

NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT

PROJECT CT1102

Port of New London/Groton, Connecticut

Introduction

NOAA Coastal Mapping Program (CMP) Project CT1102 provides a highly accurate database of new digital shoreline data for the port of New London/Groton, Connecticut. 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 CT1102 was accomplished by the Requirements Branch (RB) of the Remote Sensing Division (RSD) in response to the need for updates to NOAA's Electronic Navigational Chart (ENC) 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 RB CSCAP memorandum of December 7, 2010, for details of 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 WorldView-1 panchromatic images with a spatial resolution of 0.5 meters was georeferenced using Erdas IMAGINE 9.3 software on a Windows platform. Ground controls points (GCPs), photogrammetrically measured from previously aerotriangulated images from CMP Project CT0401E, 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 satellite imagery was resampled using the Nearest Neighbor sampling method. The RMS of the residuals for measured check points was used to compute a circular error of 1.4 meters based on a 95% confidence level. This value was tripled and then added to the CE95 of the source imagery 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 AB 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 this project was accomplished by RSD in April 2011. Digital feature data was compiled in ESRI shapefile format from imagery 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. Selected cartographic features were further modified with additional descriptive information to refine general classification.

Spatial data accuracies for Project CT1102 were determined according to standard Federal Geographic Data Committee (FGDC) practices. Cartographic features were tested to have a horizontal accuracy of 5.8 meters at the 95% confidence level. This predicted accuracy of well-defined points is based on a comparison of twenty (20) check points to an independent source of higher accuracy.

The following table provides information on the satellite images used in the project completion:

| Image Source | Source File Name | Acquisition Date/Time | Tide Level* |
|--------------|---|-----------------------|-------------|
| WorldView-1 | 10aug14155401-p1bs-052372610010_01_p001.tif | 2010-08-14, 15:54 GMT | 0.9 |

* Tide levels are given in meters above MLLW and are based on actual observations recorded by the NOS tide gauge at New London, Connecticut at the time of imagery acquisition. The elevation of the MHW tidal datum at New London is equal to 0.9 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 June 2011. 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.

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 Georeferencing Report
- Hardcopy of the Project Completion Report (PCR)
- Page size graphic plot of GC10870 file contents, attached to PCR
- Hardcopy of the CSCAP evaluation memorandum

Remote Sensing Division Electronic Data Library

- GC10870 in shapefile format
- Digital copy of the PCR in Adobe PDF format
- Chart Evaluation File (CEF) in shapefile format

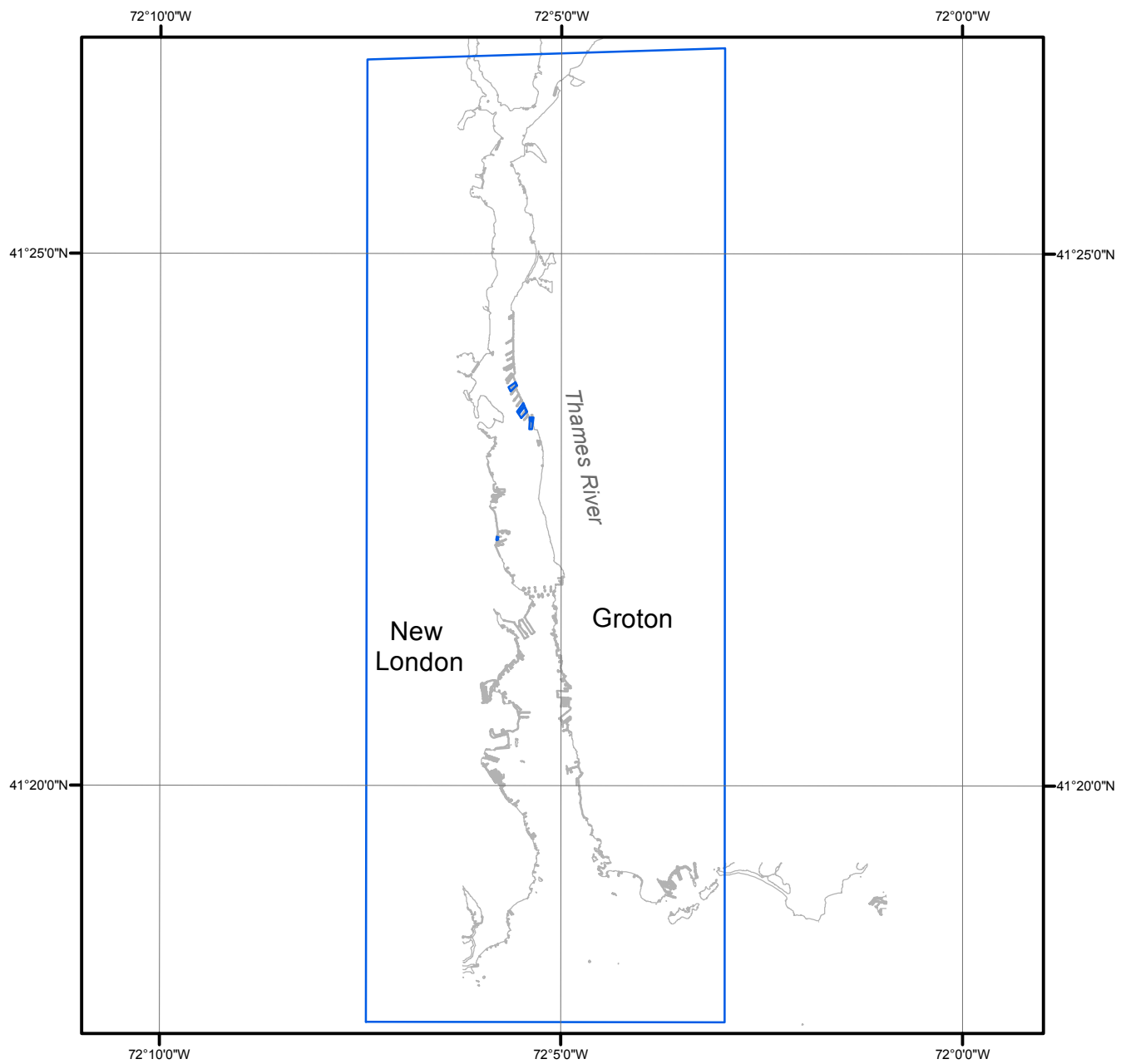
NOAA Shoreline Data Explorer

- GC10870 in shapefile format
- Metadata file for GC10870
- Digital copy of the PCR in Adobe PDF format

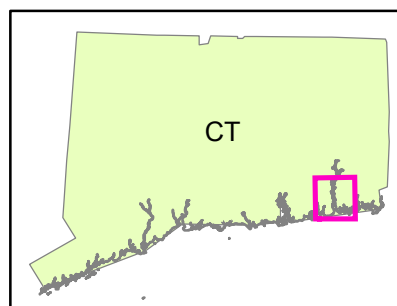
End of Report

PORT OF NEW LONDON / GROTON

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Overview



CT1102

GC10870