UPPER WILLAMETTE BULL TROUT SPAWNING ABUNDANCE AND PASSAGE AT COUGAR AND HILLS CREEK DAMS IN 2022

Nik Zymonas and Vince Tranquilli
Oregon Department of Fish and Wildlife – Corvallis Research Lab
nik.zymonas@oregonstate.edu

Bull Trout *Salvelinus confluentus* declined in the Willamette Basin over the last century and by the 1990s, the only remaining populations in the basin occurred in the McKenzie River drainage. The Upper Willamette Bull Trout Working Group formed in 1989 to coordinate activities to improve the status of bull trout populations and the group continues to guide recovery and mitigation efforts in the upper McKenzie, South Fork McKenzie, and Middle Fork Willamette drainages. Measures taken to improve the species' status have aimed to reduce angling-related mortality, improve habitat conditions and connectivity, restore the historical prey base, and reintroduce Bull Trout into formerly occupied tributaries. Comprehensive population monitoring and research on potential limiting factors are essential components of this program. We conducted monitoring efforts focused on Bull Trout in the Upper Willamette in 2022, and we will highlight selected results from these efforts in this presentation.

To assess Bull Trout spawning abundance, we conducted bi-weekly redd surveys and installed PIT tag interrogation stations at the downstream end of spawning tributaries. Redd surveys yielded the third highest total count on record (253 redds). Redd counts remained relatively high for four local spawning populations and moderate for two populations.

We operated PIT tag interrogation stations below Cougar and Hills Creek dams to detect tagged Bull Trout, we conducted angling efforts at Hills Creek Dam, and we assisted with processing and transporting bull trout collected at the Cougar Dam upstream passage facility. We detected no Bull Trout below Hills Creek Dam in 2022, although a screw trap in the tailrace collected one Bull Trout in December 2021. We did detect one PIT-tagged adult Bull Trout below Hills Creek Dam beginning in January 2023, and we will attempt to capture and transport this and any untagged Bull Trout this spring. The Cougar Dam upstream fish passage facility collected 12 Bull Trout during the 2022 operating season, including all 5 of the PIT-tagged fish detected by our PIT tag antennas during the autumn 2021 – spring 2022 passage season. We obtained post-transport detections for 9 of the 12 Bull Trout (75%) including 7 fish subsequently detected in Roaring River in autumn (58%) and 3 fish (25%) that passed back downstream of Cougar Dam again in late October or early November. The PIT tag detection systems in the Cougar Dam tailrace has detected nine PIT-tagged Bull Trout since 1 Oct 2022, and operation of the upstream fish passage facility for 2023 is scheduled to begin in mid-March.