

The Restoration Story Part One:
Setting the Stage – Federal and State
Large Scale Ecosystem Restoration:
Implementation, Political Challenges
and Lessons Learned

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The Big Five Ecosystem Restoration Programs

San Francisco Bay Delta

- Water ↑
- Sediments ↑
- Invasives ↓
- Toxins ↓
- Living resources

Great Lakes

- Nutrients ↓
- Toxins ↓
- Living resources
- Invasives ↓
- Water levels ↔

- Nutrients ↓
- Sediment ↓
- Living resources
- Toxins ↓

Chesapeake Bay

- Storm surge ↓
- Sediment ↑
- Water ↑ ↓
- Living Resources
- Nutrients ↓
- Invasives ↓

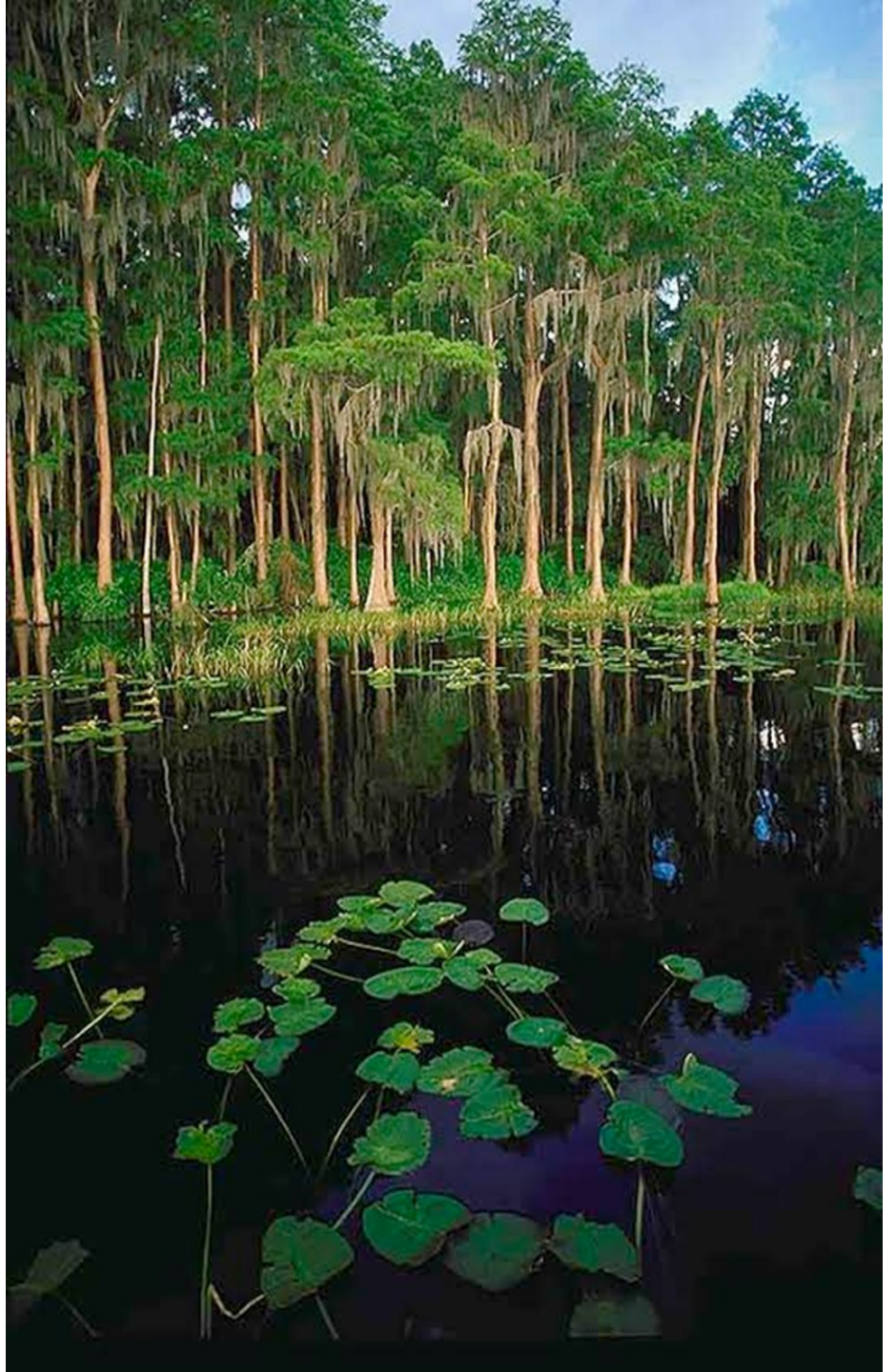
Coastal Louisiana

- Water ↑ ↓
- Nutrients ↓
- Invasives ↓
- Storm surge ↓

Florida Everglades





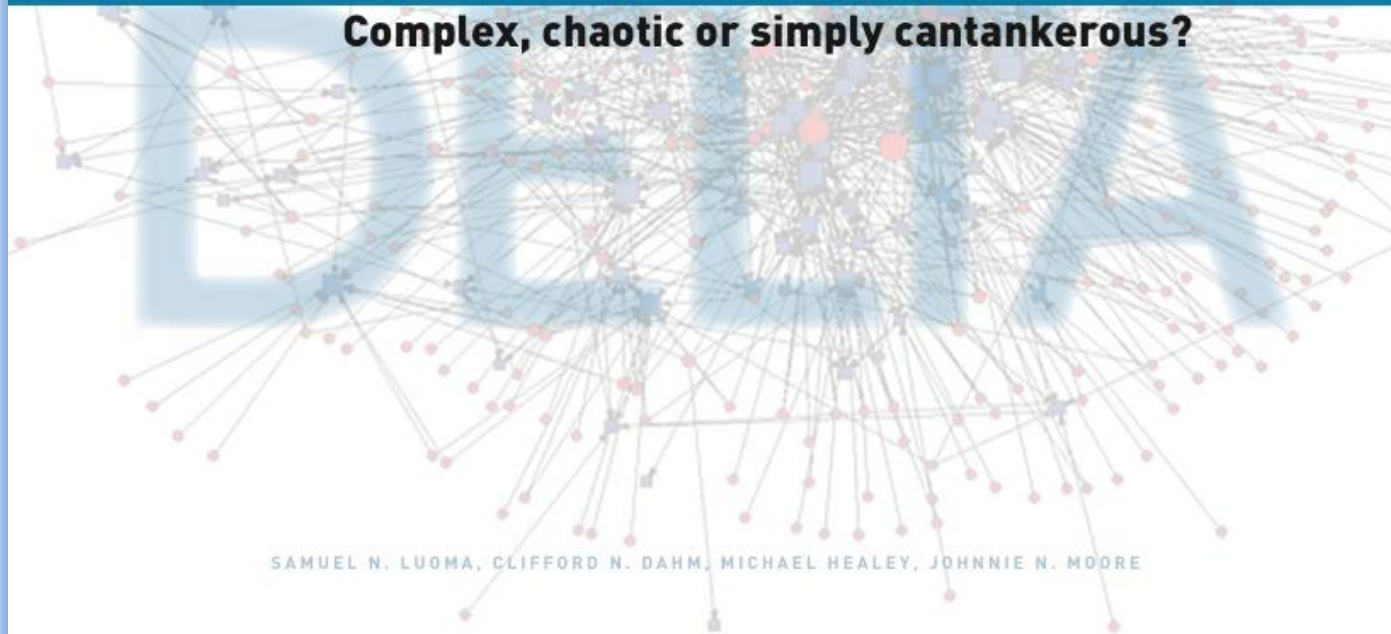






**CHALLENGES FACING
THE SACRAMENTO-SAN JOAQUIN DELTA**

Complex, chaotic or simply cantankerous?



SAMUEL N. LUOMA, CLIFFORD N. DAHM, MICHAEL HEALEY, JOHNNIE N. MOORE

Delta Stewardship Council created to:

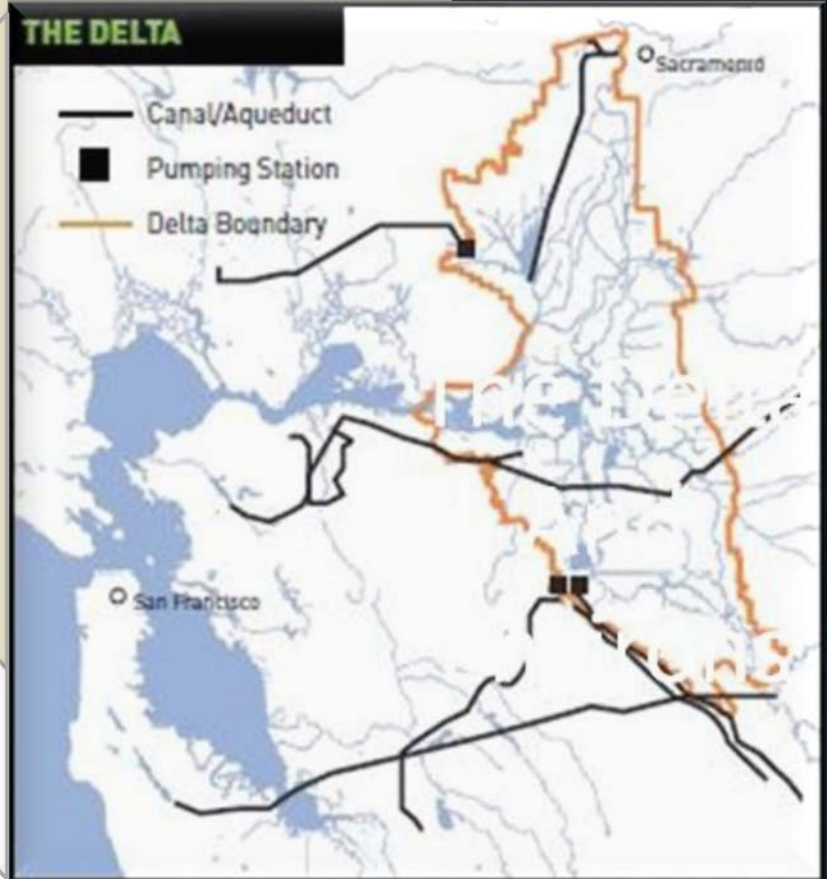
- 🌊 Develop an enforceable plan to achieve the **coequal goals**
- 🌊 Play a synthesizing and coordinating role among the various agencies
- 🌊 Ensure best available science informs all processes and projects



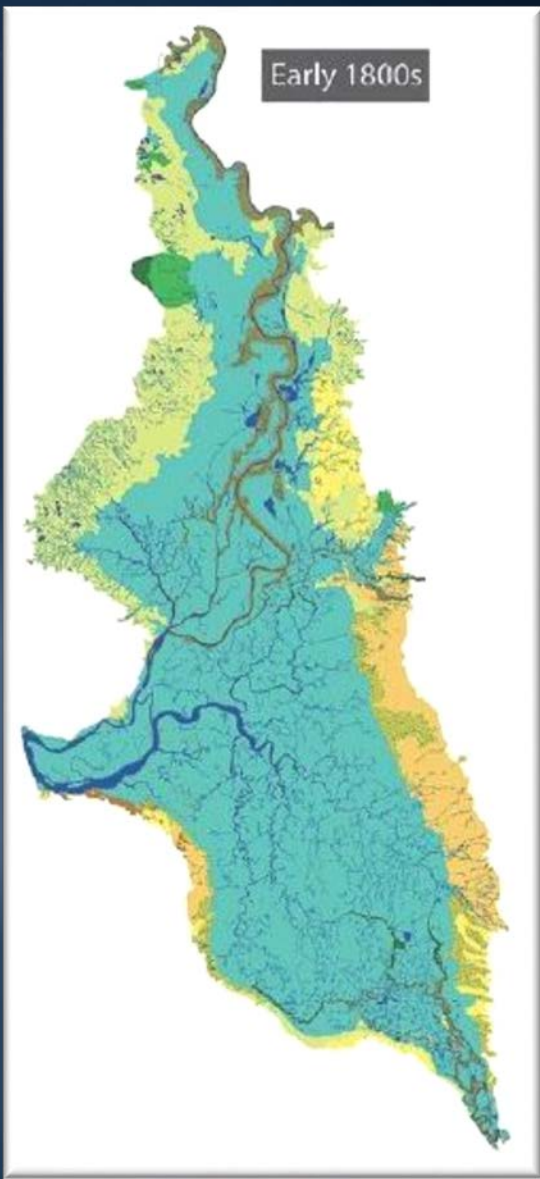
The Delta as the Hub
of California's Water
Storage and
Conveyance System

THE DELTA

- Canal/Aqueduct
- Pumping Station
- Delta Boundary

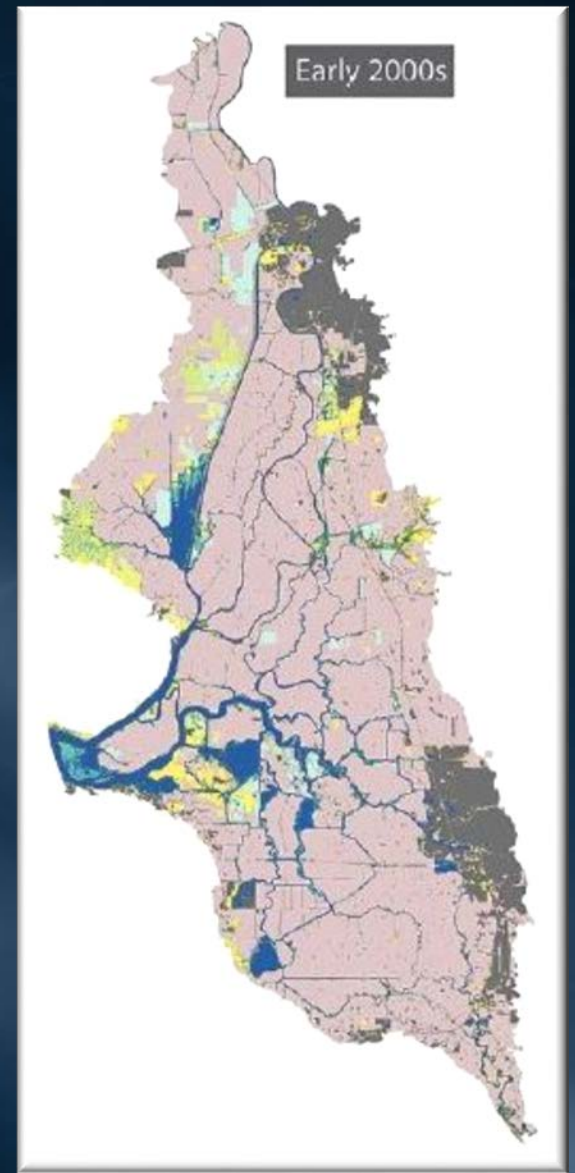


DELTA STEWARDSHIP COUNCIL



The Delta...
Before

The Delta...
After



DELTA STEWARDSHIP COUNCIL



CALIFORNIA ECO RESTORE

A STRONGER DELTA ECOSYSTEM.

RESTORING THE SACRAMENTO- SAN JOAQUIN DELTA ECOSYSTEM

California EcoRestore (EcoRestore) will accelerate and implement a comprehensive suite of habitat restoration actions to support the long-term health of the Sacramento-San Joaquin Delta's (Delta) native fish and wildlife species.



Implement multiple fish passage improvement projects in the Yolo Bypass and other key locations



Coordinate with existing local Habitat Conservation Plans and Natural Community Conservation Plans (HCP/NCCP)



Through the Delta Stewardship Council's Delta Science Plan, leverage collaborative Delta science efforts such as the Interagency Ecological Program and Interim Science Action Agenda, and undertake investigations that support adaptive management and long-term understanding of Delta systems.

THE GREAT LAKES



Silver Carp



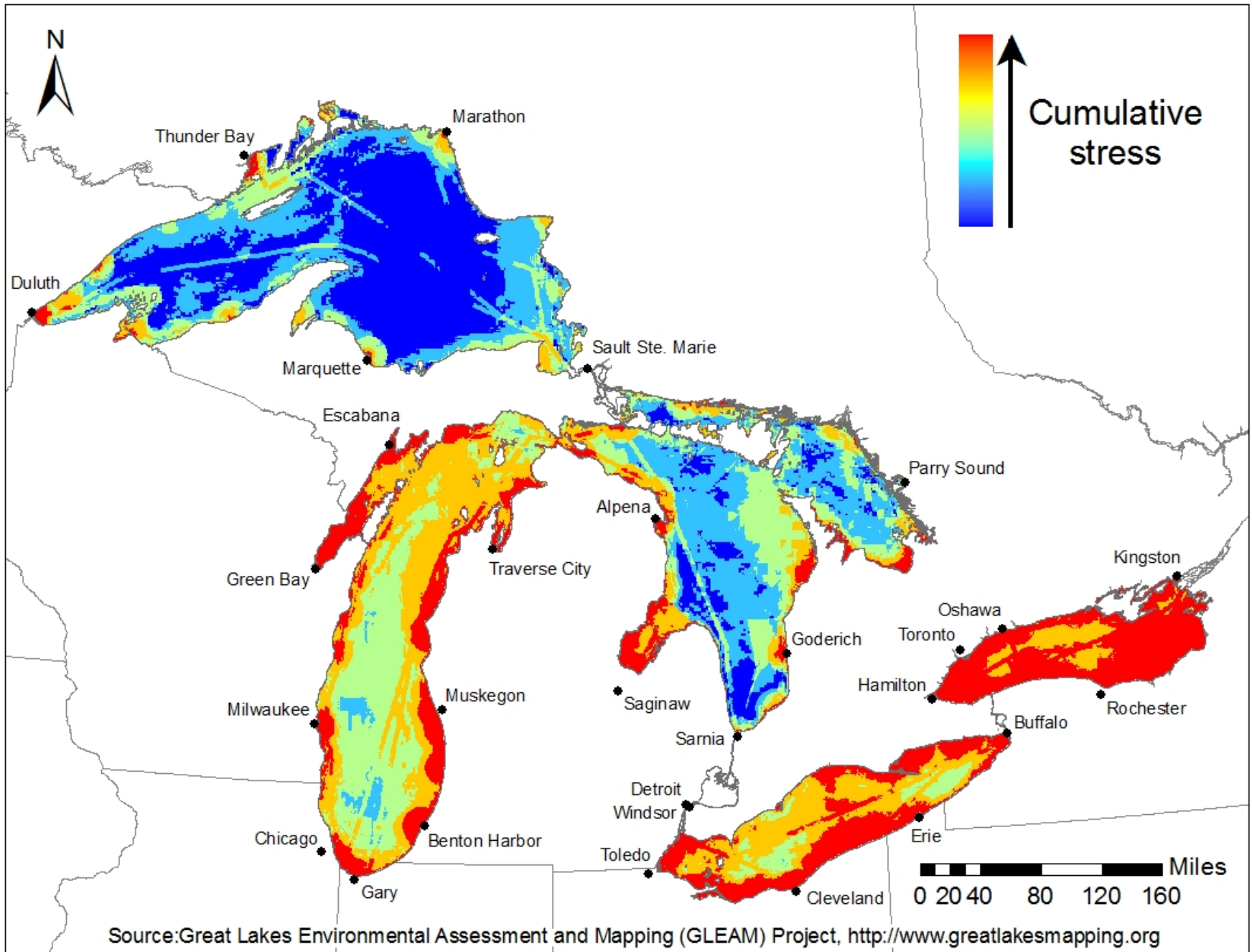
Image Credit: Houma Today

Western and Central Basins, Lake Erie



Muskegon Lake, MI: 1900-1960





Allan et al. 2013 PNAS



Lake Erie

New York

Pennsylvania

West Virginia

Maryland

Delaware

Virginia

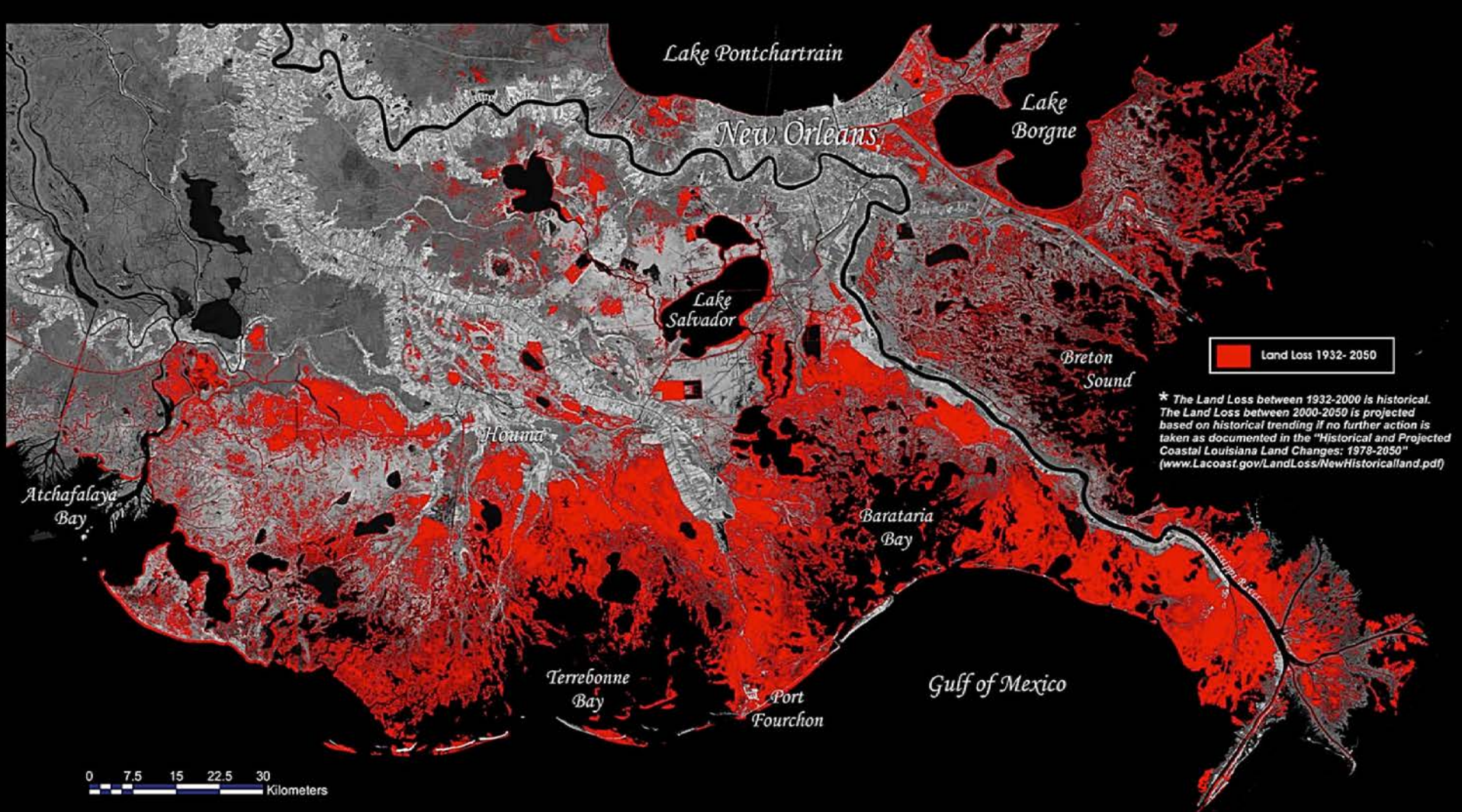
Washington, D.C.

Atlantic Ocean









* The Land Loss between 1932-2000 is historical. The Land Loss between 2000-2050 is projected based on historical trending if no further action is taken as documented in the "Historical and Projected Coastal Louisiana Land Changes: 1978-2050" (www.Lacoast.gov/LandLoss/NewHistoricalLand.pdf)



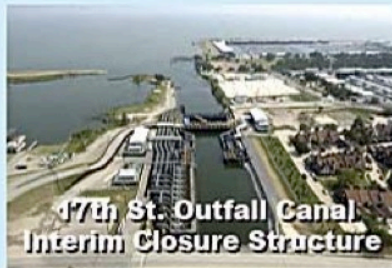




US Army Corps of Engineers

GREATER NEW ORLEANS HURRICANE AND STORM DAMAGE RISK REDUCTION SYSTEM (HSDRRS)

June 2013



17th St. Outfall Canal Interim Closure Structure



Seabrook Floodgate Complex



New Orleans East I-10 Crossing



Bonnatel Pump Station Lakefront Levee



IHNC Surge Barrier Wall



St. Bernard Floodwall



Harvey Canal Floodwall



West Closure Complex



Eastern Tie-In







"We have time for just one long-winded, self-indulgent question that relates to nothing we've been talking about."