

# **NOAA's Digital Coast: Tools for Coastal Communities**

**Miki Schmidt and Nancy Cofer-Shabica**

**NOAA Coastal Services Center**

**River Rally Conference  
Charleston, South Carolina  
June 4, 2011**



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

# Common Coastal Issues



# Providing Solutions to Barriers

- Coastal data
- Data accessibility
- Improved intergovernmental coordination
- Techie and non-techie tools
- Training
- Outreach and awareness
- Contracting for geospatial services



## More than just data...

The Digital Coast also provides the tools, training, and information needed to turn these data into the information most needed by coastal resource management professionals. [Read more...](#)

Welcome to the new Digital Coast. If you have questions or comments, please [take a video tour](#) or [contact us](#).

### Data

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

### Tools

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

### Training

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

### In Action

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

### Approaches

#### Coastal Inundation Toolkit

Understand the basics and get the tools that will help make your community more resilient.

#### Offshore Renewable Energy Planning

Get the data and tools needed to make siting decisions.

#### Conserving Coastal Wetlands for Sea Level Rise Adaptation

Learn spatial techniques and get resources to prioritize wetland conservation.

### Featured Resources

#### State of the Coast

Get a state-level view of how coastal ecosystems, economies, and communities are connected.

#### Building Resilient Coastal Communities

See how coastal counties can use Digital Coast to build resilient communities.

#### Mississippi Geospatial Clearinghouse

A comprehensive spatial information warehouse for use by government, academia, and the private sector.

### Recent Updates

[Sign up for updates](#) [Subscribe to RSS feed](#)

Tools



[Sea Level Rise Impacts Viewer](#)

Data



[Gross Domestic Product](#)

P>Data



[Aerial Photography](#)

### Testimonials

“ I am amazed at all the information on Digital Coast that I didn't know was available. ”

County commissioner

# Digital Coast Contributors

Mississippi State Coordinating Council for Remote Sensing and GIS	Management Association for Private Photogrammetric Surveyors
Northwest Florida Water Management District	Oregon Department of Geology and Mineral Industries
NOAA	Minnesota Department of Natural Resources
Southwest Florida Water Management District	Mississippi Department of Environmental Quality
Texas Natural Resources Information System	Scripps Institution of Oceanography
U.S. Army Corps of Engineers	Woolpert
U.S. Geological Survey	University of Texas
South Carolina Department of Natural Resources	Delaware Department of Natural Resources and Environmental Control
Federal Emergency Management Agency	Florida Division of Emergency Management
U.S. Department of Agriculture	Photo Science
Environmental Protection Agency	Maryland Department of Natural Resources
St. Johns River Water Management District	Dewberry
Fugro EarthData	Sanborn
Resources for the Future	



# Digital Coast Partnership



**NSGIC**



*National States Geographic  
Information Council*



**NOAA Coastal Services Center**  
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# Digital Coast Partnership




*The Digital Coast Partnership Group includes NOAA, the American Planning Association, the Association of State Floodplain Managers, the Coastal States Organization, the National Association of Counties, the National States Geographic Information Council, and The Nature Conservancy.*



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# Digital Coast Website

QHome Data Tools Training Approaches In Action

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**Testimonials**


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# Spatial Data Access

🔍

[Home](#) [Data](#) [Tools](#) [Training](#) [Approaches ▾](#) [In Action](#)

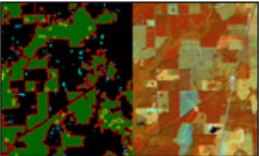
## Data

Welcome to the Digital Coast. If you have questions or comments, please [take a video tour](#) or [contact us](#).


These data sets represent some of the coastal data most requested by Digital Coast partners. Access to data managed by the NOAA Coastal Services Center is provided through the [Data Access Viewer](#), which allows for user-specified geographies, formats, and resolutions. Other data sets are provided through various mechanisms maintained by their agencies of responsibility. Have an idea for a data set you would like to see in the Digital Coast? [Make a data suggestion to the Digital Coast](#).

Filter by Category:

### Land Cover



**C-CAP Forest Fragmentation Data**  
NOAA  
Value-added maps of forest fragmentation derived from NOAA's land cover data using the University of Connecticut's Land Fragmentation Tool  
[More Info](#) [Get It Now](#)



**C-CAP High-Resolution Land Cover**  
NOAA  
Land cover data for targeted areas, useful for site-specific analysis, and complementary to regional C-CAP land cover products  
[More Info](#) [Get It Now](#)

### Featured Resources

**Mississippi Geospatial Clearinghouse**  
A comprehensive spatial information warehouse of geographic information system (GIS) resources for Mississippi for use by government, academia, and the private sector.

**Great Lakes Information Network**  
A centralized location to discover, publish, and acquire geospatial data for areas within the Great Lakes region.

**IOOS Data Catalog**  
Facilitates access to ocean observations from a



# Spatial Data Access

**DIGITAL COAST**  
NOAA Coastal Services Center

Home Data Tools Training Approaches ▾ In Action

## Data

### C-CAP Forest Fragmentation Data

[NOAA Coastal Services Center](#)

Overview Details In Action Support **Get It Now**

**Get It Now**  
NOAA Coastal Services Center Data Access Viewer

[Download Data](#)

- Data can be selected by a user-defined area of interest.
- Data are available in multiple projections, but only in GeoTIFF format. It should be noted that GeoTIFF format is not supported in many common geographic information system (GIS) tools.

Digital Coast Partnership Group [Contact the Digital Coast](#)



# Data Access Viewer (DAV)

**DIGITAL COAST** Digital Coast : Data Access Viewer

Zoom In

Area Area

**Location Search**

Click and drag a box on the map to search for data.

Area

(Optional) Limit by keywords\*:  
forfrag

Match ANY  Match ALL

**State Search**

Find data in: Select State/Territory

(Optional) Limit by keywords\*:  
forfrag

Match ANY  Match ALL

Search

US DOC | NOAA | NOS  
NOAA Coastal Services Center

Privacy policy  
Questions or Comments? [Contact CSC](#)  
Updated on June 1, 2009



# Data Access Viewer (DAV)

**DIGITAL COAST** Digital Coast : Data Access Viewer

Zoom In Area Area

### Location Search Results

[Display All Results](#)

Search Results: Available for download

#### Land Cover

- [2006 Forest Fragmentation Land Cover](#)  
254 MB [Add to Cart](#)
- [2001 Forest Fragmentation Land Cover](#)  
254 MB [Add to Cart](#)
- [1996 Forest Fragmentation Land Cover](#)  
254 MB [Add to Cart](#)

Est. Data Size=0MB

[Data Checkout](#)

US DOC | NOAA | NOS  
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Updated on June 1, 2009



# Data Access Viewer (DAV)

**DIGITAL COAST** Digital Coast : Data Access Viewer

Zoom In, Area, Area, Refresh

**2006 Forest Fragmentation Land Cover**

Product Description: CCAP Forest Fragmentation

Cell Resolution: 30.0 meters

[View Metadata](#)

Back to results

Back to results

Est. Data Size=254MB

[Data Checkout](#)

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# Data Access Viewer (DAV)

**DIGITAL COAST** Digital Coast : Data Access Viewer

Zoom In, Area, Area, Refresh

**Data Request Options**

**Contact Information (\*required)**

\*Email:   
\*Retype Email:   
 Check here if you would like to receive an email confirming your order. You will automatically receive emails when your data is available.

**CCAP Data Options**

Use standard options

**Projection Options**

Projection:   
Datum:

**Provisioning Options**

Output File Format: Land Cover will only be output as GeoTIFF.

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Questions or Comments? [Contact CSC](#)  
Updated on June 1, 2009



# GIS Analysis Tools for Planning

## Tools

### Habitat Priority Planner

NOAA Coastal Services Center

Overview

Requirements

In Action

Training

Support

Get It Now

#### Overview

This tool aids in making decisions about habitat conservation, restoration, and land use planning. The Habitat Priority Planner takes away much of the subjective nature of the process by providing a means of obtaining critical habitat analyses that are consistent, repeatable, and transparent. The program allows users to easily test various ideas and "what if" scenarios on the fly, making it the perfect tool to use in a group setting.

#### Features

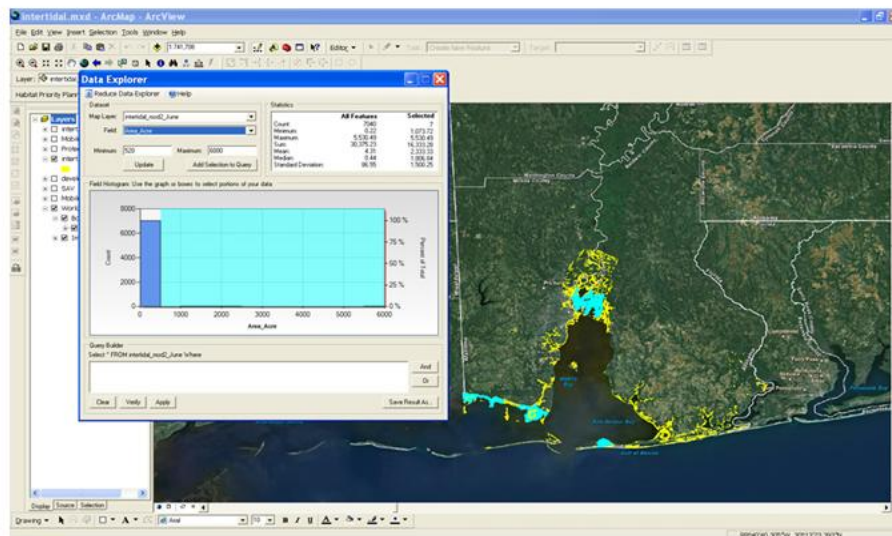
**Inventories** specific habitat or land-use types relevant to the site in question

**Assesses** target habitat or land-use type conditions with a process that automates the pre-packaged spatial analysis metrics

**Analyzes** "what if" scenarios such as the impact of new development or how restoration might change overall habitat function; participants can quickly and easily set the parameters—and change them as needed

**Gets** people involved thanks to the fast, interactive environment this easy-to-use system provides

**Creates** maps, reports, and data tables to enhance communication and the decision-making process



# Habitat Priority Planner Use Case

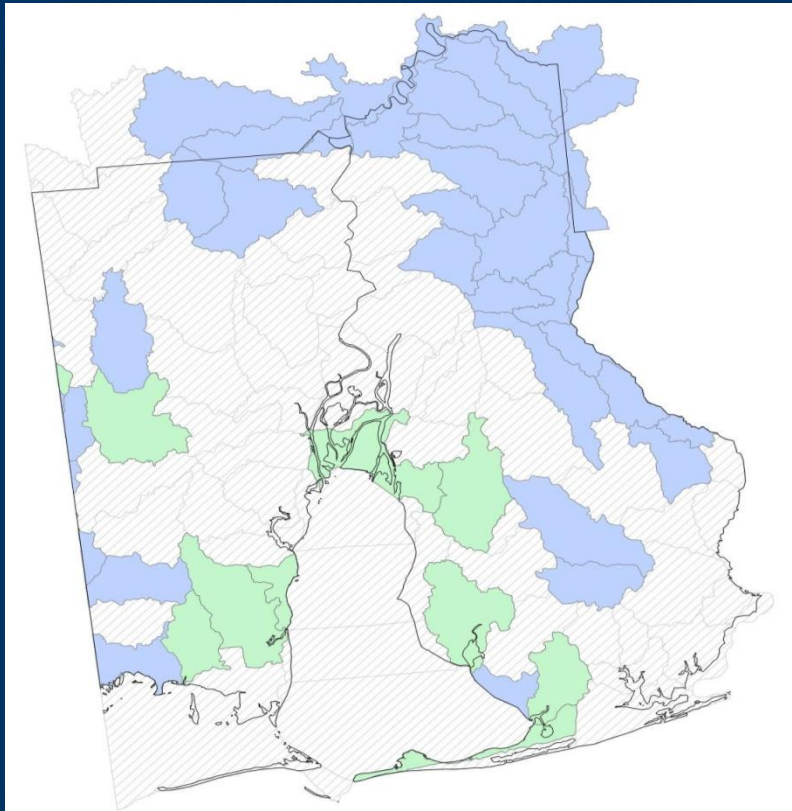
- **Mobile Bay National Estuary Program**
- **Riparian buffers, river and stream habitat**
- **Identify priority areas for conservation and restoration action**





# Habitat Priority Planner Results

## Priority Watersheds

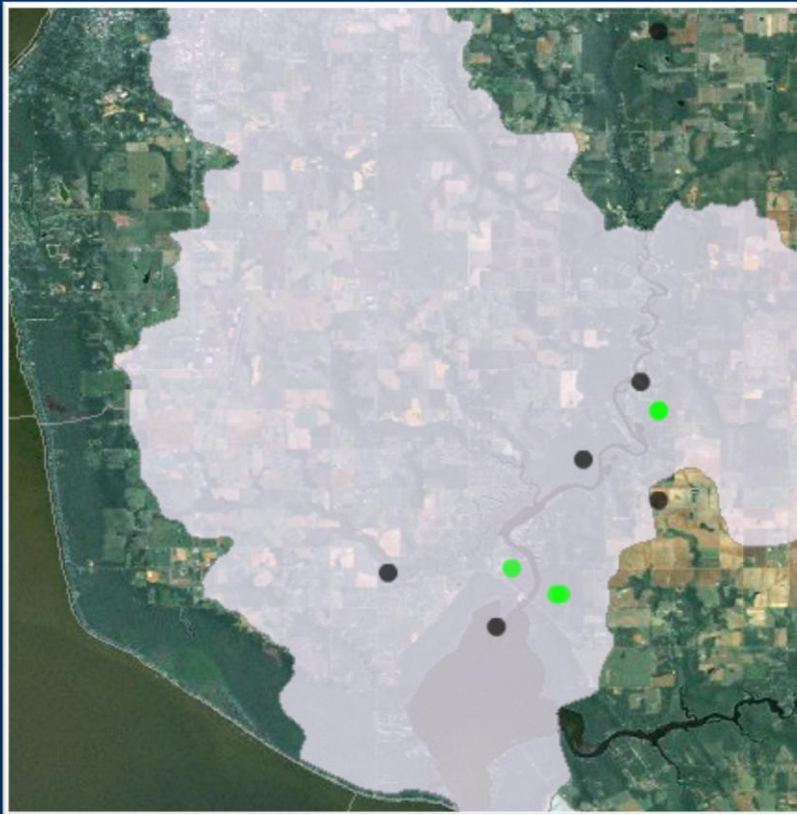


## Priority Riparian Corridors

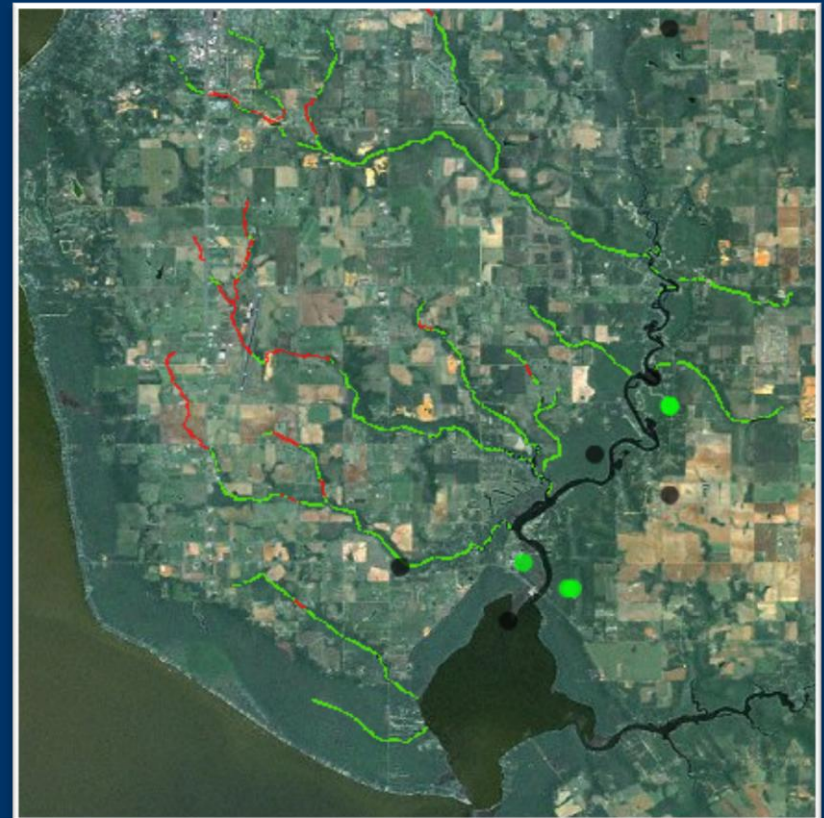


# Habitat Priority Planner Results

## Priority Watersheds



## Priority Riparian Corridors



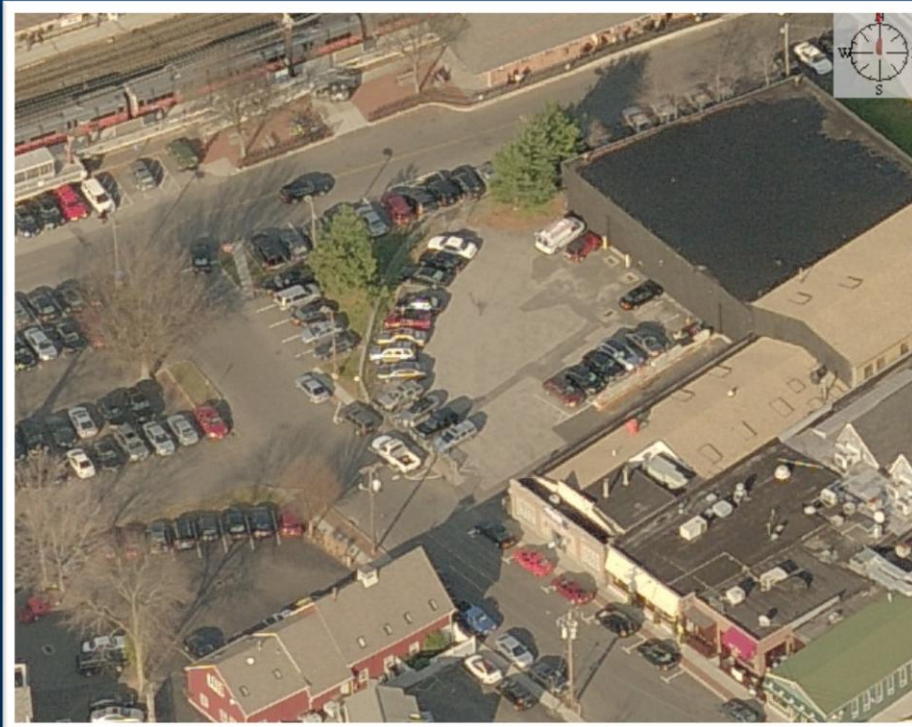
# Simple Visualization Tools

## Tools

### CanVis

[USDA National Agroforestry Center](#) and [NOAA Coastal Services Center](#)

## Visualize Options



# Data Synthesis at Your Fingertips

## Tools

### Coastal County Snapshots

NOAA Coastal Services Center

#### Overview

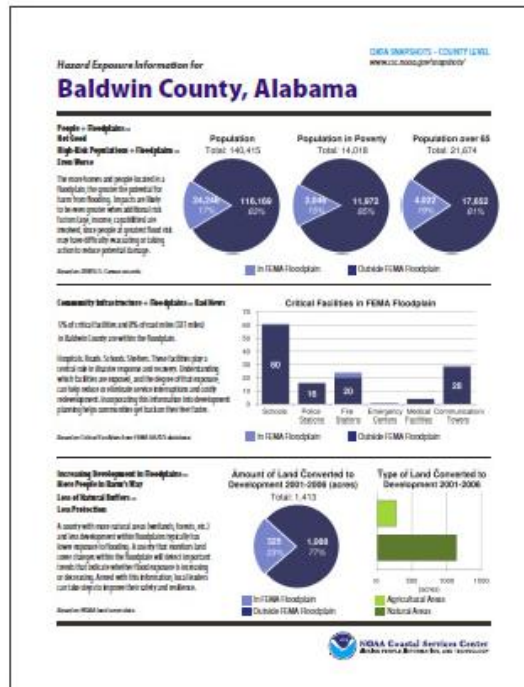
Coastal County Snapshots turn complex data into easy-to-understand stories, complete with charts and graphs. Users select a coastal county of interest and the website does the rest, providing information that can help communities become more resilient to coastal hazards.

Local officials use snapshot information to learn about their communities; handouts generated by the snapshots can be a helpful educational tool when working with governing bodies and citizen groups. Current snapshot data holdings focus on flood risks and the local economy.

Launch Now

#### In Action

[Illustrating the Importance of Critical Infrastructure Data for Louisiana Coastal Parishes](#)



#### Features

**Assesses** a county's exposure and resilience to flooding

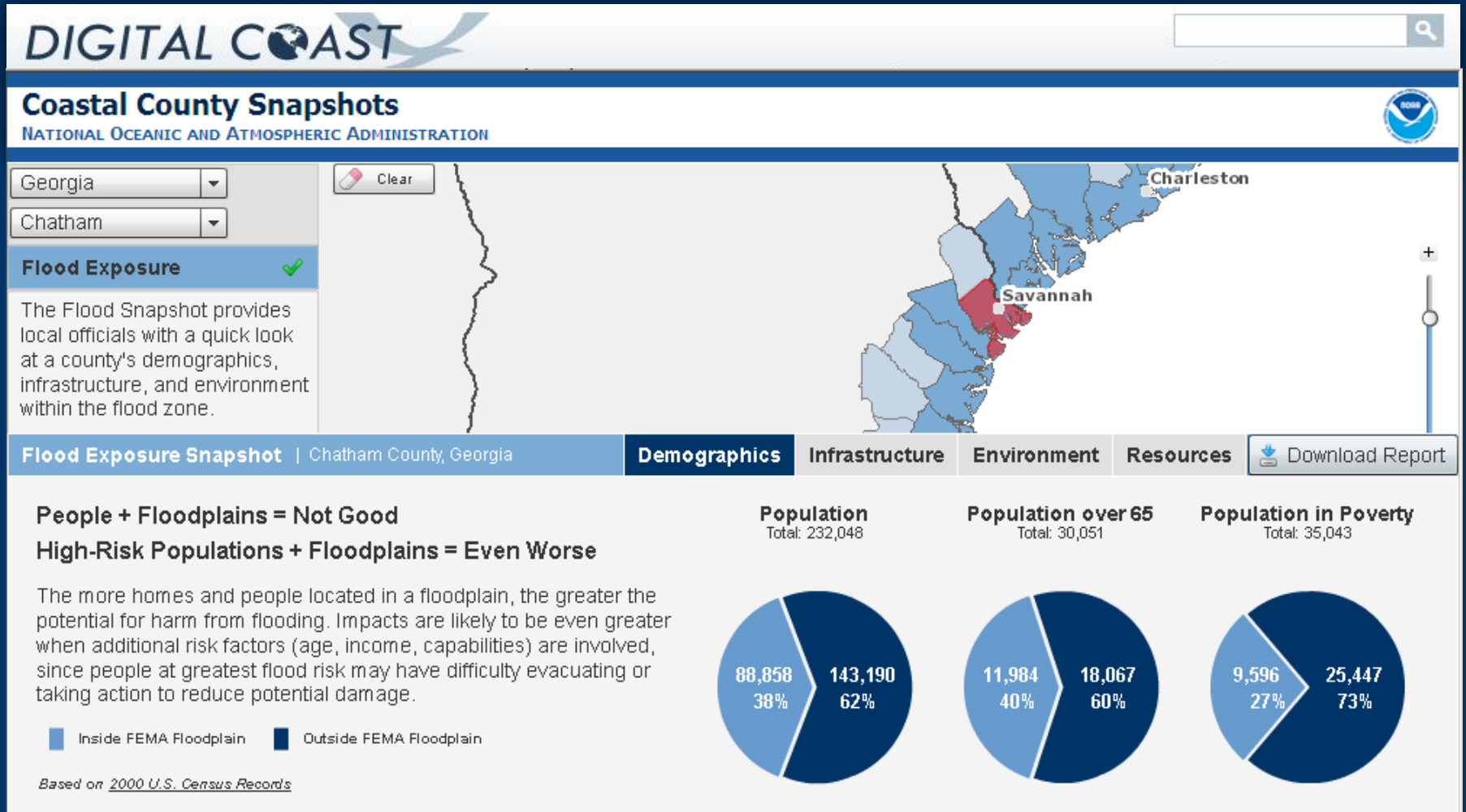
**Analyzes** a county's dependence on the ocean or Great Lakes for a healthy economy

**Compares** counties to each other or for regional analysis

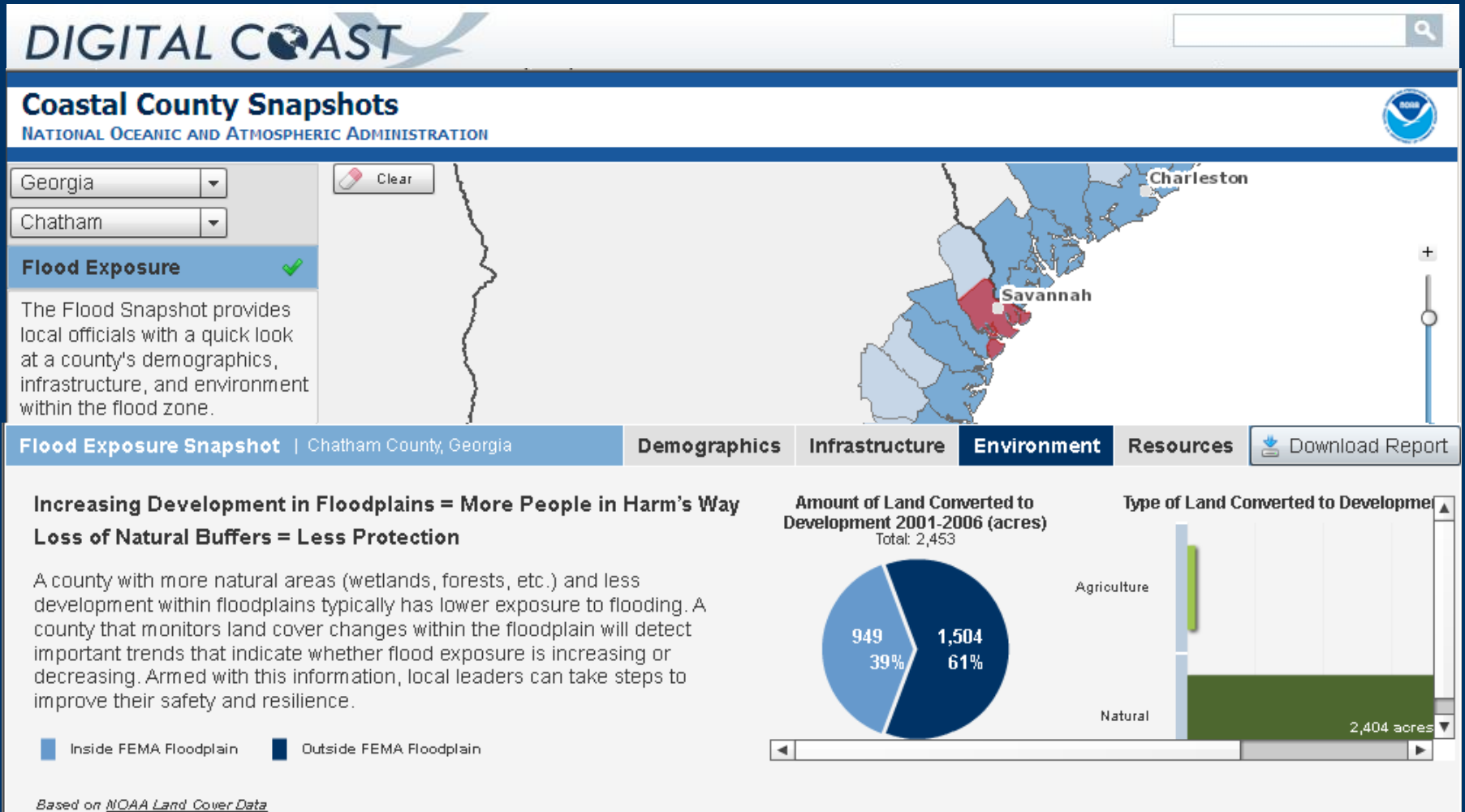
**Allows** users to download a PDF report for the snapshot of their choice



# Chatham County, Georgia, Flood Exposure



# Chatham County, Georgia, Flood Exposure



# Portable Reports

## Flood Exposure Snapshot

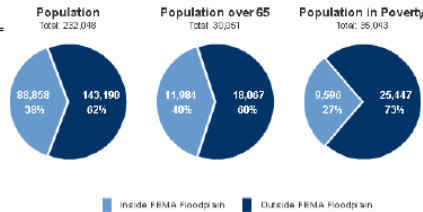
### Chatham County, Georgia

Coastal County Snapshots  
www.csc.noaa.gov/snapshots

#### People + Floodplains = Not Good

#### High-Risk Populations + Floodplains = Even Worse

The more homes and people located in a floodplain, the greater the potential for harm from flooding. Impacts are likely to be even greater when additional risk factors (age, income, capabilities) are involved, since people at greatest flood risk may have difficulty evacuating or taking action to reduce potential damage.



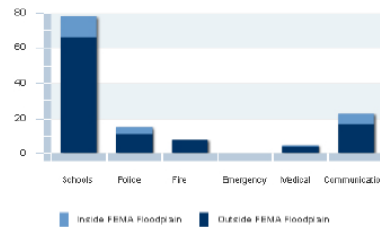
Based on 2000 U.S. Census records

#### Community Infrastructure + Floodplains = Bad News

17% of critical facilities and 33% of road miles (679 miles) in Chatham County, Georgia are within the floodplain.

Hospitals, Roads, Schools, Shelters. These facilities play a central role in disaster response and recovery. Understanding which facilities are exposed, and the degree of that exposure, can help reduce or eliminate service interruptions and costly redevelopment. Incorporating this information into development planning helps communities get back on their feet faster.

#### Critical Facilities in FEMA Floodplain

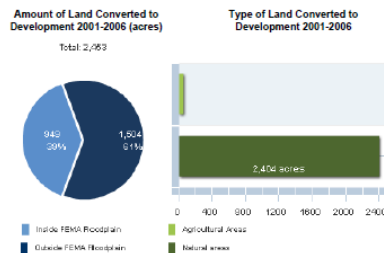


Based on Critical Facilities from FEMA HAZUS

#### Increasing Development in Floodplains = More People in Harm's Way

#### Loss of Natural Buffers = Less Protection

A county with more natural areas (wetlands, forests, etc.) and less development within floodplains typically has lower exposure to flooding. A county that monitors land cover changes within the floodplain will detect important trends that indicate whether flood exposure is increasing or decreasing. Armed with this information, local leaders can take steps to improve their safety and resilience.

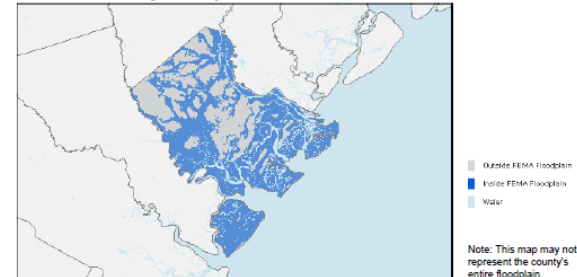


Based on NOAA Land Cover ASAs

Date Printed: August 2011



## Chatham County Floodplain



### Next Steps

Through adaptation planning, all communities can be better prepared to face coastal hazards. While each community is different, there are some basic steps that all communities can follow to become more resilient.

Training that will lead your organization through this task can be brought to your office. Visit the Roadmap for Adapting to Coastal Risk Training ([www.csc.noaa.gov/digitalcoast/training/roadmap/training.html](http://www.csc.noaa.gov/digitalcoast/training/roadmap/training.html)) to learn more. Many of the components of this course (which are outlined below) can be found within the Digital Coast's Coastal Inundation Toolkit ([www.csc.noaa.gov/inundation](http://www.csc.noaa.gov/inundation)).

1. **Know your risks** – If your county has a hazard mitigation plan, get a copy of it from your county emergency management office or the Federal Emergency Management Agency (FEMA) ([www.fema.gov/plan/mitplanning/status.shtml#f](http://www.fema.gov/plan/mitplanning/status.shtml#f)). Having county information about potential hazards, vulnerabilities, and priority hazard mitigation projects is important.
2. **Develop a team** – To see the issues and opportunities from as many perspectives as possible, engaging a diverse group of stakeholders is always a good idea. The County Snapshots ([www.csc.noaa.gov/snapshots](http://www.csc.noaa.gov/snapshots)) are used to help people visualize the issues.
3. **Know what resources are available** – Federal and state agencies have funds available for risk reduction activities. See the funding opportunities listed below to learn more. There are also data and tools available to help people visualize the issues and solutions. For information on creating inundation maps for your community, visit the map section of the Coastal Inundation Toolkit. ([www.csc.noaa.gov/inundation/map](http://www.csc.noaa.gov/inundation/map)).
4. **Discover what others are doing** – See how other communities are addressing these issues. Visit the discover section of the Coastal Inundation Toolkit. ([www.csc.noaa.gov/digitalcoast/inundation/discover.html](http://www.csc.noaa.gov/digitalcoast/inundation/discover.html)). You may also contribute a story about your community efforts.

#### Data Sources

- Flood Zones – Based on FEMA 1% annual chance flood zones - <http://msc.fema.gov>
- Critical Facilities – FEMA HAZUS-MH data - [www.fema.gov/plan/prevent/hazus/](http://www.fema.gov/plan/prevent/hazus/)
- Roads – Based on ESRI 2005 streets data
- Demographic Data – NOAA – <http://dcos.noaa.gov>
- Land Cover Data – NOAA - [www.csc.noaa.gov/digitalcoast/data/coaregional/index.html](http://www.csc.noaa.gov/digitalcoast/data/coaregional/index.html)

#### Funding Opportunities

- FEMA – [www.fema.gov/government/grant/hmcp/](http://www.fema.gov/government/grant/hmcp/)
- NOAA Coastal Management Program – <http://coastalmanagement.noaa.gov/mystate/>



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# And Much More

## Visit

*[www.csc.noaa.gov/digitalcoast/](http://www.csc.noaa.gov/digitalcoast/)*

## Or Contact the NOAA Coastal Services Center

*[Nancy.Cofer-Shabica@noaa.gov](mailto:Nancy.Cofer-Shabica@noaa.gov)*

*[Nicholas.Schmidt@noaa.gov](mailto:Nicholas.Schmidt@noaa.gov)*

(843) 740-1200



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