

## **The Culture, Monitoring and Evaluation of Reconditioned Kelt Steelhead in the Yakima River Basin**

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Repeat spawning is a life history strategy that is expressed by some species from the family Salmonidae. Rates of repeat spawning for post-development Columbia River steelhead *Oncorhynchus mykiss* populations range from 1.6 to 17%. It is expected that currently observed iteroparity rates for wild steelhead in the Basin are artificially and in some cases severely depressed due to development and operation of the hydropower system and various additional anthropogenic factors. Increasing the natural expression of historical repeat spawning rates using fish culturing means could be a viable technique to assist the recovery of depressed steelhead populations. Reconditioning is the process of culturing post-spawned fish (kelts) in a captive environment until they are able to reinitiate feeding, growth, and again develop mature gonads.

To test kelt steelhead reconditioning as a potential recovery tool, we capture wild emigrating steelhead kelts from the Yakima River and evaluate reconditioning (short and long-term) success at Prosser Hatchery (located at Yakima River kilometer 75.6) on the Yakima River. Steelhead kelts from the Yakima River are collected at the Chandler Juvenile Evaluation Facility (CJEF, located at the same site as the Prosser Hatchery) from March through July annually. All kelts captured at Chandler are PIT tagged. Various diets have been evaluated to determine the survival rates and gonad redevelopment success. Released kelts are monitored by PIT tags and also by radiotelemetry.

For the 2002 kelt migration, fish which survived the reconditioning process were released in three groups on May 20/28, 2002 (below Bonneville Dam rkm 234) and December 10, 2002 (in the Yakima River in the vicinity of the Prosser Hatchery). All PIT tags for released kelts are submitted to the regional PTAGIS database. The PTAGIS database is later queried to allow an assessment of all detection history on these fish since their release.