

Hatchery Reform in the Pacific Northwest: Applying Science to Hatchery Management

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The Congressionally-established Hatchery Scientific Review Group (HSRG) offers a foundation for hatchery reform, to help salmon and steelhead hatcheries in the Pacific Northwest meet conservation and sustainable harvest goals. In order to address these twin goals, the HSRG determined that both harvest and hatchery reforms are needed.

The HSRG is recommending principles for hatchery management based on: 1) setting clear goals; 2) scientific defensibility; and 3) monitoring, evaluation and adaptive management. By applying these principles, the HSRG has demonstrated that the Columbia Basin hatchery system can be managed consistent with conservation goals, while still providing sustainable economic benefits from salmon harvest. To be successful, managers will need to support both hatchery and harvest reforms, and funding entities will need to provide the investments needed for implementation. The HSRG has developed management tools to support application of these principles, including a scientific framework for artificial propagation of salmon and steelhead; benefit/risk assessments tools; hatchery operation guidelines; monitoring and evaluation criteria; and others. The primary analytical tool is the “All H Analyzer” (AHA), a Microsoft Excel-based application that allows managers to explore potential outcomes of alternative strategies of balancing hatcheries, harvest, habitat and hydroelectric system constraints. These tools are available for future use by managers.

The HSRG has used these products to review and provide recommendations for state, tribal and federal hatchery programs; first in Puget Sound and coastal Washington (2001-05) and more recently in the Columbia River Basin (2006-08). The HSRG’s specific recommendations are not presented as the only possible solution, but rather as a clear demonstration that current hatchery programs can be redirected to better meet both conservation and harvest goals.

The HSRG concludes that in order for hatcheries to contribute to harvest on a sustainable basis, they must be operated in a manner that is compatible with conservation goals for salmon and steelhead resources at both the local and regional levels. These conclusions imply that hatcheries must be managed consistent with basic biological principles and viewed as integral components of the affected ecosystems.

The most central aspect of this approach involves genetic management, where hatchery broodstocks need to be managed as either genetically segregated from or integrated with natural populations. To guide this genetic management, the HSRG has developed standards that must be met—or preferably exceeded—regarding the level of hatchery influence on the natural populations under either type of hatchery program. The HSRG has also provided methods for meeting those standards.

The HSRG also recommends the managers assure that ecological impacts of hatchery structures and operations are minimized and that they, at a minimum, meet all regulatory requirements (i.e., water withdrawal and discharge, fish passage and screening).

The HSRG concludes that hatchery reforms alone will not achieve recovery of natural populations—complementary actions taken by harvest, habitat and hydropower managers are all necessary if long-term conservation goals are to be achieved. The effectiveness of current habitat and future habitat improvements will be greatly increased if combined with hatchery and harvest reforms.

The HSRG recommendations, tools, and reports are available at www.hatcheryreform.us.