

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

## ***PROJECT AK1104***

### ***Unga Strait, Alaska***

#### **Introduction**

NOAA Coastal Mapping Program (CMP) Project AK1104 provides digital shoreline data for an area encompassing the central and western portions of Unga Strait, Alaska, located along the southern side of the Alaska Peninsula, at approximately 55° N Latitude and 161° W Longitude. This area includes Balboa Bay, Albatross Anchorage, Cape Aliakson, Beaver Bay, Zachary Bay, the northern extent of Unga Island and the northwestern portion of Popof Strait. 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 AK1104 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 August, 2011, September/October of 2012 and March of 2013.

#### **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 by Remote Sensing Division (RSD) personnel in September 2013 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 both the DataThruWay (DTW ver. 5.6) software module. The DTW import process converted stored compressed files to the National Imagery Transmission Format (NITF 2.0) 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. The simultaneous solve adjustment was then performed, forecasting an average predicted horizontal circular error for all well-defined points of 2.1 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 RSD Applications Branch (AB) personnel in May 2014, 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 5.1 meters at the 95% confidence level. Tidal information was obtained from the NOS tide station at Sand Point, Popof Island, AK (Station ID: 9459450). The elevation of the MHW tidal datum at this tide station is 2.1 meters above MLLW. The verified tide levels were reported to be about mid-tide for all imagery with the exception of the September 2012 data that was acquired at MHW.

## **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:

- 1) An analysis of AT results to include the assessment of five (5) horizontal Check Points - one (1) GPS surveyed point and four (4) 3<sup>rd</sup> Order surveyed points (RMS = 1.7m) - along with an assessment of parallax within each stereo-model,
- 2) Assessment of the identification and attribution of cartographic features within the (GC) according to image analysis and criteria defined in C-COAST, and
- 3) Assessment of topological connectivity within the GC using ArcGIS 10.1 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 charts were used in the comparison process:

Chart 16551, Unga Island to Pavlof Bay, Scale 1:80,000, 10<sup>th</sup> Ed., Apr/08  
Chart 16553, Nagai Island to Unga Island, Scale 1:80,000, 7<sup>th</sup> Ed., Mar/11

## **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 GC11079 file contents, attached to PCR

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

- Project database
- GC11079 in shapefile format
- Digital copy of the PCR in Adobe PDF format
- CEF in shapefile format

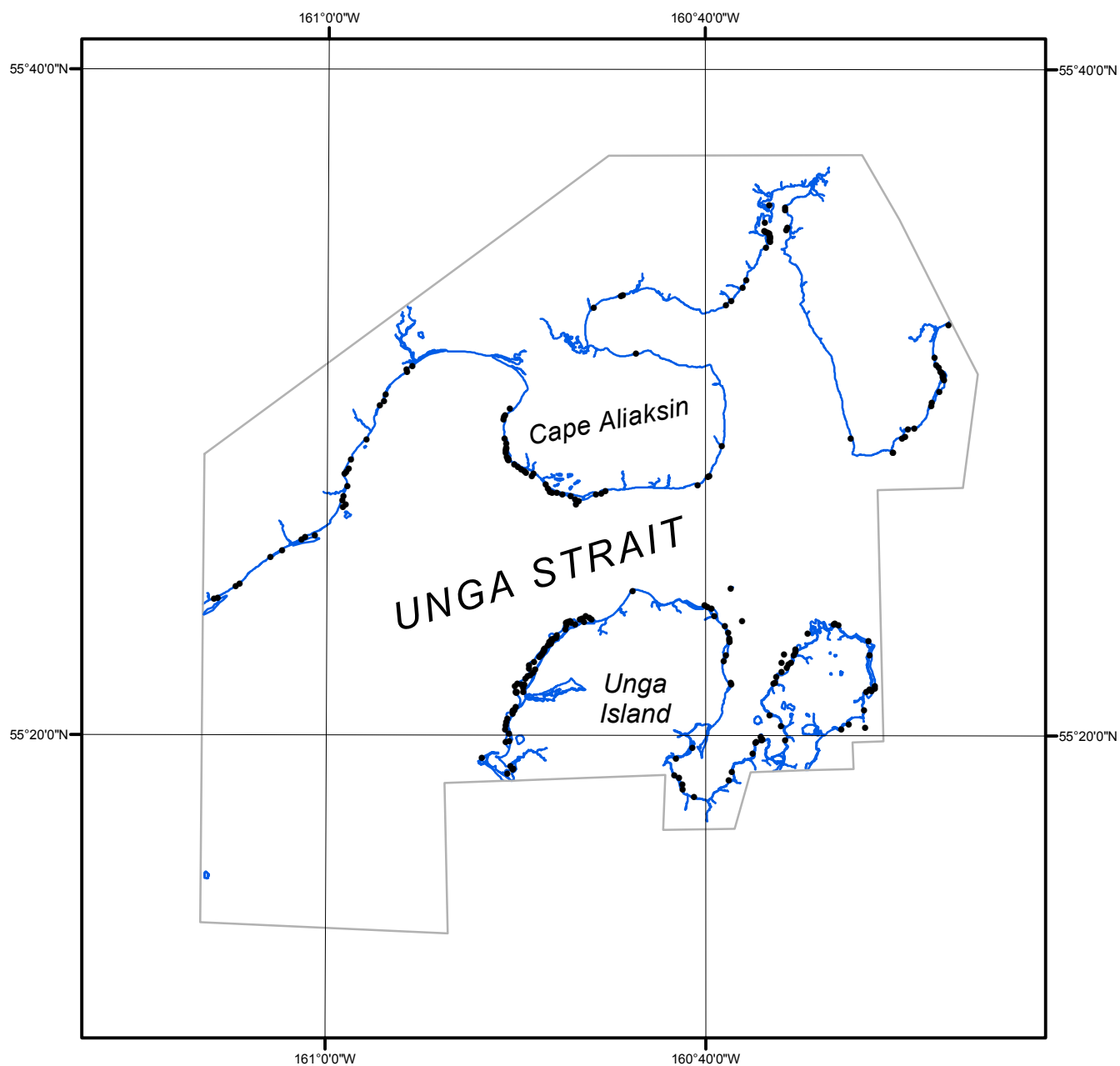
### **NOAA Shoreline Data Explorer**

- GC11079 in shapefile format
- Metadata file for GC11079
- Digital copy of the PCR in Adobe PDF format

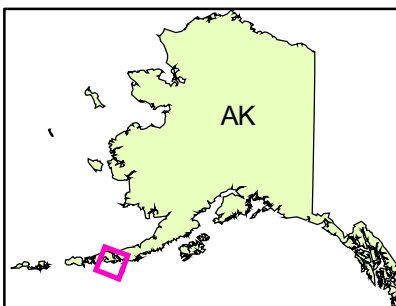
**End of Report**

# UNGA STRAIT

## ALASKA



Overview



AK1104

GC11079