

F00783

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

DESCRIPTIVE REPORT

Type of Survey: Field Examination

Registry Number: F00783

LOCALITY

State(s): South Carolina

General Locality: Western Blake Plateau, 80 NM East of Charleston, SC

Sub-locality: Fishery Management Area 53, 34 NM SE of Charleston Harbor

2019

CHIEF OF PARTY
Julia Wallace, Physical Scientist

LIBRARY & ARCHIVES

Date:

HYDROGRAPHIC TITLE SHEET

F00783

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: **Western Blake Plateau, 80 NM East of Charleston, SC**

Sub-Locality: **Fishery Managment Area 53, 34 NM SE of Charleston Harbor**

Scale: **200000**

Dates of Survey: **08/12/2019 to 08/13/2019**

Instructions Dated: **08/02/2019**

Project Number: **S-G959-NF-19**

Field Unit: **NOAA Ship Nancy Foster (R352)**

Chief of Party: **Julia Wallace, Physical Scientist**

Soundings by: **Kongsberg Maritime EM 2040 (MBES)**

Imagery by: **Kongsberg Maritime EM 2040 (MBES 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 17N, MLLW. All references to other horizontal or vertical datums in this report are applicable to the processed hydrographic data provided by the field unit.

DESCRIPTIVE REPORT SUMMARY

A. Area Surveyed

F00783 covers 2.5 square nautical miles and is located approximately 19NM southeast of the Charleston Harbor Entrance Channel. This hydrographic survey was acquired in accordance with the requirements defined in the Project Instructions S-G959-NF-19.

Survey coverage was assigned in the Project Instructions (PI) as Complete Coverage. Survey coverage was in accordance with the requirements listed in the PI and in the Hydrographic Surveys Specifications and Deliverables (HSSD) 2019.

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
32° 22' 44.94" N 79° 22' 19.18" W	32° 20' 59.75" N 79° 20' 27.16" W

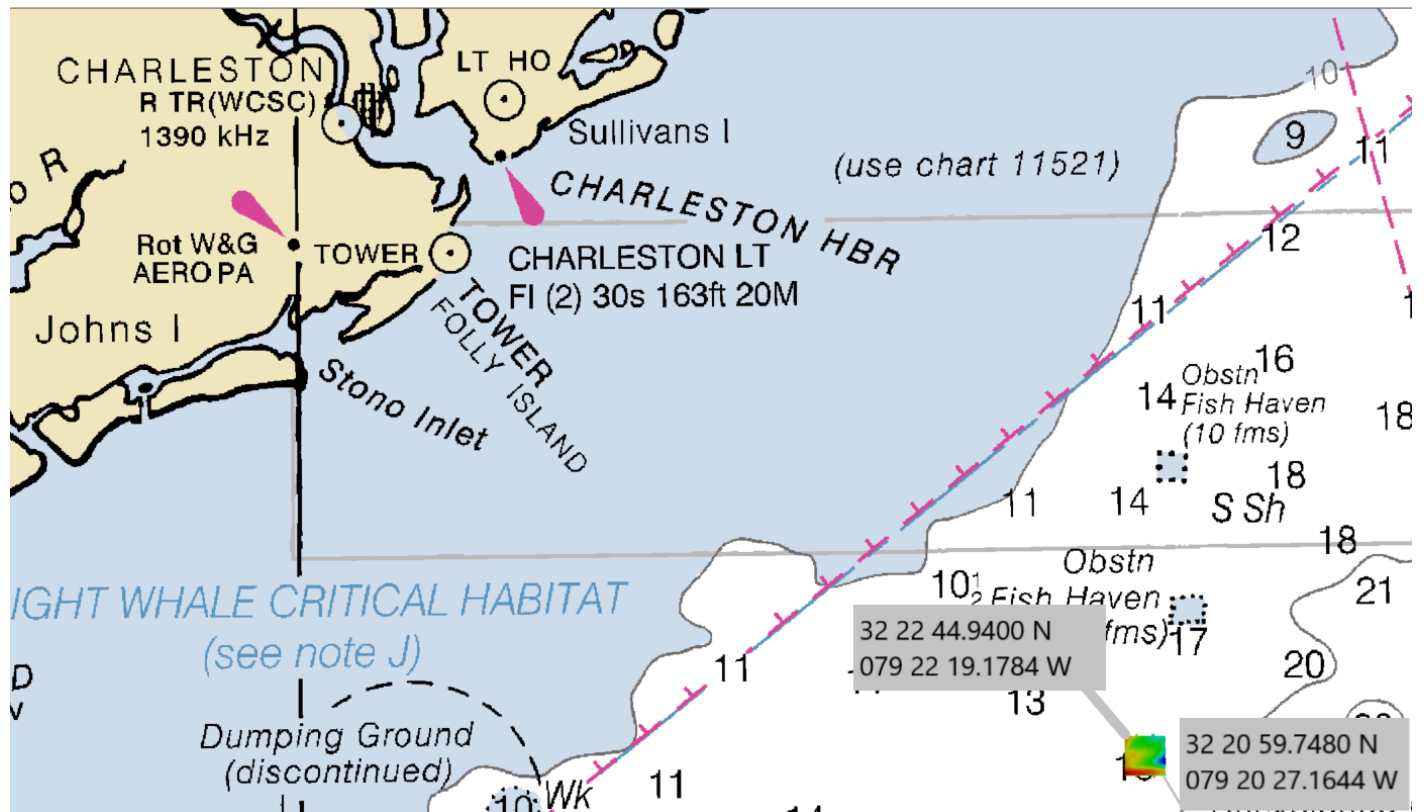


Figure 1: Figure 1. Survey Extents of F00783 showing the most NE and SW points of the survey.

B. Survey Purpose

This survey of opportunity answers a request from the National Center for Coastal Ocean Science for seafloor habitat mapping data for a new fishery management area referred to as Area 53. This field examination survey was acquired during a transit to the working grounds of the navigable area surveys H13307 - H13310 of project S-G959-NF-19.

C. Intended Use of Survey

The entire survey is adequate to supersede previous data.

Survey Statistics:

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

R352 - NOAAS	Nancy Foster	Total
LNM	MBES Mainscheme	40.98
	MBES Crosslines	3.39
SNM	Total Coverage	2.47

Figure 2:

D. Data Acquisition and Processing

Please reference Data Acquisition and Processing Report S-G959-NF-19_DAPR for a complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods. Multibeam echosounder (MBES) bathymetry data, multibeam acoustic backscatter (MBAB) data, and multibeam watercolumn data were acquired per the project instructions. Both the MBES and MBAB

data were processed and products were made using these data using methods described in the DAPR report. The watercolumn data were not processed and will be submitted in a raw format with this survey.

E. Uncertainty

The following survey specific parameters were used for this survey:

Survey Specific Tide TPU Values:

Measured - No Measure

Zoning - 0.100m

Survey Specific Sound Speed TPU Values:

SV Measured - 4.0 m/s

SV Surface - 1.0 m/s

For surface F00783_MB_2m_MLLW_Final, more than 99.5% of all nodes were within the acceptable IHO Order 1 uncertainty standards (Figure 2). Additionally, more than 99.5% of all nodes passed data density standards for complete coverage surveys per section 5.2.2.2 of the 2019 HSSD. (Figure 3).

Crosslines -

Crosslines acquired for this survey totaled 8% of mainscheme acquisition. (Figure 4)

In order to evaluate crossline agreement, two 2-meter surfaces were created: one from crossline soundings, the other from mainscheme soundings. These two surfaces were differenced using Caris HIPS and SIPS 10.4. The 200,000 nodes have a difference value range of -0.3 meters and 0.3 meters. The statistical analysis of the differences between the mainscheme and crossline surfaces is shown below. The average difference between the surfaces is 0.0 meters with a standard deviation of 0.06 meters (Figure 5).

Factors Affecting Soundings -

A systematic artifact is present on all survey lines. It is believed to be related to the sound velocity profiles applied to the data, however the exact source of the offset could not be identified. The magnitude of these offsets does not exceed 25cm at any point in the surface, which is below the allowable TVU (0.634m) at this depth for IHO Order 1 (Figure 6).

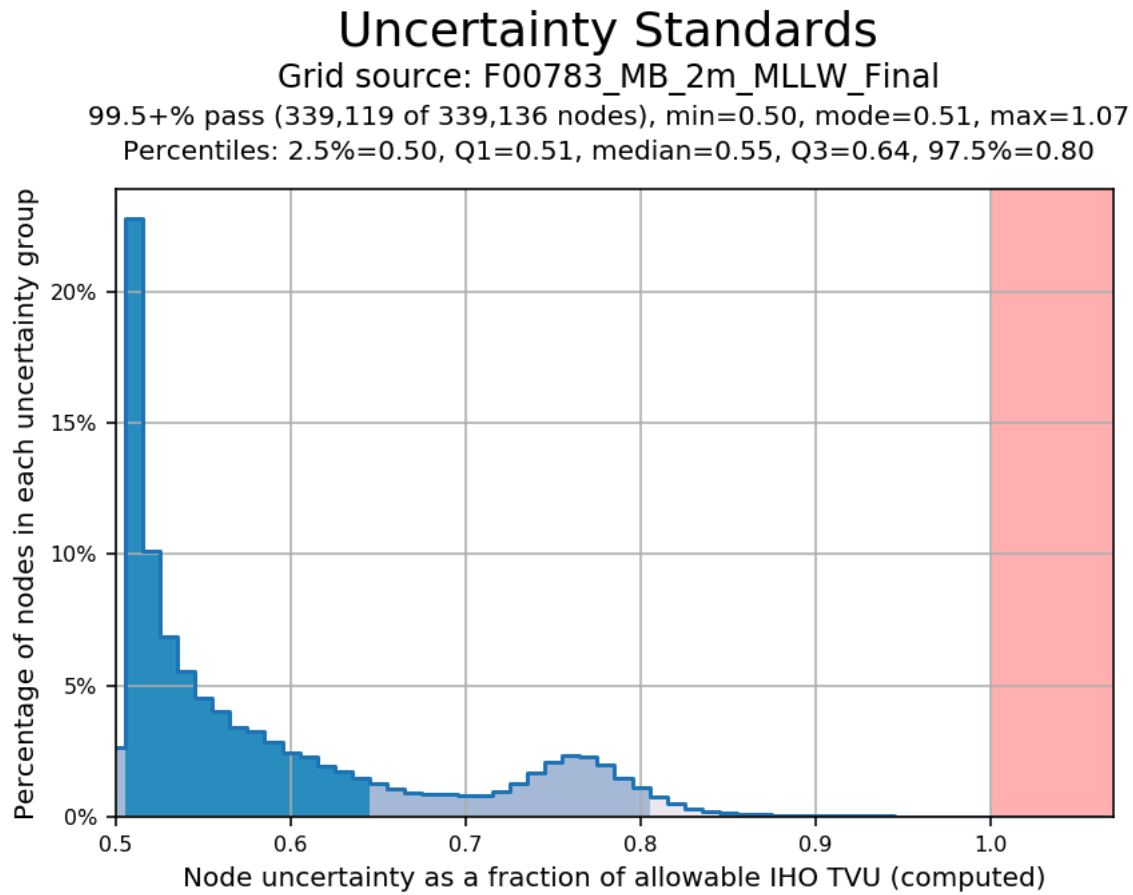


Figure 3: Figure 2. F00783 IHO Order 1 Undertainty Standards from QC Tools v3.0.13

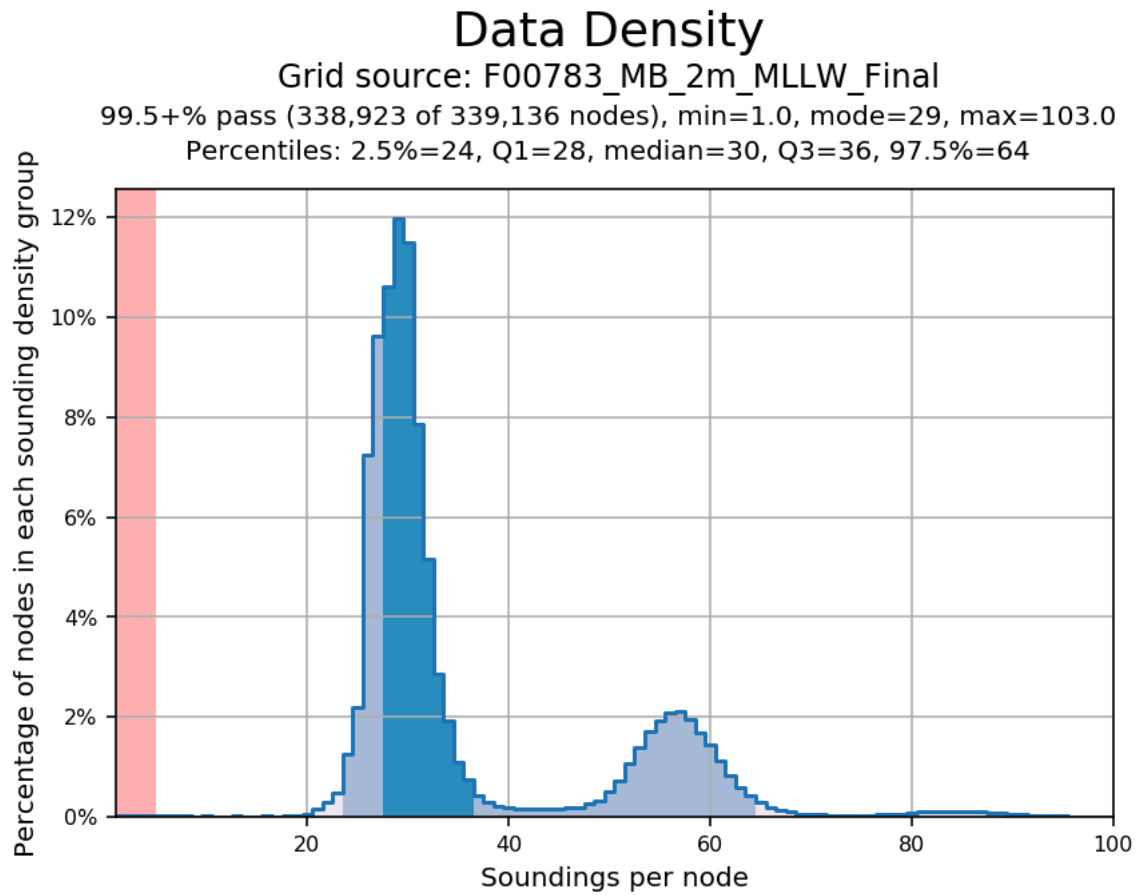


Figure 4: Figure 3. F00783 Complete Coverage Density Statistics from QC Tools v.3.0.13

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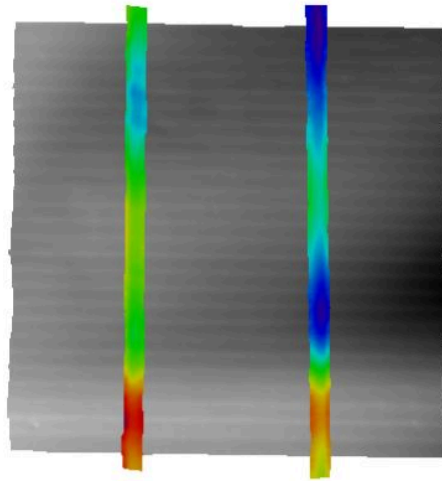


Figure 5: Figure 4. F00783 MBES crossline data overlaid on maincheme data, shown in grey.

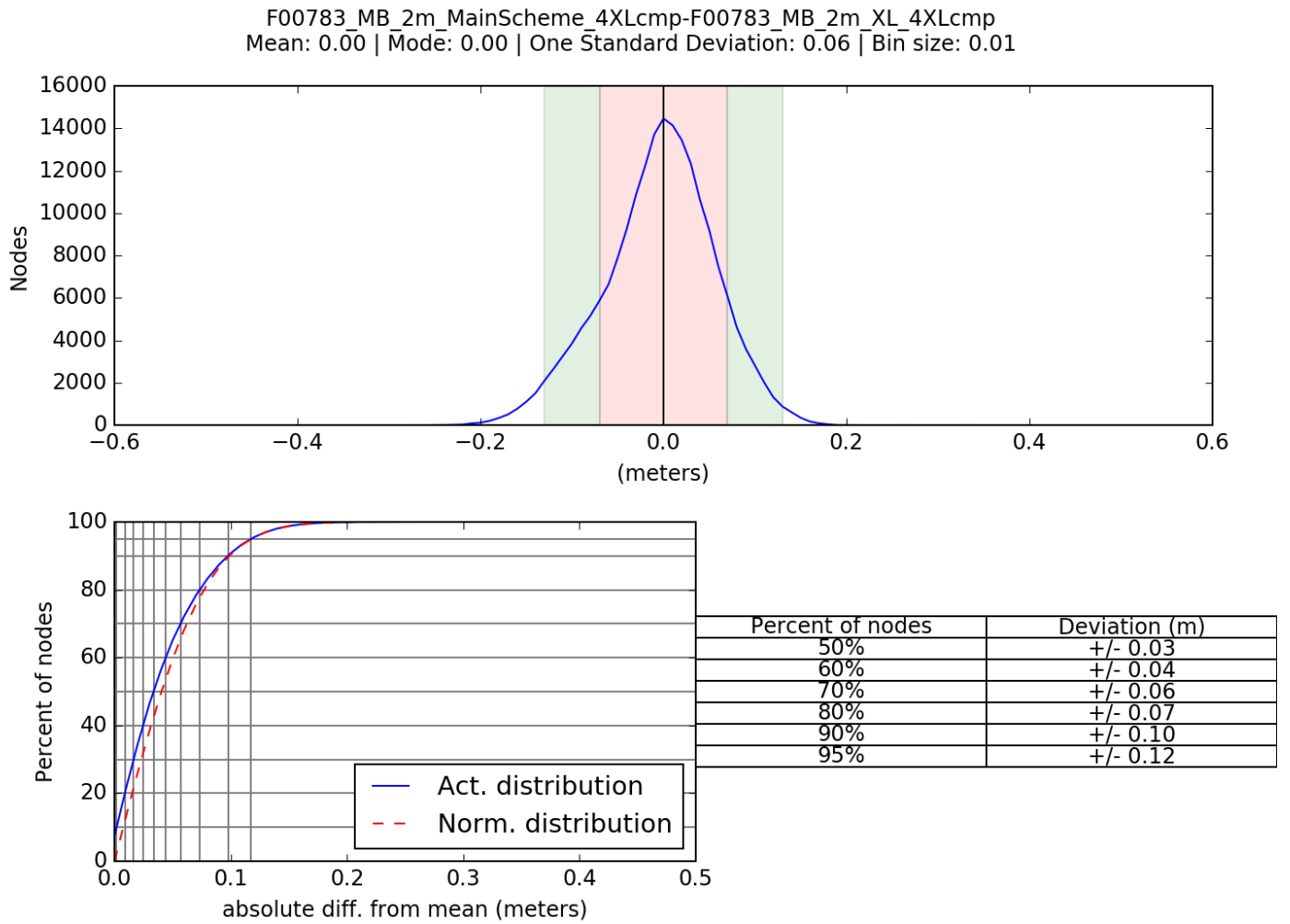


Figure 6: Figure 5. F00783 crossline difference statistics: mainscheme minus crosslines.

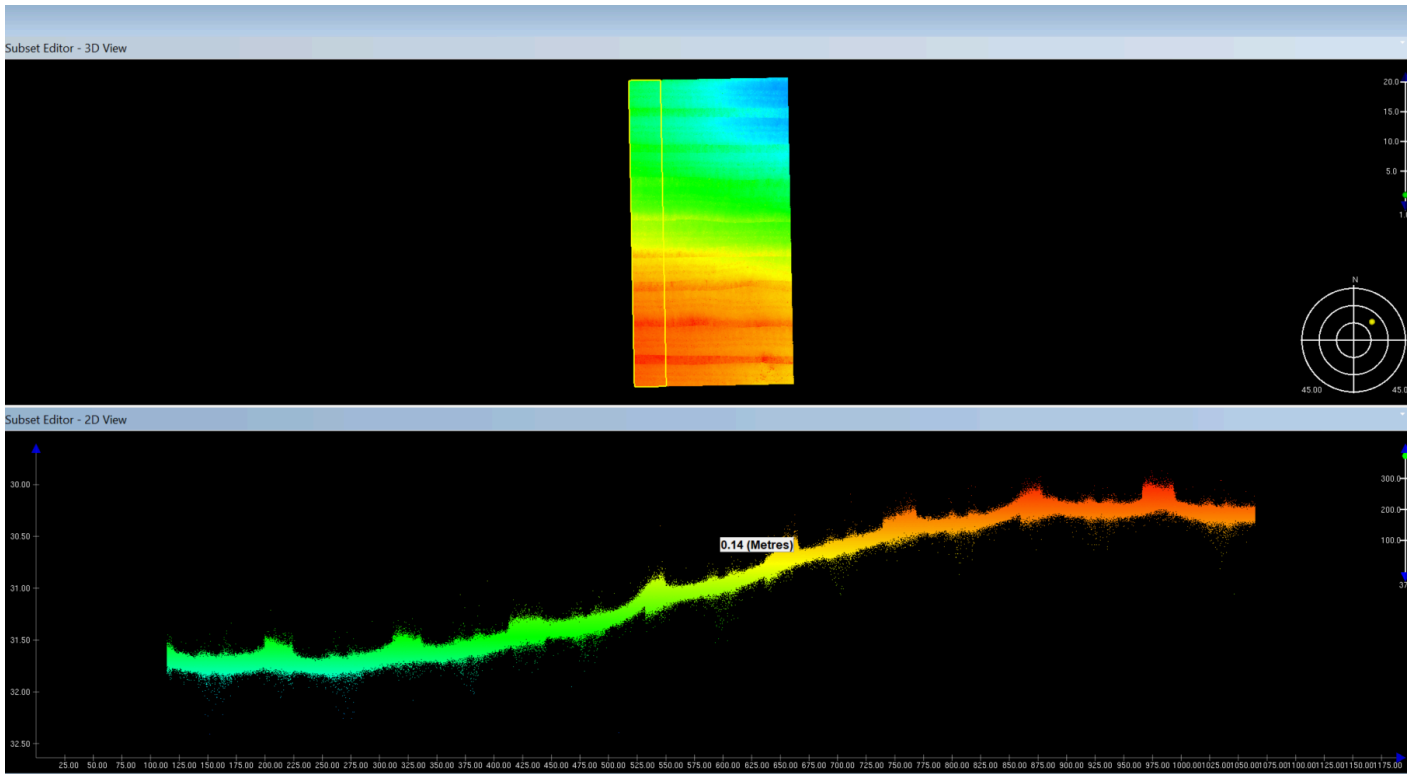


Figure 7: Figure 6a. A subset of data from the southwest corner of the survey area depicting the offset.

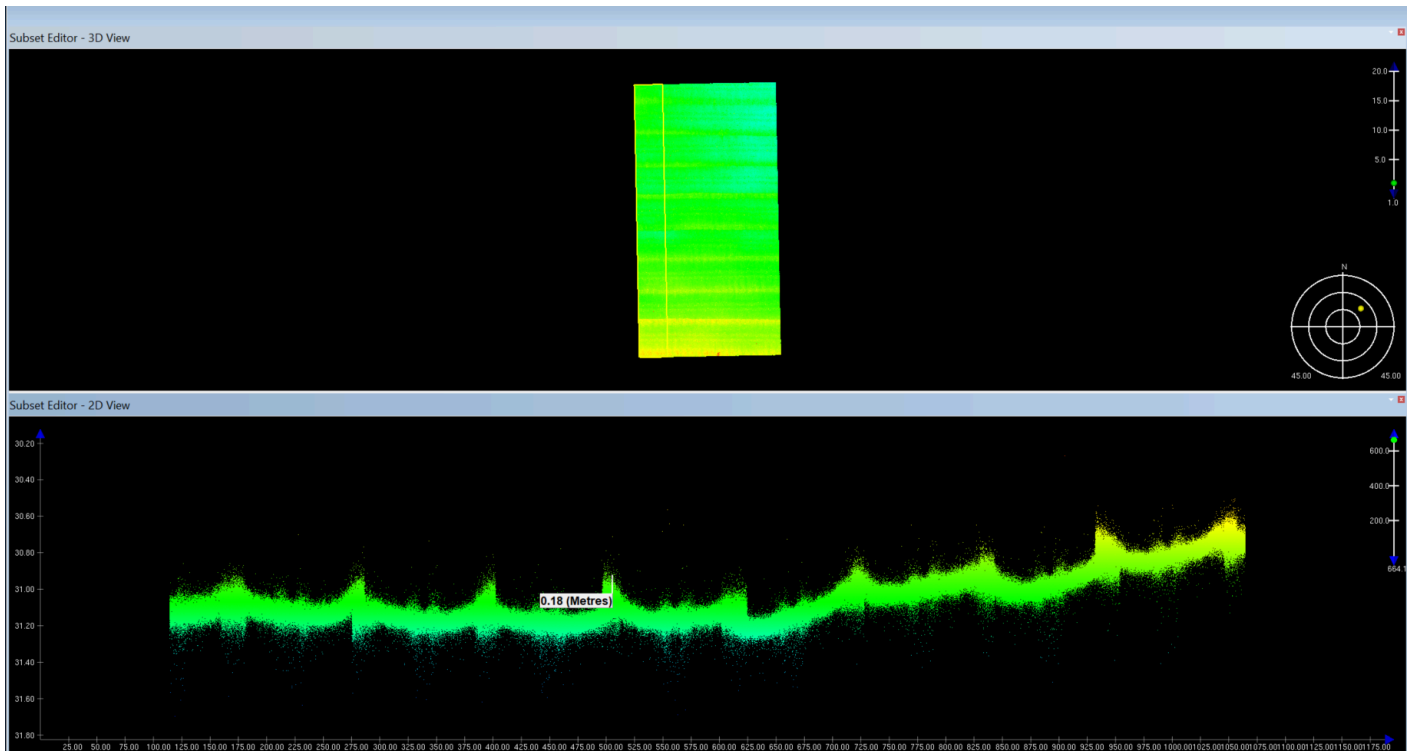


Figure 8: Figure 6b. A subset of data from the northern center of the survey area depicting the offset.

F. Results and Recommendations

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

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US3GA10M	1:449659	39	03/28/2019	08/02/2019	NO

The following surfaces and/or BAGs were submitted to the Processing Branch:

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
F00783_MB_2m_MLLW	CARIS Raster Surface (CUBE)	2 m	29.4 m - 32.5 m	NOAA_2m	Complete MBES
F00783_MB_2m_MLLW_Final	CARIS Raster Surface (CUBE)	2 m	29.4 m - 32.5 m	NOAA_2m	Complete MBES
F00783_MBAB_2m_R352_300kHz_1of1	MB Backscatter Mosaic	2 m	N/A	N/A	Multibeam Acoustic Backscatter

A chart comparison was conducted between survey F00783 and previously charted ENC soundings. It was noted that this region has not been surveyed since the 1970s. Surveyed soundings are in parity with charted soundings, comparing within 0.5m. This region, referred to as Area 53, is of special interest to fisheries management and may be designated as a new fisheries management area in the future.

The surfaces delivered meet IHO Order 1 specifications for total vertical uncertainty and comply with the density requirements in the 2019 HSSD.

G. Vertical and Horizontal Control

The vertical datum for this project is Mean Lower Low Water. The vertical control method used was VDatum.

Ellipsoid to Chart Datum Separation File:
S-G959-NF-19_F00783_NAD83_Vdatum_MLLW

All soundings submitted are reduced to MLLW using VDatum techniques detailed in the DAPR.

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.

H. Additional Results


There are no additional results for this survey.

I. Approval

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

Approver Name	Title	Date	Signature
Julia Wallace	Physical Scientist, Chief of Party	08/03/2019	WALLACE.JULIA.JUNE JACKSON.1541025495  Digitally signed by WALLACE.JULIA.JUNE JACKSON.1541025495 Date: 2019.08.29 20:02:41 -04'00'