The Importance of Tiered Aquatic Life Uses and Adequate Monitoring and Assessment to the Routine Performance of Use Attainability Analyses

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Ohio EPA employs biological, chemical, and physical monitoring and assessment techniques in biological surveys in order to meet three major objectives: 1) determine the extent to which use designations assigned in the Ohio Water Quality Standards (WQS) are either attained or not attained; 2) determine if use designations assigned to a given water body are appropriate and attainable; and 3) determine if any changes in key ambient biological, chemical, or physical indicators have taken place over time, particularly before and after the implementation of point source pollution controls or best management practices for nonpoint sources. In 1978, Ohio EPA adopted an initial set of tiered aquatic life uses, which provided the basis for adopting biological criteria in 1990. The implementation of biological criteria introduces a disciplinary process in which use attainability analysis (UAA) is a fundamental and routine component. Since 1978, Ohio EPA has performed aquatic life use designation revisions for more than 1000 stream and river segments. These changes include what would be labeled as both "upgrades" and "downgrades", although neither term is particularly relevant to the assessment process. The data and information to support aquatic life UAAs is produced by the systematic monitoring and assessment of biological, chemical, and physical indicators via a rotating basin approach. This approach employs an adequate set of standardized and calibrated biological assessment tools supported by appropriate chemical and physical indicators. An integrated analysis of resource quality and attainment status, delineation of causes and sources of threat and impairment, and recommendations for management actions are produced for each assessment. This includes recommendations for any changes to use designations that might be appropriate which is then followed by a WQS rulemaking process. Recently, the TMDL development process has highlighted the need to have a sequential and organized approach. Each TMDL development watershed in assessed two years prior to TMDL development for the purposes of assessing use attainability questions including unassessed and undesignated streams. This organization ensures that TMDL are developed and based on appropriate and attainable use designations and criteria. This process further underscores the need for the UAA process to be under girded by an adequate monitoring and assessment infrastructure, in which tiered uses linked to biological criteria and supporting chemical and physical indicators produce an integrated assessment and recommendations for WQS revisions. When such an infrastructure is in place, UAAs become a matter of comparative routine, as opposed to becoming resource intensive endeavor with little promise of outcome where such an infrastructure is lacking.