

THE EFFECT OF FLOW REGULATION ON SNAKE RIVER CUTTHROAT TROUT: POTENTIAL CONSEQUENCES OF ALTERNATE FLOW REGIMES ON THE BEHAVIOR AND SURVIVAL OF THREE LIFE-STAGES

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An undisturbed river network is characterized by numerous channel processes and structures that act as behavioral cues or habitat for organisms. In response to this environmental variability, organisms evolve adaptations which allow them to persist. When river systems are altered, e.g., dammed, organisms (or life-stages of organisms) may not be adapted or able to respond to the novel environmental conditions, and the range of adaptations, e.g., life-history types, expressed by organisms may be constrained. Snake River cutthroat trout (*Oncorhynchus clarkii bouvieri*) have persisted in the Snake River through a century of flow regulation. However, it is unknown to what degree flow regulation has reduced the variability of cutthroat trout adaptations or influenced survival. As a first step in exploring how a disturbed environment affects the expression of Snake River cutthroat trout adaptations, we developed a conceptual framework of how life-stage specific survival might relate to flow regulation at Jackson Lake Dam on the Snake River. This conceptual framework will structure future research on the range of adaptations currently expressed by Snake River cutthroat trout and the implication of adaptation loss on the potential for Snake River cutthroat trout to respond to future disturbances.