

Yakima Basin Bull Trout Study

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Uncertainty regarding the distribution, migratory patterns, and habitat preferences of some populations of adult and sub-adult bull trout (*Salvelinus confluentus*) in the Yakima basin constrains effective management for this species. Adfluvial populations have been studied, but a lack of information still exists on fluvial and resident forms. In order to increase our knowledge of fluvial and resident bull trout populations, this radio telemetry study was initiated in 2003. Radio-tagged fluvial and resident bull trout have provided significant information and insight into population movement patterns, habitat preferences, and over-wintering areas. The main populations of the Naches River bull trout i.e. Tieton (Clear Creek, Indian Creek, S.F. Tieton) Rattlesnake Creek, Bumping River, Crow Creek, American River, Kettle Creek and Union Creek, are similar yet readily identifiable as separate genetically. They exhibit nearly identical over wintering behavior in the main stem Naches but individual population timing varies significantly. Over wintering occurs in several main holes where the populations intermingle over the winter months then separate out for spawning. Spawning site fidelity was found to be extraordinarily high (at or near) 100% by radio telemetry, and was reinforced by the genetics findings. The Ahtanum population was found to be an isolated or semi-isolated population with only one tagged fish moving far enough off of the spawning ground to go below an individual fork of the Ahtanum. Therefore, the North Fork, Middle Fork and South Fork Ahtanum populations are very nearly isolated from each other, let alone the Yakima and Naches Rivers. Crow Creek was also found to be a semi-isolated population, although the potential for movement exists. Several juveniles and adults were found on or below the spawning ground during non spawning surveys, and three fish were encountered as juveniles in the main stem Naches/Bumping Rivers.

Bull trout in the Naches River over wintered from the fall into the following spring in water cool enough that temperatures did not play a significant role in their survival. The tracked fish moved upwards in the main stem Naches in the early summer, before the warm temperatures in the lower river became an issue. Habitat choices seemed to be driven more by velocity than by riparian cover, with the subjects choosing a velocity where cover was provided by surface obfuscation, and prey was readily available.