



**Policy 1-11 Public Dialogue
Bioassessment Listings
December 2016
Ecology Leads: Patrick Lizon, Chad Larson**

Key Issues	Ecology Thinking
<p>Some commenters felt that the use of B-IBI scores for Section 303(d) purposes needs to be reconsidered.</p>	<p>EPA has indicated that bioassessment is an appropriate means for determining if the aquatic life use of a waterbody segment is impaired. Ecology will continue to use and improve the use of bioassessment in evaluating the support of the aquatic life uses in waterbodies.</p>
<p>Numeric thresholds for bioassessment should not be used for listing purposes.</p>	<p>EPA has indicated that the use of science-based numeric thresholds is appropriate for applying narrative water quality standards criteria. Ecology will continue to use numeric thresholds for bioassessment to identify where aquatic life uses are impaired. Bioassessment is an evolving science and as we learn more we can continue to improve on the methodology for identifying impaired waterbodies. The science demonstrates that numeric thresholds can be used for determining when the diversity and/or abundance of benthic aquatic communities is compromised or harmed. If stakeholders suspect that the bioassessment scores alone do not result in an accurate determination of impairment for a specific waterbody assessment unit, Ecology encourages those stakeholders to submit additional data and information to Ecology that would improve the ability for Ecology to make an accurate impairment determination.</p>
<p>Bioassessment is not a pollutant and should not be placed in Category 5.</p>	<p>EPA has insisted that impaired waterbodies must be listed in Category 5 regardless of whether or not the pollutant or source of pollution is known and whether or not the pollutant/pollution source(s) can be controlled. Then, as part of TMDL development, a stressor identification process is done to help determine the causes of impairment. Based on EPA's explicit instructions on what would result in an approvable 303(d) list, Ecology will continue to place bioassessment listings in Category 5, pending the completion of a waterbody specific stressor ID process to identify if a pollutant is causing the impairment. If it is determined that a pollutant does not cause or contribute to the impairment, the listing will be moved to Category 4C (impaired by a non-pollutant).</p>

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<p>Category 5 bioassessment listings should not be made unless a pollutant has been identified.</p>	<p>See above. EPA has indicated that if a biological evaluation determines that the aquatic life use is impaired, the waterbody should be listed on the 303(d) list regardless of whether or not the specific causes and sources of the impairment have been identified.</p>
<p>The uncertainties of using B-IBI need to be factored into the methodology. Questions about the QA/QC of the data were raised.</p>	<p>We believe that the methodology partially addresses uncertainty by not concluding that a site is degraded unless it has a B-IBI score below the 5th percentile of the reference site scores and by not placing a listing in Category 5 unless two scores within the most recent 5 years of data fall below the 5th percentile of reference scores.</p> <p>Regarding QA/QC, Ecology has standardized taxonomic protocols and QAPPs or equivalent plans must be in place for monitoring data to be considered credible. Ecology has also worked with Washington stakeholders to develop standardized QA/QC procedures for bioassessment sampling and lab protocols.</p> <p>Ecology is open to discussion on areas of uncertainty that stakeholders believe were not considered.</p>
<p>The methodology for establishing numeric B-IBI thresholds is not clear.</p>	<p>Ecology released a document in 2015 titled <i>“Establishing Benthic Index of Biotic Integrity (B-IBI) Thresholds for Use in the Water Quality Assessment”</i> which explains the rationale behind the B-IBI numeric thresholds used in the most recent Assessment. This document is available on Ecology’s website. The entire scientific methodology underlying B-IBI is beyond the scope of the aforementioned document but it is suggested that interested parties can readily research the development of the B-IBI by referring to documents referenced on the Puget Sound Stream Benthos website, by performing a literature search on the publications by Dr. James Karr, research performed by staff of EPA’s Western Ecology Division in Corvallis, OR, research performed by Dr. Hawkins of Utah State University, and/or by referring to the Ecology website that addresses biomonitoring.</p>
<p>The numeric B-IBI thresholds are not set where they should be.</p>	<p>Ecology is open to discussion on how the bioassessment scores observed for sites are used to make impairment determinations.</p>
<p>Ecology should replace the 10-50 B-IBI scale with the 0-100 scale that was recently developed.</p>	<p>Ecology is in favor of using a 0-100 scale for B-IBI in the next water quality assessment cycle.</p>

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Differing opinions on Ecology's approach to designating what is in Category 5, 2 & 1.	Ecology is open to discussion on how the bioassessment scores observed for sites are used to make impairment determinations.
Instead of separate B-IBI score thresholds for Category 1 and Category 5 there should be a single threshold by which to judge impairment.	<p>Ecology is willing to discuss the pros and cons of using a single threshold to delineate degraded from non-degraded sites, although we currently believe that the science supports the use of three classes for individual scores- non-degraded, potentially degraded, and degraded.</p> <p>It is important to note that the value of a single score does not by itself determine which category an assessment unit will be placed in. Ecology makes a distinction between scores indicating degradation or non-degradation and a set of scores that indicates impairment or non-impairment. In other words, Ecology considers a single score to be insufficient for placing an assessment unit in Category 1, 2, or 5. The current approved WQ Assessment placed waters in Category 5 when there were at least two scores within the past five years having data that fell within the range of scores classified as degraded.</p>