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Statement to the Joint Committee on Water, Agriculture, and Natural Resources, January 19, 2000

The Oregon Chapter of the American Fisheries Society is a volunteer organization of professionals in fisheries and aquatic sciences. We have over 500 members in Oregon, drawn from federal, state, and tribal agencies, higher education, and diverse private employers. Among the goals and objectives of our society are to provide scientific information on fisheries issues that will aid in the public discourse on natural resource management in our state.

The issues under consideration today are twofold:

The first is the specific management practices at the Fall Creek Hatchery

The second is the role of hatchery fish in recovery of wild stocks of salmon

It is the opinion of the Executive Committee of the Oregon Chapter of the American Fisheries Society that ODFW has done a credible job of justifying their decision to terminate the Fall Creek hatchery stock of coho salmon; their actions at Fall Creek Hatchery are supported by the ORAFS. The origin of this hatchery stock was mixed. Some were from the Alsea Basin, but significant components had been taken from the Columbia River basin and from other coastal basins (Wallis 1963). In addition, inadvertent selection caused this hatchery stock to return to the Alsea River substantially earlier than the native stock. In fact, as stated in the Alsea River Basin Fish Management Plan (1997), the stock of fish used at Fall Creek Hatchery was not produced to assist in the conservation or restoration of naturally reproducing coho salmon. There is no basis to assume that these fish were well suited to natural reproduction in the Alsea River drainage, or to assume that these fish would contribute to the long-term recovery of coastal coho salmon if allowed to spawn naturally. In fact, there is direct evidence to the contrary.

In a study carried out from 1980 through 1985, hatchery-reared juvenile coho salmon were stocked in 15 streams on the central Oregon coast. A further 15 streams were left unstocked as controls. The planted fish came from three hatchery stocks, but the majority were from Fall Creek. These hatchery juveniles competed with the wild fish already in residence and reduced the abundance of wild juveniles. The hatchery-reared fish returned to spawn earlier than the wild fish and the survival of hatchery offspring was reduced. At the end of the study, the abundance of juvenile coho salmon rearing in the stocked streams was about 30% below that in the unstocked streams (Nickelson et al. 1986). Here, the monitoring indicates that allowing the Fall Creek hatchery fish to spawn naturally will reduce the fitness of the wild fish. A significant cause of this reduced fitness appears related to the earlier spawning time of the hatchery stock. ODFW has concluded that based on information specific to this case, following the Wild Fish Management Policy is the course of action most likely to restore wild coho salmon in the Alsea River basin, and that allowing hatchery fish to mix with the existing wild fish populations

would undercut the state's goals as stated in OAR 635-007-0536 (Policies for Wild Fish Gene Conservation). It seems clear to us that ODFW made the correct decision with regard to the Fall Creek hatchery stock.

The second issue deals with the role of hatchery fish in the recovery of wild salmon stocks. This issue presents considerable uncertainty. Restoration of our native salmon is related to the health of our aquatic habitats. Past fishery management has shown that existing hatcheries cannot compensate for the degradation and loss of habitat. Hatcheries can aid in the recovery of populations after habitat problems have been corrected and, though there are very challenging genetic and behavioral problems, may also help temporarily conserve a population until this habitat restoration has occurred.

However, even partial reliance on hatcheries prior to correcting habitat problems and addressing harvest issues tends to camouflage the real extent of problems. In addition, allowing hatchery stocks to spawn with wild fish can have a detrimental effect on the wild population. The state of Oregon faces the potential of federal regulation to protect endangered wild salmonids that could far surpass the impact of present regulations. We have no choice but to utilize the body of scientific knowledge that is available to protect the stocks that are presently in danger. Managing the known impacts of hatchery-spawned fish in specific circumstances is an essential tool for maintaining wild fish. Further, our state's Wild Fish Policy is presently undergoing study; modification is likely, especially in the context of co-management with the tribes. A bill of the sort we understand is under consideration seems premature. We strongly recommend that it not be offered while the broader issues are being resolved. We summarize our concerns below, and conclude with some observations on how hatchery-produced salmonids could play a positive role in the conservation and recovery of wild salmonids.

There is abundant, peer-reviewed scientific literature documenting the interactions of hatchery-produced salmonids with wild populations. The National Research Council report ***Upstream*** (1996) provides a clear review of this issue. Specific problems associated with hatchery practices include the following: risks of overharvest in mixed stock fisheries; behavioral differences; genetic risks including domestication of hatchery strains through artificial selection regimes, loss of within-population and between population genetic variability; disease transmission; and ecological interactions. Numerous studies have shown that traditional hatchery practices have caused losses of genetic variability and fitness between and within salmon populations (Allendorf and Ryman 1987; Riddell 1993a, 1993b; Reisenbichler and Rubin 1999). However, many hatchery programs are already changing to incorporate the latest findings on maintaining genetic variability, and there are some promising results (e.g. Rhodes and Quinn 1999).

Hatchery propagation may potentially play a role in conserving, reestablishing, or rebuilding locally depleted populations of fish (Simon 1991; Schramm and Piper 1995). We believe that it would be desirable not to use hatchery fish in recovery programs if enough wild fish exist to begin their own recovery, and if habitat, harvest, and other factors affecting the survival of fish can be successfully dealt with. There are situations, however, where it may be desirable to use hatchery fish in supplementation. Determinations on whether to use supplementation, what stocks to use, and for what period of time should be made on a case-by-case basis under a larger-scale strategy such as the Oregon Plan. The theory behind modern supplementation programs is to develop hatcheries built on a strategy to "jump-start" wild populations until they are again self-sustaining. As such, they should be viewed as one tool among several to reduce and reverse the human-caused factors of decline. A guiding principle for this role is that hatchery programs should adopt a genetic conservation goal of maintaining the genetic and life-history diversity found in natural spawning populations, using only wild fish from the specific river basin where the hatchery stock is to be used. Using an inappropriate stock will not only not assist in the recovery of naturally produced fish, but will work against that goal. A requirement to protect inappropriate, domesticated stocks of salmon would corrupt a critical conservation tool for future salmon management by requiring that we run hatcheries for the sake of hatcheries, rather than for the sake of salmon.

The Oregon Chapter is pleased at the wish of society, and the Oregon Legislature, to have hatcheries operate to facilitate species recovery. To that end, we recommend that hatchery operations be made consistent with wild fish and gene conservation goals, and with the genetic and ecological lessons learned from past experience. Decision making about the appropriate uses of hatcheries should be based on the weight of scientific evidence and take place within the context of adaptive management programs that focus on watershed management.

This committee should be aware that a review of the ODFW Wild Fish Policy is underway at the present time under an executive order from the Governor. We strongly acknowledge and support the legislature's activities in carrying out its oversight responsibilities, and applaud the committee's efforts to understand the complex rationale behind wild fish issues. At the same time, we respectfully suggest that the individual issues be examined in the broad scope of the policy review process.

Thank you,

David Hohler
President, for the Executive Committee

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