

Changes in Tulalip Tribal Enhancement Program Practices To Minimize Negative Effects on Natural and Program Fish

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The Tulalip Tribes operate a reservation hatchery north of Seattle, Washington, providing tribal members and non-Indians fishing opportunity on Chinook, coho, and chum salmon, with minimal impact on natural stocks. To maximize hatchery program effectiveness while minimizing negative effects on natural fish, numerous facets of the hatchery program are being modified, consistent with comprehensive salmon recovery and management plans. Innovative modifications, including broodstock sources and collection methods, and incubation, rearing, and release practices reduce potential negative genetic and ecological effects on salmonids affected by the enhancement program.

Reducing handling helps to assure that impacts from the artificial rearing environment are minimized on program fish and the natural fish they interact with after their release. Natural rearing in 5-20 m³ earthen reservoirs allows juveniles to experience natural prey and avoid predators thereby developing more natural characteristics. Program fish are released in an area that allows the terminal fishery to target almost exclusively on returning adults from hatchery production with very low impacts on natural salmon stocks.

Production releases of non-local fall Chinook were discontinued and replaced with summer Chinook native to an adjacent large river system. To evaluate this change, both stocks are 100% mass-marked, using thermal variation of incubation water to place discernable marks on their otoliths and 100,000 individuals from each stock are also adipose-clipped and coded-wire tagged. Results are used to discern natural- and hatchery-origin fish in escapements, estimate straying rates, revise run reconstructions, and to accurately estimate fishery impacts on natural populations to remain within ESA guidelines.