Empowering Natural Resource Managers to Adapt to Climate Change

U.S. Department of the Interior

COP-15

Copenhagen, Dec. 7-18, 2009

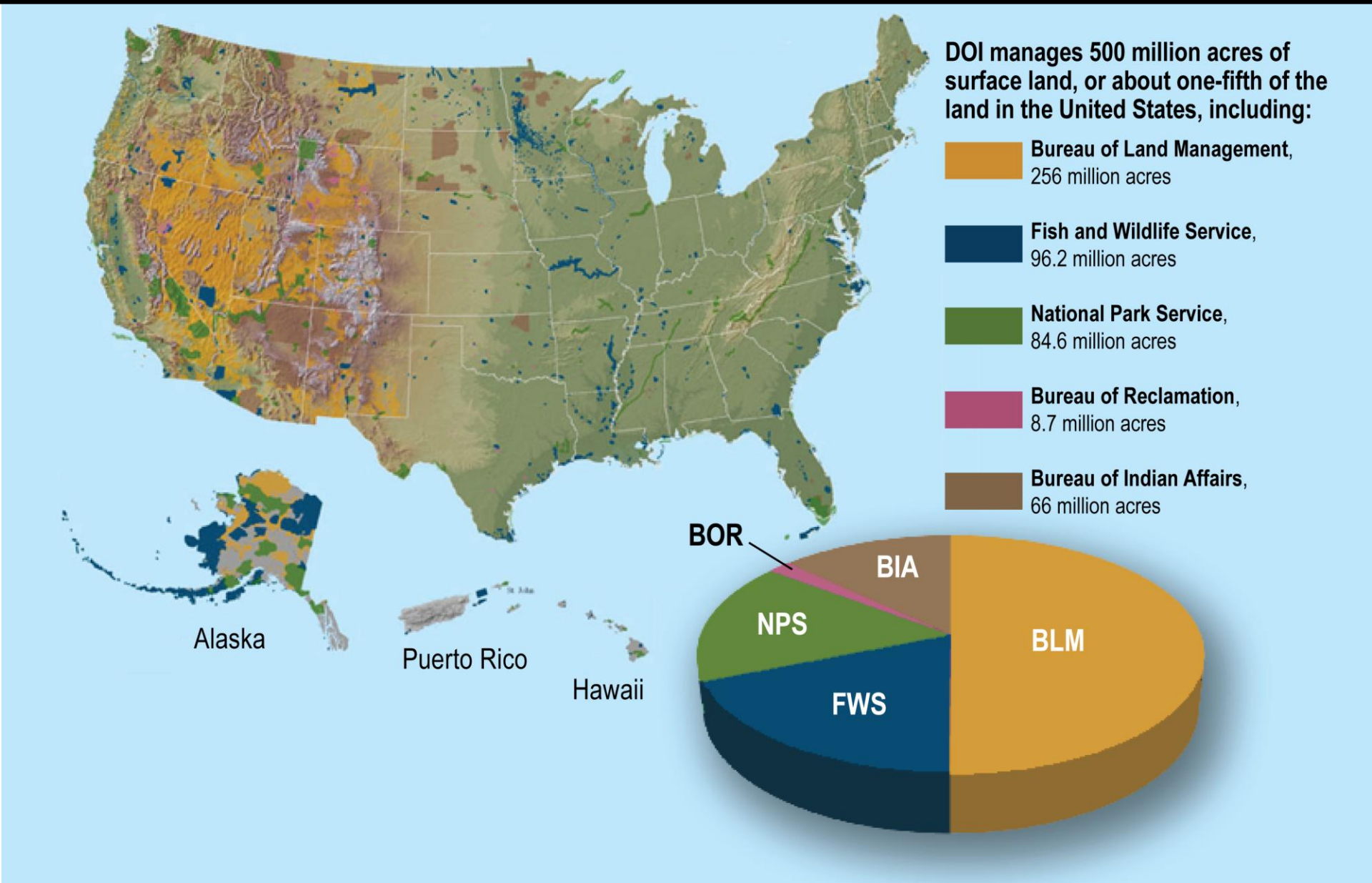
Adaptation and Ecosystem Services

DOI has the expertise and a long history of developing science-based adaptation and mitigation strategies to protect people and vital ecosystem services including:

- air quality
- water quantity and quality
- flood and storm surge protection
- biological diversity
- fish and wildlife habitat

DOI stands ready to assist in developing and disseminating knowledge and tools to help nations adapt to climate change in ways that will enhance ecosystem services

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.

WHY DOI IS EQUIPPED

- The Department of Interior, with its 67,000 employees and scientific and resource management expertise, is responsible for helping protect the nation from the impacts of climate change.

Climate Change: DOI's Role

- Key climate impact and adaptation concerns:
  - Water resources
  - Wildlife impacts (habitat/migration impacts, etc.)
  - Land use impacts (e.g., invasive species; wildfire effects; rangeland)
  - Coastal impacts, including national parks and seashores
  - Impacts on Native Americans and Alaska Natives

- Key science challenges:
  - Identifying climate change impacts (data collection and integration; downscaling climate models)
  - Measuring carbon in landscapes
  - Developing science-based adaptive management strategies
  - Long-term monitoring

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.”

Climate Change Response Council

- S.O. 3289 establishes the **Climate Change Response Council** - within office of the Secretary - to execute a coordinated Department-wide strategy to increase scientific understanding and development of adaptive management tools to address the impacts of climate change.

Elements of the Secretarial Order

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

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.

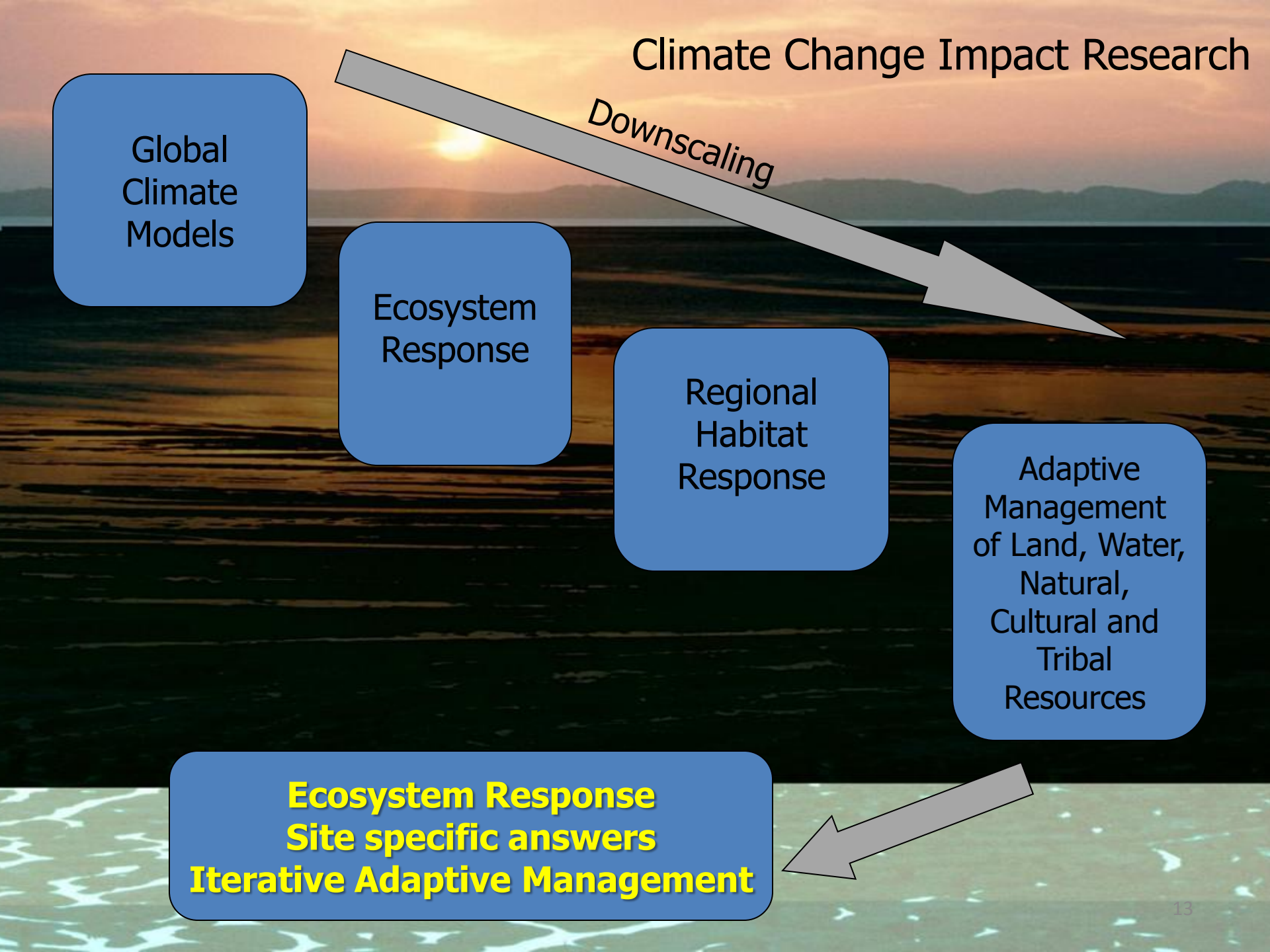
- Tribal values are critical in determining what is to be protected, why, and how to protect the interests of their communities.

Data Integration: Climate Change Impacts

DOI data collection, management and integration can provide a strong foundation for understanding of climate change impacts– from local to global scales.

Goals:

- Make DOI data collection comprehensive, integrated, standardized, and accessible.
- Integrate capabilities to provide essential data to other federal and state agencies, universities, Tribes, NGO's and private landowners.
- Integrate this effort in to broader Data.gov effort.


Climate Change Impact Research
Global Climate Models
Downscaling
Ecosystem Response
Regional Habitat Response
Adaptive Management of Land, Water, Natural, Cultural and Tribal Resources
Ecosystem Response
Site specific answers
Iterative Adaptive Management

Restoration and ecosystem management are adaptation and mitigation strategies and a source of GREEN JOBS

Examples:

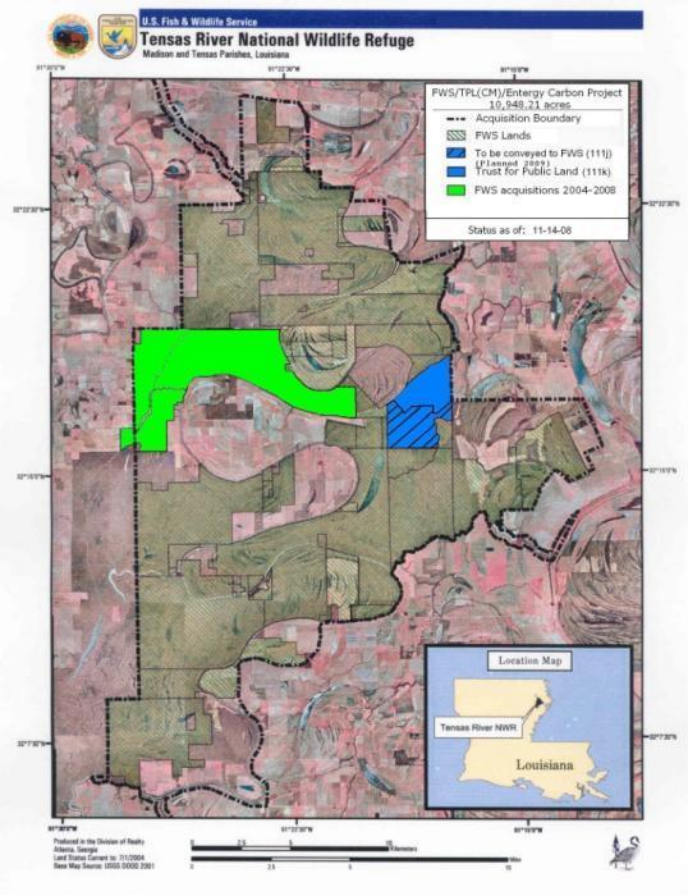
- Mining reclamation activities (reforesting mined areas)
- Forest thinning to improve forest health and resiliency (eg., Redwoods National Park)
- Ecosystem restoration (eg., bottomland hardwood forests and coastal wetlands)
- Adaptive management activities carried out by Tribes can provide employment and economic growth

Heavy equipment excavating an abandoned, failing logging road

Reforestation in Tensas River National Wildlife Refuge, Louisiana

More than two dozen energy companies, four conservation groups, and the states joined with DOI to sequester Carbon in Tensas River Refuge.

- Total reforested acres conveyed through March 2009 = 6,333 acres
- 80,000 acres restored, supporting fish and wildlife population objectives
- 22 million trees planted, projected to capture more than 33 million tons of carbon over 90 years
- Anticipated completion of project in 2010



Appalachian Regional Reforestation Initiative

A cooperative effort by the States of the Appalachian Region with the Office of Surface Mining to encourage restoration of high quality forests on reclaimed coal mines in the eastern USA.

- 56 Government Agencies
- 52 Industry Organizations
- 29 Environmental Groups
- 18 Academic Institutions
- 10 Citizen Groups
- 7 International Groups
- Numerous landowners and individuals

Appalachian Regional Reforestation Initiative

- 9.4 million trees planted in 2005
- 11.1 million trees planted in 2006
- 12.8 million trees planted in 2007

49,000 acres reforested over three years

Carbon Capture Wetland Farms, Sacramento-San Joaquin Delta, CA

Challenge: *The oxidation of drained, agricultural peat soils emit massive CO2 into the atmosphere.*

Peat oxidation has caused Delta islands to subside >25 ft below land surface, causing levee vulnerability, increasing flood potential and shutting down California's water supply system.

USGS Twitchell Island Pilot Study, CA: *Beginning in 1996, native wetland, plant and soil were restored*

Solutions through Management:

- *Stop and reverse land subsidence raising peat soil surface 4 ft.*
- *Increase levee stability*
- *Increase water supply reliability*
- *Capture and sequester CO2 in greater amounts than other land uses*

Varying Water Availability Under a Changing Climate

Challenge: Climate change may reduce long-term sustainability of water supply in the southwestern US.

The Science:

- Climate warming is expected to decrease snowpack and reduce spring/summer snowmelt in the West.
- Water supply shortages may increase between 6% and 45%. Water managers need help on deciding which predictions they should use as a basis for water-supply planning.

Solution: DOI, NOAA, USACE, USGS, EPA, USDA, and other stakeholders are working together to develop a Climate Change Integration Technical Training Program for western water practitioners, planners, technical specialists and/or decision-makers.

Invasive Species & Fire: Great Basin Restoration Initiative

Challenge: Restoring native plant communities, reducing fire frequency, and "pre-adapting" for climate change – planting communities in anticipation of local changes due to a changing climate.

The Science: Invasive annual grasses are increasing rapidly throughout the western U.S. These fire-tolerant species increase fire frequency, eliminate native plants, wildlife habitat and livestock forage; they turn this ecosystem from carbon sink to carbon source.

Solutions:

- Natural habitat restoration effort for millions of acres in the Great Basin of Nevada, Oregon, Idaho, California, and Utah.
- Working with commercial seed producers to grow native seed for restoration.
- Reduce fire frequency
- Provide pollinator services
- Store carbon in native plants and soils

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
  - conservation of endangered species and world heritage sites
- Accomplish domestic responsibilities
  - migratory species, transboundary rivers and ecosystems
- 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

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



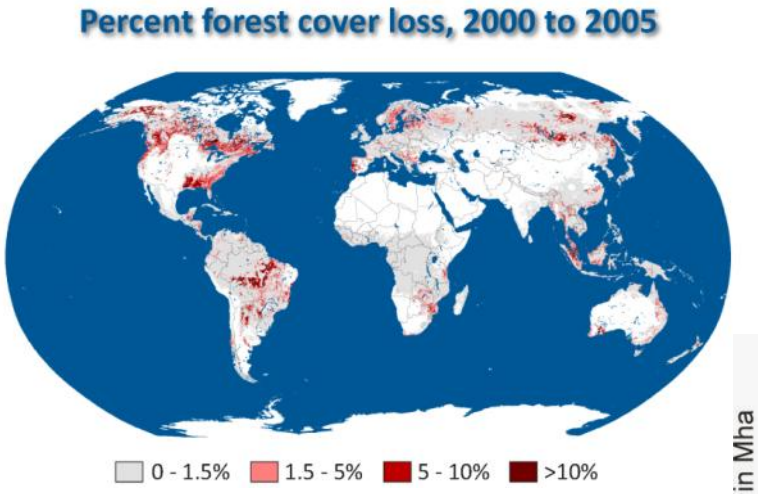
DOI International Programs

- Famine Early Warning System: using remote sensing to monitor floods and droughts in Africa, Americas, Afghanistan
- Integrated water resource management, dam operations and safety, irrigation, flood control, water conservation in arid ecosystems, hydrologic monitoring in Africa, Asia, Middle East

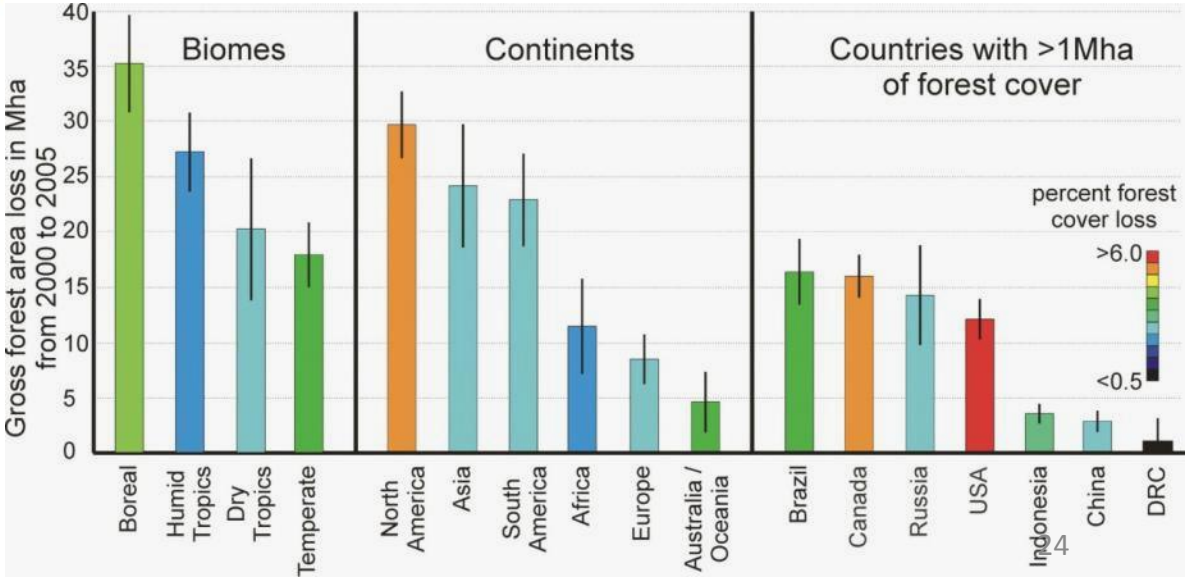
DOI International Programs

Remote Sensing Capabilities

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



Global gross forest cover loss, 2000 to 2005



Conclusion

- DOI science-based adaptation strategies:
  - Are based on the best (integrated) data available
  - Enhance important ecosystem services as well as address climate impacts
  - Provide green jobs
  - Create a building block to a successful international strategy to combat climate change