

Conservation Leadership Forum: Climate Change Adaptation

National Conservation Training Center
Shepherdstown, West Virginia
June 1-3, 2009

Facilitator's Summary Report
September 9, 2009

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Executive Summary

The Conservation Leadership Forum: Climate Change Adaptation was held at the National Conservation Training Center (NCTC) in Shepherdstown, West Virginia on June 1-3, 2009. Forty-four individuals participated, representing a cross-section of executive-level leaders of the conservation community. The Department of Interior's U.S. Fish and Wildlife Service (Service) convened and sponsored the Forum. NCTC served as Forum host, coordinating registration and on-site logistics. The purpose of the Forum was to catalyze ongoing discussion related to climate change adaptation, and if appropriate, identify subsequent direction.

Ecosystems are dynamic, always changing, adapting, or disappearing. Science strongly suggests, however, that natural changes are generally slow, taking millennia or more, not mere decades. Today's artificially accelerated changes in Earth's climate system could turn natural resource conservation upside down, dramatically altering our understanding of what a *natural* resource is, and begging the question, "What is the natural resource professional's role, responsibility, and conservation strategy in a world of artificially rapid climate change?"

About one-third of Forum participants who attended a pre-Forum presentation on predicted climate change effects reported that the information was more dire than they had anticipated; all others reported that the data of climate change effects were as they'd expected.

Nine of 10 attendees indicated that climate change was either the "most important" or "among the most important" conservation issues their organizations face.

Following a series of plenary presentations and climate change case studies, all Forum participants were asked: "From your perspective, what are the most critical challenges or opportunities we should be considering when talking about a National Fish and Wildlife Climate Change Adaptation Strategy?" Each participant took a couple of minutes to share their answers verbally with the full group via a round-robin. Prevalent themes emphasized:

- Needed funding,
- Needed leadership,
- Wide collaboration and cooperation in the conservation community,
- Capitalizing on the Administration's recognition of the issue's importance, and
- Promoting among the general citizenry the likely effects and scale of climate change, and utter urgency of addressing the issue.

A large majority of participants strongly agreed that development of a National Fish and Wildlife Climate Change Adaptation Strategy is important, and a majority agreed such development is an immediate priority.

A "Vision/Purpose Group" of attendees was designated and given the assignments to:

- draft a short Vision Statement using verbiage discussed and evaluated, and
- address "scope" of the National Fish and Wildlife Climate Change Adaptation Strategy.

A "Process/Collaboration Group" of attendees was designated and given the assignments to:

- use the provided Discussion Draft of a National Fish and Wildlife Climate Change Adaptation Strategy as a foundation, and frame a collaborative process (in light of the Legislative language) for actually developing the Strategy, and
- address a "statement of collaboration."

Final work products of the two groups were due by no later than September 1, 2009.

Background

Generations of Americans grew up in the Cold War era facing the grim prospect that human life and the natural world that contributes so much to the quality of human existence could change in a cataclysmic flash of fearsome technology unleashed by an ideological enemy.

How ironic that the urgent earth-changing threat perhaps most recognized by many Americans today is of our own doing—an almost immeasurably slow warming of the atmosphere to which every country of the world is contributing—developed countries at a disproportionately greater scope than lesser developed nations—with profound effects on the Earth’s climate system.

Ecosystems are dynamic, always changing, adapting, or disappearing. Science strongly suggests, however, that natural changes are generally slow, taking millennia or more, not mere decades. Today’s artificially accelerated changes in Earth’s climate system could turn natural resource conservation upside down, dramatically altering our understanding of what a *natural* resource is, and begging the question, “What is the natural resource professional’s role, responsibility, and conservation strategy in a world of artificially rapid climate change?”

Forum Overview and Process

The Conservation Leadership Forum: Climate Change Adaptation was held at the National Conservation Training Center (NCTC) in Shepherdstown, West Virginia on June 1-3, 2009. Forty-four individuals participated, representing a cross-section of executive-level leaders of the conservation community. The Department of Interior’s U.S. Fish and Wildlife Service (Service) convened and sponsored the Forum. NCTC served as Forum host, coordinating registration and on-site logistics. The purpose of the Forum was to catalyze ongoing discussion related to climate change adaptation, and if appropriate, identify subsequent direction.

D.J. Case & Associates (DJ Case) helped the Forum Program Team (Forum Team) develop and facilitate the event, and produced this “Facilitator’s Report.”

At the start, the Forum Team expressed the desired outcomes:

“We hope that as a result of the Conservation Leadership Forum, participants will:

Know...

- the level of interest and potential commitment of conservation leaders to developing a National fish and Wildlife Climate Change Adaptation Strategy (Adaptation Strategy).
- the challenges and opportunities confronting development of an Adaptation Strategy.

Feel...

- they participated in a constructive, well-organized discussion that helped accelerate and improve collaboration.
- a collaborative effort is the most effective approach to addressing climate change, and an Adaptation Strategy is very much possible.

Do...

- Engage in a long-term, collaborative effort to develop an Adaptation Strategy.
- Identify and agree on principles for developing an Adaptation Strategy.
- Offer input on specific next steps and actions (including others who should be involved) for developing an Adaptation Strategy.”

To achieve the desired outcomes, Forum process featured:

- Distribution of a pre-Forum background paper developed by the Forum Team, “Discussion Draft: A National Fish and Wildlife Climate Change Adaptation Strategy” (see Appendix A) to participants.
- A program of plenary and case study presentations, followed by facilitated, full-group discussion (see Appendix B, Agenda).
- Documentation of Forum results, captured via typed notes and TurningPoint technology.
 - TurningPoint is a PowerPoint-based application that allows participants to “vote” on issues and questions presented on the screen in real-time. All Forum participants received a TurningPoint remote voting device. Voting was anonymous, and allowed everyone in the relatively large group to participate in the discussion in a personal manner. It was not intended to record “positions” on issues.

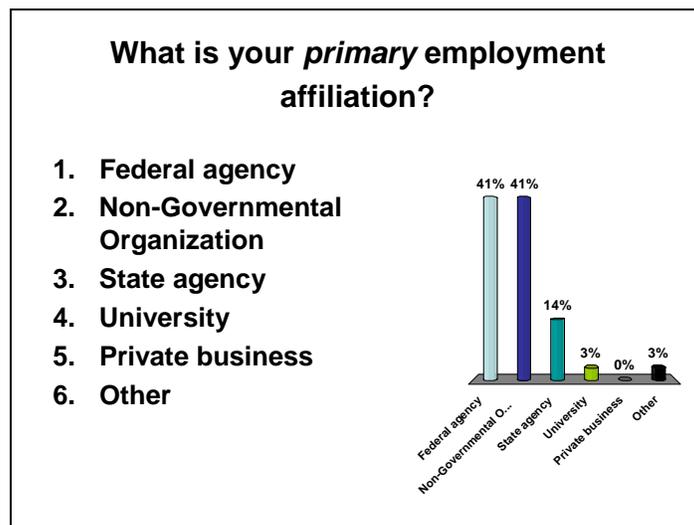
Forum Results

INITIAL PARTICIPANT INSIGHTS

Early in the Forum, TurningPoint was used to assess participants’ employment roles and their views regarding climate change. Forty-four (44) individuals representing a cross-section of executive-level leaders from across the conservation community participated (see Appendix C, Participant List). Though not all stakeholders and climate change views were represented among participants, attendees constituted an important group of opinion leaders in the conservation field. As such, their perceptions of climate change, and thoughts on appropriate responses, are especially meaningful.

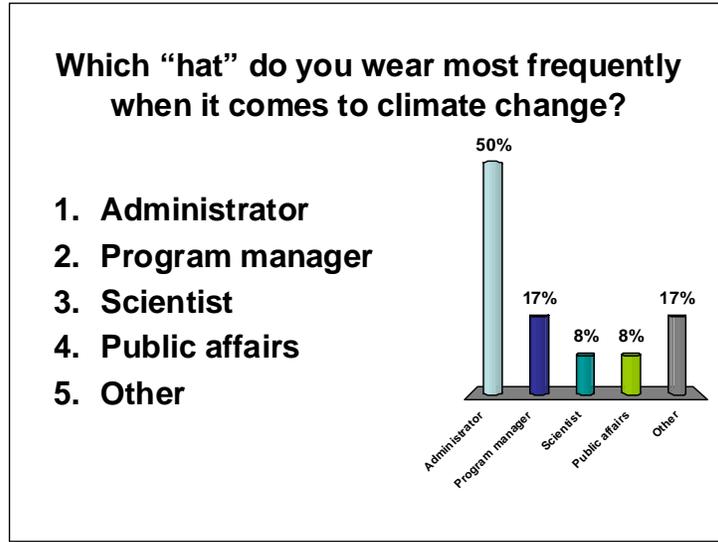
Most Forum attendees were representatives of Federal agencies (41%) or non-governmental organizations (41%), with several from state agencies (14%), a few university participants (3%), and some describing their affiliations as “other” (3%) (Figure 1).

Figure 1. Affiliation of Forum participants.



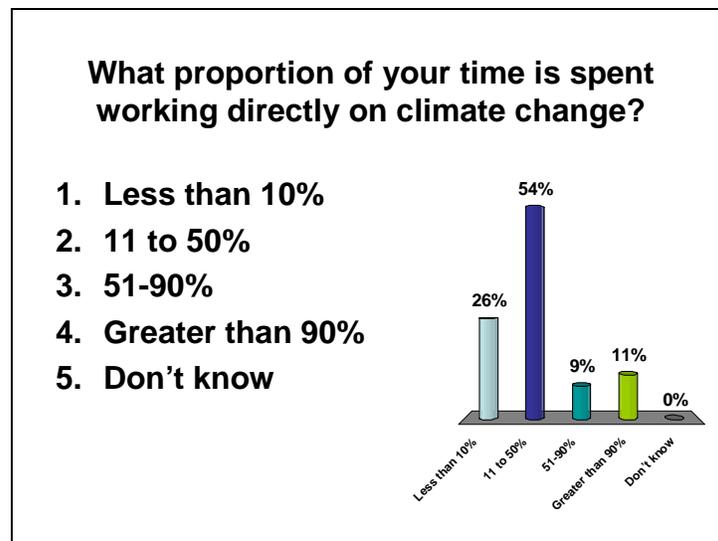
Most attendees described their positions, relative to the climate change issue, as “administrators” (50%) or “program managers” (17%), with the balance being either “scientist” (8%), “public affairs” (8%), or “other” (17%) (Figure 2).

Figure 2. “Which ‘hat’ do you wear most frequently when it comes to climate change?”



One-fifth (20%) of attendees indicated they devote more than half of their time to climate change, with the majority (54%) saying climate change occupies “11 to 50%” of their work time, and 26%, “less than 10%” of their time (Figure 3).

Figure 3. “What proportion of your time is spent working directly on climate change?”



On the opening evening of the Forum, Dr. Alexander “Sandy” MacDonald, Deputy Assistant Administrator for Laboratories and Cooperative Institutes, Office of Oceanic and Atmospheric Research, National Oceanic & Atmospheric Administration, spoke on “Preparing for a Century of Climate Change.” Of the data offered by Dr. MacDonald, perhaps most illustrative of the impending and near-term effects of climate change was the prediction that, absent intervention, U.S. temperatures will rise one-degree Fahrenheit every decade for the rest of the 21st century.

The consequences of this change were illustrated by using Iowa as a benchmark, moving slide-to-slide showing an increasingly arid Iowa landscape. Or, in the words accompanying each slide:

“In today’s climate, Iowa grows great corn.”

“By 2030, the climate [in Iowa] is similar to central Kansas [of today].”

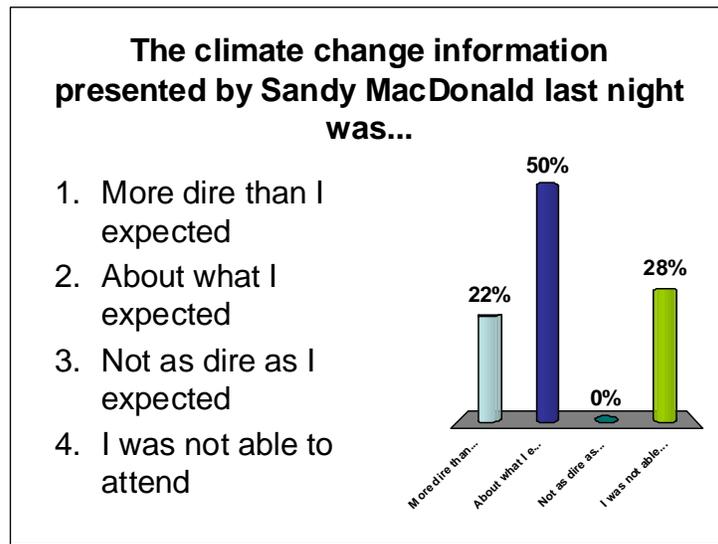
“By mid century, Iowa’s climate is like western Oklahoma [of today].”

“By the end of the century, the Iowa climate is similar to southwest Texas [of today].”

Not only did the slides depict startling changes in the landscape, but the images gave strong unspoken hint of the sociocultural and lifestyle upheavals that could be associated with the biological reality of such extreme changes.

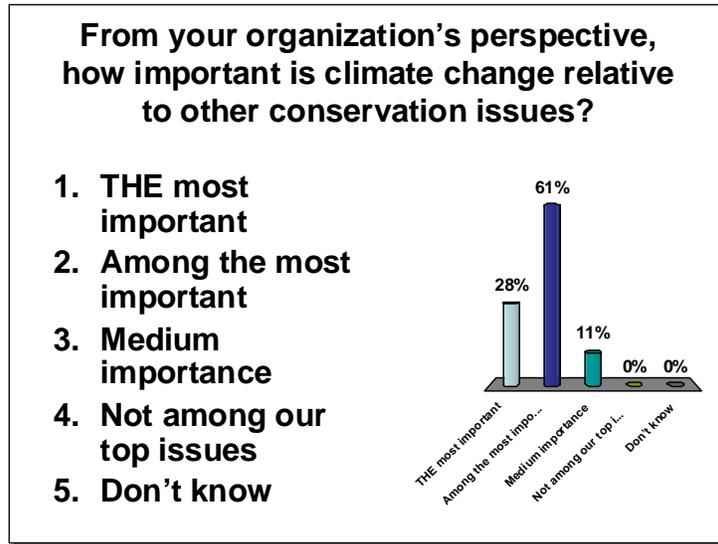
Attendees were asked to describe the degree to which they anticipated that climate change could have these effects. About one-fifth described the predicted consequences as “more dire than I expected” (22%), and 50% responded, “about what I expected.” Or, of those attendees who actually heard Dr. MacDonald (32), about one-third characterized the information as “more dire than expected,” with the balance (69%) saying “about what I expected.”

Figure 4. “The climate change information presented by Sandy MacDonald (sic) last night was...”



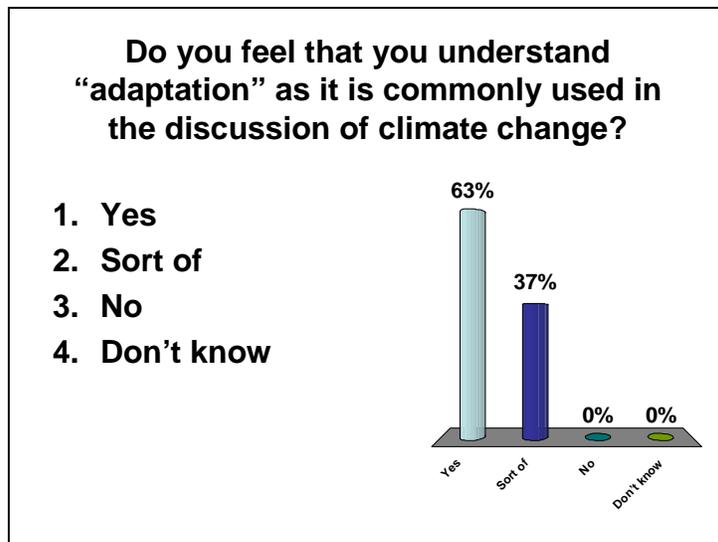
Participants were asked to characterize the importance of climate change relative to other conservation issues, from their organizations’ perspectives. Fully 28% of attendees described climate change as “the most important” issue their organizations face, and a majority (61%) responded, “among the most important” issues (Figure 5).

Figure 5. “From your organization’s perspective, how important is climate change relative to other conservation issues?”



Attendees were asked if they felt they understood the term “adaptation” as commonly used in climate change discussion. Nearly two-thirds said “yes,” with the balance (37%) responding, “sort of” (Figure 6).

Figure 6. “Do you feel that you understand ‘adaptation’ as it is commonly used in the discussion of climate change.”



PLenary PRESENTATIONS AND CASE STUDIES

On June 2, a series of plenary presentations continued to set the stage for Forum discussion, further emphasizing the stark realities of climate change impacts on wildlife and natural systems. Presentations explored current science and possible resource management responses (video links and bullet summaries provided where available).

Presentation 1: Welcome – Opening Remarks – **David Hayes**, Deputy Secretary of the Interior

Presentation 2: Purpose of Forum and Introductions – **Dan Ashe**, Science Advisor to the Director, U.S. Fish and Wildlife Service

Presentation 3: The Challenge to Conservation Leaders – **David Schad**, Director, Division of Fish and Wildlife, Minnesota Department of Natural Resources and **Tom Franklin**, Senior Vice-President, Theodore Roosevelt Conservation Partnership
<http://www.fws.gov/video/flash/schadfranklin.html>

- Conservation stakeholders (federal, state, NGOs) need to organize and move out efficiently to create a national climate change strategy, particularly with current opportunity to capitalize on Congress' interest in climate change.
- Need for scientists and on-the-ground managers to collaborate is greater than ever when approaching climate change data science and action.
- National initiative is critical, versus cleaving to lower-level jurisdictional strategies.
- Large-scale, landscape-level approaches are necessary, despite the complexity and data demands of such large-scale initiatives.
- Embrace Adaptive Management (including monitoring systems) as model on which to build national initiative.
- Prioritize climate change investments—be sure these expenditures are tied to systematic action to show accountability and climate response.

Four case studies were then presented to provide the context for adaptation in responding to climate change:

Case study 1: Albemarle Climate Adaptation Project – **Mike Bryant**, Project Leader, North Carolina Coastal Plain Refuges Complex, USFWS
<http://www.fws.gov/video/flash/bryant.html>

- The major question is whether fish and wildlife management as we know it (lands and species) remains relevant in an era of accelerated climate change.
- The Albemarle Region, a portion of North Carolina's coast most vulnerable to sea level change, is discussed, with particular focus on the National Wildlife Refuges in the region.
- Projections of sea level rise over the next 200 years place hundreds of thousands (perhaps millions) of acres in the region under water. Fish and wildlife management implications of these inundations are sobering—no less than a catastrophic loss of biodiversity.
- What is the relevance of our current management thinking in view of such dramatic potentialities?

Case study 2: Adapting to climate change in the Northeast – **Dr. Hector Galbraith**, Director, Climate Change Initiative, Manomet Center for Conservation Sciences
<http://www.fws.gov/video/flash/galbraith.html>

- What's needed by conservationists and land managers to do their jobs, vis a vis climate change implications? They say,
 - Organize (as a conservation community) for efficiency...and
 - Regionalize the impacts...stories of drowning polar bears are harrowing and compelling, but they're not in my backyard. What's going to happen in my area?
 - Provide effective adaptation tools and solutions.

- Impacts: if Massachusetts experiences a tripling of CO₂, climate will be reflective of South Carolina—and this tripling isn’t out of the question, given the real plausibility of a doubling.
- Emissions control is vital, but we need to adapt.
- Ask: “Which ecosystems/species/sites are more or less vulnerable to climate change? Unless we answer this question, we’ll spin our wheels proposing specific responses.
- Vulnerability analysis (habitat, species) was conducted in Massachusetts using expert panel approach, with intent of making the state’s Wildlife Action Plan “climate-smart.”

Case study 3: Assessing climate change vulnerability and planning for adaptation in the Pacific Northwest” – **Dr. Josh Lawler**, Assistant Professor, College of Forest Resources, Univ. of Washington

<http://www.fws.gov/video/flash/lawler.html>

- Discussion of a vulnerability assessment at a regional scale—ecoregions that touch Oregon, Washington, and Idaho—with intent to adjust states’ Wildlife Action Plans. Actions:
 - Build a database of climate change sensitivities,
 - Downscale and summarize climate projections,
 - Project vegetation and animal responses,
 - Assess impacts on protected areas.

Case study 4: Overview of Successful Models – **Gary Myers**, Former Director Tennessee Wildlife Resources – *Retired*

- No summary provided.

CHALLENGES AND OPPORTUNITIES REGARDING CLIMATE CHANGE ADAPTATION

Following the introductory presentations, all Forum participants were asked: “From your perspective, what are the most critical challenges or opportunities we should be considering when talking about a National Fish and Wildlife Climate Change Adaptation Strategy?” Each participant took a couple of minutes to share their answers verbally with the full group via a round-robin. A bullet point summary of the comments is included in Appendix D. Prevalent themes emphasized:

- Needed funding,
- Needed leadership,
- Wide collaboration and cooperation in the conservation community,
- Capitalizing on the Administration’s recognition of the issue’s importance, and
- Promotion of the utter urgency and scale of the issue among the general citizenry.

IS A NATIONAL FISH AND WILDLIFE CLIMATE CHANGE ADAPTATION STRATEGY NEEDED?

The afternoon of the first day, the Forum discussion turned to the questions:

- Do we need a National Fish and Wildlife Climate Change Adaptation Strategy?
- What is a National Fish and Wildlife Climate Change Adaptation Strategy?

Each question was posed to Forum participants and their answers confirmed the immediate need and support for developing such a Strategy. Seventy-six percent strongly agreed that it is important that a National Fish and Wildlife Climate Change Adaptation Strategy be developed (Figure 7), and a majority (56%) strongly agreed that a National Fish and Wildlife Climate Change Adaptation Strategy is an immediate priority (Figure 8).

Figure 7. "Given what I know right now, I think it is important that a national fish and wildlife climate change adaptation strategy be developed."

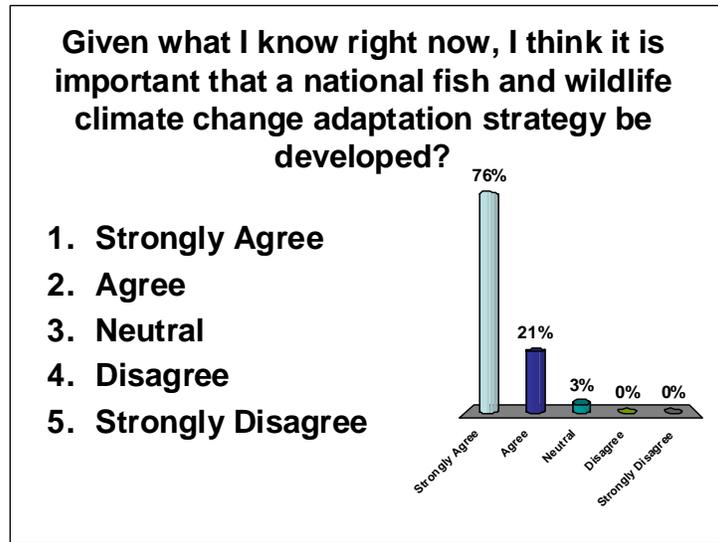
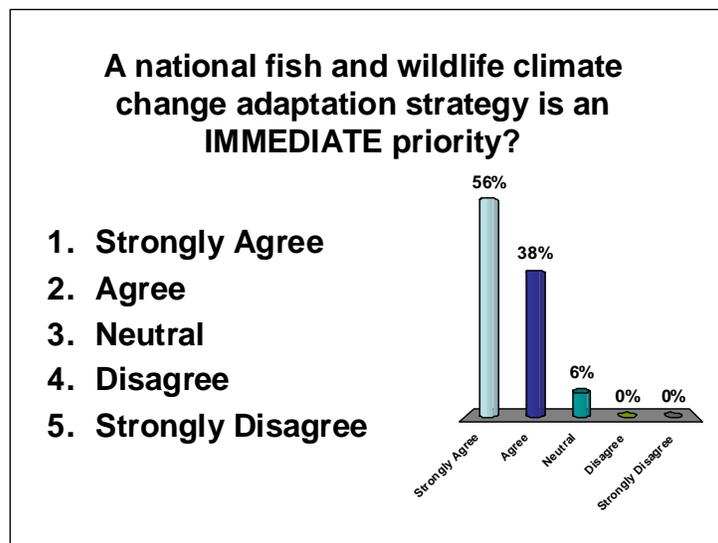


Figure 8. "A national fish and wildlife climate change adaptation strategy is an immediate priority."



Forum participants then discussed various aspects of a National Fish and Wildlife Climate Change Adaptation Strategy including:

- Purpose—what would we be trying to accomplish through a Strategy?
- How will it work?
- What would be different?
- Who is the audience?
- What does success look like?

- What is the geographic scope?
- What principles should guide development of the strategy?
- Who else needs to be involved in developing the strategy?

Notes were captured during this rigorous discussion, but no attempt was made to reach consensus on each of these questions. The day’s session ended with participants agreeing to spend the time remaining on the final morning discussing a “Vision Statement” for the Strategy and determining next steps.

A NATIONAL FISH AND WILDLIFE CLIMATE CHANGE ADAPTATION STRATEGY

On the final morning of the Forum (June 3), participants reviewed the following three vision statements, and were asked how they would rate each of the vision statements.

Figure 9. First Vision Draft: A common vision and framework for the conservation of fish, wildlife, and plants and associated ecological processes and habitat across national, regional, state, and local scales.

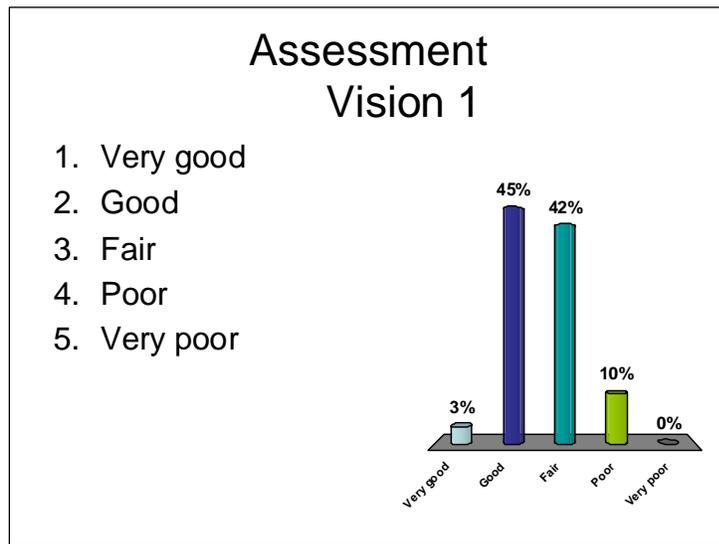


Figure 10. Second Vision Draft: We envision a future where, in the face of global climate change, life-supporting ecological systems are intact and functioning such that future generations of people, fish, wildlife and plants can survive and thrive with ecological and evolutionary processes operating and supporting same.

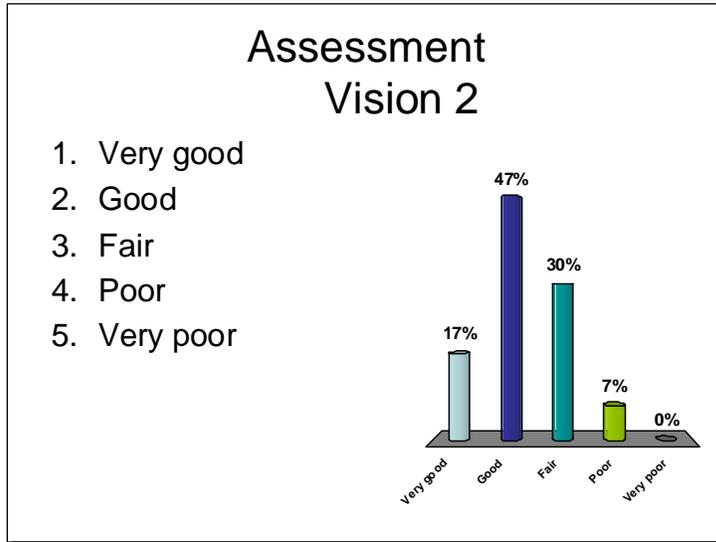
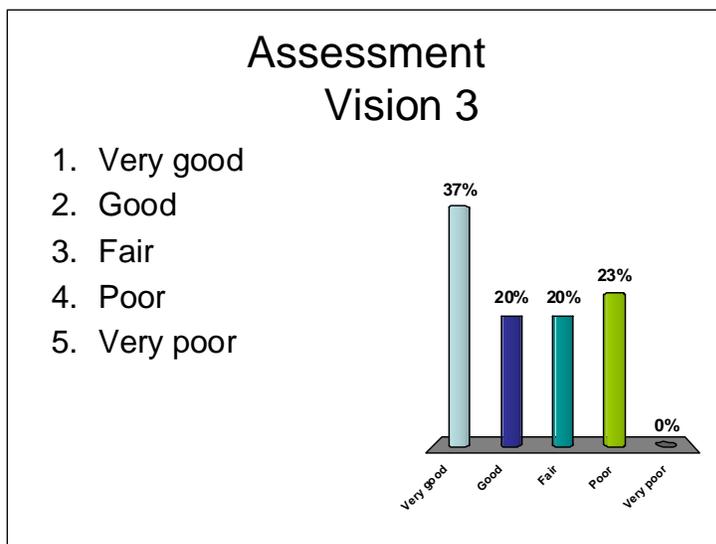
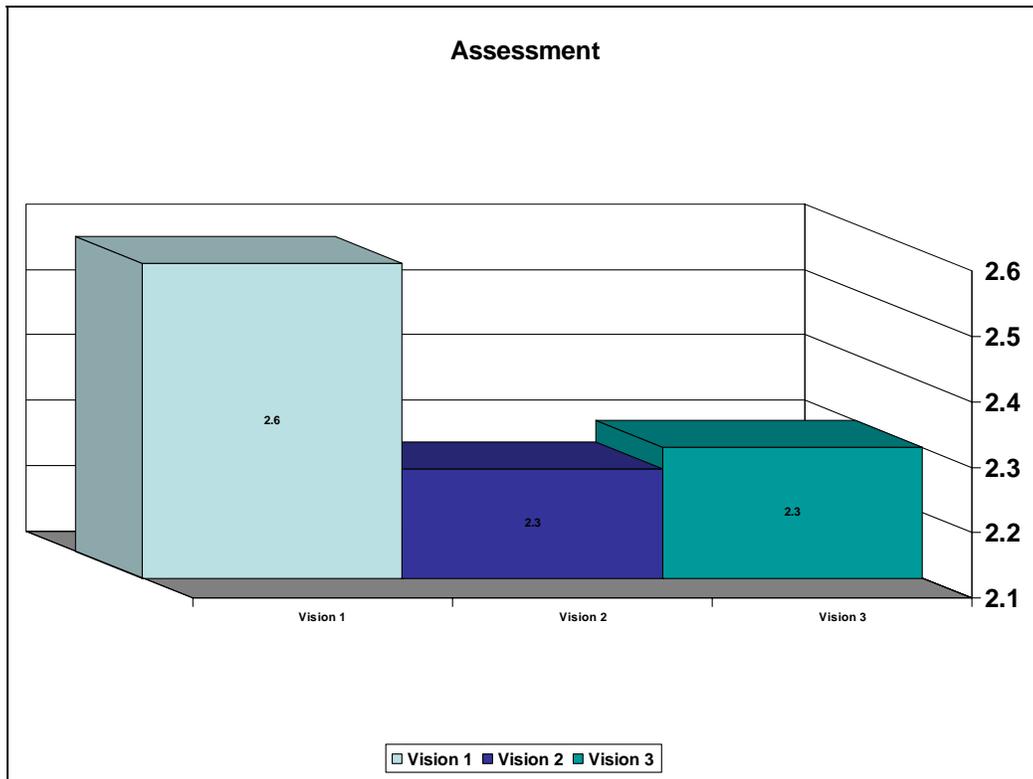


Figure 11. Third Vision Draft: Over the first half of the 21st century, we envision a North American continent continuing to be altered by accelerating climate change, but managed to sustain diverse, distributed, and abundant populations of fish and wildlife by conserving healthy habitats in a network of interconnected, ecologically-functioning landscapes. We will need to make choices and set priorities and, working with our partners, apply ourselves where we can make the greatest difference. We see climate change as an issue that will unite the conservation community and envision a new era of collaborative conservation in which members of the conservation community work independently, building knowledge, sharing expertise, and pooling resources as we craft explicit landscape-scale goals and pursue these goals together.



TurningPoint computed a mean score for each of the three visions based on participants' ratings (Figure 12). Statements 2 (rounded mean = 2.3) and 3 (rounded mean = 2.3) were preferred.

Figure 12. Comparison of mean scores across 3 vision statements based on participants' ratings of the "goodness" of each statement, where 1="very good," 2="good," 3="fair," 4="poor," 5="very poor."



Based on the discussions regarding the vision statement and development of the strategy, two Groups were identified and tasked with assignments.

Vision/Purpose Group:

Assignment: Draft a short vision statement using vision examples 2 and 3 and the meeting notes. Use Vision Statement 1 from the discussion to draft the purpose component. The Group should also address "scope" of the strategy.

Group Members:

- Dan Ashe (FWS), Lead
- Susan Haseltine (USGS)
- Jamie Clark (Defenders of Wildlife)
- Alan Front (The Trust for Public Land)
- Michael Hutchins (The Wildlife Society)
- Bart Semcer (Sierra Club)
- Alan Thornhill (Society for Conservation Biology)
- Pat Riexinger (New York)
- David Eisenhauer (FWS)

Schedule: A draft for review by all Forum participants by June 30, 2009, and a final by July 25, 2009.

Process/Collaboration Group:

Assignment: Using the Discussion Draft (Appendix A) as a foundation, frame a collaborative process (in light of the Legislative language) for developing the Strategy. The Group will also address the “statement of collaboration.”

Group Members:

Gary Taylor (AFWA), Lead
Gus Rassam (American Fisheries Society)
Jane Lyder (DOI)
Ken Haddad (Florida)
Bob Bendick (The Nature Conservancy)
Sam Hamilton (FWS)
John Kostyack (NWF)
Roger Pulwarty (NOAA)
Evan Hirsche (National Wildlife Refuge Assoc.)
Scott Kovarovics (Izaak Walton League)

Schedule: A draft for review by all Forum participants by July 31, 2009, and a final by August 31, 2009.

Forum Evaluation

At the conclusion of the Forum, attendees were asked to evaluate the Forum. Evaluation results are included in Appendix E.

In summary:

- All attendees *agreed* that the meeting objective had been met, to “know the level of interest and potential commitment of conservation leaders to developing a national fish and wildlife climate change adaptation strategy.”
- A slight majority (58%) *agreed* that the meeting objective had been met, to “know the challenges and opportunities confronting development of an Adaptation Strategy.” The balance of participants were neutral on whether this objective had been met.
- Two-thirds (67%) *agreed* that the meeting objective had been met, to “feel they participated in a constructive, well-organized discussion that helped accelerate and improve collaboration.”
- Three-quarters (75%) *agreed* that the meeting objective had been met, to “feel a collaborative effort is the most effective approach to addressing climate change, and an Adaptation Strategy is very much possible.”
- 52% *disagreed* that the meeting objective had been met, to “identify and agree on principles for developing an Adaptation Strategy.” Forty percent were neutral on whether this objective had been met.
- 52% *agreed* that the meeting objective had been met, to “offer input on specific next steps and actions (including others who should be involved) for developing an Adaptation Strategy.” Thirty-two percent were neutral on whether this objective had been met.

Forum Follow-up

A Forum Summary statement was produced and distributed to Forum participants on June 16, 2009 (see Appendix F). Both the Group assignments have been undertaken with enthusiasm and draft materials are already circulating within the Groups.

DISCUSSION DRAFT: A NATIONAL FISH AND WILDLIFE CLIMATE CHANGE ADAPTATION STRATEGY

The Intergovernmental Panel on Climate Change (IPCC) defines “adaptation” *as an adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.*

Successful adaptations to abruptly changing climate will require unprecedented collaboration between public and private partners, across the country and internationally. The goal of this paper is to support discussion of a long-term strategy to assist climate adaptation by species and ecological systems, and to maintain as many important ecological benefits of these systems as possible for the benefit of humankind.

Why Pursue a National Fish and Wildlife Adaptation Strategy?

The IPCC indicates that during this century the resilience of ecosystems may be exceeded, many species will become threatened with extinction, and ecosystem structure may change greatly. Crucial resources necessary for fish, wildlife, and plants, as well as humankind, such as water, will change with potential reductions and seasonal shifts in availability. Sea levels will continue to rise, threatening both coastal ecosystems and coastal communities. Disturbances such as catastrophic wildfires, insect outbreaks, and spread of invasive species will increasingly threaten functioning ecosystems as well as human communities. Against this backdrop of large-scale change in major ecosystems indiscriminately crossing political boundaries, an integrated, coordinated, and comprehensive response is necessary.

Societies respond to climate change by adapting to its impacts (adaptation) and by reducing greenhouse gas emissions (mitigation), thereby reducing the rate and magnitude of change. Greenhouse gas emissions continue to rise at an alarming rate, and even if we were to stabilize these emissions a certain amount of warming is guaranteed by the concentration of anthropogenic greenhouse gases already in our atmosphere. The Department of the Interior (DOI) is optimistic about the future and the ability of humans to reduce their output of greenhouse gases. DOI is taking steps to aggressively reduce its carbon footprint and position itself to lead by example. However, reducing emissions will not be enough. We also must begin helping species and ecosystems adapt to climate change and to continue to produce essential goods and services (e.g., wildlife, fish, clean water, and clean air) for humankind.

In addition to designing balanced strategies for traditional and low-carbon energy development, Secretary Salazar’s energy and climate change task force is designing DOI-wide policies for the prioritization of climate and adaptation science, adaptive management and solutions to climate change, the capture and storage of carbon by our nation’s ecosystems, and education and outreach opportunities on these topics. These twin energy and climate change strategies will help protect our treasured landscapes and ecosystem services while at the same time creating jobs and contributing to national economic and environmental health.

Thus a national adaptation strategy for fish and wildlife is a necessary component of an overall adaptation strategy, and the importance of fish and wildlife adaptation has been recognized by Federal lawmakers.

Appendix A: Climate Change NFWAS Discussion Draft

Discussion about the need and potential for a concerted national adaptation effort—including a national fish and wildlife adaptation strategy—seems timely if we are to successfully conserve fish, wildlife, plants and functioning ecosystems in this time of accelerating global climate change. The adverse effects of climate change upon natural resources will be pervasive, and will be manifest across landscapes, irrespective of ownership and administrative boundaries. By working together in an effective, efficient and coordinated way, private conservation interests, States, Tribes, private landowners, the federal government, academia, and the public can help these species and ecosystems adapt by increasing their resilience and decreasing their vulnerability to climate change. No longer can we assume that traditional coordination between organizations will ensure continued production of ecological goods and services for the benefit of humankind. Rather, a new concept and goal of interdependency is essential to the development of a national adaptation strategy. The effort will be difficult and costly but is essential to our success as conservation organizations, and it will be a crucial element of broader adaptation strategies benefiting human society globally.

What is a National Fish and Wildlife Adaptation Strategy?

A national fish and wildlife adaptation strategy is a component of an overarching adaptation strategy and may consist of an agreement among major conservation interests (e.g. local governments, States, Tribes, conservation organizations, federal agencies, and private landowners) that identifies and defines principles and methods to maintain key terrestrial, freshwater and marine ecosystems and functions needed to sustain fish, wildlife and plant resources in the face of accelerating climate change. In short, it would be a blueprint for action that outlines appropriate scientific support (including inventory, monitoring, research and modeling to inform management decisions); the need for and importance of collaboration and interdependency; and the financial resources (including grants, appropriated funds, private contributions) to implement the decisions. The strategy would enable the national and international conservation communities to harness collective expertise, authorities, and abilities to define and prioritize a shared set of conservation goals and objectives, as well as prescribe a plan of concerted action.

What are the Steps Needed to Create the Strategy?

Members of the conservation community have been meeting during the past year to discuss fish and wildlife adaptation in response to climate change. However, these efforts need to be expanded to include leaders from across the spectrum of the conservation community. The Fish and Wildlife Service is hosting a June 2-3, 2009 forum to catalyze discussion, and if appropriate, identify subsequent direction and discussion. Subsequent forums would target broadening participation and perspectives and defining a functional framework for collaborative conservation. Ultimately, the Strategy will take several years to complete and will require a sustained effort by participants from across the spectrum of the national and international conservation communities.

By working together, private conservation interests, States, Tribes, private landowners, the federal government, academia, and the public can help species and ecosystems adjust to changing conditions on the landscape by increasing their resilience and decreasing their vulnerability to both climate and non-climate stressors. A consortium of conservation interests will also be positioned to collectively evaluate relative risks to ecosystem functions and transparently consider priorities and potential for “triage” in conservation actions.

What is the Urgency to Create a National Fish and Wildlife Adaptation Strategy?

Against the backdrop of rapid change in major ecosystems that is likely to accompany increasingly abrupt climate change, a comprehensive adaptation strategy -- which includes a significant fish and wildlife adaptation component -- is essential. Time is short, and the time, effort and resources

Appendix A: Climate Change NFWAS Discussion Draft

required for creation and implementation of a workable and agreed-upon strategy is substantial. The stakes are high, and we, the conservation leaders of the U.S., need to get this approach right the first time. There is too much riding on our success or failure, and we cannot afford to continue to act as disparate organizations in pursuit of independent objectives. A fully integrated, effective and efficient national adaptation strategy is our best hope to succeed. We must act now, and we must act decisively.

**Conservation Leadership Forum: Climate Change Adaptation
June 1-3, 2009**

National Conservation Training Center
Shepherdstown, West Virginia

Agenda

Forum Objectives

We hope that as a result of this Conservation Leadership Forum, participants will:

Know

- The level of interest and potential commitment of conservation leaders to developing a national fish and wildlife climate change adaptation strategy (Adaptation Strategy).
- The challenges and opportunities confronting development of an Adaptation Strategy.

Feel

- They participated in a constructive, well-organized discussion that helped accelerate and improve collaboration.
- A collaborative effort is the most effective approach to addressing climate change, and an Adaptation Strategy is very much possible.

Do

- Engage in a long-term, collaborative effort to develop an Adaptation Strategy.
- Identify and agree on principles for developing an Adaptation Strategy.
- Offer input on specific next steps and actions (including others who should be involved) for developing an Adaptation Strategy.

Monday Evening, June 1

- 7:30 p.m. Welcome to NCTC – **Jay Slack**, Director, National Conservation Training Center
- “Preparing for a Century of Climate Change” – **Dr. Alexander (Sandy) MacDonald**, Deputy Assistant Administrator for Laboratories and Cooperative Institutes, Office of Oceanic and Atmospheric Research, National Oceanic & Atmospheric Administration
- 8:30 p.m. Social – Dessert Bar

Tuesday, June 2

- 8:00 a.m. Welcome – Opening Remarks – **David Hayes**, Deputy Secretary of the Interior
- 8:15 Purpose of Forum and Introductions – **Dan Ashe**, Science Advisor to the Director, U.S. Fish and Wildlife Service
- 8:30 The Challenge to Conservation Leaders – **David Schad**, Director, Division of Fish and Wildlife, Minnesota Department of Natural Resources and **Tom Franklin**, Senior Vice-President, Theodore Roosevelt Conservation Partnership

Appendix B: Forum Agenda

- 9:00 Round Robin with participants – **Dave Case**, *Facilitator*
- 10:00 Break
- 10:30 The context for Adaptation in responding to Climate Change
Case study # 1 - “Albemarle Climate Adaptation Project “ – **Mike Bryant**,
Project Leader, North Carolina Coastal Plain Refuges Complex, USFWS
Case study # 2 – **Dr. Hector Galbraith**, *Director, Climate Change Initiative,*
Manomet Center for Conservation Sciences
Case study # 3 – “Assessing climate change vulnerability and planning for
adaptation in the Pacific Northwest” – **Dr. Josh Lawler**, *Assistant Professor,*
College of Forest Resources, Univ. of Washington
Case study # 4 – “Overview of Successful Models” – **Gary Myers**, *Former*
Director Tennessee Wildlife Resources -Retired
- 12:30 p.m. Lunch
- 1:30 What is a National Fish and Wildlife Adaptation Strategy? – **Dave Case**, *Facilitator*
- 2:00 Do we need a National Fish and Wildlife Adaptation Strategy? – **Dave Case**,
Facilitator
- 3:00 Break
- 3:30 What are the Steps Needed to Create a Strategy? – **Dave Case**, *Facilitator*
- 5:00 Adjourn
- 5:30 – 6:30 Social in Roosevelt Room – hors d’oeuvres, no host bar

Wednesday

- 8:00 a.m. Remarks – **Tom Strickland**, *Chief of Staff/ Assistant Secretary Fish and Wildlife and*
Parks, Department of the Interior
- 8:10 Recap/Insights from Tuesday – **Dave Case**, *Facilitator*
- 8:30 What are our next steps? – **Dave Case**, *Facilitator*
- 10:00 Break
- 10:30 Next steps (continued) – **Dave Case**, *Facilitator*
- 11:30 Closing Remarks
- 12:00 p.m. Adjourn

Appendix C: Forum Participants

Conservation Leadership Forum: Climate Change Adaptation - June 1-3, 2009 - NCTC

Individual Name	Position	Affiliation
Dan Ashe	Science Advisor to the Director	USFWS
Kit Batten	Interior Science Advisor	DOI
Robert Bendick	Director, US Gov't Relations	The Nature Conservancy
Steve Black	Counselor to the Secretary DOI	DOI
Mike Bryant	Project Leader	USFWS
David Case	Facilitator	D. J. Case and Associates
Jamie Clark	Executive Vice-President	Defenders of Wildlife
David Cleaves	Acting Chief	US Forest Service
Cindy Dohner	Deputy Regional Director – R4	USFWS
David Eisenhauer	External Affairs Specialist	USFWS
Thomas Franklin	Senior Vice-President	Theodore Roosevelt Conservation Partnership
Alan Front	Senior Vice-President	The Trust for Public Land
Hector Galbraith	Director, Climate Change Initiative	Invitational Speaker
Rowan Gould	Acting Director	USFWS
Steve Guertin	Regional Director – R6	USFWS
Ken Haddad	Florida State Director	State - south
Sam Hamilton	Regional Director – R4	USFWS
Susan Haseltine	Chief, BRD	USGS
David Hayes	Deputy Secretary of the Interior	DOI
Evan Hirsche	President	National Wildlife Refuge Association
Michael Hutchins	Executive Director	The Wildlife Society
Suzette Kimball	Acting Director	USGS
William Knapp	Deputy to the Science Advisor	USFWS
Don Koch	California State Director	State - west
John Kostyack	Exec. Director, Global Warming	National Wildlife Federation
Scott Kovarovics	Conservation Director	Izaak Walton League
Josh Lawler	University of Washington	Invitational Speaker
Jane Lyder	Deputy Asst Secretary FWP	DOI
Wayne MacCallum	Massachusetts State Director	State - north
Dr. Sandy MacDonald	Deputy Asst. Admin.	NOAA
Gary Myers	Tennessee State Director - retired	Invitational Speaker
Dr. Roger Pulwarty	Director, US NIDIS	NOAA
Gus Rassam	Executive Director	American Fisheries Society
Patty Riexinger	New York State Director	State - east
David Schad	Minnesota State Director	State - AFWA
Paul Schmidt	Asst. Director, Migratory Birds	USFWS
Larry Selzer	President and CEO	The Conservation Fund
Bart Semcer	Washington DC Representative	Sierra Club
Beth Stevens	Assistant Director, External Affairs	USFWS
Tom Strickland	Chief of Staff/Asst. Secretary FWP	DOI
Gary Taylor	Executive Director	State - AFWA
Alan Thornhill	Executive Director	Society for Conservation Biology
Scott Yaich	Director, Conservation Ops	Ducks Unlimited
Chris Wood	Chief Operating Officer	Trout Unlimited

Appendix D: Round-Robin Comments

Following are Forum participant comments in response to the question: “From your perspective, what are the most critical challenges or opportunities we should be considering when talking about a National Fish and Wildlife Climate Change Adaptation Strategy?” Note that these comments were captured as completely as possible during a fast-paced round-robin.

- Challenge = funding (hunters and fishermen have been our primary source of funding for along time)—that’s too narrow for this issue.
- Collaboration among partners will be the challenge.
- Public policy – challenge will be getting out of our own box. We need to move past preaching to the converted and not bringing the public along. Need a message that gets out there and resonates. The opportunity is that we are already driving off the cliff and that’s when things happen.
- Public perception is that it isn’t as urgent as it should be. Need to provide incentive to work at a national level – need national model to keep states involved.
- challenge – need t think about what we need to do for people at the same time we are thinking about the direct effects to wildlife
- Scale – information services. We don’t want to help people do the wrong thing more precisely.
- Collaboration - putting this all into action and getting outside the conservation community. Cites the disparity in USDA funding agricultural actions which act in contrast to the efforts of FWS to restore prairie. Public understanding and support needed.
- Challenges need to forecast the landscapes of the future so we can (cultural challenge). Must not stay bounded to the landscapes that we have now. The human landscape is changing fast and we need to change with it. It’s a challenge for science, management, and policy folks to work together (they haven’t worked well in the past).
- Current conservation landscape is not adequate to address the extinctions estimated.
- need to provide recognizable benefit to people
- Credible science messaging needed. We have big decisions about things like sea level rise. People have short memories. The sense of urgency needs to stay prominent.
- Interdependency – we need to be blind to state boundaries and look at landscape scales. We aren’t partnering with all the people we need to (Partners such as industry are not even here at this meeting). Look to willing partnerships with industry – this could be huge.
- Crisis – great opportunity in crisis. Barrier = the inverse of urgency is complacency. The greatest cause of complacency is success. We can’t just repeat the successes of the past.
- Inadequacy of current conservation paradigm (as habitats change we can’t keep up). Too much focus on the change and not on the factors (invasive species, etc.). Climate change is on top of everything else (feral cats). Worried about pheonological mis-timings that are already occurring. Think about these in combination not in isolation.
- Reconciling scales. Take global circulation models and scaling it into a management decisions at smaller scales. The scale of our collaborations is an opportunity.
- Gradual nature of climate change which discounts the urgency. Need to integrate science and management better. Need a department of climate change at the cabinet level (like homeland security).
- Be careful that we don’t allow a false choice between people and wildlife to persist. This will be difficult to execute and needs to be done well. We must be wildlife centric not political centric. We need to be able to act as we go and not wait for a national strategy to develop. What would success look like? It will not be getting back to historic conditions for example. We need to reshape/retool how we think about conservation and conservation law (laws assumed static ecosystems and don’t inform decision making processes). Need to evolve to clean energy (which is also green).

Appendix D: Round-Robin Comments

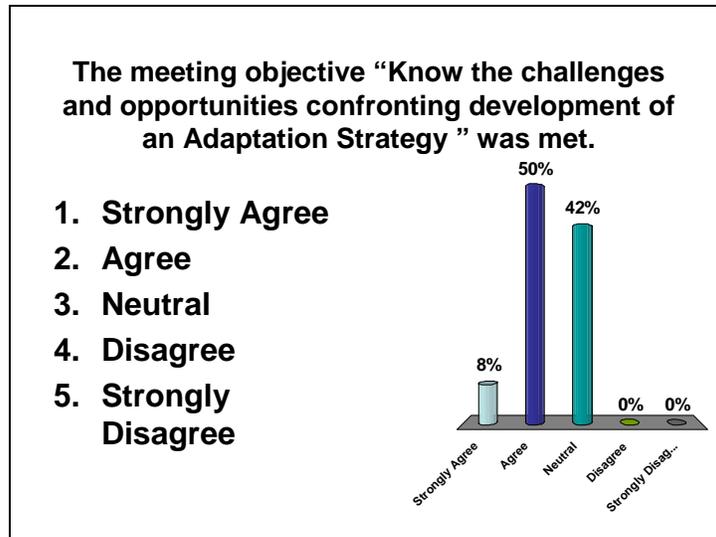
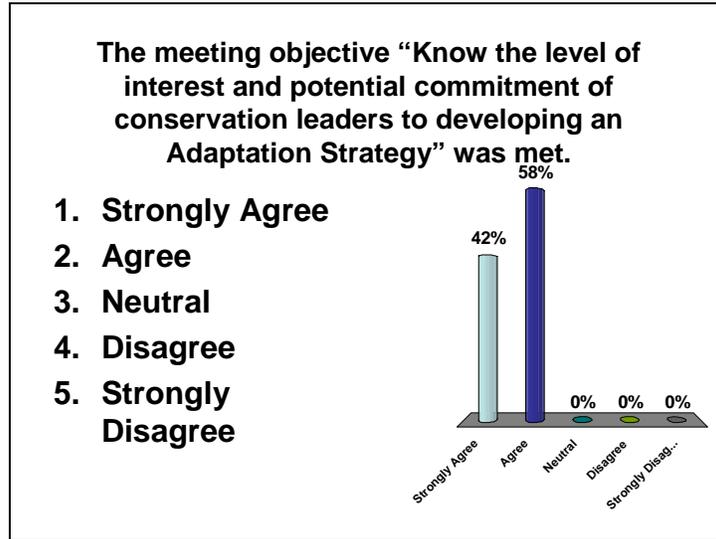
- We need to take risks and be nimble and we have a very risk adverse society. Our laws don't provide this. The honest of the debate is also a challenge but we have polar bears on the cover – do we list it or not? Do we save polar bears or not? Our debate is around a species that we really can't save. For example, we need to write the State Department not Interior if we want to save polar bears. Be nimble.
- Our international collaboration is good but we are very poor at the “honest debate” and in talking to the public. We don't have subsidies to protect the green infrastructures we need (but we do other structures). We can't communicate.
- We have the knowledge but don't know the job we need to do. It's a social problem. Where do we want to go with this? We to articulate a vision for where we want to take people who are not in tune with fish and wildlife (live in cities).
- Operationally. We need to make this real to our employees and let know they are contributing.
- Prioritizing our work and reducing the reactive work we do now. Need to turn science and data into measurable outcomes. We need to turn our randomness into tough decisions.
- Our partners are all successful in thinking about changing the way we do business (cultural change). But the comfort zone is a barrier and we have a lot of existing legislative laws that need to change if we are going to be effectively. Congress needs some “moxie”.
- Tell a story that resonates in a common voice and portrays the urgency from the conservation community
- We can do something different that addresses fish and wildlife and harnesses the energy that is ongoing and is already going into this. We need to complement each other.
- We have a lot to agree on. Increase public awareness and engage the public. Need to address the critical messaging (funding). Nature deficient disorder also a challenge (but we don't want to hear about it). Use careers in nature as a carrot. Engaging the public is expensive.
- We all know big the lift is – it's stunning. Money, jurisdictional lines are all obstacles. This is not Teddy Roosevelt's U.S. We need to look at the social scientists and political activists. Tie our story into the overall story (bring in industry) and the root economy. We shouldn't sweat about planting 1000 trees in the wrong place. We are all doing our own thing with climate change – not being collaborative enough – not as effective as we could be. This is a job for leadership.
- We have an Administration that really wants to act on this. Tell the story from a broader perspective. Know that adaptation is not just about fish and wildlife it's also about infrastructure, overfishing, and public institutions. How does our work fit into all this?
- Adaptation can be a good learning tool – all ecosystems will be adapting. We are focused on habitats, water, corridor and all affect humans – so we need to draw the debate more widely to embrace other things (carbon sequestration, water supplies). We need to make our case much more clear.
- Funding for science needs to be increased. Partnerships – must be truly collaborative – they haven't been so far (leadership should not be ownership oriented). Opportunity – several adaptation strategies have been thought out already (are shovel ready now). Don't reinvent everything.
- We are all starting to talk the same language within this group but not sure that this is migrating down into our organizations and staffs. Need to bring along our employees.
- What we are doing is vital and linked and related to ecosystem services and our goal needs to be to keep these systems functioning
- Things are not migrating down into our organizations. People are uncomfortable with all the uncertainty and want to wait until we have answers but we must still do some safe adaptive management. We may need a whole new set of public policies. Need to do things differently. Need to tell people why riparian corridors are needed in their own terms (e.g.,

Appendix D: Round-Robin Comments

- they are needed to prevent flooding) - instead of just telling them that the corridors are needed for wildlife. We should also include the oceans in our national strategy.
- Political situation not as dire as possible. We are well on the road to start engaging the public. Start collaborations at international level also. Must engage the state fish & wildlife agencies – need incentives to allow participation outside of state boundaries. State's have difficulty traveling due to a variety of issues.
 - The spirit of what we need is captured at NCTC with all the photos of people who came before us. We must address issues at the appropriate conceptual scale. We like to decompose things into pieces so we can solve them. We need to look broadly so we can solve the bigger scale problem. There are inherent trade-offs. Institutional adaptations may be a huge challenge to respond to other things that are changing around us. It's one thing to collaborate – another to show change.
 - Money is the biggest challenge.
 - Must engage our society where there are multiple benefits over time. Should be no regrets for this challenge. He is somewhat disappointed in Waxman bill.
 - Our American public must understand.
 - Does not like the term adaptation. Has renamed their program Safeguarding wildlife. The public is really out of touch on this. We should really think about how this discipline is creating collaborations that didn't exist before. Provide a document which summarizes the state of the field of adaptation. Get out of the box of ecosystem centric management but don't have the pendulum swing too much. Must be sure to look at ecosystems and human element. Don't want the Katrina situation where we were not able to communicate the lesson of wetland buffers as protection against flooding. Need to integrate our approach to mitigation and adaptation and this will be hard. People in the mitigation world are not conversant in the adaptation world and vice versa. We can't have the biodiversity folks opposing the renewable energy folks. Must integrate this. Appropriations issues – 2 billion/year is available for carbon sequestration.
 - There are a lot of people who are ready to do good stuff if they know that their agency/organization is behind them.
 - Data collection of vulnerability analysis (need funding). Downscaling underway.
 - Just keep going despite obstacles. Laws can be changed; money can go to places currently prohibited. Let everyone play who wants to. Take baby steps and if you don't fall off the cliff take another step. A good lesson is to look how he initially looked at new legislation as opportunity to help ducks when it fact they were talking about ecosystems. So now the duck guys need to work with the old ladies in tennis shoes who like songbirds. Contrast with how we know how many ducks we want but haven't made numerical estimates for songbirds/shorebirds (since they aren't harvested). The Joint Venture folks needed to change their cultural bias and embrace the idea that all birds are important – not just ducks. All work off the same map. Now have wall to wall JV's and spend 13 mil/year to support. So CC must be landscape scale and have complete coverage if it will work (also need GIS and science capacity).

Appendix E: Evaluation Results

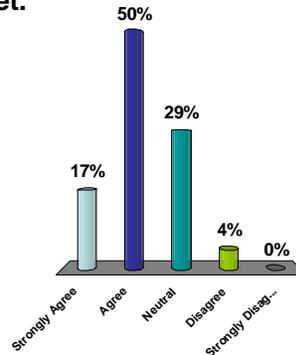
The following are evaluation results captured via TurningPoint:



Appendix E: Evaluation Results

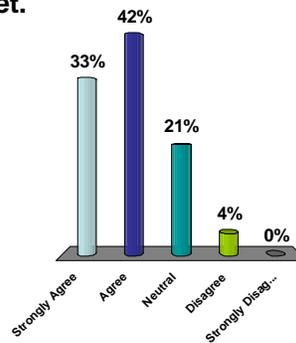
The meeting objective “Feel I participated in a constructive, well-organized discussion that helped accelerate and improve collaboration” was met.

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



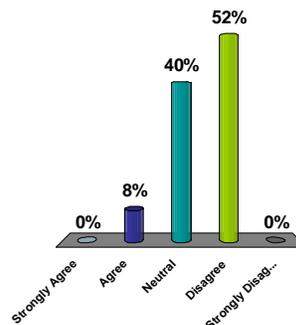
The meeting objective “Feel that a collaborative effort is the most effective approach to addressing climate change, and an Adaptation Strategy is very much possible” was met.

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



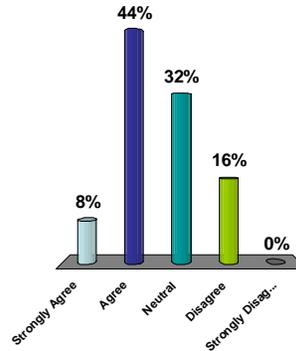
The meeting objective “Identify and agree on principles for developing an Adaptation Strategy” was met.

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



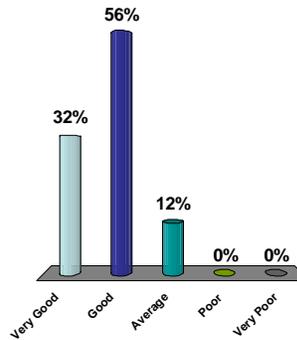
The meeting objective “Offer input on specific next steps and actions for developing an Adaptation Strategy” was met.

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



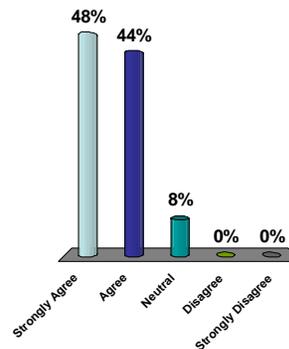
The meeting’s facilitation was:

1. Very Good
2. Good
3. Average
4. Poor
5. Very Poor



The TurningPoint technology (voting things) was a useful tool.

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



Appendix F: Forum Summary

The following Forum Summary was compiled by David Eisenhauer and Donna Brewer with the U.S. Fish and Wildlife Service and distributed by Dan Ashe to Forum participants on June 16, 2009.

Conservation Leadership Forum Summary

In the inaugural Conservation Leadership Forum convened in early June by the Department of Interior's U.S. Fish and Wildlife Service (Service), executive-level leaders from across the conservation spectrum took key steps toward building a collaborative national strategy to address the impacts of accelerating climate change on wildlife and the habitats upon which they depend.

The forum intended to build upon ongoing efforts, increase awareness, and expand unprecedented opportunities for collaboration among private, state, tribal, federal, and international organizations, including exploring potential for and benefits of a national fish and wildlife adaptation strategy. The strategy would align multiple planning efforts at all levels of government; provide a blueprint for applying science-based information and tools to inform sound resource management decisions in the face of uncertainty; identify partnership opportunities; and target financial resources to highest priority needs.

While falling short of agreeing on specific principles for the strategy, the leaders designated teams to flesh out details of a collaborative process and more clearly define a vision, purpose and scope for the strategy by the end of the summer. The forum closed with a mix of hope and urgency, and a strong desire to build on the momentum of the two-day session.

“The fact that we are willing to come together and talk now while climate change legislation and governance approaches are still being hammered out will speed things up considerably during the next few months,” said Service Acting Director Rowan Gould. “We have to work in partnership—otherwise we’re just talking to ourselves. Even though the playing field hasn’t been laid yet, this dialogue is critical because it will help us speak with a collective voice as opposed to a cacophony of voices expressing separate interests and advocacy.”

Though the primary objective of a national adaptation strategy is ensuring abundant, healthy, and distributed populations of fish and wildlife, leaders noted the effort would be tied to a larger goal of improving quality of life for all Americans by providing clean water, clear air and “green” infrastructure critical to sustainable and healthy human communities. While investments in the

Appendix F: Forum Summary

strategy would be national, the group agreed collaboration and information sharing must extend to the global community.

In his opening remarks to forum participants, Deputy Secretary of the Interior David Hayes (and later, Tom Strickland, Assistant Secretary for Fish, Wildlife, and Parks) acknowledged the federal government's delayed response to climate change during the past decade and indicated Interior is now fully engaged and moving forward. Hayes outlined separate DOI initiatives to limit reliance on fossil fuels by developing renewable sources of energy and to integrate scientific data across all Interior agencies to comprehensively assess climate impacts.

Hayes added that strong public-private partnerships can also help educate Americans about successful programs—such as carbon sequestration efforts that help restore landscapes and reduce greenhouse gases—that provide opportunities for the public to get involved in climate change mitigation and adaptation efforts.

Framed by presentations illustrating the stark realities of climate change impacts on wildlife and natural systems, as well as examples of current science and resource management responses, conference attendees quickly determined the need for both long-term commitment and immediate action.

Eighty-nine percent of the leaders who attended the conference rated climate change as the most important or among the most important conservation issue faced by their organizations. Fully 97 percent either strongly agreed or agreed a national fish and wildlife climate adaptation strategy is needed to address the threat to America's natural resources, citing climate change as an “unprecedented” resource challenge demanding an unprecedented response.

Noting the distinction between “taking” and “providing” leadership, several members of the group emphasized the need for a *national* strategy based on true interdependence among partners—as opposed to a *federal* strategy led by a single department or agency. They agreed the pace and scale of climate change demanded collaboration across jurisdictional boundaries—not only within the conservation community but also with industry, the corporate world and other nontraditional partners.

In addition to “landscape-scale” conservation approaches (adaptive resource management principles applied to the entire range of a species, a group of species, or a natural community of plants and

Appendix F: Forum Summary

animals), the group called for a more networked approach to partnerships allowing a region's private, state and federal conservation infrastructure to operate as a system rather than as independent entities.

The leaders identified dozens of significant challenges to developing a national strategy, ranging from resistance to change within the conservation community to a lack of public and workforce understanding of the threat of climate change. Most agreed a dedicated source of funding for climate adaptation and mitigation activities is perhaps the most critical short-term challenge.

But out of challenge arises opportunity. The leaders believe a national fish and wildlife adaptation strategy can help unify strategic planning efforts and processes detailed in climate change legislation under consideration by Congress—and provide a vehicle by which the conservation community can lead rather than follow.

Inspired by portraits of conservation greats lining the walls at the Training Center, the group was reminded that its work must be infused by the spirit of those such as Rachel Carson, Aldo Leopold, Teddy Roosevelt and J.N. “Ding” Darling who rose to the challenges of the past. And it must build on successful partnership models such as Joint Ventures and the Cooperative Alliance for Refuge Enhancement, which have demonstrated the power of shared vision and commitment.

Forum participants also agreed the strategy must be developed with an eye toward the future. Larry Selzer, President and CEO of The Conservation Fund, said that by 2050 the U.S. population is projected to be mostly urban, minority, and increasingly beset by health issues such as asthma and diabetes. He urged the group to view its conservation work in the larger context of a changing society and articulate a vision that resonates with tomorrow's audiences.

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