

UTILIZATION OF FLOODPLAIN HABITATS BY NATIVE FISH SPECIES AND NON-NATIVE BROOK TROUT

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Brook trout (*Salvelinus confluentus*) are broadly introduced in western North American rivers and lakes with variable impacts on native aquatic ecosystems. Influences on native fish communities in floodplains are particularly inadequately understood. The objective of our study is to examine habitat utilization by native fish species and non-native brook trout across a flood plain of the Middle Fork Flathead River (MT). We quantified fish

communities and habitat structure of main channel riffle, run, and pool reaches and lateral shallow shoreline, backwater, parafluvial springbrook and orthofluvial springbrook reaches. Parafluvial habitats are those scoured by annual flood flows while in orthofluvial zones annual floods predominately deposit sediment. Habitat use was measured using visual streamside observation, snorkeling, benthic surveys, and electrofishing in 2004-2005. Backwaters and parafluvial springbrooks contained the most diverse native fish communities for species and life history stages. While brook trout were found in all floodplain habitats, they achieved an order of magnitude higher density (1.26 fish/m²) and biomass (3.81 g/m²) in orthofluvial springbrooks. Orthofluvial springbrooks provide low scouring flood frequency, high physical habitat complexity, stable thermal regimes in the preferred temperature range for salmonids (5-15 ° C), abundant high quality spawning sites, and terrestrial food subsidies from riparian vegetation.