

# Reintroduction of Salmon Upstream of Chief Joseph and Grand Coulee Dams.

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WDFW Commission, 23 Oct 2020



## Input & participation:

UCUT (5 tribes)

WDFW

ONA

USGS, PNNL, ICFI

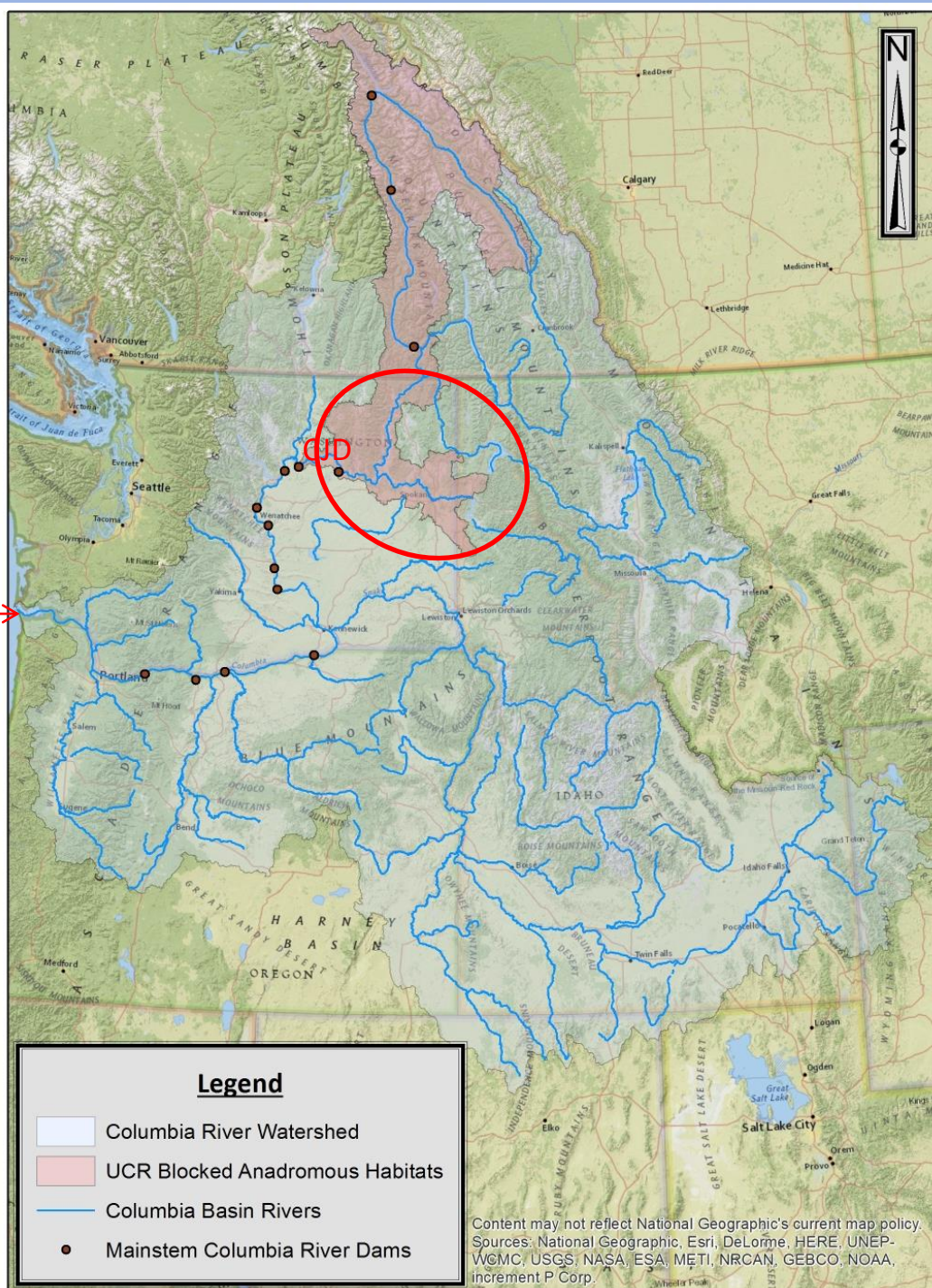
DWA (Kevin Malone)

Steve Smith Consulting

BPA, USBR, USFWS,

DPUD



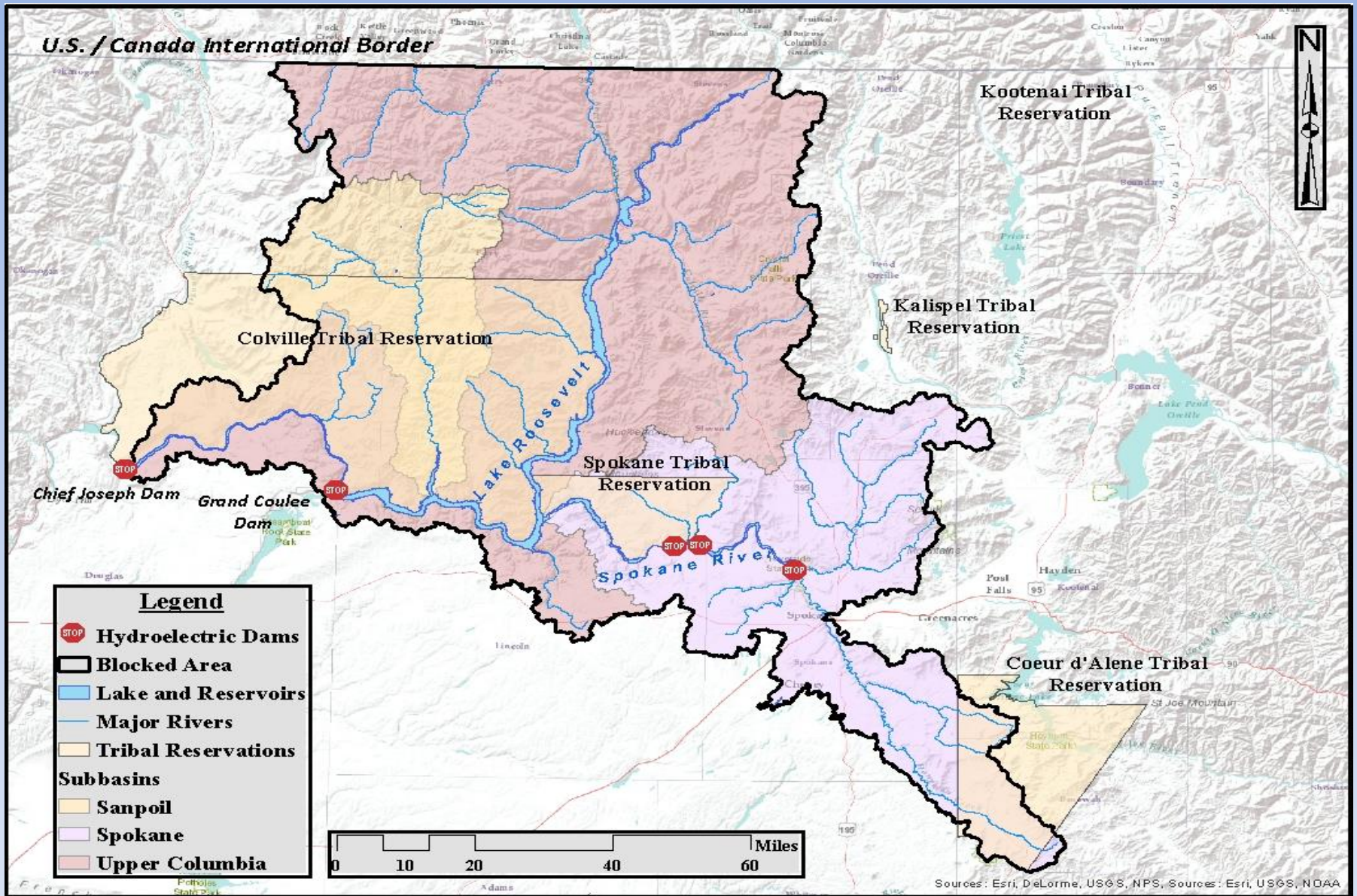


Mouth of Columbia →

**Legend**

- Columbia River Watershed
- UCR Blocked Anadromous Habitats
- Columbia Basin Rivers
- Mainstem Columbia River Dams

Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.



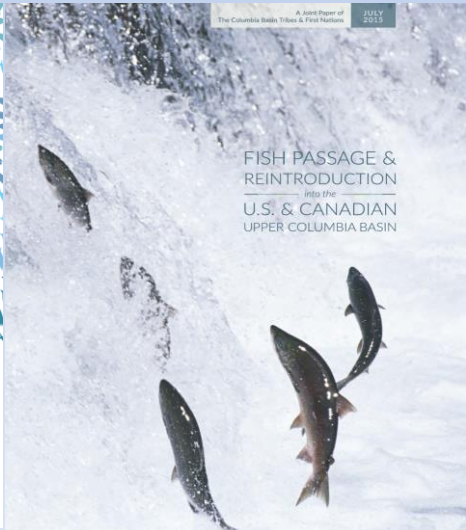
Over 4 million acres of traditional lands in the U.S. portion of the blocked area



# 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

# Phased approach



Phase I: Pre-assessment planning for reintroduction and fish passage.

Ongoing

Phase II: Experimental, pilot-scale salmon reintroductions and interim passage facilities.



Phase III: Construct permanent juvenile and adult passage facilities and supporting propagation facilities. Implement priority habitat improvements.



Phase IV: Monitoring, evaluation, and adaptive management. Continue needed habitat improvements.



## Phase 1 Outline

**-Donor Stock Assessment** (*Which species and stocks are most appropriate*)

**-Risk Assessment** (*What are the risks to resident fish and downstream anadromous pops?*)

**-Habitat Assessments** (*Can the habitat support fish production?*)

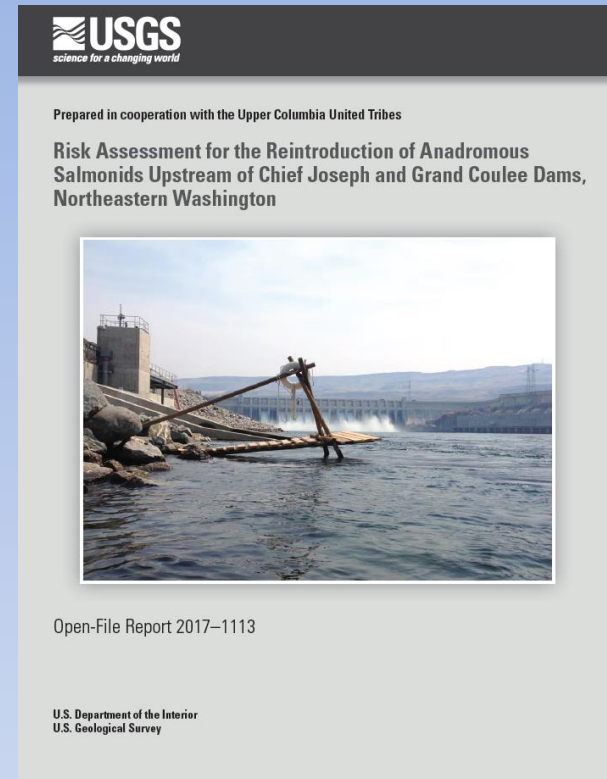
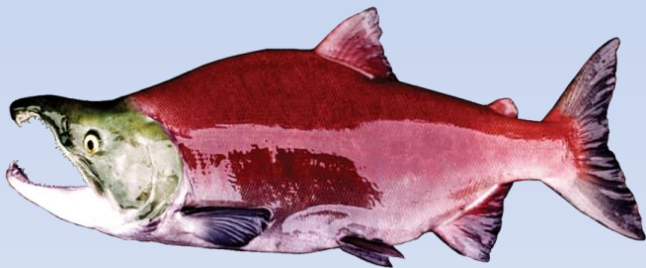
**-Review of Fish Passage Technologies**  
*Is it possible to pass fish above CJD & GCD?*

**-Life Cycle Modeling** (*What are possible outcomes, is there potential for objectives to be met?*)

**- Future studies/recommendations**  
*What comes next?*

# Donor Stock and Risk Assessment

- **Species (40 stocks/populations)**
  - Sockeye (7)
  - Summer/fall Chinook (10)
  - Spring Chinook (10)
  - Steelhead (7)
  - Coho (6)
- **Scored and ranked based on 6 criteria**



Feasibility testing in Phase 2 will begin with summer/fall Chinook and sockeye because they are un-listed, productive, readily available and lowest risk to downstream and upstream populations.

# *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
<b>Total</b>	<b>51,100</b>	<b>838,500</b>

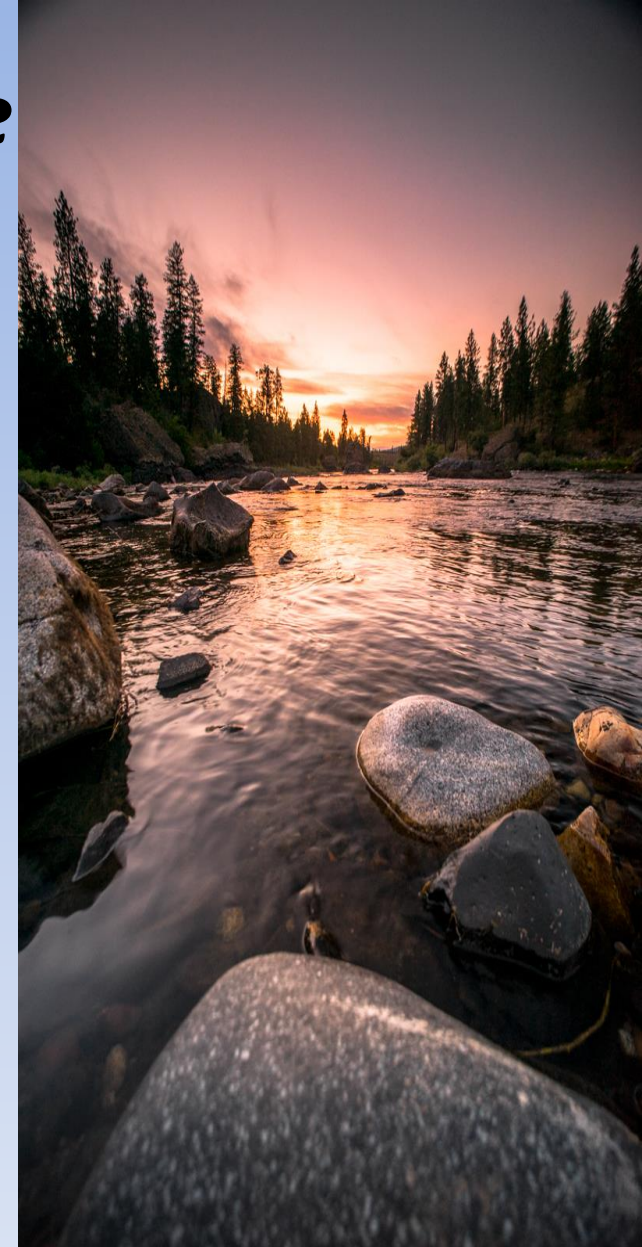


Photo Credit: Michael Visintainer, Silver Bow Fly Shop

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



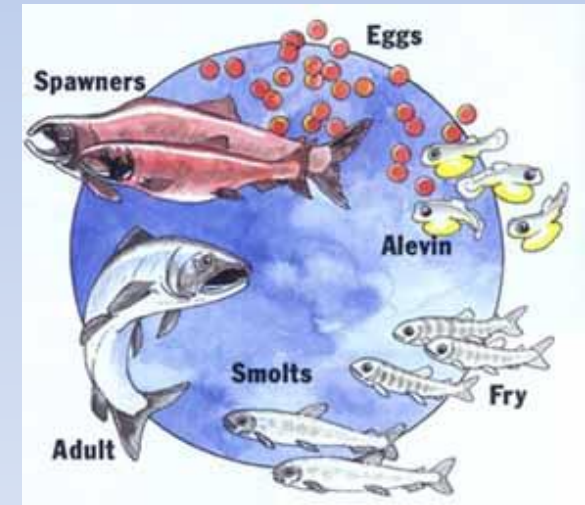
# Life Cycle Modeling Summer/Fall Chinook

## Baseline Management Scenario:

- 1.5 million hatchery smolts
- 3,000 additional surplus hatchery fish translocated
- Passage/bypass facilities at CJ and GC dams

## Baseline Results

<u>Modeled Population</u>	<u>Pre-Harvest Adults</u>	<u># Harvested Adults</u>	<u>Adult Escapement</u>
Rufus Woods	16,000	9,400	6,200
Sanpoil	3,000	2,000	400
Mainstem	22,000	12,600	7,400
<b>Total</b>	<b>41,000</b>	<b>24,000</b>	<b>14,000</b>



# Harvest assumptions

- Used existing harvest frameworks and rates
- Added some additional harvest for new terminal area fishing (15% HOR ; 1% NOR)
- ~58% ER for UCR summer Chinook
- The project is successful by adding new fish, so everyone gets more harvest.

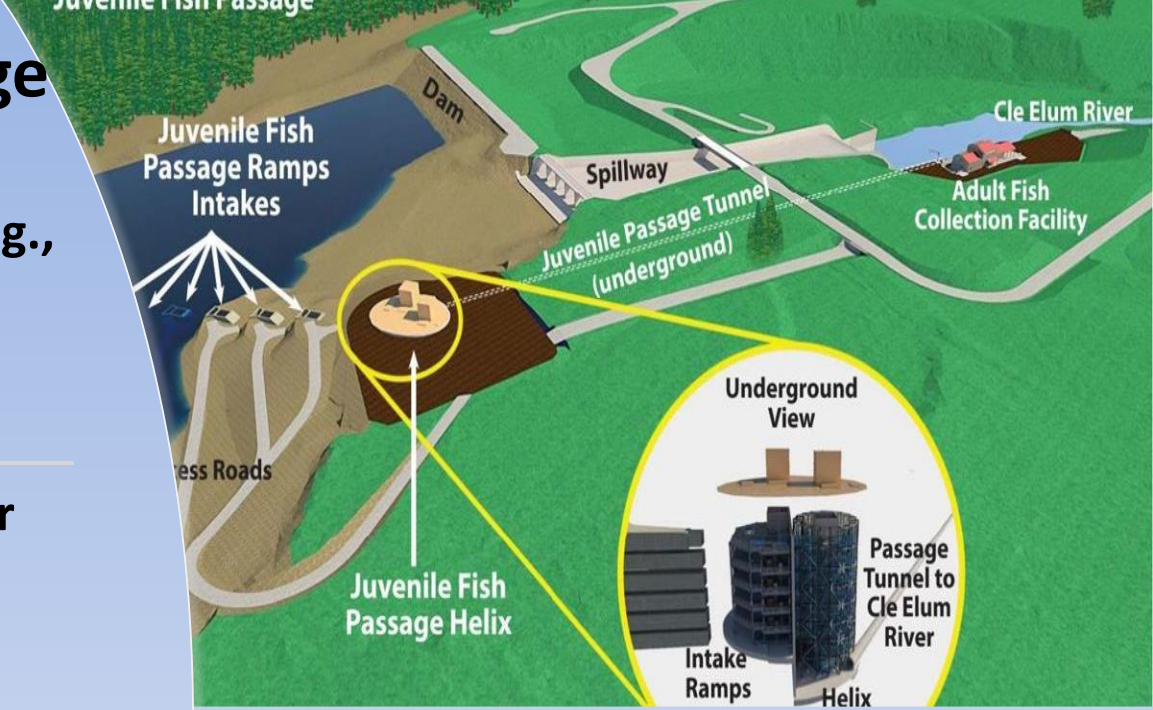
# Examples of Fish Passage

## Juvenile Passage Concepts:

- Floating Surface Collectors (e.g., Baker Lake)
- “The Helix” (e.g., Cle Elum)
- Others - project specific (e.g. Rocky Reach juvenile collector bypass)

## Adult Passage:

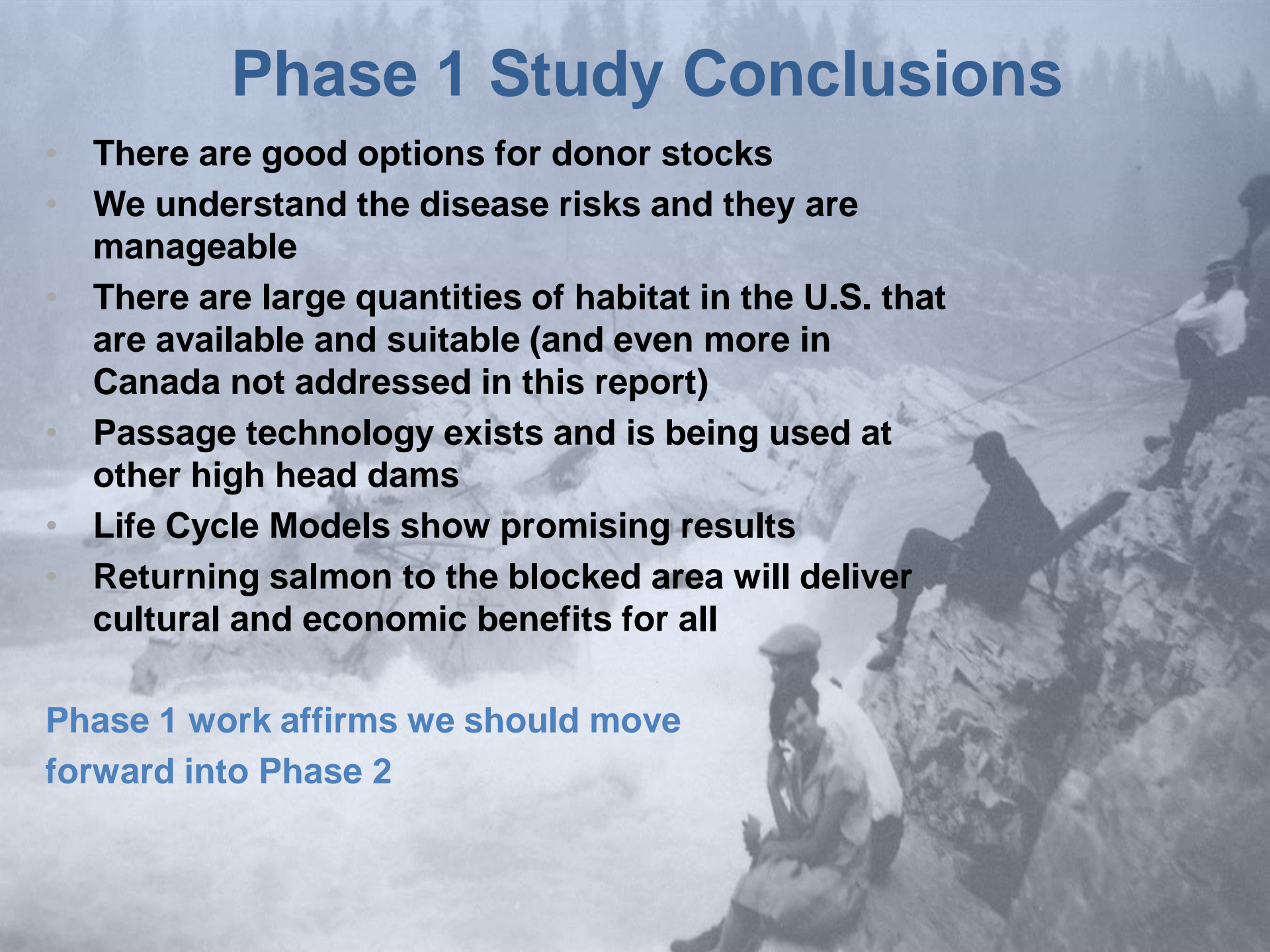
- Trap & Haul
- Elevator & Locks
- Whooshh Salmon Cannon



# Phase 1 Study Conclusions

- **There are good options for donor stocks**
- **We understand the disease risks and they 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)**
- **Passage technology exists and is being used at other high head dams**
- **Life Cycle Models show promising results**
- **Returning salmon to the blocked area will deliver cultural and economic benefits for all**

**Phase 1 work affirms we should move forward into Phase 2**



# What's Next in Phase 2 Actions and Studies?

## Coordination/Planning

- Coordination with dam owners and operators
- Coordination with Canada
- Seek funding
- Continue to foster support and build on momentum
- Finish Strategic Implementation Plan

## Implementation

- Survival at various life stages and habitat types
- Migration timing
- Fish passage pathways and survival
- Fish passage design/planning
- Continue to implement cultural and educational releases

# '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 60-90 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

# Cultural and Educational Releases

## 2017-2020



# Current Partners and Support

- 14 Tribes Coalition (Col. River Treaty)
- Regional recommendation by the U.S. entity for the Col. R. Treaty
- NPCC F&W program (2014 amendment and 2020 addendum)
- Gov. Inslee's Southern Resident Orca Task Force
- Tribal/State/Federal 'Fish Management Initiative'
- Columbia Basin Partnership (MAFAC Task Force)
- WDFW, USGS, PNNL, ONA, BPA, USBR, ACOE, USFWS, DPUD



# WDFW Support and Collaboration

- Chris Donley, Michael Garrity and Megan Kernan participate in monthly UCUT Fish Committee meetings
- UCUT/WDFW Fish Health Lab collaboration on pathogen testing for IHNV
  - Novel, non-lethal rapid qPCR
- Orca task force funding
  - subsidize the IHNV labwork
  - Regulatory (permit) planning for releases
- Issue transport permits for releases

For more information visit: <https://ucut.org/>



“...after experiencing, in my life...days of our cultural darkness, now we are coming into our cultural light. Where our traditions, our ceremonies, are just shining down on everybody, and making everybody happy. And this is what we need. So let our light shine on, and let our children and our grandchildren feel that light.”

*- Francis White, Coeur d' Alene tribal elder*

# Chief Joseph Hatchery

- 4<sup>th</sup> mitigation hatchery for Grand Coulee Dam
  - Forgotten for ~60 years
  - Planning started in early 2000's; built 2009-2013
  - Construction, operation and monitoring was interwoven with Mid-C PUD mitigation (partial cost share)



Bridgeport, WA



1<sup>st</sup> Salmon Ceremony at CJH

# Chief Joseph Hatchery

Full program = 2.9 million Chinook

- 1.1 million integrated summer Chinook in the Okanogan
    - Integrated program is dependent upon wild fish escapement
  - 900k segregated summer Chinook in the Columbia
  - 700k segregated spring Chinook (Leavenworth stock)
  - 200k reintroduction spring Chinook [ESA, section 10(j)] from WNFH
- Above Priest Rapids Dam production has increased due to CJH production, but.....
- Generally haven't met full program, the reasons are varied and complex
- Adverse impacts to adult pre-spawn survival (disease amplification) due to seasonal groundwater temperature regime
  - infrastructure failure (chiller malfunction/failure) negatively affecting green-egg to fry survival
    - CCT, through State of WA Orca Task Force funding, replaced and upgraded the chiller at CJH).

# The End



← Dave Graybill, coming right at me!