

# **DNA-Based Parentage Assignments of Chinook Salmon from the Cle Elum Spawning Channel in 2005**

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## **Abstract**

We used a maximum likelihood parentage assignment procedure to estimate the reproductive output of Chinook salmon spawners of hatchery- and natural-origin in the Cle Elum experimental spawning channel for the 2005 brood year. The assignments were based on offspring genotypes at 10 microsatellite loci. The probabilities of exclusion (inferring non-parentage by randomly picked adults) assuming neither parent was known were estimated to be 0.999985. Two thousand eight hundred and ninety-two of 3,000 fry from the 2005 brood that were genotyped at six or more loci were assigned to a parental pair with 95% confidence. We found no compelling evidence to suggest that un-genotyped parents spawned successfully in this year. The number of progeny attributed to individual potential parents was quite variable, ranging from 0 to 465 for all males (0 to 465 for adult males; 0 to 52 for jacks; 0 to 26 for precocious males) and from 0 to 257 for females. The average number of progeny attributed to hatchery-origin adult males was 1,688, while the average number attributed to hatchery-origin females was 1,483. In comparison, the average number of progeny attributed to natural-origin adult males was 1,000, while the average number attributed to natural-origin females was 1,409.