

State, Federal and Tribal Fishery Agencies Joint Technical Staff

US Fish and Wildlife Service

Columbia River Inter-Tribal Fish Commission

Idaho Department of Fish and Game

Oregon Department of Fish and Wildlife

Washington Department of Fish and Wildlife

Shoshone-Bannock Tribe

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Dear Mr. Brown, Ms. Kalamasz, Ms. Fodrea and Mr. Peters:

Less than a week ago, at the SRWG meeting, the Corps of Engineers and the Bonneville Power Administration distributed a study proposal entitled, “2003 Summer Test Proposal – 1% McNary”. Although the time allowed for review is short, the state, federal and tribal fishery management agencies have reviewed the study proposal and offer the following response comments and recommendation. Although our comments are specific to this proposal, they illustrate wider concerns regarding the scientific design, analysis and data requirements to support management decisions relative to listed species protection. The following is a discussion of the specific technical concerns, which form the basis of our objection to the conduct of this study as proposed.

Despite the recent workshops on the proper use of mark-recapture methods for estimating smolt survival rates, the recent proposal for a study on the 1% of peak efficiency criteria at McNary in summer 2003 illustrates that the necessary experimental designs and research methods are not being incorporated. In an effort to clarify what elements constitute a valid research study for changing hydrosystem operations, we have outlined the critical components that are necessary for addressing a question of this type. Based on the failure to address these components, we conclude that the proposed 2003 study at McNary is deeply and critically flawed, will not support a management decision to eliminate the 1% peak efficiency turbine operating criteria under the

Biological Opinion (BIOP) protection measures and should not proceed until these problems are addressed.

Critical Elements for Mark-Recapture Studies:

- 1) Tag types and limitations. One of the most basic assumptions of the mark-recapture methodology is that test fish are representative of the population(s) about which inferences are made. Applying research results to species or size-classes that were not represented in the tagging operations for the studies is not acceptable. In the context of studies to evaluate potential changes in hydrosystem operations, this assumption requires that the study include representative samples from the populations that would encounter the hydrosystem during the proposed time that operations would change. Because of tag limitations, we believe that PIT tags allow the most flexibility for representing populations of various lengths. Radio tags are not suitable, because their size restrictions limit the populations about which inferences can be drawn. Balloon tags are not suitable because they are only usable on larger fish and because of their influence on the fish behavior.
- 2) Sample sizes. To provide a sound basis for changing hydrosystem operations, sample sizes must be adequate to address the relevant research question. Conducting a study with too few samples to detect an effect with sufficient statistical power will only result in scientifically invalid results that have very limited use in management decisions. With regard to the proposed McNary study, we estimate that survival is 1.1% to 1.6% lower when the turbines are operated outside of the 1% of peak efficiency bounds. Therefore studies to evaluate operations outside of the BiOp recommendations must have sample sizes that can detect a 1% difference in survival with sufficient power (80%, or $\beta = 0.2$) for the results to be meaningful.
- 3) Base conditions. We believe that fish survival is greatest when turbines are operated at peak efficiency. Development of the 1% of peak efficiency bounds in the BiOp was intended to provide operational flexibility, not as a starting point for evaluating alternative operations. Therefore studies to address this BiOp requirement need to include the test condition at which survival is expected to be highest (i.e., include operations at peak efficiency). If alternative operations are proposed for study, then they must include a comparison against peak efficiency.
- 4) Delayed and predation mortality. The components of dam passage involve a series of direct and indirect events that can influence fish survival. Premature removal of tagged fish from the hydrosystem experience (as with balloon tags) does not allow for a representative study on direct, indirect and delayed mortality as a result of hydrosystem passage.
- 5) Representation of migration route conditions. Changes in system operations will affect the fish that encounter the hydrosystem. Therefore studies investigating changes in system operations need to reflect the actual conditions that fish will experience arriving at, passing through, and traveling below the dam. This means that marked fish must be released upstream of the dam, allowed to experience gatewell conditions, pass through the turbines and the tailrace, and be detected at some downstream location. These effects are cumulative and cannot be studied by separating out the individual components.

Conclusion, Evaluation of the 2003 Proposed McNary study

Based on these criteria, we find that the proposed 2003 McNary study does not contain the elements necessary for an adequate evaluation of the 1% of peak efficiency requirements. Specifically,

- Operations at peak efficiency are not included
- Use of 3% effect size rather than 1% in sample size calculations
- Use of balloon tags
- Releasing fish into gatewells rather than upstream of project
- Inappropriate control group with two release locations
- Tagged fish not representative of all sizes/species that would encounter the dam

We hope these comments are useful in your consideration of this issue as well as future project specific studies that are intended to support management of protection measures for listed species. We have discussed some of these issues within the context of our response to the BPA original draft proposal to eliminate the 1% turbine efficiency protection measures included in the Biological Opinion.

Sincerely,



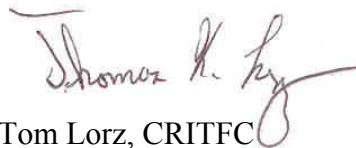
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