

Life cycle monitoring of Wind River, WA steelhead to detect population responses to Hemlock Dam removal

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Abstract:

In summer 2009, Hemlock Dam was removed from Trout Creek, a tributary of the Wind River in southwestern Washington. The removal returned a small reservoir to a stream, and upstream passage of steelhead was no longer contingent on a fish ladder. We are assessing the steelhead population response in terms of abundance, production, and survival. Prior to dam removal, adult steelhead were counted at a trap in the fish ladder (1992 – 2009). Removal of the dam eliminated the trap, thus requiring new methods to estimate adult returns. We are combining Floy and PIT tagging at a mainstem Wind River trap with instream PIT-tag detections and snorkel surveys in Trout Creek to estimate adult abundance. Traps are being operated in Trout Creek and other key locations to assess parr and smolt abundance and survival. We are using a BACI design to compare Trout Creek steelhead population parameters to the rest of the Wind watershed. To detect a positive response within 10 years, a power analysis indicates a need for an increase of about 50% for adults and 24% for smolts.