

W00638

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

DESCRIPTIVE REPORT

Type of Survey: Habitat Mapping

Registry Number: W00638

LOCALITY

State(s): Florida

General Locality: Southwest Florida

Sub-locality: Offshore of Wiggins Pass to Cape Romano

2005

CHIEF OF PARTY
Mark Hansen

LIBRARY & ARCHIVES

Date:

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION		REGISTRY NUMBER:
HYDROGRAPHIC TITLE SHEET		W00638
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:	Southwest Florida	
Sub-Locality:	Offshore of Wiggins Pass to Cape Romano	
Scale:	40000	
Dates of Survey:	07/01/2005 to 07/31/2005	
Instructions Dated:	07/01/2005	
Project Number:	ESD-PHB-22	
Field Unit:	US Geological Survey	
Chief of Party:	Mark Hansen	
Soundings by:	Unknown Unknown (SBES)	
Imagery by:	N/A	
Verification by:	Pacific Hydrographic Branch	
Soundings Acquired in:	meters at Mean Lower Low Water	
Remarks: <i>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.</i>		

DESCRIPTIVE REPORT MEMO

October 31, 2022

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 W00638

Bathymetric and hydrologic information throughout the Ten Thousand Islands Aquatic Preserve and adjacent ecosystems is critical for the development and calibration of hydrodynamic models that would help with the evaluation of restoration results. With construction of the Southern Golden Gate Estates Hydrologic Restoration and Tamiami Trail Culvert projects underway, the need to determine the physical characteristics of rivers and bays within the areas to the south of US-41 that will be greatly impacted by both of these projects, becomes even more urgent. There are significant physical information gaps throughout the wetlands and estuaries within the study area that still need to be addressed. Among these gaps are the bathymetry of rivers and bays of the Ten Thousand Islands Preserve, estimates of freshwater flows across the Trail, groundwater information within the marshes south of Tamiami Trail (including Specific Conductance/salinity), flows at or near the mouth of tributaries for the determination of contaminant transport, water level, and salinity data throughout the area.

Single-Beam Bathymetry in a 4m resolution grid was created in XYZ format.

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.

Horizontal Control:

Differential Geographic Positioning System (DGPS) coordinates were obtained using post-processing software packages developed by the National Oceanic and Atmospheric Administration (NOAA)/National Geodetic Survey (NGS) Online Positioning User Service (OPUS). The kinematic (rover) trajectories were processed using PNAV v2.0, by ASHTECH, Inc. A horizontal error measurement, RMS is computed for each epoch. The horizontal trajectory errors for varied between 0 and 0.08(m).

Vertical Control:

GPS base or differential reference stations were operated within approximately 15 to 20 km of the survey area. Five 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. 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. The kinematic (rover) trajectories were processed using PNAV v2.0, by ASHTECH, Inc. A vertical error measurement, RMS is computed for each epoch. The vertical trajectory errors for varied between 0 and 0.08(m). The combined vertical error from base station coordinate solutions and rover trajectories range from 0 and 0.14 (m), with the average approximately 0.08 (m).

Data acquisition and processing information is available at the link below.

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

U.S. 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.

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