

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

## ***PROJECT AK1105B-CM-T***

### ***Shuyak Island and Northern Afognak Island, Alaska***

#### **Introduction**

NOAA Coastal Mapping Program (CMP) Project AK1105B-CM-T provides digital shoreline data for Shuyak Island and Northern Afognak Island, including Paramanof Bay, Foul Bay, Perenosa Bay, Shuyak Strait, and Latax Rocks. 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 AK1105B-CM-T was designed per a request from the 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 in July 2011 and May 2012.

#### **Field Operations**

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

#### **Aerotriangulation**

The aerotriangulation (AT) task was initiated in February 2015 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 (ver. 5.6) using the DataThruWay (DTW ver. 5.6) software module. The DTW import process converted stored compressed files to the National Imagery Transmission Format (NITF 2.1) with headers and metadata. AT 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 image points. A simultaneous solve adjustment was then performed, forecasting an average predicted horizontal circular error for all well-defined points of 3 meters at the 95% confidence level. Positional data for this project is referenced to the North American Datum of 1983 (NAD 83).

## Compilation

The data compilation phase of this project was initiated in May 2015. Digital feature data compilation for this project was accomplished by 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 6 meters at the 95% confidence level. Verified water levels were obtained from the NOS tide stations at Seldovia, AK (Station ID: 9455500) and Kodiak, AK (Station ID:9457292), with time/height offsets applied to the tidal substations at Carry Inlet, Big Bay, Red Fox Bay, Malina Bay, Andreon Bay and Perenosa Bay. The water levels, at the times of source acquisition, varied between -0.67 meters to 4.09 meters above Mean Lower Low Water (MLLW). The elevation of the Mean High Water (MHW) tidal datum in the project area varies between 3.07 – 4.25 meters above the MLLW tidal datum.

Since it was determined that MLLW conditions existed for many of the images used in this project, MLLW features (Depth Contour, Ledge and Reef) were compiled throughout much of the project area. Some of these MLLW features were compiled from just a single image (monoscopically), and are designated as such in the extraction method field of the shapefile (EXT\_METH = “M”). In those gap areas where MLLW imagery was not available, charted MLLW features could not be confirmed or disproven, and should be **retained** on the charts.

Also of note, a large number of charted bare features (bare rocks and small islets), atop ledges and reefs and in low water areas, were not compiled in the GC or noted in the Chart Evaluation File (CEF) because they either 1) were too close to the shoreline (< 1 mm at the compilation scale), or 2) were not determined to be of prominent height above the ledge or reef or depth area to be of value to navigation. These “un-compiled” bare features should be **removed** from the charts.

## 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 December 2015. The review process included analysis of AT 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 10.2 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:

- 16604, Shuyak and Afognak Islands, AK, 1:78,000 scale, 12<sup>th</sup> Ed., Jul. 2014
- 16605, Shuyak Strait and Bluefox Bay, AK, 1:20,000 scale, 10<sup>th</sup> Ed., Jun. 2014
- 16606, Barren Islands, Alaska South Coast, AK, 1:77,062 scale, 12<sup>th</sup> Ed., Apr. 2015

## **End Products and Deliverables**

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

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

- Project database
- Project Completion Report (PCR)
- GC10962 in shapefile format
- Chart Evaluation File in shapefile format

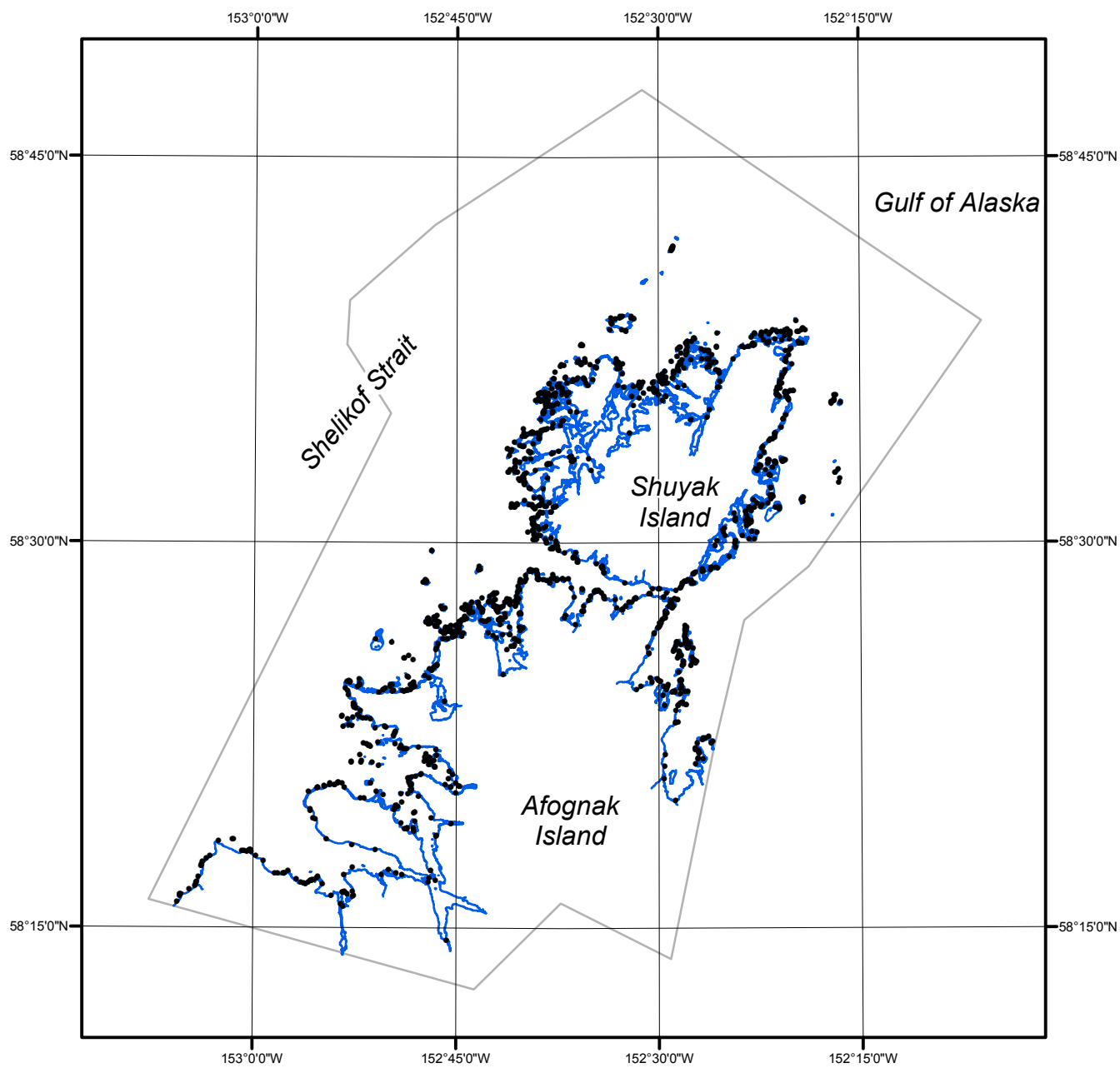
### **NOAA Shoreline Data Explorer**

- GC10962 in shapefile format
- Metadata file for GC10962
- Digital copy of the PCR

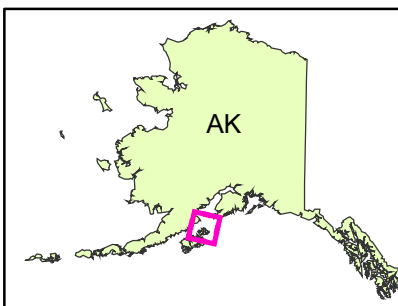
## **End of Report**

# SHUYAK ISLAND AND NORTHERN AFOGNAK ISLAND

## ALASKA



Overview



AK1105B-CM-T

GC10962