

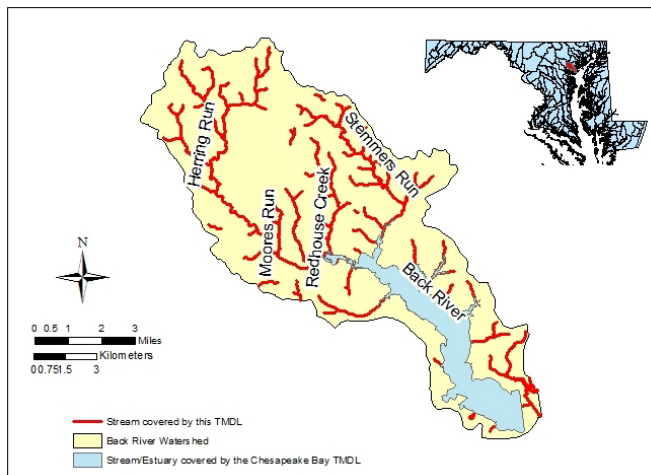


TMDL for Sediment in the Non-Tidal Back River Watershed

What You Need to Know

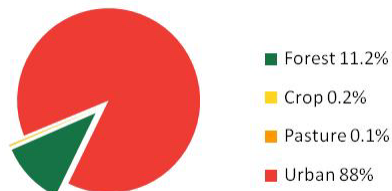
Background

The [Total Maximum Daily Load, or TMDL, for sediment in the Back River watershed](#) establishes an annual load limit for total suspended solids (TSS) to the non-tidal streams within the watershed. A separate sediment TMDL, for the tidal Back River, was established as part the Chesapeake Bay TMDLs in 2010.



The [Back River watershed](#), as defined by the State of Maryland, is located in the western shore region of Maryland in Baltimore City and Baltimore County, northeast of the Baltimore Harbor and drains to the Chesapeake Bay. The watershed is located within the Coastal Plains and Piedmont eco-regions. Over 88% of the watershed is urban land.

Land use in the Back River watershed



Impaired aquatic life and wildlife in the watershed was first identified in 2002 based on results from the Maryland Biological Stream Survey (MBSS), a randomized survey of stream health. As part of the MBSS, streams are scored

against reference watersheds where habitat and aquatic diversity is high, using two biological indices: the Benthic Index of Biotic Integrity (BIBI) which looks at the biological community in the bottom sediments, and the Fish Index of Biotic Integrity (FIBI).

Watershed ID	Maryland 8-Digit: 02130901
Watershed size	34,800 acres not including wetlands/water
Waterbody type	1 st - through 4 th -order non-tidal streams
Waterbody designated use not being met	Aquatic life and wildlife
Reason for impairment	Stream biology impacted by excessive sediment
TMDL Baseline year	2009
Overall sediment reduction percent	66%
Related Chesapeake Bay Segment	Back River Oligohaline (BACOH)

A biological stressor identification (BSID) analysis was conducted in 2012 to identify possible causes of the stream degradation. Using MBSS data, [the BSID](#) showed sediment indicators, instream habitat, riparian habitat, low dissolved oxygen and inorganic pollutants (chlorides, sulfates) as potential causes. Based on this assessment, the Back River watershed was listed as impaired for sediment, as well as chlorides and sulfate on [Maryland's 2012 Integrated Report of Surface Water Quality](#). TMDLs for the chloride and sulfate listings will be developed separately. The [non-tidal sediment TMDL](#) was approved March 5, 2018.

TMDL

The TMDL for sediment in the Back River watershed, was established at a level to ensure acceptable biological integrity in the watershed’s streams.

The TMDL was developed with a reference watershed approach using loading results from the Phase 5.3.2 Chesapeake Bay Watershed Model. Annual sediment loads

from reference watersheds—those with good biological integrity—were compared to predicted loads under a modeled all forest scenario to establish an acceptable ratio of current loadings to loadings in a natural condition. This ratio, known as the forest normalized load (FNL), was also calculated for the Back River watershed, and the TMDL was established based on the reduction needed to achieve the reference FNL.

Allocations

Allocations to point sources such as wastewater treatment plants and regulated stormwater, are called Wasteload Allocations (WLAs), and allocations to nonpoint sources, like cropland, are called Load Allocations (LAs). Sector load reductions in this TMDL were assigned using the controllable load methodology from Maryland's Phase II Watershed Implementation Plan (WIP) for the Chesapeake Bay. This methodology assigns reductions to controllable loads (e.g., agriculture & urban) and gives credit to existing implementation efforts, resulting in different percent reductions for different source categories.

The watershed has one minor discharger, which was assigned a WLA of 114 tons of TSS per year—a load less than 8% of the TMDL. No reductions were applied to this source, as it would produce little discernible water quality benefit.

Regulated stormwater sources include three individually-permitted Municipal Separate Storm Sewer Systems (MS4s), Baltimore City, Baltimore County and the State Highway Administration, and several entities covered under general permits. The WLAs are described in detail in the TMDL’s [technical memorandum on point sources](#). Regulated stormwater WLAs represent 87% of the total TMDL.

The LAs for this TMDL, as presented in the [technical memorandum on nonpoint sources](#), account for the remaining portion of the TMDL and are assigned to agricultural and natural source categories.

The Baseline and TMDL equations for the Back River watershed, including source categories and allocations are provided in the equation below.

<i>Baseline Equation:</i>	4,319	=	49	+	23	+	4,133	+	114	TSS tons / year
	Baseline Load		Forest		Agriculture		Stormwater		Wastewater	
<i>TMDL Equation:</i>	1,460	=	49	+	23	+	1,274	+	114	TSS tons / year
	TMDL		Forest LA		Agriculture LA		Stormwater WLA		Wastewater WLA	
<i>Reduction from baseline</i>	66%		0%		0%		69%		0%	

Note: The loadings in this TMDL are expressed as Edge-of-Stream, or EOS, loads, based on the Phase 5.3.2 Chesapeake Bay Watershed Model

Next Steps

Most of the sediment reductions in this TMDL are assigned to urban stormwater sources. Implementation of these reductions will occur in parallel with efforts to fully implement the 2010 Chesapeake Bay TMDLs by 2025. While the endpoints of the TMDLs are different—tidal water quality versus aquatic life in non-tidal streams—many of the planned actions will result in progress toward both goals.

For urban stormwater, sediment reductions are typically achieved by addressing water quality and quantity with stormwater BMP retrofits. Retrofits include the modification of existing stormwater ponds, the installation of new structural BMPs, tree planting and stream restoration. Individually-permitted MS4 jurisdictions are required to develop plans for implementing the sediment reductions from this TMDL. The BMPs described in these plans may also be used for meeting permit impervious area restoration requirements.

While this TMDL establishes a sediment loading target for the watershed, and sediment load reductions are an important tool for tracking progress, the measure of its successful implementation will be its effect on in-stream biological health. The watershed cannot be classified as meeting water quality standards until it is demonstrated that aquatic life is no longer impaired by sediment.