



HOOD CANAL

The regional implementation progress report for Hood Canal was jointly authored by WDFW, the Skokomish, Jamestown S’Klallam, Lower Elwha Klallam, and Port Gamble S’Klallam tribes and USFWS. They state that the report represents co-manager agreement at the policy and technical level. This region was reviewed by the HSRG in 2003.

HSRG Synopsis and Response

General Description of Region and Hatchery Programs/Issues:

Hood Canal is a fjord between the Olympic Mountains and the Kitsap Peninsula in the western Puget Sound area. Three state hatcheries, one federal hatchery, several tribal facilities and one non-government organization hatchery exist in this region. The HSRG identified two major problems in the Hood Canal region: 1) overproduction of chum, coho and Chinook; and 2) high stray rates of returning coho released from net pens and hatcheries at the northern end of Hood Canal that pose genetic risks to natural populations. Large surpluses of unharvested, returning adults must be handled by hatchery personnel. Carcasses resulting from large numbers of unharvested adults may also contribute to nutrient load and low dissolved oxygen problems in the marine environments of Hood Canal. The biggest challenge for co-managers in the region will be developing strategies to operate large programs to meet their harvest needs, while meeting conservation goals for stocks with limited natural habitat productivity.

General Overall Comment about the Co-Manager Report:

Co-managers in the Hood Canal region agreed with most of the changes recommended by the HSRG, and have responded aggressively. For example, they have substantially reduced the number of fall chum and other species released into Hood Canal. The co-managers have not agreed with the HSRG’s assessment of the scope and seriousness of straying from coho programs at the northern end of Hood Canal. They have implemented more extensive spawning ground surveys, to quantify the problem, and are planning to conduct genetic and other studies to investigate these concerns and the feasibility of implementing the HSRG’s recommendations on this subject. These recommendations include developing a new hatchery broodstock for coho and other major, programmatic changes. An unresolved problem is the lack of marking on a sufficient number of fish from large hatchery programs—such as the fall chum program and the Skokomish River fall Chinook program—to accurately determine the abundance and productivity of potentially-affected natural stocks.

1. Stock goals and the role of hatcheries.

- a) **Are short- and long-term management goals/premises for habitat and conservation and harvest of all regional hatchery- and naturally-spawning salmonid stocks clearly stated? Have specific questions raised in the regional review been adequately addressed?**



The co-managers have reviewed conservation and harvest goals for all stocks in the region and have made a number of changes as a result. Habitat goals appear to not be as well-defined, particularly in the Skokomish River.

b) Is the purpose (harvest, conservation, education, etc.) of each hatchery program stated? Have specific questions raised in the regional review been adequately addressed?

The purpose of each program is clearly stated. For example, the co-managers have developed a comprehensive strategy for using artificial propagation to help recover summer chum throughout Hood Canal, a species currently listed as threatened under the Endangered Species Act. In contrast, hatchery programs for fall chum are intended to support harvest. Most questions raised by the HSRG have been addressed.

c) Is the program type (integrated vs. segregated) identified and explained for each hatchery program? Have specific questions raised in the regional review been adequately addressed?

Every hatchery program in the region is clearly designated as either integrated or segregated.

2. Steps taken (decisions made and actions taken) towards meeting short- and long-term expectations

a) Has significant progress been made to achieve desired hatchery- and naturally-spawning proportions in the hatchery broodstock and on the spawning grounds for integrated and segregated programs?

There have been substantial reductions in the number of chum released from segregated programs. The co-managers have terminated steelhead outplants across the region. They have also reduced the number of pink salmon released from Hoodspout Hatchery from one million to 500,000 fry. These changes are expected to reduce the proportion of hatchery-origin fish on natural spawning areas. No changes have yet been implemented to reduce stray rates from north Hood Canal coho programs. The co-managers are investigating alternative strategies to meet the intent of the HSRG's coho recommendations.

Fall chum, pink and the majority of Chinook are released from hatcheries unmarked, thus precluding the ability to understand or control the proportion of hatchery- and natural-origin fish from these segregated programs in broodstocks and on the spawning grounds. The HSRG recognizes the concern of the Skokomish Tribe about the potential harvest implications of applying 100% adipose fin clips to fall Chinook releases in the region. However, without applying a "mass mark" of some sort, the status of the natural fall Chinook population in the Skokomish River will never be understood. The HSRG therefore recommends that the co-managers come to agreement on and implement a marking (external or otherwise) and mark recovery protocol that will allow the identification of hatchery- versus natural-origin fall Chinook in this watershed.



Additionally, the lack of marking also precludes understanding the stray rate from large hatchery programs for fall chum in the entire region. The HSRG therefore makes the same recommendation for these programs.

The co-managers have used the All-H Analyzer (AHA) tool to investigate the feasibility of developing integrated hatchery broodstocks for Chinook on the Skokomish River (George Adams Hatchery) and coho at Big Beef Creek, as recommended by the HSRG. Preliminary analyses of coho in Big Beef Creek indicate that this population can support an integrated hatchery broodstock, which could then provide harvestable fish for the Port Gamble net pens, and perhaps elsewhere in Hood Canal, as recommended by the HSRG. On the other hand, AHA analysis indicates that poor habitat conditions in the Skokomish River preclude meeting the guidelines for an integrated hatchery program for Chinook salmon at the George Adams Hatchery at this time. However, this recommendation by the HSRG remains a long-term goal of the co-managers, pending habitat improvements. The HSRG recommends incorporating natural-origin fish into the hatchery broodstock for this program, as the health of the natural population allows, to increase the degree of adaptation to the natural environment of this population.

b) Have steps been taken to size programs consistent with goals for all hatchery- and naturally-spawning stocks? Have specific questions raised in the regional review been adequately addressed?

While progress has been made, the managers in this region have generally not developed goals for harvest contribution of hatchery programs explicit enough to specifically size the programs to meet these needs.

In response to HSRG recommendations, the co-managers have significantly reduced the total number of fish released from Hood Canal hatcheries. For example, overall hatchery production of chum fry in Hood Canal has been reduced from 33.7 million to 22.5 million fry, a 33% decrease. These reductions have been accomplished by terminating fall chum programs at Quilcene National Fish Hatchery (NFH) (2.2 million fry) and at George Adams Hatchery (five million fry), and reducing fall chum production at the Little Boston Tribal Hatchery (from one million to 500,000 fry) and at the Hoodsport Hatchery (from 15 million to 12 million fry). These reductions should significantly reduce the large number of surplus fall chum adults returning to Hood Canal hatcheries. The co-managers have also followed the HSRG recommendation to terminate the Chinook program at Big Beef Creek (200,000 fry), but have only modestly reduced production of Chinook at Hoodsport Hatchery, from three million to 2.8 million sub-yearlings (a seven percent reduction) and from 250,000 to 120,000 yearlings, in response to the HSRG recommendation to address loading and density concerns at that hatchery. They have also reduced pink production from one million to 500,000 fry at Hoodsport Hatchery and have agreed to terminate all steelhead outplants into Hood Canal streams, while retaining the Hamma Hamma River steelhead conservation and recovery program (as the HSRG recommended).

Consistent with HSRG recommendations, the coho program at George Adams Hatchery was reduced from 500,000 to 300,000 smolts released annually, to reduce the number of



unharvested surplus adults returning to that facility. In order to reduce straying, the HSRG recommended discontinuing the Quilcene Bay net pen program and either reducing net pen releases of coho into Port Gamble Bay or increasing the harvest on these fish. The Port Gamble S'Klallam Tribe has successfully restored its fishery in Port Gamble Bay, and non-treaty fishers are also harvesting these fish. The Quilcene Bay program has not been discontinued. The co-managers will also consider adjustments to the net pen program size, based on results of monitoring harvests and escapements. The HSRG remains concerned about the level of straying and believes that the co-managers need to continue pursuing a combination of hatchery and harvest actions to reduce straying to an acceptable level. Given the high surplus returns to Quilcene NFH, the Quilcene Bay net pen program appears to provide marginal additional benefits, while posing significant straying risks.

c) Have steps been taken to better meet hatchery operational guidelines, from broodstock collection through release? Have specific questions raised in the regional review been adequately addressed?

The co-managers have addressed many facility recommendations, to the extent funds have allowed. For example, they have acquired a new groundwater source (200 gallons per minute) for egg incubation at Hoodspport Hatchery. However, limited floor/building space has prevented them from expanding incubation facilities to meet egg incubation needs for chum salmon. Consequently, the co-managers have chosen not to follow the HSRG recommendation to terminate chum fry transfers from McKernan and George Adams hatcheries to Hoodspport Hatchery, because of continuing shortages of egg incubation space at Hoodspport. Additional incubation space at Hoodspport, or further reductions of the chum program there, should be high priorities for implementation. The co-managers report that the majority of HSRG facility recommendations remain unimplemented because of funding constraints, such as installation of pollution abatement ponds at George Adams Hatchery. The co-managers have increased the incorporation of “jacks” into coho broodstocks at Quilcene NFH and Hoodspport Hatchery from two to ten percent of all males spawned, as recommended by the HSRG.

3. Steps taken to track progress toward expected outcomes

Please see general HSRG comments about managing for success. The co-managers in Hood Canal have initiated some additional marking and coded-wire tagging programs, particularly for Chinook released from Hoodspport Hatchery. However, monitoring of natural- and hatchery-origin Chinook in the Skokomish River will require a substantial increase in marking of fish released from George Adams Hatchery. Additional monitoring and evaluation appears to be limited by availability of funds (e.g., genetic studies, additional monitoring equipment).

a) Will status of major stock goals (e.g. harvest and escapement) be monitored over time?

Monitoring of summer chum recovery and contributions of hatchery-origin coho to harvest will continue. All hatchery-origin summer chum are otolith marked prior to



release, and all coho are adipose fin clipped. At the present time, no fall chum or pink are marked (e.g. with otolith marks), and only a small portion of Chinook are marked or tagged. The co-managers need to agree on and implement a strategy for distinguishing all hatchery- and natural-origin fish in the region.

b) Will contributions of each hatchery program towards its purpose be monitored over time (e.g. contributions toward harvest and escapement)?

Monitoring of progress towards achievement of conservation goals will continue for winter steelhead and fall Chinook in the Hamma Hamma River, and summer chum throughout Hood Canal. Contributions to harvest of coho released from Quilcene NFH, Quilcene Bay net pens, and Port Gamble net pens will continue. Monitoring of hatchery-origin Chinook escapement into the Skokomish River will be difficult without a substantial increase in marking effort and resources. As noted above, all releases of fall chum and pink within Hood Canal are unmarked (e.g. via otoliths) and, hence, contributions to harvest and escapement cannot be estimated directly. The co-managers have made the most of their available resources in this region, however the potential need to expand spawning ground surveys and stock identification sampling programs, in particular, should be reviewed as a part of the development of a comprehensive monitoring plan for the region. Stable funding is needed for long-term monitoring of stock composition on the spawning grounds. The monitoring of hatchery contributions to harvest and natural spawning escapement is critical for tracking the success of both integrated and segregated programs.

c) Will contributions of hatchery-origin fish to broodstock and natural escapement be estimated with sufficient accuracy and precision over time?

Accurate estimates of escapement and contributions to harvest and broodstock are obtainable for hatchery-origin coho, Hamma Hamma steelhead, summer chum, and partially for fall Chinook released from Hoodsport Hatchery. Such estimates are currently not possible for fall chum, pink and fall Chinook released from the George Adams Hatchery into the Skokomish River (see comment above). It is likely that additional spawning surveys and biosampling will be needed in this region, as in others, in order for adequate accuracy and precision to be achieved.