ABSTRACT

The goal of this project was to reconstruct the chum salmon *Oncorhynchus keta* run to the Kuskokwim River for the years 1976 to 2007 with sufficient accuracy and precision to allow for the estimation of productivity on a drainage-wide basis. Previous work by Shotwell and Adkison (2004) showed a great deal of promise, but the resulting estimates were thought to be biased low, largely because of their reliance on estimates of inriver abundance obtained from a sonar project at Bethel. In addition, Shotwell and Adkison (2004) had to rely on a single location in the Kuskokwim River drainage for an assessment of escapement. A great deal of effort has been directed towards expanding the coverage and the quality of the escapement estimates in the drainage in recent years, with a time series of eight years or more now being available for seven tributaries. In addition, a large scale mark–recapture study in 2002 and 2003 produced estimates of escapement for the entire drainage upstream of Kalskag. It was thought that given this large infusion of new information, it would be a good time to revisit the estimation of historical runs to the system. Upon closer examination of the data, we found that the total abundance estimates generated in more recent years still greatly underestimate the true number of chum salmon in the Kuskokwim River drainage. This underestimate prevented an accurate scaling of the run reconstruction, which ultimately produced estimates of total abundance that are again biased low. Consequently, it was decided to close out the study, report the work performed, and make recommendations for the successful completion of similar projects in the future.

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