

DNA-Based Stock-of-Origin Assignments of Chinook Salmon Smolts Outmigrating Past Chandler Trap (Yakima River) in 2006

Todd W. Kassler, WDFW Molecular Genetics Laboratory
Jennifer Von Barge, WDFW Molecular Genetics Laboratory

Abstract

An evaluation of 20 individual baseline collections from five stocks (spring stocks - upper Yakima River, Naches River, and American River; fall stocks – Marion Drain and lower Yakima River) in the Yakima River basin was conducted to determine if the individual temporal collections were genetically similar and to assess the relationships among the five stock groups. A stock-of-origin assignment procedure was used to estimate the percentages of smolts from each of five stocks groups outmigrating past Chandler Trap (Yakima River) from January – July 2006. Mixture analysis was conducted on a proportional subsample of 1,500 smolts for five time strata (January – February, March, April, May, and June – July) during the outmigration. The largest percentage of outmigrating smolts in the first four time strata was from the upper Yakima River stock while the June – July time stratum was dominated by the lower Yakima River fall and Marion Drain fall stocks with over 89% of the total assignments. Comparison of morphological assessment and genetic assignment as a spring or fall Chinook smolt conducted for all time strata identified 1,438/1,485 (96.8%) smolts the same.