

W00573

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

DESCRIPTIVE REPORT

Type of Survey: Habitat Mapping

Registry Number: W00573

LOCALITY

State(s): Louisiana

General Locality: SW Louisiana Coast

Sub-locality: Sabine Pass to Marsh Island

2017

CHIEF OF PARTY
Chelsea A. Stalk

LIBRARY & ARCHIVES

Date:

HYDROGRAPHIC TITLE SHEET

W00573

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): **Louisiana**

General Locality: **SW Louisiana Coast**

Sub-Locality: **Sabine Pass to Marsh Island**

Scale: **80000**

Dates of Survey: **06/02/2017 to 07/16/2017**

Instructions Dated: **07/29/2021**

Project Number: **ESD-PHB-21**

Field Unit: **US Geological Survey**

Chief of Party: **Chelsea A. Stalk**

Soundings by: **ODIM Brooke Ocean Echotrac CV100 (SBES)**

Imagery by: **N/A**

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 UTM 15N, 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 MEMO

July 28, 2021

MEMORANDUM FOR: Pacific Hydrographic Branch

FROM: Report prepared by PHB on behalf of field unit
Chelsea A. Stalk
Researcher I, Cherokee Nation Technologies/U.S. Geological Survey

SUBJECT: Submission of Survey W00573

Single-beam bathymetry data were collected in support of the BICM program along the Chenier Plain of Louisiana's coastline to provide current bathymetry and shoreline information, as well as supplement historical archives for change analysis. The goal of the BICM program is to provide long-term data along the Louisiana coastline and use this data to plan, design, evaluate and maintain current and future barrier island restoration projects.

The survey resulted in a VBES surface, set line spaced at approximately 400m. The original xyz files dataset was imported into CARIS as a point cloud CSAR file, which was then converted to a 1m CSAR file. The NAVD88 vertical datum was shifted to MLLW using a VDATUM separation model. This survey contains no uncertainty layer. An uncertainty layer was created, using 50cm + 1% depth.

All soundings were reduced to Mean Lower Low Water using VDatum. 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 15.

Depth soundings were recorded at 50-ms intervals using an Odom echotrac CV100 sounder with a 200-kilohertz (kHz) transducer on all vessels. Data from the GPS receiver, motion sensor, and fathometer were recorded in real-time aboard all vessels independently and merged into a single raw data file (*.RAW) in HYPACK, with each device string referenced by a device identification code and time stamped to Coordinated Universal Time (UTC).

Boat motion was recorded at 50-millisecond (ms) intervals using a Teledyne TSS Dynamic Motion Sensor (TSS DMS-05) on the R/V Sallenger, R/V Jabba Jaw, and by use of a SBG Ellipse A #1 motion sensor aboard each PWC.

Post-processed differential navigation data for the rover (boat) were created in ASCII text format. Three files (forward, reverse, and combined trajectories) are produced for each GPS session file.

Sound velocity profile (SVP) measurements were collected using four SonTek Castaway Conductivity, Temperature, and Depth (CTD) instruments as well as one Valport mini sound velocity profiler (SVP). The instruments were periodically cast overboard to observe changes in water column speed of sound (SOS). A total of 392 successful sound velocity casts were taken throughout the survey at an average depth of 5.06 meters, and on average produced a sound velocity of 1519.68 meters per second (m/s).

HYPACK (version 16.1.8.0), a marine surveying, positioning, and navigation software package, managed the planned-transect information and provided real-time navigation, steering, correction, data quality, and instrumentation-status information to the boat operator. Data from the GPS receiver, motion sensor, and fathometer were recorded in real-time aboard all vessels independently and merged into a single raw data file (*.RAW) in HYPACK, with each device string referenced by a device identification code and time stamped to Coordinated Universal Time (UTC).

First, all data were visually scanned for any obvious outliers or problems. Next, a Python script was used to evaluate elevation differences at the intersection of crossing tracklines by calculating the elevation difference between points at each intersection using an inverse distance weighting equation. GPS cycle slips, stormy weather conditions, and rough sea surface states can contribute to poor data quality. In all cases where discrepancies in the data, or high (>0.30 m) crossing values were found, there was sufficient data coverage to delete the problem data points and/or lines.

All data were reviewed for DTONs and none were identified in this survey.

USGS acquired the data outlined in this report. Additional documentation from the data provider may be attached to this report.

Considering the quality of equipment, systems integration documentation and quality control practices described, this survey should be capable of meeting or exceeding $0.5\text{m} + 1\%d$. Horizontal uncertainty, based on post-processed kinematic correctors, is accurate within the $5\text{m} + 5\%d$ accuracy band. The survey system meets accuracy requirements for CATZOC A surveys, but fails to undergo full area search for uncharted or hazardous features. This survey is CATZOC B.

This survey does meet charting specifications and is adequate to supersede prior data.

APPROVAL PAGE

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The survey data meet or exceed the current requirements of the Office of Coast Survey hydrographic data review process and may be used to update NOAA products. The following survey products will be archived at the National Centers for Environmental Information:

- Descriptive Report
- Collection of Bathymetric Attributed Grids (BAGs)
- Geospatial PDF of survey products

Approved: _____

Peter Holmberg

Products Team Lead, Pacific Hydrographic Branch