Stormwater Work Group
Meeting Summary

Wednesday September 10, 2025, from 9:00 a.m. to 12:00 p.m.

Meeting Overview

The Stormwater Work Group (SWG) held a virtual meeting on September 10, 2025.
Meeting topics included:

- **Introduced the new SWG Project Manager: Julian Carroll**
- **SAM Presentation:** Longevity of biological protection using bioretention
- **Voted** and approved SAM Round 5 Project Ideas
    - All Project ideas adopted excluding #2 and #4
    - Low Priority Project Ideas #2 and #5 also adopted
- **Voted** and approved a new PRO-C member: Aaron Burkhart, City of Bellingham
- **Voted** and approved 2026 meeting dates and an in-person meeting
    - February 11, May 13, September 9, November 18
    - May 13 in person, location TBD

Meeting Participants

105 people participated in this SWG meeting. People included:

13 Voting Members

Present: Meiring Borcherds, Maureen Meehan, Jessica Atlakson, Jess Huybregts, Don McQuilliams, Dara Osborne, Trey George, Abby Barnes, Nick Hehemann, Abbey Stockwel, Katrina Radach, Rae Eaton, Lori Blair

Absent: Dana de Leon, Rich Sheibley, Gary Bahr, Jane Dewell

There are 26 total voting member spots in the SWG. Currently, there are 17 filled positions. There are vacancies in the state, federal, Tribal, environmental, and business caucuses.

6 Ecology Administrative Staff

Madison Bristol, Raghu Namburi, Chelsea Morris, Emma Froembling, Shelby Giltner, Julian Carroll

Ecology administrative staff support the SWG through membership outreach, coordinating PRO-C and SAM, organizing the agenda, notetaking, meeting

facilitation, virtual meeting technical support, updating the SWG website, and managing the SWG listserv.

81 Additional Attendees

Rebecca L. Casey	Curtis Hinman	Joey Urquhart
Tiffany Sevilla	Sarah Wilson	Cory Olson
Haley Lewis	Heather Martin	Nick Tealer (NWIFC)
Chuck Geissel	Mindi Kellar	Ayden Mudd
Fred Cerda	Christian Nichols	Ryan Christensen
Jeff Davis	Anurag Mishra	Hannah Mittelstaedt (PSP)
Meaghan Owens	Morgan Jennie	Aimee Navickis-Brasch
Barb Tope (Port Of Olympia)	Rachel Bowen	Scott McQuary
Diane Hennebert	Melissa Petrich	David Batts
Laurie J Larson-Pugh	Stefan Grozev	Tammie Wilson
Troy Fields	Chloe Fender	Raquel Gilliland (PSP)
Zackary Holt	Kali Ledeboer	Sarah Murt
Dimitrios Athanasiou	Janet Geer	Jenifer K McIntyre
Matt Heikkila	Megan Folkers	Caroline Najarian (Navy)
Lisa Jones	Tanya MacFarlane	Stella Collier
Kristina G Hopkins	Cynthia Walcker	Stratton Kirton
Olin Anderson	Liora Llewellyn	Nicholas Wegener
Kevin D. Fitzgerald	Chris Gustafson	Blaine Chesterfield
Justin Adams	Michael Cawrse	Eli J Mackiewicz
Troy Modie	Cameron Coronado	Susan McCleary
Brad Archbold	Marissa Paulling (NWIFC)	Kevin Brandhorst
Brandi Lubliner	Amanda Royal	Amy Waterman (ECY
Rebecca Wood (ECY)	Leslie Connelly (ECY)	Emily McCartan (ECY)
Madison Hattaway (ECY)	Rachel Yonemura (ECY)	Yago Perniciaro (ECY)
Patricia Johnson (ECY)	Charles Jones (ECY)	Shannon McClellan (ECY)
David Mora (ECY)	Graham Simon (ECY)	Dustin Bilhimer (ECY)
Bryson Finch (ECY)	Morgan Maupin (ECY)	Chanele Holbrook (ECY)

Thank you as always to our voting representatives, members, staff, and partner organizations for your commitment to the SWG community.

Sincerely,

Don McQuilliams, SWG Chair

Abby Barnes, SWG Chair

Madison Rose Bristol, SWG Interim Coordinator

Julian Carroll, SWG Project Manager

Full Meeting Summary

Introductions: New SWG Project Manager

- Introduced the new SWG Project Manager: Julian Carroll
- Julian will be replacing Madison's role

SAM Presentation: Longevity of biological protection using bioretention

- Presentation Link
- Project Website: Longevity biological protection using bioretention
- This study evaluated the long-term performance of bioretention soil media (BSM) at varying depths for treating urban stormwater runoff and preventing acute toxicity to salmon. Lab results show that all depths effectively removed key contaminants and protected coho from stormwater-induced mortality over 13 simulated years.
- Study design:
    - Research questions:
        - What depths of bioretention are necessary to treat runoff?
        - For how long are they effective?
    - Accelerated aging:
        - Dosing with collected runoff
        - 10 water years across 2-year study
        - Assess chemical, physical, and biological performance at end of every water year
    - Process
        - Experimental column design – 6-inch PVC pipes
        - Nickel in sand > Eco-SSL for terrestrial plants
        - Zinc in compost > Ecological Soil Screening Level (Eco-SSL) for avian wildlife
        - High Molecular Weight Polycyclic Aromatic Hydrocarbons (HMW PAHs) in compost > Eco-SSL mammalian wildlife
        - Site 1 was in south Tacoma and Site 2 was in west Tacoma (near Narrows Bridge)
        - Used a lot of chemistry end points on the study: Metals, PAHs, Nutrients, 'Conventionals', Bacteria
        - Used temperature to simulated water years – 13 simulated water years over ~4 years
        - Each water year was made up of about 6 events

- Results
    - Saturated Hydraulic Conductivity (Ksat) declined in runoff treatments: R6>R12>R18
    - Orthophosphate was the only contaminant that showed a steady decline in concentrations in effluent over time
    - Shallower BSM allowed more Copper to pass through; less release of Arsenic, Nickel
    - Shallower BSM generally released less nutrients, DOC, TSotal Suspended Solids (TDS)
    - No apparent loss of metals removal over 13 WYs!
    - Concentrations of copper, nickel, zinc accumulated in BSM exceeded safety guidelines for soil
    - Lack of strong morphometric impairments in zebrafish exposed to runoff may be related to low [PAHs]
    - All runoff events induced Cytochrome P450 1A (CYP1A)
    - BSM filtration of runoff tended to reduce cyp1a induction
    - C18 rarely increased cyp1a , so residual induction in effluents from BSM was not due to BSM itself
    - Deeper BSM more likely to reduce cyp1 induction to control levels
    - Copper in runoff insufficient to cause olfactory neurotoxicity, with or without filtration through BSM
    - All BSM depths protected salmon from mortality across entire study
    - No chemical breakthrough over 13 accelerated water years
    - No increase in toxicity detected
    - Release of Phosphorous reduced over time
- Please email any other questions for Dr. McIntyre to jen.mcintyre@wsu.edu

Q&A

Question: Can you explain 'clean' water? Are you referring to tap water of DI water?

Answer: The clean water used was the control we used for fish exposures – the rearing water used in laboratory – went through reverse osmosis

Question: How did you create a 3-inch ponding depth? Continuous flow at 3-inches or a batch approach with a t=0 of 3-inches?

Answer: 3-inch space was available is ponding occurred

Question: What was the time between storms, and do you think about how hysteresis may have affected pollutant concentrations in the effluent?

Answer: Across study there was time to dry out in between when it rained. Anticipated dry area moments occurred as well. Wasn't something they controlled for.

Question: Were columns allowed to completely dry out at times, as occurs in MS4 facilities?

Answer: Yes. Sometimes it was unintentional and only related to the natural seasons.

Question: What were the units on the 6PPD-q data?

Answer: Nanograms per liter

Note: Keep in mind there were no plants in this bioretention media study, so no bioturbation typical in field bioretention sites. I think the buildup on the surface in the 6" tubes was a result of no roots or insects that work to distribute the fines into the soil column.

Note: Some perspective on Ksat: While decreased over time the end point is still above Ecology recommended measured infiltration rate for bioretention. Also, be aware that our research shows huge differences in lab vs field/pilot scale systems.

SAM Updates

- The contract from the final proposal in Round 4 is now in effect. This project, led by the City of Tacoma, is a technical review of recently developed advances in infiltration testing and design methodology. Project work will begin soon.
- Vote to approve SAM Round 5 Project Ideas --> Voting process: Voting members will either give a thumbs up or down to a proposal in the chat. For example: Proposal Idea #1 (react with a thumbs up or down)
    - Permit
        - #1 – APPROVED - 11 thumbs up
        - #2 – DECLINED - 7 thumbs down, 3 thumbs up
        - #3 – APPROVED - 10 thumbs up
        - #4 – DECLINED - 5 thumbs down, 4 thumbs up
    - Source Control
        - #5 – APPROVED - 8 thumbs up, 4 thumbs down
        - #6 – APPROVED - 10 thumbs up
        - #7 – APPROVED - 8 thumbs up
            - Add link to bacterial study project idea
        - #8 – APPROVED - 8 thumbs up, 2 thumbs down
        - #9 – APPROVED - 12 thumbs up
        - #10 – APPROVED - 10 thumbs up
            - Could potentially be rolled in with #9 – maybe just something to consider in the next steps
    - Maintenance/Manual
        - #11 – APPROVED - 5 thumbs up, 4 thumbs down

        - Re: #11. My "no" was because I don't think it's MS4 Permit-related enough. TMDL's are not stormwater regulations. The TMDL's implementation plan may include stormwater requirements (in Appendix 2). Subtle differences. But ok to move forward and evaluate closer at next step.
    - #12 – APPROVED - 9 thumbs up
  - BMP Effectiveness
    - #13 – APPROVED - 10 thumbs up
    - #14 – APPROVED - 9 thumbs up, 2 thumbs down
    - #15 – APPROVED - 9 thumbs up
    - #16 – APPROVED - 10 thumbs up
    - #17 – APPROVED - 8 thumbs up, 2 thumbs down
    - #18 – APPROVED - 10 thumbs up
        - Love to add salt/chloride tolerant species
        - Can these be modified as the process proceeds? - yes
    - #19 – APPROVED - 9 thumbs up
    - #20 – APPROVED - 9 thumbs up
        - Similar to the one about older pond function/retrofit options
    - #21 – APPROVED - 11 thumbs up
- Low Priority Project Ideas
  - #1 – didn't get a vote yet
    - Is it attempting to connect GMA and CAO requirements to Stormwater regulations? Needs clarification.
  - #2 – APPROVED - 5 thumbs up
    - Lori has done a ton of research and would like to expand this one. She likes this one!
  - #3 – didn't get a vote
  - #4 – didn't get a vote
  - #5 – APPROVED - 5 thumbs up
    - Important, and underrecognized by spills as well
    - Lori likes this one.
  - #6 – 1 thumb up
  - #7 – didn't get a vote
- You are welcome to follow-up with us if you have additional questions or concerns. Reach out to Raghu about these at raghu.namburi@ecy.wa.gov
- Schedule:
  - Stage 1: LOI by October 24 & SAM feedback by November
  - Stage 2: Full proposals due January 16th
  - Stage 3: Reviews returned to applicants March 13th
  - Stage 4: Workshop Week of April 6th

- Stage 5: First SWG discussion May
- Then start contracting after second SWG meeting & vote in July

Q&A

Question: Who is doing the future voting/scoring?

Answer: SAM and some SWG and some Ecology members.

Question: Is there a functional org chart out there that kind of lays out how the SWG, SAM, and Ecology work with each other that identifies where the lanes are for each?

Answer: Chelsea Morris: I made a new graphic in the 2024 annual report. Happy to talk more about the roles and responsibilities - chelsea.morris@ecy.wa.gov

SAM Annual Report 2024

Question: Is the guideline document with timeline available?

Answer: The guideline document is available here.

Updates from our partners

Puget Sound Ecosystem and Monitoring Program (PSEMP)

- Communications Support
  - PSEMP's partnership with Sea & Shore Solutions for communications support has been extended through February 2026! The goal is to help strengthen the network's communication skills and develop new communication products. This support is available to anyone connected with PSEMP— not just for PSEMP. To request communications support, simply fill out this form, and the PSEMP team will connect you with Sea & Shore. Read the full announcement with here.
  - We have several new resources that were developed through this effort, including A Guide to Building an Economic Argument, which provides guidance on how to connect economic arguments and to ecosystem recovery, and a new PSEMP Brochure, which is aimed to provide a sharable high-level overview of the PSEMP network. Find more details in the full update through the link here.
- Upcoming PSEMP Events
  - The Toxics WG is meeting Wednesday 9/11 9:30-12 and will feature presentations focusing on modelling activities supporting the management of 6PPDQ in the region. Agenda and zoom information can be found through the link here.

- The next Coffee with PSEMP is October 14 at 11am. This is an informal space for folks to connect, ask any and all questions, and engage in discussion. Register via the link here.
- For the full PSEMP calendar, please follow the link here.

National Estuary Program Stormwater Strategic Initiative Lead (SW SIL)

- Updates on subawards – contract negotiations and QAPP development in process for awards in CAP, innovative BMPs for 6PPD and other CECs, climate-resilient stormwater planning, and multi-benefit facilities.
- RFP just closed for projects implementing neighborhood-scale stormwater education, outreach, and pilot installations. Awards should be announced next week.
- Hiring for the Environmental Planner 5 – Stormwater Strategic Initiative Lead. Accepting applications until September 8.

Washington Department of Ecology (Ecology)

6PPD Work

- The 6PPD Team is actively contracting new 6PPD stormwater research projects. Part of this work includes developing a guidance document on the best available BMPs to mitigate 6PPDQ. If you are interested in learning more about our research, please reach out to Shelby at shelby.giltner@ecy.wa.gov
- Interstate Technology and Regulatory Commission (ITRC): Overview of the Tire-Derived Chemicals 6PPD & 6PPD-quinone Training – October 7, 2025. Register through the link here.

Additional Work

- Permit updates – WDOT MS4 permit – reissuance schedule is still tentative, planning for a public draft this year and reissuance in early 2026. MS4 permits appeal: Tumwater appeal is dismissed, Puget Soundkeeper appeal is in settlement discussions, Sound Transit appeal is still working through the PCHB process.
- Industrial Stormwater General Permit (ISGP) - currently still under appeal. Stormwater sampling manual for ISGP is in internal review. Expected to be complete and published for use by 2026.

PRO-C Updates

- **Vote** to approve a new PRO-C member: Aaron Burkhart, City of Bellingham
  - Majority ‘yes’ vote (10 yes votes) and Aaron will be a new PRO-C member
- We are still looking for a Chair for the PRO-C group

- There may be someone willing to step up, but PRO-C wants to confirm with them first before bringing their name forward
- Please send nominations to julian.carroll@ecy.wa.gov

Internal SWG Affairs

- Accept nominations for new SWG Co-Chairs and voting members – send nominations to Julian at julian.carroll@ecy.wa.gov
- Still feel free to send in nominations – this will be discussed at the November meeting
- We would like to have an in-person meeting in early 2026, but need to figure out the best day – change date of the November meeting to November 18
  - May and September is getting a lot of votes from the group to meet in-person
  - May is preferrable because September is grant month
  - Will travel restrictions be lifted by May?
  - February 11, May 13, September 9, November 18

SWG 6PPD Subgroup

- Next Meeting is on September 17th from 10am – 12pm
- Agenda Items Include:
  - Presentation from the Oregon 6PPD Work Group Co-Chairs: Roy Iwai and Katie Holzer, PhD
    - Topic: Defining the Problem, Solutions, and Next Steps for Oregon
    - Overview: From local water quality data to adult spawning surveys, the impacts of 6PPD-quinone in Oregon rivers are not yet fully defined. With participation from local jurisdictions, state and federal agencies, watershed councils, Soil and Water Conservation Districts, and Riverkeepers organizations, the new working group seeks to collaborate to address this emerging contaminant.

Updates Related to Our Work

- Please send any additional updates that you would like shared at the next meeting to julian.carroll@ecy.wa.gov
- Next meeting is November 12th
- Looking for new municipal caucus coordinator

Future Meeting Dates

The next regular SWG meeting is **November 12, 2025.** Please also mark your calendars for our 2026 meeting dates - February 11, May 13, September 9, November 18 – all Wednesdays, from 9am - 12pm. We may occasionally extend our meeting time, and any extended meeting time will be determined at the previous meeting.

At our meeting on Wednesday, November 12, we will:

- View SAM presentations, potentially including:
  - Lower Columbia Urban Streams - Clark County
  - Puget Sound Small Streams - USGS
- Hear updates from our partners, PRO-C, and SAM studies
- Vote to approve SWG Co-Chairs for 2026
- Vote to approve new PRO-C chairs and members
- Vote to approve new SWG members
- Introduce new caucus leads, such as the municipal caucus
- Status and Trends Subgroup will give a presentation about the trend analysis contract
- Review the SAM implementation report card from PRO-C
- Discuss the vision and mission of the SWG 6PPD Subgroup
- PSEMP 101 presentation and discussing SWG reorganization
- Take suggestions for the location of our in-person SWG meeting on May 13, 2026

Stay in Touch by Joining these Email Distribution Lists

You can join any or all of our email lists on your GovDelivery Subscriber Preferences Page. Enter your email address, click to add subscriptions, and navigate to the Water Quality Program list to find: **STORMWATER-WORK-GROUP** meeting agendas, materials, and summaries of our meetings, and additional announcements related to our work; **STORMWATER-ACTION-MONITORING**: up to three newsletters per year to hear about SAM study findings and upcoming workshops; and **SWG-6PPD-SUBGROUP** for meeting agendas and notes of those discussions.

View the SWG Website

We regularly update the SWG website with information about upcoming meetings, past meeting materials, and important SWG documents. If you have additional questions about the SWG, contact julian.carroll@ecy.wa.gov.