

Technical Memorandum

Significant Nonpoint Phosphorus and Sediment sources in the Urieville Lake Watershed, Kent County, Maryland

EPA requires that TMDL allocations account for all significant sources of the impairing pollutant or pollutants. This technical memorandum accordingly identifies significant nonpoint sources of phosphorus and sediment in the Urieville Lake watershed and the distribution of these sources among different sub-watersheds. Total phosphorus (TP) and sediments are addressed by the TMDLs for Urieville Lake. Specifically, details are provided for allocating TP and sediment loads to the three streams flowing to Urieville Lake. These sub-watershed distributions are conceptual values that are within the TMDL thresholds. They represent viable individual allocations to each sub-watershed. Maryland expressly reserves the right to allocate the TMDLs among different sources in any manner that is reasonably calculated to achieve water quality standards.

TMDLs are being established in the Urieville Lake watershed for annual average conditions. The nonpoint source loads that were used in the analysis account for both “natural” and human-induced components, and were based on in-stream monitoring data. Insufficient data are available to distribute the nonpoint source load among different land use categories.

For annual average conditions, the nonpoint source loads were determined using in-stream TP concentrations. This was based on a 1995-1996 study of Urieville Lake conducted by the Maryland Department of Natural Resources. These in-stream concentrations account for atmospheric deposition¹, loads from septic tanks, and loads coming from urban development, agriculture, and forest land. The total nonpoint source phosphorus load is 3202 lb/yr.

The current annual average sediment loading rate was computed on the basis of the displacement of lake volume between 1955 and 1995. The sediment TMDL was computed as a function of reductions associated with the phosphorus TMDL. Table 1 and Table 2 provide one possible scenario for the distribution of phosphorus and sediment nonpoint source loads among the three sub-watersheds draining to Urieville Lake. The tables are based on the in-stream TP concentrations presented on pages A2-A5 in the report *Total Maximum Daily Load of Phosphorus and Sediment for Urieville Lake*, which was available for public comment from November 20, 1998 to December 20, 1998, and has been revised based on public comment and submitted to EPA Region III for approval.

¹ Atmospheric deposition directly to the water’s surface was considered to be insignificant because the surface area of the water in Urieville Lake accounts for less than 0.5% of the total surface area in the watershed. Atmospheric deposition to the land surface is accounted for in the in-stream measured TP concentrations.

Table 1

Nonpoint Source Phosphorus Loads (lbs./year) Attributed to Eastern, Western and Central Tributaries, Urieville Lake, Kent County, Maryland.

Sub-Watershed	<u>Phosphorus</u>	
	Percent of Nonpoint Source Load	Nonpoint Source Load (lbs./yr)
Eastern	22.7%	104
Western	69.9%	320
Central	7.4%	34
Total	100.0%	458

Table 2

Nonpoint Source Sediment Loads (tons/year) Attributed to Eastern, Western and Central Tributaries, Urieville Lake, Kent County, Maryland.

Sub-Watershed	<u>Sediment</u>	
	Percent of Nonpoint Source Load	Nonpoint Source Load (tons/yr)
Eastern	62.6%	55.7
Western	30.1%	26.8
Central	7.3%	6.5
Total	100.0%	89.0

It must be noted that these loads are based on in-stream concentrations of total phosphorus. Maryland anticipates that better estimates of land use and loading rates will be available in the future.