

NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT

PROJECT HI2201-CS-T

Port of Nawiliwili, Hawaii

Introduction

Coastal Mapping Program (CMP) Project HI2201-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 HI2201-CS-T was accomplished by the Requirements Branch (RB) of the Remote Sensing Division (RSD) in response to the need for updates to the NOAA chart suite in 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 WorldView-3 satellite image with a ground sample distance (GSD) of 0.39 meters 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 for Project HI2201-CS-T 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

Georeferencing tasks were initiated by a member of the Applications Branch (AB) of the RSD in November 2021. The WorldView imagery was adjusted to features from previous CMP project HI0602 using Esri's ArcGIS (ver. 10.8.1) desktop GIS software. Within ArcGIS, the Georeferencing tool was used, and the imagery was re-sampled using the Nearest Neighbor sampling method. The vendor-reported RMSE of 3.9 meters 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. 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 November 2021. Digital feature data was compiled in shapefile format from the satellite imagery using Esri's ArcGIS software. 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 HI2201-CS-T were determined according to standard Federal Geographic Data Committee (FGDC) practices. As indicated above, cartographic features were compiled to meet a horizontal accuracy of 6.8 meters at the 95% confidence level. The following table provides information on imagery used to complete this project:

Image Source	Source File (Tile) Name	Acquisition Date/Time	Tide Level*
WorldView-3	20210529_WV03_ORI_R1C1.jp2	2021-05-29 / 21:29:52 GMT	0.04 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

The final QC review was completed in October 2022. 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. 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

- CSCAP evaluation memorandum
- GC11751 in shapefile format
- Project Completion Report (PCR)
- CEF in shapefile format

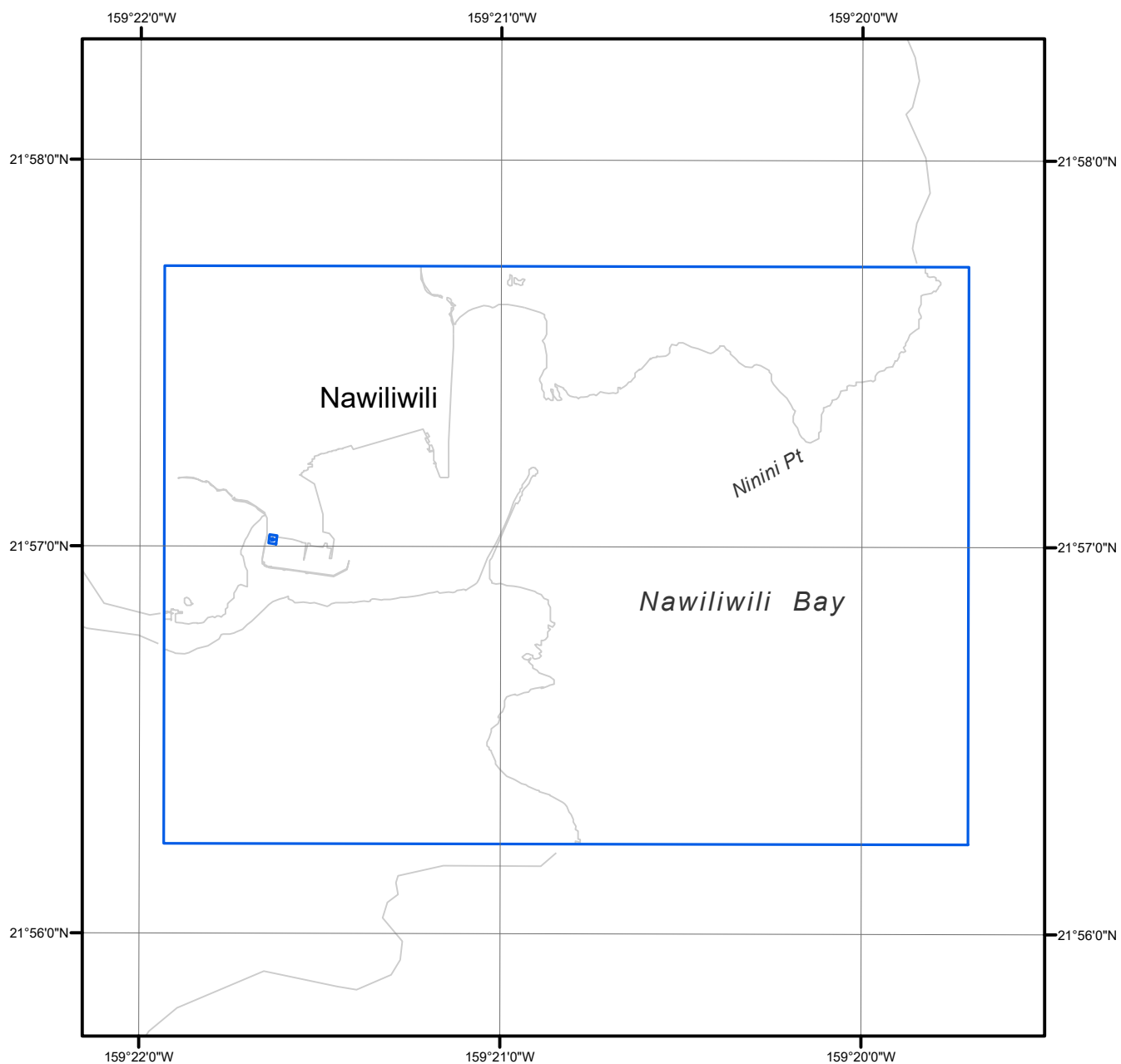
NOAA Shoreline Data Explorer

- GC11751 in shapefile format
- Metadata file for GC11751
- PCR in Adobe PDF format

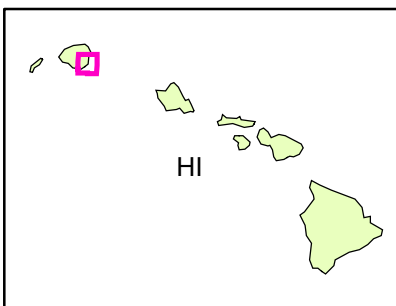
End of Report

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HAWAII



Overview



HI2201-CS-T

GC11751