Draft Copper Criteria Guidance Outline

Introduction

Purpose

This section will briefly describe the purpose of the document and how to use the document for developing permit limits and making listing decisions for the Integrated Report. It will highlight the issues that this guidance seeks to address and how to take several instantaneous water quality criteria and derive a single value for regulatory purposes.

Effects of Copper on Aquatic Life

This section will give a primer on how copper affects aquatic life and how other chemical characteristics may mitigate those effects.

NPDES Permits in Idaho

This section will summarize the types (mines, municipalities, and aquaculture facilities) and locations of facilities that currently have discharge limits for copper. The main purpose is to describe the relatively limited scope of copper limits in the state.

Impaired Waters and TMDLs

This section will summarize listings and TMDLs for copper and will summarize the TMDLs. The main purpose is to describe the relatively limited scale of copper issues within the state.

Biotic Ligand Model (BLM)

Comparison to Hardness Based Criteria

This section will provide background on why the BLM is a better estimate of copper toxicity than hardness-based criteria.

Model Overview

This section will describe the model, model versioning, and operation and discuss the input parameters and how to interpret model output.

Idaho Aquatic Life Criteria for Copper

This section will present the criteria developed as part of this rulemaking effort.

Data Requirements for Application of the BLM

General Data Requirements

This section will describe the minimum data needed to generate BLM criteria (required inputs). It will describe each parameter and how it is measured. It will describe the BLM's relative sensitivity to the different inputs. It may also detail the relative predictability of some inputs (e.g., geochemical ions) versus others (e.g., dissolved organic carbon).

Spatial Representation

This section will describe how data collected from a discrete site can be interpreted to represent a larger water body. An example for consideration would be DEQ assessment units.

Temporal Representation

This section will describe seasonality of BLM parameters and the need to capture seasonal variability. It will discuss the concept of critical time periods for BLM criteria. It will define minimum data requirements for developing permits and for making a listing decision.

Estimating Criteria when Data are Absent

This section will detail how DEQ will estimate criteria when data are absent.

Calculation of NPDES Permit Limits

This section will provide guidance on how to interpret BLM copper criteria for developing NPDES permits. It will also provide a hierarchical process for how to derive criteria when data are incomplete. An example for consideration:

- If you have 12 monthly samples:
  - Permit limit based on 10th percentile of instantaneous water quality criteria (IWCQ)
  - Allow for flow tiered limits provided sufficient data are available
- <12 monthly samples:
  - Minimum of IWQCs, require monitoring, and revisit when sufficient
- No data:
  - Critical input values based on 2016 monitoring

Identifying Impairments for the Integrated Report

This section will provide guidance on how to interpret BLM copper criteria for assessing waters for the Integrate Report. It will also provide a hierarchical process for how to derive criteria when sufficient BLM input data are incomplete. An example for consideration:

- For any single copper sample, first compare to associated IWQC.
- If copper concentrations are not associated with appropriate BLM data:
  - If reach (assessment unit) has sufficient BLM data to derive 12 monthly IWQCs, use statistical method (e.g., Fixed Monitoring Benchmark) to determine the likelihood of exceeding IWQC.
  - Collect samples to determine if copper concentration exceeds any IWQC.