F00794

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

# DESCRIPTIVE REPORT

| | |
|---|---|
| Type of Survey: | Natural Disaster Response |
| Registry Number: | F00794 |

## LOCALITY

| | |
|---|---|
| State(s): | South Carolina |
| General Locality: | Little River Inlet |
| Sub-locality: | Little River Inlet and ICW |

**2019**

CHIEF OF PARTY
LT John Kidd

LIBRARY & ARCHIVES

Date:

| U.S. DEPARTMENT OF COMMERCE<br>NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION | REGISTRY NUMBER: |
|---|---|
| **HYDROGRAPHIC TITLE SHEET** | **F00794** |

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): | **South Carolina** |
| General Locality: | **Little River Inlet** |
| Sub-Locality: | **Little River Inlet and ICW** |
| Scale: | **10000** |
| Dates of Survey: | **09/07/2019 to 09/09/2019** |
| Instructions Dated: | **09/07/2019** |
| Project Number: | **S-G938-NRB-19** |
| Field Unit: | **NOAA Mobile Integrated Survey Team** |
| Chief of Party: | **LT John Kidd** |
| Soundings by: | **Multibeam Echo Sounder** |
| Imagery by: | **Multibeam Echo Sounder Backscatter** |
| Verification by: | **Pacific 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 State Plane South Carolina FIPS 3900 Feet, 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 F00794

Project: S-G938-NRB-19

Locality: Little River Inlet

Sublocality: Little River Inlet and ICW

Scale: 1:10000

September 2019 - September 2019

**NOAA Mobile Integrated Survey Team**

Chief of Party: LT John Kidd

# A. Area Surveyed

The survey area is located in Little River, South Carolina within the sub locality of Little River Inlet and portions of the Intracoastal Waterway.

## A.1 Survey Limits

Data were acquired within the following survey limits:

| Northwest Limit | Southeast Limit |
|---|---|
| 33° 52' 12.62" N<br>78° 44' 53.65" W | 33° 48' 2.21" N<br>78° 32' 42.03" W |

*Table 1: Survey Limits*

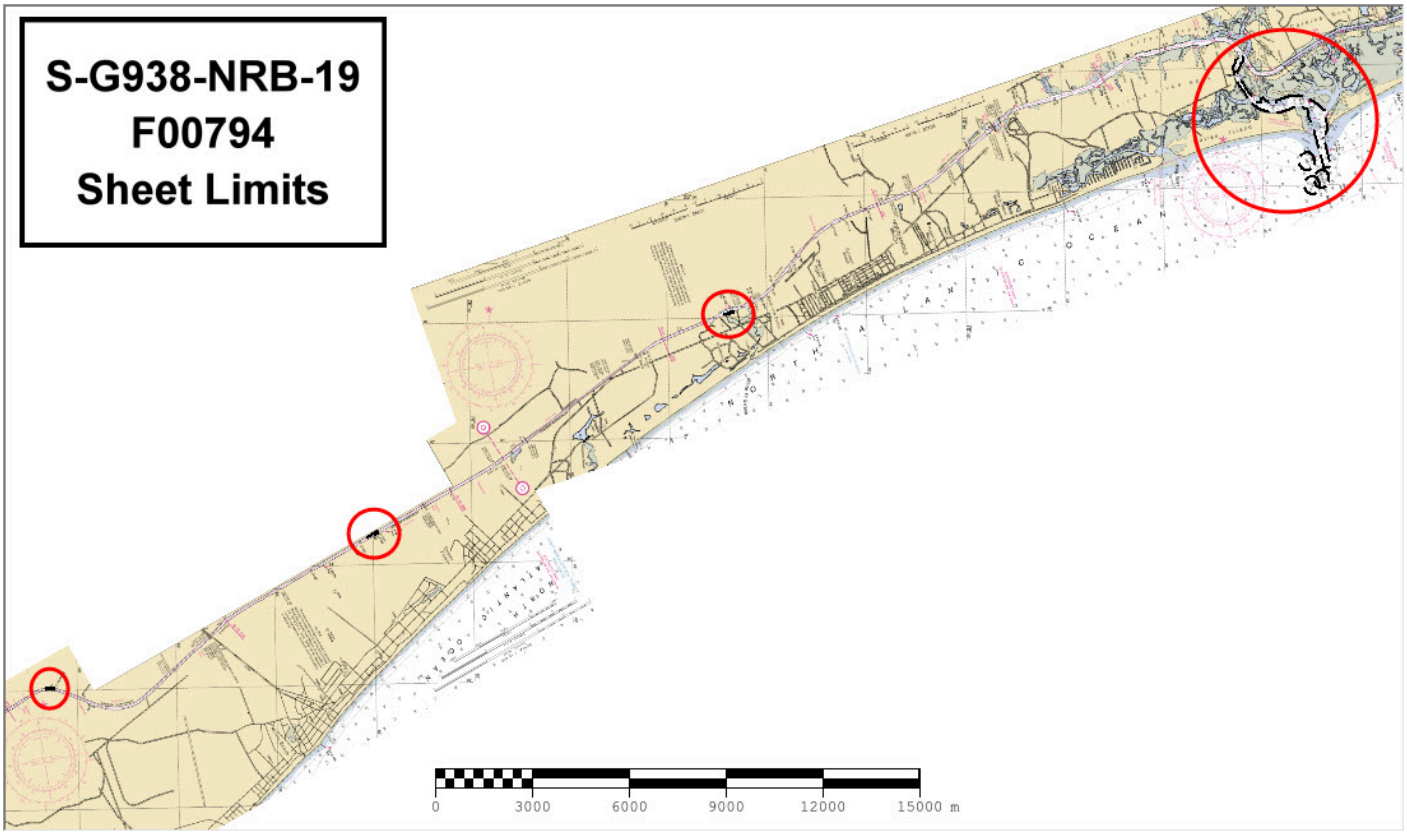



*Figure 1: Survey limits overlaid on RNC 11534_5 & 11534_5.*

Data were acquired to the survey limits in accordance with the requirements in the Project Instructions and National Ocean Service (NOS) March 2019 Hydrographic Surveys Specifications and Deliverables (HSSD). In all areas where the 3.5 meter depth contour or the sheet limits were not met, the Navigable Area Limit Line (NALL) was defined as the inshore limit of bathymetry due to the risks of maneuvering the survey vessel in close proximity to the steep and rocky shoreline.

## A.2 Survey Purpose

The purpose of this survey is to respond to a USCG request for hydrographic survey to reopen the channel in Little River Inlet and three areas south of Little River in the ICW, due to the effects of Hurricane Dorian.

## A.3 Survey Quality

The entire survey is adequate to supersede previous data.

Data acquired in F00794 meets Object Detection Coverage specifications. Additional compliance statistics can be found in Section B.2 of this report.

## 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 (Refer to HSSD Section 5.2.2.2) |

*Table 2: Survey Coverage*

The entirety of F00794 was acquired in accordance with the Object Detection MBES coverage standard, meeting the requirements listed above and in the HSSD. Two of the three areas assigned in the ICW were not acquired due to time constraints and priority. The unverified chart features (UCF), as well as the entrance to Little River Inlet were not surveyed due to the residually rough sea state outside of the jetty during the time of the survey. The entirety of Little River Inlet's Survey limits was not surveyed due to time constraints. Additionally the USCG Aid to Navigation Team desired to navigate within the channel defined by AToNs for the safety of the crew.

In some places, holidays do exist within the survey coverage. These holidays do not affect the overall quality of the data or present issues of inadequacy. The holidays were not filled due to time constraints on the vessel of opportunity.

See the figures below for further detail.

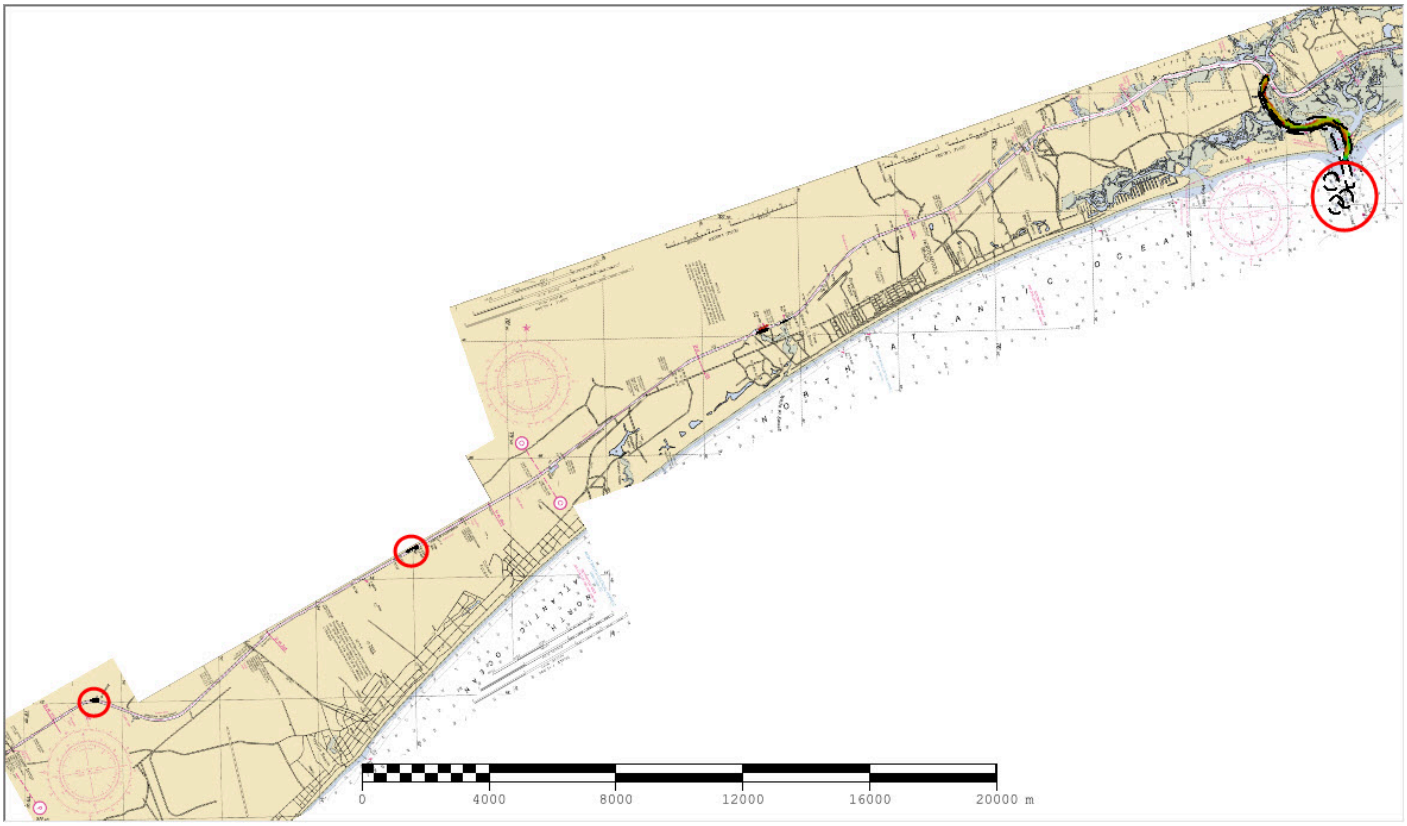



*Figure 2: Overview of entire project area with areas not surveyed circled in red.*

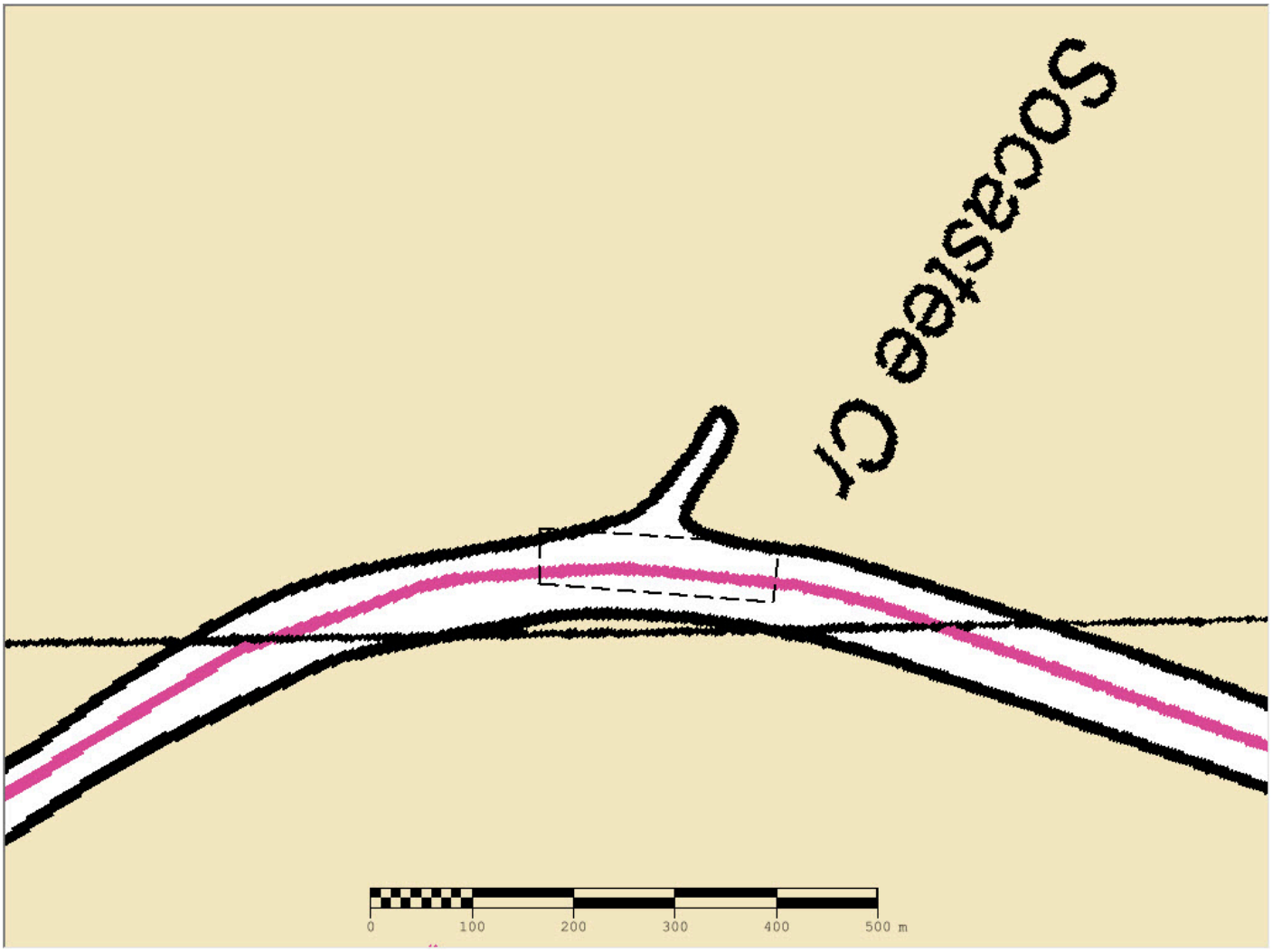



*Figure 3: Area at Socastee Creek.*

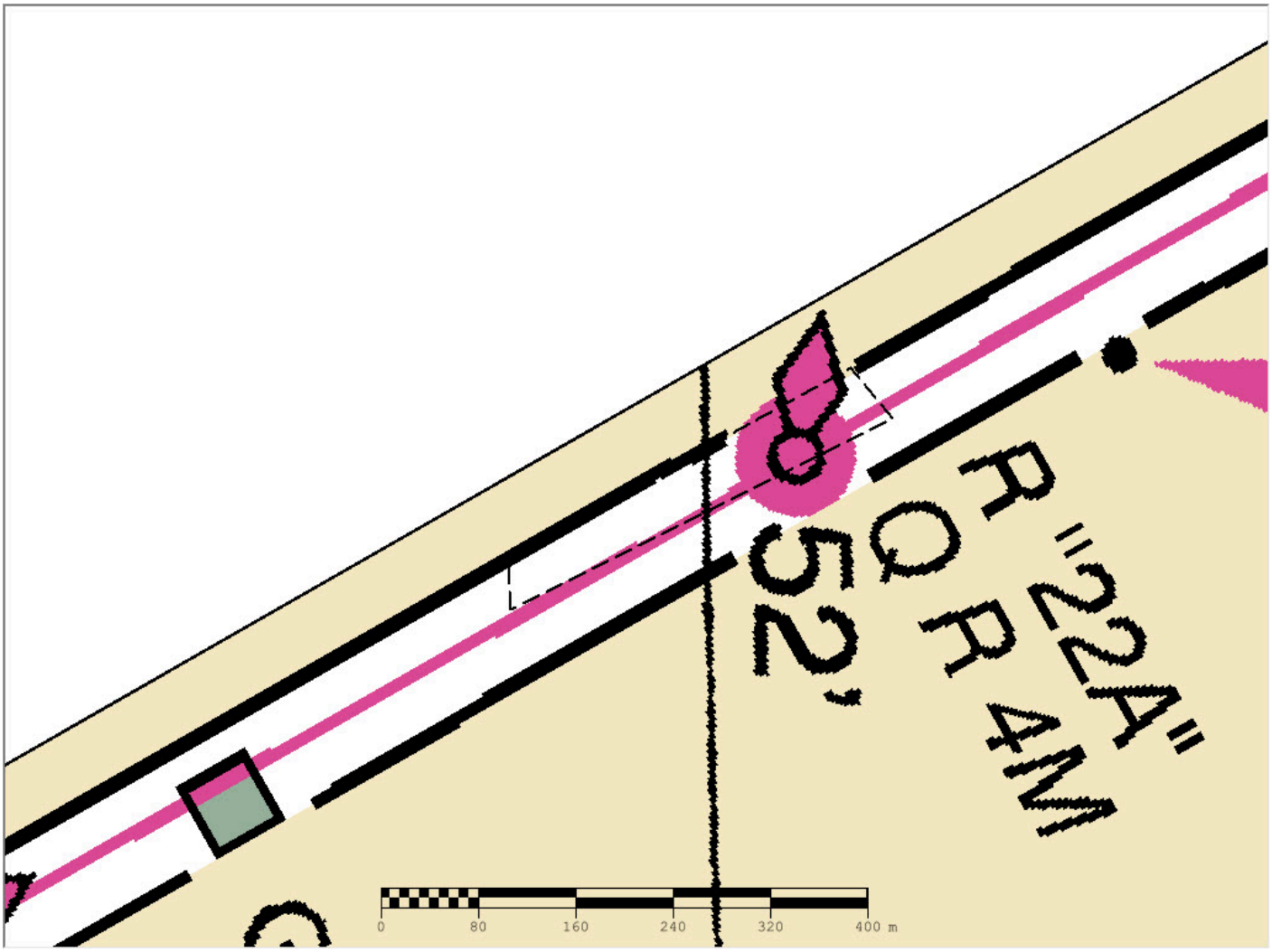



*Figure 4: Area at ICW AToN R "22A".*

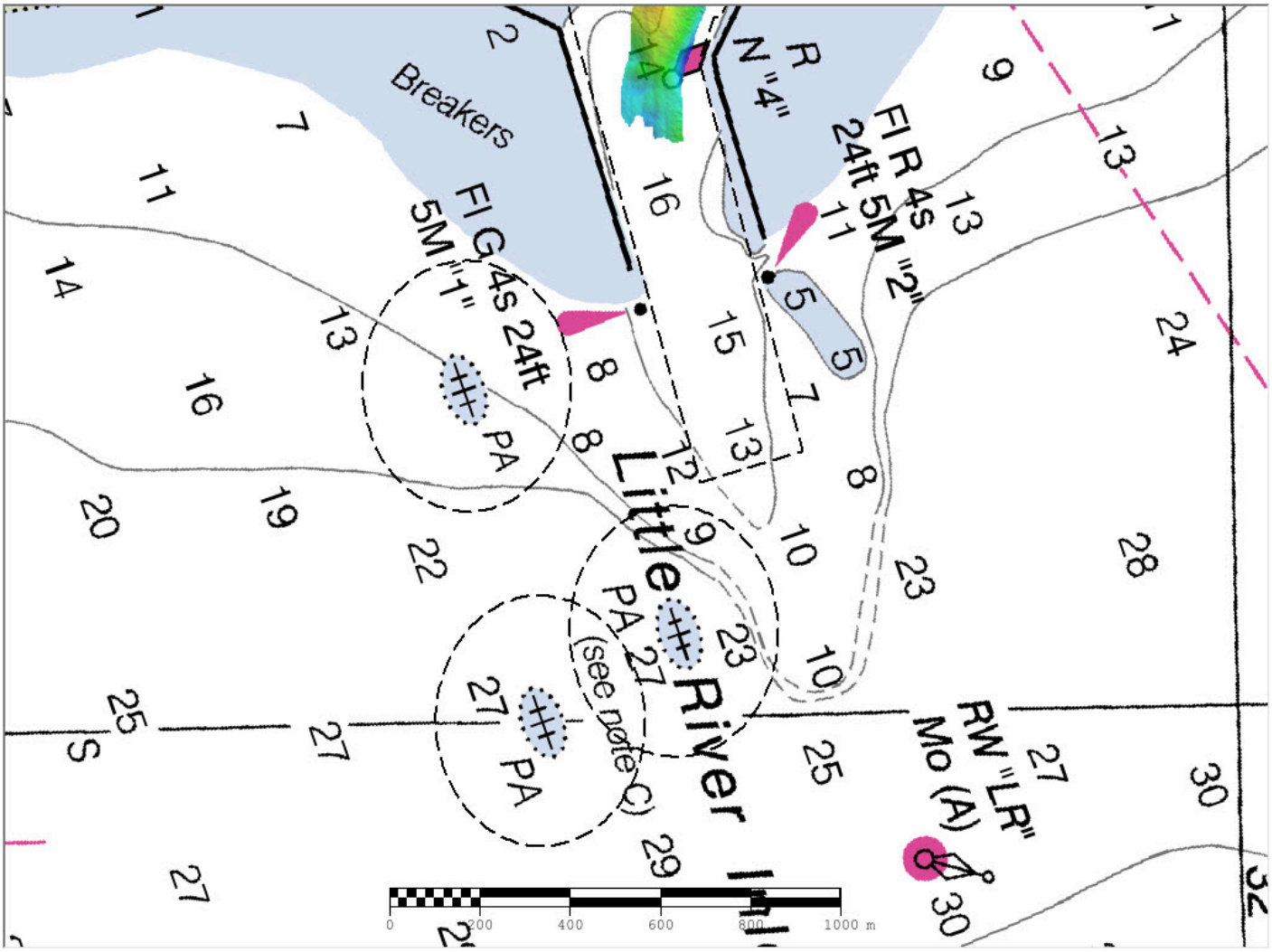



*Figure 5: UCFs and entrance to Little River Inlet not surveyed.*

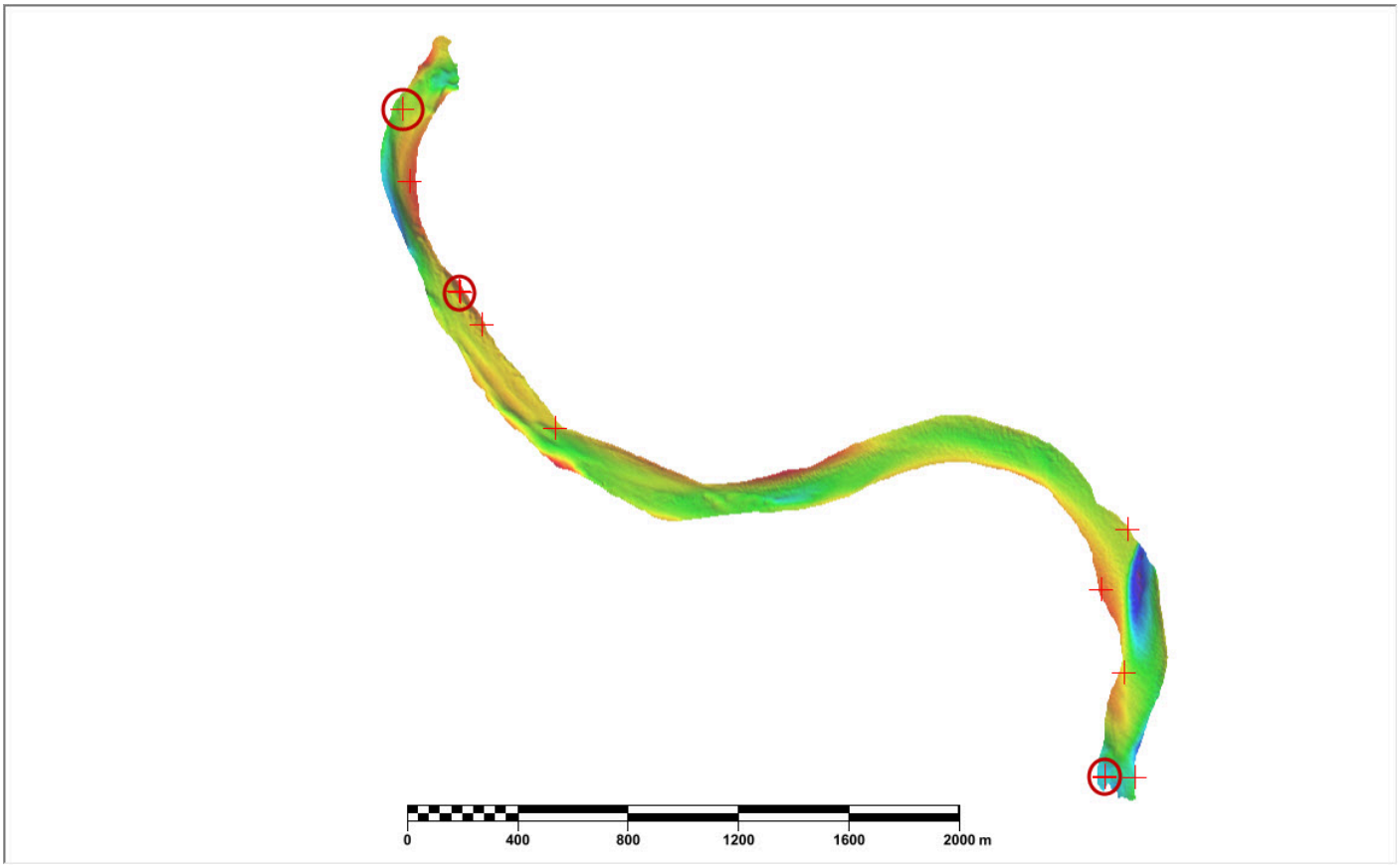



*Figure 6: Overview of holiday locations populated with QC Tools- Holiday Finder with significant areas circled in red.*

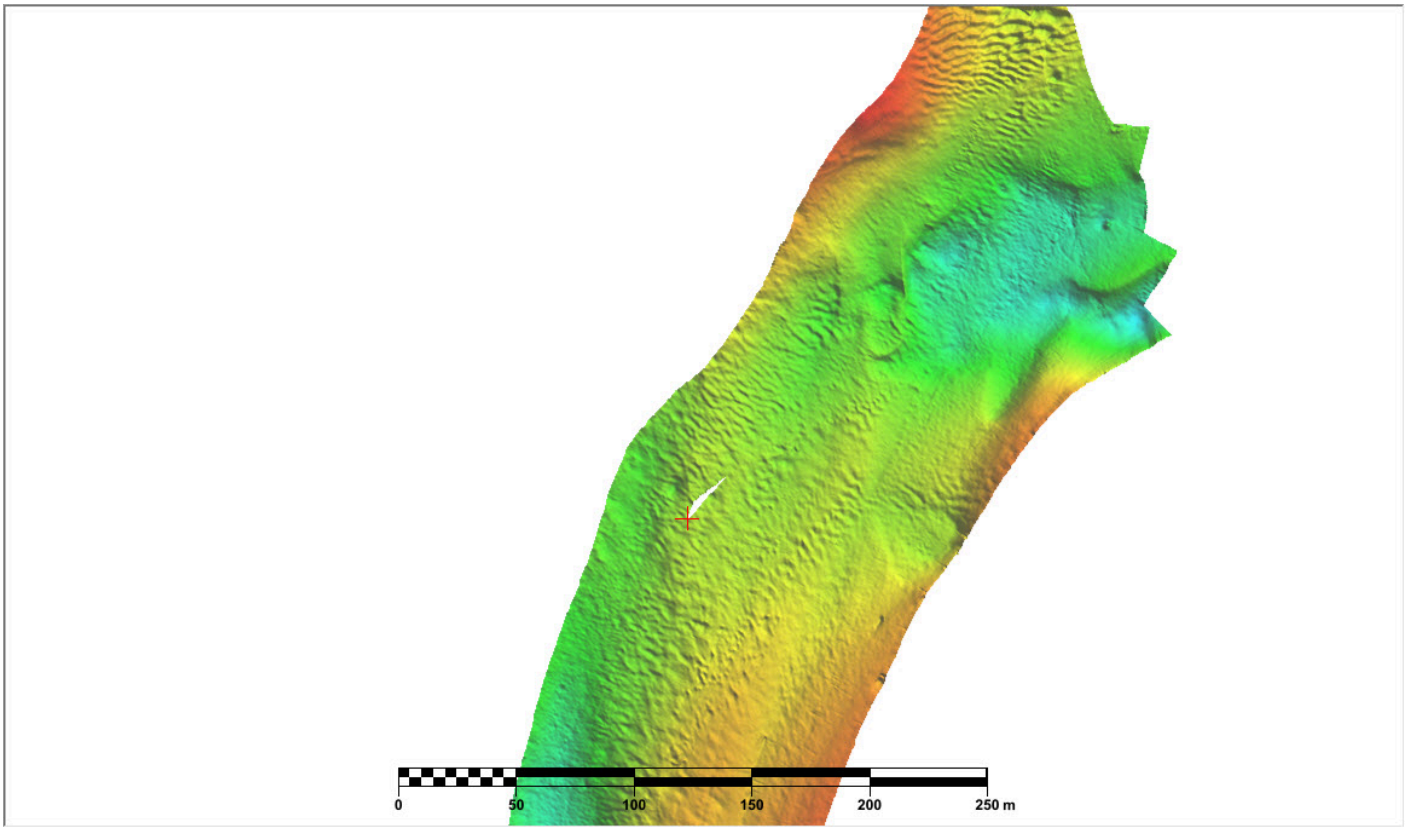



*Figure 7: Holiday located in the NW section of Little River Inlet.*

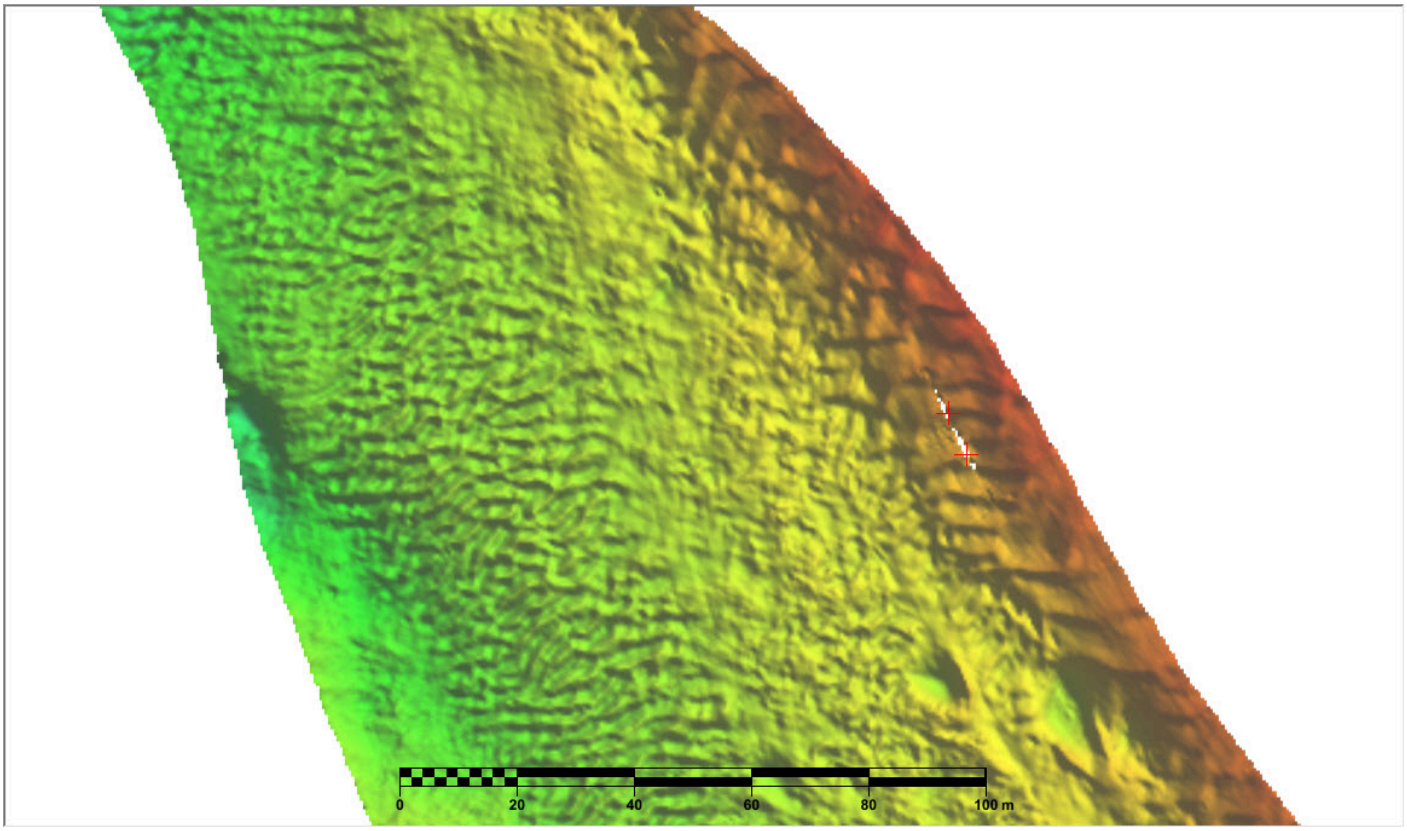



*Figure 8: Holiday located along the eastern edge south of the first bend.*

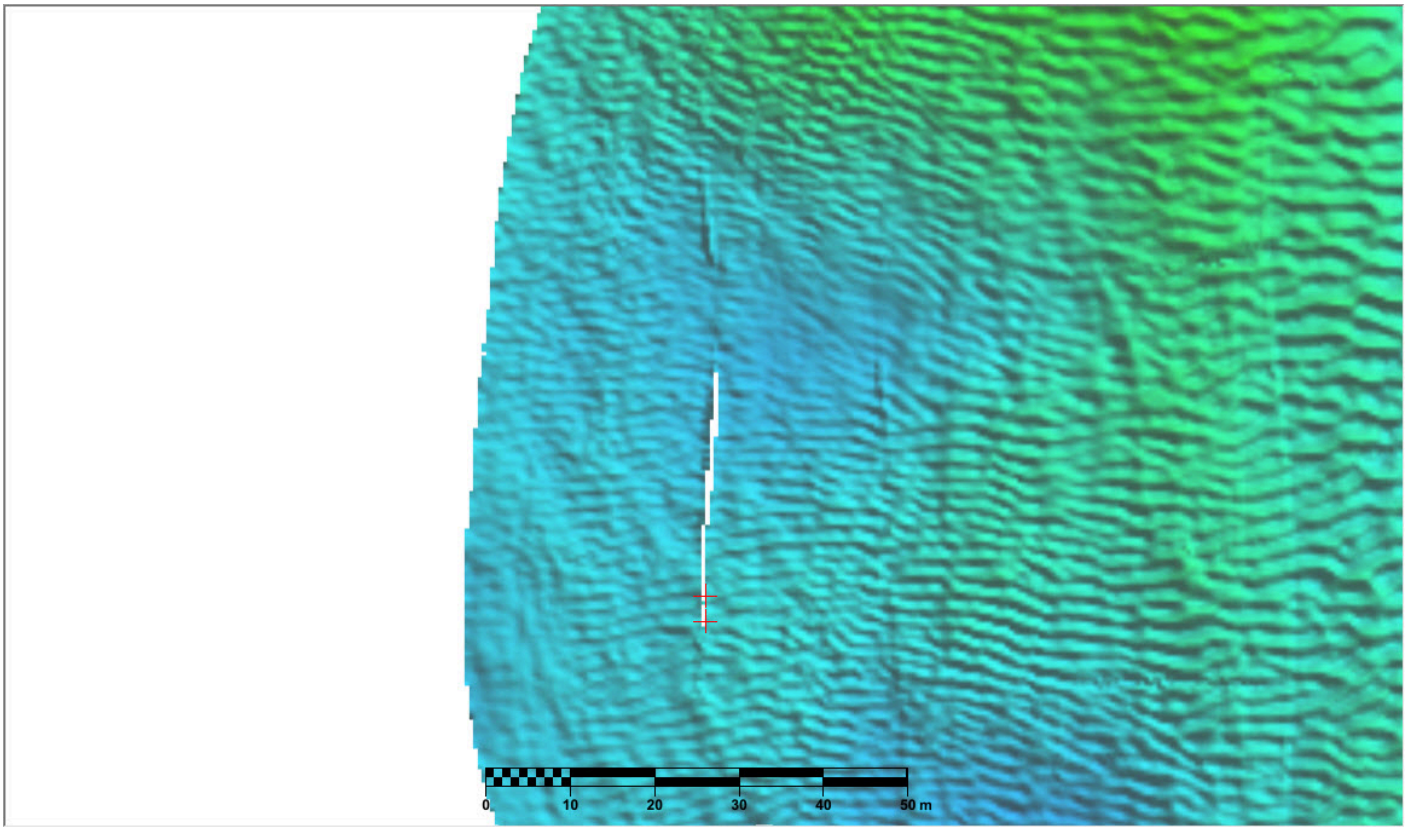



*Figure 9: Holiday located in the south western corner.*

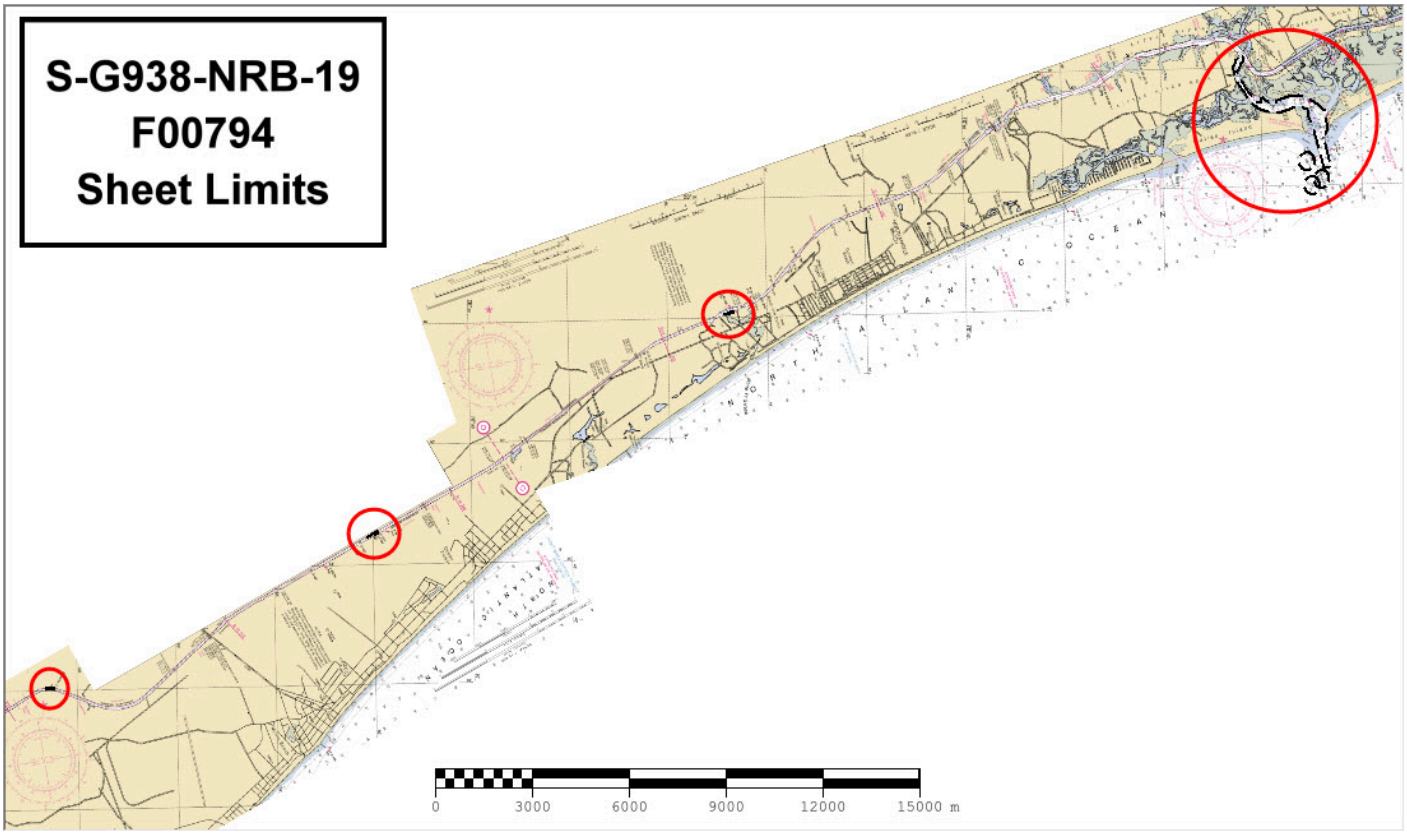



*Figure 10: Overview of survey areas.*

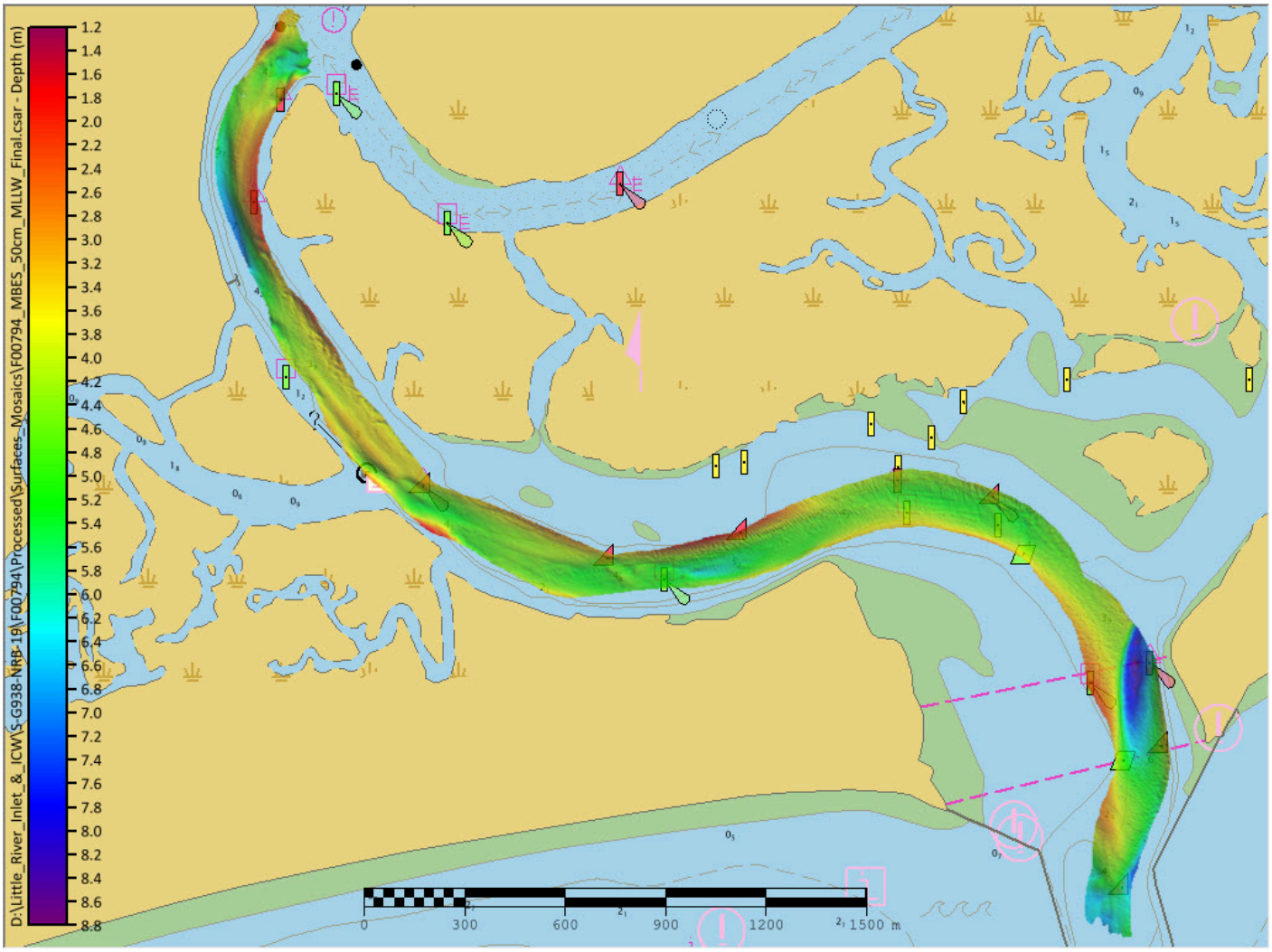



*Figure 11: Overview of survey area at Little River Inlet overlaid on ENC US5SC34M.*

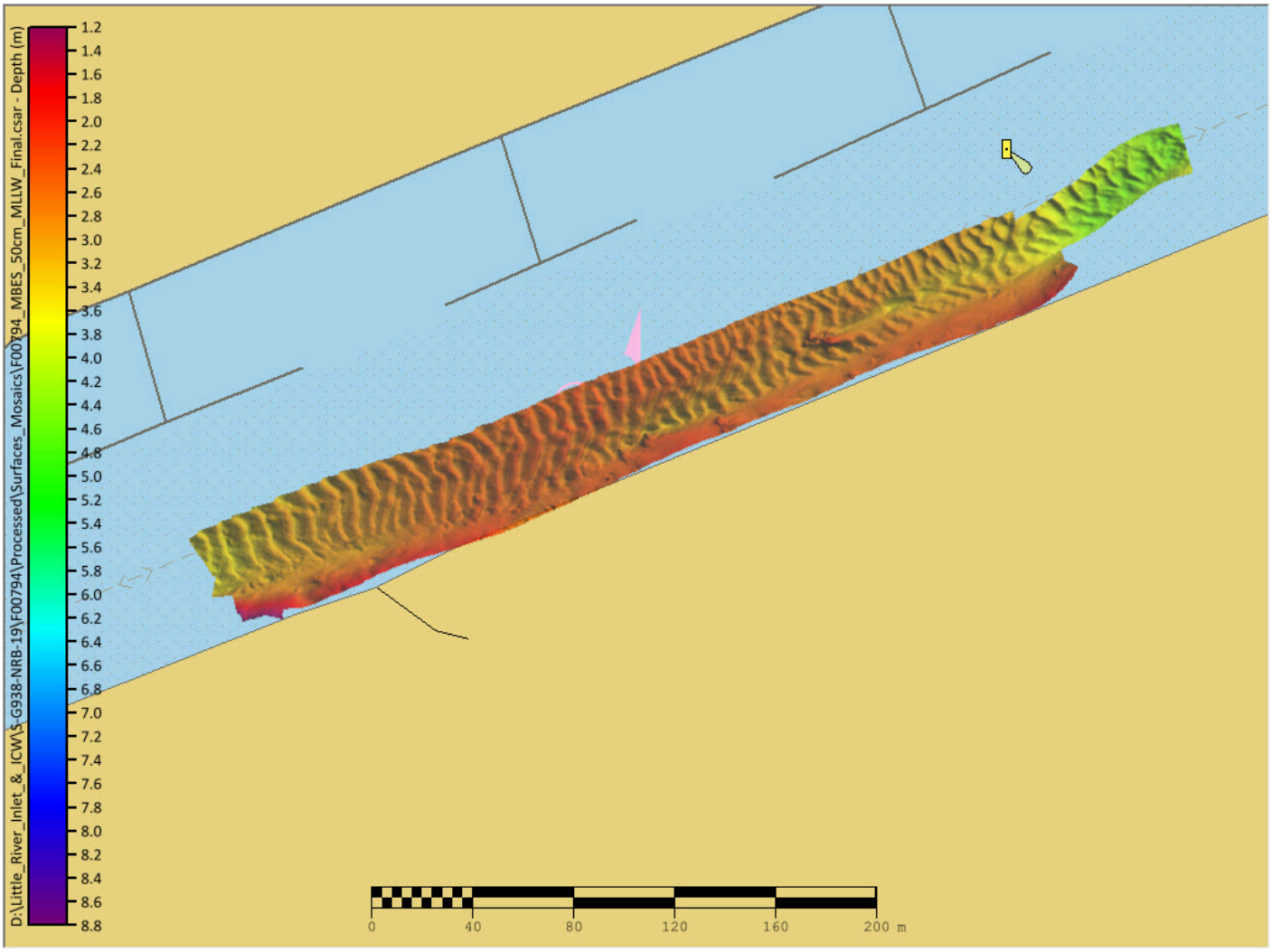



*Figure 12: Overview of survey area near Windy Hill Beach on the ICW.*

## A.6 Survey Statistics

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

| | HULL ID | *USCG TANB 26140* | *Total* |
|---|---|---|---|
| **LNM** | **SBES Mainscheme** | 0 | 0 |
| | **MBES Mainscheme** | 32.7 | 32.7 |
| | **Lidar Mainscheme** | 0 | 0 |
| | **SSS Mainscheme** | 0 | 0.0 |
| | **SBES/SSS Mainscheme** | 0 | 0 |
| | **MBES/SSS Mainscheme** | 0 | 0 |
| | **SBES/MBES Crosslines** | 2.1 | 2.1 |
| | **Lidar Crosslines** | 0 | 0 |
| **Number of Bottom Samples** | | | 0 |
| **Number Maritime Boundary Points Investigated** | | | 0 |
| **Number of DPs** | | | 0 |
| **Number of Items Investigated by Dive Ops** | | | 0 |
| **Total SNM** | | | 0.2 |

*Table 3: Hydrographic Survey Statistics*

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

| Survey Dates | Day of the Year |
|---|---|
| 09/07/2019 | 250 |

| Survey Dates | Day of the Year |
|---|---|
| 09/08/2019 | 251 |
| 09/09/2019 | 252 |

*Table 4: Dates of Hydrography*

# B. Data Acquisition and Processing

## B.1 Equipment and Vessels

Refer to the S-G938-NRB-19 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** | ***26140*** |
|---|---|
| **LOA** | 29.5 feet |
| **Draft** | 2.3 feet |

*Table 5: Vessels Used*


*Figure 13: USCG TANB Sector Georgetown outfitted with MBES MIST gear.*

USCG TANB 26140 was used as the Vessel of Opportunity and equipped with the mulitbeam MIST gear for response survey F00794.

### B.1.2 Equipment

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

| Manufacturer | Model | Type |
|---|---|---|
| Teledyne RESON | SeaBat T20-P | MBES |
| Applanix | POS MV Surfmaster | Positioning and Attitude System |
| AML Oceanographic | MicroX SV | Sound Speed System |
| YSI | CastAway-CTD | Conductivity, Temperature, and Depth Sensor |
| Teledyne RESON | SeaBat T20-P | MBES Backscatter |

*Table 6: Major Systems Used*

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

## B.2 Quality Control

### B.2.1 Crosslines

Approximately 6% of mainscheme data were compared with a crossline analysis. Crosslines were collected, processed and compared in accordance with Section 5.2.4.32 of the HSSD. To evaluate crosslines, a surface generated via data strictly from mainscheme lines, and a surface generated via data strictly from crosslines were created. From these two surfaces, a difference surface (mainscheme - crosslines = difference surface) was generated (Figure 19), and is submitted in the Separates II Digital Data folder. Statistics show the mean difference between the depths derived from mainscheme data and crossline data was 0.01 meters (with mainscheme being deeper) and 95% of nodes falling within 0.09 meters (Figure 20). For the respective depths, the difference surface was compared to the allowable NOAA uncertainty standards (Figure 17). In total, 99.5+% of the depth differences between F00794 mainscheme and crossline data were within allowable NOAA uncertainties (again, Figure 19).

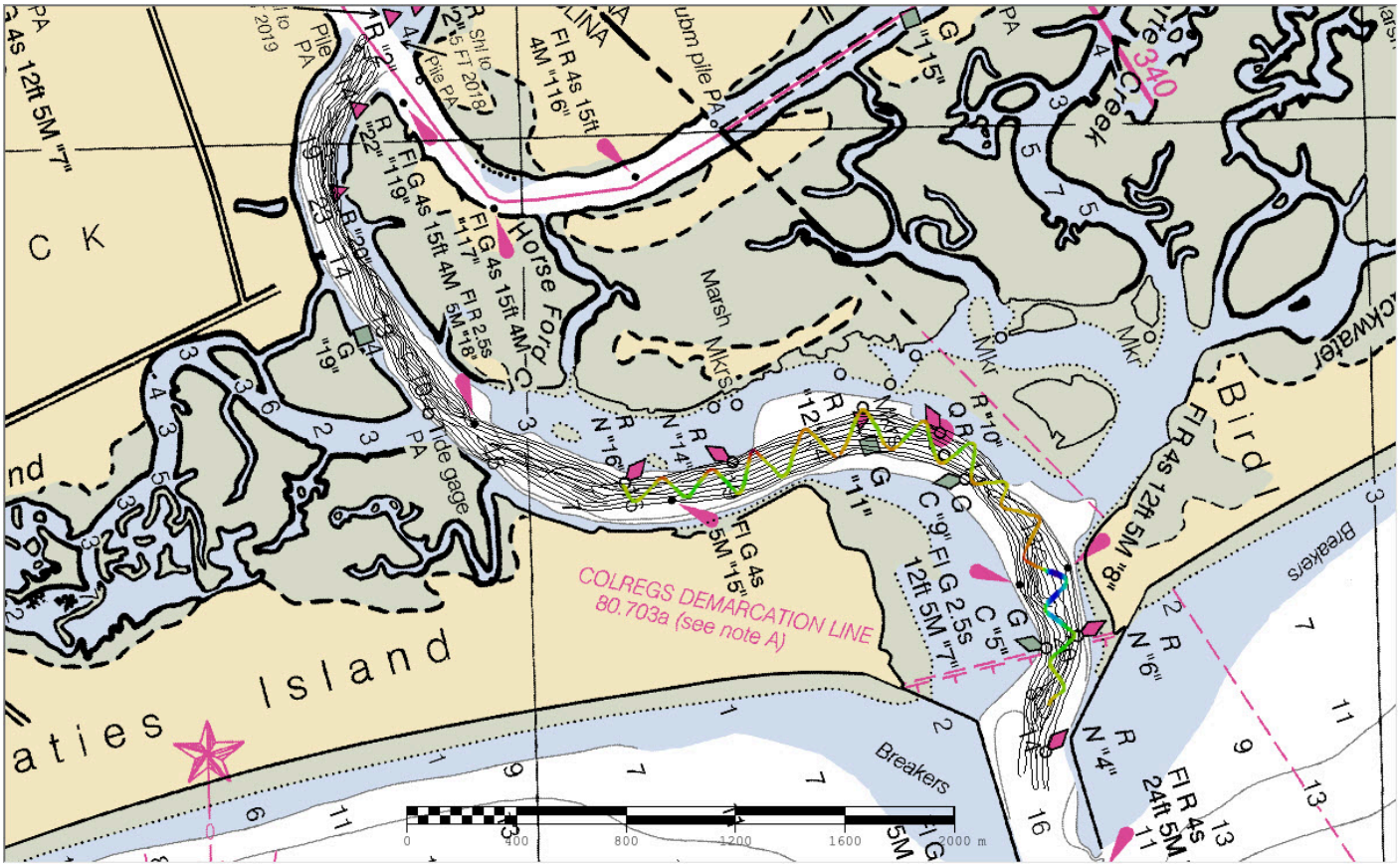



*Figure 14: F00794 Survey Crosslines Overview.*

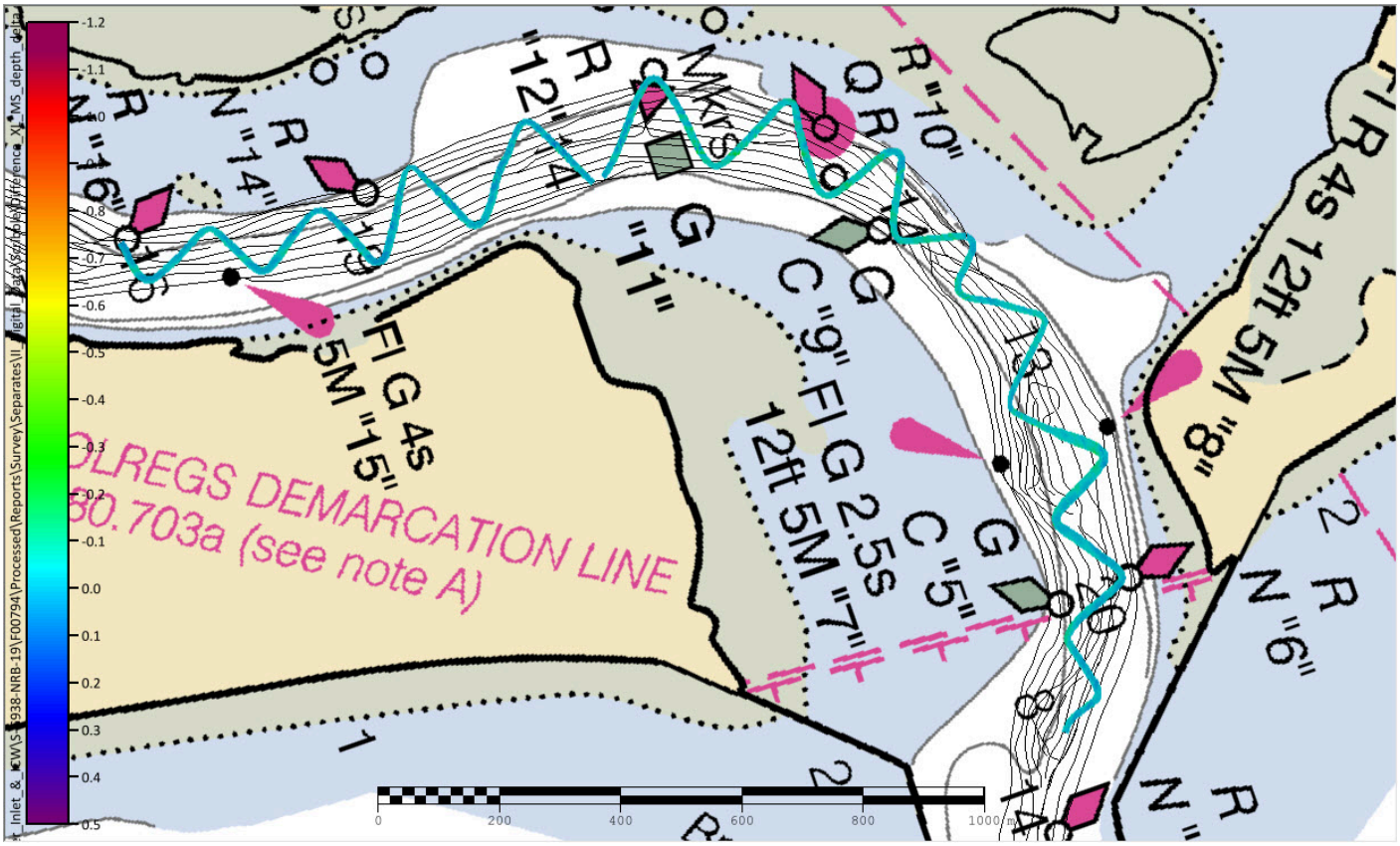
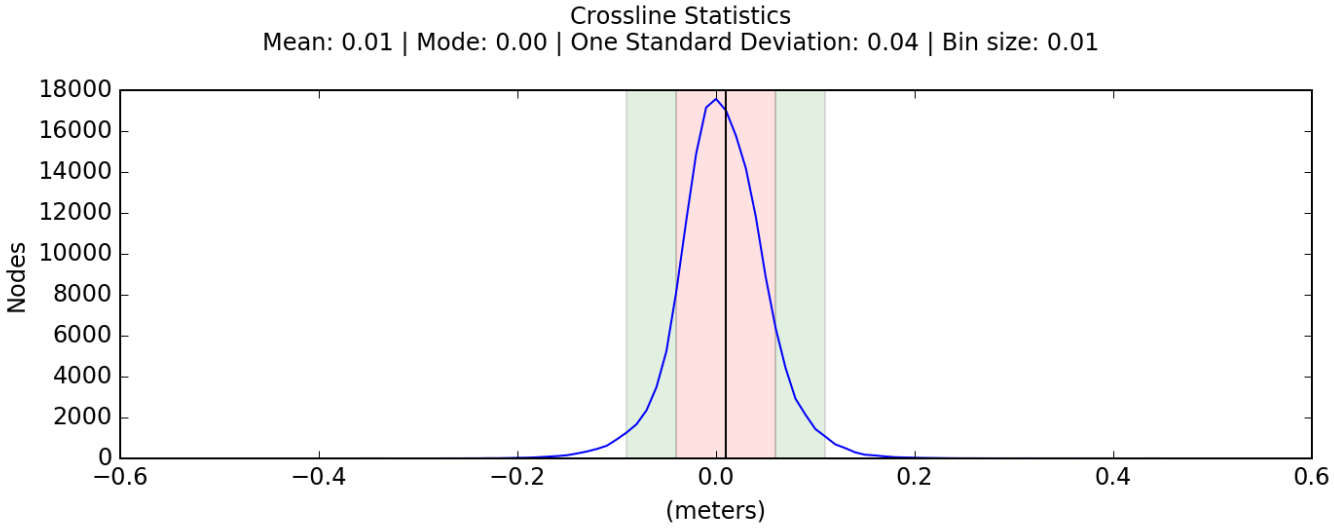
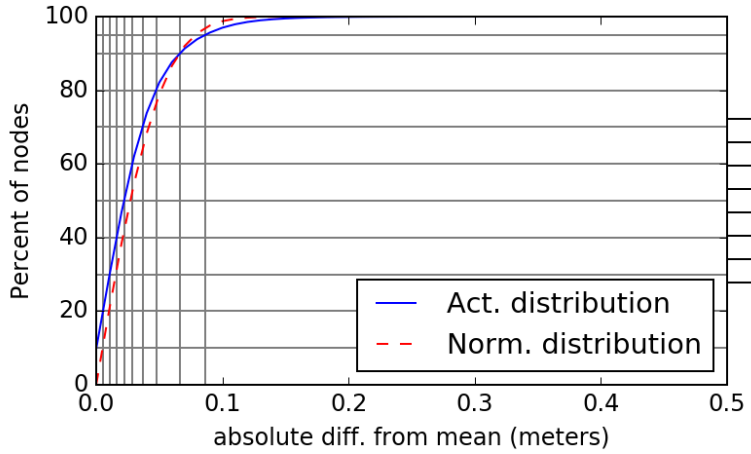



*Figure 15: Overview of difference surface.*




| Percent of nodes | Deviation (m) |
|---|---|
| 50% | +/- 0.02 |
| 60% | +/- 0.03 |
| 70% | +/- 0.04 |
| 80% | +/- 0.05 |
| 90% | +/- 0.07 |
| 95% | +/- 0.09 |

*Figure 16: F00794 crossline and mainscheme difference statistics.*

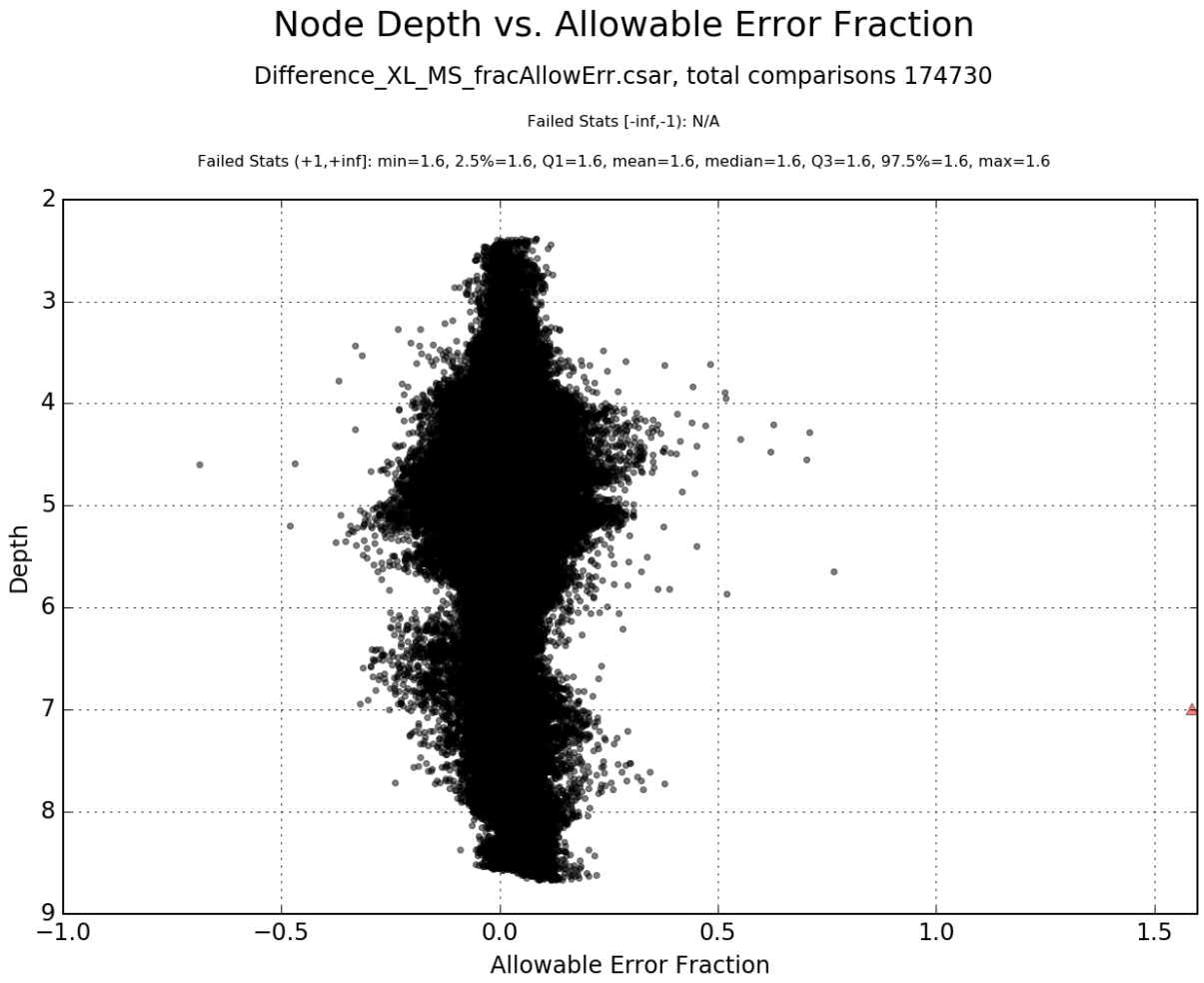



*Figure 17: F00794 crossline and mainscheme difference - Node depth vs allowable error.*

### B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

| Method | Measured | Zoning |
|---|---|---|
| ERS via VDATUM | 0.154 meters | 0.0 meters |

*Table 7: Survey Specific Tide TPU Values.*

| Hull ID | Measured - CTD | Measured - MVP | Measured - XBT | Surface |
|---|---|---|---|---|
| USCG 26140 | 4 meters/second | 0.0 meters/second | 0.0 meters/second | 0.2 meters/second |

*Table 8: Survey Specific Sound Speed TPU Values.*

In addition to the usual a priori estimates of uncertainty provided via device models for vessel motion, VDatum, Poor Mans VDatum (PMVD), and real-time and post-processed uncertainty sources were also incorporated into the depth estimates of survey F00794. Real-time uncertainties were provided via MBES data and Applanix Delayed Heave RMS. Following post-processing of the real-time vessel motion, recomputed uncertainties of vessel gps height and navigation were applied in CARIS HIPS and SIPS via a Smoothed Best Estimate of Trajectory (SBET) RMS file generated in Applanix POSPac.

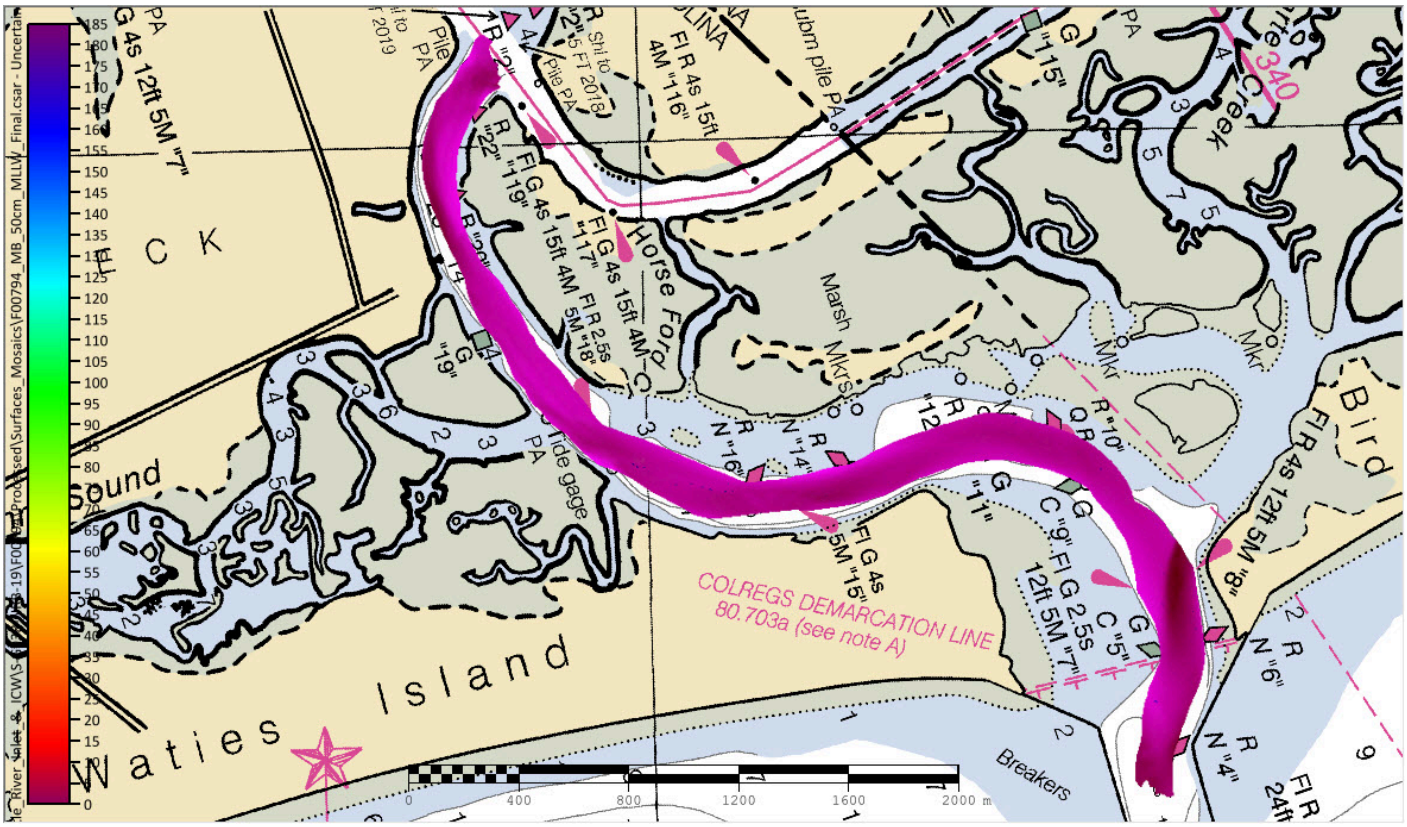



*Figure 18: F00794 Survey Uncertainty overview of bathymetry at Little River Inlet.*

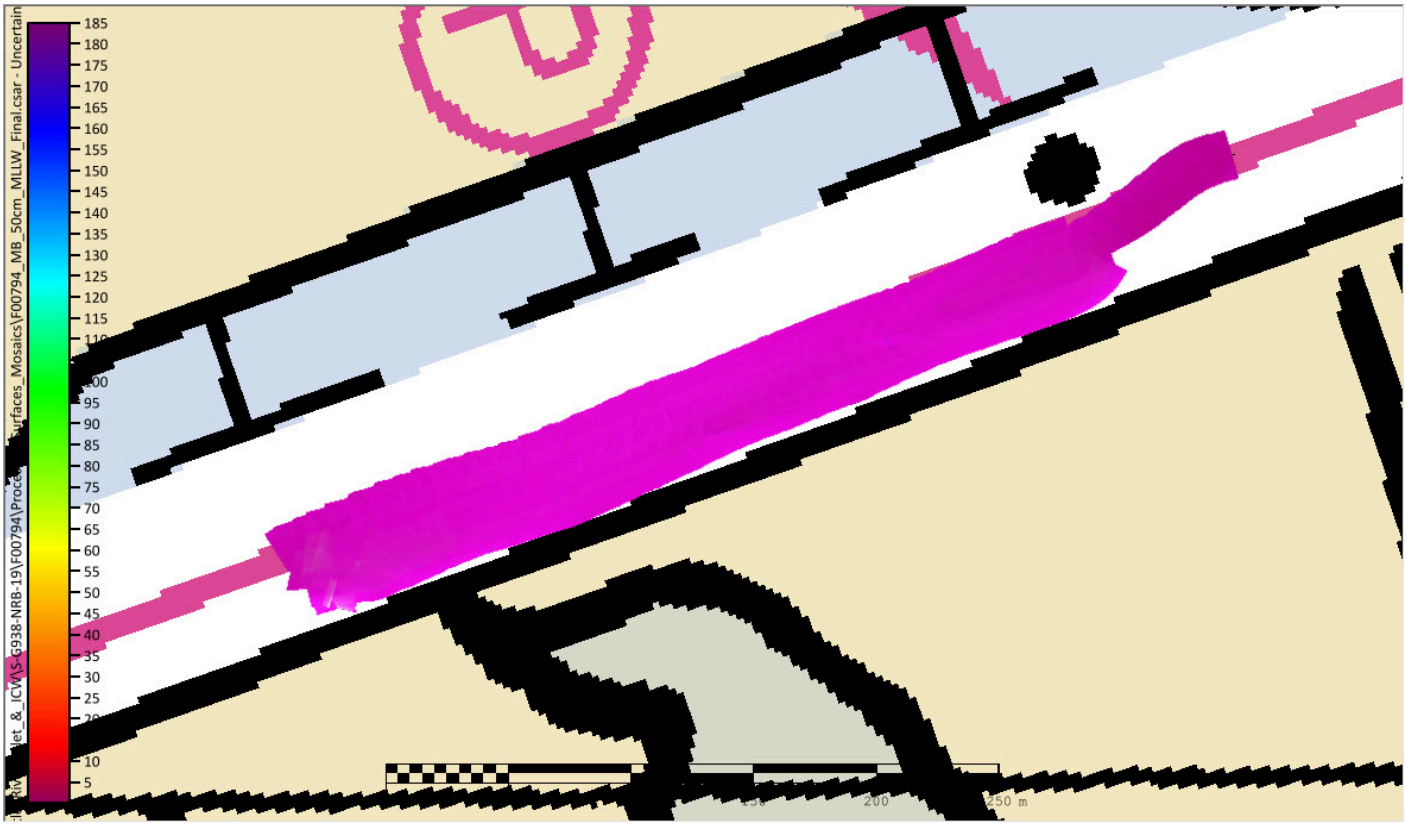



*Figure 19: F00794 Survey Uncertainty overview of bathymetry at the ICW.*

### B.2.3 Junctions

There were no junction surveys for this project.

There are no contemporary surveys that junction with this survey.

### B.2.4 Sonar QC Checks

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

### B.2.5 Equipment Effectiveness

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

### B.2.6 Factors Affecting Soundings

Sound Velocity

Bathymetery acquired in Little River Inlet, at approximately 35-51-22.162N 078-32-55.356W, on day number 252 displays sound velocity artifacts in the form of "smiles". The average distance, from the edges of the bathymetry affected to the nadir of properly sound velocity corrected data, is about 20-30 cm. Inspection of the lines colored by sound velocity profile show that they are SV corrected by cast "Section 2019-252 16:57 33:50:49 -078:32:48" from the master file. This cast has a surface sound speed of ~1526 m/s around transducer depth. The cast was taken at the Atlantic side entrance to Little River Inlet. The area of concern lies south of an estuary outlet that most likely has a significant flow of fresh water volume. By inspecting the segments of data in Attitude Editor with Surface Sound Speed (SSP) enabled, there is a noticeable difference in SV at the sonar head in real time compared to those taken from the CTD cast. This difference is about 10 m/s. See images below for details

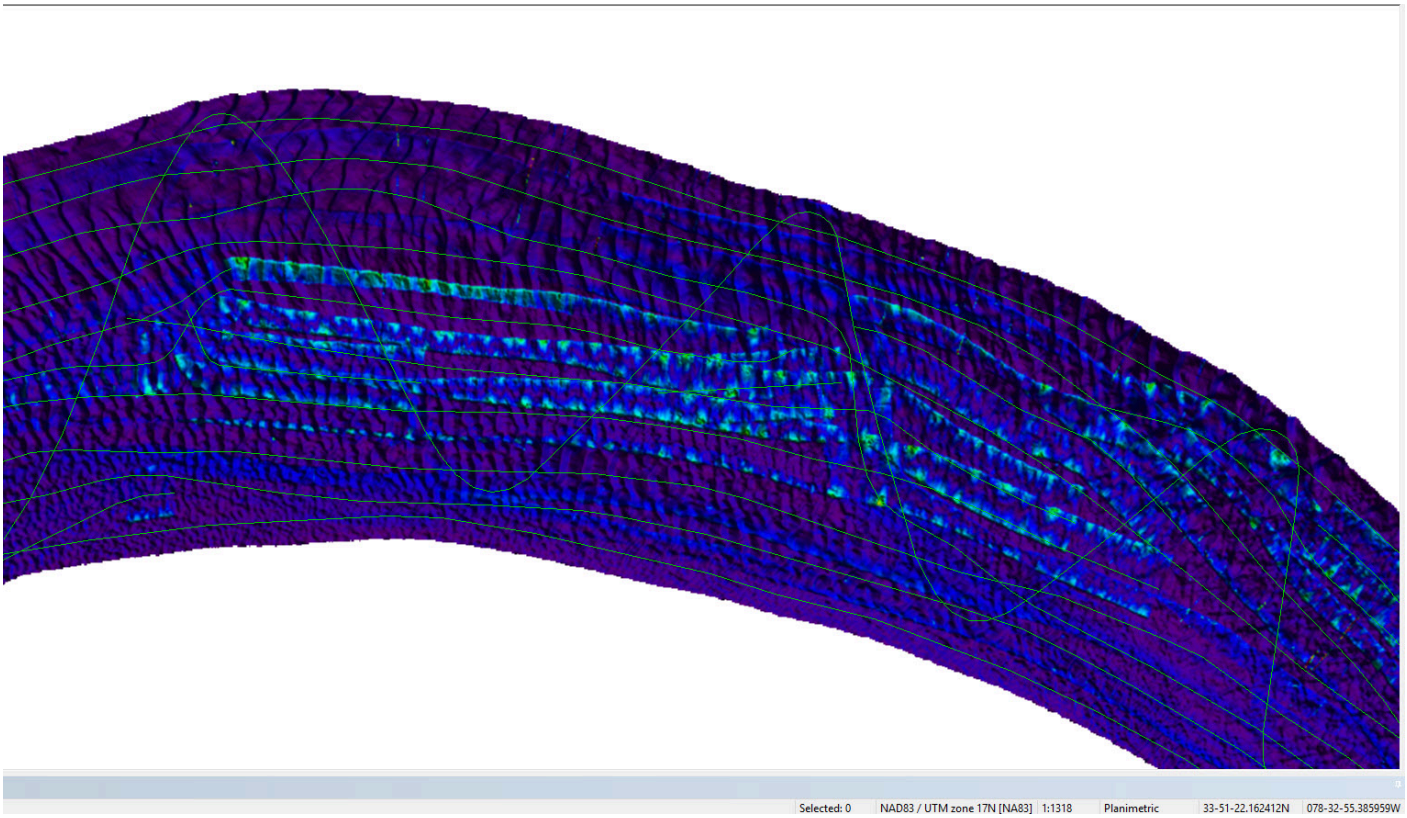



*Figure 20: Area of data viewed with the Node Std_Dev Layer.*

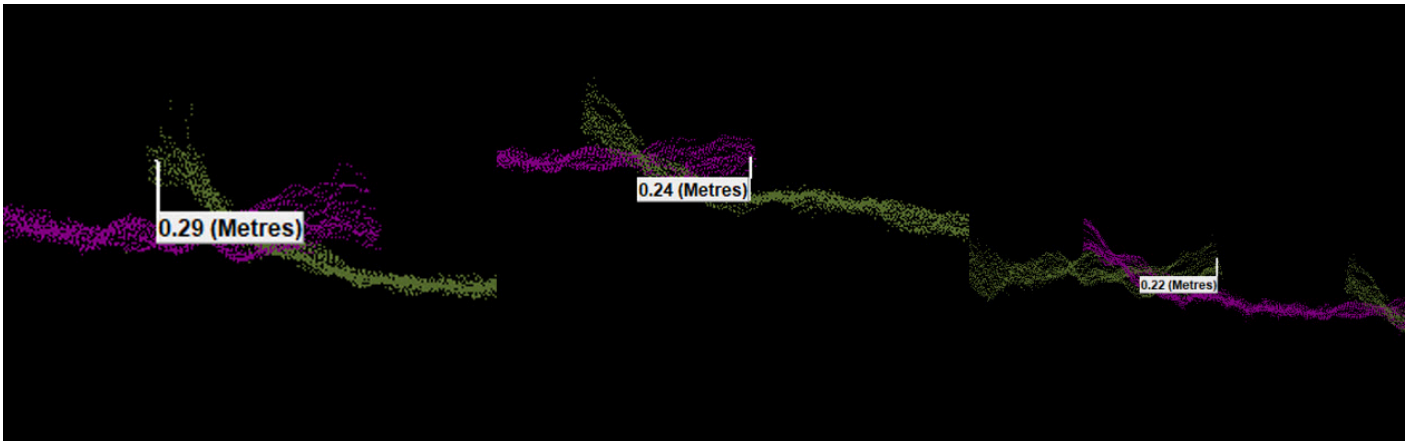



*Figure 21: 2D Subset view of the the lines affected by SV differences.*

```
Section 2019-252 16:57 33:50:49 -078:32:48
0.151679 1529.676890
0.454908 1526.495280
0.756994 1533.669028
1.057863 1535.242367
1.358298 1536.852164
1.658412 1537.638630
1.958323 1538.432662
2.258108 1538.607534
2.557808 1538.885384
2.857439 1538.820885
3.157057 1538.791096
3.456667 1538.761294
3.756271 1538.755970
4.055870 1538.750645
4.355465 1538.752296
4.615807 1538.852011
```

*Figure 22: Profile values in portion of water column at transducer.*

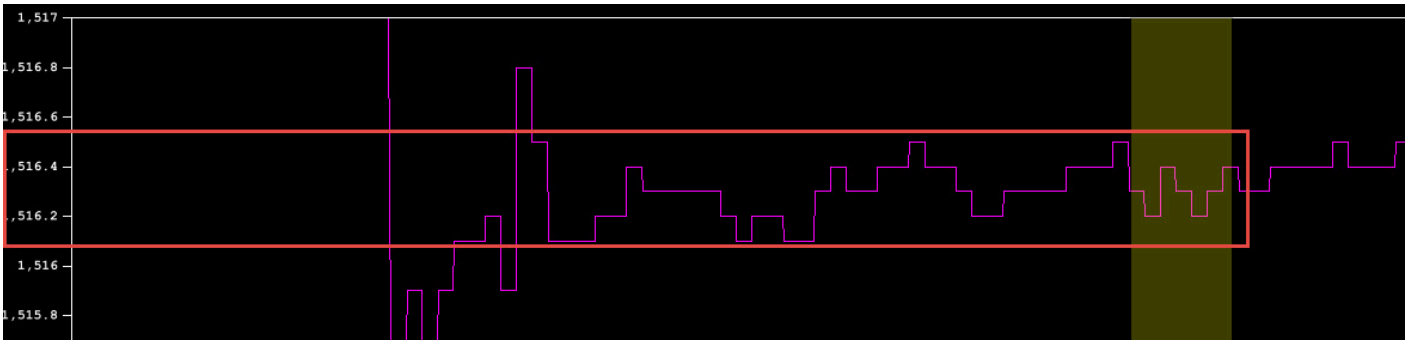



*Figure 23: SV range taken from the SSP view.*

### B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: 4 hours

Casts were conducted at a minimum of one every four hours during launch acquisition. Casts were conducted more frequently in areas where the influx of freshwater had an effect on the speed of sound in the water column and when there was a change in surface sound speed greater than two meters per second. All sound speed methods were used as detailed in the DAPR.

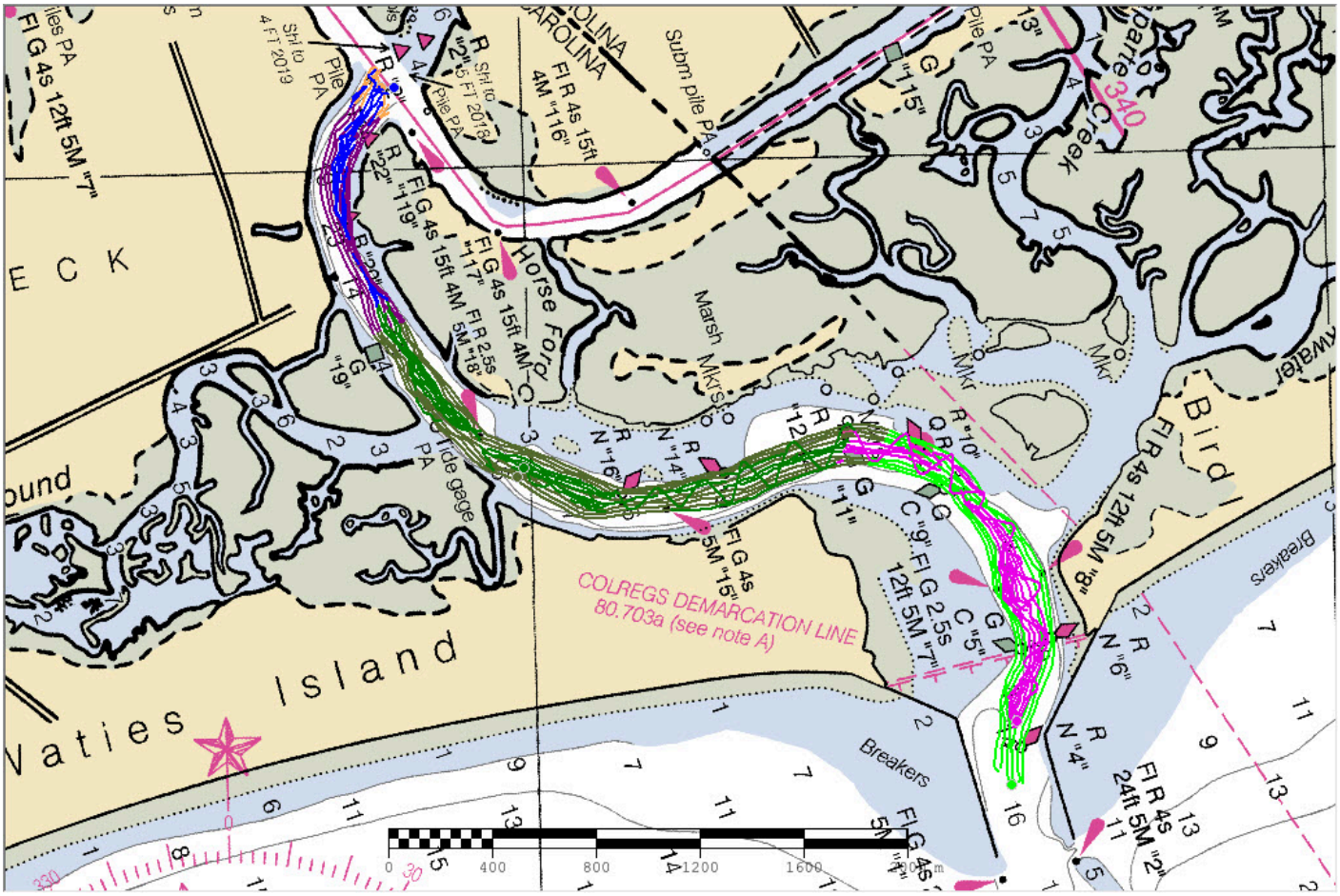



*Figure 24: Shiptrack lines symbolized by Sound Velocity profile overlaid on RNC 11534_4.*

### B.2.8 Coverage Equipment and Methods

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

### B.2.9 Density

The surface was analyzed using the HydrOffice QC Tools Grid QA feature and the results are shown in the figures below. Density requirements for F00794 were achieved with at least 99.5% of surface nodes containing five or more soundings as required by HSSD Section 5.2.2.3. The few nodes that did not meet density requirements are due to sparse data in the outer beams, especially near steep slopes and rocky areas where acoustic shadowing occurred, and at the edges of the survey limits.

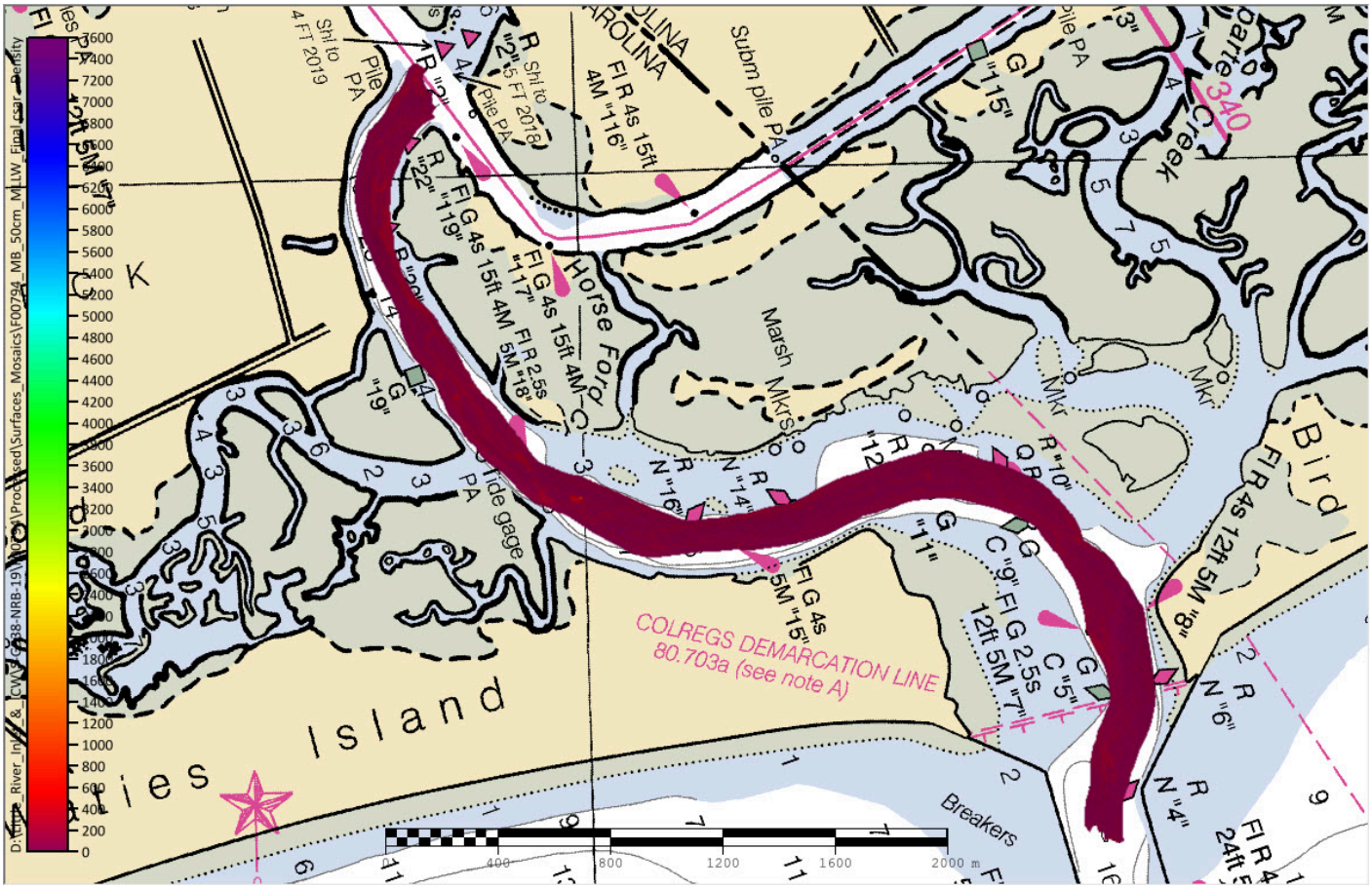



*Figure 25: F00794 Survey Density overview of bathymetry at Little River Inlet.*

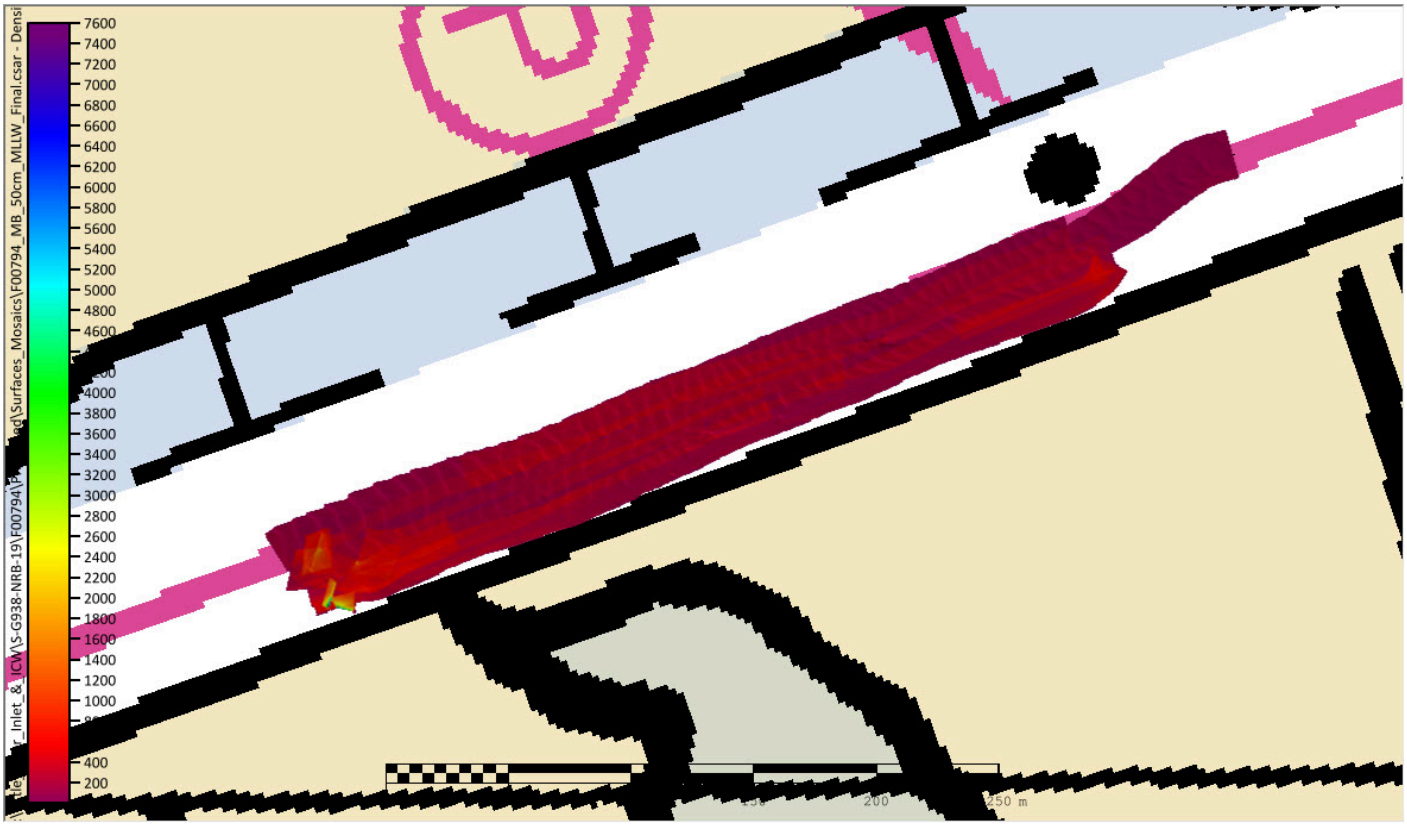



*Figure 26: F00794 Survey Density overview of bathymetry at the ICW.*

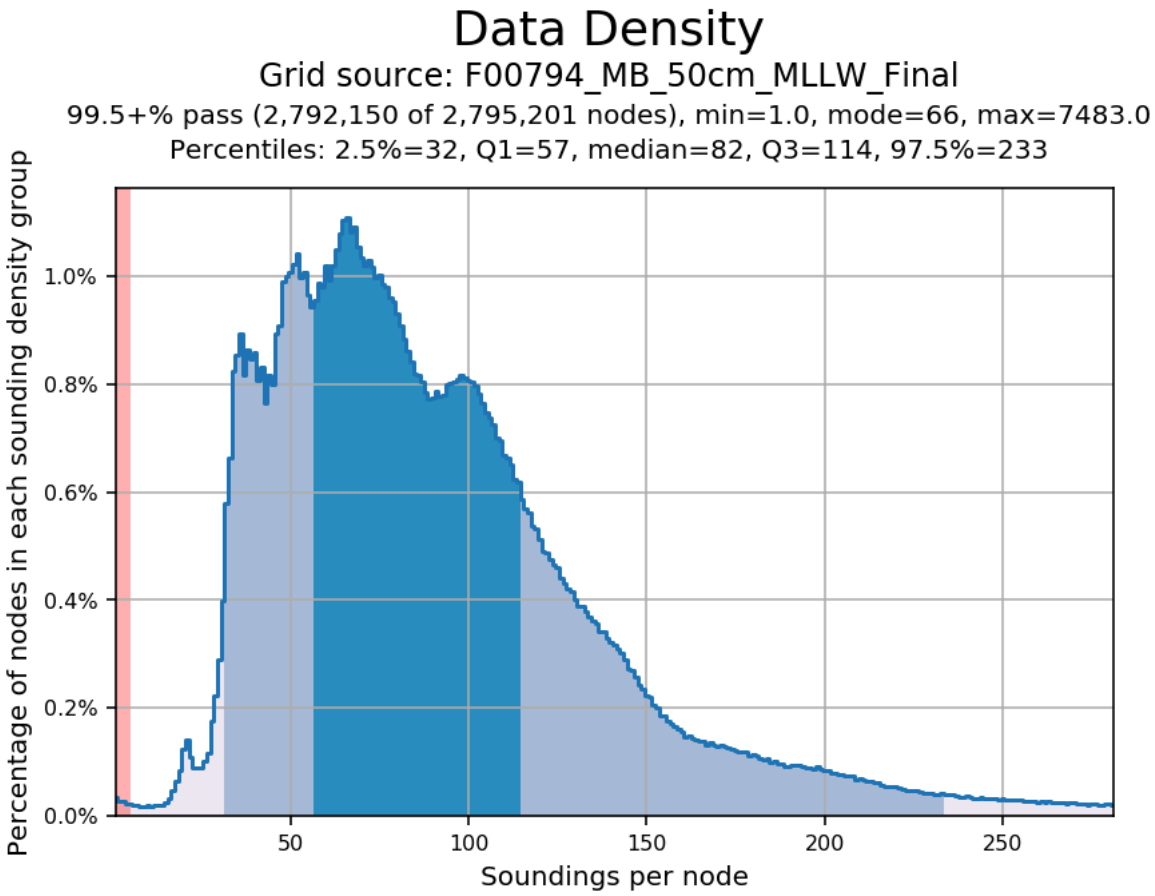



*Figure 27: F00794 Density histogram.*

### B.2.10 Total Vertical Uncertainty

The surface was analyzed using the HydroOffice QC Tools Grid QA feature and the results are shown in Figure 28 below. Total Vertical Uncertainty is determined by a ratio of uncertainty to allowable error per NOAA and IHO specification:
TVU\, QC = Uncertainty / \sqrt{A^2 + (B * Depth)^2}. Where A = 0.5, B = 0.013 for Order 1 (depths less than 100 m), and A = 1.0, B = 0.023 for Order 2 (depths greater than 100 m). TVU requirements for survey F00794 were achieved with 99% of nodes passing.

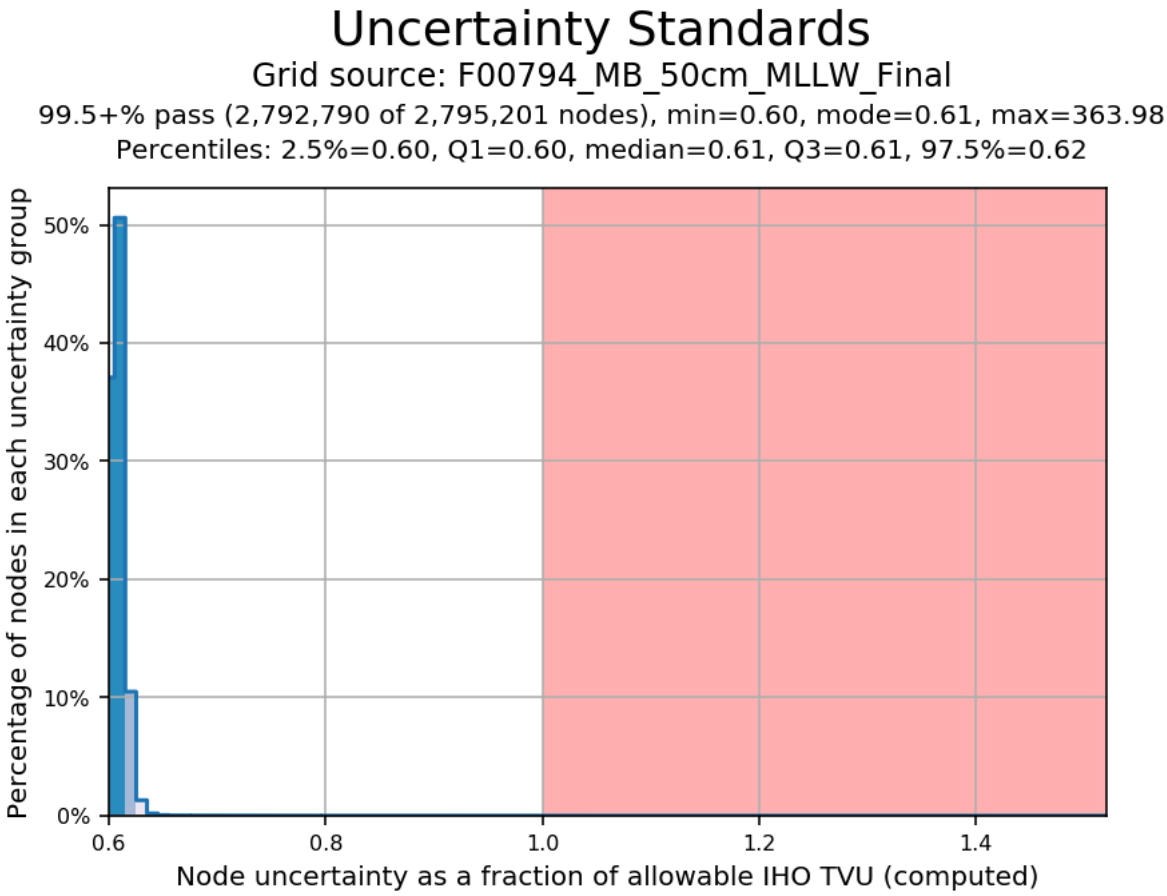



*Figure 28: F00794 TVU histogram.*

***Figure 27, above, indicates the max uncertainty is 363.98m, but editing of the surface at the processing branch brings this max uncertainty to under 1m***

## 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

Backscatter was not acquired for this survey.

## B.5 Data Processing

### B.5.1 Primary Data Processing Software

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

| Manufacturer | Name | Version |
|---|---|---|
| CARIS | HIPS and SIPS | 11.1.6 |

*Table 9: Primary bathymetric data processing software*

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

| Manufacturer | Name | Version |
|---|---|---|
| | | |

*Table 10: Primary imagery data processing software*

The following Feature Object Catalog was used: NOAA Extended Attribute 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 |
|---|---|---|---|---|---|
| F00794_MB_50cm_MLLW_Final | CARIS Raster Surface (CUBE) | 0.5 meters | 1.201 meters - 8.796 meters | NOAA_0.5m | Object Detection |

*Table 11: Submitted Surfaces*

The NOAA CUBE parameters defined in the HSSD were used for the creation of all CUBE surfaces for F00794. The surfaces have been reviewed where noisy data, or "fliers," are incorporated into the gridded solutions causing the surface to be shoaler or deeper than the true sea floor. Where these spurious

soundings cause the gridded surface to be shoaler or deeper than the reliably measured seabed by greater than the maximum allowable Total Vertical Uncertainty at that depth, the noisy data have been rejected by the hydrographer and the surface recomputed. Flier Finder, part of the QC Tools package within HydrOffice, was used to assist the search for spurious soundings following gross cleaning. Flier Finder was run iteratively until all remaining flagged fliers were deemed to be valid aspects of the steep slopes and dynamic nature of the seafloor.

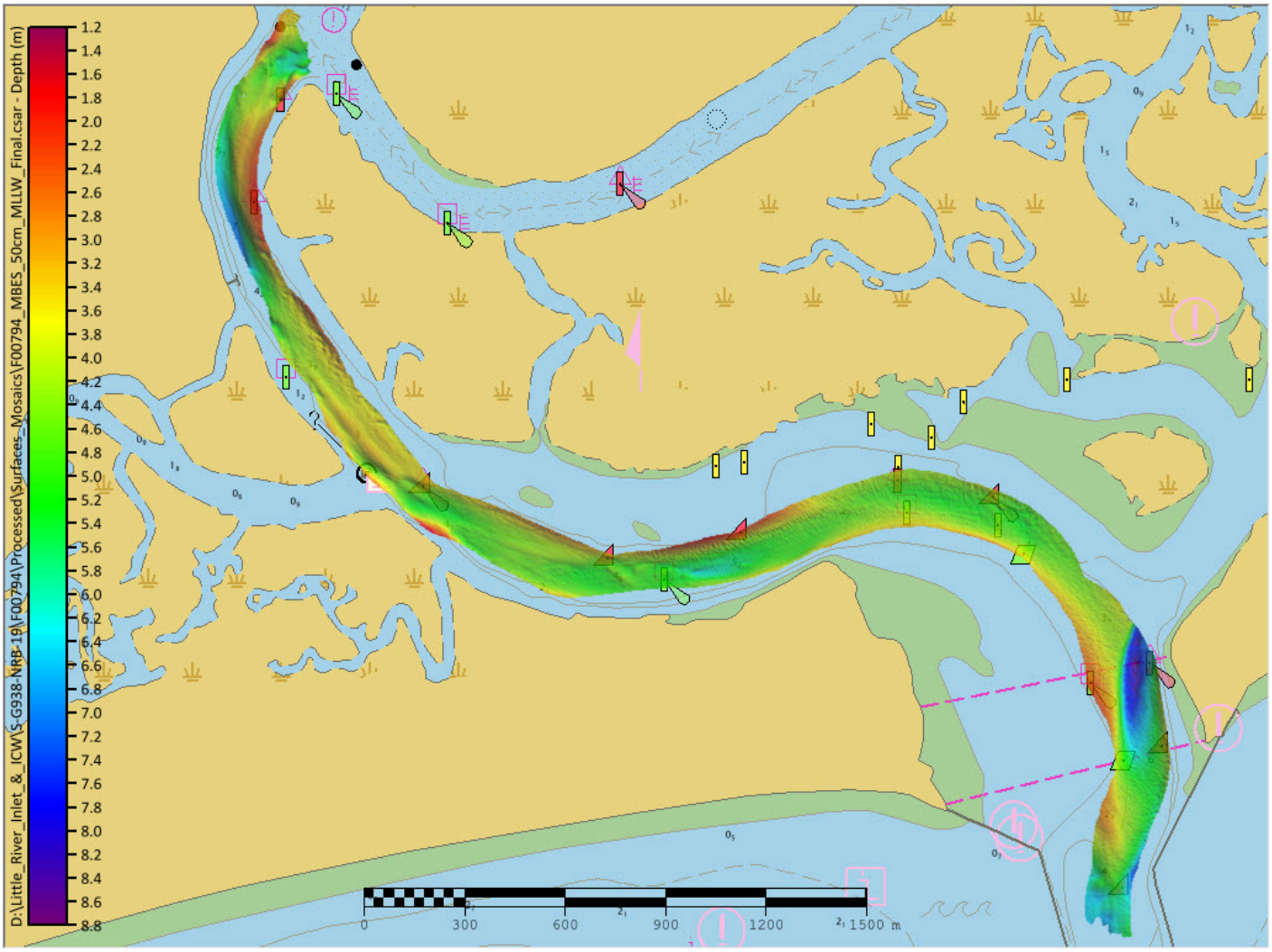



*Figure 29: Overview of CUBE surface generated with data collected at Little River Inlet overlaid on ENC US5SC34M.*

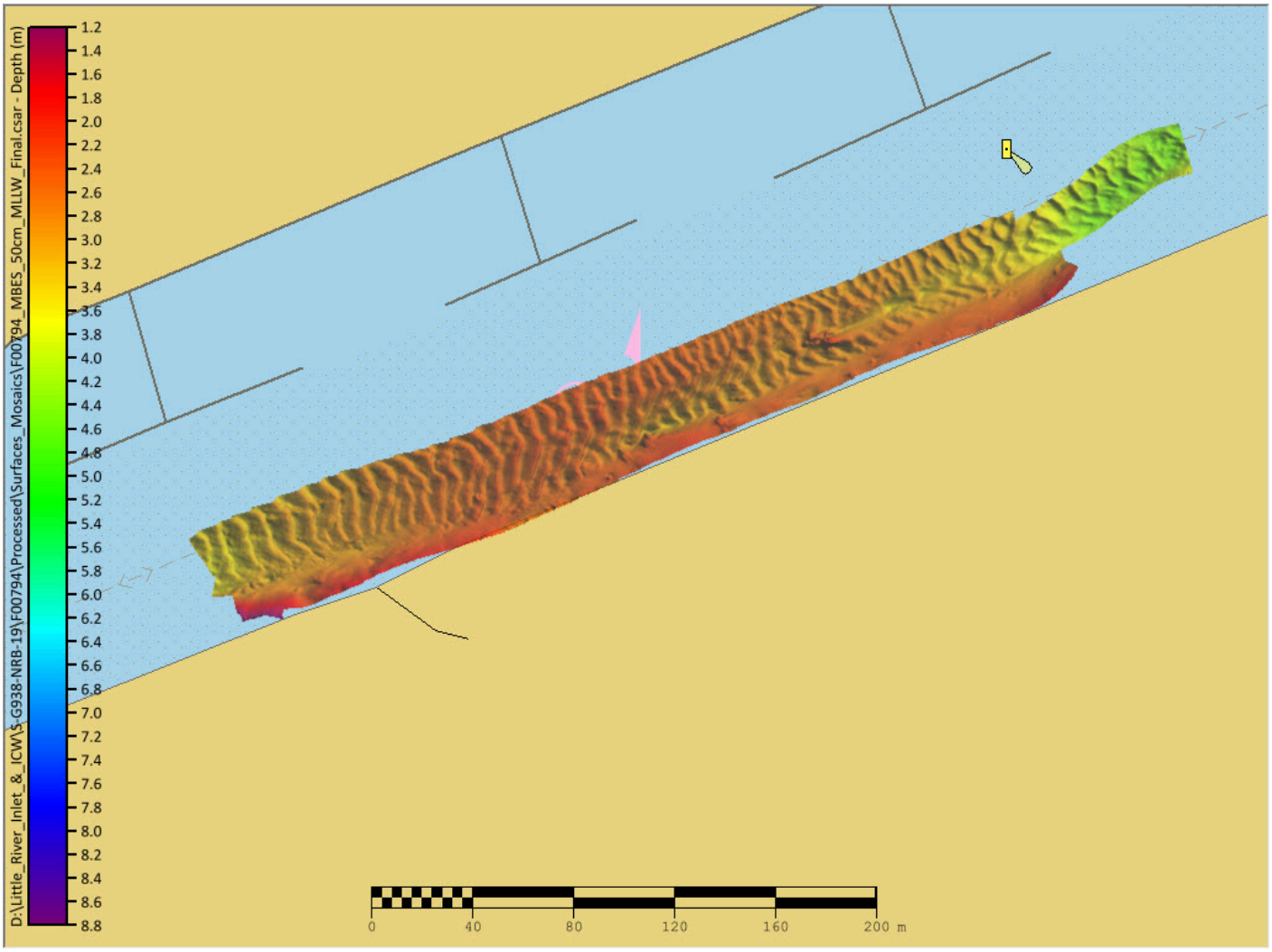



*Figure 30: Overview of CUBE surface generated with data collected at the eastern most survey area of the ICW overlaid on ENC US5SC34M.*

# C. Vertical and Horizontal Control

All vertical and horizontal control activities conducted during the course of this survey are fully addressed in the following sections. No separate HVCR is submitted.

## 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 | S-G938-NRB-19_Limits_100m_NAD83-MLLW_geoid12b |

*Table 12: ERS method and SEP file*

## 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 17.

The following PPK methods were used for horizontal control:

- Smart Base
- RTX

Precise Positioning-Real Time Extended (PP-RTX) and SmartBase processing methods were used in Applanix POSPac MMS 8.4 software to produce SBETs for post-processing horizontal correction.

DGPS

WAAS

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

# D. Results and Recommendations

## D.1 Chart Comparison

A comparison was performed between survey F00794 and ENC US5SC34M using CARIS HIPS and SIPS sounding and contour layers derived from the 0.50 meter surface. The contours and soundings were overlaid on the chart to assess differences between the surveyed soundings and charted depths. ENCs were compared to a 0.50 meter grid using the HydroOffice CA Tools by extracting all soundings from the chart and creating an interpolated TIN which then generates a comparison to the CSAR grid. The survey soundings are categorized, within the triangles of the TIN, using the vertical distance. The flags alert both for dangers to navigation (DtoNs) or chart discrepancies. All data from F00794 should supersede charted data. In general, surveyed soundings with the majority of charted depths. A full discussion of the disagreements follows below.

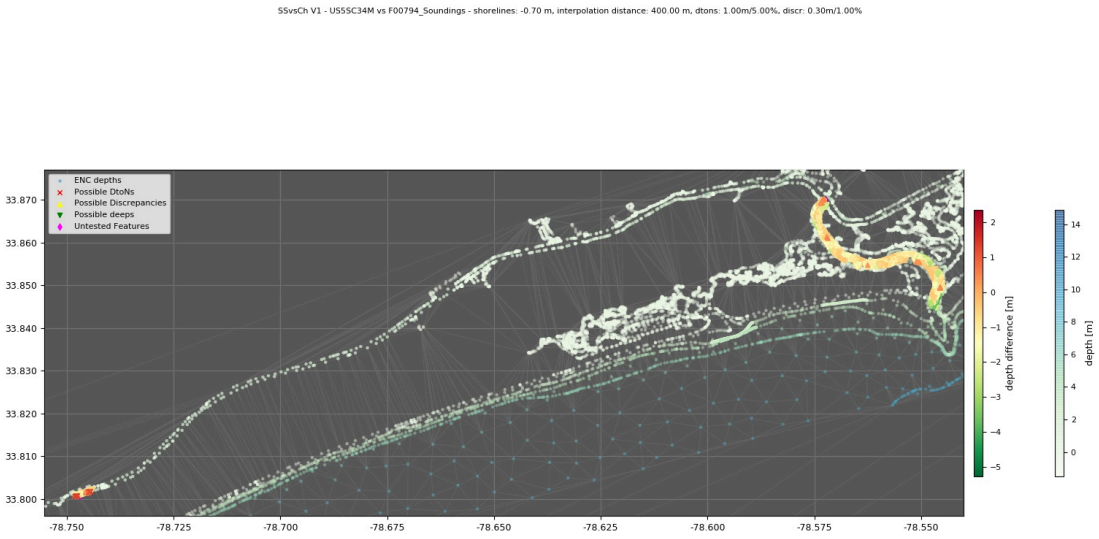



*Figure 31: Overview of CA Tools product representing areas of chart discrepancies and possible DToNs.*

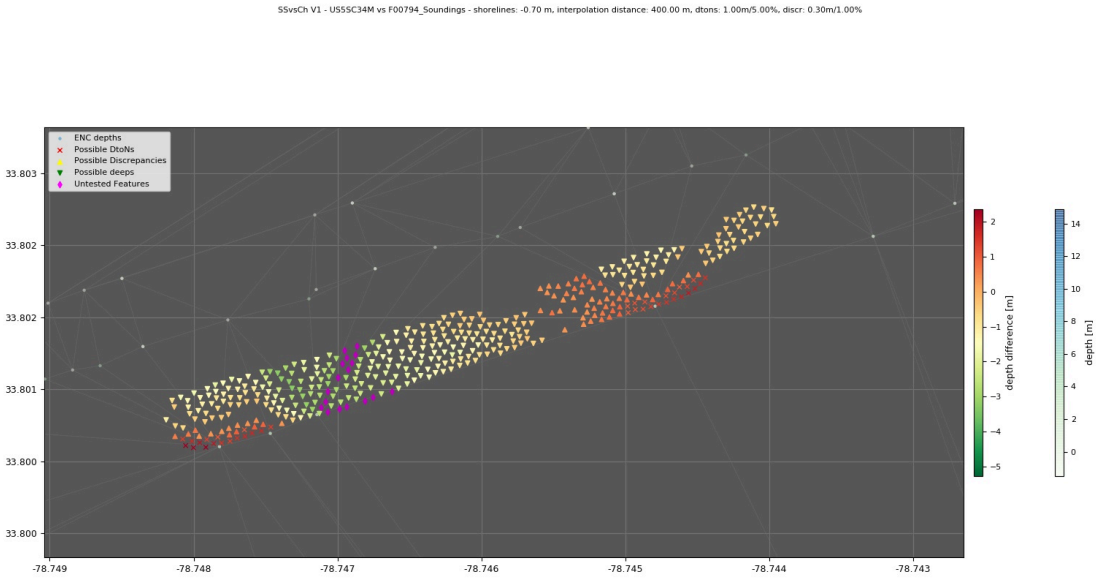



*Figure 32: Overview of ICW area with CA Tools product representation.*

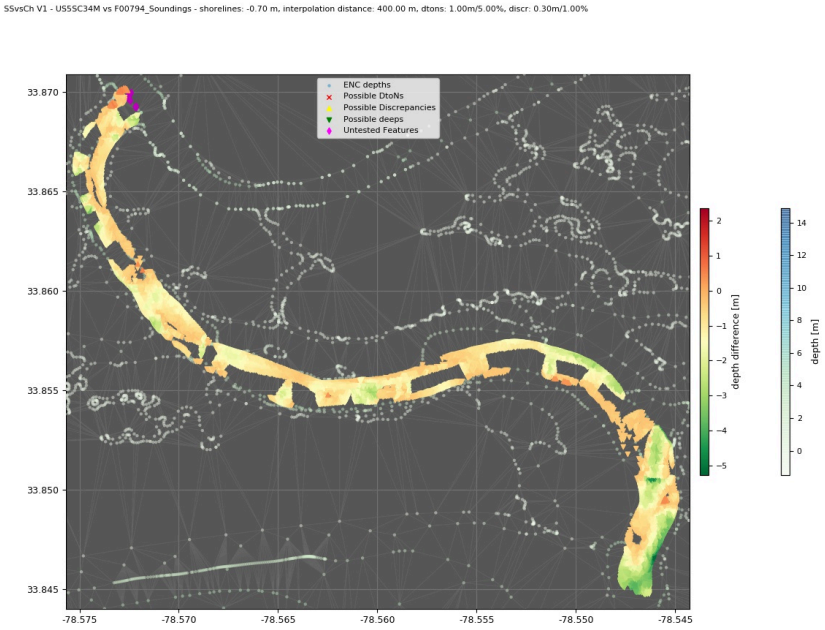



*Figure 33: Overview of LRI area with CA Tools product representation.*

### D.1.1 Electronic Navigational Charts

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

| ENC | Scale | Edition | Update Application Date | Issue Date |
|---|---|---|---|---|
| US5SC34M | 1:40000 | 36 | 12/17/2019 | 11/08/2019 |

*Table 13: Largest Scale ENCs*

### D.1.2 Shoal and Hazardous Features

It is not recommended to chart the flagged potential DToN soundings as such. These areas are not significant to navigation.

### D.1.3 Charted Features

Charted features exist for this survey, but were not investigated. Please refer to the final feature file F00794_FFF.000 for details.

### D.1.4 Uncharted Features

No uncharted features exist for this survey.

### D.1.5 Channels

Refer to section D.1.1.

## D.2 Additional Results

### D.2.1 Aids to Navigation

Please refer to the final feature file F00794_FFF.000 submitted with this survey.

### D.2.2 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

### D.2.3 Bottom Samples

No bottom samples were required for this survey.

### D.2.4 Overhead Features

No overhead features exist for this survey.

### D.2.5 Submarine Features

No submarine features exist for this survey.

### D.2.6 Platforms

No platforms exist for this survey.

### D.2.7 Ferry Routes and Terminals

No ferry routes or terminals exist for this survey.

### D.2.8 Abnormal Seafloor or Environmental Conditions

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

### D.2.9 Construction and Dredging

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

### D.2.10 New Survey Recommendations

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

### D.2.11 ENC Scale Recommendations

No new insets are recommended for this area.

# E. Approval Sheet

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

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

The survey data meets or exceeds requirements as set forth in the NOS Hydrographic Surveys 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.

| Report Name | Report Date Sent |
|---|---|
| Data Acquisition and Processing Report | 2020-01-14 |

| Approver Name | Approver Title | Approval Date | Signature |
|---|---|---|---|
| LT John Kidd | Chief of Party | 01/07/2020 |  |
| Alex Ligon | Sheet Manager | 01/07/2020 | LIGON.ALEX.C.1061008507 Digitally signed by LIGON.ALEX.C.1061008507 Date: 2020.01.16 11:21:37 -06'00' |

# 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 |