

Estimated abundance of adult fall chum salmon in the middle Yukon River, Alaska, 2000-2001

Abstract: Mark and recapture data were collected to estimate the abundance of fall chum salmon *Oncorhynchus keta* during 2000 and 2001 in the middle Yukon River. In 2000, data collection only occurred in the first quarter of the run based on historic run timing, July 31 to August 19. In 2001, weekly and seasonal estimates were generated for eight weeks, July 30 to September 15. Fish were captured using two fish wheels for marking and one fish wheel for recovery. Marking and recovery sites were separated by a distance of 52 km. Spaghetti tags were applied to the marking sites to 4,222 in 2000 and 8,489 fish in 2001. Concurrent to marking, 3,704 and 12,121 fish, respectively, were examined for marks at the recovery site, and excluding multiple captures, 304 and 498 fish, respectively, were recaptured with unique tag numbers. Because we only used one recovery wheel, analyses regarding selective sampling and potential bias changed from past years when two recovery fish wheels were used. Log likelihood analysis of the equality of probability of recapture based on the bank of release indicated that no difference existed in either year. Logistic modeling of the probability of recapture showed no differences based on sex, length, or the interaction term for either year. We concluded that no further stratification of the data was required. Therefore, using a Darroch estimator, abundance estimates for the operational period in 2000 and 2001 were 38,979 (SE 2,080) and 197,100 (SE 9,729) fish, respectively. Weekly estimates were also generated. Estimates of the fall chum salmon abundance in 2000 and 2001 are similar to the previous two years. The precipitous drop in migration past the study site between 1996 and 1998 appears to have stabilized at a low level.

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