

Climate Δ

Impacts and adaptation in the US Virgin Islands

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Conservation Planner, TNC
St. Croix, USVI

If you were to design a problem
that people did not care about
it would be **global warming**

- Dan Ariely

Behavioral Economist

Recipe for not caring

1. Happens far away **in the future**
2. Happens to **other people**
3. Our response feels like **a drop in the bucket**

- Dan Ariely

Behavioral Economist

How to change behavior

Help people:

1. Measure
- 2. Visualize**
3. Signal

- Dan Ariely

Behavioral Economist

391.80_{ppm}

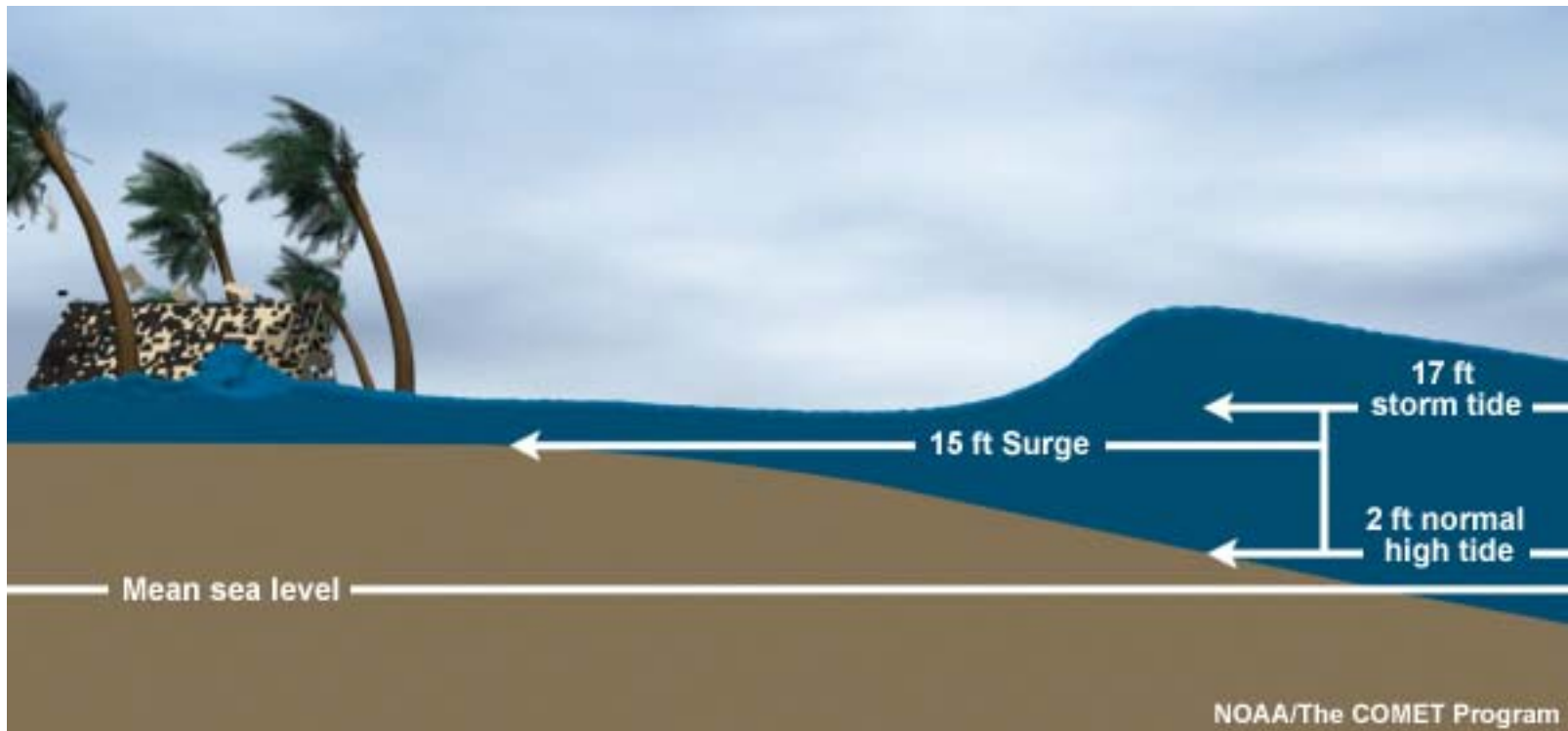
ATMOSPHERIC CO₂
DECEMBER, 2011

(MAUNA LOA OBSERVATORY: SCRIPPS INSTITUTION OF OCEANOGRAPHY)

Climate Change Impacts

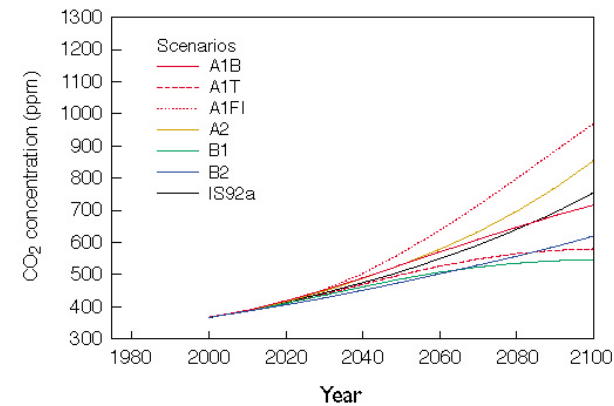
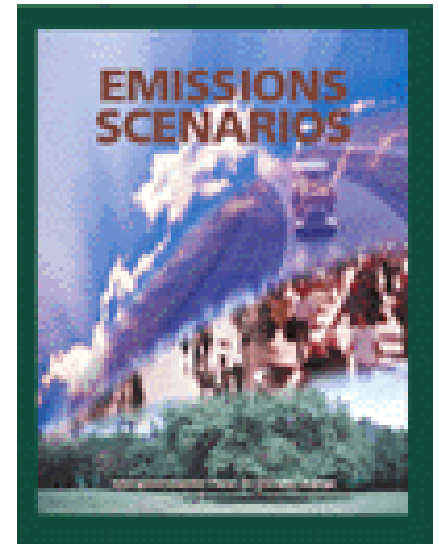
- Higher temperatures
- Changing landscapes
- Biodiversity at risk
 - bleaching and acidification
- Rising seas
- Increased risk of drought, fire and floods
- Stronger storms and increased storm damage
- More heat-related illness and disease
- Economic losses

Storm surge inundation from hurricanes



Source: NOAA National Hurricane Center

PRIMARY INGREDIENTS



ACE

LiDAR

elevation data

NOAA

tidal gauge

data

IPCC

emissions

scenarios

Methodology



COASTAL INUNDATION MAPPING GUIDEBOOK

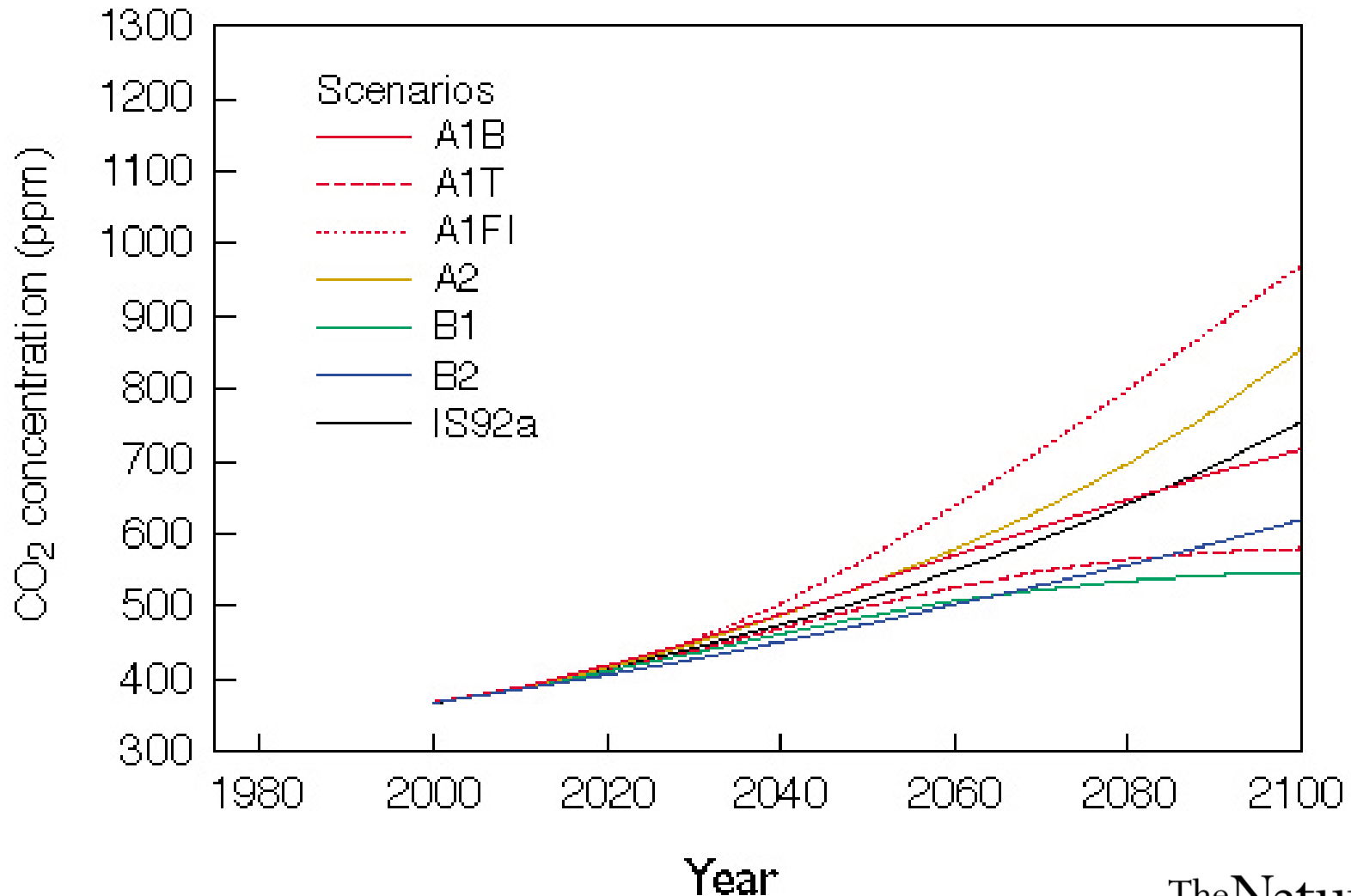
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
COASTAL SERVICES CENTER



NOAA Coastal Services Center
LINKING PEOPLE, INFORMATION, AND TECHNOLOGY

August 2009

Which scenario?



Coastal Resilience

COASTAL RESILIENCE
Adapting Natural and Human Communities to
Sea Level Rise and Coastal Hazards

HOME THE RISK THE STRATEGY GEOGRAPHIES

Sea level and coastal hazards are on the rise, placing natural and human communities at great risk
Coastal Resilience can help

GEOGRAPHIES
WHAT'S AT RISK
THE STRATEGY

Share

NEW!
RELEASED OCTOBER 2011

[Marshes on the Move](#) provides modeling guidance for resource managers and planners, describing the parameters and issues involved in using wetland migration models that depict the possible responses of coastal wetlands to sea level rise. This work is a collaborative effort between the National Oceanic and Atmospheric Administration and The Nature Conservancy

Mounting evidence suggests that rising sea levels, coupled with related increases in storm surges, will increasingly put coastal populations at risk from inundation, storm damage, and saltwater intrusion. In order to adapt, decision-makers need access to information and tools that support choices for managing natural resources and protecting human communities. Without these resources, proactive solutions that reduce impacts and build resiliency for human and natural communities will remain elusive.

The purpose of the Coastal Resilience project is to provide communities, planners, businesses, and officials with easy access to information on projected changes in sea level and coastal storm impacts in order to assist in coastal planning and management decisions.

For ease of use, critical coastal information is accessible through interactive decision support tools. These tools are designed to help stakeholders explore ranges of flooding scenarios from sea level rise and storm surge, analyze the potential ecological, social, and economic impacts of each scenario at local to

Oyster Reef © Mat Squillante

Collin Daugherty
Conservation Planner, TNC
St. Croix, USVI

Future Scenarios Map Global Coastal Resilie x

global.coastalresilience.org/global.html

TNC Intranet Deltek Time & E... TNC's Caribbea... Coastal Resilien... Sharepoint Cari... Marine Planning... Social Science a... My Concur - CO... Editing in ArcGL... Marine Planning...

Global Coastal Resilience

The Nature Conservancy THE UNIVERSITY OF SOUTHERN MISSISSIPPI

Map Layers Legend Change to Split View Geographies

Map Layers

Left Map Right Map

Clear All Synch Maps Set Transparency

- Global
- Meso American Reef
- US Virgin Islands
- Boundaries
- Coastal and Marine Resources
- Infrastructure
- Terrestrial Resources
- External

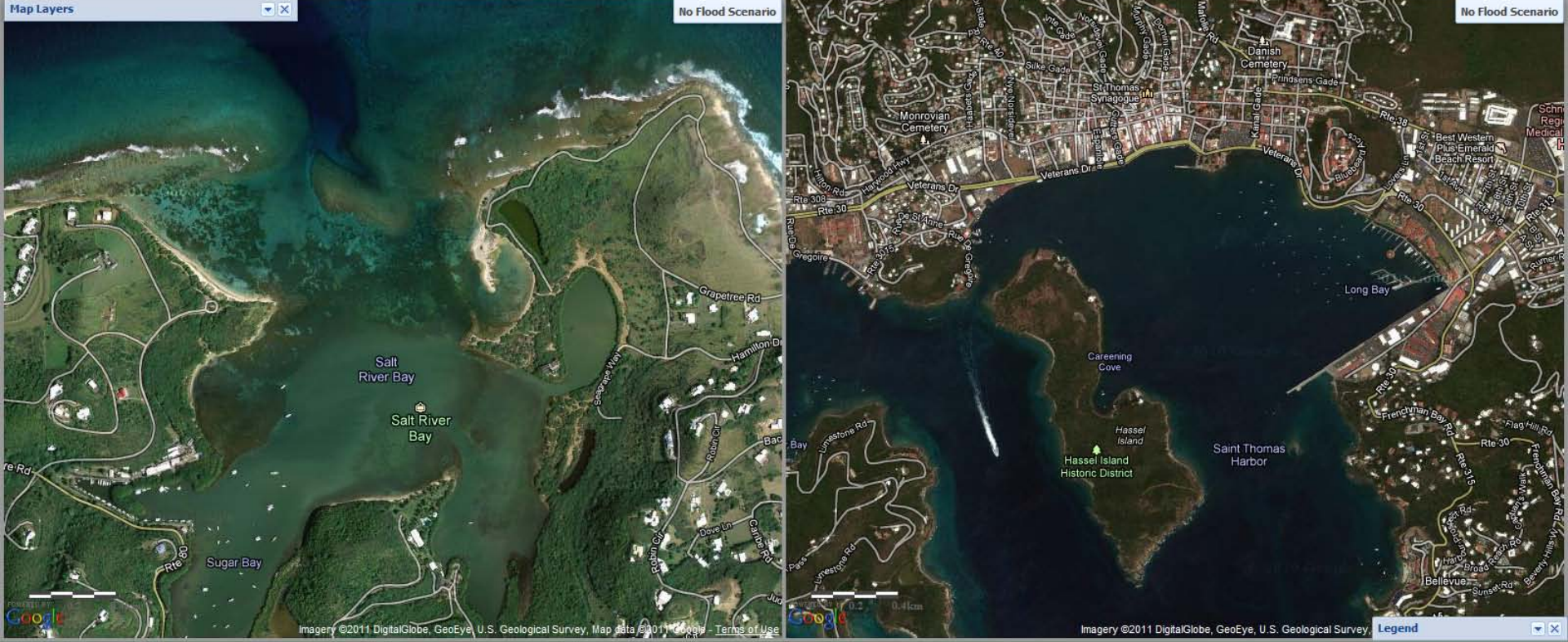
Choose geography

LAT: 47.474 S LON: 86.431 E

Imagery Legend

The Nature Conservancy Coastal Resilience Legal Disclosure

Global Coastal Resilience

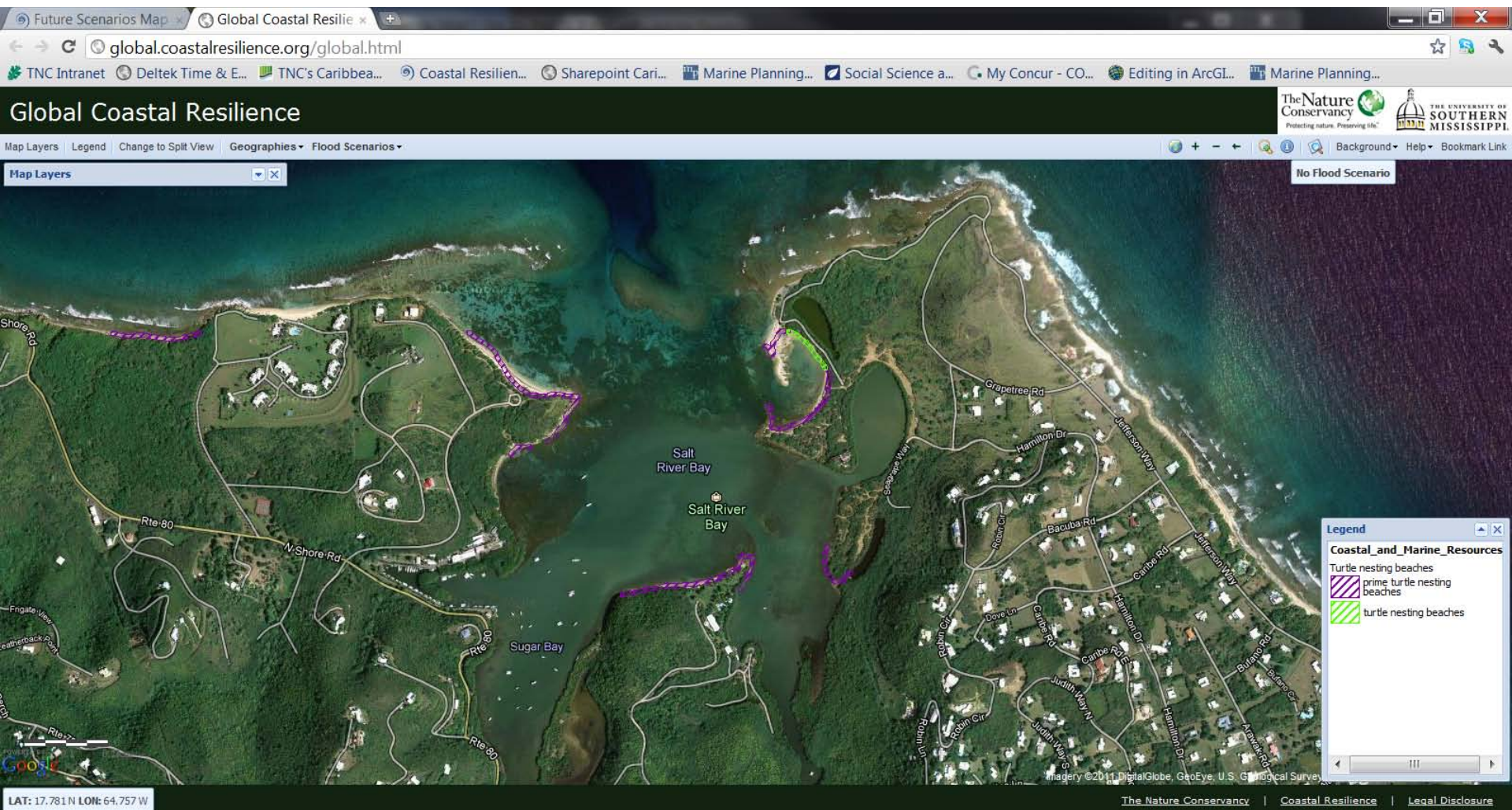


LAT: 18.322 N LON: 64.917 W The Nature Conservancy Safely Remove Hardware and Eject Media

Salt River Bay, St. Croix, USVI

Charlotte Amalie, St. Thomas, USVI

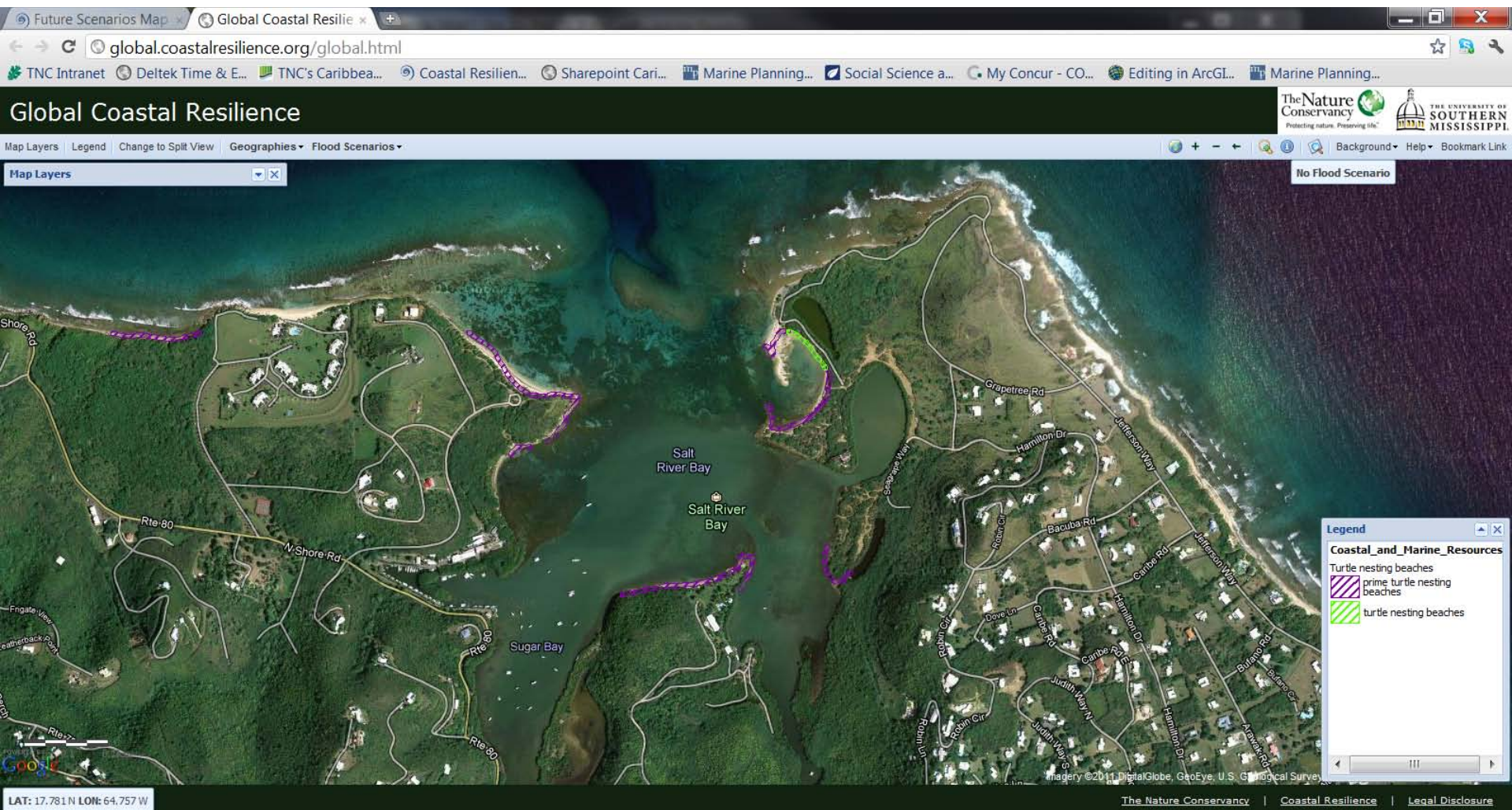
How will habitats respond to climate change?



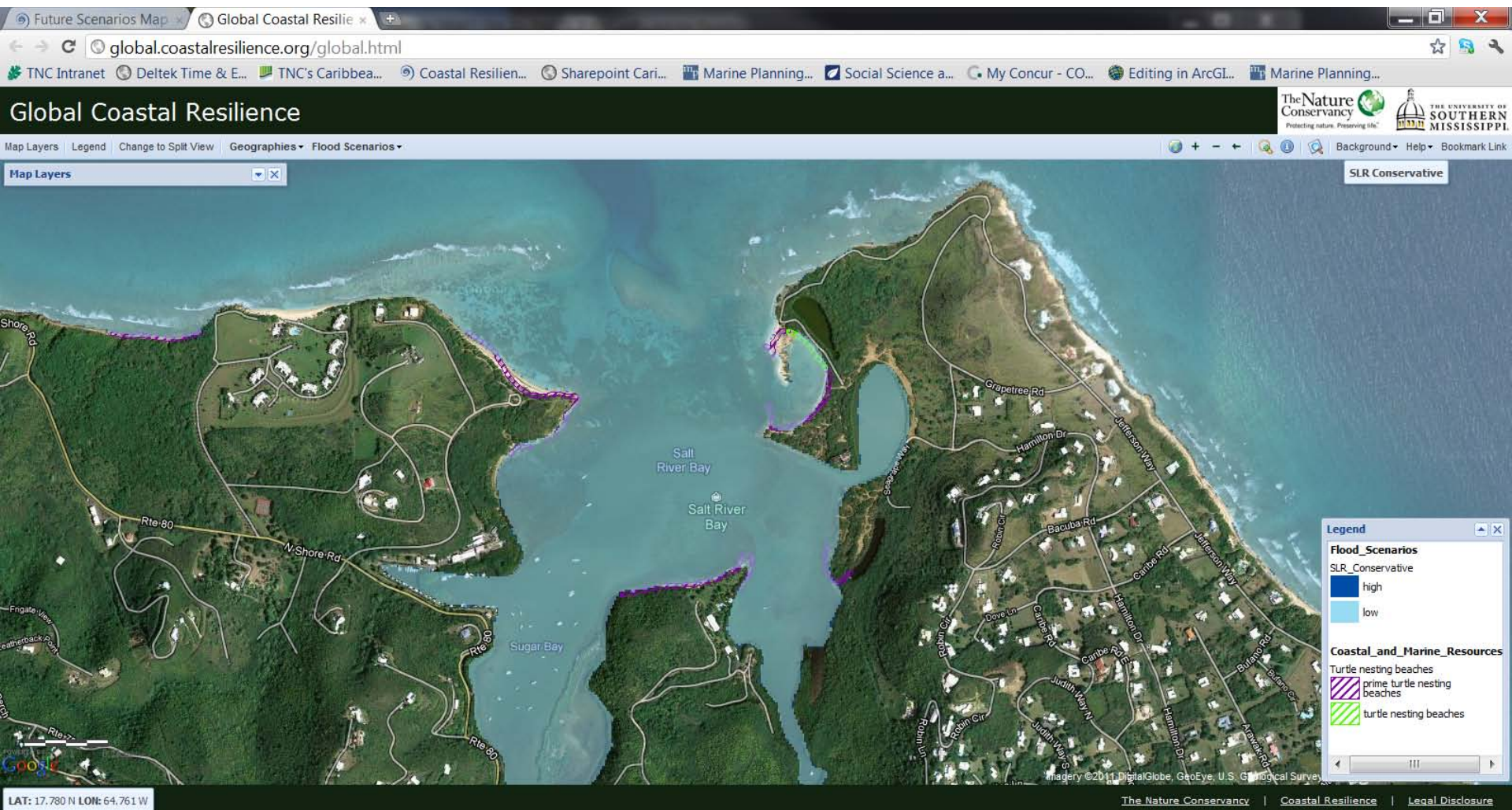
How will habitats respond to climate change?

The screenshot displays the 'Global Coastal Resilience' web application interface. The browser address bar shows the URL 'global.coastalresilience.org/global.html'. The page title is 'Global Coastal Resilience'. The navigation menu includes 'Map Layers', 'Legend', 'Change to Split View', 'Geographies', and 'Flood Scenarios'. A 'Map Layers' dropdown menu is open, and a yellow box with the text 'Choose habitat / marine resource' points to it. Another yellow box with the text 'Choose flood scenario' points to the 'Flood Scenarios' dropdown menu. The map shows an aerial view of Salt River Bay with various roads and water bodies. A legend titled 'Coastal_and_Marine_Resources' is visible in the bottom right corner, listing 'Turtle nesting beaches' with two sub-categories: 'prime turtle nesting beaches' (represented by a pink hatched pattern) and 'turtle nesting beaches' (represented by a green hatched pattern). The status bar at the bottom indicates 'LAT: 17.781 N LON: 64.757 W' and includes logos for 'The Nature Conservancy', 'Coastal Resilience', and 'Legal Disclosure'.

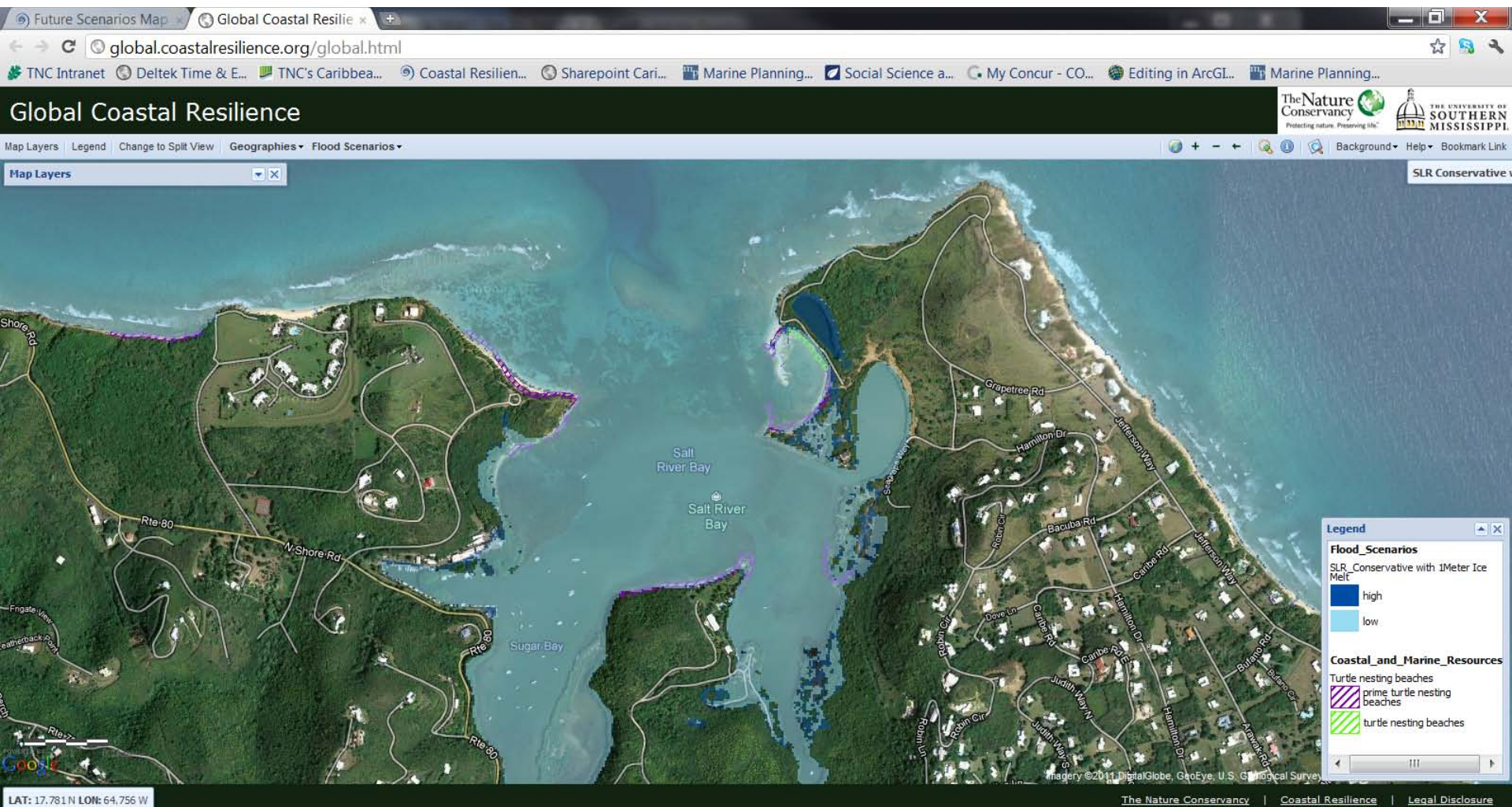
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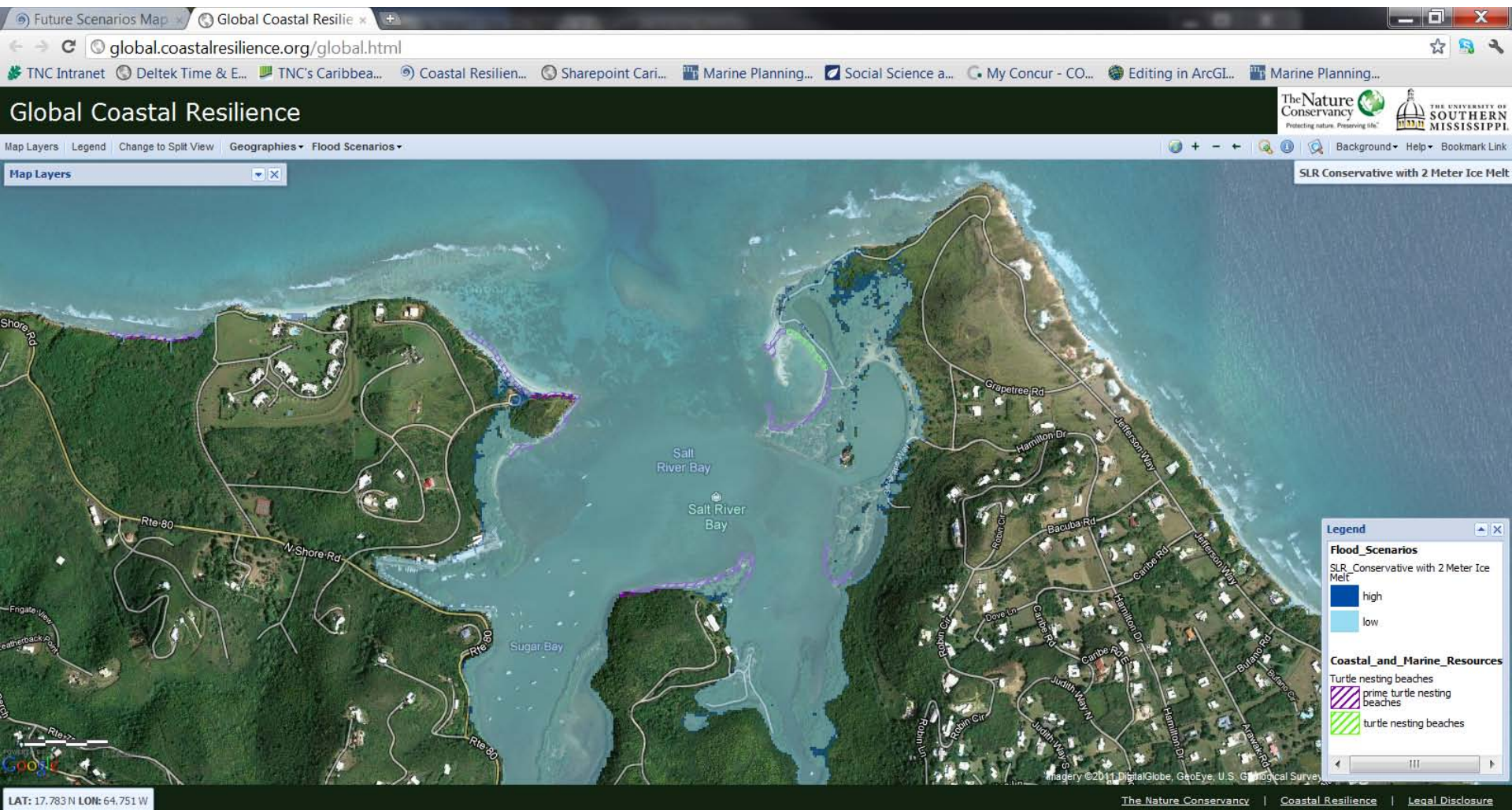
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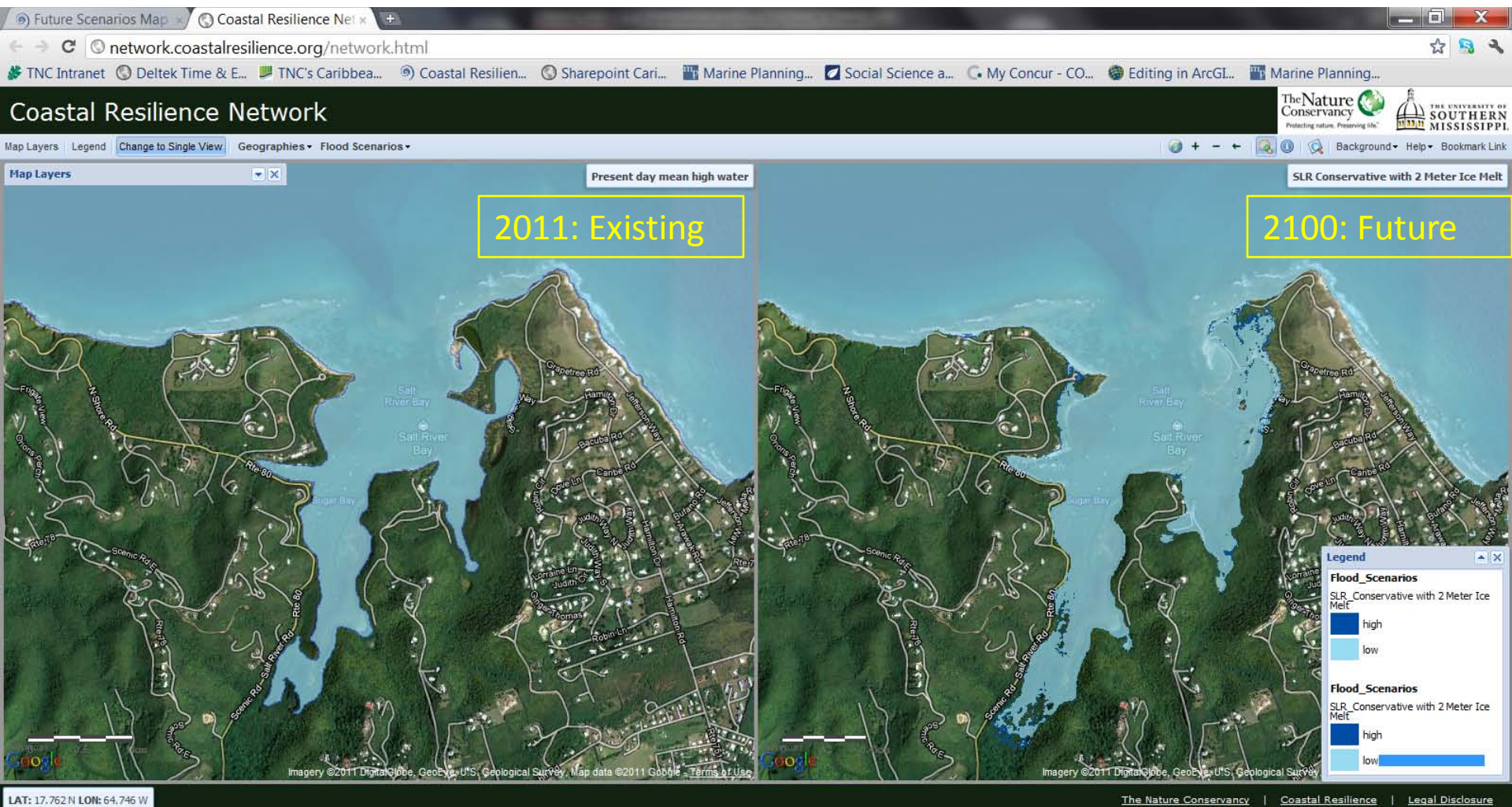
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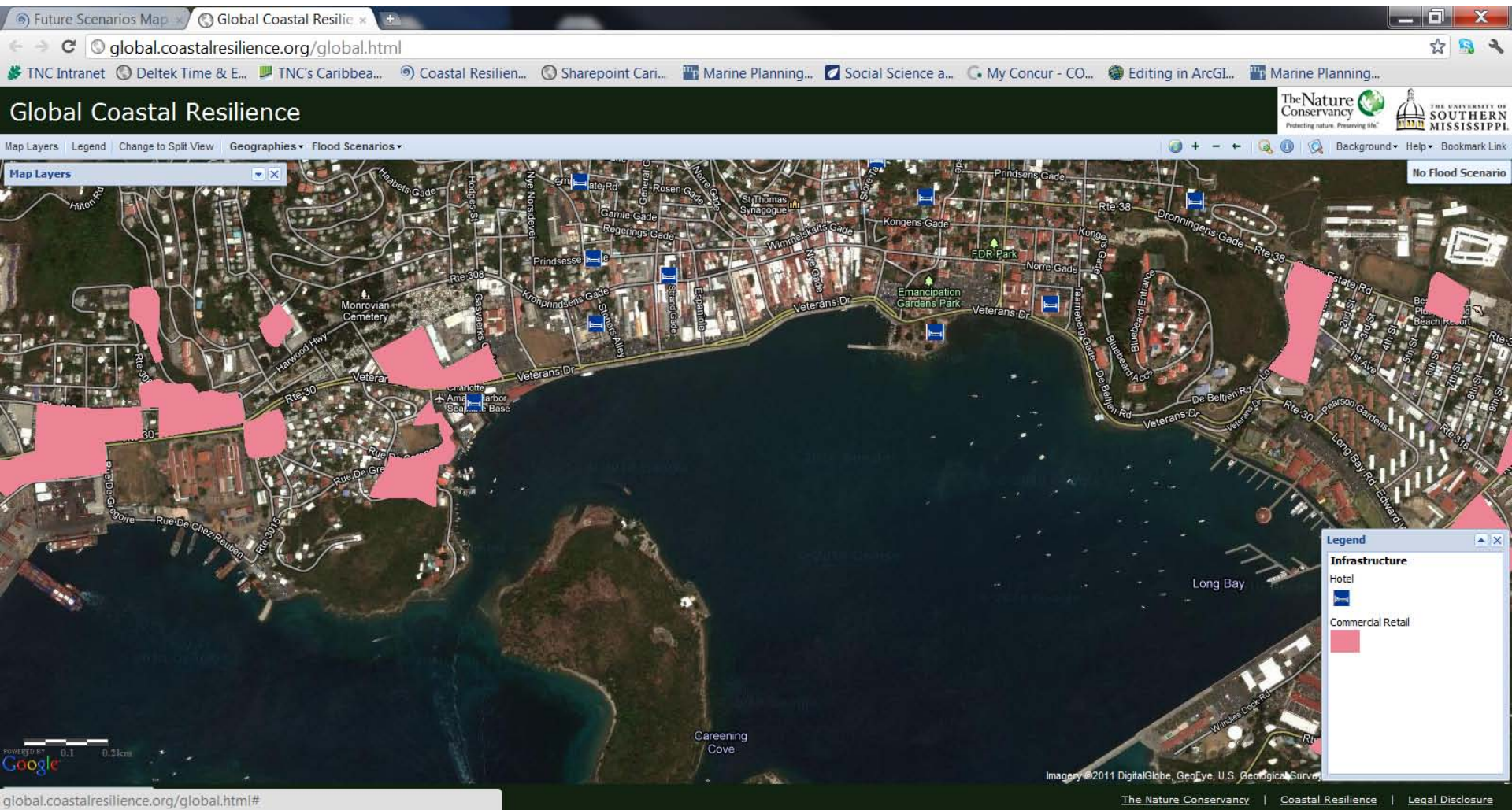
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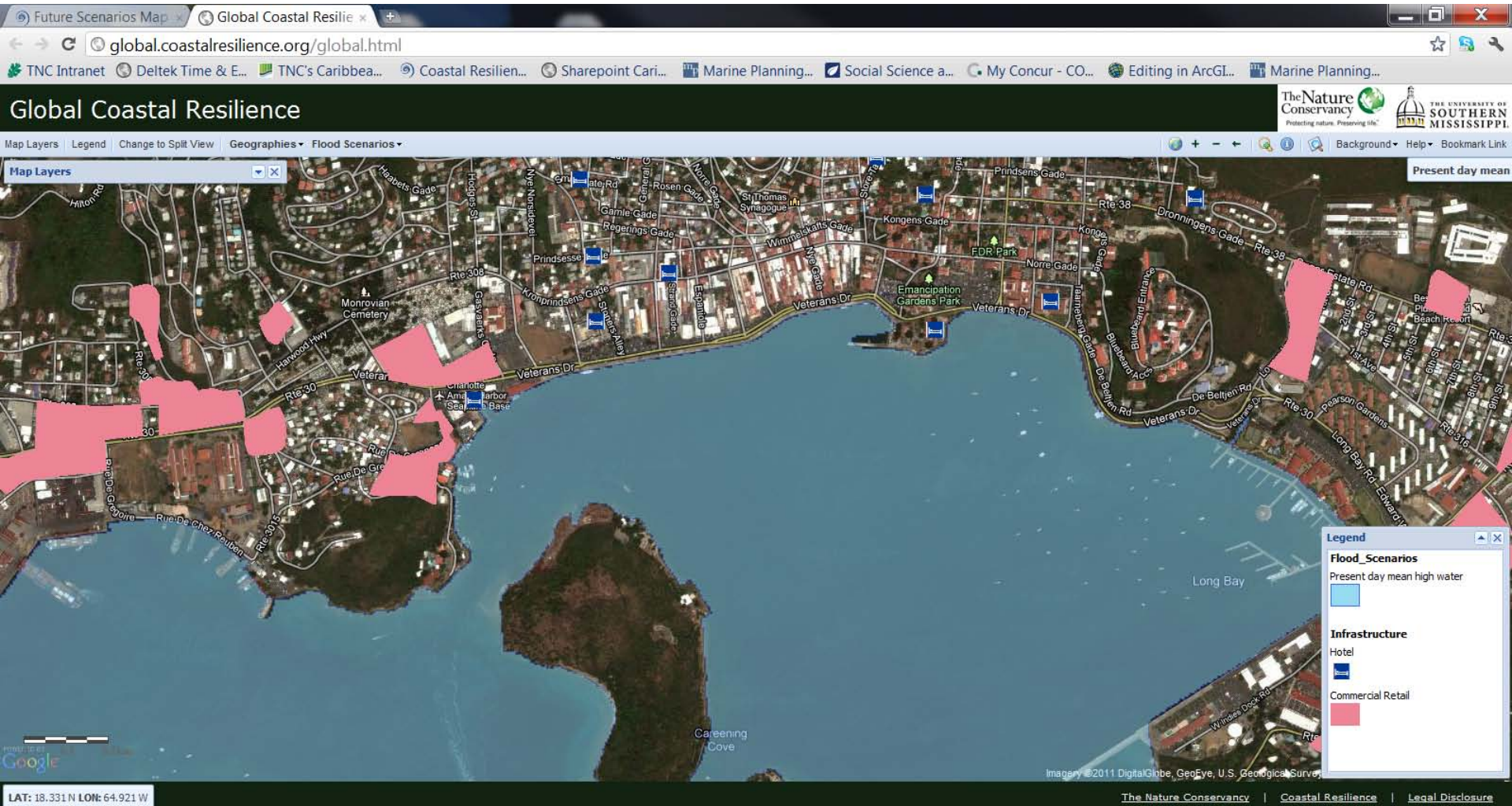
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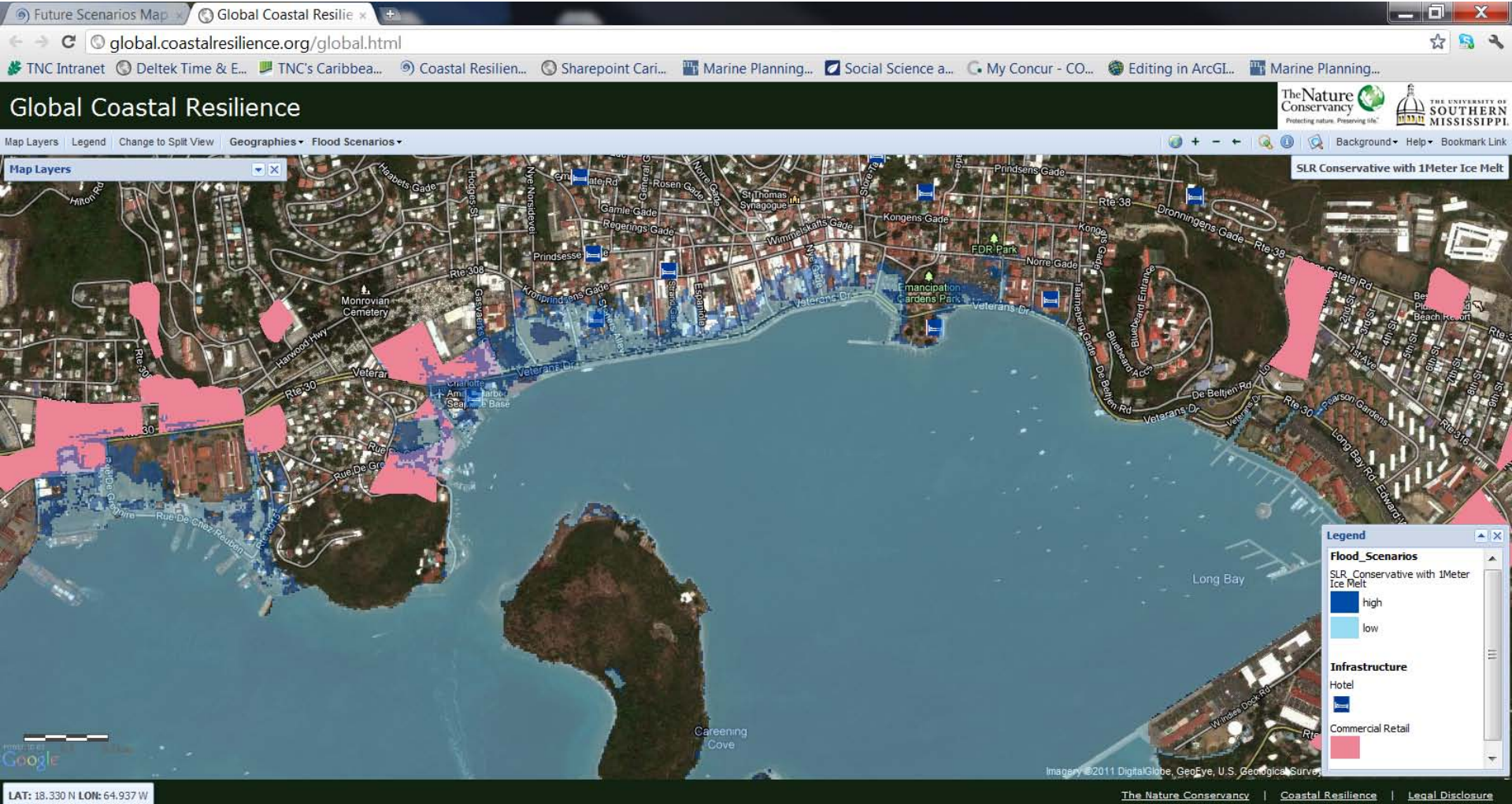
How vulnerable is the coastal economy?



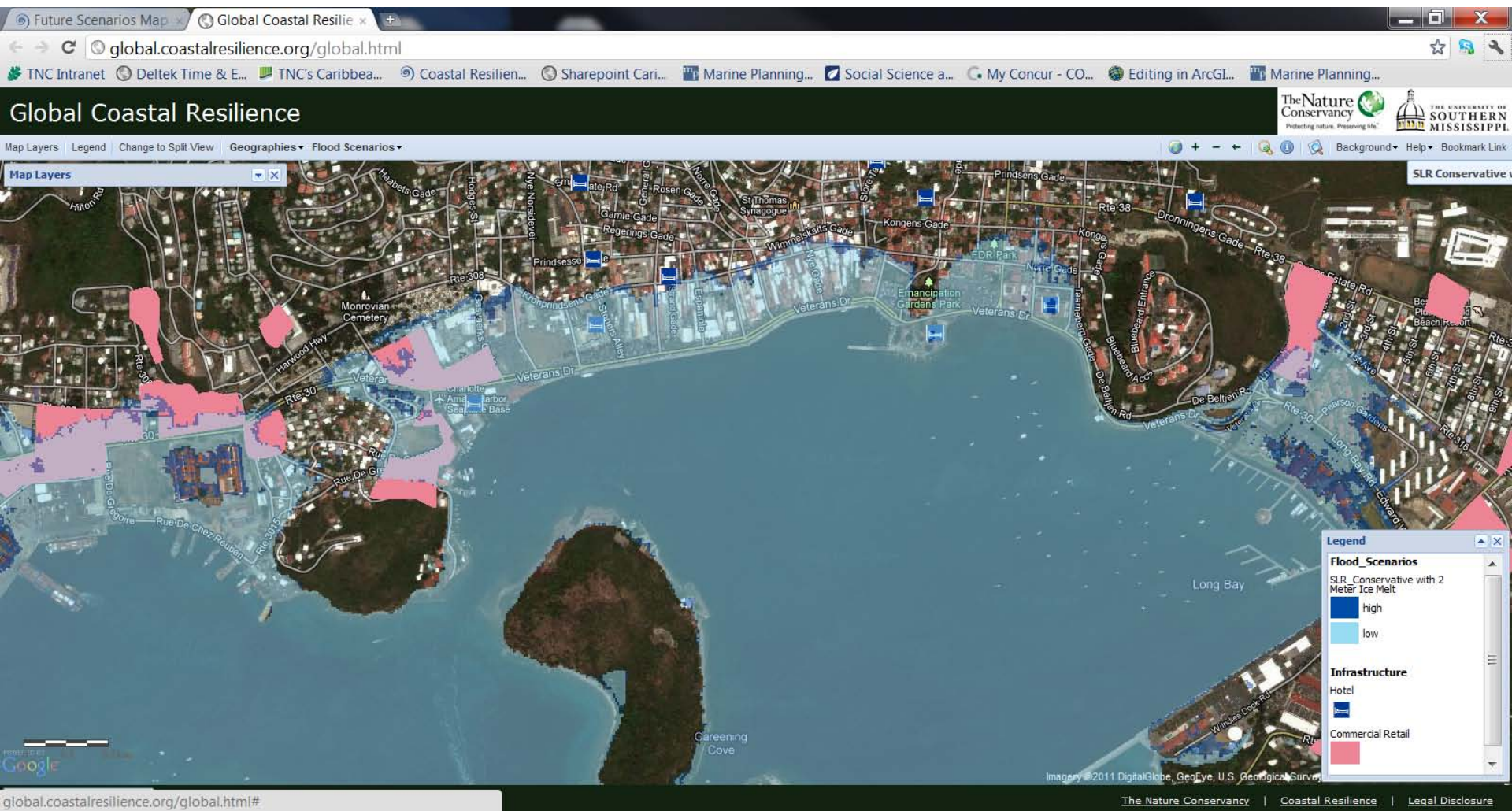
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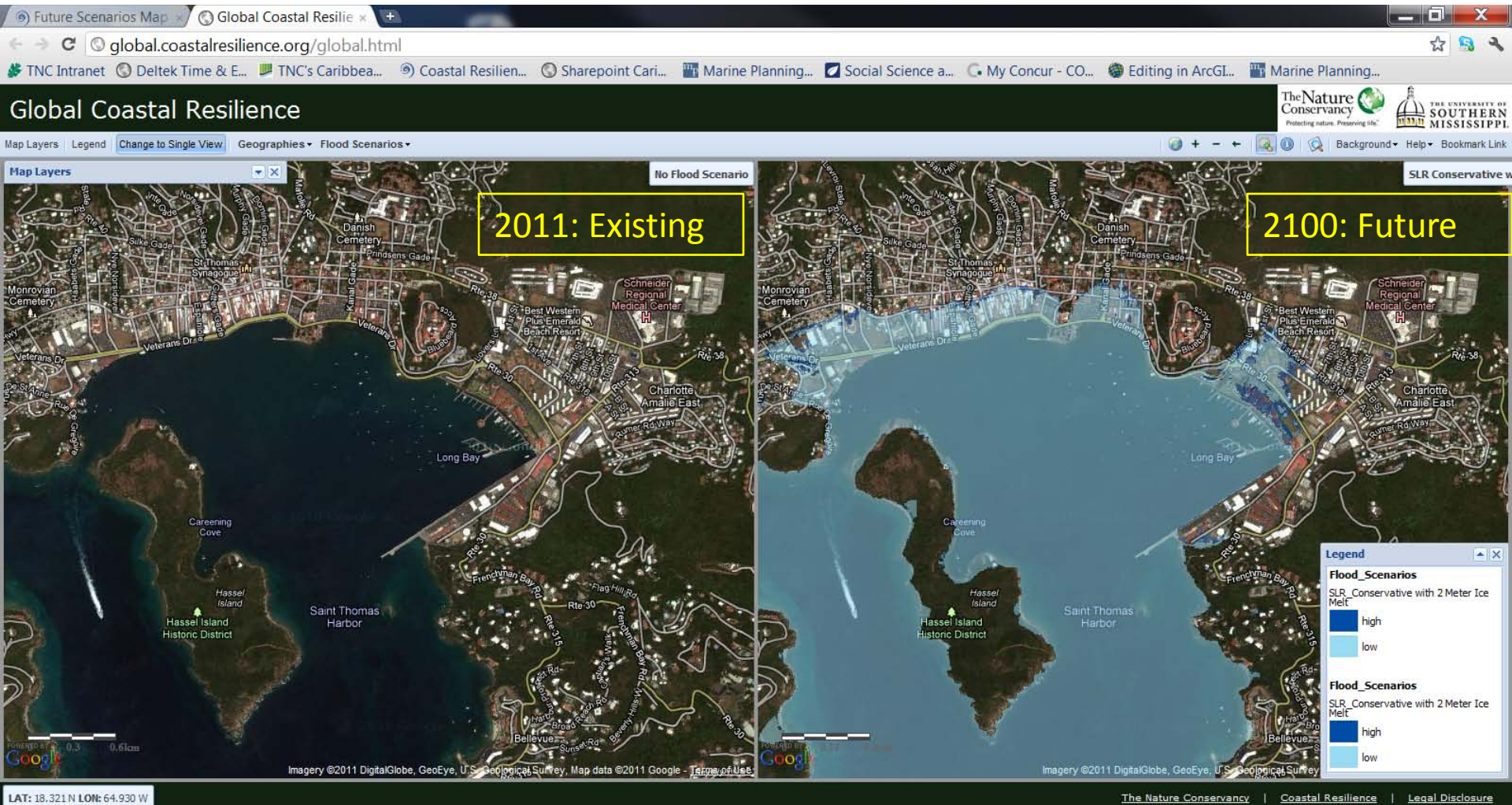
How vulnerable is the coastal economy?



How vulnerable is the coastal economy?



Future scenarios mapping



Role of Coastal Habitats



Coastal Resilience as a decision-support tool

1. Conserve what we have

2. Prepare for future change

- Dr. Katharine Hayhoe