

## Hatchery Scientific Review Group

### Pacific Salmon Hatchery Reform

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Subject: Hatchery Scientific Review Group Comments on the Lower Columbia Conservation and Sustainable Fisheries Plan for the Washington Department of Fish and Wildlife in Partnership with the Lower Columbia Fish Recovery Board

#### General Comments:

The Plan does an excellent job of developing a metric (increase in fitness) that blends the need to achieve the WDFW Hatchery and Fishery Reform Policy objectives (specifically, the HSRG broodstock management standards) with the goals in the Lower Columbia River Salmon Recovery Plan (LCRSRP) (a percentage decrease in impacts for each of the four “H’s”).

Population designations (Primary, Contributing, and Stabilizing) for each natural population are provided, as well as quantifiable objectives (impact reduction targets) for how much improvement is needed in each of the H’s.

The Plan states that the objective is to increase these salmon runs to healthy and harvestable levels; however, the Plan notes that with the exception of chum, all of the runs are currently subject to harvest. A clear goal for harvest (numbers of fish or days fishing) should be described.

The Plan does not clearly state how long it will take to achieve the fitness benefits expected from Plan implementation. AHA modeling results generally indicate that fitness benefits may not be achieved for some time. This information needs to be presented to inform the public and managers that to achieve Plan benefits will require a long-term commitment of resources. The level of resources required could be reduced by increasing PNI and reducing PHOS, which in turn decreases the amount of time required to achieve fitness benefits. To ensure accountability, the Plan should provide an analysis of the trade-offs in terms of harvest and costs if the programs were to be operated under stricter PHOS and PNI criteria.

## Chapter 5 Hatchery and Harvest Impacts on Natural Populations:

In general, the Plan correctly identifies the impacts on natural populations caused by Hatchery and Harvest interactions. However, the Plan often uses the term “genetic fitness” (Chapter 5, p. 42) when describing these impacts. This term tends to be too broad in its meaning. In other places the Plan uses the term “reproductive fitness”. This is a more precise term and should be used throughout the document.

Harvest Impacts: Increased selective fisheries are a key component of both the HSRG’s Columbia River Hatchery Reform System-wide Review (HSRG 2009) and the WDFW Hatchery and Harvest Reform Policy. While the Plan identifies the populations for which total exploitation rates have been reduced, there is little discussion of specific mark-selective fisheries that have been used to accomplish the harvest reductions, especially commercial mark-selective fisheries. WDFW has done 3-4 years of testing of several types of commercial mark-selective gear and established release mortalities at an expense of several million dollars. These studies should be discussed and the reductions in harvest related mortality to natural fish should be identified. In addition, what near-term future actions are in place to implement additional selective fisheries? Meaningful implementation of commercial selective fisheries and expansion of known-stock, terminal (SAFE) fisheries in the Lower Columbia River need to occur if conservation and harvest goals are to be realized.

The foregoing is important because the Plan’s data sets demonstrate that pHOS has increased for many tule fall Chinook populations. While this seems counter intuitive, it shows that the impacts of reducing total exploitation rates have not, to a large degree, been solely on the natural populations, but on the hatchery and natural populations in aggregate. Therefore, while fewer natural fish have been caught, fewer hatchery fish have been harvested as well, leaving more to reach the spawning grounds and impact the natural spawners.

## Chapter 10 Monitoring and Adaptive Management:

This chapter correctly identifies the factors (both hatchery and harvest) that should be monitored annually in order to assess progress toward achieving the reductions in impacts described in the Plan. However, while data collection is highlighted, no plan is specified as to when and how the data will be analyzed to produce the information required to inform management decisions in a timely manner. We suggest a formalized annual program review similar to that being used on the Cowlitz and Lewis Rivers to gather data, provide analysis and make adjustments to hatchery programs or harvest to ensure continued progress towards achieving the goals stated in the Plan. The Plan already provides data on how pHOS has varied over time for most if not all natural fall Chinook populations, yet no specific actionable items for reducing pHOS are identified for implementation in 2016 or beyond. Instead, the Plan provides a “laundry list” of potential actions that are being put in place (or have been put in place, i.e., weirs). Enough data is available on pHOS to demonstrate that the current set of actions is not achieving the stated goals. For example, the Plan states that *“Additional reform actions will be implemented as needed for populations that are not achieving their productivity targets”* (Chapter 10, p. 225). Data presented show that for most tule fall Chinook

populations, this is the case, yet no additional actions are identified, basin by basin, to improve productivity.

#### Appendix 1 Hatchery and Harvest Reform Strategies and Measures:

The Working Hypothesis provides a logical and scientific framework for moving forward with reform strategies. However, the Plan lacks specific harvest goals and does not provide clear objectives to measure progress toward those goals. Instead, the goal is to *“Continue to produce, in a manner consistent with other recovery strategies and measures, sufficient numbers of hatchery fall Chinook to sustain significant fishery opportunities until harvestable naturally-spawning populations are restored”* (Measures-Fall Chinook, Appendix 1, p. 4). The Plan does not clearly state the specific number of fish that need to be harvested to achieve a “significant fishery”. This number of fish needs to be identified for each fishery for which the hatchery program attempts to provide fish. Specific harvest goals (numbers of fish in specific fisheries) are lacking for all species in this Appendix.

In addition, the Plan lacks specific measures for achieving hatchery reform measures. For example, the Plan indicates that the goal is to *“Reconfigure and reform hatchery programs for coho consistent with responsibilities identified in this Recovery Plan and standards established by the Hatchery Scientific Review Group.”* Data are presented within the Plan on pHOS and PNI levels that demonstrate that the HSRG standards are not being achieved. Specific statements describing how these standards will be addressed should be included in the Plan’s “actionable items” for future years.

#### Appendix 3 Hatchery Action Implementation Plans (HAIP):

The HAIPs presented are an excellent compilation of the status and trends for natural populations as well as the current hatchery production programs by species in each watershed. They also do a creditable job identifying the upgrades needed at each facility to achieve compliance with current environmental standards (e.g., Clean Water Act and NOAA fish screening and passage requirements for water withdrawals), as well as needed capital improvements to allow continued operation of the facilities. Unfortunately, the data presented is not up-to-date. For example, charts displaying natural-origin abundance for fall Chinook only include data through 2007, some of the “needed improvements” to the facilities have already been accomplished, and data for pHOS and PNI are lacking. This information is provided in the full Conservation and Sustainable Fisheries Plan (CSF Plan) and should have been transferred to the Hatchery Action Implementation Plans (HAIPs).

In addition, the HAIPs indicate that there are eyed-egg programs in the Cowlitz River and other basins (generally Remote Site Incubator (RSI) programs). If these are eggs from hatchery fish, how will adult returns from these egg plants be accounted for in calculations of pHOS? And how will such returns be identified at weirs and removed in mark-selective fisheries? Unless these fish can be identified as hatchery fish at weirs and in fisheries, the programs should be eliminated.