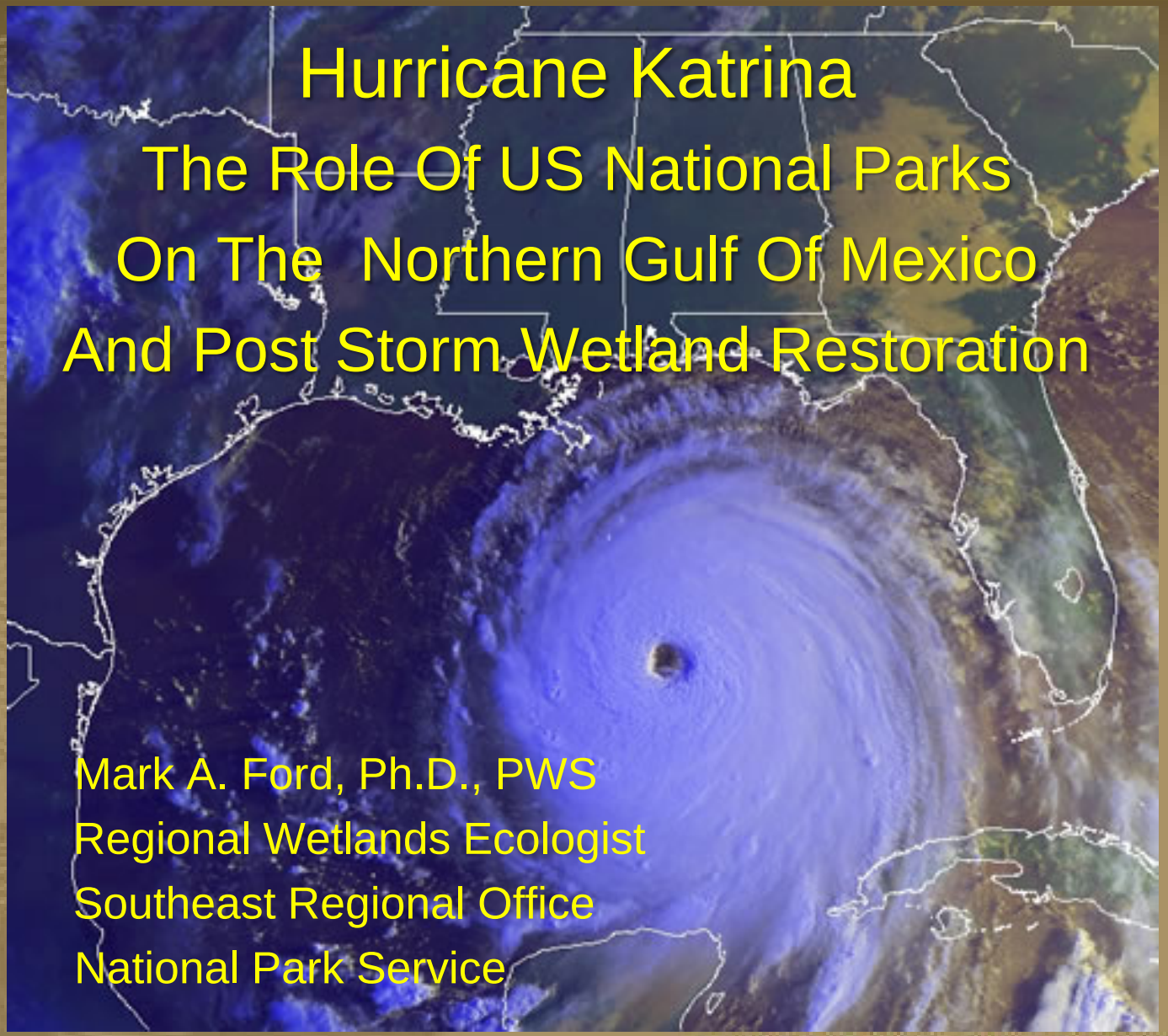
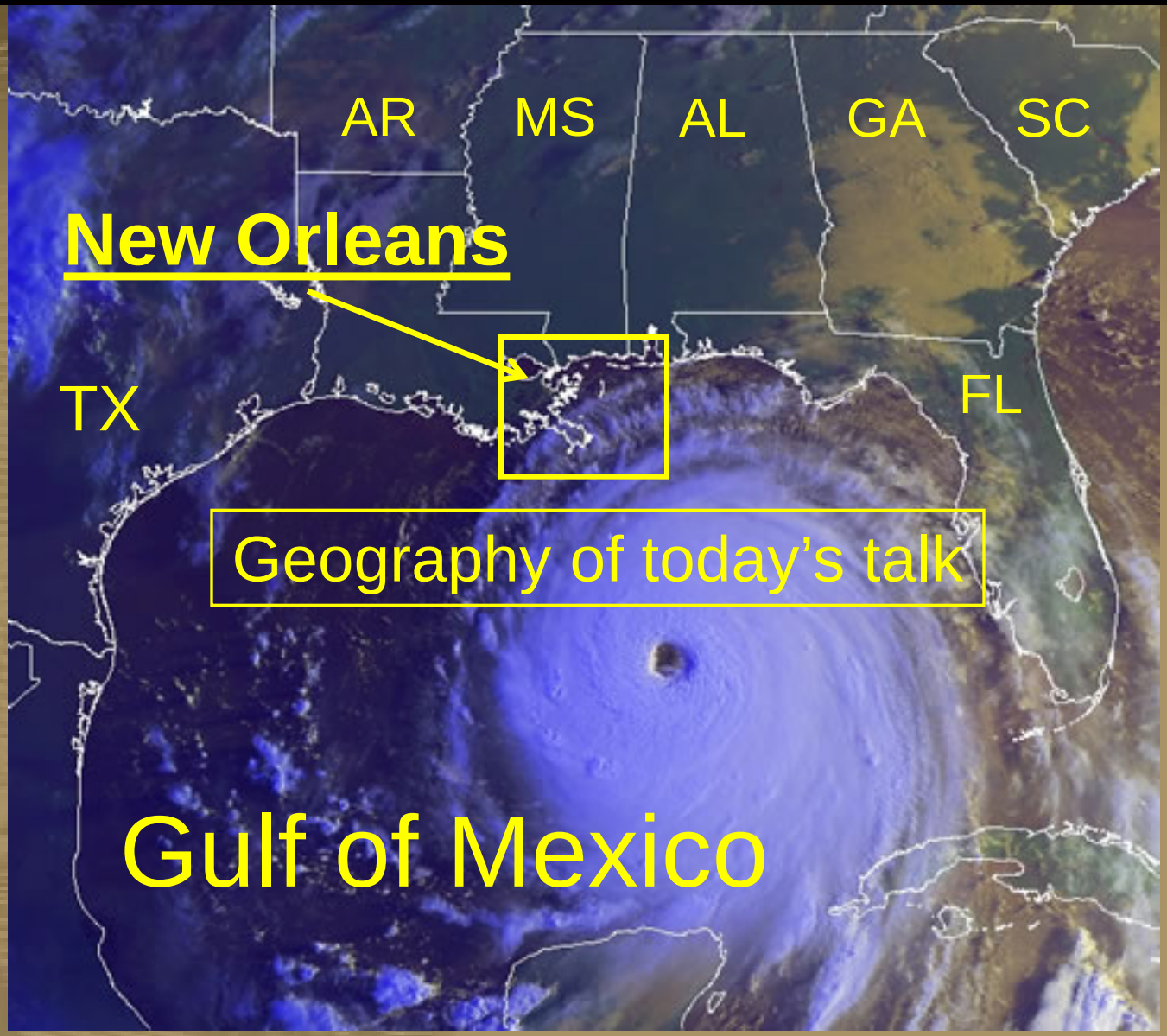


Hurricane Katrina

The Role Of US National Parks On The Northern Gulf Of Mexico And Post Storm Wetland Restoration

Mark A. Ford, Ph.D., PWS
Regional Wetlands Ecologist
Southeast Regional Office
National Park Service


AR
MS
AL
GA
SC
New Orleans
TX
FL
Geography of today's talk
Gulf of Mexico

Landfall August 28, 2005

205 kilometer per hour winds

US$81 Billion in damages

1, 836 deaths

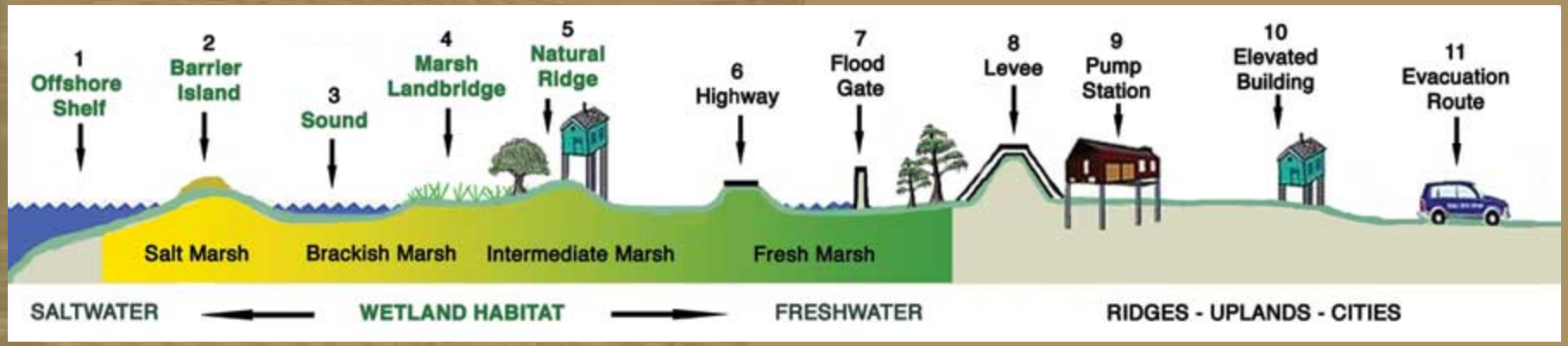
Louisiana Impacts

Mississippi Impacts

Outline

- Multiple lines of Defense
- Risk reduction by wetlands
- Risk reduction by barrier islands
- Restoration

Multiple Lines of Defense



Lopez, John A., 2006, The Multiple Lines of Defense Strategy to Sustain Coastal Louisiana, Lake Pontchartrain Basin Foundation,

Wetland Risk Reduction

- Vegetated Marsh
- Swamps-trees
  - Can reduce storm surge from 5-25 cm/km
  - Depends upon
    - Coastal geomorphology
    - Bathymetry
    - Storm speed and direction

No levees with trees protecting them failed during Katrina

Jean Lafitte National Historic Park and Preserve

Barrier Islands

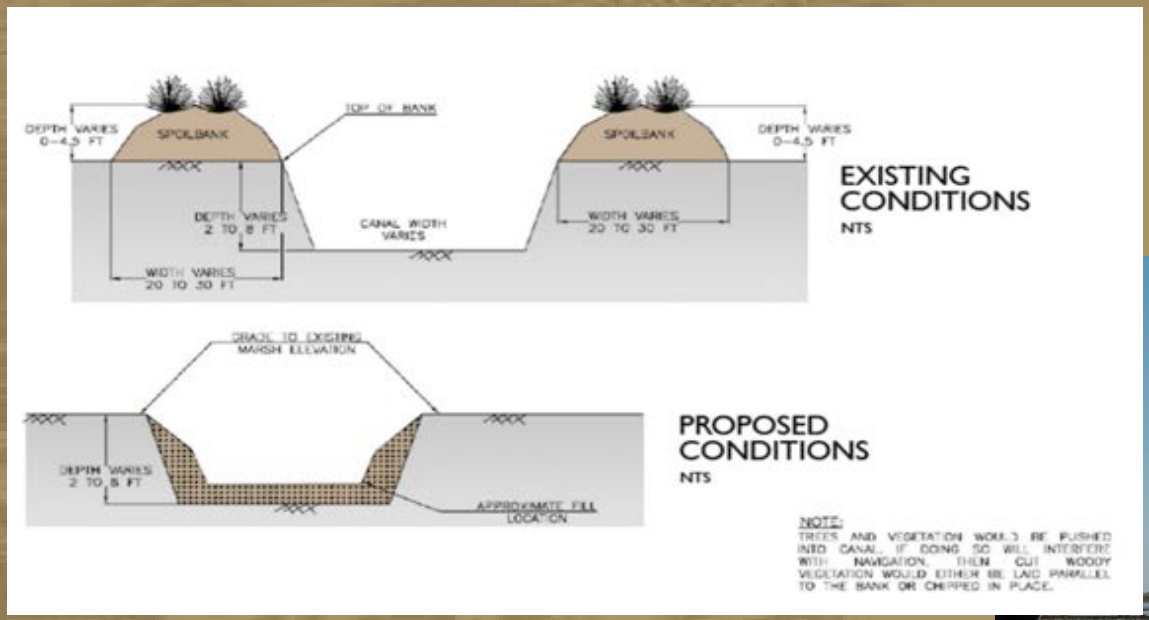
- Based On US Army Corps of Engineers models
  - can reduce waves and surge up to 1.25 meters along the Mississippi Gulf of Mexico islands

Gulf Islands National Seashore

Wetland Restoration

Beneficial use of Dredged Sediments

Wetland Restoration
Canal Reclamation



EXPERIENCE YOUR AMERICA

Before Backfill

After Backfill

Canal Restoration Costs

Roughly US$50 Million at Jean Lafitte NHPP

Wetland Restoration

Baldcypress Plantings

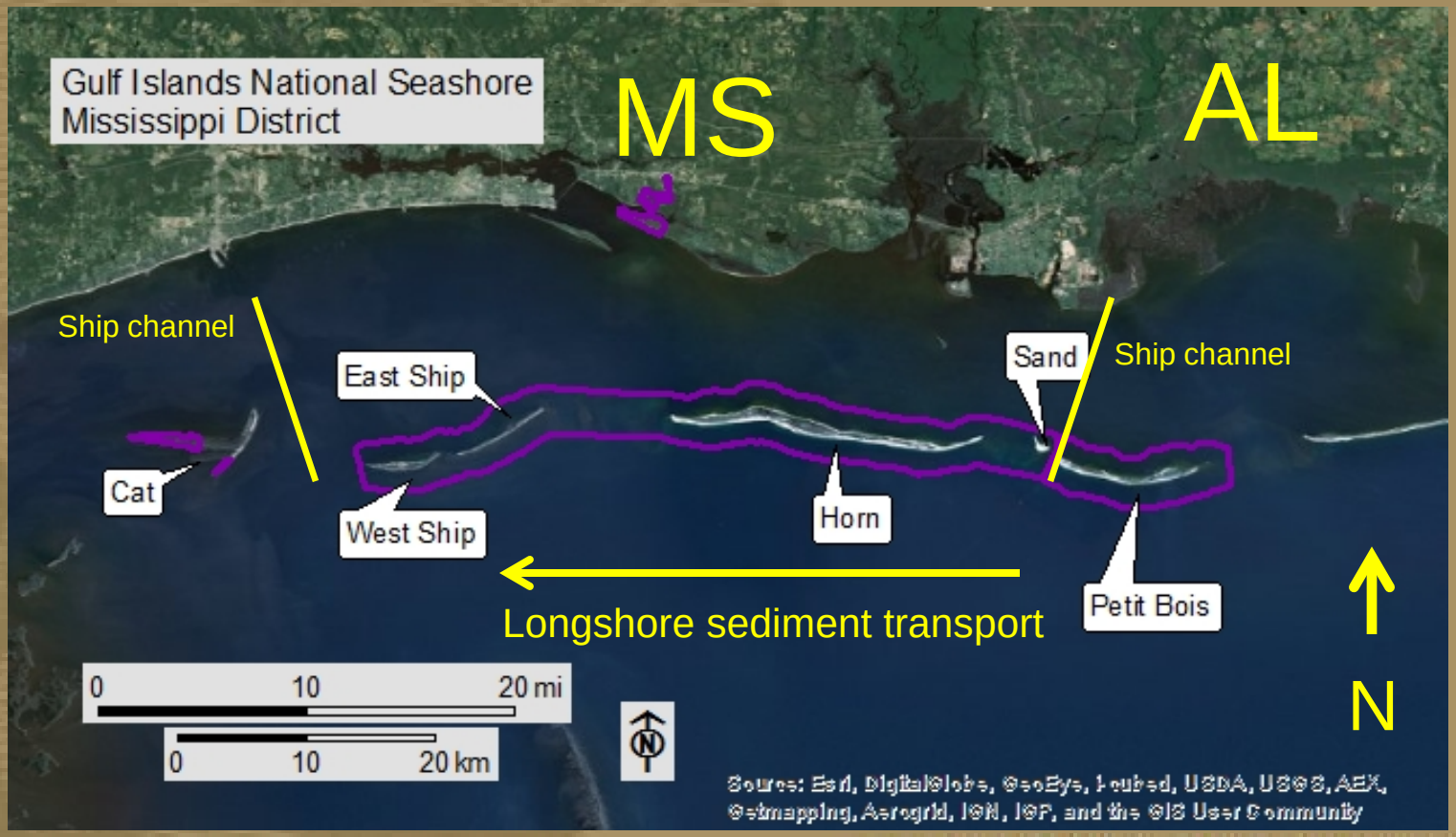
PVC tree protectors

Gulf Island National Seashore
Restoring Islands and Sediment Transport

Goals

- Restore Sediment Transport Budget
  - Make Islands self sustaining
- Re-connect West and East Ship Islands at Camille Cut (1969 Hurricane Camille 320 km/hr) beneficially using dredged materials
  - Protect Mainland Mississippi

Gulf Island National Seashore Restoring Islands and Sediment Transport



Gulf Islands Restoration Costs

Just over US$400 Million

Fort Massachusetts post Katrina
West Ship Island Mississippi

American Civil War Fort

After Restoration

70 meters inland

Key Lessons

- Multiple defenses protect communities
  - Marshes
  - Swamps
  - Barrier Islands
- Restoration of wetlands essential
- Restoration of barrier islands essential
- Restoration costs at these two National Parks (~ $US500 Million) is minor compared to economic losses (US$81 Billion) from Hurricane Katrina

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