

**Use of Hydraulic Sampling Methods to Source Spring Chinook  
Salmon Eggs for a Captive Propagation Program**

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In 1995, the Idaho Department of Fish and Game, in cooperation with NOAA Fisheries, the University of Idaho, and the Shoshone-Bannock Tribes, initiated an experiment to determine if captive rearing could be used to prevent localized extinctions of spring chinook salmon and to insure a continuum of spawners in three Idaho streams. Program objectives include developing fish culture techniques to rear adults through maturation in the hatchery, reintroducing maturing adults with appropriate morphological, physiological, and behavioral attributes, and monitoring and evaluating post-release behavior and spawning success. Fish are reared through smoltification at the Idaho Department of Fish and Game Eagle Fish Hatchery. Rearing from smolt through adult occurs in seawater at the NOAA Fisheries Manchester Experiment Station. In brood years 1995 through 1998, pre-smolts and smolts were collected to source rearing groups. Rearing groups collected as juveniles experienced losses associated with the presence of parasitic gill copepods and bacterial kidney disease. In addition, fish from two of the three stocks were infected with the causative agent of whirling disease. All stocks collected as juveniles exhibited skewed sex ratios and were slow to convert to a hatchery diet. Since brood year 1999, eyed-eggs have been collected to source rearing groups using hydraulic sampling equipment. Survival from collection to ponding has ranged from 75.4% to 100% and averaged 96.3%. Survival from ponding to seawater transfer has ranged from 88.3% to 97.9% and averaged 93.8%. Parasitic gill copepod and whirling disease infections have been absent in the program since brood year 1999. Additionally, mortality associated with bacterial kidney disease has been greatly reduced. Sex ratios in rearing groups are more evenly balanced and concerns associated with conversion to a hatchery diet have been eliminated. Drawbacks associated with sourcing rearing groups as eyed-eggs include higher age-2 male maturation and the potential disturbance of wild/natural redds.