Preliminary Evaluation Of Entrainment Losses And The Efficiency Of Fish Screens At Skalkaho Creek[AFS]

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We are quantifying entrainment of downstream-migrant westslope cutthroat trout (*Oncorhynchus clarki lewisi*) into seven irrigation canals on Skalkaho Creek, a 40.1-km long tributary of the Bitterroot River. Post-spawn adults migrating back to the Bitterroot River, age-1 juveniles migrating downstream from nursery reaches, and age-0 juveniles migrating downstream after emergence are believed to be entrained, become trapped, and die in the irrigation canal system, but the magnitude of this loss is unknown. Private landowners and irrigators in the drainage have expressed concern over this problem and the Montana Department of Fish, Wildlife and Parks will install fish screens in 2004 at three diversions to preclude such losses. We are quantifying the entrainment of westslope cutthroat trout before (2003) and after (2004) installation, as well as the efficiency of the three fish screens after installation. Radio telemetry is used to track movements of 30 adult and 50 age-1 westslope cutthroat trout annually in Skalkaho Creek to determine their fate. Trap netting in irrigation ditches is used to estimate abundances of entrained age-0 juveniles. Passage efficiency of fish screens is assessed by PIT-tagging entrained fish to determine bypass success rates and durations. No radio tagged adults were entrained in 2003. Fluvial adults were able to migrate upstream and downstream past the diversion dams. Both age-0 and age-1 juveniles were entrained by the Highline Ditch, the furthest upstream canal. It diverts most of Skalkaho

Creek during the peak of the irrigation season, which corresponds to the peak of emergence and downstream movement of age-0 westslope cutthroat trout.