

NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT

PROJECT MA2301-CM-T

Woods Hole Ferry, Massachusetts

Introduction

Coastal Mapping Program (CMP) Project MA2301-CM-T provides accurate new digital shoreline data for Woods Hole Ferry, in Great Harbor within Woods Hole, Massachusetts. 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 MA2301-CM-T was designed in response to a data request from NOAA's Office of Coast Survey. 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 satellite image (downloaded in tiled format) from DigitalGlobe, Inc.

Field Operations

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

Georeferencing

Satellite image accuracy was refined using the Georeferencing toolset within Esri's ArcGIS (ver. 10.8.2) desktop GIS software by a member of the Applications Branch (AB) of the Remote Sensing Division (RSD) in May 2023. The satellite image was adjusted to feature data from previous CMP project MA0901B-CM-N. Check points were also extracted from this project to assess final georeferencing accuracy. The RMS of the residuals for measured check points was used to compute a horizontal accuracy at the 95% confidence level (CE95) of 0.8 meters. The CE95 value was doubled and added to the accuracy of the source from which check points were obtained in order to conservatively predict the accuracy of well-defined points measured during compilation. Positional data for this project is referenced to the North American Datum of 1983 (NAD 83).

Compilation

Data compilation was completed by AB personnel in May 2023. Digital feature data was compiled in shapefile format from satellite imagery using ArcGIS software. Feature identification and attribution within the GC were based on image analysis of the satellite imagery as well as information extracted from the largest scale NOAA nautical chart and other ancillary sources. 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 MA2301-CM-T were determined according to standard Federal Geographic Data Committee (FGDC) practices. Cartographic features were compiled to meet a horizontal accuracy of 4.5 meters at the 95% confidence level. This predicted accuracy value is based on comparison of checkpoints from an independent source of higher accuracy, as described in the Georeferencing section above. The table below provides further information on the imagery used to complete this project.

Image Source	Source File (Tile) ID	Acquisition Date / Time	GSD	Tide Level*
GeoEye-1	2022JULY22_GE01_ORI_R1C1.jp2	2022-07-22 / 15:26 GMT	0.50 m	0.36 m

* Tide levels are given in meters above MLLW and are based on actual observations recorded by the NOS gauge at Woods Hole, MA (#8447930). The elevation of MHW at the Woods Hole gauge is 0.588 meters above MLLW.

Quality Control / Final Review

Quality control tasks were conducted by a senior CMP member. The final QC review was completed in May 2023. The review process included analysis of the georeferencing results 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 software. All project data was evaluated for compliance to CMP requirements.

A Chart Evaluation File (CEF) resulted from the comparison of source imagery and compiled project data with the largest scale NOAA electronic navigational chart (ENC) covering the project area:

- US5MA1EJ, 1st Ed., May 2022, Scale 1:10,000

End Products and Deliverables

The following specifies the location and identification of end products generated during the completion of this project:

RSD Electronic Data Library

- Project database
- Project Completion Report (PCR)
- GC11945 in shapefile format
- CEF in shapefile format

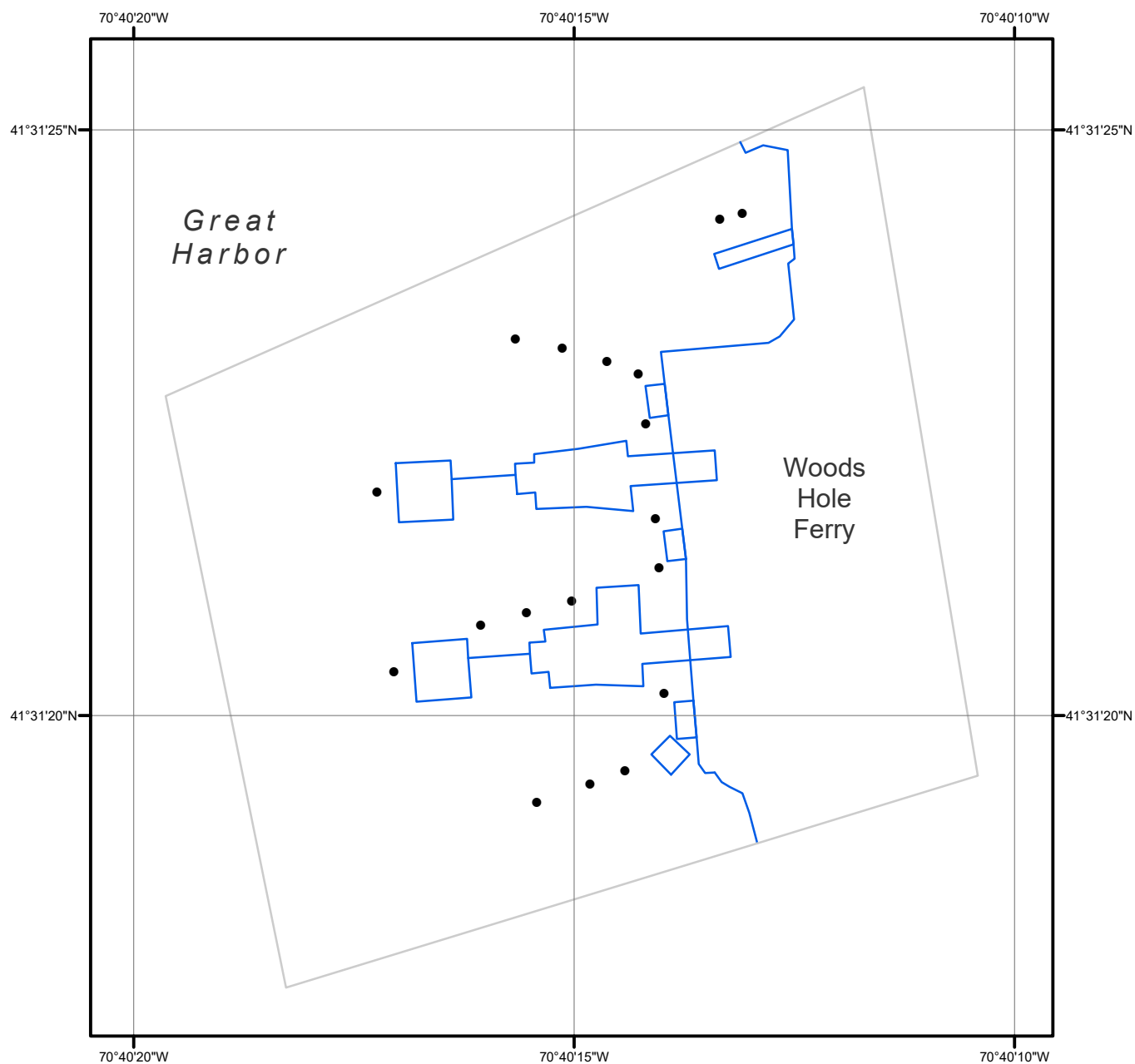
NOAA Shoreline Data Explorer

- GC11945 in shapefile format
- Metadata file for GC11945
- PCR in Adobe PDF format

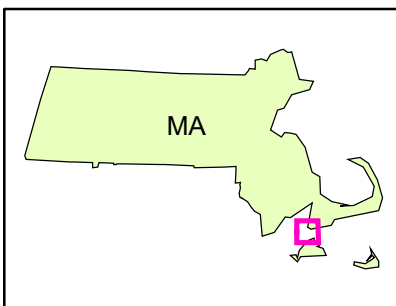
End of Report

WOODS HOLE FERRY

MASSACHUSETTS



Overview



MA2301-CM-T

GC11945