

# SPAWNING DEMOGRAPHICS AND EARLY LIFE HISTORY OF LACUSTRINE-ADFLUVIAL BULL TROUT IN QUARTZ LAKE, GLACIER NATIONAL PARK, MONTANA

Lora B. Tennant and Christopher S. Guy, Montana Cooperative Fishery Research Unit, Montana State University, PO Box 173460, Bozeman, MT 59717, lora.tennant@myportal.montana.edu

Robert E. Gresswell, U.S. Geological Survey, Northern Rocky Mountain Science Center, 1648 S. 7th Ave., Bozeman, MT 59717

Habitat fragmentation and introduction of nonnative fishes, e.g., brook trout (*Salvelinus fontinalis*) and lake trout (*Salvelinus namaycush*), have resulted in substantial reductions in the native range of bull trout (*Salvelinus confluentus*), contributing to the listing of Columbia River basin bull trout as threatened under the U.S. Endangered Species Act in 1998. Therefore, recent invasion of lakes in Glacier National Park by nonnative lake trout is a major concern. Because lake trout were first captured in Quartz Lake in July 2005, we sought to document unique characteristics of the lacustrine-adfluvial bull trout population prior to changes associated with the lake trout invasion. Specifically, we are investigating spawning demographics and early life history of bull trout in Quartz Lake. Starting in August 2007, a ‘picket fence’ weir with trap boxes was positioned in Quartz Creek at the inlet of Quartz Lake to capture adult bull trout spawners ascending and descending Quartz Creek. Electrofishing was used to sample juvenile bull trout rearing in Quartz and Rainbow creeks. Redd counts were conducted in Quartz and Rainbow creeks during mid October. Physical habitat was assessed in both streams, and temperature loggers were placed throughout the stream network. A gauge was installed near the mouth of Quartz Creek to monitor flow. Analyses will focus on effects of physical habitat characteristics on the distribution and abundance of bull trout in tributaries to the lake. The resulting information will provide a reference for future reclamation in Quartz Lake and other bull trout refugia in Glacier National Park.