



Water Information Coordination Program



Advisory Committee on Water Information

**Meeting of the Water Resources Adaptation to Climate Change
Workgroup (WRACCW) of the
Advisory Committee on Water Information
February 19 - 20, 2014
Environmental Protection Agency Conference Center -- Lobby Level
One Potomac Yard (South Building)
2777 S. Crystal Drive; Arlington, VA 22202**

OBJECTIVES OF MEETING

- Review key elements of the President's Climate Action Plan and the Executive Order on Climate Change Preparedness and their implementation related to water resources
- Develop options and recommendations for key actions needed to improve adaptation of water resources to a changing climate in response to Section 3 of the Executive Order
- Educate members about Workgroup mission and climate change interests and activities of member organizations and nonmembers
- Provide current information on Federal agency activities related to climate change and water and exchange practical information on key water and climate change adaptation challenges
- Engage members in the mission and activities of the Workgroup and establish relationships among members

Wednesday, February 19

WELCOME and OPENING REMARKS

Matt Larsen; Associate Director, Climate and Land Use Change, United States Geological Survey and past Co-Chair of the Federal Interagency Water Resources and Climate Change Workgroup

Patrick Tallarico (facilitator) gave a summary of administrative details: purchase of box lunch; location of restrooms; etc.

Welcome by Paul Freedman and Jeff Peterson; thank you to meeting facilitator and meeting organizers; reminder about informal evening gathering at hotel next door.

Opening remarks by Jeff Peterson: introduction of Matt Larsen, USGS Associate Director of Climate and Land Use Change.

Matt Larsen address:

- Anne Castle was unfortunately not able to join us today, so I am standing in for her. She has jurisdiction over USGS and BOR, and she has been a great ally for science in DOI and a passionate champion of our goals.
- Today we'll be hearing more about Susan Ruffo about the President's Climate Action Plan and the Executive Order that was announced in November 2013. A key part of what we'll hopefully come out of this room with are specific needs that help inform the NAP, so we have a structure for the issues we want/need to tackle. Copies of the NAP are available on the registration table.
- Summary of USGS activities related to climate change issue, including the Advisory Committee on Climate Change and Natural Resource Science, which was established to oversee the USGS Climate Science Centers (CSCs) across the country. These CSCs operate in coordination with local stakeholders, so if you're not aware of the CSC in your area, I can help broker that connection/communication.
- This meeting will be valuable because it's vital that we have collaboration and communication between the Federal and non-Federal sectors, in addressing climate adaptation needs and issues.
- How can we be most effective in our planning for adaptation and mitigation for the increasing challenges we face? That is the key question that this Workgroup is dealing with; it's not a theoretical problem, but a very real and pressing challenge. Those gathered around the table today represent key groups across the country that are tasked with addressing these challenges.

WORKGROUP INTRODUCTIONS

Each Workgroup member was asked to give a 1 minute introduction that included:

- Name of member
- Organization they represent
- Which Working Group Team they are participating on
- One of their organization's most significant climate change adaptation accomplishments or activities

Each representative or alternate to WRACCW spoke briefly about his/her interest in the issues to be discussed during the next 2 days: Paul Freedman, Matt Larsen, Jeff Peterson, Ben Grumbles, Chitra Kumar, Carol Collier, Dave Fuller, Dave Carlton, Peter Evans, Paul Wiegand, Noel Gollehon, Erica Brown, Levi Brekke, Joan Brunkard, Ben Chou, Brandon Kernen, Dierdre Mason, John Schmerfeld, Nancy Turyk, Rolf Olsen, Julie Kiang, Ernie Wells, Jeanine Jones, Mark Crowell, Ron Hoffer, Mike Block, Peg Bostwick, Judy Francis, Nancy Beller-Simms, Aris Georgakakos, Paul Fleming, Craig Zamuda. Non-member guests attending this meeting also

spoke briefly about their background and their organizations' interests in climate adaptation issues: Mary Ann Rozum, Leif Nielsen, Dwane Young, Chris Reimer, Veronica Blette.

A full list of attendees for the whole meeting, along with each attendee's affiliation, is available at the end of this meeting minutes document.

Patrick Tallarico reviewed the meeting agenda and the materials included in the folders provided to each attendee (a copy of the materials in these folders is included at the end of this meeting minutes document).

Jeff Peterson spoke briefly about the broad goals of this meeting: How do we make the sum of our efforts be larger than the individual components that we all represent? We are dealing with difficult and complex problems, in dealing with climate adaptation issues, and we need to find as much cross-connection among ourselves as possible, so we can have a good picture of what government is doing and what non-government stakeholder groups are doing, and how those disparate efforts can be brought together to form an effective, efficient whole.

In your folder of meeting materials, there is a draft 2013 annual report of the WRACCW, which will be finalized/approved during this meeting. This report will be presented to the full ACWI at the annual meeting in May (the ACWI members will have a chance to read it ahead of their annual meeting, so they can be ready to ask questions during the meeting). Does everyone here feel that this document captures the essence of the work we have done during the past year? The co-chairs believe that we met our 2013 objectives, but we would like to hear from other group members on this issue. Do you have any comments? Do you have any suggestions for including items that might have been left out? Do you have any thoughts about the effectiveness of the monthly conference calls in accomplishing our objectives? Did you find your participation valuable?

- *Comment:* The conference call format was very effective. It would have been nice if we could have met in person earlier, but there were clear reasons why that couldn't happen. Going forward, I think the meeting of this group responds to the Executive Order and the needs of CEQ and will be a good springboard for our future calls.
- *Question:* Did we find a home for the background documents database? *Answer:* We will discuss our options later during this meeting.
- The report should list the groups that each member represents -- not just their names.
- *Question:* Should we use the report as a vehicle to highlight the availability of the database, fact sheets, and other resources? *Answer:* Yes, we should do this; in the report, we can provide web links to these materials, which are mostly available on the ACWI/WRACCW website.
- *Question:* There has been some frustration with meeting schedules during the past year because the meeting schedule wasn't predictable, due to availability of speakers, etc. Can we make the meeting schedule more regular during the coming year? *Answer:* The co-chairs recognize that this is a concern and are trying to find a solution to this problem.

- *Comment:* It would be nice if we could periodically remind people of how the different government programs are aligned and connected, and what other (non-government) activities are occurring.
- *Comment:* We're moving into a more interactive dialogue mode, with this group. We need to review our membership and determine which members are or aren't active. This is vital to ensuring that we have the knowledge base and resources we need to carry out our charge.
- *Comment:* As a non-Federal person I really appreciated the time we spent during our first meetings to get everyone up to a common level of knowledge. The subgroups that were formed prior to this meeting have been very helpful too, because it's much easier to have a conversation among 8-10 people than among the full workgroup (40-50 people).

BREAK

- Jeff Peterson introduced the first speaker, Susan Ruffo, who leads implementation of the Climate Preparedness pillar of the National Action Plan, as well as the Council on Climate Change Preparedness and Resilience.

PRESENTATION AND DISCUSSION: The President's *Climate Action Plan*: Implementation of Water Resources Elements

Susan Ruffo: Deputy Associate Director for Climate Change Adaptation; White House Council on Environmental Quality and Staff Lead; Council on Climate Change Preparedness and Resilience

- I want to provide you with some context for the activities of the Council on Climate Preparedness. The President's Climate Action Plan was released last year, and was meant to build on all the work that the Administration has done since 2009.
- The three pillars of the plan was carbon pollution; preparing the U.S. for the impacts of climate change, and working internationally on these issues. My work has focused on the preparedness pillar. Since last June we have been working hard on this pillar, but a lot of work remains to be done.
- We have focused on building resilience of communities and infrastructure; what can be done in individual sectors; etc. All that is pieces of a larger puzzle. We wanted to focus on national resilience rather than just Federal resilience. We have focused a lot of attention on State, local, tribal groups, which will be at the center of preparedness activities.
- One of the biggest pieces of the puzzle that we have been trying to tackle is modernizing Federal programs to try to include climate preparedness considerations. Most of these programs were set up with the expectation that the climate would be unchanging; we now know that's not realistic, and we need to adapt our programs in a way that deals with climate impacts and still allows the programs to accomplish their objectives.

- What does it mean to make communities and utilities more resilient, and what can the Federal government do to assist this process?
- There are also activities underway to deal with specific climate impacts, such as wildfire and drought. These activities look at both short-term and longer-term planning. We are also looking at storm and flood recovery (Hurricane Sandy).
- There's a big focus in the Climate Action Plan on data/info/tools that we need in order to plan for resilient communities and infrastructure. What knowledge and tools do Federal agencies need, and what knowledge and tools do State/local/tribal organizations, academia, and private industry need? We are focusing on these questions and trying to ensure that all the players come together in a way that will cause the best ideas to surface. What can our land and water programs do to better conserve our resources and mitigate the effects of climate change?
- Agencies have been asked to build on the plans they made during the first round, and those revisions are due in June; the revised plans will identify where vulnerabilities lie in a wide array of areas: grants, supply chains, etc.
- Key questions being addressed by the Task Force are what Federal programs are making it more difficult to make resilient investments, and what programs could be used to encourage activities to make communities more resilient? This Task Force has wide representation across the country and across various sectors. I encourage all of you to reach out to the members of the Task Force and share your ideas, questions, etc.
- *Question:* The challenge is how to make the linkage you're referring to. Is it possible to lay out a roadmap for points of contact, or points of nexus between the Task Force and this group (WRACCW)? *Answer:* I know many members of this group already have strong ties to some of the Task Force working groups, so I would throw that question back to the members of WRACCW who are already communicating with the various Task Force working groups.
- *Question:* Can you give us any more info on this climate dataset initiative? *Answer:* The data initiative is related to the broader open-data initiative. The idea is to get Fed datasets out where the public can use them – free and accessible. OSTP is leading the effort, and their latest focus is on climate data. Issues like sea level rise, food security, etc., will be rolled out in phases, since there are so many different types of information that relate to climate adaptation concerns.
- *Question:* Can you say more about the background thinking on concerns related to "climatedata.gov"? There are many datasets that can inform the public; is this mainly about a portal that links to the various datasets? In terms of agency investments to help populate the portal (or whatever tool is going to be used), there's a certain reluctance on the part of agencies to start up data portals/websites that may be eliminated or subsumed by a larger effort. *Answer:* The idea is a "no wrong door" philosophy. The data will remain with the custodial agency, and will remain available through channels that already exist now. What we want is to give easy access to people who do **not** know which agency to query, to get specific data. There is no way to answer the question of how long the data will be maintained in a public-facing portal, but right now it looks like

the data will be in demand for the foreseeable future because the information is very much in demand.

- *Question:* Last week the President mentioned a billion dollar climate resilience fund; can you tell us about that? Also, is there any capacity for a bottom-up approach to climate data and products? That might help to round out the picture and show how climate projections are being used. Finally, it would be very helpful to think through the question, not just of how we focus on providing data, but also how the data relate to each other and the connectivity across connected platforms. Having "one portal to rule them all" doesn't seem like the best approach, but we need to give some context to the data. *Answer:* Yes, the billion dollar climate resilience fund was announced last week, but no information is available now; it will be included in the President's Budget Request, coming out next months. In terms of derived products, we have been thinking about that; when you start a data portal, you're implicitly endorsing the products/data that the portal leads to, and we're figuring out how to deal with that issue and ensure a balance. In terms of context, I agree; the toolkit being developed will help to provide a context to the data that's available, but we still have some work to do on this.
- *Question:* I'm very interested in the idea of the toolkits, but right now there's already an overwhelming amount of information and number of toolkits, and I have no idea how to focus. It would be nice if non-Feds could have clear contact points in the Fed community, to help them understand what data are available and what will be most useful for non-Fed applications.
- *Comment:* One approach is to ask potential customers of the information (rather than data suppliers) "what kind of information do you need?" So the members of WRACCW should be thinking about the question of what their organizations need.
- *Question:* Can you talk about how the National Climate Assessment and the NAP form a whole? *Answer:* Yes, all the assessments and plans that have already been done form a wealth of information, and the new NAP will draw on all those sources.
- *Question:* Many of the lake managers aren't very aware of the tools that are available; are there any plans to advertise these tools through national conferences or other vehicles? *Answer:* That is a huge challenge, especially during these days when travel and conference attendance is so restricted. Hopefully WRACCW can help with that process.
- *Question:* Can you talk about some of the international efforts underway? *Answer:* A lot of those efforts are focused on the mitigation side, rather than the adaptation side. A lot of other countries are beginning to form programs (malaria abatement, etc.) that are starting to look at factoring in climate change.
- *Comment:* In terms of where to go with all the decision support tools, datasets, etc., the Corps made a huge investment during the past few years in order to get water managers into this discussion, and one of their recommendations was that we need a Federal toolbox – a website where people can find information and tools. This is an existing effort that might be a logical launch-pad for making other tools available. Not

sure how much that toolbox is being used, but ICWP is helping COE focus that tool to make it more useful.

PRESENTATION AND DISCUSSION: WORKING DRAFT 2013 Highlights and 2014 Workplan for the Federal Agency Water Resources and Climate Change Workgroup

Chitra Kumar: Deputy Associate Director for Water; White House Council on Environmental Quality

- I'll talk about the progress that's been made under the Freshwater Action Plan, which you have seen if you looked at the "highlights" of the NAP that was sent out prior to the meeting.
- We need to take stock of the accomplishments that agencies have already implemented, and when we do take stock, we should celebrate the many significant actions that have been taken already. It seems that most/all of you have participated in these inter-sector/interagency groups, so you know how difficult it is.
- Chitra walked through some of the actions in the NAP that have already been completed.
- As time goes on, there is an acknowledgement that we've been involved in this process for 2 years, and it may be time to reevaluate our priorities in terms of available budget and other factors. This is important to think about because more than one-third of the actions laid out in the NAP have been mostly completed or we have recognized that there are significant barriers to full completion. This leaves 15 actions that still require action on the part of agencies. We need to consider tweaking the remaining actions in the plan according to new information, new viewpoints, newly discovered customers, etc.
- During this meeting, you may also identify gaps that were not captured in the NAP. Some existing actions just need to be tweaked, but there be a need to add new actions to the plan as well.
- There are a number of things in the NAP highlights document that weren't specifically called out in the NAP list of actions; these items support the actions (and might be called sub-actions), and they may be helpful to you in identifying gaps in the NAP.
- *Comment:* Bear in mind that Chitra will basically be the recipient of the product that our breakout groups will produce, so you may want to talk with her at some point during the next two days, to get more guidance and insight into our task.
- *Question:* The data/info group has just started, so we can use your input. We have the working draft of the highlights and progress document. Is it fair to say that one of the things that would benefit our group is to read what's here in this document and then ask ourselves "what's missing?" *Answer:* That would be a great way to use your time this afternoon. Since you are all coming from different sectors and different viewpoints (all with different needs), it's important to make sure those ideas and viewpoints are

reflected in your recommendations. You definitely need to focus on tweaking existing portions of the NAP, and also on adding items that you feel are missing.

- *Comment:* It can be difficult to tell when a guidance document or plan has been supplanted by a new/updated version. I haven't read the completed NAP, but looking at the actions that are listed in the highlights document, and considering how many hundreds of millions of dollars a year are being invested in our programs, we need to consider how take the plans/data/tools/capacity at the Federal level and using it/them to enhance capacity in the non-Federal sectors.
- *Question:* In the NAP highlights write-up, for actions 23 and 24, it says there is uncertainty about funding. How do we get away from this quagmire of funding uncertainty? And is this question something the Federal government should be investing in, and how do we incentivize the States to get involved? And can you say something about the fellowship program? *Answer:* Funding for the fellowship program is uncertain too, and maybe someone else in this room can address that. With respect to the question "how do we incentivize?" ... that's the million dollar question, and we're hoping that WRACCW can help us address that. If you have recommendations in this area, please be sure to submit them. These are good questions, and I don't have a direct answer, so I'm going to challenge you to produce some recommendations that can help us address questions like this.
- *Question:* Clearly there's a lot of work we can do to continue strengthening the NAP. Can you address section 3 of the EO, which asked agencies to look at the land and water components of resilience? *Answer:* That workgroup has asked agencies to submit about 5 existing programs/activities already underway related to climate change and natural resource issues (land or water) and two potential new activities/programs that they could undertake if they had new resources. Agencies have begun to submit those ideas, and we're hoping to get some ideas from this group as well.
- Even items that don't end up on the "top 10 list" will still be valuable to the Freshwater Action group because they will help to revise actions that already exist in the current version of the NAP.
- *Question:* Looking through the action items, is there any one action that addresses the questions that have been on the table about all the tools we have available. Right now the tools "business" is supply driven rather than demand driven. Where are we in the recognition that would address the question of whether we need additional incentives to help States and localities deal with climate resilience? *Answer:* I think that is a question that the Climate Action Plan more generally tries to address by the broader suite of activities. The NAP was published in 2011, and the new National Climate Assessment will be out shortly, and the EO is out, and from what I've heard, there is already tremendous enthusiasm at the State, local, and tribal level for tackling this issue. We need to figure out how to harness that enthusiasm.
- *Comment:* In the past, the U.S. Disaster Assistance Program would not consider funding any actions other than restoring things to the way they were before a disaster. We

need to look at that policy and other possible impediments that prevent us from taking actions to ensure more resilient communities and infrastructure.

- *Question:* Knowing that CEQ has many sources of information and recommendations, can you characterize this WRACCW in terms of how the recommendations you want from us might differ from the input you're receiving from other sources? *Answer:* The Freshwater group has the only cross-cutting strategy that has a separate FAC. There is power in numbers, and the more recommendations that emerge from these various processes are similar will help to elevate specific recommendations to the top. Another piece of advice I might give you is to stick with your expertise; you all come from different sectors, which all have different strengths, weaknesses, and needs. Wherever you have the ability to use the information we pull together, to distribute that information through your own channels, this also will help CEQ. So ask yourself "what's the timeliness of these ideas, and to what extent are these ideas already underway or being recommended elsewhere?"

ACWI CLIMATE WORKGROUP MANAGEMENT

ACWI Climate Workgroup Co-chairs Paul Freedman and Jeff Peterson lead a discussion of Workgroup goals, activities, and operations for 2014

- **Reports from Subcommittees:**
 - **Key Information and Resources: Carol Collier**
 - **Should we expand the database?**
 - **Should we formalize it?**
 - **Should we make it public?**
- Last year we developed a sortable database of resource references, which currently includes 50 references. A question we have for this group is: How should this database be handled as we move forward? We need a process for making it available to the public and accepting revisions. We can currently put a downloadable version on the website, but we can't put an interactive version on the website. Do we want to stick with the 50 references we have now and put it on the website so we can all have access to it, or should the data/info breakout group just keep custody of the database?
- *Answer:* I think you would want to keep it expanding. If it stays stagnant, it will be dead in 3 months. We need to keep adding to it. Note: The group agrees that keeping the document "alive" and expanding it is desirable.
- Carol Collier can take the database with her as she moves to her new job, or Wendy Norton and her staff can keep the "current" version and just upload new versions periodically whenever new items are added.
- We want to keep the document manageable and targeted (want to avoid huge lists with thousands of resources), so we need guidance/criteria to help us determine what should or should not be added to the database. Do we want specific criteria, or do we want to throw the invitation for new materials wide open? We have a format for the metadata,

so that's not an issue. The issue is whether we defer to the wisdom of the membership to submit sufficiently "important" new items for the database, or should we have specific criteria to help people determine whether a new item should or should not be included in the database?

- What criteria were used to determine whether the current contents of the database should have been included? Guidance was to include items of national significance and not getting "down in the weeds" with case studies. But you could have relevant case studies, and you could sort the list to identify case studies versus more general resources.
- It's important to keep focused on who the audience for the database is. My impression was that the database was originally created to help keep WRACCW informed. In that context, a spreadsheet that you can download periodically and sort/search seems sufficient, and the items in the database should be focused on the aims of WRACCW.
- The key question might be "is this document a key item that will help WRACCW stay informed?" or "why should we include this document?"
- Each time the database is updated, there needs to be a clearly marked date, so people can tell whether it has been updated since the last time they downloaded it.
- Carol Collier, Wendy Norton, and the co-chairs will discuss this after the meeting and determine the best way to make the database available, along with establishing a process for updating it periodically.
 - **Webinars: Levi Brekke**
 - **Suggestions for additional speakers and topics?**
 - **Was the delivery mechanism effective?**
- Levi summarized the webinars we have held to date. The presentations from the webinars are available here: http://acwi.gov/climate_wkg/minutes/index.html.
- We have some options for continuing the webinars this year (2014), and we have polled the group to gauge interest in the potential topics for this year. If you have suggestions for improving the webinars, let us know. Should we stay with the topic list we already have, or should we poll for potential new topics? Consensus is that we want the items already on the list, and we also want to consider potential new topics.
- We may want topics that highlight the areas covered by the breakout groups we formed for this meeting – or will these breakout groups be eliminated after we have given our input to CEQ?
- There is also a question about the frequency of the webinars.
- It would be nice to have some webinars that highlight existing tools (such as EPA's create tool). Or notifications regarding webinars held by other groups that may relate to the subject matter WRACCW deals with, or hold some joint webinars with the various groups that have membership on WRACCW.

- Is the goal of the webinars to have engagement/discussion, or to simply inform members of new/existing issues that they can take back to their home organizations? The answer to that question will help determine the answer to all the other questions we're asking about this topic. Should the webinars be available to workgroup members only, or should they be open to the public?
- Should we focus on content that is directly related to our work plan, or can we expand the range of topics to include issues of general interest to the group?
 - **Discussion and Approval: Draft 2013 Workgroup Annual Report to full ACWI**
 - **Review key changes to the work plan and ask participants to think about additional changes throughout the meeting.**
 - **Pat will post flip chart in room to remind participants/capture suggestions.**
- Thank you for your comments on the 2013 WRACCW report to ACWI. If you have other ideas/revisions/concerns, send them to Jeff Peterson and Paul Freedman next week. In your folder, you also have a proposed 2014 workplan for WRACCW.
- Among the priorities we have identified are to respond to the EO, and advising Federal agencies as they implement the NAP and their individual action plans.
 - **Discussion: Schedule for Development of Input in Response to Executive Order and 2014 Workplan for ACWI Climate Workgroup**
- Give this some thought, and tomorrow at the end of the day we'll discuss. Then the co-chairs will revise the plan prior to our next WRACCW conference call.

NETWORKING LUNCH

PANEL: SNAPSHOTS OF FEDERAL AGENCY ACTIONS FOR WATER RESOURCES ADAPTATION TO CLIMATE CHANGE

Short presentations of key Agency accomplishments of 2013 and actions planned in 2014 by Federal agencies engaged in water resources and climate change adaptation programs and projects.

Speakers were asked to address ideas and options for key actions needed to improve adaptation of water resources to a changing climate in response to Section 3 of the Climate Change Adaptation Executive Order.

Panel I

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|------------------------------------|------------------------|
| • Department of Agriculture | Carolyn Olson |
| • Geological Survey | Matt Larsen |
| • Fish and Wildlife Service | John Schmerfeld |
| • Army Corps of Engineers | Rolf Olsen |

- Carolyn Olson's slides are available here:
http://acwi.gov/climate_wkg/minutes/01_olson_wraccw_feb_2014.pdf
 - SNOTEL, Soil Climate Analysis Network, USDA Regional Climate Hubs, soil moisture networks, encouragement of interdepartmental, inter-jurisdictional projects

- John Schmerfeld (did not use slides)
 - The strategy is like a menu – doesn't dictate what a field station *should* do, but lays out a suite of tasks that a field station *could* do
 - FWS is revising handbooks to incorporate climate change into everything we do.
 - Water Resources Impact Assessments are being conducted at refuges nationwide to document everything relating to water on refuges.
 - FWS is a major land-holder, with many refuges and many waterfowl districts; these lands are greatly affected by any legal, economic, political, or natural resource issue relating to water.
 - Climate Change Engagement Strategy
 - Mitigation Plan includes strategy for reducing FWS footprint to neutrality by 2020 – includes carbon sequestration and energy reduction components.

- Rolf Olsen's slides are available here:
http://acwi.gov/climate_wkg/minutes/02_olsen_wraacw_feb_2014.pdf
 - COE policy and strategy related to climate change issues
 - Priority areas include infrastructure resilience, vulnerability assessments, etc.
 - Sea level rise – policy, guidance, and tools for calculating changes in sea level
 - Vulnerability assessments of watersheds – HUC 4 level for all business lines
 - Hurricane Sandy follow-up – Risk Reduction Framework; supporting resilient coastal communities and sustainable coastal landscape systems
 - National Action Plan: Priorities for Managing Freshwater Resources in a Changing Climate – COE has the lead on three of the NAP actions (17, 19, and 20).

- Matt Larsen (did not use slides)
 - USGS doesn't regulate or manage anything, and that is sometimes an advantage, sometimes a disadvantage. It also means we're in a position to address the development of tools to help communities prepare for dealing with climate change.

- DOI Climate Science Centers – located across the country, these Centers collaborate with other agencies' climate centers and with universities to provide resources to help communities. One product is a tool to help make climate and precipitation projection models more accessible to a less technical audience.
 - USGS streamgages are also a vital tool – the Streamstats tool is available on the USGS website (<http://water.usgs.gov/osw/streamstats/>) and is particularly applicable for climate change preparations.
- *Question:* Does COE coordinate with the military, and would we want to coordinate with the military at some future date? *Answer:* There is some coordination, but mostly related to facilities. There is coordination on lowering the water footprint at bases, etc.
 - *Question:* John Schmerfeld mentioned carbon sequestration as being a critical part of the FWS goal to reach carbon neutrality by 2020. Do you intend to use any of the carbon tools Matt Larsen mentioned? *Answer:* We have a strategic plan published in 2009 that lays out some carbon goals. We work closely with the USGS carbon group and have a number of projects in the works.
 - *Question:* When you look at carbon neutrality, do you apply an additionality threshold? *Answer:* It's built on a baseline. There is no way to know where carbon is going to go in the future. A lot of the refuges spend a lot of time moving water around.
 - *Question:* Rolf and Matt, you mentioned collaboration between COE and USGS. Are there other things that you can collaborate on, related to IWRS? *Answer:* Yes, that's being implemented now, with a scoping document and a flood inundation team. IWRS emerged from an effort in North Dakota several years ago when we had extremely heavy rains; at that time, COE and USGS were only informally collaborating, and the flooding in North Dakota required the two agencies to establish closer communication. IWRS was born from this need.

Panel II

- **Bureau of Reclamation** **Levi Brekke**
 - **Forest Service** **Rich Pouyat**
 - **Federal Emergency Management Agency** **Mark Crowell**
- Levi Brekke's slides are available here:
http://acwi.gov/climate_wkg/minutes/03_brekke_wraacw_feb_2014.pdf
 - BOR is a western water agency situated in the 17 western States. Levi gave a summary of where BOR has been, to help set the stage for where we are today.
 - WaterSMART – Basin Study Program (helps BOR implement Section 9503 of the SECURE Water Act).
 - Science and technology climate change investments prioritized by user needs identified in collaboration by the Climate Change and Water Working Group.

- New plans, directives, and policies – DOI Climate Adaptation Policy; DOI Climate Adaptation Plan; President's Climate Action Plan; EO 13653
- Rich Pouyat's slides are available here:
http://acwi.gov/climate_wkg/minutes/04_pouyat_wraacw_feb_2014.pdf
 - USFS is a land management agency that also has a research arm.
 - National roadmap for responding to climate change: assess – manage – engage
 - Climate Change Performance Scorecard helps the land managers keep track of their progress in reaching goals for the various forest units.
 - Watershed vulnerability assessments – HUC 6 level – 16 pilots have been done in national forests across the country.
- Mark Crowell (did not use slides)
 - FEMA activities and National Flood Insurance Program in the aftermath of Hurricane Sandy.
 - After Hurricane Sandy, we had requests for additional sea-level-rise information on top of the baseline flood information we had already released; to answer this need, a sea-level-rise tool was developed. This tool includes a map tool and a calculator.
 - FEMA is currently comparing two different approaches to sea-level rise measurements.
 - FEMA now has regulatory authority related to flood zones; they are now authorized to include climate information and sea-level-rise information when they update their flood insurance information.
- *Question:* What's the role of the USFS Northern Institute of Climate Science? *Answer:* Chris Swanson (who runs the Center) is in town tomorrow, so you can talk to him.

Panel III

- **National Oceanic and Atmospheric Administration Nancy Beller-Simms**
- **Centers for Disease Control and Prevention Joan Brunkard**
- **Environmental Protection Agency Mike Shapiro**
- Nancy Beller-Simms' slides are available here:
http://acwi.gov/climate_wkg/minutes/05_beller_sims_wraacw_feb_2014.pdf
 - NOAA first considered core societal challenges and capabilities, in developing their climate science/services activities: sustainability of marine ecosystems; coasts and climate resilience; climate impacts on water resources; weather and climate extremes.
 - Examples of NOAA activities related to climate issues: National Integrated Drought Information System (interagency activity – does not belong to NOAA, but they participate); publication titled *Responding to Extreme Weather/Climate Events: Adaptation Strategies and Information*

Needs; Climate Prediction Center provides the NWS suite of official forecasts; web interfaces; many, many others.

- Joan Brunkard's slides are available here:
http://acwi.gov/climate_wkg/minutes/06_brunkard_wraacw_feb_2014.pdf
 - Overview of CDC organization.
 - Waterborne Disease Prevention Branch responsibilities – surveillance, outbreak investigations, lab science, prevention and technical assistance.
 - Limitations of outbreak surveillance data.
 - There are some diseases that may be climate sensitive – CDC will be testing this.

- Mike Shapiro's slides are available here:
http://acwi.gov/climate_wkg/minutes/07_shapiro_wraccw_feb_2014.pdf
 - EPA has major regulatory and non-regulatory responsibilities related to the Clean Water Act, Safe Drinking Water Act, etc. We need to figure out how to integrate climate change adaptation into these programs and policies.
 - Draft Climate Adaptation Plan (2013)
 - The 2012 strategy builds on the momentum of earlier programs and is placed within a broad national and interagency context. This plan charts a long-term direction for EPA's water program to become "climate ready."
 - Climate-Ready Estuaries program and Climate-Ready Utilities program have developed a series of tools, including an Adaptation Planning Workbook for estuaries and watersheds, and a Climate Resilience Evaluation and Awareness Tool.
 - Office of Water Climate Change Adaptation Implementation Plan (September 2013) identifies vulnerability, priority actions, training and outreach, vulnerable populations and places, evaluation.

- *Question:* What impact does the timing and quality of data/info have on CDC decisions and responses to outbreaks? What if you have bad data or a time lag in receiving data?
Answer: We would love to know about public health emergencies earlier, but that takes lab capacity and investments that we do not have.

- Question for the non-Federal participants – what did you find particularly relevant or intriguing in the things the Federal panel talked about?
 - Impressed by the degree to which climate adaptation planning has infiltrated everything the Federal agencies are doing. At the same time, there was something I wanted to hear more about – climate projections. These projections are useful globally, but they become less useful at local scales. Shouldn't

agencies be pursuing the development of tools to help manage the uncertainty that occurs when we try to apply these projections at the local scale?

- Perhaps some of the BOR and COE work that we heard about will help shed some light on that. Clearly the work at the Federal level needs to continue. How do we weave together the Nation's needs with the needs of the Federal agencies? It seems that in some agencies, the words "climate services" are not being used. The various Federal agencies' responsibilities seem almost designed to keep them in separate silos; how can agencies with discrete management responsibilities weave together their tools and information so that we're dealing with a more unified Federal presence, especially in delivering data and information to those who need it?
- Some of us non-Feds suffer from too much Federal information, rather than not enough. Some States can't cope with the overload of data.
- Prior to the break, Paul Freedman gave the breakout groups their charge and explained what form of product will be most useful to CEQ. Groups should start off with what their recommendation is and why it's so urgent/important, followed by a gap assessment and a statement of what the Federal Government's role in facilitating this recommendation should be. Please be as concise as possible. We don't have much time, so a few sentences on each topic is quite sufficient. Think of this as your "elevator pitch."

BREAK

GROUP BREAK-OUT SESSIONS

Break-out sessions of subgroups based on major elements of *National Action Plan*; Federal and non-Federal leads for each break-out session:

- 1. Improve Water and Climate Change Information for Decision-making**
- 2. Strengthen Assessments of Water Resources Vulnerability to Climate Change**
- 3. Expand Water Use Efficiency**
- 4. Support Integrated Water Resources Management**
- 5. Support Training and Outreach to Build Response Capability**

ADJOURN

Thursday, February 20

COFFEE AND DISCUSSION

Paul Freedman opened the meeting with a welcome for the members and a brief review of the morning agenda, including introductions of the non-profit/business panel.

PANEL DISCUSSION: A NON-PROFIT AND BUSINESS PERSPECTIVE ON WATER AND CLIMATE CHANGE TO COMPLEMENT FEDERAL AND STATE EFFORTS

Representatives of business and non-profit groups will be asked to comment on their issues and activities related to water resources adaptation to climate change as well as key actions needed to improve national preparedness and adaptation in the context of the five recommendation topics in the *National Action Plan*.

Moderator: Paul Freedman; Water Resources and Climate Change Adaptation Workgroup Co-chair, representative of the Water Environment Federation, and President and CEO, LimnoTech

- **Ed Pinero; Senior Vice President for Sustainability, Veolia North America, Veolia Water**
 - Climate change adaptation as it relates to water supply systems and wastewater treatment systems.
 - The biggest issues that they deal with are: shifting patterns of water scarcity and water availability (making sure we have the right water at the right place at the right time), and extreme weather events and their impact on water supply/treatment facilities.
 - Population shifts have an impact also.
 - Understanding the effect of all these factors is where the water supply/treatment industry fits in to the climate adaptation picture.
 - Having good information is paramount. We must have good information in order to make good decisions.
 - You can have a national water strategy, but it's very difficult to have a national water policy.
 - When you're talking about water reuse and planning for scarcity, it's crucial to understand the connections among the various issues, and to reach that understanding, good information is fundamental.

- **Sarah Freeman; Lead Water Resources Specialist, Freshwater Program, World Wildlife Fund**
 - Sarah's slides are available here:
http://acwi.gov/climate_wkg/minutes/08_freeman_wraccw_feb_2014.pdf
 - Three cross-cutting themes that WWF has learned from, both abroad and domestically:
 - Flexible water management institutions – what makes people and institutions more or less able to adapt to changing water conditions? Institutions must have the authority and the ability to change their operating procedures when they need to do so. Participation of stakeholders and partners is key in this matter.
 - Research and standardized guidance – it's important to provide adequate resources for research and monitoring.
 - Integration of the disaster management and resilience building – we need integrated approaches that don't merely respond to disaster, but prepare for them by understanding how large watersheds can be used to better help communities to respond to extreme events.

- **Stephen Harper; Global Director, Environment and Energy Policy, Intel**
 - Will talk about experiences related to his role at Intel, his role with the digital energy and sustainability group, and his role in the Chesapeake Conservancy.
 - Intel makes their own products, with 75 percent of their manufacturing being in the U.S. Those manufacturing processes require a great deal of water; manufacturing facilities tend to be either in very water-rich regions or very arid regions, so efficient water use and reuse are important to the industry.
 - Increasing complexity in chips and in manufacturing processes requires more water, more chemicals. Intel is striving to deal with this while simultaneously attempting to reduce their water footprint (which was reduced once, but increased again, due to development of more complex chips that require more processing). In 2013, about 20 percent of Intel's non-process water was recycled; they are moving toward 100 percent.
 - Environmental goal for 2020 is to reduce the amount of water used to 2010 levels, in spite of the need to use more water to make more complex components.
 - Metering water use gives people the information they need to make a decision to reduce their water use.
 - Chesapeake Conservancy is using new technologies to help see what's happening with bay-level rise, habitat, wetlands and other buffer zones, and to develop water-quality monitors at low cost.

- **David Hunter; Senior Representative, Environment, Government, and International Affairs, Electric Power Research Institute (EPRI)**
 - David's slides are available here:
http://acwi.gov/climate_wkg/minutes/09_hunter_wraccw_feb_2014.pdf
 - The electric power industry is about tied with agriculture in freshwater withdrawals (about 38%). Their freshwater consumption is much smaller.
 - EPRI conducts research aimed at minimizing freshwater withdrawal and consumption.
 - Water Prism: EPRI tool for supporting watershed-scale decisions. The tool allows users to build "what if" scenarios to explore the possibility of increased or decreased demand during wet or dry years. Water Prism could inform decision making on a nationwide scale.

- **Ben Grumbles; President, U.S. Water Alliance**
 - Adaptive management is all about asking non-Federal community to think outside the box to deal with emerging challenges.
 - There is a huge difference between government and governance. Those in government need to increasingly recognize that the key will be to welcome and foster a new chapter of governance including volunteer mechanisms and local associations to help make good decisions.
 - There is a fundamental need for the U.S. to embrace water reuse, especially in areas of water scarcity.
 - Resource recovery is another key strategy for adaptive management.

General Panel Discussion – data and information:

- data and information needs (for monitoring and reducing consumption, and for determining water quality conditions to ensure public safety)
- you manage what you can measure, and you also need to know the price of what you're using/managing
- citizen monitoring and data quality issues – more mistakes are made due to lack of facts than due to poor judgment; quality assurance is a big concern for the Federal monitoring community, and the key is to establish systems to validate the data collected by citizen monitors
- Growingblue.com is a good resource to look at (a collaboration of a dozen organizations) – collecting the data is key, but interpreting it is also very important; understanding the interplay of all the variables is critical (population shifts, water availability, economics)

General Panel Discussion – vulnerability assessment:

- The role of green infrastructure and ecosystems in building resilience must be understood before a community's vulnerability can be understood and

dealt with. Community participation in this process is also critical because the people who need to act must be able to understand why they are taking action.

- Chemical regulations focus on hazard rather than on risk, partly because hazard is easier to understand; as a society, we tend to ignore vulnerability (i.e., rebuilding houses destroyed by hurricane on stilts at the old location, rather than relocating to a less vulnerable location). Factoring economics into this issue is difficult but important (do we invest in reducing vulnerability now, or do we wait 20 years because we expect society as a whole to be wealthier then?).
- There's a lot of local leadership across the country striving toward building resilience and reducing vulnerability of communities. Awareness of vulnerability is growing among mayors and other community leaders, but is still low among the general public.
- Beware the "sneaky" vulnerability; flooding and storm events are obvious and can be dealt with, but longer-term vulnerabilities such as drought are much harder to address because it can't be done "on the fly."

General Panel Discussion – conservation and efficiency:

- Being efficient is not always profitable; we need to recognize this, especially in the water supply/treatment industry.
- In the power sector, efficiency and resilience can be linked in some circumstances. Opportunities for water savings must be carefully thought out, to figure out where they fit into the goal of resiliency.
- Experience is as important as information in making people change their behavior. More people are beginning to pay attention to climate change because of extreme weather events that are affecting their daily lives.

General Panel Discussion – integrated water resource management:

- It's hard to have an integrated water strategy if you don't know how much water you have, how much you're using, who is using it and how. You can't manage what you don't measure.
- How do we make sure the decisions we make today aren't limiting the decisions we will need to make in the future?
- Groundwater is part of the hydrologic cycle, and it must be included in any discussion of integrated water management.
- The lack of a comprehensive national water policy underscores the need for collective decision making and for viewing/managing water in a more integrated fashion. Climate change adds an exclamation point to this need.

General Panel Discussion – capacity building:

- We need to reach out to the youth, since it's so difficult to change adult attitudes and behavior. Thus, increasing education is vital.
- Mentoring the next generation of scientists and managers is key. Local knowledge also is key, especially in terms of developing adaptation strategies and communicating them to communities.
- Why spend so much time on sustainability? At Intel, the demands of the employee base require that the company deal with this issue.

BREAK

Preparation for breakout groups – Pat Tallarico gave instructions for report outs. Specifically, workgroups should plan to share the following:

- A brief explanation of their topic
- Any key assumptions or parameters that informed their conversations.
- Ideas they considered but did not necessarily identify as priorities.
- Their priority items and why they chose them as their priorities.

BREAKOUT GROUPS MEET TO REFINE AND REVISE OPTIONS AND RECOMMENDATIONS

A key goal of each break out group is to identify options and recommendations to improve adaptation to climate change in the topic area addressed by the group and then to identify one or two of the most critical actions.

WORKING LUNCH FOR BREAKOUT GROUPS

REPORT FROM BREAKOUT SESSIONS (15-20 min report from each breakout session)

- 1. Improve Water and Climate Change Information for Decision-making**
- 2. Strengthen Assessments of Water Resources Vulnerability to Climate Change**
- 3. Expand Water Use Efficiency**
- 4. Support Integrated Water Resources Management**
- 5. Support Training and Outreach to Build Response Capability**

A key purpose of this discussion is to identify a coordinated package of up to 10 key actions and recommendations to improve water resources adaptation to climate change to provide to the interagency team working to implement Section 3 of the Executive Order on Climate Change Preparedness and Resilience. These could emerge as individual priorities from each group or through the identification of cross-cutting themes or common elements.

Capacity building breakout group report (Levi Brekke and Jeff Manning, team leads):

- Education is one building block – not just new hires, but continuing education for professionals – and education needs to cut across sectors (agriculture, water quality, etc.) and across audiences (technical and non-technical, Fed and non-Fed) – recommendation 6 from the 2011 plan should be retained
- Information sharing – many of the actions from the 2011 plan have some dimension of info sharing in them already (there is a continuing need for info sharing, but we need to recognize the progress that has already been made in this area)
- Modernizing institutions – support institutions' ability to adjust procedures as climate changes

Infrastructure vulnerability breakout group report (Nancy Beller-Simms and Judy Francis, team leads):

- More emphasis should be placed on finding a way to deliver our good tools in a format or through a trusted messenger that will appeal to users (the most trusted messengers may be non-Federal, and different messengers will be needed for different customers in different geographic regions). A lot of tools are out there, but people either don't know about them or don't know how to use them. Rather than developing more "stuff" we should focus our efforts on teaching people what tools are available and how to use them in a way that is suitable for each locality.
- Contexts are important, and tools will be used differently by different communities – there is no "one size fits all." Establishing partnerships with NGOs and professional organizations will be key to ensuring that info and tools are created and disseminated in such a way that they will end up being used. Cultivating partners helps provide a feedback loop that can improve both the tools and the communication/education process.
- Green infrastructure was not a focus of this group's discussion – because there is plenty of information about that already available.
- Legislative issues related to wastewater and storm water can have a lot of impact on infrastructure decisions that communities will need to make, but there will be a lot of flux on that front, so it may be too early to address this issue right now.
- The group discussed these issues in the context of water resources, but also the context of urban planning, because this issue cuts across sectors.

Water efficiency breakout group report (Veronica Blette and Brandon Kernen, team leads):

- The group reviewed the major barriers that prevent efficiency from moving forward, and at sectoral issues, and came up with 5 key points (more points than were requested, so one will need to be eliminated):
 - Develop methods useful for monetizing tradeoffs associated with water conservation and efficiency.
 - Align and modernize CWA and CAA regulatory programs to include energy and water efficiency.
 - DOE should update Federal efficiency standards for plumbing products (standards haven't been revised since 1998) and consider incorporating a performance standard for these products.
 - Agriculture should be the focus of the first task under recommendation 4 in the 2014 NAP work plan.
 - Create a water and energy efficiency grant program that parallels the program operated by BOR in the West, and focus it in the East.

Data and information breakout group report (Ron Hoffer and Aris Georgakakos, team leads):

- In all cases, the group's recommendations are already covered in the NAP. Recommendations include:
 - Preserve the information we already possess – NAP speaks to strengthening existing data networks – the group recommends preserving and expanding the basic data sets that already exist (i.e., NWS coop network for precip, NSIP, SNOTEL, LANDSAT, others). Something needs to be added to the 2014 work plan, to address this need.
 - Fill in the gaps -- NCA identifies groundwater as important in terms of data/info needs ("strengthen critical data sets"). The group recommends emphasizing support for programs that can deal with uncertainties about recharge, sw/gw interaction, and other areas.
 - Make data and information more accessible – we need to ensure that we provide easy access to interoperable, seamless data and to appropriate analysis and interpretation. The data must be made usable because there's an overwhelming amount. This recommendation fits very well with the recommendations of the capacity building group.

Integrated water resources management (IWRM) breakout group report (Carol Collier and Rolf Olsen, team leads):

- Principles:
 - Need to work in an integrated, holistic way, using watershed boundaries.
 - Need to include all levels of government (Federal, State, local, interstate, Tribes) – implementation will occur at the local scale, so local involvement is essential.
- Priorities:
 - Need Federal agency coordination to achieve IWRM and climate resiliency.
 - Empower State and local governments to implement IWRM at the appropriate level – States and localities should lead the charge, with Federal support.
 - Incentivize the use of ecosystem services.

Workgroup members were asked to provide the following input after each report out:

- Any questions of clarification?
- Are there any recommendations you can't live with?
- Are there any that should be added?

Key themes running across all the groups:

- Make tools easier to use – roadmap
- Partnerships – trusted messengers
- Interagency collaboration and sharing
- How do we plan and move forward in the face of uncertainty?

After all groups had reported, the Workgroup members were asked to consider the priority items, discuss any common themes, and assess whether or not there are any additional, cross-cutting priorities.

WORKGROUP NEXT STEPS

Workgroup Co-Chairs Paul Freedman and Jeff Peterson reviewed action items from the meeting and next steps.

The co-chairs will review results of the breakout group discussions and get a summary to everyone by early next week.

Breakout groups are asked for 1 page each to identify their top priorities, with perhaps 1 more page detailing other ideas that should be mentioned. **Breakout groups should submit those items to the co-chairs by March 10.** Co-chairs will share the results with the full group by March 17, and there would be discussion via full group conference call on March 20. The results will then be shared with ACWI, for their blessing, prior to sending the information to Chitra Kumar at CEQ. Ultimately, CEQ is looking for **no more than 13 high-priority needs.** Each recommendation should include a statement of need, as well as a statement about the Federal role in implementing the recommendation.

Patrick Tallarico concluded the meeting by asking the group to answer two questions:

- what did we do well during this meeting?
- what would you change about this meeting?

ADJOURN

Next meeting: March 20 at 1:00 p.m. Eastern Time (teleconference) – Wendy Norton will send meeting information to the whole group.

Attendees – Workgroup representatives, alternates, and substitutes:

Jeff Peterson, Federal Co-Chair, U.S. Environmental Protection Agency
Paul Freedman, Non-Federal Co-Chair, Water Environment Federation
Nancy Beller-Simms, National Oceanic and Atmospheric Administration
Elizabeth Berger, U.S. Forest Service
Mike Block, National Ground Water Association
Peg Bostwick, Association of State Wetland Managers
Levi Brekke, Bureau of Reclamation
Erica Brown, Association of Metropolitan Water Agencies
Joan Brunkard, Centers for Disease Control and Prevention
Dave Carlton, Association of State Floodplain Managers
Adam Carpenter, American Water Works Association
Ben Chou, Natural Resources Defense Council
Carol Collier, Delaware River Basin Commission
Mark Crowell, Federal Emergency Management Agency
Colby Duren, National Congress of American Indians
Peter Evans, Interstate Council on Water Policy
Cynthia Finley, National Association of Clean Water Agencies
Paul Fleming, Water Utility Climate Alliance
Judy Francis, National Association of County Planners
Dave Fuller, National Tribal Water Council
Aris Georgakakos, National Institutes for Water Resources
Noel Gollehon, U.S. Department of Agriculture
Ben Grumbles, U.S. Water Alliance
Ron Hoffer, U.S. Environmental Protection Agency
Jeanine Jones, Western States Water Council
Brandon Kernen, Association of State Drinking Water Administrators
Julie Kiang, U.S. Geological Survey
Chitra Kumar, Council on Environmental Quality
Matt Larsen, U.S. Geological Survey
Jeff Manning, Association of Clean Water Agencies
Dierdre Mason, Association of State Drinking Water Administrators
Wendy Norton, Advisory Committee on Water Information Exec Sec
Rolf Olsen, U.S. Army Corps of Engineers
Sascha Petersen, American Society of Adaptation Professionals
John Schmerfeld, Fish and Wildlife Service
Nancy Turyk, North American Lake Management Society
Ernie Wells, National Oceanic and Atmospheric Administration
Paul Wiegand, National Council for Air and Stream Improvement
Craig Zamuda, Department of Energy

Attendees – Speakers, panelists and guests:

Veronica Blette, U.S. Environmental Protection Agency
Sarah Freeman, World Wildlife Fund
Stephen Harper, Intel
David Hunter, Electric Power Research Institute
Isaac Madsen, U.S. Department of Agriculture
Brenna Mannion, National Association of Clean Water Agencies
Mike Muse, U.S. Environmental Protection Agency
Leif Nielsen, U.S. Department of Agriculture
Carolyn Olson, U.S. Department of Agriculture
Ed Pinero, Veolia Water
Rich Pouyat, U.S. Forest Service
Chris Reimer, National Ground Water Association
Mary Ann Rozum, U.S. Department of Agriculture
Susan Ruffo, Council on Environmental Quality
Patrick Tallarico, Enventive (meeting facilitator)
Mike Shapiro, U.S. Environmental Protection Agency
Dwane Young, U.S. Environmental Protection Agency

Meeting Materials provided to attendees:

- Draft 2013 Annual Report of the ACWI Water Resources Adaptation to Climate Change Workgroup (see below)
- Draft 2014 Workplan of the ACWI Water Resources Adaptation to Climate Change Workgroup (see below)
- List of Workgroup members (for the most up-to-date list, see "Membership" link here: http://acwi.gov/climate_wkg/index.html)
- Format for breakout group team reports (see below)
- Water, Climate Change, and Forests: Watershed Stewardship for a Changing Climate, June 2012, U.S. Department of Agriculture, Forest Service Pacific Northwest Research Station (available here: http://www.fs.fed.us/pnw/pubs/pnw_gtr812.pdf)

DRAFT
2013 Annual Report
of the
Water Resources Adaptation to Climate Change Workgroup
to the
Advisory Committee on Water Quality Information

The Water Resources Adaptation to Climate Change Workgroup (WRACCW) provides this *2013 Annual Report* to the Chair and Members of the Advisory Committee on Water Information (ACWI).

The WRACCW was established as a subgroup of ACWI on July 10, 2012. The Workgroup's purpose is to promote, support, and provide information for effective management and protection of water resources in the United States as the climate changes and to advise Federal agencies on water policy as it relates to climate change adaptation. The Workgroup also serves as a public forum for Federal, State, Tribal, and local government organizations and public interest and professional organizations to exchange information, views, and ideas, and to connect efforts concerning adapting water resources to a changing climate. WRACCW operates under Terms of Reference approved by ACWI and available on the Internet at http://acwi.gov/climate_wkg/index.html.

The WRACCW adopted a *2013 Workplan* to guide its activities for the year (available at: http://acwi.gov/climate_wkg/2013_workplan_wraccw_final.pdf). The Workplan notes that the 2013 priorities for the Workgroup were to focus on:

- informing and educating Workgroup representatives and alternates with the goal of establishing a common level of knowledge among Workgroup participants with respect to the impacts of a changing climate on water resources and the plans and programs underway to adapt water resources management to changing climatic conditions; and
- responding to specific requests for input and comment from Federal agencies on issues or products related to climate change and water resources.

In general, the co-chairs and members believe that the Workgroup substantially accomplished these objectives and contributed to national discussions concerning adaptation of water resources to a changing climate.

Given the constraints around scheduling an in-person meeting, the Workgroup's focus on building a common base of understanding sets a strong foundation for collaboration on issues and development of constructive recommendations that take into consideration a comprehensive breadth of knowledge by all members. It not only facilitates dissemination of knowledge but also will improve the effectiveness and efficiency of the Workgroup activities.

Some highlights of activities to implement this *Workplan* are described briefly below.

- 1) **Hold Meetings of the Workgroup:** The full workgroup met by conference call on the following dates in 2013:
 - **January 17;** including a briefing on the water elements of the draft National Climate Assessment;
 - **March 7;** including a review of climate change activities of the Bureau of Reclamation and a report on the 2012 highlights of progress by the Federal Water Resources Workgroup and the 2013 Workplan of the Federal workgroup;
 - **April 17;** including a review of climate change activities of the Army Corps of Engineers and a report on the *Fish, Wildlife and Plants Climate Change Adaptation Strategy* and its intersection with water resources issues;
 - **June 20;** including a review of a "Water Preparedness Guide for State Action" developed by NRDC and American Rivers, a report on the climate change elements of the National Ocean Policy Implementation Plan Appendix, and a presentation by NASA on potential indicators for the National Climate Assessment;
 - **August 8;** including a report on the President's Climate Action Plan and a presentation by the American Water Works Association on climate induced water supply risk;
 - **September 12;** including a series of presentations on flooding issues including a report on Bulletin 17 B by the US Geological Survey, a report on National Flood Insurance Program and climate change by the Federal Emergency Management Agency, and precipitation frequency and duration estimates by NOAA;
 - **October 25;** including reports on sea level rise mapping by the Global Change Research Program and the organization Climate Central; and

- **December 5**; including a report on the President's Executive Order on Climate Change Preparedness and Resilience.

Most meetings included Workgroup business and administrative topics as well as round robin reports of climate change adaptation actions of Workgroup members. Agendas and supporting materials for these meetings are available on the Internet at: http://acwi.gov/climate_wkg/minutes/index.html

- 2) **Hold Webinars to Inform Workgroup Members:** To advance understanding of the impacts of a changing climate on water resources, the Workgroup sponsored several webinars for members on topics identified in polling of the Workgroup. The webinars were developed and organized by a Subcommittee chaired by Levi Brekke.

A webinar on March 25 addressed how the range of Federal agencies and interagency coordination groups are working together to respond to the impacts of a changing climate on water resources. As part of the webinar the Workgroup developed background "fact sheets" that reviewed the origin, purpose, membership, and activities of a range of over a dozen different Federal agencies and interagency coordination groups related to climate change and water programs.

A series of two webinars on May 30 and June 27 addressed the impacts of climate change on more extreme weather and the consequences of extreme weather for water resources.

- 3) **Develop Background Information Database on Climate Change and Water:** The Workgroup developed an electronic database of reports and studies on topic of water resources and climate change. This database was organized by a Subcommittee of members chaired by Carol Collier. The database includes a diverse range of carefully selected documents and has been made available to Workgroup members.
- 4) **Maintain Workgroup Membership:** The 2013 membership of the WRACCW includes a total of 40 representatives of Federal agencies, State, Tribal, and local government organizations, and non-profit organizations representing diverse interests (see http://acwi.gov/climate_wkg/WRACCW_Members_11_22_2013.pdf).

In 2012 and 2013, the Workgroup was co-chaired by Paul Freedman, representing the Water Environment Federation and Jeff Peterson, representing the Environmental Protection Agency.

- 5) **Plan In-Person Meeting:** The Workgroup established a Subcommittee, chaired by Ben Grumbles, to organize an in-person meeting. The Workgroup was forced, on several occasions, to amend plans for the in person meeting due to uncertainties caused by the government shutdown in the fall of 2013 and a

range of budget issues. Planning for the in-person meeting continued in late 2013 and the Workgroup expects to meet in person for a two day meeting on February 19 and 20 in the Washington, D.C. area.

In addition to reviewing work by Federal agencies to response to the threats posed to water resources to a changing climate, the Workgroup decided to use the meeting to develop ideas and recommendations to provide to Federal interagency groups implementing the President's Executive Order on Climate Change Preparedness and Resilience.

This report is submitted to the Advisory Committee on Water Information on behalf of the members of the Water Resources Climate Change Adaptation Workgroup by the co-chairs:

Paul Freedman
Water Environment Federation

Jeff Peterson
Environmental Protection
Agency

February xx, 2014

WRACCW 2014 work plan is available on the website:

http://acwi.gov/climate_wkg/2014_workplan_final_3-21-14a.pdf

DRAFT
Format for Team Reports
to the
Water Resources and Climate Change Adaptation Workgroup
of the
Advisory Committee on Water Information
2/4/14

Teams identify potential program and policy ideas and organize ideas into two categories:

- Highest Priority Needs (not more than 3 per team)
- Noteworthy Needs/Gaps

For Highest Priority Needs, Team provides:

1. Issue (e.g. infrastructure and planning for flood protection is based on USGS flow/flood frequency analysis which is not current/outdated and does not reflect climate change)
2. Relevant facts (selected) (e.g. levies are designed with this data, as are water and wastewater protection plans; damage in last three years was \$\$\$\$)
3. Existing federal programs/reports: (e.g. those aimed at dealing with said issue and any relevant pros/cons, plus any tie-in to the National Action Plan or other major agency documents/recommendations.)
4. The need (e.g. useful data, methodology and/or forecasts on flooding that incorporate recent data and climate forecasts)
5. Federal Role: (e.g. fund research, place priority on updating the USGS bulletin, etc.)

For Noteworthy Needs/Gaps, Team provides a short paragraph or few sentences on each, but trying to capture some of the above.