The Role of Use Attainability Analysis in Defining Appropriate Water Quality Standards: Three Cases Benthic Impairments

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The recent National Research Council assessment of the Total Maximum Daily Load (TMDL) approach recommended that states consider conducting Use Attainability Analysis (UAA) before conducting a TMDL. However, under the current TMDL program, states are reluctant to perform a UAA for two main reasons. First, there is a lack of guidance on how to conduct a UAA that would be acceptable to EPA. Second, some state regulatory agencies believe without an explicit EPA endorsement, UAAs may be perceived by some stakeholders as lowering the water quality standard in order to avoid completing and implementing a TMDL. As a result, in states operating under a consent decree, such as Virginia, states are reluctant to dedicate resources to a UAA process instead of seeking to meet the court imposed TMDL development schedule.

This paper describes three cases where TMDLs were developed for impaired stream segments in Virginia where a UAA may have been a more appropriate first step. The three stream segments were listed impaired for not supporting aquatic life based on a narrative criterion and results of benthic macroinvertebrate surveys. Each impaired stream segment is short in length (100 feet to 2,270 feet), receives little impact from nonpoint sources, has one point source--effluent from a trout production facility--and has minimal or no obvious impact on its receiving stream beyond the impaired segment. Two of the trout facilities are state owned and raise trout for stream stocking in waters throughout the state. The third facility is privately owned and is the sole source of income for the trout farmer. One impaired stream segment flows only through private property owned by the trout producer, and the two other segments flow through property managed by the Virginia Department of Game and Inland Fisheries. In this paper, socioeconomic circumstances, the definition of aquatic life uses, and protection of the state's waters will be discussed. It will be shown that contrary to the perception of UAAs being costly and time consuming, UAAs for these streams could have made the TMDL study unnecessary, and the resources spent conducting the TMDLs could have been allocated to improving water quality within these streams or to other impaired streams.