Predictive models for bioassessment of large and Great Rivers

Lester Yuan, National Center for Environmental Assessment, Office of Research and
Development, US EPA, 1200 Pennsylvania Ave, NW, Washington, DC 20460

RIVPACS-style predictive models have been used to assess the biological condition of small streams with great success. These models use data collected from reference sites to predict taxonomic composition in a stream, given a set of natural characteristics (e.g., catchment size, elevation). The predicted taxonomic composition can then be compared to the observed composition to assess the biological condition of the stream. The ratio between observed and expected taxonomic richness (O/E) provides an index of biological condition that can be interpreted intuitively and can be compared across disparate regions. Predictive models may provide a useful tool for assessing the biological condition of Great River Ecosystems. However, some issues that may require further study include sample comparability across different habitats and comparison of model performance with simpler alternatives.

Dr. Yuan has a PhD in Mechanical Engineering from Stanford University in 1997. He has been working at NCEA since 1998 on biological assessment and stressor identification.