



## King County

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## MEETING NOTES

### CEDAR RIVER COUNCIL

May 28<sup>th</sup>, 2019 – 7:00 PM - 9:00 PM

Red Lion Hotel

1 S. Grady Way, Renton, WA 98057

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*The meeting was called to order at about 7:15 pm.*

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#### 1. **Call to Order/Welcome & Introductions**

#### 2. **1<sup>st</sup> Public Comment Period:** There was no public comment during this period.

#### 3. **Large River Habitat Complexity & Productivity of Puget Sound Chinook Salmon – Jason Hall, Cramer Fish Sciences**

Mr. Hall is senior scientist at Cramer Fish Sciences, a firm focused on challenges facing salmon and trout populations. He presented to the CRC on a project by CFS studying if large river and floodplain habitat complexity impacts productivity of Puget Sound chinook salmon; how they might be related; and what any implications might be. NOAA Fisheries, local tribes, and WDFW are all cooperating on the project. A companion paper focused on the habitat component has just been issued, with other papers available for review.

A project goal is to develop consistent metrics at a “major population” scale, to detect habitat status and trends. The project focuses on mapping and gathering data in three major habitat zones – large rivers/floodplains, large river deltas, and nearshore components – using a census-based approach. However, it can take six months to gather this data for an area the size of Puget Sound. A hope is to support regional recovery efforts, including NOAA ESA evaluations, by relating condition metrics over time to viable salmon population (VSP) parameters (productivity, growth, abundance) that measure population viability.

Large river and floodplain mapping for 2015 conditions, including main/side channels and log jams for all rivers, was completed in 2016-17. A few metrics were chosen to represent habitat complexity: off-channel to mainstem channel-length ratios; density/number of nodes/confluences of channels and bifurcations of these channels; and density of wood jams relative to main channel length. These are all suspected to relate to productivity.

Next, available smolt trap data was cross-referenced with mapped data to get an idea of how habitat might be influencing productivity at particular sites. Then data models were developed to determine how different factors may relate to productivity: habitat complexity, peak flow recurrence interval, spawner density, and brood year. The intent was to produce an exploratory model to give an idea of what’s going on in the system, to find if habitat complexity is related to productivity. Data from metrics are then reduced into two primary components: wood metrics, and side channels; various systems were ranked by complexity in regard to these components.

Mr. Hall noted importance in distinguishing fry vs. parr when looking at sub-yearling chinook in population concerns: parr rear longer in freshwater, while fry migrate downriver quickly after emergence. It is suspected that length of time in freshwater habitat is key, that populations may be influenced by freshwater habitats upstream of smolt traps. Productivity rates were calculated in three subsets: fry-per-spawner, parr-per-spawner, and both those averaged together to estimate a total sub-yearling count per-spawner.

Mr. Hall said ultimately their findings show that habitat complexity is the strongest predictor of productivity in these river systems. As habitat complexity increases, productivity increases on a system scale. In addition, findings showed that as system complexity increases, annual variation in productivity of a population is more stable.

Mr. Hall delved into findings for Cedar River restoration projects. These indicated that without the projects, the Cedar would be less complex, as it generally lacks in side channels compared to other systems. The restoration projects also result in an estimated increase in rates for fry-per-spawner (1.8%) and parr-per-spawner (18%).

Mr. Hall’s group sees the results of this work supporting the hypothesis that habitat complexity increases productivity at a system scale and reduces annual variation. He said while this may seem obvious, demonstrating it



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at this scale is the “take-home” message. Showing this pattern across all systems in Puget Sound is where the utility is, to help feed into a regional recovery strategy. He noted it also shows changes can be detected in the landscape due to restoration, which is a primary recovery tool in Puget Sound right now.

The next phases will be to process the mapping data of deltas and nearshore components, link those and other data to VSP parameters, get a bigger picture of how all this works together, and look at other species. Mr. Hall’s group hopes to repeat this process every five years. The eventual hope is to look at systems and be able to ascribe changes to restoration or natural changes, and look at productivity changes over time.

The presentation was followed by a CRC question/answer period with Mr. Hall:

- **Q:** How does this help judge validity of continuing to invest in habitat restoration? Have we made a difference, can we attribute that to habitat vs. other factors?  
**A:** That’s the endgame. But productivity is influenced by more than just habitat. Hopefully we’re providing a framework here where you can make those habitat change measurements and look more at those questions.
- **Q:** What about the Cedar?  
**A:** The Cedar has seen an increase in fry productivity. We’ve been trying to figure out why with WDFW; this is anomalous compared to prior records. We’re trying to determine if this a long-term shift.
- **Comment:** It would be interesting to know from an investment/taxpayer perspective which of these restoration efforts were the most “bang for buck.”
- **Q:** I’m trying to understand how harvests factor into this analysis?  
**A:** We will factor ocean conditions in the next phases of our analysis.
- **Q:** When did you notice the Cedar productivity anomaly for fry?  
**A:** Around 2012.
- **Q:** Is this system-wide model transferrable enough that others could fine-tune it, so maybe the CRC could work with King County or other biologists to make determinations on possible projects?  
**A:** Generally, with a salmon recovery plan, a productivity target is already defined, based on sustainability of a population. This is all exploratory; I don’t think you want to map out something and say “if we do this, then we’ll hit our target.” Use it as a tool to figure which options are feasible. Tribes are also interested in this.
- **Q:** Do you see value in a historical reconstruction?  
**A:** Yes. But attempting this can be problematic, as older aerial imagery is not as high-quality. Sometimes we can get as far back as the 1930s-40s.
- **Q:** The Elwha – two big dams were taken out there. Are we seeing rapid recovery there?  
**A:** Yes, very impressive, it’s even building its own delta now. Fish are going up.
- **Q:** Has anyone done the same type of productivity analysis based on complexity, where you can track it from aeriels from the 1940s-50s on? Many systems have undergone big changes in last 30 years.  
**A:** No. Most smolt trap data doesn’t start until recent times, except for the Skagit. Any long-term monitoring analysis is limited to the Skagit for productivity estimates. For escapement, you can go further back in some systems, but there are tricky variables there to try to estimate productivity. Online through this publication, you can see the productivity for different systems.
- **Q:** For the main rivers – can you see if we’re holding our own with habitat, or degrading it?  
**A:** In general, changes are small at regional scale. The smaller in scale you go, the more change you’ll likely notice. Look at Ken Pierce’s work (with WDFW), in high resolution change data analysis; he’s putting out wide-scale Puget Sound change maps, using imagery analysis to detect changes to level of detail of single trees. I can send you a link to that.
- **Q:** Have you noticed any changes other than with chinook?  
**A:** We want to look more at coho; they may be more influenced by freshwater than chinook, who migrate downstream without wintering in freshwater in Puget Sound. Coho spend more rearing time in freshwater. We looked a lot at steelhead as well; their recovery plan is coming out from NOAA at the end of this year.
- **Q:** What about parr survival vs. fry/yearling, in regards to habitat complexity and your targets?  
**A:** For parr-per-spawner, those who rear longer in freshwater, habitat complexity was a poorer predictor of their productivity. Spawner density was the primary predictor there.
- **Q:** Spawning habitat vs. rearing habitat – those can be two separate things?



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- **A:** To an extent, but the explanation here is that parr life history is more sensitive to density of fish in the system. The theory is that with a higher density of spawners, it's less likely for parr to rear in the river.

Mr. Hall said he will send Nathan links to the referenced papers, and the website for all project data.

### 4. **Cedar River Council**

- a) **Sockeye Update & Discussion:** After discussion, it was agreed the executive committee will develop a letter to co-managing stakeholders – such as SPU, WDFW, and tribes – to move forward with a feasibility assessment to determine actions and needs for a sockeye recovery effort. Frank Urabeck advised not to ask for a specific course of action, but ask things be done short-term to buy time, then move to a study to see what can be done on a larger scale.
- b) **Membership & Leadership Elections**
  - Max Prinsen advised reconvening the membership committee to assess the membership of vacant seats on the CRC, as well as hold elections for vice-chair. Corinne Young is willing to serve on this committee, and Mr. Prinsen, as CRC chair, will also serve; Nathan Brown will email for further volunteers. He said the CRC needs to have a dialogue about positions being represented, the appropriate number of members, and general membership structural issues.
  - Part of the recruitment process will be to reach out to prior members and ask if they know of anyone in their area who might be interested in serving. Recruitment will likely be a several-month process.
  - Steve Farquhar is resigning from the CRC at the end of the year, due to personal commitments.

### 5. **Standing Topics (Report As Needed)**

- a) **WRIA 8:**
    - Ron Straka reported the Flood Control District (FCD) attended the last Salmon Recovery Council (SRC) meeting, their first time doing so. Discussion centered on finding a nexus between their work and the WRIA's work. A large portion of the goal for floodplain restoration on the Cedar, such as the Rainbow Bend and Riverbend projects, is being done through the FCD. However, the FCD's work can't just be habitat-related; it has to have a flood protection nexus. Mr. Straka said there are opportunities for the WRIAs to pursue types of salmon recovery funding through the FCD, to sync up efforts with them.
    - Nathan Brown said WRIA 8 recently participated in a King County Parks bike ride with Executive Dow Constantine on the Cedar River Trail, including the Riverbend mobile home park site. Mr. Brown said he will look into inviting Executive Constantine to the "I Love the Cedar River" meeting this year, to give opening comments, and to share ideas for Cedar River projects.
    - Mr. Brown agreed to have Jon Hansen update the CRC on the Riverbend project this fall.
  - b) **SPU Water Supply/HCP/Dam Operations:** The next CRC meeting will be at SPU's Cedar River watershed education center. Nathan Brown will try to arrange for a vanpool from Seattle.
  - c) **King County Comprehensive Plan - 2020 Midpoint Update:** In February, King County Council (KCC) adopted a scoping motion for the comprehensive ("comp") plan update, of all elements they'll be looking at. There is a website if anyone wishes to be involved or notified of updates.
  - d) **2019 "I Love the Cedar River" Annual Meeting:** This is planned for October, due to the end of construction season for most County projects, meaning more project managers may be available to speak. The meeting will either be held at the Red Lion Renton hotel, or Lake Wilderness Lodge in Maple Valley.
6. **2<sup>nd</sup> Public Comment Period:** A citizen voiced concern about City of Renton, WSDOT, and King County using glyphosate next to the river, which he said is toxic to people and likely fish. Ryan McIrvin (?) said that to his knowledge, aquatic-approved herbicides, including a fish-safe formulation of glyphosate, are used in these cases.
7. **Adjourn:** Nathan Brown asked CRC members to be aware the CRC may need to change future meeting dates and times slightly, in order to find a less-costly meeting space.

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*The meeting adjourned at about 9:05 pm.*

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### **Next Meeting**

June 25<sup>th</sup>, 2019, 6:00 pm – 8:00 pm, SPU Cedar River Education Center, North Bend