NOAA COASTAL MAPPING PROGRAM
PROJECT COMPLETION REPORT

PROJECT CA1902-CM-T

Sacramento River, Sacramento Bend to Garcia Bend, California

Introduction

Coastal Mapping Program (CMP) Project CA1902-CM-T provides accurate digital shoreline data for a portion of the Sacramento River from Sacramento Bend southward to Garcia Bend, in California. 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 CA1902-CM-T was designed in response to a request from the Marine Chart Division (MCD) of the Office of Coast Survey, NOAA for shoreline data to update the nautical charts in response to a recent levee construction project. 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 two orthorectified pan-sharpened natural color satellite images from DigitalGlobe (Maxar), Inc., obtained via the NextView contract.

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.

Georeferencing

Further spatial refinement of the georeferencing of the satellite images was not necessary since the images used for compilation compared favorably spatially with the data sources used to verify their geolocation. In particular, compiled vector data and orthoimagery from previous CMP Projects CA0702 and CA1806-CS-N were used to assess the image accuracy. Positional data for this project is referenced to the North American Datum of 1983 (NAD 83).

Compilation

Data compilation was completed by RSD personnel in July 2019. Digital feature data was compiled in shapefile format from the WorldView-2 and GeoEye-1 imagery using Esri's ArcGIS (ver. 10.6.1) desktop GIS software. Feature identification and attribution within the GC were based on image analysis of both satellite images as well as information extracted from the largest scale NOAA nautical charts and other ancillary sources. 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 of well-defined points measured during feature compilation for CA1902-CM-T were determined according to standard Federal Geographic Data Committee (FGDC) practices. Cartographic features were compiled to meet a horizontal accuracy of 6.8 meters, based on the vendor-reported RMSE converted to the 95% confidence level.

The following table provides further detail on the imagery used to complete this project:

Sensor	Resolution	Source (Tile) ID	Acquisition Date/Time	Tide Level*
WorldView-2	0.48 m	20190528_WV02_ORI_A_R1C1.jp2 20190528_WV02_ORI_A_R1C2.jp2 20190528_WV02_ORI_A_R2C1.jp2 20190528_WV02_ORI_A_R2C2.jp2 20190528_WV02_ORI_B_R1C1.jp2 20190528_WV02_ORI_B_R1C2.jp2 20190528_WV02_ORI_B_R2C1.jp2 20190528_WV02_ORI_B_R2C2.jp2	2019-05-28 / 19:09:11 GMT	0.6 m
GeoEye-1	0.44 m	20190712_GE01_ORI_A_R1C1.jp2 20190712_GE01_ORI_A_R1C2.jp2 20190712_GE01_ORI_A_R2C1.jp2 20190712_GE01_ORI_A_R2C2.jp2 20190712_GE01_ORI_R1C1.jp2 20190712_GE01_ORI_R1C2.jp2	2019-07-12 / 19:03:01 GMT	0.1 m

* Tide levels are given in meters above MLLW and are based on verified observations recorded by the NOS reference station at Port Chicago with offsets applied to the Sacramento substation within the project area. However, due to the great distance to the reference station, and possible changes to the tidal characteristics in the project area, the accuracy of the tide levels and datum values for this substation are suspect.

Quality Control / Final Review

Quality control tasks were conducted upon project completion by senior CMP personnel in August 2019. The review process included an assessment of image georeferencing and 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 (ver. 10.6.1). The entire suite of project products was evaluated for compliance to CMP requirements.

Comparison of the largest scale NOAA nautical chart with the project imagery and compiled feature data resulted in creation of the Chart Evaluation File (CEF). The following nautical charts were used for comparison:

- 18662, Sacramento River, Andrus Island to Sacramento, 22nd Ed., May 2009
- 18664, Sacramento River Sacramento to Fourmile Bend, 12th Ed., Aug. 2000

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

- Project database
- GC11551 in shapefile format
- Project Completion Report (PCR)
- CEF in shapefile format

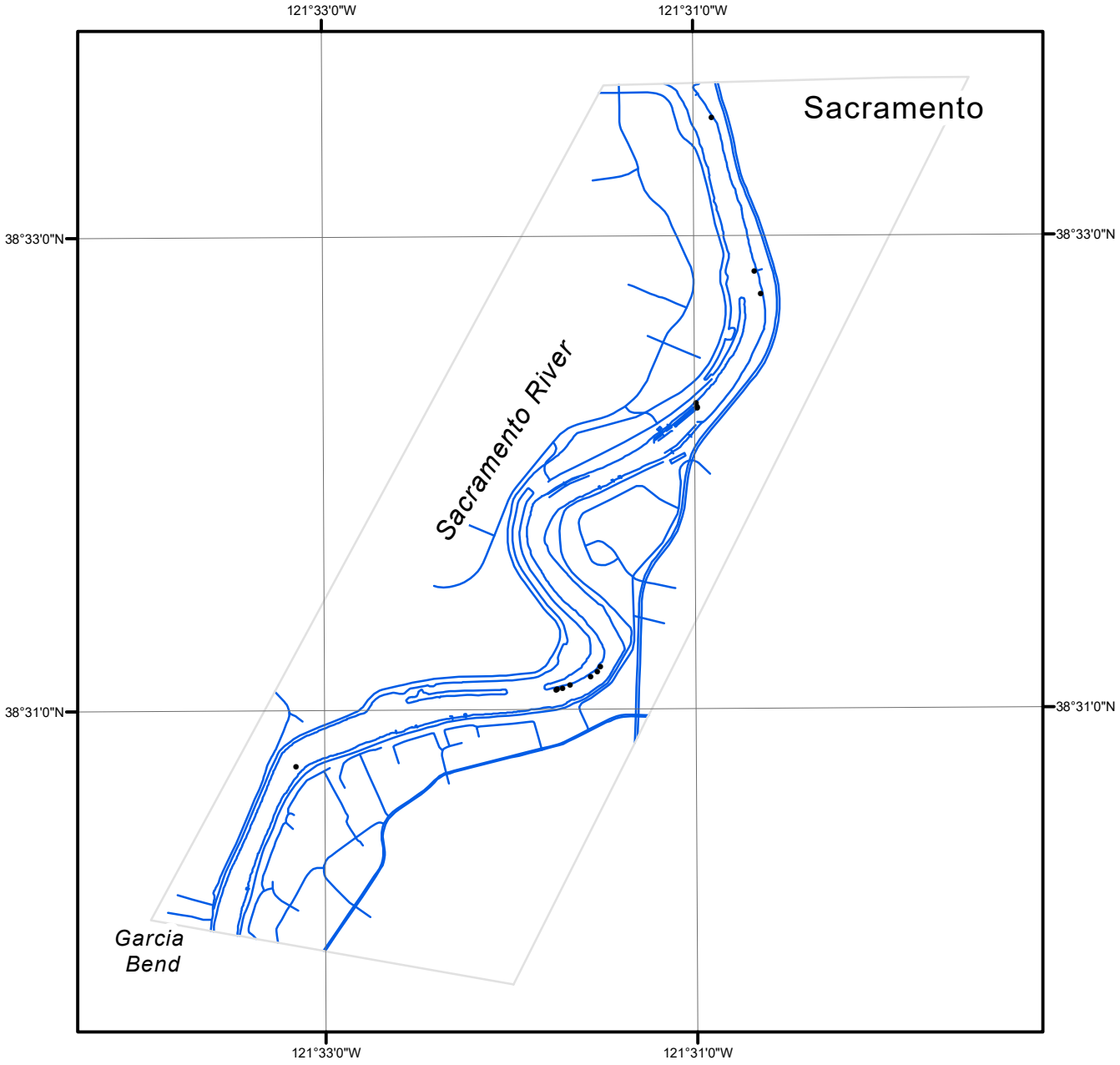
NOAA Shoreline Data Explorer

- GC11551 in shapefile format
- Metadata file for GC11551
- PCR in Adobe PDF format

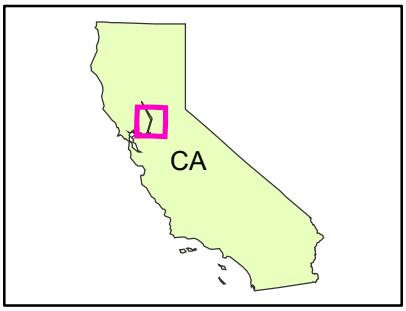
End of Report

SACRAMENTO RIVER, SACRAMENTO BEND TO GARCIA BEND

CALIFORNIA



Overview



CA1902-CM-T

GC11551