NOAA COASTAL MAPPING PROGRAM
PROJECT COMPLETION REPORT

PROJECT AK0502

Western Krenitzin Islands and Northeast Unalaska Island
Aleutian Islands, Alaska

Introduction

Coastal Mapping Program (CMP) Project AK0502 provides coastal zone mapping data of the area around the Krenitzin Islands. This area includes Akun Island, Akun Bay, Tangik Island, Poa Island, Akutan Island, Akutan Bay, Akutan Pass, Unaiga Island, Unaiga Pass, Egg Island, Sedanka Island, Udagak Strait and Unalaska Island from Cape Cheerful through Unalaska Bay and Dutch Harbor to Beaver Inlet, almost to Kayak Cape. The digital cartographic feature file (DCFF) 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

This project was designed per a request from the NOAA 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 between January 2000 and April 2002.

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 accomplished by Western Air Maps, Inc. personnel in mid October, 2005. The image files were imported into SOCET SET, Version 5.0, using the DataThruWay, Version 5.0 software. The import process also converted the stored and compressed files to a recognized native SOCET SET format (NITF 2.0) and included supporting data extension files consisting of previously measured sensor model parameters. Aerotriangulation procedures were executed using the Multi-Sensor Triangulation (MST) module of SOCET SET on a Digital Photogrammetric Workstation (DPW), which is a configuration of computer hardware, modular software components and other associated peripheral devices. The interactive point measurement tool within MST was used to collect tie points and a simultaneous solve adjustment was performed, forecasting an average predicted horizontal circular error for all well defined points in this project area of 8 meters at the 95% confidence level. Positional data for this project is referenced to the North American Datum of 1983 (NAD 83).

Compilation

Digital feature data compilation for this project was accomplished by Western Air Maps, Inc. personnel from October through late December, 2005. The digital mapping was performed using a DPW in conjunction with the SOCET SET Feature Extraction software module. Feature attributes were established from the C-COAST specification file, which provided the definition and attribution scheme for the suite of cartographic features pertinent to the CMP. Selected cartographic 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 Unalaska, Dutch Harbor, Alaska, and time and height offsets were applied to tidal substations in the project area. The mean tide range at these substations varied between 0.7 and 1.0 meters. The water level at the times the source images were acquired varied between 0.4 and 0.9 meters above MLLW.

Quality Control / Final Review

Western Air Maps, Inc. personnel conducted quality control interactively from January through June 2006, with a final independent review upon initial completion of feature extraction. The review process included analysis of aerotriangulation results and assessment of the identification and attribution of cartographic features within the DCFF according to image analysis and criteria defined in C-COAST. The quality control process concluded with an inspection of topological connectivity within the DCFF using ArcGIS (version 9.1) 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:

CHART	SCALE	ED.	DATE
16522 Unalaska Island- Beaver Inlet	1:40,000	6th	Feb 2004
16528 Unalaska Island- Unalaska Bay and Akutan Pass	1:40,000	16th	Jun 1998
16529 Dutch Harbor	1:10,000	15th	Apr 2004
16530 Unalaska Island- Captain's Bay	1:10,000	6th	Apr 1996
16531 Krenitzen Islands	1:80,000	7th	Feb 2002
16532 Krenitzen Islands- Akutan Bay	1:20,000	6th	Jun 2000
16518 Cape Kovrizhka to Cape Cheerful	1:40,000	6th	Oct 2004

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 GC10581 file contents, attached to PCR

Remote Sensing Division Electronic Data Library

- Project Database
- Digital copy of DCFF GC10581 in shapefile format
- Digital copy of the PCR in Adobe PDF format
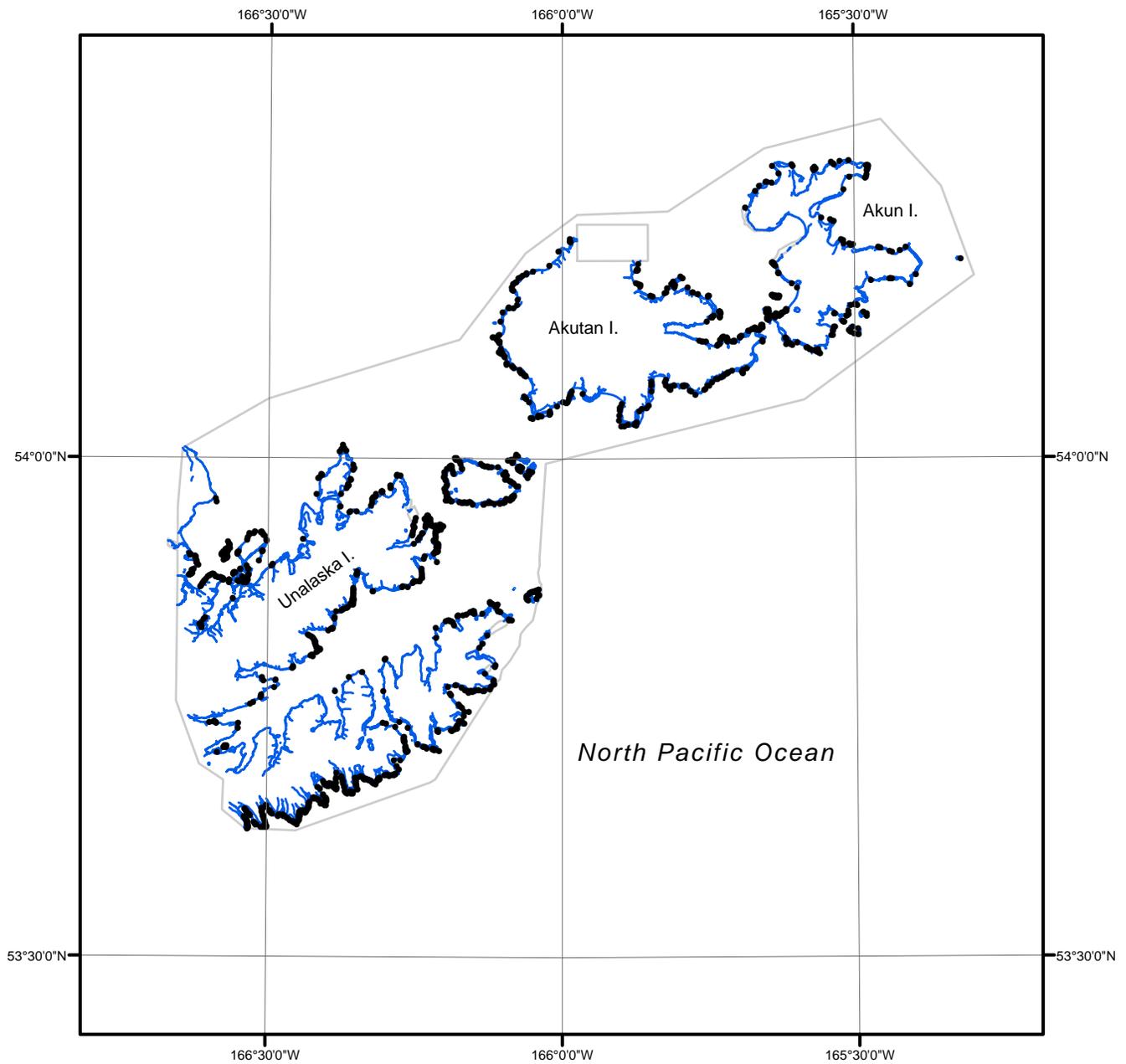- CEF in shapefile format

NOAA Shoreline Data Explorer

- DCFF for GC10581
- Metadata file for GC10581
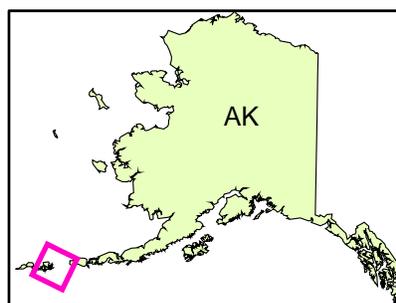- Digital copy of the PCR in Adobe PDF format

End of Report

W KRENITZIN ISLANDS AND NE UNALASKA ISLAND

ALASKA

166°30'0"W   166°0'0"W   165°30'0"W

54°0'0"N

Akun I.

Akutan I.

Unalaska I.

North Pacific Ocean

54°0'0"N

53°30'0"N

166°30'0"W   166°0'0"W   165°30'0"W

Overview

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GC10581