PATUXENT RESERVOIRS WATERSHED PROTECTION GROUP

2009 ANNUAL REPORT OF THE TECHNICAL ADVISORY COMMITTEE

A Message From The Chair

The Patuxent Reservoirs Watershed Technical Advisory Committee (TAC) herein submits the *Patuxent Reservoirs Watershed Annual Report 2009*. The report presents TAC progress during the past year towards achieving long-term protection of priority resources. The priority resources include: reservoirs and drinking water supply; terrestrial habitat; stream systems; aquatic biota; rural character and landscapes; and public awareness and stewardship. This report also presents the TAC's proposed work program and budget for the coming year.

This has been a year of change for the TAC and for the administrative support staff provided by WSSC. The TAC was fortunate to receive assistance this year from Carrie Capuco, a contractor funded through WSSC to help with administrative duties and grant funding opportunities. The TAC owes considerable gratitude to Carrie for the tremendous effort she put forth on our behalf, and to WSSC for having the foresight and vision to recognize the importance of this contractual position. In June, the TAC welcomed Steve Nelson, the new WSSC staff liaison, to the team. Steve has embraced the TAC's mission and has already started looking for ways to expand our initiatives.

The TAC member agencies had many accomplishments in 2009 and invested considerable time in exploring opportunities for future projects. Many of these initiatives were presented to Policy Board members as part of the summary letters that followed each TAC quarterly meeting and are detailed later in this report. In addition to these efforts, the TAC agencies have been involved in Montgomery County's NPDES Storm water permit and the Water Resources Functional Master Plan, and will play key roles in implementing the recently approved TMDLs for the Patuxent Reservoirs.

Part of the focus this year was on programs and projects that are relevant to the TAC's future resource protection goals. A report by MDE highlighted the $6.5 million in funding generated each year through the Bay Restoration Fund (Flush Fee), which is available to individuals and local governments to help fund on-site septic system upgrades. There are also a number of programs offered by the TAC partnership agencies, including Howard County's Stream Re-Leaf program and Montgomery's Rainscapes program and Leaves for Neighborhoods, which are all available to watershed residents. A representative from the Baltimore Reservoir Watershed Management Program provided insight into the operation and goals of their long term collaborative effort. And finally, the TAC benefited from hearing about the progress being made through the Green Schools program and other outreach campaigns initiated by Sandy August of WSSC.

There are tremendous opportunities for continuing the success of this partnership in 2010. TMDLs will require that we look to agriculture and large lot rural subdivisions to implement best management practices such as tree plantings through Stream Re-Leaf and the revamped Conservation Reserve Enhancement Program (CREP), as well as considering how to take advantage of MDE's septic upgrade funding. It would be great to see the TAC "adopt" a couple of schools within the watershed in each County to help them gain Green School recognition. With the current economic climate, the TAC should focus some effort in the coming year on pooling resources and capitalizing on the programs and funding that are currently available.

Acknowledgements

POLICY BOARD

William Barnes	***Howard Soil Conservation District***
Joshua Feldmark, Chair	***Howard County***
Robert Hoyt	***Montgomery County***
Jerry Johnson	***Washington Suburban Sanitary Commission***
George Lechlider	***Montgomery Soil Conservation District***
Oscar Rodriquez	***Maryland-National Capital Park and Planning Commission***
Charles Wilson	***Prince George's County***

Our sincere thanks are given to the members of the Technical Advisory Committee and others listed below for their efforts over the last year.

Technical Advisory Committee

Gul Behsudi	Maryland Department of the Environment (MDE)
Martin Chandler	Washington Suburban Sanitary Commission (WSSC)
Ken Clare	Prince George's County Health Department
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Dwight Dotterer	Maryland Department of Agriculture (MDA)
Jerry Maldonado	Prince George's County Department of Environmental Resources
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John McCoy	Maryland Department of Natural Resources (DNR)
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Bert Nixon	Howard County Health Department
Susan Overstreet	Howard County Department of Planning and Zoning
David Plummer, Chair	Montgomery Soil Conservation District (MSCD)
Howard Saltzman	Howard County Department of Public Works
Stan Wong	Montgomery County Department of Permitting Services

Public Outreach

As of November 2006 the WSSC Community Relations Office took responsibility of the outreach work for the Technical Advisory Committee. Currently, Sandra August, Community Outreach Representative for WSSC has the responsibility of coordinating TAC outreach functions, and events. When needed, other members of the TAC or their staff have been called upon to provide assistance in some of the program planning and this has worked well.

Administrative, Liaison and Technical Support

Steven Nelson	Washington Suburban Sanitary Commission
Carrie Capuco	Capuco Consulting Services, Inc.
Nancy Roth, Alexi Boado	Versar, Inc.

Executive Summary

Two large reservoirs, Triadelphia and Rocky Gorge (T. Howard Duckett), are significant water supply sources for the Washington D.C. metropolitan area serving about 1.8 million residents primarily in Montgomery and Prince George's Counties (Figure 1). Howard County also receives about 5% of their public drinking water from the Patuxent Reservoirs. The Patuxent Reservoirs' 132-square mile watershed includes land in Howard, Montgomery, and Prince George's Counties (Figure 2).

In 1993, the Montgomery County Council approved a Functional Master Plan for the Patuxent River Watershed including the Patuxent Reservoirs. One primary recommendation from this plan was the formation of an interjurisdictional partnership to protect the long-term integrity of the Patuxent Reservoirs system. As a result, the Patuxent Reservoir Protection Group (PRPG) formed later in 1993 to address watershed management issues included in the Functional Master Plan. The PRPG consisted of representatives from local jurisdictions; the group completed an interim report called Developing a Patuxent Reservoir Protection Strategy in 1995.

In 1996, the Patuxent Reservoirs Watershed Protection Agreement was ratified by executives of seven agencies including Howard, Montgomery, and Prince George's Counties; Howard and Montgomery Soil Conservation Districts (SCD); the Maryland-National Capital Park and Planning Commission (M-NCPPC); and the Washington Suburban Sanitary Commission (WSSC). This agreement formalized the work accomplished by the PRPG and established a Policy Board and a Technical Advisory Committee (TAC) to implement the reservoir and watershed protection programs. A primary goal of the agreement was to develop a *multi-barrier watershed management approach* to assure the integrity of a continued supply of high quality, potable water at a reasonable cost by sharing the benefits of and responsibilities for necessary resource management actions equitably among all parties. The scope of the agreement included the reservoirs and the contributing surface and groundwater resources; it also recognized the importance of protecting the long-term biological, physical, and chemical integrity of the Patuxent Reservoirs Watershed.

In 1997, a Comprehensive Management Planning Study for the Patuxent Reservoir Watershed was completed. This report provided consensus recommendations for the long-term protection of the Patuxent Reservoirs and their watershed. Later that year, the Policy Board approved an action plan of resource protection strategies, which gave the partner agencies direction and focus for subsequent efforts.

In 2003, the Goals-Setting Workgroup of the TAC re-evaluated the original list of action items and proposed a revised action plan, which was approved by the Policy Board. This revised list of action items or work plan, titled *Performance Measures and Goals for Priority Resources* (Table 2), represents a continuation of the commitment to coordinate protection efforts in coming years. This table contains goals, performance measures, implementation items, and a time line to achieve each goal for six priority resources selected by the TAC. Those priority resources include the following:

- Reservoirs and drinking water supply
- Terrestrial habitat
- Stream systems
- Aquatic biota
- Rural character and landscape, and
- Public awareness and stewardship.

In 1998, the Maryland Department of the Environment (MDE) identified both reservoirs as impaired by nutrients and identified Triadelphia Reservoir as impaired by sediment; consequently, MDE determined that the reservoirs were unable to achieve State water quality standards for their designated use as a public drinking water supply. To address these impairments, the US Environmental Protection Agency (EPA) approved total maximum daily loads (TMDLs) for both reservoirs in November 2008. A phosphorus TMDL was established for each reservoir, and a sediment TMDL was established for Triadelphia Reservoir. Significant phosphorus load reductions are required (58% for Triadelphia Reservoir, 48% for Rocky Gorge Reservoir). A large majority of the needed phosphorus load reductions (76% for Triadelphia, 65% for Rocky Gorge) were allocated to non-point sources of pollution (e.g., runoff from agricultural and low density residential lands).

Since 1997, the TAC has completed an Annual Report to summarize its accomplishments and identify funding needs to address watershed priority resource issues. This annual report first provides an update for on-going efforts and those completed in 2009 and then presents information on new initiatives for 2010 and beyond. This Annual Report will be accompanied by a separate Technical Supplement to provide detailed background information and additional documentation for items summarized in this report; the Technical Supplement will be issued early in 2010.

Significant progress was made in 2009. The following are highlights of those accomplishments:

1. Versar, Inc. completed a report titled Patuxent Reservoirs Interim Watershed Management Report, which will help direct and prioritize future TAC efforts. This report summarizes numerous historical resource protection reports prepared over the past 30 years and distills many recommendations from those reports into several common resource protection categories. In addition, using GIS technology and current data, this report identified potential targets where best management practices (BMPs) may prove effective, thus helping to focus future funding and implementation efforts.

2. WSSC completed an evaluation of long-term water quality trends using monitoring data from 1993 through 2008.

3. WSSC purchased two parcels of land totaling approximately 35 acres within the Patuxent Reservoirs Watershed, which extinguished five rights to develop the land and provided resource protection and water quality benefits downstream.

4. Howard County's Department of Public Works, Bureau of Environmental Services completed its second cycle of biological and physical habitat monitoring of streams in the

county's portion of the Rocky Gorge Reservoir watershed. Results from 2009 indicate that for those streams sampled, the physical habitat improved slightly compared with 2003; however, the biological condition remained in poor condition.

5. Howard County's Department of Public Works, Bureau of Environmental Services completed the second phase of a stream channel restoration project (approximately 600 feet) in the Cherry Creek Watershed, which drains directly into Rocky Gorge Reservoir.

6. M-NCPPC, in cooperation with other volunteer organizations, planted another 1½ acres of trees that will act as a buffer to the Reddy Branch tributary of the Hawlings River in Montgomery County.

7. Several successful outreach events occurred this year, including the WSSC-sponsored H2O Fest watershed festival and Annual Campfire. Five outreach events to the agricultural community were held by the Soil Conservation Districts.

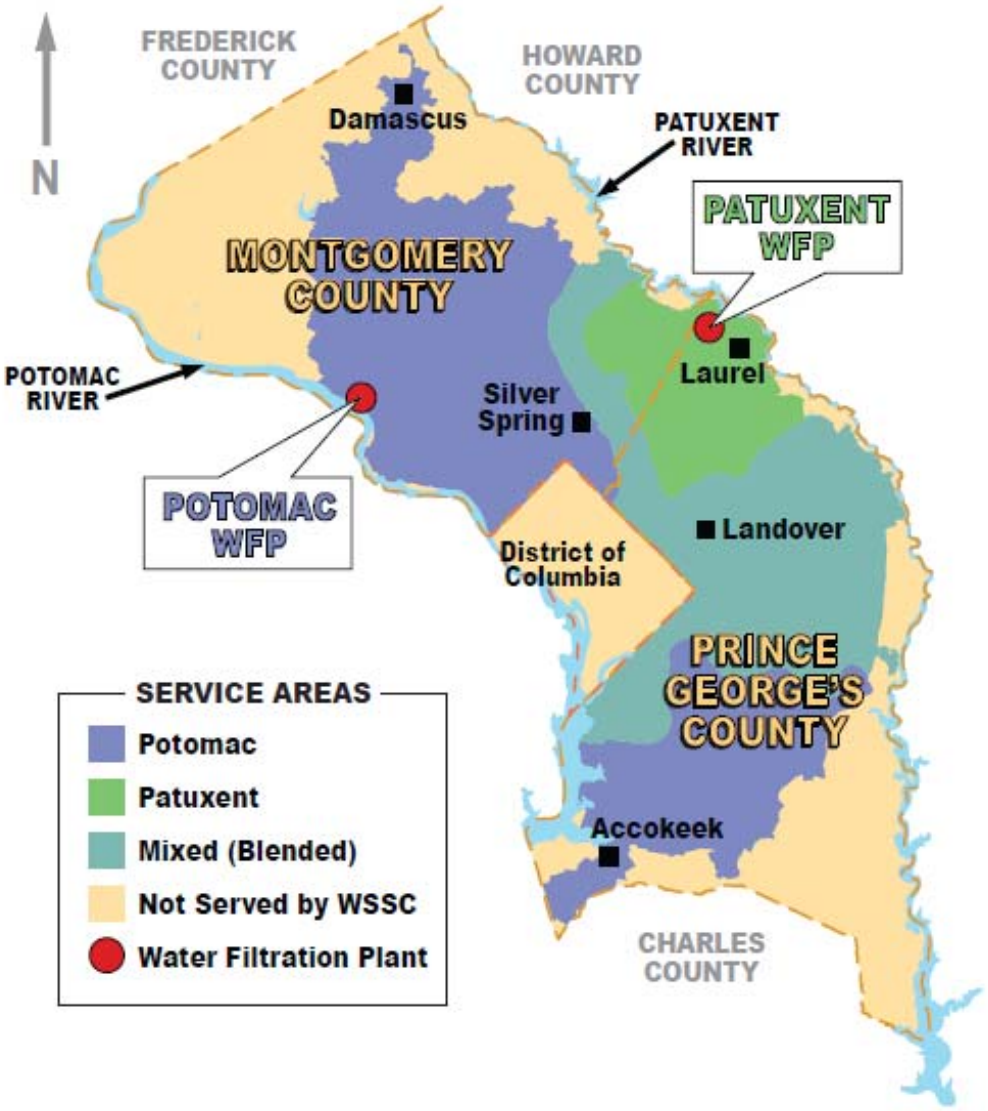

Figure 1. Drinking Water Service Area - Patuxent & Potomac Sources

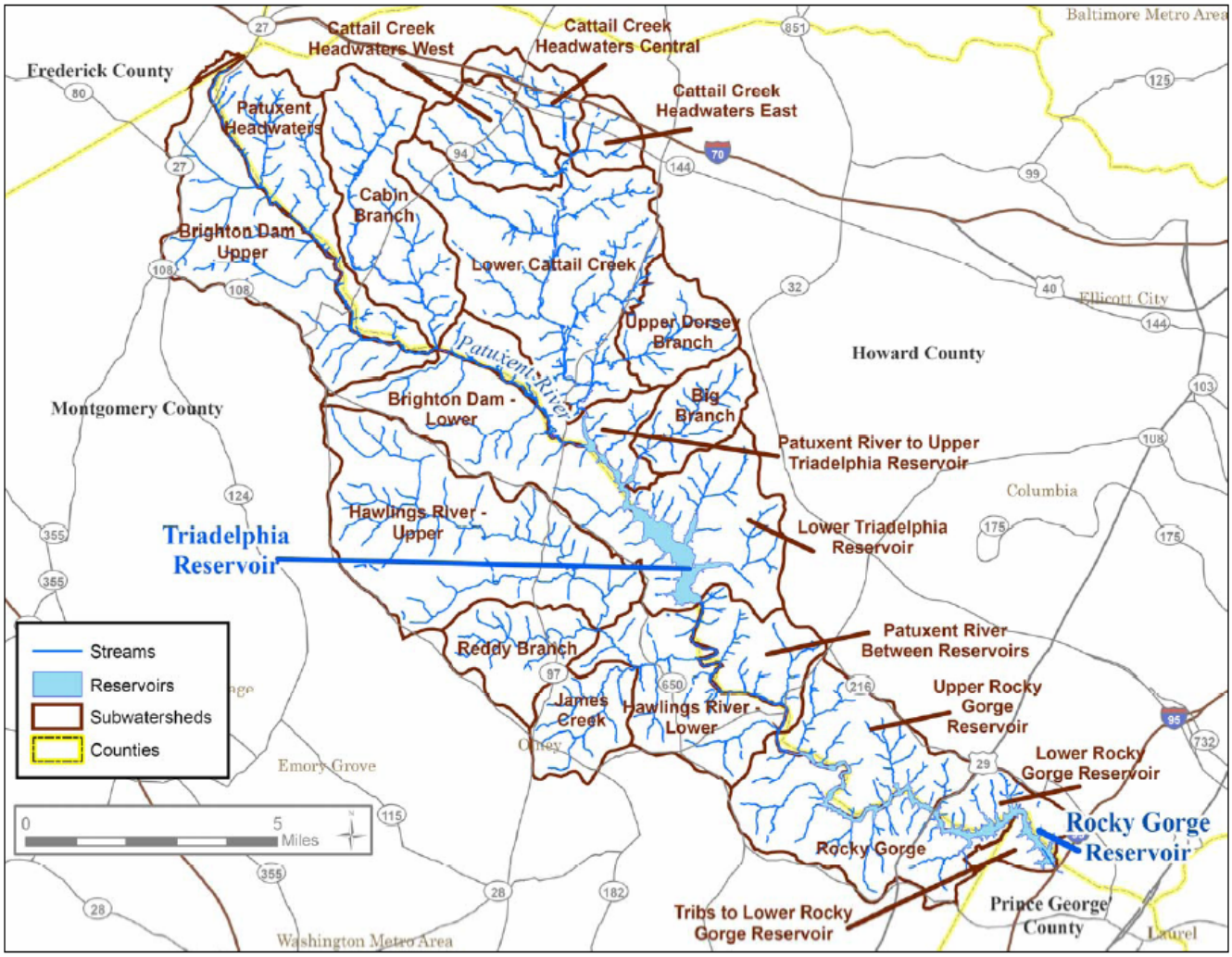

Figure 2. Patuxent Reservoirs Watershed

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Tables and Figures

List of Acronyms

Acronym	Definition
ac	Acres
BMP	Best Management Practice
CHL-a	Chlorophyll-a
CBT	Chesapeake Bay Trust
DO	Dissolved Oxygen
DPWT	Montgomery County Department of Public Works and Transportation
ea	Each
EPA	U.S. Environmental Protection Agency
ft	Feet
FY	Fiscal Year
H20	Water
HSCD	Howard Soil Conservation District
IBI	Index of Biological (or Benthic) Integrity
LID	Low Impact Development
MC	Montgomery County
MDE	Maryland Department of the Environment
MSCD	Montgomery Soil Conservation District
MS4	Municipal Separate Storm Sewer System
mg/L	Milligrams per Liter (equivalent to part per million)
NFWF	National Fish and Wildlife Foundation
NPDES	National Pollution Discharge Elimination System
PGC	Prince George's County
pH	Power of Hydrogen
SCD	Soil Conservation District
SSO	Sanitary Sewer Overflow
TAC	Technical Advisory Committee
TBD	To be determined
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbon
µg/L	Micrograms per Liter (equivalent to part per billion)
USGS	U.S. Geological Survey

Introduction

This year marks the 13th year that the TAC has completed an Annual Report, which summarizes accomplishments and identifies funding needs to address watershed priority resource issues. This annual report first provides an update for on-going efforts and those completed in 2009 and then presents information on new initiatives for 2010 and beyond.

Three major efforts were completed this year including: 1) an Interim Watershed Management Report, 2) the second phase of a stream restoration project in the Cherry Creek watershed, and 3) the evaluation of long-term water quality trends for the Patuxent Reservoirs.

Progress is also provided for several on-going resource protection and monitoring efforts including reservoir monitoring, land acquisition within the Patuxent Reservoirs Watershed (PRW), biological monitoring results, forest buffer establishment along Reddy Branch within the Hawlings River watershed, agricultural initiatives and BMP installation, and numerous public outreach and involvement initiatives targeting both urban and agricultural communities.

A brief summary on two new initiatives planned for 2010 and beyond follows the progress on existing implementation items. The first initiative is related to Montgomery County's forthcoming storm water National Pollutant Discharge Elimination System (NPDES) permit, which will include new provisions to implement established TMDLs including those recently completed for both reservoirs. The second initiative is related to a Prince George's County watershed planning effort in the County's portion of the watershed adjacent to Rocky Gorge Reservoir.

This Annual Report will be accompanied by a separate Technical Supplement to provide detailed background information and additional documentation for items summarized in this report. The Technical Supplement will be issued early in 2010.

Progress on Implementation Items

Interim Watershed Management Report

As part of the third year of WSSC's funding support for a contract Partnership Coordinator position, technical assistance was received from Versar, Inc. to prepare a comprehensive watershed management evaluation. The effort was originally envisaged as a framework for developing a comprehensive watershed management plan addressing the nine elements for reducing non-point source pollution under the Clean Water Act Section 319 Grant program. However, insufficient progress has been made in addressing several of the nine elements, such as identifying appropriate BMPs in each jurisdiction, determining an interim implementation schedule and milestones, and establishing appropriate load reduction benchmarks. The report notes that these elements would largely be addressed via TMDL implementation plans.

The report distills numerous resource protection studies and reports from the past 30 years into several core issues and identifies their associated challenges. The evaluation includes GIS analysis using the latest detailed mapping data available, which indicates some potential geographic targets where different BMPs may prove effective, thus helping to focus future funding and implementation efforts. And finally, the evaluation provides a series of recommendations for the TAC to consider in conjunction with its existing Priority Resources framework.

Reservoir and Tributary Water Chemistry Monitoring

The WSSC is in the 18th year of monitoring reservoir water quality to provide data for technical analysis and long-term trend evaluation to support protection of the reservoirs and drinking water supply. Three sites on each reservoir are monitored monthly, except during winter months. The reservoirs are monitored for phosphorus, nitrogen, total and dissolved organic carbon, metals, turbidity, fecal coliform, and chlorophyll. In addition, in-situ transparency and depth profile measurements of pH, conductivity, temperature, reduction-oxidation potential and dissolved oxygen are performed.

An evaluation of long-term water quality trends was conducted in 2009, using monitoring data from 1993 through 2008. The previous water quality trend evaluation was released in 2003. The full 2009 evaluation will be included in the Technical Supplement.

Reservoir Water Quality Protection: WSSC Land Acquisition Program

In late 2005 the WSSC entered into a Consent Decree with regulatory authorities over sanitary sewer overflows (SSOs), one component of which is the acquisition of conservation easements and land in the Patuxent reservoirs watershed to enhance water quality. This program is a $3.29 million Supplemental Environmental Project (SEP) intended to provide environmental benefits in lieu of paying penalties for past Clean Water Act violations due to SSOs. The WSSC is partnering with the Maryland Environmental Trust (a division of Maryland DNR) to pursue conservation easements.

After developing an approved SEP action plan and pursuing an outreach program to landowners around the watershed over the past two years, negotiations with property owners have in 2009 been successfully conducted and two properties purchased by the WSSC for water quality protection. One property of 21.36 acres, located in Burtonsville, is at the headwaters of a major tributary to the Rocky Gorge Reservoir and is just upstream from the drinking water treatment plant intake. Its acquisition prevents development of the property into four residential lots and maintains largely forested land cover. Another property of 13.83 acres, located in Highland, is directly on the Patuxent River downstream from Brighton Dam and upstream from Rocky Gorge Reservoir. It adjoins and extends existing 300+ foot wide WSSC buffer land holdings along the Patuxent River, and prevents development of the property as a residential lot. About $1.65 million (50%) has been spent thus far; the remaining funds must be spent by the end of 2010.

Tributary Biological and Habitat Monitoring

Biological and habitat monitoring of the tributaries are used to track progress in protecting the stream system and aquatic biota, as land cover changes occur and stream restoration and streamside best management practices are implemented. These monitoring efforts can also locate problem areas and provide indicators for possible problem sources to help guide future restoration efforts.

Howard County

Howard County is on a five-year biological monitoring cycle, so that each of the County's 15 watersheds is sampled once every five years. Each biological monitoring site is evaluated for its physical health and its ability to support an acceptable level of biological health. The physical habitat condition is assessed as: comparable to a reference stream; supporting; partially supporting; or non-supporting based on the stream segment's ability to support biological health. The biological condition is assessed as good, fair, poor or very poor based on the number and type of organisms found in the stream.

In 2003, Howard County sampled their portion of the Rocky Gorge watershed, which received a physical condition rating of Non-supporting and a biological condition rating of Poor. In 2009, the County conducted its second cycle of biological monitoring of the Rocky Gorge watershed and found the physical condition of sites sampled was Partially-supporting and the biological condition rating was Poor. A map of the sampling sites of the 2009 survey and their assigned ratings is shown in Figure 3. The next scheduled biological monitoring effort in Howard County will be in the Cattail Creek and Upper and Lower Brighton Dam watersheds in 2010.

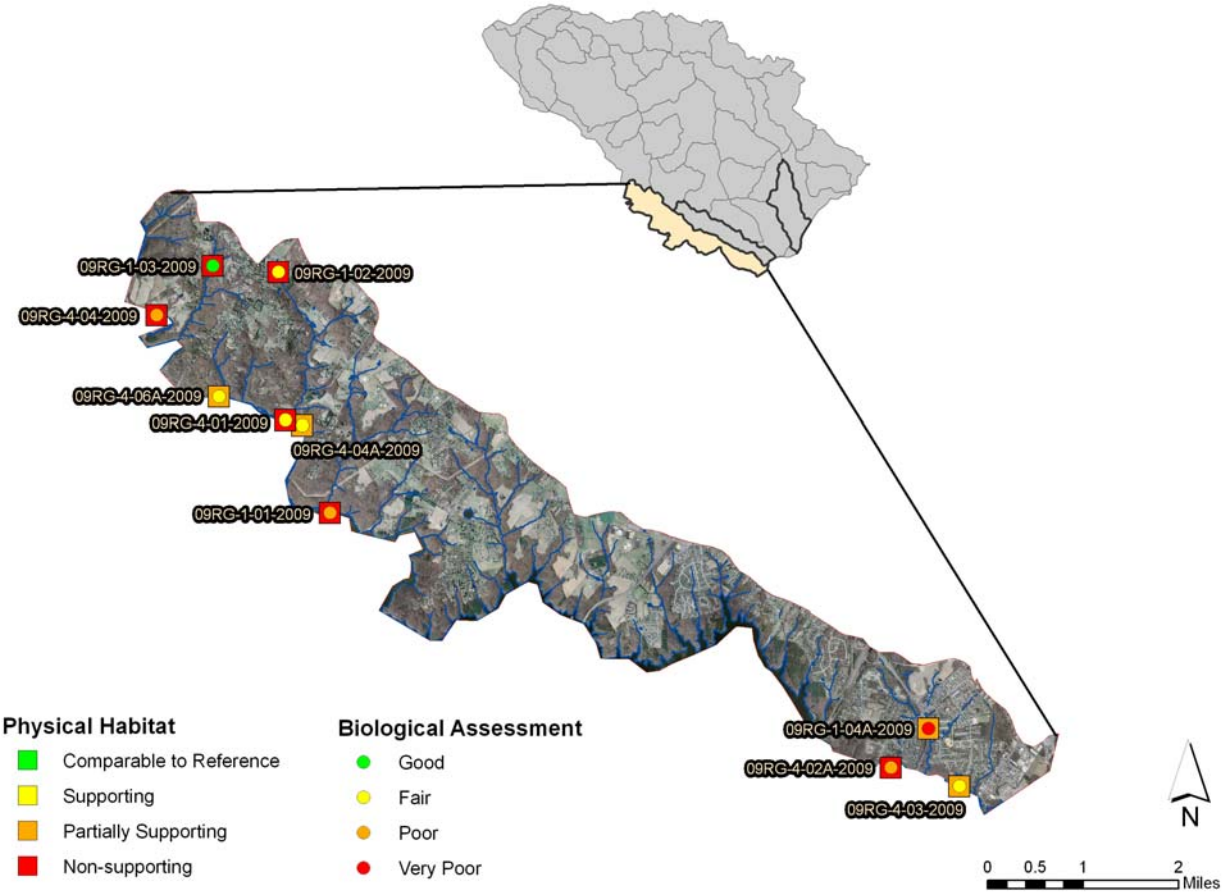

Figure 3. Howard County 2009 Biological Monitoring Assessments

Montgomery County

Montgomery County's DEP collected biological samples to help determine the effectiveness of a stream restoration project totaling 2,800 feet located in the Lower Hawlings River Watershed in 2004. This year was the fifth and final year of the post-restoration monitoring effort; monitoring was conducted in first, third and fifth year following project completion. This project will be assessed for how well it stabilized stream banks and improved aquatic biological communities. A report will likely be available for inclusion in the 2009 Technical Supplement.

Stream Corridor Management

Stream corridor management activities include stream channel stabilization and restoration, and implementing streamside best management practices (BMPs). These activities are targeted at stream channel reaches that were identified in stream corridor assessment surveys as severe problem areas for erosion. These activities help restore and protect the stream system, improve

habitat and water quality for aquatic biota, and support protection of the reservoirs and water supply.

Cherry Creek Stream Channel Restoration

Howard County's Department of Public Works, Bureau of Environmental Services continued to improve the Cherry Creek Watershed (115 acres) by completing phase 2 of this stream channel restoration effort. Cherry Creek drains directly into the Rocky Gorge Reservoir near the Scotts Cove Recreation Area, and this stream has degraded over time due to unmanaged storm water runoff in the headwaters of its watershed. Stream bank and channel erosion are recognized as contributing a significant sediment load to this reservoir. Howard County completed a comprehensive watershed study of Cherry Creek, which identified three stream reaches in need of restoration.

Reach 1 is a 300 linear foot stream channel in the headwaters of this watershed. In addition to restoring this stream channel, Howard County also constructed three storm water management ponds to manage the storm water runoff from the surrounding residential development. Project construction costs for this phase of the restoration effort included a $25,000 grant from the Maryland Department of Natural Resources (DNR) and a $37,600 contribution from the Chesapeake Bay Trust (CBT). Construction of the ponds and the stream restoration was completed in early 2006.

Reach 2 is a 600 linear foot stream channel located immediately downstream of Reach 1. This reach was unstable, with grade control problems and high bank erosion rates. The restoration of this reach was completed in Fall 2009. The project construction costs for the restoration of this reach was $326,998. MDE provided $162,500 in a Small Creeks and Estuaries Restoration Program (SCERP) grant; the remaining funds were provided by Howard County. A three year monitoring program will begin in Fall 2009.

Reach 3 is a 250 linear foot stream channel located upstream of the Harding Road culvert. The channel is relatively straight with a fairly high channel slope. In the lower section the channel is incised, having vertical stream banks and no riparian buffer. Implementing a meander pattern to increase sinuosity will necessitate relocation of a sewer line. The project cost for both design and construction is estimated at $300,000. Howard County has not included this restoration in its capital improvement program for the foreseeable future.

Reddy Branch Riparian Forest Buffer Plantings

Since the last annual report, another one and a half acres of forest buffer have been planted along the Reddy Branch tributary to the Hawlings River, bringing the total acreage of the planted area to three acres. The trees are thriving, due in part to on-going maintenance, particularly for invasive control. Routine maintenance is necessary and regularly performed in both the planted and proposed planting areas. The Izaak Walton League spent a day planting 1/3 acre of the unforested buffer area. They brought their own supplies and provided 60 trees. Another acre is scheduled for planting in the winter of 2009/10.

The Department of Parks is currently in negotiations with adjacent property owners to acquire land where Reddy Branch has migrated outside Park property. This acquisition, done through a

land swap, will make it possible for the Parks Department to do a limited stream restoration to halt stream migration in that location. It will also provide access to the remainder of the proposed planting area. Completion of the work at Reddy Branch is dependent on this transaction.

Agricultural Progress

A summary of the progress made during the past year by both the Howard and Montgomery SCDs is provided in Table 1. The numbers reported for Howard County account for activity from October, 2008 through June 30, 2009 to establish future reporting of activity on a fiscal year basis (July-June). Progress from July-September, 2008 was included with the 2008 Annual Report. A discussion of public outreach events to the agricultural community is included along with other outreach events for the year.

Table 1. Agricultural Progress for 2009 in the Patuxent Reservoirs Watershed

	Howard SCD	**Montgomery SCD**
Conservation Plans developed	9 (112.8 acres)	3 (370 acres)
Conservation Plans Revised	6 (445.2 acres)	11 (304.7 acres)
Landowners Applying BMPs	21	17
Educational/Outreach Events*	3	2
Best Management Practices Installed	39	53
Best Management Practice		
Brush Management (acres)	11.7	-
Cover Crop (acres)	561.0	1,614 .0
Critical Area Planting	0.2	-
Conservation Tillage (acres)	365	234.0
Diversion (feet)	1,300	-
Livestock Exclusion Fencing (feet)	304	-
Grade Stabilization Structure (each)	1	-
Grassed Waterways (acres)	0.6	-
Heavy Use Area Protection (acres)	0.1	-
Livestock Watering System	2	-
Nutrient Management (acres)	1,147.0	734
Pasture / Hayland Planting (acres)	4.5	-
Pest Management (acres)	1,267.1	1,245
Prescribed grazing (acres)	21.2	-
Roof Runoff System	-	1
Stream Crossing	1	-
Spring Development	1	1

* Numbers provided are only educational events within the Patuxent Reservoirs Watershed portion of Howard and Montgomery Counties

In addition, three charts are included to summarize the many accomplishments of both SCDs since 1999 (Figures 4-6). Figure 4 provides the number of Soil Conservation and Water Quality plans developed throughout the watershed on an annual basis; the SCDs consider these plans viable for 10 years. Figure 5 provides the corresponding acreage of agricultural land with a written Soil Conservation and Water Quality plan. Figure 6 shows the number of agricultural BMPs actually installed, which is one indication of how well the plans are being implemented.

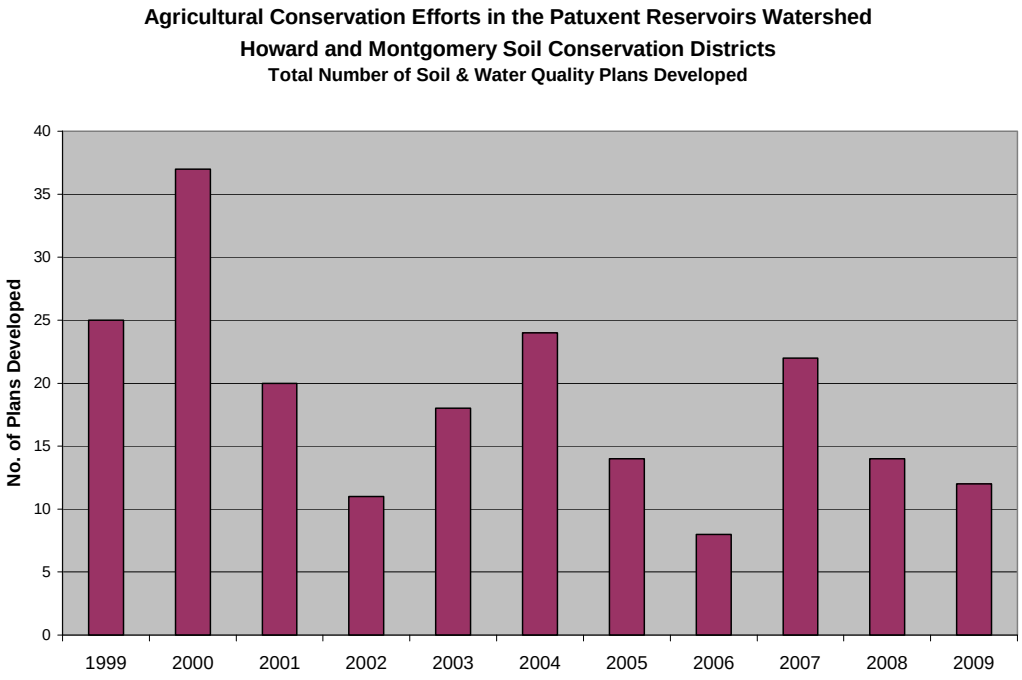

Figure 4. Number of Soil Conservation & Water Quality Plans Developed

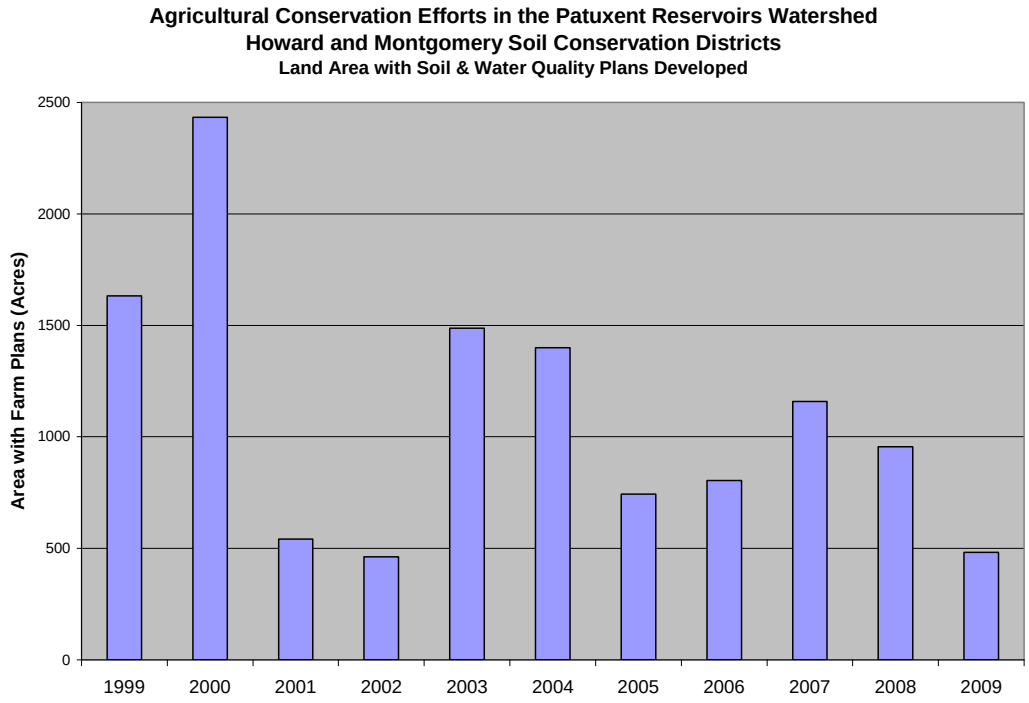

Figure 5. Farm Acres with Soil Conservation & Water Quality Plans

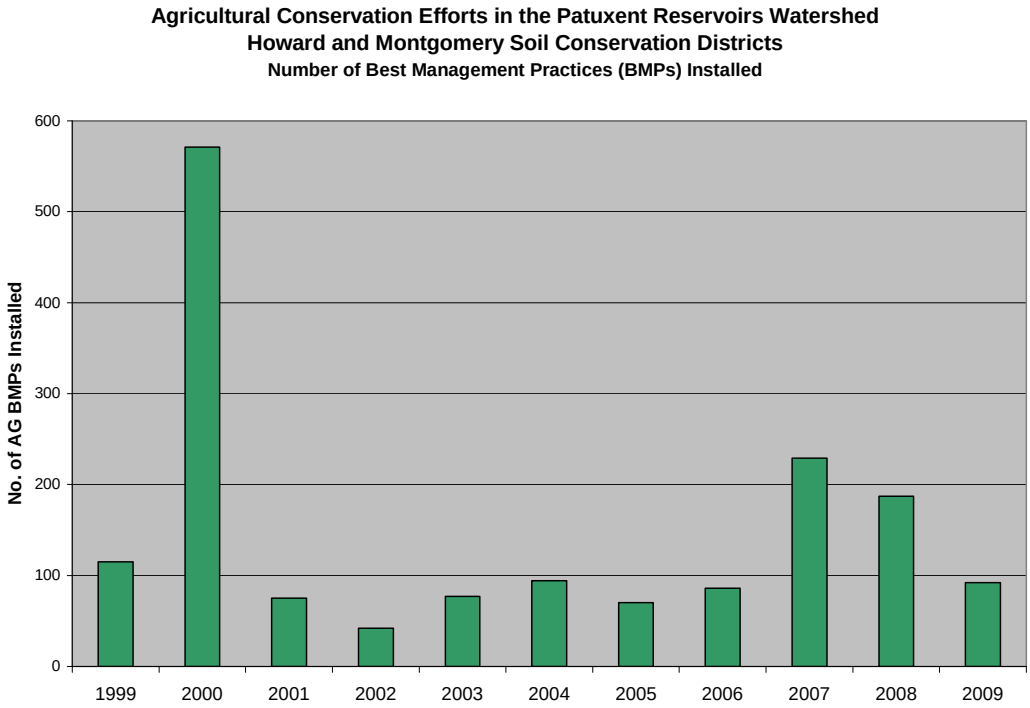

Figure 6. Number of Best Management Practices Installed

In 2008, Howard (HSCD) and Montgomery (MSCD) Soil Conservation Districts submitted grant applications to the Chesapeake Bay 2010 Trust Fund and the National Fish and Wildlife Foundation (NFWF) for a project targeting horse manure and best management practices (BMPs) in the Triadelphia Reservoir Watershed. The total grant request was about $3.5 million. Unfortunately, the Districts were notified in 2009 that neither of these applications received approval, although efforts are still being put forth to obtain funding via other grant agencies. These grant applications were a product of the survey that the Districts completed with financial support from the Chesapeake Bay Trust (CBT). The survey results provided valuable data on small equine operations within the watershed and which BMPs may be applicable to them. By better understanding this sector of the agricultural community, the Districts will be better positioned to provide them with services, incentives, and programs that will help improve their operations and benefit water quality throughout the watershed.

This year, the same project description and funding approach was used to apply for a Conservation Innovation Grant (CIG) from the US Department of Agriculture, Natural Resources Conservation Service (NRCS). This has laid the groundwork to enhance future funding potential through this process, even though this initial application was not approved. The CIG and other funding programs frequently have requirements for matching funds from non-federal partners. The remaining balances in the Patuxent Reservoirs Watershed Cost-Share Program should be considered as leverage for pursuing future grant opportunities.

The MDA continues to provide important financial support to assist the equine community. For instance, the MDA, through grants received from NFWF, provides Howard and Montgomery Counties $10,000 towards cost sharing with operations that fall outside of the traditional Maryland Agricultural Cost Share (MACS) and Environmental Quality Incentives Program (EQIP) programs. In addition, the MDA continues to provide an Equine Specialist, Michael Calkins, to serve Howard, Frederick and Carroll Counties. Finally, the MDA continues to provide Chesapeake Bay 2010 grant funds to employ a second Equine Specialist for Howard County, and has initiated the hiring process for a new Equine Planner for Montgomery County. These additional resources should enable the Districts to reach out to more of the smaller operators that are not traditional conservation program participants. Results are already evident in Howard County where the new staff have been networking with the equine community through pasture walks and other outreach events. The increased staff will also provide the framework for an increased marketing campaign for promoting the Patuxent Reservoirs Watershed Cost-Share Program, the Conservation Reserve Enhancement Program (CREP), and EQIP for the coming year.

Patuxent Reservoirs Watershed Cost Share Program

A complete accounting of the appropriations and expenditures will be included in the Technical Supplement.

Public Outreach and Involvement Initiatives

Under the coordination of WSSC Outreach staff, there were several, successful outreach activities in 2009 as well as other successful outreach events coordinated by other TAC agencies that occurred in Howard and Montgomery Counties.

H2O Fest, Watershed Festival

The WSSC-sponsored Watershed Festival provided the community with information about source water protection and local environmental initiatives at one event rather than individual workshops. "Thinking Green to Protect Blue" was again the theme for this event held on Saturday April 18, 2009. The event was held on WSSC property adjacent to the T. Howard Duckett Dam on Brooklyn Bridge Road in Prince George's County. Over 35 presenters came out to provide environmental and watershed information to approximately 400 citizens who attended. Highlights of the day were tours of the dam and a sewer maintenance demonstration by WSSC employees. Additional help was provided by the Scotchtown Hills Elementary School in Laurel, a Girl Scout Troop and staff from several of the TAC agencies. Several presentations were made by groups that have provided workshops in the past. It is expected that WSSC will hold this event annually and that it will provide more information for a larger audience in the future. The number of people attending this year's event was about twice the number who attended last year. Outside agencies and local environmental groups will be invited to participate in the planning for 2010 in order to continually improve the presentation and enlarge the attendance.

Patuxent River Clean-up

In cooperation with the office of the Patuxent Riverkeeper, WSSC Community Relations Office participated again in the annual Patuxent River Clean-up Day on Saturday, April 4, 2009. Approximately 100 watershed neighbors, school groups, and Boy and Girl Scouts formed crews at nine WSSC recreation areas, and collected hundreds of pounds of trash and recyclables. Site leaders for this effort volunteered their time to organize, recruit, and report for the Clean-up event. This year WSSC staff used a workboat to access coves in the reservoir to retrieve trash and tires along the shorelines. Several school groups participated and collected trash at several locations around the reservoirs as school service projects. Future planning for trash collection efforts will include adding a fall event with the assistance of local Boy Scouts and school environmental groups.

Annual Family Campfire

This annual event was held on October 2, 2009 at WSSC's Brighton Dam Recreation Area in Montgomery County. It has been held annually since 2001 and has become a favorite event in the community. This year the weather was warm but overcast and about midway into the program we had a significant rainfall for about 20 minutes; however, this did not dampen the spirits of the participants who still enjoyed the bonfire. Over 400 attendees were greeted by WSSC Director of Communications, Jim Neustadt, and Kristal McCormick (HSCD) who represented the TAC. WSSC's Community Relations Office provided informational posters on watershed habitat protection, including a large map of the watershed and information about the schools' oyster reef project. Entertainment was provided free of charge by a group called "Just 2 Guys" lead by WSSC employee Tom Kelly.

Izaak Walton League of America-Wildlife Achievement Chapter (IWLA-WAC)

The Montgomery County DEP and Department of Public Works and Transportation (DPWT) continued to provide support to the Izaak Walton League of America-Wildlife Achievement Chapter (IWLA-WAC) in Damascus for outreach events open to the general public during 2009. Outreach events included their annual Spring Watershed Clean-up, their annual Fall Watershed Clean-up, workshops on nest boxes, 'Make and Take' Rain Barrels, and invasive plant management. During their spring clean-up, the Chapter collected about 41 bags of trash in the watershed, along with seven tires. The County's DPWT picked up all trash collected during the Chapter's clean-ups. The DEP completed enforcement action at a dump site in the watershed with 63 tires and an abandoned boat on trailer reported by the IWLA-WAC. During 2009, the IWLA-WAC was recognized at the IWLA National Convention with the James Lawton Childs Award. This award recognizes the chapter out of 270 across the Country that has carried out the most outstanding conservation programs during the past year.

Montgomery County Chapter of the Sierra Club

The DEP Division of Solid Waste Services is working with the Montgomery County Sierra Club at the closed landfill near Brookeville for outreach and restoration. Staff from the Division of Solid Waste Services discussed what happens when a landfill closes to minimize environmental impact, demonstrated the gas collection and leachate pretreatment systems, and conducted a guided tour of the of methane gas-to-electricity plant. The Sierra Club has sponsored bird walks along the Blue Marsh Nature Trail at the landfill and has also sponsored work days to help control invasive plants on the site.

Rainscapes Rewards Program

The Montgomery County DEP is continuing its Rainscapes Rewards Program, with the Patuxent Reservoirs watershed as a priority watershed for projects. From March 2008 through September 2009, only a handful of projects have been installed in the Patuxent, however. This program provides rebates to property owners who voluntarily install practices that capture and store runoff from rooftops and paved areas in their yards, thus reducing storm water impacts downstream. The rebates vary by practice and include rain gardens, rain barrels and cisterns, conservation landscaping (replacing turf with native plants), planting native trees, replacing pavement with pervious pavers, and installing green roofs. Specific criteria must be met for each practice and the property owner must sign an agreement agreeing to maintain the practice so it continues to function and also to notify any subsequent owner that the practice must be maintained.

Soil Conservation District Agriculture Outreach Efforts

In Howard County, 46 people attended three educational events held within the Patuxent Reservoirs watershed. At the start of 2009, the HSCD held two meetings for traditional farmers. The meetings were held in the Patuxent Reservoirs watershed, but were open to anyone that was interested in attending. These meetings addressed a variety of topics including the farm bill update, pest management, animal waste composting, precision agriculture, carbon and nutrient trading, and an upcoming program called the Farm Stewardship and Certification Assessment Program, which recognizes good conservation stewardship and encourages additional conservation practices. In addition to staff, speakers, and representatives from other organizations, there were 16 people in attendance.

In the spring of 2009, HSCD also organized and held an equine seminar at Circle D Farm located in Woodbine. In addition to staff and speakers there were 30 people in attendance. Topics presented include mud issues/heavy use area protection, manure management, cost share options, keeping horses on small acreage, and laminitis (i.e., inflammation of a portion of a horse's hoof). This seminar was funded in part by a Grazing Land Conservation Initiative grant.

The MSCD helped sponsor a Pasture Management Workshop for horse owners at the University of Maryland – Central Maryland Research and Education Center (CMREC) farm in Clarksville. Although this location is in the Middle Patuxent Watershed, it included attendees from the Patuxent Reservoirs Watershed and surrounding areas. About 50 people attended the event and heard from experts on rotational grazing, pasture establishment, heavy use areas, weed ID and control, and the research that is being undertaken at this facility.

New Implementation Items

Municipal Storm Water NPDES Permit Implementation Plans

In June 2009, the Montgomery County DEP initiated a consultant study to develop implementation plans to meet the anticipated requirements under the next round of Montgomery County's MS4 Permit. This permit requires the County to control runoff and pollutants through its storm drain system. The County is developing watershed-based plans which include BMPs by type, drainage area controlled, and estimated pollutant load reduction, to meet MS4 waste-load (i.e., point source) allocations for all watersheds for which EPA has approved TMDLs. This includes approved TMDLs for phosphorus to the Rocky Gorge Reservoir and sediment and phosphorus to the Triadelphia Reservoir. These plans will include a public outreach component and will be presented to the public for comment before submitting to MDE for approval. The timeline for completion will be late summer 2010.

Watershed Restoration Planning Effort

Prince George's County Department of Environmental Resources (DER) will be initiating an effort to assess the potential for protection and restoration opportunities in their portion of the watershed adjacent to Rocky Gorge Reservoir. Two staff members from the DER will be conducting this assessment. This planning effort will focus on identifying projects that when implemented will reduce phosphorus loads to Rocky Gorge Reservoir.

Table 2. Performance Measures and Goals for Priority Resources

PRIORITY RESOURCES: GOALS & PERFORMANCE MEASURES				
Resource: Reservoir/Water Supply				
Issue: The public need for a sufficient quantity of safe and high quality drinking water calls for adopting a proactive and multi-barrier approach, which starts with utilizing raw water of the highest quality and sustainable quantity, now and in the future. To achieve this for the Patuxent water filtration plant, we need to control reservoir eutrophication, reduce disinfectant by-products precursors, and limit reservoirs capacity loss.				
Measures	**Goals**	**Implementation Items**	**Time Line**	**Responsible Partner**
Chlorophyll-a (CHL-a)	• CHL-a not to exceed a 10 μg/L mean during the growing season and not to exceed a 30 μg/L instantaneous concentration	• Perform reservoir monitoring for CHL-a, nutrients (N and P), TOC and DOC during the growing season	Ongoing	WSSC
Dissolved oxygen (DO)	• DO not to fall below 5 mg/L at any time in the epilimnion, not to fall below 5 mg/L in the entire water column during completely mixed periods, and not to fall below 10% saturation at any time in the hypolimnion	• Perform reservoir monitoring for CHL-a, DO, TOC and DOC during the growing season	Ongoing	WSSC
Suite of water quality parameters in reservoir monitoring protocol	• Five-year data trend analysis for other monitored water quality parameters shows no net deterioration	• Enhance and fine tune model reliability for watershed management • Develop and begin implementation of a plan to reduce nutrients, based on model/TMDL requirements • Update trend analysis for reservoir water quality parameters on a 5-year cycle	Draft TMDL submitted to EPA for Approval 2006 – 2009 2009	WSSC/MDE TAC WSSC
Total organic carbon (TOC)	• TOC – 20% annual reduction goal, with 40% reduction for peak quarter at the location where water is withdrawn for treatment purposes	• Perform reservoir monitoring for CHL-a, DO, TOC and DOC during the growing season	Ongoing	WSSC
Sediment	• Sediment accumulation rate not to exceed previous years	• Perform bathymetric survey of reservoirs at 10 year intervals or less	Completed FY07	WSSC

PRIORITY RESOURCES: GOALS & PERFORMANCE MEASURES (continued)				
Resource: Terrestrial Habitat				
Issue: Preservation of forests provides water quality benefits by reducing sediment and nutrient loading of streams from surrounding land uses.				
Measures	**Goals**	**Implementation Items**	**Time Line**	**Responsible Partner**
Forest Cover	• Maintain and increase forest cover • Increase forest interior habitat	• Encourage private property owners to participate in tree planting programs • Ensure publicly owned parkland and open space is forested to the maximum extent possible	Ongoing 2006 – 2023	TAC TAC
Forest Connectivity	• Improve forest connectivity (larger forest tracts are connected by forest corridors)	• Target reforestation and forest conservation programs to increase forest connectivity and forest interior habitat	Ongoing	TAC
Forest Size	• Increase forest size	• Encourage private property owners to participate in tree planting programs • Ensure publicly owned parkland and open space is forested to the maximum extent possible	Ongoing 2006 – 2023	TAC TAC
Forest Diversity	• Ensure diverse forest communities (communities contain a variety of species and ages)	• Develop a forest management plan to ensure forest diversity and long-term natural regeneration, identifying and addressing potential problems such as excessive deer populations, invasive species and human impacts	2006 – 2013 Plan completed FY08	TAC
Forest Sustainability	• Ensure forests are self-sustaining and capable of long-term natural regeneration	• Implement deer management programs • Implement strategies for control of invasive plants	Ongoing 2006 – 2009	TAC TAC

PRIORITY RESOURCES: GOALS & PERFORMANCE MEASURES (continued)				
Resource: Stream System				
Issue: Preventing stream habitat degradation - The stream system includes all intermittent and perennial streams and their adjacent floodplains. A stable stream system provides significant nutrient and sediment removal during both baseflow and storm flow events. The stream and its associated riparian buffer are also important as sources of high quality food and habitat for both aquatic and terrestrial organisms.				
Measures	**Goals**	**Implementation Items**	**Time Line**	**Responsible Partner**
Buffer corridor width and continuity	• A minimum 35-foot riparian buffer on all streams on properties that were developed prior to current stream buffer requirements	• Establish and maintain minimum 35-foot riparian buffers on all publicly-owned land • Accelerate programs to establish and maintain streamside buffers to a minimum of 35 feet on privately-owned lands to the maximum extent possible	2006 – 2013 2006 – 2023	WSSC, M-NCPPC, HC, MC WSSC, M-NCPPC, HC, HSCD, MC, MSCD
Stream bank and stream channel stability	• No areas of "severe" or "very severe" stream bank erosion based on the Stream Corridor Assessments and other locally collected data.	• Establish and maintain streamside fencing programs to keep all livestock out of streams to the maximum extent possible • Address <u>significant</u> areas of stream bank and channel instability through stream restoration projects and storm water retrofits to the maximum extent possible	2006 – 2013 2006 – 2013	HSCD, MSCD HC, HSCD, M-NCPPC, MC

PRIORITY RESOURCES: GOALS & PERFORMANCE MEASURES (continued)				
Resource: Aquatic Biota				
Issue: Biological Integrity**–** This is the condition of the benthic macroinvertebrate communities based on a comparison to a reference stream in Montgomery County. A reference stream is relatively undisturbed and therefore the best quality to be expected in the region that includes the Patuxent Reservoirs Watershed.				
Measures	**Goals**	**Implementation Items**	**Time Line**	**Responsible Partner**
IBI - Index of Biological Integrity	• No subwatershed with a benthic IBI indicating "fair" or "poor" condition	• Aggressively pursue cost-share funds to construct agricultural BMPs, stream restoration, and storm water retrofit projects to address factors contributing to degraded biological integrity	2006 – 2023	HC, HSCD, MC, MSCD, M-NCPPC
		• Mitigate runoff impacts from land use changes	2006 – 2023	HC, MC, M-NCPPC
	• Preserve conditions in subwatersheds with "excellent" and "good" benthic IBIs	• Protect existing habitat and water quality of streams in high-quality subwatersheds to the maximum extent possible by pursuing programs to maintain or increase existing land cover	2006 – 2023	HC, HSCD, MC, MSCD, M-NCPPC

IBI - Index of Biological Integrity is also referred to as Index of Biotic Integrity in Maryland Biological Stream Survey publications.

PRIORITY RESOURCES: GOALS & PERFORMANCE MEASURES (continued)				
Resources: Rural Character and Landscape				
Issue: Preserving open spaces and maintaining an economically viable and environmentally protective agricultural community.				
Measures	**Goals**	**Implementation Items**	**Time Line**	**Responsible Partner**
Agricultural Preservation Enrollment • Total acres enrolled • Number of farms enrolled	• Preserve the agricultural and rural nature, and open space of the watershed	• Continue easement acquisition through agricultural land preservation programs • Continue agricultural economic development programs	Ongoing Ongoing	HC, MC HC, MC
Agricultural Demographics • Acres of agricultural land • Market value of agricultural production • Size of farms • Types of farms	• Preserve the agricultural and rural nature, and open space of the watershed	• Continue zoning and land use policies in the watershed to maintain rural character • Continue agricultural economic development programs	Ongoing Ongoing	HC, M-NCPPC HC, MC
Open Space and Parkland Acquisition and Easement Programs • Acres of open space land preserved by non-agricultural easements or acquisition	• Create a landscape that is protective of water quality	• Utilize effective open space land management practices that are beneficial to water quality	Ongoing	HC, M-NCPPC, WSSC
Participation in agricultural conservation programs and percent of conservation plans that are implemented	• Create a landscape that is protective of water quality	• Encourage participation in other conservation and open space preservation programs • Encourage enrollment in federal and state nutrient management and stream protection programs • Promote greater utilization of funding provided by the Reservoir Protection Group to supplement federal and state agricultural programs • Create and routinely update an electronic map based system to track BMP implementation	Ongoing Ongoing Ongoing 2006 – 2013	HC, MC, M-NCPPC HSCD, MSCD HSCD, MSCD HSCD, MSCD

PRIORITY RESOURCES: GOALS & PERFORMANCE MEASURES (continued)				
Resource: **Public Awareness and Stewardship**				
Issue: Awareness and support by residents and resource users				
Measure	**Goals**	**Implementation Items**	**Time Line**	**Responsible Partner**
Residents participating in stewardship activities	• Citizen action to improve watershed resources – see evidence of watershed friendly activities and practices • 10 to 15 stewardship offerings per year	• Identify citizen groups throughout watershed and be available for presentations upon request • Organize stewardship events and participate in other community events • Recognize good stewards through annual awards • Form "Friends of the Watershed" group of citizen volunteers that will take on tasks such as newsletter preparation and some Earth Month planning	2006 – 2009 Ongoing 2006 – 2008 2006 – 2009	TAC TAC MC, PGC, HC, M-NCPPC TAC
Schools participating in mentoring	• School and community involvement – 20 participating Green School partners by end of 2003 and 5 additional schools participating each year thereafter until all 43 are attained	• Continue and expand Green Schools Mentoring Partnership	Ongoing	WSSC, HC, MC, PGC, M-NCPPC
Active support by elected officials	• Routine communication with elected officials	• Routine communication with elected officials	Ongoing	TAC
Routine coverage by media	• Expanded media coverage of watershed events – print, radio and TV	• Increase communication with media • Support regional efforts to establish media-savvy campaigns that emphasize water quality protection	2006 – 2009 2006 – 2008	TAC

Table 3. Work Plan Expenditures for Current and Upcoming Year

PATUXENT RESERVOIRS WATERSHED WORK PROGRAM FOR FY10 and FY11					
PRIORITY RESOURCES PROTECTED	**IMPLEMENTATION NEED**	**IMPLEMENTATION ITEM**	**AGENCY**	**FY 2010 / CY 2009**	**FY 2011/CY 2010 (planned)**
Reservoir/Water Supply	Reservoir and tributary water chemistry monitoring	Reservoir monitoring and lab analysis	WSSC	$93,000 (in-kind)	$89,000 (in-kind)
		5 US Geological Survey (USGS) watershed flow gauge stations	WSSC	$50,000	$60,000
		5 year Trend Analysis	WSSC	$56,000 (in-kind)	No additional funding
Stream System Aquatic Biota	Tributary biological and habitat monitoring	Conduct third round of biomonitoring program in the reservoirs watershed	HC	$37,000	$75,000
		Upper Patuxent and Hawlings River	MC	$0	$0
		Hawlings River Restoration Monitoring	MC	$25,000	$0
Reservoir/Water Supply Stream System Aquatic Biota	Stream corridor management	Hawlings River Project Implementation	MC	$0	$0
		Reddy Branch Project Implementation	M-NCPPC MC, MSCD DNR	$100,000	$50,000
ALL Priority Resources	Agricultural management local cost-share initiative	Funding for local cost-share program	HC, MC, WSSC	No additional funding	No additional funding
		Program oversight for voluntary implementation of agricultural BMPs	HSCD MSCD	$80,000 (in-kind)	$80,000 (in-kind)

PATUXENT RESERVOIRS WATERSHED WORK PROGRAM FOR FY10 and FY11					
PRIORITY RESOURCES PROTECTED	**IMPLEMENTATION NEED**	**IMPLEMENTATION ITEM**	**AGENCY**	**FY 2010 / CY 2009**	**FY 2011/CY 2010 (planned)**
ALL Priority Resources	Public outreach and involvement initiatives	Rainscapes Program	MC	$5,000	$0
		Rainscapes Rewards	MC	Rebates available for Low Impact Development (LID)	Rebates available to county residents for LID
ALL Priority Resources	Public outreach and involvement initiatives	Earth Month, and other outreach activities	WSSC Other TAC agencies	$135,500 (in-kind) $2,500 (in-kind)	$140,000 (in-kind) $2,500 (in-kind)
ALL Priority Resources	Complete Annual Report and Technical Supplement	Compilation and editing	WSSC Other TAC Agencies	$31,000 In-kind	$35,000 In-kind
		Printing and distribution	WSSC	$200	$200
	Coordination and Collaboration	Provide administrative support & coordination among partners	WSSC	$21,000	$25,000
Reservoir/Water Supply Terrestrial Habitat Stream System Aquatic Biota Public Awareness & Stewardship	Assessment of potential watershed protection & restoration opportunities	Watershed Restoration Planning Effort	PG	$50,000	
TOTAL FUNDING				**$686,200**	**$556,700**