



## ENVIRONMENTAL PROTECTION AGENCY

[EPA-HQ-OW-2015-0469; FRL-9942-26-OW]

Draft Technical Support Document: Recommended Estimates for Missing Water Quality Parameters for Application in EPA's Biotic Ligand Model

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Notice of availability.

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**SUMMARY:** The Environmental Protection Agency (EPA) is announcing availability of the draft technical support document: *Recommended Estimates for Missing Water Quality Parameters for Application in EPA's Biotic Ligand Model* for public comment. In 2007, EPA published updated criteria for freshwater copper using the Biotic Ligand Model (BLM), a bioavailability model that relies on ten water quality input parameters to estimate copper criteria protective of aquatic life in freshwater. This draft technical support document summarizes data analysis approaches EPA used to develop recommendations for default values for water quality parameters used in the Freshwater Copper BLM when data are lacking. These default values may also be used to fill in missing water quality input parameters in the application of other metal BLM models as well, when data are lacking. Following closure of this 30 day public comment period, EPA will consider the comments, revise the document, as appropriate, and then publish a final technical support document that will serve as a source of information for states, tribes, territories, and other stakeholders.

**DATES:** Comments must be received on or before **[INSERT DATE 30 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER.]**

**ADDRESSES:** Submit your comments, identified by Docket ID No. **EPA-HQ-OW-2015-0469**, to the *Federal eRulemaking Portal*: <http://www.regulations.gov>. Follow the online instructions for submitting comments. Once submitted, comments cannot be edited or withdrawn. EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. EPA will generally not consider comments or comment contents located outside of the primary submission (i.e., on the web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit <http://www2.epa.gov/dockets/commenting-epa-dockets>.

**FOR FURTHER INFORMATION CONTACT:** Kathryn Gallagher, Health and Ecological Criteria Division, Office of Water (Mail Code 4304T), Environmental Protection Agency, 1200 Pennsylvania Avenue NW, Washington, DC 20460; telephone: (202) 564-1398; e-mail address: [gallagher.kathryn@epa.gov](mailto:gallagher.kathryn@epa.gov).

**SUPPLEMENTARY INFORMATION:**

**I. General Information:**

*A. How can I Get Copies of This Document and Other Related Information?*

*1. Docket:* All documents in the docket are listed in the [www.regulations.gov](http://www.regulations.gov) index.

Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, will be publicly available only in hard copy. Publicly available docket materials are

available either electronically in [www.regulations.gov](http://www.regulations.gov) or in hard copy at the Water Docket, EPA/DC, EPA West, Room 3334, 1301 Constitution Ave., NW, Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the Water Docket is (202) 566-2426. For additional information about EPA's public docket, visit EPA Docket Center homepage at <http://www.epa.gov/epahome/dockets.htm>.

**II. What is the relationship between state or tribal water quality standards and the draft technical support document: *Recommended Estimates for Missing Water Quality Parameters for Application in EPA's Biotic Ligand Model?***

As part of the water quality standards triennial review process defined in section 303(c)(1) of the CWA, the states and authorized tribes are responsible for maintaining and revising water quality standards. Water quality standards consist of designated uses, water quality criteria to protect those uses, a policy for antidegradation, and may include general policies for application and implementation. States and authorized tribes must adopt water quality criteria that protect designated uses. Protective criteria are based on a sound scientific rationale and contain sufficient parameters or constituents to protect the designated uses. States and authorized tribes have four options when adopting water quality criteria for which EPA has published section 304(a) criteria. They can:

- (1) Establish numerical values based on recommended section 304(a) criteria;
- (2) Adopt section 304(a) criteria modified to reflect site-specific conditions;
- (3) Adopt criteria derived using other scientifically defensible methods; or

(4) Establish narrative criteria where numeric criteria cannot be established or to supplement numerical criteria (40 CFR 131.11(b)).

The current 304(a) criteria recommendation for freshwater copper relies on implementation of the BLM model. The model requires 10 inputs to determine the criteria. This technical support document provides default values for 8 of the 10 parameters, where site-specific data are not available, and thereby facilitates the use of the BLM model. The document describes the methods used to estimate missing parameters.

**III. Information on the draft technical support document: *Recommended Estimates for Missing Water Quality Parameters for Application in EPA's Biotic Ligand Model:***

The Biotic Ligand Model (BLM) is used to derive Aquatic Life Ambient water quality criteria for copper in freshwater. The BLM requires 10 input parameters: temperature, pH, dissolved organic carbon, alkalinity, calcium, magnesium, sodium, potassium, sulfate, and chloride to derive water quality criteria. In 2007, EPA published updated criteria for freshwater copper using the biotic ligand model. An ongoing implementation challenge for state water quality standards is completing a parameter database for BLM use when a site has missing model input parameters. EPA developed approaches to estimate missing water quality parameters including geochemical ions (calcium, magnesium, sodium, potassium, sulfate, chloride, and alkalinity) and dissolved organic carbon (DOC). For geochemical ions (GI) parameter estimates, specific conductivity was combined with geostatistical techniques (Kriging) to generate protective estimates for use in the BLM when data are not available. DOC estimates were derived using several water quality databases including the National Organic Carbon Database, Storage and Retrieval Data System, National Waters Information System, Wadeable Stream Assessment, and National River and Stream Assessment (NRSA) database.

This draft support document provides default recommended values that could be used to fill in missing water quality input parameters when data are lacking for 8 of 10 BLM parameters. Default recommended values for GI parameters are 10<sup>th</sup> percentile ecoregional, stream-order specific values. Default recommended values for DOC are 10<sup>th</sup> percentile ecoregional values. These default values could also be used to fill in missing water quality input parameters in the application of other metal BLM models as well, when data are lacking. In addition, the document also recommends that the other two parameters, temperature and pH, be measured directly in the field. Site-specific data are always preferable for use in the BLM and should be used to develop copper criteria via the BLM when possible. Users of the BLM are encouraged to sample their water body of interest, and to analyze the samples for the constituent (parameter) concentrations as a basis for determining BLM inputs, when possible.

This document underwent an internal EPA review and an independent contractor-led external peer review.

#### **IV. Solicitation of Scientific Views:**

EPA is soliciting additional scientific views, data, and information regarding the science and technical approach used in the derivation of this draft technical document.

Dated: February 4, 2016.

Elizabeth Southerland, Director,  
Office of Science and Technology.

