

NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT

PROJECT AK1107B

Sumner Strait, Ruins Point to Beauclerc Island, Alaska

Introduction

NOAA Coastal Mapping Program (CMP) Project AK1107B provides digital shoreline data for the eastern shore of Sumner Strait, Alaska, from Ruins Point in the south to Hole-in-the-Wall in the north, including the mouth of Shakan Bay and all of Shipley Bay, plus Beauclerc Island and a portion of Kuiu Island in the west. The Geographic Cell (GC) may be used to complement the Nautical Charting Program (NCP) as well as geographic information systems (GIS) for a variety of coastal zone management applications.

Project Design

Project AK1107B was designed per a request from the Hydrographic Surveys Division (HSD) of the Office of Coast Survey, NOAA, for cartographic data in support of HSD field operations. Based on an analysis of project requirements, and as a result 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 May, September, and October 2003.

Field Operations

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

Aerotriangulation

The aerotriangulation task was initiated by RSD personnel in January 2013 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 (version 5.6) using the DataThruWay (ver. 5.5) software extension. The import process converted the stored compressed files to the National Imagery Transmission Format (NITF 2.0) with headers and metadata. Aerotriangulation procedures were accomplished using the Multi-Sensor Triangulation (MST) module of SOCET SET. The interactive point measurement tool within MST was used to collect several tie points and a simultaneous solve adjustment was then performed. Positional data for this project is referenced to the North American Datum of 1983 (NAD 83).

Note: After completion of the compilation phase, a uniform bias was discovered in the horizontal positioning of all of the compiled feature data for AK1107B. Therefore features were uniformly shifted to match the positioning of WorldView-2 commercial satellite imagery coverage. These images, acquired by the vendor in May 2011 and October 2012, have a spatial resolution of 0.5 meters and a horizontal accuracy of 5.0 meters at the 90% confidence level (CE90). The reported accuracy is exclusive of viewing geometry and terrain distortions. For standard CMP accuracy

reporting purposes, the vendor-reported CE90 was converted to a 95% confidence level (CE95). Positioning within the WorldView imagery was further verified using at least twelve NGS 3rd order control points in addition to feature data from an adjacent previously compiled project, AK0401A (GC10569).

Compilation

The data compilation phase of this project was initiated by RSD in February 2013. 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 5.7 meters at the 95% confidence level. Tidal information was obtained from the NOS reference station at Sitka, AK, and time and height offsets were applied to tidal substations in the project area. The elevation of the MHW datum is 3.3 meters above the MLLW datum. The water level at the times the source images were acquired varied between 0.2 and 3.6 meters above MLLW. Sources acquired in May 2003 coincided with the MLLW tidal datum; enabling approximate delineations of MLLW referenced features.

Quality Control / Final Review

Quality control tasks were conducted during all phases of project completion by a senior member of the Applications Branch of RSD. The final QC review was completed in February 2013. 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 9.3 software. All project data was evaluated for compliance to CMP requirements.

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

- 17378, Port Protection, 1:20,000 scale, 14th Ed.
- 17386, Sumner Strait, 1:40,000 scale, 5th Ed.
- 17387, Shakan and Shipley Bays, 1:40,000 scale, 13th Ed.

End Products and Deliverables

The following specifies the location and identification of end products generated during the completion of this project:

RSD Applications Branch Archive

- Hardcopy of the Project Completion Report (PCR)
- Page size graphic plot of GC10959 file contents, attached to PCR

Remote Sensing Division Electronic Data Library

- Project database
- GC10959 in shapefile format
- Digital copy of the PCR in Adobe PDF format
- CEF in shapefile format

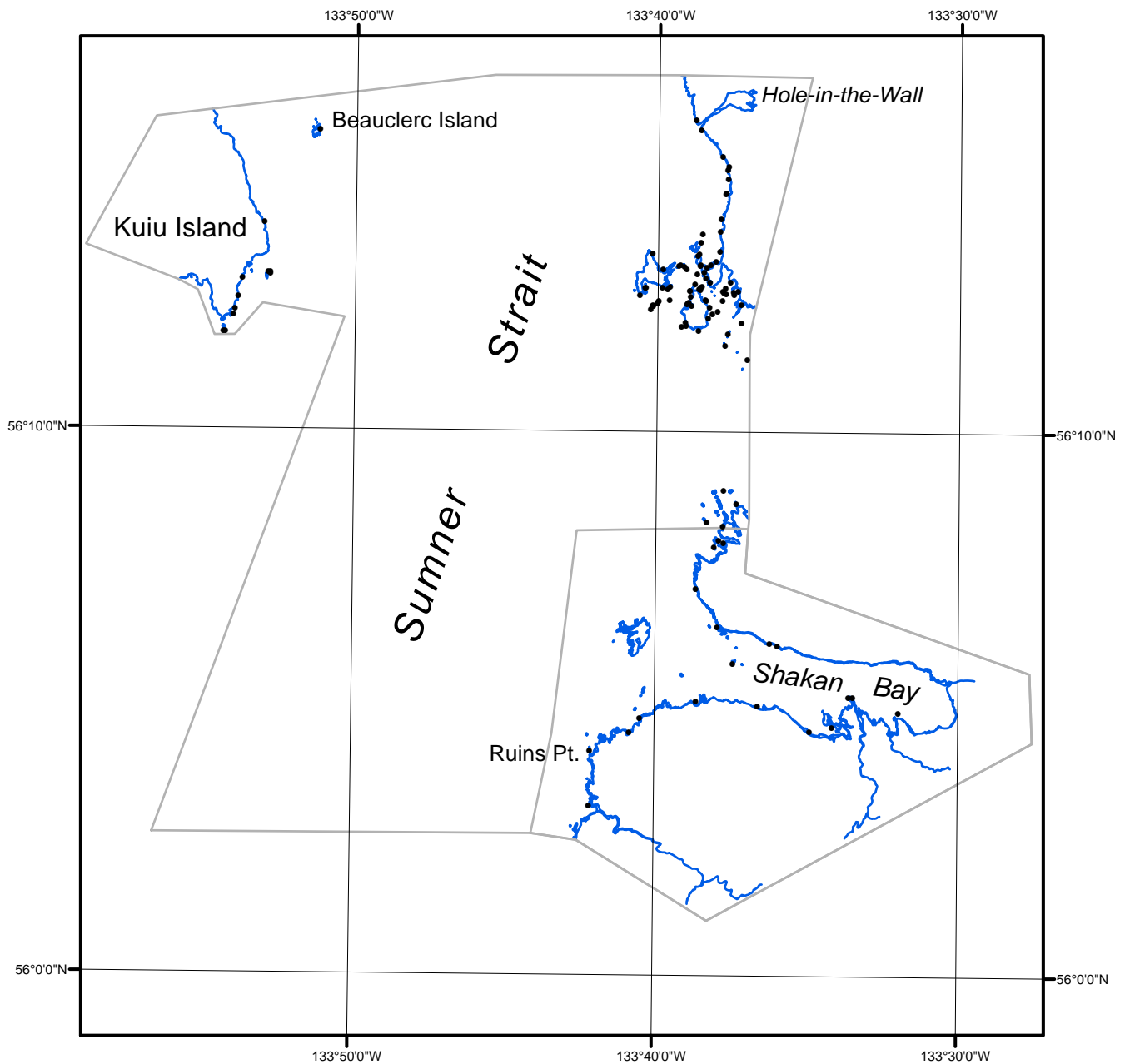
NOAA Shoreline Data Explorer

- GC10959 in shapefile format
- Metadata file for GC10959
- Digital copy of the PCR in Adobe PDF format

End of Report

SUMNER STRAIT, RUINS POINT TO BEAUCLERC ISLAND

ALASKA



Overview



AK1107B

GC10959