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June 4, 2024

DECISION MEMORANDUM

TO: Council Members

FROM: Mark Fritsch

SUBJECT: Council decision on Step 1 review for the Shoshone-Bannock Tribes Waterwheel Hatchery Program, Project #2008-906-00¹.

PROPOSED ACTION:

- I. Approve the Shoshone-Bannock Tribes' Waterwheel Hatchery Program Master Plan to proceed to step-two level activities, as recommended by the Fish and Wildlife Committee.
- II. As also recommended by the Fish and Wildlife Committee, request that the Shoshone-Bannock Tribes provide information during the step-two review process addressing the issues raised by the Independent Review Panel in ISRP document 2023-5.

SIGNIFICANCE: The Waterwheel Hatchery is designed to increase the subsistence opportunities for a resident native fish species of cultural and economic significance to the Shoshone-Bannock Tribes (SBT), Yellowstone Cutthroat Trout (YCT), as well as contribute to the conservation and production of Snake River

¹ Past efforts associated with this project were titled Crystal Springs Planning and O&M. Transition in referencing the Waterwheel Hatchery Program is currently ongoing in the record (e.g., cbfish and contracting).

spring/summer Chinook (Chinook) in Yankee Fork and Panther Creek, which are both tributaries to the Salmon River.

These two production goals will be accomplished by developing a parcel of tribal land located on the Fort Hall Reservation on the Portneuf River to house a captive Chinook production area and a separate YCT production area. The initial 15-year captive Chinook program will maintain approximately 2,000 mature, adult Chinook in order to produce approximately 1,000,000 eyed-eggs that will be annually out planted into their respective watersheds in egg boxes.² The YCT goal will be to produce up to 30,000 catchable-sized YCT for an annual release on tribal lands for harvest by both tribal and non-tribal anglers.

BUDGETARY/ECONOMIC IMPACTS

The SBT reached an agreement (i.e., MOA) with Bonneville, U.S. Army Corps of Engineers, and the U.S. Bureau of Reclamation regarding long-term funding of projects consistent with the NPCC Council Fish and Wildlife Program in 2008, 2018 and 2022 (i.e., Fish Accords). Funds for the suite of the SBT's projects are addressed in the Fish Accords.

The total estimated cost for the Waterwheel Hatchery as outlined in the master plan is \$18,718,885³. This includes construction costs and support, design and permitting⁴. It is important to note that cost sharing both direct and in-kind support is summarized in the master plan at \$5,126,000. This includes the land acquisition by the SBT, in 2021, of the Waterwheel Hatchery site.

Annual operation and maintenance and monitoring and evaluation costs associated with the Waterwheel Hatchery after it is fully developed approximate \$938,000 and \$233,000, respectively.

BACKGROUND

Historically, the Shoshone and Bannock peoples harvested salmon and trout throughout the Columbia River Basin for subsistence. Annual salmon and steelhead runs in what

² The Waterwheel Hatchery proposes to develop a consistent source of eye-eggs currently implemented through Project # 2008-905-00, *Supplementation Projects*. The intent of the two projects is to continue to outplant eyed-eggs in incubators to increase the abundance of juvenile migrants, with 'egg-box' juveniles being reared in the natural riverine environment. The proposed action, via Waterwheel Hatchery, would be implemented in two phases, with a reliance on surplus hatchery-origin eggs from the Pahsimeroi Hatchery and then transitioning to a locally derived source of eggs through the proposed captive Chinook program.

³ Project #2008-901-00, *Crystal Springs Hatchery Construction* (i.e., Waterwheel)

⁴ This cost includes a proposed captive YCT captive program that has since been abandoned to implement a put-and-take program based on a broodstock program sourced from existing hatchery programs.

are now Oregon, Washington, Idaho, and Nevada provided harvest opportunities throughout the year. Summers were spent collecting wild foods and hunting. Bands occupying territory of southwestern Idaho depended on the spring and fall salmon runs for most of their subsistence, but sometimes they took part in the Fort Hall bison hunt.

In a similar fashion, the bands occupying the Salmon River Basin depended on the supply of anadromous and resident fish for their subsistence. Salmon was the principal food source below Shoshone Falls and in the western Idaho region. Salmon were speared from platforms in the streams, while wading or captured in weirs built across small streams and channels. Other fish that were caught included sturgeon, suckers, perch, and trout.

On July 3, 1868, the Eastern Shoshone and Bannock tribes concluded the Second Treaty of Fort Bridger. The treaty guaranteed the creation of reservations for the exclusive use and occupancy of the signatory tribes. Pursuant to this guarantee, in 1869, the Fort Hall Reservation (set aside by Executive Order in 1867) was affirmed as the permanent home for the Shoshone-Bannock Tribes. The tribes agreed to the treaty in part to establish a permanent home in the area where they traditionally wintered. The area was close to what is now called the Fort Hall Bottoms, and were known to hold a great quantity of small and large game and fish.

The Shoshone- Bannock Tribes continue to harvest wildlife, botanical resources, and resident and anadromous fish under rights reserved by the Fort Bridger Treaty of 1868. Tribal fishing methods include the culturally important technique where tribal fishers actually hunt Chinook salmon in the stream using spears. Maintaining this type of fishery is a high priority for the tribe. Fishing opportunities for the tribes have been severely constrained by depressed runs of salmon caused in large part by the detrimental effects of hydroelectric development and early overfishing in the lower Columbia River. Current salmon abundance in the Upper Salmon River Basin is estimated at about 0.5% of historical runs. Recent harvest opportunities for tribal members have only provided half a pound of salmon per tribal member compared to the historical 700 pounds per person.

The Shoshone-Bannock Tribes, therefore, seek to restore fishing opportunities for their peoples through Chinook salmon management programs in the Yankee Fork Salmon River and in Panther Creek. Restoration of these ceremonial and subsistence fisheries would be accomplished in a manner compatible with recovery and long-term sustainability of Chinook salmon in the Upper Salmon River Basin.

I. Subbasins

Two distinct subbasins are associated with the proposed Waterwheel Hatchery program, the upper Salmon River and the Upper Snake River Subbasin. The proposed captive Chinook broodstock program will produce eyed-eggs for out planting in the Yankee Fork and Panther Creek in egg boxes on an annual basis.

In addition, the Waterwheel Hatchery will be used to rear and release 30,000 catchable YCT for release within a portion of the Upper Snake River Basin located within the Fort Hall Reservation or adjacent tribal lands in the Upper Snake River Subbasin.

A. Salmon River

The Salmon River Subbasin encompasses several watersheds in the northern Rocky Mountains of Central Idaho. Most of the subbasin is characterized by moderate-to-high elevation mountain ranges and deeply cut valleys of the Salmon River Mountains. Elevations range from 12,661 feet on the summit of Mount Borah down to 2,165 feet at the mouth of the Salmon River.

The Upper Salmon watershed is the largest in the subbasin and contains 261 named streams. One of these is the Yankee Fork, which flows south 26 miles from its headwaters in the Challis National Forest (near Challis Creek Lakes, elevation 8,800 feet) to the Salmon River at River Mile (RM) 367.1 (elevation 6,000 feet). It has a drainage area of 195 square miles.

The Middle Salmon-Panther watershed contains 136 named streams. The headwaters of Panther Creek originate near Morgan Creek Summit at an elevation of approximately 8,000 feet. From its headwaters, the creek flows in a north-northwesterly direction for 44 miles before entering the Salmon River at an elevation of approximately 3,200 feet.

The Salmon Subbasin historically contained a number of native salmonids, including bull trout, westslope cutthroat trout, resident rainbow trout, mountain whitefish, Chinook salmon, and steelhead trout. Of the 26 native fish species found in the Salmon River subbasin, four salmonids are federally listed under the Endangered Species Act (ESA) (bull trout, spring/summer Chinook salmon, fall Chinook salmon, and steelhead trout) and one is listed as endangered (sockeye salmon). Other sensitive species in the subbasin include Pacific lamprey, redband trout, and westslope cutthroat trout.

Adult spring/summer Chinook salmon enter the Columbia River on their upstream spawning migration from February through March and arrive at their natal Salmon River tributaries from June through August. Spawning occurs in August and September. Juveniles exhibit a river-type life history strategy, rearing in their natal streams during their first summer before beginning their migration to the ocean in the following spring. After reaching the ocean as smolts, the fish typically rear two to three years in the ocean before beginning their migration back to freshwater.

Historically, it is estimated that thousands of spring/summer Chinook returned to the Yankee Fork. A number of factors led to their decline, and the population was classified as threatened in 1992.

B. Upper Snake

The Upper Snake is the uppermost province in the Snake River system encompassing an area within Idaho, Wyoming, Utah, and Nevada. The province includes the Snake River and all its tributaries from Shoshone Falls, Idaho to the headwaters in Wyoming. The Upper Snake Province includes three subbasins: the Upper Snake, Snake Headwaters, and Closed Basin. The Waterwheel Hatchery is being proposed in the American Falls watershed of this subbasin.

Aquatic species in the Snake River Subbasin have been affected by extensive habitat modification and deteriorating water quality from hydroelectric development, load-following effects of hydroelectric projects, water withdrawal and diversions, pollution, and introduced exotic species.

Yellowstone cutthroat trout (YCT) were once widely distributed from the middle Columbia River Basin to the Northern Rocky Mountains. In the late-glacial period, redband trout invaded the middle Columbia River and replaced Yellowstone cutthroat trout through much of the Columbia and Snake rivers. The Yellowstone subspecies is now limited to the Snake River above Shoshone Falls to the Yellowstone River drainage downstream to the Tongue River, and to two (now extinct) isolated populations in Waha Lake, Idaho, and Crab Creek, Washington.

II. Project Goals and Objectives

Anadromous Fish Program

The proposed captive Chinook broodstock program would entail (1) developing a consistent Chinook salmon broodstock for the Yankee Fork Salmon River and Panther Creek; (2) constructing and operating hatchery facilities to maintain a Chinook captive broodstock program; and (3) engaging in annual management of eyed-eggs for out planting in the Yankee Fork and Panther Creek in egg boxes on an annual basis.

Resident Fish Program

The goal of the program is to provide a put-and-take fishery for YCT in tribal streams primarily located in tribal lands in the Fort Hall Bottoms. The primary objectives of the hatchery are to provide subsistence harvest opportunities to tribal members for this culturally significant species and provide a recreational fishery for non-tribal fishers on tribal lands. The program will not have a conservation objective. Broodstock for the program may be sourced from existing hatchery programs located in Idaho, Montana, or Wyoming that currently rear pure strains of YCT.

III. Review Process

Measures for establishing Shoshone-Bannock Tribe and Shoshone-Paiute Tribe artificial production facilities have been in the Council's Program since 1987. Originally these measures called for two separate facilities. In the early 1990s, feasibility studies demonstrated that the needs for these two facilities might be met at one site. With the

support of both tribes, the program was amended to reflect this finding, and planning has proceeded along that route.

In April 1996, the Shoshone-Bannock Tribe and Shoshone-Paiute Tribe collaboratively completed the master plan. The goal of the Shoshone Bannock/Shoshone Paiute Tribes' Joint Culture Facility⁵ was to produce rainbow trout, as well as the experimental holding and propagation of two native trout species (Yellowstone cutthroat, redband trout). Rainbow trout could provide fish for the Shoshone-Paiute Tribe's "put and take" fisheries in enclosed reservoirs and the Shoshone-Bannock Tribe's Fort Hall Bottoms.

On May 19, 1998, the [Council approved](#) the project for Step 2 of the [Three-Step Review Process](#) and recommended funding for the Joint Culture Facility's final design. In December 2000, the Council received the step three submittal documents and submitted them to the ISRP. On April 26, 2001, based on the ISRP review ([ISRP document 2001-3](#)), the [Council did not support](#) the Step Three (Final) Review of project. As part of the decision, the Council encouraged the tribes to propose a new project, jointly or separately, related to this subject matter in the future during the Middle and Upper Snake provincial reviews scheduled to begin in July 2001 with an anticipated decision in March 2002.

Through support from the Program, 2008 Fish Accords, and the SBT, the Council received a submittal on April 15, 2011, to initiate the step review process for a proposed hatchery master plan for Project #2008-906-00, *Crystal Springs Planning and Operations/Maintenance*. The master plan (Step 1) received was titled *Crystal Springs Fish Hatchery and Programs for Snake River Chinook Salmon and Yellowstone Cutthroat Trout*. The goal of the proposed hatchery Chinook was to help recover Snake River spring/summer Chinook by restoring a locally adapted hatchery and natural spawning population to the Yankee Fork and Panther Creek. In addition, the hatchery would produce cutthroat trout to a catchable size to provide hatchery fish for tribal and non-tribal harvest.

On June 30, 2011, the ISRP gave their review of the master plan ([ISRP document 2011-17](#)). The ISRP found that additional information was needed on key issues prior to meeting all science review criteria (i.e., response requested).

On April 12, 2012, the SBT provided their response to the ISRP's concerns raised in their review. The SBT had not only responded to the key issues outlined above but had addressed all the comments made by the ISRP in their preliminary review. In so doing the SBT had also revised their objectives associated with the Chinook component of the project and restructured the Yellowstone cutthroat trout aspects of the project.

On April 14, 2012, the ISRP provided their review ([ISRP document 2012-8](#)). Based on the response, the ISRP found that the project *Meets Scientific Review Criteria (Qualified)*. No public comment has been received on the ISRP reviews.

⁵ Project #1995-006-00, *Shoshone-Bannock/Shoshone-Paiute Joint Culture Facility*

On August 7, 2012, the Council approved proceeding to Steps 2 and 3 in the planning and review process for the proposed Crystal Springs Fish Hatchery (Project #2008-906-00, *Crystal Springs Planning and Operations/Maintenance*). This recommendation was based on the ISRP review and was conditioned on the SBT providing the additional information requested and address the issues raised by the ISRP (ISRP document 2012-8) in the submission for review at the conclusion of the Step 2/3 planning.

Based on the Council's recommendation, the SBT moved the project forward to actions associated with designs and bio programming, environmental compliance, and cost analysis for the new facilities and programs. During this process, a significant water issue at the nearby Springfield Hatchery was identified. Water chemistry at the hatchery was different than at the smolt release location and released smolts were experiencing high rates of mortality. The tribes immediately recognized that a similar issue might affect Chinook salmon released into either Yankee Fork or Panther Creek from the proposed Crystal Springs hatchery site.

Based on this issue, the SBT paused the planning process and engaged in a smolt survival study in partnership with Idaho Department of Fish and Game. The study revealed that Chinook smolts reared at Springfield Hatchery and released in Yankee Fork experienced a near total mortality. Based on this finding, they determined the risk for the Chinook salmon production was too great to continue with the proposed plan at the proposed Crystal Springs hatchery site. With the study completed and the results published in late 2019, the SBT initiated a new planning process to design a hatchery that would meet our needs in a new location.

On April 18, 2023, the Council received a revised master plan and supporting documents. This revised master plan addresses a new hatchery location (i.e., Waterwheel⁶) that provides the opportunity to accomplish goals for both anadromous and resident fish. While the production methods and location has changed, it builds off the previous efforts of the earlier master plan. The revised master plan proposes to implement a captive Chinook broodstock program to produce 1,000,000 eyed-eggs for out planting and developing a broodstock of pure Yellowstone cutthroat trout from local populations for conservation purposes.

On August 14, 2023, the ISRP provided their review report ([ISRP document 2023-3](#)). The ISRP found that the master plan "Meets scientific review criteria for Step Review with conditions". The ISRP's report identified six conditions that need to be addressed before the master plan can be considered as fully meeting scientific criteria. The six conditions are associated with the following topics.

Anadromous Fish – Spring/summer Chinook

1. *Consolidate Goals and Objectives*
2. *Best Available Science*

⁶ The SBT purchased a property in 2021, consisting of approximately 110 acres and has an existing water right of 75 cfs for aquaculture utilized by previous owners to rear game fish.

3. *Research, Monitoring, and Evaluation*⁷
4. *Production Assumptions and Management Uncertainties*
5. *Adaptive Management and Project Adjustment*

Yellowstone Cutthroat Trout

6. *Broodstock Options Assessment*

The text of the conditions themselves can be found in the ISRP report on pages 7 – 9.

Council staff requested that the SBT provide a response to the ISRP’s review report, including a response to each of the six conditions identified by the ISRP. On November 15, 2023, the Council received that response from the SBT, and then asked the ISRP to review the SBT response.

On December 21, 2023, the Council received a short response from the ISRP after reviewing the latest submission from the SBT. ([ISRP document 2023-5](#)). The ISRP concluded:

The conditions for the spring/summer Chinook component of the hatchery program concern consolidation of goals and objectives, best available science, fish production assumptions and management uncertainties, and adaptive management. The condition for the Yellowstone cutthroat trout component concerns the broodstock options assessment.

The response addressed the six conditions with varying levels of detail. Overall, the response was highly informative, addressed aspects of each condition, and will clearly serve as a good foundation for revising the Master Plan to fully address all elements of each condition. In those cases where limited or no information was provided for a specific condition, the response provided a clear plan for how the conditions will be addressed in the Step 2/3 Master Plan.

The ISRP’s response is purposely brief, and the ISRP defers determination of whether the Master Plan meets scientific criteria until the review of the Step 2/3 Master Plan is complete.

⁷ The condition response requests a comprehensive RM&E plan associated with the Waterwheel Hatchery Program. Projects associated with the RM&E are Project #2008-905-00, *Supplementation Projects* (ongoing project) and Project #2023-002-00 *Survival & Migration of Natural Origin Chinook* (to be reviewed). Project #2023-002-00 is intended to provide monitoring and evaluation of the status of Chinook juvenile and adult production for long-term population monitoring. This project will also assist in identifying critical uncertainties related to salmon recovery and provide necessary information for the assessment of performance metrics and standards on the Waterwheel Hatchery Program management decisions.

ANALYSIS

As quoted above, the ISRP found the last set of SBT responses to be highly informative for each of the six conditions raised by the ISRP. But the panel also concluded that as the proposal proceeds in development, the components of the six conditions can be further defined, tracked, and addressed. Thus, the ISRP was comfortable deferring to the step 2 and 3 review phases any final determinations on the scientific merits associated with the six conditions. Staff agrees with the ISRP that the project should move to the step 2 phase of the overall project review.

The overarching conditions raised by the ISRP have generally remained the same through the two reviews in 2023. The ISRP noted that the remaining issues with the six conditions can be addressed during the next review. That said, Council staff interprets the ISRP review as meaning that the concept of the master plan meets review criteria (as stated in their review and that the additional information and detail will be addressed and considered as the proposal moves forward.

Based on the quality and professional nature of the submitted documents for the master plan review, and the ISRP review, and discussions/presentation with the SBT staff, the Fish and Wildlife Committee recommends the following to the Council.

- Approve the Shoshone-Bannock Tribes Waterwheel Hatchery Program Master Plan to proceed to step-two level activities.
- Call for additional information that fully addresses the issues raised by the independent scientific review (ISRP document 2023-5) during the step-two review process.

The step-two development and review phase will also include the usual elements of step two in the three-step process, including status of the environmental assessments, M&E plan, cost estimates, preliminary design, confirmation of cost share and in-kind contributions, and more.



Step 1 Master Plan Review for the Shoshone- Bannock Tribes Waterwheel Hatchery Program Project #2008-906-00



Presentation Purpose

- Seek approval of the SBT Waterwheel Hatchery Program Step 1 submittal.
- Seek approval to initiate Step 2 level Planning and Design activities for the Waterwheel Hatchery Programs.
- Confirm that SBT will address and provide the follow-up and additional information based on the ISRP review (ISRP document 2023-5) in the Step 2 submittal.
- Confirm that the Shoshone-Bannock Tribes will ensure that information is promptly provided for needed reviews and approvals.



Key Milestones

- Measures to establish artificial production facilities have been in the NPCC program since 1987.



Date	Milestone
1996	Shoshone-Bannock and Shoshone Paiute Joint Culture MP completed
1997	SBT purchases Crystal Springs Hatchery site
1998	Joint Culture Facility is approved for Step 2 level activities
2000-2001	Based on ISRP review the Council did not support Joint Culture Step 3 Final review
2008	Fish Accord MOA reached to fund Snake River Chinook program
2010-2012	SBT undertakes Step 1 Master Plan for Crystal Springs and drafts, submits, and gets approval from NPCC
2012-2019	SBT undertakes Step 2 level planning and design activities for Crystal Springs (HGMPs, NEPA EIS)
2019	Water quality issue at neighboring Springfield hatchery cause SBT to halt Step 2/3 program development
2019	Smolt survival study performed by Tribes, IDFG (with Crystal Springs water)
2019-2021	Results pose risk to great and SBT adapts re-engages in the Planning process for revised hatchery programs
2021	Tribes acquire the Waterwheel property
April 18, 2023	Revised Step 1 MP submitted Waterwheel Program
August 14, 2023	ISRP reviews. Council staff requests response
November 14, 2023	SBT respond to six conditions



Program Purpose and Need

The Waterwheel Hatchery is designed to increase the subsistence opportunities for:

- Yellowstone Cutthroat Trout
- Snake River Spring/Summer Chinook Salmon
- The SBT seek to restore and enhance fishing opportunities for Tribal members through this hatchery program for members by providing additional subsistence resources throughout the calendar year, whether the target species is resident or anadromous.



Subsistence Lifestyle

- The Tribes harvest natural resources for subsistence under Article IV of the Fort Bridger Treaty of 1868.
- $175\text{g/day} * 365 \text{ days} * 6,000 \text{ Tribal members}) / 454 = 844,163 \text{ lbs. annually}$ or $96,000 \text{ salmon per year}$.
- *Harvest Average of 460 Salmon for last 40 years = less than 0.66lbs per year per member*



Program Goals

The Program Goals for the Waterwheel Hatchery Project:

Spring Chinook

- 15-year pilot captive Chinook program
- 2,000 mature, adult Chinook
- 1,000,000 eyed-eggs for annual egg box outplants (Project No. #2008-905-00).
- Develop consistent Broodstock

Yellowstone Cutthroat

- To produce up to 30,000 catchable-sized YCT
- Annual release for harvest by both tribal and non-tribal anglers.
- Improving access throughout year



Key Budget/Funding

Shoshone-Bannock Tribes Cost Sharing

- **Bureau of Indian Affairs – (application) - \$90,000 annually** – Labor, partial salary funding, 2 FTE's, 4 to 6 Temporary Field Tech
- **SBT Resident Fish Program – (confirmed) - \$36,000 annually** – Labor, on-the-ground low tech habitat restoration on the Fort Hall Bottoms and various reservation mountain streams
- **Shoshone-Bannock Tribes General Fund –(complete)- \$5,000,000 one-time** - Land acquisition - purchase of the Waterwheel Hatchery site



Key Budget/Funding

*Summary of **Concept** Level Project Costs, Step 1 Submittal Project #2008-906-00*

Step 1-3 Planning Costs - \$2.84 million

- Technical and independent support and reviews
- Planning and environmental compliance
- Conceptual through final design and specifications

Construction (and related) Costs - \$17.10 Million

- Construction - \$15.98 Million
- BPA Contingency Fee – 20%
- Construction Expenses (CM, Construction Permitting) - \$640k
- TERO Fee - \$470k

Program Equipment - \$318,000

Annual Operating Costs - \$1.05 Million

- Hatchery Operations, Maintenance - \$817k
- Related Monitoring and Evaluation - \$233k



ISRP Review Process

Summary and Confirmation of Upcoming SBT Responses Shoshone-Bannock Tribes' Waterwheel Hatchery Program Master Plan (Project #2008-906-00)

- Fully address the six ISRP conditions (ISRP document 2023-5) to be addressed in the SBT Step 2 submittal.
- Chinook Program
 1. Consolidate Goals and Objectives
 2. Best Available Science
 3. Research, Monitoring and Evaluation
 4. Production Assumptions and Management Uncertainties
 5. Adaptive Management and Project Adjustment
- Yellowstone Cutthroat Trout Program
 6. Broodstock Options Assessment



Waterwheel Hatchery Site



Waterwheel Hatchery Site



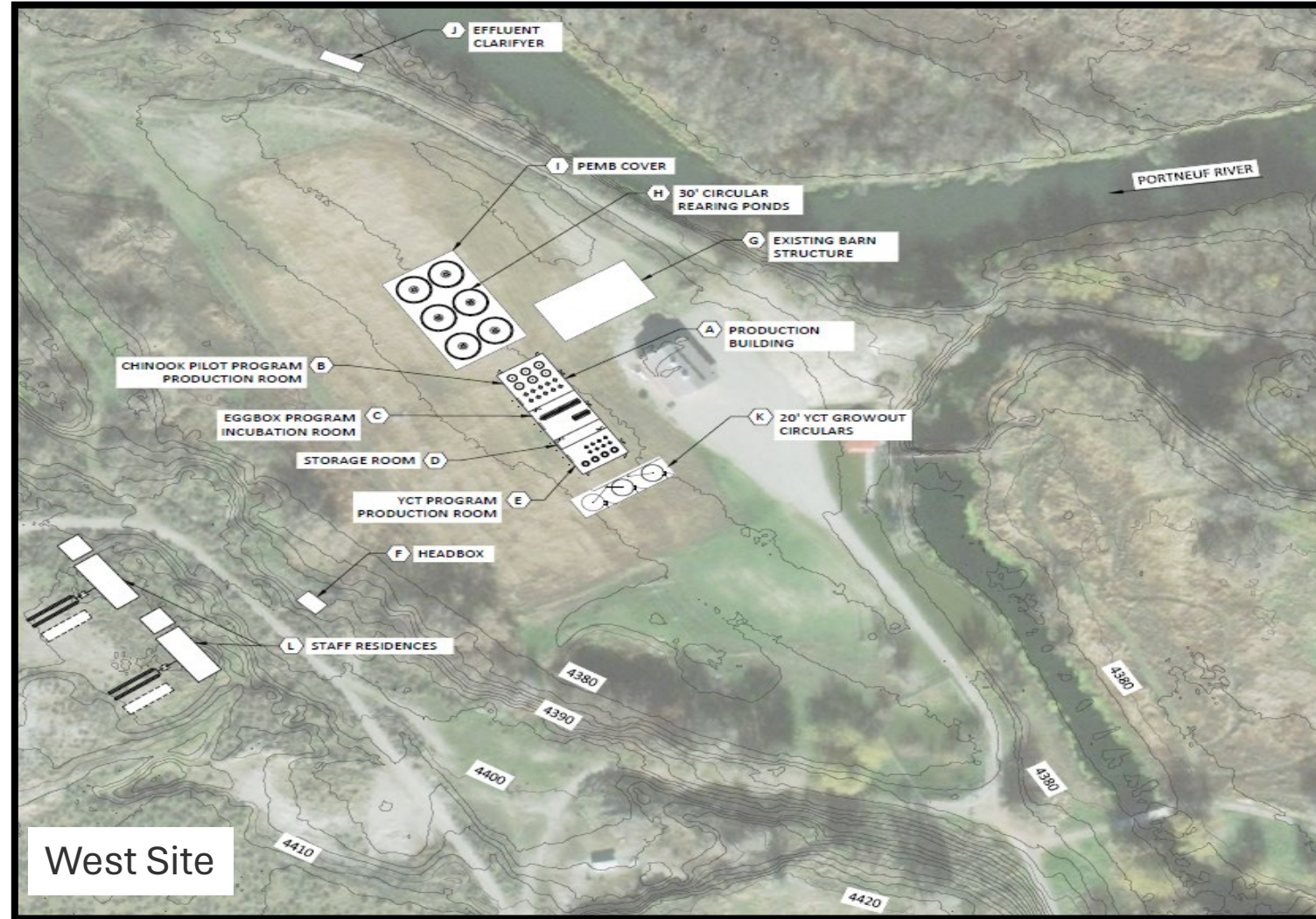
Waterwheel Hatchery Site

- Tribal-owned land; within exterior boundaries of Fort Hall Reservation (Fort Hall Bottoms)
- Power County
- Single parcel of 140 acres bordering Portneuf River
- Previous Rainbow Trout production at the site using spring water; additional water quality studies confirmed adequate water quality (hatchery facilities currently in state of disrepair)



Waterwheel Hatchery Site

- West Site
 - YCT Incubation, Early Rearing, Growout
 - Captive Chinook Incubation, Early Rearing, Broodstock Holding
 - Dual-drain (Cornell-Style) circular rearing vessels (20'-30')
 - 2 Hatchery Residences



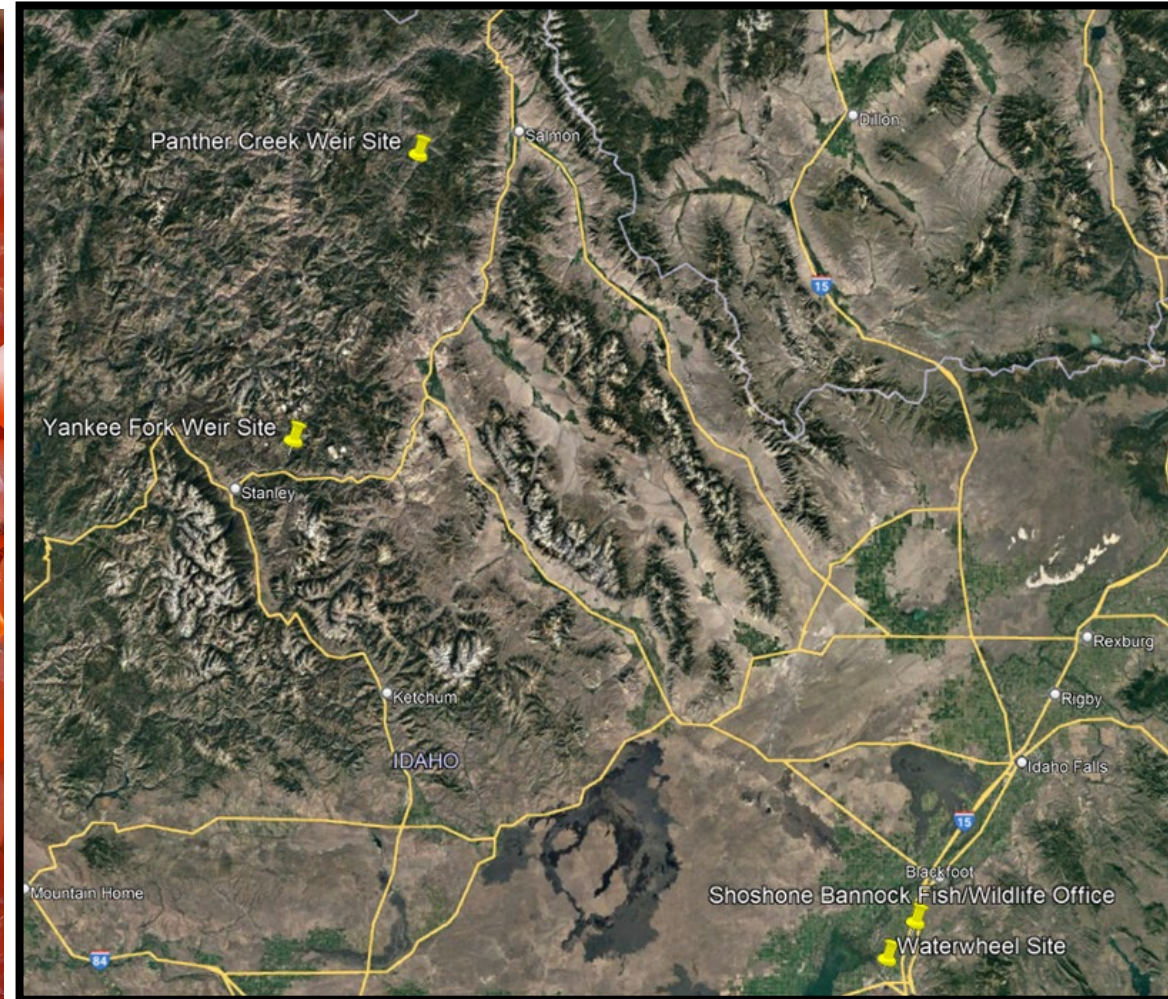
Waterwheel Hatchery Site

- East Site
 - YCT Incubation, Early Rearing, Growout
 - Captive Chinook Incubation, Early Rearing, Broodstock Holding
 - Dual-drain (Cornell-Style) circular rearing vessels (20'-30')
 - 2 Hatchery Residences



Waterwheel Hatchery Program - Chinook

- Captive Chinook eyed-eggs to egg box programs in Panther Creek and Yankee Fork
- Source eggs from Sawtooth and Pahsimeroi
- BPA Project #2008-905-00
Supplementation Projects



Waterwheel Hatchery Program - Chinook

- The Tribes have been using egg boxes since 1995
- Earlier iterations refrigerators, Rubbermaid totes,
- Partner Steel Collaboration



Waterwheel Hatchery Program - Chinook

- Designed to hold to stream with forces of water
- Removable egg chamber
- Eyed eggs are incubated till hatch
- Manually released to collect survival data



Waterwheel Hatchery Program - Chinook

- Production Goals are to release eyed eggs while remaining eggs are raised for Broodstock
- Model captive Chinook program using ID/OR/WA captive Chinook methodologies, techniques, protocols and performance data



Table 2-1. Fish Production Goals—SBT Captive Chinook Program: eyed eggs will be released into the two watersheds while the remaining eggs will be raised to provide broodstock accounting for overlapping adult cohorts in circulars.

Program/Life Stage	Time Frame	No. of Fish	Water Requirement	Holding Volume/Type
Chinook Incubation – Egg Box Program	~ Aug – Nov	1.68M green eggs; ~ 1.0M eyed eggs	5 <u>gpm</u> ambient spring water per ½ stack; 540 <u>gpm</u> total need	54 double stacks (108 - half stacks)
Chinook Incubation – Brood Replacement	~ Aug – Jan	~ 3,000 eyed eggs	5 <u>gpm</u> ambient spring water per ½ stack; 15 <u>gpm</u> total need	3 half stacks
Chinook Fry-Parr	~ Feb – Jun	~ 2,000 – 3.97" fish	15 <u>gpm</u> ambient spring water	Ten 1-m first-feed circulars
Chinook Parr-Smolt	~ Jul - May	~ 2,000 – 6.93" fish	40 <u>gpm</u> ambient spring water	Six 6'-diameter circulars
Chinook Age-3 Module	Smolt through Age-3 Maturation	1,680 Age-3 Adults	2,062 <u>gpm</u> ambient spring water	Three 30'-diameter circulars
Chinook Age-4 and Age-5 Module	Final Age-4 & Age-5 Maturation	1,839 Combined Age-4 & Age-5 Adults	2,062 <u>gpm</u> ambient spring water	Three 30'-diameter circulars



Waterwheel Hatchery Program - Cutthroat

- Catchable YCT program implemented entirely within and adjacent to Fort Hall Reservation (Fort Hall Bottoms/Legacy Springs)
- Associated w/BPA P# 1992-01-000 - Fort Hall Habitat Restoration Project
- Eyed-eggs obtained from existing YCT broodstock programs in ID/WY/MT

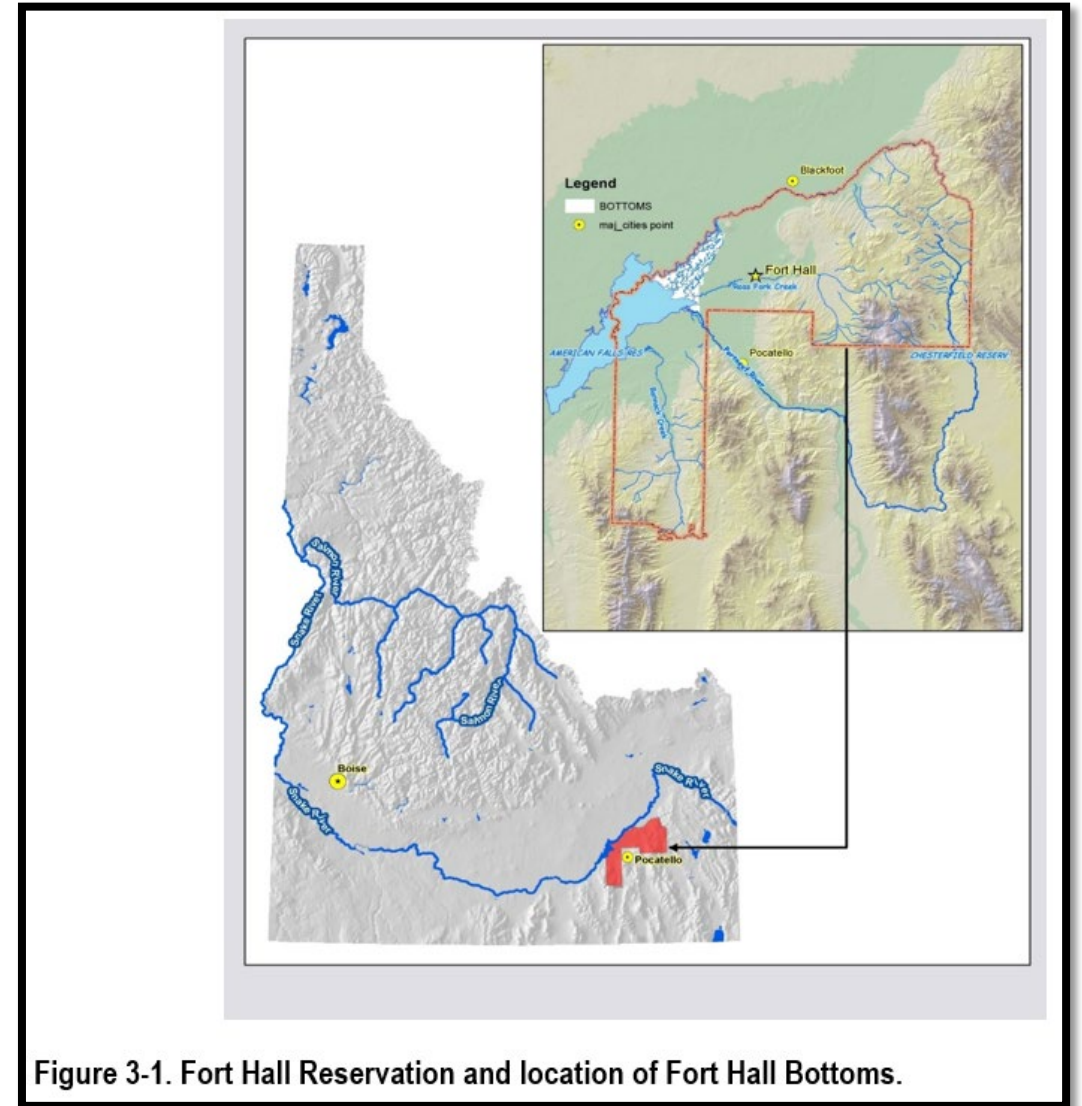


Figure 3-1. Fort Hall Reservation and location of Fort Hall Bottoms.

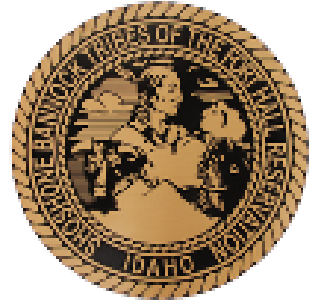


Waterwheel Hatchery Program - Cutthroat

- 30,000 catchable-sized YCT
- Put and take fishery located on the Fort Hall Bottoms.
- Harvest for tribal and non-tribal anglers
- Tribes will describe in more detail the rationale for the source of the Broodstock and the overall goal of the program in the Step 2-3 submittal.



Closing



Special Thanks to Agencies/Teaming Partners!

Questions?

