



NOOKSACK/SAMISH RIVERS

The regional implementation progress report for Nooksack/Samish was authored by WDFW. WDFW states that the response was coordinated at the co-manager technical level. Although it was not specifically reviewed and agreed to at the policy level, WDFW believes it would be consistent at that level as well. This region was reviewed by the HSRG in 2002.

HSRG Synopsis and Response

General Description of Region and Hatchery Programs/Issues:

The Nooksack/Samish region includes programs with harvest, conservation and educational purposes. Co-managers in this region face difficult decisions when balancing the needs for conservation against the economic and cultural needs for fisheries. Chinook programs in this region include ESA-listed stocks (such as North Fork/Middle Fork Nooksack spring Chinook) and segregated programs with harvest goals (such as Lummi Bay Hatchery summer/fall Chinook and Mainstem Nooksack Hatchery summer/fall Chinook). The co-managers' challenge is to successfully conduct these diverse programs, while minimizing straying among programs. Discussion is currently underway among the co-managers to initiate a conservation program for the South Fork Nooksack stock, but reducing the stray rate from other Chinook programs in the region must be a primary objective in any conservation effort. The management of coho is also complicated by the objectives of conducting both integrated conservation and segregated harvest programs. The biggest challenge for 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:

The co-managers in this region have carefully considered the HSRG's recommendations and principles of hatchery reform. Stock goals are clearly stated, implementation is proceeding in a scientifically defensible manner, and the co-managers are incorporating new information as it becomes available. To meet regional goals, programs have been reduced in size, a high proportion of hatchery releases are being marked and tagged, and monitoring has been increased. The programs at Bellingham Technical College's Whatcom Creek Hatchery have been changed, to focus more on education and less on producing fish for harvest.

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 the goals for all stocks in the region, and confirmed the goals that were developed during the regional reviews. However, there appears to be a



lack of agreement among the co-managers about goals for the naturally-spawning component of the fall Chinook population in the Nooksack River. This has implications for several regional hatchery programs. In addition, it appears that the co-managers' goals for natural coho stocks in this region may be in transition, and are currently unresolved. In the absence of agreement, programs cannot be designed that are consistent with goals for these stocks.

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 co-managers have identified the purpose of each hatchery program, and addressed the majority of questions raised during the regional review. The co-managers have agreed that the major focus of the Whatcom Creek Hatchery should be education, and the curriculum is being modified to teach the best operational and fish culture practices. The co-managers have requested, and the HSRG will provide, assistance in developing a conservation program for South Fork Nooksack spring Chinook.

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 within the region is identified as integrated or segregated. In most cases, no changes to program types were noted by the co-managers. However, the program type of the Skookum Creek Hatchery Coho is under evaluation. This was reviewed as a segregated harvest program. The co-managers are investigating interactions with wild coho, but have not yet developed a broodstock management strategy for this program consistent with guidelines for integrated or segregated programs.

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?

Throughout the region, the co-managers have made significant progress in achieving desired spawning proportions. Hatchery releases are marked, using a combination of adipose fin clips, otolith marks and coded wire tags. The North Fork/Middle Fork Nooksack spring Chinook program has been reduced by more than half, to allow evaluation and potentially reduce straying to the South Fork. Information is being gathered on timing and the propensity to stray. Release strategies have also been changed.

The co-managers have terminated the North Fork Nooksack Chum program, which was not meeting the guidelines for proper integration. The Mainstem Nooksack hatchery summer/fall Chinook has not been suspended, as recommended by the HSRG. However,



hatchery production is differentially marked, and spawning ground surveys are underway as conditions permit, to identify hatchery strays in the South Fork. Tissue sampling for DNA analysis of outmigrating juveniles from the South Fork has been conducted, but progress on developing baselines has been hindered by a lack of samples. A lack of funding has also limited the DNA analysis. While the co-managers deserve credit for the changes made to date, the HSRG still believes this outplanting program should either be discontinued, or other actions taken to reduce the risks it poses to South Fork spring Chinook (a stock for which the co-managers are proposing a new conservation hatchery program).

Various strategies are underway to improve collection facilities and reduce potential straying for Lummi Bay Hatchery Summer/Fall Chinook. Although hatchery reform funds have not been made available, the co-managers are improving ponds using limited existing funds and are continuing efforts to secure additional funds.

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?

Two hatchery programs have been discontinued—North Fork Nooksack Chum and Samish Chum. Significant reductions have been made to the North Fork/Middle Fork Nooksack spring Chinook and Whatcom Creek Hatchery Pink programs, to better achieve the goals for these stocks. As recommended, the program size for the Lummi Bay Hatchery coho program is being reviewed, but no changes have been implemented. While progress has been made, the co-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.

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?

Throughout the region, spawning protocols have been adjusted to follow HSRG guidelines. Various release strategies are under evaluation for North Fork/Middle Fork Nooksack spring Chinook, to better meet conservation goals for this stock. Disease prevention is being actively addressed for several programs, including pond modifications for Lummi Bay Hatchery coho and new rearing ponds for Samish summer/fall Chinook. Evaluation of the potential impact of yearling releases is ongoing for Samish summer/fall Chinook.

3. Steps taken to track progress toward expected outcomes

Please see general HSRG comments about managing for success.

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



The co-managers have ongoing monitoring programs in place for numerous stocks. For example, extensive marking programs are ongoing for Lummi Bay Hatchery summer/fall Chinook and Nooksack North Fork/Middle Fork spring Chinook, to monitor potential interactions with South Fork Nooksack spring Chinook. Marking programs are also ongoing for Samish summer/fall Chinook, to evaluate stray rates and contribution to fisheries. DNA baselines are being developed, as funding permits.

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

The co-managers are making management changes for North Fork/Middle Fork spring Chinook, as new biological information becomes available. Monitoring programs are in place in the Nooksack and Samish drainages. Monitoring programs for coho in the Nooksack drainage have been increased, to improve information available for Kendall Creek coho. 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?

Although not specifically addressed, marking and tagging proportions are high throughout the region. 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. High stray rates from all Chinook programs into the South Fork Nooksack have been a particular concern. Programs to monitor straying into this system are ongoing to assess effects on the South Fork Nooksack spring Chinook stock.