

NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT

PROJECT AK1001

Kuskokwim River, Alaska

Introduction

NOAA Coastal Mapping Program (CMP) Project AK1001 provides digital shoreline data for a portion of the Kuskokwim River, from Eek Island to Bethel, AK. The Kuskokwim River is located at the head of Kuskokwim Bay, in the Bering Sea. The Geographic Cell (GC10864) 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 AK1001 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 July and August 2009.

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 a member of the Applications Branch (AB) of the Remote Sensing Division (RSD) in February 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) using the DataThruWay (version 5.5) software module. The import process converted 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 SS. The Automatic Point Measurement (APM) tool within MST was used to collect image points. The simultaneous solve adjustment was then performed, forecasting an average predicted horizontal circular error for all well defined points of 7 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 AB personnel in June 2011, using a DPW in conjunction with the SS 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 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 Quinhagak (Kwinak), Kuskokwim River, Alaska. The relative difference between the MHW datum and the MLLW datum at this tide station is approximately 3.0 meters. For the source data acquired in July the predicted tide levels varied between 0.8 and 3.5 meters above MLLW, and for the source data acquired in August the predicted tide level was 1.1 meters above MLLW.

Quality Control / Final Review

Quality control tasks were conducted during all phases of project completion by senior CMP personnel of RSD. The review process included an analysis of aerotriangulation results and the assessment of the identification and attribution of cartographic features within the Geographical Cell (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 chart 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:

**Preliminary Chart 16304 - Kuskokwim River, 2nd Ed., Jan/05, scale 1:100,000 (Note: contains no hydrography)*

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 GC10864 file contents, attached to PCR

Remote Sensing Division Electronic Data Library

- Project database
- GC10864 in shapefile format
- Digital copy of the PCR in Adobe PDF format
- CEF in shapefile format

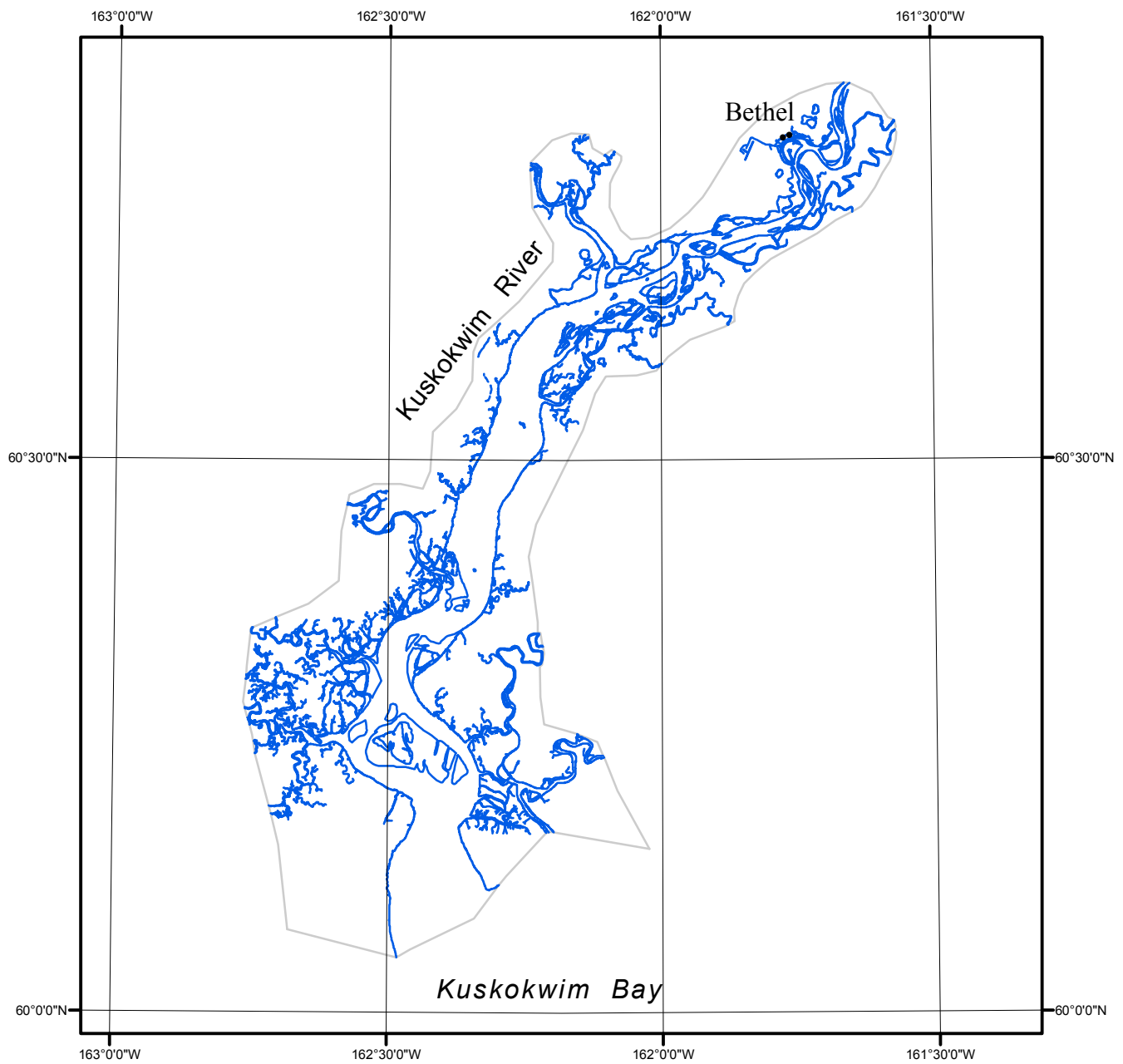
NOAA Shoreline Data Explorer

- GC10864 in shapefile format
- Metadata file for GC10864
- Digital copy of the PCR in Adobe PDF format

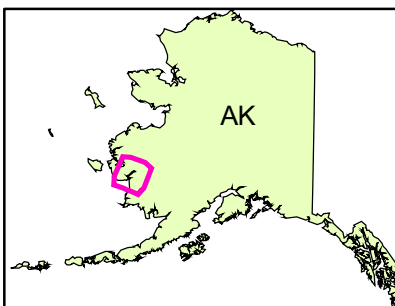
End of Report

KUSKOKWIM RIVER

ALASKA



Overview



AK1001

GC10864