

W00286

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

<i>Type of Survey</i>	Hydrographic Survey
<i>Project No.</i>	OSD-AHB-14
<i>Registry No.</i>	W00286

LOCALITY

<i>State</i>	Florida
<i>General Locality</i>	Gulf of Mexico
<i>Sub-locality</i>	Gulf of Mexico-East

2014

CHIEF OF PARTY
Elizabeth Lobecker
HYDROGRAPHER
Elizabeth Lobecker

LIBRARY & ARCHIVES

DATE	July 28, 2014
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NOAA FORM 77-28 (11-72) U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION HYDROGRAPHIC TITLE SHEET	REGISTRY NUMBER: W00286
	FIELD NUMBER:
State: <u>Florida</u> General Locality: <u>Gulf of Mexico</u> Locality: <u>Gulf of Mexico-East</u> Scale: <u>1:40,000</u> Date of Survey: <u>03/104/2014 - 03/11/2014</u> Instructions Dated: _____ Project Number: <u>OSD-AHB-14</u> Vessel: <u>NOAA Ship Okeanos Explorer</u> Chiefs of Party: <u>Elizabeth Lobecker</u> Surveyed by: <u>NOAA Ship Okeanos Explorer personnel</u> <hr/> Soundings taken by echosounder, hand lead line, or pole: <u>Kongsberg EM302 Multibeam Echosounder</u> Verification by: <u>Atlantic Hydrographic Branch</u> Soundings in: Feet: _____ Fathoms: _____ Meters: <u>X</u> at MLW: _____ MLLW: <u>X</u>	
Remarks: <i>The purpose of this survey is to provide contemporary surveys to update National Ocean Service (NOS) nautical charts. All separates are filed with the hydrographic data. Any revisions to the Descriptive Report (DR) generated during office processing are shown in bold red italic text. The processing branch maintains the DR as a field unit product, therefore, all information and recommendations within the body of the DR are considered preliminary unless otherwise noted. The final disposition of surveyed features is represented in the OCS nautical chart update products. All pertinent records for this survey, including the DR, are archived at the National Geophysical Data Center (NGDC) and can be retrieved via http://www.ngdc.noaa.gov/.</i>	

Descriptive Report Summary to Accompany W00286

Project	OSD-AHB-14
Survey	W00286
State	Florida
Locality	Gulf of Mexico
Sub Locality	Gulf of Mexico—East
Scale of Survey	40,000
Sonars Used	Kongsberg EM302
Horizontal Datum	North American Datum of 1983 (NAD83)
Vertical Datum	Mean Lower Low Water (MLLW)
Vertical Datum Correction	None
Projection	Latitude-Longitude (NAD83) - UTM Zone 17N
Field Unit	OKEANOS EXPLORER
Survey Dates	3/4/2014-3/11/2014
Chief of Party	Tyanne Faulkes, Physical Scientist

A. Area Surveyed

This hydrographic survey was acquired in accordance with the requirements defined in the EX14002L1 Cruise Plan.

Data was acquired within the following survey limits:

Northeast Limit	Southwest Limit
25.35N	23.90N
83.11W	84.85W

Table 1: Survey Limits

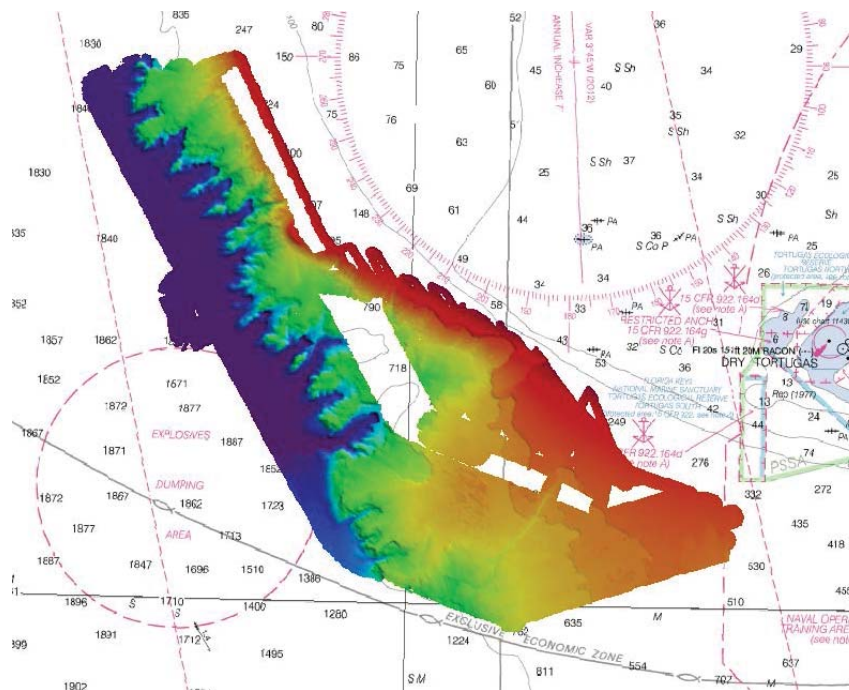


Figure 1: W00286 Survey Overview

The following table lists the mainscheme and total square miles for this survey:

Vessel	MBES Mainscheme	Square Nautical Miles
R-337	1587 LNM	2776 SNM

Table 2: Survey Statistics

Overall the survey coverage meets the 2013 Hydrographic Survey Specifications and Deliverables requirements for 100% multibeam coverage. Multiple holidays do exist in this survey. In some cases holidays were as a result of the *Okeanos Explorer* junctioning to previously surveyed areas in the region which were performed in prior seasons. The data was not submitted with this survey. In addition, large holidays were created due to lack of poor overlap between survey lines. Lastly, smaller holidays exist in depths greater than 3000 meters due to density reasons. Though these shortcomings are present in this survey the currently charted data is over 45 years old. The new data will improve the chart.

B. Survey Purpose

The mapping operations were intended to assess the ship's essential operational equipment and procedures. The data was not initially intended for charting purposes but due to the data quality and the age of the charted data, it was deemed worthy of submission to the Hydrographic Surveys Division. In addition, this survey furthers the goals of the Integrated Ocean and Coastal Mapping mission to "Map Once, Use Many Times".

C. Intended Use of Survey

Data is adequate to supersede prior data and is intended for chart compilation.

D. Data Acquisition and Processing

Please reference Mapping Systems Readiness Report 2014 for a complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods.

The survey deviates from these reports when applying Total Propagated Uncertainty (TPU) and creating CUBE surfaces.

Standard operations for the *Okeanos Explorer* do not include the computation of TPU. TPU was calculated using CARIS HIPS/SIPS 7.1.2 and the following parameters:

Tide Value Measured	1.0 m
Tide Value Zoning	0.0 m
Sound Speed Values	0.25 m/s
Surface Sound Speed Values	.05 m/s

Table 2: Compute TPU Values.

The OKEANOS EXPLORER did not apply tides to this survey. The survey occurred in an area which was approximately 200 miles from shore, so the assumption was that tide does not have an effect on the data. To acknowledge that in the uncertainty, the tidal range was taken for different tide stations around the Gulf Coast. The range of tides in the area was approximately 0.5m. An additional uncertainty was added to compensate for any unusual tidal variations by using the value of 1.0m. The Reson SVP-70 velocity probe is used for surface sound speed measurements. The value used for TPU was obtained from the manufacturer's fact sheet. Sound Speed Values Measured was obtained from the manual from the expendable bathythermograph (XBT).

E. Uncertainty

99.9% of nodes of the submitted surfaces agree with IHO Order 2 requirements.

F. Results and Recommendations

The following are the largest scale RNC and ENC, which cover the survey area:

Chart	Scale	Edition	Edition Date	LNМ Date	NМ Date
11006	875,000	34	8/1/2013	7/8/2014	7/19/2014
1113A	470,940	30	2/1/2013	7/8/2014	7/19/2014
11013	1,200,000	48	2/1/2012	7/8/2014	7/19/2014
ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US3GC07M	470,940	21	11/8/2013	4/17/2014	No
US2GC09M	875,000	1	10/24/2013	7/21/2014	No
US2EC01M	1,200,000	13	10/25/2013	4/11/2014	No

A chart comparison was performed by the hydrographer. The surveyed soundings differed with charted soundings by greater than 1600 meters in some instances. To represent these differences the hydrographer created a surface from the charted (ENC) soundings and differenced the surface with the survey. Figure 2 represents the differences between the common areas. Red values are where the surveyed soundings are shoaler than charted, blue values are where surveyed soundings are deeper than charted. Additionally, the hydrographer compared the charted depth curves with contours derived from surveyed soundings and found that there was good agreement between the two (See Figure 3).

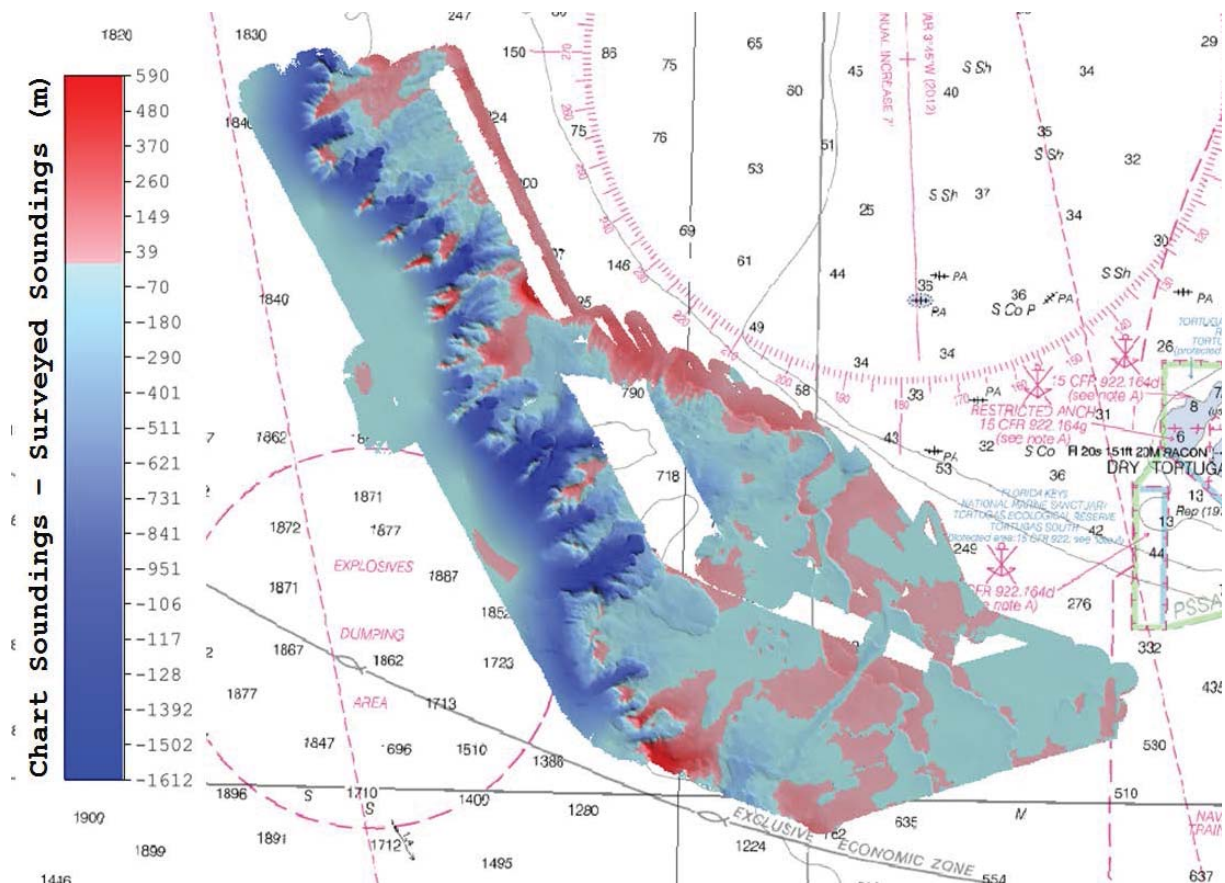


Figure 2: Difference surface between charted and surveyed soundings.

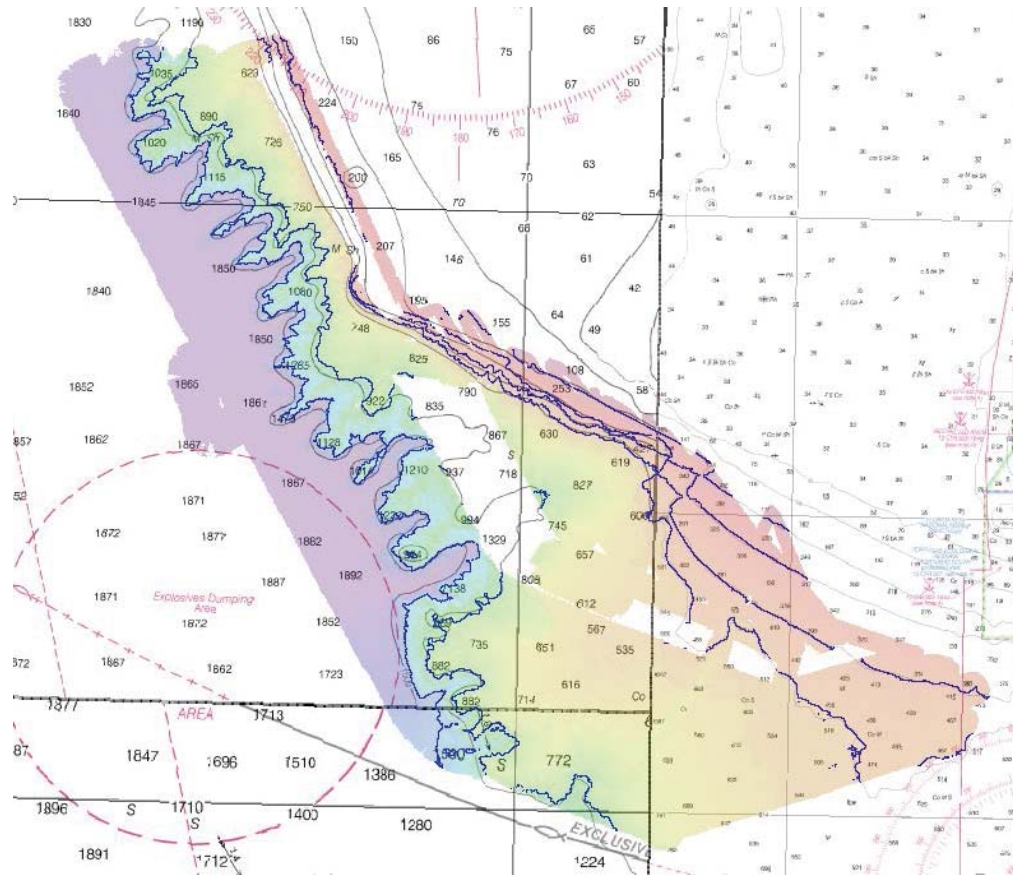


Figure 3: The blue lines shown are the contours derived from surveyed data.

Surface Name	Surface	Resolution	Depth Range	Surface Parameter	Purpose
W00286_MB_16m_MLLW	CUBE	16m	220.12-3493.36m	NOAA_16m	Charting
W00286_MB_32m_MLLW	CUBE	32m	220.54-3481.19m	NOAA_32m	Charting
W00286_MB_16m_MLLW_Final	CUBE	16m	220.12-320.00m	NOAA_16m	Charting
W00286_MB_32m_MLLW_Final	CUBE	32m	288.00-3481.19m	NOAA_32m	Charting

Table 3: CUBE surfaces delivered for survey W00286.

The surfaces delivered meet IHO Order 2 specifications for total vertical uncertainty (See Section E). The surfaces submitted do not comply with the density requirements in the 2013 HSSD: 93.4% of the nodes in the 16-meter finalized surface and 87.7% of the nodes in the 32-meter finalized surface have 5 or more soundings per node. The 16-meter surface is primarily located in the outerbeams of survey lines at the edge of the survey. The nodes that fail density requirements in the 32-meter surface occur in depths greater than 3000 meters. In both cases the hydrographer does not believe that the lack of data density does not compromise the validity of the data for charting purposes. Due to its deep depths, the lack of data density does not pose a threat to surface navigation.

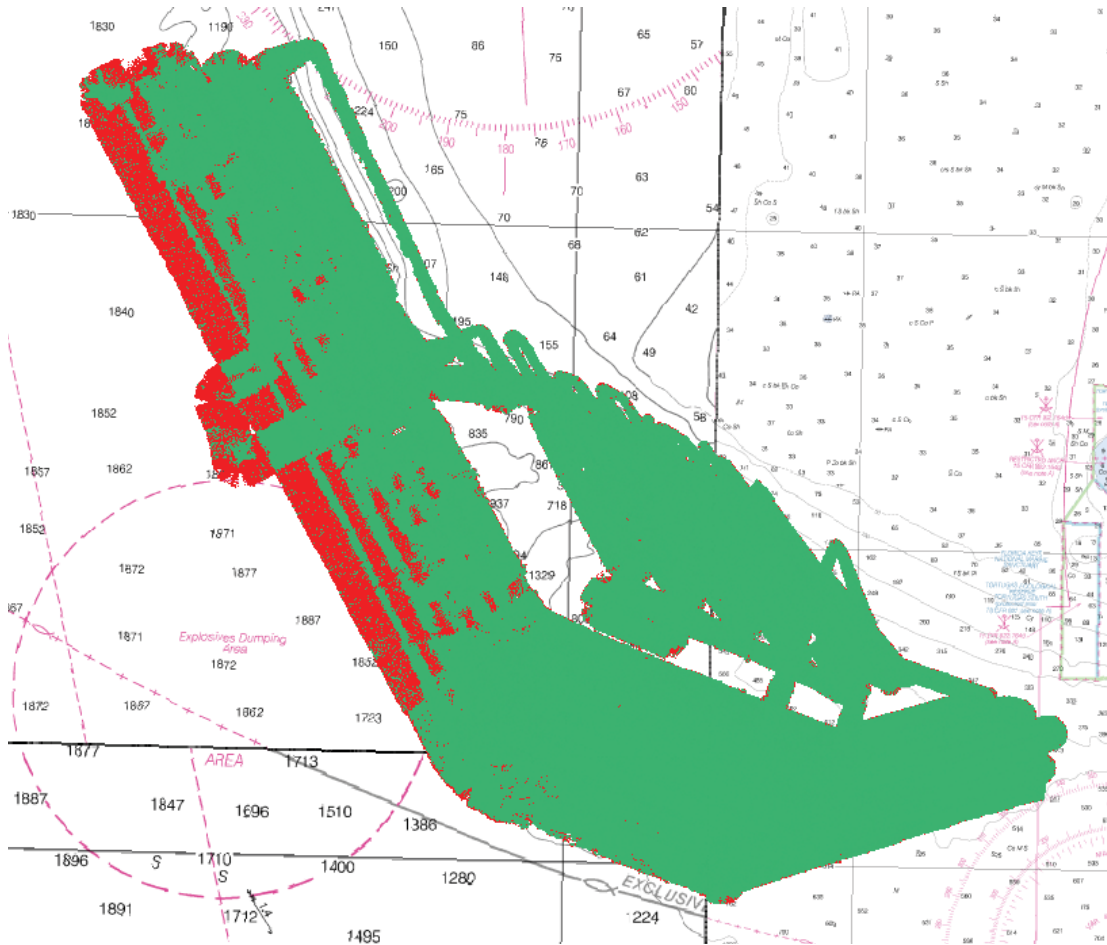


Figure 4: Density of surfaces from W00286. Green represents nodes which comply with the HSSD, red are non-compliant nodes.

G. Vertical and Horizontal Control

The vertical datum for this project is Mean Lower Low Water. Tides were not applied to this survey. The survey occurred in an area which was approximately 200 miles from shore, so the assumption was that the tide does not have an effect on the data. The tidal ranges for different tide stations around the Gulf Coast were analyzed and the range of tides in the area was approximately 0.5m. The lack of tides was acknowledged in the survey's uncertainty calculations.


The horizontal datum for this project is North American Datum of 1983 (NAD83). Differential GPS (DGPS) was the sole method of positioning. DGPS was derived from the C-NAV which complies with the 2013 HSSD Section 3.2.2.

H. Additional Results

No additional results to report.

I. Approval

The survey data meets or exceeds requirements as set forth in the NOS Hydrographic Surveys and Specifications Deliverables Manual, 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	Approver Title	Approval Date	Signature
Tyanne Faulkes	Physical Scientist	7/25/2014	 Digitally signed by FAULKES, TYANNE. M.1381291550 Date: 2014.07.25 13:30:55 -04'00'

APPENDIX I

TIDES AND WATER LEVELS

No tides or Water Levels submitted

APPENDIX II

SUPPLEMENTAL SURVEY RECORDS
AND CORRESPONDENCE

No Supplemental Survey Records or Correspondence submitted

APPENDIX III

SURVEY FEATURES REPORT

DToNs - none
AWOIS - none
Wrecks - none
Maritime Boundaries -none

APPROVAL PAGE

W00286

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 NGDC for archive

- W00286_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- W00286_GeoImage.pdf

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

Approved: _____

Lieutenant Commander Matthew Jaskoski, NOAA
Chief, Atlantic Hydrographic Branch