

Total Maximum Daily Loads and Agriculture

NONPOINT SOURCE POLLUTION – NPS



What is a TMDL?

A pollution “budget” that defines the maximum amount of pollutant a waterbody can receive without violating the state water quality standards.

Developing a TMDL is really a process to...

- Identify all sources of pollution that contribute to water quality standards not being met,
- Calculate the amount of pollutant entering the water body from each source (point, nonpoint, and background),
- Compute the pollutant reductions that are necessary to attain/maintain water quality standards, and
- Develop a plan whereby the necessary pollutant reductions can be achieved.



TMDL Development in Virginia

- More than 600 TMDLs must be developed by 2010
- As of January 2005, some 193 TMDLs have been completed
- Vast majority of stream/river miles are impaired because of pathogens (fecal coliform, *E. coli*) contamination.
- Most common source of pathogen contamination is in-stream deposition of fecal matter by livestock.

Implementing a TMDL

- VA state law requires an “Implementation Plan” be developed for each approved TMDL.
- Implementation Plans are road maps developed in cooperation with local stakeholders that spell out how water quality restoration will be accomplished.
- Corrective actions (BMPs) can include stream fencing, cover crops rotational grazing, riparian buffers, etc.



TMDL DEVELOPMENT AND IMPLEMENTATION



What are water quality standards?

Water quality standards are state regulations that include:

- “Designated Uses” that specify how the water can be used – swimming, fishing, etc.
- “Numeric Criteria” that set limits for pollutant concentration, number of bacteria, etc.
- “Narrative Criteria” that describe a desired water quality goal or goals with generalized non-numeric statements.

Water quality impairments...

- A waterbody is classified as an “impaired water” if it does not meet a specific water quality standard.
- Waters can be impaired by a variety of pollutants and pollutant sources.



Source Reductions for Bacteria Impairment TMDLs

- Similar types of source reductions called for in most bacteria impairment TMDLs developed to date:
 - Fix failing septic systems
 - Eliminate all “straight pipes”
 - Reduce most, if not all, in-stream feces disposition by livestock (i.e., exclude livestock from streams)

Staged Implementation

- Implementation plans call for installation of agricultural best management practices (BMPs) designed to reduce non-point source pollution (riparian buffers, stream fencing, etc)
- Cost-effective practices designed to reduce livestock and human pollutant sources are implemented first.
- **Implementing BMPs is voluntary. Federal and state programs can reduce the cost of installing BMPs.**



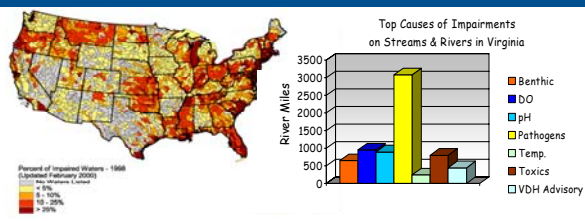
BEST MANAGEMENT PRACTICES – BMPs



Top Sources of Water Quality Impairment

Streams and Rivers	Lakes	Estuaries
Agriculture	Agriculture	Urban Runoff
Point Sources	Point Sources	Point Sources
Habitat Modification	Urban Runoff	Agriculture

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To learn more about TMDLs

- Visit the Center for TMDL and Watershed Studies website

www.tmdl.bse.vt.edu

- Access Virginia Cooperative Extension TMDL publications at www.ext.vt.edu/resources/anrpublications.html

- Or contact

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