

NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT

PROJECT GA1402

Port of Brunswick, Georgia

Introduction

Coastal Mapping Program (CMP) Project GA1402 provides highly accurate digital shoreline data for key areas of change within the port of Brunswick, Georgia, and vicinity. The Geographic Cell (GC) may be used in support of the NOAA Nautical Charting Program (NCP) as well as geographic information systems (GIS) for a variety of coastal zone management applications.

Project Design

The design of Project GA1402 was accomplished by the Requirements Branch (RB) of the Remote Sensing Division (RSD). A standard change analysis was conducted within the Coast and Shoreline Change Analysis Program (CSCAP), in which NOAA nautical chart products are compared to contemporary high resolution imagery to ascertain the need for more current shoreline data. Orthorectified panchromatic WorldView-1 satellite images (tiles) were obtained from DigitalGlobe, Inc. for this analysis. A Chart Evaluation File (CEF) was forwarded from RB to the Applications Branch (AB) of RSD upon completion of the CSCAP analysis. Refer to the RB CSCAP memorandum of October 7, 2014, for further details of the chart comparison process and imagery used.

Field Operations

Routine CMP field operations did not apply for this project based on the origin of the project source data.

Georeferencing

This phase of project completion was initiated by a member of AB in December 2014. In addition to the panchromatic WorldView-1 imagery discussed above, orthorectified color aerial image mosaics from the US Department of Agriculture's National Agriculture Imagery Program (NAIP) were obtained as a further aid in compilation. All imagery, listed chronologically in tabular format in the section below, was assessed for positional accuracy and determined to be suitable for feature compilation without need for further image georeferencing tasks. Photo-identifiable ground control points from previously compiled projects GA0205 (GC10537) and GA0301B (GC10577) were used for this assessment. The RMS of the residuals for measured check points was used to compute horizontal accuracies at the 95% confidence level (CE95) of: 4.2 meters for image #1; 1.9 meters for image #2; 3.3 meters for image #3; and 3.4 meters for image #4. These values were added to the CE95 of the source from which check points were obtained in order to 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 accomplished by AB personnel in January 2015. Digital feature data was compiled in shapefile format using ArcGIS 10.2.2. 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 GA1402 were determined according to standard Federal Geographic Data Committee (FGDC) practices. Cartographic features compiled from imagery were tested to have horizontal accuracies at the 95% confidence level of: 4.8 meters for image #1; 2.5 meters for image #2; and 3.9 meters for image #3. Features compiled from image #4 were compiled to meet a horizontal accuracy of 4.0 meters at the 95% confidence level. The table below provides detailed information on the imagery used for feature compilation.

Image #	Image Source	Source ID	Resolution	Acquisition Date/Time	Tide Level*
1	WorldView-1	20100304_162540_wv1_R1C1.tif 20100304_162540_wv1_R1C2.tif 20100304_162540_wv1_R1C3.tif 20100304_162540_wv1_R2C1.tif 20100304_162540_wv1_R2C2.tif 20100304_162540_wv1_R2C3.tif	0.5 m	3/4/2010 16:25 GMT	2.0-2.1 m
2	ADS40 (NAIP)	ortho_1-1_1n_s_ga127_2013_1.sid ortho_1-1_1n_s_ga039_2013_1.sid	1.0 m	10/10/2013 16:22-17:16 GMT	2.5-2.7 m
3	WorldView-1	20140418_160059_R12C1.tif 20140418_160059_R12C2.tif 20140418_160059_R12C3.tif 20140418_160059_R13C1.tif 20140418_160059_R13C2.tif 20140418_160059_R13C3.tif 20140418_160059_R14C1.tif 20140418_160059_R14C2.tif 20140418_160059_R14C3.tif 20140418_160059_R15C1.tif 20140418_160059_R15C2.tif 20140418_160059_R15C3.tif	0.5 m	4/18/2014 16:01 GMT	2.4-2.5 m
4	WorldView-1	20140704_155807_R1C1.tif 20140704_155807_R2C1.tif	0.5 m	7/4/2014 15:58 GMT	0.9-1.3 m

* Tide levels are given in meters above MLLW and are based on actual observations at NOS water level reference stations at Fernandina Beach, FL (#8720030) and Fort Pulaski, GA (#8670870) with time and height offsets applied to several substations within the project area. The elevation of MHW in the project area ranges from approximately 2.1 to 2.4 meters above MLLW.

Quality Control / Final Review

Quality control tasks were conducted by a senior member of RSD in February 2015. Image geopositioning was verified and the identification and attribution of digital feature data within the GC was evaluated 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 10.2.2. All project products were 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 GC11125 file contents, attached to PCR
- Hardcopy of the CSCAP evaluation memorandum
- Hardcopies of other information and communication related to project completion

Remote Sensing Division Electronic Data Library

- GC11125 in shapefile format
- Digital copy of the PCR in Adobe PDF format
- CEF in shapefile format

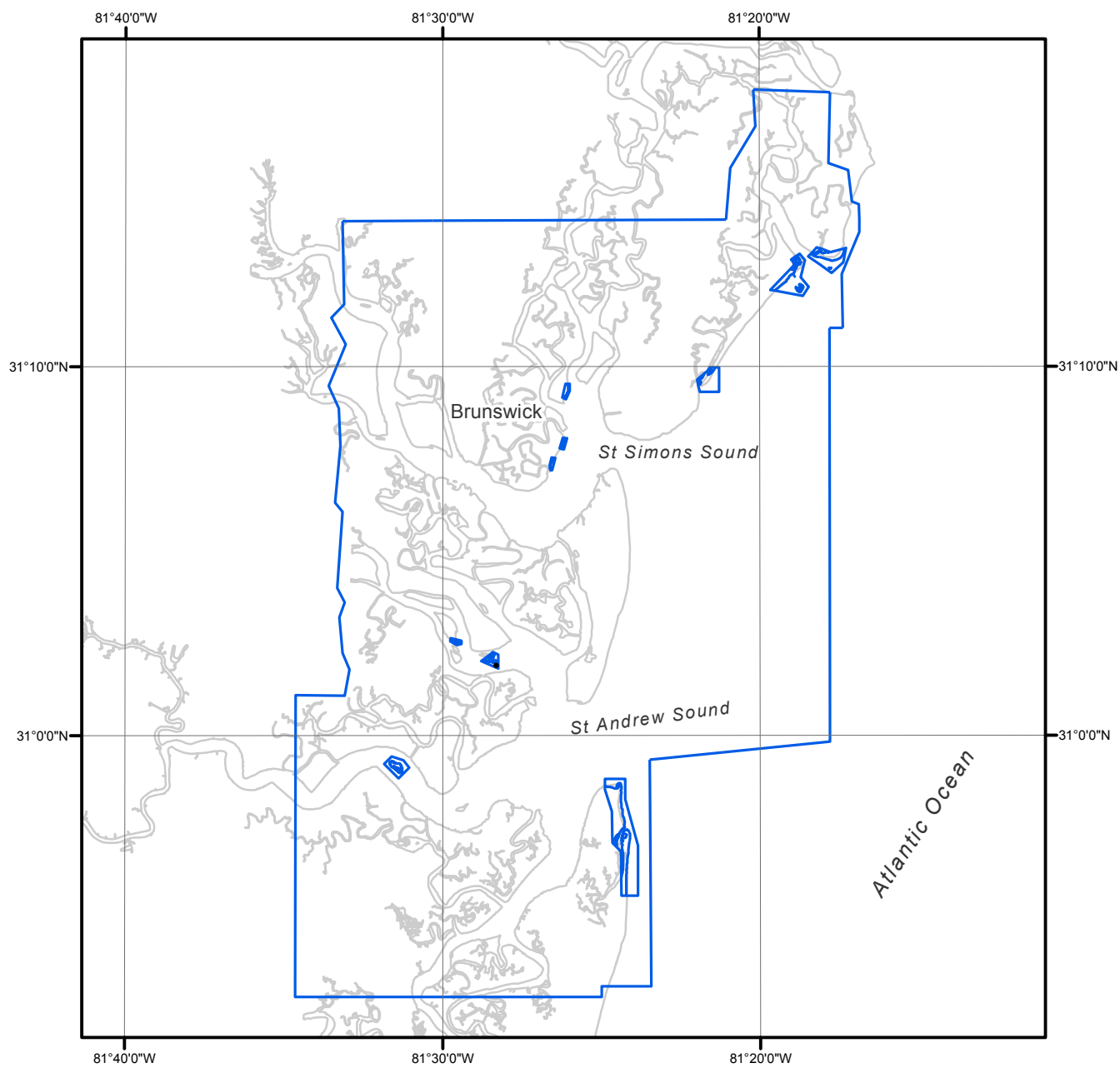
NOAA Shoreline Data Explorer

- GC11125 in shapefile format
- Metadata file for GC11125
- Digital copy of the PCR in Adobe PDF format

End of Report

PORT OF BRUNSWICK

GEORGIA



Overview



GA1402

GC11125