

**The Minnesota Pollution Control Agency's approach to site selection and reference condition for the development of biological criteria**

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The Minnesota Pollution Control Agency (MPCA) utilizes an integrated approach to water quality assessment, incorporating biological, physical, and chemical measures. A primary goal is to develop regional indices of biological integrity (IBI's) using attributes of fish and macroinvertebrate communities to establish statewide biological criteria for rivers and streams. The definition and geographic calibration of reference condition is paramount to achieving this goal. The MPCA utilizes a GIS-based watershed rating method to identify candidate reference sites for rivers and streams of the same class. Final determination of reference condition incorporates the watershed rating with physical habitat data obtained during sampling. The MPCA has recently obtained a statewide dataset to begin the development of statewide biocriteria.

Mike is an aquatic biologist with the Minnesota Pollution Control Agency, Biological Monitoring Unit. He is responsible for monitoring and assessment of surface waters and development of biological criteria for streams and rivers. He has worked for the agency in this capacity for 10 years.