**Development of a Fish-Based IBI for West Virginia streams and an Integrated Measure of Stream Biological Condition**

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Statewide watershed monitoring programs typically include measures of biological community structure to assess the overall health of streams and rivers. In West Virginia, current assessments are based on measures of aquatic benthic macroinvertebrates only, and there is concern that invertebrate assemblages are unable to capture the range of information needed to fully assess stream ecological condition. Consequently, we have been working with a group of stakeholders from the WVDEP, USEPA, and USGS to develop measures of ecological condition based on fish assemblages to complement invertebrate based indices.

Preliminary fish-based IBIs have been constructed for the Ohio Basin Central Appalachians, the Ohio & Monongahela Basin Western Allegheny Plateau, the Monongahela Basin Central Appalachians & Ridge Valley, the Upper Kanawha Central Appalachians & Ridge Valley, and the Potomac Basin Central Appalachians & Ridge Valley. Common metrics included in the IBIs are: total, benthic, and cyprinid richness, % benthic, % tolerant, and a measure of trophic structure diversity. IBIs are generally responsive to multivariate measures of landscape stress including mining, development, agriculture, and forest cover within each model region. However, IBI responsiveness to water quality measures such as conductivity is highly variable across model regions. For example, IBI scores increase with increasing conductivity in regions where acid precipitation is a critical stressor and decrease in regions where mining produces acidic mine drainage. IBI response to conductivity in regions with alkaline mine drainage is less predictable. Finally, we demonstrate how the fish IBIs can be used with macroinvertebrate IBIs such as WVSCI and GLIMPSS to produce a more complete view of stream ecological condition, especially in larger streams, and facilitate policy decisions on aquatic use attainability.