

Using Trap and Haul to Provide Bull Trout Connectivity in the Yakima Basin, Washington

Abstract:

The Yakima River Basin is home to 15 populations of Bull Trout, the majority of which exhibit an adfluvial life history. Migrations of Bull Trout are blocked at six dams in the basin and we have undertaken studies to inform water management and fish passage needs. Since 2014, we have used trap and haul, genetic assignment, and tributary PIT tag monitoring data to inform fish passage design and construction at Clear Creek Dam. In 2019, we also began trap and haul and monitoring at Bumping, Kachess, Keechelus, and Tieton dams. From 2014-2021, we collected 186 Bull Trout in the stilling basin below Clear Creek Dam, of which 63% originated in the North Fork Tieton River and passed the dam, 29% originated from downstream tributaries and migrated upstream to the base of Clear Creek Dam, while 8% were identified as Bull Trout/Brook Trout hybrids. Monitoring data indicated that nearly all the Bull Trout transported above Clear Creek Dam made spawning migrations up the North Fork Tieton River and annual survival estimates ranged from 0.54 (SD = 0.11) to 0.65 (SD = 0.07). In the upper Yakima River, 20 Bull Trout were collected below Keechelus Dam and their assignments indicated that most originated in Gold Creek and were entrained at Keechelus Dam. However, two fish originated in spawning tributaries of Kachess Lake, were entrained at Kachess Dam, migrated downstream to Lake Easton and then up the Keechelus Arm to Keechelus Dam- about 20 km total. In Gold Creek, the primary spawning tributary upstream of Keechelus Dam, our monitoring data indicated that although Bull Trout spawning migrations were partially blocked by dewatered stream reaches in some years, they often resumed spawning runs in subsequent years when the creek was watered.