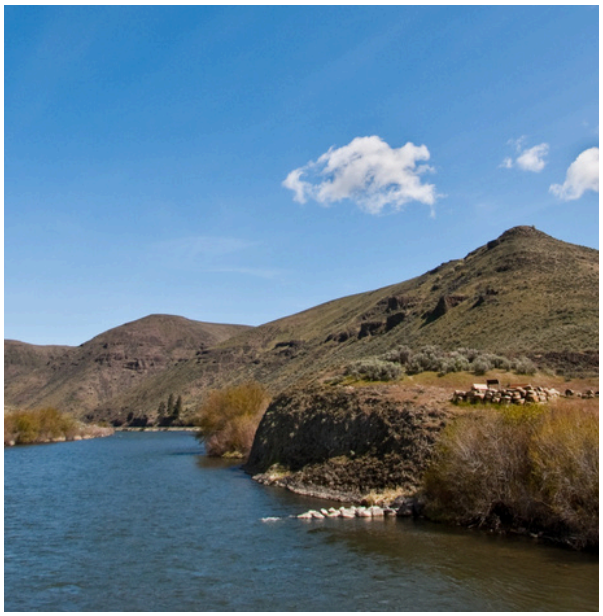
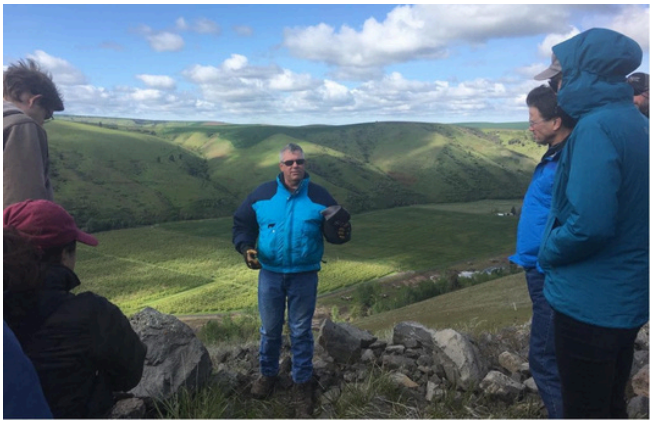
Partnering with Practitioners in Developing Improved Information Technologies for Water Management



Non-research partners who are working on water-related issues from a variety of perspectives have important insights that have informed Technology for Trade. This article describes how we partnered with others in Technology for Trade, and some of the resulting influences on our work.

Georgine Yorgey and Sonia A. Hall

In the semi-arid environment of eastern Washington, even a casual observer can see that water is essential to life. Water in streams and rivers, including the Columbia River, is used to generate plentiful, economical, and renewable hydroelectric energy. Water also supports salmonid species, of incalculable spiritual value to Indigenous people and Nations of the Pacific Northwest, and of cultural importance to many throughout the region. It is the basis of irrigated agriculture, which forms the bedrock of the rural economy throughout eastern Washington. And it supports communities and a variety of growing residential and commercial needs.



Orchardist Bill Warren talks about water supply in the Touchet River (seen in the background of the photo) with the Technology for Trade team. Photo: Karie Boone.

With precipitation mostly falling as snow and rain in the winter and spring, flows in streams tend to be higher in the late fall through early summer. In the late summer and early fall in particular, there tends to be less supply amid high water demands, such that there is not always enough water instream for all the uses that are important. Tradeoffs inherently exist with so many competing uses, especially during drought years when available water is limited. And given these tradeoffs, perspectives

may vary between people about how to prioritize amongst different potential uses.

To help the faculty, students, and staff working on Technology for Trade better understand these different perspectives, we held a series of half day listening sessions across the Columbia River Basin in early 2019, as the project was still getting underway. The sessions included participants from government agencies (Tribal, federal, state), conservation districts, irrigation districts (more senior, more junior), non profits (environmental, agricultural), and farmers (hay, alfalfa seed, vegetable row crops). During listening sessions in Okanogan, Walla Walla, and Yakima, we asked small, diverse groups of roughly 5-15 people to talk about their thoughts and priorities relating to water. We also asked them to share their initial ideas and questions about the three technologies the team was working on: remote estimation of consumptive use, improved seasonal forecasting, and water markets. A final listening session was hosted with individuals working on these issues across the breadth of eastern Washington. The conversations were used as a springboard for refining existing ideas and prompting new ideas for work that could be carried out within Technology for Trade. The full listening session process and results are described a technical report, Lessons Learned from the Listening Sessions for the Technology for Trade Project.

Throughout the project, an advisory committee—including many who had participated in the listening sessions—continued to give the project team advice and share their perspectives. Project team members were also hosted by advisors and other representatives working on the ground in Walla Walla, Yakima, and Colville, to discuss particular water-related issues in more depth. As one example, the team was hosted by the water master in Walla Walla, learning about the ins and outs of managing water rights during water short years. During that same visit, the group took a trip a long the Touchet River and talked with an irrigated fruit producer about his broader interactions and collaborations with others in support of stream restoration, and about how he manages on-farm water challenges as a junior water rights holder.

Conversations with the advisory group were not always easy, but they were rich, and very impactful to the project's work. For example, when the team was preparing the water management survey fielded in late 2020 and early 2021, the advisory team discussed which questions they found most interesting, helped phrase the questions in ways that would be meaningful to respondents, and critically, advised us about how to design an outreach strategy that would help people feel comfortable responding. The survey results helped the research teams understand current knowledge and attitudes relating to seasonal forecasting, remote estimation of consumptive use, and water markets, and also provided important insight into regional attitudes towards other water policy questions. As discussed in more depth elsewhere in this report, the results showed that there was varying support for mandatory price disclosure for water transactions. And water users across the region view water as having some characteristics of a public good, and some characteristics of a private good.

The questions and priorities raised by our external partners also helped spark specific cross-project work. When they wrote the proposal, project scientists were

Yakima River, Washington State

already interested in exploring the potential of "partial leasing," the possibility that water users might choose to lease part of their water through water markets, rather than their whole water right. At the time, we were thinking of this as "part of the water right over the whole season." Several external partners raised a variation on this theme: whether growers might be willing to lease their entire water right for a week or two, creating "pulse flows" that could benefit fish, ideally without large detrimental impacts on crop yields and quality. This concept is being explored by the team.

During the listening sessions and elsewhere, we also heard from many about what is formally called "diminishment" and sometimes more informally called the "Ecology haircut," the idea that when a water user does something that triggers state level review of their water right, the amount of water in the right may be reduced through that review. Diminishment has the potential to disincentivize people from taking actions that trigger state review. These observations contributed to the team thinking about whether there were ways to explore how much diminishment has happened historically, and whether there have been particular patterns in diminishment. Ultimately, the team focused on understanding the data available through Ecology's database, and are currently engaged in a deeper dive into these data to answer these questions; this work is still ongoing.

These are just three examples of how deep conversations with water managers and other practitioners across eastern Washington engaged in helping to manage water and solve water issues have prompted the team towards specific work. There are many more. These examples highlight how many people across the region gave generously of their time and knowledge to help us think through some of these issues, and that our work would not have been the same without their contributions. Thank you to each of our advisors, and the many others who have interacted with our team over the last five years!

Figure 1. Technology for Trade Advisory Board

- Justin Bezold, Project Manager, Yakima Basin, Trout Unlimited
- Dennis Bigness, RM/VP, Pasco Office, Northwest Farm Credit Service
- Chuck Brushwood, Senior Policy Advisor, Fish and Wildlife Program, Colville Confederated Tribes
- Kelsey Collins, Trust Water Coordinator and Water Acquisitions Lead, Water Resources Program, Washington State Department of Ecology
- Stuart Crane, Agricultural Engineer, Water Resources Program, Yakama Nation
- Jon Culp, Hydrogeologist, Water Resources Program, Washington State Conservation Commission
- Urban Eberhart, Director, Kittitas Reclamation District
- Jordana Ellis, Irrigation Planner, Okanogan Conservation District
- Michael Garrity, Columbia Basin Mitigation/Water Policy Lead, Washington Department of Fish and Wildlife
- Renee Hadley, District Manager, Walla Walla Conservation District
- Chris Hyland, Executive Director, Walla Walla Watershed Management Partnership
- Stan Isley, liaison to the Yakima River Basin Water Enhancement Project Team, Washington State Department of Ecology
- Megan Kernan, Water Policy Lead, Washington Department of Fish and Wildlife
- Chris Lynch, Bureau of Reclamations, Yakima Office
- Jeff Marti, Statewide Drought Lead, Water Resources Program, Washington State Department of Ecology
- Craig Nelson, District Manager, Okanogan Conservation District
- Sage Park, Regional Director, Central Regional Office, Washington State Department of Ecology
- Lisa Pelly, Director, Washington Water Project, Trout Unlimited
- Scott Revell, District Manager, Roza Irrigation District
- Tom Ring, Hydrogeologist, Water Resources Program, Yakama Nation
- Derek Sandison, Director, Washington State Department of Agriculture
- Danielle Squeochs, Hydrogeologist, Water Resources Program, Yakama Nation
- Tom Tebb, Director, Office of Columbia River, Washington State Department of Ecology

Georgine G. Yorgey is the Associate Director of the Center for Sustaining Agriculture & Natural Resources at Washington State University.

Sonia A. Hall is a Sustainable Systems Analyst with the Center for Sustaining Agriculture & Natural Resources at Washington State University.

This work was supported by the USDA National Institute of Food and Agriculture, project #1016467.