Commonwealth of the Northern Mariana Islands 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 Commonwealth of the Northern Mariana Islands (CNMI). The site was launched in 2008.

CNMI Benefits

The numbers below are from fiscal year 2015.

DIGITAL COAST BY THE NUMBERS

143	CNMI visitors to the Digital Coast website
2	CNMI communities that used the Digital Coast
13	Gigabytes of high-resolution elevation data available for the territory
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

CNMI 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 CNMI-based data are highlighted below.

Coastal Lidar

coast.noaa.gov/digitalcoast/data/coastallidar

Over 13 gigabytes of high-resolution elevation data covering CNMI'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 CNMI's coastal protection and restoration efforts.

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.

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. CNMI's managers have found these data helpful while analyzing water quality, land use, and more.

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 CNMI 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, over 1,500 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 public issues and conflict management and project design and evaluation.

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, including the acquisition and processing of lidar data.

DIGITAL COAST IN ACTION

The following stories illustrate how Digital Coast users are applying geospatial information resources to address coastal issues in CNMI and the Pacific Islands.

Assessing Land-Based Threats to Coral Reef Habitats in Laolao Bay, CNMI

coast.noaa.gov/digitalcoast/stories/laolaobay

Land-based sources of pollution, including sediment, are one of the primary threats to coral reef environments for many island environments. Up-to-date and accurate maps combined with traditional ecological knowledge are needed to effectively manage these reef environments. Managers in CNMI used the Digital Coast's Nonpoint-Source Pollution and Erosion Comparison Tool and the Habitat Priority Planner to generate maps for use during a community-based watershed assessment process. The combination of these maps and traditional ecological knowledge created relevant information to assess current problems. Managers also will use these maps to develop ecosystem-based management plans and place-based conservation projects to address the decline in coral reef health.

Assessing Hydrologic Processes to Mitigate Coral Reef Degradation in Hawaii

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 Traditional Knowledge to Inform Restoration Planning in Hawaii

coast.noaa.gov/digitalcoast/stories/hirestoration

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 the NOAA 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.

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.