

# Great Lakes Shoreline Mapping

Duluth, MN

September 24, 2009

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Chief, NGS Remote Sensing Division

HYDROGRAPHIC SERVICES REVIEW PANEL



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# Outline

- Coastal Mapping Program
  - Overview
  - How we do it
  - Platforms and sensors
- ARRA background and description
  - NGA/DHS imagery
  - NOAA Project areas

# Coastal Mapping Program

## NOAA's Coastal Mapping Program (CMP) Supports:

- NOAA's Nautical Charting Program
  - Office of Coast Survey
- Coastal Managers
- GIS Users, Analysts
- 95,000 statute miles
  - 30% of the coast has not been mapped with modern technologies since 1960
- **CMP Goal:** Provide the Nation With Accurate, Consistent, Up-to-Date National Shoreline

# Coastal Mapping Program Today

Includes:

- ✓ Shoreline Mapping
- ✓ Change Analysis (CSCAP)
- ✓ Emergency Response







# Long Sands Beach, ME



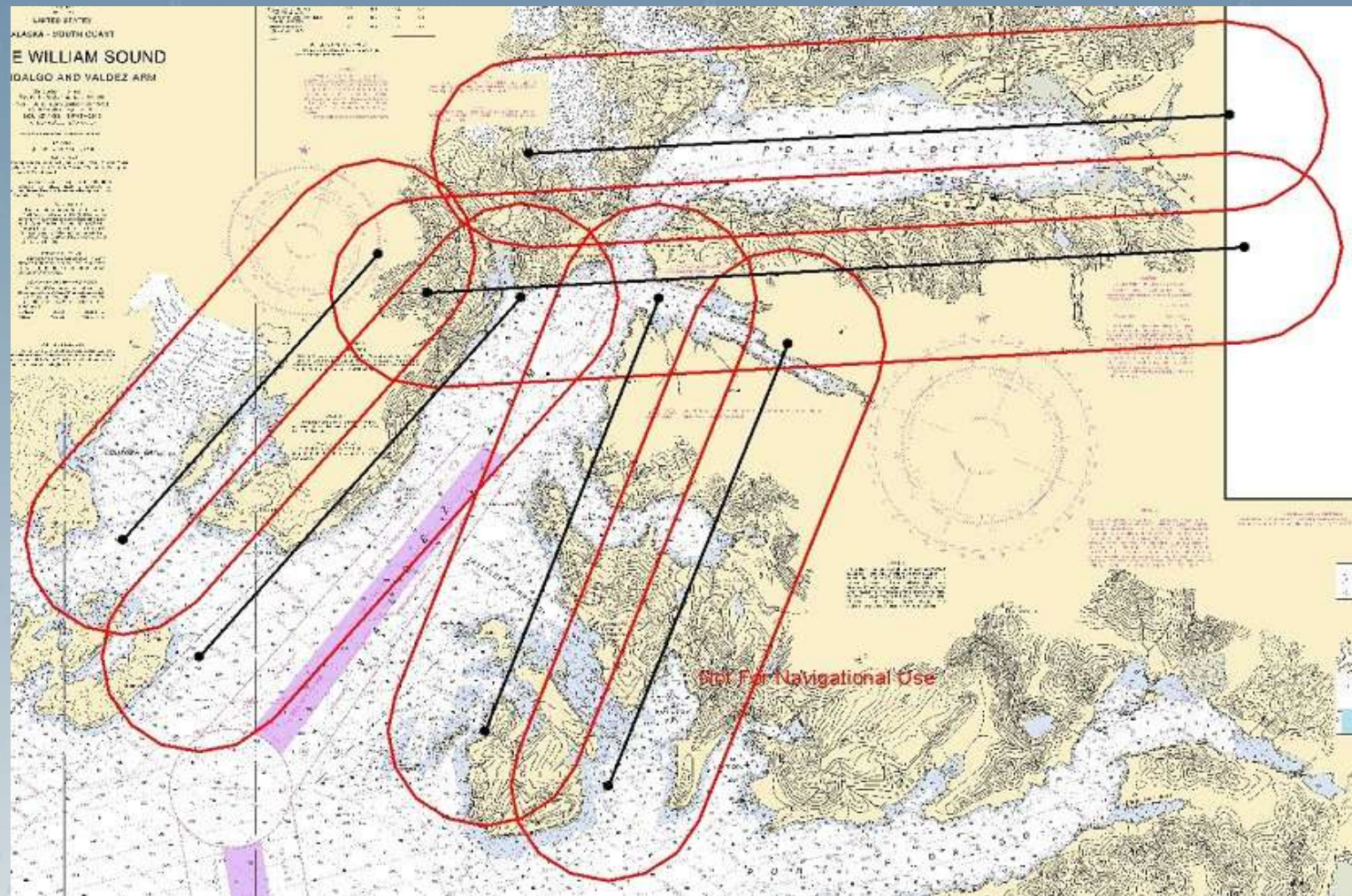


## Long Sands Beach, ME



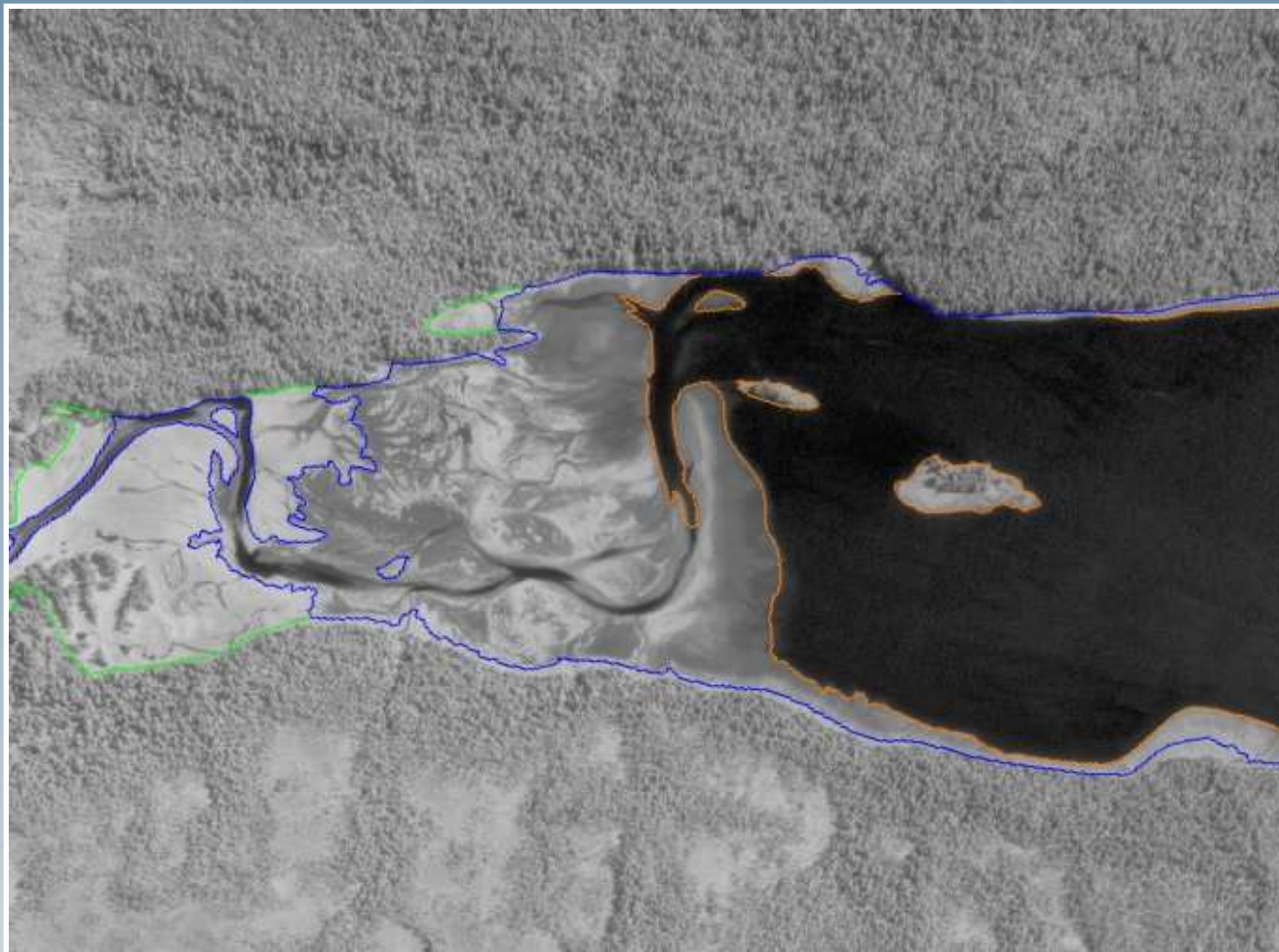


# Project Planning





# Tidal Shoreline

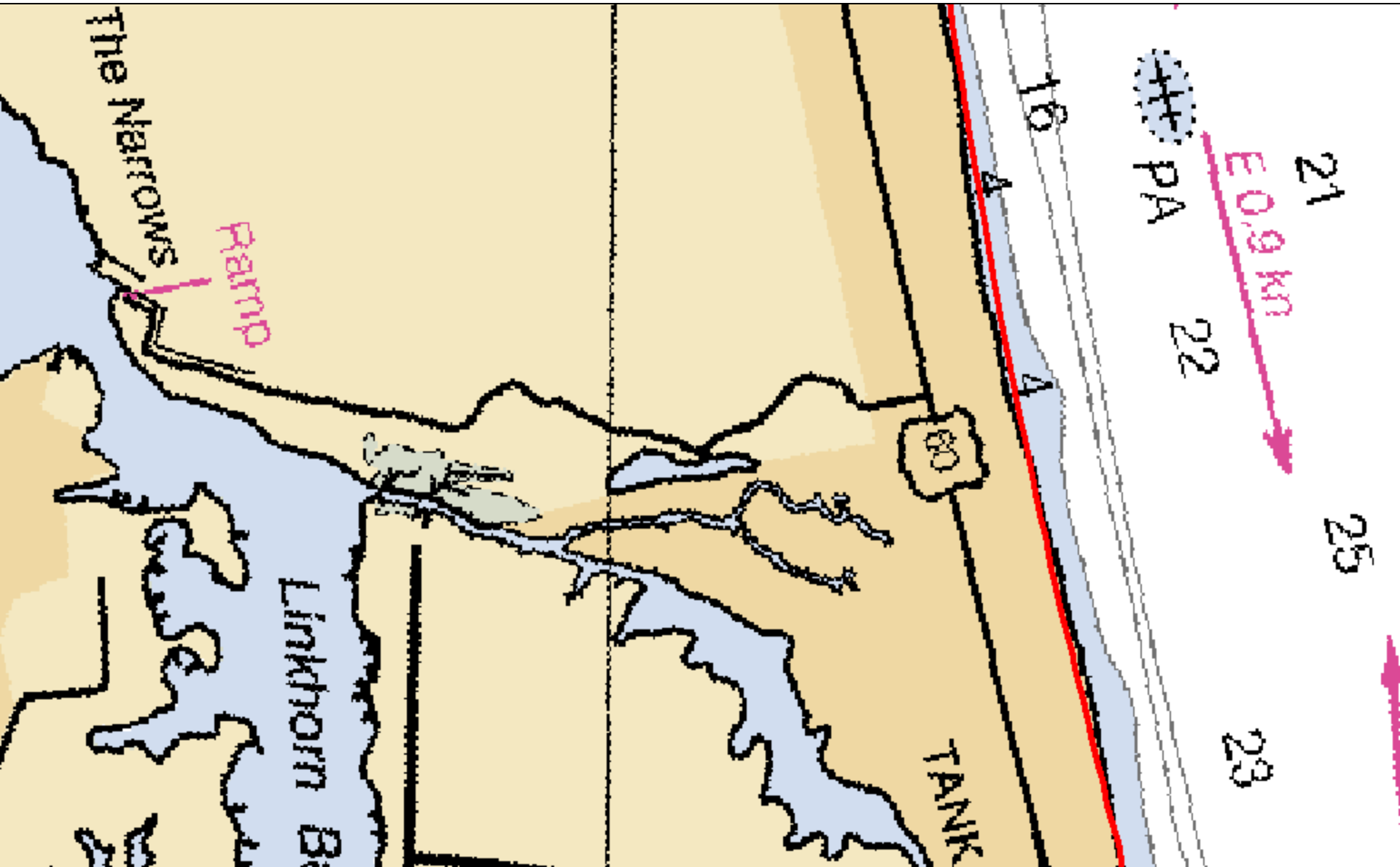


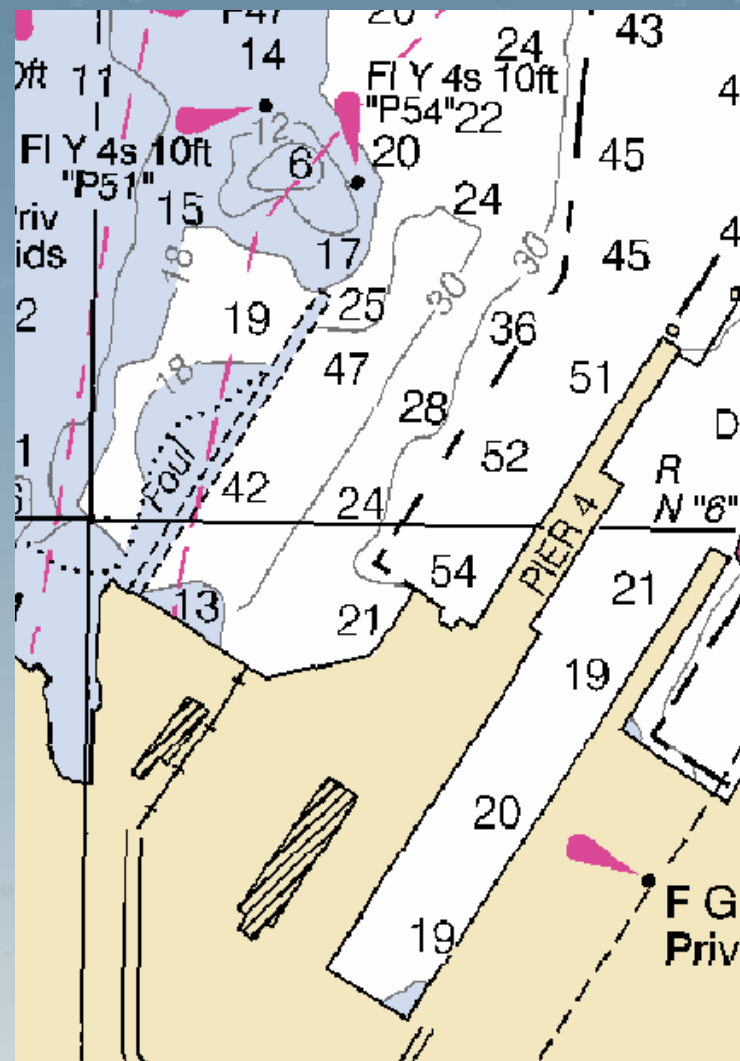
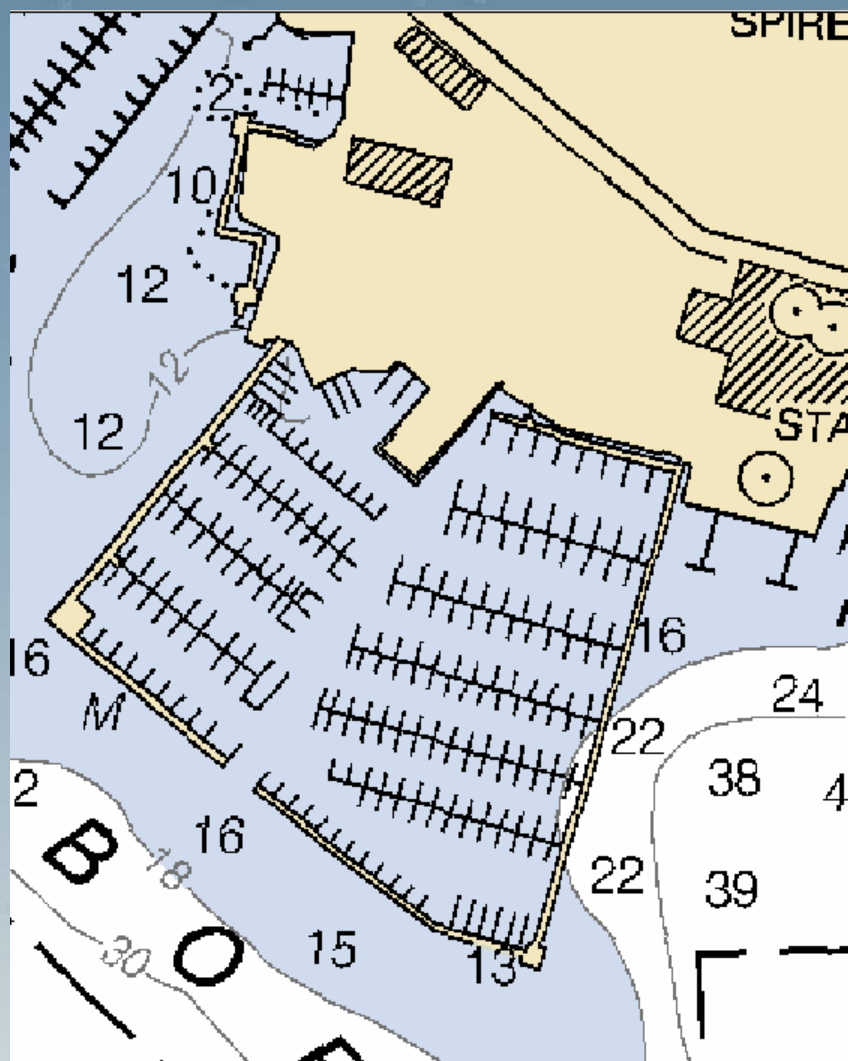
# Tidal Shoreline



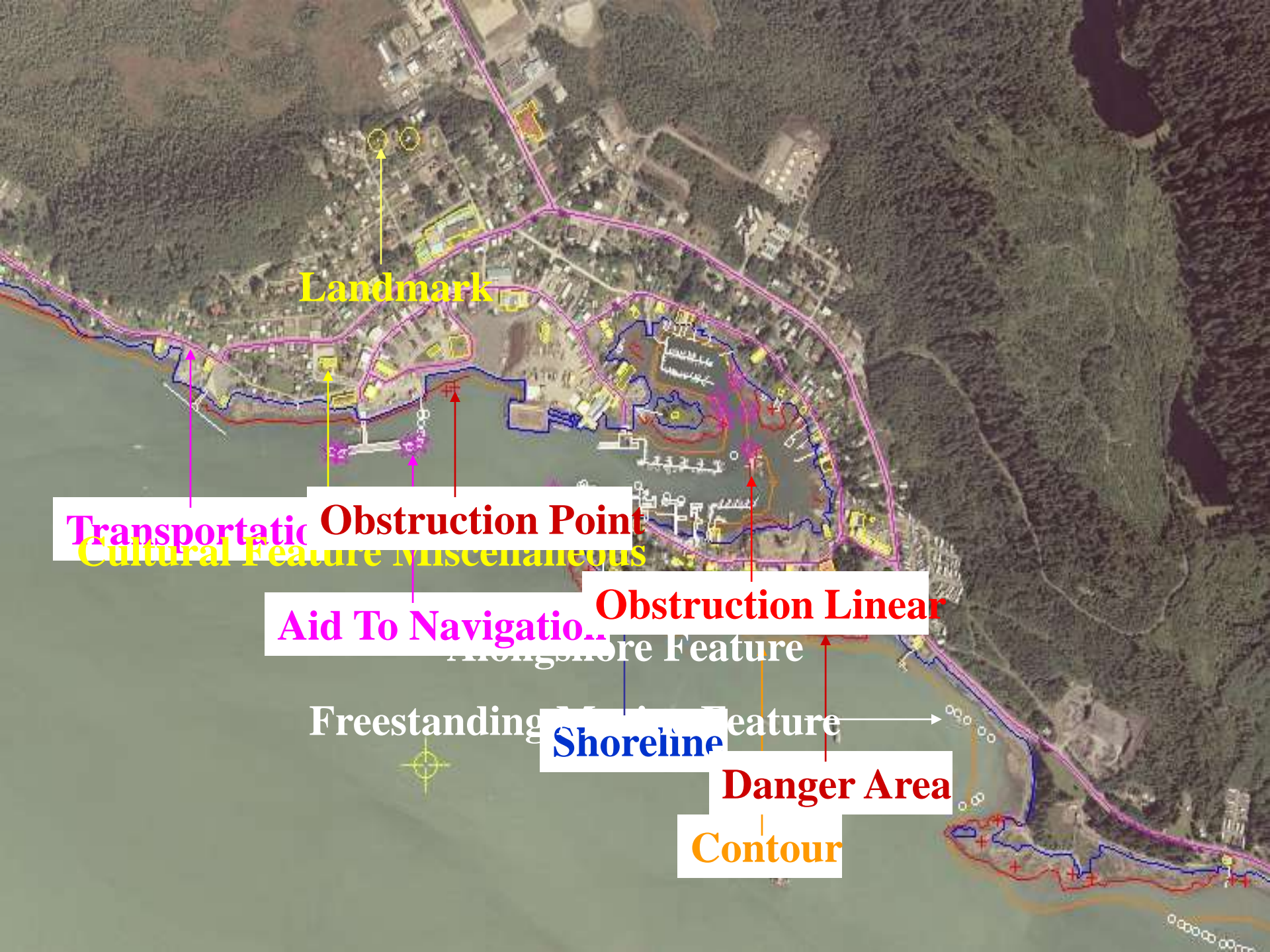


# VDatum MHW lidar-derived Shoreline









**Landmark**

**Transportatic**

**Obstruction Point**

**Cultural Feature**

**Miscellaneous**

**Aid To Navigation**

**Obstruction Linear**

**Alongshore Feature**

**Freestanding Feature**

**Shoreline**

**Danger Area**

**Contour**

# Data Delivery

[http://www.ngs.noaa.gov/RSD/shoredata/NGS\\_Shoreline\\_Products.htm](http://www.ngs.noaa.gov/RSD/shoredata/NGS_Shoreline_Products.htm)

The screenshot displays the NOAA Shoreline Data Explorer web application. The browser window shows the URL [http://www.ngs.noaa.gov/newsys\\_ims/shoreline/index.cfm](http://www.ngs.noaa.gov/newsys_ims/shoreline/index.cfm). The application interface includes a navigation bar with tabs for 'High Resolution', 'Medium Resolution', 'intro', 'search', 'selection', 'legend', and 'help'. The 'Legend' tab is active, showing a list of 'Shoreline Features' and 'Background Layers' with checkboxes to toggle their visibility. The 'Shoreline Features' list includes: Shoreline (checked), Alongshore Feature (checked), Aquatic Vegetation (unchecked), Cartographic Limit (unchecked), Contour (checked), Cultural Feature (checked), Danger Area (unchecked), Natural Feature (unchecked), Obstruction Linear (unchecked), Transportation (checked), Aid to Navigation (unchecked), Freestanding Marine Feature (checked), Landmark (unchecked), Obstruction Point (unchecked), and Vertical Measurement (unchecked). The 'Background Layers' list includes: Projects (checked). The main map area shows a coastal region with labels for 'Cumberland Island', 'Tiger Island', 'Amelia River', and 'Amelia Island'. A scale bar indicates 0 to 1064.73 Meters. The 'Active Layer' dropdown menu is set to 'Shoreline'. A 'Download Options' dialog box is open on the left, providing options for downloading shoreline shapefiles and selecting the project area and layers to include.

**Download Options - Microsoft Internet Explorer ...**

**Download Options**  
Please choose from the following options for downloading shoreline shapefiles.

**Project Area**

- ☒ Include entire project area
- ☐ Include only area shown on map

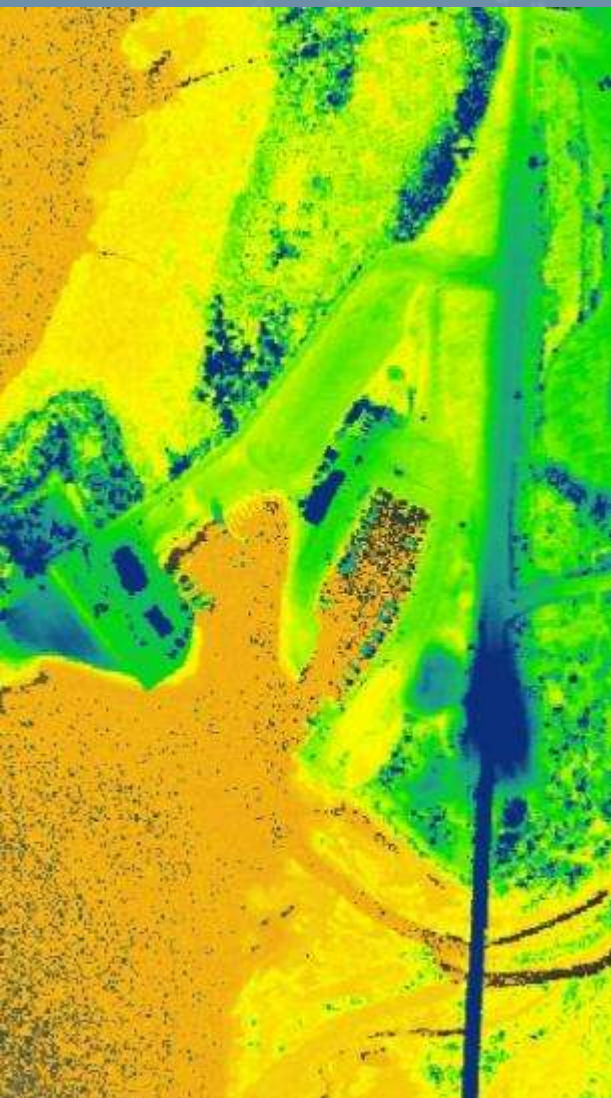
**Layers**

- ☒ Include all project layers
- ☐ Include only project layers toggled as visible in the map legend

**Submit**



# NC Airborne Data Products



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Digital Coast - NOAA Coastal Services Center - Microsoft Internet Explorer provided by National Geodetic Survey

http://www.csc.noaa.gov/digitalcoast/

File Edit View Favorites Tools Help

Digital Coast - NOAA Coastal Services Center

NOAA Coastal Services Center

# DIGITAL COAST

Home Data Tools Training In Action



## DIGITAL COAST

**Building the Digital Coast**

Phase one is now available; additional data and information will be available in phase two, which is scheduled for release in late fall.

[Learn more...](#)

**Digital Coast Partnership**

Phase two is being led by the Digital Coast partner network. These partners, who are either primary users of the system or content providers, will help NOAA prioritize the components that will be added during phase two and all future expansion efforts.

[Learn more...](#)

**Data**

Learn more about the kinds of data available and download data.

**Tools**

Use these tools to turn data into useful information your organization needs.

**Training**

Update your skills by participating in one of these training programs.

**Digital Coast In Action**

See how data and tools are used to address coastal management issues.

**Digital Coast Data**

Immediate access to data for the geographic region of your choice.

[Download Data](#)

**About Digital Coast**

Digital Coast is being built to provide the total package needed by state, local, and non-profit organizations not only offering easy access to downloadable data, but also the data-specific training, sample applications, and tools needed to address coastal issues.

[Privacy Policy](#)  
[Link Disclaimer](#)  
[USA.gov](#)

 **NOAA Coastal Services Center**  
LINKING PEOPLE, INFORMATION, AND TECHNOLOGY

http://www.csc.noaa.gov/digitalcoast/index.html

Internet 100%

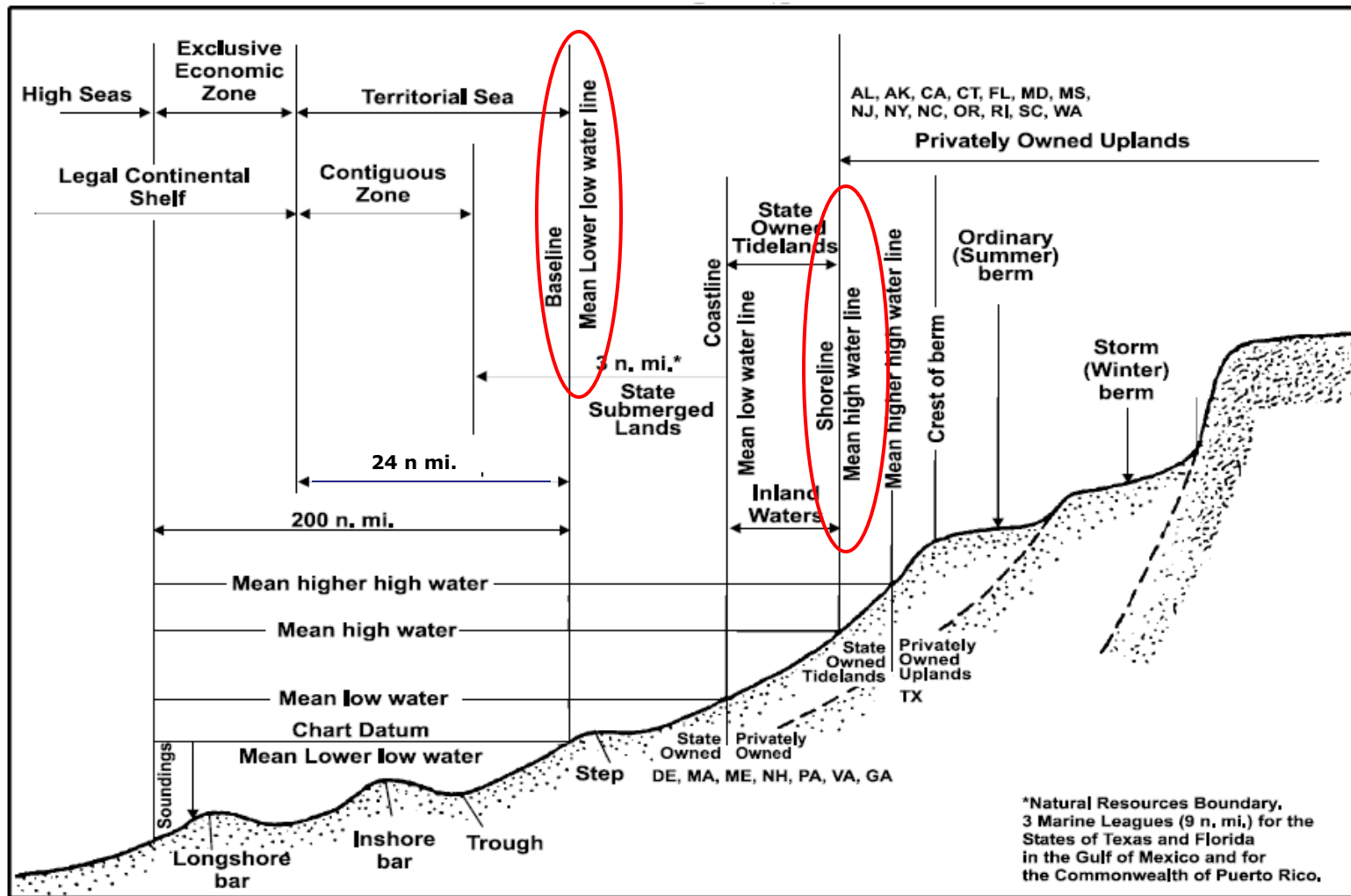
Data delivered through  
<http://www.csc.noaa.gov/digitalcoast/>

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# DATUMS



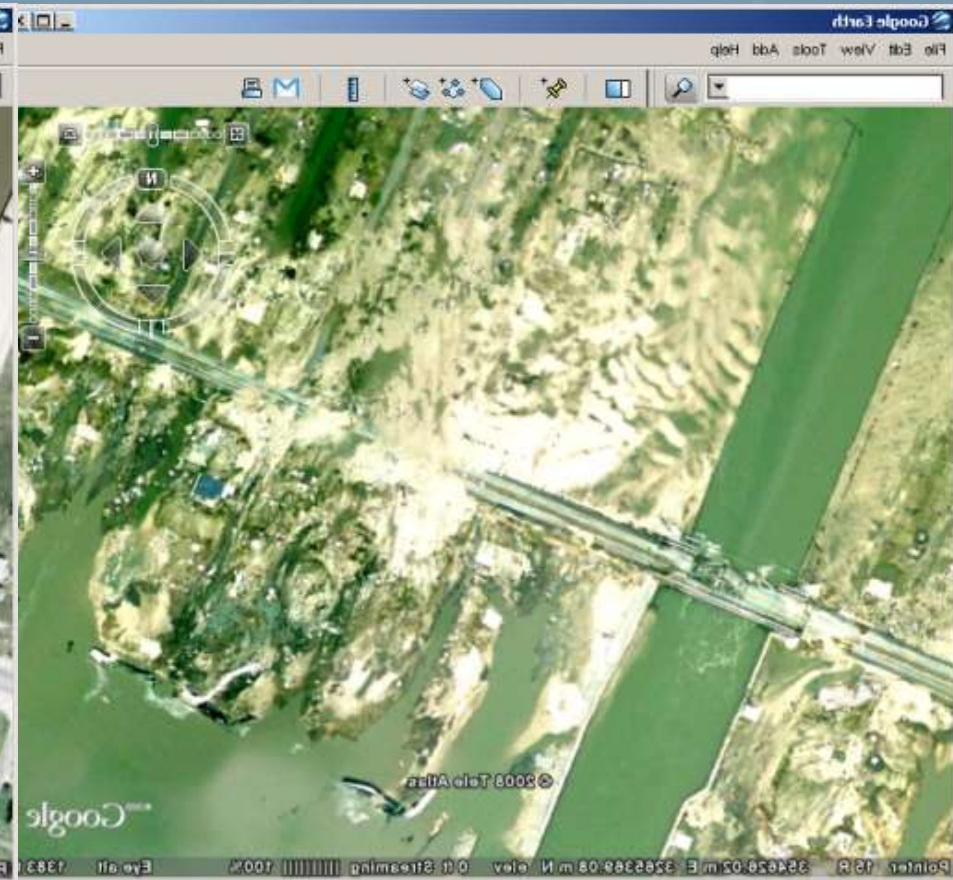
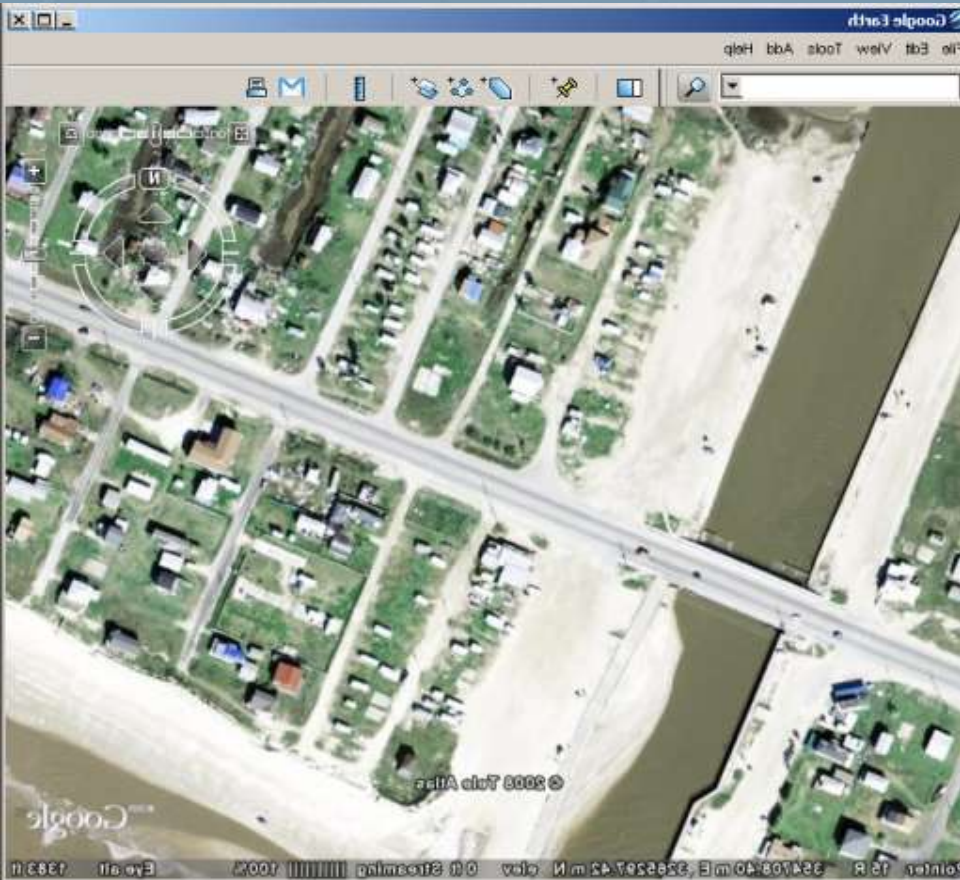
**Figure 17.** The principal tidal datums related to a beach profile. The intersection of the tidal datum with land determines the landward edge of a marine boundary.

**Tidal Datums and their Applications – NOAA Special Publications NOS CO-OPS 1**

# Emergency Response

**Before**  
2008 Google Earth®

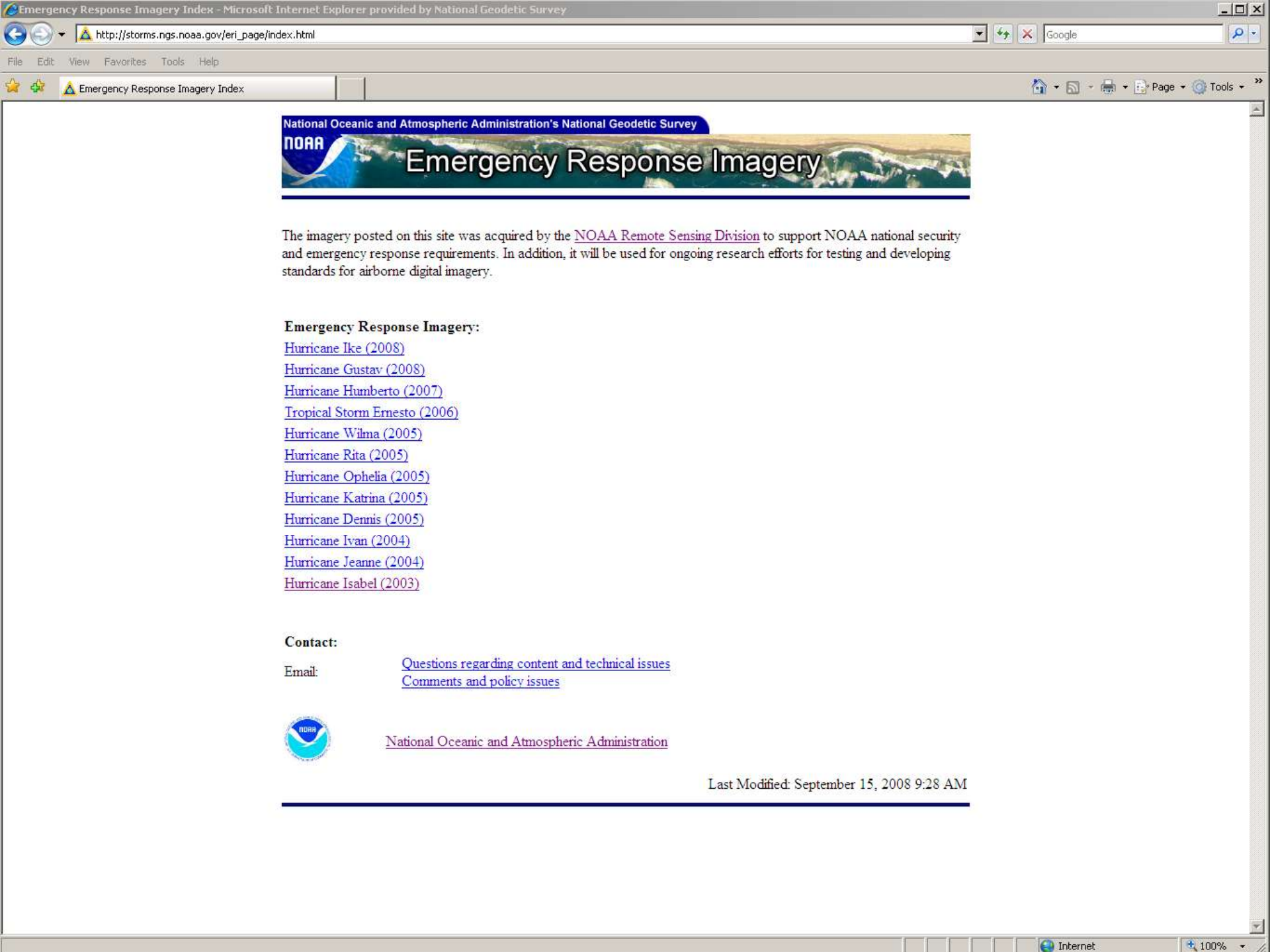
**After**  
NOAA Imagery 14Sep08



**Gilchrist, TX**

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## Emergency Response Imagery

The imagery posted on this site was acquired by the [NOAA Remote Sensing Division](#) to support NOAA national security and emergency response requirements. In addition, it will be used for ongoing research efforts for testing and developing standards for airborne digital imagery.

### Emergency Response Imagery:

- [Hurricane Ike \(2008\)](#)
- [Hurricane Gustav \(2008\)](#)
- [Hurricane Humberto \(2007\)](#)
- [Tropical Storm Ernesto \(2006\)](#)
- [Hurricane Wilma \(2005\)](#)
- [Hurricane Rita \(2005\)](#)
- [Hurricane Ophelia \(2005\)](#)
- [Hurricane Katrina \(2005\)](#)
- [Hurricane Dennis \(2005\)](#)
- [Hurricane Ivan \(2004\)](#)
- [Hurricane Jeanne \(2004\)](#)
- [Hurricane Isabel \(2003\)](#)

### Contact:

Email: [Questions regarding content and technical issues](#)  
[Comments and policy issues](#)



[National Oceanic and Atmospheric Administration](#)

Last Modified: September 15, 2008 9:28 AM





**NOAA Citation**



# Platforms



**NOAA Twin  
Otters**



**NOAA Jet Prop**



**Contract aircraft**



**NOAA King Air  
350ER**





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# NOAA ARRA Funding for Hydrographic Services

## Hydrographic Survey Backlog:

NOAA will manage seven fixed price task orders to acquire approximately 1,735 square nautical miles of hydrographic survey data. The surveys will provide data to improve nautical chart products.

NOAA will also fund contract support to provide data validation services capable of handling the increased water level data that will be submitted by the hydrographic contractors; **collect and compile approximately 8,600 statute miles of new shoreline data from existing aerial imagery and update NOAA Nautical Charts**; and improve the public's access to key hydrographic data by creating new capabilities for access to archived hydrographic data.

[http://www.recovery.gov/?q=content%2Fprogram-plan&program\\_id=7721#ProjectsandActivities](http://www.recovery.gov/?q=content%2Fprogram-plan&program_id=7721#ProjectsandActivities)







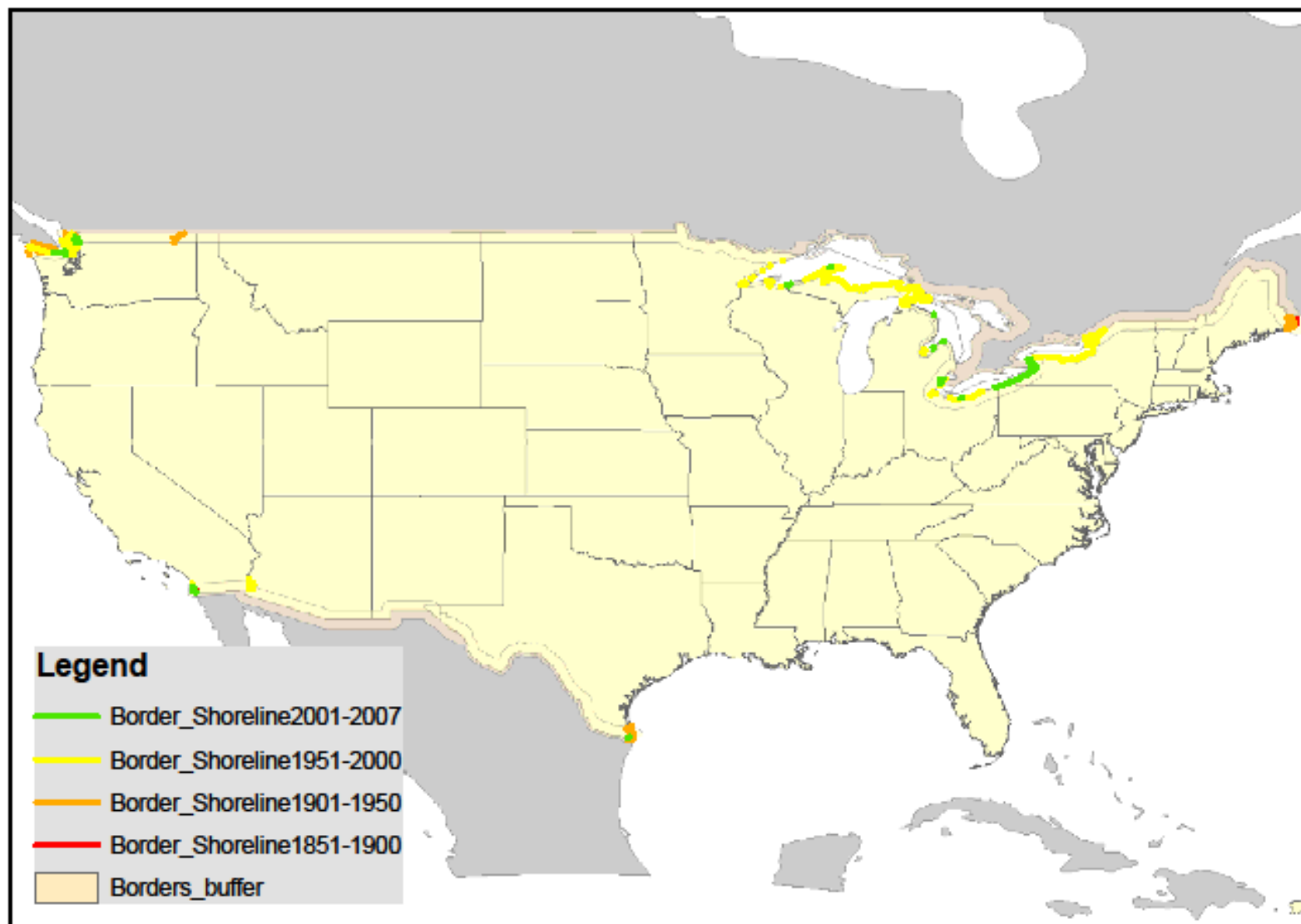
**Acquisition Status  
% Complete**

**Project:** - U.S./Canada & U.S./Mexico Border Mapping  
**NGA Contract #:** - NMA30203D0002  
**Delivery Order #:** - 5020

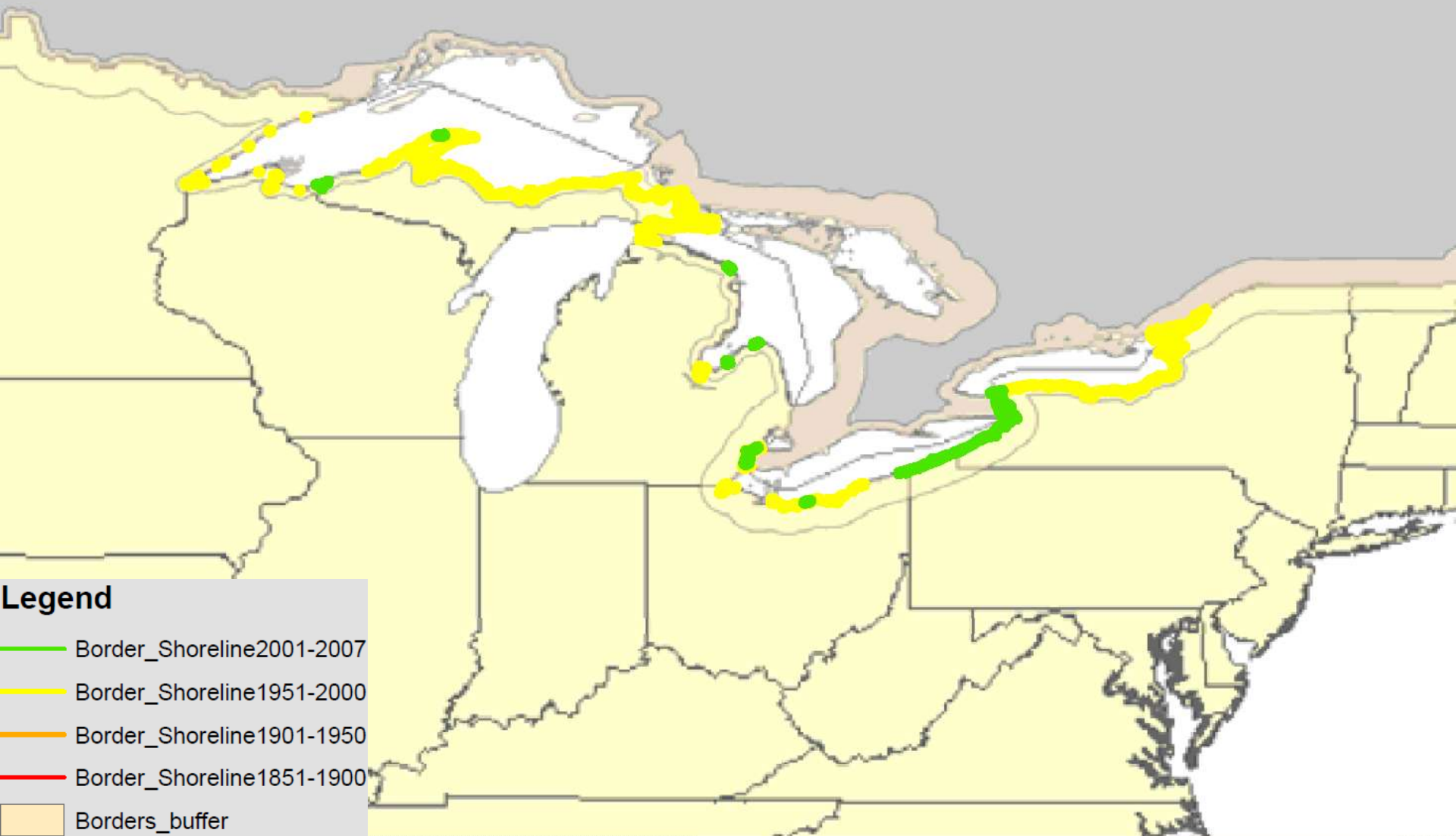


**Date:** 25-Aug-09

# NOAA Border Shoreline











# NOAA's Coastal Mapping Program

- **Single biggest update to NOAA nautical charts**
  - Used in defining the United States' territorial limits
  - Coastal resource management
  - Storm surge and coastal flooding modeling
  - GIS analysis
  - Benthic habitat mapping
  - Many more...
- **ARRA**
  - Provides unique opportunity to update the shoreline of the Great Lakes
  - Minimum cost to the taxpayer
  - Most importantly- keeps skilled contractors working!

