

Technical Memorandum

Significant Sediment/TSS Nonpoint Sources in the Anacostia Watershed

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 sediment/TSS in the Anacostia watershed and their distribution between different land uses. Details are provided for allocating nonpoint source (NPS) loads for sediment to different land use categories. These are conceptual values that are within the TMDL thresholds. The State of Maryland (MD) and the District of Columbia (DC) expressly reserve the right to allocate the TMDLs among different sources in any manner that is reasonably calculated to achieve water quality standards (WQSs).

TMDLs are being established in the Anacostia watershed for both average annual and growing season¹ (April 1 to October 31) conditions. The NPS loads that were used in the model account for all sources, including both natural and human-induced components. The annual average and growing season NPS loads were estimated using a combination of results from the United States Geological Survey's (USGS) ESTIMATOR model and the HSPF model. As explained in the main document, the HSPF model was used to simulate hydrologic and sediment erosion processes in the non-tidal drainage areas of the Anacostia's main tributaries, the Northwest Branch, the Northeast Branch, Lower Beaverdam Creek, and Watts Branch. The HSPF model was calibrated against the loads from the ESTIMATOR Model. The HSPF model results provided daily flow and sediment load inputs for the TAM/WASP model for Lower Beaverdam Creek, Watts Branch, and tidal drainage areas. The ESTIMATOR model was used to compute total daily sediment loads for the Northwest Branch and the Northeast Branch. HSPF was used as well to provide a breakdown of the sediment loads by source, i.e., from the various land uses (agriculture, forest, or urban) or from streambank erosion.

The HSPF model was used to compute average annual and growing season sediment loads from the three land use categories, agricultural, forest, and urban land, and from streambank erosion. Urban land and streambank erosion contributions are included in the point sources technical memorandum as municipal separate storm sewer system (MS4) loads. Atmospheric deposition to land surfaces is included in the loads attributed mixed agriculture, forest and other herbaceous, and urban land uses. The land use information was based on Maryland Department of Planning, Montgomery County Department of Environmental Protection (MCDEP) and the Maryland National Capital Park and Planning Commission – Prince George's County (M-NCPPC-PG) data, as described in section 2.1.2.

¹ The seven-month "growing season," April 1 through October 31, specified in District of Columbia WQSs for water clarity, differs from the six-month growing season, April 1 through September 30, specified by Maryland WQS. The allocation given for the seven-month growing season meets both DC and Maryland standards.

The potential sediment/TSS allocations for nonpoint sources, reflected in the TMDL analysis, are designed to protect aquatic life in both MD and DC tidal and non-tidal waters of the Anacostia River, meet MD and DC sediment-related WQSs in their respective portions of the watershed, and also meet the numeric criteria for water clarity in the tidal waters.

Table 1 provides one possible scenario for the distribution of the annual NPS loads between different land use categories in the non-tidal Anacostia watershed. The allocations in Table 2 provide one possible scenario for the distribution of growing season NPS loads between different land use categories. The contributions of NPS loads in the tidal Anacostia watershed are all from urban land use, with the exception of some loads from direct drainage in the DC tidal Anacostia. Urban land and streambank erosion contributions (MS4 loads) are included in the point sources technical memorandum.

Table 1
Annual NPS Loads Attributed to
Significant Land Uses for Non-tidal Anacostia Sediment/TSS TMDLs (tons/year)

Landuse Category	NWB	NEB	LBC	Watts Br	Total	% of Non-tidal NPS Loads
Mixed Agricultural	16	178	0	0	194	79%
Forest and Other Herbaceous	7	41	5	1	53	21%
Total	23	218	5	1	247	100%

NWB = Northwest Branch; NEB = Northeast Branch; LBC = Lower Beaverdam Creek; Watts Br = Watts Branch

Table 2
Growing season (April 1 – October 31) NPS Loads Attributed to
Significant Land Uses for Non-tidal Anacostia Sediment/TSS TMDLs (tons/season)

Landuse Category	NWB	NEB	LBC	Watts Br	Total	% of Non-tidal NPS Loads
Mixed Agricultural	2	20	0	0	22	92%
Forest and Other Herbaceous	1	2	0	0	3	8%
Total	3	22	0	0	25	100%

NWB = Northwest Branch; NEB = Northeast Branch; LBC = Lower Beaverdam Creek; Watts Br = Watts Branch

Additionally, the NPS loads of sediment/TSS attributed to direct drainage in the DC tidal Anacostia are given potential allocations of **29.8 tons/year** annually and **20.9 tons/season** for the growing season in the Upper Anacostia, and **20.7 tons/year** annually and **14.9 tons/season** for the growing season in the Lower Anacostia.