

02-046 ABSTRACT INRIVER ABUNDANCE OF CHINOOK SALMON IN THE KUSKOKWIM RIVER, 2002-2004

Two-sample mark-recapture experiments were conducted from June to August each year from 2002-2004 to estimate abundance of returning Chinook salmon *Oncorhynchus tshawytscha* in waters of the Kuskokwim River upstream from the Aniak River using radiotelemetry techniques. In each year, an attempt was made to distribute radio tags over the total run such that the radio-tagged fish would be representative of the entire run with respect to temporal abundance, size, sex, and stock composition. Fish were sampled using drift gillnets and fish wheels at various locations between Kalskag and the Aniak River. Chinook salmon that were captured and radio-tagged constituted the first sample and fish counted at four weirs on tributaries of the Kuskokwim River constituted the second sample. Radio-tagged Chinook salmon that migrated past the weirs and were recorded by stationary tracking stations constituted the recaptured portion. Aerial surveys of the Kuskokwim River drainage were conducted each year in July and August. From 2002–2004, approximate 97-99% of radio-tagged fish were detected by a combination of aerial surveys and 13 stationary tracking stations. For all three seasons, Aniak River bound Chinook salmon were censored from the final estimate due to strong evidence of bank orientation. The estimate of abundance for Chinook salmon ≥ 450 mm MEF for the Kuskokwim River upstream of the Aniak River was 100,733 (SE = 24,267) for 2002, 103,161 fish (SE = 18,720) for 2003, and 146,839 (SE = 21,980) for 2004. The majority of radio-tagged Chinook salmon entered the Holitna and Aniak rivers. In general, fish migrating farther upriver arrived at the tagging site earlier than those bound for nearby systems.

Key words: aerial survey, Aniak River, abundance estimate, Chinook salmon, Holitna River, king salmon, Kuskokwim River, mark-recapture, *Oncorhynchus tshawytscha*, radio tag, radiotelemetry, tracking stations

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