

Technical Memorandum

Significant Sediment Nonpoint Sources in the Non-Tidal Baltimore Harbor Watershed

The U.S. Environmental Protection Agency (USEPA) requires that Total Maximum Daily Load (TMDL) allocations account for all significant sources of each impairing pollutant (CFR 2012). This technical memorandum identifies the significant nonpoint sources of sediment in the Baltimore Harbor watershed. Detailed allocations are provided for those nonpoint sources included within the Baltimore Harbor Sediment TMDL Load Allocations (LAs). These are conceptual values that are designed to meet the TMDL thresholds. The State reserves the right to allocate the sediment TMDL among different sources in any manner that is reasonably calculated to protect the designated uses of the non-tidal Baltimore Harbor from sediment related impacts.

The non-tidal Baltimore Harbor Sediment TMDL is presented in terms of an average annual load established to ensure the support of aquatic life. Since there are no specific numeric criteria in Maryland that quantify the impact of sediment on the aquatic life of non-tidal stream systems, a reference watershed approach will be used to establish the TMDL. In order to use a reference watershed approach for this TMDL, sediment loads are estimated using a watershed model. For this analysis, the Chesapeake Bay Program Phase 5.3.2 (CBP P5.3.2) watershed model was chosen. The nonpoint source sediment loads generated within the Baltimore Harbor watershed are calculated as edge-of-stream (EOS) loads and represent a long-term average loading rate.

Individual land-use EOS baseline loads are calculated as a product of the land-use acreage and the average annual simulated sediment loading rates (ton/ac/yr) from the 2009 Progress Scenario (USEPA 2010). The 2009 Scenario represents 2009 land-use, loading rates, and best management practice (BMP) implementation simulated using precipitation and other meteorological inputs from the period 1991 - 2000 to represent variable hydrological conditions. Further details of the nonpoint source sediment load calculations can be found in Sections 2.2, 4.2, and 4.3 of the main TMDL report.

In the Baltimore Harbor watershed, urban land was identified as the only land use requiring reductions. All other land uses contributed less than 1% of the total load and were not reduced as they would produce no discernible reductions. Forest is not assigned reductions, as it represents the most natural condition in the watershed. Sediment loads from urban lands in this watershed are regulated under the National Pollutant Discharge Elimination System (NPDES) and are considered a point source that must be included in the Waste Load Allocation (WLA) portion of a TMDL (USEPA 2002). Therefore, the reductions required from urban land sediment loads are defined in the point source technical memorandum.

Table 1 provides one possible scenario for the allocations of the nonpoint source sediment loads that will allow the total TMDL to be met in the Baltimore Harbor watershed.

Table 1: Baltimore Harbor Watershed Sediment TMDL Allocation by Nonpoint Source Category

General Land Use	Detailed Land-Use	Baseline Load (ton/yr)	TMDL (ton/yr)	Reduction
	Forest	115	115	0%
Forest	Harvested Forest	8	8	0%
AFOs	Animal Feeding Operations	0.2	0.2	0%
Pasture	Pasture	2	2	0%
Crop	Crop	51	51	0%
Nursery	Nursery	1	1	0%
Total		177	177	0%

¹The source categories represent aggregates of multiple sources (e.g., crop is an aggregate of conventional till, conservation till, and hay).

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REFERENCES

CFR (Code of Federal Regulations). 2012. *40 CFR* 130.2(i).

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. 2010. *Chesapeake Bay Phase 5.3 Phase 5.3 Community Watershed Model*. EPA 903S10002 - CBP/TRS-303-10. U.S. Environmental Protection Agency, Chesapeake Bay Program Office, Annapolis MD. December 2010. Also available at <http://ches.communitymodeling.org/models/CBPhase5/documentation.php#p5modeldoc>.