

Radio Tag Retention and Tag-Related Mortality among Adult Sockeye Salmon

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Abstract.—Tag retention and tag-related mortality are concerns for any tagging study but are rarely estimated. We assessed retention and mortality rates for esophageal radio tag implants in adult sockeye salmon *Oncorhynchus nerka*. Migrating sockeye salmon captured at the outlet of Lake Clark, Alaska, were implanted with one of four different radio tags (14.5 × 43 mm [diameter × length], 14.5 × 49 mm, 16 × 46 mm, and 19 × 51 mm). Fish were observed for 15 to 35 d after tagging to determine retention and mortality rates. The overall tag retention rate was high (0.98; 95% confidence interval [CI], 0.92–1.00; minimum, 33 d), with one loss of a 19-mm × 51-mm tag. Mortality of tagged sockeye salmon (0.02; 95% CI, 0–0.08) was similar to that of untagged controls (0.03 [0–0.15]). Sockeye salmon with body lengths (mid-eye to tail fork) of 585–649 mm retained tags as large as 19 × 51 mm and those with body lengths of 499–628 mm retained tags as small as 14.5 × 43 mm for a minimum of 33 d with no increase in mortality. The tags used in this study represent a suite of radio tags that vary in size, operational life, and cost but that are effective in tracking adult anadromous salmon with little tag loss or increase in fish mortality.