

**Assessing the Fitness of Hatchery and Natural-Origin
Steelhead Trout in the Hood River**

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We used demographic information collected by Oregon Department of Fish & Wildlife, genetic markers and parentage analysis to determine the reproductive success of natural-origin and hatchery-origin steelhead trout spawning in the Hood River, OR. This river contains winter-run and summer-run steelhead trout populations currently listed as threatened under the Endangered Species Act. Since 1991, all natural-origin and hatchery-origin spawners passed upstream of the Powerdale Dam (river mile 4) have had a tissue sample collected that can be used for DNA analysis. We determined the reproductive success of steelhead trout spawning above the dam during four run years. Parentage analysis was accomplished by genotyping all of the adults passed upstream of the dam during each run year and genotyping all of their offspring returning to Powerdale Dam as adults in subsequent years. Our results showed the natural reproductive fitness of the two out-of-basin hatchery stocks (Big Creek and Skamania) were substantially less than that of natural-origin steelhead in the Hood River. On the other hand, the natural reproductive fitness of the native, Hood River hatchery stock was, on average, only slightly less than that of natural-origin winter-run steelhead in the Hood River.