

# ESTIMATING LAKE SURVIVAL OF JUVENILE BULL TROUT IN TRESTLE CREEK, IDAHO IN THE PRESENCE OF CHANGING FISH COMMUNITIES, LAND USE, AND FISH MANAGEMENT

Christopher C. Downs, Glacier National Park, Science Center, West Glacier, Montana 59936

Rob Jakubowski, Avista Corporation, PO Box 1469, Noxon, Montana 59853

Rob Ryan, Idaho Department of Fish and Game, 2885 W. Kathleen Ave., Coeur d'Alene, ID 83815

A total of 921 age-1 and older juvenile bull trout (*Salvelinus confluentus*) were marked emigrating from Trestle Creek, Idaho, from 2000 through 2002. Individual juvenile bull trout were marked with abdominally implanted PIT tags, and adult returns were monitored at an automated PIT tag detection weir, as well as at fish traps through 2008. All marked juveniles returned as adults by the end of the 2007 field season. Minimum estimates of survival from outmigrating juvenile to returning adult were similar across study years, and ranged from 8.9 percent to 15.5 percent. Short-term tag retention and survival of marked juveniles was high, but long-term tag loss estimated by examination of double-marked returning adult bull trout indicated substantial tag loss over time. Generally, outmigrating juveniles reared in the lake environment for between 3 and 5 growing seasons before returning as adults, with most spending four growing seasons in the lake (not including their "return year" as a year at-large in the lake). In general, return rates for larger outmigrants were higher than those for smaller outmigrants. Additional studies quantifying lake/river survival of migratory bull trout in other systems are needed to put these results into an appropriate ecological context, and to better understand the complex and likely interacting effects of non-native fish, land use, and fish management on bull trout recruitment.