Water Quality Program
Water Quality Assessment Listing Policy 1-11
Summary of Proposed Revisions
February 2018

Background

In the spring of 2016 the Water Quality Program conducted a 60-day scoping process to solicit stakeholder and tribal ideas about areas revisions or clarifications were needed to Water Quality Policy 1-11. This agency policy guides how Ecology assesses data on waterbody segments and makes listing decisions on the water quality status.

Five key areas were identified as warranting significant public dialogue. Ecology held a series of public meetings from November 2016 ‑ March 2017 to invite public dialogue on the five key issues. The five major topic areas included:

- **Data used in the assessment:** Questions on the transparency of data used, age of data, representativeness, confidence level of impairment, and delisting from Category 5.
- **Bioassessment**: Concerns with how Ecology uses bioassessment data.
- **Sediment Standards**: Questions on changes to Sediment Management Standards and what is considered a WQ standard (and not); how sediments will be assessed for listing.
- **Fish Tissue for Human Health Criteria**: Concerns about toxics data used for assessment and the use of fish tissue as a surrogate for water quality criteria to make listing decisions.
- **Prioritization of TMDLS**: Questions on how we prioritize TMDLs and involve stakeholders.

Status of Proposed Revisions

A summary of proposed revisions to the current Policy 1-11 based on public and tribal feedback are provided in the following pages. Because significant comments were received on providing transparency and ease in finding information, new sections have been developed with more detailed information. We are also more clearly delineating the Policy guidance into three parts: 1) General information, 2) Assessment considerations for water quality criteria, and 3) Assessment considerations for sediment management standards.

Explanation of proposed changes are provided in *italics*.

PART 1: GENERAL INFORMATION

The majority of changes made to the General Information sections are intended to improve clarity on how data is used in the Water Quality Assessment (Assessment), provide more transparency in decision-making, provide easy access to quality assurance and quality control requirements, and increase accuracy of the waterbody listings.

1A. Introduction and Background: *Similar to current policy, no substantive changes.*

1B. Process to Develop Water Quality Assessment: *New section heading reorganizes information and provides more detail on the process that will be used to conduct each Assessment.*

1C. Waterbody Segments and GIS Layers: *Clarifying changes, highlights Water Quality Atlas- Ecology's online tool for displaying mapped listings.*

1D. Ensuring Credible Data: *New section highlights credible data requirements, reorganizes information to be more easily used, and adds detail to clearly articulate requirements for accepting data.*

1E. Data and Information Submittals for Assessment: *New section heading reorganizes information and provides more detail on the data and information that will be used to conduct each Assessment.*

1F. Other Assessment Considerations: *Similar to current Policy, with minor clarifications made based on feedback received, includes more detail on assessing waters within a TMDL boundary.*

1G. Categories: *This section similar to current Policy except for editorial changes and more detail on Category 4B (has a pollution control program).*

1H. Prioritizing TMDLs: *Revisions to promote collaboration and partnerships with locals, commits to annual statewide public meeting on Ecology's TMDL work.*

PART 2: ASSESSMENT CONSIDERATIONS FOR WATER QUALITY CRITERIA

Revisions to guidance on category determinations for specific pollutant parameters are intended to improve accuracy of listing decisions, align better with the water quality standards, ensure that data is representative of the waterbody segment being assessed, and address concerns raised during the scoping process, public dialogue meetings, and follow-up comments.

2A. Bacteria: *Clarifying edits and reorganization of assessment information for better transparency. Category 5 listing determinations remain the same. Determinations for Category 1 require two years of data unless a TMDL is being implemented and indicates fewer samples are needed. Agency advisory section has been revised and clarified. Specific changes include:*

- Category 1: If no TMDL or pollution control program exists, requires two years of data with a minimum of 10 samples per year that meet the applicable criterion. If a TMDL or pollution control program is being actively implemented and has identified a critical period, only one year of data with a minimum of 5 samples from critical period is required.
- More detail has been provided on how the Department of Health Shellfish Program data is assessed and how the shellfish program and Water Quality Assessment are aligned.

2B. Bioassessment: *Provides clarifying guidance on the use of the B-IBI methodology. Changes to the previous thresholds for Category 2 (between the 5th and 25th percentile) and Category 1 (above the 25th percentile) to using only one threshold at the 10th percentile. Adds an additional step to Category 5 to apply pollutant-related metrics. Verifies that, after 303(d) listing, a stressor identification must be done before further action is taken.   Specific changes include:*

- The B-IBI model will change from a 0 ‑ 50 scale to a 0 ‑ 100 scoring scale.
- B-IBI score assessment thresholds are established using data up through 2016 and will vary by EPA Level III ecoregions rather than statewide thresholds.
- Category 5: Requires two steps for listing: 1) the average of scores from the two most recent years are below the 10th percentile of index scores to indicate degraded biological integrity, and 2) evaluation of available pollutant-related metrics to determine if the monitoring site is outside of defined tolerance levels for the reference sites. De-listing from Category 5 will be allowable in subsequent assessment cycles if the average score from the most recent two years is no longer in the degraded biodiversity range.
- A Category 5 listing based on bioassessment alone will be listed as "benthic biodiversity-cause unknown". A stressor identification analysis will then need to be done to determine if the habitat degradation is due to specific pollutants and/or to habitat limitations before any further action is taken (such as a TMDL).
- If pollutants are identified as a result of a stressor identification analysis, the listing will change from "cause unknown" to the pollutant(s), and/or if habitat impairments are identified, the listing will be moved to Category 4C (impaired by a non-pollutant).

2C. Dissolved Oxygen: *Proposes the use of a statistical test to minimize listing errors for time series and single samples. Time series data that shows exceedances in one year will be cause for listing in Category 5. Requires exceedances in two different years to be placed in Category 5 for single samples unless the magnitude of the exceedance in one year is pronounced. Specific changes include:*

- Measurements will not be counted as exceedances unless they are more than 0.2 mg/L beyond the range of the applicable criterion magnitude. This accounts for stated manufacturer instrument accuracy.
- Category 5: Uses a statistical test for time series and discrete data to assess if more than 5% of days are likely to have exceedances of the criteria. Category 5 designation will occur if failure of the hypergeometric test occurs in one year for time series data or two separate years for single sample data, or if a pronounced exceedance in one year is observed.
- Category 1: Requires a minimum of 21 days collected within the focal period of the day, during the critical season in two separate years; no exceedances can occur during these periods. Discrete or time series data may be used.

2D. pH: *Proposes the use of a statistical test to minimize listing errors. Requires exceedances in two different years to be placed in Category 5 unless the magnitude of the exceedance in one year is pronounced. Specific changes include:*

- Measurements will not be counted as exceedances unless they are more than 0.2 pH units beyond the range of the applicable criterion magnitude. This accounts for stated manufacturer instrument accuracy.
- Category 5: Uses a statistical test for time series and discrete data to assess if more than 5% of days are likely to have exceedances of the criteria. Category 5 designation will occur if failure of the hypergeometric test (based on a 95% confidence level) occurs in two separate years, or if a pronounced exceedance in one year is observed.
- Category 1: Requires two years of data with a minimum of 21 days collected within the critical period; 95% of days must not have any values exceeding criteria. Discrete or time series datasets may be used.

2E. Phosphorus (Total) in Lakes: *No changes from current Policy.*

2F. Temperature: *Proposes evaluating time series data directly to show exceedances. Proposes using a statistical test for single samples to minimize listing errors. Time series data that shows exceedances in one year will be cause for listing in Category 5. Requires exceedances in two different years to be placed in Category 5 for single samples unless the magnitude of the exceedance in one year is pronounced. Specific changes include:*

- The 7-DADMax values will not be counted as exceedances unless they are more than $0.2°C$ above the applicable criterion magnitude. This accounts for instrument accuracy.

- Category 5: Exceedances of the 7DADMax in one year will qualify for Category 5 using time series data, or failing the hypergeometric test in two years for single samples. Exception: Any single day exceeding the 1-DMax temperature for acute lethality for adult fish, or exceeding the 1-DMax for acute lethality temperature for fish embryos during supplemental spawning seasons will result in Category 5 placement. A hypergeometric test on discrete data will be performed using temperature measurements collected during the critical period for warm temperatures as well as supplemental spawning periods to assess if more than 5% of days during critical periods are likely to exceed criteria.
- Category 1: Designations can only be made using time series monitoring data (because the criteria are expressed as a 7DADMax), and must have at least two years showing that the waterbody is meeting criteria.

2G. Total Dissolved Gas: *No changes from current Policy.*

2H. Toxics-Aquatic Life Criteria: *Now a separate section focused on assessment of data for aquatic life criteria. More details on accounting for measurements of instantaneous concentrations and averaging periods.*

- Clarifies different methods for evaluating compliance with chronic criteria based on 4-day averages.
- The proposed revisions have similar data requirements to current policy for Category 5, but more detail on category determinations for the different metrics.
- Data requirements to get in Category 1 have increased to 20 samples unless there is a TMDL in place.

2I. Toxics-Human Health Criteria: *Now a separate section focused on assessment of data for human health criteria. Proposed revisions focus on assessing fish tissue and water data to protect for the beneficial uses of harvest and domestic water supply associated with human health criteria. Increased sample requirements for Category 1 and 5 designations. Specific changes include:*

- Direct evaluation of compliance with human health criteria requires a statistically rigorous study that may require water and tissue data to show that the drinking water use or harvest use is being met.
- Category 5: Assessment of fish and shellfish harvest use support will primarily be based on new tissue exposure concentration (**TEC)** thresholds. Carcinogenic and non-carcinogenic health endpoints will be separately evaluated. Allows for counting samples from multiple species to meet sample requirements. In general a minimum of three samples are required unless exceedances are pronounced. Carcinogenic effect levels are treated differently than noncarcinogenic effect levels because of the differences in the exposure risks.
- Category 5 assessment for domestic water supply use support will primarily be based on drinking water exposure concentration (**DWEC**) thresholds. Separate evaluation of carcinogenic and non-carcinogenic health endpoints. Carcinogenic and non-carcinogenic health endpoints will be separately evaluated.

- Arsenic and dioxin will not be evaluated at the carcinogenic effect levels. Existing Category 5 determinations will remain in place until we have an appropriate way to evaluate carcinogenic effects.

2J. Turbidity: *No changes from current Policy.*

PART 3: ASSESSMENT CONSIDERATIONS FOR SEDIMENT QUALITY CRITERA

The updated Sediment Management Standards (SMS) rule adopted in 2013 modified what sections of the rule are EPA approved water quality standards. Section V of the SMS, The Sediment Cleanup Standards, is no longer an approved EPA water quality standard. As such, revisions to Policy 1-11 propose using only SMS sections for listing that remain EPA approved water quality standards. Specific changes include:

- Part V of the SMS is no longer used for listing. Only Parts I through IV are used in the assessment methodology. Part III (sediment quality standards or SQS), and Part IV (sediment impact zone maximum criteria or SIZmax), are water quality standards approved by EPA and are used to assess sediment data.
- Use of Part III (SQS) establishes the criteria for minor adverse effects, below which are expected to have no adverse effects on biological resources. This is consistent with the previous policy but uses the 2013 EPA approved standards.
- Use of Part IV (SIZmax) establishes the criteria which exceed minor adverse effects. This is consistent with the previous policy but uses the SIZmax in Part IV instead of the cleanup screening levels (CSL) in Part 5, which is no longer considered a water quality standard.
- Revisions to this section include a proposal to use a point system for chemistry data rather than using a statistical mean of the three highest stations, as was done in previous assessments. This proposed new method for assessing chemistry data is similar to how bioassay data was assessed in previous listing cycles (bioassay assessment scoring remains the same). This change provides for more representative and equivalent use of both the SQS and SIZmax standards in the listing process, and continues to emphasize biological effects as the definitive tool for assessment of sediment benthic health.
  - Placement of sediment listed units into Category 4B (alternative to a TMDL) will be the same as has been done in previous assessment cycles. A quarter grid assessment unit will be placed in Category 4B when contaminated sites identified in Ecology's Integrated Site Information System database have an active cleanup in process documented through an approved legally enforceable cleanup plan.