

NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT

PROJECT AK0906

Port of Juneau, Alaska

Introduction

Coastal Mapping Program (CMP) Project AK0906 provides highly accurate digital shoreline data for key areas of change within the Port of Juneau, Alaska. 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

The design of Project AK0906 was accomplished by the Requirements Branch (RB) of the Remote Sensing Division (RSD) in response to the need for timely updates to the NOAA Electronic Navigational Chart (ENC) series. Project requirements were formulated as a result of analysis conducted within the Coast and Shoreline Change Analysis Program (CSCAP), in which NOAA nautical chart products are compared to contemporary high resolution imagery in order to ascertain the need for more current shoreline data. A Chart Evaluation File (CEF) was forwarded to the Applications Branch (AB) of RSD once the change analysis was complete. Refer to the RB Memorandum of December 1, 2008, "Results of CSCAP Change Analysis for Juneau, Alaska (AK0906)," for details of the chart comparison process.

Field Operations

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

Georeferencing

Ten (10) orthorectified images created from aerotriangulated photography were acquired from the USGS National Map website (<http://nationalmap.gov/>). A USGS contractor (Aero-Metric, Inc.) performed the acquisition and processing of this imagery. After RSD reviewed the USGS imagery and metadata, it was decided that further georeferencing was not necessary. According to the metadata, the original source imagery was flown from July 3 through September 14, 2006 using Zeiss RMK Top 15 cameras. Rectification was done using aerotriangulation data, scanned imagery, and 30 meter DEM data auto-correlated with breakline support. The locations of ten ground points were compared to their positions on the rectified orthoimages, and resulting X and Y residuals were used to calculate a NSSDA horizontal accuracy at the 95% confidence interval (CE95) of 0.5 meters for the orthorectified images. For further information, see the accompanying metadata downloaded with the orthoimages.

In order to conservatively predict the accuracy of well defined points measured during the compilation process, the CE95 derived by Aero-Metric has been tripled. Positional data is referenced to the North American Datum of 1983 (NAD 83).

Compilation

The data compilation phase of this project was accomplished by a member of AB in August 2010. Digital feature data was compiled in ESRI shapefile format from the orthoimagery using ESRI's ArcGIS 9.2 desktop GIS software. Feature attributes were established using 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.

The ENC, which was not available at the time of CSCAP analysis, was used as an input to the compilation process. Comparisons between imagery and ENC influenced placement and attribution of features in the GC and CEF.

Spatial data accuracies for Project AK0906 were determined according to standard Federal Geographic Data Committee (FGDC) practices. Cartographic features were compiled to meet a horizontal accuracy of 1.5 meters at the 95% confidence level.

The following table provides information on the images used in the project completion:

Image Number	Image Source	Source ID	Source File Name	Acquisition Date	Tide Level*
1	USGS National Map	01094101	01094101.tif	July-September 2006	n/a
2	USGS National Map	38302417	38302417.tif	July-September 2006	n/a
3	USGS National Map	39299807	39299807.tif	July-September 2006	n/a
4	USGS National Map	44575810	44575810.tif	July-September 2006	n/a
5	USGS National Map	58110798	58110798.tif	July-September 2006	n/a
6	USGS National Map	60258393	60258393.tif	July-September 2006	n/a
7	USGS National Map	69464250	69464250.tif	July-September 2006	n/a
8	USGS National Map	73794114	73794114.tif	July-September 2006	n/a
9	USGS National Map	81488421	81488421.tif	July-September 2006	n/a
10	USGS National Map	88839675	88839675.tif	July-September 2006	n/a

* Tide levels could not be determined for this project due to a lack of specific dates and times of the original aerial photography used in creating the orthoimages downloaded from USGS. The mean range of tide in the project area is 4.2 meters.

Quality Control / Final Review

Quality control tasks were conducted during all phases of project completion by a senior member of AB. The final QC review was completed in October 2010. The review process included 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. The entire suite of project products was evaluated for compliance to CMP requirements.

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 GC10848 file contents, attached to PCR
- Hardcopy of the CSCAP evaluation memorandum

Remote Sensing Division Electronic Data Library

- GC10848 in shapefile format
- Digital copy of the PCR in Adobe PDF format
- CEF in shapefile format

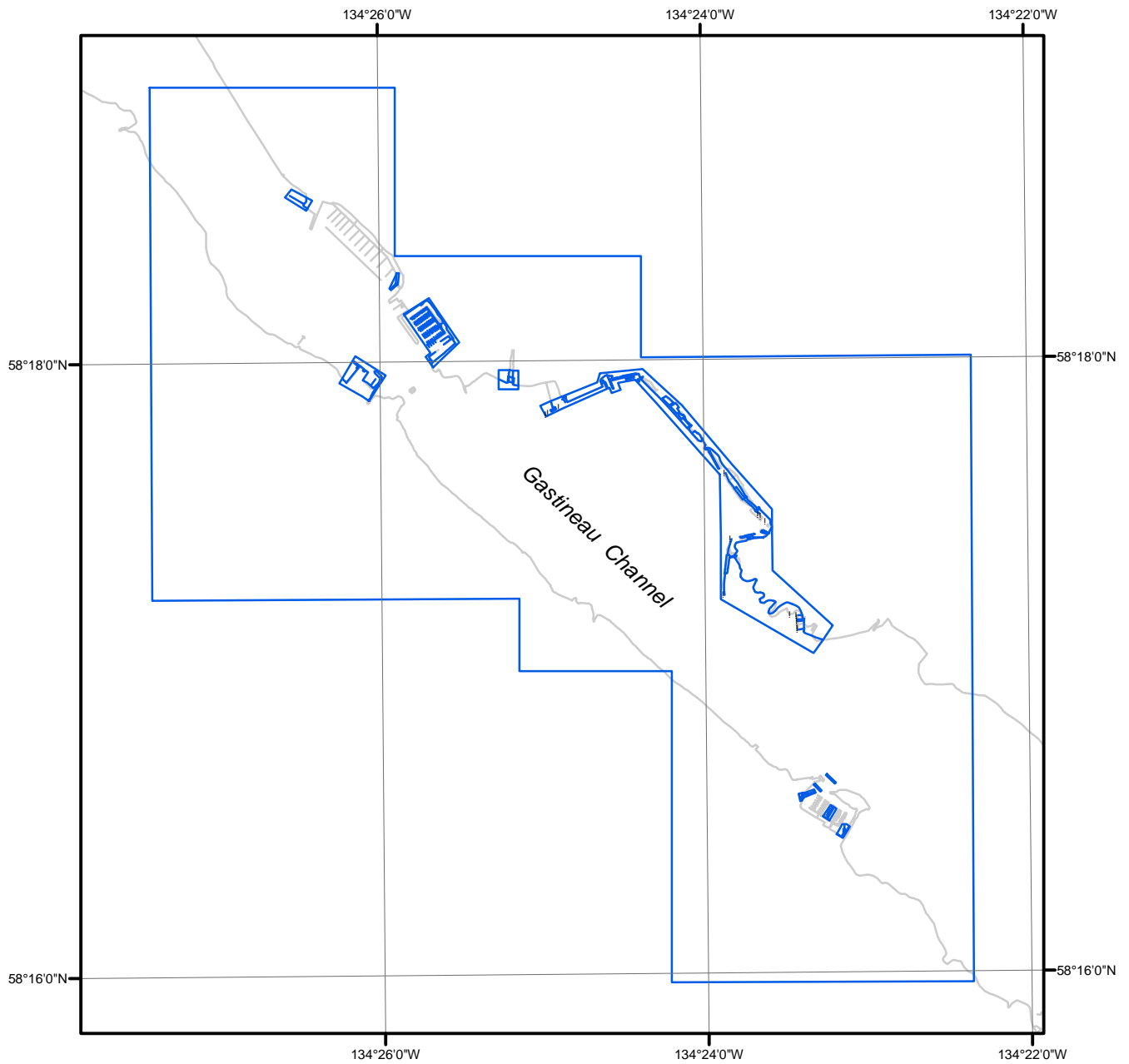
NOAA Shoreline Data Explorer

- GC10848 in shapefile format
- Metadata file for GC10848
- Digital copy of the PCR in Adobe PDF format

End of Report

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ALASKA



Overview



AK0906

GC10848