ALABAMA (REGION 4)

A Snapshot of Alabama's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

Alabama Department of Environmental Management
http://www.adem.state.al.us/WaterDivision/WQuality/TMDL/WQTMDLInfo.htm

TMDL Program Structure/Placement

Housed in Water Quality Branch

By the Numbers

Number of Impaired Waters		190
Number of Causes of Impairment		340
Top Five Causes of Impairment	1. Organic Enrichment/Oxygen Depletion 2. Pathogens 3. Nutrients 4. Sediment 5. Mercury	
Approximate Number of TMDLs Developed Annually		12 (and 24 delistings)
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)		151
Total Number of TMDLs Approved in 2005/2006/2007		42/4/24
2008 303d/Integrated Report Submission Status (Date)		EPA has approved
Approximate Number of FTEs Working on TMDL Issues		8

TMDLs

EPA Under Consent Decree to Develop TMDLs?	Y
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	Y

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?		Y
Example(s)	Category 4b, 4c	

Funding

Approximate Annual Budget for TMDL Program	approximately $1 million
Primary Source(s) of TMDL Program Funding	federal 106 & 319 funds

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed

--decision document protocol for waterbodies impaired due to legacy pollutants

--proposal to perform a statewide mercury TMDL in collaboration with Florida

TMDLs that Represent a Particular Achievement

--Cahaba River nutrient TMDL: one of first in the nation for a free-flowing river system
http://www.adem.state.al.us/WaterDivision/WQuality/TMDL/FinalCahabaRiverNutrientTMDL.pdf

--Coosa River nutrient TMDLs: a multi-state, multiple-reservoir system requiring nutrient reductions employing EFDC and WASP (still in progress)

Barriers

Top Three Barriers to TMDL Development

1. changing federal requirements
2. third-party lawsuits (*e.g.*, the "daily loads" ruling)
3. inadequate resources for data requirements

Top Three Barriers to TMDL Implementation

1. inadequate resources for BMP implementation for NPSs
2. inadequate resources for follow-up monitoring
3. implementation of low-level targets for which the technology is still unavailable

ALASKA (REGION 10)

A Snapshot of Alaska's TMDL Program (August 2008)

The Basics

Key Agency/Department & website	Alaska Department of Environmental Conservation Division of Water www.dec.state.ak.us/water/tmdl/tmdl_index.htm
TMDL Program Structure/Placement	Housed in Water Quality Standards, Assessment & Restoration Program (NPS Water Pollution Control Section)

By the Numbers

Number of Impaired Waters		33
Number of Causes of Impairment		40
Top Five Causes of Impairment	1. Other cause 2. Oil and Grease 3. Turbidity 4. Sediment 5. Total Toxicity	
Approximate Number of TMDLs Developed Annually		2 (minimum)
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)		34
Total Number of TMDLs Approved in 2005/2006/2007		4/2/3
2008 303d/Integrated Report Submission Status (Date)		3/26/2008
Approximate Number of FTEs Working on TMDL Issues		5 (w/ other duties)

TMDLs

EPA Under Consent Decree to Develop TMDLs?	Y
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?		Y
Example(s)	4b (see below)	

Funding

Approximate Annual Budget for TMDL Program	$930,000 to $1.1 million
Primary Source(s) of TMDL Program Funding	federal 319 funds; R10 contractor assistance

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed

--use of 4bs to address impairments through other regulatory programs: *e.g.*, recovery plans and Records of Decision (ROD) for hazardous substance/contaminated site cleanup

--starting to tackle more complicated TMDLs dealing with toxic metals from historic and recent mining practices

TMDLs that Represent a Particular Achievement

Ward Cove—dealt with impairment from wood residue from log transfer facility

Barriers

Top Three Barriers to TMDL Development

1. lack of staff time and resources, including budget
2. having sufficient scientifically valid data in order to determine natural conditions, set loading capacity, and make realistic allocations
3. most TMDL models are not applicable in AK, so either we go with very simplistic models not requiring much data, create our own methodology, and/or complete the TMDL using assumptions that in many instances are significant

Top Three Barriers to TMDL Implementation

1. TMDL implementation is mostly voluntary; most TMDLs do not have competing waste load allocations
2. lack of water quality in many instances; it is difficult to determine natural conditions and natural contributions that make it challenging to determine and distinguish from human actions
3. lack of departmental staff and budget resources

ARIZONA (REGION 9)

A Snapshot of Arizona's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

Arizona Department of Environmental Quality
www.azdeq.gov/environ/water/assessment

TMDL Program Structure/Placement

Housed in Water Quality Division, Surface Water Section, together with surface water permits (individual and stormwater), standards, assessment, and ambient monitoring

By the Numbers

Number of Impaired Waters		68
Number of Causes of Impairment		131
Top Five Causes of Impairment	1. Pesticides 2. Metals (other than mercury) 3. Mercury 4. Organic Enrichment/Oxygen Depletion 5. pH	

Approximate Number of TMDLs Developed Annually	5
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	73
Total Number of TMDLs Approved in 2005/2006/2007	10/0/2
2008 303d/Integrated Report Submission Status (Date)	unknown
Approximate Number of FTEs Working on TMDL Issues	9

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	Y

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?	Y
Example(s)	developing alternative approaches to TMDLs; using "direct to implementation"

Funding

Approximate Annual Budget for TMDL Program	$800,000
Primary Source(s) of TMDL Program Funding	federal grants

TMDL Implementation

TMDL Implementation Required?	Y

Innovations

Example(s) of Any Innovative Approach(es) Employed

--implementing improvements prior to completing the TMDL where sources are easily identified, in coordination with 319(h) grants unit

--watershed scale and regional TMDLs (in-state, several watersheds)

Links to AZ TMDLs:
www.azdeq.gov/environ/water/assessment/status.html

Barriers

Top Three Barriers to TMDL Development

1. lack of flowing water
2. timing of precipitation events
3. most sources are nonpoint, difficult to characterize

Top Three Barriers to TMDL Implementation

1. little regulatory authority over NPSs
2. lack of active groups willing to take on projects
3. inability to address entire watershed

ARKANSAS (REGION 6)

A Snapshot of Arkansas' TMDL Program (August 2008)

The Basics

Key Agency/Department & website(s)

Arkansas Department of Environmental Quality
Division of Water
http://www.adeq.state.ar.us/water/tmdls/default.htm

TMDL Program Structure/Placement

Housed in Water Quality Planning Branch

By the Numbers

Number of Impaired Waters		189
Number of Causes of Impairment	(As per 2008 303d List)	387
Top Five Causes of Impairment	1. Salinity/TDS/Sulfates/Chlorides	
	2. Turbidity	
	3. Metals (other than mercury)	
	4. Pathogens	
	5. Organic Enrichment/Oxygen Depletion	

Approximate Number of TMDLs Developed Annually	20
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	194
Total Number of TMDLs Approved in 2005/2006/2007	13/45/62
2008 303d/Integrated Report Submission Status (Date)	4/1/2008
Approximate Number of FTEs Working on TMDL Issues	

TMDLs

EPA Under Consent Decree to Develop TMDLs?	Yes
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	No

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?	Yes

Funding

Approximate Annual Budget for TMDL Program	
Primary Source(s) of TMDL Program Funding	fed'l & state

TMDL Implementation

TMDL Implementation Required?	No

Innovations

Example(s) of Any Innovative Approach(es) Employed/
TMDLs that Represent a Particular Achievement

Links to AR TMDLs:
http://www.adeq.state.ar.us/water/tmdls/default.htm

Barriers

Top Three Barriers to TMDL Development

1. lack of funding
2. insufficient FTEs
3. challenge of developing meaningful TMDLs instead of trying to keep up with a certain “pace” or consent decree

Top Three Barriers to TMDL Implementation

1. No law for NPS pollution
2. No buy-in from volunteer programs

CALIFORNIA (REGION 9)

A Snapshot of California's TMDL Program (August 2008)

The Basics

Key Agency/Department & website	California Environmental Protection Agency www.calepa.ca.gov State Water Resources Control Board (TMDL Program) www.swrcb.ca.gov (http://www.waterboards.ca.gov/water_issues/programs/tmdl/tmdl.shtml)
TMDL Program Structure/Placement	Statewide program management is headquartered at the State Water Resources Control Board; Regional Water Quality Control Boards develop the TMDLS

By the Numbers

Number of Impaired Waters		691
Number of Causes of Impairment		2238
Top Five Causes of Impairment	1. Pesticides 2. Pathogens 3. Metals (other than mercury) 4. Nutrients 5. Salinity/TDS/Sulfates/Chlorides	
Approximate Number of TMDLs Developed Annually		25
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)		841
Total Number of TMDLs Approved in 2005/2006/2007		32/177/152
2008 303d/Integrated Report Submission Status (Date)		early 2009
Approximate Number of FTEs Working on TMDL Issues		108

TMDLs

EPA Under Consent Decree to Develop TMDLs?	Y
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	Y

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?	Y
Example(s)	Single permit actions, enforcement, certification of third party actions

Funding

Approximate Annual Budget for TMDL Program	$14.5 million
Primary Source(s) of TMDL Program Funding	state general funds; federal 106 & 319(h) funds

TMDL Implementation

TMDL Implementation Required?	Y

Innovations

Example(s) of Any Innovative Approach(es) Employed

-- Planner/Tracker data system to facilitate work planning and reporting and meet US EPA requirements for accountability; TMDL development guidance (Impaired Waters Guidance) and policy (Water Quality Control Policy for Addressing Impaired Waters: Regulatory Structure and Options)

--Program coordination, planning, and tech transfer occur through statewide TMDL roundtable made up of the State and Regional Manager and technical staff; hosts joint meetings with the implementing programs; every 18 months, we hold a multiple-day statewide training/team-building retreat that includes all TMDL staff, plus some staff from the implementing regulatory programs; each listing cycle, each Regional Water Board prioritizes its workload; the prioritization consists of a TMDL completion schedule for all waters still needing a TMDL; this schedule is the basis for annual workplans

--deploying a new data system that is the equivalent of electronic health records for CA water bodies; being used to develop the 2008 IR and will contain all the lines of evidence used to make listing decisions, the listing decisions, and links to the actual data used by staff; system will place each water body in the appropriate category; with each listing cycle, we will be able to evaluate progress towards restoration of water quality

TMDLs that Represent a Particular Achievement

--Los Angeles Region/Santa Monica Bay Bacteria: uses reference beach/exceedance day approach; LA River Trash: uses target of zero trash
http://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/tmdl_list.shtml

--Central Valley Region/Diazinon and Chlorpyrifos TMDLs: accounts for synergistic effects of multiple pesticides that have the same mode of action
http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/index.shtml

--North Coast Region/Shasta River TMDL: includes a flow component
http://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/shasta_river/

Barriers

Top Three Barriers to TMDL Development

1. resources
2. California Environmental Quality Act
3. lawsuits

Top Three Barriers to TMDL Implementation

1. resources
2. lawsuits

COLORADO (REGION 8)

A Snapshot of Colorado's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

Colorado Department of Public Health and Environment
www.cdphe.state.co.us/wq/assessment/TMDL/tmdlmain.html

TMDL Program Structure/Placement

Housed in Water Quality Control Division / Watershed Section, Assessment Unit

By the Numbers

Number of Impaired Waters		139
Number of Causes of Impairment		216
Top Five Causes of Impairment	1. Metals (other than mercury) 2. Pathogens 3. pH 4. Organic Enrichment/Oxygen Depletion 5. Sediment	

Approximate Number of TMDLs Developed Annually	40
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	886
Total Number of TMDLs Approved in 2005/2006/2007	166/75/71
2008 303d/Integrated Report Submission Status (Date)	EPA has taken final action
Approximate Number of FTEs Working on TMDL Issues	3 (going to 4)

TMDLs

EPA Under Consent Decree to Develop TMDLs?	Y (ends 6/30/2008)
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?

Funding

Approximate Annual Budget for TMDL Program	$350,000
Primary Source(s) of TMDL Program Funding	federal 106 funds; some past state funding

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed

Have a lot of experience writing TMDLs to address water quality degradation from legacy hard rock mining; this has

involved extensive work with state/EPA Superfund and Voluntary Clean Up Program (VCUP) staff

TMDLs that Represent a Particular Achievement

--Kerber Creek TMDL
http://www.cdphe.state.co.us/wq/assessment/TMDL/tmdls.pdf/Kerber_Creek_TMDL_draft_With_EPA_comments_Ver_2.pdf

--Silver Creek TMDL
http://www.cdphe.state.co.us/wq/assessment/TMDL/tmdls.pdf/Silver_Creek_TMDL_final.pdf

Barriers

Top Three Barriers to TMDL Development

1. EPA
2. lack of sufficient data
3. stakeholders

Top Three Barriers to TMDL Implementation

1. lack of funding
2. lack of Good Samaritan legislation
3. process

CONNECTICUT (REGION 1)

A Snapshot of Connecticut's TMDL Program (October 2008)

The Basics

Key Agency/Department & website	Connecticut Department of Environmental Protection www.ct.gov/dep/tmdl
TMDL Program Structure/Placement	Integrated across WQS, monitoring and assessment, and implementation functions (key staff housed in Bureau of Water Protection and Land Reuse / Planning and Standards Division)

By the Numbers

Number of Impaired Waters		279
Number of Causes of Impairment		476
Top Five Causes of Impairment	1. Pathogens 2. Cause Unknown 3. Organic Enrichment/Oxygen Depletion 4. Nutrients 5. PCBs	

Approximate Number of TMDLs Developed Annually	25
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	84
Total Number of TMDLs Approved in 2005/2006/2007	30/16/7
2008 303d/Integrated Report Submission Status (Date)	7/30/2008
Approximate Number of FTEs Working on TMDL Issues	3

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	Y

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?	Y
Example(s)	4b, if other plans are in place to implement fixes for impairments (*e.g.*, Remediation Program, Lakes Dredging Projects)

Funding

Approximate Annual Budget for TMDL Program	no separate line item
Primary Source(s) of TMDL Program Funding	federal 106 funds; state general fund; other federal grants or State Special Act monies for specific problems

TMDL Implementation

TMDL Implementation Required? Y

--we anticipate all TMDLs will be implemented and have insurmountable problems getting management approval for TMDLs that cannot be implemented; for all WLAs, implementation is required by law through permitting programs (NPDES, including MS4) and therefore implementation is mandatory; for LA, there may not be specific regulations or statutes, but achieving WQSs is required

Innovations

Example(s) of Any Innovative Approach(es) Employed

--Long Island Sound Nitrogen Trading Program; cumulative frequency distribution curve for bacteria; % impervious cover for stormwater-caused aquatic life impairments; whole effluent toxicity TMDL

--broad-scale TMDL for Long Island Sound, for dissolved oxygen (applies to all watersheds draining to LIS and was drafted by CT and NY)

--TMDL tracking via MS Access tracker program

--"TMDL" staff involved in many diverse activities, from "stressor ID" analysis to streamflow and habitat evaluation, to WQ Criteria development, to implementation support

TMDLs that Represent a Particular Achievement

--Eagleville Brook: impervious cover as surrogate for stormwater
http://www.ct.gov./dep/lib/dep/water/tmdl/tmdl_final/eaglevillefinal.pdf

--Long Island Sound: nitrogen trading program implementation
www.ct.gov/dep/lib/dep/water/lis_water_quality/nitrogen_control_program/tmdl.pdf

--Naugatuck River Whole Effluent Toxicity TMDL
www.ct.gov/dep/lib/dep/water/tmdl/tmdl_final/naugtmdl.pdf

Barriers

Top Three Barriers to TMDL Development

1. time
2. money
3. staff resources

Top Three Barriers to TMDL Implementation

1. funds to support non-mandatory NPS controls
2. commitment from towns due to lack of funds to implement stormwater retrofits

3. implementing NPS solutions is complex, and science and engineering are still in development

DELAWARE (REGION 3)

A Snapshot of Delaware's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

Delaware Department of Natural Resources and Environmental Control
Division of Water Resources
http://www.dnrec.state.de.us/water2000/Sections/Watershed/TMDL/tmdlinfo.htm

TMDL Program Structure/Placement

Housed in Watershed Assessment Section

By the Numbers

Number of Impaired Waters		101
Number of Causes of Impairment		206
Top Five Causes of Impairment	1. Nutrients 2. Pathogens 3. Cause Unknown –Impaired Biota 4. PCBs 5. Pesticides	

Approximate Number of TMDLs Developed Annually	varies
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	557
Total Number of TMDLs Approved in 2005/2006/2007	57/99/271
2008 303d/Integrated Report Submission Status (Date)	4/1/2008
Approximate Number of FTEs Working on TMDL Issues	12

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N (completed)
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	Y

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?

Funding

Approximate Annual Budget for TMDL Program	$1.7 million
Primary Source(s) of TMDL Program Funding	federal 106 funds; state general funds

TMDL Implementation

TMDL Implementation Required?	Y

Innovations

Example(s) of Any Innovative Approach(es) Employed

worked with stakeholders to develop pollution control strategies that, when promulgated and implemented, will result in

achievement of pollutant load reductions required by TMDLs and state WQSs

TMDLs that Represent a Particular Achievement

proud of all TMDLs for technical accuracy and the fact that they have been adopted as regulations; some stand out due to their onerousness (elimination of all PSs), others due to their multi-state applicability

Barriers

Top Three Barriers to TMDL Development

1. funding
2. bureaucratic interference during the procurement process
3. lack of political will

Top Three Barriers to TMDL Implementation

1. funding for PS upgrades and alternatives to surface water discharge
2. funding for NPS controls
3. lack of political will

FLORIDA (REGION 4)

A Snapshot of Florida's TMDL Program (August 2008)

The Basics

Key Agency/Department & website	Florida Department of Environmental Protection www.dep.state.fl.us/water/tmdl/index.htm
TMDL Program Structure/Placement	Housed in Division of Environmental Assessment and Restoration / Bureau of Watershed Restoration; Integrated

By the Numbers

Number of Impaired Waters		934
Number of Causes of Impairment		2,061 (23 parameters)
Total Water Body Segments Impaired		1,754
Top Five Causes of Impairment	1. Nutrients 2. Dissolved Oxygen Depletion (mainly nutrients) 3. Pathogens 4. Mercury in Fish Tissue 5. Metals (other than mercury)	
Approximate Number of TMDLs Developed Annually		50
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)		441
Total Number of TMDLs Approved in 2005/2006/2007		59/128/170
2008 303d/Integrated Report Submission Status (Date)		8/1/2008
Approximate Number of FTEs Working on TMDL Issues		approx. 115 (70 FTE + 45 salary only), 12 contract, & several consulting teams

TMDLs

EPA Under Consent Decree to Develop TMDLs?	Y
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	Y

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?		Y
Example(s)	Reasonable Assurance Plans	

Funding

Approximate Annual Budget for TMDL Program	$25 million + $3.2 million (for Lake Okeechobee/ Everglades impl'n)
Primary Source(s) of TMDL Program Funding	State funding; local gov't stormwater utility

fees; federal 106 grant ($2 million); 319 funds

TMDL Implementation

TMDL Implementation Required? Y (per state law)

Innovations

Example(s) of Any Innovative Approach(es) Employed

--adopted, by rule, a science-based methodology to assess environmental data and to evaluate the health of water bodies; includes minimum data requirements, QA requirements, and specific thresholds for impairment; much of this rule was adopted as a WQS specifically for the TMDL program and has been approved by EPA as a change to FL WQSs

--pursuing 4-year study to produce science-based, statewide TMDL to reduce methyl-mercury levels in fish tissue

--enacting the FL Watershed Restoration Act (FWRA), Section 403.067, Florida Statutes, to provide a legal foundation for FL's TMDL watershed management and restoration program; includes development and adoption of Basin Management Action Plans (BMAPs), which are developed collaboratively with watershed stakeholders and allow for detailed allocations for PSs and NPSs to ensure equitable load reductions from all contributors; requires the FL Dep't of Agriculture and Consumers Services (DACS) to develop, and adopt by rule, ag BMP manuals for various ag commodities; once adopted, ag producers must submit a Notice of Intent to DACS specifying which lands are being enrolled in the ag NPS program, which BMPs are being implemented, and the schedule for implementation; field staff then work with the producers to assure that all applicable BMPs are being implemented and to conduct inspections of the BMPs; DACS provides cost-share funding for the BMPs; FL DEP is charged with verifying the performance of ag BMPs to reduce pollutant loads; BMPs are periodically revisited and revised as new information is obtained, especially if they are not reducing ag NPS pollution as expected; the law authorizes DEP to conduct enforcement if farmers are not implementing the BMPs that they committed to implement in a BMAP

--The FWRA authorizes the use of a Reasonable Assurance option to expedite water body restoration where state-authorized water quality improvement programs have already created a blueprint for restoration and that plan is being implemented

--BMAPs include tracking of projects that are being implemented to reduce pollutant loads and a monitoring plan and program to assess changes to water quality over time; FL is developing a new comprehensive water information database that will allow better integration of the water chemistry, biological, sediment, flow, ground water, etc., data being collected statewide

--developing a comprehensive "TMDL Tracker"—a web-based database to track all stages of TMDL development and implementation (from initial listing to BMAP adoption); provides GIS information and a "dashboard" to allow management to do queries on all impaired waters (*e.g.*, checking by geographic area, parameter of concern, or status of TMDL completion)

--to implement the TMDL program, a Bureau of Watershed Management (now Restoration) was specifically created to enhance coordination of ongoing programs in targeted watersheds; Bureau coordinates the many aspects and specific activities of the TMDL program relating to monitoring ambient water body health; storing, checking, and distributing these data; assessing the data and developing lists of impaired waters; TMDL development; adoption of TMDLs by rule; and the implementation of TMDLs using a multi-year public participation process to produce Basin Management Plans that are formally adopted; the program is highly collaborative, depending heavily on enhanced communication, coordination, and cooperation of watershed stakeholders

TMDLs that Represent a Particular Achievement

Lower St. Johns River TMDL for dissolved oxygen and nutrients
http://www.dep.state.fl.us/northeast/stjohns/TMDL/tmdl.htm

Barriers

Top Three Barriers to TMDL Development

1. inappropriate water quality standards and water body classification system; FL, like nearly all states, adopted its WQSs in the 1970s as a means of permitting point sources of pollution, not protecting ambient water quality or aquatic ecological systems (*see* NAS TMDL Report, 2001)
2. lack of data, information, and knowledge linking water quality impacts to causes or sources
3. insufficient time and flexibility due to Consent Decree
4. insufficient resources for BMAP implementation

Top Three Barriers to TMDL Implementation

1. lack of financial resources

2. lack of data, information, and knowledge linking water quality impacts to causes or sources; understanding pollutant fate and transport, especially nutrient dynamics, that occur within individual water bodies
3. lack of scientific data on the pollutant removal performance of BMPs for NPSs, particularly for ag BMPs

GEORGIA (REGION 4)

A Snapshot of Georgia's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

Georgia Department of Natural Resources
Environmental Protection Division
www.georgiaepd.org

TMDL Program Structure/Placement

Housed in Watershed Protection Branch
--TMDL Modeling & Development Unit within Watershed Planning and Modeling Program
--Separate TMDL Implementation Program

By the Numbers

Number of Impaired Waters		930
Number of Causes of Impairment		1,150
Top Five Causes of Impairment	1. Pathogens 2. Cause Unknown–Impaired Biota 3. Organic Enrichment/Oxygen Depletion 4. Unspecified 5. Mercury	

Approximate Number of TMDLs Developed Annually	100-300
Total Number of TMDLs Approve (1995 to present, incl. any est'd by EPA)	1,439
Total Number of TMDLs Approved in 2005/2006/2007	131/54/182
2008 303d/Integrated Report Submission Status (Date)	4/1/2008
Approximate Number of FTEs Working on TMDL Issues	10 (5 each dev't & impl'n)

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N (completed)
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?

Funding

Approximate Annual Budget for TMDL Program	$250,000 contract for model dev't
Primary Source(s) of TMDL Program Funding	state funds (model dev't); federal 106 & 604(b) (impl'n)

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed

TMDL development is proceeding with many of the formats we have developed in past years; implementation is being done using an adaptive approach; both are based on a River Basin rotation cycle

TMDLs that Represent a Particular Achievement

--Little River (chlorophyll)

--Coosa River (dissolved oxygen)

Links to GA TMDLs by major river basin:
http://www.gaepd.org/Documents/TMDL_page.html#Coosa

Barriers

Top Three Barriers to TMDL Development

1. time
2. money
3. staff

Top Three Barriers to TMDL Implementation

1. (same as above, plus) a shortage of regulatory guidance and authority from EPA
2. uncertainty of targets and standards
3. uncertainty in the outcome of BMPs and the expected reductions for watershed-wide actions

HAWAII (REGION 9)

A Snapshot of Hawaii's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

Hawaii Department of Health
Environmental Health Administration
Environmental Planning Office
http://hawaii.gov/health/environmental/env-planning/wqm/wqm.html

TMDL Program Structure/Placement

Housed in Environmental Planning Office, Water Quality Management Program

By the Numbers

Number of Impaired Waters		308
Number of Causes of Impairment		596
Top Five Causes of Impairment	1. Turbidity 2. Nutrients 3. Algal Growth 4. Pathogens 5. Trash	

Approximate Number of TMDLs Developed Annually	3
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	20
Total Number of TMDLs Approved in 2005/2006/2007	3/0/5
2008 303d/Integrated Report Submission Status (Date)	2009
Approximate Number of FTEs Working on TMDL Issues	4

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	Y

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?	Y

Funding

Approximate Annual Budget for TMDL Program	$550,000
Primary Source(s) of TMDL Program Funding	federal 106, 604(b), 104(b)(3) funds; state general funds

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed/
TMDLs that Represent a Particular Achievement

--Kawa Stream, Oahu, and Kapaa Stream, Oahu, are small watersheds dominated by waste load allocations to MS4s

--Hanalei Watershed, Kauai, is a larger area dominated by NPS load allocations to subtropical forest, endangered waterbird habitat, and traditional irrigated agriculture

Links to HI TMDLs:
hawaii.gov/health/environmental/env-planning/wqm/wqm.html

Barriers

Top Three Barriers to TMDL Development

1. shifting, poorly-defined foundation of WQSs and monitoring/assessment decisions, including lack of explicit biological and hydraulic endpoints
2. lack of state funding, departmental resources, business practices, and administrative policies for TMDL program support
3. inefficiencies and lack of coordination in data collection and information sharing (cross-program, intra-departmental, interagency, global)

Top Three Barriers to TMDL Implementation

1. public perception of problems, costs, and benefits (lack of implementation champions and examples of large-scale implementation success)
2. overwhelming scale and scope of hydraulic modification and habitat degradation, combined with ongoing cross-sector lack of engineering, regulatory, and financial sophistication
3. EPA requirements for effectiveness monitoring and state incapacity to provide guidance and technical assistance for addressing these requirements

IDAHO (REGION 10)

A Snapshot of Idaho's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

Idaho Department of Environmental Quality
www.deq.idaho.gov/water/data_reports/surface_water/tmdls/overview.cfm

TMDL Program Structure/Placement

Housed in Water Quality Division / Surface Water Program

By the Numbers

Number of Impaired Waters		1,392
Number of Causes of Impairment		2,243
Top Five Causes of Impairment	1. Temperature 2. Sediment 3. Cause Unknown 4. Nutrients 5. Pathogens	

Approximate Number of TMDLs Developed Annually	7-10
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	1,502
Total Number of TMDLs Approved in 2005/2006/2007	158/150/50
2008 303d/Integrated Report Submission Status (Date)	5/20/2008
Approximate Number of FTEs Working on TMDL Issues	24

TMDLs

EPA Under Consent Decree to Develop TMDLs?	Y
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?	N

Funding

Approximate Annual Budget for TMDL Program	$515,000
Primary Source(s) of TMDL Program Funding	general state funding

TMDL Implementation

TMDL Implementation Required?	Y

Innovations

Example(s) of Any Innovative Approach(es) Employed

--designed a TMDL template that is consistent, thorough, and easy to follow; used for all TMDLs and really streamlined the process to get our work out on the table for public consumption, review by EPA R10—especially important to meet TMDL legal schedule

--virtually all funds from 319 program are used on the ground in Idaho; this is quite different than many states that use the money to write TMDLs or support staff positions; we spend more than 80-90% on actual, on-the-ground work

--looking at developing a statewide Mercury TMDL for lakes and reservoirs, since we are convinced virtually all the sources are airborne from the regional or global pool

TMDLs that Represent a Particular Achievement

--Lower Clark Fork River
http://www.deq.idaho.gov/water/data_reports/surface_water/tmdls/clark_fork_lower/clark_fork_lower.cfm

--South Fork Clearwater River
http://www.deq.idaho.gov/water/data_reports/surface_water/tmdls/clearwater_river_sf/clearwater_river_sf.cfm

--Snake River-Hells Canyon
http://www.deq.idaho.gov/water/data_reports/surface_water/tmdls/snake_river_hells_canyon/snake_river_hells_canyon.cfm

Links to ID TMDLs:
www.deq.idaho.gov/water/data_reports/surface_water/tmdls/sba_tmdl_master_list.cfm

Barriers

Top Three Barriers to TMDL Development

1. lack of NPDES primacy
2. over-involvement of entities whose sole purpose is to get out from under TMDLs and their allocations, especially PSs
3. lack of adequate financial resources for monitoring; battle of experts over modeling (which is extremely expensive and doesn't yield a better end result)

Top Three Barriers to TMDL Implementation

1. inability to force NPSs to implement
2. lack of targeted funding to all reaches in a watershed; syndrome of spreading the wealth so everyone gets a piece of the pork
3. EPA HQ v. EPA Regional priorities, and who gets money and who doesn't; HQ needs a bracing reality check that they waste tons of money on nationally driven project priorities that invariably yield nothing meaningful on the ground

ILLINOIS (REGION 5)

A Snapshot of Illinois' TMDL Program (August 2008)

The Basics

Key Agency/Department & website

Illinois Environmental Protection Agency
www.epa.state.il.us/water/tmdl/

TMDL Program Structure/Placement

Housed in Bureau of Water / Division of Water Pollution Control / Watershed Management Section, Planning Unit

By the Numbers

Number of Impaired Waters		1,058
Number of Causes of Impairment		2,930
Top Five Causes of Impairment	1. Nutrients 2. Metals (other than mercury) 3. Turbidity 4. Organic Enrichment/Oxygen Depletion 5. PCBs	

Approximate Number of TMDLs Developed Annually	16
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	205
Total Number of TMDLs Approved in 2005/2006/2007	56/30/116
2008 303d/Integrated Report Submission Status (Date)	6/30/2008
Approximate Number of FTEs Working on TMDL Issues	4

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?

Funding

Approximate Annual Budget for TMDL Program	$0.5 to $1 million
Primary Source(s) of TMDL Program Funding	federal 319 funds

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed

Illinois uses a 3-stage approach for TMDL development:
--Stage 1 is watershed characterization, review of data available upon which to develop the TMDL, recommendations for model or method of developing TMDL, and the minimum data requirements for using the method or model

--Stage 2, data collection, is an optional stage and is dependent upon the data available and the method or model to be used in TMDL development
--Stage 3 is TMDL development and TMDL implementation guidance

TMDLs that represent a particular achievement

Governor Bond Lake is one of the first TMDLs done in Illinois; example of a local watershed forming in response to a TMDL
http://www.epa.state.il.us/water/tmdl/report/governor-bond/governor-bond.pdf (final TMDL)
http://www.epa.state.il.us/water/tmdl/implementation/index.html (implementation info)

Barriers

Top Three Barriers to TMDL Development

1. insufficient data to perform meaningful modeling
2. lack of expertise at the state level
3. lengthy procurement process to secure outside TMDL expertise

Top Three Barriers to TMDL Implementation

1. difficulty with or inability to track ag BMPs
2. shortage of funding for NPS pollution abatement
3. lack of interest at the local level

INDIANA (REGION 5)

A Snapshot of Indiana's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

Indiana Department of Environmental Management
http://www.in.gov/idem/4676.htm

TMDL Program Structure/Placement

NPS/TMDL Section housed in Office of Water Quality, Watershed Planning Branch; Integrated

By the Numbers

Number of Impaired Waters		1,591
Number of Causes of Impairment		2,686
Top Five Causes of Impairment	1. Pathogens 2. PCBs 3. Mercury 4. Cause Unknown–Impaired Biota 5. Nutrients	

Approximate Number of TMDLs Developed Annually	150
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	548
Total Number of TMDLs Approved in 2005/2006/2007	165/256/95
2008 303d/Integrated Report Submission Status (Date)	3/31/2008
Approximate Number of FTEs Working on TMDL Issues	3 (+1 for 303d, +0.5 for supervision)

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	Y

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?	Y
Example(s)	Accountability Project with US EPA-NPS-319 Program

Funding

Approximate Annual Budget for TMDL Program	$250,000
Primary Source(s) of TMDL Program Funding	federal 106 funds

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed

--the structure of IN's program is highly unusual: the TMDL program, the Section 319 program, and the 303d/305b programs report to the same section chief, allowing for a high level of

integration of TMDL planning, 319 implementation, and watershed-based education

--TMDLs are watershed-based; over 200 on interstate waters

TMDLs that Represent a Particular Achievement

--Lake Michigan

--Wabash River

Barriers

Top Three Barriers to TMDL Development

1. limited resources (personnel)
2. limited data
3. lack of state and federal program integration

Top Three Barriers to TMDL Implementation

1. limited funding
2. limited program integration
3. education—lack of knowledge/appreciation of importance of implementation

IOWA (REGION 7)

A Snapshot of Iowa's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

Iowa Department of Natural Resources
http://www.iowadnr.gov/water/watershed/tmdl/index.html

TMDL Program Structure/Placement

Housed in Geological and Water Survey Bureau / Watershed Improvement Section

By the Numbers

Number of Impaired Waters		279
Number of Causes of Impairment		359
Top Five Causes of Impairment	1. Biological–Cause Unknown 2. Indicator Bacteria 3. Fish Kills 4. Turbidity 5. Algae	
Approximate Number of TMDLs Developed Annually		10-12 waterbodies (12-18 pollutants)
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)		115
Total Number of TMDLs Approved in 2005/2006/2007		36/19/14
2008 303d/Integrated Report Submission Status (Date)		2008 list to be submitted after 2006 list decision
Approximate Number of FTEs Working on TMDL Issues		7

TMDLs

EPA Under Consent Decree to Develop TMDLs?	Y
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?

Funding

Approximate Annual Budget for TMDL Program	$1.1 million
Primary Source(s) of TMDL Program Funding:	federal 319 funds

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed

Within the past two years, as we have approached the end of our consent decree, we have made a concerted effort to target small watersheds (less than 30,000 acres) for TMDL development and

align our TMDL program with priority watersheds of the state and local stakeholder groups in order to increase the likelihood that a TMDL will translate into action to address the pollutant(s) of concern; we are also planning our TMDL development schedule 5 years in advance, so we can try to target our monitoring resources to improve upon the data that is available to support the TMDL modeling effort; this targeting and preplanning is also helping organize other programs, such as Lake Restoration and the Section 319 NPS Program around a coordinated effort to address water quality concerns at a scale that can result in measurable benefits in a reasonable period of time

Links to IA TMDLs:
http://www.iowadnr.gov/water/watershed/pubs.html

Barriers

Top Three Barriers to TMDL Development

1. lack of state funding support for the program
2. limited monitoring data and time constraints
3. staff turnover

Top Three Barriers to TMDL Implementation

1. limited local landowner interest
2. lack of funds dedicated to comprehensive watershed planning
3. mostly NPS pollutant problems coupled with a lack of a regulatory framework for addressing them

KANSAS (REGION 7)

A Snapshot of Kansas' TMDL Program (August 2008)

The Basics

Key Agency/Department & website

Kansas Department of Health and Environment
www.kdheks.gov/water/
www.kdheks.gov/tmdl/

TMDL Program Structure/Placement

Housed in Bureau of Water, Watershed Planning Section

By the Numbers

Number of Impaired Waters		1,101
Number of Causes of Impairment		1,616
Top Five Causes of Impairment	1. Metals (other than mercury) 2. Cause Unknown–Impaired Biota 3. Organic Enrichment/Oxygen Depletion 4. Pesticides 5. Salinity/TDS/Sulfates/Chlorides	

Approximate Number of TMDLs Developed Annually	12-15
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	2,708
Total Number of TMDLs Approved in 2005/2006/2007	603/167/81
2008 303d/Integrated Report Submission Status (Date)	4/1/2008
Approximate Number of FTEs Working on TMDL Issues	5

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N (completed)
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	Y

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?		Y
Example(s)	4b; NPDES Permits	

Funding

Approximate Annual Budget for TMDL Program	$500,000
Primary Source(s) of TMDL Program Funding	federal 106 & 319 funds; state water plan funds

TMDL Implementation

TMDL Implementation Required?	Y

Innovations

Example(s) of Any Innovative Approach(es) Employed

now using local "Watershed Restoration and Protection Strategy" (WRAPS) groups to oversee implementation efforts in specific watersheds across the state

TMDLs that Represent a Particular Achievement

--Spring River (metals)
http://www.kdheks.gov/tmdl/download/spring_metals.pdf

--Arkansas River (chlorides)
www.kdheks.gov/tmdl/la/2006_Ark_Hutch_to_MaizeCl.pdf

--Watershed Management Plan for Atrazine in the Little Arkansas River Watershed (4b)
http://www.kdheks.gov/tmdl/la/Lit_Ark_CAT4B_10-12-06.pdf

Barriers

Top Three Barriers to TMDL Development

1. inadequate high flow WQ data to calibrate models
2. intra-watershed monitoring data
3. lack of definitive linkage between nutrients and impairments

Top Three Barriers to TMDL Implementation

1. reaching a density of BMPs over a watershed to impact WQ
2. uneven participation in WQ programs
3. uncertainty of effectiveness of reduction strategy

KENTUCKY (REGION 4)

A Snapshot of Kentucky's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

Kentucky Department for Environmental Protection
Division of Water
www.water.ky.gov/sw/tmdl/

TMDL Program Structure/Placement

Housed in Water Quality Branch; Integrated

By the Numbers

Number of Impaired Waters		736
Number of Causes of Impairment		1,465
Top Five Causes of Impairment	1. Sediment 2. Pathogens 3. Habitat Alterations 4. Nutrients 5. Organic Enrichment/Oxygen Depletion	

Approximate Number of TMDLs Developed Annually	15 (but near 50 this yr)
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	80
Total Number of TMDLs Approved in 2005/2006/2007	0/12/9
2008 303d/Integrated Report Submission Status (Date)	6/1/2008
Approximate Number of FTEs Working on TMDL Issues	9 (incl. 4 monitor., 2 data analysts, 1 branch coord., 1 water chem./samp. analyst, & 1 super.)

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?	N

Funding

Approximate Annual Budget for TMDL Program	$600,000
Primary Source(s) of TMDL Program Funding	federal 106 funds

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed

--KY has a new sediment protocol for TMDL development and has recently begun monitoring efforts; protocol includes fluvial geomorphology and sediment sampling procedural trainings to aid in the identification of sediment-specific issues, potential sources, and restoration

--TMDL Team is comprised of TMDL development staff and watershed management (implementation) staff that meet 2x/month; team has 1) reduced TMDL and 319(h) monitoring redundancy through improved communication and coordination to meet multiple program needs; 2) targeted TMDL development in priority watersheds; 3) synchronized TMDL and watershed plan development; and 4) developed WLA/LA calculation protocols

--KY has embraced watershed approach for addressing impaired waters since early '90s; watershed restoration actions to improve water quality have been documented in 228 impaired water-body segments (303(d) listed) that total 1,312 stream miles, 2 groundwater springs, and 3,142 lake acres; these restoration actions include capacity development, watershed plan development, active implementation, and success monitoring; KY is evaluating several 4b categorical listing opportunities

--relative to measuring success of TMDL implementation, several tiers are employed: (1) meeting WQSs (full support); (2) project success monitoring showing trends or improvements in water quality; and (3) implementation actions/activities underway (documented as follows: State 305(b) report, 104(b)(3) reports, 319(h) Annual Report, NPS Success Stories national website, Measure "W" reports (watershed implementation reports to EPA on meeting strategic plans), and the KDOW file folder Word document (updated every two years))

--program incorporates a multidisciplinary approach that allows other Divisions and agencies to include their work and comments during development phase; the TMDL report and Watershed Plans are handled as separate documents: TMDL report focuses on data, the LA, and WLA—and Watershed Plans address all system stressors

Barriers

Top Three Barriers to TMDL Development

1. lack of resources (*i.e.*, people, equipment, money, etc.)
2. lack of experience (*i.e.*, a familiarity with the TMDL program and its relativity to other programs—training time)

3. lack of existing physiochemical monitoring data

Top Three Barriers to TMDL Implementation

1. early and sustained public engagement (bring people to the table before monitoring begins, keep them at the table and engaged)
2. institutionalization of watershed management with agency programs and among agency partners
3. robust TMDLs (large datasets and modeling) that provide effective sub-watershed targets for implementing solutions, which is directly related to personnel and budgeting issues

LOUISIANA (REGION 6)

A Snapshot of Louisiana's TMDL Program (October 2008)

The Basics

Key Agency/Department & website(s)

Louisiana Department of Environmental Quality
http://www.deq.louisiana.gov/portal/tabid/130/Default.aspx

TMDL Program Structure/Placement

Housed in Water Quality Assessment Division

By the Numbers

Number of Impaired Waters	396 subsegments for the integrated report; 271 subsegments on the 303(d) list
Number of Causes of Impairment	1149 waterbody/pollutant pairs for the integrated report; 508 waterbody/ pollutant pairs on the 303(d) list; # actual causes +/- 40
Top Five Causes of Impairment	1. Organic Enrichment/Oxygen Depletion 2. Pathogens 3. Mercury 4. Salinity/TDS/Sulfates/Chlorides 5. Nutrients
Approximate Number of TMDLs Developed Annually	60 (water body/pollutant pairs)
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	515 (water body / pollutant pairs
Total Number of TMDLs Approved in 2005/2006/2007	10/1/10 (# of modeling reports/ TMDLs)
2008 303d/Integrated Report Submission Status (Date)	Draft sent to Public Notice on 8/19/2008
Approximate Number of FTEs Working on TMDL Issues	5 modelers and 3 support staff in Engineering Group (this group also reviews TMDLs developed by EPA within the state; provides engineering/modeling support for permit limit development;

	reviews permits for facilities that discharge in other states into water bodies that flow into LA to determine impact of the discharge in LA; and provides support for the Water Quality Certification group); 15 environmental scientists and 1 support staff in Survey Section (this group also handles ambient water data collection for ultra-clean metals; biological, chemical and physical data collection for UAAs and ecoregion evaluations; and specialized ambient water data collection for permit support)
TMDLs	
EPA Under Consent Decree to Develop TMDLs?	Y
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	Watershed scale whenever possible
Non-TMDL Options	
Use of Non-TMDL Options to Address Impaired Waters?	Y (*e.g.*, other environmental programs such as those overseen by our Remediation Division)
Funding	
Approximate Annual Budget for TMDL Program	$1.2 million

Primary Source(s) of TMDL Program Funding	federal (106, 604b, 319); state funds

TMDL Implementation

TMDL Implementation Required?	Y/N(Permit limits will be implemented during subsequent permit cycle; however, no requirement for implementation plan for NPS to be a part of the TMDL)

Innovations

Example(s) of Any Innovative Approach(es) Employed/
TMDLs that Represent a Particular Achievement

--conduct a UAA to lay foundation for criteria revision and ultimate delisting of waterbody

--delisting of waterbodies based on additional continuous monitoring data for dissolved oxygen

Barriers

Top Three Barriers to TMDL Development

1. inappropriate standards/criteria
2. resources
3. differentiating natural background loads from man-made loads

Top Three Barriers to TMDL Implementation

1. TMDL reductions for NPS are unrealistic to meet standard
2. having enough data to effectively target the source of the pollution
3. inaccuracies in data used in development of the TMDL, and resultant impact to permitted facility (leads to permit appeals that should have been dealt with during TMDL process)
4. growth/changes in watershed between the time the TMDL is developed and the implementation plan is drafted can make data used in TMDL obsolete

MAINE (REGION 1)

A Snapshot of Maine's TMDL Program (October 2008)

The Basics

Key Agency/Department & website(s)

Maine Department of Environmental Protection
http://www.maine.gov/dep/blwq/docmonitoring/TMDL/

TMDL Program Structure/Placement

Housed in Bureau of Land & Water Quality / Division of Environmental Assessment

By the Numbers

Number of Impaired Waters		191
Number of Causes of Impairment		278
Top Five Causes of Impairment	1. Cause Unknown–Impaired Biota 2. Pathogens 3. Organic Enrichment/Oxygen Depletion 4. Nutrients 5. Turbidity	

Approximate Number of TMDLs Developed Annually	
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	87
Total Number of TMDLs Approved in 2005/2006/2007	27/8/11
2008 303d/Integrated Report Submission Status (Date)	5/30/2008
Approximate Number of FTEs Working on TMDL Issues	

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?

Funding

Approximate Annual Budget for TMDL Program
Primary Source(s) of TMDL Program Funding

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed
TMDLs that Represent a Particular Achievement

Barriers

Top Three Barriers to TMDL Development
Top Three Barriers to TMDL Implementation

MARYLAND (REGION 3)

A Snapshot of Maryland's TMDL Program (August 2008)

The Basics

Key Agency/Department & website	Maryland Department of the Environment www.mde.state.md.us/Programs/WaterPrograms/TMDL/index.asp
TMDL Program Structure/Placement	Housed in Science Services Administration, together with WQS and monitoring functions; divided into "TMDL Development" and "TMDL Implementation & Sec. 319 NPS Program;" Integrated

By the Numbers

Number of Impaired Waters (on an MD 8-digit basin scale)		126
Number of Waterbodies-pollutant combinations		594
Number of Causes of Impairment		8
Top Five Causes of Impairment	1. Cause Unknown–Impaired Biota 2. Nutrients 3. Sediments 4. PCBs 5. Pathogens	
Approximate Number of TMDLs Developed Annually		30-40
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)		271
Total Number of TMDLs Approved in	2005	25 TMDLs/39 WQAs
	2006	30 TMDLs/49 WQAs
	2007	36 TMDLs/40 WQAs
2008 303d/Integrated Report Submission Status (Date)		fall 2008
Approximate Number of FTEs Working on TMDL Issues		difficult to assess because work is distributed widely

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N (MoU)
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	Y

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?	N

Funding

Approximate Annual Budget for TMDL Program	$8.1+ million (incl. $3.0+ million for data & development)

Primary Source(s) of TMDL Program Funding — Federal 106, 604(b), & 319 funds; general state funds; Bay Restoration Fund & new 2010 Trust Fund

TMDL Implementation

TMDL Implementation Required? — N

Innovations

Example(s) of Any Innovative Approach(es) Employed

--developed or refined numerous methodologies to address various types of impairments (*e.g.*, the Stressor Identification Model used in Sediments TMDL development is now being used in identifying pollutant stressors for non-tidal nutrients and biological impairments; and we use Bacteria Source Tracking (BST) to identify different sources of bacteria contamination in waterbodies)

--institutionalizing TMDL implementation: *Maryland's 2006 TMDL Implementation Guidance for Local Governments* focuses on institutionalizing implementation within routine government decision structures and operating procedures; this is in contrast to developing an "implementation plan" that tends to sit on a shelf because it is disjointed from local government functions

--integrating land use planning and watershed planning: elements of TMDL implementation planning are being incorporated into the local land use planning process via a new Water Resource Element (WRE); the WRE, required by a 2006 state law, calls for nutrient load accounting from PSs and NPSs

--nutrient offsets: phasing in nutrient trading/offset programs to maintain nutrient limits in perpetuity; Phase I addresses point-to-point offsets (adopted); Phase II would address point-to-nonpoint offsets, that is, offsetting PS increases using NPS reductions (under development); Phase III would address offsetting new NPSs (under consideration)

--integrating restoration and protection of non-tidal streams: biological monitoring and other data are being used to prioritize watersheds, and sites within watersheds, for both restoration and protection; the same biological data used to identify impairments are used to identify Tier II (high quality) waters for protection under MD's anti-degradation policy

--bacteria TMDL adaptive implementation: bacteria TMDLs for shellfish waters have been prioritized using bacteria source tracking (BST) information; on the basis of health risk management, 9 cases with human sources are the focus of an implementation initiative; this consists of making weekly commitments to action items and tracking progress as part of the Governor's BayStat process

--regarding a water body that was "on the cusp" of impairment, MDE developed a WQA with an understanding by the local jurisdiction that it would develop a watershed management plan to prevent the water from becoming impaired (Piney Run reservoir, Carroll County)

--3 Levels of TMDL Implementation Assessment:
(1) Tracking BMP implementation and other actions, *e.g.*, adoption of new programs and plans
- BMP tracking builds upon Chesapeake Bay Program tracking (BayStat is a major program success evaluation framework)
- NPDES MS4 permits are being revised to improve accounting
- Tracking watershed plan development
- Tracking bacteria implementation activities

(2) Measuring localized water quality improvements in response to specific implementation projects; the results can be extrapolated to other projects that do not have monitoring, and they constitute incremental progress towards achieving WQSs, which are evaluated at a larger geographic scale
- Measuring nitrogen reductions in groundwater before and after implementing denitrifying septic systems
- Quantified improvement of stream habitat conducive to anticipated improvement in biological integrity
- Assessing incremental improvement in miles of healthy streams on a watershed scale using random sampling of biological integrity

(3) Monitoring water quality according to standards

TMDLs that Represent a Particular Achievement

--Baltimore Harbor Nutrients TMDL

--Anacostia River Fecal Bacteria TMDL

--Anacostia River Sediments TMDL

--Anacostia River Nutrients TMDL

--Potomac River Tidal PCBs TMDL

--Loch Raven/Prettyboy TP and Sediments TMDLs

Links to MD TMDLs:
http://www.mde.state.md.us/Programs/WaterPrograms/TMDL/ApprovedFinalTMDL/index.asp

Barriers

Top Three Barriers to TMDL Development

1. funding
2. staff shortage
3. technical/scientific limitations

Top Three Barriers to TMDL Implementation

1. funding
2. creating programs to address NPS pollution
3. no clear regulatory requirement

MASSACHUSETTS (REGION 1)

A Snapshot of Massachusetts' TMDL Program (November 2008)

The Basics

Key Agency/Department & website

Massachusetts Department of Environmental Protection
Bureau of Resource Protection
Division of Watershed Management
http://mass.gov/dep/water/resources/tmdls.htm

TMDL Program Structure/Placement

Housed in Watershed Planning Program; Integrated (across WQS & monitoring functions, & located in same office as NPDES and grant staff)

By the Numbers

Number of Impaired Waters		837
Number of Causes of Impairment		1,731
Top Five Causes of Impairment	1. Pathogens 2. Nutrients 3. Noxious Aquatic Plants 4. Organic Enrichment/Oxygen Depletion 5. Turbidity	
Approximate Number of TMDLs Developed Annually		20-150
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)		330 (pollutant/ segment); 371 (pollutant stressor combinations)
Total Number of TMDLs Approved in 2005/2006/2007		2/18/145 (pollutant stressor combinations)
2008 303d/Integrated Report Submission Status (Date)		Draft submitted 4/1/08 (Final pending potential litigation)
Approximate Number of FTEs Working on TMDL Issues		4 (+3-4 for sp. projects)

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	Y

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?

Investigating original listing through collection of new data to confirm impairment and use of 4b

Funding

Approximate Annual Budget for TMDL Program	$600,000 +/- (staffing); $500,000 +/- (contracting)
Primary Source(s) of TMDL Program Funding	state funds; federal 106 & 319 funds; some funds from USACE & USGS

TMDL Implementation

TMDL Implementation Required? Y (for point sources)

--includes recommendation for implementation for nonpoint sources

Innovations

Example(s) of Any Innovative Approach(es) Employed

--regional approach to Mercury TMDL

--use of the State Revolving Fund and development of Comprehensive Water Resources Management Plans to identify cost-effective solutions, rather than dictate outcome

--watershed TMDLs for certain pollutants including concentration-based TMDLs for bacteria

TMDLs that Represent a Particular Achievement

--Regional Mercury TMDL

--Massachusetts Estuaries Project

--Assabet River Nutrient TMDL

Links to MA TMDLs:
http://mass.gov/dep/water/resources/tmdls.htm

Barriers

Top Three Barriers to TMDL Development

1. lack of staff
2. lack of detailed data for modeling
3. EPA timelines

Top Three Barriers to TMDL Implementation

1. lack of federal funds for implementation work
2. lack of state funds for implementation work

MICHIGAN (REGION 5)

A Snapshot of Michigan's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

Michigan Department of Environmental Quality
Water Bureau
http://www.michigan.gov/deq/0,1607,7-135-3313_3686_3728-12464--,00.html

TMDL Program Structure/Placement

Housed in the Surface Water Assessment Section / Lake Michigan Unit

By the Numbers

Number of Impaired Waters		430
Number of Causes of Impairment		557
Top Five Causes of Impairment	1. Mercury 2. PCBs 3. Pathogens 4. Cause Unknown–Impaired Biota 5. Nutrients	
Approximate Number of TMDLs Developed Annually		10-15
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)		84
Total Number of TMDLs Approved in 2005/2006/2007		20/10/22
2008 303d/Integrated Report Submission Status (Date)		4/11/2008
Approximate Number of FTEs Working on TMDL Issues		3-5

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?

Funding

Approximate Annual Budget for TMDL Program	$475,000
Primary Source(s) of TMDL Program Funding	federal 205(j) & 106 funds

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed

--many TMDLs are now developed using the load duration curve approached developed by EPA

--MI is considering the 5M approach for many of its mercury-impaired waters

TMDLs that Represent a Particular Achievement

Lake Allegan phosphorus TMDL—implementation of this TMDL has been very successful in terms of cooperation among stakeholders and reductions in phosphorus levels to date http://www.deq.state.mi.us/documents/deq-swq-gleas-tmdlallegan.pdf

Barriers

Top Three Barriers to TMDL Development

1. TMDL staffing levels
2. lack of money to conduct necessary monitoring in preparation for TMDLs
3. lack of enthusiasm for TMDL development

Top Three Barriers to TMDL Implementation

1. TMDL staffing levels
2. lack of financial resources to conduct necessary coordination and monitoring
3. lack of enthusiasm among some stakeholders

MINNESOTA (REGION 5)

A Snapshot of Minnesota's TMDL Program (August 2008)

The Basics

Key Agency/Department & website	Minnesota Pollution Control Agency www.pca.state.mn.us/water/tmdl/index.html
TMDL Program Structure/Placement	Housed in Regional Division, Watershed Section

By the Numbers

Number of Impaired Waters		1,732
Number of Causes of Impairment		2,575
Top Five Causes of Impairment	1. Mercury 2. Turbidity 3. Nutrients 4. Cause Unknown–Impaired Biota 5. Pathogens	
Approximate Number of TMDLs Developed Annually		100 (+ approx. 500 mercury in '07 & '08)
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)		1097 (99 conventional; 998 mercury)
Total Number of TMDLs Approved in 2005/2006/2007		7/24/556
2008 303d/Integrated Report Submission Status (Date)		EPA has taken final action
Approximate Number of FTEs Working on TMDL Issues		66 (incl. 36 tech & admin for dev't & impl'n; 30 for monitoring & assess't)

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	Y

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?		Y
Example(s)	9 listings included in Region 5's Environmental Accountability Project (CALM Category 4b)	

Funding

Approximate Annual Budget for TMDL Program	$37 million (incl. $7 million for assess't & monitoring, $10

	million for dev't, & $20 million [through 5 agencies] for PS and NPS impl'n)
Primary Source(s) of TMDL Program Funding	state funds (monitor/assess't, dev't, impl'n); federal 319 funds (impl'n)

TMDL Implementation

TMDL Implementation Required?	Y

Innovations

Example(s) of Any Innovative Approach(es) Employed

--statewide mercury TMDL; major watershed TMDL (8-digit HUC) covering all pollutant parameters; master contract of pre-qualified consultants; frequent use of load duration curve approach

--new stormwater policies and guidance

--TMDL staff liaisons from stormwater and wastewater programs to improve program integration

--basin-wide wastewater permit and trading system

--currently developing measurement framework and information management system

--the majority of our TMDLs are developed by third parties that receive state funding and are contracted by the state, which creates strong local involvement component to build buy-in for ultimate implementation; the MPCA provides technical assistance and oversight throughout the TMDL development process; our program is heavily influenced by the state's Clean Water Legacy Act of 2006, which set new goals, priorities, and funding for monitoring, TMDL development, restoration, and protection activities

TMDLs that Represent a Particular Achievement

--Statewide Mercury TMDL (approx. 1,000 impairments to date)
http://www.pca.state.mn.us/water/tmdl/tmdl-mercuryplan.html

--Major watershed TMDL (8-digit HUC) for the Des Moines watershed covering all pollutant parameters
http://www.pca.state.mn.us/water/tmdl/project-westforkdesmoines.html

--Shingle Creek Chloride TMDL (strong example of MS4 cooperation for TMDL development and implementation)
http://www.pca.state.mn.us/water/tmdl/project-shinglecreek-chloride.html

--Lake Pepin Nutrient and Turbidity watershed TMDL (covers half the state, western Wisconsin; pilot for stakeholder involvement)
http://www.pca.state.mn.us/water/tmdl/tmdl-lakepepin.html

--Minnesota River Dissolved Oxygen TMDL (catalyst to a basin permit and trading effort for 40 existing facilities and future new/expanding facilities)
http://www.pca.state.mn.us/water/basins/mnriver/mnriver-phosphoruspermit.html

Barriers

Top Three Barriers to TMDL Development

1. resources, despite infusion of funding from a new state law, the Clean Water Legacy Act
2. inadequate standards and rules to address NPS problems
3. although a plan is being developed, we need a systematic watershed approach: integrating monitoring, TMDL development, implementation, and protection programs
4. challenges from ag interests and stormwater permittees

Top Three Barriers to TMDL Implementation

1. ag: lack of authority over BMP adoption, lack of interest in voluntary measures, fear of regulation
2. inadequate resources for BMPs
3. inadequate measurement system to gauge success

MISSISSIPPI (REGION 4)

A Snapshot of Mississippi's TMDL Program (August 2008)

The Basics

Key Agency/Department & website(s)

Mississippi Department of Environmental Quality
Office of Land and Water Resources
http://www.deq.state.ms.us/MDEQ.nsf/page/TWB_Total_Maximum_Daily_Load_Section?OpenDocument

TMDL Program Structure/Placement

Housed in Surface Water Division

By the Numbers

Number of Impaired Waters		378
Number of Causes of Impairment		614
Top Five Causes of Impairment	1. Cause Unknown–Impaired Biota 2. Sediment 3. Nutrients 4. Organic Enrichment/Oxygen Depletion 5. Pathogens	
Approximate Number of TMDLs Developed Annually		
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)		816
Total Number of TMDLs Approved in 2005/2006/2007		57/254/154
2008 303d/Integrated Report Submission Status (Date)		8/1/2008
Approximate Number of FTEs Working on TMDL Issues		8

TMDLs

EPA Under Consent Decree to Develop TMDLs?	Y
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?

Funding

Approximate Annual Budget for TMDL Program	$25 million
Primary Source(s) of TMDL Program Funding	state funds; federal 106 and 319 funds

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed

--TMDL development: keeping it simple
--TMDL implementation: communication and participation in permitting, basin management, and 319 programs
--measuring success: using biological monitoring

TMDLs that Represent a Particular Achievement

--Tombigbee River Basin TMDL
http://www.deq.state.ms.us/MDEQ.nsf/page/TWB_tombigbeestatrep?OpenDocument

Barriers

Top Three Barriers to TMDL Development

1. large 303(d) list = large # of TMDLs due under consent decree (many with no data)
2. consent decree forcing development of TMDLs prior to criteria development for nutrients and sediment
3. consent decree deadlines forcing development of approaches to TMDLs

Top Three Barriers to TMDL Implementation

1. voluntary BMPs

MISSOURI (REGION 7)

A Snapshot of Missouri's TMDL Program (October 2008)

The Basics

Key Agency/Department & website(s)

Missouri Department of Natural Resources
Division of Environmental Quality
http://www.dnr.mo.gov/env/wpp/tmdl/index.html

TMDL Program Structure/Placement

Housed in Water Protection Program,
Water Pollution Control Branch

By the Numbers

Number of Impaired Waters		174
Number of Causes of Impairment		30
Top Five Causes of Impairment	1. Organic Enrichment/Oxygen Depletion 2. Sediment 3. Nutrients 4. Cause Unknown 5. Pathogens	

Approximate Number of TMDLs Developed Annually	18
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	148
Total Number of TMDLs Approved in 2005/2006/2007	6/44/14
2008 303d/Integrated Report Submission Status (Date)	Early 2009
Approximate Number of FTEs Working on TMDL Issues	4 + 6 field support

TMDLs

EPA Under Consent Decree to Develop TMDLs?	Y
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	Y

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?	Y

Permit in Lieu of TMDL (Cat. 4b)

Funding

Approximate Annual Budget for TMDL Program	$396,376
Primary Source(s) of TMDL Program Funding	federal 319 funds

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed

-- Permit in Lieu of TMDL (Cat. 4b)

TMDLs that Represent a Particular Achievement

--http://www.dnr.mo.gov/env/wpp/tmdl/pil-stoverlagoonsfinal.pdf
--http://www.dnr.mo.gov/env/wpp/tmdl/bynum-pilo-appr-subm.pdf

Barriers

Top Three Barriers to TMDL Development

1. resources (*e.g.*, funding, personnel) to develop and complete TMDLs
2. sufficient data to calibrate water quality models or develop innovative approaches
3. definitive linkage between general and numeric criteria (e.g. nutrient impairments)

Top Three Barriers to TMDL Implementation

1. consent decree schedule prohibits spending adequate time on implementation efforts
2. formation of watershed groups can be complex process
3. resources (*e.g.*, funding, personnel) to initiate, oversee, and monitor implementation efforts

MONTANA (REGION 8)

A Snapshot of Montana's TMDL Program (November 2008)

The Basics

Key Agency/Department & website	Montana Department of Environmental Quality Permitting & Compliance Division http://www.deq.state.mt.us/wqinfo/TMDL/index.asp
TMDL Program Structure/Placement	Housed in Water Protection Bureau, Watershed Management Section

By the Numbers

Number of Impaired Waters		836
Number of Causes of Impairment		1861 (pollutants); 3193 (pollutants & pollution)
Top Five Causes of Impairment	1. Metals (other than mercury) 2. Habitat Alterations 3. Nutrients 4. Sedimentation 5. Flow Alterations	
Approximate Number of TMDLs Developed Annually		100+)
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)		455
Total Number of TMDLs Approved in 2005/2006/2007		39/120/30
2008 303d/Integrated Report Submission Status (Date)		12/15/2008 (approx)
Approximate Number of FTEs Working on TMDL Issues		11 (includes TMDL Development and Implementation)

TMDLs

EPA Under Consent Decree to Develop TMDLs?	Y
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	TMDL projects are pursued at a watershed scale; watershed size often consistent with HUC 4 size

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?	limited; some 4B analysis underway on one stream

Funding

Approximate Annual Budget for TMDL Program	unknown
Primary Source(s) of TMDL Program Funding	Mix of state funding and

Federal 319 staff funding

TMDL Implementation

TMDL Implementation Required?

generally no; although State Law requires that WLAs are incorporated into MPDES permits

Innovations

Example(s) of Any Innovative Approach(es) Employed

--TMDL planning improvements; more integration of project management concepts and creation of tools to facilitate this.

--Developed improved data management and data mining tools to effectively capture and organize STORET, USGS, and other data sources for technical evaluations and to facilitate GIS mapping.

--Developed consistent assessment methods to evaluate sediment conditions in cold water streams for target development and bank erosion quantification.

--Significant QA improvements for sampling and field work; template sampling plans, template contract work scopes, etc.

--Major improvements in contract process and oversight; breaking TMDL development into basic work tasks for internal and external (consultant) support to take advantage of specific expertise and to be able to appropriately adapt to information as it is generated.

--Retooling models, both complex and simple ones, to effectively deal with pollutant generation and delivery; goal is to allow for effective BMP-driven modeling scenarios for nonpoint sources of pollution; existing models often address pollutant generation but not delivery in a way that facilitates BMP scenarios often linked to riparian health improvement.

--Staff pollutant teams (e.g. metals, sediment, nutrients) to coordinate and apply innovative ideas, process and technical improvements, and improve overall internal communication.

--Developing database for TMDL tracking by assigning identification to each 303(d) water body – cause combination and providing a “cradle to grave” tracking for work load planning and overall TMDL development requirements and TMDL implementation tracking.

--Striving for a complete watershed-scale TMDL planning, TMDL assessment, and TMDL implementation approach. This concept is not incorporated all that well into many environmentally-related programs (Federal, State and Local), and TMDLs are an opportunity to integrate a watershed approach into many programs.

--Improvements under way to final document organization, presentation, and appeal to wider audience.

TMDLs that Represent a particular Achievement

--St. Regis TMDL document

--Prospect Creek TMDL document

--Grave Creek Sediment TMDL

--Ruby River TMDL document

--Flathead Lake Nutrient TMDL (Phase 1)

Links to MT TMDLs:
http://www.deq.state.mt.us/wqinfo/TMDL/index.asp

Barriers

Top Three Barriers to TMDL Development

1. balancing quantity, quality, and stakeholder involvement
2. changing and evolving direction from EPA (external) and State of Montana (internal)
3. lack of Lack of decent source assessment methods for models and other tools to apply in many MT landscapes; have to develop them to adequately define conditions in a way that the desired BMP scenarios can be incorporated

Top Three Barriers to TMDL Implementation

1. inadequate funding
2. lack of landowner willingness/commitment
3. lack of local watershed group and/or “capacity”

NEBRASKA (REGION 7)

A Snapshot of Nebraska's TMDL Program (August 2008)

The Basics

Key Agency/Department & website(s)

Nebraska Department of Environmental Quality
http://www.deq.state.ne.us/

TMDL Program Structure/Placement

Housed in Water Quality Division (Water Quality Planning Programs)

By the Numbers

Number of Impaired Waters		233
Number of Causes of Impairment		226
Top Five Causes of Impairment	1. Pathogens 2. Nutrients 3. pH 4. Mercury 5. PCBs	

Approximate Number of TMDLs Developed Annually	25
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	91
Total Number of TMDLs Approved in 2005/2006/2007	10/22/30
2008 303d/Integrated Report Submission Status (Date)	4/1/2008
Approximate Number of FTEs Working on TMDL Issues	1

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	Y

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters? Y

4b Watershed management plans, 4c natural pollutant/pollution

Funding

Approximate Annual Budget for TMDL Program	$80,000
Primary Source(s) of TMDL Program Funding	federal 106 and 319 funds

TMDL Implementation

TMDL Implementation Required? N

Innovations

Example(s) of Any Innovative Approach(es) Employed/
TMDLs that Represent a Particular Achievement

--Links to NE TMDLs:
http://www.deq.state.ne.us/ (navigate from home page)

Barriers

Top Three Barriers to TMDL Development

1. resources/personnel to complete
2. EPA resistance to new ideas

Top Three Barriers to TMDL Implementation

1. resources for cost share
2. willing project sponsors
3. personnel to oversee projects

NEVADA (REGION 9)

A Snapshot of Nevada's TMDL Program (August 2008)

The Basics

Key Agency/Department & website(s)

Nevada Department of Conservation & Natural Resources
Division of Environmental Protection
http://ndep.nv.gov/bwqp/tmdl.htm

TMDL Program Structure/Placement

Housed in Bureau of Water Quality Planning

By the Numbers

Number of Impaired Waters		129
Number of Causes of Impairment		332
Top Five Causes of Impairment	1. Metals (other than mercury) 2. Nutrients 3. Turbidity 4. Temperature 5. Salinity/TDS/Sulfates/Chlorides	
Approximate Number of TMDLs Developed Annually		
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)		58
Total Number of TMDLs Approved in 2005/2006/2007		22/7/23
2008 303d/Integrated Report Submission Status (Date)		status unknown
Approximate Number of FTEs Working on TMDL Issues		1

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N (had consent decree for one TMDL)
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	N

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?	Y
Education of decision makers, stakeholders; development of cooperative efforts with land management agencies	

Funding

Approximate Annual Budget for TMDL Program	$100,000
Primary Source(s) of TMDL Program Funding	federal funds

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed/
TMDLs that Represent a Particular Achievement

Links to NV TMDLs:
http://ndep.nv.gov/bwqp/tmdl.htm

Barriers

Top Three Barriers to TMDL Development

1. uncertainty about the appropriateness of WQSs
2. significant dewatering of streams occurs due to irrigation
3. most sources are NPS, which can be expensive to accurately characterize

Top Three Barriers to TMDL Implementation

1. little regulatory authority over NPS
2. lack of interested groups to implement projects
3. limited funding

NEW HAMPSHIRE (REGION 1)

A Snapshot of New Hampshire's TMDL Program (August 2008)

The Basics

Key Agency/Department & website	New Hampshire Department of Environmental Services Water Division www.des.nh.gov/wmb/tmdl
TMDL Program Structure/Placement	Housed in Watershed Management Bureau, alongside WQSs and Section 319 programs

By the Numbers

Number of Impaired Waters		5,211
Number of Causes of Impairment		6,960
Top Five Causes of Impairment	1. Mercury 2. pH 3. Pathogens 4. Organic Enrichment/Oxygen Depletion 5. Metals (other than mercury)	
Approximate Number of TMDLs Developed Annually		has varied greatly (*i.e.*, from 1-5 from 2000 to 2004, 20-160 from 2005-2007, and 5,238 in 2008)
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)		5,504
Total Number of TMDLs Approved in 2005/2006/2007		20/23/160
2008 303d/Integrated Report Submission Status (Date)		8/30/2008
Approximate Number of FTEs Working on TMDL Issues		1.5

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	Y

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?	Y
Example(s)	--Bacteria impairments associated with CSOs covered under enforceable individual NPDES permits or administrative orders --Bacteria caused by illicit connections where the community is actively pursuing elimination of the connection --Dioxin in fish tissue caused by a paper mill discharge covered under the NPDES permit program; the source of the dioxin has since been eliminated

Funding

Approximate Annual Budget for TMDL Program	$200,000
Primary Source(s) of TMDL Program Funding	federal 106 funds; occasional 104(b)(3) funds; one-time highway funds (for chloride TMDLs)

TMDL Implementation

TMDL Implementation Required? WLAs from TMDLs for WWTFs are incorporated into NPDES permits; NPDES General Stormwater permits require compliance with TMDLs; where applicable, TMDLs are used in the Section 319 NPS program to obtain restoration funding

Innovations

Example(s) of Any Innovative Approach(es) Employed

--use of EPA's contractors has helped NH to significantly increase annual TMDL output; EPA contractors are currently working on a statewide bacteria TMDL that should result in over 390 TMDLs

--inclusion of detailed implementation plans in the TMDL report that qualify for 319 funding has helped educate stakeholders and expedite implementation

TMDLs that Represent a Particular Achievement

--Chloride TMDLs (expecting approval in 2008)

--Beach bacteria TMDLs (detailed implementation plans that qualified for 319 funding)

--Northeast Region Mercury TMDL (prepared by the New England States, New York, and NEIWPCC)—this TMDL addressed all fresh surface waters in NH that are listed as impaired due to a statewide fish consumption advisory that was issued because of elevated levels of mercury in fish tissue

Links to NH TMDLs:
http://www.des.nh.gov/wmb/tmdl/nhstatus.htm.

Barriers

Top Three Barriers to TMDL Development

1. lack of funds
2. lack of staff and sometimes expertise (depending on the TMDL)
3. in the past, getting buy-in early from EPA on TMDL methodology and sticking to that commitment occasionally resulted in some delays; this has not been the case lately

Top Three Barriers to TMDL Implementation

1. lack of resources or time to prepare detailed implementation plans as part of TMDLs that are eligible for 319 funding
2. lack of staff to oversee implementation of TMDLs
3. lack of funds to implement pollution control measures to achieve TMDLs, and sometimes lack of local buy-in to TMDL recommendations

NEW JERSEY (REGION 2)

A Snapshot of New Jersey's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

New Jersey Department of Environmental Protection Division of Watershed Management
www.state.nj.us/dep/watershedmgt/tmdl.htm

TMDL Program Structure/Placement

Housed in Bureau of Environmental Analysis & Restoration

By the Numbers

Number of Impaired Waters		965
Number of Causes of Impairment		1,359
Top Five Causes of Impairment	1. Cause Unknown–Impaired Biota 2. Pathogens 3. Metals (other than mercury) 4. Nutrients 5. Mercury	

Approximate Number of TMDLs Developed Annually	50-100
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	442
Total Number of TMDLs Approved in 2005/2006/2007	51/46/76
2008 303d/Integrated Report Submission Status (Date)	9/15/2008
Approximate Number of FTEs Working on TMDL Issues	10 (not incl. monitoring & standards staff)

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	Y

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?	N

Funding

Approximate Annual Budget for TMDL Program	$1 million
Primary Source(s) of TMDL Program Funding	Corporate Business Tax and federal 319(h) funds

TMDL Implementation

TMDL Implementation Required?	Y

Innovations

Example(s) of Any Innovative Approach(es) Employed

--NJ uses an expert panel as suggested by the National Academy Sciences to review and comment on Technical Approaches developed by the state to address impaired waterbodies/watersheds, consultant TMDL proposals, and products such as model calibration and validation

--NJ has begun to utilize the "Additional Measure" component of a municipality's MS4 Stormwater Permit to require the adoption of a phosphorus fertilizer management ordinance

TMDLs that Represent a Particular Achievement

TMDL Report for the Non-Tidal Passaic River Basin Addressing Phosphorus Impairments (comprehensive TMDL based on a 14-year, multi-partnership effort) www.state.nj.us/dep/watershedmgt/tmdl.htm

Barriers

Top Three Barriers to TMDL Development

1. a TMDL is not always the appropriate tool to address 303d listings wherein some parameters exceed the SWQS due to natural conditions (pH and arsenic) or due to legacy pollutants (PCBs and mercury); but EPA only credits states for TMDLs—not other responses; but the same or more staff time goes into delisting, as compared to TMDL development
2. data used for 303d listing is insufficient for development of WLA & LAs for TMDLs
3. TMDL staff require an intensive amount of knowledge to be able to verify data used for the 303d list and its applicability toward model development, selection of an appropriate model (whether it be a simple spreadsheet model or a dynamic, multidimensional model—need to understand the model's strengths and weaknesses) to use with existing data, and running the model and preparing a defensible TMDL calculation/report; for 303d listings that require a WLA that is applied to a NPDES permit, staff must have knowledge on selecting an appropriate and defensible model, how to develop a monitoring plan to collect data needed to run model, and selection of drivers and endpoints for TMDL development; same level of knowledge is needed if work is contracted out to a consultant, in addition to requesting information to be presented on time and in a format that is useable and may be recreated

Top Three Barriers to TMDL Implementation

1. amount of money required to fully understand sources of the particular impairment (hot spots) to the waterbody/watershed, that in turn can be addressed by BMPs or other management measures

2. staff and/or consultants' lack of knowledge to determine if BMP(s) selected are appropriate to mitigate the pollutant, sited correctly, and designed/sized correctly; lack of knowledge is not always due to lack of an overall understanding, but due to level of detail required up front when making funding decisions, because site plan design requires money and permitting
3. BMP effectiveness is still an emerging science

NEW MEXICO (REGION 6)

A Snapshot of New Mexico's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

New Mexico Environment Department
Surface Water Quality Bureau
www.nmenv.state.nm.us/SWQB/TMDL/index.html

TMDL Program Structure/Placement

Housed in Monitoring and Assessment Section

By the Numbers

Number of Impaired Waters		188
Number of Causes of Impairment		340
Top Five Causes of Impairment	1. Temperature 2. Sediment 3. Nutrients 4. Metals (other than mercury) 5. Turbidity	

Approximate Number of TMDLs Developed Annually	15-30
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	196
Total Number of TMDLs Approved in 2005/2006/2007	35/15/33
2008 303d/Integrated Report Submission Status (Date)	9/30/2008
Approximate Number of FTEs Working on TMDL Issues	1 (+ part of 2 other FTEs)

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N (completed)
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	Y

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?	N

Funding

Approximate Annual Budget for TMDL Program	$80,000
Primary Source(s) of TMDL Program Funding	federal 106 & 604 funds

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed

load duration curves

TMDLs that Represent a Particular Achievement

--Rio Hondo TMDL (nitrogen and phosphorus)
http://www.nmenv.state.nm.us/SWQB/Projects/RioHondo/index.html

--Lowe Rio Grande TMDL (bacteria)
http://www.nmenv.state.nm.us/SWQB/LowerRioGrande/

Barriers

Top Three Barriers to TMDL Development

1. limited staff
2. limited funding
3. limited ability for data collection

Top Three Barriers to TMDL Implementation

1. watershed groups collecting data under approved QAPP
2. difficulty in measuring load reductions by watershed groups
3. funding

NEW YORK (REGION 2)

A Snapshot of New York's TMDL Program (October 2008)

The Basics

Key Agency/Department & website(s)

New York State Department of Environmental Conservation
Division of Water
http://www.dec.ny.gov/chemical/23835.html

TMDL Program Structure/Placement

Housed in Bureau of Water Assessment & Management / Water Quality Management Program

By the Numbers

Number of Impaired Waters		610
Number of Causes of Impairment		800
Top Five Causes of Impairment	1. pH 2. Pathogens 3. PCBs 4. Nutrients 5. Mercury	
Approximate Number of TMDLs Developed Annually		
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)		551
Total Number of TMDLs Approved in 2005/2006/2007		1/447/30
2008 303d/Integrated Report Submission Status (Date)		3/28/2008
Approximate Number of FTEs Working on TMDL Issues		

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?

Funding

Approximate Annual Budget for TMDL Program
Primary Source(s) of TMDL Program Funding

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed
TMDLs that Represent a Particular Achievement

Barriers

Top Three Barriers to TMDL Development
Top Three Barriers to TMDL Implementation

NORTH CAROLINA (REGION 4)

A Snapshot of North Carolina's TMDL Program (November 2008)

The Basics

Key Agency/Department & website

North Carolina Department of Environment and Natural Resources
http://h2o.enr.state.nc.us/tmdl/

TMDL Program Structure/Placement

Housed in Division of Water Quality, Planning Section

By the Numbers

Number of Impaired Waters		902
Number of Causes of Impairment		982
Top Five Causes of Impairment	1. Pathogens 2. Cause Unknown–Impaired Biota 3. Mercury 4. Turbidity 5. Organic Enrichment/Oxygen Depletion	

Approximate Number of TMDLs Developed Annually	15
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	125
Total Number of TMDLs Approved in 2005/2006/2007	13/7/24
2008 303d/Integrated Report Submission Status (Date)	4/1/2008
Approximate Number of FTEs Working on TMDL Issues	3.4 (dev't & impl'n)

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?	Y

Funding

Approximate Annual Budget for TMDL Program	FTE salaries
Primary Source(s) of TMDL Program Funding	federal 106 & 319 funds; fees/receipts (permits, etc.)

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed

--working on a TMDL to address impairment of biological integrity, using a variation of the impervious cover method; if EPA approves it, we hope to apply it elsewhere

--developing state regulations for nutrient TMDLs to ensure that the load allocations are achieved

--if others are working to improve water quality without a TMDL, we postpone TMDL development to see how their efforts work out

--developing a system to track TMDLs along with all other restoration and protection activities in the state, regardless of the lead organization

--emphasizing increased collaboration and looking at what we can stop doing to ensure that the program is successful and sustainable

TMDLs that Represent a Particular Achievement

Links to NC TMDLs: http://h2o.enr.state.nc.us/tmdl/TMDL_list.htm#Final_TMDLs

Barriers

Top Three Barriers to TMDL Development

1. most of the impairments in NC are mercury in fish tissue, or biological; there are no well-established methods for TMDL development for these impairments
2. there are only six staff in the unit that develop TMDLs, and they have other duties as well
3. TMDL development is often not on the best (time-wise or cost-wise, *e.g.*) path toward attainment of WQSs; if we really had to develop TMDLs for every impaired waterbody to improve, it would take forever

Top Three Barriers to TMDL Implementation

1. lack of local interest in voluntary implementation of load allocations
2. lack of local resources (expertise, money, etc.) for voluntary implementation of load allocations
3. sometimes, it's just hard to figure out which NPSs are contributing, and which reductions would lead to attainment of standards

NORTH DAKOTA (REGION 8)

A Snapshot of North Dakota's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

North Dakota Department of Health
Division of Water Quality
www.health.state.nd.us/wq/sw/z2_TMDL/

TMDL Program Structure/Placement

Housed in Surface Water Quality Management Program

By the Numbers

Number of Impaired Waters		226
Number of Causes of Impairment		362
Top Five Causes of Impairment	1. Pathogens 2. Sediment 3. Nutrients 4. Organic Enrichment/Oxygen Depletion 5. Cause Unknown–Impaired Biota	

Approximate Number of TMDLs Developed Annually	5
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	37
Total Number of TMDLs Approved in 2005/2006/2007	1/6/10
2008 303d/Integrated Report Submission Status (Date)	5/30/2008
Approximate Number of FTEs Working on TMDL Issues	4

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?

Funding

Approximate Annual Budget for TMDL Program	$225,000
Primary Source(s) of TMDL Program Funding	federal 106 funds

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed

--working cooperatively with Region 8, SD, MN, and Dr. Andrew Simon, USDA National Sediment Labs, in the development of reference sediment targets

Links to ND TMDLs:
http://www.health.state.nd.us/WQ/SW/Z2_TMDL/TMDLs_Completed/B_Completed_TMDLs.htm

Barriers

Top Three Barriers to TMDL Development

1. lack of funding for monitoring, modeling, and TMDL development
2. staff turnover and lack of technical knowledge
3. lack of adequate, technical defensible TMDL targets for sediment and nutrients

Top Three Barriers to TMDL Implementation

1. most TMDLs are related to ag pollutants, so implementation has been successful through the state's NPS Section 319 program

OHIO (REGION 5)

A Snapshot of Ohio's TMDL Program (August 2008)

The Basics

Key Agency/Department & website	Ohio Environmental Protection Agency www.epa.state.oh.us/dsw/tmdl/index.html
TMDL Program Structure/Placement	Housed in Division of Surface Water; integrated

By the Numbers

Number of Impaired Waters		267
Number of Causes of Impairment		1,001
Top Five Causes of Impairment	1. Habitat Alterations 2. Pathogens 3. PCBs 4. Sediment 5. Organic Enrichment/Oxygen Depletion	
Approximate Number of TMDLs Developed Annually		120
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)		790
Total Number of TMDLs Approved in 2005/2006/2007		271/208/238
2008 303d/Integrated Report Submission Status (Date)		EPA has taken final action
Approximate Number of FTEs Working on TMDL Issues		48 (includes most monitoring, modeling staff)

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N (completed)
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	Y

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?	N

Funding

Approximate Annual Budget for TMDL Program	$4.6 million
Primary Source(s) of TMDL Program Funding	state fees (discharge, tipping fees); federal 319 funds

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed

--using load duration curves and habitat index tool to simplify analyses

--working with local watershed planning efforts where possible; expanding program authority (*e.g.*, watershed-specific construction storm water permit); pursuing water quality trading options in 3 watersheds

--using federal and state abandoned mine lands programs to address acid mine drainage issues; working on pilot project with US Forest Service

--working with university professor on US EPA grant on implementation effectiveness (serving as an example state)

--Ohio views TMDLs as an integrating function rather than as a separate program; TMDLs string together programs (monitoring, permitting, grants) using a matrix management structure to create interdisciplinary teams of technical staff for projects

TMDLs that Represent a Particular Achievement

Project	**Features**
Middle Cuyahoga	- 2 dam removals/ modifications - wonderful story of local action after a TMDL; funding put together from various sources: "win/win" - clearly the TMDL was the catalyst; would not have happened w/o TMDL - good source material available (city website, video, printed materials;319 success story on web)
Sugar Creek	- farmer's learning circles and monitoring program - social aspects; "agroecology" - trading program w/ SWCD personnel acting as inspectors - monitoring done for TMDL revealed problem that was addressed immediately via permit, before TMDL completed - involvement of university research/extension facility that has put together extensive grants (NSF, etc.)
Bokes Creek	- channel restoration completed to help stream process excessive nutrients from over-application of manure from egg farm - collaboration among city (water supply), industry, state, contractor
Upper Sandusky	- monitoring done for TMDL revealed problem that was addressed immediately via permit, before TMDL completed - involvement of university for monitoring grants, follow-up projects
Euclid Creek	- "opportunity" project: TMDL project added when watershed coordinator expressed interest in collaboration. TMDL and WAP developed in tandem - urban watershed (rain barrel program, etc.)
Big Darby	- focus on protecting watershed under development pressure

	- TMDL as one component of intense local planning effort - construction storm water permit to address maintaining pre-development conditions (*e.g.*, recharge)

Barriers

Top Three Barriers to TMDL Development

1. lack of resources; loss of staff due to budget cuts
2. weak collaboration, both internally and externally
3. knowledge gaps; technical uncertainty

Top Three Barriers to TMDL Implementation

1. balancing value of clean water resources with water use (*e.g.*, development, industry (energy and mining)), compounded by current economic conditions
2. lack of regulation of NPSs
3. funding in general

OKLAHOMA (REGION 6)

A Snapshot of Oklahoma's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

Oklahoma Department of Environmental Quality
Water Quality Division
www.deq.state.ok.us/wqdnew/tmdl/index.html

TMDL Program Structure/Placement

Housed in Watershed Planning and Stormwater Permitting Section

By the Numbers

Number of Impaired Waters		681
Number of Causes of Impairment		1,640
Top Five Causes of Impairment	1. Pathogens 2. Salinity/TDS/Sulfates/Chlorides 3. Turbidity 4. Organic Enrichment/Oxygen Depletion 5. Metals (other than mercury)	

Approximate Number of TMDLs Developed Annually	50-80
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	118
Total Number of TMDLs Approved in 2005/2006/2007	0/32/56
2008 303d/Integrated Report Submission Status (Date)	6/30/2008
Approximate Number of FTEs Working on TMDL Issues	3.5 (+ contractor support)

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?

Funding

Approximate Annual Budget for TMDL Program	$975,000
Primary Source(s) of TMDL Program Funding	federal 106 funds; NPDES fees

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed

Bacteria load-duration curve toolbox

TMDLs that Represent a Particular Achievement

Fort Cobb Lake
www.deq.state.ok.us/wqdnew/tmdl/fort_cobb/fort_cobb_final_tmdl_report_jun_2006.pdf

Barriers

Top Three Barriers to TMDL Development

1. limited staff
2. limited funding
3. large number to complete

Top Three Barriers to TMDL Implementation

1. no implementation required
2. limited funding
3. limited technical assistance

OREGON (REGION 10)

A Snapshot of Oregon's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

Oregon Department of Environmental Quality
www.deq.state.or.us/wq/TMDLs/tmdls.htm

TMDL Program Structure/Placement

Housed in Water Quality Program / Watershed Management Section

By the Numbers

Number of Impaired Waters		1,397
Number of Causes of Impairment		1,732
Top Five Causes of Impairment	1. Temperature 2. Pathogens 3. Metals (other than mercury) 4. Organic Enrichment/Oxygen Depletion 5. Sediment	

Approximate Number of TMDLs Developed Annually	50-120
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	888
Total Number of TMDLs Approved in 2005/2006/2007	21/207/192
2008 303d/Integrated Report Submission Status (Date)	No 2008 submission
Approximate Number of FTEs Working on TMDL Issues	28

TMDLs

EPA Under Consent Decree to Develop TMDLs?	Y
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?

Funding

Approximate Annual Budget for TMDL Program	$5,440,00
Primary Source(s) of TMDL Program Funding	state general fund; federal 106, 604, & 104(b)(3) funds

TMDL Implementation

TMDL Implementation Required?	Y

Innovations

TMDLs that Represent a Particular Achievement

--Willamette TMDL (represents a huge volume of work that is our current thinking on how to develop TMDLs)
www.deq.state.or.us/wq/TMDLs/willamette.htm

--Sandy TMDL (highlights of this TMDL include its handling of the dams and use of the Little Sandy as a surrogate for the Bull Run River; also, given the removal of the PGE dams, restructuring of how the City of Portland (COP) withdraws water for water supply v. downstream release (to meet CWA and ESA objectives), and active work by a variety of parties (BLM, River Conservancy, METRO…) to buy and restore/protect riparian areas, it will likely be one of the first basins to come in compliance with the temperature standard (or come awfully close—we need to see how close when COP completes its work around 2012); also, this TMDL received some funding from COP, USFS, and BLM to accelerate its development and was completed ahead of time)
www.deq.state.or.us/wq/TMDLs/sandy.htm

--Tualatin TMDL (The Tualatin Phosphate TMDLs (version I and II) have stood up well over the years and (because they were implemented) have resulted in substantial improvement in water quality)
www.deq.state.or.us/wq/TMDLs/willamette.htm

Barriers

Top Three Barriers to TMDL Development

1. limited resources for: monitoring and data acquisition; model development; no economy of scale, because analytical and modeling methods change or regulatory requirements change, which causes no TMDLs to be developed in the same way
2. addressing NPS parameters that either cannot or should not be expressed in terms of a daily load
3. lack of numeric standards for sedimentation and emerging pollutants (pharmaceuticals and personal care products, current use pesticides)

Top Three Barriers to TMDL Implementation

1. lack of staff within the agency for working with NPSs to implement the TMDL, and lack of resources for the designated management agencies that must meet the TMDL load allocations
2. MEP/TMDL connection for addressing urban storm water in MS4 permits
3. lack of good implementation mechanism for NPSs of pollution and effectiveness monitoring to determine BMP and restoration effectiveness

PENNSYLVANIA (REGION 3)

A Snapshot of Pennsylvania's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

Pennsylvania Department of Environmental Protection
www.dep.state.pa.us/watermanagement_apps/tmdl/

TMDL Program Structure/Placement

Housed in Bureau of Watershed Management

By the Numbers

Number of Impaired Waters		6,957
Number of Causes of Impairment		10,813
Top Five Causes of Impairment	1. Sediment 2. Metals (other than mercury) 3. pH 4. Nutrients 5. Organic Enrichment/Oxygen Depletion	

Approximate Number of TMDLs Developed Annually	100
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	4,902
Total Number of TMDLs Approved in 2005/2006/2007	1,347/509/690
2008 303d/Integrated Report Submission Status (Date)	8/1/2008
Approximate Number of FTEs Working on TMDL Issues	unknown

TMDLs

EPA Under Consent Decree to Develop TMDLs?	Y
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?

Funding

Approximate Annual Budget for TMDL Program	unknown
Primary Source(s) of TMDL Program Funding	unknown

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed/
TMDLs that Represent a Particular Achievement

Links to PA TMDLs:
http://www.dep.state.pa.us/watermanagement_apps/tmdl/

Barriers

Top Three Barriers to TMDL Development

1. lack of clear cut-nutrient endpoints
2. lack of stormwater/urban modeling expertise
3. experience teaching us that anything NPDES-related will end in litigation

Top Three Barriers to TMDL Implementation

1. little regulation, authority, or enforcement of existing authority on ag
2. abandoned mines with no responsible party for cleanup
3. infrastructure—cost of remediation effects of MS4s, CSOs, WWTPS, etc.

RHODE ISLAND (REGION 1)

A Snapshot of Rhode Island's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

Rhode Island Department of Environmental Management
Bureau of Environmental Protection
www.dem.ri.gov/programs/benviron/water/quality/rest/index.htm

TMDL Program Structure/Placement

Housed in Office of Water Resources (Surface Water Protection)

By the Numbers

Number of Impaired Waters		166
Number of Causes of Impairment		348
Top Five Causes of Impairment	1. Metals (other than mercury) 2. Pathogens 3. Nutrients 4. Cause Unknown–Impaired Biota 5. Organic Enrichment/Oxygen Depletion	
Approximate Number of TMDLs Developed Annually		18
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)		88
Total Number of TMDLs Approved in 2005/2006/2007		2/28/30
2008 303d/Integrated Report Submission Status (Date)		4/1/2008
Approximate Number of FTEs Working on TMDL Issues		7

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?

Funding

Approximate Annual Budget for TMDL Program	$800,000
Primary Source(s) of TMDL Program Funding	federal funds (3/4) & state funds (1/4)

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed

because so many of RI's water quality impairments are caused by urban stormwater sources, the TMDL Program works very closely with the RI Pollution Discharge Elimination Program

Phase II Stormwater and NPS Programs to respectively establish TMDL related permitting requirements, and financial and technical assistance to MS4s to implement the requirements; with respect to the Phase II Program, the implementation sections of our TMDLs include detailed descriptions of stormwater BMPs needed (relating to both Phase II minimum measures and construction of BMPs) to ensure consistency with TMDL requirements and Phase II permit requirements; we also have prepared a model scope of work that municipalities can utilize to hire consultants to conduct catchment area feasibility analyses and BMP selection and design

Links to RI TMDLs:
http://www.dem.ri.gov/programs/benviron/water/quality/rest/reports.htm

Barriers

Top Three Barriers to TMDL Development

1. limited water quality database to characterize current conditions, establish TMDL targets, and identify pollution sources
2. lack of effective (from both technical and cost perspectives) analytical tools to determine nutrient thresholds in estuarine waters

Top Three Barriers to TMDL Implementation

1. lack of state personnel to provide technical assistance to municipalities
2. lack of municipal “buy-in” to the TMDL process and findings
3. lack of municipal capacity (financial and staff resources) to implement

SOUTH CAROLINA (REGION 4)

A Snapshot of South Carolina's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

South Carolina Department of Health and Environmental Control, Bureau of Water
http://www.scdhec.gov/ENVIRONMENT/WATER/tmdl/index.htm

TMDL Program Structure/Placement

Housed in Water Quality Division

By the Numbers

Number of Impaired Waters		915
Number of Causes of Impairment		1,110
Top Five Causes of Impairment	1. Pathogens 2. Mercury 3. Cause Unknown-Impaired Biota 4. Metals (other than mercury) 5. Organic Enrichment/Oxygen Depletion	

Approximate Number of TMDLs Developed Annually	20
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	427
Total Number of TMDLs Approved in 2005/2006/2007	140/26/6
2008 303d/Integrated Report Submission Status (Date)	4/1/2008
Approximate Number of FTEs Working on TMDL Issues	20

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?

Funding

Approximate Annual Budget for TMDL Program	$1.5 million
Primary Source(s) of TMDL Program Funding	state funding; federal 319 funds

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed

--program coordination for TMDL development and implementation with MS4 program areas

--NPS aspect of TMDL implementation

TMDLs that Represent a Particular Achievement

Rocky River Fecal Coliform TMDL—successful implementation project as well http://www.scdhec.gov/ENVIRONMENT/WATER/TMDL/docs/tmdl_rockywilson_fc.pdf

Links to SC TMDLs: www.scdhec.gov/environment/water/tmdl/tmdlsc.htm

Barriers

Top Three Barriers to TMDL Development

1. no approved methods or approaches for certain constituents
2. no national consistency among EPA Regions about what is accepted
3. standards being changed, and expectation for zero-risk TMDLs

Top Three Barriers to TMDL Implementation

1. funding and resources
2. knowledge and acceptance
3. compliance, especially with MS4

SOUTH DAKOTA (REGION 8)

A Snapshot of South Dakota's TMDL Program (August 2008)

The Basics

Key Agency/Department & website(s)	South Dakota Department of Environment and Natural Resources / Division of Financial and Technical Assistance http://www.state.sd.us/denr/DFTA/WatershedProtection/wpprg.htm
TMDL Program Structure/Placement	Housed in Water Resources Assistance Program

By the Numbers

Number of Impaired Waters		187
Number of Causes of Impairment		252
Top Five Causes of Impairment	1. Trophic State Index-TSI (nutrients) 2. Fecal Coliform Bacteria 3. Total Suspended Solids (TSS) 4. pH 5. Temperature	
Approximate Number of TMDLs Developed Annually		25
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)		152 (includes PS and NPS TMDLs)
Total Number of TMDLs Approved in 2005/2006/2007		8/7/7
2008 303d/Integrated Report Submission Status (Date)		Submitted 3/31/08 Approved 4/30/08
Approximate Number of FTEs Working on TMDL Issues		9

TMDLs

EPA Under Consent Decree to Develop TMDLs?	No
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	Yes

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?	No

Funding

Approximate Annual Budget for TMDL Program	$1,000,000
Primary Source(s) of TMDL Program Funding	federal 319, 106, & 604(b) funds

TMDL Implementation

TMDL Implementation Required?	No

Innovations

Example(s) of Any Innovative Approach(es) Employed/
TMDLs that Represent a Particular Achievement

Links to SD TMDLs:
http://www.state.sd.us/denr/DFTA/WatershedProtection/tmdlpage.htm

Barriers

Top Three Barriers to TMDL Development

1. changing EPA requirements for approval
2. funding
3. lack of data

Top Three Barriers to TMDL Implementation

1. landowner cooperation/participation
2. funding
3. measuring WQ improvements

TENNESSEE (REGION 4)

A Snapshot of Tennessee's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

Tennessee Department of Environment and Conservation
http://state.tn.us/environment/wpc/tmdl/

TMDL Program Structure/Placement

Housed in Division of Water Pollution Control

By the Numbers

Number of Impaired Waters		957
Number of Causes of Impairment		1,826
Top Five Causes of Impairment	1. Habitat Alteration 2. Sediment 3. Pathogens 4. Nutrients 5. Organic Enrichment/Oxygen Depletion	

Approximate Number of TMDLs Developed Annually	100-125
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	897
Total Number of TMDLs Approved in 2005/2006/2007	97/384/100
2008 303d/Integrated Report Submission Status (Date)	5/1/2008
Approximate Number of FTEs Working on TMDL Issues	10

TMDLs

Under Consent Decree to Develop TMDLs?	Y
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?

Funding

Approximate Annual Budget for TMDL Program	unknown
Primary Source(s) of TMDL Program Funding	federal 106 funds; state funds

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed/
TMDLs that Represent a Particular Achievement

Links to TN TMDLs:
http://state.tn.us/environment/wpc/tmdl/

Barriers

Top Three Barriers to TMDL Development

None identified

Top Three Barriers to TMDL Implementation

1. Resources-$$
2. Resources-$$
3. Resources-$$

TEXAS (REGION 6)

A Snapshot of Texas' TMDL Program (August 2008)

The Basics

Key Agency/Department & website

Texas Commission on Environmental Quality
www.tceq.state.tx.us/implementation/water/tmdl/

TMDL Program Structure/Placement

N/A (water programs very spread out in TX)

By the Numbers

Number of Impaired Waters		307
Number of Causes of Impairment		416
Top Five Causes of Impairment	1. Pathogens 2. Organic Enrichment/Oxygen Depletion 3. Salinity/TDS/Sulfates/Chlorides 4. PCBs 5. Mercury	

Approximate Number of TMDLs Developed Annually	40
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	99
Total Number of TMDLs Approved in 2005/2006/2007	0/5/35
2008 303d/Integrated Report Submission Status (Date)	4/1/2008
Approximate Number of FTEs Working on TMDL Issues	14

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?

Funding

Approximate Annual Budget for TMDL Program	$4 million
Primary Source(s) of TMDL Program Funding	50% state funds; 50% federal funds

TMDL Implementation

TMDL Implementation Required?	Y

Innovations

Example(s) of Any Innovative Approach(es) Employed

--subcategories: 5a, TMDLs; 5b, do UAA; 5c, get more spatial data before deciding on TMDL; three separate water programs work on a,b,c; division of labor more efficient

--produce biennial status report ("Implementing TMDLs in Texas")

http://www.tceq.state.tx.us/assets/public/implementation/water/tmdl/2006tmdlstatusreport.pdf

--TMDL a separate document from implementation plan (which doesn't go to EPA for approval)

Barriers

Top Three Barriers to TMDL Development

1. opposition from unregulated NPS entities
2. not having secondary contact recreation standards for waters that are perennial, but shallow
3. perception that government is trying to regulate NPSs and fix water quality problems that public doesn't agree need fixing

Top Three Barriers to TMDL Implementation

1. lack of sustainable entities to carry through with implementation efforts
2. dichotomy by regulated and unregulated entities that PSs are regulated and a "must do," while NPSs are voluntary
3. bacteria #1 problem: no way to implement against wildlife or non-anthropogenic sources, at least in this state

UTAH (REGION 8)

A Snapshot of Utah's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

Utah Department of Environmental Quality
www.waterquality.utah.gov/TMDL

TMDL Program Structure

Housed in Division of Water Quality / Permit, Compliance, and TMDL Branch

By the Numbers

Number of Impaired Waters		117
Number of Causes of Impairment		227
Top Five Causes of Impairment	1. Metals (other than mercury) 2. Salinity/TDS/Sulfates/Chlorides 3. Organic Enrichment/Oxygen Depletion 4. Nutrients 5. Ammonia	

Approximate Number of TMDLs Developed Annually	14
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	297
Total Number of TMDLs Approved in 2005/2006/2007	68/11/41
2008 303d/Integrated Report Submission Status (Date)	6/2/2008
Approximate Number of FTEs Working on TMDL Issues	9

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	Y

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?	N

Funding

Approximate Annual Budget for TMDL Program	$875,000
Primary Source(s) of TMDL Program Funding	federal 106 & 319 funds; state funds

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed

considering piggybacking onto a statewide implementation database being developed by Utah Division of Wildlife Resources

TMDLs that Represent a Particular Achievement

--Deer Creek Reservoir

--Spring Creek

--Fremont River

Links to UT TMDLs:
www.waterquality.utah.gov/TMDL

Barriers

Top Three Barriers to TMDL Development

1. defensible beneficial use designations
2. credible WQSs and assessment methods
3. sufficient WQ data

Top Three Barriers to TMDL Implementation

1. stakeholder involvement
2. administrative burden of 319 program
3. PS (NPDES) challenges to TMDL findings

VERMONT (REGION 1)

A Snapshot of Vermont's TMDL Program (October 2008)

The Basics

Key Agency/Department & website(s)

Vermont Department of Environmental Conservation
http://www.anr.state.vt.us/dec/waterq/planning/htm/pl_tmdl.htm

TMDL Program Structure/Placement

Housed in Water Quality Division / Planning Section

By the Numbers

Number of Impaired Waters		143
Number of Causes of Impairment		185
Top Five Causes of Impairment	1. Pathogens	
	2. Mercury	
	3. Metals (other than mercury)	
	4. Sediment	
	5. Other Cause	

Approximate Number of TMDLs Developed Annually	
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	72
Total Number of TMDLs Approved in 2005/2006/2007	0/0/5
2008 303d/Integrated Report Submission Status (Date)	5/16/2008
Approximate Number of FTEs Working on TMDL Issues	

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?

Funding

Approximate Annual Budget for TMDL Program
Primary Source(s) of TMDL Program Funding

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed
TMDLs that Represent a Particular Achievement

Barriers

Top Three Barriers to TMDL Development
Top Three Barriers to TMDL Implementation

VIRGINIA (REGION 3)

A Snapshot of Virginia's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

Department of Environmental Quality
www.deq.virginia.gov/tmdl/

TMDL Program Structure/Placement

Housed in Water Quality Division

By the Numbers

Number of Impaired Waters		2,172
Number of Causes of Impairment		4,288
Top Five Causes of Impairment	1. Pathogens 2. Organic Enrichment/Oxygen Depletion 3. PCBs 4. Noxious Aquatic Plants 5. Cause Unknown–Impaired Biota	

Approximate Number of TMDLs Developed Annually	80+
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	823
Total Number of TMDLs Approved in 2005/2006/2007	17/213/64
2008 303d/Integrated Report Submission Status (Date)	8/1/2008
Approximate Number of FTEs Working on TMDL Issues	12

TMDLs

EPA Under Consent Decree to Develop TMDLs?	Y
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?

Funding

Approximate Annual Budget for TMDL Program	$3 million
Primary Source(s) of TMDL Program Funding	federal 106,604(b), & 319 funds. supplemented by state funds

TMDL Implementation

TMDL Implementation Required?	Y

Innovations

Example(s) of Any Innovative Approach(es) Employed

--load duration for simple TMDLs

--have state statute requiring TMDL implementation

--publish biennial TMDL progress reports

TMDLs that Represent a Particular Achievement

--TMDLs addressing TDS as a pollutant

--Also, we have integrated No Discharge Zones designations as an implementation tool in some tidal TMDLs

Links to VA TMDLs:
www.deq.virginia.gov/tmdl/

Barriers

Top Three Barriers to TMDL Development

1. inadequate data: WQ, stream flow, and land use
2. inappropriate WQ criteria
3. fiscal resources

Top Three Barriers to TMDL Implementation

1. total voluntary approach to load allocation—need a regulatory tool
2. inadequate funds for cost share
3. fragmentation of WQ programs among state agencies

DISTRICT OF COLUMBIA (REGION 3)

A Snapshot of the District of Columbia's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

District Department of the Environment
http://ddoe.dc.gov/ddoe/cwp/view,a,1209,q,494812,ddoeNav_GID,1486,ddoeNav,|31375|31377|.asp
http://ddoe.dc.gov/ddoe/cwp/view,a,1209,q,495456.asp

TMDL Program Structure/Placement

Housed in Water Quality Division

By the Numbers

Number of Impaired Waters		25
Number of Causes of Impairment		88
Top Five Causes of Impairment	1. Cause Unknown-Impaired Biota	
	2. Pathogens	
	3. Sediment	
	4. Other Cause	
	5. Habitat Alteration	

Approximate Number of TMDLs Developed Annually	varies
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	354
Total Number of TMDLs Approved in 2005/2006/2007	60/0/2
2008 303d/Integrated Report Submission Status (Date)	5/15/2008
Approximate Number of FTEs Working on TMDL Issues	varies (2-3)

TMDLs

EPA Under Consent Decree to Develop TMDLs?	Y
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	Y

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?

Funding

Approximate Annual Budget for TMDL Program	varies
Primary Source(s) of TMDL Program Funding	varies

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed/
TMDLs that Represent a Particular Achievement

Tidal Potomac and Anacostia PCB TMDL
http://ddoe.dc.gov/ddoe/cwp/view,a,1209,q,497444.asp

Barriers

Top Three Barriers to TMDL Development

1. funding and resources

Top Three Barriers to TMDL Implementation

1. funding and resources

WASHINGTON (REGION 10)

A Snapshot of Washington's TMDL Program (November 2008)

The Basics

Key Agency/Department & website

Washington Department of Ecology
www.ecy.wa.gov/programs/wq/tmdl/index.html

TMDL Program Structure/Placement

Housed in Water Quality Program / Watershed Planning Unit

By the Numbers

Number of Impaired Waters		1,714
Number of Causes of Impairment		2,306
Top Five Causes of Impairment	1. Temperature 2. Pathogens 3. Organic Enrichment/Oxygen Depletion 4. Pesticides 5. pH	

Approximate Number of TMDLs Developed Annually	50
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	830
Total Number of TMDLs Approved in 2005/2006/2007	196/73/250
2008 303d/Integrated Report Submission Status (Date)	8/1/2008
Approximate Number of FTEs Working on TMDL Issues	50

TMDLs

EPA Under Consent Decree to Develop TMDLs?	Y
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?	Y

Funding

Approximate Annual Budget for TMDL Program	$5 million.
Primary Source(s) of TMDL Program Funding	EPA grants; state general funds

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed

we try to streamline TMDL development as much as possible by using existing data instead of starting data collection all over again; because for our NPS TMDLs, we come up with the same solutions over and over again, we are trying to sell the idea of developing minimum standards for various land uses, the idea being that if you implement the minimum suite of BMPs, we

will consider you in compliance with state WQSs unless we find out otherwise; also, for watersheds in which the source of pollution problems is clear, we are moving straight to implementation without doing a TMDL; we are using this approach in eastern Washington with ag producers and are having real success; as a result of this work, we are placing 49 impaired segments into category 4b this year

TMDLs that Represent a Particular Achievement

a TMDL complicated by the combination of PS and NPS pollution, permits issued for Idaho affecting Washington waters (still in progress); did result in a phosphorus ban for the state http://www.ecy.wa.gov/programs/wq/tmdl/spokaneriver/dissolved_oxygen/index.html

Barriers

Top Three Barriers to TMDL Development

1. lack of staff
2. lack of money
3. a sneaking feeling that often a TMDL is not the best pathway to clean water

Top Three Barriers to TMDL Implementation

1. lack of staff
2. lack of money
3. lack of political will, especially if it would require enforcing against NPS polluters

WEST VIRGINIA (REGION 3)

A Snapshot of West Virginia's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

West Virginia Department of Environmental Protection
Division of Water and Waste Management
http://www.wvdep.org/item.cfm?ssid=11&ss1id=930

TMDL Program Structure/Placement

Housed in Watershed Assessment Branch

+/Stream monitoring, listing/reporting, and TMDL staff are all part of one unit that works cohesively together on different programs and projects, with good communication and source of group identity (reorganization to this arrangement was 8-10 years ago)

-/Implementation is housed in other branches (Permitting and NPS); Watershed staff is often unaware of what is being done to implement our work output

By the Numbers

Number of Impaired Waters		1,119
Number of Causes of Impairment		1,592
Top Five Causes of Impairment	1. Benthic Macroinvertebrates 2. Iron 3. Fecal Coliform 4. pH 5. Aluminum	

Approximate Number of TMDLs Developed Annually	150-200
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	2,089
Total Number of TMDLs Approved in 2005/2006/2007	294/402/0
2008 303d/Integrated Report Submission Status (Date)	5/15/2008
Approximate Number of FTEs Working on TMDL Issues	12

TMDLs

EPA Under Consent Decree to Develop TMDLs?	Y
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	Y

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?	N

Funding

Approximate Annual Budget for TMDL Program	$2 million
Primary Source(s) of TMDL Program Funding	state general revenue; EPA

TMDL Implementation

TMDL Implementation Required? N

Innovations

Example(s) of Any Innovative Approach(es) Employed

--use "Total iron" concentration as a surrogate procedure for biological impairment by sedimentation

--watershed-grouped TMDLs

--intensified source tracking

--area-based allowances for construction stormwater sites under a general permit

TMDLs that Represent a Particular Achievement

List of WV TMDLs:
wvdep.org/wvtmdl

Barriers

Top Three Barriers to TMDL Development

1. lack of water quality criteria for ionic stress (to biological community)
2. potentially over-conservative water quality criteria for some pollutants (Al, Fe, Cd, and fecal Coliform)

Top Three Barriers to TMDL Implementation

1. lack of regulatory control for NPS pollution
2. uncertainty regarding effectiveness of stormwater point sources' BMPs
3. insufficient funding for AML restoration and sewage treatment (AML funding may improve in the near future)

WISCONSIN (REGION 5)

A Snapshot of Wisconsin's TMDL Program (July 2008)

The Basics

Key Agency/Department & website

Wisconsin Department of Natural Resources
Division of Water
http://dnr.wi.gov/org/water/wm/wqs/303d/

TMDL Program Structure/Placement

Housed in Water Evaluation Section; Integrated via Impaired Waters Team

By the Numbers

Number of Impaired Waters		593
Number of Causes of Impairment		1,163
Top Five Causes of Impairment	1. Mercury 2. Sediment 3. Nutrients 4. Habitat Alteration 5. Organic Enrichment/Oxygen Depletion	

Approximate Number of TMDLs Developed Annually	15
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	86
Total Number of TMDLs Approved in 2005/2006/2007	56/15/33
2008 303d/Integrated Report Submission Status (Date)	6/15/2008
Approximate Number of FTEs Working on TMDL Issues	5.75 (partial time)

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?	Y

Funding

Approximate Annual Budget for TMDL Program	$830,000+
Primary Source(s) of TMDL Program Funding	federal 319 & 106 funds

TMDL Implementation

TMDL Implementation Required?	Y

Innovations

Example(s) of Any Innovative Approach(es) Employed

--we use the Environmental Accountability Projects in WI as an alternative to TMDLs for impaired waters that already have implementation strategies taking place that will result in that waterbody meeting WQSs

--WI has a great internal WQ assessment database (WATERS) that we are modifying daily to track impaired waters, TMDLs, and other special projects from start to finish—including tracking implementation

--WI has efforts to increase regulatory authority for runoff management/NPS to enforce performance standards and manure prohibitions in TMDL/Impaired Waters areas

TMDLs that Represent a Particular Achievement

Lower Fox River TMDL (currently in development)
http://dnr.wi.gov/org/water/wm/wqs/303d/FoxRiverTMDL/

Barriers

Top Three Barriers to TMDL Development

1. lack of monitoring funding and subsequent data for TMDL development
2. no current internal modeling/technical support (modeler position has been vacant for over a year)
3. lack of staff to develop policy and guidance, and to prepare/write reports

Top Three Barriers to TMDL Implementation

1. limited resources for staff (implementation planning & guidance development)
2. no regional (DNR) or local (county/municipality) staff positions at this time to implement TMDLs
3. limited cost-sharing dollars available to assist landowners to enforce NPS (runoff management) performance standards (*i.e.*, regulatory authority is in our state code, just need $ to implement)

WYOMING (REGION 8)

A Snapshot of Wyoming's TMDL Program (August 2008)

The Basics

Key Agency/Department & website

Wyoming Department of Environmental Quality
http://deq.state.wy.us/wqd/watershed/Downloads/TMDL/tmdlinfo.htm

TMDL Program Structure/Placement

Housed in Water Quality Division / Watershed Program, Watershed Planning (NPS Planning and Grants)

By the Numbers

Number of Impaired Waters		122
Number of Causes of Impairment		190
Top Five Causes of Impairment	1. Pathogens 2. Metals (other than mercury) 3. Chlorine 4. Ammonia 5. Salinity/TDS/Sulfates/Chlorides	

Approximate Number of TMDLs Developed Annually	0-10
Total Number of TMDLs Approved (1995 to present, incl. any est'd by EPA)	342
Total Number of TMDLs Approved in 2005/2006/2007	39/16/38
2008 303d/Integrated Report Submission Status (Date)	6/2/2008
Approximate Number of FTEs Working on TMDL Issues	3

TMDLs

EPA Under Consent Decree to Develop TMDLs?	N
Broad-Scale? (*e.g.*, watershed, multi-jurisdictional, etc.)	

Non-TMDL Options

Use of Non-TMDL Options to Address Impaired Waters?

Funding

Approximate Annual Budget for TMDL Program	$650,000
Primary Source(s) of TMDL Program Funding	WY/EPA PPA; federal 319 funds; non-federal 319 match

TMDL Implementation

TMDL Implementation Required?	N

Innovations

Example(s) of Any Innovative Approach(es) Employed

Early in our program, citizen input asked for local control in addressing impaired waters; local watershed planning was

identified as the method for letting local stakeholders address the impairments in their watersheds prior to the need for a TMDL to ever be written; concerns were that the TMDL would not only polarize citizen and landowner groups in the watershed, but also be the foundation for possible regulatory action on NPS pollutant load sources; the state placed TMDL development on waters under active watershed planning as "low" to enable the efforts of these local groups to be implemented; this planning process still needed to work under EPA's TMDL development timeliness guidance of development within an 8-13 year time period

Ten years into this effort, WY has added a number of additional waters onto the Section 303(d) list, while only a few waters have been removed from the list due to WQ restoration; there is presently a significant TMDL backlog that the state now needs to address

Possible reasons for local stakeholder watershed planning to have not restored waters within a 10-year period: 1) NPS pollutant loading sources are much more widespread and complex than originally thought; 2) local watershed planning efforts may have focused on the "palatable" NPS fixes and avoided the more sensitive, but potentially water-quality restoration limiting, NPS problems; or 3) passive thinking by local stakeholders that once the watershed plan was approved, the TMDL issued disappeared

Barriers

Top Three Barriers to TMDL Development

1. citizen buy-in to the TMDL process
2. staffing levels
3. financial commitment

Top Three Barriers to TMDL Implementation

1. absence of TMDLs developed
2. reluctance of stakeholders to participate in identification of load sources
3. reluctance of stakeholders to accept models or anything less than complete, definitive monitoring data to determine sources and load reductions