NOAA COASTAL MAPPING PROGRAM
PROJECT COMPLETION REPORT

PROJECT AK0505

Nagai Island, Alaska

Introduction

NOAA Coastal Mapping Program (CMP) Project AK0505 provides digital shoreline data for the northeastern portion of Nagai Island and all of Karpa Island, Near Island and the Twin Islands. The digital cartographic feature data may be used to compliment the Nautical Charting Program (NCP) as well as geographic information systems (GIS) for a variety of coastal zone management applications.

Project Design

Project AK0505 was designed per a request from the Hydrographic Surveys Division (HSD) of the Office of Coast Survey, NOAA, for GIS data in support of HSD operations. 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 sources acquired in October of 1999 and May of 2000.

Field Operations

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

Aerotriangulation

The aerotriangulation task was initiated by RSD personnel in November of 2005 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 (version 5.2) using the DataThruWay (version 5.2) software extension. The import process converted the stored compressed files to the National Imagery Transmission Format (NITF 2.0) with headers and metadata. Aerotriangulation procedures were accomplished using the Multi-Sensor Triangulation (MST) module of SOCET SET. The interactive point measurement tool within MST was used to collect several tie points and a simultaneous solve adjustment was then performed, forecasting an average predicted horizontal circular error for all well defined points of 9 meters for Nagai Island, 15 meters for Karpa Island and 17 meters for Near Island and the Twin Islands at the 95% confidence level. Positional data for this project is referenced to the North American Datum of 1983 (NAD 83).

Compilation

The data compilation phase of this project was initiated by RSD in November of 2005. The digital mapping was performed 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 12 meters for Nagai Island, 18 meters for Karpa Island and 20 meters for Near Island and the Twin Islands at the 95% confidence level. Tidal information was obtained from the NOS tide station at Sand Point, Alaska. The difference between MHW and MLLW at Sand Point is 2.2 meters. Source imagery for most of the project area was acquired when the stage of tide was 1.3 meters above MLLW. Source imagery for Near Island and the Twin Islands was acquired when the stage of tide was 2.2 meters above MLLW.

Quality Control / Final Review

Quality control tasks were conducted during all phases of project completion by a senior member of the Applications Branch of RSD. The final QC review was completed in March of 2006. The review process included analysis of aerotriangulation results and assessment of the identification and attribution of cartographic features within the DCFF according to image analysis and criteria defined in C-COAST. The quality control process concluded with an inspection of topological connectivity within the DCFF using ArcGIS 9.1 software. All project data was evaluated for compliance to CMP requirements.

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

16540, Shumagin Islands to Sanak Islands, AK, 1:300,000 scale, 12th ed., Jan/05
Mist Harbor INSET, 1:15,000 scale
16553, Shumagin Islands, Nagai I. to Unga I., AK, 1:80,000 scale, 5th ed., Sept/05
16556, Chiachi Island to Nagai Island, AK, 1:80,000 scale, 4th ed., Nov/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 GC10588 file contents, attached to PCR

Remote Sensing Division Electronic Data Library

- Project Database
- Digital copy of DCFF GC10588 in shapefile format
- Digital copy of the PCR in Adobe PDF format
- CEF in shapefile format

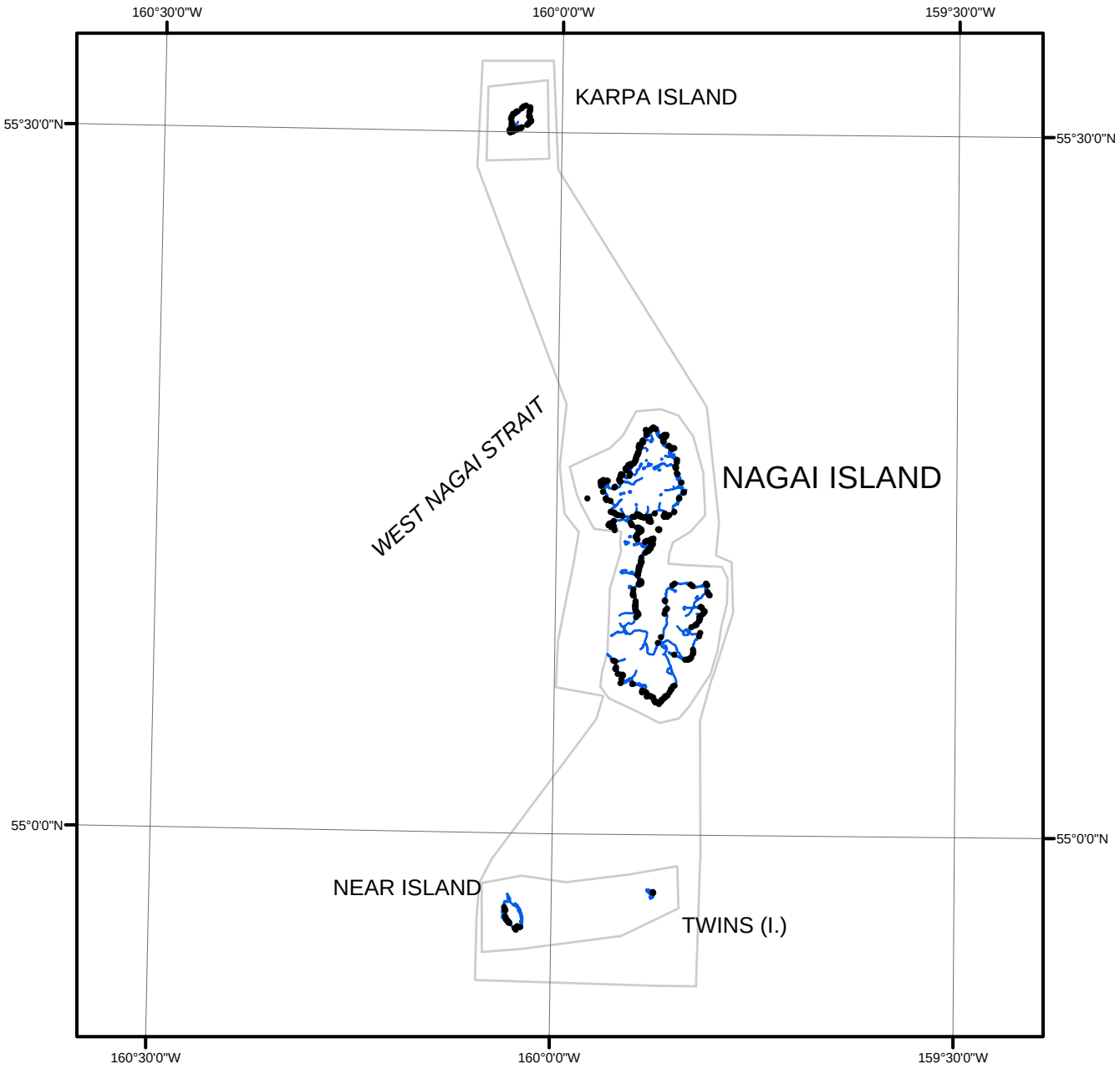
NOAA Shoreline Data Explorer

- DCFF for GC10588
- Metadata file for GC10588
- Digital copy of the PCR in Adobe PDF format

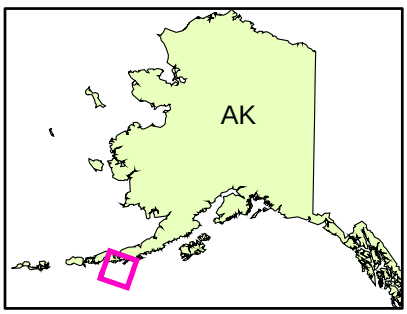
End of Report

NAGAI ISLAND

ALASKA



Overview



AK0505

GC10588