

POPULATION CHARACTERISTICS OF LAKE TROUT IN SWAN LAKE, MT

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The recent establishment of lake trout (*Salvelinus namaycush*) in Swan Lake, Montana threatens one of the most productive bull trout (*Salvelinus confluentus*) fisheries remaining in the USA. Management of invasive lake trout in other systems has been focused on suppression often without establishing a thorough baseline from which to evaluate the impacts of suppression efforts. Describing the population dynamics of lake trout in Swan Lake prior to suppression efforts will provide a baseline for evaluating the effects of exploitation in the future. In 2007 and 2008 extensive gill net sampling provided data to estimate size structure, density, condition, maturity, fecundity, age structure and mortality of lake trout. Size structure indices in 2007 and 2008 were low with proportional size distributions (PSD) values of 7 and 8 respectively. Lake trout density was estimated at 8800 (7300-10,500 95% CI) fish > 160 mm. Condition of lake trout in Swan Lake is among the highest recorded for populations in the northwestern USA. Relative weight (W_t) values varied from 92 for fish between 300 and 499 mm to > 120 for fish between 800 and 999 mm. Fifty percent of male lake trout mature at 584 mm and 50 percent of females at 726 mm. Fishing mortality was estimated between 36 percent and 52 percent based on the population estimate in 2008 and those fish removed. The thorough baseline established by this study provides managers with a reference point for evaluating the effects of exploitation on the lake trout population in Swan Lake, Montana.
