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

California Benefits

The numbers below are from fiscal year 2015.

DIGITAL COAST BY THE NUMBERS

36,538 California visitors to the Digital Coast website

547 California communities that used the Digital Coast

5,629 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

California 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 California-based data are highlighted below.

Coastal Lidar

coast.noaa.gov/digitalcoast/data/coastallidar

Over 5,629 gigabytes of high-resolution elevation data covering California'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 California'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. California'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. California'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 California'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 California'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. Managers in California use this tool to help stakeholders visualize the effects of sea level rise.

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.

TRAINING

In fiscal year 2015, 178 California 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 planning and facilitating collaborative meetings and introduction to green infrastructure.

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 million was awarded to private geospatial firms to conduct mapping projects in the West Coast coastal zone, including the acquisition of lidar and acoustic data.

DIGITAL COAST IN ACTION

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

Assessing the Impact of Impervious Surfaces on Water Resources in Southern California

coast.noaa.gov/digitalcoast/stories/californiawater

Water is one of the most important natural resources in the Southern California region, and natural vegetation plays a large role in managing the region's water supply. To analyze how the natural vegetation of an area has changed over time, the Global Ecosystem Center (GEC) used NOAA's Coastal Change Analysis Program (C-CAP) land cover data sets from 1996, 2001, and 2005. The land cover change analysis shows a tremendous growth in impervious surface in Southern California over the 26 year period. This information allows decision makers to geographically pinpoint where impervious surface increase is altering the natural hydrology of the region so that they can develop better strategies for land use and natural resource management.

Mapping Critical Habitats for Ecosystem-Based Management in Humboldt Bay, California

coast.noaa.gov/digitalcoast/stories/humboldtbay

The Humboldt Bay Ecosystem Based Management (EBM) Program acquired high-resolution multispectral imagery in 2009 and 2010, and used this data set to derive digital benthic habitat data for the bay and Eel River Estuary. This geospatial information is being used by researchers and decision makers in the region to support invasive species control, design restoration projects, develop a regional sediment management plan, and describe the impacts of rising sea levels on Humboldt Bay habitats.

Using a Web-Based Tool to Designate New Marine Protected Areas in Southern California

coast.noaa.gov/digitalcoast/stories/merrifield

In 1999, the Marine Life Protection Act (MLPA) directed the State of California to design and manage a network of marine protected areas (MPAs) in state waters to safeguard marine life and habitats, ecosystems, and natural heritage, as well as to improve recreational, educational, and study opportunities provided by marine ecosystems. During a two-year public planning process, stakeholders used MarineMap to help identify the best locations for MPAs off the coast of Southern California. This open-source, Web-based tool facilitated the visualization of oceanographic, biological, geological, and human-related dimensions of ocean and coastal areas, which in turn allowed stakeholders to draft MPA boundaries that facilitated a balance between these dimensions. At the end of the two-year process, stakeholders provided the MPA recommendations to the California Fish and Game Commission, which adopted regulations to create 36 new MPAs encompassing approximately 187 square miles of water off the coast of Southern California.

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.