

Chapter 5. Integrating Point Source and Nonpoint Source Management

Chapters 3 and 4 describe Wisconsin's programs for controlling nutrients from point sources and nonpoint sources. However, a description of Wisconsin programs would be incomplete without a short description of activities that assess or manage nutrients in an integrated manner. This chapter describes four of these activities: Total Maximum Daily Load (TMDL) analyses; a model called PRESTO; the Watershed Adaptive Management Option; and water quality trading. All four activities address aspects of a number of elements for Wisconsin's Nutrient Reduction Strategy.

5.1 Total Maximum Daily Loads (TMDLs)

All states, including Wisconsin, are required by EPA to develop TMDL analyses for impaired waters, (those not meeting water quality standards). TMDLs, as authorized under the federal Clean Water Act, determine the pollutant load (mass) reduction needed to attain and maintain water quality standards. TMDL analyses also allocate the maximum allowable load between each point source and nonpoint sources. As a result, in watersheds where both point sources and nonpoint sources are significant contributors of nutrients, the entire load reduction is not necessarily assigned to the point sources. As shown in Figure 5.1 Wisconsin has many approved TMDLs and is developing new TMDLs.

TMDL implementation comes through the point source programs described in Chapter 3 and the suite of federal, state and local nonpoint source programs described in Chapter 4. In the near future, implementation may also come through Watershed Adaptive Management Option projects and water quality trading described below.

Status of Wisconsin's TMDLs (Phosphorus, Sediment, and Bacteria) April 2013

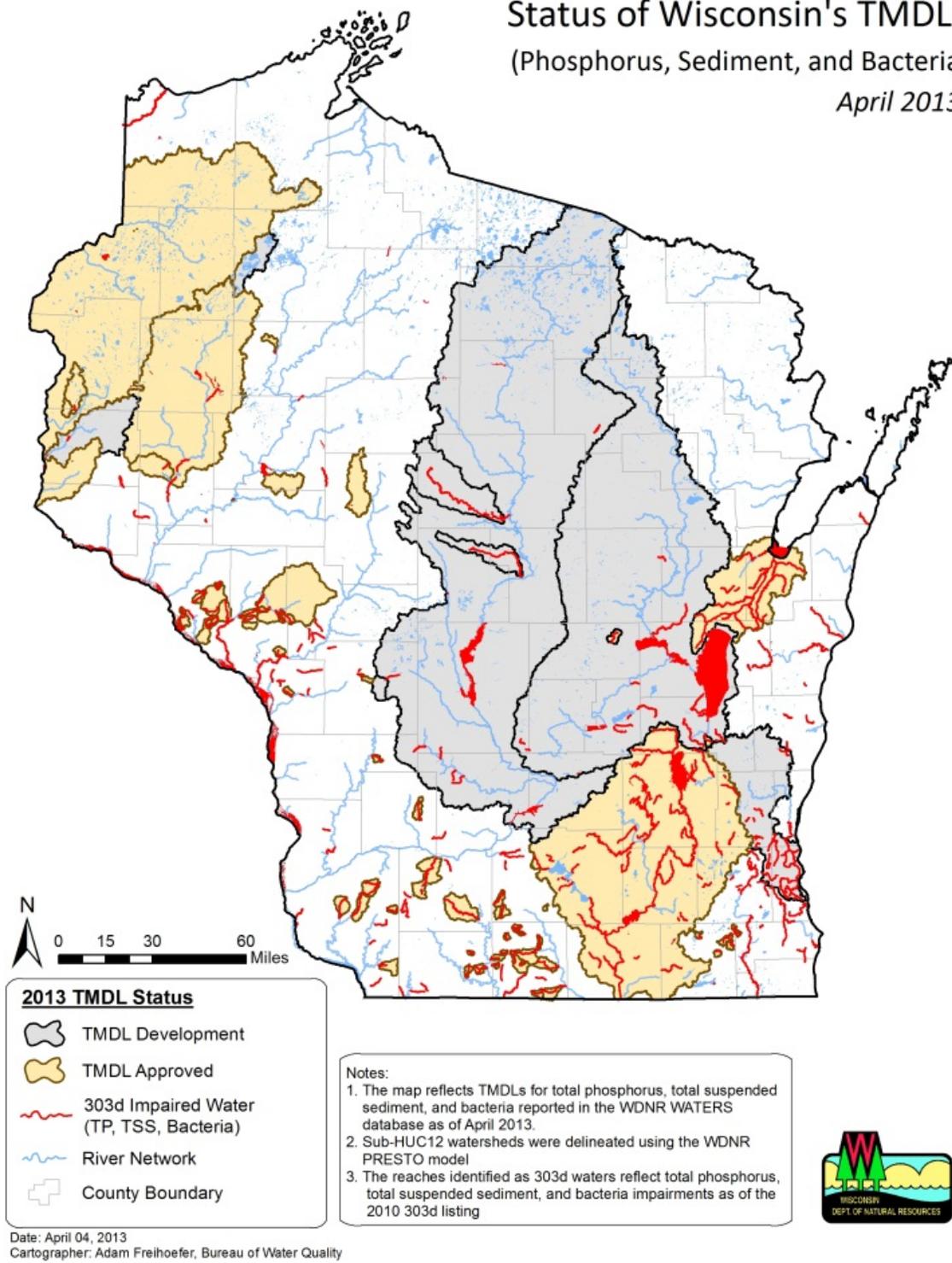


Figure 5.1 Status of Impaired Waters for Total Phosphorus.

5.2 PRESTO

The Pollutant Load Ratio Estimation Tool (PRESTO) is a screening level GIS-based tool that calculates and compares annual phosphorus loads for watersheds in Wisconsin from point sources and nonpoint sources. PRESTO was originally developed by the Wisconsin DNR to help permitted municipal and industrial facilities determine eligibility for the watershed adaptive management option to comply with the phosphorus water quality-based effluent limits in the facility's WPDES permit. Section NR 217.18, Wisconsin Adm. Code, limits the application of this option to situations where nonpoint sources, including urban storm water, contribute more than 50% of the annual phosphorus load.

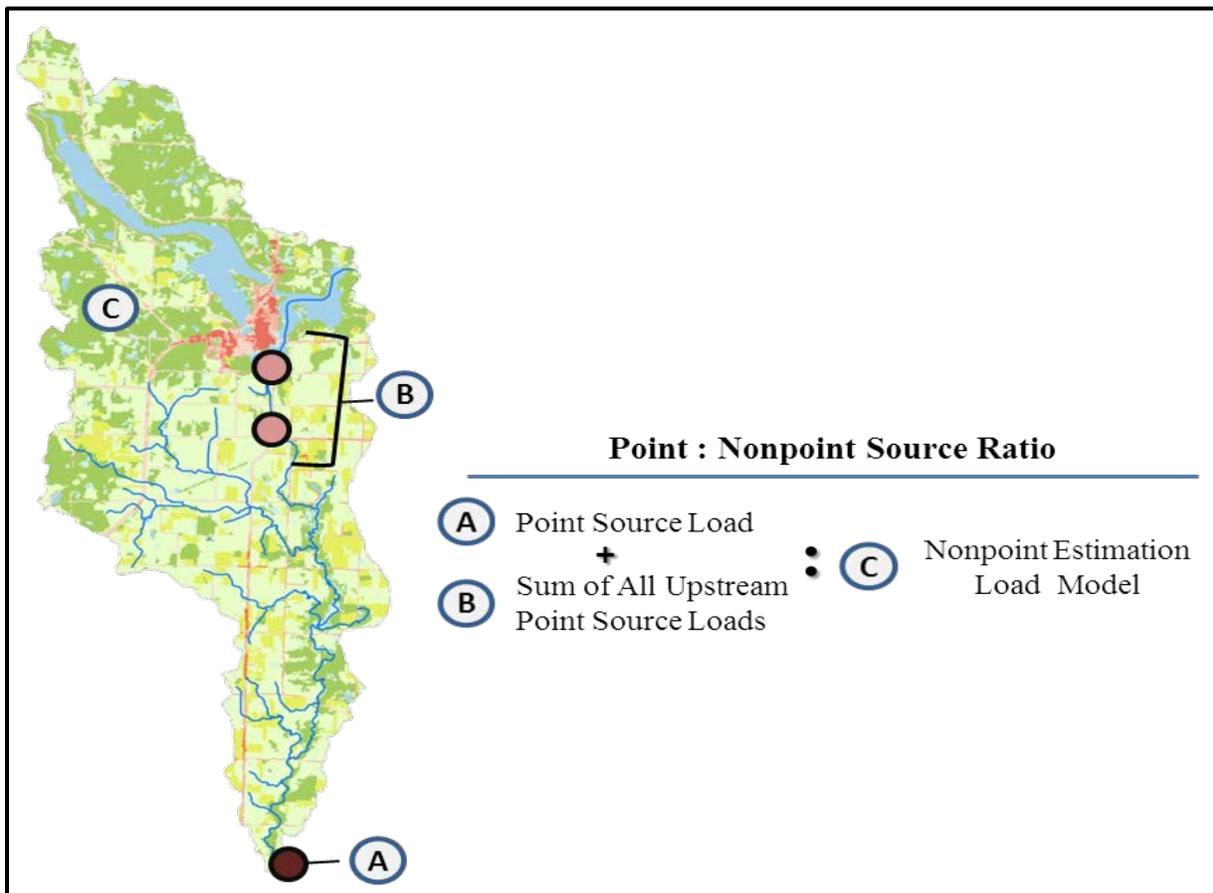


Figure 5.2 Example of PRESTO generated point to nonpoint ratio

PRESTO has been used to estimate the percent point source and percent nonpoint source contribution for the watershed upstream of 652 point source outfalls. Data from point source discharge monitoring reports is used to calculate the point source contribution while three different regression models are used to estimate the nonpoint source contribution. Results of this analysis can be found at <http://dnr.wi.gov/topic/surfacewater/presto.html>. PRESTO has also been used to estimate relative point source and nonpoint source contributions for HUC 10 watersheds.

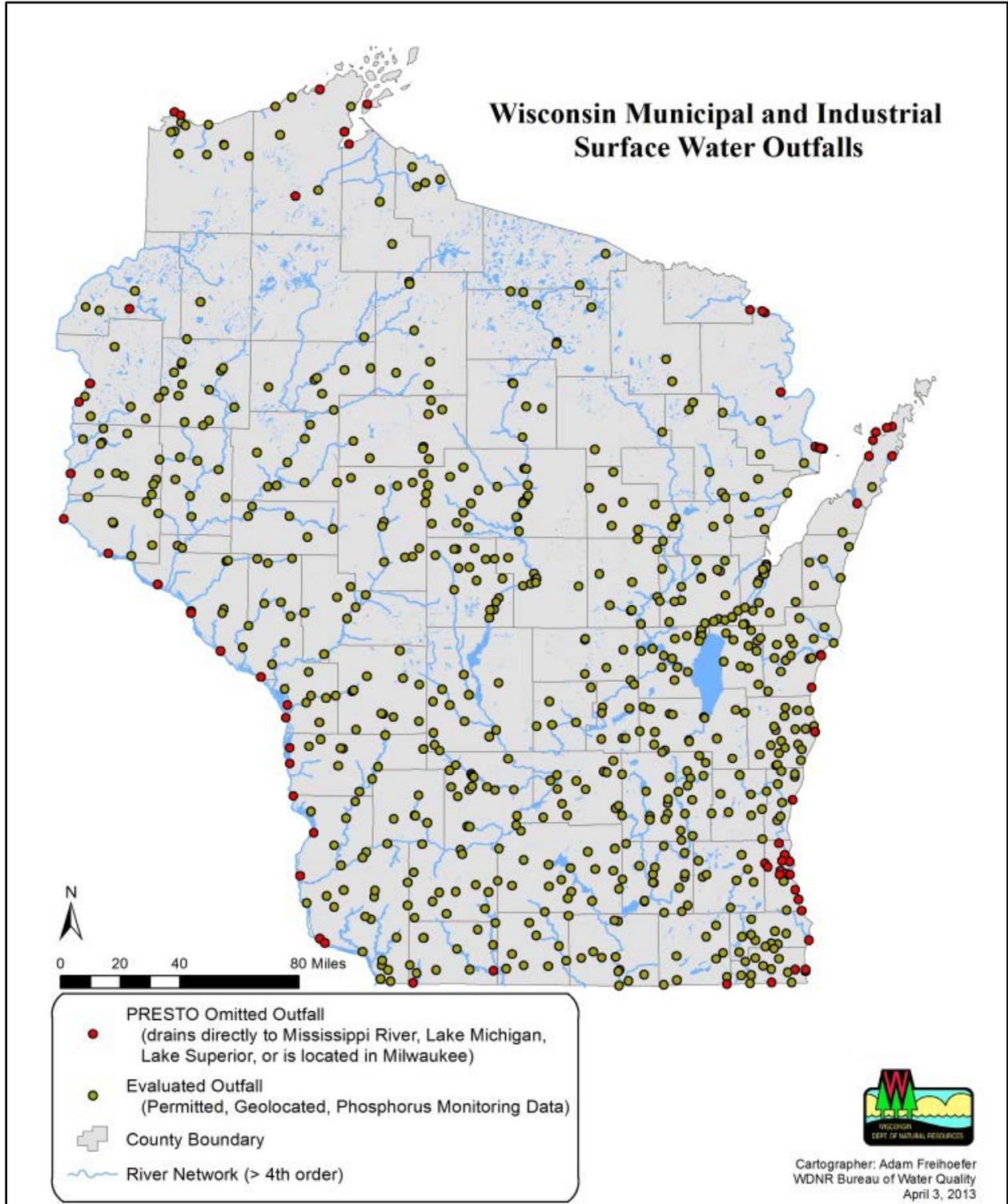


Figure 5.3 PRESTO pre-calculated source outfall points

5.3 Watershed Adaptive Management Option

The Watershed Adaptive Management Option is a compliance option for point source facilities having both stringent phosphorus effluent limits and nonpoint sources that are the dominant contributor of phosphorus to the stream, river or lake receiving the facility's effluent. It is based on the concept that control of nonpoint sources within the point source facility's upstream watershed will result in attaining and maintaining water quality standards at far less cost than installing phosphorus filtration technology at the treatment plant. It was created in s. NR 217.18, Wis. Adm. Code (effective December 2010) and was approved for use in the WPDES point source permit program by EPA in 2012. At this time, this option is only available in Wisconsin.

Under this option, point source facilities must accept interim phosphorus limits and work with watershed partners to develop and implement a watershed plan that will control phosphorus. The watershed plan when implemented should result in improved water quality in the watershed and potentially allow the effluent limit to be adjusted. The watershed plan may use a variety of implementation tools, such as education, technical assistance and financial assistance. Water quality monitoring must be a component of the plan. Facilities, along with their watershed partners, have two five-year permit terms to implement the watershed plan. Depending on the progress, the third permit may require compliance with the water quality-based effluent in the permit.

The Wisconsin Department of Natural Resources has developed a technical handbook and other guidance information to guide use of this option. These are available at <http://dnr.wi.gov/topic/SurfaceWater/AdaptiveManagement.html>.

5.4 Water Quality Trading

Point source facilities with stringent effluent limits may also pursue water quality trading as a compliance option. Water quality trading typically involves a permit holder facing relatively high pollutant reduction costs compensating another party to achieve less costly pollutant load reduction while providing a greater water quality benefit. In a trade, the permit holder enters into an agreement with a municipality, other point source or nonpoint source landowners within a watershed to offset a portion of the permittee's specific effluent discharge. This offset must control a greater amount of phosphorus based on model simulations than what would have to be controlled at the treatment facility to comply with the facility's effluent limit. Consistent with EPA guidance, trade ratios are used to account for uncertainties and other factors such that a greater amount of pollutant is removed. Trade thresholds and acceptable trade calculation tools are also specified in the guidance documents.

Wisconsin, as with many other states, has developed a trading framework and implementation guidance. Trading applies to a limited number of pollutants, but more detail is provided for total phosphorus and total suspended solids given the recently promulgated water quality standards criteria for phosphorus and recently approved total maximum daily loads for phosphorus and suspended sediment. For more information on water quality trading, see <http://dnr.wi.gov/topic/surfacewater/adaptivemanagement.html>.