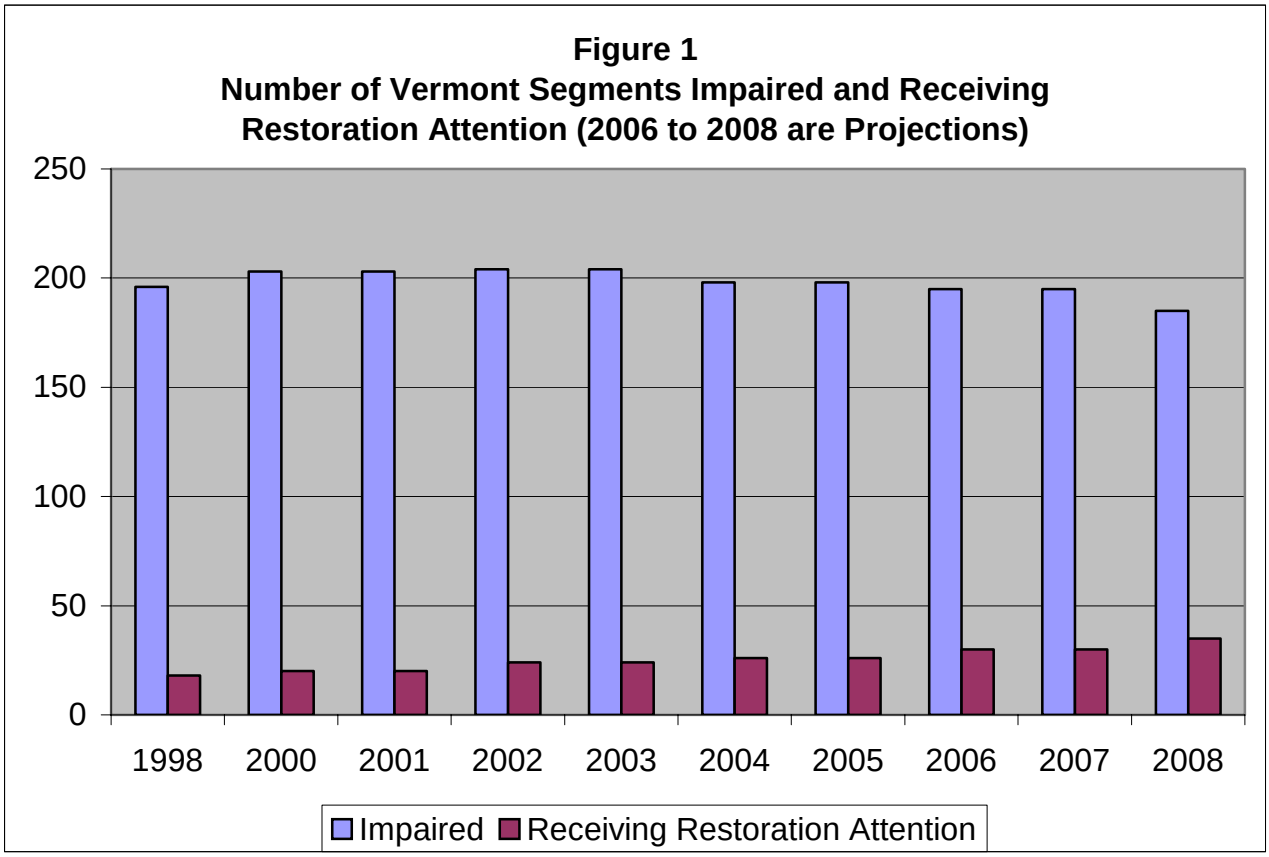
Results

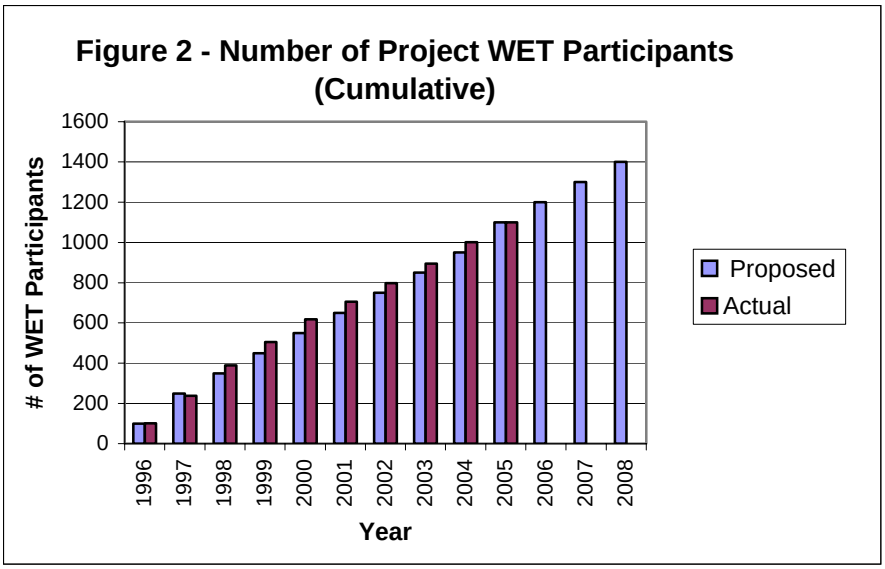
Assess surface water quality conditions throughout Vermont. Restore and protect designated and existing uses and other resource values to meet or exceed the criteria of the Vermont Water Quality Standards.

Key Indicators

Figure 1 illustrates and projects the number of impaired water segments that do not meet one or more criteria of the Vermont Water Quality Standards. Impaired waters are either identified on the Clean Water Act Section 303d list as needing a Total Maximum Daily Load (TMDL) determination or on the State of Vermont list as those impaired waters not needing a TMDL. The graph also shows the number of impaired water segments that the Vermont DEC is attending to directly or through its partners with various restoration activities. In 2005 35 impaired waters received restoration attention.



Equally important to the restoration of impaired waters is the protection of waters that are currently unimpaired, so that they do not become impaired in the future. The education of today's youth is important to protecting our water resources in the future. Figure 2 illustrates the number of Vermont educators that have attended a training course and received classroom materials through Project WET–Water Education for Teachers, the Division's primary mode of educating youth.



Story Behind the Baseline Performance

The number of waterbodies in Vermont with degraded water quality conditions has fallen sharply since the 1960's when the push began to construct municipal wastewater treatment facilities. In the last decade, water pollution control efforts maintain and enhance these facilities. The new focus has shifted to controlling pollutants such as phosphorus and sediment that arise from urban runoff and other sources of diffuse, land-based pollution. The Water Quality Division is addressing an increasing number of nonpoint source impaired waters through **planning,** including preparation of Total Maximum Daily Load determinations, water quality restoration plans, watershed planning, fluvial geomorphic assessments and by **direct restoration** (Figure 1)**,** including river and lake restoration projects by the Division and its partners, Clean Water Act nonpoint source Section 319 projects, and technical assistance to landowners by watershed coordinators, river management engineers, and lake biologists. It is anticipated that the Division will be giving an increasing number of waters attention and that the number of impaired waters will decline slowly. The decline in the impaired waters illustrated in the bar chart is gradual in part because it reflects the slow response of waters to nonpoint source remedial actions as well as due to the occasional discovery of previously unrecognized impaired waters.

Project WET training workshops are offered several times a year around the state. Partnering with the University of Vermont, environmental non-profit groups and the Natural Resources Conservation Districts has worked well to help train teachers and students in using Project WET resources to learn about Vermont's surface water issues. Typically 80-100 new educators are trained in Project Wet each year.

Strategies / Performance Measures / Proposed Accomplishments

A. Grants / Loans / Contracts

1. Manage all grants for maximum long-term effect in improving water quality by increasing water segments receiving attention with resulting waters meeting water quality standards and no longer listed as impaired segments (Figure1).
2. Seek adequate funds to adequately carry out the elements of the Lake Champlain Phosphorus TMDL.

3. Synchronize grants and contracts to support high priority water pollution control activities including stormwater management, watershed project implementation and strategy development, the Lake Champlain TMDL and other priorities.
4. Enter in to the EPA "GRTS" system data for applicable 319 pass-though projects. Semi-annual progress reports will be prepared for all pass through projects unless or until all projects are entered into GRTS.

Performance Measure "A"=Actual Values "P"= Projected Values		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Number of CWA 319 Nonpoint Source Management Projects (conducted outside DEC)*	P						20	20	20	20	20
	A	28	21	15	1	19+	21+	16			
Amount of CWA 319 Nonpoint Source Management Project Funding for non-DEC projects*	P						$715K@	$715K@	$715K@	@715	$715K@
	A	$1M	$686K	$374K	$312K	$716K	$724K	$515K@			
Amount of funding (Clean and Clear) associated with Lake Champlain Phosphorus TMDL for implementation/ monitoring/planning***	P					$13.2M	$11.9M	$10.9M	$10.9M	$10.M	$10.9
	A	na	na	na	na			$7.5M	$8.4M		
Amount of CWA 604b Water Quality Planning Project Funding	P						$40K	$40K	$40K	$40K	$40K
	A	$40K	$40K	$40K	$40K	$40K	$40K	$40K			
Amount of CWA 104b3 Water Quality Planning Project Funding*	P						$73K	$76K			
	A	$53K	$66K	$62K	$92K	$18K	$29.5K	$81.3K			
Number of Vermont Conservation License Plate Projects**	P						22	23	25	25	25
	A	19	19	21	17	29	25	22			
Amount of Vermont Conservation License Plate Project Funding**	P						$56K	$58K	$62K	$63K	$64
	A	$40K	$54K	$50K	$50K	$69K	$70K	$70K			
Total (not including NRCS, etc.)	**P**					**$13.2M**	**$12.5M**	**$11.8M**	**$11.6M**	**$11.7M**	**$11.8M**
	A	**$1,133K**	**$846K**	**$526K**	**$494K**	**$825K +**	**$863.5K**	**$706.3M**			

* PPA funded
** Conservation License Plate Watershed Grant Fund (in Department of F&W Budget)
*** State funds. Other agency's contributions are outside the scope of this report.
@ Indicates the amounts shown for 2004, 2005 and 2006 may be proportionately lower in the event of 319 program reductions
na Not applicable

B. Education and Technical Assistance

The cornerstone of all elements of the Division's Watershed Planning and Projects Program rests on the voluntary adoption of pollution prevention and control measures. This is achieved through education and technical assistance, which manifests itself in many forms and is, therefore, difficult to quantify. Overall Division efforts include a comprehensive web page at www.vtwaterquality.org, the biennial Water Quality Assessment Report (305b) and List of Waters (303d), a Division newsletter, *Out of the Blue*, published twice a year and, most recently the "Vermont Volunteer Surface Water Monitoring Guide." Watershed protection and basin planning efforts include newspaper articles, newsletters, television and radio appearances, meetings with local government and nonprofit groups, public speaking engagements, visits with landowners, inserts in newspapers, brochures, and constant repetition of the principles of land stewardship as it relates to the control of nonpoint sources. Similarly, watershed coordinators, engineers, biologists and others within the Division are in contact with landowners daily discussing better ways of managing the land, animal wastes or industrial materials to protect the surface waters or ground water. Since this is such an organic, daily, diverse

element of our program, it is only possible to describe most of the outcomes in a general, narrative form. Education of youth focuses on training educators in the use of Project WET materials, holding an annual *Make-A-Splash* water festival for 200-300 school children, and collaborating with other environmental education organizations in Vermont to coordinate and enhance each organization's programs.

Performance Measures: Maintenance of the Division's web site; twice yearly publication of *Out of the Blue*; annual *Make-A-Splash* water festival reaching on average 250 students; preparation of the biennial Water Quality Assessment Report and List of Waters.

Performance Measure "P"=Projected and A"=Actual Values		2001	2002	2003	2004	2005	2006	2007	2008
Number of hits on WQ Division main web page*	P			19,900	19,050	20,950	11,000	12,000	13,000
	A	nt	nt	6,900	10,120	10,705			
Number of hits on the WQ Division total pages	P					198,000	250,000	270,000	290,000
	A				165,000	231,766			

* PPA funded nt = not tracked

C. Monitoring, Assessment, and Direct Services

1. Increase the efficiency with which the Division delivers direct technical services to land owners and municipalities to restore water quality.
2. Develop a statewide strategic program to carry out proactive, preventive stabilization of river corridors.
3. Systematically complete Total Maximum Daily Load (TMDL) calculations for waters where there is the greatest need and where the greatest result from implementation can be anticipated.
4. Maintain commitment – and seek commitments from others – to implement all approved TMDLs, including Lake Champlain, during the PPA period.

Performance Measure "P"=Projected and A"=Actual Values		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Number of river basins assessed under rotational assessment program*	P	4	3	2	3	3	3	3	3	**3**	**3**
	A	2	1	2	2	**2**	**1**	1			
Number of waters in need of further assessment (see Part C list) being monitored	P						50	50	50	**50**	**50**
	A	nt	nt	nt	50	51	13	23			
Number of segments no longer considered impaired (i.e. removal of segment from either of Parts A or B)	P		0	na	9	na	5	na	5		
	A	na	0	na	9	na	**10**	na			
Number of basins with updated basin plans*	P	1	1	1	2	2	1	2	2	**2**	**2**
	A	0	0	0	1	0	**1**	1			
Number of TMDLs completed by DEC*/approved by EPA	P	2/2	6/6	13/ 10-13	13/ 10-13	14/ 10-14	7/7	5-9 / 5-9	12	**7**	**3**
	A	0/0	2/0	2/2	9/2	30/39	**7/7**	0/0			

* PPA funded nt = not tracked na = not applicable

Lake Champlain Phosphorus Reduction

Point and nonpoint source phosphorus reduction activities listed in the Lake Champlain Phosphorus TMDL implementation plan will be actively pursued, contingent on the availability of state and federal funding and the provision of other necessary authority to the Department to carry out these implementation activities. Vermont Governor Douglas announced his "Clean and Clear Action Plan" on September 30, 2003. A major focus of this plan is implementation of the Lake Champlain Phosphorus TMDL.

A total of $8.4 million in state funds was appropriated by the Vermont General Assembly at the request of the Governor for state fiscal year 2006 for the Clean and Clear Action Plan. This follows the $7.5 million state appropriation in 2005. These funds are being used to support the following activities by the Agency of Natural Resources, the Agency of Agriculture Food and Markets, and many partners:

- Operate a Best Management Practice Cost Share Program statewide to assist farmers in implementing structural and animal practices on their farms to contain wastes and eliminate runoff of phosphorus and other water pollutants.
- Expand the Conservation Reserve Enhancement Program statewide to create conservation easements on farms along streams for buffer implementation.
- Initiate an Integrated Crop Management Program statewide to help farmers implement comprehensive nutrient management plans to ensure wastes are being utilized to optimize the production of crops and protect water quality.
- Offer Alternative Manure Management Technology Grants statewide to help develop technologies to reduce odors, separate liquids from solids, clean the liquid fractions, and extract nutrients so that manure wastes can be applied to farmland at proper agronomic rates for both nitrogen and phosphorus.
- Provide technical assistance by Agricultural Resource Specialists to help farmers statewide with best management practices, riparian buffer conservation, nutrient management, compliance with Accepted Agricultural Practices, basin planning, and other technical needs.
- Staff a statewide Agricultural Water Quality Regulatory Program which will expand the permitting process for large farms to include farms with more than 200 milking cows.
- Support agricultural participation in the basin planning process.
- Initiate a manure pit certification program
- Upgrade municipal wastewater discharges at Richford and Troy/Jay for phosphorus removal.
- Hire Watershed Coordinators for Lake Champlain Basin watersheds to help develop and implement river basin plans.
- Expand the Department's River Management Program to promote stream stability and reduce phosphorus loading from stream bank and stream channel erosion in the Lake Champlain Basin through a comprehensive program of assessment, protection, management, restoration, and education, with additional federal funding being sought from the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and other agencies.
- Enhance the Vermont Better Backroads Program throughout the Lake Champlain Basin with staffing for technical assistance and increased funding for erosion control grants to towns.

- Prevent and control erosion of sediment and phosphorus at construction sites statewide by increased staffing at the Vermont Department of Environmental Conservation for training and education, inter-agency coordination, permit review, and compliance assistance.
- Offer technical assistance to towns in the Lake Champlain Basin seeking to provide better water quality protection through local ordinances and other municipal actions.
- Protect and/or restore riparian wetlands.
- Develop and implement water quality remediation plans for 17 stormwater-impaired watersheds in the state, including 14 in the Lake Champlain Basin.
- Supplement the water quality monitoring programs supported through the Lake Champlain Basin Program to track progress in achieving lake water quality criteria and watershed phosphorus loading targets.
- Support an Executive Director for the Governor's Clean and Clear Action Plan to ensure proper coordination, accountability, and promotion of the initiative, and provide administrative support for Clean and Clear programs in the regional offices.

Water quality monitoring of Lake Champlain and its tributaries for phosphorus and other parameters will continue, contingent on funding from the Lake Champlain Basin Program and the U.S. Geological Survey. The Department will work to implement the Missisquoi Bay Phosphorus Reduction Agreement signed with Quebec in 2002. We will work with the Quebec Ministry of the Environment and the Lake Champlain Basin Program to continue the expanded monitoring of phosphorus loads to Missisquoi Bay from Vermont and Quebec portions of the watershed. The Missisquoi Bay watershed monitoring will be conducted according to a work plan which was jointly prepared by Vermont and Quebec and presented to the Lake Champlain Basin Program Technical Advisory Committee and Steering Committee in 2005.

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