

# **NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT**

## ***PROJECT AK0806***

### ***Icy Bay, Alaska***

#### **Introduction**

NOAA Coastal Mapping Program (CMP) Project AK0806 provides digital shoreline data for the entire Icy Bay area. The project includes the outer coast near Icy Bay from the Yahtse River in the southeast to the Priest River a few miles west of the bay, and extends north, including Tsaa and Taan Fiords and other inlets, to Guyot Glacier. 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 AK0806 was designed per a request from the Hydrographic Surveys Division (HSD) of the Office of Coast Survey (OCS), 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 May 2008.

AK0806 is a follow-up of a previous CMP project, AK0802, and encompasses the same area. The former project was planned and executed in response to an immediate need for shoreline data by HSD, and utilized monoscopic extraction techniques from a commercial imagery source of lesser accuracy. Project AK0806 utilized stereo extraction from other image sources, and greatly improves the horizontal accuracy of the shoreline of Icy Bay. The data from project AK0806 is expected to supersede data provided with the previous project for application to NOAA nautical chart products.

#### **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 Remote Sensing Division (RSD) personnel in November 2008. The image files were imported into SOCET SET, version 5.4.1, using the DataThruWay software module. The importing 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 completed on a Digital Photogrammetric Workstation (DPW) using the Multi-Sensor Triangulation (MST)

module of SOCET SET. The interactive point measurement tool within MST was used to collect tie points and a simultaneous solve adjustment was then performed. Based on the results of this adjustment, the average predicted horizontal circular error for all well defined points in this project area is 7 meters at the 95% confidence level.

## **Compilation**

The data compilation phase of this project was initiated by RSD in January of 2009. 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 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. Tide times and heights in Icy Bay are similar to those at the Yakutat tide station in Yakutat Bay, Alaska. The verified tide level recorded at Yakutat Station for the May 2008 source imagery was approximately 1.3 meters above MLLW. The height of the MHW datum is about 2.7 meters above MLLW, thus the water level was about mid-tide at the time the source imagery for the project was acquired.

## **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 April 2009. The review process included an 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 9.2 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:

16741, Icy Bay, AK, 1:40,000 scale, 11th ed., May 2005

16016, Southeast Coast, AK, 1:969,756 scale, 21st ed., October 2007

## **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 GC10775 file contents, attached to PCR

### **Remote Sensing Division Electronic Data Library**

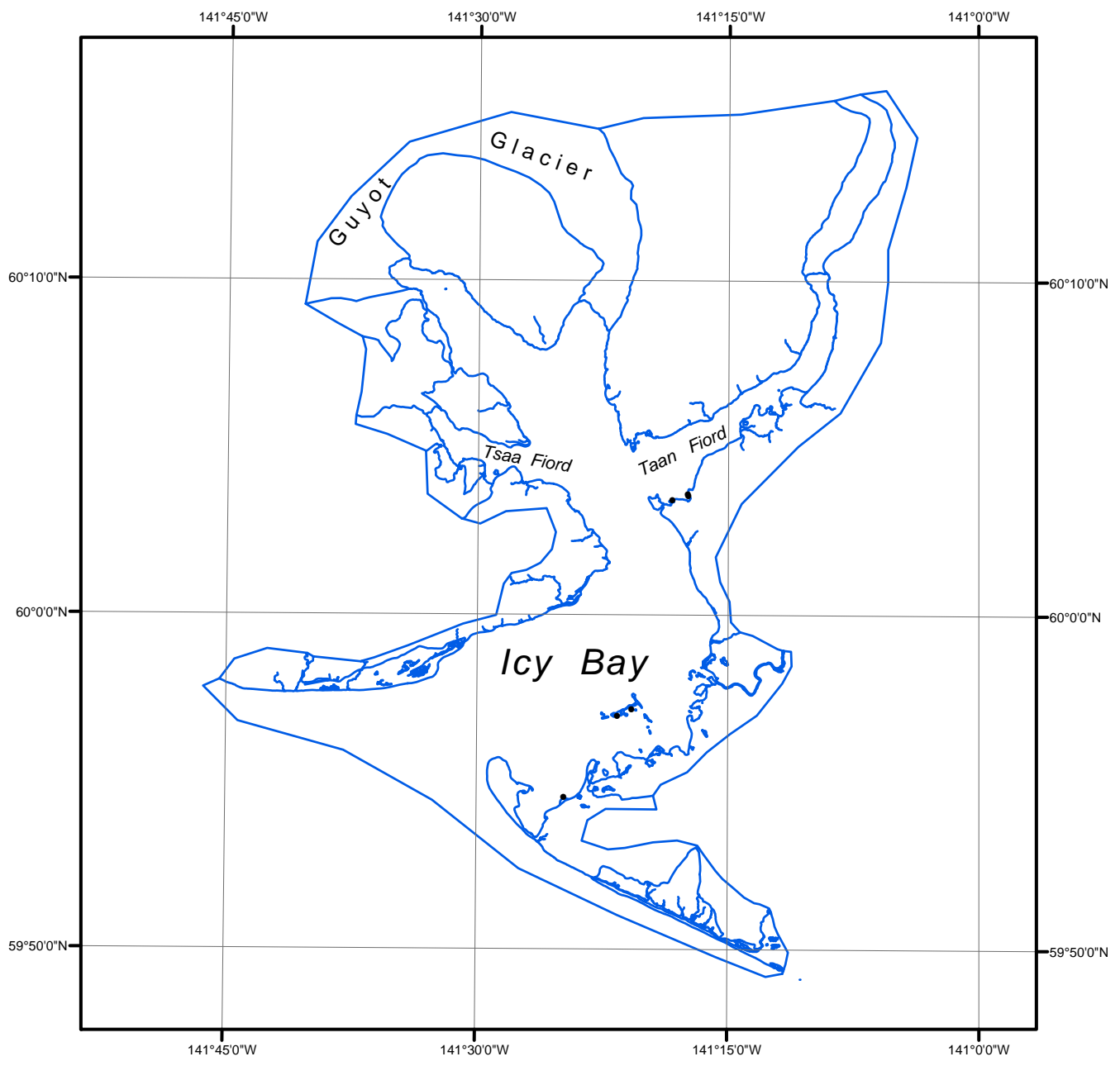
- Project database
- GC10775 in shapefile format
- Digital copy of the PCR in Adobe PDF format
- CEF in shapefile format

### **NOAA Shoreline Data Explorer**

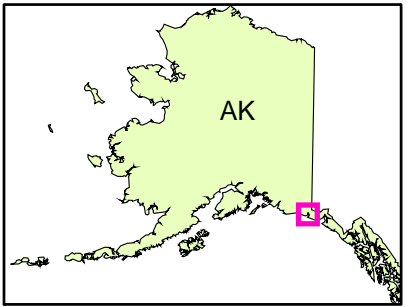
- GC10775 in shapefile format
- Metadata file for GC10775
- Digital copy of the PCR in Adobe PDF format

**End of Report**

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ALASKA



Overview



AK0806

GC10775