Fish Screens: Efficacy and Population Effects on Skalkaho Creek, Montana

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Irrigation canal entrainment has largely eliminated migratory westslope cutthroat trout in Skalkaho Creek, a tributary of the Bitterroot River. Our goal is to determine the efficacy of fish screens recently installed in three of seven irrigation canals on Skalkaho Creek, and their effect on downstream migrating juvenile westslope cutthroat trout. The efficacy of screens at preventing entrainment of age-1 through 4 juveniles is quantified using half duplex PIT tags and PIT tag-detecting antennae. Fish screens were effective at precluding entrainment of PIT-tagged juveniles in 2005. The effect of screening on age-0 westslope cutthroat trout movements is determined by estimating the number of age-0 fish moving downstream above, between, and below the screened diversions. At unscreened diversions entrainment rates are quantified by estimating the numbers, and determining the fate of migratory fish that encounter these diversions using traps, half duplex PIT tags and PIT tag-detecting antennae. By quantifying fish screen efficacy, and gaining an understanding of the effects of screened and unscreened canals on downstream-migrating juveniles, we may determine whether the existing fish screens are an effective management tool for enhancing the migratory life-history strategy of westslope cutthroat trout in Skalkaho Creek or whether entrainment-preventing measures are required on remaining unscreened canals.