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Managing Water in the West

Summary of Climate Change Orientation Seminar Talks



U.S. Department of the Interior
Bureau of Reclamation

Agenda

- **“Climate Change 101” (Kevin Werner, NOAA, Regional Climate Services Director, Western Region, Seattle, WA):** high-level overview of the climate change narrative, from global change to watershed impacts in the western U.S.
- **“How does Climate Change relate to Reclamation’s different mission areas?” (Levi Brekke, Bureau of Reclamation, Chief, Research and Development, Denver, CO):** a discussion on how climate change uniquely relates to five different mission audiences – (1) long-term planning, (2) species recovery and adaptive management, (3) infrastructure asset management, (4) dam safety, and (5) reservoir operations.
- **“What initial tools are available for Strategy implementation?” (Levi Brekke and members of Reclamation’s West Wide Climate Risk Assessments team):** discussion of guidance, datasets, training opportunities, and training resources in-development, all cross-walked against the four goal areas outlined in the Strategy (<http://www.usbr.gov/climate/docs/ClimateChangeAdaptationStrategy.pdf>).



Talk 1: Climate Change 101

Key Messages for the West



Northwest:

1. Water Related Challenges
2. Coastal Vulnerabilities
3. Impacts on Forests
4. Adapting Agriculture

Great Plains:

1. Energy, Water, and Land Use
2. Sustaining Agriculture
3. Conservation and Adaptation
4. Vulnerable Communities
5. Opportunities to Build Resilience

Southwest:

1. Reduced Snowpack and Streamflows
2. Threats to Agriculture
3. Increased Wildfire
4. Sea Level Rise and Coastal Damage
5. Heat Threats to Health





Talk 1 Concluding Thoughts



- As the impacts of climate change continue to be realized, resource managers will need to be proactive, innovative, and open to meeting the challenges of a changing future
- Communication and collaboration are essential to being successful and developing future productive and lasting partnerships
- We have exactly enough time to address the impacts of climate change, starting NOW



Talk 1 Regional Resources



- NOAA
 - Regional Climate Service Director
 - NOAA [River Forecast Centers](#): Colorado Basin River Forecast Center
 - NOAA [Regional Integrated Climate Assessments](#): Western Water Assessment
 - [Regional Climate Centers](#): Western Regional Climate Center
 - [State Climatologists](#): Utah State Climate Office, USU
- DOI
 - Landscape Conservation Cooperatives
 - DOI Climate Science Centers
- USDA Agriculture Hubs
- National Climate Assessment nca2014.globalchange.gov

Talk 2: How does climate change relate to Reclamation's different mission communities?

- Highlight implications for different Mission Areas
- Highlight which types of climate changes may matter most to management within a given Mission area
 - Narrow consideration by focusing on *relevance* and *reliability*
- Provide Mission Area Communities insight on where they have common concerns with other Mission Areas, and where they have unique concerns

Example Mission Areas and Communities

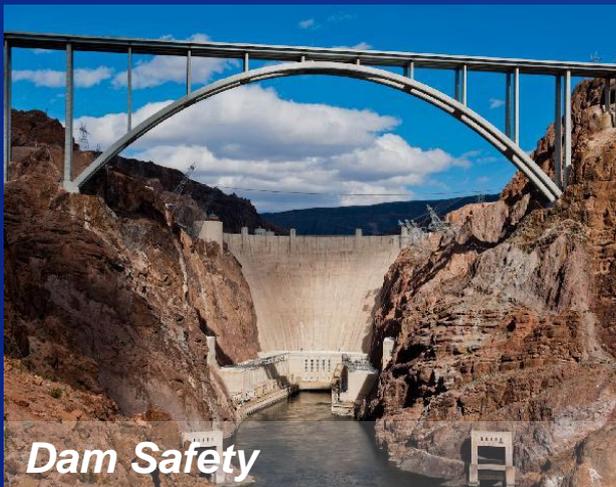
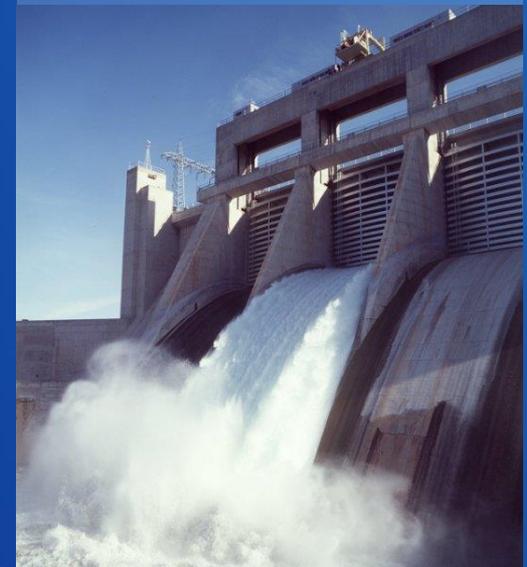
Infrastructure Management



Species Recovery and Adaptive Management



Reservoir Operations



Dam Safety

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Talk 2 Summary

- We have always dealt with climate variability. Our challenge going forward is how do we prepare for potential drifts in variability?
 - Prepare for different Floods and Droughts
 - Balance changing Supplies and Demands?
 - Factor changing climate into Environmental Stewardship?
 - Manage Infrastructure and Safety under changing Climate Extremes?
- Management of water and related-resources involves many considerations – climate change is just one additional consideration.
- Our response to the challenges posed by Climate Change:
 - is about preparing for the future, and factoring climate change into our traditional approaches for planning, conservation, operations, and science.
 - is about different communities within Reclamation communicating about approaches.
 - is not about abandoning all the good things we've always done and replacing them with reinvented ways to manage water and related resources.

Talk 3: What tools are available to help us address climate change in our Mission Areas?

- Focus on same five Mission Communities (Talk 2)
- Identify existing tools that support Mission Area activities, including high-level steering, assessments, data, and training

Talk 3 Summary of Resources

| Tool | Long-Term Planning  | Species Recovery Adaptive Management  | Infrastructure Management  | Dam Safety  | Reservoir Operations  |
|---|---|---|--|---|---|
| Climate Change Strategy | X | X | X | X | X |
| Policy (CMP P16) | X | X | X | X | X |
| Basin Studies | X | X | ? | | X |
| S&T Literature Synthesis | X | X | ? | ? | X |
| WWCRA Supply | X | X | ? | ? | X |
| WWCRA Demand | x | ? | ? | ? | X |
| WWCRA Impacts | X | X | ? | | X |
| S&T Climate and Hydrology Data | X | X | X | X | X |
| Guidance: Climate Change in Feasibility Studies | X | partial, see Long-Term Planning | partial, see Long-Term Planning | partial, see Long-Term Planning | partial, see Long-Term Planning |
| Ongoing Pilots → inform Guidance | | | X | X | X |
| Training – Technical | some developed, more coming | some developed, more coming | some developed, more coming | some developed, more coming | some developed, more coming |
| Training – General | In development | In development | In development | In development | In development |

Resource Contacts

| Tool | Contacts |
|--------------------------------|---|
| Strategy | Avra Morgan (aomorgan@usbr.gov), David Raff (draff@usbr.gov) |
| Policy | David Raff (draff@usbr.gov) |
| Other Fed Steering | Karl Stock – PR&G (kstock@usbr.gov), Lisa Vehmas - NEPA (lvehmas@usbr.gov) |
| Basin Studies | Amanda Erath (aerath@usbr.gov), Dean Marrone (dmarrone@usbr.gov) |
| S&T Literature Synthesis | Mark Spear (jspears@usbr.gov), Levi Brekke (lbrekke@usbr.gov) |
| WWCRA Supply | Subhrendu Gangopadhyay (sgangopadhyay@usbr.gov), Katharine Dahm (kdahm@usbr.gov) |
| WWCRA Demand | Subhrendu Gangopadhyay (sgangopadhyay@usbr.gov), Katharine Dahm (kdahm@usbr.gov) |
| WWCRA Impacts | Katharine Dahm (kdahm@usbr.gov) |
| S&T Climate and Hydrology Data | Tom Pruitt (tpruitt@usbr.gov), Cameron Bracken (cbracken@usbr.gov), and Levi Brekke (lbrekke@usbr.gov) |
| Guidance Development | <p><u>Feasibility Studies:</u> Dean Marrone (dmarrone@usbr.gov), Karl Stock (kstock@usbr.gov)</p> <p><u>Infrastructure Management:</u> Martin Bauer (mbauer@usbr.gov)</p> <p><u>Dam Safety:</u> Joe Wright (jmwright@usbr.gov), Karen Knight (kknight@usbr.gov)</p> <p><u>Reservoir Operations:</u> Katharine Dahm (kdahm@usbr.gov)</p> |
| Training Pilots w/ COMET | Levi Brekke (lbrekke@usbr.gov) |