4(d) Rule Limit 6

Proposed Evaluation and Pending Determination

Title of RMP:	Re-initiation of Three Hatchery and Genetic Management Plans for Dungeness River basin Salmon
RMP Submitted by:	Washington Department of Fish and Wildlife Jamestown S'Klallam Tribe
ESU/DPS:	Puget Sound Chinook Salmon ESU Puget Sound Steelhead DPS
4(d) Rule Limit:	Limit 6
NMFS Tracking Number:	WCR-2022-00977
Date:	July 26, 2022

TABLE OF CONTENTS

TABLE OF TABLES

TABLE OF FIGURES

1 EVALUATION

NOAA's National Marine Fisheries Service (NMFS) issued a final Endangered Species Act (ESA) 4(d) Rule adopting regulations necessary and advisable to conserve Puget Sound Chinook salmon (50 CFR 223.203(b); 70 FR 37160, June 28, 2005). These regulations were subsequently applied to the Puget Sound Steelhead Distinct Population Segment (DPS) in a separate final rule (73 FR 55451, June 25, 2008). Under limit 6 of the Rule, ESA section 9 take prohibitions for these listed salmonid species do not apply to hatchery activities that are undertaken in compliance with a resource management plan (RMP) developed jointly by the Tribes and the State of Washington that is consistent with the 4(d) Rule criteria.

Section 9 of the ESA prohibits the take of endangered species, and pursuant to §4 NMFS has extended that prohibition to threatened salmon and steelhead. Under the joint state-tribal 4(d) rule (50 CFR 223.203(b)(6)), those prohibitions are rescinded for hatchery activities described in an RMP, provided that:

- The Secretary of Commerce has determined pursuant to 50 CFR 223.204(b) [the Tribal 4(d) rule] and the government-to-government processes therein that implementing and enforcing the RMP will not appreciably reduce the likelihood of survival and recovery of listed salmon and trout;
- The joint plans applying for 4(d) limit 6 review will be implemented and enforced within the parameters set forth in *U.S. v. Oregon* or *U.S. v. Washington*; and
- The Secretary of Commerce has taken comment on how any HGMP addresses the 4(d) rule limit 5 criteria (§223.203(b)(5)).

The Jamestown S'Klallam Tribe and Washington Department of Fish and Wildlife (WDFW), as co-managers of the fisheries resource under U.S. v. Washington (1974), have provided NMFS with hatchery and genetic management plans (HGMP) proposed for implementation of three salmon hatchery programs in the Dungeness River watershed and adjacent marine areas (Table 1; Figure 1). The applicants have provided the HGMPs and supplementary information for review and determination by NMFS pursuant to limit 6 of the ESA 4(d) Rule. Each HGMP serves as an RMP for the purpose of limit 6 consideration; for this evaluation, descriptions of the proposed activities will focus on the descriptions given in the individual HGMPs.

The proposed plans are similar through: shared salmon population recovery and harvest augmentation objectives and effects; broodstock collection locations and actions; fish rearing and release sites; monitoring and evaluation actions; and funding sources (WDFW 2013b; 2013a; 2013c; 2019; 2022). HGMPs for all three hatchery programs were assembled consistent with the Puget Sound Salmon Management Plan (1985), the Federal court orders under U.S. v. Washington (1974) that control fisheries harvest management and hatchery salmon production.

The Chinook salmon program has been designed to support increased abundance and productivity of the natural-origin Dungeness River population. A captive broodstock component will be operated for an eight year period in increase production in support of this goal.

Table 1. Proposed salmon hatchery programs for the Dungeness River basin; ESA = Endangered Species Act; WDFW = Washington Department of Fish and Wildlife.

Hatchery Program	ESA-listed?	Operator	Program Purpose
Dungeness River Hatchery Spring Chinook salmon	Yes	WDFW	Conservation
Dungeness River Hatchery coho salmon	No	WDFW	Harvest
Dungeness River Hatchery pink (fall-run) salmon	No	WDFW	Conservation

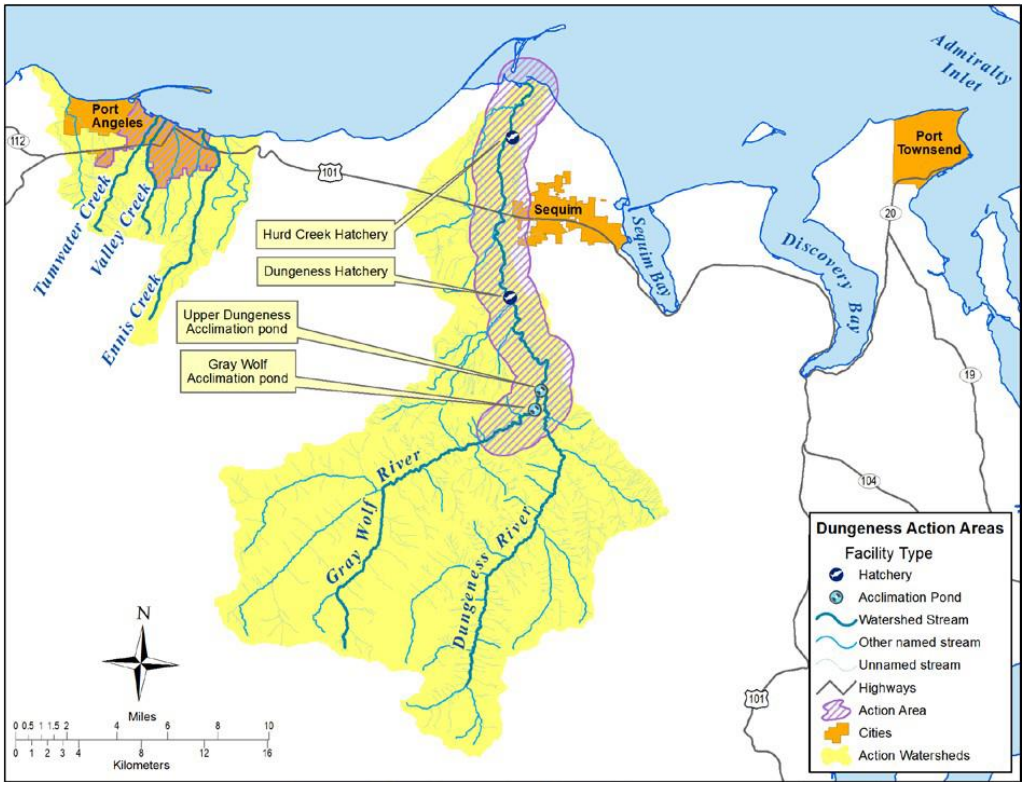

Figure 1. The Dungeness River watershed, adjacent marine areas, and the facilities associated with the Dungeness salmon hatcheries.

1.1 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.

Each of the HGMPs has clearly stated its goal, performance objectives, and methods for measuring the progress toward achieving those objectives. The general program goals described in Section 1.7 of each HGMP for propagating hatchery fish are to contribute to:

- Mitigating for lost natural-origin fish production
- Recovering ESA-listed Puget Sound Chinook salmon
- Fulfilling federal tribal trust responsibility and treaty rights guaranteed through treaties and affirmed in U.S. v. Washington (1974)
- Providing for ceremonial and subsistence fishery values
- Meeting Pacific Salmon Treaty obligations

Performance objectives and performance indicators that would be used to gauge compliance with each objective, are described in Section 1.10 of each HGMP. Evaluation and monitoring to ensure standards and indicators are met are further described in Section 1.8 of this document and are summarized in Table 2.

Monitoring of HGMP implementation would generally be designed to determine:

1. Program consistency with proposed hatchery actions and intended results (e.g., juvenile fish release and adult return levels);
2. Measurement of the program's success or failure in attaining results; and
3. Effects of the program on listed natural-origin fish populations in Puget Sound freshwater and marine waters where these fish may migrate or return.

Table 2. Summary of HGMP program performance standards and indicators.

Standard	Indicator
Produce fish for harvest while optimizing hatchery returns	• Estimate and assess release, adult harvest and escapement goals vs performance • Marking to allow identification of program fish
Supplement natural population (integrated programs only)	• Increasing proportion of natural-origin fish • Increasing natural smolt levels
Proper broodstock collection and management	• Collected randomly throughout the run • Weir/trap checked regularly • Proportion of natural-origin fish • Designated mating scheme, sex ratio • Adheres to spawning guidelines • Escapement rates
Meet hatchery juvenile production goal	• Egg to fry or smolt survival is as expected • Release target
Minimize interactions of releases with natural-origin fish	• Juveniles released at sea-water ready life stages • Size and time of release is appropriate for a well-integrated program • Monitoring of fish after release
Life history characteristics of the natural population do not change due to artificial propagation	• Stable life history patterns of natural fish • Age and size data for natural population
Natural population genetic variation does not change due to artificial propagation	• Proportion of naturally spawning hatchery fish • Genetic assessment
Limit pathogen amplification and transmission	• Follows co-manager fish health policy (WWTIT and WDFW 2006)

1.2 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."

HGMPs proposed for consideration under the 4(d) rule 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 assess and limit the take of listed salmonids for the protection of the species. Section 2.2.2 of each HGMP describes the status of the listed Chinook salmon and steelhead populations relative to "critical" and "viable" population thresholds within the Dungeness watershed and references NMFS reviews' of species status.

The current abundance of Dungeness Chinook salmon is substantially reduced from historical levels (SSPS 2005). Between 1999 and 2018, the estimated average total annual naturally spawning Chinook salmon escapement was 411 compared with the recovery goal at high productivity of 1,200 natural spawners (Ford 2022). Hatchery-origin Chinook salmon associated with the Dungeness conservation hatchery program make up a sizeable fraction of the annual naturally spawning adult abundance, averaging 72% for the basin. Total naturally spawning fish escapements have fluctuated with changes in the conservation hatchery program with the highest escapements reflecting years when adult progeny from the hatchery program returned to spawn. Total annual naturally spawning Chinook salmon escapement for the most recent 5 years has averaged 779 ranging from 523 to 930 and with 73.5 percent and 26.5 percent on average being hatchery-origin and natural-origin, respectively (WDFW 2020). The most recent NMFS status review for the ESU found that productivity trends for the Dungeness Chinook salmon population, as measured by recruit per spawner and spawner to spawner rates, are low and decreasing with natural spawner-to-spawner productivity falling below replacement levels in all years since the mid-1980s (Ford 2022). Estimates for juvenile Chinook salmon outmigrant production for brood year 2004-2019 ranged from a high of 164,814 out-migrating fish in 2013 to a low of 3,870 outmigrants in 2015. Estimated egg to migrant survival has ranged from 0.99 percent to 15.32 percent and averaged 4.96 percent for return years 2004 through 2019 (WDFW 2020).

An estimate of the intrinsic potential based on spawner capacity indicates that the Dungeness River watershed could support the production of 2,465 natural-origin steelhead, or 24,650 smolts (Myers et al. 2015). Smolt production from 2005 through 2020 has ranged from 4,354 (2016) to 19,600 (2011), averaging 10,394 (WDFW 2020). The most recent year's (2020) smolt production of 12,281 is approximately 50 percent of the intrinsic potential estimated by Myers et al. (2015). The critical threshold for winter-run steelhead natural spawners identified by the co-managers' is 125 fish and the viable threshold, reflecting a level of population abundance associated with a very high probability of persistence, or conversely, a very low risk of extinction, for a period of 100 years, is between 500 and 750 natural-origin spawners (PSIT and WDFW 2010). Recent abundance of adult steelhead spawning in the Dungeness River over the most recent five year period (2015-2019) averaged 408 adult steelhead annually. In contrast, the recovery target is

1,200 spawners at high productivity and 4,100 spawners at low productivity.

1.3 5(i)(C) Taking into account health, abundances, and trends in the donor population, broodstock collection programs reflect appropriate priorities.

Under the 4(d) rule criterion, as described in the 4(d) rule, listed salmonids may be intentionally taken for broodstock only if:

1. The donor population is currently at or above the viable threshold and the collection will not impair its function, or
2. The donor population is not currently viable but the sole objective is to enhance the propagation or survival of the listed ESU, or
3. The donor population is shown with a high degree of confidence to be above the critical threshold although not yet functioning at viable levels, and the collection will not appreciably slow attainment of viable status for that population.

ESA listed Chinook salmon are collected for broodstock as part of the Dungeness Hatchery Chinook salmon program. The Dungeness Chinook Salmon program consists of an integrated component releasing 200,000 sub-yearlings annually. Additionally, for a period of eight years, 400,000 subyearling Chinook salmon from a captive broodstock component of the program will be released beginning in 2022. This is consistent with number 3 above for the prioritized use of listed fish for broodstock. The co-managers propose to limit natural-origin fish used for integrated broodstock to 130 adults collected both from the Dungeness River and from volunteers to the Dungeness Hatchery trap.

Broodstock used for non-listed programs are discussed in the following section (1.4).

1.4 5(i)(D) The HGMP includes protocols to address fish health, broodstock collection and spawning, rearing and release of juveniles, disposition of hatchery adults, and catastrophic risk management.

The proposed HGMPs include protocols for fish health, broodstock collection, broodstock spawning, rearing and release of juveniles, disposition of hatchery adults, and catastrophic risk management.

Fish Health (HGMP Sections 7, 9, and 10)

All of the hatchery programs would be operated in compliance with the co-manager and USFWS fish health policies (USFWS 2004; WWTIT and WDFW 2006). The policies are designed to limit the spread of fish pathogens between and within watersheds by regulating the transfers of eggs and fish. The policies also outline standard fish health diagnosis, maintenance, and hatchery sanitation protocols to reduce the risk of pathogen amplification and transmission within the hatchery and to fish in the natural environment during broodstock collection and mating as well as

fish incubation, rearing, and release. Fish health specialists and pathologists from WDFW or NWIFC would provide fish health management support and diagnostic fish health services.

Broodstock Collection and Spawning (HGMP Sections 6, 7, and 8)

Both natural and hatchery-origin fish are used for 8 of the 10 programs, consistent with the purpose of the integrated programs.

The protocols for broodstock implement spawning actions consistent with published guidelines (HSRG 2004). Matrix spawning (e.g., eggs from a single female are fertilized by multiple males and a single male fertilizes multiple females) conserves genetic diversity by limiting the risk of use of a sterile adult during spawning (Busack and Knudsen 2007). Broodstock collection and spawning details are summarized in Table 3.

Table 3. Annual number of broodstock collected, collection method, and spawning approach.

Program	Origin	Collection Location	Collection Duration	Collection Method	Number of Broodstock Needed	Mating Protocol	Natural-origin Brood (NOB)
Dungeness River Hatchery Spring Chinook salmon	Dungeness River	Volunteers to Dungeness Hatchery; Mainstem Weir; In-River netting	May-September	Volunteer to traps, Seining River	130	Matrix Spawning	Proportional with natural origin adults in escapement
Dungeness River Hatchery coho salmon	Dungeness River	Dungeness Hatchery	September-January	Volunteer to trap	500	Matrix Spawning	Segregated program, NOB not used
Dungeness River Hatchery pink (fall-run) salmon	Dungeness River	Dungeness River	October	Netting, seining, gaffing, and snagging	220	Matrix Spawning	100% NOB

Rearing and Release of Juveniles (HGMP Sections 9 and 10)

Fish from the programs would be released as seawater-ready smolts or fry to ensure rapid emigration downstream through watershed areas where interactions with rearing listed fish may occur. Release numbers, life stage, location, percentage marked, and dates for all hatchery programs are detailed in Table 4Disposition of Hatchery Adults (HGMP Sections 7.5 and 7.8)

Adult Chinook salmon collected in excess of annual broodstock needs are released upstream in the Dungeness River to spawn naturally. Spawned carcasses may also be sold to a contracted fish buyer or placed in the watershed for marine-derived nutrient enhancement purposes.

Catastrophic Risk Management (HGMP Section 5.8)

All facilities adhere to the applicants' fish health policies (WWTIT and WDFW 2006). Facilities have a hatchery employee on standby at the hatchery at all times to monitor hatchery operations and respond to any unexpected events. The facilities are equipped with low water alarms and a back-up generator in case of power loss.

Table 4. Survival rates from the green-egg life stage to release for the programs rearing listed Chinook salmon for which data are available are reflective of well-operated hatchery programs.

Disposition of Hatchery Adults (HGMP Sections 7.5 and 7.8)

Adult Chinook salmon collected in excess of annual broodstock needs are released upstream in the Dungeness River to spawn naturally. Spawned carcasses may also be sold to a contracted fish buyer or placed in the watershed for marine-derived nutrient enhancement purposes.

Catastrophic Risk Management (HGMP Section 5.8)

All facilities adhere to the applicants' fish health policies (WWTIT and WDFW 2006). Facilities have a hatchery employee on standby at the hatchery at all times to monitor hatchery operations and respond to any unexpected events. The facilities are equipped with low water alarms and a back-up generator in case of power loss.

Table 4. Proposed incubation, rearing, and release protocols for salmon hatchery programs operated at Dungeness River and Hurd Creek Hatcheries. All releases are 100% marked through a combination of otolith marks, adipose clips, and coded wire tags.

Program	Incubation Location	Rearing Location	Release Location	Release Duration	Release Number	Size and Life Stage at Release	Acclimation; Release Strategy
Dungeness River Hatchery Spring Chinook salmon	Hurd Creek Hatchery	Dungeness and Hurd Creek Hatcheries	Dungeness River, Grey Wolf and Upper Dungeness Acclimation Ponds	May-June	600,000 reduced to 200,000 in 2030	Subyearling; 50 fpp	Forced at Upper Dungeness 1 week volitional then forced at Gray Wolf Volitional at Dungeness and Hurd Creek Hatcheries; trucked and direct planted
Dungeness River Hatchery coho salmon	Dungeness and Hurd Creek Hatcheries	Dungeness and Hurd Creek Hatcheries	Dungeness River Hatchery	April-May	800,000	Yearling; 17 fpp	Yes; Volitional (~1 week) then forced
Dungeness River Hatchery pink (fall-run) salmon	Dungeness and Hurd Creek Hatcheries	Dungeness and Hurd Creek Hatcheries	Hurd Creek Hatchery	April-May	100,000	Fry; 450 fpp	Yes; Forced

1.5 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 Dungeness River basin HGMPs provide evaluations of potential genetic and ecological effects on listed salmon and steelhead in Section 2 and risk minimization measures in Sections 6-10.

Genetic effects

Artificial fish production may result in a loss of within-population genetic diversity (the reduction in quantity, variety, and combinations of alleles in a population), outbreeding depression (loss in fitness caused by changes in allele frequency or the introduction of new alleles) and/or hatchery-influenced selection (Busack and Currens 1995). There are no genetic effects to coho or pink

salmon from ESA-listed Chinook salmon in the Dungeness River basin because these species do not interbreed. There are no genetic effects to steelhead as none of the programs considered here propagate steelhead. Therefore, our discussion of genetic effects focuses on the propagation of Chinook salmon.

Because the Dungeness River Hatchery Chinook salmon program is operated as an integrated program, some interbreeding between hatchery- and natural-origin fish is an objective. The Chinook salmon hatchery program HGMP accounts for and minimizes genetic risks through implementation of the following measures:

- Broodstock are randomly collected throughout the adult return to ensure full representation of run timing, age class, and sex ratio
- Factorial mating ensures that all spawners contribute to the production of progeny to retain genetic diversity
- Natural-origin fish are incorporated into the broodstock to limit divergence from the native Dungeness Chinook salmon population
- Chinook salmon broodstock collection is limited to 130 adults to allow adults to escape to natural spawning areas
- All fish are marked to differentiate them from other Chinook salmon stocks, assess out-of-basin escapement, and estimate proportions of hatchery- and natural-origin spawners
- Juveniles are acclimated at their site of release to decrease straying potential. Acclimation of hatchery juveniles before release increases the probability that hatchery adults will home back to the release location, reducing their potential to stray into natural spawning areas (Dittman and Quinn 2008)

Ecological effects

The primary ecological risks to natural-origin salmon and steelhead populations posed by salmon and steelhead hatchery programs are identified in the HGMPs as competition for food resources and space, and predation (NMFS 2012). Pathogen transfer and amplification are also risk factors. As noted in the HGMPs and earlier in this document, all hatchery actions would be implemented in accordance with the co-manager's Disease Control Policy (WWTIT and WDFW 2006) to account for and minimize the risks of pathogen transmission and amplification.

All of the HGMPs have incorporated some of the following measures to minimize competition and predation risks associated with program implementation:

- Fish are released as seawater-ready smolts or fry to foster rapid emigration seaward, maximizing clearance from freshwater and estuarine areas where natural fish would be most concentrated and most vulnerable to ecological interactions.
- The Chinook, coho, and pink salmon produced as part of the Dungeness River hatchery programs are released up to 15 miles above the mouth of the Dungeness River and

trapping data indicates juveniles migrate seaward rapidly minimizing the potential for ecological effects in freshwater

- Releases of juvenile fish occur during freshets if possible when there is elevated turbidity to speed outmigration
- Pink salmon fry are too small at the time of their release to prey on or compete for preferred prey of any co-occurring natural-origin juvenile Chinook salmon or steelhead
- The majority of hatchery releases occur from April to early June and hatchery fish leave the watershed prior to the emergence of steelhead fry

1.6 5(i)(F) The HGMP describes interrelationships and interdependencies with fisheries management.

The HGMPs describe the relationship of the proposed actions with fisheries management in Section 3.

The HGMPs indicate that all co-managed hatchery programs in the Puget Sound region would operate consistent with the U.S. v. Washington (1974) fisheries management framework. This legal framework sets forth required measures for coordinating implementation of State and Tribal hatchery programs, defining artificial production objectives, and maintaining treaty-fishing rights through the court-ordered Puget Sound Salmon Management Plan (1985). This fisheries resource co-management process requires that both the State of Washington and the Puget Sound Tribes develop salmon and steelhead hatchery program goals and objectives, and reach agreement on the function, purpose, and fish production strategies for all Puget Sound hatchery programs.

The goals of the HGMPs include providing hatchery-origin coho salmon for harvest to support fisheries. The goal of the Chinook and pink salmon programs are to restore the Dungeness River populations for conservation purposes and to a harvestable surplus in the future as the population recovers. State recreational and tribal fisheries for hatchery-origin species may incidentally affect natural-origin Chinook salmon. However, these fisheries are not considered interrelated with or interdependent on these programs because these programs are not the sole producers of fish for the fisheries. The effects of fisheries on Puget Sound Chinook salmon are considered in a separate Biological Opinion.

1.7 5(i)(G) Adequate artificial propagation facilities exist to properly rear progeny of naturally spawned broodstock, that maintain population health, diversity, and to minimize hatchery-influenced selection and domestication.

The program that propagates ESA-listed Chinook salmon takes measures to reduce the potential for catastrophic loss of rearing populations in the event of water or power failure at the facility. Dungeness and Hurd Creek Hatcheries are staffed full-time and equipped with low-water alarms that help prevent catastrophic fish loss resulting from any type of water system failure. Dungeness Hatchery uses gravity-fed water from two different sources which can be used in the

event of another's failure. Hurd Creek Hatchery is equipped with an emergency backup generator with an auto start to pump water in the event of loss of normal power. The generator is capable of providing electricity to all hatchery components indefinitely, with fuel supplied as needed. Further, a surface water backup supply from Hurd Creek can be supplied to the 20-foot rearing ponds in the unlikely event of total loss of all power sources. Gray Wolf Acclimation Pond is a satellite facility with an employee present at feeding times. The pond is supplied with gravity-fed water, so there is no need for a backup generator. Upper Dungeness Acclimation Site is a satellite facility with an employee present 24 hours a day. Water is supplied with an electric pump powered by a generator with a gasoline powered pump is available as a backup. As described in Sections 4 and 5 of the HGMPs, the hatchery facilities used to implement the programs have adequate surface and groundwater sources, egg incubation and fish rearing vessels, and fish release facilities to ensure proper rearing of listed Chinook salmon while under propagation.

Facilities that rear over 20,000 pounds of fish operate under applicable National Pollutant Discharge Elimination System (NPDES) general permits, which provide for monitoring of temperature, chlorine, settleable, and suspended solids in facility effluent. As mentioned previously, fish health is maintained throughout rearing by adhering to fish health policies and using pathogen-free water sources when possible (WWTIT and WDFW 2006). Minimization of catastrophic loss and genetic risks associated with these programs were addressed in Sections 1.4 and 1.5, respectively, of this document.

1.8 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 HGMPs include implementation of adequate monitoring and evaluation actions to evaluate the performance of each program in meeting program objectives. These actions are summarized in Section 1.10, and are further described in Section 11 of each HGMP. Some of these activities may be covered using other ESA pathways (e.g., Section 10 research permits), but the information obtained may be relevant to our evaluation of the hatchery program. Monitoring and evaluation actions implemented include:

- Spawning ground/redd surveys to determine the proportion of naturally spawning hatchery-origin fish
- Trapping of outmigrating juveniles to determine post-release emigration timing, emigration rate, and hatchery fish predation levels on natural fish
- Estimating of smolt-to-adult survival rates, harvest of hatchery fish, and escapement of Dungeness hatchery salmon to other Puget Sound watersheds using mark recovery programs
- Collection of abundance, timing, age class, sex ratio, and fish health condition data for broodstock to assess run traits of the target populations
- Monitoring of water withdrawal and effluent to ensure compliance with permitted levels

- Monitoring of broodstock collection, egg take, releases, hatchery and natural fish escapements, and fish survival rates to assess program performance
- Fish health monitoring and reporting in compliance with fish health policies.

1.9 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.

Under the HGMPs in Section 1.10, data collected relating to hatchery program performance and effects would be evaluated by the applicants to determine whether performance standards are being met. Annual reports for the programs assembled by the applicants would be jointly reviewed by NMFS to document program results, and to determine if adjustments to the programs' assumptions and management strategies are warranted. Any changes would be incorporated into Future Brood Documents, Annual Operating Plan documents, and/or the HGMPs as necessary. These programs are enforced through the U.S. v. Washington (1974) Management Agreement process, upon review of annual reports and operating plans. The tribes and WDFW employ enforcement officers throughout the area, who are responsible for on the ground enforcement to prevent ESA violations.

1.10 5(i)(J) NMFS provides written concurrence [with] the HGMP, which specifies the implementation and reporting requirements.

NMFS will make a determination regarding the adequacy of the updated Dungeness River basin Chinook salmon HGMP. If the determination is made that implementing and enforcing the plans will not appreciably reduce the likelihood of survival and recovery of the ESA-listed species, and that the plans address all the criteria specified in limit 6 of the 4(d) rule, NMFS will so notify the applicants in writing, and will specify any necessary implementation and reporting requirements.

1.11 5(i)(K) The HGMP is consistent with plans and conditions set within any Federal court proceeding with continuing jurisdiction over tribal harvest allocations.

The Dungeness River basin salmon HGMPs were developed by the applicants pursuant to the U.S. v. Washington (1974) fisheries and hatchery management framework. The HGMPs are one component of an effort to preserve and recover to a fishable status listed Chinook salmon, steelhead, and other non-listed salmon and steelhead populations in the Dungeness River watershed. The ESU recovery plan for Chinook salmon (NMFS 2006; SSPS 2007) has hatchery, harvest, and habitat components, and includes monitoring, research, and restoration recommendations to complement artificial production. The hatchery actions described in the HGMPs are included within, and consistent with, this recovery plan. There are no other plans or conditions set within Federal court proceedings, including memorandums of understanding, court orders, or other management plans, that direct operation of the proposed salmon hatchery programs.

2 PENDING DETERMINATION

As required by limit 6 of the 4(d) rule, the Secretary is seeking comment from the public on the pending determination as to whether or not the plans evaluated here would appreciably reduce the likelihood of survival and recovery of the listed salmon and steelhead. In addition, comment is sought on whether the plans meet the requirements of limit 6 of the 4(d) rule.

NMFS has reviewed the plans and evaluated them together against the requirements of the 4(d) rule. Based on this review and evaluation, NMFS' pending determination, subject to information provided during public comment, is that activities implemented as described would not appreciably reduce the likelihood of survival and recovery of ESA-listed species. This pending determination does not prejudge the outcome of any additional environmental reviews that may be scheduled to be completed prior to a final determination. As required in (6)(iv) of section 223.203 of the 4(d) rule for salmon and steelhead, the Secretary will publish notice of his determination together with a discussion of the biological analysis underlying that determination.

3 REEVALUATION CRITERIA

NMFS will reevaluate this determination if: (1) the actions described by the plans are modified in a way that causes an effect on the listed species that was not previously considered in NMFS' evaluation; (2) new information or monitoring reveals effects that may affect listed species in a way not previously considered; or (3) a new species is listed or critical habitat is designated that may affect NMFS' evaluation of the plans.

4 REFERENCES

Busack, C., and K. P. Currens. 1995. Genetic risks and hazards in hatchery operations: Fundamental concepts and issues. AFS Symposium 15:71-80.

Busack, C., and C. M. Knudsen. 2007. Using factorial mating designs to increase the effective number of breeders in fish hatcheries. Aquaculture 273:24-32.

Dittman, A. H., and T. P. Quinn. 2008. Assessment of the Effects of the Yakima Basin Storage Study on Columbia River Fish Proximate to the Proposed Intake Locations. A component of Yakima River Basin Water Storage Feasibility Study, Washington. Technical Series No. TS-YSS-13. U.S. Department of the Interior, Denver, Colorado. 179p.

Ford, M. J. e. 2022. Biological viability assessment update for Pacific salmon and steelhead listed

under the Endangered Species Act: Pacific Northwest. NOAA Technical Memorandum NMFS_NWFSC_171. U.S. Departement of Commerce. January 2022. 337 pages. Available at: https://doi.org/10.25923/kq2n-ke70.

HSRG. 2004. Hatchery reform: Principles and Recommendations of the Hatchery Scientific Review Group. April 2004. Available at Long Live the Kings. 329p.

McElhany, P., M. H. Rucklelshaus, M. J. Ford, T. C. Wainwright, and E. P. Bjorkstedt. 2000. Viable Salmonid Populations and the Recovery of Evolutionarily Significant Units. U.S. Dept. of Commerce, NOAA Tech. Memo., NMFS-NWFSC-42. 174p.

Myers, J. M., J. J. Hard, E. J. Connor, R. A. Hayman, R. G. Kope, G. Lucchetti, A. R. Marshall, G. R. Pess, and B. E. Thompson. 2015. Identifying Historical Populations of Steelhead within the Puget Sound Distinct Population Segment. March 2015. U.S. Dept. Commer., NOAA Technical Memorandum NMFS NWFSC-128. 175p.

NMFS. 2006. Final Supplement to the Shared Strategy's Puget Sound Salmon Recovery Plan. November 17, 2006. NMFS, Portland, Oregon. 47p.

NMFS. 2012. Effects of Hatchery Programs on Salmon and Steelhead Populations: Reference Document for NMFS ESA Hatchery Consultations. December 3, 2012. Northwest Region, Salmon Managment Division, Portland, Oregon. 50p.

PSIT, and WDFW. 2010. Puget Sound Steelhead Harvest Management Plan. Available from Washington Department of Fish and Wildlife, Olympia, Washington. January 7, 2010. 224p.

Puget Sound Salmon Management Plan. 1985. *United States of America vs. State of Washington* No. 9213 Phase I (sub no. 85-2). October 17, 1985. Order Adopting Puget Sound Salmon Management Plan. 50p.

SSPS. 2005. Dungeness Watershed Profile, WRIA 18. Volume II of the Shared Strategy for Puget Sound. Shared Strategy Development Committee, Seattle, Washington.

SSPS. 2007. Puget Sound Salmon Recovery Plan. Volumes I, II and III. Plan Adopted by the National Marine Fisheries Service (NMFS) January 19, 2007. Submitted by the Shared Strategy Development Committee. Shared Strategy for Puget Sound. Seattle, Washington. 503p.

USFWS. 2004. U.S. Fish & Wildlife Service handbook of aquatic animal health procedures and protocols, at http://www.fws.gov/policy/AquaticHB.html. Website accessed

Washington, U. S. v. 1974. 384 F. Supp 312 (W.D. Wash.), aff'd, 500F.2nd 676 (9thCr. 1975, cert. denied), 423 U.S. 1086 (1976), Seattle, Washington.

WDFW. 2013a. Draft Dungeness River Coho (*Oncorhynchus kisutch*) Hatchery Program HGMP. January 18, 2013. WDFW, Montesano, Washington. 45p.

WDFW. 2013b. Dungeness River Hatchery Spring Chinook (*Oncorhynchus tshawytscha*) HGMP. January 18, 2013. WDFW, Montesano, Washington. 52p.

WDFW. 2013c. Dungeness River Pink (Fall-Run) Salmon Hatchery Pink Salmon (*Oncorhynchus gorbuscha*) HGMP Program. January 17, 2013. WDFW, Montesano, Washington. 47p.

WDFW. 2019. Addendum to Dungeness River Coho (Oncorhynchus kisutch) Hatchery Program. Dungeness River, Strait of Juan de Fuca/Puget Sound HGMP. Original January 18, 2013 resubmitted August 13, 2019. WDFW, Montesano, Washington. 70p.

WDFW. 2020. Dungeness Hatchery HGMP Spring Chinook, Coho Fall-Run Pink Hatchery Programs. Annual Report Calendar Year 2020. 38 pages.

WDFW. 2022. Hatchery and Genetic Management Plan: Dungeness River Spring Chinook Salmon Program. February 3, 2022. 56 pages.

WWTIT, and WDFW. 2006. The Salmonid Disease Control Policy of the Fisheries Co-Managers of Washington State. Revised July 2006. 38p.