

Washington Stormwater Center
Stormwater Advisory Group POD Meeting
Science to Policy
May 26, 2021

Attendees: Doug Navetski/King County; Larry Schaffner/Thurston County; Lisa Rozmyn and Heidi Siegelbaum/WSC

Objective: The objective of the discussion is to identify ways to have WSC share its research so it can be applied practically and in policy forums, recognizing WSC/WSU does not *make* policy but *informs it regularly*.

- WSC should: (1) share information with a wide range of practitioners about the scientific method, data collection/management/analysis/interpretation; (2) consider working with policy makers and technical staff that implement stormwater management programs on co-creation of research (which is recommendation by those in the field of research policy); (3) identify current and future research needs that support our audiences' needs (i.e., permittees, businesses, nonprofits, citizen groups, policy makers) (4) translate research into practical applications on the ground; (5) communicate the level of importance of the research to decision makers; (6) reinforce WSC's neutrality

Insights from our conversation:

- Many practitioners in our field act as proxy scientists without fully understanding the scientific method (i.e., many engineers' approach to problem solving is very different)
- Nonscientists propose research questions that may not be answerable via the scientific method or due to the extreme cost involved in researching complex study designs
- Scientist can play an important role in helping practitioners to shape, clarify and refine their research questions and study designs (another nod to co-creation)
- State compost standards are located in the state's solid waste handling standards (Chapter 173-350 WAC) – Stormwater managers thought that the level of pollutants allowed by these standards was very high for severing as a treatment filter media. Thus, the standard for compost used in bioretention soil mix should be created since we are using it for engineered soils used in biofiltration facilities. There were five years of studies from King County, WSDOT, Kitsap County and other local jurisdictions. These studies showed that the current bioretention soil mix is a net discharger of pollutants. This was using compost that had concentrations were significantly lower in pollutant levels that the standards allow, yet this result was NOT included in any changes to regulations or standards. Why? Pressure from marketers of the product, including

advocates of recycling? ***How much evidence is sufficient to change an existing law or standard?***

- Since WSC initiated studies can drive policy, potential implications should be considered when deciding lines of research
- Practitioners should help shape priorities- for example, in response to pre-spawn mortality, it's unrealistic to build and maintain biofiltration systems at every outfall. Shifting money for that purpose would divert resources from other important areas of need. WSC can help with cultivating a framework for dialog and decision-making regarding feasibility and tradeoffs
- What is the most critical thing to do given resources? – Research needs already identified far exceed the resources available (e.g., restoration of impaired water bodies, source control, retrofitting, and controlling toxics, bacteria, flow, sediment, etc.). What areas of impact should the focus be on, environmental aspects (e.g., riparian restoration vs. nutrient management), policy questions, human health, equity and environmental justice, and legal drivers (e.g., between flow control and bacteria reduction, how do we choose?)
- Need to consider CONTEXT- the whole of the problem
- How to avoid bright shiny object syndrome
- Findings from NOAA's dissolved metal research conducted in the lab with engineered water on the effects of copper and fish disorientation was misused and spun into misguided policy. The Biotic Ligan Model (BLM) solution, which examines the actual toxic bioavailability of metals, has been implementable for years is still not utilized in establishing the regulatory standards
- Need to call out misinterpretation/misrepresentation of data and research findings as an inappropriate use (e.g., the rhetorical use of the phrase "Sound Science")
- It's an ethical issue if policy makers and practitioners are aware of their ignorance and still choose to use misinterpreted science to foster policy aims
- Possibly need a science advisory board to our legislature
- Host Forums on Science with Policy Makers
- Studies conducted at the Center can have real world impacts. The choices of what to study can drive regional reactions (the shiny object syndrome). Thought should be given selecting research projects to factor how they fit into regional efforts to protect and restore the environment and how the research gets translated into implementation by the local front-line providers. How does WSC research fit into and drive regional prioritizes and meet regional needs? Ani's research was mentioned as having real world applications
- Let's move out of experimental conditions to the application of this work. The work doesn't stop at publication. Often the research needs to be translated and further evaluated in real world applications

- We must consider the shelf life of the solutions we offer ([Army Corps of Engineers' New Orleans' \\$14 billion levee upgrade](#) example)
- Must look at multiple benefits of an applied solution; we may lose one thing but gain many others
- Regional modeling estimates of billions needed to retrofit just for flow control- we must inject some reality into the conversation
- WSC should do the proof of concept- context. Are our focus areas today the same they will be in the future? Are we designing [infrastructure for a climate that's already gone](#)? Hard to say as the future is tricky to predict (futurists)
- Need to use plain language and reliably relatable illustrative examples; "we need to accommodate another 2 Tacomas + 2 Seattles by 2040"- this can aide in helping to prompt conversations- how can our scientists help be forward looking to and develop an **anticipatory research agenda?**
- Identify multiple plausible future scenarios when undertaking planning and designing exercises
- **WSC plays a unique role- one of the only neutral 3rd-party organizations we have in the region.**

Washington Stormwater Center
Stormwater Advisory Group Meeting
POD- Climate Change
May 4, 2021

Attendees: Mike Martinez/NWIFC, Karen Dinicola/Ecology, Jeff Burkey/King County, Charlene Andrade/Commerce, Derek Day/Ecology; and Heidi Siegelbaum/WSC

Question: How can the Washington Stormwater Center promote tools and approaches for climate change and stormwater given current resources?

- In 2024, Comprehensive Plans will be due and this is an opportunity to help them with Climate Change
- Contact at Commerce is Gary Idleberg
- Overview from Mike Martinez: 20 Treaty tribes- treaties are binding on the state and the people of Washington. This includes reserved rights to fish salmon and have access to cold water fisheries. US v WA and the culverts case are connected with climate change (CC changes habitat changes fish and fisheries)- pulses of warm stormwater are a problem

- Trees: Trees and mature trees, are very important to climate adaptation strategies- Ani tree research will not be done until the fall. We should differentiate between that SAM tree study and the overall canopy volume considerations for stormwater (please note a shift to accounting to **canopy volume** from canopy cover, the latter of which sweeps in bushes and shrubs, thereby overestimating the incidence of trees)
- For stormwater managers, sizing facilities is of utmost importance- discuss with policy makers to assess their tolerance for local flooding. In Eastern Washington, parking lots are often ankle deep in water.
- How do we balance current design standards with human expectations?
- Intersection opportunities: Where sizing meets fish habitat meets flooding tolerance
- <https://portal.safe-clean-water-la.org/wmms/downloads>- Jeff mentioned this tool for our consideration: “Welcome to the Watershed Management Modeling System, Los Angeles County’s most advanced platform for visioning future strategies to improve water quality, water supply and flood control. The Los Angeles County Flood Control District developed WMMS to allow for simulation of all the major watersheds within Los Angeles County including hydrologic and pollutant generation processes, transport routines, and forecasts of benefits that could be achieved by stormwater capture infrastructure and source control programs. WMMS is built upon two open source, USEPA-developed models – LSPC and SUSTAIN; learn more about WMMS on the About page.”
- LID BMPs target smaller streams
- Bigger sizing- 20-60% bigger- Jeff’s work is based on future forested conditions (not today’s)- used WWHM input files
- Best word of the meeting: **Aquatard**

What should WSC Do?

- Converse with the permittees about the design life of their stormwater facilities
- Publish case studies
- Link to other climate digests like Lynn Helbrecht’s at DFW or Guillaume Mauger at Climate Impacts Group-
- Work with practitioners to translate the state of the science into plain language
- Help stormwater practitioners better participate in climate conversations
- Help to set context and priorities- help munis understand how to collect, present and inform about climate change
- Hold regular workshops- look to NOAA for outreach mechanisms
- Caution against building out to the sidewalk with no room for bioretention
- Promote Ani Jayakaran and Abby Barnes’s Tree Study which should be out this fall
- Promote the findings of Commerce’s climate work

- Encourage folks to use [ICLEI Clear Path](#) and [Google Sustainability Insights](#)
- Connect tree retention and planting with water quality (stream temperature, which is also influenced by air temperatures that in turn is influenced by riparian canopy)= the tribes have a forested riparian buffer strategy. Emphasize watershed canopy (volume)- comes from fisheries management- fall high flow and summer low flows- remember trees are not forests

Contact for this note: Heidi.Siegelbaum@wsu.edu

May 19, 2021

Washington Stormwater Center
SAG POD: TAPE – Municipal and Industrial Support
April 2021

Attendees:

Carla Milesi, WSC
 Lisa Rozmyn, WSC
 Kelly Garber, SSA Marine
 Eli Mackiewicz, City of Bellingham

Industrial Support:

- Industrial stormwater requirements are more about load, not concentrations. Loads are MUCH higher at industrial sites than most municipal sites. So technologies tested at municipal sites may not be appropriate for the pollutant loads at industrial sites.
- Tire wear is a big issue. It can be a big issue on highways and roadways, but bigger issues at industrial sites with truck traffic. Trucks are making lots of turns. The tires turning results in more wear than normal highway/roadway traffic.
- It is very important to know what the maintenance needs are, versus what vendors/manufacturers claim. Vendors may claim maintenance is needed every 2 years. In reality many industrial sites will require maintenance after 3 months. A slurry layer ends up on top of the media (particularly media beds) and occludes the media. Even at sites with low TPH concentrations (1.2 mg/L).
- Wouldn't recommend using any system that doesn't have flocculent and pretreatment upstream of the main treatment mechanism.

What could be helpful for Industrial sites:

- A digital "warehouse" of sorts where site owners can post which products/systems they've used and they can provide anecdotal information on how well they've worked.

- A better way of knowing when the system is in bypass (and therefore may need maintenance). For many systems, you can't know it is bypassing unless you are on site and checking the system during a rain event.

Municipal Support:

- Not sure if TAPE helps or hurts municipalities get the cleanest water for the lowest price for its constituents.
- **Vendors with GULDs have a monopoly of sorts.** Therefore, they can and often do increase their prices. This may be done after the municipality has received bids as part of a grant application. Then the price may go up between the time of the grant application and the time of the award.
- Vendors are able to recoup the cost of TAPE testing by selling their products. **But municipalities don't have that same ability.** If the municipality develops their own media or their own system, there is no way to recoup the costs of the field testing since they aren't profiting from the media/system.

What could be helpful for municipalities:

- Skip the lab data requirement for non-proprietary devices. Grant P/CULDs to municipalities without the need for existing data. This would make it easier for municipalities to create a sort of "test bed" where they could test one media type and possibly apply for a GULD, and then test another media type.
- Make it easier for non-proprietary systems to gain approval for "alternative configurations". For example, if a system is designed as a stacked system and they'd like to install it as a treatment train. Or vice versa.
- **Develop a "Cost/ft²" analysis** for approved systems. This would help with grant applications and value engineering. This is NOT a lifecycle cost, but more a cost of the device per square foot of area treated. The analysis doesn't have to reveal the actual cost of the system, but could be used to compare costs between systems. Or it can provide a number that a municipality can use to come back to Ecology to explain why the grant isn't sufficient (if vendors raise cost of system).

Washington Stormwater Center

Stormwater Advisory Group

POD meeting: Aggregated Tools

May 17, 2021

Attendees: Karen Dinicola/Ecology, Doug Navetski/King County; Lori Blair/Boeing; Jana Crawford/WSDOT; Kelly Garber/SSA Marine; Lisa Rozmyn, Jason Berg and Heidi Siegelbaum/WSC

Objective: Identify pathways for WSC to aggregate (roll-up) its information on its web site to facilitate easy to use tool development for permittees.

- How do people know about us? (web, word of mouth)- idea to produce a commercial about the WSC and share with others- we already have a You Tube site which has been very popular. We are also exploring using Tik Tok
- Need to find out about applicable regulations- easy to use site- answer the basic question “are you in the stormwater community or not?”
- Cut to the chase around non-regulatory resources- what do you need to do when you don’t have good computer skills and web literacy? Just tell us what to do
- Host webinars for Industrial and Construction issues (need to check with Lisa on whether we are doing any industrial/construction in this next budget)
- Need for targeted Outreach Lists, Stormwater Conferences and consultants/lawyers and Association lists of note (can do this without running into endorsement problems provided the proper language is used)
- Provide advice on the next Industrial Permit Issuance- the NOI process could use some WSC advice
<https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance/WQWebPortal-guidance>
- Must go back and look at history for Doug’s Poop Show (no evidence online!)
- Go back and break down each action in the permit- possible? (contact Peter Donaldson from Sustainability Ambassadors because it’s possible in a partnership we could do this with them)
- Provide Downloadable information in all parts of the web site

- Focus on what values are protected when we manage stormwater properly (fish, shellfish, avoiding flooding, clean water, avoiding increased fees and costs, Orcas, tribal treaty rights)
- Develop or link to case studies with examples of how different organizations handled different situations
- Find a way to develop stormwater narratives- and find out how to weave our research back into the permit
- Look at Wired Magazine- how to explain things 5 different ways

https://www.youtube.com/watch?v=sweN8d4_MUg (about Crispr)

<https://www.wired.com/video/series/5-levels>

- Consensus that we need to have a separate meeting about our Research

Washington Stormwater Center
Stormwater Advisory Group
POD Meeting on Integrated Water and Land
May 10, 2021

Attendees: Karen Dinicola/Ecology; Steve Roberge/Commerce and Catherine Gockel/EPA; Heidi Siegelbaum

Objective of meeting: Discuss and articulate ways WSC can utilize integrated Stormwater and Land Use planning in its work. Most direct connection is with its Puget Sound body of work.

- Focus on medium sized cities like Bellingham
- Steve feels it's difficult to untangle land use and stormwater (Heidi: but this may be implicit and not by formal design or integrated decision making between the two domains)
- Need to differentiate between long range and current planning
- Connect permittees with planners groups via the APA conferences and Planner Forums
- Permits including planning activities and planners are a good bridge
- Recognize and call out the mandates in the GMA and CWA- that's where the rub is- Comprehensive plans are on a different time frame and level of detail
- Is the Level of Service equivalent to not degrading Water Quality?

- Take existing plans/policies/goals being generated by the Puget Sound Partnership and check against local Comprehensive Plans (practical tool)- the discussion was that local jurisdictions not only don't have time but don't know what to put in their Comp Plans- There are opportunities to influence how those Comprehensive Plans are developed
- <https://deptofcommerce.app.box.com/s/tfb53cistlrugonxwwewwyar57d3mcbv>- comp plan checklist

<file:///D:/Users/Heidi/AppData/Local/Temp/GMA%20Update%202024-2027.pdf>

King, Pierce, Snohomish and King Counties are all set for 2024 updates- desire to have WSC help link stormwater with that update (Heidi note: Please also note that we funded a very good project in our Puget Sound work from the King CD that illustrated how urban forestry and stormwater can be married).

- Note: There seems to be a disconnect between Puget Sound and land use planning
- Comprehensive Plan 101- Short course, given once a year- share with SW folks
- Other services for WSC: (1) panel discussions; (2) cultivating networks- [Planning Association of Washington](#) and the [APA Water and Network](#); (3) connect the Stormwater SIL with this body of work to advance it; (4) emulate King County's conservation futures work- acquisition funding for land is essential
- Biggest short term gain: Capitalize now on the 2024 Comp Plan updates
- Need to also focus on non-PSRC counties which are metropolitan planning organizations
- Climate change proviso in the legislation is also another lever
- Commerce gives grants to communities but first there is an internal process= includes a best practices checklist

Updates from Catherine Gockel about Tribal Permits:

Tribal updates

- 1) Biological Evaluation on 3 Navy & Tulalip MS4 Permits was submitted to Services in October 2019; to date, at least 1-2 meetings have been held with NMFS and FWS, but no official response from Services to date
- 2) Three MS4 Permits for discharges to Tribal portion of the Puyallup River, (Tacoma, WSDOT, and Pierce County) begin Public Notice on April 1.
 - a. Tribal consultation letter was sent to Puyallup Tribe on 3/30/2021
 - b. Puyallup Tribe has been requested to 401 certify each permit
 - c. Biological Evaluation for ESA consultation is under development

Contact for this note: Heidi.Siegelbaum@wsu.edu

Washington Stormwater Center
Stormwater Advisory Group
Tribal POD meeting Notes

March 30, 2021

Attendees: Mike Martinez/NWIFC, Karen Dinicola/Ecology, Laurie Larson Pugh, Heidi Siegelbaum, Lisa Rozmyn and Jason Berg/WSC

- Conversation about 401 permits
- Muni permits- use the manual, highway runoff manual has similar requirements such that stormwater management is similar to the requirements to “surrounding jurisdictions.”
- Industrial and construction general permit applies to federal facilities (these were issued last year, 2020)
- Question about two federal permits via Catherine Gockel/EPA: This is the response we got from her:
 - Biological Evaluation on 3 Navy & Tulalip MS4 Permits was submitted to Services in October 2019; to date, at least 1-2 meetings have been held with NMFS and FWS, but no official response from Services to date
 - Three MS4 Permits for discharges to Tribal portion of the Puyallup River, (Tacoma, WSDOT, and Pierce County) begin Public Notice on April 1.
 - Tribal consultation letter was sent to Puyallup Tribe on 3/30/2021
 - Puyallup Tribe has been requested to 401 certify each permit
 - Biological Evaluation for ESA consultation is under development
- Mike participates on the Coordinated Tribal Water Quality Program- the tribes within NWIFC are all in different phases of their stormwater processes:
<https://nwifc.org/about-us/habitat/coordinated-tribal-water-quality-program/>

This program points up to watershed planning (Heidi note- our BIBI Implementation Strategy has a lot of good information on watershed planning which is key to that strategy)

- On the coast there are a lot of stormwater issues that are forestry related-
- Puyallup and Muckleshoot are Phase I communities
- Phase II: more common with Skagit, Kitsap, Puyallup, Squaxin Island, Olympia, Lower Elwha
- Needs where NWIFC is helping out: Lummi (Bellingham), Nooksack, Skokomish and Sauk-Suiattle
- We did talk about the parallels with the Puget Sound small community's stormwater work and how many smaller communities worked with Phase I and IIs, CDs, WSU Extension, health departments etc. Heidi to share documents with Mike
- Area they want help with: **SMAP Planning**
- Mike said capacity is an issue- **wants a directory for Munis for who to call for a range of issues.**
- **New Tribal contact at Ecology is Tyson Oriero- 360-407-7017, tyson.oreiro@ecy.wa.gov .**
- See the Governor's Office of Indian Affairs Report from 2020 for other ideas:

https://goia.wa.gov/sites/default/files/2020%20Centennial_Accord_Agency_Highlights%20FINAL.pdf
- Heidi mentioned that in the small communities work that shellfish and flooding were used rather than the term "stormwater" to express their concerns
- Impervious coverage as super energetic highways of pollution were mentioned- Mike said that the tribes issue a State of the Watersheds Report each year and that the issue is addressed there
- Rapid Bioassessment Protocol- shows that mere mortals (volunteers) can check on the effectiveness of bioretention facilities
<https://extension.wsu.edu/raingarden/monitoring-rain-gardens/>
- **Lisa mentioned the Squaxin Island gas station and GSI project- Erica Marbet worked with Ani- could be replicated with other tribes**
- Mike mentioned needing fiscal sponsors too (For fundraising)

Washington Stormwater Center

Stormwater Advisory Group

DEI POD meeting notes

May

We'll do a round-robin of SAG members answering the following questions:

Attendees: Mike Martinez/NWIFC; Eli Mackiewicz/Bellingham; Karen Dinicola/Ecology; Michelle Chow/WEC; Ani, Lisa, Jason, Laurie and Heidi/WSC

1. What steps has your organization taken to be more diverse and inclusive, internally?

Karen: 5 areas under 1: (1) updating policies with DEI screen; (2) doing training on hiring bias (esp. managers and also who they hire to DO the trainings themselves); (3) there is a lot of attention to microaggression; (4) cross program design team to elevate staff perspectives; (5) sharing resources on SharePoint

Michelle: (1) 2018: adopted a race equity action plan with steps and actions; all of that work was divided into one of 4 teams: HR, organizational culture (amplify non white norms), partnerships and coalitions, and member education/outreach; (2) use progressive stack which allows people with less power to speak before others; (3) racial caucuses; (4) facilitated training and discussions (2 day anti-racist training for new staff)- they advertise this when they hire

Mike: (1) He works in a unique org- young to some extent; tribes as co-managers of fisheries- no trainings on DEI officially; federal grants also them to implement a native American hiring preference (at NWIFC)- experience from USDA to help resolve some civil rights problems they were having (AG has a bad reputation- financial assistance programs that resulted in civil rights problems). He looked for marginalized staff- this is counterproductive.

Eli: (1) Don't know what is happening in mgmt.- has to be careful- got in trouble for having a rainbow sign on his door- his managers are older white guys. City had a pledge pass via Council- they affirmed a commitment to DEI. (2) watch a video which was good but nothing else has happened. Water quality problems actually worse in wealthier areas... this is where their GSI is going. Curb/crosswalks/ ADA improvement/power upgrades etc..... all utility driven to wealth. WWU is being used to help- ranks 19/24 in diversity scores

2. What steps has your organization taken to serve the needs of traditionally underserved clients? (need a definition of underserved client).

Karen: Pollution usually goes to already overburdened communities- got new Director, get regular messages to take time to think about how to have better policies. (1) expanding language teams and interpretation services; (2) they respond to non-English calls in 250 languages and dialects- use more multi media approaches and considering literacy etc. (3) the most meaningful work will happen at a local and NOT a state level... how to support/require the local gov'ts to address

Michelle: building partnerships and coalitions with the most impacted communities (partner screen)- they are statewide so do this at the state level. They are pushing agencies and the legislature to make sure they are doing this (emphasis on grants and funding)

Mike: NWIFC IS underserving – what we need is a SERVICE orientation to communities but to get there the rewards need to be redirected (allies get rewarded).

Eli: (1) Focus on putting in WQ facilities where the regs don't necessarily require them to do it- lower income neighborhood has no treatment so they are investing in this area (grant Phase I of 5 phases, included in CIP); Bellingham highly impacted by AQ and got \$2 million for electric vehicle infrastructure and provide services for underserved communities (Commerce required this in their grant- Ecology should do the same).....Whatcom Creek TMDL, e-coli for unsheltered community (working to make sure unsheltered folks have access to bathrooms)- separate the political (affirming Black Lives Matter is not a political issue)- protect people like Eli- being against DEI should warrant negative action and should be discouraged

1. What steps has your organization taken to consider community health explicitly in planning? And What are the successes and failures you encountered along the way, and how might WSC learn from those

Michelle: (1) look for community health implications in everything they are doing- the work is hard to do also need the SKILLS to do it- best to coordinate with Public Health to learn)

Karen: (1) looking at the health disparities map to id the highest risk; target for good risk communication to decision makers as well as community members; (2) looking at good intentions and how much we leave up to local gov'ts to figure it out- often CWA and GMA are working at cross purposes (wastewater-rate structures)- force local gov't to look at rate structures; how do we build nice communities while asking them to take their growth (needs different skills- community and place makers) WSC should provide tools and training to do this work as well as buy in from their managers.... PSEMP comm unity is starting to look at these issues as well

Mike: Karen's points... in NWIFC, community health is second- treaty rights empty promise if the fish is full of toxics.

Eli: What Bellingham needs from WSC: (1) 3rd party evaluation (JUST)- analysis of your organization from pay disparities to diversity to how you foster and help parents etc.; (2) Regionally, we need a tool that makes env clean up, separate from concerns over gentrification- butting heads... need to avoid- huge, real problem

Notes: Heidi.Siegelbaum@wsu.edu

**Washington Stormwater Center
Stormwater Advisory Group
POD meeting on Education and Extension**

Pod on Education and Extension

Attending: Larry Schaffner, Nigel Pickering

Date: 5/27/2021

Topic: How do we better manage the urban environment?

- Plan ahead to minimize fixing problems later
- Probe new approaches to avoid unintended consequences
- Prevention is better than cure
- Research is often too late

Topic: How do you influence stakeholders to do the right thing?

- Focus on monetary not environment losses (e.g. flooding versus water quality degradation)
- Make favorable approaches worth money (e.g. reward green products)

Topic: How could education at WSU improve urban environmental management?

- Stormwater education and low impact design:
 - o Review the current stormwater/hydrology/highway management classes to make sure they meet current WA needs
 - o Expand the class(es) to other WA universities like UW?
- Integrated design:
 - o Develop an integrated urban design class that incorporates planning, engineering, land scape design, ecology, and economics. Focus on complex cumulative effects versus site conditions.
- Revamp the way that we think about urban environmental management to be more holistic/circular with the goal of zero-net impacts
 - o Develop a seminar/webinar class that looks at approaches to change the way we make products. Invite experts on the circular economy, green chemistry, zero-net impact designers, sustainable water management, and business perspectives.
- Build on WSU's ongoing EEE program (Education, Extension, and Engagement) to involve students with the real-world problems of communities and regulatory agencies. This program is like the EPIC (Educational Partnerships for Innovation in Communities) (EPIC) program (epicn.org) started at University of Oregon.

Stormwater Advisory Group

POD Discussion: Puget Sound Implementation Strategies

April 6, 2021

Attendees: Catherine Gockel, Karen Dinicola, Doug Navetski, Jana Crawford, Jason Sullivan, John Stark, and Heidi Siegelbaum

The purpose of this POD discussion was to discuss at which intervention points in the Puget Sound Implementation Strategies (ISs) WSC should act; how to leverage what we are doing already; articulate new actions or approaches and use our research in a policy stance.

General observations:

- Stormwater Strategic Initiative lead team (SIL) work is an interesting cross section
- It connects research, actions, priority setting and how/whom should implement the action elements
- Jason: we have engineers working on compliance with stormwater standards and land use planners on the other side of the house- how do we connect those? One idea is to **deploy cross disciplinary and cross organizational work teams**. Also see:

<https://pspwa.box.com/s/lp5bqd9zenpmoe99wx2szc6er28aeohq>

Integrated water and land use planning will be the focus of another POD- stay tuned

- That lack of familiarity between stormwater and land use professionals could also be addressed by creating a **"day in the life" profiles** of practitioners which outline their tasks, barriers, operating environment, constraining factors, leveraging opportunities. WSC and the SIL will follow up with a prototype.
- We can also retrospectively look at the small communities stormwater work to evaluate how organizations borrowed or contracted with "proximate partners" (those adjacent to the geography under consideration) to get work done and build capacity
- Jana: Generally, WSDOT planners and Stormwater/Hydraulics staff don't overlap very much. However, coordination between these groups is increasing. Stormwater treatment and flow control is planned at a project level. Some forms of stormwater management, like mapping, maintenance and I4 stand-alone stormwater retrofit, are planned at the statewide/permit coverage-wide level. Please see the Transportation Box note for more details:

<https://pspwa.box.com/s/7ljo6jsz9ndox7km1nq29aiaaif432bc>

Having a solid description of what we are looking for/working toward as we improve how stormwater management is integrated into transportation planning would be helpful.

(Please let Heidi know if you want access to this folder. It's being used by Jana, the SIL, Erika Harris from PSRC, Libby Gier/DNR and Mike Johnson/PSP as part of our transportation conversations)

- Doug: They chose BIBI as a metric for stormwater- for lack of a better metric. We do not have a good metric that measures the success or contribution of stormwater facilities or operations to the receiving water health. BIBI is an excellent metric for the overall health of a stream but it's difficult to link BIBI scores with stormwater management actions
- Karen: When The PSP Leadership Council set the targets, we didn't know how to accomplish the goal of improving streams from fair to good. Now we've got a lot more science underway. Some scores have gone up but not a direct 1-1 with stormwater management – Follow up with Kate Macneale on her recent findings

Please see a note from Kate Macneale to Heidi in December 2020:

From Kate:

- I like to think of a B-IBI score as a blood pressure measurement or a temperature check. It is not intended to be diagnostic, but it is a reliable measure of health that is relatively easy to take and track over time. If it's out of the expected range, it signals a problem; more tests and interventions are likely needed.
- The CWA mandates we protect the biological integrity of streams and rivers. Until we develop a better measure of that, we've got B-IBI. There has been no other acceptable approach presented locally (or nationally, or internationally) that better quantifies the ability of a stream to support the organisms that naturally live there.
- Although there is still much to learn about stream ecosystems, using multi-metric indices to characterize stream condition has been established science for over 20 years. Agencies all over the world (including the EPA and USGS) continue to track stream condition and biological integrity with multi-metric indices, like B-IBI.
- PSSB does not house habitat or other data collected concurrently with bug samples. That does not mean those data are not collected. Each jurisdiction likely maintains their own database with that information (e.g., King County collects habitat data and maintains this in an ArcGIS database). This does make it challenging to "[use it] for interpreting the context for the resulting scores", but like any project, it just means one must seek out those data. It would be very helpful to develop and adopt standard protocols to collect and maintain co-located data to complement analyses of B-IBI data. Personally, I think this would advance our understanding of stream conditions, improve water quality

Commented [ND1]: One of the struggles stormwater has is measuring success in protecting or improving receiving water water quality. We have metrics such as flow control and removal rates that do not translate well into specific receiving water impacts. I agree with Kate's and Karen's comments, BIBI is excellent for the integrated and overall health of a receiving water but does not give an immediate measure of the success or failure of the stormwater management program.

Commented [DK(2)]: A great deal of this data is in EIM, Ecology EAP developed a new system to handle it. Making it a regional database (where data not collected for/by/ in partnership with Ecology) could be a NTA

assessments, and allow us to better measure effectiveness. But the lack of such a database isn't limited to B-IBI; we don't have a comprehensive regional database that allow us to holistically analyze any of parameters agencies and jurisdictions typically monitor.

- For an example of using B-IBI data to inform "meaningful action", please see: <https://kingcounty.gov/depts/dnrp/wlr/sections-programs/science-section/doing-science/restore-and-protect.aspx>

Stressor ID and Actions: <https://your.kingcounty.gov/dnrp/library/2019/kcr3098/kcr3098.pdf>

- Pre Spawn Mortality: Need to match actions with PLACE/geography- Paul Fendt and Jason Sullivan worked on a project in Bonney Lake- area with large intact buffers- wants to encourage the use and maintenance of continuous riparian habitat- width and continuity are key

https://www.citybonneylake.org/UserFiles/Servers/Server_15292413/File/Planning/Comprehensive%20Plan/Watershed%20Protection%20Plan%20-%20Final.pdf

https://www.citybonneylake.org/UserFiles/Servers/Server_15292413/File/Public%20Works%20-Stormwater/Stormwater%20Management%20Program%202020-ADA.pdf

- How MUCH retrofit is needed for success? There is a lag time- do x, then how long does it take y to occur? It could take decades- Phase Is did some great modeling- monitoring for WQ standards. We should model with pilot projects that support improvement of the model itself (Karen)
- **Puget Sound Partnership Vital Sign Targets:** Request to get more involved in the conversation
- How/Is WSDOT using the Heat Map in its retrofit prioritization? (Catherine and Jana)- conversation about putting stormwater treatment in high trafficked areas like the Ship Canal Bridge when WSDOT's standalone retrofit program (3 phase criteria process, link provided below) focuses on the urban fringe where there is high habitat value – space to build more LID type BMPs = protect the space where there is decent habitat. **URMS and toxicity from tires in ultra-urban areas is a GAP. WSDOT has recently received proposals for stormwater retrofit partnering opportunities with TNC, Stewardship Partners, Long Live the Kings (LLTK) and Site Story NW (Ellen Southard) in a few specific areas that weren't prioritized as medium or high.**

Tools that address URMS ALSO help other stormwater problems- WSC to amplify this message through its communications (Karen)

From December 2020 meeting with Jana and Carol Lee Roalkvam:

Stand-alone stormwater retrofits are prioritized based on the scheme that was included in WSDOT's past NPDES Municipal Stormwater Permit. The scoring criteria that were developed resulted in the prioritization of medium and high stormwater retrofit need locations mainly in the urban fringe. See WSDOT's [Stormwater Retrofit Management Plan](#) and the October 2020 [Stormwater Management Program Plan](#) for more information or contact Jana.

<https://wsdot.wa.gov/publications/fulltext/Hydraulics/HRM/Stand-Alone-Stormwater-Retrofit.pdf> (excerpt taken from the Stormwater Retrofit Mgmt. Plan link above)

Fish Passage Barrier projects are a priority for WSDOT- barriers subject to the Federal Injunction must be corrected by 2030. These project are assessed **for opportunities to provide stormwater retrofit**, even if not triggered by Highway Runoff Manual or Endangered Species Act requirements. <https://wsdot.wa.gov/sites/default/files/2007/09/18/Supplemental-Guidance-Stormwater-Retrofit-Assessment.pdf>

From the Transportation Box linked above:

Even when not required by regulations, WSDOT retrofits pavement when it is cost-effective. **For example, fish passage projects are evaluating opportunities to incorporate low-cost stormwater treatment. WSDOT also constructs some stand-alone stormwater retrofits however funding for this work is limited.**

[From Heidi: updates on fish passage barrier removal]

https://wdfw.wa.gov/sites/default/files/2020-11/fish_passage_barrier_statewide_removal_strategy_progress_report.pdf

- **Host priority setting conversations (Doug)**- Environmental Justice, Riparian habitat in rural areas
- There is going to be a Marine Water Quality Implementation Strategy (Doug) where we should be paying attention to nutrients- what stormwater programs are good at removing nutrients?
- As the 6PPD Quinone research moves along, what are the ESA implications and with that, **what are the implications for the division of science between the Feds and WSC?** (Catherine). What is WSC's niche compared to the feds? This will demand **a research plan** from WSC for this body of work.

Commented [CJ3]: This is done.

Commented [ND4]: Jurisdiction's stormwater programs are faced with multiple priorities which direct the permittees in various directions - salmon recovery, shellfish bed restoration, implementation of basin plans, environmental justice, pre-spawn mortality, TMDLs, nutrient management, etc. While some of these priorities can be address the same or similar actions, there are those that cannot. Geographic location is a good example - projects that are most effective in restoring or protecting salmon habitat generally occur in rural/suburban land use settings, whereas urban projects can address environmental justice and pre-spawn mortality issues.

- WSC might host forum(s) where local governments help inform evolving the permits/rules/actions across IS's to make it easier to support PS recovery using those mechanisms – rather than a top-down approach .

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DRAFT