NOAA COASTAL MAPPING PROGRAM
PROJECT COMPLETION REPORT

PROJECT WA2203-CS-T

Port Angeles, Washington

Introduction

Coastal Mapping Program (CMP) Project WA2203-CS-T provides highly accurate digital shoreline data for key areas of change within Port Angeles, Washington. 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 WA2203-CS-T was accomplished by the Systems and Quality Assurance Branch (SQAB) 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-1 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 WA2203-CS-T for details on 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 June 2022. The WorldView imagery was adjusted to features from previous CMP project WA1405-CM-N 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. Check points extracted from WA1405-CM-N were used to statistically assess the accuracy of the georeferenced imagery. The RMS of the residuals for each measured check point was used to compute a predicted horizontal circular error (CE) of 0.84 meters based on a 95% confidence level. This CE value was doubled and added to the accuracy of the source from which check points were extracted to conservatively predict the accuracy of well-defined points measured during compilation. Positional data is referenced to the North American Datum of 1983 (NAD 83).

Compilation

Data compilation was accomplished by AB personnel in June 2022. 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 WA2203-CS-T were determined according to standard Federal Geographic Data Committee (FGDC) practices. Cartographic features were compiled to meet a horizontal accuracy of 2.4 meters at the 95% confidence level, which is a deductive estimate based on georeferencing statistics. The following table provides information on imagery used to complete this project:

Sensor	Image Source File	Acquisition Date/Time	Tide Level
WorldView-1	20210718_WV01_ORI_mos.jp2	2021-07-18 / 22:21:03 GMT	1.1 m.

* Tide level is given in meters above MLLW and is based on verified observations recorded by the NOS gauge at Port Angeles, WA (#9444090). The elevation of MHW at the Port Angeles gauge is 1.987 meters above MLLW.

Quality Control / Final Review

Final review tasks were completed in September 2024. 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
- Project database
- GC11788 in shapefile format
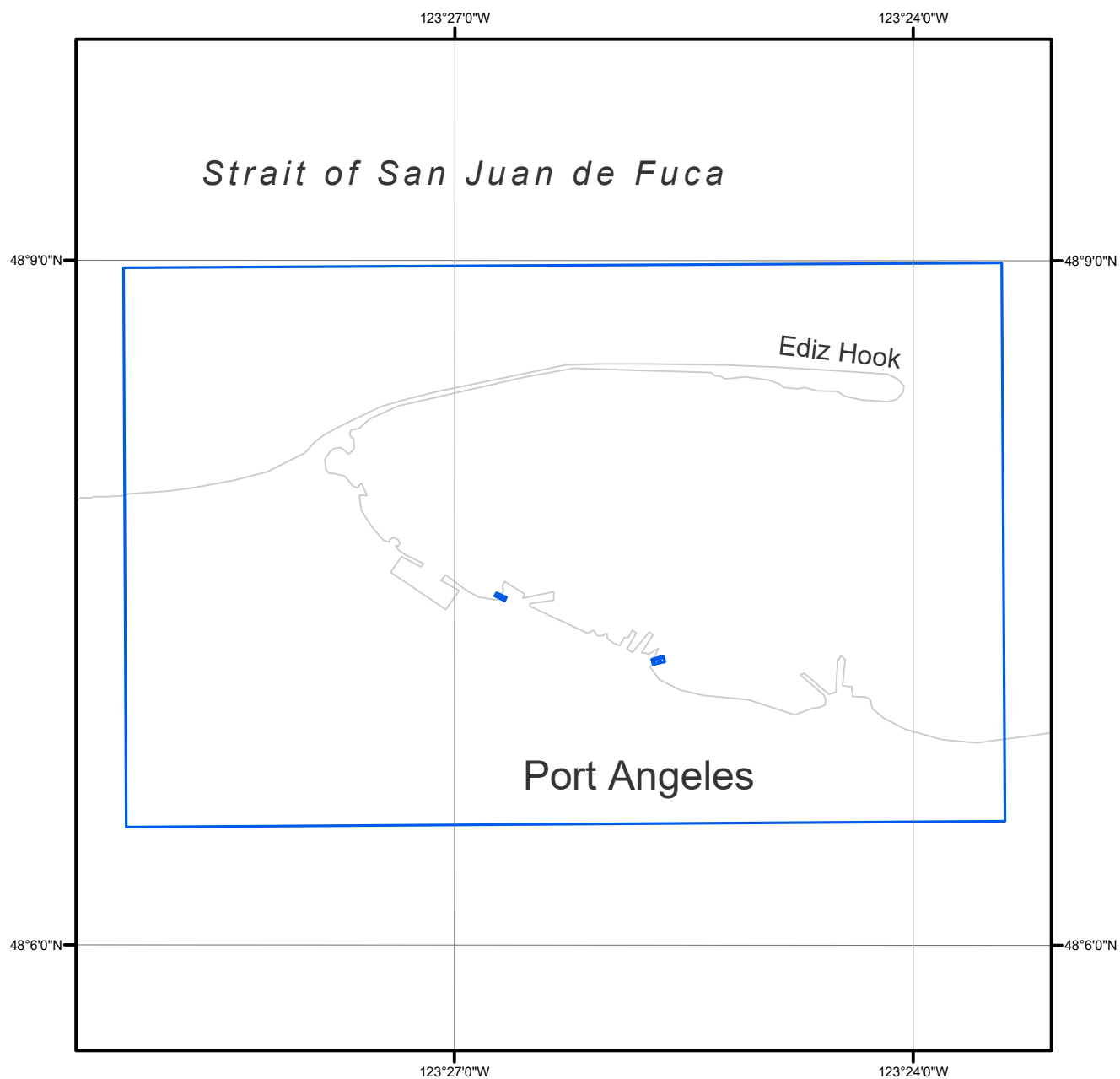- Project Completion Report (PCR)
- CEF in shapefile format

NOAA Shoreline Data Explorer
- GC11788 in shapefile format
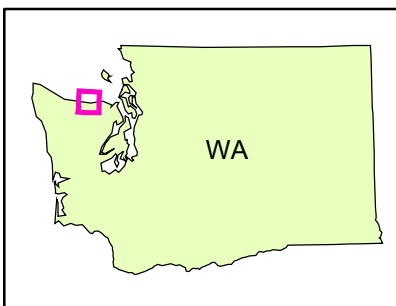- Metadata file for GC11788
- PCR in Adobe PDF format

End of Report

PORT ANGELES

WASHINGTON

123°27'0"W   123°24'0"W

Strait of San Juan de Fuca

48°9'0"N   48°9'0"N

Ediz Hook

Port Angeles

48°6'0"N   48°6'0"N

123°27'0"W   123°24'0"W

Overview

WA

WA2203-CS-T

GC11788