Adaptation 2011: A Workshop Report

Conserving Natural Systems in a Rapidly Changing Climate

The Adaptation 2011 Workshop hosted by National Wildlife Federation (NWF) and the National Council for Science and the Environment (NCSE) brought together 80 experts in natural resource climate change. Participants, who represented federal agencies, states, tribes, and non-profits from across the United States, gathered for three purposes:

1.) To review efforts already underway to prepare for the impacts of climate change on natural systems.
2.) To identify steps that policy makers and natural resource managers can take into advance climate adaptation from planning to implementation.
3.) To strengthen and expand the climate adaptation community.

To achieve these goals, the workshop featured interactive discussion sessions and case study panels, as well as presentations on a variety of background research carried out in anticipation of the workshop. Insights from the workshop are intended to inform the National Fish, Wildlife, and Plants Adaptation Strategy, a series of agency briefings, and a guidebook on climate smart conservation.

Setting the Stage: The Adaptation Field Today

Survey of Natural Resource Professionals

To assess recent developments in the field of adaptation, National Wildlife Federation and the Association of Fish and Wildlife Agencies conducted a survey of natural resource professionals from federal and state agencies, non-profits, and tribes. The voluntary survey, which had 191 respondents, indicated that while nearly all respondents had spent staff time learning about climate change and related impacts, and nearly half had allocated time to adaptation planning efforts, few organizations had staff implementing adaptation projects on the ground. When asked about current needs, survey respondents highlighted the need for funding, downscaled climate information, guidance on how to plan and implement adaptation projects, and case studies of on-the-ground adaptation efforts. The survey suggested that while practitioners consider climate change adaptation planning very important, they are giving increased attention to finding ways to implement and monitor projects on-the-ground.

For more information, contact Doug Inkley at National Wildlife Federation (inkley@nwf.org).

Online Resources:

Watch on YouTube!

Literature Review: Moving the Conservation Goalposts

Climate Smart Workgroup

NWF's Vulnerability Assessment Guidebook

Conservation Goals in an Era of Climate Change

One of the most discussed topics in field of the adaptation is how to reconsider conservation goals in light of climate change. Moving the Conservation Goalposts: A Review of Climate Change Adaptation Literature, a literature review prepared for the workshop by NWF staff, reviewed the historic evolution of conservation goals (e.g., protecting scenic landscapes, conserving targeted species and preserving biodiversity) and discussed how goals may need to adjust as the effects of climate change become more pronounced. Highlighted themes included "the death of stationarity," conservation of important ecological processes, and the change continuum of resistance, resilience and transformation.

To illustrate the challenges that organizations face when reconsidering goals in light of climate change, Cat Hawkins Hoffman of the National Park Service (NPS) reviewed how the NPS and The Nature Conservancy are assessing existing organizational goals and future needs. While the NPS is reviewing how mandated goals such as "naturalness" and "preventing impairment" might direct or constrain future park management in an era of climate change, The Nature Conservancy is re-evaluating and strengthening the role of people and communities in its conservation efforts.

Both presentations stressed that there is no universal "climate smart" conservation goal. Rather, organizational experience and the literature reveal a growing need to reassess existing goals in light of climate change and consider whether newly emerging principles, such as managing for change, may be useful in the future.

Key Characteristics of Climate Smart Conservation

In an effort to facilitate the incorporation of climate adaptation into natural resource management, NWF convened an expert workgroup to develop criteria and guidance for climate-smart conservation. As a first step, the workgroup developed a set of nine "key characteristics" for carrying out quality climate adaptation. These characteristics reflect the contention that in light of climate change "good conservation is not good enough." The workgroup solicited feedback from workshop participants, who were generally supportive of the characteristics. However, the participants expressed a desire to see the characteristics elaborated upon so that natural resource managers would know how to realize them on-the-ground.

Highlighted characteristics include:

- **Conservation Actions Linked to Climate Impacts**: Conservation actions are designed to address the impact of climate change in concert with existing threats and are supported by explicit scientific rationale.

- **Set Forward Looking Goals**: Conservation goals focus on future, rather than past, climatic and ecological conditions; strategies take a long view (decades to centuries) but account for near-term challenges and transition strategies.

- **Robust in an Uncertain Future:** Actions provide benefit across a range of possible future conditions to account for uncertainties in future climate and in ecological and human response to climate shifts.

Olivia Campbell Anderson, Maryland DNR

- **Safeguards People and Wildlife:** Actions enhance the capacity of ecosystems to protect human communities from climate change impacts in ways that also sustain and benefit fish, wildlife, and plants. Full list of characteristics.

For more information, contact Naomi Edelson at National Wildlife Federation (edelsonn@nwf.org).

Adaptation Planning Processes

To develop locally appropriate and scientifically sound adaptation strategies, several organizations have formulated adaptation planning processes (e.g. Adapting Conservation Targets Framework (ACT), Climate Wise, and Awareness to Action.) Another presentation from the Climate Smart Workgroup reviewed these methods, identifying similarities and differences between them such as tools, scale, audience, and goal. The presentation emphasized that there is no best adaptation planning process; instead different approaches are appropriate for different types of adaptation efforts. The particular goal, audience and resources of a given project should inform which method planners choose. Work reviewing planning processes is on-going and will be incorporated into the adaptation guidance under development.

For more information contact Molly Cross at the Wildlife Conservation Society (mcross@wcs.org).

Learning by Example: Adaptation on the Ground

To gather lessons and recommendations from the struggles and successes of climate smart conservation work on-the ground, panels representing four ecosystem types—freshwater, terrestrial, coastal and marine—were assembled. Full presentations are available at the conference website.

"A lot of what needs to be learned about is what works on the ground" --- Jennifer Hoffman, EcoAdapt

"We can no longer afford to be talking (only) to the choir"---- Hector Galbraith, Manomet

The Colorado River: Embrace Uncertainty!

Terry Fulp, Bureau of Reclamation,
Jennifer Pitt, Environmental Defense Fund,
Tanya Trujillo, Counsel for the Senate Energy and Natural Resources Committee

Partners working on the Colorado River discussed lessons learned during the development of interim guidelines for the operation of Lake Powell and Lake Mead in periods of drought and described how these lessons about the integration of climate variability and change into basin operation are informing the Basin Study mandated by the Secure Water Act. Panelist Terry Fulp highlighted the importance of "embracing uncertainty" in planning efforts and being willing to take action with imperfect information. To accommodate long-term uncertainty in the Colorado River, decision-makers adopted interim guidelines for the operation of the Lower Colorado that expire in 2026 and can be adjusted as more is known about water use and availability. Additionally, all parties agreed to resolve water use controversies through consultation and negotiation, instead of litigation. Both Fulp and panelist Tanya Trujillo emphasized that the Secure Water Act has enabled further research on the effects of climate change on the Colorado River and Jennifer Pitt discussed how this research will inform conservation approaches.

Rennet Stowe, flickr

The Southern Sierra Conservation Collaborative: Collaborate to link local and regional science and management

Susan Antenen, Conservation Biology Institute
Hilary Dustin, Sequoia Riverlands Trust
Charisse Sydoriak, Sequoia and Kings Canyon National Park

Representatives from the Southern Sierra Conservation Collaborative discussed the evolution of cooperative adaptation in the Southern Sierra Nevada. After a group of federal agencies were united by a strategic science framework and a group of local partners united to author a regional planning framework assessing climate and non-climate threats , both federal and non-federal entities were able to identify shared priorities and plan cooperative adaptation activities, particularly at mid-level elevations. To implement these priorities, Susan Antenen discussed the importance of linking fine scale and regional scale activities and Hilary Dustin corroborated, discussing how regional collaboration was changing the way her land trust prioritized local level projects. Charisse Sydoriak recommended that organizers tackle structural impediments, such as firewalls or staff turnovers, that can make collaboration difficult. All panelists highlighted the importance of reframing messages about climate change to reach diverse partners.

The Chesapeake Bay: Lead by example

Zoe Johnson, Maryland DNR, Program Manager Office for a Sustainable Future
Kevin Smith, Maryland DNR, Director of Ecosystem Restoration Services
David Curson, Audubon Maryland-DC, Director of Bird Conservation

Panelists involved in adaptation on the Maryland coast of the Chesapeake Bay reviewed the Maryland Department of Natural Resource's efforts to "lead by example" in adopting climate smart conservation practices. The Maryland DNR has written two adaptation plans, one focused on sea level rise and coastal storms and the other on societal, economic and ecological resilience. Panelist Zoe Johnson explained how climate change criteria is being integrated into the department's land acquisition policy and habitat restoration work and cautioned that policy changes take time and require perseverance. Kevin Smith described the challenges of implementing these policies on the ground, providing examples from DNR work to connect upland and shoreline habitat, increase carbon sequestration in coastal marshes, and construct marsh runs and living shorelines. He emphasized that it was important to consider society's responses to climate change, as well as the response of natural systems, when devising climate adaptation plans. While the Maryland DNR has been a leader in Chesapeake Bay adaptation, David Curson stressed that NGO partners play an important role in efforts by championing policy and communicating the benefits of adaptation to a diverse set of stakeholders.

The Bering Sea: Know your system and your stakeholders

Jeffrey Napp, NOAA
Phyllis Stabeno, NOAA
Mike Sigler, Alaska Fisheries Science Center-NOAA Fisheries Service

Bering Sea panelists discussed lessons from using environmental indicators to set catch limits for snow crab and pollock. Pollock is an economic driver in Alaskan fisheries, representing 56% of the total catch and a value of $ 1.1 billion annually. In the mid 2000s, several environmental indicators (consecutive warm years without winter sea ice, a decline in prey, and an increase in predators) suggested that the pollock fishery was headed for a crash. These environmental indicators were incorporated in the Fishery Management Council's decision-making process and a lower catch limit for pollock was established. Panelists emphasized that having a formal yet flexible synthesis process that integrated climate information into catch limit decisions was crucial for the success of this adaptation effort. Additionally, years of research developing a solid understanding of ecosystem mechanics helped stakeholders accept the difficult decision to lower pollock catch limits. The panelists concluded by describing NOAA's integrated ecosystem research, which will be used for long-term regional forecasting and adaptation.

Discussion and Synthesis: Priority Actions to Advance Climate Change Adaptation

The second day of the workshop was devoted to discussion. Participants met with breakout groups to identify actions needed to advance climate change adaptation from planning to implementation. In a subsequent plenary session, participants voted to select actions of highest priority. Results suggest broad agreement on the following items:

1. **"Mainstream" climate-smart conservation.** Climate-smart conservation principles and actions should be integrated into existing decision making processes.
2. **Analyze costs and benefits of adaptation options**. The costs and benefits of adaptation options (including the option of taking no action) should be analyzed as part of any relevant decision-making process.
3. **Consider the regional context.** Local level adaptation projects should be informed by relevant large landscape conservation plans and other pertinent regional research and activities.
4. **Include implementers in adaptation planning**. Adaptation planning processes should include those charged with implementing such plans.
5. **Tailor communications to local communities**. Information about adaptation efforts should be communicated to stakeholders using clear language that addresses local concerns.
6. **Disseminate case studies.** Adaptation case studies, particularly studies of projects that are being implemented, should be collected and broadly disseminated.

Throughout the workshop, participants frequently discussed the challenge of making adaptation for fish, wildlife, plants, and habitat relevant to a broader audience. Participants generally agreed that the benefits of adaptation need to be shared with a broad array of stakeholders and that one way to do so is to link adaptation benefits for natural resources and human communities. Many, however, felt that the conservation community is unprepared for the challenges of public outreach. As a result, many suggested that the conservation community seek guidance from social scientists and economists who understand the psychological and economic factors that influence the acceptance of adaptation.

Participants considered improved communication with local communities to be one part of a strategy to mainstream climate change adaptation. Participants emphasized that mainstreaming climate change adaptation is more than integrating climate change-thinking into existing conservation decision-making processes; it is also integrating such thinking into decisions outside the sphere of natural resource management. The integration of natural resource adaptation into a wide variety of sectors will be critical to the long-term success of the field.

Overall, participants were energized by the workshop and the growth of the adaptation community. Participants discussed organizing an open national conference on adaptation to continue and foster this expansion. Organizers of workshop hope that recommendations offered here and at the conference continue to enrich the field.