National and Regional Climate Science at the Department of the Interior

Adapting to Climate Change in the Mid-Atlantic

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Assumptions….

1. Climate change is occurring
2. Current policy actions are inadequate (and too late) to avoid continuing change over decades to centuries
3. Thus, human and natural systems must adapt
4. Effective adaptation will require science, observations, and tools that do not presently exist
5. Effective adaptation will be enabled by landscape and regional level partnership action on both science and management

Secretarial Order 3289

Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources ***(9/14/09)***

- **Department-wide Climate Change Response Council**
- **Landscape Conservation Cooperatives**
- **Regional Climate Science Centers**
- **Carbon Sequestration (biological, geological)**
- **DOI's Carbon Footprint**

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Landscape Conservation Cooperatives

Thanks to Rick Bennett

National Climate Change & Wildlife Science Center

Mission

Provide natural resource managers with the tools and information they need to develop and execute management strategies that address the impacts of climate change on fish, wildlife, and their habitats

Goals

- Partnerships with natural resource managers to address their highest priority science needs
- Partnerships with the scientific community to develop needed information and tools
- Delivery of robust tools and information at applicable scales directly to resource managers

Focus on climate change adaptation

Focus on climate change in context of other actions/stresses, etc.

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Connecting Climate Change to Resource Management

Global Climate Models

Describe likely climate changes at a very large scale
Produced by agencies, universities, and research centers

Downscaled Information

Describe likely climate changes at a regional or local scale
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Forecasts of Ecological Response

Describe likely effects on fish, wildlife, ecosystems
Use regional and local projections of climate change
Major focus of National Climate Change and Wildlife Science Center

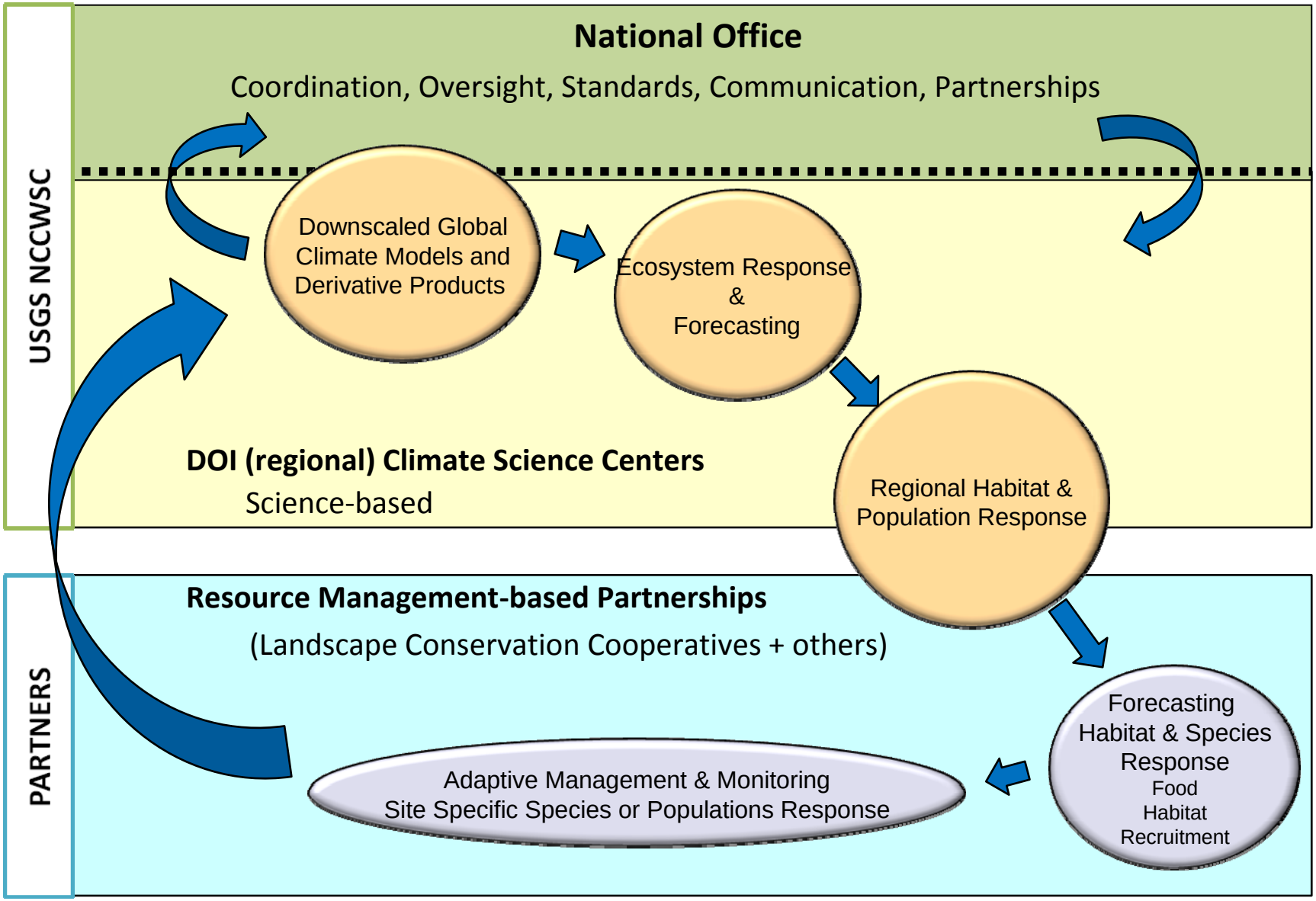
Adaptive Management

Conservation actions designed to react to changing circumstances
Identified by Landscape Conservation Cooperatives and other resource managers

Monitoring and Feedback

Identify effective actions, inform mid-course corrections
A fundamental component of effective planning and management

NCCWSC Science-Management Interface



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National Climate Change & Wildlife Science Center

Priority Science Activities:

- Use and create high resolution **climate modeling information and derivative products** for forecasting ecological and population response at national, regional, and local levels
- **Integrate physical climate models with ecological, habitat, and population response models**
- **Forecast fish and wildlife population** and habitat changes in response to climate change
- **Assess the vulnerability** and risk of species and habitats to climate change.
- **Develop standardized approaches to modeling and monitoring** techniques, to facilitate the linkage of monitoring efforts to climate and ecological/biological response models

National Climate Change & Wildlife Science Center

- **Not within the Center's focal area:**
  - General Circulation Models (GCMs)
  - Long-term monitoring
  - Resource management policy and decisions
  - Clearinghouse on climate change and wildlife

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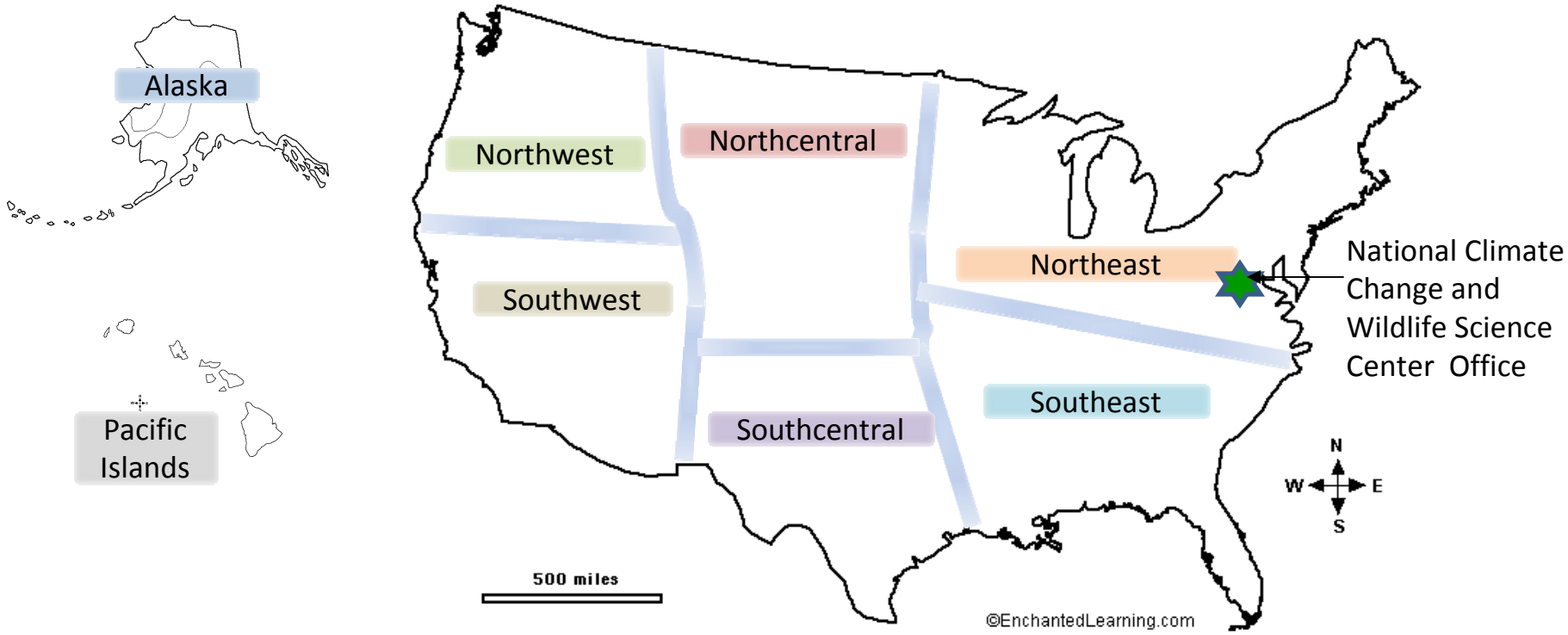
Climate Science Centers--Regions



"Fuzzy Boundaries"

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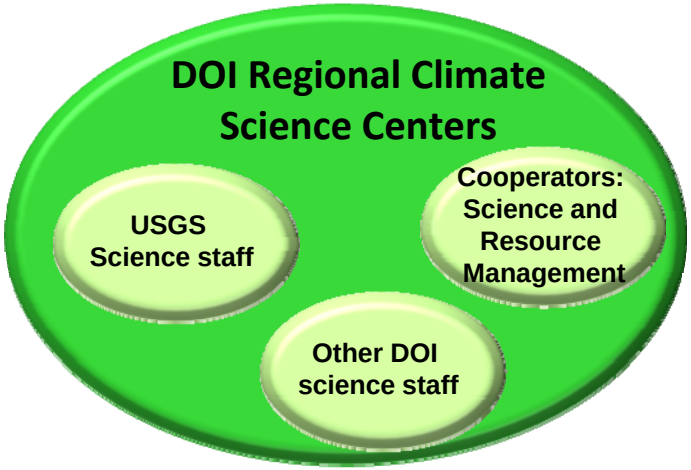
Establishing DOI Regional CSCs



- University Based
- Competitive Process;
- 3 Funded in FY 2010; 2 in 2011, 3 in 2012 = 8 total
- Program Announcement ("call for proposals") in Early 2010
- Director, Science Planner/Partnership Coordinator, Ecologists, Modelers, Climate Scientists, Population Biologists (?), Hydrologists (?), Sociologists (?)

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NCCWSC Governance

- National Advisory Board
  - Input on priorities, opportunities, accomplishments
  - National agenda setting for adaptation of fish / wildlife / ecosystems / habitats
- Advisory Councils for Climate Science Centers
  - Review activities and accomplishments
  - Develop regional science agenda / priorities
- Science Input and Review Mechanisms

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Thank you

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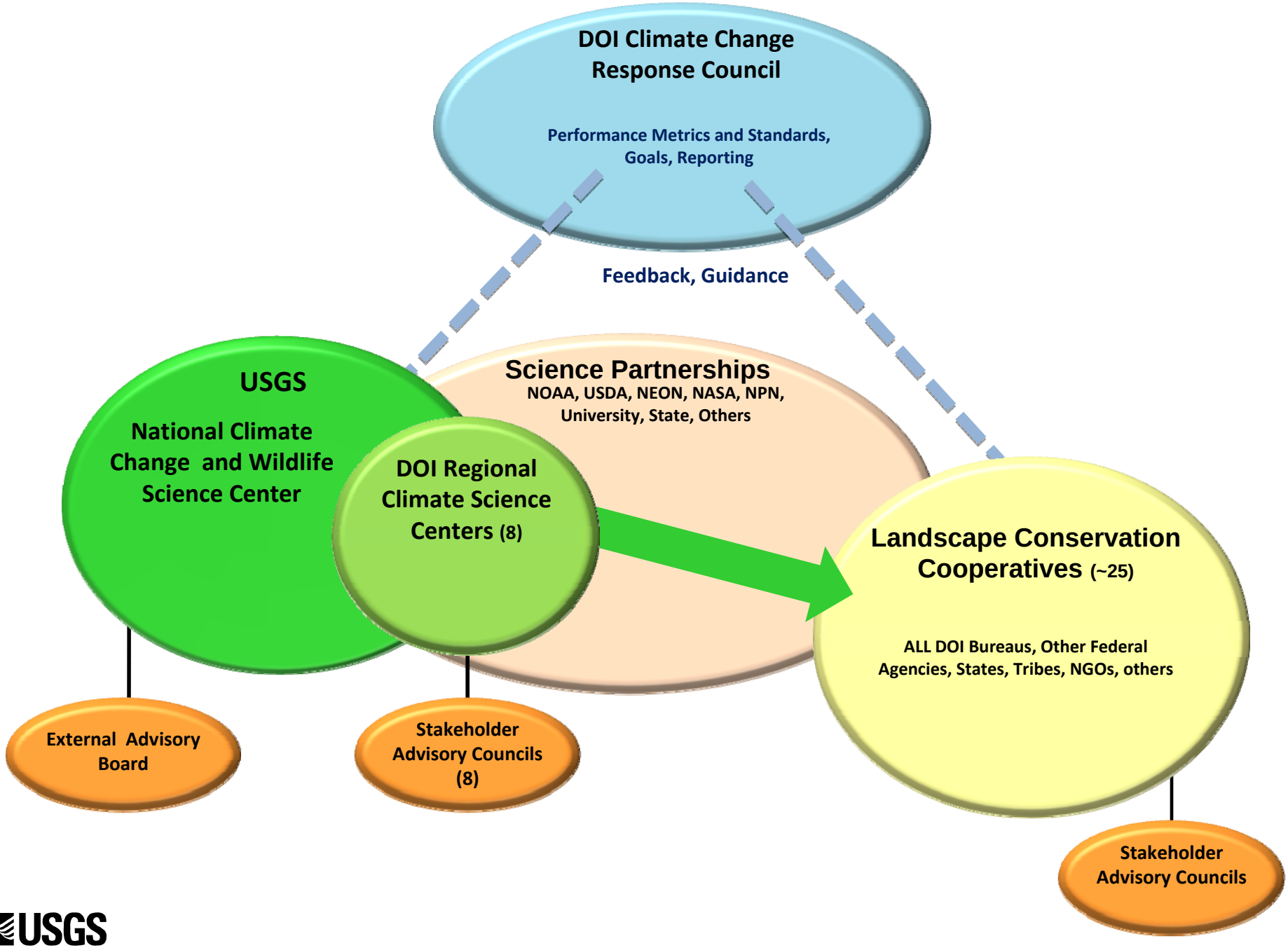
EXTRA SLIDES



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National Climate Change & Wildlife Science Center
DOI Regional Climate Science Centers
DOI Landscape Conservation Cooperatives

A Partnership to Sustain Fish and Wildlife Communities

U.S. Department of the Interior
U.S. Geological Survey

End Game

Managing toward the Future

- Altered biological communities (a given)
- Effective monitoring
- Partnerships leading to synergy
- Common transparent information base

Culture change

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Strategic Considerations

- **LCCs, Regional Climate Science Centers, and NCCWSC are institutional innovations designed to provide platform for cross-jurisdictional and science-management collaboration (everywhere, not just in a few high profile places)**

- **Ongoing tension between**
  - **Very place- or resource-specific solutions ("better fit") and**
  - **Consistent approaches to allow place-to-place comparison and derivation of larger / general patterns ("bigger picture")**

Landscape Conservation Cooperatives

Originated with USFWS Strategic Habitat Conservation initiative

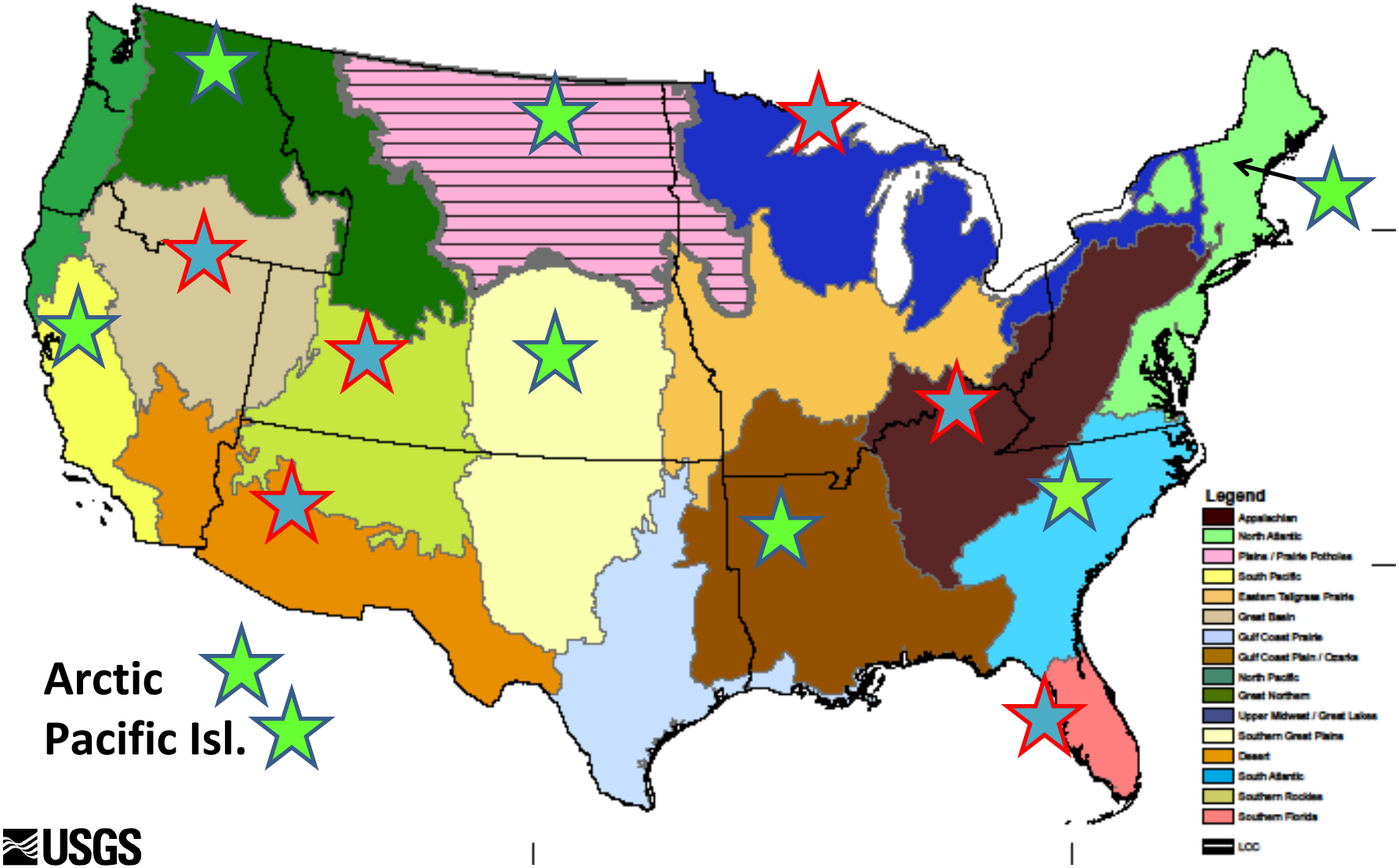
- **Set biological goals for priority species populations,**
- **Make strategic decisions**
- **Constantly reassess and improve**
- **On a landscape scale**

- **For climate and other change vectors**

Landscape Conservation Cooperatives

- Research, modeling and forecasting, and resource management partnerships
- Created and led by partners
- Primary activities:
  - Develop and articulate management priorities, goals, and outcomes for landscapes
  - Use Regional Climate Science Center outputs and other information in developing these management strategies
  - Foster landscape-scale partnerships for resource outcomes
  - Develop and execute management actions with monitoring and feedback
  - Identify science needs and priorities
- Multiple (Interior Department) endpoints

Interim Geographic Framework for Landscape Conservation Cooperatives



Arctic

Pacific Isl.

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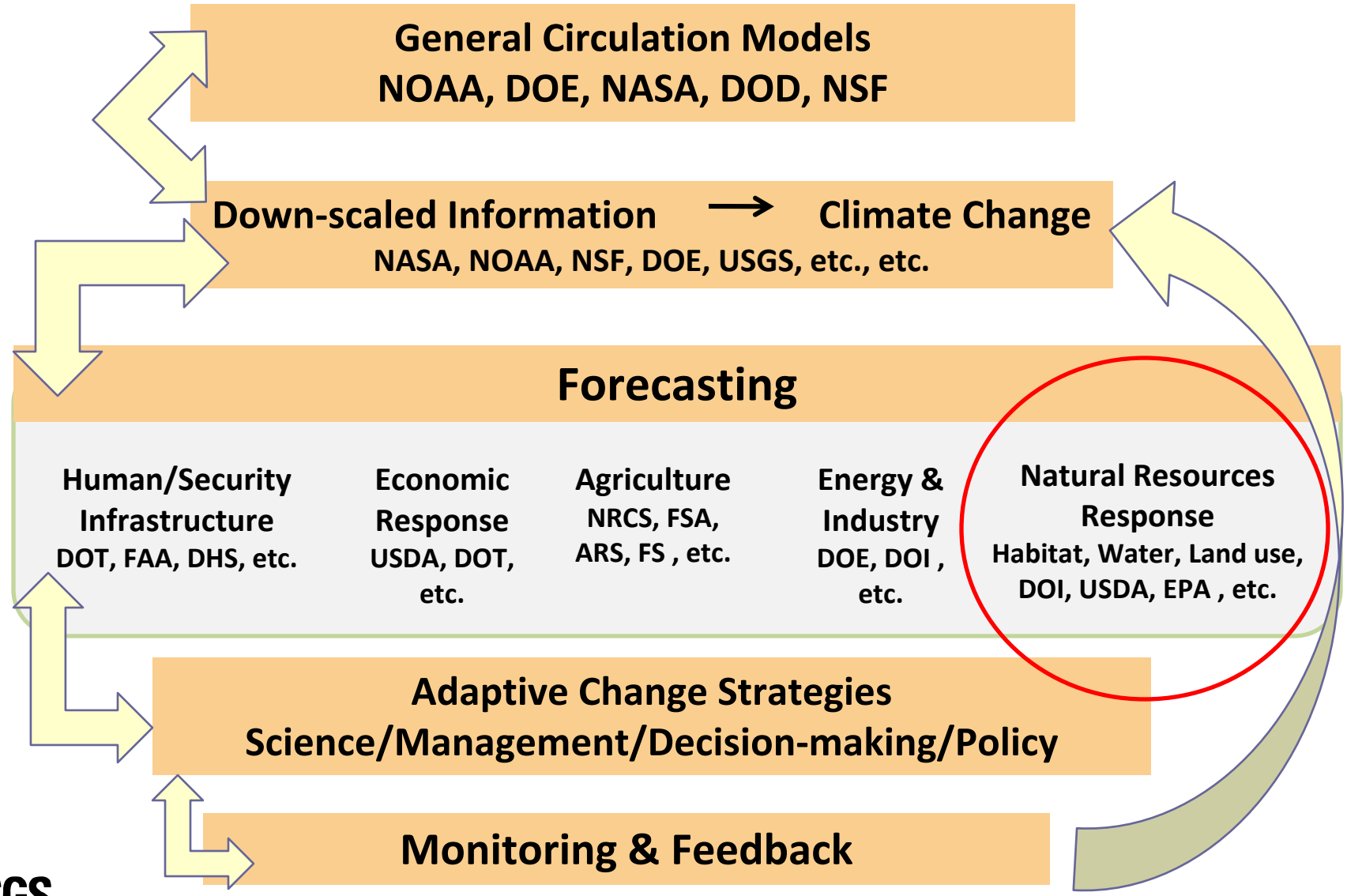
Conceptual Climate Adaptation Strategy



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