

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

## ***PROJECT AK2011-CS-T***

### ***Port of Anchorage, Alaska***

#### **Introduction**

Coastal Mapping Program (CMP) Project AK2011-CS-T provides highly accurate digital shoreline data for key areas of change within the port of Anchorage, 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 AK2011-CS-T was accomplished by the Requirements Branch (RB) of the Remote Sensing Division (RSD) in response to the need for expedited updates to the NOAA chart suite in key ports. 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. Orthorectified WorldView satellite imagery from DigitalGlobe was utilized for the CSCAP analysis, with aerial image mosaics from the 2011 Matanuska-Susitna Borough (MSB) Lidar and Imagery Project also obtained to assist compilation. A Chart Evaluation File (CEF) was created once the change analysis was complete. Refer to the CSCAP memorandum for AK2011-CS-T for details regarding the chart comparison.

#### **Field Operations**

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

#### **Georeferencing**

Refinement of the georeferencing of images used in the CSCAP analysis was not necessary since imagery compared favorably spatially with data sources used to check its geolocation and since the distributors provided acceptable accuracy assessments. DigitalGlobe reported an RMSE of 3.9 meters for the WorldView imagery, used to calculate a horizontal accuracy of 6.8 meters at the 95% confidence level. MSB reported an RMSE of 1.2 feet (0.37 meters) which is used to calculate a horizontal accuracy of 0.63 meters at the 95% confidence level for the aerial mosaics. This value was doubled (1.3 meters) in order to conservatively predict the accuracy of well-defined points in the compilation process. Positional data is referenced to the North American Datum of 1983 (NAD 83).

#### **Compilation**

Data compilation was accomplished by a member of the RSD Applications Branch (AB) in May 2020. Digital feature data was compiled in shapefile format from the MSB aerial

mosaics using Esri's ArcGIS (ver. 10.7.1) desktop GIS software. 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.

Spatial data accuracies for Project AK2011-CS-T were determined according to standard Federal Geographic Data Committee (FGDC) practices, with the actual values indicated in the preceding section. The following table provides information on the satellite images used in the project completion:

Image Source	Source File ID	GSD	Acquisition Date/Time	Tide Level*
DMC	2011_4BandImagery.tif	0.3 m	2011-05-11	n/a
WorldView-2	20200506_WV02_ORI_MOS_NAD83.jp2	0.5 m	2020-05-06 / 21:13:36 GMT	0.2 m

\* Tide levels are given in meters above MLLW and are based on verified observations recorded by the NOS gauge at Anchorage, AK. The elevation of MHW above MLLW at Anchorage gauge is 8.67 meters.

## Quality Control / Final Review

Quality control tasks were conducted subsequent to project completion, in July 2020, by senior CMP personnel. The review process included analysis of the image georeferencing 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. 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:

### Remote Sensing Division Electronic Data Library

- CSCAP evaluation memorandum
- GC11661 in shapefile format
- Project Completion Report (PCR)
- CEF in shapefile format

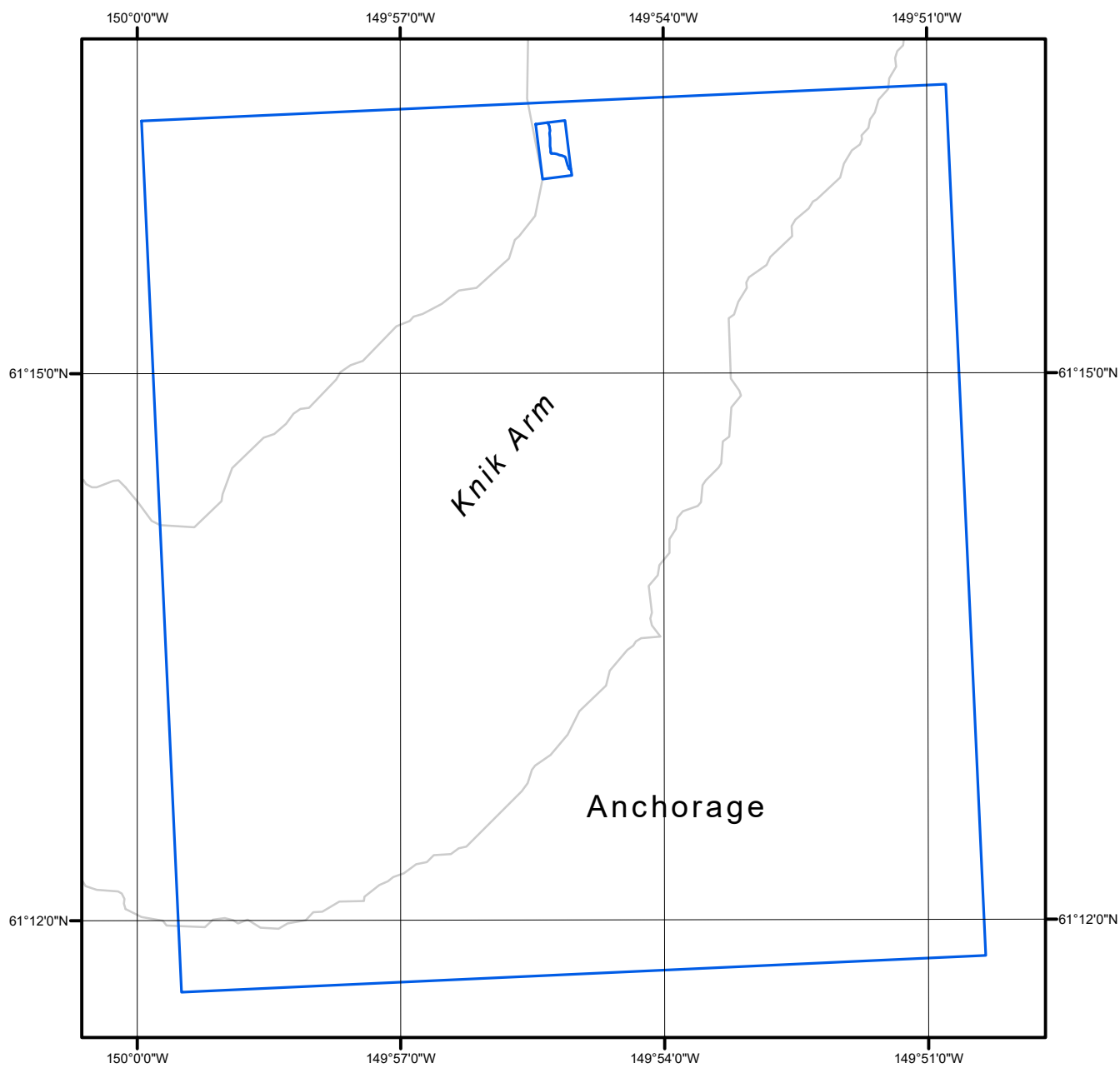
### NOAA Shoreline Data Explorer

- GC11661 in shapefile format
- Metadata file for GC11661
- PCR in Adobe PDF format

## End of Report

# PORT OF ANCHORAGE

## ALASKA



Overview



AK2011-CS-T

GC11661