

**Attachment 3. Response to public comments received in response to 81 FR 8941 (February 23, 2016) regarding the 4(d) PEPD for a RMP encompassing early winter steelhead HGMPs operating in the Snohomish River watershed.**

Comment #1 (Wild Fish Conservancy (WFC)): NMFS should decline to approve the joint plan because the HGMPs do not meet 4(d) Rule Limit 5(i)(A) criteria requiring that the plans have clearly stated goals, performance objectives, and performance indicators indicating the purpose of the program, its intended results, and measurements of its performance in meeting those results. The commenter states that the two Snohomish River watershed HGMPs do not provide specific information regarding specific methods and parameters evaluated to identify genetic effects, nor what actions will be taken when target levels of genetic diversity are not attained.

Response: The PEPD provides sufficient rationale for a determination that the HGMPs address this Limit 5 criterion. The document provides a detailed explanation regarding why the proposed HGMPs meet criteria requiring that the plans have clearly stated goals, performance objectives, and performance indicators that indicate the purpose of the programs, their intended results, and measurements of their performance in meeting those results.

As indicated in the PEPD, goals, performance objectives (standards), and performance indicators for early winter steelhead (EWS) hatchery and associated monitoring and evaluation actions are clearly described in sections 1.7, 1.9, and 1.10, respectively of each HGMP. As described in section 1.7 of each HGMP, the hatchery program goals are to: (1) provide regional non-Indian recreational fishing opportunities, and (2) support the Tulalip Tribes' Treaty-reserved fishing rights and commercial, ceremonial, and subsistence needs. Performance standards and indicator defining intended results are clearly described in section 1.9 and 1.10 of each plan. In those sections, eight performance standards are described to address program benefits, and 18 performance standards are described to address program risks. Performance standards described in section 1.10 to address benefits of the HGMP pertaining to primary HGMP objectives are: "Program contributes to fulfilling tribal trust responsibility mandate and treaty rights as described in applicable agreements (U.S. v Washington)"; "Program contributes to mitigation requirements" and, "Program addresses ESA responsibilities". Example performance standards described in section 1.10 to address risks to listed fish species are: "Life history characteristics of the natural population do not change as a result of this hatchery program"; "Patterns of genetic variation within and among natural populations do not change significantly as a result of artificial production"; and, "Collection of broodstock does not adversely impact the genetic diversity of the naturally-spawning population." For each of these two performance standard categories, performance indicators and responsive monitoring and evaluation actions are included with each standard to describe how achievement of each standard will be determined, and whether the standard is met through HGMP implementation.

Contrary to the commenter's statement, and as indicated by the example standards described above addressing risks, specific standards, indicators, and monitoring and evaluation actions addressing genetic diversity reduction risks to natural steelhead populations are clearly described in the Executive Summary and in section 1.10 of each HGMP. Information regarding the genetic effects of each program, how genetic diversity of natural steelhead populations will be

preserved, and monitoring and evaluation actions that will be taken to measure effects are included in HGMP sections 2.2.2 and 11.0. As described in the Executive Summary of each HGMP, genetic effects of the hatchery programs on natural-origin steelhead will be assessed through measures of introgression and the proportion of effective hatchery contribution derived directly through DNA analysis, using parameters and methods described in the Warheit 2014 and Hoffman 2014 documents referenced throughout the HGMPs. The Warheit method-based DNA analyses will rely on periodic tissue sampling of key steelhead demographic/tributary groups, consistent with the Anderson et al (2014) document that is also referenced in the HGMPs. Performance indicators bearing on measurement of genetic effects will be estimated using genetic samples collected from the natural populations and hatchery-origin fish straying to natural spawning areas. Given the proposed risk averse changes in how the programs are implemented, and considering proposed direct measurement of introgression and gene flow, the HGMPs maintain as goals significant reductions in hatchery-related genetic impacts on natural origin populations from past levels, and maintenance of genetic introgression effects at negligible to very low levels. As indicated in the Executive Summary, section 1.10, and section 2.2.2, it is the intent of the HGMPs to monitor, identify, and maintain these negligible to low genetic impact goals during implementation of the plans. The commenter does not provide a single literature citation in support of their claim otherwise.

Comment #2 (WFC): NMFS should decline to approve the HGMP because the plans do not meet 4(d) Rule Limit 5(i)(B) criteria requiring that they utilize the concepts of viable salmonid populations.

Response: As stated in the PEPD, NMFS's assessment is that the HGMPs utilize and are consistent with VSP concepts. They are designed in consideration of their effects on VSP parameters (i.e., natural population abundance, productivity, diversity, and spatial structure) and on the viability status and viability goals for ESA-listed natural populations of salmon and steelhead. The viability status of the listed salmon and steelhead populations that may be affected by the programs is reported in section 2.2.2 of each HGMP, and thoroughly detailed in the PEPD. In these documents, the current viability status of each listed population is compared with VSP goals developed for use in listed population recovery planning. For example, for listed steelhead, recent abundance estimates are compared with Distinct Independent Population (DIP) abundance goals developed by the Puget Sound Steelhead Technical Recovery Team (PSSTRT). The PSSTRT developed these goals for each natural steelhead population that may be affected by the programs in each watershed (Hard et al. 2015). The viability goals finalized by the PSSTRT in 2015 will be used by NMFS as recovery targets in the Puget Sound DPS recovery plan currently under development. Section 2.2.2 also presents evaluations of the effects of each proposed EWS program on the genetic diversity status of natural steelhead populations. The results presented indicate the programs would have negligible to low effects on the diversity status of any natural steelhead populations. Further, a full reading of this limit 5 criterion indicates that it is primarily directed at hatchery programs that would purposefully remove listed steelhead or salmon for use as hatchery broodstock. NMFS included this criterion in limit 5 of the 4(d) Rule to ensure that such actions take into account the VSP status of the population that would serve as donor stock. None of the EWS HGMPs propose to remove listed steelhead from

the natural steelhead populations for use as broodstock, and the programs therefore comply with this criterion by default.

Comment #3 (WFC): NMFS should decline to approve the HGMP because the plans do not meet 4(d) Rule Limit 5(i)(E) criteria requiring that the plans evaluate, minimize, and account for the program's genetic and ecological effects on natural populations, including disease transfer, competition, predation, and genetic introgression caused by the straying of hatchery fish. Particular concerns expressed by the commenter are that the proposed EWS steelhead programs: do not adequately acknowledge the risk of fitness loss; do not consider appropriate monitoring and measures to detect and avoid fitness loss impacts; and, do not address impacts of fisheries targeting hatchery steelhead on wild steelhead.

Response: The PEPD provides sufficient rationale for a determination that the plans address this Limit 5 criterion. As described in the PEPD, all of the proposed HGMPs evaluate, minimize, and account for the propagation program's genetic effects (section 2.2.2) and ecological effects on listed fish populations. Consistent with this criterion, the plans include best management practices (BMPs) proposed to account for and minimize hatchery-related effects with regards to fish health (HGMP sections 1.10; 2.2.3; 5.8; 7.7; 7.8; 9.16; 9.27; 9.2.10; and 10.9), broodstock collection (sections 1.10; 1.11; 2.2.2; 5.0; 6.2; 6.3; and 7.0), broodstock spawning (sections 1.10; 2.23; 5.3; 6.2; 6.3; 8.0, and Table 8), rearing and release of juveniles (sections 2.2.3, 9.0 and 10.0), deposition of hatchery adults (sections 1.10 and 7.5), and catastrophic risk management (sections 5.8; 9.2.10; and 10.10). The commenter does not cite any specific sections in the HGMPs or the PEPD pointing to evidence supporting their claims pertaining to plan non-compliance with this criterion.

Protocols addressing fish health, including fish health maintenance and hatchery sanitation procedures applied during broodstock collection, mating, fish incubation, rearing, and release, in compliance with "Salmonid Disease Control Policy of the Fisheries Co-managers of Washington State", are detailed in each of the HGMPs in the aforementioned sections addressing those activities. Fish health monitoring and evaluation measures are also included in the HGMPs. The protocols stand as best management practices for minimizing the risk of harm from fish disease pathogen amplification and transfer. All of the HGMPs describe best management practice protocols for broodstock selection and collection, including objectives, holding and handling practices, and methods. Only non-listed EWS produced through each hatchery program are used as the donor broodstock sources. Broodstock would be collected as the EWS return to the hatchery locations using methods that are sufficiently protective of listed fish populations. Best management practice protocols for broodstock spawning are described in all of the HGMPs. Proposed mating procedures are consistent with NMFS guidelines for hatchery propagation under the ESA (Hard et al. 1992), and as guided by state and tribal agency geneticists to maintain the localized traits, including early return timing, of the propagated populations. Consistent with this Limit 5 criterion, the HGMPs for steelhead provide sufficiently detailed descriptions of proposed spawning practices and effects on listed steelhead and Chinook salmon. Protocols described in the HGMPs steelhead rearing and release are also consistent with this criterion. Rearing and release practices were developed to ensure the survival and effective release of healthy EWS smolts, while minimizing the duration and magnitude of interactions and effects on listed juvenile fish after the smolts are released. As detailed in the PEPD, the proposed rearing

and release practices, and the HGMP evaluations of ecological interactions between hatchery and natural-origin salmon and steelhead, indicate that the programs would be operated in a manner that adequately conserves listed natural-origin fish. Protocols for the disposition of hatchery-origin adult steelhead collected and spawned are also included in the proposed HGMPs. As described in the PEPD, facility operational and management measures for the programs are specifically designed to minimize the potential for catastrophic events at the hatchery, including the unintentional, early release of EWS juveniles that could lead to unanticipated effects on listed steelhead and salmon.

NMFS also found that the proposed EWS steelhead programs adequately acknowledge the risk of fitness loss potentially resulting from interbreeding between EWS adults that stray from the hatchery release sites and natural-origin steelhead. In section 2.2.2 of each plan, gene flow resulting from EWS natural spawning that may lead to fitness loss in listed natural steelhead populations is extensively accounted for and evaluated. As described in the PEPD, fitness loss risks to natural-origin steelhead populations are controlled by measures that reduce the number of naturally spawning hatchery-origin fish, in general, and in particular those fish that would overlap spatially and temporally with natural-origin spawners. Genetic effect analyses included with the HGMPs, and cited in the body of the plans (Hoffmann 2014; Warheit 2014), indicate that adult EWS produced by the programs that would pose fitness risks have contributed very few fish to the associated naturally spawning populations in the watersheds where the fish are released. Cumulatively, in compliance with this criterion, findings presented in the HGMPs and accompanying analyses (Hoffmann 2014; Warheit 2014) indicate the proposed EWS programs would not pose substantial fitness loss risks through gene flow to listed Snohomish River watershed steelhead populations to the extent that effects would impair the survival or recovery of these populations.

The commenter also alleges that the HGMPs do not include appropriate monitoring, and measures, to detect and avoid fitness loss impacts. This perspective is false. As described in the PEPD, collection of data necessary to derive gene flow rates, and hence fitness loss risks, will be accomplished through a significant, annual sampling effort to obtain thorough and representative tissue samples for DNA analyses from both juvenile and adult wild steelhead in the two sub-basins where the EWS programs would operate (Anderson et al. 2014). The proposed sampling and monitoring effort is wholly appropriate for detecting fitness loss impacts. As stated above, findings presented in the HGMPs and accompanying analyses (Hoffmann 2014; Warheit 2014) indicate the proposed EWS programs would not pose substantial fitness loss risks through gene flow to listed steelhead populations. The programs are proposed for continued operation at smolt release and adult production levels that have been demonstrated to maintain low gene flow levels, and avoid fitness loss impacts to listed steelhead populations.

The commenter alleges that the HGMPs do not address impacts of fisheries targeting hatchery steelhead on wild steelhead. Through its ESA review, NMFS considered whether fisheries impacting steelhead produced by the two Snohomish River basin EWS hatchery programs, as described in the HGMPs (Section 3.3 of each HGMP), are interrelated or interdependent actions that are subject to analysis of effects with the EWS HGMPs. Recreational fisheries and tribal commercial and ceremonial and subsistence fisheries for steelhead produced by the proposed hatchery programs incidentally take ESA-listed salmon and steelhead. These fisheries are

managed by WDFW and the Tulalip Tribes, and occur within the Snohomish River basin. Outside of these areas, there are no directed fisheries for EWS, and those salmon-directed fisheries would occur regardless of whether the proposed action continues and are therefore not interrelated or interdependent with the proposed EWS hatchery actions. Therefore, only those fisheries for EWS in the Snohomish River basin were considered to be interrelated and interdependent actions. The 2015-16 fisheries were evaluated and authorized through a separate NMFS ESA consultation (NMFS 2015a). They were determined not likely to jeopardize the continued existence of the Puget Sound Steelhead DPS, the Puget Sound Chinook Salmon ESU, or the Hood Canal summer chum salmon ESU or adversely modify designated critical habitat for these listed species (NMFS 2015a). Future fisheries will similarly be subject to ESA review. A new fishery management plan for 2016-17 is currently under development and is expected to be submitted for Section 7 consultation in April 2016. In its biological opinion (NMFS 2016), the past effects of these fisheries are described in the environmental baseline section, and future effects are described in the discussion of effects of the action.

Comment #4 (WFC): The HGMPs do not meet the requirement under Limit 5(i)(H) because there is not adequate monitoring and evaluation of the hatchery programs' success and risks to listed species.

Response: We disagree with the commenters claims, and for the reasons stated in the PEPD, believe that the two EWS HGMPs meet this criterion. Adequate monitoring and evaluation responsive to this criterion is in fact proposed to detect and evaluate the effects of the hatchery programs in meeting each plans objectives, and any risks potentially impairing the recovery of listed steelhead and salmon.

As described in the PEPD, both HGMPs include monitoring and evaluation (M&E) actions designed to identify the performance of the programs in meeting their fisheries harvest augmentation and listed fish risk minimization objectives. Specific M&E actions for the two HGMPs are described in section 1.10 and section 11.0 of each hatchery plan. Monitoring the harvest benefits of the programs to fisheries from production of returning adult hatchery-origin fish is an important objective (e.g., smolt to adult survival rate and fishery contribution level monitoring). However, all of the EWS programs also include extensive monitoring, evaluation, and adaptive management measures, designed to monitor and reduce risks to listed natural-origin fish populations associated with program implementation.

An adult steelhead monitoring program (spawning ground surveys) would be conducted annually to document abundance and spatial structure of steelhead escaping to natural spawning areas and the hatcheries in the action area basins (WDFW 2014a). In addition, within the Skykomish River system, genetic (DNA) samples will be collected annually and analyzed to estimate the number of natural-origin hybrid and hatchery-ancestry fish (Anderson et al. 2014). Within the Pilchuck River system, genetic (DNA) sampling of adult fish will be conducted on a rotating basis every three years (Anderson et al. 2014). Annual genetic sampling of smolts and adults collected from the mainstem Snoqualmie River smolts trap, and through hook and line sampling, respectively, would be used to assess gene flow levels for EWS spawning in the Snoqualmie River watershed.

Specific M&E actions are also proposed in the HGMPs to evaluate effects on juvenile listed fish. The results of these juvenile fish M&E actions would be used to guide implementation of the proposed EWS programs. Importantly, juvenile salmonid sampling occurring outside of the hatchery locations to monitor the status of natural fish populations and migration behavior of newly released EWS smolts have been previously authorized through separate ESA consultation processes (NMFS 2009; 2015b). Through these previously approved M&E actions, the co-managers propose to continue to monitor interactions between juvenile hatchery- and natural-origin salmonids in freshwater and marine areas within the region to evaluate and manage the EWS programs. Continued juvenile outmigrant trapping by the Tulalip Tribes would occur using rotary screw traps in the Skykomish and Snoqualmie Rivers. These programs would provide important information on the co-occurrence, out-migration timing, relative abundances, and relative sizes of hatchery-origin fish, ESA-listed natural-origin Chinook salmon and steelhead, and non-ESA-listed natural-origin coho, chum, and pink salmon.

Samples to allow M&E of the genetic effects of the proposed EWS programs on listed steelhead populations would be collected using juvenile outmigrant traps. Traps positioned downstream from single or multiple steelhead populations will obtain a mixed sample at trapping sites (Anderson et al. 2014). In cases of multiple populations (e.g., Skykomish River trap site), monitoring for introgressive hybridization at the population scale will rely upon genetic stock identification; however, current genetic tools may not permit assignments at this resolution. In these cases, ongoing efforts to improve the Puget Sound genetic baseline by adding more single nucleotide polymorphism samples to the database will improve upon genetic stock identification; if this effort is ineffective, then monitoring for introgressive hybridization will be conducted at the watershed scale rather than at the population scale. WDFW has developed a ten year monitoring plan to sample up to 100 unmarked steelhead annually from the Skykomish and Snoqualmie River smolt traps. Results from the juvenile outmigrant trapping programs described in the HGMPs (Section 11) will be reported as required in the separate NMFS authorizations for the programs (NMFS 2009).

Comment #5 (WFC): The HGMPs do not meet the requirement under Limit 5(i)(I) because they do not include adequate adaptive management measures, and the absence of adequate and/or assured funding of the essential monitoring activities means that the data necessary to implement any adaptive measures will not be obtained.

Response: We disagree with the commenters' assertion. As described in the PEPD, the proposed HGMPs do in fact provide for evaluating monitoring data, and applying results to adjust supportive breeding actions as needed to improve performance or reduce unanticipated adverse effects on listed fish. The HGMPs provide for regular monitoring and reporting, and responsive adaptive management. As key provisions of the HGMPs, required are implementation of BMPs, monitoring and evaluation of program performance, and adjustment of the hatchery programs accordingly. Both of the proposed HGMPs identify objectives and actions needed to determine hatchery program performance in meeting stated production objectives for the specific species that are the focus of each HGMP (HGMP sections 1.10), and effects on non-target natural-origin fish populations in the Snohomish River watershed. In

compliance with this 4(d) Rule criterion, the HGMPs would apply adaptive management and risk management approaches in their implementation of hatchery actions.

Under the HGMPs, annual data collected relating to hatchery program performance and effects would be evaluated by WDFW and the Tulalip Tribes to determine whether the two EWS programs were meeting their respective objectives. As identified in Sections 1.10 and 11 of the HGMPs, monitoring and evaluation results would be used to determine whether performance standards addressing program benefits and risks (performance and effects) were met. Contrary to the commenters assertions, the co-managers indicate in the HGMPs that funding and staff resources would be committed to monitor and evaluate the programs through review by the WDFW Fish Program and Tulalip tribal technical staffs.

The HGMPs also include as proposed actions reporting of program performance and effects on listed fish to monitor compliance with plan objectives (sections 1.10.2 and 10). The comanagers would report: numbers of hatchery (marked) and natural (unmarked) steelhead returning to the hatcheries, number of broodstock collected, and surplus returns; EWS smolt release information consistent with Equilibrium Broodstock Document requirements (number, location, method and age class); levels of compliance with applicable fish health standards and criteria; effluent discharge water quality and water withdrawal levels compared to permit standards and allowances; and, hatchery smolt migration behavior, and EWS smolt interactions with natural origin fish. In addition to these reporting proposals included in the individual HGMPs, annual levels of gene flow between EWS and natural-origin steelhead populations in the Snohomish River basin would be monitored to gauge whether the programs remain at levels that likely pose unsubstantial risk to the affected wild populations (Anderson et al. 2014). DNA analyses results for juvenile and adult steelhead samples collected in the Skykomish and Snoqualmie Rivers would be analyzed and reported to allow for evaluations of whether gene flow limitation objectives of the HGMPs are met, and whether adjustments of the programs are necessary. As stated in the HGMPs, the comanagers propose to continue monitoring, research and reporting of hatchery program performance to assess, and adjust, if necessary, hatchery production and release strategies to minimize genetic and ecological effects on listed natural-origin fish populations. As part of any ESA determination regarding the proposed HGMPs, NMFS would review all reports provided annually for compliance with stated HGMP objectives, and post the reports on the NMFS website for public information purposes.

Comment #6 (WFC): The joint plan (HGMPs) do not meet the ESA “no jeopardy” standard and joint resource management plans submitted under Limit 6 of the 4(d) Rule may be only be approved if the implementation and enforcement of the plan will not appreciably reduce the likelihood of survival and recovery of affected threatened ESUs.

Response: The PEPD provided for public review is not the primary evaluation used by NMFS to make a determination regarding whether the proposed EWS HGMPs jeopardize listed fish. NMFS completed an ESA section 7 biological opinion as a part of its ESA impact review responsibilities to make a determination whether the plans evaluated in the PEPD would appreciably reduce the likelihood of survival and recovery of ESA-listed Puget Sound Chinook salmon or steelhead. NMFS concluded that its 4(d) determination for the plans was not likely to

jeopardize the continued existence of the Puget Sound steelhead DPS and the Puget Sound Chinook Salmon ESU or to destroy or adversely modify designated critical habitat for the DPS and ESU (NMFS 2016). The NMFS (2016) biological opinion is included as an attachment to NMFS's decision memo presenting the agency's determination regarding whether the two EWS programs meet 4(d) Rule limit 6 criteria and therefore qualify for exception from ESA section 9 take prohibitions.