

Target Recommendations for AQUATOX Modeling

The LBWC previously voted to support:

- A mean benthic chlorophyll-a biomass target of $\leq 150 \text{ mg/m}^2$

However, in order to refine our modeling focus, additional target details must be developed. As a result, I recommend the AQUATOX modeling workgroup move forward using the following target refinements and that the TAC and LBWC provide feedback/comments/concerns regarding these target refinements for modeling purposes and incorporation into the TMDL:

Magnitude

- A mean benthic chlorophyll-a biomass target of $\leq 150 \text{ mg/m}^2$
 - With a not-to-exceed limit of 200 mg/m^2

Rationale: Scientific literature largely affirms that aquatic life and/or recreation impairment begins somewhere in the benthic algal biomass range of 100 to 250 mg/m^2 (see DEQ's January 3, 2013 presentation to TAC). Additionally, Montana DEQ identified 150 mg/m^2 as the benthic algal biomass that supports recreation beneficial uses. The recommended not-to-exceed limit also corresponds with scientific literature and will help ensure that spatial "hot spots" do not result while still meeting the mean target objective (e.g. a chlorophyll-a value of 290 could not be averaged with a value of 10 to meet the $\leq 150 \text{ mg/m}^2$ mean target).

Location

- The mean benthic chlorophyll-a biomass target will apply within individual AQUATOX segments and Assessment Units (AUs) of the mainstem channels of the lower Boise River
 - Benthic chlorophyll-a biomass values from different AQUATOX segments and AUs would not be combined to derive a mean benthic chlorophyll-a biomass value

Rationale: Spatially limiting the benthic chlorophyll-a biomass analyses to individual AQUATOX segments and AUs would help ensure that each AQUATOX segment and AU is appropriately compared to the mean target (e.g. a benthic chlorophyll-a value from one AQUATOX segment or AU would not be averaged with a another AQUATOX segment or AU to meet the $\leq 150 \text{ mg/m}^2$ mean target).

Frequency

- The mean benthic chlorophyll-a biomass target will apply at discrete points in time (we will need to define as daily, weekly, monthly, seasonally...)
 - Benthic chlorophyll-a biomass values would not be averaged among months, seasons, years, etc.

Rationale: Temporally limiting the benthic chlorophyll-a biomass analyses to discrete time periods will help ensure that each time period is appropriately compared to the mean target (e.g.

a benthic chlorophyll-a value from one time period [season, year, etc] would not be averaged with another time period to meet the ≤ 150 mg/m² target).

Duration

- The mean benthic chlorophyll-a biomass target will be evaluated year round to determine when target exceedances are likely
 - The actual target period may be refined based on the results of the AQUATOX modeling efforts

Rationale: Conducting the benthic chlorophyll-a biomass analyses over the entire year will help identify when mean and not-to-exceed target exceedances are likely and help us to refine the appropriate target period (especially during winter and spring months when periphyton data from the lower Boise River is sparse).