

Memorandum

To: Wells, Rocky Reach, and Rock Island HCP Hatchery Committees, and Priest Rapids Coordinating Committee Hatchery Subcommittee Date: November 23, 2020

From: Tracy Hillman, HCP Hatchery Committees Chairman and PRCC Hatchery Subcommittee Facilitator

cc: Sarah Montgomery, Anchor QEA, LLC

Re: Final Minutes of the October 21, 2020, HCP Hatchery Committees and PRCC Hatchery Subcommittee Meetings

The Wells, Rocky Reach, and Rock Island Hydroelectric Projects Habitat Conservation Plan Hatchery Committees (HCP-HCs) and Priest Rapids Coordinating Committee Hatchery Subcommittee (PRCC HSC) meetings were held by conference call and web-share on Wednesday, October 21, 2020, from 9:00 a.m. to 10:45 a.m. Attendees are listed in Attachment A to these meeting minutes.

Action Item Summary

Joint HCP-HCs and PRCC HSC

- Brett Farman will discuss with NOAA staff and Mike Tonseth the potential use of a multi-population model for estimating proportionate natural influence (PNI) for the Nason and Chiwawa spring Chinook salmon programs (Item I-A). *(Note this item is ongoing.)*
- Greg Mackey will work with Mike Tonseth to test a modeling approach and prepare a white paper on the method for determining a range for the number of females to be collected for a given broodstock in the upcoming year (Item I-A). *(Note this item is ongoing.)*
- Greg Mackey will prepare a plan for alternative mating strategies based on findings described in his previously distributed literature review (Item I-A). *(Note this item is ongoing.)*
- Mike Tonseth will distribute the analysis showing feasibility of the Methow Spring Chinook Outplanting plan based on historic run-size data (Item I-A). *(Note this item is ongoing.)*
- All parties will provide updates on changes to monitoring and evaluation plans due to the impacts of COVID-19 on operations as updates become available (Item I-A). *(Note this item is ongoing.)*
- Kirk Truscott will determine the number of scales that should be collected from spring Chinook at Wells Dam for elemental signature analysis to discern Okanogan River spring Chinook from Methow River spring Chinook (Item I-A). *(Note this item is ongoing.)*
- Mike Tonseth will check with Andrew Murdoch (WDFW) on presenting pre-spawn mortality data to the HCP-HCs and PRCC HSC at an upcoming meeting (tentatively planned for February 2021; Item I-A). *(Note this item is ongoing.)*

- Kirk Truscott will work with CCT staff to develop a model that addresses the probability of encountering natural-origin Okanogan spring Chinook at Wells Dam (Item I-A). *(Note this item is ongoing.)*
- Keely Murdoch and Mike Tonseth will update the retrospective analysis for Wenatchee spring Chinook salmon using estimates of female pre-spawn mortality (Item II-A). *(Note this item is ongoing.)*
- Tracy Hillman will review the HCP-HCs and PRCC HSC's previous discussions and agreements about using geometric means to calculate broodstock needs and provide a summary to the committees (Item II-C). *(Note: Mike Tonseth provided this information, which was distributed to the committees on October 22, 2020.)*
- Todd Pearsons will provide an update on the Angler Broodstock Collection (ABC) Fishery at the November 18, 2020 meeting (Item II-C).
- Greg Mackey will provide a final draft of Douglas PUD's 2019 Wells Complex M&E Annual Report, for Wells HCP-HC review (Item III-B).
- Sarah Montgomery will add Emi Melton to the HCP-HCs and PRCC HSC distribution lists and coordinate access to Extranet and SharePoint (Item V-A). *(Note: this item was completed on October 22, 2020).*
- Brett Farman will provide a summary of NOAA points-of-contact for programs and permits related to the HCP-HCs and PRCC HSC (Item V-A).

PRCC HSC

- Todd Pearsons will provide a summary of growth and temperature profiles for the Carlton Acclimation Facility to the PRCC HSC (Item IV-A).
- Todd Pearsons will check on the operational feasibility of using different water sources (groundwater vs. surface water) in different recirculating aquaculture systems (circular rearing vessels) at Carlton Acclimation Facility (Item IV-A).
- Todd Pearsons will include maturation monitoring in the pre-release sampling (Item IV-A).
- Todd Pearsons and Deanne Pavlik-Kunkel will review prior assessments of groundwater and surface water connectivity for the Carlton Acclimation Facility and provide to the PRCC HSC (Item IV-A).
- Mike Tonseth will review prior assessments of groundwater and surface water connectivity in the Methow sub-basin and provide any relevant information to the PRCC HSC (Item IV-A).

Decision Summary

- No decisions were approved during today's meeting.

Agreements

- No agreements were approved during today's meeting.

Review Items

- The Final Draft Douglas PUD 2019 Wells Complex M&E Annual Report, which was provided by Greg Mackey and was distributed to the Wells HCP Hatchery Committee by Sarah Montgomery on October 23, 2020, is available for further review with a yet to be determined deadline for approval.

Finalized Documents

- No documents have been finalized recently.

I. Welcome

A. Review Agenda, Announcements, Approve Past Meeting Minutes, Review Last Meeting Action Items

Tracy Hillman welcomed the HCP-HCs and PRCC HSC to the meeting and read the list of attendees signed into the meeting. The meeting was held via conference call and web-share because of travel and group meeting restrictions resulting from the COVID-19 pandemic. Hillman reviewed the agenda and asked for any additions or changes to the agenda. There were no changes.

Montgomery said due to a delay in distributing the draft meeting minutes, the revised September 16, 2020 meeting minutes are still available for review. She asked for email approval of the revised minutes by November 2, 2020.

Action items from the HCP-HCs and PRCC HSC meeting on September 16, 2020, were reviewed, and follow-up discussions were addressed (*note that italicized text below corresponds to action items from the previous meeting*):

Joint HCP-HCs and PRCC HSC

- *Brett Farman will discuss with NOAA staff and Mike Tonseth the potential use of a multi-population model for estimating proportionate natural influence (PNI) for the Nason and Chiwawa spring Chinook salmon programs (Item I-A).*
Farman said this item is ongoing.
- *Greg Mackey will work with Mike Tonseth to test a modeling approach and prepare a white paper on the method for determining a range for the number of females to be collected for a given broodstock in the upcoming year (Item I-A).*

Mackey said this item is ongoing.

- *Greg Mackey will prepare a plan for alternative mating strategies based on findings described in his previously distributed literature review (Item I-A).*

Mackey said this item is ongoing.

- *Mike Tonseth will distribute the analysis showing feasibility of the Methow Spring Chinook Outplanting plan based on historic run-size data (Item I-A).*

Tonseth said this item is ongoing.

- *All parties will provide updates on changes to marking and tagging plans due to the impacts of COVID-19 on operations as updates become available (Item I-A).*

This item is ongoing.

- *Kirk Truscott will determine the number of scales that should be collected from spring Chinook at Wells Dam for elemental signature analysis to discern Okanogan River spring Chinook from Methow River spring Chinook (Item I-A).*

Truscott said this item is ongoing.

- *Mike Tonseth will check with Andrew Murdoch (WDFW) on presenting pre-spawn mortality data to the HCP-HCs and PRCC HSC at an upcoming meeting (tentatively planned for fall 2020; Item I-A).*

Tonseth said this item is ongoing.

- *Todd Pearsons will continue coordinating with Mark Sorel (University of Washington) regarding his work on life cycle models for Wenatchee spring Chinook salmon and invite him to an upcoming meeting (tentatively planned for winter 2020/2021; Item I-A).*

Pearsons said this item is ongoing but can be taken off the list for now; he will provide an update when one is available.

- *Kirk Truscott will work with CCT staff to develop a model that addresses the probability of encountering natural-origin Okanogan spring Chinook at Wells Dam (Item I-A).*

Truscott said this item is ongoing.

- *Kirk Truscott will work with Casey Baldwin (CCT) to prepare a presentation about reintroduction of endemic anadromous fish upstream from Chief Joseph Dam (Item I-A).*

Truscott said this item is complete and will be discussed today.

- *Keely Murdoch and Mike Tonseth will update the retrospective analysis for Wenatchee spring Chinook salmon using estimates of female pre-spawn mortality (Item II-A).*

This item is ongoing.

- *Greg Mackey will ask Betsy Bamberger (Douglas PUD) if any surplus fish are needed for research projects in 2021, which would need to be included in the Broodstock Collection Protocols (Item II-B).*

Mackey said Douglas PUD does not anticipate needing additional fish outside of normal production for research purposes in 2021.

PRCC HSC

- None

II. Joint HCP-HCs and PRCC HSC

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

Tracy Hillman welcomed Casey Baldwin to the meeting and thanked him for being available to present to the committees. Baldwin shared a presentation with the committees titled, "Reintroduction of Salmon Upstream of Chief Joseph and Grand Coulee Dams," which was distributed to the committees following the meeting (Attachment B). Baldwin said the CCT works closely with stakeholders as part of the reintroduction programs, and he recognized Conor Giorgi (Spokane Tribe) and Tom Biladeau (Coeur d'Alene Tribe) as coauthors on this work. A very brief summary is included below, with more detail available on the slides. Questions and comments followed Baldwin's presentation.

Baldwin introduced the program and the phased approach to reintroduction. He said the program is currently in Phase 2, which includes experimental, pilot-scale reintroductions and interim passage facilities. He described the modeling approaches that were used to determine quantities of available spawning habitat, and how it was determined that high potential exists for summer/fall Chinook salmon.

Baldwin described some of the options for fish passage and how Phase 2 will also include more coordination and planning, such as with dam owners and operations. Finishing the Strategic Implementation Plan is also a key next step in Phase 2.

Baldwin described the cultural and educational releases, which are a parallel path to the phased approach. He said the objectives of the cultural and educational releases are different but are consistent with and a rewarding addition to the scientific foundation of the phased approach.

Baldwin identified the significant number of partners and programs that the reintroduction program works with and thanked the committees for their interest in the program, especially the cultural and social components.

Representatives present thanked Baldwin for his presentation.

Pearsons asked what are some of the challenges to implementing the reintroduction program? Baldwin said political and funding challenges are the most significant. He said focusing on small simple steps helps to gain political traction. Baldwin said funding seems like the most logical concern about the program. Truscott added that there are some concerns that reintroduction could

undermine or change federal authorizations or purposes, so this may also be contributing to political opposition.

Keely Murdoch asked when fish were first transported upstream during Phase 2. Baldwin clarified that the program differentiates between releases as part of the phased approach, and cultural or educational releases. Baldwin said 242 fish were transported in 2019 and 150 in 2020. He said the Spokane Tribe and CDA Tribe have also been releasing fish, including juveniles. He said he is working to compile these data in a summary table.

Murdoch asked if the CCT report will be comprehensive and include the Spokane Tribe and CDA Tribe releases, or will it only summarize the CCT releases. Baldwin said he will be providing individual scientific reports for the tagged fish releases, but the cultural and education releases are not intended to be sources of scientific data. He said while these fish are PIT-tagged, the purpose is not necessarily to monitor them (though any data that are collected are taken into account as proof of concept). Murdoch agreed that the anecdotal data from cultural and educational releases are helpful and also surprising. She asked how long Phase 2 is intended to last. Baldwin said the CCT is outlining a series of studies that have a 10 to 15-year horizon. He said this timeline will start when there is enough funding or support to start the studies. Successful implementation of these studies would follow, and fish returns would need another few generations in order to obtain enough data. He said Phase 2 also includes evaluating interim passage facilities.

Murdoch said the presentation noted that donor species and stocks have been identified. She asked which stocks were chosen and where the broodstock would be sourced. Baldwin said the exact stocks are yet to be determined, and it would depend on opportunities for collecting adults (currently, these are sourced from Wells FH surplus). He said the donor stock evaluation included an evaluation of 40 stocks and 5 species. While Wells FH stock was not the highest ranked, others were not available. However, it was clear from the evaluation that the focus should be on unlisted summer Chinook and sockeye. Baldwin said another concern might be bringing ESA-listed fish to blocked areas, particularly in Phase 2 during testing. Murdoch asked how much broodstock the CCT anticipates needing during Phase 2. Baldwin responded not much broodstock will be needed for research activities in Phase 2. He said because acoustic tracking is being used, only small groups are needed to generate enough returning adults to track dozens of adults. Murdoch asked what Phase 3 might entail. Baldwin said he is not sure yet, because the point of Phase 2 is to determine the feasibility of moving forward with Phase 3. He said interim passage facilities are a big component of Phase 2 and understanding fish behavior in and around dams. This requires working with dam owners, operators and engineers on potential options. All of these components would guide what Phase 3 will entail.

Murdoch asked about the harvest framework modeling that Baldwin mentioned, and how this would affect Zone 6 fisheries. Baldwin said he anticipates that the program would add more fish to the Zone 6 fisheries. Baldwin said the idea of reintroduction is to generate additional juvenile releases through the expansion of hatchery programs, and ultimately generate more wild fish in habitats upstream of Chief Joseph and Grand Coulee dams. Murdoch asked if Baldwin anticipates any restrictions on downstream fisheries to ensure enough fish return to the upper river. Baldwin said he does not anticipate restrictions on fisheries. Murdoch asked if there is a timeline for his report. Baldwin said he will be summarizing individual studies as results are made available, and some of those summaries will be available this winter. He said he is not sure when the implementation plan will be finalized. Murdoch thanked him for the presentation and for answering her questions.

B. Updated Retrospective Analysis of Wenatchee Spring Chinook Salmon Conservation Program Size

Keely Murdoch said she has no update today, but this item can remain on the agenda for future meetings.

C. Broodstock Collection Protocols

Tracy Hillman shared the revised document, *Topics for HCP-HC and PRCC HSC Discussion in 2020*, and reviewed the topics in the document.

Regarding Chiwawa spring Chinook marking, Catherine Willard said she is working to draft revisions to this section of the protocols.

Regarding the options for differentiating natural-origin spring Chinook salmon from other natural-origin Chinook salmon during broodstock collection, Truscott said this item will likely not be ready to implement in 2021.

Regarding options for outplanting surplus Methow Composite spring Chinook salmon adults, Mike Tonseth said this item will probably be drafted and ready for discussion in November 2020.

Regarding Wenatchee spring Chinook pre-spawn survival estimates, Tonseth said this item will likely be discussed in November or December 2020.

Regarding the sizing of upper Columbia River conservation programs, there was no update.

Regarding requests for HCP adults or juveniles for HCP-specific research or other requests (surplus to HCP broodstock needs), Tonseth clarified that this item pertains only to requests for surplus fish for research studies that are directed at furthering the HCP programs. Hillman edited the document to clarify this item.

Regarding authorship of sections needing to be revised, Greg Mackey is working on addressing redundancies in the Methow Steelhead juvenile release methods and broodstocking methods sections; Tonseth is working on the sections that describe how surplus is declared; Willard is working on the section about broodstock collection for the Chiwawa spring Chinook program; and Todd Pearsons may add a tiered approach including back-up collection plans if the ABC Fishery is not successful in collecting brood (which Pearsons will provide an update on at the next meeting).

Pearsons brought up an additional discussion item: methods to calculate means that are used to generate broodstock collection needs. He said in 2020, a geometric mean was used to calculate broodstock collection needs and he asked the committees whether this will be the approach for 2021. He recalled that the arithmetic mean provided similar results to the geometric mean, and the committees had discussed the pros and cons of the different calculations. Tonseth said he believes language was added to the protocols specifying that geometric means should be used in calculating broodstock needs. He recommended maintaining this approach because with a wide variance in fecundities for steelhead, the geometric mean particularly improves the accuracy for estimating steelhead egg take. Tracy Hillman volunteered to review the committees' discussion about geometric mean and provide a summary to the group of what was agreed upon in 2020.

D. Effect of COVID-19 Pandemic on Monitoring and Evaluation Activities

Tracy Hillman asked each committee member to provide an update on impacts of the COVID-19 pandemic on monitoring and evaluation activities.

Brett Farman reported no changes from NOAA related to COVID-19. He said Allyson Purcell will be taking a 6-month leave of absence, so an acting supervisor will be appointed in the next four to six weeks. Todd Pearsons asked Farman if it would be possible for NOAA to provide a chart or list of NOAA staff points-of-contact for the various HCP and PRCC programs and permits. This would be in response to the many recent staffing changes at NOAA. Farman said he will provide this after he receives more direction from the branch office.

Kirk Truscott said he has no updates related to COVID-19. Regarding the impacts from the fires that were discussed during the September meeting, he said he passed along the committees' offers of assistance to his staff. He said the CCT were able to conduct their programs with no adverse impacts, and spawning ground and carcass surveys are ongoing in the Okanogan River. He thanked the committee members again for their offers of help.

Keely Murdoch reported no changes from YN. She said broodstock collection and spawning has started, and these activities are being conducted with smaller crew sizes due to COVID-19. She said spawning ground surveys are also occurring but are reduced this year. She said this reduction is

offset by increased PIT-tagging and detections at Priest Rapids Dam, so the surveys are more efficient.

Mike Tonseth reported no changes from WDFW. Katy Shelby agreed.

Catherine Willard reported no changes from Chelan PUD. She said Chelan PUD is currently contracting with BioAnalysts to conduct adult steelhead PIT tagging at the OLAFT. She said this work was not conducted the week of October 9 because access to the OLAFT was denied due to COVID-19. This resulted in one week and one day where steelhead PIT tagging did not occur.

Greg Mackey said Douglas PUD has no changes to report since the previous meeting. He said summer Chinook spawning finishes today.

Todd Pearsons said Grant PUD has no changes to report related to COVID-19. He said general precautions are being followed, especially for the ABC Fishery, which is upcoming this weekend.

E. Update on 10-Year M&E Comprehensive Report

Catherine Willard said Chelan, Grant, and Douglas PUDs have been working with BioAnalysts to obtain, compile, and analyze data to inform the 10-Year M&E Comprehensive Report. Due to challenges from COVID-19 and in obtaining data from reference populations, and the total amount of data that needs to be analyzed, the deadline for the Draft 10-Year M&E Report has been moved to July 1, 2021. Hillman said he received reference data just last week, and it has been a challenging year to access and compile data due to how busy staff are.

III. Wells HCP-HC

A. Draft 2021 Hatchery M&E Implementation Plan

Greg Mackey said Douglas PUD's Draft 2021 Hatchery M&E Implementation Plan is available for review with comments due on November 16, 2020.

B. Approve 2019 Wells Complex M&E Annual Report

Greg Mackey said Douglas PUD received comments on the Draft 2019 Wells Complex M&E Annual Report from Michael Humling, which have since been addressed by Charlie and himself. He asked the Wells HCP-HC whether they would like to review the final version with comments addressed, or if they would like to approve the version they have reviewed, understanding that minor changes have been made since their review. Representatives present asked to review a revised draft. Mackey said he will provide a final draft for the Wells HCP-HC to review, with approval requested via email within two weeks.

IV. PRCC HSC

A. Carlton Fish Health/Culture Recommendation

Todd Pearsons shared a presentation titled, *Carlton Acclimation Facility Rearing Plan* (Appendix C). He reviewed mortality trends for the Carlton Acclimation Facility from 2014 to 2020 based on the type of water the facility was sourcing for fish. He pointed out differences in years when surface water was used entirely, compared to years when groundwater was used for part of the rearing cycle. He described a trend that there was less mortality in years when groundwater was used, and fish were put on surface water before being released. Greg Mackey and Matt Cooper said at Methow Fish Hatchery and Winthrop National Fish Hatchery, fish are reared on groundwater until December, and then put on surface water before release.

Pearsons summarized that extending the period of groundwater rearing at Carlton Acclimation Facility appears to reduce mortality, possibly due to pathogen reduction and reductions in poor water quality (e.g., turbidity). He said fish health and fish culture staff have recommended that fish be reared on groundwater until February 1, and then transitioned 25% volume per week for a month, and then 100% surface water until their release date. He asked the committees for feedback on this approach.

Keely Murdoch said she understands why this would be a preferable approach from a fish health standpoint. She asked, what are the differences in smolting or survival that result from rearing for longer periods on groundwater? She said this approach may defeat the purpose of overwintering fish on surface water. She asked whether there is information available about growth and temperature profiles from 2019 that might inform these questions. Pearsons agreed with Murdoch's concerns and said he will ask the fish health staff for this information. He said one consideration is that the Methow River is very cold in some months, which is not very good for fish. He said fish health staff anecdotally reported that the fish looked very healthy in 2019 when they were reared on groundwater for the longest period, compared to other years. Pearsons said an additional concern is straying. Given that fish health and hatchery staff have been successful at rearing fish to their target size, and the stray rates for fish that have been overwinter acclimated were higher on average, he said he has some confidence that homing would not be significantly worse with this rearing strategy.

Murdoch said that reaching the target size is not the only concern. She said when growth occurs is important, and it may not be preferable to rear fish on warmer water throughout the winter and then put them on cold surface water before they smolt. She said the rearing strategy overall, not just the size of the smolt, may affect survival and homing. She also suggested considering an earlier transition to surface water, since February 1 seems quite late.

Pearsons said he will ask fish health staff for more information on growth and temperature profiles to address this concern. He said there is also information about survival and travel time available in annual reports.

Kirk Truscott asked if there are any precocity data available for these release years to compare rearing strategies. Pearsons said there are precocity data for some of the surface-water-rearing years; however, he said there are probably not enough data to make a robust comparison. Truscott said water source and temperature has the potential to have dramatic effects on precocity and jack rates and suggested reviewing the available information to better understand the long-term consequences for adult returns with this rearing strategy. Pearsons said it may be possible to estimate precocity or jacking rates in spring 2021, and he said he will look into adding this component to the pre-release sampling.

Truscott also pointed out that addressing mortality events in late October through early December would make a significant change for the program. Pearsons agreed and said one challenge with the Carlton Acclimation Facility is that mortality continues into the spring, so there are risks of releasing diseased fish and result in lower post-release survival. He said extending the groundwater rearing period could limit disease issues in the last three months of acclimation. Truscott asked what rearing vessels are used at Carlton Acclimation Facility. Pearsons said circular rearing vessels are used. Truscott suggested that different rearing strategies could be used in different vessels, with the majority of the vessels being used for the proposed strategy. Pearsons said he is not sure if that is possible operationally, but he said he will incorporate maturation monitoring during pre-release sampling to evaluate if the recommended plan has undesirable influences on precocity.

Mackey said some of the mortality was attributed to transfer stress, but additional mortality spikes could be due to poor quality surface water (e.g., periods of high turbidity). He said once fish are stressed, it is difficult to keep them healthy. He suggested keeping in mind that mortality data do not provide a full picture of fish health.

Tracy Hillman reminded the committees that annual reports include size at release data and survival data for fish that are PIT-tagged.

Tonseth echoed Murdoch and Truscott's concerns. He said he understands the fish health challenges and disease management, but questions whether there would be long-term negative effects due to shortening the acclimation window. He asked whether any work has been done to examine the connectivity of surface water and groundwater reservoirs at Carlton Acclimation Facility. He said if there is significant connectivity between the water sources, there may be less cause for concern about effects on homing or acclimation. Pearsons asked the committees whether maturation sampling of adults would address their concerns, though results would not be known for a few years

after the releases. Tonseth said he believes maturation sampling would be necessary if this rearing strategy were chosen. He also recommended moving the transition earlier, as Murdoch as suggested. Pearsons said it is clear that more discussion is needed on this strategy. He said the fish are on groundwater right now, so the committees have approximately one month to decide whether to switch to surface water if the previous rearing strategy is favored.

Regarding the connectivity between surface water and groundwater, Deanne Pavlik-Kunkel said an assessment of the water rights was performed when the facility was designed. She said the water right links groundwater and surface water, which means the two are connected. She said there may be additional details regarding water chemistry in that assessment, and she will provide it to the committees. Tonseth said the Methow Valley Irrigation District has also recently switched from surface water to groundwater wells, so there may be additional information available about surface and groundwater connectivity in the Methow basin. He said he will share that information with the committees as well.

Tonseth said regarding Truscott's idea to have separate rearing groups for surface and groundwater, one component of the program that would not fit this strategy is the tagging strategy. Currently, these fish all are given the same CWT code, so post-release differentiation would not be possible. This would not, however, preclude within-facility studies. Truscott added that in an analysis of travel time and survival, it is also important to consider the high variability of flow regimes, especially in the years of data that are currently available for releases from Carlton Acclimation Facility.

Catherine Willard said during the pre-release sampling for the 2020 release group, precocial maturation was estimated following the methodology in the NMFS Section 10 permit for the program, which includes checking for running milt and identifying whether fish were parr, transitional, or smolts. In 2020, she said zero fish were determined to be precocially mature using these methods. Truscott asked if earlier work included gonadosomatic index (GSI) sampling. Pearsons said yes. Truscott said he would recommend using the GSI methodology in future years.

Pearsons summarized that fish health and fish culture staff have recommended rearing fish on groundwater for a longer period, to February 1, but the committees will further discuss this due to concerns raised today.

B. Review Agenda, Announcements, Approve Past Meeting Minutes

The PRCC HSC representatives will review the September 16, 2020 meeting minutes and provide approval by November 2, 2020.

V. Administrative Items

A. NOAA Representation

Brett Farman said he provided a letter to Tracy Hillman that designates Emi Kondo as the new alternate for NOAA on the HCP Hatchery Committees and PRCC HSC (Attachment C). Hillman said he will provide the letter to John Ferguson (Chair of the HCP Coordinating Committees). Montgomery said she will coordinate with Kondo on email and Extranet/Sharepoint access.

VI. Next Meetings

Tracy Hillman notified the committees that Todd Pearsons and coauthors recently published a paper in *Fisheries* titled, "Expanding Partnerships and Innovations to Implement Reform of a Large Columbia River Hatchery Program," which was distributed to the committees on October 16, 2020. Pearsons added that the article describes how hatchery reform has been implemented at Priest Rapids Dam in accordance with recommendations by the Hatchery Scientific Review Group. Pearsons said there is a second article in the same issue that discusses the history of hatcheries, which he recommended to the committees.

The next HCP-HCs and PRCC HSC meetings will be Wednesday November 18, 2020; Wednesday, December 16, 2020; and Wednesday January 20, 2020, held by conference call and web-share until further notice.

VII. List of Attachments

Attachment A List of Attendees

Attachment B Reintroduction of Salmon Upstream of Chief Joseph and Grand Coulee Dams

Attachment C Carlton Acclimation Facility Rearing Plan

Attachment D NOAA Committee Designation Letter

Attachment A
List of Attendees

Name	Organization
Sarah Montgomery	Anchor QEA, LLC
Tracy Hillman	BioAnalysts, Inc.
Catherine Willard*	Chelan PUD
Scott Hopkins	Chelan PUD
Kirk Truscott*‡	Colville Confederated Tribes
Casey Baldwin*‡	Colville Confederated Tribes
Greg Mackey*	Douglas PUD
Deanne Pavlik-Kunkel	Grant PUD
Todd Pearsons‡	Grant PUD
Brett Farman*‡	National Marine Fisheries Service
Bill Gale*‡	U.S. Fish and Wildlife Service
Matt Cooper*‡	U.S. Fish and Wildlife Service
Mike Tonseth*‡	Washington Department of Fish and Wildlife
Katy Shelby	Washington Department of Fish and Wildlife
Keely Murdoch*‡	Yakama Nation

Notes:

* Denotes HCP-HCs member or alternate

‡ Denotes PRCC HSC member or alternate

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

Casey Baldwin, Colville Tribes Research Scientist
Kirk Truscott, Colville Tribes Anadromous Program Mngr.
Conor Giorgi, Anadromous Prog. Mngr. Spokane Tribe
Tom Biladeau, Coeur d' Alene Tribe



Mid-C PUD Hatchery Committees
October 21, 2020

Input & participation:

UCUT (5 tribes)

WDFW

ONA

USGS, PNNL, ICFI

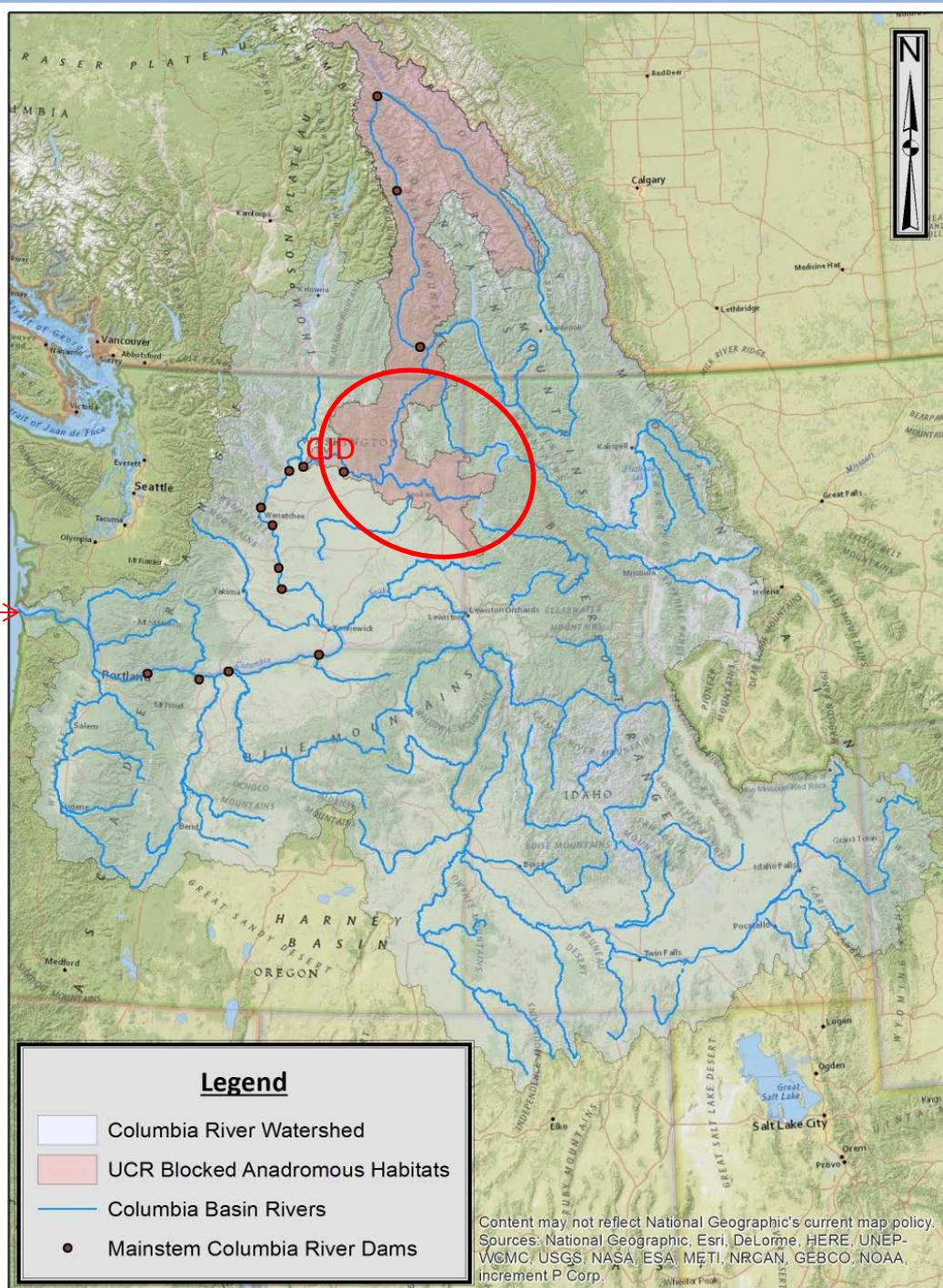
DWA (Kevin Malone)

Steve Smith Consulting

BPA, USBR, USFWS,

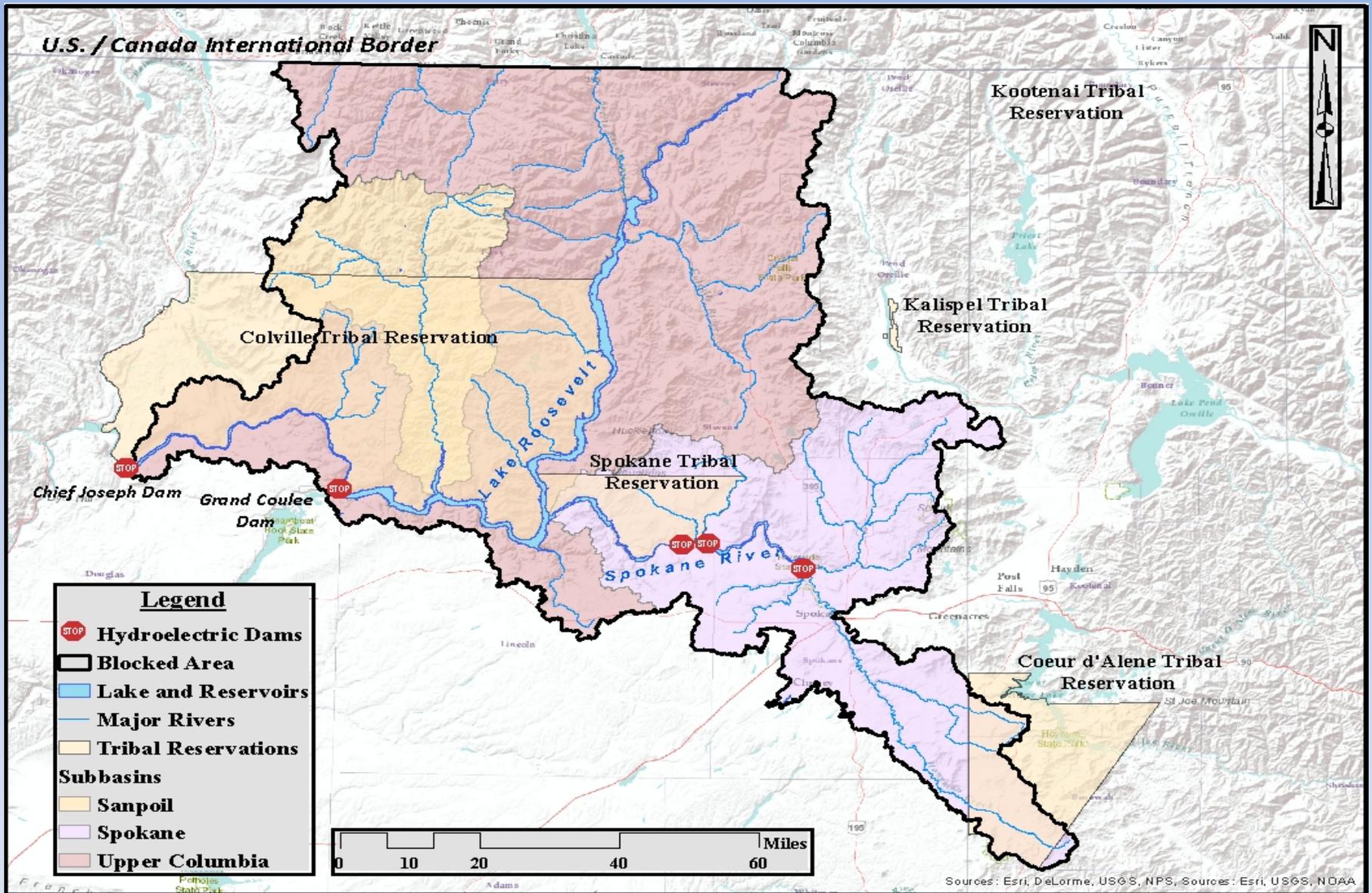
DPUD





Mouth of Columbia →

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.

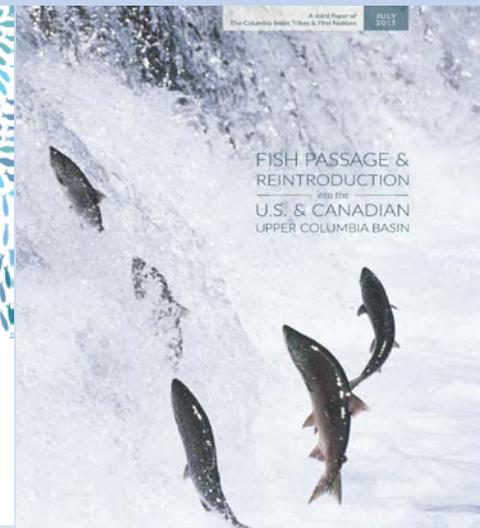
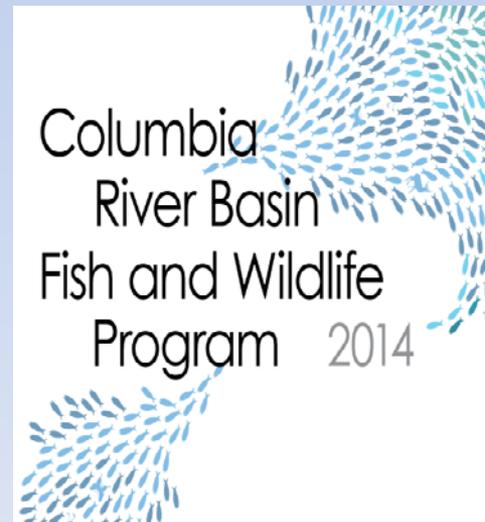


Over 4 million acres of traditional lands in the U.S. portion of the blocked area

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



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?*)

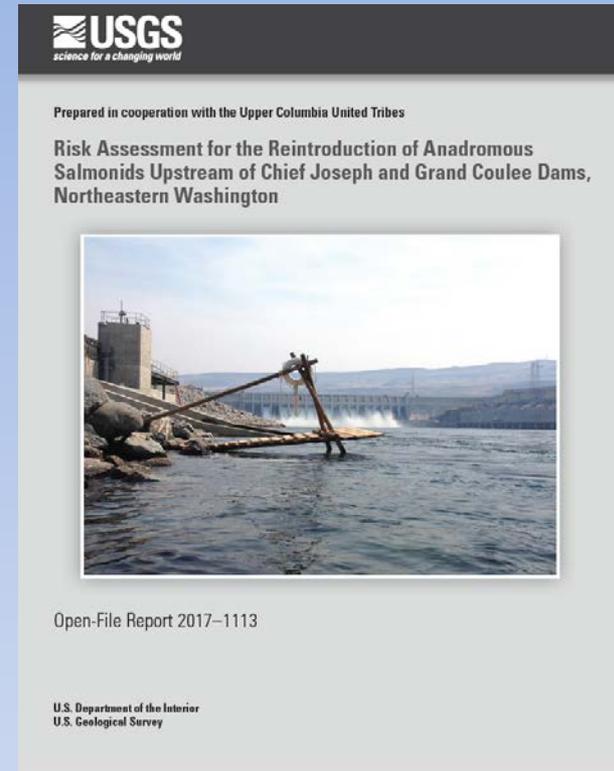
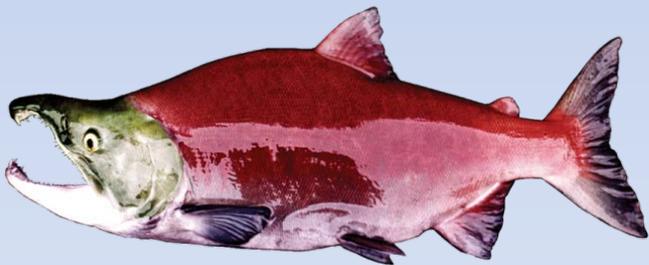
-Review of Fish Passage Technologies
Is it possible to pass fish above CJD & GCD?

-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

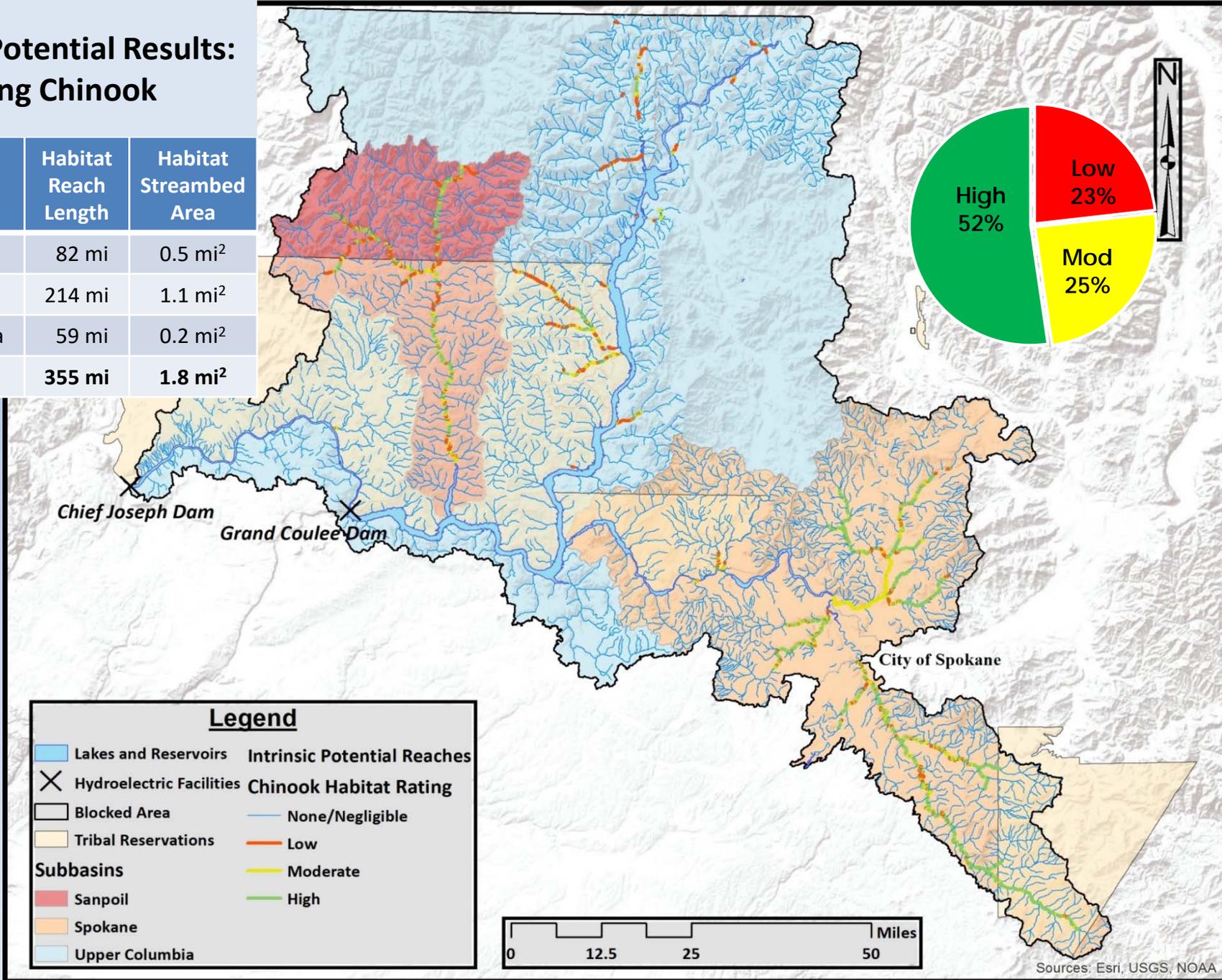
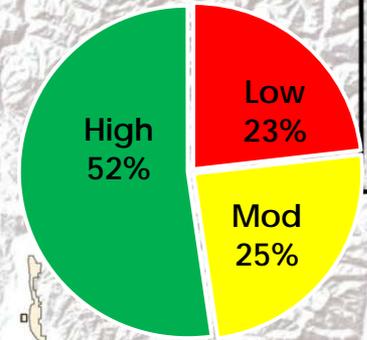
- **Species (40 stocks/populations)**
 - Sockeye (7)
 - Summer/fall Chinook (10)
 - Spring Chinook (10)
 - Steelhead (7)
 - Coho (6)
- **Scored and ranked based on 6 criteria**



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.

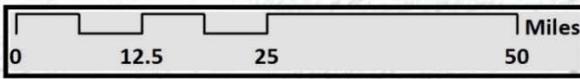
Intrinsic Potential Results: Spring Chinook

Subbasin	Habitat Reach Length	Habitat Streambed Area
Sanpoil	82 mi	0.5 mi ²
Spokane	214 mi	1.1 mi ²
Upper Columbia	59 mi	0.2 mi ²
Total	355 mi	1.8 mi²



Legend

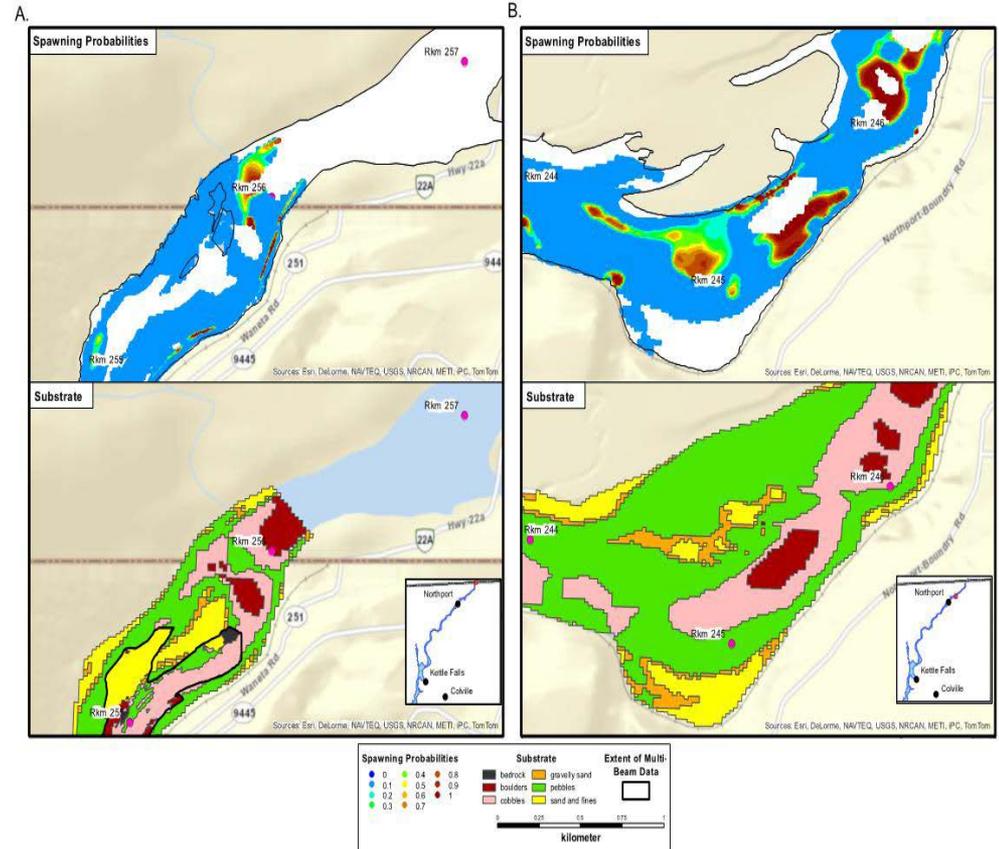
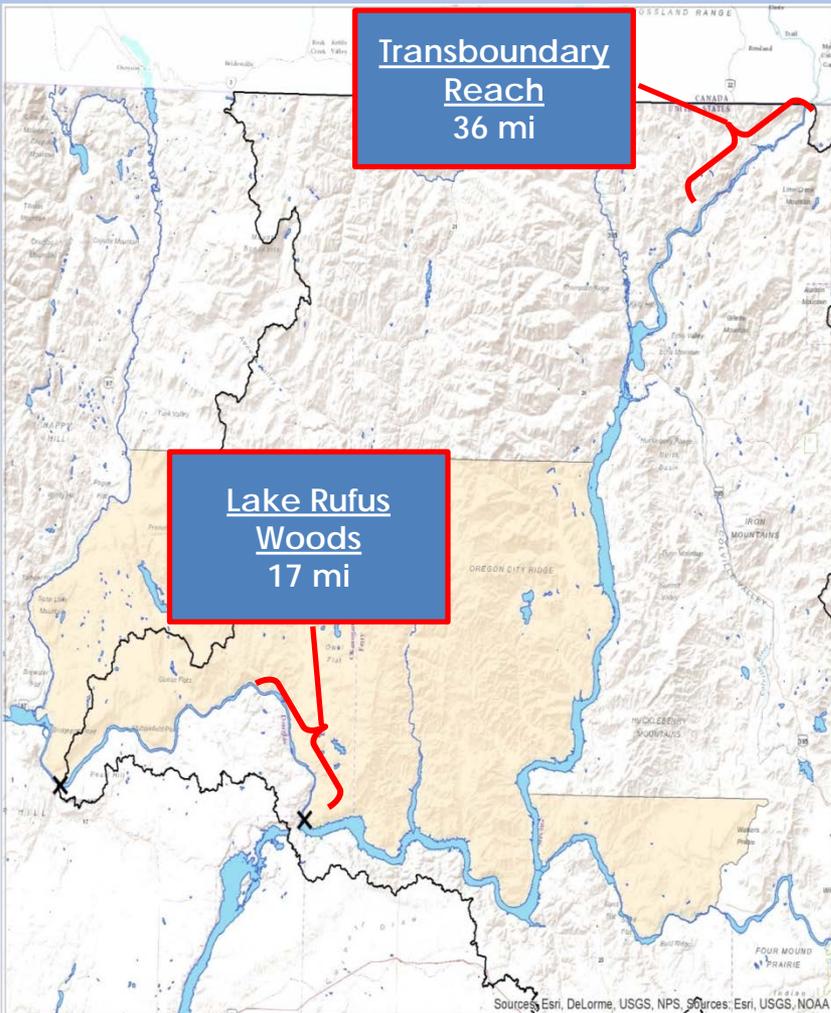
Lakes and Reservoirs	Intrinsic Potential Reaches
Hydroelectric Facilities	Chinook Habitat Rating
Blocked Area	None/Negligible
Tribal Reservations	Low
Subbasins	Moderate
Sanpoil	High
Spokane	
Upper Columbia	



Sources: Esri, USGS, NOAA

Mainstem Chinook Spawning Habitats

- 2-D hydraulic model: depth, velocity, substrate, channel-bed slope
 - Habitat preferences informed by Hanford Reach
 - Extrapolated habitat area → spawner capacity



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

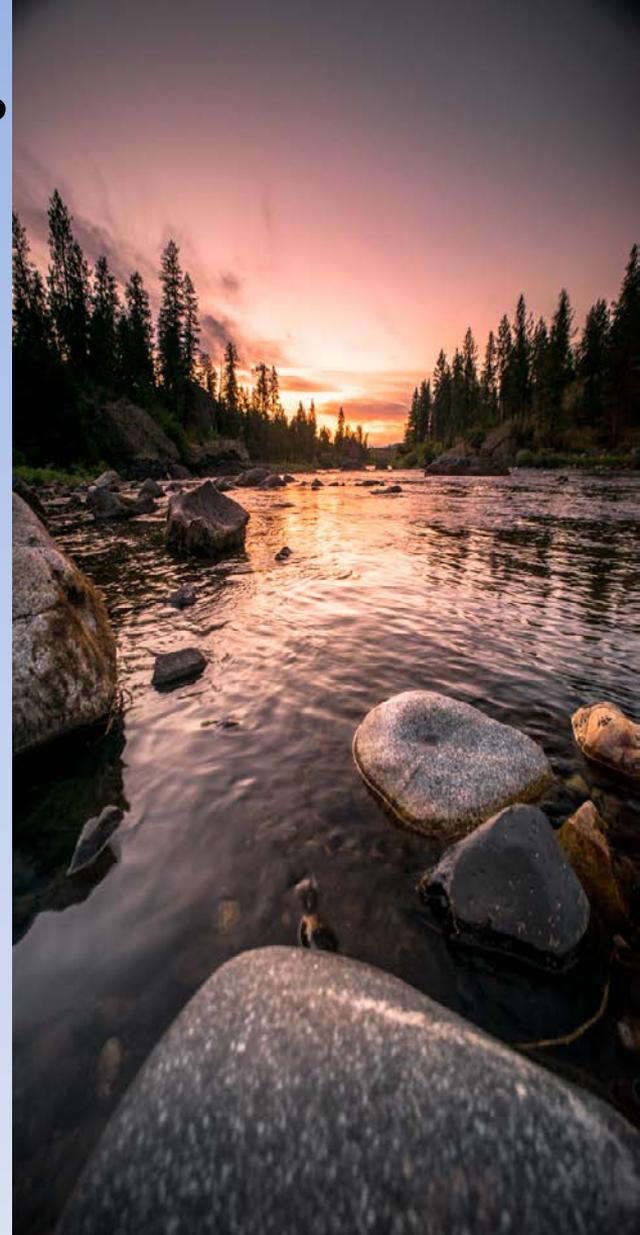


Photo Credit: Michael Visintainer, Silver Bow Fly Shop

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

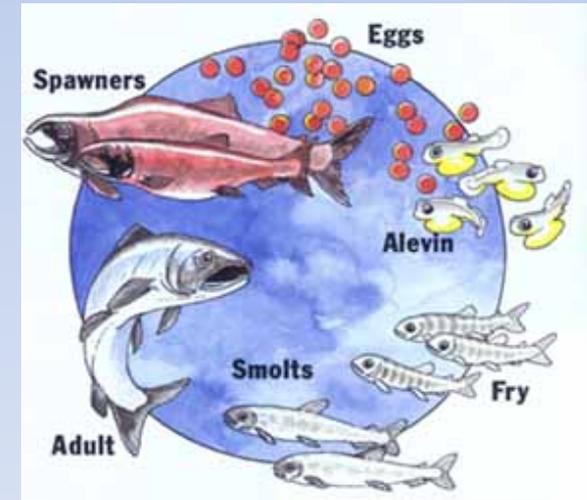
Life Cycle Modeling Summer/Fall Chinook

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
Total	41,000	24,000	14,000



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:

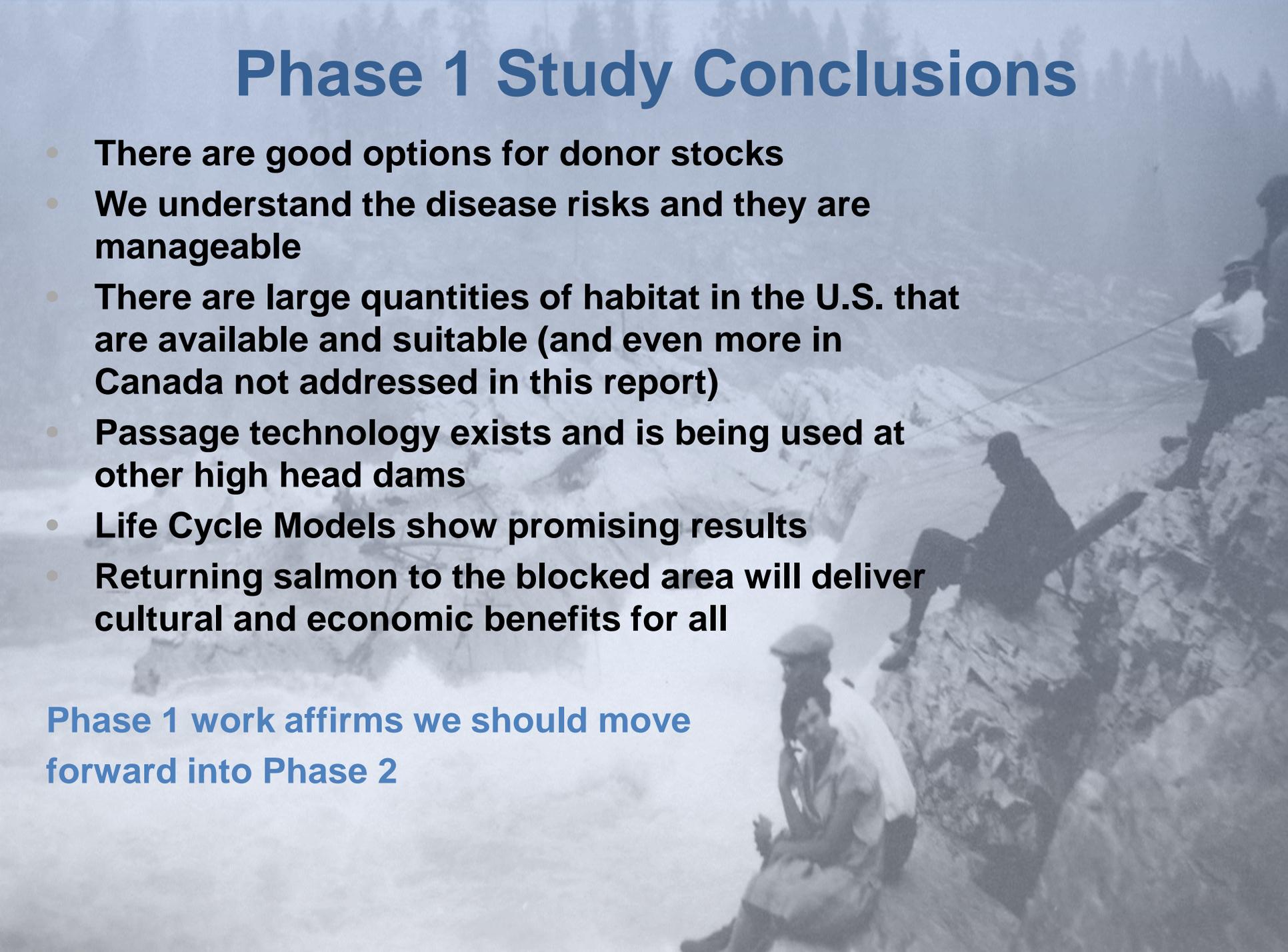
- Trap & Haul
- Elevator & Locks
- Whooshh Salmon Cannon



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 60-110 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

Cultural and Educational Releases

2017-2020



Colville Tribes Cultural Releases 2019



CCT Cultural Releases 2019



Colville Tribes Cultural Releases 2019



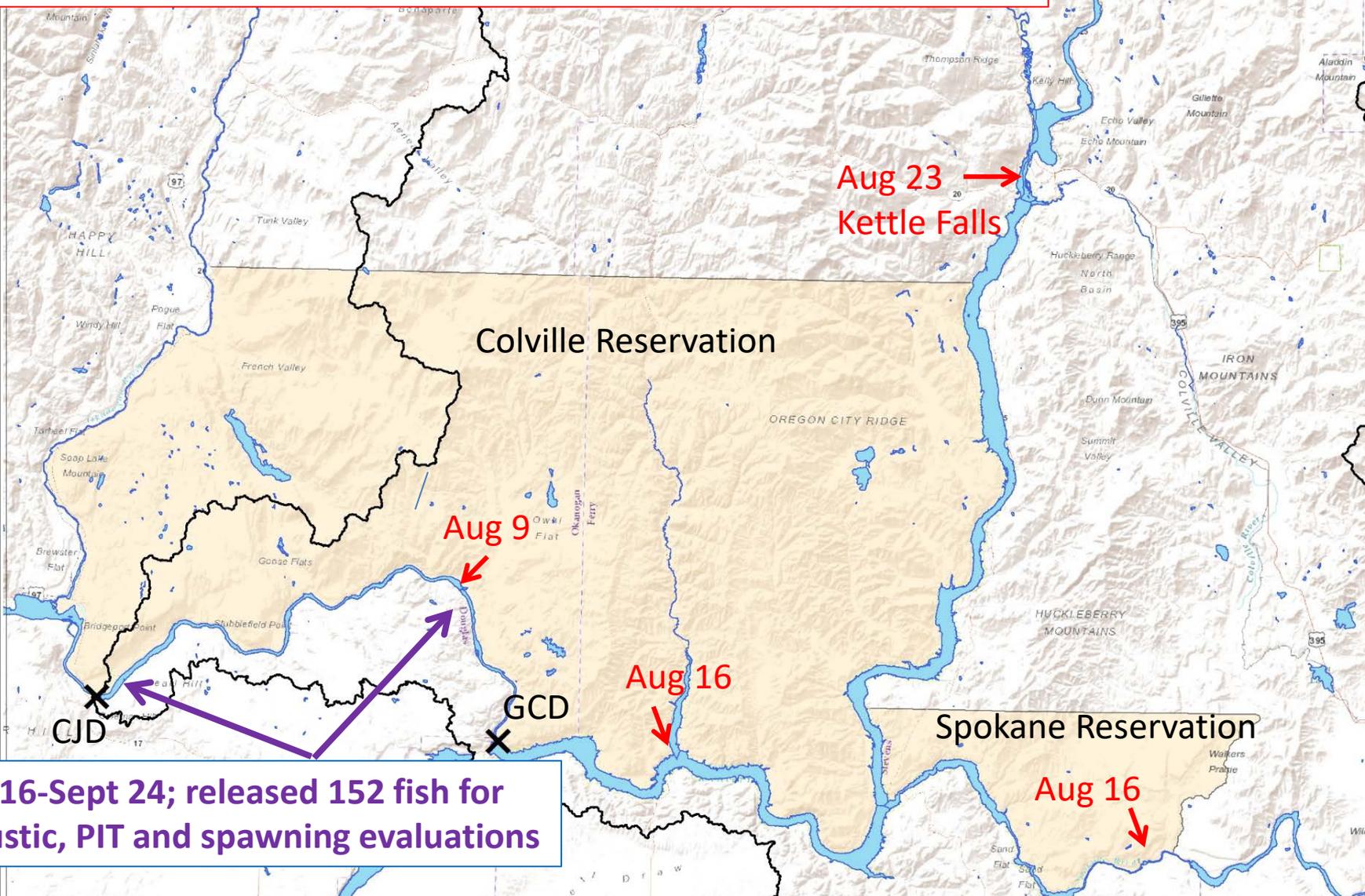
Colville Tribes Cultural Releases 2019



Colville Tribes Cultural Releases 2019



2019 adult summer Chinook release ceremonies



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

2020 adult summer Chinook releases



July 24
Northport →

Colville Reservation

Aug 14 →
Sanpoil R.

Spokane Reservation

July 24 & Aug 7 ↓

CJD

GCD

July 24
Near GCD

Spokane Tribe Cultural and Educational Releases

In 2017, 753 yearling Chinook were released into Tshimikain Creek, 1092 km and 12 dams from the Ocean

Observation Location	# Unique Fish Detected
Juveniles released in 2017	753
Juvenile Fish Bypass Facilities	75
Estuary Trawl Net	3
Avian Colonies	3
Adult Fishways	9
Total	90

She who retraces her steps



- 2019 – One adult from the 2017 release returns to Chief Joseph Hatchery.
- 2020 – Three adults from the 2017 release return to the Columbia

Spokane Tribe Cultural and Educational Releases

- 2019 Spokane Tribe released 50 adult summer Chinook in Tshimikain Ck for a fishery *(most were caught by kids with spears, nets and one even used his bare hands!)*



Spokane Tribe Cultural and Educational Releases

March 2020 Juvenile Chinook Releases

- 750 at base of Little Falls Dam
- ~90 detected so far...



July 2020 Adult Chinook Releases

- 50 adults released to Tshimikain Creek
- 50 adults released to Spokane River adjacent to the Reservation



Coeur d' Alene Tribe Ceremonial Releases

- 2019 released several hundred Chinook juveniles, some were raised by kids in the classroom, all were released by kids



Coeur d'Alene Tribe Ceremonial Releases

Chinook salmon are swimming in Hangman Creek on the Coeur d'Alene Reservation for the first time in over a century



Community Salmon Celebration, Coeur d'Alene Indian Reservation, Hangman Creek.

Coeur d' Alene Tribe Ceremonial Releases



2020 Juvenile Chinook Release

~1,400 in upper Hangman Creek

~68 detected at downstream dams



2020 Adult Chinook Release

- 75 in upper Hangman Creek

- Tribal members harvest salmon on the reservation for the first time in 110 years

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, USFWS, DPUD

Thank you

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



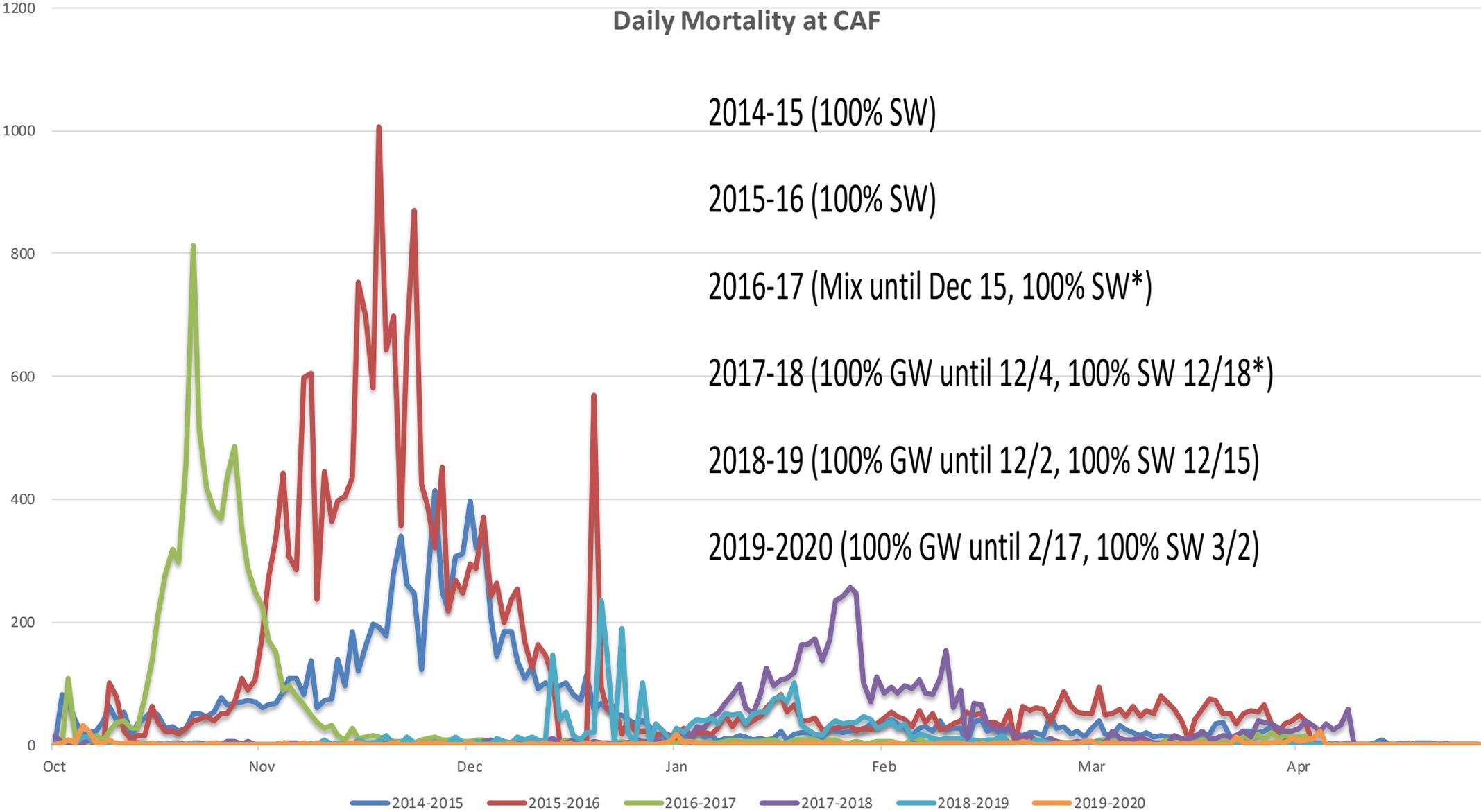
“...after experiencing, in my life...days of our cultural darkness, now we are coming into our cultural light. Where our traditions, our ceremonies, are just shining down on everybody, and making everybody happy. And this is what we need. So let our light shine on, and let our children and our grandchildren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

- Francis White, Coeur d' Alene tribal elder

Carlton Acclimation Facility Rearing Plan

HSC October 2020

Daily Mortality at CAF



Fish health recommendation

- Use 100% groundwater until February 1 and transition (25%/week) completely to 100% surface water by March 1 prior to release



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
1201 NE Lloyd Boulevard, Suite 1100
PORTLAND, OR 97232-1274

October 19, 2020

Dr. Tracy Hillman
BioAnalysts, Inc.
4725 N. Cloverdale Rd, Suite 102
Boise, ID 83713

Subject: Notification of Change of Alternate for NMFS Representation to the HCP Hatchery Committee and PRCC Hatchery Subcommittee

Dear Dr. Hillman:

Mr. Brett Farman will continue be our designated representative to the HCP Hatchery Committee and PRCC Hatchery Subcommittee, and effective October 21, 2020, Emi Melton will serve as alternate for both groups. Their contact information is as follows:

Mr. Brett Farman
brett.farman @noaa. gov
(503) 231-6222

Ms. Emi Melton
emi.melton@noaa. gov
503-736-4739

If you have any questions concerning this matter, please feel free to contact me at (503) 736-4736.

Sincerely,

Allyson Purcell
Branch Chief
Anadromous Production and Inland Fisheries