

NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT

PROJECT IL1402

31st Street Harbor, Chicago, Illinois

Introduction

Coastal Mapping Program (CMP) Project IL1402 provides highly accurate digital shoreline data for a newly constructed marina, the 31st Street Harbor, on Lake Michigan in Chicago, Illinois. 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

Project IL1402 was designed in response to a request for shoreline data from the Marine Chart Division (MCD) of the Office of Coast Survey, NOAA. Based on analysis of project requirements and results of a source data search, it was determined that CMP procedures for multiple source projects would apply for this project. Available source data deemed adequate for successful completion of this project included one orthorectified pan-sharpened natural color WorldView-2 satellite image from DigitalGlobe, Inc.

Field Operations

Routine CMP field operations did not apply for this project based on the origin of the project imagery, which was obtained from external sources.

Georeferencing

The WorldView image was georeferenced by a member of AB using Esri's ArcGIS® (ver. 9.3.1) desktop GIS software. Control/check points were measured from feature data compiled within CMP Project WI1001B (GC10912). 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 1.6 meters for the satellite image. This value was doubled and added to the CE95 of the source from which 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

Data compilation was initiated by RSD personnel in March 2014. Digital feature data was compiled in shapefile format from the WorldView imagery using ArcGIS. 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.

Spatial data accuracies for IL1402 were determined according to standard Federal Geographic Data Committee (FGDC) practices. Cartographic features were compiled to meet a horizontal accuracy of 4.1 meters at the 95% confidence level. The table below provides detailed information on the imagery used for feature compilation:

Sensor	Resolution	Source ID / Image Legacy Description	Acquisition Date/Time	Lake Level*
WorldView-2	0.5 m	20130923_171946_wv2_ori_b.tif / AOI4_L3_WV2	2013-09-23 / 17:19:46GMT	176.1 m

* Lake water level is given in meters above IGLD 1985 and is based on verified observations at the Calumet Harbor (IL) gage. The Low Water Datum (LWD) for the portion of Lake Michigan covered by this project is 176.0 meters above IGLD 1985.

Quality Control / Final Review

Quality control tasks were conducted upon project completion by senior CMP personnel in March 2014. The review process included an assessment of the identification and attribution of digital feature data within the GC 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. The entire suite of project products was evaluated for compliance to CMP requirements. A Chart Evaluation File (CEF) resulted from comparison of the project imagery with the largest scale NOAA nautical chart covering the project: *14926, Chicago and Vicinity (Small-Craft Book Chart, p.9), 1:10,000 Scale, 12th Ed. Oct./10.*

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 Image Accuracy Assessment
- Hardcopy of the Project Completion Report (PCR)
- Page size graphic plot of GC11058 file contents, attached to PCR

Remote Sensing Division Electronic Data Library

- Project database
- GC11058 in shapefile format
- Digital copy of the PCR in Adobe PDF format
- CEF in shapefile format

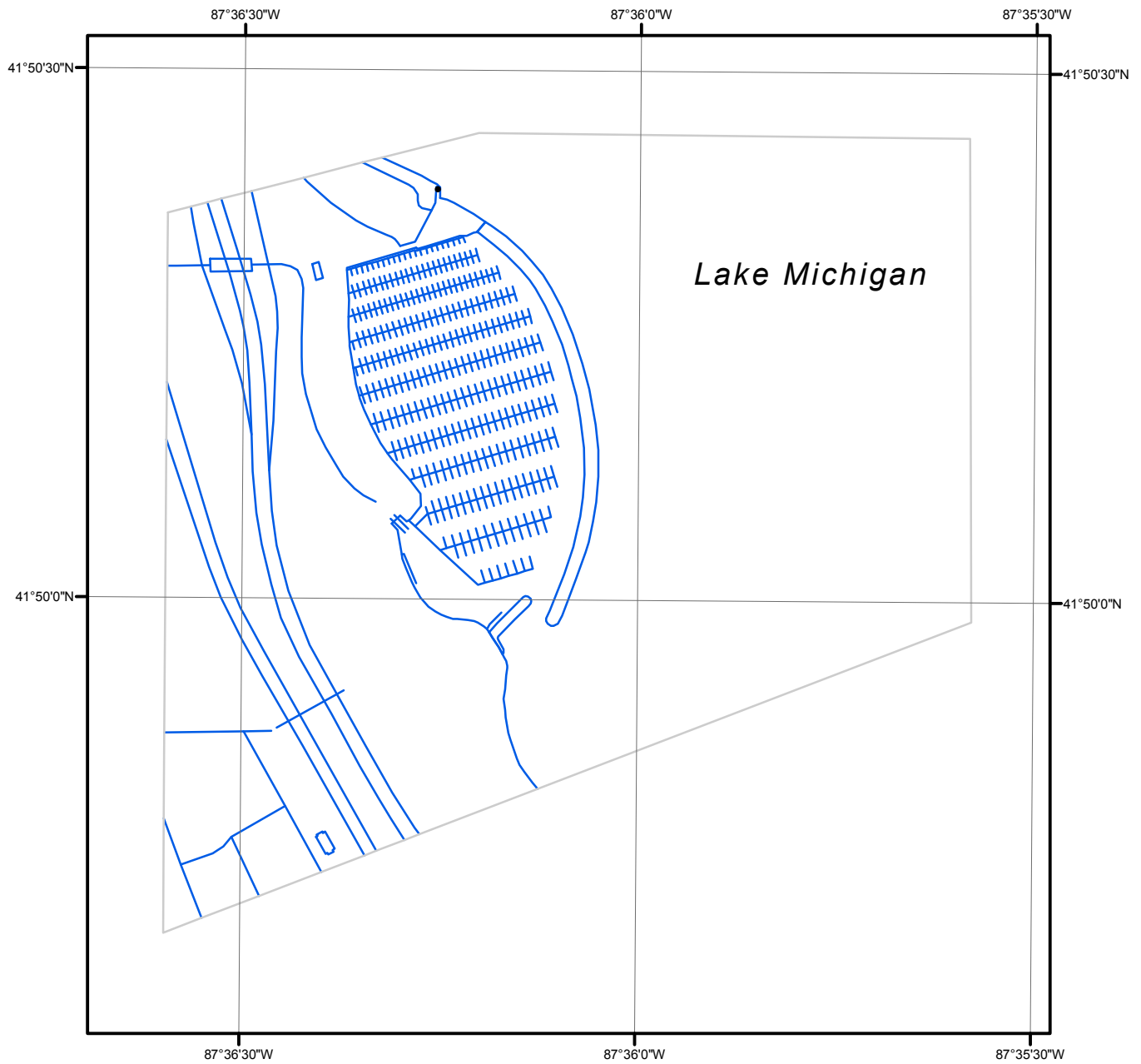
NOAA Shoreline Data Explorer

- GC11058 in shapefile format
- Metadata file for GC11058
- Digital copy of the PCR in Adobe PDF format

End of Report

31ST STREET HARBOR, CHICAGO

ILLINOIS



Overview



IL1402

GC11058