NOAA COASTAL MAPPING PROGRAM
PROJECT COMPLETION REPORT

PROJECT WA0601D

Port of Vancouver, Washington

Introduction

Coastal Mapping Program (CMP) Project WA0601D provides highly accurate digital shoreline data for key areas of change within the Port of Vancouver, Washington. The project covers a portion of the Columbia River, extending from the area of Hewlett Point, Morgan Bar Channel, and Hayden Island to Portland National Airport. The analysis and the Geographic Cell (GC) may be used in support of the NOAA Nautical Charting Program (NCP) as well as geographic information systems (GIS) for coastal zone management applications.

Project Design

The design of Project WA0601D was accomplished by the Requirements Branch (RB) of the Remote Sensing Division (RSD) in response to the need for timely updates to NOAA Electronic Navigational Chart series. 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 satellite imagery in order to ascertain the need for more current shoreline data. Refer to the RB Memorandum, "Results of CSCAP Change Analysis for Vancouver, Washington (WA0601D)," June 2, 2006, 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 source data. Existing sources of horizontal control were used for the georeferencing process.

Georeferencing

One QuickBird non-orthorectified color image with a spatial resolution of 61 centimeters, acquired from DigitalGlobe, Inc., was georeferenced using Erdas IMAGINE 9.0 software on a Windows platform. Ground control points (GCPs), photogrammetrically measured from metric quality aerial photography, were imported into IMAGINE and used to georeference the satellite imagery. Within IMAGINE, the Raster Geometric Correction tool was used with a 1st order polynomial model. Imagery was resampled using the Nearest Neighbor sampling method. The RMS of the residuals for measured check points were used to compute a predicted horizontal circular error at the 95% confidence interval (CE95) of 1.64 meters for the satellite image. This CE value was tripled and then added to the CE95 of the source imagery, from which the GCPs were measured, to yield a conservative predictor of the accuracy of well defined points measured during the compilation process. The Georeferencing Report was written and it is on the file with

other project data within the RSD Project Archive. Positional data is based on the UTM Coordinate System (zone10), and referenced to the North American Datum of 1983.

Compilation

The compilation of cartographic feature data for this project was accomplished by a member of the Applications Branch (AB) of RSD in October 2006. Digital feature data was compiled in ESRI shapefile format from imagery using ESRI's ArcGIS 9.1 desktop GIS software. Feature attributes were established according to 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 Project WA0601D were determined according to standard Federal Geographic Data Committee (FGDC) practices. Cartographic features were tested to have 5.2 meters horizontal accuracy at the 95% confidence level. This predicted accuracy of well-defined points is based on a minimum of twenty (20) check points that were compared to an independent source of higher accuracy.

The following table provides information on images used in the project completion:

Imagery Used	Source ID	Source File Name	Acquisition Date/Time	Tide Level
QuickBird	005537426090_01	06MAY09193210-S2AS-005537426090_01_P001	2006-05-09 19:32:15	2.0 m

* Tide levels are given in meters above MLLW and are based on actual observations recorded by the NOS gauge Vancouver, Columbia River, WA at the time of imagery. The mean tidal range at Vancouver is equal to 0.74 meters. Note that the water level was very high (1.2 m. above MHW) at the time of imagery.

Quality Control / Final Review

Quality control tasks were conducted during all phases of project completion by a senior member of AB. The final QC review was completed in August 2007. The review process included analysis of the georeferencing results and assessment 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 9.1. 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 the products generated during the completion of this project:

RSD Applications Branch Archive
- Hardcopy of the Project Completion Report (PCR)
- Page-size graphic plot of GC10631 file contents, attached to PCR
- Hardcopy of the CSCAP evaluation memorandum

Remote Sensing Division Electronic Data Library

- Digital copy of GC10631 in shapefile format
- Digital copy of the PCR in Adobe PDF format
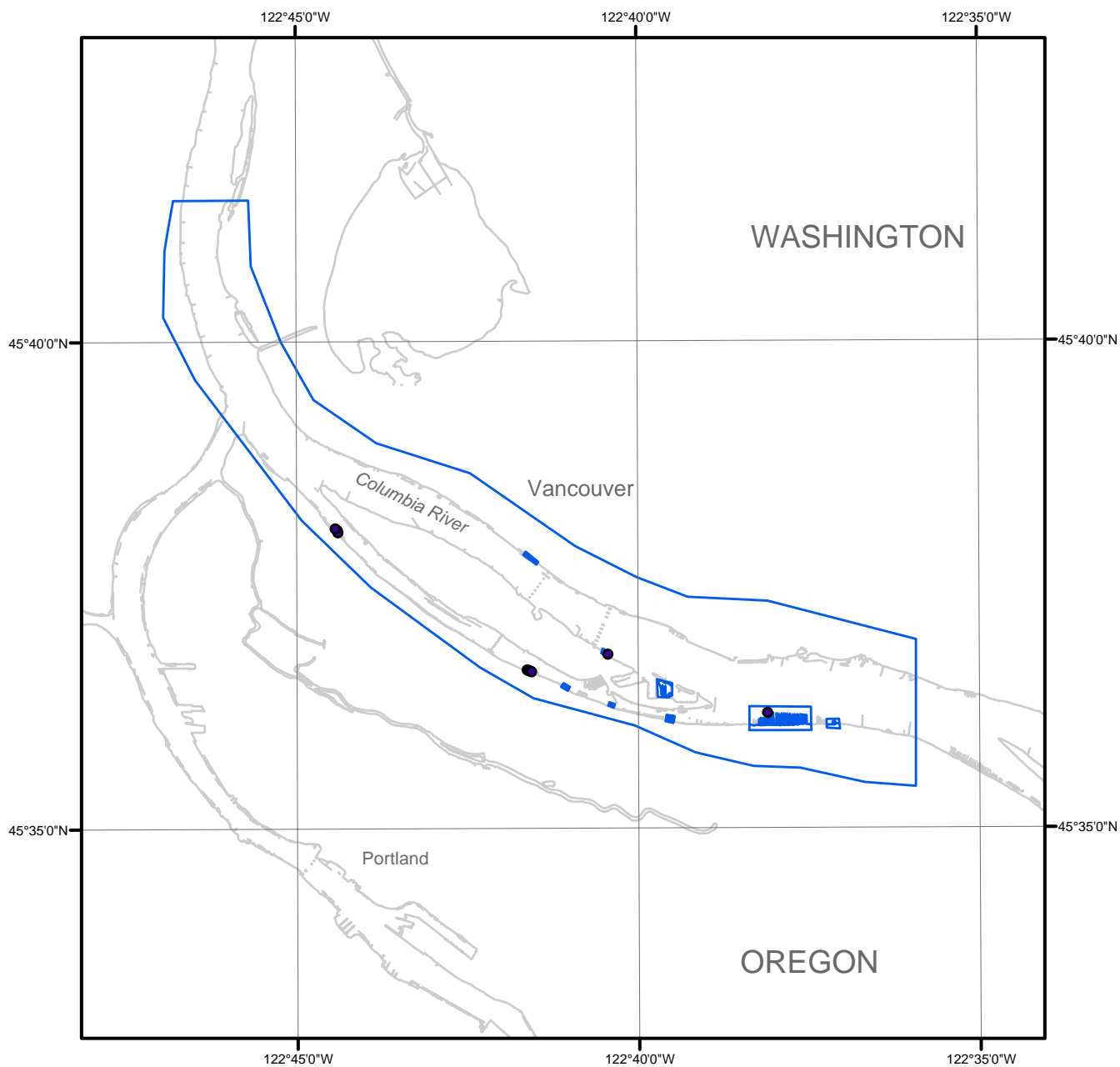- Chart Evaluation File (CEF) in shapefile format

NOAA Shoreline Data Explorer

- GC10631
- Metadata file for GC10631
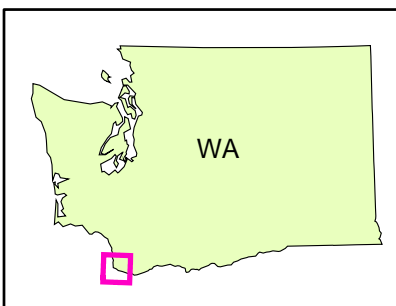- Digital copy of the PCR in Adobe PDF format

End of Report

PORT OF VANCOUVER

WASHINGTON

122°45'0"W　　　　　122°40'0"W　　　　　122°35'0"W

WASHINGTON

45°40'0"N

Columbia River

Vancouver

45°35'0"N

Portland

OREGON

122°45'0"W　　　　　122°40'0"W　　　　　122°35'0"W

Overview

WA

WA0601D

GC10631