

**Comment Response Document  
Regarding the Total Maximum Daily Loads of Fecal Bacteria for the Non-tidal Wicomico River  
Headwaters Basin in Wicomico County, MD**

The Maryland Department of the Environment (MDE) has conducted a public review of the proposed Total Maximum Daily Loads (TMDLs) of Fecal Bacteria for the Non-tidal Wicomico River Headwaters Basin. The public comment period was open from August 12, 2005 through September 12, 2005. MDE received two sets of written comments.

Due to several comments the Department received, specifically with regard to critical conditions, the referenced TMDL document was revised and made available for a second public comment period. The public comment period was open from November 23, 2005 to December 22, 2005. MDE received five sets 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**

<b>Author</b>	<b>Affiliation</b>	<b>Date</b>	<b>Comment Number</b>
Jennifer Murphy, Staff Attorney, and Matthew Stack, Intern	Mid-Atlantic Environmental Law Center c/o Widener University School of Law	September 12, 2005	1 through 14
Thomas Henry	U.S. Environmental Protection Agency; Region III	September 12, 2005	15 through 19
Jason Dubow	Lower Eastern Shore Tributary Team Chair	December 9, 2005	20
Samuel Gibson	Citizen	December 13, 2005	21 through 23
John Groutt	President, Wicomico Environmental Trust	December 13, 2005	24
Madeleine B. Adams	Citizen	December 19, 2005	25 through 26
James R. Trader, R.S.	Citizen	December 16, 2005	27 through 42

**Comments and Responses**

1. The commentor states that the proposed TMDL does not include combined sewer overflows (CSOs) or sanitary sewer overflows (SSOs) as potential point sources of pathogen contribution in the point source assessment. The commentor continues that the Wicomico River Headwaters watershed is within a Phase I National Pollution Discharge Elimination System (NPDES) Municipal Separate Stormwater Sewer System (MS-4) permit jurisdiction. The commentor further states that CSOs are within the permit jurisdiction of an MS-4 permit. The commentor states that CSOs and SSOs must be included in the point source assessment; therefore, the proposed TMDL is inadequate. The commentor finishes with, in the proposed TMDL CSOs and SSOs are incorrectly characterized as nonpoint sources.

**Response:** SSOs were considered in the source assessment of the TMDL process (See Section 2.4 and Figure 2.4.2). SSOs are sanitary infrastructure problems and as such should not occur, therefore they are not permitted and they are not given a load allocation. SSOs loads are not included in the TMDL waste load allocation. Regarding the comment that the watershed is within a Phase I NPDES MS4 permit, the TMDL is for the area upstream of Johnson Pond located entirely within Wicomico County, and Wicomico County is not a Phase I NPDES MS4. And finally, there are no CSOs in the Wicomico River Headwaters watershed. The Salisbury Wastewater Treatment Plant and its three outfalls (one is the facility effluent and the other two are CSO outfalls) are located outside of the Wicomico River Headwaters watershed.

2. The commentor states that seasonal variation has not been fully considered in establishing the proposed TMDL. The commentor continues that the method chosen for including seasonal variation in the TMDL must be described. The commentor further states that there is no specific time of year mentioned; the TMDL states that only that monitoring data contains a year's worth of data under varying conditions. The commentor summarizes that the Wicomico River Headwaters TMDL does not discuss or describe the method chosen for consideration of seasonal variation; therefore, the TMDL is not sufficient.

**Response:** The Wicomico River Headwaters non-tidal bacteria TMDL has been revised to include seasonal variations.

3. The commentor states that the critical conditions have not been considered as part of the analysis of the TMDL loading caps. The commentor continues that critical conditions must be considered as part of the analysis to determine loading capacity. The commentor further states that critical conditions were accounted for by applying the steady state geometric mean (as explained in the document), but were not considered as part of the loading capacity analysis. The commentor summarizes that this TMDL fails to meet the regulatory requirements of a TMDL.

**Response:** The Wicomico River Headwaters non-tidal bacteria TMDL has been revised to include critical conditions.

4. The commentor states that there is no explanation of the reasonable assurance that the nonpoint source reductions will occur. The commentor continues that in a water impaired by both point and nonpoint sources, where point sources are given less stringent wasteload allocations based on the assumption that nonpoint source load reductions will occur, reasonable assurance must be explained, stating how the nonpoint reductions will happen. The commentor further states that the nonpoint reductions are briefly mentioned, but not explained in depth. The commentor concludes that this TMDL is inadequate.

**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 bacteria loads to Wicomico River Headwaters and other waters of the state.

5. The commentor states that the implementation plan does not account for any future point or nonpoint sources that may enter the watershed. The commentor continues that the proposed TMDL briefly mentioned wildlife growth and management, but does not address other growth of nonpoint sources, such as domestic, livestock or human populations or consider the addition of any new point sources. The commentor recommends that future point and nonpoint sources be taken into consideration when implementation plans are established. The commentor continues that future growth in the community, such as new point sources and additions to runoff, including, domestic, livestock and human population growth, should be considered with the implementation plan.

**Response:** Neither the Clean Water Act nor current EPA regulations direct states to develop a detailed implementation plan as part of the TMDL development and approval process. Implementation measures, therefore, are beyond the scope of this process. See also the response to Comment #4.

6. The commentor states that MDE has done a thorough job of assessing contributing nonpoint sources and using BST to determine contributions of the pollutant.

**Response:** Thanks.

7. The commentor states that for TMDL analysis, there is difficulty in simulating bacteria in water quality models. The commentor continues that there is also difficulty in estimating bacteria sources due to the number of assumptions made and the limited data available. The commentor further states that these difficulties should be incorporated into the TMDL through use of the Margin of safety (MOS). The commentor maintains that it is not clear from the TMDL how conservative the included implicit MOS is. The commentor recommends that to account the difficulty in simulating the bacteria, the MOS should be even more conservative.

**Response:** MDE has taken this into consideration and the TMDL has been revised and the MOS is taken into consideration in a different way. See Section 4.5 of the TMDL report for detailed information on the MOS used in the Wicomico River analysis.

8. The commentor commends MDE on its identification of problems with water monitoring stations and the use of a subwatershed approach.

**Response:** Thanks.

9. The commentor states that the TMDL loading cap is based on a long-term geometric mean, not literal daily limits. The commentor, referencing Table 4.6.1, the baseline load and TMDL load are expressed in terms of daily numbers. The commentor states that this creates confusion as to what the actual unit of measure is for the long-term geometric mean used to estimate loading caps.

**Response:** The loads are estimated as the product of the flow (ft<sup>3</sup>/sec) and the geometric mean concentration (MPN *e. coli*/100ml) of the specified period. The resulted load in “ft<sup>3</sup>/sec \* MPN *e. coli*/100ml” are then converted to MPN *e. coli*/day. The flows are average flows estimated from 15-year flow data. Therefore, the loads, although presented as a daily load, is estimated from long-term average flows and long term geometric means (annual or seasonal geometric means).

10. The commentor, referencing page 24, states that for the purpose of TMDL analysis and allocations, unknown sources were removed and known sources were scaled proportionally to reach 100%. The commentor continues that this allows contributions from the unknown sources to remain in the total waste load, while the scaled known sources will be given an inflated percentage. The commentor further states that this will then allow the inflated unknown sources to remain at a high level and allow for more contribution after reduction. The commentor asserts that the way it is set up any addition of an unknown source to the load will automatically violate the TMDL because the proposed TMDL does not leave room for unknown sources. The commentor ends with the conservative MOS is not enough to remedy this problem because even though the source of the pollutant is unknown, the fact there is additional unknown source is known.

**Response:** The bacteria Source tracking use a statistical methodology (tree-classification model) to estimate the four sources of bacteria (domestic, human, livestock and wildlife) by selecting the source category from each sample isolate with the highest probability to occur (between the four categories). If a sample isolate has probabilities that are less than a “*specified acceptable source identification probability*”, then no source is assign to that water sample isolate and is classified as “unknown”. For the Wicomico River Headwaters tree-classification model, the “*acceptable source identification probability*” was set at 0.50 (50%). The unknown sources are removed by apportioning the percent of unknown sources proportionately into the other four sources, not just by deleting them. Therefore, they are taken into account within the other four sources and not as the comment suggest that the unknown sources will remain in the waste load. These loads will be reduced along with the loads from the other four sources.

11. The commentor commends MDE on its analysis of the maximum practicable reduction targets.

**Response:** Thanks.

12. The commentor states that it is unclear as to how TMDL reductions for wildlife contribution will be accomplished. The commentor continues that it is unclear if there is any way to implement these reductions, if in fact that is what MDE is implying.

**Response:** The following statement can be found in the Assurance of Implementation Section of the TMDL report: “neither the State of Maryland, nor EPA is proposing the elimination of wildlife to allow for the attainment of water quality standards, managing the overpopulation of wildlife remains an option for state and local stakeholders”.

In addition, neither the Clean Water Act nor current EPA regulations direct states to develop a detailed implementation plan as part of the TMDL development and approval process. Implementation measures, therefore, are beyond the scope of this process.

13. The commentor states that the MOS is implicit and not specific as a separate term. The commentor continues that when the MOS is implicit, the conservative assumptions and the analysis of the MOS must be explained. The commentor asserts that there is no explanation regarding the MOS in the proposed TMDL and therefore, the TMDL is inadequate.

**Response:** In Section 4.5, the implicit MOS is explained. See also the response to Comment 7.

14. The commentor states that it is unclear as to whether all nonpoint human source loads are attributed solely to septic systems or if there are contributions from other bacteria sources from humans.

**Response:** It is unclear at this time. A more detailed sampling program is needed to address this issue. During the implementation plan phase, a more detailed sampling program would be conducted to address this. Implementation measures are beyond the scope of this process.

15. The commentor is concerned that the following TMDL requirements are not being met by this TMDL: the TMDLs are designed to implement the applicable water quality standards; the TMDLs consider critical environmental conditions; the TMDLs consider seasonal environmental variations.

**Response:** MDE has taken this into consideration and the TMDL analysis has been revised to include applicable water quality standards, seasonal variations and critical conditions.

16. The commentor states that the Designated Uses and Water Quality Standard section in the draft TMDL cited the previously applicable water quality standards. The commentor continues that the EPA approved revised standards on August 29, 2005 that removed COMAR 26.08.02.03.A(1) and (2) through (5).

**Response:** The TMDL report cited that “the assessment” was based on a geometric mean of the monitoring data, where the result could not exceed a geometric mean of 200 MPN/100ml. From EPA’s analysis (USEPA, 1986), this fecal coliform geometric mean target equates to an approximate risk of 8 illnesses per 1,000 swimmers at fresh water beaches and 19 illnesses per 1,000 swimmers at marine beaches (enterococci only), which is consistent with MDE’s revised Use I bacteria criteria. Therefore the original 303(d) list fecal coliform listings can be addressed using the refined bacteria indicator organisms to assure that risk levels are acceptable.

17. The commentor states that the draft TMDL report calculated a weighted year-long geometric mean which was compared to the fecal bacteria criterion. The commentor further states that

the year-long geometric mean appears to be inconsistent with the cited State regulations and also the new applicable regulations.

**Response:** MDE has taken this into consideration and the TMDL analysis has been revised.

18. The commentor presents a table of a number of calculations of geometric means “demonstrating the effects of ignoring seasonal and/or critical environmental conditions” for Brewington Branch, a tributary within the watershed. Based on their calculations, Brewington Branch does not meet its designated use during the critical period, Memorial Day through Labor Day. The commentor continues that the draft report does require a reduction in fecal bacteria loads from the basin but the approximately 55% reduction appears unlikely to achieve water quality criteria during the critical period. It should be noted that the rolling geometric appear more sensitive to changing conditions and should be used for comparison with the criterion. As a result, EPA would be unable to approve the Wicomico River Headwaters Bacteria TMDL report as written.

**Response:** MDE has taken this into consideration and the TMDL analysis has been revised to include applicable water quality standards, seasonal variations and critical conditions.

19. The commentor requests that the actual calculations be provided, including but not limited to, flows at all monitoring stations and any spreadsheets, etc. used in the analysis.

**Response:** After the completion of the TMDL, all actual calculations will be provided.

#### **Comments from the Second Public Comment Period**

20. The commentor requests a public hearing on behalf of the Lower Eastern Shore Tributary Team.

**Response:** After several telephone conversations, the commentor retracted his request as long as a public informational meeting is held describing the TMDL and its impacts to the community. A public information meeting will be held on January 31, 2006 at 6:00pm at Wicomico County Library in Salisbury. Topics of discussion included the TMDL Development Program, the Wicomico River Headwaters TMDL for Fecal Bacteria and TMDL Implementation.

21. The commentor expressed his concern over the draft TMDL. The commentor continues that the River has long been impaired river with little or no concern from sustaining the impairment or improving the overall water quality of the river. The commentor states that he feels that “we” need to establish the Best Management Practices (BMPs) if we are to sustain the River at its current level or to even make improvements in the river’s quality. The commentor summarizes by stating that if we relax restraints to the BMPs we only prolong and encourage degradation of the Wicomico River.

**Response:** Neither the Clean Water Act nor current EPA regulations direct states to develop a detailed implementation plan as part of the TMDL development and approval process.

Implementation measures, therefore, are beyond the scope of this process. In addition, the TMDL is intended to guide in the improvement of the of the water quality of the river and will not “relax restraints to the BMPs” as suggested by the commentor.

22. The commentor states that MDE have continually relaxed the regulations that affect the Wicomico River. The commentor states that MDE have increased discharge permits without Wasterwater Treatment Plant (WWTP) upgrades being activated. The commentor states that WWTP upgrades have taken longer than expected. The commentor states that with the increase in the population in the area and the increase in the development, MDE need to enact BMPs to the highest level. The commentor states that MDE need to set a standard that will not be outdated before it is put into practice. The commentor states that MDE need to hold ourselves, city and county officials, and our environmental standards to a higher level if we are to improve the quality of the Wicomico River.

**Response:** These comments are very general and are beyond the scope of the bacteria TMDL analysis. Based on conversation with MDE’s Water Management Administration NPDES program staff, MDE have has not relaxed the regulations that affect the Wicomico River. The Delmar WWTP is in the designing phase to upgrade the plant to ENR levels that will decrease nutrients down to 3 mg/l TN and 0.3 mg/l TP - even beyond the nutrient TMDLs requirements. The plant will have fecal bacteria effluent limits as specified in the TMDL allocation to the plant, which is based on water quality criteria. The ENR upgrade is not completed, but not all 66 Major WWTPs can be upgraded at once.

23. The commentor requests a public hearing so that more citizens can be made aware of the process and also to get the input of the people that live in and around the Wicomico River.

**Response:** A public informational meeting was held describing the TMDL and its impacts to the community, including TMDL implementation. Please see response to Comment #20 for more information.

24. The commentor requests on behalf of the members of the Wicomico Environmental Trust and other concerned citizens of Wicomico County, a public hearing on the referenced TMDL. The commentor would like to understand the issues and actions he has, will or could be taken to address the problems.

**Response:** After several telephone conversations, the commentor retracted his request as long as a public informational meeting is held describing the TMDL and its impacts to the community including TMDL Implementation. Please see response to Comment #20 for more information.

25. The commentor states that she is concerned about the River’s health and is distressed that as the population of Salisbury has grown, the environmental health of the river has been allowed to degrade more and more. The commentor continues that we establish and effectively enforce tough best management practices regarding pollutants of all types, and especially fecal bacteria. The commentor continues that wastewater treatment plant upgrades in her area have taken much longer than expected even while the population has been

growing rapidly, with the result of further degradation of the health of the Wicomico River headwaters.

**Response:** See response to Comment #22.

26. The commentor states that she is worried that the current draft TMDL for fecal bacteria on the Wicomico River Headwaters is too weak and will not allow “us” to restore our river’s health. The commentor continues that “we” need to enact tougher standards that will not become outdated and will not only stop the degradation of the river but reverse it. The commentor requests that a public hearing be held so that residents can be made aware of the standard-setting process and what is at stake and can have input into the process.

**Response:** The TMDL is not “weak” as stated by the commentor. The TMDL has taken into account several loading and critical conditions of fecal bacteria into the river and proposed reductions in three of the five subwatersheds are beyond “maximum practicable reductions”. A public informational meeting was held describing the TMDL and its impacts to the community including TMDL Implementation. Please see response to Comment #20 for more information.

27. The commentor requests a public hearing to allow further citizen input and comment on this proposal.

**Response:** A public informational meeting was held describing the TMDL and its impacts to the community including TMDL Implementation. Please see response to Comment #20 for more information.

28. The commentor states that there is no evident protocol or cooperative agreement between officials of Maryland and Delaware to monitor and exchange data on sampling in that portion of the watershed in lower Sussex County, Delaware under Section 303(d) of the Federal Clean Water Act.

**Response:** MDE did a formal data solicitation and sent notice of intent to develop the TMDL to officials in Delaware. No data were received at the time of the TMDL development.

29. The commentor states that for this Use I waterbody (COMAR 26.08.02.08D), water contact is prohibited at Leonard’s mill pond and in Johnson Lake/Pond and there is no apparent data on existing aquatic life or plans to protect aquatic life. The commentor continues that the area of Leonard Pond is not 200 acres.

**Response:** The State of Maryland designated use for all bodies of waters is at a minimum Use I: Water Contact Recreation and Protection of Aquatic Life. Some segments of waters or bodies of water can have local prohibitions, as in the case of Leonard’s Mill Pond and Johnson Pond. Leonard Pond is about 30 acres in size; the error has been corrected in the report.

30. The commentor states that Johnson Pond is impaired for nutrients and sediment and there is no action plan by MDE, the County Council or the City of Salisbury to address these problems. The commentor continues that in 1990 a study was made by Coastal Environmental Services, Inc. for the City of Salisbury with a scheduled plan of restoration and management, however, these have not been implemented, particularly for soil erosion at 8 locations around the pond as well as other recommended measures. The commentor concludes that pond capacity is being sacrificed to sediment.

**Response:** TMDLs for nutrients and sediments were submitted and approved by EPA in 2001. Regarding the action plans and the schedule plan of restoration and management, 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 bacteria loads to Wicomico River Headwaters and other waters of the State.

31. The commentor states that there are no regulated stormwater discharges on the river headwaters.

**Response:** Yes, there are no regulated stormwater discharges in the Wicomico River Headwaters watershed and thus there was no waste load allocation under the MS4 category included in the TMDL. Only the town of Salisbury is a NPDES Phase II municipality

32. The commentor states that there are no monitoring stations noted for Little Burnt Branch, Connelly Mill Branch or for Peggy Branch or results of any sampling of these streams in the watershed.

**Response:** There is a monitoring station (MNC0010) located downstream of the junction of Peggy Branch and Middle Neck Branch, that accounts for bacteria sources entering those streams. In the same manner, Station WIW0241, located downstream of the junction Leonard Pond Run and Connelly Mill and Little Burnt Branches, accounts for bacteria sources in that area.

33. The commentor states that four sanitary sewer overflows are noted, of which some 60,000 gallons from Perdue Farms entered Peggy Branch due to equipment failure. The commentor continues that the stream could have been diked and mixed effluent pumped to a holding lagoon for later treatment. The commentor asks if any penalty was issued for the violation.

**Response:** These comments and questions are beyond the scope of the TMDL analysis.

34. The commentor asks if there were effluent samples reviewed or taken from the effluent discharge from the Delmar WWTP and included in the watershed evaluation.

**Response:** Yes, MDE has a database of all WWTP in the states with effluents samples that include measurements of flow and bacteria concentrations. These data was used in the watershed evaluation. See page 22 of TMDL report.

35. The commentor states that the draft [TMDL] notes that in three of the five watersheds, water quality standards cannot be achieved but with no specific proposals to address this problem.

**Response:** The TMDL analysis indicates that in three of the five subwatersheds, reduction of fecal bacteria loads from all sources including wildlife are beyond the maximum practicable reductions (MPR) targets. Once the EPA has approved a TMDL, and it is known what measures must be taken to reduce pollution levels, implementation of best management practices (BMPs) is expected to take place. MDE intends for the required reduction to be implemented in an iterative process that first addresses those sources making the largest impacts on water quality and creating the greatest risks to human health, with consideration given to ease and cost of implementation. In addition, follow-up monitoring plans will be established to track progress and to assess the implementation efforts. As previously stated, water quality standards cannot be met in all subwatersheds using the MPR scenario. This may occur in subwatersheds where wildlife is a significant component, or in subwatersheds that require very high reductions of fecal bacteria loads to meet water quality standards. In these cases, it is expected that the TMDL implementation will be initiated using the MPR scenario. MDE cannot provide EPA reasonable assurance at this time that the TMDL allocations can be met given the magnitude of the reductions in those subwatersheds. However, progress will be made through the iterative implementation process described above and the situation will be reevaluated in the future.

36. The commentor states that the draft [TMDL] states that MDE cannot assure the proposed TMDL load and watershed allocations can be implemented.

**Response:** See response to Comment # 35.

37. The commentor states that without active stream flow gauge readings in the 5 sub-watersheds, the MDE analysis of flows in Appendix B are estimated average flows but not on any real flow data.

**Response:** That is correct. Flows were estimated from regression equations as explained in Appendix B. There were no appropriate flow gages near the watershed. See Appendix B of TMDL report for more details.

38. The commentor states that there is no data referenced for the watershed in Sussex County, Delaware as to microbial source tracking. The commentor continues that the State of Delaware does not use antibiotic resistance analysis and any data is not compatible with Maryland test procedures and results.

**Response:** No data were received from Delaware after the official data solicitation. In addition, the portion of the Wicomico River Headwaters watershed located in the State of

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Delaware is very small compared to the area of the watershed and sources of bacteria should be very similar to the sources found in the stations located in Maryland near the MD/DE line.

39. The commentor states that the draft [TMDL] notes 5,524 households are served by 3,778 on site sewage disposal systems. The commentor states that there is no reference to any field investigation in the watershed to document any effluent discharges or impact on fecal coliform levels or sampling results.

**Response:** There is reference of the field investigation in the Nonpoint Source Assessment section of the TMDL report. The BST study reflects the impact on fecal bacteria from these sources.

40. The commentor references Figure C-2 stating that for the 1662 isolates in microbial source tracking, possible bacterial pollution sources noted [in the draft TMDL] are wildlife 41%, pets 22%, humans 20%, unknown 11% and Livestock 6%. The commentor continues that the draft TMDL does not address any proposed control or corrective actions for these possible sources.

**Response:** See response to Comment #5.

41. The commentor enclosed information on the new U.S. EPA handbook on watershed protection programs that should be used by MDE in watershed management and protection in Maryland.

**Response:** MDE thanks the commentor for the information; we will share it with the implementation program staff.

42. The commentor summarizes that the proposed draft TMDL will not achieve water quality standards in the non-tidal portion of the headwaters of the Wicomico River.

**Response:** The TMDL would achieve water quality in the Wicomico River if implementation in the subwatersheds that require reductions beyond MPRs were possible. MDE cannot assure that reductions beyond MPRs, can be implemented.