

## **Record of Decision for the Final Environmental Impact Statement for 10 Salmon and Steelhead Hatchery Programs in the Duwamish-Green River Basin**

### **I. Introduction and Background**

This Record of Decision (ROD) was developed by the National Marine Fisheries Service (NMFS) in compliance with decision-making requirements, pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended (40 CFR 1505.2). The purpose of this ROD is to document NMFS' decision regarding the project.

This ROD is designed to: (1) state NMFS' decision and present the rationale for that decision; (2) identify the alternatives considered in the final Environmental Impact Statement (EIS) in reaching the decision; and (3) state whether all practicable means to avoid or minimize environmental harm from implementation of the selected alternative have been adopted, and if not, why they were not (40 C.F.R. § 1505.2).

The Washington Department of Fish and Wildlife (WDFW), Muckleshoot Indian Tribe, and Suquamish Tribe (hereafter referred to as the co-managers) jointly submitted hatchery and genetic management plans (HGMPs) for 10 hatchery programs that would produce salmon and steelhead in the Duwamish-Green River Basin in Puget Sound. NMFS is the federal agency responsible for administering the Endangered Species Act (ESA) for Chinook salmon (Puget Sound evolutionary significant unit [ESU]), chum salmon (Hood Canal summer run ESU), and steelhead (Puget Sound distinct population segment [DPS]), which are listed as threatened under the ESA. NMFS' ESA §4(d) regulations allow the co-managers to apply for a take exemption for the operation of their hatchery programs which affect ESA-listed salmon and steelhead. The proposed action is NMFS' determination that the co-managers' HGMPs meet the requirements of Limit 5 (artificial propagation) and Limit 6 (joint state/tribal plans under U.S. v. Oregon or U.S. v. Washington settlement processes) of the 4(d) Rule. The HGMPs for the co-managers' hatcheries would be exempt from the take prohibitions of the ESA regarding threatened salmon and steelhead, and the programs would continue to be implemented by the co-managers.

### **II. Alternatives Considered**

#### **Alternative 1 (No Action)**

Under Alternative 1, the no-action alternative, NMFS would not make a determination under the 4(d) Rule for any of the 10 HGMPs, and the hatchery programs would not be exempted from ESA section 9 take prohibitions. Although other outcomes are possible, for the purposes of this EIS, NMFS has defined the No-action Alternative as the choice by the applicants to continue the hatchery programs without ESA authorization and to potentially change hatchery production levels at any time. The three new Fish Restoration Facility (FRF) programs would produce up to 1,550,000 juveniles. Up to 13,993,000 salmon and steelhead juveniles would be released from the 10 hatchery programs annually. No new environmental protection or enhancement measures would be implemented.



### **Alternative 2 (Proposed Action)**

Under Alternative 2, NMFS would make a determination that the HGMPs submitted by the co-managers meet the requirements of the 4(d) Rule. The salmon and steelhead hatchery programs in the Duwamish-Green River Basin would be implemented as described in the 10 submitted HGMPs, and, as under Alternative 1, up to 13,993,000 salmon and steelhead juveniles would be released annually. The hatchery programs would use hatchery capacity as described in the HGMPs for operations and would be adaptively managed over time to incorporate best management practices as new information is available.

### **Alternative 3 (Termination)**

Under Alternative 3, NMFS would make a determination that the HGMPs as proposed do not meet the standards prescribed under Limit 5 and Limit 6 of the 4(d) Rule, and the 10 salmon and steelhead hatchery programs in the Duwamish-Green River Basin would be terminated. All salmon and steelhead being raised in hatchery facilities (i.e., fall-run Chinook salmon, late winter-run steelhead, summer-run steelhead, coho salmon, and chum salmon) would be released or killed, and no broodstock would be collected. No hatchery fish would be produced or released from the 10 hatchery programs.

### **Alternative 4 (Reduced Production)**

Under Alternative 4, the applicants would reduce the number of fish released from each of the 10 proposed hatchery programs by 50 percent (to 6,996,500 salmon and steelhead juveniles) because it represents a mid-point between the proposed action (Alternative 2) and termination of the hatchery programs (Alternative 3). Revised HGMPs would be submitted reflecting these reduced production levels, and NMFS would make a determination that the revised HGMPs submitted as an RMP meet the requirements of the 4(d) Rule.

### **Alternative 5 (Increased Production/Preferred Alternative)**

Under this alternative, the applicants would use existing facility capacity to increase the number of fall-run Chinook salmon subyearlings produced by the Soos Creek fall-run Chinook salmon hatchery program. The number of Soos Creek fall-run Chinook salmon subyearlings produced would be 6,200,000 fish, which is 2,000,000 more subyearlings than under Alternative 1 and Alternative 2. Furthermore, the 2,000,000 subyearlings would be released from Palmer Pond, in addition to the 1,000,000 subyearlings that would be released from Palmer Pond under Alternative 1 and Alternative 2, the total maximum release level would be 15,915,000 hatchery-origin salmon and steelhead. Alternative 5 also includes changes in steelhead release levels. The Green River late winter-run steelhead hatchery program would increase by 22,000 yearlings to 55,000, and the FRF late winter-run steelhead hatchery program would decrease by 100,000 yearlings to 250,000, resulting in a net decrease of 78,000 steelhead yearlings as compared to Alternative 1 and Alternative 2.

### **III. Public Involvement**

NMFS formally initiated environmental review of the project through a Notice of Intent (NOI) to prepare an EIS in the Federal Register on May 4, 2016. This NOI announced a 30-day public scoping period, during which other agencies, tribes, and the public were invited to provide comments and suggestions regarding issues and alternatives to be included in the EIS. NMFS developed a website for the EIS at

[http://www.westcoast.fisheries.noaa.gov/hatcheries/salmon\\_and\\_stellhead\\_hatcheries.html](http://www.westcoast.fisheries.noaa.gov/hatcheries/salmon_and_stellhead_hatcheries.html). The website was available during the scoping and was updated and available throughout the project duration. Notifications of the public scoping process were distributed in emails to a list of over 4,200 addresses that had been compiled from people that commented on earlier hatchery EISs. Electronic and other notifications were sent to agencies, private individuals, businesses, and non-governmental organizations that contained a link to the website for this EIS and the address to the EIS electronic mailbox.

A Draft EIS was subsequently produced and made available for a 45-day review period, announced in the Federal Register on November 3, 2017; the review period was extended another 30 days in response to public requests for an extension. During the comment period, NMFS received two letters from government agencies, one email from a non-governmental organization, and 23 emails from individual citizens. Primary issues raised in the comments related to the finding that the genetic effect of the steelhead hatchery is high, the reliance of Southern Resident Killer Whales on salmon and steelhead as prey, and the impacts to salmon and steelhead from sea lion and seal predation. A Draft Supplemental EIS was issued for an initial 45-day review period, which was extended for an additional 15 days due to the overlap of the comment period with the December 2018 to January 2019 government shutdown. The initial review period for the Draft Supplemental EIS was announced in the Federal Register on December 7, 2018. NMFS received two letters from government agencies and 13 emails from individual citizens. Primary issues raised in the comments related to a need for clarification regarding the benefits of Alternative 5 to Southern Resident Killer Whales, the potential impacts of Alternative 5 on the role of the Duwamish-Green Chinook salmon in the Chinook Salmon Recovery Plan, and clarification on the genetic risks to natural origin Chinook salmon from Alternative 5. Appendix C of the Final EIS contains a summary of the comments received on both draft documents and NMFS' responses, including a description of changes made to the Draft EIS. The last section of the Summary of the FEIS describes the changes that were made to the Draft EIS and Draft Supplemental EIS.

The Final EIS was subsequently produced and made available for a 30-day public review period announced in the Federal Register on July 12, 2019. During the review period, two comment letters were received, with one letter that included substantive comments. Comment letters were received and are summarized in Appendix A of this ROD. A review of the comments revealed that most of the issues had already been raised in public comments on the Draft EIS, and they had been addressed in the preparation of the Final EIS. The rest of the comments were considered during NMFS' decision-making process

#### **IV. Environmentally Preferable Alternative(s)**

NMFS is required by regulation to specify in the ROD “the alternative or alternatives which were considered to be environmentally preferable” (40 CFR 1505.2(b)). The environmentally preferred alternative generally means the alternative that causes the least damage to the biological and physical environment; it also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources (The Council on Environmental Quality (CEQ), Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations, 46 Fed. Reg. 18,026 (March 23, 1981). Alternative 5 was identified in the FEIS as the preferred alternative. Alternative 3 would likely result in the least amount of damage to the human environment.

Alternative 3 evaluated terminating the 10 Duwamish-Green salmon and steelhead hatchery programs. This alternative would result in the least damage to the aquatic environment because water would not be used to raise hatchery fish, hatchery effluent would not be discharged into adjacent streams, and no hatchery fish would be released to create risks associated with genetic effects, competition, predation and disease. However, this alternative would potentially negatively affect certain wildlife species that prey upon hatchery fish, reduce socioeconomic benefits and environmental justice benefits to the human environment from fisheries catching hatchery fish, and decrease ecosystem nutrient benefits from hatchery fish carcasses decomposing in the natural environment.

#### **V. Results of Consultations**

Both NMFS and the U.S. Fish and Wildlife Service (USFWS) conducted Endangered Species Act (ESA) Section 7(a)(2) Biological Opinions on the 10 Hatchery Programs for Salmon and Steelhead in the Duwamish/Green River Basin. NMFS conducted a Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat (EFH) consultation on the action.

For ESA-listed species, NMFS determined that the action is likely to adversely affect the Puget Sound steelhead DPS and the Puget Sound Chinook salmon ESU but not likely to adversely affect the Hood Canal Summer Chum Salmon ESU nor the Ozette Lake Sockeye Salmon ESU. For all ESUs/DPSs, NMFS determined that the action is not likely to jeopardize the species nor is it likely to destroy or adversely modify critical habitat. The USFWS determined that the action is likely to adversely affect the threatened bull trout as a result of incidental captures during broodstock collection, but that the action is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

There are three federal fishery management plans that describe EFH in the project area: Pacific Coast Salmon, Pacific Coastal Pelagic Species, and Pacific Coast Groundfish. NMFS determined that the action will not have an effect on EFH described in either the Pacific Coastal Pelagic Species or the Pacific Coast Groundfish Fishery Management Plans. The action will have an

adverse effect on EFH described in the Pacific Coast Salmon Fishery Management Plan and EFH conservation recommendations are provided. The Reasonable and Prudent Measures and Terms and Conditions included in the Incidental Take Statement of the ESA Section 7(a)(2) Biological Opinion constitute NMFS' recommendation to address potential EFH effects.

## **VI. Mitigation and Monitoring**

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(d)). 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. The hatchery programs included in Alternative 5 require both mitigation of hatchery impacts on affected resources and monitoring and evaluation. They are described further below.

The primary reason why NMFS has identified Alternative 5 as the preferred alternative is that NMFS' authority under the 4(d) regulations is limited to reviewing HGMPs as submitted by hatchery operators and making determinations whether they meet the applicable regulatory standards. If NMFS finds that they do, the hatchery programs described in the HGMPs are considered exempt from the take prohibitions of the ESA with respect to threatened salmon and steelhead. As far as making changes to HGMPs for the benefit of salmon and steelhead, NMFS worked cooperatively with hatchery operators to emphasize program design and operations that minimize impacts to threatened salmon prior to the submission of HGMPs for review and throughout the consultation process. Thus, in addition to meeting NMFS' regulatory role, Alternative 5 includes substantive elements that merit the selection as the preferred alternative.

Alternative 5 includes the culmination of hatchery reforms taken since salmon and steelhead were listed to mitigate impacts of all the programs on natural-origin salmon and steelhead. Significant hatchery reforms and mitigation have been implemented, such as changes in release numbers, locations, and life stages to reduce impacts on natural-origin fish.

Under Alternative 5, the proposed HGMPs will apply best management practices to minimize deleterious genetic effects and to ensure high survival of fish in the hatchery by monitoring and evaluation of fish health, implementing necessary precautionary and treatment actions, and releasing smolts that are healthy to reduce risks of pathogen transmission to natural fish, and minimize ecological interactions while emigrating to the ocean. Broodstock collection will occur to minimize impacts on natural-origin salmon and steelhead and reduce domestication selection in the hatchery environment.

Monitoring and evaluation of the hatchery programs included in Alternative 5 will occur annually. The specific details of the monitoring are included in Section 11 (and other applicable

sections) of the HGMPs. Most of the annual monitoring is focused on evaluating the performance of the hatchery program. Evaluating impacts on natural-origin salmon and steelhead from the hatchery programs is focused predominately on measuring hatchery fish on the spawning grounds. In most areas, this basic information is collected on an annual basis. Other genetic and ecological impact studies occur from time to time as funding and the need arises.

The Reasonable and Prudent Measures and Terms and Conditions included in the Incidental Take Statement of the NMFS ESA Section 7(a)(2) Biological Opinion require that 1) the co-managers follow all conditions specified in each authorization issued as well as guidance specifically in the opinion for their respective programs, 2) a workgroup is developed to plan for fish passage and the reintroduction of fish above Howard Hanson Dam, and 3) the co-managers provide annual reports to the Sustainable Fisheries Division for all hatchery programs and associated research, monitoring and evaluation.

The Reasonable and Prudent Measures included in the Incidental Take Statement of the USFWS ESA Section 7(a)(2) Biological Opinion require minimizing and monitoring adverse effects to bull trout associated with steelhead broodstocking and alternative brookstock collection activities, including incidental capture and handling, and genetic tissue removal. The Terms and Conditions specify 1) individuals engaged in broodstock collection be trained in bull trout identification and safe handling procedures, 2) all bull trout are released as soon as possible after genetic sample has been taken, as close as possible to the point of capture, and with a minimum of handling, 3) hooks that penetrate critical areas, such as esophagus and stomach that cannot be removed easily, will be left in the fish with the line being cut as close as possible to the hook, 4) all captured bull trout shall be reported to the USFWS and 5) bull trout mortalities shall be kept whole and put on ice or frozen.

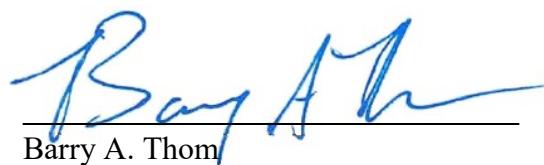
## **VII. Decision and Rationale for Decision**

As stated above, NMFS has a responsibility to comply with NEPA before making a determination under the ESA on whether the co-managers' jointly submitted HGMPs meet the criteria of Limit 5 and Limit 6 of the 4(d) Rule for listed salmon and steelhead in Puget Sound. NMFS analyzed a range of alternatives and determined that Alternative 5, the Preferred Alternative, meets the criteria for Limit 5 and Limit 6, does not jeopardize ESA-listed salmon or steelhead in Puget Sound, meets the co-managers' objectives for fisheries targeting hatchery-origin salmon and steelhead, and provides additional Chinook salmon that may benefit Southern Resident killer whales (SRKWs). Other alternatives, including the Environmentally Preferable Alternative 3, may reduce impacts to listed and non-listed salmon and steelhead, but do not provide the desired level of recreational, commercial and subsistence fishery benefits for the state of Washington and additional prey resources for SRKW. Furthermore, NMFS' 4(d) regulations do not provide NMFS with the authority to unilaterally order changes of magnitude indicated by Alternative 3 as a condition of approval of the HGMPs. Analysis of this alternative

was provided to assist with a full understanding of potential effects on the environment under various management scenarios.

Alternative 5 was identified by the final EIS as the preferred alternative. This alternative corresponds to NMFS' authority, which consists of providing a determination on whether the HGMPs meet the regulatory standard for approval, and also results in a balance among the affected resources in realizing benefits while minimizing the environmental and social impacts. Alternative 5 allows natural-origin salmon and steelhead to be collected for broodstock integration which will reduce the genetic impacts of these programs on natural-origin salmon and steelhead populations. The operation of the hatchery facilities will affect the adjacent rivers and streams, but the water quantity and water quality impacts are limited in scope and relatively short-lived. The proposed releases of hatchery fish under Alternative 5 reduce impacts on the natural environment compared to the No-action alternative, while providing socioeconomic benefits to recreational and commercial fisheries in the ocean and freshwater, increased salmon and steelhead abundances to meet subsistence and ceremonial needs of Puget Sound treaty tribes, and increased ocean Chinook salmon prey base that may benefit SRKW. Furthermore, the USFWS determined that this action is not likely to result in jeopardy to the bull trout or destruction or adverse modification of bull trout critical habitat

Through the EIS and the documentation in this ROD, NMFS considered the objectives of the proposed action and analyzed a reasonable range of alternatives that adequately address the objectives of the proposed action, and the extent to which the impacts of the action could be mitigated. NMFS also considered public and agency comment received during the EIS scoping and review periods. In balancing the projected effects of the various alternatives presented in the EIS and the public interest with economic, technical, NOAA statutory mandates, and matters of national policy, NMFS has decided to implement Alternative 5. Consequently, NMFS concludes that the approved alternative provides reasonable, practical, and practicable means to avoid, minimize, or compensate for environmental harm from the action.



Barry A. Thom  
Regional Administrator  
West Coast Region  
National Marine Fisheries Service

January 27, 2020

Date

## Appendix A:

### **Responses to Comments on the FEIS to Analyze Impacts of NOAA's National Marine Fisheries Service Proposed Approval of Hatchery and Genetic Management Plans for 10 Salmon and Steelhead Hatchery Programs in the Duwamish-Green River Basin Pursuant to Section 7 and Section 4(d) of the Endangered Species Act**

Two comment letters were received.

One comment letter from an individual dated July 10, 2019, indicated that hatcheries damage the environment, but this comment does not include any additional details or reference anything specific in the FEIS. This comment is noted, and we refer to the analysis of potential impacts discussed in the FEIS in Section 4 as describing anticipated effects of the Alternatives.

A second comment letter from the EPA dated August 12, 2019 includes three comments that are addressed below.

- 1) *The EPA recommended that the Final EIS include additional information to support conclusions such as "...it is likely that fish from the hatchery programs form a small but meaningful part of the diet of Southern Resident killer whales." EPA goes on to cite one of the citations provided in the FEIS regarding the finding that Chinook salmon from the south Puget Sound comprise approximately 64% of SRKW diet (NWFSC unpubl. data).*

As noted in Section 3.4 of the FEIS, prey availability has been identified by NOAA Fisheries (2014) as a major threat to SRKW recovery. Several citations are provided in this section regarding the importance of Chinook salmon in the SRKW diet (e.g. Ford et al. 2016; Chasco et al. 2017a,b). Section 3.4 of the FEIS also notes that Chinook salmon are the most calorie rich salmon species (O'Neill et al. 2014). Further, the FEIS notes that adult hatchery-origin Chinook represent 74 percent of the total Chinook returning to Puget Sound; SRKWs do not distinguish between hatchery-origin and natural-origin Chinook; and adults from hatchery releases have partially compensated for declines in natural-origin salmon and may have benefitted SRKWs (NMFS 2014; Chasco 2017a). Section 3.4 of the FEIS also notes that the contribution of Chinook by the Duwamish-Green hatchery programs is likely small (<2% of total abundance) but there is overlap in time and space with salmon production and SRKWs that can provide localized increases in SRKW prey abundance at specific times. Hanson et al. (2010), cited in Section 3.4, states that 6-14 percent of Chinook salmon prey for SRKWs from May to September originates in Puget Sound, supporting the conclusion in the FEIS that although the Duwamish-Green hatchery programs may make a small contribution to total number of adult Chinook salmon originating from Puget Sound, small increases in prey availability at the proposed location and time of year may provide benefit to SRKWs, which are documented have food limitation as a recovery issue. Thus, the statement regarding

hatchery programs likely forming a small but meaningful part of the diet of SRKWs is well supported by the best available science and the citations included in the FEIS.

- 2) *The EPA is concerned that the statement regarding Washington Department of Fish and Wildlife's plans to increase hatchery production in watersheds where natural-origin Chinook do not occur has the potential to give the decision-makers and the public the impression that hatchery production increases would only occur in watersheds without natural-origin Chinook salmon populations. EPA recommends that the Record of Decision clarify policies related to reasonably foreseeable hatchery production increases and co-occurrence with natural-origin salmon populations.*

The sentence concerning increased production that could occur in watersheds without natural-origin Chinook salmon populations was not meant to predict whether or not WDFW could potentially request future increases in production in watersheds with natural-origin Chinook salmon populations, such as the Duwamish-Green watershed.

- 3) *The EPA recommended the Record of Decision include additional information on how the co-managers will monitor and evaluate the contribution of hatchery production on addressing the endangered SRKW's need for its preferred prey.*

NMFS anticipates that overall increases in Chinook salmon hatchery production (in the Duwamish-Green watershed and potentially other watersheds) are likely to increase the overall abundance of ocean-stage Chinook salmon that are available as prey to SRKWs. The NMFS/Northwest Fisheries Science Center has active research and monitoring programs for SRKWs that include studies on population dynamics, diet, prey availability, and the impacts of ocean salmon fisheries. We anticipate these studies to continue, and while it may not be possible to determine a direct link between SRKW health and increased hatchery production, the ongoing monitoring will help to inform NMFS whether there are improvements associated with increased production on prey availability and fitness and survival of SRKWs. Co-managers will continue to partner with NMFS to advance our understanding of the effects of increased hatchery production on SRKW health.