

Appendix F: Recommendations from 2013-14 Bioassessment Report for TALU Implementation and Biocriteria Development

Based on the results of an evaluation of Wisconsin's compliance with the recommended USEPA's critical elements of a successful monitoring strategy, the Midwest Biological Institute (MBI) examined the capacity of the state's monitoring, assessments, and water quality standards programs to support the development and implementation of a Tiered Aquatic Life Use (TALU) - based approach in Wisconsin.

Major Recommendations

Based on the results of the critical elements evaluation and the examination of the capacity of both the M&A and WQS programs to support the development and implementation of a TALU based approach in Wisconsin the following are recommended as immediate considerations:

1. Determine the technical tasks that are needed to elevate the technical elements to the maximum score for each.
2. Consider a shift in emphasis from the Tier 1 statewide assessment to a Tier 2 watershed assessment scale at the 10-12 Huc scale of spatial resolution. While the importance of the WIDNR commitment to statewide reporting is recognized, that alone will not lead to the development of a credible TALU based approach.
3. Design the template for tiered aquatic life uses and numeric biological criteria for wadeable streams statewide considering the example in Figure 3.
4. Test their application in representative settings to include the following:
 - Apply the Natural Communities model to determine the appropriate class and as validated by the ambient biological, chemical, and physical data;
 - Determine the appropriate TALU tier that applies to each stream and/or stream segment;
 - Complete an aquatic life use assessment using the appropriate TALU tier biocriteria for each assemblage as the primary basis for attainment or non-attainment;
 - Use the accompanying chemical/physical and other stressor data to determine the proximate causes and sources of impairment and threat;
 - Use the results of the attainment and stressor analyses to determine how to assign appropriate management recommendations and/or actions to include WPDES permitting, TMDLs, nonpoint source management, or any other management program; and,
 - Utilize this experience to determine what new tools are needed and if any existing tools need additional development.

This should allow WIDNR to better determine and understand how a TALU based approach can be applied statewide and how the outcomes would be different than at present. We feel that this exercise will be useful to the eventual implementation statewide.

The following additional recommendations are made knowing that these will be needed for any state that would be implementing TALUs and biocriteria in the M&A and WQS programs:

5. Develop relationships between the habitat assessment tool and the biocriteria indices as this will be needed in the determination of the appropriate TALU tier within the Natural Community class in which it applies. Habitat is a critical factor in the attainability of aquatic life uses for warm water streams and rivers. Furthermore, when a biological impairment exists habitat is the key variable in the determination of use attainability absent the

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confirming evidence of biological attainment. As part of this approach strong consideration needs to be given to using the QHEI given its practical-to-apply characteristics and its demonstrated use for this purpose elsewhere. WIDNR has been trained in this procedure so it makes sense to follow through in developing it further.

6. Develop relationships between key chemical/physical and other common stressors and the biological indices and their attributes. This specifically refers to the use of biological assessment data to develop relationships between measures of biological response and anthropogenic stressors. This includes the exploration of developing biological response signatures in addition to correlative analysis with chemical/physical parameters and indicators. A capability for developing these relationships extends the use of biological assessments from assessing condition to informing identification of causes and sources of a biological impairment at multiple scales. The association of biological response with stressors and their sources affecting aquatic systems requires a comprehensive database that should include:

- biological, chemical, physical, and Whole Effluent Toxicity (WET) data and information;
- detailed watershed and land use information;
- locations of discharges and discharge monitoring;
- Geographic Information System (GIS) capability to assemble watershed and discharge information and relate them to the correct sampling sites.

Paired biological and other relevant environmental data support developing quantitative stress-response relationships is needed along with a relational database that enables data export and analysis via query. Based on the CE evaluation this should be readily available for Wisconsin rivers and streams.