

Detailed responses to the latest ISRP review comments are provided in the Tribes Response to ISRP 2012-5 Review Memorandum (00). The response and referenced documents are available to the general public through the Columbia Basin Fish & Wildlife Program website under the Documents tab at the following hyperlink.

<http://www.cbfish.org/Project.mvc/Publications/2002-059-00/2012>

Chronological Background

The following discussion summarizes previous project and assessment reviews and provides a historical context for the current proposal.

The Shoshone-Bannock Tribes (Tribes) have been working on the Yankee Fork Salmon River since 1984 under BPA Project # 83-359, Salmon River Habitat Enhancement (SRHE). The Tribes' work on the Yankee Fork continued in 2005 under BPA Project #2002-059-00, Yankee Fork Salmon River Dredge Tailings Restoration.

In May 2008, the Tribes submitted the Yankee Fork Floodplain Restoration Implementation Plan 2008 (01) to the Northwest Power and Conservation Council (Council). This Plan was reviewed by the ISRP and comments were provided in ISRP 2008-11 Review Memorandum (02) with a *Does Not Meet Scientific Criteria* recommendation. The Council also recommended that Project #2002-059-00 be subject to the Three-Step Review Process.

The 2008 Columbia Basin Fish Accord Agreement with the Tribes (Accord) (03) included the Yankee Fork Floodplain Restoration Project # 2002-059-00 as Attachment A and the Project Narratives as Appendix B. Projects funded under the Accord were deemed consistent with ESA recovery plans and subbasin plans. The Accord also required projects to be linked to biological benefits based on limiting factors and allowed projects to be modified based on science review comments.

In late 2008, the Council prepared Draft Guidance for Fish Accord Projects (Guidance) (04) under the ISRP Review Process. The Guidance allows existing projects already in the Three-Step process to continue to be reviewed through that process or for the process to be modified to reflect the Accord. The Guidance also allows projects to be submitted as an entire programmatic effort or integrated into the categorical or geographical review process.

In October 2009, the Council updated the Columbia River Basin Fish and Wildlife Program (Program) (05), recognizing the Accord commitments for BPA to fund multi-year implementation plans. The Council agreed to work with BPA to estimate budgets and secure commitments for adequate funding of multi-year implementation plans (05, page 59).

On February 14, 2012, the Tribes submitted a response (06) to the ISRP 2008-11 Review Memorandum (02) and requested review of a revised proposal and supporting appendices for the Tribes' Project # 2002-059-00. The revised proposal included two habitat improvement activities, Pond Series 2 and Pond Series 3. These two activities were identified in the Accord's multi-year implementation plan. The Tribes response to ISRP 2008-11 Review Memorandum (06) was reviewed by the ISRP and comments

were provided in ISRP 2012-5 Review Memorandum (07) with a *Meets Scientific Review Criteria (Qualified)* recommendation. The ISRP rating scale definitions are provided on the www.cbfish.org website within the Taurus proposal form. The *Meets Scientific Review Criteria* evaluation reflects the scientific merit and compatibility of the proposal with Program goals. The *Qualified* statement is an expectation of the ISRP that, if the proposal is funded, subsequent proposals will address the ISRP's comments.

The current proposal before the Council, Yankee Fork PS3 Side Channel, is submitted in response to the ISRP 2012-5 Review Memorandum (07). The current proposal is for one habitat improvement activity, the PS3 Side Channel, located in the current Pond Series 3. The Tribes request a funding recommendation from the Council to implement the PS3 Side Channel during the 2012 construction season. Future habitat improvement activities are being developed into a programmatic multi-year implementation plan. At a future date, a separate programmatic proposal with supporting documentation will be prepared and submitted to the Council for ISRP review. Any outstanding ISRP comments will be addressed at that time.

Response to ISRP 2012-5 Review Memorandum

The following discussion is provided to assist the Council and ISRP in reviewing the current proposal for the PS3 Side Channel activity and to ensure the ISRP 2012-5 Review Memorandum (07) Qualifications and Comments are adequately addressed.

Qualifications:

1. Develop a formal Fish and Wildlife Program proposal for the pond reconstruction actions.

Response: The current Taurus submittal represents the formal Fish and Wildlife Program proposal for an individual activity, the PS3 Side Channel scheduled for construction in 2012. The Tribes are in the process of preparing a programmatic proposal explaining their multi-year implementation plan. The programmatic proposal will further address the baseline status of the focal species, habitat, limiting factors, improvements in life-stage survival, and monitoring and evaluation plans. The programmatic proposal will build upon information described in the following response, much of which has been prepared as part of the PS3 Side Channel activity and previous work in the Yankee Fork.

2. Pursue the reach-scale analysis and design work needed to develop justified actions. Do not implement the pond reconstruction elements until the necessary assessment is complete.

Response: In response to previous feedback from the Council and ISRP regarding previously submitted proposals for activities in the Yankee Fork over the past decade, Reclamation completed the Yankee Fork Tributary Assessment in January 2012. The Yankee Fork Tributary Assessment (08, pages 134-135) recommended an environmental baseline for Reach YF-2, where the PS3 Side Channel is located. A detailed reach assessment was not recommended for Reach YF-2. The environmental baseline and site specific analysis supporting the design of the PS3 Side Channel is provided in the PS3 Side Channel Basis of Design Report (BDR) (09). Based upon recommendations in the Yankee Fork Tributary Assessment,

which identified Reach YF-3 as lacking sufficient analysis and assessment (08, page 134); Reclamation is completing a detailed reach assessment to support future activities in Reach YF-3.

3. Make necessary modifications in design specifications for pond series habitat alterations so that they function primarily during base flow conditions in summer and during winter.

Response: The PS3 Side Channel activity has been substantially redesigned following the February 2012 submittal. The revised design incorporates high-flow refuge and year-round rearing habitat for juvenile salmonids in a perennial side channel with self-sustaining hydraulics, sediment transport, and habitat complexity. The revised design is illustrated and described in the BDR (09). The PS2 Groundwater Channel activity [at the existing Pond Series 2] which was also included in the February 2012 submittal is no longer scheduled for construction in 2012.

Comments:

1. Completion of mission proposal components

- Fish Population Status

➤ *Part 1*

An assessment of fish population status and genetics for the Yankee Fork is described in a series of existing documents as summarized here:

Juvenile Chinook and steelhead populations in the project area (Pond Series 2 and Pond Series 3) are summarized (10) using annual snorkel counts collected by the Tribes from 1997-2009. Fish population densities were observed to be four times higher in the connecting channels than in the ponds (10, page 7). Therefore, conversion of pond habitat to channel habitat is expected to increase the carrying capacity for juvenile anadromous salmonids in the Yankee Fork.

Juvenile Chinook (11, Figure 9 Page 23) and steelhead (11, Figure 18 page 41) population assessments in the Yankee Fork are confounded by hatchery outplants of juveniles of each species (11, Table 5 page 22). Annual counts of juveniles have been conducted by snorkelers, but, due to the inability to differentiate natural fish and hatchery outplants, all fish were enumerated together. Therefore, counts of juveniles are considered less useful to track natural fish population status in the Yankee Fork.

Chinook salmon populations have been tracked using annual redd counts in the Yankee Fork and tributaries (11, Figure 3 page 13)). Also, since 2008, a temporary picket weir has been operated by the Tribes at Pole Flat near the mouth of the Yankee Fork. Adult Chinook captured at the weir can be distinguished between hatchery and natural (11, Figure 2 page 11). Based on redd counts and assuming 2.5 fish/redd, adult Chinook populations in the Yankee Fork have varied between about 60 and 300 fish per year; recently about half of these fish are hatchery returns. The Draft Idaho Salmon Recovery Plan for Chinook salmon (12) identifies the 10-year (2000 – 2009) geometric mean abundance of natural adult Chinook in the Yankee Fork as 21 fish, this value is approximately half of 2.5 times the mean number of redds for that period (11, Figure 2 page 11).

Less is known about steelhead population status in the Yankee Fork than is known for Chinook salmon, likely a result of the challenges associated with enumerating steelhead. Steelhead migrate into the Yankee Fork in the early spring, when abundant snow and ice make fish studies difficult. Following spawning, steelhead redds are typically unobservable during spring runoff because of high water levels and elevated turbidity. After the spring runoff, altered streambed conditions complicate accurate redd counts, and the adults have either died or moved back downstream. The only direct count of natural-origin steelhead in the Upper Mainstem Salmon River population occurs at the Sawtooth Fish Hatchery weir and represents adults returning to a small proportion of total habitat in the population. The average number of natural-origin returns to the Sawtooth Hatchery weir between 1986 and 2007 was 34 fish annually (11, page 37).

➤ *Part 2*

The Yankee Fork population is part of the Upper Salmon River Major Population Group (MPG) of spring and summer Chinook salmon. Regardless of hatchery influences, the National Marine Fisheries Service considers the Yankee Fork population persisting (12, page 4.4-2) based on natural reproduction of local stocks and not hatchery supplementation. The population is currently not viable with a *High Risk* status and the desired status is *Maintained*. The habitat improvement actions identified in the Yankee Fork Floodplain Restoration Project #2002-059-00 address limiting factors and have a reasonable chance of bringing the population to its desired status (12, pages 4.4-118 to 4.4-127).

➤ *Part 3*

Spring Chinook in the mainstem Yankee Fork are considered to be highly differentiated genetically from adjacent populations, but they are not significantly different from 10 hatchery samples derived from Rapid River Hatchery stock (12, Page 4.4-121). This observation likely reflects the outplanting of Rapid River hatchery stock into the mainstem Yankee Fork which occurred intermittently in years 1977 to 1991. In addition, Sawtooth Hatchery fish originating from the Upper Salmon River Mainstem population have been outplanted in the Yankee Fork to supplement natural abundance. West Fork Yankee Fork spring Chinook are genetically similar to other Upper Salmon River populations (12, page 4.4-119), even though the West Fork was reportedly supplemented with Rapid River stock Chinook salmon fry-fingerlings in 1977 (11, page 10).

Since installation of the temporary weir at Pole Flat, spawning fish entering the Yankee Fork have been separated; natural fish are passed over the Pole Flat weir, and hatchery fish are transported upstream above a second weir located upstream from the mouth of Jordan Creek. This action reduces interbreeding, but may be misleading because all offspring present between the weirs are unmarked and therefore considered "natural fish." Regardless of how the offspring between the weirs are labeled, over time, this action may serve to dilute Rapid River stock genetics present in the mainstem Yankee Fork and make offspring more similar to West Fork Yankee Fork fish, which were considered similar to upper Salmon River stocks.

The Tribes are currently planning to construct a permanent weir near the mouth of the Yankee Fork to collect adult Chinook salmon and steelhead. Some collected fish will be spawned at a hatchery, and the

offspring will be returned to the Yankee Fork for acclimation. This will enable a Yankee Fork stock of fish to become established and eliminate the need for continued supplementation from Sawtooth Hatchery (out-of-basin) fish.

- Fish habitats

The Tribes agree with the habitat comments from the ISRP 2012-5 Review Memorandum (07). Based on input from the Yankee Fork Inter-Disciplinary Team, the project concept, vision, and goals were refined in spring 2012. The December 2011 concept design and BDR reviewed by the ISRP as part of the Tribes response to ISRP 2008-11 Review Memorandum (06) have been substantially revised. The final BDR (09) incorporates many of the suggestions from the ISRP, and the current vision, goals, and objectives are summarized in the Proposal Executive Summary.

The target maximum velocity of 2 ft/sec was based on habitat suitability curves and was supported by the Inter-Disciplinary Team. As described in the BDR (09), the design balances three somewhat competing velocity design criteria (reduce versus increase velocity) as best as possible:

- a) Maximize habitat for juvenile salmonids at high flow (2-year flow=1,271 cfs in PS3 Side Channel) and low flow (5 cfs in PS3 Side Channel) → reduce velocities
- b) Maximize sediment transport capacity to minimize the potential for deposition of fine sediment and continued methylation of mercury → increase velocities
- c) Maintain perennial flow in the side channel, in part to maintain an existing water right held by Simplot → increase velocities

In regard to depth and velocity design criteria, CH2M HILL referred to the study conducted by Maret et.al. 2006 to obtain representative habitat suitability index values for juvenile Chinook salmon (this decision was endorsed by Reclamation and the Inter-Disciplinary Team because the Maret publication was considered the most regionally specific data available). The Maret publication (p. 10, left column) includes a link that brings one to this website

(http://id.water.usgs.gov/projects/salmon_streamflow/habitat_curves/); if one opens the Chinook Excel file and scrolls down, it shows suitability values for juveniles (the table states that data comes from Raleigh et al 1986). CH2M HILL investigated the data used by Maret et al. 2006 and the data presented by Raleigh et al. 1986 to develop appropriate habitat suitability curves for juvenile Chinook salmon based on flow depth, flow velocity, and substrate conditions. These are the data used for habitat suitability interpretation presented in the BDR (09); all hydraulic results were generated from CH2M HILL's 2D hydraulic modeling. CH2M HILL did not use any PHABSIM results (for any species or life stage), as the comment seems to imply.

As shown in the current design BDR (09), roughness elements such as wood and rocks will be placed in the side channel and floodplain to provide additional habitat complexity. The Tribes concur with the overall spirit of the ISRP comment regarding wood quantity (i.e., more is better) but are unsure if the original comment still applies to the final design which no longer contains ponds. Furthermore, the Tributary Assessment (08, page 112) identified this reach (Reach YF-3) of the Yankee Fork as having a high transport capacity and that wood would have been transported through the reach or stored on

connected floodplains. The 20 pieces per mile benchmark appears appropriate in the current design for the side channel. The incorporation of wood into the project is also constrained by the lack of large (> 2 ft dbh and >3 ft root wad diameter) logs in this part of Idaho. Reclamation and the Inter-Disciplinary Team will continue to look for opportunities to incorporate more wood into the design.

- M&E Plan

The Tribes will implement a Monitoring and Evaluation (M&E) Plan integrated across three Yankee Fork Fisheries Programs: hatchery, supplementation, and habitat. The Tribes will not prepare a separate M&E Plan for habitat activities. The M&E Plan will be integrated across the three Yankee Fork Fisheries Programs, with a scale and resource commitment appropriate for the resource objectives and proportional to the biological risk and/or project success risk. This approach will reduce redundant efforts, be more efficient, and be cost effective. The M&E Plan will also be scalable to the available annual funding for M&E. The Tribes anticipate using existing documents such as Klein et al 2007 (13), Bellmore and Baxter 2009 (14), and Roni et al 2010 (15) as references for developing and implementing M&E Plan to assess, as quantitatively as possible, the effects of habitat improvement activities on anadromous fish recovery and ecosystem function in the Yankee Fork.

2. Resolution of land access and conservation easement issues.

The Tribes understand the spirit of the ISRP comment relative to the associated construction funding investment in the PS3 Side Channel activity. However, many BPA funded projects exceed the projected costs of the PS3 Side Channel, and those projects are not required to be held in perpetuity under easement. At a programmatic scale, the suggestion that habitat improvement projects must be protected under easement should be a red flag to the Council and BPA; requiring this at a large scale would drive up project costs exponentially and therefore drive down the amount of habitat that can be created or rehabilitated proportionally to the costs of the easements. Progress in closing gaps identified in the FCRPS BiOp would grind to snail's pace.

The State of Idaho only supports conservation easements on a willing seller-willing buyer basis. At this time, no entities are interested in pursuing an easement in the Yankee Fork, and no conservation organization has stepped forward as a willing buyer. Should the ISRP try to compel an organization to take on an easement in exchange for funding the PS3 Side Channel activity, the State of Idaho will likely have a negative reaction. Additionally, half of the PS3 Side Channel activity is located on Federal land, and the other half is owned privately by the JR Simplot Company (Simplot). After many years of showing little interest, Simplot is now eager to allow the PS3 Side Channel activity to proceed, but Simplot has expressed no interest in selling an easement. Regarding the ISRP comment that the 20-year life span of the proposed protective agreement "leaves much to be desired," an agreement of this duration (equivalent to "4-5 generations of spring Chinook") far exceeds the life span of the FCRPS BiOp and likely that of future FCRPS BiOps.

Both the USFS and Simplot see the many benefits associated with the PS3 Side Channel activity, and the Yankee Fork Inter-Disciplinary Team is confident that both landowners are ready and willing to help protect the construction investment.

3. A benefits analysis demonstrating the proposed alternatives are favorable to fish and wildlife resources.

The PS3 Side Channel activity is considered an important first step in increasing production of native salmonids in the Yankee Fork watershed. Together, the PS3 Side Channel and future habitat improvement activities are expected to benefit salmonid production by addressing limiting factors at all life stages, especially for juvenile Chinook salmon. The vision, goals, and objectives of the PS3 Side Channel activity are described in the BDR (09) and the Proposal Executive Summary. The PS3 Side Channel activity will provide high flow refuge, winter cover, and year-round rearing habitat for juvenile Chinook salmon.

Based on the Habitat Suitability Analysis (CH2M HILL. 2012, in progress. PS3 Side Channel Habitat Suitability Analysis Technical Memorandum. Prepared for Bureau of Reclamation. Boise, Idaho.), suitable habitat in the PS3 Side Channel and adjacent reach of the mainstem is expected to increase relative to existing conditions. Specifically, suitable habitat at a 2-year flow (1,271 cfs) is expected to increase from 1.6 to 1.8 acres, an increase of approximately 12 percent. Assuming an average density of 4,047 juveniles per acre (based on the findings of Sekulich (1980)), the number of juvenile salmonids that can be supported in the PS3 Side Channel and the adjacent mainstem is expected to increase by approximately 500 fish at the 2-year flow. Exhibit 1 summarizes the findings from the habitat suitability analysis.

Exhibit 1. Yankee Fork PS3 Side Channel Existing and Proposed Conditions Habitat and Supported Juvenile Chinook at 1,271 cfs

	Mainstem Yankee Fork ^a		
	Existing	Proposed	Difference
Total Inundated Area (acre)	6.8	6.7	0
Total Weighted Usable Area ^c (acre)	0.4	0.4	0
Habitat Suitability Ratio ^d (--)	6.4%	6.4%	0.0%
Juvenile Chinook Density ^e (Fish/acre)	4,047	4,047	--
Supported Number of Juvenile Chinook	1,741	1,733	-8
	PS3 Side Channel ^b		
	Existing	Proposed	Difference
Total Inundated Area (acre)	7.0	6.7	0
Total Weighted Usable Area ^c (acre)	1.2	1.4	0
Habitat Suitability Ratio ^d (--)	17.9%	20.5%	2.7%
Juvenile Chinook Density ^e (Fish/acre)	4,047	4,047	--
Supported Number of Juvenile Chinook	5,050	5,551	501

^aMainstem reach between Cearley Creek Bridge and Cabin Creek Bridge

^bPS3 Side Channel and short reaches of mainstem near PS3 Side Channel inlet and outlet

^cWeighted Usable Area is defined as the cumulative sum of the product of global habitat suitability index values (depth SI x velocity SI x substrate SI) and 2D model grid area

^dHabitat Suitability Ratio is defined as the ratio of Weighted Usable Area to Total Inundated Area

^eJuvenile Chinook density of one fish per square meter (Sekulich, 1980) equals 4,047 fish per acre

While the specific design details associated with proposed future activities on the Yankee Fork are yet to be determined, all of the proposed activities would continue to focus on improving limiting factors for juvenile Chinook salmon and the Tribes consider Yankee Fork to be a very high priority. As discussed in CH2M HILL's report prepared for the Tribes in 2008 (17), despite the historical impacts to the channel and floodplain, the Yankee Fork still provides important rearing and spawning habitat for Chinook salmon, steelhead, and bull trout. Abundant late-summer flow and cold water temperature, two factors frequently absent in most anadromous fish restoration projects in the western United States, are already present in the Yankee Fork watershed, along with natural disturbance processes that contribute large wood directly to the river channel. The Tribes and Reclamation have spent many years working closely with the landowners and external stakeholders to define the project vision, goals, and success criteria. Reclamation has completed the Yankee Fork Tributary Assessment (08) and led completion of the PS3 Side Channel design. Currently, both landowners (Simplot and the USFS) are willing and eager to implement the PS3 Side Channel activity in 2012 as the first of multiple habitat improvement activities in the Yankee Fork watershed.

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