MEMORANDUM

TO: Fish and Wildlife Committee Members
FROM: Stacy Horton, Washington Policy Analyst/Biologist
SUBJECT: Cultural and Educational Releases of Salmon Upstream of Chief Joseph and Grand Coulee Dams

BACKGROUND:

Presenter: Casey Baldwin, Senior Research Scientist, Colville Confederated Tribes

Summary: Casey will provide an overview of the Colville Tribes cultural and educational releases of adult salmon upstream of Chief Joseph and Grand Coulee dams. Cultural and educational releases are on a parallel path to the Council’s Phased approach and include conducting ceremonies, evaluating effectiveness of releasing adult salmon and providing fish for harvest or ecological benefits in areas that have been deprived of salmon for 60-110 years. The Colville Tribes conducted PIT and acoustic tagging and spawning ground surveys to evaluate some of the adult salmon released thus far. The results of these monitoring efforts will provide effectiveness information and may help guide future salmon studies and/or restoration efforts.

Relevance: The 2014/2020 Northwest Power and Conservation Council Columbia River Basin Fish and Wildlife Program contains a strategy for Anadromous Fish Mitigation in Blocked Areas that includes measures for reintroduction of anadromous fish above Chief Joseph and Grand Coulee dams to mainstem reaches and tributaries in the United States. A phased approach is required, with the first phase calling for an investigation of habitat availability, suitability and salmon survival potential in habitats above Grand Coulee, which might include selective releases of salmon.
and steelhead. An investigation of scientific feasibility and possible cost of upstream and downstream passage options for salmon and steelhead is needed.

**Background:** The 2014/2020 Northwest Power and Conservation Council Columbia River Basin Fish and Wildlife Program contains a strategy for *Anadromous Fish Mitigation in Blocked Areas* that includes measures for reintroduction of anadromous fish above Chief Joseph and Grand Coulee dams to mainstem reaches and tributaries in the United States. A phased approach is required, with the first phase calling for an investigation of habitat availability, suitability and salmon survival potential in habitats above Grand Coulee, which might include selective releases of salmon and steelhead. An investigation of scientific feasibility and possible cost of upstream and downstream passage options for salmon and steelhead is needed. Before funding new investigations, the Council is to be provided a report for consideration of subsequent work to advance the reintroduction planning process.

In May 2019, UCUT submitted their Fish Passage and Reintroduction Phase 1 Report: Investigations Upstream of Chief Joseph and Grand Coulee Dams to the Council. The UCUT report evaluated donor stocks, risks to resident and anadromous stocks, habitat availability and suitability, passage technologies, life cycle model development, and finally, goals and objectives for Phase 2 studies. Conclusions of their report included modeling that indicated hundreds of miles of habitat are available for Spring chinook and steelhead, existing options for donor stocks, life cycle models developed for summer/fall chinook and sockeye show promising results, risks are manageable, passage technology exists, and finally that cultural and economic benefits will result.

In 2019, the Northwest Power and Conservation Council asked the Independent Scientific Advisory Board (ISAB) to review the Upper Columbia United Tribes’ (UCUT) *Fish Passage and Reintroduction Phase 1 Report: Investigations Upstream of Chief Joseph and Grand Coulee Dams*. The [ISAB review (ISAB 2019-3)](https://www.nwpcc.org) found the donor stock process and recommendations to be scientifically credible, that habitat capacity and assessments provided reasonable hypotheses and will require additional information for future decisions, that the life cycle model provided a simple way to integrate data, and that a strategic plan will be needed so that future steps and adaptive management are able to address uncertainties. The ISAB found that all elements of the Phase 1 requirements were met except for the cost of passage options, noting that cultural releases of adult salmon as well as some preliminary experiments will help develop future design and cost analyses.
More Info:

2014/2020 Columbia River Basin Fish and Wildlife Program

Upper Columbia United Tribes Phase 1 Report:
Fish Passage and Reintroduction Phase 1 Report: Investigations Upstream of Chief Joseph and Grand Coulee Dams

UCUT video of the Phase 1 results
https://protect-us.mimecast.com/s/PitwCzplGqswvj2H4k8GU?domain=ucut.org

ISAB review of the UCUT Phase 1 report:
ISAB Review of the Upper Columbia United Tribes' Fish Passage and Reintroduction Phase 1 Report: Investigations Upstream of Chief Joseph and Grand Coulee Dams (Reintroduction Report)

Staff paper: Review of Fish Passage Technologies at High-Head Dams
The Colville Tribes Cultural and Educational Releases of Salmon into the Blocked Area Upstream of Chief Joseph and Grand Coulee Dams

Casey Baldwin, Colville Tribes F&W, Research Scientist

NPCC Fish Committee Meeting
January 12, 2021
Some Good 2020 News: Salmon Spawning In Upper Columbia River After 80 Years

By Courtney Flint  December 19, 2020

The Spokesman-Review

For the first time in more than 80 years, salmon spawning in the upper Columbia River

For the first time in more than a generation, chinook salmon have spawned in the upper Columbia River system.

"I was absolutely elated, then I was just overcome with complete joy," said Crystal Conner, a Colville Tribal member from the Arrow Lakes and salmon bands. "I don’t know if there’s right words to even express the happiness and the healing."

The news is a step toward full restoration of the Columbia River and another warranted celebration for the upper tribes, since the Chief Joseph and Grand Coulee dams were built in the 1930s and 1940s, respectively. Salmon have been blocked from returning to spawning beds in the upper Columbia River.

For decades, tribal leaders and members have dreamed of bringing the fish back to their native beds. Since 2013, the Columbia River tribes have worked on a plan that maintains habitat, fish passage and survival among other things.

"It’s an emotional project. It’s been rewarding to work on," said Chey Balsom, a research scientist for the Colville Tribe. "I think this is a really big deal for our culture and who we are as a nation."

CTFW released 190 Chinook into the San Poil in August.

KINDER - In August, the Colville Tribal Fish and Wildlife Department mapped and loaded 190 adult chinook salmon from Wells Fish Hatchery, below Grand Coulee Dam - the two massive concrete structures that have blocked migration of salmon into the northern reaches of the Columbia River and its tributaries for nearly seven decades - and released them into the San Poil River.

Now, CTFW has announced surveys have shown these salmon successfully spawned in the San Poil.
FISH PASSAGE AND REINTRODUCTION

3 forums

- Columbia River Treaty
  6 dams (4 in Canada)
- NPCC Fish & Wildlife Program
  2 dams (U.S. only)
- Tribal Initiatives

Arrow Lakes Reservoir. Photo courtesy of West Kootenay Parks
‘Cultural and Educational’ Releases

A parallel path to the Phased approach

• To reconnect the people with the fish and the fish with the habitat

• To have ceremonies and keep the salmon culture alive and well

• In some cases, to provide a harvest opportunity in areas that have not had anadromous fish for 60-110 years

• To educate and involve the tribal membership, youth, the general public, and other partners and stakeholders in the process of salmon reintroduction to the blocked area

• To scope reintroduction strategies and generate baseline information
Parallel Paths

**Phase 1**
- Assessment
- Planning
- Evaluation
- Selective releases

**Phase 2**
- Experimental releases
- Interim passage facilities

**Phases 3-4**
- Permanent facilities
- Monitoring
- Adaptive Management
- Habitat Restoration

Scientific foundation for...

With monitoring can inform....

Ceremonies and public outreach

Ecosystem benefits, Nutrient enhancement

Ceremonial and subsistence harvest

Salmon in the classroom

Acoustic tag adults (limited scope)

PIT tag juveniles (limited scope)

Cultural and educational releases

Phased Approach
Summary of Cultural Releases 2019-2020

- **2019 Ceremonies** (Nespelem, Keller, Kettle Falls, 30 fish each)
- **2019 Rufus Woods tracking** (59 acoustic tags + 93 PIT)
- **2020 Lake Roosevelt acoustic tagging study**
  - 50 acoustic tags (25 at Geezer Beach, 25 at Northport)
- **2020 Sanpoil R.** (100 PIT tags)

All 392 fish were surplus hatchery summer Chinook from Wells Hatchery
CCT Cultural Releases 2019
2019 adult summer Chinook release ceremonies

Aug 9 Colville Reservation
Aug 16 Kettle Falls
Aug 23

Aug 16-Sept 24; released 152 fish for acoustic, PIT and spawning evaluations
2019 Rufus Woods Tracking

• 59 acoustic tagged fish released at 2 locations

Aug 16, released 30 fish at Bridgeport State Park

Aug 23, released 29 fish at Coyote Ck. Boat launch
Individual Fish Tracks

Fish ID#
BSP-2

Released at Bridgeport State Park

Chief Joseph Dam

Grand Coulee Dam

Seatons Grove

Buckley Bar

Nespelem R.
Pacific Aquaculture NP

Fri 16  Fri 23  Fri 30  Fri 06  Fri 13  Fri 20  Fri 27  Fri 04  Fri 11  Fri 18  Fri 25  Fri 01  Fri 08  Fri 15
Aug  Sept  Oct

Date
Individual Fish Tracks

Fish ID# BSP-2

RKM

Grand Coulee Dam
Seatons Grove
Buckley Bar
Nespelem R.
Pacific Aquaculture NP

Released at Bridgeport State Park

880

Chief Joseph Dam

880

Fri 16 Fri 23 Fri 30 Fri 06 Fri 13 Fri 20 Fri 27 Fri 04 Fri 11 Fri 18 Fri 25 Fri 01 Fri 08 Fri 15

Aug Sept Oct

Date
Individual Fish Tracks

Fish ID#
Coy-10

RKM

Date

Fri 23 Fri 30 Fri 06 Fri 13 Fri 20 Fri 27 Fri 04 Fri 11 Fri 18 Fri 25 Fri 01 Fri 08 Fri 15
Aug Sept Oct Nov
Individual Fish Tracks

Fish ID#
BSP-21

Date
Fri 16  Fri 23  Fri 30  Fri 06  Fri 13  Fri 20  Fri 27  Fri 04  Fri 11  Fri 18  Fri 25  Fri 01  Fri 08  Fri 15
Aug  Sept  Oct  Nov

RKM
880
900
920
940
960
Individual Fish Tracks

Fish ID# Coy-20
General Observations

• 92% of the fish had their first observation at an upstream receiver
• 73% of the fish had one or more detections at the furthest upstream and downstream locations
• On average, fish made 4.8 trips upstream of Seatons Grove and 2.3 trips downstream to CJD
• Only 2 fish (3.4%) were detected below CJD as of Mid-Oct (very low initial fallback rate)
• 76% of the fish survived and remained in the reservoir into the spawning period (Oct 1)
• There was no difference in survival to the spawn period for the 2 different release sites
• 73% of the fish had a final detection at CJD
• 3 PIT tags were observed on the Nespelem River array
• 1 PIT tag was observed at the Lower Okanogan array
• Comprehensive spawning surveys were not conducted, however, 6 redds were observed near CJD, one in the Nespelem River
Spawning near CJD
Initial Conclusions/Management Implications

- Both release sites were successful at providing fish for potential spawning and fisheries

- The benefits of hauling fish to an upstream release location (in Rufus Woods) probably don’t outweigh the cost/effort

- Behavior near GCD was a blind spot and receivers should be placed there for future studies

- Spawning was not observed from boat surveys of Nespelem and Buckley bars, other methods (aerial drones or underwater video) should be explored
2020 adult summer Chinook releases

Aug 14
Sanpoil R.

July 24
Northport

July 24
Near GCD
2020 Lake Roosevelt Acoustic Tracking Study

- Dozens of receivers
- Data not yet analyzed (we have tens of thousands of detections to sort out)
- Initial reports from Canada suggest ~20 fish were detected there
- Initial reports from DPUD suggest several detected downstream of Chief Joseph Dam
Sanpoil River Salmon Study, 2020
Sanpoil River Salmon Study, 2020

- Collected 100 adult summer Chinook salmon at Wells Fish Hatchery.
- Sampled for pathogens, genetics and PIT tagged
Sanpoil River Salmon Study, 2020

- Released 100 adult salmon in 2 holding pools in mid-August with PIT tags
21 mi. bridge

17 mi riprap pool
Sanpoil River Salmon Study, 2020

Pre-spawn holding in 17 mi rip-rap pool
Sanpoil River Salmon Study, 2020

- Counted 36 redds (spawning nest) between Oct 8-22, in a 5 mile reach
- 3 fish detected in the West Fork (PIT)
- 3 fish detected at the weir, 38 mi. downstream in late October

Future information from this work....

If the spawning was successful we may catch some smolts in the rotary screw trap next spring.

Genetic samples could be used to link offspring to their parents
• CTCR is committed to implementing the Phased approach, but values the ability to meet other objectives with cultural and educational releases.

• Other tribes have also conducted ceremonial releases in their traditional waters.
“Today, although we only released 30 fish, it’s very sacred to us, it’s very important to us, We have strong prayers today, because our ancestors, our elders at the Ceremony of Tears, they had strong prayers that one day we would see these fish return back to the river, back to our people.”

Rodney Cawston, CTCR Tribal Business Council Chair