The State of South Carolina and the Digital Coast

The Digital Coast is a partnership effort and community resource for organizations that manage the nation's coastal resources.

Initiated and led by the National Oceanic and Atmospheric Administration (NOAA) Office for Coastal Management, the Digital Coast provides geospatial data and the tools and methods needed to turn these data into useful information. Digital Coast resources range from high-resolution data to on-site training opportunities. People use these resources to address timely coastal issues, including land use, coastal conservation, hazards, ocean planning, community resilience, and coastal economics, all of which are of critical importance to the state of South Carolina. The site was launched in 2008.

South Carolina Benefits

The numbers below are from fiscal year 2015.

DIGITAL COAST BY THE NUMBERS

14,690 South Carolina visitors to the Digital Coast website

140 South Carolina communities that used the Digital Coast

5,517 Gigabytes of high-resolution elevation data available for the state

456,615 Total visitors to the Digital Coast website

411% Return on investment*

*More information on the benefits and costs of the Digital Coast can be found here: *http://1.usa.gov/1O8fFDa*

DATA

South Carolina elevation, land cover, aerial imagery, and county-level socioeconomic data, provided by various trusted sources, are available through the Digital Coast's Data Access Viewer. Some of the most commonly accessed South Carolina-based data are highlighted below.

Coastal Lidar

coast.noaa.gov/digitalcoast/data/coastallidar

Over 5,517 gigabytes of high-resolution elevation data covering South Carolina's entire coastal zone are available. This type of data is critical to the development of models that examine potential local flooding impacts from coastal storms and sea level rise.

Land Cover

coast.noaa.gov/digitalcoast/data/ccapregional

Land cover data provide inventories of coastal intertidal areas, wetlands, and adjacent uplands for the coastal regions. These data are used to identify high-priority landscapes for South Carolina's coastal protection and restoration efforts.

Economics: National Ocean Watch

coast.noaa.gov/digitalcoast/data/enow

This program provides time-series data on the ocean and Great Lakes economy, which includes six economic sectors dependent on the oceans and Great Lakes. South Carolina's coastal counties can use this information to gain insight into their local coastal economies.

TOOLS

The Digital Coast website provides access to over 50 data analysis, visualization, and other decision-support tools that assist coastal managers in deriving critical information from coastal data sets. Many of these tools are web-based, which extends the reach of GIS functions to anyone with an Internet connection.

Coastal County Snapshots

coast.noaa.gov/digitalcoast/tools/snapshots

Complex local data sets are automatically formatted into easy-to-understand stories, complete with charts and graphs, with this web tool. Local officials use the snapshots as a planning tool, since the information helps them assess their county's resilience to flooding and understand the benefits provided by natural resources.

C-CAP Land Cover Atlas

coast.noaa.gov/digitalcoast/tools/lca

This tool from the Coastal Change Analysis Program (C-CAP) makes land cover data easier to access and understand by eliminating the need for desktop GIS software. General trends in land cover change (such as forest losses or new development) are summarized, and specific changes of interest (salt marsh losses to open water, for instance) can be highlighted. This type of information is useful for planning purposes. South Carolina's officials found it particularly helpful as they worked to set aside land for conservation purposes while allowing for continued growth and prosperity.

Economics: National Ocean Watch Explorer

coast.noaa.gov/digitalcoast/tools/enow

Making South Carolina's economic data easier to use is the goal of this tool. The economic data provided by the Digital Coast focus on six sectors that depend on the oceans and Great Lakes: living resources, marine construction, marine transportation, offshore mineral resources, ship and boat building, and tourism and recreation. This tool helps users discover which sectors are the largest contributors to South Carolina's coastal economy in various parts of the state, which sectors are growing and declining, and which account for the most jobs, wages, and gross domestic product.

CanVis

coast.noaa.gov/digitalcoast/tools/canvis

This visualization tool helps users "see" potential impacts from coastal development or water level change. Users can download background pictures and insert objects (hotels, houses, and other features) of their choosing. This tool helped South Carolina visualize a new public recreation area in the city of Myrtle Beach.

OpenNSPECT

coast.noaa.gov/digitalcoast/tools/opennspect

This tool is being used to investigate potential water quality impacts from development, other land uses, and climate change. The tool simulates erosion, pollution, and their accumulation from overland flow. Uses include helping communities identify areas for restorable wetlands and riparian buffers to reduce pollution and flooding in watersheds.

TRAINING

In fiscal year 2015, 54 South Carolina coastal professionals received training on a variety of technical and process-based topics through the Digital Coast (*coast.noaa.gov/digitalcoast/training/list*). Courses taught participants a variety of skills, such as creating data sets for coastal inundation mapping and fostering behavior change for coastal management.

GEOSPATIAL CONTRACTING

Through the Digital Coast, coastal organizations in need of geospatial data or services benefit from the use of the NOAA Office for Coastal Management's Coastal Geospatial Services Contract (*coast.noaa.gov/idiq/geospatial.html*). This contracting vehicle provides a way for local, state, and federal agencies to take advantage of a streamlined process to obtain services from the nation's top geospatial firms. In fiscal year 2015, over $3.6 million was awarded to private geospatial firms to conduct mapping projects in the Southeast coastal zone, including the acquisition and processing of lidar and elevation data.

DIGITAL COAST IN ACTION

The following stories illustrate how Digital Coast users are applying geospatial information resources to address coastal issues in South Carolina.

Building Resilient Communities Using a Beachfront Vulnerability Index in South Carolina

coast.noaa.gov/digitalcoast/stories/vulnerability-index

South Carolina's eight coastal counties have experienced rapid growth over the past two decades. With that growth comes mounting pressure to continue beachfront development while protecting these communities from erosion caused by natural forces. To assess community exposure and susceptibility to losses from storm surge and erosion, managers in South Carolina developed a Beachfront Vulnerability Index (BVI). The BVI combines data on elevation, long-term erosion rates, wave height, and more to establish a vulnerability score for each parcel along the South Carolina beachfront. Planners use these results to address vulnerable areas and incorporate mitigation and adaptation strategies in their beachfront management plans.

Visualizing Sea Level Rise to Engage Municipal Government Officials in Coastal South Carolina

coast.noaa.gov/digitalcoast/stories/chsflood

Periodic tidal flooding presents driving hazards, decays infrastructure, and forces temporary business closures, among other problems. The City of Charleston, South Carolina, knew the problem would only be getting worse and used NOAA's Digital Coast to start the conversation with managers and stakeholders. NOAA lidar data showed elevation information and displayed where tidal flooding already occurs, as well as how that would increase with a conservative sea level rise estimate. Using that information, managers were able to predict how many days of tidal flooding the town would see and begin to discuss mitigation tactics.

Using Geospatial Techniques to Plan for Climate Change Impacts on Coastal Habitats in South Carolina

coast.noaa.gov/digitalcoast/stories/waccamaw

Sea level rise and its potential impacts are a concern for the Waccamaw National Wildlife Refuge, home to many sensitive species. Habitats for some species are already beginning to show signs of saltwater intrusion and other sea level rise-related impacts. The project team used the Sea Level Affecting Marshes Model to map predicted distributions of wetlands within the refuge and nearby North Inlet-Winyah Bay National Estuarine Research Reserve. These outputs were then used within the Habitat Priority Planner to target areas for conservation, including key habitats. Using these results, the reserve is educating community stakeholders about the trends and types of habitat impacts that could result from sea level rise, while the refuge and The Nature Conservancy are working with state and local organizations to conserve inland freshwater habitats beyond current refuge boundaries.

The Digital Coast Partnership

One of the goals of the Digital Coast is to unify groups that might not otherwise work together. As a result, the Digital Coast Partnership is building not only a website, but also a strong collaboration of coastal professionals intent on addressing common needs. Currently, the eight members of the Digital Coast Partnership include the American Planning Association, Association of State Floodplain Managers, Coastal States Organization, National Association of Counties, National Estuarine Research Reserve Association, National States Geographic Information Council, Nature Conservancy, and Urban Land Institute. The responsiveness of these organizations and the direct lines of communication fostered by the effort have proven essential for ensuring the success and continuing relevance of the Digital Coast, and for allowing the platform to evolve and adapt to changing needs and priorities.