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MEMORANDUM

TO: Fish and Wildlife Committee members

FROM: Al Giorgi, Dave Ward (CBFWA) and Jim Ruff

SUBJECT: Status of regional PIT-tag coordination efforts

Background

In the ISRP/ISAB's Tagging Report (ISRP/ISAB 2009-1), one of the major recommendations by the scientists was to improve regional coordination of all fish tagging projects. Development of a regional tagging/marketing plan, of which PIT¹ tagging would be a component, would be an important step to help improve coordination. Additionally, the NOAA Fisheries 2008 FCRPS Biological Opinion (BiOp) calls for the federal action agencies, in collaboration with fishery agencies and tribes, to formulate an action plan for conducting hydrosystem status monitoring that coordinates tagging efforts across the 4-H's (RPA 52.6). As part of that overall plan, federal managers have requested an inventory of recent and planned PIT tagging be provided as a first step. Furthermore, they requested that the numbers of fish tagged in each ESU/population unit be assembled and linked to specific projects, with the intent of fostering coordination among projects.

Archiving and sharing of PIT-tag data are coordinated by the Pacific States Marine Fisheries Commission under PITAGIS. Currently most PIT tagging is associated with specific studies. When tagging project designs are robust and well coordinated, PIT-tagged fish from one project can be used by others, e.g., NOAA Fisheries uses fish tagged by the Comparative Survival Study when appropriate. There is regional interest in employing PIT tags for integrated life-cycle monitoring of hydrosystem survival, hatchery straying, and estuary and tributary restoration effectiveness studies. The ISRP/ISAB report stated that opportunities exist to refine the data collections to support salmon management in the Basin by coordinating PIT tagging across management domains. However, the magnitude of the required data collections due to the large

¹ PIT stands for Passive Integrated Transponder tag system, which are 12.5 mm long and 2 mm wide glass encapsulated tags weighing about 0.1 gram. PIT tags are passive in the sense that the tag is energized as it passes through or near a transceiver antenna, which are located in many mainstem federal juvenile and adult fish passage systems.

numbers of juvenile fish tagged, the number and location of detection sites required, and trade-offs between the precision of estimates of vital statistics and sampling and recovery efforts may be impediments to coordination and standardization. In addition, it will be important to avoid obsolescence of the data base and PIT detection methodologies as new tags and detection methodologies develop in the future.

Adequate detection of PIT tags is important because it relates directly to the number of fish needed to be tagged to produce a survival estimate with a desired level of precision. That is, a system with higher detection probability requires tagging fewer fish, relative to a system with lower detection probability, to produce a survival estimate with the same level of precision. Due to relatively low PIT tag detection capabilities (ranging from 5% to 70%),² very large numbers of juvenile salmonids must be PIT tagged and released into the Snake and Columbia rivers each year to produce reasonably precise survival estimates.³

Status of PIT Tag Inventory

The purpose of assembling an inventory of PIT-tag information is to determine if fish from particular salmonid populations are being tagged in sufficient numbers to acquire fish passage metrics of interest as specified in both the NOAA Fisheries 2008 BiOp and the Council's 2009 Fish and Wildlife Program (Program). This inventory database would be a component of the tagging action plan as identified in the 2008 BiOp.

The objectives of this inventory are to:

- Determine if the population coverage and sample sizes are adequate to satisfy 2008 BiOp and Program needs.
- Facilitate efficient coordination of tag use among assorted investigations (across H's).
- Scope the magnitude of the collective effort so that opportunities for cost savings (through tag sharing) can be ascertained.

² The proportion of PIT tagged fish detected at each dam varies depending on the features of each project's juvenile fish bypass system and dam operations, i.e., higher spill levels results in fewer PIT tag detections at a project. The Corps has research underway to evaluate the feasibility of installing PIT tag detectors in a spillway at a dam.

³ Roughly two million PIT tagged juvenile salmonids are released annually in the Snake and Columbia rivers.