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May 28, 2009

DECISION MEMORANDUM

TO: Council Members

FROM: Mark Fritsch, project implementation manager

SUBJECT: Council decision on Project #2009-009-00, *Basinwide Supplementation Evaluation*, a Columbia Basin Fish Accord project.

PROPOSED ACTION: Objective 1: The Council staff recommends that the Council request that additional information be provided that clearly describes the linkage of the DIDSON escapement monitoring to the approved Klickitat River Anadromous Fisheries Master Plan, and the suitability of this monitoring tool be fully justified for additional ISRP and Council review.

Objective 2, 3 and 4: The Council staff recommends that the Council support these objectives for implementation with the condition that the responses and the qualifications identified by the ISRP (ISRP document 2009-19) be addressed as part of contracting and be reflected in future reviews.

BUDGETARY/ECONOMIC IMPACTS

The total amount associated with this Accord project equals \$8,103,114 (e.g., ranging from \$726,901 to \$975,000 per year¹) in expense funds for Fiscal Years 2008 through 2017. A contract (#42631) is pending with a performance period of April 1, 2009 to April 30, 2010 at \$644,735.

BACKGROUND

In 2008-2009, Bonneville, the U.S. Army Corps of Engineers, and the U.S. Bureau of Reclamation (the "Action Agencies") 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), and

¹ This range includes the anticipated 2.5-percent annual inflation adjustment, beginning in Fiscal Year 2010.

the Columbia River Inter-Tribal Fish Commission (CRITFC). The agreement with these Tribes and CRITFC is referred as the Three Treaty Tribes MOA. The Action Agencies also signed agreements with the Confederated Tribes of the Colville Reservation (CCT), the Shoshone-Bannock Tribes (SBT), and the states of Idaho, Montana, and Washington. These agreements are known as the Columbia Basin Fish Accords.

As set forth in the guidance document outlining the review process for the Accords, the Council recognizes Bonneville's commitment to Accord projects. The Accords do not, however, alter the Council's responsibilities with respect to independent science review or the Council's role following such review. As with all projects in the Fish and Wildlife Program, Accord projects are subject to review by the Independent Scientific Review Panel (ISRP), and the Council provides funding recommendations based on full consideration of the ISRP's report and the Council's Program.

On March 16, 2009, the Council received from Bonneville a Columbia Basin Fish Accord proposal from the Columbia River Inter-Tribal Fish Commission (CRITFC) for #2009-009-00, *Basinwide Supplementation Evaluation*.

This proposal submitted by the CRITFC is a compilation of the following three Accord proposal from the May 2008 agreement.²

- Proposal #2008-513-00, *Improved Escapement Estimation*
- Proposal #2008-522-00, *Supplementation Benefits/Risks*
- Proposal #2008-523-00, *Supplementation Monitoring*³

The proposals were all supporting supplementation evaluations and were therefore combined by agreement of the sponsor and Bonneville for the review submittal.

The goal of this project is to support recommendations from the *Ad Hoc* Supplementation Workgroup (AHSWG 2008)⁴ for a basinwide evaluation of the long-term effects of hatchery supplementation on productivity of naturally spawning anadromous salmonid populations. To address this recommendation there is a need for more accurate and precise information on trends in abundance and productivity of supplemented salmon and steelhead populations and relative reproductive success (RRS) of naturally spawning salmon of natural origin versus hatchery origin within supplemented populations.

The plan for this phase of the proposal covers the following four specific objectives:

- Objective 1: Obtain an estimate of the 2009 natural spawning escapement of the supplemented spring Chinook population upstream of the Castile Falls complex in

² These proposals were listed in the May 2008 agreement in Attachment B, New, Category 3 - Actions benefiting other fish and wildlife species addressed under the Northwest Power Act and additional RME actions

³ 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 2008-523-00, *Relative reproductive success of reintroduced Columbia River salmon populations – Phase I*. On December 15, 2008 the ISRP provided its review - "Response Requested - Meets Scientific Review Criteria (Qualified)". This proposal is now incorporated into the proposal #2009-009-00.

⁴ <http://www.nwcouncil.org/fw/program/2008amend/uploadedfiles/95/Final%20Draft%20AHSWG%20report.pdf>

the upper basin of the Klickitat River (three years) using a pair of Dual-Frequency Identification Sonars (DIDSONs).

- Objective 2: Complete development of a mark-recapture likelihood model that incorporates tag loss, including the uncertainty of the tag loss estimate, into the inference for population abundance (one year).
- Objective 3: Perform a relative reproductive success (RRS) study of natural origin (NO) versus hatchery origin (HO) salmon in a population associated with an ongoing supplementation monitoring and evaluation program for which tissue samples have been collected but for which genetic analysis and estimation of RRS remains unfunded (10 years).
- Objective 4: Perform RRS studies of NO versus HO salmon in four to five different populations that have been reintroduced (following extirpation of the native population) and supported through hatchery supplementation (10 years).

The proposal was submitted to the ISRP on March 26, 2009 for review, and on May 22, 2009 the ISRP provided a review (ISRP Document 2009-19). The ISRP found that three (Objectives 2, 3 and 4) of the four objectives addressed by this proposal “Meets Scientific Review Criteria (Qualified)”, and the remaining objective (Objective 1) received a “Response Requested”.

ANALYSIS

As noted above the ISRP provided their recommendation by objective.

Objective 1: DIDSON Escapement Estimation - “Response Requested”

The ISRP found that the objective as described in the proposal was not adequately linked to the Klickitat River Anadromous Fisheries Master Plan (*Klickitat Fishery YKFP Design*, Project #1988-115-35). In addition, the ISRP had questions regarding the suitability of the technology to monitoring supplementation. The ISRP had provided its review of the master plan in June 2008 (ISRP Document 2008-6). Based on this review the Council had approved the master plan in August 2008. There seems to be a need to clarify the linkage of the proposed effort under this accord project and the ongoing planning effort as approved for the spring Chinook supplementation program in the Klickitat Subbasin, and provide additional detail regarding the use of DIDSON as a monitoring tool.

In an initial discussion with the project sponsor, they agree with the ISRP that the proposal could have provided additional information to explain how the project supplements restoration efforts described in the Klickitat Master Plan – particularly the concerns raised by the ISRP regarding the proposed renovation of the Castile Falls Fishway outlet, including installation of a fish-counting system – and that they will include this information as part of a response they are preparing to the ISRP.

Staff Recommendation (Objective 1)

Council staff recommends that the Council request that additional information be provided that clearly describes the linkage of the DIDSON escapement monitoring to the approved Klickitat River Anadromous Fisheries Master Plan, and the suitability of this monitoring tool be fully justified for additional ISRP and Council review.

Objective 2: Development of a mark-recapture likelihood model - “Meets Scientific Review Criteria (Qualified)”

The ISRP requested additional clarity and evaluation of the benefits of the model being proposed, and how different the approach and results are compared to other models that estimate tag loss. The ISRP presented these recommendations so that the model development and the anticipated presentations associated with this objective would be strengthened.

The Project sponsors indicated that in their response to the ISRP, they will provide additional information reemphasizing how the binomial-hypergeometric model presents substantial advantages relative to other proposed models, particularly in terms of ease of applicability by biologists to field situations/data sets. The sponsors also indicated that they would welcome the opportunity to provide a presentation and demonstration of the model to the ISRP.

Objective 3: Support for unfunded RRS Study - “Meets Scientific Review Criteria (Qualified)”

The sponsor proposes to provide financial support to a supplementation monitoring program where valuable RRS assessment information has been collected (e.g., tissue samples have been collected), but funds are lacking to cover the costs of the genetics analyses. The ISRP is supportive of this objective, but requests that the efforts associated with the evaluation of relative reproduction success that have been reviewed in the past be responsive to comments received in past reviews. Currently several projects in the program have activities associated with RRS and the ISRP wants to ensure collaboration on this objective’s implementation.

Objective 4: RRS in Reintroduced/Supplemented Populations - “Meets Scientific Review Criteria (Qualified)”

This objective is linked to the Accord proposal (Project 2008-523-00, *Relative reproductive success of reintroduced Columbia River salmon populations – Phase I*) that was initially submitted in November 2008 by Bonneville. Based on the preliminary review the proposal received from the ISRP in December 2008 the rationale and design of the proposal were modified by CRITFC and then incorporated into this proposal.

The ISRP is supportive of the relative reproductive success investigation of reintroduced salmon and the potential this activity has to contribute to the understanding of the demography of the reintroduced populations and potentially to the evaluation of re-adaptation to natural environments. The ISRP is generally concerned with the capacity and ability of the investigation to measure the differential productivity/fitness between hatchery and natural origin returns (HORs and NORs). The ISRP qualified its review for additional clarification, detail and summary and sequencing the information associated with the different components of this objective. It seems that these additional needs are intended to strengthen the objective and ensure findings are linked to implementation that is occurring.

The project sponsor appreciates the review and comments received from the ISRP, and share their concerns that the proposed designs will have limits to their statistical power, and that they may not be able to parse out genetic versus environmental effects within the HO versus NO comparisons. Additional clarity will be apparent regarding the statistical designs for each study, and the power to determine the nature and magnitude of productivity differences among spawner types following identification of the particular populations for study and assessment, and this information will be provided in the proposal for Phase II of the project. However, despite their

limits, given the highly complex nature of the situation, the sponsors believe the designs will provide a reasonable balance between the value and precision of the information to be obtained, and logistical constraints and financial commitments required to perform the studies.

Staff Recommendation (Objective 2, 3 and 4)

The Council staff recommends that the Council support these objectives for implementation with the condition that the responses and the qualifications identified by the ISRP (ISRP document 2009-19) be addressed as part of contracting and be reflected in future reviews. As indicated above, CRITFC has expressed their intention to submit a response that can be forwarded to the ISRP and be part of the record associated with the implementation of this phase of the project, and that the concerns expressed by the ISRP will be addressed as part of future phases and associated ISRP reviews for this project (i.e., RRS Integrated Study Plans).