

# **NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT**

## ***PROJECT NY1302***

### ***New York Harbor, Upper Bay and Narrows, New York and New Jersey***

#### **Introduction**

Coastal Mapping Program (CMP) Project NY1302 provides highly accurate digital shoreline data for key areas of change within New York Harbor, Upper Bay and Narrows, including the eastern portion of Kill Van Kull, in New York and 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 coastal zone management applications.

#### **Project Design**

Project NY1302 was designed per a request from the Marine Chart Division (MCD) of the Office of Coast Survey, NOAA, for shoreline data to support a new edition of Chart 12334 in response to recent shoreline changes in the wake of Hurricane Sandy. Three panchromatic WorldView-2 satellite images, acquired by DigitalGlobe from February through March 2013, were obtained through the National Geospatial-Intelligence Agency (NGA) in response to this request. The spatial resolution of these images ranges from 0.5 to 0.8 meters.

#### **Field Operations**

Routine CMP field operations did not apply for this project based on the origin of the project source data.

#### **Georeferencing**

The WorldView images were georeferenced by a member of the Applications Branch (AB) of the Remote Sensing Division (RSD) using ESRI's ArcGIS® desktop GIS software (ver. 9.3.1). Control points were measured from previously compiled feature data from CMP Project NY9904B and imported into ArcGIS for use in the georeferencing process. See the Project Completion Report for NY9904B for more information on the source of control in this project.

Within ArcGIS, the Georeferencing tool was used, and the images were re-sampled using the Nearest Neighbor method with a 1st order polynomial model. The RMS of the residuals for measured check points were used to compute horizontal accuracies at the 95% confidence level (CE95) ranging from 1.3 to 1.7 meters for the satellite images. These values were doubled and added to the reported accuracy (CE95) of the feature data from which the check points were obtained 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 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 June 2013. Using ESRI's ArcGIS desktop (ver. 9.3.1), digital feature data was compiled in shapefile format. 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 Project NY1302 were determined according to standard Federal Geographic Data Committee (FGDC) practices. Cartographic features were tested to have a horizontal accuracy of 3.6 meters or better at the 95% confidence level by comparing a minimum of twenty (20) check points to an independent source of higher accuracy. The table below provides detailed information on the images used for feature compilation.

Image Source	Source File Name	Acquisition Date/Time	Resolution	Tide Stage*
WorldView-2	13FEB14162215-P1BS-500062164180_01_P004.tif	2013-02-14 / 16:22:15	0.5 m	1.6 m
WorldView-2	13MAR10163611-P1BS-500062166070_01_P002.tif	2013-03-10 / 16:36:11	0.6 m	0.4 – 0.5 m
WorldView-2	13MAR10163612-P1BS-500062166070_01_P003.tif	2013-03-10 / 16:36:12	0.8 m	0.4 – 0.5 m

\* Tide levels are given in meters above MLLW and are based on verified observations recorded by the NOS tide stations at Sandy Hook, NJ, and The Battery, NY at the time of photography. The elevation of MHW is 1.4 meters above MLLW in the project area.

## Quality Control / Final Review

Quality control tasks were conducted by a senior cartographer within the CMP. The final QC review was completed in June 2013. The review process consisted of an 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 chart with satellite imagery and compiled project data resulted in creation of the Chart Evaluation File (CEF). The following nautical chart was used in the comparison process:

12334 New York Harbor, Upper Bay and Narrows, 1:10,000 scale, 71<sup>st</sup> Ed., Jun./11

## 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 GC10996 file contents, attached to PCR

**Remote Sensing Division Electronic Data Library**

- GC10996 in shapefile format
- Digital copy of the PCR in Adobe PDF format
- Chart Evaluation File in shapefile format

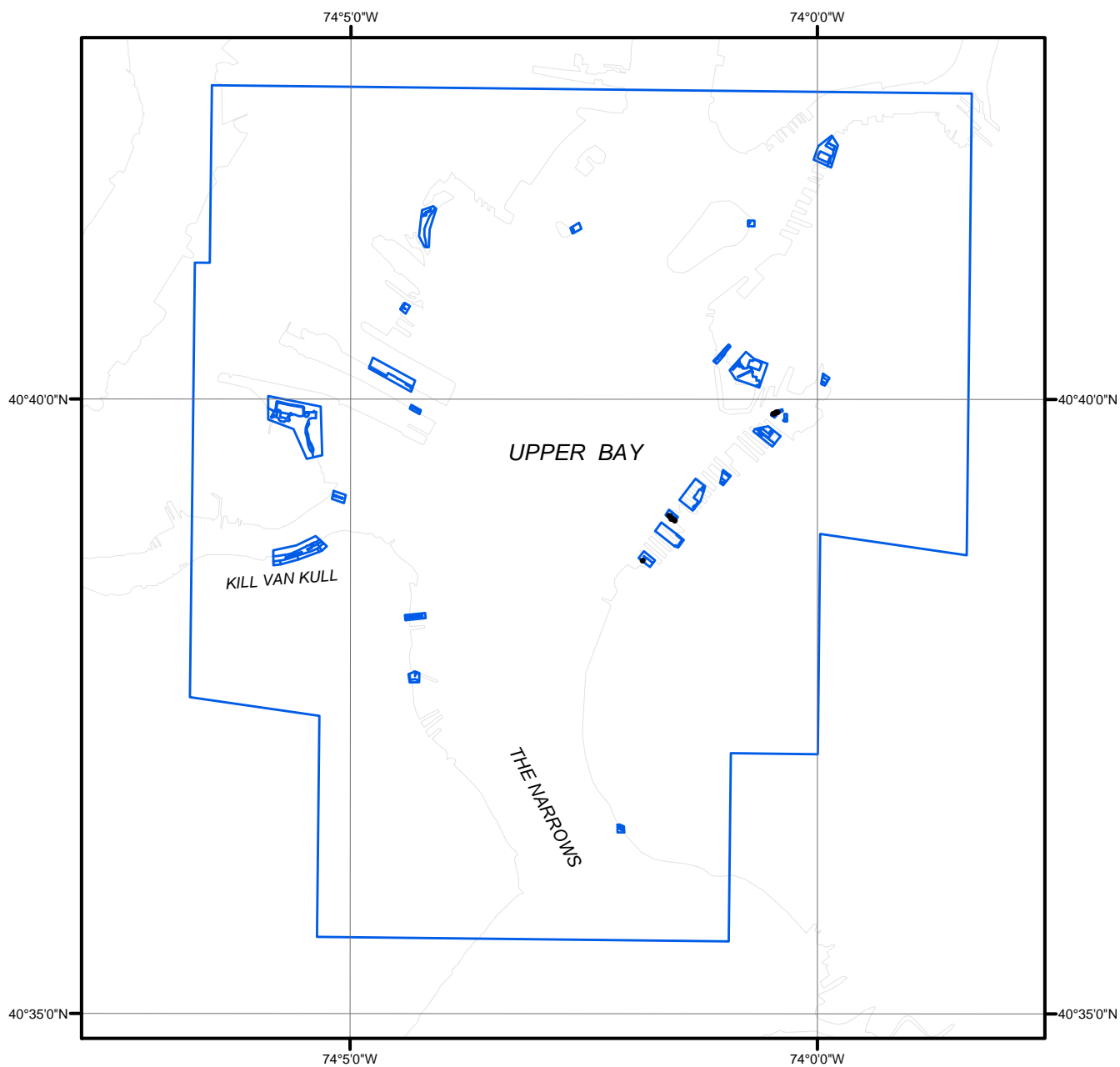
**NOAA Shoreline Data Explorer**

- GC10996 in shapefile format
- Metadata file for GC10996
- Digital copy of the PCR in Adobe PDF format

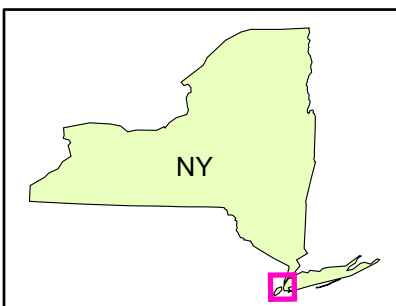
**End of Report**

# NEW YORK HARBOR, UPPER BAY AND NARROWS

## NEW YORK AND NEW JERSEY



Overview



NY1302

GC10996