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ECOSYSTEM SERVICES RESEARCH PROGRAM
BUILDING A SCIENTIFIC FOUNDATION FOR SOUND ENVIRONMENTAL DECISIONS

EPA's Ecosystem Service Research Program: Overview and Opportunities

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Presentation Objectives

- Motivations
- Ecosystem services
- Ecosystem Services Research Program
 - goals & objectives
 - organization
 - expected outputs & outcomes
- Opportunities for partnership



EPA's Motivations

- Increasing recognition that our health, well-being & economy depend on functioning ecosystems
- Ecological risks currently managed in piecemeal fashion – single media, single stressor & isolated scale of analysis
- Decisions almost always involve tradeoffs
- Increasing need to understand, balance & communicate tradeoffs of environmental policies & decisions
- Shift in accountability from administrative process to environmental outcomes
- Current states of the science & practice limit EPA's ability to quantify tradeoffs comprehensively

What We Mean...

Ecosystem Services

The products of ecological functions or processes that directly or indirectly contribute to human well-being, or have the potential to do so in the future



Human Well-being

The condition of individuals, groups & society in terms of health, wealth, livelihood, social & spiritual fulfillment, etc.

ESRP Goals & Objectives

Vision

A comprehensive theory and practice for quantifying ecosystem services, their value and their relationship to human well-being, is consistently incorporated into environmental decision making

Goal

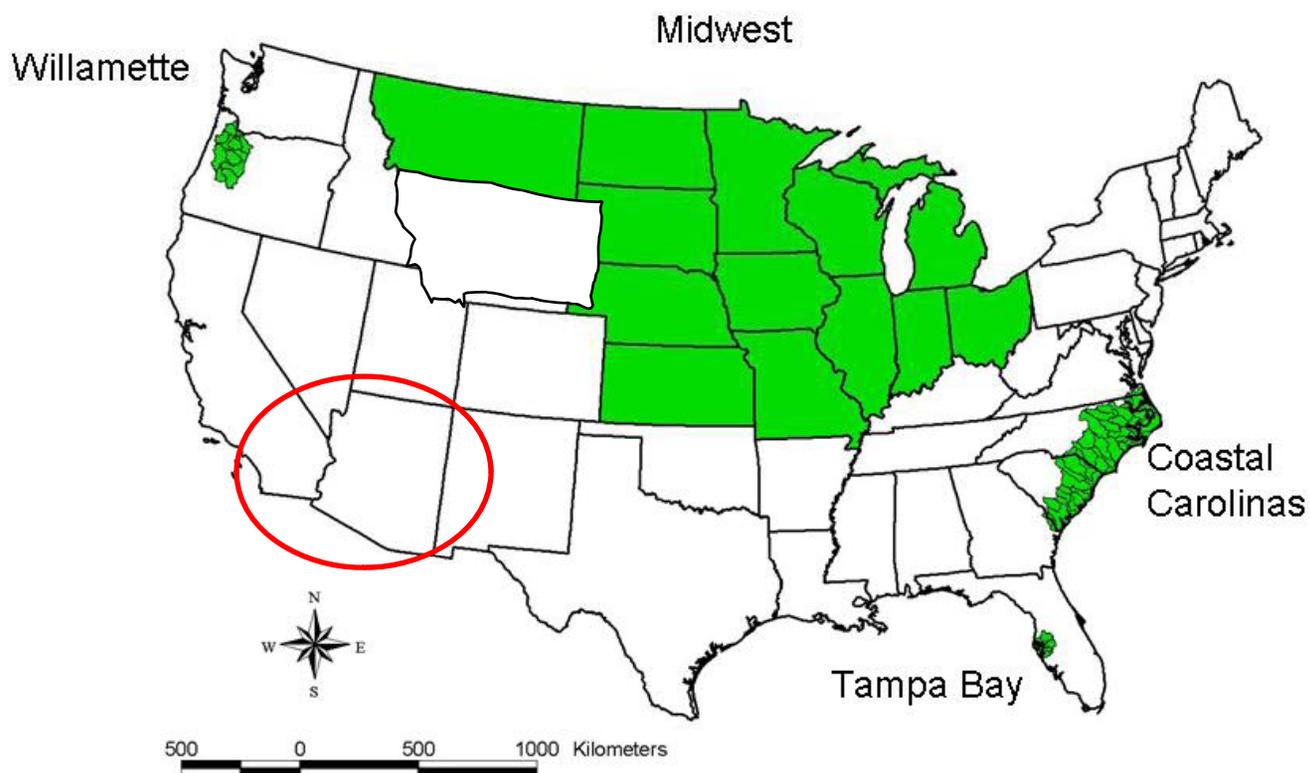
Transform the way we understand and respond to environmental issues by making clear the ways in which our management choices affect the type, quality and magnitude of the services we receive from ecosystems

Five Primary Program Elements

- Keeping the end in mind: integration, decision support & outreach
- Monitor, inventory, map & model ecosystem services at multiple scales
- Pollutant-specific studies: effects of reactive nitrogen on ecosystem services
- Ecosystem-specific studies: ecosystem services provided by wetlands & coral reefs
- Place-based studies: five places from urban to regional, with wide-ranging issues



Place-based Studies



Our Effort

- 200+ scientists
 - ecology
 - environmental chemistry
 - hydrodynamics, fate & transport modeling
 - ecosystem simulation modeling
 - monitoring design & indicators
 - environmental economics
- \$65M in FY 2009 in salaries & support
- Strong emphasis on partnerships

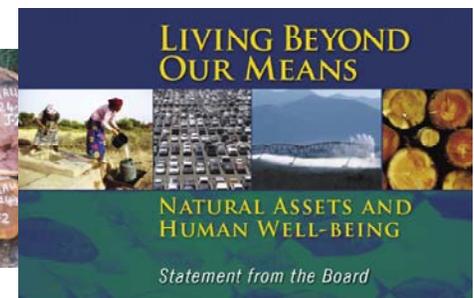


Major Outputs

- Spatial inventories derived from advanced applications of landscape ecology, spatial analysis & monitoring
- Predictive models to forecast change
- Management options under alternative future scenarios
- On-line **Decision Support Platform** enabling decision makers to evaluate management alternatives using ecosystem services and human health & well-being outcomes

Intended Outcomes

- Informed environmental policy based on ecosystem services
- Voluntary stewardship activities
- Consistency in ecosystem service assessments through use of standardized units & methods
- Credible foundations for market incentives



Some Opportunities

- Building on momentum of SETAC Pellston Workshop on Nexus of ERA & NRDA – a focus on ecosystem services
- Sharing knowledge & data, partnering at sites of opportunity
- Enhancing the science supporting translation of injury to service losses

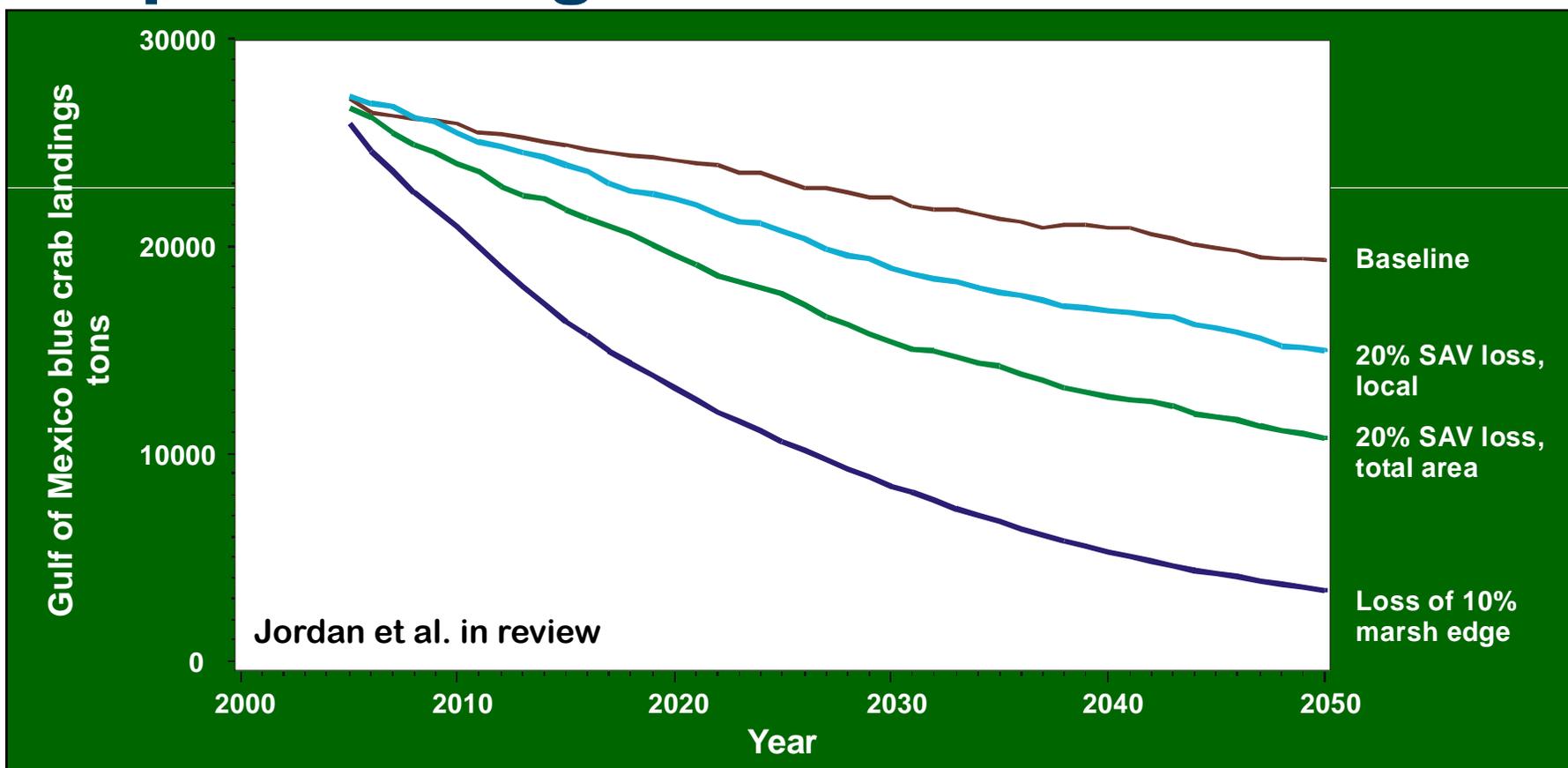


An Example – ESRP Wetlands

Provide technical support for informed wetland management actions and improved decision-making to protect, enhance and restore ecosystem services of wetlands at multiple scales



Effects of Wetland Loss on Fisheries – patch to region



For Information & Feedback

Web sites

<http://www.epa.gov/ecology>

<http://www.epa.gov/ord/npd>

Science Connector

<http://portal.epa.gov/ESC>

