



Oregon Association of Clean Water Agencies (ACWA) Application for Wastewater CEUs for a stormwater professionals workshop May 15, 2024 entitled:

2024 ACWA Stormwater Summit

Wastewater/General CEUs requested:

- Pre-Stormwater Summit Optional Workshop—1 hour = .1 CEUs
Choice between “Stormwater 101” and “Groundwater 101”
- Stormwater Summit--A total of 4.833 hours of instruction--0.483 (or .5 if you can round up) CEUs—is requested for the main workshop.
- Attendees to all sessions, including the pre-Stormwater Summit workshops would be eligible for a maximum of 0.583 (or .6 if you can round up) CEUs.

This document includes the information required to demonstrate eligibility for wastewater and/or general CEUs, including: 1) the educational need for the program provided; 2) the learning outcome for attendees; 3) an expanded program including a description of the course content and importance to stormwater/wastewater/water quality professionals; 4) the qualifications of the instructors; 5) the time schedule; and 6) the method of tracking attendance.

Educational Need and Learning Goals:

The ACWA Stormwater Summit is convened annually to update stormwater management and other water quality/wastewater management professionals across the state on current issues and trends impacting their work to protect Oregon’s surface and ground water quality. CEUs have been approved for this instructional event every year for over 30 years. The goal of this workshop is to increase the knowledge and understanding of wastewater and stormwater managers, engineers and operations professionals regarding water quality regulations, water quality challenges, and technologies and operational controls for managing and improving stormwater quality and adapting stormwater management systems and practices to emerging issues of concern.

The course emphasizes science-based information on stormwater pollutants and the effectiveness of stormwater management practices and facilities intended to improve water quality. It also focuses on regulatory compliance pathways and innovation in best management practices centered on low impact, green infrastructure, as well as best management practices to meet pollution reduction objectives. The course also educates attendees regarding emergent issues and challenges that must be addressed through adaptive management, such as climate change impacts and water quality impacts associated with microplastics, tire wear particles, pesticides and other pollutants. Finally, the workshop provides important up-to-date information on the legal and regulatory backdrop for municipal stormwater programs.

A variety of research scientists, technical experts and experienced practitioners are included in the program as speakers/instructors. The workshop will be convened in person at the LaSells Stewart Conference Center on the Oregon State University campus, as described in the expanded program/course outline below.

Method of Tracking Attendance for CEU Certification:

All attendees wishing CEUs will be required to sign a CEU registration and certification roster for the sessions, which will be attended by a conference logistical coordinator. ACWA will monitor attendance and the roster and will sign and maintain the roster as required.

Course Outline (Program), Instructor Information, and Time Schedule:

2024 ACWA Stormwater Summit—Wednesday, May 15, 2024:

Pre-Summit Workshop; 8:45 am to 9:45 am: Stormwater 101 (Optional—0.1 FTE requested)

Krista Reininga, P.E., Brown and Caldwell

The “Stormwater 101” Pre-Summit Workshop is intended to introduce new stormwater professionals and permittees to the basics of stormwater quality and quantity management, the regulatory framework, best management practices, evolving permit requirements and implementation strategies, and resources. This session provides important background for professionals that are new to stormwater and other water quality management programs and is a good refresher for people who have worked in the field but have not kept their knowledge current.

Krista Reininga, P.E., is a water resources engineer at Brown and Caldwell with 36 years of experience. She is currently focused on assisting municipal jurisdictions with regulatory compliance related to their stormwater programs. She is experienced in NPDES permitting, TMDL planning, multiple objective stormwater master planning, stormwater quality monitoring, stormwater and water quality data evaluations, pollutant source identification, hydrologic/hydraulic modeling, and the development of municipal stormwater quality standards for new development. Reininga earned a B.S. degree in Civil Engineering from Michigan State University and a M.S. degree in Environmental Science from Indiana University.

Pre-Summit Workshop; 8:45 am to 9:45 am: Groundwater 101—Everything you Ever Wanted to Know (Optional—0.1 FTE requested)

Matt Kohlbecker, R.G., Supervising Hydrogeologist, GSI Water Solutions

The “Groundwater 101” Pre-Summit Workshop is intended to introduce new stormwater professionals and permittees to the basics of using underground injection control (UIC) and other groundwater infiltration measures to manage stormwater quality and quantity. He will review current research findings and examples of successful methods, and will address the regulatory framework for these methods, including Water Pollution Control Facility (WPCF) permits. This session provides important background for professionals that are new to stormwater and other water quality management programs who may be contemplating use of groundwater injection or infiltration facilities and is a good refresher for people who have worked in the field but have not kept their knowledge current.

Matt Kohlbecker, RG, is a Principal Hydrogeologist with GSI Water Solutions, Inc. Mr. Kohlbecker has over 21 years of experience helping municipalities and businesses solve stormwater infiltration challenges and developing groundwater supplies. His broad experience includes applying innovative infiltration

techniques, preparing groundwater protectiveness evaluations for underground injection control (UIC) permits, infiltration testing, and using stormwater recharge to augment water supply. Prior to rejoining GSI, Mr. Kohlbecker worked for 3 years at the Oregon DEQ, serving as the technical lead for the UIC program.

Wednesday, May 15th Stormwater Summit Program-- 10:00 am to 4:30 pm; with a 70-minute lunch break and afternoon breaks totaling 30 minutes.

10:00 am	<p>Welcome & Introductions ACWA Stormwater and Groundwater Committee Co-Chairs</p>
10:10 am	<p>What’s on the Horizon for DEQ’s Water Quality Programs—Implications for Stormwater Programs Jennifer Wigal, Water Quality Administrator, Oregon Department of Environmental Quality</p> <p>Ms. Wigal will provide updates and previews from DEQ’s Water Quality Division, including plans to tackle new challenges and how the agency will partner with local government agencies. It is important for stormwater management professionals to understand the regulatory drivers and mandates DEQ is delegated to implement, including the impacts of updated Total Maximum Daily Loads, water quality standards and litigation results. Wigal will discuss the status and plans for updating general and individual stormwater-related permits, and what local jurisdictions can expect to see emerge from DEQ as priorities for the Stormwater program.</p> <p><i>Jennifer Wigal</i> is the Administrator for the Oregon DEQ Water Quality Division. Prior to this appointment, she served in several different management positions within DEQ’s water quality program in her 16 years with DEQ. Ms. Wigal is responsible for leading DEQ’s Water Quality Programs, including permitting, water quality standards, TMDLs, and assessments among other programs. Prior to coming to DEQ, Jennifer spent the first decade of her career at U.S. EPA Headquarters working in various water quality programs. Jennifer holds an M.S. degree in Environmental Engineering from Johns Hopkins University and a B.S. degree in Civil Engineering from Washington State University.</p>
10:30 am	<p>National News—An Update from the National Association of Clean Water Agencies (NACWA) Matthew McKenna, Government Affairs Director, NACWA</p> <p>Mr. McKenna will provide an overview of current legislative, regulatory, and legal happenings at the national level. In particular, he will provide updates on EPA actions and other developments at the national level that will impact municipal stormwater permits and programs in Oregon. The presentation will include a general legislative update, and overview of infrastructure bill implementation, a brief analysis of the President’s FY 2025 EPA budget request, and an EPA timeline of new regulations and rules being promulgated. It is important for stormwater professionals to stay abreast of legislative, legal, and contemplated EPA actions that may drive changes in how they implement stormwater permits and manage regulatory stormwater programs.</p> <p><i>Matthew McKenna</i> is the Director of Government Affairs at NACWA. In his capacity, Matt works with both NACWA’s legislative and regulatory affairs teams to engage with Congress</p>

	<p>and the Administration on the critical federal issues that impact NACWA’s members. Before coming to NACWA, Matt served as the Director of the Great Lakes Washington Program at the Northeast-Midwest Institute, a nonprofit and nonpartisan research, education, and policy organization. Matt has also worked in the policy shop of a large, Midwest-based law firm and on Capitol Hill. He holds a BA degree from George Washington University in Washington, DC.</p>
<p>10:50 am</p>	<p>BMPs and PFAS—Removing “Forever” Chemicals from Stormwater The latest research on PFAS uptake in stormwater green infrastructure facilities. Tyler Radniecki, Ph.D., Associate Professor, Oregon State University</p> <p>Per- and polyfluoroalkyl substances (PFAS) are a class of highly toxic contaminants that contain strong carbon-fluorine bonds that are resistant to biodegradation. Stormwater is of particular concern due to its potential to act as a conduit of PFAS compounds from impacted areas to receiving sediments and water bodies. However, the effectiveness of traditional stormwater best management practice (BMP) strategies at removing PFAS is still an area of active research. Dr. Radniecki will present recent OSU work that quantified the effectiveness of two common BMP strategies, sorptive granular media (RemBind™, biochar and activated carbon) and planted bioswales, to remove a wide range of PFAS compounds. The PFAS removal capabilities of 10 bioswale plant species (which can be divided into 5 categories: grasses, rushes, sedges, herbaceous dicots and woody dicots) were evaluated. The lessons learned from this work led to the construction of a pilot-scale PFAS-treatment BMP in which stormwater passes through a planted bioswale containing rushes and sedges (two plant groups with high evapotranspiration rates) to act as an initial stage for DOC and short-chained PFAS removal. This is followed by a biochar sorption treatment to further remove DOC and other stormwater contaminants before a final polishing step by RemBind™ to primarily remove larger PFAS compounds. This study will assist stormwater managers in planning future stormwater BMPs with the goal of successful PFAS removal.</p> <p><i>Tyler Radniecki</i> is an associate professor of Environmental Engineering at Oregon State University. He received a BS in Environmental Science from Bemidji State University in Minnesota and an MS and PhD in Environmental Engineering from Yale University. His research focuses on biological wastewater and stormwater treatment systems with an emphasis is on the molecular characterization of their microbiomes to enhance performance. Tyler is the co-director of the OSU-Benton County Green Stormwater Infrastructure Research facility (OGSIR), a research testbed for stormwater treatment technologies.</p>
<p>11:40 am</p>	<p>Stormwater Ponds and Wildlife—Can Stormwater Quality Facilities and Wildlife Habitat Coexist? Katie Holzer, Ph.D., Watershed Scientist, City of Gresham</p> <p>One of the primary goals of stormwater management is to protect and improve downstream habitat for native fish and wildlife. Some vegetated stormwater facilities also have the potential to directly provide habitat, especially when they replicate features of wetlands which were formerly on the landscape but have been lost or degraded through agriculture or urbanization. This presentation will give an overview of studies of wildlife use of constructed vegetated stormwater facilities in Oregon with lessons learned on design, management, and coexistence. The first set of studies highlights the use of stormwater facilities by native amphibians, birds, and dragonflies, including species of conservation concern. Results show that these facilities can provide important habitat for an array of native species when they</p>

	<p>have an appropriate slope, depth, vegetation, and dredging schedules. The second set of studies examines the concern that stormwater ponds create ecological traps by luring native species to contaminated sites. Results show that native species often avoid the most contaminated sites; however, they tend to survive and grow similarly within the stormwater ponds that they do colonize when compared to nearby pristine ponds. The last set of studies focuses on the benefits and complications beavers occupying stormwater facilities. Results show that beaver activity can have substantial water quality benefits while not impeding facility function and maintenance when coexistence strategies such as culvert protectors and pond levelers are used. Together these studies demonstrate that stormwater facilities have the potential to not only clean and detain water for downstream habitat, but that they can themselves somewhat recreate the important wetland habitat which has been largely lost on our landscapes. Since many stormwater BMPs today incorporate natural features like bioswales and ponds, it is important for stormwater professionals to understand and be able to anticipate how wildlife will inhabit and interact with these facilities so they can plan and maintain them accordingly.</p> <p><i>Kati Holzer</i> is a Senior Watershed Scientist at the City of Gresham where she leads the stormwater monitoring program. She's worked as a watershed scientist for Gresham since 2015. Prior to that, she worked in the Portland metropolitan area as a wetland consultant, an environmental educator, and a habitat restoration technician. She has a PhD in Ecology from UC Davis and a BA in Biology from Lewis and Clark College.</p>
12:20 pm	LUNCH
1:30 pm – 2:20 pm	Concurrent Workshops—Session A
Ag Production Room	<p>Insights into the Impact of Organic Matter on Copper Chemistry and Treatment Jeff Nason, Ph.D., Professor, Chemical, Biological, and Environmental Engineering, Oregon State University Laurinda Nyarko, Ph.D. candidate, Environmental Engineering, Oregon State University</p> <p>The removal of dissolved copper from stormwater is critical to the protection of surface water quality due to its toxicity to many aquatic organisms including salmonid species. The toxicity and bioavailability of copper is strongly impacted by its interactions with organic matter. Copper complexation with organic matter also impacts the ability to efficiently remove copper from stormwater by processes like adsorption. Further, chemical speciation models that predict copper-organic matter interactions are a basis for the water quality criteria for copper. For these reasons, it is critical to have a fundamental understanding of how organic matter character impacts copper speciation. This talk will highlight the application of novel liquid chromatography/mass spectrometry techniques for identifying anthropogenic organics that bind copper. It will also illustrate how the presence of organic matter impacts the removal of copper by adsorptive processes commonly incorporated into stormwater treatment systems.</p> <p><i>Jeff Nason</i> is a professor of environmental engineering and head of the School of Chemical, Biological and Environmental Engineering at Oregon State University. He holds a BS in chemical engineering and a MS in environmental engineering from Cornell University and a PhD in civil engineering (environmental and water resources engineering) from the University of Texas at Austin. His research focuses on physical/chemical processes for water quality control, aquatic chemistry, and the fate and transport of particulate contaminants in aquatic systems.</p>

	<p><i>Laurinda Nyarko</i> is a fifth year PhD candidate in environmental engineering from Ghana. She obtained a BA in Chemistry from Whitman College where she conducted research with Dr. Dalia Biswas, synthesizing the active site of an enzyme that oxidizes carbon monoxide into carbon dioxide. She currently works under the supervision of Dr. Jeffrey Nason and Dr. Rene Boiteau, investigating metal-organic binding in aquatic environments with combined liquid chromatography and mass spectrometry methods, and evaluating the impact of such interactions on regulations and treatment.</p>
<p>Ag Leaders Room</p>	<p>New Opportunities for Funding Stormwater Facilities and How to Access Them Megan Hendrickson, Oregon DEQ Alli Miller, Oregon DEQ</p> <p>Municipalities with Municipal Separate Storm Sewer System (MS4) permits and Total Maximum Daily Load (TMDL) implementation requirements have significant funding requirements to plan and build stormwater quality infrastructure to maintain compliance. It is important for stormwater professionals to know what kind of funding and financing opportunities are available from the Clean Water State Revolving Fund and other sources to support agencies in accessing sufficient funds. DEQ staff will provide an update on state and federal funding opportunities.</p> <p><i>Megan Hendrickson</i> is a grant administrator for the Community and Program Assistance group. She has been with DEQ since 2022 and currently administers funds from the American Rescue Plan Act and the EPA Sewer Overflow and Stormwater Reuse Municipal Grant. Megan has a background working with communities in order to plan and meet project goals with multiple priorities. This background engaging with families and communities gives her a unique perspective to goal development and strategies on how to meet them.</p> <p><i>Alli Miller</i> has been a Program Analyst for the Clean Water State Revolving Fund at DEQ for almost two years. In her role, she works to conduct outreach and education about the CWSRF program, trying to make sure small, rural, disadvantaged, or environmental justice communities have information and access to funding for clean water projects or connect these communities with technical assistance to enhance their capacity for taking on clean water projects. Previously, she worked as a Program Assistant at the David and Lucile Packard Foundation. Alli has a Masters degree in Public Policy at Portland State University with a certificate in Sustainable Food Systems and a focus on Environmental Justice and Natural Resource Management. She received BA degrees in Political Science and Psychology from the University of Wisconsin-Madison.</p>
<p>Ag Science Room</p>	<p>Key Issues in UIC/WPCF Permit Renewals Kevin Weberling, R.G., Oregon DEQ Derek Sandoz, Oregon DEQ</p> <p>Many of Oregon’s communities manage at least a portion of their stormwater infrastructure through underground injection control devices. These devices require water quality permits separate from their MS4 permits. This presentation will provide an overview of the DEQ Underground Injection Control (UIC) Program, including the regulatory history and current classes of UIC devices that are regulated by DEQ. Kevin Weberling and Derek Sandoz will discuss current issues in UIC permitting in the state and will discuss the new issues UIC permit holders should anticipate as their UIC Water Pollution Control Facility permits come up for renewal. They will discuss the status of permit renewals and changes in permit</p>

	<p>language, sampling requirements, emerging contaminants of concern, etc. that permits can anticipate seeing. They will also cover other program updates that will have an impact on permittees in the future. This information is important to stormwater professionals that are contemplating adding UICs to their stormwater infrastructure or that will be facing permit renewal in the coming months.</p> <p><i>Kevin Weberling</i> has served as a Senior Hydrogeologist in DEQ’s Underground Injection Control Program since 2021. Prior to joining DEQ he worked as a Senior Geological Advisor for the California Resources Corporation; Kevin has over 20 years of professional experience as a geologist/hydrogeologist in various capacities. Kevin has a BS degree in Geology/Earth Sciences from Central Washington University and an MS degree in Geological and Earth Sciences from the University of California at Santa Cruz. He is a registered geologist in Oregon and Washington.</p> <p><i>Derek Sandoz</i> has served as the DEQ Underground Injection Control Program Coordinator since 2013. Prior to joining DEQ, Derek worked in the private sector at several environmental consulting firms for 17 years. Derek has a BA from the University of Puget Sound in Tacoma, Washington. He also completed a one-year program at Murdoch University in western Australia with a focus on Environmental and conservation Sciences.</p>
<p>First Inter-state Room</p>	<p>Multi-Objective Stormwater Management Projects Meet Integrated Water Planning: Developing, funding, and implementing projects at the intersection of water conservation, water supply, stormwater management, community resiliency, and environmental justice—California examples Aaron Poresky, P.E., Principal Engineer, Geosyntec</p> <p>Many communities face escalating pressure to reduce pollutant loads to streams and rivers. In California, watershed plans with more than \$500M in stormwater retrofit costs have become commonplace. However, state laws limit the ability for communities to levy taxes for stormwater improvements. Additionally, stormwater treatment retrofits are often not the most pressing issue for communities who face a host of other issues, including drought restrictions, limited local water availability, flood risks, wildfire risks, and other issues expected to be exacerbated by climate change.</p> <p>Multi-benefit projects have been a key strategy to overcome these challenges for many years, involving stacking multiple benefits to make projects more favorable to communities and often attracting funding partners and grant support. With much of the low hanging fruit now harvested, communities have had to continue to innovate on how to develop, fund, and deliver the next tier of projects. The solutions vary widely, influenced by the pollutant(s) of concern, local watershed conditions, local partnership opportunities, and many other factors. Increasingly, the nexus between stormwater, climate resiliency, and environmental justice is a unifying theme.</p> <p>This presentation will highlight examples of how communities are working to advance multi-benefit stormwater projects that intersect with community priorities, including a range of approaches for project development, funding strategies, and project delivery. These examples will introduce the menu of multi-benefit strategies used and why they made sense in each of the local contexts. While some of the drivers differ from those faced by Oregon communities, there are transferrable lessons in the menu of options and the thought processes that went into developing community-specific approaches. This case example will provide important</p>

	<p>information for Oregon stormwater professionals to expand Oregon’s stormwater management approaches to address increasing climate, drought, wild fire, and environmental equity factors.</p> <p><i>Aaron Poresky, P.E.</i>, is a Principal Water Resources Engineer with Geosyntec based in Oregon. He has over 18 years of experience focused on urban stormwater and watershed management. He applies his expertise in environmental regulations, water resources modeling, and stormwater control measures to lead integrated watershed management efforts throughout the West Coast, including low impact development, stormwater retrofits, stream protection and rehabilitation, flood risk mitigation, water supply augmentation, software development, and asset management. Aaron has a B.S. in Civil Engineering from Oregon State University and a B.S. in Environmental Engineering, also from Oregon State University.</p>
<p>2:30 pm – 3:20 pm</p>	<p>Concurrent Workshops—Session B</p>
<p>Ag Production Room</p>	<p>Adaptive Management for Municipal Stormwater Programs—DEQ Perspectives for Achieving Successful Outcomes Pablo Martos, Sr. Permit Writer, Oregon DEQ</p> <p>This session will focus on providing a definition and framework for implementing an adaptive management approach within National Pollutant Discharge Elimination System (NPDES) municipal stormwater (MS4) permit programs. The session will highlight how the adaptive management concept is incorporated into MS4 permit development and provide examples of what MS4 permittees should consider when developing, adopting and implementing an effective an adaptive management approach.</p> <p><i>Pablo Martos</i> has been the Senior MS4 Permit Writer for the Oregon Department of Environmental Quality since 2018. Prior to that he served at the Oregon Department of State Lands as the agency’s Portland Harbor Superfund Specialist for 6 years and spent the earlier part of his career in the private sector at environmental engineering consulting firms. He holds a BS in Applied Ecology from UC Irvine and a Graduate Certificate in Fisheries Management from Oregon State University.</p>
<p>Ag Leaders Room</p>	<p>Reducing Toxics--Using Digital Media to Reach People and Impact Behaviors</p> <ul style="list-style-type: none"> • Building Water Culture and Protection Using Social Media-- Roy Iwai, Multnomah County; Keri Handaly, City of Gresham (Clean Rivers Coalition) • ACWA Tool Kit on PFAS and Phthalates--Jennifer Rogers, Water Systems Consulting <p>This session will spotlight two public outreach and education initiatives focused on reducing pesticides, PFAS, and phthalates in water. The Clean Rivers Coalition (CRC) has worked since 2016 to build a bridge between clean water and healthy communities through education and engagement, and to develop a connection between people and their local waterways. In 2021, CRC launched the Follow the Water campaign, which included cultural videos co-developed with the Columbia River Intertribal Fish Commission and a strategic social media communication campaign and lawn pilot project designed to help stormwater agencies meet their outreach regulatory requirements. Roy Iwai and Keri Handaly will present the campaign and will highlight research that has been conducted that will influence lawn care campaigns to reduce us of toxic chemicals.</p> <p>The second outreach campaign presented in this session will be ACWA’s outreach program to reduce PFAS and phthalates, which was developed under an EPA Columbia Basin Restoration</p>

	<p>Act program. The PFAS and Phthalate Public Outreach Toolkit will help ACWA members engage with communities on how they can reduce PFAS and phthalates and better understand PFAS exposures and risk. The recently completed Toolkit also includes guidance on reaching underserved communities with key toxics reduction messages. Water Systems Consulting (WSC) collaborated with ACWA on this project, and Jennifer Rogers of WSC will share features of the Toolkit and how local governments can use it.</p> <p>These presentations will support stormwater professionals in developing outreach programs needed to meet stormwater permit and TMDL compliance requirements.</p> <p><i>Roy Iwai</i> has worked at Multnomah County for 16 years managing the Water Quality Program in the Transportation Division. His work includes managing environmental compliance with NPDES, TMDL, and UIC programs, as well as restoring fish passage, and coordinating interjurisdictional watershed restoration and outreach efforts within the county. He has a masters degree from Louisiana State University in Oceanography and Coastal Sciences with research in wetland biogeochemistry. Roy earned his bachelors degree in Architecture from the University of Oregon.</p> <p><i>Keri Morin Handaly</i> has worked for the City of Gresham in the Water Resources Division for 21 years. She specializes in toxic reduction behavior change social science and has worked at the local, regional, and state level in developing campaigns to reach Oregonians about water quality issues and behaviors that impact water quality in rivers and streams. She has a masters degree from the University of Washington in Public Policy and a BS degree in Environmental Science from the University of Georgia.</p> <p><i>Jennifer Rogers</i> is a communications and outreach leader for Water Systems Consulting. She brings 20 years of experience in all aspects of communications from strategic planning to facilitation to brand development and partnership building, with significant experience in water and natural resources communications. She is adept in working across multiple organizations to build partnerships that move initiatives forward. She supports regional water leaders in articulating their vision and translating it into an actionable plan. Jennifer has a masters degree in Communication Studies from San Francisco State University and a BA degree in Journalism from San Diego State University.</p>
Ag Science Room	<p>Fate and Transport of PFAS in Stormwater Discharges from Drywells, and What to Do About it:</p> <p>City of Bend study to inform establishment of standards for horizontal separation distances between water wells and UICs Elisabeth O’Keefe, City of Bend Matt Kohlbecker, R.G., GSI Water Solutions Jason Keller, R.G., GeoSystems Analysis, Inc.</p> <p>Per- and Polyfluorinated Substances (PFAS) are a group of chemicals that are highly toxic, mobile, and persistent in the environment. A recent (2022) Emerging Pollutant Evaluation prepared by the ACWA Groundwater Committee identified PFAS as the emerging pollutant in stormwater that, when infiltrated, poses the highest risk to groundwater. The City of Bend has evaluated the environmental fate of PFAS that is present in stormwater using numerical modeling techniques that simulate PFAS fate and transport in unsaturated and saturated soils. The objective of the City’s evaluation is to establish protective vertical and horizontal separation distances between underground injection control (UIC) devices and drinking water wells. Because the City’s water supply relies on groundwater, understanding the fate and</p>

	<p>transport of PFAS will be especially important with the upcoming establishment of a Maximum Contaminant Level (MCL) for PFAS, which will set a limit for PFAS in public drinking water systems.</p> <p>This presentation is relevant for all stormwater programs that use UIC devices as part of their stormwater infrastructure, particularly where groundwater is used for drinking water supplies.</p> <p><i>Elisabeth O'Keefe</i> is a program manager responsible for implementation of the municipal phase II and underground injection control stormwater permits for the City of Bend. Prior to her role at the City, she worked for over 6 years on Phase I stormwater permit implementation, surface water quality monitoring, and Total Maximum Daily Load compliance for a water utility in Northern California. Elisabeth has a BS degree in Environmental Policy Analysis and Planning from the University of California at Davis and an MS degree in Environmental Studies from San Jose State University.</p> <p><i>Matt Kohlbecker</i>, RG, is a Principal Hydrogeologist with GSI Water Solutions, Inc. Mr. Kohlbecker has over 21 years of experience helping municipalities and businesses solve stormwater infiltration challenges and developing groundwater supplies. His broad experience includes applying innovative infiltration techniques, preparing groundwater protectiveness evaluations for underground injection control (UIC) permits, infiltration testing, and using stormwater recharge to augment water supply. Prior to rejoining GSI, Mr. Kohlbecker worked for 3 years at the Oregon DEQ, serving as the technical lead for the UIC program.</p> <p><i>Jason Keller</i>, RG, is Principal Hydrogeologist with GeoSystems analysis, Inc. in Hood River, Oregon. Jason has over 20 years of experience performing characterization, monitoring, and modeling to investigate unsaturated flow processes at diverse locations ranging from the Pacific Northwest, Great Basin, and southwestern deserts in the United States to the Andean mountains of South America. He has a broad range of applied experience in groundwater recharge studies, municipal and agricultural conjunctive use studies, and soil aquifer treatment of source water.</p>
First Interstate Room	<p>Multi-Objective Stormwater Management Projects Meet Integrated Water Planning: Developing, funding, and implementing projects at the intersection of water conservation, water supply, stormwater management, community resiliency, and environmental justice—California examples Aaron Poresky, P.E., Principal Engineer, Geosyntec</p> <p>(Repeat of session from Session A—See information above)</p>
3:20 pm	BREAK and POSTER SESSION
3:40 pm – 4:30 pm	Concurrent Workshops—Session C
	<p>Reducing Toxics--Using Digital Media to Reach People and Impact Behaviors</p> <ul style="list-style-type: none"> • Building Water Culture and Protection Using Social Media-- Roy Iwai, Multnomah County; Keri Handaly, City of Gresham (Clean Rivers Coalition) • ACWA Tool Kit on PFAS and Phthalates--Jennifer Rogers, Water Systems Consulting (Repeat of session from Session B—See information above)

<p>Ag Leaders Room</p>	<p>Between a Rock and a Hard Place: Emerging challenges for stormwater and public works infrastructure management due to growing pressure from the state to restrict local government regulation and fees for new development Amy Pepper, P.E., City of Wilsonville</p> <p>In January 2023, Oregon’s governor Kotek established an aggressive statewide housing production goal and a housing production advisory council. As part of the housing production goal, stormwater standards, tree protection, Goal 5 (vegetated corridors) protections and collection of SDCs have all become a topic of discussion as a deterrent to housing production. At the same time, jurisdictions are working to update standards, master plans, and financial models and associated fees to respond to ever increasingly stringent permits and TMDL implementation requirements that emphasize the increase use of low impact development and protection of riparian corridors. This session will provide an overview of the potential actions that could be taken by the state that would hinder local governments’ ability to implement land use and fee programs and regulations that are needed to ensure compliance with federal and state water quality mandates. Local stormwater program implementers need to be aware of and prepare for these potential changes.</p> <p><i>Amy Pepper</i> is currently the Development Engineering Manager for the City of Wilsonville, with over 20 years of experience working for small cities in the Portland metro area overseeing the development of industrial pretreatment, stormwater, and TMDL programs, in addition to capital projects and development review. Amy served 10 years on the ACWA Board and she currently serves on the League of Oregon Cities Water and Wastewater Policy Advisory Committee. Amy has a BS degree in Civil Engineering from University of the Pacific in Stockton, California.</p>
<p>Ag Science Room</p>	<p>Public and Private Stormwater Facilities Inspection and Maintenance Programs: Lessons learned from a successful community program Kerry Rappold, Natural Resources Manager, City of Wilsonville Jim Cartan, Environmental Specialist, City of Wilsonville</p> <p>Since 1995, in conjunction with the City of Wilsonville’s first NPDES MS4 Phase 1 permit, the City of Wilsonville has seen a significant increase in the number of stormwater facilities. During this time, rapid growth and urbanization has added hundreds of thousands of square feet of impervious surfaces within the city limits, putting more pressure on the stormwater system and revealing the need for a coordinated approach to managing stormwater runoff. Wilsonville is relatively unique in that the majority of these stormwater facilities are located on newly developed or redeveloped private property, necessitating a public/private partnership throughout the City to ensure that the requirements of the NPDES permit are met. Managing and discharging stormwater at acceptable rates to the Willamette River is a collaborative effort within the City of Wilsonville and this presentation will cover the mechanisms by which private property owners are required to maintain stormwater facilities, the approach to maintaining the smaller number of public facilities, and how a new recognition program aims to highlight the environmental stewardship of our commercial, industrial, and residential stormwater facility owners in town.</p> <p>This presentation will provide a case example that can inform stormwater management professionals on how they can improve their programs, which are required to maintain MS4 permit compliance.</p>

	<p><i>Kerry Rappold</i> is the Natural Resources Manager for the City of Wilsonville. During his 22 years with the City, he has had responsibility for program development, compliance with local, state and federal requirements, capital project planning and implementation, stormwater management and permitting, managing enhancement and restoration projects, and environmental education. Kerry’s previous work experience included silviculture and urban forestry, watershed management and monitoring, and regulatory review and permitting. Kerry has an MS degree in Environmental Planning from University of Wisconsin – Madison, and a BS degree in Forest Administration from University of Wisconsin – Stevens Point</p> <p><i>Jim Cartan</i> is the newly hired Environmental Specialist for the City of Wilsonville. Jim administers the Clackamas Group’s NPDES MS4 Phase 1 permit and is responsible for a variety of programs and partnerships designed to meet the Schedule A.3 Stormwater Management Program Control Measures of this permit. Jim brings 15 years of experience in the Environmental field to the City of Wilsonville. Jim previously worked for the federal government, regional municipalities, as well as the non-profit sector focusing on ecological restoration, land stewardship, environmental education, and community outreach. Jim has an MS degree in Environmental Management from University of San Francisco, CA and a BA degree in Environmental Studies from University of California, Santa Cruz, CA.</p>
<p>First Interstate Room</p>	<p>Seeing Purple: Implementing Stormwater Treatment and Storage for the City of Beaverton’s Non-potable Water System for Municipal Irrigation Jason Melady, RG, CWRE, Principal Hydrogeologist, Summit Water Resources, LLC Brian Diaz, P.E., City of Beaverton Lee Odell, P.E., Consor Engineers</p> <p>This presentation will provide a case example of a multi-objective project that supports improved stormwater management during peak winter months and supports water supply needs during the summer months of peak demand. The City of Beaverton initiated the formation of a non-potable water utility to provide irrigation supply to the rapidly developing area referred to as South Cooper Mountain. The non-potable utility capitalizes on previous investments made by the City in its successful aquifer storage and recovery (ASR) program to provide a cost-effective supply of water for irrigation that would otherwise be derived from the City’s limited drinking water supplies. Additionally, the non-potable system will use treated wintertime residential stormwater through an innovative treatment process and stored in the subsurface via ASR to augment the irrigation supply and enhance summertime streamflows. The presentation will cover major progress and achievements to-date including overall system design and integration with the site, construction of stormwater treatment and ASR pump station facilities, and operation and maintenance considerations. The facility is scheduled to be operational in 2025. It is important for stormwater management professionals to stay abreast of this type of innovation in stormwater management that meets water quality and supply objectives for Oregon’s growing communities.</p> <p><i>Jason Melady</i>, RG, CWRE, is a principal hydrogeologist at Summit Water Resources in Portland, Oregon, specializing in water resources, groundwater supply, and water rights evaluations. He is an expert in the design and operation of ASR well systems for municipal and agricultural clients. Jason is a registered geologist in Oregon and Washington and a certified water rights examiner in the state of Oregon.</p> <p><i>Brian Diaz</i>, P.E. works for the City of Beaverton as a project engineer. He has practiced civil engineering in some capacity for 15 years. He’s worked on water systems in Texas and</p>

Oregon, and practiced geotechnical engineering in California and offshore anchor systems. Brian has a BS degree in civil engineering from Cal Poly Pomona, and an MS degree from Texas A&M.

Lee Odell a principal engineer at Consor, Inc. He is a water treatment specialist for Consor with over 30 years of experience as an engineering consultant and 4 years of experience as a water treatment plant operator and operations supervisor. Lee has managed more than 200 water treatment projects including development of treatment systems, pilot testing, demonstration testing, design, and has overseen installation of many types of groundwater treatment technologies. Lee has an MS in Engineering from the University of Iowa.