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June 13, 2001

Brian Allee
Columbia Basin Fish and Wildlife Authority
2501 SW First Avenue Suite 200
Portland, Oregon 97201

Doug Marker
Northwest Power Planning Council
851 SW 6th Avenue, Suite 1100
Portland, Oregon 97204

Dear Messrs. Allee and Marker:

Subject: Project 21004, "Determination of difficult passage areas, migration patterns and energetic demands of upriver migrating salmon and steelhead by examining swimming activity with EMG and standard transmitters"

The Pacific Northwest National Laboratory (PNNL) and Yakama Nation (YN) are preparing a statement of work for submission to BPA to initiate the above study in the Klickitat River Basin. It recently became obvious to us that the Council and the Authority should provide guidance on two issues relative to the study objectives and budget. I explain these issues below.

PNNL originally proposed the project in the Gorge Province as a three-year study that would evaluate difficult passage areas for salmonids at Lyle and Castile falls. The ISRP and the Authority reviewed the proposal. The ISRP recommended the project be funded. The Authority ranked the project as a Recommended Action but co-managers were concerned the project would delay implementation of the already planned fish passage improvements. PNNL and the YN discussed these concerns and I sent a letter to CBFWA and NPPC that clarified the objectives of the project and explained that the project would not delay implementation of the fish passage improvements (see attached letter dated December 22, 2000). The Council Staff Decision Draft document (January 31, 2001) recommended "a scaled-down project test in the Klickitat because of the innovative qualities of the proposal and its potential to establish baseline information in the Klickitat." The Council recommended that BPA fund the project within the Gorge Province for FY 2001 at an amount of $319,542. No recommendation was provided for FY 2002 or 2003.

The original proposal we submitted did not specifically identify the species we intended to study. We anticipated the species selection would occur following consultation with the co-managers. We have been meeting with Bill Sharp and David Fast of the YN Fisheries staff and they recommended fall and spring chinook be studied. Fall chinook were recommended because upstream passage at Lyle Falls is especially difficult for them during the low flow period; fall chinook have been observed jumping repeatedly at the falls near the existing fishway. In addition, the YN is interested in baseline information on fish activity at the Lyle Falls fishway prior to its replacement. Consequently, we plan to examine fall chinook salmon passage at Lyle Falls in October and November, 2001.

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The co-managers in the Klickitat are also interested in spring chinook passage at Lyle and Castile falls. Spring chinook salmon are native to the Klickitat and expanding their range is a key objective in management plans. The examination of spring chinook energetics at Lyle and Castile falls has been an implied goal of this study since it was first proposed. However, there are some issues regarding the capture of spring chinook that suggest a feasibility study in the spring of 2002 would be appropriate before embarking on a full-scale study of this species. Thus, we have proposed capture techniques be tested in June and July of 2002, and if successful, approximately 10 fish would be tagged and tracked at that time.

The first issue we request consultation on is in regard to project scope versus budget. Under the current budget recommendation by the Council ($319,542 for one year), we can not complete a full-scale evaluation of fall chinook and a feasibility study on spring chinook. We estimated that this would cost approximately $400,000 (this includes approximately $25,000 for the YN to assist us). Given the importance of both species in the Klickitat, we request that the Authority and the Council consider the appropriate path forward on this issue. Should we focus on one species only and if so, which one? Is there additional money from FY 2001 that can be allocated to this study now so that both species can be studied, consistent with the YN recommendations? Can we assume that additional money will be available to continue this study next spring?

This last question brings up the second issue. We originally proposed that this project be conducted over a period of several years. Our experimental objectives require us to do a pre- and post-construction evaluation of difficult passage at Lyle and Castile falls. However, the Council only recommended one year of funding. I believe the decision to only fund the project for one year will not provide the information the co-managers need in order to evaluate fish passage options in the Klickitat and is not consistent with the original intent of our proposal. We would request that the Council and the Authority review this decision and provide an opinion on whether additional funding will be available for this project in FY 2002 and 2003.

Time is of the essence. If you concur that we should begin this project by evaluating fall chinook salmon, we need to be on the ground by August 1, 2001. This doesn't leave much time as the final statement of work still needs to be approved and equipment needs to be ordered and deployed.

I look forward to hearing from you on these issues.

Sincerely,

David Geist

David R. Geist, Ph.D.
Ecology Group
Pacific Northwest National Laboratory

Enclosure

cc: David Byrnes, BPA
Tom Iverson, CBFWA
Bill Sharp, YN

December 22, 2000

Columbia Basin Fish and Wildlife Authority
2501 SW First Avenue, Suite 200
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Subject: Comment on Gorge Project 21004 and Innovative Project 22063, "Determination of difficult passage areas, migration patterns and energetic demands of upriver migrating salmon and steelhead by examining swimming activity with EMG and standard transmitters"

Dear CBFWA and Council Members:

The purpose of this letter is to provide additional clarification of objectives, deliverables, and schedule for the above referenced project. I believe this information is needed by the Council and their staff as they prepare to make recommendations on project implementation in the Klickitat River sub-basin. Hopefully this letter will also respond, where appropriate, to review comments made by the Independent Science Review Panel (ISRP).

This project has been proposed in two different forums - the Columbia Gorge Province (Project 21004) and the Innovative Proposal category (Project 22063). Essentially they are the same project with the only difference that the duration of the study proposed in the Gorge Province was proposed for three years versus one year in the Innovative category. In both forums, the ISRP has recommended the project be funded by Bonneville Power Administration. In the review of the project within the Gorge Province, the ISRP concluded "*that there was a definite need for project 21004 to be more integrated with the KFP [Klickitat Fisheries Program] projects*" (ISRP, 2000-9, December 1, 2000). I agree with this comment, and am presently developing study plans in close cooperation with Fish and Wildlife staff from the Yakama Nation (YN).

The ISRP also concluded in their review that the proposed study will provide "*information on whether the fishway improvements [Lyle and Castille falls] are indeed required and at what times of year (i.e., what flow conditions)*" (ISRP, 2000-9, December 1, 2000). While our proposed study will provide information on flow specific passage conditions that result in increased swimming activity, this specific study was not designed or proposed to determine whether fishway improvements are required in a specific area. A study of that nature would have required a larger sample size in order to meet statistical

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rigor. In contrast, we proposed using 40 electromyogram (EMG) transmitters spread over 4 target species/sub-species during multiple seasons. Our experimental design will result in preliminary information on possible areas of difficult passage, not a definitive evaluation of specific areas where fishways are needed.

My understanding is that anadromous fish migrating upstream in the Klickitat River sub-basin are impeded at Lyle and Castille falls. For example, spring chinook salmon rarely are observed above the Castille Falls fishway, and Lyle Falls fishway does not meet current fish passage design criteria (Klickitat Sub-basin Summary, 2000). Observational data at Lyle Falls appear to bear this out. This past fall when flows were low, fall chinook salmon were observed jumping repeatedly at the fishway only to fall back without passing. Observations in the past several weeks show that coho salmon are not spawning above Lyle Falls at the same level observed in previous years but are spawning below the falls at higher than normal numbers. This would suggest that the run is at least partially blocked by the degraded fishway at Lyle Falls.

Fisheries managers in the Klickitat River Basin have recommended fishway improvements are needed to reduce passage delay and reduce injury. Presumably, reduced passage delay will reduce energy use and improve spawning success. The purpose of this study is to use fish implanted with EMG radio transmitters to determine which areas of fish passage provide the greatest problems for fish and to examine how different operational schemes can facilitate improved passage. Further, we added a task into the proposal to address ultimate fate of test animals to observe whether there was a correlation between difficult passage and spawning success (i.e., whether they reached the spawning grounds). This additional task was suggested in the first ISRP review of the Project (ISRP 2000-8, October 6, 2000).

I envisioned the deliverable from this study to consist of a pre- and post-construction evaluation of fish behavior and relative muscle activity (at fine spatial scales) as they passed, or attempted to pass difficult passage areas. The pre-construction results of the study would be used by engineers to ensure that proposed fishway construction plans would ameliorate conditions that posed a higher than average activity index. Post-construction results would be used to verify that passage conditions were improved from pre-construction conditions, identify additional problem areas that need correction, and enhance the ability of facility operators to maintain favorable conditions (e.g., good attraction flows).

Finally, I would like to clarify our schedule. Originally we intended this study to be conducted on spring chinook salmon beginning in May, 2001. I was recently told by the manufacturer of the EMG transmitters that a lead time of 12 to 16 weeks may be necessary to deliver the transmitters; apparently a world-wide shortage of electronics has made it difficult to obtain some of the necessary parts. In addition, we still need to develop a detailed study plan in cooperation with the YN and other managers within the sub-basin, construct the respirometer and other equipment, train staff, and set up equipment. My experience with a similar project that will be conducted this spring at Bonneville Dam suggests that even if this project were funded today, it would be difficult to be ready to collect data by the first of May. Since it is unlikely that funding will be in place before the end of February 2001, I am proposing that we do not implement this study until the fall of 2001. This will work out better for two reasons. One, it gives us more time to develop a coordinated study plan, procure the equipment and supplies, and set up equipment. Two, based on the difficult passage conditions experienced by fall chinook and coho salmon, this would appear to be a better time frame (i.e., low flow) to identify passage problem areas. We can continue the study in the spring of 2002 with spring chinook salmon and/or steelhead. I anticipate that by the spring of 2002 (~May 1), we would have a preliminary report on the results from the fall chinook/coho work, and by the fall of 2002 (~September 30) the results from the spring chinook work. Post- construction evaluation of passage conditions for both fall low flow period and spring high flow period would follow in years 2 and 3.

I hope this clarifies the objectives, deliverables, and the schedule of our proposed work. We look forward to working with you, the YN, and the ISRP in implementing this project in the Klickitat Basin.

Sincerely,

David R. Geist, Ph.D.
Senior Research Scientist
Ecology Group
Pacific Northwest National Laboratory

cc: Bill Sharp - YIN
David Fast - YIN
Richard Brown - PNNL