Headwaters to Groundwater Symposium - Summary and Reviews

SUMMARY

The "Headwaters to Groundwater" symposium was held at the Southern California Energy (SCE) Education Center in Tulare, California on October 12, 2017. The event was sponsored by Tulare Basin Watershed Connections Workgroup (TB WCW) partners, including the California Department of Water Resources (DWR), UC Merced Water Security and Sustainability Initiative, the Sierra Nevada Conservancy (SNC), Tulare Basin Wildlife Partners (TBWP), and SCE. Facilitation services were provided by Ag Innovations. Approximately 45 people attended the symposium, including representatives from multiple groundwater sustainability agencies (GSA) and regional water management groups, state and federal agencies, NGOs, and disadvantaged communities.

The symposium goals were to:

- Lay the foundation for a conversation about whole watershed management in the Tulare Basin and how investment in natural infrastructure (e.g. forested lands, meadows, riparian corridors) can affect snowpack retention, runoff timing, and water available for recharge
- Further develop the regional network of water managers that depend on the Southern Sierra for water

The following guiding questions set the stage for presentations by scientists and consultants with expertise on forest management, water balance accounting, and ways to finance collaboration to address large-scale natural resource management challenges:

- How can investment in nature's storage, conveyance, and treatment infrastructure support your Groundwater Sustainability Agency or Regional Water Management Group?
- How can watershed-based tools and technology help with better water accounting and runoff forecasts?
- How can improved headwaters management benefit water supply?
- How can we finance improved water supply for groundwater storage?

Three expert panels focused on connecting-the-dots between headwater management and how it may affect water supply, ecosystem services, and fire risk and recovery – and thus benefit downstream (i.e. Valley-floor) water managers and water users. An abbreviated agenda can be found at the end of this summary, along with a graphic that seemed to resonate with attendees.

REVIEWS

Survey Monkey

To help gauge the success of the symposium in meeting the stated goals and to identify next steps to follow-up on the event, a Survey Monkey link was sent to attendees. Eight people completed the survey: 3 NGO representatives, 3 water managers, 1 academic, and 1 federal agency representative.

Reviews for the symposium were very positive. Three-quarters of respondents *strongly agreed* that *"In general, the information provided at the symposium was unique and relevant to my work"* and that *"The facilitation was effective and added value to the activities and discussions",* as well as *"The speakers addressed the questions I had at the start of the day"*. For those questions, the remainder of the responses indicated that people *somewhat agreed* with those statements.

When asked with whom participants would share the information with, *natural resource managers* and *groundwater sustainability agencies* were selected by 62.5% and 50% of respondents, respectively, and some indicated they would also share the information with *irrigation districts*, *county managers*, and *schools*.

In response to the question *"Can you briefly describe one new piece of information you learned that struck you as particularly relevant to your work?"*, the following were mentioned:

- "Mark Drew's presentation on models for whole-watershed funding partnerships."
- "That small projects have already been implemented and are showing good results."
- "A better understanding of how changes in the forest makeup and weather patterns may change and possibly increase average runoff."
- "Just being able to discuss the work that's needed in the upper watershed (reducing fuel loads by thinning, prescribed burns, meadow restoration, etc.) and how it's directly related to improved groundwater recharge in the valley. These are things that I'm aware of but it was refreshing to brainstorm and participate with people focused on the Southern Sierra."
- "There are many different groups working on aspects of this problem, even from the science angle. Creating a forum where these different groups collaborate and share is a positive benefit from the day!"

In response to *"What are your remaining questions, or new questions based on what you heard during the day?"*, the following responses are notable:

- "What are the steps and roles of different agencies/organizations to actually perform and fund headwater management with valley benefits in mind?"
- "I believe that in order to get water managers and other stakeholders on the valley floor to consider funding upper watershed projects, there needs to be clear metrics of the benefits that those projects will have in addressing their water supply needs. For example, restoring X meadow or thinning X forest will delay runoff and improve the ease of use or supply of surface water for communities, agriculture, etc. I know these are really challenging outcomes, specifically putting numbers on them, but I think that will make GSA's and others really consider funding these types of projects."
- "Based on what I heard during the day and discussions at my table, it would be helpful if UCM researchers link their work more closely to Valley floor water manager needs; i.e. create communication channels with GSA managers and help fill information gaps, e.g. Where are the aquifers connecting headwaters to groundwater?; What is their capacity to contribute to groundwater recharge?"
- "It seems that the speakers, who in my view are the experts and specialists in the field, recognize the problem and have a good idea of the solution, so the question I have is in their belief should this be a problem solved at the local level, state level, federal level or a combination. Who should take the lead and who should ensure that the solutions are being implemented?"

Other relevant comments include:

- "I thought it was a fantastic beginning to a conversation that may take a while to complete"
- "This was a great day for a day 1 of raising awareness of the problem and solutions. A day 2 day could focus on how to implement those solutions."
- "It will be really important to continue to engage subbasin GSA key representatives to the point where they take the lead in helping raise funds for upper watershed improvements, communicating with researchers for information needed and helping fund that research, and coming up with ideas (and following up) for whole watershed management funding models."
- "I'd be interested in connected with other watershed connections workgroups (Central and Northern Sierra, as well as up in the Klamath or Cascade regions). Thanks!"

Many participants stressed the need to keep the momentum from the symposium going. One hundred percent of respondents agreed with the statement *"I'd like to attend a TB WCW-convened Headwaters to Groundwater follow-up meeting for GSA, IRWM leaders, and others interested in developing concrete next steps to this Symposium including local and landscape-level actions"* and 85% indicated interest in attending future similar events for updates on headwaters science, and/or attending region-specific meetings to address local projects, issues, and strategies.

Other questions assessed interest in other opportunities for engagement such as subscribing to the "One-Watershed" e-newsletter, being added to the TB WCW mailing list, or attending a future TB WCW quarterly meeting. A few new members were added to each group.

Verbal Feedback

In addition to the formal survey results, numerous participants provided verbal feedback directly to symposium organizers after the event, but did not fill out the follow-up survey. Many attendees used the following words and phrases to describe the event: "great, very well-done, just what we needed, very informative" and similar language indicating that their time was well spent that day. Several participants comment that they were going to talk to their GSA boards about including upper watershed hydrologic processes into their GSA planning process. Symposium organizers were invited to give follow-up presentations to Valley water management groups, but due to limited capacity outreach has been minimal to date.

As with the survey monkey results, many symposium attendees indicated that they would be interested in attending follow-up events such as workshops focused on local projects, issues, and strategies and developing next steps for local and landscape-level actions.

Next Steps

The TB WCW will continue to build on the energy and momentum generated during the symposium by developing and implementing follow-up actions, based on the written and verbal feedback provided by participants, and the capacity of workgroup partners to do so. Actions will be included in the TB WCW Strategic Plan for 2018-2020. Partners will pursue funding to implement the actions in that plan.

HEADWATERS TO GROUNDWATER SYMPOSIUM – ABBREVIATED AGENDA

Date: October 12, 2017

Location: Southern California Edison Energy Education Center, 4175 S. Laspina St. Tulare, CA

Contact Information:

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Meeting Goals:

1. Lay the foundation for a conversation about whole watershed management in the Tulare Basin and how investment in natural infrastructure (e.g. forested lands, meadows, riparian corridors) can affect snowpack retention, runoff timing, and water available for recharge
2. Further develop the regional network of water managers that depend on the Southern Sierra for water

Guiding Questions:

- How can investment in nature's storage, conveyance, and treatment infrastructure support your Groundwater Sustainability Agency or Regional Water Management Group?
- How can watershed-based tools and technology help with better water accounting and runoff forecasts?
- How can improved headwaters management benefit water supply?
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Symposium facilitated by Joseph McIntyre, Ag Innovations

Armchair Keynote Conversation

Dave Orth, California Water Commission, New Current Water and Land, LLC Armando Quintero, California Water Commission, Executive Director UC Merced Sierra Nevada Research Institute

Panel 1: Why Headwaters Matter

Session Objective: *To highlight the science and tools behind water accounting and headwaters management and why these matter to valley water managers*

Dr. Mohammed Safeeq, UC Merced
Dr. Mark Drew, California Trout
Chad Moore, U.S. Bureau of Reclamation

Panel 2: Bringing Headwaters Home

Session Objective: *To demonstrate how headwaters yields can be managed for groundwater recharge in the Valley*

Dr. Christy Brigham, Sequoia and Kings Canyon National Parks
Joseph Choperena, Sustainable Conservation

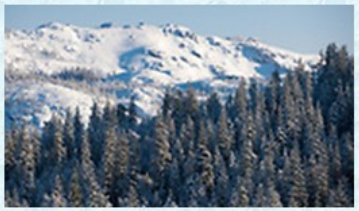
Panel 3: Partnerships for Progress

Session Objective: *Examples of partnerships and financing options that could be models for the Tulare* Basin Watershed

Edward Belden, National Forest Foundation
Nick Wobbrock, Blue Forest Conservation

Headwaters to Groundwater ~ Every Drop Counts!

Sierra Nevada



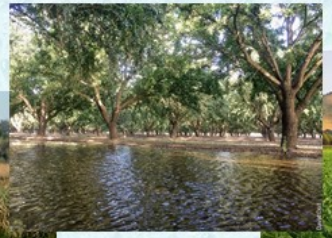
Protect snowpack (nature's water storage) and reduce fire risk by managing for healthy and resilient forests

Restore meadows to increase water storage and recharge

Foothills

Protect riparian corridors (nature's conveyance) to slow stormwater and decrease flooding impacts

On the Valley floor, encourage a matrix of productive farmland, recharge areas, and natural land/open space for critters



Valley Floor

Manage active farmland for productivity *and* healthy soils; protect and manage groundwater (nature's treatment)

Tulare Basin Watershed Connections Workgroup