

NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT

PROJECT HI1802-CS-T

Port of Nawiliwili, Hawaii

Introduction

Coastal Mapping Program (CMP) Project HI1802-CS-T provides highly accurate digital shoreline data for key areas of change within the Port of Nawiliwili, Kauai, Hawaii. 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 HI1802-CS-T was accomplished by the Requirements Branch (RB) of the Remote Sensing Division (RSD) in response to the need for timely updates to the NOAA chart suite within key U.S. ports. 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. One orthorectified, pan-sharpened natural color WorldView-2 commercial satellite image, obtained from DigitalGlobe Inc., was used for change analysis. A Chart Evaluation File (CEF) was forwarded to the Applications Branch (AB) of RSD once the change analysis was complete. Refer to the CSCAP Memorandum of October 16, 2017 for details of the chart comparison process.

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 satellite imagery used in the analysis was assessed for positional accuracy using previously compiled CMP project data as well as at least two NGS 3rd order geodetic control points. The color satellite image compared very well spatially without need for additional image georeferencing tasks and was therefore determined to be suitable for feature compilation. Additionally the image vendor provided a suitable accuracy assessment, reporting an RMSE of 3.9 meters. Positional data for this project is referenced to the North American Datum of 1983 (NAD 83).

Compilation

Data compilation was accomplished by AB personnel in August 2018. Digital feature data was compiled in shapefile format from the satellite imagery using ArcGIS (ver. 10.5). 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 HI1802-CS-T were determined according to standard Federal Geographic Data Committee (FGDC) practices. The standard vendor-reported RMSE was used to calculate a horizontal accuracy of 6.8 meters at the 95% confidence level in order to predict the accuracy of well-defined points measured during feature compilation.

The following table provides information on the satellite image mosaic used in the project completion:

Image Source	Source File Name	Acquisition Date/Time	Tide Level*
WorldView-2	20170306_2109_WV02_ORI_NAD83.jp2	3/6/2017 / 21:09 GMT	0.28 m

* Tide levels are given in meters above MLLW and are based on verified observations recorded by the NOS tide gauge at Nawiliwili Harbor. The elevation of the MHW tidal datum at the Nawiliwili Harbor gauge is equal to 0.43 meters above MLLW.

Quality Control / Final Review

Quality control tasks were conducted by a senior CMP cartographer. The review process included analysis of the image georeferencing and evaluation of the identification and attribution of cartographic features 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 10.5. The entire suite of project products was evaluated for compliance to CMP requirements.

End Products and Deliverables

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

Remote Sensing Division Electronic Data Library

- GC11440 in ESRI shapefile format
- Project Completion Report (PCR)
- CEF in shapefile format

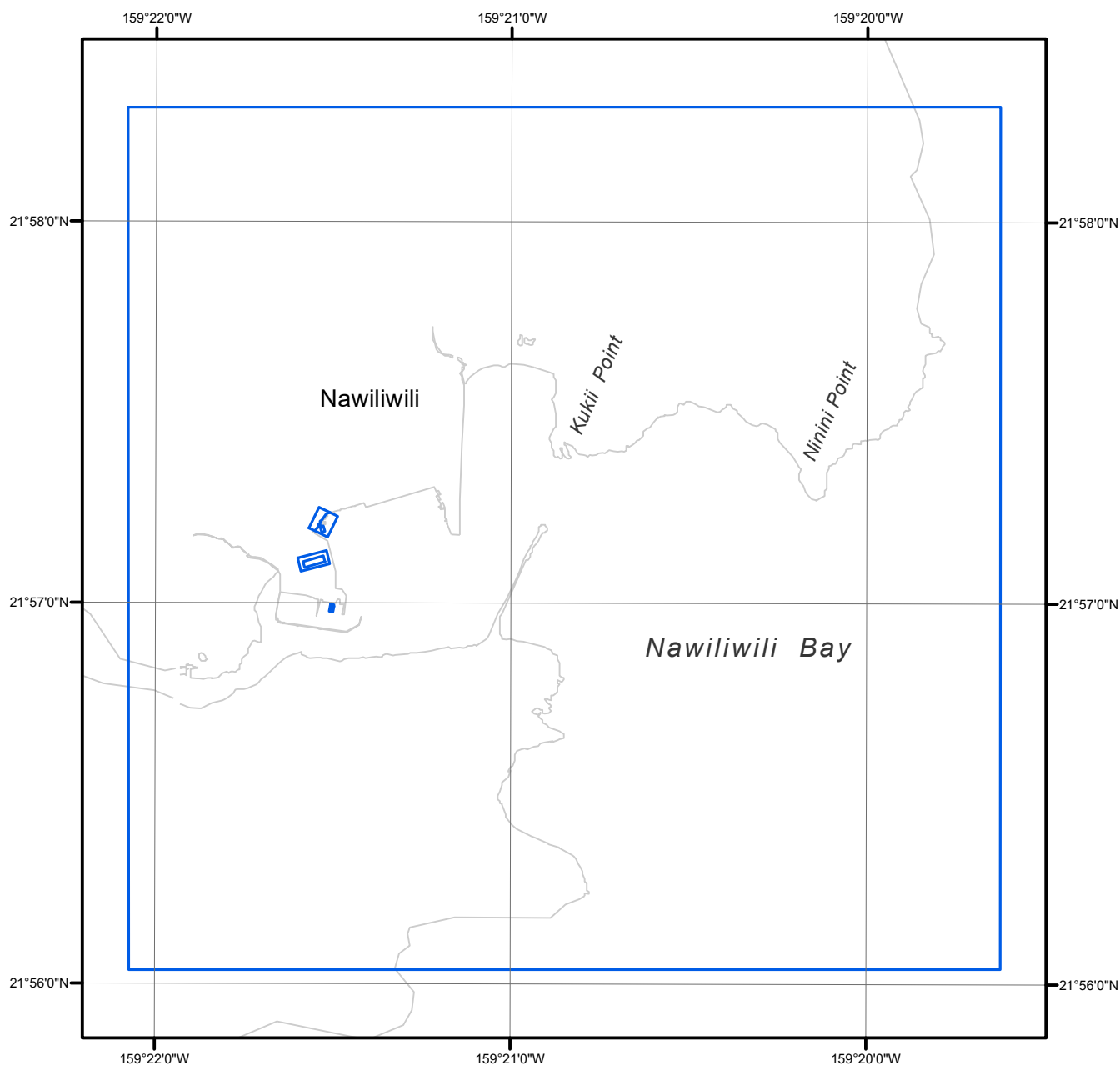
NOAA Shoreline Data Explorer

- GC11440 in ESRI shapefile format
- Metadata file for GC11440
- PCR in Adobe PDF format

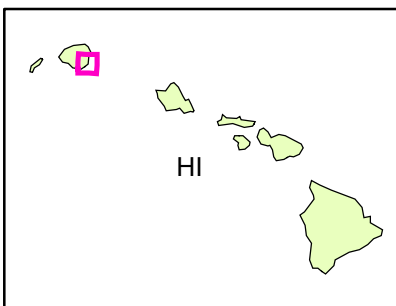
End of Report

PORT OF NAWILIWILI

HAWAII



Overview



HI1802-CS-T

GC11440