



Wisconsin's Green Fire Comments September 18, 2018

“Total Maximum Daily Loads for Total Phosphorus in the Wisconsin River Basin”
Public Hearing Draft August 20, 2018
available at <https://dnr.wi.gov/topic/TMDLs/WisconsinRiver/>

About Wisconsin's Green Fire: Wisconsin's Green Fire- Voices for Conservation (WGF) supports the conservation legacy of Wisconsin by promoting science-based management of its natural resources. Our members represent extensive experience in natural resource management, environmental law and policy, scientific research, and education. Our members have backgrounds in government, non-governmental organizations, universities and colleges and the private sector.

Comments: In general, the August 20, 2018 hearing draft of the “Total Maximum Daily Loads for Total Phosphorus in the Wisconsin River Basin” represents a robust modeling effort that far exceeds efforts in previous TMDL modeling efforts. At the same time, it seems to omit basic information, sometimes lacks clarity and is not presented in a manner that is easy for the general public to use and understand. **WGF believes that the missing information will make it harder to launch an implementation effort.**

The following is a section-by-section set of comments.

Section 1. Introduction

No comments. Rather straight forward.

Section 2. Watershed Characterization

Descriptive material. Use of the ecological landscapes seems appropriate.

Section 3. Monitoring

Descriptive and brief

Section 4. Source Assessment

1. This section does not describe how data on the current agricultural nonpoint sources were incorporated into the SWAT model. In contrast, subsections

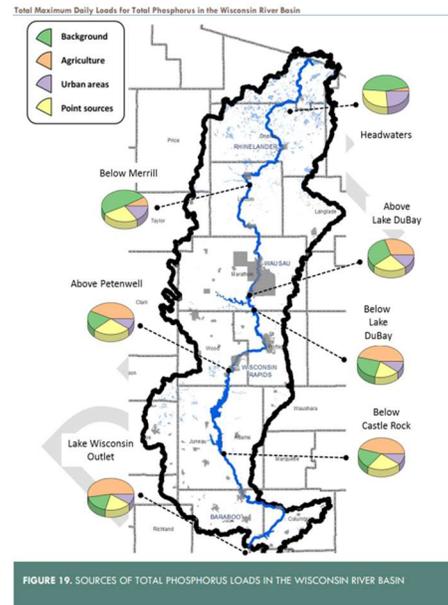
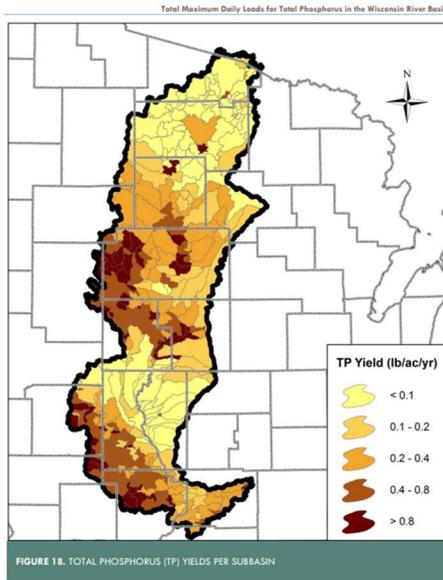
3.2 through 3.5 of Appendix K include a very clear description of the information sources and data compilation to arrive at a five-year set of input data.

Comment: Include in the text of the TMDL report a description of how the current or existing agricultural nonpoint sources were accounted for in the data input to the SWAT model. At a minimum, the text should refer the reader to subsections 3.2 through 3.5 of Appendix D.

2. This section goes into a lengthy discussion of the concerns with use of the SWAT model: estimates exported loads from fields rather than ultimate delivery of loads downstream; calibration not able to capture some seasonal fluctuations; and calibration has residual bias. It also discusses the need and use of a separate model needed downstream of Merrill. The outcome associated with all of this discussion seems to be the need to adjust the SWAT loads. The rather confusing Table 12 appears to indicate that for phosphorus, loads needed to be adjusted by as much as 30% at Mill Creek at CTH PP. In the context of modeling, adjustments as large as 30% are not surprising or unexpected, but it should be taken into account in the TMDL's margin of safety.

Comment: The TMDL report needs to explain how the magnitude of the bias in the SWAT model results is accounted for in the margin of safety.

3. The two figures below were very informative. In particular, the yields (mass load per acre) on Figure 18 seem very consistent with published historic yields based on monitoring (e.g. Fact sheet-195-97, USGS, Panuska DNR). Past TMDLs seemed to predict yields that were not consistent.



4. It is unlikely that the SWAT modeling took into account phosphorus in runoff from animal lots or contributions from streambanks.

Comment: The TMDL report should state how phosphorus in runoff from these sources is taken into account in the source assessment, if at all. If the phosphorus contribution is presumed to be small, there should be a discussion supporting that presumption.

5. While CAFOs are briefly described, there is no discussion on CAFO loads in the source assessment. Presumably the load from production areas is zero, but it is not stated.

Comment: State in the TMDL report that for CAFOs a zero phosphorus load, if used, was assumed for the source assessment of the existing loads.

6. There is no discussion on existing loads from municipal and industrial wastewater point sources in the source assessment. It is unclear whether no loads, existing loads or “baseline” loads described in section 4.4.2.1 were used. Presumably, the point source loads would influence the calibration process.

In contrast, subsection 3.7 of Appendix D clearly explains how the existing point source load information was compiled and how it was important to the SWAT calibration process.

Comment: The TMDL report should specifically state how existing phosphorus loads from municipal and industrial wastewater treatment facility point sources were used in the source assessment and the model calibration process. At a minimum, the text of this section should refer the reader to subsection 3.7 of Appendix D where there is a clear description of the use of existing point source load information in the SWAT calibration process.

Section 5. Pollutant Load Capacity

7. Often in past TMDL analyses, the growing season phosphorus mean concentration was assumed to be equal to the flow weighted mean concentration. It is good to see an analysis of this correlation. However the flow weighted mean to growing season mean ratio of 1.5:1 or even 2:1 shown on Table 15 warrants some explanation. For example, the data collected on Mill Creek at CTH PP, near the mouth of Mill Creek, undoubtedly is influenced by the discharge of phosphorus from Marshfield's wastewater treatment facility. Is the point source discharge a factor?

Comment: The high ratios of flow weighted mean concentrations to growing season mean concentrations for phosphorus shown on Table 15 should be assessed and explained.

Section 6. Pollutant Load Allocations

8. Under load allocations, how the "baseline" conditions for agricultural nonpoint source were determined is not described. The text states that the baseline agricultural nonpoint source load is based on the land cover used in the SWAT modeling, but doesn't state that the same information (rotations, tillage, etc.) used in the SWAT modeling is used as the baseline condition.

Comment: The text of the TMDL report should be clear as to how the agricultural nonpoint source baseline conditions were determined. If they are the same as used in the SWAT modeling of existing conditions, the text should refer the reader to subsections 3.2 through 3.5 of Appendix D. If they are different, the text should describe how they are different and why they are different.

9. Appendix N is a valuable addition to the document and a step toward NPS implementation. It is evident that the phosphorus yield estimates in Appendix N do not agree with the baseline yield numbers from SWAT. However they are important additions to the science of NPS management. They would be even more valuable if the sub-basin yield values from SWAT were listed in table 1.2 in Appendix N along with the PI values using the trade

report method. Future implementation efforts will need to understand the difference between these yield estimation techniques. Also, future efforts to bring the SWAT and Snap plus models closer to the same yield estimates would benefit from listing both model outputs for each sub-basin in this evaluation.

Comment: Include SWAT sub-basin phosphorus yield estimates alongside trade report PI yield estimated in table 1.2 of Appendix N. Also the TMDL should recommend that the Snap Plus model be modified to automatically provide farm-wide weighted mean values for trade report phosphorus index and soil loss. This recommendation is an important part of reasonable assurance of nonpoint implementation.

10. The point source wasteload allocation section describes a process where the baseline condition is based on permit limits, primarily 1 mg/L TP, and an assumption of the design capacity. This is not the existing condition as some wastewater treatment plants have been discharging at higher concentrations than 1 mg/L and other at lower concentrations. Few, if any, have been discharging at design capacity.

WGF independent review of a summary of basin point source data from 2011-2013 is attached. It illustrates the very large differences in the expected phosphorus reductions for the point sources. The decision to use design flow for wasteload allocation has a huge effect on the relative distribution of allocations among dischargers. While the average difference between actual and design flow is 127%, individual differences can be over 300%, including some large dischargers (eg Mauston). The extent of adjustments to recognize design flow should be disclosed in the TMDL and justification provided especially for the largest differences between actual and design flow for large dischargers. It also helps put into perspective the relationship between the point source wasteload allocation and nonpoint source load allocation. This is important information and should be part of any TMDL.

Comment: The TMDL report should include a summary table or chart comparing the existing loads to the baseline loads and the wasteload allocation and justification provided for significant differences between the design flow used in wasteload allocation and actual flow .

11. This section describes an “implicit” margin of safety achieved through use of conservative assumptions.

Comment: Given the relatively large adjustments to the nonpoint source loads used in the SWAT modeling, a specific margin of safety should be considered.

12. This section mentions using a 5% reserve capacity without any explanation as to how the reserve capacity was determined. Use of any reserve capacity likely results in a greater control of agricultural nonpoint sources (lower load allocation) than if there was no reserve capacity. The report provides several examples of how reserve capacity might be used. These examples do not mention the very important need for municipalities to correct groundwater contamination problems through extension of service to unsewered areas or conversion of municipalities discharging to groundwater to new surface water dischargers.

Comment: The text of the TMDL report should discuss the need for a 5% reserve capacity, especially how it impacts the agricultural nonpoint source load allocation. The examples of uses of reserve capacity should include municipalities taking action to correct groundwater contamination problems.

Section 7. TMDL Implementation

13. Despite the lengthy list of nonpoint source implementation programs, the historic trend has been chronic underfunding of programs needed to implement TMDLs. Add to that, the level of nonpoint source management necessary to achieve the load allocations requires a far greater level of management than what will be achieved through meeting the existing performance standards, such as a phosphorus index of 6.

Comment: The TMDL should point out the need for increased funding in the listed programs to implement the set of TMDLs in a timely manner, such as 10 to 15 years. Also, the Department of Natural Resources should consider adopting targeted performance standards for the Wisconsin River Basin consistent with the load allocations in this TMDL report. These recommendation are an important part of reasonable assurance of nonpoint implementation.

14. The TMDL does not mention the fate of surrendered wasteload allocation when a facility ceases to operate. It is our understanding that the process that will be used is explained in the DNR TMDL implementation guidance. <https://dnr.wi.gov/topic/tmdls/implementation.html>.

Comment: The existence of a procedure for handling surrendered wasteload allocations and its web location should be referenced either in section 6.6 or 7.6

Thank you for the opportunity to comment on this Draft Document. Please do not hesitate to contact us to discuss further.

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