
HELLS CANYON COMPLEX FISHERIES RESOURCE MANAGEMENT PLAN



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1. Executive Summary

Fishing opportunities above the Hells Canyon Complex (HCC) 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. Anadromous fish runs above the HCC have been completely blocked. The HCC Fish Management Program (Program) seeks to restore fishing opportunities through anadromous and resident fish management programs in the Snake River and in significant tributaries; including the Bruneau/Jarbridge, Owyhee, Malheur, Boise, Payette, and Weiser Rivers. Restoration of these conservation and subsistence fisheries would be accomplished in a manner intended to complement the ongoing recovery efforts of anadromous and resident fish in the Upper Salmon River Basin.

The components of the Program are developed to illustrate the considerations that will be necessary for any proposed program above the HCC. Development of the Program is based on three components for treatment watersheds:

1. **Conservation Component:** Contribute, over the life of the license with the appropriate agreements and metrics, to the recovery of anadromous and resident fish populations in the treatment watersheds. This includes a restoration of the ecological processes related to the presence of anadromous and resident fish in the treatment watersheds.
2. **Harvest Component:** Achieve an equitable harvest framework for all treatment watersheds to mitigate for lost harvest opportunities related to the HCC.
3. **Cultural Component:** Ensure that tribal and state-licensed anglers can harvest anadromous and resident fish in the treatment watersheds by their traditional hunting methods, as well as contemporary methods.

The HCC blocked upstream fish passage, extirpating anadromous fish above Hells Canyon Dam, eliminating sport and tribal fisheries in these areas, and altering the ecosystems within and above the HCC. The overall intent of the Program is to begin reestablishing anadromous fish and fisheries in the Snake River and using unlisted fish (Endangered Species Act) in select tributaries upstream of the HCC. Goals of the Program are to:

1. Re-establish anadromous fisheries on unlisted, hatchery origin spring/summer Chinook salmon and/or steelhead in select tributaries to provide subsistence, cultural, and recreational harvest opportunities.
2. Restore naturally reproducing unlisted populations of salmon and steelhead within select tributaries upstream of the HCC to meet harvest, cultural, and ecological needs.
3. Restore fall Chinook salmon in the mainstem Snake River (as a long term goal - likely 20-30 years after license issuance), dependent, in part, upon restoration of mainstem habitat (i.e., mainstem water quality improvements) and effectiveness of mainstem collection measures.

The HCC Advisory Committee will work to improve habitat conditions in watersheds throughout the Snake River Basin and to advocate passage improvements at hydroelectric dams to improve productivity

of fish populations in the treatment watersheds. In the long term, the proposed monitoring programs will allow the HCC Advisory Committee to adapt their management components to provide greater conservation benefits should other efforts fail to achieve their prescribed metrics, and if ecosystem and biological conditions allow.

2. Purpose

The purpose of this preliminary proposal for the Program is to:

- Outline the general goals, objectives, and management framework for reestablishment of anadromous fish upstream of the HCC;
- Present a process and coarse timeline for integrating anadromous fish measures into a comprehensive settlement agreement; and
- Present a process for integrating proposed and ongoing resident fish programs into this proposal.

The intent is to continue and develop management actions for species such as bull trout, pacific lamprey, redband trout, and white sturgeon; as well as understanding how key issues related to anadromous upstream passage may affect resident fish. This proposal is not intended to provide the specific details required for full implementation of the Program. Details will be developed in a comprehensive planning document in coordination with Idaho Power Company (IPC).

The Program will pursue, promote, and initiate efforts to restore the Snake River system and component resources to conditions that closely represent the ecological features of the natural riverine ecosystem. This includes a restoration of the native assemblages of species in the subject tributaries above the HCC.

2.1. HCC License Background

Pre-1860, approximately 1 to 1.7 million adult Pacific salmon and steelhead passed the area now blocked by the construction of the HCC. Private interests, promoting economic gains, were responsible for the displacement and elimination of anadromous fish from the blocked area of the Snake River Basin. The impacts from the construction and operation of the HCC compounded already existing impacts associated with other hydroelectric, water storage, and water diversion projects in the subbasin. These impacts led to the complete blockage and displacement of anadromous fish populations from many of the watersheds in the middle and upper Snake River, upon which the member tribes were reliant, and negated efforts to restore salmon at smaller tributary projects. The ecological, cultural, and social impacts related to the loss of anadromous fisheries in the middle and upper Snake River Basin to members of the Burns Paiute Tribe (BPT), Confederated Tribes of the Umatilla Indian Reservation, Fort McDermitt Paiute-Shoshone Tribe, Nez Perce Tribe, Shoshone-Bannock Tribes (SBT), and Shoshone-Paiute Tribes (SPT) cannot be understated. From time immemorial the peoples of the Snake River Basin used anadromous fish resources for subsistence and in their traditional cultural practices. Correspondingly, impacts from blockage to watersheds in the States of Idaho (ID) and Oregon (OR) are significantly constraining available harvest opportunities and increasing conservation demands outside of the blocked area.

The Federal Power Commission (FPC), which is presently called the Federal Energy Regulatory Commission (FERC), authorized construction of the HCC based on fish passage provisions developed by IPC. Fish passage facilities were constructed by IPC, and the Bureau of Commercial Fisheries (BCF) (BCF

is now called the National Marine Fisheries Service) operated the facilities. Fish passage facilities consisted of: 1) a trap at the base of Brownlee Dam, and later at the base of Oxbow and Hells Canyon dams to collect upstream migrating adults; 2) a net strung across the reservoir upstream of Brownlee Dam and associated equipment to collect downstream migrants; and 3) trucks used to move fish upstream and downstream past the HCC.

Once the license was issued for the construction of the HCC, only about 33 months were available to plan and construct fish passage facilities for the HCC. Despite the short period of time allocated for planning, adults were passed successfully around HCC using a trap-and-haul program. However, a barrier net and gulper system, designed to collect downstream migrants in Brownlee Reservoir, failed. The inability of fish to find their way through the Brownlee Reservoir compounded by the mechanical problems associated with the nets and gulper led to an FPC order to abandon passage efforts at HCC and develop a hatchery mitigation program. It appears that the early attempts to pass fish at the HCC were completed in earnest; however, there was a serious lack of commitment in adjusting the program or using adaptive management strategies to make the passage program work. Biologists who operated fish collection facilities encountered problems collecting downstream migrating fish, and the collection programs at Brownlee Reservoir were discontinued in 1964.

To mitigate for the loss of anadromous fish, fishery management agencies developed a hatchery mitigation program in the Snake River basin to mitigate lost production upstream of HCC. These mitigation facilities are insufficient to mitigate for the total loss represented by the project to each of the impacted tribes. Fishery management agencies sought additional hatchery fish compensation, fish facilities, and improved flows for fish production and passage from IPC for fish losses not mitigated in the Snake River above the HCC specifically for the upstream tribes. A settlement agreement was reached between several managers and IPC in 1980, and IPC currently funds the rearing of additional hatchery fish for release below Hells Canyon Dam and in the Salmon River Basin. Multiple tribes were not included in these settlement discussions and were left without access to adequate fisheries resulting from the construction and operation of the HCC. To fully mitigate for the continuing existence of the HCC within the next license period, the Upper Snake River tribes (USRT) propose to augment existing hatchery mitigation with new production capacity and reestablishment of harvestable populations into suitable or restored habitats.

2.2. Tribal Historical Perspective

Historically, the Bannock, Paiute, and Shoshone peoples harvested salmon and trout throughout the Columbia River Basin for subsistence. Annual salmon and steelhead runs in what are now ID, Nevada (NV), OR, and Washington (WA) provided harvest opportunities throughout the year. Access to anadromous fish for subsistence and ceremonial purposes has been eliminated from much of the Upper Snake River Basin following the construction of dams (for hydroelectric, flood control, and irrigation purposes) along the Columbia and Snake rivers. Once a mainstay of the tribal diet, anadromous fish have been absent from waters within, or near, tribal reservations for nearly a century, effectively preventing three generations of tribal members from practicing their cultural practices and traditions.

The SBT continue to harvest anadromous fish under rights reserved by the Fort Bridger Treaty of 1868. Tribal fishing methods include the culturally-important technique where tribal fishers hunt Chinook salmon in streams using spears. Maintaining this type of fishery is a high priority for the Tribe and it complements existing fisheries in the Salmon River Basin. The consumption of anadromous fish by

members of the SBT sustained a vibrant culture from time immemorial.

The SPT, with members primarily residing on the Duck Valley Indian Reservation (established by Presidential executive order in 1877), historically relied upon anadromous fish runs in the region for subsistence, cultural practices, and trade. All natural resources on trust and Tribally-owned lands are actively managed by the SPT. The SPT recently initiated a successful trap-and-haul program for adult Chinook salmon into the headwaters of the Owyhee River, in coordination with the ID Department of Fish and Game (IDFG). The continuation of this program is highly desired by the SPT.

The usual and accustomed area of the BPT includes, but is not limited to, the Malheur and Snake rivers. The Tribe's territory was initially protected by a treaty of peace and friendship signed by the Tribe in 1868; however, that treaty was never ratified by Congress. Presidential executive orders in 1873 and 1875 later established and respectively expanded the former Malheur Reservation, which consisted of approximately two million acres, including the Upper and North Forks of the Malheur River. The Malheur Reservation was eventually cancelled in 1889. Tribal claims that the ancestral territory was never relinquished were eventually supported by an Indian Claims Commission determination that the 1868 treaty was not one of concession. The BPT was recognized by presidential executive order in 1972. The Tribe actively manages fish and wildlife populations on trust lands for hunting, fishing, and conservation and maintains an untested right to hunt and fish in the usual and accustomed area by never having signed a treaty that conceded those rights.

2.3. IPC License Concerns

IPC has identified the following primary concerns in their license application that present a challenge to the successful reestablishment of naturally reproducing populations of anadromous fish above the HCC:

- Lack of fish passage at the HCC;
- Poor survival of fish through the lower Snake River;
- Tributary dams; and
- Fish habitat conditions of some tributaries upstream of HCC.

Currently managers recognize the limitations of fish passage provisions on site. The primary concern has been the collection of juvenile fish from the mainstem Snake River, not necessarily migrating adult fish. Successful downstream passage may occur by using collection methodologies in target tributaries and has not been previously attempted. As water quality improves in the mainstem upstream of the HCC, smolt collection in the mainstem may become necessary in the future. Substantial technological innovations in fish passage has occurred since smolt collection was originally attempted in Brownlee Reservoir.

Survival of fish in the migration corridor through the main Columbia River and lower four Snake River dams is not the responsibility of IPC and the issues have been discussed during the subsequent review of the Federal Columbia River Power System Biological Opinion and Supplemental Comprehensive Analysis (2008 FCRPS BiOp). The Bonneville Power Administration, under the Fish, Wildlife and Environment Division, are currently funding both fish and wildlife projects (including new anadromous fish hatcheries) throughout the Columbia River; the Corps of Engineers is funding hydropower facility modifications to improve upstream and downstream passage to meet survival targets from the 2008 FCRPS BiOp. Major renovations at mainstem Columbia River facilities, such as McNary and The Dalles hydro-facilities, have

substantially reduced smolt losses through the dams, and have allowed fish to migrate more quickly, which should improve the fitness of the survivors reaching the ocean. Improvements in passage at all FCRPS facilities (and related reductions in travel times) will accrue to smolts released from any new HCC production in the Program.

The proposed Program will require moving fish around tributary dams to appropriate habitats for fisheries. Tributary dams are not the responsibility of IPC and any actions associated with passage will be addressed with the responsible agency after the Program is implemented. In some cases a facility might be useful to entrain a particular tributary to capture natural-origin fish as the Program matures.

It is apparent that some actions are needed to improve habitat conditions, including passage in tributaries, upstream of the HCC. The reintroduction of anadromous fish and the connection of resident fish above the HCC to historic spawning areas could be a major catalyst to encourage habitat improvement projects upstream of the HCC. Now, IPC is in the process of implementing significant habitat restoration actions that will have benefits for anadromous fish. In a similar fashion, integrated forest and rangeland health projects, water delivery improvements, and implementation of the total maximum daily loads will all improve conditions within the next license term.

IPC developed 15 passage scenarios in their license application (Appendix A). IPC concluded that none of the scenarios proposed allows for any of the species in any of the production areas to return at sufficient levels to maintain self-sustaining populations above HCC. IPC goes on to state that “limited resources for production of fish should be prioritized to the benefit of ecosystem recovery and the protection of the remaining populations before re-introduction is undertaken above the HCC”.

The data used in the license application to support the conclusion that propagating fisheries above the HCC determined that self-sustaining populations of native anadromous fishes would not be a probable outcome of any proposed program. The purpose of the Program is not to produce self-sustainable fisheries, rather it is to produce sustainable, harvest-based fisheries for anadromous fish that might eventually contribute some portion of naturally-produced and locally-adapted stocks. As an outgrowth of the IPC license application, the fish and wildlife managers have developed a comprehensive Program to detail what stocks and treatment watersheds should be included in fisheries restoration actions above HCC and a framework for prioritizing treatment actions to maximize the use of limited resources.

2.4. License Measures with Broad Agreement

Over the course of the licensing process a number of issues have been identified by interested parties that have relatively broad agreement. The intent of this section is to identify those issues and ensure this proposed management framework includes those measures. The licensing process is intended to effectively manage resources by identifying mitigation measures that have broad consensus among the parties for implementation, while the FERC considers issues submitted by each party on a separate track.

1. Terms of the 1980 Settlement Agreement - In an effort to mitigate for the failure of the original license term requiring a comprehensive fish passage program for anadromous fish, IPC, the States of Idaho and Oregon, and the Nez Perce Tribe entered into a settlement agreement in 1980. The terms of the settlement agreement included construction and operation of four distinct hatchery programs: Rapid River Fish Hatchery (Spring Chinook salmon), Niagara Springs

Fish Hatchery (Snake River Steelhead), Pahsimeroi Fish Hatchery (Summer Chinook), and investment in a Fall Chinook program. In addition to funding the operation of these hatchery programs, IPC also continued operation of a fish collection facility at the base of Hells Canyon Dam. Each of the parties generally agree that these measures continue to have value for anadromous fish for the next license period and should be included as license terms.

2. Re-Construction of the Hells Canyon Dam Fish Collection Facility - The current adult collection facility located at the base of Hells Canyon Dam has been identified by interested parties for significant modification. Fish collection activities conducted at the facility would include: providing Bull Trout passage to Pine Creek, collection and holding of returning adult anadromous fish, and temporary acclimation of released juvenile salmonids from IPC hatchery programs. There is general consensus that a modification to this facility is an appropriate condition of the new license.
3. Ceremonial, Subsistence, and Sport Fisheries - As a collective group there was a broad agreement in principle about the use of IPC trapping facilities to transfer adults to watersheds above the complex for ceremonial, subsistence or sport fisheries. The principle of using IPC facilities and capacity to haul adult fish for those fisheries should be considered as a basic principle in the next license period. There is not broad agreement among the parties about the precise locations, outplant levels, or prioritization of treatment watersheds; however, the basic principle has broad support and the FERC should facilitate a meeting to come to consensus on this issue.

The proposed actions in the following sections do not have complete agreement by all of the interested parties to the licensing process and would be considered as formal points of disagreement for the FERC to consider as mitigation measures in the licensing process. As a group of interested parties the Upper Snake River Tribes believe the programs described in detail below meet the intent of the Federal Power Act in delivering mitigation measures for impacted parties for the next license period. The presentation of this proposal is not intended to convey support for the overall license application, nor is it intended to waive any argument or position at the conclusion of this license.

3. Program Goals and Objectives

As part of the negotiated process working toward development of a settlement agreement between IPC and upstream tribal interests, technical and policy staff from disparate interests and entities developed a collaborative document to further facilitate future discussions and negotiations in the interest of obtaining a license for the HCC by IPC. This fact sheet, as it has come to be known, outlines specific program goals outlined below.

The HCC blocked upstream fish passage, extirpating anadromous fish above Hells Canyon Dam, eliminating sport and tribal fisheries in these areas, and altering the ecosystems within and above the HCC. The construction and operation of the HCC have resulted in ecological, cultural, and social effects. The overall intent of the Program is to re-establish unlisted anadromous fish and fisheries in the Snake River and select tributaries upstream of HCC.

Goals of the Program are to:

1. Re-establish anadromous fisheries on unlisted, hatchery origin spring/summer/fall Chinook salmon and/or steelhead in select tributaries to provide subsistence, cultural, and recreational

harvest opportunities.

- a. Re-establish anadromous fisheries for subsistence and tribal ceremonial harvest upstream of HCC.
 - b. Support establishing recreational anadromous fisheries in targeted tributaries upstream of HCC.
 - c. Establish sufficient hatchery production to support outplanting programs for tribal subsistence and recreational fisheries upstream of HCC.
2. Restore naturally reproducing unlisted populations of salmon and steelhead within select tributaries upstream of HCC to meet harvest, cultural, and ecological needs.
- a. Meet fish and wildlife manager goals for establishing naturally reproducing populations of anadromous fish in select tributaries.
 - b. Develop and implement adaptive management plans to restore spring Chinook and steelhead to additional tributaries entering the Program area.
 - c. Develop and implement adaptive management plans to restore spring Chinook and steelhead to additional tributaries upstream of the HCC.
 - d. Assess production potential and feasibility for re-establishing sockeye and coho salmon in tributaries upstream of HCC.
3. Restore fall Chinook salmon in the mainstem Snake River (as a long term goal - likely 20-30 years after license issuance), dependent, in part, upon restoration of mainstem habitat (i.e., mainstem water quality improvements) and effectiveness of mainstem collection measures.
- a. Restore historically productive habitat in the Marsing Reach of the Snake River to support the future restoration of a second Snake River fall Chinook population.
 - b. Develop and implement adaptive management plans to restore Snake River fall Chinook into the Marsing Reach (HUC 17050103) of the mainstem Snake River upstream of Brownlee Dam.
 - c. Develop and implement contingency adaptive management plans to restore Snake River fall Chinook in the Swan Falls to C.J. Strike, or C.J. Strike to Bliss reaches (HUC 17050101) in the event that habitat restoration in the Marsing Reach fails to restore suitable conditions or collection and transportation actions are unsuccessful.

Objectives and specific measures to meet the goals of this Program will be initiated over a range of timeframes, from immediately after license issuance to 10 or more years after license issuance, as specified in the objectives below. Program implementation will span the life of the license and include substantive monitoring and use of adaptive management strategies. The use of non-ESA listed spring/summer Chinook and steelhead stocks in tributaries (to ensure there is not an ESA nexus to the Program associated anadromous fish) is essential for broader stakeholder acceptability, fisheries manager agreement, and Program success.

The Program will outline measures to address anadromous fish and fisheries issues upstream of the HCC. The Program will identify actions, species, each party's priority watersheds (target watersheds), and timelines for implementation from which specific recommendations can be developed.

Performance measures for Program components will include an evaluation of ecosystem integrity in relationship to passage of resident and anadromous fish at the HCC. Ecosystem integrity should have three objectives: 1) connectivity; 2) biodiversity; and 3) natural production.

1. **Connectivity:** Human alterations to the environment should not impede movement of fish for purposes of connectivity between stream/rivers. Fish should be provided means to migrate upstream or downstream: where, when, and how they choose. The measurable for this goal is the number of links between distinct habitat areas, potential native fish populations, and life history types.
2. **Biodiversity:** The maximum number of native trophic levels and interactions among levels should be achieved. A full complement of native fish species evaluations should be developed. All native functional feeding groups should be present. The measurables for this goal are:
 - 1) the proportion of trophic levels represented by native species;
 - 2) the number of trophic levels times the number of native species at each trophic level;
 - 3) and the number of functional feeding groups.
3. **Natural Production:** Re-established anadromous and resident native fish populations will be fluctuating within natural, sustainable ranges of variability. The maximum number of life histories will be sustained for re-established and resident native fish. The measurables for this goal are:
 - 1) population sizes of spawners, juveniles and smolts, and number of life histories;
 - 2) and the number of recruits per spawner, over time.

The Program recognizes that a variety of fisheries management activities are ongoing under the current license and have value for the tribes and states. The Program is designed to complement ongoing actions being funded by IPC by providing for comprehensive management of fish resources impacted by the operation of the HCC. Additional programs, which complement aspects within this Program, are currently being considered by other fisheries co-managers within the Upper Snake River.

4. Management Framework

The Program relies on non-ESA listed, hatchery origin stocks; accomplishing all of the projects below will likely require a new production facility. The Program will transition in some watersheds from relying on hatchery origin fish to incorporating naturally-produced fish from the successful implementation of the Goals and Objectives. The initial reliance on hatchery origin fish stems from extirpation of all appropriate endemic populations above the HCC.

Monitoring and evaluation will be required to inform adaptive management decisions to ensure goals and objectives are met. This includes an evaluation of harvest components in Goal 1, metrics to assess the success of reestablishment, and the eventual transition to long-term conservation components in Goals 2 and 3 (e.g., spawning site selection and success, abundance and productivity, juvenile and adult survivability, and habitat use). The Program must include other programmatic aspects to ensure success. The following framework is intended to guide the implementation of the HCC Fish Management Program through the life of the license:

1. Adult and juvenile spring/summer Chinook salmon and steelhead passage through the HCC will be provided for tributaries of cultural importance to USRT tribes.
2. The Program will develop and carry out an aggressive adaptive management plan to ensure that if any component of the program is not meeting planned metrics then those components may be modified to meet desired goals.
3. As a condition of the license, IPC will fund the Program through the life of the license; subject to the needs of the identified projects below.
4. The Program will be subject to an advisory committee, which will monitor program progress and set the direction for the program components to ensure success.
5. The advisory committee may be comprised of tribal, state and federal technical representatives to help guide and track implementation through the life of the license.
6. The goals and objectives of the Program will be achieved within agreed upon time frames.
7. IPC will complete the Program measures; subject to the needs of the objectives.
8. The Program will require a pathogen risk assessment to monitor the risks of pathogen transmission to resident species and local stocks.
9. The advisory committee will manage the Program to minimize conflicts with existing aquatic species management efforts (e.g., bull trout passage plan, state native species policies, and ESA Recovery Plans).

5. HCC Fisheries Management Program Measures

5.1. Hells Canyon Advisory Committee

The Advisory Committee is a group that is intended to guide the implementation of the HCC Fish Management Program. The group is not intended to establish concurrence-based or policy level decisions that fundamentally alter the components contained in this plan. Each participant in the group is a technical representative of their organization, helping evaluate the results of project accomplishments and ensure license obligations are met. Key tasks for the Advisory Committee are:

Task 1.1 Draft a HCC Fisheries Operations Plan to cover all species proposed under the passage, supplementation/reintroduction, and habitat programs; with particular emphasis on those identified study areas. (starting in year 1, completed within 5 years).

Task 1.2 Estimate the schedule for developing a detailed implementation plan based on consideration of schedules for identification of specific facility needs and development of associated conceptual designs, for development of a monitoring and evaluation program, and for conducting required regulatory investigations.

Task 1.3 The Advisory Committee will appoint working groups at their discretion to ensure all planning and tasks are accomplished in a timely manner. Each working group will be responsible for delivering completed documents to the Advisory Committee and IPC.

Task 1.4 During the first ten years of the license, the Advisory Committee will meet quarterly to review progress on planning elements. After the first 10 years, the Advisory Committee will engage in annual operations review with all Advisory Committee members and IPC throughout the life of the license.

5.2. Snake River Spring/Summer Chinook and Steelhead Programs

Under Goals 1 & 2, for spring/summer Chinook salmon and steelhead, projects are identified for the Payette, Weiser, Malheur, and Owyhee, Bruneau, and Boise rivers. Tasks and timelines associated with each project are prioritized based on, but not limited to: importance to the USRT; need for subsistence or cultural fisheries; distance from Hells Canyon Dam (stream and road miles); habitat suitability (water quality and physical habitat); potential to meet multiple objectives; and feasibility of downstream collection.

Each identified tributary contains currently suitable habitat for spring/summer Chinook salmon and steelhead at all life history stages (IPC 2001 - Feasibility of the Reintroduction of Anadromous Fish). IPC estimated that of the 41,338 square miles (mi²) of Basin located above the current site of Hells Canyon Dam, about 27% (11,358 mi²) comprises the Effective Useable Basin (EUB)—habitat that would be suitable for spawning and rearing Chinook and steelhead today based on temperature and natural accessibility.

5.2.1. Colonization Strategies

Snake River Spring/Summer Chinook Salmon

Stocks for a restoration program will include those with characteristics most similar to the original stocks above the HCC and best suited for reestablishing anadromy. Appropriate sources include spring Chinook salmon from the Rapid River Hatchery initially, transitioning over the life of the license to a locally adapted hatchery stock maintained by IPC-funded production facility(ies). A three phase approach is proposed to achieve Goals 1 and 2 in the Payette, Weiser, Malheur, Owyhee, Bruneau and Boise Rivers for spring Chinook salmon. The eventual construction or expansion of an artificial production facility(ies) will provide the needed production capacity. Goal 1 will be achieved by using adults from the Rapid River Hatchery facilities and transporting them to the targeted tributaries. After additional propagation facilities are developed, emigrating juveniles will be tagged, and returning adults from these programs will be trapped at Hells Canyon Dam and hauled to targeted tributaries. Goal 2 requires the collection and transport of not only adults upstream, but of juveniles downstream that reared in the targeted tributaries. At this time, supplementation rates of 100% will likely be necessary to maintain the targeted number of returning adults for all tributaries. In the absence of any natural production, full supplementation will be required for the life of the license.

- Phase I: With the beginning of the re-establishment program, adults from Rapid River Hatchery will be released annually into targeted tributaries. These releases will occur to meet Goal 1 objectives. During Phase I a new artificial production facility will be constructed to produce up to four million Chinook salmon smolts to be released below Hells Canyon Dam. Returning adults (12,000-20,000, assuming a 0.3% - 0.5% smolt to adult returns (SAR)) from the Upper Snake River hatchery production program will be used to transition adult outplants from Rapid River to the new Upper Snake River hatchery.
- Phase II: To meet Goal 2 objectives, emigrating juveniles from project tributaries will be collected in situ, where capture efficiencies for specific targeted juveniles can be higher than in the mainstem. Once collected, juveniles will be held, marked/tagged, and released downstream of Hells Canyon Dam. Returning adult Chinook will be collected at Hells Canyon as broodstock for rearing at the proposed production facility(ies). During Phase II, returning adults from a marked or tagged population will be collected at Hells Canyon Dam, scanned for distinguishing tags and distributed to natal tributaries or incorporated into distinct hatchery broodstock programs. Over time stocks will be developed for local adaptation through the combination of

the use of marked adults for release in the natal tributaries and marked adults used for broodstock. For the targeted tributaries' programs, Phase II (local adaptation) will be triggered when a geometric mean (geomean) of 5,000 adult Chinook return to the Hells Canyon trap over a five-year period, the estimated population level needed to meet broodstock and natural escapement goals. Use of Rapid River fish will be eliminated in Phase II and all broodstock will be collected locally at the Hells Canyon trap for the production program.

- Phase III: If natural productivity rates reach sufficient levels, Phase III (integrated harvest program) may be implemented if established triggers are met. The program will be transitioned into an integrated harvest program following the guidelines of the Hatchery Scientific Reform Group (HSRG) (2004). For the purposes of this HCC Program the following metrics will be used to evaluate a potential shift into Phase III:
 - A ten-year geomean return of 1,000 natural origin adults from parent groups released in a particular watershed; and,
 - Consensus by the HCC Advisory Committee that conditions can adequately support a naturally reproducing, hatchery supported population of Chinook.

Snake River Steelhead

Stocks for a restoration program will include those with characteristics most similar to the original stocks above the HCC and best suited for re-establishing anadromy. Appropriate sources include B-run steelhead from the Niagara Springs Hatchery and the Hells Canyon trap initially, transitioning over the life of the license to a locally adapted hatchery stock maintained by IPC funded production facility(ies). A three phase approach is proposed to achieve Goals 1 and 2 in the Payette, Malheur, Weiser, Owyhee, and Boise Rivers for steelhead. The eventual construction or expansion of an artificial production facility(ies) will provide the needed production capacity. Goal 1 will be achieved by using adults from the Niagara Springs Hatchery and the Hells Canyon trap facilities and transporting them to the targeted tributaries. After additional propagation facilities are developed, emigrating juveniles will be tagged, and returning adults from these programs will be trapped at Hells Canyon and hauled to targeted tributaries. Goal 2 requires the collection and transport of not only adults upstream, but of juveniles downstream that reared in the targeted tributaries. At this time, supplementation rates of 100% will likely be necessary to maintain the targeted number of returning adults. In the absence of any natural production, full supplementation will be required for the life of the license.

- Phase I: With the beginning of the re-establishment program, adults from Niagara Springs Hatchery and Hells Canyon trap will be released annually into targeted tributaries. These releases will occur to meet Goal 1 objectives. During Phase I a release of up to 1.1 million steelhead smolts will need to occur annually below Hells Canyon Dam. Returning adults (16,500, assuming a 1.5% SAR) from the Upper Snake River hatchery production program will be used to transition adult outplants from Hells Canyon trap and Niagara Springs Hatchery to the new Upper Snake River hatchery.
- Phase II: To meet Goal 2 objectives, emigrating juveniles from pilot project tributaries will be collected in situ, where capture efficiencies for specific targeted juveniles can be higher than in the mainstem. Once collected, juveniles will be held, marked/tagged, and released downstream of Hells Canyon Dam. Returning adult steelhead will be collected at Hells Canyon Dam as broodstock for rearing at the selected production facility(ies). During Phase II, returning adults from a marked or tagged population will be collected at Hells Canyon Dam, scanned for distinguishing tags, and distributed to natal tributaries or incorporated into distinct hatchery broodstock programs. Over time, stocks will be developed for local adaptation through the

combination of the use of marked adults for release in the natal tributaries and marked adults used for broodstock. For the targeted tributary projects, Phase II (local adaptation) will be triggered when a geometric mean (geomean) of 1,500 adult steelhead return to the Hells Canyon trap over a five-year period, the estimated population level needed to meet broodstock and natural escapement goals. Successful natural reproduction, demonstrated by the achievement of the 1,500 (geomean) returning adults, would eliminate the need to use Niagara Springs Hatchery broodstock in Phase II and all broodstock will be collected locally at the Hells Canyon trap for the production program. If development of a natural broodstock program is successful, the pilot project would be expanded to other suitable tributary projects.

- Phase III: If natural productivity rates reach sufficient levels, the integrated harvest program may be implemented if established triggers are met. The program will be transitioned into an integrated harvest program following the guidelines of the HSRG (2004). For the purposes of this HCC Program, the following metrics will be used to evaluate a potential shift into Phase III:
 - A ten-year geomean return of 1,500 natural origin adults from parent groups released in a particular watershed
 - Consensus by the Advisory Committee that conditions can adequately support a naturally reproducing, hatchery supported population of steelhead.

❖ Upper Snake River Tribes HCC "Draft" Fish Management Program - Tributary Projects							
	Payette River	Wieser River	Malheur River	Owyhee River	Owyhee Tailwater	Bruneau/Jarbridge	Boise River
Spring/summer Chinook							
<i>Goal 1 - reestablishment/harvest</i>							
outplanting (adults)	2,000	500 - 2,000	2,000-3,000	3,000 - 4,000	500-1,000	1,000	>500
Tribal harvest rate	>50%	>50%	>75%	>75%	50%	>50%	>50%
Rec. fishery (public lands)	yes	yes	yes	yes	yes	yes	yes
<i>Goal 2 - locally adapted stock</i>							
Spawning adults	1,000	500 - 1,000	1,000-2,000	500 - 1,000	500 - 1,000	500 - 1000	500 - 1,000
Tribal harvest rate	>50%	>50%	>50%	>50%	>50%	>50%	50%
Supplementation rate	25-30%	25-60%	25-30%	25-30%	25 - 30%	25-30%	25 - 30%
Escapement (juveniles)	>75%	>75%	>75%	>75%	>75%	>75%	75%
	3000	1000	3000	3500	500	1500	500
Adult trap/haul total	3,000	3,000	5,000	5,000	1,500	2,000	500
Total 13,000-19,500 for harvest and spawning							
Steelhead							
<i>Goal 1 - reestablishment/harvest</i>							
outplanting (adults)	500 - 2,000	>500	4,500-6,000	5,000-7,000	1,000-2,000	500 - 2,000	>1,000
Tribal harvest rate	>50%	>50%	>75%	>50%	50%	50%	>50%
Rec. fishery (public lands)	yes	yes	yes	yes	yes	yes	yes
<i>Goal 2 - locally adapted stock</i>							
Spawning adults	>500	>500	500-1,000	500 - 1,000	500 - 1,000	500 - 1,000	500 - 1,000
Tribal harvest rate	>50%	>50%	>50%	>50%	>50%	>50%	50%
Supplementation rate	25-30%	25-60%	25-30%	25-30%	25-30%	25-30%	25-30%
Escapement (juveniles)	>75%	>75%	>75%	>75%	>75%	>75%	>75%
	500	1000	5000	5500	1,500	1,000	1,500
Adult trap/haul total	2,000	1,000	7,000	8,000	2,000	3,000	2,000
Total 14,000-21,000 for harvest and spawning							

5.2.2. Desired Outcomes

The Spring/Summer Chinook and Steelhead Programs will result in the following desired outcomes:

- **Harvest Outcomes:** The Program will re-establish the use of a culturally-important food source and to mitigate for a loss of fisheries in traditional fishing locations.
- **Cultural Outcomes:** The Program will provide the tribes with an opportunity to exercise traditional activities and culturally important customs.
- **Ecological Outcomes:** The Program will reestablish historically-important species, increase prey base for native species including bull trout, and increase productivity resulting from the import of marine-derived nutrients into these tributary systems. The Snake River Basin provided one of the most abundant fisheries in the Columbia River Basin and has been highly impacted by a number of anthropogenic modifications. After anadromous fish were extirpated upstream in the upper Snake by the development of artificial obstructions, the primary focus for the management of the river system has been to maximize its agricultural and power production potential. The reestablishment of anadromous fish throughout the Snake River Basin would encourage water management improvements would provide equitable tribal harvest opportunities, restoration of functional riverine processes, and reestablishment of tribal cultural traditions and ceremonial practices associated with a fully-functioning ecosystem.
- **Research Outcomes:** The advent of a new fish passage and reestablishment program in the Snake River Basin will have numerous research benefits for the Columbia River Basin as a whole. The reestablishment of anadromy to the Upper Snake River provides a unique opportunity to evaluate the effects and the ecological importance of anadromous fish to an ecosystem. The Program will include, but is not limited to, potential studies regarding resident and anadromous fish species interactions, capturing juvenile salmonids in a large tributary setting for transport purposes, adult transfers to spatially separate tributaries, and developing a sound production model for maintaining the genetic integrity of multiple stocks over time.

5.2.3. Project Tasks

In order to effectively plan for a major fish program above HCC, in particular for anadromous fish, the below series of tasks will need to be completed by the relevant fish managers from the Advisory Committee:

Task 2.1 Allocate hatchery origin Chinook salmon and steelhead to identified tributaries for ceremonial, subsistence, and/or sport harvest based on the recommendations presented in Project Details.

Task 2.2 Determine release sites within target tributaries for natural production of spring Chinook salmon by means of field surveys and experimental outplants. Based on escapement estimates, determine which areas will best support outplants of hatchery origin adults for volitional spawning and additional egg outplants, if necessary.

Activity 2.2.1 Conduct habitat surveys using procedures approved by the Advisory Committee.

Activity 2.2.2 Summarize results of surveys and concurrently offer management recommendations for specific tributary locations of natural production areas.

Activity 2.2.3 Develop informational and educational materials for the program, with community-specific outreach plans to increase awareness and public support.

Task 2.3 In the tributaries identified for natural production studies, use a combination of fish outplants, smolt production, and egg outplants to boost abundance of spring/summer Chinook and steelhead.

Activity 2.3.1 Formulate criteria for evaluating efficacy of the various methods for boosting abundance across the tributary; taking into consideration habitat quantity and quality, logistics associated with project implementation, and evaluation.

Activity 2.3.2 Work with appropriate agencies and organizations to reach agreement on basic production programs.

Activity 2.3.3 Estimate survival rates associated with use of the preferred stock based upon adult return trends, harvest rates, adult and juvenile passage at dams, and fish health and handling characteristics.

Activity 2.3.4 Outline alternative scenarios that should be evaluated under the pilot study for collecting, holding and acclimating, handling and marking, transporting, and releasing juvenile and adult fish.

Activity 2.3.5 Estimate expected productivity of stocks in each identified tributary.

Task 2.4 Develop a hatchery genetics management plan to maintain appropriate genetic diversity within the broodstock.

Activity 2.4.1 The appropriate donor stock for Chinook above the HCC, presented by IPC, is the Rapid River stock. The appropriate source for steelhead is the Niagra Springs stocks. All other options may be evaluated as those closest to the identified tributaries.

Task 2.5 Describe potential impacts of interactions with resident fishes and aquatic biota, which may result from reintroduction of spring Chinook salmon into the identified tributaries.

Activity 2.5.1 Perform a pathogen risk assessment for each tributary and develop action plans for minimizing risks associated with adult outplants and other production treatments.

Activity 2.5.2 Model freshwater productivity for each tributary.

Task 2.6 Establish programmatic staff at tribal natural resources departments to support reestablishment efforts. Staff is needed to conduct monitoring and management activities.

5.3. Project Details

The following sections include a description of the treatment watershed, treatment type, and primary management responsibility for each project. The watershed projects typically include both

spring/summer Chinook and steelhead treatments.

5.3.1. Payette River Project

Project Area Background

The Payette River is an 82.7-mile-long river in southwestern Idaho and is a major tributary of the Snake River. Its headwaters originate in the Sawtooth and Salmon River mountains at elevations over 10,000 feet. Drainage in the watershed flows primarily from east to west, with the cumulative stream length to the head of the North Fork Payette River being 180 miles, while to the head of the South Fork the cumulative length is nearly 163 miles. The combined Payette River flows into an agricultural valley and empties into the Snake River near the city of Payette at an elevation of 2,125 feet. The Payette River drainage basin comprises about 3,240 mi². It is a physiographic section of the Columbia Plateau province, which in turn is part of the larger Intermontane Plateaus physiographic division. The South Fork of the Payette has its headwaters in the Sawtooth Wilderness, which is part of the Sawtooth National Recreation Area.

The principal tributaries of the Payette River are the North and South forks. The North Fork drains about 950 mi², beginning north of McCall and flowing into Payette Lake. The North Fork exits at the southwest end of Payette Lake at 4,990 feet and flows south in the "Long Valley" of Valley County toward Cascade. It then flows into the Cascade Reservoir, then continues south, accompanied by Highway 55.

The South Fork Payette River drains about 1,200 mi², originating on the west side of the Sawtooth Wilderness beneath the 10,211-foot Mount Payette. It flows past Grandjean and down to Lowman, along Highway 21. The shorter Middle Fork Payette River parallels the lower North Fork 10 miles to the east, flowing south and joining the South Fork just southwest of Crouch. Further east, the Deadwood River parallels the Middle Fork and empties into the South Fork just west of Lowman. The main stem of the Payette River is shown on USGS topographic maps as beginning at the confluence of the South and Middle forks.

The North Fork joins the Payette at the town of Banks, at an elevation of 2,790 feet. The mainstem flows south from Banks for 15 miles to Horseshoe Bend, then west into Black Canyon Reservoir. Below the reservoir's dam, the river flows past Emmett and Payette, then empties into the Snake River at the OR border. The Payette River has an average annual discharge into the Snake River of 2,192,000-acre-feet of water.

Project Oversight

The SBT would participate as the primary project lead for the Payette River Project and develop all required reports on an annual basis. Tribal staff will be required to interact closely with the other managers and the Advisory Committee to ensure Payette River Project goals are being met.

Project Personnel

The Project will require the following personnel:

- Program manager
- Research and production biologist
- Lead fisheries technician
- Four seasonal fisheries technicians

*Note - Program expenses will also need to include travel expense, vehicle maintenance, IT support and

equipment, and field equipment.

Project Description

Goal 1 tasks in the Payette River Project will restore anadromous fisheries on unlisted, hatchery origin spring/summer Chinook salmon and steelhead to provide subsistence, cultural, and recreational harvest opportunities to tribes and sportsmen (immediate). Goal 2 Tasks for the Payette River Project will restore naturally reproducing unlisted populations of spring/summer Chinook salmon to meet harvest, cultural, and ecological objectives (1-10 years after license issuance).

Spring/Summer Chinook

- **Harvest Component:** The Payette River Project will annually provide 1,500-2,000 adult spring/summer Chinook salmon for outplanting and harvest in the Payette River; including transport of fish from trapping to outplanting location and oversight and management associated with monitoring and administering fisheries.
- **Cultural Component:** The Payette River Project provides the SBT with an opportunity to exercise traditional activities and culturally important customs in a geographic location in which these opportunities are non-existent for contemporary generations.
- **Conservation Component:** The Payette River Project will annually provide a total of 500-1,000 adult spring/summer Chinook salmon to re-establish naturally reproducing populations; including transport of fish from trapping to outplanting location and oversight and management associated with research, monitoring & evaluation of populations.

Implementation of Goal 1 Tasks will achieve the following outcomes:

- Minimum annual release of at least 2,000 adults into the designated basins for harvest (assuming that the brood group has already been selected over the run).
- Harvest of at least 50% of the released adult fish by tribal fishermen.
- Reestablishment of tribal and sport fisheries in the Payette River system, when fish become available.
- Documentation of fish spawning and carcass distribution throughout the treatment basin.
- Estimate natural production values, accounting for hatchery vs. natural ratios of spawning effectiveness.
- Evaluate water quality values and design juvenile collection facilities; with particular emphasis on permanent man-made structures such as irrigation diversions or fish screens that could be modified to meet program needs.

Implementation of Goal 2 Tasks will achieve the following outcomes:

- A persistent/independent population with some long term supplementation (25-30%).
- Harvest of at least 50% of the released adults by tribal fishermen.
- Long-term habituated harvest efforts by tribal and sport fishermen in the treatment basin.
- Documentation of successful spawning by hatchery and natural origin fish and juvenile production from unharvested adult Chinook and fitness.
- Collection, marking, and transportation of at least 75% of naturally produced juvenile salmon to below Hells Canyon Dam so that a percentage of the released adults are surviving through the entire lifecycle (as a measure of substantially improved ecosystem function). This objective will also help develop a locally adapted stock that could be used for long-term program needs.

Steelhead

- **Harvest Component:** The Payette River Project will annually provide 500-2,000 adult steelhead harvest in the Payette River; including transport of fish from trapping to outplanting location

and oversight and management associated with monitoring and administering fisheries.

- Cultural Component: The Payette River Project provides the SBT with an opportunity to exercise traditional activities and culturally important customs in a geographic location in which these opportunities are non-existent for contemporary generations.
- Conservation Component: The Payette River Project will annually track any spawning activity and estimate productivity to determine if adaptive management would encourage a Goal 2 recommendation; including transport of fish from trapping to outplanting location and oversight and management associated with research, monitoring & evaluation of populations.

Implementation of Goal 1 Tasks will achieve the following outcomes:

- Minimum annual release of 500-2,000 adults into the designated area for harvest (assuming that the brood group has already been selected over the run).
- Harvest of at least 50% of the released adult fish by tribal fishermen.
- Reestablishment of tribal and sport fisheries in the Payette River system when fish become available.
- Documentation of fish spawning and carcass distribution throughout the treatment basin.
- Estimate natural production values, accounting for hatchery vs. natural ratios of spawning effectiveness.
- Evaluate water quality values and design juvenile collection facilities; with particular emphasis on permanent man-made structures such as irrigation diversions or fish screens that could be modified to meet program needs.

The Payette River Project will be bifurcated into two separate projects for steelhead and spring/summer Chinook that focus on harvest for both tribal and non-tribal anglers. The most appropriate use of steelhead would be to focus on releasing adults in an acceptable area from the mouth of the Payette to Black Canyon. Spring/summer Chinook would be released in an appropriate location on the South Fork of the Payette River, likely near Grandjean. Each project will be subject to the same planning requirements and oversight by the Advisory Committee, including any adaptive management recommendations.

5.3.2. Weiser River Project

Project Area Background

The Weiser River drains 1,460 mi², flowing from north to south through most of the subbasin. The Weiser River flows from east to west for the final eight miles of its length as it approaches its mouth at the town of Weiser. The average annual (daily) flow of the Weiser River at Weiser is 1,009 cubic feet per second (cfs); this is based on 30 years of flow data (1976 to 2005). Major tributaries to the Weiser River in the subbasin include the Little Weiser River, Middle and West forks of the Weiser River, Cove Creek, Crane Creek, Warm Springs Creek, Hornet Creek, Spring Creek, Mann Creek, and Pine Creek.

Mid to late spring flows usually account for a majority of discharge in the subbasin. Peak flows generally occur in February or March with a recorded low of 344 cfs (1977) to a high peak of 34,500 cfs (1997); discharge is affected to an unknown degree by diversion and regulation. Base flows are predominant in August and September. Snowmelt or seasonal rainstorms drive timing, duration, and volume of peak flows at elevations less than 4,000 feet. Rain-on-snow events are a common occurrence in the lower elevations and usually occur in late December and January. Most of the Weiser River would be classified as having unregulated flow, but diversions for irrigated agriculture are located throughout the watershed. Crane Creek and Mann Creek reservoirs store water for irrigation supply and provide enough storage capacity to assist in controlling high spring discharges (DEQ, 2006).

Project Oversight

The SBT would participate as the primary project lead for the Weiser River Project and develop all required reports on an annual basis. Tribal staff will be required to interact closely with the other managers and the Advisory Committee to ensure Weiser River Project goals are being met.

Project Personnel

The Project will require the following personnel:

- Program manager
- Research and production biologist
- Lead fisheries technician
- Four seasonal fisheries technicians

*Note - Program expenses will also need to include travel expense, vehicle maintenance, IT support and equipment, and field equipment.

Project Description

Goal 1 actions in the Weiser River Project will restore anadromous fisheries on unlisted, hatchery origin spring/summer Chinook salmon and steelhead to provide subsistence, cultural, and recreational harvest opportunities to tribes and sportsmen (immediate). Goal 2 actions for the Weiser River Project will restore naturally reproducing unlisted populations of spring/summer Chinook salmon and steelhead to meet harvest, cultural, and ecological objectives (1-10 years after license issuance).

- Harvest Component: The Weiser River Project will annually provide 500-2,000 adult spring/summer Chinook salmon and steelhead for outplanting and harvest in the Weiser River; including transport of fish from trapping to outplanting location and oversight and management associated with monitoring and administering fisheries.
- Cultural Component: The Weiser River Project provides an opportunity to exercise traditional activities and culturally important customs in a geographic location in which these opportunities are non-existent for contemporary generations.
- Conservation Component: The Weiser River Project could annually provide a total of 500-1,000 adult spring/summer Chinook salmon to re-establish naturally reproducing populations; including transport of fish from trapping to outplanting location and oversight and management associated with research, monitoring & evaluation of populations.

Spring/Summer Chinook Salmon

Implementation of Goal 1 Tasks will achieve the following outcomes:

- Average annual release of at least 500 adults into the designated basins for harvest (assuming that the brood group has already be selected over the run).
- Harvest of at least 50% of the released adult fish by tribal fishermen.
- Reestablishment of tribal and sport fisheries in the Weiser River system when fish become available.
- Documentation of fish spawning and carcass distribution throughout the treatment basin.
- Estimate natural production values, accounting for hatchery vs. natural ratios of spawning effectiveness.
- Evaluate water quality values and design juvenile collection facilities; with particular emphasis on permanent man-made structures such as irrigation diversions or fish screens that could be modified to meet program needs.

Implementation of Goal 2 Tasks will achieve the following outcomes:

- A persistent/independent population with some long term supplementation (25-60%).
- Harvest of at least 50% of the released adults by tribal fishermen.
- Long-term habituated harvest efforts by tribal and sport fishermen in the treatment basin.
- Documentation of successful spawning by hatchery and natural origin fish, juvenile production from unharvested adult Chinook and fitness.
- Collection, marking, and transportation of at least 75% of naturally produced juvenile salmon to below Hells Canyon Dam so that a percentage of the released adults are surviving through the entire lifecycle (as a measure of substantially improved ecosystem function). This objective will also help develop a locally adapted stock that could be used for in long-term project needs.

Steelhead

Implementation of Goal 1 Tasks will achieve the following outcomes:

- Average annual release of at least 500 adults into the designated basins for harvest (assuming that the brood group has already be selected over the run).
- Harvest of at least 50% of the released adult fish by tribal fishermen.
- Reestablishment of tribal and sport fisheries in the Weiser River system when fish become available.
- Documentation of fish spawning and carcass distribution throughout the treatment basin.
- Estimate natural production values, accounting for hatchery vs. natural ratios of spawning effectiveness.
- Evaluate water quality values and design juvenile collection facilities; with particular emphasis on permanent man-made structures such as irrigation diversions or fish screens that could be modified to meet program needs.

Implementation of Goal 2 Tasks will achieve the following outcomes:

- A persistent/independent population with some long term supplementation (25-60%).
- Harvest of at least 50% of the released adults by tribal fishermen.
- Long-term habituated harvest efforts by tribal and sport fishermen in the treatment basin.
- Documentation of successful spawning by hatchery and natural origin fish, juvenile production from unharvested adult Chinook and fitness.
- Collection, marking, and transportation of at least 75% of naturally produced juvenile steelhead to below Hells Canyon Dam so that a percentage of the released adults are surviving through the entire lifecycle (as a measure of substantially improved ecosystem function). This objective will also help develop a locally adapted stock that could be used for in long-term project needs.

The Weiser River Project is intended to mitigate for direct losses resulting from the construction and continued operation of the HCC. As such, the Advisory Committee will consider the reestablishment of anadromous fish in this watershed a priority for the life of the license. A complete project in the Weiser River will include juvenile collection facilities, landowner outreach, and an adequate monitoring and evaluation protocol.

5.3.3. Malheur River Project

Project Area Background

The Malheur River confluences with the Snake River above the Project at Ontario, OR near river mile 370. The Malheur River drains approximately 4,700 mi² in OR and ranges in elevation from 2,100 feet at the confluence with the Snake River to 8,600 feet in the Strawberry Mountain range (NPCC 2004). Public

land encompasses approximately 65% of the drainage area, with a total of 61% of the drainage area under federal management (NPCC 2004). Two water storage facilities are located on the Malheur River: the Warm Springs Dam owned by the Warm Springs Irrigation District on the Middle Fork, and the Agency Valley Dam owned by the Bureau of Reclamation on the North Fork. The North and Middle forks of the Malheur River contain extant populations of bull trout, redband trout, and mountain whitefish.

Suitable habitat for Chinook salmon and steelhead at all life history stages exists over a significant portion of drainage area above both water storage facilities, on both tribal and public land. NPCC (2004) estimates 205 linear miles of suitable habitat for Chinook salmon was lost in the Malheur River subbasin with the construction of all blockages, including the HCC. Conditions below the two tributary facilities contain additional habitat for steelhead that is suitable at all life history stages, as supported circumstantially by the proliferation of redband trout and by known conditions in the mainstem of the Malheur River during the timing at which adult steelhead would be present.

Project Oversight

The BPT would participate as the primary project lead for the Malheur River Project and develop all required reports on an annual basis. Tribal staff will be required to interact closely with the other managers and the Advisory Committee to ensure Malheur River Project goals are being met.

The Tribe manages 8,145 acres in the Malheur River and which contains approximately 14 river miles. A portion of this land is currently in trust status with the remaining acreage in the process of fee-to-trust transfer with anticipated completion prior to licensing. In exercise of sovereign management authority over its current and future trust lands, and in reasonable anticipation that trust lands in the Malheur River will continue to expand over the license life, the BPT intends that outplanting of Chinook salmon will occur in waters under its sole jurisdiction. The BPT will ensure containment of fisheries to waters under its sole jurisdiction by the installation and operation of seasonal weirs. Use of spring/summer Chinook will be exclusive to BPT members unless permission to non-tribal members is granted at the discretion of the Tribal Council or if alternative suitable fishery locations on public land can be determined in consultation and co-management with OR Department of Fish and Wildlife.

Spring/summer Chinook salmon and steelhead for release in the Malheur River will be allocated to the BPT for exclusive use within this targeted tributary. The BPT will utilize reach-level discretion to allow for adaptive use of fish within each basin over the license life. Examples of adaptive use include but are not limited to outplanting at additional suitable reach-level locations, outplanting at additional reach-level locations if evaluation based on new information supports higher or increased suitability, annual allocation above the capacity of reach-level fisheries, or inauguration of shared public and tribal fisheries based on collaborative management, risk assessment and consultation.

Project Personnel

The Project will require the following personnel:

- Program manager
- Research and production biologist
- Four seasonal fisheries technicians

*Note - Program expenses will also need to include travel expense, vehicle maintenance, IT support and equipment, and field equipment.

Project Description Goal 1 Tasks in the Malheur River Project will reestablish anadromous fisheries on unlisted, hatchery origin spring/summer Chinook salmon and steelhead to provide subsistence, cultural,

and recreational harvest opportunities (immediate). Goal 2 Tasks in the Malheur River Project will reestablish naturally reproducing unlisted populations of spring/summer Chinook salmon and steelhead to meet harvest, cultural, and ecological objectives (1-10 years after license issuance).

- Harvest Component: The Malheur River Project will annually provide 2,000-3,000 adult spring/summer Chinook salmon and 4,500-6,000 steelhead for outplanting and harvest in the Malheur River; including transport of fish from trapping to outplanting location and oversight and management associated with monitoring and administering fisheries.
- Cultural Component: The Malheur River Project provides the BPT with an opportunity to exercise traditional activities and culturally important customs in a geographic location in which these opportunities are non-existent for contemporary generations.
- Conservation Component: The Malheur River Project will annually provide a target of 1,000-2,000 adult spring/summer Chinook salmon and 500-1,000 steelhead to re-establish naturally reproducing populations.

Over the license life, the BPT projects an annual total allocation of 3,000-5,000 Chinook salmon (harvest and conservation components) and 5,000-7,000 steelhead (harvest and conservation components) for both harvest and natural production targets (while recognizing the availability of adult Chinook salmon in the Snake River is presently very low and would not be capable of meeting this target allocation for several years). The numbers for outplanting are based on the assumption that releases will occur on both tribal and public lands. Restricting releases to tribal lands will necessitate adjustment of harvest and natural production targets.

Short term outcomes are aimed at reestablishing anadromous fisheries on unlisted, hatchery-origin spring/summer Chinook salmon and steelhead to provide subsistence, cultural, and recreational harvest opportunities. These outcomes will meet both harvest components and cultural components of tribal fisheries needs that have been precluded during the last license period. Restoring anadromous fisheries upstream of the Project will ensure that tribal anglers can harvest anadromous fish, consistent with customs, traditions, and historic practices. Proposed numbers of adults for these objectives were determined by: 1) estimation of the participation in each fishery and desired seasonal quota per participant; 2) estimation of the desired catch per unit effort (CPUE) per participant; and 3) estimation of a range of densities at the reach-level, based on empirical or professional judgment, to produce the desired CPUE. Effective implementation of Goal 1 tasks for spring/summer Chinook salmon and steelhead will achieve the following outcomes:

- Annual allocation and delivery of 2,000-3,000 spring/summer Chinook salmon and 4,500-6,000 steelhead to the BPT for release in the Malheur River. The reach-level priority for spring/summer Chinook salmon consists of the six contiguous river miles within current or anticipated trust lands in the Upper Malheur River. The reach-level priority for steelhead consists of the seven contiguous river miles within current or anticipated trust lands near Juntura, OR and is located downstream of both water storage facilities. Given the anticipated length of the license life, additional reach-level priorities are identified on public land and may require collaborative management with ODFW.
- Harvest of at least 75% of the released adult Chinook salmon and steelhead by tribal fishermen. Harvest of released adults by non-tribal fishermen may occur at the discretion of BPT Council by issuance of permits for access and angling if releases are restricted to tribal lands.

- Reestablishment of Tribal and Sport Fisheries in the Malheur River system.
- Documentation of spawning, movement and carcass distribution throughout the release reaches.
- Estimate natural production values, accounting for hatchery vs. natural ratios of spawning effectiveness.
- Identification of limiting factors to natural production at priority release sites and development of specific measures to address limiting factors prior to initiating long-term objectives.
- Evaluation of water quality values and design juvenile collection facilities; with particular emphasis on permanent man-made structures (e.g., irrigation diversions or fish screens) that could be modified to meet program needs.

Long term outcomes are aimed at restoring naturally reproducing unlisted populations of salmon and steelhead within select tributaries upstream of Hells Canyon Dam to meet harvest, cultural, and ecological needs. These outcomes are intended to meet harvest, cultural, and ecological components that have been precluded during the last license period. Restoring anadromous fisheries upstream of the Project will ensure that tribal fishermen can harvest anadromous fish, consistent with customs, traditions, and historic practices. Effective implementation of Goal 2 Tasks for spring/summer Chinook salmon and steelhead will achieve the following outcomes:

- Continued annual allocation and delivery of an additional 1,000-2,000 spring/summer Chinook salmon (for a total of 3,000-5,000 adults) and an additional 500-1,000 steelhead (for a total of 5,000-7,000 adults) to the BPT for release in the Malheur River. After limiting factors are identified and addressed, BPT will determine additional reach-level release sites for release to meet long-term objectives and will consider what portion of the total annual allocation for each species will be utilized for the long-term goal of restoring naturally reproducing unlisted populations. Initial estimates for naturally reproducing populations are 1,000-2,000 Chinook salmon and 500-1000 steelhead.
- Persistent and independent populations of Chinook salmon and steelhead with some long term supplementation (25-30%).
- Long-term habituated harvest efforts by tribal and sport fishermen in the treatment basin. Harvest of at least 50% percent of the released adults by tribal fishermen.
- Documentation of successful spawning by hatchery and natural origin fish, juvenile production from unharvested adult Chinook salmon and steelhead and fitness of juvenile fish in the system.
- Collection, marking, and transportation of at least 75% of naturally produced juvenile salmon to below Hells Canyon Dam so that a percentage of the released adults are surviving through the entire lifecycle (as a measure of substantially improved ecosystem function). This objective will also help develop a locally adapted stock that could be used for in long-term program needs.
- Additional annual delivery of all marked adults produced in the Malheur River.

The Malheur River project is intended to mitigate for direct losses resulting from the construction and continued operation of the HCC. As such, the Advisory Committee will consider the reestablishment of anadromous fish in this watershed a priority for the life of the license. A complete project in the Malheur River will include juvenile collection facilities, landowner outreach, and an adequate monitoring and evaluation protocol.

5.3.4. Owyhee River Program

Project Area Background

The Owyhee River confluences with the Snake River above the Project near the town of Nyssa, OR at river mile 394. The Owyhee River drains approximately 11,160 square miles in southeastern OR, southwestern ID, and north central NV, ranging in elevation from 2,198 feet (at its confluence with the Snake River) to 10,348 feet (at McAfee Peak, in the Independence Mountains of NV). The total length of the mainstem of the Owyhee River is 280 miles (BOR 1958). Public land encompasses approximately 84.1% of the drainage area, with a total of 77.8% of the drainage area under federal management (NPCC 2004). Two water storage facilities are located on the Owyhee River: the Owyhee Dam (owned by the Bureau of Reclamation) and the Wildhorse Dam (owned by the Bureau of Indian Affairs).

The average annual (daily) flow of the Owyhee River at Owyhee Dam is 444 cfs; this is based on 40 years of flow data (USGS, 1975 to 2014). Major tributaries to the Owyhee River in the subbasin include; the North, South, and East forks of the Owyhee River, Little Owyhee River, West Little Owyhee River, Crooked Creek, and Jordan Creek.

Mid to late spring flows usually account for a majority of discharge in the subbasin. Peak flows generally occur in March or April, with a recorded low of 61.8 cfs (1955) to a high peak of 12,790 cfs (1984); discharge is affected to an unknown degree by diversion and regulation. Base flows are predominant in August and September. Snowmelt or seasonal rainstorms drive timing, duration, and volume of peak flows at elevations less than 4,000 feet. Rain-on-snow events are a common occurrence in the lower elevations and usually occur in late December and January. The Owyhee River would be classified as having a regulated flow, principally due to diversions for irrigated agriculture, located throughout the watershed. Owyhee Reservoir and Wildhorse Reservoir store water for irrigation supply and provide enough storage capacity to assist in controlling high spring discharges (DEQ, 2006).

Project Oversight

The SPT would participate as the primary project lead for the Owyhee River Project and develop all required reports on an annual basis. Tribal staff will be required to interact closely with the other managers and the Advisory Committee to ensure Project goals are being met.

The SPT manages 265,833 acres in the Owyhee River subbasin within the Duck Valley Indian Reservation, containing approximately 37 river miles. External holdings (i.e., the 101 Ranch and the Pole Creek Ranch) comprise approximately 2,700 acres and contain segments and tributaries of the Owyhee River. Initially, use of Chinook salmon and steelhead will be exclusive to SPT members (on reservation) unless permission to non-tribal members is granted at the discretion of the Tribal Business Council or if alternative suitable fishery locations on public land can be determined in consultation and co-management with other fishery management agencies.

Steelhead and spring/summer Chinook salmon for the Owyhee River will be allocated to the SPT for use within this targeted tributary to the Snake River. The SPT retains reach-level discretion to allow for adaptive use of fish within the Owyhee subbasin over the license life. Examples of adaptive use include, but are not limited to: outplanting at additional suitable reach-level locations; outplanting at additional reach-level locations if evaluation based on new information supports higher or increased suitability; annual allocation above the capacity of reach-level fisheries; and, inauguration of shared public and tribal fisheries based on collaborative management, risk assessment and consultation.

Project Personnel

The Project will require the following personnel:

- Program manager
- Research and production biologist
- Lead fisheries technician
- Four seasonal fisheries technicians

*Note - Program expenses will also need to include travel expense, vehicle maintenance, IT support and equipment, and field equipment.

Project Description

Goal 1 Tasks in the Owyhee River Project will restore anadromous fisheries on unlisted, hatchery origin spring/summer Chinook salmon and steelhead to provide subsistence, cultural, and recreational harvest opportunities to tribes and sportsmen (immediate). Goal 2 Tasks for the Owyhee River Project will restore naturally reproducing unlisted populations of spring/summer Chinook salmon to meet harvest, cultural, and ecological objectives (1-10 years after license issuance).

- Harvest Component: The Owyhee River Project will annually provide 3,000-4,000 adult spring/summer Chinook salmon and 5,000-7,000 steelhead for outplanting and harvest in the Owyhee River; including transport of fish from trapping to outplanting location and oversight and management associated with monitoring and administering fisheries.
- Cultural Component: The Owyhee River Project provides the SPT with an opportunity to re-establish and exercise traditional fishing activities and culturally important customs in geographic locations proximal to the Duck Valley Indian Reservation and historically utilized areas. These opportunities have been unavailable for contemporary generations.
- Conservation Component: The Owyhee River Project will annually provide a total of 500-1,000 adult spring/summer Chinook salmon and 500-1,000 steelhead to re-establish naturally reproducing populations; including transport of fish from trapping to outplanting location and oversight and management associated with research, monitoring & evaluation of populations.

Short term outcomes are aimed at reestablishing anadromous fisheries on unlisted, hatchery-origin spring/summer Chinook salmon and steelhead to provide subsistence, cultural and recreational harvest opportunities. These outcomes will meet both harvest components and cultural components of tribal fisheries needs that have been precluded during the last license period. Restoring anadromous fisheries upstream of the Project will ensure that tribal anglers can harvest anadromous fish, consistent with customs, traditions, and historic practices. Proposed numbers of adults for these objectives were determined by: 1) estimation of the participation in each fishery and desired seasonal quota per participant; 2) estimation of the desired catch per unit effort (CPUE) per participant; and, 3) estimation of a range of densities at the reach-level, based on empirical or professional judgment, to produce the desired CPUE. Effective implementation of Goal 1 tasks will achieve the following outcomes:

- Average annual release of at least 3,000-4,000 adult spring/summer Chinook salmon and 5,000-7,000 steelhead into the designated basins for harvest (assuming that the brood group has already been selected over the run).
- Harvest of at least 75% of the released adult fish by tribal fishermen.
- Reestablishment of tribal and sport fisheries in the Owyhee River system.
- Documentation of fish spawning and carcass distribution throughout the treatment basin.
- Estimate natural production values, accounting for hatchery vs. natural ratios of spawning

effectiveness.

- Identification of limiting factors to natural production at priority release sites and development of specific measures to address limiting factors prior to initiating long-term objectives.
- Evaluate water quality values and design juvenile collection facilities; with particular emphasis on permanent man-made structures (e.g., irrigation diversions or fish screens) that could be modified to meet program needs.

Long term outcomes are aimed at restoring naturally reproducing unlisted populations of salmon and steelhead within select tributaries upstream of Hells Canyon Dam to meet harvest, cultural, and ecological needs. These outcomes are intended to meet harvest, cultural, and ecological components that have been precluded during the last license period. Restoring anadromous fisheries upstream of the Project will ensure that tribal fishermen can harvest anadromous fish, consistent with customs, traditions, and historic practices. Effective Implementation of Goal 2 Tasks will achieve the following outcomes:

- A persistent/independent population with some long term supplementation (25-30%).
- Harvest of at least 50% of the released adults by tribal fishermen.
- Long-term habituated harvest efforts by tribal and sport fishermen in the treatment basin.
- Documentation of successful spawning by hatchery and natural origin fish, juvenile production from unharvested adult Chinook and steelhead, and fitness.
- Collection, marking, and transportation of at least 75% of naturally-produced juvenile salmon and steelhead to below Hells Canyon Dam so that a percentage of the released adults are surviving through the entire lifecycle (as a measure of substantially improved ecosystem function). This objective will also help develop a locally adapted stocks that could be used for in long-term program needs.
- Additional annual delivery of all adults produced in the Owyhee River subbasin.

Owyhee Tailwater Fishery

A sub-element of the Owyhee River Project would augment an extant tailwater fishery downstream of the Owyhee Dam. Cold water releases from the dam support a highly regarded and self-sustaining population of brown trout, along with annual releases of rainbow trout, in the 23 miles of river between Owyhee Dam and the confluence with the Snake River. The Owyhee River Project sub-element would be jointly managed by the SPT and the BPT.

The SPT project an annual allocation of 500-1,000 spring/summer Chinook salmon and 1,000-2,000 steelhead for this reach, anticipating an allowable harvest level not to exceed 75% (of which, at least 50% will be reserved for Tribal harvest). Recognizing this is a popular public location, opportunities for harvest would be open to tribal members and the general public. Short and long-term project outcomes for this sub-element of the Owyhee River Project would be consistent with the overall Owyhee project.

Over the license life, the SPT project an annual total allocation in the Owyhee River subbasin of 4,000-5,000 Chinook salmon (harvest and conservation components) and 5,500-8,000 steelhead (harvest and conservation components) for both harvest and natural production targets. The numbers for outplanting are based on the assumption that releases will occur on both tribal and public lands. Restricting releases to tribal lands will necessitate adjustment of harvest and natural production targets.

The Owyhee River Project is intended to mitigate for direct losses resulting from the construction and continued operation of the Hells Canyon Complex. As such, the Advisory Committee will consider the reestablishment of anadromous fish in this watershed a priority for the life of the license. A complete project in the Owyhee River will also include juvenile collection facilities, landowner outreach, and an adequate monitoring and evaluation protocol.

5.3.5. Bruneau/Jarbridge River Program

Project Area Background

The Jarbridge River is a 51.8-mile-long, high altitude river in northern NV and southwest ID in the United States. The Jarbridge originates as two main forks in the Jarbridge Mountains of northeastern NV, then flows through basalt and rhyolite canyons on the high plateau of the Owyhee Desert before joining the Bruneau River. The Bruneau/Jarbridge River system (along with other portions of the Owyhee Canyonlands) was designated as wilderness in the 2010 Omnibus Bill, with a sponsorship through the Idaho Congressional delegation, for its superb wilderness characteristics and the free-flowing nature of the river systems in the canyons. The Bruneau/Jarbridge River Project would proceed in phases based on the ecosystem response and productivity response from outplanted Chinook salmon.

Project Oversight

The SBT and SPT would participate as the primary project leads for the Bruneau/Jarbridge River Project and develop all required reports on an annual basis. Tribal staff will be required to interact closely with the other managers and the HCC Advisory Committee to ensure the Bruneau/Jarbridge River Project goals are being met.

Project Personnel

The Bruneau/Jarbridge River Project will require the following personnel:

- Program manager
- Research and production biologist
- Lead fisheries technician
- Four seasonal fisheries technicians

*Note - Program expenses will also need to include travel expense, vehicle maintenance, IT support and equipment, and field equipment.

Project Description

Goal 1 actions in the Bruneau/Jarbridge River Project will re-establish/restore anadromous fisheries on unlisted, hatchery origin spring/summer Chinook salmon to provide subsistence, cultural, and recreational harvest opportunities to tribes and sportsmen (immediate).

- Harvest Component: The Bruneau/Jarbridge River Project will annually provide 1,000 adult spring/summer Chinook salmon for outplanting and harvest in the Bruneau/Jarbridge River; including transport of fish from trapping to outplanting location and oversight and management associated with monitoring and administering fisheries.
- Cultural Component: The Bruneau/Jarbridge River Project provides the SBT and SPT with an opportunity to exercise traditional activities and culturally important customs in a geographic location in which these opportunities are non-existent for contemporary generations.

Goal 2 actions for the Bruneau/Jarbridge River Project will restore naturally reproducing, unlisted

populations of spring/summer Chinook salmon to meet harvest, cultural, and ecological objectives (1-10 years after license issuance).

- Harvest Component: The Bruneau/Jarbidge River Project will annually provide 1,000 adult spring/summer Chinook salmon for outplanting and harvest in the Bruneau/Jarbidge River; including transport of fish from trapping to outplanting location and oversight and management associated with monitoring and administering fisheries.
- Cultural Component: The Bruneau/Jarbidge River Project provides the SBT and SPT with an opportunity to exercise traditional activities and culturally important customs in a geographic location in which these opportunities are non-existent for contemporary generations.
- Conservation Component: The Bruneau/Jarbidge River Project will annually provide a total of 500-1,000 adult spring/summer Chinook salmon to re-establish naturally reproducing populations; including transport of fish from trapping to outplanting location and oversight and management associated with research, monitoring & evaluation of populations.

Implementation of Goal 1 Tasks will achieve the following outcomes:

- Average annual release of 1,000 adults into the Bruneau/Jarbidge River for harvest.
- Harvest of at least 50% of the released adult by tribal fishermen.
- Reestablishment of tribal and sport fisheries in the Bruneau/Jarbidge River systems when fish become available.
- Documentation of fish spawning and carcass distribution throughout the treatment basin.
- Estimate natural production values, accounting for hatchery vs. natural ratios of spawning effectiveness.
- Evaluate water quality values and design juvenile collection facilities; with particular emphasis on permanent man-made structures (irrigation diversions or fish screens) that could be modified to meet program needs.

Implementation of Goal 2 Tasks will achieve the following outcomes:

- A persistent/independent population with some long term supplementation (25-30%).
- Average annual release of 1,000 adults into the designated basins for harvest and a minimum of 500 adults for volitional spawning.
- Harvest of at least 50% of the released adults by tribal fishermen.
- Long-term habituated harvest efforts by tribal and sport fishermen in the treatment basin.
- Documentation of successful spawning by hatchery and natural origin fish, juvenile production from unharvested adult Chinook and fitness of juvenile fish in the system.
- Collection, marking, and transportation of at least 75% of naturally produced juvenile salmon to below Hells Canyon Dam so that a percentage of the released adults are surviving through the entire lifecycle (as a measure of substantially improved ecosystem function). This objective will also help develop a locally adapted stock that could be used for in long-term program needs.

Due to the presence of sensitive populations of redband trout in the Bruneau/Jarbidge watershed, a steelhead project will not be considered at this time. If adult steelhead become available, and appropriate agreements can be made to reestablish steelhead in this watershed, the Advisory Committee will consider making an adaptive management recommendation to include steelhead in the Bruneau/Jarbidge watershed.

5.3.6. - Boise River Program

Project Area Background

The Boise River rises in three separate forks in the Sawtooth Range at elevations exceeding 10,000 feet, and is formed by the confluence of its North and Middle forks. The North Fork, 50 miles long, rises in the Sawtooth Wilderness Area, along the Boise-Elmore county line, 60 miles northeast of Boise. It flows generally southwest through the remote mountains in the Boise National Forest. The Middle Fork, approximately 52 miles in length, rises within 12 miles of the North Fork in the southern Sawtooth Wilderness Area in northeastern Elmore County. It flows west-southwest near the town of Atlanta, joining the North Fork to form the Boise River, approximately 15 miles southeast of ID City. The main stream flows southwest into Arrowrock Reservoir joining the South Fork from the Anderson Ranch Dam.

The 101-mile-long South Fork rises in northern Camas County in the Smoky Mountains and Soldier Mountains of the Sawtooth National Forest north of Fairfield, 65 miles east of Boise. It flows generally southwest, descending through a basalt canyon to fill the Anderson Ranch Reservoir, then turns northwest in central Elmore County. It joins the main stream as the southern arm of Arrowrock Reservoir, 20 miles east of Boise.

Downstream from its confluence with the South Fork, the river flows generally west, and adds the major tributary of Mores Creek along Highway 21, and passes through Lucky Peak Dam to emerge from the foothills southeast of Boise. It passes over several irrigation diversion dams above the city, the first and largest is the century-old Boise River Diversion Dam for the concrete New York Canal, which terminates at Lake Lowell (a.k.a. Deer Flat Reservoir) southwest of Nampa in Canyon County. The next diversion is for the Ridenbaugh Canal (1878) at Eckert Diversion Dam, immediately above Barber Park, five miles from downtown Boise. Wooded through the city, the river is lined by an extensive recreational greenbelt. It flows west across the western end of the Snake River Plain in the Treasure Valley and becomes a braided stream with a wide floodplain as it crosses northern Canyon County to the Snake River. At an approximate elevation of 2,100 feet, it enters the Snake River, at the ID/OR border, west of Parma and three miles south of Nyssa, OR.

Project Oversight

The SBT would participate as the primary project lead for the Boise River Project and develop all required reports on an annual basis, if Idaho Fish and Game does not participate in the HCC Program. Tribal staff will be required to interact closely with the other managers and the HCC Advisory Committee to ensure that Boise River Project goals are being met.

Project Personnel

The Project will require the following personnel:

- Program manager
- Lead fisheries technician
- Four seasonal fisheries technicians

*Note - Program expenses will also need to include travel expense, vehicle maintenance, IT support and equipment, and field equipment.

Project Description

Goal 1 Tasks in the Boise River Project will restore anadromous fisheries on unlisted, hatchery origin spring/summer Chinook salmon and steelhead to provide subsistence, cultural, and recreational harvest

opportunities to tribes and sportsmen (immediate).

Spring/Summer Chinook

- Harvest Component: The Boise River Project will annually provide at least 500 adult or jack spring/summer Chinook salmon for outplanting and harvest in the Boise River; including transport of fish from trapping to outplanting location and oversight and management associated with monitoring and administering fisheries.
- Cultural Component: The Boise River Project provides the SBT with an opportunity to exercise traditional activities and culturally important customs in a geographic location in which these opportunities are non-existent for contemporary generations.

Implementation of Goal 1 Tasks will achieve the following outcomes:

- Minimum annual release of 500 adults/jacks into the Boise River for harvest (assuming that the brood group has already be selected over the run).
- Harvest of at least 50% of the released adult fish by tribal fishermen.
- Reestablishment of tribal and sport fisheries in the Boise River system when fish become available.
- Documentation of fish spawning and carcass distribution throughout the treatment basin.
- Estimate natural production values, accounting for hatchery vs. natural ratios of spawning effectiveness.
- Evaluate water quality values and design juvenile collection facilities; with particular emphasis on permanent man-made structures such as irrigation diversions or fish screens that could be modified to meet program needs.

Steelhead

- Harvest Component: The Boise River Project will annually provide a minimum of 1,000 adult steelhead harvest in the Boise River; including transport of fish from trapping to outplanting location and oversight and management associated with monitoring and administering fisheries.
- Cultural Component: The Boise River Project provides the SBT with an opportunity to exercise traditional activities and culturally important customs in a geographic location in which these opportunities are non-existent for contemporary generations.

Implementation of Goal 1 Tasks will achieve the following outcomes:

- Minimum annual release of 1,000 adults into the designated area for harvest (assuming that the brood group has already be selected over the run).
- Harvest of at least 50% of the released adult fish by tribal fishermen.
- Reestablishment of tribal and sport fisheries in the Payette River system when fish become available.
- Documentation of fish spawning and carcass distribution throughout the treatment basin.
- Estimate natural production values, accounting for hatchery vs. natural ratios of spawning effectiveness.
- Evaluate water quality values and design juvenile collection facilities; with particular emphasis on permanent man-made structures such as irrigation diversions or fish screens that could be modified to meet program needs.

The Boise River Project will be bifurcated into two separate projects for steelhead and spring/summer Chinook that focus on harvest for both tribal and non-tribal anglers. The most appropriate use of

steelhead and spring/summer Chinook would be to continue releasing adults in the same locations currently used by the ID Department of Fish and Game. Each project will be subject to the same planning requirements and oversight by the Advisory Committee, including any adaptive management recommendations.

5.4. Snake River Fall Chinook Program

Select a mainstem reach of the Snake River for fall Chinook reintroduction above HCC.

There are four reaches of the mainstem Snake River upstream of Brownlee Reservoir, which have potential to produce fall Chinook salmon if passage were provided at the HCC. The reaches are Brownlee to Swan Falls Dam, Swan Falls Dam to C.J. Strike Dam, C.J. Strike Dam to Bliss Dam, and Bliss Dam to Lower Salmon Falls Reservoir. To achieve Goals 1 and 3, these reaches will be evaluated for fall Chinook reintroduction and harvest based projects.

Petrosky (1990) asserts that the natural production potential for fall Chinook in the mainstem from Homedale to Swan Falls Dam is similar to what existed before construction of the HCC, including the potential for 17,800 adults to spawn upstream of Givens Hot Springs. Additional passage at Swan Falls Dam would permit fall Chinook to spawn in the mainstem Snake River up to C.J. Strike Dam. The reach from C.J. Strike dam to Bliss Dam has two distinct habitat-types with habitat characterized by relatively low gradient and braided channel and the second type with higher gradient and fast, deep, turbulent runs and rapids and small stretches of spawning habitat. The reach above Bliss Dam has high gradients with many rapids and few mainstem gravel bars however natural production may occur in graveled areas. The habitat upstream of Upper Salmon Falls Dam is currently constrained due to low flows caused by irrigation withdrawals, high nutrient loads, and heavy aquatic macrophyte growth.

Our approach must evaluate biological (and cultural) benefits by identifying the goals and potential benefits of specific program proposals and characterizing the associated biological risks and constraints. The HCC Advisory Committee must consider the risks and costs of each proposal in comparison to other management options, including minimizing the spread of disease.

The number, size, and spatial arrangement of barriers (e.g., irrigation withdrawals or push up dams) will factor in pathways and may require prioritization among alternatives. Habitat quality, including future changes due to climate or land use, will ultimately, along with downstream passage, ocean conditions, and supplementation, determine the success of any reintroduction effort.

If successful, reintroduction of Snake River fall Chinook would restore a second, naturally-produced population, contributing to the recovery (and delisting) of this threatened population. It would also contribute to tribal, commercial, and recreational fisheries in the Columbia River Basin and Pacific Ocean.

Fall Chinook Program Goals, Tasks, and Potential Benefits

The upper and lower Salmon Falls reaches were fished by USRT members for subsistence purposes from time immemorial. The restoration of healthy habitat conditions and return of fall Chinook to these reaches would contribute to restoration of tribal fishing culture and ceremonies.

The goal is to establish a second population of Snake River fall Chinook salmon in historically productive

habitat that contributes to the recovery of this ESU under the Endangered Species Act (i.e., self-sustaining population, or one with relatively low supplementation).

As an example only, estimated future fall Chinook salmon adult number targets for the mainstem Snake River above the HCC, beginning once suitable habitat and water quality conditions have been reached, could be set based on a rolling percentage, as opposed to hard and fast numbers. Starting with a small percentage, 5% of annual adult returns for the first five years of normative conditions, 10% in the next five years, with a maximum cap of 25% in any given year, if adult return numbers exceed 200% of viable population threshold.

Viable Population Threshold	First 5-Years	Next 5-Years	Later Years, Higher Returns
30,000	1,500	3,000	
45,000			up to 7,500

Task 3.1 Determine the historic distribution and habitat requirements for fall Chinook salmon in the identified areas above the HCC through a review of literature regarding historic fish production in that area. The review would include an assessment of the smolt production potential model and escapement estimates to adequately seed all available habitat with hatchery origin fish for harvest by state and tribal fishermen and volitional spawning.

Task 3.2 Determine which areas are presently suitable for natural production of fall Chinook salmon by means of field surveys and experimental outplants (adults and eyed eggs). Based on escapement estimates, determine which areas will best support outplants of hatchery origin adults for volitional spawning and additional egg outplants if necessary. Several juvenile and adult telemetry studies would need to be conducted in order to determine if collection and release strategies are achieving established criteria or if adjustments (timing or location of adult or juvenile releases, or modifications to juvenile collection systems and transport strategies) are warranted. Finally, some level of PIT tagging or genetic monitoring will be necessary to assess the productivity of the naturally produced component of the population.

Activity 3.2.1 Fish managers and federal agencies will obtain required permits for all associated supplementation activities.

Activity 3.2.2 Contact private and federal landowners and obtain permission for survey activities.

Activity 3.2.3 Conduct habitat surveys following, in general, procedures characterized as the ‘best available science’.

Activity 3.2.4 Summarize results of survey and concurrently offer management recommendations for specific tributary locations of natural production areas.

Task 3.3 In the identified mainstem Snake River Reach, use a combination of adult outplants, smolt production, and egg outplants to boost abundance of fall Chinook. Given the physical constraints at Hells Canyon Dam, trap and haul from there to Brownlee Reservoir is the method most likely to be effective for upstream passage. Given the difficulties of collecting small fish in large river systems, multiple trap and haul locations would likely be needed to capture juveniles

emigrating from the Marsing Reach. Reintroduction upstream of C.J. Strike Dam could rely on collection facilities at that project (and potentially at Swan Falls Dam as well) to capture juvenile fish for transport. The scale (number of trucks per day or every other day) would need to be commensurate with the number of juveniles being collected. Protocols similar to those developed by the Army Corps of Engineers for the Snake River dams would need to be developed and implemented. The proportion of juveniles that would need to be collected would depend upon the productivity of the naturally produced population, limitations on the available technologies to collect fish, and acceptable levels of supplementation.

Activity 3.3.1 Formulate criteria for evaluating efficacy of the various methods for boosting abundance across the tributary; taking into consideration habitat quantity and quality, and logistics associated with project implementation and evaluation.

Activity 3.3.2 Work with appropriate agencies and organizations to reach agreement on basic production programs.

Activity 3.3.3 Estimate survival rates associated with use of the preferred stock based upon adult return trends, harvest rates, adult and juvenile passage at dams, and fish health and handling characteristics.

Activity 3.3.4 Outline alternative scenarios that should be evaluated under the reintroduction program for collecting, holding and acclimating, handling and marking, transporting, and releasing juvenile and adult fish. For the Marsing Reach of the Snake River, the ability to capture large (70% to 90%) proportions of the juvenile out-migrants will be a challenging biological and technological hurdle to overcome. Several years of active tag studies will likely be needed to determine potential collection sites and more years will be needed to design and construct facilities to actually collect juvenile fish. More conventional means (screens and bypass systems) could be used at C.J. Strike (and at Swan Falls) Dam to collect juveniles from the reach up to Bliss Dam for transportation to below Hells Canyon Dam.

Activity 3.3.5 Estimate expected productivity of stocks in each identified tributary.

Task 3.4 Determine an appropriate donor stock of fall Chinook salmon for use in the reintroduction program and describe expected production dynamics associated with its use.

Activity 3.4.1 The appropriate donor stock above the HCC will be the Snake River fall Chinook stock. All other options may be evaluated if the preferred donor stock cannot support a reintroduction program.

Task 3.5 Monitor potential impacts of interactions with resident fishes and other aquatic biota, which may result from reintroduction of fall Chinook salmon into the identified reaches.

Task 3.6 Evaluate a potential “put and take” harvest program in the mainstem Snake River using a trap and haul program above HCC.

Activity 3.6.1 Estimate total allowable harvest impact rates annually.

Activity 3.6.2 Evaluate total fishing efforts in the Snake River for fall Chinook.

6. HCC Watershed Improvement Program

Develop and implement a habitat enhancement program that addresses both the biological needs of salmonids and the water quality impacts associated with the HCC. This could be achieved in part through implementation of the Snake River Stewardship Program¹.

Task 4.1 Evaluate seasonal temperature models for the upstream watershed improvement program.

Activity 4.1.1 Review available temperature models and outcomes for a temperature control structure at the HCC.

Activity 4.1.2 Review available models and outcomes for an upstream watershed improvement program.

Task 4.2 Identify and construct appropriate habitat restoration features in or adjacent to the mainstem Snake River. Habitat restoration monitoring would include assessments of fine sediments, inter-gravel dissolved oxygen levels during the incubation period (October through March or April), and egg box or spawning studies to determine if egg to fry survival rates are near those of fall Chinook in extant habitat below Hells Canyon Dam.

Activity 4.2.1 River channel complexity improvement features.

Activity 4.2.2 Vegetation planting.

Task 4.3 Identify features to reduce toxins.

Activity 4.3.1 Create emergent wetlands at irrigation return sites.

7. HCC Fish Pathogen Program

Investigate the potential for pathogen risk to fish stocks from the HCC Fish Management Program.

Hatchery resident fish and salmon out-plants as described above have been released above HCC by the States of ID and OR. The release of hatchery resident fish and salmon out-plants has the potential to spread pathogens and cause intra-specific effects. Establishment of extirpated salmon does not necessarily imply that an adverse effect will occur but will require an assessment of pathogen risk from the various projects. It is important to understand that resident populations of fish above the HCC evolved in the presence of anadromous fish, and we anticipate that resident fish will benefit with the reintroductions of anadromous fish.

¹ <https://www.idahopower.com/about-us/environmental-stewardship/responsibility-to-the-environment/snake-river-stewardship-program/>

Task 5.1 A pathogen risk assessment conducted by fish pathologists would be required for each area in which reintroduction is pursued. The risk assessment will also include potential measures for mitigating risk from the proposed projects.

Task 5.2 Specific pathogen risk control measures would be completed for the identified tributaries and mainstem Snake River reintroduction areas as identified in the risk assessment.

8. HCC Resident Fish Population Program

Provide adequate fish passage at the HCC and assess the impact of anadromous fish treatments on endemic stocks of fish.

Endemic species of fish evolved in the presence of anadromous forms of fish, and more likely, endemic species of fish suffered from the loss of intraspecific interactions. The purpose of this objective will be to develop protocol to study the effect of anadromous fish reintroduction on resident fish, such as bull trout.

Task 6.1 Select control tributaries above HCC to evaluate the effects on resident fish from anadromous outplants in identified treatment tributaries.

Task 6.2 Incorporate IPC's proposed Bull Trout Passage Plan into Program activities.

9. HCC Production Facilities

The Upper Snake River Program will produce up to 6.5 million smolts in order to produce approximately 13,000-19,500 adult Chinook. This adult Chinook return would meet the needs of the research (2,500 adults), harvest (9,500 - 13,500 adults) and hatchery broodstock (3,500 adults) objectives. For planning purposes, we assumed smolt-to-adult survival for the Upper Snake River hatchery program smolts at 0.3% - 0.5%.

Broodstock will be collected at the Hells Canyon and Rapid River traps, with the Hells Canyon trap becoming the sole trapping location for the program when returns meet targets. The number of natural-origin adults used each year for broodstock and the number of integrated hatchery-origin fish allowed to spawn naturally will be monitored, but not controlled. The transition to using only adults returning to the Hells Canyon trap is expected to encourage local adaptation and increase the productivity of the naturally spawning population. Production facilities would be best suited to release fish near the HCC and an expansion of the Oxbow Fish Hatchery would be optimal due to a reduced hauling cost, if possible. Given the constraints of the fish hatchery planning process, site selection for the production facility is difficult at best to determine at this early point.

Identify and construct adequate aquaculture facilities, if necessary, for all Fish Management program components.

Task 7.1 Identify and construct adult trapping facilities necessary at Hells Canyon Dam for spring/summer/fall Chinook and steelhead.

Task 7.2 Identify and construct all juvenile collection facilities necessary for each tributary identified in Goal 2 for natural production programs and Goal 3 for fall Chinook.

Task 7.3 Identify and construct all necessary production facilities and develop site specific plans to implement establishment projects.

Task 7.4 Identify necessary equipment or production protocol for both adults and juveniles in the HCC Fish Management Program.

Continue funding for ongoing off-site mitigation facilities at Pahsimeroi, Rapid River, Oxbow, Lyon's Ferry, and the Crystal Springs Hatcheries.

- Task 8.1** Continue to fund off-site production facility at Pahsimeroi River Hatchery for local production in the Upper Salmon River for the production of summer Chinook salmon.
- Task 8.2** Continue to fund off-site production facility at Rapid River Hatchery for local production in the Salmon River basin for the production of spring Chinook salmon.
- Task 8.3** Continue to fund off-site production facility at Oxbow Hatchery for local production in the Salmon River basin for the production of spring Chinook salmon.
- Task 8.4** Continue to fund off-site production facility at Niagara Springs for local production in the Snake River basin for steelhead projects.
- Task 8.5** Support off-site production facility at Crystal Springs Hatchery for local production in the Upper Salmon River basin (Yankee Fork and Panther Creek) as per the FERC recommendations.

Key performance standards for the program will be tracked in a targeted monitoring and evaluation program. These standards include: 1) abundance and composition of natural spawners and hatchery broodstock (pHOS, pNOB, and PNI); 2) number of smolts released; 3) in-hatchery and post-release survival rates; 4) total adult recruitment, harvest, and escapement of the natural and hatchery components; and 5) abundance, productivity, diversity, and spatial structure of the naturally-spawning spring Chinook population.

In addition to the new production facility, the FERC developed a staff recommendation to require IPC to fund the incubation of eggs for a Yankee Fork Salmon River and Panther Creek program operated by the Shoshone-Bannock Tribes. In the intervening years between that recommendation and this submittal, the Tribes have developed and will construct a new anadromous fish hatchery to operate hatchery programs in both Yankee Fork and Panther Creek. The Shoshone-Bannock Tribes agree with this staff recommendation to provide incubation funding for both programs as a cost-share for the hatchery smolt program at the Tribes' Crystal Springs Hatchery in Southeast Idaho. The staff recommendation is not only reasonable, but now technically feasible due to the construction of a new fish hatchery operated directly by the Tribes. In addition to incubation, the Tribes would like IPC to also provide cost-share support for early rearing of those fish released into both watersheds.

10. Research Programs for Extirpated Runs of Anadromous Fish

10.1. Sockeye Salmon Research Program

Conduct sockeye salmon research in the Payette River basin.

The Payette River, in addition to having production potential for spring/summer Chinook and steelhead, could provide a migratory corridor for sockeye salmon to Big Payette Lake where these highly prized fish were once common. Chapman and Chandler (2001) estimate that Big Payette Lake could produce approximately 48,000 sockeye smolts.

Task 9.1 Develop research criteria and study design for sockeye Salmon in the Payette River

Basin.

10.2. Coho Salmon Research Program

Conduct coho salmon research in ID and OR above the HCC.

IPC argues that coho salmon were not historically present in the Snake River subbasin above the HCC, even though coho salmon were captured during passage studies in the late 1950s. An analysis of habitat upstream of the HCC will reveal the presence or absence of suitable habitat for coho salmon.

- Task 10.1** Develop physical and biological surveys for all water upstream of the HCC to determine the potential to reintroduce coho salmon above the HCC.

11. Monitoring and Evaluation Program

Monitoring and Evaluation for Proposed Projects

There are different methods to monitor and evaluate fish reintroduction programs. It would be prudent to adopt an adaptive management and decision process to guide program activities throughout the life of the license. Adaptive management is a formal, systematic, and rigorous approach to learning from the outcomes of actions, accommodating change, and improving management. It involves synthesizing existing knowledge, exploring alternative actions, and making explicit forecasts about their outcomes. Management actions and monitoring programs are carefully designed to generate reliable feedback and clarify the reasons underlying outcomes. Actions and objectives are adjusted based on this feedback and improved understanding. In addition, decisions, actions, and outcomes are carefully documented and communicated to others, so that knowledge gained through experience is passed on, rather than being lost when individuals move or leave the project.

- Task 11.1** Develop a comprehensive monitoring and evaluation program to present project results to stakeholders and to inform any recommendations for adaptive management.
- Task 11.2** Determine appropriate personnel from each agency to participate in associated monitoring and evaluation activities.

12. Literature Cited

Northwest Power and Conservation Council's Subbasin Plan Dashboard

<https://www.nwcouncil.org/ext/dashboard/Default.asp>

Malheur Subbasin Plan

<https://www.nwcouncil.org/fw/subbasinplanning/malheur/plan>

Boise/Payette/Weiser Subbasin Plan

<https://www.nwcouncil.org/fw/subbasinplanning/boise/plan>

Owyhee Subbasin Plan

<https://www.nwcouncil.org/fw/subbasinplanning/owyhee/plan>

Bruneau/Jarbridge Subbasin Plan

<https://www.nwcouncil.org/fw/subbasinplanning/bruneau/plan>

Middle Snake Subbasin Plan

<https://www.nwcouncil.org/fw/subbasinplanning/lowermidsnake/plan>

Upper Snake Subbasin Plan

<https://www.nwcouncil.org/fw/subbasinplanning/uppersnake/plan>

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