enGULFed!

Rethinking Smart Growth for Louisiana's coastal communities

Center for Planning Excellence

Camille Manning-Broome, Director of Planning

February 5, 2011

Who is CPEX?

Every Community in Louisiana made extraordinary through planning excellence.

CPEX helps create highly functional, equitable communities throughout Louisiana that capitalize on their unique qualities through community-driven planning and implementation.


“Deltas are the best places to live on earth… if you can deal with the water.”
- Steven Slabbers

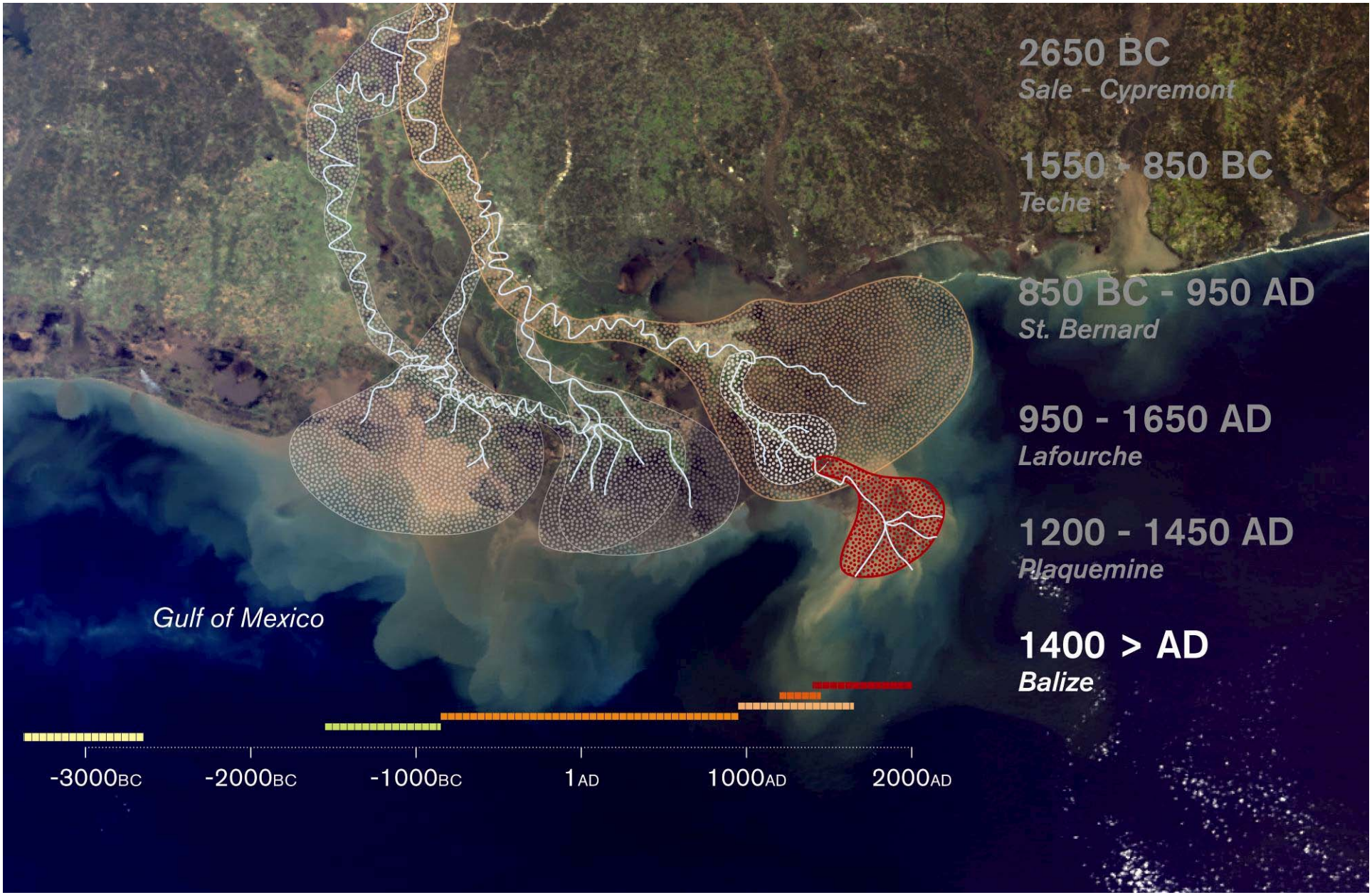
Louisiana's Coast

GEOGRAPHY AND EVOLUTION

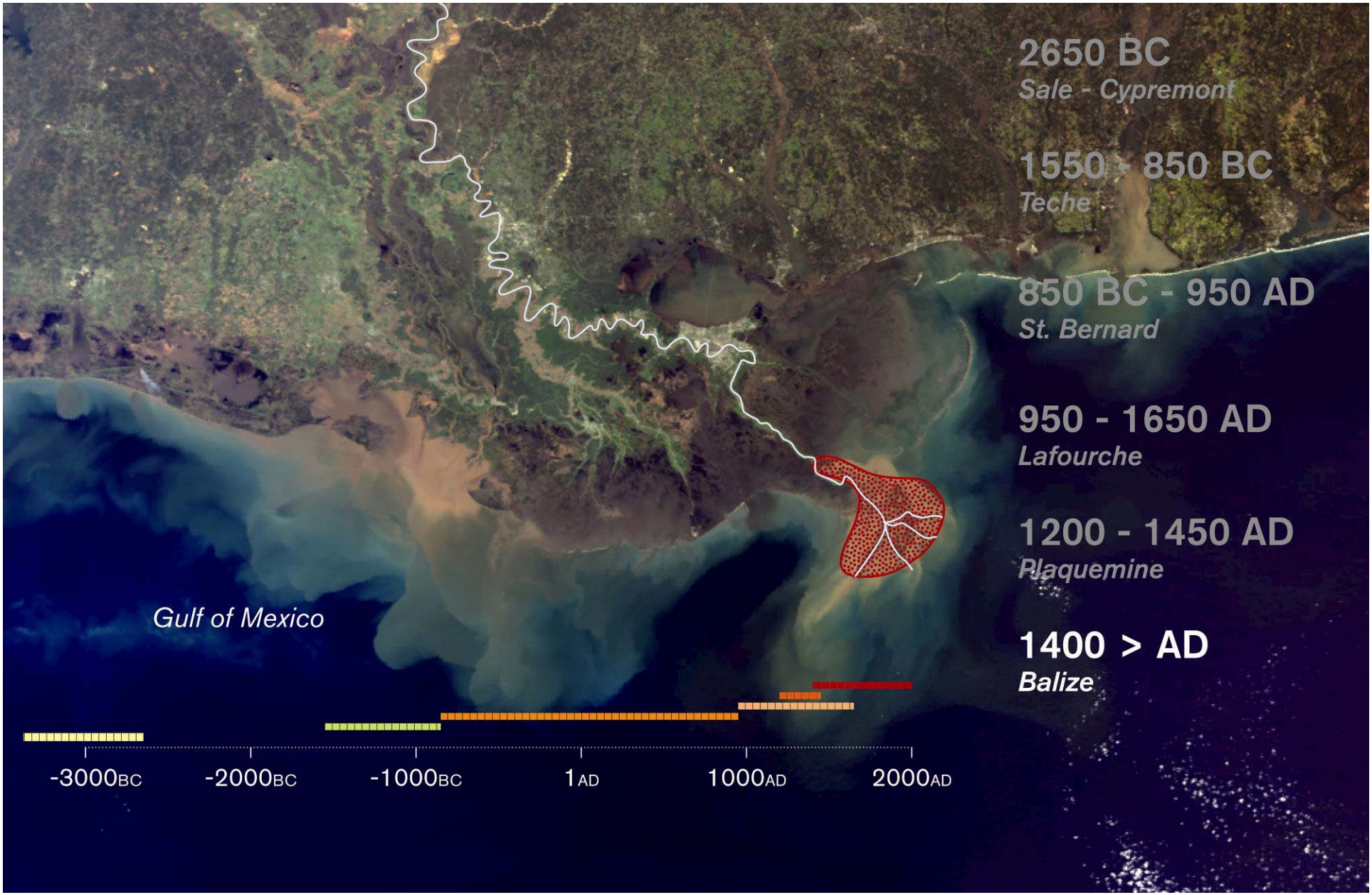
Mississippi Drainage Basin

U.S. Army Corps of Engineers http://www.mvn.usace.army.mil/bcarre/missdrainage.asp

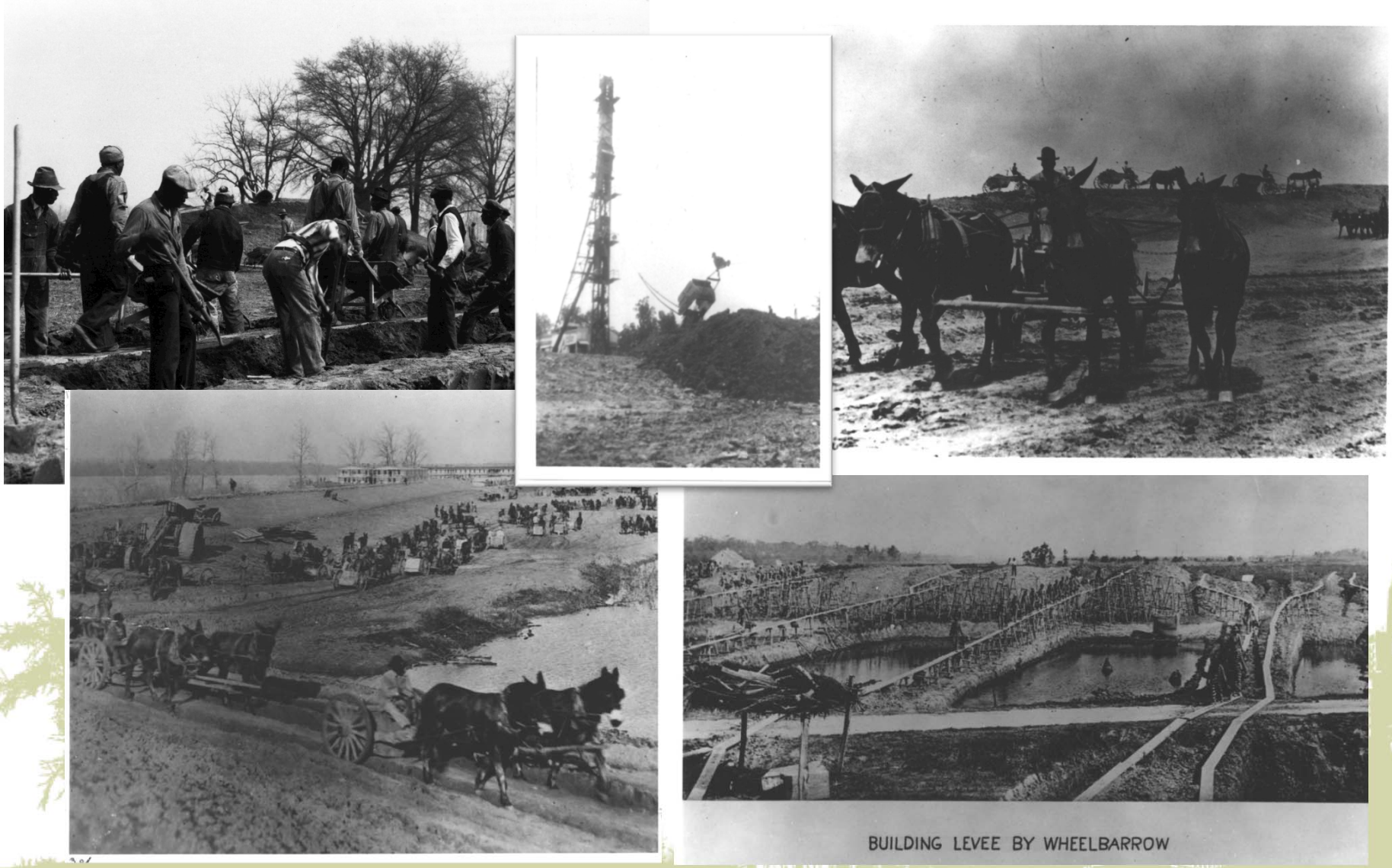
Creation of Mississippi Delta



Current Sedimentation



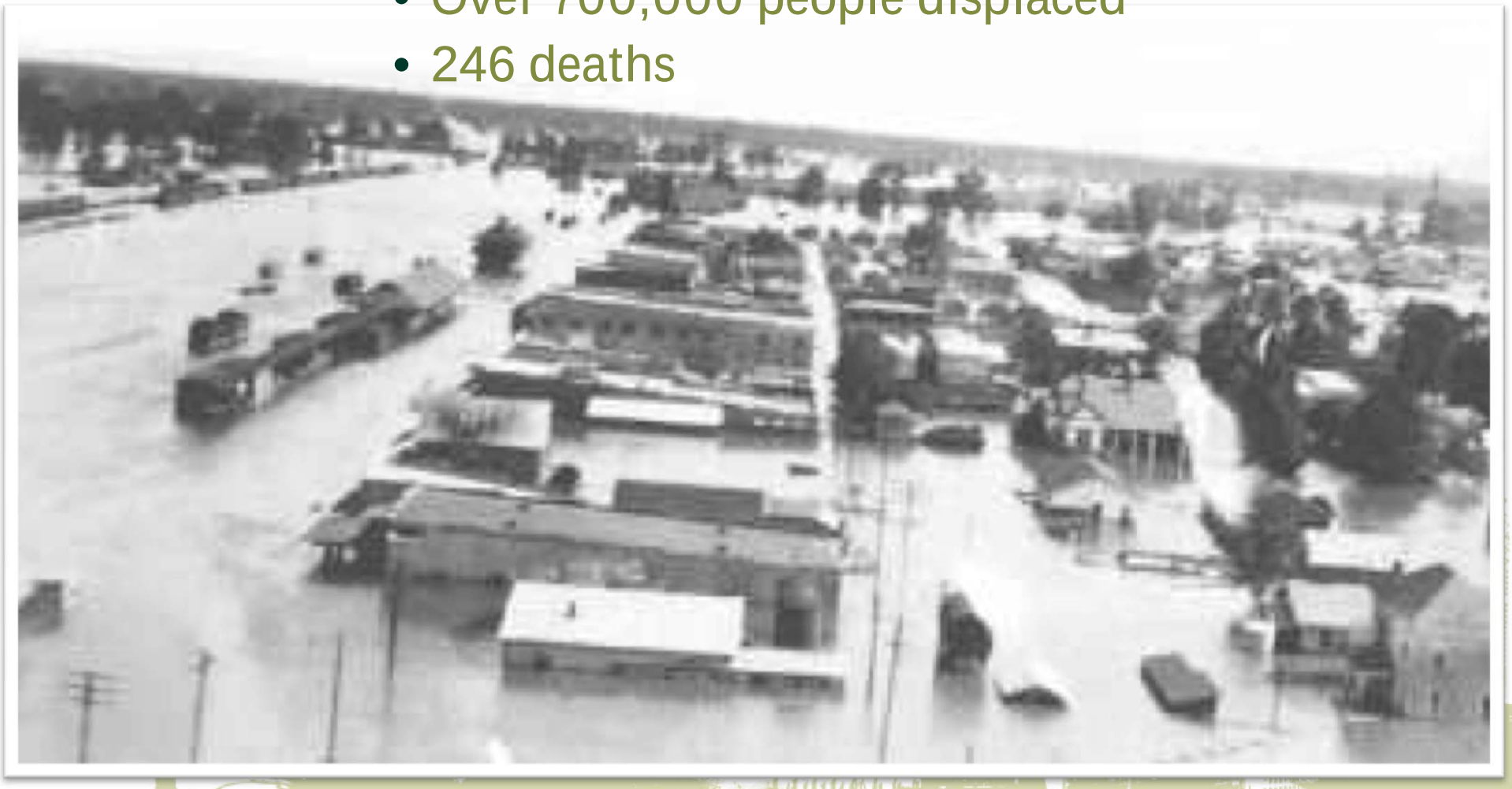
Mississippi River Levee Construction (ca.1900)



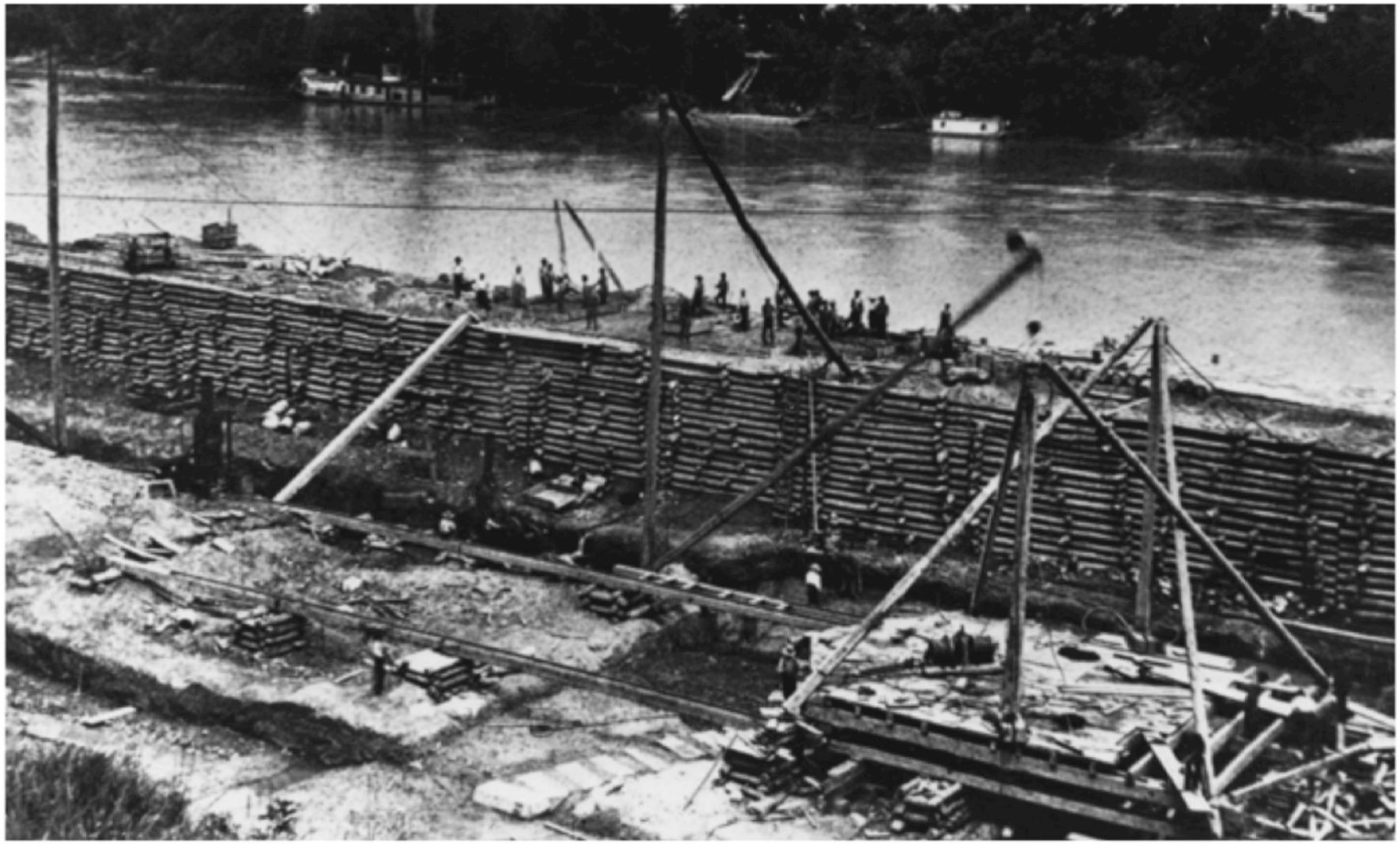
Source: US Army Corps of Engineers; http://www.mvd.usace.army.mil/mrc/history/index.php

The Great Flood of 1927

- Most destructive river flood
- Over 700,000 people displaced
- 246 deaths



Mississippi River & Tributaries



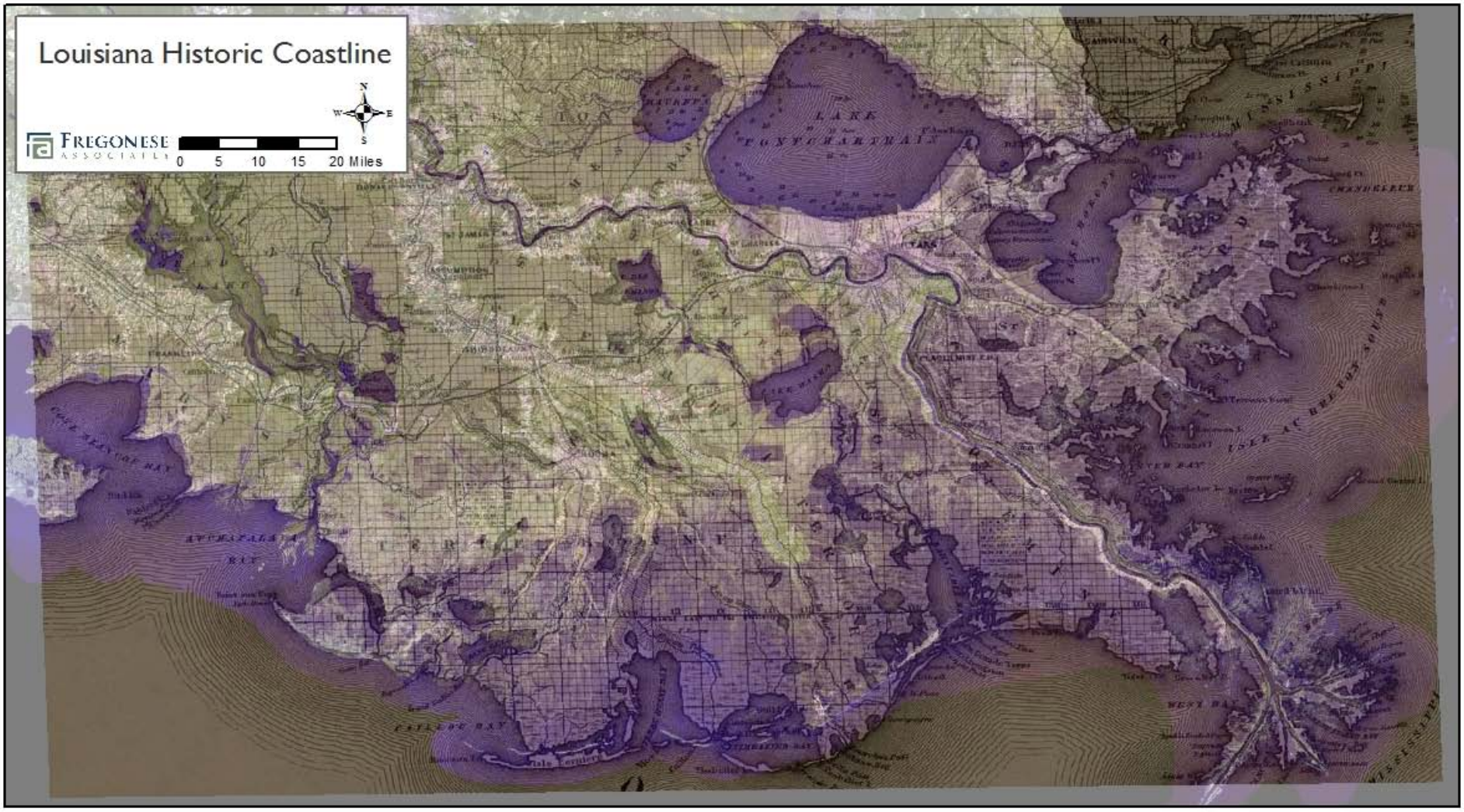
GEOGRAPHY AND EVOLUTION

The Louisiana Coast

1932-2000 >2000 sq miles lost

GEOGRAPHY AND EVOLUTION

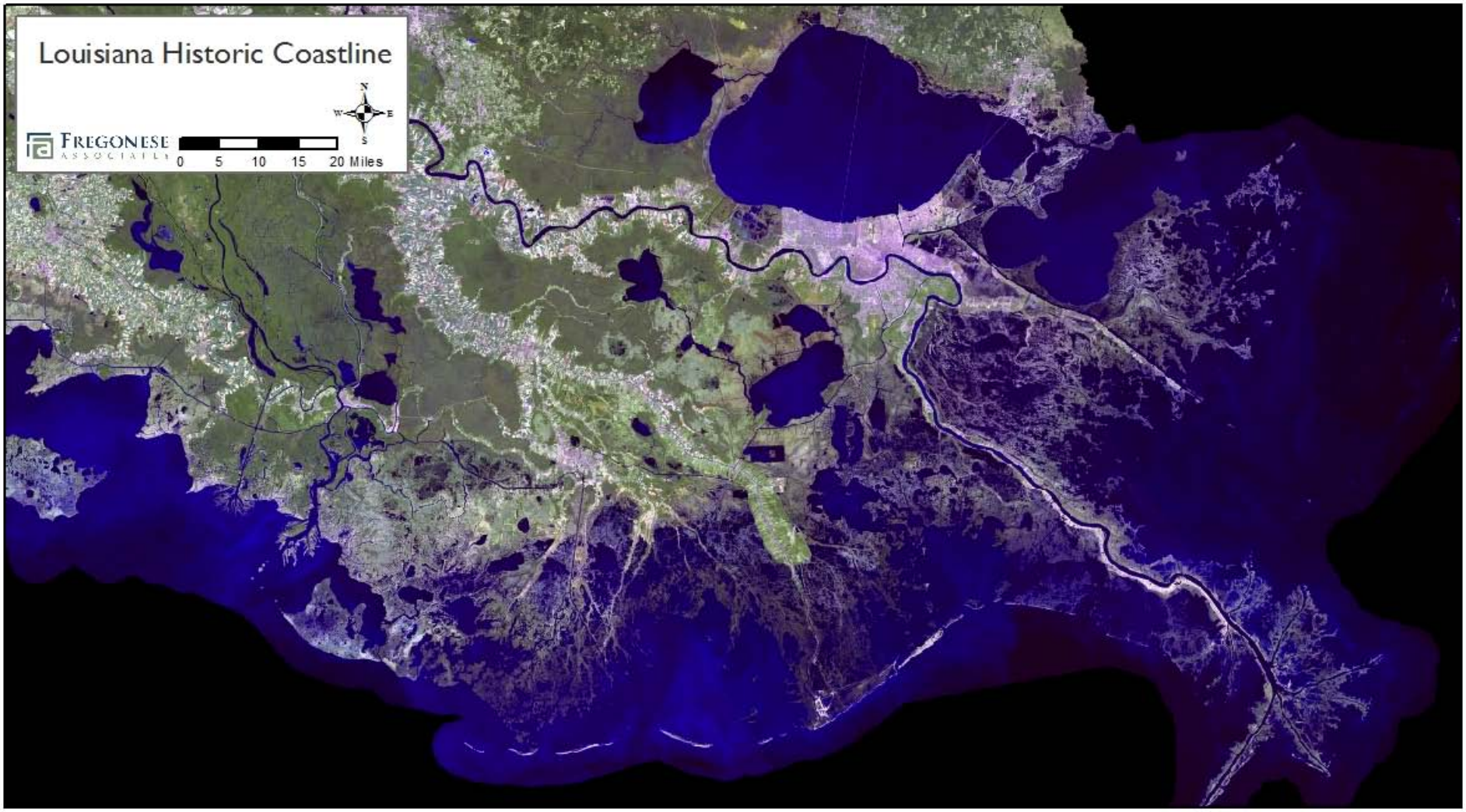
The Louisiana Coast



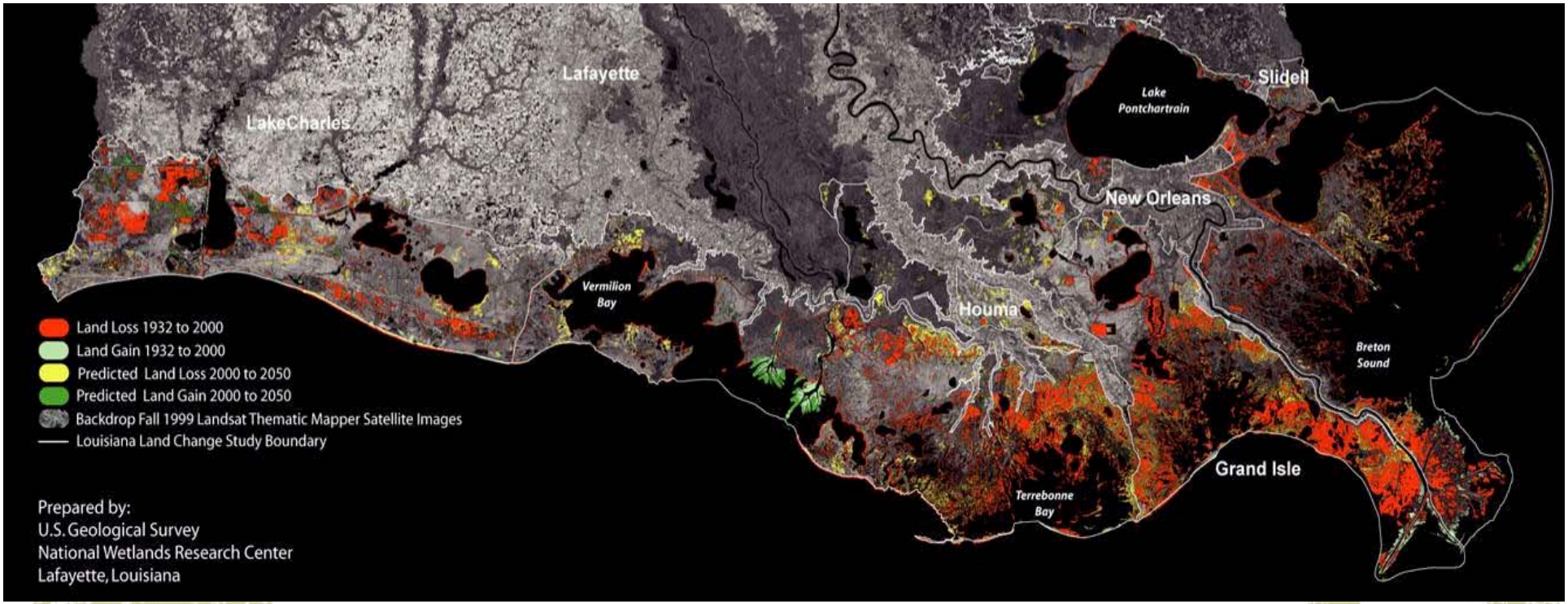
GEOGRAPHY AND EVOLUTION

The Louisiana Coast

2000-2005 > 217 sq miles lost

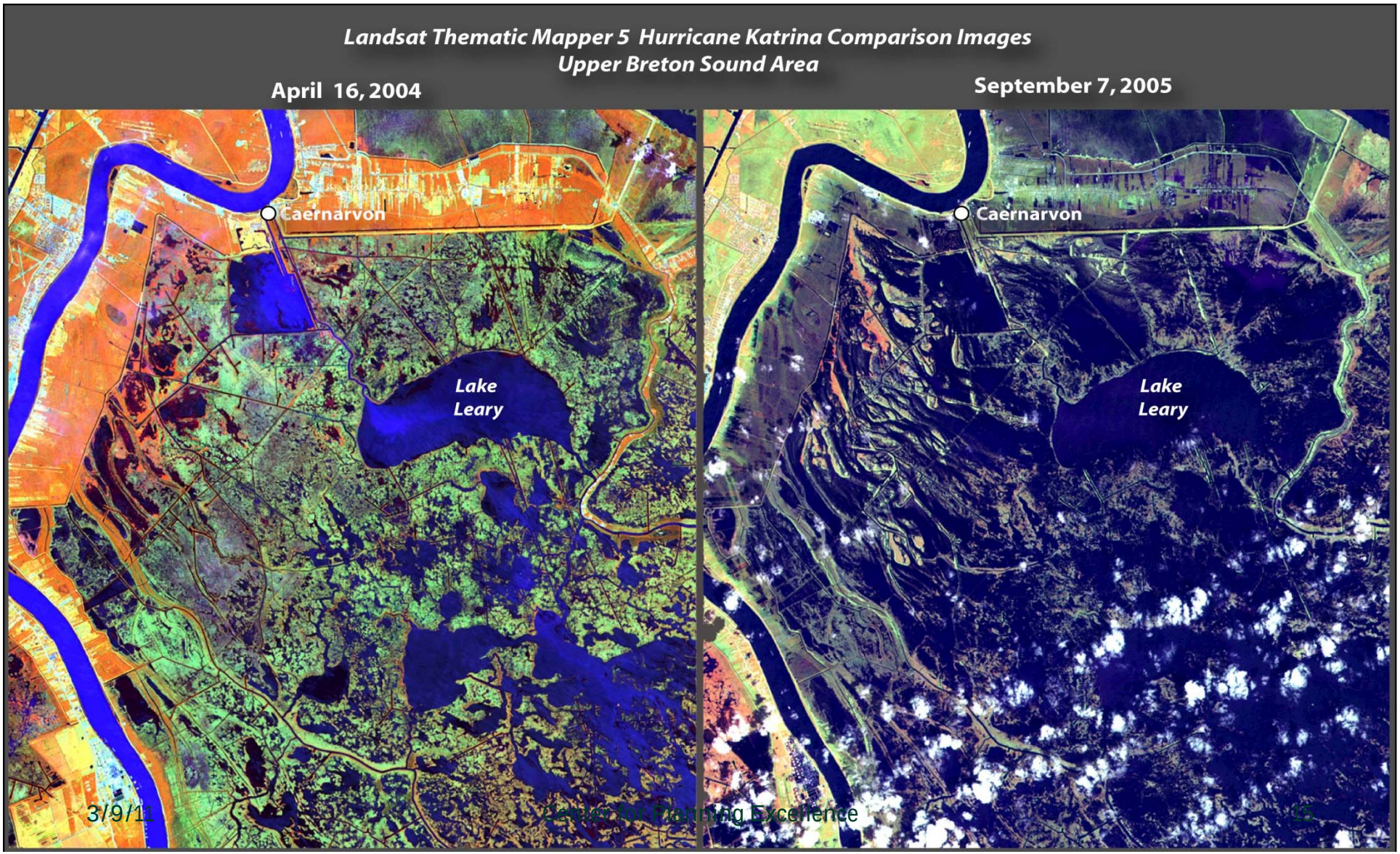


Dealing with Coastal Land Loss



GEOGRAPHY AND EVOLUTION

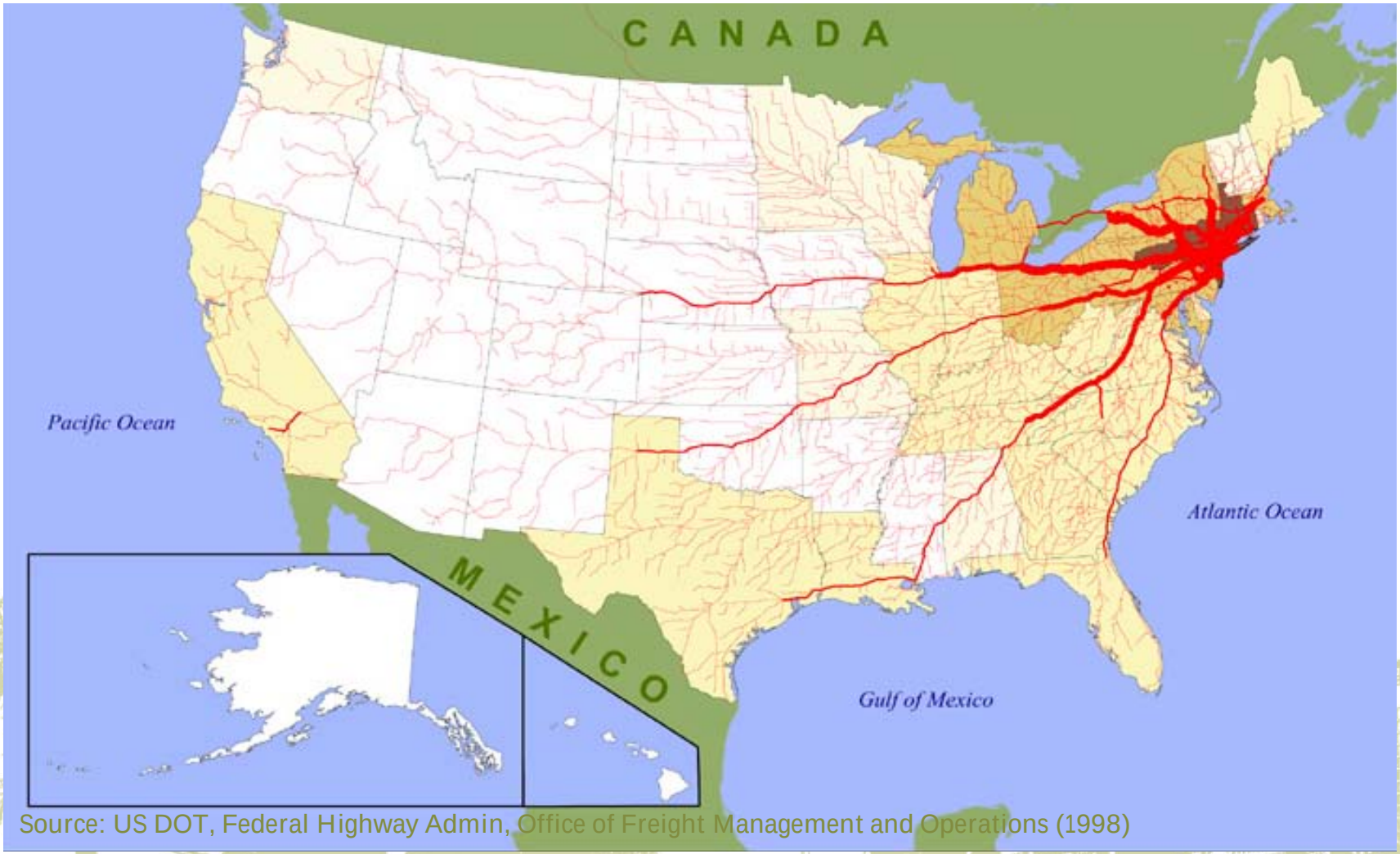
Aggressive Efforts are Needed



ASSETS

Total Combined Truck Flows

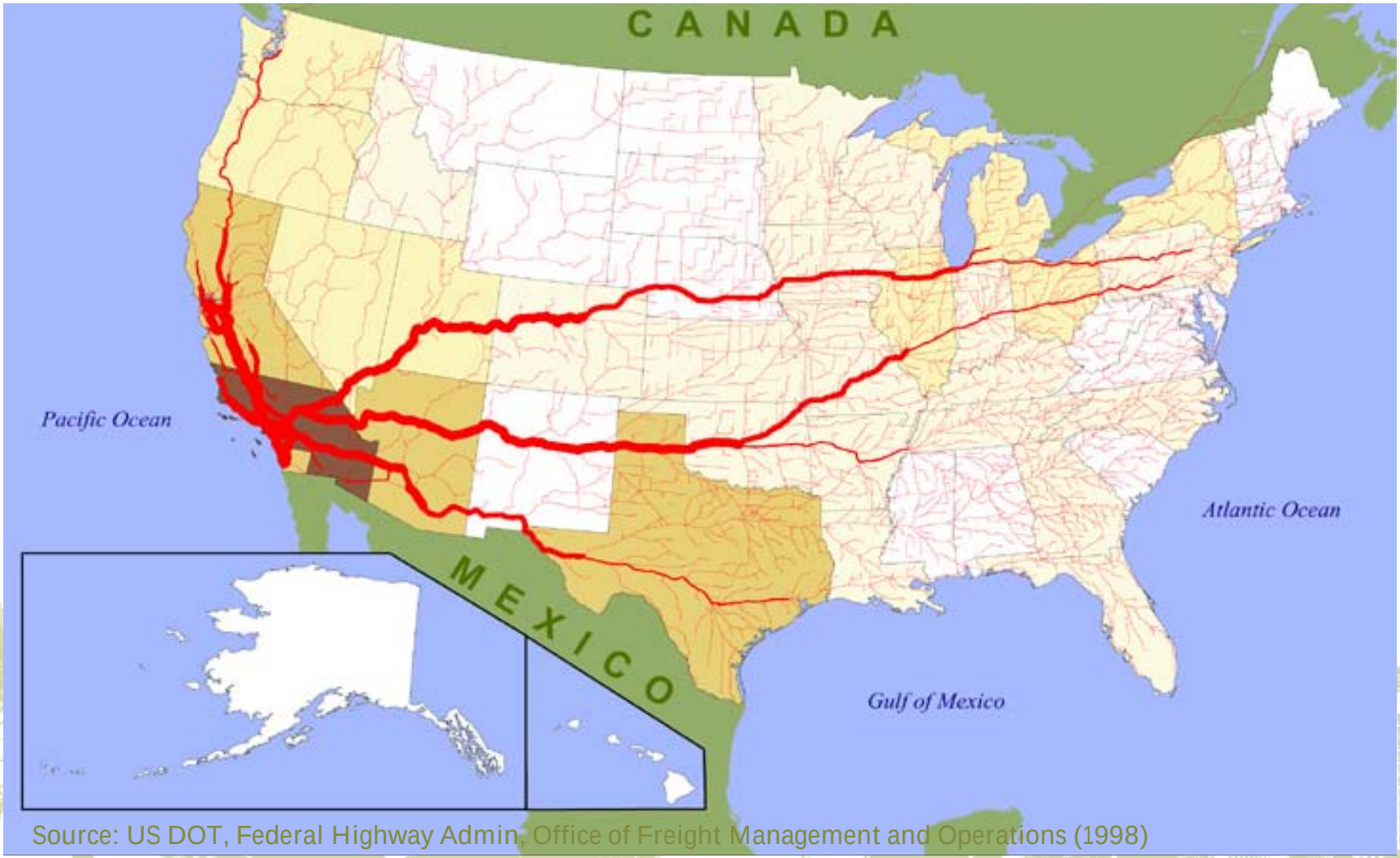
New York, NY



Source: US DOT, Federal Highway Admin, Office of Freight Management and Operations (1998)

Total Combined Truck Flows

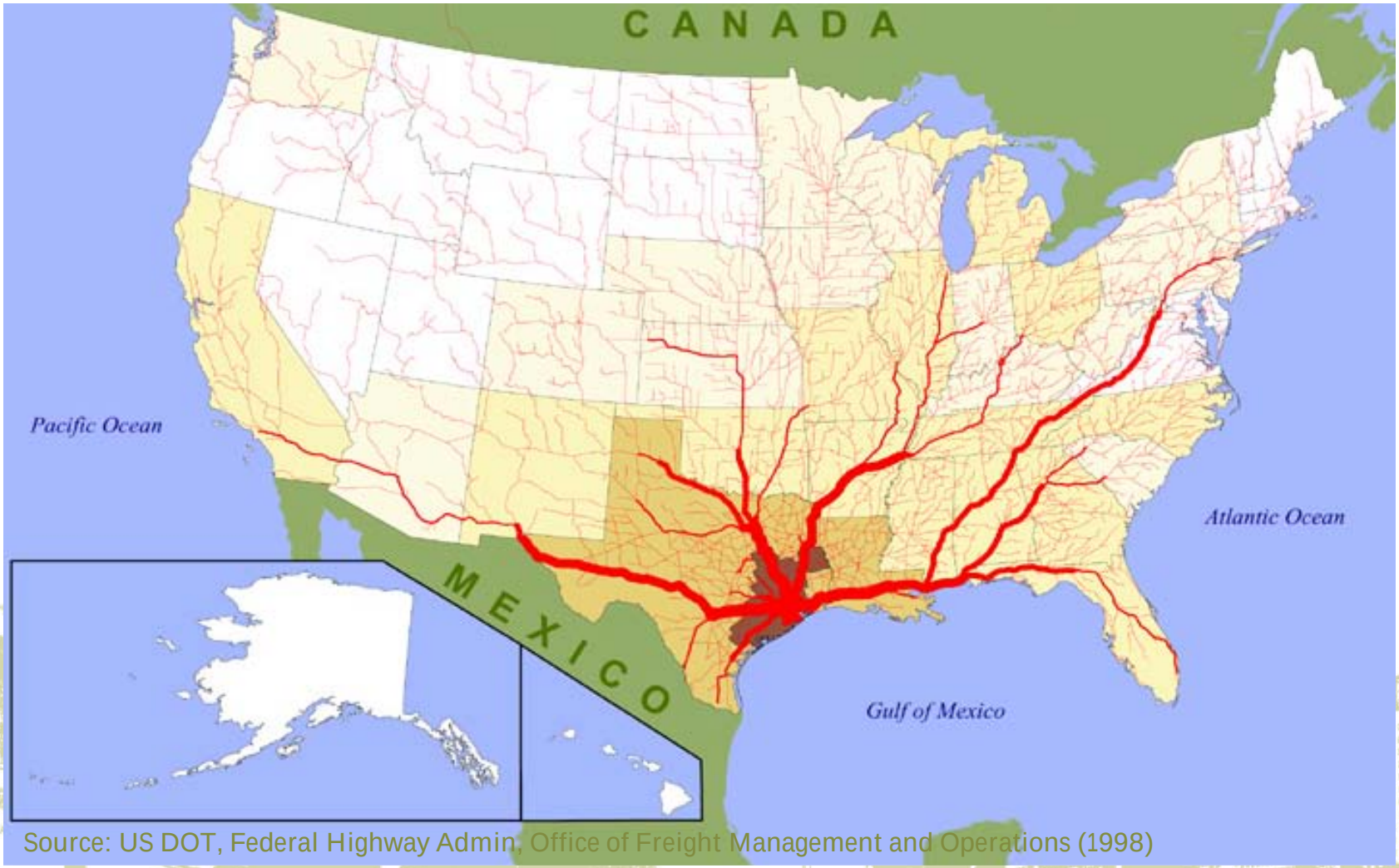
Los Angeles, CA



Source: US DOT, Federal Highway Admin, Office of Freight Management and Operations (1998)

Total Combined Truck Flows

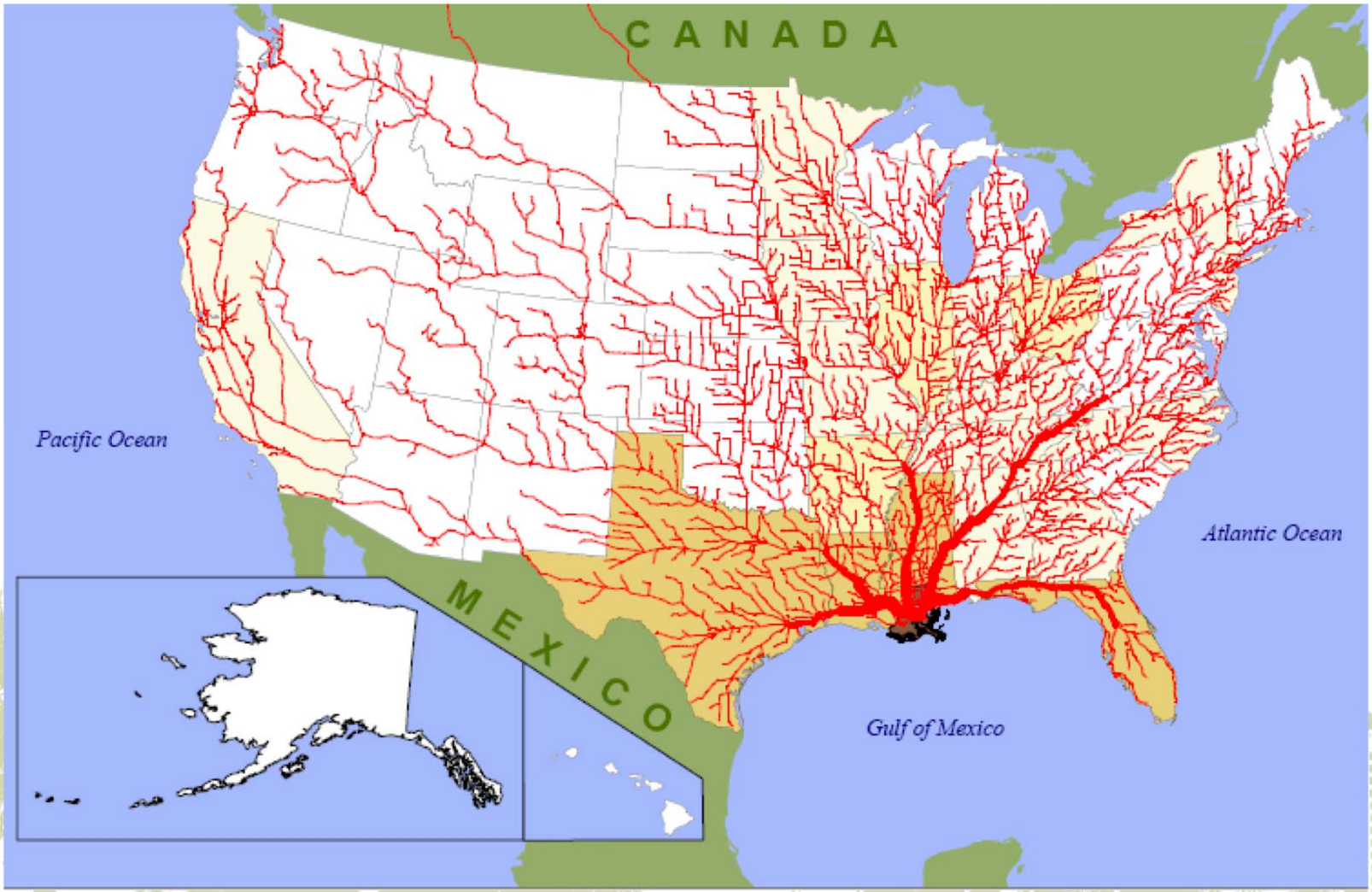
Houston, TX



Source: US DOT, Federal Highway Admin, Office of Freight Management and Operations (1998)

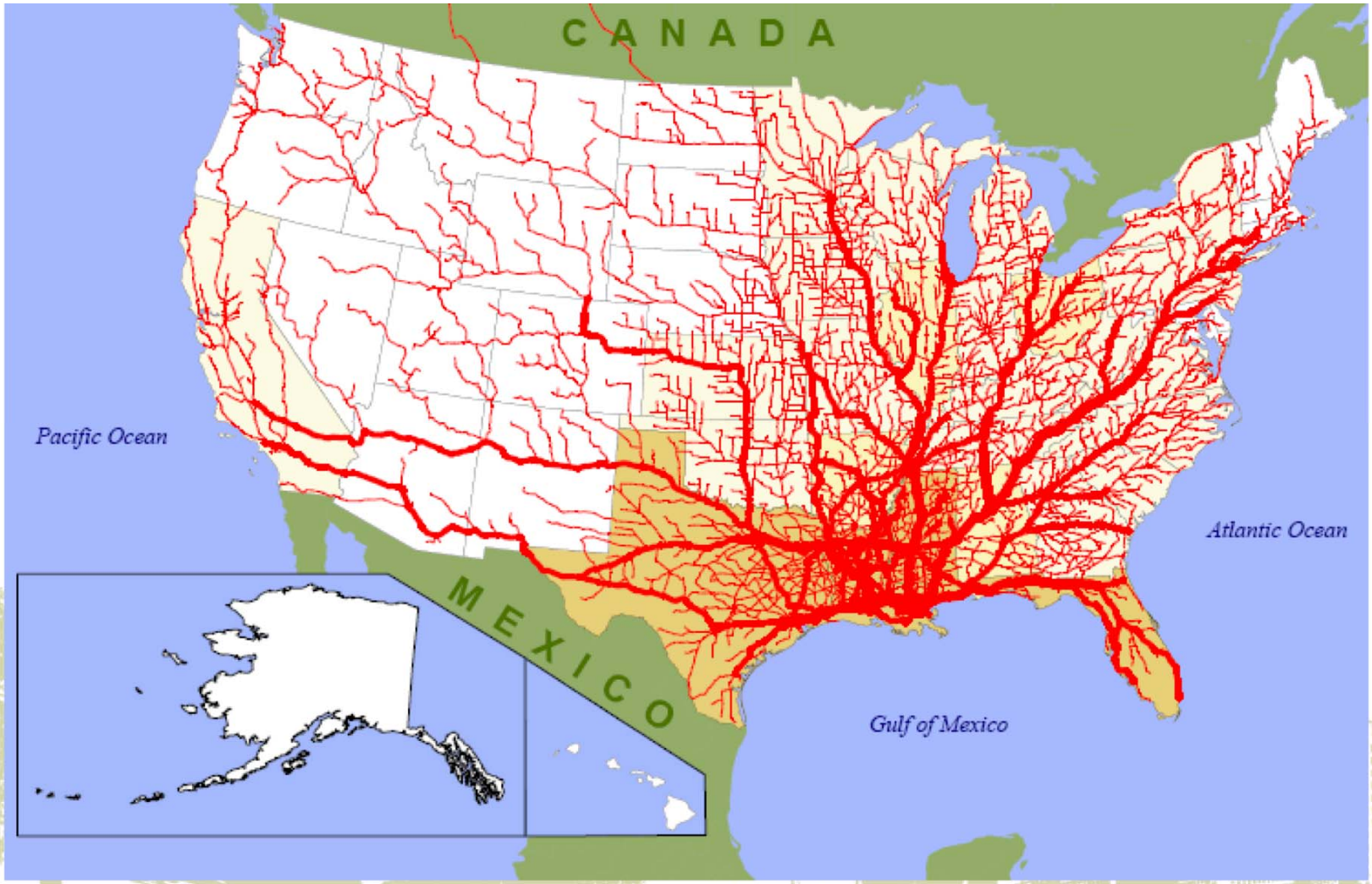
Total Combined Truck Flows

New Orleans, LA



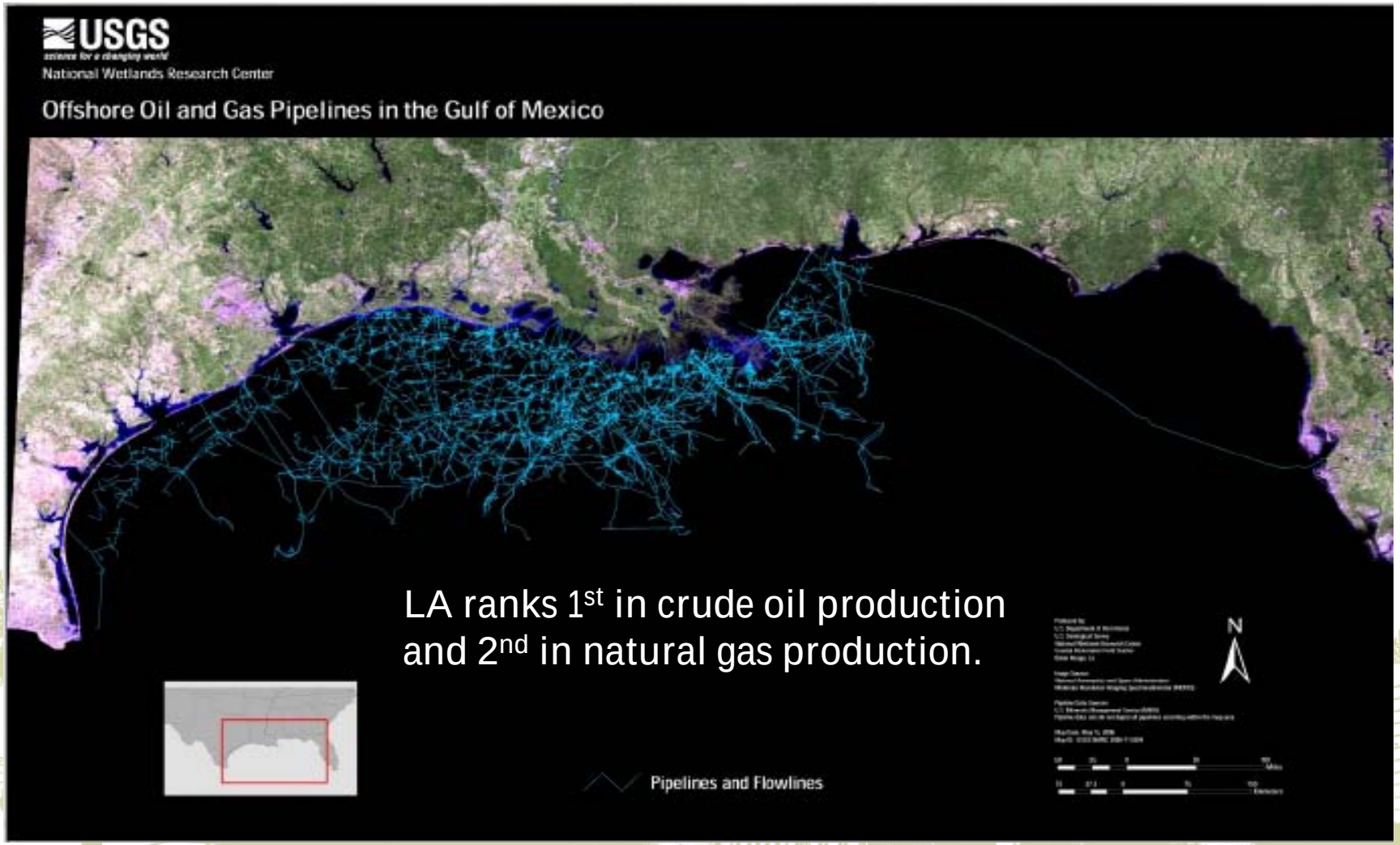
Total Combined Truck Flows

Louisiana

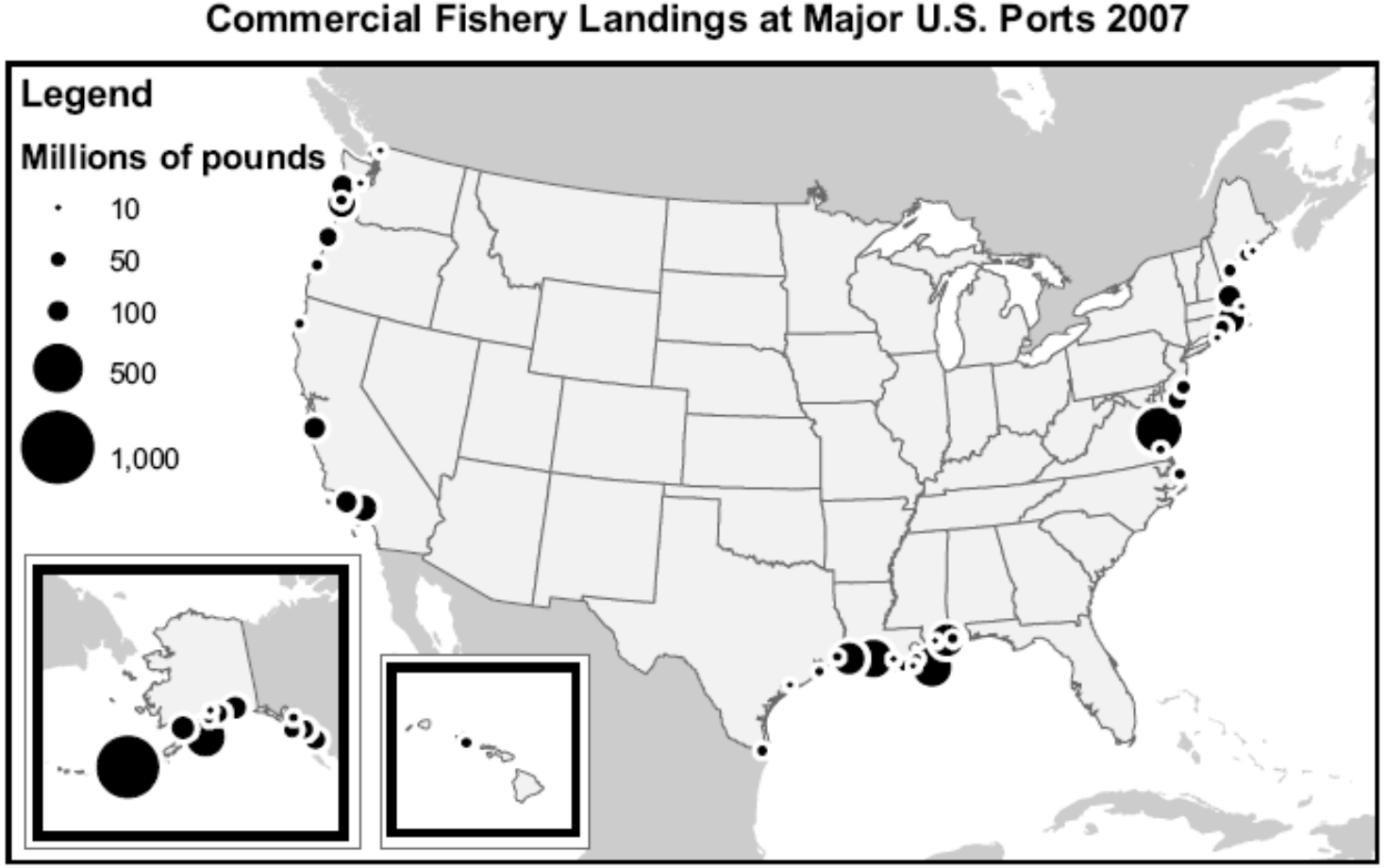


Tonnage on Domestic Waterway Network

Offshore oil and gas pipelines in Gulf of Mexico



Nation's Top Fishing Ports



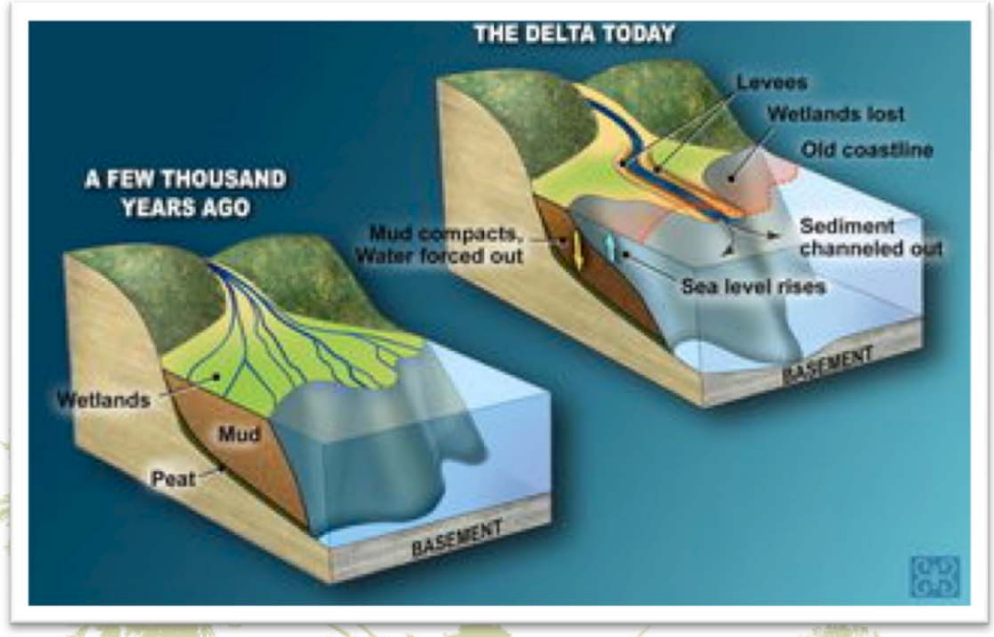
Source: NOAA Fisheries 2008

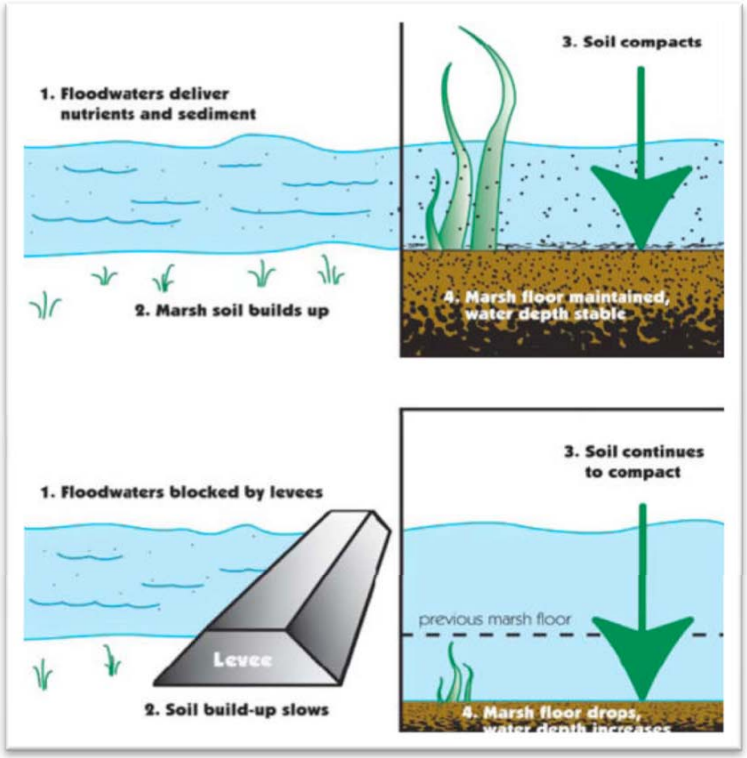
THREATS

Levees

Impact and Effect

Channeling of sediment deposits into Gulf of Mexico instead of coastal wetlands





causing **subsidence** and **erosion** and thus

Less Protection from Storms

Canals

Impact and Effect

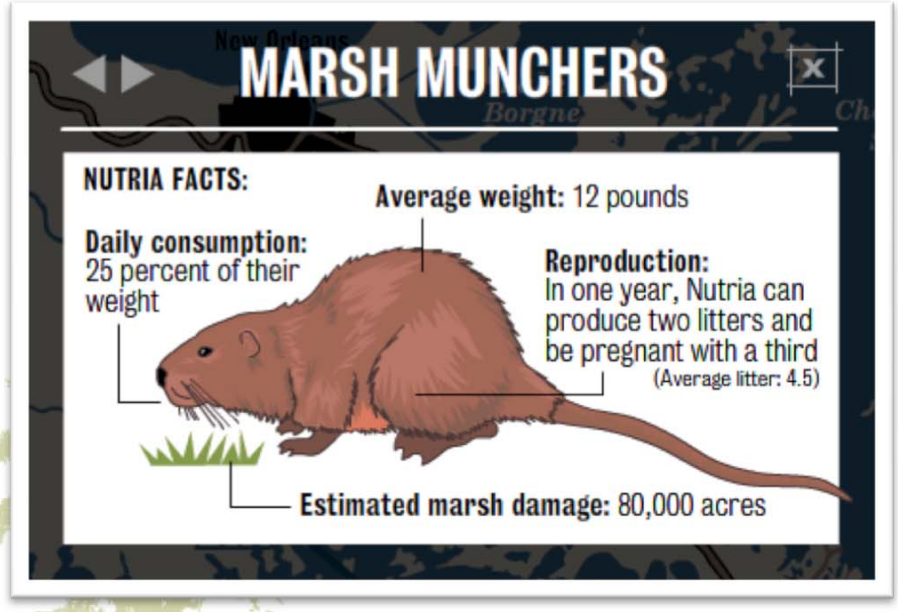
- Destroy wetlands directly
- Spoil banks cut off natural water supply to wetlands

causing **salt water intrusion** and **erosion**

Invasive Species

Impact and Effect

Damage marshes by burrowing and feeding on vegetation

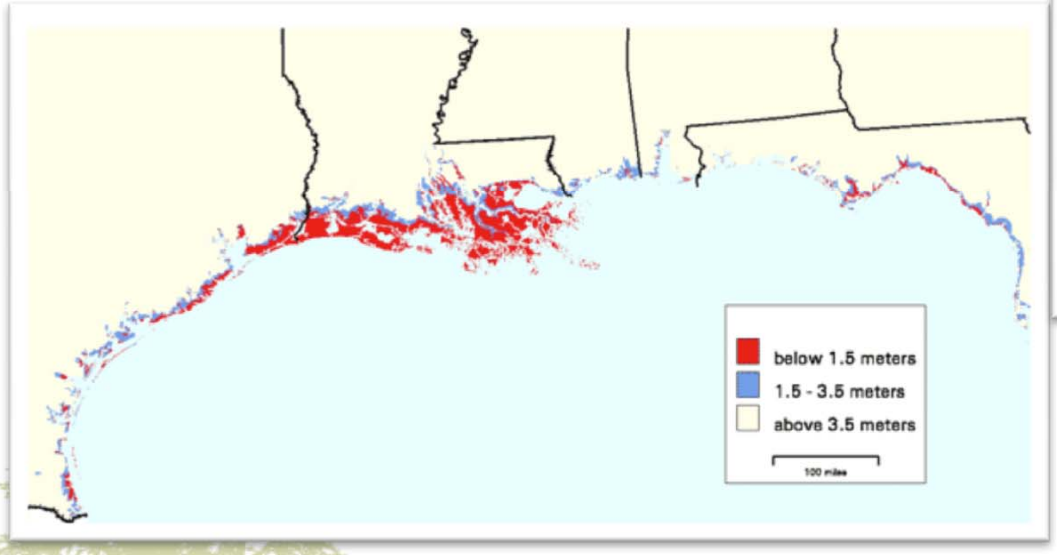


causing **erosion**

Relative Sea Level Rise

Impact and Effect

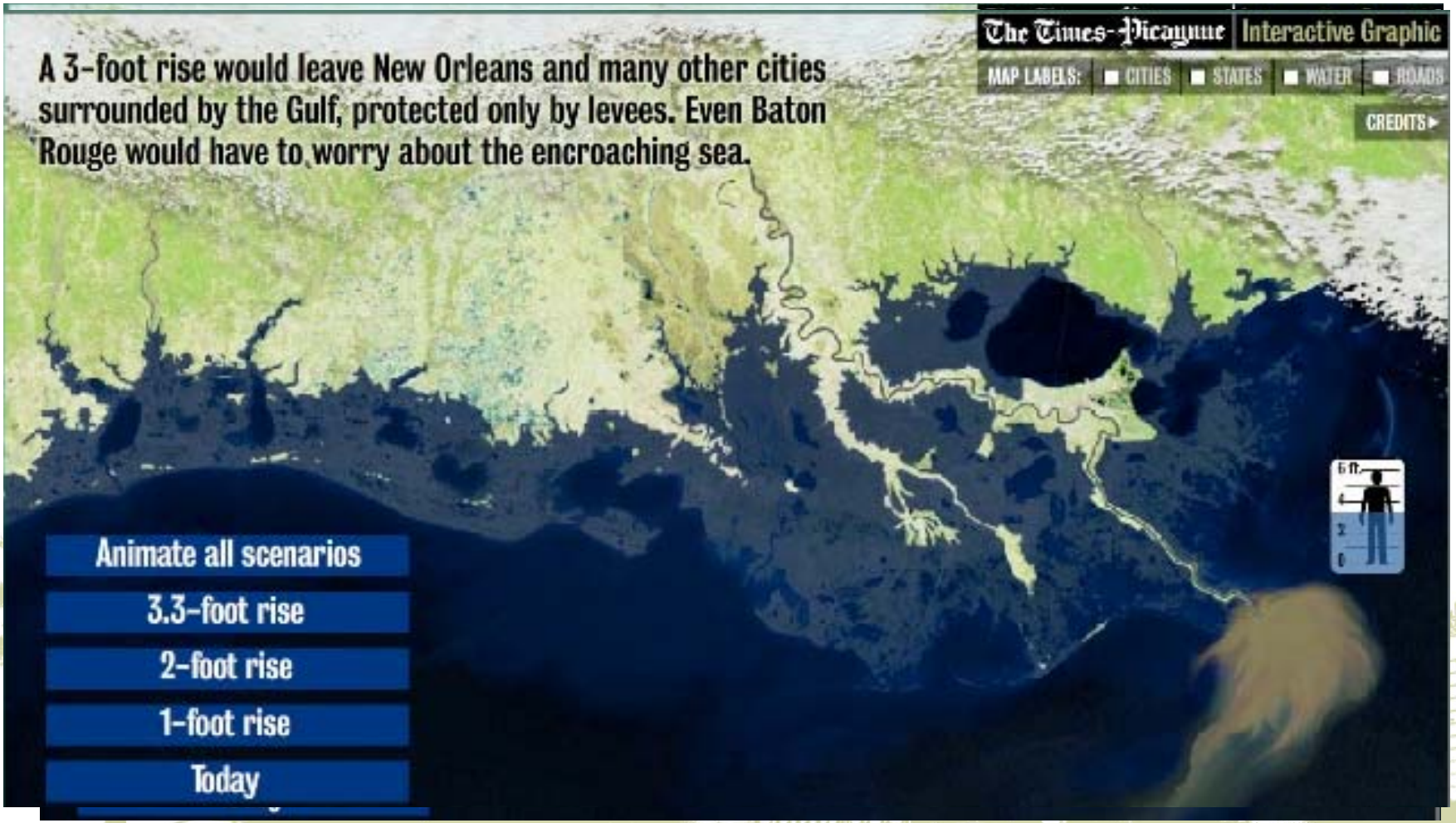
Inundation of wetlands and other low-laying lands



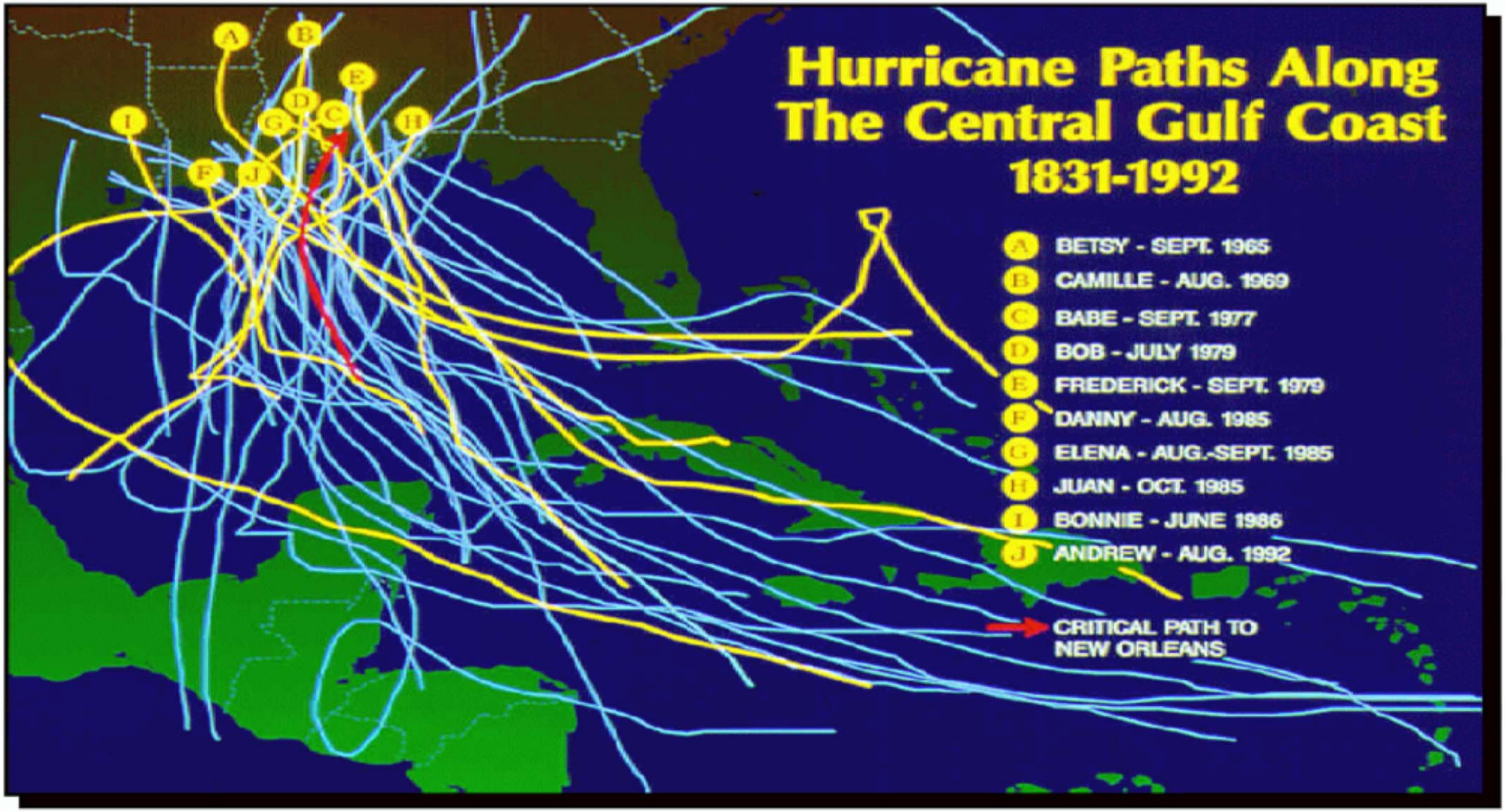
causing **erosion**, intensified **flooding** and **salt-water intrusion**

Relative Sea Level Rise

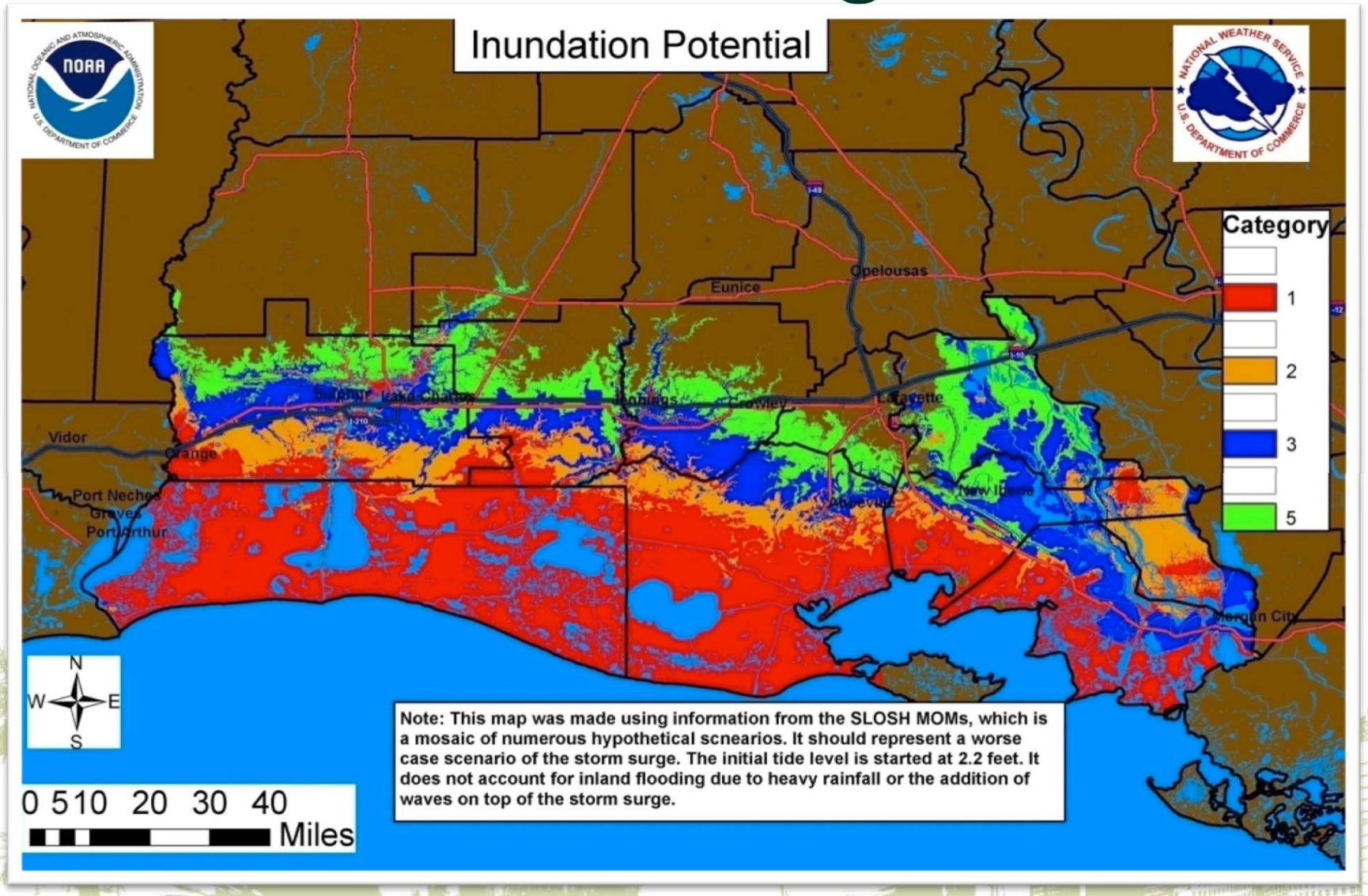
1 – 3 foot rise



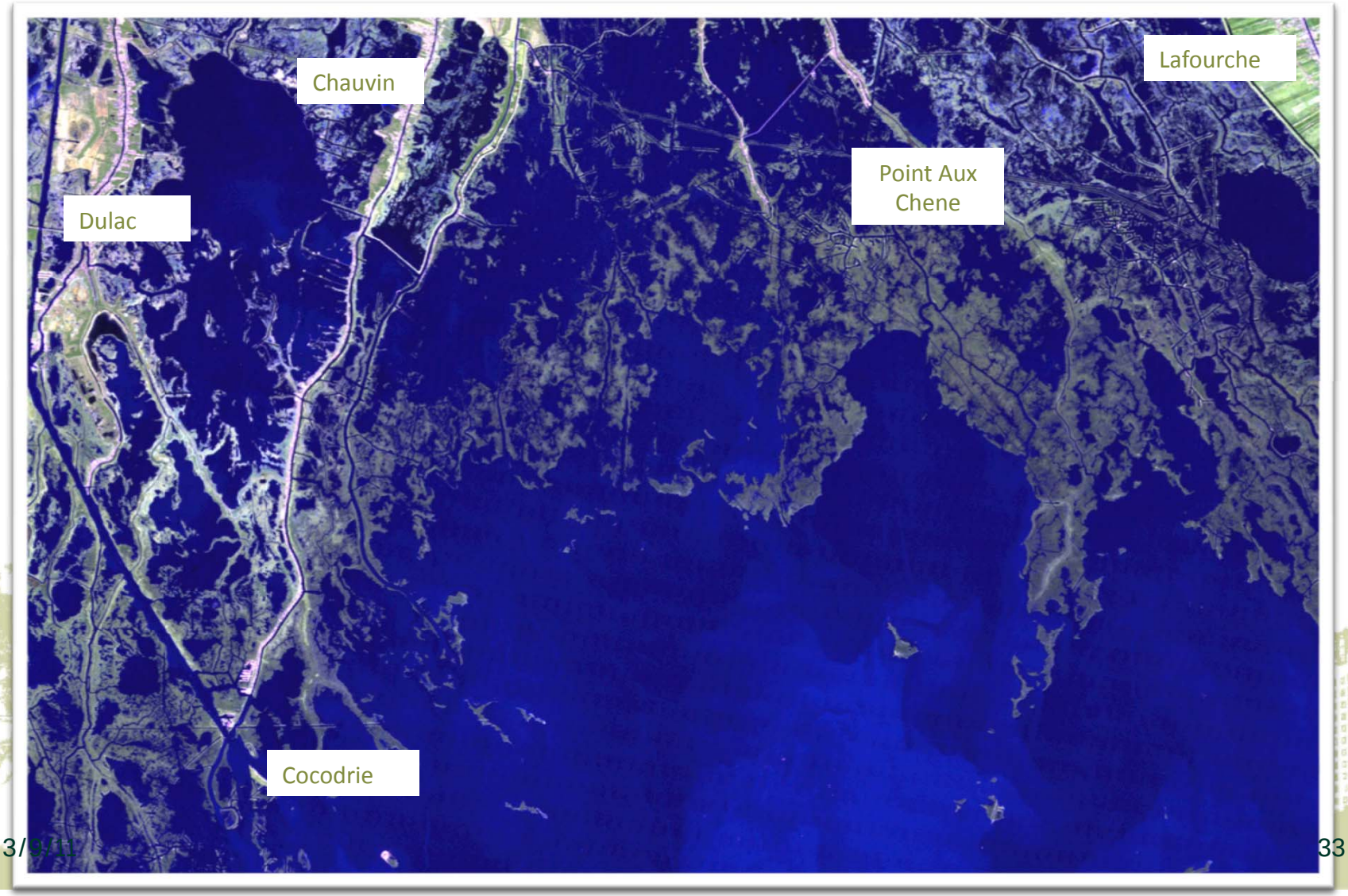
Hurricanes


Hurricane Paths Along
The Central Gulf Coast
1831-1992
A BETSY - SEPT. 1965
B CAMILLE - AUG. 1969
C BABE - SEPT. 1977
D BOB - JULY 1979
E FREDERICK - SEPT. 1979
F DANNY - AUG. 1985
G ELENA - AUG.-SEPT. 1985
H JUAN - OCT. 1985
I BONNIE - JUNE 1986
J ANDREW - AUG. 1992
CRITICAL PATH TO
NEW ORLEANS

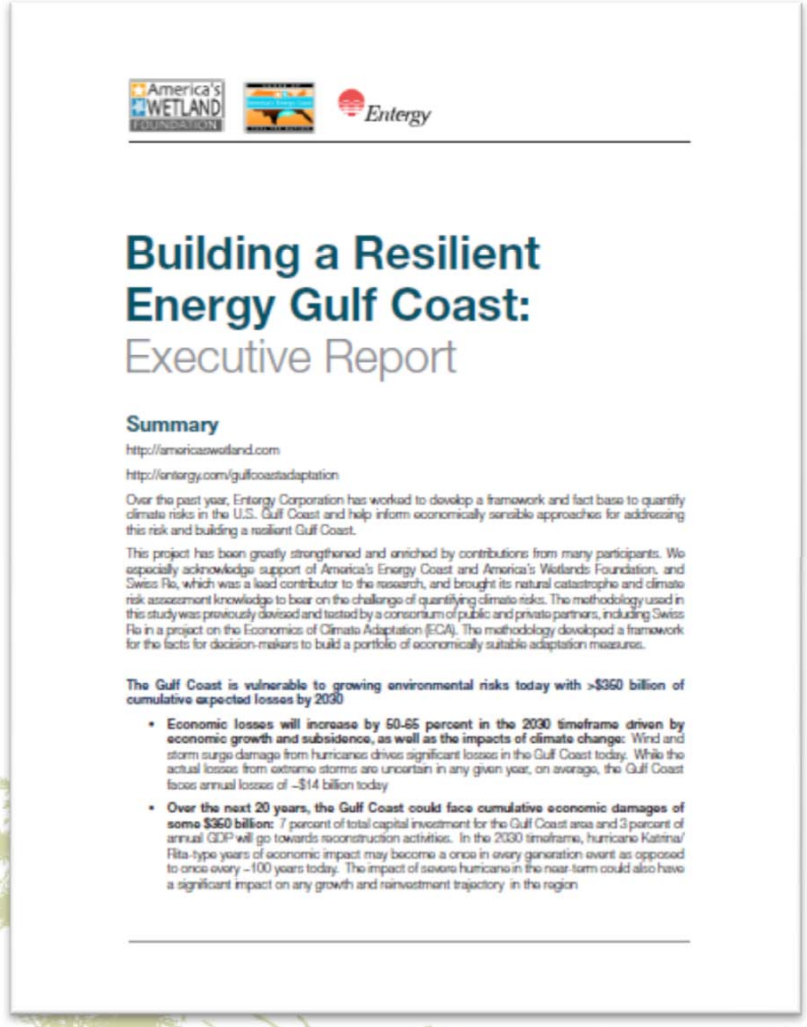
Storm Surge


Inundation Potential
Category
1
2
3
5
Opelousas
Eunice
Jennings
Crowley
Lafayette
Lake Charles
Vidor
Orange
Port Neches
Port Arthur
Morgan City
N
W
E
S
0 5 10 20 30 40
Miles
Note: This map was made using information from the SLOSH MOMs, which is a mosaic of numerous hypothetical scnearios. It should represent a worse case scenario of the storm surge. The initial tide level is started at 2.2 feet. It does not account for inland flooding due to heavy rainfall or the addition of waves on top of the storm surge.

Terrebonne Land/Water Change 1988-2005



Great Economic Loss



America's WETLAND FOUNDATION

Entergy

Building a Resilient Energy Gulf Coast:
Executive Report

Summary

http://americaswetland.com

http://entergy.com/gulfcoastadaptation

Over the past year, Entergy Corporation has worked to develop a framework and fact base to quantify climate risks in the U.S. Gulf Coast and help inform economically sensible approaches for addressing this risk and building a resilient Gulf Coast.

This project has been greatly strengthened and enriched by contributions from many participants. We especially acknowledge support of America's Energy Coast and America's Wetlands Foundation, and Swiss Re, which was a lead contributor to the research, and brought its natural catastrophe and climate risk assessment knowledge to bear on the challenge of quantifying climate risks. The methodology used in this study was previously devised and tested by a consortium of public and private partners, including Swiss Re in a project on the Economics of Climate Adaptation (ECA). The methodology developed a framework for the facts for decision-makers to build a portfolio of economically suitable adaptation measures.

The Gulf Coast is vulnerable to growing environmental risks today with >$360 billion of cumulative expected losses by 2030

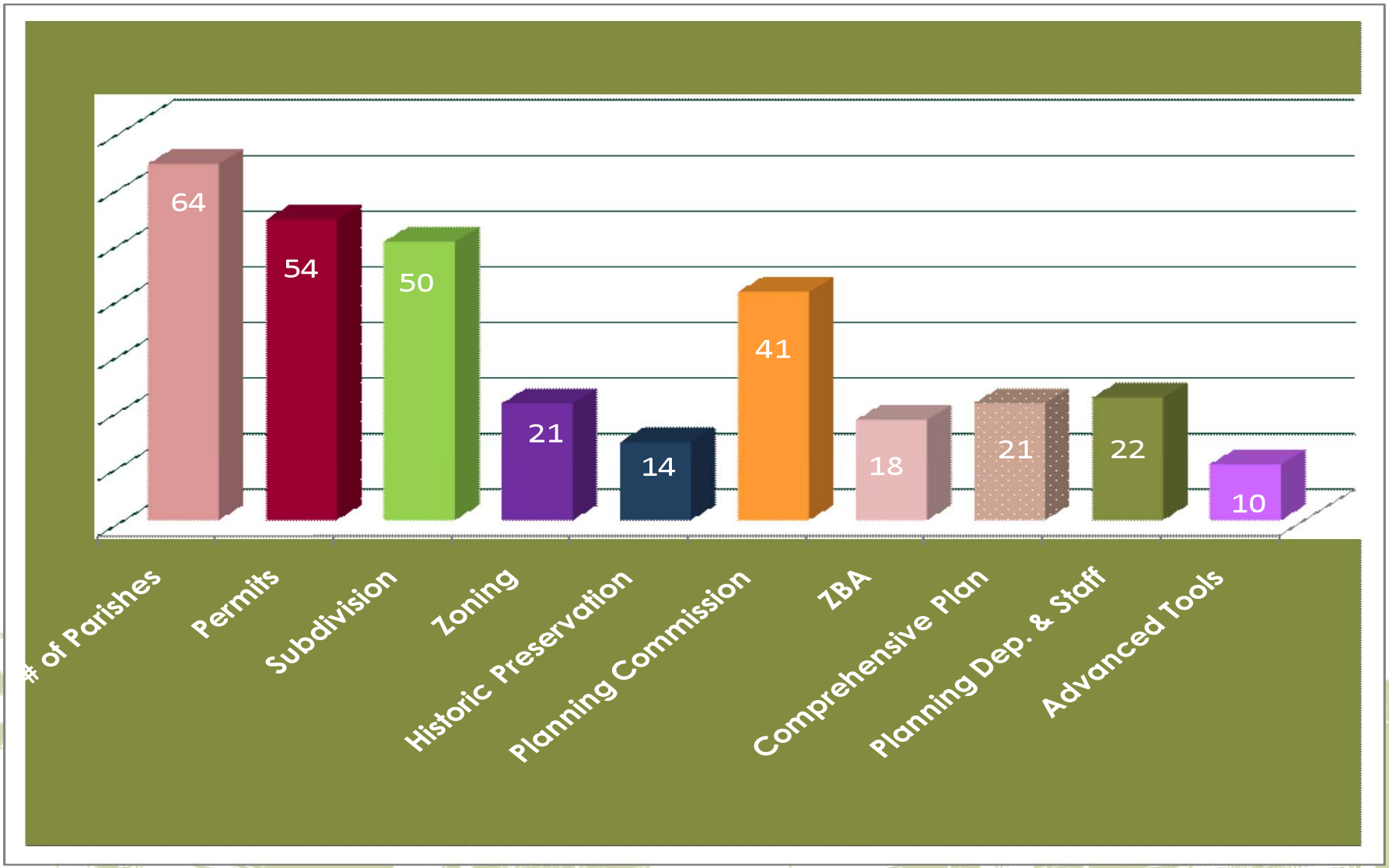
- **Economic losses will increase by 50-65 percent in the 2030 timeframe driven by economic growth and subsidence, as well as the impacts of climate change:** Wind and storm surge damage from hurricanes drives significant losses in the Gulf Coast today. While the actual losses from extreme storms are uncertain in any given year, on average, the Gulf Coast faces annual losses of ~$14 billion today
- **Over the next 20 years, the Gulf Coast could face cumulative economic damages of some $360 billion:** 7 percent of total capital investment for the Gulf Coast area and 3 percent of annual GDP will go towards reconstruction activities. In the 2030 timeframe, hurricane Katrina/Rita-type years of economic impact may become a once in every generation event as opposed to once every ~100 years today. The impact of severe hurricane in the near-term could also have a significant impact on any growth and reinvestment trajectory in the region

"Economic losses will increase by 50-65 percent in the 2030 timeframe driven by economic growth and subsidence, as well as the impacts of climate change."

Building a Resilient Energy Gulf Coast: Executive Report (2010)

PLANNING IN LOUISIANA

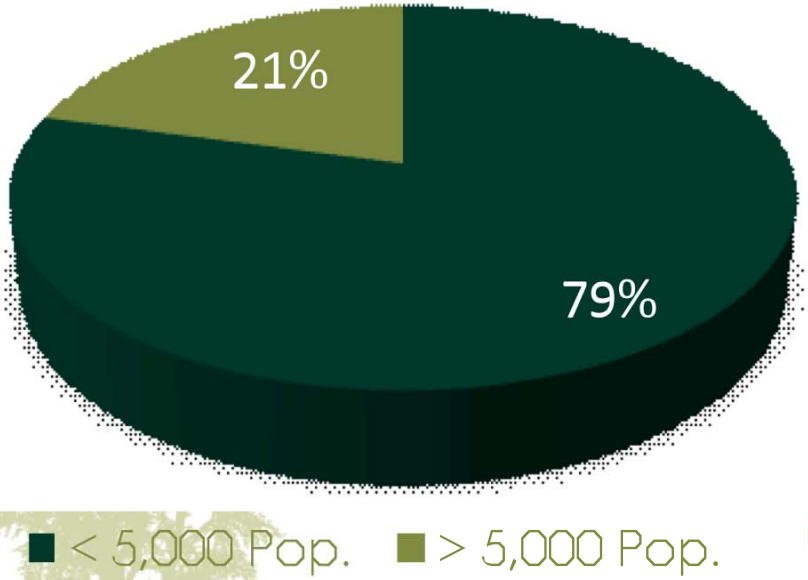
Parish Planning Activities



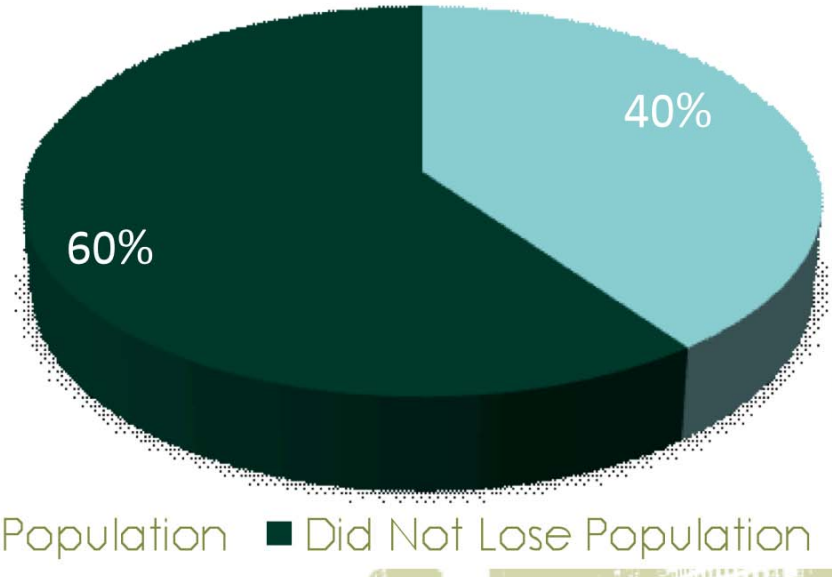
Mc[illegible]ney-Mujica, Lynn. 2007. Factors associated with [illegible] land use planning in Louisiana parishes prior to the hurricane season of 2005. Master's Thesis, Louisiana State University, Baton Rouge.

Municipal Capacity

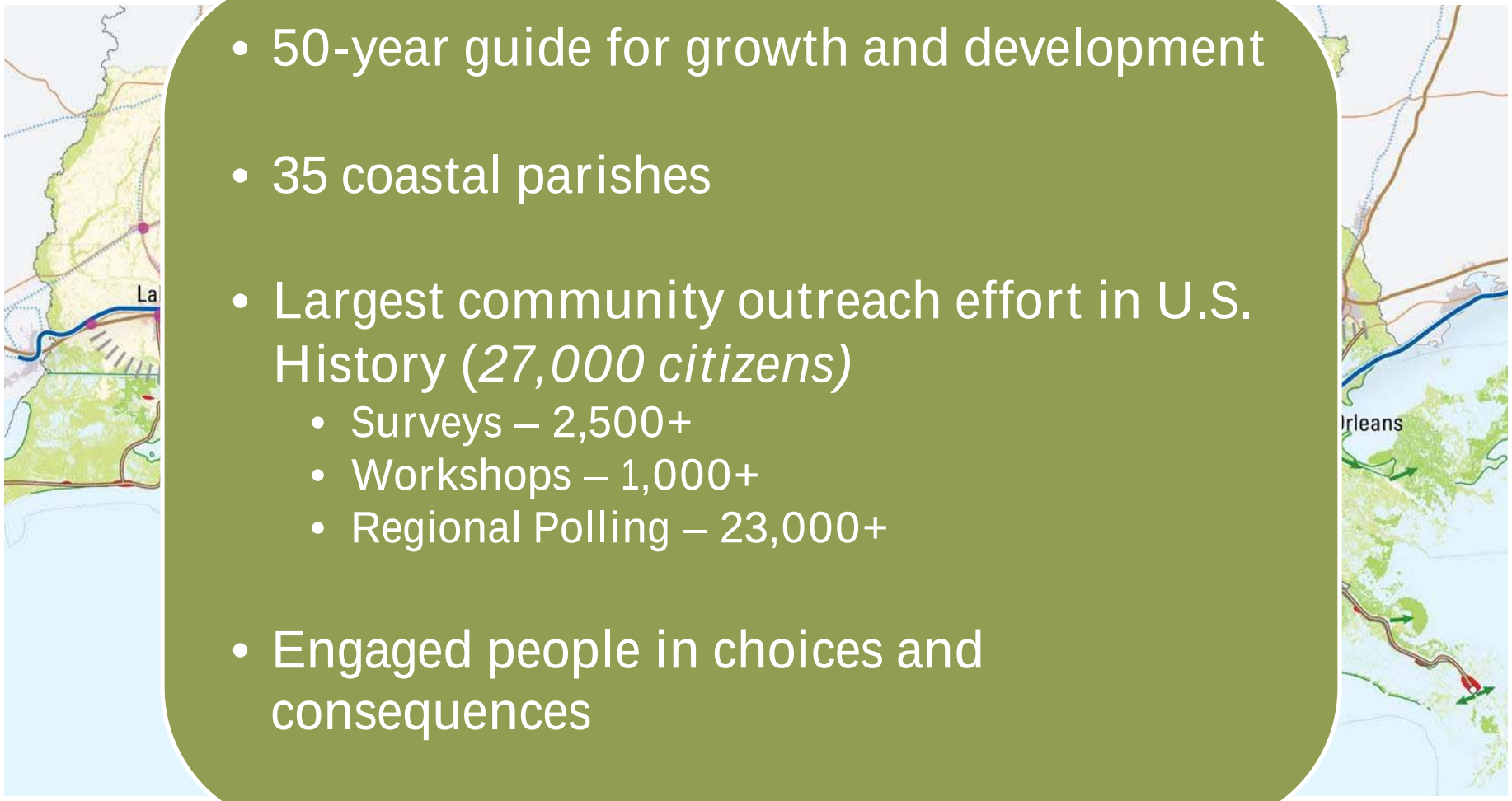
Population of Louisiana Cities, Towns, and Villages



Population Loss
Between 1990 - 2000

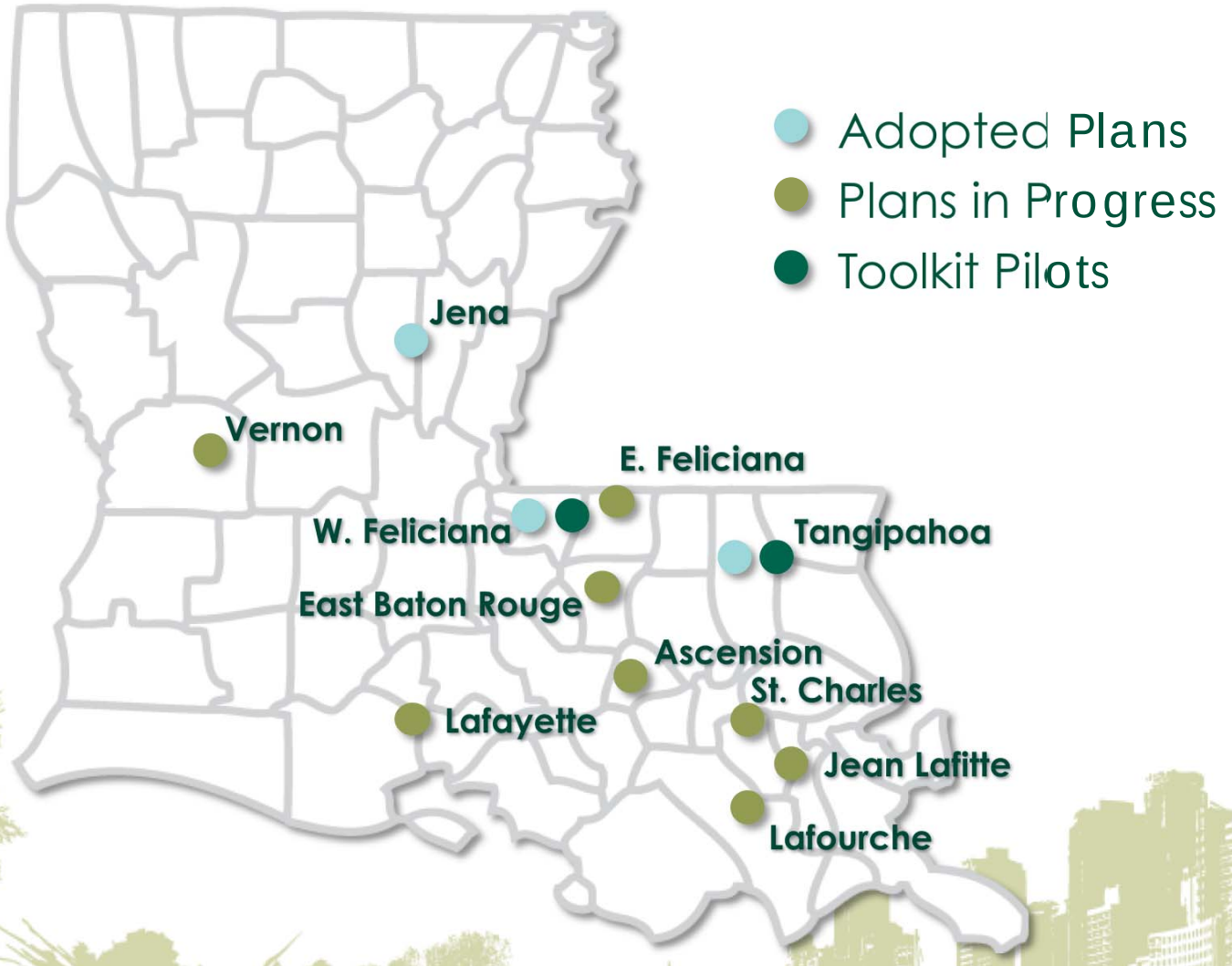


Louisiana Speaks Regional Plan



- 50-year guide for growth and development
- 35 coastal parishes
- Largest community outreach effort in U.S. History (*27,000 citizens)*
  - Surveys – 2,500+
  - Workshops – 1,000+
  - Regional Polling – 23,000+
- Engaged people in choices and consequences

CPEX Community Planning



Best Practices Manual and Coastal Ordinances

COASTAL PLANNING

Why Coastal Communities?

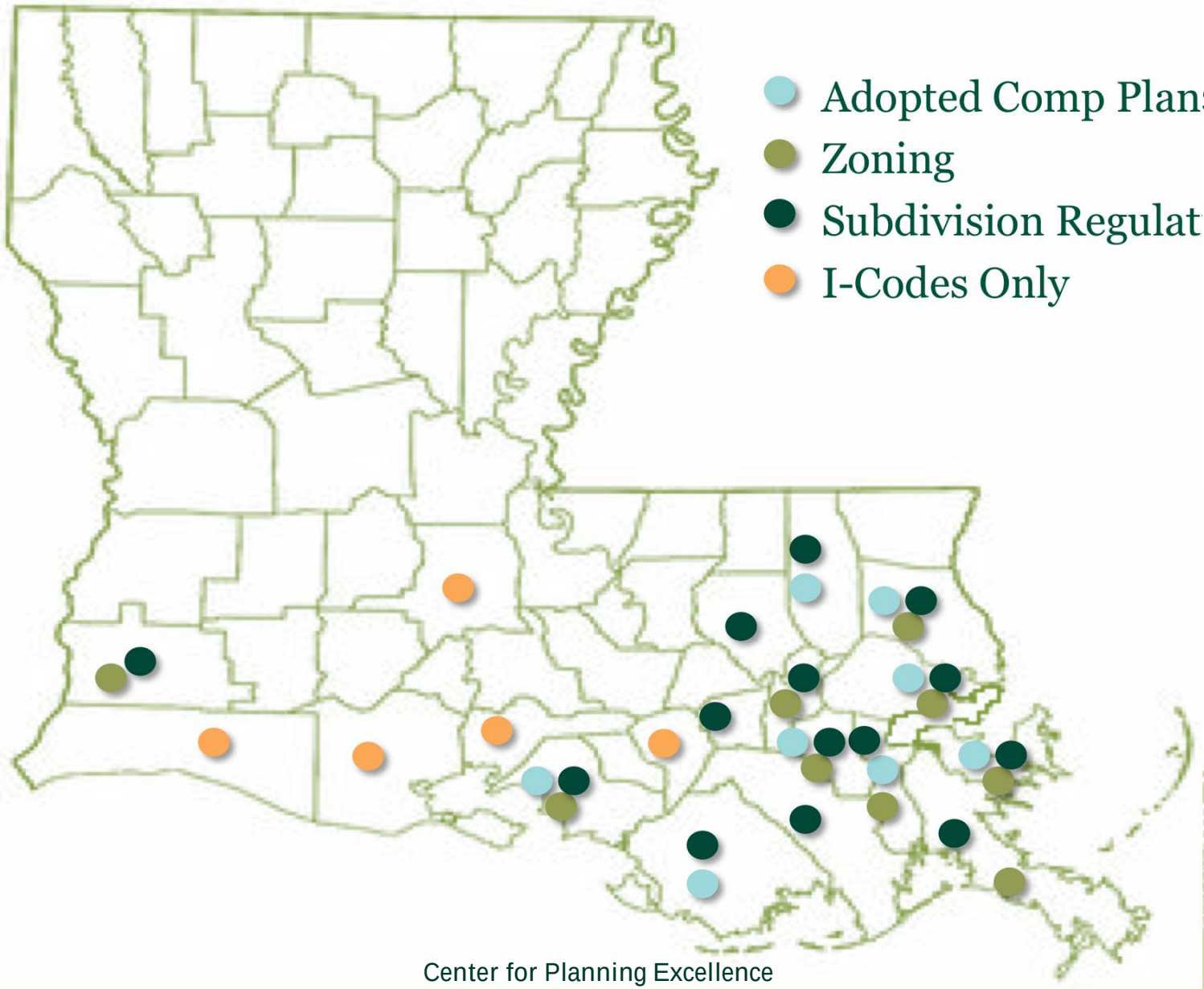
- Need more than just good evacuation plans
- Standard development practices aren't appropriate in Louisiana's Coastal Areas
- Need to develop best practices for coastal development that is designed for the geography, economy and culture of the coast
- Need to prepare against the various risks faced by our communities

Coastal Communities

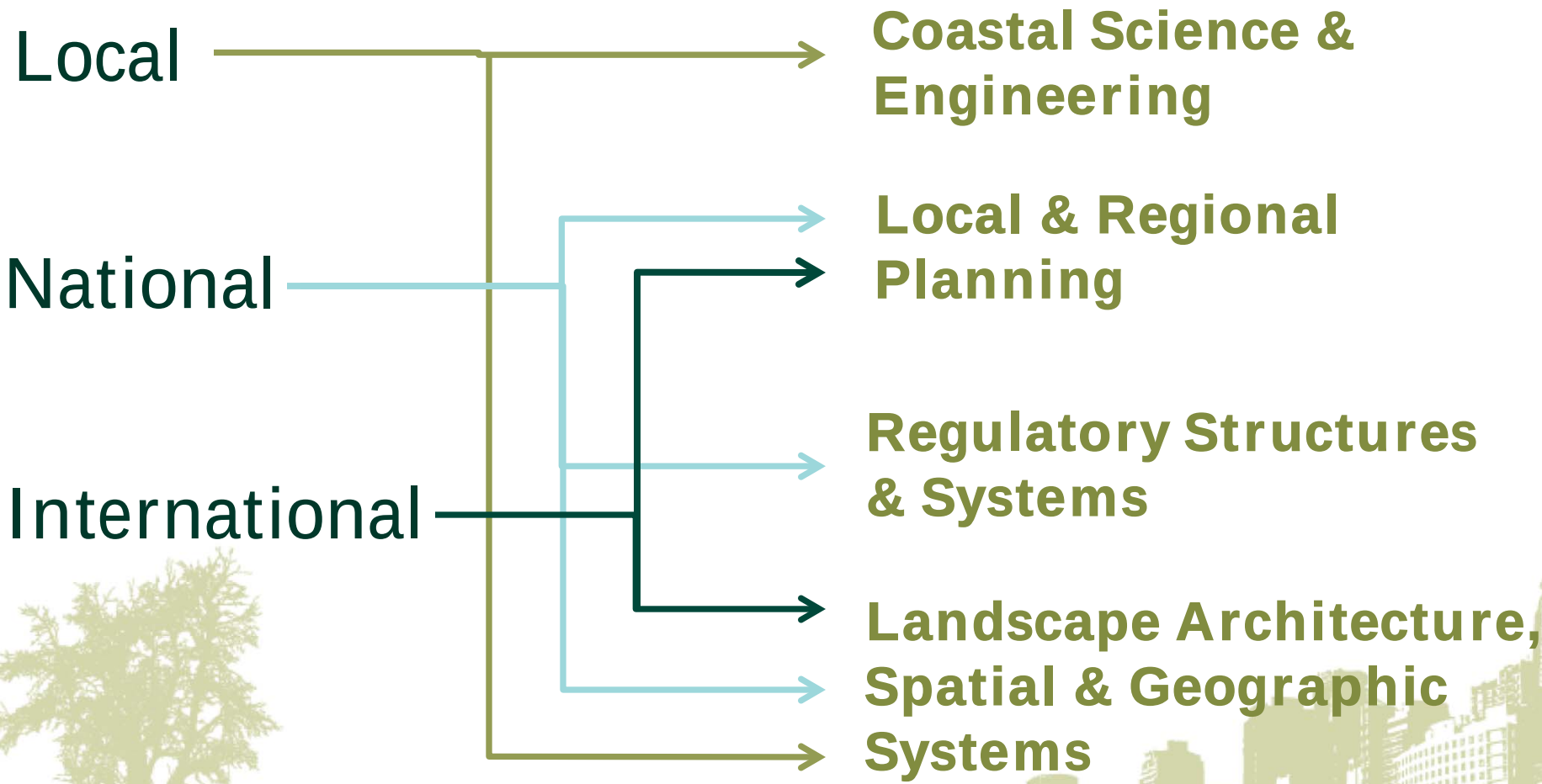
Measures to prevent loss

- *more investment in non-structural measures.*
- *Re-examine "permananent" vs. "temporary buildings in rural coastal areas.*
- *Adaptations to address near-term risks, and mitigation to address longer-term risks.*
- *Policy makers can and must take a leadership role in driving a coordinated response across individuals and sectors (ie. Development decisions)*

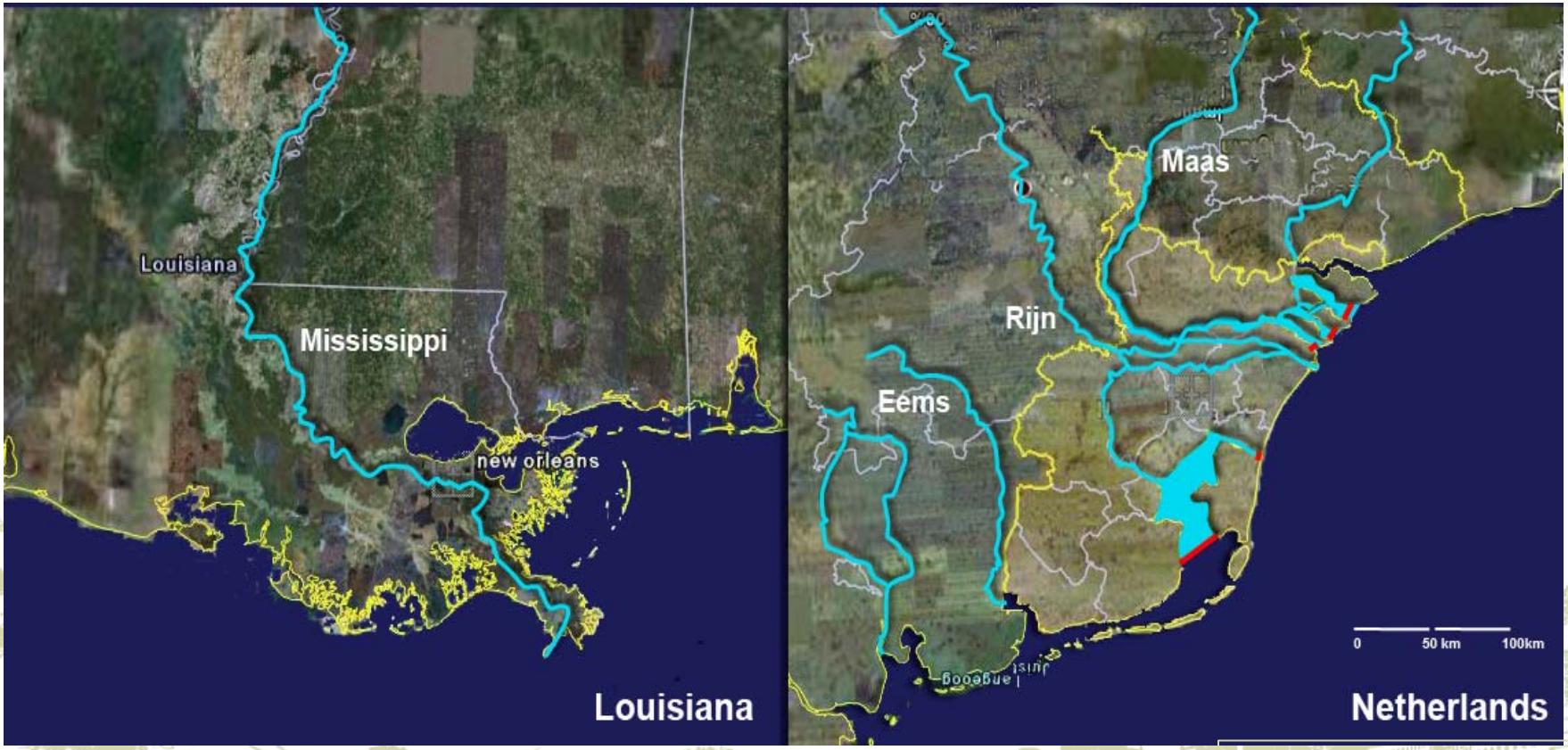
Coastal Parishes



Coastal Best Practices



Looking to Others: Two Deltas



Bosch Slabbers

Spatial Planning Approach

Cultural Patterns

PATTERNS OF LAND DEVELOPMENT

Community

Bosch Slabbers

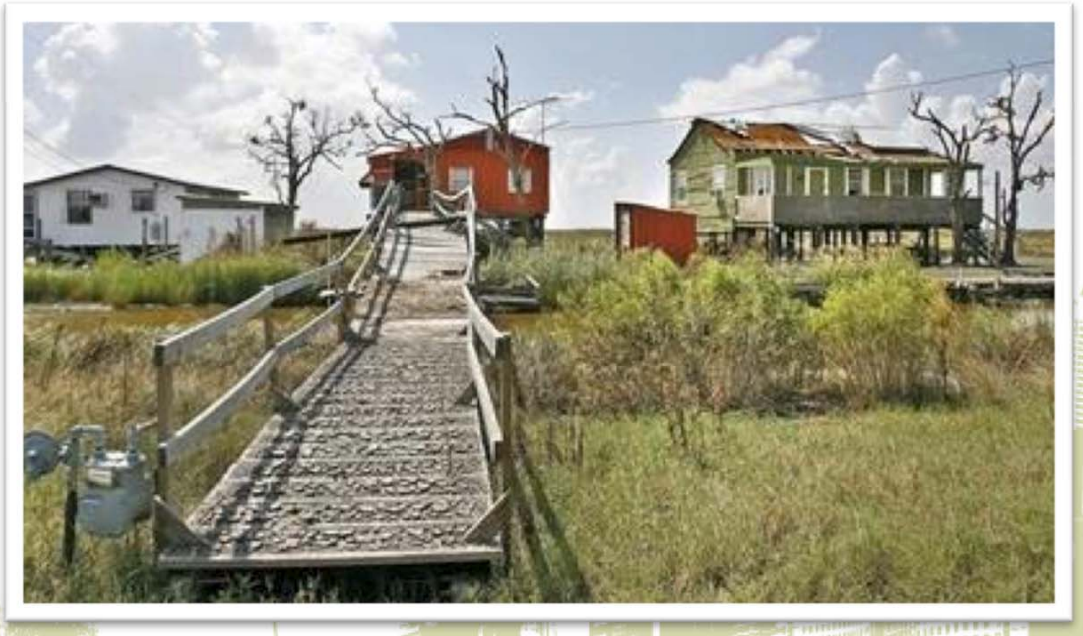
Individual Property

Community

Isle de Jean Charles, Louisiana

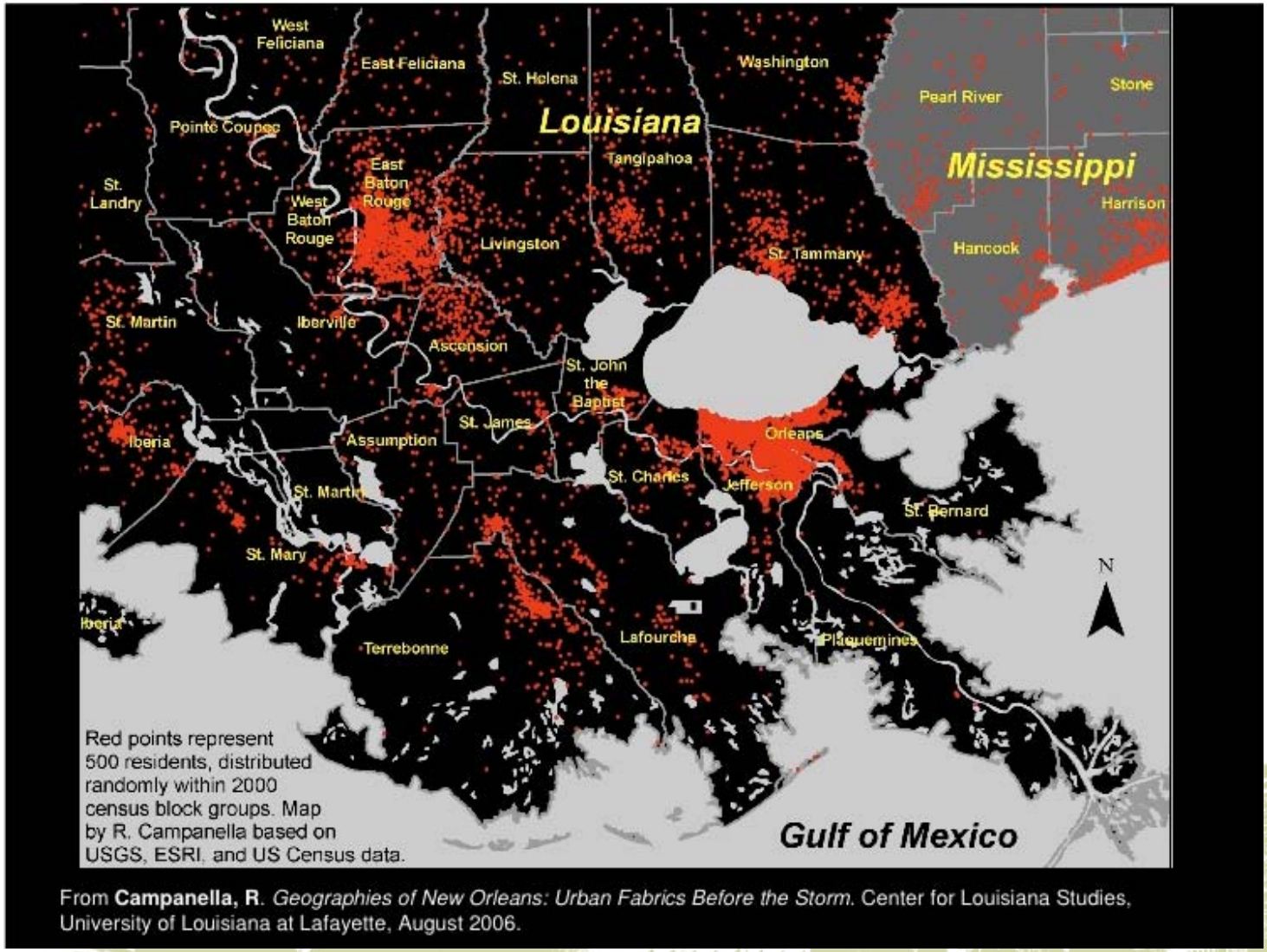
Biloxi-Chitimacha-Choctaw tribe

After decades of frequent flooding, water encroachment, and land subsidence, they faced the painful decision of whether to stay or go.



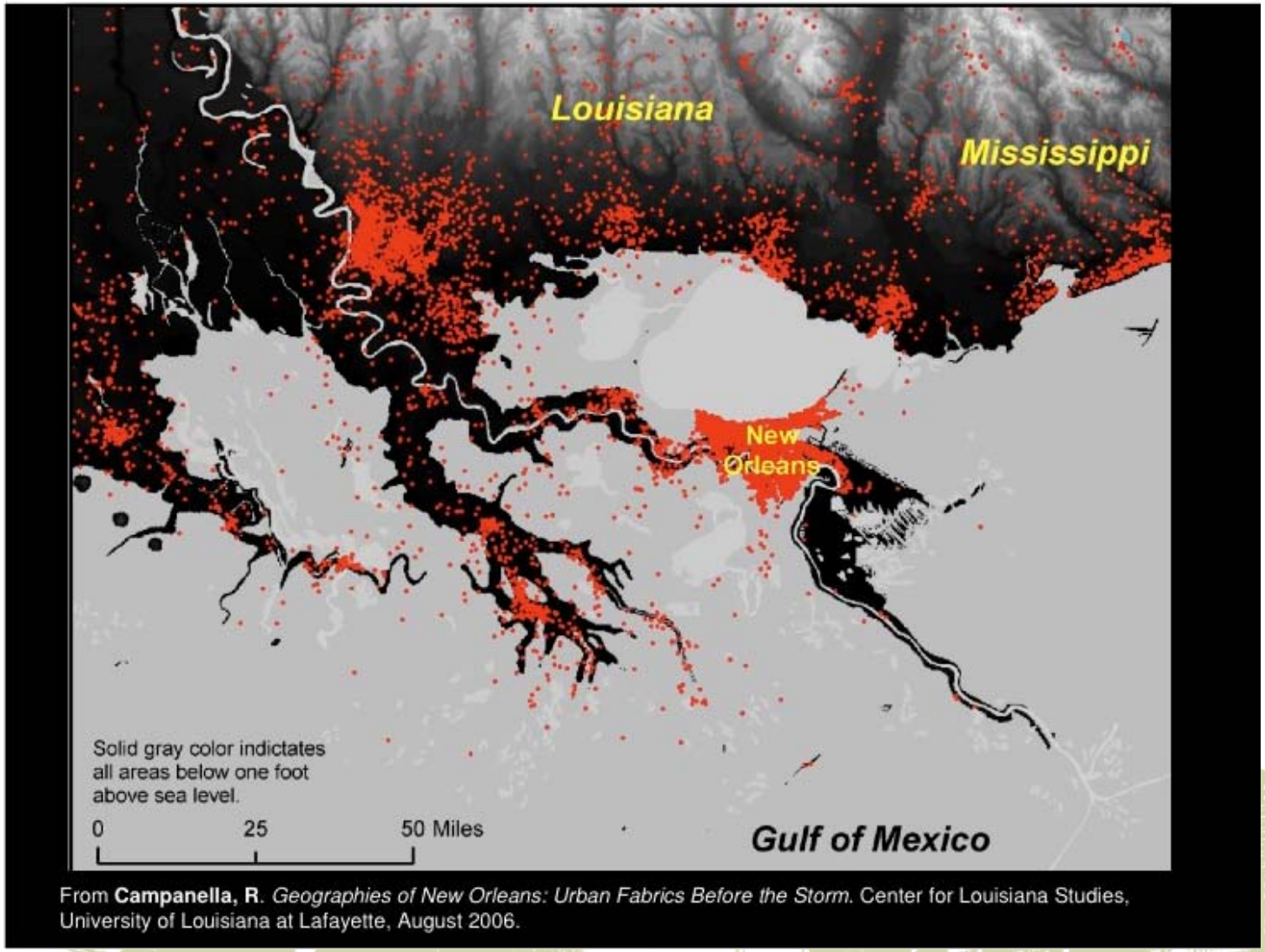
Images: NOLA.com

Louisiana 2006



From **Campanella, R.** *Geographies of New Orleans: Urban Fabrics Before the Storm.* Center for Louisiana Studies, University of Louisiana at Lafayette, August 2006.

Future Louisiana



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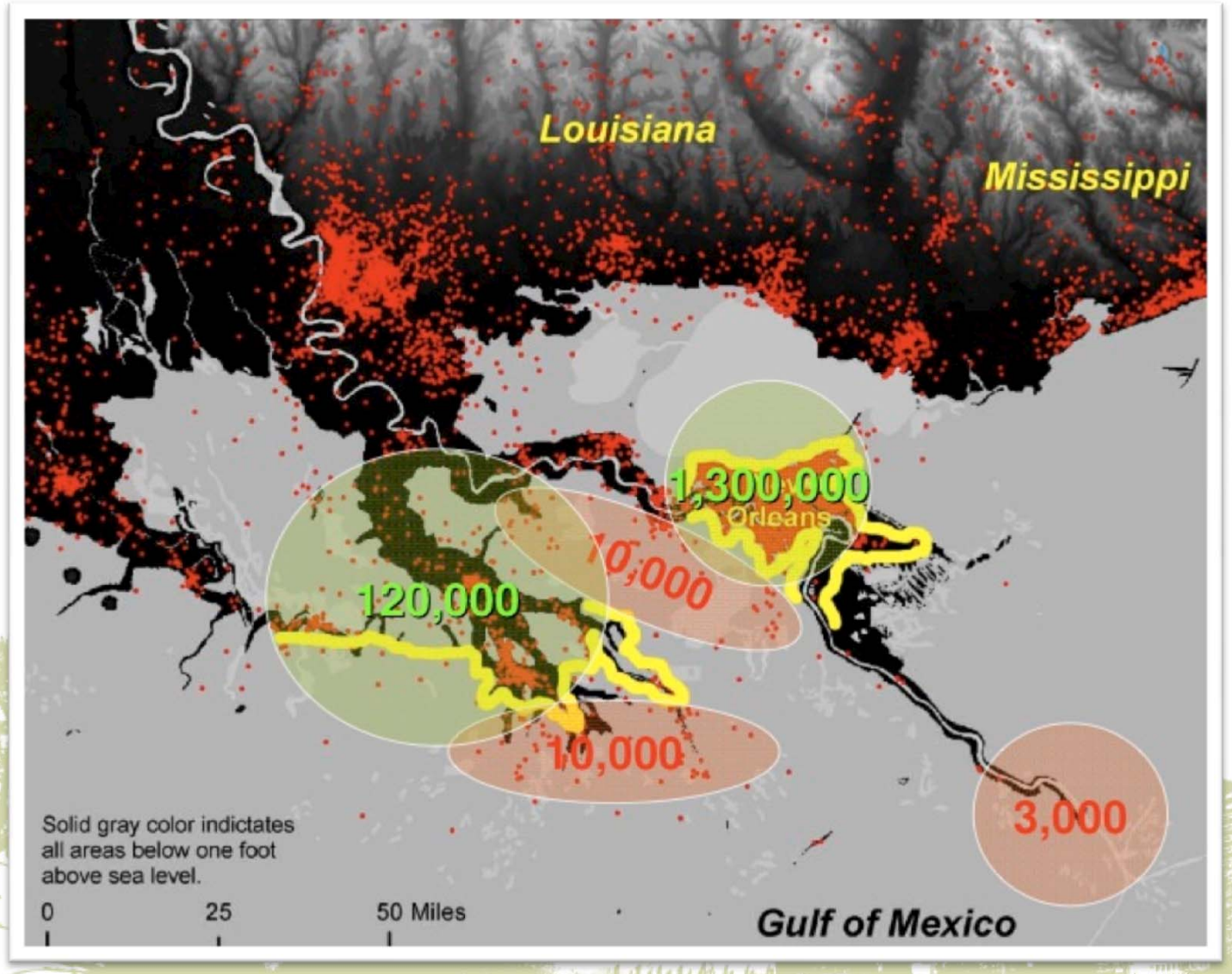
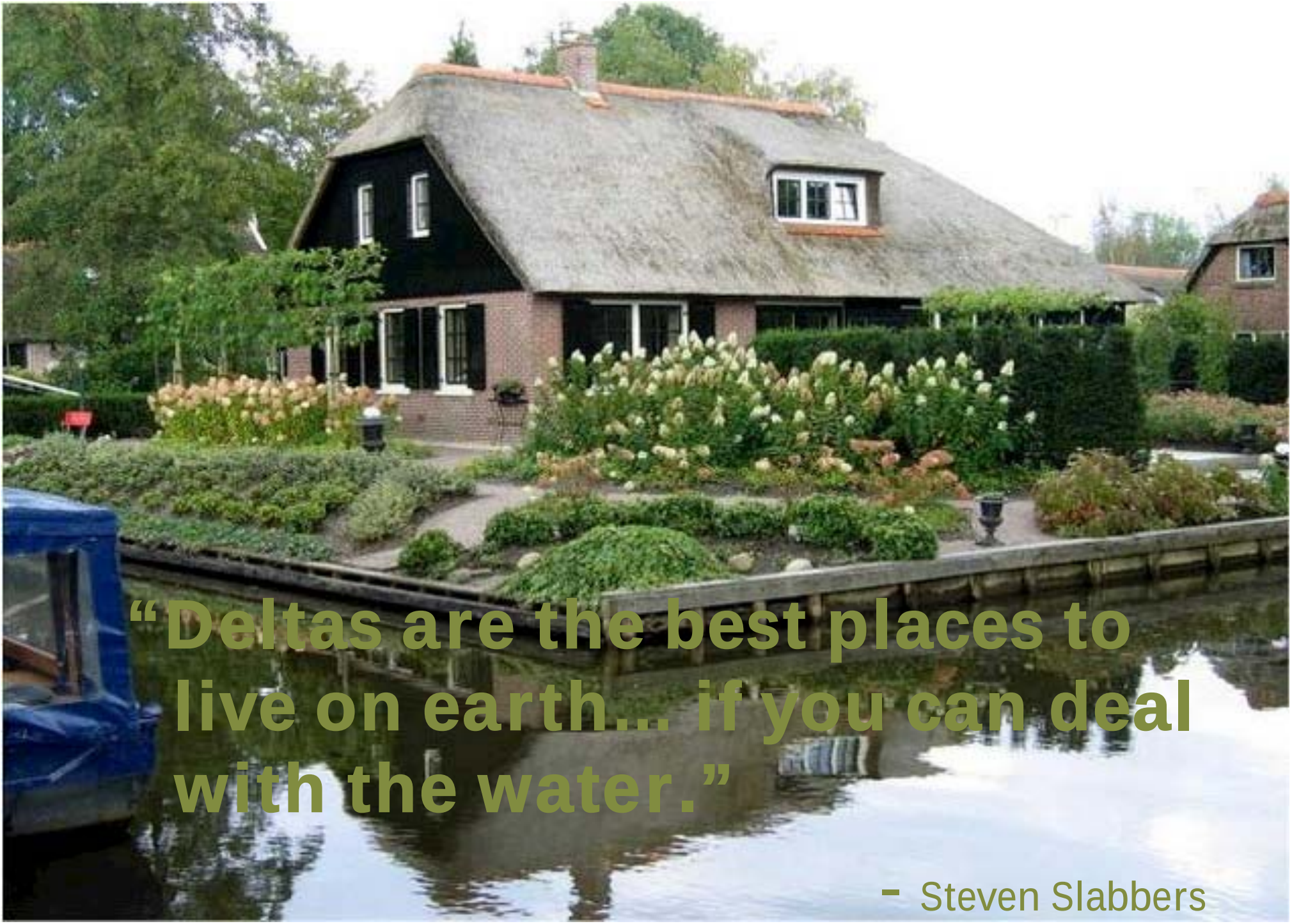
Future Challenge

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- Steven Slabbers

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