

# **Columbia River Policy Advisory Group December 7, 2021 Online Meeting Summary**

*Note: Powerpoint presentations from this meeting are available on the OCR website:  
<https://www.ezview.wa.gov/?alias=1962&pageid=37050>*

## **WELCOME/INTRODUCTIONS**

The meeting began at 9:30am. Facilitator Cynthia Carlstad reviewed a couple of pointers for the online meeting. Members and guests introduced themselves. Cynthia announced that the public comment period will be at 10:30am and asked that anyone who wants to make a public comment send her a chat directly to get in the queue.

## **UPPER COLUMBIA UNITED TRIBES FISH PASSAGE AND REINTRODUCTION – PHASE 1 REPORT / PHASE 2 WORKPLAN**

Cynthia introduced the three speakers from the Upper Columbia United Tribes (UCUT): Conor Georgi, Anadromous Program Manager from the Spokane Tribe, Tom Biladeau, Habitat Restoration Biologist from the Coeur d'Alene Tribe, and Casey Baldwin, Senior Research Scientist from the Confederated Tribes of the Colville Reservation.

Conor began the presentation acknowledging that the UCUT is a consortium of five tribes – the Coeur d'Alene, Kalispel, Kootenai, Spokane, and Colville Tribes. Combined they have two million acres of reservation lands and over 14 million acres of usual and accustomed lands.

Salmon are critical to these tribes ecologically, economically, and culturally. Ecologically, they are a keystone species that connect marine, aquatic, and terrestrial ecosystems and support diverse species both in the water and in upland habitats. Economically salmon are critical in supporting commercial, tribal, and recreational fisheries and the diverse associated labor and services. The cultural facet addresses spiritual, and ceremonial uses, and also the culture and rights of indigenous tribes in these regions and these historically occupied habitats.

The purpose of this work is to evaluate the feasibility of reintroducing anadromous species upstream from Grand Coulee and Chief Joseph Dams. The goal would be to establish naturally reproducing populations, supported by responsible and conservative artificial production. While this would benefit UCUT, they believe the benefits would reach much farther – to the Columbia River estuary and into the Pacific Ocean food webs.

They are utilizing a phased approach, based on the Northwest Power Conservation Council's 2014 Columbia River Basin Fish and Wildlife Program. It is comprised of the following phases:

- Phase 1 – Feasibility Study (complete)
  - Evaluate passage studies at the dams
  - Investigate possible cost of upstream and downstream passage options
  - Investigate habitat availability, suitability, and salmon survival potential in habitats above Grand Coulee Dam
- Phase 2 – Implementation Plan (initiated)
  - Design and test reintroduction strategies and fish passage facilities
  - Reintroduction pilot projects
  - Monitoring, evaluation, and adaptive management

- Phase 3 – Review results to determine implementation and permanent inclusion to the Program (not scoped in detail at this time)

### Phase 1 Feasibility Study

The feasibility work completed in Phase 1 consisted of the following tasks:

- Donor Stock Assessment – What species and stocks are the most appropriate?
- Risk Assessment – What are the risks to resident fish?
- Habitat Assessments – Can the habitat support fish production?
- Review of Fish Passage Technologies – Is it possible to pass fish above Chief Joseph Dam and Grand Coulee Dam?
- Salmon Life Cycle Modeling – What are possible fish population outcomes from anadromous fish reintroduction?

For donor stock assessment, summer Chinook (Chief Joe Hatchery) and sockeye (Okanagan River/Penticton Hatchery) were the top ranked. While they would prefer to use natural origin fish, those fish are not available in sufficient numbers and the UCUT tribes are committed to using fish that are not Endangered Species Act (ESA) -listed. They are using approved protocols to avoid introducing pathogens and are monitoring for predation and competition with other native species.

Results from the habitat assessment indicate that there is over 1,200 miles of suitable habitat in the U.S. portion of the watershed (likely much more if Canada was included). Spawner capacity estimates range from 51,100 to 838,500, including spring Chinook, summer/fall Chinook, sockeye, and steelhead. Lake Roosevelt is estimated to have a rearing capacity of 12 million to 48.5 million sockeye salmon.

In looking at fish passage potential, UCUT reviewed Northwest Power Conservation Council studies on fish passage technologies and investigated similar high-head dams elsewhere. Using these resources, along with entrainment studies of resident fish and fish passage design guidance documents, they developed ideas for possible configurations at each of the dams.

The life cycle modeling aided in projecting potential fish population performance with reintroduction. Two important assumptions included in the modeling were (1) current harvest rates are maintained, and (2) current dam operations are maintained. The baseline scenario model results projected an increase of more than 41,000 Summer Chinook and more than 76,000 Sockeye from reintroduction. The modeling also identified some critical uncertainties that will be tested in Phase 2.

### Phase 2 Implementation Plan

Tom Biladeau presented the Phase 2 Implementation Plan. He began by emphasizing their goal for a stepwise and scientifically adaptive approach to test the feasibility of restoring salmonids to the Upper Columbia River basin that is focused on collaboration, cost effectiveness and benefits for the entire region.

Tom spoke to their commitment for a coordinated approach, recognizing the far-reaching effects that salmon have, from over 21 managing agencies within the Columbia basin, many more related to effects in the Pacific Ocean and coastal areas, and internationally through Canadian governments, First Nations, Canadian hydropower operators and fisheries interests. He encouraged questions and comments today and at any time.

Some of the major goals for Phase 2 are the following:

- Test key assumptions used in the Phase 1 Life Cycle Model
- Establish sources of non-ESA Chinook and sockeye donor stocks
- Develop interim hatchery facilities to produce fish for feasibility studies
- Develop and test upstream and downstream interim passage facilities under current operations
- Provide the data necessary for full-scale reintroduction and permanent passage.

Some of the regulatory considerations and constraints they will be engaging include the following:

- ESA consultation and impacts
- Fish health and disease management
- Access to preferred donor stocks
- Access to rearing and adult collection facilities
- Lack of funding/support

UCUT is planning for a 20+ year implementation timeline. Years 1-6 will focus on these tasks:

- Initial survival studies
- Donor stock access
- Adult trap and haul program
- Rearing facility development
- Research, monitoring, and evaluation with passage investigations.

Following these initial steps, they hope to focus on design and testing of fish passage systems while continuing to conduct survival and behavior studies. A key milestone will be when they are able to evaluate the natural productivity of reintroduced fish and whether those results are aligned with Life Cycle Model projections. Each piece of the program will be monitored along the way, and it is very likely that adaptation will be needed as the team learns more about what works best.

To kickstart the Phase 2 studies, they need access to fish. They are investigating existing facility options like the Chief Jo Hatchery or even rearing fish in the blocked area, for example in a net pen operation within Lake Roosevelt or Rufus Woods Reservoir, or a streamside acclimation facility or small-scale rearing facility.

Once they have fish in the blocked area wanting to move downstream and upstream, they will carefully monitor fish behavior around the dams – how they approach from both upstream and downstream, hoping this can inform location and type of passage facilities. Cost effectiveness is a high priority along with not impacting current operations of the dams.

At Chief Joseph Dam, they will be evaluating use of the existing fish ladder along with trap-and-haul and whether the existing ladder needs to be expanded or an additional interim collection facility added downstream.

Next steps will include continuing operations of interim rearing facilities, a moderate-sized PIT tag releases of Chinook and sockeye, trap-and-haul from Chief Joseph Dam to upstream reservoirs, and incrementally installing interim fish passage facilities in a sequenced manner:

1. Chief Joseph upstream
2. Grand Coulee downstream
3. Grand Coulee upstream
4. Spokane upstream

5. Chief Joseph downstream
6. Spokane downstream

All of this is subject to adaptation as the team evaluates results of its monitoring program, learns more about feasible passage facilities, and works with the basin community.

Tom displayed cost estimate information, showing a total estimate of \$176 million, or \$8.5 million per year over a 20-year period.

#### Cultural and Educational Releases – UCUT Tribes, 2017-2021

Casey Baldwin described the cultural and educational salmon releases that have already been occurring in the blocked area since 2017. Once the team had early work completed on donor stock, risk assessment, and pathogen evaluations, the UCUT tribes felt comfortable moving ahead with limited salmon releases to begin meeting ceremonial, educational, harvest, ecological restoration, and outreach objectives. These releases are also providing data to inform the phased approach and acting as proof of concept for the reintroduction program. Approximately 1000 adult Chinook and 11,000 juvenile Chinook have been released and provided very hands-on experiences for tribal members. Examples include:

- Elementary school classrooms raising and releasing salmon while learning about the salmon life cycle
- Tracking juvenile releases' outmigration downstream of Chief Joseph Dam
- Trap and haul adult salmon for ceremonial releases
- Ceremonial harvest

Monitoring of released fish has shown how and where they moved within the blocked area. The team observed pre-spawn holding and documented spawning in the Sanpoil River, Tshimikain Creek, little Spokane River and Rufus Woods Reservoir. Additionally, they collected juvenile wild salmon in Sanpoil River and Tshimikain Creek traps. While the sample size is too small from which to draw major conclusions, these are all positive indications.

#### Questions/Comments from PAG members

1. Appreciation was expressed to the UCUT team from three PAG members for their presentation, the work they are doing, and the way they are approaching it.

#### **PUBLIC COMMENT**

1. Margie Van Cleve: Margie added her appreciation for the UCUT presentation. She stated her affiliation as conservation chair for the Washington State Chapter of the Sierra Club and as a senior water rights holder in the Naches-Selah irrigation District. She stated that as a country and state we've allowed our infrastructure to deteriorate and that most of the attention has been focused on roads and bridges. Agricultural infrastructure is extremely important in central and eastern Washington, and it is not at the top of its form. OCR is working with various irrigation districts around the state on many different projects, sometimes loaning or giving public funds to irrigation districts. Stating no disrespect to irrigation managers online, she observed that irrigation districts typically state that they are charging their members as much as they can bear and that they cannot afford to maintain or replace their infrastructure. The Sierra Club is concerned that we are not equipped to compare projects between different irrigation systems. They are requesting that OCR start a study or at least start gathering data that would allow comparing and contrasting projects between districts. This could begin with a compilation of how much each non-federal irrigation district spends on maintenance annually, along with how many acres they serve.

2. David Ortman commented on two topics:

- The Icicle Work Group presented to the CRPAG at its September meeting on the Icicle Creek Integrated Water Management Strategy. However as of December 2, he observed that the Icicle Work Group had not posted work group notes from July 8 or October 14 work group meetings. He stated that this calls into question the transparency and facilitation for that process and requested that the CRPAG look into the situation.
- The Columbia River Basin Water Supply Development program (RCW 90.90) made a number of findings including development of new water supplies to meet the economic and community development needs of people and instream flow needs of fish, to aggressively pursue development of water supplies to benefit both instream and out-of-stream uses, and to focus on the following needs:
  - Sources of water supply for pending water right applications
  - New municipal, domestic, industrial, and irrigation water needs within the Columbia River Basin

Although the legislature did not specifically authorize an Office of Columbia River, and he believes controversy remains concerning how Ecology can count withdrawals of existing water from Lake Roosevelt as part of “new water supplies.” Ecology’s website now highlights “Providing access to water for new uses,” but does not provide detail. Although some of this information is contained in various annual reports, it would be helpful if the CRPAG would review the following:

- Amount of water the program has provided to new water right applications that were pending since 2006
- The estimated amount of water the program would need to provide remaining unsatisfied pending applications
- Amount of water the program has provided to new municipal, domestic, industrial, and irrigation needs since 2006
- Estimated amount of water the program would need to provide to future municipal, domestic, and industrial irrigation needs.

Referencing a recent Washington Supreme Court decision in *Ecology v. Acquavella* (No. 99373-4) regarding the Yakama Indian Nation and the Wapato Irrigation Project, the Court accepted Ecology’s concession that “if, under federal law, additional lands were designated beyond the 120,000 acres already identified, then the Nation could serve those lands.” He asked if the Department of Ecology intends to treat potential additional irrigated lands on the Wapato Irrigation Project as new uses requiring new water supplies from the Columbia Basin program.

## **2021 DROUGHT AND HEAT WAVE IMPACTS – AGRICULTURE AND FISHERIES**

Cynthia introduced the three speakers for this topic: Jeff Marti, Washington State Dept. of Ecology; Jaclyn Hancock, Washington State Dept. of Agriculture; Megan Kernan, Washington State Dept. of Fish and Wildlife.

Jeff Marti began the session by presenting on the 2021 water year and how it was a different flavor of drought than what we have seen before. At its core, drought is a lack of precipitation,

but the timing, type of precipitation (rain or snow), and how it interacts with temperature presents the different flavors of droughts. Some examples include:

- 1977 where there was very little precipitation through July leaving storage reservoirs and soil moisture low.
- 2001 was similar to 1977 and the first year the Columbia River instream flow rule was triggered because the March water supply forecast fell below the trigger.
- 2015 was marked by consistent high temperatures through the water year combined with low precipitation.
- 2021 started with a strong snowpack, but quickly turned to drought conditions with low precipitation and high temperatures starting in March.

Jeff described more detail about the 2021 water year. Precipitation conditions were good over most of the northern part of the state from October through February, however the south central portion of the state was dry. For the March through August period, dry conditions prevailed everywhere; it was the second driest of this period statewide since 1895 (and the driest since 1924). Temperatures were above average all year, and particularly acute in the April through September period. The period June through September was the warmest on record.

Because of the good snowpack, the water supply outlook was good in April, but worsened dramatically. By mid-May those basins dependent on rain-driven river flows had below-average forecasts. The state issued its first drought advisory on May 24; this applied to all Columbia River Basin counties. By late February and continuing through September precipitation did not occur in eastern Washington.

The heatwave was also noteworthy. In 2021 most of the maximum daily temperatures were above the average temperature range and many set daily records. This persistent heat caused the snowpack to melt quickly – on April 1 snowpack was at 137% of normal in the Walla Walla watershed, but by May it was below average and by June was melted out, a week earlier than normal.

On July 14 drought was declared in most areas of the state. However, areas of the state that rely more on snowpack were not as impacted by water shortage, as contrasted with 2015 when low snowpack led to more widespread water shortages.

So far this fall precipitation has been closer to normal in most locations. However, with the large deficit in much of eastern Washington, we will have to receive from 149% to 172% of average precipitation to end drought conditions. This year is expected to be a La Nina year, which typically is wetter than average, but unlikely to make up for the deficit.

Turning to impacts from the drought and heat wave on agriculture, Jaclyn Hancock spoke about the 2021 drought and impacts to agriculture. She described Washington agriculture as producing over 300 crops with a value of \$9.49 billion. Agriculture and food processing provide over 160,000 jobs statewide.

Dryland agriculture suffered the most impacts from the 2021 drought and heat wave. Producers reported this was the worst drought since 1977. The table below summarizes estimated yield reductions for major crops. Quality impacts also occurred, resulting in lower prices.

Crop	Five-Year Average Yield	2021 Yield
<b>Wheat</b>	152.2 million bushels	87.18 million bushels
<b>Barley</b>	6.2 million bushels	2.7 million bushels
<b>Peas</b>	2280 lbs/acre	1200 lbs/acre
<b>Lentils</b>	1190 lbs/acre	920 lbs/acre
<b>Garbanzos</b>	1656 lbs/acre	680 lbs/acre

Hay availability was a major problem for livestock producers, which increased costs. Water supply was also a problem with some having to truck in water. Stress from intense heat was also noted, which led to lower milk production.

Additional impacts were the following:

- Increased irrigation demand
- Quality impacts
- Animal stress
- Berries – sunburn, dehydration
- Tree fruit – smaller size, sunburn, discoloration in apples, 20% yield reduction in cherries
- Potatoes – yield impacts, mis-shaped potatoes (which makes them not marketable), sprouting, storage concerns

Jaclyn ended by introducing an Economic Drought Assessment Tool that WSDA is working on with University of California Merced and funded by OCR. The model includes an agricultural production module and economic (IMPLAN) module. The purpose is to provide a macro-scale analysis of drought impacts to irrigated agriculture. They just completed model development recently and are ready to apply it.

Megan Kernan presented the last part of this session, describing drought and heat impacts to fish and wildlife. She said that the biggest story was the Epizootic Hemorrhagic Disease (EHD) outbreak in white-tail deer population in eastern Washington. This is a fatal virus spread by biting insects when deer congregate near watering holes. She also noted hatchery impacts, with increased disease caused by higher water temperatures. Ich (or White Spot Disease) was particularly problematic this year. It can be fatal to fish and is expensive to treat. Lack of precipitation also impacted WDFW agriculture leases and restoration work. There was also extreme wildfire risk on WDFW wildlife.

Focusing on the Columbia River Basin salmonids, she noted that because salmonids are cold water fishes, they are especially vulnerable to high water temperatures. Low streamflow volumes that reduce habitat availability can also result in fish passage barriers. Fortunately, major fish die-offs did not occur in 2021 as they did in 2015. WDFW thinks the reason is the flavor of the 2021 drought – with the robust snowpack there was a buffer that helped fish survive. For example, in 2015 at Wells Dam, 87% of the run was exposed to temperatures above 17 degrees centigrade (reference temperature for impacts), whereas in 2021 only 39% were exposed. A similar situation was observed in the Okanogan River at Malott.

The second Columbia River-specific fish impact observed this year was the low conversion rates, which is the ratio of fish passing from a lower dam to an upstream dam. Biologists believe the fish detoured to cold water areas where they took refuge instead of journeying upstream.

Megan closed by advocating for proactive work to build greater drought resiliency. This includes actions such as prescription burns, habitat restoration projects, and integrated water resource

planning. Waiting until the emergency unfolds leaves us with fewer and less ideal options to cope.

#### Questions/Answers/Comments

1. Tom Davis thanked the presenters and noted that irrigated agriculture saved the day for producers this year and that the storage reservoirs also helped the fish suffer fewer impacts than they otherwise might have.

### **Upper Columbia Salmon Recovery Board (UCSRB) Snow2Flow Study Results**

Cynthia introduced Ryan Niemeyer and Melody Kreimes from the Upper Columbia Salmon Recovery Board to present on the Snow2Flow model.

Melody introduced their organization – the Upper Columbia Salmon Recovery Board is the non-profit entity coordinating implementation of the recovery plan for endangered salmonids in their region which extends from the base of Chief Joseph Dam to the confluence of the Yakima and Columbia Rivers. It is approximately 10,000 square miles, 70% of which is managed by U.S. Forest Service (Okanogan-Wenatchee National Forest). She showed a map of their Tier 1 Restoration Priority areas for Upper Columbia Spring Chinook, steelhead, and bull trout overlain on USFS jurisdiction illustrating that the only way they can hope to achieve their objectives is to work on USFS lands. To that end, she expressed appreciation to OCR for aiding in developing the Snow2Flow model to inform the necessary restoration work.

Ryan framed the tool through the prioritization they did – organizing by 191 priority reaches, 85% of which are limited by streamflow and 75% of which are limited by temperature. The goal for the model is to provide a tool for partners to explore how forest management can enhance streamflow in the Upper Columbia. The model is a web-based tool [s2f.ucsrb.org](http://s2f.ucsrb.org) that is available to anyone. It is based on the Distributed Hydrology Soil and Vegetation Model (DHSVM) that estimates streamflows using various inputs including weather, aspect, soils, etc. They included several forest treatments that mirror USFS forest treatments:

- No treatment
- Maximum biomass 16-inch limit
- Maximum biomass 25-inch limit
- Burn only
- Ideal water – simulate forest gaps

Ryan demonstrated the model, showing how to delineate or upload geographic areas of interest, select treatments, and run the model. He highlighted flow results for a sample model run, including changes in flow for dry, normal, and wet years.

Next steps will include outreach to partners – a podcast, YouTube tutorial, presentations – and working directly with partners. They will also be working through their watershed program to see how a ridgetop to river approach affects how well salmon do.

#### Questions/Comments

1. Tom Tebb asked if there are any forest thinning operations that could begin using the tool and offered OCR support in coordinating with the Forest Service. Melody expressed appreciation and said that Ryan is coordinating closely with the USFS and that the Forest Supervisor Kristin Bail has been supportive.



2. Cynthia asked if the model could be applied more generally along the eastern slope of the Cascades. Ryan and Melody responded that adequate precipitation data is needed, and also that the online access has to be customized.
3. Cynthia asked if the model is capable of outputting temperature estimates. Ryan answered that they chose not to include the temperature capability to reduce model runtime. However, Pacific Northwest National Lab did some empirical analysis for them to help estimate relationship between flow and temperature. UCSRB will be posting this on the website as well.

**ANNOUNCEMENTS**

Tom Tebb announced that the Columbia River Treaty is going to initiate their 11<sup>th</sup> formal negotiation in mid-December. He directed participants to the State Department website for more information. He also thanked everyone for participating in 2021 through the online meeting forum. Lastly, he announced that OCR has several vacancies they are working to fill, and asked for patience while they rebuild their staffing.

**ADJOURNMENT**

Meeting adjourned at 12:30pm. Next meeting is scheduled for March 3, 2022.

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**Attendees:**

*CRPAG members and alternates:*

Brent Nichols, Spokane Tribe  
 Danielle Squeochs, YN  
 Talmadge Oxford, USBR  
 Christi Davis Kernan, USBR  
 Megan Kernan, WDFW  
 Jeff Dengel, WDFW  
 Jon Culp, WCC  
 Ron Anderson, Yakima Co. Comm  
 Mark Stedman, Lincoln Co Comm

Lisa Pelly, TU  
 Mike Schwisow, Columbia Basin Development League  
 Craig Simpson, ECBID  
 Darryll Olsen, Columbia-Snake Rivers Irrigation Association  
 Tom Tebb, OCR/Ecology  
 Melissa Downes, OCR/Ecology  
 Clint Didier, Franklin Co. Comm  
 Whitney Reynier, Klickitat County  
 Wendy McDermott, American Rivers

*Others logged in for the meeting<sup>1</sup>:*

Bruce Wakefield, Colville Tribes  
 Casey Baldwin, Colville Tribes  
 Conor Giorgi, Spokane Tribe  
 Chris Voigt, Washington State Potato Commission  
 David Ortman, private citizen  
 Doug White, Candidate for 4<sup>th</sup> Congressional District  
 John Reeves, Save Lake Kachess  
 Joye Redfield Wilder, Ecology  
 Jaclyn Hancock, WSDA

Mike Krautkramer, Robinson Noble, Inc.  
 Paul Jewell, Washington Assoc. of Counties  
 Perrin Robinson, Jacobs Engineering  
 Ralph Allan, Coeur d’Alene Tribe  
 Ryan Niemeyer, Upper Columbia Salmon Recovery Board  
 Stuart Crane, YN  
 Tim Poppleton, Ecology  
 Tom Biladeau, Coeur d’Alene Tribe  
 Tom Myrum, Washington State Water Resources Assoc.

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<sup>1</sup> Note on attendance: some participants did not list full name on Zoom login.

Jeff Marti, Ecology  
Laura Robinson, UCUT  
Margie Van Cleve, Sierra Club  
Melody Kreimes, Upper Columbia Salmon  
Recovery Board

Tyson Carlson, Aspect Consulting  
Urban Eberhart, Kittitas Reclamation District

*Facilitation*

Cynthia Carlstad