

# NOAA DIGITAL COAST

Jewel Tuiasosopo

**Advancing Nature-Based Solutions for Coastal Resilience**

September 28, 2023

## Overview:

- Quick background on NOAA Office for Coastal Management and the Digital Coast
- Visualizing and communicating coastal hazards
- Learning products to implement nature-based solutions





**National  
Coastal Zone  
Management  
Program**



**National  
Estuarine  
Research  
Reserve  
System**



**Coral Reef  
Conservation  
Program**



**Digital Coast**



**Use spatial data to visualize coastal hazard risks**



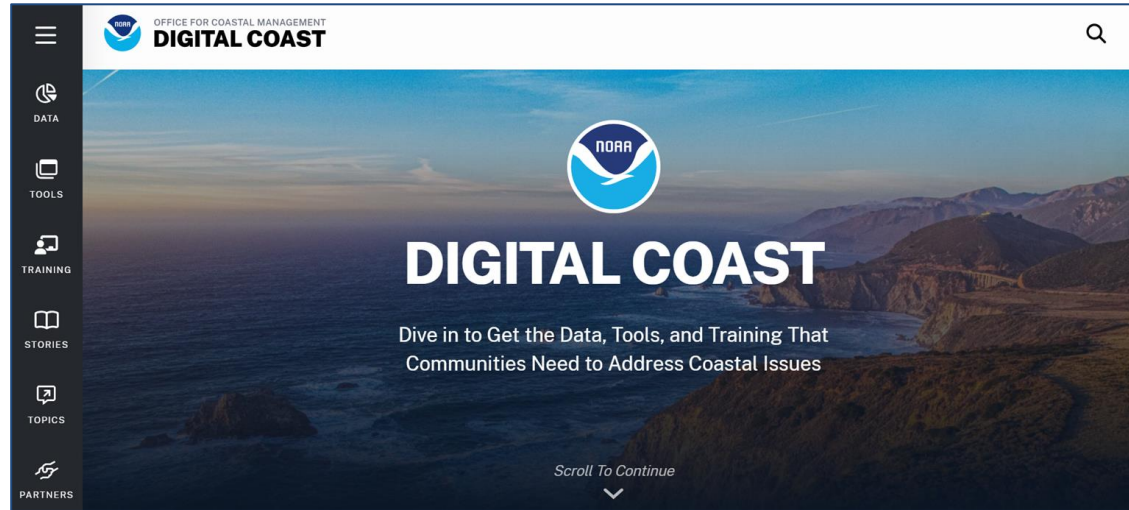


**Natural or green infrastructure** is existing natural resources and engineered systems that re-create natural processes to manage floodwater and erosion



# Digital Coast

*coast.noaa.gov/digitalcoast*



NOAA Office for Coastal Management | 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 | The Nature Conservancy | Urban Land Institute



# Digital Coast

*coast.noaa.gov/digitalcoast*

The screenshot shows the NOAA Digital Coast website homepage. At the top left is a hamburger menu icon. Next to it is the NOAA logo and the text "OFFICE FOR COASTAL MANAGEMENT" and "DIGITAL COAST". A search icon is in the top right. The main content area features a large background image of a coastal landscape. In the center is the NOAA logo, followed by the text "DIGITAL COAST" in large white letters. Below this is the tagline: "Dive in to Get the Data, Tools, and Training That Communities Need to Address Coastal Issues". At the bottom of the main area, it says "Scroll To Continue" with a downward arrow. On the left side, there is a dark vertical navigation bar with icons and labels for "DATA", "TOOLS", "TRAINING", "STORIES", "TOPICS", and "PARTNERS". Two green arrows point to the "TOOLS" and "TRAINING" sections of this navigation bar.



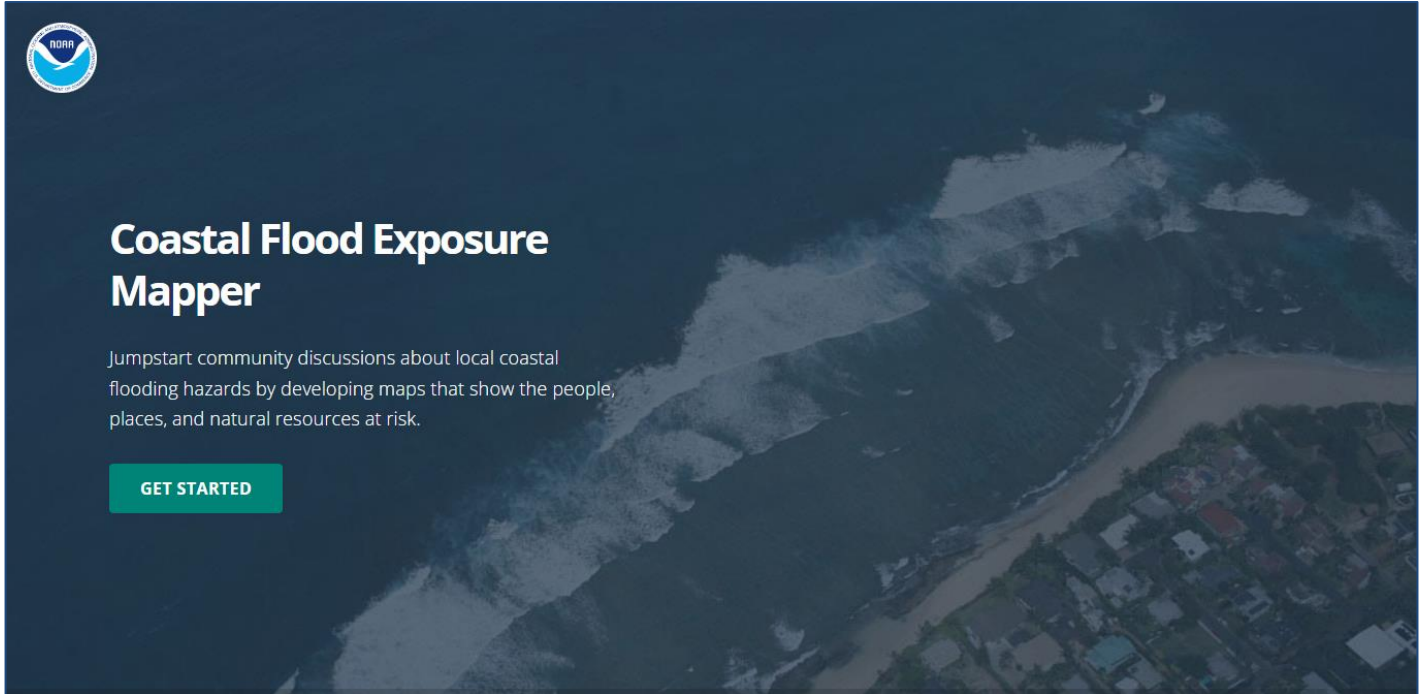
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# Visualizing and Communicating Coastal Hazards





## Coastal Flood Exposure Mapper

Jumpstart community discussions about local coastal flooding hazards by developing maps that show the people, places, and natural resources at risk.

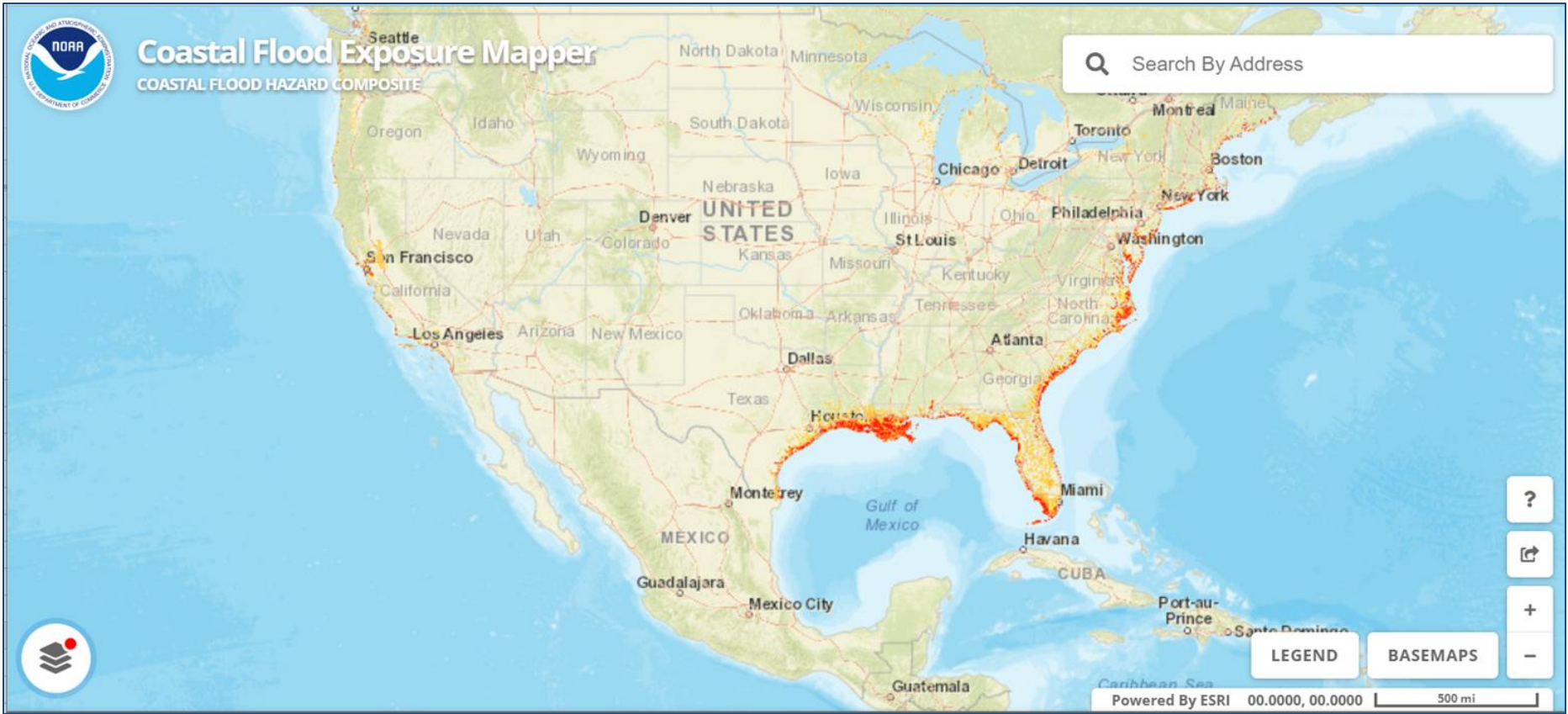
[GET STARTED](#)

*[coast.noaa.gov/digitalcoast/tools/flood-exposure.html](https://coast.noaa.gov/digitalcoast/tools/flood-exposure.html)*



# Coastal Flood Exposure Mapper

COASTAL FLOOD HAZARD COMPOSITE



LEGEND BASEMAPS

Powered By ESRI 00.0000, 00.0000 500 mi

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# Coastal Flood Exposure Mapper

COASTAL FLOOD HAZARD COMPOSITE



Q American Samoa, ASM

- American Samoa
- American Samoa, ASM**
- American Samoa, Faleasao, **American Samoa, ASM**
- American Samoa Community College, 001, Mesepa, Tualata, West, American Samoa, 96799, ASM
- American Samoa Bank, 016, Tafuna, Tualata, West, American Samoa, 96799, ASM



LEGEND

BASEMAPS



CREATE

# My Map

ACTIVE LAYERS

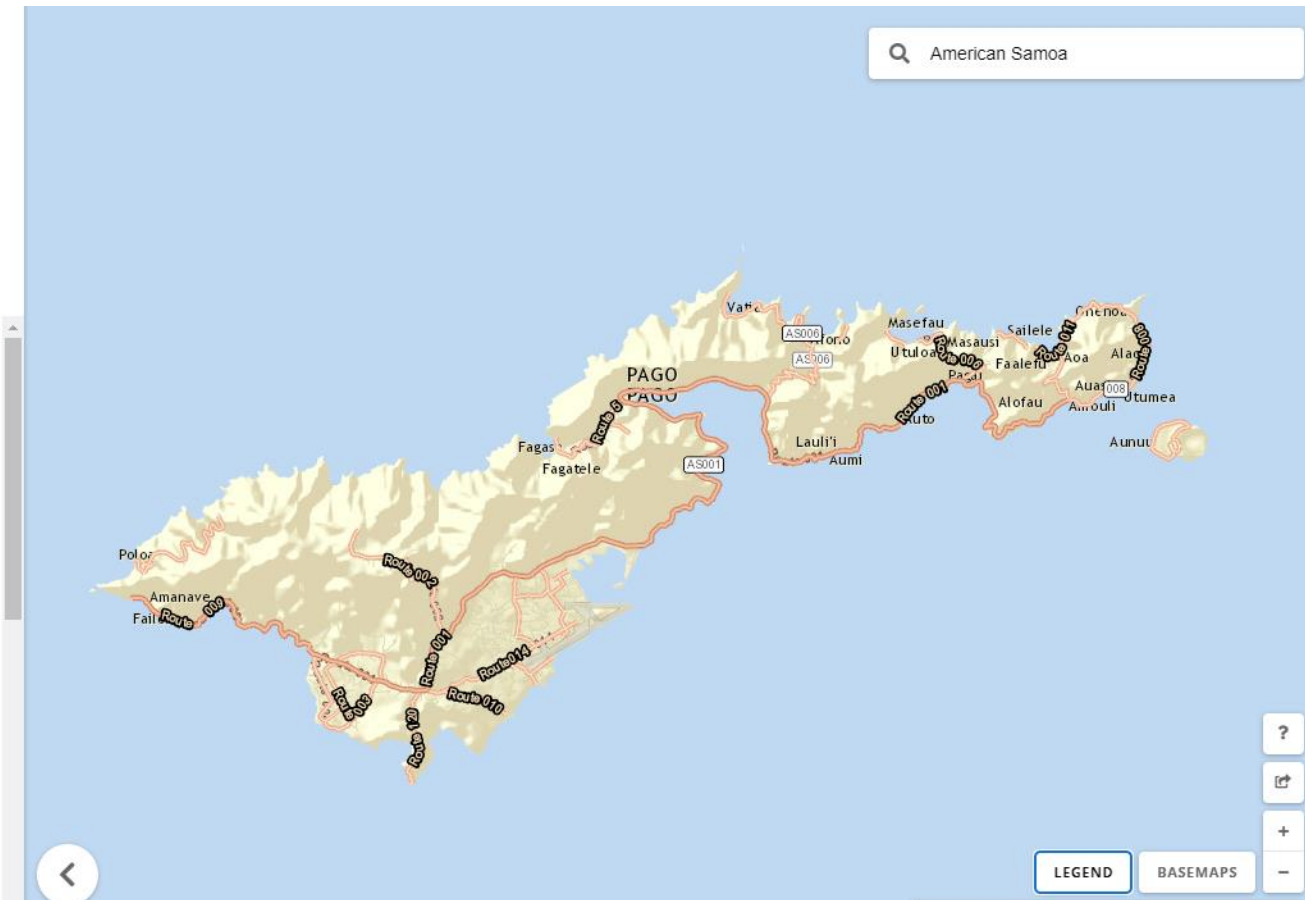
SAVED MAPS **2**

## HAZARD LAYERS

- Coastal Flood Hazard Composite  ⓘ ⓘ
- High Tide Flooding  ⓘ ⓘ
- FEMA Flood Zones  ⓘ ⓘ
- Tsunami  ⓘ ⓘ
- Storm Surge  ⓘ ⓘ
- Sea Level Rise  ⓘ ⓘ

## SOCIETAL EXPOSURE

- Population Density  ⓘ ⓘ
- Poverty  ⓘ ⓘ
- Elderly  ⓘ ⓘ



LEGEND

BASEMAPS





CREATE

# My Map

## ACTIVE LAYERS

SAVED MAPS 0

Development Patterns



## ECOSYSTEM EXPOSURE

Natural Areas and Open Space



Potential Pollution Sources



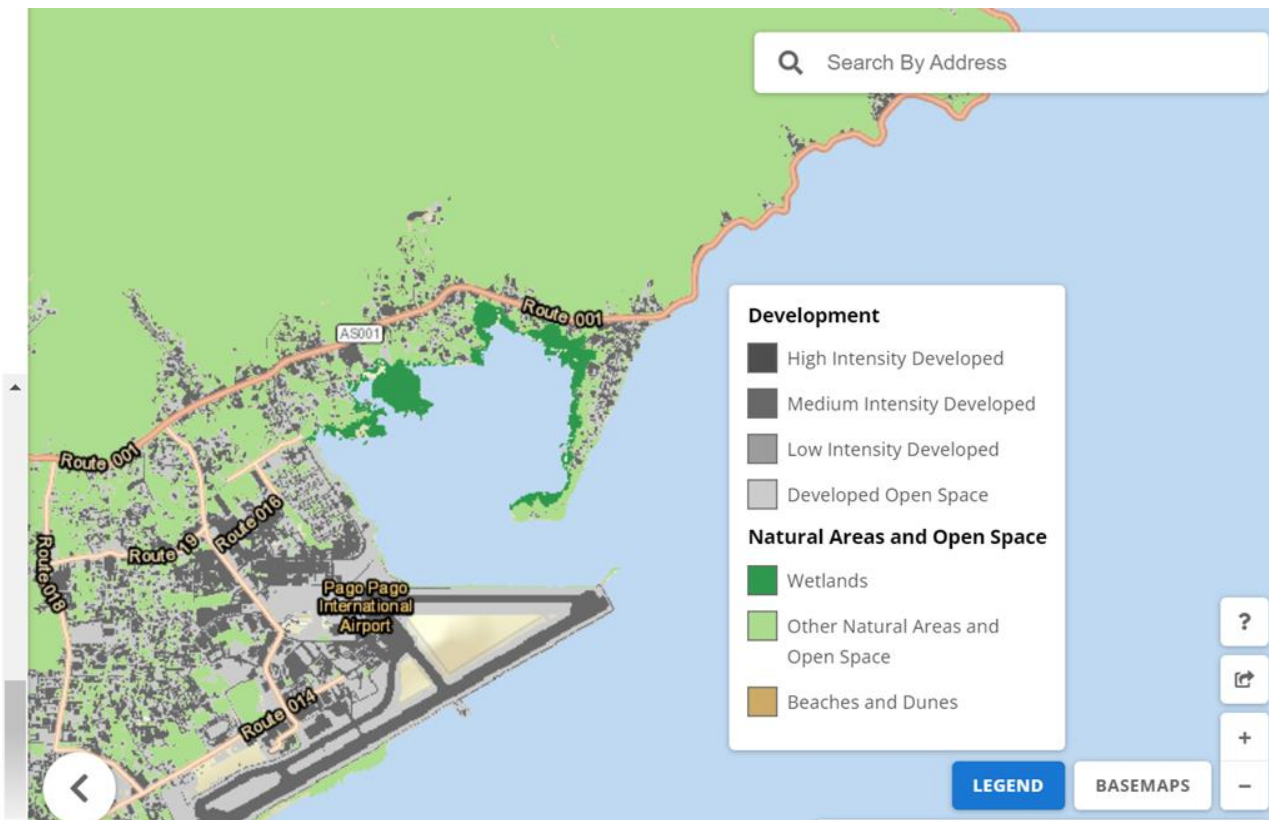
Natural Protection



Wetland Potential



SAVE MAP







CREATE

# My Map

ACTIVE LAYERS

SAVED MAPS **1**

## HAZARD LAYERS

- Coastal Flood Hazard Composite
- High Tide Flooding
- FEMA Flood Zones
- Tsunami
- Storm Surge
- Sea Level Rise

SAVE MAP







CREATE

# My Map

ACTIVE LAYERS

SAVED MAPS

2

Storm Surge



Sea Level Rise



## SOCIETAL EXPOSURE

Population Density



Poverty

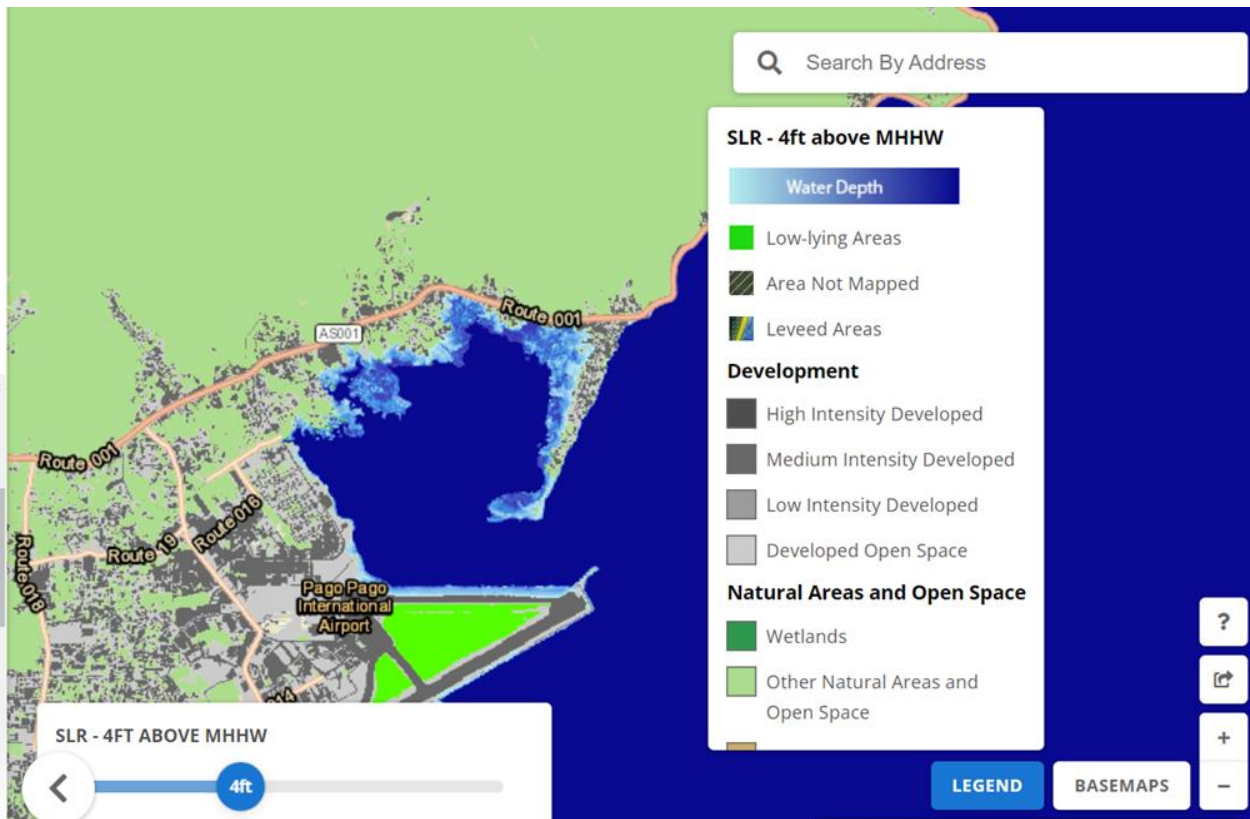


Elderly



Employees

SAVE MAP





MANAGE

## Saved Maps

ACTIVE LAYERS

SAVED MAPS 2



9/13/2023

### FEMA Flood Zones / Development / Natural Areas and Open Space

Click to add a custom description



SHARE COLLECTION





MANAGE

# Saved Maps

ACTIVE LAYERS

SAVED MAPS **2**



9/13/2023

## FEMA Flood Zones / Development / Natural Areas and Open Space

Showing urban areas that could benefit from green infrastructure to reduce flooding impacts in Pago Pago.



SHARE COLLECTION



### Share your map collection



FEMA Flood Zones / Development / Natural Areas and Open Space | Showing urban areas that could benefit from green infrastructure to reduce flooding impacts in Pago Pago.  
[object Response]



SLR - 4ft above MHHW / Development / Natural Areas and Open Space | Showing natural areas that should be protected to reduce impacts of sea level rise to surrounding communities in Pago Pago.  
[object Response]

DOWNLOAD AS .TXT

COPY ALL

#### FEMA Flood Zones

- 1% Annual Chance - V Zones
- 1% Annual Chance - A Zones
- 0.2% Annual Chance
- Areas with reduced flood risk due to levee

#### Development

- High Intensity Developed
- Medium Intensity Developed
- Low Intensity Developed
- Developed Open Space

#### Natural Areas and Open Space

- Wetlands
- Other Natural Areas and Open Space

LEGEND

BASEMAPS



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- ✓ Visualizing and communicating coastal hazards
  - Learning products to implement nature-based solutions



# Implementing Nature-Based Solutions to Increase Resilience

- Nature-Based Solutions for Coastal Hazards: The Basics
- Green Infrastructure Effectiveness Database
- Green infrastructure design and installation guides
- Case studies and where to find more information





DATA



TOOLS



TRAINING



STORIES



TOPICS

# Training

The Digital Coast Academy is the go-to site for coastal management training.

Find

Search By Keyword



ON-DEMAND RESOURCES (149)



SCHEDULED TRAINING (25)



COURSE CALENDAR

Find mapping, sea level rise, etc.

Filters

Case Studies x

Guides and How Tos x

Interactive Modules x

Publications x

Quick References x

Recorded Webinars x

Videos x

[Clear All](#)



# Interactive Modules

The screenshot displays the NOAA Digital Coast website interface. On the left is a dark navigation sidebar with icons and labels for DATA, TOOLS, TRAINING, STORIES, TOPICS, and PARTNERS. The main content area features a header with the NOAA logo and 'OFFICE FOR COASTAL MANAGEMENT DIGITAL COAST', a search icon, and a grid of six interactive module cards. Each card includes the text 'INTERACTIVE MODULES', a title, and a duration. The card for 'Nature-Based Solutions for Coastal Hazards: The Basics' is highlighted with an orange border. The top of the grid shows filters for 'Self-paced', '3 hours | Professional Credit', and '15-30 min per module'.

Filter	Value
Self-paced	Self-paced
Duration	3 hours   Professional Credit
Time per module	15-30 min per module

Module Title	Duration
Tutorial for Sea Level Rise Viewer: Marsh Migration	Approx. 10 min
Risk Communication Mental Shortcuts: Why People Do What They Do	8 Minutes
<b>Nature-Based Solutions for Coastal Hazards: The Basics</b>	60 minutes   Professional Credit
QNSPECT Tutorial	
Risk Communication Essentials for More Effective Conversations	
Tutorial for Sea Level Rise Viewer: Local Scenarios	

# Green Infrastructure Effectiveness Database

[coast.noaa.gov/digitalcoast/training/gi-database.html](https://coast.noaa.gov/digitalcoast/training/gi-database.html)

**Green Infrastructure Effectiveness Database**

This database is a compilation of literature resources documenting the effectiveness and economics of green infrastructure for coastal resilience.

**Title:**

**Author(s):**

**Year published:**

**Source:**

**Source Type:**

**Keywords:**

**Green Infrastructure Type:**

**Hazards:**

**Methodological Approaches:**

**Study Scale:**

**Region:**

**State:**

[Clear form](#)

**DIGITAL COAST**

Home / Training

## Training

The Digital Coast Academy is the go-to site for coastal management training.

**Find**  
Search By Keyword

**Find** mapping, sea level rise, etc.

**Filters**

- Case Studies
- Guides and How Tos
- Interactive Modules**
- Publications
- Quick References
- Recorded Webinars
- Videos

**QUICK REFERENCES**

- Green Infrastructure Benefits**  
Self-paced
- Green Infrastructure Effectiveness Database**  
Self-paced
- Green Infrastructure Mapping Guide**  
Self-paced

**QUICK REFERENCES**

- Green Infrastructure Options to Reduce Flooding**

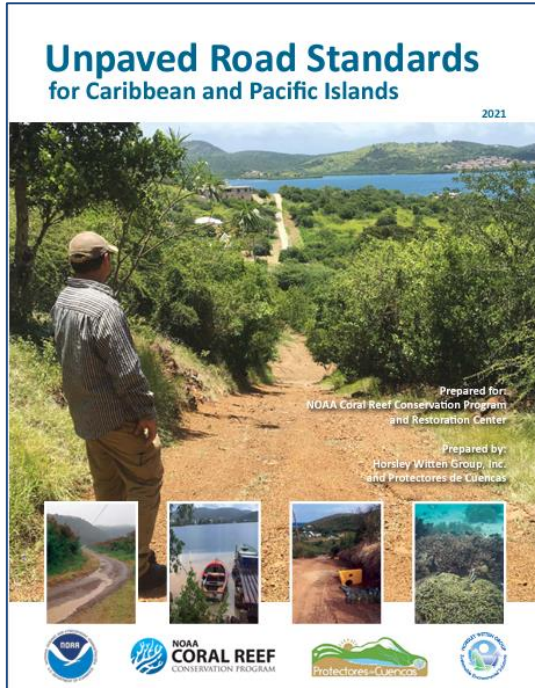
**VIDEOS**

- Green Infrastructure Protective Services Animation**

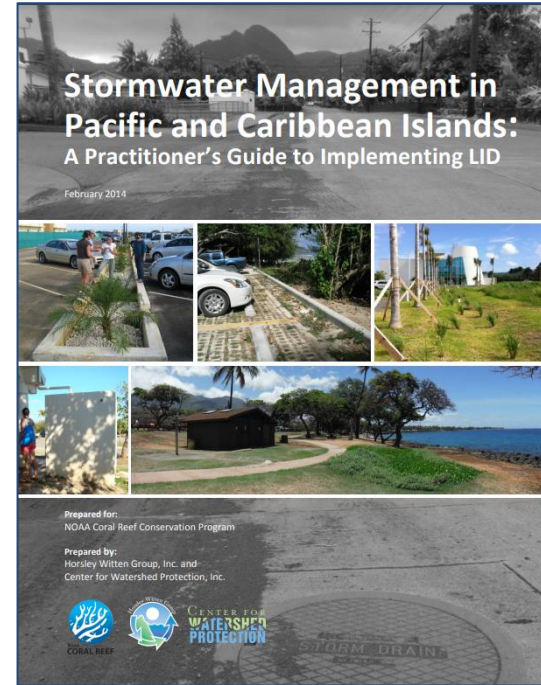
**GUIDES AND HOW TOS**

- Guide for Considering Climate Change in Coastal**

# Designing and Installing Nature-Based Solutions



[www.coris.noaa.gov/activities/Unpaved\\_roads/welcome.html](http://www.coris.noaa.gov/activities/Unpaved_roads/welcome.html)



[coast.noaa.gov/digitalcoast/training/low-impact.html](http://coast.noaa.gov/digitalcoast/training/low-impact.html)

# Green Infrastructure Case Studies

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

**Implementing green infrastructure at multiple scales**

**Using Novel Approaches to Create Resilient Dune Systems Following Hurricane Maria**

**Diverse financing portfolio for innovative project**


**Community rain gardens as an environmental education tool**



NOAA OFFICE FOR COASTAL MANAGEMENT  
**DIGITAL COAST**

Home / Topics / Natural Infrastructure

# Natural Infrastructure



**Jump to Section**

- Understand the Basics
- Communicate the Issue
- Analyze the Landscape
- Prioritize Options
- Explore Economic Approaches

The screenshot shows the NOAA Digital Coast website interface. On the left is a dark vertical navigation menu with icons and labels: DATA, TOOLS, TRAINING, STORIES, TOPICS (circled in orange), and PARTNERS. The main content area has a dark header with the title 'Natural Infrastructure' and a large photograph of a coastal dune landscape. To the right of the photo is a white box titled 'Jump to Section' containing a list of five topics.

[coast.noaa.gov/digitalcoast/topics/green-infrastructure.html](https://coast.noaa.gov/digitalcoast/topics/green-infrastructure.html)



# Fa'afetai!

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