

H13629

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

DESCRIPTIVE REPORT

Type of Survey: Basic Hydrographic Survey

Registry Number: H13629

LOCALITY

State(s): Alabama
Louisiana
Mississippi

General Locality: Northern Gulf of Mexico

Sub-locality: 24 NM South of Mobile Point

2022

CHIEF OF PARTY
CDR Michael O. Gonsalves

LIBRARY & ARCHIVES

Date:

HYDROGRAPHIC TITLE SHEET

H13629

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): **Alabama Louisiana Mississippi**

General Locality: **Northern Gulf of Mexico**

Sub-Locality: **24 NM South of Mobile Point**

Scale: **40000**

Dates of Survey: **06/03/2022 to 06/16/2022**

Instructions Dated: **03/30/2022**

Project Number: **OPR-J350-FH-22**

Field Unit: **NOAA Ship *Ferdinand R. Hassler***

Chief of Party: **CDR Michael O. Gonsalves**

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 16N, 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

The survey area is located 24 NM South of Mobile Point, Alabama. This hydrographic survey was acquired in accordance with the requirements defined in the Project Instruction OPR-J350-FH-22. A total of 366.84 linear nautical miles of multibeam echosounder data with concurrent backscatter data comprise the mainscheme coverage of H13629. See Figure 1 for an overview of the sheet limits.

Three crosslines, totaling 13.28 linear nautical miles, were acquired within the survey boundary of H13629 to ensure quality control.

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
29° 54' 13.31" N 87° 52' 20.45" W	29° 44' 33.32" N 87° 41' 36.46" W

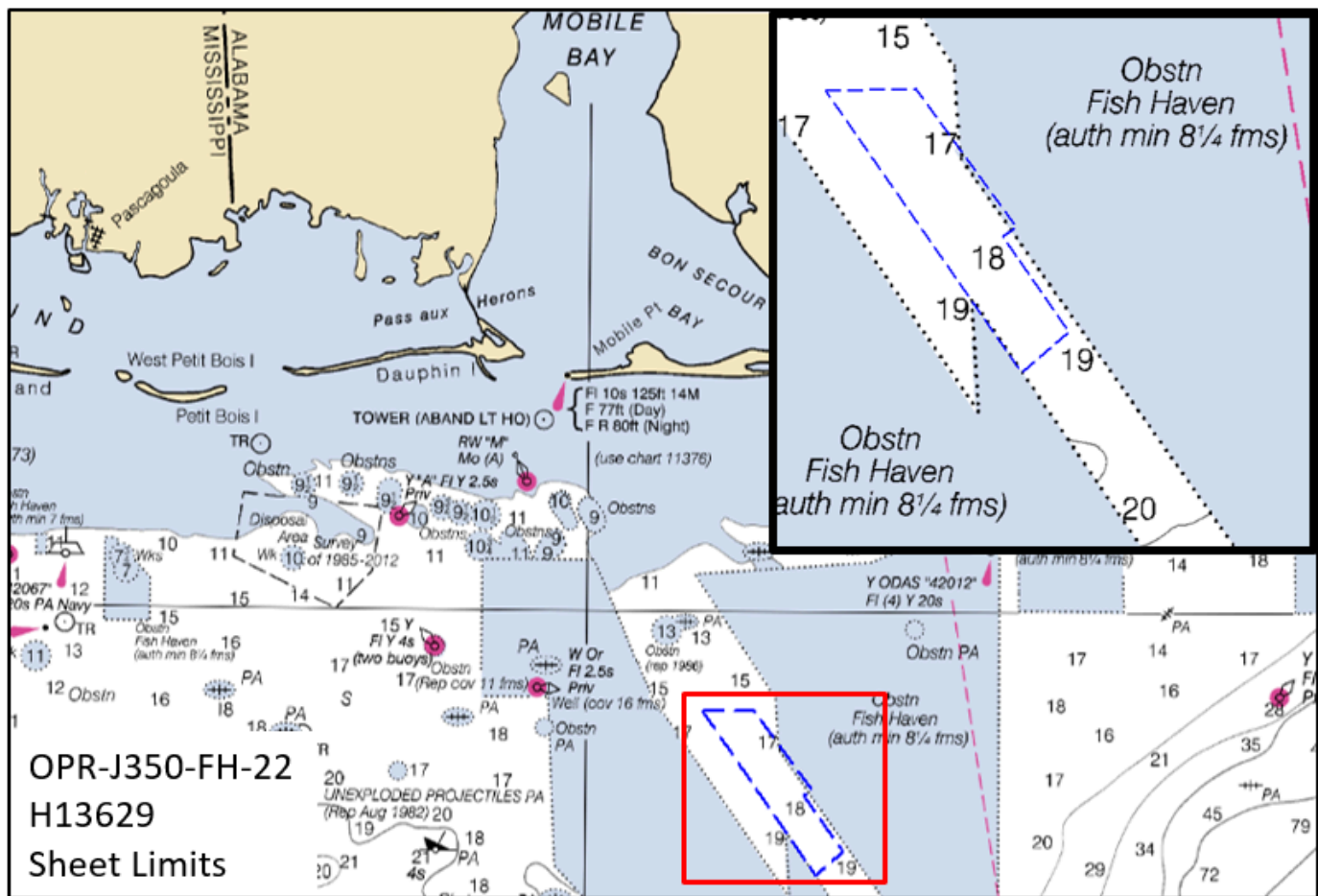


Figure 1: H13629 sheet limits (in blue) overlaid onto Chart 11006

B. Survey Purpose

The 2010 Deepwater Horizon oil spill released over 3 million barrels of oil in the Gulf of Mexico, by far the largest offshore oil spill in US history. In 2016, the Deepwater Horizon Trustees reached a settlement for natural resource injuries caused by the Deepwater Horizon oil spill. The Deepwater Horizon Trustees documented a footprint of over 770 square miles of injury to mesophotic and deep benthic habitat surrounding the wellhead and extending up the continental slope. Accurate high-resolution bathymetric and habitat maps and data on the abundance and distribution of mesophotic and deep benthic habitats are needed to guide restoration.

Only a small portion of the mesophotic and deepwater habitats in the Gulf of Mexico have been surveyed, and with the collaboration and partnership of NOAA's Deepwater Horizon Program and the National Centers for Coastal and Ocean Science (NCCOS), the NOAA Ship *Ferdinand R. Hassler* will collect bathymetry and backscatter data in the region. This work supports one of many projects selected by the Open Ocean Trustee Implementation Group to restore natural resources injured by the Deepwater Horizon oil spill. The data collected will be foundational for exploring mesophotic and deepwater habitats of the marine ecosystem by informing ground truthing locations for underwater camera footage, sediment cores, grab

samples, ROV, and AUV work and for identifying future restoration sites. The data will also update nautical charting products.

C. Intended Use of Survey

The entire survey is adequate to supersede previous data.

Data acquired in H13629 meet multibeam echo sounder (MBES) coverage requirements for complete coverage, as required by the HSSD. This includes crosslines, NOAA allowable uncertainty, and density requirements. The entire survey is adequate to supersede previous data and is recommended for charting.

D. Data Acquisition and Processing

Refer to the OPR-J350-FH-22 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.

E. Uncertainty

In addition to the usual a priori estimates of uncertainty via device models for vessel motion and VDATUM, real-time and post-processed uncertainty sources were also incorporated into the depth estimates of survey H13629. Real-time uncertainties were provided via EM 2040 MBES data and Applanix Delayed Heave RMS. Following post-processing of the real-time vessel motion, recomputed uncertainties of vessel roll, pitch, gyro and navigation were applied in CARIS HIPS and SIPS via a Smoothed Best Estimate of Trajectory (SBET) RMS file generated in Applanix POSPac.

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
US3GC05M	1:456394	60	06/09/2022	06/09/2022

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

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H13629_MB_VR_MLLW.csar	CARIS VR Surface (CUBE)	Variable Resolution m	28.6 m - 41.3 m	NOAA_VR	Complete MBES
H13629_MB_VR_MLLW_Final.csar	CARIS VR Surface (CUBE)	Variable Resolution m	28.6 m - 41.3 m	NOAA_VR	Complete MBES

Crosslines were collected, processed and compared in accordance with Section 5.2.4.2 of the HSSD for quality control. 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. Statistics show that the mean difference between depths derived from mainscheme data and crossline data was -0.01 meters (with mainscheme being shoaler) and 95% of nodes falling within +/- 0.26 meters (Figure 2). For the respective depths, the difference surface was compared to the allowable NOAA uncertainty standards. In total, 99.5% of the depth differences between H13629 mainscheme and crossline data were within allowable NOAA uncertainties.

The surface was analyzed using the HydrOffice QC Tools Grid QA feature to determine compliance with specifications. Density requirements for H13629 were achieved with at least 99% of surface nodes containing five or more soundings as required by HSSD Section 5.2.2.3 (See Figure 3). Additionally, 99.5% of nodes within the surface meet NOAA Allowable Uncertainty specifications for H13629 (See Figure 4).

There are no assigned junctions, features, bottom samples, maritime boundaries, dangers to navigation, aids to navigation, or shoreline present within the assigned H13629 sheet limits.

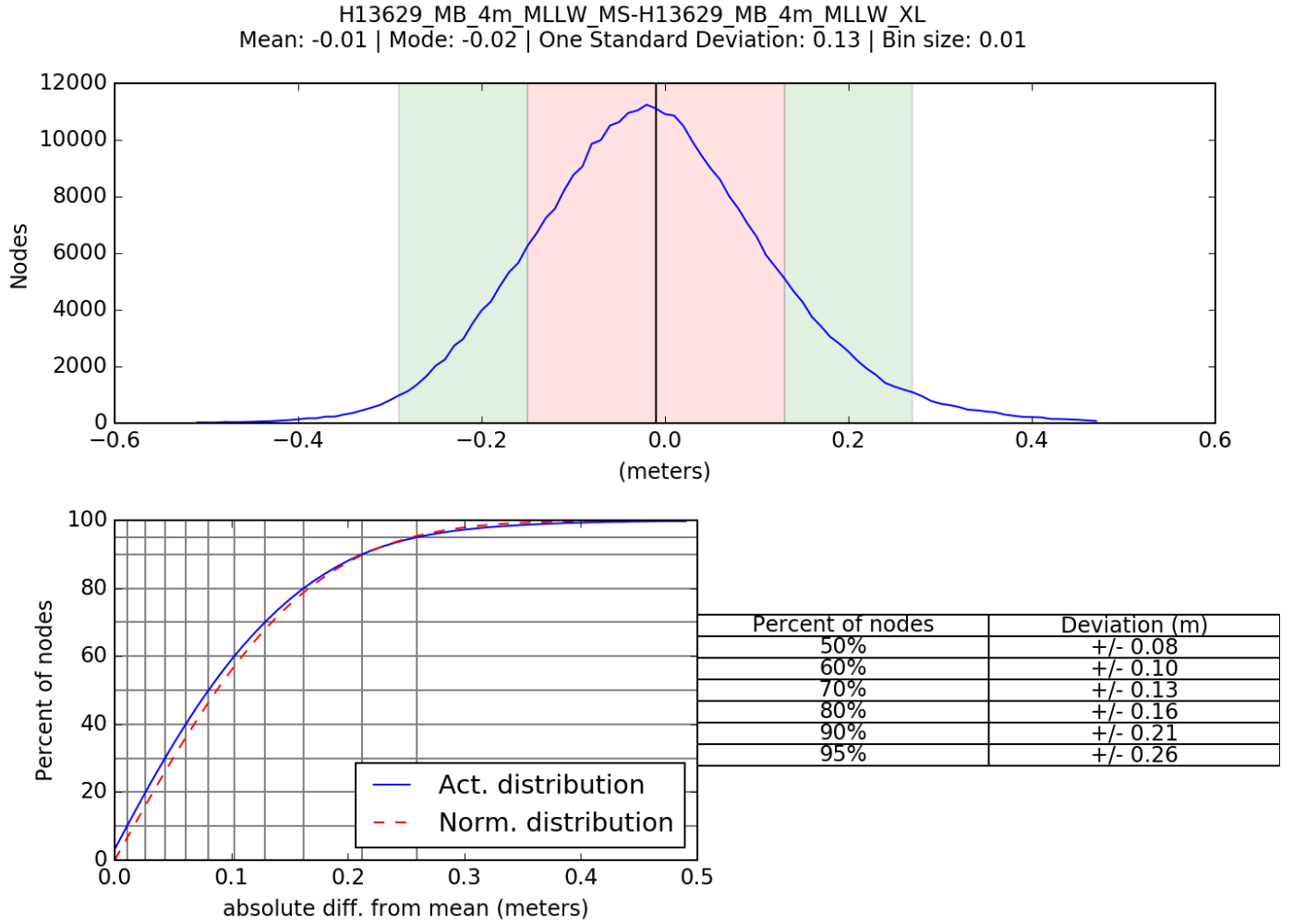


Figure 2: H13629 crossline and mainscheme difference statistics

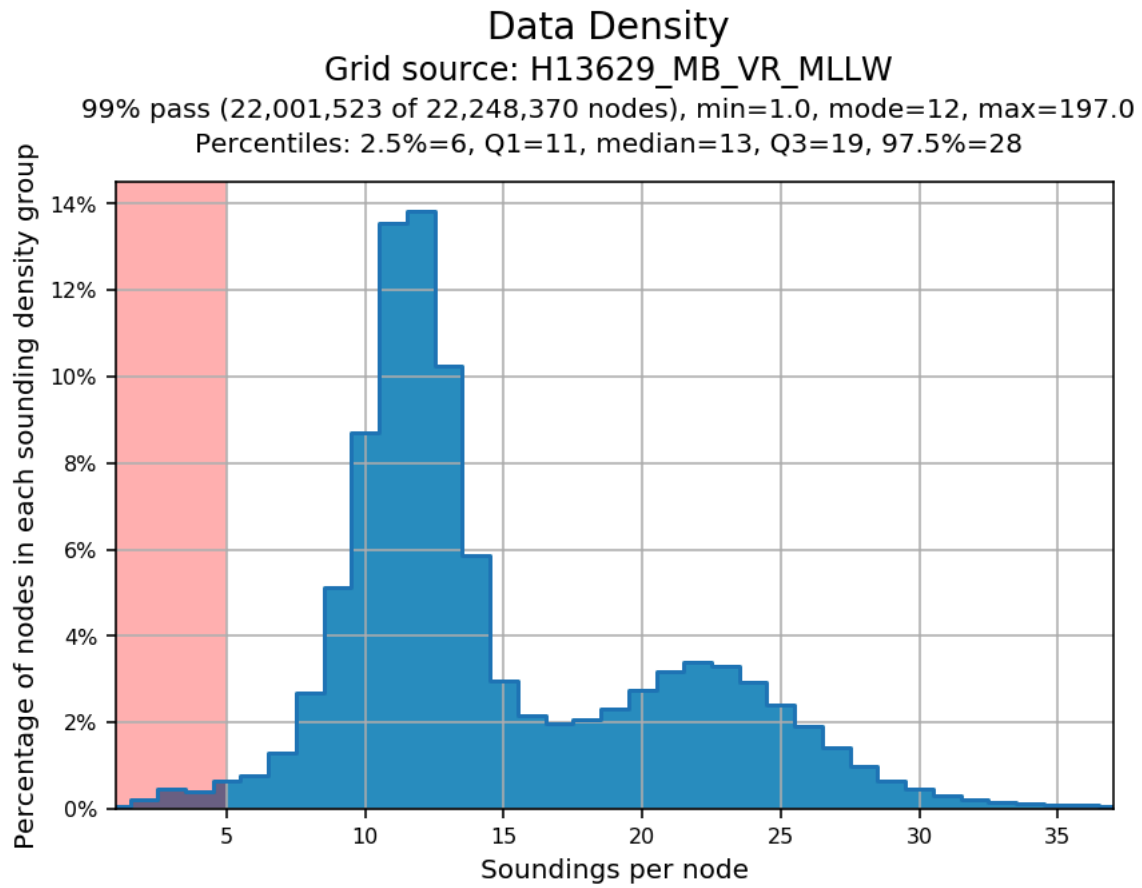


Figure 3: H13629 Data density statistics

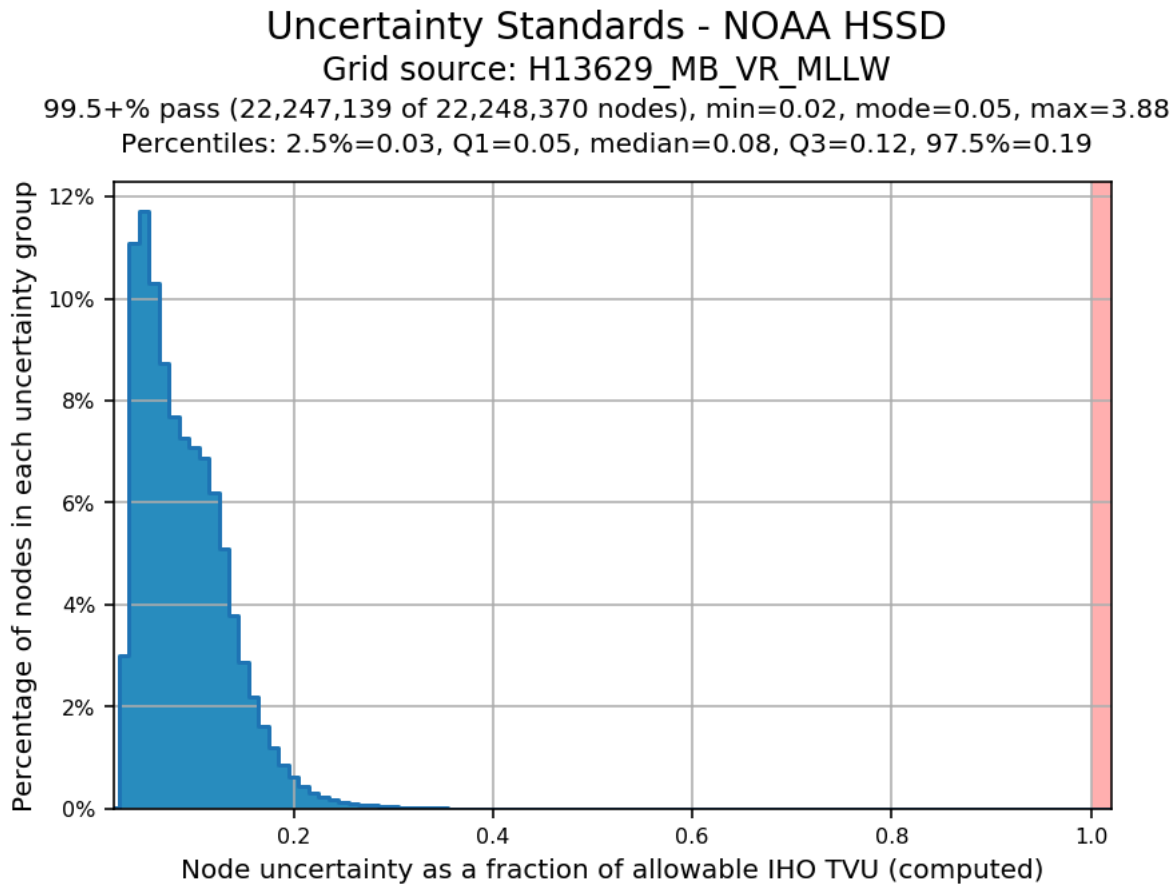


Figure 4: H13629 allowable uncertainty statistics

G. Vertical and Horizontal Control

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

No Horizontal and Vertical Control Report has been generated for H13629. ERS methods were used as the final means of reducing H13629 to MLLW for submission.

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 16.

Vessel kinematic data were post-processed using Applanix POSPac MMS processing software and RTX positioning methods described in the DAPR. A Smoothed Best Estimate of Trajectory (SBET) and associated error (RMS) data were applied to all MBES data in CARIS HIPS and SIPS.

During real-time acquisition, all platforms received correctors from the Wide Area Augmentation System (WAAS) for increased accuracies similar to USCG DGPS stations. WAAS and SBETs were the sole methods of positioning for H13629 as no DGPS stations were available for real-time horizontal control.

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
CDR Michael O. Gonsalves	Chief of Party	06/30/2022	 Digitally signed by GONSALVES.MICHAEL.OLIVER.127 5635126 Date: 2022.09.16 13:25:13 -04'00'
LT Daniel Helmricks	Operations Officer	06/30/2022	 Digitally signed by GONSALVES.MICHAEL.OLIVER.127 5635126 Date: 2022.09.16 13:25:37 -04'00'