UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
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CHICAGO, IL 60604-3590

JUL 31 2013

REPLY TO THE ATTENTION OF:
WW-16J

Kristi Minahan, Acting Section Chief
Water Evaluation Section (WT/3)
Wisconsin Department of Natural Resources
101 S. Webster Street
Madison, Wisconsin 53701

Dear Ms. Minahan:

The U.S. Environmental Protection Agency has conducted a review of Wisconsin's 2014 draft Consolidated Assessment and Listing Methodology (2014 draft WisCALM), which the State uses for assessing data for 303(d) list development. EPA's comments on the 2014 draft WisCALM are enclosed.

Thank you for the opportunity to review the 2014 draft WisCALM. We look forward to working with you as you finalize the methodology for use in Wisconsin's 303(d) listing process.

Sincerely,

for Peter Swenson, Chief
Watersheds and Wetlands Branch

Enclosure

cc: Aaron Larson, WDNR

U.S. Environmental Protection Agency Comments on
Wisconsin's 2014 Draft Assessment Methodology (WisCALM)
On public notice May 30 to June 30

It is EPA's understanding that the 2014 draft WisCALM, dated May 2013, is being used for making assessments of phosphorus waters for Wisconsin's 2012 303(d) list, and that the State intends to use the full methodology in its development of the 2014 list. Please confirm that our understanding is correct.

I. Issues raised in past Assessment Methodology comments (See August 25, 2011 and February 20, 2012 letters)

1. Tiered Uses and Biological Thresholds

   Region 5 remains concerned about issues that were raised in regard to the 2012 WisCALM and which remain unresolved in the 2014 draft WisCALM. These include questions about the State's ability to produce sufficient data to make routine attainment determinations using the tiered monitoring approach, and concerns about the biological thresholds used for assessing attainment. Region 5 would like to continue working with the State to resolve these issues and appreciates the work done recently on reviewing the biological assessment program, as well as other efforts.

2. Drinking Water

   The draft WisCALM states (p. 8, note 2) that WDNR will include a drinking water assessment methodology in a future WisCALM document. The Region would like to see more specific timelines set for development of this methodology and ideally the initiation of monitoring in anticipation of the 2016 listing cycle. The Public Health and Welfare Designated Use (PWS) at NR 102.04(7) applies to all surface waters and includes those waterbodies that are used by public water supplies. While the full list of human health criteria that apply to PWS waters are part of the State's WQS rules, EPA recommends that WDNR develop a methodology with specific components that can be used to assess attainment in PWS waters. EPA would be interested in participating in this effort. EPA also recommends that WDNR prioritize and incorporate all PWS waters into its routine surface water monitoring, and that this monitoring include the specific components that will comprise the PWS assessment methodology in addition to the parameters that are normally part of the routine sample analysis.

II. Other Comments on 2014 draft WisCALM

1. Extreme weather and representative data

The 2014 draft WisCALM discusses special considerations for data collected during extreme weather years in two contexts:

A. Special studies - Page 14 of the 2014 draft WisCALM states "Prescheduled sampling designs are often used for 305(b)/303(d)-related monitoring in order to randomly capture the range of conditions. In these cases, targeted samples that are collected for other purposes (e.g. monitoring targeted during runoff events) should not be incorporated into the 305(b)/303(d) assessment datasets."

EPA believes that it is not appropriate to make decisions about excluding data on a categorical basis (with exception of data with quality assurance issues). EPA's guidance cautions against excluding data when making impairment assessments since both short term events and long-term average conditions can have potential adverse effects (2006 IR guidance, pp. 34-36). EPA Data Quality guidance also states that outliers should not be discarded based solely on a statistical test, "Instead, the decision to discard an outlier should be based on some scientific or quality assurance basis" (EPA/600/R-96/084, pp. 4-26). Where a case-by-case decision is made to exclude data, EPA believes this decision should be documented in the 303(d) decision process.

B. 305(b) and 303(d) prescribed sampling- For most parameters, Wisconsin uses the most recent 10 years of data to make assessment decisions. For phosphorus, the State's standard practice is to use the most recent 5 years of data, but the state will consider data on a case-by-case basis "if insufficient data are available from the most recent 5-year period" (See p. 14, footnote 4.)

According to the 2014 draft WisCALM, a qualifying year for data involving total phosphorus and chlorophyll-a would be "one that has at least 2 daily means that are in different months of the appropriate date range and that are at least 15 days apart. Whether or not a year is a qualifying year is indicated by the assessment package output." Footnote 15 in this section discusses "Extreme weather years" and states that "if the biologist feels the extreme weather year resulted in data that would make the assessment result unrepresentative, the biologist may manually check to determine that at least one "normal year" was included in the assessment before making impairment decisions." (See p. 30).

EPA interprets these discussions to mean that where 305b/303d sampling coincides with extreme weather conditions, WDNR may supplement the data either by collecting additional new data, or by considering data collected outside the period of record normally used for making assessment decisions. EPA recommends that this point be clarified in the 2014 WisCALM.

2. Total Phosphorus methodology

A. EPA appreciates the state's establishment of subcategory 5P in order to list impaired waters based on phosphorus data alone. The 2014 draft WisCALM, however, is unclear with regard to whether the state plans to develop TMDLs for these waters. Based on the public notice information for the 2012 list, WDNR indicates that it does

not intend to develop TMDLs for Category 5P waters until biological impairment is confirmed. EPA recommends that public notice information available on the WDNR website and the 2014 draft WisCALM (at page 33) for Lakes and (at pp. 54-55) for rivers be revised to clarify that Category 5P waters are given a lower priority for TMDL development. While states have discretion in how impaired waters are prioritized for TMDL development, states are obligated to establish TMDLs for impaired waters (40 CFR 130.7(c)(1). EPA guidance recommends that TMDLs be established within 8-13 years from the time of initial listing (2004 IR guidance, p. 9).

B. The 2014 draft WisCALM indicates WDNR will be using "bioconfirmation" in determining into which subcategory the waterbody will be placed (5A or 5P) for phosphorus listings. EPA suggests using different terminology in place of "bioconfirmation," such as "biological information," for example. EPA is concerned that the state's use of the term "bioconfirmation" is misleading in this context because the state's phosphorous standard does not include biological confirmation as a listing factor, i.e. to list a waterbody in subcategory 5P.

C. Region 5 notes that changes were made regarding confidence intervals in the draft WisCALM methods for phosphorus assessment. Region 5 would like to continue to work with the State regarding the use of confidence intervals. EPA recommends that WDNR explain the rationale for using the lower 90^{th} percent confidence interval for Lakes and Streams/Rivers and explain how this approach is consistent with the phosphorus criteria.

Rivers and Streams Assessment

i. The confidence interval equation on Page 54 includes a variable; 'K.' The text identifies 'K' as a tolerance limit factor and refers the reader to Gibbons (2003). EPA recommends that more information be provided in the text about how 'K' was derived.

ii. EPA is reserving comment on the fish IBI and macroinvertebrate IBI thresholds in Table 14A (page 55) until such time as such criteria may be incorporated into an EPA-approved water quality standard.

Lakes Assessment

i. Please clarify which response variables are used in identifying biological causes of impairment due to TP for aquatic life uses in lakes to determine whether a lake would be listed in subcategory 5A or 5P.

ii. Page 31. Is the equation supposed to be *ln* CI?

iii. EPA is reserving comment on the chlorophyll-a thresholds in Table 6 (page 43) until such time as such a criterion may be incorporated into an EPA-approved water quality standard.

3. Temperature Assessment Methodology

Region 5 identified the following concerns with WDNR's approach for assessing against the temperature standard, as written in the 2012 WisCALM, dated April 2012:

1) Mean daily temperatures rather than maximum daily temperatures were used to assess streams for acute temperature impacts; and
2) sub-lethal temperature impacts were not being assessed.

WDNR has addressed both of these concerns in the 2014 draft WisCALM document, dated May 2013. However Region 5 would like to continue to work with WDNR to further improve the consistency between the methodology and the temperature criteria for lakes and rivers/streams.

*For reference, the key provisions for temperature in Wis. Admin. Code NR 102 are provided (**with emphasis added in bold**):*

- *NR 102.25(c): Acute water quality criteria are to be applied as daily maximum temperatures.*
- *NR 102.25(b): Sub-lethal water quality criteria are to be applied as maximum weekly average temperatures.*
- *NR 102.22(6), "Maximum weekly average temperature" means the highest allowed arithmetic mean of all **daily maximum** temperatures during a calendar week, outside mixing zone allowed in this subchapter.*
- *NR 102.22(4): "Daily maximum temperature" means the **highest** allowed water temperature for a calendar day, outside a mixing zone allowed in this subchapter.*
- *NR 102.25(e): Final acute and sub-lethal water quality criteria for temperature specified in or developed pursuant to §§ NR 102.24-26 **shall not be exceeded** at any point outside the mixing zone.*

Rivers and Streams Assessment (Refer to Table 14A):

i. The methodology requires 10 discrete daily values collected on separate calendar days for acute assessment and 10 days of continuous hourly temperature data for sub-lethal assessment for rivers and streams. Because the state has an acute "shall not exceed" criterion, a single daily maximum value that is above the acute criterion is technically sufficient to trigger a nonattainment determination. Our concern is that data requirements for 10 daily values might prevent assessment on a subset of waters. While a *goal* of collecting 10 daily values is reasonable, EPA recommends that the assessment methodology be revised to allow WDNR to make assessment determinations using fewer than 10 daily values, where necessary.

ii. The methodology appears to evaluate impairment in streams by calculating a 24 hour average for the daily temperature and comparing this average to the sub-lethal criteria. The Wisconsin sub-lethal criteria are implemented by calculating

the weekly average of the daily maximum temperatures and then comparing the results to the criterion. EPA recommends that the methodology should be clarified that the state is using the daily maxima for each 24 hour period collected over the week and averaging these values to compare to the criterion for impairment determination.

Lakes Assessment (Refer to Table 5A):

i. The methodology requires 20 discrete daily values collected on separate calendar days for acute and sub-lethal assessment of inland lakes. For an acute "shall not exceed" criterion, a single daily maximum value that is above the acute criterion is technically sufficient to trigger a nonattainment determination. Our concern is that data requirements for 20 daily values might prevent assessment on a subset of waters. While a *goal* of collecting 20 daily values is reasonable, EPA recommends that the assessment methodology be revised to allow WDNR to make assessment determinations using fewer than 20 daily values, where necessary.

ii. The impairment threshold in Table 5A of the draft methodology does not include the actual acute and sub-lethal criteria applicable to inland lakes that are included in Wisconsin's thermal rule. The temperature criteria applicable to inland lakes are listed in Wis. Admin. Code NR 102.25(4), Table 4. EPA recommends that this table be referenced in Table 5A of the 2014 draft WisCALM and the language in the current draft table 5A be deleted as it is no longer applicable.

Acute and sub-lethal temperature criteria

i. EPA recommends that the 2014 draft WisCALM clarify that acute and sub-lethal criteria are to be applied as described above under 3.A and B for rivers and streams.

ii. Wisconsin's thermal rule, Wis. Admin. Code NR 102.25(e), states that acute and sub-lethal temperature criteria "shall not be exceeded." The acute and sub-lethal criteria are defined as daily maximum and weekly average (of daily maximum) temperatures, respectively. The acute and sub-lethal criteria, as these terms are defined by the rule, represent endpoints that WDNR derived based on an extensive review of fish data. Please note that EPA is currently reevaluating its guidance on the use of a 10% exceedance rate, and plans to explain it further in guidance for the 2016 listing cycle and beyond.

Following development of this new guidance and its application for criteria that are expressed in the state's WQS as "never to be exceeded," EPA may wish to discuss changes to WDNR's methodology for 2016 to address the "never to exceed" temperature standards so that the methodology is consistent with both the approved WQS and future EPA guidance.

4. Review of Assessment Methodology and 2014 list

EPA Region 5 appreciates the opportunity to review Wisconsin's Draft 2014 methodology. The Region will review the 2014 WisCALM methodology in conjunction with its review of the draft and final 2014 303(d) lists.

5. Summary of revisions to the Methodology

EPA recommends that WDNR consider adding a section to the methodology in a summary section which identifies significant changes made from the previous methodology. Although some changes were identified (for example, draft methodology, p. 28), consolidating a summary of these changes would allow the reader to focus more specifically on these revisions.