The State of Texas 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 Texas. The site was launched in 2008.

Texas Benefits

The numbers below are from fiscal year 2015.

DIGITAL COAST BY THE NUMBERS

24,539 Texas visitors to the Digital Coast website

406 Texas communities that used the Digital Coast

1,188 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

Texas 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 Texas-based data are highlighted below.

Coastal Lidar

coast.noaa.gov/digitalcoast/data/coastallidar

Over 1,188 gigabytes of high-resolution elevation data covering Texas' 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 Texas' 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. Texas' 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. Texas officials found it particularly helpful as they worked on critical areas enhancements and water quality issues.

Economics: National Ocean Watch Explorer

coast.noaa.gov/digitalcoast/tools/enow

Making Texas' 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 Texas' 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 Texas visualize sea level rise and green infrastructure techniques.

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, 62 Texas 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 managing visitor use in protected areas and planning and facilitating collaborative meetings.

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 $1.8 million was awarded to private geospatial firms to conduct mapping projects in the Gulf of Mexico coastal zone, including the acquisition and processing of GIS data.

DIGITAL COAST IN ACTION

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

Assessing and Managing Prop Scar Damage in Texas

coast.noaa.gov/digitalcoast/stories/propscars

The State of Texas established the Redfish Bay Scientific Area with the goal of protecting and studying native seagrasses. Boating had already caused extensive damage in the area, so managers used remote sensing to finding scars from propellers, determine the extent of the damage, and support automated processes for mapping these scars. Managers are using these methods to update their methods of mapping prop scars and improve their estimates of actual prop scarring in the area.

Integrating Decision-Support Tools for Land Use Planning in Coastal Texas

coast.noaa.gov/digitalcoast/stories/crist

Recreation, tourism, and estuarine-dependent commercial and recreational fisheries play key economic roles in the region surrounding the Mission-Aransas National Estuarine Research Reserve. The area experienced rapid growth, which made it an ideal candidate to test out the use of decision-support tools for land use and resource management. The Nonpoint Source Pollution and Erosion Comparison Tool (NSPECT) was one of the tools in the study and helped predict sedimentation and pollution changes with different land use scenarios. By using these results in combination with two other tools, managers were able to have a better sense of the situations that would decrease the health and vitality of the estuary.

Mapping Flood Forecasts for Better Flood Planning in Texas Communities

coast.noaa.gov/digitalcoast/stories/txflood

Flood forecasts from the National Weather Service (NWS) are used by emergency managers and city officials to prepare for and respond to the nation's floods. Previously, the NWS published text-only alerts that left managers lacking the information they needed. Inundation maps with geospatial data were necessary for bridge and road closures, mandatory evacuations, and positioning of resources. Using high-resolution elevation data and reliable hydraulic models, state and federal partners mapped both the projected depth of floodwaters and the areas affected by inundation for several bayous near Houston, Texas. The maps allowed decision makers to safely position assets, determine who to evacuate, and identify safe routes for moving people out of harm's way during flooding events.

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.