NOAA COASTAL MAPPING PROGRAM
PROJECT COMPLETION REPORT

PROJECT MA2502-CM-T

Vineyard Haven Harbor, Massachusetts

Introduction

Coastal Mapping Program (CMP) Project MA2502-CM-T provides new digital shoreline data for a small area of new pier construction within Vineyard Haven Harbor, in 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 MA2502-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. Available source data deemed adequate for successful completion of this project included orthorectified, pan-sharpened natural color satellite imagery 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 January 2025. The satellite image was adjusted to feature data from previous CMP project MA1601A-TB-C. 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 0.98 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. All 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 January 2025. Feature data was compiled in shapefile format from the satellite imagery using ArcGIS. 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 products 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 MA2502-CM-T were determined according to standard Federal Geographic Data Committee (FGDC) practices. Cartographic features were compiled to meet a horizontal accuracy of 2.3 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 information on imagery used in the completion of this project.

Image Source	Source File ID	Acquisition Date / Time	GSD	Tide Level*
WorldView-3	24JUL26152006-S3DS-050272226010_01_P001.TIF	2024-07-26 / 15:20 GMT	0.3 m	0.4 m

* Tide level is given in meters above MLLW and is based on verified observations recorded by the NOS reference station at Newport, RI (#8452660), with time and height offsets applied to the Vineyard Haven sub-station. The elevation of MHW at Vineyard Haven Harbor is 0.534 meters above MLLW.

Quality Control / Final Review

Quality control tasks were conducted by senior members of RSD. The final QC review was completed in January 2025. 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 (ver. 10.8.2) 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:

- US5MA1DK, 3rd Ed., May 2024, 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)
- GC12068 in shapefile format
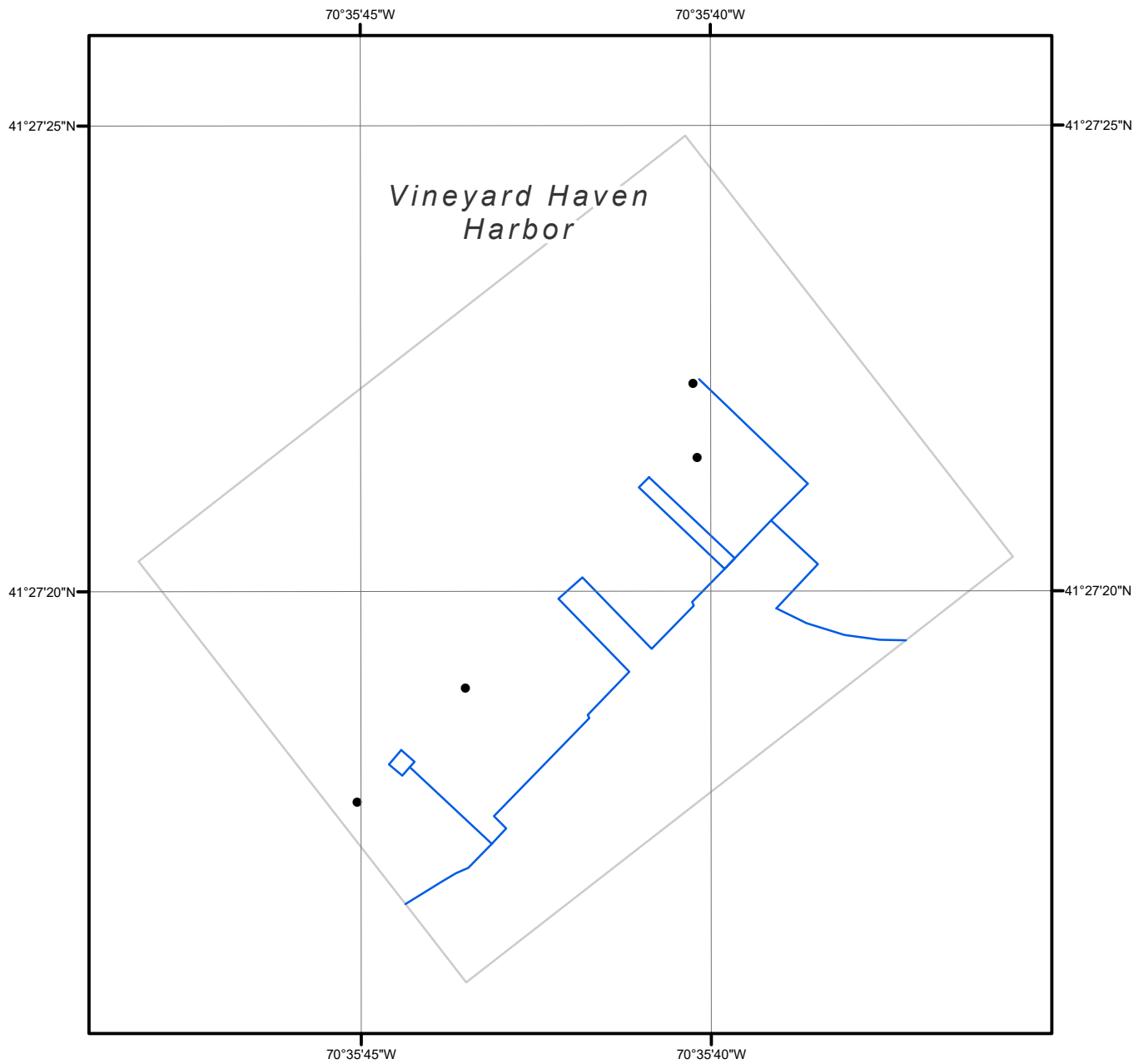- CEF in shapefile format

NOAA Shoreline Data Explorer

- GC12068 in shapefile format
- Metadata file for GC12068
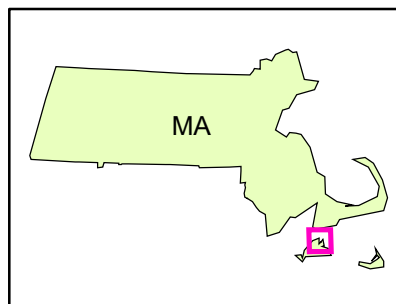- PCR in Adobe PDF format

End of Report

VINEYARD HAVEN HARBOR

MASSACHUSETTS

70°35'45"W

70°35'40"W

41°27'25"N

41°27'25"N

Vineyard Haven Harbor

41°27'20"N

41°27'20"N

70°35'45"W

70°35'40"W

Overview

MA

MA2502-CM-T

GC12068