

Bear Creek Watershed Plan
Technical Webinar, Part One
Meeting Summary
November 15th, 9:00 - 10:30 AM

Webinar Total Attendees was 45. That includes King County staff and consultants in the room, and attendees on the conference line.

Watershed Plan Partners: King County, Snohomish County, City of Redmond, City of Woodinville, and Washington State DOT

Webinar (Online/Phone) Attendees: David Funke, David Koperski, Lynn Schneider, Andy Rheaume, Brandi Lubliner of Ecology, Dan Gariepy of Ecology, David Bain, Eric Lafrance, Dick Gersib, Eric Adman, Mike Milne, Joan Nolan, Rachel McCrea, Jerry Shely of Ecology, Erin Walters, Muckleshoot Fisheries, Terry Lavender of the original Bear Creek basin plan committee, Peggy Campbell of Snohomish County, Arthur Lee, Karen Walter, and up to 15 unidentified callers and numerous King County staff

King County Staff in the room: Jim Simmonds, Terri Jenkins-McLean, Dave White, Eric Ferguson, Scott Miller, Josh Kubo, Luanne Coachman, Mark Wilgus, Claire Johnson, and Scott Stolnack.

Presenters: King County WLRD staff: Jeff Burkey, Scott Miller, Josh Kubo, Mark Wilgus; Kellogg Consulting: Tamie Kellogg-Facilitator

Meeting Purpose and Process: The Bear Creek project team will share the study findings on Bear Creek existing conditions and information on the HSPF and Sustain modeling. The meeting included:

- A two-hour meeting, attendance either in-person or via webinar
- Four presentations, followed by question and answer sessions
 1. Watershed Model Approach and Inputs
 - Model overview and framework
 - Rainfall
 - Stream flows
 - Interim Calibration Results
 2. Land Use Conditions
 - Land use
 - Impervious surface
 - Population and future land use projections
 3. Regulations and Existing Stormwater Infrastructure
 - History
 - Facilities
 - Requirements
 - LIDs
 4. Juvenile Salmon Habitat Use
 - Selection and Mapping
 - Sampling
 - Uses
 - Conditions

<p>9:00 - 9:10</p> <p>Tamie Kellogg</p>	<p>Welcome and Introductions. Make sure the connections are working for participants!</p> <p>Tamie opened the meeting and reviewed webinar best practices. She encouraged folks to use the chat box to ask questions, or unmute and ask over the phone. She also encouraged participants to read the notes, noting that staff would be elaborating upon responses to questions in the meeting summary. She referenced the second part of the webinar series, to take place in December, and encouraged folks with questions related to those topic areas to hold off until that meeting.</p> <p>Staff are in the process of finalizing the existing conditions report and will be moving into the solutions phase shortly, which is why the findings are being reported upon now. The hope of holding this two-part webinar, Tamie explained, is that attendees will be more informed for the January workshop, where we will be working through the solutions with the Project Team.</p>
<p>9:10 - 9:30</p> <p>Jeff Burkey and Scott Miller</p>	<p>1. Watershed Model Approach and Inputs</p> <ul style="list-style-type: none"> - Model overview and framework - Rainfall - Stream flows - Interim Calibration Results <p>Feedback and/or Questions:</p> <p>Feedback: Might want to switch rainfall precipitation zones so that red = dry</p> <p>Q: Can you remind me why we're not including Cottage Lake in this study?</p> <p>A: Part of the reason is that in defining the study area for the permit, we had to pick an area feasible for the budget of the permit and for scheduling. Additionally, Cottage Lake substantially attenuates stormwater runoff. If you look at the results, the system just below Cottage Lake is attenuated quite a bit. This doesn't mean that during the recommendations and implementations stages we may not recommend doing Evan Creeks and/or expanding efforts to include Cottage Lake.</p> <p>Q: I'm wondering about the effectiveness of 60% - your lines of output. Is that the HPC of 3 or 7?</p> <p>A: See slide 13: SUSTAIN Results. The effectiveness of 60% is based on existing conditions, which is different in every basin. Monticello Creek: HPC was 23/25. We simulated this over the 10 years. What this is saying is that this solution gets you 60% improvement from 22.</p> <p>Q: I thought there was more rain data for Bear Creek than that?</p> <p>A: There is a lot of rain data. I had a slide (that didn't make the presentation cut) with 15-20 rain gauges. But for the development of models we don't need to use all of them. We picked the ones closest to the basin and that would give us a distribution.</p> <p>Q: I don't know much about SUSTAIN. You say you run multiple iterations. Is that probabilistic or deterministic model?</p> <p>A: Deterministic. It uses a genetic algorithm to optimize on a metric. You can have any number of treatment strategies in a given catchment, in SUSTAIN. It will run any number of scenarios. See SUSTAIN Results. You can see the optimal solutions.</p>

<p>9:35 - 9:45</p> <p>Jeff Burkey</p>	<p>2. Land Use Conditions</p> <ul style="list-style-type: none"> - Land use - Impervious surface - Population and future land use projections <p>Feedback and/or Questions: None</p>
<p>9:45 – 10:00</p> <p>Mark Wilgus</p>	<p>3. Regulations and Existing Stormwater Infrastructure</p> <ul style="list-style-type: none"> - History - Facilities - Requirements - LIDs <p>Feedback and/or Questions</p> <p>Q: Do we have consistent stormwater manuals being applied to Bear Creek now or are there still differences depending on where you are in watershed?</p> <p>A: Good question. There are different manuals. They have gone through an equivalents process. Design standards have evolved over time. Snohomish, etc. have all been going through similar updates. There are differences in when implementation has occurred, but Ecology has blessed them as equivalent in level of protection at that time.</p> <p>Q: What about vesting? You have the map of different facilities of different vintage? We’ve seen that facilities can get vested a couple years in advance of installing them. Did you go back through drainage reports to determine what standards the facility was built to, or is it just the age?</p> <p>A: We inventoried the TIRs when available, so it’s not just the age.</p> <p>Q: Follow-up to the stormwater manuals question. The history is that the King County Manual doesn’t align perfect with the Ecology manual. The main thing being that the flow duration standard to match historical conditions, took place in 2001 for Ecology. But it is important to note that Phase II Municipal Stormwater Permit jurisdiction wasn’t until 2012 that you had to adopt that standard that was established in the 2001 manual, so lots of cities did not adopt until real recently. There’s the technical information report, but we look at the facility to see what standard it meets.</p> <p>A: That’s a good point. History only tells one part of the story. In the end, when you look at how much detention is provided out there, in the facilities, versus what we think we’re going to need via modeling or the metrics, that is the real story. We’ve got 10% of what we would require under level II right now. In order to do our modeling, we took into account the TIRs, but yes vesting is a legitimate issue; a lot of things are built on standards from 5-10 years earlier.</p> <p>Comment: And I know in some cities, during the depression, they even extended the vested period.</p> <p>Q: Following up on the last question. I think that is very key, in that how you model is going to change what you end up with at the end of the day. The vesting issue seems to be a critical element for your modeling and monitoring.</p> <p>A: The map that showed the 200+ ponds – we did incorporate every one of those into the models. More explicitly, we took the stage-storage-discharge that induces attenuation and rolled it into the model routing. Thus we accounted for the existing stormwater</p>

	<p>infrastructure beyond implicit accounts during the parameterization of the calibration process.</p> <p>A: When we determine what our targets are for the basin, we'll come up with a total need of say, new detention facilities and water quality treatment facilities. But you're right that there's going to be facilities built out there in the next 5 years that are built to older design standards. But the bigger focus is how we retrofit older stuff that's already out there. The facilities going up now are not nearly as big of an issue as 50% of the facilities out there having trivial flow control and no water quality control.</p> <p>Online asked: For Private facility maintenance for the old facilities: What we can say about if the old facilities are close to the standards at which they were built?</p> <p>A: This is addressed above.</p> <p>Q: In Snohomish, I don't see any triangles. No ponds in Snohomish County?</p> <p>A: In that area, it's all rural areas except for Paradise Lake. There are not any facilities there.</p> <p>Comment: So you did in fact query info from Snohomish County and Un-Incorporated cities, and you are trying to reflect that, at least on the map. I think that's important to note. It's a different world north of that border. They used the 1992 manual until 2010.</p> <p>Q: When you're describing the older facilities and using that in modeling, what's your confidence on whether they are functioning? Even according to the design back then? Have you somehow checked out if they are functioning?</p> <p>A: King County Stormwater Services has a maintenance inspection program so we have reasonable confidence that the facilities are still there, that they still have flow control devices and orifices and are built to design. We have confidence because we're required to do that.</p> <p>Q: Is that only County or private too?</p> <p>A: Anything in King County's inventory is on an inspection and maintenance schedule. For private facilities, we have given "gentle" reminders about maintaining their facilities.</p> <p>Q: I'm a little stuck on slide number 14, with projected BIBI and looking at the SnoCo, at the regression. It's looking like the way this models, it looks like it'll take a bit before you even get it into a "good" section, in terms of the BIBI. How long will it take to hit that good section?</p> <p>A: Quick answer: Yes. But the discussion of targets will be a part of the next Technical Webinar (Part II) and the Technical Workshop.</p>
<p>10:00 - 10:30</p> <p>Josh Kubo</p>	<p>4. Juvenile Salmon Habitat Use</p> <ul style="list-style-type: none"> - Selection and Mapping - Sampling - Uses - Conditions <p>Feedback and/or Questions:</p> <p>Q: We have issues with the Hawkins habitat methodology. I think there's disparity there. And also you should note that the NMFS' PFC conditions and a lowball. We would have recommended you look at Fox and Bolton (2007) for determining how we are doing on key issue, especially how stable are they. We would have recommended a different methodology for your habitat. That's my comment. My question is, have you looked at your data to see how we're doing with Coho?</p>

A: As far as the NMFS standards go, because we didn't do a broad habitat study, a lot of our habitat conditions were based on what we were calling "existing habitat conditions". We also looked at previous reports and assessments, and incorporated things like the conservation plan and updated science targets on things such as wood. We tried to incorporate as much things out there that are relevant to Bear Creek to get an idea of habitat conditions. It is important to note that wood conditions in Fox and Bolton (2007) do prioritize higher wood volumes.

Added after meeting: The question was aimed at pointing out that NMFS PFC represent relatively lower conditions compared to Fox and Bolton (2007). More specifically, the LWD volumes and frequencies outlined in the NMFS PFC bins are lower than the volumes/frequencies observed in unmanaged watershed from Fox and Bolton (2007). In our evaluations for Bear Creek we compiled existing habitat conditions that looked at both the NMFS criteria as well as Fox and Bolton (2007). The status and trends monitoring from 2010-2013 compared against Fox and Bolton (2007), which is discussed in the fish-habitat report.

Comment: Yes, and it is an actual standard you can reference against. Because the PFCs don't have any technical basis. FOX and Bolton had 1000s of data points around the state of Washington that should have been used, along with TFW habitat. So it's repeatable. We've been telling Ecologists' staff this for 20 years now. I'm a little disappointed that we didn't get to have that discussion before now because going back to how we're going to monitor and manage this over time, you really should be getting agreement on the data going in and methodologies that should be used.

A: That's a great point, and I want to re-emphasize that we were looking at existing conditions as it relates to Bear Creek. Aside from a few sample sites, we didn't do extensive habitat surveys. We wanted two pieces of information: what do habitat conditions look like, and what habitats are salmon using? There have been quite a few efforts looking at this, and so I compiled all of the different reports and assessments looking at habitat conditions. I don't have a current picture of habitat conditions, but rather all the different assessments and reports.

A: This study did include new mapping the habitat for those stream reaches. But we didn't have the budget to map the all stream reaches in the watershed.

A: And I just want to note that while I highlighted Chinook use in this presentation, we also looked at Coho and Cutthroat. If you look at the end of this presentation on the FTP site, you can see some of the Coho habitat used and I will elaborate more on that in the future.

Comment: You really need to show Coho to Cutthroat ratios, because that's a key point. Need to compare against data done in the 1990s.

Q: MIT was talking about comparing apples to apples, to understand if we're making things better from a fish habitat standpoint. I understand the funding and timing issues, but looking at a plan though, couldn't we incorporate something about establishing a baseline habitat conditions? A good solid one that we could measure success or failure off of? This is a really good red flag, that we should be consistent with our measuring. I think it's a great comment, and something we should be looking towards in the planning document - to establish baseline habitat conditions – so we can use that in measuring success.

Comment: I wasn't suggesting we survey the whole watershed. That's been done in various capacities. What I would have suggested is setting up reference reaches in this watershed

	<p>and agree by the methodologies that we're going to use. We have big differences in the methodologies we use. We need to talk about where the reference reaches make sense. For example, Josh has done this great work on Cottage Lake Creek, and the habitat and fish work that was completed will be included in the report and Basin Plan.</p> <p>A: King County will follow up in email to MIT to clarify this discussion.</p>
<p>10:30 am</p> <p>Tamie Kellogg</p>	<p>5. Wrap up</p> <p>Draft reports of each of the studies are due internally at the end of 2016, and will go through an internal review. The final versions of these reports will be released in early spring 2017.</p> <p>If attendees had additional questions, they were asked to email these to Jeff and Tamie. A survey to evaluate the effectiveness of the webinar will be sent out as well.</p>