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## Total Maximum Daily Load (TMDL) Development for Wissahickon Creek

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Abstract

Section 303(d) of the Clean Water Act calls for the development of Total Maximum Daily Loads (TMDLs) for waters which are listed on a state's Section 303(d) List for failing to attain water quality criteria which will not attain the applicable criteria via technology based or other controls. TMDLs are developed to measure the pollutant loading a stream can assimilate without violating the applicable water quality criteria. The loading is then divided amongst the point sources (discernable confined and discrete conveyances) and non-point sources (diffuse stormwater sources) within the watershed. The TMDL must also account for background loadings, critical conditions, seasonal variations, and include a margin of safety for uncertainties in the model, and have a reasonable assurance of being achieved.

The Wissahickon Creek watershed is located in Philadelphia and Montgomery counties which are located in southeastern Pennsylvania. Wissahickon Creek is a tributary to the Schuylkill River. The Mouth of the Wissahickon Creek is located less than 1 mile upstream of the Philadelphia Water Department's water intake on the Schuylkill River. Wissahickon Creek was listed on Pennsylvania's 1996, 1998, and 2002 Section 303(d) Lists for failing to support the aquatic life use due to excessive nutrient and sediment loads. This determination was based on the assessment of the stream's biological assembly. Pennsylvania does not have numeric nutrient or sediment criteria for supporting the aquatic life use.

The sediment TMDL for the Wissahickon Creek watershed had to address several interesting policy issues. Since there are no numeric criteria for sediment in Pennsylvania a TMDL end point had to be developed that would ensure that the watershed would support a healthy aquatic assemblage. Sediment loadings to the stream are delivered primarily through stormwater runoff which is traditionally considered a non-point source of pollutants and not regulated by EPA. All of the municipalities within the watershed are covered by Phase 1 and 2 stormwater permits. This traditionally unregulated source of sediment is therefore within the regulatory authority of EPA. EPA therefore had to determine how to quantify this diffuse source and provide it with the appropriate loadings. Bank scour is another source of sediment to Wissahickon Creek and occurs when the river erodes its own banks during storm events. EPA had to determine how to assign and reduce this additional source of sediment to the watershed. Lastly, TMDLs were required for nutrients and sediment and there were differences in the modeling and sources of the pollutants.

## Outline

- Background
  - Describe TMDL Process
  - Describe Impairment
  - Describe Watershed
  - Describe Sources
- Policy Issues
  - Reference Watershed Model and Approach
  - Controlling Non-Point Sources
  - Stream Bank Erosion
- Questions