

ABSTRACT

A GENETIC COMPARISON OF LAKE MICHIGAN CHINOOK SALMON (ONCORHYNCHUS TSHAWYTSCHA) TO THEIR SOURCE POPULATION

By

Julie Anne Weeder

To determine whether genetic drift has impacted the genetic diversity of Lake Michigan chinook salmon since their transfer from Washington's Green River in the late 1960's, I surveyed the allozyme variation of Lake Michigan chinook at 18 loci that were variable in a 1980's survey of Green River chinook salmon. The genetic diversity of Lake Michigan chinook salmon was consistently less than that of their Green River conspecifics (2.17 vs. 2.56 alleles per locus, 17% of variable loci monomorphic in Lake Michigan fish). Lake Michigan chinook salmon were more closely related to Green River chinook than to those of a tributary of Washington's Toutle River, a purported source population. The average yearly variance effective population size (N_e) of Lake Michigan chinook from 1967 to 1995 was 378 individuals. This is less than 1% of the estimated average census size, indicating that genetic drift has impacted the Lake Michigan population.