



## PRESIDENT'S NOTES

**Jenna R. Mandell-Rice**

**Van Ness Feldman LLP**

**AWRA-WA Section President**

Hello AWRA-WA members. Please allow me to introduce myself. My name is Jenna Mandell-Rice and I am honored to serve as President of the Washington Chapter of the American Water Resources Association (“AWRA-WA”) for 2022. Congratulations to our outgoing President, Tom FitzHugh, on a very successful 2021. I thank Tom for his hard work. Tom continues to serve on the board.

On December 15, 2021, AWRA-WA elected a slate of new board members at the annual meeting. I would like to welcome our newest board member, James Bush. I would like to thank our three departing board members (Jenny Saltonstall, Carrie Sessions, and Amanda Cronin) for all of their hard work during their time on the board.

We held our annual state conference on October 6<sup>th</sup> and 7<sup>th</sup>, 2021, entitled “Transboundary Water Management and Water Market Trends.” It was our second year holding our conference virtually, and I want to congratulate the Conference Committee on organizing another great event. Looking back at our history, this was the 39<sup>th</sup> conference that we have held since 1981! I especially want to congratulate and thank our conference co-chairs, Katherine Ryf and Stan Miller, for a great job in putting together a very interesting and compelling series of speaker sessions and panel discussions.

Thanks to Robert Sandford of the United Nations University Institute for Water, Environment, and Health, who kicked things off with a very insightful and motivating keynote address: “Valuing Water: Global Reset and the Future of Hope.” Over the two days we had 23 speakers and panelists who covered a variety of topics, and 156 attendees benefitted from their combined knowledge. **The conference sessions are summarized on pages 4-8 of this newsletter.**

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At the annual conference we were pleased to honor Stan Isley as the recipient of the 2021 AWRA-WA Service Award for “Outstanding Contribution to Washington’s Water Resources (**page 3**).” Stan’s career at the Washington Department of Ecology spanned more than three decades, where he served as the watermaster in the Teanaway basin (a Yakima River tributary), as the Ecology liaison to the Bureau of Reclamation for the Yakima River Basin Water Enhancement Project, and provided invaluable service to the Water Transfer Working Group. Congratulations to Stan!

Since our last newsletter we have had five virtual lunch meetings, two of which you can read about on **page 9**. On September 23<sup>rd</sup>, Tom Mathis of DSI LCC spoke on a Web-based Real-Time 3D Modeling System for Lake Washington, which is designed to provide government organizations, private entities, and the public with an easily accessible system that they could use for various applications, including recreation, research, planning, and management. On October 28<sup>th</sup>, Philip Womble of the Woods Institute for the Environment at Stanford University spoke on Factors Driving Environmental Water Markets in Colorado River Basin States. Philip discussed a dataset that is in the process of being compiled of all environmental water market transactions across the western U.S. in recent years, and the results of an analysis of transactions in the Colorado River Basin States.

*(Continued on page 2)*

On December 15<sup>th</sup> we screened a comparative water policy panel discussion among the water resource managers from Washington, Colorado, Montana, and Idaho. Mary Verner, Water Resources Program Manager for the Washington State Department of Ecology, joined us live for questions and color commentary on the panel discussion. On April 21<sup>st</sup> of this year, Sonja Michelsen, P.E., U.S. Army Corps of Engineers (“Corps”), presented on the November 2021 Skagit River flooding and the Corps’ role in flood risk reduction. Most recently, on May 26, 2022, Urban Eberhart, Kittitas Reclamation District, presented on new water storage solutions being explored in the Yakima Basin.

For the remainder of 2022, we will continue with virtual events as long as that is necessary for public safety, including dinner/lunch meetings. We also hope to put together a handful of outdoor networking events and field trips to allow our colleagues to once again gather in person in a safe and comfortable manner. We are currently planning our first in-person networking event since 2020 for sometime at the end of June.

This year, AWRA-WA will forgo its annual state conference, as Washington will host the AWRA National Conference on November 7-9, 2022 at the Hyatt Regency Lake Washington. **See page 11 for more details.** This is a tremendous opportunity to connect with water resource professionals across the Country and to explore different perspectives on water resource issues. The conference committee has been hard at working planning from the National conference for more than a year. There are several conference planning committees on which AWRA-WA members are invited to participate. Please reach out to me if you are interested in assisting with conference planning.

As always, many thanks to each of you for your continued participation in AWRA-WA as well as our corporate sponsors who helped keep all of our events free or low-cost over the last several years. If you have any questions or comments for the Board please contact me at [jrm@vnf.com](mailto:jrm@vnf.com).



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AMERICAN WATER RESOURCES ASSOCIATION

## AWRA-WA 2021 Outstanding Service Award: Stan Isley

*Presented by Stan Miller, AWRA-WA Fellowship and Awards Committee*



Stan Isley received the 2021 AWRA-WA award for Outstanding Contribution to Water Resources after more than thirty years of work at the Washington State Department of Ecology, Water Resources Program. In his acceptance speech, Stan honored some of the people he respects most, including Maia Bellon, Buck Smith and Bob Barwin of Ecology, retired Yakama Nation hydrologist Tom Ring, hydrologist Guy Gregory, Urban Eberhart of Kittitas Reclamation District and Lisa Pelly of Trout Unlimited. He was instrumental to successful regional partnership efforts to coordinate water resource management, including the Yakima River Basin Water Enhancement Program and the development of the Yakima Basin Integrated Plan. These programs leveraged irrigation efficiency and around 100 water rights acquisition projects to promote environmental streamflows and shore up irrigation and municipal water supplies. Stan’s work was also critical to the Yakima River Basin adjudication, which recognized the time immemorial rights afforded to the Yakama Nation by treaty and the instream flow successes of the Yakima Water Transfer Working Group and the Washington State Trust Water Rights Program. Congratulations, Stan!

### Thank You AWRA-WA 2021-2022 Sponsors!

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## 2021 AWRA Washington Annual State Conference

October 6-7, 2021 (Virtual Webinar)

### Transboundary Water Management And Water Market Trends



## AWRA-WA Annual State Conference | October 6-7, 2021

### *Transboundary Water Management and Water Market Trends*

The Washington Section of the American Water Resources Association held its Annual Conference on October 6-7, 2021, entitled Transboundary Water Management and Water Market Trends. It was AWRA-WA's second conference presented in a virtual online format, due to the Covid-19 global pandemic. 170 water resource professionals, students, and interested citizens attended the conference.

Conference Co-chair Katherine Ryf started us off by welcoming everyone to the conference, thanking partners and sponsors who made the conference possible (listed on the previous page), and introducing the conference content, which included numerous forums on transboundary water resource management challenges and opportunities. AWRA-WA added a new feature to the conference in 2021, offering "Networking Breaks" with trivia and prizes sponsored by Rabia Ahmed and Gretchen Greene with Green Economics. The entire conference schedule is available [here](#). We have included summaries of selected sessions below.

### **Keynote Address: *Valuing Water: Global Reset & the Future of Hope***

**Robert Sandford, United Nations University Institute for Water, Environment and Health**



Robert Sandford of the United Nations University delivered the keynote address on valuing water, stating that "Civilizations exist by geological consent. The future we feared and wanted at all costs to avoid has arrived." Bob cited record high CO<sub>2</sub> levels which are reversing global carbon feedback loops and turning places like the northern permafrost layer from a carbon sink into a significant source of carbon emissions. He also described how U.S. infrastructure failings are impacting water quality and public health.

On a positive note, Mr. Sandford pointed out how lessons learned on water issues in the American West have been applied around the world. He shared that our region is "ahead of the game" because we have had to deal with a series of historic droughts, which has inspired wisdom, compassion and a relentless search for solutions. He explained that a remaining problem is that the environmental, aesthetic and regional economic values of water are often inadequately reflected and therefore not fully captured by policy changes.

In response to audience questions Bob stated that natural system function is healthy enough to give water resource managers a hopeful starting point, saying "what you have got and have saved, might save us". Technical capabilities are critical to adapting to extreme circumstances along with knowing how to work together to understand the evolving urgency of what we are facing, including leveraging knowledge and caring for each other's values and needs within our networks of water users, tribes, agencies, water rights professionals, and scientists. The Pacific Northwest and British Columbia is particularly well positioned to respond to this – including progressive political institutions related to climate change.

## Interagency Management in the Walla Walla Basin

Contributor: Sarah Dymecki, Washington Water Trust



**Scott Tarbutton**, Department of Ecology, Office of the Columbia River discussed the 1,758 square mile Walla Walla Basin, which is a politically and hydrologically complex watershed including parts of Washington, Oregon, and the aboriginal territory of the Confederated Tribes of the Umatilla Indian Reservation (CTUIR). Its waters begin as snowpack from the Blue Mountains, with alluvial systems such as the Touchet River, Mill Creek and the Walla Walla Mainstem feeding the Columbia Basin Aquifer system. Over the last 150 years, the basin has been transformed to support growing urban centers in an agriculturally based economy. Urban growth and agricultural demand impact the Basin’s ability to maintain water availability, manage floods, and support environmental objectives amidst climate change. Instead of turning to adversarial approaches, the basin initiated the thirty-year “Walla Walla 2050” integrated plan focused on regional collaboration. Supporting this is a U.S. Geological Survey (USGS) study to better understand the connection between surface water flows and ground water aquifers in the region, including quantification of mitigation needs from permit exempt domestic water use.



**Chris Marks**, CTUIR, spoke of the complex relationship between CTUIR Treaty reserved rights, Washington and Oregon adjudicated water rights, and fish recovery. CTUIR’s “First Foods” approach defines resource management success in terms of access to their usual and accustomed uses protected by the treaty but faces ongoing challenges for water and fisheries. While adjudications established legal details of surface water uses, uses associated with ground water and treaty rights were not considered or quantified. The 1936 *Washington V Oregon* US Supreme Court case established priority of Oregon rights over Washington rights, but problems remained as rivers originating in Oregon were often fully diverted before reaching the Washington border. A 2004 Endangered Species Act (ESA) settlement required Oregon-based irrigation districts to leave water instream, and this improved flows in the Walla Walla River above Milton-Freewater. However, continued water use and flood control channelization have dewatered streams and connected basalt aquifers throughout the Basin, threatening First Foods and ESA-listed fish. Flow restoration actions require bi-state coordination via “Tri Sovereign” coordination (Washington, Oregon, and CTUIR) to maintain instream flows into Washington state. A recent 12-year pilot project in the Basin did not result in meaningful flow restoration, but the silver lining is that partners are still at the table for future solutions via the Walla Walla 2050 integrated planning process.



**Chris Kowitz**, Oregon Department of Water Resources (ODWR), discussed transboundary opportunities to meet restoration objectives across jurisdictions. He referenced the Tri-Sovereign Walla Walla 2050 planning effort between Washington, Oregon and CTUIR, which seeks to replace past adversarial relationships with locally driven decision making, adapting new strategies informed by regional coordination and legally defensible data to prioritize restoration actions. This will create meaningful fish recovery through watershed health metrics, balanced instream and out of stream needs, and conjunctive management of surface and groundwater resources, addressing risks from climate change and increasing development pressure. Chris referenced the USGS study and ongoing Walla Walla 2050 efforts as a way to leverage project implementation with collaborative and participatory approaches, inter-agency agreements and data-driven strategy development.



**Melissa Downes**, Washington Department of Ecology, Office of the Columbia River (ECY-OCR), discussed Washington State’s participation as a Tri-Sovereign in the Walla Walla 2050 planning efforts. Phase 1 of this effort, during 2021-2023, has developed a governance structure aimed and including all watershed stakeholders and building trust and engagement of the local community. Phase 1 includes facilitation of a programmatic EIS and strategic plan, an advisory committee and technical work groups, and data collection to build a scientific foundation and hydrologic framework for Phase 2 flow restoration actions. The USGS Bi-State groundwater study will fill data gaps identified by the Walla Walla 2050 technical team, and new streamflow gages will be installed on the Walla Walla and Touchet Rivers. This will generate data on design and cost feasibility of projects to achieve large-scale flow enhancement for fishery restoration. This will inform 2023-2025 requests for state funding and legislation to support implementation of projects. A critical challenge is to protect water across state lines, and Melissa reference to potential value of a bi-state Compact to achieve restoration goals.

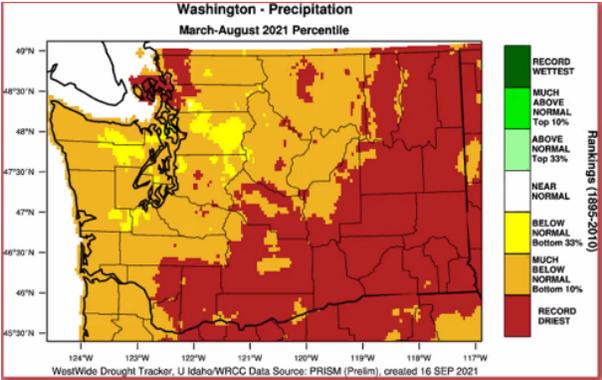
**Featured Presentation: Jeff Marti, WA Dept of Ecology Water Resources**

**Current Events: Water Year 2021: A Different Flavor of Drought**

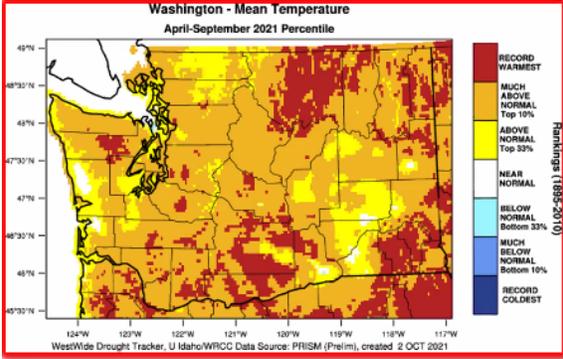


Jeff Marti shared lessons learned due to the new challenges brought on by the 2021 drought in Washington state. 2021 was not just a drought year, but a very different flavor of drought year. The term “flavors of drought” was coined by Karin Bumbaco of the state climatology office, and refers to whether there are high temperature anomalies, low precipitation anomalies, or both. The timing of precipitation in droughts is also an important factor. The 2015 drought was typical of how we expect the future to look under climate change, with temperatures well above average and lower snowpack. In 2021, most of Washington state experienced a significant dropoff

in precipitation only during March through September, e.g. the Yakima Basin showed fairly normal precipitation through mid-February, but only received 0.2 inches from mid-February to October. March-September of 2021 will likely rank as the 2<sup>nd</sup> or 3<sup>rd</sup> driest such period since 1895.



Mar – Aug: 2<sup>nd</sup> Driest Statewide since 1895 Driest since 1924;



Apr – Sep likely to rank as 2<sup>nd</sup> or 3<sup>rd</sup> warmest since 1895

April snowpack was well above average, with normal to above-normal forecasted runoff conditions predicted in March 2021. But by May, the lack of precipitation was extreme, and this led Ecology to issue a drought advisory for most of Washington state on May 24, 2021. The drought advisory is a new tool authorized for use by Ecology to initiate preliminary actions in response to drought. On July 14, 2021, Ecology issued a drought declaration for the entire state of Washington outside of greater Seattle. The objective of a drought declaration has traditionally been to initiate actions to help water rights holders, but in 2021 the biggest issue was the soil moisture conditions for dryland wheat farmers in eastern Washington.

2021 showed how an extreme late season precipitation deficit, even with above average snowpack, can significantly impact dryland producers. That year, the Yakima Project provided 100% of water supply to both senior and junior water rights holders, facilitated by sufficient snowpack, but the pasture and range productivity was nevertheless impacted by some of the most water-stressed conditions in modern history. Wheat (down 48%) and Barley (down 58%) had their worst production since 1984. High water temperatures also occurred in the lower Yakima River, further stressing fish and other aquatic life. As a result, Jeff remarked, even when a La Niña event (which usually leads to increased snowpack), “stacks the deck for a favorable water supply, that doesn’t mean you can’t still draw a joker”.

## Columbia River Management



**Kelly Ferron**, Washington Department of Ecology. Kelly's presentation focused on the Department of Ecology's plan and efforts for implementing the U.S. Environmental Protection Agency's (EPA) Temperature Total Maximum Daily Load (TMDL) in the Columbia and Lower Snake Rivers. TMDLs for temperature are currently being exceeded, impacting 13 species of salmon and steelhead in the Columbia and Snake Rivers and necessitating a clean up plan and criteria to protect salmon spawning, rearing, migration and habitat. In 2000, a Memorandum of Agreement between Washington, Oregon, Idaho, and the EPA resulted in a preliminary TMDL for temperature in 2003. Following litigation, the TMDL was revised in August 2021 to require a 3.1° Celsius reduction in water temperatures in the lower Columbia River and a 2.8° reduction in the lower Snake River. This was to address widespread temperature impairments from five major sources: dams, climate change, nutrient point sources, natural sources, and inflowing temperature loads from Oregon and Canada. The biggest impacts are from climate change and dams, contributing 0.3° C each to temperature loads, with 0.1° C each from the other sources. State recommended actions are still limited to enforcement of existing point source limits, but Federal dam certification requirements under the Clean Water Act offer another pathway to compliance. For more information, you can join the distribution list via email at [kelly.ferron@ecy.wa.gov](mailto:kelly.ferron@ecy.wa.gov).



**Andy Dunau**, Lake Roosevelt Forum. The Lake Roosevelt forum works with the Upper Columbia United Tribes (UCUT) and regional partners to facilitate dialog on water resource management, environmental quality, and tribal fisheries and resources. In his presentation, Andy discussed the complex backdrop of litigation of the Federal Columbia River System Operations Biological Opinion (CRSO BiOp), the Lake Roosevelt agreement between federal agencies and the Colville and Spokane tribes, and the 1961 Columbia River Treaty (CRT) scheduled for reauthorization in 2024. The CRT reauthorization effort led by US federal agencies lacked tribal and state representation, with few negotiations since 2018. Meanwhile, in 2020, Federal courts struck down the 2016 CRSO BiOp, now being reissued by the National Marine Fisheries Service. It is under litigation by conservation groups with a focus on the Snake River dams and Orcas, and by the Spokane and Coeur D'Alene tribes for failure to review benefits of reintroduction in blocked areas to listed spring Chinook and steelhead. Tribes recently initiated cultural (non-ESA) releases in areas blocked by Columbia River dams, such as the Spokane and Sanpoil Rivers, but there has been minimal federal support or funding for reintroduction. In addition, claims of the Colville and Spokane tribes over the Columbia River for time-immemorial fish and wildlife access rights pose one the most profound uncertainties in the state of Washington. State-level work is needed to protect tribal water rights and fishery concerns, especially amidst increasing threats of climate change.



**Aja K. DeCoteau**, Columbia River Inter-Tribal Fish Commission (CRITFC), highlighted time immemorial Treaty rights in the Lower Columbia River ceded lands of Yakama, Umatilla, Warm Springs, and Nez Perce First Nations. She described their creation story, when Creator asked the resources who could talk who would provide for the people being created. "The first to talk were the salmon, followed by the deer, the camas, and the huckleberries, and the water," she said in introducing the First Foods principal CRITFC employs to guide resource management. The Treaties of 1855 legally retained the "right of taking fish in all usual and accustomed places", but treaty rights have been under threat. Dams inundated tribal land, and canneries and habitat degradation caused historic salmon runs of 17 million to drop to 4 million by 1920 and 1 million by 1940. In response, the four tribes founded CRITFC in 1977 to protect their sovereign treaty rights, with tribes as co-managers of fish and wildlife using an ecosystem approach. This includes use of science, intertribal coordination, and partnerships to, she said, "tell our own story versus having others tell our story for us". The "Wy Kan Ush Mi Wa Kish Wit" tribal natural resource management plan covers the salmon lifecycle from egg to spawning. Aja emphasized that climate change is a clear threat to First Foods and other treaty rights. "Water has no jurisdiction," she said, describing their watershed "gravel to gravel" approach to restore salmon across state lines in contrast to the gavel-to-gavel history that has dominated the issue in the past. The State Department's Columbia River Treaty left out the tribes, but their 15-tribe coalition is advocating for sovereign representation at the table to tell their story, and ensure that "the work we do today will affect or kids, and our grand kids, and our great grand-kids."

## Water Market Trends, Transboundary Issues and Opportunities



**Harry Seely**, Westwater Resources, discussed water markets. Each year 2-3 million acre-feet (af) of water are traded in the U.S. Most of that happens as lease transactions, totalling \$0.8 to \$1.2 billion, of which usually about \$200-\$400 million is purchased. California drives a lot of the water market. Washington state averages about \$93 million of annual water transfers totalling 150,000 af. Water rights transactions in the western U.S. are highly regional, and driven by local factors such as population growth and agricultural cash cropping trends. In Washington state, the highest concentration is in the Yakima Basin, with additional transactions in the Okanogan and Walla Walla basins. Statewide, average water rights purchases increased from \$2,000 per acre foot in 2012 to about \$3,300 in 2020, when little over 3,000 af of water was transacted. Non-profit organizations like Washington Water Trust and Trout Unlimited have been successful at acquiring water in the past 20 years and putting those water rights instream. Washington is unique in that it has more water banks than any other state, and includes both private water banks as well as state-backed and local municipal efforts. Washington and Oregon have been leaders at using water markets as a tool for improving instream flows, with innovative transactions that balance fish needs with agricultural values in local communities. There is a recent trend of water rights being purchased by downstream buyers from upstream sellers. This has gained the attention of upstream communities concerned about losing water resources to support future economic development. Harry discussed Washington State House Bill 1385, which would limit water rights from being transferred out of their original watersheds, require that water rights purchase and sale agreements be made public and enable local entities to match the price. 2021 legislation also approved \$14 million to fund water bank development and purchase water rights for water banks in rural counties. He emphasized that transboundary water markets present opportunities to share funding on shared infrastructure and water conservation projects to address supply challenges. Examples of this include recycled water, aquifer storage and recovery programs, groundwater banking, and temporary crop following agreements.



**Kristina Ribellia**, [Western Water Market](#), discussed trends, drivers and pricing of the Washington water market. Her company is addressing a need for a more open and efficient market and a more informed public. The concept is that an online marketplace could provide a place to buy, lease or sell water rights. Most of the transactions in the marketplace are in the mainstem rivers of the Walla Walla and Yakima basins, the Columbia Basin Project area, with subcontracted water rights consultants shepherding the transactions through the Washington state water rights permitting process. Listings include technical information on current active use of water rights, maps of their places of use, and a report on options for their transferrability. This supplies potential buyers and sellers with the information they need to make an informed decision. She defined a key constraint of the current market being costly and inefficient for market participants. Targeted outreach requires active use of resources by environmental groups, and many potential buyers and sellers have been left out of the process. She made the point that an instream flow benefit could be achieved by downstream transfers in much the same way as purchasing water instream, but at less cost. Uniform pricing data is difficult to generalize from Western Water Market's listings because there are relatively few listings, pricing units vary and multiple factors influence value of each water right.



**Eric Weber**, Landau Associates, spoke on water marketing in the Columbia Basin Project Area. Quincy Basin permits for the withdrawal of artificially stored groundwater can't be processed through the county conservancy boards, necessitating either using the change application process, which can take four years or more, or paying for a streamlined cost reimbursement process. In the Odessa Groundwater Replacement Program (OGWRP), the Washington Department of Ecology addressed constraint this by providing groundwater permits on a temporary basis until federal water arrived. People engage in this market to trade out a OGWRP permit for access to an irrigation canal from the local irrigation district. Eric summarized his findings by concluding that the Columbia Basin Project area enjoys robust interagency coordination. The complex web of administrative boundaries and rules in the Odessa special subarea creates a policy landscape for both market opportunities and constraints, in which regulatory compliance systems, the Columbia River Treaty, and the Mid-Columbia adjudication efforts are continuing to evolve to local needs.

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## **AWRA-WA Virtual Lunch Meetings**

AWRA-WA lunch meetings, currently in virtual format, are open to the public and provide high-quality presentations by experts in the water resource management field. They are an excellent venue for networking and learning for professionals, students, and anyone else interested in water resources. Check out our upcoming lunch meetings at <https://www.waawra.org/Events/Calendar/>

### **Sonja Michelsen, P.E., US Army Corps of Engineers – April 21, 2022**

#### ***November 2021 Skagit River Flooding and the US Army Corps' Role in Flood Risk Reduction***

AWRA-WA's April virtual networking event was provided by Sonja Michelsen, P.E. from the U.S. Army Corps of Engineers. Over the past six years at the Corps, Sonja has focused on riverine flood risk reduction. She has managed water in reservoirs across the northwest and conducted numerous hydrologic and hydraulic analyses. At the virtual event, Sonja spoke about a major atmospheric river that caused significant flooding in northwestern Washington and southwestern British Columbia in November 2021. When there is flooding in the Skagit basin, the U.S. Army Corps of Engineers directs regulation at two reservoirs, Ross Dam and Upper Baker Dam, to reduce damages in downstream communities. During the November 2021 event, the reservoirs provided significant benefit by reducing the peak flow in the river up to 40%. Sonja discussed the hydrology of the November flood event and the Corps' role in flood risk reduction through reservoir regulation. She also discussed this flood event in the context of climate change. An atmospheric river event of this size has a frequency of 1 in 50-100 years but based on a study by the Pacific Climate Impacts Consortium, the probability of occurrence of such an event has increased by 50% due to human-induced climate change.

### **Urban Eberhart, Secretary Manager, Kittitas Reclamation District – May 26, 2021**

#### ***Water Storage & Collaborative Governance: Creating a Sustainable Climate Resilient Ecosystem***

AWRA-WA's May virtual lunch meeting was provided by Urban Eberhart, Secretary Manager of the Kittitas Reclamation District. Urban graciously provided a presentation on water storage and collaborative governance for creating sustainable water supply solutions. Urban has been involved in water resource related matters in the Yakima River Basin since the 1970s. In his role as a Board Member and later Secretary Manager of the Kittitas Reclamation District, Urban has collaborated with other interested parties to work to develop the Yakima River Basin Water Enhancement Project (YRBWEP). Urban explained how irrigators along with the Yakama Nation and other water users developed trust to work together to support adoption of the 1994 YRBWEP Phase II legislation and the 2019 Phase III that authorized the initial phase of the Yakima River Basin Integrated Water Resources Management Plan. Urban also provided an overview of specific projects within the Yakima River Basin to support salmon recovery efforts and irrigation water supply strategies.

## 2022 AWRA-WA Student Fellowships Announced

Congratulations to the 2022 AWRA-WA Student Fellows! This year we received a record-setting 11 fellowship proposals, including applications from the University of Washington, Central Washington University, Washington State University, Eastern Washington University, and Western Washington University. We are happy to announce that we will be continuing to award multiple fellowships and support as many of these great research projects as possible. The AWRA-WA Board of Directors voted at our March 2022 meeting to award five fellowships totaling \$12,500 in 2022, one to each of the 5 represented universities. Each of the winners listed below will also have a unique opportunity to present their research at the 2022 AWRA National Conference in Seattle in November 2022 and will receive a national AWRA membership. The 2022 applicant pool was particularly strong even among those students not selected, thanks to remarkable participation and support from professors at the contributing universities. Therefore, AWRA-WA will be offering an additional opportunity for those applicants to present posters at the National Conference, along with a stipend to cover both the registration fee and offset travel and lodging expenses.

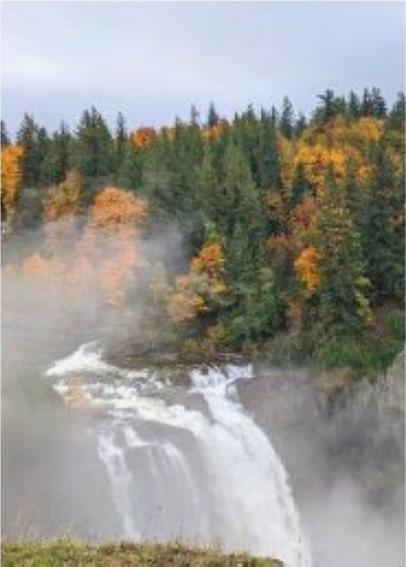
### 2022 AWRA-WA Student Fellows:

- Phillip Moffatt (WSU): Understanding Precipitation Patterns and Runoff Mechanisms with Isotope Hydrology
- Hordur Helgason (UW\*): Improving Cold Region Hydrologic Modeling Using Deep Learning and Remote Sensing
- Emily Polizzi (CWU\*): Floodplain Storage Capacity of the Upper Yakima River Tributaries
- Telemak “Telly” Olsen (WWU): Quantifying the Effects of Post-fire Debris Flows on Stream Channel Morphology
- Katelin Killooy (EWU): Assessing Beaver Dam Analogs as a Stream Restoration Tool in Fire Affected Tributaries of the Methow and Okanogan Watersheds

*\*University of Washington and Central Washington University are student chapters of AWRA-WA*

### 2021 AWRA-WA Student Fellows

- Ashlee Abrantes: Utilizing Environmental DNA as an Index for Freshwater Conservation and Management
- Rachel Fricke: Employing Mobil Applications to Assess Human Benefits From and Risks To Water Resources
- Sam Fixler: Investigation of Channel Morphology and Groundwater Connectivity at Taneum Creek, WA



# AWRA 2022 ANNUAL WATER RESOURCES CONFERENCE

*I look forward to welcoming you to the beautiful State of Washington for the AWRA 2022 Annual Water Resources Conference. After two years of seeing each other on screens, we are more than ready to meet IN PERSON again. And what better place to gather with old friends and colleagues, make new connections, share knowledge and experiences, have meaningful conversations, and go on actual field trips than right here on the banks of Lake Washington with a towering view of Mt. Rainier. Don't forget to register for the Conference and get excited ... this will be an event to remember! – Rabia Ahmed, Planning Committee Co-Chair*

This conference is one of the most diverse and inclusive conferences in water resources management. AWRA provides you with innovative, practical, and applied water resource management solutions, management techniques, and current research. Plus, you get the opportunity to make long lasting connections with a diverse group of water resource professionals.

Attendees can expect to hear:

- lessons learned from the implementation of multidisciplinary projects,
- best practices discovered in the design and application of water resource management,
- implications of water policy decisions, and
- research into current and emerging issues.

Learn more: [awra.org/2022AnnualConference](http://awra.org/2022AnnualConference)

\*Gateway members are not eligible for discounted registration rates.



**NOVEMBER 7-9, 2022**

**HYATT REGENCY LAKE WASHINGTON RENTON, WA**

**IMPORTANT DATES:**

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(Change service requested.)

*Special Thanks to Washington Water Trust for word processing support on this newslette*

## 2022 MEMBERSHIP / CHANGE OF ADDRESS FORM

( ⌂ please circle, as appropriate ↗ )

Annual membership in the state chapter costs \$35.

Name \_\_\_\_\_ Position \_\_\_\_\_ Affiliation \_\_\_\_\_

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