



Developing TMDL Implementation Plans: Virginia's Experience

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BACKGROUND

Developing a TMDL is only the first step in a process designed to restore water quality.

The TMDL quantifies the necessary pollutant load reductions needed to achieve water quality standards, but it does not describe how those reductions will be achieved.

In Virginia, TMDL Implementation Plans (IPs) are required under the state's Water Quality Monitoring Information and Restoration Act (WQMIRA).

The purpose of the IP is to provide a road map of corrective actions and management strategies for stakeholders to use to restore water quality.

TMDL IMPLEMENTATION IN VIRGINIA

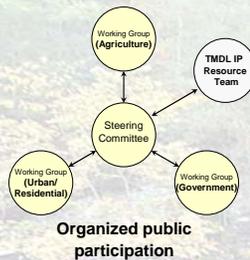
TMDL implementation began in 2001. The State has prioritized watersheds for TMDL IP development; stakeholder interest is one of the criteria. IP development and subsequent implementation has been funded through EPA section 319, and BMP adoption incentive programs.

TMDL Implementation Plans		
	Number of Plans	Number of TMDLs covered
Completed	6	18
Scheduled for 2006	16	42
Remaining	544	902

IMPLEMENTATION PLAN COMPONENTS

1. PUBLIC PARTICIPATION

- Typically a structured public participation framework used.
- Issue/interest-based **Working Groups** recommend corrective measures and strategies to ensure adoption. **Steering Committee** reviews Working Group recommendations balancing interests.
- Steering Committee is liaison with TMDL IP Resource Team that is contracted to develop IP.



2. CORRECTIVE MEASURES

- Modeling used to determine type and number of needed BMP corrective measures.
- Stakeholder recommendations often include educational programming needed or improved local ordinances.



Pet waste fact sheet used in educational program delivery.



3. STAKEHOLDER ROLES AND RESPONSIBILITIES

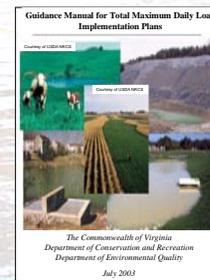
- Federal and state agencies – funding, technical assistance, enforcement
- Local governments – promote education and outreach programs, develop and enforce ordinances
- Stakeholders – active involvement in the TMDL process
- Watershed groups – provide local perspective and knowledge, coordinate volunteer monitoring
- Civic groups – assist in public participation process, educational outreach, and implementation activities

4. INTEGRATED PLANNING

- Multiple TMDLs and impairments often addressed with a single implementation plan.
- IPs for urbanized watersheds must coordinate with Municipal Separate Storm Sewer Systems (MS4) plans.

5. COST/BENEFIT ANALYSIS

- Implementation cost estimates based on number and type of corrective action BMPs needed and technical/design personnel needed to carry out implementation.
- Benefits can include improved public health, natural resource conservation, improved aquatic life, reduced flood damage, improved recreational opportunities.



www.deq.state.va.us/tmdl/implans/ipguide.pdf

TMDL IP CASE STUDIES

- Authors part of Resource Teams developing 3 TMDL IPs covering 11 TMDLs – 8 bacteria and 3 benthic impairments (sediment is benthic stressor).
- Professionally facilitated working group and steering committee meetings are effective in moving planning process forward.
- WVU partners (D'Souza) conducting "Contingent Valuation" study in Opequon Creek watershed to better quantify benefits of restoring water quality.
- Even where needed corrective actions are obvious, stakeholder input is essential in identifying strategies to facilitate implementation. Knowledge of local culture and practices are essential considerations.
- Multiple jurisdiction watersheds provide challenges for strategies such as uniform ordinances to address pollutant sources.
- Biosolids is stakeholder concern in one watershed.
- As part of IP development, Opequon Creek stakeholders designing action team to execute the IP.

TMDL IMPLEMENTATION SUCCESS

Implementation for bacteria impairment TMDLs began in 2001 for the Three Creeks Project in Southwest Virginia. Violations of the bacteria water quality standard have been cut in half in 3 years. Primary corrective actions include fencing cattle out of creeks, repairing failed septic systems and eliminating straight pipes.

