



U.S. Fish and Wildlife Service - Pacific Region
Columbia River Basin Hatchery Review Team

Columbia River Basin, Lower Columbia Province
Clackamas Watershed



Eagle Creek National Fish Hatchery
Assessments and Recommendations

Final Report, Appendix C:
Comments on Draft Report and Review Team Responses

July 2007

Appendix C: Comments on Draft Report and Review Team Responses

Co-Manager Comments and Responses

Yakama Nation¹

The Review Team received editorial comments and suggestions to the initial draft of the Review Team's report, and those suggestions were used to clarify or correct the text of the draft report.

Oregon Department of Fish and Wildlife (ODFW)²

1. We agree with many of the review team's recommendations and assertions regarding potential risk that ECNFH programs pose to natural populations in the Lower Clackamas River (specifically Eagle and Deep creeks), but we disagree as to how much they may be limiting the viability and potential recovery of Clackamas River coho and steelhead as a whole.

***Review Team Response:** The Review Team recognizes the current management strategy for salmon and steelhead in the Clackamas River excludes hatchery-origin fish and protects natural populations upstream of North Fork Dam, whereas the lower Clackamas River is managed for harvest on hatchery-origin fish. However, the Clackamas River Basin Council – a consortium of 21 citizen stakeholder groups – is actively working to restore stream habitats in the lower Clackamas River to protect water quality and improve fish conditions. Indeed, the greatest potential for habitat improvements and recovery of coho salmon, and perhaps steelhead, in the Clackamas River appears to be in the lower basin. The Review Team has concluded that hatchery fish currently released from Eagle Creek NFH can negatively impact the natural populations in the lower river and, thus, impede their restoration and recovery. The potential role of the lower Clackamas River basin in the recovery of ESA listed salmon and steelhead will be clarified with the pending release of the Oregon component of the Lower Columbia River Salmon Recovery Plan currently under development by ODFW and local watershed groups. The Team has addressed these concerns in their recommendations to the current programs in the body of the report.*

Specific Program Comments (Coho):

2. Despite not conferring a direct conservation benefit to wild Clackamas coho, Eagle Creek hatchery coho provide an indirect benefit by concentrating a fishery on hatchery-origin coho that are both spatially and temporally separated from the majority of natural-origin coho

¹ Written comments provided by Tom Scribner, Fisheries Resource Management, Yakama Nation, Toppenish, Washington.

² Written comments provided March 8, 2007 by Todd Alsbury, District Fish Biologist, ODFW, North Willamette Watershed District, Clackamas, Oregon.

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spawners in the basin. The segregated coho program effectively isolates hatchery-origin spawners to approximately 20% of the total available coho spawning habitat in the basin.

Review Team Response: *The Review Team agrees that the present Eagle Creek NFH coho program is spatially isolated in a small portion of the Clackamas River basin. The Team also agrees with the Clackamas Watershed Council and recent scientific papers such as Burnett (2007)³ that point to the low gradient habitat in the lower Clackamas River basin as having high potential for coho restoration. Indeed, there is convincing evidence that the majority of historic coho rearing habitat was in the lower basin. For these reasons, the Team postulates that interactions with the current hatchery program will only increase as recovery proceeds.*

3. *Issue EC1-*We do not agree that the program goals should specifically be re-stated to shift the primary purpose of Eagle Creek NFH to coho reintroduction programs in the Upper Columbia and Snake rivers. The primary purpose of the hatchery, which is completely funded through the Mitchell Act, has been to provide support for sport and commercial fisheries in the Columbia Basin.

Review Team Response: *The stated purpose of the Mitchell Act is not simply to provide fish for fisheries; it is to provide mitigation for fish production lost due to the construction and operation of federal water projects. Mitchell Act funds are used for a broad array of activities including fishery mitigation, upriver fish restoration, fish passage, and fish screening projects. Please see Review Team response to NOAA Fisheries Comment #5.*

4. *Issue EC3-*We do not support the transfer of up to 700,000 eyed coho eggs to the State of Idaho for its inland reservoir stocking program. These transfers are not a stated objective of the facility or Mitchell Act program.

Review Team Response: *The team agrees that the transfers are not a stated objective of the facility or the Mitchell Act program. Our recommendation was to discontinue the egg transfers or establish a formal “memorandum of understanding” with Idaho Department of Fish and Game for contingency situations where surplus eggs may be available. The Service works cooperatively with the states and tribes to provide additional opportunities to meet regional fishery objectives as long as those opportunities are consistent with existing legal obligations and responsibilities. This is just one of many state and tribal programs that the Service supports at Service owned or operated facilities throughout the Columbia River Basin.*

5. *Issue EC20 -* We do not support the continuation of the DIT [double-index tagging⁴] program for coho at Eagle Creek NFH. Recent information indicates that the usefulness of data collected from DIT fish is limited due to issues related to sample size and statistical significance. Unmarked returns from DIT fish are amplified due to selective fisheries in the Lower Columbia and Clackamas rivers that release DIT fish. This leads to potential mis-identification of fish at sorting facilities and on the spawning grounds which in turn leads to complications with management of hatchery and wild fish populations in the basin.

³ Burnett et al. 2007. *Distribution Of Salmon-Habitat Potential Relative to Landscape Characteristics And Implications For Conservation. Ecological Applications* 16: 66-80.

⁴ See Issue EC20 in the body of the report for details of this issue.

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Review Team Response: *The Chair of the Analytical Workgroup of the Selective Fishery Evaluation Committee, a subcommittee of the Pacific Salmon Commission, recently presented a report regarding the DIT program to the Mark Committee of the Pacific States Marine Fisheries Commission. The Chair acknowledged that the DIT program could be improved but emphasized that the program was the only viable means to estimate survival rates on unmarked fish from selective fisheries that target marked hatchery fish. The identified DIT program improvements include increased tagging, increased fishery sampling, and increased selective fisheries. The Chair recommended that the DIT program be continued. Also, the Coho Technical Committee, another subcommittee of the Pacific Salmon Commission, currently uses Eagle Creek coho tagging to represent early timed lower Columbia River coho stocks in their fishery modeling efforts. This tagged group is considered important to the long term analyses. Consequently, the USFWS as party to the Pacific Salmon Treaty, will continue the DIT program at their facilities until the committees recommend otherwise. The Review Team also understands that the unmarked but tagged DIT group can lead to mis-identification of hatchery versus wild stocks at sorting facilities and spawning grounds. However, electronic detection devices can be used at those locations to verify unmarked but tagged hatchery fish and thus allow correct identification and separation between unmarked hatchery fish and wild fish.*

Comments on recommended alternatives to the current ECNFH coho program

6. ODFW supports the short-term goal of retaining the current program provided the recommendations provided by the HRT are implemented. We encourage discussion between the co-managers in order to resolve some of the differences described above between the HRT recommendations and comments provided by ODFW.

Review Team Response: *We concur that the Fish and Wildlife Service needs to work closely with ODFW in the planning and coordination for future activities at Eagle Creek NFH. The Team is concerned that ODFW did not provide specific comments regarding proposed conservation and recovery strategies in the lower Clackamas River Basin. We understand that the planning process is still ongoing. However, the Team concluded that modifications to current programs at Eagle Creek NFH are desired to reduce risks to ESA listed species and to support recovery strategies within the basin.*

7. We do not currently support the mid-term goal of converting the current segregated program to an integrated program due several factors, including:
 - 7a) Current status of Clackamas River coho, which is currently listed as endangered by the State of Oregon and threatened by NOAA Fisheries, may not be able to withstand “mining” of wild adults to maintain an integrated program.

Review Team Response: *This mid-term alternative, as conceived by the Team, would be substantially smaller than the current program. It would be sized based on broodstock availability, conservation concerns, and recovery objectives. The size of any integrated hatchery program is restricted by the size of the natural population and the carrying capacity of the available habitat. We do agree with ODFW’s point that natural broodstock is limiting. Furthermore, the Review Team would no longer support this alternative if the pending recovery plan for coho in the Clackamas River Basin does not*

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include artificial propagation actions or, more directly, recommends against artificial propagation as a recovery tool.

- 7b) Past attempts at rearing and releasing “late run” coho did not lead to increased survival versus what would have occurred if the fish were left in the wild to spawn naturally.

Review Team Response: *The Team is not proposing a rescue program like the one attempted in 1998-1999. As the status of the population has improved in recent years, the integrated program proposed by the Review Team is different from the rearing or releasing of “late run” Clackamas River coho as part of a “rescue” program. The Team has expanded on the description of an integrated program in the body of the report (coho program alternative 2) to better describe how it would be managed for this particular situation. Alternative 2 is also explored quantitatively in Table A1 (Appendix A).*

- 7c) The appropriate donor stock has not been identified. There are significant phenotypic differences between “early” and “late” run coho as well as coho found above and below the North Fork project. We highly suggest a thorough review of the genetic and ecological differences between the two stocks before a potential donor stock is identified in order to determine which is most appropriate for use in lower basin tributaries.

Review Team Response: *We agree. Before a new integrated coho broodstock can be developed at the Eagle Creek NFH, a general survey and understanding of the abundance and genetic ancestries of populations in the lower Clackamas River will be necessary. We anticipate that this new hatchery program would initially be focused on restoration and recovery of naturally spawning coho populations in the lower Clackamas Basin, but only if artificial propagation is identified as a potential recovery strategy in the pending Oregon component of the Lower Columbia River Salmon Recovery Plan.*

- 7d) Conversion to an integrated program would need to consider the effect on a very popular sport fishery as well as commercial fisheries that are geared to harvest fish at a time when the current segregated stock returns (mid-fall). Current angling regulations prevent the retention of coho after October 31 in the lower Clackamas River. A shift to a later returning stock would limit the time these fish are available for harvest or would require adoption of new angling regulations that are designed to reduce risk to wild fish that may be caught and released in fisheries.

Review Team Response: *The Team acknowledges that initial conversion to an integrated coho program would primarily serve conservation purposes. Future ability to harvest hatchery-origin coho with native Clackamas stock characteristics will depend on habitat improvements, success at restoring naturally spawning populations, and implementation of selective fisheries.*

8. There may be opportunities to shift toward an integrated program while minimizing risks to the wild population while actually improving angler opportunity and success. We are interested in discussing options to integrate naturally produced fish and possibly shift run-timing later in the fall when water temperature in the Clackamas is lower resulting in increased angler catch.

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Review Team Response: *The Review Team agrees.*

9. We do not support the optional mid-term goal of transferring the entire ECNFH coho production to terminal area fisheries in the lower Columbia. This would completely eliminate any sport angling benefit that is currently provided by ECNFH coho. We do support transfer of some portion of production to terminal fisheries because there may be opportunities to convey a conservation benefit to all Lower Columbia coho by reducing catch of wild fish in commercial fisheries that do not concentrate in terminal areas.

Review Team Response: *In our revised report, the Review Team has recommended the immediate reduction of on-station releases from 500,000 to 350,000 coho smolts with up to 150,000 yearlings transferred to SAFE [selective area fisheries enhancement] programs in support of estuary fisheries. This latter recommendation is consistent with ODFW's comment.*

10. We do not support the optional long term goal of terminating the existing coho program and using ECNFH to support regional conservation and recovery programs at this time.

Review Team Response: *We believe that the future role of Eagle Creek NFH will depend largely on comanager goals and stakeholder desires for the Clackamas River and its fishery resources. If the recent trend continues for increased conservation of natural populations and reduced harvest on hatchery-origin coho, then the need for a segregated-harvest coho hatchery program at Eagle Creek NFH will continue to decrease. Such a decrease would free up rearing space that could then be used to support regional conservation and recovery programs, both within the Willamette River basin and elsewhere. Such a future role does not necessarily exclude the possibility for a much smaller segregated harvest coho release program at Eagle Creek NFH if such a reduced program does not impede recovery of natural populations consistent with the pending Oregon component of the Lower Columbia River Salmon Recovery Plan.*

Specific Program Comments (Steelhead):

11. Many of the recommendations provided by the HRT would essentially eliminate an important sport fishery and leave a gap of 3-4 months when few fish are available for harvest.

Review Team Response: *The Review Team believes that the conservation and recovery of native steelhead in the Clackamas River is a first priority, and hatchery programs for harvest augmentation must be consistent with that priority. Consequently, the Team recommends downsizing the current program from an annual release of 150,000 smolts to 100,000 smolts while completing ongoing evaluation studies for three years (2008-2010) and closely monitoring completion of the Oregon component of the Lower Columbia River Salmon Recovery Plan. We also note that management and conservation decisions related to ODFW's outplanting of summer steelhead from the South Santiam State Hatchery to the lower Clackamas River will potentially have greater implications for sport fisheries than the winter steelhead program at Eagle Creek NFH. Additionally, the Team recommends that recreation fisheries be monitored to specifically assess the harvest benefits of each steelhead program (See recommendation EC33b).*

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12. *Issue EC28-* The potential risk posed by ECNFH steelhead needs to be considered in relation to naturally produced steelhead in Eagle Creek, adjacent tributaries, and the Clackamas River as a whole. There is limited evidence from spawning surveys and dam counts that ECNFH steelhead are found in tributaries other than Deep and Eagle creeks. These two tributaries make up less than 15 % of the available steelhead spawning habitat in the Clackamas River basin.

Review Team Response: *While it is estimated that less than 15% of the available spawning habitat for steelhead is downstream of North Fork Dam, natural-origin steelhead throughout the entire Clackamas River are considered part of an ESA listed population. According to the Willamette Sub-Basin Plan of the Northwest Power and Conservation Council, potential amount of steelhead habitat in the upper and lower basins – as measured by adult recruit capacity – are approximately the same (≈ 5,200 adult recruits; Table 8). The Review Team concluded that the risks imposed by the Eagle Creek NFH steelhead program to natural populations in the lower basin, under current habitat conditions, could be significant. The Team further concluded that those risks should be reduced or eliminated if they jeopardize recovery of natural populations.*

Comments on recommended alternatives to the current ECNFH steelhead program

13. We are currently conducting spawning surveys in the lower basin and tributaries in order to assess performance of our integrated winter steelhead program and would be very interested in combining our efforts to better evaluate the potential risk posed by both winter steelhead programs.

Review Team Response: *The Review Team agrees. The USFWS Columbia River Fisheries Program Office has initiated discussions with ODFW, BLM, and US Forest Service to better coordinate our research & monitoring efforts.*

14. We do not support the long-term goal of terminating the current winter steelhead program and focusing the hatchery on production of coho salmon. We agree that continuation and possible expansion of the current M&E program in Eagle Creek is very important to answering the question of how much ECNFH steelhead may be limiting the productivity of naturally produced steelhead in the lower basin and tributaries.

Review Team Response: *See response to ODFW comment #11 above and revisions to preferred steelhead alternative in the final report.*

15. We caution using the comparison between the past summer steelhead program in the upper basin and its effect on productivity of wild winter steelhead. The summer steelhead program in the upper basin was large in comparison to the ECNFH winter steelhead program and resulted in significant competition between early spawning summer run juveniles and the smaller, later spawning wild winter steelhead. The situation in Eagle Creek is not the same and even though ECNFH steelhead return and spawn several weeks prior to naturally produced steelhead, there is limited evidence of direct competition between both stocks. Research is currently underway to attempt to answer that question and we suggest a thorough review of all available information before making assumptions.

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Review Team Response: *The Team agrees that it is best to use research that is directly pertinent to the hatchery and wild fish populations being evaluated and assessed. The Service currently has studies underway in Eagle Creek to assess ecological interactions. In the Team's assessment, the best available information was used, which includes preliminary results of the Service's Eagle Creek study as well as other species-related information, including the research published on summer steelhead productivity in the Clackamas River. The Review Team added a recommendation (EC33b) stating that studies of ecological interactions between hatchery and wild fish should be conducted in the entire lower Clackamas River basin, including impacts from the hatchery summer steelhead program.*

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National Marine Fisheries Service (NMFS; NOAA Fisheries)⁵

General Comments:

1. The conclusion that I reached after reading the summary section was that there were substantial risks to listed salmon and steelhead from the coho and the winter steelhead programs. However, the risks from genetic and ecological impacts on listed fish identified in the summary section were not supported by the data presented in the main report.

Review Team Response: *We have modified the language in our summary to more accurately reflect the available data.*

2. I can support the recommendations and recommended short and long-term alternatives for the coho salmon program. The current program has remained a well segregated program and provides benefits to sport and commercial fisheries, but as identified in the report it currently does not provide any conservation benefit to the Clackamas River coho population. The recommended alternatives propose that the program be shifted to an integrated program using the “late-run” coho from the North Fork trap, I have a few concerns with this approach (*see full letter in Appendix D*). If the current coho program is to be changed to an integrated program, genetic analysis of the coho now spawning in the lower Clackamas River tributaries (Clear Creek, Deep Creek, and the North Fork Eagle Creek) should be completed to see if there are differences between these groups and the early timed coho returning to above the North Fork Dam.

Review Team Response: *In our draft report, the Review Team noted that adults could be trapped for broodstock at North Fork Dam. However, as commented by both NMFS and ODFW (personal communication), natural coho populations upstream of North Fork Dam may not be biologically appropriate for the lower Clackamas River and its three principal tributaries: Eagle, Clear, and Deep creeks. The Review Team acknowledges that the freshwater habitats and hydrologies of the two Clackamas River sub-regions are distinct: (e.g. primarily forest lands in the upper basin versus farmlands and urbanization in the lower basin). Consequently, the Review Team has accepted the recommendation from NMFS and, in our revised report, is proposing baseline genetic and life history studies of coho populations in the Clackamas River watershed to help identify appropriate sources of fish for developing a genetically integrated “Clackamas River broodstock” at the Eagle Creek NFH. The Team notes, however, that there may be no naturally spawning populations in the lower basin that have not been influenced genetically by hatchery-origin fish.*

3. I cannot support the recommended alternative for the Eagle Creek NFH winter steelhead program. The current program is well segregated from the natural-origin late winter steelhead population in the Clackamas River and those spawning in the North Fork Eagle Creek.

Review Team Response: *In our original deliberations, the Review Team recommended termination of the current non-DPS (non-native) steelhead program at the Eagle Creek NFH. That recommendation was based on preliminary data from ongoing studies of genetic and ecological interactions between hatchery and natural-origin steelhead in the Eagle Creek watershed as well as results from other steelhead interaction studies. The Review Team modified our initial*

⁵ Written comments provided by Rich Turner, Salmon Recovery Division, Hatchery and Inland Fisheries Branch, NOAA Fisheries, Portland, Oregon.

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recommendation in response to concerns expressed by both NMFS and ODFW (personal communication) and revised our draft report to be consistent with the scientific information currently available. The Team’s immediate recommendation is to reduce on-station releases from 150,000 to 100,000 yearling smolts with full implementation of measures to reduce risks to naturally spawning populations. After three years, when ongoing genetic and ecological studies will be more complete, we recommend further evaluations to determine whether the hatchery program is potentially impeding recovery of ESA listed natural populations in the Clackamas River, particularly in the lower watershed.

4. The Eagle Creek NFH winter steelhead program is important to the region because it provides the only fishery in the Clackamas River during a period from December to February. During this period other fisheries are closed (i.e. coho), and it occurs before the late-run hatchery steelhead and spring Chinook salmon become available. The Eagle Creek NFH winter steelhead provide a benefit to fishers from the Portland Metropolitan area and support local fishing guides.

Review Team Response: *We acknowledge the important contribution made by Eagle Creek NFH steelhead to recreational fisheries in the Clackamas River and Eagle Creek when other fishing opportunities are not available. In this context, all of our evaluations and recommendations consider both harvest and conservation benefits collectively so that neither of those sets of benefits is considered at the exclusion of the other.*

5. It should also be noted that these programs are funded through the Mitchell Act to mitigate for lost production resulting from federal hydroelectric and water resource development in the Columbia River basin. This mitigation is to provide for lost production for harvest, which has been identified as one of the primary purposes for the programs at Eagle Creek NFH. Changes in these programs that result in reduce harvest opportunities do not necessarily support Mitchell Act mitigation objectives.

Review Team Response: *To our knowledge, the Mitchell Act (U.S.C. 755-760l) does not explicitly state that hatchery “mitigation” is to produce fish for harvest. The May 11, 1938 Act, as amended on August 8, 1946 (60 Stat. 932), authorizes the Secretary of the Interior to carry on a number of activities to “facilitate conservation of the fishery resources of the Columbia River and its tributaries” and for the “conservation of fish in the Columbia River Basin in accordance with law.” These activities include establishment of fish hatcheries, engineering and biological surveys, protection of migratory fish from irrigation projects (e.g. fish screens on irrigation canals), and facilitation of free migration of fish over obstructions (e.g. construction of fishways around impassible barriers, etc.). Section 755 of the Act simply authorizes the establishment of “one or more salmon-cultural stations in the Columbia River Basin in each of the states of Oregon, Washington, and Idaho.” We believe the intent of the Mitchell Act is to conserve the fish and fishery resources of the Columbia River Basin, and hatcheries are simply one tool for achieving that goal.*

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Stakeholder Comments and Responses

Stakeholder Forum⁶

1. Who is the target audience for the recommendations and alternatives and what is the time expectation for the decisions regarding the recommendations and alternatives?

Review Team Response: *The recommendations and alternatives go to the Service for implementation. The Service will determine how and on what schedule they will implement the recommendations and alternatives. Implementation will require consultation with comanagers, including affected tribes, and may require further coordination with stakeholders. The report will be completed by the summer of 2007. The Service will likely begin assembling an implementation schedule soon thereafter.*

2. How will the USFWS Columbia Basin Hatchery Review process integrate with Mitchell Act EIS process?

Review Team Response: *The Review Team will provide recommendations as a foundation for the NMFS sponsored Columbia River Hatchery Scientific Review Group review of Mitchell Act funded facilities.*

3. What happens if Mitchell Act EIS preferred alternatives differ from the Review Team's recommendations and alternatives?

NMFS Representative: *The Hatchery Scientific Review Group and the Service's Hatchery Review Team will discuss differences, if any. However, I assume there likely won't be a difference between the alternatives, and am fairly confident NMFS will accept the recommendations.*

Review Team Response: *The Mitchell Act EIS process, as we understand it, is focusing on cumulative effects as opposed to individual hatchery programs within specific watersheds. Therefore, the Team assumes that our recommendations and alternatives will be a subset of the preferred alternatives put forth by the Hatchery Scientific Review Group. Our recommended alternatives could change in response to the pending Oregon component of the Lower Columbia River Salmon Recovery Plan.*

4. The Review Team's recommendations are not responsive to ESA issues. The natural populations of steelhead and coho in the lower Clackamas watershed are not viable, there are problems at the hatchery, and available funds are declining. Furthermore, the Review Team is proposing to delay decisions even though there are studies that suggest that the programs are posing a high risk.

Review Team Response: *The Team agrees that there are potential conservation conflicts. The Team proposed a number of actions to reduce risks to natural populations. See the Review Team's responses to Native Fish Society comments 4, 5 and 11.*

⁶ *These comments were provided by attendees of a Stakeholder Forum held at the Best Western Sunnyside, Clackamas, Washington on February 8, 2007. Responses were provided by Review Team members who attended the meeting and were clarified in subsequent Review Team meetings.*

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5. I am concerned that there is still competition with upper Clackamas River basin juvenile coho during their migration through the lower basin. I am also concerned about the interactions between hatchery and wild steelhead in the lower Clackamas. I don't see how you could avoid terminating the hatchery programs. For coho, you could possibly consider transferring the fish to the Young's Bay SAFE fishery. However, I am concerned about what impacts the coho would have in the estuary.

Stakeholder Response: *The current Eagle Creek NFH coho program does have some negative impacts. I would like to see the hatchery move toward a native stock and repopulate the lower basin. I am afraid, if the hatchery leaves in the near term, that there wouldn't be much of a coho population left in the lower Clackamas River basin.*

Review Team Response: *The stakeholder response captures the general thinking of the Review Team. The Team concluded that the potential exists to transition the coho program to a native stock and build upon habitat improvements in the lower basin.*

ODFW Representative: *ODFW and NOAA are in the process of recovery planning that will outline how ODFW will address lower basin stocks. That said, I believe that the sport fisheries must be maintained in the lower Clackamas basin given its proximity to a major metropolitan area (Portland). I support the movement toward integrated programs, as long as fishery benefits are maintained. I believe the risks from the current hatchery programs to wild coho and steelhead are overstated. There is a difference in spawn timing and the lower basin spawning habitat makes up a very small percentage of the spawning habitat available in the entire basin.*

Review Team Response: *Given the relatively small size of the Eagle Creek steelhead program, it is likely that a restored natural system could support some harvest and replace the hatchery program, although the time of the two fisheries would not be the same. Our preliminary analyses suggest that modest improvement in habitat could significantly increase the viability of natural populations in the lower basin (Tables A1 and A3; Appendix A). However, the recovery strategy for lower Clackamas basin stocks is not yet clear to the Review Team.*

6. In regards to transferring Eagle Creek NFH coho to terminal SAFE fisheries, when Eagle Creek NFH coho were released from CEDC net pens in the past, 95% went out of the estuary with first tide. Therefore, I believe there is little concern regarding the hatchery coho's impacts to estuary. Eagle Creek NFH coho have always outperformed other stocks used for net pens in regards to survival and contribution to the targeted fishery. Utilizing a terminal SAFE fishery, the fishery enjoys nearly 100% harvest with very little impact to native populations.

Review Team Response: *The Team agrees that Eagle Creek NFH coho are a very cost effective stock for use in a SAFE fishery and that net pen releases in the Columbia River estuary in support of terminal SAFE fisheries can pose lower risks than on-station releases in Eagle Creek. Consequently, in response to comanager and stakeholder comments, the Review Team is recommending that on-station releases be reduced from 500,000 to 350,000 yearling smolts per year with 150,000 pre-smolts transferred to the estuarine net pens to support those programs.*

7. There are not many opportunities for put and take steelhead fishing left on the Oregon side of the Columbia River, especially this close to a major metropolitan area (Portland). I'm concerned that

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there was no analysis of the economic value of the lower Clackamas steelhead fishery in this review process.

Review Team Response: *The Team understands the importance of the steelhead fishery in the Clackamas River basin. However, our reviews are intended to be strictly scientific with a focus on the biological requirements of these fishery resources, both in the hatchery and in the natural environment. Economic evaluations are beyond the expertises and mandate of the Team. Nonetheless, we expect Service decisions regarding implementation of the Team's recommendations to consider economic issues. These issues are not restricted to stakeholders but include the economic costs of maintaining and upgrading hatchery facilities.*

8. Did any of the Eagle Creek NFH coho released from Young's Bay ever return to Eagle Creek NFH?

Review Team Response: *Based on the coded-wire tag data available, no Eagle Creek NFH coho released from the Young's Bay net pens ever returned to Eagle Creek NFH, and only a handful were recovered in lower Columbia River hatcheries.*

9. I am not a fan of the use of native broodstock (in this case, native coho) in hatcheries; however, I understand the needs of the fisheries. But I believe more research is needed regarding starting a native broodstock hatchery and there must be a good understanding of the genetic makeup of lower native coho to determine what there is to work with to start the integrated coho program

Review Team Response: *The Review Team agrees and strongly supports the recovery of native coho in the lower Clackamas River using the appropriate stock based on new genetic information. The Team rejected a similar native broodstock alternative for steelhead because (a) ODFW already operates such a program in the Clackamas River and (b) difficulties with modulating water temperature at Eagle Creek NFH to yield fish of the appropriate size at time of smoltification.*

ODFW Response: *ODFW is currently working on their lower Clackamas management strategy and will soon have more information to determine what they feel is the proper management strategy for steelhead. I feel that there is a need to address both the conservation and harvest of steelhead in the Clackamas.*

Review Team Response: *Eagle Creek NFH is currently supporting a steelhead run that is not of natural timing. The hatchery stock has been selectively bred for an earlier run time, basically generating an artificial run of fish. As a result, anglers now participate in a fishery that historically didn't occur, at least at the level that it does today.*

Stakeholder Response: *There actually was indication of steelhead in these early months. It is difficult to determine what the historic runs were really like making it difficult to reconstruct runs.*

10. I am worried about the bifurcated management approach of coho in the Clackamas basin (conservation on the upper Clackamas, harvest on the lower Clackamas). I believe that there is a significant break in geomorphic type between the upper and lower portions of the basin, and the geologic/hydraulic characteristics of the lower system suggest it historically may have been the primary habitat for coho in the Clackamas basin. I do not agree with current findings that suggest only 10% to 15% of the coho habitat available in the Clackamas exists in the lower basin.

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Therefore, I support the integrated approach toward the recovery of coho in the lower Clackamas over do nothing.

ODFW Response: *It will be difficult for ODFW to justify having a recovery management approach in the lower basin until there is a true desire by the surrounding counties and cities to protect and restore the habitat to support wild fish production. However, I do agree with moving toward an integrated coho program in the lower basin.*

Review Team Response: *The Team's understands that the "15%" habitat availability in the lower basin refers to current conditions. According to the Power Planning Council's Sub-Basin Plan for the Willamette River, significant increases in coho habitat are possible in the lower Clackamas basin via habitat improvements and restoration.*

11. The Review Team has hinted at an endpoint for providing Eagle Creek NFH coho to the tribes. Is Eagle Creek NFH going to be forever obligated to supporting tribal coho restoration programs?

Review Team Response: *After further review since the draft report was released, the Team understands that the reintroduction programs have passed the three generation point and have experienced adult returns annually back to the respective watersheds that have numbered into thousands of fish. In response, the Review Team developed an additional recommendation, stating that the Service work closely with the Yakama Nation and Nez Perce Tribe to determine the current status of these reintroduction programs and plan for the anticipated transition to using upriver brood sources from returning adults (Recommendation EC2). For more information, see Review Team responses to Comment #9 of Native Fish Society and Comment #3 of Trout Unlimited.*

12. We appreciate the efforts the Review Team has made to take into account all information, players and opinions in this review process. Furthermore, we appreciate the feedback from Review Team regarding our comments and concerns.

Review Team Response: *The Team thanks the comanagers and stakeholders for participating in the review process.*

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Native Fish Society⁷

General Comments:

1. The Mitchell Act authorization and purpose was to “assist with conservation of fishery resources in the Columbia River Basin” yet the “primary purpose of this hatchery is to “support commercial and recreational fisheries.” The hatchery review report does not indicate when or how the shift occurred from its authorized purpose of “conservation” to its primary purpose “to support...fisheries.” This shift appears to be a significant amendment of Congressional authorization for this hatchery. The review report should document this shift and explain how it took place. I have tried to determine the origins of this change between authorizations and function but have been unable to locate any documents that speak to this apparent amendment. Please address this substantive change in the hatchery review document.

Review Team Response: *We agree that the authorized purposes of the Mitchell Act encompass a broad range of possible fishery conservation actions (see response to ODFW comment #3 and NMFS comment #5). The Team also notes that there has been a shift in public priorities and perceptions over the past seventy years which views fish populations as natural resources whose existence confers many benefits rather than simply as a commodity. The genetic “conservation” perspective that dominates our thinking today was virtually non-existent 60 years ago.*

2. Funding requirements to fix the hatchery and to add needed staffing and infrastructure are in excess of five million dollars. Funding for Mitchell Act hatcheries has been flat or declining for a few years and it appears that additional funding is unlikely given the direction of the federal budget. It is therefore, unlikely that additional funding will be available for upgrades and for monitoring and evaluation plans recommended by the review team to determine the impact of hatchery steelhead and coho on ESA-listed wild steelhead and coho in the Clackamas River Basin.

Review Team Response: *Reimbursable funding for Mitchell Act hatcheries through the Department of Commerce has been flat or declining for nearly 10 years, and while there has been a significant effort through coalition groups and the Service to increase those funding levels, changes are not expected in the immediate future. The Service has funded, with its own internal appropriations, all construction and deferred maintenance projects at Eagle Creek NFH, as well as evaluation projects such as the ongoing Eagle Creek Ecological Interactions study. The Team anticipates that the Service will continue to fund construction/maintenance needs of the facility and evaluation projects with its limited resources until Mitchell Act funding is sufficient to cover all hatchery program costs, or additional funding is identified from other sources.*

Comments on winter steelhead hatchery program

3. The purpose for the Eagle Creek Hatchery steelhead program is to provide a sport fishery in the Clackamas River for early-run winter steelhead (USFWS 2007). Early-run wild steelhead stage in the lower Clackamas River before moving into spawning tributaries in the late winter

⁷ Written comments provided by Bill Bakke, Executive Director, Native Fish Society, Portland, Oregon.

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and spring (February to June). These early-run steelhead are exposed to an intense sport fishery for several months prior to moving into tributaries (Douglas Cramer, PGE fish biologist, personal communication). Early-run wild steelhead may be subject to over exploitation in a fishery targeted on early-run hatchery steelhead from Eagle Creek Hatchery.

Review Team Response: *The Review Team agrees with this perspective that intensive fisheries on “early-run” hatchery winter steelhead results in incidental harvest of the early portion of the wild run. It is the Team’s understanding that the harvest is conducted under a NMFS approved Fisheries Management and Evaluation Plan.*

4. Lower Columbia River wild steelhead were listed as a threatened species in 1998. Given the fact that the Eagle Creek Hatchery steelhead are a non-native population and in recognition of the findings provided by the BRT [Biological Review Team of NOAA-Fisheries] and the review team, termination of the hatchery steelhead program at Eagle Creek NFH is recommended by the Native Fish Society. The continued release of these fish is inconsistent with conservation and recovery of ESA listed winter steelhead in the lower Columbia River ESU/DPS and the Clackamas River. Delaying by five years a decision to terminate this program in order to gather more information is unacceptable based upon what is already known and on the lack of funding to carry out the studies. This delay would mean that at least 14 years will have passed since the wild steelhead were listed as a threatened species before the agencies with management authority take action to correct an obvious problem.

Review Team Response: *The Review Team agrees that there is a significant conservation issue. The Team revisited the risks to ESA stocks, including recent smolt-to-adult return rates, and recommends that the current program be reduced from 150,000 to 100,000 on-station release with full implementation of measures to reduce risks to naturally spawning populations. Furthermore, in response to stakeholder comments, the Team concluded that findings from ongoing genetic and ecological studies should be evaluated within three years (2008-2010) instead of the originally proposed five years. At the end of this three-year period, the Team recommends reevaluation of the risks posed by the current program to natural populations in the Clackamas River to determine whether the hatchery program is consistent with recovery goals and objectives for the Oregon component of the Lower Columbia River Salmon Recovery Plan.*

5. Even though ODFW wants to maintain a sport fishery and harvest early-run Eagle Creek hatchery stock, the ESA is a legal obligation, and management must be consistent with federal law. I am sure that the Forest Service would like to cut trees as they did before the spotted owl was listed, but in fact they cannot. The same legal mandate exists for the U.S. Fish and Wildlife Service to terminate harmful hatchery practices that impede the recovery of ESA listed steelhead and salmon. Under § 7(a)(2) of the ESA, any action “authorized, funded, or carried out” by a federal agency must not jeopardize a listed species or modify its critical habitat.

Review Team Response: *The Team was very aware of the legal obligations under the ESA when it drafted its recommendations for Eagle Creek NFH programs. Many of the recommendations were drafted directly in response to improving hatchery practices and the Team’s concerns regarding hatchery practices that may impede recovery of listed steelhead and salmon. The Service has initiated ESA Section 7 consultations with NOAA Fisheries for operation of the coho program at Eagle Creek NFH. In response to the submission of the*

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Hatchery Genetic Management Plans for steelhead and coho, the Service expects to receive a biological opinion from NMFS. The Service will be required to operate the coho and steelhead programs at Eagle Creek NFH consistent with that opinion. The Team understands that the current coho and steelhead salmon fishery is being conducted under an existing NMFS-approved Fisheries Management and Evaluation Plan.

Comments on coho salmon hatchery program

6. ODFW recommended that Big Creek Hatchery coho and coho from Sandy Hatchery, and Eagle Creek NFH be excluded from the lower Columbia River coho salmon ESU citing these "...broodstocks propagated at the Oregon hatchery facilities should not be regarded as part of the ESU as all are long-term domesticated broodstocks, all have incorporated various levels of out-of-basin (but within ESU) stocks and all are managed for isolation between the hatchery stocks and any local natural coho populations (FR Vol. 70. No. 123/ Tuesday, June 28, 2005). In the same Federal Register document NMFS disagreed with ODFW saying "...these hatchery coho programs represent the existing local spawning populations, and they also represent a large proportion of the remaining genetic material for many of the smaller tributaries within the ESU." However, NMFS did not specifically include Eagle Creek NFH and Big Creek Hatchery in this conclusion (even though NMFS did name specific hatcheries that would be included in the ESU), so it is assumed that the coho from these hatcheries are not part of the lower Columbia River coho ESU.

Review Team Response: *The Review Team concluded that Eagle Creek NFH coho would - most likely - not have a defined role in the recovery of coho salmon in the Clackamas River. Nevertheless, according to NMFS' policies for defining "distinct population segments" of Pacific salmon and steelhead on the basis of evolutionary ancestry and significance, Eagle Creek NFH coho are included with the Lower Columbia River coho ESU in accordance with their recently developed policy for hatchery stocks. From NMFS' perspective and the legal constraints imposed by the ESA, exclusion of Eagle Creek NFH from the lower Columbia River coho ESU would necessitate exclusion of most hatchery stocks of coho salmon in the lower Columbia River although, collectively, they may represent the vast majority of the "evolutionary legacy" of coho salmon remaining in the region. Nevertheless, the Review Team recommends that the Service work with NMFS to reclassify Eagle Creek NFH coho as a "Category 3" hatchery population, which would exclude them from the Lower Columbia River ESU (see recommendation EC4).*

7. The hatchery broodstock objective is 3,000 adults, but in 2006 over 16,000 coho adults returned to the hatchery. Excess fish are distributed to tribes and food banks, but none are used for stream enrichment to support the productivity of the river for wild native salmon and steelhead (USFWS 2007).

Review Team Response: *Carcass outplants for nutrient enhancement studies have been reduced in recent years. For example, during the period 2001-2003, an average of 5,789 coho carcasses were outplanted by helicopter into the upper Clackamas River as part of a large-scale study conducted by the US Forest Service. This study is now over. ODFW currently outplants hundreds of carcasses into the Clackamas, Sandy, and Yamhill watersheds.*

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8. Harvest directed at these hatchery coho also pose a risk to adult spawners of ESA listed coho. The roll back of commercial harvest in the Columbia River in 2006 resulted in an increased return of wild coho salmon to the Clackamas watershed with a 19 percent increase in hatchery coho to the hatchery. It is obvious that harvest of hatchery coho salmon has caused a decline in wild coho adult spawners. This cumulative decline has contributed to the extinction of all wild coho populations in the Columbia River Basin except for the Clackamas and Sandy rivers.

Review Team Response: *The Team agrees that directed harvest of hatchery coho has impacted weak stocks of native coho (Flagg et al. 1995⁸). Potential effects of harvest are currently considered by agencies in biological opinions and harvest allocations for ESA-listed lower Columbia River coho salmon. The Team expects that incidental take restrictions and harvest reallocations will be consistent with conservation and recovery objectives.*

9. The review team also recommended delaying changes in coho broodstock for nine years in order to supply the tribes with coho stock for release into upper Columbia River tributaries. During the public hearing USFWS staff noted that transfer of coho eggs and juveniles to the tribes for release in upper Columbia tributaries would be monitored to determine whether a self-sustaining run of natural coho resulted from the introductions, however, there is no evaluation program currently funded or scheduled.

Review Team Response: *The Team understands that coho salmon transferred to the tribes for reintroduction into the upper Columbia River are consistent with criteria developed in existing master plans and funded through the Northwest Power and Conservation Council (NWPPCC) Fish and Wildlife Program. The Review Team only examined the Yakama Nation's mid-Columbia and Nez Perce Snake River coho reintroduction programs with respect to on-station risks at Eagle Creek NFH and potential future benefits in those upriver watersheds. The Team did not review the tribal reintroduction programs themselves. However, those programs have passed the three generation point (nine years) and have experienced adult returns that have numbered thousands of fish annually. Consequently, the Review Team developed an additional recommendation stating that the Service should work closely with the Yakama Nation and Nez Perce Tribe to determine the current status of those reintroduction programs and plan for the anticipated transition to using returning adults at those upriver locations for broodstock (recommendation EC2).*

10. The review team also states that the existing hatchery coho salmon program “exceeds fish health standards” and is taxing to staffing levels at the hatchery. However, the review team also recommends delaying reductions in the numbers of coho reared at the hatchery and development of a native Clackamas River broodstock in order to continue supplying eggs and juveniles to tribal programs in the upper Columbia River and to do genetic studies.

Review Team Response: *In our revised report, the Team recommends reducing the number of coho juveniles released on station from 500,000 to 350,000 smolts. This latter number should be sufficient to satisfy current broodstock requirements yet result in approximately a 30% reduction in the total number of adult coho returning to the facility, thus reducing manpower and facility requirements.*

⁸ Flagg, T.A. and four coauthors. 1995. The effect of hatcheries on native coho salmon populations in the lower Columbia River, p. 366-375. IN: Schramm, Jr., H.L. and R.G. Piper (eds.), *Uses and Effects of Cultured Fishes in Aquatic Ecosystems. Symposium 15, American Fisheries Society, Bethesda, MD.*

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11. The legal responsibility of the U.S. Fish and Wildlife Service is to operate its hatchery programs consistent with federal law, including the Endangered Species Act. The present Eagle Creek NFH coho salmon program is admittedly inconsistent with the ESA because it poses a genetic and ecological risk to ESA listed coho salmon in the Clackamas River. Delaying changes in the hatchery program means it will remain inconsistent with the legal obligations of the agency. The Native Fish Society recommends that the coho hatchery program at Eagle Creek NFH be brought into full compliance with the ESA without delay.

The USFWS recommends this be done by switching to a Clackamas River origin native coho broodstock. While it is possible to improve conservation benefits for ESA listed wild coho by switching to a native broodstock hatchery program, those benefits must be verified by funding a monitoring and evaluation program. The USFWS should describe how a monitoring and evaluation program would be structured, the benefits to be achieved, and the funding available to accomplish this work. If this cannot be done, then the legal obligation is to terminate the hatchery coho program in order to not impede the recovery of ESA listed wild coho salmon in the Clackamas River.

Review Team Response: *The Review Team recognizes that the Service has a legal responsibility to operate its program within the Endangered Species Act of 1973. The required consultation is communicated by development of Hatchery and Genetic Management Plans which have been submitted to NMFS for consultation. However, the Review Team also realizes that a risk to wild stocks may still exist and has tailored its recommendations and alternatives to reduce or eliminate those risks. Description of a specific monitoring program and identification of a definitive funding source are not part of the Review Team's mandate. Those tasks would be addressed during the implementation phase by an associated Service team. The Review Team recommended that the coho program undergo an immediate reduction of its on-station release to 350,000 smolts and consider transition to a local broodstock as a short-term goal (5-15 years).*

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Oregon Anglers⁹

1. **Coho evaluation:** *Oregon Anglers generally agreed with the assessments and recommendations of the Review Team.*
2. **Steelhead evaluation:** We endorse the 5-year genetic study before changing the early steelhead stock. There are few early stocks left for sport fishermen in Northwest Oregon, and it would be sorely missed. If the genetic combination does present a significant threat after 40+ years of straying and spawning with upper Clackamas winters [wild winter-run steelhead], please improve the stock. But we would be strongly opposed to total discontinuance of the early winter steelhead program for this popular fishery. This would cause an economic hardship for the area, and violate the spirit of the Mitchell Act, to mitigate the dams' effects on fishing.

Review Team response: *The Review Team is concerned with the status of the wild steelhead populations in the Clackamas River. After further review, the Team recommends reducing the on-station release from 150,000 to 100,000 smolts per year, and assessing the results of ongoing genetic and ecological studies within three years instead of five years as initially proposed. The results of these studies and the pending Oregon component of the Lower Columbia Salmon Recovery Plan will be used to determine if the current program can be continued consistent with conservation and recovery goals of ESA-listed steelhead in the Clackamas River basin. We understand that any near-term reduction in harvest benefits presents a hardship for local anglers and guides. However, the long-term future of fish populations and fisheries within the Clackamas basin depends on restoration of aquatic habitat and successful recovery of listed fish populations.*

⁹ *Written comments provided February 8, 2007 by Dennis Richey, Executive Director, and John Holloway, Secretary, Oregon Anglers, West Linn, Oregon.*

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Trout Unlimited¹⁰

1. This review provides a timely opportunity to make important changes to one of the longest standing impacts in the critically important lower river. We additionally look forward to the review of these recommendations in the cumulative analysis of all Lower Columbia River hatchery programs currently underway. We believe that the larger watershed context will add greater clarity to the benefits and risks of this particular program.

Review Team Response: *The Review Team is focused on the benefits and risks of Service hatchery programs within the context of the watersheds in which they reside. The Hatchery Scientific Review Group (HSRG) is currently focused on “cumulative effects”, and their results are expected to complement the detailed programmatic reviews of the Service’s Hatchery Review Team. In addition, NOAA Fisheries has ongoing genetic studies to identify the source populations for juvenile salmon and steelhead that collectively use the Columbia River estuary as a staging ground prior to outmigrating to the ocean.*

2. After our review of the report, we are disappointed with the Reviewers recommendation to maintain the current coho and winter steelhead programs in the short term. We believe that long term recommendations should be squarely before the managers now, and not pushed off as future options. Wild fish recovery in the Clackamas must be prioritized now, not years later. For example, the Reviewers conclude “genetic and ecological risks of the current steelhead program to ESA listed natural populations in the Clackamas River could be significant but that existing data were insufficient at this time to warrant termination of the program.” The existing and increasing data on hatcheries and the critical importance of the Clackamas River especially to wild coho survival and recovery,¹¹ as well as winter steelhead, squarely places the burden of error on the hatchery program and not on threatened coho and steelhead. The threshold should not be to make changes to the hatchery only when the data are sufficient to drive the specific changes, but rather, permit hatchery operations when the health of the wild fish can sustain it. There is no doubt that at this point in time, Eagle Creek hatchery should cease its production in the Clackamas River.¹²

Review Team Response: *The Review Team does not question the need to increase the viability of natural populations of coho salmon and steelhead in the Clackamas River. Clearly, habitat degradation and over harvest have been major factors reducing their viabilities. We understand the harvest benefits that the two hatchery programs are providing, but we do not understand the extent to which the two hatchery programs may be reducing the viability of natural populations. Nevertheless, in light of these scientific uncertainties, the Review Team is recommending a 30-33% reduction in on-station releases for both coho and steelhead. The Team looks to ongoing ecological and genetic interaction studies and the development of the Oregon component of the Lower Columbia River Salmon Recovery Plan to guide future program modifications.*

¹⁰ Written comments provided by Kaitlin Lovell, Salmon Policy Coordinator, Trout Unlimited, Oregon.

¹¹ McElheny, P. et. al. April 1, 2006. Revised Viability Criteria for Salmon and Steelhead in the Willamette and Lower Columbia Basins. Willamette/Lower Columbia Technical Recovery Team and Oregon Department of Fish and Wildlife. Review Draft.

¹² Reliance on the 1999 Biological Opinion to provide ESA coverage to this program (pg. 28) is misplaced. Not only is this Biological Opinion woefully out of date and subject to reconsultation, but the identified impacts from this review and the continuing decline of the listed species in this watershed make any future coverage highly suspect.

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3. The Review Team's conclusions and recommendations, we believe, are as a result of overstating the benefits of the hatchery program while understating the importance of the lower Clackamas River to the recovery of the affected stocks. The primary stated purpose of the coho program is reintroduction. This is a relatively new purpose of the program's fifty year history, and is considered primary only because of the sheer number of eggs it donates to the tribal reintroduction efforts. We agree with and support the reintroduction effort, however, missing from the analysis is a discussion of why Eagle Creek coho were chosen over a closer facility, and what the various measures of success will be for the reintroduction program. Thus, while conservation and reintroduction may be stated goals, they are not proven goals as of yet. Furthermore, the availability of eggs to these goals is secondary to the other stated goal of harvest and expected to end once the reintroduction efforts can be sustained locally. We support the recommendations of the Review Team, such as establishing sunset dates for the transfers, but we do not support the weight that the Review Team has attributed to this goal in an effort to maintain the status quo of the hatchery in the short term.

Review Team Response: *The Review Team and the Service must take a holistic view of the Columbia River basin and cannot favor conservation or harvest goals in one region at the expense of another region. Tribal trust and interjurisdictional responsibilities place the Service in the unique position of being able to address basin-wide recovery and reintroduction efforts. Coho salmon are largely extirpated upstream of Bonneville Dam, and the Review Team believes restoration of coho to the mid-Columbia, upper Columbia, and Snake River regions should be a high basin-wide priority. Coho from Eagle Creek NFH appear to be capable of reestablishing hatchery-supported runs in the upper basin as evidenced by results to date in the Wenatchee and Methow Rivers. (See also response to Native Fish Society #9 and recommendation EC2 in the body of the report).*

4. Instead, we believe it is more appropriate to rely on the long term historical goal of the program: harvest. This program supports a large ocean and smaller in river coho harvest programs. We wholeheartedly agree that this program should not be considered part of the listed ESU due to the broodstock origins and long term domestication effects. As such, the risks to the local wild stock (pg. 42) is more than just genetic and demographic, but also includes a large ecological risk. When measured against the sheer biological significance of the Clackamas River coho population to the overall health of the ESU, there is simply no comparison. Without this population [native Clackamas River coho], and without the recovery of this population, the ESU as a whole will not survive. There is undoubtedly a legal and biological imperative that heavily favors the wild coho over the minor harvest provided by this hatchery. Given this importance, we believe that the entire Clackamas River should be declared a wild coho sanctuary.

Review Team Response: *The Review Team considered options similar to the one described by Trout Unlimited. However, the Review Team concluded that there may be a role for hatchery programs in the recovery of natural Clackamas River salmon and steelhead populations, if consistent with the Oregon component of the Lower Columbia River Salmon Recovery Plan. The hatchery could also assist with continued restoration of natural populations in both the lower and upper Columbia River basins (see coho Alternatives 6 and 7).*

5. While Eagle Creek is not considered primary habitat for the coho, other lower tributaries are critical and the lower river is the migratory corridor. The Lower Clackamas River wild coho

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likely suffer from significant density dependence impacts, and are without a doubt subject to high incidental harvest rates. It is impossible for the Clackamas River coho to recover, and the upper river wild fish to thrive, if the Lower Clackamas River suffers.¹³

Review Team Response: *The Review Team agrees that the lower Clackamas River has high potential for coho salmon and steelhead natural production and may be critical in successful recovery of coho and steelhead within the watershed (see Table 6 of report) . This perspective is the basis for the Team’s recommendations to reduce risks to existing wild stocks in the lower Clackamas River and to support conservation efforts consistent with the Oregon component of the Lower Columbia River Salmon Recovery Plan. The Team also agrees that habitat restoration and protection are critical to the recovery of salmon and steelhead natural populations in the lower basin.*

6. We do not believe however, that the designation of the Clackamas River as a wild coho sanctuary should have a major impact on coho harvest. Transferring much of the production to the CEDC program would continue to support the highest harvest in the ocean. Because of the large number of coho released from Washington hatcheries, very little impact will be felt from the loss of adult coho in the Columbia River harvest (pg. 57). The Lower Willamette River region can target the unmarked, out of ESU, naturally produced coho migrating to streams above Willamette Falls. This run continues to increase and can, with the proper management around listed Lower Columbia coho, can sustain a consumptive harvest. The Clackamas River harvest will suffer the most, with the loss of the terminal fishery (it is unclear how many adult coho are caught in the Willamette and how many are caught in the Clackamas/Eagle Creek fisheries). We believe that the desperate state of Lower Columbia River coho requires such an immediate, dramatic action. Coupled with the changes to the hydrosystem, the Clackamas River hatchery and the forthcoming commitments made in the Lower Columbia River Salmon Recovery Plan, we are hopeful that the state of Clackamas River wild coho can improve quickly to first allow possible a small catch and release fishery followed by a more sustained and sustainable wild fishery.

Review Team Response: *The Team agrees that conservation and recovery of coho salmon in the Clackamas River is a high priority. Our short-term recommendation is to complete the current obligation of Eagle Creek NFH towards upriver coho reintroduction, after which significant reductions in on-station releases could occur. This recommendation is based on benefits, perceived risks, and scientific uncertainties regarding interactions between hatchery and natural populations in the Clackamas River. In order to reduce those perceived risks, the Team has recommended reducing on-station releases by ≈33% to the minimum level necessary to meet current commitments. Our mid-term alternative of an integrated conservation program for coho at Eagle Creek NFH is contingent on recommendations contained in the Oregon component of the Lower Columbia River Salmon Recovery Plan which is under preparation and is expected to be available early next year.*

7. In conclusion, we agree with many of the Review Teams recommendations, however we believe that the totality of the recommendations heavily favor Alternative 3 or 7 in the short and long term. Because of the extent of the recommendations and structural improvements

¹³ For example, in Table 6, the Reviewers only include counts of wild coho above the dams, essentially ignoring or writing off, the lower river. As one commentator stated at the public comment period, it is encouraging that wild populations are hanging on above the dams, but they still exist above three dams and that imposes a very high risk.

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that must be made, we do not believe that Alternative 1 is possible in the short term (1-5 years) without major risks and impacts to the wild listed coho. Further, there has been no analysis to demonstrate that an integrated coho conservation program will improve the status of wild coho, or provides an advantage over other, less risky strategies in the basin such as establishing a wild fish sanctuary in the river. (See e.g. Goodman, 2005; Oosterhaut et. al., 2005).

Review Team Response: *The Review Team must consider a variety of different, and somewhat conflicting, perspectives and needs. The recommendations developed by the Team are based upon a detailed review of the best available information. As we have noted elsewhere, the Team believes that the future operation of the Eagle Creek NFH must be consistent with, and supportive of, the Oregon component of the Lower Columbia River Salmon Recovery Plan. Our recommended alternatives could thus change in response to that Plan.*

8. With respect to the winter steelhead program, we were particularly struck by the high stray rates (pg. 62) and the potential impact from these strays. We agree with the significance of the questions raised by the Review Team regarding the stray rates and potential impacts from this program (pg 74). Coupled with the growing volume of research from Dr. Kostow, as referenced by the Review Team, we find it difficult to see the justification for the continued operation of this program. The Lower Clackamas River, and Eagle Creek itself, is very important to wild winter steelhead production (pg. 64). We therefore agree with the recommendations from the Review Team, but again believe that the totality of these recommendations heavily favor Alternative 4 in both the short term and long term. The harvest benefits of the program should be transferred to the Clackamas River hatchery to the greatest extent possible without harm to the wild native steelhead.

Review Team Response: *The Team agrees that the current steelhead program poses a risk to the wild population. By definition, “risk” is the “probability of a hazard.” Scientifically, we understand the hazards very well; we just don’t know the probability of those hazards relative to their actual severity in the Clackamas River. That is why we recommended continuation of an on-going study for three more years. The Review Team understands also the conflicting perspectives of different stakeholder groups and the particularly high value of salmonid resources to the local citizens of the greater Portland metropolitan area. Consequently, the Team proposed a series of measures to address these issues in the context of the perspectives of all stakeholder groups, based on the quality and quantity of scientific information currently available. (See also Review Team’s response to Comment #4 of the Native Fish Society).*

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