

**Meeting Summary**  
Snohomish Basin Salmon Recovery Technical Committee  
Web Conference  
9 am—12 pm, September 1

In attendance:

1. Emily Davis, Snoqualmie Watershed Forum
2. Heather Khan, WA Dept. of Ecology
3. Jessica Lange, Sound Salmon Solutions
4. Colin Wahl, Tulalip Tribes
5. Kirk Lakey, WDFW
6. Lindsey Desmul, WDFW
7. Josh Kubo, King County
8. Denise Krownbell, Seattle City Light
9. Matt Baerwalde, Snoqualmie Indian Tribe
10. Kevin Lee, WDFW
11. Carson Moscoso, Snohomish Conservation District
12. Daniel Howe, Snohomish County
13. Gretchen Glaub, Snohomish County
14. Jamie Burrell, City of North Bend
15. Elizabeth Butler, Salmon Grants Manager, Washington RCO
16. Aimee Fullerton, NOAA Fisheries
17. Erin Murray, Puget Sound Partnership
18. Mike Rustay, Snohomish County
19. Doug Hennick, Wild Fish Conservancy
20. Marty Jacobson, WA Dept of Ecology
21. Pete Verhey, WDFW
22. Ryan Bartelheimer
23. Jamie Glasgow, Wild Fish Conservancy
24. Elissa Ostergaard, Snoqualmie Watershed Forum
25. Josh Kubo,- King County
26. Doug Hennick, Wild Fish Conservancy
27. Brett Shattuck - Tulalip
28. Denise Di Santo, King County
29. Jamie Bails, WDFW
30. Susan O'Neil, ESA
31. Melinda Rowse, NOAA
32. Keith Binkley, Snohomish Co PUD
33. Erin Ericson, SVWID
34. Micah Wait, Wild Fish Conservancy

## Meeting Summary:

### **Introductions and Time for Connection**

Colin opened the meeting, reviewed the agenda, and read through the participant list for introductions. Emily led a quick exercise with breakout rooms of 3-5 participants and a prompt for ten minutes of chatting and connection.

### **Updates—Grant Rounds**

Gretchen updated the group about project funding, reporting that the SRC approved the ranked PSAR Large Cap project list. Upcoming key dates for grants are September 16<sup>th</sup>, when SRFB will approve projects. That means that about \$1M of our projects can start the contracting process then; the rest, including King County's large capital project Fall City Floodplain Restoration Project, will have to wait until the PSAR capital budget is approved in summer 2021.

Gretchen briefly noted that with upcoming budget cuts due to the pandemic, it could be VERY important to have voices from the watershed help inform our legislative delegation about the importance of funding for our salmon recovery projects.

There are lots of changes happening for the Snohomish Forum right now, with co-chairs Terry Williams and Jim Miller both retiring. Gretchen requested that anyone interested in joining a conversation about the future of Forum leadership should shoot Gretchen an email.

### **Updates—WREC**

Elissa Ostergaard and other WREC participants gave a short update on the WREC process. The draft plan for WRIA7 is out for review, with comments due Sept 28. Draft adaptive management section going to committee next week. Some offset projects have been approved and others are being discussed. Several habitat projects are being included as Net Ecological Benefit (NEB), while some others are being written up for inclusion.

Matt Baerwalde brought up the issue of managed aquifer recharge projects (MAR) for discussion. These are water retiming projects that harvest water during higher flows and infiltrate into the ground somewhere in floodplain so water can make its way through groundwater to recharge the river later. It's important to put in a number for the amount of water offset that these projects will be credited. There is a lot of uncertainty about how fast/how much water will recharge. Ecology has been pushing that the amount of water diverted would be the amount of water offset credit. But, the Snoqualmie Tribe has a PhD level hydrologist who is concerned that in actuality, the amount of water offset is less than is diverted due to evapotranspiration, etc. In other words, this isn't "new" water coming into the stream. To the Tribe, MARs should not be classified as a 'water for water' offset project, despite the many benefits. Also, Matt noted that there is value to a natural flow regime. Gretchen will reach out to Matt and Denise Di Santo to follow up and create talking points on this issue for salmon interests.

### **Temperature Chapter of Water Quality White Paper--Presentation**

Emily Davis presented a summary of the draft Temperature Chapter in order to tee up the Technical Committee for reviewing this document. Emily explained that different chapters of the paper will be

presented to the TC as they are ready. She reminded the TC that the white paper scope does not include climate, hydrology, or new data analyses.

In her summary of current conditions of water temperature across WRIA7, Emily stated that temperature impairments are common and widespread across the watershed. Exceedances happen every year, regularly, albeit sometimes briefly, between late spring and early fall. They occur in small streams, large streams, and in fact everywhere we look. Conditions tend to worsen east-west as you go downstream, and headwaters are not immune. Though some exceedances may be natural, the temperature standard was never realistic to begin with. Non-point sources, not point sources, are the main culprit.

Emily described conditions in the Snoqualmie River. Though we often focus below the falls, temperature exceedances are not occurring just below the falls. Using 2006 as an example (which was not a particularly hot or dry year) she pointed out how at RM 70 (very far upstream, in other words) exceedances begin, and at RM 65 thresholds are exceeded where fish are more susceptible to disease begin. Delayed or altered migration thresholds also exceeded during much of the migration season.

As an example of how headwaters aren't immune to the problem, Emily described how above the Snoqualmie Falls, upper basin conditions consistently drive concerning lower basin conditions. The Middle Fork Snoqualmie is substantially warmer than the South and North Forks, and closely tracks and even drives downstream water temperatures. There is already good riparian tree coverage in the Middle Fork Snoqualmie, so, although there is an obvious riparian shade deficit downstream, it is clear that shade will not get us all the way where we need to go.

Snohomish County experiences similarly bad 'current conditions.' Emily showed a graphic of SnoCo stream temperatures in 2015, which was a particularly bad year where even lethal thresholds were exceeded and fish got very little temporal respite from stressful temperature. Such respites can be a saving grace for fish.

The Snohomish mainstem and estuary are consistently the warmest areas of the basin. They are warmest in critical time periods for salmon, with exceedances that start as early as June.

Turning to strategies, Emily assured the group that all is not lost, due to all of the thermal diversity in the landscape. We are continuing to gain knowledge of thermal diversity, including FLIR flights flown this summer (thermal imaging). It's important to understand and map thermal diversity to help us target our restoration efforts and other strategies. For example, small, wall-based channels, floodplain channels and side channels can be a lot cooler than mainstem channels. These are being mapped in the Pilchuck to help manage the system. Groundwater is also important as an aspect of thermal diversity. It can help moderate temperatures locally, albeit perhaps only during baseflows.

Emily proposed that it may be time to reorient temperature goals for WRIA 7. Max temperatures are the focus of state standards, but other aspects are also very important to salmonids - spatial and temporal variation, for example. Creating a mosaic of habitat types can give salmonids a chance to adapt and find refugia, which will create resilience.

Meanwhile, should we also adjust habitat restoration targets to meet our temperature goals? Best Available Science generated in the years since the original Plan shows that plan targets far undershoot needs. Furthermore, there is a big delay, since shade is not at full potential until about 50 years after

planting. The pace and extent of restoration is severely lagging the need. Riparian goals in the Plan may need to be updated to reflect what we've learned.

The focus on the state temperature standard has focused the majority of temperature-related restoration work on creating riparian shade. However, there are other tools in the toolbox to both meet standards and increase thermal diversity. These include riparian restoration, tributary confluence restoration, armor removal, increased floodplain connectivity, LWD addition, side channel/off channel habitat creation, and many more.

Emily then reviewed current monitoring and data gaps relating to temperature in WRIA7. There is a lot of data out there but it is not centralized, so the chapter authors are attempting to take a first crack at that. There is a spreadsheet showing what/where all the known data are. This spreadsheet will be made available for the review. Much of the data has not been analyzed due to lack of funding and capacity, and it's important that we change that.

An important data gap is making the connection between temperature data and fish - where are they, how are they using refugia, how is temperature affecting fish.

Finally, Emily emphasized that monitoring itself is a critical strategy - especially effectiveness monitoring to see what BMPs work where, for what types of systems.

Emily then explained how reviewers from the Tech Comm could help. The chapter authors (Emily Davis, Josh Kubo and Andrew Miller) welcome whatever level of review people have time for. She suggested that they look at the table of contents to and see where they can add value based on their expertise. Particular areas of feedback desired include: Is data missing? From an area? Results mischaracterized? Strategies missing? Your monitoring datasets missing? Oct 6 is the deadline for feedback

A short discussion followed the presentation. Matt Baerwalde noted one other tool Snoqualmie Tribe is looking into to mitigate stream temperatures is creating gaps in the forest canopy in the headwaters outside of riparian areas to slow down snowmelt and runoff for a hydrologic and thermal influence. Emily asked that Matt flag that in a comment when he reviews the chapter.

Kirk Lakey noted that one potential benefit of a MAR that is touted is ability to cool surface water by putting it into the ground. He asked if the authors looked at MARs for their ability to alter water temps? Josh Kubo answered that they didn't specifically speak to it, but that it could be a good strategy to include, though there is not a lot of literature found about MARs.

### Freshwater Targets Presentation

Elissa Ostergaard presented a summary of the Freshwater Targets workgroup's proposal to update the targets. The workgroup includes includes Mike Rustay, Colin Wahl, Gretchen Glaub, Elissa, and others.

Background: The group is looking at habitat restoration targets in the freshwater parts of the basin, and asking: How do we want to update them from 05 Salmon Plan using what we know now and BAS that has come out since 2005? The 05 Plan has its targets organized by 10-year and sometimes 50-year habitat gains (10 year targets are about 20% of what would be needed for 50 year targets). This approach was based on BAS at the time, and now we are re evaluating. The recently published Status

and Trends report showed us that we just nibbled at our targets with restored edge and restored off channel, but we went over on the LWD targets.

There are some problems with the existing targets. The goal of this presentation is to give the TC an FYI on changes being considered, and invite feedback or later engagement. Mostly, the working group is wanting to get approval if people are comfortable with these proposed changes.

Proposed Change #1: Change “restored edge” to “Bank Armoring Removed”, because this is how we are measuring this target in practice. This meshes with PSP’s common indicators. This is more of just a name change and refinement of the definition.

Questions for the group on #1: Should we use 1/2 of 50-year target? That is 2030, if we measure from 2005. Also, should we include Rural Primary basins (Cherry, WF Woods)? (originally the target just covered Mainstem).

Proposed Change #2: Ditch “Restored offchannel habitat.” This was originally intended to mean creation of things like braided channels and side channels. This turns out to be very difficult to define and measure because inundation levels vary throughout the year. Regionally, PSP’s common indicator is floodplain connectivity, so the proposal is to change to floodplain connectivity instead. Questions for the group on #2: Does the TC agree with the decision to stop tracking off channel habitat and replace with floodplain connectivity? We wouldn’t have to stop tracking off channel habitat for individual projects, just not for the Plan targets.

Proposed Change #3: Overhaul our LWD jams target. In the original plan, the target was 41 new log jams. The literature doesn’t say much about NUMBER of log jams you need per basin—it’s more of a rate of wood loading, or pieces per surface area of channel. We know we are low on wood and our riparian areas are quite young and it will take a long time to create natural log jams that will stay in place with flooding rather than the small ones we have today. The group looked at the Stillaguamish’s approach for looking at LWD jam targets. The Stilly approach seems good, or we could use LWD piece per mile. We could also remove Floodplain Large Wood Jams as a Status and Trends indicator. The big problem with that indicator is that it’s hard to track over time because of low visibility of jams due to growing riparian areas, and the dynamic nature of wood coming in and out of the floodplain. Could be an important implementation indicator for individual projects going forward, but not for S&T.

Questions for TC on #3: should we still use installation of large jams in mainstem basins as a stopgap measure until riparian areas are able to perform proper rates of wood loading? If so, we can use the Stilly’s approach as a model and develop priority areas for placing ELJs. Does the group agree with the decision to stop tracking Floodplain Large Jams as a target?

Josh Kubo asked if the proposed Floodplain connectivity metric include quality of connected habitat. He noted that, for example, ag lands are not always necessarily high quality, even if they are connected. Connectivity does not always equal quality of either off channel or floodplain habitat.

Elissa replied that the regional indicator does track land cover to try to get at the quality of connected habitat.

Mike Rustay added that one reason they decided to change to floodplain connectivity is because off channel habitat is very difficult to track and define because of differences with flow levels. It’s a spectrum of connection – off channel habitats aren’t always wet. The proposed changes are trying to

simplify and get to targets that are useful and easy to assess. They have been struggling with the definition of off channel habitat since they came up with the target in 2005. In this evaluation we are trying to think—what are we trying to accomplish with this? Restoring process in the floodplains is ultimately what will create quality habitat, so in a way, getting at the quantity of connected floodplain will give a proxy sense of quality (and caveats can be used to describe the connected acres as well, such as the land cover metric). In this same vein of ‘ease of tracking’, it’s easier to track bank restored than total natural edge, because the river is often converting modified to natural edge on its own and we can’t always track that. With LWD, the number seems a bit arbitrary since it came out of EDT, so it’s a good opportunity to revisit that and make sure it’s a meaningful number.

Matt B says he thinks we're on the right track.

Susan O'Neil offered a regional perspective. She said that other watersheds around the Sound are also grappling with the question of extent vs quality as they think about habitat targets and implementation goals. Having simpler targets is much easier for communication and to combine our data with regional data, even if we lose a bit of detail in the process. Perhaps the nuance can be regained in the monitoring plan and project tracking.

Elissa noted that people are welcome to join the freshwater target workgroup and/or email the group if they have ideas.

#### Cherry Creek Avulsion Project Presentation

Erin Ericson from the Snoqualmie Valley Watershed Improvement District (SVWID) gave a short presentation on the avulsion project at Cherry Creek. The SVWID is currently resolving a flooding problem and doing a fish habitat improvement project in a compressed time frame (before floods happen this fall). The purpose of this presentation is to brainstorm with this group as the project is simultaneously completed.

She began by explaining that SVWID is an irrigation district, focused on flood reduction and irrigation, and based out of Carnation, in King County. One of their first tasks after forming as an organization was to divide the Snoqualmie Valley Agricultural Production District into 72 different drainage basins and rank them in severity of wetness on private farmed or formerly farmed land due to spring flooding. Cherry Creek (basin 4) is ranked #4 in terms of wetness meaning it would originally have been 4<sup>th</sup> in line for basins the WID would work on. But.....

The WID began on this Cherry Creek project early due to an avulsion in May 2018. The creek was still in its historic channel but at high flows it went across a pasture. Other organizations helped with fish salvage and installed sand bags at the breach. The WID was preparing to address the avulsion quickly because flows in this area can cause a cross-valley road to go underwater. Adding to the magnitude of this problem: there are water lines and power lines in the flooding area, as well as fish stranding and passage issues.

In April 2019, the creek jumped its channel again. In Sept 2019, supersacks were installed along the channel at the breach site, hoping it would last 2 winters. However, this fix blew out last winter with all the flooding. Water is in a swale now heading north to Cherry Creek - about 70% of the flow goes west, 25% north, and 5% in the swale. A model developed in 2015 shows a low area in LiDAR at the avulsion

site. The WID is not expecting to completely stop flow over the avulsion area, just to divert it back to Cherry Creek asap after high waters.

The WID is working with the Flick and Jordan properties in this process. Neither parcel is in the Farmland Protection Program. Flick is being actively farmed, while Jordan is not. Jordan is not interested in farming their property. They are interested in providing land as an enduring legacy and want to assist downstream neighbors.

Erin explained that the WID has contracted with ESA Engineers to address impacts to flood safety and fish life. Elements include 1) gravel and sediment removal 500' downstream of avulsion site – the area is almost dry 2) Not replace avulsion site berm - create as much of a channel as possible on the Jordan property. They would excavate a channel on the Jordan property with an apex log jam to protect property to restore flows in relic and new side channel and improve the outlet to Cherry Creek. 3) A setback berm 2' tall, 20' wide to the west, potentially with a walkway on top of it. They are also adding wood and a vegetated riparian buffer.

The Army Corps response to the SVWID's emergency permitting request is that they asked to strip down to elements absolutely needed to address the emergency. But other elements would be longer term - 75% plans were created. There was a significant amount of sediment that went downstream during last season which is why there isn't water in the historic channel. Erin isn't sure what work will happen this season.

After the presentation, Erin invited questions and discussion from the group. Gretchen asked how the work is being funded. Erin replied that the design is being funded by the King County Flood Control District. There may be some pilot money available from Fish Farm Flood, and the landowners may also pay for some portions of the project.

Colin remarked that he initially bristled at idea of sediment removal but later realized that the proposed channel to be dredged is pretty dry. He asked how the group feels about dredging a relic stream channel that would otherwise not be engaged? Gretchen noted that her eyebrows initially raised at that too, but she feels comfortable with it now since Tulalip and Snoqualmie Tribes are involved and do not have a concern.

Doug Hennick asked what is going to keep the full flow of Cherry Creek from avulsing into the new channel, which has steeper gradient and shorter distance? Erin replied that the creek has abandoned its historic channel. She's been told by hydrologists that both channels are needed to hold the flood flows of the creek. The side channel does not have capacity for the full creek - the berm would need to be bigger.

Matt asked about the planned gravel and wood additions and the plan to use LWD to create scour holes. Micah replied that in Hood Canal, he has seen LWD added to a gravel channel which created complexity over time.

Gretchen asked how the proposed work here relates to other work happening in Cherry Valley (ie WFC's FbD and SRFB proposals and the Cherry Valley Initiative in general). She noted that it sounds like all the right folks/organizations are at the table to support good coordination, adding that if Erin thinks going after salmon-related funding (FbD) is in the cards, she could see two points that would need to be looked at/explained carefully:

- 1) Dredging the channel
- 2) Cost of hauling materials - Our experience is that the hauling of material can really blow up a budget.

Micah replied that WFC has some funding available next June, but that it is not available for work needed this year. This avulsion project is unrelated to current work they're doing with DD7, etc. It is part of their FbD proposal. The project seemed like a reasonable solution to the avulsion, so it included with the designs available at the time. Micah agrees soil hauling is expensive and explained that most soil will be used on site. Erin added that spoils will be used to line new side channel and for setback berm. About 500cy of material will be hauled off-site from the relic and side channels.

Colin asked, if money were no object, what would the dream project be for this avulsion area? Micah answered: take out roads and let it evolve naturally and become a big wetland again. Matt answered that his dream project would be to over-excavate side channel and backfill it with gravel so it can withstand the full brunt of Cherry Creek. His vision of this area is giving it a defined corridor for the channel – this could include adding some scour points, letting gravel move through, giving it wider buffers and planting the intermediate area between channels. Ideally, he would wait to plant between channels to see what sediment does first. He would also remove the artificial berm.

#### Celebrating Removal of the Pilchuck Dam!

There is no more Pilchuck Dam! Brett Shattuck had a big smile on his face as he showed us photos of this amazingly cool project, spearheaded by the Tulalip Tribes.

The dam removal occurred at RM 26.4 at the transition between the upper and lower watershed. Above this is mostly forested, below is rural/residential. The dam was in a confined area in a bedrock canyon. To accomplish the removal, they diverted flow to the left bank through the fish ladder, built an access road, removed the dam and sent the pieces to a concrete recycling facility. They ripped apart the old water intake facility, then removed another smaller dam upstream from 1912 built for water intake. Next, they put the river back into the right bank channel and removed the fish ladder and remaining dam, then removed the other portion of the 1912 dam and sill, which had been buried in gravel from the installation of the 1932 dam. They did some minimal grading of material upstream, but didn't remove any offsite. In the future there may be some side channels. Last, they removed the access road they'd built and let the river go. The project went well, and quickly, finished before schedule.

Emily asked: how many years was this in the making? Brett answered that 2018 was when City of Snohomish decided not to use the water right here anymore - but other types of projects had been happening here for about a decade - when the city made that decision, the project process went quickly. The Tribes got funding, did outreach, and did the project – overall it took 2.5 years.

Emily asked: What are you expecting to see in terms of fish passage, temperature, etc. with monitoring? Brett answered that they do expect to see sediment moving. There were about 600cy of sediment behind the dam, so they expect it to be dynamic and spread downstream. The Tribes will work with USGS to do monitoring. They expect much of it to move quickly but not to cause problems. They don't expect too many changes with temp or water quantity since there wasn't a reservoir. The sediment caused the elevation to increase upstream, about 100', so they do expect it to downcut. The Tribes will do spawning surveys as well as monitor the sediment/channel for aggradation.

Colin asked: Did they find underlying bedrock and do they expect it to become a barrier to fish? Brett answered that there is bedrock and they don't think it will become a fish barrier. During excavation, they found that the channel is pretty deep and that the bedrock is pretty soft and erodible. Brett got an early 1900s document from a neighbor showing that no fish ladder was included in original dam because they didn't want fish going upstream and spawning/dying and fouling drinking water, so they gave \$ to the fish hatchery.

Susan asked: did they find buried treasure? Brett answered that the treasure was pieces of the old 1912 dam – they didn't know what it was going to look like. They found interesting configurations – they didn't expect there to be as much concrete as there was, and found old cool brass valves and wood piping.

Congratulations all around!

### Round Table

Kirk Lakey reported that WDFW was furloughed 1 day per week during July, now 1 day per month through end of the year for cost savings. They are doing a budget exercise with the Commission on proposed cuts, program reductions. A prior exercise was to add some programs, but they weren't added so that saved some money earlier this year. They will do another budget exercise this September.

Gretchen reported that Snohomish County is also doing a budget reduction exercise with RCO and anticipates a reduction in lead entity funding.

Kirk added that in 2009 there was across-the-board reduction in grant programs that came out of RCO. For the last several years WDFW had gotten a lot of those back on track. He anticipates grants and other items funded by the General Fund may take cuts across the board. WDFW is proposing cuts to enforcement but also proposing six new positions to enforce new HPA rules, so some of this may balance itself out.

Elizabeth Butler shared an article describing how state workers have felt the budget cuts most: <https://www.opb.org/article/2020/08/03/in-washington-state-so-far-it-s-state-workers-who-have-felt-the-budget-squeeze/>

Matt Baerwalde reported that he mapped some freshwater mussels above Snoqualmie Falls, located between Three Forks and Snoqualmie Falls.

Heather Khan shared that Ecology is early in drafting new rulemaking around 1) DO revision criteria around inter-gravel conditions because WQ standards are not fully protective of incubating salmonid embryos. 2) language around fine sediments and looking at guidance to define fine sediment impairments.

Elissa shared that the Snoqualmie Forum got a grant for an NTA through NEP for coho surveys across WRIA 7 looking for mortality related to urban runoff. Partners are Tulalip Tribes, King County, Snoq Watershed Forum, Snoh and King Conservation Districts and WDFW. Emily added that as they are looking for sites, anyone who's seen coho acting weird and displaying symptoms of urban runoff syndrome, to please let her know where they've seen the behavior.

The meeting adjourned at 12:00.