



STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

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C.L. "Butch" Otter, Governor
John H. Tippetts, Director

June 1, 2016

1200 Pennsylvania Avenue NW.,
Washington DC 20460

RE: Docket ID No. EPA-HQ-OW-2016-0012

Dear Sir or Madam:

Thank you for the opportunity to provide comments to the EPA Proposed Aquatic Life Criteria for Copper and Cadmium in Oregon. Idaho DEQ is currently engaged in negotiated rulemaking to revise our current hardness-based copper criteria to the BLM-derived criteria.

Idaho DEQ has some serious concerns with the proposed rule, and with the precedents that may be set with this proposal.

1. Use of conservative input parameters for equation and model based criteria results in overly conservative criteria that do not reflect actual site conditions and chemical toxicities.

The bioavailability and toxicity for many pollutants is affected by other chemical and physical characteristics, such as pH, temperature, hardness, etc. To account for this effect, criteria are often expressed as a function of these other characteristics. In the case of Cadmium (Cd), this takes the form of a hardness-dependent equation; in the case of Copper (Cu), the Biotic Ligand Model (BLM), a model with inputs for 10 chemical and physical characteristics of the water, is used to develop water quality criteria.

In the proposed rule, EPA proposes a default hardness of 25 mg/L for calculation of the acute Cd criterion when sufficient hardness data are not available. The proposed hardness default, which is less than the 10th percentile of existing hardness concentrations in the level III ecoregion with the lowest distribution of hardness concentrations, is overly conservative and should not be included as part of the water quality criteria. Selection of protective defaults for equation- and model-based criteria are appropriately within the realm of implementation guidance, where states or permitting authorities will have the flexibility to use more scientifically defensible estimates of site conditions to derive protective criteria concentrations based on hardness.

For example, Oregon has sufficient data to estimate 10th percentile of hardness concentrations for other level III ecoregions, and should be given the flexibility to use those data to determine an acute Cd criterion where appropriate. Similarly, calculation of an acute Cd criterion using hardness data from nearby or more geologically and ecologically similar waters is a more scientifically defensible approach than using the lowest end of the distribution of hardness from the ecoregion with the lowest hardness

concentrations. The proposed approach is not scientifically defensible, is overly rigid, and has the potential to damage Oregon's and EPA's credibility within the regulated community and the general public. We recommend that the proposed rule does not include a default input for hardness, and that Oregon develop implementation procedures to identify appropriate hardness for waters where existing data are insufficient as guidance.

Similarly, EPA proposes that conservative default inputs for the BLM be included in rule as a component of the acute and chronic criteria for Copper. We recommend that the proposed rule does not include default BLM inputs, and that Oregon develop implementation procedures to identify appropriate default inputs or criteria, as guidance, for waters where existing data are insufficient.

In addition, Idaho DEQ previously provided comments on the draft missing parameters document relative to the compound conservatism resulting from using lower percentile values from each of the inputs to the BLM and ignoring the natural seasonality and co-variance of these parameters. These comments are attached.

2. Using low-end distribution of instantaneous water quality criteria (IWQC) is not scientifically defensible and defeats the purported benefits of equation and model based criteria such as the BLM.

Model based criteria, such as the BLM, are meant to better reflect actual toxicity based on site- and time-specific conditions. At any given time, actual toxicity is estimated using the model; every sample with appropriate inputs will produce instantaneous water quality criteria (IWQC) that estimate the acute and chronic criteria for that instance. Unless a Cu concentration exceeds its specific IWQC, there is not expected to be negative effects to aquatic life.

EPA's 1985 guidelines state that aquatic life criteria should be set at the highest concentration that doesn't present a significant risk to the aquatic organisms in the water. For any given sample, this concentration is represented by the BLM IWQC.

In contrast, in EPA's proposal for Oregon, the actual criteria will be based on the 10th percentile of IWQCs, or the minimum IWQC, for a site, with no consideration for time-specific conditions. This can lead to impairment listings and TMDLs for waters that do not actually exceed toxic concentrations of copper at any given time. Again, this situation defies the science and will put Oregon and the EPA in a position that will lead to a loss of credibility within the regulated community and the general public.

We recommend that the proposed rule does not use the 10th percentile (or minimum) of IWQCs as the criteria for a site, and that Oregon be allowed to develop procedures for implementation as guidance. Further, we recommend that language be added to clarify that a time-specific BLM IWQC will be the overriding determinant of a listing or impairment decision.

3. Use of missing parameters document values for copper is inappropriate until the document has been finalized.

EPA is proposing that default inputs for BLM be based on the *Draft Technical Support Document: Recommended Estimates for Missing Water Quality Parameters for Application in EPA's Biotic Ligand*

Model. This document is currently draft. Idaho DEQ believes it is inappropriate to base the proposed rule on a draft technical guidance, and that any documents referenced in rule or used as supporting documentation should be subjected to thorough public review and finalized before it can form the basis of criteria.

4. The proposed rule supplants Oregon's authority and responsibility for developing implementation.

Idaho DEQ strongly recommends that all aspects of implementation; e.g., monitoring requirements, interpretation for permitting and listing decisions, use of default input parameters and criteria when data are unavailable, etc., should be developed by Oregon as implementation procedures, and not promulgated in rule.

Sincerely,



Barry N. Burnell
Water Quality Division Administrator

BB:JP:jdl

Enclosure (1) Docket ID No.: EPA-HQ-OW-2015-0469

c: Don Essig, Surface Water Program Manager
Jason Pappani, Water Quality Standards Lead
Mary Anne Nelson, IPDES Program Manager
Lisa Macchio, EPA Region 10
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MAR 17 2016

Ms. Kathryn Gallagher
Health and Ecological Criteria Division
Office of Water (Mail Code 4304T)
Environmental Protection Agency
1200 Pennsylvania Avenue NW.,
Washington DC 20460

RE: Docket ID No.: EPA-HQ-OW-2015-0469

Dear Ms. Gallagher:

Thank you for the opportunity to provide comments to the EPA *Draft Technical Support Document: Recommended Estimates for Missing Water Quality Parameters for Application in EPA's Biotic Ligand Model*. DEQ is currently engaged in negotiated rulemaking to revise our current hardness-based copper criteria to the BLM-derived criteria, thus the release of this draft is timely for our review. However, we are obligated to have revised criteria in place by May, 2017. This deadline makes it highly unlikely that the final version of this document will be finalized in time for us to reference in our rule following our required rulemaking and administrative procedures—we cannot reference a document that is draft in our rules and our rule will be in final form by November of this year.

While we feel that the technical approach to estimating BLM input concentrations has merit, we feel that the approach of taking lower-distribution values (e.g., the 10th percentile) for each parameter is overly conservative and undermines the site-specific benefits of the modeled approach to criteria development.

General Comments:

The goal of this document is to provide default values for use in the BLM when data are absent. However, it is somewhat difficult for the BLM practitioner to identify which values to use. The recommended defaults should be stated clearly and separately from other values presented in the multiple tables, and should be included in the Executive Summary, along with a flow diagram or step-by-step instructions to guide a BLM user to the appropriate defaults.

The approach suggested by this guidance, calculating chronic criteria using 10th percentile of inputs, seems overly and unnecessarily conservative. For example, a minimum BLM chronic criterion of 3.25 µg/L was calculated from monthly samples for the Boise River at Glenwood Bridge. According to Appendix B of this document, the 2.5th percentile of BLM IWQCs is sufficient for protection of aquatic life; the 2.5th percentile of BLM chronic IWQCs at this site was 3.38 µg/L. By contrast, using the recommended 10th percentile of GI and DOC inputs, and a conservative pH of 7, would give a BLM chronic criterion of 1.35 µg/L. This is less than half of the minimum IWQCs calculated at that site (Figure 1).

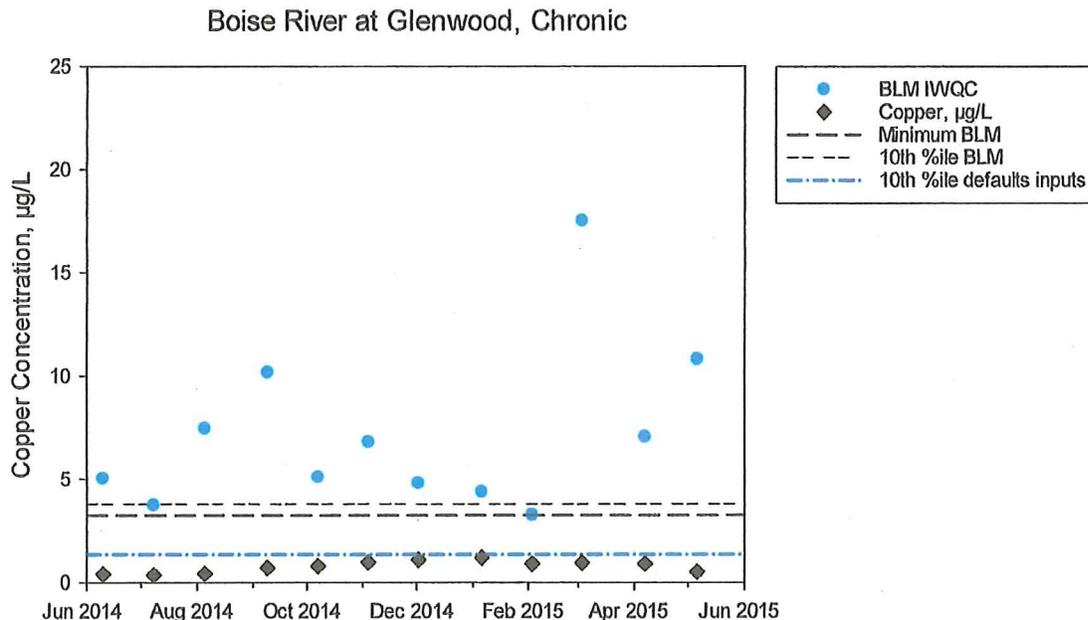


Figure 1. Biotic Ligand Model (BLM) calculated chronic criteria for the Boise River at Glenwood Bridge, June 2014 - 2015. Reference lines demonstrate the criterion that would be calculated from the 10th percentile and minimum of IWQCs calculated from these data, and the criterion calculated using the recommended default inputs.

In addition, using lower percentile values from each of the inputs to the BLM ignores the natural seasonal variability of these parameters – for example, DOC often is at its lowest concentration during summer-fall low flow conditions. However, at this time, many of the geochemical ions are at their highest concentrations (Figure 2). Applying low percentiles independently, i.e. blind to seasonal cycles, targets a condition that would not occur in nature.

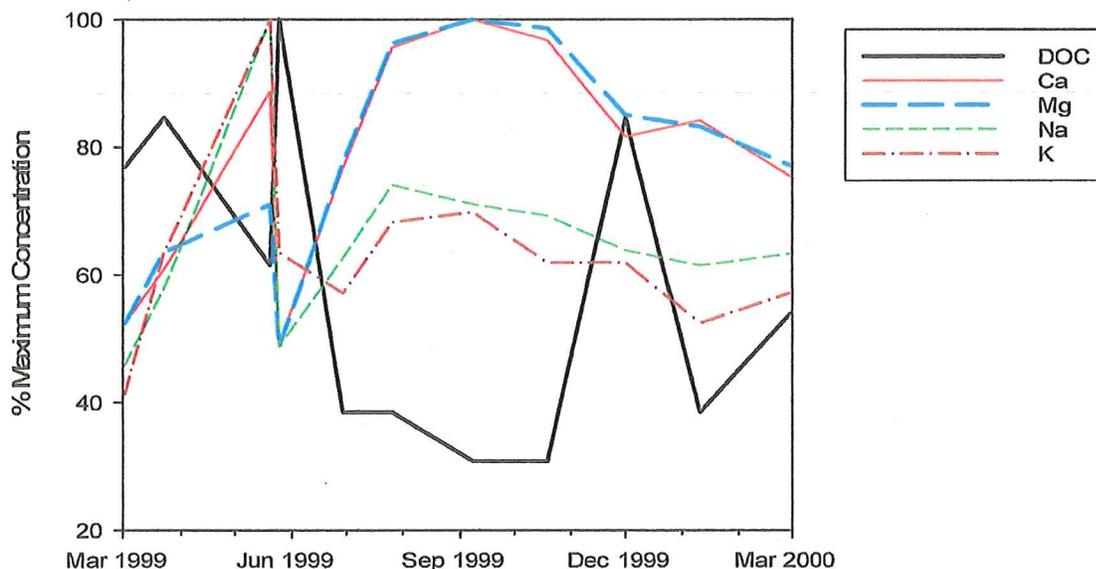


Figure 2. Temporal variability of dissolved organic carbon (DOC), Ca, Mg, Na, and K, as a percent of the maximum concentration measured, at a single location on the North Fork of the Coeur d'Alene River, Idaho.

By using the 10th percentile of the distributions of each input, the approach outlined in the draft technical support document results in unnecessarily conservative estimates of BLM criteria. A better, more realistic approach would be to calculate BLM derived IWQCs for each ecoregion, and then recommend default criteria. This would more accurately reflect water quality at a given site at a given time, and would be easier for states to implement.

Specific Comments:

Section 3.1. Although stream order is a common surrogate for stream size, in many parts of the Idaho we have found it to be a poor predictor of stream size. In the southern part of Idaho, many streams considered to be 1st – 4th order in NHD-Plus V2 are actually intermittent.¹

Section 3.3.3 and Section 4.3.1. The comparisons of the two (2) DOC datasets (Carleton 2006 and Griffith 2014) may be inappropriate. The Carleton dataset has both spatial and temporal components (multiple monitoring stations monitored multiple times), while the Griffith dataset has only a spatial component (multiple monitoring stations monitored only once). The Griffith dataset should be considered to be reflective of only low flow, base flow conditions. This makes comparison of distributional statistics between the two (2) datasets seem inappropriate, since many parameters, especially DOC, are known to be highly temporally variable at any given location. To make this comparison, the Carleton dataset should be limited to only a single sample, collected during summer base flow conditions, at each monitoring station.

Appendix B. Please provide the background or reference to the analysis used to determine that “protective water quality criteria for copper generally corresponded to approximately the 2.5th percentile of instantaneous water quality criteria (IWQC) predicted by the BLM.”

Thank you for providing DEQ with the opportunity to comment on the *Draft Technical Support Document: Recommended Estimates for Missing Water Quality Parameters for Application in EPA’s Biotic Ligand Model*.

Sincerely,



Barry N. Burnell
Water Quality Division Administrator

BB:JP:tg

c: Don Essig, Surface Water Program Manager
Jason Pappani, Water Quality Standards Lead
Mary Anne Nelson, IPDES Program Manager
Lisa Macchio, EPA Region 10
Mark Patrick McGuire, Association of Clean Water Administrators

¹ DEQ (Idaho Department of Environmental Quality). 2013. *Idaho Wadeable Stream Survey: 2005-2010*. Boise, ID: DEQ. Available http://www.deq.idaho.gov/media/954381-wadeable_stream_survey_0113.pdf (accessed March 14, 2016).