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

Wisconsin Benefits

The numbers below are from fiscal year 2015.

DIGITAL COAST BY THE NUMBERS

4,532 Wisconsin visitors to the Digital Coast website

196 Wisconsin communities that used the Digital Coast

269 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

Wisconsin 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 Wisconsin-based data are highlighted below.

Coastal Lidar

coast.noaa.gov/digitalcoast/data/coastallidar

Over 269 gigabytes of high-resolution elevation data covering Wisconsin'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 Wisconsin'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. Wisconsin'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.

Lake Level Viewer (U.S. Great Lakes)

coast.noaa.gov/digitalcoast/tools/llv

Visualize lake level changes that range from six feet above to six feet below historical long-term average water levels in the Great Lakes, along with potential shoreline and coastal impacts. Communities can use the data behind the tool for habitat and hydrological analysis.

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.

Great Lakes Coastal Resilience Planning Guide

greatlakesresilience.org

This guide provides hazard and climate change resources that Great Lakes counties and municipalities can use to communicate about coastal issues and inform existing and future plans and policies on land use, infrastructure, and natural resources. The guide shows how coastal communities are using science-based information to address coastal hazards such as flooding, shore erosion, and lake-level fluctuations.

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. Wisconsin's officials have found it particularly helpful as they work to use green infrastructure (natural areas) to mitigate the impacts of flooding and climate change.

Economics: National Ocean Watch Explorer

coast.noaa.gov/digitalcoast/tools/enow

Making Wisconsin'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 Wisconsin'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.

Wisconsin Coastal Atlas

wicoastalatlas.net

This atlas is a web resource that helps people understand coastal issues, share coastal data, and inform their decision-making about the sustainable use of the Great Lakes. The atlas pulls in data and resources from the Digital Coast.

CanVis

coast.noaa.gov/digitalcoast/tools/canvis

This visualization tools helps users "see" potential impacts from coastal development or lake level change. Users can download background pictures and insert objects (hotels, houses, and other features) of their choosing. This tool is easily paired with the Lake Level Dashboard (*www.greatlakesresilience.org/maps-tools-data/tools/great-lakes-water-level-dashboard*) to visualize the impacts of lake level changes and potential coastal flood hazards. A case study of their use is available for Brown County, Wisconsin (*www.greatlakesresilience.org/case-studies/land-use-zoning/visualizing-coastal-flooding-and-lake-level-changes*).

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.

VDatum

coast.noaa.gov/digitalcoast/tools/vdatum

This tool converts elevation data among tidal, orthometric, and ellipsoidal vertical datums, allowing users to establish a common reference system for all elevation data sets. VDatum is also used with other bathymetric data sets to address issues related to dredging in areas such as the Sheboygan River.

TRAINING

In fiscal year 2015, four Wisconsin 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 designing data sets for coastal inundation mapping and graphic facilitation.

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 $1.85 million was awarded to private geospatial firms to conduct mapping projects in the Great Lakes coastal zone, including facilitation of climate adaptation data.

DIGITAL COAST IN ACTION

The following stories illustrate how Digital Coast users are applying geospatial information resources to address coastal issues in Wisconsin and the Great Lakes region.

Observing Landscape Changes at the Municipal Level in Wisconsin

coast.noaa.gov/digitalcoast/stories/wi-ccap

Land cover change data show how an area's landscape has changed over time. Wisconsin used the Digital Coast's Coastal Change Analysis Program data from 1996 and 2006 to analyze land cover changes over those 10 years. Managers broke down the data to a smaller scale so they could see changes at the municipal level and show development patterns in the area. By comparing this information between municipalities, managers were able to see the effects of past land cover decisions and evaluate future planning options.

Advancing Restoration in the Great Lakes Region

coast.noaa.gov/digitalcoast/stories/advancerestoration

The Great Lakes watershed is the largest system of fresh surface water in the world and is a source of abundant natural resources. However, urban and industrial development has degraded water quality, posing threats to wildlife and human health. The Great Lakes Commission identified two watersheds to restore, and the Habitat Priority Planner on the Digital Coast was used to help managers determine how best to restore these watersheds.

Communicating Coastal Flooding Risks around the Great Lakes

coast.noaa.gov/digitalcoast/stories/greenbay

Residents in Green Bay, Wisconsin, are concerned about flood risks but don't have the information necessary to determine their home's proximity to the flood zone. Using the Digital Coasts's CanVis software, managers in Brown County took photos of properties and created before-and-after flooding photos to show residents what could happen. From these visualizations, shoreline property owners will gain critical insight into how to protect themselves and their property from flooding.

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.