

In-stream PIT-tag detection of resident salmonids in Washington's White Salmon River Watershed: One system's saga

Ian G. Jezorek¹, Patrick J. Connolly¹, and Earl F. Prentice²

¹ U. S. Geological Survey, Western Fisheries Research Center, Columbia River Research Laboratory, Cook, WA

² National Marine Fisheries Service, Manchester Research Center, Manchester, WA

We installed an in-stream PIT-tag-detection system at river kilometer (Rkm) 0.2 in Rattlesnake Creek to assess movement of resident rainbow trout and resident cutthroat trout in the White Salmon River, Washington. During summer 2001, we began PIT-tagging rainbow trout and cutthroat trout in Rattlesnake Creek and the White Salmon River (N = 3,061 as of November 2003; FL \geq 80mm). Fish were PIT tagged in Rattlesnake Creek up to 14 km upstream of the detector site. Fish were PIT tagged in the White Salmon River from about 6 km downstream to 8 km upstream of the confluence with Rattlesnake Creek. The PIT-tag detection system was installed in August 2001. The original configuration was two antennas with two Destron FS1001A transceivers. The antennas were placed in the thalweg about 15 m apart. A longitudinal arrangement of the antennas allowed determination of direction of movement and site efficiency. We have since experimented with several antenna designs and configurations. In May 2003, we began operation with a Destron multiplexing transceiver with four antennas. To date, the systems have been successful at detecting fish migrating both upstream and downstream. Site efficiency has varied with water level and direction of movement. Preliminary data from the two-antenna system indicate that site detection efficiency is excellent, near 100% at low water and about 70% at high water levels. This information has been a helpful addition to ongoing work to describe habitat linkages and life-histories of resident salmonids in the White Salmon watershed.