NOAA COASTAL MAPPING PROGRAM
PROJECT COMPLETION REPORT

PROJECT MD1301

Piney Point, Potomac River, Maryland

Introduction

Coastal Mapping Program (CMP) Project MD1301 provides accurate digital shoreline data for Piney Point, Maryland on the southern portion of the Potomac River. 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 MD1301 was designed per a request from the Marine Chart Division (MCD) of the Office of Coast Survey, NOAA, for GIS data in response to indications of significant shoreline change along Piney Point. One color orthophoto mosaic from the National Agriculture Imagery Program (NAIP) under the U.S. Department of Agriculture was obtained in response to this request.

Field Operations

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

Georeferencing

Rigorous refinement of the georeferencing of the NAIP imagery used for compilation was not necessary since image positioning compared favorably with the positions of ground control points (GCPs). Control points were measured from previously aerotriangulated aerial imagery from CMP Project MD0701A and imported into ESRI's ArcGIS desktop GIS software (v. 9.3.1). The RMS of the residuals for the measured check points was used to compute a horizontal accuracy at the 95% confidence level (CE95) of 1.7 meters. This value was doubled and added to the CE95 of the image source from which the 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 Applications Branch (AB) of the Remote Sensing Division (RSD) in April 2013. Using ESRI's ArcGIS 9.3.1 desktop GIS software, digital feature data was compiled in ESRI 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 MD1301 were determined according to standard Federal Geographic Data Committee (FGDC) practices. Cartographic features were tested to have a horizontal accuracy of 3.9 meters at the 95% confidence level by comparing twenty check points, to an independent source of higher accuracy. The table below provides detailed information on the image used for feature compilation.

Image Source	Source File Name	Acquisition Date/Time	Tide Stage*
NAIP ortho	ortho_1-1_1n_s_md037_2011_1	2011-07-27 / 12:30 GMT	0.2 m

* Tide levels are given in meters above MLLW and are based on actual observations at the Lewisetta, VA tide station, with corrections applied the tide zone covering the project area. The height of MHW in the project area is 0.4 meters above MLLW.

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 9.3.1. The entire suite of project products was evaluated for compliance to CMP requirements.

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

  12233, Potomac River, Chesapeake Bay to Piney Point, 1:40,000 scale, 37th Ed., Jan./07

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 GC10988 file contents, attached to PCR

Remote Sensing Division Electronic Data Library

- GC10988 in shapefile format
- Digital copy of the PCR in Adobe PDF format
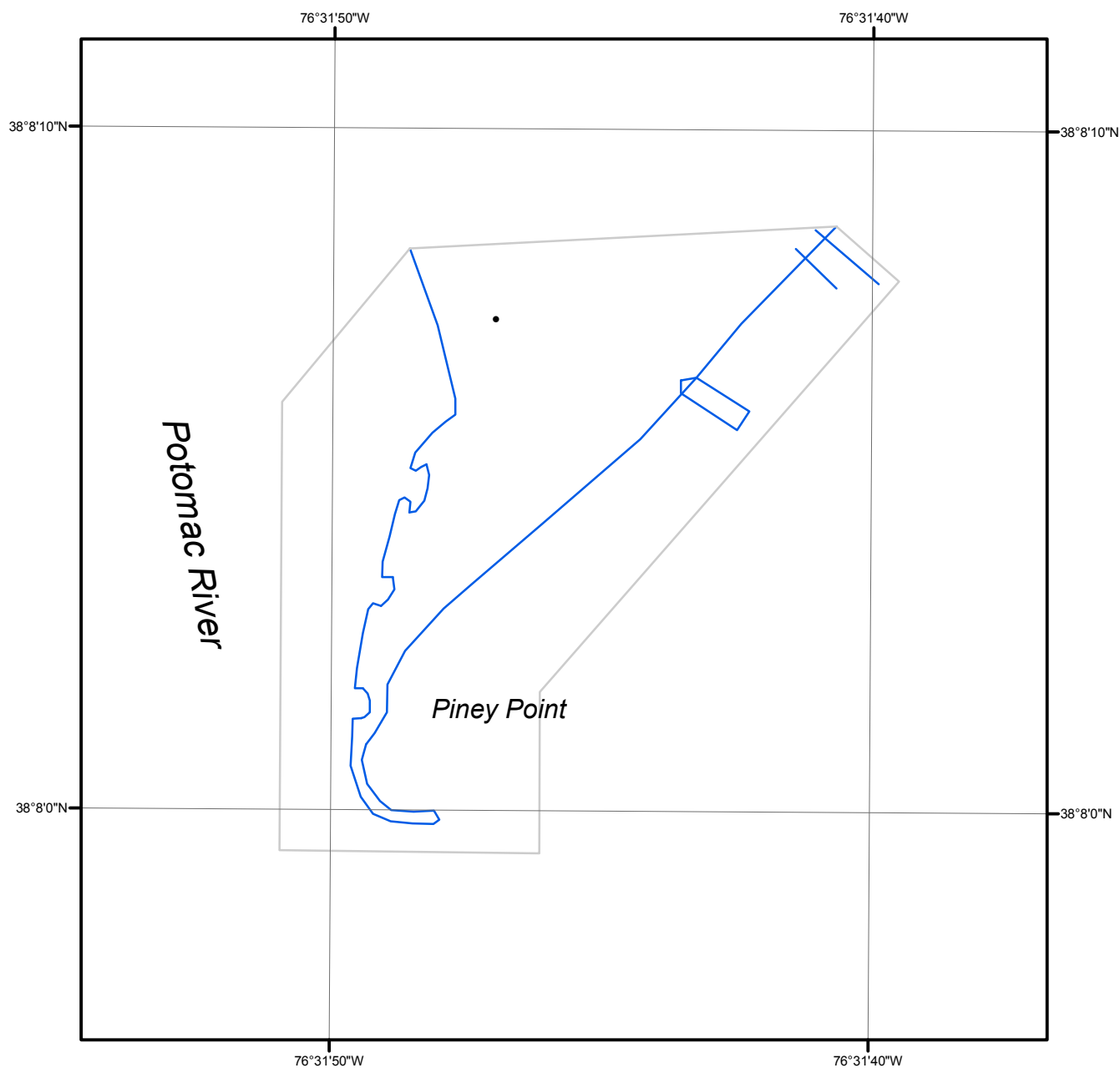- CEF in shapefile format

NOAA Shoreline Data Explorer

- GC10988 in shapefile format
- Metadata file for GC10988
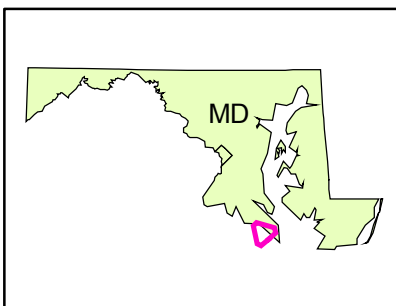- Digital copy of the PCR in Adobe PDF format

End of Report

PINEY POINT, POTOMAC RIVER

MARYLAND

76°31'50"W

76°31'40"W

38°8'10"N

38°8'10"N

Potomac River

Piney Point

38°8'0"N

38°8'0"N

76°31'50"W

76°31'40"W

Overview

MD

MD1301

GC10988