## Abstract

A genetic analysis of the summer steelhead stock composition in Columbia River sport and tribal fisheries

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Parentage-based tagging (PBT) is an alternative to coded-wire tag (CWT) methodologies for monitoring and evaluating hatchery stocks. PBT involves the genotyping of hatchery broodstock and uses parentage assignments to identify the origin and brood year of their progeny. Beginning with Brood year (BY) 2008, Idaho Department of Fish and Game (IDFG) initiated the sampling of all steelhead used for broodstock in Idaho and several stocks in the Oregon and Washington portion of the Snake basin. The following year (BY 2009) all steelhead used for broodstock at all hatcheries in the Snake River basin were sampled. These samples were genotyped by IDFG and the Columbia River Inter-Tribal Fish Commission (CRITFC), allowing their progeny to be identified with PBT methodology. Most Snake River hatchery steelhead that returned to the Columbia River in the summer and fall of 2011 and 2012 could be identified using genetic methods. IDFG coordinated genetic sampling of the steelhead harvest in the lower Columbia River sport and the Zone 6 tribal fishery with Washington Department of Fish and Wildlife (WDFW), Pacific States Marine Fisheries Commission (PSMFC), Yakama Nation (YN), and CRITFC during the summer and fall of 2011 and 2012. We estimated the contribution of Snake River hatcheries to steelhead harvest in these fisheries. We also sampled unclipped steelhead caught in the tribal Zone 6 fall fishery and estimated the percentage of these fish that were unclipped Snake River hatchery origin and used Genetic Stock Identification (GSI) methods developed by CRITFC to assign the putative wild steelhead into geographic reporting groups.