

ABSTRACT: Rattlesnake Creek is one of two major tributary systems to the White Salmon River that were accessible to anadromous fish prior to the blockage by Condit Dam. Historically, Rattlesnake Creek was likely a major contributor to anadromous fish production from the White Salmon watershed. To assess how ready the Rattlesnake Creek watershed was for reintroduction of anadromous fish, especially steelhead, we surveyed habitat conditions and fish populations during 2001-2005. Our habitat surveys revealed a system with low pool quality and frequency, low habitat complexity, long cobble and boulder dominated riffles, and reduced floodplain connectivity. Stream temperatures regularly reached over 20°C during summer days while stream flows would drop to less than 0.5 cfs. High flows during winter could exceed 1000 cfs. Up to a 3-m falls at rkm 2.4, the fish assemblage consisted of rainbow trout, coastal cutthroat trout, longnose dace, shorthead sculpin, and brook lamprey. Two brook trout were collected in lower Rattlesnake Creek, one in October 2002 and another in October 2004. Above the falls, the assemblage was limited to rainbow trout, longnose dace, and shorthead sculpin. Longnose dace were the most abundant fish, followed by rainbow trout, in both of these segments of stream. Age-0 rainbow trout had higher abundance below the falls than above the falls, likely because the lower segment was used for spawning by rainbow trout residing most of their lives in the mainstem White Salmon River, in addition to those residing year-round in Rattlesnake Creek. Annual growth of age-1 rainbow trout was good at 30 to 40 mm, but almost no growth occurred during the harsh conditions of low flows and high stream temperatures during summer months. Even with the degraded state of Rattlesnake Creek, it appears to be a productive system for rainbow trout, cutthroat trout, and other resident fish species. However, without restoration actions, the Rattlesnake Creek watershed has limited habitat for anadromous fish production because of limited spawning gravels, limited rearing area for juvenile fish, high summer stream temperatures, low summer flows, and high peak flows.

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