

Technical Memorandum

Significant Sediment Nonpoint Sources in the Gwynns Falls Watershed

The U.S. Environmental Protection Agency (EPA) requires that Total Maximum Daily Load (TMDL) allocations account for all significant sources of each impairing pollutant (CFR 2008). This technical memorandum identifies the significant nonpoint sources of sediment in the Gwynns Falls watershed. Detailed allocations are provided for those nonpoint sources included within the Load Allocation (LA) portion of the Gwynns Falls Watershed Sediment TMDL. These are conceptual values that are designed to meet the TMDL thresholds. The State reserves the right to allocate the TMDLs among different sources in any manner that is reasonably calculated to protect aquatic life from sediment related impacts.

The Gwynns Falls Watershed Sediment TMDL is presented in terms of an average annual load established to ensure that there will be no sediment impacts affecting aquatic health. The watershed was evaluated using two TMDL segments (See Sections 4.2 – 4.6 of the main report for further details). The computational framework chosen for the Gwynns Falls watershed TMDL was the Chesapeake Bay Program Phase 5 (CBP P5) watershed model. The nonpoint source sediment loads generated within the Gwynns Falls watershed are calculated as the sum of corresponding land use *edge-of-stream* (EOS) loads within the watershed and represent a long-term average loading rate. Individual land use EOS loads are calculated as a product of the land use area, land use target loading rate, and loss from the *edge-of-field* (EOF) to the main channel (US EPA 2008). Further details of the nonpoint source sediment load calculations can be found in Section 2.2.1 of the main report.

TMDL allocations are developed for TMDL Segments 1 and 2 independently. In order to attain the TMDL loading cap, reductions are solely applied within both segments to the urban sediment sources, since urban land was identified as the most extensive predominant controllable sediment source in the watershed. However, within this TMDL, the urban load is used to represent the National Pollutant Discharge Elimination System (NPDES) regulated stormwater load, which is considered a point source that must be included in the Waste Load Allocation (WLA) portion of a TMDL (US EPA 2002). Therefore, the reductions to the urban load are defined in the point source technical memorandum. When reductions are applied to the urban load using the current regulated stormwater maximum feasible reductions as a basis, no further reductions are required from the LA portion of the TMDL. No reductions are required from the LA as the reductions associated with the current regulated stormwater maximum feasible scenario result in sediment loading reductions greater than those needed to achieve the TMDL (See Sections 4.5 and 4.6 of the main report for further description of current maximum feasible and the nonpoint source allocations). Thus, there are no nonpoint source reductions applied to achieve this TMDL.

Table 1 provides one possible scenario for the distribution of the annual nonpoint source loads between different land use categories in the Gwynns Falls watershed. Additionally, Tables 2 and 3 provide possible scenarios for the distribution of the annual nonpoint source loads between different land use categories in each individual TMDL Segment (See Sections 4.2 - 4.6 of the main

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report for further details). The source categories in Tables 1, 2, and 3 represent aggregates of multiple sources (e.g. crop source is an aggregate of high till, low till, hay, animal feeding operations, and nursery sources).

Table 1: Gwynns Falls TMDL Allocation by Nonpoint Source Category

Nonpoint Source Category	Baseline Load (ton/yr)	LA (ton/yr)	Reduction (%)
Crop	1,189.1	1,189.1	0.0
Extractive	34.3	34.3	0.0
Forest	513.7	513.7	0.0
Pasture	22.3	22.3	0.0
Total	1,759.3	1,759.3	0.0

Table 2: Gwynns Falls TMDL Segment 1 Allocations by Nonpoint Source Category

Nonpoint Source Category	Baseline Load (ton/yr)	LA (ton/yr)	Reduction (%)
Crop	1,135.8	1,135.8	0.0
Extractive	29.5	29.5	0.0
Forest	321.6	321.6	0.0
Pasture	20.0	20.0	0.0
Total	1,507.0	1,507.0	0.0

Table 3: Gwynns Falls TMDL Segment 2 Allocations by Nonpoint Source Category

Nonpoint Source Category	Baseline Load (ton/yr)	LA (ton/yr)	Reduction (%)
Crop	53.2	53.2	0.0
Extractive	4.7	4.7	0.0
Forest	192.0	192.0	0.0
Pasture	2.3	2.3	0.0
Total	252.3	252.3	0.0

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REFERENCES

CFR (Code of Federal Regulations). 2008. *40 CFR* 130.2(i).

<http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr;sid=43ac087684bf922499af8ffed066cb09;rgn=div5;view=text;node=40%3A21.0.1.1.17;idno=40;cc=ecfr#40:21.0.1.1.17.0.16.3> (Accessed December, 2008).

US EPA (U.S. Environmental Protection Agency). 2002. *Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs*. Washington, DC: U.S. Environmental Protection Agency.

_____. 2008. In Preparation. *Chesapeake Bay Phase V Community Watershed Model*. Annapolis, MD: U.S. Environmental Protection Agency with Chesapeake Bay Program.