

Attachment 1

4(d) RULE EVALUATION AND RECOMMENDED DETERMINATION

SANDY RIVER SPRING CHINOOK SALMON PROGRAM

HGMP SUBMITTED BY: Oregon Department of Fish and Wildlife (WDFW)

AFFECTED AREA: Sandy River Basin, Oregon.

AFFECTED ESU/DPS:

	Listing Status Determination	Critical Habitat Designation	Protective Regulations
Chinook salmon (<i>Oncorhynchus tshawytscha</i>)			
Lower Columbia River Chinook Salmon	June 28, 2005; 70 FR 37160	September 2, 2005; 70 FR 52630	June 28, 2005; 70 FR 37160
Coho Salmon (<i>Oncorhynchus kisutch</i>)			
Lower Columbia River Coho Salmon	June 28, 2005; 70 FR 37160	[not yet designated]	June 28, 2005; 70 FR 37160
Steelhead (<i>Oncorhynchus mykiss</i>)			
Lower Columbia River Steelhead	January 5, 2006; 71 FR 834	September 2, 2005; 70 FR 52630	June 28, 2005; 70 FR 37160
Chum Salmon (<i>Oncorhynchus keta</i>)			
Columbia River Chum Salmon	June 28, 2005; 70 FR 37160	September 2, 2005; 70 FR 52630	June 28, 2005; 70 FR 37160
Pacific Eulachon (<i>Thaleichthys pacificus</i>)			
Southern Distinct Population Segment	March 18, 2010; 74 FR 13012	October 20, 2011; 76 FR 65324	October 20, 2011; 76 FR 65324

4(d) RULE LIMIT: Final 4(d) Rule Limit 5

NMFS Tracking Number: WCR-2014-300

DATE: May 31, 2016

EVALUATION

The Oregon Department of Fish And Wildlife (ODFW) submitted a Hatchery and Genetics Management Plan (HGMP) for the Sandy River Spring Chinook Salmon Program on August 1, 2013 along with three other HGMPs as part of a submittal requesting concurrence that the HGMPs satisfy criteria under Limit 5 of the 4(d) Rule.

The Final Endangered Species Act (ESA) 4(d) Rule for the Lower Columbia River Chinook Salmon Evolutionarily Significant Unit (ESU) states that the prohibitions of paragraph (a) of the rule (50 C.F.R. 223.203(a)) do not apply to activity associated with artificial propagation programs provided that the following elements of the rule are met.

(5)(i) A state or Federal Hatchery and Genetics Management Plan (HGMP) has been approved by NMFS as meeting the following criteria

National Marine Fisheries Service (NMFS) will approve an HGMP if it meets the specific criteria specified in 50 CFR 223.203(b)(5)(i), and conditions in 50 CFR 223.203 (b)(5)(ii)-(vi) of the Final ESA 4(d) Rule for Lower Columbia River Chinook Salmon (June 28, 2005; 70 FR 37160). The following is an evaluation of whether the submitted HGMP meets these criteria and conditions.

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.

Goals, performance objectives (standards), and performance indicators for the Sandy River Spring Chinook Salmon Program are clearly stated in sections 1.7, 1.9, and 1.10, respectively, of the HGMP submitted for the program (ODFW 2013). The primary goal of the Sandy River Spring Chinook Salmon Program is to mitigate for the loss of spring Chinook salmon catch in Lower Columbia River recreational and commercial fisheries and Sandy River recreational fisheries that was lost due to habitat degradation and passage impairment resulting from City of Portland construction and operation of dams on the Bull Run River. The intent of the program is to produce and release up to 300,000 quality spring Chinook salmon smolts that are genetically similar to natural-origin spring Chinook salmon in the Sandy River, that will provide adult returns to support recreational and commercial fisheries, while providing for the recovery of natural-origin salmonids in the Sandy River Basin.

The primary objectives of the Sandy Hatchery, as outlined in the Sandy Hatchery Operations Plan (ODFW 2015), are:

- Objective 1: Foster and sustain opportunities for sport, commercial, and tribal fishers consistent with the conservation of naturally produced native fish.
- Objective 2: Maintain genetic resources of native fish populations spawned or reared in captivity.

- Objective 3: Restrict the introduction, amplification, or dissemination of disease agents in hatchery produced fish and in natural environments by controlling egg and fish movement and by prescribing a variety of preventative, therapeutic and disinfecting strategies to control the spread of disease agents in fish populations in the state.
- Objective 4: Minimize adverse ecological impacts to watersheds caused by hatchery facilities and operations.
- Objective 5: Communicate effectively with other fish producers, managers and the public.

Performance standards and indicators included to enumerate intended results, and to measure the program's success or failure in attaining those results, are described in sections 1.9 and 1.10 of the HGMP. To summarize, the categories of performance indicators include: (1) Legal Mandates; (2) Harvest and Socio-Economic Effectiveness; (3) Life History Characteristics; (4) Ecosystem Function; and (5) Operation of Artificial Propagation Facilities. Each of these include performance standards, their associated indicators, and how these indicators will be monitored and evaluated (section 1.10 of the HGMP).

ODFW will implement the monitoring and evaluation programs identified in the HGMP and additional items provided in the letter of concurrence, as discussed below and based on the Incidental Take Statement (ITS) (NMFS 2014), and will compile the results in annual reports. Monitoring and evaluation program results will be used by the co-managers, together with NMFS, to adjust the HGMP as necessary to meet plan performance standards.

5(i)(B) The HGMP utilizes the concepts of viable and critical salmonid population threshold, consistent with the concepts contained in the technical document entitled “Viable Salmonid Populations” (NMFS 2000).

The ESA 4(d) Rule (June 28, 2005; 70 FR 37160) states that an HGMP must use the concepts of viable and critical thresholds as defined in the NMFS Viable Salmonid Population (VSP) document (McElhany et al. 2000). Application of these VSP concepts is needed to adequately limit takes of listed salmonids as broodstock to specified populations thresholds or circumstances for the protection of the species. Listed salmonids may be purposefully taken for broodstock purposes only if: the donor population is currently at or above the viable threshold and the collection will not impair its function; the donor population is not currently viable but the sole objective is to enhance the propagation or survival of the listed ESU; or the donor population is shown with a high degree of confidence to be above critical threshold although not yet functioning at viable levels, and the collection will not appreciably slow attainment of viable status for that population.

The Willamette/Lower Columbia Technical Recovery Team (WLC-TRT) determined minimum abundance thresholds (MATs) for the Oregon Lower Columbia fall/spring Chinook salmon, chum salmon, and coho salmon populations in the Sandy River (McElhany et al. 2007). The WLC-TRT established MAT values for both “critical” (very high risk of extinction) and “viable” (low risk of extinction) status. The MAT values for “critical” status for the Sandy River populations of

Chinook salmon, coho salmon, and steelhead were 400, 1,800, and 425 respectively. The “viable” abundance levels defined for Chinook salmon, coho salmon, and steelhead are 800, 3,300, and 750 respectively.

The MAT values identified by the WLC-TRT were used in the status assessment conducted as part of developing the Lower Columbia River Conservation and Recovery Plan for Oregon Populations of Salmon and Steelhead (Oregon’s Recovery Plan) (ODFW 2010), and the NMFS’ ESA Recovery Plan for LCR salmon and steelhead listed under the ESA (NMFS 2013). The status assessment found that the Sandy coho salmon population was below the “critical” MAT at 1,800. The assessment found the Sandy late fall Chinook salmon population was above the “viable” level at 1,764, whereas the fall Chinook salmon and spring Chinook salmon populations were below the viable level, but above the “critical” level respectively at 144 and 714. The Sandy winter steelhead assessed abundance (674) is above the critical level, but below the viable level (ODFW 2010). Spring Chinook salmon escapement for 2014 was above the viable level at 1,491 natural-origin adults, as well as for winter steelhead at 3,249 natural-origin adults (NMFS 2014). Based on the recent escapements of natural-origin spring Chinook salmon, the donor population exceeded the viable abundance thresholds and would be able to support the removal of adults for broodstock. Furthermore, the removal of adult male spring Chinook salmon would not be expected to impair the function of the donor population.

5(i)(C) Taking into account health, abundances, and trends in the donor population, broodstock collection programs reflect appropriate priorities.

The goal of the Sandy River Spring Chinook Salmon Program is primarily to support commercial and recreational fisheries to meet mitigation goals consistent with the conservation of naturally produced native fish, and thus would meet the criteria under Limit 5 of the 4(d) rule. ODFW has determined that the natural-origin population can support the removal of up to 42 natural-origin male spring Chinook salmon to integrate into the hatchery program to reduce the risk to the natural population from hatchery-induced selection. The removal of adult male spring Chinook salmon for broodstock, as described in the HGMP, is an appropriate use of the donor stock because it will permit ODFW to meet their fishery mitigation goals, while reducing the risks to the natural-origin population in the Sandy River (NMFS 2014).

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.

The HGMP includes detailed protocols pertinent to ensuring that the program is operated in a manner consistent with the health of the fish reared and appropriate to minimize adverse effects outside the hatchery.

Fish Health: Protocols addressing fish health, including fish health maintenance and hatchery sanitation procedures applied during broodstock collection, mating, fish incubation, and rearing are detailed in sections 7.7, 8.3, 9.1.7, 9.2.7, and 10.9 of the HGMP. Fish health monitoring measures are also provided in the annual Sandy Hatchery Operation Plan (ODFW 2015).

Broodstock Collection: Broodstock collection protocols are presented in HGMP sections 6 and 7. Hatchery spring Chinook salmon will be collected using temporary weirs located in the Salmon River, Zigzag River, and Bull Run River. Adults returning to the Sandy Hatchery will also be collected. All natural-origin, unmarked spring Chinook salmon will be released upstream of the weirs to spawn naturally, except for up to 42 male spring Chinook salmon needed for broodstock. All hatchery adults will be removed. Spawning distribution and pre-spawning mortality will be monitored to evaluate impacts on natural-origin spring Chinook salmon from the operation of the weirs. Hatchery broodstock will be transported and held at the Clackamas Hatchery for spawning.

Broodstock Spawning: Broodstock spawning protocols are described in section 8 of the HGMP. At the 300,000 smolt program level, the broodstock goal is 210 adults, which will be spawned at a 1 male to 1 female ratio. After spawning, green eggs would be taken to the Sandy Hatchery where they would be fertilized and incubated until the eyed-stage at which time they would be transported to Oxbow Hatchery for final incubation.

Rearing and Release of Juveniles: The juvenile spring Chinook salmon rearing and release protocols are presented in HGMP sections 9 and 10. Rearing at Oxbow Hatchery would continue until the fish reached 80 fish per pound (fpp) at which time they would be transported to the nearby Cascade Hatchery and reared to a size of 18 fpp. In November the fish would be returned to the Sandy Hatchery where they would be reared until the following February/March. At which time the hatchery spring Chinook salmon juveniles will be acclimated and released from the Bull Run acclimation pond.

Deposition of Hatchery Adults: Plans for the disposition of surplus adult spring Chinook salmon are addressed in HGMP section 7.5. Surplus hatchery adults will be provided to food banks, or used for nutrient enhancement.

Catastrophic Risk Management: Catastrophic risk management strategies applied through the program to minimize the risk of fish loss are described in HGMP sections 5.8, 9.17, 9.2.10, 10.10, and 10.11. In particular, section 5.8 describes back-up systems, and risk aversion measures applied to minimize the likelihood for catastrophic fish loss resulting from equipment failure, water loss, flooding, disease transmission, or other events.

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.

The HGMP clearly describes adequate measures intended to evaluate, minimize, and account for the program's effects on natural populations. The Sandy River Spring Chinook Salmon program's effects on listed natural salmon and steelhead populations are evaluated and accounted for in section 2 of the HGMP ("Program Effects on ESA-listed Salmonid Populations"). Measures implemented to minimize adverse genetic, ecological, and demographic effects on listed fish are included within each section describing the fish production components of the proposed program (HGMP sections 4.2, 5.8, 6.2.4, 6.3, 7.2, 7.9, 8, 9.1.7, 9.2.10, 10.11, and 11.2).

Genetic Effects: As discussed in our Biological Opinion (NMFS 2014), the primary impact of the spring Chinook salmon program on the natural-origin spring Chinook salmon population is from hatchery spring Chinook salmon spawning naturally. The installation and operation of the weirs to collect broodstock serve also to manage the proportion of hatchery spring Chinook spawning naturally by trapping and removing hatchery adults. To achieve Oregon's Recovery Plan (ODFW 2010) and NMFS' delisting goals (NMFS 2013), the proportion of the naturally spawning spring Chinook salmon population consisting of hatchery spring Chinook salmon must be less than 10 percent. The operation of the weirs and the acclimation and release of the spring Chinook salmon from the Bull Run acclimation pond are designed to achieve this goal, and monitoring activities will confirm whether the goal continues to be met.

Ecological Effects: Measures implemented to minimize disease transfer effects on listed natural populations are described in sections 7.7, 9.3, 9.16, 9.17, 9.27, 10.9, and 11.1. The program will affect the other listed species present in the Sandy River through ecological interactions. The effects of competition and predation are minimized through the acclimation of the spring Chinook salmon at the Bull Run acclimation pond, the size at release, and the location of acclimation pond below the majority of the spawning and rearing habitat in the Sandy River Basin.

5(i)(F) The HGMP describes interrelationships and interdependencies with fisheries management.

Sections 3.1, 3.2, and 3.3 of the HGMP address the relationship of the spring Chinook salmon program with fisheries management. As described in the HGMP, the hatchery program is consistent with the Fisheries Management and Evaluation Plan for Lower Columbia River Chinook in Oregon Freshwater Fisheries of the Lower Columbia River Tributaries Between the Pacific Ocean and Hood River (ODFW 2003) and with Oregon's Recovery Plan (ODFW 2010). Spring Chinook salmon commercial and recreational fisheries in the lower Columbia River and in the Sandy River are selective for hatchery spring Chinook salmon only. The fisheries allow for the retention of hatchery adults only, requiring that all unmarked, natural-origin spring Chinook salmon be released.

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.

The HGMP describes the facilities that would be used to properly operate the program, and there are adequate facilities available to accomplish all of the program's objectives. Three tributary weirs will be operated to control the proportion of hatchery spring Chinook salmon spawning naturally. Up to 42 natural-origin male spring Chinook salmon would be used for broodstock. Facilities and water sources used to collect and hold hatchery and natural-origin broodstock, incubate eggs, and rear and release juvenile fish are described in sections 4 and 5 of the HGMP. Space and rearing conditions are limited at the Sandy Hatchery, thus requiring the use of space available at other facilities outside the Sandy River Basin. The use of weirs for adult management, the collection of natural-origin adults for broodstock, and the use of in-basin and out-of-basin facilities will maximize the survival of the progeny such that fishery mitigation goals can be achieved while avoiding hatchery-influenced selection.

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.

The HGMP describes appropriate and sufficient methods to monitor and evaluate the program and its effects on ESA-listed species within the Sandy River Basin. Spring Chinook salmon spawning ground surveys in the Sandy River Basin would consist of carcass recovery and redd counts. These activities have been funded with Sport Fish Restoration funds in the past and are currently funded with Mitchell Act funds. These surveys are designed to be a complete census of the primary spawning areas in the upper Sandy River Basin (Whitman et al. 2014). Conducting surveys in the mainstem Sandy River would be problematic because of limited visibility from glacial meltwater. Because of this, the Sandy River mainstem has been surveyed with less intensity and consistency through the years and is dependent on water clarity.

Surveys in the Little Sandy River were initiated in 2008. Data collected from carcasses would include pre-spawning mortality (based on females), hatchery and natural-origin composition (based on presence or absence of fin clips, internal tags or thermal marks in otoliths), and age composition and freshwater life history in natural-origin fish (based on analysis of scales). Redd counts would be used to estimate spawner escapement and run size, as well as spawning distribution. Because of the placement of the weirs in the Salmon and Zigzag Rivers, surveys would record live fish, carcasses, pre-spawning mortality, hatchery and natural-origin composition, and redds upstream and downstream of the weirs. As required in the ITS, ODFW will also conduct surveys in the lower Sandy River to monitor the emigration of hatchery salmon and steelhead juveniles, to determine if adverse ecological interactions are occurring.

ODFW proposes to monitor the recolonization of coho salmon and winter steelhead in Cedar Creek above the Sandy Hatchery. Monitoring in Cedar Creek would be coordinated with the U.S. Forest Service and Portland Water Bureau efforts to monitor coho salmon and steelhead smolt production throughout the Sandy River Basin. The study is intended to detect increases or declines in abundance and productivity of smolts at the basin scale and to provide useful data at

the scale of individual tributaries to guide restoration efforts. This juvenile monitoring along with all the monitoring and evaluation activities described above will provide adequate and timely information on the effects of the hatchery programs on ESA-listed species to assure proper evaluation of all successes and risks as described.

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.

As explained in sections 1.9, 1.10, and 11 of the HGMP, mechanisms are included for evaluating monitoring data, and using results to adjust the program as needed to improve program performance or reduce any adverse effects on listed fish. If the proportion of hatchery spring Chinook salmon spawning naturally continues to exceed the 10 percent goal (based on a three-year moving average), identified in the HGMP, Oregon's Recovery Plan (ODFW 2010), and NMFS' Recovery Plan (NMFS 2013), additional adaptive management actions identified in the HGMP would be considered.

5(i)(J) NMFS provides written concurrence of the HGMP which specifies the implementation and reporting requirements.

If the Regional Administrator or his deputy determine that the HGMPs should be approved, NMFS will prepare a letter to ODFW concurring with the implementation of the HGMP, and providing implementation terms described in the NMFS determination memorandum for the HGMP, consistent with item 5(ii), below.

5(i)(K) The HGMP is consistent with plans and conditions set within any Federal court proceeding with continuing jurisdiction over tribal harvest allocations.

There are presently no Federal Court proceedings with continued jurisdiction over tribal harvest allocations within the Sandy River Basin or affected by the HGMP (see section 3.2 of the HGMP).

(5)(ii) The state monitors the amount of take of listed salmonids occurring in its hatchery program and provides to NMFS on a regular basis a report summarizing this information, and the implementation and effectiveness of the HGMP as defined in the NMFS letter of concurrence.

Projected annual take levels for listed fish by life stage (juvenile and adult) quantified (to the extent feasible) by the type of take resulting from the hatchery program (e.g. capture, handling, tagging, injury, or lethal take) are reported in section 2.2.3 of the HGMP. As indicated in section 11 of the HGMP, the actual take of listed spring Chinook salmon during broodstock collection activities and monitoring and evaluation will be detailed in an annual report. The need to regularly provide this information, and information regarding the implementation and effectiveness of the HGMP, was identified in the ESA section 7 biological opinion (NMFS 2014) and are listed here; these implementation and reporting requirements will be included in any NMFS determination memorandum for the program:

- Results of spawning surveys to determine timing, abundance, and distribution of Sandy Hatchery spring Chinook and coho salmon and Sandy Hatchery winter and summer steelhead that spawn naturally;
- Results of spawning surveys to determine timing, abundance, and distribution of natural-origin salmon and steelhead in the Sandy River Basin;
- Number of fish encountered at each weir including species, origin (hatchery or natural-origin), life-stage, timing of encounter, condition, and any mortalities;
- Estimates of weir rejection and handling mortalities, by species, for each weir in the Sandy River Basin;
- Numbers of fish released, release dates and locations, and tag/mark information;
- Results of juvenile outmigration monitoring;
- The ODFW will provide an estimate of take and other program performance information to NMFS by January 1st of each year.

(5)(iii) The state confers with NMFS on a regular basis regarding intended collection of listed broodstock to ensure congruity with the approved HGMP.

As required in the ITS, ODFW will notify NMFS, in advance, if the release goal is increased from the current level of 132,000 smolts requiring the collection of 22 male natural-origin adults even though the approved HGMP describes the collection of up to 42 male natural-origin adults.

(5)(iv) Prior to final approval of an HGMP, NMFS will publish notification in the Federal Register announcing its availability.

As specified in the ESA 4(d) Rule (70 FR 37160, June 28, 2005), NMFS publishes notice of the receipt of HGMPs in the *Federal Register* prior to any final approval for a period of 30 days announcing their availability for public review and comment. HGMPs were available for public access through the NMFS West Coast Region website (www.westcoast.fisheries.noaa.gov) or upon written request to the NMFS Sustainable Fisheries Division, 2101 NE Lloyd Blvd, Suite 1100, Portland, Oregon 97232-2737. The public comment period was held from December 10, 2013, to January 9, 2014 (78 FR 74116, December 10, 2013). During the public comment period, NMFS received comments from 1 commenter on the draft HGMPs; the comments received did not state that the HGMPs were not in accordance with criteria under Limit 5 of the 4(d) Rule but did provide their opinions on the environmental effects of the hatchery programs on ESA-listed species and designated critical habitat. NMFS considered these comments in the development of the Biological Opinion (NMFS 2014) and in responses to comments received on the Draft Environmental Assessment (NMFS 2016). No modifications to the HGMP were required as a result of the comments received.

(5)(v) NMFS approval of a plan shall be a written approval by NMFS Northwest [now West Coast] Regional Administrator.

If the determination is made that the HGMP meets all of the criteria specified under Limit 5 of the ESA 4(d) Rule, NMFS will document that determination in a decision memorandum. NMFS will then issue a letter to ODFW signed by the NMFS West Coast Regional Administrator or his deputy to indicate that take prohibitions under section 9 and applicable ESA 4(d) Rule will not apply to hatchery activities conducted in accordance with the HGMP, and with any implementation terms described above.

(5)(vi) On a regular basis, NMFS will evaluate the effectiveness of the HGMP in protecting and achieving a level of salmonid productivity commensurate with the conservation of the listed salmonids.

It is NMFS' intent to regularly monitor and evaluate the effectiveness of the HGMP in meeting agreed to performance standards, including the program's effect on listed salmon productivity and survival. The HGMP is designed to supplement the fisheries while supporting the recovery of the listed salmon and steelhead populations in the Sandy River. Adult return abundance, broodstock removal impacts, propagated juvenile fish health and survival, annual fish release levels, and monitoring and evaluation results will be evaluated by NMFS to determine whether listed fish conservation needs are being met. NMFS will identify means by which the HGMP should be adjusted in the event that the program falls short of listed fish protection and conservation requirements. The need for annual HGMP review will be included as an implementation term in any decision memorandum issued for the HGMP by NMFS.

Processing of Public Comments Received

As required in (5)(iv) of section 223.203 of the ESA 4(d) Rule, before an HGMP can be approved or amended, the public must have had an opportunity to review and comment on the HGMP. The public comment period was held from December 10, 2013 to January 9, 2014 (78 FR 74116, December 10, 2013). During the public comment period, NMFS received comments from 1 commenter on the draft HGMPs. NMFS considered the opinions expressed by the Commenter in the development of the Biological Opinion (NMFS 2014) and in responses to comments received on the Draft Environmental Assessment (NMFS 2016). No modifications to the HGMPs were required as a result of the comments received.

RECOMMENDED DETERMINATION

As evaluated above and in our Biological Opinion (NMFS 2014), it is the determination of the Sustainable Fisheries Division (SFD) that the HGMP for the Sandy River Spring Chinook Salmon Program provided by ODFW meets the criteria established for an HGMP under Limit 5 of the 4(d) Rule. The SFD recommends that the West Coast Regional Administrator concur with the HGMP, and that the artificial propagation, monitoring and evaluation, and research actions be implemented in accordance with the approved HGMP and NMFS' letter of concurrence.

Literature Cited

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