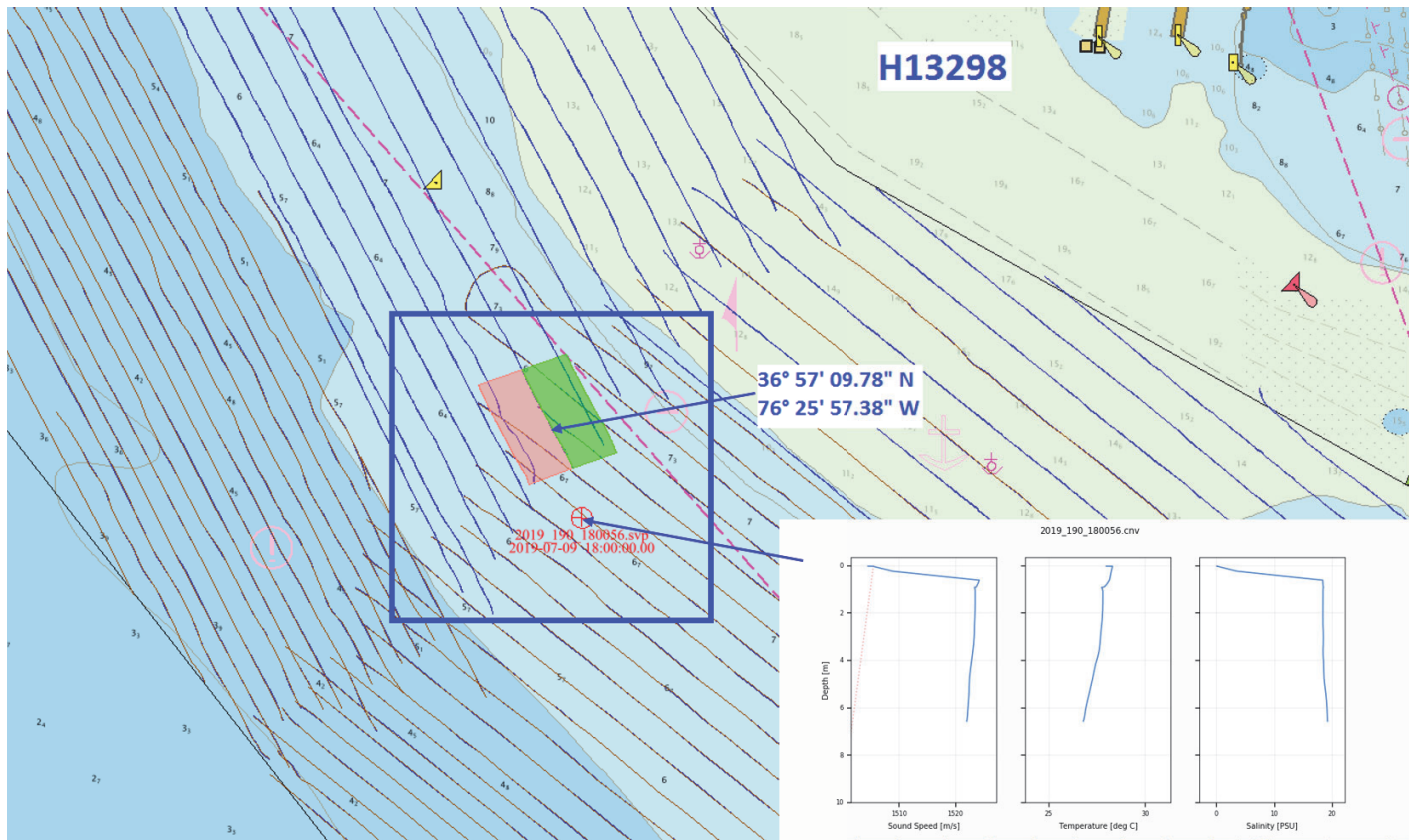


Figure 30: Overview of location of SSS refraction and associated CTD profiles. A difference of 20m/s can be seen from the surface to 1m water depth.

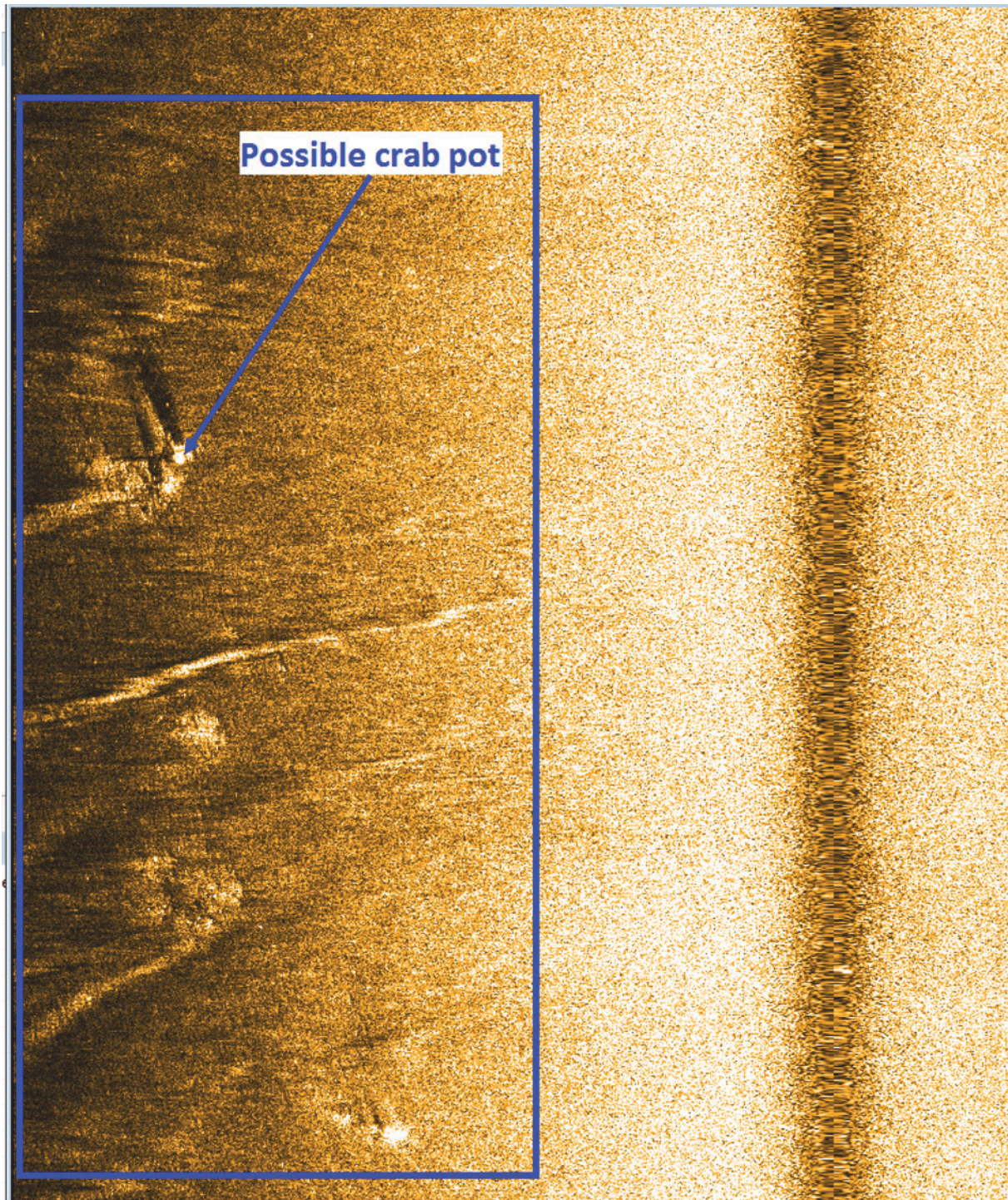


Figure 31: Crab pot visible through area of refraction on line 20190717174533H from HSL 2903.

Schools of fish obscuring the bottom.

Many large schools of fish were encountered in the middle to southern extents of H13298. Some schools were dense enough to create large acoustic shadows that obscured parts of the seafloor and potential contacts

(see Figure 32 for an example). This data deficiency could obscure significant features or their shadows. Data for these areas were not re-acquired due to operational time constraints.

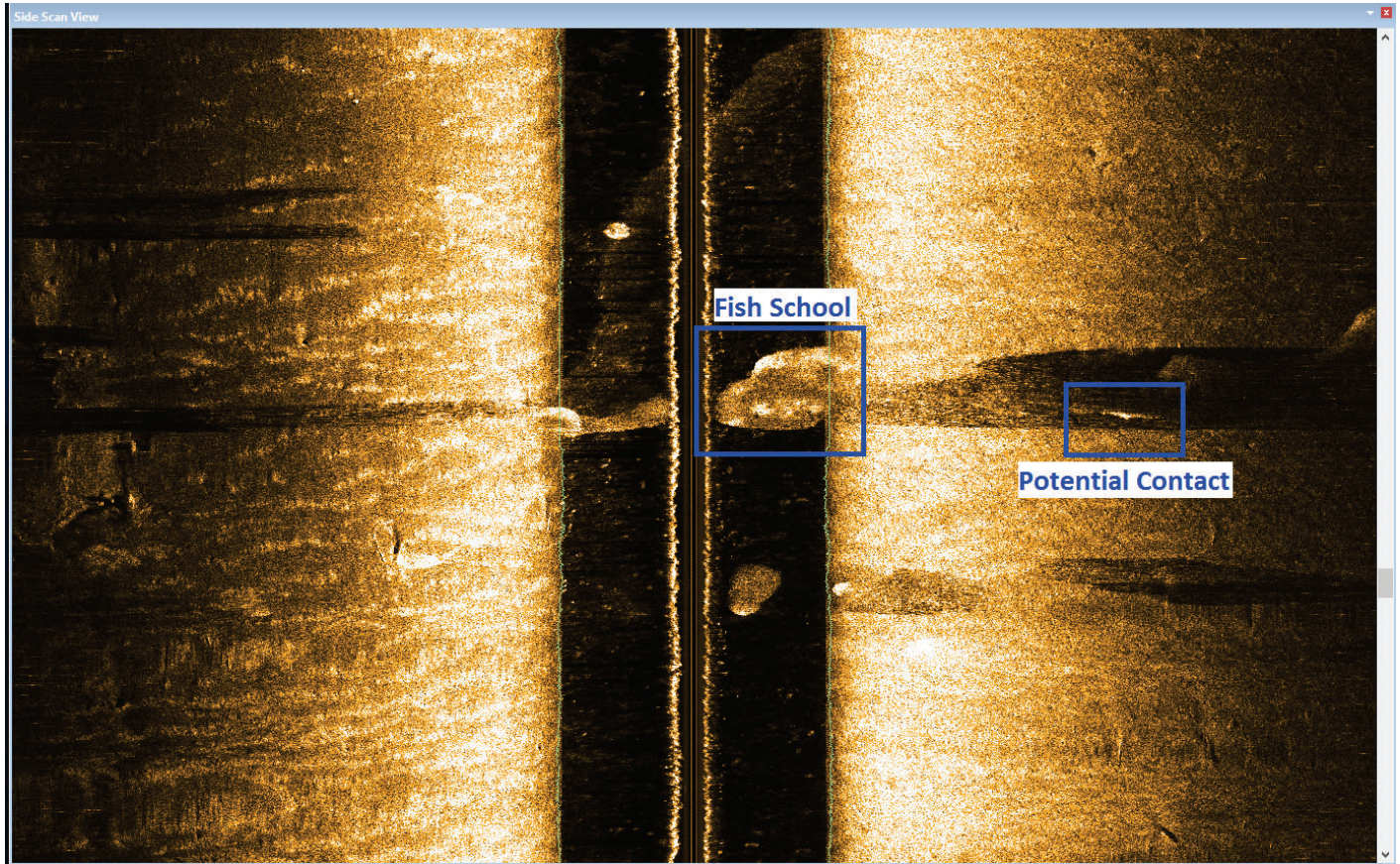


Figure 32: Example of a shadow from a school of fish potentially obscuring a contact located at 36°58'22.37"N 076°26'21.18"W.

Anchored barge.

A large barge was anchored at 36°56'23.45"N 076°25'43.60"W during survey operations. This created holidays in two side scan lines collected by HSL 2903 (20190710143835H and 20190714113252H) and can be seen in two additional lines (20190710152018H and 20190714120728H) (Figures 33 and 34). The presence of the barge may have obscured significant contacts in the area. Data for these holidays were not re-acquired due to operational time constraints.

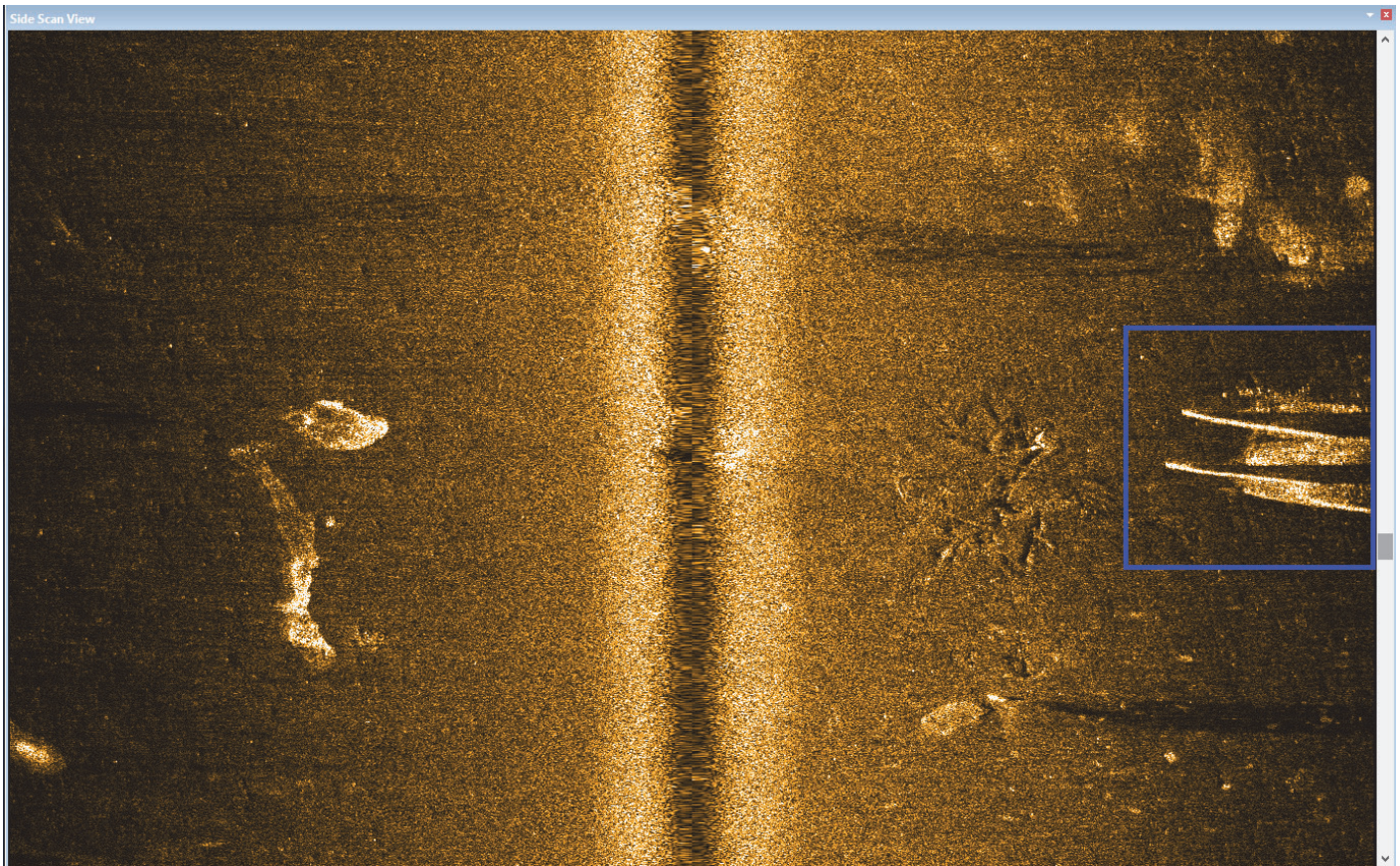


Figure 33: Barge seen in line 20190710152018H from HSL 2903.

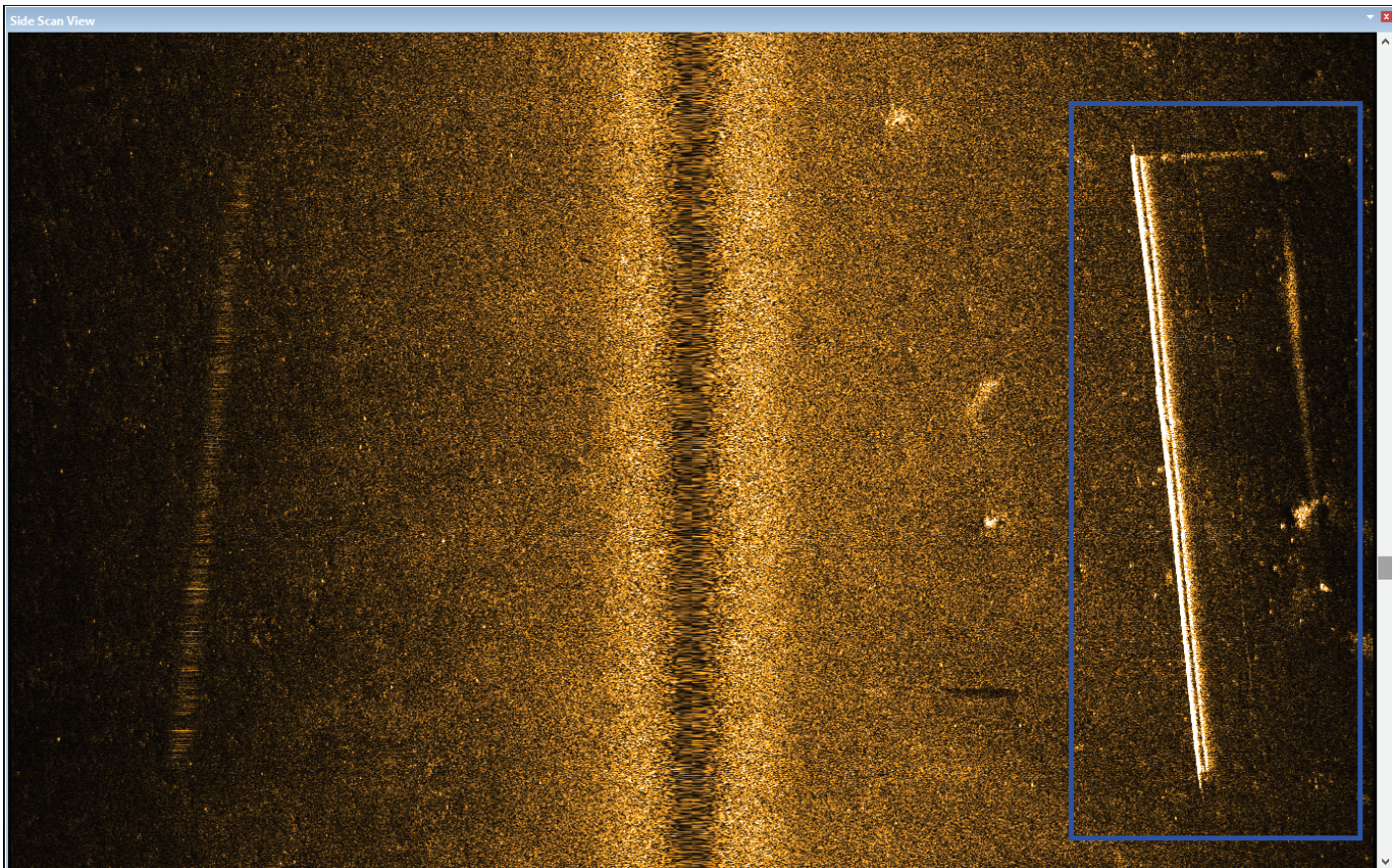


Figure 34: Barge seen in line 20190714120728H from HSL 2903.

Propeller turbulence seen in SSS data.

H13298 covers a well-trafficked area and numerous small boats crossed in front of the launches while conducting survey operations. The turbulence from their propellers can be seen in the sidescan data (see Figure 35 for an example). Lines that contain this deficiency are listed below. This data deficiency could potentially obscure significant features. Data for these areas were not re-acquired due to operational time constraints.

Lines containing incidents of propeller turbulence:

HSL 2903:

20190709153041H

20190710121459H

20190710130605H

20190711132048H

20190711132554H

20190714122540H

20190715180649H

2903_DN210190729161800

2903_DN210190729131300

2903_DN210190729150800

2903_DN212190731141700
2903_DN212190731150400
2903_DN213190801153500
2903_DN213190801174900
2903_DN214190802135200
2903_DN214190802141200
HSL 2904:
20190710142440H

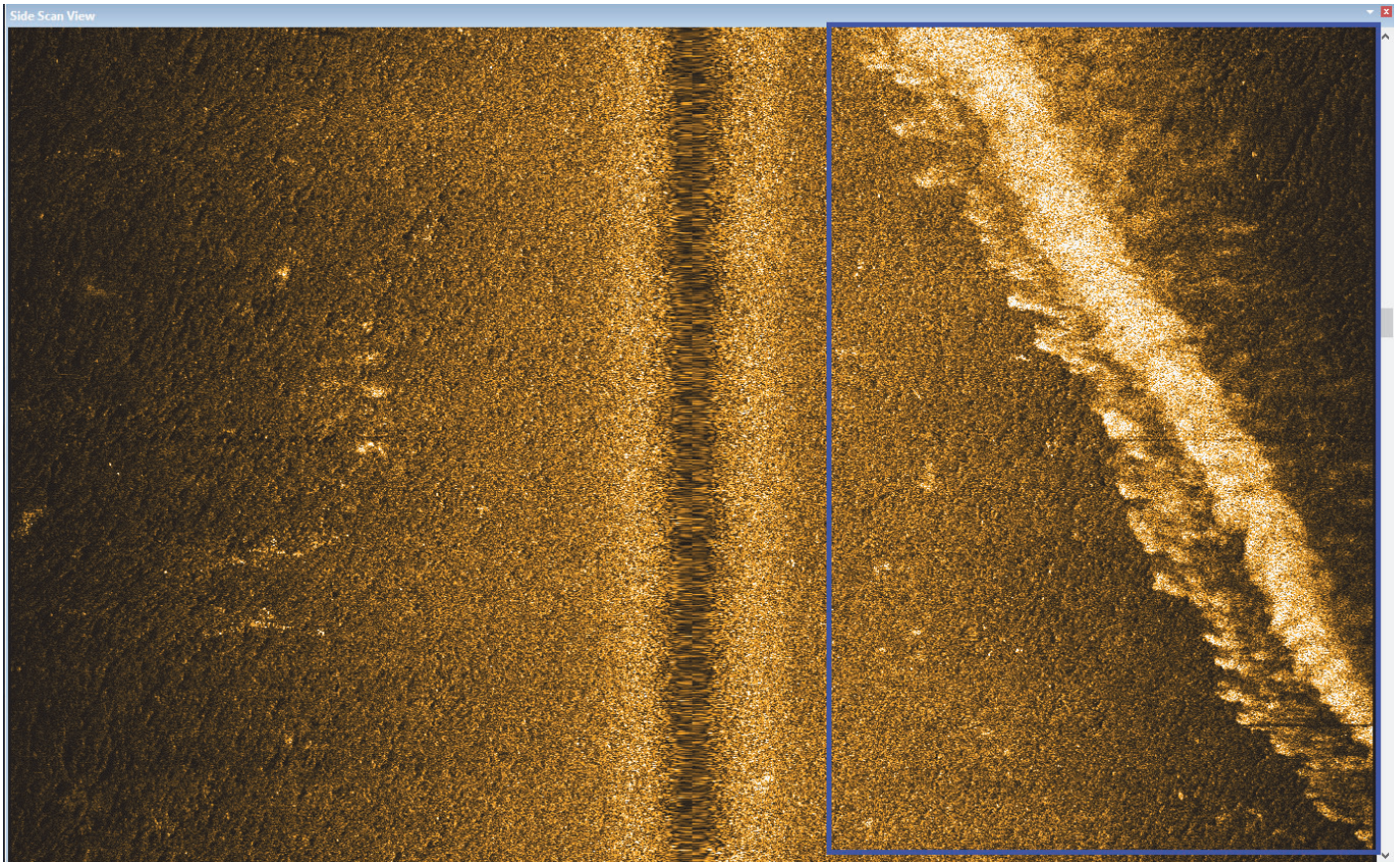


Figure 35: Example of propeller turbulence seen in sidescan data from 2903 line 20190709153041 located at 36°55'25.08"N 076°26'10.01"W.

Sea state/motion artifacts.

The launches encountered greater sea states on a few days of acquisition and motion (roll and yaw) artifacts can be seen in the lines listed below. See Figure 36 for a representative example. These motion artifacts can distort significant features. Data for these areas were not re-acquired due to operational time constraints.

Lines with significant motion artifacts:

HSL 2903:
20190709153041H

20190710164257H
20190710171338H
20190710180152H
20190711143618H
20190711150606H
20190722123540H
20190722130844H
HSL 2904:
20190711134905H
20190711145734H
20190711155201H

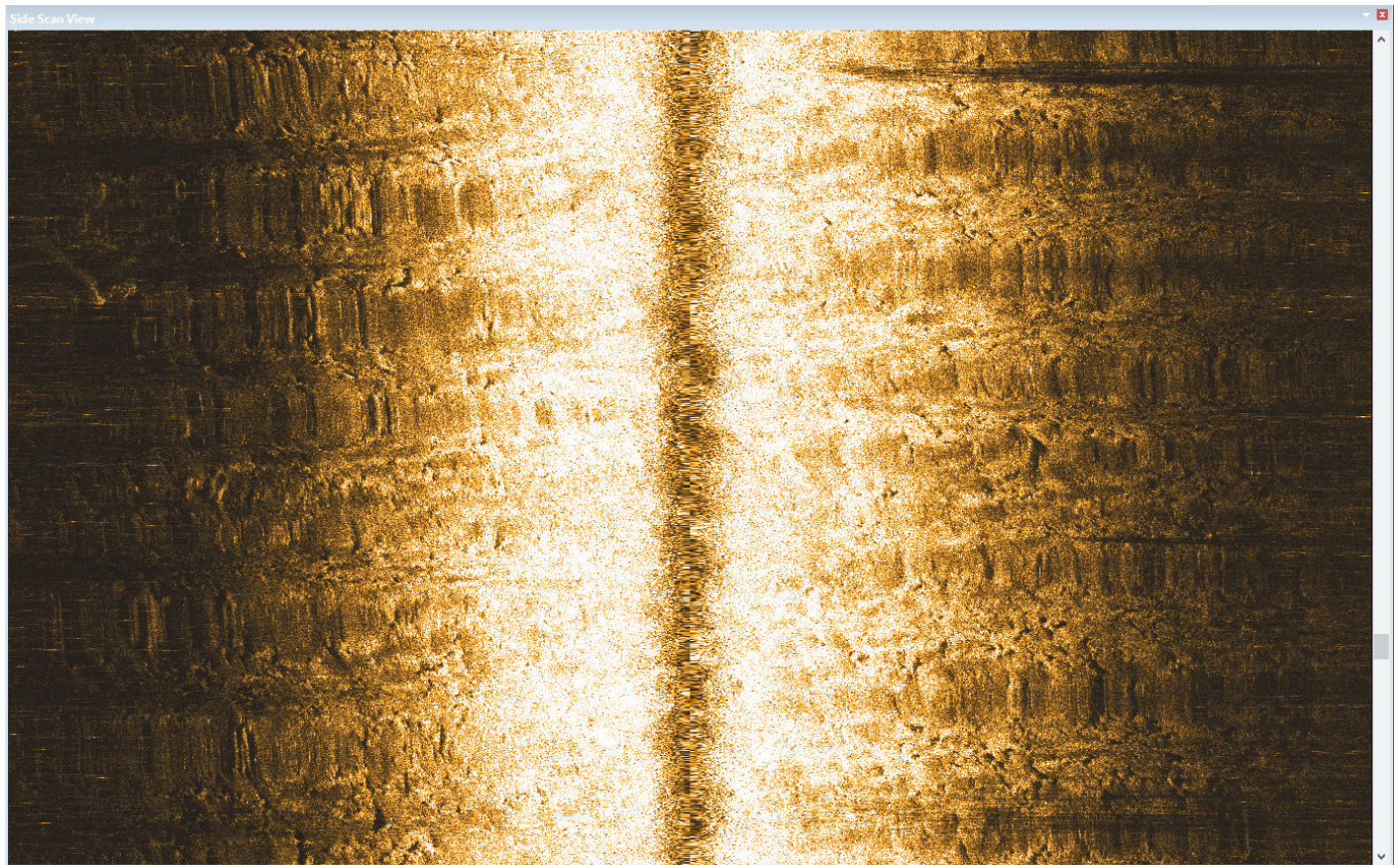
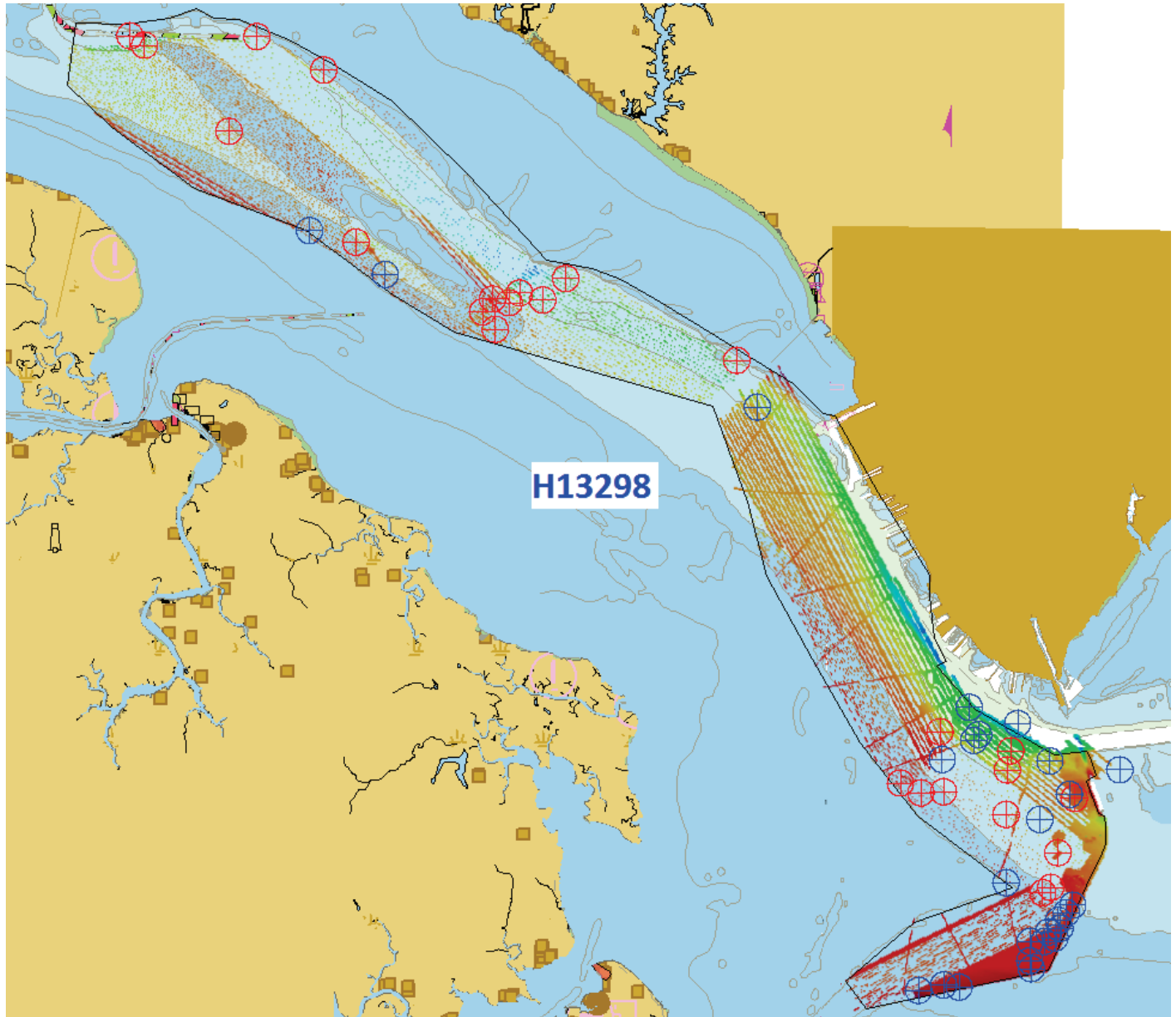


Figure 36: An example of motion (roll and yaw) artifacts seen in SSS data from HSL 2904 line 20190711134905 located at 36°57'50.83"N 076°26'29.37"W.

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: Sound speed profiles were acquired from HSL 2903 and 2904 in accordance with HSSD 2019 standards using a Sea-Bird Scientific SBE 19plus V2 Conductivity, Temperature, and Depth (CTD) Sensor. CTD casts were conducted from the launches at the beginning of acquisition and then within four hours of each previous cast. Sound speed was monitored by the survey watch to assess sound speed variation in the water column and conduct casts accordingly. MBES and SBES data were corrected by applying sound speed profiles nearest in distance within time (4 hours). All sound speed profile data were concatenated into a master file. A total of 51 sound speed measurements were collected within the survey limits of H13298 with two additional measurements collected outside the data extents (Figure 37). These outside measurements were collected within 500m of survey coverage as specified in the HSSD 2019. All casts provide data representative of the conditions found within the survey area and are appropriate for use.



*Figure 37: Overview of all CTD casts taken on H13298.
Casts for 2903 are in red and casts for 2904 are in blue.*

B.2.8 Coverage Equipment and Methods

HSL 2903 acquired 200% SSS data with concurrent SBES data to meet object detection coverage requirements per the waiver from the Project Manager. Additionally, HSL 2903 collected 100% MBES data over a portion of SSS holidays. SSS data was collected using an Edgetech 4200 system and a Klein 5000 system. SBES data was collected using an Odom CV200 and MBES data was collected using a Kongsberg EM2040.

HSL 2904 acquired 200% SSS data with concurrent MBES data as well as 100% MBES data to meet object detection coverage. SSS data was collected using a Klein 5000 system and MBES data was collected using

a Kongsberg EM2040. See section A.4 Survey Coverage Figures 8-12 for an overview of areas of coverage using these three methods.

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

All equipment and survey methods were used as detailed in the DAPR. Multibeam echo sounder acoustic backscatter (MBAB) was logged as part of the .all file of the Kongsberg EM2040 systems. Backscatter was processed in QPS Fledermaus GeoCoder Toolbox (FMGT) software, and the exported geotiff's are included in the final processed data package (Figures 38, 39, and 40). There were five holidays identified in the area of 100% MBES coverage (Figure 41). As previously discussed in section B.2, the side scan mount also created interference in MBAB data that can be seen as dark lines on the starboard side of the swath (Figure 42). There are five anomalies in the MBAB data that were caused by blowouts in MBES coverage (Figure 43).

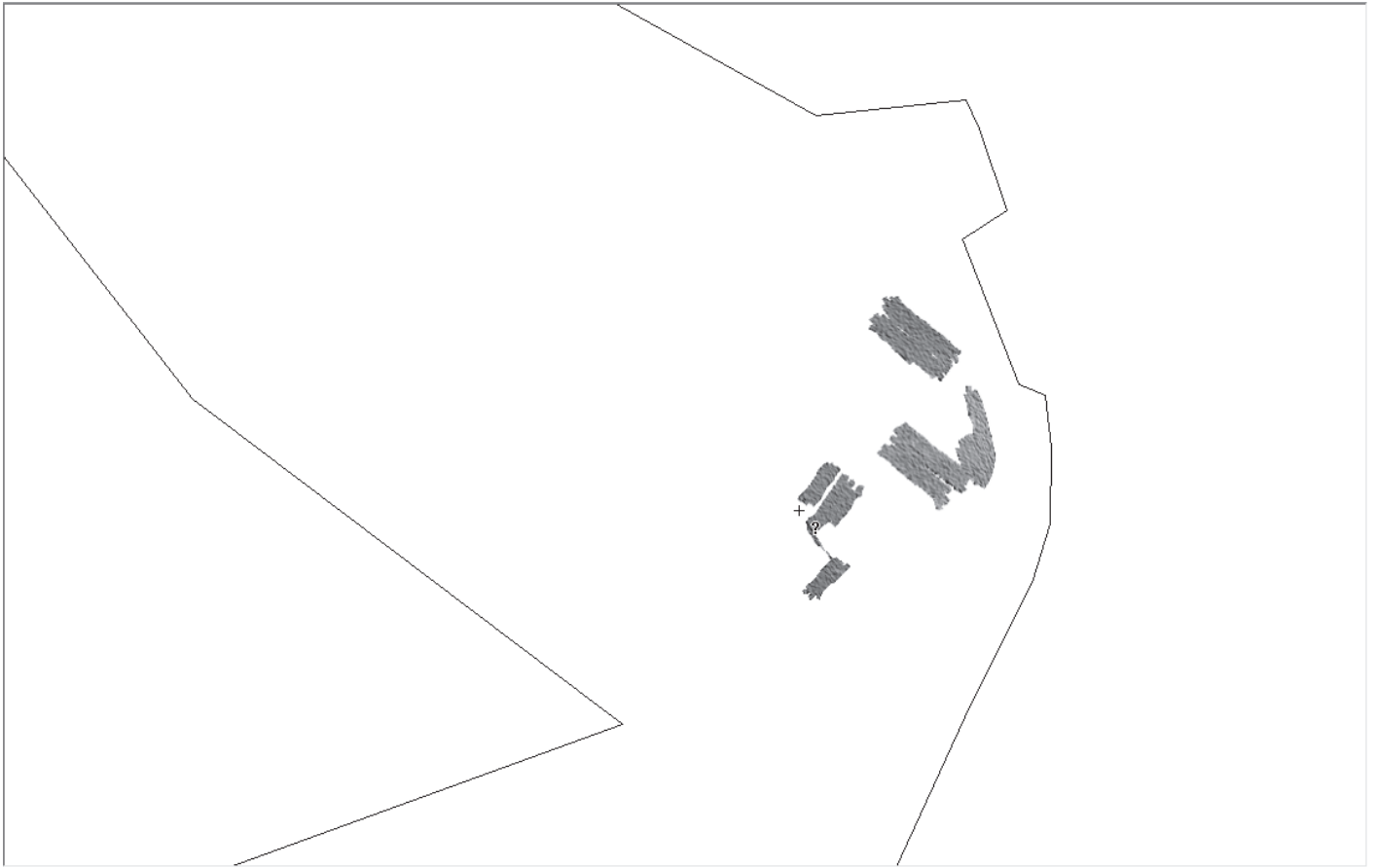


Figure 38: HSL 2903's 300kHz multibeam acoustic backscatter at 1m resolution.

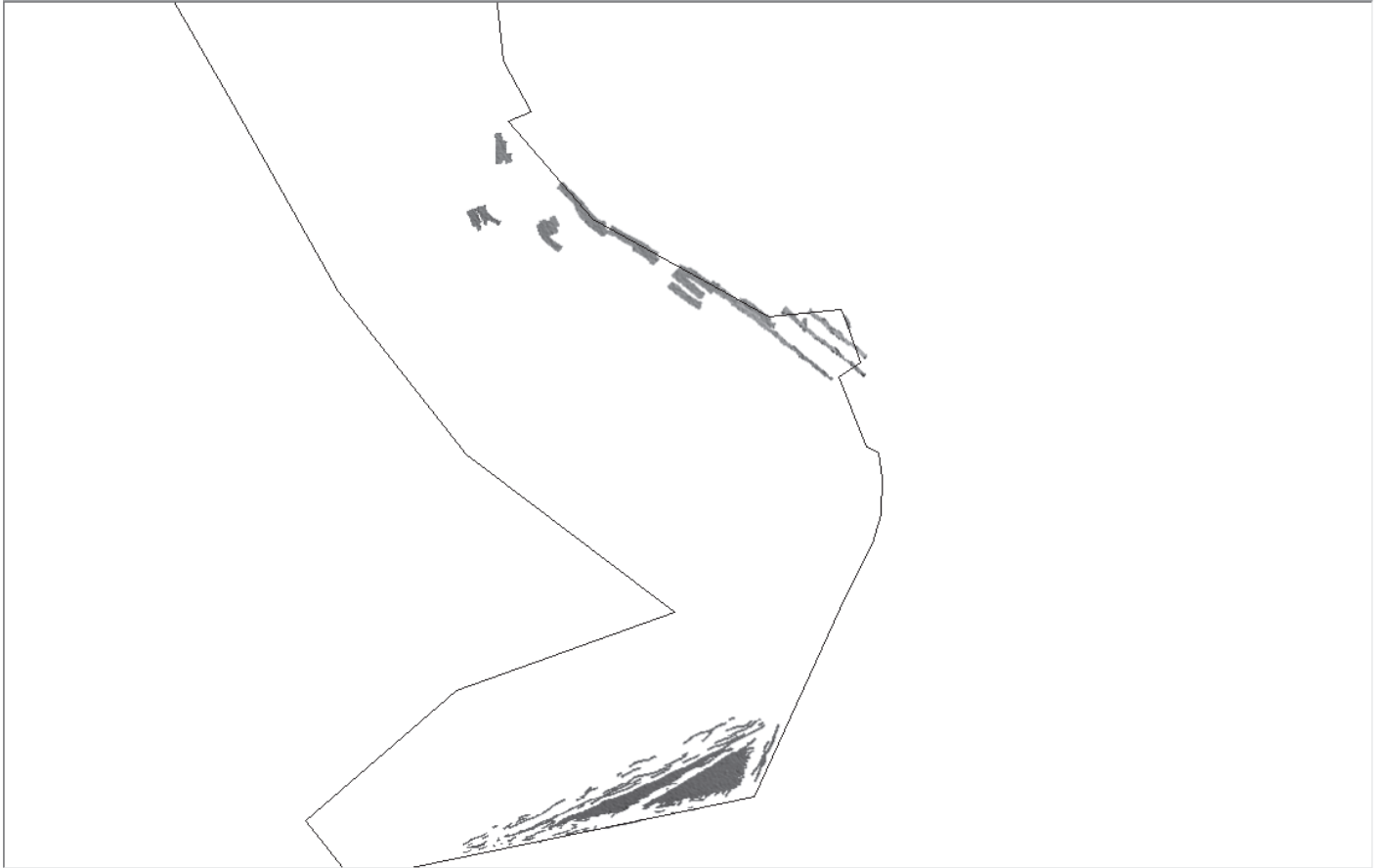


Figure 39: HSL 2904's 300kHz multibeam acoustic backscatter at 1m resolution.

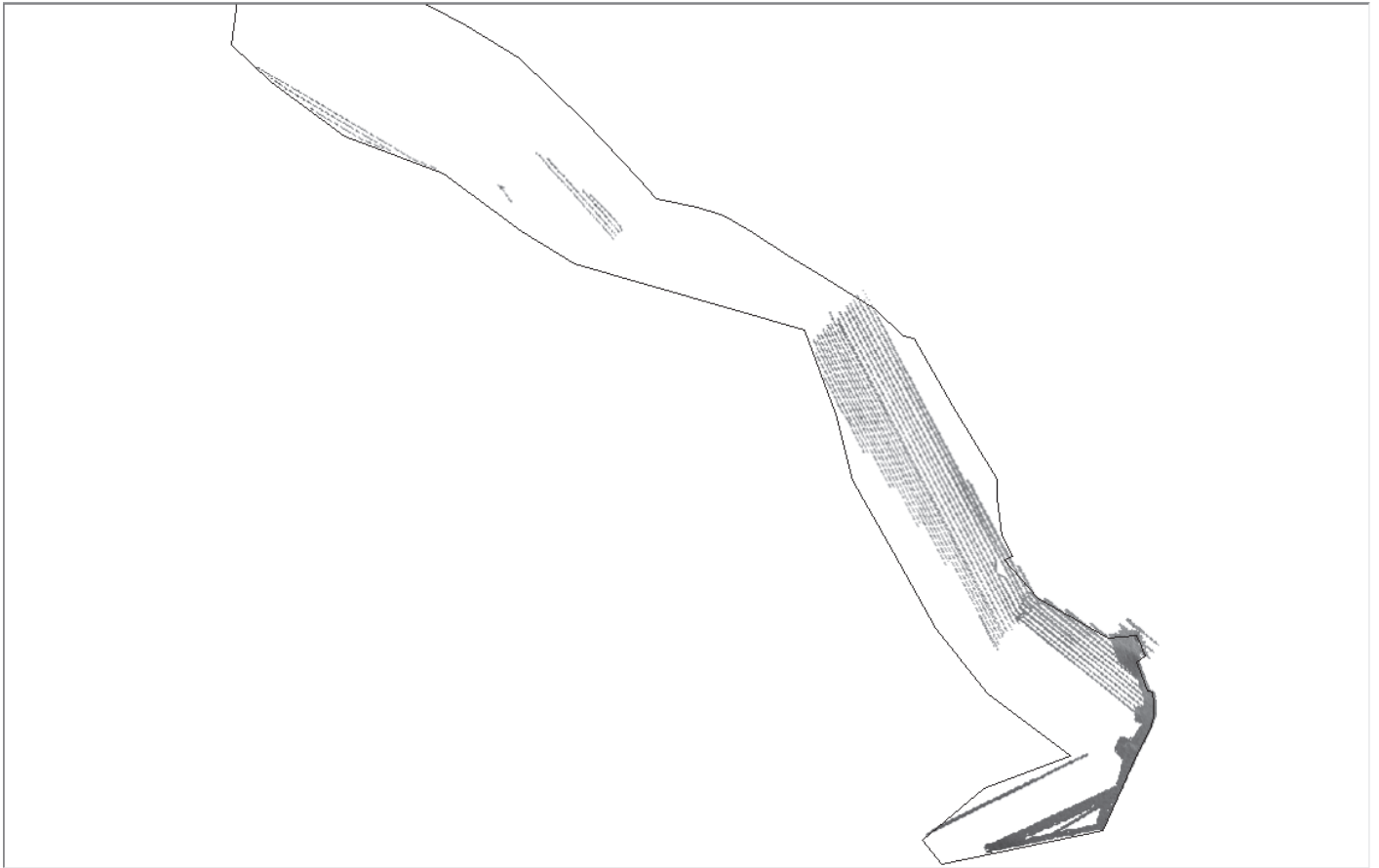


Figure 40: HSL 2904's 400kHz multibeam acoustic backscatter at 1m resolution.

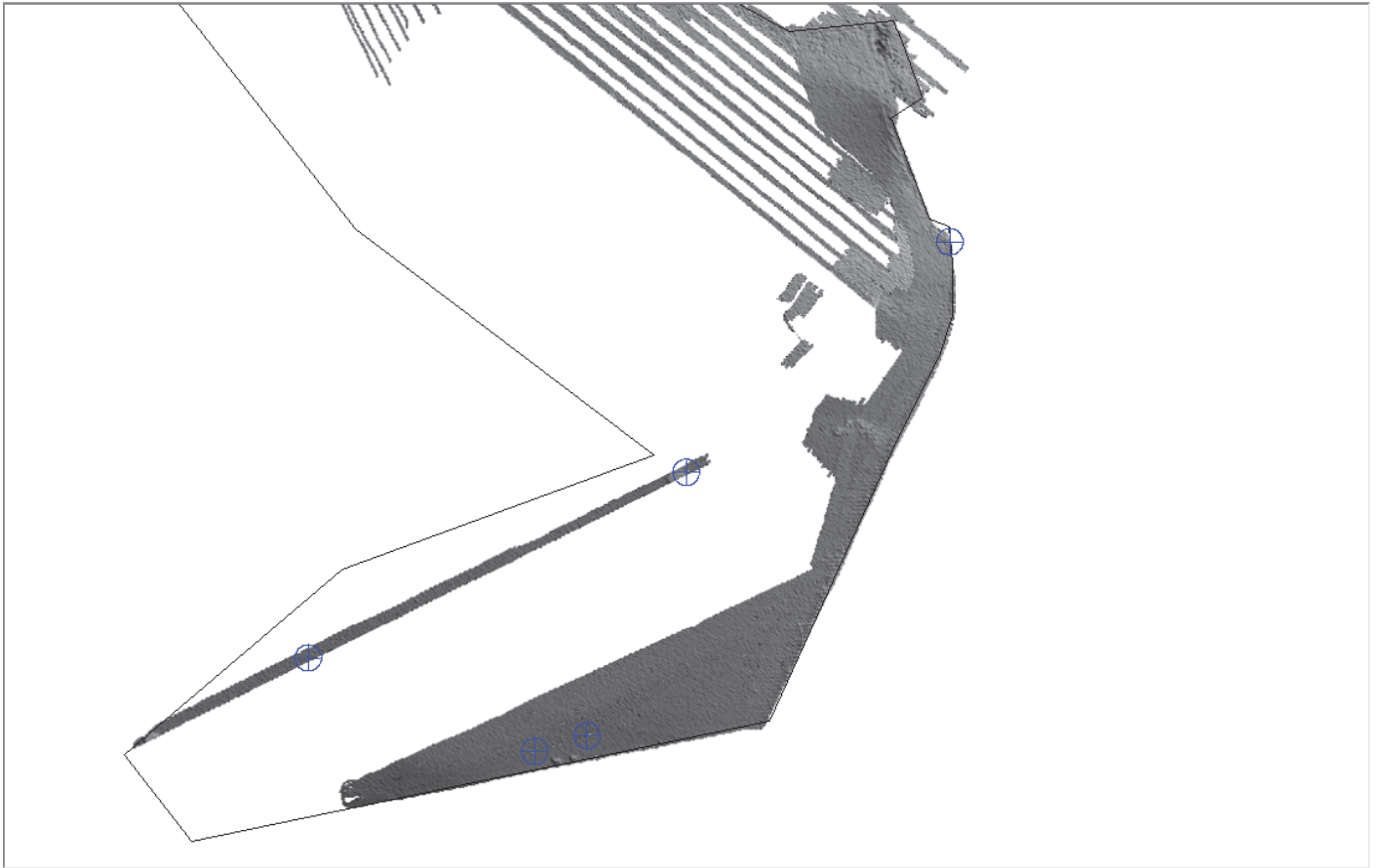


Figure 41: Backscatter holidays in the area of 100% MBES coverage.

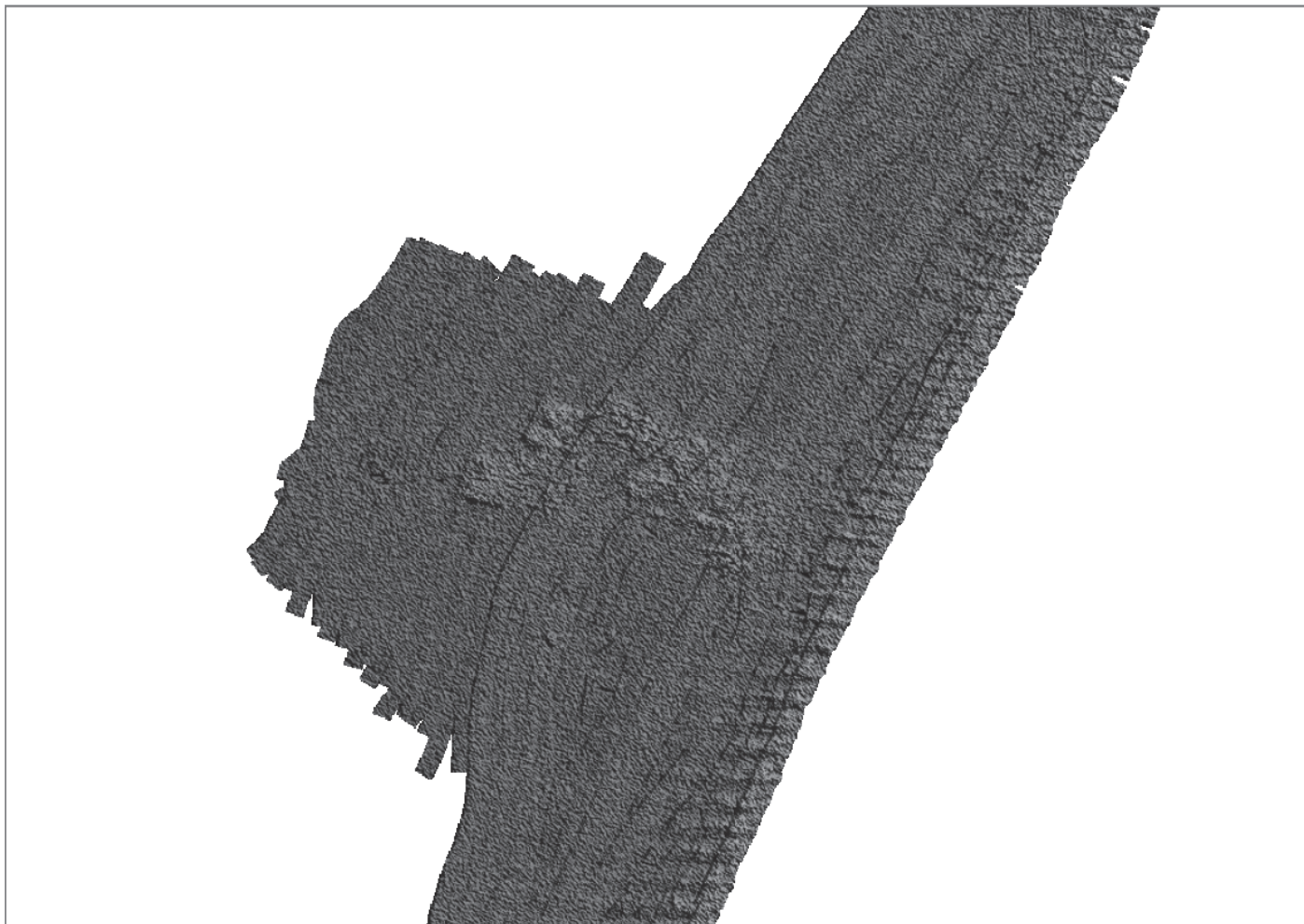


Figure 42: Example area of MBAB showing dark lines on starboard side of MBAB swath created by interference from side scan mount.

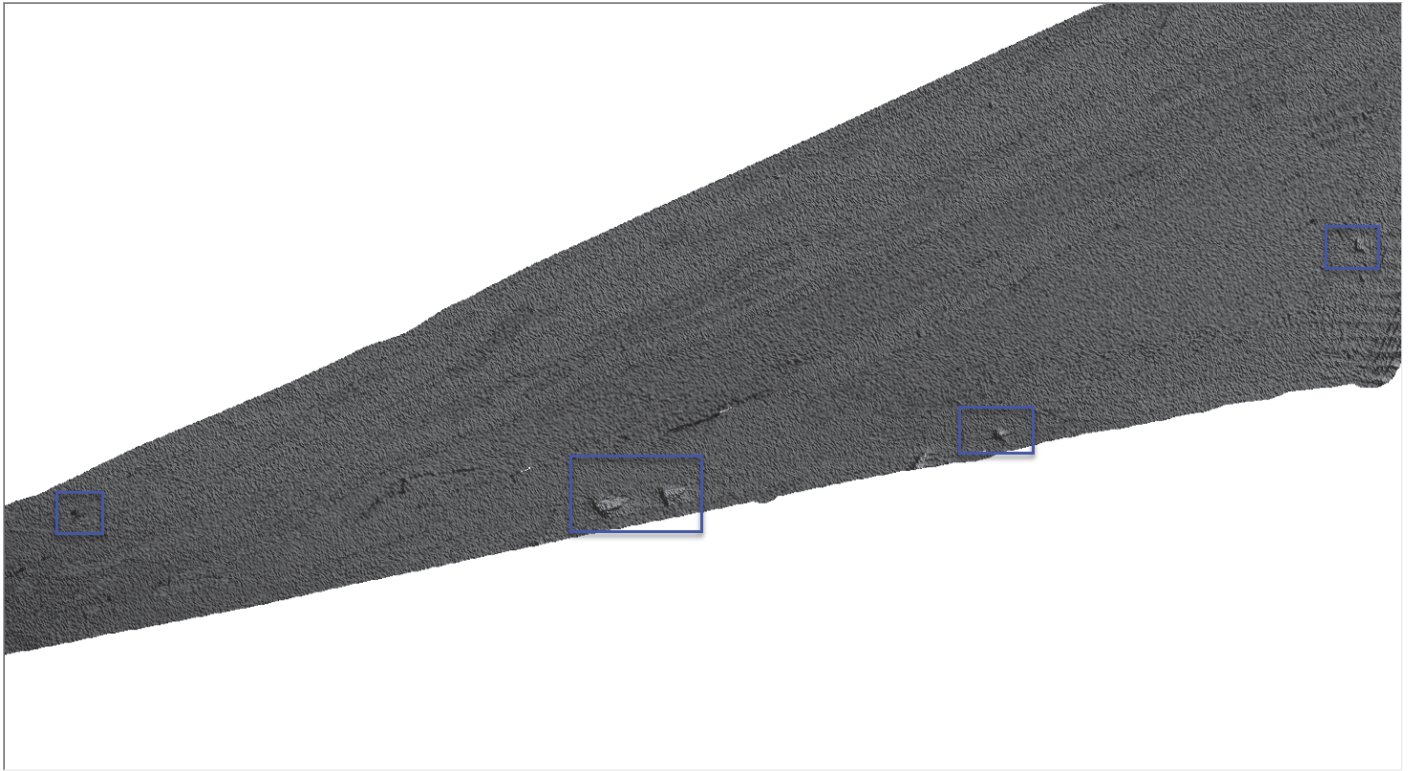


Figure 43: MBAB anomalies caused by blowouts in MBES coverage.

B.5 Data Processing

B.5.1 Primary Data Processing Software

The following Feature Object Catalog was used: NOAA Profile Version 2019.

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
H13298_MB_VR_MLLW	CARIS VR Surface (CUBE)	Variable Resolution	2.4 meters - 26.4 meters	NOAA_VR	Object Detection

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H13298_MB_VR_MLLW_Final	CARIS VR Surface (CUBE)	Variable Resolution	2.4 meters - 26.4 meters	NOAA_VR	Object Detection
H13298_SB_4m_MLLW	CARIS Raster Surface (CUBE)	4 meters	2.626 meters - 17.995 meters	NOAA_4m	Object Detection
H13298_SB_4m_MLLW_Final	CARIS Raster Surface (CUBE)	4 meters	2.626 meters - 17.995 meters	NOAA_4m	Object Detection
H13298_SSSAB_1m_600kHz_1of4	SSS Mosaic	1 meters	-	N/A	100% SSS
H13298_SSSAB_1m_600kHz_2of4	SSS Mosaic	1 meters	-	N/A	200% SSS
H13298_SSSAB_1m_455kHz_3of4	SSS Mosaic	1 meters	-	N/A	100% SSS
H13298_SSSAB_1m_455kHz_4of4	SSS Mosaic	1 meters	-	N/A	200% SSS
H13298_MBAB_1m_2903_300kHz_1of3	MB Backscatter Mosaic	1 meters	-	N/A	Object Detection
H13298_MBAB_1m_2904_300kHz_2of3	MB Backscatter Mosaic	1 meters	-	N/A	Object Detection
H13298_MBAB_1m_2904_400kHz_3of3	MB Backscatter Mosaic	1 meters	-	N/A	Object Detection

Table 9: Submitted Surfaces

Object Detection coverage requirements were met using three methods: 100% Object Detection MBES coverage, 200% Side Scan coverage with concurrent MBES, and 200% SSS coverage with concurrent SBES per the waiver from the Project Manager. The bathymetric grid for SBES data (H13298_SB_4m_MLLW) did not meet density requirements per the HSSD 2019 (Figure 44, 92% of nodes pass density requirements). Upon close inspection of the density layer of the grid, it was found that most of the nodes that fail are located at the beginning and end of lines where sounding density is low (Figure 45, failed nodes are colored red). There are also some failed nodes that occur in the middle of lines that is likely due to a combination of the density of soundings and the 4m gridding method (Figure 45, failed nodes are colored red). The bathymetric grid for MBES data (H13298_MB_VR_MLLW) meets density requirements per the HSSD 2019 (Figure 46).

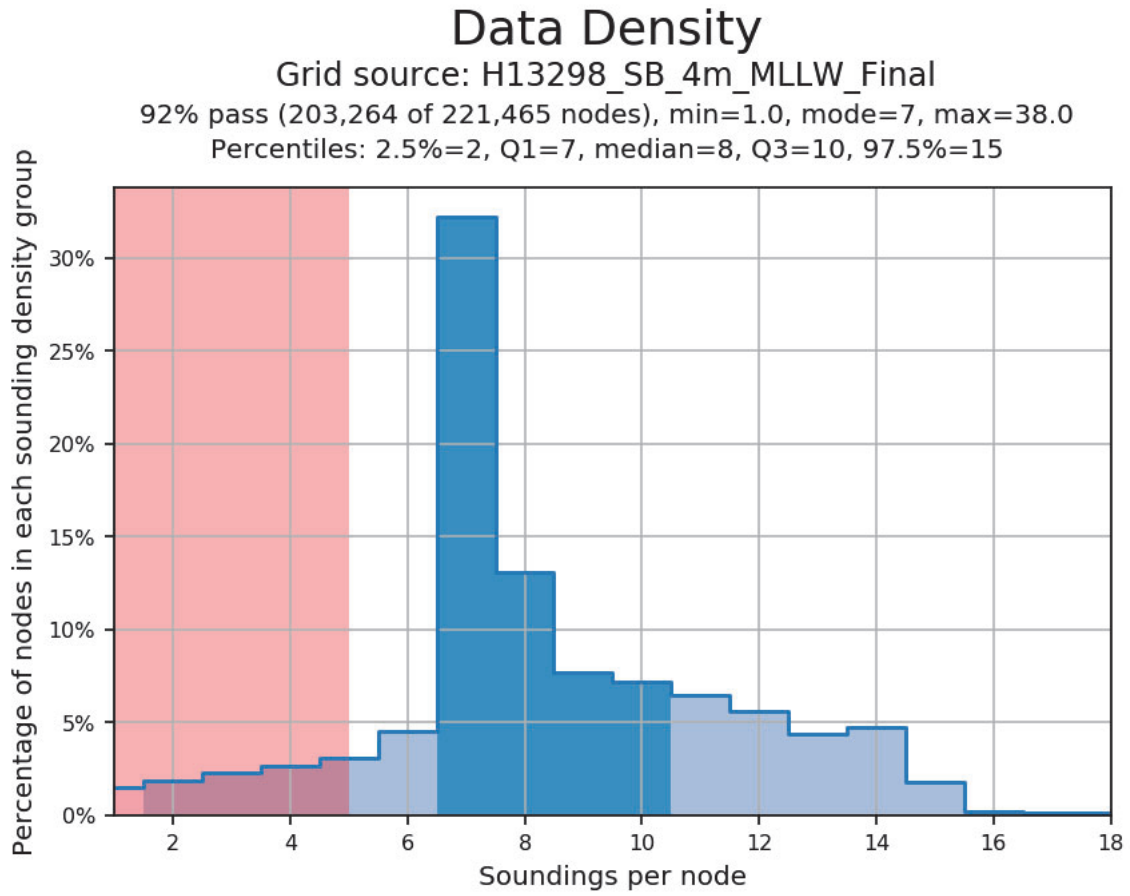


Figure 44: H13298 SBES data density standards.

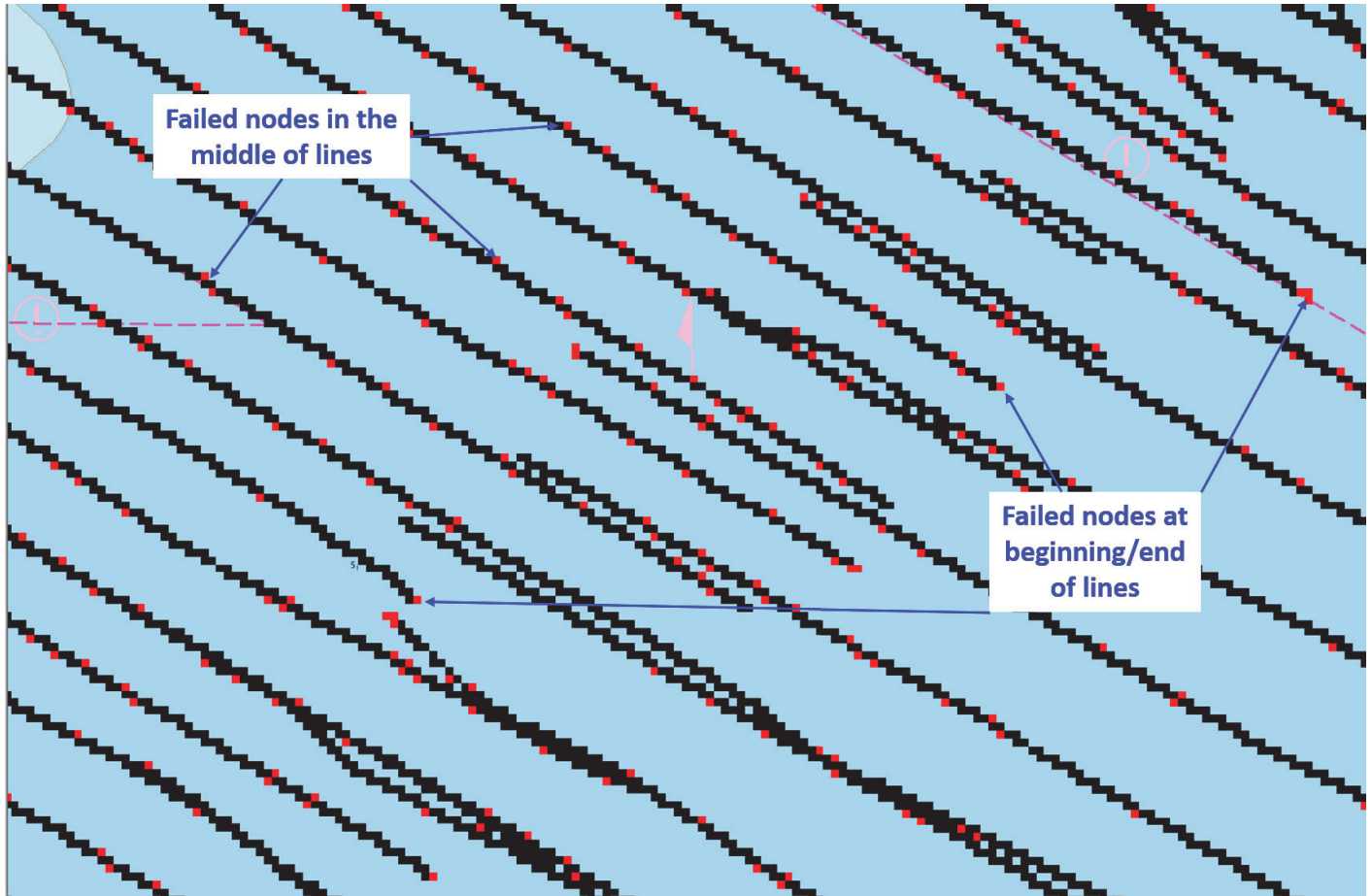


Figure 45: Example of SBES nodes that did not meet density requirements.

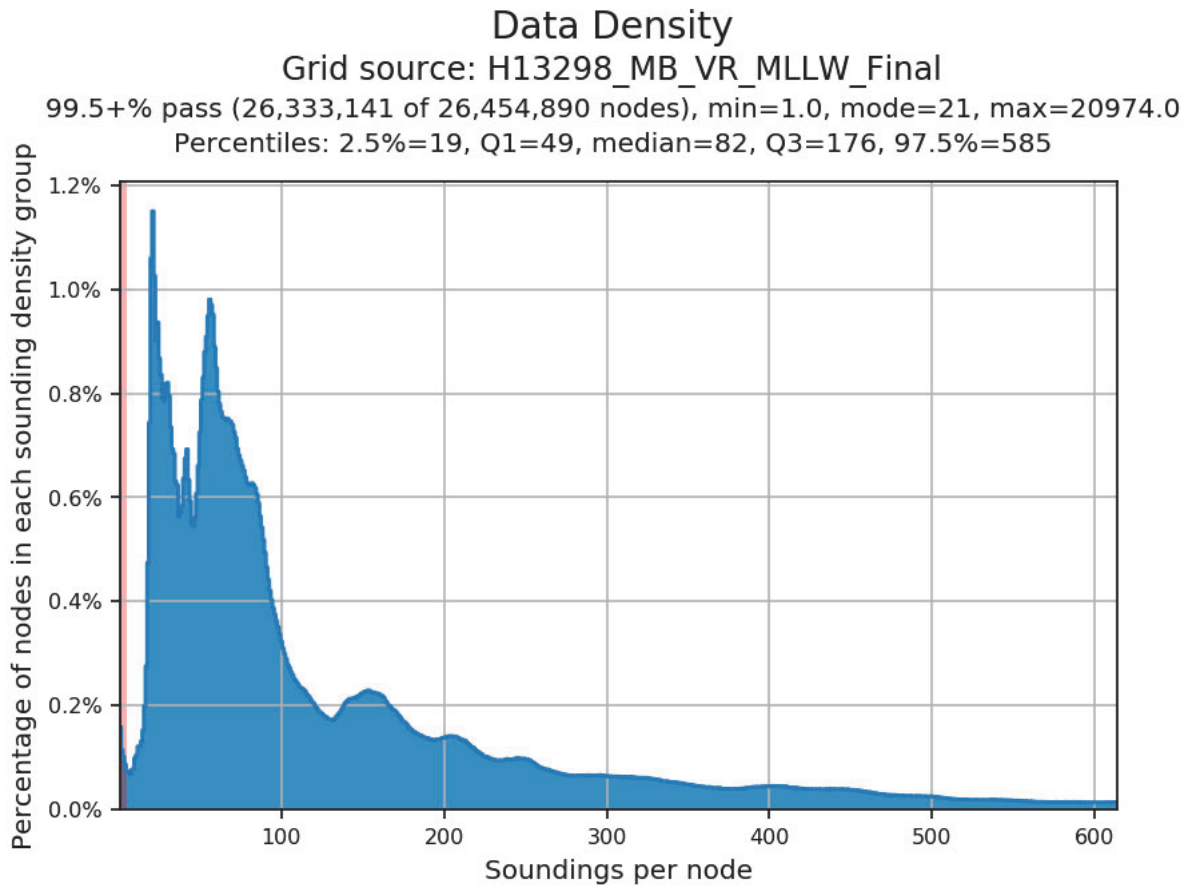


Figure 46: H13298 MBES data density standards.

C. Vertical and Horizontal Control

No Horizontal and Vertical Control Report (HVCR) is required for this survey.

C.1 Vertical Control

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

ERS Datum Transformation

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

Method	Ellipsoid to Chart Datum Separation File
ERS via VDATUM	OPR-E350-TJ-19_NAD83-MLLW_Geoid12B

Table 10: ERS method and SEP file

All soundings submitted for H13327 are reduced to MLLW using VDatum techniques as outlined in the DAPR.

C.2 Horizontal Control

The horizontal datum for this project is North American Datum of 1983 (NAD 83).

The projection used for this project is Universal Transverse Mercator (UTM) Zone 18.

PPP

Trimble-RTX service was used with an Applanix POS MVv5 GNSS-INS system to obtain highly accurate ellipsoidally referenced position data to meet ERS specifications for H13298 MBES and SBES data.

WAAS

The Wide Area Augmentation System (WAAS) was used for real-time horizontal control during data acquisition.

C.3 Additional Horizontal or Vertical Control Issues

C.3.1 Loss of Primary DGPS fix.

HSLs 2903 and 2904 experienced losses of Primary DGPS mode in the POS/MV system on multiple days during survey acquisition. Below is a list of days on which this issue occurred and how many times losses were experienced. These losses were detected while reviewing the SBET's AutoQC graphs (Figure 47). All losses of Primary DGPS mode were less than one second in length and were correlated with losses of satellite coverage across both the primary and secondary GNSS receivers (Figure 48). The cause of this

coverage loss is unknown. Neither MBES or SBES data quality appear to be affected by these brief drop outs. Below is a list of days on which this issue occurred and how many times losses were experienced.

2903 DN197- 2 losses

2903 DN198- 1 loss

2903 DN203- 2 losses

2903 DN210- 1 loss

2903 DN211- 3 losses

2903 DN212- 1 loss

2903 DN213- 2 losses

2903 DN214- 1 loss

2903 DN217- 5 losses (Figures 47 and 48)

2904 DN192- 4 losses

2904 DN211- 1 loss

2904 DN214- 2 losses

2904 DN216- 2 losses

2904 DN353- 1 loss

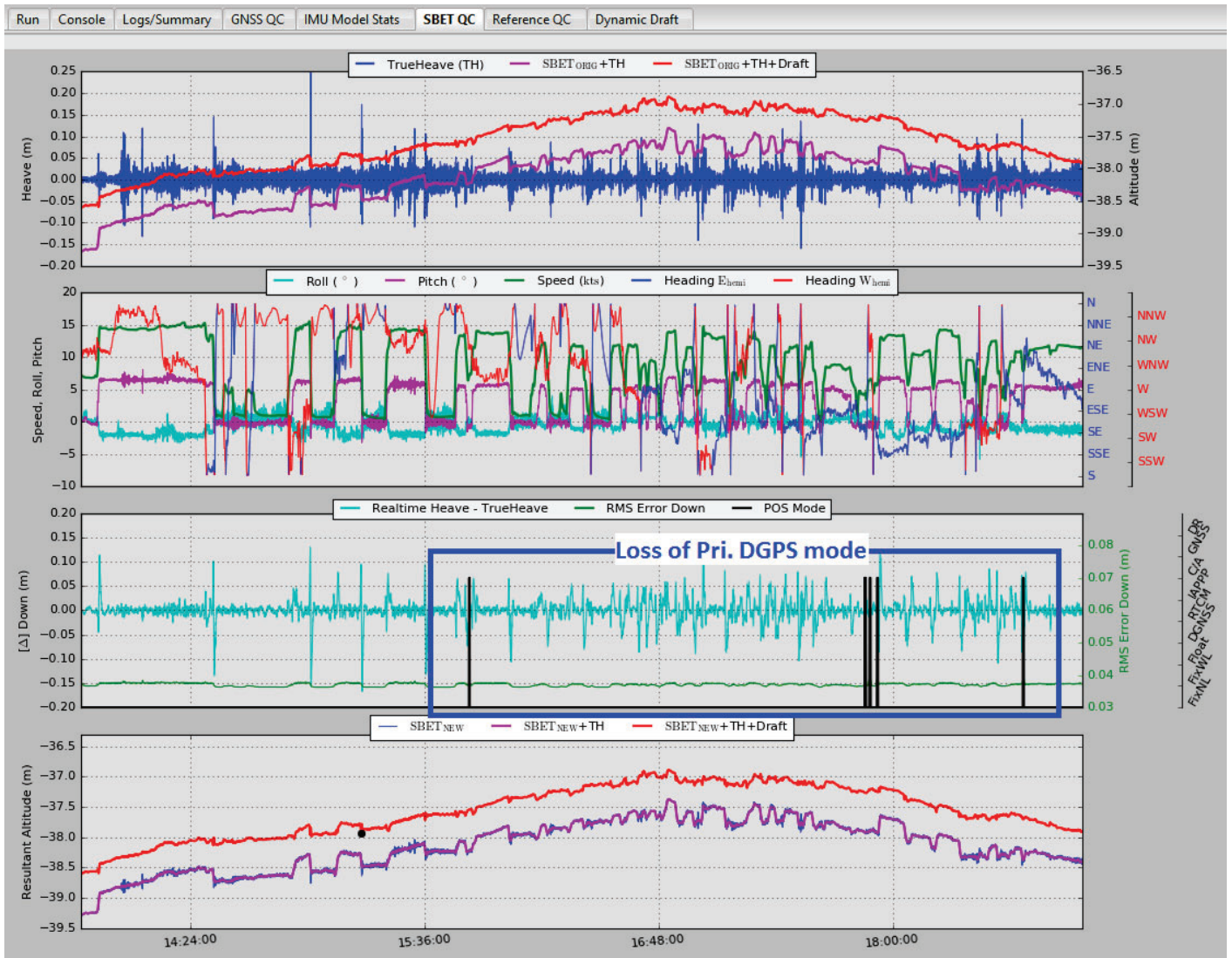


Figure 47: Loss of Primary DGPS mode seen on HSL 2903 DN217.

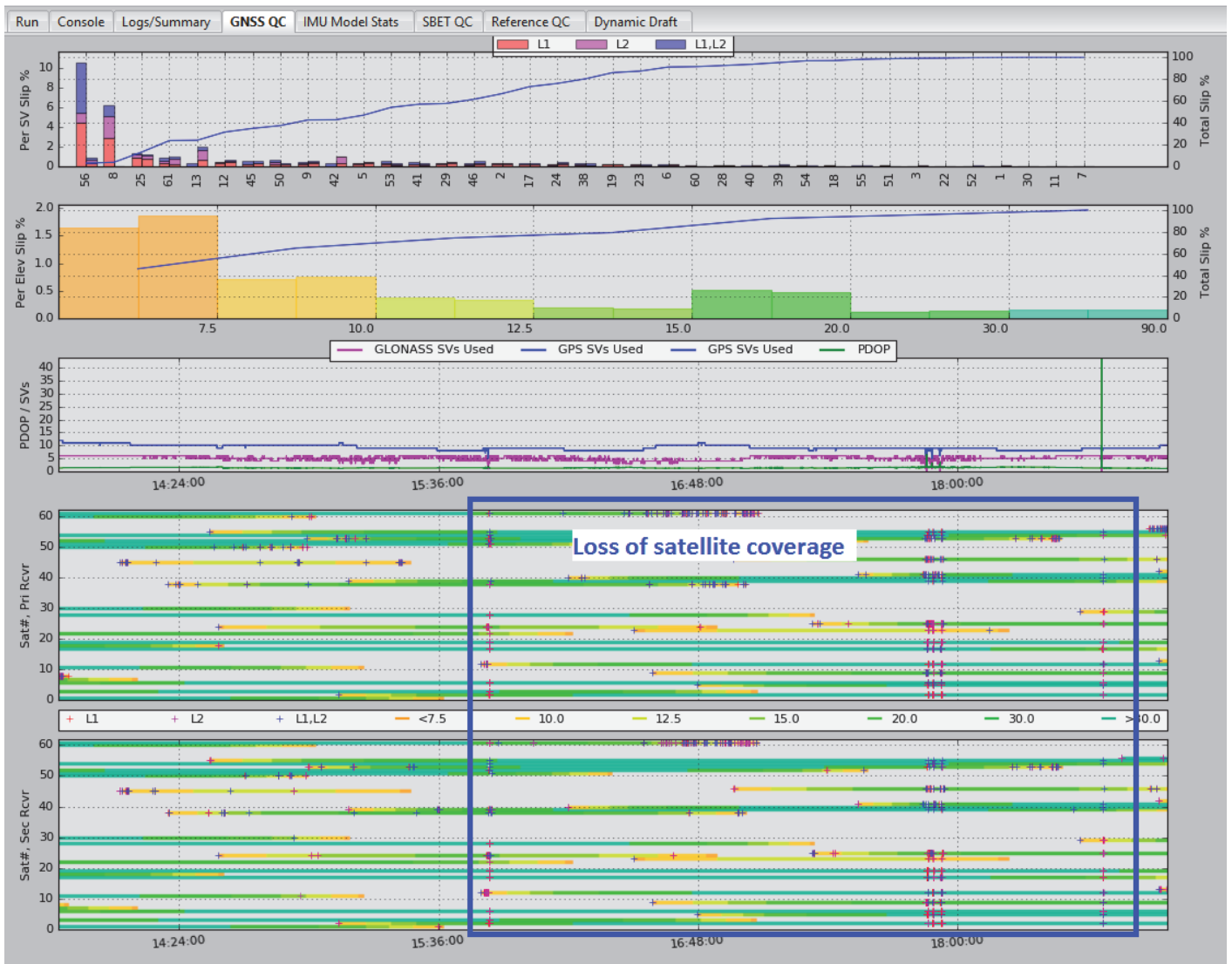


Figure 48: Loss of satellite coverage see on HSL 2903 DN217.

D. Results and Recommendations

D.1 Chart Comparison

Chart comparisons were conducted between survey H13298 soundings and previously charted ENC's US5VA15M and US5VA25M using procedures outlined in the DAPR.

D.1.1 Electronic Navigational Charts

The following are the largest scale ENC's, which cover the survey area:

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US5VA15M	1:20000	54	01/28/2020	02/28/2020	NO
US5VA25M	1:40000	30	01/08/2020	02/19/2020	NO

Table 11: Largest Scale ENC's

US5VA15M

Sounding sets derived from H13298's bathymetric surfaces generally agreed with soundings from ENC US5VA15M. However, there are two areas with soundings observed of approximately 1m up to 1.6m shoaler than charted soundings (Figures 49 and 50). One DTON was reported on March 18, 2020 (see Appendix II for relevant documents).

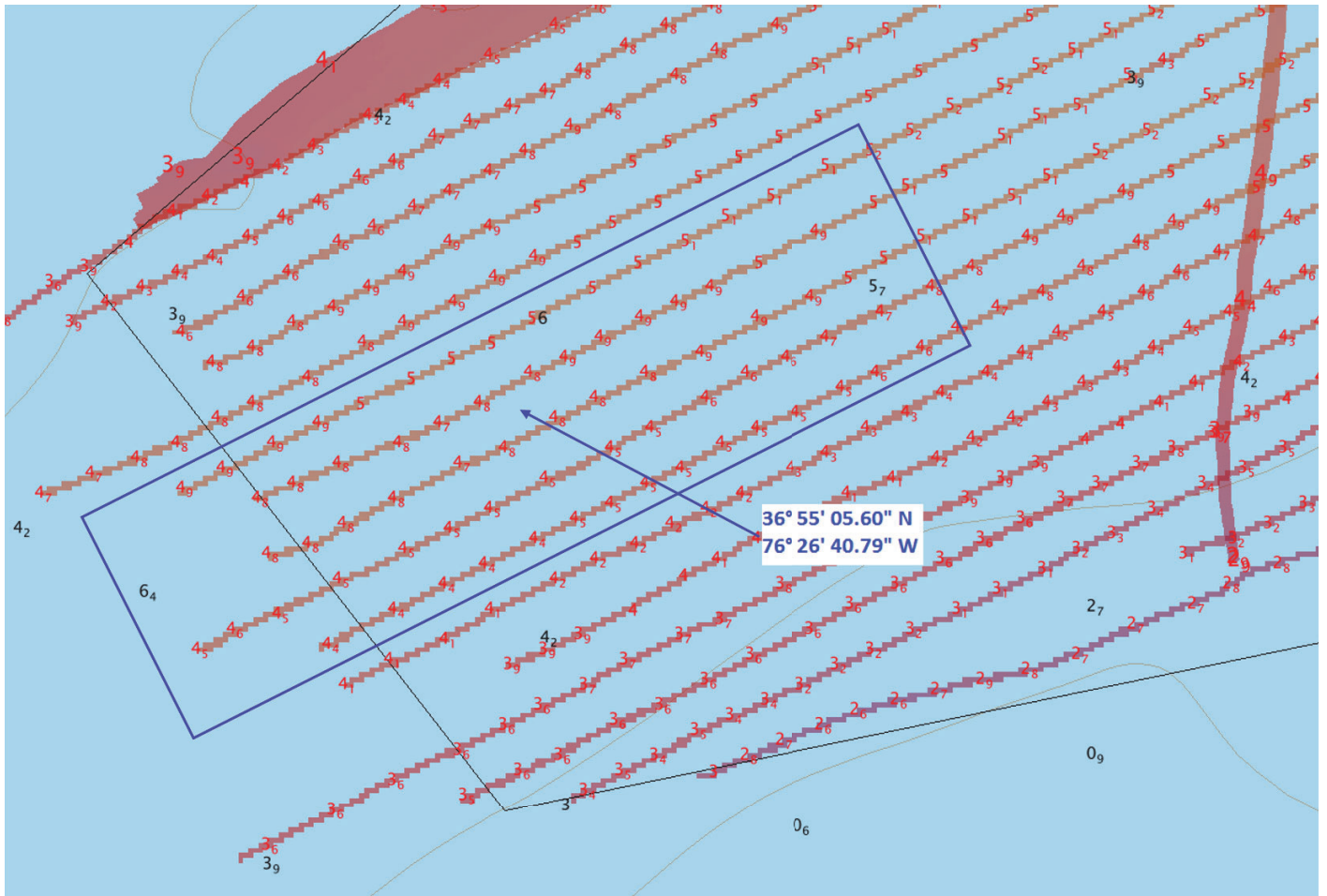


Figure 49: Area of shoal soundings in the southern reaches of H13298. Charted soundings in black and SBES soundings in red.

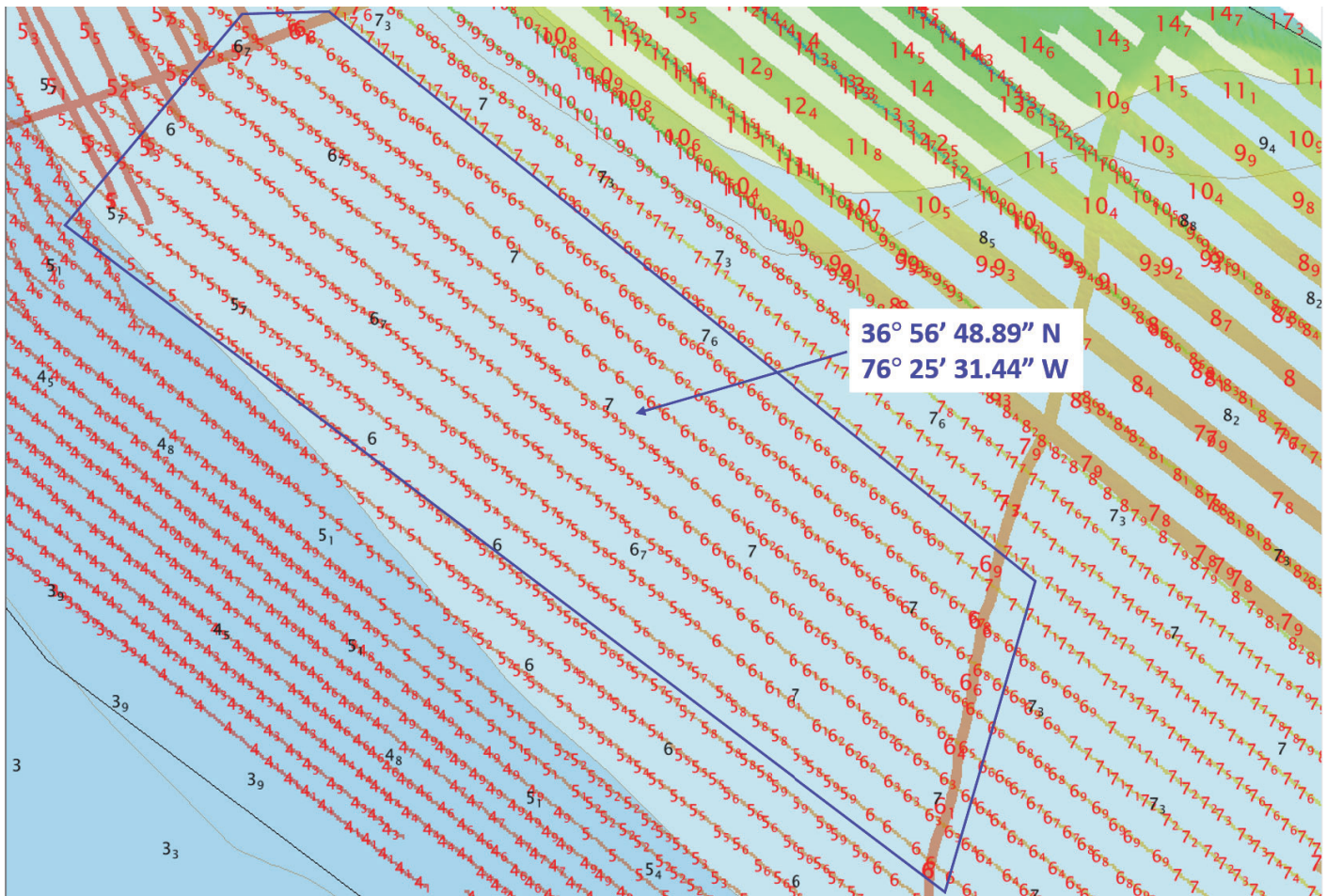


Figure 50: Area of shoal soundings in the mid-region of H13298. Charted soundings in black and SBES soundings in red.

US5VA25M

Sounding sets derived from H13298's bathymetric surfaces showed general deepening of US5VA25M particularly in the most northern region surrounding White Shoal. One DTON was identified and reported on Aug. 7, 2019 (see Appendix II for relevant documents).

D.1.2 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.3 Charted Features

There is one charted dangerous wreck with a status of "Existence Doubtful" within the limits of H13298 near Rocklanding Shoal Channel located at 37°03'13.75"N -076°34'48.76"W. The source of this feature is Chart 12248 with a source date of 19990828. The location was not covered by MBES or SBES and was only covered by 100% SSS coverage. Little evidence of a dangerous wreck can be seen in the SSS imagery (Figure 51), however, coverage is insufficient for disproval.

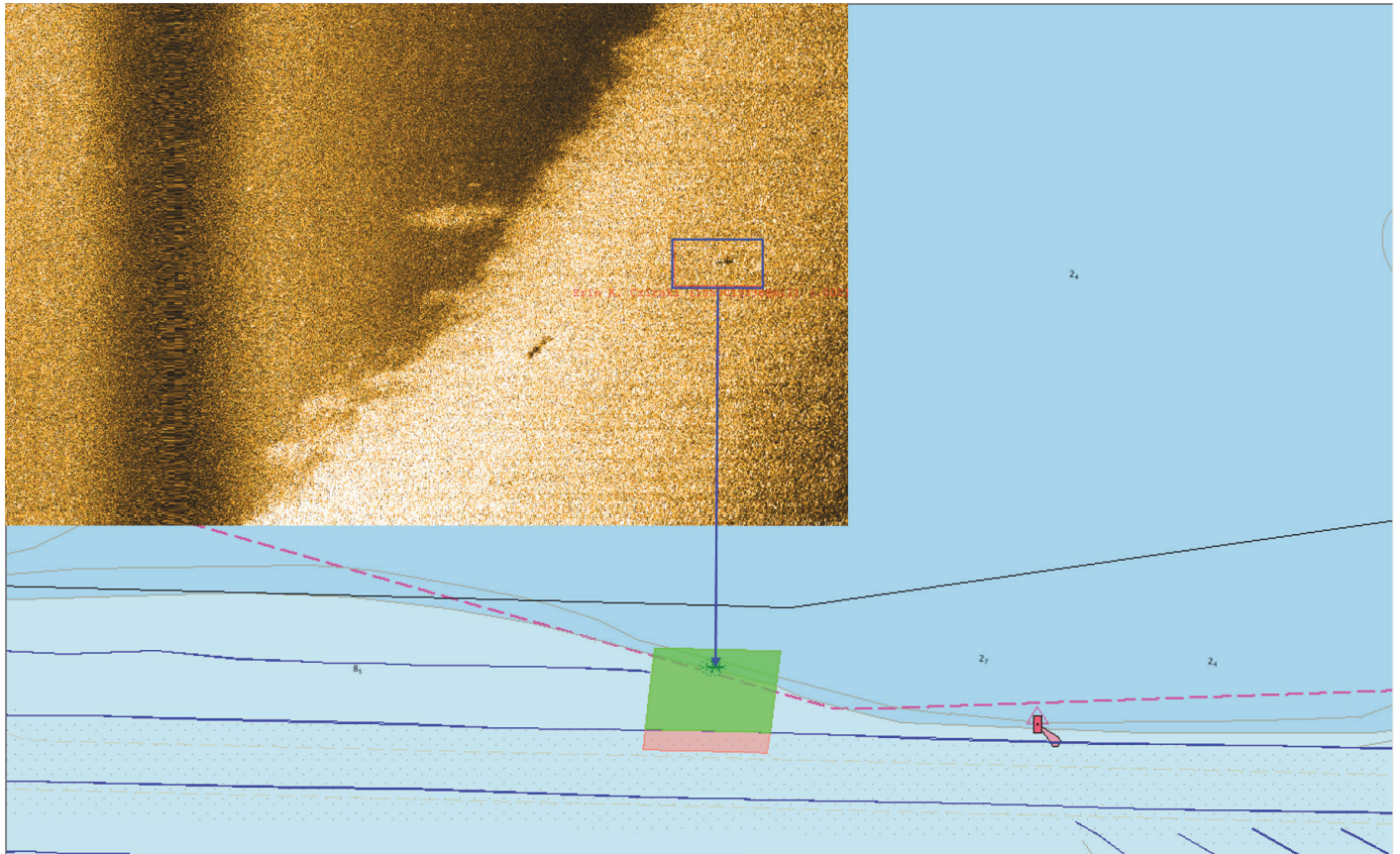


Figure 51: Charted dangerous wreck near Rockland Shoal Channel.

D.1.4 Uncharted Features

There are nine new obstruction features identified in the survey in addition to the two reported DTONs. Reference the Final Feature File for more information. Additionally, due to operational time constraints, many of the identified SSS contacts were not able to be further developed by MBES coverage (Figure 52). It is possible that some of these contacts could be charted as new features. See side scan contacts file for images and locations.

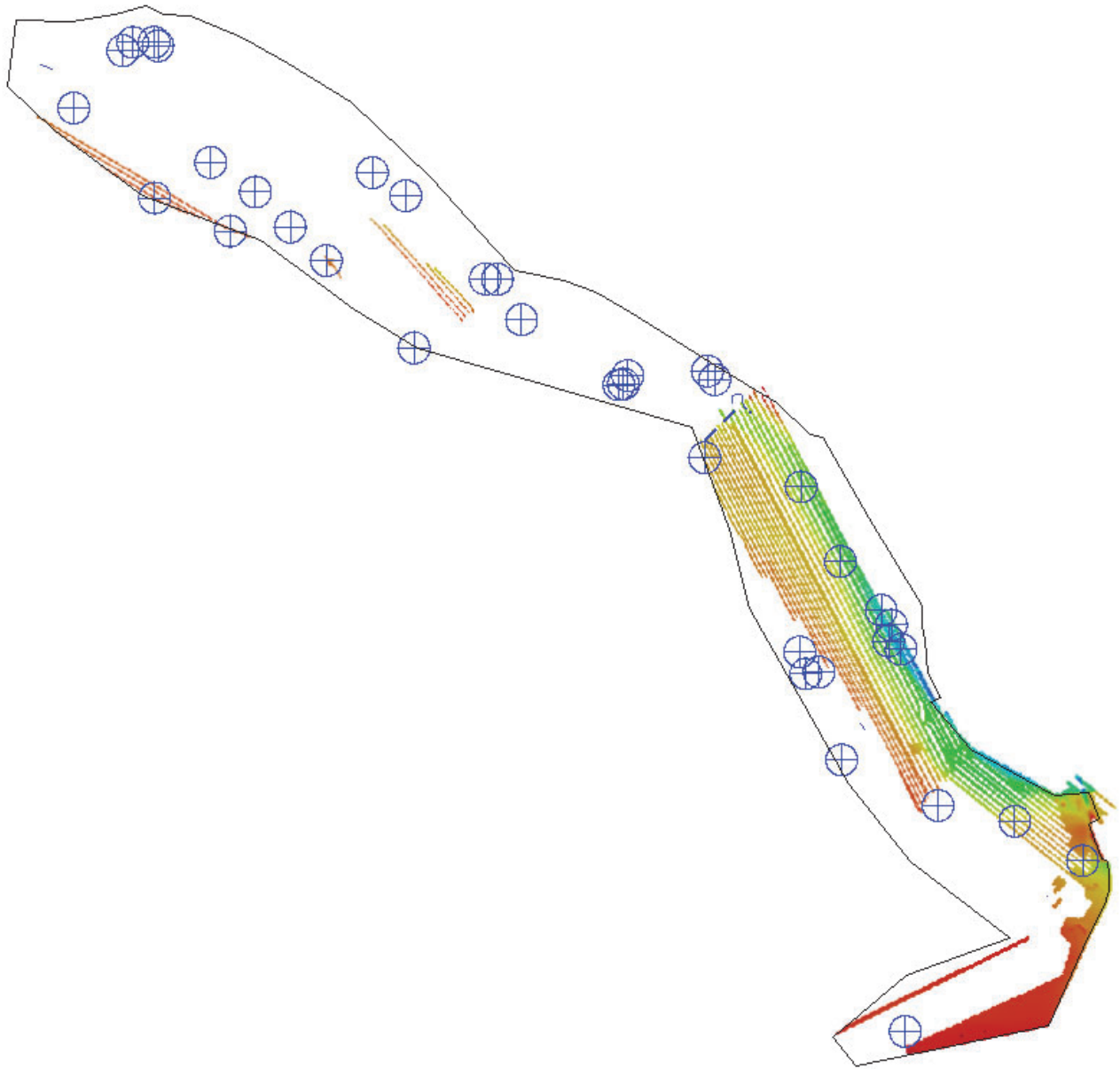


Figure 52: SSS contacts not covered, or partially covered, by MBES.

D.1.5 Shoal and Hazardous Features

One DTON was found and reported on Aug. 7, 2019 for US5VA25M and appears on the most recent ENC edition (Figure 53). The danger was initially identified in both 100% SSS and 200% SSS and was further developed using object detection MBES. The least depth was found to be 2.8m with nearby soundings of 6.4-7m. A second DTON was reported on March 18, 2020 for US5VA15M (Figure 54). It was initially reported as a point obstruction but after further analysis, it is suggested that the feature be represented as an

area obstruction. The obstruction area was initially identified in both 100% SSS and 200% SSS coverage and was further developed using object detection MBES. The least depth was found to be 3.4m with nearby soundings of 6.4-7.6m.

Due to operational time constraints, the NALL was not met over most of the survey, so most charted shoals could not be addressed, particularly for ENC US5VA25M.

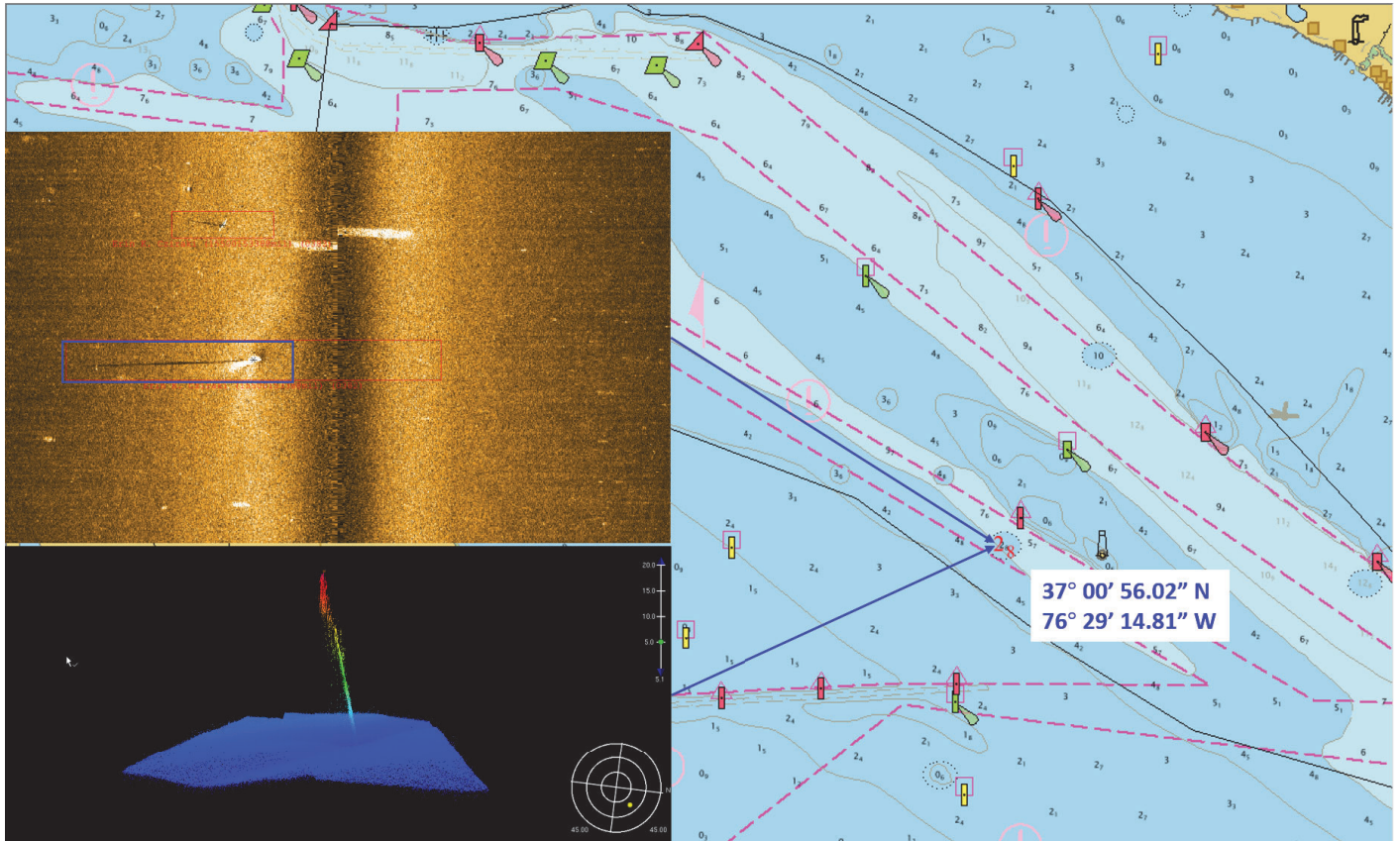


Figure 53: DTON reported for chart US5VA25M.

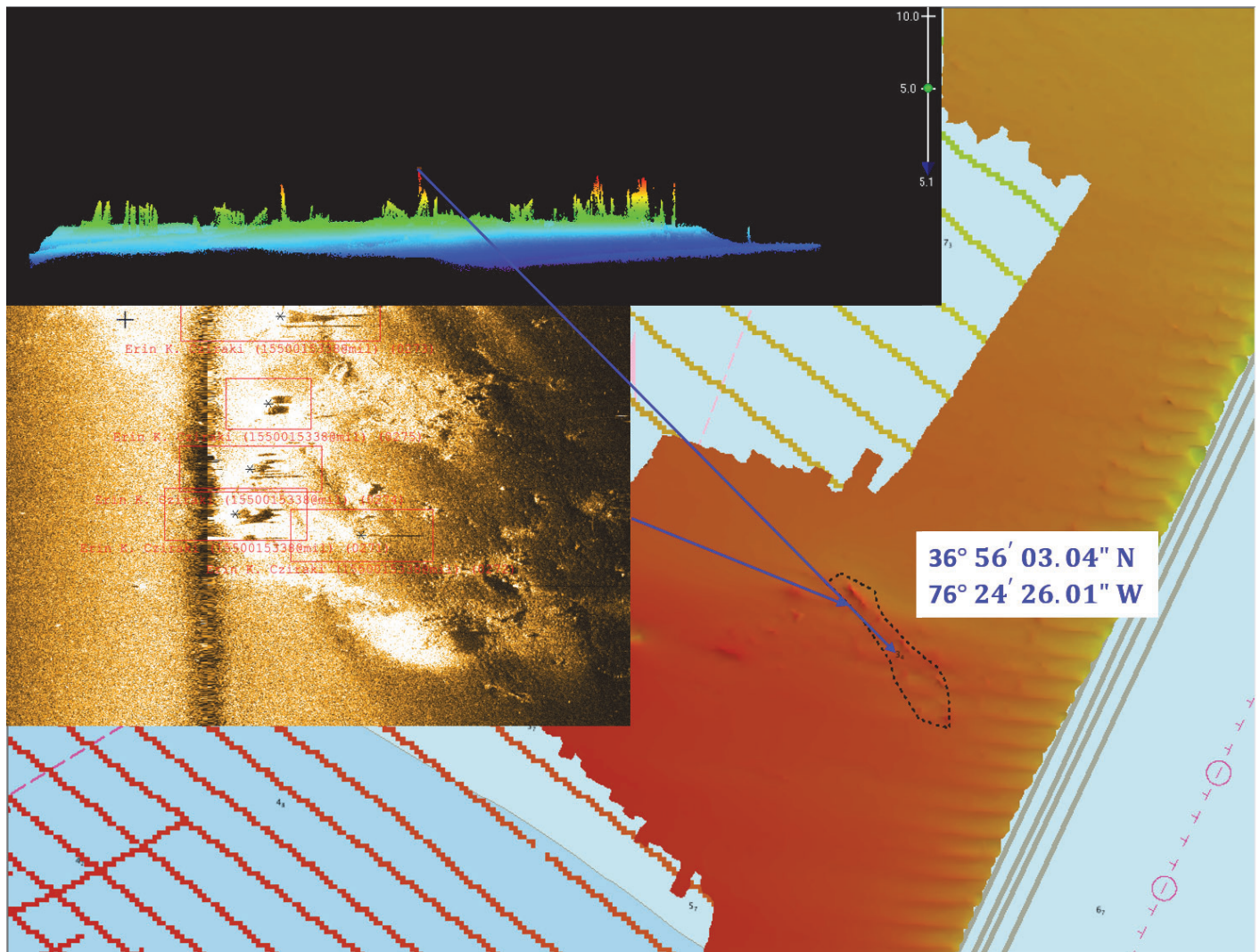


Figure 54: DTON reported for chart US5VA15M.

D.1.6 Channels

A set of SBES soundings was compared to published controlling depths of the Rocklanding Shoal Channel and was found to be in agreement. A set of MBES soundings was compared to published controlling depths of the Channel to Newport News and was found to be in agreement.

D.1.7 Bottom Samples

Bottom samples were assigned, investigated, and are included in the Final Feature File. See Figure 55 for a generalized view of H13298's bottom sample locations.

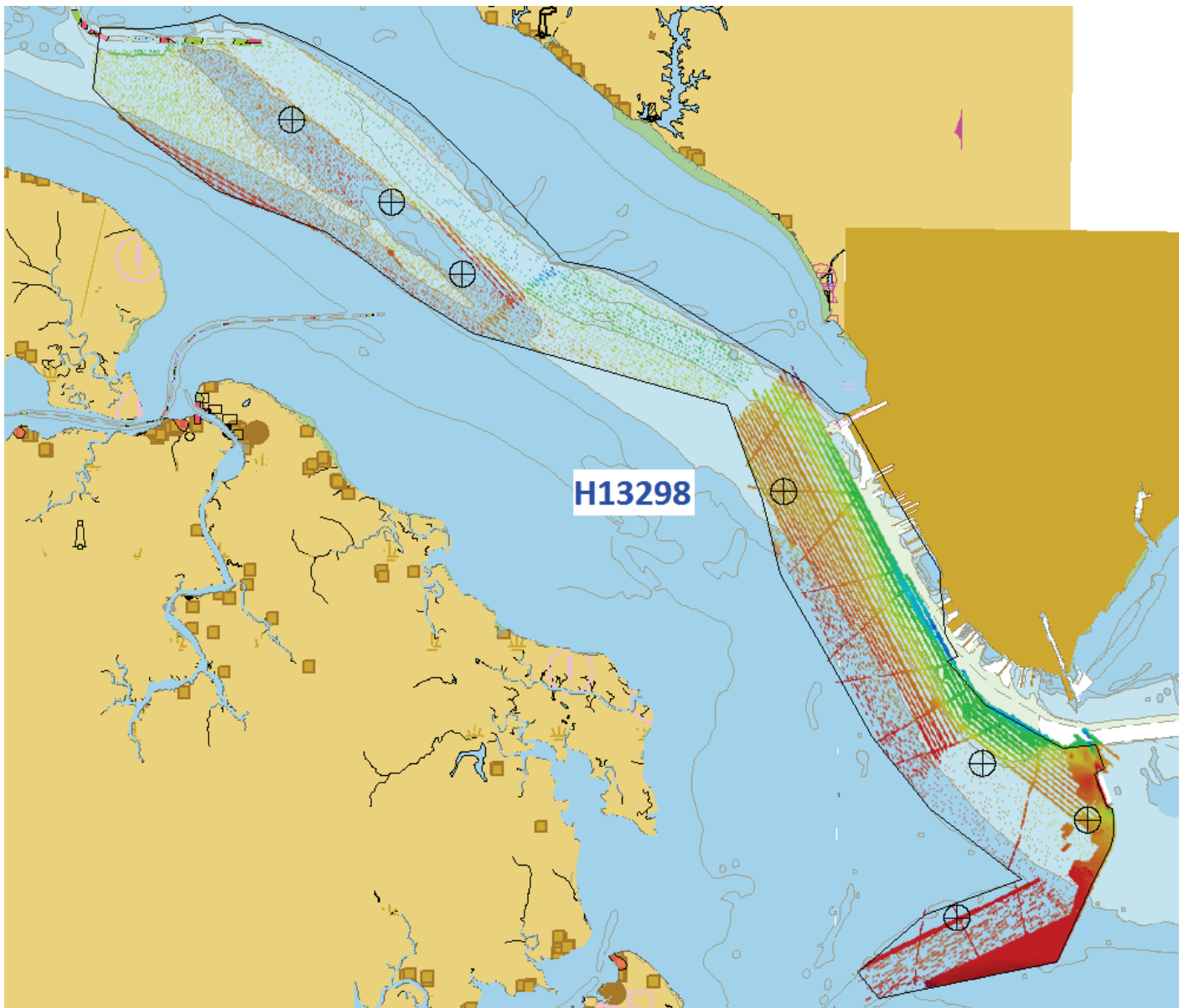


Figure 55: General location of bottom samples investigated within the sheet limits of H13298.

D.2 Additional Results

D.2.1 Shoreline

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

D.2.2 Aids to Navigation

22 Aids to Navigation (ATONs) were investigated while conducting survey H13298. One ATON was found to be leaning and an ATON Discrepancy Report was submitted to the Coast Guard Navigation Center in accordance with HSSD requirements. Reference the Final Feature File and Appendix II for relevant ATON Discrepancy Report documents for further information. An image of the leaning Nansemond River Channel Light 2NR is included in the Final Feature File.

D.2.3 Overhead Features

Overhead features exist for this survey, but were not investigated. There are two bridges and one overhead cable.

D.2.4 Submarine Features

A portion of the Monitor Merrimac Memorial Bridge Tunnel is contained within H13298. The area was covered with 100% object detection MBES coverage and is in agreement with the charted representation of the tunnel (Figure 56).

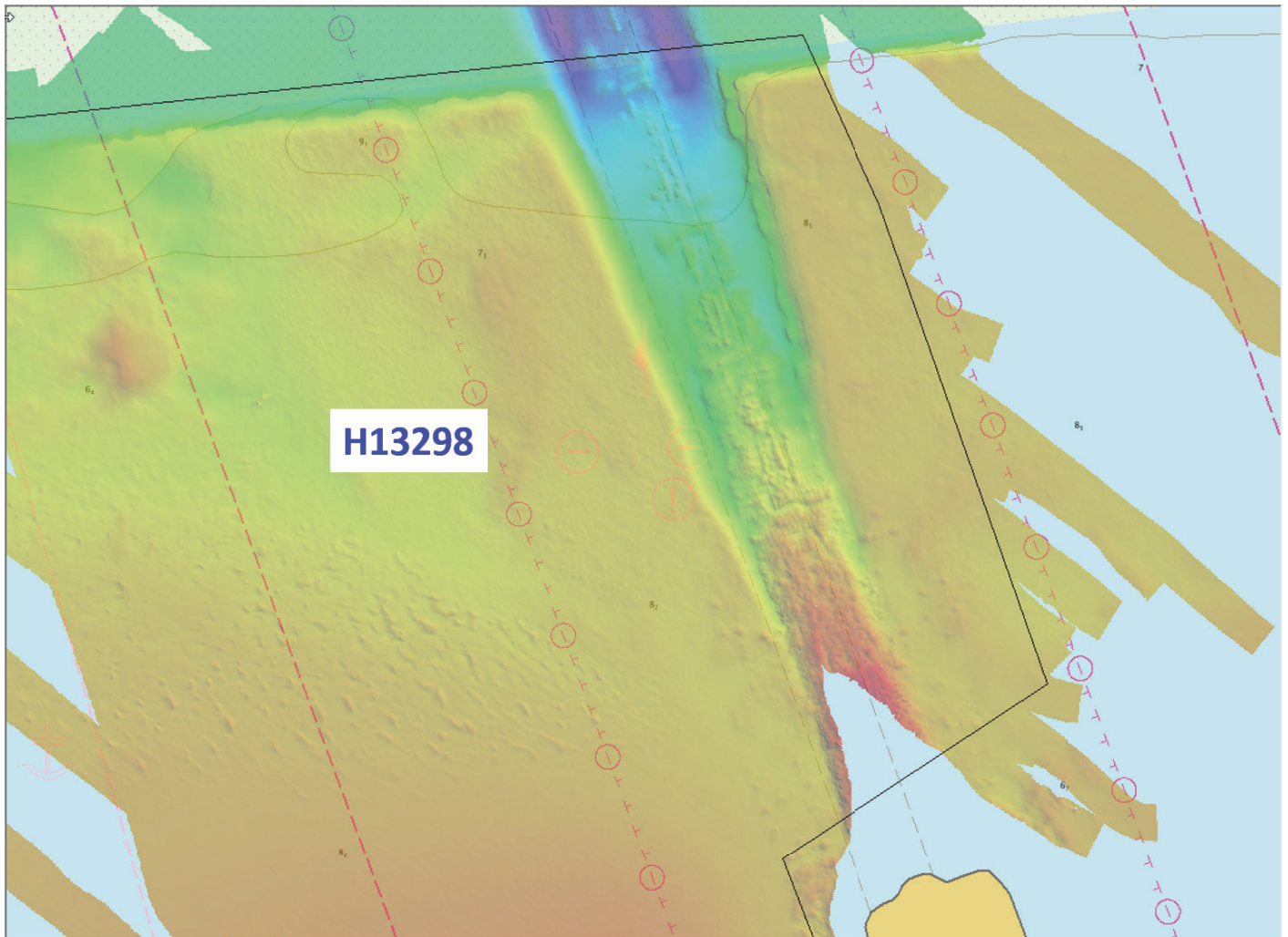


Figure 56: MBES coverage of the Monitor Merrimac Memorial Bridge Tunnel within H13298.

D.2.5 Platforms

Three platforms exist for this survey, but were not investigated.

D.2.6 Ferry Routes and Terminals

No ferry routes or terminals exist for this survey.

D.2.7 Abnormal Seafloor and/or Environmental Conditions

No abnormal seafloor and/or environmental conditions exist for this survey.

D.2.8 Construction and Dredging

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

D.2.9 New Survey Recommendation

The hydrographer recommends further investigation of charted underwater features and shoal areas not fully addressed by current MBES coverage.

D.2.10 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 Specifications and Deliverables, Field Procedures Manual, Letter Instructions, and all HSD Technical Directives. These data are adequate to supersede charted data in their common areas. This survey is complete and no additional work is required with the exception of deficiencies noted in the Descriptive Report.

Approver Name	Approver Title	Approval Date	Signature
CDR Briana W. Hillstrom	Commanding Officer	05/18/2020	HILLSTROM.BRIANA. WELTON.126766753 1 Digitally signed by HILLSTROM.BRIANA.WELTON.126 7667531 Date: 2020.05.24 09:03:21 -04'00'
LT Calandria DeCastro	Operations Officer	05/18/2020	DECASTRO.CAL ANDRIA.MALVIN A.1468902156 Digitally signed by DECASTRO.CALANDRIA.MA LVINA.1468902156 Date: 2020.05.26 08:27:34 -04'00'
Joshua Hiteshew	Chief Hydrographic Survey Technician	05/18/2020	HITESHEW.JOSH UA.TAYLOR.153 7939652 Digitally signed by HITESHEW.JOSHUA.TAYLO R.1537939652 Date: 2020.05.28 17:06:33 Z
Erin Cziraki	Sheet Manager	05/18/2020	CZIRAKI.ERIN.K AYE.155001533 8 Digitally signed by CZIRAKI.ERIN.KAYE.155001 5338 Date: 2020.05.22 15:03:09 -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	Continuously Operating Reference Station
CTD	Conductivity Temperature Depth
CEF	Chart Evaluation File
CSF	Composite Source File
CST	Chief Survey Technician
CUBE	Combined Uncertainty and Bathymetry Estimator
DAPR	Data Acquisition and Processing Report
DGPS	Differential Global Positioning System
DP	Detached Position
DR	Descriptive Report
DTON	Danger to Navigation
ENC	Electronic Navigational Chart
ERS	Ellipsoidal Referenced Survey
ERTDM	Ellipsoidally Referenced Tidal Datum Model
ERZT	Ellipsoidally Referenced Zoned Tides
FFF	Final Feature File
FOO	Field Operations Officer
FPM	Field Procedures Manual
GAMS	GPS Azimuth Measurement Subsystem
GC	Geographic Cell
GPS	Global Positioning System
HIPS	Hydrographic Information Processing System
HSD	Hydrographic Surveys Division

Acronym	Definition
HSSD	Hydrographic Survey Specifications and Deliverables
HSTB	Hydrographic Systems Technology Branch
HSX	Hypack Hysweep File Format
HTD	Hydrographic Surveys Technical Directive
HVCR	Horizontal and Vertical Control Report
HVF	HIPS Vessel File
IHO	International Hydrographic Organization
IMU	Inertial Motion Unit
ITRF	International Terrestrial Reference Frame
LNM	Linear Nautical Miles
MBAB	Multibeam Echosounder Acoustic Backscatter
MCD	Marine Chart Division
MHW	Mean High Water
MLLW	Mean Lower Low Water
NAD 83	North American Datum of 1983
NALL	Navigable Area Limit Line
NTM	Notice to Mariners
NMEA	National Marine Electronics Association
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Service
NRT	Navigation Response Team
NSD	Navigation Services Division
OCS	Office of Coast Survey
OMAO	Office of Marine and Aviation Operations (NOAA)
OPS	Operations Branch
MBES	Multibeam Echosounder
NWLON	National Water Level Observation Network
PDBS	Phase Differencing Bathymetric Sonar
PHB	Pacific Hydrographic Branch
POS/MV	Position and Orientation System for Marine Vessels
PPK	Post Processed Kinematic
PPP	Precise Point Positioning
PPS	Pulse per second

Acronym	Definition
PRF	Project Reference File
PS	Physical Scientist
RNC	Raster Navigational Chart
RTK	Real Time Kinematic
RTX	Real Time Extended
SBES	Singlebeam Echosounder
SBET	Smooth Best Estimate and Trajectory
SNM	Square Nautical Miles
SSS	Side Scan Sonar
SSSAB	Side Scan Sonar Acoustic Backscatter
ST	Survey Technician
SVP	Sound Velocity Profiler
TCARI	Tidal Constituent And Residual Interpolation
TPU	Total Propagated Uncertainty
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
UTM	Universal Transverse Mercator
XO	Executive Officer
ZDF	Zone Definition File



Fwd: OPR-E350-TJ-19

1 message

ChiefST.Thomas Jefferson - NOAA Service Account <chiefst.thomas.jefferson@noaa.gov> Fri, May 15, 2020 at 1:49 PM
To: "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, Erin Cziraki - NOAA Federal <erin.cziraki@noaa.gov>

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

From: **ChiefST.Thomas Jefferson - NOAA Service Account** <chiefst.thomas.jefferson@noaa.gov>
Date: Mon, Apr 27, 2020 at 7:07 PM
Subject: OPR-E350-TJ-19
To: _NOS OCS Survey Outlines <survey.outlines@noaa.gov>

To whom it may concern,

Please see attached survey outlines for surveys H13298 and H13297.

Best,

Josh

--

CHST Joshua Hiteshew, NOAA
NOAA Ship *Thomas Jefferson*
757-647-0187 ship cell
541-867-8927 voip
808-434-2706 irridium

--

CHST Joshua Hiteshew, NOAA
NOAA Ship *Thomas Jefferson*
757-647-0187 ship cell
541-867-8927 voip
808-434-2706 irridium

2 attachments

 **H13297_SurveyOutline.000**
844K

 **H13298_SurveyOutline.000**
1803K



Erin Cziraki - NOAA Federal <erin.cziraki@noaa.gov>

Sound Speed Data for project OPR-E350-TJ-19

1 message

ChiefST.Thomas Jefferson - NOAA Service Account <chiefst.thomas.jefferson@noaa.gov> Fri, May 15, 2020 at 1:55 PM

To: NODC.submissions@noaa.gov

Cc: Douglas Wood - NOAA Federal <douglas.wood@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, Erin Cziraki - NOAA Federal <erin.cziraki@noaa.gov>, Chloe Arboleda - NOAA Federal <chloe.arboleda@noaa.gov>

To whom it may concern,

Please see attached sound speed data for project OPR-E350-TJ-19.

If you have any questions or concerns please let me know.

V/r,

Josh

--


CHST Joshua Hiteshew, NOAA

NOAA Ship *Thomas Jefferson*

757-647-0187 ship cell

541-867-8927 voip

808-434-2706 irridium

 **OPR-E350-TJ-19_20200515.zip**
742K



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- [Public Notices for Bridges](#)
- [Nav Pubs and Documents](#)
- [Vessel Traffic Services](#)
- [USCG Homeport Website](#)
- [Coast Guard Safety Alerts \(uscg.mil\)](#)

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- [Report an AIS Problem](#)
- [Contact Our Watch or SME](#)

Thank you, your report has been sent.

Thank you for your input! The information you have provided has been processed and is shown below. You should print it for your information and so that you can remember the specifics of this outage in case we have to call you to gather more information.

You may return to our [home page](#) or click on your browser's BACK button to return to the page from which you came.

Name: Erin Cziraki

Email Address: erin.cziraki@noaa.gov

Telephone number: 843-340-7252

Waterway/Area/State: Nansemond River, Virginia

Your Vessel's Name: TJ2903

Type of Vessel: Hydrographic Survey Launch

DOC# / HIN / VIN / State #:

AID Name (from Light List): Nansemond River Channel Light 2NR

Light List Number (LLNR): 11017

Structure Discrepancy: Leaning

Buoy Discrepancy: None

Lighted ATON Discrepancy: None

Other type of discrepancy:

Hazard: No

Comments: Day beacon found leaning during a hydrographic survey of the area conducted by NOAA launch TJ2903.

Thank you for your input! The information you have provided has been processed and is shown below. You should print it for your information and so that you can remember the specifics of this outage in case we have to call you to gather more information.

You may return to our [home page](#) or click on your browser's BACK button to return to the page from which you came.

Name: Erin Cziraki

Email Address: erin.cziraki@noaa.gov

Telephone number: 843-340-7252

Waterway/Area/State: Nansemond River, Virginia

Your Vessel's Name: TJ2903

Type of Vessel: Hydrographic Survey Launch

DOC#/ HIN / VIN / State #:

AID Name (from Light List): Nansemond River Channel Light 2NR

Light List Number (LLNR): 11017

Structure Discrepancy: Leaning

Buoy Discrepancy: None

Lighted ATON Discrepancy: None

Other type of discrepancy:

Hazard No

Comments: Day beacon found leaning during a hydrographic survey of the area conducted by NOAA launch TJ2903.



ChiefST.Thomas Jefferson - NOAA Service Account <chiefst.thomas.jefferson@noaa.gov>

Coast Pilot Review OPR-E350-TJ-19

3 messages

ChiefST.Thomas Jefferson - NOAA Service Account <chiefst.thomas.jefferson@noaa.gov> Wed, Jul 15, 2020 at 7:58 PM
To: OCS NDB - NOAA Service Account <ocs.ndb@noaa.gov>, Coast.Pilot@noaa.gov
Cc: Douglas Wood - NOAA Federal <douglas.wood@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, Rita Bowker - NOAA Federal <rita.s.bowker@noaa.gov>

To whom it may concern,

Attached is the Coast Pilot review for project OPR-E350-TJ-19.

No edits are recommended.

V/r,

Josh

--

CHST Joshua Hiteshew, NOAA

NOAA Ship *Thomas Jefferson*

757-647-0187 ship cell

541-867-8927 voip

808-434-2706 iridium

 **OPR-E350-TJ-19_Coast Pilot Review Report.pdf**
1872K

Frank Powers - NOAA Federal <frank.powers@noaa.gov> Wed, Jul 15, 2020 at 8:03 PM
To: "ChiefST.Thomas Jefferson - NOAA Service Account" <chiefst.thomas.jefferson@noaa.gov>

Email received, thanks so much! Have a great day!

[Quoted text hidden]

ChiefST.Thomas Jefferson - NOAA Service Account <chiefst.thomas.jefferson@noaa.gov> Wed, Jul 15, 2020 at 8:07 PM
To: Frank Powers - NOAA Federal <frank.powers@noaa.gov>

Thank you, you too!

[Quoted text hidden]



DTON H13298 OPR-E350-TJ-19

2 messages

Erin Cziraki - NOAA Federal <erin.cziraki@noaa.gov>

Wed, Aug 7, 2019 at 10:43 AM

To: ocs.ndb@noaa.gov

Cc: Douglas Wood - NOAA Federal <douglas.wood@noaa.gov>, AHB Chief - NOAA Service Account <ahb.chief@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, "CO.Thomas Jefferson - NOAA Service Account" <co.thomas.jefferson@noaa.gov>

Good morning,

Attached is the DTON Report for H13298. It contains the following feature:

1.1) Uncharted obstruction (old piling or day mark?) with a least known depth of 2.86m with surrounding water depths of 6.8-7.2m. The obstruction is located outside of the charted caution areas surrounding White Shoal.

Also attached is the .000 S-57 file.


Please let me know if you have any questions.


Very respectfully,

--

Erin K. Cziraki
Hydrographic Assistant Survey Technician
NOAA Ship Thomas Jefferson
[439 W. York St. Norfolk, VA 23510](#)

2 attachments

 **H13298_DTON.000**
3K

 **H13298_DTON.zip**
670K

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

Wed, Aug 7, 2019 at 6:59 PM

To: Erin Cziraki - NOAA Federal <erin.cziraki@noaa.gov>

Cc: Douglas Wood - NOAA Federal <douglas.wood@noaa.gov>, AHB Chief <AHB.Chief@noaa.gov>, _OMAO MOA OPS Thomas Jefferson <OPS.Thomas.Jefferson@noaa.gov>, _NMAO MOA CO Thomas Jefferson

<CO.Thomas.Jefferson@noaa.gov>, _NOS OCS PBA Branch <ocs.pba@noaa.gov>, _NOS OCS PBB Branch

<ocs.pbb@noaa.gov>, _NOS OCS PBC Branch <ocs.pbc@noaa.gov>, _NOS OCS PBD Branch <ocs.pbd@noaa.gov>,

_NOS OCS PBE Branch <ocs.pbe@noaa.gov>, _NOS OCS PBG Branch <ocs.pbg@noaa.gov>, Castle E Parker

<Castle.E.Parker@noaa.gov>, Charles Porter - NOAA Federal <charles.porter@noaa.gov>, Chris Libeau

<Chris.Libeau@noaa.gov>, James M Crocker <James.M.Crocker@noaa.gov>, Ken Forster <Ken.Forster@noaa.gov>, Kevin

Jett - NOAA Federal <kevin.jett@noaa.gov>, Matt Kroll <Matt.Kroll@noaa.gov>, Michael Gaeta <Michael.Gaeta@noaa.gov>,

NSD Coast Pilot <coast.pilot@noaa.gov>, PHB Chief <PHB.Chief@noaa.gov>, Tara Wallace <Tara.Wallace@noaa.gov>,

William Winner <william.winner@noaa.gov>

DD-31243 has been registered by the Nautical Data Branch and directed to Products Branch E for processing.

The Dton reported is an obstruction in the vicinity of White Shoal in the James River, VA.

The following chart has been assigned to the record:

12248 kapp 585

The following ENC has been assigned to the record:

US5VA25M

References:

H13298

OPR-E350-TJ-19


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


Nautical Data Branch/[Marine Chart Division](#)/
Office of Coast Survey/[National Ocean Service](#)/
[National Oceanic and Atmospheric Administration](#)
[United States Department of Commerce](#)
Contact: ocs.ndb@noaa.gov



[Quoted text hidden]

2 attachments

 **H13298_DTON.000**
3K

 **H13298_DTON.zip**
670K



DTON- H13298 affecting ENC US5VA15M

2 messages

Erin Cziraki - NOAA Federal <erin.cziraki@noaa.gov>

Wed, Mar 18, 2020 at 10:32 AM

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

Cc: Douglas Wood - NOAA Federal <douglas.wood@noaa.gov>, AHB Chief - NOAA Service Account <ahb.chief@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, "CO.Thomas Jefferson - NOAA Service Account" <co.thomas.jefferson@noaa.gov>, "ChiefST.Thomas Jefferson - NOAA Service Account" <chiefst.thomas.jefferson@noaa.gov>

Good morning,

Attached is the DTON Report for H13298. It contains the following feature:

1.1) Uncharted obstruction with a least known depth of 3.45m with surrounding water depths of 6-7.6m. The obstruction is located on the western side of the MMMBT near a charted anchorage and in the transit route between the Channel to Newport News and the Nansemond River Channel. Images are included in the report and the .000 file. There are multiple shoal soundings on point features surrounding the least known depth, but they all occur within 4mm of chart scale from the least depth.

I have attached an overview image of the area, the DTON Report, and the S-57 file.

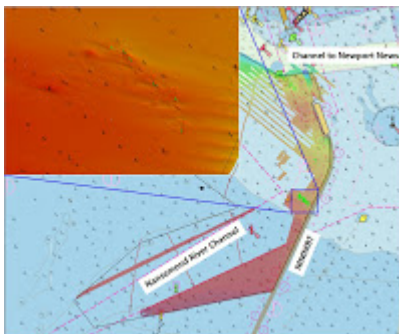
Please let me know if you have any questions.

Very respectfully,

--

Erin K. Cziraki
Hydrographic Survey Technician
NOAA Ship Thomas Jefferson
439 W. York St. Norfolk, VA 23510

3 attachments



Possible_DTON.jpg
293K

 **DTON_US5VA15M.000**
3K

 **H13298_DTONReport_US5VA15M.zip**
5429K

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

Wed, Mar 18, 2020 at 6:29 PM

To: Erin Cziraki - NOAA Federal <erin.cziraki@noaa.gov>

Cc: Douglas Wood - NOAA Federal <douglas.wood@noaa.gov>, AHB Chief - NOAA Service Account <ahb.chief@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, "CO.Thomas Jefferson - NOAA Service Account" <co.thomas.jefferson@noaa.gov>, "ChiefST.Thomas Jefferson - NOAA Service Account"

<chiefst.thomas.jefferson@noaa.gov>, NSD Coast Pilot <coast.pilot@noaa.gov>, PHB Chief <PHB.Chief@noaa.gov>, Castle E Parker <Castle.E.Parker@noaa.gov>, James M Crocker <James.M.Crocker@noaa.gov>, Matt Kroll <Matt.Kroll@noaa.gov>, Nautical Data Branch <OCS.NDB@noaa.gov>, Tara Wallace <Tara.Wallace@noaa.gov>, Chris Libeau <Chris.Libeau@noaa.gov>, Ken Forster <Ken.Forster@noaa.gov>, Michael Gaeta <Michael.Gaeta@noaa.gov>, Charles Porter - NOAA Federal <charles.porter@noaa.gov>, Kevin Jett - NOAA Federal <kevin.jett@noaa.gov>, William Winner <william.winner@noaa.gov>, _NOS OCS PBA Branch <ocs.pba@noaa.gov>, _NOS OCS PBB Branch <ocs.pbb@noaa.gov>, _NOS OCS PBC Branch <ocs.pbc@noaa.gov>, _NOS OCS PBD Branch <ocs.pbd@noaa.gov>, _NOS OCS PBE Branch <ocs.pbe@noaa.gov>, _NOS OCS PBG Branch <ocs.pbg@noaa.gov>

DD-32232 has been registered by the Nautical Data Branch and directed to Products Branch E for processing.

The DtoN reported is a submerged obstruction located on the western side of the MMBBT near a charted anchorage and in the transit route between the Channel to Newport News and the Nansemond River Channel.

The following charts have been assigned to the record:

12245 KAPP 584
12222 KAPP 559
12248 KAPP 585

The following ENC has been assigned to the record:

US5VA15M

References:

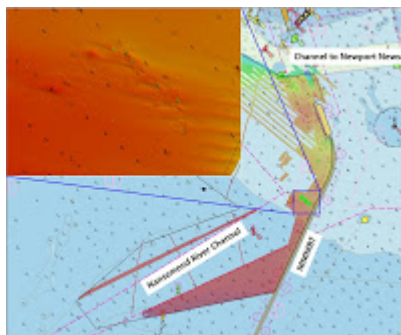
H13298
OPR-E350-TJ-19

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


Nautical Data Branch/[Marine Chart Division](#)/
Office of Coast Survey/[National Ocean Service](#)/
[National Oceanic and Atmospheric Administration](#)
[United States Department of Commerce](#)
Contact: ocs.ndb@noaa.gov

[Quoted text hidden]

3 attachments



Possible_DTON.jpg
293K

 **DTON_US5VA15M.000**
3K

 **H13298_DTONReport_US5VA15M.zip**
5429K



OPR-E350-TJ-19, Southern Chesapeake Bay - Coverage Wavier Request (H13297 and H13298)

13 messages

CO.Thomas Jefferson - NOAA Service Account <co.thomas.jefferson@noaa.gov> Fri, Dec 6, 2019 at 10:22 AM
To: Douglas Wood - NOAA Affiliate <douglas.wood@noaa.gov>
Cc: AHB Chief - NOAA Service Account <ahb.chief@noaa.gov>, "chiefst.Thomas Jefferson - NOAA Service Account" <chiefst.thomas.jefferson@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>, Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>

Hi Doug,

We are planning to run launches through Dec 20, 2019, to complete/square-off coverage on H13297 and H13298. There are a large number of side scan refraction holidays, developments, and possible splits to run; and given how unstable and unpredictable our launches have been all year and continue to be with respect to the mechanics of the boats and the survey equipment, there is a pretty good chance we will not achieve full Object Detection Coverage per the PIs within the surveyed areas before that date. Additionally, we had to use a single beam with side scan for a portion of the area because we loaned our 2040 to RA when RA's 2040 failed. (I didn't even realize that single beam with side scan isn't even a coverage option anymore.)

Anyhow, I'm writing to ask how you would prefer we proceed? I propose we do the best we can with the time we have left and delineate where we believe we achieved Object Detection Coverage and where we did not in the DR and an associated .hob or .shp file, and that AHB review all the data as it is. However, another option is to only submit the Object Detection Coverage data, though that seems like a waste.

Please advise,

Bri

--
CDR Briana Welton Hillstrom, NOAA
Commanding Officer, NOAA Ship *Thomas Jefferson* (S-222)
[439 W York St, Norfolk, VA 23510](#)
cell: [520-227-9269](tel:520-227-9269)
Ship Cell1: (757)647-0187 Cell2: (757)418-0629
VoIP: (541)867-8927/8928 Iridium: (808)434-2706
In-Port Norfolk: (757)441-6322/6323

CO.Thomas Jefferson - NOAA Service Account <co.thomas.jefferson@noaa.gov> Fri, Dec 6, 2019 at 1:37 PM
To: Douglas Wood - NOAA Federal <douglas.wood@noaa.gov>
Cc: "chiefst.Thomas Jefferson - NOAA Service Account" <chiefst.thomas.jefferson@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>

Doug,

I'm not sure exactly what percentage by area of the sheets is SB w/ SSS but I bet Josh or Cali could tell you. Otherwise we'll be standing by.

Thanks,

Bri

On Fri, Dec 6, 2019 at 10:52 AM Douglas Wood - NOAA Federal <douglas.wood@noaa.gov> wrote:

Hi CO,

the request is received and Martha and I are discussing. I hadn't noticed the change to option B either but Martha and I are reviewing the requirements for CATZOC A1.

We'll get back to you on this soon.

I presume that there has been a substantial amount of 200% SSS/VBES acquired already. The last time that I did this was some work that we did over Nautilus Shoal south of Cape Charles. We used VBES because it allowed us to survey at 11kts and cover a lot of territory (except that we ran the launch fuel tanks dry on at least one occasion).

Doug

[Quoted text hidden]

--

Douglas Wood
Physical Scientist
Hydrographic Surveys Division
Office of Coast Survey
National Oceanic and Atmospheric Administration
[1315 East West Highway](#)
[Silver Spring, MD 20910](#)
240-533-0042

[Quoted text hidden]

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

Mon, Dec 9, 2019 at 9:52 AM

To: "CO.Thomas Jefferson - NOAA Service Account" <co.thomas.jefferson@noaa.gov>

Cc: Douglas Wood - NOAA Affiliate <douglas.wood@noaa.gov>, AHB Chief - NOAA Service Account <ahb.chief@noaa.gov>, "chiefst.Thomas Jefferson - NOAA Service Account" <chiefst.thomas.jefferson@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>

I believe Doug (on leave this morning) reached out to TJ to get a better assessment of the data acquisition and coverage issues. Once we have that, I think we can make some decisions about the project. Generally speaking, if we wind up having areas of object detection and areas of lesser coverage, then it would be a good idea to delineate them for AHB. Okayish data is better than no data.

TJ losing a sonar and surveying with SBES comes as news to nearly all of us. Knowledge of this at the time could have given Ops the chance to evaluate a potential different coverage type or modify the sheets. I'd like to ensure that we have better communication in the future and ask if there is there anything Ops could be doing better to help facilitate this.

Martha

On Fri, Dec 6, 2019 at 10:22 AM CO.Thomas Jefferson - NOAA Service Account <co.thomas.jefferson@noaa.gov>

wrote:

[Quoted text hidden]

--

Martha Herzog
NOAA Operations Team Lead | Operations Branch
Hydrographic Surveys Division | Office of Coast Survey
240-533-0028

CO.Thomas Jefferson - NOAA Service Account <co.thomas.jefferson@noaa.gov>

Mon, Dec 9, 2019 at 5:59 PM

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

Cc: Douglas Wood - NOAA Affiliate <douglas.wood@noaa.gov>, AHB Chief - NOAA Service Account <ahb.chief@noaa.gov>, "chiefst.Thomas Jefferson - NOAA Service Account" <chiefst.thomas.jefferson@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>

Hi Martha,

Point taken. Looking back through communications, I just reforwarded an email from earlier this year documenting that TJ was sending RA our 2040 RXer after which it was determined it was more important for RA to have four operational MBES launches than it was for TJ to have two operational launches (See subject "One set of EM2040 transducers being loaned to RA"). I also recall a number of phone calls from Ben and Rick on the topic as this was also around the time they were arranging the RA remote launch ops project. I also reported that this was happening on BOH calls. And, isn't this also captured in the weekly progress reports? Anyhow, I'm sorry we didn't highlight it anymore than that. Personally, the singlebeam and side scan part didn't even phase me because I didn't take note that it wasn't a coverage option anymore.

Doug,

Are you waiting for anything from TJ?

Thanks,

Bri

[Quoted text hidden]

OPS.Thomas Jefferson - NOAA Service Account <ops.thomas.jefferson@noaa.gov> Mon, Apr 27, 2020 at 1:58 PM
To: "CO.Thomas Jefferson - NOAA Service Account" <co.thomas.jefferson@noaa.gov>
Cc: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>, Douglas Wood - NOAA Affiliate <douglas.wood@noaa.gov>, AHB Chief - NOAA Service Account <ahb.chief@noaa.gov>, "chiefst.Thomas Jefferson - NOAA Service Account" <chiefst.thomas.jefferson@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>

Good afternoon,

We are working on finalizing H13297 and H13298 and I wanted to follow back up with this request for a SBES coverage waiver. I'm unsure of where we left off based on this email chain. Please advise.

V/r,

--

LT Calandria DeCastro, NOAA
Operations Officer, NOAA Ship *Thomas Jefferson*
Ship Land Line: 757-441-6322
Ship Cell: 757-647-0187
Ship Iridium: 808-434-2706

[Quoted text hidden]

Corey Allen - NOAA Federal <corey.allen@noaa.gov> Mon, Apr 27, 2020 at 2:44 PM
To: "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>
Cc: "CO.Thomas Jefferson - NOAA Service Account" <co.thomas.jefferson@noaa.gov>, Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>, Douglas Wood - NOAA Affiliate <douglas.wood@noaa.gov>, AHB Chief - NOAA Service Account <ahb.chief@noaa.gov>, "chiefst.Thomas Jefferson - NOAA Service Account" <chiefst.thomas.jefferson@noaa.gov>, Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>

LT DeCastro,

I've asked Doug to work up a waiver so that the ship may continue to process/deliver the SBES/SSS data. Please look forward to receipt of that waiver and let us know if TJ/AHB has any other concerns.

Regards, Corey

[Quoted text hidden]

--

J. Corey Allen
Chief, Operations Branch



50 Years of Science, Service, and Stewardship

[Quoted text hidden]

Douglas Wood - NOAA Federal <douglas.wood@noaa.gov>

Wed, Apr 29, 2020 at 9:34 AM

To: "CO.Thomas Jefferson - NOAA Service Account" <co.thomas.jefferson@noaa.gov>

Cc: Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, AHB Chief - NOAA Service Account <ahb.chief@noaa.gov>, "chiefst.Thomas Jefferson - NOAA Service Account" <chiefst.thomas.jefferson@noaa.gov>, Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>

Hi Cdr Hillstrom,

attached is the signed letter granting your request to use object-detection 200%SSS with concurrent *SBES* for work done on the James River for project OPR-E350-TJ-19.

Please let me know if there is anything else that you need.

Doug

[Quoted text hidden]

 **TJ_SBES_2019_WaiverRequest_granted.pdf**
119K



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
 Office of Marine and Aviation Operations
 NOAA Ship *Thomas Jefferson* (S222)
 439 W York St, Norfolk, VA 23502

April 27, 2020

MEMORANDUM FOR: Douglas Wood, Project Manager
 Hydrographic Surveys Division Operations Branch

FROM: Commander Briana W. Hillstrom, NOAA 1
 Commanding Officer, NOAA Ship *Thomas Jefferson*

SUBJECT: Waiver request – OPR-E350-TJ-19
 Single Beam Echo Sounder Acquisition

HILLSTROM.BRIANA. Digitally signed by
 WELTON.126766753 HILLSTROM.BRIANA.WELTON.12
 67667531
 Date: 2020.04.28 08:20:28 -04'00'

Thomas Jefferson requests a waiver of the HSSD 2019 Section 5.2.2 Object Detection Coverage requirement. HSSD 2019 requires under Option B that 200% side scan coverage be acquired with concurrent multibeam data. *Thomas Jefferson* requests to instead acquire and submit 200% side scan coverage with concurrent single beam data.

Justification

Thomas Jefferson loaned one Kongsberg EM2040 receiver to *Rainier* due to *Rainier*'s receiver failing. This resulted in only one of *Thomas Jefferson*'s Hydrographic Survey Launches being equipped with an EM2040. As such, the Echotrac SBES system was installed. Please refer to the Data Acquisition and Processing Report for installation and calibration information.

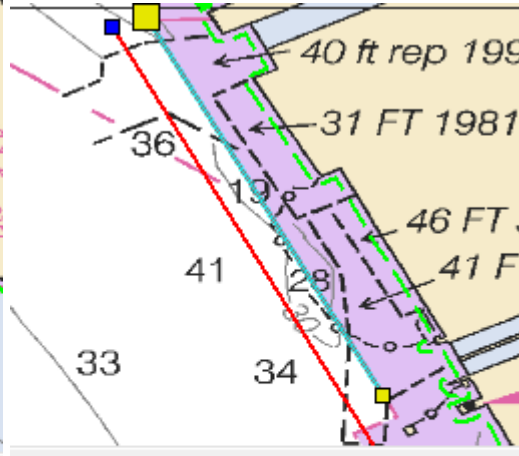
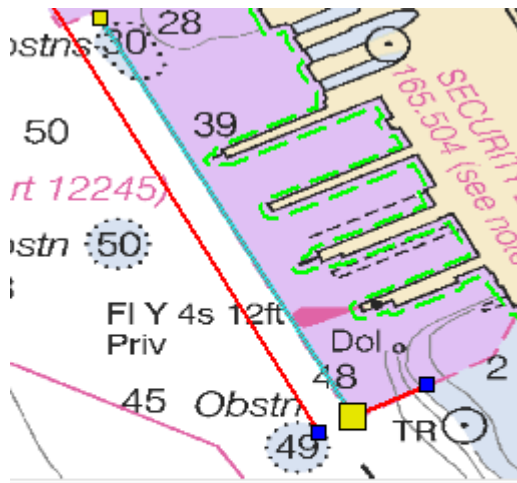
Decision

WOOD.DOUGLAS. Digitally signed by
 ALAN.1282580698 WOOD.DOUGLAS.ALAN.1282580
 698
 Date: 2020.04.29 09:26:12 -04'00'

Waiver is: Granted Denied

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





Coordinates		
	Latitude	Longitude
1	36-58-38.655120N	076-26-25.055880W
2	36-59-14.229960N	076-26-47.431680W

Coordinates		
	Latitude	Longitude
1	36-59-59.280360N	076-27-15.567120W
2	36-59-25.493640N	076-26-54.439080W

If there are any areas within the security zone that you would like us to survey, we can, otherwise we will stay away from those areas. Similarly, if there are specific areas we should stay away from, we can accommodate.

Please let me know if you have any questions and need additional information.

Very respectfully,
-Matt

LTJG Matthew B. Sharr, NOAA
Acting OIC
Field Support Liaison - Atlantic
NOAA OCS, Hydrographic Systems and Technology Branch
439 West York St.
Norfolk, VA 23510
Office: (757) 364-7709
Cell: (570) 881-0032



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of Coast Survey
1315 East West Highway, SSMC3, Silver Spring, MD 20910

MEMORANDUM FOR: The Record

FROM: for CAPT Richard Brennan, NOAA
Chief, Hydrographic Surveys Division

ROBIDOUX.LORRA
INE.1365893140
2019.07.03
18:25:14 -04'00'

REFERENCE: Environmental review of the proposed hydrographic survey of
Southern Chesapeake Bay, VA, July 5 to August 30, 2019

This memorandum summarizes the environmental compliance steps taken by the NOAA Office of Coast Survey for the referenced hydrographic survey. It serves as the “*Record of Environmental Consideration*” for the proposed survey, as defined by NOS policy 0300-01. Coast Survey considered the information in Sections 1 and 2 below to determine if the proposed survey falls within the scope of the *Final Programmatic Environmental Assessment for the Office of Coast Survey Hydrographic Survey Projects*, May 2013, which was prepared pursuant to the National Environmental Policy Act (NEPA). Section 3 indicates how Coast Survey has complied with other applicable environmental laws.

1.0 Location, Extent, and Timing of the Proposed Project

This table identifies the project and provides basic information on its scope.

1.1	Name/location of survey	Southern Chesapeake Bay, VA
1.2	Vessel(s) to be employed	NOAA Ship <i>Thomas Jefferson</i> survey launches
1.3	Project number	OPR-E350-TJ-19
1.4	Extent of the survey, in square nautical miles (snm)	~27 SNM
1.5	Origin of the incoming transit	Norfolk, VA
1.6	Approximate dates of survey	July – August 2019

See Appendix A, Site Plan, for the planned location of the survey.

Note that the final surveyed area may differ slightly from the area shown. Note that, as with all activities at sea, the dates of the proposed survey could be affected by poor weather, equipment difficulties, or other unforeseen circumstances.

2.0 Components of the Proposed Project			
<i>This table summarizes the methods and equipment that will be used in the proposed project.</i>			
2.1	Echo Sounders	YES	NO
2.1a	Would any single beam echo sounders used during the proposed survey operate at frequencies lower than 12 kilohertz (kHz)?		X
2.1b	Would any multibeam echo sounders and side scan sonar used during the proposed survey operate at frequencies lower than 50 kilohertz (kHz)?		X
Other Instruments and Practices		YES	NO
2.3	Would CTD instruments be used?	X	
2.4	Would the ship likely anchor during the proposed survey?		X
2.5	Would bottom samples be collected during the proposed survey?	X	
2.6	Would benchmarks be installed for the proposed survey?		X
2.6a	If "YES" to 2.6, where would the benchmarks be installed? (provide the approximate coordinates)		
2.7	Would temporary tide gauges be installed for the proposed survey?		X
2.7a	If "YES" to 2.7, where would the gauges be installed? (provide the approximate coordinates)		
2.8	Would GPS buoys be installed for the proposed survey?		X
2.8a	If "YES" to 2.8, where would the buoys be installed? (provide the approximate coordinates)		

3.0 Environmental Impacts of the Proposed Project			
<i>This table indicates if the required steps have been taken to comply with the Endangered Species Act, National Historic Preservation Act, and other federal environmental laws.</i>			
3.1	Compliance with the Endangered Species Act, NMFS species (Section 8.B of the Environmental Compliance SOP)	YES	NO
3.1a	Are any of the “universal” BMPs listed in the <i>Interim OCS BMP List</i> not possible to implement?		X
3.1b	Were any “survey-specific” BMPs identified for the project (see Section 8.B of the Environmental Compliance SOP)?	X	
3.2	Compliance with the Endangered Species Act, FWS species (Section 8.C of the Environmental Compliance SOP)	YES	NO
3.2a	Were any FWS ESA-listed species identified in the proposed survey area?		X
3.2b	If “YES” to 3.2a, did the FWS request any additional BMPs?		X
3.3	Compliance with the National Historic Preservation Act (Section 8.D of the Environmental Compliance SOP)	YES	NO
3.3a	Would the proposed survey include any CTD use, anchoring, bottom sample collection, or benchmark/tide gauge/GPS buoy installation?	X	
3.3b	If “YES” to 3.3a, did the SHPO request any additional BMPs?		X
3.4	Compliance with the Coastal Zone Management Act (Section 8.E of the Environmental Compliance SOP)	YES	NO
3.4a	Is the proposed survey located in a coastal zone?	X	
3.4b	If “YES” to 3.4a, did the state coastal zone office determine that the proposed survey was not consistent with the state coastal program?		X
3.5	National Marine Sanctuary Act (Section 8.F of the Environmental Compliance SOP)	YES	NO
3.5a	Is the proposed survey located in, or within 1.0 nm of, a national marine sanctuary?		X
3.5b	If “YES” to 3.5a, has ONMS determined that the project is will destroy, cause the loss of, or injure any sanctuary resource?		
3.5c	If “YES” to 3.5b, have we completed the required sanctuary resource statement?		
3.5d	If “YES” to 3.5a, will the project require a Sanctuary permit? (see Table 5 of the Environmental Compliance SOP)		

3.5e	If "YES" to 3.5d, have we received the required sanctuary permit?		
3.6	Clean Water Act Requirements (Section 8.G of the Environmental Compliance SOP)	YES	NO
3.6a	Will the project require the installation of a tide gauge, tide buoy, or benchmark?		X
3.6b	If "YES" to 3.6a, have we received the required Section 404 Clean Water Act permit?		
3.7	Other Permits Requirements (Sections 8.G and H of the Environmental Compliance SOP)	YES	NO
3.7a	Is the proposed survey located in a National Forest or National Park?		X
3.7b	If "YES" to 3.5d, have we received the required special use permit?		
3.8	Final Best Management Practices (BMPs) Determination	YES	NO
3.8a	Does Coast Survey anticipate that any of the BMPs proposed for the project cannot be implemented?		X

Conclusion

NEPA COMPLETED



Based on the information in Sections 1, 2, and 3 above, OCS has determined that the proposed survey falls within the scope of the 2013 Coast Survey Programmatic Environmental Assessment and its Finding of No Significant Impact. Therefore, no additional NEPA analysis for the proposed survey is required.

ADDITIONAL NEPA ANALYSIS NEEDED



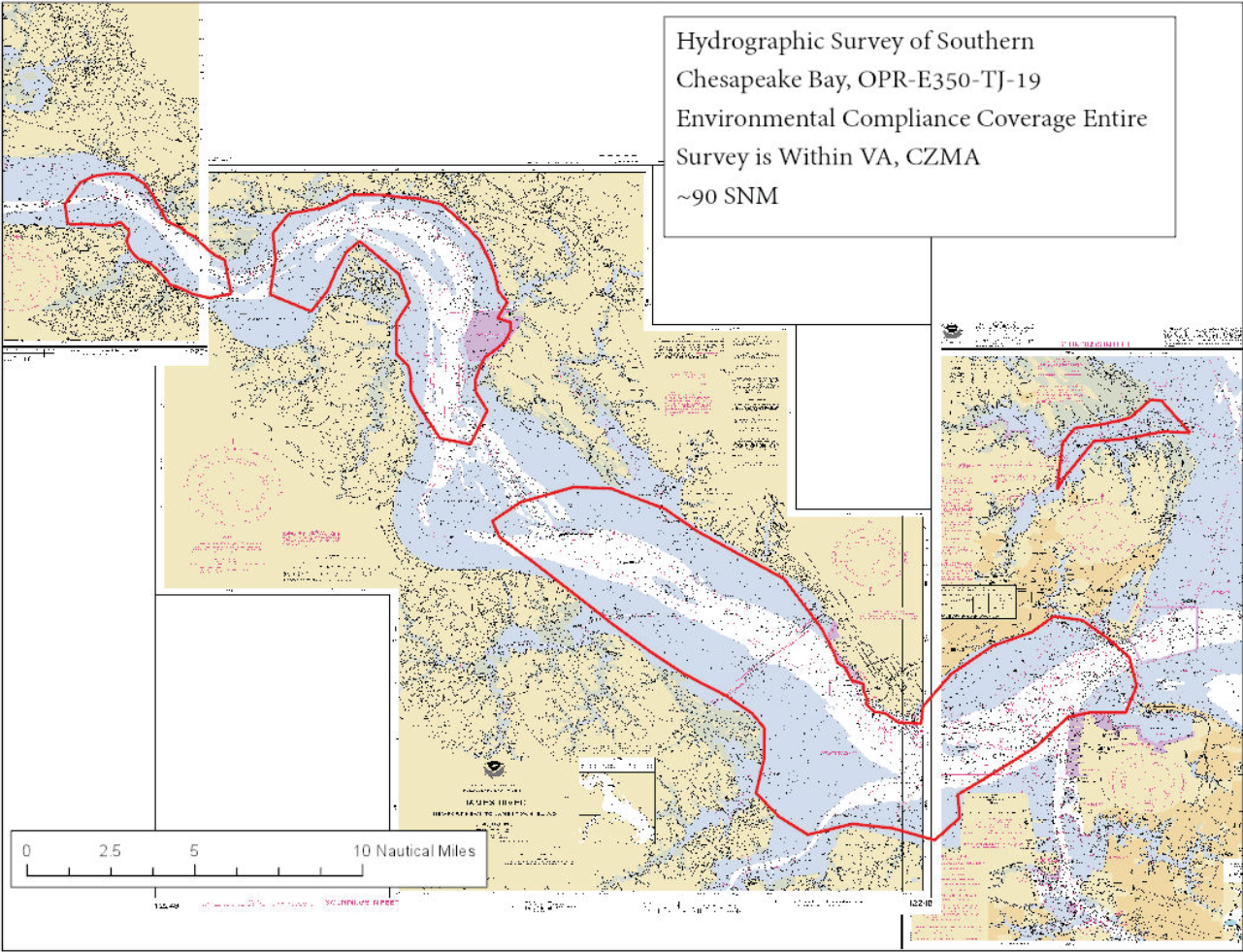
Based on the information in Sections 1, 2, and 3 above, OCS has determined that the proposed survey **DOES NOT** fall within the scope of the 2013 Coast Survey Programmatic Environmental Assessment. Therefore, additional NEPA analysis for the proposed survey is required and will be performed.

Physical Scientist: Douglas Wood

Date: July 2, 2019

APPENDIX A: MAP OF THE SURVEY AREA

Hydrographic Survey of Southern
Chesapeake Bay, OPR-E350-TJ-19
Environmental Compliance Coverage Entire
Survey is Within VA, CZMA
~90 SNM



**APPENDIX B: APPLICABLE BEST MANAGEMENT PRACTICES FROM THE 2013
BIOLOGICAL OPINION (NATIONAL MARINE FISHERIES SERVICE)**

Best Management Practices to be followed during the Project

Vessel Speed Limits

- Vessels over 65 feet in overall length are limited to a speed of 13 knots or less at all times, unless a slower speed limit applies to the area (e.g., posted speed limits for the protection of manatees).
- Vessels of 65 feet in overall length or less are limited to a speed of 13 knots or less while mapping, unless a slower speed limit applies to the area.

Echo sounder Restrictions

- Avoid using sonar frequencies < 180 kHz when possible
 - If **multibeam** sonar frequencies < 180 kHz must be employed, use echosounders at ≥ 50 kHz frequencies, with the lowest possible power and ping-rate
 - If **single beam** sonar frequencies < 180 kHz must be employed, use echo sounders at ≥ 30 kHz frequencies, with the lowest possible power and ping-rate and a 12° beam angle.
 - If **single beam** sonar frequencies < 30 kHz must be employed, suspend transmissions of 30 kHz or lower when ESA-listed cetacean species (whales, dolphins, and porpoises) are within hearing range (i.e., the 4.2 meter beam width).

Vessel Maintenance Requirements

- Meet all EPA Vessel General Permits and Coast Guard requirements
- Use anti-fouling coatings
- Clean hull regularly to remove aquatic nuisance species
- Avoid cleaners with nonylphenols
- Rinse anchor with high-powered hose after retrieval

Anchoring Restrictions

- Use designated anchorage area when available
- Use mapping data to anchor in mud or sand, to avoid anchoring on corals
- Minimize anchor drag

Visual Monitoring Requirements

- Maintain trained observers aboard all vessels; 100% observer coverage

- Make species identification keys (for marine mammals, sea turtles, corals, abalone, and seagrasses) available on all vessels

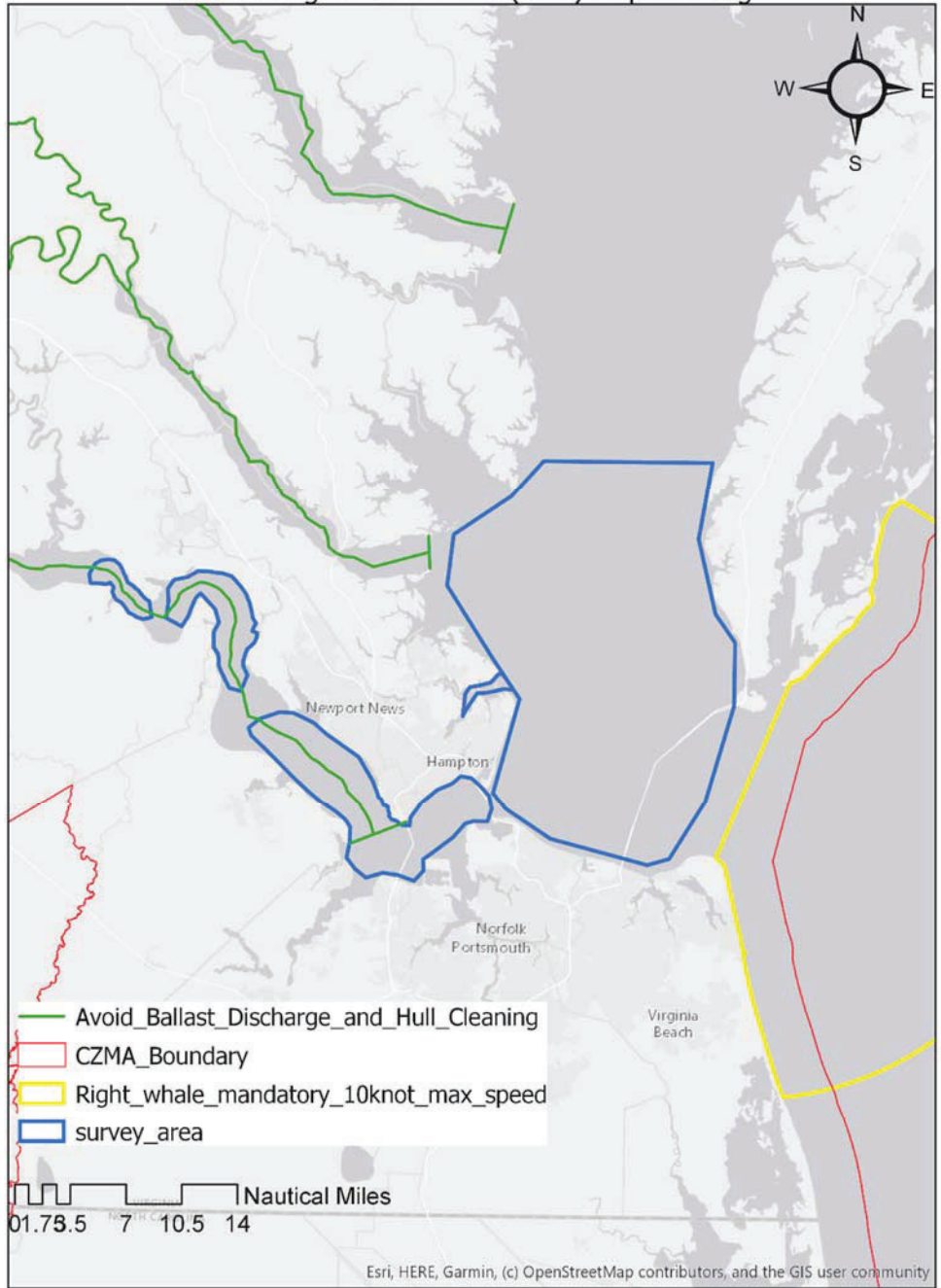
Animal Approach Restrictions

- Avoid approaching within 200 yards of cetaceans (whales, dolphins, and porpoises), 500 yards for right whales
- Suspend single beam sonar transmissions of 30 kHz or lower when ESA-listed cetaceans (whales, dolphins, and porpoises) are within hearing range (i.e., within the 4.2 meter beam width).
- Avoid approaching within 50 yards of sea turtles

Discharge Restrictions

- Avoid discharge of ballast water and hull cleaning in designated ESA critical habitat

OPR-E350-KR-19: Approaches to Chesapeake Bay
Est.Area: 427 Nautical Square Miles
Best Management Practice (BMP) Map Coverage



**APPENDIX C: SECTION 7 ENDANGERED SPECIES ACT DOCUMENTS (FISH AND
WILDLIFE SERVICE)**



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Virginia Field Office
6669 Short Lane
Gloucester, VA 23061

Date: 6/17/19

Self-Certification Letter

Project Name: Hydrographic survey of southeastern Chesapeake Bay, July 2019

Dear Applicant:

Thank you for using the U.S. Fish and Wildlife Service (Service) Virginia Ecological Services online project review process. By printing this letter in conjunction with your project review package, you are certifying that you have completed the online project review process for the project named above in accordance with all instructions provided, using the best available information to reach your conclusions. This letter, and the enclosed project review package, completes the review of your project in accordance with the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended (ESA). This letter also provides information for your project review under the National Environmental Policy Act of 1969 (P.L. 91-190, 42 U.S.C. 4321-4347, 83 Stat. 852), as amended. A copy of this letter and the project review package must be submitted to this office for this certification to be valid. This letter and the project review package will be maintained in our records.

The species conclusions table in the enclosed project review package summarizes your ESA conclusions. These conclusions resulted in:

- “no effect” determinations for proposed/listed species and/or proposed/designated critical habitat; and/or
- Action may affect the northern long-eared bat; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR § 17.40(o) [as determined through the Information, Planning, and Consultation System (IPaC) northern long-eared bat assisted determination key]; and/or
- “may affect, not likely to adversely affect” determinations for proposed/listed species and/or proposed/designated critical habitat.

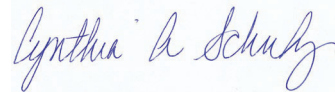
We certify that use of the online project review process in strict accordance with the instructions provided as documented in the enclosed project review package results in reaching the appropriate determinations. Therefore, we concur with the “no effect” or “may affect, not likely to adversely affect” determinations for proposed and listed species and proposed and designated critical habitat. Additional coordination with this office is not needed.

Candidate species are not legally protected pursuant to the ESA. However, the Service encourages consideration of these species by avoiding adverse impacts to them. Please contact this office for additional coordination if your project action area contains candidate species.

Should project plans change or if additional information on the distribution of proposed or listed species, proposed or designated critical habitat becomes available, this determination may be reconsidered. This certification letter is valid for 1 year.

Information about the online project review process including instructions and use, species information, and other information regarding project reviews within Virginia is available at our website http://www.fws.gov/northeast/virginiafield/endspecies/project_reviews.html. If you have any questions, please contact Troy Andersen of this office at (804) 824-2428.

Sincerely,

A handwritten signature in blue ink that reads "Cynthia A. Schulz". The signature is written in a cursive style and is positioned above the printed name.

Cindy Schulz
Field Supervisor
Virginia Ecological Services

Enclosures - project review package

Species Conclusions Table

Project Name: Hydrographic survey of southeastern Chesapeake Bay, July 2019

Date:

Species / Resource Name	Conclusion	ESA Section 7	Notes / Documentation
Piping Plover (<i>Charadrius melodus</i>)	no suitable habitat present	No effect	See attached ESA section 7 memorandum
Red Knot (<i>Calidris canutus rufa</i>)	no suitable habitat present	No effect	See attached ESA section 7 memorandum
Red-cockaded Woodpecker <i>Picoides borealis</i>	no suitable habitat present	No effect	See attached ESA section 7 memorandum
Roseate tern (<i>Sterna dougallii dougallii</i>)	Species present	May affect, not likely to adversely affect.	See attached ESA section 7 memorandum
Hawksbill Sea Turtle <i>Eretmochelys imbricata</i>	no suitable habitat present (under FWS jurisdiction)	Addressed in earlier BiOp from NMFS.	No part of the project will take place on or otherwise affect terrestrial areas where this species is under the jurisdiction of FWS.
Kemp's Ridley Sea Turtle <i>Lepidochelys kempii</i>	no suitable habitat present (under FWS jurisdiction)	Addressed in earlier BiOp from NMFS.	No part of the project will take place on or otherwise affect terrestrial areas where this species is under the jurisdiction of FWS.
Leatherback Sea Turtle <i>Dermochelys coriacea</i>	no suitable habitat present (under FWS jurisdiction)	Addressed in earlier BiOp from NMFS.	No part of the project will take place on or otherwise affect terrestrial areas where this species is under the jurisdiction of FWS.
Loggerhead Sea Turtle <i>Caretta caretta</i>	no suitable habitat present (under FWS jurisdiction)	Addressed in earlier BiOp from NMFS.	No part of the project will take place on or otherwise affect terrestrial areas where this species is under the jurisdiction of FWS.
Northern Long-eared Bat <i>Myotis septentrionalis</i>	no suitable habitat present	No effect	See attached ESA section 7 memorandum
Northeastern Beach Tiger Beetle <i>Cicindela dorsalis dorsalis</i>	no suitable habitat present	No effect	See attached ESA section 7 memorandum



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of Coast Survey
1315 East West Highway, SSMC3, Silver Spring, MD 20910

June 10, 2019

MEMORANDUM FOR: Fish and Wildlife Service
Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
virginiafieldoffice@fws.gov

FROM: Jay Nunenkamp
Environmental Compliance Coordinator
Office of Coast Survey
National Oceanic and Atmospheric Administration

REFERENCE: ESA section 7 determination for the hydrographic survey of southeastern Chesapeake Bay, July 2019

To Whom It May Concern:

This memorandum documents NOAA Office of Coast Survey's determinations regarding the potential effects from our proposed project on threatened or endangered species, as required by section 7 of the Endangered Species Act (ESA). We are requesting your office's concurrence on our "not likely to adversely affect" determination for the Roseate Tern.

1.0 Description of the Project

Coast Survey proposes to survey a 427-square nautical mile (snm) rea in the southeastern portion of the Chesapeake Bay. The survey would begin on July 2019. As with all activities at sea, the exact dates of the project could be affected by poor weather, equipment difficulties, or other unforeseen circumstances.

A hydrographic vessel manned by contractors would survey the location shown in Appendix A.

During the proposed survey, the crew would operate high frequency echo sounders to map the ocean floor in the survey area. The crew would also use a Conductivity, Temperature, and Depth (CTD) instrument for profiling the water column. All echo sounders would operate at frequencies of 200 kilohertz (kHz) or higher. The ship is expected to anchor during the survey.

No benchmarks, tide gauges, or GPS tide buoys would be installed for the project. No bottom samples would be collected.

1.1 Best Management Practices

In the course of the project, Coast Survey would adhere to Best Management Practices (BMPs, see Appendix B) agreed to with the National Marine Fisheries Service (NMFS) in an Endangered Species Act section 7 consultation. Coast Survey would also follow all other indicated speed limits, including those posted for the protection of sensitive natural resources.

2.0 Potential Impacts to ESA-Listed Species from the Project

Coast Survey requested and received an official species list (Appendix A) from the Fish and Wildlife Service *Information for Planning and Conservation* (IPaC) website on May 14, 2019. The ESA-listed (or proposed) species indicated on that list are detailed below, along with our determination of any possible effects to these species from the project.

2.1 Impacts to ESA-Listed Birds

Table 1: ESA-Listed Birds Potentially Located in the Project Area

Bird Species	Status
Piping Plover (<i>Charadrius melodus</i>)	Threatened
Red Knot (<i>Calidris canutus rufa</i>)	Threatened
Red-cockaded Woodpecker <i>Picoides borealis</i>	Endangered
Roseate tern (<i>Sterna dougallii dougallii</i>)	Endangered

As indicated in Section 1.0, the project will involve the use of one vessel in the Chesapeake Bay. The vessel crew would operate high-frequency echo sounders and a water column profiler. No effects on habitat or nesting areas are expected because no work will take place on the shore or in inland areas. No trawling activities that could attract birds will be performed. The impact to birds or their prey species from the operation of one boat would be negligible and temporary.

Based on this information, Coast Survey has determined that there is “no effect” to shore birds or terrestrial birds such as the Piping plover, Red Knot, and the Red-cockaded Woodpecker from the project.

As a seabird, the Roseate tern could be collocated with the planned survey. According to the FWS, the roseate tern

*is a specialist feeder eating almost exclusively small fish, primarily the American sand lance in northeastern populations. It captures food mainly by plungediving, completely submerging its body underwater to catch prey, but it also feeds in shallow waters and even steals food from common terns.*¹

However, the potential for these activities to be affected by the operation of a hydrographic boat appears remote. In the course of the hydrographic work, the vessel would operate at relatively low speeds (up to

¹ <https://www.fws.gov/northeast/pdf/Roseatetern0511.pdf> [October 23, 2017]

13 knots) and would move in straight, predictable transects. Animal observers are present on all Coast Survey vessels at all times, and crews are trained to be aware of and avoid all wildlife.

There does not appear to be a potential for the Roseate tern to perceive the echo sounders in use in the short time that the birds are underwater. Bird hearing in air is most sensitive in the 1 – 4 kHz range², with some high frequency sensitivity being lost underwater.³ Coast Survey proposes to use echo sounders at frequencies no lower than 200 kHz.

However, based on the discountable potential for vessels to harass sea birds resting on the water surface, Coast Survey has determined that the project “*may affect, but is not likely to adversely affect*” the Roseate tern. We request your concurrence with this determination.

2.2 Impacts to ESA-Listed Sea Turtles

Table 2: ESA-Listed Flowering Plants Potentially Located in the Project Area

Plant Species	Status
Hawksbill Sea Turtle <i>Eretmochelys imbricata</i>	Endangered
Kemp's Ridley Sea Turtle <i>Lepidochelys kempii</i>	Endangered
Leatherback Sea Turtle <i>Dermochelys coriacea</i>	Endangered
Loggerhead Sea Turtle <i>Caretta caretta</i>	Threatened

The potential for Coast Survey activities to affect the Hawksbill, Kemp’s Ridley, Leatherback, and Loggerhead sea turtles in the marine environment was considered in the 2013 Biological Opinion from NMFS, which determined that Coast Survey projects were not likely to jeopardize these species. The project would not be located on, and would not affect, beach areas where these species are under the jurisdiction of FWS. Therefore, these species are not further considered here.

2.3 Impacts to other ESA-Listed Species

Table 3: ESA-Listed Flowering Plants Potentially Located in the Project Area

Plant Species	Status
Northern Long-eared Bat <i>Myotis septentrionalis</i>	Threatened
Northeastern Beach Tiger Beetle <i>Cicindela dorsalis dorsalis</i>	Threatened

Both of the species listed in Table 3 above are terrestrial species. No part of the project would take place on beaches or other terrestrial areas. The operation of a single vessel, echo sounders, and water column profiler would not be perceptible to these species. Based on this information, Coast Survey has

² Beason 2004

³ Final Summary Report Environmental Science Panel For Marbled Murrelet Underwater Noise Injury Threshold, 2011

Page 4

determined that there is “no effect” to the Northern Long-eared bat or the Northeastern Beach Tiger Beetle from the project.

3.0 Conclusion

Based on the information presented in Sections 1 and 2, Coast Survey has determined that the project “*may affect, but is not likely to adversely affect*” the Roseate tern. We request your concurrence with this determination.

***Appendix A:
Map of the Project Area and Official Species List***



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
Phone: (804) 693-6694 Fax: (804) 693-9032
<http://www.fws.gov/northeast/virginiafield/>

In Reply Refer To:

May 08, 2019

Consultation Code: 05E2VA00-2019-SLI-3890

Event Code: 05E2VA00-2019-E-09169

Project Name: Hydrographic Survey in Lower Chesapeake Bay (July,2019-February,2020)

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered

species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Virginia Ecological Services Field Office

6669 Short Lane

Gloucester, VA 23061-4410

(804) 693-6694



Southern Ches Bay (OPR-E350-TJ-19) end of field work

2 messages

Douglas Wood - NOAA Federal <douglas.wood@noaa.gov>

Tue, Mar 24, 2020 at 8:29 AM

To: "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>

Hi TJ Ops,

Last season you left sheets H13297 and H13298 open in case you had some opportunity to return to do more work on them. Could you pass on the date that field work was finished so that I can update survey tracker?

Doug

--

Douglas Wood
Physical Scientist
Hydrographic Surveys Division
Office of Coast Survey
National Oceanic and Atmospheric Administration
[1315 East West Highway](#)
[Silver Spring, MD 20910](#)
240-533-0042

Calandria DeCastro - NOAA Federal <calandria.m.decastro@noaa.gov>

Tue, Mar 24, 2020 at 8:42 AM

To: Douglas Wood - NOAA Federal <douglas.wood@noaa.gov>

Cc: "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>, Martha Herzog - NOAA Federal <martha.herzog@noaa.gov>

Good morning,

December 21, 2019 was the last day of acquisition on both sheets.

V/r,

LT Calandria DeCastro, NOAA
Operations Officer, NOAA Ship *Thomas Jefferson*
Ship Land Line: [757-441-6322](#)
Ship Cell: [757-647-0187](#)
Ship Iridium: [808-434-2706](#)

On Mar 24, 2020, at 8:29 AM, Douglas Wood - NOAA Federal <douglas.wood@noaa.gov> wrote:

[Quoted text hidden]



OPS.Thomas Jefferson - NOAA Service Account <ops.thomas.jefferson@noaa.gov>

Notice of MSAT Training

2 messages

OPS.Thomas Jefferson - NOAA Service Account <ops.thomas.jefferson@noaa.gov>

Fri, Mar 27, 2020 at 8:28 PM

To: ocs.ecc@noaa.gov

Cc: "CO.Thomas Jefferson - NOAA Service Account" <CO.thomas.jefferson@noaa.gov>

Good evening,

Apologies for the memo slipping off our radar- attached is the list of personnel aboard NOAA Ship *Thomas Jefferson* who completed Marine Species Awareness Training prior to the start of our 2019 field season.

V/r,

--

LT Calandria DeCastro, NOAA
Operations Officer, NOAA Ship *Thomas Jefferson*
Ship Land Line: 757-441-6322
Ship Cell: 757-647-0187
Ship Iridium: 808-434-2706

 **2019_Marine_Mammal_Trainees_Signed.pdf**
326K

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

Mon, Mar 30, 2020 at 6:27 AM

To: "OPS.Thomas Jefferson - NOAA Service Account" <ops.thomas.jefferson@noaa.gov>

Received, thank you.

Sincerely,

Jay Nunenkamp (he/his)
Environmental Compliance Coordinator
Office of Coast Survey
National Oceanic and Atmospheric Administration
Please note that my current work hours are **6 AM - 2:30 PM EDT**

[Quoted text hidden]

APPROVAL PAGE

H13298

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

The following products will be sent to NCEI for archive

- Descriptive Report
- Data Acquisition and Processing Report
- Collection of Bathymetric Attributed Grids (BAGs)
- Processed survey data and records
- Geospatial PDF of survey products
- Collection of backscatter mosaics

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

Approved: _____

Commander Meghan McGovern, NOAA
Chief, Atlantic Hydrographic Branch