



The State of Hawai'i 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 Hawai'i. The site was launched in 2008.

Hawai'i Benefits

The numbers below are from fiscal year 2015.

DIGITAL COAST BY THE NUMBERS

6,071 Hawai'i visitors to the Digital Coast website

57 Hawai'i communities that used the Digital Coast

210 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/1O8fDa>

DATA

Hawai'i 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 Hawai'i-based data are highlighted below.

Coastal Lidar

coast.noaa.gov/digitalcoast/data/coastallidar

Over 210 gigabytes of high-resolution elevation data covering Hawai'i'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 Hawai'i's coastal protection and tsunami evacuation 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. Hawai'i 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, which 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. The following sampling of Digital Coast tools are available for the state of Hawai'i.

Tsunami Information Service

coast.noaa.gov/digitalcoast/tools/tsunamimap

This tool provides tsunami evacuation maps and information for Hawaii and Guam. Residents and visitors can interact with maps and find education and awareness information on the web or by downloading the app.

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.

Sea Level Rise and Coastal Flooding Impacts Viewer

coast.noaa.gov/digitalcoast/tools/slr

This web-based data viewer provides coastal managers and scientists with a preliminary look at local sea level rise and coastal flooding impacts. The viewer is a screening-level tool that uses nationally consistent data sets and analyses. Data and maps provided can be used at several scales to help Hawai'i communities gauge trends, inform climate adaptation planning, and prioritize actions for different scenarios.

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. Hawai'i's officials found it particularly helpful in the identification and assessment of priority ecological areas for the conservation efforts of the state's Department of Land and Natural Resources.

Economics: National Ocean Watch (ENOW) Explorer

coast.noaa.gov/digitalcoast/tools/enow

Making Hawai'i'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 Hawai'i'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.

TRAINING

In fiscal year 2015, 10 Hawai'i 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 tips and tricks to use OpenNSPECT for coral reef management 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 \$1.5 million was awarded to private geospatial firms to conduct mapping projects in the Pacific Islands region. This includes an effort to facilitate development 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 Hawai'i.

Assessing Hydrologic Processes to Mitigate Coral Reef Degradation in Hawai'i

coast.noaa.gov/digitalcoast/stories/Hawaii

Stormwater runoff, sediment and nutrient transport, and land-based pollutants in watersheds have been identified as the primary threats to coral reef ecosystems in Hawai'i. To better understand hydrologic processes in the Hanalei Bay watershed, researchers at the University of Hawai'i applied the Nonpoint-Source Pollution and Erosion Comparison Tool to simulate annual direct-surface runoff. State and local land managers used the information generated by this effort to prioritize methods and locations for runoff and erosion control and to evaluate the impacts of alternative management scenarios on nonpoint source pollution and erosion.

Capturing Local Knowledge to Inform Coral Reef Management in Hawai'i

coast.noaa.gov/digitalcoast/stories/hicoralreef

The Hawai'i Coral Reef Strategy aims to "reduce key anthropogenic threats to two priority nearshore coral reef sites by 2015." This effort requires a full geospatial assessment of the sites and a survey of local stakeholders on how these areas are used. In August 2011, the NOAA Office for Coastal Management held three full-day workshops with 47 participants at the Lahaina Senior Center in Lahaina, Maui. These workshops used NOAA's Marine Protected Areas Center's participatory mapping process, which involved stakeholders and local experts mapping the human coastal uses of the region. Participants created geospatial maps quickly for 17 coastal uses. Hawai'i's Division of Aquatic Resources and the U.S. Army Corps of Engineers will use these maps for watershed and coastal resource management and protection.

Mapping the Urban Realm to Enhance Community Resilience in Hawai'i

coast.noaa.gov/digitalcoast/stories/urban-realm

Tropical urban forests provide a wide range of environmental and socioeconomic services, including protection from catastrophic storms, sea level rise, and coastal erosion, as well as absorption of stormwater runoff that can otherwise impact coral reefs and nearshore marine ecosystems. In 2009, Hawai'i's Kaulunani Urban and Community Forestry Program used Coastal Change Analysis Program data from the Digital Coast to develop a data layer characterizing the urban realm. Using this information, the state was better able to identify urban forests and develop a set of long-term management activities and environmental literacy initiatives. This, in turn, will ultimately enhance the resilience of coastal Hawai'i communities.

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.