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Reference Condition in large, regulated rivers: Will we know it when we see it?

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Defining reference condition is a critical part of the bioassessment process. Once defined, assessments can take place by comparing observed conditions with expected conditions. Determining reference condition for large, regulated rivers however, is a daunting task and is limited by the often subjective characterization of stressor gradients such as landscape degradation, water quality degradation etc. Regardless of the process used to define reference condition, ultimately it's the comparison of the observed condition to this expectation that is most important. Equally critical to the bioassessment process is the development of an understanding of the influences from a range of 'natural' abiotic conditions. We have found that biotic communities in the Ohio River respond to natural fluctuations in the flow regime, vary temporally (with season), vary spatially (three distinct geographic regions), and vary according to (3) distinct microhabitat conditions. We are able to increase the resolution and sensitivity of our bioassessment approach by accounting for variation resulting from 'natural' conditions and are now better positioned to determine reference condition and proceed with bioassessments.

Erich is Manager of Research with ORSANCO. He has been with ORSANCO since 1993 mostly focusing on the development of biological sampling and assessment methodologies for the Ohio River. He also currently serves as staff liaison to the Commission's Research Committee, which advises the Commission by assessing and articulating current and future needs for research, the results of which will advance scientific understanding of the Ohio River.