

# Anacostia River Trash TMDL

**Source Document:** MDE and DDOE (Maryland Department of the Environment and District Department of the Environment). 2010. Total Maximum Daily Loads of Trash for the Anacostia River Watershed, Montgomery and Prince George's Counties, Maryland and The District of Columbia. August 2010.

**Water Body Type:** Tidal and non-tidal portions of Maryland's and the District of Columbia's Anacostia River basin

**Pollutant:** Trash

**Designated Uses:** Use I – Water Contact Recreation and Protection of Nontidal Warmwater Aquatic Life; Use I-P – Water Contact Recreation, Protection of Aquatic Life and Public Drinking Supply; Use II – Tidal Waters: Support of Estuarine and Marine Aquatic Life and Shellfish Harvesting; Use III – Nontidal Coldwater; and Use IV – Recreational Trout Waters

**Size of Watershed:** 173 square miles (84 percent in Maryland)

**Water Quality Standards:** Waters of this [s]tate may not be polluted by:

- (1) Substances attributable to sewage, industrial waste, or other waste that will settle to form sludge deposits that:
  - (a) Are unsightly, putrescent, or odorous, and create a nuisance or
  - (b) Interfere directly or indirectly with designated uses;
- (2) Any material, including floating debris, oil, grease, scum, sludge, and other floating materials

attributable to sewage, industrial waste, or other waste in amounts sufficient to: (a) be unsightly; (b) produce taste or odor; (c) change the existing color to produce objectionable color for aesthetic purposes; (d) create a nuisance; or (e) interfere directly or indirectly with designated uses.

**Analytical Approach:** Land use loading rates were derived from monitoring data from storm drains and combined sewer overflows (CSOs), and in-stream sampling data. Loading rates were applied across the jurisdictions.

**Date Approved:** Approved September 21, 2010

## Introduction

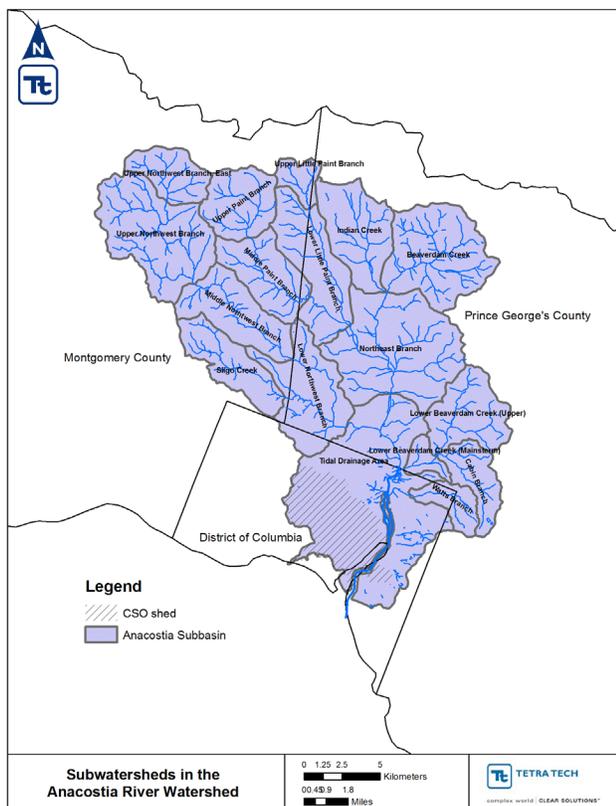
The Total Maximum Daily Load (TMDL) addresses excessive trash in the Anacostia River watershed (Figure 1).

This fact sheet provides summary data related to the TMDL and includes specific information related to allocations made for Prince George's County, Maryland, for both regulated and nonregulated stormwater sources.

## Problem Identification and Basis for Listing

Impairments were identified in both the non-tidal and tidal portions of the Anacostia River. Previous studies have documented that trash in the Anacostia River is a significant environmental issue. Both deliberate dumping areas and trash found along streams from more gradual accumulation were documented (MDNR 2005).

Data related to trash in the streams of the Anacostia River watershed included transects for quarterly counting, characterization, and documentation of trash within the District. On average, the Anacostia River was found to have 58 pieces of trash per 100 feet of river length (AWS 2008).



**Figure 1. Anacostia River watershed**

Source: MDE and DDOE 2010.

## Applicable Data

Trash monitoring data collected throughout the watershed were available from monitoring programs conducted by agencies in Maryland and the District. In Maryland, storm drain outfalls were monitored by installing trash fencing and trash nets at the outfalls. Monitoring sites were selected to collect trash data from specific land uses – low-density, medium-density, and high-density residential; commercial land use; and industrial land use. The trash traps and nets were monitored approximately every month for just under one year. Trash items in the traps and nets were separated from organic material and the trash items were cataloged and weighed. In Maryland, in-stream monitoring was also conducted at 30 sites throughout Montgomery and Prince George’s counties. The sites were at existing watershed monitoring stations. Transects were established along the stream at each of the corresponding monitoring stations. Trash items were counted and recorded by type.

## Sources

Sources of trash were considered to be litter conveyed through the stormwater and CSO system (point sources), and larger objects that were accidentally or intentionally dumped along or in the streams in the watershed (nonpoint sources).

## Technical Approach

The TMDL allocations were developed using loading rates calculated based on monitoring data. The loading rates were translated into baseline loads across the watershed. The allocations were assumed to be 100 percent removal of the baseline load of trash. Results of the in-stream monitoring were used to determine the nonpoint source baseline load and stormwater outfall monitoring results were used to establish the point source baseline load.

The point source loading rate was based on the weight of the trash collected from the storm drain outfall traps and nets. The trash weights were normalized to pounds of trash per acre, based on the contributing drainage area for the storm drain. The sampling events were then normalized based on rainfall associated with the trash collection period to yield pound/acre/inch of rain. Loading rates for each land use were based on the loading rate for the corresponding outfall site with the same land use.

Nonpoint source loading rates were based on the in-stream monitoring data. Only trash items considered too large to move through the sewer system were counted as part of the nonpoint source load. The count per type of material was averaged across all the stream sampling events to develop an average count per year for each type of trash per 500 feet (the length of the sampling segment). These loading rate counts were extrapolated to all stream miles in each county. The counts were then converted to standardized weights, using the trash weights documented in AWS 2008. This yielded the annual nonpoint source load for each county.

## Allocations

The TMDL specifies annual and daily allocations for nonpoint sources and for municipal and industrial facilities, municipal separate storm sewer systems (MS4s), and other regulated stormwater; and for District CSOs (Table 1). There is an explicit 5 percent margin of safety for the Anacostia River trash TMDL.

Because there are no numeric water quality criteria for trash, the TMDL target is the removal of 100 percent of the baseline trash loading, plus removal of the amount that is equal to the margin of safety. In-stream trash monitoring was used to establish the nonpoint source baseline load and stormwater outfall monitoring was used to establish the point source baseline load. Table 2 summarizes the total TMDL allocations for all jurisdictions.

**Table 1. Wasteload allocations by watershed (Prince George's County), including margin of safety.**

Maryland Point Source Name	Permit Number	TMDL - Annual (lbs/year reduced)
Prince George's County MS4 – Northwest Branch	MD0068284	37,145
Prince George's County Phase II MS4s Northwest Branch	MDR055500	5,130
Prince George's County MS4 – Northeast Branch	MD0068284	32,750
Prince George's County Phase II MS4s Northeast Branch	MDR055500	59,831
Prince George's County MS4 – Lower Beaverdam Creek	MD0068284	24,609
Prince George's County Phase II MS4s Lower Beaverdam Creek	MDR055500	16,171
Prince George's County MS4 – Beaverdam Creek	MD0068284	6,304
Prince George's County Phase II MS4s Beaverdam Creek	MDR055500	2,029
Prince George's County MS4 – Cabin Branch	MD0068284	15,016
Prince George's County Phase II MS4s Cabin Branch	MDR055500	3,213
Prince George's County MS4 – Indian Creek	MD0068284	18,759
Prince George's County Phase II MS4s Indian Creek	MDR055500	110
Prince George's County MS4 – Paint Branch	MD0068284	1,134
Prince George's County MS4 – Little Paint Branch	MD0068284	26,838
Prince George's County Phase II MS4s Little Paint Branch	MDR055500	3,026
Prince George's County: MS4–Watts Branch	MD0068284	4,703
Prince George's County Phase II MS4s – Watts	MDR055500	4,237
Prince George's County MS4 – Tidal	MD0068284	11,902
Prince George's County Phase II MS4 – Tidal	MDR055500	25,510
Maryland State Highway Administration	MD0068276	14,134
Federal Facilities	MDR055501	6,185
Prince George's County – aggregated other permits		11,023
<b>Total Prince George's County – point sources</b>		<b>329,759</b>

Source: MDE and DDOE 2010.

**Table 2. Annual allocations, entire watershed**

Trash TMDLs	Annual (lbs/year to be removed)			
	WLA	LA	MOS	TMDL
Prince George's County	314,055	347,958	33,101	695,114
Montgomery County	243,256	65,945	15,460	324,660
District of Columbia - Upper	150,154	18,343	8,425	176,922
District of Columbia - Lower	60,955	1,705	3,133	65,794
<b>Total</b>	<b>768,420</b>	<b>433,951</b>	<b>60,119</b>	<b>1,262,490</b>

Source: MDE and DDOE 2010.

Notes: WLA = wasteload allocation; LA = load allocation.

## References

AWS (Anacostia Watershed Society). 2008. Anacostia Watershed Trash Reduction Plan.

MDE and DDOE (Maryland Department of the Environment and District Department of the Environment). 2010. Total Maximum Daily Loads of Trash for the Anacostia River Watershed, Montgomery and Prince George's Counties, Maryland and the District of Columbia.

MDNR (Maryland Department of Natural Resources). 2005. Anacostia River Stream Corridor Survey.