

# **Climate Change and Our Nation's Natural and Cultural Resources:**

## **Interior Department Innovations in Conservation Delivery**

---

**Rachel Muir**

**Science Advisor, Northeast Region**

**U.S Geological Survey**

**ACFHP Partnership Meeting**

**Charleston, SC 11-10-10**

# Objectives

- Why Climate Change Science Centers
- Recent Department of Interior Actions
- Climate Science Centers
  - Mission -- What will they do?
  - Relationship to LCCS
  - Interactions with Partners
  - Governance
  - What next?

# 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**

# For Aquatic Resources in Particular...

- **The impacts of climate change in human and natural systems will be most evident and require the most rapid adaptation in regard to water resources;**
- **Changes in sea level rise --**
- **Changes in precipitation and hydrology and geo-hydrology –**
- **Growing pressure on freshwater and coastal resources will increase as well.**

# 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 (LCCs);**
- **Regional Climate Science Centers (CSCs).**



# DOI Climate Science Centers

---

## 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.

# DOI Climate Science Centers -- Activities

---

## Priority Science Activities:

- Integrate physical climate models with ecological, habitat, and population response models
- Develop models and forecast fish and wildlife population and habitat changes
- Develop methods and assess vulnerability of species and habitats
- Develop standardized approaches to modeling and monitoring

**“Big Science” or “Pure Science”  
atmospheric, ecological, geologic,  
hydrologic**

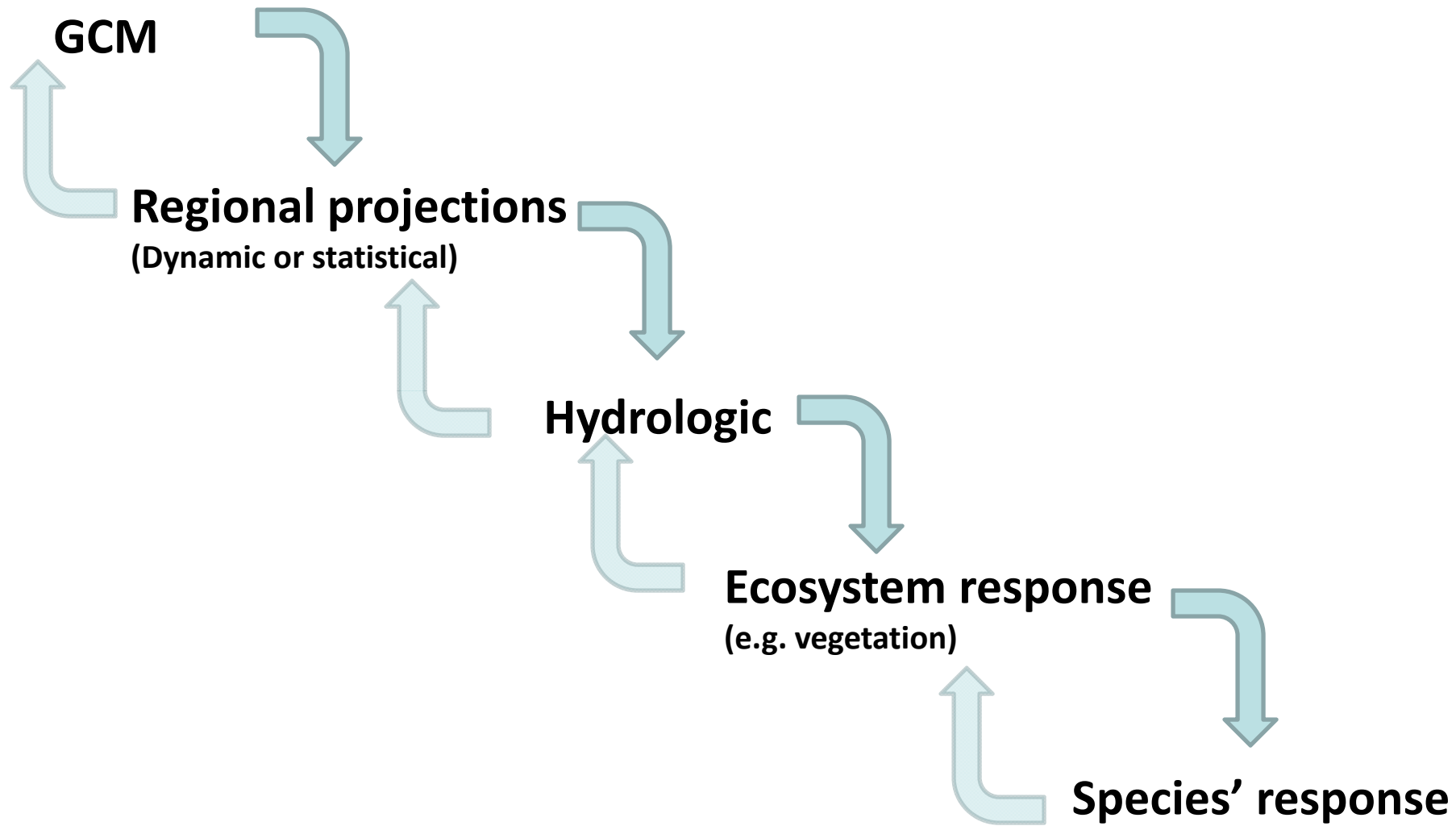


**Translation, Integration, Assessment**

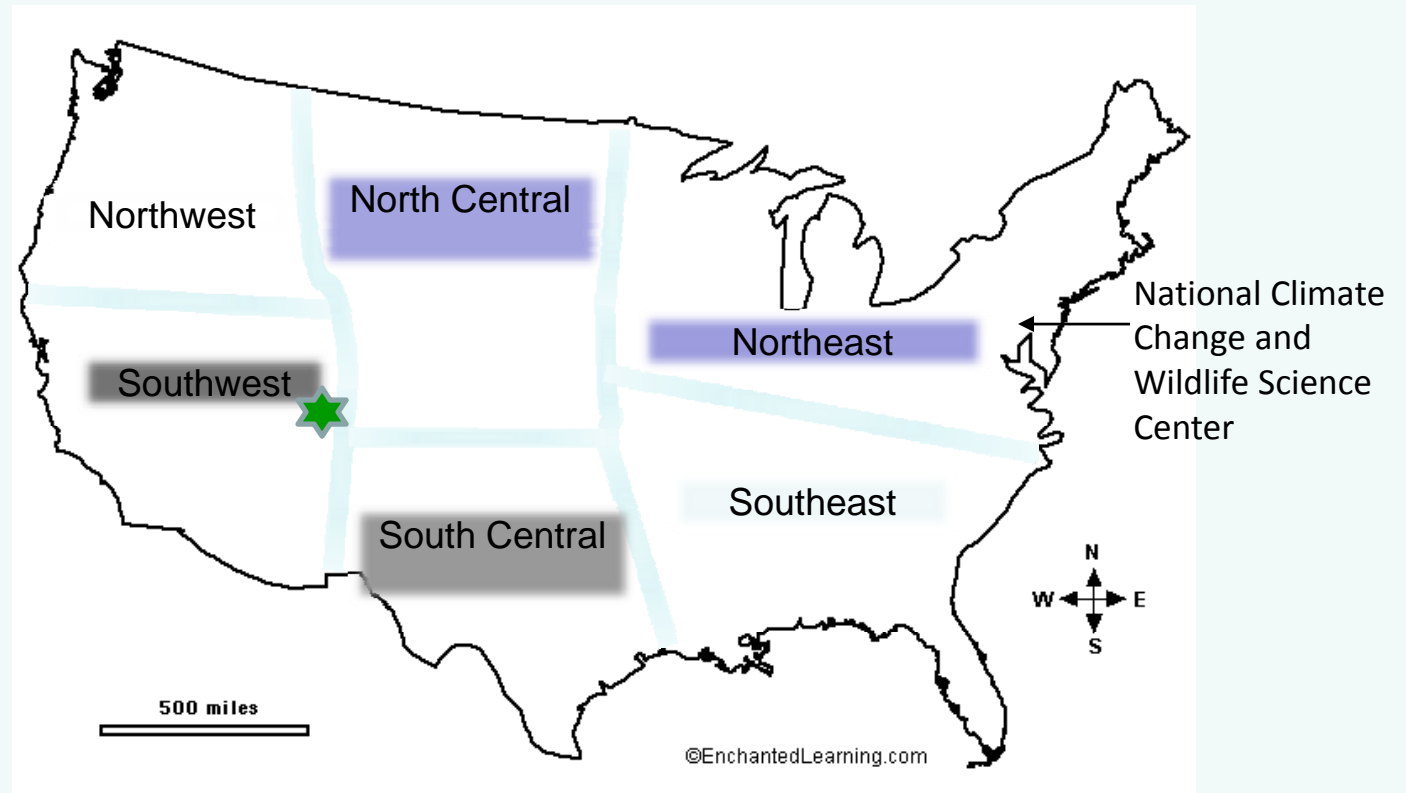
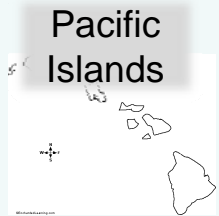


**Application to Management Concerns**

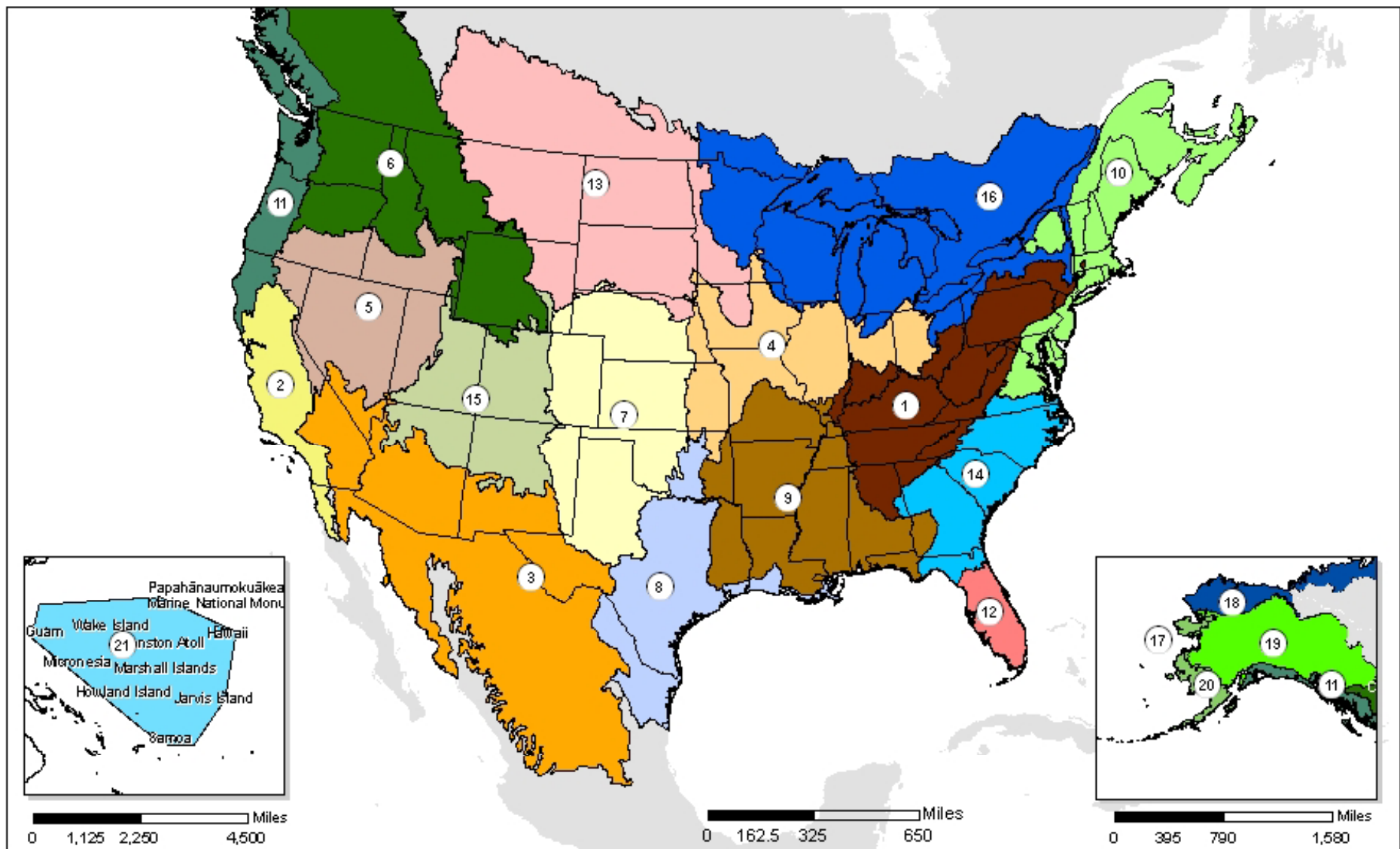




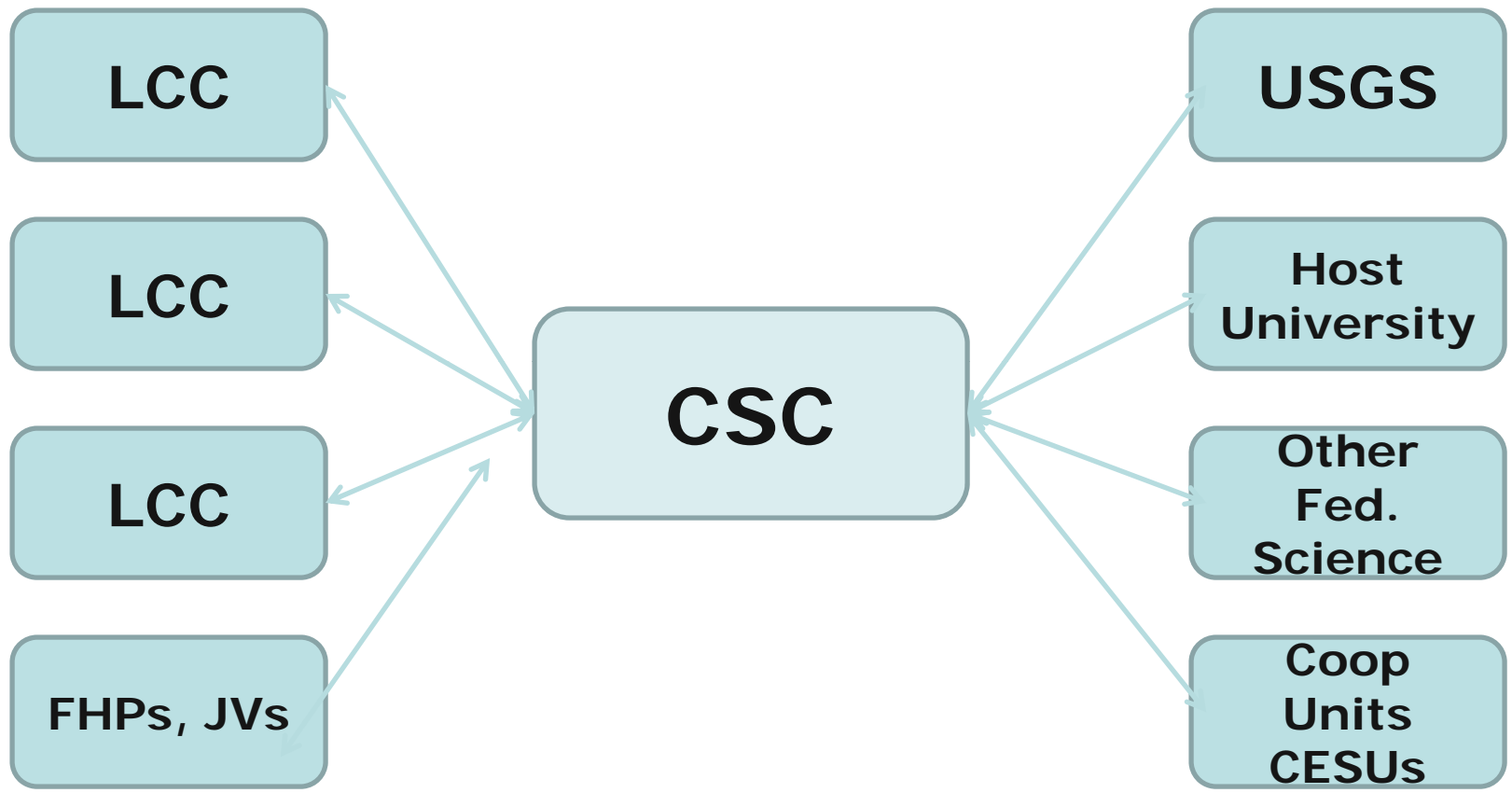
# Climate Science Centers--Regions



“Fuzzy Boundaries”



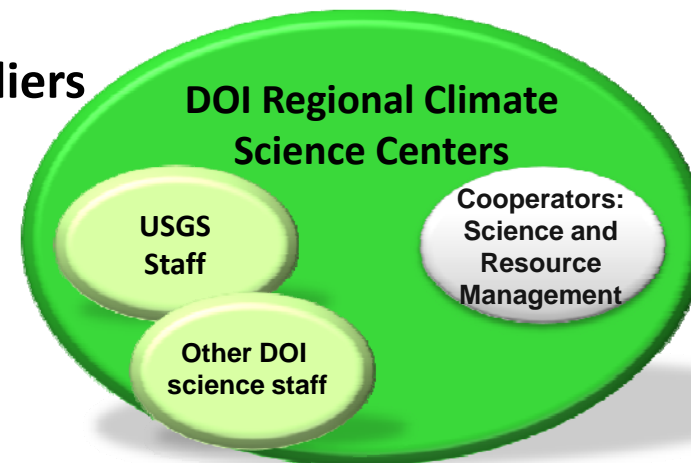
- |   |                                   |                                     |                                  |
|---|-----------------------------------|-------------------------------------|----------------------------------|
| 1. Appalachian                              | 7. Great Plains                   | 13. Plains and Prairie Potholes     | 19. Northwestern Interior Forest |
| 2. California                               | 8. Gulf Coast Prairie             | 14. South Atlantic                  | 20. Western Alaska               |
| 3. Desert                                   | 9. Gulf Coastal Plains and Ozarks | 15. Southern Rockies                | 21. Pacific Islands              |
| 4. Eastern Tallgrass Prairie and Big Rivers | 10. North Atlantic                | 16. Upper Midwest and Great Lakes   | Unclassified                     |
| 5. Great Basin                              | 11. North Pacific                 | 17. Aleutian and Bering Sea Islands |                                  |
| 6. Great Northern                           | 12. Peninsular Florida            | 18. Arctic                          |                                  |



# USGS Component of DOI Regional CSCs

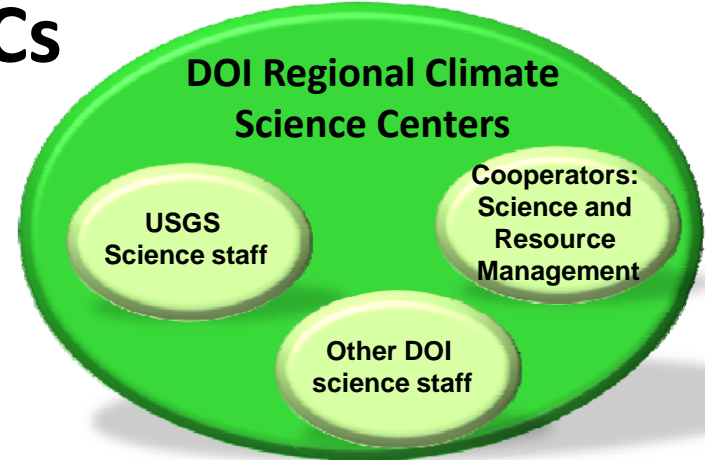
---

- Initial / Core Federal Staffing (USGS NCCWSC) – Director/Coordinator, Ecologists, Modelers, Climate Scientists, Population Biologists, etc.
- Annual DOI/USGS funding ~\$3-4 million
  - Not more than \$1.5 M = DOI staff and operations (space/facilities, etc.)
  - Remainder = science funding through university, USGS, other partners
  - Partnerships – in-kind and monetary multipliers



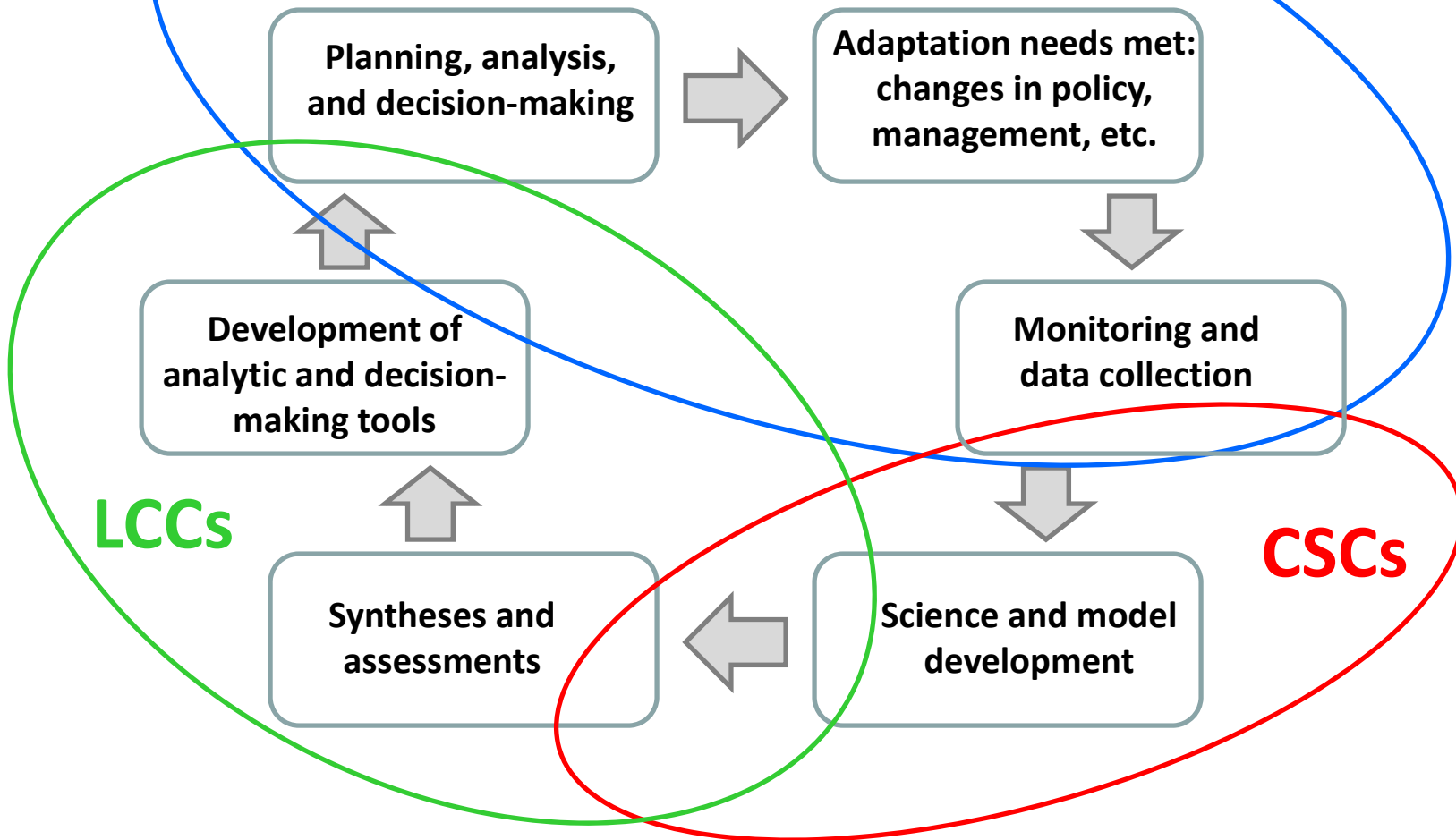
# Establishing DOI Regional CSCs

- University / Nonfederal Based
- Competitive Process
- FY 2010 – Northwest – OSU/UW/UI  
Southeast – NC State  
Alaska – UAF (at UAA)
- FY 2011 – Southwest, North Central
- FY 2012 – Northeast, South Central, Pacific



# Climate Change Adaptation Conceptual Model

Agencies, states, local governments, tribes, NGOs, & private landowners



# Climate Science Centers

---

Potentially most valuable role?

*Convener of the parties*

**USERS with NEEDS**

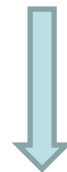
(management  
community  
convened  
by LCCs)



**SCIENTISTS with**

**CAPABILITIES**

(USGS, host  
university, other  
feds, etc.)



**Regional Science Agenda**



# National CCWSC and CSC Governance

---

- National Advisory Board
  - Input on priorities, opportunities, accomplishments
  - National agenda for science needs related to adaptation of fish / wildlife / ecosystems / habitats
  - Will include representation from science and management perspectives, and representatives from each CSC
- Advisory Councils for Climate Science Centers
  - Develop regional science agenda / priorities
  - Review activities and accomplishments
  - Will include representation from science and management perspectives, and representatives from each LCC in the region

- 



# Thank You – Questions?

Rachel Muir  
Science Advisor  
Northeast Area  
U.S. Geological Survey  
Reston, VA  
703-946-6763

