Use of PIT Tag Technology for Fish Tracking in the Gorge: What Are We Learning?

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Abstract
The availability of PIT tag technology has spurred much innovative fisheries research. In cooperation with other entities, our USGS team has installed many PIT tag interrogation systems in watersheds throughout the Pacific Northwest, such as the White Salmon, Wind, Hood, Klickitat, Umatilla, Toppenish, and Methow, and in other watersheds in the western US, such as the Little Colorado in Arizona and Meadow Valley Wash and Jarbidge in Nevada. We highlight the increasing amount of PIT tag technology applied in fish research and management of the Columbia River Gorge. Since our first install of an instream PIT-tag detections system in August 2001 in Rattlesnake Creek where we learned about trout habitat use and movement prior to Condit Dam removal, we have used PIT tag technology to: 1) Estimate escapement of wild summer steelhead run size in Washington's Trout Creek of the Wind River watershed, where Hemlock Dam was removed in 2009 with loss of a trap where all adult steelhead were counted, 2) Assess movement and diversity of life-histories of wild juvenile steelhead in the Wind River watershed, and 3) Assess juvenile and adult steelhead abundance and investigate spawner origins and to understand stream improvement needs in southcentral Washington's Rock Creek. These studies have, and are, addressing questions about fish behavior, habitat use and connectivity, life history diversity, and survival. The PIT tagging of both hatchery and wild fish, and the large network of instream detection provide the opportunity for understanding trends and fish response to change, disturbance, and restoration efforts throughout the diverse watersheds of the Columbia Gorge. The rapid increase in instream PIT tag detection systems by USGS and other entities are providing a wide array of information important to the entire Columbia River Basin.