

**Title:**

Development of a Benthic Index of Biotic Integrity  
For Tributaries and Mainstem Rivers in the  
Yakima River Basin Upstream of Union Gap

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**Summary of Presentation:**

Over the past three years we have collected samples of aquatic benthic invertebrates from a total of 93 tributary and mainstem sites in the Yakima Basin upstream of Union Gap in order to develop a set of metrics that will depict with reasonable accuracy the biotic integrity of tributary and mainstem river sites at the reach scale. Correlated with landscape condition and landuse characteristics such a set of metrics (an Index of Biotic Integrity) can serve both to assess landuse impacts and to monitoring the effectiveness of actions intended to improve stream and river health.

To date we have confirmed that 10 metrics developed for the Puget Sound Lowlands respond as expected to tributary stream reach condition in the Yakima Basin. Mainstem river sites (Yakima, Naches, Tieton, and Cle Elum) also respond broadly as expected, but site scores display less range than tributaries sites, prompting us to consider additional and/or different metrics to see if discrimination of mainstem site condition may be improved. We are at present undecided whether it will turn out to be best to have one set of metrics or to have two separate metrics, one for tributaries and one for mainstems.

In the year remaining for completing the project, we will focus sampling on a small subset of mainstem and tributary sites to enhance replication and will devote the majority of our time to analyzing recent GIS landuse data to increase our understanding of the landscape conditions to which the metrics may be responding.