NOAA COASTAL MAPPING PROGRAM
PROJECT COMPLETION REPORT

PROJECT NY1702-CM-T

Rochester Harbor, Genesee River, New York

Introduction

Coastal Mapping Program (CMP) Project NY1702-CM-T provides highly accurate digital shoreline data for key areas of change in Rochester Harbor, within the Genesee River, New York. 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

Project NY1702-CM-T was designed in response to a request from the Marine Chart Division (MCD) of the Office of Coast Survey, NOAA. Based on analysis of project requirements and results of a source data search, it was determined that CMP procedures for multiple source projects would apply for this project. Available source data deemed adequate for successful completion of this project included one orthorectified, pan-sharpened natural color satellite image (tile) from DigitalGlobe, Inc. Upon receipt of project imagery, a comparison was conducted with the largest scale NOAA nautical chart coverage resulting in creation of a Chart Evaluation File (CEF) containing additional identified changes. The chart used for this comparison was 14815 Rochester Harbor, 24th Ed., Dec. 2013, 1:10,000 scale.

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

Georeferencing tasks were conducted using Esri's ArcGIS® (v10.3.1) desktop GIS software by a member of the Applications Branch (AB) of the Remote Sensing Division (RSD) in April 2017. Feature data from a previously completed RSD project, NY0905B (GC10827), was used as control. Within ArcGIS, the Georeferencing toolset was used, and the georeferenced image was resampled using the Nearest Neighbor method with a 1st order polynomial model. The RMS of the residuals for measured check points was used to compute a horizontal accuracy at the 95% confidence level (CE95) of 0.6 meters. This value was doubled and added to the CE95 of the source from which check points were obtained in order to conservatively 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

The compilation of cartographic feature data for this project was accomplished by a member of the AB in April 2017. Using ArcGIS software, digital feature data was compiled in Esri shapefile

format from the satellite imagery. 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.

Spatial data accuracies for NY1702-CM-T were determined according to standard Federal Geographic Data Committee (FGDC) practices. Cartographic features were tested to have a horizontal accuracy of 1.8 meters at the 95% confidence level. This predicted accuracy of well-defined points is based on comparison of at least twenty (20) check points to an independent source of higher accuracy. The table below contains information on the image used for compilation:

Image Source	Source File ID (Tile)	Acquisition Date/Time	Lake Level*
WorldView-2	20160804_1601_WV2_ORI_R1C1.jp2	2016-08-04 / 16:01:55	74.9 m

* Lake water levels are given in meters above IGLD85 and are based on verified observations at the NOS station at Rochester, New York. The Low Water Datum (LWD) for Lake Ontario is 74.2 m above IGLD85.

Quality Control / Final Review

Quality control tasks were conducted upon project completion by senior CMP personnel in April 2017. The review process included a review 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 10.3.1. 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:

Remote Sensing Division Electronic Data Library
- Project database
- GC11311 in shapefile format
- Project Completion Report (PCR)
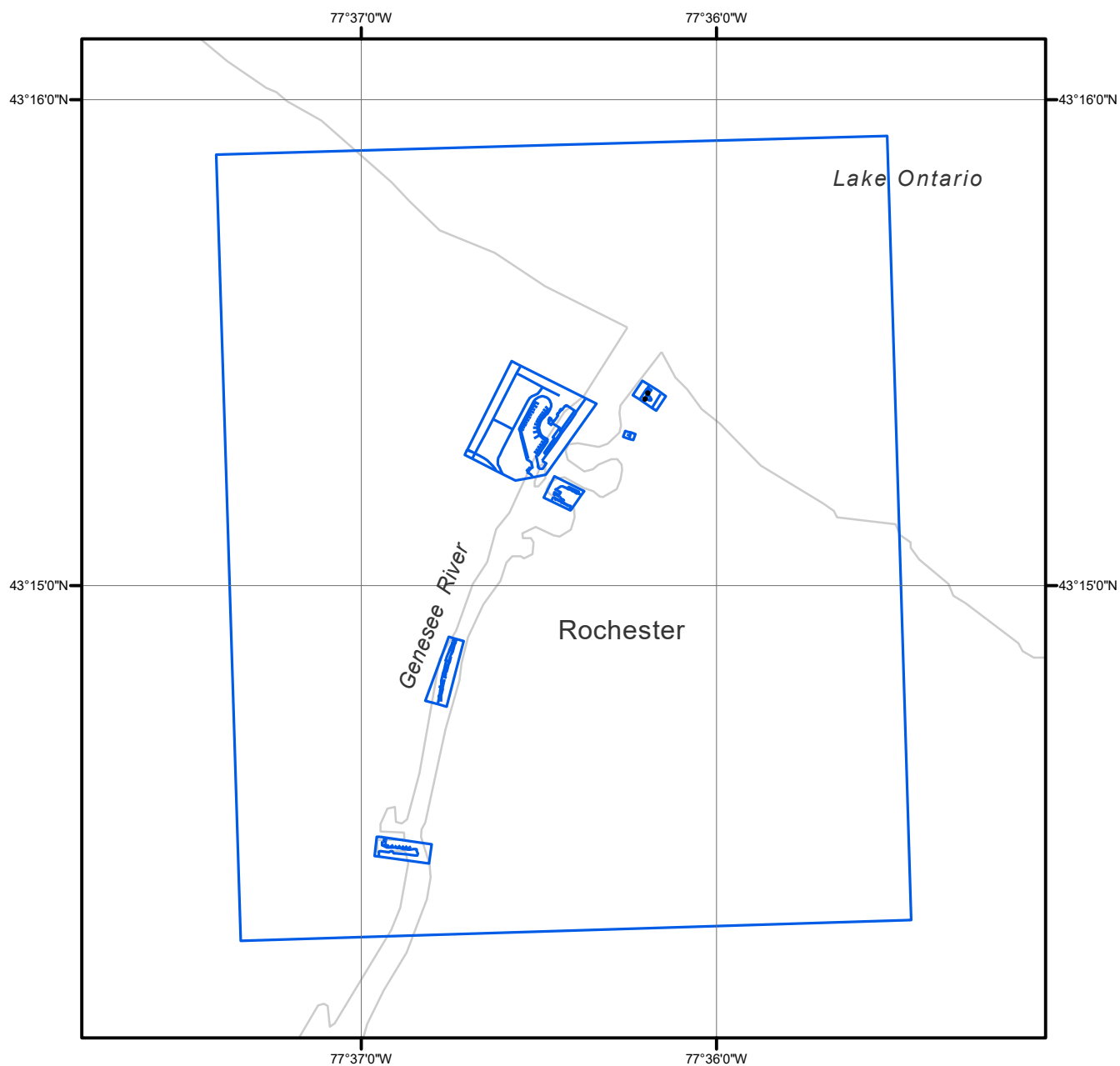- CEF in shapefile format

NOAA Shoreline Data Explorer
- GC11311 in shapefile format
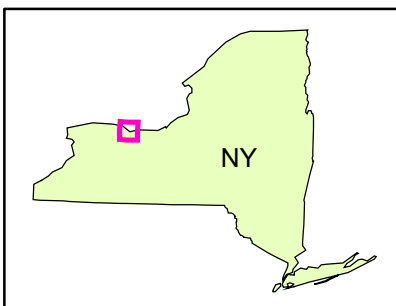- Metadata file for GC11311
- Digital copy of the PCR

End of Report

ROCHESTER HARBOR, GENESEE RIVER

NEW YORK

77°37'0"W — 77°36'0"W

43°16'0"N

Lake Ontario

43°15'0"N

Genesee River

Rochester

77°37'0"W — 77°36'0"W

Overview

NY

NY1702-CM-T

GC11311