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MEMORANDUM

TO: Al Giorgi
Jim Gieselman
FPAC

FROM: Michele DeHart

DATE: December 29, 2011

RE: Comments DRAFT PIT tag plan (Draft) for the Snake-Columbia River Basin

This document provides comments by the Comparative Survival Study Oversight Committee on the draft PIT tag plan for the Snake-Columbia River Basin. Following the June 7, 2011 release of the draft plan, a work session was held on Sept 16, 2011 to present the plan and address questions regarding the objectives and scope of the plan. The following comments are presented, in two parts, General Comments and Specific Comments. The CSS Oversight Committee is comprised of state, federal and tribal fishery managers. The following comments are a collaborative effort of these entities. These comments are provided in addition to but not in replacement of the comments provided on this Draft by the individual state and tribal fishery managers.

General Comments

Our overall impression is that the Draft is difficult to review as a "Plan" because it does not identify specific actions or a timeline for implementation. The management application of the Draft Plan is not identified. This is an important consideration in reviewing the Draft Plan. If the intended management use of the Draft Plan is to direct or prioritize funding, then the following comments regarding lack of tag coverage of some stocks or groups (following general and specific comments) become critical. The Draft identifies the scope or the components that would be included in a PIT Tag Plan. The development of the present Draft did not include adequate participation of the non-federal fish and wildlife managers. The future development of a PIT tag

plan for the region should be inclusive of the state and tribal fishery managers and their objectives. An improved process for development of a PIT tag plan should be developed that includes state and tribal entities, in contrast to a plan developed only by the federal agencies.

As stated in the Draft, PIT tags are used in a variety of species but they are most frequently used in anadromous salmonids. The PIT tag plan also identifies several needs of the 2008 Federal Columbia River Power System Biological Opinion (FCRPS BiOp) that are met through the analysis of PIT tag data. Multiple research monitoring and evaluation (RM&E) related RPA's depend on this information. However, the specific objectives of the plan are not clearly articulated and therefore evaluating the plan is difficult. In its current form, the plan provides little direction or prioritization of the specific actions and tasks that should be completed over the next decade to improve the management utility and precision of data derived from PIT tags. Although the Draft Plan infers flexibility to meet future monitoring needs, a clear process for participation of all state, federal and tribal fishery managers is not described.

The comments contained herein are a response to the draft plan and discussions held at the work session. The Comparative Survival Oversight Committee has coordinated with and received input from several agencies in preparation of this document to include: U.S. Fish and Wildlife Service, Columbia River Inter-tribal Fish Commission, Idaho Department of Fish and Game, Oregon Department of Fish and Wildlife, and Washington Department of Fish and Wildlife. This response to the PIT tag plan is focused on the fishery agencies' and tribes' goal of establishing and consistently maintaining a long-term time series of, reach survival, smolt-to-adult return and adult passage life-cycle monitoring data. This response encompasses three primary topics: (i) adequate coverage of groups or stocks across the Columbia and Snake River basins; (ii) strategic locations for additional detection to improve survival model estimates, adult return data, and to support other PIT tag applications that meet the needs identified above; and, (iii) plans for tag effects studies of PIT tags.

Adequate mark group coverage of Columbia Basin stocks for whole life-cycle monitoring

The PIT tag plan lacks a scheme for long-term PIT tagging that has adequate coverage of various groups/stocks within the Snake-Columbia River Basin. A key objective of the CSS is the coordination of CSS marking with other marking occurring throughout the basin. In this way the CSS study utilizes all PIT tag marking possible. Table 1 illustrates the multiple uses of PIT tag hatchery groups in CSS analyses. Even with the significant coordination and collaboration that occurs among PIT tag applications, there are additional groups that should be included in life-cycle monitoring that are not presently included or addressed.

There are several stocks of interest to management in the region that do not currently have a long-term tagging program or plan in place. Specific examples are provided in the following specific comments. Both wild and hatchery fall Chinook stocks in the Snake River basin require a long-term tagging plan that outlines future tagging for various hatchery and wild groups. Within the Upper Columbia Basin, several stocks currently are tagged at low levels or not at all. Okanogan sockeye salmon, despite currently being the largest Columbia Basin salmon run of natural origin, are untagged. Expected future mark groups from future development of hatchery programs above Wells Dam and habitat improvement projects are not addressed. The Hanford

Reach fall Chinook and Wenatchee sockeye salmon groups also require tagging for monitoring and evaluation.

Additional detection sites or increasing existing detection probabilities

The plan should present or prioritize where additional PIT tag detection is needed. Estimates of juvenile and adult salmon survival and smolt to adult return are more valuable to management decision making and management application when they can be developed within acceptable confidence ranges. Assessment of various passage conditions and mitigation measures is dependent upon the generation of estimates that can differentiate responses to different environmental effects. Improvement in the estimates generated from PIT tag studies can be accomplished by either increases in the number of PIT tags in each group, or by increasing detection capabilities. Increasing juvenile PIT tag detection capability is the preferable course of action since it reduces the number of fish subjected to marking and handling effects. The highest priority and most obvious course for improving PIT tag detection capability of juvenile migrants is the development and installation of spillway detectors. The primary focus for increased juvenile detection capability should be in the Middle-Columbia River, the Bonneville to McNary river reach, and the Upper Columbia River Wells Dam to Priest Rapids Dam reach.

Currently, there are numerous mainstem and tributary Snake-Columbia River Basin adult and juvenile detection sites. However, there is a great potential to improve upon the capability of this system and to provide more precise and inclusive demographic data to address several basin wide monitoring needs. Tagging efforts within the Upper Columbia River would benefit by better detection on the downstream migration; juvenile detection within the mainstem of the Columbia River above the Snake-Columbia confluence in particular is lacking. The estimation of juvenile metrics, including juvenile reach survival, requires detection or improved detection capability for PIT tags at several locations. The addition of juvenile detection capability at Rock Island and Priest Rapids dams should be considered a high priority, followed by juvenile detection capability at Wells and Wanapum dams. Juvenile detection has been available at Rocky Reach Dam since April 2010. Improvement of juvenile PIT tag detection through the upper Columbia is particularly important considering the new hatchery facilities and habitat improvement evaluations occurring above Wells Dam. Adult detection at Rocky Reach Dam, Rock Island Dam, and Priest Rapids Dam could be improved, particularly for PIT tags smaller than the 12.5 mm type.

The installation of spillway detectors would introduce or increase juvenile detection and thereby improve the estimation of juvenile survival and travel time through the upper and middle Columbia River. These data would provide an important component of tributary habitat evaluations by providing improved detections of PIT tag habitat evaluation mark groups through the mainstem hydrosystem. Spill detection capability at Bonneville dam would improve juvenile information for all groups upstream of that site affecting multiple applications and therefore is a high priority. Similarly, spill detection at Ice Harbor Dam, where the majority of smolts are spilled, enhances information for all stocks upstream of that dam.

Within tributaries there is also opportunity to advance the information available to managers. Detection capability or improvements to current efforts within several tributaries would improve

the quality and amount of information available for managers. The Wenatchee, Entiat, and Methow basins currently have inexpensive PVC antennas that provide some detection capability. Higher reliability and a better detection range for these basins could be provided by installing better antennas but at a greater monetary cost.

Studies of PIT tag effects

Several scientific reviews and comments have raised the issue of potential PIT tag effects on estimating survival, growth and adult return. Currently the USFWS is undertaking a PIT tag effects study at Carson hatchery and other USFWS facilities. The CSS has included an objective to evaluate PIT tag effects. The PIT tag plan should also recognize this need as an objective and provide specific steps or goals to move forward. Evaluations should be well coordinated and expanded to additional facilities throughout the Snake-Columbia River Basin.

Table 1. Snake River hatchery groups marked for the 2011 smolt outmigration that have all or part of their PIT-tags provided by the CSS. Many groups have tags cooperatively provided by the CSS and other entities. The hatchery, species, tag funding sources and tag totals are shown for each. Through cooperative efforts pre-assignments are carried out by either the CSS or the other associated agencies.

Hatchery	Species	PIT-Tag Funding Source ¹					Total PIT-tags	
		IDFG / LSRCP	CSS	IPC	ODFW / LSRCP	USFWS / WDFW LSRCP		
Rapid River	Chinook		32,000	20,000			52,000	
McCall	Chinook	20,000	32,000				52,000	
Clearwater	Chinook	51,000	21,800				72,800	
Pahsimeroi	Chinook		6,400	15,000			21,400	
Sawtooth	Chinook	15,000	6,400				21,400	
Magic Valley	Steelhead	24,600	10,400				35,000	
Hagerman	Steelhead	19,000	8,100				27,100	
Niagara Springs	Steelhead		8,500	19,800			28,300	
Clearwater	Steelhead	16,800	7,000				23,800	
Lookingglass (Imnaha AP)	Chinook		21,000				21,000	
Lookingglass (Catherine AP)	Chinook		21,000				21,000	
Irrigon (Grande Ronde, Imnaha)	Steelhead		14,000		31,400		45,400	
Dworshak	Chinook		52,000				52,000	
Dworshak	Steelhead		9,000			19,900	28,900	
Lyon's Ferry (Cottonwood AP)	Steelhead		2,000				6,000	
Grand Total		146,400	251,600	54,800	31,400	19,900	4,000	508,100

¹ Agencies are Idaho Fish and Game (IDFG), Idaho Power Company (IPC), Oregon Department of Fish and Wildlife (ODFW), U.S. Fish and Wildlife Service (USFWS), Washington Department of Fish and Wildlife (WDFW), and Lower Snake River Compensation Plan (LSRCP)

Specific Comments

- The Draft does not address a process or the need to establish standard protocols for in-stream PIT tag detectors.
- The Draft does not address the divergence in price for PIT tags, for BPA funded projects and other projects. The present disparity in the price of PIT tags, depending on funding source is a significant problem.
- The Draft does not recognize or consider the Northwest Power and Conservation Council (NPCC) Program, specifically in regard to PIT Tagging of resident fish.
- The Draft reflects federal priorities, but does not necessarily reflect state or tribal priorities.
- The Plan recognizes that “periodic reassessments of PIT-tag releases (numbers and locations), detection sites research needs and objectives, and interactions between projects, will “need to occur”. The Draft does not describe or include a process which includes the state, tribal and federal fishery managers, in which these periodic assessments would take place.

2.2 PIT tag Forecast 2011-2015 (p. 3-5): Projected numbers of fish to be tagged (Table 1) do not identify any upper Columbia (UC) summer/fall Chinook or UC sockeye or Snake River fall Chinook. Table 1 underestimates the level of PIT tagging occurring and proposed. Some examples of this are that no ODFW tagging efforts appear to be included. CSS and SMP tagging efforts appear to be under estimated or perhaps not clearly described as being associated with those projects.

2.3 Effects of Tags on Host fish (p. 7-8): The discussion is focused on potential sources of bias in PIT-tag SARs relative to non-PIT-tagged (NPT) fish but no mention is made of bias in estimation of NPT SARs. The 2010 CSS report (Tuomikoski et al. 2010) went through a detailed discussion of potential sources of bias for both, and could be cited here. The Draft should also clarify that shedding of tags is a concern to quantifying survival rates, not a conservation concern, per se.

3.1 Key Hydro-Related Management Questions (p. 10): The Draft lists three common management questions summarized as follows:

- Are salmon and steelhead meeting juvenile and adult hydro system passage performance standards and targets?
- What is post-BON mortality effect of changes in fish arrival timing and transportation to below Bonneville?
- Under what conditions does in-river passage provide greater smolt-to-adult return rates than transport?

The Draft questions are not comprehensive. For example they exclude the NPCC 2-6% SAR objectives, broader consideration of hydrosystem delayed mortality, evaluation of ways to optimize in-river SARs, bypass effects, regional SAR comparisons.

3.4.3 Status Monitoring – Juveniles, Population Coverage (p. 14): The plan identifies that long standing wild fish tagging projects of NOAA and State of Idaho are expected to continue, and

that NOAA and the federal agencies rely on the a mixture of tagged populations from CSS, SMP etc. for smolt survival monitoring. Continuation of these projects should allow for estimating SARs at MPG or finer scales.

3.4.3 Status Monitoring – Juveniles, Sample Sizes (N), and Precision Targets (p. 16): The plan appropriately identifies that greater detection capability especially in the lower river may be a more efficient way than increasing sample size to achieve precision on estimated survival rates. This is appropriate if feasible through spillway detectors or estuary PIT trawl. However, this is not a justification for increasing collection and bypass because of the documented delayed mortality associated with powerhouse passage and decrease in SAR associated with powerhouse passage. (Tuomikoski et al. 2010 and 2011). The power analysis done to support the plan appears to be a good start, but non-federal fishery managers must help shape the priorities for how/where and whether to increase detection capabilities. Biological Opinion RPA 55.7 calls for the investigation of the feasibility of developing PIT tag detectors for spillways and turbines. Spillway detectors have been under consideration and study for years however little progress has been accomplished.

3.5 Guidelines and Future Considerations (p. 19-21): In general, this section of the plan is solely focused on the NOAA Biological Opinion, with much of it focused on juvenile survival performance standards. Simply meeting BiOp performance standards ignores delayed mortality due to passage through bypasses and turbines, and does not address status monitoring needs. The plan notes (p. 20) that tagging Upper Columbia wild populations at the same scale as CSS for Snake wild populations would be advantageous for juvenile survival estimates in the lower FCRPS, and then curtailing if survival rates of Snake River fish can be used as indicators. However, two other critical needs for the Upper Columbia region -- estimating SARs and obtaining better juvenile survival estimates through the Public Utility projects (e.g., Tuomikoski et al. 2011 draft) – are not considered. In addition, the Draft does not consider the future development of habitat improvement evaluations, and hatchery evaluations of new facilities above Wells Dam which will be operational in the near future. The plan also identifies (p. 21) a question of whether sockeye tagging should continue or whether estimates from surrogate species would suffice. This question only addresses the BiOp juvenile performance standard ignores the larger M&E question of effects of spill, transportation and bypass on endangered Snake River sockeye. The use of surrogate species is not advisable and should only be considered when there is no other option.

Appendix D (p. 76-78): The planned PIT tagging efforts proposed does not capture all of the tagging or does not adequately capture the spatial scale. For example, no spring Chinook tagging (Table D-1) was identified in the Middle Fork Salmon River (MFSR); no steelhead tagging (Table D-2) was identified for MFSR, Potlatch or Lochsa (Fish Creek); and hatchery sockeye are not identified in Table D3. If the intent of the Plan is to direct funding priorities, this is a serious issue.