

NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT

PROJECT VA02A

WILLOUGHBY BAY to NORFOLK HARBOR REACH and ELIZABETH RIVER to PORT NORFOLK NORFOLK, VIRGINIA

Introduction

Coastal Mapping Program (CMP) Project VA02A provides coastal zone mapping data of two portions of the port of Norfolk, Virginia. Digital data feature file (DCFF) GC-10523 provides mapping data of Willoughby Spit, Willoughby Bay and the shoreline associated with the Norfolk Harbor Reach channel. DCFF GC-10524 provides mapping data of the western shoreline of Norfolk, the northern shoreline of Port Norfolk, the shoreline of West Norfolk, and a portion of the eastern shoreline of Craney Island. The DCFF may be utilized in support of the NOAA's Nautical Charting Program (NCP) and coastal zone management activities.

Project Design

This project was designed per a request from the NOAA Office of Coast Survey in support of the NOAA Nautical Charting Program. The project goal is to provide contemporary digital cartographic data in support of a variety of applications within the aforementioned program. 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. A commercial satellite image acquired December 2000 was deemed appropriate to meet project requirements. The acquisition of this image occurred near mean high water at a predicted tidal stage of +2.8 feet (MLLW datum).

Field Operations

Horizontal reference points were established through field survey activities. These well-defined points were visible in the satellite image, and were used either to control or verify the georeferencing of the image.

Aerotriangulation

Aerotriangulation of the imagery was not required. The initial georeferencing of the image was improved in the software program ERDAS Imagine. Image identifiable GPS points were used as control in a first order polynomial transformation algorithm.

Compilation

The Vector module in ERDAS Imagine was utilized during the compilation phase of project completion. Since stereo imagery was not available, monoscopic methods were used to compile the interpreted shoreline. Many charted discrete point features could not be clearly distinguished, confidently identified, or positioned accurately, and therefore were not compiled. The DCFF feature attribution conforms with

the Coastal Cartographic Object Attribute Source Table (C-COAST), the NOAA National Geodetic Survey's attribution scheme for coastal data.

Cartographic features were compiled to meet a horizontal accuracy of 7 meters at the 95% confidence level. This predicted accuracy of compiled, well-defined points is a deductive estimate based on a comparison of the compiled shoreline to well-defined GPS points.

Final Review

Final office review operations were conducted after completion of the compilation phase. The process included review of the identification and attribution of cartographic features based on image analysis and criteria defined in C-COAST. Visual inspection indicated that the charted and newly compiled shorelines matched in some areas. However, there were many areas where the differences were significant enough to indicate that the new compilation provides a better representation of the shoreline than is depicted on the chart. The following NOAA nautical charts were used for chart comparison:

12245 Hampton Roads, Continuous Maintenance Raster (CMR) 59th Ed., Apr. 28/01; obtained on 1/8/02,

12253 Norfolk Harbor and Elizabeth River, CMR 42nd Ed., Jan. 5/02; obtained on 1/8/02

The last step in the quality control process was the evaluation of the DCFF contents focusing on the integrity of topology once the DCFF was converted into the ESRI Shapefile.

Project Products

The following specifies the location and identification of the products generated during the completion of this project:

RSD Applications Branch Archive

- Hard copy of the Project Completion Report (PCR)
- Hard copy graphic plot of GC-10523/GC-10524 file contents

RSD Electronic Data Library

- DCFF for GC-10523 and GC-10524 in ESRI Shapefile format
- Digital copy of the PCR in Adobe Acrobat PDF format

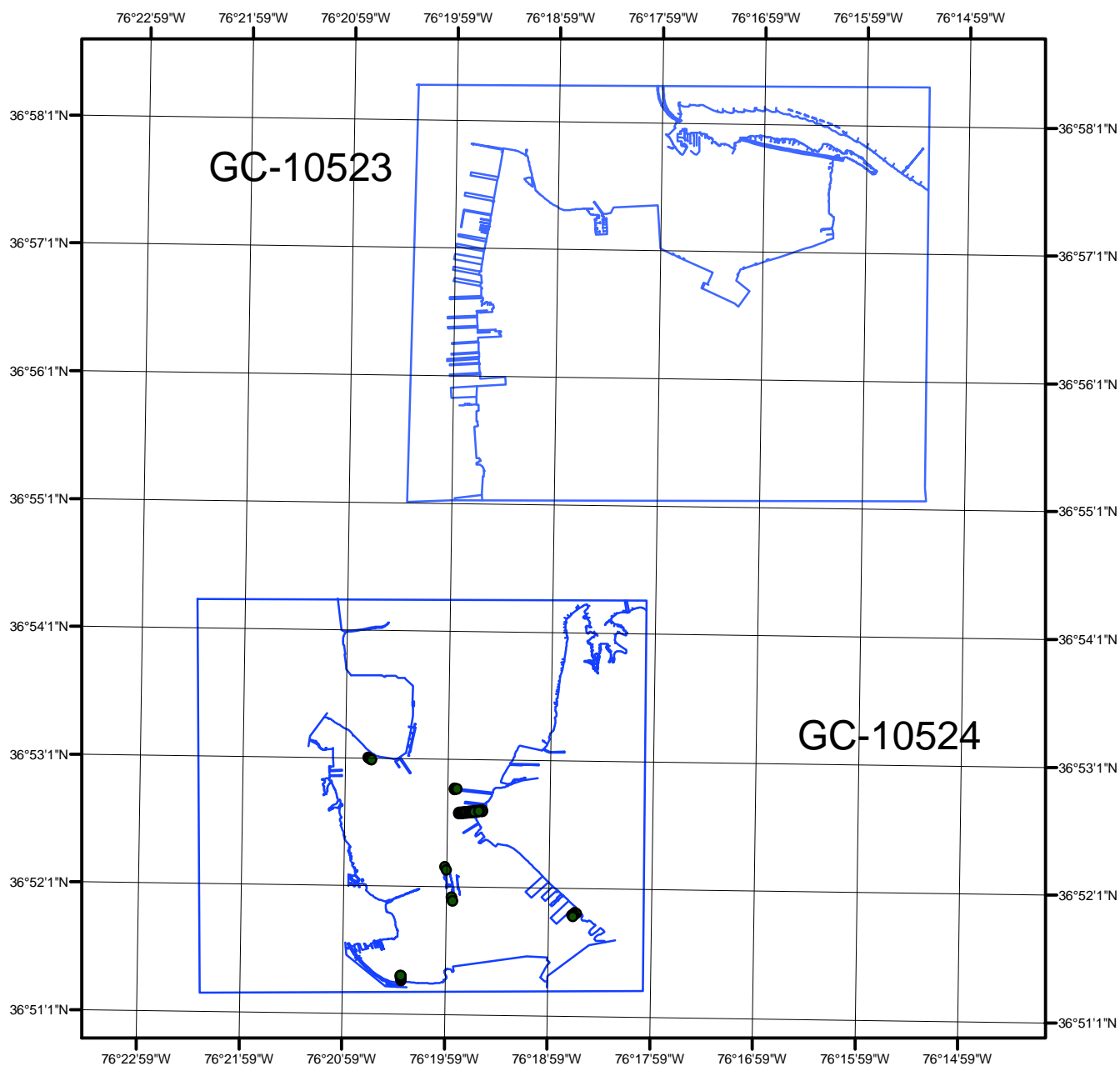
NOAA Shoreline Data Explorer

- DCFF for GC-10523 and GC-10524
- Metadata file for GC-10523 and GC-10524
- Digital copy of the PCR in Adobe Acrobat PDF format

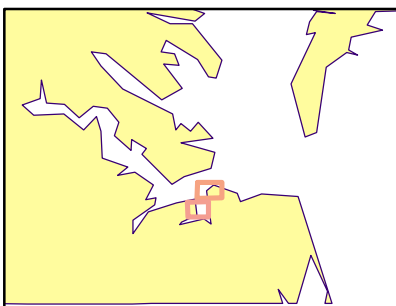
End of Report

SEWELLS POINT AND WILLOUGHBY BAY, ELIZABETH RIVER FROM CRANEY ISLAND REACH TO LAMBERTS BEND

NORFOLK, VIRGINIA



Overview



VA02A

GC-10523
GC-10524