

**Submitting Assessments or Water Quality Data to the  
State of Oklahoma for Inclusion in the Integrated Report:  
A Guide for Tribes**

## TABLE OF CONTENTS

TITLE PAGE	i
TABLE OF CONTENTS	ii
BACKGROUND OF THIS PROJECT	1
MINIMUM DATA QUANTITY REQUIREMENTS	2
Basic Data Quantity Requirements	3
General Spatial Requirements	3
General Temporal Requirements	3
Minimum Number of Samples	4
Specific Data Quantity Requirements	5
Data Quantity Requirements Specific to Nutrients	5
Data Quantity Requirements Specific to Macroinvertebrates	6
Data Quantity Requirements Specific to <i>E. coli</i> or Enterococci	7
Data Quantity Requirements Specific to Habitat Data	7
MINIMUM DATA QUALITY REQUIRMENTS	8
Specific Data Quality Requirements	10
Data Quality Requirements Specific to Macroinvertebrates	10
Data Quality Requirements Specific to Habitat Data	11
ASSESSMENT DECISIONS	12
Assessing Data Using State of Oklahoma WQS	12
Fish and Wildlife Propagation (FWP)	13
Chemical Methodologies	13
<i>Dissolved Oxygen</i>	13
<i>Turbidity</i>	14
<i>Oil and Grease</i>	14
<i>Biological Criteria</i>	14
<i>Assessing Macroinvertebrate Data.</i>	15
<i>Step 1: Calculate the necessary metrics.</i>	17

<i>Step 2: Calculate a metric score for each metric.</i>	17
<i>Step 3: Calculate a “Total IBI Score” for each sample.</i>	18
<i>Step 4: Divide the total IBI score by the reference IBI score.</i>	19
<i>Step 5: Compare the resulting percentages to the Matrix in Table B.</i>	19
<i>Step 6: Make an assessment decision for the collection.</i>	19
<i>Step 7: Make a FWP attainment determination for the assessment unit based on macroinvertebrate data.</i>	20
<b>Primary Body Contact Recreation (PBCR)</b>	20
<i>E. coli</i>	20
Enterococci	21
<b>Secondary Body Contact Recreation (SBCR)</b>	21
<b>Public and Private Water Supply (PPWS)</b>	21
Oil and Grease	22
<b>Emergency Water Supply (EWS)</b>	22
<b>Agriculture (AG)</b>	22
<b>Navigation (NAV)</b>	22
<b>Fish Consumption (FC)</b>	22
<b>Aesthetics (AES)</b>	23
Oil and Grease	23
Total Phosphorus	23
<b>Nutrient-Threatened Determination</b>	23
<b>SUBMITTING ASSESSMENTS OR DATA TO THE STATE OF OKLAHOMA</b>	24
<b>REFERENCES</b>	25
<b>RESOURCES</b>	26
<b>APPENDIX</b>	28

## BACKGROUND OF THIS PROJECT

The purpose of this document is to assist tribes interested in sharing Clean Water Act (CWA) §106 data with the State of Oklahoma by defining minimum data quantity and quality requirements. The information included in this document will help tribes design water quality monitoring programs that result in datasets that meet requirements for inclusion in the State of Oklahoma Integrated Report, the biennial report submitted to the Environmental Protection Agency (EPA). The Integrated Report fulfills the reporting requirements outlined in Sections 305(b) and 303(d) of the Clean Water Act. The Integrated Report contains an assessment of the state's waters and a list of impaired waters, or waters that are not supporting one or more beneficial uses.

Sharing data is beneficial to the State of Oklahoma because tribes monitor waterbodies the state does not, and because tribes typically sample at the same site more often than state agencies. Sharing data may benefit tribes by creating a pathway for participation in assessment and listing decisions. Tribes are in no way required to share CWA §106 data with the State of Oklahoma, but some tribes may find it beneficial to do so.

This document was developed by a Water Monitoring and Data Sharing Workgroup (WMDSW) consisting of representatives from three Oklahoma tribes (Citizen Potawatomi Nation (CPN), Iowa Tribe of Oklahoma (ITO) and Kickapoo Tribe of Oklahoma (KTO)), three state agencies (Oklahoma Conservation Commission (OCC), Oklahoma Water Resources Board (OWRB), and Oklahoma Department of Environmental Quality (ODEQ)) and the United States Geological Survey (USGS) Oklahoma Water Science Center. The following individuals participated in the workgroup and the development of this document:

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This project resulted from an October 2017 meeting of tribes participating in an Assessment and Total Maximum Daily Load Tracking and Implementation System (ATTAINS) training. During the training, EPA personnel facilitated a meeting between Oklahoma tribes and State of Oklahoma personnel involved in water quality assessment and listing decisions. During the meeting, tribal representatives expressed frustration that tribal water quality data are not used for listing decisions because Oklahoma tribes are effectively prevented from obtaining “treatment in a manner similar to a state” (TAS) for regulatory environmental programs as a result of Public Law 109.59, Section 10211 (the “Midnight Rider”). During that meeting, state personnel expressed interest in working with Oklahoma tribes to include tribal data in assessment decisions. The WMDSW formed to collaboratively work through the issues involved in using tribal data for assessment decisions. The WMDSW held its first meeting December 12, 2017, and continued to meet regularly.

### **MINIMUM DATA QUANTITY REQUIREMENTS**

This section describes the minimum data quantity requirements for assessing water quality data most commonly collected by tribes. Minimum data quantity and quality requirements are defined primarily in the Use Support Assessment Protocols (USAP), found in 785:46-15 of the Oklahoma Administrative Code (OAC). Additional requirements are articulated in OAC 785:45, and further clarification of the rules is outlined in the 2012 Continuing Planning Process document (CPP).

Most tribal CWA §106 programs are designed to meet the recommendations of *Final Guidance on Awards of Grants to Indian Tribes under Section 106 of the Clean Water Act (2006)*. The guidance identifies nine basic parameters for which a mature water monitoring program is expected to collect data:

Note: Total nitrogen can be calculated by summing TKN and nitrate/nitrite. Ammonia is not included in the calculation because TKN includes ammonia, organic nitrogen and reduced nitrogen.

For data requirements with regard to spatial coverage, see OAC 785: 46-15-3(b). For assistance in determining whether a waterbody is wadable or non-wadable, please contact OWRB personnel.

For data requirements with regard to temporal coverage, see OAC 785:46-15-3(c).

1. Dissolved oxygen (DO)
2. pH
3. Water temperature
4. Turbidity
5. Phosphorus (total phosphorus or ortho-phosphorus)
6. Total nitrogen (nitrogen should be reported separately as total Kjeldahl nitrogen (TKN), ammonia and nitrate/nitrite)
7. Macroinvertebrates
8. *E. coli* or enterococci
9. Basic habitat information

Many tribes collect additional data dictated by tribal needs specific to their jurisdiction. Although the guidance provided in this document is limited to commonly monitored parameters, state personnel are willing to work individually with tribes regarding data requirements for less commonly monitored parameters such as toxicants, metals, pesticides and fish data.

### Basic Data Quantity Requirements

#### General Spatial Requirements

1. Unless demonstrated to the contrary, data from a single monitoring location can be used to assess up to 10 miles of a wadable stream, 25 miles of a non-wadable stream, or 250 surface acres of a lake. Although these are the recommended spatial extents for which assessment decisions can be made based on data from one sampling location, other data or hydrologic influences (confluences, point source discharges, dams, etc.) may dictate smaller or larger assessment units.
2. Data cannot be collected for assessment purposes within any regulatory mixing zone.

#### General Temporal Requirements

1. Data should be collected to avoid temporal bias, and sampling for assessment purposes should include data collected in all seasons, except in situations where data collection is limited to defined periods (*E. coli*, enterococci and macroinvertebrate data).
2. Stream data used for use support assessment should be no older than five years old. If enough data are not available during the preceding five years to make a use support assessment

<p>CPP, page 102</p> <p>For data requirements with regard to minimum number of samples, see OAC 785:46-15-3(d).</p> <p>Note: Fewer samples are required to determine use support with regard to metals and toxicants. If your tribe collects metals or toxicant data, please consult with agency personnel regarding specific data quantity requirements.</p>	<p>decision, data older than five years old may be used to meet the minimum data quantity requirements. Older data may be included for assessment purposes in one-year increments until the minimum data quantity requirements are satisfied.</p> <p>3. Lake data used for use support assessment should be no older than 10 years old. If enough data are not available during the preceding 10 years to make a use support assessment decision, data older than 10 years old may be used to meet the minimum data quantity requirements. Older data may be included for assessment purposes in one-year increments until the minimum data quantity requirements are satisfied.</p> <p>4. Although most tribes collect data and report to EPA according to the fiscal year (October 1-September 30), data used to make attainment decisions must adhere to the Integrated Report cycle. The Integrated Report is released in evenly numbered years. Only data collected up to April 30 of the year proceeding the reporting year should be included in use support determinations. For example, attainment decisions in the 2016 Integrated Report were based upon data collected up to April 30, 2015.</p> <p><b>Minimum Number of Samples</b></p> <p>1. For streams, a minimum of 10 samples are required to assess use support for most parameters including DO, pH, water temperature, turbidity, total phosphorus, nitrate/nitrite, <i>E. coli</i> and enterococci. Analysis may include samples taken from different sites within an assessment unit. Assessment units are typically 10 stream miles or less for wadable streams and 25 stream miles or less for non-wadable streams, although appropriate assessment units for a given stream may be smaller or larger based on other data or hydrologic influences (confluences, point source discharges, dams, etc.). In cases where an exceedance can be determined based upon less than 10 samples, 10 samples are not required. For example, if a tribe measured pH at a sampling site in July, August and September, and all three measurements were above 9.0, the tribe could conclude that the assessment unit was not supporting the Fish and Wildlife Propagation use with regard to pH without taking additional measurements because greater than 10% of the minimum sample requirement (10 measurements) exceeded the threshold. A minimum of 10 samples is required for any support determination</p>
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<p>For narrative nutrient criteria see OAC 785:45-5-9(d).</p> <p>OAC 785:45-5-10(8)</p> <p>See OAC 785:46-15-10(b-c) for the process for determining whether a waterbody is nutrient-threatened. See OAC 785:46-15-10(f-g) for information about a nutrient-impaired determination.</p> <p>See Appendix A of OAC 785:45 for Scenic River designations.</p>	<p>that involves the calculation of a mean (<i>E. coli</i> and turbidity, for example) or percent exceedance (DO and pH, for example).</p> <p>2. For lakes with an area greater than 250 surface acres, a minimum of 20 samples are required to assess use support for most parameters. For lakes, or arms of lakes, with an area less than 250 surface acres, a minimum of 10 samples are required to assess use support for most parameters.</p> <p style="text-align: center;"><b>Specific Data Quantity Requirements</b></p> <p><b>Data Quantity Requirements Specific to Nutrients</b></p> <p>Although the State of Oklahoma Water Quality Standards (WQS) include narrative criteria for nutrients, the numeric criterion for total phosphorus found in OAC 785:45-5-25(d) applies only to Scenic Rivers. The WQS also specify total phosphorus criteria for Lake Eucha and Lake Spavinaw. According to the State of Oklahoma WQS, waterbodies in Oklahoma can only be listed on the 303(d) list for nutrients if:</p> <p>1. The waterbody is a designated Scenic River or another waterbody with a specific nutrient criterion (Lake Eucha or Lake Spavinaw) and the waterbody is failing to meet the criterion:</p> <p style="text-align: center;">Or</p> <p>2. For waterbodies that are not Scenic Rivers, use of the dichotomous process outlined in OAC 785:46-15-10(b) or the alternative process outlined in OAC 785:46-15-10(c) indicates that a stream is nutrient-threatened, <b>and</b> the results of a nutrient impairment study indicate that the waterbody is impaired due to excess nutrients.</p> <p>Portions of the following waterbodies are designated Scenic Rivers:</p> <ol style="list-style-type: none"> <li>1. Barren Fork</li> <li>2. Illinois River</li> <li>3. Flint Creek</li> <li>4. Lee Creek</li> <li>5. Little Lee Creek</li> <li>6. Upper Mountain Fork River</li> </ol>
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<p>For the minimum number of samples required for streams unless otherwise specified, see OAC 785:46-15-3(d)(1)</p>	<p>For waterbodies that do not have numeric nutrient criteria, a minimum of 10 total phosphorus or nitrate/nitrite samples are required to determine if a stream is “nutrient-threatened.”</p>
	<p>If chlorophyll-<i>a</i> is used as an alternative to the dichotomous process to determine whether a stream is nutrient-threatened, 10 chlorophyll-<i>a</i> samples are required.</p>
	<p><b>Data Quantity Requirements Specific to Macroinvertebrates</b></p>
<p>CPP, page 110</p>	<p>Macroinvertebrate collections must be completed during the Summer Index Period (June 1-September 15) or the Winter Index Period (January 1-March 15). If data are collected in only one index period, Summer Index Period data are preferred.</p>
<p>CPP, page 110</p>	<p>A macroinvertebrate collection is defined as all samples obtained from a single site on a given day. A single collection may include up to three samples, one from each habitat type.</p>
<p>CPP, page 110</p>	<p>Collections should target the following habitats in order of importance: rocky riffles, streamside root masses and woody debris. Ideally, all available habitats should be sampled. However, an assessment decision can be made based on one habitat type if the data from a single habitat type meet the minimum data quantity requirements.</p>
<p>CPP, page 110</p>	<p>A macroinvertebrate sample is defined as macroinvertebrates resulting from a single habitat type (riffle, aquatic vegetation or woody debris) from a single site on a given day. Samples from different habitat types should not be composited.</p>
<p>CPP, page 110</p>	<p>A minimum of four macroinvertebrate collections made over at least a two-year period is required to make an assessment. A maximum of 10 collections (two index periods per year over a five-year reporting period) may be used to make an assessment.</p>
<p>CPP, page 110</p>	<p>Samples must be picked to include a minimum of 100 or 300 organisms in a subsample. The State of Oklahoma is currently using index data based on 100-organism subsamples, so 100-organism subsamples are preferred. Index data are not currently available with which to compare 300-organism subsamples.</p> <p>Organisms in a subsample should be identified to genus whenever possible. Reference metrics are derived from genus-level data for</p>

<p>CPP, page 110 and personal communication with Greg Kloxin</p>	<p>most families of aquatic macroinvertebrates, but for Chironomidae, reference metrics are derived from tribe-level data. As a result, sample metrics for all families except Chironomidae should be calculated from genus-level data. Sample metrics for Chironomidae should be calculated from tribe-level data.</p>
<p>OAC 785:46-15-5(i)(4)</p>	<p>If use support of Fish and Wildlife Propagation (FWP) is undetermined with regard to biological criteria, additional data should be collected on the stream including stream order, habitat factors and reference conditions before a use determination is made.</p>
<p>OAC 785:46-15-6(a)</p>	<p><b>Data Quantity Requirements Specific to <i>E. coli</i> or Enterococci</b></p> <p>Sampling must be completed during the recreation season (May 1-September 30). Assessment of contact recreation (PBCR or SBCR) can be determined by one or both of the fecal bacteria indicators. If both indicators are collected, each indicator is assessed separately. If either indicator results in an impairment decision, the waterbody is deemed impaired for the contact recreation use.</p>
<p>OAC 785:46-15-5(g)(2)</p>	<p><b>Specific Data Quantity Requirements Specific to Habitat Data</b></p> <p>If the FWP use is impaired for biological criteria, a habitat assessment is required to determine if sedimentation (suspended and bedded sediments) is the cause. Habitat data must be collected in accordance with OWRB Technical Report TRWQ2001-1: <i>Unified Protocols for Beneficial Use Assignment for Oklahoma Wadable Streams (Use Attainability Analysis)</i>. The Technical Report addresses all aspects of completing a Use Attainability Analysis. It is not necessary to collect all data described in the document to determine whether a stream is failing to support the FWP use due to habitat constraints. For the purposes of determining whether a stream is failing to support FWP, data collection is limited to an assessment of suspended and bedded sediments. According to OAC 785:46-15-5(g)(4), the following types of data are required:</p>
<p>OAC 785:46-15-5(g)(4)</p>	<ol style="list-style-type: none"> <li>1. Total percent clay, silt and loose sand in the pool bottom substrate</li> <li>2. Cobble embeddedness</li> <li>3. Percent length of the reach containing unvegetated point bars and/or islands</li> </ol>

<p>OAC 785:46-15-5(g)(3)</p> <p>Please contact agency personnel for guidance in determining appropriate reference reaches.</p>	<p>4. The percentage of the length of the reach dominated by pools of a depth of 0.5 m or more</p> <p>In addition to collecting the above data for the test stream, the same data must be collected for at least five reference streams or reaches. Reference streams or reaches must meet the following conditions:</p> <ol style="list-style-type: none"> <li>1. All of the reference streams or reaches must be in the same ecoregion as the test stream.</li> <li>2. All of the reference streams or reaches must have similar flow regimes to the test stream and be no more than two stream orders removed from the test stream.</li> <li>3. The reference streams shall be selected from the least impacted streams in the ecoregion whose watersheds contain soils, vegetation, land uses and topography typical of the watershed of the test stream.</li> </ol> <p style="text-align: center;"><b>MINIMUM DATA QUALITY REQUIREMENTS</b></p> <p>State of Oklahoma WQS do not offer detailed guidance on minimum data quality requirements. Instead, the state relies on EPA’s quality assurance process to determine if data meet minimum quality requirements for inclusion in the Integrated Report. According to OAC 785:46-15-3(g), “data collected for purposes of use support assessment shall be collected using documented programmatic quality assurance and quality control methods substantially in accordance with those required by <i>EPA Requirements for Quality Assurance Project Plans</i>” (EPS QA/R-5)(USEPA, 2001). An EPA-approved Quality Assurance Project Plan (QAPP) is a requirement of any program that uses EPA funds to collect environmental data. The purpose of a QAPP is to provide a “blueprint” for obtaining the type and quality of data needed for a specific use (USEPA, 2001). It is important to note, however, that QAPPs designed with baseline monitoring as the objective may need to be modified to fulfill the objective of beneficial use assessment. EPA Region 6 technical reviewers or state agency personnel can assist with QAPP revisions. It may also be helpful to review QAPPs and Standard Operating Procedures (SOPs) prepared by agencies involved in beneficial use assessment.</p> <p>The quality assurance process is complicated; this document does not attempt to address the complexities of preparing a QAPP for a</p>
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monitoring program. Please see *EPA Requirements for Quality Assurance Project Plans (EPA QA/R-5)*(USEPA, 2001) for detailed requirements regarding QAPPs.

Systematic planning prior to designing a study helps ensure that the data collected are appropriate for the intended use. EPA recommends using the Data Quality Objective (DQO) Process to plan the collection of data which will support the intended use or uses. For a thorough discussion of the DQO Process, please refer to *Guidance on Systematic Planning Using the Data Quality Objectives Process (EPA QA/G-4)*(USEPA, 2006). According to the guidance document, the DQO Process involves seven steps:

1. State the problem.
2. Identify the goal of the study.
3. Identify information inputs.
4. Define the boundaries of the study.
5. Develop the analytic approach.
6. Specify performance or acceptance criteria.
7. Develop the plan for obtaining the data.

An in-depth discussion of the DQO Process is beyond the scope of this document. However, Step 6 of the process (specify performance or acceptance criteria) can help tribes determine whether the data currently collected in their monitoring program are appropriate for inclusion in the Integrated Report. Performance criteria define minimum quantitative and qualitative criteria for the collection of new data to meet a specific use. Acceptance criteria are used to evaluate an existing dataset relative to the intended use. In many cases these criteria are defined in the USAP and further guidance is outlined in the CPP. Acceptance criteria can help you determine if your existing data are appropriate for inclusion in the Integrated Report. If your existing data are not appropriate for inclusion in the Integrated Report, performance criteria can guide you through making changes to your monitoring program to ensure that future data collection efforts result in data that are appropriate for inclusion in the Integrated Report.

Consideration of the following elements of your sampling design will help you determine whether the data generated in your monitoring program are appropriate for inclusion in the Integrated Report:

<p>OAC 46-15-5(i)(2)</p>	<ol style="list-style-type: none"> <li>1. Number of samples</li> <li>2. Sample type (composite or individual samples)</li> <li>3. General collection techniques</li> <li>4. Physical sample (the amount of material collected for each sample)</li> <li>5. Sample support (the area or quantity each sample represents)</li> <li>6. Sample locations and how they were selected</li> <li>7. Timing issues for sample collection, handling and analysis</li> <li>8. Analytical methods</li> <li>9. Statistical sampling scheme (USEPA, 2006)</li> <li>10. Seasonality requirements (defined sampling periods as well as seasonal representativeness)</li> <li>11. Quality assurance and quality control procedures</li> </ol> <p>These components of sampling design should be described in your QAPP. Your QAPP should also include a discussion of the following data quality objectives and data quality indicators (DQIs) to assess each:</p> <ol style="list-style-type: none"> <li>1. Precision</li> <li>2. Accuracy/Bias</li> <li>3. Representativeness</li> <li>4. Comparability</li> <li>5. Completeness</li> <li>6. Sensitivity</li> </ol> <p>Some data quality objectives are typically assessed qualitatively, and some are assessed quantitatively. EPA technical reviewers can help you develop appropriate DQIs to assess each data quality objective. If your tribe is using analytical methods that are not EPA-approved for CWA programs, please consult with state personnel regarding the appropriateness of submitting that data for inclusion in the Integrated Report.</p> <p style="text-align: center;"><b>Specific Data Quality Requirements</b></p> <p><b>Data Quality Requirements Specific to Macroinvertebrates</b></p> <p>Although the WQS state that biological collections must be conducted in accordance with <i>OWRB Technical Report 99-3: Standard Operating Procedures for Stream Assessments and Biological Collections Related to Biological Criteria in Oklahoma</i> (OWRB, 1999), this document is outdated. State agencies conduct</p>
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<p>OAC 785:46-15-5(g)(2)</p>	<p>biological assessments according to agency SOPs. Please see the Resources section for links to OCC and OWRB SOPs for the collection of macroinvertebrates.</p> <p><b>Data Quality Requirements Specific to Habitat Data</b></p> <p>If the FWP use is impaired for biological criteria, a habitat assessment is required to determine if sedimentation (suspended and bedded sediments) is the cause. The WQS dictate that the habitat assessment be conducted according to the protocols in OWRB Technical Report TRWQ2001-1, <i>Unified Protocols for Beneficial Use Assignment for Oklahoma Wadable Streams (Use Attainability Analysis)</i>. A habitat assessment conducted because biological criteria do not support the FWP use is limited to an assessment of suspended and bedded sediments. The process for determining whether the FWP use is impaired due to suspended and bedded sediments is outlined in OAC 785:46-15-5(g)(4)(A-D); it is also outlined in the CPP on page 114.</p> <p>The WQS dictate the collection of habitat data when the waterbody is not supporting biological criteria (OAC 785:46-15-5(g)(2)) and when support of biological criteria is undetermined (OAC 785:46-15-5(i)(4)). In actuality, habitat data are collected in conjunction with macroinvertebrate and fish collections. Habitat data are integral to determining appropriate reference conditions for a given waterbody and may provide insight into causes of impairment. State agencies currently collect habitat data according to agency SOPs, rather than OWRB Technical Report 99-3 or OWRB Technical Report TRWQ2001-1. Please see the resource section for links to OCC and OWRB SOPs for the collection of habitat data. Each of these documents (OCC SOPs, OWRB SOPs, OWRB Technical Report 99-3 and OWRB Technical Report TRWQ2001-1) is based upon EPA's <i>Rapid Bioassessment Protocols for Use in Streams and Rivers: Benthic Macroinvertebrates and Fish</i> (Plafkin, Barbour, Porter, Gross and Hughes, 1989) or <i>Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates, and Fish, Second Edition</i> (Barbour, Gerritsen, Snyder and Stribling, 1999), but state SOPs present the necessary information in a more accessible format.</p>
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## ASSESSMENT DECISIONS

Tribes interested in sharing their data with the state can choose one of two options:

1. Tribes can share their data with the state and ask the state to make assessment decisions based on the data.
2. Tribes can make their own assessment decisions based on the data and share their assessment decisions with the state. If a tribe elects to share assessment decisions with the state, it is important that the tribe specify any deviations from State of Oklahoma assessment and listing protocols. For instance, the Kickapoo Tribe of Oklahoma assesses streams as impaired for nutrients if use of the dichotomous key in OAC 785:46-15-10 indicates that a stream is “nutrient-threatened.” According to State of Oklahoma WQS, a “nutrient-threatened” finding based on the dichotomous key would not result in a 303(d) listing for nutrients. As a result, the Kickapoo tribal assessment and the State of Oklahoma assessment of the same data would be different with regard to nutrients. It is acceptable for tribal assessments to differ from State of Oklahoma assessments. It is important to note, however, that the State of Oklahoma must assess all data and make all listing decisions according to State of Oklahoma WQS and associated protocols.

### Assessing Data Using State of Oklahoma WQS

The purpose of this section is to provide information regarding State of Oklahoma assessment protocols that apply to data most commonly collected by tribes. Sometimes tribes do not collect sufficient data to make a determination of “fully supporting” or “attained” for a particular beneficial use. As a result, assessments based on tribal data are sometimes partial, with regard to one or more parameters, such as “this assessment unit is fully supporting the WWAC use with regard to DO.” Even if there are not enough data to make a full beneficial use assessment, assessment of the available data provides valuable information that can be included in the IR. Parameter-level determinations may also be valuable for informing management decisions. Although a suite of data is often required to make a “fully supporting” or an “attained” determination for beneficial use, a “not supporting” finding for any of the required data is sufficient to make a “not attained” or “not supporting” determination for the use. The CPP (2012)

<p>CPP, page 104</p>	<p>specifies the following data requirements for an “attained” determination for the following beneficial uses:</p> <p><b>Fish and Wildlife Propagation (FWP)</b></p> <p>Assessing the FWP use is complex. The relevant criteria for assessing FWP are summarized in Table 1 in the Appendix. The following information also applies to the assessment of the FWP use:</p> <p><b>Chemical Methodologies</b></p> <p>In the absence of biological data, the CPP states that data from all six chemical methodologies (DO, Toxicants, pH, Turbidity, Oil and Grease, and Toxicants Not Assessed and Not Likely to Occur or Violate Criteria) must be assessed to make a determination of “attaining.” In reality, however, Toxicants Not Assessed and Not Likely to Occur or Violate Criteria are not assessed unless there is reason to suspect the presence of a particular toxicant in the waterbody. The assessment of the Toxicants methodology is also limited to what is known to be present or suspected to be present. In many waterbodies, ammonia or metals are the only regularly monitored toxicants. In the absence of biological data, a use attainment decision can be made from fewer than six chemical methodologies if there is no reason to suspect the presence of additional toxicants. If biological data are available, the biological data must also be attaining for the use to be fully supported.</p> <p><b><i>Dissolved Oxygen</i></b></p> <p>Specific DO criteria are listed in Table 1 in the Appendix.</p>
<p>CPP, page 105</p>	<p>If more than two DO measurements in a stream are less than 2 mg/L in a year, the Fish and Wildlife Propagation use is not supported.</p>
<p>OAC 785:46-15-5(b)(7)</p>	<p>When DO data suggest that use support is undetermined, diurnal data must be considered to make a determination of “supported” or “not supported” with regard to DO.</p>



<p>OAC 785:45-5-12(f)(7)(C)</p>	<p><b>Turbidity</b></p> <p>Turbidity data must be collected during seasonal base flow conditions. Please consult with agency personnel for assistance in determining seasonal base flow conditions.</p>
<p>CPP, page 113</p>	<p><b>Oil and Grease</b></p> <p>Many tribes record oil and grease observations during routine sampling events. Even though oil and grease data are not included in EPA’s list of nine basic parameters for which a mature tribal water monitoring program is expected to collect data, the assessment methodology is included here because these data are routinely collected by tribes.</p> <p>A minimum of 10 visual observations made over a period of at least 10 months is required to assess the FWP use with regard to oil and grease. Either of the following observations indicate the presence of oil and grease:</p> <ol style="list-style-type: none"> <li>1. A rainbow sheen that flows when stirred, rather than crackling. Crackling indicates iron precipitates rather than oil or grease.</li> <li>2. A golden tan to dark brown coating or globules on the water or instream sediment.</li> </ol>
<p>OAC 785:46-15-5(f)</p>	<p>If 10 percent or fewer of the observations indicate the presence of oil and grease, the FWP use is supported with regard to oil and grease. If more than 10 percent of the observations indicate the presence of oil and grease, the use is not supported with regard to oil and grease.</p>
<p>CPP, page 104</p>	<p><b>Biological Criteria</b></p> <p>In the absence of adequate data for the chemical data types, the biological methodology must result in a determination of “attaining” for the use to be attained.</p>
<p>OAC 785:46-15-5(i)(1)</p>	<p>Macroinvertebrate and/or fish assemblages may be used to make a “not supported” determination of a subcategory of FWP if the assemblage is significantly degraded from what is expected in the region. Likewise, a determination of “attained” can be made for the applicable subcategory of the FWP use based on macroinvertebrate and/or fish data if no chemical data are</p>

<p>OAC 785:46-15-5(j-o)</p> <p>BOKBIOCRIT can also be found on page 112 of the CPP.</p>	<p>available. If chemical data are available, a finding of “attained” for the FWP use requires that all available data meet criteria.</p> <p>To assess beneficial use support for the Fish and Wildlife Propagation use in wadable streams located in the Ouachita Mountains, Arkansas Valley, Boston Mountains, Ozark Highlands, Central Irregular Plains or Central Oklahoma-Texas Plains ecoregions, fish data must be used if they are available, and an Index of Biological Integrity (IBI) calculated. The resulting IBI must be compared to biocriteria listed in OAC 785:46-15-5(j-o) for each ecoregion. These biocriteria are known as OKBIOCRIT. If the OKBIOCRIT protocol results in a finding of “undetermined,” the alternative methodology (OKIBI) can be used to make an assessment. OKBIOCRIT supersedes OKIBI. OKIBI can be used in two situations: (1) if OKBIOCRIT are not available for the ecoregion or (2) if the OKBIOCRIT protocol results in a finding of “undetermined”; in all other cases, the OKBIOCRIT protocol should be followed. Please see the CPP, pages 108-109, for more information. Because most tribes do not collect fish data, this document does not describe the process of assessing fish data in detail. If your tribe collects fish data, please contact agency personnel for assistance.</p> <p>OAC 785:46-15-5(j-o) state that support of FWP support for these ecoregions “shall be made according to the application of Appendix C of this Chapter, together with this subsection.” In practice, however, fish data are not always available. If fish data are not available, a biological assessment may be completed based on macroinvertebrate data.</p> <p>OAC 785: 46-15-5(i)(4) states that additional investigation considering stream order, habitat factors and reference streams will be conducted in cases where support of the FWP use is undetermined. In practice, however, habitat data are collected in conjunction with fish or macroinvertebrate collections; additional collection of habitat data is rarely necessary.</p> <p style="text-align: center;"><b><i>Assessing Macroinvertebrate Data</i></b></p> <p>The process for assessing the FWP use with macroinvertebrate samples is described on pages 110-111 of the CPP. The summary below assumes the sampling design is judgmental (i.e. non-random). If your sampling design is probabilistic (i.e. sampling</p>
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locations were randomly selected), the process is slightly different. Please consult agency personnel for guidance.

Samples must be analyzed using an Index of Biological Integrity (IBI) (USEPA, 1999). The index must include the following metrics:

1. Total number of taxa
2. Number of EPT (Ephemeroptera (mayflies), Plecoptera (stoneflies), Trichoptera (caddisflies)) taxa
3. Proportion of EPT taxa
4. Proportion of two most dominant taxa
5. Modified Hilsenhoff Biotic Index (HBI)
6. Shannon-Weaver Diversity Index

The assessment of macroinvertebrate data involves seven steps. The OCC uses an Excel spreadsheet to complete the first five steps of the process. Please contact the OCC for the most recent version of the spreadsheet. Contact information is provided in the Resources section of this document. Below is a summary of each of the seven steps, followed by a detailed description of each step:

1. Calculate the necessary metrics. This step is typically completed by the taxonomist that does your identification.
2. Calculate a metric score for each metric related to your sample.
3. Calculate a "total IBI score" for each sample by summing the metric scores for that sample. If you collected more than one sample at a given site during the same index period for a single year, each metric score should be averaged prior to calculating the total IBI score.
4. Divide the total IBI score by the reference IBI score for that ecoregion. Reference IBI scores are available from the OWRB or the OCC Water Quality Division.
5. Compare the resulting percentage to the percentages in Table B.
6. Make an assessment decision based on the collection (all samples from a single site on a given date; collections will usually include samples taken from different habitat types).
7. Make a final assessment decision based on the matrix in Table C.

*Step 1: Calculate the necessary metrics.*

The necessary metrics will typically be provided by the taxonomist that does your identification. Prior to submitting your macroinvertebrates to a taxonomist for identification, please let the taxonomist know that metrics for all families except Chironomidae should be calculated from genus-level data; metrics for Chironomidae should be calculated from tribe-level data. You may wish to calculate your own metrics. The assessment protocol includes calculation of a modified HBI score and the Shannon Diversity Index.

The formula for the modified HBI is:

$$\text{HBI} = (\sum x_i t_i) / N$$

Where  $x$  is the number of individuals within a genus,  $t$  is the tolerance value of the genus and  $N$  is the total number of organisms in the sample. A table of tolerance values is available from the OCC. Please contact agency personnel.

The formula for the Shannon Index is:

$$\text{Shannon Diversity Index (H)} = - \sum_{i=1}^g p_i \ln p_i$$

Where  $p$  is the number of individuals of one genus divided by the total number of individuals ( $n/N$ ), and  $g$  is the total number of genera in the sample.

*Step 2: Calculate a metric score for each metric.*

The metrics you calculate or receive from your taxonomist are used to calculate six metric scores for each sample. Some of the metrics must be compared against reference conditions to calculate the associated metric score. Table A (below) summarizes the process of calculating metric scores.

**Table A: Calculating Metric Scores from Metrics**

Metric	Results and Associated Metric Scores			
	Results in this column receive a metric score of 6.	Results in this column receive a metric score of 4.	Results in this column receive a metric score of 2.	Results in this column receive a metric score of 0.
Taxa Richness $\frac{\text{sample metric}}{\text{reference metric}}$	>80%	60-80%	40-60%	<40%
Modified HBI $\frac{\text{reference metric}}{\text{sample metric}}$	>85%	70-85%	50-70%	<50%
Proportion EPT Taxa $\frac{\text{EPT Taxa}}{\text{Total Taxa}}$	>30%	20-30%	10-20%	<10%
EPT Taxa $\frac{\text{sample EPT}}{\text{reference EPT}}$	>90%	80-90%	70-80%	<70%
Percent Dominant Two Taxa <i>Score based on actual value</i>	<20%	20-30%	30-40%	>40%
Shannon-Weaver Diversity Index <i>Score based on actual value</i>	>3.5	2.5-3.5	1.5-2.5	<1.5

Modified from Table 17: Matrix to Determine Metric Scores for Each Sample of Macroinvertebrates on page 110 in the CPP.

*Step 3: Calculate a "Total IBI Score" for each sample.*

Calculate a total IBI score for each sample by summing the six metric scores associated with that sample. If multiple samples (macroinvertebrates from a single habitat type) are collected at a single site during the same index period of a given year, metric scores are averaged to yield one index-habitat score per year prior to calculating a total IBI score. Scores are not averaged across habitat types.

*Step 4: Divide the total IBI score by the reference IBI score.*

Divide the total IBI score for each sample (or average of samples) by the reference IBI score for your ecoregion. This will result in a percentage of the reference IBI score. Reference IBI scores are available from the OCC or the OWRB.

*Step 5: Compare the resulting percentages to the matrix in Table B.*

Compare the percentages from Step 4 with the values in Table B. Make an assessment decision for the sample.

**Table B: Support Status Based on Macroinvertebrate Samples**

Percent of Reference IBI Score	Biological Condition Category	Sample Attainment Status
>80%	Not impaired	Attaining
50-80%	Possible impairment to no impairment	Undetermined
<50%	Impaired	Not attaining

Modified from Table 18: Biological Condition and Associated Support Status Based Upon Macroinvertebrate Samples on page 111 in the CPP.

*Step 6: Make an assessment decision for the collection.*

Following the steps below, make an assessment decision for the collection:

1. If a riffle sample was collected, use the support status of the riffle sample to represent the collection.
2. If the riffle sample is “undetermined,” or if a riffle sample was not collected, use the support status of the aquatic vegetation or woody debris samples to represent the collection.
3. If all samples are “undetermined,” then the support status for the collection is “undetermined.”

*Step 7: Make a FWP attainment determination for the assessment unit based on macroinvertebrate data.*

Use the matrix in Table C to make a final attainment determination for the FWP use for the assessment unit. A minimum of four macroinvertebrate collections (collected over at least a two-year period) is required to make an attainment determination for the assessment unit.

**Table C: Final FWP Use Attainment Determination Based on Macroinvertebrates**

Minimum Number of "Attaining" Collections	Number of "Undetermined" Collections	Number of "Not Attaining" Collections	Final Macroinvertebrate Assessment
2	any	0	Attaining
any	any	1	Undetermined
any	any	2 or more	Not Attaining

Taken from Table 20: Final FWP Use Attainment Determination Based Upon Macroinvertebrates on page 111 in the CPP.

**Primary Body Contact Recreation (PBCR)**

*E. coli* data or enterococci data must meet criteria for the use to be attained; where both *E. coli* and enterococci data are collected, both must meet criteria for the use to be attained. A minimum of 10 samples are required for assessment and the samples must be collected during the recreation season (May 1-September 30). PBCR is assessed by calculating a geometric mean rather than an arithmetic mean. A geometric mean is much less susceptible to outliers. The process for issuing a swimming advisory is a little different. Please see OAC 785:45-5-16(c)(1-2) for more information.

***E. coli***

The PBCR use is attained with respect to *E. coli* if the geometric mean of the samples does not exceed 126 colonies per 100 mL. The PBCR use is not attained with respect to *E. coli* if the geometric mean of the samples exceeds 126 colonies per 100mL.

OAC 785:46-15-6(a)

OAC 785:46-15-6(b)





<p>Please see OAC 785:46-15-4(c) for the default protocol for long-term average numerical parameters.</p>	<p><b>Oil and Grease</b></p> <p>Please see the CPP, page 116, or the <b>Oil and Grease</b> section of this document under the <b>Fish and Wildlife Propagation (FWP)</b> use (page 14) for information regarding the assessment of oil and grease data.</p> <p><b>Emergency Water Supply (EWS)</b></p> <p>All waterbodies designated with the EWS beneficial use shall be deemed to be attaining the use.</p> <p><b>Agriculture (AG)</b></p> <p>Data from all three chemical methodologies (TDS, Chlorides and Sulfates) must meet criteria for the use to be attained. Because these parameters are not commonly monitored by tribes, this document does not cover assessing the AG use.</p> <p><b>Navigation (NAV)</b></p> <p>All waterbodies designated with the Navigation beneficial use shall be deemed to be attaining the use.</p> <p><b>Fish Consumption (FC)</b></p> <p>The FC beneficial use is “partially supported” for a waterbody if an agency with jurisdiction has imposed a restriction of consumption for fish or shellfish. The FC is not supported if an agency with jurisdiction has issued a “no consumption” advisory for a waterbody. Attainment of the FC use can also be assessed by comparing results to the water column criteria listed in OAC 785:45 Appendix G, Table 2. Data are assessed using the default protocol for long-term average numerical parameters. The assessment of the FC is not addressed in detail in this document because most Oklahoma tribes do not collect fish data. Please contact agency personnel if you need assistance assessing the FC use.</p>
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<p>OAC 785:46-15-10(f) and (g)(1)</p> <p>OAC 785:46-15-10(b)</p> <p>OAC 785:46-15-10(c)(1)</p>	<p><b>Aesthetics (AES)</b></p> <p>The assessment of the Aesthetics use involves three different methodologies: Color, Oil and Grease, and Total Phosphorus. Color data are not commonly collected by tribes.</p> <p><b>Oil and Grease</b></p> <p>Please see the CPP, page 116, or the <b>Oil and Grease</b> section of this document under the <b>Fish and Wildlife Propagation (FWP)</b> use (page 14) for information regarding the assessment of oil and grease data.</p> <p><b>Total Phosphorus</b></p> <p>Most tribes collect total phosphorus data. Total phosphorus data are used to determine use support only if the waterbody is a Scenic River or a lake with a designated total phosphorus criterion. Please see OAC 785:46-15-14(b) for information about assessing the AES use for Scenic Rivers and OAC 785:45-5-10(8) for assessing the AES use for Lake Eucha or Lake Spavinaw.</p> <p>Assessing the AES use for waterbodies lacking a designated total phosphorus criterion is tricky. The WQS include narrative criteria for nutrients (OAC 785:45-5-9(d)), a dichotomous process to determine whether a stream is nutrient-threatened (OAC 785:46-15-10(b)), and an alternative to the dichotomous process (OAC 785:46-15-10(c)). It is important to note that a “nutrient-threatened” result from the dichotomous process or the alternative process does not constitute an impairment of the AES use <b>unless</b> a subsequent impairment study finds that the AES use is impaired for nutrients.</p> <p><b>Nutrient-Threatened Determination</b></p> <p>The dichotomous process walks the user through a series of decisions about stream order, stream slope, canopy shading, organic versus inorganic turbidity, mean turbidity or mean inorganic turbidity, mean nitrate/nitrite concentration and mean total phosphorus concentration to determine whether a stream is nutrient-threatened. The alternative process is based on benthic or planktonic chlorophyll-<i>a</i> data. For a wadable stream, if the arithmetic mean of benthic chlorophyll-<i>a</i> data exceeds 100 mg per square meter under seasonal base flow conditions, or if two or</p>
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<p>CPP, page 120</p> <p>OAC 785:46-15-10(f)</p> <p>785:46-15-10(g)(1-2) and CPP, page 119</p> <p>OAC 785:46-15-10(f)</p>	<p>more benthic chlorophyll-<i>a</i> measurements exceed 200 mg per square meter under seasonal base flow conditions, the stream is nutrient-threatened. For non-wadable streams and lakes, the waterbody is nutrient-threatened if the planktonic chlorophyll-<i>a</i> values in the water column indicate a Trophic State Index of 62 or greater. If the dichotomous process or the alternative process is results in a finding of “not nutrient-threatened”, the AES use is attained with respect to nutrients. The reverse is not true. If application of the dichotomous process or the alternative process results in a finding of “nutrient-threatened,” an impairment study is required to determine use support. If an impairment study finds the waterbody is not impaired for nutrients, the AES use is attained with regard to nutrients. If an impairment study finds the waterbody is impaired for nutrients, the AES use is not attained with regard to nutrients.</p> <p>An impairment study is not related directly to the AES use. The purpose of an impairment study is to ascertain whether nutrient pollution is impairing any designated beneficial use for a particular waterbody.</p> <p style="text-align: center;"><b>SUBMITTING ASSESSMENTS OR DATA TO THE STATE OF OKLAHOMA</b></p> <p>Data and assessments should be submitted to the Oklahoma Department of Environmental Quality (ODEQ) via <a href="mailto:water.comments@deq.ok.gov">water.comments@deq.ok.gov</a>. Prior to each Integrated Report cycle, the ODEQ publishes a public solicitation for water quality information for the Integrated Report. The public solicitation includes the date by which all data must be received to be included in the next Integrated Report. To receive updates about the Integrated Report cycle, please e-mail Elena Jigoulina at <a href="mailto:elena.jigoulina@deq.ok.gov">elena.jigoulina@deq.ok.gov</a>.</p> <p>The State of Oklahoma prefers that data are submitted in a format consistent with the Assessment, Total Maximum Daily Load Tracking and Implementation System (ATTAINS). ODEQ can provide you with an example batch upload template. You may also submit data in an Excel spreadsheet. If you prefer to submit data in an Excel spreadsheet, please contact the OWRB for an example spreadsheet that is formatted to their specifications.</p>
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## RESOURCES

The OCC uses an Excel template to calculate the metrics necessary to assess macroinvertebrate data. For a copy of the most recent version of the template, please contact Karla Spinner at [karla.spinner@conservation.ok.gov](mailto:karla.spinner@conservation.ok.gov).

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## APPENDIX

**Table 1: Relevant Criteria for Assessing the Fish and Wildlife Propagation Use**

Parameter	Assessment Decision	Streams			Lakes	
		HLAC	WWAC	TF and CWAC	WWAC-Surface	WWAC-Water Column
<b>Water Temperature (USAP and CPP)</b>	<b>Attained</b>	The water temperature is less than or equal to the critical temperature plus 2.8°C. In most cases, the critical temperature is 32.24°C, so the criterion is 35.04°C. There are exceptions. Please see 785:46-11-2(b)(2). The criterion does not apply inside a regulatory mixing zone.	The water temperature is less than or equal to the critical temperature plus 2.8°C. In most cases, the critical temperature is 32.24°C, so the criterion is 35.04°C. There are exceptions. Please see 785:46-11-2(b)(2). The criterion does not apply inside a regulatory mixing zone.	The water temperature is less than or equal to 26.1°C for CWAC or 20°C for TF. The criteria do not apply inside regulatory mixing zones.	The average water temperature of the epilimnion is less than or equal to 1.7°C above that which existed before the addition of heat from an artificial source.	The average water temperature of the water column is less than or equal to 1.7°C above that which existed before the addition of heat from an artificial source.
	<b>Not Attained</b>	The water temperature is greater than the critical temperature plus 2.8°C. In most cases, the critical temperature is 32.24°C, so the applicable criterion is 35.04°C. There are exceptions. Please see 785:46-11-2(b)(2). The criterion does not apply inside a regulatory mixing zone. The waterbody is impaired if the temperature exceedance is due to heat of artificial origin.	The water temperature is greater than the critical temperature plus 2.8°C. In most cases, the critical temperature is 32.24°C, so the applicable criterion is 35.04°C. There are exceptions. Please see 785:46-11-2(b)(2). The criterion does not apply inside a regulatory mixing zone. The waterbody is impaired if the temperature exceedance is due to heat of artificial origin.	The water temperature is greater than 26.1°C for CWAC or 20°C for TF. The criteria do not apply inside regulatory mixing zones. The waterbody is impaired if the temperature exceedance is due to heat of artificial origin.	The average water temperature of the epilimnion is greater than 1.7°C above that which existed before the addition of heat from an artificial source.	The average water temperature of the water column greater than 1.7°C above that which existed before the addition of heat from an artificial source.

Parameter	Assessment Decision	Streams			Lakes	
		HLAC	WWAC	TF and CWAC	WWAC-Surface	WWAC-Water Column
Dissolved Oxygen	Attained	10% or fewer of the samples are less than or equal to 4.0 mg/L from April 1-June 15, or 3.0 mg/L from June 16-March 31.	10% or fewer of the samples are less than or equal to 6.0 mg/L from April 1-June 15, or 5.0 mg/L from June 16-March 31.	10% or fewer of the samples are less than or equal to 7.0 mg/L from March 1-May 31, or 6.0 mg/L from June 1-Feb 28 or 29.	10% or less of the samples from the epilimnion during periods of stratification, or the entire water column when no stratification is present, are less than 6.0 mg/L from April 1-June 15 or 5.0 mg/L from June 16-March 31.	Less than 50% of the volume of the lake (if volumetric data are available) or 50% or less of the water column at a given sample site (if no volumetric data are available) are less than 2.0 mg/L.
	Undetermined	N/A	More than 10% of samples are less than 6.0 mg/L from April 1-June 15 or 5.0 mg/L from June 16-October 15, <b>AND</b> 10% or fewer of the samples are less than 5.0 mg/L from April 1-June 15 or 4.0 mg/L from June 16-October 15.	More than 10% of the samples are less than 7.0 mg/L from March 1-May 31 or 5.0 mg/L from June 1-October 15, <b>AND</b> 10% or fewer of the samples are less than 5.0 mg/L from March 1-May 31 or 4.0 mg/L from June 1-October 15.	More than 10% of samples are less than 6.0 mg/L from April 1-June 15 or 5.0 mg/L from June 16-October 15, <b>AND</b> 10% or fewer of the samples are less than 5.0 mg/L from April 1-June 15 or 4.0 mg/L from June 16-October 15.	50% or more, but not greater than 70%, of the water column at any given sample site is less than 2.0 mg/L due to other than naturally occurring conditions. The undetermined range does not apply to a lake volumetric assessment.
	Not Attained	More than 10% of the samples are less than 4.0 mg/L from April 1-June 15, or 3.0 mg/L from June 16-March 31.	More than 10% of the samples are less than 5.0 mg/L from October 16-June 15, or less than 4.0 mg/L from June 16-October 15.	More than 10% of the samples are less than 6.0 mg/L from October 16-May 31, or less than 5.0 mg/L from June 1-October 15.	More than 10% of the samples are less than 5.0 mg/L from October 16-June 15 (or 4.0 mg/L from June 16-October 15).	50% or more of the water volume of the lake (if volumetric data are available) or more than 70% of the water column at a given sample site (if no volumetric data are available) is less than 2.0mg/L.
Toxicants (USAP and CPP)		Toxicants data are not typically collected by tribes. Please seek assistance from state personnel if your tribe collects toxicants data.				
pH (USAP and CPP)	Attained	10% or fewer of the measurements fall outside the range $6.5 \leq \text{pH} \leq 9.0$ .			10% or fewer of the measurements fall outside the range $6.5 \leq \text{pH} \leq 9.0$ .	
	Not Attained	More than 10% of the measurements fall outside the range of $6.5 \leq \text{pH} \leq 9.0$ .			More than 10% of the measurements fall outside the range of $6.5 \leq \text{pH} \leq 9.0$ .	



Parameter	Assessment Decision	Streams			Lakes	
		HLAC	WWAC	TF and CWAC	WWAC-Surface	WWAC-Water Column
<b>Turbidity* (USAP and CPP)</b>	Attained	10% or fewer of the measurements are greater than 50 NTU.	10% or fewer of the measurements are greater than 50 NTU.	10% or fewer of the measurements are greater than 10 NTU.	10% or fewer of the measurements are greater than 25 NTU.	N/A
	Not Attained	More than 10% of the measurements are greater than 50 NTU.	More than 10% of the measurements are greater than 50 NTU.	More than 10% of the measurements are greater than 10 NTU.	More than 10% of the measurements are greater than 25 NTU.	N/A
<b>*Turbidity criteria apply only to seasonal baseflow conditions.</b>						
<b>Oil and Grease (USAP and CPP)</b>	Attained	10% or fewer of the observations indicate the presence of oil or grease.	10% or fewer of the observations indicate the presence of oil or grease.	10% or fewer of the observations indicate the presence of oil or grease.	10% or fewer of the observations indicate the presence of oil or grease.	N/A
	Not Attained	More than 10% of the observations indicate the presence of oil or grease.	More than 10% of the observations indicate the presence of oil or grease.	More than 10% of the observations indicate the presence of oil or grease.	More than 10% of the observations indicate the presence of oil or grease.	N/A
<b>Suspended and Bedded Sediments (USAP and CPP)</b>		Suspended and bedded sediments are only assessed if the biological assessment is "not attaining."			N/A	N/A
	Not Attained	1) The total percent clay, silt or loose sand is increased by more than 30% above reference condition <b>OR</b> 2) Cobble embeddedness is increased more than 15% above the reference condition <b>OR</b> 3) Reach length percentage containing non-vegetated point bars and/or islands is increase by 20 percent or more above reference condition <b>OR</b> 4) Percentage of reach dominated by deep pools (0.5 m or more) is less than 70% of reference condition.			N/A	N/A

Parameter	Assessment Decision	Streams			Lakes	
		HLAC	WWAC	TF and CWAC	WWAC-Surface	WWAC-Water Column
<b>Metals (USAP)</b>		These data are not typically collected by tribes. Please seek assistance from state personnel if your tribe collects metals data.				
<b>Toxicants Not Assessed and Not Likely to Occur or Violate Criteria (CPP)</b>		These data are not typically collected by tribes. Please seek assistance from state personnel if your tribe collects these data.				
<b>Macroinvertebrate Assemblages (CPP)</b>		Many tribes collect macroinvertebrate data. The protocol for assessing macroinvertebrate data does not lend itself well to a table format. Please see the discussion below for guidance in assessing macroinvertebrate data.			N/A	N/A
<b>Fish Assemblages (CPP)</b>		This document does not address assessing fish data. If your tribe collects fish data, please contact agency personnel for assistance.				
<b>Habitat Assessments (USAP)</b>		According the WQS, habitat assessments are required in situations where a biological assessment results in a finding of “not supporting” (OAC 785:46-15-5(g)(2)) or where support of FWP is undetermined (OAC 785:46-15-5(i)(4)). In actuality, habitat data are collected in conjunction with fish or macroinvertebrate collections. Habitat data are integral to all biological collections. Please refer to OCC or OWRB SOPs regarding habitat assessments.				