

ABSTRACT

The sockeye salmon (*Oncorhynchus nerka*) run at Kanalku Lake, Southeast Alaska, has been a traditional subsistence fishery for the people of Angoon for generations. Fears of overexploitation and concerns over the sustainability of the stock brought about the establishment of a stock assessment program in 2001; mark-recapture estimates of the spawning escapement of sockeye salmon were conducted between 2001 and 2006. To add confidence to our estimates, a weir was implemented in 2007 and has continued through the 2009 field season. A substantial increase in escapement was observed in 2009, with a weir count of 2,664 sockeye salmon entering Kanalku Lake. The weir-to-spawning-grounds mark-recapture estimate of escapement into Kanalku Lake was 2,750 fish (95% confidence interval 2,500–3,200) in 2009, over twice the average escapement estimated from 2001 to 2008. We believe the observed increase in escapement can be attributed to higher success ascending the partial barrier falls on Kanalku Creek due the low water conditions that were prevalent throughout the sockeye salmon migration. An increase in age diversity was observed in 2009, with an adult age composition of 65% age-1.2, 29% age-1.3, and 6% age-2.2 fish. All aged fish were from the 2004 and 2005 brood years. Subsistence fishing effort and harvest of sockeye salmon at Kanalku Bay appeared similar to the 2008 harvest.