

Salmonid Life History Strategies in Seasonally Disconnected Streams of the Lower Klickitat River (Klickitat River, WA)

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The lower tributaries life history study was initiated in 2012 to characterize and monitor salmonid populations in five tributaries located in the lower 28-kilometers of the Klickitat River. Each tributary is seasonally disconnected from the mainstem Klickitat River 5-7 months a year. To quantify and monitor salmonid life history strategies and movement patterns (in-and-out movement timing), PIT tag interrogation arrays paired with stream gages (pressure transducers) were installed in each stream near the confluence with the Klickitat River. Single-pass electrofishing surveys were conducted annually to PIT tag fish and compare inter-annual abundance estimates within and among streams. During the low flow period, water surface mapping was conducted to quantify reductions in wetted habitat length.

Physical and biological differences were observed between streams draining the west and east aspects of the Klickitat River. During the low flow period, reductions in surface water were significantly greater in east draining streams (90-100%) compared to west side streams (7-25%). Correspondingly, the percentage of tagged fish detected at arrays was higher in east side streams (49-59%) than west side streams (8-20%). Out-migration behavior, particularly in east side streams, appears to be highly influenced by surface water flow conditions. A higher percentage of tagged individuals in east side streams out-migrated to the Columbia. Salmonids in the west side streams tended to exhibit more residential life histories, particularly in Logging Camp Creek.