

NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT

PROJECT VA1303

Gloucester Point, York River, Virginia

Introduction

Coastal Mapping Program (CMP) Project VA1303 provides highly accurate digital shoreline data for Gloucester Point, in the York River, Virginia. 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 VA1303 was designed per a request from the Marine Chart Division (MCD) of the Office of Coast Survey, NOAA, for GIS data in response to observed shoreline changes to Gloucester Point associated with the recent construction of a series of breakwaters. One panchromatic WorldView-2 satellite image from DigitalGlobe, and two color orthophoto mosaics from the National Agriculture Imagery Program (NAIP), were obtained in response to this request. The WorldView image was used to compile features, whereas the orthophotos were used only as a reference to aid in feature interpretation.

Field Operations

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

Georeferencing

The WorldView image was 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 aerotriangulated aerial imagery from CMP Project VA0501D, and imported into ArcGIS for use in the georeferencing process. See the VA0501 Aerotriangulation Report for more information on the imagery used for control in this project.

Within ArcGIS, the Georeferencing tool was used, and the imagery was re-sampled 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 1.0 meters for the satellite image. This value was doubled and added to the CE95 of the image source from which 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 Applications Branch (AB) of the Remote Sensing Division (RSD) in April 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 VA1303 were determined according to standard Federal Geographic Data Committee (FGDC) practices. Cartographic features were tested to have a horizontal accuracy of 2.3 meters 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	11SEP01160957-P1BS-052568325010_01_P007.tif	2011-09-01 / 16:09:57	0.5 m	1.1 m
NAIP ortho	ortho_1-1_1n_s_va073_2011_1.sid	2011-07-10 / 13:07	1.0 m	0.4 m
NAIP ortho	ortho_1-1_1n_s_va199_2011_1.sid	2011-07-10 / 13:07	1.0 m	0.4 m

* Tide levels are given in meters above MLLW and are based on verified observations recorded by the NOS tide station at the USCG Training Center, Yorktown, VA at the time of photography. The elevation of MHW is 0.76 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 May 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:

12241 York River, Yorktown and Vicinity, 1:20,000 scale, 22nd Ed., Feb./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 Georeferencing Report
- Hardcopy of the Project Completion Report (PCR)
- Page size graphic plot of GC10990 file contents, attached to PCR

Remote Sensing Division Electronic Data Library

- GC10990 in shapefile format
- Digital copy of the PCR in Adobe PDF format
- Chart Evaluation File in shapefile format

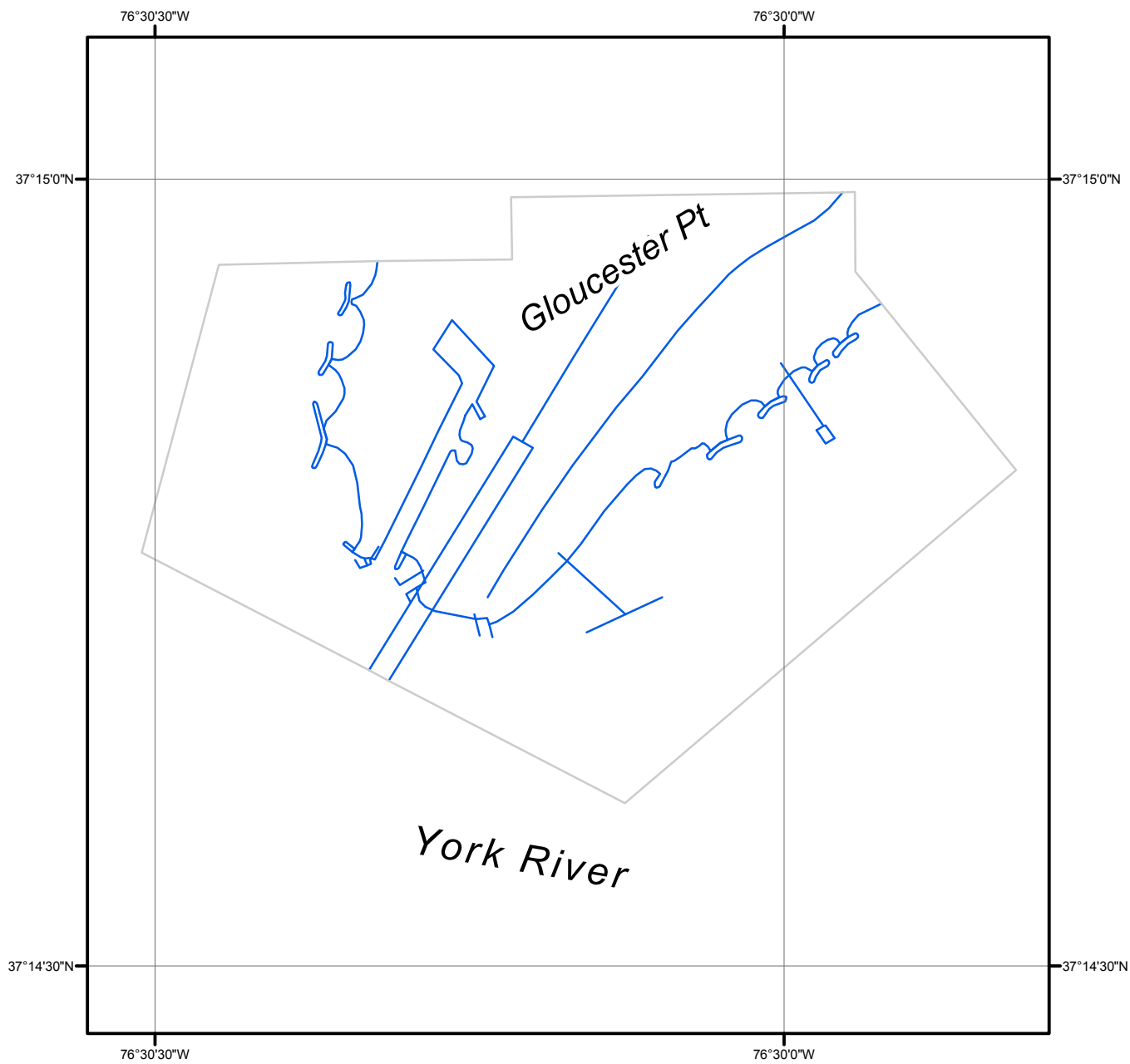
NOAA Shoreline Data Explorer

- GC10990 in shapefile format
- Metadata file for GC10990
- Digital copy of the PCR in Adobe PDF format

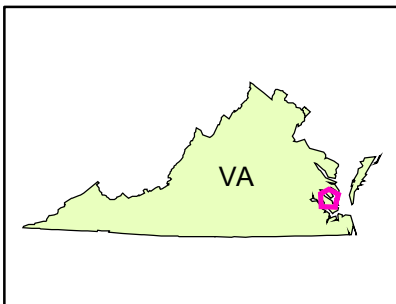
End of Report

GLOUCESTER POINT, YORK RIVER

VIRGINIA



Overview



VA1303

GC10990