

**Comment Response Document  
Regarding the Water Quality Analysis of Eutrophication for Piney Run Reservoir  
in Carroll County, MD**

**Introduction**

The Maryland Department of the Environment (MDE) has conducted a public review of the proposed Water Quality Analysis (WQA) of eutrophication for the Piney Run Reservoir. The public comment period was open from July 19, 2004 to August 17, 2004. MDE received one set of written comments.

Below is a list of commentors, their affiliation, the date comments were submitted, and the numbered references to the comments submitted. In the pages that follow, comments are summarized and listed with MDE’s response.

**List of Commentors**

Author	Affiliation	Date	Comment Number
Steven M. Nelson	Carroll County Department of Planning	August 17, 2004	1 through 5

**Comments and Responses**

1. The commentor asks, “What does the author mean by ‘anti-degradation language?’ Is this needed?”

**Response:**

Yes, antidegradation language is necessary. Antidegradation is an important part of the water quality standard for a given waterbody. Antidegradation was originally based on the spirit, intent, and goals of the Act, especially the clause “. . . restore and maintain the chemical, physical and biological integrity of the Nation’s waters”. Since this watershed is at the threshold of impairment, the Department needs assurance that existing water quality will be protected. This includes Tier 1 (pursuant to 40 CFR 131.12(a)(1)), protecting existing uses, and Tier II (pursuant to 40 CFR 131.12(a)(2)), protecting water quality that exceeds the minimum necessary to fully protect “fishable-swimmable” uses. Anti-degradation language refers to section 26.08.02.04 in the Code of Maryland Regulations (COMAR). This section states:

A. Waters of this State shall be protected and maintained for existing uses and the basic uses of water contact recreation, fishing, protection of aquatic life and wildlife, and agricultural and industrial water supply as identified in Use I.

B. “Certain waters of this State possess an existing quality that is better than the water quality standards established for them. The quality of these waters shall be maintained unless:

- (1) The Department determines a change in quality is justifiable as a result of necessary economic or social development; and
- (2) The change will not diminish uses made of, or presently existing, in these waters.”

C. To accomplish the objective of maintaining existing water quality:

- (1) New and existing point sources shall achieve the highest applicable statutory and regulatory effluent requirements; and
  - (2) Nonpoint sources shall achieve all cost effective and reasonable best management practices for nonpoint source control.
2. The commentor states that Carroll County is currently working with the Army Corps of Engineers to develop a watershed management plan. The current plan of study with the Corps of Engineers is comprised of two phases. The first phase is a data collection and model calibration phase; it is a necessary step to accomplish before any watershed protection plan can be created and implemented. The County does not anticipate beginning the work with the Corps of Engineers until early 2005. Phase I will take at least two years followed by a more traditional watershed management plan development (Phase II). The commentor does not think that 2007 is a reasonable time frame for assessing “substantial progress toward the goal of the WPP.” The commentor asks if it is necessary to include a “substantial progress date”. The commentor further asks if the date can be omitted, and if not, if MDE will consider the County’s work with the Corps of Engineers on Phase I to be substantial progress.

**Response:**

MDE has reviewed the proposed plan of study and provided comments to Carroll County. We have included specific suggestions that could be viewed as demonstrating substantial progress toward the goal of the WPP. These suggestions include conducting a detailed inventory of the watershed; establishment of a long-term monitoring program for flow and water quality constituents; and including a detailed scope of work with timelines and budgetary descriptions linked to the County’s capital and operating budgets.

The proposed plan of study specifies a 12-month timeline for Phase I, and states that Phase II work may begin before the completion of Phase I. MDE believes that a date is necessary to assess progress on this effort, and we believe that 2007 is a reasonable date to assess such progress.

3. The commentor states that although the permitted, daily discharge from the WWTP at South Carroll High School is 50,000 GPD, the *actual*, average, daily discharge over the last year (obtained from Discharge Monitoring Reports) is 5,000 GPD. The commentor further states that the plant remains a point source for nutrients, and it discharges approximately 10% of its permit values. The commentor requests that the actual discharge from this treatment plant also be included in the Water Quality Analysis.

**Response:**

In modeling and reporting point source information, Maryland customarily addresses the issue in terms of permitted concentrations and loadings, over which the agency has regulatory authority. The load from South Carroll High School, even under full permitted conditions, is likely to be insignificant in comparison with nonpoint sources. The DMR data are included for informational purposes in the appendix to the Water Quality Analysis.

4. The commentor references the following information in the WQA document: the Piney Run Reservoir watershed is a “rapidly developing watershed.” The commentor asks what does MDE mean by rapidly developing? The commentor further states that the majority of the northern portion of the watershed (northwest of Route 97) is currently zoned agriculture (density of 1 lot/20 acres); the watershed area southeast of Route 97 is almost entirely zoned conservation (density of 1 lot / 3 acres); and that the zoning for this watershed has not changed significantly in many years. The commentor referencing Figure 3, states that the approximate amount of agricultural land use is 50%. The commentor states that although the County as a whole and the region may be rapidly developing, this particular watershed, in his opinion, is not rapidly developing. The commentor further states that the author uses the assumed development condition of the watershed as rationale to require a Watershed Protection Plan in addition to the reservoir’s trophic status.

**Response:**

The wording in the executive summary states that the watershed is in a rapidly developing area, which is an accurate statement. Maryland Department of Planning cites a historical growth rate of 2.03% per year (1990 – 2000), and projects a growth rate of 2.84% per year (2000 – 2005). These rates are the second highest and highest, respectively, of any county in the Baltimore area, and are more than double the statewide rates of 1.03% to 1.16% for the same period (MDP, 2004). This is not the sole rationale used for requiring a WPP, but in addition to the fact that the Reservoir just barely meets the State’s water quality standards. The WPP is needed to protect the quality of the water supply source and manage a recreational water resource, as well as to monitor the effects of changes in the watershed that might generate new pollutant sources. MDE has changed the wording in the “Recommendations” section to be clearly consistent with this earlier statement.

5. The commentor references that in the absence of nutrient standards, a chlorophyll *a* threshold was used to determine if the waterbody is meeting water quality standards. The commentor asks if the maximum threshold of 10 ppb apply throughout the year or just during stratification. The commentor states that Piney Run Reservoir’s long-term median values fall below this threshold. The commentor further states that he agrees with MDE’s research into Minnesota’s regional approach to selecting appropriate limits for chlorophyll *a*. The commentor states that Piney Run is not a lake, but a reservoir in the mid-Atlantic; consequently, a regional approach should also be taken to establish appropriate thresholds for chlorophyll (and other criteria) in reservoirs. The commentor states that he believes that these low levels are more appropriate for lakes in more northern climates. The commentor

adds that reservoirs typically have much larger ratios of drainage area to water surface area than lakes, and therefore they can receive more runoff; higher levels of nutrients should be expected in reservoirs compared with lakes when everything else remains the same. The commentor recommends that MDE should take into consideration these differences when creating nutrient criteria.

**Response:**

Maryland manages Use I-P, III-P and IV-P impoundments with the goal of keeping them from becoming eutrophic. This metric is approximated using Carlson's Trophic State Index, with an endpoint on the TSI of not greater than 53. Maryland uses chlorophyll *a* as its surrogate for nutrient loading in impoundments. A chlorophyll *a* concentration of approximately 10 µg/l is considered the threshold. Maryland expects the impoundment to meet water quality standards year-round, but an emphasis is placed on not exceeding the chlorophyll *a* threshold during the growing season.

Maryland is in the process of reviewing statewide water quality standards, and has begun the process of developing nutrient criteria for non-tidal waters of the state. MDE appreciates the commentor's recommendations concerning the nature of impoundments, and is taking these factors into consideration.

References:

Maryland Department of Planning, May 2004. "Historical and Projected Total Population for Maryland's Jurisdictions Average Annual Growth Rates". [www.mdp.state.md.us/msdc/popproj/TOTPOP\\_PROJ04.pdf](http://www.mdp.state.md.us/msdc/popproj/TOTPOP_PROJ04.pdf). Last accessed: September 27, 2004.