

Reducing Risks to Wild Stocks: Hatchery Steelhead Programs Using Wild and Domestic Broodstock Sources on the Kalama River, Washington

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Past research in the Kalama River documented poor natural reproductive success of transplanted domestic hatchery steelhead stocks relative to wild Kalama stocks. Continued escapement and spawning by the hatchery stocks was judged to put wild stocks at risk. Accordingly, WDFW took steps to minimize spawning interactions between those hatchery fish and wild fish in the Kalama and initiated research to explore the efficacy and risks of hatchery steelhead production using local wild broodstocks. Use of a barrier fishway to prevent domestic stocks from ascending into upriver wild spawning and rearing areas permitted concurrent use of both the domestic and new summer-run and winter-run wild broodstock hatchery programs. This dual-track approach provides a more diverse and protracted fishery and facilitates direct comparison of the domestic and wild broodstock hatchery products. The wild broodstock programs employ methods intended to minimize genetic and ecological risks. Evaluation of those programs demonstrate some potential challenges in achieving goals to minimize negative genetic and ecological interactions. Methods and challenges are described for approaches associated with broodstock collection and survival, egg and juvenile survival, juvenile growth rates and smoltification, release strategies, and outmigration and residualism of juveniles released.