

# **NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT**

## ***PROJECT FL0412***

### ***Port of Fort Lauderdale, Florida***

#### **Introduction**

Coastal Mapping Program (CMP) Project FL0412 provides highly accurate digital shoreline data for key areas of change within the ports of Fort Lauderdale and Port Everglades, Florida. The digital cartographic feature file (DCFF) 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 FL0412 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 Fort Lauderdale CSCAP Analysis Memorandum 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 for the georeferencing process.

#### **Georeferencing**

One IKONOS non-orthorectified panchromatic image with a spatial resolution of 1 meter, acquired from Space Imaging, Inc., was georeferenced using Erdas IMAGINE 8.5 software on a Windows platform. Within IMAGINE the Raster Geometric Correction tool was used with a 1<sup>st</sup> order polynomial model. Ground control points were acquired from previously measured coastal feature data obtained from the NOAA Shoreline Data Explorer. Once the points were measured in IMAGINE, the satellite imagery was resampled using the Nearest Neighbor sampling method. The RMS of the standard deviations of the residuals for each measured check point was used to compute a predicted horizontal circular error (CE) of 1.5 meters based on a 95% confidence level. This CE value was tripled to yield a conservative predictor of the accuracy of well defined points measured during compilation. Positional data is based on the UTM Coordinate System (Zone 17), and referenced to the North American Datum of 1983 (NAD 83).

#### **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 4.5 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	Tide Stage
1	IKONOS	2004051416152290000011625110	po_143774_pan_0000000.tif	2004-05-14 16:15 GMT	-0.1

\* Tide levels are given in meters above MLLW and are based on actual observations recorded by the NOS gauge at Virginia Key at the time of photography, with offsets applied to the South Port Everglades substation in the project area. The elevation of MHW at South Port Everglades is equal to 0.7 meters above MLLW.

## 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 DCFF 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 GC10598 file contents, attached to PCR
- CSCAP evaluation minute memorandum

### Remote Sensing Division Electronic Data Library

- Digital copy of DCFF GC10598 in shapefile format
- Digital copy of the PCR in Adobe PDF format
- Chart Evaluation File in shapefile format

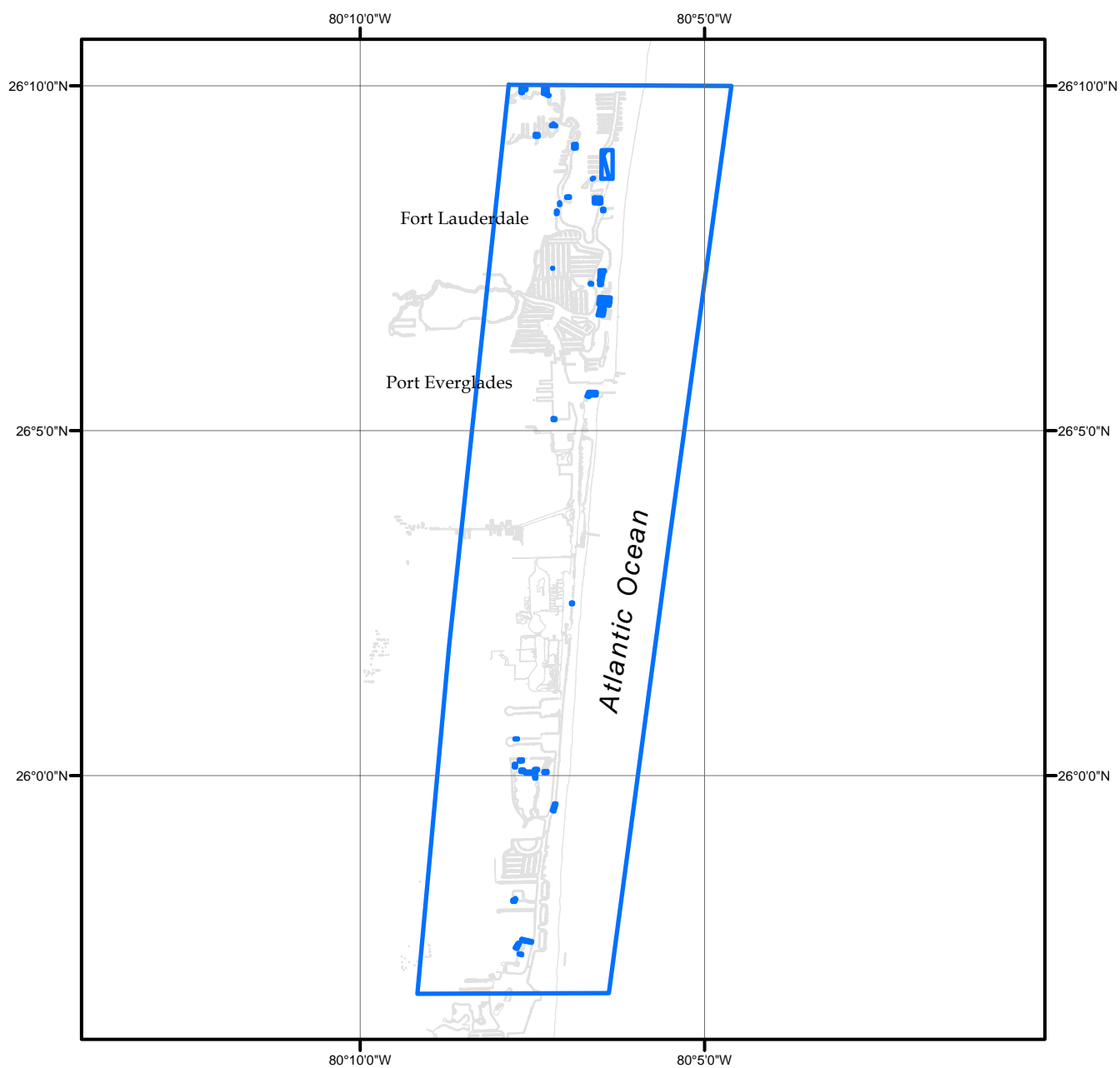
### NOAA Shoreline Data Explorer

- DCFF for GC10598
- Metadata file for GC10598
- Digital copy of the PCR in Adobe PDF format

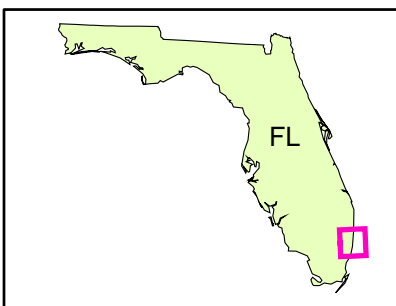
## End of Report

# PORT OF FORT LAUDERDALE

## FLORIDA



Overview



FL0412

GC10598