

Eagle Creek NFH Coho Density Study
reconstructed by Stephen M. Pastor - Columbia River Fisheries Program Office
October 23, 1997

Broods 1979, 1980, and 1981 were used to conduct a rearing density study similar to that done by Banks (1992) at Willard NFH. An oral presentation was given at the 1985 Northwest Fish Culture Conference in Tacoma, WA by hatchery manager Jim Holway. However, no written account of this study is available. Release and recovery information is, however, available from the PSMFC Coded-wire tag database.

In summary, three brood years of release and recovery information show the same pattern: although survival decreased with increasing density index, the total number of surviving adults increased.

Broods 1979, 1980, and 1981 were tagged for this study. Fish were marked for each of three densities (Density Index = pounds of fish divided by cubic feet of rearing space divided by length in inches) 0.15, 0.30, and 0.45.

In each of the three broods fish from the low density (D.I.=0.15) raceways had the highest percent survival. However, fish from the high density raceways (D.I.=0.45) produced the greatest number of surviving adults in each of the three broods.

Use of the Chi square test on combined data shows that survival is different between D.I.=0.15 and D.I.=0.30. Release of 119,600 fish (D.I.=0.15) yielded 2,668 recoveries (2.23% survival). Release of 238,673 fish (D.I.=0.30) yielded 4,276 recoveries (1.79% survival). Chi square equals 77.450.

A Chi square test shows no significant difference in survival between D.I.=0.30 and D.I.=0.45. Release of 238,673 fish (D.I.=0.30) yielded 4,276 recoveries (1.79% survival). Release of 371,347 fish (D.I.=0.45) yielded 6,494 recoveries (1.75% survival). Chi square equals 1.628.

Nevertheless, the high density group produced 1.51 times more recoveries than the medium density group (2,188 additional recoveries).

Banks also found no difference in survival between coho raised at densities of 0.30 and 0.45, and "that the increased numbers of fish reared at the high densities produced significant increases in adult contribution".

Banks, Joe E. 1992 Effects of Density and Loading on Coho Salmon during Hatchery Rearing and after Release Progressive Fish Culturist 54:137-147