

Estimation of Yukon River Salmon Passage in 2001 using hydroacoustic methodologies

Abstract: The Yukon River sonar project has provided daily passage estimates for Chinook salmon *Oncorhynchus tshawytscha*, and summer and fall chum salmon *O. keta* for most years since 1986. During this time, the project has undergone important changes, including a frequency switch from 420 kHz to 120 kHz and a change in aiming strategies from one in which the transducer was aimed at an angle to the current to one that is aimed closer to perpendicular in order to maximize fish detection. Fish passage for each species was estimated in 2001 through a two component process: (1) estimation of total fish passage with 120 kHz single-beam sonar, and (2) estimation of species proportions by sampling with a series of gillnets of different mesh sizes. An estimated 1,402,824 + 10,712 (s.e.) fish passed through the sonar sampling area between 12 June and 31 August, 39% along the right bank and 61% along the left bank. Included were an estimated 118,935 + 6,646 large Chinook salmon (>655 mm long), 18,518 + 2,425 small Chinook salmon (<655 mm), 394,078 + 10,204 summer chum salmon, and 360,356 + 13,300 fall chum salmon. Occasional sonar periods were missed due to strong wave action. Passage estimates include estimated data from the missed periods. Routine system analyses did not reveal any problems that might interfere with sampling. Relationships between signal loss and hydrological parameters continued to be explored.

Citation: Pfisterer, C. T. 2002. Estimation of Yukon River Salmon Passage in 2001 using hydroacoustic methodologies. U. S. Fish and Wildlife Service, Office of Subsistence Management, Fisheries Resource Monitoring Program, Final Report (Study No. 00-018). U. S. Fish and Wildlife Service, Fairbanks Fish and Wildlife Field Office, Alaska Fisheries Technical Report No. 66, Fairbanks, Alaska.