

Snohomish Basin Salmon Recovery Technical Committee Meeting

September 7th, 2021 9:00—12:00

Zoom Meeting

Attendees

1. Alexa Ramos-Cummings, Snohomish County
2. Emily Davis, Snoqualmie Watershed Forum
3. Mike Rustay, Snohomish County
4. Morgan Ruff, Tulalip Tribes
5. Matt Pouley, Tulalip Tribes
6. Brett Shattuck, Tulalip Tribes
7. Ashley Kees, WDFW
8. Daniel Howe, Snohomish County
9. Darcey Hughes, Snohomish County
10. Elissa Ostergaard, Snoqualmie Watershed Forum
11. Jason Hall, Cramer Fish Sciences
12. Jim Shannon, Hart Crowser
13. Jonah Keith, Tulalip Tribes
14. Ryan Bartelheimer, Snohomish Conservation District
15. Josh Chamberlain, NOAA
16. Josh Kubo, King County
17. Kevin Lee, WDFW
18. Kirk Lakey, WDFW
19. Lindsey Desmul, WDFW
20. Micah Wait, Wild Fish Conservancy
21. Matt Baerwalde, Snoqualmie Tribe
22. Pete Verhey, WDFW
23. Ryan Lewis, Snoqualmie Tribe
24. Stephanie Cotton, Snohomish County
25. Kurt Nelson, Tulalip Tribes
26. Janell Majewski, Snohomish County
27. Stephanie Celt, DNR
28. Steve Hinton, Tulalip Tribes
29. Tim Beechie, NOAA
30. Tish Conway-Cranos, NOAA
31. Todd Zackey, Tulalip Tribes
32. Marty Jacobson, WA Dept. of Ecology
33. Lisa Tario, Snohomish County
34. Denise DiSanto, King County
35. Evan Lewis, King County
36. Keith Binkley, SnoPUD
37. Liz Ablow, City of Seattle
38. Mike Crewson, Tulalip Tribes
39. Neala Kendall, WDFW

40. Susan O'Neil, ESA

Introductions

Mike opened the meeting with introductions and reviewed the agenda.

Networking

Attendees were sent to breakout rooms briefly for networking.

Regional and Basin Updates

Alexa shared the following updates from Gretchen.

- RCO/SRFB are revising the riparian planting project guidance in Manual 18. Many of the recommendations from regions (thanks Snoqualmie team) and lead entities have been taken into account in the last iteration. As we head in to the next (big) SRFB/PSAR grant round, sponsors should review the new guidance carefully.
- We expect to see some increased funding coming from the federal infrastructure bill. We'll pass on any news or opportunities that comes our way.
- Efforts have been happening to refine our project lists. Lead Entity (LE) staff are tackling the Salmon Recovery Portal (formerly Habitat Work Schedule) and working to update our management structure and project entries. Updated project information is needed to help generate multiple project lists per request of a number of different agencies and funding programs. Sponsors can expect we'll be reaching out to them to help us in our efforts.
- Plan Update – Slow progress continues to be made, though capacity remains an issue. Susan O'Neil from ESA has been helping us in our plan update efforts. Her support (funded by PSP) is ending at the end of September. The core team will need to meet soon to re-assess our capacity and resources moving forward. Many thanks to Susan for her time, energy and guidance.
- In case you missed it - Snohomish Basin partners continue to produce some excellent work – check it out here: <https://www.eopugetsound.org/magazine/taking-temperature-salmon>
- A few representatives from the Basin attended a workshop in July with LLTK to discuss findings of the Salish Sea Marine Survival Project. Encourage everyone to take a look at the final synthesis report and summary docs available on the LLTK website : <https://marinesurvivalproject.com/research-findings/>

Stephanie Celt gave an update on the DNR salmon strategy.

- As a reminder, DNR has been working on developing a salmon action plan for the agency with a focus on the Snohomish watershed and how they can better coordinate their resources and support the existing recovery plan within DNR.
- A draft action plan review with the Tulalip and Snoqualmie tribes is happening shortly and then there will be review with a wider audience in October.
- They are also looking for ways to enhance effectiveness of kelp and eel grass restoration, address capacity constraints in the basin by bringing on more staff (likely a watershed steward), and more.
- Stephanie hopes to bring more news to the next TC meeting and looks forward to collaborating with partners here.

Guiding Principles & Membership Refresher

- Mike reminded the group about the recent efforts to clarify and update committee membership “rules” and rosters. Members were asked to “re-up” their membership. Mike provided an

update that Emily and he have been personally reaching out and are almost finished checking in with all member organizations.

Snohomish Life Cycle Model Update – Steve Hinton (Tulalip Tribes) & Tim Beechie (NOAA)

Steve and Tim gave an overview of the project timeline. Contracting took a while and delayed project start up. The project kicked off in spring so there isn't very much to share yet, but they look forward to the committee's feedback.

The Habitat Assessment and Restoration Planning (HARP) workgroup was established and includes representatives from NOAA, Snohomish County, King County, Tulalip Tribes, and WDFW. This group helps make the decisions necessary to create the model such as which data sets to use.

Tim shared the Conceptual Model diagram and how habitat factors affect the lifecycle model parameters, i.e., fine sediment impacts egg-to-fry productivity. Then he shared the HARP Model Structure. Most of the work completed so far has been on the first steps: spatial data inputs and spatial analysis.

The spatial model components include: hydrography and attributes, salmon distribution, barrier inventory, shade, large river length and bank condition, floodplain habitat, fine sediment, wood abundance, and beaver ponds. Tim explained the data sets that were chosen for the various spatial components in both basins.

Changes have had to be made to adapt the model from the Chehalis version to work for the Snohomish and Stillaguamish watersheds, i.e., there are no spring Chinook in the Snohomish and Stillaguamish or coho jacks; yearling life-history variant for summer/fall Chinook in the Snohomish had to be added; and age structure data for both basins had to be gathered too.

Next steps - coding changes to the actual model won't take place until the spatial and habitat analyses are completed, which will likely not be until mid-winter at the soonest.

Mike Crewson asked about how they plan to do the age structure for Chinook in the Snohomish due to the yearling component and freshwater stage outmigration complexities. Tim described some options to address this: density-dependent and capacity-based equations using habitat use and survival data for yearling chinook or estimate the percent of fish that leave or stay and code that best guess into the model. And once fish get to the estuary, they have different survival rates (i.e. older fish having higher survival rates) to account for.

Kurt Nelson asked about how fish passage barriers are being considered by the model. Tim described how the barriers influence spawner and rearing capacity estimates.

Tim will plan to check back in with the TC around November after more progress is made.

Estuary Synthesis Update – Josh Chamberlin (NOAA)

Josh explained that this is a large effort with many partners. The project draws on data from 10 estuary restoration projects and 15 years of estuary monitoring, and leverages information from other Puget Sound river deltas to describe how Chinook use tidal channel habitat in the Snohomish to ultimately help revise recovery targets and direct restoration efforts.

Key takeaways:

- 1) location matters: this relates to Chinook salmon life history and the fact that freshwater capacity influences estuary restoration planning. Landscape connectivity is another important factor to consider because it influences the number of fish using the habitat.
- 2) habitat diversity is important: it relates to resource availability for juvenile salmon (bugs for them to eat) and thermal landscape which affects salmon growth opportunity
- 3) capacity is important and complicated: estuary habitat capacity is limiting salmon recovery

Response to restoration is positive though. Fish are observed using restored sites and continued monitoring should be a priority going forward.

Kurt Nelson asked about the years prior to Smith Island and Qwuloolt projects being included in a graphic demonstrating observed benefits of restoration based on Chinook use and density. Josh clarified that the image did not include Smith Island or Qwuloolt projects, but other work had occurred in the area prior to those projects and was shown to improve habitat (Spencer Island, Union Slough, etc.).

Josh Kubo asked about why although projections would indicate Smith Island should have higher salmon density than Qwuloolt, it doesn't appear to be so. Smith Island looks only half as dense. Josh Chamberlain said that it's likely because we only have the first year of data so far and the site's density will likely increase as time goes on. Qwuloolt followed a similar trend so they expect Smith to do so as well.

Josh Kubo asked about how in some years capacity is above what rearing capacity would suggest and what drivers might be causing that. Josh Chamberlain responded that in many other cases actual capacity has been observed at levels much higher than rearing capacity would indicate, but that is the nature of using modeling that cannot be 100% accurate. It could also be differences in resource production, thermal experiences, fluctuating fry proportion, etc. that influence thresholds by which fish move or not under these circumstances. For example, fish may tolerate higher densities as long as there are enough resources to support them but when resources are depleted then they move and therefore density is impacted. But our models can't measure all of these factors. More research on this could be helpful.

Tish Conway-Cranos asked about the salmon density graphics and the variations shown over time. She asked if they have compared them with the temperature trends and if there could be a connection. Josh said it didn't appear so. Josh noted fish seemed less sensitive to temperature inside the study sites than at the reference site.

Tish asked about natal vs. non-natal use at the sites. Josh spoke to how this is looking mostly at the lower part of the estuary which makes up over 90% of the rearing habitat for natal fish so it brings up a question of capacity. For example, the Skagit is putting out millions of fish that often can't reside in the Skagit estuary and are found in pocket estuaries or the Snohomish.

Mike Rustay asked if our juvenile targets are way too high or do we need more capacity? Josh responded that our targets are not too high, but we need to think about where we plan restoration. Distributing projects more upstream would increase the capacity per unit area much more and this is based on the relationship of connectivity. Josh emphasized that this data is focused on early migrants and hasn't yet been expanded to all outmigrants.

Emily Davis asked about whether they did growth studies to look at realized function. Josh said they did for the greater multiple delta project assessment and used bioenergetics data for modeling. Emily asked if in those years where we are over that capacity line, has anyone looked at growth to see if the fish are competing a lot or growing similarly in those years? Josh said they could re-run the models differently to get at those questions or look at the empirical data from otolith samples. So far, that data suggests in increased density scenarios the growth is somewhat reduced.

Mike asked in the case of DD6, could we estimate what improvements in capacity would occur from restoration? Josh responded with ways to do this looking at tidal channel habitat area and using the model to get a predicted output for potential projects. Mike will follow-up on this with Josh.

Round Robin

Matt Baerwalde: Multi-agency network of temperature monitoring includes 70 temperature loggers in the Snoqualmie. But secured funding is running out and future for work is uncertain. Created a map of 29 priority sites of interest for continued monitoring. Matt has been speaking with partners about possible paths forward.

Heather Khan: Ecology is starting French Creek temp & DO TMDL alternatives. Resuming modeling in November most likely. Will be reaching out about future TMDL projects as well since the water quality assessment was recently completed.

Elissa Ostergaard: Next Forum meeting 9/16 at 6pm. WDFW will be talking about the latest priority riparian guidance. All are welcome to attend.

Denise Di Santo: Working on advancing the Lower Miller River Alluvial Fan restoration project in the S Fork Skykomish...in feasibility phase. Will be looking for input from this group at a future date.

Meeting adjourned.