

NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT

PROJECT NY1003

East River, 3rd Street to Hell Gate

Introduction

Coastal Mapping Program (CMP) Project NY1003 provides highly accurate digital shoreline data for key areas of change within the New York East River, from 3rd Street to Hell Gate, including a portion of the Newtown Creek. 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 NY1003 was designed per a request from the Hydrographic Surveys Division (HSD) of the Office of Coast Survey, NOAA, for GIS data in support of HSD operations. Based on an 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 WorldView satellite image acquired in July 2009.

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 WorldView satellite image was georeferenced by a member of the Applications Branch (AB) using ERDAS Imagine software version 9.0, with previously aerotriangulated imagery from an earlier RSD project, NY9904B, as control. The control points used in the georeferencing process were selected in a well-distributed arrangement from the highly accurate aerial photography. The horizontal accuracy at the 95% confidence level for this control imagery is 0.90 meters. See the NY9904B and Aerotriangulation Report for AT methods and results.

An accuracy assessment was then performed by a member of AB. Independent check points were measured between the control imagery and the satellite imagery for the accuracy assessment. The RMS of the residuals for each check point was used to compute a predicted horizontal circular error (CE) at the 95% confidence level for the imagery equal to 1.7 meters. This CE for the image was then tripled and added to the 95%CE of the reference source data to yield a conservative predictor of the accuracy of well defined points measured during compilation. Please refer to the NY1003 Georeferencing Report for more details. All positional data is referenced to the North American Datum of 1983.

Compilation

The compilation of cartographic feature data for this project was accomplished by a member of the Applications Branch of RSD in October 2009. Digital feature data was compiled in ESRI shapefile format from the satellite imagery using ESRI's ArcGIS 9.3 desktop GIS software. 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. Cartographic features were compiled to

meet a horizontal accuracy of 5.9 meters at the 95% confidence level. This predicted accuracy of well-defined points is based on a comparison using eighteen (18) check points measured from an independent source of higher accuracy.

Image #	Image Source	Image File Name	Acquisition Date/Time (GMT)	Tide Stage
1	WorldView	ny1003_gi_002_02_georef_8bit.tif	2009-07-14 / 15:56	1.3

* Tide levels are given in meters above MLLW and are based on actual observations recorded by the NOS gauges at The Battery, at the time of photography. The elevation of MHW at The Battery, New York Harbor is 1.4 meters above MLLW.

Quality Control / Final Review

Quality control tasks were conducted during all phases of project completion by a senior member of the Applications Branch of RSD. The final QC review was completed in October 2009. The review process included analysis of the georeferencing results and assessment of the identification and attribution of cartographic features 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.

Comparisons of the largest scale NOAA nautical charts with satellite imagery and compiled project data resulted in creation of the Chart Evaluation File (CEF). The following nautical charts were used in the comparison process:

12335 Hudson and East Rivers	1:10,000	43 rd Ed. Apr /09
12338 East River – Newtown Creek	1:5,000	10 th Ed. Sep /06
12339 East River – Tallman Island to Queensboro Bridge	1:10,000	46 th Ed. Jun /08

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 GC10787 file contents, attached to PCR

Remote Sensing Division Electronic Data Library

- GC10787 in shapefile format
- Digital copy of the PCR in Adobe PDF format
- Chart Evaluation File in shapefile format

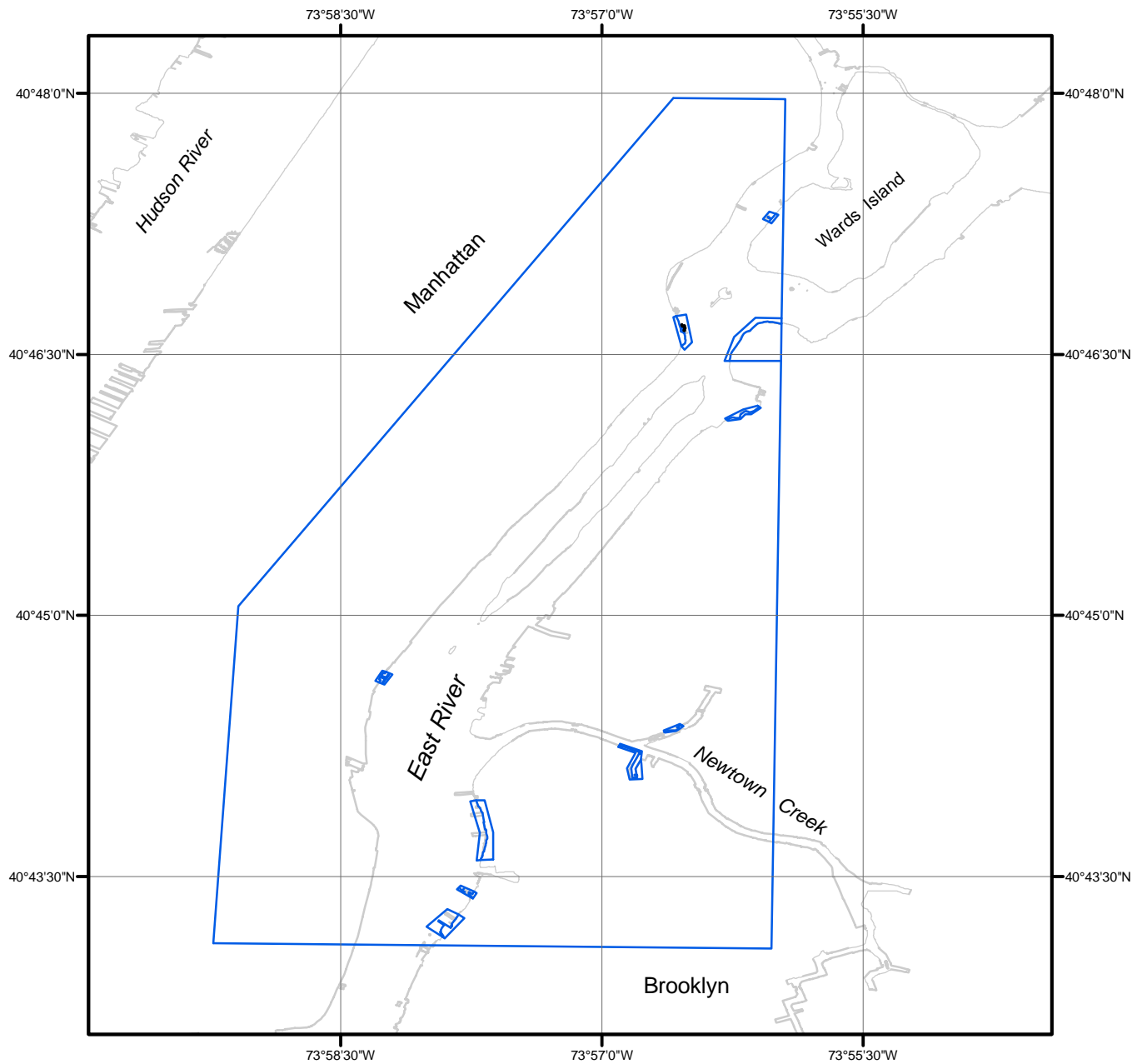
NOAA Shoreline Data Explorer

- GC10787 in shapefile format
- Metadata file for GC10787
- Digital copy of the PCR in Adobe PDF format

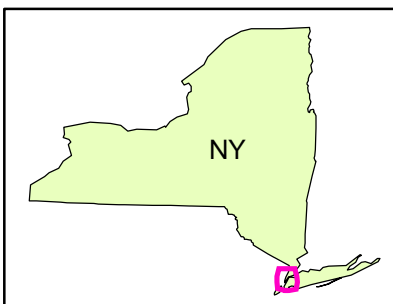
End of Report

EAST RIVER, 3RD STREET TO HELL GATE

NEW YORK



Overview



NY1003

GC10787