

# State, Federal and Tribal Fishery Agencies Joint Technical Staff

*Columbia River Inter-Tribal Fish Commission*  
*Idaho Department of Fish and Game*  
*Nez Perce Tribe*  
*Oregon Department of Fish and Wildlife*  
*Shoshone-Bannock Tribes*  
*US Fish and Wildlife Service*  
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June 14, 2004

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Dear Mr. Ruff, Mr. Anderson & Mr. Delwich:

The technical staffs of the state, tribal and federal fishery agencies have reviewed the June 8, 2004 Corps of Engineers and Bonneville Power Administration (Action Agencies) proposal to reduce summer spill for fish passage in the Snake and Columbia rivers. The Corps of Engineers and Bonneville Power Administration have not allowed adequate time to review the proposal, the supporting analysis and to prepare comments. The proposal includes three technical appendices, and the NOAA Fisheries analysis as the technical foundation of the proposal, which was not available for review, until June 9, 2004. The Action Agencies allowed only four working days to review and prepare comments.

A regional Executive meeting will take place June 14, 2004 to discuss the proposal with states, tribes and interested parties. We are providing these technical comments for the purpose of constructively informing the discussions and decision on the final proposal that will be provided to NOAA fisheries approximately June 21. Our summary conclusions are followed by detailed discussion of each point.

## *Conclusions*

- The proposed offsets are still poorly described and appear speculative. Thus it remains impossible to determine whether the offsets will actually mitigate the full impacts of reducing spill for summer migrants. Some of the proposed offsets do not apply to summer migrants at all.
- Although the agencies and tribes provided comments to the Action Agencies on February 20, 2004 and on April 9, 2004 on previous Action Agencies proposals to reduce summer spill and offsets to mitigate for impacts. Most of those comments have not been incorporated into the new BPA proposal and analysis. For this reason many of our original comments are reiterated in this review, since they are valid and applicable to this revised proposal.
- The proposal is based upon an inappropriate application of the SIMPAS model, pressing the model beyond its limitations, which are clearly identified in the NOAA Fisheries Biological Opinion and the ISAB review of the model. The proposal utilizes the CRISP model in an attempt to validate the SIMPAS results. The agencies and tribes have repeatedly stated their reservations and concerns regarding the utility and application of the CRISP model.
- The SIMPAS assumptions regarding the benefits of transportation operations for fall chinook present serious potential for underestimating impacts on ESA-listed Snake River fall chinook.
- The impact of the reduction of spill on unlisted stocks is poorly addressed and may not be mitigated adequately.
- The only flow offset that is clearly proposed for listed fish is a draft of 100 KAF of water from Brownlee Reservoir in July. The proposed benefits of the Brownlee flow offset remain uncertain due to difficulties in establishing whether this is “new water”. Past years operations of Brownlee indicate that passing inflow in July as projected by BPA would be highly unusual. Without adequate certainty that this is new water, the Brownlee offset is actually no different than the status quo operation.
- The proposal extends spill at upstream projects 21 days longer than at downstream projects. This approach is contrary to protecting the run at large based upon our knowledge of juvenile passage.
- Our overall conclusion, utilizing the best available biological data, is that the proposed offsets will not mitigate the proposed reductions of summer spill. Instead, the proposed reduction of spill will increase risks to the affected listed and unlisted salmon and steelhead. In addition the proposed offsets are insufficiently described, therefore, their benefits remain uncertain and difficult to analyze. Furthermore, mitigation consideration has not been included for non-listed stocks of fall chinook, such as the Deschutes, Umatilla and Klickitat rivers.
- Additionally, on May 18, 2004, we provided written comments to the Corps of Engineers regarding the inadequacies of the Bonneville Power Administration proposed spill evaluation study plan for Bonneville Dam, titled, “Summer Spill Evaluation”, SPE-04-NEW. Our conclusion and recommendation to the Action Agencies is that the proposed Bonneville spill study will not produce definitive results, applicable to spill management decisions and that the State, Federal and Tribal Agencies Joint Technical Staff do not support the implementation of the study.

- The proposal does not include adequate monitoring of effects of reducing spill or evaluation of the impacts. The agencies and tribes have previously recommended increased PIT tagging efforts on sub-yearling fall chinook.

### ***SIMPAS – Serious application limitations for management decisions***

Like previous proposals this most recent proposed operation is based upon SIMPAS model analysis of impacts of reducing spill and benefits of proposed offsets. Our comments on previous proposals to reduce summer spill and our even earlier comments to the region regarding the appropriate use of the SIMPAS model emphasized the serious limitations of SIMPAS in management decisions, such as the contemplated reduction of summer spill. These limitations were discussed in the NMFS Biological Opinion.

SIMPAS analyses are unable to assess the risk and uncertainty in each of the model parameters. Potential biases in parameters are ignored. Multiplying several estimates together, (propagation of errors) each with their own uncertainty and bias, makes for a very wide range of possible and plausible survival rates. The BPA analysis disregards these important uncertainties, making the analysis of risk to the affected populations unreliable.

Even with the significant limitations of SIMPAS, the Action Agencies have underestimated the impacts of reducing summer spill on listed stocks of salmon. The CRITFC staff has completed an independent SIMPAS analysis utilizing run timing parameters from FPC and NOAA and other model parameters from the previous NOAA Fisheries analysis. The only parameter that was modified was the reservoir mortality for The Dalles, which was set at a 3% decrease instead of 2%, based upon a conservative approach regarding fish passage at the project. Using the Action Agencies' most recent spill curtailment proposal, the CRITFC analysis resulted in a 37% or, 561 fish additional loss of Snake River fall chinook migrants above the Action Agencies' Snake River fall chinook lost estimates. This raises further concerns regarding the adequacies of the proposed offsets for both listed and unlisted fish.

### ***CRISP does not validate SIMPAS***

In response to comments regarding the inappropriate use of the SIMPAS analysis, the Action Agencies utilized the CRISP model results to corroborate SIMPAS. The Action Agencies conclude that the CRISP results validate the SIMPAS results. This entirely misses the point and does not address the concerns regarding the original analysis. The agencies and tribes have previously documented their significant lack of confidence in the CRISP model and the utility of the CRISP model. The CRISP analysis does not validate the results of SIMPAS. Major limitations to SIMPAS for these types of analyses, which we emphasized in comments on previous spill reduction proposals, also apply to CRISP. Peer reviews of the CRISP model (Carpenter et al. 1998) concluded that the CRISP model is over parameterized, too complex, incorporates too many mechanisms and produces overly optimistic projections. The use of the CRISP model does not give validation to the Action Agencies' SIMPAS-derived loss estimates. SIMPAS and CRISP model impact estimates are not robust as they both create relative estimates without confidence intervals. The passage models in general may reasonably represent passage routing and direct passage mortality, but do not account for differential delayed mortality by route of passage that can reduce survival to adult. Specifically the analyses using both models contain the assumption that direct survival of juveniles translates into adult return rates, which is not supported by the best available empirical data (February 20, 2004 Joint Technical Staff Comments). Two important points concerning using SIMPAS (or CRISP) to predict impacts to

fall chinook from summer spill reductions are clear. First, neither SIMPAS nor CRISP accurately predicts adult return rates. Second, the analyses are positively biased, over estimating adult returns, in part because delayed mortality of bypassed in-river groups is not addressed.

### ***Transportation of juvenile fall chinook***

The foundation of the Action Agencies' analysis of impacts and offsets of this proposal is the overriding assumption that transportation of juvenile fall chinook is beneficial compared to in-river migration. The state, federal and tribal fishery agencies submitted extensive comments regarding the basic assumptions of the benefits of transportation in the BPA analysis in comments submitted to the federal agencies on February 20, 2004. The quantitative benefits of transportation for fall chinook juveniles over in-river migration have not been demonstrated. Currently there is no data indicating that screen bypass and transportation provides an adult return benefit over allowing fish to migrate in-river. In fact, recent analysis of smolt-to-adult return rates indicate that a spread-the-risk policy allowing fish to migrate in-river as well as transported, such as in place for spring chinook, may be the most appropriate management approach. The maximization of transportation of fall chinook migrants is key to the Action Agencies analysis since the proportion of fall chinook removed from the river by transportation determines the assessment of impacts to listed stocks and the required offsets to address those impacts. Adult return rates for Hanford Reach and Snake River fall chinook indicate that a disproportionate number of adult fall chinook returns resulted from in-river migrants as juveniles. These are exactly the fish that will be affected by reduction in spill. The Action Agencies' analysis should consider alternative transportation scenarios such as spread-the-risk to assess impacts because the available data indicates that transportation does not provide the benefits assumed in the Action Agencies analysis of impacts and offsets.

### ***Selection against stock biodiversity***

The proposal fails to identify the issue that eliminating August spill will cause selection against later migrating stock components that contribute older year classes and higher proportions of adults to ocean, in-river harvest and the spawning grounds. PIT-tag return of Snake River fall chinook and coded-wire returns of Hanford fall chinook support the importance of later migrating juveniles to sock biodiversity (Tiffan et al. 2000). The preservation of remaining stock biodiversity is a critical component to recovery of Columbia River salmon runs (Williams et al. 1996). Although this issue was raised in our previous comments, it was not addressed in the most recent proposal.

### ***The Brownlee offset benefits are highly uncertain in terms of operations***

The Action Agencies' proposal to reduce spill includes a proposed mitigation offset action of drafting an additional 100 KAF from Brownlee Reservoir from July 8-28. Idaho Power Company has conditioned their commitment to pass inflow in July on the level of customer demand and market. The Brownlee offset as proposed is not clearly an additional action because the base operation that would be in place absent implementation of this proposal is not identified. Review of historical Brownlee operations shows that substantial drafts have occurred in July in past years. Over the past few years, Idaho Power Company released 2-3 feet of Brownlee water in July. Review of the past five years indicates that Idaho Power Company has not passed inflow in July. The BPA proposal indicates that Idaho Power Company indicated that operations could

vary depending on customer demand and market. Based upon our review of historical operations it appears reasonable to assume that Idaho Power Company is likely to have customer and market demands in July. In the period of July 7 through July 31 Brownlee drafted 301 KAF in 1999, 313 KAF in 2000, 86 KAF in 2001, 29 KAF in 2002 and 77 KAF in 2003. The runoff volume for the June final January-July runoff volume forecast for the Snake River at Lower Granite is 21.1 MAF, this volume is between the 18.4 MAF runoff volume that occurred in 2001 and the 23.8 MAF runoff volume that occurred in 2003.

Based on historical operations and the commitment to pass inflow in July, it appears probable that Idaho Power Company will implement their stated caveat, "passing inflow will be dependent on customer demand and market". Further, if it established that the 100 KAF is an additional draft over base operations, refill or decrease in draft rate of Brownlee in August could result in an additional adverse impact on juveniles migrating in August, which would then reduce or eliminate the net benefit of the proposed offset. Refill in August would be detrimental to listed and unlisted stocks. Further, the Brownlee proposed offset is not adequately defined in relation to the US Bureau of Reclamation release of the 300-400 KAF upper Snake River water volume. Therefore it is impossible to determine whether the proposed Brownlee draft is "new volume" or if it is simply shaping of the USBR commitment of Upper Snake River water.

***The Brownlee benefits are highly uncertain and flow augmentation is inadequate***

We are in full agreement with the Action Agencies admonition regarding their analysis of the effects and risks inherent in reliance on offsets. The NOAA analysis illustrated the wide prediction limits associated with the analysis if the Brownlee proposed flow offset. The Action Agencies characterized the limitations of their analysis as follows:

*"In reviewing these values it must be kept in mind that the confidence intervals around these estimates far exceed the level of effect that we are attempting to estimate. The same is true of the estimated effects of the offsets. We recognize these uncertainties and wish to emphasize that these values do not represent predicted values. They do, however, document our best efforts to inform our determination with a consideration of the relative magnitude of the effects and therefore the risks inherent in the reliance on offsets."*

Analysis of flow and temperature effects on survival of wild Snake River fall chinook clearly show that increased flow and decreased water temperature during downstream migration increases the survival of juvenile fall chinook (Connor and Burge 2003). Fall chinook juvenile migration data shows that migration timing distribution and travel time is inversely related to migration flow. Higher migration flows result in shorter travel times. The joint agencies and tribes comments submitted to the Action Agencies, on February 20, 2004, emphasized data supporting the positive effect of higher flows and lower water temperatures on fall chinook juvenile survival. We suggested that significant increases in migration flow could result in earlier juvenile fall chinook passage timing, which could reduce the proportion of the migration distribution, which would be present during the later periods when termination of spill is proposed. The Brownlee offset as proposed includes significant operations limits that do not include the potential to increase flows more than 2 kcfs per day. Further, as described by BPA staff at the June 10, 2004 Implementation Team meeting, the flows would not be constant over the proposed three-week release period, but would fluctuate to follow load and thus likely be reduced at night and on weekends. The aspects of load following was not incorporated into the

NOAA Fisheries analysis. Larger flow increases would be required to effectively change passage distributions to move the migration through the river prior to the ending of spill as recommended in the Joint Agencies and Tribes February 20, 2004 comments.

***Spill for fish passage dates are inconsistent with passage timing data***

The Action Agencies proposal provides summer spill for fish passage through August 21 at John Day and Ice Harbor dams and provides spill at Bonneville and The Dalles dams through July 31. This is counter-intuitive and is a result of the total reliance on the SIMPAS model analysis without consideration of other relevant passage data. This means that fish, which are bypassed in spill through August 21 at Ice Harbor and John Day upstream, would then be forced to pass through turbines at The Dalles and Bonneville dams. Studies of direct turbine mortality at The Dalles and Bonneville dams indicate that turbine mortality is significant, 16 % and 9% respectively. Delayed indirect turbine passage mortality to sub-yearling chinook was estimated by NMFS at 18% (Gilbreath et al. 1993). The significant investment and benefit of providing protection to this fish at upstream projects would be squandered by forcing these fish to pass through the particularly lethal route of The Dalles and Bonneville dams.

Historic fish passage distribution and travel time data were utilized to examine the impact of the BPA summer spill dates on the protection of the sub-yearling passage distribution of fall chinook in the Columbia and Snake rivers. Utilizing historic passage distributions at Lower Monumental Dam and travel time to McNary Dam and passage distributions at John Day Dam, we estimated travel times to illustrate the proportion of the sub-yearling chinook passage distribution that would receive spill protection with the implementation of the BPA proposed spill dates. The following table illustrates that in low flow years such as 2001, the BPA proposal would provide protection to less than 95% of the passage distribution in the Snake and Columbia rivers which has been the premise of the spill for fish passage mitigation measures. The historical data indicates that in low flow conditions the spill period should be longer to facilitate the extended migration, and that curtailing spill earlier has less impact in higher flow years. In low flow years spill should be provided for a longer period of time to protect the passage distribution.

Percent of the sub-yearling at large passage distribution protected by the BPA proposal

Year	Bonneville August 1	John Day August 21	Ice Harbor August 21
1998	88.3%	99.3%	95.5%
1999	92.3%	98.9%	95.6%
2000	84.7%	97.7%	94.7%
2001	49.7%	91.3%	91.9%
2002	93.8%	98.9%	97.4%
2003	86.6%	95.5%	97.7%

We utilized historical travel time data for sub-yearling fall chinook to estimate a reasonable date for end of spill at The Dalles and Bonneville dams based upon the proposed August 21, end of spill at John Day and Ice Harbor. Of the sub-yearling chinook (combination of hatchery and wild stocks) passing Ice Harbor Dam and continuing in-river to Bonneville Dam, ninety percent of the run will cover this 187-mile reach in 11 to 13 days based on PIT tag data of

subyearling chinook detected at both Lower Monumental and Bonneville dams for migration years 1998, 1999, 2002 and 2003. During the extremely low flow year of 2001, the time to transit this reach extended to 32 days. No estimate was available for 2000 due to only two PIT tagged subyearling chinook detected at both dams. If we utilize 13 days as a base travel time that is not exceeded by over 10% of the PIT tagged subyearling chinook in all but extremely low flow years, and apportion this base travel time between dams based on mileage covered, then the base travel time would be 8 days from Ice Harbor to John Day Dam, 2 days from John Day to The Dalles Dam, and 3 days from The Dalles to Bonneville Dam. Adding these base travel times to the August 21 end of spill date at Ice Harbor Dam provides dates of August 29 at John Day Dam, August 31 at The Dalles Dam, and September 3 at Bonneville Dam. These dates would provide passage in the lower river for fish that passed Ice Harbor during the implementation of the spill program.

### ***Hanford Reach Offset***

We must reiterate our February 20, 2004 comments on the Hanford Reach offset by reference. The Hanford Reach “protection program” was conceived in 1999, and developed in its current form as part of the Federal Energy Regulatory Commission relicensing of the Grant County PUD’s Priest Rapids/Wanapum hydroelectric project. The program is currently in place, will continue to be in place, and Grant County PUD has committed to implementing the program as part of the PUD’s FERC licensed operations. Consequently, this program cannot also be claimed as mitigation for the effect of curtailing summer spill by the Action Agencies. In addition the measures developed under the “protection program” to offset the impact of flow fluctuations in the Hanford Reach would be compromised by the loss of fish associated with curtailment of summer spill. Following are additional factors to consider regarding the “protection agreement” and its application to the Action Agencies summer spill proposal:

- **The impact comparison of pre versus post Juvenile Fall Chinook Protection Program is erroneous and invalid.** Completely different sampling methods were used during the two time periods (1998 and 1999-2003). Due to the limitations of the 1998 sampling program, the impact estimate was not derived using field data, but rather using area expansions based on undocumented estimates of fish density. A completely different sampling program was developed for 1999-2003 that was based on a random field sampling protocol, which produced impact estimates based on an area expansion. Because both the biological sampling and the methodology used to expand biological data to impact estimates are not consistent across the two time periods, the Action Agencies comparison between the two time periods is erroneous and invalid.
- **Current Hanford Reach entrapment studies will provide additional insight into the Reach-wide impacts of flow fluctuations.** A cooperative study by the Alaska Department of Fish and Game, Columbia River Inter-Tribal Fish Commission, Yakama Nation, Washington Department of Fish and Wildlife, U.S. Geological Survey and U.S. Fish and Wildlife Service was conducted during the spring of 2003 to develop an entrapment impact estimate for the entire 51-mile Hanford Reach. Additional analysis are planned that will provide useful insight into the Reach-wide effect of flow fluctuations and provide recommendations for

operations that will further reduce impacts to rearing juvenile fall chinook salmon. Additional measures based on these analyses over and above the current protection measures might represent new mitigation.

- **This proposed offset provides little or no mitigation for Priest Rapids Hatchery, Ringgold Hatchery or other mid-Columbia hatcheries that produce sub-yearling summer or fall chinook.** Hatchery reared summer and fall chinook are typically released at sizes close to 100 mm or larger. They are also actively migrating downstream. As a result, their susceptibility to stranding or entrapment would likely be minimal.
- **Impacts and mitigation of reduced spill on the non-listed stocks of fall chinook such as the Deschutes, Umatilla and Klickitat rivers are not addressed.**

***Acceleration of RSW installation does not benefit the effected species, fall chinook***

Unless the Action Agencies specifically identify a commitment to test and operate existing and new RSWs through August, the acceleration of RSW installation does not represent an offset for summer spill reductions because it does not provide any actual mitigation for fall chinook.

Depending on the operations, the RSW may primarily provide benefits to BPA because they allow fish passage with reduced spill levels. There are many outstanding questions that need to be resolved in order to guide widespread installation of RSWs. For example, there is little logic in moving forward with RSW installation at other projects when the Lower Granite RSW has yet to be evaluated for summer migrants. On May 10, 2004 the state, federal and tribal fishery agencies submitted a request to the Action Agencies to begin this research in 2004. However, this request was denied by the Corps, stating that the RSW summer test, which would benefit summer migrants, was not a high priority and that the research funds had been re-distributed to other projects. BPA has continued to oppose Lower Granite RSW testing for summer migrants as too costly due to power losses. The Action Agencies proposal to accelerate RSW installation as an offset for reduced summer spill is incongruous with respect to resolving passage for summer migrants at Lower Granite Dam before considering the technology at other dams.

***The hatchery and habitat fund offset and the NWPCC offset must be carefully considered***

BPA recently eliminated \$5 million from the NWPCC Fish and Wildlife Program. Now BPA is proposing \$3.3 million in funding to offset reduction in summer spill. The funding offsets are uncertain in terms of benefits for fall chinook, lamprey and other stocks that would be impacted by the summer proposal.

***Northern Pikeminnow program increase***

As we indicated in our comments on the first and the second Action Agencies' proposals, the pikeminnow offset is unlikely to mitigate the impacts of reducing spill. The agencies and tribes provided detailed analysis and data in February 20, 2004 and on April 9, 2004, which showed that additional reduction of pikeminnow predation and consumption rates, is highly unlikely. Any real increase in pikeminnow exploitation rates would require extensive catch effort in the forebay and tailrace boat restricted zones of the dams. Safety and security issues, in these areas make real expansion of the program unlikely.



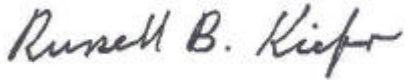
***The Adult Passage Impact Analysis is speculative and does not support its conclusion***

Appendix B of the proposal contains an Action Agency analysis of adult fallback impacts from spill curtailment. Although, the Action Agencies declined to include delayed and or extra mortality in their analysis because they are based upon “extremely small sample sizes”, the same proposal utilizes extremely small sample sizes in their consideration of adult fallback during no spill periods. The metric utilized is fallback escapement to upper river areas, not direct impacts to fallback fish. In addition, the analysis depended upon extremely small sample sizes of radio-tagged fish, in some cases single digits of fish. However, the analysis also states that 80 radio tagged fall chinook fell back through Bonneville Dam during no-spill periods and that 20 radio tagged fall chinook fell back through Ice Harbor during no-spill periods and that escapement was about 90% for these fish to upriver areas. The analysis also states that there is a 15-25% lower escapement for adult steelhead that fallback through non-spillway routes at Bonneville Dam. Recent research, entitled “Evaluation of Adult Salmon and Steelhead via Juvenile Bypass Systems at Bonneville, John Day, McNary and Ice Harbor dams, 2000-2001” concluded that 25% of the adult fish that fallback through a bypass system are lost due to unaccountable factors. Based upon these facts and data, there appears ample evidence that the spill proposal will increase mortality and reduce escapement of listed and unlisted salmon and steelhead adults. The Action Agencies have no direct evidence that reduction of or ending of spill will not impact adult escapement, and studies from the literature indicate that adult fallback through routes other than spill will significantly increase mortality. The precautionary principal requires shifting the burden of proof away from the critical resource in the face of uncertainty.

***Conclusion***

The State, Federal and Tribal Fishery Agencies appreciate the opportunity to comment on the Action Agencies’ revised proposal to curtail summer spill and provide projects to offset the impacts of spill curtailment. We have not been afforded adequate time to provide comments on the most recent proposal, thus these comments must be considered preliminary. We find that the revised spill proposal impacts to Snake River fall chinook are likely underestimated by the Action Agencies and that the impacts to unlisted stocks may be substantial. The Action Agencies have not considered empirical data with respect to the efficacy of juvenile transportation and delayed mortality through turbine and screen system passage routes that we believe may significantly reduce adult returns to harvest, hatcheries and the spawning grounds. Further, as we commented on the initial spill curtailment proposal, we believe the offsets are uncertain and inadequate to provide in-kind mitigation to stocks that would be affected by the proposed summer spill curtailment. In addition, the full impacts of curtailing summer spill in 2001 will not be determined until this year’s adult fall chinook year class returns to the Columbia River.

Sincerely,



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Dave Statler, NPT



Ron Boyce, ODFW



Keith Kutchins, SBT



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