



Impacts of Climate Change on Coastal Communities

U.S. Department of the Interior

COP-15

Copenhagen, Dec. 7-18, 2009

COASTAL CLIMATE CHANGE

-- INTRODUCTION

Climate change will impact coastal communities disproportionately:



WHY?

- the costly and devastating impacts of sea-level rise
- the vulnerability of low-lying natural and inhabited coastal areas (i.e. estuaries and coastal communities)
- the concentration of population centers in coastal communities (55% of the U.S. population lives within 50 miles of the coast)
- impact on essential infrastructure (ports, oil wells, etc.)

WHAT IS NEEDED?

- Coastal communities require improved tools to:
 - Understand the magnitude and likelihood of future sea-level rise and storm surge
 - Forecast associated impacts
 - Develop locally effective adaptation policies and actions

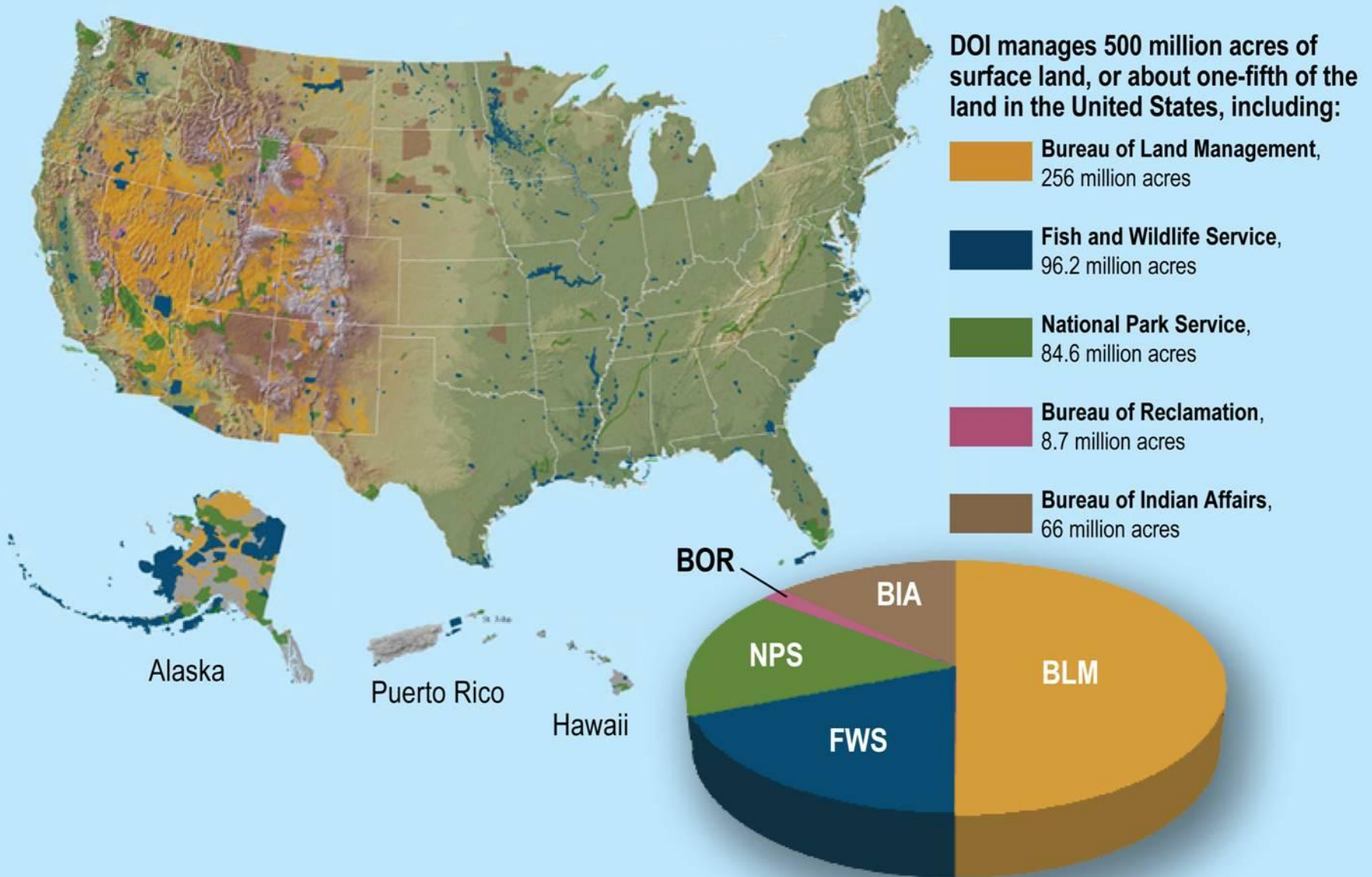
*At today's panel the **U.S. Environmental Protection Agency**, the **Department of the Interior** and the **National Oceanic and Atmospheric Administration** will discuss lessons learned for local adaptation planning and the analytical tools being developed to cope with these challenges.*

The Department of the Interior is working to manage climate change impacts to protect coastal communities by:

- Restoring degraded wetlands and coastal ecosystems that serve as buffers for coastal regions protecting against storm surges
- Assessing and evaluating the risks from sea-level rise and other climate change impacts
- Assisting American Indians and Alaskan Natives in coastal areas
- Enhancing sustainable development in coastal areas



U.S. Department of Interior Land Ownership





WHAT'S AT STAKE

- The realities of climate change require us to change how we manage the land, water, fish and wildlife, and cultural heritage and tribal lands and resources we oversee





SECRETARIAL ORDER NO. 3289

“Addressing the Impacts of Climate Change on
America’s Water, Land, and Other Natural and
Cultural Resources”

September 14, 2009





THE MANDATE

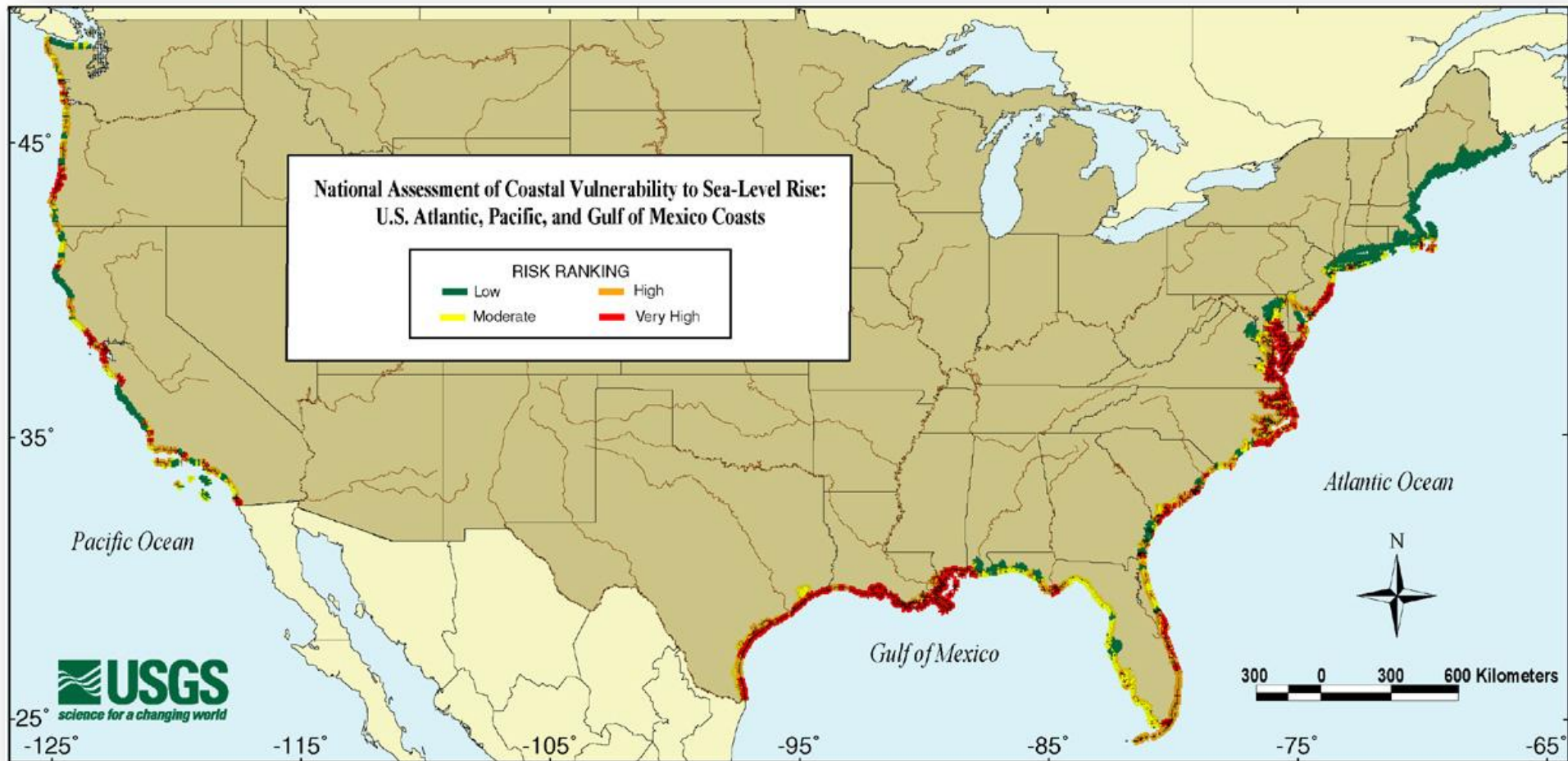
- “Establishes Department-wide approach for applying scientific tools to increase understanding of climate change and to coordinate an effective response to its impacts on tribes and on the land, water, ocean fish and wildlife, and cultural heritage resources that the Department manages.”

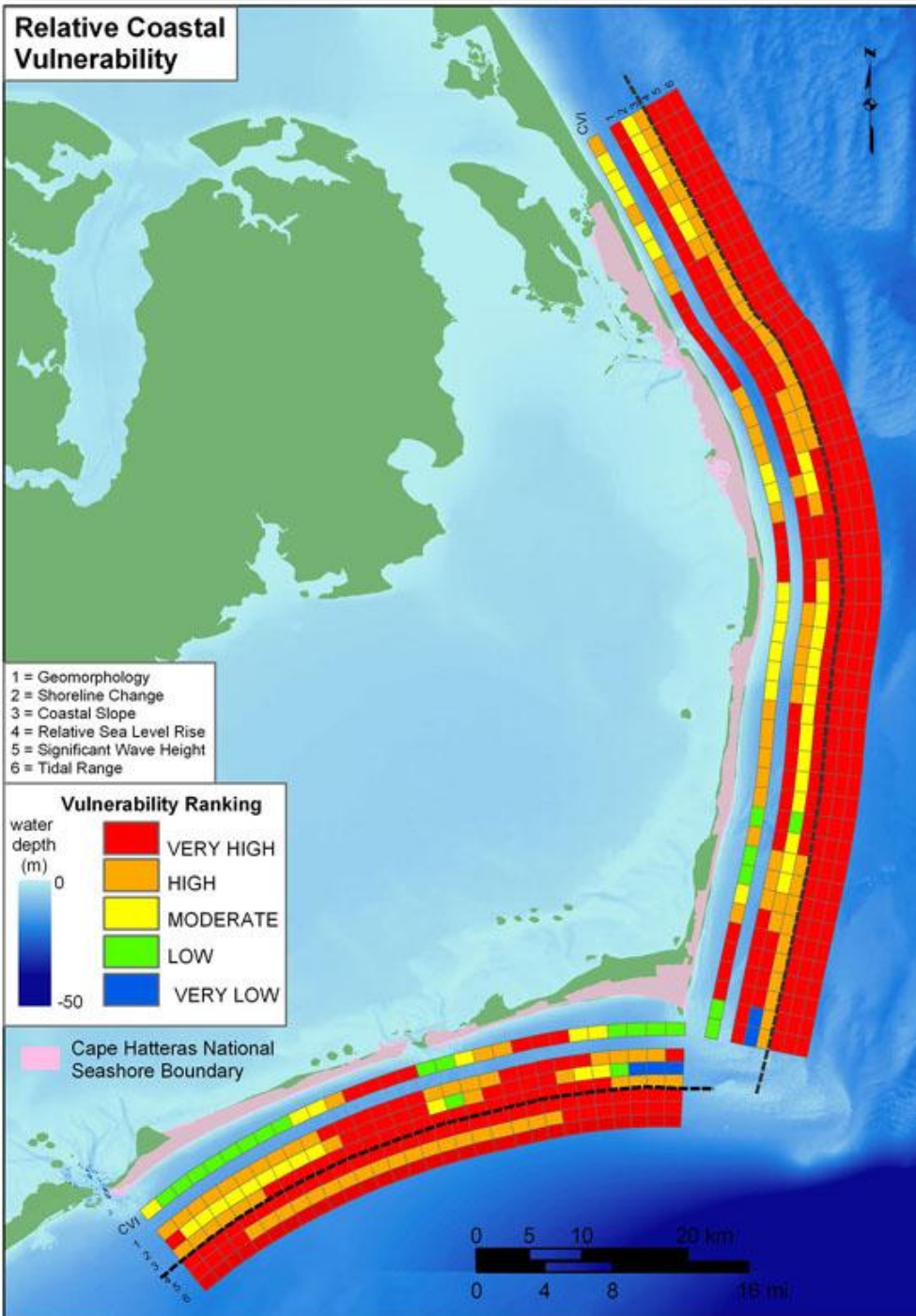


Elements of the Secretarial Order

- 1) Climate Change Adaptation Planning Requirements
- 2) DOI Regional Climate Change Adaptation Centers
- 3) Landscape Conservation Cooperatives
- 4) DOI Carbon Storage Project
- 5) DOI Carbon Footprint Project

DOI is leading a national assessment of coastal vulnerability to sea level rise





Project to examine coastal vulnerability of National Parks

eg. Cape Hatteras National Seashore



- North Carolina is at the front line for climate change impacts, housing, roads and other infrastructure has already been affected.
- Erosion, sea level rise, and storm surges will have ever greater impacts on coastal habitats and communities.
- Solutions must take into account ecological effects to treasured areas that cannot be replaced and the needs of coastal residents.

Potential Sea Level Rise Impacts in Florida

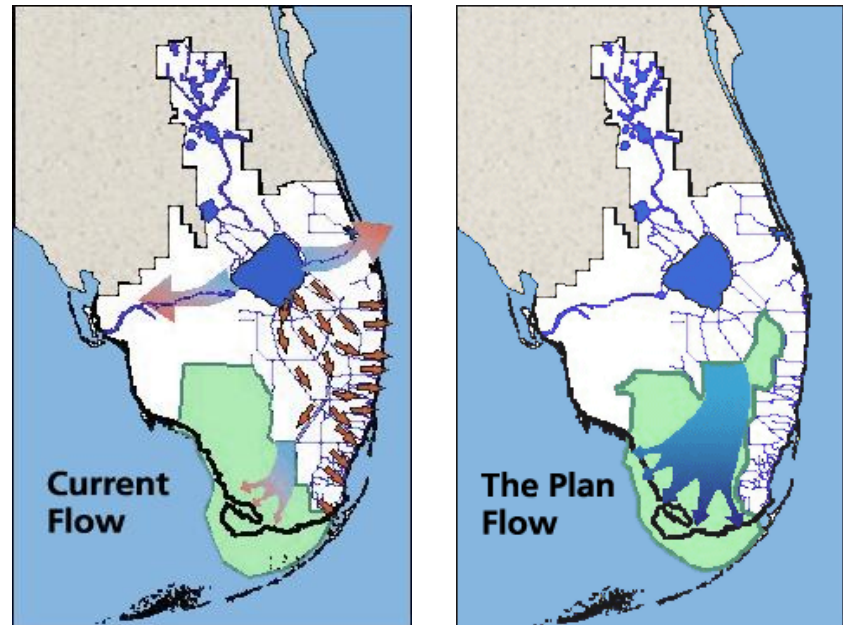


Comprehensive Everglades Restoration Adaptation Plan

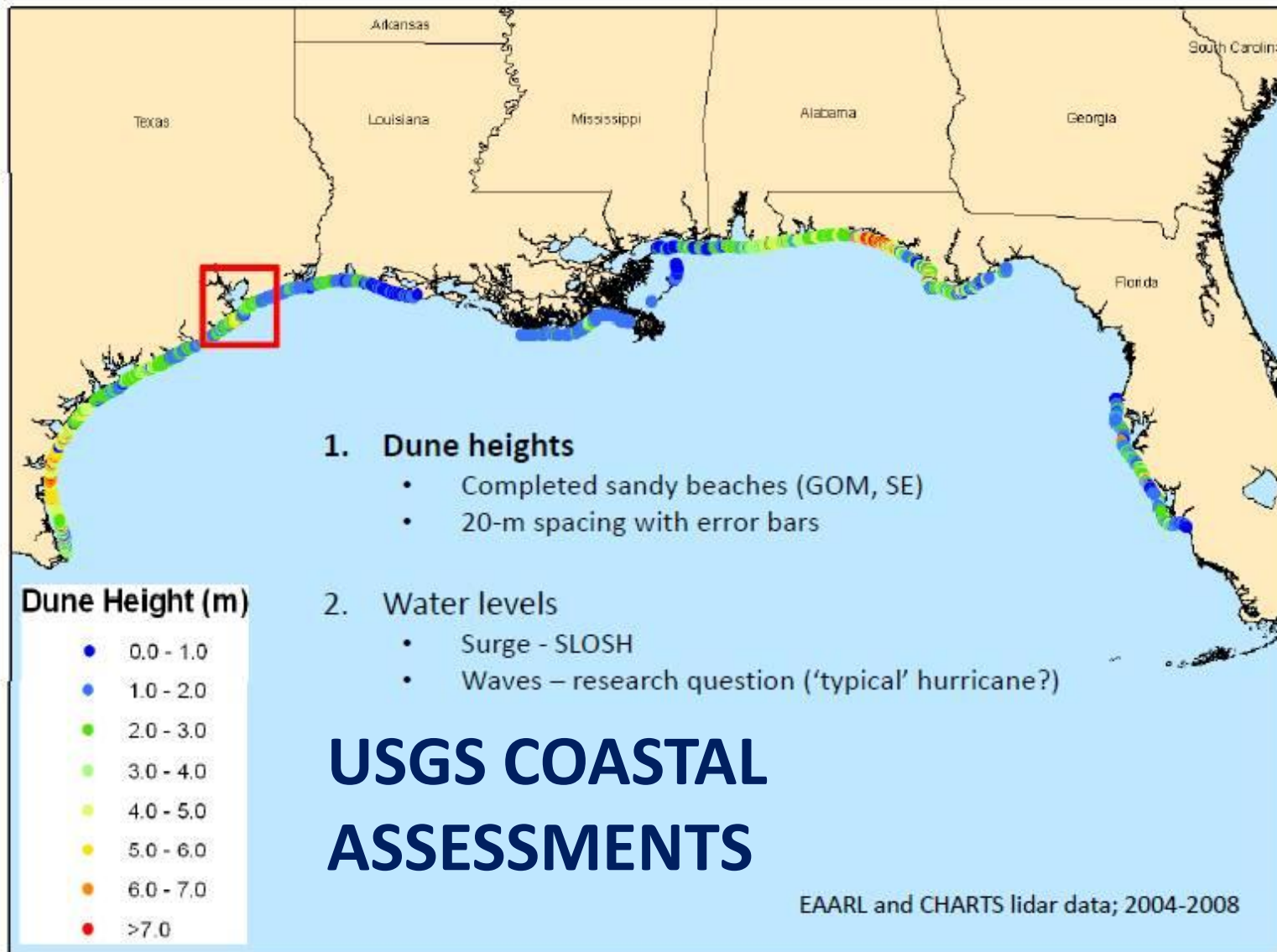
Challenge: Sea level rise and salt water inundate the Everglades, damaging wetlands, freshwater supply, and impacting wildlife, including 65 threatened and endangered species.

Solution: Restoration of the Everglades “River of Grass” (native lowland saw grass) and mangroves to make the system more resilient to the effects of climate change.

- Restore natural flow of water by removing barriers, such as canals and levees
- Restore habitat and eradicate/control exotic non-native vegetation and wildlife
- Assist local communities by providing flood protection and water supplies



Toward a National Assessment: Gulf of Mexico



Barrier Island Impacts – Dauphin Island, Alabama after Katrina



Dauphin Island, post-Katrina (photo: National Geographic)

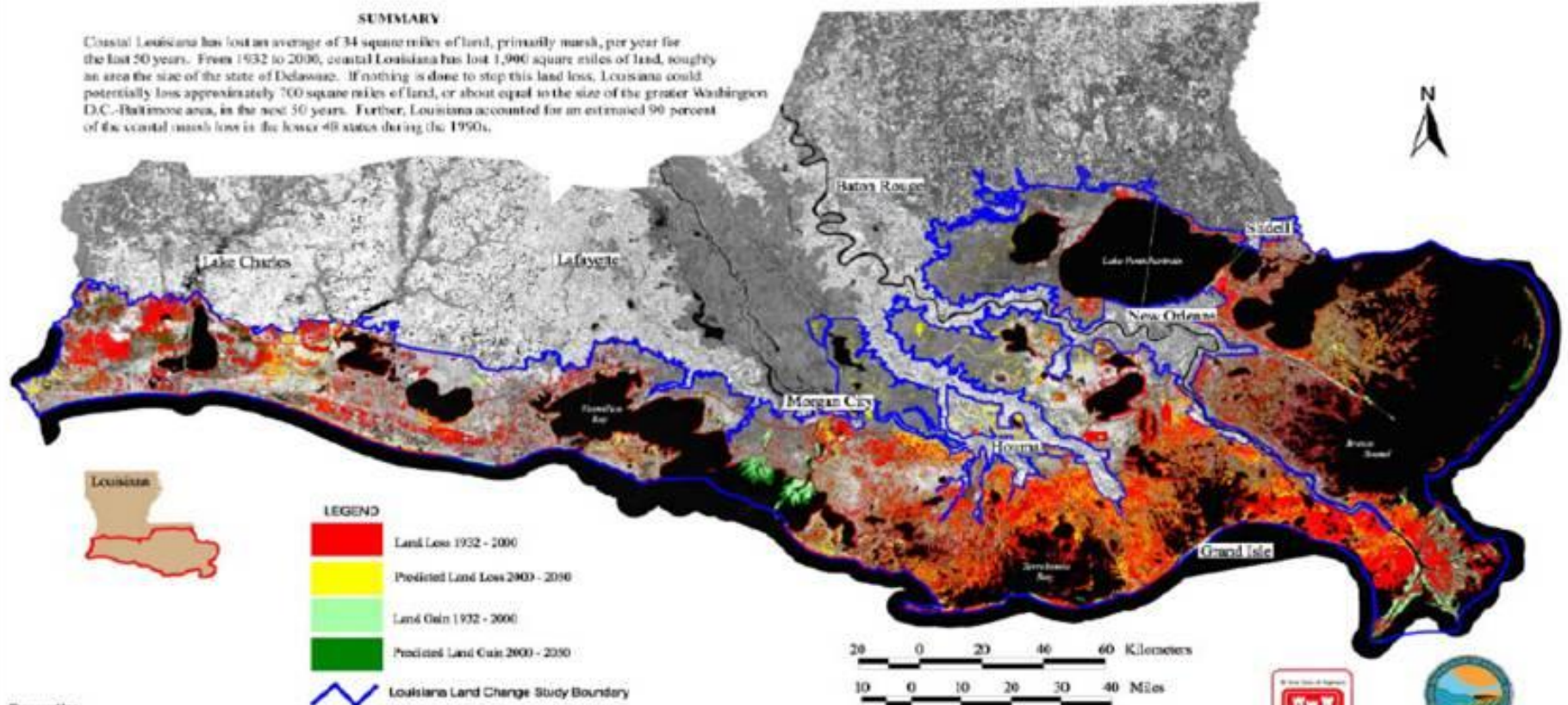
Past and Projected Future Wetland Loss



100+ Years of Land Change for Coastal Louisiana

SUMMARY

Coastal Louisiana has lost an average of 34 square miles of land, primarily marsh, per year for the last 50 years. From 1932 to 2000, coastal Louisiana has lost 1,900 square miles of land, roughly an area the size of the state of Delaware. If nothing is done to stop this land loss, Louisiana could potentially lose approximately 700 square miles of land, or about equal to the size of the greater Washington D.C.-Baltimore area, in the next 50 years. Further, Louisiana accounted for an estimated 90 percent of the coastal marsh loss in the lower 48 states during the 1950s.



Background is 2000 Thematic Mapper panchromatic band.





NATIVE AMERICANS AND ALASKA NATIVES

- Climate change may disproportionately affect tribes because they are heavily dependent on natural resources for economic and cultural identity.
- The Department will consult with tribes on a government-to-government basis on all of our climate change initiatives.
- Tribal values are critical in determining what is to be protected, why, and how to protect the interests of their communities.

Indian Tribes

Managers and Potential Partners

- The experience of Tribes with resource stewardship and adaptation spans millennia.
- Tribes have an accumulation of traditional knowledge and acute sensitivities to their environment.
- Tribal peoples could be among the first to notice changes to ecological processes caused by climate change.
- Many Tribes have sophisticated resource mgmt. programs.
- Some Tribes (e.g. Quinault) have already adopted laws and policies on climate change.



Coastal Erosion in the Native Village of Shishmaref, Alaska





DOI International Programs

DOI cooperates with over 100 countries worldwide to:

- Support and coordinate with White House and State Department foreign policy initiatives;
- Fulfill treaty obligations and Congressional mandates
 - E.g., conservation of endangered species and world heritage sites;
- Accomplish domestic responsibilities
 - E.g., migratory species, transboundary rivers and ecosystems; and
- Conduct scientific research on national priorities relating to energy, climate, natural resources and the environment.

DOI's existing relationships can help provide expertise to the global climate change negotiations and implementation of global policy.



DOI International Technical Assistance Program (ITAP)

- Established in 1995
- Funded through Interagency Agreements (IAA) with USAID and the State Department
- Provides multi-bureau teams to provide training and technical assistance in all areas of DOI expertise

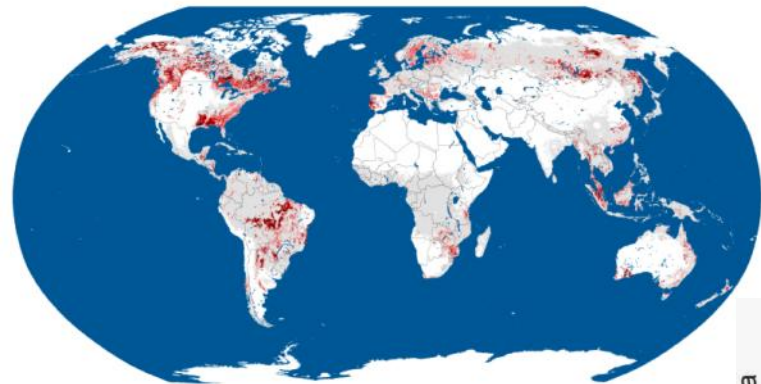


DOI International Programs

Remote Sensing Capabilities

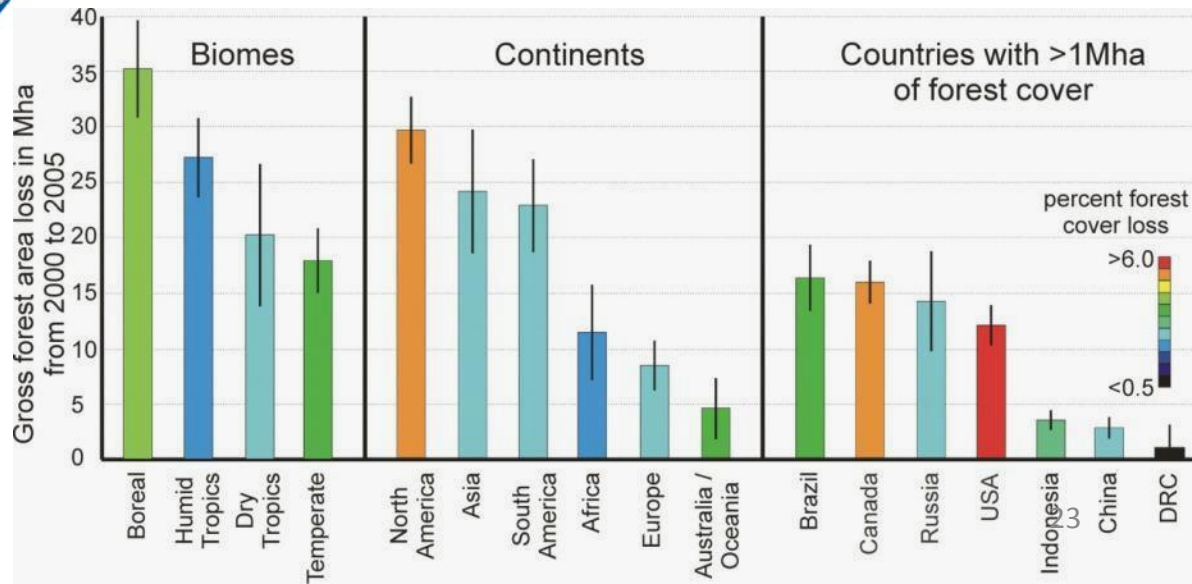
- Conducts remote sensing and monitoring of energy resources potential, land use change, natural hazards and indicators of ecological health worldwide.

Percent forest cover loss, 2000 to 2005



0 - 1.5% 1.5 - 5% 5 - 10% >10%

Global gross forest cover loss, 2000 to 2005



Coastal Senegal: DOI Assisted Dune Stabilization and Reforestation



Aerial View 1984



Aerial View 1994



Landsat View 1997

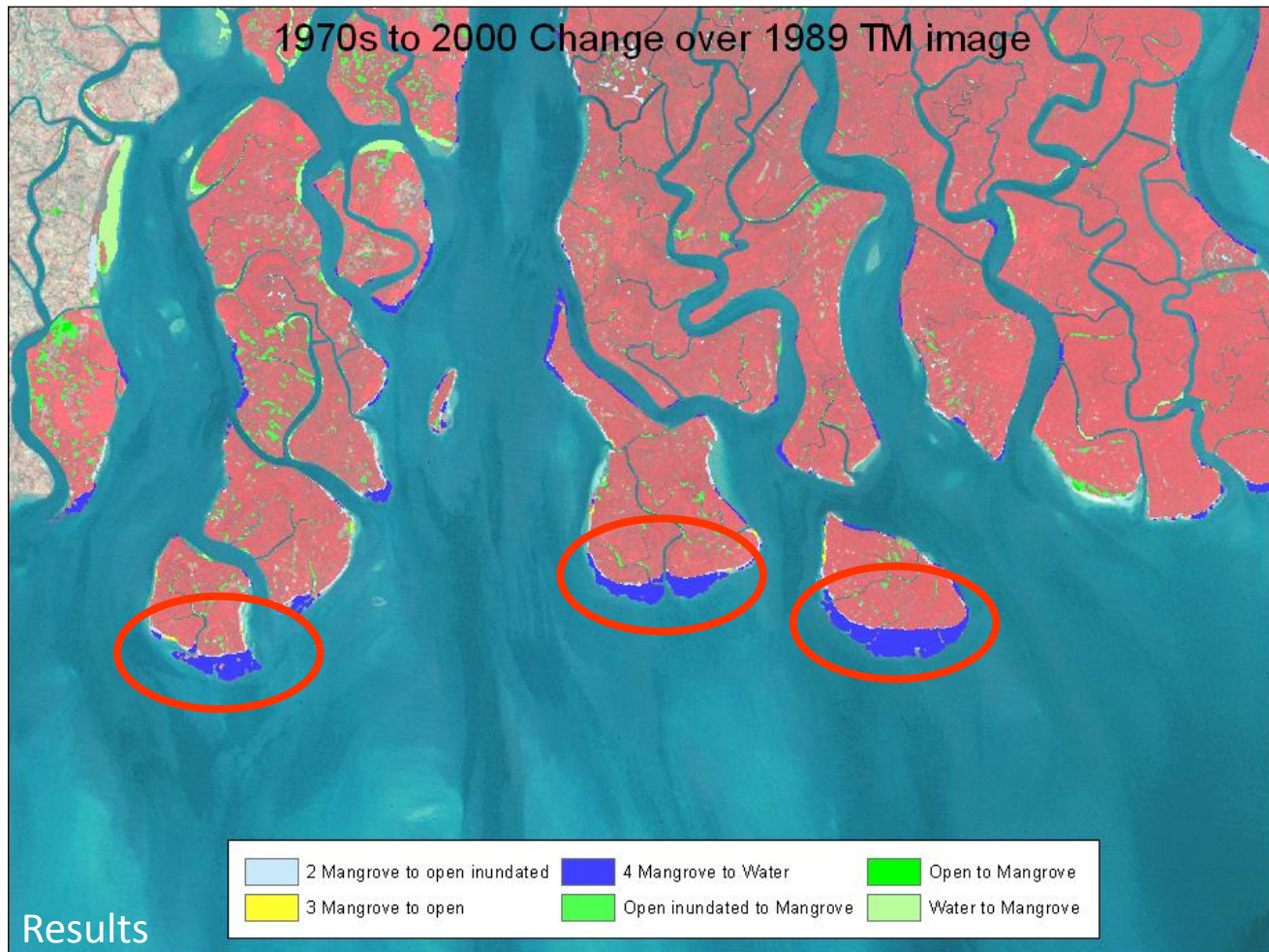


Aerial View 1997



DOI Science: Mangrove Cover in Bangladesh & India

The extent of the mangrove forest of the Sundarbans has not changed significantly (approximately 1.2%) in the last 25 years. However, the forest is constantly changing its structure due to erosion, aggradation, deforestation and mangrove rehabilitation programs.



Conclusion



- How can we work together to help coastal communities cope with climate change?
 - Share lessons learned in local adaptive planning
 - Enhance partnerships between governors, NGO's, universities and communities towards common adaptation goals
 - Develop science-based analytical tools to support local decision making for land managers to predict, prepare for and respond to sea-level rise and more intense storms and flooding
 - Enhance sustainable development for coastal areas