

## NATIVE LAKE TROUT DISTRIBUTION IN THE UPPER MISSOURI RIVER DRAINAGE OF MONTANA <sup>AFS</sup>

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The lake trout (*Salvelinus namaycush*) populations of Elk and Twin Lakes have long been suspected to be of native glacial origin. Recent examinations of the literature and modern genetic analysis have validated this assumption. Naturalist reports from the late 1800s described visits to both lakes and observations of lake trout prior to 1890 when the species was first introduced into the intermountain west by humans. A meristic and morphological examination of the lake trout throughout its range of distribution in 1971 concluded that the lake trout of Elk and Twin Lakes represent a unique glacial refuge population in the upper Missouri River drainage. Genetic examination of specimens from Twin and Elk Lakes in 1994 led to the conclusion that the fish were of a distinct haplotype representative of a native glacial relict with arctic roots in northern Alaska and Canada and a common refuge in Montana and southwest Alberta. More recent and detailed genetic examination of fish from both lakes in 2000 concurred with the 1994 findings and concluded that both populations represent an uncontaminated native stock of the same glacial origin. These samples also suggested that low variation in mitochondrial DNA could be associated with a genetic “bottleneck” caused and maintained by low numbers of breeding individuals within the populations. Both Elk and Twin Lakes appear to support relatively low numbers of lake trout among populations of sympatric native species such as burbot, white and longnose sucker, and mottled sculpin within systems that have been managed as sport fisheries via plants of nonnative salmonids such as Yellowstone cutthroat rainbow, and brook trout. Trend data for lake trout populations and sympatric species are presented for both lakes.