

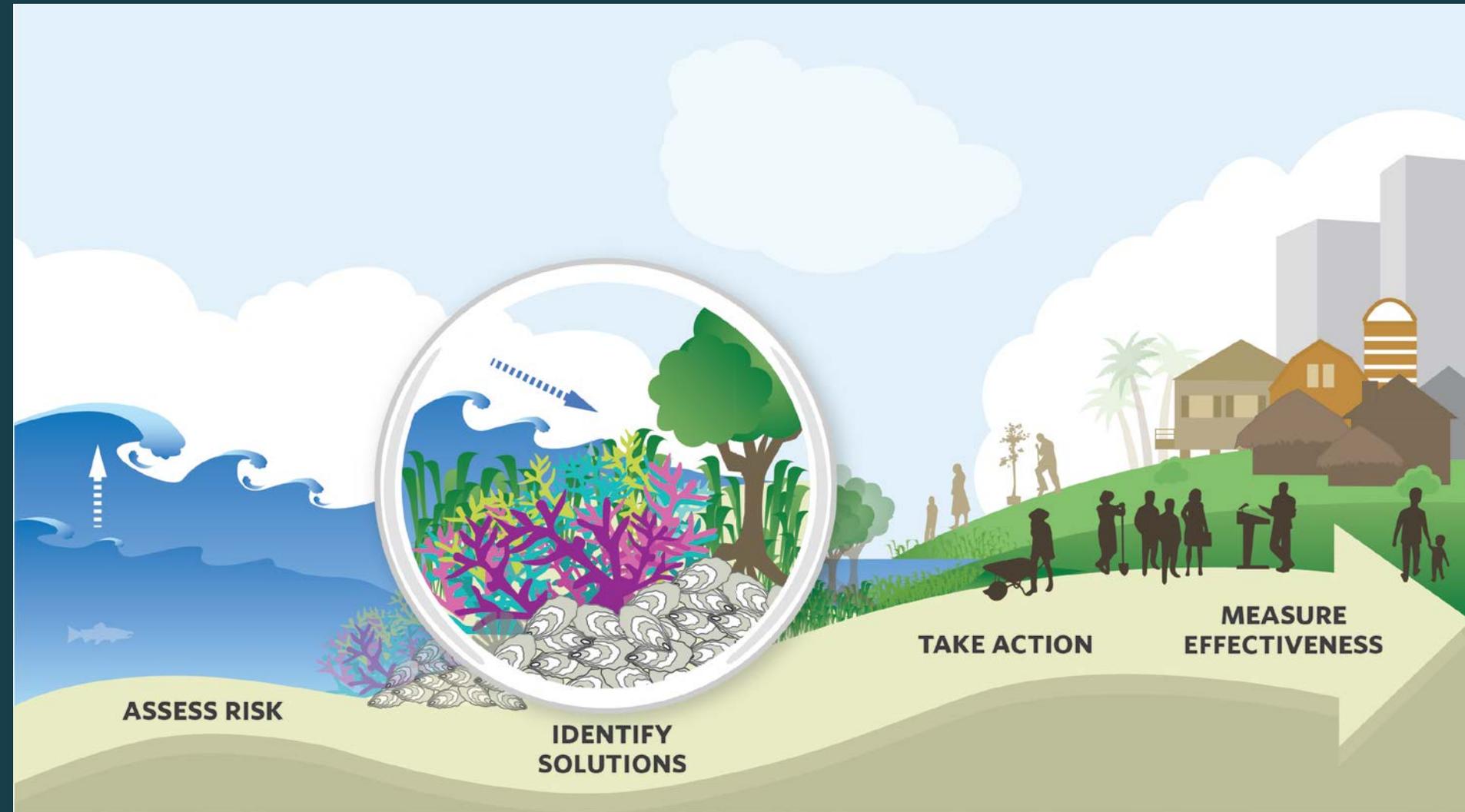
Communicating Coastal Resilience Science and Tools through Digital Stories

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**Once Upon A
Decision Support
System**



Chapter 1: The Approach



Chapter 2: The Network



Chapter 3: The Decision Support System



Map Layers



Community Planning



Habitat Restoration Explorers



Coastal Defense



Natural Defense Projects



Flood & SLR



Future Habitat



Risk Explorer



Freshwater, Floodplain, Watershed apps

COASTAL RESILIENCE

GULF OF MEXICO

GET STARTED TOUR GO TO The Nature

Economics of Coastal Adaptation

Overview Exposure Risk Solutions

Distribution of Assets

Assets: Essential Facilities
Geography: County

Display map values by: Percent Total Total Value

Distribution of Assets by Elevation

Elevation	Residential	Commercial	Industrial	Essential Facilities
0	35	10	5	5
1	70	15	10	5
2	50	15	10	5
3	60	15	10	5
4	70	15	10	5
5	70	15	10	5
6	70	15	10	5
7	70	15	10	5
8	70	15	10	5
9	70	15	10	5
10	70	15	10	5



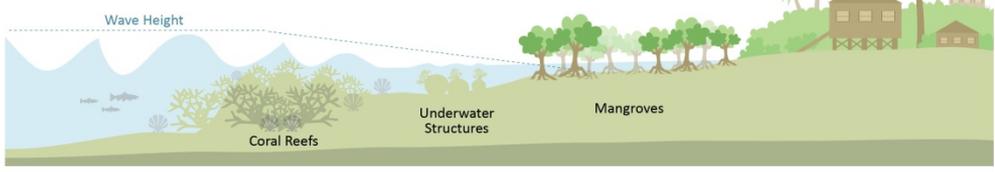
Chapter 4: Communicating to App Users



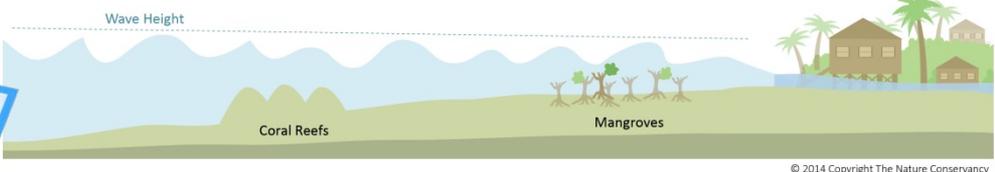
Coastal Defense

The app utilizes standard engineering techniques to help users: (1) quantify how coral reefs currently protect coastal areas, (2) illustrate how active management of reefs and reef restoration can improve the resilience of the coastline to the impacts of sea-level rise, (3) quantify how restored coral reefs may complement underwater engineered structures and (4) quantify how restored or maintained mangrove forests protect against the impact of storms.

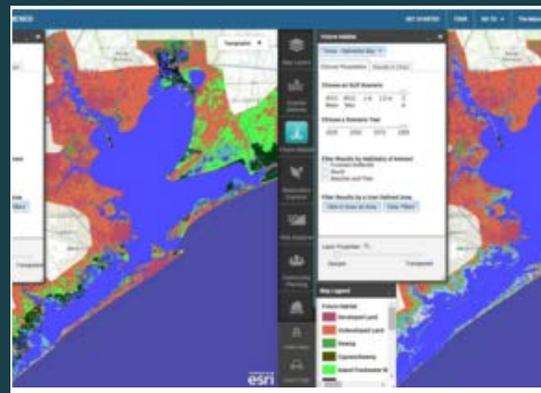
Waves decreased with healthy coastal habitats.



Waves with degraded coastal habitats.



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Introduction to Scenario Planning

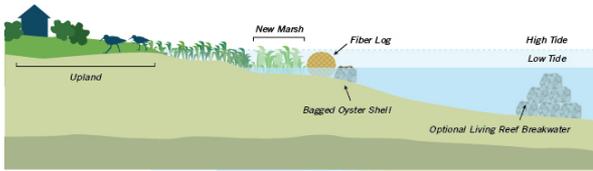
Chapter 5: Communicating to Decision Makers

Living Shoreline Snapshot Burlington City, Burlington County

What is a living shoreline?

Nature-Based Living Shoreline

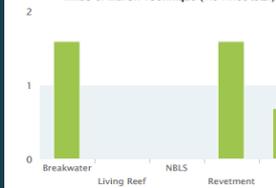
Nature-based living shorelines are best in low-energy areas. "Biological enhancements," like biodegradable fiber logs (which also provide habitat for ribbed mussels) or Christmas trees, are placed along the tidal marsh edge to provide a contained area for sediment to accumulate and marsh vegetation to grow. In more moderate energy areas, it might be possible to use a hybrid approach that pairs nature-based living shorelines with living reef breakwaters.



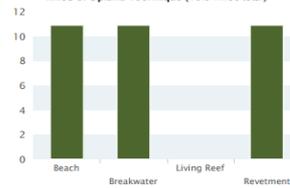
Promoting The Most 'Natural' Solution

Determining which living shoreline techniques are applicable for a given area is based on ecological and engineering requirements. Each technique varies in both design and implementation. The graphs below highlight the applicability of each shoreline enhancement technique per the available miles of coastline. When suitable, the more 'natural' solutions will provide communities with the multiple benefits associated with healthy coastal habitats, including wave attenuation, improved water quality and increased habitat for important fish species. For instance, when applicable, the greatest environmental benefit is achieved through the implementation of a Nature-Based Living Shoreline instead of an Ecologically Enhanced Revetment. Click here (<http://coastalresilience.org/>) to learn more.

Miles of Marsh Technique (1.6 miles total)



Miles of Upland Technique (10.9 miles total)



What Habitat Exists?

Coastal habitats provide important storm and flood buffering benefits as well as serve as critical wildlife habitat and public open space

While our tidal marshes have some protection from dredging, filling and development by New Jersey's pioneering Coastal Wetlands

Protection law of 1970, some loss still occurs.

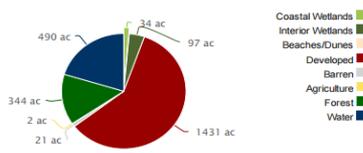
Between 1986 and 2012,

1 acres of tidal marsh have been lost in

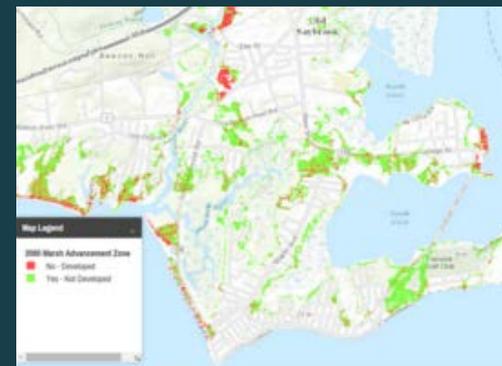
Burlington City due to human development

and/or natural processes.

Amount of Land Use/Land Cover (acres) Total: 2419 ac

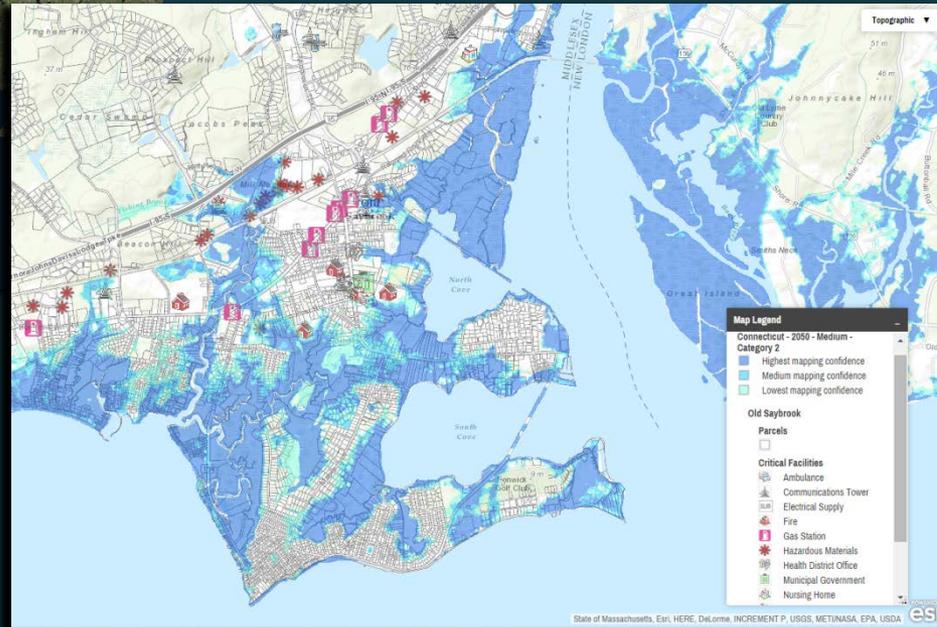
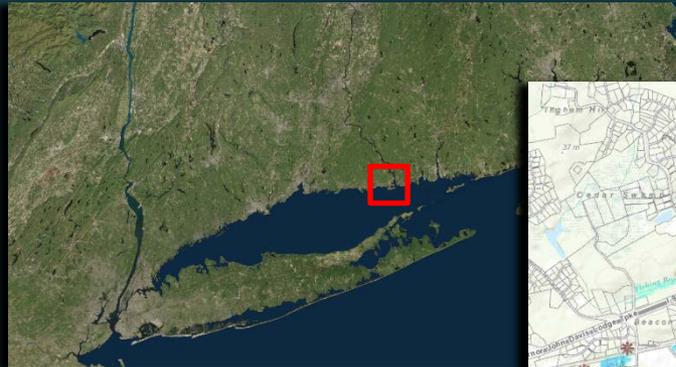


Digital Stories



Linking Apps to a Process:
Identifying Open Spaces in
Connecticut

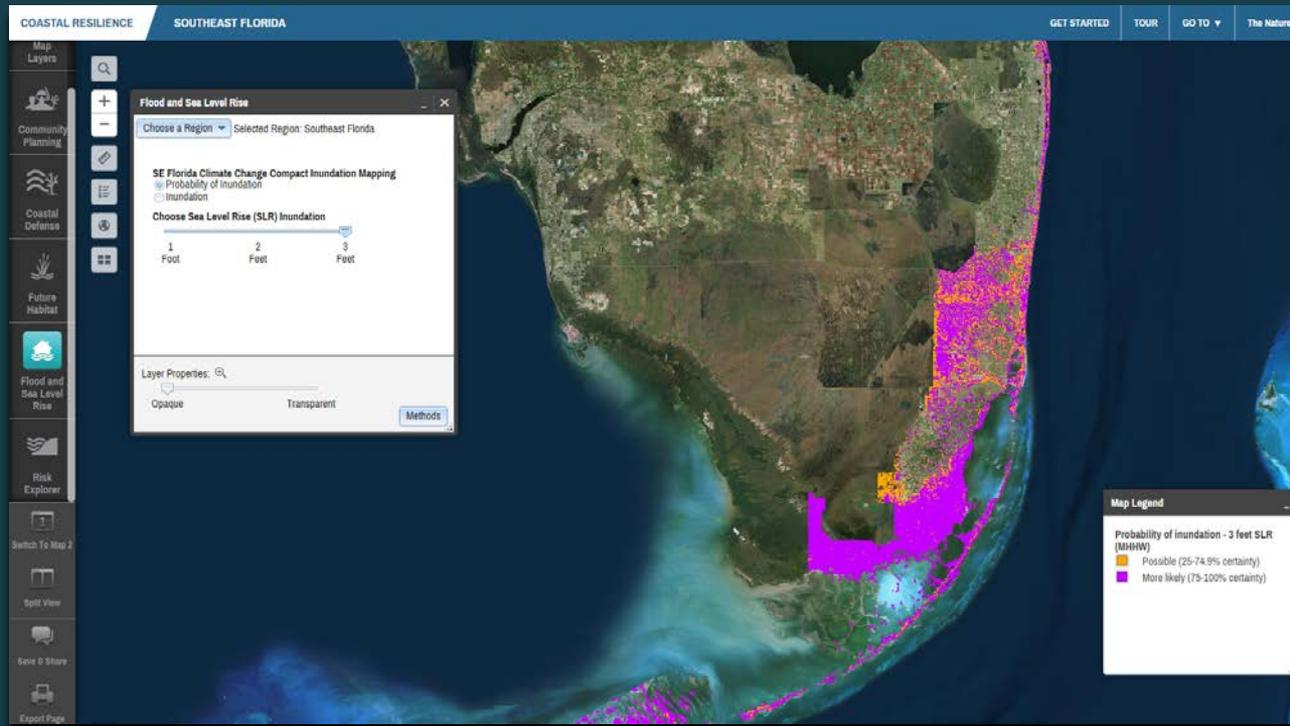
Chapter 6: Old Saybrook, CT



- **Good Guys:** Coastal Salt Marsh, Town Planners, Decision Makers, Concerned Citizens
- **Bad Guys:** Rising Sea Levels, Salt Marsh Loss, Storms, Flood Risks
- **Sidekicks:** Community Planning, Flood and Sea Level Rise & Future Habitat Apps
- **Goal:** Identify, protect, and restore salt marshes that can provide a cost-effective first line of defense against storms and sea level rise.

<http://coastalresilience.org/identifying-open-spaces-in-connecticut/>

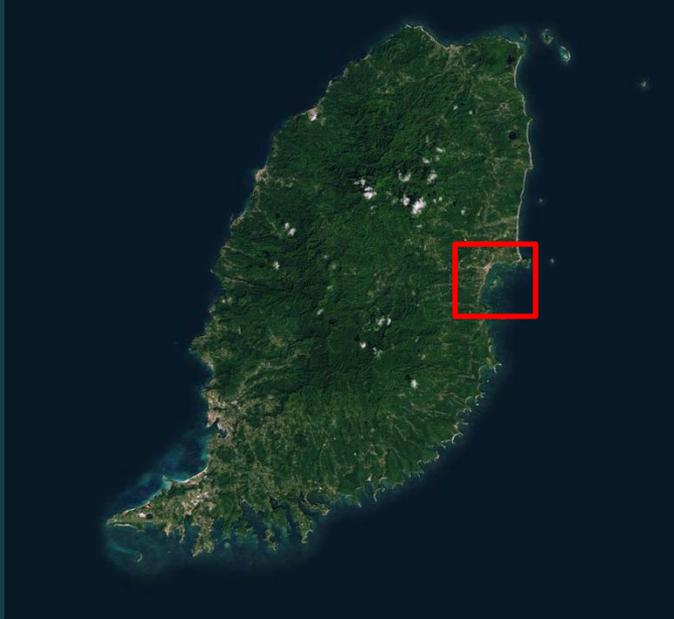
Chapter 7: Southeast Florida



- **Good Guys:** Coral Reefs, Dunes, Mangroves, Southeast Florida Regional Climate Compact
- **Bad Guys:** Sea Level Rise, Storms, Eroding Shorelines
- **Sidekicks:** Coastal Defense, Community Planning, Flood and Sea Level Rise Apps
- **Goal:** Identify demonstration projects to make the case to promote nature-based approaches for coastal protection throughout Southeast Florida and the Florida Keys.

<http://coastalresilience.org/miami-coastal-defense-digital-story/>

Chapter 8: Grenville, Grenada



"Living Edge"

Strengthen coastal community resilience through a series of linked actions and policies.

Site-Specific Actions

Upstream

Stormwater ponds

- many small ponds form whole system
- reduces peak storm flows and flooding
- allows for growth of downstream vegetation

Water's Edge

Shoreline pilot project

- A Telescope Beach public waterfront
 - beach grading and planting
 - public amenities
- B Soubise waterfront enhancements
 - shoreline revegetation
 - fishing related facilities

Urban shoreline improvements

Public/private greenway

Resilient fishers infrastructure

- stable permanent structures
- allow for safe boat storage and repair
- stabilize adjacent shoreline

In the Bay

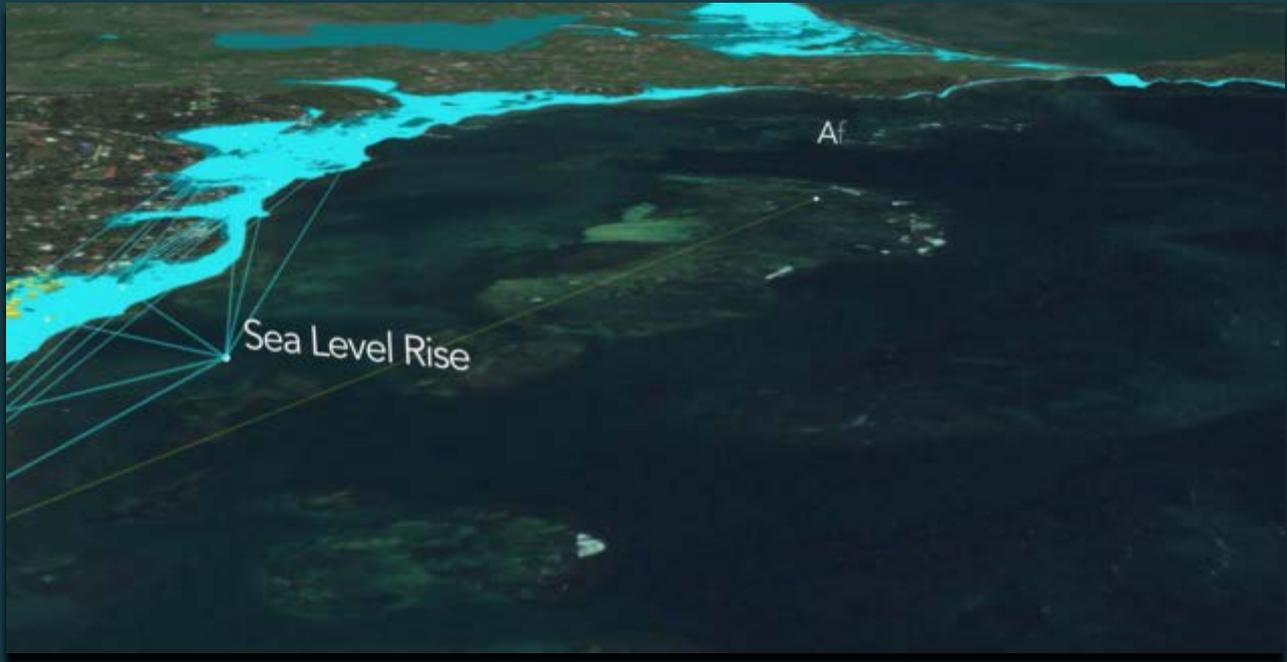
Mangrove planters

- create habitat
- protect shoreline

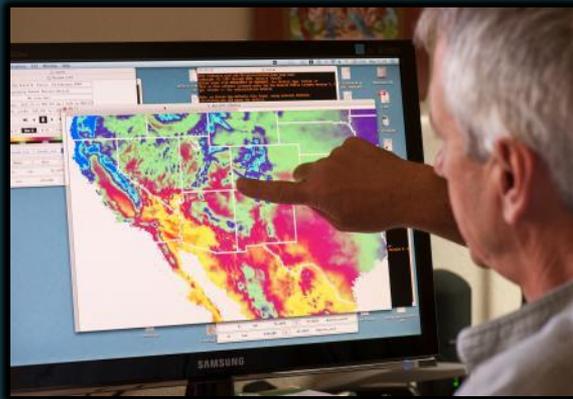
Selective reef enhancement

- help adapt to changing conditions
- help buffer wave action for inner bay

- **Good Guys:** Coral Reef Eco-Engineering, The Red Cross, Local Community
- **Bad Guys:** Flooding, Coastal Erosion
- **Sidekicks:** Hydrodynamic Modeling, Community Planning, Flood and Sea Level Rise apps
- **Goal:** Demonstrate that coral reef eco-engineering can help protect people, assets, and livelihoods from coastal erosion and flooding.



Chapter 9: The Value



The End



www.CoastalResilience.org/training

www.maps.coastalresilience.org

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