



PRESIDENT'S NOTES

Rabia Ahmed
Greene Economics
AWRA-WA Section President

How is it fall already?!? As the leaves begin to change color and we say good-bye to summer and start planning those snowshoeing and skiing trips, it is time to reflect on all that we have achieved in the first three-quarters of 2019. Here at AWRA-WA, we have been very busy! And not just with AWRA-WA activities: drought, watershed planning efforts, and the continuing growth in our region are just a few factors that have kept water resource professionals occupied in 2019.

AWRA-WA organized the **Annual State Conference** early this year, choosing the topic **“Water Resources Planning and Implementation: Challenges, Complexity, and Uncertainty.”** This follows AWRA-WA tradition of choosing themes that reflect the most critical water resources topics in our state. The event will highlight the role of water resource planning efforts in Washington in addressing competing needs and sources of future uncertainty such as climate change. It's not too late to [register](#) for this gathering and join the experts on Washington's water issues on **October 1 at The Mountaineers in Seattle**. Turn to pages 3 and 4 for speaker bios and the conference sessions and keynote schedule.

We also hosted three dinner meetings in the second and third quarters of 2019, and you can read more about those on pages 5-7 of this newsletter. In April, **Julie Vano from the National Center for Atmospheric Research**, gave a talk about supporting better water management and planning in a changing climate.

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AWRA-WA State Conference

[Register Now!](#)

It's not too late. Join Washington State's leading professionals for the best networking opportunity of the year. \$205 (\$170 for government or non-profit employees and \$60 for students).

WAAWRA.ORG/event-3394493/registration

Dinner Meetings

Monday, September 23rd, 2019

Pyramid Alehouse Restaurant

1201 1st Ave S, Seattle, WA 98134

5:30 - 8:00 PM (Program at 7 PM)

Bill Taylor, Raedeke Associates, Inc.
Bio-retention Hydrologic Performance Monitoring Studies I & II:

[Register Here](#)

Watch your emails and visit the [AWRA-WA Dinner Meetings web page](#) for registering and more information on these and other Dinner Meetings.

PRESIDENT'S NOTES *(Continued)*

Our June Dinner Meeting was our very popular annual legislative update session, with **Carrie Sessions from Washington Department of Ecology Water Resources Program** highlighting the bills related to water resources that the State Legislature debated and the one bill that they passed.

In August, **Dr. Gretchen Greene from Greene Economics** presented her research on storm-water funding challenges in Washington State that stemmed from her work a couple of years ago on a State legislature-sponsored statewide effort to estimate funding needs for stormwater infrastructure over 20 years.

Looking ahead, we are excited to have **Bill Taylor from Raedeke Associates** talk about bioretention hydrologic performance monitoring studies in twenty facilities in Western Washington on **September 23 from 5:30 PM to 8:00 PM at the Pyramid Alehouse in Seattle.**

We have been working closely with our two Student Chapters as they transition into new leaderships and plan innovative activities for 2019-2020. In April we joined the AWRA-UW Student Chapter to participate in the **UW Bothell/Cascadia College Sustainability Festival** to celebrate Earth Day by setting up a booth for promoting the many opportunities offered by AWRA-WA for students. On the administrative side, we set to work on our **long-range planning** this year and, while the larger process will continue into 2020, we already have a brand-new set of **By-laws** in place for our Section.

All our efforts echo our commitment to water resources in our great state, and we hope to continue to provide you with the most timely and relevant information on the subject. **We look forward to seeing you at the conference on October 1!**

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2019 Conference: Water Resources Planning and Implementation *Challenges, Complexity and Uncertainty*

CONFERENCE SCHEDULE:

THEME: The conference will highlight the role of water resource planning efforts in Washington in addressing competing needs and sources of future uncertainty such as climate change. Interdisciplinary perspectives will be presented on the challenges and success stories of past water resource planning efforts and effective plan implementation. The conference sessions will be as follows. First, Will Stelle from Washington Water Trust will kick off the conference with a keynote speech, sharing his insights into planning in Washington State. Then Session 1 will start with a historical perspective on planning in Washington, followed by presentations on lessons learned from Watershed Planning that are cross-cutting and relevant to multiple watersheds. Session 2 will focus on the Hirst decision and related planning activities and methodologies, such as Net Ecological Benefits. Session 3 will cover managing uncertainty in planning efforts, including climate change. Session 4 will cover significant planning efforts in Washington other than Watershed Planning, such as the Yakima Integrated Plan. And Session 5 will be panel discussion with a view towards future planning and how to make it more effective.



Photo: Skagit River. Greg McLaughlin

Keynote Address: **Will Stelle**, WA Water Trust

Session 1: Lessons Learned from Watershed Planning

- **Tom Ring**, Yakama Nation
- **John Kounts**, Washington PUD
- **Sharon Haensly**, Squaxin Island Tribe
- **Mike Kaputa**, Chelan County

Session 2: Hirst and Beyond

- **Lisa Dally Wilson**, Dally Environmental
- **David Troutt**, Nisqually Indian Tribe
- **Bennett Weinstein**, Department of Ecology
- **Andy Hover**, Okanogan County

Session 3: Uncertainty in Planning

- **Abishek Singh**, Intera
- **Gillaume Mauger**, University of Washington
- **Carrie Sessions**, Department of Ecology
- **Joe Mentor**, Mentor Law Group

Session 4: Bookends of the Planning Process

- **Urban Eberhardt**, Kittitas Reclamation District
- **Abby Hook**, King County

Session 5: Panel Discussion

- **Tom Ring**, Yakama Nation
- **Will Stelle**, Washington Water Trust
- **Andy Hover**, Okanogan County
- **Steve Malloch**, Western Water Futures

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2019 Conference: Speakers

Challenges, Complexity and Uncertainty

KEYNOTE: Will Stelle, Washington Water Trust Senior Advisor and Board Member, has spent more than a decade in Washington D.C. in a variety of legislative and executive branch roles. He served with the Senate Indian Affairs Committee, and then as general counsel for the House Fish and Wildlife Subcommittee and chief counsel for the House Merchant Marine and Fisheries Committee. Will later joined the Executive branch as special assistant to then Interior Secretary Bruce Babbitt to develop the Northwest Forest Plan, and then shifted to the White House to referee interdepartmental issues and priorities for natural resources policy and budgets.



Urban Eberhardt, Kittitas Reclamation District (KRD) Manager, was AWRA-WA's 2015 Outstanding Server Award Winner, is a Kittitas County farmer and is a dedicated leader for the Yakima Integrated Plan. KRD's prompt response to water short tributaries has been important to flow restoration in the Upper Yakima Watershed.

Sharon Haensly, Squaxin Island Tribe attorney, has been instrumental in their efforts to integrate environmental restoration concerns with local water supply development efforts. Her perspective includes over 25 years of tribal law experience and prior work with the U.S. Environmental Protection Agency.

Abby Hook, King County Department of Natural Resources and Parks Environmental Affairs Officer, spent 15 years as hydrologist and planner for the Tulalip Tribes and Hook Environmental, facilitating work in watershed and conservation planning, salmon recovery, tribal treaty rights representation, and local habitat protection.

Andy Hover, Okanogan County Commissioner, serves on the Upper Columbia Salmon Recovery Board, the Methow Watershed Council, and Eastern Washington Cascades Provincial Advisory Committee. He was raised in the Methow Valley and, with his family, maintains a small cattle operation and a custom framing business.

Mike Kaputa, Chelan County Natural Resources Director, has spent over two decades working to bring together stakeholders around restoration and water resource management issues. He has provided leadership and developed funding for multiple collaborative salmon recovery and stream efforts in the Wenatchee watershed.

John Kounts, Washington PUD Association (WPUA) Program Director, works with WPUA members on policies, legislation, and regulations affecting PUD water service, and he is a recognized expert at helping local governments and partners to define and resolve water service issues.

Steve Malloch, Western Water Futures Principal, works at the intersection of policy, law and water, with experience as a hydrogeologist, lawyer and lobbyist. He has a proven record of improving the environmental performance of large water systems, especially on the looming problems of adapting to the impacts of climate change.

Gillaume Mauger, University of Washington Climate Impacts Group Research Scientist, focuses on understanding and adapting to the impacts of climate change on flooding and stormwater in the Pacific Northwest. His work applies climate information in habitat connectivity in collaboration with floodplain managers.

Joe Mentor, Mentor Law Group Founding Principal, is a pre-eminent expert on Washington water law. He works with private sector businesses, public agencies, and Indian Tribes to achieve their legislative, policy, business and environmental compliance objectives. He is also a former AWRA Washington chapter president.

Tom Ring, Yakama Nation Senior hydrogeologist. Since 1990 has been an expert in the Yakima Basin on groundwater and surface water quantity and quality, water rights, irrigation and fisheries issues and planning for future water needs. Tom is a fixture important water resource management efforts like the Yakima Integrated Plan.

Carrie Sessions, Department of Ecology Policy and Legislative analyst, works for the Water Resources Program at the Department of Ecology. Prior to working at Ecology, she did consulting work on environmental economics and spent several years teaching applied leadership.

Abhishek Singh, Intera Senior Hydrogeologist, is an expert in numerical modeling, data-mining, and statistical analysis. He has developed a GIS-based vulnerability indicator for groundwater availability, and built decision-frameworks to help deal address the uncertainty of environmental and water resources problems.

David Troutt, Nisqually Indian Tribe Natural Resources Director, serves as chair of the Nisqually River Council and president of the Nisqually River Foundation, and he is the chair of the Puget Sound Salmon Recovery Council. David previously served on the Washington Biodiversity Council.

Bennett Weinstein, Department of Ecology Streamflow Section Manager, leads the Ecology implementation of RCW 90.94, the Streamflow Restoration law, working to restore streamflows to levels necessary to support robust, healthy, and sustainable salmon populations while providing water for homes in rural Washington.

Lisa Dally Wilson, Dally Environmental Principal, is a licensed environmental engineer and watershed scientist who specializes in facilitating multi-stakeholder groups with complex technical and policy objectives in the natural resource arena. She's recognized as a strategic thinker who drives critical decisions and action plans.

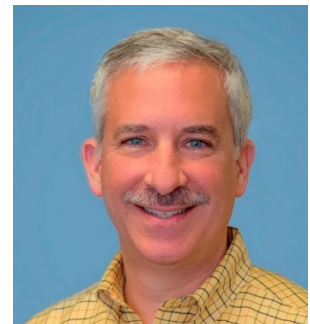
AWRA-WA Seattle September 2019 Dinner Meeting

*Bioretention Hydrologic Performance Monitoring Studies I & II:
Findings from Twenty Facilities in Western Washington*

**Monday, September 23rd, 2019: Pyramid Alehouse Restaurant
1201 1st Ave S, Seattle, WA 98134**

5:30 Pm To 8:00 Pm (Presentation Begins At 7:00)

[REGISTER HERE](http://www.waawra.org/event-3550342) (www.waawra.org/event-3550342)



Bill Taylor, Raedeke Associates, Inc.

Bill has 30 years professional experience as an aquatic sciences consultant, covering field monitoring and scientific analysis in stormwater quality, fisheries and hydrology in the Pacific Northwest. His career has centered on stormwater monitoring design and implementation, NPDES permit compliance, and monitoring estuary and stream habitats and restoration sites for environmental protection. Bioretention facilities can be an important part of stormwater management within site development plans. If designed, constructed, and maintained properly, they can provide water quality treatment and flow control to meet the Department of Ecology's stormwater requirements.

Until these two monitoring studies were funded by the NPDES stormwater permittees via the Strategic Action Monitoring (www.ecology.wa.gov/SAM), very little was documented about how constructed bioretention facilities actually performed. Do they meet the design expectations of the engineers? Do they meet the modeling expectations using the required design model? Bill Taylor and project team members have conducted a hydrologic mass balance monitoring study of twenty constructed bioretention facilities located throughout Western Washington – with sites from Bellingham to Olympia, Poulsbo to Issaquah.

Bill and team members will present results from the monitoring and modeling of these constructed sites. Results include the measured flows and infiltration rates passing through the units, vegetation community composition and success, and modeling observations. The results offer suggestions to engineers, hydrogeologists, and landscape architects for better designs for future facilities.

AWRA-WA August 2019 Dinner Meeting – Dr. Gretchen Greene, Greene Economics Facing and Meeting Stormwater Funding Challenges in Washington State

by Felix Kristanovich, PhD, Ramboll, Board Member, AWRA-WA

Background - Stormwater is a leading contributor to water quality impairments in the urban areas of Washington State, and particularly in Puget Sound. Stormwater contaminants such as metals, petroleum-derived compounds, and pesticides impair salmon and steelhead health and survival by suppressing their immune system, depressing growth, and interfering with feeding. Recent work suggests that there are even more contaminants from stormwater found in fish tissues than previously thought. Climate change is exacerbating problems via extended droughts and more frequent high-intensive rainfall events throughout

Pacific Northwest, resulting in overwhelmed stormwater drainage flood overflows and increasing the water quality impairments. These increasing risks and the uncertainty concerning potential harm underscores the urgency of addressing effective stormwater management in Washington State.

Investment Needs - While investing in stormwater infrastructure is essential, actual investment often lags the real need. According to the EPA's Clean Watershed Needs Survey for the State of Washington in 2012, total needed investment in stormwater for the next 20 years exceeds \$25 billion in Puget Sound alone. A study by Ramboll for the Washington State Office of Financial Management in 2017 estimated \$18 billion over a 20-year period in 2016 dollars, with most of the money invested in capital projects. The largest cost identified in the Ramboll study was for stormwater facilities for improved treatment in the Puget Sound (estimated at \$860 million annually, in 2016 dollars), resulting in a 20-year total of \$17.2 billion. Stormwater funding is the “elephant in the room”, overwhelming all other needed water infrastructure investments (Figure 1). Failure to invest in stormwater infrastructure improvements risks increased flooding, loss of aquatic species habitat, increased pressure on aquifers, and loss of access to recreation. Recent analysis by Greene Economics shows that capital spending and debt service can account for 60 to 70 percent of typical utility spending. Future investment will require continued support from the current coordinated State and Federal funding, which include \$155 million in needs for 2019 alone. Potential sources include:

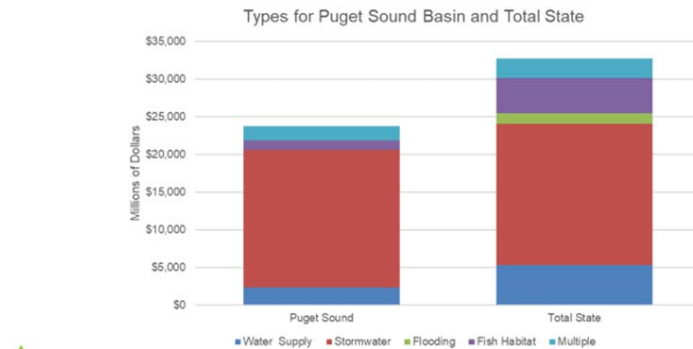
- Washington Department of Ecology Water Quality Program;
- Washington State Water Pollution Control Revolving Fund (CWSRF) loans, partially funded through EPA;
- Stormwater Financial Assistance Program (SEAP) funding (State level grant and loan funding);
- Centennial (Centennial) Clean Water Program grants; and
- Section 319 nonpoint source pollution control funding (federal program with a 40 percent state match).

Going Forward –Low Impact Development (LID), Green Infrastructure and Nature Based Solutions, and Innovative Funding Mechanism are emerging as strategies to address this issue. The first strategy embraces green infrastructure or “nature-based” solutions where possible. The second strategy explores new approaches throughout the State, including stormwater detention credit program, in-lieu fees, Community Based Public-Private Partnerships (CBP3s), and incentive based strategies like Seattle Rainwise Rebate Program. Neither of this strategies alone may be enough. The ongoing challenges of addressing future funding include more frequent precipitation and uncertainty about precipitation and runoff patterns, and aging infrastructure, competition for funding from other climatic events (i.e. catastrophic flooding and/or wind-storms).

Conclusions – Washington remains at the forefront of innovation in stormwater investment, but inadequate planned expenditures for existing stormwater infrastructure investment needs and uncertainty in the face of climate change remain as problems. Dr Greene concluded with the following recommendations for Washington State:

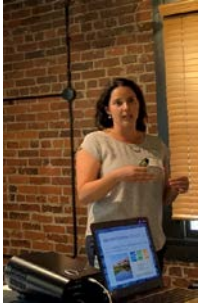
- Continue to maintain and support the ongoing stormwater management efforts that have rapidly developed over the past decade;
- Develop a better understanding of the overall benefits and costs of long run management decisions;
- Plan to improve legacy infrastructure by inventorying and mapping; and
- Develop prioritization schemes, like the WSDOT NPDES approach.

Figure 1 Stormwater – The Elephant in the Room



AWRA-WA June 12, 2019 Dinner Meeting: 2019 Legislative Update

By: Patrick Vandenberg, Seattle Public Utilities – Board Member, AWRA-WA



It has become a tradition at AWRA-WA to provide its membership with an annual legislative update related to water resources during summer. The section's June 2019 Dinner Meeting at Pyramid Alehouse in Downtown Seattle was organized around this topic and was a collaborative event with the Washington Hydrologic Society. Carrie Sessions from the Washington State Department of Ecology provided the update and her insights. During her presentation, Ms. Sessions explained that the 2019 legislative session brought significant gains on environmental issues. While legislators mostly focused their attention on environmental topics such as climate change, oil transportation, and recycling, they did not forget about water resources. She presented the bills related to water resources that the State Legislature debated (and the one that they passed!), as well as the enacted budget appropriates for this area. She also talked about Ecology's request legislation on drought preparedness and response, explained why it did not pass, and surmised about the bill's future. Lastly, she gave a brief overview of some of the momentous environmental bills that passed in 2019. As always, Ms. Sessions provided her audience with an informative presentation and provoked an engaging discussion.

Earth Day 2019: AWRA-UW Student Chapter & AWRA-WA celebrations at local campuses

By: Rabia Ahmed, Greene Economics – President, AWRA-WA

In response to an invitation from UW Bothell Campus, the AWRA-UW Student Chapter and AWRA-WA participated in the UW Bothell/Cascadia College Sustainability Festival to celebrate Earth Day on April 24, 2019. Tyler Oshiro – AWRA-UW Student Chapter President, Rabia Ahmed – AWRA-WA President, and Patrick Vandenberg – AWRA-WA Board Member, set up a booth at the festival. The objective of this initiative was to promote the many opportunities offered by AWRA-WA for students, inform the students there about the AWRA-UW Student Chapter, and guide them on how they could get involved with the organization. The event was well-attended with many students stopping by the booth to talk about the organization.



University of Washington (UW) AWRA Winter Mixer – March 5 2019

By: Patrick Vandenberg, Seattle Public Utilities – Board Member, AWRA-WA

The UW-AWRA Winter Mixer was held on March 5, 2019 at the UW Waterfront Activity Center. The event consisted of social networking and light pizza dinner featuring Dr. Nick Bond of the UW faculty and Washington State Climatologist. The event was well-attended, with an almost equal participation of students and professionals.



Dr Bond's presentation, "**Climate Change and its Impacts on Water Resources and Extreme Events in Washington State**" discussed impacts of climate change in the region. He also shared a trend analysis tool, which can be accessed publicly at www.climate.washington.edu.trends. Dr. Bond focused on the local effects of climate change - for example, in the Pacific Northwest, winters will become slightly wetter, and summers will become slightly drier as the century progresses. Snow-dominated watersheds, which typically exhibit peak flows during the summer, will transition towards mixed rain/snow or rain-dominated, which will mean more peak flows during winter. A small increase in average winter temp will vastly change many watersheds' hydrographs, which can have large impacts on reservoir management and agricultural water use. Dr. Bond stressed that in Western Washington, climate change impacts will emerge relatively soon, many in the 2020s and 2030s. He also responded to a number of questions to clarify and discuss some of the points shown in the presentation, and on his role as the Washington State Climatologist. He pointed out the need (and gradual adoption) of an attitude shift among public agencies, that are now realizing that they are expected to plan for climate change. At the same time, affected industries have become increasingly interested in quality data with which to plan their future operations.

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(Change service requested.)

Special Thanks to Washington Water Trust for word processing support on this newsletter.

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