

1. Copper Biotic Ligand Model (Copper BLM)

- DEQ revised Copper WQ standards in Nov. 2016
- Biotic Ligand Model, BLM, is EPA's current recommendation for determining freshwater aquatic life criteria for copper
- It is site specific criteria that accounts for changes in bioavailability, and thus toxicity to aquatic life is due to differences in water chemistry

Input Parameters

- Do not need Cu data to derive criteria
- Need measured values for 10 input parameters
- Based on dissolved parameters
- DEQ is in the process of finalizing implementation procedures

13 BLM Input Parameters
temperature
pH
dissolved organic carbon (DOC)
calcium (Ca)
magnesium (Mg)
sodium (Na)
potassium (K)
sulfate (SO ₄)
chloride (Cl)
alkalinity
<i>humic acid fraction (model default value)</i>
<i>sulfide (model default value)</i>
<i>inorganic carbon (model default value)</i>

Permittee Monitoring Requirements

- Monitoring (potential permit requirements)
 - Monthly monitoring for 2 years
 - Effluent and ambient
 - Same day collection
 - 24 monthly effluent and ambient paired data sets
 - Captures seasonal and annual variability
- QA/QC is Very Important
 - Small changes in pH can alter the criterion
 - Ultra clean methodologies for copper sampling

Permittee Monitoring Requirements

- Applicability
 - Major and industrial dischargers
 - Facilities with existing copper limits
 - Facilities with “known” concentrations in discharge
 - Receiving water body impairments

Reasonable Potential Analysis Process

- Interim Process – limited data sets using mixture of default inputs and measured data
 - Similar to traditional RPA process based on EPA methodology
 - Critical case conditions
 - Compare worst-case effluent concentrations to lowest criterion

2. Mercury in Oregon Waters

Oregon's WQ standards for Mercury

- Criterion for Fish Tissue Concentration of Methylmercury, 0.040 mg/kg
- Freshwater Aquatic life Mercury criterion 0.012 $\mu\text{g/L}$
- Saltwater Aquatic life Mercury criterion 0.025 $\mu\text{g/L}$

What are the challenges

Difficult to attain permit limits for Mercury

- DEQ received application for variance on recently issued NPDES permit. EPA and DEQ evaluating the case.
- Unattainability due to Naturally occurring pollutant concentrations and human caused pollution sources

Challenges

Mercury in the Willamette Basin

- Willamette Mercury TMDL from 2006 is challenged and due by court order in April 2019.
- Currently DEQ is working in collecting data to update the 2006 model

Challenges

The need for statewide and basin wide strategy

- DEQ is assembling information from other states who have various strategies to address Hg criteria less than what is attainable.
- Currently in the project scoping phase

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