

## **Technical Memorandum**

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### ***Significant Phosphorus and Sediment Nonpoint Sources in the Triadelphia Reservoir and Rocky Gorge Reservoir Watersheds***

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The U.S. Environmental Protection Agency requires that Total Maximum Daily Load (TMDL) allocations account for all significant sources of each impairing pollutant. This technical memorandum identifies, in detail, the significant nonpoint sources of phosphorus (TP) in the Triadelphia and Rocky Gorge Reservoir watersheds and the significant sources of sediment in the Triadelphia Reservoir watershed. It also identifies the distribution of the significant nonpoint sources among different land uses. Details are provided for allocating nonpoint source (NPS) loads for phosphorus and sediment to different land use categories. These are conceptual values that are within the TMDL thresholds. The Maryland Department of the Environment (MDE) expressly reserves the right to allocate the TMDLs among different sources in any manner that is reasonably calculated to achieve water quality standards.

The NPS loads for phosphorus and sediment were both estimated using the Patuxent River Watershed HSPF model. The NPS loads that were used in the model account for all sources, including both “natural” and human-induced components. As explained in the main document, the simulation of the Patuxent watershed used the following assumptions: (1) variability in patterns of precipitation were estimated from existing National Oceanic and Atmospheric Administration (NOAA) meteorological stations; (2) hydrologic response of land areas were estimated for a simplified set of land uses in the basin; and (3) agricultural information was estimated from the 1997 Agricultural Census Data. The phosphorus loads account for contributions from cropland, pasture, feedlots, forest, and streambank erosion. Urban land contributions are included in the point sources technical memorandum. The land use information was based on 1997 Maryland Department of Planning data.

Tables 1A provides one possible scenario for the distribution of average annual total phosphorus NPS loads between different land use categories in the Triadelphia Reservoir watershed. Tables 1B provides one possible scenario for the distribution of average annual total phosphorus NPS loads between different land use categories in the Rocky Gorge Reservoir watershed. Table 1C provides one possible scenario for the distribution of average annual sediment NPS loads between different land use categories Triadelphia Reservoir watershed.

**Table 1A**  
**Nonpoint Source Phosphorus Loads Attributed to Significant Land Uses for the**  
**Triadelphia Reservoir Nutrient TMDL**

Land Use Category	Percent of Nonpoint Source Load	TP Nonpoint Source Load (lbs/year)
Mixed Agricultural	60%	12,612
Forest and Other Herbaceous	12%	2,514
Streambank Erosion	28%	5,900
Total	100%	21,027

**Table 1B**  
**Nonpoint Source Phosphorus Loads Attributed to Significant Land Uses for the**  
**Rocky Gorge Reservoir Nutrient TMDL**

Land Use Category	Percent of Nonpoint Source Load	TP Nonpoint Source Load (lbs/year)
Mixed Agricultural	34%	5,311
Forest and Other Herbaceous	17%	2,644
Streambank Erosion	8%	1,239
Upstream	42%	6,563
Total	100%	15,757

**Table 1C**  
**Nonpoint Source Sediment Loads Attributed to Significant Land Uses for the**  
**Triadelphia Reservoir Sediment TMDL**

Land Use Category	Percent of Nonpoint Source Load	Sediment Nonpoint Source Load (tons/year)
Mixed Agricultural	56%	12,625
Forest and Other Herbaceous	6%	1,296
Streambank Erosion	38%	8,499
Total	100%	22,420