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February 26, 2009

DECISION MEMORANDUM

TO: Council Members

FROM: Mark Fritsch, project implementation manager

SUBJECT: Council decision on Project #2009-005-00, *Influence of Environment and Landscape on Salmonid Genetics*, a Columbia River Fish Accord project.,

PROPOSED ACTION: The Council staff recommends that the project sponsor continue to design the project for implementation. This recommendation is conditioned on the understanding that the structure and detail associated with the implementation of this project be dependant on a review by the ISRP of a study design as addressed as part of its review.

BUDGETARY/ECONOMIC IMPACTS

The total amount associated with this Accord project equals \$1,533,633 (e.g., approximately \$140,000 to \$170,576 per year¹) in expense funds for Fiscal Year 2008 through 2017.

BACKGROUND

In May 2008, Bonneville, U.S. Army Corps of Engineers, and U.S. Bureau of Reclamation signed agreements with the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), the Confederated Tribes of the Warm Springs Reservation (CTWSRO), the Confederated Tribes and Bands of the Yakama Nation (YN), the Columbia River Inter-Tribal Fish Commission (CRITFC), the Confederated Tribes of the Colville Reservation, and the states of Idaho and Montana to implement a set of projects and actions that will deliver specific, scientifically sound results for the region's fish and wildlife. Collectively these agreements are known as the Columbia Basin Fish Accords.

As with all projects in the Fish and Wildlife Program, the accord projects were subject to scientific review by the ISRP. As outlined in the guidance document associated with the review process for the Accords, the Council recognizes Bonneville commitments to the projects under the Accords. However, the Accords do not alter the Council's responsibilities with respect to

¹ Includes the anticipated 2.5% annual inflation adjustment, beginning in FY 2010.

ISRP review or the Council's role following ISRP review. Consequently, the Council will provide its recommendation on each project based on full consideration of the ISRP report and the Council's Program.

On November 4, 2008, the Council received from Bonneville a set of 11 Columbia Basin Fish Accords proposals. Included in this set was a proposal from the CRITFC for Project #2009-005-00, *Influence of Environment and Landscape on Salmonid Genetics*. The proposal was submitted to the ISRP for review, and on December, 12, 2008 the ISRP provided a review (ISRP document 2008-15). The ISRP members requested additional information before they could determine if the proposal met scientific criteria.

On January 28, 2009 the ISRP and the Council received a response from the CRITFC, and on February 19, 2009 the Council received the final review from the ISRP (ISRP document 2009-3). The ISRP found that the proposal "Does Not Meet Scientific Review Criteria" because it lacked adequate detail to meet certain review standards.

The *Influence of Environment and Landscape on Salmonid Genetics*, Project #2009-005-00 submitted by the CRITFC is a compilation of the following two Accord proposals from the May 2008 agreement. These proposals are new and are in a category as not benefitting an ESA action in support of the FCRSP BiOp implementation.²

- Proposal #2008-519-00, *Traits Related to Recovery*, Attachment B, New, Category 3
- Proposal #2008-521-00, *Landscape Genetics (Ch&Sthd)*, Attachment B, New, Category 3

The proposals were combined by agreement between the sponsor and Bonneville for the review submittal in order to reduce work and add efficiencies. The objectives of this project are twofold. The first is to determine the effects of watershed/landscape characteristics (e.g., elevations and barriers) to the genetic structure of Chinook and steelhead populations, and the second is to evaluate how environmental conditions influence the genetic expression (e.g., smoltification) as it relates to the recovery of steelhead populations. The project has the potential to contribute to the understanding of how and why life-history variations of Chinook salmon and steelhead/resident rainbow trout populations are distributed as they are in the Columbia River Basin. This information could provide information that would be helpful to the recovery of listed species.

ANALYSIS

The ISRP found that the proposed project did not meet review criteria, but appreciated the sponsor's effort and the information provided to date. In both the preliminary and final review provided by the ISRP, it was noted that this proposal, as combined, is large and complex. The ISRP found that the proposed project needs additional detail to meet review criteria and recommended that the sponsor provide a study design with the clarity and detail needed for such a progressive and innovative research study.

² Category 3 - Actions benefiting other fish and wildlife species addressed under the Northwest Power Act and additional RME actions.

The ISRP noted that the study design may take some time, but feels that the effort is needed to establish the two objectives and details to meet the review standards. The ISRP provided the following specific details to what is needed for each objective.

For the watershed/landscape-genetic objective the study design needs to include:

- *the specific hypotheses for the focal populations the analysis is intended to address*
- *the field locations where genotypic data will be taken from*
- *the sources and type of genotypic data for each site*
- *the type and location of environmental data*
- *the specific correlative analyses that will be performed on the data with an explanation of how the analysis of genetic data with environmental data from those sites resolves the questions posed in the hypothesis*

For the genetic-expression-of-traits objective the study design needs to explain the specific methods that will be employed:

- *the breeding design that is going to be used to identify QTL*
- *how alleles at QTL will be identified*
- *how the frequencies of these alleles will be estimated in natural populations*
- *how populations that are going to be screened for QTL allele frequencies and expression of HSP and Na/K ATPase will be selected*
- *how many populations will be screened*

Based on the need to gather additional details, the Council staff recommends that the project sponsor continue to design the project for implementation. This is conditioned on the understanding that the ISRP will review the recommended study design and that project structure and implementation will be determined in that design. In addition, it is anticipated that the project proponent will participate in development of a regional approach to monitoring, evaluation, research and reporting strategies and that some changes to scope and intent of this project may be adjusted when the regional strategy is in place.