W00714

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

DESCRIPTIVE REPORT

Type of Survey:	Basic Hydrographic Survey
Registry Number:	W00714

LOCALITY

State(s):	South Carolina
General Locality:	Offshore of Charleston, South Carolina
Sub-locality:	20NM SE of Frying Pan Shoals

2023

CHIEF OF PARTY
Julia Wallace

LIBRARY & ARCHIVES

Date:

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

REGISTRY NUMBER:

HYDROGRAPHIC TITLE SHEET

W00714

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:	**Offshore of Charleston, South Carolina**
Sub-Locality:	**20NM SE of Frying Pan Shoals**
Scale:	**40000**
Dates of Survey:	**07/13/2023 to 07/16/2023**
Instructions Dated:	**05/08/2023**
Project Number:	**OPR-G301-NF-23**
Field Unit:	**NOAA Ship *Nancy Foster***
Chief of Party:	**Julia Wallace**
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 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.

DESCRIPTIVE REPORT SUMMARY

A. Area Surveyed

This hydrographic survey was acquired in accordance with the requirements defined in the Project Instructions OPR-G301-NF-23. Survey W00714 is 20 NM SE of Frying Pan Shoals and covers approximately 100 square nautical miles.

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
33° 10' 35.18" N 78° 17' 49.22" W	32° 46' 5.31" N 77° 21' 56.52" W

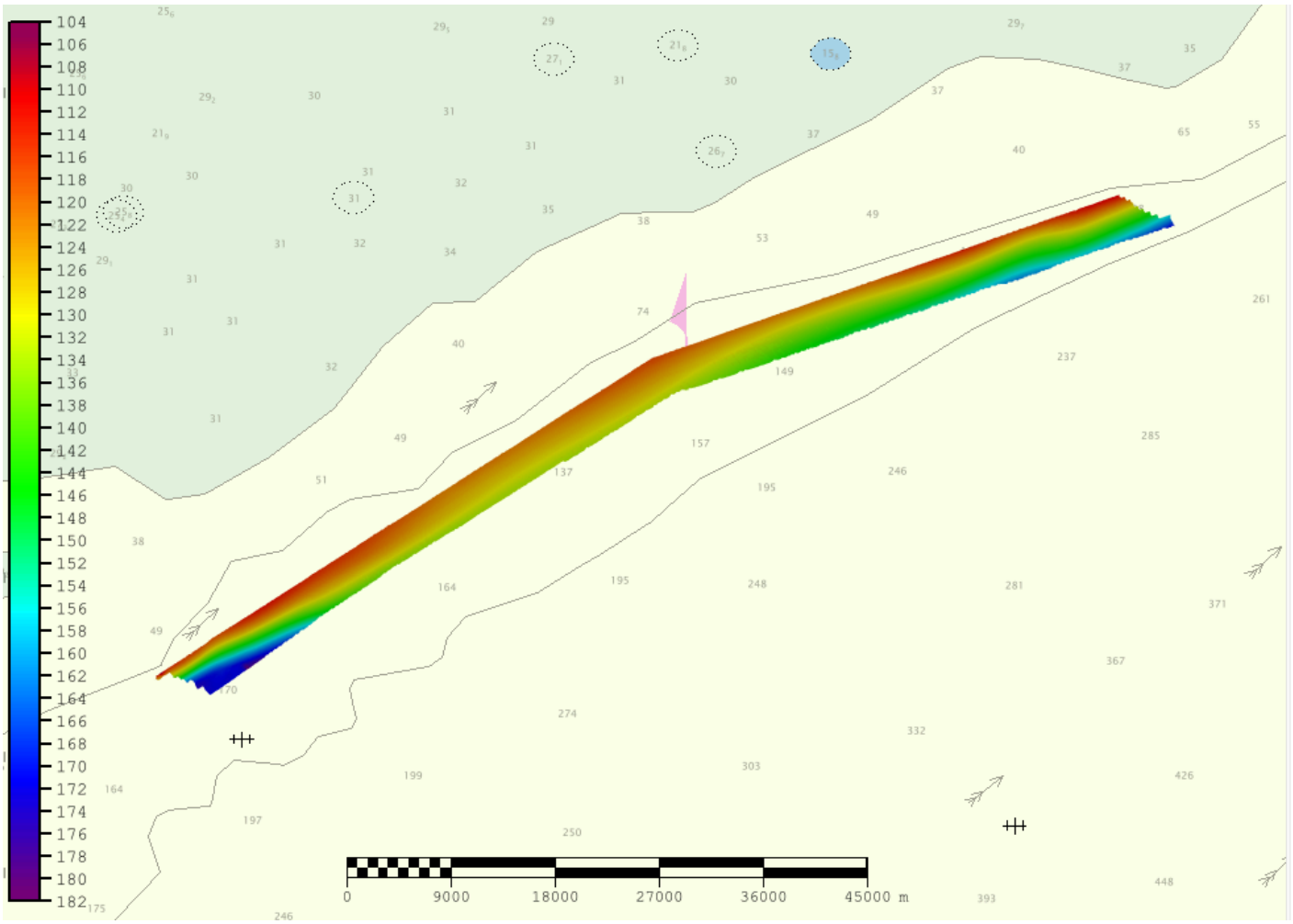

Figure 1: Survey coverage achieved for W00714 (ENC US2EC02M).

B. Survey Purpose

This project was being conducted by NOAA's Office of Coast Survey (OCS) in collaboration with academic partners to map several large priority areas offshore of South Carolina on the Blake Plateau. The objective of this survey is to collect multibeam bathymetry, acoustic backscatter, and water column data which will be used to update NOAA's nautical charting products. This survey also addresses NOAA's requirements to provide continuous multibeam coverage within the US EEZ. Survey data from this project is intended to supersede all prior survey data for this area.

C. Intended Use of Survey

The entire survey is adequate to supersede previous data.

Data acquired in W00714 meet HSSD 2023 for multibeam echo sounder (MBES) coverage requirements for complete coverage, as specified by the 2023 HSSD.

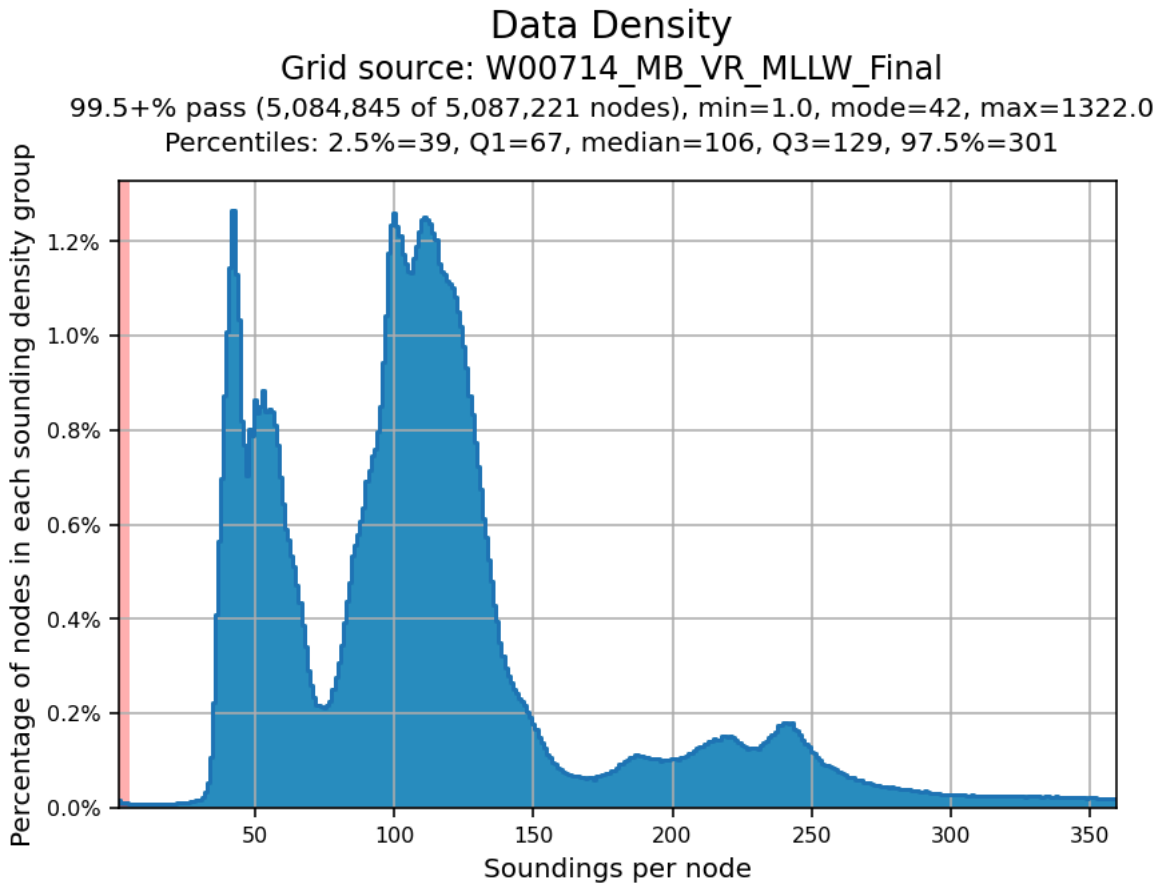

Figure 2: Pydro-derived plot showing HSSD density compliance of W00714 finalized complete coverage variable-resolution MBES data.

D. Data Acquisition and Processing

Please reference Data Acquisition and Processing Report OPR-G301-NF-23_DAPR for a complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods.

Raw backscatter data were acquired as .KMALL files logged during MBES operations. The raw files were paired with the processed HDCS lines in Fledermaus Geocoder Toolbox (FMGT) 7.10.1 and produced one backscatter mosaics that has been delivered with this report.

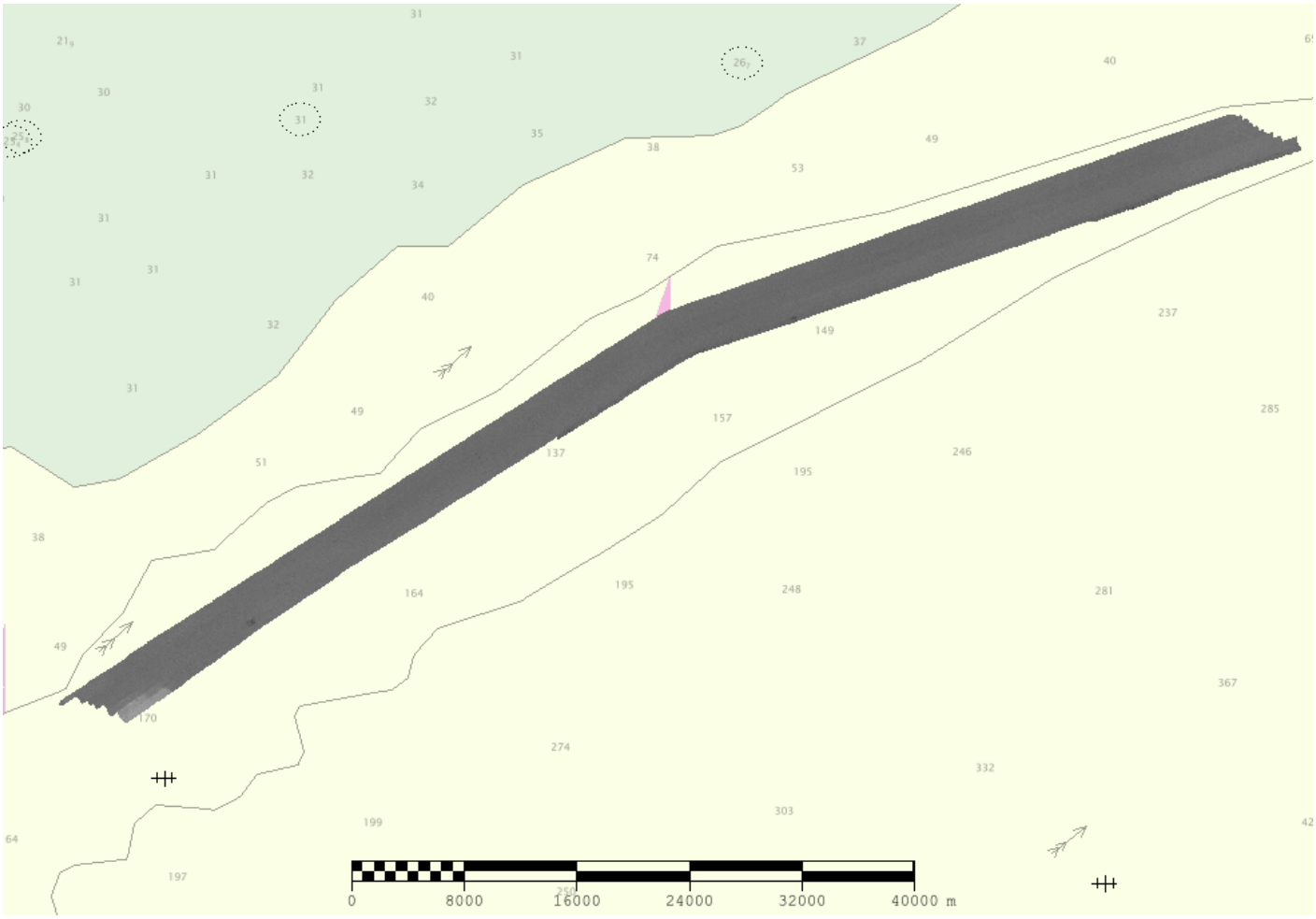

Figure 3: Overview of W00714 backscatter mosaic (US2EC02M).

E. Uncertainty

The bathymetric grid for W00714 complies with uncertainty standards described in the 2023 HSSD. Total Propagated Uncertainty (TPU) values for survey W00714 were derived from a combination of fixed values for equipment and vessel characteristics and field assigned values for sound speed uncertainty. An uncertainty of 0.145 meters was provided with the Vertical Datum file (VDATUM) for this project. some real-time and post-processed uncertainty sources were also incorporated into the depth estimates of this survey. Real-time uncertainties from Kongsberg MBES sonars were recorded and applied in post-processing. See the 2023 DAPR for additional information. MarineStar positioning files, which record estimates associated with vessel position, were applied in CARIS HIPS using SBET and RMS files generated using POSPac MMS software.

QC Tools Grid QA determined that 99.5% of nodes pass uncertainty (Figure 4).

No crosslines were acquired for this survey.

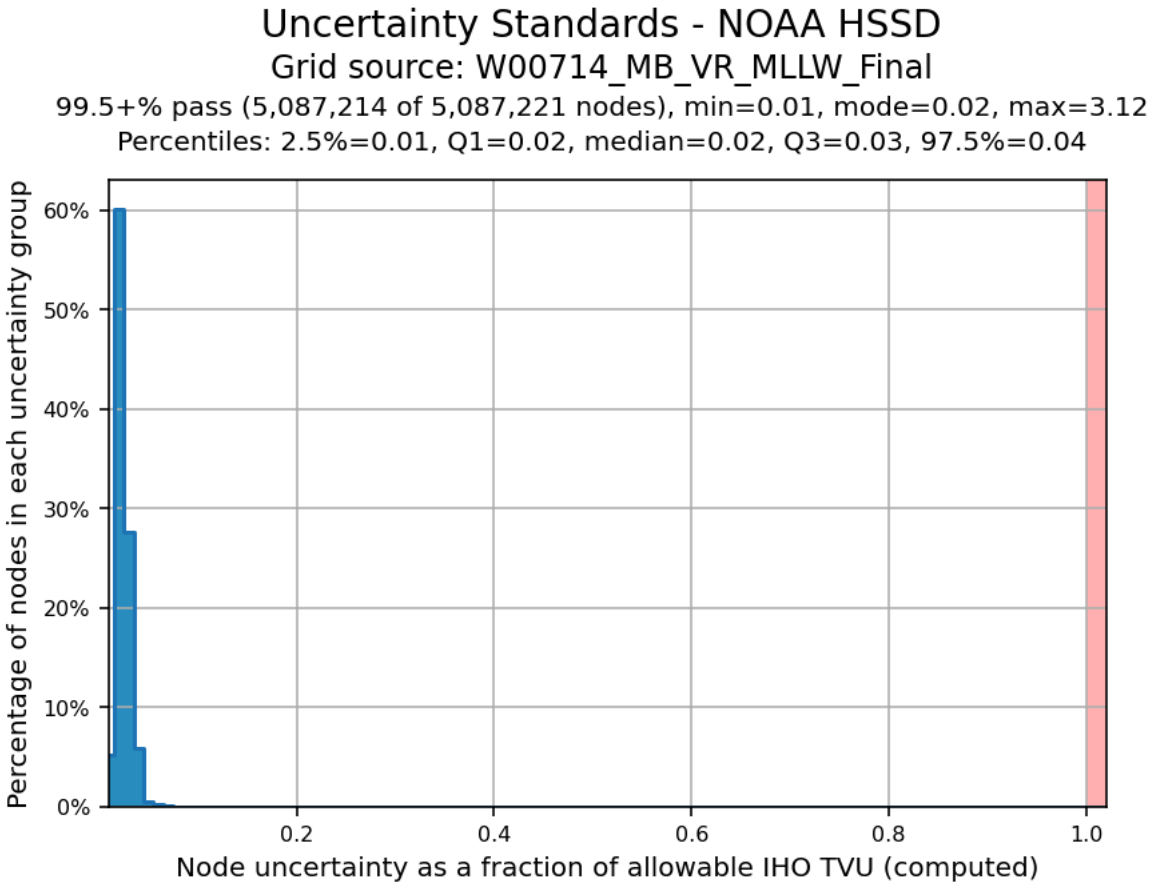

Figure 4: Pydro-derived plot showing TVU compliance of W00714 complete coverage finalized variable-resolution MBES data.

F. Results and Recommendations

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

ENC	Scale	Edition	Update Application Date	Issue Date
US2EC02M	1:1200000	43	08/04/2023	08/04/2023

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

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
W00714 _MB_VR_MLLW	CARIS Raster Surface (CUBE)	Variable Resolution m	105.1 m - 184.1 m	NOAA_VR	Complete MBES
W00714_MB_VR_MLLW_Final	CARIS Raster Surface (CUBE)	Variable Resolution m	105.1 m - 181.4 m	NOAA_VR	Complete MBES
W00714_MBAB_6m_R352_100kHz_1of1	MB Backscatter Mosaic	6 m	N/A	N/A	Complete MBES

All depths in W00714 fall within charted contours. There are no features associated with this survey.

G. Vertical and Horizontal Control

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

The following ellipsoid-to-chart vertical datum transformation was used: VDatum Coverage_Projected2_100m_NAD83_2011-MLLW_geoid18.csar

Refer to the DAPR for a complete description of vertical control procedures.

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.

Marinestar Precise Point Positioning was used for real-time horizontal control during data acquisition.

Marinestar processing methods were used in Applanix POSPac MMS 8.4 software to produce a smoothed best-estimate of trajectory (SBET) for post-processed horizontal and vertical corrections.

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	Chief of Party	07/03/2024	WALLACE.JULIA.JJ.1541025495 Digitally signed by WALLACE.JULIA.JJ.1541025495 Date: 2024.07.16 11:22:46 -04'00'
Amanda Finn	Physical Scientist	07/03/2024	FINN.AMANDA.MARIA.1540474253 Digitally signed by FINN.AMANDA.MARIA.1540474253 Date: 2024.07.16 11:34:07 -04'00'