Managing for Change when Uncertainty is the only Certainty

Or Now What?

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Now is what we need to do...Act Now!











The future ain't what it used to be. -- Yogi Berra





Bruce Stein, Chief Scientist, NWF



We must do more to combat climate change... to prepare our communities for the consequences of climate change -- State of the Union 2013

Climate Smart Adaptive Management

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Department of the Interior Departmental Manual

Effective Date: 12/20/12 Series: Environmental Quality Programs Part 523: Climate Change Adaptation Chapter 1: Climate Change Policy

Originating Office: Office of Policy Analysis

523 DM 1

 Purpose. This chapter establishes Departmental policy and provides guidance to bureaus and offices for addressing climate change impacts upon the Department's mission, programs, operations, and personnel.

1.2 Scope.

A. The policy in this chapter applies to all bureaus and offices responsible for the management of water, lands, natural and cultural resources, and infrastructure under the jurisdiction of the Department.

B. This chapter does not apply to the Office of the Inspector General.

1.3 Authorities. This chapter is consistent with the following:

A. Executive Order 13514, Federal Leadership in Environmental, Energy, and Economic Performance, issued October 5, 2009.

B. Council on Environmental Quality's Federal Agency Climate Change Adaptation Planning: Implementing Instructions, issued March 4, 2011.

1.4 Policy. It is the policy of the Department to effectively and efficiently adapt to the challenges posed by climate change to its mission, programs, operations, and personnel. The Department will use the best available science to increase understanding of climate change impacts, inform decisionmaking, and coordinate an appropriate response to impacts on land, water, wildlife, cultural and tribal resources, and other assets. The Department will integrate climate change adaptation strategies into its policies, planning, programs, and operations, including, but not limited to, park, refuge, and public land management, habitar restoration; conservation of species and ecosystem; services and support for tribes and Alaska Natives; protection and restoration of cultural, archeological and tribal resource; water management, scientific research and data collection; land acquisition; management of employees and volunteer; visitor services; construction; use authorizations; and facilities maintenance.

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A. Consistent with existing laws and regulations, it is the Department's policy to:

 Ensure that climate adaptation plans are grounded in the best available science and understanding of climate change risks, impacts, and vulnerabilities, incorporating traditional knowledge where available.

(2) Use the network of Landscape Conservation Cooperatives, Climate Science Centers, and other partnerships to increase understanding of climate change impacts; build upon and monitor existing response efforts; coordinate adaptation strategies across multiple sectors, geographical scales, and levels of government, and inform decision makers.

(3) Ensure consistent and in-depth government-to-government engagement with tribes, Alaska Natives, and Native Hawaiians to address climate change impacts on health, infrastructure, livelihoods, traditional practices, natural and cultural resources, and to apply adaptation strategies.

(4) Consider climate change when developing or revising management plans, setting priorities for scientific research and assessments, and making major investment decisions.

(5) Identify and avoid investments that are likely to be undermined by climate impacts, such as investing in infrastructure likely to be adversely affected by repeated floods or imundation, or planting/introducing species vulnerable to changes in temperature or precipitation patterns.

(6) Address the impacts of climate change on the U.S. territories and Freely Associated States.

(7) Use well-defined and established approaches, as appropriate, for managing through uncertainty, including: (1) vulnerability assessments, (2) scenario planning, (3) adaptive management, and (4) other risk management or structured decision making approaches. The Department's Adaptive Management Implementation Policy is provided in 522 DM 1.

(8) Avoid "maladaptive" actions, that is, actions intended to avoid or reduce vulnerability to climate change that negatively impact or increase the vulnerability of other systems, sectors, or social groups.

(9) Promote landscape-scale, ecosystem-based management approaches to enhance the resilience and sustainability of linked human and natural systems.

(10) Advance approaches to managing linked human and natural systems that help mitigate the impacts of climate change, including:

(a) Protect diversity of habitat, communities and species;

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What Constitutes Good Adaptation?

- Adaptation an emerging field
 - Still poor understanding of what climate adaptation means
- Most guidance still at very high level; little operational advice
- Danger of existing work simply relabeled as adaptation
- Strong interest in understanding what truly constitutes climate adaptation and how it can be operationalized





"I skate to where the puck is going to be, not where it has been." _--- Wayne Gretsky

Climate-Smart Conservation

- NWF-led expert workgroup developing criteria and guidance for "climate-smart" conservation
- Follows on successful guidance publication and training on vulnerability assessment
- Not a recipe book
 Rather, "the way to cook"
- Four top-line themes







Theme1

The Secret for Successful Adaptation



Need to "Show Your Work!"

Theme 2 Manage for Change Not Just Persistence



Global Average January Temperatures. Source NOAA 2009



Theme 3

Reconsider Conservation Goals Not Just Strategies

- Goals are the *why*; strategies the *how*
- Many current goals will no longer be feasible
- Need is for "climate-informed conservation goals"
 Not just "climate-change goals"



Aligning Climate-Informed Goals and Strategies



* Review and revise as needed, based on climate change assessments.

Theme 4 Integrate with Existing Work Not Just Stand-Alone Adaptation Plans









1. Define Adaptation Planning Purpose and Objectives

- Clarify existing conservation goals
- Identify:
 - Key problems to address
 - Stakeholders and their needs
 - Appropriate spatial and temporal scale
 - Focal resources/conservation targets
 - Resource constraints
 - money, time, capacity, data
- Based on above, can select most appropriate approach/tools



2. Assessing Vulnerability

- Components of vulnerability
 - Sensitivity
 - Exposure
 - Adaptive Capacity



- Provides essential context for adaptation
 - What's at risk?
 - Why is it at risk?
 - Doesn't mean should only focus on most vulnerable; might also focus on least vulnerable/most resilient



3. Review/Revise Conservation Goals

- Need is to review, and as necessary revise
 - May either validate existing goals, or indicate need for alteration
- Modified "SMART" framework
 - Achievable in light of likely impacts
 - Realistic based on likely resources and constraints (e.g., legal/institutional)
 - Over what time scale might be feasible
 - Over what **spatial scale** might be feasible



4. Identify Possible Adaptation Options

- Link actions to climate impacts
 - Reduce exposure
 - Reduce sensitivity
 - Enhance adaptive capacity

• Need to think outside the box

 What is not feasible now may be in a climate-altered future





5. Evaluate and Prioritize Adaptation Actions

- Consider ecological effectiveness
 - But also financial, social, political, legal, institutional, and technological
- Most actions will draw from existing tools and approaches

 But may vary in when, where, why carried out
- Near vs. Long-term needs
 - Ideally, should meld near-term needs with longer-term directions
- Works across climate scenarios
 - Ideally, robust to uncertainty





6. Implement Priority Actions

- Focus on cross-sector benefits and synergies
- Engage diverse partners early
- Demonstrate success
 - No matter how small
- Communications is key
 - Meet people where they are
 - Sometimes climate is not the appropriate message





7. Track Action Effectiveness and Ecological Responses

- Monitoring is key to agile and informed management
 - But requires careful design and link to actions
- In context of adaptation informs both
 - evaluation of project effectiveness and
 - understanding of underlying system changes
- Although shown as last step, provides feedback to many interim steps in cycle







Climate Smart Conservation



Climate Smart Conservation



Principles of Climate-Smart Conservation

- 1. Forward looking goals
- 2. ID actions linked to future conditions
- Design actions in ecosystem/watershed context
- Prioritize actions across multiple scales & species

Principles of Climate-Smart Conservation

5. Adaptive and flexible management timely to continual change

6. Collaborate and communicate across sectors for timely long term solutions

7. Follow TEN% rule: Test, and Experiment Now



Putting Ideas into Actions

Courage to Take Next Steps

- Believe You Can
- Know Why

• You are Not Alone!





Be Brave, Take risks, Nothing Can Substitute Experience. (Paulo Coelho)

We are in this together



