

Biological Fact Sheets

Aquatic Life Monitoring (ALM)

May 17, 2006

Aquatic Life Monitoring (ALM) events are typically scheduled as part of the cooperative monitoring schedule and are conducted to provide baseline data on environmental conditions, and to determine if aquatic life uses/dissolved oxygen criteria are being attained. ALM samples can contribute to the establishment of an appropriate aquatic life use.

Biological Events	Number of Index Period Events	Number of Critical Period Events	Detail
Fish assemblage characterization	1	1	<p>One year sampling period with, at least, one month between monitoring events. Index period (March 15 - October 15) Critical period (July 1 - September 30)</p> <p>Two Biological Events are required. One event to be conducted during the critical period and the other event to be conducted during the non-critical portion of the index period (March 15 - June 30 or October 01 - October 15).</p> <p>ALM is appropriate for routine monitoring sites, and should be representative of the water body being assessed</p> <p>* Conventional water chemistry and 24-hour DO monitoring are optional, but are strongly recommended for evaluation of the Biological Event.</p> <p>When the ALM is conducted on an unclassified water body (not in either <i>Appendix A</i> or <i>D</i> of the Texas Surface Water Quality Standards) and the samples indicate that the <i>presumed use is supported</i>, this will be adequate information to establish the appropriate aquatic life use.</p> <p>When the ALM is conducted on an unclassified water body (not in either <i>Appendix A</i> or <i>D</i> of the Texas Surface Water Quality Standards) and the samples indicate that the <i>presumed use is not supported</i>, an Aquatic Life Assessment (ALA) will be necessary to determine the appropriate aquatic life use.</p> <p>When the ALM is conducted on a classified water body and (established in either <i>Appendix A</i> or <i>D</i> of the Texas Surface Water Quality Standards) and the samples indicate that the <i>adopted use is not supported</i>, the water body will be listed on the 303(d) List.</p>
Benthic macroinvertebrate community characterization			
Stream physical habitat assessment			
Instantaneous field measurements			
Flow discharge measurement			
* 24-hour DO monitoring			
* Conventional water chemistry sample			

Aquatic Life Assessment (ALA)

An Aquatic Life Assessment (ALA) is conducted on an unclassified water body not already included in Appendix D of the Texas Surface Water Quality Standards (TSWQS), and which has previously been assessed and determined not to attain the presumed aquatic life use and/or the associated dissolved oxygen criterion (i.e., listed in Category 5c). The purpose is to determine the appropriate aquatic life use and the associated dissolved oxygen criterion.

Biological Events	Number of Index Period Events	Number of Critical Period Events	Detail
Fish assemblage characterization	1 st year: 1 2 nd year: 1	1 st year: 1 2 nd year: 1	Two year sampling period with, at least, one month between monitoring events. Index period (March 15 - October 15) Critical period (July 1 - September 30)
Benthic macroinvertebrate community characterization			Four Biological Events are required*. Each year, one event is conducted during the critical period and one event conducted during the non-critical portion of the index period (March 15 - June 30 or October 01 - October 15).
Stream physical habitat assessment			Site/reach selection must ensure that adequate data are generated to accurately characterize biotic integrity through the entire study area. This may involve more than one site depending on the size of the water body. Site/reach selection must be done in consultation with TCEQ Water Quality Standards.
Instantaneous field measurements			*Exceptions to the number of Biological Events Required:
Conventional water chemistry sample			If an ALA was required based on the results of Aquatic Life Monitoring (ALM), that is, results indicate that <i>presumed use is not supported</i> ; and the first year's samples from the ALA <i>indicate agreement</i> with the results of the ALM, then the second year's Biological Events for the ALA are not required.
24-hour DO monitoring			If an ALA was required based on the results of Aquatic Life Monitoring (ALM), that is, results indicate that <i>presumed use is not supported</i> ; and the first year's samples from the ALA <i>are not in agreement</i> with the results of the ALM, then the second year's Biological Events for the ALA are required.
Flow discharge measurement			The aquatic life use indicated by the combined results of the ALA and ALM will be considered for <i>Appendix D</i> in the next TSWQS revision.

Biological Events	Number of Index Period Events	Number of Critical Period Events	Detail
Additional Diel Events			
24-hour DO monitoring	1 st year: 1* 2 nd year: 1	1 st year: 2* 2 nd year: 2	<p>A total of ten recent 24-hour DO events are needed to determine appropriate DO criteria, with no more than six in any one year (total six in the critical period, and four in the non-critical period.) If two or more of the five 24-hour DO events collected by the end of the first year of the ALA do not support the presumed criterion, then up to five 24-hr DO monitoring events must be collected in the second year, even if Biological Events are not required (to make a total of ten, including DO samples from ALM).</p> <p>An effort should be made to collect all samples when flows are at, or above the critical low flow condition 7Q2.</p> <p>* A minimum of five 24-hour DO samples must be available by the end of the first year; from recent DO sampling plans, an ALM, and these ALA events. Samples are used to determine if additional DO monitoring is needed as described in the paragraph above.</p>
Flow discharge measurement			

Use Attainability Analysis (UAA)

A Use Attainability Analysis (UAA) is conducted on water bodies for which aquatic life uses and dissolved oxygen criteria have been established in the Texas Surface Water Quality Standards (including Appendix D), to determine if the existing designated aquatic life use/dissolved oxygen criterion is appropriate and, if not, to develop information to adjust the designated use and/or criterion. UAAs may also be conducted on previously unassessed and/or unclassified water bodies.

Biological Events	Number of Index Period Events	Number of Critical Period Events	Detail
Fish assemblage characterization	1	1 st year: 1 2 nd year: 1	<p>Two year sampling period with, at least, one month between monitoring events. Index period (March 15 - October 15) Critical period (July 1 - September 30)</p> <p>Three Biological Events are required. Two of the events during the critical period with one during year 1, and one during year 2. The third event should be conducted during the non-critical portion of the index period (March 15 - June 30 or October 01 - October 15) in either year 1 or year 2.</p> <p>Site/reach selection must ensure that adequate data are generated to accurately characterize biotic integrity through the entire study area. To accomplish this, sampling of multiple sites/reaches will be required for most water bodies. Site/reach selection should be done in consultation with TCEQ Water Quality Standards.</p>
Benthic macroinvertebrate community characterization			
Stream physical habitat assessment			
Instantaneous field measurements			
Conventional water chemistry sample			
24-hour DO monitoring			
Flow discharge measurement			
Additional Diel Events			
24-hour DO monitoring	1	1	<p>Besides the three monitoring events described above, a minimum of two Additional Diel Events must be conducted. One of the two additional events should be conducted during year 1 and the other during year 2. One must be collected during the critical period and one must be collected during the non-critical portion of the index period. If, 2 or more of the five 24-hr DO samples do not support the criteria, additional 24-hr DO data may be required.</p> <p>An effort should be made to collect all samples when flows are at, or above the critical low flow condition.</p>
Flow discharge measurement			

Receiving Water Assessment (RWA)

A Receiving Water Assessment (RWA) is conducted on unclassified water bodies that are the subject of a wastewater permitted activity. The purpose is to generate physical, chemical, and biological data to be used in identifying the appropriate aquatic life use and the associated dissolved oxygen criterion.

Biological Events	Number of Index Period Events	Number of Critical Period Events	Detail
Fish assemblage characterization Benthic macroinvertebrate community characterization Stream physical habitat assessment Instantaneous field measurements Flow discharge measurement * 24-hour DO monitoring * Conventional water chemistry sample		1	One year sampling period Index period (March 15 - October 15) Critical period (July 1 - September 30) The RWA typically involves a single site, located upstream of an existing discharge, or downstream of a proposed new discharge. Additional sites may be required, depending on the size of the discharge. Study sites/reaches should be representative of the water body(ies) being evaluated and should be selected in consultation with TCEQ Water Quality Standards Team. One Biological Event is required but two are strongly recommended for determining the appropriate aquatic life use. An effort should be made to ensure that data are collected during the index period (March 15 - October 15), and, preferably within the critical period (July 1 - Sept. 30). The aquatic life use indicated by the RWA will be considered for <i>Appendix D</i> in the next TSWQS revision. * Conventional water chemistry and 24-hour DO monitoring are optional, but are strongly recommended for evaluation of the Biological Event.