

## SKOOKUM EDFRO PHASE 3 COMMUNITY WORKSHOP #1: SUMMARY NOTES

**The Skookum Edfro Phase 3 Community Workshop #1** (Workshop) was held in person at the Acme Presbyterian Church on November 15, 2022. The Workshop was hosted by Lummi Nation, facilitated by consultants from Veda Environmental (now Triangle Associates), and featured presentations from project team members from Lummi Nation and Herrera Environmental Consultants.

**The goal** of the workshop was to introduce the project to interested stakeholders and gather input from stakeholders to inform design concepts to improve salmon spawning, rearing, and holding habitat in the South Fork Nooksack River (River Miles 12.8 to 13.9). The meeting focused on describing the purpose of the project, the work that has happened to date, the current tasks of collecting data, engaging stakeholders and discussing ideas for design concepts for future consideration.

### **Workshop Objectives** included:

- Build relationships with project leads, project team, stakeholders, and community members
- Update participants on:
  - The project goal to improve salmon spawning, rearing, and holding habitat in the South Fork Nooksack River (River Miles 12.8 – 13.9) to restore self-sustaining salmon runs to harvestable levels without increasing flood and erosion risk to properties.
  - Existing flood modeling conditions in the project reach
  - Project status and timeline for next steps
  - Opportunities for engagement
- Gather input from stakeholders on:
  - Existing conditions regarding:
    - changes to the river,
    - flooding, and
    - salmon habitat.
  - Desired improvements in the project reach
  - How individuals and their property interact with the river

### **Project team members and staff support titles and affiliations:**

- Alex Levell, *Project Manager/Geomorphologist*, Lummi Nation
- Kelley Turner, *Watershed Restoration Program Manager*, Lummi Nation
- Ian Mostrenko, *Herrera Team Project Engineer*, Herrera Environmental Consultants
- Brian Scott, *Herrera Team Project Manager*, Herrera Environmental Consultants
- Hilary Wilkinson, *Community Outreach*, Veda Environmental (now Triangle Associates)
- Melanie del Rosario, *Community Outreach*, Veda Environmental (now Triangle Associates)

### **Seven stakeholders participated in the workshop:**

1. Val Lloyd, lives on Saxon Rd.
2. Alex Harris, lives in the valley
3. Candice Leonard, lives in the valley, former Acme/VanZandt Flood Subzone chair
4. Gordon Bakke, farmer in the valley

5. *John Lamonte, lives on Saxon Rd.*
6. *Bill Finkbonner, ran the Skookum hatchery for many years*
7. *Russell Pfeiffer Hoyt, lives on Saxon Rd.*

## **Project Team Presentation (slides are available on the project webpage linked above)**

### **Project Overview (Slides 2- 6)**

*Kelley Turner reviewed the project goals. Highlights include:*

- We are very early on in the project.
- The project team is focused on engaging stakeholders in developing design concepts to restore salmon habitat to return runs to harvestable levels.
- Key concerns for habitat improvement include high temperature, low habitat diversity, and habitat features such as deep pools with woody cover.
- Project Team will avoid any increase to flood and erosion risk to properties and infrastructure in the project reach.

*Project Reach:*

- Phase 1 was completed in 2017, near the hatchery.
- Phase 2, near Edfro Island, was completed in 2018.
- Phase 3 is downstream of the hatchery and extends just below the Saxon bridge.
- The Project Team is looking at potential opportunities to restore habitat in this reach of the river.

*Existing Conditions:*

- River Mile 13.15 – near the Saxon bridge - Based on surveys in this reach, there is a lot of “fast water habitat” and a few pools, but not with a lot of woody cover.
- There are old anabranching channels that are no longer being activated.
- Flooding – the Team is being very mindful about flooding for this project. The community here is familiar with flooding challenges.

### **South Fork Chinook Mortality Event – 2021 (Slide 7)**

- Over 2,500 pre-spawn Chinook died on the way to their spawning grounds, a lot in this reach of the river. The conclusion about cause of death is that this was caused by degraded habitat, specifically high-water temperatures and low flows that led to spread of the disease, columnaris.

**Question:** What changed from 2021 – 2022 that lead to the mortality event?

- In 2022 we had cooler temperatures and higher flows. Lummi Nation hatchery staff did a temporary diversion by the island near the hatchery.
- The warm water blob off the coast in 2021 contributed to higher water temperatures that year. Didn't see that in 2022.

**Comment (John):** I take the temperature in the river using a gauge, and the temperature was 72 degrees.

- Ideal water temperature for salmon is around 60 degrees. >72 degrees can be deadly.
- Based off of years of data, the South Fork typically has temperatures that are lethal to salmon in recent years.

**Comment (John):** In the middle fork they had more fish go upstream than they've ever seen, were some of those fish South Fork fish?

- Response (Bill): Some likely were.

**Comment (Russell):** There were quite a few salmon that made it upstream before the die off happened, do you have figures on that?

**Alex L:** The massive flood events wiped out their eggs. We don't have exact figures, but we can follow up with the number of redds detected last year. Before the mortality event, there were a lot of salmon moving upstream.

**Kelley:** Some concern that redd eggs were scoured out during the flooding.

**Comment (Gordon):** The County took out a "logjam" (a large log attached with cables) a while back. Gordon used to go to the "logjam" and there would be big salmon laying in there, deep and cold, that's the first place the fish stop to get cold, called Schuyler hole. Underneath the bench the water is 10 feet deep. As a kid, Gordon used to go underneath and look down and see the kings, dozens of kings in the summer. There were deep holes below Nessel's years ago used to have a station. The salmon can't make a long run without a few stops.

- **Question (Brian):** Was that log jam natural?
  - No, it was a cabled log that was installed in the 1920's. It was there for many decades.
- What was the flow like?
  - There were areas where the water moved pretty quick, but there were also deep holes.
- **Comment (Russell):** The ground water was adding to the coolness of the water. Below the logs, you can feel cool groundwater feeding it
- Cabled log was removed in 1980, and they replaced it with rip rap. River took out all of Saxon rd so they needed to protect it. Negotiated with the county for a perpetual maintenance agreement for the riprap.
- Cabling of logs is pretty common on the Nooksack. The cabled logs last a long time, but when the wood rots, can lose a lot of bank.

**Question (John):** What do you have planned to put some deep holes in?

- We're going to share some very preliminary design possibilities later in this presentation.

### **Project Area (Slides 8-11)**

- *Slide 9* - Downstream of Skookum Hatchery, always at least 500 salmon in this pool during spawning season.
- *Slide 10* - (near Pfeiffer Hoyt parcel) There is a steep rapid here, downstream is usually choked with salmon during spawning season.
- *Slide 11* (across the river) - Alluvial flood plain, gets inundated during 1-2 year flood events.
- These will factor into design plans. Want to encourage side channel flow on that side plain, will alleviate pressure from rip-rap. The other option is to cover rocks with wood which is beneficial for habitat

### **Project History (Side 12)**

2005 - WRIA 1 Salmon Recovery Plan – The plan Identified Jones Creek to Skookum Creek as one of the highest priority areas.

2007 – Upper South Fork Habitat Assessment identified “Saxon Road Project”

- Increase large wood loading to increase diversity
- Remove bank armoring
- Road set-back

2013-2015 – Skookum Edfro design grant

- Phase 3 is considered the most impaired reach
- Lummi Nation focused on implementation of Phase 1 and Phase 2 reaches first

2016-17 – Skookum Edfro Phase 1- hatchery to phase 3 project boundary

2018 – Skookum Edfro Phase 2 – 1 mile upstream near Edfro Creek

- Phase 3- The “lower reach” Lummi Nation walked away from this reach at the time because there wasn’t enough support, other phases were easier to implement so started with them.

### **Work to Date and Next Steps (Slides 13 - 15)**

2021 – SRFB Grant Awarded

- Wanted to take a step back and ramp up outreach to talk to stakeholders
- Feasibility Study
- Conceptual Design
- Stakeholder Outreach
- Funding to support (NWIFC and Whatcom PUD)

#### *Outreach Work to Date*

- Lummi Nation developed strategies with the project team and stakeholders
- The team set up a project webpage to share information and project updates:  
<https://www.lummi-nsn.gov/s/skookum>
- The team mailed out project fact sheet to stakeholders in November of 2021
- The team presented at an Acme Van Zandt Subzone meeting in January of 2022. The team asked for suggestions from community/stakeholders at this meeting.

#### *Next Steps*

- The team will schedule 1:1 meetings with stakeholders
- In 2023, the team will present alternatives with engineering and outreach team at a community workshop
- The team will schedule early meetings with FEMA, stakeholders and WCPW (to discuss the CLOMR)
- After these conversations/meetings/workshops the team will select a preferred alternative with input and feedback from stakeholders

### **CLOMR/LOMR (Slide 16)**

- Skookum Edfro Phase 3 is in the FEMA floodway, meaning that currently, there can be no-rise in the 100-year floodplain.
- FEMA has rescinded the Policy on Fish Enhancement Structures in the Floodway (FEMA Region 10 2020).
  - FEMA is now regulating ELJ projects in the floodway the same as development, regardless of habitat benefits.

- A conditional letter of map revision (CLOMR) and letter of map revision (LOMR) following construction is an alternative to allow rise in the floodway from our ELJ structures.
- It is beneficial to this project's habitat objective success to create some rise in the floodway, as long as there are no impact to structures and there is support from landowners. This necessitates the CLOMR/LOMR process.
- The CLOMR process will require landowner and community buy-in and can take up to 18 months for authorization.

### Hydraulic Modelling (Slides 17- 23)

- The design team walked the river and developed a hydraulic model.
- Everything we're sharing tonight are just thoughts and ideas to share out, nothing has been put on paper.
- Depth: A 2-year flow means there is a 50% chance of the flow occurring in any one year.
- **Take away message:** The model shows that with higher flows, starting to activate the flood plain, and side channels activated. For the entire project reach we see higher velocities, monochromatic habitat, depth is the same and velocity is the same- Not a lot of complexity. Downstream, we see water going over the bank, and we see gravel bars.
- We see a need to focus energy to break up the flow and activate the flood plain. Important thing to think about is how we break this up without causing flooding.

### *10- year flood model*

- Project Team would like to know if this matches with people's experience in this reach. This 10-year event should be close to what folks would have seen in 2021.
- **Question** (Ian): Does this look right to the local residents in the room?
  - **Comment** (Russell): I don't think it got as high as the model because the river scoured 3 feet of Saxon bridge.
  - **Comment** (John): At our place, a lot of that water used to come from the river, but now more of it comes from the hill. What comes on our property is next to our house and we don't mind the water or the sediment, brings nutrients to the soil, would like to see more of it. Hasn't been logging in a while, 5-6 years.
  - **Comment** (Russell): There is a year-round creek that dries up when it hits the river bottom. It flows down the back side and backs up from the river.
    - Ian will add this creek to the model
  - **Comment** (John): The creek behind our property doesn't run unless we dig it out, but we don't do that.
  - **Comment** (Bill): Up near the hatchery, on the far side of the road, the fish sometimes die along the road there.

### *100-year flood model*

- In this model, the water is coming across the road into relic side channels and breaching over a driveway
- **Question** (Ian): Does this model look realistic? Have you seen this before?
  - 29,000 cfs, have never had that in this area
  - **Comment** (Gordon): Regarding the flooding through the field, when I was a kid we would go to the house where Russell lives now, and we were going out into the field and the horses would be belly deep in water. Have seen a lot of water through there in the 1940's.

- Underneath the bridge there is incising, can tell that the channel is 3-4 feet lower than it was historically.
- **Comment** (Russell): It's incised underneath the bridge, but deposited first.
- Channel opened up in 1990

#### *Velocity – 2-year flood*

- Velocities are pretty consistently “monochromatic” - not a lot of variability in the channel
- **Comment** (Brian): Those are sediment transporting velocities.
- 2-year is the start of a channel forming event

#### *Velocity – 10-year flood*

- Velocities in the channel aren't changing that much from a 2-year flood.
- Frequently seeing flows that aren't good for salmon, even at 20-year events.
- If there are redds here, they are probably not fairing very well.
- **Question:** The modelled climate impacts show extreme increases of flows, when we look at these numbers as more precipitation falls as rain and less as snow, are we accounting for that Are you looking at climate?
  - Ian: It's a double-edged sword, as you get higher flows you get more incision. The channels have had to adapt to changes in sediment hydrology, ect. The more resiliency you can build in, the better success you'll have to not reactivate the old channels. Want to allow it to adapt as much as possible.
  - Brian: What's happening in the South Fork is not unique, look at the river pre disturbance. Big picture is that we need to retain sediment because excavating artificially is very difficult. How can we slow the river down to encourage sediment deposition to build the channel backup to activate side channel habitat. *We need to somehow slow the water down without adversely impacting land use practices/structures/properties.*
  - **Comment** (Val): We have a much better situation (flood wise) compared to people downstream. I'm interested in anything we can do to make things better up here to help folks living downstream.
  - **Comment** (Ian): If you can slow the river down and increase floodplain connectivity, it absolutely has a positive impact downstream. Will increase flood storage.
  - If we all come to an agreement, we can change CLOMR/LOMR to allow for that.

#### *Velocity 100-yr flow*

- Again, the velocities for the 100-yr don't change very much from the 2-year model.

#### *Depths- low flow (Slide 23)*

- Looking at riffles/glides, looking for variability and looking for pools
- When they took the aerial photograph, can see big crowds of salmon staging in four places, not much anywhere else.

#### *Habitat survey (slide 24)*

- Riffle, moving through rocks, usually steeper gradient area

**Question** (Val): Can you create something with deeper/buried ELJ so you don't create rise?

#### **Restoration Opportunities (Slides 24-28):**

- Medium sized log jam, big not too big, about 20 feet from the bank

- Large sized ones are in Saxon Nasset reach
- Apex Jam – in the middle of the river, bifurcates flow
- Bank jam – creates more scour and deeper pools
- **Comment (Val):** are you working with tributary cold-water inputs?
  - o Yes
- Big rock created enough of a depression that the fish are congregating behind the rock, which gave us an idea to create small log jams and create habitat without creating rise/
- **Comment (Alex L):** Dolotimbers are a consideration (combination of wood and concrete), but typically Lummi Nation doesn't favor putting rock and concrete in the river.
- Slide 27 shoes different types of log structure. The bigger the structure, the deeper the scour/pools

### Questions and Discussion:

**Question (Russell):** What caused the forest to flood?

- Two things: bank erosion and the rip rap disappeared. This led to more flood conveyance, and you lose complexity, then the vegetation occurs and sediments are deposited. Causes higher energy, lower energy, gravel builds up, positive feedback loop. Same thing happening in the hatchery.

**Question (Russell):** In the bottom flow, if you put material in front do you plant trees to hold the bank?

- Yes, absolutely

**Comment (Russell):** When they cleared all the way up the river, they regretted leaving 100 feet along the river. Once they cleared the trees, then the river was free to work its way back up.

**Comment (Brian):** Another idea for rip-rap bank - across the channel from big gravel bar, really good habitat with lots of trees. Good side channel opportunity, put some big or medium log jams along the rip-rap bank and do some shading along the island. This would address the rise issue and encourage side channel activation.

**Comment (John):** This is my home, my children's home, and my grandchildren's home. We like to see the water, see the fish, and we don't like to see the river at 72 degrees. Don't have a quick fix to cool the water, and we need to cool the water. This is the first year I didn't have sockeye at my campground. Don't know where they went. I don't want to lose the river. I want my family to enjoy the river for their life.

**Comment (Val):** I'm interested in how this connects to the big picture of the whole Nooksack. Can we come up with something to connect this? Manipulations can happen if people come together and aren't at each other's throats from making assumptions because they don't know enough. You just can't dredge the river, it's not that simple. If there are ways to connect to the whole watershed... We are behind the 8 ball on doing it quick. People who have been here for generations remember "walking across the river on the backs of fish", and we should build off that.

**Comment (Alex H):** I'm 30, and I caught my first salmon this year. I want to be able to catch salmon in the South fork. That's what motivates me. Need to take a holistic approach to this. ELJ's are important, needs to be one part of the effort. Reconnecting the river to its floodplain is also necessary. How do we work with the farming community and the timber community. This was a great discussion, would like to see more people at these meetings. Need to think big when we're looking at climate change, need to be proactive.

**Question (Russell):** Want to clarify the primary goal of phase 3 - is it to help with survival in low flow or provide spawning habitat?

- **Response (Kelley):** There are multiple objectives. This is such an important migratory corridor; we want a string of pearls. Need a lot of pools to move through and move upriver to spawning habitat. We do document spawning. It's an important migratory corridor, slower water, deeper water, shade.

**Comment** (Gordon): I see a lot of big fish, and a zillion little fish. Seems important to have a pool that's ready for little ones so that they aren't getting washed down and have a place they can stay.

**Comment** (Alex L): Another goal is to increase orca whale population. We're looking at the whole ecosystem.

**Comment** (Bill): We're losing fish, their numbers are so far down, they were almost nonexistent. Hatchery did a great job of bringing them back. Making the hatchery successful, makes you feel good, going in the right way. They are spawning and now we need to save the fish and create a win-win situation. We created a problem by being successful, now we can be more successful.

**Comment:** We see similar values in this group of fish returning the river and being able fish in the river. Everyone wants to be able to access the river for many generations.

**Follow up information to send:**

- Participants would like to see the data about numbers of fish populations and stream temperatures in the past compared to what they are now

**How to stay informed and engaged (Slides 29/30)**

- The best way is to sign up for the listserv to receive updates via email
- Visit/bookmark the project webpage – <https://www.lummi-nsn.gov/s/skookum>
- The project team will continue one-on-one outreach with landowners & stakeholders directly associated with the project, including soliciting feedback at each design stage.
- Contact us! We welcome feedback and dialogue from the community. Contact information: [mdelrosario@triangleassociates.com](mailto:mdelrosario@triangleassociates.com)