Comment Response Document for the Phosphorus and Sediment TMDLs for Urieville Community Lake, Kent County, MD

Introduction

The Maryland Department of the Environment (MDE) has conducted a public review of the proposed Total Maximum Daily Loads (TMDLs) to limit Phosphorus and Sediment loadings to Urieville Community Lake. The public comment period was open from November 20, 1998 through December 20, 1998. MDE received one set of written comments. 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, comments are summarized and listed with MDE=s response.

List of Commenters

Author	Affiliation	Date	Comment No.
Wendy L. Myers and Jack D. Smith	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.	12/18/98	1, 2, 3, 4, 5, 6, 7, 8

Comments and Responses

1. The phosphorus loading rate that needs to be achieved is 0.85 $g/m^2/yr$, on the line labeled "Permissible" in the diagram of the Vollenweider Relationship.

   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. A related model (Reckhow and Simpson 1980) and more recent versions of the Vollenweider Relationship are suggested for consideration.

   Response: The procedure described by Reckhow and Simpson is an alternative method of estimating the average phosphorus concentration when data is not available.

Their approach provides estimates of loading rates to lakes on the basis of land use information. It also introduces a nonparametric error analysis. Use of the Reckhow and Simpson approach still necessitates the application of the method of assessing the trophic status of the lake, in their case a table that correlates phosphorus concentrations and trophic status. MDE chose a widely accepted methodology that uses actual instream measurements of phosphorus loading rates, which is the more desirable approach when data is available. A comparison of the two methodologies indicates that they produce results that are within the same expected range for drawing the same conclusion.

3. 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 Urieville 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).

4. The proposed allowable sediment load, in terms of suspended solids, is 5 times greater than the existing sediment load indicated by the water quality data for streams entering Urieville Community Lake.

Response: The proposed sediment TMDL specifically addresses sediment loads in terms of sedimentation rates. The sedimentation rate associated with the phosphorus TMDL is reasonable and sufficient as described in the response to comment #3. The sediment TMDL as proposed provides for the retention of 76% of the lake's volume after 40 years. Additionally, the allowable sediment load

proposed in the TMDL (89 tons/yr, or 488 lbs/day) would, if converted to units of suspended solids, equate to 7.9 mg/L, not 60 mg/L as stated by the Commentor.

5. The proposed TMDLs fail to allocate loadings to any specific nonpoint source (NPS) or even to categories of sources. The gross allotment of the TMDL to a single load allocation for the total NPS 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 estimates of phosphorus loads to Urieville Lake are based on instream measurements, as opposed to loads modeled on the basis of land use. These estimates encompass all sources in aggregate. Hence, information is not available to allocate loads among various land uses. The calculated NPS allocation is by definition the sum of the individual load allocations. Since the majority (approximately 80%) of the watershed is of agricultural land use, it is implicit that this type of NPS accounts for the bulk of loading, and therefore will play a significant role in meeting reductions.

6. 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 Urieville Lake and other waters of the state.

7. The three programs cited as implementation mechanisms, Maryland's Water Quality Improvement Act (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 Urieville basin is approximately 80% agricultural, 18% forest, and 2% urban. Forested land generally contributes a minimum loading rate and cannot reasonably be altered to reduce nutrient or sediment runoff. The amount of developed land in the watershed is minimal. As such, it would be reasonable for the discussion on "assurances of implementation" to focus primarily on the means of reducing agricultural sources of the loads. Nevertheless, it is important to note that the CWAP and Tributary Strategies address all categories of NPS loads.

8. The ranges of phosphorus removal cited in Table 2 for agricultural BMPs do not add up to the 85% (or 92%) 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. Because the soils in the Urieville watershed are easily erodible, the efficiency of the soil conservation BMPs is expected to be toward the high end of the range.