Fish Passage & Reintroduction to the Upper Columbia River

PROGRESS REPORT TO THE *COLUMBIA RIVER POLICY ADVISORY GROUP*

DECEMBER 7, 2021

Conor Giorgi, Spokane Tribe of Indians
Tom Biladeau, Coeur d'Alene Tribe
Casey Baldwin, Confederated Tribes of the Colville Reservation

Upper Columbia United Tribes

- Consortium of 5 upper Columbia Tribes
- Manage, protect, and enhance culture, fish, water, wildlife, and their habitats
- 2 million acres of reservation lands
- Over 14 million acres of aboriginal lands

UCUT
UPPER COLUMBIA UNITED TRIBES

Salmon – *They're Critical*

Ecologically

- *Keystone Species*
  - Prey for birds, fish, marine mammals, terrestrial animals, invertebrates, and algae
- Link between marine, aquatic, and terrestrial ecosystems

Economically

- Fisheries: Commercial, Tribal, Recreational
- Salmon Recovery Economy

Culturally

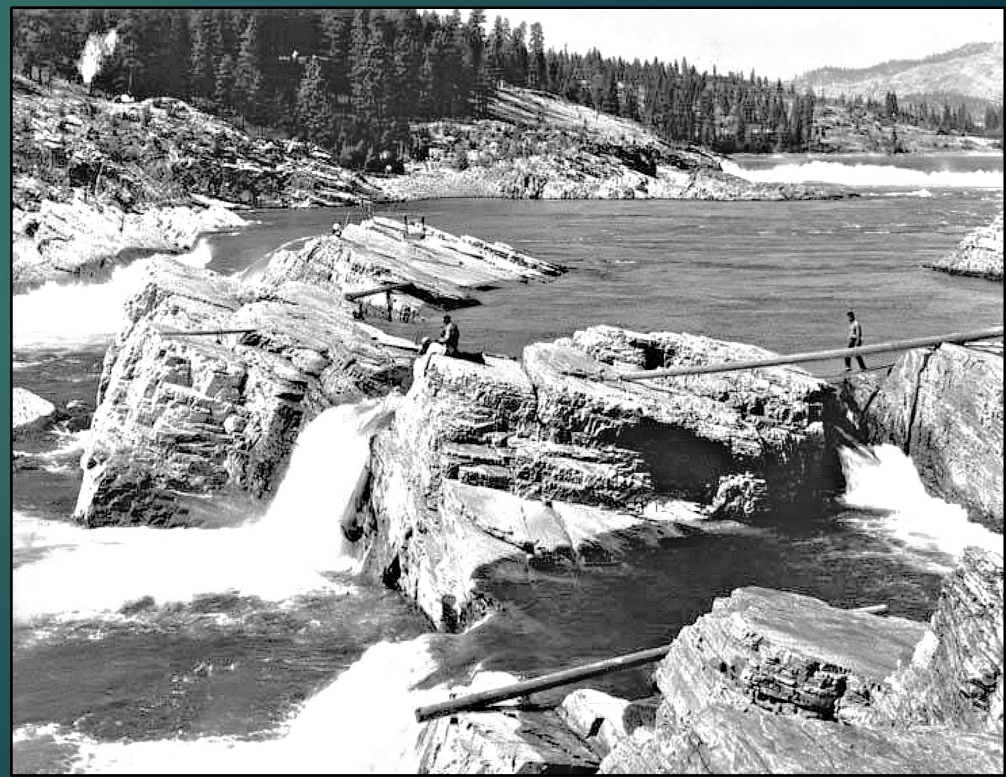
- Spiritual and Ceremonial
- Subsistence
- Commerce

What are we doing?

- Evaluating the feasibility of reintroducing anadromous species
  - Establish naturally reproducing populations, supported by responsible and conservative artificial production

Why are we doing this?

- Right historic wrongs – recognize the culture and rights of native people
- Restore ecosystem processes – locally, basin-wide, and marine
- Bolster economies (fisheries, restoration, recreation)
- Provide climate change resiliency



2014 Fish and Wildlife Program – *The Phased Approach*

Phase 1: Report Completed 2019

Evaluate passage studies at hydroelectric projects, including Chief Joseph & Grand Coulee Dams

Investigate possible cost of upstream and downstream passage options

Investigate habitat availability, suitability and salmon survival potential in habitats above GCD

Phase 2: Draft Implementation Plan Released Aug. 2021

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

Phase 1 Outline

Which species and stocks are most appropriate?

- **Donor Stock Assessment**

What are the risks to resident fish?

- **Risk Assessment**

Can the habitat support fish production?

- **Habitat Assessments**

Is it possible to pass fish above CJD & GCD?

- **Review of Fish Passage Technologies**

What are possible outcomes?

- **Life Cycle Modeling**

Donor Stock and Risk Assessment

- Top Ranked Donor Stocks:
  - **Summer Chinook – Chief Joseph Hatchery**
  - **Sockeye – Okanogan River/Penticton Hatchery**
- Natural origin fish might be preferable, but generally are not available in sufficient numbers
- UCUT Tribes remain committed to using fish that are **not ESA-listed**

- Pathogen risk is inherent to anadromous reintroduction, and manageable
- Minimal competition with native species
- Degree of predation unclear, dependent on overlap in space and time

Images courtesy of WDFW

Suitable Habitats are Available

- Potential Habitats: **>1,200 miles in U.S.**
  - **1,161 tributary miles for Steelhead**
  - **355 tributary miles for spring Chinook**
  - **53 miles mainstem summer/fall Chinook**
- Current Spawner Capacity Estimates:

Species	Low Capacity	High Capacity
Spring Chinook	900	1,200
Summer/Fall Chinook	13,000	76,800
Sockeye	34,100	756,300
Steelhead	3,100	4,200
Total	**51,100**	**838,500**

Photo Credit: Michael Visintainer, Silver Bow Fly Shop

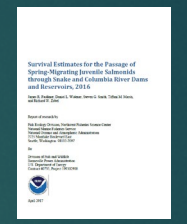
- Lake Roosevelt Rearing Capacity: **12 million – 48.5 million Sockeye**

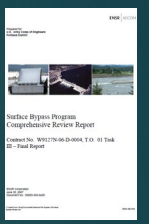
Fish Passage – Literature Review

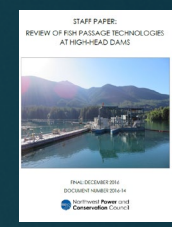
Reviews of Fish Passage

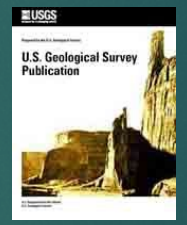
Facilities at Other Projects

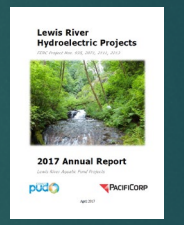
} **Passage Strategy**

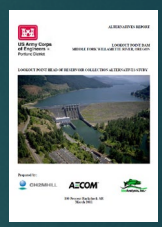


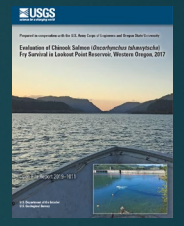


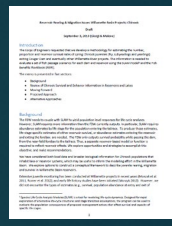








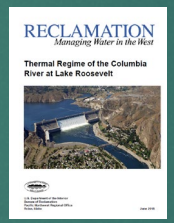


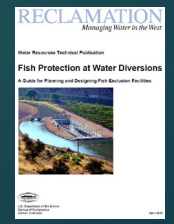


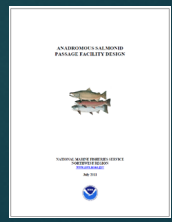
Local Investigations

Fish Passage Design Guidance Documents

} **Configuration**

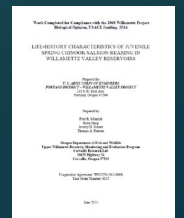




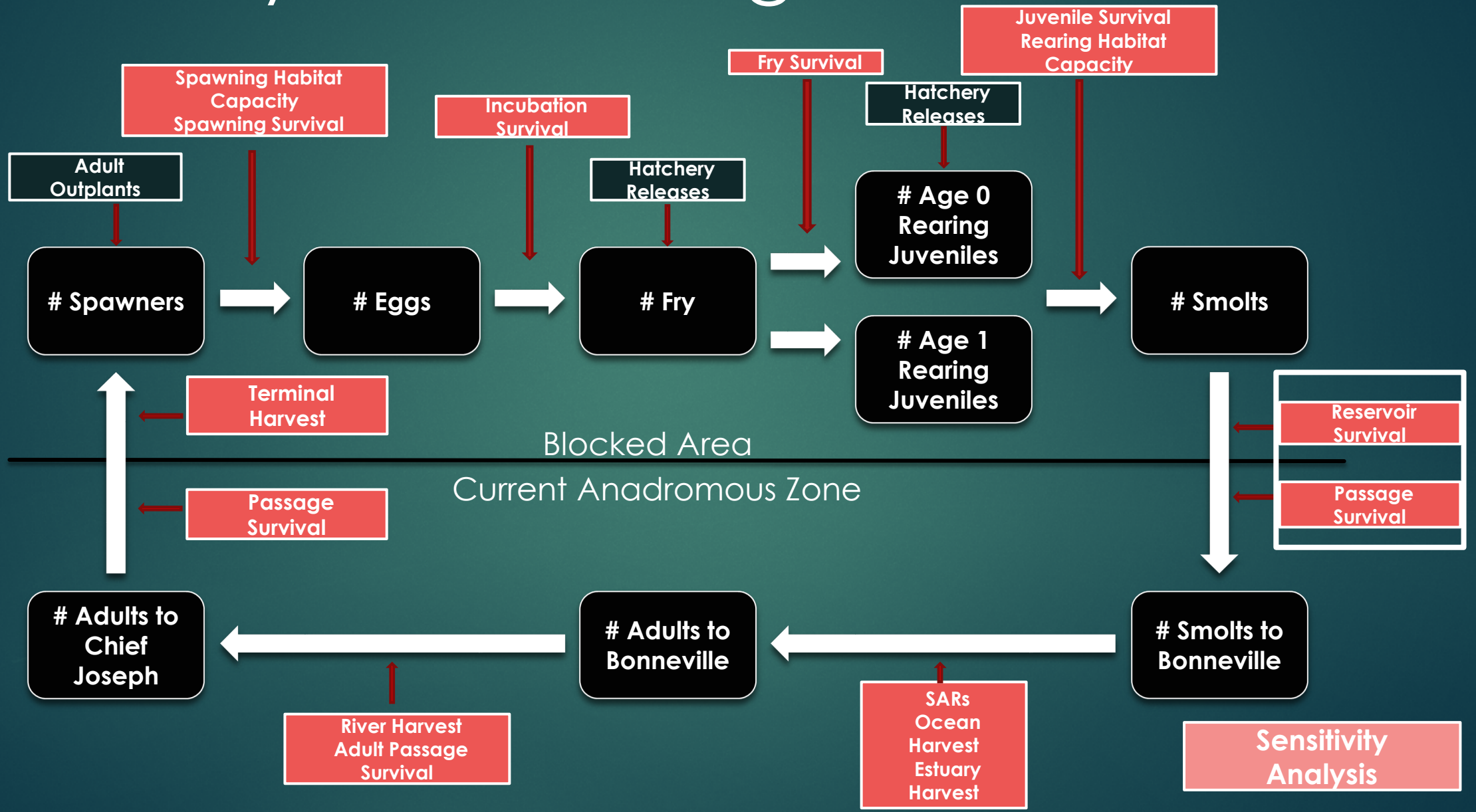


Behavior & Survival at Other Projects

} **LCM Assumptions**



Life Cycle Modeling



Life Cycle Modeling Conclusions

- Modeled survival under **current operations** and **harvest rates**
- Baseline scenarios and variants show potential to achieve reintroduction goals
  - > 41,000 Summer Chinook
  - > 76,000 Sockeye
- Results of LCM help to identify critical uncertainties for Phase 2 testing
  - Evaluate our assumptions by collecting empirical data → rerun the model

Phase 1 Conclusions

Report & supporting documents available at UCUT.org

- There are good options for **donor stocks**
- **Disease risks and are manageable**
- There are **large quantities of habitat** in the U.S. that are available and suitable (and even more in Canada not addressed in this report)
- **Fish passage technology exists** and is being used at other high head dams
- Life Cycle Modeling shows **promising salmon survival potential**
- Returning salmon to the blocked area will deliver **cultural and economic benefits for all**