

W00645

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

DESCRIPTIVE REPORT

Type of Survey: Basic Hydrographic Survey

Registry Number: W00645

LOCALITY

State(s): Florida

General Locality: SW Florida

Sub-locality: Caloosahatchee River

2002

CHIEF OF PARTY
Mark Hansen

LIBRARY & ARCHIVES

Date:

HYDROGRAPHIC TITLE SHEET

W00645

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): **Florida**

General Locality: **SW Florida**

Sub-Locality: **Caloosahatchee River**

Scale: **40000**

Dates of Survey: **01/01/2002 to 12/31/2002**

Instructions Dated: **01/01/2002**

Project Number: **ESD-PHB-22**

Field Unit: **US Geological Survey**

Chief of Party: **Mark Hansen**

Soundings by: **Marimatech E-Sea 103 (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 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 MEMO

May 23, 2023

MEMORANDUM FOR: Pacific Hydrographic Branch

FROM: Report prepared by PHB on behalf of field unit
Mark Hansen
Oceanographer, U.S. Geological Survey

SUBJECT: Submission of Survey W00645

The Caloosahatchee River is located in southwest Florida and drains northern parts of the Florida Everglades. The river stretches 110 kilometers (km) inland and empties into the Gulf of Mexico at Fort Myers and Cape Coral, Florida. The lower section of the river is part of the Estero Bay estuary system and provides critical habitat for a large variety of plants and animals. The river has been greatly altered for navigation, agriculture, and human development needs, and its flow is managed by a series of upland locks and dams.

The USGS, in cooperation with SFWMD, performed a bathymetric survey of the lower Caloosahatchee River using a single-beam hydrographic system. Survey tracklines were spaced 500-meters (m) apart oriented along the long axis of the river. Tracklines collected across the river (intersecting tracklines) functioned as a cross-check and to assess the relative vertical accuracy of the survey.

The single beam bathymetry data was submitted in an XYZ format file then horizontally and vertically shifted from WGS84 / NAVD88 to NAD83 / MLLW using VDatum. The shifted XYZ file was then used to generate a 4m resolution grid.

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 17.

The GPS antenna and receiver acquisition configuration used at the reference station was duplicated on the survey vessel (rover). The base receiver and the rover receiver record their positions concurrently at 1Hz recording intervals throughout the survey. All processed measurements are referenced to the base station coordinates. GPS base or differential reference stations were operated within approximately 15 to 20 km of the survey area. Ten new temporary ground-control points or benchmarks (surveyed to within 1 cm to 2 cm accuracy) were established throughout the study area for use as reference receiver sites using standard benchmarks procedures. The new benchmarks were surveyed using Ashtech Z-12, 12 channel dual-frequency GPS receivers. Full-phase carrier

data were recorded on each occupied benchmark in Ashtech proprietary BIN format with daily occupations ranging from 6 to 12 hours. BIN files were then converted to RINEX-2 format for position processing.

All static base station GPS sessions were submitted for processing to the online OPUS, GIPSY, and SCOUT system software. The computed base location results were entered into a spreadsheet to compute one final positional coordinate and error analysis for that base location. The final positional coordinate (latitude, longitude, and ellipsoid height) is the weighted average of all GPS sessions. For each GPS session, the weighted average was calculated from the total session time in seconds; therefore, longer GPS occupation times held more value than shorter occupation times. Results were computed relative to ITRF00 coordinate system. The established geodetic reference frame for the project was WGS84. Therefore, final reference coordinates used to process the rover data were transformed from ITRF00 to WGS84 using National Oceanic and Atmospheric Administration/National Geodetic Survey (NOAA/NGS) HTDP software v2.1.

All survey systems and methods utilized during this survey were as described in https://pubs.usgs.gov/ds/1031/ds1031_processing.html.

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

US Geological Survey acquired the data outlined in this report. Data are available at <https://doi.org/10.3133/ds1031>. Additional documentation from the data provider may be attached to this report.

The survey is partially adequate to supersede previous data.