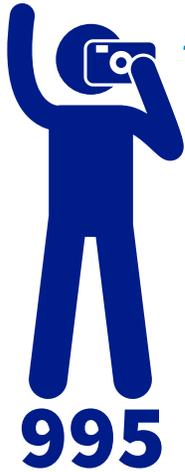


# GUAM RELIES ON THE DIGITAL COAST



**995**  
Guam visitors to  
the Digital Coast.  
(672,942 nationwide)



That's because the **Digital Coast**  
has a lot to offer **Guam**.

## DATA

**187** gigabytes of high-resolution elevation data available for Guam.



## TOOLS

**50+** decision-support tools applicable for Guam challenges.



## TRAINING

Over **2,000** leaders in the U.S. used a Digital Coast training program.



## GEOSPATIAL SERVICES

Over **\$9.6 million** in private-sector geospatial services awarded Nationwide.



## INFORMATION

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- Guam's coral reefs and associated ecosystems have an average economic value of \$139 million per year.
- Nearly 19 percent of the island is developed, almost twice the national average.
- Guam's Manell-Geus Habitat Focus Area is home to the island's only shallow water lagoon and features fringe reefs, mangroves, and seagrass beds.

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**SAVING TIME AND MONEY**

**411%** was the return on investment calculated for the Digital Coast.

### IT'S A WEBSITE.

NOAA owns the Digital Coast, but the resources inside, while vetted by NOAA for applicability and quality, come from various organizations with one common but important thread: content is solely focused on coastal community needs. The site contains not only data, but also the tools, training, and information communities need to make data truly useful. Three out of four Digital Coast users surveyed say they couldn't do their jobs without this important resource!

The short report that follows highlights Digital Coast interactions with Guam.

**Digital Coast**  
[coast.noaa.gov/digitalcoast](http://coast.noaa.gov/digitalcoast)



# Guam Recap

*NOAA and the Digital Coast are devoted to supplying Guam with the data, tools, and information most needed by coastal communities. This report highlights the resources frequently used during this reporting period. Please visit the website ([coast.noaa.gov](http://coast.noaa.gov)) to learn more or contact NOAA ([coastal.info@noaa.gov](mailto:coastal.info@noaa.gov)) with your questions or suggestions.*

## DATA

Data represent the core component of the Digital Coast. For Guam, data holdings include elevation, land cover, aerial imagery, and county-level socioeconomic data. Examples are highlighted below.

### Coastal Lidar

[coast.noaa.gov/digitalcoast/data/coastallidar](http://coast.noaa.gov/digitalcoast/data/coastallidar)

Over 187 gigabytes of high-resolution elevation data covering Guam's entire coastal zone are available. These types of data are critical for all types of modeling, including those that predict flooding potential.

### Land Cover

[coast.noaa.gov/digitalcoast/data/ccaphighres](http://coast.noaa.gov/digitalcoast/data/ccaphighres)

Land cover data provide inventories of coastal intertidal areas, wetlands, and adjacent uplands for coastal regions. These data are used to identify high-priority landscapes for Guam's coastal protection and restoration efforts.

## TOOLS

"Data alone is not enough" is a frequent Digital Coast refrain. Going the extra step and including the tools and training needed to make data truly useful is a hallmark of the Digital Coast website. Users have access to over 50 data analysis, visualization, and other decision-support tools. Examples are highlighted below.

### Tsunami Information Service

[coast.noaa.gov/digitalcoast/tools/tsunamimap](http://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.

### Land Cover Atlas

[coast.noaa.gov/digitalcoast/tools/lca](http://coast.noaa.gov/digitalcoast/tools/lca)

This tool 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 (salt marsh losses to open water, for instance) can be documented. This type of information is useful for planning purposes. Guam's managers have found it particularly helpful while analyzing water quality, land use, and more.

## OpenNSPECT

[coast.noaa.gov/digitalcoast/tools/opennspect](https://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

Coastal officials have to stay on top of their game, which is why the Digital Coast’s “training academy” provides over 125 learning resources, from online courses to training brought to your location. A few examples are provided below. To see the full suite, visit [coast.noaa.gov/digitalcoast/training/home](https://coast.noaa.gov/digitalcoast/training/home).

### Coastal Inundation Mapping

[coast.noaa.gov/digitalcoast/training/inundationmap](https://coast.noaa.gov/digitalcoast/training/inundationmap)

This classroom course provides baseline information about the various types of flooding and teaches methods for mapping current and potential flooding scenarios. The course offers 16 hours of continuing education credits for the GIS Professional (GISP) and American Institute of Certified Planners (AICP), and Certified Floodplain Manager (CFM) professional certifications.

### Green Infrastructure Practices and Benefits Matrix

[coast.noaa.gov/digitalcoast/training/gi-practices-and-benefits](https://coast.noaa.gov/digitalcoast/training/gi-practices-and-benefits)

Green infrastructure (also called natural infrastructure) is the way to go for communities looking to reduce flooding. This quick handout provides important information about some of the most common techniques in use.

### Seven Best Practices for Risk Communications

[coast.noaa.gov/digitalcoast/training/risk-communication](https://coast.noaa.gov/digitalcoast/training/risk-communication)

The title alone speaks to most people—this is a skill everyone benefits from. The Digital Coast has many resources devoted to this topic, but this online training course is particularly popular.

## GEOSPATIAL CONTRACTING

Through the Digital Coast, coastal organizations in need of geospatial data or services benefit from the use of the Coastal Geospatial Services Contract ([coast.noaa.gov/idiq/geospatial.html](https://coast.noaa.gov/idiq/geospatial.html)). This contracting vehicle provides a way for local, state, and federal agencies to use a streamlined process to obtain services from the nation’s top geospatial firms. In fiscal year 2018, over \$9.6 million was awarded to private geospatial firms to conduct mapping projects Nationwide, 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 the Pacific Islands region.

### **Serving Guam's Conservation Community through Land Cover Partnerships**

[coast.noaa.gov/digitalcoast/stories/landcover-guam](https://coast.noaa.gov/digitalcoast/stories/landcover-guam)

Many federal agencies provide land cover data, but data from different sources often cannot be used together. When it came time to update Guam's land cover data, NOAA and the U.S. Forest Service combined forces to make a cohesive product. The result allowed a diverse range of analyses to be conducted using these data, including coastal zone permitting and identifying preferred nesting habitats for Guam's native birds.

### **Using the Land Cover Atlas to Protect Watershed Health from Overdevelopment**

[coast.noaa.gov/digitalcoast/stories/guam](https://coast.noaa.gov/digitalcoast/stories/guam)

Stormwater and coastal development threaten the natural resources of the island nation of Guam. The Guam Coastal Management Program seeks to minimize threats while protecting natural resources and maintaining a balance of sustainable uses. When a new development submits a permitting request, the program uses NOAA's Land Cover Atlas to produce a land cover report summarizing land cover types and the percentages. This allows the program to assess whether there is already too much impervious surface in an area. They attach it to every permit request as support for their decision.

## 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.