

NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT

PROJECT MN1401

Port of Duluth-Superior, Minnesota and Wisconsin

Introduction

Coastal Mapping Program (CMP) Project MN1401 provides highly accurate digital shoreline data for key areas of change in the port of Duluth-Superior, Minnesota and Wisconsin. The Geographic Cell (GC) may be used in support of the NOAA Nautical Charting Program (NCP) as well as geographic information systems (GIS) for a variety of coastal zone management applications.

Project Design

The design of Project MN1401 was accomplished by the Requirements Branch (RB) of the Remote Sensing Division (RSD) in response to the need for timely updates to NOAA's Electronic Navigational Chart (ENC) series. Project requirements were formulated as a result of analysis conducted within the Coast and Shoreline Change Analysis Program (CSCAP), in which NOAA nautical chart products are compared to contemporary high resolution imagery in order to ascertain the need for more current shoreline data. A Chart Evaluation File (CEF) was forwarded to the Applications Branch (AB) of RSD once the change analysis was complete. Refer to the RB CSCAP memorandum of May 6, 2014 for details regarding the chart comparison process.

Field Operations

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

Georeferencing

Georeferencing of the NAIP imagery was not necessary since the image mosaic compared favorably spatially with the data sources used to verify its geolocation. The locations of a minimum of 20 check points were derived from MI0904A were compared with their positions as measured within the NAIP image. This assessment resulted in a calculated accuracy of 3.0 meters at the 95% confidence level. Positional data for this project is referenced to the North American Datum of 1983 (NAD 83).

Compilation

The data compilation phase of this project was accomplished by a member of AB in September 2014. Digital feature data was compiled in ESRI shapefile format from imagery using ESRI's ArcGIS 10.2.2 desktop GIS software. Feature attribution was assigned in compliance with the Coastal Cartographic Object Attribute Source Table (C-COAST), which provides the definition and attribution scheme for the full range of

cartographic features pertinent to the CMP. Selected features were further modified with additional descriptive information to refine general classification.

Spatial data accuracies for Project MN1401 were determined according to standard Federal Geographic Data Committee (FGDC) practices. Cartographic features were compiled to meet a horizontal accuracy of 3.0 meters at the 95% confidence level. This predicted accuracy of compiled well-defined points is a deductive estimate based on georeferencing statistics.

The following table provides information on the imagery used in the project completion:

Image Source	Source File Name	Acquisition Date	Lake Level
NAIP	NAIP_mos.tif	6-18-2013	183.3*

*Lake levels are given in meters above IGLD 1985 and are based on actual observations recorded by the NOS gauge at Duluth, MN (Station ID: 9099064) at the time of photography.

Quality Control / Final Review

Quality control tasks were conducted during all phases of project completion by a senior member of AB. The final QC review was completed in September 2014. The review process included analysis of the georeferencing results and assessment of the identification and attribution of digital feature data within the GC11106 according to image analysis and criteria defined in C-COAST. The quality control process concluded with an inspection of topological connectivity within the GC11106 using ArcGIS 10.2.2.

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 GC11106 file contents, attached to PCR
- Hardcopy of the CSCAP evaluation memorandum

Remote Sensing Division Electronic Data Library

- GC11106 in shapefile format
- Digital copy of the PCR in Adobe PDF format
- CEF in shapefile format

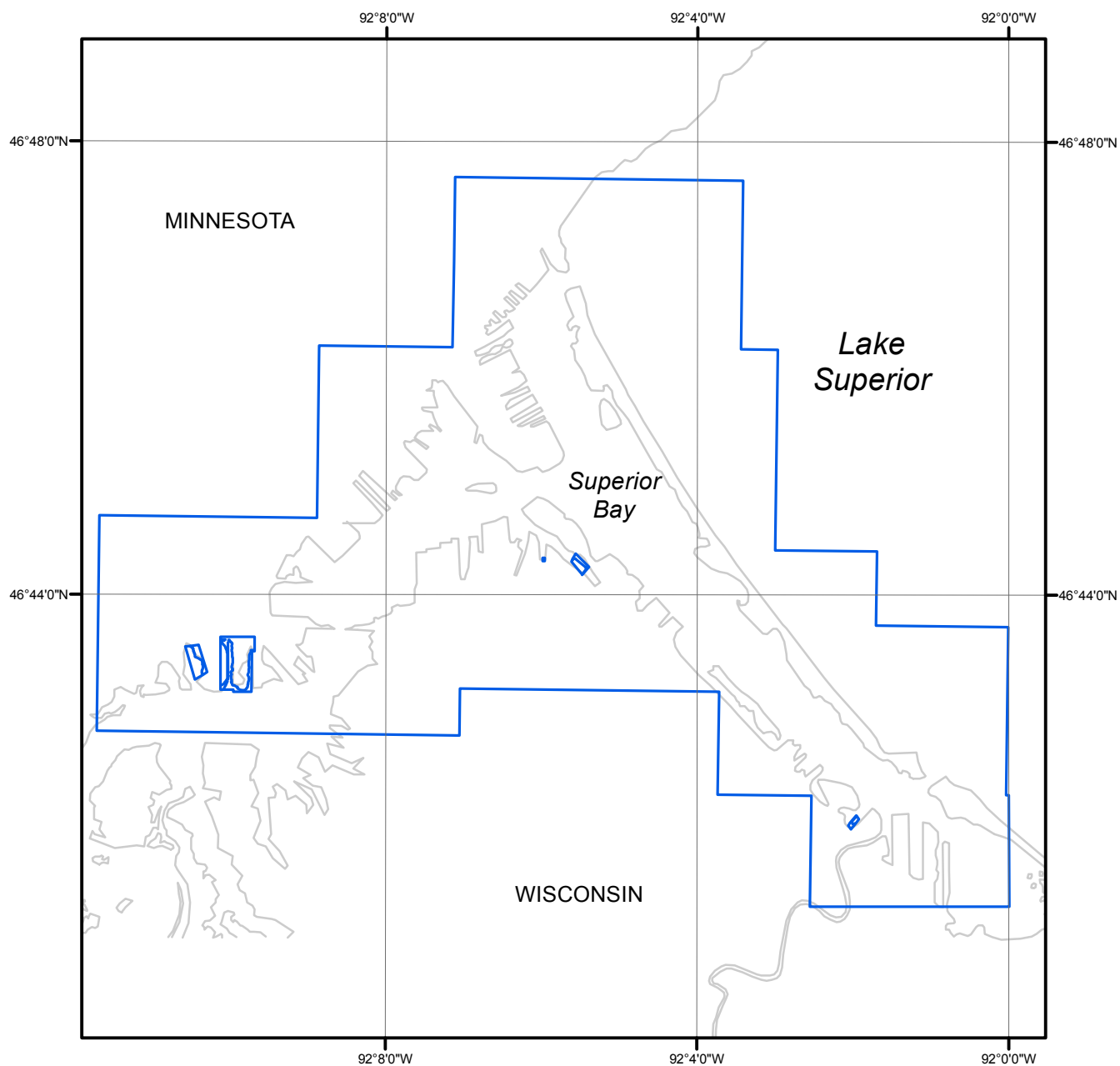
NOAA Shoreline Data Explorer

- GC11106 in shapefile format
- Metadata file for GC11106
- Digital copy of the PCR in Adobe PDF format

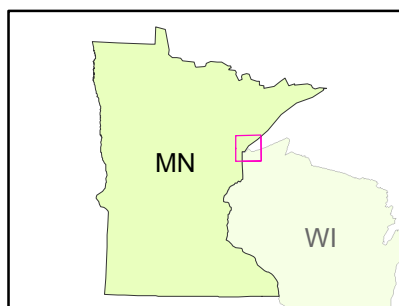
End of Report

PORT OF DULUTH - SUPERIOR

MINNESOTA AND WISCONSIN



Overview



MN1401

GC11106