

NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT

PROJECT ME1501-CM-T

Bar Harbor, Maine

Introduction

Coastal Mapping Program (CMP) Project ME1501-CM-T provides updated, highly accurate digital shoreline data for a portion of Bar Harbor, Maine. 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 ME1501-CM-T 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 three orthorectified WorldView satellite images from DigitalGlobe, Inc., a pan-sharpened natural color WorldView-2 image and two panchromatic WorldView-1 images, all with a spatial resolution of 0.5 meters.

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

All georeferencing tasks were accomplished by a member of AB using Esri's ArcGIS® (ver. 10.2.2) desktop GIS software. Of the three WorldView images obtained for this project, only one, acquired in October 2014, was georeferenced. Within ArcGIS, the Georeferencing tool was used, and the imagery was re-sampled using the Nearest Neighbor method with a 1st order polynomial model. Check points used to assess the accuracy of all of the WorldView images were measured from feature data compiled for CMP Project ME0701C (GC10832). The RMS of the residuals for measured check points was used to compute a horizontal accuracy at the 95% confidence level (CE95) of 1.1 meters. 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 2015. Digital feature data was compiled in shapefile format from the WorldView imagery using ArcGIS (ver. 10.2.2). 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 ME1501-CM-T were determined according to standard Federal Geographic Data Committee (FGDC) practices. Cartographic features were compiled from the October 2014 imagery to meet a horizontal accuracy of 3.5 meters at the 95% confidence level. The other two satellite images were only used for reference and feature interpretation. The table below provides detailed information on all imagery used in the completion of this project:

Sensor	Source File (Tile) ID	Acquisition Date/Time	Tide Level*
WorldView-1	20141031_160438_WV01_O_R1C1.tif (panchromatic)	2014-10-31 / 16:04 GMT	0.5 m
WorldView-1	20140710_151506_WV01.tif (panchromatic)	2014-07-10 / 15:15 GMT	----
WorldView-2	20131025_160102_WV02.tif (pan-sharpened natural color)	2013-10-25 / 16:01 GMT	1.4 m

* Tide levels are given in meters above MLLW and are based on actual observations recorded by the NOS gauge at Bar Harbor, Maine at the times of image acquisition. The elevation of the MHW tidal datum is equal to 3.3 meters above MLLW.

Quality Control / Final Review

The final QC review was completed in March 2015. The review process included analysis of image georeferencing and 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 10.2.2. 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:

- 13323 Bar Harbor, 1:10,000 Scale, 9th Ed. Mar./15

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 GC11148 file contents, attached to PCR

Remote Sensing Division Electronic Data Library

- Project database
- GC11148 in shapefile format
- Digital copy of the PCR in Adobe PDF format
- CEF in shapefile format

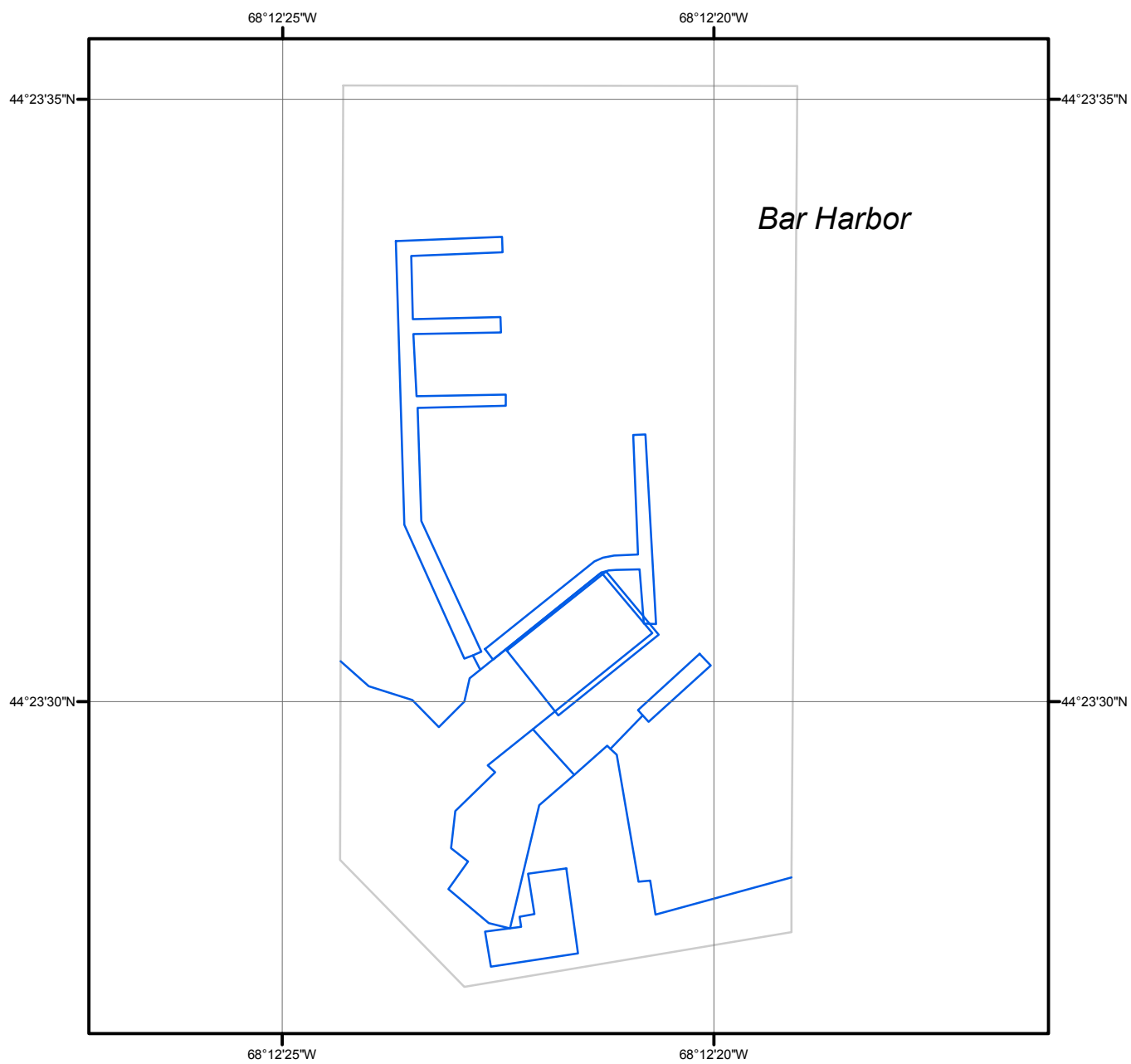
NOAA Shoreline Data Explorer

- GC11148 in shapefile format
- Metadata file for GC11148
- Digital copy of the PCR in Adobe PDF format

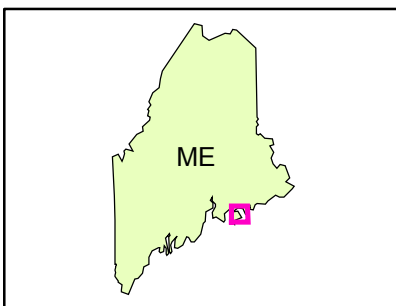
End of Report

BAR HARBOR

MAINE



Overview



ME1501-CM-T

GC11148