

NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT

PROJECT NY1703-CM-T

Hudson River at Castleton-on-Hudson, New York

Introduction

Coastal Mapping Program (CMP) Project NY1703-CM-T provides highly accurate digital shoreline data for key areas of change along the Hudson River in the vicinity of Castleton-on-Hudson, 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 NY1703-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 panchromatic 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 12348 Hudson River—Coxsackie to Troy, 34th Ed., Jun. 2015, 1:40,000 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

The satellite imagery was assessed for positional accuracy using the published locations of NGS third order geodetic control and compared very well spatially, with all checked control points observed within Digital Globe's standard accuracy. Therefore the imagery was determined to be suitable for feature compilation without need for additional image georeferencing tasks. 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 Remote Sensing Division's Applications Branch in May 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. Selected features were further modified with additional descriptive information to refine general classification.

Spatial data accuracies for NY1703-CM-T were determined according to standard Federal Geographic Data Committee (FGDC) practices. The standard vendor-reported RMSE was used to calculate a horizontal accuracy of 6.8 meters at the 95% confidence level in order to predict the accuracy of well-defined points measured during feature compilation. The table below contains information on the image used for compilation:

Image Source	Source File ID (Tile)	Acquisition Date/Time	Water Level*
WorldView-1	20161010_1846_WV01_ORI_MOS.jp2	2016-10-10 / 18:46:22	0.8 m

* Tide level is given in meters above MLLW and is based on predicted water levels for the NOS station at Castleton, NY (#8518989). The elevation of the MHW tidal datum in the project area is approximately 1.5 meters above MLLW.

Quality Control / Final Review

Quality control tasks were conducted upon project completion by senior CMP personnel in May 2017. The review process included a review of image georeferencing 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 10.4.1. 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
- GC11316 in shapefile format
- Project Completion Report (PCR)
- CEF in shapefile format

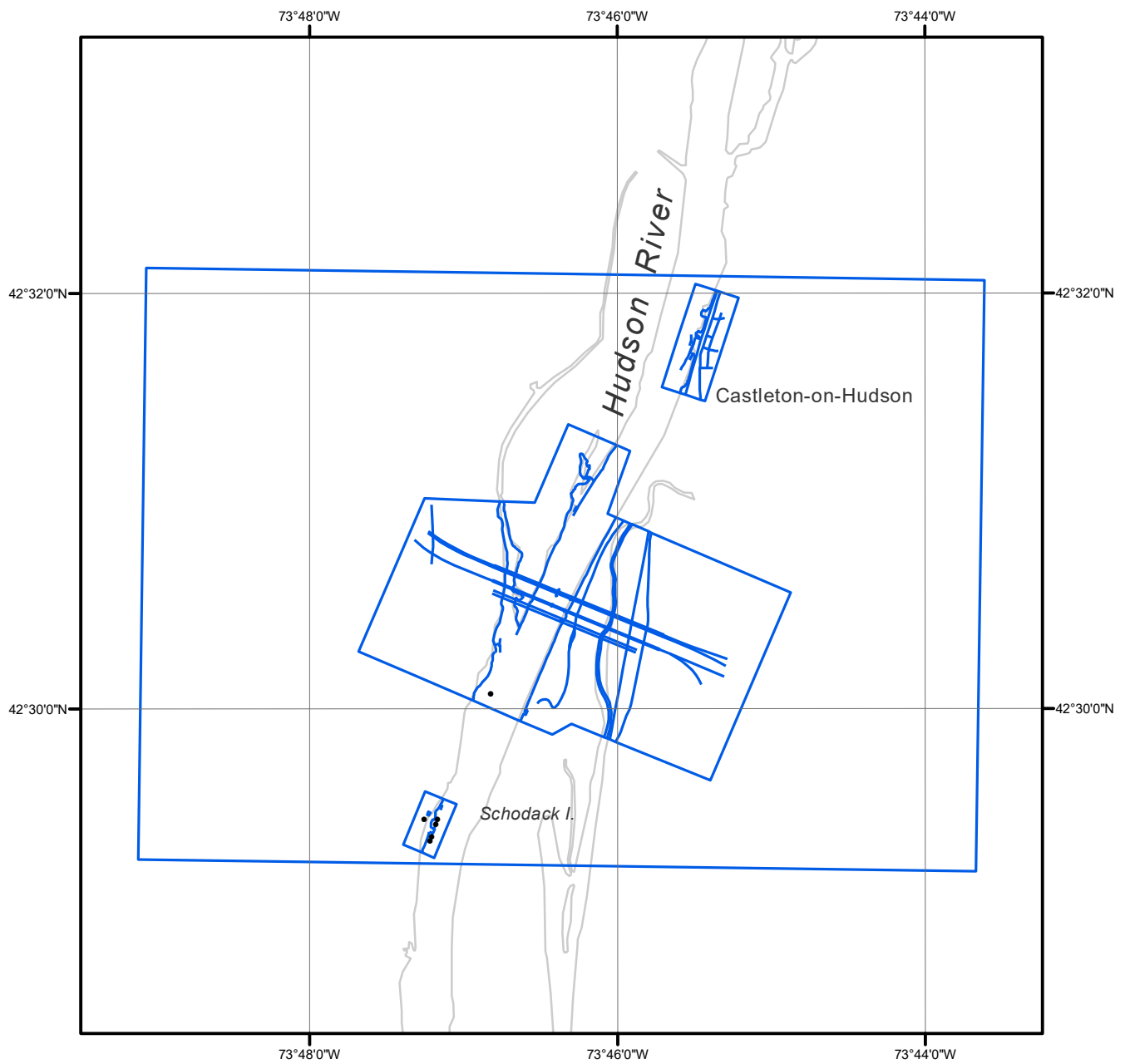
NOAA Shoreline Data Explorer

- GC11316 in shapefile format
- Metadata file for GC11316
- Digital copy of the PCR

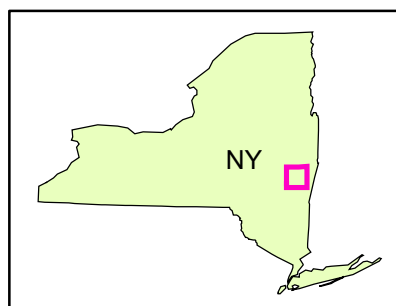
End of Report

HUDSON RIVER AT CASTLETON-ON-HUDSON

NEW YORK



Overview



NY1703-CM-T

GC11316