

NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT

PROJECT FL1420

Palm Beach and North Lake Worth, Florida

Introduction

Coastal Mapping Program (CMP) Project FL1420 provides highly accurate coastal feature data for Palm Beach and North Lake Worth, Florida. The Geographic Cell (GC) may be used in support of the NOAA Nautical Charting Program (NCP) as well as geographic information systems (GIS) for various coastal zone management applications.

Project Design

Project FL1420 was designed in response to a request from the Office of Coast Survey, NOAA for an assessment of charted shorelines and compilation of changes in preparation for publication of a new chart. Based on analysis of project requirements and results of a source data search, it was determined that CMP procedures for multiple source projects would apply for this project. Source data obtained for this project consisted of two orthorectified WorldView satellite images from DigitalGlobe, Inc., including one panchromatic image acquired February 1, 2014 and one pan-sharpened natural color image acquired April 3, 2014. The color image was only used as an aid for feature interpretation.

An additional image was obtained after the project was begun, an ungeoreferenced JPG image portraying construction plans for Flagler Memorial Bridge superimposed on an aerial photograph acquired in March 2011, from the www.flaglerbridge.com web site (downloaded 4/16/2014) with permission from the Florida DOT Public Information Officer. This image was successfully georeferenced with excellent results, and used to compile the planned new bridge currently under construction.

Field Operations

Routine CMP field operations did not apply for this project based on the origin of the project imagery, which was obtained from external sources.

Georeferencing

Image georeferencing was accomplished by a member of AB using Esri's ArcGIS® (ver. 9.3.1) desktop GIS software. Control/check points were extracted from previously compiled CMP GC10910 (FL1002). Within ArcGIS, the Georeferencing tool was used, and the imagery was resampled using the Nearest Neighbor method with a 1st order polynomial model. The RMS of the residuals for measured check points was used to compute a horizontal accuracy at the 95% confidence level (CE95) of 0.9 meters for both the panchromatic WorldView image and the Flagler bridge image. This value was doubled and added to the CE95 of the source from which check points were obtained in

order to conservatively predict the accuracy of well-defined points measured during the compilation process. Positional data for this project is referenced to the North American Datum of 1983 (NAD 83).

Compilation

Data compilation was initiated by RSD personnel in April 2014. Using ArcGIS, digital feature data was compiled in shapefile format. Feature attribution was assigned in compliance with the Coastal Cartographic Object Attribute Source Table (C-COAST), which provides the definition and attribution scheme for the full range of cartographic features pertinent to the CMP. Spatial data accuracies for FL1420 were determined according to standard Federal Geographic Data Committee (FGDC) practices.

Cartographic features were tested to have a horizontal accuracy of 2.5 meters at the 95% confidence level. The table below provides detailed information on the imagery used for feature compilation:

Image Source	Ground Sample	Source ID / Type	Acquisition Date/Time	Tide Level*
WorldView-1	0.5 m	20140201_155615_WV01_ORI.jp2 / panchromatic	2014-02-01 / 15:56 GMT	0.8-0.9 m
WorldView-2	0.5 m	20140403_161420_WV02_ORI.tif / pan-sharpened natural color	2014-04-03 / 16:14 GMT	0.8 m
Unknown / aerial	0.2 m	"presentation-40X60.jpg" (Flagler Memorial Bridge project overlay)	2011-03-21	n/a

* Tide levels (given in meters above MLLW) are based on the predicted water level for station 8722588 - Port of West Palm Beach, FL at the time of the imagery, with time and height corrections applied to corresponding tidal zones. The height of MHW in the project area varies between 0.8-0.9 meters above MLLW.

Quality Control / Final Review

Quality control tasks were conducted upon project completion by senior CMP personnel in April 2014. The review process included an assessment of the identification and attribution of digital feature data within the GC according to image analysis and criteria defined in C-COAST. Quality control concluded with an inspection of topological connectivity within the GC using ArcGIS. The entire suite of project products was evaluated for compliance to CMP requirements. A Chart Evaluation File (CEF) resulted from comparison of the project imagery with the largest scale NOAA nautical charts covering the project:

- Chart 11466, Jupiter Inlet to Fowey Rocks, FL, 39th Ed., Apr./11
- Chart 11472, ICW - Palm Shores to West Palm Beach, FL, 36th Ed., Feb./14

End Products and Deliverables

The following specifies the location and identification of end products generated during the completion of this project:

RSD Applications Branch Archive

- Hardcopy of the Project Completion Report (PCR)
- Page size graphic plot of GC11070 file contents, attached to PCR

Remote Sensing Division Electronic Data Library

- Project database
- GC11070 in shapefile format
- Digital copy of the PCR in Adobe PDF format
- CEF in shapefile format

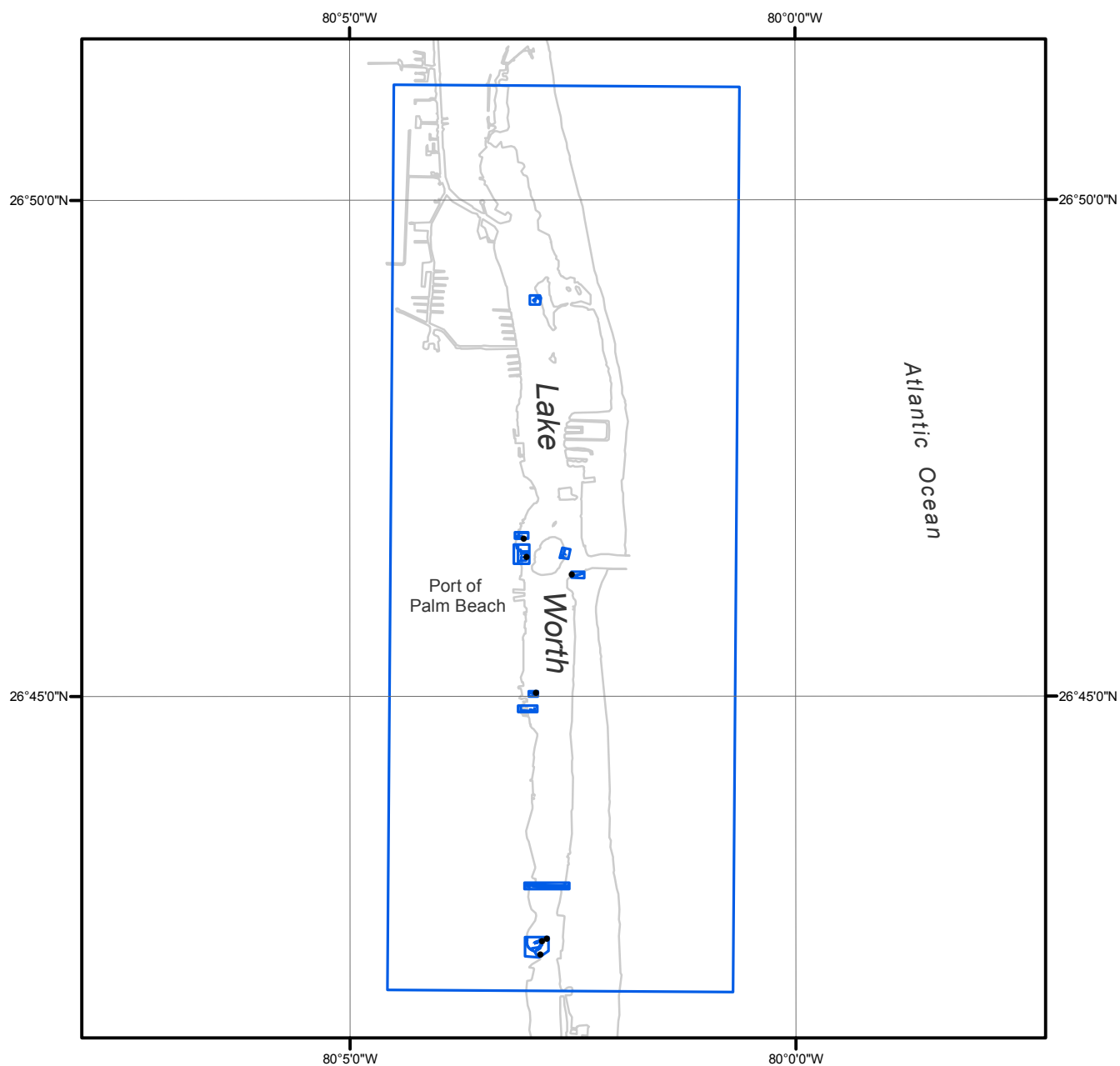
NOAA Shoreline Data Explorer

- GC11070 in shapefile format
- Metadata file for GC11070
- Digital copy of the PCR in Adobe PDF format

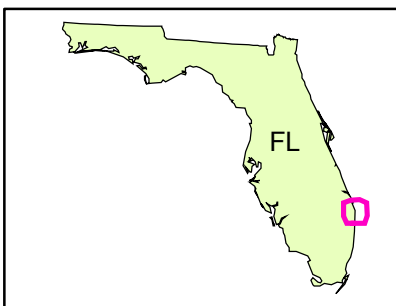
End of Report

PALM BEACH AND NORTH LAKE WORTH

FLORIDA



Overview



FL1420

GC11070