



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 1
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BOSTON, MA 02109-3912



October 18, 2011

Mr. Ted Diers
Administrator, Watershed Management Bureau
New Hampshire Department of Environmental Services
29 Hazen Drive
P.O. Box 95
Concord, NH 03302-0095

SUBJECT: Approval of Turtle Pond TMDL

Dear Mr. Diers:

Thank you for your submission of New Hampshire's Total Maximum Daily Load (TMDL) for *Turtle Pond*. The pond was included on the State's 2010 303(d) list and was prioritized for TMDL development. The purpose of this TMDL is to address the phosphorus-related impairment of hepatotoxic cyanobacteria.

The U.S. Environmental Protection Agency (EPA) hereby approves New Hampshire's *Turtle Pond TMDL* for phosphorus, received by EPA on October 4, 2011. EPA has determined that the TMDL meets the requirements of §303(d) of the Clean Water Act (CWA), and of EPA's implementing regulations (40 CFR Part 130). Attached is a copy of our approval documentation.

My staff and I look forward to continued cooperation with the NH DES in exercising our shared responsibility of implementing the requirements under Section 303(d) of the CWA.

If you have any questions, please contact Stephen Silva (617-918-1561) or Steven Winnett (617-918-1687) of my staff.

Sincerely,

Stephen S. Perkins, Director
Office of Ecosystem Protection

Cc: Harry Stewart (NHDES)
Gregg Comstock (NHDES)
Peg Foss (NHDES)
Stephen Silva, EPA
Steven Winnett, EPA

EPA NEW ENGLAND'S TMDL REVIEW

TMDL: Turtle Pond NHLAK700060302-08

Location: Concord, New Hampshire

STATUS: Final

IMPAIRMENT/POLLUTANT: Turtle Pond is not supporting the designated use of Primary Contact Recreation Use. It is impaired with hepatotoxic cyanobacteria. A year-around TMDL submission is presented for total phosphorus.

BACKGROUND: The NH Department of Environmental Services (DES) submitted to EPA New England the final Total Maximum Daily Load Analyses for *Turtle Pond* (the "TMDL," "submission," or "Report") with a transmittal letter dated October 4, 2011. DES sent EPA a prototype draft report of its lake phosphorus TMDLs in February 2008, and after substantial review, EPA responded with comments in April 2009. DES addressed EPA's comments in the final draft TMDL documents, which it sent to EPA in July 2009. DES released and EPA approved 24 lake phosphorus TMDL reports in fiscal year 2011, of which this is the latest member of the set.

The submissions included:

- Final TMDL report for phosphorus in Turtle Pond;
- Implementation plan for achieving TMDL reductions, Chapter 7;
- References, Chapter 11;
- Methodology for Determining Target Criteria, Appendix A;
- LLRM – Lake Loading Response Model Users Guide, Appendix B; and
- Land Use Categories, Export Coefficients, and Additional Calculations, Appendix C.

The following review explains how the TMDL submission meets the statutory and regulatory requirements of TMDLs in accordance with § 303(d) of the Clean Water Act and EPA's implementing regulations in 40 CFR Part 130.

REVIEWERS: Steven Winnett (617-918-1687) E-mail: winnett.steven@epa.gov

2. Description of the Applicable Water Quality Standards and Numeric Water Quality Target

The TMDL submittal must include a description of the applicable State/Tribe water quality standard, including the designated use(s) of the water body, the applicable numeric or narrative water quality criterion, and the antidegradation policy. Such information is necessary for EPA's review of the load and wasteload allocations which are required by regulation. A numeric water quality target for the TMDL (a quantitative value used to measure whether or not the applicable water quality standard is attained) must be identified. If the TMDL is based on a target other than a numeric water quality criterion, then a numeric expression, usually site specific, must be developed from a narrative criterion and a description of the process used to derive the target must be included in the submittal.

Turtle Pond is impaired by phosphorus (TMDL, Section 1.0), and is classified in Class B (TMDL Section 2.2). NH DES's water quality standards and policies specify the following goals for Class B waters, including goals for dissolved oxygen (DO) and chlorophyll *a* (TMDL Section 2.3):

- Env-Wq 1703.14: Class B waters shall contain no phosphorus in such concentrations that would impair any existing or designated uses, unless naturally occurring.
- Env-Wq 1703.14: Existing discharges containing either phosphorus or nitrogen that encourage cultural eutrophication shall be treated to remove phosphorus or nitrogen to ensure attainment and maintenance of water quality standards.
- Env-Wq 1703.14: There shall be no new or increased discharges of phosphorus into lakes and ponds, and there shall be no new or increased discharges containing phosphorus or nitrogen to tributaries of lakes or ponds that would contribute to cultural eutrophication or growth of weeds or algae in such lakes or ponds.
- Env-Wq 1703.07 (b): Except as naturally occurs, or in waters identified in RSA 485-A:8, III, or subject to (c) below, Class B waters shall have a DO content of at least 75% of saturation, based on a daily mean, and an instantaneous minimum DO concentration of at least 5 mg/L.
- Env-Wq 1703.07 (d): Unless naturally occurring or subject to (a) above, surface waters within the top 25 percent of depth of thermally unstratified lakes, ponds, impoundments and reservoirs or within the epilimnion shall contain a DO content of at least 75 percent saturation, based on a daily mean and an instantaneous minimum DO content of at least 5 mg/L. Unless naturally occurring, the DO content below those depths shall be consistent with that necessary to maintain and protect existing and designated uses.
- The NH DES policy for interim nutrient threshold for primary contact recreation (i.e. swimming) in NH lakes is 15 ug/L chlorophyll *a* (NH DES 2008a). Lakes were also listed even if scums were present only along a downwind shore.

New Hampshire has no numeric criteria for phosphorus in lakes and ponds. Consequently, NH DES derived a numeric TP target of 12 ug/L, using procedures described in Section 2.6 and detailed in Appendix A that will allow the pond to attain its designated uses. The target is based on an analysis of phosphorus conditions in both impaired and unimpaired lakes in the state, and is supported by additional analyses of nutrient levels for commonly recognized trophic levels, and by the use of probabilistic equations to establish targets that minimize the risk of impaired conditions. All three methods produced similar results, and a detailed discussion of them can be

impaired and unimpaired water bodies, has been appropriately set at a level necessary to attain and maintain applicable water quality standards. The TMDL is based on a reasonable approach for establishing the relationship between pollutant loading and water quality.

4. Load Allocation (LA)

EPA regulations require that a TMDL include LAs, which identify the portion of the loading capacity allocated to existing and future nonpoint sources and to natural background (40 C.F.R. § 130.2(g)). Load allocations may range from reasonably accurate estimates to gross allotments (40 C.F.R. § 130.2(g)). Where it is possible to separate natural background from nonpoint sources, load allocations should be described separately for background and for nonpoint sources.

If the TMDL concludes that there are no nonpoint sources and/or natural background, or the TMDL recommends a zero load allocation, the LA must be expressed as zero. If the TMDL recommends a zero LA after considering all pollutant sources, there must be a discussion of the reasoning behind this decision, since a zero LA implies an allocation only to point sources will result in attainment of the applicable water quality standard, and all nonpoint and background sources will be removed.

The submission identifies the portion of the loading capacity that would be attributable to nonpoint sources and natural background, normally assigned to the load allocations (LAs). In this watershed, nonpoint sources of pollution include diffuse stormwater runoff and overland flow, surface water base flow and groundwater seepage, septic systems, internal cycling of nutrients, waterfowl, and atmospheric deposition. Because there are little available data in this watershed to determine how much of the nonpoint sources are attributable to regulated vs. unregulated sources, NH DES has chosen to allocate unregulated stormwater and other nonpoint source runoff to the waste load allocation (WLA), which EPA has said is an acceptable approach when insufficient data are available.

Assessment: In the absence of sufficient data to separate the two, EPA New England concludes that it is acceptable for NH DES to include that portion of the loading capacity that would normally be attributable to the load allocation (LA) into the waste load allocation (WLA), below.

5. Wasteload Allocation (WLA)

EPA regulations require that a TMDL include WLAs, which identify the portion of the loading capacity allocated to existing and future point sources (40 C.F.R. § 130.2(h)). If no point sources are present or if the TMDL recommends a zero WLA for point sources, the WLA must be expressed as zero. If the TMDL recommends a zero WLA after considering all pollutant sources, there must be a discussion of the reasoning behind this decision, since a zero WLA implies an allocation only to nonpoint sources and background will result in attainment of the applicable water quality standard, and all point sources will be removed.

In preparing the wasteload allocations, it is not necessary that each individual point source be assigned a portion of the allocation of pollutant loading capacity. When the source is a minor discharger of the pollutant of concern or if the source is contained within an aggregated general permit, an aggregated WLA can be assigned to the group of facilities. But it is necessary to allocate the loading capacity among individual point sources as necessary to meet the water quality standard.

The TMDL submittal should also discuss whether a point source is given a less stringent wasteload allocation based on an assumption that nonpoint source load reductions will occur. In such cases, the State/Tribe will need to demonstrate reasonable assurance that the nonpoint source reductions will occur within a reasonable time.

also used conservative assumptions involving summer versus annual conditions and produced an implicit MOS of approximately 20% (TMDL Appendix A, Section 1.3.3).

Assessment: EPA New England concurs that an adequate margin of safety is provided by the implicit MOS of approximately 20% produced by the conservative assumptions and data used in the three target setting procedures used in the TMDL.

7. Seasonal Variation

The statute and regulations require that a TMDL be established with consideration of seasonal variations. The method chosen for including seasonal variations in the TMDL must be described CWA § 303(d)(1)(C), 40 C.F.R. § 130.7(c)(1).

The TMDL addresses seasonal variation because the required reduction in phosphorus was calculated for the conditions during the critical, summer season, when occurrence of nuisance algal blooms, low dissolved oxygen and likelihood of nutrient scums are greatest. Therefore, the TMDL allocation protects designated uses during the entire year (TMDL Section 4.4 and 4.5).

Assessment: EPA New England concludes that seasonal variations have been adequately accounted for as the TMDL was developed to be protective during the critical period for phosphorus, and will therefore be more than adequately protective during the other seasons.

8. Monitoring Plan for TMDLs Developed Under the Phased Approach

EPA's 1991 document, Guidance for Water Quality-Based Decisions: The TMDL Process (EPA 440/4-91-001), recommends a monitoring plan when a TMDL is developed under the phased approach. The guidance recommends that a TMDL developed under the phased approach also should provide assurances that nonpoint source controls will achieve expected load reductions. The phased approach is appropriate when a TMDL involves both point and nonpoint sources and the point source is given a less stringent wasteload allocation based on an assumption that nonpoint source load reductions will occur. EPA's guidance provides that a TMDL developed under the phased approach should include a monitoring plan that describes the additional data to be collected to determine if the load reductions required by the TMDL lead to attainment of water quality standards.

The State proposes continuing DES and volunteer monitoring by the Volunteer Lake Assessment Program (VLAP) to ensure that water quality improvement activities are adjusted as monitoring indicates changes in the water quality of the pond. The State briefly discusses their monitoring recommendations and plans in the TMDL report (TMDL Chapter 8).

Assessment: Addressed, though not required.

9. Implementation Plans

On August 8, 1997, Bob Perciasepe (EPA Assistant Administrator for the Office of Water) issued a memorandum, "New Policies for Establishing and Implementing Total Maximum Daily Loads (TMDLs)," that directs Regions to work in partnership with States/Tribes to achieve nonpoint source load allocations established for 303(d)-listed waters impaired solely or primarily by nonpoint sources. To this end, the memorandum asks that Regions assist States/Tribes in developing implementation plans that include reasonable assurances that the nonpoint source load allocations established in TMDLs for waters impaired solely or primarily by nonpoint sources will in fact be achieved. The memorandum also includes a discussion of renewed focus on the public participation process and

summary of significant comments and the State/Tribe's responses to those comments. When EPA establishes a TMDL, EPA regulations require EPA to publish a notice seeking public comment (40 C.F.R. § 130.7(d)(2)).

Inadequate public participation could be a basis for disapproving a TMDL; however, where EPA determines that a State/Tribe has not provided adequate public participation, EPA may defer its approval action until adequate public participation has been provided for, either by the State/Tribe or by EPA.

NH DES summarized its public participation in the TMDL report (TMDL Chapter 10). NH DES released the draft TMDL to the public on March 15, 2009, December 14, 2009 and May 17, 2010. The release of the draft was announced on the Department's website and in notices at the local town hall. Copies of the TMDL were made available to the public at the town hall and city library, and were sent to the relevant town commissions. Public comments were accepted from March 15, 2009 through April 23, 2010. The agency received comments from one person during the public notice period. The TMDL submission includes a copy of the submitted comment and the Department's response to it in the final TMDL submission.

Assessment: EPA New England has reviewed the comment and the agency's response to it. EPA concludes that NH DES involved the public during the development of the *Turtle Pond TMDL*, has provided adequate opportunities for the public to comment on the TMDL, and provided reasonable response to the comments received.

12. Submittal Letter

A submittal letter should be included with the TMDL analytical document, and should specify whether the TMDL is being submitted for a technical review or is a final submittal. Each final TMDL submitted to EPA must be accompanied by a submittal letter that explicitly states that the submittal is a final TMDL submitted under Section 303(d) of the Clean Water Act for EPA review and approval. This clearly establishes the State/Tribe's intent to submit, and EPA's duty to review, the TMDL under the statute. The submittal letter, whether for technical review or final submittal, should contain such information as the name and location of the water body, the pollutant(s) of concern, and the priority ranking of the water body.

Comment: A submittal letter with appropriate information was included with the final submission.