



Advisory Committee on Climate Change and Natural Resource Science (ACCCNRS)

April 28-29, 2015

The Advisory Committee on Climate Change and Natural Resource Science (ACCCNRS or the Committee) met for the sixth time on April 28-29, 2015 at the South Central Climate Science Center (CSC), National Weather Center, in Norman, Oklahoma. See Appendix A for a list of Committee members who attended this meeting.

High Level Summary of Meeting Outcomes

- **The Committee agreed upon the following recommendation for ongoing ACCCNRS input on the National Climate Change and Wildlife Science Center (NCCWSC) Science Agenda:**

“The ACCCNRS (the Committee) should provide input on the National Climate Change and Wildlife Science Center (NCCWSC) Science Agenda on an annual basis. The NCCWSC Science Agenda is informed by Climate Science Center (CSC) Science Plans, which in turn are developed in concert with the Landscape Conservation Cooperatives (LCCs) and other stakeholders. Additionally, the Science Agenda helps the NCCWSC to identify and address science issues not addressed by individual CSC Plans, coalesce action on issues relevant in multiple CSCs, and co-produce science needed by clients with a national scope. In years when the NCCWSC is in the process of developing the next version of its Agenda (every 3-5 years) the Committee’s input will focus on the NCCWSC’s national science priorities. In the intervening years (those between revised Agendas), the Committee will review and provide input on implementation of the Science Agenda. The NCCWSC may use this input to adjust its science priorities. The ACCCNRS will offer input at a time that helps inform the annual budget cycle.

The Committee also proposes that a national meeting be held periodically for the Committee, or a subset of the Committee, and others, such as the Association of Fish and Wildlife Agencies, National Oceanic and Atmospheric Administration Regional Integrated Sciences and Assessments, and U.S. Department of Agriculture Climate Hubs, who are likely to be co-producing national-level climate science with the NCCWSC. The purpose of this meeting will be to exchange information, coordinate regarding existing efforts, identify new national-level climate adaptation science priorities, and discuss what entity will work on which priorities. This national

meeting will also help to inform the ACCCNRS in its advice to the NCCWSC. This process will be used to identify gaps and needs, and would be updated to reflect changes in decision maker needs and progress toward meeting them. The utility of the national event will be evaluated after the first meeting. Input on national climate adaptation science priorities will be sought from decision makers and their advisors in advance to inform the national meeting. This preparation might be conducted in conjunction with existing, relevant fora or meetings such as the biennial National Adaptation Forum.”

➤ **The Committee agreed upon the following recommendation regarding the NCCWSC-CSC enterprise’s efforts related to climate projections:**

“There is a need to help decision makers understand and select appropriate climate projection tools, techniques, and data to inform adaptation planning at local and regional scales.

The ACCCNRS supports the direction provided by the National Climate Change and Wildlife Science Center (NCCWSC) to the Climate Science Centers (CSCs) to ensure that any investment in new downscaling and regional modeling techniques and efforts meets a clearly defined decision maker need that cannot be met with existing information, or supports other CSC-related research designed to meet such needs. Furthermore, the ACCCNRS supports the NCCWSC’s efforts to focus resources on developing and providing guidance and support to help decision makers select and use projections of future conditions (including but not limited to downscaled datasets).”

- **The Committee supported the direction of the draft NCCWSC program evaluation framework proposed by the Program Evaluation Work Group (WG). The WG will continue to refine the framework and develop possible measure and metrics prior to the next ACCCNRS meeting.**
- **The name of the ACCCNRS Downscaling WG was changed to the “Climate Projections WG” to better reflect that the WG is focusing on framing issues related not only to downscaled projections, but to climate projections more broadly. Prior to the next ACCCNRS meeting, the Climate Projections WG will: 1) draft a problem statement in 2-5 pages framing the issues related to climate projections, 2) refine the WG’s draft scope of work (SOW), 3) continue reaching out to potential members of the “task force” proposed by the WG leader, and 4) convene identified individuals to assist the WG in accomplishing these tasks and tasks identified in the SOW.**

Opening Remarks

Sarah Ryker, Deputy Associate Director, U.S. Geological Survey (USGS) and ACCCNRS Co-Chair, and David Behar, Climate Program Director, San Francisco Public Utilities Commission

and ACCCNRS Co-Chair, welcomed the Committee, presenters, and observers in attendance. Sarah Ryker commended the Committee for finalizing its report to the Secretary and said the NCCWSC will be reporting back on the implementation of the Committee's recommendations. David Behar also commended the Committee for its work on the report and said he hopes the Committee's recommendations will have an influence within the Department of the Interior (DOI) and other agencies. Mr. Behar also said that as a federal advisory committee (FAC), the ACCCNRS provides a special opportunity to leverage the great ideas discussed among the Committee.

Update on Charter and Membership Renewal

Robin O'Malley, Policy and Partnership Coordinator, NCCWSC, and ACCCNRS Designated Federal Official, provided an update on the ACCCNRS charter and membership renewal. Mr. O'Malley explained that the Committee was first chartered in May 2013, and that the charter expires in May 2015. The NCCWSC plans to propose the following changes for the next charter: the Committee will meet twice per year, rather than two to four times, as indicated in the current charter; clarification will be added to the descriptions of some of the Committee quorum categories (e.g., landowners); a revision will be made to reflect that the Landscape Conservation Cooperatives (LCC) Council is not a FAC. Additionally, the NCCWSC will make a recommendation for the next ACCCNRS Co-Chair for the Secretary's approval. A Committee member suggested the Co-Chair be a user of climate science.

Mr. O'Malley also explained that a 60-day nomination period is currently open to the public for ACCCNRS membership (the deadline is June 1, 2015). Due to the long membership review process, there will likely be a hiatus in Committee activity until October or November 2015. Committee WGs can remain active during the hiatus. At this point in time, the NCCWSC is aiming to hold the next in-person Committee meeting in November 2015.

Update on NCCWSC 2016 Budget Request

Sarah Ryker informed the Committee that the NCCWSC received a budget increase of three million dollars from Congress for the 2016 fiscal year (FY). Ms. Ryker said that the CSCs are maturing and are becoming more cohesive as a network, and the NCCWSC-CSC enterprise has been receiving positive feedback on its work. For FY 2016, the NCCWSC has made budget requests to expand its tribal engagement efforts by hiring tribal liaison staff members at more CSCs and reaching out to tribes across more regions; increase its work in the Arctic region; strengthen its translational science efforts; and focus on an actionable approach to ecological effects of drought.

Update on CSC Program Evaluation

Doug Beard, Acting Associate Director, Climate & Land Use Change, provided an update on the CSC program evaluations and explained that USGS has decided to grant a one-year extension for the CSC host cooperators. Mr. Beard said that USGS will use the Committee's CSC program evaluation framework in developing the performance criteria in future requests for proposals (RFPs) for CSC host arrangements. Additionally, although the CSCs' performances cannot be evaluated based on criteria that were not included in their original agreements, Mr. Beard said the Committee's evaluation framework has been used to inform discussion about the upcoming evaluations of the CSCs' under their current contracts. NCCWSC staff also explained that the CSC evaluations will be conducted by an external entity, and that the potential subcontractor for leading those reviews said the Committee's framework provided them with good ideas they had not considered previously. Mr. Beard stated that the first three CSCs will be evaluated in fall 2015, and the evaluations, and re-competition and selection of the hosts, for the Southeast and Northwest CSCs must be completed by September 23, 2016.

ACCCNRS Work Group Recommendations and Products

The Committee reviewed and discussed the draft recommendations and work products of the three active ACCCNRS WGs: the Science Agenda WG, Program Evaluation WG, and Climate Projection WG (formerly called the Downscaling WG). The key points of these discussions are summarized below.

Science Agenda Work Group

The Committee reviewed feedback recently received on the NCCWSC Science Agenda and discussed the Science Agenda WG's draft conceptual model and proposed recommendation.

Feedback on the NCCWSC Science Agenda

In February 2015, the NCCWSC circulated a set of questions that were developed with the help of the Science Agenda WG to collect input on the NCCWSC Science Agenda. Robin O'Malley provided an overview of the written comments received from ACCCNRS members, members and their constituents, the LCC Science Coordinators, and an Association of Fish and Wildlife Agencies (AFWA) member. Mr. O'Malley's summary of the feedback can be found in his PowerPoint slides, [here](#).

Mr. O'Malley then explained that while the Committee's feedback will help to inform the next NCCWSC Science Agenda, the NCCWSC is listening to, and in some cases already acting on, the Committee's feedback as it is being provided. The NCCWSC can make adjustments to its Science Agenda, as needed, between formal revisions. Mr. O'Malley also said the written feedback received in February will be shared with the CSC Directors.

Following the summary of written feedback, NCCWSC staff explained the need for streamlined, timely, and ongoing feedback on the NCCWSC Science Agenda. The NCCWSC is both a science producer and a boundary organization, and in some cases will apply the science of its partners and rely on their expertise for particular outreach to stakeholders (e.g., the U.S. Department of Agriculture (USDA) Climate Hubs communicating with farmers). Several Committee members spoke to the need to better understand what science and tools decision makers actually need, and to better equip decision makers with the right questions when asking for science. One Committee member said a potential rich area for study would be to better understand why some science is not used by decision makers.

Science Agenda Work Group Proposed Conceptual Model

Paul Beier reviewed and invited Committee feedback on a conceptual model of the climate adaptation landscape and the role of science in this landscape. The PowerPoint slides of the conceptual model are available [here](#). The following items were suggested by Committee members in response to the conceptual model:

- A way to integrate decisions being made across landscapes is needed.
- It would be helpful to explain the process represented by the arrow from the “Vulnerability Factors” box to the “Assess Alternative Adaptation Strategies” box
- The “Assess Alternative Adaptation Strategies” box could be broken down into steps, and science questions could be developed around these steps.
- It would be helpful for the NCCWSC-CSC enterprise to analyze and prioritize adaptation strategies (e.g., costs versus risks).

It was also noted that the efforts to identify gaps in science for climate adaptation activities will need to be shared equally among partners, as it is a multi-way process that requires input from various entities and their stakeholders.

Science Agenda Work Group Proposed Recommendation

Cliff Duke reviewed and invited feedback on the Science Agenda WG’s proposed recommendation for ongoing ACCCNRS input on the NCCWSC Science Agenda. Based on Committee member and NCCWSC staff discussion, revisions were made to the draft recommendation and were agreed upon by the Committee. The final version of the recommendation was as follows:

“The ACCCNRS (the Committee) should provide input on the National Climate Change and Wildlife Science Center (NCCWSC) Science Agenda on an annual basis. The NCCWSC Science Agenda is informed by Climate Science Center (CSC) Science Plans, which in turn are developed in concert with the Landscape Conservation Cooperatives (LCCs) and other stakeholders. Additionally, the Science Agenda helps the NCCWSC to identify and address science issues not addressed by individual CSC Plans, coalesce action on issues relevant in multiple CSCs, and co-produce science needed by clients

with a national scope. In years when the NCCWSC is in the process of developing the next version of its Agenda (every 3-5 years) the Committee's input will focus on the NCCWSC's national science priorities. In the intervening years (those between revised Agendas), the Committee will review and provide input on implementation of the Science Agenda. The NCCWSC may use this input to adjust its science priorities. The ACCCNRS will offer input at a time that helps inform the annual budget cycle.

The Committee also proposes that a national meeting be held periodically for the Committee, or a subset of the Committee, and others, such as the Association of Fish and Wildlife Agencies, National Oceanic and Atmospheric Administration Regional Integrated Sciences and Assessments, and U.S. Department of Agriculture Climate Hubs, who are likely to be co-producing national-level climate science with the NCCWSC. The purpose of this meeting will be to exchange information, coordinate regarding existing efforts, identify new national-level climate adaptation science priorities, and discuss what entity will work on which priorities. This national meeting will also help to inform the ACCCNRS in its advice to the NCCWSC. This process will be used to identify gaps and needs, and would be updated to reflect changes in decision maker needs and progress toward meeting them. The utility of the national event will be evaluated after the first meeting. Input on national climate adaptation science priorities will be sought from decision makers and their advisors in advance to inform the national meeting. This preparation might be conducted in conjunction with existing, relevant fora or meetings such as the biennial National Adaptation Forum."

In addition to suggested edits, Committee members discussed the content of the recommendation more generally. For example, a Committee member said that the proposed national meeting would begin as an experiment and could continue if it was found to be effective. Another Committee member suggested that one of the purposes of the proposed national meeting would be for ACCCNRS members in attendance to review the discussion between regional entities on identifying national-level climate adaptation science priorities. It was also suggested that the proposed national meeting could be an opportunity for entities to find ways to coordinate with each other in a less siloed way, such that they can support and coordinate with efforts that are beyond their own mandates. One Committee member emphasized that participants in the national meeting should be informed of and take into account structured systems already in place for identifying regional priorities (e.g., AFWA working with the states to identify regional priorities). Beyond the national meeting, a Committee member said that NCCWSC staff or an ACCCNRS co-chair or federal member should reach out to senior management in climate change initiatives (e.g., the President's Climate Action Plan, Council on Environmental Quality, Office of Science and Technology Policy, Climate Data Initiative,) to let them know that the ACCCNRS is resource that could help think through general approaches and architecture.

Program Evaluation Work Group

In order to give context for the discussion regarding the Program Evaluation WG's proposed NCCWSC program evaluation framework, Robin O'Malley explained that the NCCWSC has the following four main missions within the NCCWSC-CSC enterprise: 1) conducting national-scale science as the enterprise's ninth research center, which includes sharing and managing data and information products produced by the NCCWSC or CSC funded projects, 2) managing the CSC network, 3) providing administrative support for the NCCWSC and the CSCs (e.g. human resources, budgeting, communications), and 4) serving as the federal and national liaison for the enterprise. John O'Leary then presented the WG's draft NCCWSC program evaluation framework for the Committee's discussion. Committee members and NCCWSC staff raised the key points below:

- Data management is not currently captured in the NCCWSC evaluation framework and could be included in the "Management/Operations" category under Institutional Development and possibly within the "CSC Network" sub-category.
- Co-producing actionable science at the national level will be difficult and will be a work in progress.
- There could be two categories under NCCWSC/CSC enterprise Actionable Science: one for science conducted by the NCCWSC which is focused on a certain geography or issue-based, and one for the science conducted by NCCWSC or the CSCs, which is network-wide or involves multiple CSCs.
- Creating a culture of co-producing actionable science with stakeholders is important to the overall success of the NCCWSC-CSC enterprise.
- While the NCCWSC cannot singlehandedly ensure federal and regional coordination among entities, NCCWSC needs to set the expectation and do its part. Furthermore, the NCCWSC should recognize that there might be a need for some form of federation for actionable science, similar to the role USGCRP plays as a research program, and that the NCCWSC's leadership by actions in such a federation would be particularly important.
- The NCCWSC should instigate as well as integrate science at multiple regions. Some science questions can only be answered at a large scale, and the NCCWSC is the entity best positioned to conduct data mining and meta-analysis of studies.

Also discussed was how the Committee's proposed NCCWSC program evaluation framework will be used. NCCWSC staff explained that evaluating the NCCWSC is part of the role of the Deputy Associate Director for Climate and Land Use Change. Ms. Ryker, the current Deputy Associate Director, said that the draft evaluation framework is already helping to structure her thinking about how to conduct the internal review of the NCCWSC. As part of its budget decision making, Congress reviews the NCCWSC-CSC enterprise's performance as well. It was suggested that the Committee could also use the framework in its evaluation of the NCCWSC.

Climate Projections Work Group

The name of the “Downscaling WG” was changed to the “Climate Projections WG” to better reflect that the WG is focusing on framing issues related not only to downscaled projections, but to climate projections more broadly. The Committee reviewed and discussed the WG’s draft Scope of Work (SOW) and draft proposed recommendation.

Climate Projection Work Group Scope of Work Outline

David Behar provided an overview of the Climate Projection WG’s draft SOW outline to develop a process, guidance document(s), and staff support to assist decision makers in selection and use of climate projections to inform adaptation planning. David also reviewed a table of potential members of what was referred to as a task force that could help implement some elements of the SOW.

Scope of Work Outline

The following key points were raised by Committee members and NCCWSC staff during discussion about the draft SOW:

- Several Committee members expressed that they thought a group process like the proposed task force was a good idea and is something that is needed.
- Concern was raised that because similar efforts are currently underway and have been tried in the past, the proposed task force would not gain much interest and/or would intrude on the work of others. A Committee member said the difference between this task force and other efforts is that decision makers, boundary organizations, and scientists would be leading this proposed task force rather than only attending meetings/workshops.
- It was clarified that some of the tasks currently outlined in the SOW would be able to be completed by the task force itself, depending on the availability of time and resources, whereas other tasks in the SOW would be completed by partners.
- Multiple Committee members said item (f) of the SOW, providing human expertise in using climate projections in assessment and adaptation planning, is very important; that it would be good for the task force to emphasize this as a need. A Committee member said providing human expertise is the most difficult part of the SOW and that it will require trial and error.
- One Committee member did not think the term “consumer report” should be used in item (e) of the SOW, because “consumer report” implies the decision maker would already know what type of climate projection they should be using.
- It was suggested that case studies could be developed to show both the successes and limitations of climate projections.
- A Committee member suggested creating user profiles, which could be informed by a simple survey of decision makers, to show what type of decision makers are using

downscaled science, what decisions they make, and what level of support they have in making those decisions.

- The Committee discussed the need to distinguish the intended audiences for the climate projection guidance. For example, decision makers will need basic guidance on the difference between models, whereas boundary organizations, scientists, and technical staff will need more detailed guidance, such as on evaluation of models.
- It was suggested that advice on climate projections is best given regionally.
- A Committee member said there is a need for simple guidance on collaboration efforts related to the use of climate projections. Decision makers are going to use different models that will yield different results, but people will need to develop a solution together. Decision makers need to understand the strengths and weakness of products and why they may provide different results.
- It was suggested that at some point in the development of the guidance, communications experts would need to be involved so that the products can be understood in laymen's terms.
- A Committee member said users need guidance on how to be aware of climate models that may be driven by the particular intentions of the developer and therefore may not be scientifically sound. It was suggested that if a catalogue of available models is developed, the source of each model be provided.

There was also discussion about the format for the guidance. One Committee member suggested the guidance be delivered in the format of a website rather than a document so that it can be updated overtime. Another Committee member suggested that this guidance could be added to an existing website, such as the Climate Data Initiative website. A third Committee member said websites are too much of a long-term Commitment and need to be updated frequently in order to be useful. Some Committee members suggested that various delivery mechanisms be used. A Committee member said that it will be important to help decision makers understand that guidance on using climate projections will not fit on one piece of paper. Committee members said that whether guidance is provided through hard copies or on a website, people start to truly understand information via direct engagement and training.

While Committee members were comfortable exploring a long-term work plan for the Climate Projections WG as described in the draft SOW, multiple Committee members said that the WG needs to work on shorter-term products. Based on this input, it was decided that prior to the next ACCCNRS meeting, the WG will : 1) draft a problem statement in 2-5 pages framing the issues related to climate projections, 2) refine its draft SOW, 3) continue reaching out to individuals to participate in a process similar to the task force effort described in the materials presented to the Committee, and 4) convene identified individuals to assist the WG in accomplishing these tasks and tasks identified in the SOW.

It was also suggested that the WG might work on a gap analysis to gain some sense of what additional technical work is needed within the realm of climate projections. A Committee member suggested that the Climate Projections WG could, in relatively short order, make

progress on the following three items: 1) develop an entry point guidance question to help decision makers determine whether they need to use climate projections to inform their decision making, 2) develop a second tier question that asks if the information/climate projections needed already exist (e.g., spatial, temporal, sectoral), and 3) conduct an early analysis of existing climate projections to help decision makers select which projections to use.

Table of Potential “Task Force” Members

The following suggestions were made during discussion about the table of potential task force members:

- Electric Power Research Institute in Washington, D.C. and Compass would be good entities to reach out to about the task force.
- The task force should include some people who serve at the boundary/consulting level, as they are often the ones having conversations about providing guidance to decision makers and may already be involved in efforts similar to the SOW.
- It was suggested that at least half of the task force members be from agencies.
- A Committee member cautioned against adding too many people to the potential task force; that only people with demonstrated expertise who are willing to dedicate 5-10 hour per month should be on the task force.

Climate Projection Work Group Recommendation

The Committee then discussed the text of the Climate Projection WG’s draft recommendation that was proposed to be adopted by the Committee. A NCCWSC staff member said the recommendation could be helpful in communicating the relevance of the NCCWSC-CSC enterprise’s work to the Secretary. The staff member also said the recommendation provides the Committee’s perspective on what the NCCWSC-CSC enterprise’s role in downscaled science should be, which is informative in terms of the upcoming re-competition for CSC hosting arrangements.

Based on Committee discussion, edits were made to the Climate Projection WG’s recommendation. The final recommendation agreed upon by the Committee was as follows:

“There is a need to help decision makers understand and select appropriate climate projection tools, techniques, and data to inform adaptation planning at local and regional scales.

The ACCCNRS supports the direction provided by the National Climate Change and Wildlife Science Center (NCCWSC) to the Climate Science Centers (CSCs) to ensure that any investment in new downscaling and regional modeling techniques and efforts meets a clearly defined decision maker need that cannot be met with existing information, or supports other CSC-related research designed to meet such needs. Furthermore, the ACCCNRS supports the NCCWSC’s efforts to focus resources on developing and

providing guidance and support to help decision makers select and use projections of future conditions (including but not limited to downscaled datasets).”

South Central Climate Science Center Presentation

Kim Winton, USGS Director, South Central Climate Science Center, and Renee McPherson, University Co-Director, South Central Climate Science Center, presented an overview of the South Central CSC’s operations and work, particularly on its partnerships, tribal engagement strategy, external capacity building, actionable science and science co-production efforts, and science priorities. After the presentation, a discussion between the Committee and CSC staff was held. Ms. Winton and Ms. McPherson’s PowerPoint slides are available [here](#). They also shared the following two videos: [2014 South Central CSC Undergrad Internship](#) and [2014 South Central CSC Early Career Researcher Workshop](#).

Potential Areas for Future Committee Focus

While no decisions were made, Committee members and NCCWSC staff discussed potential next areas of focus for the ACCCNRS. The conversation began with NCCWSC staff explaining that they would appreciate Committee recommendations and smaller work products to be developed with shorter turnaround, which would allow the NCCWSC to receive and respond to Committee feedback in a timely manner. A staff member also said it would be useful to have conversations with small sub-sets of Committee members and other experts to distill Committee recommendations down to concrete steps and action items (e.g., how can the NCCWSC provide guidance on adaptation strategies).

Initial List of Potential Areas for Focus

NCCWSC staff developed and shared the following list of ideas for potential areas of Committee focus, some of which the NCCWSC identified prior to the meeting and some of which were generated during discussion on the first day of the ACCCNRS April meeting. The bullets below capture the ideas provided in the NCCWSC’s list, and the sub-bullets reflect the Committee’s discussion in response to these ideas.

Ideas Identified by the NCCWSC In Advance of the Meeting

- Identify and scope product types that meet the regional-scale adaptation planning/implementation needs of multiple states, the Bureau of Land Management, and the U.S. Forest Service, and that meet the needs of non-governmental land managers (e.g., non-governmental organizations, private entities).

- Identify strategies to support the implementation of the climate change components in State Wildlife Action Plans, and identify products or services that would support multiple states on a regional, habitat/taxa, adaptation, or other common basis.
 - Committee members raised other examples of plans that should be supported, including: plans developed by tribes; the National Fish, Wildlife, and Plants Climate Adaptation Strategy; AFWA's regional plans; and state hazard mitigation plans (which do not currently have a large climate change component, but perhaps over time will start to include natural resources).
- Convene a Working Group, with ACCCNRS members and other experts, to give input on a research agenda for NCCWSC implementation concerning adaptive capacity. To the extent possible, include consideration of use of this concept in both vulnerability assessments and adaptation planning.
 - A Committee member said this is a really good idea.
- Prepare a larger suite of case studies of NCCWSC/CSC co-developed actionable science (using those in the ACCCNRS's Report Actionable Science How-to-Guide as a start) to be published as a NCCWSC document.
 - A Committee member said they like the idea of the case studies, but that case studies may not be enough to help identify where barriers are in co-developing actionable science and how to overcome them.
- Review CSC activities and identify best practices and approaches to adapt those for other CSCs or other audiences, to evolve those practices to address other topics, or to develop more standard offerings. Potential areas of focus include: a) Tribal/indigenous capacity building (e.g., training, "climate 101"); and b) training a "next generation of climate adaptation specialists" with respect to: whether to develop more structured curriculum elements, how best to use the "boot camp" concept and experience, how to relate to and leverage other educational/training assets (e.g., National Science Foundation, Department of Energy (DOE)), how to engage young professionals in a national effort (not limited to individual CSCs), and how to engage ACCCNRS individuals and organizations in broadening the exposure and opportunities offered within this area of investment.
 - A Committee member said it would be helpful to learn about the strategy for capacity building across the whole NCCWSC-CSC enterprise, and that some specific topical areas may be worth learning about (e.g., capacity building of different audiences for identifying and selecting relevant adaptation options).
 - A Committee member reiterated the need to build the capacity of decision makers such that they know how to ask the right question when requesting science.

Ideas Identified by the NCCWSC During the Meeting

- Annually prepare a short document identifying 3-5 high priority items that should be incorporated into the NCCWSC Science Agenda, as well as revisions/updates (e.g., “climate resilience” is not mentioned in the initial NCCWSC Science Agenda).
- Develop a “problem statement” to frame the issues related to climate projections, and plan for a task force to begin addressing the need for evaluation, advising, and importance of available approaches.
 - This is the current direction of the Climate Projections WG.
- Provide a structured approach to pre-selection evaluation of adaptation options (i.e., not post-hoc effectiveness evaluation, and fill in the “Assess Alternative Adaptation Strategies” box in the Science Agenda WG’s conceptual model with some steps and strategies).
 - Committee members suggested that this should include both pre- and post-hoc evaluation of adaptation options.
 - It was suggested that there is a need for scientifically rigorous evaluation of adaptation options, and a way to include cost in those evaluations.
- Identify topics that the NCCWSC/CSCs should coordinate with, but not “own” (e.g., sage grouse management and carbon management, combining mitigation and adaptation).
 - A Committee member said there should be discussion around how the ACCCNRS should respond to or interact with policy initiatives that are outside of the NCCWSC-CSC enterprise. It was suggested that the ACCCNRS should provide input on the Climate Data Initiative or U.S. Climate Resilience Toolkit (e.g., help these initiatives refine their target audience and identify a clear focus).
- Coordinate with other efforts, such as: the flagship landscapes where the federal government will double down on resilience efforts; the White House Priority Agenda on Climate and Natural Resources; and new efforts to coordinate with utilities and the DOE).
 - It was suggested that the NCCWSC coordinate with efforts that may not have a direct focus on climate change, such as Farm Bill programs (e.g. Natural Resources Conservation Service).
 - A Committee member said this item is missing integration with non-federal efforts.

Additional Ideas Identified by Committee Members

The following items were raised as additional potential areas of Committee focus during discussion about the above lists:

- Discuss approaches for working with land managers who are not federal entities (e.g., private entities).

- Committee members and NCCWSC staff discussed that the NCCWSC, USGS, and DOI should focus on implementing the Committee's recommendations, both strategically and operationally, and report back to the Committee about their implementation. It was suggested that a portion of each ACCCNRS meeting could be dedicated to NCCWSC updates on implementing the Committee's recommendations, and perhaps with a focus on a particular set of recommendations. A Committee member expressed special interest in receiving updates on how the CSCs are producing actionable science and the evaluations of that science. Another Committee member suggested inviting CSC feedback on the Committee's recommendations.
- It was suggested that there be discussion around how to integrate factors of communications and social science into working with decision makers.
- A Committee member proposed that the Committee play a role in the evaluation of the NCCWSC.
- It was suggested that the NCCWSC and the Committee should discuss strategies that are not currently being employed by the CSCs in their efforts to co-produce actionable science, rather than only discussing the strategies that the CSCs are currently using.
- Committee members said the ACCCNRS should engage with the CSC network in more meaningful ways. Suggestions for types of engagement included: conduct an ACCCNRS meeting in conjunction with a CSC Directors meeting; hold an all-day workshop with CSC staff and perhaps focus on a particular set of issues; hold webinars/conference calls with CSC staff in-between the ACCCNRS in-person meetings, so the Committee can learn about the CSCs' work in the interim and have more direct discussion with CSCs at the in-person meetings; learn about and discuss the CSCs' work around social science; hold a scenarios workshop with the NCCWSC, CSCs, and stakeholders to help figure out a vision and strategic institutional development path forward for the enterprise.
- A Committee member said the ACCCNRS should serve as liaisons and champions for the NCCWSC-CSC enterprise, interfacing with the entities that each Committee member represents and marketing the enterprise in appropriate ways.

Public Comment

Davia Palmeri, Climate Adaptation Assistant, AFWA, said that she and Jonathan Mawdsley, Fish and Wildlife Science Coordinator, AFWA, have been trying to find ways to pull out state priorities from State wildlife Action Plans, and that they would like to work with Robin O'Malley on making sure those priorities are seen by the CSCs. Ms. Palmeri also said that she works on the National Fish, Wildlife, and Plants Climate Adaptation Strategy, and that there is a Joint Implementation Working Group (JIWG), of which Robin O'Malley and ACCCNRS member Jeffery Peterson are members, to promote implementation of the Strategy. Ms. Palmeri said the JIWG has been working on an implementation survey for what has already been planned for FY 2015-2016 and how that relates to what the Strategy recommends for climate

adaptation. Once the report of that survey is complete, Ms. Palmeri will circulate it to the Committee.

Closing Remarks

David Behar said serving as the ACCCNRS Co-Chair has been one of the most rewarding experiences of his professional career and that he looks forward to continuing his membership in the upcoming Committee term. Mr. Behar thanked the ACCCNRS members, NCCWSC staff, and the Meridian team for their hard work, and thanked the SC CSC for hosting the April meeting. Sarah Ryker seconded Mr. Behar's appreciation, and said the ACCCNRS has made contributions to topics that no other group could have. Ms. Ryker applauded the ACCCNRS for having such productive conversation among the diverse and large group.

Next Steps

Below is a list of next steps to be completed prior to the next ACCCNRS meeting.

- Committee members are encouraged to distribute the ACCCNRS Report.
- The Program Evaluation WG will continue to refine the draft NCCWSC program evaluation framework and will begin developing possible measures and metrics for the framework.
- The Climate Projections WG, in advance of the next ACCCNRS meeting, will: 1) draft a problem statement in 2-5 pages framing the issues related to climate projections, 2) refine the WG's draft SOW, 3) continue reaching out to potential members of the "task force" proposed by the WG leader, and 4) convene identified individuals to assist the WG in accomplishing these tasks and tasks identified in the SOW.
- Robin O'Malley will circulate language on what the NCCWSC received for the FY 15 budget and what they are requesting for FY 16
- Robin O'Malley will talk with Olivia LeDee about the upcoming Annual Midwest AFWA Director's Meeting in June.

Appendix A | Meeting Participant List

April 28-29, ACCCNRS Meeting

Attendee List

David Behar, Co-chair, Climate Program Director, San Francisco Public Utilities Commission/Water Utility Climate Alliance

Paul Beier, Regents' Professor, School of Forestry, Northern Arizona University, Member

Ann Marie Chischilly, Executive Director, Institute for Tribal Environmental Professionals and Northern Arizona University, Member

Cliff Duke, Director of Science Programs, Ecological Society of America, Member

Peter Frumhoff*, Director of Science and Policy, Union of Concerned Scientists, Member

Kimberly Hall, Climate Change Ecologist, The Nature Conservancy, Member

Lara Hansen, Founder, Chief Scientist, and Executive Director, EcoAdapt, Member

Lynn Helbrecht, Climate Change Coordinator, Western Association of Fish and Wildlife Agencies, Member

Larry Irwin, NCASI Fellow, National Council for Air and Stream Improvement, Inc., Member

Olivia LeDee, Policy and Planning, Division of Fish & Wildlife, Minnesota Department of Natural Resources, Member

Noah Matson*, Vice President for Climate Change and Natural Resources Adaptation, Defenders of Wildlife, Member

Berrien Moore, Vice President, Weather and Climate and Director, National Weather Center, University of Oklahoma, Member

Gary Morishima, Technical Advisor to the Chairman, Quinault Nation, Member

John O'Leary, State Wildlife Action Plan Coordinator, State of Massachusetts and the Northeast Association of Fish and Wildlife Agencies, Member

Jeffrey Peterson, Senior Policy Advisor, Office of Water, U.S. Environmental Protection Agency, Member

Bill Reeves, Chief of Biodiversity, Tennessee Wildlife Resources Agency, Alternate

Sarah Ryker, Co-Chair, Deputy Associate Director, Climate & Land Use Change, U.S. Geological Survey, Member

Paul Souza, Assistant Director, Science Applications, U.S. Fish and Wildlife Service, Member

Bruce Stein, Director, Climate Change Adaptation, National Wildlife Federation, Member

Bradley Udall, Senior Water and Climate Research Scientist/Scholar, Colorado Water Institute, University of Colorado, Member

Paul Wagner, Senior Environmental Scientist, U.S. Army Corps of Engineers, Alternate

Jeffrey Williams, Manager, Climate Consulting, Entergy, Inc., Member

* participated via conference line for a portion of the meeting

South Central Climate Science Center

Aparna Bamzai, University Assistant Director, South Central Climate Science Center

Mike Langston, Assistant Director, South Central Climate Science Center

Renee McPherson, University Co-Director, South Central Climate Science Center

Kim Merryman, Sustainability Scientist Assistant, South Central Climate Science Center

Derek Rosendahl, Post-doctoral Research Associate, South Central Climate Science Center

April Taylor, Sustainability Scientist, South Central Climate Science Center

Kim Winton, Director, South Central Climate Science Center

National Climate Change and Wildlife Science Center and U.S. Geological Survey

Douglas Beard, Acting Associate Director, Climate & Land Use Change

Shawn Carter, Senior Scientist, NCCWSC

Janet Cushing, Deputy Chief, NCCWSC

Emily Fort, Data and Information Manager, NCCWSC

Robin O'Malley, Policy and Partnership Coordinator, NCCWSC

Meridian Staff

Rianne BeCraft, Project Associate, Meridian Institute

Jeanne Connaughton, Project Coordinator, Meridian Institute

Tim Mealey, Senior Partner, Meridian Institute

Jennifer Pratt Miles, Senior Mediator, Meridian Institute