U.S. Fish and Wildlife Service Pacific Region

Olympic Peninsula Hatchery Review Team

Olympic Peninsula

Big Quilcene, Quinault, Hoh, Sooes, and Waatch River Watersheds

Quilcene, Quinault, and Makah National Fish Hatcheries

Assessments and Recommendations

Final Report, Appendix B:

Comments on Draft Report and Review Team Responses

May 2009

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Appendix B: Comments on Draft Report and Review Team Responses

Appendix B presents the Team's responses to comments provided by cooperators and the general public. Only comments that required responses from the Review Team are listed in this section. Comments where the writer concurred with the Team's recommendations or comments that focus on correcting information errors in the report are not shown here. Please see Appendix C for the complete text of comments provided to the Review Team.

Co-Manager Comments and Responses

Point No Point Treaty Council[1]

1. Re: Page 29, first paragraph under Goals but also stated on page viii of Summary in Benefits section: The current net pen program release level is elsewhere noted as being half that of the hatchery (200,000 compared to 400,000 coho smolts). So as stated here, if the survival to adults is the same for the net pen as for the hatchery but production is half that of the hatchery, why is the potential harvest from the net pen program described as only ~19% of the hatchery program? Is this perhaps the result of an assumed different proportion of harvest (primarily terminal) relative to escapement between the hatchery and net pen production? If so, what is the basis for the assumption? There should be an explanation somewhere in this document.

   Review Team Response: *This was a mathematical error in the report. Instead of 3,500, the predicted potential harvest for the net pen program at 5.0% smolt to adult survival is 9,400. The Team has made this change to the report.*

2. Re: Page 42, under Ecological Risks but also stated on page viii of Summary in Risks section: The statement is made: "Early emerging coho progeny of naturally spawning Quilcene NFH coho likely have a competitive advantage compared to later emerging natural-origin Hood Canal coho." We recommend you also acknowledge that the hatchery coho may be less fit than natural coho owing to potential effects of hatchery domestication and thus the potential impact from competitive advantage owing to early emergence may be reduced or nonexistent.

   Review Team Response: *The Team agrees with this comment and has made the appropriate changes to the report.*

3. Re: pages 45 and 46, under Recommendation QL7d: We recommend you change this recommendation to read as follows: "If the risk of straying from Port Gamble Bay net pens exceeds NOAA Fisheries and HSRG risk guidelines for hatchery fish, composing greater than 5% of the natural spawners, comanagers should investigate the ~~development of~~ (straying issue) **further, including the alternative of developing** a new integrated broodstock (e.g.,

[1] *Written comments provided February 9, 2009 by Randy Harder, Executive Director, Point No Point Treaty Council, Kingston, WA.*

derived from Big Beef Creek coho) that ~~would~~ **may** reduce the risk associated with straying". (*Strikethroughs indicate deletions and bold font indicates insertions*).

We make this recommendation because there are other factors to consider besides a new integrated broodstock, including whether such straying is having any genetic effect on the local coho (the 5% guideline is based on concerns about genetic influence). The timing of the Quilcene stock and its reduced fitness owing to domestication may limit any genetic influence. (This possibility is suggested by the USFWS 2007 genetic study.) Reduced fitness may also lower the risk of demographic impacts. Such influences/effects could be assessed by adult straying studies and continuing genetic studies of parr and/or smolts in the local streams. This comment would also apply to straying concerns at the other facilities addressed in the Quilcene watershed section of the report.

Review Team Response: *The change was noted and made to the report.*

4. Re: Page 46 under Recommendation QL9b and perhaps also on page 47 under Release and Outmigration: In recommendation QL9b, it is suggested that if harmful algal bloom species are present at levels threatening fish health in Quilcene Bay, then coho that are planned for transfer to the Quilcene net pens may have to be released immediately. Note, however, it is also stated in the immediately preceding recommendation, QL9 that the transfer to the net pens may well need to occur by March 1 to meet water right requirements while not exceeding hatchery loading limits.

   The problem here is that a coho smolt release should not occur before April 15 to protect against hatchery coho preying upon ESA listed summer chum. The April 15 release constraint is described in the Tribal and State comanagers' Summer Chum Salmon Conservation Initiative (SCSCI; WDFW and PNPT Tribes, 2000). Specifically, the SCSCI states that coho smolt releases "…will occur no earlier than April 15 to allow for the clearance of juvenile wild summer chum from freshwater and Hood Canal estuarine areas…" (page 200, first provision under predation risk aversion measures). This provision bears upon planning for coho releases at QNFH, affecting options for release. See also relevant comment specific to QNFH on page 227 of SCSCI.

   Review Team Response: *The recommendation has been changed to reflect the April 15 constraint. The Team has also modified the recommendation to include the need for a risk assessment in those years where HAB in Quilcene Bay poses a health hazard to the coho reared in the net pens.*

5. Re: Page 48, under Research, Monitoring and Accountability: Potential issues with straying of artificially propagated coho and consequent effects on local natural coho have been raised. A straying study has been suggested in the present document (see recommendation QL7a). The USFWS has recently performed a study of Hood Canal coho genetics (USFWS 2007). Following up on that study, the USFWS had an internal discussion of Quilcene coho genetics on May 21, 2007, producing a summary of that discussion in which the recommendation is made to "[c]ontinue tissue collections and genetics analysis and comparisons of hatchery and wild stocks".

Additionally, a study to assess potential demographic effects of Quilcene hatchery coho on natural coho would be helpful. We recommend that within this Research, Monitoring and Accountability section, you make recommendations to address these research and monitoring actions.

Review Team Response*: The Team will consider making a more detailed recommendation regarding a demographic study.*

6. Re: Page 49 under Issue QL17 and reiterated on page 53, first item under Pros of Alternative 4: This appears to be an attempt to raise an issue regarding incidental take of summer chum in the Quilcene Bay terminal fishery. The text notes that the summer chum exploitation rate is 17% in this fishery, which is higher than the pre-terminal and Hood Canal mixed terminal fisheries. This actually is not an issue with regard to protection and recovery of Quilcene summer chum. The higher exploitation rate (a planned for and expected result of managing to increase coho fishing opportunity) is accommodated by focusing management of the terminal fishery on meeting an escapement goal. Accordingly, management guidelines exist for the fishery and the escapement goal has been met every year. The issue as you have raised it, based on a description of exploitation rates, does not exist. The immediately following recommendation QL17 suggests that perhaps the issue you meant to raise is whether or not changing Quilcene hatchery coho run timing would be an appropriate strategy to consider.

   Review Team Response: *The HRT has removed all numerical references to summer chum exploitation rates and understands that current agreed to summer chum exploitation rates have not been exceeded. However, the HRT believes that the current coho fishery presents a risk of unusually high summer chum harvest on any specific day that could lead to higher exploitation rates over the course of the season. The HRT has modified the Issue and Recommendation to reflect that possibility.*

7. Re: Page 51 under Alternative 1, Cons: We recommend you delete the first bulleted item that states: "Surplus exceeds current demand for subsistence and ceremonial purposes." This statement is not true. The facts are: 1) the Tribes will take all the coho that are in good condition as are available, 2) the Tribes interest in the coho diminishes as the coho become dark and deteriorate in condition during the later part of the run, and 3) the tribal demand for coho in good condition remains strong regardless of the size of the surplus.

   Review Team Response: *The Team has made modifications to the report based on your comment.*

8. Re: Page 54, Recommended Alternatives: There is an alternative, not included in the prior listing of alternatives, that we think is laudable and is apparent from the specific recommendations made in this document regarding coho production; i.e., recommendations QL9 though QL10c. Two points in particular were made in these recommendations: 1) "Reassess the water management practices to determine how many coho Quilcene NFH can produce without exceeding the Service's recommended upper rearing thresholds and Quilcene NFH's water right restriction" (from recommendation QL9); and 2) "Work with comanagers to develop the best production and release strategy from the Quilcene NFH and Quilcene Bay Net Pen" (from recommendation QL10) Thus this document appropriately suggests that there

is still work to be done to resolve the question of limits on rearing under the water right and to come to a co-manager agreement on the best production and release strategy. We accordingly recommend that the preferred alternative include provision for these tasks to be implemented and completed in 2009.

Review Team Response: *The Team's recommended alternative (2) does not preclude the implementation of recommendations QL9 and QL10. The Team believes that these recommendations are of high priority and should be implemented immediately. The report has been modified in order to clarify the Team's conclusions.*

9. Re: Appendices, in Table of Contents and Page 259: We deduce that in the interest of saving space and funding that, as indicated on the appendix page to this draft, you plan to make the appendices available on a web site. However we strongly believe that the comanagers' comments and associated review team responses should be part of the larger document, whether it is in digital or paper form. This would help ensure that the reader has equal access to the USFWS review and comanagers' comments. We therefore recommend that you include at least Appendix B in the larger document when it is distributed.

   Review Team Response: *The comments received to date will be posted to the web site in appendices B (comments with Review Team responses) and C (complete text of comments) and made available as a component of the draft report when it is released to the public. The appendices are listed immediately below the main body of the report on the Review Team's web site (http://www.fws.gov/Pacific/Fisheries/Hatcheryreview/reports.html). The Team does indeed regard comanager comments as an integral part of its review and recommendations. The sections of the report are only posted separately on the website to facilitate reading and downloading by viewers.*

10. Re: Sources of information at various locations within the document: There are numerous places within the document where specific information is provided, often numbers or percentages reflecting on stock status or harvest information. Unfortunately, no sources are provided for much of this information. We have noted within the sections we have reviewed in the attached copy of the draft report, where sources of information are missing.

    Review Team Response: *Most of the technical background information is summarized in Appendix A. This information is obtained from a large number of documents, both published and unpublished, including HGMPs, CHMPs, annual USFWS production reports, personal communication, online databases (SASSI, RMIS, etc.), and published scientific literature when it applies directly to evaluations of the benefits and risks of hatchery programs. The published and publicly available documentation used in this report is available on the Team's web site under the "supporting documents" link.*

Port Gamble S'Klallam Tribe[2]

Summary and pages 45 and 46, under Recommendation QL7d: We recommend you change this recommendation to read as follows:
"If the risk of straying from Port Gamble Bay net pens exceeds NOAA Fisheries and HSRG risk guidelines for hatchery fish, composing greater than 5% of the natural spawners, comanagers should conduct an impact assessment based on calculated and observed numbers of successfully spawning strays, numbers (range) of expected fry and parr and anticipated and observed fry emergence timing differences. The assessment should also include estimations of potential competitive impacts based on the numbers and likely ratio's of the potential straying progeny to other "natural" non straying stocks. If significant competitive impacts are determined to be likely, with a reasonable level of confidence, development of mitigating actions will be reviewed for consideration including the potential alternative of developing a new integrated broodstock (e.g., derived from Big Beef Creek coho) that might reduce the perceived risk associated with straying". Please also consider PNPTC comments on this recommendation.

> ***Review Team Response:*** *Such a detailed evaluation proposed could certainly be a follow-up to the recommendation provided by the Review Team. However, the Team believes that the NOAA Fisheries and HSRG risk guidelines represent best available science with respect to maintaining viable natural populations.*

Pages IX & 46 under Recommendation QL9b and page 47 under Release and Outmigration: As PNPTC comments pointed out, a coho smolt release should not occur before April 15 to protect against hatchery coho preying upon ESA listed summer chum. As noted in our comments in the attached draft report on page IX of the summary which associate with page 46 in QL9b, the suggested actions seem rather drastic without providing time for exploring and experimenting with other options such as lower densities (place an additional net pen or two and minimize SW rearing densities which should help minimize impacts from HAB), earlier ponding and early release (after April 15th) if a HAB is actually threatening mortality episodes; ponding into a floating vertical raceway (Hypolon skirt on SW net pen w/FW flow providing one to two meter FW lens using conditioned reuse of the water effluent from on site coho rearing etc.

> ***Review Team Response:*** *The Team's understanding is that the current strategy for managing the impacts of harmful algal blooms (HAB) have been effective at containing the risk. The strategies implemented in 2004 to address HAB levels appear to be working (see the "operational considerations>release" section of the report for more information about the strategies implemented). If the severity and frequency of HAB increase in the future, your suggestions may be alternatives to pursue.*

[2] *Written comments provided February 10, 2009 by Paul McCollum, Director, Port Gamble S'Klallam Tribe, Kingston, WA.*

PG Net Pen Genetic Risks and Straying, VII, Pages 31 & 48: Potential issues with straying of artificially propagated coho and consequent effects on local natural coho have been raised. It seems important to clarify just how much overlap exists (if any) based on "exhibits a run timing of one to four months earlier than other hatchery and natural stocks of Hood Canal coho" mentioned elsewhere in the document. Specifically what range of counted strays on the spawning grounds that overlap "natural origin" spawners actually occurs. If this program in the HRT's perspective "may pose genetic risk" then the burden should be on the HRT to clarify this risk at least within some reasonable scale of a minimum to maximum likelihood. We request that the range of data sets used in the discussion of straying and genetic issues and impacts (how many years, numbers sampled, actual data used, process etc. and the specific source reports or studies be provided.

> ***Review Team Response:*** *The Team utilized information that indicated straying does occur. This information did not provide any information regarding run time overlap between the hatchery and natural populations. The information requested in this comment is consistent with the Team's recommendation 7B(a) that states, "a study should be conducted to better quantify stray rates of coho released from Port Gamble Bay net pens."*

Hoh Tribe[3]

The following comments pertain to the US Fish and Wildlife Service Hatchery Review Team's Draft Recommendations for the Quinault NFH Steelhead – Hoh River Release program. These comments are extracted from a personal communication by Joe Gilbertson, Fisheries Management Biologist, of the Hoh Tribe. The comments were endorsed by Rick Cook, Fishery Biologist for the Bureau of Indian Affairs.

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1. The statement on page 119 of the draft report is incorrect. It reads, "Discussions with Tribal staff indicate that due to lack of funding, little or no assessment or monitoring is done on natural spawning or rearing in tributaries or the main stem Hoh River." We have conducted extensive smolt trapping which provides information on smolt production, distribution, and size. We also have conducted a snorkel-survey project in major tributary habitat since 2005 to gather information on rearing habitat availability, quality, and utilization by juvenile salmonids. Please remove this statement from the draft.

   Review Team Response: *The Team agrees that the quoted statement is incorrect and has made modifications to include the description of monitoring activities that biologists for the Hoh Tribe have provided. The Team relies upon information and reports that are either publicly available or provided by the fisheries managers in order to assess each program. Although it appears the Hoh Tribe makes a substantial monitoring effort on the Hoh River, data summaries and analyses have not been available for the Team to review.*

2. In regards to the Team's recommended alternative for the Quinault NFH steelhead – Hoh River release program, natural production in the Hoh River is insufficient to accommodate Tribal harvest needs. Our Tribal need is to fish 2 days a week. There is no credible evidence to suggest that habitat productivity can be sufficiently enhanced or repaired to generate sufficient numbers of wild fish to meet the Tribal fishing objective.

   Review Team Response: *In response to this comment, the Team has modified the mid- and long-term recommendations to clarify our intent.*

3. We understand the need to eliminate the transfer of fish from Cook Creek, and we look foreword to developing a locally adapted, early timed segregated harvest program of winter steelhead derived from Hoh origin broodstock. We will strive to ensure that the deleterious and detrimental influences of the hatchery production on wild stocks are minimized utilizing all available techniques and approaches, and we will continue to evaluate our success in this arena, considering the eventual development of an integrated harvest hatchery management plan.

   Review Team Response: *The Team appreciates this open and constructive approach to consideration of alternatives for the future management of the Hoh River basin.*

[3] *Personal communication provided February 6, 2006 by Joe Gilbertson, Fisheries Management Biologist, Hoh Tribe, Forks, Washington.*

4. The Hoh Tribe, as a resource comanager, should play a primary role in the review process. Our role as resource managers is fundamentally different than that of stakeholders and public interest groups. The federal government also bears a trust responsibility to the Hoh Tribe.

   Review Team Response: *The Team acknowledges the status of the Hoh Tribe as a resource manager of the Hoh River Basin and recognizes the Service's trust responsibility to the Hoh Tribe. The Team provides opportunity for comanager involvement throughout the review and actively seeks comanager input while developing the draft report and recommendations. The Team will give stakeholders and public interest groups' opportunity to provide comments after the revised report has been posted on the project website. It is also the intent of the Service to work closely with resource comanagers including the Hoh Tribe in the process of implementation of recommendations following the completion of this review.*

5. The Hoh Tribe questions the use of reports prepared by stakeholders and public interest groups who are not comanagers of the resource.

   Review Team Response: *While the Team primarily relies upon reports and other information produced by comanagers when developing the report, the Team does utilize publicly available reports, including those produced by stakeholders and public interest groups.*

Quinault Indian Nation[4]

The Quinault Indian Nation has requested further consultation regarding several of the issues and recommendations brought forth in the Olympic Peninsula NFH Report. The Service will consult with the Quinault Indian Nation on all actions that may affect the Nation's management of their fisheries.

Page 92. The McMillan and Gayeski, 2006 document is not a peer reviewed report. The data and methods for estimating historic steelhead abundance should be reviewed by the HRT and shared with the Quinault fisheries staff prior to using these estimates in your report.
Quinault does not endorse the use of WDFW SASSI reports for assessing population viability. The SASSI designations primarily use escapement trends for determining the health of a population. This represents an incomplete analysis of population viability.
There are inconsistencies in the Habitat status summary. For example, the habitat designation for Quinault River Winter steelhead cites the Bureau of Reclamation 2005 report indicating that the upper Quinault River floodplain will continue to deteriorate without intervention. This included areas within Olympic National Park. Habitat designation for Quinault River Fall Chinook excludes areas within ONP when referring to unstable habitat.

Review Team Response: *The Team considered the array of information available, including the information provided by the Quinault Indian Nation. While the Team primarily relies upon reports and other information produced by resource comanagers when developing the report, the Team does utilize publicly available reports, including those produced by other public agencies, stakeholders and public interest groups.*

Page 104. QN3 Quinault does not agree that mass marking QNFH steelhead is necessary. As stated in Issue QN3a, no selective fisheries occur in the Quinault area serviced by QNFH, so little purpose exists for implementing this recommendation. We agree that incorporating very few wild steelhead into the hatchery broodstock poses a low risk to the natural population.

Review Team Response: *The need to distinguish wild fish from hatchery fish is not exclusive to selective fisheries management. The Team's primary concern is proper broodstock management and assessing risks to natural populations via monitoring and evaluation. This could be achieved through a physically identifiable mark (e.g. adipose-fin clip or elastomer tag) or an internal mark or tag (e.g. otolith or CWT). The Team has reflected this in revisions to the report.*

Page 107. QN10. No significant fish health concerns have been identified under current density and flow criteria at QNFH. Quinault does not agree that program reductions are warranted based on the desire to reduce current fish density and/or flow indices. We request further consultation on this issue if the recommended indices would result in program reductions consistent with this recommendation.

[4] *"Initial" comments provided April 3, 2009 by Ed Johnstone, Quinault Fisheries Policy Spokesperson, Quinault Indian Nation, Taholah, Washington. The Quinault Indian Nation stated that they did not have time to submit a comprehensive response and will continue discussions with the Service regarding the report.*

Review Team Response: *The Service staff has specific loading thresholds for steelhead that they are interested in maintaining, irrespective of the federal facility where the fish are reared. These thresholds have been adopted by the Team. In this report, the Team specifically recommends that flow and density indices be calculated appropriately to determine if the thresholds are being exceed. The Team lists "all" options for staying within the thresholds, including reducing on-station production or expanding rearing space, only if this is an issue. There is a decision process between Service and tribal managers to determine which option is appropriate.*

Page 105. QN4a. Quinault requests that USFWS consult with the Nation regarding upgrades to the weir and water supply. Improving the weir design should be considered a priority project at QNFH.

Page 108 QN 112. Quinault recommends that USFW prioritize the replacement of the electric weir with a velocity barrier weir located at the same site. We request that USFW consult with the Nation on their intentions for replacing the electric weir. In particular, we would like to know how this project is currently prioritized among other USFWS hatchery projects and what actions the USFWS plans to take to secure funding for this project.

Review Team Response: *The Team assessed the inadequacies of the weir as two separate issues: protecting the water supply and human and wildlife safety. There is a parallel process to address method, priority, and timing to replace the weir in particular, which would address the safety risks. While the Team is not a part of the prioritization process; the Team's recommendations, including reinforcing the need to replace the weir to address safety issues, are expected to result in the Service reassessing it's priorities for investments at Olympic Peninsula NFHs. The Team anticipates that the Service will consult with the Quinault Nation regarding this important issue.*

The Team does not believe options to protect the water supply are limited to weir replacement, in its current location. Given the recent appearance of the MD strain of the IHN virus in the Quinault River basin, the Team believes protecting the water supply is of highest priority, especially during the early rearing of steelhead when the fish are most susceptible to IHN infection, and for steelhead transferred outside of the Quinault River basin. This could be achieved through physical barriers (weir in its current location, closer to the water supply, multiple barriers, etc.) that prevent fish passage, by accessing additional pathogen free water supplies where no anadromous fish passage exists, and/or by disinfecting the water supply.

Washington Department of Fish and Wildlife[5]

Regarding Quinault NFH programs:

1. The WDFW agrees with recommendations (b) through (e), but not with (a) at this time. We recommend the continuation of the current direct plant of 50,000 winter steelhead smolts at Allen's Bar in the Hoh River. There is an ongoing collaborative genetic study between the Olympic National Park, Hoh Tribe, and the WDFW to determine the impact of hatchery-origin steelhead and salmon on wild fish in the Hoh River. We feel we should wait to receive the results of this study (due in 2010 or 2011) to determine if changes are needed to the current program.

   Review Team Response: *Genetic risks are only one class of risks associated with releasing Quinault NFH steelhead in the Hoh River. The Team concluded that the release also poses high disease and ecological risks to the natural population that outweigh the benefits provided to the sport fishery. The Team believed that direct-stream releases at Allen's Bar, 17 miles upstream from the river mouth, poses a greater risk to the wild population than acclimated releases from Chalaat Creek, which is within a mile of the mouth of the river. Those higher risks upstream will continue regardless of the results of any "genetic study." Although genetic studies are very important for understanding the ancestries and genetic similarities of existing populations, those data - by themselves - can not be used to determine the extent to which hatchery fish have or have not affected wild populations genetically or ecologically. In general, these latter assessments require either (a) a controlled study to assess the genetic impacts of hatchery fish on wild populations (e.g., Araki et al. 2007; Ford et al. 2008)[6] or (b) a time-series, "before-and-after" study (Kostow and Zhou 2006)[7]. Without knowledge of the genetic structure and composition of natural populations BEFORE hatchery fish are released, it is extremely difficult to scientifically assess the genetic impacts of hatchery fish spawning naturally. This lack of statistical power is generally due to the high genetic similarity at the molecular level (e.g. based on DNA markers) between source and recipient populations of Pacific salmon and steelhead in the Pacific Northwest. On the other hand, exceptions to these generalizations occur, but they are largely restricted to studies where the source and recipient populations had very different evolutionary histories. One example of this latter situation is the stocking of nonanadromous rainbow trout from established hatchery strains into interior drainages that historically supported steelhead (Campton and Johnston 1985)[8]. Nevertheless, conclusions drawn from these latter types of studies usually rely on assumptions that cannot be directly tested experimentally.*

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[5] *Comments regarding Quinault NFH programs provided March 18, 2009 by Bill Freymond, Region 6 Fish Manager, WDFW, Montesano, WA. Comments regarding Quilcene NFH programs provided March 24, 2009 by Thom Johnson, Hood Canal District Fish Biologist, WDFW, Olympia, WA.*

[6] *Araki, H., Cooper, B., and Blouin, M.S. 2007 Genetic effects of captive breeding cause a rapid, cumulative fitness decline in the wild. Science 318: 100-103. Ford, M.S., Hard, J.J., Boelts, B., LaHood, E., and Miller, J. 2008. Estimates of natural selection in a salmon population in captive and natural environmens. Conservation Biology 22: 783-794.*

[7] *Kostow, K. and S. Zhou. 2006. The Effect of an Introduced Summer Steelhead Hatchery Stock on the Productivity of a Wild Winter Steelhead Population. TAFS 135:825–841.*

[8] *Campton, D.E. and Johnston, J.M. 1985. Electrophoretic evidence for a genetic admixture of native and nonnative rainbow trout in the Yakima River, Washington. Transactions of the American Fisheries Society 114: 782-793.*

2. We do recognize the disease risk associated with this program and support the direct plant only if the smolts are determined to be disease free. As an alternative to the direct plant from Cook Creek, we recommend considering transferring the program and all monies required to fund rearing and transportation costs associated with the Hoh Steelhead to the WDFW Bogachiel Hatchery facility. The Bogachiel facility has pathogen free spring water.

   Review Team Response: *From the Team's perspective, although risk of disease transmission would be reduced if the steelhead were reared at Bogachiel Hatchery, there would continue to be genetic and ecological risks as long as an out-of-basin stock continues to be released in the Hoh River (see HSRG white paper number 7 "Outplanting and Net Pen Release of Hatchery-Origin Fish")* [9]*. The Team anticipates no significant cost savings to the programs at Quinault NFH if the Hoh River release program were discontinued because the Service would expect backfill or adjustments to other programs in the Quinault River basin.*

Regarding Quilcene NFH programs:

3. We concur with the comments provided by the PNPTC and Port Gamble S'Klallam Tribe on the previous review draft. Any tribal comments that were not incorporated into the February 2009 draft should be re-considered.

   Review Team Response: *See Team responses to Point No Point Treaty Council and Port Gamble S'Klallam Tribe above.*

4. Current Status of Stocks text and tables: The list of stocks should include all summer chum salmon stocks in Hood Canal since they are all "of concern to the co-managers". For example, why are summer chum stocks in Lilliwaup, Hamma Hamma, Union, Tahuya, and Dewatto missing from the list? These could be included with Dosewallips and Duckabush summer chum and covered in Table 5 or covered in a separate table(s) since all except Dewatto have supplementation programs which are either discontinued (Union) or ongoing.

   Review Team Response: *The Team believed that these summer chum stocks were not affected by the production or harvest of Quilcene NFH coho and, as you state, other than the Dewatto population, are being addressed through ongoing supplementation programs. Other stocks, such as mid-Hood Canal Chinook, which includes the Duckabush and Dosewallips populations, were included given the potential for Quilcene NFH to contribute to the recovery of these populations.*

[9] *Hatchery Scientific Review Group. 2009. Columbia River Hatchery Reform Project Final Systemwide Report – Appendix A: White Paper No. 7. www.hatcheryreform.us.*

5. Tables 8, 9, and 10. Winter Steelhead: Biological Significance is rated *Medium*, but could be *High* since DNA analysis (D. Van Doornik 2008) indicates significant genetic diversity within Hood Canal steelhead, significant differences between steelhead in each stream (stock) analyzed, and no/little evidence of introgression from hatchery steelhead stocks used in Hood Canal.

   Review Team Response: *Based on the available information, the Team did not identify any unique life-history or biological attributes which distinguish Hood Canal, as an entire population, from other populations within the Puget Sound Distinct Population Segment. This is consistent with the Hatchery Scientific Review Group's conclusions in the previous review of the region.*

6. Table 8: a) Why is Big Quilcene steelhead rated *Low* Biological Significance compared to the other stocks *(all other Hood Canal steelhead stocks ranked "Medium" according to the HSRG)*? It's not really that different. Plus, it could be included together with the steelhead stocks in Table 10 (HCSH Project Control Streams).

   b) What are the estimated capacities for steelhead adults presented in Table 9 and Table 10 based on? Provide citations.

   Review Team Response: a) *Based upon the information available, the Team concluded that spawning and rearing habitat in the Big Quilcene is limited compared to other Hood Canal streams, lowering the biological significance of this stock. The Hood Canal Steelhead Project supplementation stocks were separated from the control stocks because there is a hatchery component to theses stocks, requiring a different form of stock table. The Big Quilcene winter steelhead stock was kept separate because it is currently not part of the Hood Canal Steelhead Project. The Big Quilcene steelhead stock was included in the Big Quilcene River Overview section because it is affected by the Quilcene NFH weir, that restricts upstream passage. The table's ratings are for the most part consistent with the results of the Puget Sound and Coastal Washington Hatchery Scientific Review Group (2000-2005), who created the stock tables through discussions with comanagers. An explanation is provided where the ratings defer.*

   b) *The estimated habitat capacities presented in the steelhead tables were developed using WDFW's spawner escapement goal methodology (Gibbons et al. 1985), presented in the DRAFT Hood Canal Steelhead Production Assessment (Johnson, May 2006). Citations have been added to the report.*

7. Quilcene NFH Coho: Demographic Risks, p. 42: add another sentence to note that "Incidental catch of summer chum is exacerbated by the early hatchery coho return timing which was induced by hatchery practices".

   This could be identified as a new Issue and discussed/addressed under Broodstock Choice and Collection on p. 44. For example, selection of broodstock for more

normal entry/spawn timing could be considered and implemented to minimize potential incidental harvest impacts to summer chum during the fishery for QNFH and QBNP coho.

Review Team Response: *The current level of incidental take of summer chum is within the Hood Canal summer chum recovery guidelines established by NOAA Fisheries. However, summer chum exploitation rates may constrain the harvest of Quilcene NFH coho, contributing to the large numbers of coho escaping the fishery and returning to the hatchery. The Team supports selecting for a later coho run time for Quilcene Bay net pen and on-station releases if it increases harvest opportunity and reduces the coho surplus. However, the Team was concerned that this would increase the straying risks from the Port Gamble Bay net pens. Earlier returning Quilcene NFH coho would have to be selected for broodstock for the Port Gamble Bay net pen program as long as the rate of straying does not exceed NOAA Fisheries and HSRG guidelines. If stray rates from Port Gamble Bay exceed those guidelines, comanagers should address the stray rate issue by: (a) the potential development of a new integrated broodstock (e.g., derived from Big Beef Creek coho) and/or (b) reducing the number of fish released from the net pens that would reduce the genetic risks associated with straying (QL7B). This strategy was not added to the body of the report because it is significant and came about too late in the process to undergo comanager review. The comanagers should meet to discuss this issue.*

8. Quilcene NFH Coho: Issue QL-17, p. 49: This has not been an issue in recent years. Since the co-managers initiated regular in-season discussions, incidental harvest of summer chum has been limited and generally been meeting management guidelines. The recommendation is basically not very feasible.

   Review Team Response: *The report has been modified based on this comment.*

9. Quilcene NFH Coho: New Alternative to consider: Maintain the Quilcene NFH program at 600K coho, but rear and transfer 200K coho (at 25 fpp in February) to the Port Gamble Net Pens, 200K to Quilcene Bay Net Pens, and release 200K from Quilcene NFH. The 200K for PGNP would replace 200K coho currently transferred to PGNP from George Adams Hatchery. Intent would be to address and reduce the apparent straying of PGNP coho into northern Hood Canal streams (i.e., is straying, in part, due to the transfer of eyed eggs from QNFH to George Adams for rearing (to 25 fpp) and then to PGNP for grow out and release?). In addition, a reduction in the coho program at George Adams Hatchery could provide other options to support conservation programs (e.g., S.F. Skokomish steelhead) or other production programs.

   Review Team Response: *425,000 coho are currently transferred from George Adams Hatchery to Port Gamble Net Pens; therefore, this alternative would reduce the Port Gamble Bay release size by 225,000 unless the remaining 200,000 coho continue to be reared at George Adams. Additionally, if Harmful Algal Blooms precluded the transfer of the coho reared at Quilcene NFH to Port Gamble and Quilcene bays in February/March and operators were to keep the 600,000 coho on station at Quilcene NFH after mid-March, the Service's*

rearing thresholds (density and flow indices) would be exceeded at Quilcene NFH. High water demand and low water availability limit production during this time period.

Skokomish Tribal Nation[10]

1. Proposed loading densities at the Quilcene NFH appear to be more conservative than those used by either the tribes or the state at their respective hatchery facilities. While we understand the importance of proper loading density, we want to ensure that the densities used at the Quilcene NFH are appropriate and not unnecessarily conservative and are appropriately based upon available water and experience. The Tribe does recognize the effects of the harmful algal bloom (HAB) on the coho placed in the Quilcene Bay net pen. As raising all the coho at the hatchery facility could be necessary in future years, we understand your recommendation to reduce production from 600,000 to 400,000 coho.

   Review Team Response: *The densities standards used by the Team have been developed in past evaluation studies (Piper 1982, Banks 1994, etc.[11]) and are utilized by the Team as the best available science unless alternative scientific information is available specific to a particular program or stock. The Team shares the concern of the Skokomish Tribe that the future program at Quilcene NFH represents the optimal balance of risk and benefit. The Team has attempted to achieve that in its recommendations. (Also see the Team's response to WDFW comment no. 9).*

2. Large surpluses of coho into the hatchery are a concern to the Quilcene NFH. However, those fish have become important to the Skokomish Tribe; especially elders who can do longer fish, as a source of nourishment. Furthermore, the Skokomish Tribe feels the surplus is at least partially caused by the conflict between the coho and summer chum. Because the timing of indigenous coho stock used at the Quilcene NFH has been moved up in time, the Tribe is unable to fully fish for coho because of the protection in place for summer chum. The Tribe recommends that the Quilcene NFH attempt to manipulate the coho run so it once again matches its normal, later. Run timing. This would allow for a larger coho fishery thus reducing the amount of surplus fish returning to the hatchery.

   We do recognize that the genetic potential may not exist to move back the run timing of the fish at the Quilcene NFH. If this is the case, the Tribe suggests bringing in a different stock of coho utilizing donor strains from the small streams and rivers near to the Quilcene NFH. The Big Beef coho stock is not an appropriate choice because of the increased risk of straying.

   Review Team Response: *See the Team's response to WDFW comment no. 7.*

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[10] *Written comments provided April 14, 2009 by Joseph Pavel, Chair, Skokomish Tribe, Skokomish, Washington*

[11] *Piper, R.G., et. al., 1982. Fish Hatchery Management. US Fish and Wildlife Service and the American Fisheries Society, First Edition 517 pages.*

Banks, J., 1994. Raceway density and water flow as factors affecting spring Chinook salmon (Oncorhynchus tshawytscha) during rearing and after release. Aquaculture, 119: 201-217.

Wedemeyer, G.A., 1996. Physiology of fish in intensive culture systems. Chapman and Hall, 232 pages.

Wedemeyer, G.A., 2001. Fish Hatchery Management. US Fish and Wildlife Service and the American Fisheries Society, Second Edition 733 pages.

Rogers, R., R. Brunson, J. Evered, 2002. Recommendations for Chinook fish health management in the mid and upper Columbia River.

Stakeholder Comments and Responses

Stakeholder Forum[12]

1. **Is this a purely scientific review or does it take into account tribal treaty rights, etc?**

   Review Team Response: *The Team's review does take into account policy and economic factors associated with the National Fish Hatchery programs, but only from the perspective of acknowledging where there may be these other items to address when considering the biological science based recommendations made in the report.*

2. **The Review Team stated that each program lacked specific harvest and conservation goals. Are these supposed to be numeric?**

   Review Team Response: *Yes, harvest and conservation goals should be quantitative. For example, for harvest, there should be a specific number of fish expected to be harvested. Similarly, there should be numeric conservation goals. For example, the goal for number of fish spawning naturally. Such numeric goals might appropriately be expressed as a range or a multi-year average to account for annual variability.*

3. **What are the principles used to manage fish in a hatchery that are analogous with wild fish behavior (and management)?**

   Review Team Response: *One example is cross-basin transfers. Historically, fish have been transferred across basins to backfill hatchery production when shortages occurred or to create a hatchery run where there wasn't one. Naturally, fish attempt to home to their natal streams. Therefore, cross-basin transfers, releasing fish into watersheds from which they did not originate, will likely lead to straying issues. Such transfers can pose fish health risks and increase the potential for epidemics if diseases are carried from one basin to another. Hatchery broodstock backfills can also result in reductions of local adaptation of the existing hatchery broodstock which may reduce the productivity of the hatchery program and its anticipated benefit*

4. **Did the Team consider the appropriateness of the goals that existed for each program?**

   Review Team Response: *In most cases, in this assessment of the Olympic Peninsula National Fish Hatcheries, the programs lacked specific, numeric goals; therefore, there were no goals to assess compared to the strategy being applied. However, in Columbia River reviews, the Team did find some cases where a goal was not physically achievable or was likely to result in*

[12] *These are excerpts from comments provided by attendees of the Stakeholder Forum held at the Red Lion Inn, Port Angeles, WA on February 19, 2009. Responses were provided by Review Team members who attended the meeting and were clarified in subsequent Review Team meetings.*

a high level of risk to other programs (e.g. Entiat NFH spring Chinook, Leavenworth Complex Report[13]). Where this did occur, the Team recommended the goal be revised.

5. **Why isn't Makah NFH working toward rebuilding salmon and steelhead populations on the Seiku and Hoko rivers utilizing their hatchery stocks, either using surplus fry or a program targeted at rebuilding these populations?**

   Review Team Response: *Assessing the Hoko and Seiku populations was outside the scope of this review. Research indicates that fry outplants do not have good survival and do not lead to the rebuilding of natural runs (Nickelson et al, 1986). Additionally, utilizing existing, domesticated hatchery stocks in attempts to rebuild natural populations can have negative genetic and ecological effects on the target population, especially if it involves outplanting the hatchery stock outside of its watershed.*

6. **What is the purpose of ensuring that 20% of the Quilcene NFH coho spawned are jacks?**

   Review Team Response: *Including jacks increases the genetic effective population size of the Quilcene NFH coho stock and maintains integration between year classes. Historically, the hatchery only utilized three-year-old coho males when spawning each year. This practice resulted in the formation of three separate broodlines. Excluding jacks is also inconsistent with the biology of the species.*

7. **What is preventing Quilcene NFH from immediately initiating a program to restore the Big Quilcene River winter steelhead population?**

   Review Team Response*: Without modifying other programs at the facility, Quilcene NFH currently does not have enough water available throughout the year to initiate an additional program that involves rearing steelhead until they are smolts and ready for release. Additionally, the Washington Department of Fish and Wildlife has not completed their steelhead management plan for the state, which may provide some guidance for the Quilcene River. Therefore, it is advisable to allow some lead time to plan and implement such a program.*

8. **Are there any river systems that currently manage steelhead for natural production only and continue to support capture fisheries, such as the Team is recommending as a potential long-term strategy for the Hoh River? Why are there so few, if any?**

   Review Team Response: *There are several. For example, most coastal streams in southern Oregon support catch and keep fisheries for naturally produced winter steelhead including the Elk, Sixes, Chetco, lower Rogue and lower Illinois Rivers. The John Day River in the middle Columbia River basin is an example of a system which has natural production of summer steelhead capable of supporting sport harvest. However, many streams have certainly been*

[13] *U.S. Fish and Wildlife Service (USFWS). 2007. Leavenworth, Entiat, and Winthrop National Fish Hatcheries: Assessments and Recommendations Final Report. April 2007. Hatchery Review Team, Pacific Region. U.S. Fish and Wildlife Service, Portland, Oregon. http://www.fws.gov/pacific/fisheries/Hatcheryreview/ team.html.*

degraded significantly by poor land management practices. Most hatchery production has been put in place to deal with the resulting loss of natural production.

Comment by Joe Gilbertson of the Hoh Tribe: The Hoh River natural-origin steelhead population has been on a downward trajectory. It's hard to make a case that natural production could return the population to its historic levels due to degraded habitat conditions. The upriver habitat is protected by the National Park; however, the habitat downriver has been heavily impacted by logging.

A large number of adults returning to spawn is not indicative of a large subsequent generation since downriver habitat for juvenile rearing is degraded. Thusly, it is difficult to believe that the run can be restored to the size it was 50 years ago without addressing habitat issues. Also, the historic return numbers estimated by scientists such as McMillan appear to be high (50,000). The actual returns 50 years ago are unknown, but, based on observations of habitat and current steelhead productivity; I assume historic production was lower, possibly along the line of 25,000.

The Hoh Tribe did not provide the Team quantified harvest goals in regards to numbers of steelhead; however, the current goal is for tribal fishermen to fish two days per week throughout their season. The Hoh Tribe could quantify what the natural-origin run size would have to be to rely on a natural production only strategy. Off the cuff, the run size may have to be at least 5,000 to meet both harvest and escapement goals.

9. **If release of Quinault NFH steelhead into the Hoh River were eliminated and only natural-origin steelhead were available for harvest, then the capture sport fisheries would be eliminated.**

   Review Team Response: *This could happen in the short term. The Team's recommendation for the comanagers to consider managing the Hoh River under a natural production only strategy is listed as a long-term recommendation, looking toward the desired future condition of habitat in the basin. This recommendation assumes habitat issues in the lower part of the Hoh River would be addressed if they prove to be a limiting factor.*

10. **If a new hatchery facility is developed on the Hoh River for the production of steelhead, what mechanism is in place to make sure the facility is removed once natural production is restored?**

    Review Team Response: *The Team did not specifically suggest the construction of a new hatchery. Instead we suggested exploring the opportunity for improvements to the Chalaat Creek site or the establishment of interim adult recapture and acclimation sites. The short and mid-term recommendations are intended to address the immediate risks associated with transferring and releasing Quinault NFH steelhead in the Hoh River by suggesting lower risk production alternatives, at least as an interim measure while a long-term management strategy is established by the comanagers. Although the Team believes the Hoh River presents an opportunity for a natural production only strategy, ultimately this is a comanager decision.*

National Park Service: Olympic National Park[14]

ONP recognizes and respects tribal treaty rights, our trust responsibilities to the tribes, and our cooperative management with the State of Washington. We also recognize the economic importance of hatchery fish to tribal and non-tribal fisheries outside the park. We appreciate that the draft report and public meeting highlight the importance of recognizing conservation goals for each watershed, and the report states that "long-term conservation needs of natural salmonid populations require a reexamination of the role of hatcheries in the context of basin-wide management and conservation strategies". However, we were disappointed to note that the draft report fails to consider the management and conservation objectives of the National Park Service (NPS).

We believe that one of the major shortcomings of this report is the lack of recognition of ONP as a cooperative fisheries and land manager in the Quinault River, Hoh River and Lake Ozette basins. Over 25% of the Olympic Peninsula's land area, and major portions of the East Fork Quinault (100%), North Fork Quinault (100%), Hoh (60%), and Lake Ozette basin (22%), are located within ONP. The NPS holds exclusive federal jurisdiction over management of the natural resources within the park's boundary, and has significant interest and responsibility in protecting wild salmonids in these waters, where hatchery fish may interact with wild populations.

We believe that, when evaluating the role of hatcheries in a basin-wide conservation strategy, the report must consider ONP management policies and responsibilities. These policies are designed to protect and perpetuate native aquatic species and natural habitats, preserve or restore natural behavior, genetic variability, and ecological integrity of native fish populations, and provide quality and diverse recreational fishing opportunities only when ecosystem impacts are minimal. The report should also acknowledge that ONP has exclusive jurisdiction of recreational fisheries in significant portions of the Quinault, Hoh, and Ozette Basins, and that those regulations generally promote selective harvest of hatchery fish and catch-and-release of wild steelhead and salmon.

> ***Review Team Response:*** *The Team recognizes the Olympic National Park as a major land manager in these basins and has inserted the appropriate text in the report.*

The cooperative managers should develop short and long-term strategies for managing wild steelhead in the Hoh River. Some of the critical topics of discussion include the number of hatchery steelhead released (e.g. 0 to 100,000) in the Hoh River, the location/s of these releases, stock origin, an integrated vs. segregated program, location of incubation, rearing, and acclimation facilities, and means to relocate releases of hatchery steelhead away from important areas of natural production in the middle and upper river. The cooperative managers could then address the risks and benefits of each option, and develop long term fisheries management and harvest plans with respect to wild steelhead.

> ***Review Team Response:*** *The Team agrees with developing short- and long-term strategies as reflected in the recommended alternative for the Quinault NFH steelhead-Hoh River release program.*

[14] *Written comments provided March 17, 2009 by Karen Gustin, Superintendent, Olympic National Park.*

We believe that the report would benefit from a stand-alone section that prioritizes research and monitoring needs, and recognizes that hatchery programs should be thoroughly monitored to detect and manage risks to wild salmonds. The following are high priorities: 1) establish genetic baselines for all hatchery and wild stocks in Quinault Basin; 2) conduct fish pathology surveys for wild and hatchery winter steelhead in Hoh and Quinault Rivers; 3) assess the extent of straying in Quinault National Fish Hatchery winter steelhead and coho salmon; and 4) plan to use existing genetic baseline studies being conducted by ONP, Washington Department of Fish and Wildlife, and the Hoh Tribe to guide future hatchery release strategies in the Hoh River.

Review Team Response: *The points raised by the National Park Service are inherent in the Team's fundamental principles that include adaptive management and monitoring and evaluation as essential components of managing hatchery programs. Thus, the Team agrees that monitoring and evaluation is of high priority and devotes sections within each program assessment to Research, Monitoring and Accountability. The Team agrees also that genetic studies are very important for managing hatchery and natural populations of salmon and steelhead, although caveats and "side boards" exist regarding the conclusions that can be drawn in most cases (see Team Response to Comment # 1 from the Washington Department of Fish and Wildlife).*

Page 105; Issue QN2: The following statement should include the "upper" Quinault River in Olympic National Park. The draft report states that, "*The distribution and potential stray rate of Quinault NFH steelhead returning to the Quinault River is unknown, thus leading to much uncertainty regarding genetic risks to the natural steelhead population in the* ***lower*** *Quinault River*". The issue of straying is not limited to lower river. We have the same comment for Page 141.

Review Team Response: *While this cannot be entirely ruled out, the Team has not seen information that indicates Quinault NFH steelhead stray into the upper Quinault River. For example, if steelhead were straying into the upper Quinault River, then the Team would expect to see some Quinault NFH steelhead captured during broodstock collection for the Quinault Indian Nation steelhead net pen rearing program at Lake Quinault.*

Page 106. We strongly encourage mass marking of all winter steelhead at the Quinault National Fish Hatchery to enable selective non-tribal fisheries in Olympic National Park. The following statement fails to recognize the existence of selective non-tribal fisheries that occur in Olympic National Park: "*Issue QN3a: In response to a Congressional mandate, mass marking by adipose fin clip did occur in brood years 2005-2006, but was discontinued due to reduced funding and a*

determination that there was no intent to implement a selective fishery which is often an intended benefit to mass marking." Currently, a selective fishery exists in Olympic National Park with retention of hatchery fish and release of wild fish.

Review Team Response: *The Team modified the issue accordingly.*

US Forest Service: Olympic National Forest[15]

We are disappointed that the Review Team did not address the ecological risks of excluding fish passage for native fish above the Quinault National Fish Hatchery in a meaningful way. Intentionally creating a fish passage barrier and excluding wild salmon and steelhead production in over 15 miles of low gradient, high quality mainstem and tributary habitat clearly conflicts with the stated goal of ensuring that the hatcheries contribute to the conservation of naturally-spawning populations of salmon, steelhead, and other aquatic species.

This is a significant issue that warrants a serious discussion and consideration of alternatives to correct the current situation. Alternatives could include seeking out additional water sources, disinfecting water drawn from Cook Creek, or discontinuing the out-of-basin fish transfers that are the primary concern for disease control. Simply out-planting juvenile hatchery fish into the unutilized habitat upstream is not a viable long-term strategy because it does not provide for natural selection, genetic diversity, or natural stream processes.

Instead of considering alternatives to remove the fish passage barrier, the Review Team calls for *increasing* the effectiveness of the fish passage barrier (Recommendation QN4).
This would make it even more unlikely that wild salmon and steelhead would be able to utilize the reach above the hatchery.

We strongly urge the Fish and Wildlife Service to revise the Hatchery Review document to fully discuss the upstream fish passage barrier issue at the Quinault facility and to adopt recommendations to restore full passage of native salmonids past the Quinault hatchery into the unutilized habitat upstream.

> ***Review Team Response:*** *The risk of excluding fish passage was identified as a "Demographic Risk" of the hatchery facilities to other natural stocks and species in the Cook Creek watershed. The Team believes that controlling disease risks are critical to the future operation of Quinault NFH programs. The Team concluded that the presence of the MD strain of the IHN virus in the Quinault River basin is an immediate threat that requires the existing weir be managed to block the passage of anadromous fish until another method of disease control is established. The Team recognizes the importance of fish passage above the Cook Creek weir and recommends that the action taken to prevent disease transmission through the water supply allow for controlled fish passage to conserve and restore natural fish populations in the Cook Creek basin. Therefore, the Team prioritizes disinfection, reconfiguring the water supply to utilize pathogen free water, relocating a physical blockade, or reconstruction and/or modifying management strategies of the weir at its existing location so that it allows for the passage of naturally produced fish. Modifications based upon this response were made to recommendation QN4 in the report.*
>
> *Regarding your comment "Simply out-planting juvenile hatchery fish into the unutilized habitat upstream is not a viable long-term strategy…" The Team recommended that out-planting juvenile steelhead and coho into Cook Creek above the weir be discontinued (QN11 and QN45).*

[15] *Written comments provided March 17, 2009 by Dale Home, Forest Supervisor, Olympic National Forest.*

Bureau of Indian Affairs[16]

We do not agree that the Hoh River, given the current degraded habitat conditions that prevail in that system, should be managed "under a natural production only strategy." To do so under current conditions would, in our opinion, be a failure on the part of the Federal government to honor its treaty obligations and fulfill its trust responsibilities. It could hardly be argued that the Hoh Tribe is responsible for habitat degradation that has occurred on the Hoh River. So extensive is that degradation that even if escapement were substantially increased, the system's overall productivity would likely not be improved. There simply isn't enough quality spawning, or rearing, habitat. In that light, how can the Hoh Tribe be expected to meet its economic, subsistence, and cultural needs on natural production alone? The Hoh Tribe did not create the current conditions, but they will surely suffer the consequences if all supplementation is terminated.

> ***Review Team Response:*** *In our recommended alternative for the Quinault NFH-Hoh River release program, the Team recommends that comanagers create a steelhead management plan that includes addressing habitat issues. The Team understands comanager concerns regarding habitat constraints; therefore, recommended a 5-15 year transition period for the comanagers to establish the management plan and implement a natural production only strategy if comanagers determine this strategy feasible. The Hoh Tribe is a comanager in the Hoh River basin and, in the view of the Service, is appropriately a full participant in the management, planning, and implementation of fish management plans for the Hoh River.*

[16] *Written comments provided March 12, 2008 by Stanley Speaks, Northwest Regional Director, Bureau of Indian Affairs.*

Puget Sound Anglers – North Olympic Peninsula Chapter[17]

The approximately 200 members of the North Olympic Peninsula Chapter – Puget Sound Anglers are supportive of expansion of Chinook salmon production at all of the federal fish hatcheries on the Olympic Peninsula. We strongly favor the effort to stabilize and help in the re-building of the Southern Resident Killer Whale (SRKW) population. A highlight of any fishing trip for our members is the opportunity to see Orcas pass by. While their presence can hurt the fishing, it is still inspiring to see them.

A literature review and discussions with members of our Chapter and others in the community who are very familiar with the SRKW pods shows the high importance of Chinook salmon in their diets. The human impact on the viability of our rivers and streams for natural salmon production is very evident. Hatchery supplementation can help mitigate the lost production capability and that is good for the SRKW. Any expansion of salmonid production by the hatcheries in question would be a benefit for entire area.

We would recommend that Alternative 2 with recommendations, Scenario 1, which would increase fall Chinook juvenile production to 2.65 million be implemented immediately (2009 brood year) and production be ramped up as quickly as possible to 3.1 juveniles.

Additionally, Alternative 2, Scenario 2 should be evaluated by USF&WS and the Co- Managers for future adoption and implementation. The adoption and implementation of Alternative 2, Scenario 2 would additionally support the goal of increasing the SRKW prey base as identified in the Recovery Plan.

Review Team Response: *The Team recognizes the ecological role that hatchery fish play within the ecosystems in which they occur, both as predator species and as prey species. In this context, the Team has emphasized the need for comanagers to have well-defined goals toward achieving desired benefits. Although the Team recognizes that increasing regional hatchery fall Chinook production may confer an ecological benefit to the ESA-listed southern resident orcas population, the comanagers have not identified this particular benefit as a defined goal. The Team believes that a regional approach to southern resident orcas management and restoration that evaluates the possible role of salmon hatchery production would be a logical way to address this issue.*

The Team did acknowledge that Makah NFH is more suited for Chinook since they are reared and released before warm summer water temperatures are experienced that can lead to fish health issues with coho and steelhead. However, the comanagers prefer to continue production of coho and steelhead as well as Chinook.

[17] *Written comments provided February 25, 2009 by Tom Wright, President, Puget Sound Anglers, N. Olympic Chapter.*

Walt Blenderman[18]

1. A stated action of the Reference SRKW Recovery Plan deals with Prey Availability and states; " Support Salmon restoration efforts in the region including habitat, harvest, and hatchery management considerations and continued use of existing NMFS authorities under the ESA and Magnuson- Stevens Fishery Conservation and Management Act to ensure an adequate prey base". A preferred prey of the listed SRKW is Chinook salmon and any action that increases the number of Chinook salmon available to the SRKW is desirable and defensible. The Makah National Fish Hatchery produces fall Chinook salmon juveniles for release which ultimately contribute to the SRKW prey base off the West coast of Vancouver Island and in US waters.

   The following recommendation is specific to the Makah National Fish Hatchery, Neah Bay, Washington and supplements my verbal comments provided during the public review meeting of the subject report at Port Angeles, WA On 2/19/2009. The fall Chinook section of the subject report recommends adoption of Alternative 1 with recommendations, to obtain a fall Chinook production level of 2.3 million juveniles. I recommend that Alternative 2 with recommendations, Scenario 1, that would increase fall Chinook juvenile production to 2.65 million be implemented immediately (2009 brood year) and production be ramped up as quickly as possible to 3.1 juveniles. Alternative 2, Scenario 2 should be evaluated by USF&WS and the Co- Managers for future adoption and implementation. The adoption and implementation of Alternative 2, Scenario 2 would additionally support the goal of increasing the SRKW prey base as identified in the Recovery Plan.

   Review Team Response: *See the Team's response to the Puget Sound Anglers - North Olympic Peninsula Chapter, above.*

[18] *Provided February 23, 2009.*

Trout Unlimited

Trout Unlimited respects the treaty-based fishing rights of the Hoh Tribe, and understands the importance of salmon and steelhead harvest to the Tribe's economy and culture. For that reason, we support a transition period to natural production only management during which actions to address the Tribe's interests can be identified and implemented. We believe, however, that the proposed 15 year period before natural production-only management would take effect is too long and will unnecessarily delay the substantial gains to be realized from managing the Hoh River for wild steelhead. Instead, TU supports the Review Team's recommendation to implement Alternative 1 in the short-term (5 years) and then implementation of natural production only management thereafter.

Review Team Response: *The Team recommended an interim period that could take "up to" 10 years, from years 5 to 15. The interim period was intended to be no longer than what is needed to transition to an agreed upon long-term strategy for Hoh River steelhead.*

The Review Team's mid-term (5-15 years) recommended alternative seems to suggest the development of a new Hoh River hatchery, which is inconsistent with the long-term recommendation of natural production only management, and therefore is confusing. It appears that the mid-term recommended alternative is actually intended as an alternative to the long-term recommendation of natural production only and should be characterized as such in the final report.

Review Team Response: *The Team did not specifically suggest the construction of a new hatchery. Instead we suggested exploring the opportunity for improvements to the Chalaat Creek site or the establishment of interim adult recapture and acclimation sites. The short and mid-term recommendations are intended to address the immediate risks associated with transferring and releasing Quinault NFH steelhead in the Hoh River by suggesting lower risk production alternatives, at least as an interim measure while a long-term management strategy is established by the comanagers. Although the Team believes the Hoh River presents an opportunity for a natural production only strategy, ultimately this is a comanager decision.*

While there is no disputing that the elimination of hatchery outplants will eliminate a commercial harvest opportunity for the Hoh Tribe and a mark-selective sport fishery in the short-term, the implication is that there will not be new fishing opportunities in the future structured around natural production. We don't believe that assumption is well founded. Over time, we believe that new fisheries could be developed that would provide more opportunity than currently exists as the wild population recovers, and those new fisheries should be consistent with the Hoh Tribe's treaty rights. For example, a tribal harvest fishery could be developed that, while harvesting fewer fish, could be certified as sustainable and marketed in a manner that increases overall economic return to the Tribe.

Review Team Response: *The Team agrees and has made modifications to the report to clarify the pros and cons of implementing a natural production only strategy for Hoh River steelhead.*

Lastly, we are concerned that the review perpetuates the myth that early-timed hatchery steelhead outplants are temporally segregated from wild Hoh River steelhead and thus do not pose a risk to wild steelhead. While it is true that today most wild steelhead return to the Hoh after the hatchery fish return, that fact was not true historically. Historical data support the fact that a large portion of the wild steelhead run returned in December and January. Those early-timed fish have been severely depleted by fisheries targeting early-timed hatchery fish. A primary co-manager goal should be to restore the early-timed part of the wild run, which would greatly increase temporal diversity within the wild population and make it more resilient in the face of global warming and other stressors. The final report should be revised accordingly.

Review Team Response: *The Team agrees that this is a likely effect of a hatchery augmented harvest and has made adjustments in the risks section of the report. Recommendations regarding the harvest management strategy employed in the Hoh River are not within the purview of the Team.*

The Wild Steelhead Coalition

Overall, we support the committee's preferred alternative #6, managing Hoh River steelhead for natural production only. We feel that eliminating hatchery releases on the Hoh are warranted due to the current ecological and genetic risks that are posed by the current program, and the lack of good alternatives for developing an improved hatchery program. We also feel that the hatchery program supports a harvest management regime that poses significant ecological risks to the long-term health, diversity, and productivity for this stock. Specifically, any hatchery operation designed to sustain separate run timing between hatchery and wild stocks promotes intense harvest fisheries on the hatchery population. The resulting high-intensity, lower-river mixed-stock harvest fisheries in turn promote sustained depletion of any early returning components of the wild population. Thus, we are concerned that strong links between hatchery and harvest policies on the Hoh River continue to pose barriers to the recovery of the diversity, productivity, and abundance of the basin's winter-run wild steelhead populations. An obvious way out of this undesirable situation is to couple the elimination of the hatchery program with a new harvest management regime that has substantially lower harvest rates applied across the entire run-timing of the naturally returning population(s).

Review Team Response: *See response to Trout Unlimited's last comment listed above.*

In the short term, we also support the committee's Alternative 1 while the Service works with the Tribal and State co-managers and the National Park Service to develop a long-term steelhead management strategy for the Hoh River. However, we also believe that substantial short-term investments into improving existing hatchery operations should be critically evaluated against the opportunity costs for investing in habitat improvements that can yield lasting benefits for the ecosystem that supports the Hoh River Basin's anadromous and resident fish, as well as its wildlife.

Review Team Response: *The Team agrees with this comment.*

Wild Salmon Center

Finally, on page 121 (first bulletted paragraph, last sentence) the report states that snorkel survey and habitat data regarding habitat availablity, quality, and utlization by juvenile salmonids was not available. While we understand it is preferrd to acquire this information from the tribal Natural Resource Department, we offer to the Service full access to data we have collected over a period of eight years. Wild Salmon Center biologists conducted an intensive monitoring and research program focused on tributary productivity and juvenile salmonid usage from 2000 to 2007. A summary of this information can be downlaoded at:
http://www.wildsalmoncenter.org/pdf/WSC_Hoh_Tributary_Report.pdf
Hard copies are available upon request.

Review Team Response: *The Team utilizes information from all available sources, not just comanagers. Thank you for the report reference. The Team has referenced the Wild Salmon Center's significant research and monitoring activities in the report.*

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The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people.

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