

RECORD OF DECISION

for the

Final Environmental Impact Statement

**To Analyze Impacts of NOAA's National Marine Fisheries Service
Proposed 4(d) Determination under Limit 6 for Five Early Winter Steelhead
Hatchery Programs in Puget Sound**

National Marine Fisheries Service

West Coast Region



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Summary of Decision Made by the National Marine Fisheries Service

On March 11, 2016, the National Marine Fisheries Service (NMFS) published notice of the availability of the final environmental impact statement (EIS) on five early winter steelhead hatchery programs in Puget Sound (81 Fed. Reg. 12898, March 11, 2016). In this record of decision, NMFS now decides to select Alternative 5 as analyzed in the final EIS, which was the agency's preferred alternative. To implement this selected alternative, NMFS has made a determination that the hatchery and genetic management plans (HGMPs) submitted by the co-managers, including a recently revised HGMP for the Skykomish early winter steelhead program, meet requirements of the ESA 4(d) Rule (NMFS 2016a, 2016b, 2016c, 2016d). The five hatchery programs at issue are located in the Dungeness, Nooksack, Stillaguamish, Skykomish, and Snoqualmie River basins, and the programs for each would be implemented as described in the submitted HGMPs.

Alternatives considered by NMFS in reaching the decision to select Alternative 5 are described in detail in the final EIS in Chapter 2.0, Alternatives Including the Proposed Action. Preferences among alternatives and factors that were balanced in making the selected alternative decision are discussed in this Record of Decision (ROD) in Section 5.0, Decision and Rationale for Decision.

For Further Information Contact:

Steve Leider
NOAA Fisheries, West Coast Region
Sustainable Fisheries Division
(360) 753-4650
steve.leider@noaa.gov

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1.0 Background

The Washington Department of Fish and Wildlife (WDFW) and the following Puget Sound treaty tribes, Jamestown S’Klallam Tribe, the Lummi Nation, the Stillaguamish Tribe of Indians, the Tulalip Tribes, and the Nooksack Tribe, (hereafter collectively referred to as the co-managers) have jointly submitted to NMFS hatchery and genetic management plans (HGMPs) for five hatchery programs that would produce early returning (“early”) winter steelhead in Puget Sound. The HGMPs were submitted for NMFS’ review and approval as Resource Management Plans (RMPs) under Limit 6 of the Endangered Species Act (ESA) section 4(d) Rule for salmon and steelhead (50 CFR 223.203(b)(6)). If NMFS approves the RMPs, operation of the hatchery programs consistent with the RMPs would be exempt from the prohibition on take of ESA-listed Puget Sound Chinook, Puget Sound steelhead, and Hood Canal summer run chum. The HGMPs describe the hatchery programs, including activities such as (1) collecting broodstock; (2) spawning, incubating, and rearing fish; (3) releasing fish; (4) removing surplus hatchery-origin adult steelhead that return to hatchery facilities; (5) conducting monitoring and evaluation activities; and (6) management practices designed to minimize the risk of negatively affecting listed salmon and steelhead. The plans are consistent with the framework ordered by the U.S. District Court for the Western District of Washington in *United States v. Washington, 2:70-cv-09213-RSM*, which governs coordination of treaty fishing rights, non-tribal harvest, artificial production objectives, and artificial production levels.

The co-managers initially submitted two proposed RMPs and appended HGMPs for NMFS review and approval of all of their Puget Sound salmon and steelhead hatcheries. To evaluate these submissions and satisfy its responsibilities under both the framework and the National Environmental Policy Act (NEPA), NMFS prepared an environmental analysis designated the “Draft Environmental Impact Statement on Two Joint State and Tribal Resource Management Plans for Puget Sound Salmon and Steelhead Hatchery Programs,” and referred to in this ROD as the PS Hatcheries DEIS [NMFS 2014]) (79 Fed. Reg. 43465, July 25, 2014). Following the public comment period on the PS Hatcheries DEIS, and with co-managers’ submission of revised plans that replace the two RMPs, NMFS determined that NEPA analyses of HGMPs in batches as resubmitted would provide for more efficient analyses of potential effects of individual HGMPs than the scope of review in the PS Hatcheries DEIS. Additionally, analyses of all hatchery programs in the Puget Sound basin under one NEPA analysis is not necessary to fully consider effects of those programs. Salmon and steelhead hatchery programs in the Puget Sound basin are not connected; they have different operators (e.g., either state or tribal), and do not rely on each other for their operation or justification. In addition, the co-managers have recently updated or are expected to submit

updated HGMPs to NMFS for approval generally on a watershed-specific basis. For all these reasons, NMFS terminated the Puget Sound-wide NEPA analysis (80 Fed. Reg. 15986, March 26, 2015).

In March and April 2014, NMFS received from the co-managers revised HGMPs for six early winter steelhead hatchery programs. After initial informal review of the six programs, NMFS received in March 2015 a request from the co-managers for NMFS to review the HGMPs for hatchery programs in the Dungeness, Nooksack, and Stillaguamish River basins as priorities. The co-managers also withdrew the Soos Creek early winter steelhead HGMP. The co-managers further requested that NMFS defer review of HGMPs for the two programs in the Skykomish and Snoqualmie River basins until later in 2015.

NMFS began the NEPA process for its decision on the HGMP approvals for three of the early winter steelhead programs (Dungeness, Nooksack and Stillaguamish) in 2015 when it requested comments from the public (80 Fed. Reg. 15985, March 26, 2015) on a draft environmental assessment (EA) for these three programs. The public comment period for the draft EA for the three hatchery programs was extended from April 27, 2015, to May 4, 2015 (80 Fed. Reg. 22973, April 24, 2015). After considering public comments on the draft EA, NMFS decided to prepare an EIS that would evaluate all five of the early winter steelhead hatchery programs in Puget Sound, including the three that were reviewed in the draft EA and two programs in the Skykomish and Snoqualmie River basins. NMFS requested input from the public on the scope and alternatives for analysis in the EIS on July 14, 2015 (80 Fed. Reg. 41011, July 14, 2015). As described in Section 6.0, Public Involvement, two public workshops were held in July 2015 (Mount Vernon and Lynnwood).

NMFS subsequently published a draft EIS for public review and comment (80 Fed. Reg. 70206, November 13, 2015). In the draft EIS, NMFS evaluated the resource effects of four alternatives (one no-action alternative and three action alternatives). Following issuance of the draft EIS, the co-managers submitted a revised HGMP for the program in the Snohomish/Skykomish basins. NMFS included a fifth alternative in the final EIS to address this revision. NMFS incorporated public comments and suggestions on the draft EIS, as well as more recent information on the affected resources, into the final EIS (81 Fed. Reg. 12898, March 11, 2016). NMFS's determination of whether the HGMPs for early winter steelhead that have been submitted as RMPs, achieve the conservation standards of the ESA, as set forth in Limit 6 under the salmon and steelhead 4(d) Rules, is the Federal action requiring National Environmental Policy Act (NEPA) compliance. Although the EIS itself did not determine whether the HGMPs submitted as RMPs meet ESA requirements—those determinations are being made under the specific criteria of the ESA and the section 4(d) Rule—the analyses within the EIS informed NMFS, hatchery operators, and the

public about the current and anticipated environmental effects of operating the five early winter steelhead hatchery programs under a broad range of alternatives.

This ROD is issued pursuant to NEPA, the Council on Environmental Quality (CEQ) NEPA regulations at 40 CFR Parts 1500-1508, and NOAA NEPA implementing procedures (NOAA Administrative Order 216-6). The decision documented in the ROD is based upon the information and analyses included within the final EIS.

The purpose of this ROD is to document the factors informing NMFS' selection of Alternative 5. This ROD is designed to (1) state NMFS' decision and the factors considered in making its decision; (2) identify alternatives considered in the final EIS, including the environmentally preferable alternative; (3) state whether all practicable means to avoid or minimize environmental harm from application of the selected alternative have been adopted, and if not, why they were not; and (4) discuss the adopted monitoring and enforcement program to address mitigation measures (40 CFR 1505.2).

2.0 Description of Alternatives Considered

NMFS analyzed five alternatives in the final EIS, including a no-action alternative (Alternative 1) and four action alternatives as summarized below (Chapter 2.0, Alternatives Including the Proposed Action, in the final EIS) (Table 1). The alternatives differ from each other primarily with respect to the number or source of hatchery-origin fish proposed for annual release.

Table 1. Annual hatchery releases of juvenile steelhead under the alternatives by river basin.

River Basin	Alternative 1 (No Action)	Alternative 2 (Proposed Action)	Alternative 3 (Reduced Production)	Alternative 4 (Native Broodstock)	Alternative 5 (Preferred Alternative)
Dungeness	0	10,000	5,000	10,000	10,000
Nooksack	0	150,000	75,000	150,000	150,000
Stillaguamish	0	130,000	65,000	130,000	130,000
Skykomish	0	256,000	128,000	256,000	167,600
Snoqualmie	0	74,000	37,000	74,000	74,000
Total	0	620,000	310,000	620,000	531,600

Source: HGMPs (WDFW 2014a; WDFW 2014b; WDFW 2014c; WDFW 2014d; WDFW 2014e; WDFW 2016).

2.1 Alternative 1 (No Action)

Under Alternative 1, NMFS would not make a determination under the 4(d) Rules for any of the five HGMPs, and WDFW would discontinue its early winter steelhead hatchery programs in the Dungeness, Nooksack, Stillaguamish, Skykomish, and Snoqualmie River basins (Table 1). This No-action Alternative represents NMFS's best estimate of what would happen in the absence of the Proposed Action; in other words without a determination that the co-managers' submitted HGMPs meet requirements of the 4(d) Rule.

2.2 Alternative 2 (Proposed Action)

Alternative 2 consists of hatchery operations as originally proposed under the co-managers' HGMPs, prior to the co-managers' submission of the revised HGMP for the Snohomish/Skykomish River basin. NMFS would make a determination that the HGMPs submitted by the co-managers meet requirements of the 4(d) Rule. The early winter steelhead hatchery programs in the Dungeness, Nooksack, Stillaguamish, Skykomish, and Snoqualmie River basins would be implemented as described in the five HGMPs submitted to NMFS for consideration (Table 1), and up to 620,000 steelhead smolts would be released. The hatchery programs would utilize existing hatchery capacity for operations, and would be adaptively managed over time to incorporate best management practices as new information is available.

2.3 Alternative 3 (Reduced Production)

Under Alternative 3, WDFW would reduce the number of fish released from each of the five proposed hatchery programs by 50 percent (to 310,000 steelhead smolts) from the number released under Alternative 2 because it represents a mid-point between the Proposed Action (Alternative 2) and the No-action Alternative (Alternative 1) (Table 1). Revised HGMPs would be submitted reflecting these reduced production levels, and NMFS would make a determination that the revised HGMPs submitted as RMPs meet the requirements of the 4(d) Rule.

2.4 Alternative 4 (Native Broodstock)

Under Alternative 4, WDFW would change its program management to transition the programs from the production of non-native Chambers Creek stock to production based on broodstock derived from fish native to the respective watershed in the project area (Table 1). While this could be done in multiple ways, involving different periods of time and with various objectives (e.g., conservation, and later, harvest), for the purpose of this analysis NMFS assumes that use of Chambers Creek stock in the broodstock would be terminated immediately. Fish taken for broodstock would then only be those

determined to be native to the given watershed. It is likely that considerable time would be needed for development and implementation of a native broodstock program after termination of an early winter steelhead program.

Broodstock collection would be contingent upon availability of natural-origin fish, ensuring first that an appropriate number of fish would be able to spawn naturally; after that critical threshold is ensured, then a proportion of additional returns would be taken into the hatchery facilities.

2.5 Alternative 5 (EIS Preferred Alternative)

Following release of the draft EIS for public comment and discussions with NMFS, the co-managers submitted a revised HGMP for the Skykomish River basin (WDFW 2016) that included reduced smolt release levels (Table 1). Based on this, NMFS included a new alternative in the final EIS that incorporated the revised HGMP. Under this alternative, NMFS would make a determination that the HGMPs submitted by the co-managers, including the revised HGMP for the Skykomish early winter steelhead program, meet requirements of the 4(d) Rule. The early winter steelhead hatchery programs proposed in the Dungeness, Nooksack, Stillaguamish, and Snoqualmie River basins would be implemented as described in the submitted HGMPs (i.e., as under Alternative 2). The total annual maximum release level of early winter steelhead into the Skykomish River basin would be up to 167,600 smolts. The difference between early winter steelhead release levels in the Skykomish River basin described under Alternative 2, which would be up to 256,000 steelhead smolts, and this alternative, was proposed to address additional data and analyses of gene flow and fitness from hatchery-origin steelhead to natural-origin winter steelhead.

The 2.5, Preferred Alternative, of the agency's preferred alternative is "the alternative which the agency believes would fulfill its statutory mission and responsibilities, giving consideration to economic, environmental, technical, and other factors" (CEQ 1981). As described in EIS Subsection 2 final EIS, NMFS identified Alternative 5 as its preferred alternative because it would meet the components of the purpose and need for this action regarding socioeconomic and cultural benefits to recreational and tribal fishing interests and other biological and physical resources. Further, it had been preliminarily analyzed in two Proposed Evaluation and Pending Determination documents issued by NMFS (80 Fed. Reg. 15985, March 26, 2015; 81 Fed. Reg. 8941, February 23, 2016).

A summary of distinguishing features of the alternatives is shown in Table 2.

Table 2. Summary of distinguishing features of the alternatives.

Alternative	NMFS Review, Evaluation, and Approval of Plans under 4(d) Rules	Number of Hatchery-origin Fish Released	Changes in Hatchery Programs
Alternative 1 (No Action)	No evaluation and determination under the 4(d) rules	0	Early winter steelhead programs would be terminated.
Alternative 2 (Proposed Action)	Evaluation and determination under the 4(d) rules	620,000	Existing production levels would continue, and conservation measures would be applied to early winter steelhead hatchery programs to reduce risks and to meet conservation requirements.
Alternative 3 (Reduced Production)	Same as Alternative 2	310,000	Releases of early winter steelhead hatchery programs would be reduced 50 percent.
Alternative 4 (Native Broodstock)	Same as Alternative 2	620,000	Use of early winter steelhead broodstock would be terminated immediately; the hatchery programs would transition to broodstock derived from fish native to the watershed.
Alternative 5 (Preferred Alternative)	Same as Alternative 2	531,600	Existing production levels would continue, but the number of early winter steelhead smolts released into the Skykomish River basin would be 167,600, which is between Alternative 2 (256,000) and Alternative 3 (128,000). Conservation measures would be applied to early winter steelhead hatchery programs to reduce risks and to meet conservation requirements.

3.0 Decision to be Made, and Factors Considered by the National Marine Fisheries Service in Making its Decision

As discussed in the Section 1.0, Background, the decision to be made is whether NMFS will approve the RMPs and HGMPs submitted by the co-managers under Limit 6 of the 4(d) Rule. Limit 6 provides that the prohibition on take of listed species does not apply to actions undertaken in compliance with an RMP developed by (in this case) the State of Washington and tribes within the continuing jurisdiction of (in this case) *United States v. Washington*, the ongoing Federal court proceeding to enforce and implement reserved treaty fishing rights in Puget Sound and off the Washington coast.

NMFS's purpose for the proposed action is to ensure the sustainability and recovery of Puget Sound salmon and steelhead by conserving the productivity, abundance, diversity, and distribution of listed species of salmon and steelhead in Puget Sound.

NMFS's need for the Proposed Action is to:

- Respond to the co-managers' request for an exemption from take prohibitions of section 9 of the ESA for their hatchery programs triggered by submission of HGMPs as RMPs under Limit 6 of the 4(d) Rule.
- Provide, as appropriate, tribal and non-tribal fishing opportunities as described under the state and tribal co-managers' Puget Sound Salmon Management Plan implemented under *United States v. Washington*.

To approve RMPs under Limit 6, NMFS must make a determination that:

1. Implementing and enforcing the RMPs will not "appreciably reduce the likelihood of survival and recovery of the affected threatened ESUs" and
2. The plan will be implemented and enforced within the parameters set forth in *U.S. v. Washington*.

In making these determinations NMFS must take comment on how the HGMPs address the criteria of Limit 5 of the 4(d) Rule, 50 CFR 223.203(b)(5), which are outlined below.

Limit 5 of the 4(d) Rule requires that HGMPs meet the following criteria:

- 5(i)(A) The HGMP has clearly stated goals, performance objectives, and performance indicators that indicate the purpose of the program, its intended results, and measurements of its performance in meeting those results.
- 5(i)(B) The HGMP utilizes the concepts of viable and critical salmonid population thresholds, consistent with the concepts contained in the technical document entitled "Viable Salmonid Populations."
- 5(i)(C) Taking into account health, abundances, and trends in the donor population, broodstock collection programs reflect appropriate priorities i.e., broodstock collection effects on an ESA-listed donor population.
- 5(i)(D) The HGMP includes protocols to address fish health, broodstock collection, broodstock spawning, rearing and release of juveniles, deposition of hatchery adults, and catastrophic risk management.

- 5(i)(E) The HGMP evaluates, minimizes, and accounts for the propagation programs' genetic and ecological effects on natural populations, including disease transfer, competition, predation, and genetic introgression caused by straying of hatchery fish.
- 5(i)(F) The HGMP describes interrelationships and interdependencies with fisheries management.
- 5(i)(G) Adequate artificial propagation facilities exist to properly rear progeny of naturally spawned broodstock, to maintain population health and diversity, and to avoid hatchery-influenced selection and domestication.
- 5(i)(H) Adequate monitoring and evaluation exist to detect and evaluate the success of the hatchery program and any risks potentially impairing the recovery of the listed ESU.
- 5(i)(I) The HGMP provides for evaluating monitoring data and making any revisions of assumptions, management strategies, or objectives that data show are needed.
- 5(i)(J) NMFS provides written concurrence of the HGMP which specifies the implementation and reporting requirements.
- 5(i)(K) The HGMP is consistent with plans and conditions set within any Federal court proceeding with continuing jurisdiction over tribal harvest allocations.

To inform its decision on whether to approve the RMPs and HGMPs under Limit 6, NMFS conducted analyses of whether the plans meet all of the criteria described above in ESA documents that is described in Section 5.0, Decision and Rational for Decision. NMFS also considered the analysis of alternatives contained within the final EIS and associated environmental impacts, and the extent to which the impacts could be mitigated. Additionally, NMFS determined in discussion with U.S. Fish and Wildlife Service (USFWS) that the proposed action had the potential to affect ESA listed bull trout, marbled murrelets, and northern spotted owls; therefore, NMFS has consulted with the USFWS on effects to these species. Finally, NMFS considered the public, tribal, and agency comments received during the NEPA and 4(d) Rule comment periods.

Regarding the alternative analyses, the alternatives summary in Table 3 highlights the environmental impacts that were analyzed in the final EIS and considered in making an informed agency decision about the preferred alternative. Such factors include the benefits and risks of the alternatives to the resources analyzed including water quantity, listed species, other fish and wildlife, socioeconomic resources, and

environmental justice, relative to existing conditions. No factors relevant to matters of national policy were identified or analyzed (40 CFR 1505.2(b)).

Table 3. Summary of environmental factors under EIS alternatives.

Resource Factors Considered	Alternative 1 (No Action – Termination)	Alternative 2¹ (Proposed Action)	Alternative 3¹ (Reduced Production)	Alternative 4¹ (Native Broodstock)	Alternative 5 (Preferred Alternative)
Water Quantity	Compared to existing conditions, the early winter steelhead hatchery programs would be terminated, but all of the hatchery facilities that support the programs would continue to operate to produce fish for programs that are not part of the Proposed Action.	The hatchery programs would continue to operate at existing levels, and would have negligible to moderate negative effects on water quantity, depending on the hatchery program, compared to Alternative 1.	Effects on water quantity would be the same as Alternative 2, because all of the hatchery facilities that support the programs would continue to operate to produce fish for programs that are not part of the Proposed Action.	Same as Alternative 3.	Same as Alternative 3.
Salmon and Steelhead	Negative and positive effects to salmon or steelhead from the programs would be eliminated, compared to existing conditions because early winter steelhead hatchery production would be terminated.	The hatchery programs would continue to operate at existing levels, and would generally have negligible to low negative effects on gene flow, competition and predation, hatchery facilities, masking, incidental fishing, and disease transfer effects; and negligible positive effects from nutrient cycling, depending on the hatchery program and affected species. As under existing conditions, there would be no benefit to the viability of the	Same as Alternative 2, except that effects from gene flow, competition and predation, hatchery facilities, masking, incidental fishing, and disease transfer from early winter steelhead would be reduced. There would be no change in viability benefit to the listed steelhead DPS compared to existing conditions.	Same as Alternative 2 except that collection of local native broodstock could have a low negative effect on the abundance and spatial structure of the natural-origin populations (i.e., mining), and a potential positive benefit to viability of the listed steelhead DPS.	Similar to Alternative 2, except that negative and positive effects would be less than Alternative 2, but greater than Alternative 3.

Resource Factors Considered	Alternative 1 (No Action – Termination)	Alternative 2 ¹ (Proposed Action)	Alternative 3 ¹ (Reduced Production)	Alternative 4 ¹ (Native Broodstock)	Alternative 5 (Preferred Alternative)
		listed steelhead DPS.			
Other Fish Species	Because early winter steelhead hatchery production would be terminated, other fish species would be affected if they compete with, are prey of (positive effect), or prey on (negative effect) early winter hatchery-origin steelhead, compared to existing conditions.	The hatchery programs would continue to operate at existing levels, and would have low negative to negligible positive effects on other fish species if they compete with or are prey of (negative effect), or prey on fish from early winter steelhead hatchery programs (positive effect), compared to Alternative 1.	Same as Alternative 2, except that the food supply for fish species that benefit from steelhead as prey would be reduced, and risk to other fish species that compete with, are prey of, or prey on steelhead would be reduced, compared to Alternative 2.	Same as Alternative 2.	Similar to Alternative 2, except that negative and positive effects would be less than Alternative 2 but greater than Alternative 3.
Wildlife – Southern Resident killer whale	Early winter steelhead prey that would have been available to Southern Resident killer whales under existing conditions would be eliminated because early winter steelhead hatchery production would be terminated. This reduction from existing conditions would likely result in a negligible negative effect. Southern Resident killer whales would continue to occupy their existing habitats with a similar abundance, and	The hatchery programs would continue to operate at existing levels, and would have a negligible positive effect on Southern Resident killer whales, which would continue to occupy their existing habitats with a similar abundance, and would continue to prey on salmon and steelhead, especially Chinook salmon, compared to Alternative 1.	Similar to Alternative 2, except that early winter steelhead hatchery production and adult returns would decrease, reducing the supply of steelhead available to Southern Resident killer whales as prey. Alternative 3 would have a less negligible positive effect than Alternative 2.	Same as Alternative 2.	Similar to Alternative 2, except that positive effects would be less than Alternative 2 but greater than Alternative 3.

Resource Factors Considered	Alternative 1 (No Action – Termination)	Alternative 2¹ (Proposed Action)	Alternative 3¹ (Reduced Production)	Alternative 4¹ (Native Broodstock)	Alternative 5 (Preferred Alternative)
	would continue to prey on available salmon and other steelhead, especially Chinook salmon, as under existing conditions.				
Socioeconomics	Non-tribal and tribal fishing opportunities would be reduced and there would be a loss of person income and jobs, compared to existing conditions because early winter steelhead hatchery production would be terminated.	The hatchery programs would continue to operate at existing levels, and would have low to moderate positive socioeconomic effects from hatchery operations and fishing activities (non-tribal and tribal), compared to Alternative 1.	Same as Alternative 2, except that the socioeconomic effects from hatchery operations and fishing (non-tribal and tribal) would decrease.	Same as Alternative 2.	Similar to Alternative 2, except that positive effects would be less than Alternative 2, but greater than Alternative 3.
Environmental Justice	Reduced fishing opportunities would negatively impact all communities of concern, and affected Native American tribes, compared to existing conditions because early winter steelhead hatchery production would be terminated.	The hatchery programs would continue to operate at existing levels, and would provide low positive effects from fishing opportunities for all communities of concern, and moderate positive effects for Native American tribes, compared to Alternative 1.	Same as Alternative 2, except that fishing opportunities for all communities of concern, and for Native American tribes, would decrease.	Same as Alternative 2.	Similar to Alternative 2, except that positive effects would be less than Alternative 2, but greater than Alternative 3.

¹ Potential differences between the No-action and the action alternatives would be due to differences in hatchery production levels and program type under the action alternatives.

4.0 Environmentally Preferable Alternative

NMFS is required by regulation to specify in the ROD “the alternative or alternatives that were considered to be environmentally preferable” (40 CFR 1505.2(b)). “The environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA’s Section 101. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources” (CEQ 1981).

The final EIS identified Alternative 4 (Native Broodstock) as a potential environmentally preferable alternative (EIS Subsection 2.4, Selection of a Preferred Alternative and an Environmentally Preferable Alternative). Under this alternative, programs would transition to native broodstock programs, which have the potential to directly benefit conservation and recovery of listed Puget Sound steelhead, while potentially providing harvest benefits when population sizes of natural-origin fish are large enough. No other alternative analyzed has the potential to directly contribute to the conservation and recovery of listed Puget Sound steelhead, and potentially bolster the viability of natural-origin steelhead, better allowing them to adapt to the effects of changes in climate and associated ocean and freshwater environmental conditions, loss of habitat, and other negative impacts. Therefore, compared to the alternatives analyzed, Alternative 4 is the environmentally preferable alternative because it would further reduce environmental effects, would have the potential to contribute to conservation and recovery, and would have the potential to contribute to cultural resources associated primarily with recreational (e.g., socioeconomic) and tribal fishing (e.g., environmental justice) interests.

5.0 Decision and Rationale for Decision

As described above, application of Limit 6 to the proposed RMPs would ensure that in conducting the hatchery activities, the co-managers would not be subject to ESA section 9 take prohibitions because these activities would be conducted in a way that contributes to conserving listed ESUs and DPSs, or would be governed by regulations that adequately limit impacts to listed salmon and steelhead. For NMFS to apply the provisions of Limit 6 for implementing a RMP, the co-managers must jointly prepare a hatchery management plan that meets the requirements defined under Limit 6 of the 4(d) Rule. NMFS must then make a determination that the RMP meets the criteria for approval under Limit 6, including that the plan will not appreciably reduce the likelihood of survival and recovery of affected threatened species. (50 CFR 223.203[b][6]).

NMFS selects Alternative 5, in which it would approve the RMPs and HGMPs under Limit 6 of the ESA, as the alternative that would best meet the purpose and need for this action with relatively low impacts on the affected resources. NMFS analyzed the RMPs and HGMPs in relation to the Limit 6 criteria in ESA decision documents and made preliminary determinations in Preliminary Evaluation and Proposed Determination (PEPD) documents for both sets of HGMPs in which it concluded preliminarily that the HGMPs meet the Limit 6 criteria. NMFS made these available for public review and comment (80 Fed. Reg. 15985, March 26, 2015; 81 Fed. Reg. 8941, February 23, 2016). Following consideration of the comments received and the conclusions of the biological opinions (described below), NMFS has developed draft Evaluation and Recommended Determination (ERD) documents for both sets of HGMPs (NMFS 2016a, 2016b). These documents discuss the HGMPs' consistency with all of the Limit 6 criteria.

NMFS has completed two biological opinions – one covering the Dungeness, Nooksack, and Stillaguamish HGMPs (NMFS 2016c) and one covering the Snohomish/Skykomish and Snoqualmie HGMPs (NMFS 2016d). Both biological opinions conclude that implementation of the HGMPs is not likely to jeopardize the continued existence of listed fish, consistent with Limit 6. These analytic documents support a conclusion that the RMPs and HGMPs meet the criteria for approval under Limit 6.

The USFWS analyzed effects on ESA listed species that are under their jurisdiction, and issued a letter concurring with NMFS' determination that the Snoqualmie, Snohomish/Skykomish, and Stillaguamish HGMPs may affect but are not likely to adversely affect bull trout, marbled murrelets, and northern spotted owls (USFWS 2016a). In addition, the USFWS completed biological opinions addressing effects of the Dungeness and Nooksack HGMPs, concluding that the program are not likely to jeopardize bull trout or adversely affect bull trout trout critical habitat (USFWS 2016b, 2016c). Further, the USFWS found that the Dungeness early winter steelhead hatchery program is not likely to jeopardize the continued existence of marbled murrelets, and effects on northern spotted owls are discountable and insignificant (USFWS 2016b). These bird species are not found in the Nooksack River basin in the action area.

The proposed RMPs and other alternatives have been described and evaluated in the EIS. The analysis in the final EIS shows that the differences between the alternatives in terms of impacts on some resources are minor. In particular, the alternatives do not differ in any meaningful sense with respect to their impacts on water quantity and non-listed fish and wildlife (see Table 3). The alternatives differ somewhat in regards to their impacts on ESA listed salmon and steelhead. However, while the effects of alternatives with smaller levels of production or production of fish from native broodstock are expected to have

correspondingly smaller negative effects on ESA listed salmon and steelhead than Alternative 5, the effects under Alternative 5 are still expected to be low. While the biological resource effects of the alternatives are low, effects on socioeconomics and environmental justice under Alternative 5 are moderately positive.

Given that the RMPs and HGMPs under Alternative 5 (Preferred Alternative) appear to meet the criteria for approval under Limit 6, are not likely to jeopardize the continued existence of any listed species, have negligible to low effects on the biological resources considered in the final EIS, and have low to moderate positive benefits to fishing communities, particularly Indian tribes with treaty fishing rights, NMFS selects Alternative 5 in this ROD.

Alternative 3 (Reduced Production), would have slightly lower negative effects on biological resources than Alternative 5, but it would have corresponding higher negative effects to environmental justice communities (i.e., treaty fishing) and socioeconomic resources. The benefits of this alternative in terms of reducing negative effects on biological resources are minimal.

NMFS chose not to select the environmentally preferable alternative for implementation (Alternative 4, Native Broodstock) because of uncertainties associated with potential risks to natural-origin steelhead populations from implementation of this alternative (e.g., genetic risks; potential “mining” of natural-origin steelhead populations), the likely long-term transition period to develop and implement such programs (e.g., time needed for natural-origin steelhead populations to increase enough to accommodate broodstock collection; need for revised HGMPs, and regulatory/administrative processes), and the corresponding reduction in benefits to treaty and non-treaty fisheries that would be expected as programs are implemented (e.g., loss of harvest opportunity).

6.0 Public Involvement

Public scoping for this EIS commenced with publication of a Notice of Intent in the Federal Register on July 14, 2015 (80 Fed. Reg. 41011, July 14, 2015). That notice started a 30-day public comment period (July 14, 2015, to August 13, 2015) to gather information on the scope of the issues and the range of alternatives to be analyzed in the EIS. NMFS developed a website for the EIS at http://www.westcoast.fisheries.noaa.gov/hatcheries/salmon_and_steelhead_hatcheries.html. The website was available during the scoping period and has been updated and available throughout the project duration. During 2015, NMFS held two public scoping workshops in the project area, in Mount Vernon (on July 20), and in Lynnwood (on July 21), Washington. At these workshops, NMFS provided clarifying

information and requested that public comments be submitted on issues and alternatives associated with the project.

Notifications about the workshops, the public scoping process, and the EIS schedule were distributed in a press release and in emails to a list of over 2,000 addresses that had been compiled from people that commented on the PS Hatcheries DEIS (NMFS 2014) and Early Winter Steelhead Hatcheries DEA (NMFS 2015). Electronic and other notifications were sent to agencies, private individuals, businesses, and non-governmental organizations, which contained a link to the website for the EIS and the address to the EIS electronic mailbox. Invitations to attend the public workshops were also advertised through a NMFS press release and on applicable organization and agency websites. Written comments were received on the draft EIS during the public scoping process from a governmental agency, a tribal organization, non-governmental organizations, and individual citizens.

The draft EIS was issued for a 45-day public review period, which was announced in newspapers, through electronic distribution to interested parties, and by publication in the Federal Register on November 13, 2015 (80 Fed. Reg. 70206, November 13, 2015). NMFS received nearly 2,100 comment submissions on the draft EIS, from governmental agencies, tribal organizations, fish conservation non-governmental organizations, fishing organizations, individual citizens, and nearly 2,000 form-email or form-letter submissions.

Following the public review period, responses to substantive public comments were prepared and included in the final EIS. Individual comments and responses were compiled and posted to the project website. A summary of the final EIS revisions made in response to public comments on the draft EIS is available in the final EIS Summary (subsection titled Summary of Major Changes Made in Response to Public Comments on the Draft EIS). A summary of comments, including global comments and responses to those comments, is provided in Appendix D (Public Comment Analysis Summary) of the final EIS.

The final EIS was made available for a 30-day public review period announced in the Federal Register on March 11, 2016 (81 Fed. Reg. 12898, March 11, 2016). Electronic and other notifications were sent to agencies, private individuals, businesses, and non-governmental organizations, which contained a link to the website for the EIS and the address to the EIS electronic mailbox. During the review period, 19 comment letters/emails were received (Appendix B). NMFS received the following submissions: 1 letter from a federal agency (U.S. Environmental Protection Agency), 1 letter from a non-governmental organization (Wild Fish Conservancy), and emails from 17 from individuals. Of the 17 emails from individuals, 1 indicated support for Alternative 1 (No Action), 1 indicated support for Alternative 2

(Proposed Action and Alternative 5 (Preferred Alternative)); 14 indicated support for hatchery programs in general, and 1 was not supportive of hatchery programs in general. Individual comment submissions are available from NMFS and posted on the project's website at http://www.westcoast.fisheries.noaa.gov/hatcheries/salmon_and_steelhead_hatcheries.html. A review of these comments on the final EIS revealed that no substantive issues were raised that had not already been raised in public comments on the draft EIS, and had been addressed in the preparation of the final EIS (Appendix D in the final EIS). All comments were considered during NMFS' decision-making process.

7.0 Mitigation Measures and Monitoring to be Implemented

The CEQ's NEPA regulations require agencies to identify in the ROD whether all practical means to avoid or minimize environmental harm from the alternative selected have been adopted and if not, why they were not (40 CFR Part 1505.2(c)). The regulations further state that a monitoring and enforcement program be adopted and implemented, where applicable, for any mitigation. Mitigation includes avoidance, minimization, and reduction of impacts, and compensation for unavoidable impacts.

Mitigation measures that will be applied under Alternative 5 will minimize risks of the hatchery programs and facilities to ESA-listed populations of salmon and steelhead. These mitigation measures, as well as additional, appropriate measures (such as program changes to reduce risks), will be implemented over time and as new developments in hatchery science occur (i.e., applying adaptive management principles) (EIS Subsection 1.2, Description of the Proposed Action, and EIS Subsection 1.5.3, NMFS's Determination as to Compliance with the 4(d) Rule; see also NMFS 2016c, 2016d). Under the selected alternative, practicable means to avoid or minimize environmental harm will be adopted. These mitigation measures will be applied, when necessary, by hatchery operators to minimize risks to ESA-listed salmon and steelhead hatcheries.

Best management practices (BMPs) will be applied to reduce potential effects from hatchery operations for early winter steelhead programs associated with fish health, broodstock collection, rearing and release of juveniles, and deposition of hatchery adults. Fish health BMPs include fish health maintenance and hatchery sanitation procedures applied during broodstock collection, mating, fish incubation, rearing, and release. Early winter steelhead programs would be operated in compliance with the co-manager's fish health protocols to reduce risks of fish disease amplification within facilities and transfer into the natural environment. Broodstock collection protocols include broodstock selection, fish capture, transport, holding and handling practices.

Although stray natural-origin steelhead adults may be incidentally trapped during the early winter steelhead broodstock collection period, encounters with ESA-listed fish at the broodstock collection locations will be unsubstantial, and measures applied to minimize effects on any natural-origin steelhead encountered. To minimize the likelihood of genetic effects due to interbreeding between natural-origin and hatchery-origin steelhead, hatchery-origin steelhead would be removed from the system to the extent possible. Weirs and traps at the hatcheries would remain open for the entire early winter steelhead adult migration and spawning period (November through March). This would maximize removal of early winter hatchery-origin steelhead, and thus minimize the number of hatchery-origin fish that escape to spawn naturally. Fish collected above broodstock needs (surplus) would be removed from the systems (culled), and there would be no recycling of adult early winter hatchery-origin steelhead trapped at the hatcheries back into the natural environment. Steelhead carcasses would be distributed in local streams for instream nutrient enhancement purposes, if appropriate.

Practices will be applied to reduce potential ecological effects from the release of hatchery-origin smolts. To minimize ecological effects, such as competition and predation, all juvenile hatchery-origin steelhead will be released as seawater-ready smolts to foster rapid outmigration and reduce the duration of potential interaction with any co-occurring natural-origin steelhead and salmon at a life stage vulnerable to competition for food and space. Smolts released will be a minimum of five to six fish per pound to meet criteria ensuring releases occur when the fish are sufficiently large to promote rapid out-migration, and to reduce the risk of residualism (released fish that fail to out-migrate to marine waters). For all programs except the Dungeness (where the distance from release site to salt water is relatively short), to minimize the incidence of residuals and competition risks, all hatchery-origin steelhead will be volitionally released (allowed to leave hatchery rearing facilities when the fish are actively ready to out-migrate). Any early winter steelhead smolts that do not exit rearing ponds volitionally will be removed (culled) and planted into landlocked lakes.

Hatchery-origin and natural-origin juvenile steelhead and salmon emigration timing and abundance will be monitored annually through operation of tribal juvenile out-migrant trapping programs to evaluate hatchery fish emigration rates, co-occurrence levels with natural-origin fish, and the potential for harmful ecological interactions. As needed, changes in release timing or other measures could be developed to avoid or limit risks of competition.

Practices to reduce potential genetic risks include operational actions to minimize the likelihood that unharvested adult early winter hatchery-origin steelhead will stray into natural spawning areas and interbreed with listed natural-origin steelhead. No releases of smolts into areas away from hatchery

facilities or recycling of adults will occur, which together will promote homing fidelity to the hatchery rearing sites where returning hatchery-origin fish can be removed, and reduce the potential for early winter steelhead to stray into natural spawning areas. Eggs for the programs will be collected from marked hatchery-origin early winter steelhead returning to the facilities prior to January 31 of each year, to promote and maintain temporal separation in the spawn-timing between hatchery-origin and natural origin winter steelhead.

Monitoring programs will be required to determine compliance with the required federal authorizations and approvals to validate the environmental effects of the selected alternative. See NMFS 2016c and NMFS 2016d. Monitoring and evaluation under the HGMPs would address the performance of the hatchery programs in meeting and adaptively managing their objectives. Monitoring activities would include, but not be limited to obtaining information on smolt-to-adult survival, fishery contribution, natural-origin and hatchery-origin spawning abundance, juvenile out-migrant abundance and diversity, genetics and gene flow, and juvenile and adult fish health when the fish are in the hatchery. The monitoring and evaluation of hatchery implementation requirements (e.g., annual early winter steelhead smolt release levels, individual fish sizes, and release timing), hatchery performance, and the verification of hatchery effects on ESA-listed species, along with annual, status and trends monitoring of natural-origin populations, will enable the co-managers to detect and evaluate the success of the early winter steelhead programs as well as any deleterious effects on the listed species. The biological opinions for the HGMPs outline particularly detailed monitoring to track the genetic and ecological effects of the hatchery programs on listed fish. Monitoring and evaluation under the HGMPs is designed to lead to adaptive management responses where needed.

8.0 Conclusion

After considering the factors discussed in Section 3.0, Decision to be Made, and Factors Considered by the National Marine Fisheries Service in Making its Decision, NMFS concludes that Alternative 5, Preferred Alternative, best supports NMFS' statutory mission to conserve and protect ESA listed salmon and steelhead resources. Among the alternatives analyzed in the final EIS this alternative best minimizes and reduces risks from early winter steelhead hatchery production, and limits negative effects to other natural resources such as wildlife, water quality, and human health, while responding to the co-managers' application for approval under Limit 6 and otherwise meeting the purpose and need for this action. The environmental effects will low under Alternative 5 while simultaneously providing socioeconomic and environmental justice benefits to tribal and non-tribal fisheries, consistent with relevant and appropriate regulations, agreements, laws, and orders. The environmentally preferable alternative (Alternative 4,

Native Broodstock) also has the potential to benefit fisheries, and in contrast to Alternative 5, may contribute to recovery and adaptation of listed steelhead. However, risks to natural-origin steelhead, the time needed to implement the programs, and reductions in benefits to treaty and non-tribal fishers (especially in the shorter term) render this alternative less effective at meeting the purpose and need for this action.

Consequently, NMFS concludes that the selected alternative is the most reasonable and practicable, and represents an appropriate means to minimize risks of environmental harm while providing benefits to tribal and non-tribal fishers from the five HGMPs as proposed.



April 15, 2016

William W. Stelle, Jr.
Regional Administrator
West Coast Region
National Marine Fisheries Service

Date

9.0 References

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Appendix A - Acronyms

BMP	Best Management Practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
DEA	Draft Environmental Assessment
DEIS	Draft Environmental Impact Statement
DPS	Distinct Population Segment
EIS	Environmental Impact Statement
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
HGMP	Hatchery and Genetic Management Plan
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
RMP	Resource Management Plan
ROD	Record of Decision
USFWS	United States Fish and Wildlife Service
WDFW	Washington Department of Fish and Wildlife

Appendix B – Public Comment Submissions Received on the Final Environmental Impact Statement

Individual comment submissions (listed below) are available from NMFS and are posted to the project's website at http://www.westcoast.fisheries.noaa.gov/hatcheries/salmon_and_steelhead_hatcheries.html

Agencies

U.S. Environmental Protection Agency

Organizations

Wild Fish Conservancy

Individuals

Brent Knight

Brian Lencho

Dennis Harman

Dominic Ivankovich

Gary Clark

Jacob B

James French

James Frymire

Jeff Brasda

John Nordeen

Josh Hopp

Ken J. McLeod

Kyle Strozzi

Laurence Bucklin

Mike Hayes

Shannon O'Sullivan

Skip Van Diest