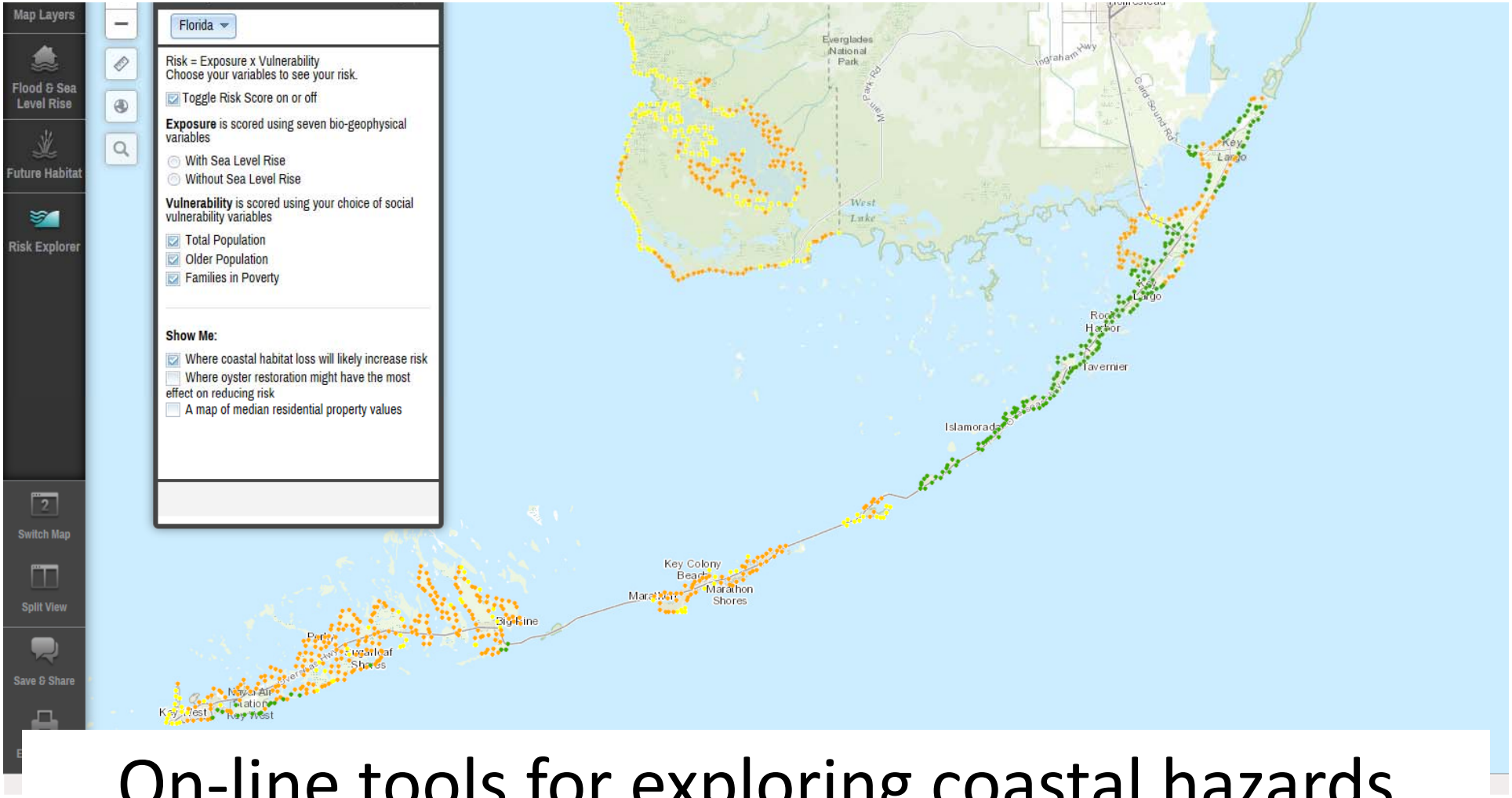

On-line tools for exploring coastal hazards and nature-based hazard reduction options

Chris Bergh
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(305) 872 7071

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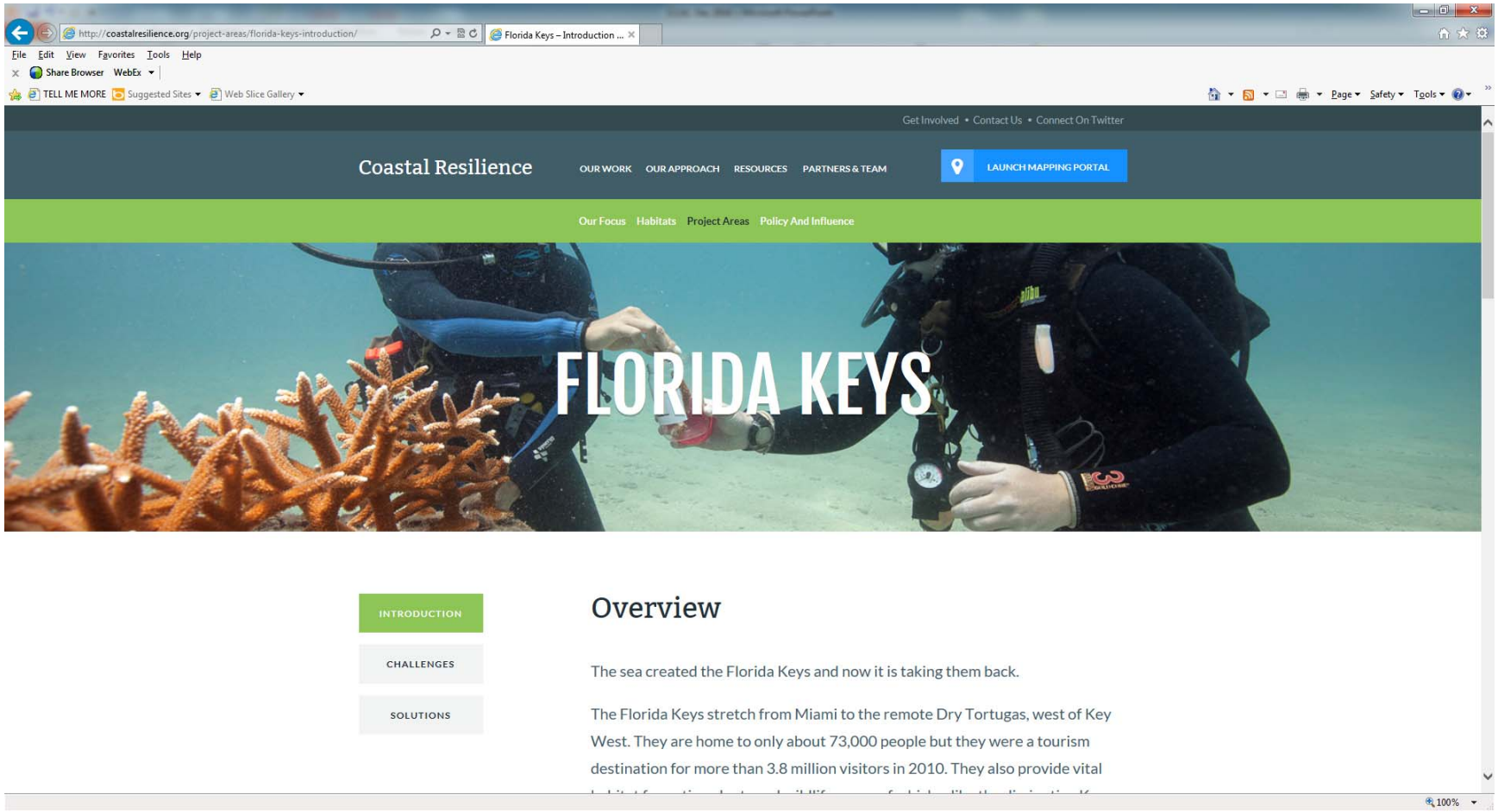

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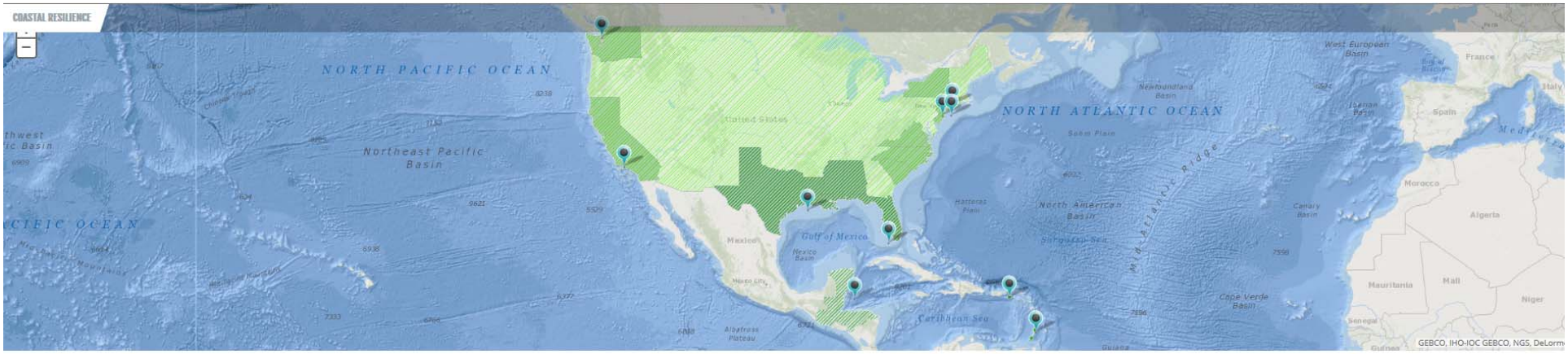

Coastal Resilience mapping portal

Click on the blue point markers on the map to navigate to specific geographies, or scroll down to see a list of places where we work. The green hatching on the map represents our Coastal Resilience coverage across countries, regions and states.

Coastal Resilience supports a community of practitioners around the world who are applying spatial planning innovations to coastal hazard risk, resilience and adaptation issues. This is a global network providing access to peer practitioners, tools, information and training focused on nature-based solutions. For more information see our **Coastal Resilience website**

- GLOBAL PLATFORM, WORLD RISK, CONSERVATION ATLAS
- CARIBBEAN
- MEXICO AND CENTRAL AMERICA
- UNITED STATES

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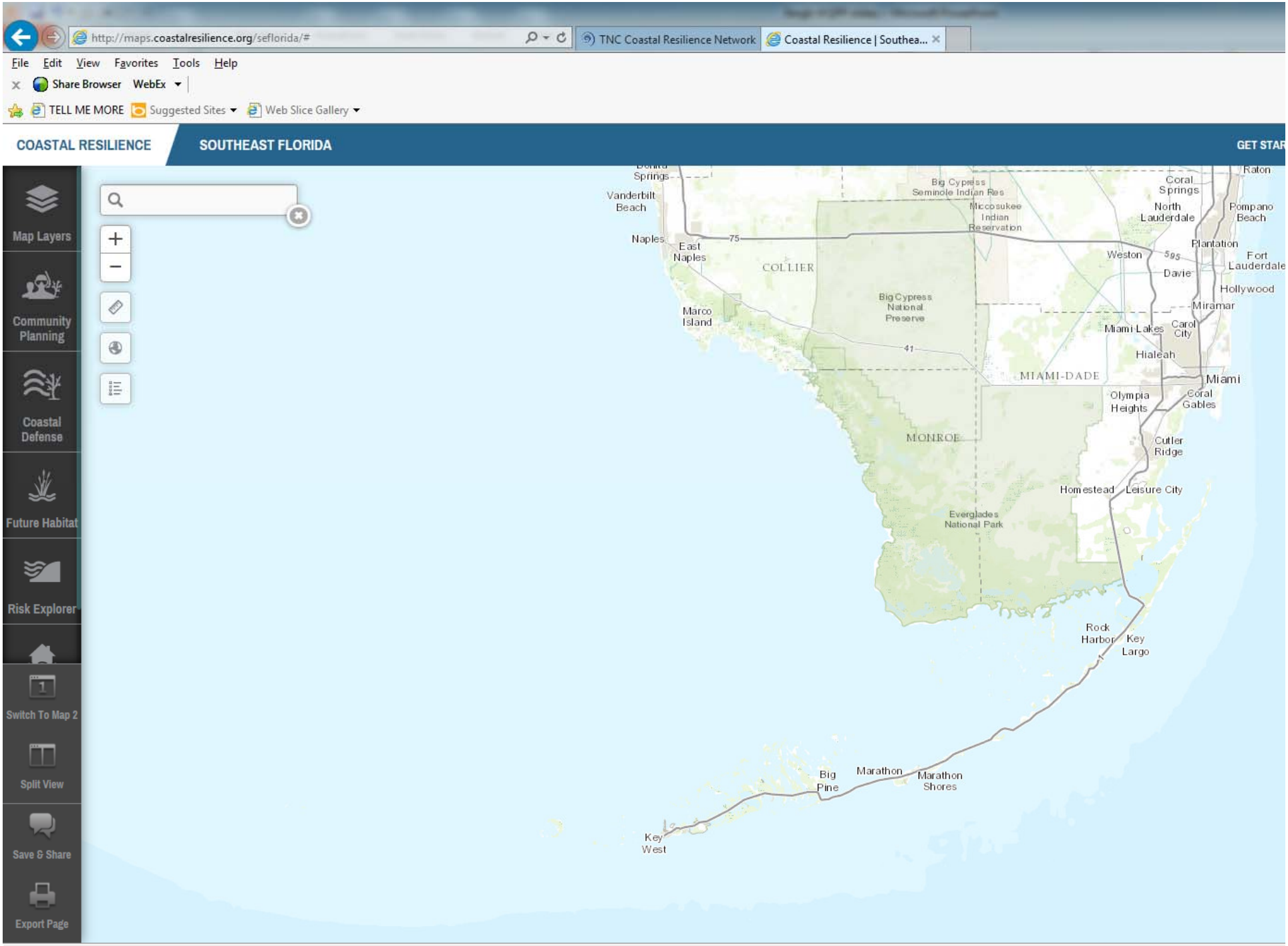
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Vanderbilt Beach
Naples
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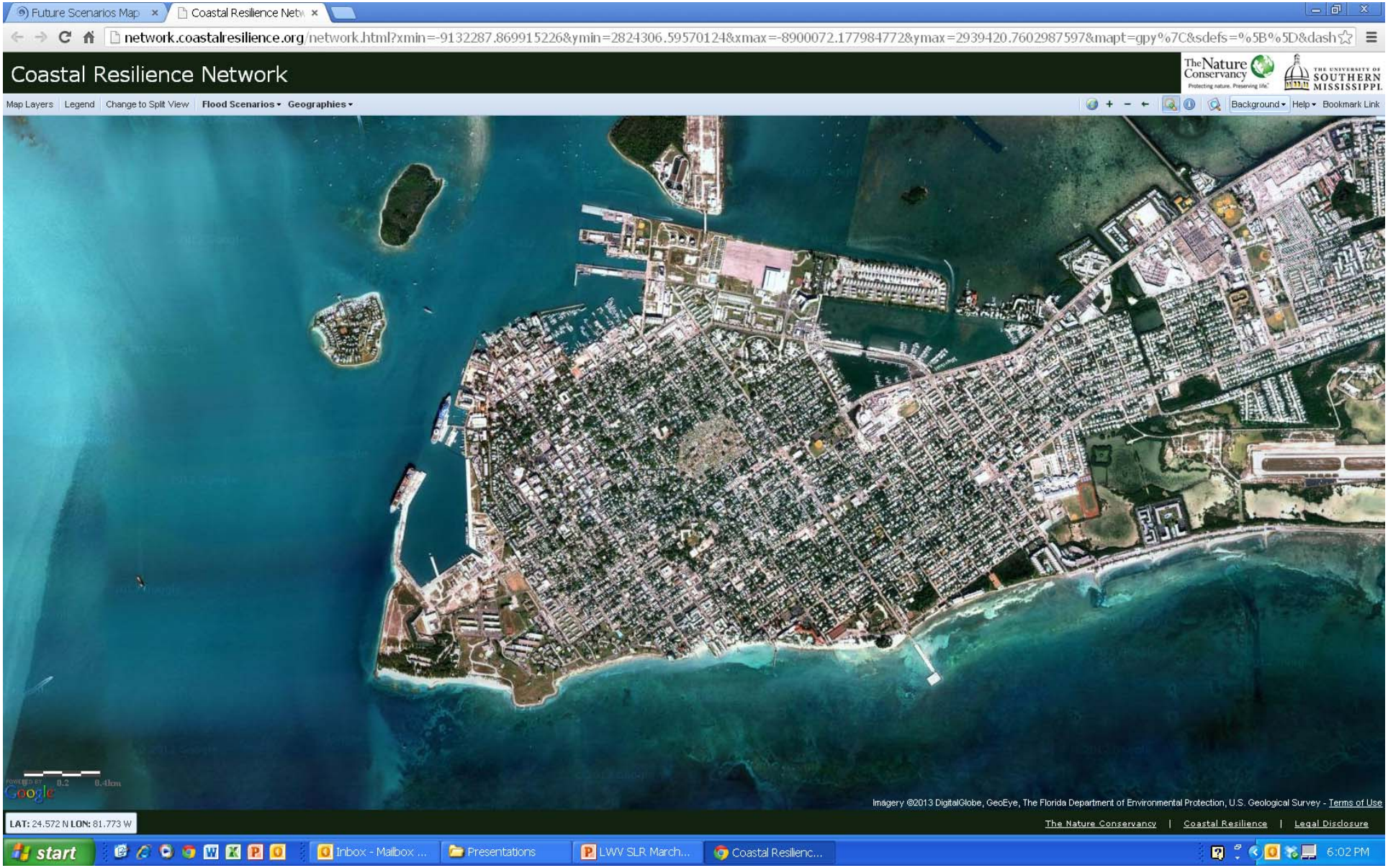
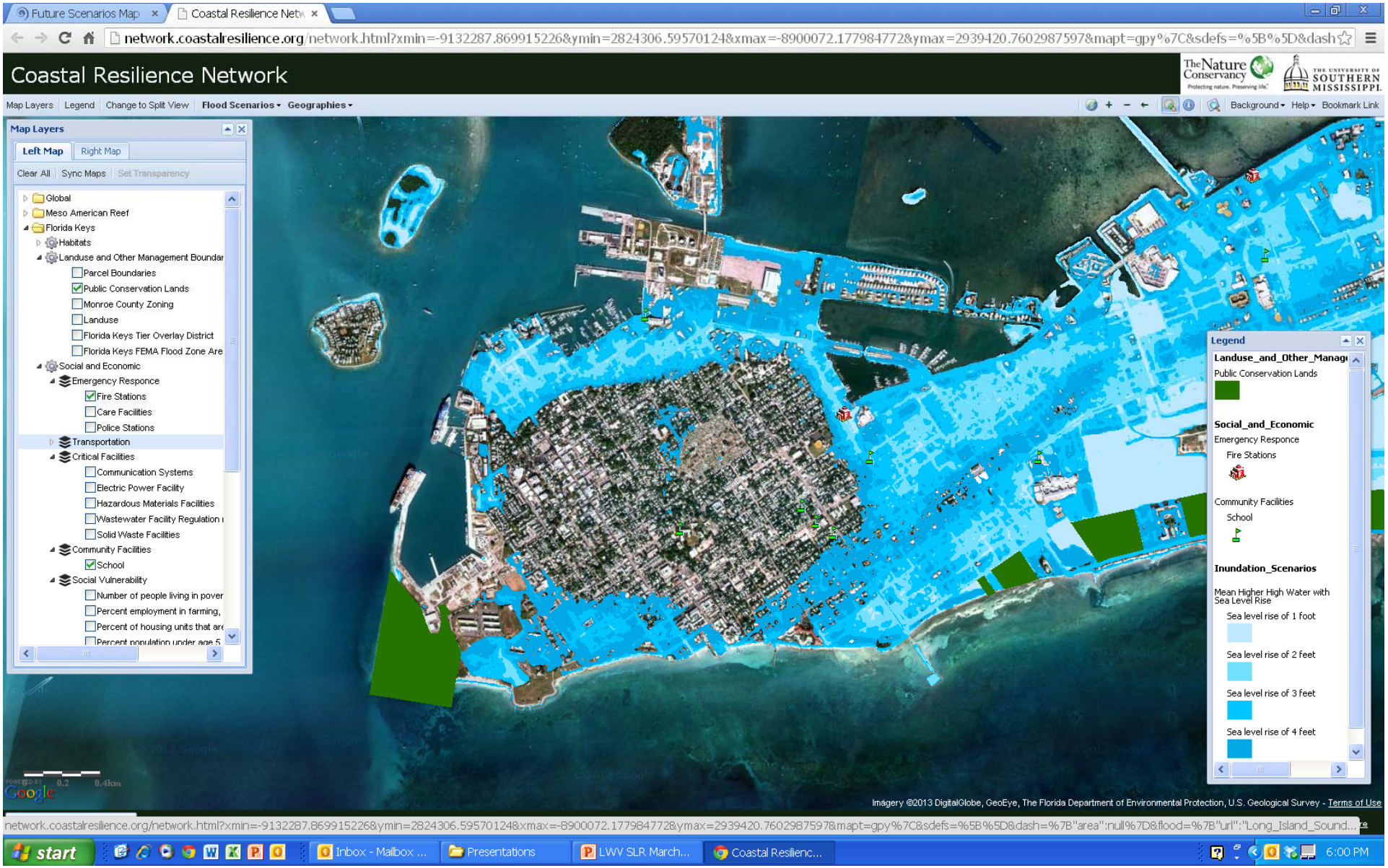
COLLIER
Marco Island
Big Cypress National Preserve
Big Cypress Seminole Indian Res
Miccosukee Indian Reservation
Coral Springs
North Lauderdale
Pompano Beach
Plantation
Weston
Fort Lauderdale
Davie
Hollywood
Miramar
Miami Lakes
Carol City
Hialeah
MIAMI-DADE
Miami
Olympia Heights
Coral Gables
Cutler Ridge
MONROE
Homestead
Leisure City
Everglades National Park
Rock Harbor
Key Largo
Big Pine
Marathon
Marathon Shores
Key West
75
595
41

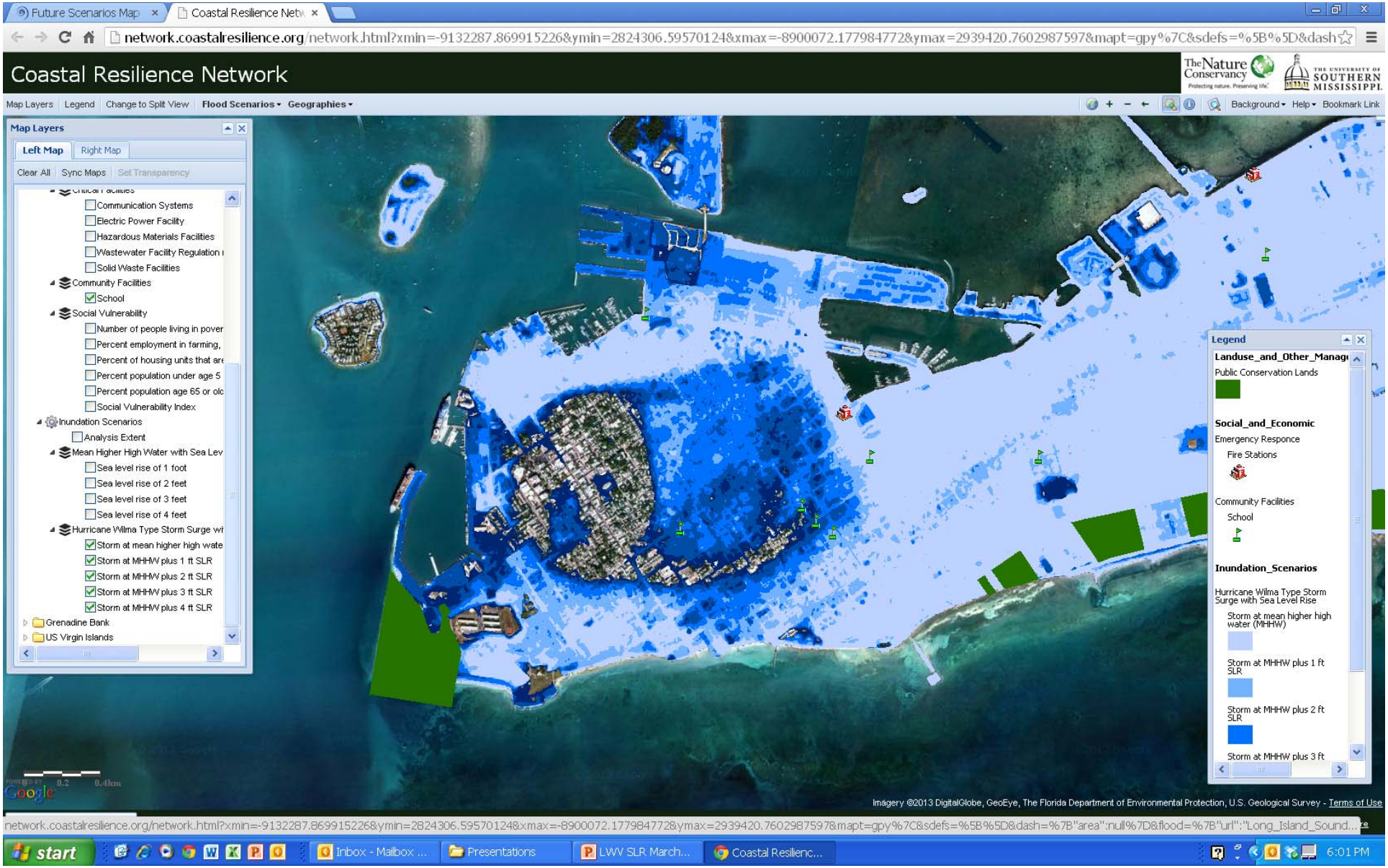
Base Images (Key West example)

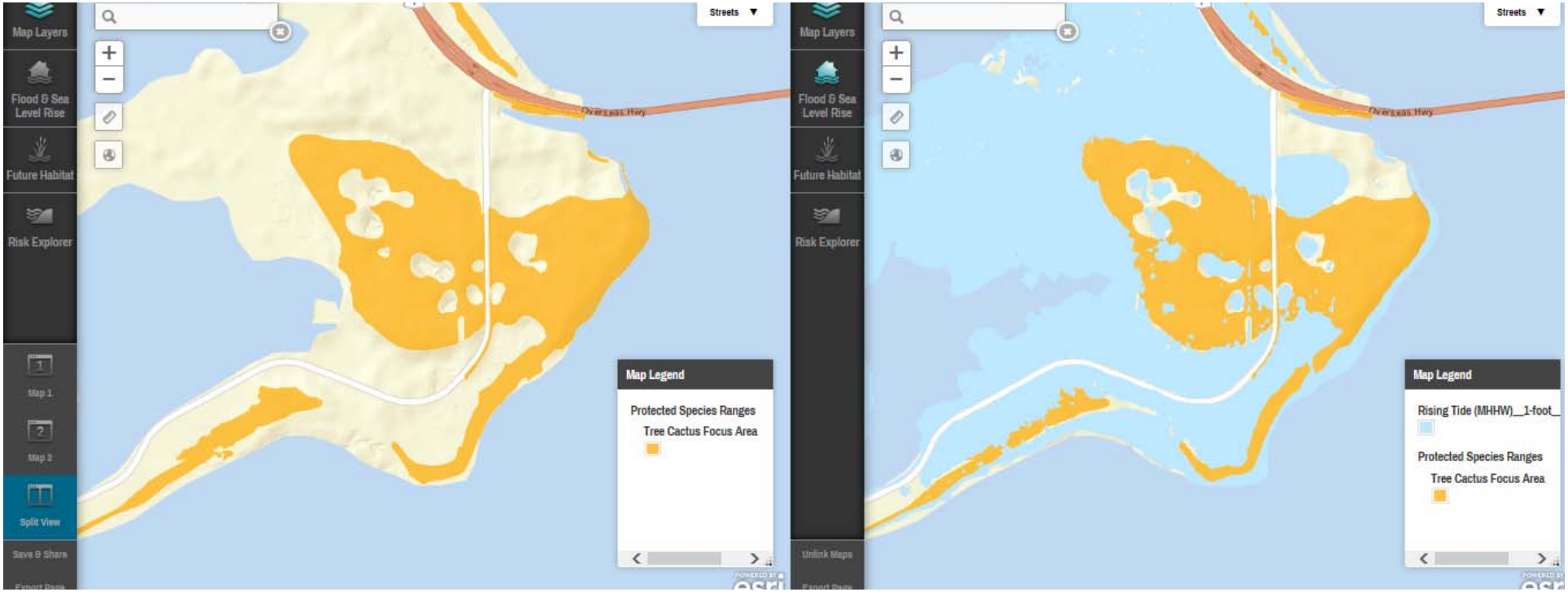


Sea Level Rise Mapper

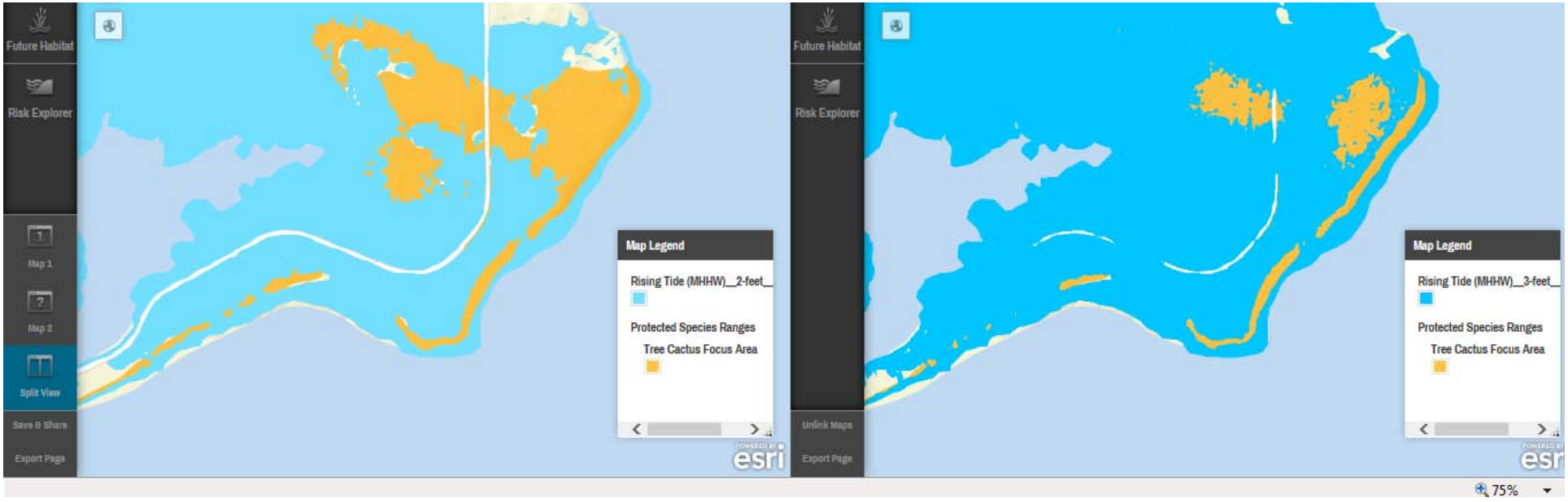


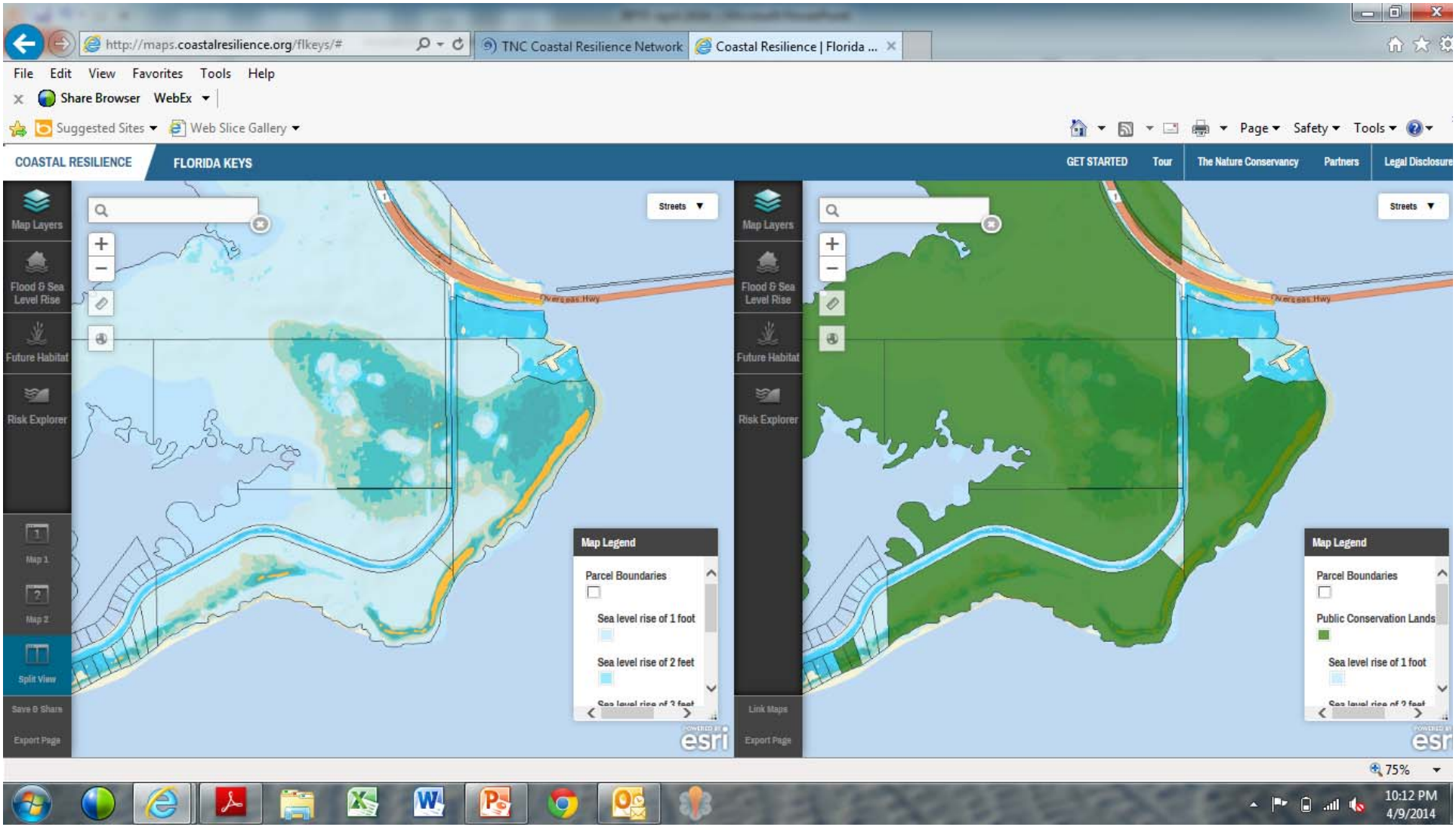
Storm Surge Mapper





Key Tree Cactus “Focus Area” x 1’, 2’, 3’ SLR Example

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Map 2
Split View
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Streets
Overseas Hwy
Map Legend
Parcel Boundaries
Sea level rise of 1 foot
Sea level rise of 2 feet
Public Conservation Lands
Link Maps
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75%
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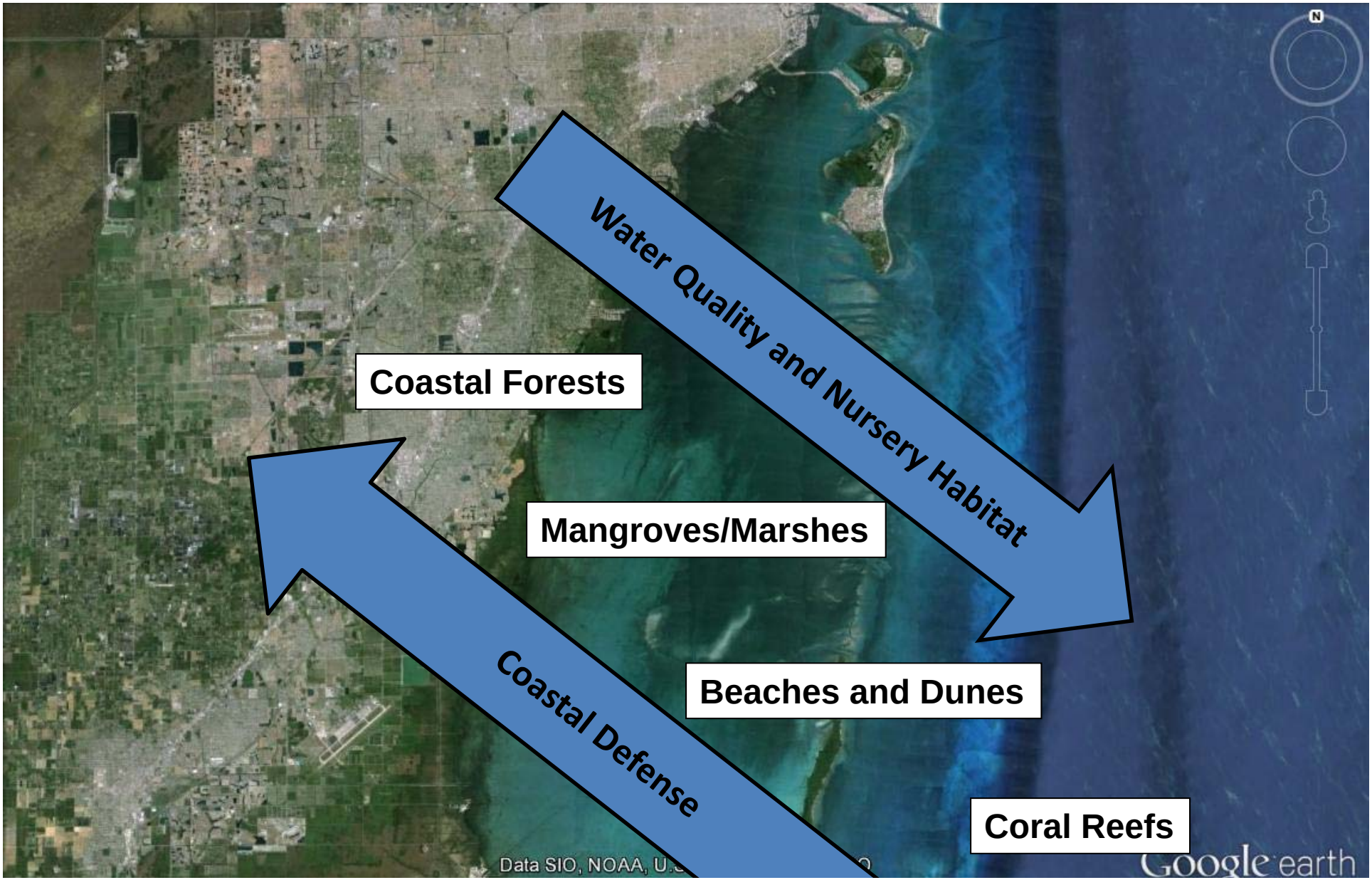
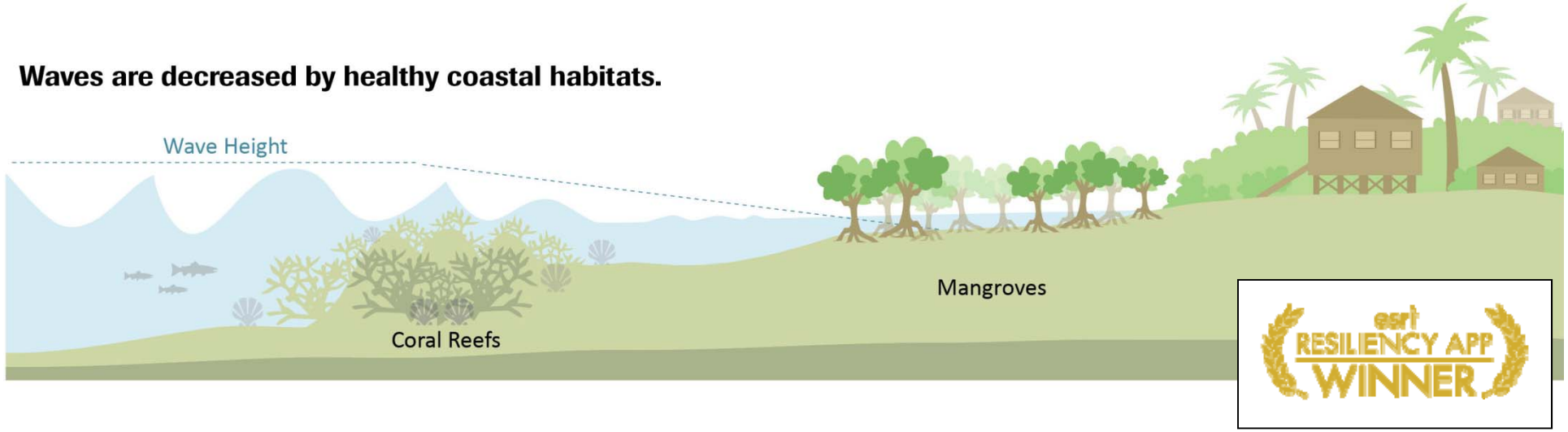
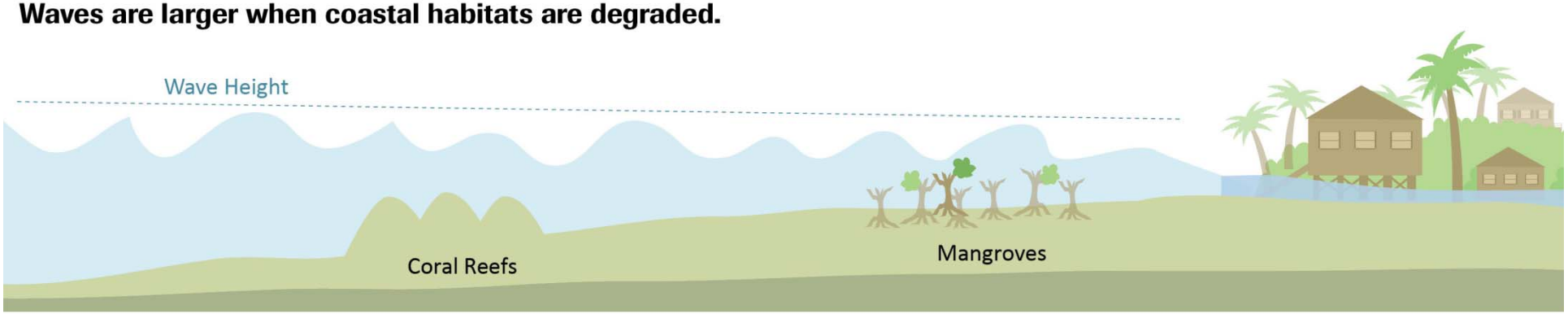
4/9/2014

Natural coastal defenses minimize erosion and absorb floodwaters.



Natural coastal defenses provide cost-effective risk reduction, they are relatively adaptable to changing conditions and they provide numerous co-benefits that south Floridians already value.





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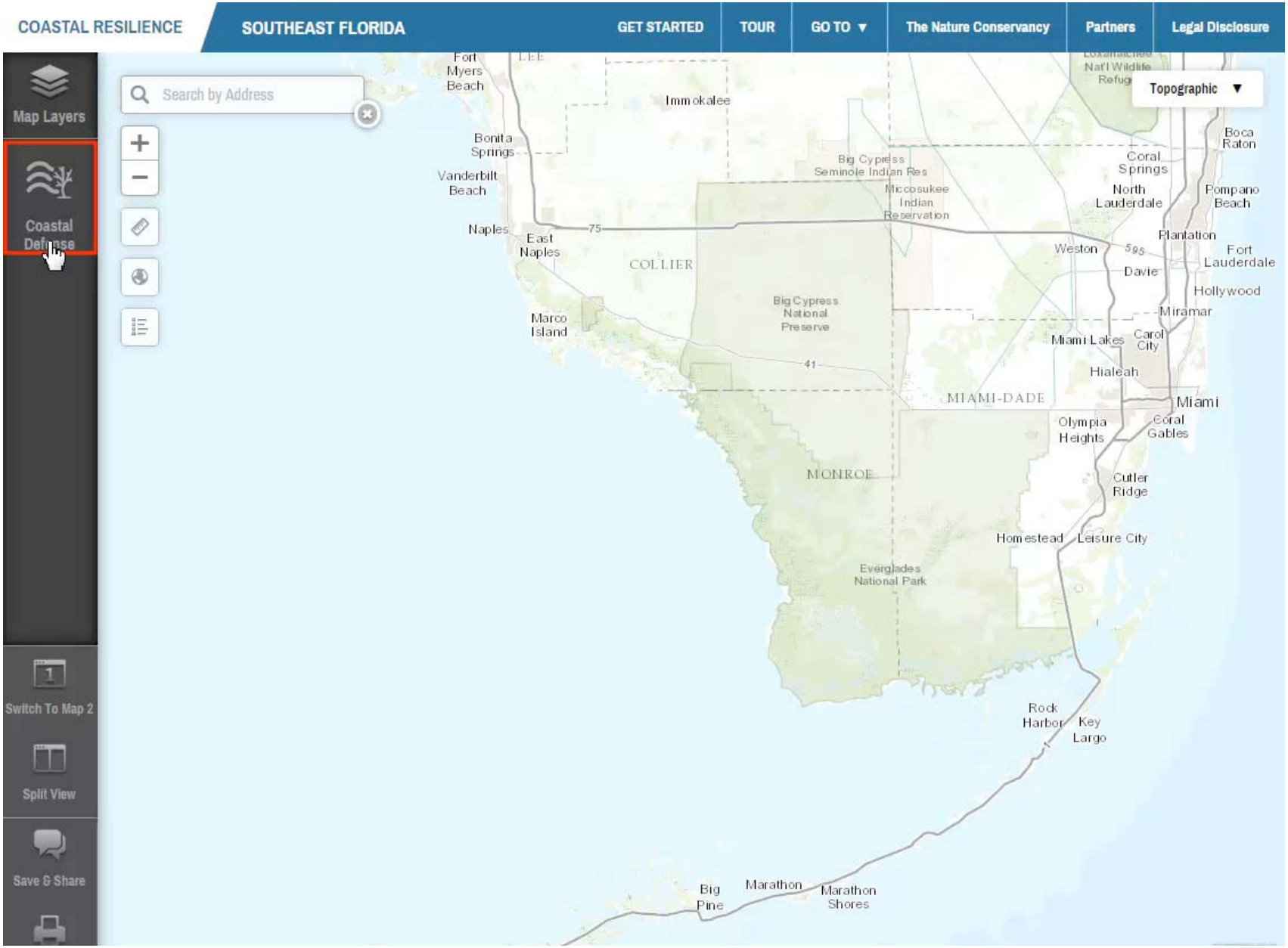
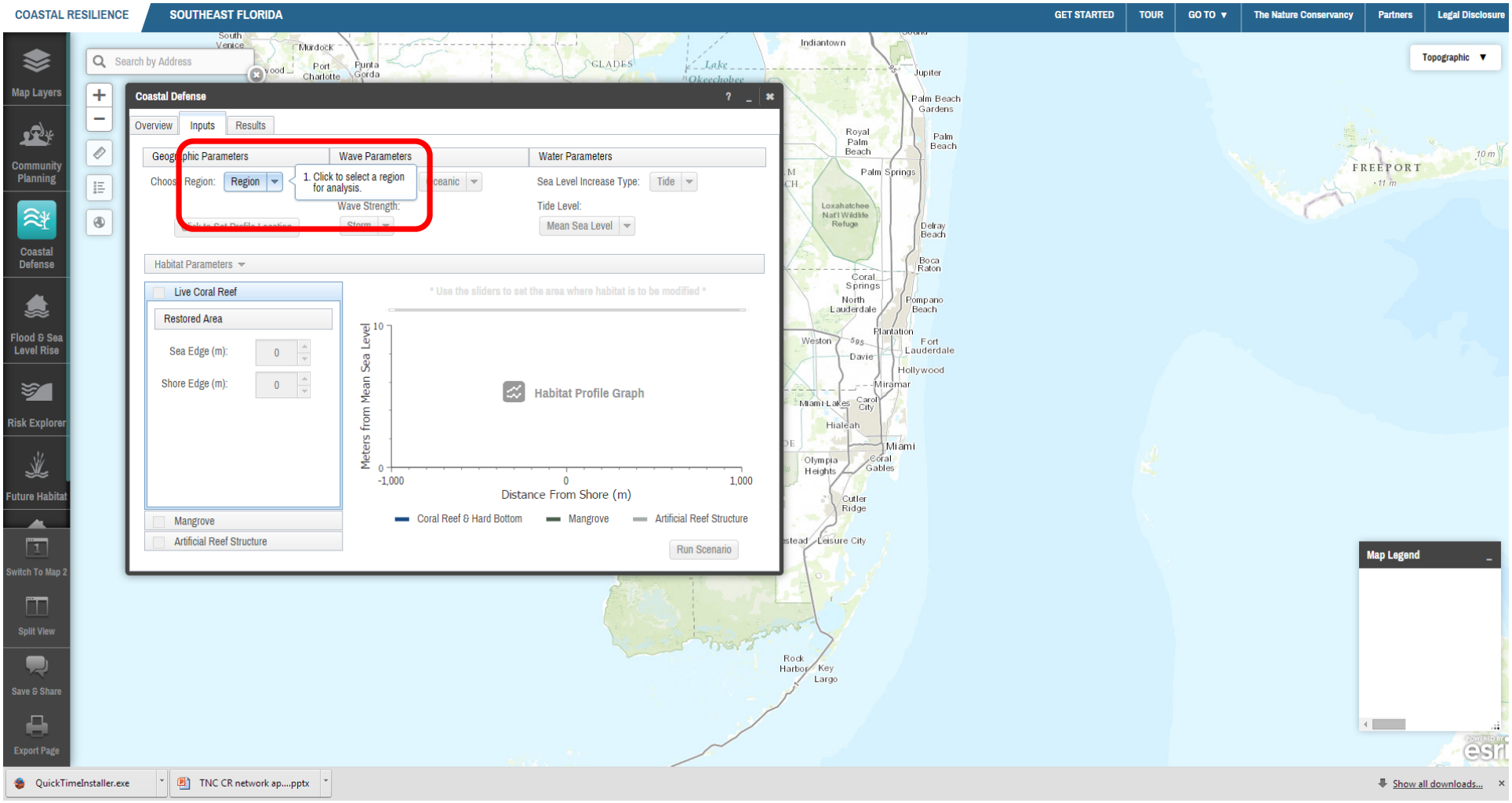
Coastal Defense app

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Flood & Sea Level Rise
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Geographic Parameters
Wave Parameters
Water Parameters
Region:
Region
1. Click to select a region for analysis.
Wave Strength:
Storm
Sea Level Increase Type:
Tide
Tide Level:
Mean Sea Level
Habitat Parameters
Live Coral Reef
Restored Area
Sea Edge (m):
0
Shore Edge (m):
0
* Use the sliders to set the area where habitat is to be modified *
Habitat Profile Graph
Meters from Mean Sea Level
10
0
-1,000
0
1,000
Distance From Shore (m)
Coral Reef & Hard Bottom
Mangrove
Artificial Reef Structure
Run Scenario
Mangrove
Artificial Reef Structure
Map Legend
Indiantown
Jupiter
Palm Beach Gardens
Royal Palm Beach
Palm Beach
Palm Springs
Loxahatchee Nat'l Wildlife Refuge
Delray Beach
Boca Raton
Coral Springs
North Lauderdale
Pompano Beach
Plantation
Weston
Fort Lauderdale
Davie
Hollywood
Miramar
Miami Lakes
Carol City
Hialeah
Miami
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Coral Gables
Cutler Ridge
Leisure City
Rock Harbor
Key Largo
FREEPORT
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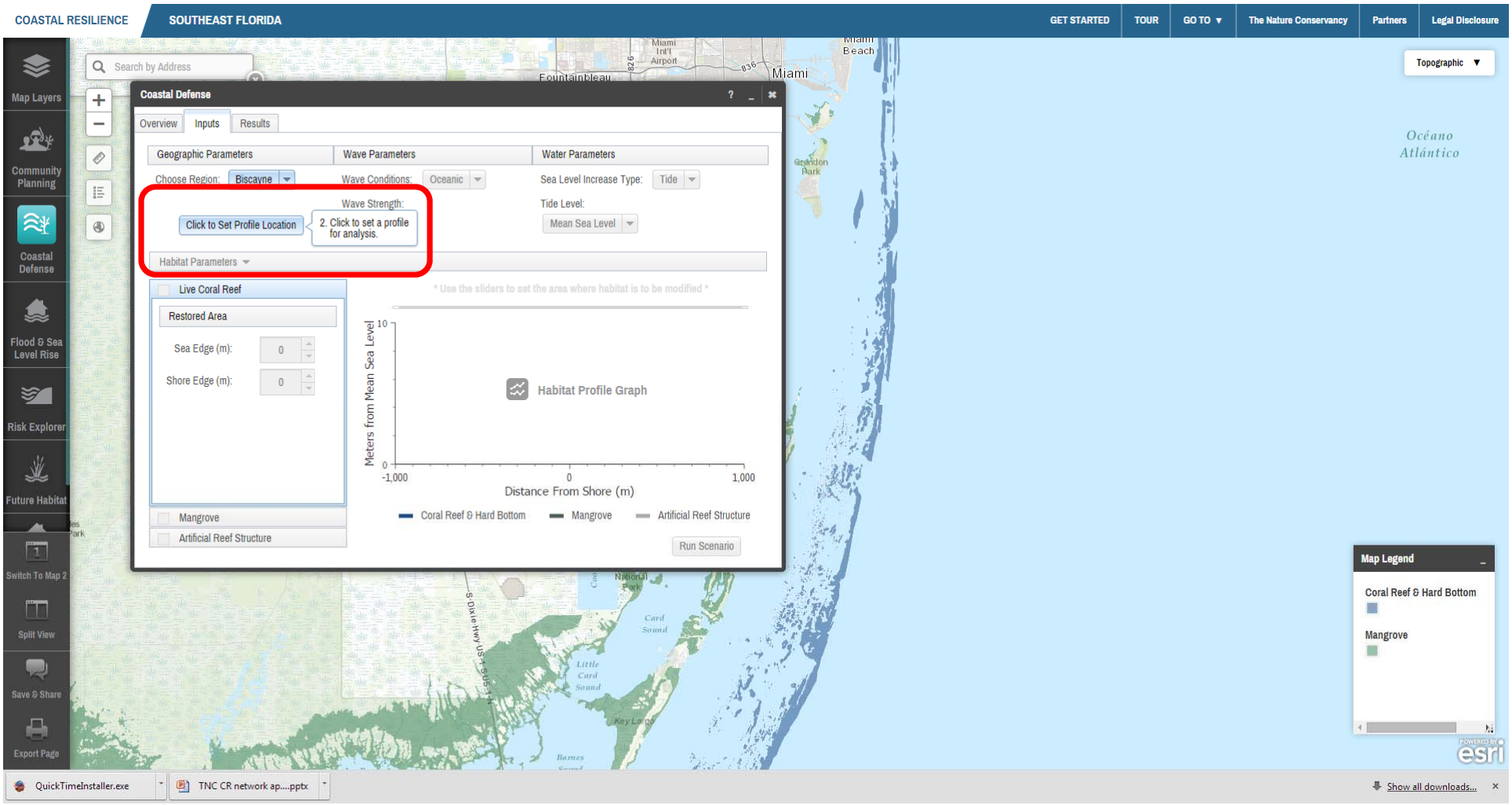
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Geographic Parameters
Wave Parameters
Water Parameters
Choose Region:
Biscayne
Wave Conditions:
Oceanic
Sea Level Increase Type:
Tide
Wave Strength:
Tide Level:
Mean Sea Level
Click to Set Profile Location
2. Click to set a profile for analysis.
Habitat Parameters
Live Coral Reef
Restored Area
Sea Edge (m):
0
Shore Edge (m):
0
* Use the sliders to set the area where habitat is to be modified *
Habitat Profile Graph
Meters from Mean Sea Level
10
0
-1,000
0
1,000
Distance From Shore (m)
Coral Reef & Hard Bottom
Mangrove
Artificial Reef Structure
Run Scenario
Mangrove
Artificial Reef Structure
Map Legend
Coral Reef & Hard Bottom
Mangrove
Océano Atlántico
Miami
Miami Beach
Fountainbleau
Miami Int'l Airport
Card Sound
Little Card Sound
Key Largo
Barnes Sound
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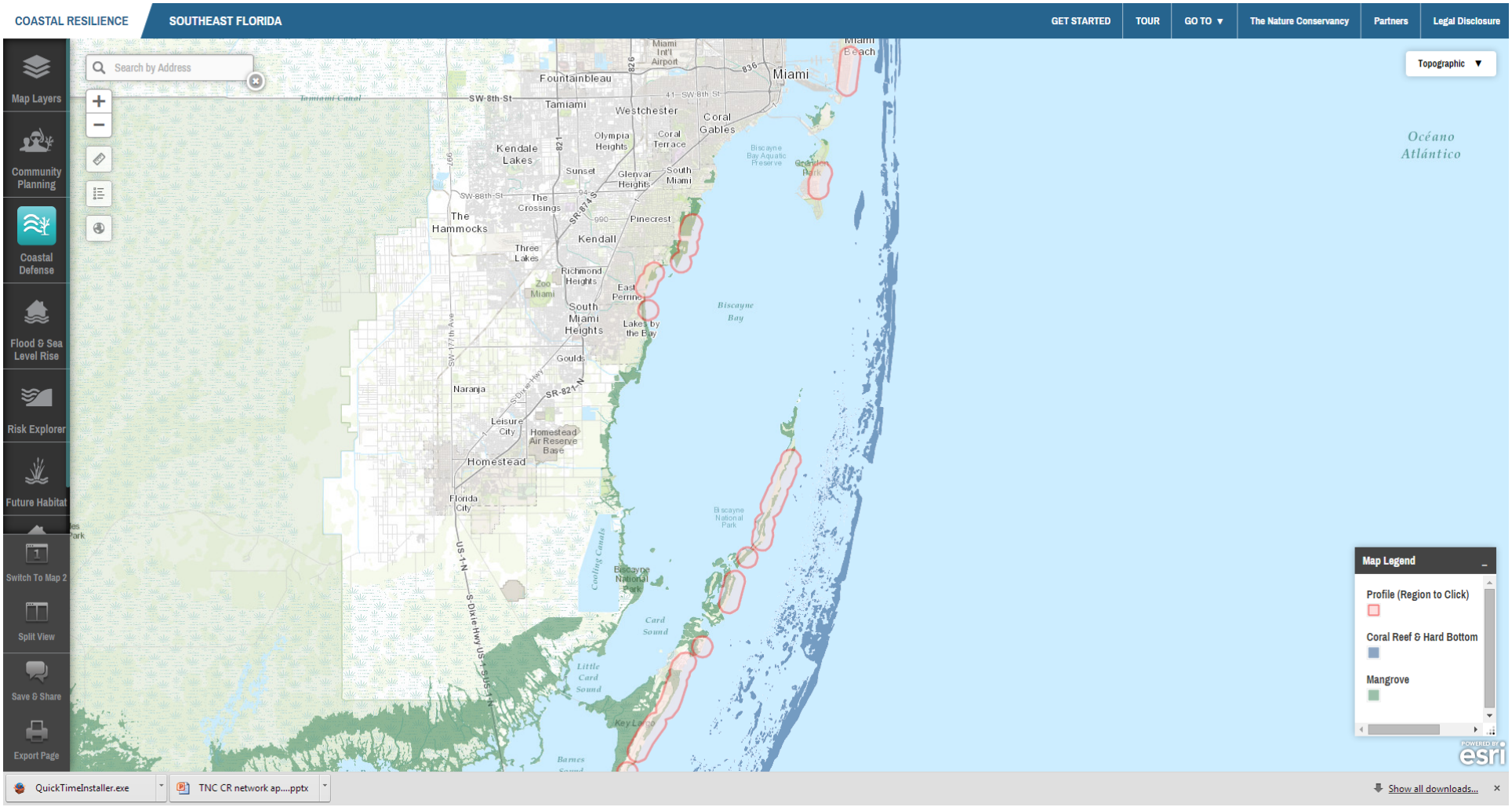
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Miami Int'l Airport
Fountainbleau
Miami
Miami Beach
Tamiami
Westchester
Coral Gables
Kendale Lakes
Olympia Heights
Coral Terrace
Sunset
Glenvar Heights
South Miami
The Crossings
The Hammocks
Pinecrest
Kendall
Three Lakes
Richmond Heights
Zoo Miami
East Perrine
South Miami Heights
Lakes by the Bay
Goulds
Naranja
Leisure City
Homestead Air Reserve Base
Homestead
Florida City
Biscayne Bay
Biscayne National Park
Cutting Canals
Card Sound
Little Card Sound
Key Largo
Biscayne Bay Aquatic Preserve
Crandon Park
Map Legend
Profile (Region to Click)
Coral Reef & Hard Bottom
Mangrove
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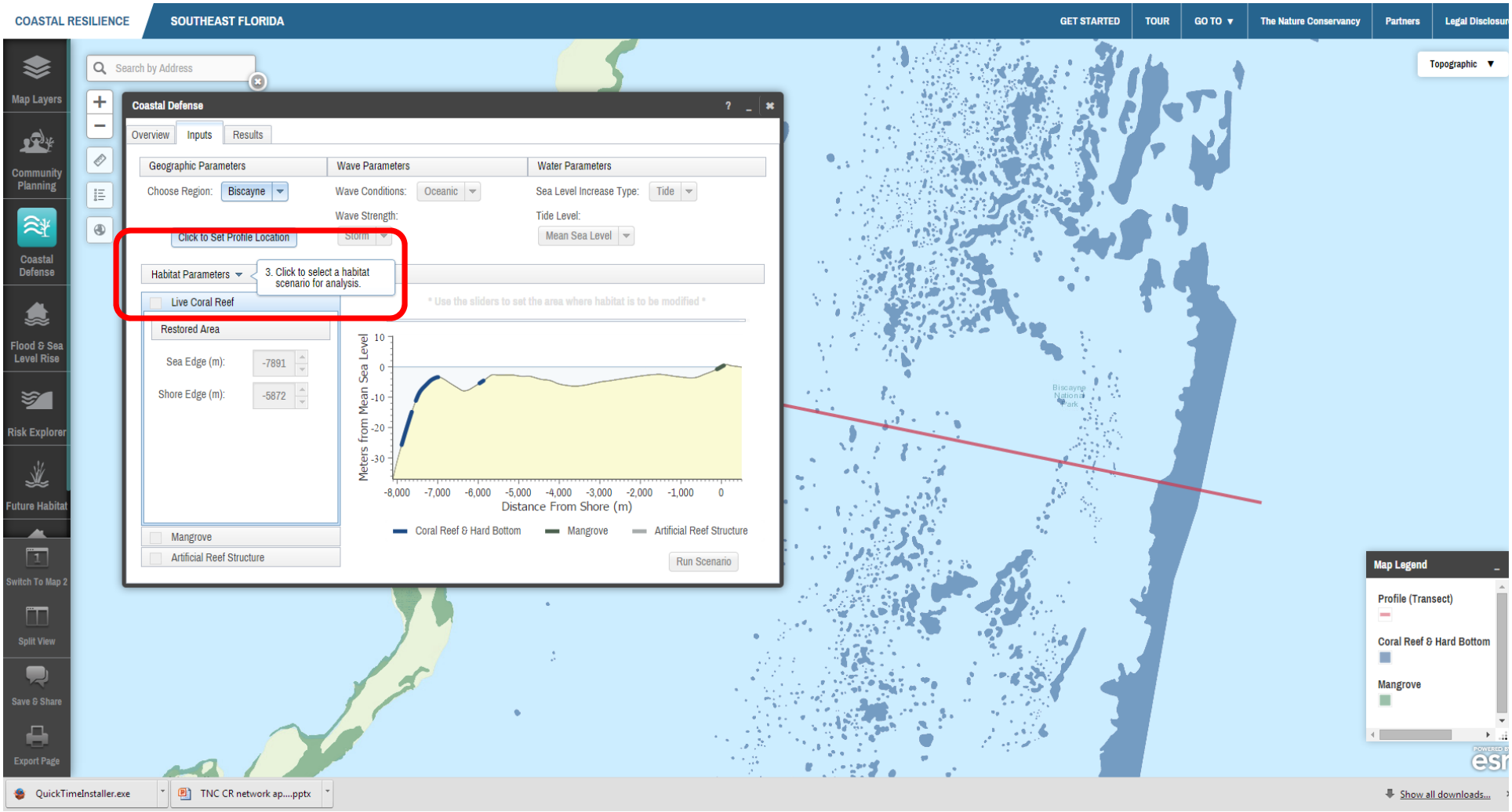
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Water Parameters
Choose Region:
Biscayne
Wave Conditions:
Oceanic
Sea Level Increase Type:
Tide
Wave Strength:
Tide Level:
Mean Sea Level
Click to Set Profile Location
Habitat Parameters
3. Click to select a habitat scenario for analysis.
Live Coral Reef
Restored Area
Sea Edge (m):
-7891
Shore Edge (m):
-5872
Mangrove
Artificial Reef Structure
* Use the sliders to set the area where habitat is to be modified *
Meters from Mean Sea Level
Distance From Shore (m)
Coral Reef & Hard Bottom
Mangrove
Artificial Reef Structure
Run Scenario
Map Legend
Profile (Transect)
Coral Reef & Hard Bottom
Mangrove
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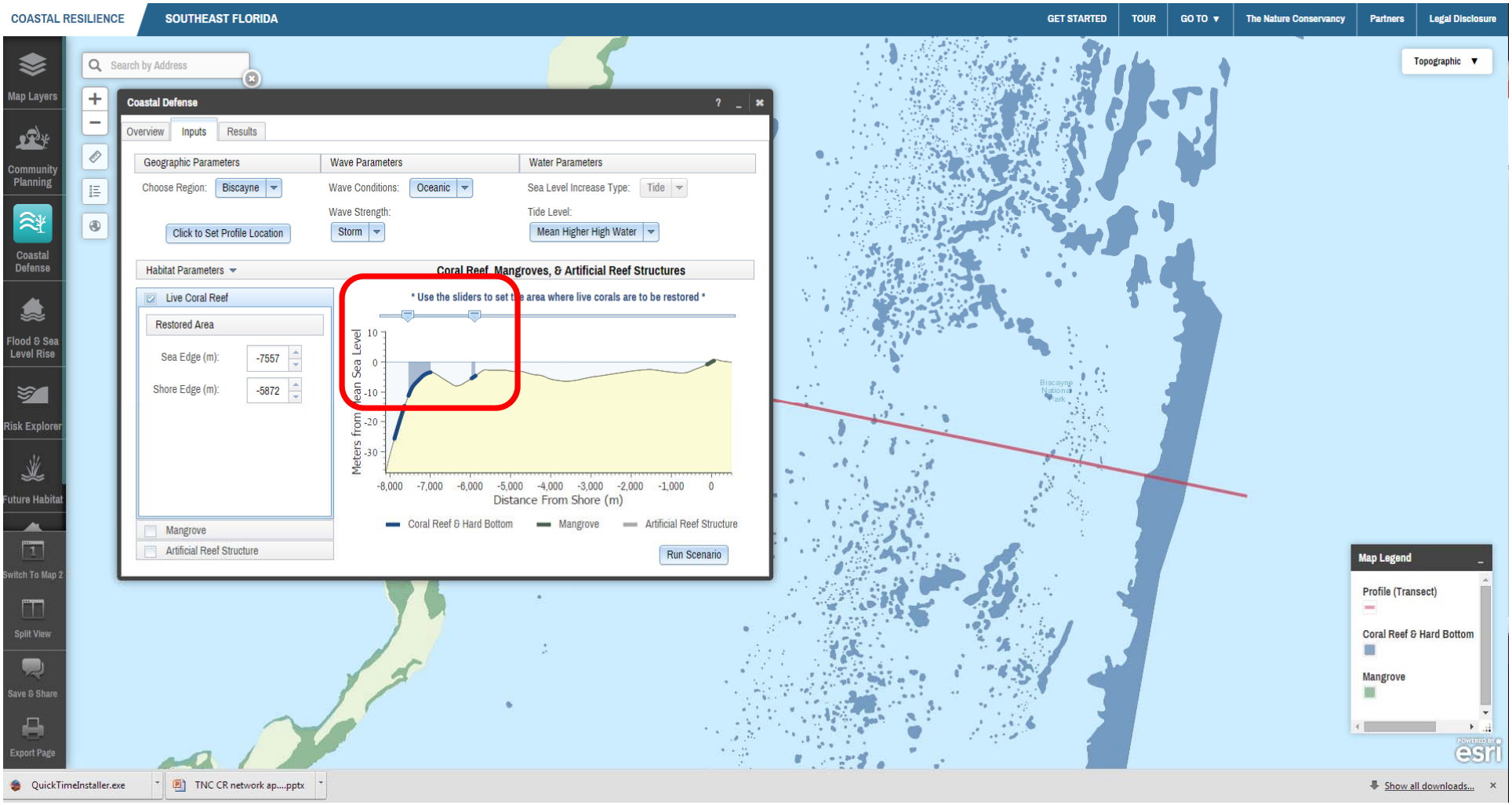
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Geographic Parameters
Choose Region:
Biscayne
Click to Set Profile Location
Wave Parameters
Wave Conditions:
Oceanic
Wave Strength:
Storm
Water Parameters
Sea Level Increase Type:
Tide
Tide Level:
Mean Higher High Water
Habitat Parameters
Coral Reef, Mangroves, & Artificial Reef Structures
Live Coral Reef
Restored Area
Sea Edge (m):
-7557
Shore Edge (m):
-5872
* Use the sliders to set the area where live corals are to be restored *
Meters from Mean Sea Level
10
0
-10
-20
-30
-8,000
-7,000
-6,000
-5,000
-4,000
-3,000
-2,000
-1,000
0
Distance From Shore (m)
Coral Reef & Hard Bottom
Mangrove
Artificial Reef Structure
Mangrove
Artificial Reef Structure
Run Scenario
Biscayne National Park
Map Legend
Profile (Transect)
Coral Reef & Hard Bottom
Mangrove
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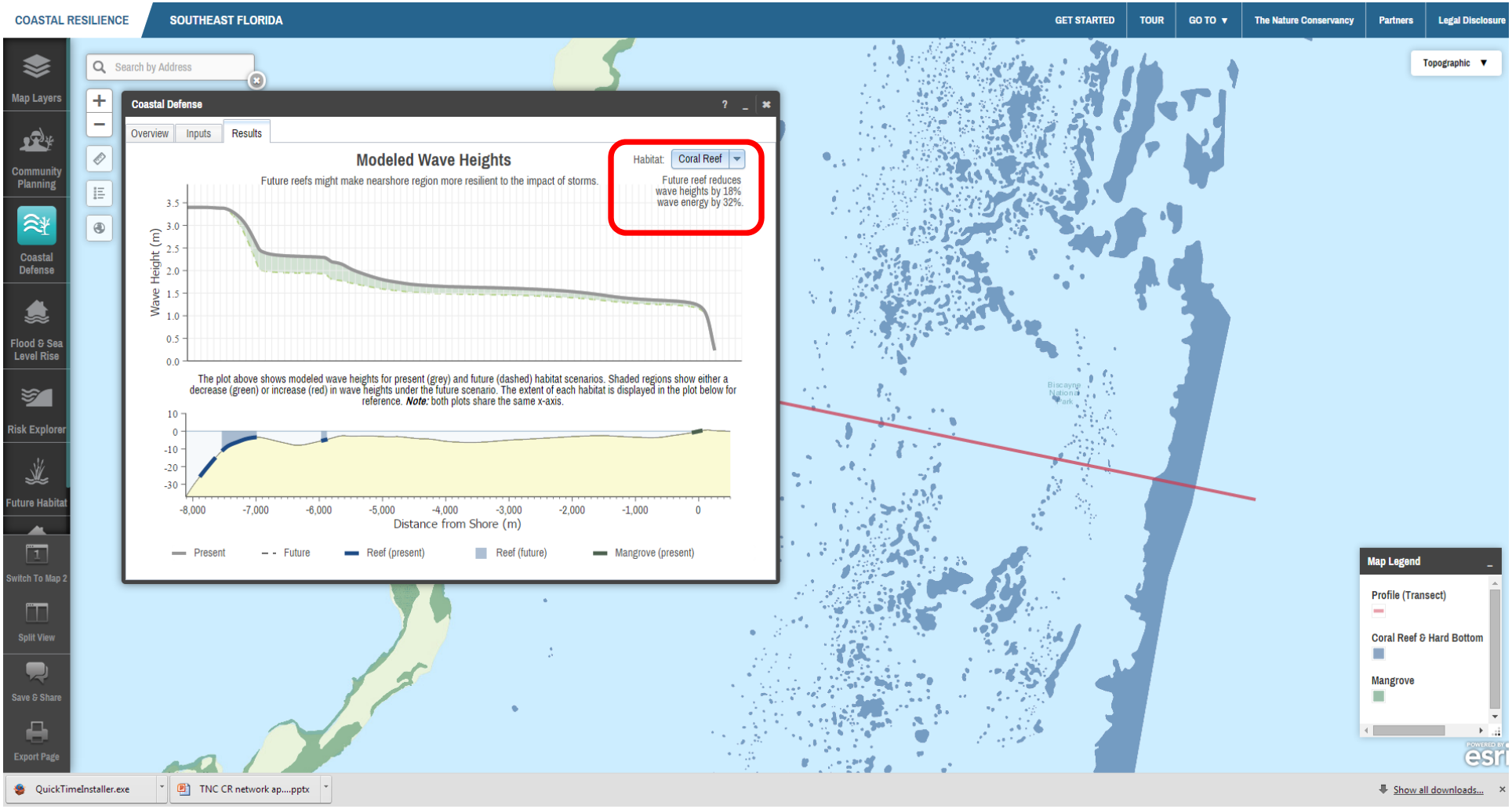
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Modeled Wave Heights
Future reefs might make nearshore region more resilient to the impact of storms.
Habitat:
Coral Reef
Future reef reduces wave heights by 18% wave energy by 32%.
Wave Height (m)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
The plot above shows modeled wave heights for present (grey) and future (dashed) habitat scenarios. Shaded regions show either a decrease (green) or increase (red) in wave heights under the future scenario. The extent of each habitat is displayed in the plot below for reference. Note: both plots share the same x-axis.
10
0
-10
-20
-30
-8,000
-7,000
-6,000
-5,000
-4,000
-3,000
-2,000
-1,000
0
Distance from Shore (m)
Present
Future
Reef (present)
Reef (future)
Mangrove (present)
Map Legend
Profile (Transect)
Coral Reef & Hard Bottom
Mangrove
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Shoreline Protection Scenario	Wave height reduction	Wave energy reduction
Restore reefs between approximately -10m depth and the shoreline	18%	32%
Restore mangroves	0%	0%

On-line tools for exploring coastal hazards and nature-based hazard reduction options

Background information

http://coastalresilience.org

Mapping tools

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