

NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT

PROJECT AK1017

Approaches to Kotzebue Harbor, Alaska

Introduction

Coastal Mapping Program (CMP) Project AK1017 provides coastal zone mapping data of portions of the coastline of Kotzebue Sound and Hotham Inlet in the vicinity of Kotzebue Harbor, Alaska. The project area extends from Cape Krusenstern eastward to the mouth of Hotham Inlet, including the northern portion of Baldwin Peninsula. The Geographic Cell (GC) may be used in support of the NOAA Nautical Charting Program (NCP) and coastal zone management activities.

Project Design

This project was designed per a request from the NOAA Hydrographic Surveys Division (HSD) of the Office of Coast Survey, NOAA, for cartographic 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 May and June of 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 task was initiated by Remote Sensing Division (RSD) Applications Branch (AB) personnel in October 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 (version 5.6) using the DataThruWay (version 5.6) 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 automatic point measurement (APM) tool within MST was used to collect several tie points, some of which were manually re-measured, and a simultaneous solve adjustment was then performed, forecasting an average predicted horizontal circular error for all well-defined points in this project area of 7 meters at the 95% confidence level. Positional data is referenced to the North American Datum of 1983 (NAD 83).

Compilation

The data compilation phase of this project was initiated by RSD AB personnel in October, 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 10.0 meters at the 95% confidence level. Tide levels were calculated using Pydro software with a preliminary TCARI grid provided by COOPS through HSD. The elevation of the MHW tidal datum in the project area is 0.21 meters above the MLLW datum. The water levels in the project area at the times the source images were acquired varied from 0.3 m. below MLLW to 0.2 m. above MLLW.

Quality Control / Final Review

RSD AB personnel conducted quality control (QC) tasks during all phases of project completion. The final QC review was completed in February of 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 9.3.1 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 chart was used in the comparison process:

16005, Cape of Prince Wales to Pt. Barrow, 1:700,000 scale, 10th Ed., Oct. /07

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 GC10903 file contents, attached to PCR

Remote Sensing Division Electronic Data Library

- Project database
- GC10903 in shapefile format
- Digital copy of the PCR in Adobe PDF format
- CEF in shapefile format

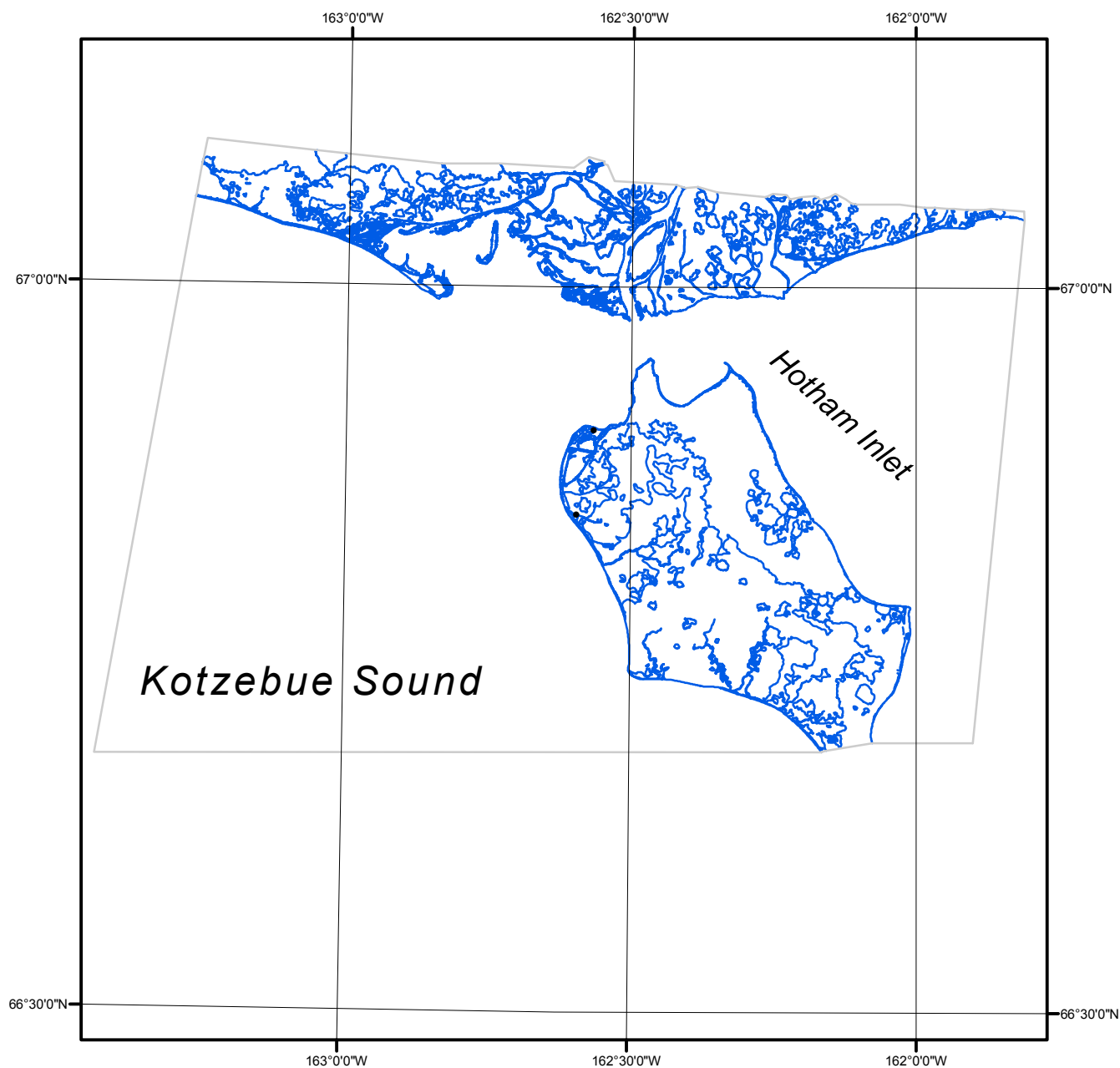
NOAA Shoreline Data Explorer

- GC10903 in shapefile format
- Metadata file for GC10903
- Digital copy of the PCR in Adobe PDF format

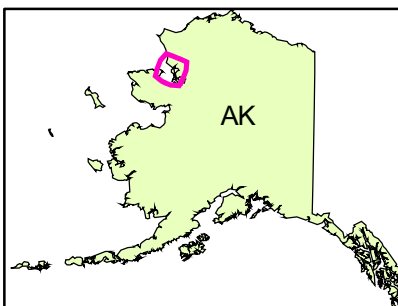
End of Report

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ALASKA



Overview



AK1017

GC10903