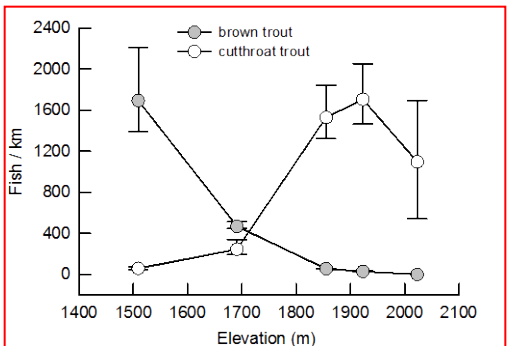
Logan River trout viability and long-term monitoring: factors affecting trout population dynamics, abundance, and distribution in the Logan River, Utah.

Dates:

2001-2012 (on-going)



Abstract:

Most subspecies of cutthroat trout Oncorhynchus clarkii are imperiled or extinct due to the combined effects of habitat degradation and interactions with exotic species. To quantify abundance and vital rates and evaluate trends, we selected a large population of Bonneville cutthroat trout O. clarkii utah from the Logan River of northern Utah, a river characterized by high-quality and connected habitat. Over a 11-year period, we completed a comprehensive population assessment, including depletion-based abundance estimates and a mark–recapture study (several throusand tagged fish) of site fidelity, growth, and survival. Abundance of Bonneville cutthroat trout (> 100 mm TL) varied greatly by sample site, ranging from 38 fish/km at the Third Dam site (the lowermost end of their distribution in the river) up to 822 fish/km at Franklin Basin. Population trend (λ) of cutthroat trout estimated for the entire Logan River population based on pooled site abundance estimates was 0.89 (0.77 – 1.02), indicating an apparent overall decline; however, site-specific population trends are highly variable. Clinical signs of whirling disease were observed in only 1% of fish handled (n > 10,000 fish), while prevalence of *Myxobolus cerebralis* in cutthroat trout was 50 – 100%. The distribution of cutthroat trout and brown trout show a distinct species-zonation pattern (Figure 1). Our results provide important conservation and recovery benchmarks for identifying range-wide limiting factors of Bonneville cutthroat trout. We continue to recommend a precautionary approach to the management of this endemic and important population.

Oncorhynchus clarkii

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Investigators:

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Christy Meredith, Graduate Research Assistant (PhD), USU-WATS {expected graduation, 2012}

Selected Publications:

Budy, P., G.P. Thiede, P. McHugh. 2007. A quantification of the vital rates, abundance, and status of a critical population of endemic cutthroat trout. North American Journal of Fisheries Management 27:593-604.

Budy, P., G.P. Thiede, P. McHugh, E.S. Hansen, and J. Wood. 2008. Exploring the relative influence of biotic interactions and environmental conditions on the abundance and distribution of exotic brown trout (*Salmo trutta*) in a high mountain stream. Ecology of Freshwater Fish 17:554-566.