NOAA COASTAL MAPPING PROGRAM
PROJECT COMPLETION REPORT

PROJECT NJ1001

Naval Weapons Station Earle, Leonardo, New Jersey

Introduction

Coastal Mapping Program (CMP) Project NJ1001 provides highly accurate digital shoreline data for key areas of change in the vicinity of Naval Weapons Station Earle, Leonardo, New Jersey. 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

Project NJ1001 requirements were designed in response to a request from the Office of Coast Survey (OCS) for an expedited verification of recently completed construction on the Earle/Leonardo pier complex.

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 QuickBird non-orthorectified, panchromatic image with a spatial resolution of 0.61 meters, acquired from the National Geospatial-Intelligence Agency (NGA) via the unclassified Web-Based Access and Retrieval Portal (WARP), was georeferenced using Erdas IMAGINE® (v. 9.2) image processing software. Ground control points (GCPs), measured from the State of New Jersey Digital Ortho Quarter Quadrangles (DOQQ's), were imported into IMAGINE and used to georeference the satellite imagery. Within IMAGINE, the Raster Geometric Correction tool was used with a 1st order polynomial model. The RMS of the standard deviations of the residuals for each of the twenty-one (21) measured check points were used to compute a predicted horizontal circular error (CE) of 1.1 meters based on a 95% confidence level. This CE value was tripled and then added to the CE95 of the source imagery from which ground control points were extracted, in order to conservatively predict the accuracy of well-defined points measured during the compilation process. A Georeferencing Report was written and is on file with other project data within the RSD Project Archive. Positional data is based on the UTM Coordinate System (Zone 18), and referenced to the North American Datum of 1983.

Compilation

The data compilation phase of the project was initiated by RSD personnel in January 2010. Digital feature data was compiled in ESRI shapefile format from the satellite image

using ESRI's ArcGIS 9.3 desktop GIS software. 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 Project NJ1001 were determined according to standard Federal Geographic Data Committee (FGDC) practices. Cartographic features were tested to have 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 high accuracy.

The following information pertains to the image used to complete this project:

Image #	Image Source	Source ID	Acquisition Date/Time	Tide Level*
1	Quickbird	09JUL14155649-P1BS-052122025010_02_P005	2009-07-14 15:56 GMT	1.4

* Tide levels are given in meters above MLLW and are based on actual observations recorded by the NOS gauge at the time of photography. The elevation of the MHW tidal datum at the Sandy Hook, NJ tide gauge is equal to 1.6 meters above MLLW.

Quality Control / Final Review

Quality control tasks were conducted during all phases of project completion by a senior member of AB. The final QC review was completed in January 2010. The review process included analysis of the georeferencing results and assessment of the identification and attribution of digital feature data within the GC 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 9.3. The entire suite of project products was evaluated for compliance to CMP requirements.

Comparison of the largest scale NOAA nautical chart with the satellite image and compiled project data resulted in creation of the Chart Evaluation File (CEF). The following nautical chart was used for comparison:

12401, New York Lower Bay Southern Part, 1:15,000 scale, 10th edition

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 Accuracy Assessment
- Hardcopy of the Georeferencing Report
- Hardcopy of the Project Completion Report (PCR)
- Page size graphic plot of GC10798 file contents, attached to PCR

Remote Sensing Division Electronic Data Library

- Project database
- GC10798 in shapefile format
- Digital copy of the PCR in Adobe PDF format
- CEF in shapefile format

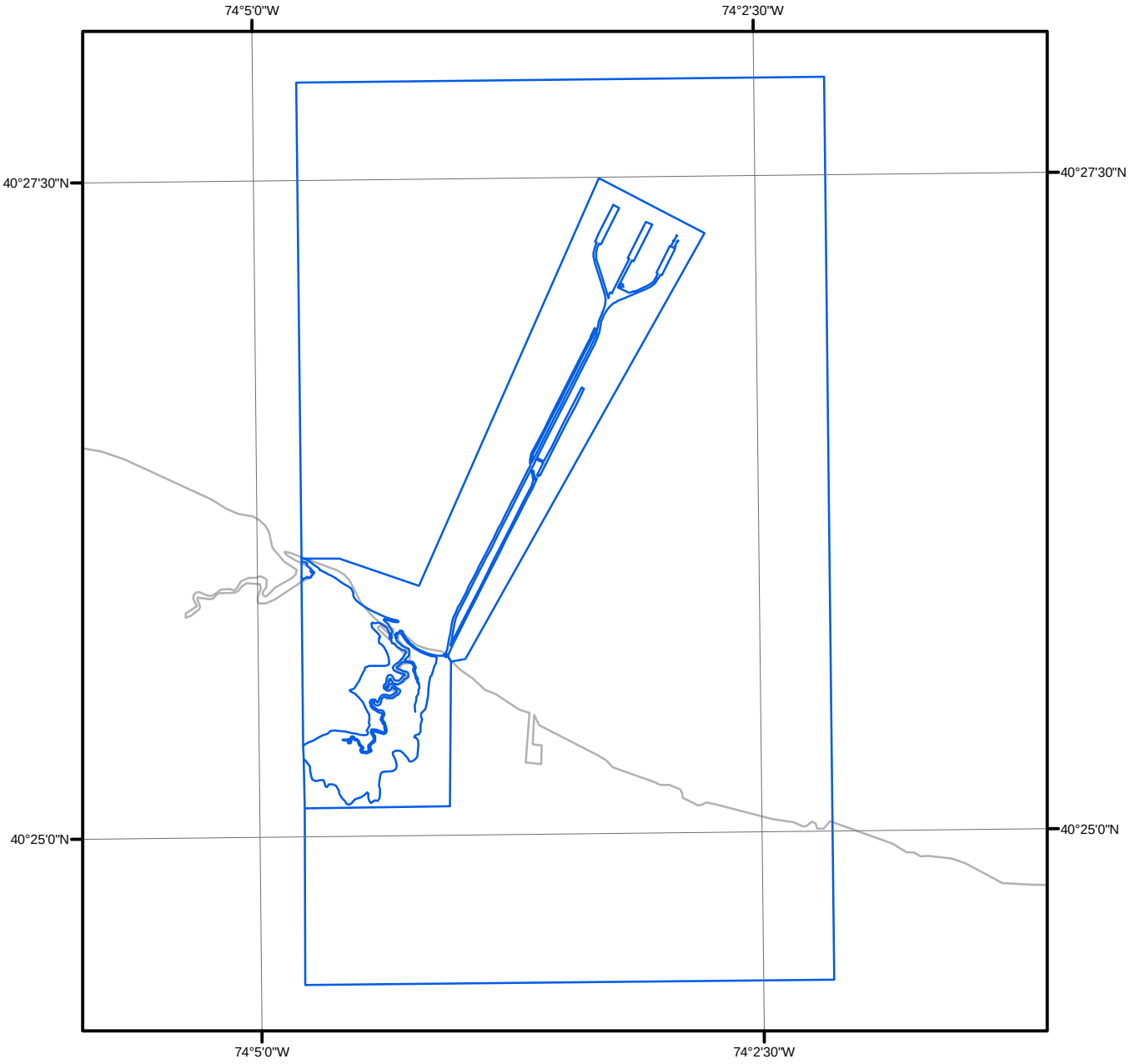
NOAA Shoreline Data Explorer

- GC10798 in shapefile format
- Metadata file for GC10798
- Digital copy of the PCR in Adobe PDF format

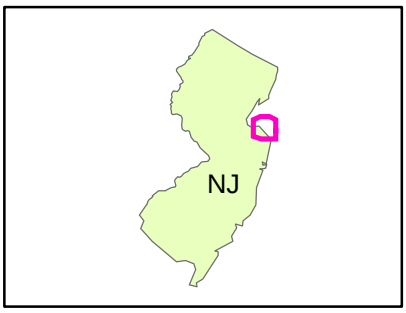
End of Report

NAVAL WEAPONS STATION EARLE, LEONARDO

NEW JERSEY



Overview



NJ1001

GC10798