

Comment Response Document for the Phosphorus and Sediment TMDLs for Tony Tank Lake, Wicomico County, MD

Introduction

The Maryland Department of the Environment (MDE) conducted a public review of the proposed Total Maximum Daily Loads (TMDLs) to limit phosphorus and sediment loadings to Tony Tank Lake in Wicomico County, MD. The public comment period lasted from November 20, 1998 through December 22, 1998. MDE received one set of written comments. MDE also obtained more accurate agricultural land use data, and as a result, the TMDL document has been revised. A second public comment period regarding the revised TMDL document was conducted from July 22, 1999 through August 23, 1999. MDE again received one set of written comments, from the same affiliation that provided comments on the initial draft TMDL document.

Below is a list of commenters, their affiliation, the date they submitted comments, and the numbered references to the comments they submitted. In the pages that follow, both sets of comments are summarized and listed with MDE's response.

List of Commenters

Author	Affiliation	Date	Comment No.
James Stuhltrager and Jack D. Smith (commenting on initial TMDL document)	Widener University Environmental and Natural Resources Law Clinic, on behalf of the Sierra Club and the American Littoral Society; Earthjustice Legal Foundation on behalf of the Chesapeake Bay Foundation.	12/22/98	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
James Stuhltrager (commenting on revised TMDL document)	Widener University Environmental and Natural Resources Law Clinic, on behalf of the Sierra Club and the American Littoral Society; Earthjustice Legal Foundation on behalf of the Chesapeake Bay Foundation.	8/23/99	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11

Comments and Responses

1. The phosphorus loading rate should be 0.8 – 0.9 g/m²-yr, on the line labeled “Lower Mesotrophic Limit” in Figure 4.

Response: The goal of the TMDL is to reduce long-term phosphorus loads to an enrichment level consistent with recreational uses of the lake. MDE has projected achievement of this goal using the widely accepted Vollenweider Relationship, which accounts for phosphorus loading rates and the physical characteristics of the lake. The proposed TMDL would limit phosphorus loading to a status below that of eutrophication, which is accepted as being suitable for water-based recreation.

2. The proposed TMDL for sediment is not based on any water quality requirement or analysis, but is simply the result of the reduced level of sediment loading expected to be associated with implementation of the proposed phosphorus TMDL.

Response: Selecting an endpoint to represent attainment of standards is difficult in the case of siltation. The challenge is to select a rate of siltation that is reasonable, recognizing that a significant amount of siltation is inevitable. Selecting the endpoint is influenced by the designated use of the impoundment (e.g., public water supply, flood control, power generation, or recreation), and the difference between costs of maintaining the designated use by either occasional dredging or preventing siltation. In the case of Tony Tank Lake, the use is limited to recreation.

It is commonly accepted that sediment loading rates are reduced as a result of controlling phosphorus loads. This is because sediment controls are implemented to control phosphorus, which is bound to sediment. Upon establishing the phosphorus TMDL, we posited the question, “will the concomitant reduction in the sedimentation rate be reasonable for maintaining recreational uses of the lake?” The concomitant sedimentation rate will displace the lake capacity by 24% over a 40-year period. We deem this sedimentation rate to be reasonable, and generally consistent with sedimentation rates documented in other approved sediment TMDLs for lakes having recreational uses (e.g., 30% capacity displacement over 40 years in Tomlinson Run Lake in West Virginia).

3. The proposed TMDLs fail to allocate loadings to any specific nonpoint sources or even to categories of sources. The gross allotment of the TMDL to a single ‘load allocation’ for the total nonpoint source loading from the entire watershed does not constitute a TMDL that is the sum of the individual load allocations for nonpoint sources and natural background sources.

Response: The calculated NPS allocation is implicitly the sum of the individual load allocations. The sub-allocation of the allowable NPS load is a detailed implementation issue, which is beyond the scope of this TMDL. A technical memorandum, entitled *Significant Nutrient and Sediment Nonpoint Sources in the Tony Tank Lake Watershed*, describes viable individual allocations to each land use category. The technical memorandum provides information to the public, and is intended to facilitate future stakeholder dialogue on implementation planning. Please see also the response to Comment #8.

4. There are opportunities for effluent trading that are obscured by the failure of the proposed TMDLs to allocate loadings to individual sources, or categories of sources, or even to watershed areas.

Response: Effluent trading is a detailed implementation issue and is beyond the scope of the TMDLs. Please see responses to Comments #3 and #8.

5. It is not clear why the same Vollenweider model is not applied sequentially to the upper impoundments flowing into Tony Tank Lake.

Response: The phosphorus TMDL was developed to address the nutrient impairment in Tony Tank Lake. To plot the lake's trophic status using the Vollenweider relationship, it was necessary to determine the phosphorus load to the lake, the bulk of which passed through one or more of the upper impoundments. Calculating the Vollenweider relationship for the upper impoundments is not necessary to develop a TMDL for Tony Tank Lake.

6. The TMDLs, as proposed, recognize no differences between and within agricultural, forest, and urban lands as to existing phosphorus and sediment loadings, between locations of sources of loadings, or the relative costs or feasibilities of reductions in those loadings.

Response: The relative costs and feasibilities of the reductions are detailed implementation issues and are beyond the scope of these TMDLs. Please see responses to Comments #3 and #8.

7. The TMDLs, as proposed, contain no recognition of any control or management practices which may have already been implemented by conscientious sources.

Response: The TMDLs are based on estimates of the lake's assimilative capacity of pollutants, and are independent of current loading rates. The TMDLs thus do not depend on accounting for BMPs. MDE has provided estimates of initial annual loading rates as supplemental information to help guide implementation efforts in achieving the TMDL. These loads are based on information developed by the EPA Chesapeake Bay Program. As better data become available, MDE will be able to better estimate actual loads and thus refine estimates of progress of implementing the TMDL.

8. The TMDL proposal fails to establish any substantive implementation plan.

Response: Neither the Clean Water Act nor EPA regulations require states to develop a detailed implementation plan as part of the TMDL development and approval process. Maryland's rationale for not including a detailed implementation plan within the TMDL documentation is to allow flexibility for those other government programs and stakeholders currently developing mechanisms to reduce nutrient and sediment loads to Tony Tank Lake and other waters of the state.

9. The three programs cited as implementation mechanisms, Maryland's Water Quality Improvement Act of 1998 (WQIA), Clean Water Action Plan (CWAP), and Tributary Strategies focus only on agricultural lands, without mention of forest or urban land areas.

Response: Land use in the Tony Tank basin is approximately 20% agricultural, 54% forest (or other herbaceous cover), and 26% urban. Forested land generally contributes a minimum loading rate and cannot reasonably be altered to reduce nutrient or sediment runoff. Although the WQIA of 1998 focuses heavily on agricultural nutrient management, it goes beyond that focus. It is also important to note that the CWAP and Tributary Strategies address a broad array of categories of NPS loads.

10. The ranges of phosphorus removal cited in Table 2 for agricultural BMPs do not add up to the 63% indicated as necessary by the TMDL analysis.

Response: The actual removal efficiencies of phosphorus from a given tract of land will depend on the combination of BMPs applied to that tract. As stated in the TMDL document, these efficiencies, when applied in combination, can have a nutrient reduction efficiency that is greater than any single BMP, but less than the sum of the BMPs. It is not the intent of the referenced section of the TMDL document to provide a detailed implementation plan, but rather to demonstrate a reasonable assurance of implementation. For further discussion of implementation, please see the response to Comment #8.

11. The TMDL for Tony Tank Lake is not truly a TMDL because it is expressed as a yearly load rather than a daily load.

Response: The term "Total Maximum Daily Load" is intended to convey a concept rather than to be interpreted literally. The Code of federal Regulations (40 CFR 130.2(i)) states that "TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measure." No explicit time period is required.

In this case, moreover, annual loads make more sense than daily loads. From a technical standpoint, nutrient and sediment loads are both highly variable. Most of the loads are generated during a small number of storm events. Thus, it is essentially infeasible to establish a meaningful daily load for nutrients and sediments. To do so, in view of the large daily variability, would require the daily loading caps to be very large to accommodate the large natural peak loading events. More importantly, nutrients and sediments do not have an impact on the temporal scale of a day; rather, they act over long periods of time. In the case of nutrients, it does not matter if a large quantity goes in one day, and a small amount goes in the next; rather, it is the accumulation over a time scale of weeks that is significant. In the case of sedimentation, it is the long-term accumulation of sediments—and the resultant loss in lake volume—that is significant. For these reasons, the Department has elected to establish the sediment and phosphorus TMDLs on the timeframe that it has. Nevertheless, the TMDLs are expressed

within the TMDL documentation both as annual loads and average daily loads, in order to assist the reader in understanding the magnitude of the loads involved.