Habitat Enhancement Effectiveness Monitoring
Klickitat River Subbasin

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ABSTRACT:
The Klickitat Watershed Enhancement Project (KWEP) is broad-based restoration and enhancement implemented by the Yakama Nation Fisheries Program (YNFP) to enhance and restore watershed health and function in the Klickitat River subbasin. A three-pronged approach to restoration is used: (1) a*ssess* watershed conditions and *prioritize* sites for restoration activities, (2) *protect*, *restore*, and *enhance* priority watersheds and reaches, and (3) *monitor* to assess watershed conditions and effectiveness of restoration activities. Monitoring is done collaboratively by Klickitat Monitoring and Evaluation Project (M&E) and KWEP. Twenty-three projects across 34 sites have been completed to date, to address fish barriers, instream habitat degradation, riparian condition, wetland function, isolated side-channels, and livestock impacts.

Enhancement projects influence habitat at multiple spatial and temporal scales. Consequently, monitoring in the Klickitat subbasin is scaled to assess project design, implementation, objectives, and guide future work. While there is a tendency to categorize monitoring actions into three types: status and trends, implementation, and effectiveness, sampling in the Klickitat subbasin is designed to span these categories.

A suite of effectiveness monitoring actions will be presented to demonstrate a continuum ranging from qualitative descriptive measures to a quantitative experimentally designed research project. These actions include redd counts, PIT tagging, estimating salmonid fish abundance, installation of shallow groundwater wells, continuous air and water temperature sampling, instream habitat surveys, measurement of residual pool depths, characterization of riparian vegetation, and quantification of macroinvertebrate prey availability and diet of *Oncorhynchus mykiss*. The actions applied are scaled to the individual project and management question(s) posed.