REPORT OF THE SECRETARY OF NATURAL RESOURCES

CHESAPEAKE BAY AND VIRGINIA WATERS CLEAN-UP PLAN - Progress Report

TO THE GOVERNOR AND THE CHAIRMEN OF THE SENATE AGRICULTURE, CONSERVATION AND NATURAL RESOURCES COMMITTEE AND THE HOUSE AGRICULTURE, CHESAPEAKE AND NATURAL RESOURCES COMMITTEE

COMMONWEALTH OF VIRGINIA
RICHMOND
APRIL 2011

COMMONWEALTH of VIRGINIA

Office of the Governor

Doug Domenech
Secretary of Natural Resources

April 1, 2011

The Honorable Robert F. McDonnell
Governor, Commonwealth of Virginia
Office of the Governor
Patrick Henry Building, 3rd Floor
1111 East Broad Street
Richmond, Virginia 23219

The Honorable Patricia S. Ticer
Chair, Senate Agriculture, Conservation and
Natural Resources Committee
301 King Street
City Hall, Room 2007
Alexandria, Virginia 22314-3211

The Honorable Harvey B. Morgan
Chair, House Agriculture, Chesapeake and
Natural Resources Committee
P.O. Box 949
Gloucester, Virginia 23061

Re: Report on the cleanup of the Chesapeake Bay and Virginia's waters designated as impaired by the U.S. Environmental Protection Agency

Dear Governor McDonnell, Senator Ticer and Delegate Morgan:

I am pleased to submit the attached report in accordance with §62.1-44.117 and §62.1-44.118 of the Code of Virginia. The report also includes information required under §10.1-2127 related to nonpoint pollution programs. This report has been prepared with information provided by the Department of Environmental Quality and the Department of Conservation and Recreation, with contributions from the Department of Mines, Minerals and Energy. I encourage you to contact me directly should you have any questions or needs for additional information with regards to the content of this report.

As always, I look forward to continuing to work with Governor McDonnell and his administration, and members of the legislature as we address these important matters.

Respectfully submitted,

Douglas W. Domenech

SUMMARY AND OVERVIEW

This report is submitted to fulfill the requirements of § 62.1-44.117 and 62.1-44.118 of the Code of Virginia which calls on the Secretary of Natural Resources to plan for the cleanup of the Chesapeake Bay and Virginia's waters designated as impaired by the U.S. Environmental Protection Agency (EPA). The report also includes information required under §10.1-2127 related to nonpoint pollution programs. This report has been prepared with information provided by the Department of Environmental Quality (DEQ) and the Department of Conservation and Recreation (DCR) with contributions from the Department of Mines, Minerals and Energy (DMME).

This report includes the following sections:

A summary of the development of TMDLs and TMDL Implementation Plans for other waterbodies in Virginia;
A summary of nutrient control activities from wastewater treatment plants in the Chesapeake Bay watershed;
A summary of TMDLs prepared to address toxic contaminants;
An overview of actions to reduce pollutant discharges from boats;
An overview of nonpoint source pollution control measures; and
A summary of the WQIF nonpoint source activities.

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Wastewater

GOAL: Wastewater Dischargers of Nutrient Pollution into the Chesapeake Bay Watershed Objective: By January 1, 2011, upgrade sufficient wastewater treatment facilities to meet the Commonwealth's nutrient reduction goal for point sources – a reduction of 3 million pounds of nitrogen and 125,000 pounds of phosphorus from 2005 – levels and fully utilize the Commonwealth's recently adopted nutrient trading program to expedite the process and maximize cost-efficiency.

Summary of Water Quality Improvement Fund (WQIF) Point Source Program Activities

There are currently 56 signed WQIF agreements, obligating $655.8 million in state grants ranging from 35% to 90% cost-share, for design and installation of nutrient reduction technology at the Bay watershed point source discharges. This is critical support for compliance with the nutrient discharge control regulations and achieving Chesapeake Bay nitrogen and phosphorus waste load allocations. A summary of active grant projects is accessible via the DEQ-WQIF webpage at this Internet address: http://www.deq.virginia.gov/bay/wqiflist.html#SGA.

Since its formation in 1998, the WQIF Point Source Program has received a total of $652.6 million in appropriations and accrued interest. The following table summarizes these deposits:

WQIF Point Source Program Appropriations

Period	Funds for Bay Point Source Projects (million dollars)
FY 1998	$10.00
FY 1999	$37.10
FY 2000	$27.64
FY 2001	$10.30
FY 2005	$12.57
FY 2006	$80.28
FY 2007	$197.33
Interest Earned through FY07	$18.19
FY 2008	$5.00
FY 2009	$0.48
Interest Earned through FY09	$3.37
FY2010 – Bond Proceeds & Interest Earned	$250.35
TOTAL DEPOSIT =	**$652.61**

Of the total funding made available, $95.3 million was used for twenty-four voluntary/cooperative "BNR" grants prior to the adoption of nutrient discharge control regulations in late 2005. A total of $4.01 million was awarded for 39 technical assistance grants, including Basis of Design Reports, Interim Optimization Plans, and startup support for the Nutrient Credit Exchange Association.

The balance of $553.6 million was made available for recent grants to meet the Bay nutrient waste load allocations. With $655.8 million obligated in grant agreements for these projects, and an available balance of $553.6 million, the WQIF is over-obligated by approximately $102 million. This is largely due to the statutory requirement for DEQ to approve and enter into

funding agreements with all eligible applicants, except if the project is deferred based on the cost-effectiveness and viability of nutrient trading in lieu of nutrient reduction technology installation.

The over-obligation can be managed with additional funding to capitalize the WQIF, which may be provided by the General Assembly through the state budget process, and also with unused funds returned to the WQIF as projects are completed.

In addition to the 56 current grant agreements, there is the potential for about 50 projects to be added to the WQIF. DEQ has 26 grant applications pending that have not yet received signed agreements. The majority of these projects need to develop the required Preliminary Engineering Report. Another 24 eligible facilities have not yet applied. Many of these owners were able to phase construction or delay a capital upgrade project through use of the Nutrient Credit Exchange Program, thus allowing for economical use of the limited funds and an orderly schedule for the upgrade projects completed or underway.

In 2010, 15 WQIF projects were issued a Certificate to Operate ("CTO"), either final or conditional, for nutrient reduction technology installations:

WQIF Projects Issued a CTO in 2010

Project	Grant #	Date CTO Issued
FWSA-Parkins Mill	440-S-08-06	01/20/10
Town of Washington	440-S-10-05	04/21/10
Culpeper	440-S-07-18	04/22/10
Clarke Co. S.A.- Boyce	440-S-09-04	06/18/10
Dale Service Corp. #1	440-S-07-11	06/29/10
Dale Service Corp. #8	440-S-07-12	06/29/10
Woodstock	440-S-07-02	07/01/10
Tappahannock	440-S-08-10	07/23/10
Purcellville	440-S-07-05	09/16/10
PWCSA-H.L. Mooney	440-S-08-15	10/08/10
Waynesboro	440-S-07-22	11/08/10
Warrenton	440-S-07-04	11/13/10
Warsaw	440-S-08-05	11/19/10
Broadway	440-S-09-09	11/22/10
ACSA-Stuarts Draft	440-S-09-17	12/06/10
HRRSA-North River	440-S-07-21	12/08/10
ACSA-Fishersville	440-S-07-07	12/09/10

Four other grantees have had their CTO inspection conducted by DEQ; final issuance is pending receipt of their Project Engineer's Certification of Substantial Completion:

WQIF Projects with CTO Inspection Completed and Issuance Pending:

Project	Grant #
ACSA-Middle River	440-S-07-06
Arlington	440-S-07-10
Farmville	440-S-08-01
FWSA-Opequon	440-S-08-11

With numerous projects coming on-line, reductions in the annual nutrient loads discharged from wastewater plants in the Bay watershed for 2010 and 2011 is anticipated. Review of the annually updated compliance plans submitted by facilities subject to the Watershed General Permit for Nutrient Discharge indicates that the basin-aggregate nutrient waste load allocations for significant dischargers will likely be achieved when the compliance period begins in 2011. It is likely plants will exceed reduction targets and generate nutrient credits.

Estimated Nutrient Reductions from WQIF-Funded Projects

Under the Chesapeake Bay Watershed General Permit, the compliance period for the point source nitrogen and phosphorus waste load allocations in the Bay watershed begins January 1, 2011.

The following table shows estimated nutrient reductions resulting from the 56 projects with signed WQIF grant agreements. Five of those listed with "NA" values are non-significant dischargers that must maintain their "permitted design capacity", rather than achieve reductions from existing loads. It illustrates the nutrient load each facility delivered to the Bay and tidal rivers in 2009, compared to the maximum nutrient load they are allowed to deliver under current regulations, and the amount they are projected to deliver in 2011.

By 2011 these projects will reduce the nutrient load delivered to the Bay and tidal rivers by approximately 2.7 million pounds of nitrogen and 128,000 pounds of phosphorus compared to the 2009 loads. As part of the Chesapeake Bay TMDL process, Virginia recently submitted the Phase I Watershed Implementation Plan which proposes further nutrient reductions for significant dischargers in the York basin (phosphorus) and James basin (nitrogen and phosphorus).

Estimated Nutrient Reductions from WQIF-Funded Projects

WQIF Grantees	Delivered TN Load (lbs/yr)			Delivered TP Load (lbs/yr)		
Facility	2009	WLA	2011	2009	WLA	2011
Onancock STP	2,811	9,137	6,944	736	685	521
Cape Charles STP	8,176	3,046	7,066	1,235	228	219
Alleghany Co.-Lower Jackson *	NA	NA	NA	NA	NA	NA
Craigsville STP	NA	NA	NA	NA	NA	NA
Chesterfield Co.-Falling Creek	510,597	153,801	153,801	21,771	15,380	18,456
Chesterfield Co.-Proctors Creek	387,701	411,151	388,004	63,642	41,115	31,631
Farmville STP	22,881	16,665	16,665	5,908	1,572	1,572
Henrico STP	858,485	1,142,085	813,466	38,551	114,209	74,706
HRSD-Army Base STP	876,483	610,000	917,058	25,245	54,820	55,024
HRSD-James River STP	802,213	1,250,000	537,525	33,015	60,911	44,794
HRSD-Nansemond STP	1,188,051	750,000	621,169	63,870	91,367	56,470
Lex.-Rockbridge Reg. STP	12,354	16,446	9,356	12,354	4,568	8,576
Richmond STP	1,841,366	1,096,402	1,047,673	67,695	68,525	65,480
RWSA-Moores Creek. STP	253,426	167,201	161,702	122,683	22,842	21,538
HRSD-York STP	554,099	274,100	281,231	19,451	31,978	26,248
HRSD-King William STP	NA	NA	NA	NA	NA	NA
Louisa Co.-Regional STP	NA	NA	NA	NA	NA	NA
N. Kent Co.-Parham Landing	1,478	36,547	9,319	146	4,264	1,087
Culpeper WWTP	33,423	33,440	24,300	8,208	4,112	3,984
FCW&SA-Remington	4,704	14,862	6,962	342	1,827	884
Orange STP	25,346	22,293	8,174	4,692	2,741	1,005
Rapidan SA-Wilderness	17,410	9,289	8,583	6,032	1,142	1,055
Stafford Co.-Little Falls Run	38,112	97,458	72,941	2,770	7,309	4,376
Tappahannock STP	8,464	9,746	6,091	1,306	731	457
Warrenton STP	49,614	18,578	18,578	1,972	2,284	2,284
Warsaw STP	9,127	3,655	1,827	2,971	274	244
Town of Washington STP	NA	NA	NA	NA	NA	NA
ACSA-Fishersville STP	12,117	21,441	11,846	8,385	2,814	1,555
ACSA-Middle River STP	27,914	36,449	26,855	9,424	4,784	3,525
ACSA-Stuarts Draft STP	5,818	21,440	8,737	2,248	2,814	1,147
Alexandria S.A.	433,082	493,381	493,381	8,161	29,603	22,202
Arlington Co. WPCF	697,209	365,467	365,292	8,012	21,928	7,306
Berryville STP	15,958	5,713	14,088	3,978	492	2,032
Broadway STP	36,884	19,752	15,855	7,161	1,703	1,477
Clarke Co. SA-Boyce STP	NA	NA	NA	NA	NA	NA
Colonial Beach STP	20,744	18,273	18,273	5,723	1,827	1,827
Dale Service Corp. #1 STP	28,936	42,029	34,719	960	2,522	2,083
Dale Service Corp. #8 STP	28,563	42,029	34,719	813	2,522	2,083
Fairfax Co.-Noman Cole	576,963	612,158	612,158	12,268	36,729	22,038
FCW&SA-Vint Hill STP	1,208	3,180	1,325	29	241	104
FWSA-Opequon STP	62,843	90,170	48,410	2,327	8,864	3,358
FWSA-Parkins Mill STP	29,397	45,074	19,833	33,319	3,517	2,064
HRRSA-North River STP	64,286	111,492	71,826	9,525	14,633	9,427
K. Geo. Co-Dahlgren STP	5,333	9,137	7,675	408	914	672
K. Geo. Co-Fairview Beach	652	1,827	822	86	183	82
LCSA-Broad Run STP	32,310	111,224	44,085	483	2,580	1,022
Luray STP	7,898	8,576	8,576	2,989	1,126	1,126
Middletown STP	NA	NA	NA	NA	NA	NA
Mt. Jackson STP	583	5,713	4,081	79	493	352
Pr. Wm. Co.-Mooney STP	246,928	219,280	150,755	3,525	13,157	9,045
Purcellville STP	8,420	15,167	10,617	406	1,055	591
Stafford Co.–Aquia STP **	55,522	73,093	86,205	1,522	4,386	3,448
Waynesboro STP	57,693	21,441	16,643	23,603	2,814	2,718
Upper Occoquan S.A.	679,950	763,096	687,457	2,539	7,236	4,496
Woodstock STP	16,473	16,324	16,324	3,273	1,407	1,407
Totals =	10,648,005	9,318,828	7,928,992	655,841	703,228	527,798

Notes: * Plant not yet on-line. ** Two grants made for this facility.

Goal: Discharges of Toxic Substances

Performance Measurement: Report semi-annually on TMDL clean-up plan development and implementation for waters impacted by toxic contamination.

The PCB Point Source Monitoring Guidance (GM09-2001) has been approved and is currently being used by DEQ staff in support of PCB source assessments. Several watersheds have begun to implement "Pollutant Minimization Plans" as an approach to reduce PCB loads being discharged to impaired water.

Polychlorinated Biphenyl (PCB) TMDLs:

Bluestone: West Virginia plans to join Virginia in the development of an interstate PCB TMDL for the Bluestone River. The Virginia portion of the watershed has impairments for PCBs in fish and water. High PCB concentrations in the water column found during Virginia's TMDL data acquisition phase triggered an EPA concern and a cleanup effort. A former Super Fund site, Lin Electric facility located one mile upstream in West Virginia, was targeted for additional remediation. This effort resulted in the discovery of 38 barrels, some containing hazardous materials, 3 transformers, contaminated groundwater, and extremely high levels of PCBs in sediment/sludge. The EPA Super Fund effort is conducting additional PCB monitoring in both states.

Elizabeth/Tidal James River: PCB source investigation work has been initiated in these waterbodies. As part of TMDL development, PCB point source monitoring was requested from those VPDES permits identified as possible contributors to fish impairments. The TMDL is scheduled to be completed in 2013.

Roanoke (Staunton): This TMDL was completed in early 2010. The Roanoke TMDL monitoring identified two significant PCB sources. The TMDL includes monitoring requirements and Pollutant Minimization Plans for the active point sources that discharge elevated levels of PCBs.

Levisa Fork: This TMDL was completed in April 2010. Since TMDL monitoring has not revealed a viable source(s) of the contaminant, this particular TMDL was submitted to EPA as a phased TMDL. As a phased TMDL, a monitoring plan to collect additional data and a commitment date to reopen the TMDL was included.

Mercury TMDLs:

North Fork Holston River: This TMDL was completed in 2010. A fish consumption advisory for mercury extends approximately 81 miles from Saltville, Virginia to the Tennessee state line. While most of the river mercury originated from the Olin plant site, this contaminant has been distributed throughout the floodplain downstream. The TMDL also identified additional mercury loadings from atmospheric deposition. The latter would have originated from coal fired power plants in region. In order to meet the TMDL loadings, additional mercury reductions will be needed from major contributors.

South and Shenandoah River: This TMDL that was completed in 2010. The South River has a fish consumption advisory that extends about 150 miles from Waynesboro to the confluence of

the Shenandoah and Craig Run. The primary source of mercury deposited in the floodplain occurred during the 21 years of DuPont facility operations. Atmospheric deposition was not identified as a significant mercury source. Fish tissue from a reference site above a dam in Waynesboro show safe mercury levels while fish tissue below the dam contain elevated amounts of mercury. Unfortunately, mercury levels in fish tissue from this portion of the River have not shown a decline since the use of mercury was eliminated by DuPont in 1958.

Goal: Discharges from Boats

Performance Measurement: Report semi-annually on outreach efforts and No Discharge Zone designations being pursued.

No Discharge Zones (NDZs) are federally designated areas where the current prohibition on the discharge of untreated sewage from boats is extended to include discharge of any sewage, regardless of treatment status. The 2009 Virginia General Assembly adopted HB 1774, which allows Virginia to seek this designation for all its tidal Bay tributaries. The designation is contingent on EPA's determination that 1) adequate local disposal alternatives exist (such as marina-based pump-outs), and 2) the designation has the support of local stakeholders. These criteria are most easily satisfied on a limited geographic scale. Thus, Virginia's approach has been to prepare applications for individual creeks or groups of creeks, giving priority to areas where either a particular need is identified through the TMDL process or a stakeholder petition is received. DEQ is the lead agency for preparing NDZ applications, collaborating with stakeholders and sister agencies to define appropriate boundaries, estimate peak-season demand for boat sewage disposal, evaluate the adequacy of existing disposal alternatives, and conduct local education and outreach.

Virginia currently has three EPA-approved NDZ applications, two for tidal waters. The tidal Lynnhaven River and its tributaries near Virginia Beach were federally designated in February 2007, with final adoption by the State Water Control Board (SWCB) in March 2007. Along with sanitary sewer upgrades, agricultural BMPs and stormwater programs, the Lynnhaven NDZ is regarded as a key element in that river's remarkable recovery from bacteria pollution, which is documented as a national "success story" by EPA in 2009. The second application establishes NDZs on three tidal creeks in Middlesex County: Broad Creek, a tributary to the Rappahannock River, and Jackson Creek and Fishing Bay, tributaries to the Piankatank River. This application was approved by EPA in 2009, and adopted by the SWCB in October 2009. A third tidal NDZ application, for Rudee Inlet and Owl Creek in Virginia Beach, is in final stages of preparation. Smith Mountain Lake, a non-tidal impoundment on the Roanoke River, was designated in 2000.

Fulfilling the vision of HB 1774 will require that DEQ increase its effort to designate individual NDZs, and explore means of expanding and consolidating them while maintaining the sense of local support that is essential for a successful application. DEQ has responded with a pilot initiative focusing on tidal creeks fringing Virginia's Northern Neck (the peninsula of land separating the tidal Potomac and Rappahannock Rivers). This area was selected based on need (22 bacteria TMDLs, covering over 90 individual shellfishing impairments, completed since 2000), locally high density of recreational boat traffic, and stakeholder support expressed at TMDL public meetings. Working in collaboration with the Northern Neck Planning District Commission, DEQ completed boat-based shore reconnaissance and boat traffic estimates for the area's shoreline in fall 2010. The first of four applications scheduled in this project is in draft and the first public meeting has been held. DEQ anticipates submitting the first applications to

EPA by spring 2011, with the project scheduled to be complete by July, 2011.

Draft applications for Federal No Discharge Zone designations

Bodies of Water Affected	Location
Farnham Creek, Lancaster/Morattico Creek	Richmond County

Approved Federal No Discharge Zone designations

Bodies of Water Affected	Location
Broad and Jackson Creeks and Fishing Bay	Middlesex County
Lynnhaven Bay	Virginia Beach
Smith Mountain Lake	Bedford, Roanoke

Goal: Failing On-site Septic Systems and Illegal Straight Pipe (untreated) Discharges

Objective: Encourage nitrogen-reducing treatment units in the repair of failing onsite sewage systems and in new systems. Continue to identify and replace straight pipe discharges with approved onsite sewage systems.

Performance Measure: Report semi-annually on the number of failing systems or straight pipes that have been repaired.

DCR continues to work with organizations and localities across Virginia to fund projects that manage failing septic systems or straight-pipes. Most of these projects are part of larger watershed restoration and implementation efforts in TMDL Implementation areas. Other projects were initiated through various 'requests for proposals". During fiscal year 2010, DCR provided funding to repair or replace failing septic systems or removing straight pipes from at least 250 homes through funding from Federal Section 319(h) and the Water Quality Improvement Fund (WQIF) NPS Request for Proposals.

Residential BMPs installed for TMDL Implementation from July 1, 2009 - June 30, 2010 to address straight pipes or failing septic systems

Practice Code	Practice	Total
RB-1	Septic Tank Pumpout	174
RB-2	Connection to Public Sewer	2
RB-3	Septic Tank System Repair	53
RB-4	Septic Tank System Replacement	35
RB-4P	Septic Tank System Installation/Replacement with Pump	12
RB-5	Installation of Alternative Waste Treatment System	4
Grand Total		**280**

Agriculture and Forestry

GOAL: Widespread adoption of cost-effective agricultural best management practices ("Priority Practices")

Objective: Implement to the maximum extent practicable, the five priority agricultural best management practices (BMPs) and other effective BMPs in the Chesapeake Bay watershed and Southern Rivers (SR) to significantly advance the Commonwealth's nutrient and sediment pollution reduction goals by 2025 and beyond.

Rationale: Water quality restoration goals will not be achieved without widespread implementation of agricultural best management practices (BMPs). Three important actions taken by the Virginia General Assembly in 2008, 2009 and 2010 directly pertain to the widespread implementation of agricultural BMPs. Those actions are summarized in this section.

Action 1: Establishment of the Virginia Natural Resources Commitment Fund
During the 2008 session the Virginia Natural Resources Commitment Fund (VNRCF) was established in Virginia Code (see below) as a subfund of the Virginia Water Quality Improvement Fund. Funds placed within the VNRCF are to be used for the Virginia Agricultural Best Management Practices Cost-Share Program.

§ 10.1-2128.1. Virginia Natural Resources Commitment Fund established.

A. There is hereby created in the state treasury a special nonreverting fund to be known as the Virginia Natural Resources Commitment Fund hereafter referred to as "the Subfund," which shall be a subfund of the Virginia Water Quality Improvement Fund and administered by the Department of Conservation and Recreation. The Subfund shall be established on the books of the Comptroller. All amounts appropriated and such other funds as may be made available to the Subfund from any other source, public or private, shall be paid into the state treasury and credited to the Subfund. Interest earned on moneys in the Subfund shall remain in the Subfund and be credited to it. Any moneys remaining in the Subfund, including interest thereon, at the end of each fiscal year shall not revert to the general fund but shall remain in the Subfund. Moneys in the Subfund shall be used as provided in subsection B solely for the Virginia Agricultural Best Management Practices Cost-Share Program administered by the Department of Conservation and Recreation.

B. Beginning on July 1, 2008, and continuing in each subsequent fiscal year until July 1, 2018, out of such amounts as may be appropriated and deposited to the Subfund, distributions shall be made in each fiscal year for the following purposes:

1. Eight percent of the total amount distributed to the Virginia Agricultural Best Management Practices Cost-Share Program shall be distributed to soil and water conservation districts to provide technical assistance for the implementation of such agricultural best management practices. Each soil and water conservation district in the Commonwealth shall receive a share according to a method employed by the Director of the Department of Conservation and Recreation in consultation with the Virginia Soil and Water Conservation Board, that accounts for the percentage of the

available agricultural best management practices funding that will be received by the district from the Subfund;

2. Fifty-five percent of the total amount distributed to the Virginia Agricultural Best Management Practices Cost-Share Program shall be used for matching grants for agricultural best management practices on lands in the Commonwealth exclusively or partly within the Chesapeake Bay watershed; and

3. Thirty-seven percent of the total amount distributed to the Virginia Agricultural Best Management Practices Cost-Share Program shall be used for matching grants for agricultural best management practices on lands in the Commonwealth exclusively outside of the Chesapeake Bay watershed.

C. The Department of Conservation and Recreation, in consultation with stakeholders, including representatives of the agricultural community, the conservation community, and the Soil and Water Conservation Districts, shall determine an annual funding amount for effective Soil and Water Conservation District technical assistance and implementation of agricultural best management practices pursuant to § 10.1-546.1. Pursuant to § 2.2-1504, the Department shall provide to the Governor the annual funding amount needed for each year of the ensuing biennial period. The Department shall report the annual funding amount to the Chairmen of the House Appropriations and Senate Finance Committees by October 15 of each year.

(2008, cc. 643, 701; 2009, cc. 209, 263)

Action 2: Submission of an Annual Funding Needs Report for Implementation of Agricultural BMPs

During the 2009 session of the Virginia General Assembly, the Code was amended to establish part C. (above). This section established a new reporting requirement to be completed annually by DCR. In 2009 and 2010, DCR examined the agricultural BMP funding needs to achieving water quality objectives in the Chesapeake Bay basin, as well as the agricultural BMP needs for "TMDL" (Total Maximum Daily Load) waters that fail to achieve state water quality standards for the Southern Rivers portion of the state (waters outside the Bay basin).

The Chesapeake Bay TMDL was completed by EPA in December, 2010. Virginia submitted a final Phase I WIP to EPA on November 29, 2010. DCR will update projections for the agricultural BMP needs to support Virginia's Bay Clean-up efforts based on the TMDL and Phase I WIP.

To calculate the agricultural BMP needs within the Chesapeake Bay, DCR used the 2005 Tributary Strategy reduction goals which were established through use of the EPA Chesapeake Bay Program Office's phase 4.3 watershed model. DCR has focused on the implementation of the five priority practices (nutrient management plans, cover crops, livestock exclusion from waterways, conservation tillage including continuous no-till, and establishment of riparian buffers) over a 15 year period that begins in fiscal year 2011 and ends in 2025 –the agreed to deadline by EPA and Bay jurisdictions to have in place the strategies that will achieve the Bay's water quality objectives.

Funds placed within the VNRCF must be divided with 55% supporting BMPs in the Chesapeake Bay, 37% for BMPs in the Southern Rivers and 8% for provision of technical assistance by Soil and Water Conservation Districts (SWCD). By using the annual funding projections for BMPs in the Chesapeake Bay, DCR represented the amounts as 55% of the total annual deposit in the VNRCF. By mathematically deriving the total deposit amount, the remaining 45% was apportioned with 37% of deposited funds supporting BMPs in the Southern Rivers and 8% supporting SWCD technical assistance. Statewide funding needs are summarized on page 9 of this report and total approximately $1.1 billion between FY11 and FY25.

In addition, the Chesapeake Bay jurisdictions have committed to meeting two-year "milestones" in order to accelerate restoration and provide greater accountability. The 2011 milestone is considered a "voluntary" milestone since it was conceived prior to the development of the Chesapeake Bay TMDL. The two-year milestones beginning with 2013 are part of the progress accounting system for the TMDL and may carry regulatory consequences if they are not achieved.

It is important to recognize that projections of needed BMPs and their associated costs are dynamic and will change over time. Funding levels in the near term will ultimately affect needs in later years. It is also important to recognize that current difficult economic conditions may hamper the ability of the Commonwealth to meet the total needs. Further, acreage in agricultural production varies from year to year (acres are lost to other land uses, acreage is gained when idle land is cropped). Projections of needs will change as implementation of cost-shared practices is credited and when better accounting for voluntary BMPs is documented. Cost-share funding amounts change over time to elicit farmer participation in state and federal cost-share programs; these factors and others mean that the projections of funding for agricultural BMPs should be examined over time and as directed by § 10.1-546.1.

The Virginia General Assembly, during their 2010 session, established a recurring source of revenue to support implementation of agricultural BMPs. A portion of the recordation fee collected by localities for land transactions is now being deposited in the VNRCF. The annual projection of revenue is placed at approximately $9.1 million.

The Commonwealth ended FY10 with a balance of funds that may enable monies to be dedicated to manage nonpoint source (NPS) pollution and the implementation of agricultural BMPs. The 2011 General Assembly approved a deposit of nearly $28 million to the Virginia Natural Resources Commitment Fund which will enable the continuation of funding for agricultural BMPs.

While the basis for projecting funding needs for the period FY11 through FY25 remains unchanged since DCR's initial report (submitted in October, 2009), significant financial appropriations from state and federal sources are impacting the overall funding needs for FY11 and FY12. In short, the combined existing and projected funding for FY11 and FY12 is expected to:

- fulfill the agricultural BMP funding needs in the Chesapeake Bay basin, and
- fall somewhat short of funding needs in the Southern Rivers in FY11 while fulfilling the needs in FY12.

TOTAL STATEWIDE FUNDING NEEDS (in millions)

FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
$40	**$44**	**$48**	**$52**	**$57**	**$62**	**$66**	**$70**	**$74**	**$78**	**$98**	**$102**	**$107**	**$111**	**$115**

The combined total funding for the period FY11 through FY25 equals: $1.123 billion

Potential Changes to Projections for FY11 - FY25 Funding:

The preceding funding projections are predicated predominately upon Virginia's need for fulfilling Chesapeake Bay restoration commitments based on the loading reductions identified in Virginia's tributary strategies. Changes are expected through the implementation of the Phase 5.3 Chesapeake Bay Watershed Model in support of the Chesapeake Bay TMDL. The new model will likely alter Virginia's projection of numbers of needed BMPs and their nutrient/sediment reduction efficiencies. Funding projections can also be effected by changes in the agricultural economy, world markets, climate, weather events and a variety of other factors. These points are critical towards an understanding that the projections of agricultural BMPs which are necessary to achieve the state's water quality commitments will be changing in the years to come. Those changes will affect the funding needs and revisions to the needs should be expected.

Virginia Submission of the Chesapeake Bay TMDL; Phase I Watershed Implementation Plan (WIP)

On November 29th, Virginia submitted a WIP to the Environmental Protection Agency (EPA). Within the WIP the implementation of agricultural BMPs is a critical component of the state's plan. . Table 5.4-1 summarizes the list of BMPs included in Virginia's input deck for the WIP. The table specifies BMP by BMP, the projected percentage of implementation and also provides the framework that is expected to be necessary to achieve the implementation.

Current and Projected Ag. BMP Implementation Levels for 2017 and 2025 using Phase 5.3 Model

Input Deck BMPs	2009 % Treatment	2017 Coverage Level	2025 Coverage Level
Forest Buffers Riparian Cropland and Specialty Crops	1.3 %	3 %	5 %
Forest Buffers Riparian Hay	0 %	1 %	5 %
Forest Buffers Riparian Pasture	8 %	10 %	10 %
Grass Buffers Riparian Cropland and Specialty Crops	9 %	30 %	90 %
Grass Buffers Riparian Hay	0 %	1 %	90 %
Grass Buffers Riparian Pasture	12 %	15 %	20 %
Land Retirement Ag	3 %	5 %	5 %
Upland Tree Planting Ag	0.7 %	5 %	5 %
Wetland Restoration	0.05 %	0.15 %	0.20 %
Continuous No-Till	11 %	35 %	60 %
Conservation Till (includes CNT acres)	57 %	80 %	90 %
Conservation Plan Cropland and Specialty Crops	60 %	65 %	95 %
Conservation Plan Hay	7 %	40 %	95 %
Conservation Plan Pasture	41 %	50 %	95 %
Cover Crop Standard planting	4 %	10 %	10 %
Cover Crop Early planting	3 %	10 %	20 %
Commodity Cover Crop Early planting	4 %	10 %	15 %
Stream Protection with Fencing (linear feet)	15 %	45 %	95 %
Alternative Water Pasture	2 %	2 %	0 %
Prescribed Grazing Pasture	20 %	40 %	60 %
Animal Waste Management System	25 %	34 %	95 %
Nutrient Management Cropland & Specialty Crops	59 %	90 %	95 %
Nutrient Management Hay	18 %	90 %	95 %
Nutrient Management Pasture	5 %	15 %	20 %
Non Urban Stream Restoration (linear feet)	0.02%	0.11%	0.22%
Poultry Mortality Composters	-	100%	100%
Swine Mortality Composters	-	95 %	95 %
Water Control Structures	-	-	1,000 acres
Manure Transport (Exported from Rockingham & Page to Outside Bay Watershed)	-	5,000 tons	75,000 tons
Manure Transport (Exported from Rockingham & Page but within Chesapeake Bay Watershed)	-	75,000 tons	75,000 tons
Poultry Phytase Phosphorus 30% Reduction in Broilers and Turkeys	60 %	100 %	100 %
Swine Phytase Phosphorus 35% Reduction	60 %	100 %	100 %
Precision / Decision Agriculture on Cropland	-	50,000 acres	50%
Container Nursery and Greenhouse Runoff / Leachate Recovery	-	-	95%

Action 3: Development of a Strategy to Collect Data Pertaining to Voluntary Agricultural and Forestry BMPs

In addition to the annual projection of funding needs for agricultural BMP implementation, and the recent submission of Virginia's Chesapeake Bay WIP, an action of the 2010 Virginia General Assembly required the establishment of a database of the agricultural and forestry BMPs that are implemented voluntarily by land owners and managers. Specifically, Senate Bill 346 charged the Secretary of Natural Resources (SNR), to submit a report by November 1, 2010, to the Governor, and the chairmen of the House Agriculture, Chesapeake and Natural Resources Committee and the Senate Agriculture, Conservation and Natural Resources Committee on the approach and costs of establishing and maintaining a database of the voluntary agricultural and forestry best management practices (BMPs) implemented by the state's agricultural and silvicultural producers. Under the direction of SNR Doug Domenech, staff of DCR established an ad-hoc advisory committee comprised of diverse representation of agricultural groups,

organizations and agencies.

DCR staff and members of the advisory committee reached consensus on five criteria for collection and reporting of the voluntary agricultural and forestry BMPs:

1. The data to be collected will be limited to BMPs that are recognized and accepted by EPA for Chesapeake Bay and other impaired waters with Total Maximum Daily Loads (TMDLs).
2. All voluntary agricultural BMPs must meet the required USDA Natural Resources Conservation Service (NRCS) standards and specifications, for agricultural BMPs or Virginia Department of Forestry (VDOF) standards and specifications for Forest Harvesting BMPs and their existence must be field verified, to be reported for modeling purposes.
3. The staff of Virginia's 47 soil and water conservation districts (SWCDs) will be the primary mechanism for collection and computerized entry of voluntary agricultural BMP data. VDOF will collect and report voluntary forestry BMP data through a cooperative agreement with DCR in a format that will be mutually agreed upon to meet the requirements of the National Environmental Information Exchange Network (NEIEN).
4. DCR's web based Agricultural BMP Tracking Program (Tracking Program) currently used by all SWCDs will be the computerized data entry and storage system for voluntary agricultural BMPs.
5. VDOF is currently in the process of automating the forest harvesting BMP monitoring database and this system will be developed in a format compatible with the DCR Agricultural BMP Tracking Program for reporting consistency.

DCR staff and members of the advisory committee also reached consensus on a multi-phased approach to implementation of a system to collect, store and report voluntary agricultural and forestry BMPs. The success of this strategy is not only dependent upon support for the identified resource needs, it is also dependent upon collaboration and support by the agencies and organizations that participated in the study and shaped the path that is being taken.

<u>Preliminary actions (Prior to July 1, 2011):</u> To the extent time and resources allow, DCR staff will:

- Pursue collection of agricultural BMP data through the USDA Farm Services Agency (FSA) and data collected by the National Agricultural Statistics Service (NASS) for possible reporting purposes
- Work with SWCDs and others, to resolve the six pilot districts that will collect and enter voluntary BMP data in fiscal year 2012 (FY12
- Draft protocols to provide guidance on topics that include data collection, BMP verification, land owner approval for collection/reporting, spot check procedures, data entry, and other needed guidance
- Determine the needed revisions to the Agricultural BMP Tracking Program to streamline and accelerate data entry by SWCDs in consultation with experts in data collection and data management,
- Convene one or more meetings of the SWCD Tracking Program "user's group" to ensure revisions to the Tracking Program are aligned with the needs of program users

Phase 1 (July 1, 2011 through June 30, 2012): Resources have been detailed to enable revisions to the Tracking Program for accommodation of voluntary BMP data and the possibility of additional staff support. The availability of state and federal resources will determine if these actions to be achieved during the 2012 fiscal year. Reportable data will be collected during this phase.

Phase 2 (July 1, 2012 through June 30, 2013): DCR, in consultation with SWCDs, the Virginia Association of SWCDs, VDOF and others, will assess the needs for additional funding. Priority will be given to the collection of data that will enable Virginia to address Chesapeake Bay TMDL needs. In the Southern Rivers, priority will be placed on data that will help reduce impaired TMDL targeted waters. Given these priorities, consideration will be given to the needs for technical assistance capacity at districts across the state. In addition, the costs associated with a marketing/outreach plan that will target agricultural producers with appropriate messages pertaining to the reporting of voluntary agricultural and forestry BMPs will be determined along with other critical expenses that are necessary to the effective implementation of agricultural and forestry data collection.

DCR will report funding needs to the Governor and the chairmen of the House Committee on Agriculture, Chesapeake and Natural Resources and Senate Committee on Agriculture, Conservation and Natural Resources. .

Phase 3 (July 1, 2013 and beyond): There is considerable interest in the treatment of BMPs that may fall short of the NRCS and VDOF standards and specifications, and yet provide significant water quality benefit. EPA and others are beginning to explore how such data may be reported and credited for nutrient and sediment reductions in the Chesapeake Bay Model. DCR staff will continue to pursue how such data may be collected and reported as the first and second phases of implementation are carried out with a goal of fully implementing all data collection and reporting effective July 1, 2013.

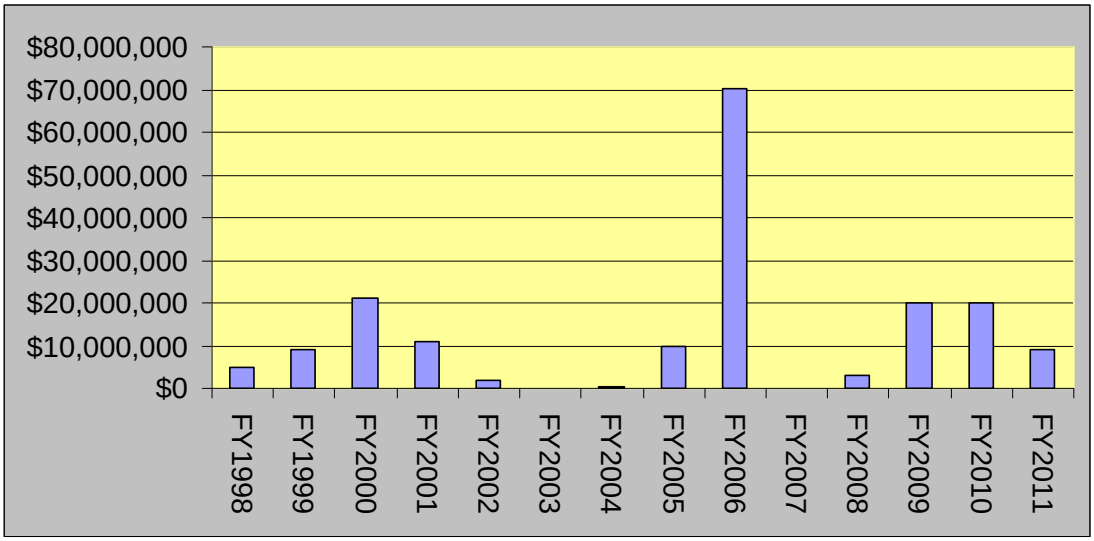
Performance Measurement: Pounds of nitrogen and phosphorus reduced through the implementation of priority practices as reported annually to the U.S. EPA's Chesapeake Bay Program.

Estimated Nutrient Reductions for Priority Practice Implementation, cumulative through June 30, 2009 - Estimates based on changes from 2008 implementation

Practice	Level of Implementation	Total Nitrogen Pounds Reduced	Total Phosphorus Pounds Reduced
Nutrient Management	611,498 acres	257,538	31,428
Cover Crops	79,815 acres	510,816	0
Livestock Exclusion	10,969,689 linear feet	271,856	51,712
Stream Buffers	26,915 acres	67,869	6,420
Continuous No-Till	78,567 acres	33,297	11,819

The following graph depicts the total WQIF funding (for nonpoint source projects) from 1998 through 2011. Significant fluctuations in funding amounts have an effect on farmer commitment and Soil and Water Conservation District staff resources.

Fluctuations in Appropriations to WQIF for Nonpoint Source Reduction Practices



Potential Problem Areas:

- Additional state and federal funding for agricultural BMPs and technical staff support may be needed to deliver the BMPs at local and state level
- Some farmers, for a variety of reasons, prefer not to participate in government programs which make accounting for their efforts difficult and others may choose not to implement conservation priority practices
- Implementation of agricultural conservation practices will be necessary to meet the Commonwealth's nonpoint source nutrient and sediment pollution reduction goals by 2025
- Additional funding was provided to the SWCDs during the 2011 General Assembly, which will assist in meeting reduction goals.

Action 4: Development of Agricultural Resource Management Plans

During the 2011 General Assembly Session, legislation was approved which created agricultural resource management plans. Components of a resource management plan, depending on the type of farm and crops, may include nutrient management plan, forest or grass buffer, soil conservation plan, cover crops, or a system that prevents livestock access to streams. Each individual farm will be assessed to determine which agricultural best management practices are currently being implemented the appropriate components needed to meet watershed reduction goals. Matching grants are available through the Virginia Agricultural Best Management Practices Cost-Share Program to assist with the implementation and maintenance of the resource management plan. Resource management plans, if fully implemented and maintained, will deem the agricultural landowners or operators as meeting the requirements of the Chesapeake Bay TMDL.

GOAL: Implement nutrient management on lands receiving poultry litter

Objective: Revise the current poultry litter management program to assure that all land application of poultry litter will be in accordance with prescribed nutrient management planning practices.

Performance Measurement: Number of acres of nutrient management plans written and implemented and tons of litter and nutrients transferred.

Progress: Two efforts continue to be pursued relative to this objective. First, the Department of Conservation and Recreation (DCR) and the Virginia Poultry Federation (VPF) initiated a cooperative effort to cost-share the transport of poultry litter from areas of concentrated poultry production to outlying areas where soil analyses indicate that crops need additional phosphorus. The Commonwealth and the VPF each contribute equally in transport cost-share funding. The program has paid $5 per ton of poultry litter transferred from either Page or Rockingham counties to outlying areas within the Chesapeake Bay watershed, and $12 per ton for areas outside the Bay watershed. During calendar year 2010, 6,003 tons of poultry litter was transported utilizing the program. Nutrient management plans submitted with applications for this program are reviewed by DCR staff, and all litter that has been transferred under this program has been applied in accordance with these plans. Effective January 1, 2011, the program is being altered to provide the incentive of $15 per ton, but only for litter that moves entirely outside the Chesapeake Bay watershed with a goal of 5,000 tons transported annually.

The second effort involved the amendment of the Poultry Waste Management regulations to require nutrient management practices of end users of poultry litter. This regulatory change was effective in January 2010 to improve record keeping requirements for poultry litter that is transferred from the farm of origin and require proper rates and timing of applications.

Rationale: Given the need for widespread implementation of nutrient management planning to meet the Commonwealth's nutrient and sediment pollution reduction goals, it is critical for Virginia to better address the issue of off-site application of poultry litter. Poultry litter can be a significant source of nitrogen and phosphorus pollution where runoff results from improper application, management or storage. Under current state regulations, nutrient management plans are only required where poultry litter is applied on the same land that is owned or controlled by the poultry grower. When litter is transferred to another farm, there is no such requirement. The

Department of Conservation and Recreation estimates that as much as 85% of poultry litter is transferred from regulated poultry growing operations to other farms.

Strategy:

- Continue implementation of a targeted Virginia litter transport program established in the fall of 2007, to provide incentives for the movement of surplus poultry litter to areas of the state that can better utilize the nutrient content; DCR and the Virginia Poultry Federation contribute equally to fund the program
- Request that the federal U.S. Department of Agriculture / Natural Resources Conservation Service's (USDA/NRCS) poultry litter transport program be reinstated
- Track poultry litter transfers from growers to brokers and end users using the Poultry Waste Management regulatory requirements and data from the transport incentive program
- Investigate other technologies to eliminate poultry waste

Potential Problem Areas:

- Lack of funds long-term to support the continuation of a litter transport system

GOAL: Significantly reduce the phosphorus content of poultry, swine and dairy manures through aggressive diet and feed management

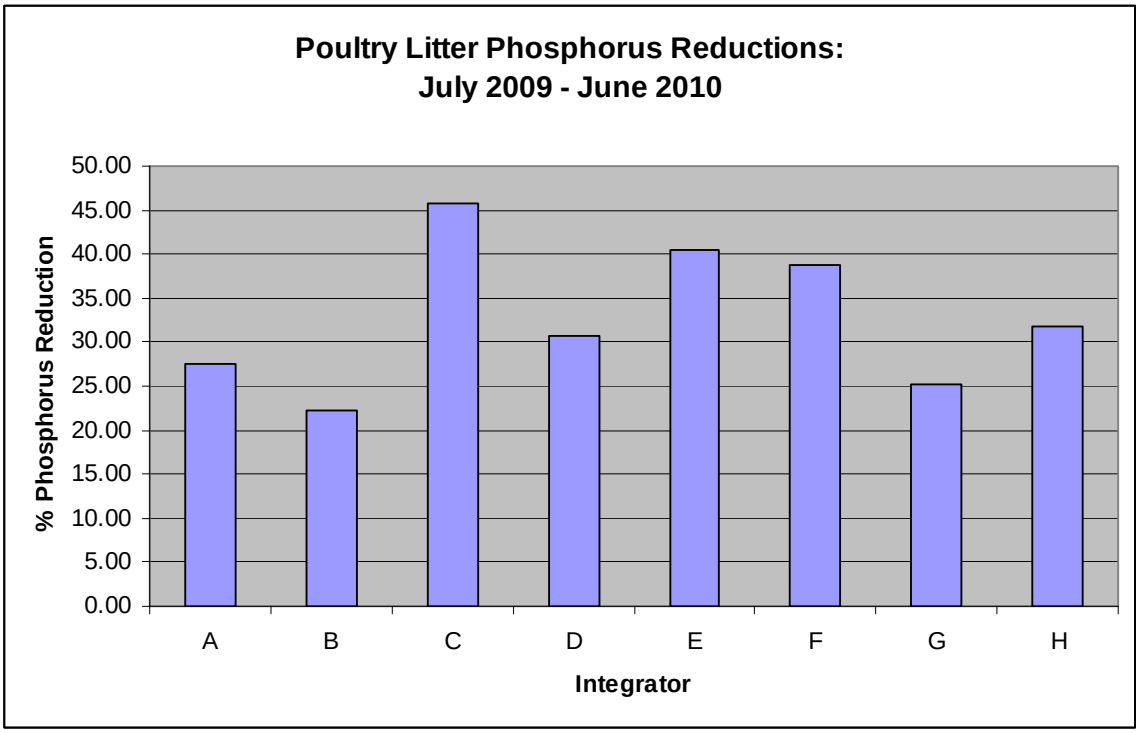
Objective: Reduce the phosphorus content in poultry litter by 30% and swine manure by 35% through wide-spread adoption of feed supplements throughout Virginia's poultry and swine industries and achieve a 10% phosphorous content reduction in dairy manure through improved diet and feed management.

Performance Measurement:

- Percentage reduction in phosphorus content of sampled poultry litter and swine manure
- Percentage of dairy animals in the Chesapeake Bay in dairy operations utilizing diet and feed modification technology

Progress: Memorandums of Agreement were signed with six poultry integrators in November, 2007. These signings established a goal of achieving a 30% reduction level in phosphorus excreted in broiler and turkey litter for each integrator (as compared to baseline data) by December 31, 2010. Monitoring of each poultry integrator's phosphorus reduction began on July 1, 2008, and has continued annually throughout the Memorandums' three year life span. DCR staff have met with each integrator individually to inform them of the results of the monitoring and discuss with them any needed adjustments for them to achieve full compliance with the 30% reduction goal. The July 1, 2010, monitoring results are shown in the figure below.

Poultry Litter Phosphorous Reductions



DCR is investigating working with the primary swine integrator in Virginia; Murphy Brown, LLC; to evaluate phosphorus reduction levels achieved to date in swine feed and manure. Efforts to establish a Memorandum of Agreement with Murphy Brown and other swine integrators in Virginia to reduce phosphorus levels further will be pursued if a 35% reduction goal has not already been reached.

The Department of Conservation and Recreation funded a Dairy Precision Phosphorus Feeding program to help reduce phosphorus in dairy feed. DCR contributed $400,000 of Water Quality Improvement Fund (WQIF) funds to create this pilot incentive program for dairy producers. An additional $880,000 in federal grant funds was leveraged through the use of these state funds. Farmers who met performance targets for phosphorus in their rations were eligible to receive incentive payments. Producers who participate in the program also received free feed and manure analyses.

The program had 163 herds complete sufficient sampling to generate an annual summary of phosphorus feeding levels. There was a reduction of phosphorus fed and thus excreted of 2.65 lbs. per cow per year or 32.6 total tons per year in the 24,522 cows in these herds. A 19% reduction in excess phosphorus fed was achieved in these herds. In addition, approximately $126,804 was approved for incentive payments to Virginia dairy farms, and $166,804 was used for 7,047 lab analyses in support of better feeding management to reduce environmental pollution potential from dairy farms.

A newsletter was prepared for all farm participants summarizing results from the project. In addition, results were shared via newsletters and magazine articles. Programs were conducted highlighting impacts of the project.

Rationale: Feed supplements such as the enzyme phytase have a proven record of reducing the phosphorus content in poultry litter and swine manure. Poultry and swine integrators throughout Virginia have achieved significant nutrient reductions while at the same time protecting animal health and productivity. Virginia has previously assisted the poultry and swine industries in the use of this feed alternative through grants from the Water Quality Improvement Fund. For most poultry and swine operations in Virginia, feed management is handled by a few large integrators that control the feed supply to hundreds of contract growers, whereas most dairies (more than 800 operations) are fully independent operations.

Strategy:

- Meet with the six poultry integrators to discuss achievements over three year period of last Memorandums of Agreement and negotiate new Memorandums of Agreement to begin in 2011
- Evaluate current phosphorus reduction levels with the major swine integrators in Virginia and pursue Memorandums of Agreement to achieve further reduction if necessary
- Provide on-going monitoring of manure analyses to track progress in meeting reduction targets and insure reductions are maintained once met
- Develop and implement outreach program in conjunction with Virginia Tech for Virginia dairy operators to insure they are informed of the economic and environmental benefits associated with diet and feed modifications to reduce phosphorus content in manure
- Monitor progress of each poultry integrator annually by reviewing progress with each company's manure analyses and determine the need for adjustment to achieve full reduction goals in the WIP

Potential Problem Areas:

- Inability for one or more integrators to achieve the 30% reduction target
- Insufficient resources to carry out the required outreach and incentive program needed to convince the majority of Virginia's 800 dairy operators that diet and feed management can help their operation and provide environmental benefits
- Likely inability to gain further reductions in dairy industry due to cheap by-product feeds without massive incentive payments or more restrictions on land application of phosphorus

Developed and Developing Lands

GOAL: Implementation and compliance of erosion and sediment control programs state wide

Objective: By the end of 2010, 90% of the 164 local erosion and sediment programs will be consistent with the requirements of the Virginia Erosion and Sediment Control Law.

Performance Measurement: Number of local program reviews completed annually and percentage of programs reviewed in compliance with state standards.

Progress: The Virginia Soil and Water Conservation Board (VSWCB) adopted revised local program review criteria effective July 1, 2004. Utilizing the revised review process, DCR staff has completed 162 of 164 local program reviews. The remaining 2 local programs are small towns scheduled for review in the next review cycle beginning in FY12. As of the November 18, 2010 meeting, the VSWCB has recognized 153 (93%) local programs as being consistent with the law and regulations. Programs found to be not consistent with the law and regulations are required to develop and implement corrective action agreements. These programs are then considered as being conditionally consistent with corrective action pending.

Rationale: The control of erosion and resulting sediment loss from construction sites is a foundational nonpoint source control program. Compliant local programs protect Virginia's soils and water resources.

Strategy:
- Continue the current five year program review cycle to increase or maintain the 90% consistent local erosion and sediment control programs
- Local programs found not consistent with the law will be required to complete a Corrective Action Agreement (CAA) outlining measures/timeframes necessary for compliance
- DCR staff will refer chronic non-compliance issues to the Soil and Water Conservation Board for enforcement action and possible civil penalties
- DCR staff will revise current erosion and sediment control courses and develop additional training and educational material to provide more current and applicable information to local program staff, developers, contractors and the general public
- DCR staff will coordinate general permit inspections with local program staff erosion and sediment control inspections to increase compliance on-site and to provide additional education to local program staff related to erosion and sediment control and stormwater management
- Begin next five year review cycle in FY2012

Potential Problem Areas:
- Localities must be willing partners in improved compliance
- Localities must be willing to adequately staff their program
- Localities must be willing to investigate adequate funding needs for program implementation and ensure full compliance with the program

GOAL: Implement Revised Stormwater Management Program

Objective: Complete the revision of Virginia's stormwater management regulations and implement the regulations statewide with maximum local government adoption.

Performance Measurement: Upon completion of the regulatory revision process, progress will be tracked semi-annually through future revisions to the Clean-Up plan as follows:

- Number of localities with a Board approved stormwater program
- Number of stormwater programs operated by DCR
- Number of construction sites that require the stormwater general permit that have obtained permit coverage
- Number of DCR and locality inspections of permitted sites

Progress: On December 9, 2009, the VSWCB adopted final revisions to the Virginia Stormwater Management Program (VSMP) Permit Regulations Parts I, II and III (4 VAC 50-60). In response to 25 petitions, the VSWCB suspended the effective date of the regulatory action and the regulations currently remain suspended.

In 2010, the General Assembly passed legislation that established the effective date for the water quality and water quantity criteria, and local program criteria of the regulations. The effective date of the regulations shall be within 280 days after the establishment of the Chesapeake Bay-wide Total Maximum Daily Load (TMDL), but in any event no later than December 1, 2011.

Although the regulations remain suspended, DCR established a Regulatory Advisory Panel (RAP) to begin modification of the regulations prior to the TMDL. The RAP established five sub-committees to evaluate the regulations. The committees are evaluating Offsets/Credits, Water Quality, Water Quantity, Grandfathering and Local Program criteria. The expected completion date for the revisions to the regulations is May 2011.

Rationale: The Virginia Soil and Water Conservation Board is the regulatory authority for the National Pollutant Discharge Elimination System (NPDES) programs related to municipal separate storm sewer systems (MS4) and construction activities. The DCR is responsible for the issuance, denial, revocation, termination and enforcement of the stormwater permits for the control of stormwater discharges from MS4s and construction activities under the Virginia Stormwater Management Program (VSMP) Permit Regulations.

The Virginia Stormwater Management Program seeks to maintain, protect, or improve the physical, chemical, biological and hydrologic characteristics and the water quality and quantity of receiving state waters, as well as, protect properties from damages caused by increased volume, frequency and peak flow rate of stormwater runoff. A regulatory revision is underway that seeks to establish specific requirements for stormwater quality and quantity controls for development. The proposed regulations also define what is required for a local government to be approved to operate a local stormwater management program. The regulations also include an updated fee schedule for MS4 and construction general permits with the goal of providing local governments and DCR the necessary resources to operate a stormwater program.

Strategy:

- Provide draft regulatory revisions for public comment by May 2011.
- Obtain U.S. EPA approval of regulations.
- Ensure that 85% of the regulated construction activities required to receive general permit coverage are compliant by December 31, 2011.
- Ensure local governments have board-approved programs by July 2014.
- Begin revisions to the General Permit for the Discharge of Stormwater from Construction Activities.

Local/State Coordination:

- Significant coordination between DCR and local governments will be needed:
    - To develop local program and department administrative procedures including procedures related to the handling of complaints and program/permit enforcement.
    - To develop the process for local governments that adopt the local program to collect and share permit fees between the state and locality
    - To develop a coordinated working relationship that allows, DCR to effectively operated a comprehensive stormwater program in localities that do not adopt a program.
- Training for local governments to familiarize them with new program requirements will be necessary and will take additional resources to accomplish

GOAL: Fully achieve local government compliance with septic maintenance and pump-out requirements and BMP monitoring and inspection requirements of the Chesapeake Bay Preservation Act

Objective:

- Achieve 100% compliance by Tidewater localities with septic pump-out requirements of the Chesapeake Bay Preservation Act by 2010. – *This objective has been achieved.*
- Achieve 100% compliance by Tidewater localities with the urban best management practice (BMP) maintenance requirements of the Chesapeake Bay Preservation Act by 2010. **–** *This objective has been achieved*
- Establish voluntary septic tank pump-out maintenance programs in localities outside the Chesapeake Bay Preservation Act area, both within the Chesapeake Bay Watershed, and Southern Rivers portion of the Commonwealth

Performance Measurement:

- Number of localities in compliance with local septic pump-out programs
- Number of localities in compliance with BMP maintenance requirements
- Number of systems pumped with estimated resulting nutrient reductions
- Numbers of BMPs installed along with pollutants removed and acres treated

Progress: As of September 30, 2010, 100% of the 84 Tidewater localities have been found by the Chesapeake Bay Local Assistance Board (CBLAB) to have met the septic tank pump-out requirements.

The Chesapeake Bay Preservation Area Designation and Management Regulations (Regulations) require all Bay Act localities to submit an annual report outlining the implementation of their Bay Act programs. According to the information received from local governments within the Bay Act area, roughly 230,000 onsite septic systems exist in locally designated Chesapeake Bay Preservation Areas. Based on Annual Report data for the 2009-2010 fiscal years, 50,061 septic pump out notices were sent to owners of onsite systems, and 28,963 systems were pumped, inspected or had a plastic filter installed. Of this total, 27, 987 systems were pumped, equating to a nitrogen reduction of roughly 14,000 pounds. From the time when the Department began collecting data on pump outs (2008) through the present, the cumulative total of pump outs that have been conducted is 117,844. This equates to a total nitrogen reduction of 59,000 pounds (based on the Bay Model assigned reduction of .5 lb. nitrogen per 1000 gallons pumped).

As of September 2010, 100% of the Tidewater localities have been found by CBLAB to have met the BMP maintenance requirements or the Bay Act Regulations.

As part of the required annual report of Bay Act implementation, localities are also required to track the number of water quality BMPs that have been installed for the previous fiscal year as well as the acres treated by those BMPs. For the 2009-10 fiscal year, 37 localities reported 795 water quality BMPs were installed. Although the acreage served by these BMPs was not reported by all respondents, 8,139 acres of land were treated by these BMPs. The three year total for water quality BMPs installed is 2,166, treating 26,013 acres of land.

Rationale: Improperly maintained septic systems can be a source of excess nutrients and bacteria both to ground and surface waters. Elevated levels of e-coli bacteria are the cause of a

significant percentage of Virginia's waters being listed as impaired, particularly in developed areas where a predominant source of the bacteria is improperly maintained septic systems. Because of this concern, for nearly 20 years the Chesapeake Bay Preservation Act regulations have contained a requirement, to be implemented by Tidewater localities, for the periodic pump-out of septic systems.

As demonstrated by the above discussion, all 84 Bay Act localities now comply with the septic tank pump out and BMP requirements of the Bay Act regulations. Compliance has improved as a result of a compliance evaluation process that was initiated by DCR in late 2003. While there has been significant improvement in their implementation of the septic pump out requirements, as a result of the compliance evaluation process, many of these localities lack the staff and funding resources necessary to implement the program on a continuous basis and have relied heavily upon various grant funds for assistance. In particular, grant funds have been sought and actively utilized by localities and Planning District Commissions to provide financial assistance to low to moderate income individuals for septic system pump outs. During the last six years, however, such funds have been insufficient, inconsistent and have significantly declined. Further, there is no requirement for a periodic septic pump-out and maintenance program outside of the Chesapeake Bay Preservation Act area, or outside the designated Chesapeake Bay Preservation Areas within Tidewater localities. Although septic tank pump outs are not the most significant pollutant reduction strategies contained in the State's Watershed Implementation Plan to address the Chesapeake Bay TMDL, they are none the less an important strategy. Evaluations of local compliance with the septic pump and the thirty other provisions of the Bay Act Regulations is an effective tool to ensure pump outs continue in the Bay Act area. However, dedicated on-going resources need to be identified to provide assistance to local governments and, as importantly, low and moderate income property owners to ensure that the septic system pump out program continues to achieve the pollutant reductions that have been tracked and reported to the Chesapeake Bay Watershed Model.

The Chesapeake Bay Preservation Act also requires pollutant loadings from new development and redevelopment activities be reduced. This requirement has been implemented by all Tidewater localities since the mid-1990s typically through the use of BMP facilities such as wet ponds, extended detention (dry) ponds, bioretention facilities and created wetlands. The Bay Act Regulations further require that these facilities be maintained, a requirement that necessitates tracking and periodic inspection. Again, as the discussion above shows, all Tidewater localities have compliant BMP maintenance programs. Although compliance with this element of the Bay Act program has improved significantly since the initiation of the compliance evaluation process, as these localities face growth and development, they will need additional technical and financial resources and assistance to continue to implement BMP inspections. Adequate inspection and maintenance programs are critical for the Commonwealth to accurately measure how effectively localities are controlling pollutants from newly developed and redeveloped land.

Strategy:

- Investigate a consistent funding source to assist localities, Planning District Commissions or private entities in carrying out septic tank pump-out programs
    - These funds will enable the PDCs, localities or other groups to notify septic owners of the need to pump their systems out, develop and disseminate educational materials to homeowners on the benefits of maintaining septic systems, and provide financial assistance to low and moderate income individuals to pump out septic systems (estimated that full local implementation of the septic pump-out program within the

Chesapeake Bay Preservation Act area would achieve 36% of the needed pollutant reductions from septic systems).

- The remaining pollution reductions would be achieved through replacement of failing systems.
- Monitor compliance and obtain data from localities on the number of systems pumped and report this information to the Chesapeake Bay Program so that the pollutant load reductions resulting from local septic pump out programs can be accounted for in the Chesapeake Bay model. This program has been established and is underway.

Potential Problem Areas:

- Inadequate, stable funds to assist homeowners with septic system pump outs
- Lack of local government staff capacity to ensure septic tank program continues
- Lack of automation of existing records and additional database tools to track BMPs and septic pump-out status

GOAL: Incorporate specific water quality protection measures into local land development codes, ordinances, and processes.

Objective: Conduct Tidewater locality code and ordinance review by DCR staff by December 2010. Review will determine the extent to which the Tidewater localities are implementing measures to protect water quality, particularly requirements to reduce impervious cover, minimize land disturbance and maintain indigenous vegetation.

Based on this code and ordinance review process, identify the level of planning and financial assistance needed to help localities amend their codes to address water quality protection.

Performance Measurement: Number of local governments compliant with BMP maintenance, septic pump-out and Phase III requirements.

Progress: As of December 13, 2010, reviews have been completed for 44 of the 84 Bay Act localities, with an estimated completion date of summer 2011

- BMP maintenance programs: 84 of 84 (100%)
- Septic pump-out programs: 84 of 84 (100%)
- Phase III requirements: compliance is not determined at this point. Compliance will not be evaluated or determined until a locality undergoes a formal Compliance evaluation. The next set of evaluations are not scheduled to go before the Chesapeake Bay Local Assistance Board until 2011

Phase III of local government implementation of the Chesapeake Bay Preservation Act Regulations (Regulations) requires the 84 Tidewater local governments to review local land development ordinances, and revise them if necessary, in order to ensure these ordinances adequately manage the protection of state waters. An important element of Phase III is the requirement for local ordinances to have specific standards to ensure that development in Chesapeake Bay Preservation Areas minimizes land disturbance, preserves indigenous vegetation, and minimizes impervious cover, as well as six specific requirements for approved plats and development plans. Phase III will also involve the identification and resolution of obstacles and conflicts to achieving the water quality goals of the Chesapeake Bay Preservation Act within local programs and ordinances. Although DCR cannot yet quantify the level of

accomplishment achieved by the local code changes, progress has been made in this area.

On June 15, 2009, the Chesapeake Bay Local Assistance Board approved a Phase III review approach that will assess the extent to which Bay Act localities are in compliance with these requirements. To assist local governments in reviewing local ordinances, the Board has developed two checklists. The Plan and Plat Consistency Review Checklist will determine if a locality has addressed the six plan and plat provisions that must be contained in local ordinances, as they are specifically required by the Regulations. The Checklist for Advisory Review of Local Ordinances will determine if there are adequate provisions to address the three performance criteria and contains numerous examples of requirements that may be contained within a locality's land development ordinances. Over the next eighteen months, DCR staff will work with local government staff to evaluate local ordinances and processes to determine the extent to which specific provisions exist to enable the locality to implement the requirements of the Regulations described above. Based on this review, localities may choose to modify ordinances and processes to address development standards that benefit water quality. The advisory review process began in September of 2009. Specifically, as of October 2009, DCR initiated the review of the codes and ordinances of 6 Bay Act localities.

In addition to the above activities, the following additional projects were undertaken during the past year to address this objective.

Rationale: For 16 years, Chesapeake Bay Preservation Act localities in Tidewater Virginia have been implementing a variety of water quality performance criteria to protect important water resources such as wetlands and streams, but such criteria are typically contained in local ordinances and codes that are separate from or overlays within other local land development codes and requirements. As a result, the basic provisions of local zoning and subdivision codes often contain requirements that are in direct conflict with local Chesapeake Bay Preservation Act ordinances in particular and the protection of water quality in general.

The third implementation phase of the Chesapeake Bay Preservation Area Designation and Management Regulations requires local governments to review their land development regulations and revise them as necessary to ensure they are consistent in requiring development to reduce impervious cover, minimize land disturbance, maintain indigenous vegetation, achieving the protection of state waters and resolving any conflicts among the components of the local programs. Ordinance reviews will focus on zoning and subdivision codes, local plans of development processes and other local requirements. Completion of Phase III will ensure that water quality protection is incorporated into all steps of the land use approval process, from comprehensive plans to final plan approvals. Removal of these conflicts will be a key tool, along with other DCR nonpoint source initiatives, to significantly reducing nonpoint source pollution from land development activities.

In addition, as a result of the significant water quality benefits that could be achieved, the state also should promote such code and ordinance revisions in localities outside of the Chesapeake Bay Preservation Act area.

Undertaking a review of all development codes and ordinances is a very time-consuming and

resource extensive process, typically within the capacity and a priority of only the largest jurisdictions. Direct involvement by the DCR will be necessary in order to ensure localities are able to complete this important task.

Strategy:

- Implement the Phase III ordinance review of all 84 Bay Act localities, either by requiring self-assessments and reporting, or conducting reviews on behalf of localities
- Seek and utilize federal Chesapeake Bay Implementation grant funds or other sources of federal grants to assist Tidewater localities with the development and adoption of specific local code amendments that assist in water quality protection and comply with the Chesapeake Bay Preservation Act Phase III requirements
    - As defined in the Bay Act Designation and Management Regulations, these provisions specifically require localities to adopt local code amendments that minimize impervious cover, minimize land disturbance and preserve indigenous vegetation
    - $11,000 in grant money has been provided to the Friends of the Rappahannock to conduct a code and ordinance review and amendment process with Caroline and Lancaster counties
- Provide additional financial assistance to localities in the amount of $100,000 using existing federal funds for compliance with Phase III of the Bay Act through a competitive grant program to support development and adoption of specific local code amendments that address water quality protection
- Collect codes and ordinances, as they are developed to meet Phase III requirements, to develop an ordinance review and revision "tool box" for use by other Bay Act localities

Potential Problem Areas:

- Resistance by some localities to recommended changes to ordinances
- Lack of trained staff with adequate planning experience and expertise to undertake needed analysis, particularly in smaller, rural jurisdictions
- Inadequate dedicated funds to assist local staff in amending local codes to be compliant with the Phase III requirements

Resource Extraction

Objective: Reduce water quality impacts associated with former resource extraction activities by proper site planning and best management practice implementation. Reduce erosion on abandoned or orphaned mined land. Include water quality goals in prioritization of areas for reclamation activities.

The Virginia Department of Mines, Minerals and Energy's (DMME) Division of Mined Land Reclamation accomplished the reclamation of 210 acres of abandoned coal mine land during 2010. This included planting over 12,000 native hardwood seedlings on abandoned sites. DMME's work to reclaim abandoned coal mine sites is funded through a fee on active coal production paid by the coal industry and administered by the federal Office of Surface Mining. Partners in DMME's reclamation include the Office of Surface Mining, the Virginia Department of Conservation and Recreation, Upper Tennessee River Roundtable, the coal industry, and numerous corporate and private landowners.

In 2010, DMME's partnership with the Natural Resources Conservation Service, the Daniel Boone Soil and Water Conservation District, and Lee County began construction in a watershed effort to abate acid mine drainage (AMD) in the North Fork Powell River. The Upper Tennessee River Roundtable is providing $44,000 to help fund the AMD abatement.

Through its FY2009 AML Consolidated Grant, DMME has a project to abate acid mine drainage in the South Fork Pound River. This AMD is the single worst abandoned mine land impact on this 303d impaired stream, and is Virginia's worst coal related AMD discharge outside of the Clinch and Powell River watersheds. DMME has a technical advisory group of agency personnel and citizens to assist in advancing this project.

DMME assisted conservation organizations and local watershed groups in preparing 2010 WQIF grant requests to the Virginia Department of Conservation and Recreation. The requests are to fund reclamation of low priority abandoned mine lands that adversely impact the environment and have little likelihood of being reclaimed through DMME's federally funded AML program. DMME assisted with seven submittals and also had one submittal directly to DCR.

DMME is continuing a project with The Nature Conservancy to identify and prioritize abandoned mine land features in the Clinch and Powell River watersheds.

To advance the best reforestation of mined lands, DMME and the Kentucky Department for Natural Resources held a 2010 Interstate Arbor Day on a surface mine exactly on the Virginia-Kentucky border. Cumberland River Coal Company hosted the event and students from elementary schools in Virginia and Kentucky planted over 800 native hardwood seedlings.

The Office of Surface Mining (OSM) recognized DMME for its reclamation accomplishment on the Cranes Nest Gob Pile Removal Project. OSM awarded this project the national 2010 AML Small Project Award. This project completely removed a 9 acre gob pile and restored 900 feet of perennial stream that had been buried for over 60 years by as much as 10 feet of gob or coal waste. After two years of monitoring, a healthy benthic community has reestablished.

In addition to its own contracted reclamation, DMME realized additional reclamation of abandoned coal mine sites through the process of remining. This is the activity wherein companies remine areas mined and abandoned prior to August 3, 1977, and reclaim the areas to current and effective standards through the remining process. For 2010, remining efforts of the Virginia coal industry reclaimed an estimated 2100 acres, with approximately 25% of this area being previously mined lands. In 2010, the Virginia coal industry planted over 1.7 million tree seedlings to complement its reclamation efforts.

SUCCESS STORIES: NON-POINT SOURCE POLLUTION REDUCTIONS IN VIRGINIA'S RESOURCE EXTRACTION IMPAIRED STREAMS

Virginia's formal 303(d) list of impaired waters includes approximately 150 miles of streams identified as impaired by resource extraction in the state's southwestern coalfields. These stream miles, located within six of Virginia's western most counties (Buchanan, Tazewell, Dickenson, Russell, Wise, and Lee) have poor aquatic health and do not meet the state's general water quality standards due to impacts from the region's century-long history of pre-law coal mining. Many old abandoned mined land (AML) features continue to contribute heavy loads of non-point source pollution (NPS) to the streams.

Because the Virginia Department of Mines, Minerals, and Energy's Division of Mined Land Reclamation (DMLR) is responsible for ensuring the reclamation of lands and the restoration of waters affected by coal mining in the state, DMLR has taken a pro-active approach to the reduction of non-point source pollution and the restoration of coalfield streams through the agency's administration of both the state's Abandoned Mine Land (AML) program and the state's Surface Mining Control and Reclamation Regulations (SMCRR).

DMLR's pro-active approach includes taking the lead with the development and implementation of many resource extraction based Total Maximum Daily Loads (TMDL).

Since signing a TMDL Memorandum of Understanding with Virginia's Department of Environmental Quality (DEQ) in September 2000, DMLR has worked, and continues to work, cooperatively with DEQ and with the Virginia Department of Conservation and Recreation (DCR) to develop Total Maximum Daily Loads (TMDLs) and TMDL Implementation Plans (IPs) for resource extraction impaired waters.

Ten years of pro-active approach and cooperative effort has produced many TMDL and NPS success stories. Several success stories, with important 2010 updates, are included in the following narratives.

MIDDLE CREEK

Middle Creek is a tributary to the Clinch River located in the coalfields of Tazewell County Virginia. The stream's total length is approximately eleven miles and its drainage area is approximately seven thousand acres, the confluence with the Clinch River is in the town of Cedar Bluff. The watershed consists primarily of steep sloped forested hillside. Less than five percent of the land is developed as residential, urban, and agricultural with most of the development located along the creek at the lower end of the watershed. The local geology can be described as layers of gently dipping sedimentary rocks interspersed with several above drainage coal seams. These seams include the Seaboard and Greasy Creek. Coal mining was conducted in these seams continuously in the upper part of the watershed from the 1950's through the 1990's. Mining activities principally included underground extraction, coal processing, and coal haulage.

In 1998, Virginia's DEQ placed Middle Creek on the state's 303(d) list of impaired waters. The listing was based on benthic macro-invertebrate monitoring performed by DEQ in the stream. Monitoring results showed low benthic organism count and poor biological health. The 1998 303(d) fact sheet identified the source of impairment as resource extraction. DEQ identified the predominate land uses as coal mining related.

Comprehensive environmental regulations requiring technology based conservation measures for the coal mining industry were not established in Virginia until the United States Department of the Interior granted the state primacy over the Surface Mine Control and Reclamation Act (SMCRA) in 1981. At that time, decades-old mining operations were underway throughout southwestern Virginia's coalfields including Middle Creek. There existed some older abandoned mined lands in Middle Creek, but most of the mined areas were incorporated into state issued mining and reclamation permits during the early 1980s. These permits contained requirements for drainage plans, materials handling, regrading, revegetation, and pollution control. Also, the permits required operators to provide a performance bond to insure that the mine sites would be reclaimed to an acceptable post mining land use.

Unfortunately, adverse environmental impacts to Middle Creek from pre-law mining had already occurred by the time SMCRA primacy was granted. In December 1981, several hundred acres of the watershed were disturbed by active mining. Coal mine refuse was being disposed along the stream and its tributaries without adequate environmental and engineering safeguards. Precipitation events washed suspended and dissolved solids into the stream from the mine sites and non-point source pollution was a significant problem. In addition, releases of black water were noted by representatives of DMLR and an average of specific conductivity values for samples collected from the stream in December 1981 was relatively high at 660 mmhos/cm.

Regulated and permitted mining operations were conducted in the watershed from 1983 until 1999. During this period, some NPS pollution controls were installed; sediment control and land management practices were required and utilized at the active mines. Improvements in stream water chemistry were noted. During a compliance evaluation inspection by DMLR of all the active coal operations in Middle Creek, September 1996, specific conductivity values for the stream at the same general location as the December 1981 measurements averaged 416 mmhos/cm for the period of July through September 1996.

Through the 1990's, Covenant Coal Corporation (Covenant) operated the mines in Middle Creek. Their last facility, the coal processing plant, was idled in 1999. Covenant's operations in Middle Creek included the Middle Seaboard No. 3 mine, the Middle Creek Energy mine, the Greasy Creek No. 3 mine, the Sawmill Hollow refuse area; the Middle Creek fill No. 5 and Middle Creek Coal Preparation Plant. These facilities totaled 243.92 permitted acres. After Covenant closed their last operation in Middle Creek, the company did not complete reclamation of the mine sites. As a result of Covenant's failure to reclaim permitted areas, DMLR initiated enforcement actions that led to the company's forfeiture of the performance bonds in August 2000. After bond forfeiture, DMLR administered the reclamation of the sites through a settlement agreement with Clarendon National Insurance Company.

The mined land reclamation activities administered by DMLR in Middle Creek included best management practices and conservation measures typical of contemporary reclamation throughout Virginia's coalfields; removal of equipment and structures, regrading of the land to original contours, revegetation, and establishment of a designed post mining land use. These reclamation methods are designed to address both point source and non-point sources of pollution. In Middle Creek, all sites were ultimately reclaimed as unmanaged forestlands.

VA DEQ followed up the land reclamation in Middle Creek with benthic macroinvertebrate monitoring in July and November of 2003. The stream showed considerable improvement as compared to the previous DEQ monitoring. Scores for both 2003 surveys indicated that Middle Creek was no longer scored as impaired. DMLR conducted chemical monitoring at two stations in Middle Creek – one near the mouth of the stream at DEQ's benthic macroinvertebrate monitoring station and one near the location of the 1981 and 1996 chemical measurements mentioned earlier in this narrative. The samples collected from Middle Creek average 263 mmhos/cm for specific conductivity. The reclamation of the historical mining sites in Middle Creek appears to have reduced the level of NPS, solids, and minerals contributed to the stream from the sites.

In early 2005, DEQ formally requested that EPA allow the state to de-list Middle Creek, including the information described above and presented in a study performed by MapTech, Inc.

The de-listing was approved in May 2006.

Utilizing DMLR's approach to mined land reclamation, 3 miles of resource extraction impaired stream was restored.

During 2010, a TMDL study has been initiated by VA DEQ for the Upper Clinch River watershed area - including Middle Creek.

BLACK CREEK

DMLR recognizes that the reclamation of abandoned mined lands must be part of implementation plans to restore impaired streams in Virginia's coalfields. Unfortunately for all state and local stakeholders, abandoned mine lands are common throughout southwestern Virginia's coalfield watersheds, reclamation is costly, and public AML program funds are not sufficient. A variety of approaches for reclaiming old abandoned mines will be is necessary and DMLR considers remining as one of the important and appropriate approaches.

Virginia's receipt of primacy for the SMCRA established authority for a state program to control the environmental impacts of coal mining and insure the reclamation of lands disturbed by mining. Although the program is very effective in minimizing effects of current mining, a legacy of old environmental problems exist. As indicated previously, at the time the Commonwealth received SMCRA primacy in 1981, commercial coal mining had been continuously conducted in southwestern Virginia for nearly a hundred years leaving behind thousands of acres of disturbed lands and miles of impacted streams. Despite efforts by DMLR, local governments, watershed organizations, and planning agencies to reclaim, restore, and develop these old mines, they continue to cause a variety of environmental problems.

Abandoned mined lands are areas disturbed by coal mining prior to current reclamation laws and standards. Old abandoned mines occur in a variety of forms. "Shoot-and-shove" mining, a common practice in steep-slope areas prior to SMCRA, created much of Virginia's abandoned mine acreages. Soil and strata overlying the coal was blasted and pushed downhill resulting in the characteristic highwall-bench-outslope terrain still common in Virginia's coalfield counties. "Shoot-and-shove" mining created numerous environmental problems. Outslope spoils tend to be unstable and contain pyritic materials that cause acidic drainage. These abandoned spoils are slow to revegetate, and many such areas produce sedimentation decades after they were created. Abandoned deep mines are also responsible for environmental problems. Old underground mines cause impacts such as subsidence on land surfaces and acidic drainage from deep-mine cavities. Coal processing wastes generated at preparation plants and coal-loading sites were often disposed in a convenient hollow or creek. These old piles of refuse contribute adverse loads of sediment and dissolved minerals into the adjacent waters. Ultimately, abandoned mine land features cause off-site environmental impacts including impairment of coalfield streams.

In all resource extraction TMDL studies performed on coalfield streams by DEQ, NPS pollution loads from abandoned mines are identified as a significant contributor to the streams' impairments. Pollution load reductions, especially for sediments and dissolved solids, will be needed from the abandoned sites for the streams to be restored. The necessary pollution load reductions can only be accomplished by the reclamation to current environmental standards.

A viable approach for reducing some abandoned mine areas is remining. Remining can be defined as conducting new surface coal mining operations in compliance with current

environmental standards on old abandoned areas or nearby older areas where spoil from active sites may be used to reclaim the abandoned features. Remining can be performed on areas where coal reserves were left behind. Coal companies re-disturb lands that were previously mined, remove remaining coal, eliminate existing environmental problems, and reclaim the land to current standards. DMLR has been actively promoting remining as a mechanism to reclaim abandoned mine lands that will not otherwise be addressed. DMLR is also supporting remining as a principal tool for implementation plans in coalfield TMDL streams. Remining as an implementation practice will not depend on public funds, but instead on private enterprise. Remining and proper reclamation of abandoned mine features in watersheds currently impaired by historical resource extraction may remove the impairment status.

An example of remining as an implementation practice in an impaired coalfield stream is Red River Coal Company's operations in Black Creek. Black Creek is located near the City of Norton in Wise County and the stream was placed on the state's 303(d) list in 1998. Macroinvertebrate data collected by Dr. Donald Cherry of Virginia Tech determined that the benthic health of the stream was severely impaired by acid mine drainage (AMD) from old deep mines in the watershed. A TMDL study of Black Creek was completed by MapTech, Inc. in 2002. The TMDL study determined that the specific chemical stressors causing the benthic impairment were total manganese and dissolved solids and that these stressors are related to the AMD. Red River Coal Company's approved mining and reclamation plans directly address the stressors.

Red River Coal Company is a local coal company currently remining in the Black Creek watershed. Operations plans included reclamation measures specifically designed to address the stream's impairment source; elimination of a large underground mine area via daylighting – uncovering the mine voids and purging the acidic waters - and the reclamation of about 300 acres of old abandoned mine area. Incentives incorporated in the mining plans are alternate and less stringent effluent limits. The reclamation measures are reducing the stressors identified in the TMDL study.

At present, the remining operation is seventy-five percent complete and initial environmental results are very positive. Chemical water monitoring performed routinely in Black Creek by the coal company shows marked improvement and macroinvertebrate data collected under a DMLR contract, and presented to the agency in 2010, is showing better aquatic insect population.

After remining and reclamation is totally complete, DMLR and DEQ will re-assess the impairment status of the stream and, hopefully, be able to remove Black Creek from the 303(d) list.

The reclamation of abandoned mine areas in southwestern Virginia's coalfields will be a critical component of watershed restoration and implementation plans for streams impaired by historical coal mining.

BULL CREEK

In September 1999, soon after Virginia's1998 303(d) list of impaired waters was published, DMLR representatives met with DEQ and DCR staff in the parking lot of the Harman Baptist Church to talk about stream improvement projects and map out an initial restoration direction.

Approximately 17 miles of Bull Creek and its tributaries were identified by DEQ as impaired.

Although no active mining was being conducted along Bull Creek at the time, the area had been extensively mined prior to 1993. All three state agencies agreed that the restoration of Bull Creek would need a cooperative focus on the old mining in the watershed.

Harman Mining Company operated coal mining, processing, and refuse disposal facilities in the headwaters of Bull Creek, including Starr Branch, Belcher Branch, and Deel Fork, from the 1930's until the 1990's. At its peak in the 1940's, Harman Mining Company employed over 1,600 workers. Originally, mining, loading, and cleaning coal was all done by hand. When modernization and automation arrived in the early 1950's, the plant began cleaning the coal with sand and water mixture – utilizing mine water discharging from the Splashdam works. The wastewater flowed directly into Bull Creek until the 1970's and the stream often ran black.

Historically, the coal preparation plant adjacent to Bull Creek and the refuse disposal site in Starr Branch degraded water quality by contributing sediment and coal fines to the stream. The results included increased levels of dissolved solids, suspended solids, and sulfates in the water, as well as deposition along the stream bank. Much of the pollution was in the form of non-point source run-off during rain and storm events. The prep plant contributed to the abandoned mine pollution load that also included hundreds of acres of strip mine bench in the upper reaches of the watershed.

The Bull Creek watershed is located in western Buchanan County approximately 4 miles from Grundy. The impaired segments of the stream include its entire length and all tributaries; Belcher Branch, Deel Fork, Burnt Poplar Fork, Big Branch, Jess Fork, and Convict Hollow.

The goal of the Bull Creek Stream Improvement project was to enhance water quality and address biological impairment through bank stabilization and riparian zone restorations in conjunction with the reclamation of abandoned mined lands. This included the Harman mine and prep plant. Sediments and coal fines were cleaned from the plant and covered on-site. The existing retaining walls were removed and replaced with designed riparian zones.

Because the Harman Coal Corporation mine and preparation plant were forfeited sites, the DMLR used reclamation bond funds to reclaim the site in accordance with current laws, regulations, and permit requirements. An important part of the bond forfeiture reclamation work was conducted along a 5600 feet section of stream. This work was initially limited to permitted areas. Utilizing grant funds from DCR, DMLR was also able to work in areas not under permit and repair the stream, adjacent stream bank, and riparian areas.

In April of 2010, a "phased" TMDL report was submitted by the DEQ to EPA's Region III. The TMDL report calls for additional pollution reductions, similar to those accomplished by the Stream Improvement Project

TMDL OFFSETS

DMLR currently tracks active mining wasteloads on a watershed basis to insure that all new or revised mine permits are consistent with any approved resource extraction TMDLs. If tracking indicates that active mining wasteloads are at the upper limits of wasteload allocations in the TMDLs, DMLR has been requiring mine operations to include NPS offsets before additional mining can be permitted.

DMLR's current permitting and offset processes in TMDL watersheds addresses NPS in several

important ways. These include more stringent sampling requirements in TMDL and impaired watersheds, a reduction in the overall amount of pollution from active mining activity, and the restoration of AML features as part of offset projects. A specific example of an offset project in Callahan Creek, Wise County, is described below.

Slope failure, related to impounded water in an abandoned underground mine (the old Hi-Top mine), resulted is a major landslide in 2006. The landslide created sedimentation that impacted Callahan Creek and the Powell River for 24 miles downstream. The potential continued to exist for another catastrophic mine blow out which would have caused major sediment loading and created a danger to public health and safety. As a TMDL offset, a local coal company worked with DMLR to dewater the underground mine workings to a level below outcrop and regrade and revegetate slide area. A significant amount of NPS pollution reduction was accomplished.

State and Local Coordination

The Middle James Roundtable: www.mjrt.org
The Middle James Roundtable is a collaborative effort among various stakeholders in the Middle James watershed to improve water quality and the overall health of our communities. The Middle James watershed extends west to Amherst County, north to Green County, south to Prince Edward County and east to Charles City County. The Middle James watershed region is approximately 6,190 square miles and is the largest and most diverse portion of the James River watershed. With the diversity of the Middle James watershed, comes many valuable natural areas, historical areas and resources.

Roundtable stakeholders include elected officials, local government staff, the agricultural community, planning district commissions, business and industry, water and sewer utilities, commercial fishermen, soil and water conservation districts, developers, interested citizens, environmental groups, tourism and recreational groups, state and federal agency staff and public service authorities. Roundtable activities are dictated by the participants and can involve activities such as hosting forums to discuss local watershed issues and land use, educating citizens about water quality, grant writing, coordinating workshops, social marketing campaigns, collecting and analyzing water quality data and planning and implementation of watershed goals.

York River: www.yorkwatershed.org
The York River and Small Coastal Basin Roundtable expanded their already successful educational and engagement work across the basin in 2010. Two "Environmental Compliance" technical trainings were held, one on the planning, permitting and design of ponds in the upper basin and one on wetland regulations and buffer requirements for land disturbers in the middle basin. A river celebration was also held along the Pamunkey River. A short morning paddle through the estuaries was followed by a scenic river presentation. Local government officials, planners, wetlands board members, non-profits representatives and Soil and Water Conservation Districts (SWCDs) attended the event. The Roundtable also provided support for the Virginia Citizens for Water Quality Annual Summit, approximately 4 river clean-ups and maintained a website with basin relevant watershed activities and research. Regular steering committee meetings were held across the basin to provide additional educational information and discussions concerning nonpoint source pollution problems and solutions.

Big Sandy River Basin Coalition: www.bigsandybasin.org/node/2

The Big Sandy River Basin Coalition, Inc. (BSRBC) is a tri-state, nonprofit, citizen-led organization united to achieve clean water throughout the Big Sandy River Basin and contiguous watersheds by educating citizens, community leaders and businesses within the region of the Basin to help instill a land and water ethic in their communities. Over the past year the Coalition has been hard at work generating community interest in the health of the Big Sandy River Basin. Continued annual participation in the Ohio River Valley Water Sanitation Commission's (ORSANCO) RiverSweep Event on the Russell Fork River was a great success, with more involvement than years past. This year the Coalition spread its cleanup efforts to the Pound River in Wise County. The Coalition has also sponsored numerous educational events in the Virginia portion of the watershed including Wise Water Works, a program aimed at educating kids on non point source pollution and ending with a tour of the plant operated by the John W. Flannagan Water Authority, which provides drinking water to citizens in Dickenson and Buchanan Counties. The Coalition has also entered into a Memorandum of Understanding with two smaller watershed groups, the McClure River Restoration Project and the Friends of the Russell Fork, to provide guidance and oversight to these smaller groups that have operated without the direction of a Board of Directors.

Rappahannock River Basin Commission: www.rappriverbasin.org

Mission and Purpose as stated in Section 62.1-69.27 of the Code of Virginia is:
"(T)o provide guidance for the stewardship and enhancement of the water quality and natural resources of the Rappahannock River Basin. The Commission shall be a forum in which local governments and citizens can discuss issues affecting the Basin's water quality and quantity and other natural resources. Through promoting communication, coordination and education, and suggesting appropriate solutions to identified problems, the Commission shall promote activities by local, state and federal governments, and by individuals, that foster resource stewardship for the environmental and economic health of the Basin."

Upper Tennessee Watershed Roundtable: www.uppertnriver.org/

The Upper Tennessee River Roundtable is a non-profit organization with an overall interest in improving water quality in the Upper Tennessee River Watershed. The Roundtable is active in water quality improvement efforts in the Clinch, the Powell and the Holston Rivers. In 2010, the Roundtable saw great success in its participation in the Great American Cleanup with over 700 participants in 59 cleanup events. This year also saw an expansion of the Roundtable's Annual Canoe Float. Four floats trips with over 100 participants toured the major rivers in the Upper Tennessee River Basin. The Roundtable has also continued its educational and community awareness efforts, sponsoring and participating in festivals, special events, and classroom presentations spanning the entire. These efforts focus on highlighting and protecting the unique biodiversity of aquatic life found in the watershed.

Shenandoah Valley Pure Water Forum

The Shenandoah Valley Pure Water Forum is a non profit watershed roundtable that seeks to address water quality issues in the Shenandoah River watershed through networking, education and action. In 2010, the organization has assisted with planning and sponsorship of a series of educational forums including a recent conference on the water quality impacts of Marcellus Shale natural gas extraction. The Pure Water Forum has served as an umbrella organization for numerous watershed groups in the Shenandoah Valley, encouraging regional coordination of watershed education and restoration activities in the Valley. The Pure Water Forum is unique in its diverse and comprehensive membership, and has recently developed an excellent working

relationship with Cargill. Through a series of Cargill Water Matters Grants, the Pure Water Forum has been instrumental in the completion of several restoration and buffer planting projects along local streams. Most recently, the organization has engaged in a strategic planning initiative in order to clarify future goals with respect to organizational development, growth and objectives. The organization has an extensive website that serves as a resource to watershed organizations throughout the Shenandoah Valley: www.purewaterforum.org

Friends of the Middle River

Friends of the Middle River is a relatively new watershed group in the Shenandoah basin. The organization formed following completion of a TMDL implementation plan for the Middle River and its tributaries when a group of landowners showed interest in addressing the outreach and implementation goals established in the plan. Preliminary goals of the group include: promotion of public awareness of the Middle River as an invaluable natural resource, building a cohesive partnership of Middle River stakeholders, and supporting policies and projects that improve water quality and support the living resources of the Middle River. The organization recently assisted in sponsoring a stream clean up on the Middle River, and has developed an extensive email distribution list and blog site: http://friendsofmiddleriver.blogspot.com/

Friends of the North Fork of the Shenandoah River (FONF)

FONF is a non profit grassroots citizens group dedicated to water resource issues in the North Fork Shenandoah River Watershed. The organization has an extensive membership, a full time Executive Director and an Education Coordinator. They have recently served as partners in a number of large grants including a National Fish and Wildlife Foundation Grant for agricultural BMP implementation and water quality monitoring throughout the Shenandoah watershed. FONF has held a series of successful rain barrel workshops and has a number of dedicated volunteer monitors who regularly conduct water quality monitoring in the North Fork watershed. In addition, the organization has sponsored a series of stream clean ups, and frequently works with local schools on watershed education. They have an extensive website that includes quarterly newsletters, project information and an events calendar: www.fnfsr.org

Friends of the Shenandoah River

The Friends of the Shenandoah River (FOSR) is a non profit organization focused largely on water quality monitoring on the Shenandoah River. The organization has an extensive network of water quality monitors who collect bi-weekly water samples throughout the Shenandoah River watershed and bring samples to Shenandoah University where FOSR performs water quality analyses in their lab on campus. FOSR has achieved Level 3 Quality Assurance Status from the Virginia Department of Environmental Quality. This means that the data collected by FOSR is comparable to DEQ field data and can be used to independently list or delist waters from the 303(d) Impaired Waters List. The organization has produced a series of water quality reports, which are available on their website: www.fosr.org

Upper James RC&D

The Upper James RC&D began as a watershed roundtable in 1999. In 2005, the group decided to transition into an RC&D in order to increase the availability of sustainable funding to hire a full time RC&D coordinator. The Upper James RC&D has since received RC&D non profit status, and their application to USDA-NRCS for formal designation and funding is pending. The organization has recently sponsored a series of workshops including a Chesapeake Bay-Friendly Equine, Healthy Horses/Healthy Waters Seminar and a Land Conservation Workshop. The RC&D has also served as an excellent resource for local government partners, recently assisting

Bath County with a watershed planning initiative for Cabin Creek and providing financial support to Botetourt County in their development of a James River Blueway. The Upper James RC&D Board includes representatives from each of the localities included in the organization's service area. Continuing to foster positive relationships with local government is a high priority for this organization. The RC&D has recently worked to improve their website, which includes information on each of the organization's 4 focus areas (Land Conservation, Outdoor Recreation, Environmental Education and Water Resources): www.upperjamedrcd.com

Potomac Watershed Roundtable: www.potomacroundtable.org/
The Potomac Watershed Roundtable (PWR) is a non-profit organization consisting of 9 counties, 5 independent cities & towns, 6 Soil & Water Conservation Districts and 7 other significant stakeholder groups in the most densely populated area of Virginia. This organization is located in what is commonly called the Middle Potomac Region. Members are county and city elected officials, ordinary citizens and members of Friends of Groups in the region. The PWR is active in initiating policy recommendations related to water quality improvement efforts by fostering the adaptation of Low Impact Development practices to mitigate stormwater forces, innovative BMPs based on sound science outside practices normally accepted and is a significant contributor in communicating with the state legislative bodies and federal representatives in nearby Washington, D.C. The PWR has often collaborated with the Washington Metropolitan Council of Governments (WMCOG) as an effective platform to move forward ideas associated with the Chesapeake Bay TMDL and the Virginia Watershed Implementation Plan (WIP).

Albemarle-Chowan Watershed Roundtable: www.acwrt.org
Virginia's Department of Conservation and Recreation and the Albemarle-Pamlico National Estuary Program provide support for the coordination of the watershed roundtable which serves as regional stakeholder group whose goal is to preserve and protect the natural resources and water quality within the basin. The roundtable conducts water quality and watershed awareness workshops as well as hosting a River Day celebration to raise awareness in the Basin.

Dan River Basin Coalition: http://danrivercoalition.org/
The Coalition is a partnership of governmental agencies, non-profits, and civic organizations working together to address environmental issues, promote conservation as well as responsible land and water use, and offer environmental education throughout the Dan River Basin of North Carolina and Virginia. The Coalition was formed in 2008 with the intention of creating partnerships and resources to advocate for and encourage the protection and stewardship of the natural resources of the Dan River Basin – an area that stretches from the headwaters of the Dan River in Virginia to Kerr Lake.

New River Watershed Roundtable: www.newriverroundtable.org/
The Roundtable's mission is to promote better water quality through fair, open dialogue and effective partnerships. The focus is on working as a watershed community to protect and enhance the water quality of the New River Watershed.

Healthy Waters

Objective: Establish a comprehensive Healthy Waters Strategy for the Commonwealth

Progress: The Department of Conservation and Recreation and the Department of Environmental Quality are implementing the following healthy waters elements:

The Healthy Waters Initiative continues to gain momentum at the state, regional and national levels. This year brought significant new resources to bear upon this conservation priority. At the federal level, EPA provided significant new funding to advance conservation of the Healthy Watersheds Initiative, a corollary to the Virginia and EPA Region III Healthy Waters effort. Virginia was fortunate to receive funding for Healthy Watersheds conservation to support an ecological flow study across the Commonwealth. The national dialogue on this issue continued and a national Healthy Watersheds summit was held in Colorado. This summit brought together experts from across that country to discuss the science of identifying healthy waters and the implementation actions that will be needed to conserve these resources.

As part of the Chesapeake Bay Program's Maintaining Healthy Watersheds Goal Implementation Team, development of a strategic work plan was initiated. This work plan will help advance conservation of healthy watersheds across the Chesapeake Bay Watershed. This effort is part of the Chesapeake Bay Action Plan and President Obama's Executive Order for the Chesapeake Bay. The Goal Implementation Team established to advance conservation of healthy watersheds is actively working to make this conservation priority a focus of Bay restoration efforts.

At the state level, there continues to be interest on the part of local governments, planning district commissions, soil and water conservation districts and non-governmental organizations such as the Nature Conservancy. Efforts to expand healthy waters data to provide complete coverage for the Bay watershed in Virginia are nearing completion. The Interactive Stream Assessment Resources (INSTAR) is the data base and decisions support tool that is used to identify healthy waters resources. INSTAR data collection has been expanded to cover the upper James and Rivanna River Basins http://instar.vcu.edu/habitat.html. This expanded data and GIS coverage provides good data density for most of the Bay watershed in Virginia. To support implementation, data is being incorporated as a funding consideration in the Agricultural BMP Cost-Share Program and through the Natural Heritage Biotics Program. In addition, DCR is gearing up to provide enhanced locality assistance to promote conservation of healthy land and water resources.

Outreach: One tool for communicating the importance of conserving healthy water resources is the outreach and engagement document available on the DCR website: www.dcr.virginia.gov/soil_and_water/healthy_waters/index.shtml. In addition to this product, staff has conducted dozens of presentations about the importance of conserving healthy waters across the state and at various state and national meetings.

Rationale: The Commonwealth is concerned about the widening gap between impaired and restored waters. The trend has become increasingly clear that new reaches of impaired waters are being identified faster than the rate of restoration of impaired waters. This concern also has

been expressed by the U.S. EPA Healthy Watersheds Initiative which takes a proactive, holistic aquatic ecosystem conservation and protection approach to watershed implementation and by U.S. EPA Region III through its Healthy Waters priority which seeks to accelerate restoration of impaired waters and to advance preventative approaches to protect existing healthy waters.

The Commonwealth is committed to the restoration of impaired waters and many sections of this plan identify and recognize these long-term challenges. This Healthy Waters section explores opportunities to improve program efficiencies, enhance preventive approaches, protect streams that maintain ecological integrity and exceptional waters, and promote these resources and their value to localities.

Chesapeake Bay and Southern Rivers Water Quality Strategic Efforts

GOAL: Chesapeake Bay Total Maximum Daily Load Report and Implementation Plan Development

Objective: Work with EPA Chesapeake Bay Program and program partners to establish the Chesapeake Bay TMDL and State Implementation Plan.

Progress: As reported in April 2010, Virginia's water quality agencies were in the midst of developing Virginia's Phase I Chesapeake Bay Watershed Implementation Plan (WIP) to meet the EPA's established nutrient and sediment loading requirements for the Chesapeake Bay TMDL. On November 29, 2010, Virginia submitted its Phase I WIP to EPA. EPA published the Chesapeake Bay TMDL on December 29, 2010.

The plan is incorporated by reference into this report. Future editions of this report will include additional details regarding implementation of the plan and the status of the TMDL.

To view the Phase I WIP please visit:

http://www.deq.virginia.gov/tmdl/chesapeakebay.html or

http://www.dcr.virginia.gov/soil_and_water/baytmdl.shtml

GOAL: Virginia's Total Maximum Daily Load Report and Implementation Planning

Objective: For each impaired waterbody a TMDL study must be conducted that identifies the maximum pollutant load allowable and the level to which each pollutant must be reduced to maintain water quality standards. The process includes: developing TMDL reports, developing TMDL implementation plans designed to reduce pollution in order to meet standards, implementation of pollution reduction strategies, and water quality monitoring.

Performance Measurement:

- Number of waterbodies removed from the list of impaired waters; and
- Measurable improvements in waters not removed from the impaired waters list.

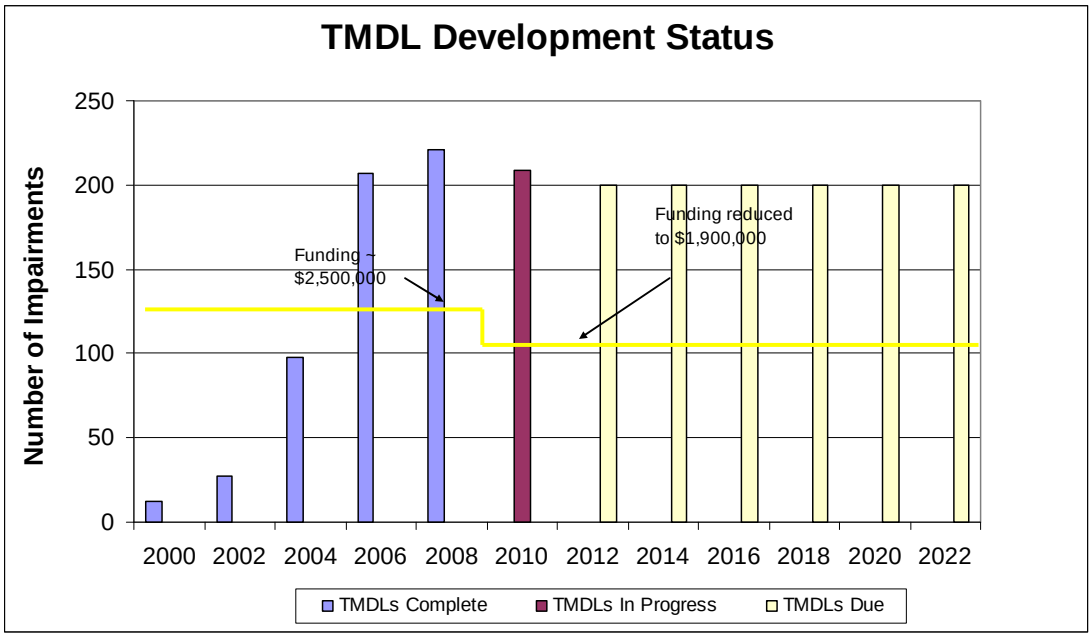
To meet the 1999 Consent Decree (CD) that resulted from a settlement by EPA with plaintiffs regarding enforcement of the TMDL provisions of the Clean Water Act, Virginia completed TMDLs covering approximately 225 shellfish and 333 non-shellfish CD impairments, and approximately 185 non-CD impairments. In addition, Virginia is in the process of completing TMDLs for 28 CD waters and 18 non-CD waters covered under the EPA-lead Chesapeake Bay TMDL. Virginia has also received credit under the CD for an additional 145 delisted or recategorized impairments.

TMDL development will continue for years beyond 2010. Virginia anticipates that approximately 1,180 additional waters will require TMDL development in the next 12 years, with a goal to complete approximately 200 TMDLs per biennium through 2022.

To accommodate the increase in TMDLs with level funding, Virginia's approach to TMDL development allows watersheds with similar characteristics to be combined under a single TMDL equation. It also establishes a structure to batch TMDLs and Implementation Plans for cost efficiency.

CD and Non CD TMDLs completed

Year	CD TMDL	Shellfish TMDL	Non-CD TMDL	CD Delayed	Non-CD Delayed	**Total**
2000	11	0	0	0	0	**11**
2002	24	0	0	0	0	**24**
2004	91	0	8	0	0	**99**
2006	76	94	36	0	0	**206**
2008	70	62	82	0	0	**214**
2010	61	69	59	28	18	**235**
Totals	333	225	185	28	18	**789**



The following table summarizes the current status in all steps of the TMDL process. The figure highlights the large number of TMDLs required due to the number of impaired waters throughout Virginia. While progress in Virginia continues in TMDL development, additional impairments continue to be added with each assessment cycle. The figure shows the challenge of moving from the study and planning phase into implementation. To date, there is only one stream that has been fully restored through the TMDL process, but several streams have achieved partial delisting.

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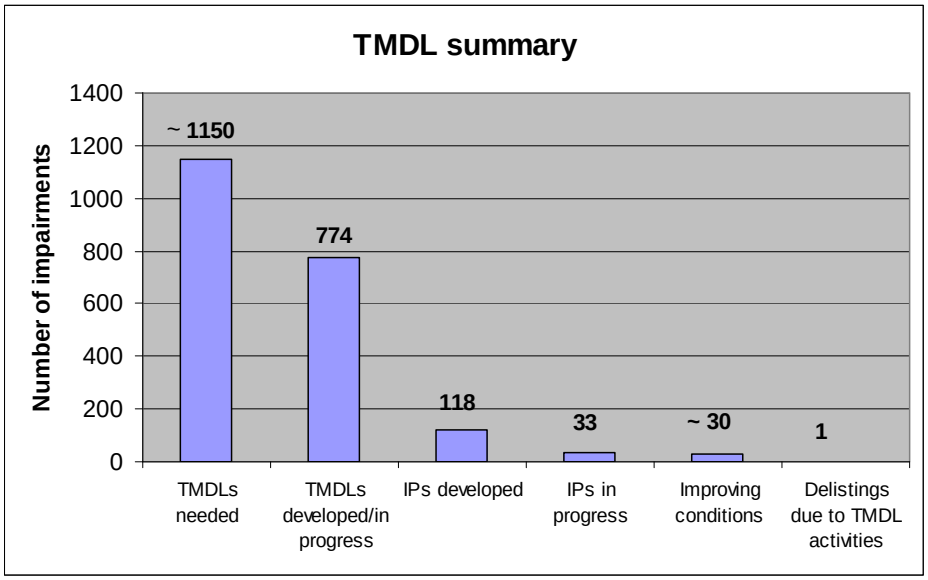


Summary of 2010 TMDL Implementation Program

TMDL Implementation program addresses the following goals:

- Chesapeake Bay Total Maximum Daily Load Report and Implementation Plan Development,
- Virginia's Total Maximum Daily Load Report and Implementation Planning, and
- Southern Rivers Strategy

In FY2010 (July 1, 2009 thru June 30, 2010), DCR and DEQ, along with other agency and non-agency partners, continued to develop TMDLs and TMDL implementation plans and to execute these plans throughout Virginia. Once the TMDL is developed the report is submitted to EPA for approval. Virginia state law (1997 Water Quality Monitoring, Information, and Restoration Act (§62.1- 44.19:4 through 19:8 of the Code of Virginia), or WQMIRA, requires the development of a TMDL implementation plan (IP) after a TMDL is developed and approved. There is not a mandated schedule for IP development; however local or state agencies, as well as community watershed groups, can take the lead in developing TMDL IPs. The IP describes the measures that must be taken to reduce pollution levels in the stream, and includes a schedule of actions, costs, and monitoring. DCR and DEQ, along with other agency and non-agency partners, have continued to work on the development of approved IPs. In 2010 , DCR and DEQ completed 9 implementation plans covering 25 impaired segments and started an additional 5 implementation

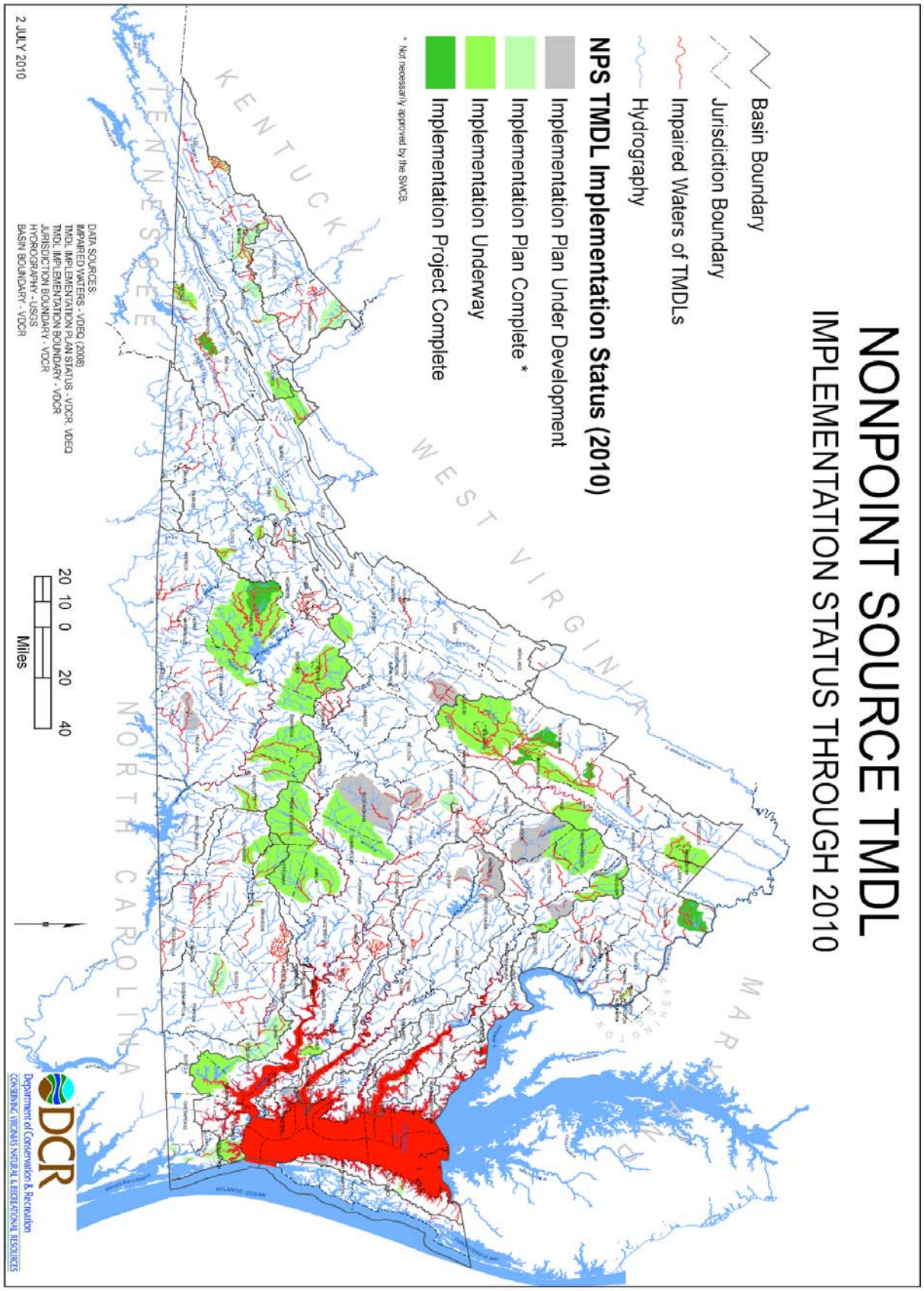
plans covering 17 impaired segments (following table). Since 2000, Virginia has completed 48 IPs, addressing over 142 TMDL impaired stream segments and 165 impairments (Map NPS Implementation through 2010).

Summary of Completed Implementation Plans (IP)				
Watershed (# of impaired segments)	**Location**	**Impairment**	**Lead**	**Complete**
Middle Fork Holston (3)	*Washington Co.*	*Bc*	*DCR*	*2001 (a)*
North River (Muddy, Lower Dry, Pleasant, & Mill Creek) (4)	*Rockingham Co.*	*Bc, Be, NI*	*DCR*	*2001 (a)*
Upper Blackwater River (4)	*Franklin Co*	*Bc*	*DCR*	*2001 (a)*
Catoctin Creek (4)	*Loudoun Co.*	*Bc*	*DCR*	*2004 (a)*
Holmans Creek (2)	*Shenandoah Co.*	*Bc, Be*	*DCR*	*2004 (a)*
*Four Mile Run (1) **	*Arlington & Alexandria*	*Bc*	*DEQ*	*2004*
Willis River (1)	*Cumberland & Buckingham*	*Bc*	*DCR*	*2005 (a)*
*Chowan Study Area (8)**	*(Multiple counties)*	*Bc*	*DEQ*	*2005*
*Moore's Creek (1) **	*Charlottesville, Albemarle Co.*	*Bc*	*DEQ*	*2005*
*Guest River (5) **	*Wise, Scott, Dickenson*	*Be*	*DEQ*	*2005*
*Lower Blackwater, Maggoddee & Gills Creek (3)**	*Franklin Co.*	*Bc*	*DCR*	*2005 (a,b)*
*Lynnhaven (Shellfish) (1)**	*VA Beach*	*Bc , Be*	*DEQ*	*2005 (c)*
Cooks Creek and Blacks Run (4)	*Rockingham Co., City of Harrisonburg*	*Bc , Be*	*DCR*	*2006 (a)*
Thumb, Deep, Carter & Great Runs (4)	*Fauquier and Stafford Counties*	*Bc*	*DCR*	*2006 (a)*
Big Otter (5)	*Bedford & Campbell Co.*	*Bc*	*DCR*	*2006 (a,b,c)*
Dodd Creek and Mill Creek (2)	*Floyd & Montgomery Co.*	*Bc*	*DCR*	*2006 (a)*
Little Creek and Beaver Creek (3)	*Bristol, Washington Co.*	*Bc, Be*	*DCR*	*2006 (a,b,c)*
*Stroubles Creek (1) **	*Montgomery Co*	*Be*	*DEQ*	*2006 (c)*
*Back Creek (2) **	*Pulaski Co.*	*Bc , Be*	*DEQ*	*2006/07*
*Abrams & Opequon Creek (5)**	*Frederick Co. & Winchester*	*Bc , Be*	*DEQ*	*2006 (b)*
*Knox & PawPaw Creek (2) **	*Buchanan Co.*	*Bc , Be*	*DEQ*	*2007*
Hawksbill & Mill Creek (2)	*Page Co.*	*Bc*	*DCR*	*2007 (a)*
Looney Creek (1)	*Botetourt Co.*	*Bc*	*DCR*	*2007(a)*
Upper Clinch River (1)	*Tazewell Co*	*Be*	*DCR*	*2008 (b)*
Occahannock Creek (Shellfish) (1)	*Accomack*	*BC*	*DCR*	*2008 CNP*
Falling River (1)	*Campbell and Appomattox*	*Bc*	*DCR*	*2008 (b)*
*Dumps Creek (1)**	*Russell Co.*	*TSS,TDS*	*DEQ*	*2008*
Bluestone River (1)	*Tazewell Co. & Bluefield*	*Bc, Be (Sed)*	*DCR*	*2008*
*Smith Creek (1)**	*Rockingham & Shenandoah Co.*	*Bc, Be (Sed)*	*DEQ*	*2008 (a,b)*
Appomattox River - Spring Creek, Briery Creek, Bush River, Little Sandy River and Saylers Creek (5)	*Prince Edward and Amelia Co.*	*Bc*	*DCR*	*2008 (b)*
Appomattox River - Flat, Nibbs, Deep and West Creeks (4)	*Amelia and Nottoway Co.*	*Bc*	*DCR*	*2008 (b)*
Straight Creek and Tributaries (3)	*Russell Co.*	*Bc, Be (sed)*	*DEQ*	*2009*
Long Glade Run, Mossy Creek, and Naked Creek (3)	*Augusta and Rockingham Co.*	*Bc Be (sed),*	*DCR*	*2009 (b)*
*Greenvale Creek, Paynes Creek (2), and Beach Creek), (shellfish)**	*Lancaster Co.*	*Bc*	*DCR*	*2010*
*Ash Camp Creek, Twitty's Creek (2)**	*Charlotte Co.*	*Be*	*DCR*	*2010 (b)*
Upper Middle Rr., Lower Middle Rr., Moffett Cr, Polecat Cr (4).	*Augusta Co.*	*Bc, Be (sed)*	*DCR*	*2010 (b)*
*Back Bay Watershed (1)**	*Virginia Beach*	*Bc*	*DEQ*	*2009*
*North Landing Watershed (2)**	*Virginia Beach*	*Bc*	*DEQ*	*2009*
Pigg River and Old Womans Creek (8)	*Franklin, Henry and Pittsylvania Counties*	*Bc*	*DEQ*	*2009 (b)*
Cub, Turnip, Buffalo and UT Buffalo Creeks (4)	*Appomattox and Charlotte Counties*	*Bc*	*DCR*	*2009 (b)*
Hazel River Watershed (4)	*Culpepper, Madison and Rappahannock*	*Bc*	*DCR*	*2009 (a,b)*
*Mill Creek and Powhatan Creek (2)**	*James City County*	*Bc*	*DEQ*	*2010*
*Nansemond River, Shingle Creek (3)**	*Suffolk County*	*Bc*	*DEQ*	*2010*
Lewis Creek (1)	*Russell County.*	*Be*	*DCR*	*2010*

TOTAL IPs Completed = Plans (33), Segments (90), impairments (106). In addition 3 IPs are in draft form that cover 9 impaired segments. [Bc=Bacteria, Be = Benthic, Ni= Nitrogen], TSS=Total Suspended Solids, TDS=Total Dissolved Solids, Sed=Sediment

Note: All IPs were funded by §319(h), except those done in-house by either DCR or DEQ, indicated by a (*). For all completed IPs, implementation is funded by either319 (a), state WQIF/VNRCF cost-share (b), or received limited one-time funding from WQIF RFP (c). Otherwise the project is not being funded by DCR.

Map: NPS TMDL Implementation Status Through 2010



Watershed Restoration and TMDL Implementation

The goal of the TMDL Implementation Program is to implement targeted, on-the-ground activities, through TMDL implementation plans, that result in watershed restoration and increased water quality improvements and delisting of impaired stream segments. Virginia uses a staged approach which provides opportunities for periodic evaluation of the effectiveness of the implementation actions and adjustment of efforts to achieve water quality objectives in a timely and cost-effective manner.

History of TMDL Implementation Program

The history of TMDL implementation in Virginia dates back nine years ago when DCR started three pilot TMDL implementation projects: North Fork (Cedar Creek, Pleasant Run, Mill Creek and Lower Dry River), Middle Fork Holston River (Three Creeks), and the Upper Blackwater River. Since that time DCR has started another 12 projects with Section 319 funds (supplemented with WQIF) and 17 projects with state (WQIF/VNRCF) funding. In addition several other projects have been initiated throughout Virginia using other sources of funds. Today there are 24 active TMDL Implementation Projects managed and funded with DCR resources (following Table).

Status of TMDL/ Watershed Implementation Projects					
Watershed Area	TMDL Segment	Status	Year Implementation	Lead Agency	Funds Used
A. Projects received 5-7 years of continuous funding from 319(h) administered by DCR. These projects are no longer receiving 319 funds, but may continue to receive funding from other sources.					
1. -Middle Fork Holston River	VAS-O05R	MI	2001-2007	DCR	§319(h)
2. Upper Blackwater River	LAW-L08R	SI	2001-2007	DCR	§319(h)
3. North River	VAN-B21R, B22R, B27R & B29R	I	2001-2008	DCR	§319(h
4. Holmans Creek	VAV-B45R	SI	2005-2008	DCR	§319(h
5..Catoctin Creak	VAN-A-02R	I	2005-2009	DCR	§319(h)
B. Projects are being funded by Federal 319(h) as well as State VNRCF administered by DCR (for select projects)					
1. Willis River	VAC-H36R	I, D(3)	2005-2010	DCR	§319(h)
2.. Lower Blackwater River	VAW-L09R, L10R and L11R	SI, CFD (2008)	2006-2011	DCR	§319 & VNRCF
4. Thumb, Great, Carter & Deep Runs	VAN-E01R, E02R & E10R	TETD	2006-2011	DCR	§319(h) & VNRCF
5. Big Otter River	VAW-L23R, L25R, L27R, & L28R	I, CFD, D2008	2006-2011	DCR	§319 & VNRCF
6. Mill and Dodd Creeks	VAW-N20R & N21R	TETD	2007-2012	DCR	§319 & VNRCF
7..Little and Beaver Creeks	VAS-O07	TETD	2007-2012	DCR	§319 & VNRCF
8. Hawksbill and Mill Creeks	VAN-B38R, B39R	TETD	2008-2012	DCR	§319(h)
90. Looney Creek	VAW-I26R	TETD	2009-2013	DCR	§319 & VNRCF
10. Hazel River	VAN-E03R, E04R, E05R	TETD	2009-2013	DCR	§319, WQIF RFP, NFWF & VNRCF
C. Projects have received some WQIA RFP funds (and other funds as well)					
1. Moore's Creek	VAV-H28R	TETD	2005+	N/A	RFP
2. Guest River	VAS-P11R	TETD	2005+	N/A	RFP
3. Stroubles Creek	VAW-N22R	TETD	2006+	N/A	RFP
D. Projects are not receiving designated funding from DCR					
1. Four Mile Run	VAN-A12R	D	N/A	DEQ	OTHER
2. Middle Creek/Tazewell County	VAS-P03R	D 2006	N/A	DMME	OTHER
3. Quail Run/Rockingham County	VAV-B35R	D 2005	N/A	DEQ	OTHER
4. Lynnhaven (Shellfish)	VAT-V08E	D/SFB 2008	2005-2008	VA Beach	OTHER
5. Smith Creek	VAV-1347R	TETD	2008+	DEQ/DCR	NFWF, NRCS, §319
6. Back Creek	VAW-N22R	TETD	2008+		OTHER
7. Knox and Paw Paw Creek	VAS-Q03R	TETD	2008+		OTHER
8. Occahannock Creek	VAT-C13E	TETD	2008+	DCR	OTHER
9. Dumps Creek	VAS-P08R	TETD	2008+		OTHER
10.Back Bay Watershed	VAT-K41R	TETD	2008+	DEQ	OTHER
11.North Landing River	VAT-K41R	TETD	2008+	DEQ	OTHER
12.Straight Creek and Tributaries	VAS-P20R	TETD	2009+		OTHER
13.Grennvale, Paynes, and Beach Creeks	VAP-E25E	TETD	2010	DCR	OTHER
14. Lewis Creek	VAS-P04R	TETD	2010+	DCR	OTHER
15. Mill Creek and Powhatan Creek	VAT-G10E, VAT-G10R	TETD	2010+	James City County	OTHER
16. Nansemond River, Shingle Creek	VAT-G13E	TETD	2010+	DEQ	OTHER
E. Projects are receiving some WQIF / VNRCF funds (and other funds as well)					
1. Chowan Study Area	VASC-K14R,	TETD	2005-2009+ (Ag)	DCR	WQIF/VNRCF
2. Falling River	VAW-L34R	TETD	2007+ (Ag only)	DCR	WQIF/VNRCF
3. Mossy & Naked Creeks, Long Glade Run	VAV-B19R, B24R, B28R	TETD	2007+ (Ag only)	DCR	WQIF/VNRCF
4. Pigg River (Blue Ridge SWCD)	VAW-L14R, L15R, L16R, L17R	TETD	2007+ (Ag only)	DCR	WQIF/VNRCF
5. Pigg River (Pittsylvania SWCD)	VAW-L13R, L17R, L18R	TETD	2007+ (Ag only)	DCR	WQIF/VNRCF
6. Twittys and Ash Camp Creeks	VAC-L39R	TETD	2007+ (Ag only)	DCR	WQIF/VNRCF
7. Abrams & Opequeon Creeks	VAV-B08R & VAV-B09R	TETD	2006+	DCR/DEQ	WQIF/VNRCF , RFP
8. Cub, Turnip and Buffalo Creek	VAC-L36R, L37R, L40R	TETD	2007+ (Ag only)	DCR	WQIF/VNRCF
9. Appomattox: Flat, Nibbs, Deep, West Creeks	VAP-J08R, J09R, J11R	TETD	2007+ (Ag only)	DCR	WQIF/VNRCF
10. Moffett Creek, Middle River, Polecat Draft	VAV-B10, B13, B15	TETD	2007+ (Ag only)	DCR	WQIF/VNRCF
11.Christians Creek & South River	VAV-B14, B30	TETD	2007+ (Ag only)	DCR	WQIF/VNRCF
12. Upper Clinch River	VAS-P01R	TETD	2007+ (Ag only)	DCR	WQIF/VNRCF
13. Bluestone River	VAS-N36R	TETD	2007+ (Ag only)	DCR	WQIF/VNRCF
14. Appomattox: Briery, Little Sandy, Spring, Saylers Creeks and Bush River	VAC-J02, J03, J04, J05 and J06R	TETD	2007+ (Ag only)	DCR	WQIF/VNRCF

TOTAL IP implemented 36, under implementation w/ 319 funds 15, implemented with WQIF 14, Not implemented or implemented with other funds 8, (319*) = One-time 319 Base Project TETD=To early to determine, I=Improvement, SI=Some improvement, MI=Moderate Improvement, , NI= No Improvement, D=Segment Delisted, CFD=Segment candidate for delisting, SFB= Shellfish beds were reopened, NFWF=National Fish and Wildlife Fund grant,

To date and as a result of the program water quality conditions are improving in 30 stream segments and 7 stream segments have either been delisted or are candidates for delisting due to TMDL activities.

Summary of EPA (319) funded activity

From January 1, 2009 thru June 30, 2010 there were 11 active implementation projects jointly funded by Federal EPA §319(h) and Virginia State Water Quality Improvement (WQIF) funds. Collectively these projects implemented 348 agricultural and residential best management practices (BMPs) that resulted in over 94,135 feet of stream exclusion, the exclusion of 2,696 animals from access to the stream and the reduction of 8.55 E+15 colony forming units (CFU) of fecal coliform bacteria, 33,202 pounds of nitrogen, 6,025 pounds of phosphorous, and 6,004 tons of sediment.

BMPs installed for TMDL Implementation from July 1, 2009 - June 30, 2010

Practice Code	Practice	Total
FR-3	Woodland buffer filter area	2
LE-1T	Livestock Exclusion with Riparian Buffers for TMDL Imp.	40
LE-2T	Livestock Exclusion with Reduced Setback for TMDL Imp.	7
RB-1	Septic Tank Pumpout	174
RB-2	Connection to Public Sewer	2
RB-3	Septic Tank System Repair	53
RB-4	Septic Tank System Replacement	35
RB-4P	Septic Tank System Installation/Replacement with Pump	12
RB-5	Installation of Alternative Waste Treatment System	4
SL-1	Permanent Vegetative Cover on Cropland	1
SL-11	Permanent vegetative cover on critical areas	1
SL-6	Stream Exclusion With Grazing Land Management	2
SL-8B	Small Grain cover crop for Nutrient Management	12
WP-2T	Stream Protection - TMDL	2
Grand Total		348

Southern Rivers Strategy

Objective: Improve the quality of waters located in the “Southern Rivers” region (waters outside of the Chesapeake Bay watershed) through development and implementation of individual clean-up plans.

As described the preceding goals, Virginia is currently involved in several efforts to develop and implement individual clean-up plans in the non-bay areas of Virginia. Thirty percent of the BMPs installed in 2010 through the section 319 TMDL implementation program were installed

in the Southern Rivers, or non-bay areas of Virginia.

Comparison of Bay versus Non-bay installation of BMPs in TMDL Project Areas July 1, 2009 - June 30, 2010

Practice Code	Practice	Bay	Non-Bay	Grand Total
FR-1	Reforestation of erodible crop and pastureland	1		1
FR-3	Woodland buffer filter area	2		2
LE-1T	Livestock Exclusion with Riparian Buffers for TMDL Imp.	20	20	40
LE-2T	Livestock Exclusion with Reduced Setback for TMDL Imp.	6	1	7
RB-1	Septic Tank Pumpout	130	44	174
RB-2	Connection to Public Sewer	2		2
RB-3	Septic Tank System Repair	38	15	53
RB-4	Septic Tank System Replacement	20	15	35
RB-4P	Septic Tank System Installation/Replacement with Pump	9	3	12
RB-5	Installation of Alternative Waste Treatment System	3	1	4
SL-1	Permanent Vegetative Cover on Cropland	1		1
SL-11	Permanent vegetative cover on critical areas	1		1
SL-6	Stream Exclusion With Grazing Land Management		2	2
SL-8B	Small Grain cover crop for Nutrient Management	9	3	12
WP-2T	Stream Protection - TMDL	2		2
Grand Total		**244**	**104**	**348**

WQIF Nonpoint Source Program Support Summary

The *Virginia Water Quality Improvement Act (WQIA)* was passed during the 1997 legislative session of the Virginia General Assembly and signed into law on March 20, 1997. The Act established the Water Quality Improvement Fund (WQIF) to provide funding for water quality improvements throughout the Commonwealth. The fund has served as the principal source for state agricultural cost-share programs. In 2008 the General Assembly created a sub-fund of the WQIF called the Virginia Natural Resources Commitment Fund (VNRCF, §10.1-2128.1), funding for agricultural best management practices and associated technical assistance. Section 10.1-104.1 in the *Code of Virginia* designates DCR as the lead agency for the nonpoint source pollution management program.

The Clean-Up Plan describes the water quality improvement activities undertaken by DCR in 2010 and projects that continue from recent funding cycles. This information supports the reporting as directed under § 10.1–2134 of the *Virginia Water Quality Improvement Act of 1997* (WQIA). The Agricultural and Forestry section provides information on the establishment of VCNRF legislation, agricultural water quality improvement project progress, VNRCF funding levels, BMP implementation and pollution reduction estimation that result from program support. The Summary of the 2010 TMDL Implementation Program component of the Chesapeake Bay and Southern Rivers Strategy section of this plan reports out on TMDL implementation progress.

The majority of available WQIF implementation funds administered by DCR are being directed to the Agricultural BMP (best management practice) cost share program. Implementation funds are also used to support the Conservation Reserve Enhancement Program, cooperative nonpoint projects and strategic nonpoint source water quality initiatives, for example, with the Virginia Department of Forestry. No new funds were allocated for the later to programs in FY2010.

WATER QUALITY INITIATIVES AND COOPERATIVE NON-POINT PROJECTS: DETAILS FOR COMMITMENTS

Program Year	FY99-04 WQIA **	FY05 WQIA	FY06 WQIA	FY06 cab WQIA	FY07 WQIA	TOTAL
SWQI: Virginia Department of Forestry BMPs (DOF)*		$ 250,000	$ 250,000		$ 250,000	$ 750,000
SWQI: Virginia Tech - Precision Phosphorus Feeding		$ 145,000	$ 255,000			$ 400,000
SWQI: Chesapeake Club			$ 225,000			$ 225,000
SWQI: NRCS Cooperative Agreements			$ 500,000	$ 1,500,000	$ 300,000	$ 2,300,000
SWQI: Greening the Capitol - NFWF match		$ 50,000				$ 50,000
SWQI: Virginia Poultry Litter Transport Incentive Program			$ 300,000			$ 300,000
SWQI: State Fair Grounds - WQ Demo Project		$ 11,009	$ 20,496			$ 31,505
SWQI: Ewing Centralized Wastewater Project			$ 10,000			$ 10,000
SWQI: Non-Bay Water Quality Projects			$ 189,504		$ 50,395	$ 239,899
SWQI: 2006 WQIF RFP - Grants**	$ 333,357	$ 1,105,000				$ 1,438,357
SWQI: 2007 WQIF RFP - Grants				$ 1,500,000		$ 1,500,000
CNPSP: 2006 WQIF RFP - Grants			$ 2,500,000			$ 2,500,000
CNPSP: 2007 WQIF RFP - Grants				$ 2,036,550		$ 2,036,550
TOTAL	$ 333,357	$ 1,561,009	$ 4,250,000	$ 5,036,550	$ 600,395	$ 11,781,311

NOTE: SWQI = Strategic Water Quality Initiatives; CNPSP = Cooperative Nonpoint Source Pollution

* VDOF funding for FY09 was allocated from VNRCF budget. Description of activiy included in this section.

** WQIF funding for 2006 SWQI RFP grants included an additional $333,357 of funds from WQIA allocations awarded to DCR before FY05

In fiscal year 2010, a total of $20,000,000 was appropriated for the Virginia Natural Resources Commitment Fund (VNRCF), a sub-fund of WQIF. The General Assembly approved the appropriation and transfer $4,800,000 of WQIF interest to VNRCF to make up part of the $20M.

Virginia DCR
Water Quality Improvement Fund

Fiscal Year	General Fund and Surplus Appropriations	Reserve Fund (not Available to DCR)	Interest Appropriation (Includes DEQ Transfers)	WQIF Subfund: VNRCF	Total DCR WQIF Appropriations Available to DCR
FY 1998	$ 5,000,000		$ -		$ 5,000,000
FY 1999[1]	$ 8,390,000		$ -		$ 8,390,000
FY 2000[2]	$ 20,585,606		$ 1,402,763		$ 21,988,369
FY 2001	$ 11,000,000		$ 1,000,000		$ 12,000,000
FY 2002	$ -		$ 1,912,292		$ 1,912,292
FY 2003	$ -		$ -		$ -
FY 2004	$ -		$ 424,695		$ 424,695
FY 2005	$ 9,417,500	$ (226,616)	$ -		$ 9,190,884
FY 2006	$ 69,773,400	$ (9,111,940)	$ -		$ 60,661,460
FY 2007	$ 3,800,000	$ (199,605)	$ 400,000		$ 4,000,395
FY 2008	$ -	$ -	$ 565,000		$ 565,000
FY 2009	$ 1,112,300		$ 297,972	$ 20,000,000	$ 21,410,272
FY 2010[3]			$ 4,800,000	$ 15,200,000	$ 20,000,000
FY 2011[4]				$ 9,100,000	$ 9,100,000
TOTAL	$ 129,078,806	$ (9,538,161)	$ 10,802,722	$ 44,300,000	$ 174,643,367

Created: 6/15/2010

(1) The FY1999 total General Assembly appropriation was $16,750,000. the budget bill identified that of this total,

(2) The FY2000 general fund and surplus appropriation includes the FY2000 allocation of $8,360,000 noted above, plus a $9,831,250 general fund deposit in FY2000, and an additional $2,393,356 deposit approved by the Secretary of Natural Resources. FY2000 total includes $500,000 earmark to DCR-DPRR for Virginia Land Conservation Fund and $475,000 which DCR latter reallocated to CBay projects funded under the FY1999 project code.

(3) In FY2010 $4,800,000 was appropriated from WQIF Interest and moved to the VNRCF

(4) The FY2011 VNRCF deposit comes from Recordation Fee Tax Revenue, estimated amount is $9,100,000

WQIF Cost-Share Funding/Expenditure Summary

The following table summarizes available WQIF funding and expenditure schedule through FY2011. This funding is made available for four categories of nonpoint source pollution control projects, as prior mention suggests: Virginia's Agricultural Cost Share Program, Conservation Reserve Enhancement Program, priority water quality initiatives, and cooperative nonpoint

source grants.

To accommodate for fluctuations of WQIF appropriations, the funding allocations are distributed over multiple program years. The expenditure schedule for this funding is provided in the following table.

EXPENDITURE SCHEDULE

Projected Funds Expenditure by Fiscal Year	FY06	FY07	FY08	FY09	FY10	FY11	FY12	TOTAL
Ag BMP C-S* (see detail below)	$ 10,000,000	$ 16,650,000	$ 18,500,000	$ 21,600,000	$ 18,800,000	$ 1,800,000	$ 800,000	$ 88,150,000
Technical Assistance				$ 1,000,000	$ 1,600,000			$ 2,600,000
CREP	$ 2,514,910	$ 860,000	$ -					$ 3,374,910
WQ initiatives	$ 1,250,000	$ 2,130,000	$ 600,395					$ 3,980,395
Coop. NPS Grants	$ 2,370,000	$ 3,536,550	$ -					$ 5,906,550
	$ 16,134,910	**$ 23,176,550**	**$ 19,100,395**	**$ 22,600,000**	**$ 20,400,000**	**$ 1,800,000**	**$ 800,000**	**$ 104,011,855**

***Ag BMP C-S Detail for above: Department of Forestry BMP program activities are described under the Nonpoint Source Programs and Project Support portion of this report.**

Chesapeake Bay	FY06	FY07	FY08	FY09	FY10	FY11	FY12	TOTAL
Bay: Base - all practices	4,000,000	4,000,000	3,000,000	1,780,000	1,834,000			**14,614,000**
Bay: Priority practices	2,000,000	3,000,000	4,000,000	7,120,000	7,336,000			**23,456,000**
Bay: Contractual FY07-09 w/ FY06 funds	0	2,000,000	2,450,000	2,850,000				**7,300,000**
Bay: Nut. Mgmt Contracts			600,000	1,200,000	1,480,000	600,000		**3,880,000**
Bay: Livestock Exclusion						480,000	480,000	**960,000**
Bay: Targeted TMDL		750,000	750,000	550,000	300,000			**2,350,000**
Bay: Department of Forestry BMPs				150000	90,000			**240,000**
BAY Sub-total	**6,000,000**	**9,750,000**	**10,800,000**	**13,650,000**	**11,040,000**	**1,080,000**	**480,000**	**52,800,000**

Southern Rivers (non-bay)	FY06	FY07	FY08	FY09	FY10	FY11	FY12	TOTAL
SR: Base - all practices	3,000,000	3,000,000	2,000,000	925,000	1,236,000			**10,161,000**
SR: Priority practices	1,000,000	1,500,000	2,500,000	3,700,000	4,944,000			**13,644,000**
SR: Contractual FY07-09 w/ FY06 funds		500,000	500,000	1,000,000				**2,000,000**
SR: Nut. Mgmt Contracts			400,000	800000	960000	720000	320000	**3,200,000**
SR: Targeted TMDL		1,900,000	2,300,000	1,675,000	200,000			**6,075,000**
SR: Department of Forestry BMPs				100000	60000			**160,000**
SR Sub-total	**4,000,000**	**6,900,000**	**7,700,000**	**8,200,000**	**7,400,000**	**720,000**	**320,000**	**35,240,000**
TOTAL C-S PROGRAM	**10,000,000**	**16,650,000**	**18,500,000**	**21,850,000**	**18,440,000**	**1,800,000**	**800,000**	**88,040,000**

Agricultural Cost-Share Allocations and SWCD Agreements

DCR emphasis for BMP implementation focuses on efficient nutrient and sediment reduction including; cover crops, conservation tillage, nutrient management, livestock exclusion from streams and the establishment of vegetative riparian buffers. These five priority BMPs are emphasized in the guidance given to SWCDs for program year funding allocations.

Each SWCD receives a funding allocation for the five priority practices with guidance through the DCR/SWCD Cost-Share grant agreements. SWCDs also receive a lesser amount of "base" level funding to implement any of the roughly 30 practices contained within the Virginia Agricultural BMP Cost-Share program manual. Funding is provided to each SWCD to support multi-year "contractual" BMPs and to target TMDL implementation priorities that have tie to agricultural sources.

A breakdown of the 2010 program year allocations to Virginia Soil and Water Conservation Districts is provided in the following table.

FY10 SWCD AG BMP COST SHARE PROGRAM FINANCIAL ALLOCATION: Prepared 5/29/09 Revised 06/02/2009

SWCD	Grand Totals	CB Contractual	CB Priority	CB BASE	CB Total Allocation	SR Base	SR Priority	SR Contractual	SR Total Allocation
APPOMATTOX RIVER	159,683	2,211	29,519	7,380	**39,110**	21,443	85,771	13,360	**120,573**
BIG SANDY	32,313					6,463	25,851	0	**32,313**
BIG WALKER	250,000					50,000	200,000	0	**250,000**
BLUE RIDGE	326,397	0	9,502	2,376	**11,878**	60,735	242,939	10,846	**314,519**
CHOWAN BASIN	629,938	0	0	0	**0**	102,796	411,185	115,957	**629,938**
CLINCH VALLEY	353,560					70,000	280,000	3,560	**353,560**
COLONIAL	388,328	36,028	281,840	70,460	**388,328**	0	0		
CULPEPER	696,677	2,400	555,422	138,855	**696,677**	0	0		
DANIEL BOONE	228,492					45,000	180,000	3,492	**228,492**
EASTERN SHORE	890,012	39,611	420,531	105,133	**565,274**	54,783	219,133	50,821	**324,738**
EVERGREEN	174,922					34,468	137,871	2,583	**174,922**
HALIFAX	277,238					55,448	221,791	0	**277,238**
HANOVER-CAROLINE	439,530	52,390	309,712	77,428	**439,530**	0	0		
HEADWATERS	756,983	13,305	594,942	148,735	**756,983**	0	0		
HENRICOPOLIS	79,413	6,599	58,251	14,563	**79,413**	0			
HOLSTON RIVER	356,260					70,000	280,000	6,260	**356,260**
JAMES RIVER	164,192	6,821	88,001	22,000	**116,823**	7,540	30,159	9,670	**47,369**
JOHN MARSHALL	414,215	1,600	330,092	82,523	**414,215**	0	0		
LAKE COUNTRY	210,906					42,181	168,725	0	**210,906**
LONESOME PINE	70,013					14,003	56,010	0	**70,013**
LORD FAIRFAX	770,848	12,648	606,560	151,640	**770,848**	0	0		
LOUDOUN	400,217	790	319,542	79,886	**400,217**	0	0		
MONACAN	121,418	10,094	89,059	22,265	**121,418**				
MOUNTAIN	322,116	1,506	256,488	64,122	**322,116**	0	0		
MOUNTAIN CASTLES	339,210	2,373	231,566	57,891	**291,830**	9,153	36,614	1,613	**47,380**
NATURAL BRIDGE	425,513	1,987	338,821	84,705	**425,513**	0	0		
NEW RIVER	400,000					80,000	320,000	0	**400,000**
NORTHERN NECK	632,643	84,620	438,419	109,605	**632,643**	0	0		
NORTHERN VA	12,628	0	10,102	2,526	**12,628**	0	0		
PATRICK	122,826					24,565	98,261	0	**122,826**
PEAKS OF OTTER	248,332	0	24,995	6,249	**31,244**	43,126	172,502	1,460	**217,088**
PEANUT	662,645	20,285	280,242	70,061	**370,588**	53,700	214,798	23,560	**292,058**
PETER FRANCISCO	131,821	3,969	102,282	25,571	**131,821**				
PIEDMONT	291,299	12,669	182,646	45,662	**240,977**	9,694	38,776	1,852	**50,322**
PITTSYLVANIA	329,187					61,528	246,111	21,548	**329,187**
PRINCE WILLIAM	53,731	0	42,985	10,746	**53,731**	0	0		
ROBERT E. LEE	419,416	3,906	188,658	47,164	**239,728**	33,582	134,329	11,776	**179,688**
SCOTT COUNTY	305,546					60,000	240,000	5,546	**305,546**
SHENANDOAH VALLEY	837,458	20,714	653,396	163,349	**837,458**	0	0		
SKYLINE	525,000					105,000	420,000	0	**525,000**
SOUTHSIDE	230,879					43,120	172,479	15,280	**230,879**
TAZEWELL	175,000					35,000	140,000	0	**175,000**
THOMAS JEFFERSON	474,255	11,829	369,941	92,485	**474,255**	0	0		
THREE RIVERS	388,503	82,907	244,477	61,119	**388,503**	0	0		
TIDEWATER	194,463	28,837	132,501	33,125	**194,463**	0	0		
TRI-COUNTY/CITY	186,034	15,822	136,169	34,042	**186,034**	0	0		
VIRGINIA DARE	249,935	4,079	9,338	2,335	**15,752**	42,673	170,693	20,817	**234,183**
Totals:	**16,150,000**	480,000	7,335,999	1,834,000	***9,650,000***	1,236,000	4,944,000	320,000	***6,500,000***

Conservation Reserve Enhancement Program (CREP)

CREP aims to improve water quality and wildlife habitat by offering financial incentives, cost-share and rental payments for voluntarily riparian buffer restoration, filter strips and wetlands. Virginia CREP is an enhancement to the federal Conservation Reserve Program (CRP) program established in 1985 to provide a cost-effective approach to address agricultural resource problems through geographic focused prioritization. A summary of Virginia CREP cost share assistance to farmers for the period of July 1, 2009 through June 30, 2010 follows:

CREP Program To Date Summary Summary thru June 30, 2010

Drainage	Practice Code	Number of Participants	Number of BMPs	Acres Buffer Restored	Miles Stream Bank Protected	Tons SL Reduced	Pounds N Reduced	Pounds P Reduced	Total BMP Cost	Total Approved Cost Share Payment	Total Cost Share Payment	Other Funding Amount	Tax Credit Amount Issued
Chesapeake Bay	CP-21	111	146	1,676		0	0	0	$92,163	$95,202	$93,832	$40,211	$38
Chesapeake Bay	CP-22	1019	1315	18,142		0	0	0	$916,549	$1,242,947	$864,488	$450,104	$4,710
Chesapeake Bay	CP-22B	54	62	99		0	0	0	$39,354	$86,780	$82,364	$9,205	$786
Chesapeake Bay	CP-23	7	9	88		0	0	0	$6,284	$6,284	$6,294		
Chesapeake Bay	CP-29	24	32	861		0	0	0	$7,141	$18,012	$15,461	$4,003	$1,265
Chesapeake Bay	CRFR-3	938	1229	16,157		40,085	217,028	38,447	$7,555,716	$2,002,170	$1,323,047	$3,849,741	$23,010
Chesapeake Bay	CRLF-1	38	45		32	0	0	0	$4,330	$17,274	$505	$1,737	
Chesapeake Bay	CRSL-6	54	61		33	6,121	32,980	6,119	$1,010,677	$154,091	$141,008	$276,663	$4,078
Chesapeake Bay	CRWP-2	6	7		2	28	125	27	$30,654	$3,350	$3,350	$8,669	$35
Chesapeake Bay	CRWQ-1	12	14			47	253	38	$17,271	$3,759	$3,183	$3,549	$66
Chesapeake Bay	FR-3	2	2			0	0	0	$16,618	$3,594	$3,594		
Chesapeake Bay	SL-6	730	912		606	0	0	0	$14,861,122	$2,469,429	$1,862,818	$6,667,623	$95,965
Chesapeake Bay	WP-2	114	129		59	0	0	0	$659,308	$169,361	$111,700	$281,585	$5,453
Chesapeake Bay	WQ-1	116	155		254	4,787	25,538	5,472	$206,746	$73,054	$42,743	$91,372	$1,077
Chesapeake Bay	WQ-6B	8	9			31	169	26	$37,144	$10,073	$6,989	$21,061	
Southern Rivers	CP-21	171	316	3,127		0	0	0	$147,171	$192,382	$145,630	$577	$206
Southern Rivers	CP-22	1218	1616	15,276		0	0	0	$699,307	$657,769	$665,566	$292,578	$8,445
Southern Rivers	CP-23	15	16	134		0	0	0	$9,401	$9,401	$9,401		
Southern Rivers	CP-29	8	8	29		0	0	0	$2,931	$1,264	$1,294	$959	
Southern Rivers	CRFR-3	1100	1463	13,096		31,809	167,635	34,898	$4,757,095	$1,207,081	$857,778	$2,483,533	$32,853
Southern Rivers	CRLF-1	18	22		20	0	0	0	$5,504	$0			
Southern Rivers	CRSL-6	71	77		30	11,977	65,081	12,415	$1,201,381	$199,184	$187,585	$387,756	$16,465
Southern Rivers	CRWQ-1	9	13			18	98	26	$12,175	$3,168	$2,684	$5,363	$0
Southern Rivers	SL-6	939	1204		570	0	0	0	$15,967,876	$5,693,522	$1,652,226	$7,425,715	$225,854
Southern Rivers	WP-2	33	44		15	0	0	0	$159,426	$33,363	$26,141	$65,882	$343
Southern Rivers	WQ-1	165	304		481	4,388	21,496	5,423	$326,734	$82,722	$66,068	$144,436	$976
Southern Rivers	WQ-6B	15	17			29	156	41	$82,208	$25,985	$15,467	$45,218	$3,514

Grant Programs

DCR manages two grant programs that utilize Water Quality Improvement Funds. Awards are intended to reduce pollution through partnerships with local governments, community groups and others. The two programs are: Cooperative Nonpoint Source Pollution Programs with Local Governments and Strategic Nonpoint Source Water Quality Initiatives. There has not been a General Fund allocation to WQIF since FY 2007 except for authorization to utilize interest funds; there were no additional funds for FY 2008, FY 2009 and FY2010. A few projects funded through previous funding cycles remain active. A request for proposals is being prepared for FY2011 that will reissue grant funds that became available from fund for WQIF FY2006 and FY2007.

Cooperative Nonpoint and Strategic Water Quality Initiative Projects include:

Virginia Department of Forestry (DOF), Water Quality Improvement Fund Grant Allocations (2006 grant award of $500,000 included $250,000 each from FY 2005 and FY 2006 funds; 2007 grant award of $250,000, 2009 award from VNRCF of $250,000, 2010 award from VNRCF of $150,000). This project supports two forestry NPS pollution programs. A silvicultural best management practice cost-share program is administered and targeted to watersheds containing TMDL stream segments and other priority watersheds. This grant also provides funds for urban canopy demonstration projects and streamside restoration including riparian forest buffer plantings, riparian forest buffer plantings where the Conservation Reserve Enhancement Program is not eligible; and vegetative stormwater mitigation projects such as “rain gardens”.

Virginia Tech Department of Dairy Science, Precision Phosphorus Feeding: Targeted Environmental Solutions for Virginia Dairy Farms (2006 grant award of $400,000 includes $145,000 of FY 2005 and $255,000 of FY 2006 funding). This project was still active and will not be completed until after 12/31/2010.

NRCS Cooperative Agreements ($2,300,000) DCR entered into a contractual relationship with the United States Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS) to provide engineering services, training and technical assistance services to support both Virginia’s Agricultural Total Maximum Daily Load (TMDL) Program as well as Virginia’s Agricultural BMP Cost-share Program. This relationship continued to be in effect through 2010. The technical assistance furnished by NRCS was directed to local Soil and Water Conservation Districts (SWCD) and DCR staff to provide for more effective implementation of agricultural incentive programs that result in water quality improvements. Tasks included training of SWCD employees to ensure that they are qualified to effectively assist farmers in their communities to implement on-the-ground BMPs.

Virginia Poultry Litter Transport Incentive Program ($300,000) The Virginia Poultry Litter Transport Incentive Program is funded by DCR and the Virginia Poultry Federation as an effort to facilitate the efficient use of poultry litter as a crop nutrient source in areas that can most benefit from those nutrients. The goal of this program is to encourage the development of self-sustaining poultry litter markets in areas outside of the main poultry producing counties of the state. Applicants wishing to receive incentive payments who plan to land-apply poultry litter must have a nutrient management plan and land with a need for phosphorus applications based on soil test results.

Ewing Centralized Wastewater Project ($10,000). This project provided $10,000 to match over $391,000 of state (non WQIF) and private resources to install a community decentralized wastewater project that will serve 23 homes and 2 businesses. This system serves the community of Ewing in Lee County, Virginia and is in the Indian Creek watershed. Currently raw sewage from straight pipes and failing septic systems are discharging into Indian Creek, an impaired stream as listed by DEQ on the 2008 303(d) and 305 (b) Integrated Report.

2010 Chesapeake Club, Summer 2009 NFWF Match ($100,000) – The 2010 Chesapeake Club campaign is an update of the successful social marketing campaign run in previous years. The project proposes to target behaviors related to residential stormwater management (rain barrels, rain gardens, downspout disconnection, conservation landscaping, etc) by developing messages based in research and creating a campaign to again reach homeowners in an urban and suburban setting. In addition to traditional media used in the initial Chesapeake Club, this project will research and develop strategies using changing technologies and personal media including YouTube, Facebook, MySpace and others to further delineate audiences, providing them with a more personalized message. This project would take place in the Washington D.C., Hampton Roads and Richmond media markets. Chesapeake Club has previously run in each market. We anticipate that the Washington D.C. market will also impact the Baltimore market. In addition to the $100,000 from WQIF, the National Fish and Wildlife Foundation has provided $500,000 for the project.

Competitive Water Quality Implementation Grant Program

DCR has issued competitive request for proposal (RFP) programs in the past to issue funds for projects that reduce pollution through partnerships with local governments, community groups and others. The grants focus on implementing Virginia's Chesapeake Bay Tributary Strategies as well as improving waters throughout Virginia that do not meet water quality standards (TMDL waters). Grants are awarded for projects within the Chesapeake Bay watershed as well as watersheds in Virginia that drain outside the Chesapeake Bay watershed, the "Southern Rivers." Two initial competitive Requests for Proposals (RFPs) were conducted in 2006 and 2007. 74 projects have received funding through the DCR during 2006 and 2007. Over $7.47 million of state funds were to be matched locally by over $11.3 million. The total value of the FY2006/FY2007 WQIF projects to reduce NPS pollution is more than $20.3 million. Collectively these projects are addressing residential septic issues from straight pipes and failing septic systems; abandoned or orphaned mine land; urban stormwater; wetland and stream restoration. As of the end of FY2010 most of these projects were finished. DCR is developing a request for proposals to reissue $2.5 million of the original funding that had been returned to DCR from closed projects.