

# **NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT**

## ***PROJECT HI2202-CS-T***

### ***Kawaihae Harbor, Hawaii***

#### **Introduction**

Coastal Mapping Program (CMP) Project HI2202-CS-T provides highly accurate digital shoreline data for key areas of change within Kawaihae Harbor, 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 HI2202-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-2 satellite image with a ground sample distance (GSD) of 0.5 meters was utilized for the CSCAP analysis. A Chart Evaluation File (CEF) was created once the change analysis was complete. Refer to the CSCAP memorandum for Project HI2202-CS-T for details regarding 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 HI1503-CS-T 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 HI2202-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:

Sensor	Source File (Tile) ID	Acquisition Date/Time	Tide Level*
WorldView-2	20210929_WV02_ORI_R1C1.jp2	2021-09-29 / 20:53:17 GMT	0.6 m

\* Tide levels are given in meters above MLLW and based on verified observations recorded at the NOS gage in Kawaihae at the time of image acquisition. The MHW tidal datum is 0.49 meters above MLLW at the NOS gage.

## 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
- GC11750 in shapefile format
- Project Completion Report (PCR)
- CEF in shapefile format

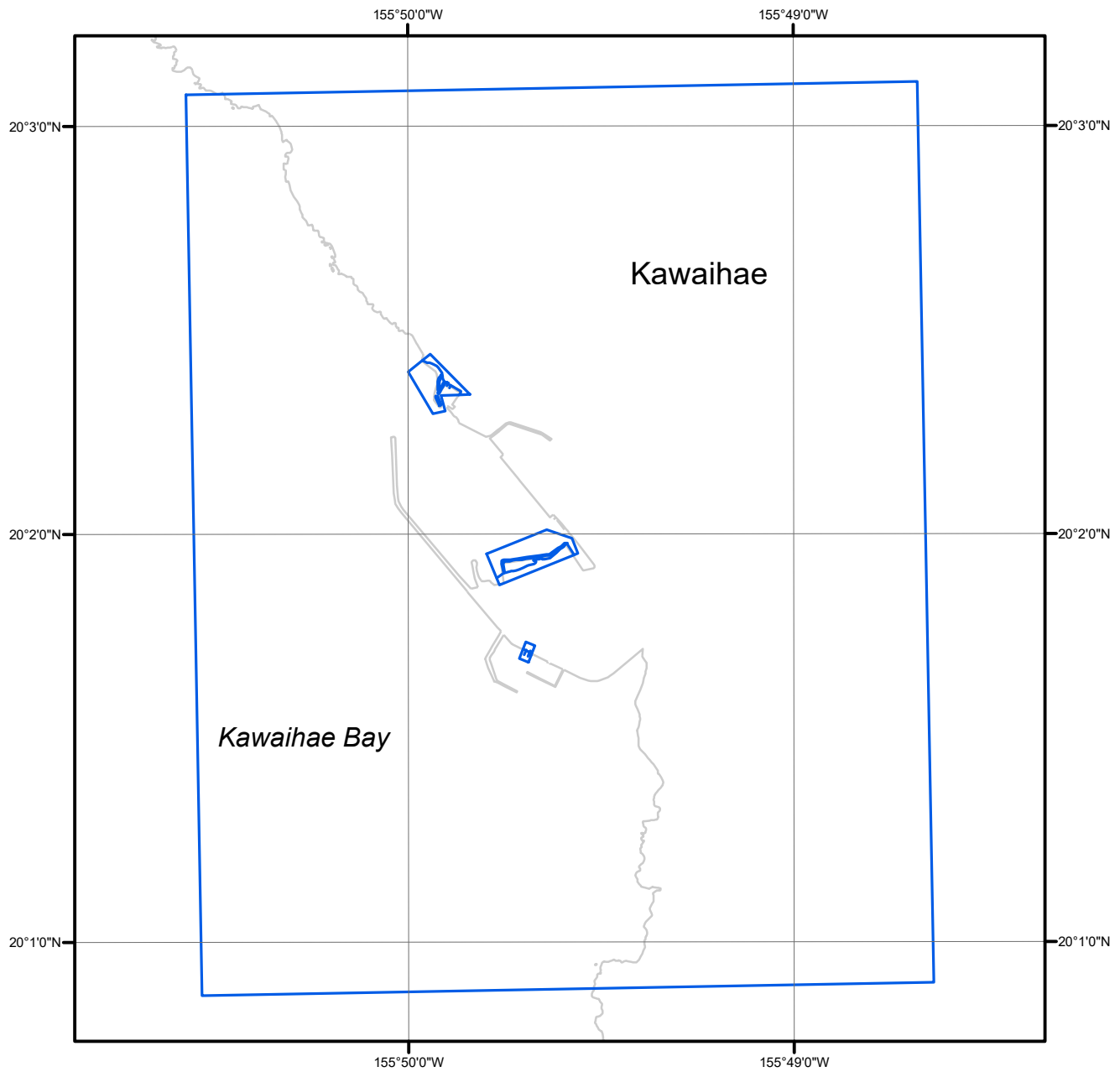
### NOAA Shoreline Data Explorer

- GC11750 in shapefile format
- Metadata file for GC11750
- PCR in Adobe PDF format

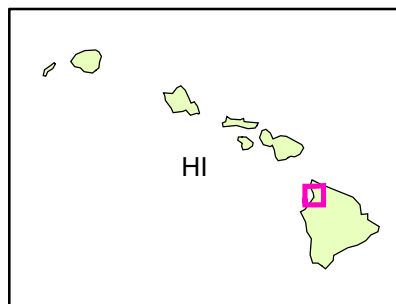
## End of Report

# KAWAIHAE HARBOR

## HAWAII



Overview



HI2202-CS-T

GC11750