

The Washington Department of Fish and Wildlife (WDFW) developed the Tumwater Falls Chinook Hatchery and Genetic Management Plan (HGMP), placed a draft version on our web page on January 16, 2013, announced its availability, and solicited public comment through February 15, 2013.

The comments were received from: Mr. Andy Appleby and Dr. Peter Paquet representing the Hatchery Scientific Review Group (HSRG) – Washington. Their comments are posted under a separate cover, and our responses are appended below.

WDFW Response to Comments by HSRG – submitted to WDFW February 15, 2013.

Principles and System-Wide Recommendations

The HSRG’s three principles for hatchery management are presented below, with each of 17 system-wide recommendations (applicable to programs across the Columbia River Basin hatchery system) listed under the principle from which it is derived. These principles and system-wide recommendations represent the key findings of the HSRG during its review of Columbia River Basin hatcheries, but are applicable to all hatchery programs. Hatchery programs that adhere to these principles and recommendations are more likely to contribute to the managers’ harvest and conservation goals.

1. Principle: Develop Clear, Specific, Quantifiable Harvest and Conservation Goals for Natural and Hatchery Populations within an “All H” Context.

Recommendation 1: Express conservation goals in terms of a population’s biological significance (Primary, Contributing, Stabilizing) and viability (natural-origin spawning abundance and productivity).

Comment 1. *There is no natural population associated with this program, therefore no conservation goals (except for straying to other basins). It is assumed to be a stabilizing population (adults in excess of brood needs are passed upstream and allowed to spawn naturally (Section 7.5, page 20).*

WDFW Response: We acknowledge that there is no natural population associated with this program, thus there is no local population to stabilize.

The Puget Sound Hatchery Action Advisory Committee (PSHAAC) likewise declined to define the naturally-spawning Chinook salmon in the Deschutes River. Managing the hatchery consistent with the precepts of a “Stabilizing population” designation is warranted, in that WDFW will not manage for pHOS, pNOB or PNI

Recommendation 2: Express harvest goals in terms of a population’s contribution to specific fisheries.

Comment 2. *The HGMP lacks specific quantifiable goals for contribution to specific fisheries. Section 1.7 identifies Goal of program as “Harvest Augmentation” and Section 1.10 “Performance Indicators”, (Table 1.10.1, 3.1.1) further identifies “co-manager harvest” and “Program contributes to fulfilling tribal trust responsibility mandate”. Managers should specify numbers of fish contributed to specific fisheries, or at a minimum total number of fish*

expected to be harvested. However, it is clear that a significant portion of the fish produced by the program (41%) is harvested, as intended, in Puget Sound (Table 3.3.1.1).

WDFW Response: Note that the production from the Tumwater Falls Chinook program is not intended solely for catch in the terminal areas, and provides benefits throughout the suite of ocean and Puget Sound fisheries.

It is inappropriate to state goals specific to harvest in individual fisheries goals in the HGMP. Targets for fisheries are dynamic on an annual basis, and are controlled by interactions among international, ocean, pre-terminal and terminal Puget Sound fisheries, as negotiated during annual Pacific Salmon Commission and Pacific Fisheries Management Council/North-of-Falco planning and agreements, alluded to in HGMP section 3.3.

Table 3.3.1.1 describes the contribution to fisheries and escapements as calculated from recoveries of coded-wire-tags (CWTs) placed on brood years 2002-2004 yearling and sub-yearling Chinook released from the Tumwater Falls facility. A smolt-to-adult return rate of 0.19% for sub-yearlings (Table 3.3.1.1) applied to the release goal of 3,800,000 smolts should return 7,220 adult Chinook to fisheries and escapement.

Puget Sound Chinook Salmon Run Reconstruction data for the “fishery years” (2004-2008, per Table 3.3.1.1) resulting from the 2002-2004 brood releases indicate an average Puget Sound run size of 18,135 to the Deschutes program. Hatchery escapement, including fish passed upstream, averaged 12,590 for the same period. The difference of 5,545 is the number of fish caught in freshwater recreational, non-Treaty commercial, and Treaty fisheries. Because the Run Reconstruction tables do not include marine recreational catch or other “priors,” the outside (Canadian, Alaskan, ocean sport & troll) and Puget Sound marine sport catches can only be extrapolated.

It appears that the 2002-2004 brood-year CWT analysis does not accurately reflect run strength consistent with the co-manager Run Reconstruction. The ratio of spawning escapements to Puget Sound, freshwater sport and net catches is consistent with a considerably larger smolt-to-adult return level than is displayed in Table 3.3.1.1.

Recommendation 3: Ensure goals for individual populations are coordinated and compatible with those for other populations in the Region.

Comment 3. *The HGMP cites U.S. v Washington and the Puget Sound Salmon Management Plan (PSSMP 1985) as providing the legal framework for coordinating hatchery programs in the Region (Section 3.2, page 13). However, these plans are aimed at coordinating harvest and harvest opportunity and do not reflect the conservation issues that may arise from large scale hatchery programs in most of the watersheds within Puget Sound.*

Several salmon recovery planning process are listed (Section 3.4, page 19), but no description is provided as to how they may affect hatchery production at Tumwater Falls Hatchery.

WDFW Response: The PSSMP provides the legal framework for harvest of natural and hatchery-produced salmon populations. Changes in hatchery production must be agreed by the co-managers. Providing harvest opportunities is an important, legally defined role for hatcheries. In *United States v. Washington* the court concluded:

“The hatchery programs have served a mitigating function since their inception in 1895. 506 Supp. at 198. They are designed essentially to replace natural fish lost to non-Indian

degradation of the habitat and commercialization of the fishing industry. Under these circumstances, it is only just to consider such replacement fish as subject to allocation. For the tribes to bear the full burden of the decline caused by the non-Indian neighbors without sharing the replacement achieved through the hatcheries, would be an inequity and inconsistent with the Treaty.” *United States v. Washington*, 759 f.2d 1353m 1360 (9th Cir. en banc), cert. Denied, 474 U.S. 994 (1985).

The court-ordered PSSMP provides the framework for coordinating these programs, treaty fishing rights, artificial production objectives, and artificial production levels.

The co-managers and the National Marine Fisheries Service have adopted a Recovery Plan for Puget Sound Chinook (NMFS 2007, Ruckelshaus et al. 2005) that states abundance and productivity goals for each population, which are the ultimate objectives for all aspects of recovery planning. The Recovery Plan addresses all factors affecting the survival and recovery, including the management of fisheries and hatchery production, and conservation and restoration of freshwater and marine habitat, all of which are necessary to achieve recovery goals (PSIT and WDFW 2010).

The linkage with habitat protection and recovery programs is that the goal of the hatchery program is to maintain Chinook production in the watershed in a manner that does not jeopardize the recovery of the Puget Sound Chinook ESU or other listed species.

2. Principle: Design and Operate Hatchery Programs in a Scientifically Defensible Manner.

Recommendation 4: Identify the purpose of the hatchery program (i.e., conservation, harvest or both).

Comment 4. *The program is identified as a Harvest program (Section 1.7, page 3).*

WDFW Response: Acknowledged.

Recommendation 5: Explicitly state the scientific assumptions under which a program contributes to meeting the stated goals.

Comment 5. *The rationale to support the harvest goal is provided in several places (Section 1.8, 1.12, 3.3).*

WDFW Response: Acknowledged.

Recommendation 6: Select an integrated or segregated broodstock management strategy based on population goals and hatchery program purpose.

Comment 6. *The program is identified as a segregated program (Section 1.6, page 3). However, CWT marking of the fish to evaluate straying from this large program has ceased. The program managers should indicate why this is the case. Did CWT marking indicate that straying was not a serious problem? This issue should be dealt with here in the HGMP.*

WDFW Response: The CWT applications on Tumwater Falls fall Chinook provided data, as displayed in Table 3.3.1.1, for a number of years. It is expected that another series of tagging will occur in the future to update information on this program. That tagging, which occurs on a cyclical basis, has not yet been scheduled.

Straying from the Tumwater Falls facility has not been identified as a significant problem. Table 3.3.1.1, which provides contributions to fisheries and escapements from coded-wire tag recoveries, will be modified in the final HGMP to display estimates of in-basin versus out-of-basin hatchery and natural escapement.

Recommendation 7: Size hatchery programs based on population goals and as part of an “all H” strategy.

Comment 7. *The current production goal of 3.8 million smolts appears to be based on facility capacity, which is consistent with managing a hatchery program where no native population is present.*

WDFW Response: Acknowledged.

Recommendation 8: Manage harvest, hatchery broodstock and natural spawning escapement to meet HSRG standards appropriate to the affected natural population’s designation.

Comment 8. *Current management is consistent with a stabilizing population.*

WDFW Response: Acknowledged.

Recommendation 9: Manage the harvest to achieve full use of hatchery-origin fish.

Comment 9. *Table 3.3.1.1 (page 19) provides recent average harvest in Eastern Pacific fisheries and a total exploitation rate of approximately 83% (sub-yearlings). This estimate seems too high based on hatchery escapement data provided in Section 1.12. Given that the hatchery typically exceeds its broodstock requirements by 7,187 (Table 1.12.2, page 9), it does not appear that hatchery fish are managed to achieve “full” use.*

WDFW Response: We compared the percentages of contributions in Table 3.3.1.1 to data from the Puget Sound Chinook Run Reconstruction Summary (WDFW Harvest Management Program, December 2012). The Run Reconstruction includes a “Puget Sound Run Size” which estimates annual run strength to include hatchery and natural escapement estimates, Puget Sound recreational fisheries catch, non-Treaty commercial catch, and Treaty Indian catches. Marine sport catches and harvests outside Puget Sound (ocean troll, Canadian, Oregon and Alaska catches) are not included in the Run Reconstruction.

The percentages for escapement, freshwater sport, and Puget Sound commercial and Treaty fisheries are consistent with those from the CWT analyses. What differed significantly was the estimate of SAR; Table 3.3.1.1 shows a smolt-to-adult return rate of 0.19%, which would return only approximately 7,220 Chinook to harvest and escapement from a release of 3.8 million sub-yearlings. The average return to hatchery escapement alone was 12,050 for the 2004-2008 period. Total adult return to fisheries and escapement using the percentages derived in Table 3.3.1.1 would suggest a SAR closer to 1.7%.

Recommendation 10: Ensure all hatchery programs have self-sustaining broodstocks.

Comment 10. *The program has achieved broodstock goals for at least the last 12 years (table 7.4.2.1, page 20).*

WDFW Response: Acknowledged.

Recommendation 11: Coordinate hatchery programs within the Regions ecosystem to account for the effects of all hatchery programs on each natural population and each hatchery program on all natural populations.

Comment 11. *Section 3 of the HGMP describes the coordination of hatchery production in the Region to achieve adherence to U.S. v Washington, which provides the legal framework for coordinating these programs. The Comprehensive Management Plan for Puget Sound Chinook (WDFW 2004) provides the legal framework for defining artificial production objectives, yet neither document addresses genetic or ecological impacts of hatchery production on natural populations (Tumwater Falls Fall Chinook straying to other basins). In addition, Section 3.4 (Relationship to habitat protection and recovery strategies) incorrectly, we believe, identifies the Tumwater Falls Hatchery program as being included under the co-managers' **Non-Chinook** (emphasis added) Resource Management Plan (RMP) for Puget Sound region **non-Chinook** (emphasis added) salmon hatchery programs.*

The description of the Hatchery Action Implementation Plans (HAIPs), in this section does indicate considerations given to this topic; however, that document was not linked to the HGMP, nor provided.

WDFW Response: The Comprehensive Management Plan for Puget Sound Chinook (2010) and the Hatcheries Resource Management Plan (WDFW and PSTIT 2002) did not note significant straying from the Tumwater Falls fall Chinook program to other basins. They do note that all hatchery-produced fall Chinook in the south Puget Sound are of Green River lineage. Genetically, these are the same group. The final HGMP will be revised to display out-of-watershed hatchery and natural escapement estimates in Table 3.3.1.1.

HGMP section 3.4 should refer to the RMP for Puget Sound Chinook Hatcheries; this will be reflected in the final HGMP. The HAIP for the South Sound Net Pens/Deschutes River watershed remains under development and has not yet been finalized with the co-managers.

Recommendation 12: Assure that facilities are constructed and operated in compliance with environmental laws and regulations.

Comment 12. *NPDES guidelines with regard to effluents appear to be adhered to (Section 4.2, page 17).*

WDFW Response: Acknowledged.

Recommendation 13: Maximize survival of hatchery fish consistent with conservation goals.

Comment 13. *Fish appear to be released at a time and size aimed at maximizing survival for fall Chinook reared at Puget Sound hatcheries (Section 10.3, page 26).*

WDFW Response: Acknowledged, with the understanding that releases into the Capitol Lake impoundment result in reduced survivals.

3. Principle: Monitor, Evaluate and Adaptively Manage Hatchery Programs.

Recommendation 14: Regularly review goals and performance of hatchery programs in a transparent, regional, "all-H" context.

Comment 14. *The HGMP describes a process for updating information on survival, contribution to fisheries and contribution to natural spawning areas for this program.*

However, due to lack of clear harvest goals, it is unclear how these data will be used to modify the program (Section 11, page 28).

WDFW Response: Because the program is located in a watershed that historically had no anadromous fish, and is not managed for natural Chinook production, WDFW does not expect to modify the Tumwater Falls fall Chinook program based on these parameters.

Recommendation 15: Place a priority on research that develops solutions to potential problems and quantifies factors affecting relative reproductive success and long-term fitness of populations influenced by hatcheries.

Comment 15. *No ongoing research was described (Section 12, page 29). However, given the poor survival of Tumwater Falls fall Chinook relative to other nearby hatchery programs (Nisqually) as well as historical performance from this facility, it appears research into survival would be appropriate.*

WDFW Response: The relatively lower survival of fish released from the Tumwater Falls programs is significantly attributable to release location. Smolts released from the program enter Capitol “Lake”, a freshwater impoundment of the Deschutes River, and are subject to adverse conditions relative to flow, temperature, and to avian predation from a nearby cormorant colony and roost. Alternatives to release through the impoundment would include trucking directly to the salt water portion of the estuary, with known drawbacks to survival. Research is not necessary to identify these issues relative to survival.

Recommendation 16: Design and operate hatcheries and hatchery programs with the flexibility to respond to changing conditions.

Comment 16. *While a list of data to collect for monitoring the program is briefly described (Section 11, Section 1.10), no description is given as to how this data will be used. No performance targets (harvest goals) were provided.*

WDFW Response: Monitoring of performance indicators relative to fish production will be used to ensure that fall Chinook are produced according to best hatchery practices, in order to provide for coast-wide fisheries harvests. Targets for returns to individual fisheries are not developed in this HGMP, as they are dynamic as a result of annual fisheries targets developed through the PFMC/North-of-Falcon process.

Recommendation 17: Discontinue or modify programs if risks outweigh the benefits.

Comment 17. *This program has been ongoing since 1946 and there is no indication that it will be discontinued, regardless of risks. Section 1.16 identifies alternatives considered for attaining program goals, but elimination of the program was not considered.*

WDFW Response: This program has been operating in cooperation with the co-managers under agreed production standards to return harvestable Chinook salmon to the terminal fishing area. Deschutes River fall Chinook have been managed consistent with that of a Stabilizing population, and under HSRG criteria for a stabilizing population, the current operating conditions are considered adequate to meet conservation goals, with no criteria developed for pHOS or PNI. Elimination of the program is not seen as a practical consideration.

Cited References:

National Marine Fisheries Service. 2007. Endangered and Threatened Species; Recovery Plans. 72 FR 2493 (January 19, 2007). Available online at:

<http://www.nwr.noaa.gov/Publications/FR-notices/2007/upload/72FR2493.pdf>

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Ruckelshaus, B., B. Ack, K. Berg, B. Cairns, D. Davidson, B. Kelly, R. Kinley, J. Koenings, P. Kremen, S. Lewis, B. Lohn, J. Manning, C. Mosher, B. Nichols, J. Ryan, R. Sims, M. Shelby, D. Troutt, and T. Williams. 2005. Puget Sound salmon recovery plan. Submitted by the Shared Strategy Development Committee, plan adopted by NMFS Jan. 19, 2007.

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