NOAA COASTAL MAPPING PROGRAM
PROJECT COMPLETION REPORT

PROJECT WA1101A

Admiralty Inlet, Washington

Introduction

NOAA Coastal Mapping Program (CMP) Project WA1101A provides a highly accurate database of new digital shoreline data for Admiralty Inlet, in the state of Washington. Admiralty Inlet is located in the northwestern portion of Puget Sound and includes Indian and Marrowstone Islands and Port Ludlow. The project also includes the western shoreline of Whidbey Island from the Lake Hancock area south to Useless Bay. Project WA1101A is a subproject of a larger project, WA1101, which also includes a portion of the western shore of Skagit Bay. 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

Project WA1101A was designed per a request from the Hydrographic Surveys Division (HSD) of the Office of Coast Survey, NOAA, for GIS data in support of HSD operations. Based on an analysis of project requirements and results of a source data search, it was determined that CMP procedures for multiple source projects would apply for this project. Available source data deemed adequate for successful completion of this project included sources acquired in September 2002 and May 2010.

Field Operations

Routine CMP field operations did not apply for this project based on the origin of the project source data.

Aerotriangulation

The aerotriangulation (AT) task was initiated by RSD personnel in November 2011 utilizing a Digital Photogrammetric Workstation (DPW), which is a configuration of computer hardware, modular software components and other associated peripheral devices. The image files were imported into SOCET SET (SS, version 5.5.0) using the DataThruWay (version 5.5.0) software extension. The import process converted the stored compressed files to the National Imagery Transmission Format (NITF version 2.1) with headers and metadata. AT procedures were accomplished using the Multi-Sensor Triangulation (MST) module of SS. The Automatic Point Measurement (APM) algorithm, within MST, was used to collect tie points, and a simultaneous solve adjustment was then performed. The predicted horizontal circular error, using all measured image points, was computed to be 7 meters at the 95% confidence level (95% CE). Positional data for this project is referenced to the North American Datum of 1983 (NAD 83).

Compilation

The data compilation phase of this project was completed by RSD in December 2011. The digital mapping was performed using a DPW in conjunction with the SOCET SET Feature Extraction software module. 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. Selected features were further modified with additional descriptive information to refine general classification.

Cartographic features were compiled to meet a horizontal accuracy of 10 meters at the 95% confidence level. Tidal information was obtained from the NOS tide station at Port Townsend, Washington. The difference between MHW and MLLW at Port Townsend is 2.4 meters. The tide level for this station on the May 2010 date was measured to be 0.7 meters below the MLLW datum. The tide level for this same station on the September 2002 date was determined to be 2.2 meters above the MLLW datum.

Quality Control / Final Review

Quality control tasks were conducted during all phases of project completion by a senior member of the RSD Applications Branch. The final QC review was completed in February 2012. The review process included analysis of aerotriangulation results 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 10.0 software. All project data was evaluated for compliance to CMP requirements.

Comparisons of the largest scale NOAA nautical charts with project imagery and compiled data resulted in creation of the Chart Evaluation File (CEF). The following nautical charts were used in the comparison process:

18423, Bellingham to Everett, Small Craft (various scales), 38th edition
18445, Port Ludlow Inset, 1:40,000 scale, 33rd edition
18464, Port Townsend, 1:20,000 scale, 25th edition
18473, Puget Sound, Oak Bay to Shilshole Bay, 1:40,000, 8th edition
18477, Puget Sound Entrance to Hood Canal, 1:25,000, 5th edition

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 GC10930 file contents, attached to PCR

Remote Sensing Division Electronic Data Library

- Project database
- GC10930 in shapefile format

- Digital copy of the PCR in Adobe PDF format
- Chart Evaluation File in shapefile format

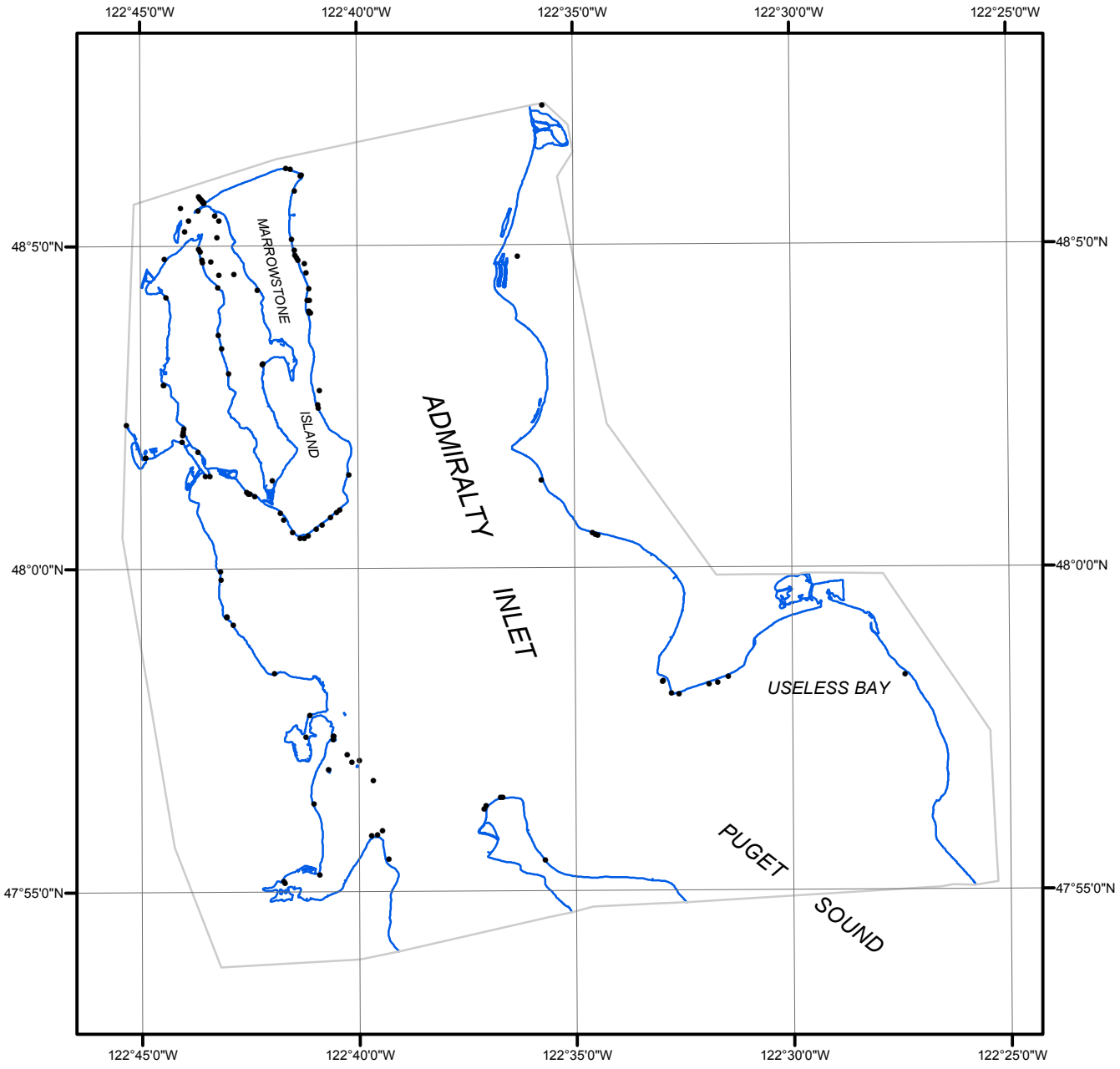
NOAA Shoreline Data Explorer

- GC10930 in shapefile format
- Metadata file for GC10930
- Digital copy of the PCR in Adobe PDF format

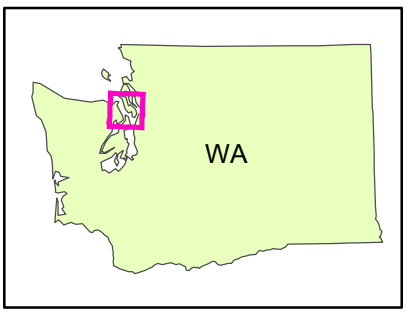
End of Report

ADMIRALTY INLET

WASHINGTON



Overview



WA1101A

GC10930