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MEMORANDUM

TO: Fish Passage Advisory Committee
Rob Lothrop, CRITFC

FROM: Michele DeHart

DATE: March 27, 2007

RE: Snake River Fall Chinook life history investigations

In response to your request we reviewed the 2007 proposal by Tiffan (USGS) and Connor (USFWS). In addition, for reference, we reviewed the project proposal posted on the CBFWA web site. However, our comments are limited to the specific proposal which was discussed at the March 20, 2007 FPAC meeting (attached). Our following comments do not offer any opinion on whether or not production fish should be provided for the proposal. Our comments focus on the potential management application of results of the proposed study and potentially misleading inferences in the proposal. **Our overall conclusion is that the study results will not be applicable to management decisions and will not inform transportation study design options.**

Purpose of the study

The researchers state that this study on the effects of juvenile fall Chinook salmon life history will inform transportation study design options on summer spill and transportation studies. Further these state that it is assumed that fish not detected at Lower Granite Dam are mortalities in survival estimation. This is not actually true. Survival estimations, in particular those related to survival in spill, utilizing Cormack Seber Jolly methodology compares PIT tagged fish detected at Lower Granite Dam with PIT Tagged fish detected at down stream projects, both seen and unseen at Lower Granite Dam.

Reservoir versus stream life history

These terms are misleading and infer that these are two separate fall Chinook life histories. Extensive estuary sampling occurred in 1980 and 1981 through the Columbia River Estuary Studies. Fall Chinook were sampled throughout the year including winter. Results of that study indicate that fall Chinook overwintering is not an alternate life history but a facet of fall Chinook life history that has always occurred to some degree. Review of PIT tag results (May 5, 2005 FPC memorandum) indicates that fall Chinook overwintering appears to be related to fish size and time of release. In addition it appears that overwintering may be variable year-to-year. It is likely that regardless of transportation or in-river migration fall Chinook overwinter to some degree. This may specifically relate not to an alternate life history but to fish management differences between the Snake River and Clearwater components of the Snake River fall Chinook ESU.

The study groups are not representative of the actual migration or production and management programs, therefore it would be difficult to use results in any management application. The key element of any tagging study is the assumption that the tagged population is representative of the untagged populations to which study results will inform management decisions. This proposal raises serious concerns about that assumption. The study fish will be manipulated for size and held in an acclimation facility and released throughout the summer and fall and tagged with acoustic tags and PIT tags. The manipulation of size, rearing, handling and release as proposed does not reflect any management or production group. Fish size requirements for tagging select for the larger fish in the population. Double tagging as proposed has been discouraged in other applications due to the unknown effect on behavior and survival raising questions about the application of these results to the run at large. The data that is available thus far on “surrogate” hatchery groups utilized in research indicates that they are not representative of the run at large or any management groups or wild groups, raising questions about the usefulness of the results.

ATTACHMENT

2007 Request for 2,000 Production Size LFH Subyearlings – BPA Project 2002032

USFWS (Billy Connor) and USGS (Ken Tiffan)

We are conducting a study on the effects of juvenile fall Chinook salmon life history on summer spill and transportation studies. It is currently assumed that PIT-tagged fish that are not detected at Lower Granite Dam are mortalities in survival estimation. This assumption is violated when subyearlings delay their migration, overwinter in a reservoir, and complete seaward migration undetected during the spring when spill is prevalent at the dams. This "reservoir-type" life history invalidates SAR estimates made by use of conventional methods. It is the primary reason that consensus on a long-term transportation study design has not been reached. The data collected on the subyearlings we are requesting will help to bring about a consensus study design.

We originally planned to obtain authorization to tag some of the surrogates at DNFH to provide data for our study. In the absence of surrogate releases in 2007, we are requesting 2,000 production subyearlings from LFH. Of these, 750 will be either radio tagged or acoustic tagged. The extra 1,250 subyearlings will insure that fish meet tagging-size criteria and provide for limited mortality during holding. The subyearlings would be tested for disease in late April and then transported to DNFH in early May. Groups of the subyearlings would be tagged and released monthly from mid-June to mid-November at the Big Canyon Creek acclimation facility. The left over fish from radio and acoustic tagging will be PIT tagged and released at Big Canyon Creek one week after last release of radio-tagged and acoustic tagged fish.

Complete details on the original study design are available at <http://www.cbfwa.org/projects>. Enter 200203200 in the search box.