

Developing TMDL Implementation Plans: Virginia's Experience

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BACKGROUND

Developing a TMDL is only the first step in a water quality restoration process.

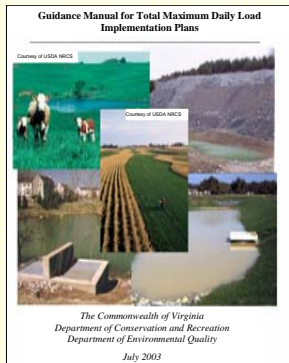
The TMDL quantifies the pollutant load reductions needed to achieve water quality standards, but it does not describe how those reductions will be achieved.

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

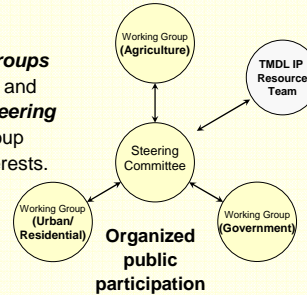
TMDL implementation began in Virginia in 2001. Stakeholder interest is one of the criteria used when prioritizing watersheds for TMDL implementation. Implementation is being funded using EPA 319 funds and best management practice (BMP) incentive programs.



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

1. PUBLIC PARTICIPATION

- Typically use a structured public participation framework.
- 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 contracted to develop IP.



2. CORRECTIVE MEASURES

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



Pet waste fact sheet used in educational program delivery.

IMPLEMENTATION PLAN COMPONENTS

3. STAKEHOLDER ROLES AND RESPONSIBILITIES

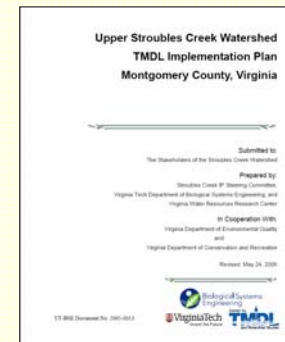
- Federal and state agencies – funding, technical assistance, enforcement
- Local governments – promote education and outreach programs, develop and enforce ordinances
- Watershed groups – provide local perspective and knowledge, coordinate volunteer monitoring
- Civic groups – assist in public participation 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.



Stroubles Creek was one of three Implementation Plans completed by the Center in 2006

TMDL IP CASE STUDIES

- Authors were part of Resource Teams that developed 3 TMDL IPs covering 11 TMDLs: 8 bacteria and 3 aquatic life use impairments.
- Professionally facilitated working group and steering committee meetings are effective in moving planning process forward.
- WVU partners (D'Souza) conducted "Contingent Valuation" study in Opequon Creek watershed to better quantify benefits of restoring water quality.
- Even where needed corrective actions are obvious, stakeholder input was essential in identifying strategies to facilitate implementation. Knowledge of local culture and practices are essential considerations.
- Multiple jurisdiction watersheds provided challenges for strategies such as uniform ordinances to address pollutant sources.
- Issues with biosolids application was major stakeholder concern in one watershed.
- Opequon Creek stakeholders created an action team to execute implementation plan.

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 criteria 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.

