NOAA COASTAL MAPPING PROGRAM
PROJECT COMPLETION REPORT

PROJECT FL0413

Port of Miami, Florida

Introduction

Coastal Mapping Program (CMP) Project FL0413 provides highly accurate digital shoreline data for key areas of change within the Port of Miami, 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 coastal zone management applications.

Project Design

The design of Project FL0413 was accomplished by the Requirements Branch (RB) of the Remote Sensing Division (RSD) in response to the need for timely updates to NOAA's Electronic Navigational Chart series. Project requirements were formulated as a result of analysis conducted within the Coast and Shoreline Change Analysis Program (CSCAP), in which NOAA nautical chart products are compared to contemporary high resolution satellite imagery in order to ascertain the need for more current shoreline data. Refer to the Port of Miami CSCAP Analysis memo for details regarding the chart comparison process.

Field Operations

Routine CMP field operations did not apply for this project based on the origin of the project source data. Existing sources of horizontal control were used in the assessment of the horizontal accuracy of imagery obtained via a private mapping firm.

Georeferencing

One true color orthorectified mosaic of digital aerial photographic images, with a spatial resolution of 1 foot, was acquired from Woolpert, Inc. The original source imagery was flown over 926 square miles in February 2005. A lidar DEM was used in conjunction with OrthoPro/OrthoVista mosaicking software to complete the orthorectified imagery. An accuracy assessment was performed by a member of the Applications Branch (AB) of RSD using ERDAS Imagine version 8.5. Previously collected ground control points were used to assess the accuracy of the imagery and the RMS of the residuals for each check point were used to compute a predicted horizontal circular error (CE) of 1.57 meters based on a 95% confidence level. This CE value was doubled to yield a conservative predictor of the accuracy of well defined points measured during compilation. Positional data is referenced to the North American Datum of 1983.

Compilation

The compilation of cartographic feature data for this project was accomplished by a member of the Applications Branch of RSD in February 2006. Digital feature data was compiled in ESRI shapefile format from imagery using ESRI's ArcGIS 9.1 desktop GIS software. Feature attributes were established using the C-COAST specification file, which provides the definition and attribution scheme for the full range of cartographic features pertinent to the CMP. Cartographic features were compiled to meet a horizontal accuracy of 3.1 meters at the 95%

confidence level. This predicted accuracy of well-defined points is based on a minimum of twenty (20) check points that were compared to an independent source of higher accuracy.

Image #	Image Source	Source ID	Source File Name	Acquisition Date/Time
1	Woolpert	2005_Miami-Dade	2005_Miami-Dade.sid	Feb 2005

Although high resolution aerial imagery was available for this project, feature compilation was limited in the northern part of the project area due to the fact that the positional integrity of the Electronic Nautical Chart (ENC) in this area was very good, and only documented changes between the imagery and the current ENC were necessary. The positional integrity of the ENC in the southern part of the project area was quite poor therefore required full compilation of the shoreline. Approximate shoreline was used extensively throughout this project because the dates of the aerial imagery were not provided, therefore making a tidal analysis and accurate determination of the MHW line impossible.

Quality Control / Final Review

Quality control tasks were conducted during all phases of project completion by a senior member of the Applications Branch of RSD. The final QC review was completed in May 2006. The review process included analysis of the georeferencing results and assessment of the identification and attribution of cartographic features according to image analysis and criteria defined in C-COAST. The quality control process concluded with an inspection of topological connectivity within the GC using ArcGIS 9.1. The entire suite of project products was evaluated for compliance to CMP requirements.

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 GC10599 file contents, attached to PCR
- CSCAP evaluation minute memorandum

Remote Sensing Division Electronic Data Library

- Digital copy of GC10599 in shapefile format
- Digital copy of the PCR in Adobe PDF format
- Chart Evaluation File in shapefile format

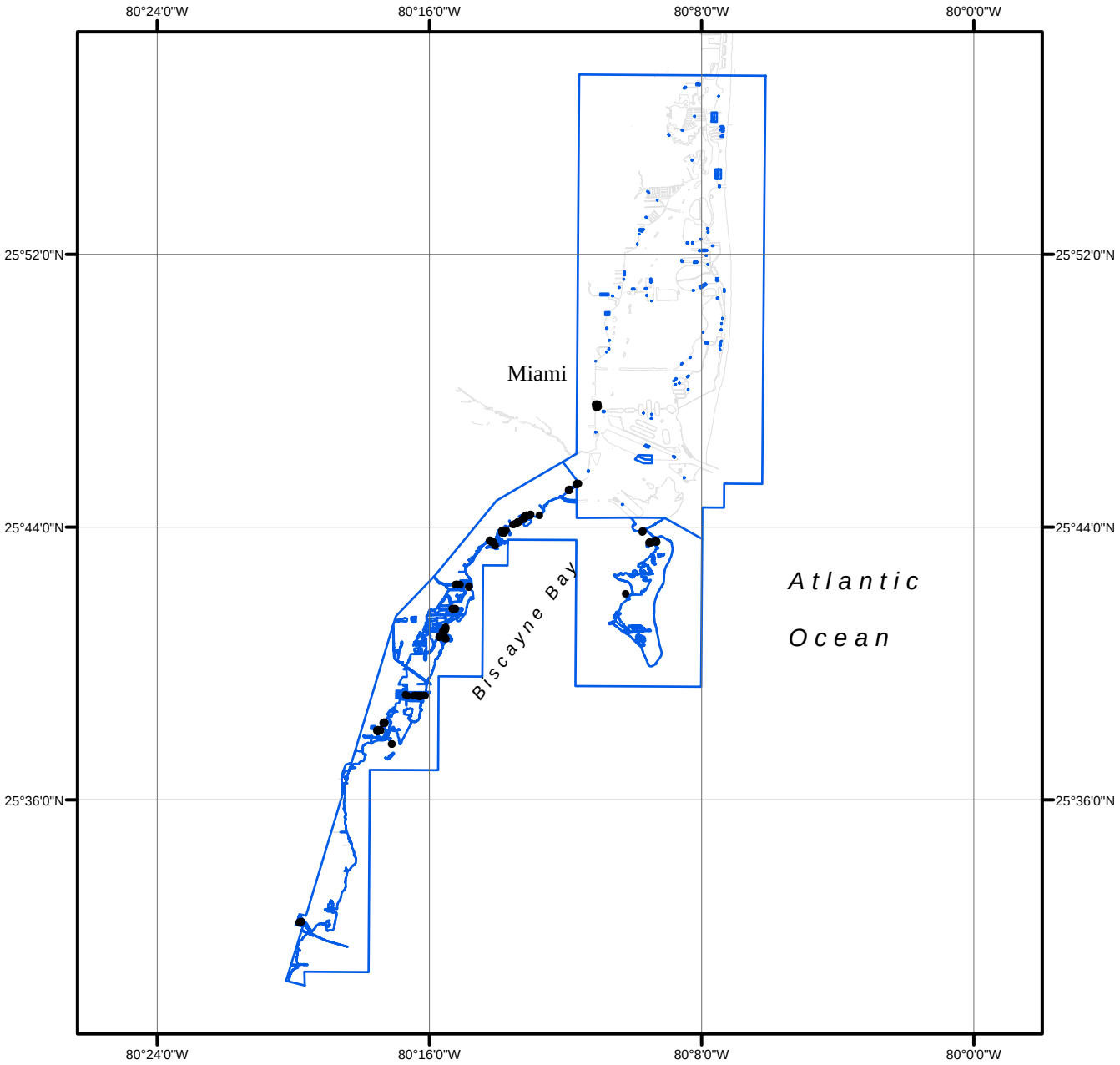
NOAA Shoreline Data Explorer

- Data for GC10599
- Metadata file for GC10599
- Digital copy of the PCR in Adobe PDF format

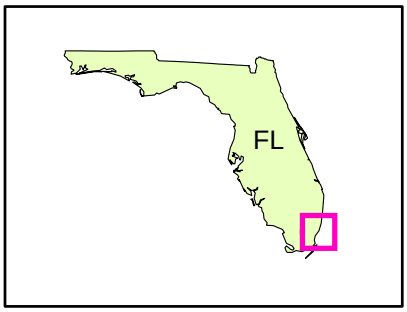
End of Report

PORT OF MIAMI

FLORIDA



Overview



FL0413

GC10599