Global Change Science Strategy: Implications and Opportunities for Health

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USGS

USGS Realignment in 7 Issue-based Mission Areas

- Climate and Land Use Change
- Environmental Health
- Ecosystems
- Core Science Systems
- Energy and Minerals
- Natural Hazards
- Water

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Global Change Science Strategy

Burkett, V.R. and others, 2011, **USGS Global Change Science Strategy: A Framework for Understanding and Responding to Climate and Land-use Change**, U.S. Geological Survey Open-File Report 2011–1033, 32 p., at *http://pubs.usgs.gov/of/2011/1033*

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Global Change SS Draft Goals

Progress towards these six goals will improve understanding of:

1. Rates, causes, and impacts of past global changes.
2. The global carbon cycle.
3. Land-use and land-cover change rates, causes, and consequences.
4. Droughts, floods, and water availability under changing land use and climate.
5. Coastal response to sea-level rise, climatic hazards, and human development.
6. Biological responses to global change.

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We define ***Environmental Health*** *Science as the multidisciplinary study of relationships among the quality of the physical environment, the health of the living environment, and human health.*

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Draft Goals

1. Anticipate, detect and assess emerging threats from contaminants and diseases affecting aquatic and terrestrial organisms and humans.
2. Characterize the environmental factors that control exposure to natural and anthropogenic contaminants, and their effects on, aquatic and terrestrial organisms and humans.
3. Elucidate the ecological and environmental factors that influence the occurrence and evolution of infectious diseases affecting aquatic and terrestrial organisms and humans.

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Draft Goals

4. Determine the interactions among contaminants, pathogens, environmental changes and other stressors that combine to affect the health of aquatic and terrestrial organisms and humans.
5. Enhance methods to anticipate and rapidly assess the environmental impacts of natural or anthropogenic disasters on the health of aquatic and terrestrial organisms and humans.
6. Synthesize and communicate integrated environmental health science information to decision makers and the public

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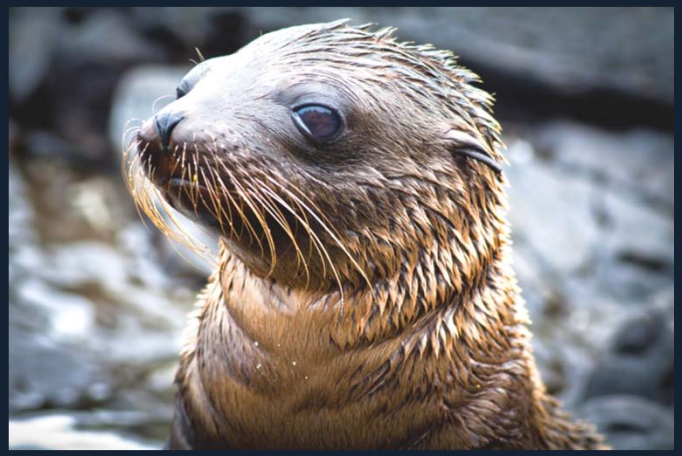
Ecosystem SS (Goals)

- Understand ecosystem structure, function and processes
- Understand how drivers and stressors influence ecosystem change
- Understand the services that ecosystems provide to society
- Science to support strategies for adaptation, restoration and conservation of ecosystems
- Tools and approaches that will better inform decisions about ecosystems



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USGS Ecosystem Science

Ecosystem Science is the study of organisms interacting with their environment and the consequences of natural and human induced change on those systems

- **What are the most important ecosystem science needs and challenges for the coming decade?**
- **What actions should USGS take to address these ecosystem science needs and challenges?**
- **How can USGS better provide relevant and timely ecosystem science information to decision makers, the scientific community, and the public?**

USGCRP Strategic Plan 2012-2021 Goals

Goal 1: Advance Science

Goal 2: Inform Decisions

Goal 3: [Sustain] Assessment *(Provisional title)*

Goal 4: Communicate and Educate

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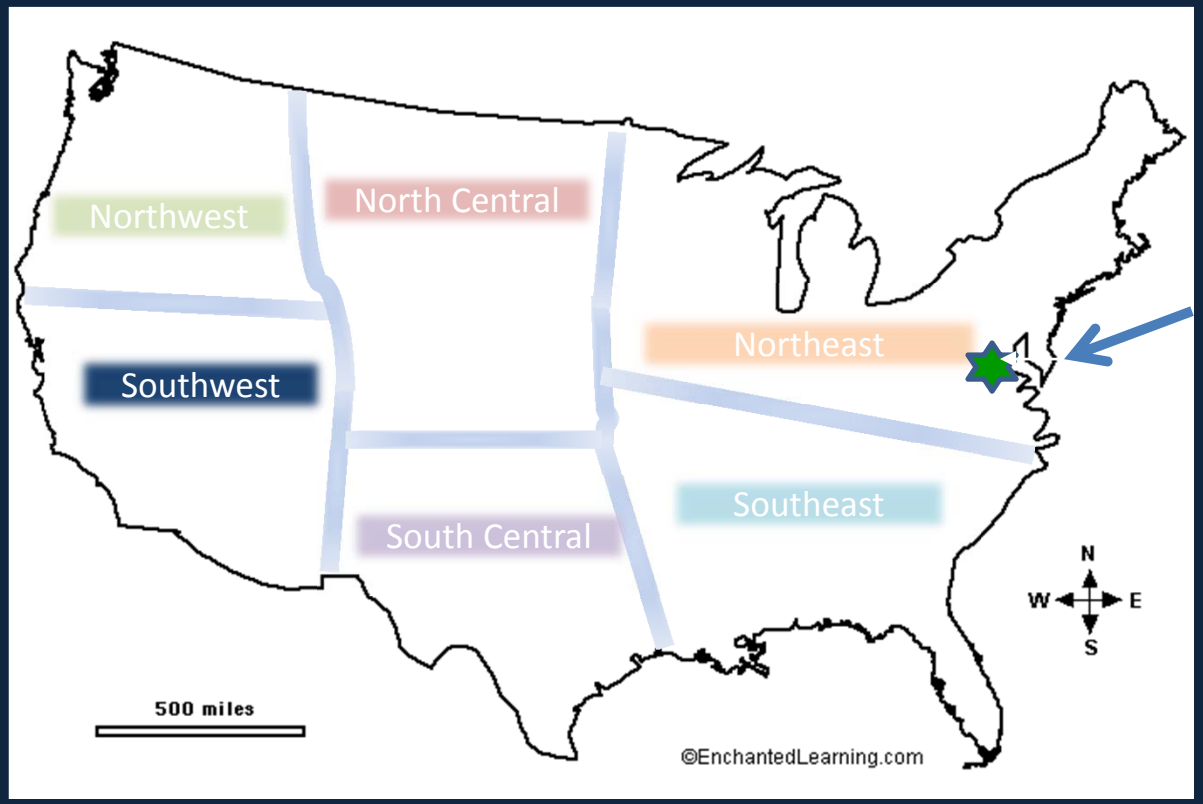
Climate Science Centers--Regions



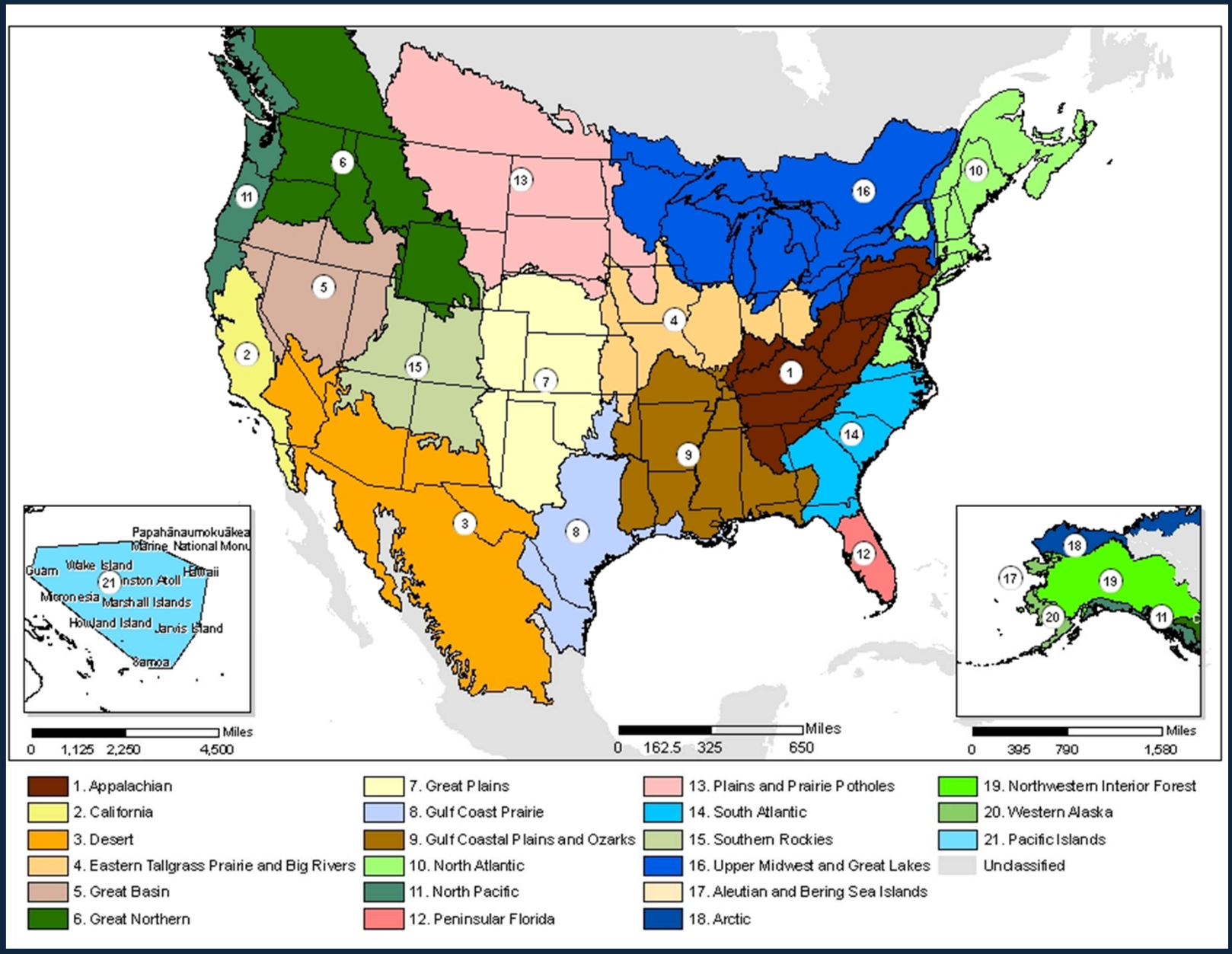
Pacific Islands

National Climate Change and Wildlife Science Center

USGS

"Fuzzy Boundaries"

US FWS LCCs



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