

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

## ***PROJECT MD1302***

### ***Pleasure Island, Maryland***

#### **Introduction**

Coastal Mapping Program (CMP) Project MD1302 provides highly accurate digital shoreline data for Pleasure Island in the Chesapeake Bay, near Baltimore, Maryland. 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 MD1302 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 Pleasure Island associated with the recent construction of a series of breakwaters. One panchromatic WorldView-2 satellite image from DigitalGlobe, and one color orthophoto mosaic from the National Agriculture Imagery Program (NAIP), was obtained in response to this request. The WorldView image was used to compile features, whereas the orthophoto was 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 MD0501, and imported into ArcGIS for use in the georeferencing process. See the MF0501 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 0.67 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 May 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 MD1302 were determined according to standard Federal Geographic Data Committee (FGDC) practices. Cartographic features were tested to have a horizontal accuracy of 2.1 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	03NOV11WV011100011NOV03160753-P1BS-052580233010_03_P007_rpc.tif	2011-11-03 / 16:07:53	0.5 m	0.6 m
NAIP ortho	07_2011_NAIP.tif	2011-07-16 / 10:30	1.0 m	0.7 m

\* Tide levels are given in meters above MLLW and are based on verified observations recorded by the NOS tide station at Fort McHenry, MD at the time of photography. The elevation of MHW is 0.42 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:

12278 Chesapeake Bay, Approaches to Baltimore Harbor, 1:40,000 scale, 78<sup>th</sup> Ed., Oct./12

## 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 GC10992 file contents, attached to PCR

**Remote Sensing Division Electronic Data Library**

- GC10992 in shapefile format
- Digital copy of the PCR in Adobe PDF format
- Chart Evaluation File in shapefile format

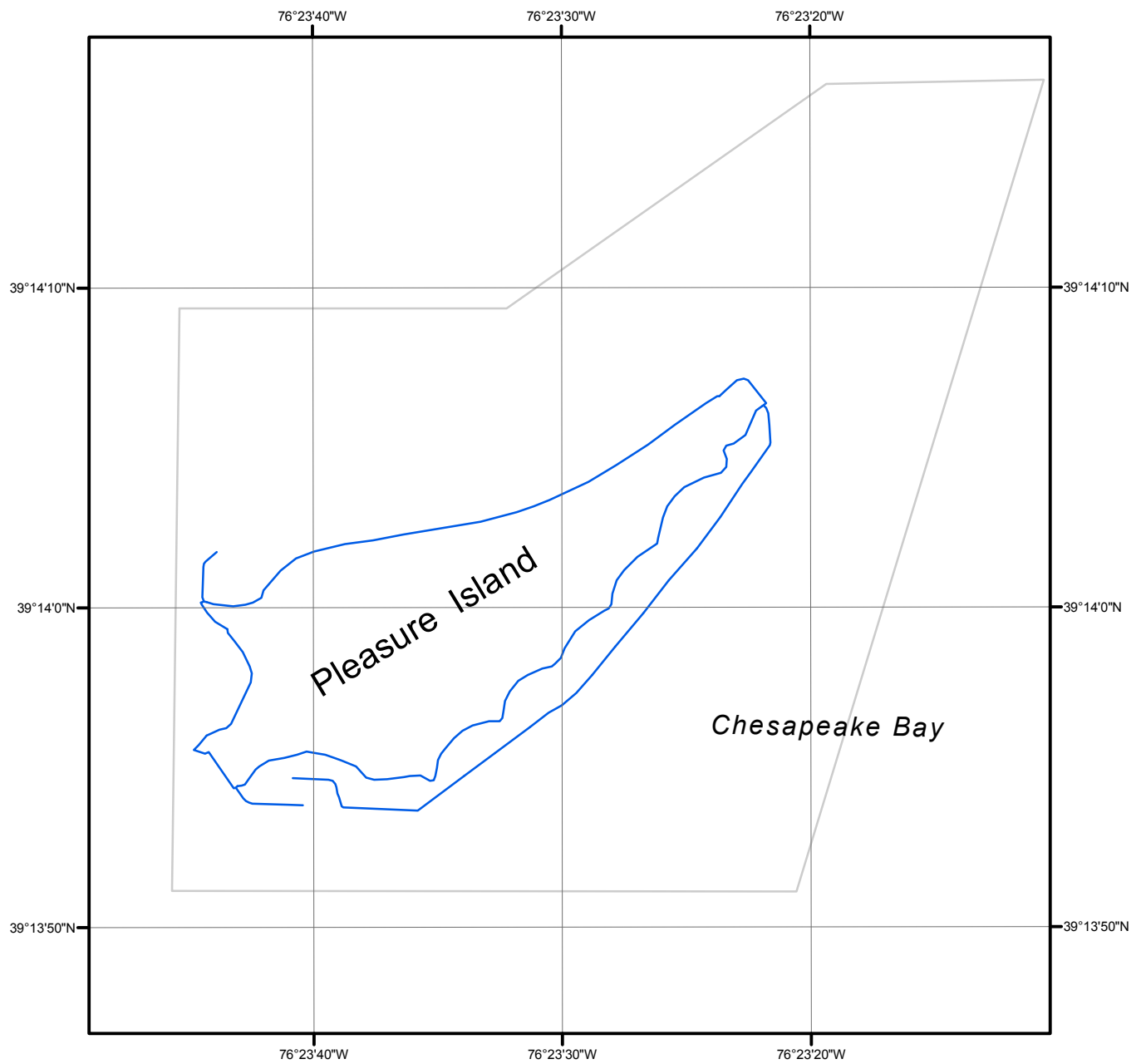
**NOAA Shoreline Data Explorer**

- GC10992 in shapefile format
- Metadata file for GC10992
- Digital copy of the PCR in Adobe PDF format

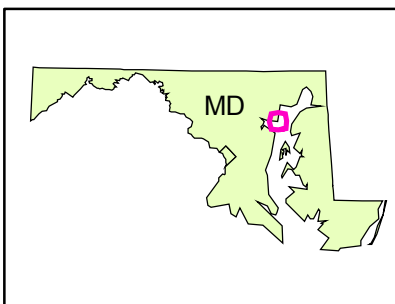
**End of Report**

# PLEASURE ISLAND

## MARYLAND



Overview



MD1302

GC10992