

Klickitat Anadromous Salmonid Monitoring: Updates and New Projects

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ABSTRACT: Ongoing monitoring in the Klickitat River is aimed at determining status and trends in spring Chinook salmon and steelhead populations. For spring Chinook, redd counts, run reconstruction (harvest plus escapement), and mark-recapture methods are used to monitor run size. The overall run size in 2009 was large as compared to recent years. Run reconstruction yielded a total run size estimate of just over 3,000 fish, with approximately 1,500 adult (4- and 5-year-old) fish, and 85% hatchery-origin fish. Mark-recapture estimates of run size to Lyle Falls on the lower Klickitat River were significantly higher, with an estimate of approximately 6,500 total fish (95% confidence interval of 5,800 to 7,360), 3500 to 5100 adult fish, and 90% hatchery fish. Despite the large overall run size, redd counts in 2009 indicated a low return of wild spring Chinook. Redd count data from 1996 to 2009 shows a 5.3% decline (95% CI: -10.2 to -0.3%), indicating that the wild spring Chinook population in the Klickitat is still depressed. The 2010 forecast for spring Chinook is for a strong run of 4500 adult fish (hatchery and wild), although there is substantial uncertainty in this forecast.

Steelhead monitoring also consists of redd counts, run reconstruction, and mark-recapture estimates. Poor survey conditions often result in redd counts and escapement estimates that are biased low; mark-recapture methods offer a more robust population monitoring tool. Mark-recapture estimates begun in 2005 under a joint WDFW/YN project have now been continued after a two-year gap. The hatchery summer steelhead estimate for 2009 was approximately 3600 fish (95% CI: 2920 to 4536) which is nearly twice the recent years' average for the Klickitat. This number may be biased high by a high dip-in rate of out-of-basin fish captured at Lyle Falls in 2009. The wild summer steelhead estimate is approximately 1100 (95% CI: 929 to 1386), which is slightly below recent years' average.

In addition to ongoing run size monitoring, several new research efforts have been initiated in the Klickitat subbasin. Radio telemetry monitoring is being conducted to monitor spawning behavior, passage obstructions, and stray/dip-in rates for steelhead and spring Chinook. Of particular interest are any differences in spawning areas and timing by origin (hatchery vs. wild) or stock (summer vs. winter steelhead). Fish are tagged at the Lyle Falls adult trap and monitored via fixed sites and mobile tracking. In lower White Creek (a primary steelhead production tributary), an instream Passive Integrated Transponder (PIT) tag detector was installed to monitor juvenile migration patterns and survival, as well as future adult returns. In 2009, approximately 1700 juvenile steelhead/rainbow trout were PIT-tagged at 21 sites throughout the White Creek watershed. Degraded habitat conditions affect juvenile steelhead in portions of this watershed, and habitat restoration efforts are being monitored via this instream PIT tag detector as well as pre- and post-restoration evaluation of aquatic insect communities, fish abundance and condition, and riparian condition. Results from these research efforts should be available next year will help guide hatchery and habitat actions.