

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

## ***PROJECT AK1404***

### ***Hoonah Harbor, Alaska***

#### **Introduction**

Coastal Mapping Program (CMP) Project AK1404 provides highly accurate digital shoreline data for a portion of Port Frederick, Alaska, including Hoonah Harbor. The Geographic Cell (GC) may be used in support of the NOAA Nautical Charting Program (NCP) as well as geographic information systems (GIS) for a variety of coastal zone management applications.

#### **Project Design**

Project AK1404 was designed in response to a request for new shoreline data originating from the Navigation Services Division (NSD) of the Office of Coast Survey, NOAA. Based on 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 consisted of commercial satellite imagery obtained through the National Geospatial-Intelligence Agency (NGA), including five panchromatic images (IKONOS, QuickBird) and one color image (WorldView). Stereo coverage was obtained for the entire project area.

#### **Field Operations**

Routine CMP field operations did not apply for this project based on the origin of the project imagery, which was obtained from external sources.

#### **Aerotriangulation**

Routine softcopy aerotriangulation methods were applied to establish the network of precise camera positions and other control for mapping, and to provide model parameters and orientation elements required for digital compilation. This work was completed by RSD personnel in March 2014. The panchromatic images were measured and adjusted as a block using BAE Systems' SOCET SET<sup>®</sup> (ver. 5.6) on a photogrammetric workstation consisting of a high-end Dell Precision<sup>™</sup> Workstation with stereo viewing capability. Within SOCET SET, the Interactive Point Measurement (IPM) tool was used in the Multi-Sensor Triangulation (MST) module to collect tie points. The simultaneous solve adjustment forecasted an average predicted horizontal circular error for all well-defined points in the project area of 3.3 meters at the 95% confidence level. The published coordinates of independently measured control points were compared to their locations in the imagery in order to verify this accuracy. 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 personnel in March, 2014 using the Feature Extraction module of SOCET SET. All feature data was compiled from the aerotriangulated panchromatic stereo imagery. The color imagery was used solely as an aid for feature interpretation. 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.

Spatial data accuracies for AK1404 were determined according to standard Federal Geographic Data Committee (FGDC) practices. Cartographic features were compiled to meet a horizontal accuracy of 6.3 meters at the 95% confidence level. The table below provides detailed information on the imagery used in the feature compilation phase:

Source	Resolution	Source ID	Acquisition Date/Time	Tide Level*
WorldView	0.5 m	21SEP10WV021400010SEP21204732-M1BS-052794548080_01_P007.ntf	2010-09-21 / 20:47 GMT	3.8 – 4.1 m
IKONOS	1.0 m	12APR12IK0101000po_848184_pan_0000002.ntf	2012-04-12 / 20:35 GMT	-0.05 m
IKONOS	1.0 m	30AUG12IK0101000po_884431_pan_0000000.ntf	2012-08-30 / 20:34 GMT	3.7 – 4.1 m
IKONOS	1.0 m	30AUG12IK0101000po_884431_pan_0010000.ntf	2012-08-30 / 20:34 GMT	3.7 – 4.1 m
QuickBird	0.6 m	29OCT12QB021400012OCT29194325-P1BS-500071838010_01_P007.ntf	2012-10-29 / 19:43 GMT	3.6 – 4.1 m
QuickBird	0.6 m	02AUG13QB021300013AUG02193912-P1BS-500073852070_01_P007.ntf	2013-08-02 / 19:39 GMT	2.7 – 2.9 m

\* Tide levels are given in meters above MLLW and are based on actual observations recorded by the NOS reference gage at Elfin Cove, AK, with offsets applied to substations in the vicinity of the project area. The height of the MHW tidal datum in the project area is approximately 4.0-4.4 meters above MLLW.

## Quality Control / Final Review

Quality control tasks were conducted upon project completion by senior CMP personnel in April 2014. 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 9.3.1. The entire suite of project products was evaluated for compliance to CMP requirements. A Chart Evaluation File (CEF) resulted from comparison of the project imagery with the largest scale NOAA nautical chart covering the project:

17302, Icy Strait and Cross Sound, 1:80,000 Scale, 18<sup>th</sup> Ed. Mar./02.

## **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 GC11063 file contents, attached to PCR

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

- Project database
- GC11063 in shapefile format
- Digital copy of the PCR in Adobe PDF format
- CEF in shapefile format

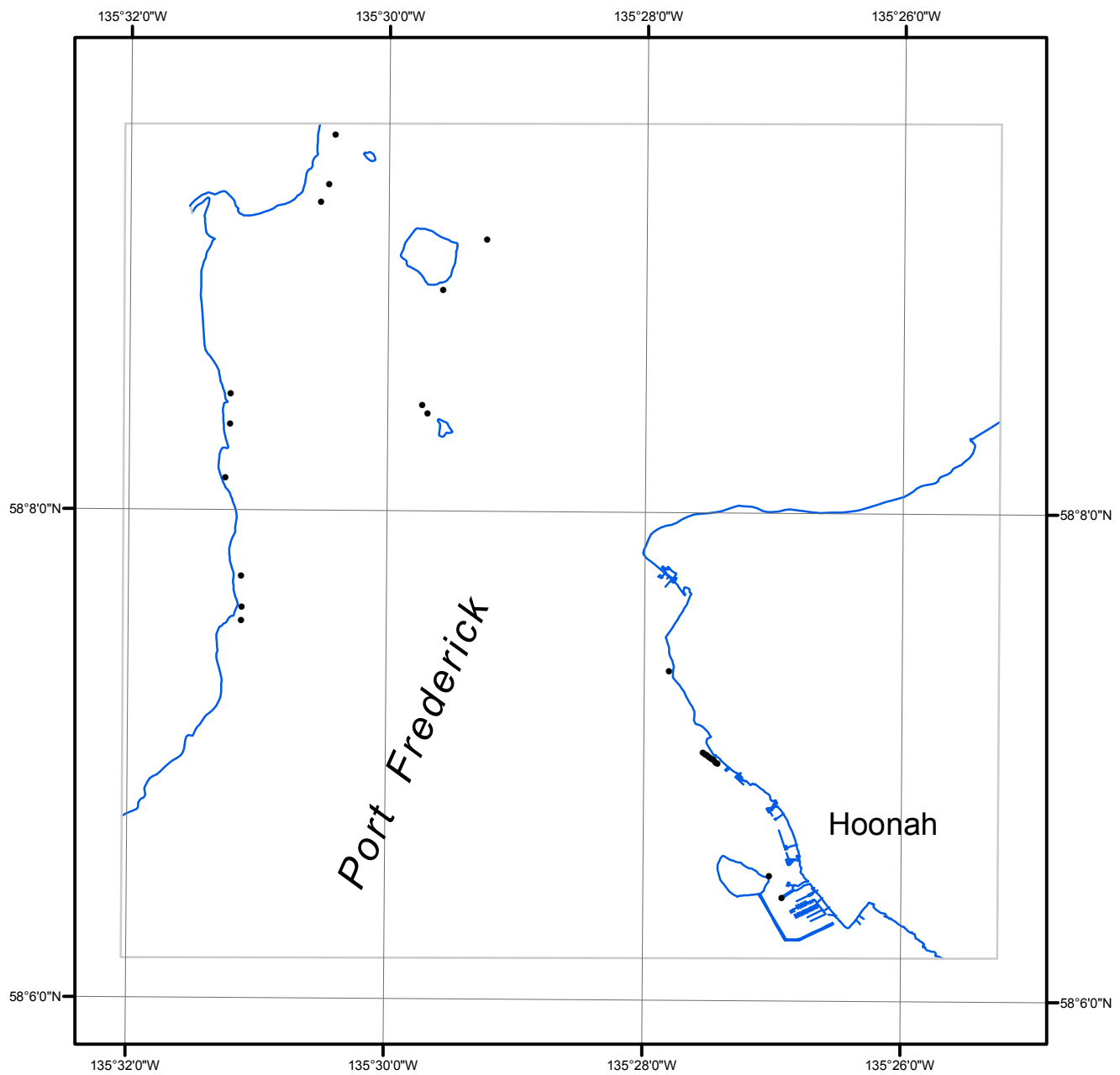
### **NOAA Shoreline Data Explorer**

- GC11063 in shapefile format
- Metadata file for GC11063
- Digital copy of the PCR in Adobe PDF format

## **End of Report**

# HOONAH HARBOR

## ALASKA



Overview



AK1404

GC11063