

Estimated Abundance of Adult Fall Chum Salmon in the Middle Yukon River, Alaska, 2005 – Final Report.

Mark and recapture data were collected to estimate the abundance of fall chum salmon *Oncorhynchus keta* during 2005 in the middle Yukon River, above the Tanana River confluence. Weekly stratum estimates of migrating fall chum salmon were generated for a period of approximately seven weeks between 28 July and 17 September 2005. Fish were captured with north and south bank fish wheels at the marking site and a north bank fish wheel at the recovery site. Color-coded spaghetti tags were applied to 21,072 fish at the marking site. Of the 113,587 chum salmon examined from video recordings at the recovery site, 1,212 ($\approx 1\%$) fish were tagged and tag status of 1,223 ($\approx 1\%$) fish could not be determined. Using a Darroch estimator, the estimated abundance of fall chum salmon migrating through the main-stem Yukon River in 2005 was 1,987,982 fish (SE 59,797) for the sampling period. Our estimate was 29% greater than the 2005 run reconstruction for fall chum salmon in the upper Yukon River. The run reconstruction included the combined total of tributary escapements (Chandalar, Sheenjek, and Fishing Branch rivers), harvest estimates above the study area, and a Canadian border passage estimate of fall chum salmon. An annotated bibliography is appended to this final report that references, in chronological order, all past studies related to this project, i.e., yearly abundance estimates and handling effects studies.

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