PATUXENT RESERVOIRS WATERSHED PROTECTION GROUP

2010 ANNUAL REPORT OF THE TECHNICAL ADVISORY COMMITTEE

November 2010

A Message From The Chair

The Patuxent Reservoirs Watershed Protection Group's Technical Advisory Committee (TAC) herein submits the *Patuxent Reservoirs Watershed Annual Report 2010*. The report presents TAC progress during the past year towards achieving long-term protection of the priority resources associated with the reservoirs and their watershed. The Report also documents the TAC's assessment of issues and needs involved in developing a Total Maximum Daily Load (TMDL) Implementation Plan, as well as the TAC's proposed work program and budget for the coming year.

This has been a year of transition for the TAC. The existing TMDLs that have been established for the Patuxent Reservoirs Watershed made the development of a TMDL Implementation Plan a key focus during 2010. Since 2003, TAC efforts have been guided by the performance measures and goals in the Priority Resource Charts. Although progress towards a number of these goals has been made over the years, the timelines established for the priority resources included in the Charts have generally not been met due to inadequate agency work programs and budgets. The main impediment has been a disconnect between the strictly advisory role of the TAC and the Policy Board and substantive work program changes and resource allocations at the level of the TAC agencies.

With the approval by EPA in 2008 of the reservoir TMDLs, however, the focus is increasingly shifting to the need for a plan to implement the TMDLs. Development of a TMDL Implementation Plan will provide an opportunity to reassess the Priority Resource Charts and incorporate them within the context of that plan. Based on the TAC's experience with the Priority Resource Charts, however, realizing significant progress in developing this plan will require adequate agency work program changes and additional funding.

The TAC member agencies had a number of accomplishments in 2010 and invested considerable time in exploring the issues and needs attending the development of a TMDL Implementation Plan. These accomplishments are detailed later in this report. To facilitate movement towards reducing phosphorus and sediment loads to comply with the reservoir TMDLs, the TAC has created a draft TMDL Implementation Plan development framework, which is also contained in this report.

In addition to assessing issues and needs regarding TMDL implementation, TAC member agencies made progress in the following areas: agricultural BMP implementation, land acquisition, the Reddy Branch Stream buffer planting pilot project (recognized in 2010 with an award from the Izaak Walton League), reservoir monitoring, cleanup efforts, and public outreach to youth and landowners. These are discussed in more detail in this report.

Clearly, there are many challenges ahead in assuring the success of this partnership in 2011 and beyond. Reducing pollutant loadings to meet the reservoir TMDLs will require an implementation plan to detail the actions and schedule that will bring the reservoirs into compliance with water quality standards, as well as meet any additional pollutant limitations required to protect the Bay. This will in turn require changes in TAC agency work programs and resource allocations that will be difficult to realize in the current economic climate. Nevertheless, safeguarding our drinking water reservoirs and the surface and ground water that supply them is not optional, and will necessitate future actions by policy makers that are commensurate with their importance.

Acknowledgements

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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.

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Executive Summary

Two large reservoirs on the Patuxent River, Triadelphia and Rocky Gorge (T. Howard Duckett), are significant water supply sources for the Washington D.C. metropolitan area serving residents primarily in Montgomery and Prince George's Counties (Figure 1). The Patuxent Reservoirs' 132-square mile watershed includes land mostly in Howard and Montgomery Counties (about 99%) and the remaining land in Prince George's County (Figure 2).

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 uses, one of which is public 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.

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 overview of the challenges with addressing the TMDLs followed by an update of on-going efforts and those completed in 2010.

The following are highlights of progress made in 2010:

1. The TAC developed a Draft TMDL Implementation Framework for the Patuxent Reservoirs to guide the development of a TMDL Implementation Plan, as well as the subsequent long-term implementation of actions that will be specified in the Plan. The TAC also developed FY 2012 budget estimates needed for the first steps in the Framework.
2. HSCD used the remaining funds of the Patuxent Reservoirs Watershed Agricultural Cost-Share Program. Additional funding will be needed to continue the cost share program in Howard County.
3. M-NCPPC, in cooperation with other volunteer organizations, planted an additional 1 ½ acres of trees adjacent to the Reddy Branch tributary of the Hawlings River in Montgomery County, bringing the project total to about 4 acres. This pilot project was recognized in 2010 with a national award from the Izaak Walton League.
4. The Montgomery County DEP is reviewing draft implementation plans for its watersheds including the Montgomery County portion of the Patuxent Reservoirs watershed. The County is developing watershed-based plans for all watersheds for which EPA has approved TMDLs; however, the implementation plans address only designated storm water point-sources (i.e., municipal separate storm sewer systems).
5. Several successful outreach events occurred this year, including the WSSC-sponsored H2O Fest watershed festival and Annual Family Campfire. Five outreach events to the agricultural community were held by the Soil Conservation Districts.
6. Prince George's County initiated watershed restoration activities in its portion of the Rocky Gorge Reservoir watershed.

7. WSSC purchased three parcels of land and totaling approximately 40 acres within the Patuxent Reservoirs Watershed, which extinguished rights to develop 13 home lots on the land and provides resource protection and water quality benefits downstream. In addition, conservation easements were purchased on two properties, removing a further 4 lots from potential development.

More general water resources-related progress seen in 2010 among TAC agencies includes the issuance of Montgomery County's new Municipal Separate Storm Sewer System (MS4) Permit, and the completion of State required Water Resource Elements (WREs) by Montgomery, Howard, and Prince George's Counties. All of these will provide important additional guidance for water resources protection and regulatory compliance efforts as we move forward.

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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
HC	Howard County
HSCD	Howard Soil Conservation District
IBI	Index of Biological (or Benthic) Integrity
LA	Load Allocation (non-point source)
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
WLA	Waste Load Allocation (point-source)

Introduction

This year marks the 14th year that the TAC has completed an Annual Report, which summarizes accomplishments and identifies funding needs to implement selected items to meet goals set by the TAC to protect the six Priority Resources. This annual report first provides a summary of TAC efforts and recommendations that begin to address the TMDLs established for the Patuxent Reservoirs. An update of activities in 2010 is then provided of on-going efforts to address the implementation items for the Priority Resources. 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 2011.

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*, represents a continuation of the commitment to coordinate protection efforts in coming years (Table 5). 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 uses, one of which is 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).

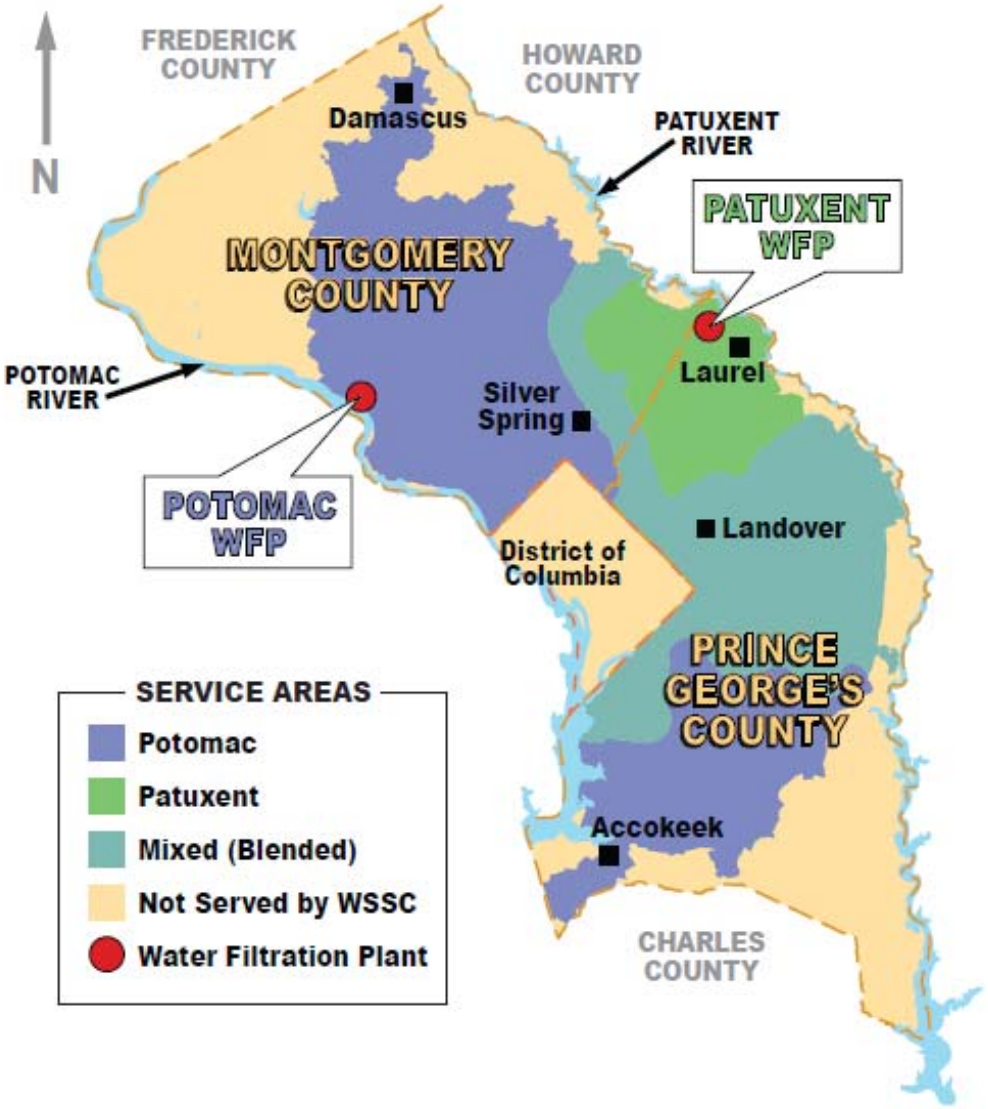

Figure 1. Drinking Water Service Area - Patuxent & Potomac Sources

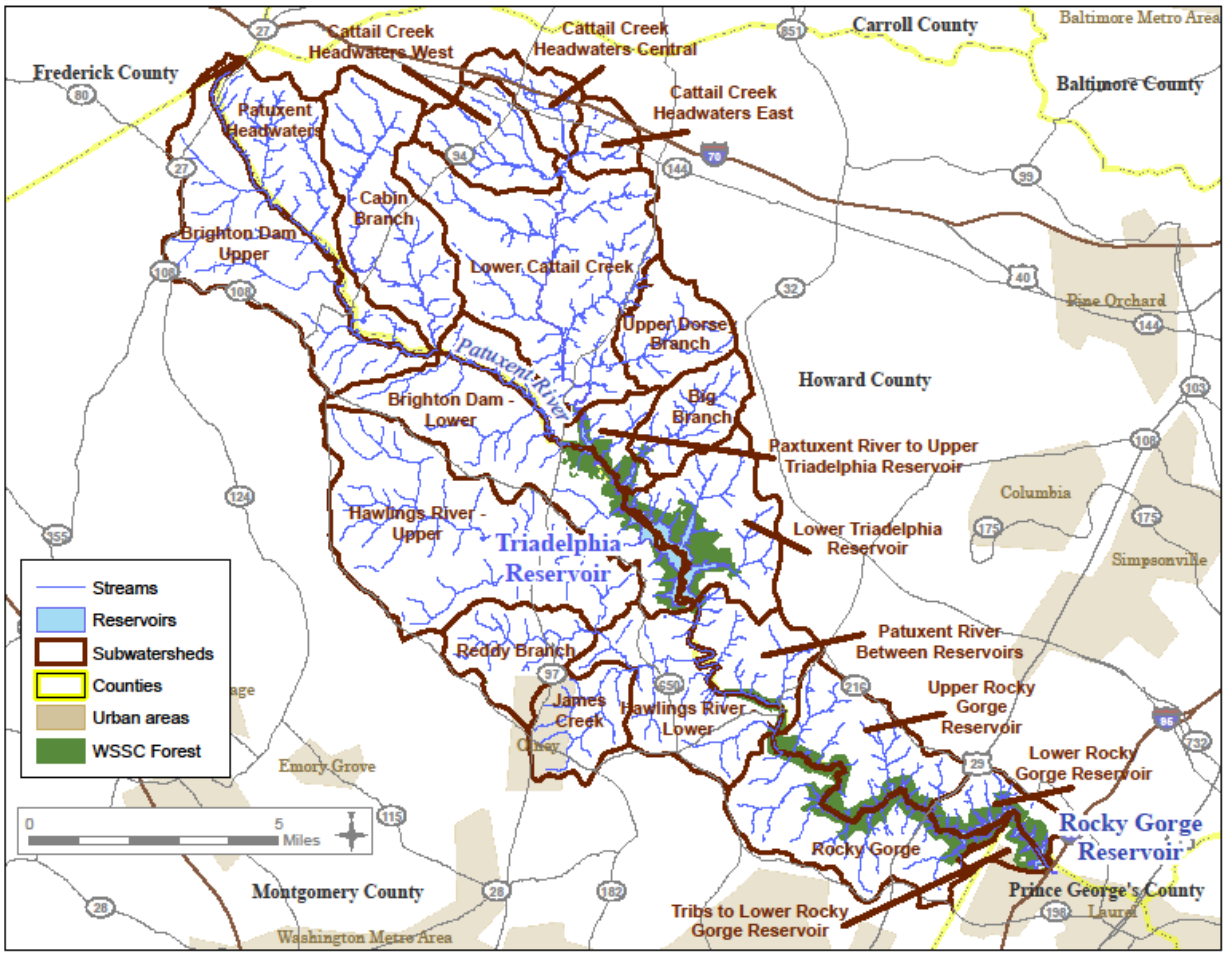

Figure 2. Patuxent Reservoirs Watershed (from Versar. Inc. 2009)

Total Maximum Daily Load (TMDL) Implementation

TMDLs and the Patuxent Reservoirs

A TMDL is issued for a water body that has been listed as impaired by the State and has been found to need a reduction in pollutant loadings in order to meet water quality standards for its designated uses. A TMDL places a limit on the amount of a pollutant that a water body can receive and still meet those standards. In 2008, the EPA approved TMDLs for phosphorus for both the Rocky Gorge and Triadelphia reservoirs, and a sediment TMDL for the Triadelphia reservoir. In addition, in 2011 the ongoing Chesapeake Bay TMDL process will likely result in an additional TMDL for nitrogen for the Patuxent Reservoirs watershed.

With the issuance of the Patuxent Reservoirs TMDLs, the TAC's focus is now shifting to the need for a plan to implement nutrient and sediment reduction practices needed to achieve the TMDL pollution limits. Achieving the TMDL thresholds will require an implementation plan to detail the actions and schedule that will bring the reservoirs into compliance with water quality standards, as well meet additional pollutant limitations allocated to the Patuxent Reservoirs watershed under the pending Chesapeake Bay TMDLs. The Chesapeake Bay TMDLs (which cover the entire Bay watershed) will specify overall and local load limitations for nitrogen, phosphorus, and sediment needed to meet the Bay's water quality standards. Under the Bay TMDLs, the Patuxent Reservoirs Watershed will receive a load allocation for each of these pollutants. In the case where there is more than one TMDL for a given water body, (e.g. a local and a regional TMDL) the more stringent of the two will need to be met.

Development of a TMDL Implementation Plan will provide an opportunity to reassess the Priority Resource Charts and incorporate them within the context of that plan. Based on the TAC's experience with the Priority Resource Charts, however, realizing significant progress in developing this plan will require adequate agency work program changes and the allocation of additional resources (see Impediments to Implementing the Goals and Timelines in the Priority Resources Charts, page 14).

The TAC devoted much attention to TMDL implementation-related issues in the current year. This principal focus was chosen late last year in view of the existing TMDLs for the Patuxent Reservoirs. Early in the 2010, the TAC recognized the need for a TMDL Implementation Workgroup to review the Priority Resource Charts, with a focus on the issues and needs in developing a TMDL Implementation Plan. The TAC, however, voted to wait until a draft of the Montgomery County TMDL implementation plan, required under its Municipal Separate Storm Sewer System (MS4) Permit, was completed. It was felt that the information in Montgomery County's implementation plan would provide important information on how the TAC could move forward with developing a similar plan for the reservoirs. Due to unforeseen delays, that plan is not expected until later this fall. As a result, the formation of a TMDL Implementation Workgroup will need to be taken up again in 2011.

The TAC hosted a number of speakers in 2010 representing various stakeholders in the TMDL implementation process. Particularly important were the perspectives that representatives from agencies that deal with agricultural issues brought to the TAC. These agencies include the Maryland Department of Agriculture (MDA) and the Montgomery and Howard County Soil

Conservation Districts (SCDs). Agriculture is especially important in the Patuxent Reservoirs watershed not only because it is such a large component of the total land area, but also because meeting the non-point source component of TMDLs is not currently covered by a regulatory program such as MS4 permits, which cover the stormwater component of TMDLS. As a result, how to address the non-point source pollution and coordinate those efforts with the stormwater component are still outstanding issues.

The TAC also hosted a speaker from Baltimore County to explain its approach to TMDL implementation. Baltimore County also has drinking water reservoirs with TMDLs. Baltimore County seems to be exceptional in having one agency, the Department of Environmental Protection and Resource Management (DEPRM), that is able to take the lead in coordinating all components of TMDL implementation, even though DEPRM itself is only responsible (through its MS4 permit) for actions to address the stormwater TMDL allocations.

Most jurisdictions, however, do not have a similar comprehensive framework for coordinating TMDL implementation. The majority of local jurisdictions in Maryland have or will soon have MS4 permits that will cover the point-source stormwater Waste Load Allocation (WLA), but addressing the non-point source (agricultural and large lot residential) Load Allocation (LA) and coordinating it with the WLA actions and outreach are still open questions.

This lack of overall coordination and inability thus far to address the non-point pollutant loads lead to the primary question facing the TAC agencies this year:

What will be Needed to Implement the Patuxent Reservoirs TMDLs?

Although much has been done over the years to reduce the harmful impacts to water quality from development and agriculture, there has still been degradation in water quality in many local and regional water bodies over time. The existing TMDLs show that this has been true as well for the Patuxent Reservoirs. One problem has been the lack of numeric loading targets for receiving water resources needed to maintain water quality standards. In recent years the TMDLs, required under the Clean Water Act, have been, and continue to be, developed for both local and regional water resources. These TMDLs provide numeric pollutant loading targets that local jurisdictions will need to meet to comply with water quality standards. The advent of TMDLs represents a major change in how local and regional agencies must address water quality impairments. Past policies, practices, and budgets will not be enough to meet the new regulatory challenges before us. Because past efforts have been insufficient, meeting these loading targets will be impossible without the allocation of additional resources.

The expense in meeting the Patuxent Reservoirs' TMDLs will pose difficult challenges for local government agencies, and will need to be borne by all. The need for inter-agency coordination and sharing of the costs was recognized some time ago, and was incorporated in the *Patuxent Reservoirs Watershed Protection Agreement* that was signed by Montgomery, Howard, and Prince George's Counties, the Soil Conservation Districts of Montgomery and Howard Counties the Maryland-National Capital Park and Planning Commission, and the Washington Suburban Sanitary Commission. This agreement embodies not only a commitment to assuring the integrity

of the Patuxent Reservoirs, but also stipulates that the benefits and responsibilities for necessary actions be shared equitably by all parties.

The first steps in implementing the Patuxent Reservoirs TMDLs are to collect any additional data needed and to develop a TMDL Implementation Plan that prescribes specific actions, responsible agencies, and detailed timelines and milestones for meeting the TMDLs. It must also incorporate a section that provides the basis for a reasonable assurance that the TMDL will be implemented. Because the Patuxent Reservoirs Watershed has a large non-point source component, the TAC agreed that a framework is needed to develop an implementation mechanism for addressing the LA and coordinating it with WLA implementation actions under MS4 permits into a comprehensive implementation plan to address the reservoir TMDLs.

To address this need, the TAC developed a preliminary TMDL Implementation Framework to guide the development of a TMDL Implementation Plan for the reservoirs, as well as subsequent long-term implementation of actions specified in the Plan (Table 1). It seems unlikely, however, that a single TAC agency will have the resources needed to take the lead in coordinating such a framework, as in Baltimore County. Nevertheless, the TAC believes that it has the local agency stakeholders needed for it to function as a steering committee for TMDL implementation, although increased State participation will also be important. It will also be important to include non-government stakeholders in the plan development process as well, providing adequate opportunities for public comment and feedback. In recent years the Maryland Department of the Environment's (MDE) efforts have been focused developing the Chesapeake Bay TMDL, and will need to increase their support and participation with local agencies that are required to implement TMDLs. The Framework also provides for a TAC TMDL Implementation Workgroup that will meet between regular quarterly TAC meetings to work on specific issues and report back to the full TAC. Developing and implementing the plan, however, will depend on changes to participating agency work programs and the allocation of additional resources.

Important data related to existing agricultural BMPs and opportunities for future BMPs is still not available and must be gathered before a TMDL implementation plan can be developed for the LA. Considering the current staffing limitations in the participating TAC agencies, the TAC recommends that a contractual staff person be hired to help the Soil Conservation Districts of Montgomery and Howard Counties collect the needed agriculture-related BMP data in the LA portion of the reservoirs watershed. The information needed includes confirming the accuracy of existing BMP data, capturing data on BMPs that predated the establishment of the current database, as well as identifying opportunities for future BMPs. The data will support the creation of an implementation plan for the LA that can be combined and coordinated with the WLA implementation plans that will be developed under county MS4 permits. Montgomery County's portion of the reservoirs WLA will be covered by its revised MS4 Permit. A TMDL implementation plan for the WLA portion for all of Montgomery County is nearing completion. Since Howard County's new MS4 Permit has not yet been issued or budgeted, the TAC has included in the proposed TAC Budget the cost of developing an implementation plan for the Patuxent Reservoirs WLA in Howard County.

Preliminary cost estimates of the additional work to develop a WLA implementation plan for the Howard County portion of the reservoirs watershed and to hire a staff person to collect the

agriculture-related BMP data needed to support the development of an implementation plan for the LA TMDL component in both Counties was made and is presented in Table 2. The estimate to develop a WLA implementation plan for the Howard County portion of the watershed was based on the per acre cost of having a consultant develop a TMDL implementation plan for the stormwater WLA in Montgomery County. This estimate assumes the use of the same BMP scenario model as in Montgomery County, namely, the Center for Watershed Protection's (CWP) Watershed Treatment Model (WTM). The WTM is currently being expanded to include agricultural BMPs. As a result, it is anticipated that when work is ready to begin on developing an implementation plan for the LA component of the TMDLs, the WTM will be an option for analyzing agricultural BMP scenarios as well as urban ones.

Looking further ahead, after an overall TMDL implementation plan that addresses both the WLA and the LA components is developed, the work will enter an implementation phase as indicated in the draft Implementation Framework. Specific actions including BMP installation, timelines, milestones, and responsible agencies will be set forth in the plan. To implement the prescribed actions and timelines in the final plan will require TAC agencies to accommodate the work in their work programs, and allocate needed resources and/or funding. This section of the Framework will need to be further developed and expanded once more information is available.

The TAC developed the TMDL Implementation Framework and projected funding needs to advise the Policy Board of the critical issues before us, and what will likely be needed to begin to address them. The requested funding will cover the cost of developing a TMDL implementation plan for the WLA component of the reservoirs watershed in Howard County, and the hiring of a contract staff person to collect data on existing and potential agricultural BMPs in both Montgomery and Howard Counties. The TAC recommends that the Policy Board endorse the recommended funding for these work program elements as part of the overall proposed TAC budget for 2011. The goal is to include the needed funding as a component of TAC agency budgets for 2012, if possible.

Clearly, there are many challenges ahead in assuring the success of the Patuxent Reservoirs Watershed Protection Group in 2011 and beyond. Reducing pollutant loadings to meet the reservoir TMDLs will, as a first step, require an implementation plan to detail the actions and schedule that will bring the reservoirs into compliance with water quality standards, as well as meet any additional pollutant limitations required to protect the Bay. This will in turn require changes in TAC agency work programs and resource allocations that will be difficult to realize in the current economic climate. Nevertheless, safeguarding our drinking water reservoirs and the surface and ground water that supply them is not optional, and will necessitate future actions by policy makers that are commensurate with their importance.

Table 1. Patuxent Reservoirs TMDL Implementation Framework

Patuxent Reservoirs TMDL Implementation Framework				
GOALS	**OBJECTIVES**	**IMPLEMENTATION ITEMS**	**TIME LINE**	**RESPONSIBLE PARTNERS**
1. Secure needed resources/funding for development TMDL WLA Implementation Plan for HC and for contract position to verify and collect agricultural BMP-related data in MC and HC.	1. Establish reasonable assurance of attaining Goal 1	Develop preliminary cost estimates and incorporate in the 2010 Annual Report	Fall 2010	TAC
		Policy Board approval of the proposed 2011 TAC Work Program and Budget for attaining Goal 1	Fall 2010, for consideration in Agency Budgets for FY 2012	Policy Board
		Approval of TAC agency Work Program changes and/or funding needed to achieve Goal 1	Spring/Summer 2011	TAC member agencies
2. Establish TMDL Implementation Workgroup	1. Representation on Workgroup of local and State agencies and other stakeholders needed to address all components of the TMDLs	Objective 1. Establish Workgroup meeting schedule	January 2011	TMDL Workgroup
	2. Develop a scope of work and work plan to develop a TMDL WLA Implementation Plan for HC.	Objective 2. Coordinate with MC TMDL WLA Implementation Plan	Spring 2011	Howard County/TMDL Workgroup

	3. Develop a scope of work and work plan for collecting needed agricultural BMP data in MC and HC 4. Determine method for coordinating the funds and management for the contract employee to collect agricultural BMP data 5. Hire contract employee to collect agricultural BMP data	Objectives 3 and 4. Allocate Workgroup member responsibilities and timelines	Spring 2011 Spring 2011 Summer 2011	TAC TMDL Workgroup TAC Agency that manages the contract
3. Develop TMDL WLA Implementation Plan for the MC and HC portions of the watershed	1. Analyze and evaluate actions, including the goals & implementation items in Priority Resource charts, for TMDL attainment effectiveness 2. Evaluate results of Objective 1 for cost effectiveness 3. Create Draft Plan 4. Finalize Plan with detailed implementation costs and determination of responsible agencies	Objective 1. Use a model that can incorporate agricultural as well as urban BMPs to estimate load reductions for alternative management scenarios Objective 2. Use an optimization methodology to formulate the best suite of actions/BMPs to achieve TMDLs Objective 3. a. Create a long-term timeframe for implementing prescribed actions, along with milestones, measures of success, and responsible agencies b. Establish coordination, tracking, and reporting protocols for each action, and for periodic watershed-wide progress reports.		TMDL Workgroup/Consultant MDE TMDL Workgroup/Consultant TMDL Workgroup/Consultant, TAC, and other stakeholders

		c. In the absence of a lead agency to coordinate Plan implementation, establish a long-term plan implementation coordination framework that can function without a lead agency. Objective 4. Final review and approval of Plan and submission to State		 TAC and other Stakeholders
4. Develop a TMDL LA Implementation Plan for the HC and MC portions of the watershed 5. Integrate and coordinate the WLA and LA TMDL Implementation Plans into a comprehensive Plan 6. Carry out comprehensive TMDL Implementation Plan	(See Objectives for Goal 3.) 1. Establish reasonable assurance of Plan implementation 2. Implement plan	(See Implementation Items for Goal 3.) <u>Objective 1.</u> a. Develop an agreement for Policy Board approval recommending carrying out the TMDL Implementation Plan that includes recommended funding requests for	FY 2013	(See Responsible Partners for Goal 3.) TAC and other Stakeholders TAC

		consideration in budget hearings b. Policy Board approves agreement recommending carrying out the Plan and the allocation of TAC agencies/consultant resources/funding needed Work Program changes and funding needed to develop Plan are approved <u>Objective 2.</u> a. Track and report progress in attaining milestones b. Assess shortfalls, and recommend adjustments in implementation strategies, timelines, and needed resources to achieve goals.		Policy Board TAC member agencies TAC agencies and other Stakeholders

Table 2. FY 2012 Budget Estimates to Support Development of a Comprehensive TMDL Implementation Plan for the Patuxent Reservoirs Watershed

Montgomery County

Waste Load Allocation (stormwater): Completed in 2010 under the County MS4 Permit

Load Allocation (non-point source): $40K (Note: This will fund 50% of a contract position shared between Montgomery and Howard County SCDs to verify existing agricultural BMP-related data and collect additional BMP data needed before a TMDL Load Allocation Implementation Plan can be developed for MC and HC. In Montgomery County this will include about 39.5 sq. mi. of Agricultural land.)

Howard County

Waste Load Allocation (stormwater): $40K (Note: This will fund the development of a TMDL Waste Load Allocation Implementation Plan for the Howard County portion of the watershed. This estimate is based on a plan that will cover about 4.5 sq. mi. of residential development with stormdrains, and about 25.5 sq. mi. of residential development without stormdrains.)

Load Allocation (non-point source): $40K (Note: This will fund 50% of a contract position shared between Montgomery and Howard County SCDs to verify existing agricultural BMP-related data and collect additional BMP data needed before a TMDL Load Allocation Implementation Plan can be developed for MC and HC. In Howard County this will include about 30 sq. mi. of Agricultural land.)

Assumptions:

- TMDL Waste Load Allocation Plan development cost for Howard County is based on the per area cost of developing the Waste Load Allocation-portion of the TMDL Implementation Plan for Montgomery County and assumes the use of the Center for Watershed Protection's Watershed Treatment Model (WTM).

TMDL-Related Implementation Items

NPDES Stormwater Permit Implementation Plans

As of October 2010, the Montgomery County Department of Environmental Protection (DEP) is reviewing draft implementation plans for its watersheds including the Patuxent Reservoirs. This consultant-led effort was begun in June 2009 to meet the requirements under the next round of Montgomery County's MS4 permit, issued in February 2010. This permit requires the County to control runoff and pollutants through its storm drain system, as well as reducing to the maximum extent practicable the percentage of impervious surface area. 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. The MDE has indicated that Montgomery County must reduce its total phosphorus load in urban stormwater by 15% to both reservoirs. While there is a sediment TMDL for Triadelphia Reservoir, there is no sediment reduction required from the baseline urban stormwater load. These plans include a public outreach component and will be presented to the public for comment before being submitted to MDE for approval. The timeline for completion is late 2010 for submittal to MDE in February 2011.

Watershed Restoration Planning Effort

In June 2010, Prince George's County Department of Environmental Resources (DER) performed a field assessment of the County's portion of Rocky Gorge watershed as part of an effort to assess the potential for protection and restoration opportunities in its portion of the watershed adjacent to Rocky Gorge Reservoir. Several potential sites were identified and DER staff plans to revisit the sites after the vegetation dies back. This planning effort will focus on identifying projects that, when implemented, will reduce phosphorus loads to Rocky Gorge Reservoir.

Annual Progress on Implementation Items to Achieve Goals for the Priority Resources

Impediments to Implementing the Goals and Timelines in the Priority Resources Charts

Since 2003, TAC efforts have been guided by the performance measures and goals for the six Priority Resources (Table 5). These resource goals and measures were developed to provide a compendium of actions and implementation schedule to protect and improve the health of the reservoirs and their watersheds. The priority resources include: reservoirs and drinking water supply, terrestrial habitat, stream systems, aquatic biota, rural character and landscape, and public awareness and stewardship.

Although progress towards a number of these goals has been made over the years, the timelines established for the priority resources and included in the charts have generally not been met due to inadequate agency work programs and budgets. Both the TAC and the Policy Board act in a strictly advisory capacity, and the loop was never adequately closed to connect the goals and schedule of the Priority Resource Charts and the annual recommendations of the TAC, with changes to the TAC agencies work programs and the allocation of resources that would enable the goals to be met. This disconnect has been the principal impediment to full implementation of the goals and measures of the Priority Resources Charts.

The TAC will continue to implement items associated with each of the Priority Resources primarily through existing TAC agency responsibilities and work programs.

Reservoir Water Chemistry Monitoring

The WSSC is in the 19th 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, chloride, color, turbidity, and chlorophyll. In addition, in-situ transparency and depth profile measurements of pH, conductivity, temperature, reduction-oxidation potential and dissolved oxygen are performed.

In 2010, WSSC purchased software to store the large quantity of data that has been collected over the years for more efficient storage and retrieval. Biological as well as water chemistry types of data can be stored in this database that was developed specifically for reservoirs. In addition, WSSC purchased software to analyze reservoir data for seasonal trend detection using appropriate statistical tests.

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, the WSSC in 2010 successfully completed the SEP by purchasing three properties and two conservation easements (Figure 3). One easement (17.06 acres) is located close to the Triadelphia Reservoir, and the other easement (15.75 acres) is located close to the Rocky Gorge Reservoir. In total, the acquisition of easements on these properties removes four residential home lots from potential development and maintains existing rural and agricultural land uses. Two properties of 21.36 and 4.47 acres, purchased outright by the WSSC, are located close to the Rocky Gorge Reservoir. A third property (13.83 acres) is located 2.5 miles upstream of the reservoir and comprises land bordering the Patuxent River. The purchased land removes 13 residential home lots from potential development and maintains largely undeveloped, forested land use. The elimination of some residential development near the reservoirs and the river is expected to protect and enhance water quality by keeping the land in a relatively natural state, allowing precipitation greater opportunity to infiltrate and percolate to groundwater, and minimizing storm water runoff, nutrient and sediment loadings from land that could otherwise have been developed with greater areas of impervious surfaces.

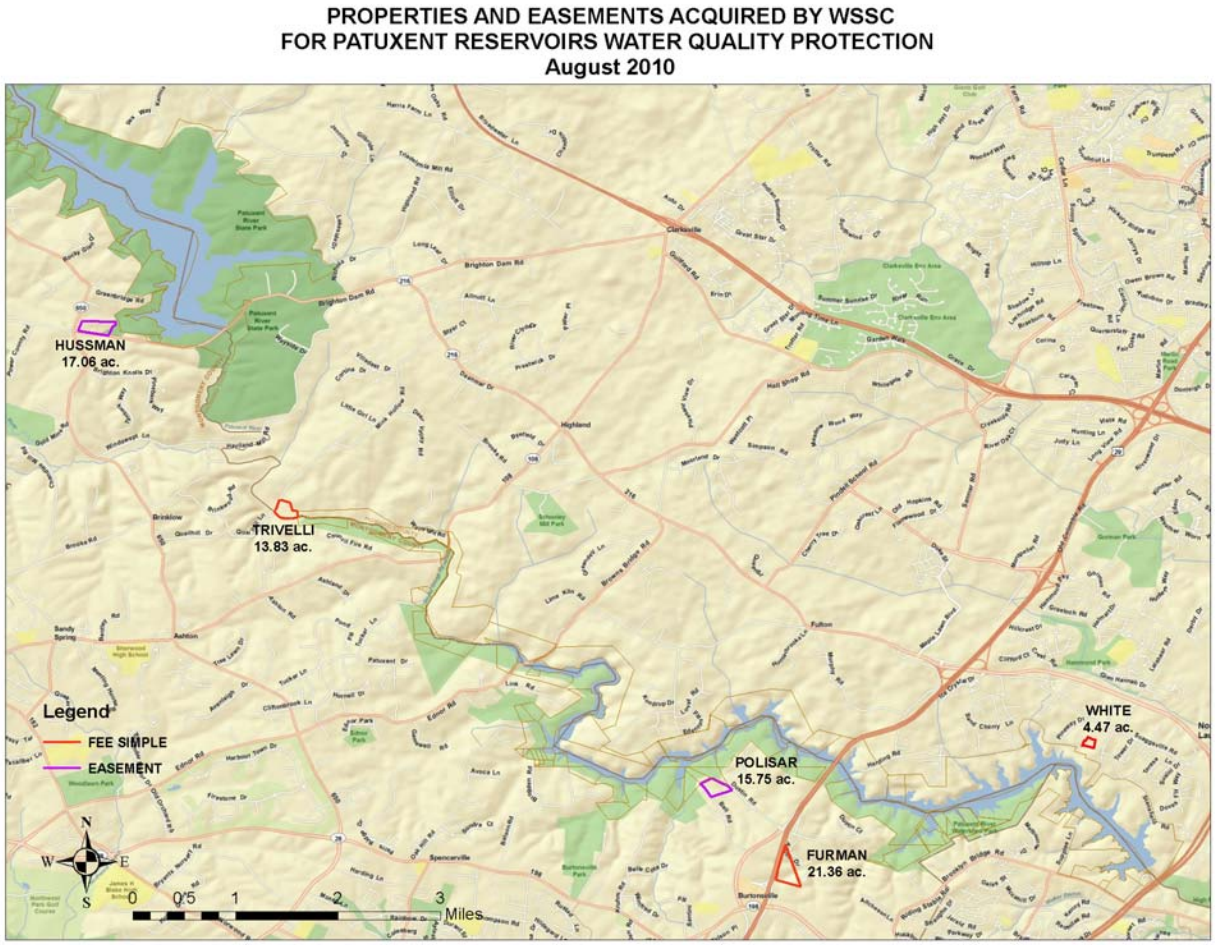

Figure 3. Properties and easements near the Patuxent Reservoirs acquired by WSSC

Tributary Biological and Habitat Monitoring

Biological and habitat monitoring of the tributaries is 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

In 2010, due to budget constraints, Howard County did not conduct biomonitoring of the Cattail Creek and Upper and Lower Brighton Dam watersheds as originally planned. In addition, the County will not have the money available to fund the Biomonitoring Program in 2011.

Montgomery County

During 2010, Montgomery County DEP completed its third round of biological monitoring in the Patuxent Reservoirs Watershed. Results from the 2010 Patuxent Watershed monitoring will be combined with results from the Hawlings River stream restoration project monitoring for a future report.

In September, Montgomery County DEP biologists discovered a freshwater mussel *E. complanata*, in the Hawlings River. This is the first identification by DEP of this mollusk in the Montgomery County portion of the Patuxent. This species has been identified previously in the County in the lower reaches of good quality streams within the Potomac watershed (termed Stronghold Watersheds by MD DNR).

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.

Reddy Branch Riparian Forest Buffer Plantings

The Reddy Branch project is continuing to move forward with a series of riparian plantings equaling nearly 4 acres buffering about 1,700 linear feet of this stream. One and a half acres of this current total were planted this year. Good weather and plenty of rain as well as rich moist soil have helped to encourage significant growth over the past two and a half years. Maintenance has included mowing around the trees and aggressive treatment for invasive plants such as thistles and mile-a-minute. The greatest challenge has been controlling deer damage, particularly buck rub. Deer protection measures occasionally fail and trees are damaged or destroyed. Protective measures continue to be adjusted for better results. The most recent "planting area" has seen significant natural regeneration. So efforts in this location have been focused on placing deer protection on these young trees. The Izaak Walton League provided labor and materials necessary to construct cages for 60 trees last spring and returned for routine maintenance this fall. They will continue to be part of this project for the foreseeable future. The final area of the planned riparian planting is dependent on a land swap with two adjacent property owners (Figure 4). Although the property has not yet changed hands, a fence has been moved to allow access to the southernmost riparian areas.

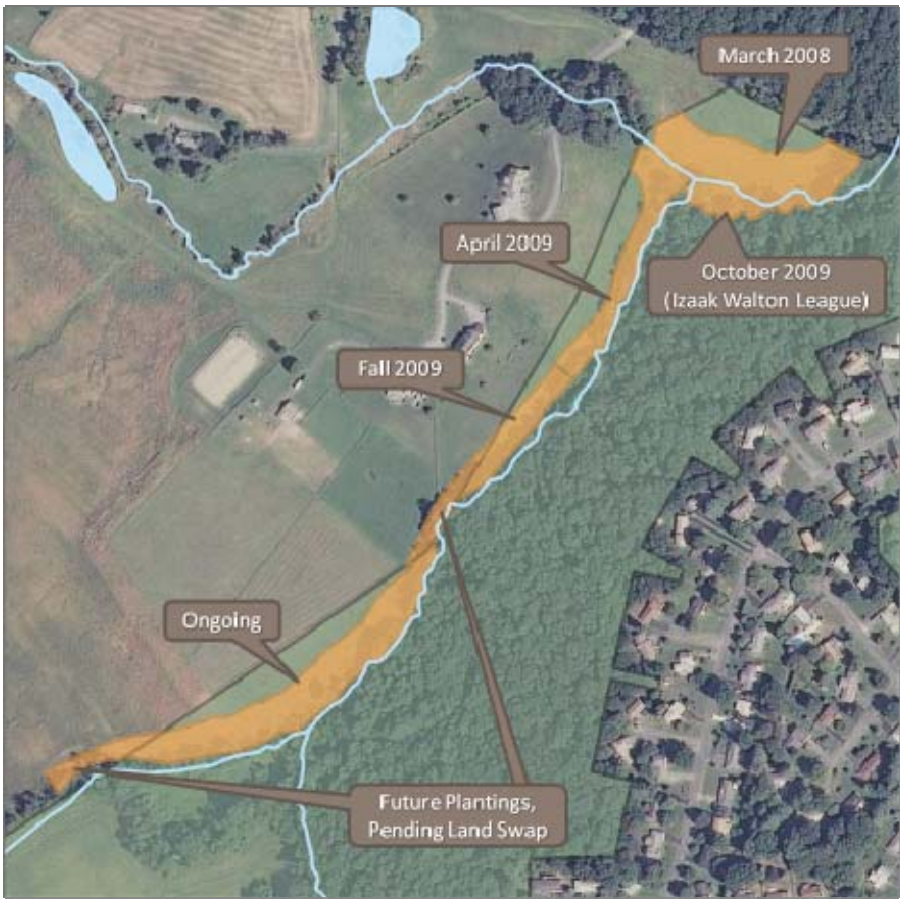

Figure 4. Reddy Branch Riparian Forest Buffer Planting History

This pilot project was recognized in 2010 with a national award from the Izaak Walton League. In addition, potential opportunities were initiated to expand this project by involving a third party (The Patuxent Riverkeeper) to approach private landowners with incentives and outreach to participate with local government to plant buffers within forest conservation easements on agricultural land. These opportunities will continue to be pursued next year.

Rachel Carson Stream Valley Park Buffer Planting

Approximately 12 acres of unforested stream buffer area have been identified for restoration along the mainstem of the Hawlings River between Sundown and Zion roads. This stream reach was also identified in the Hawlings River Watershed Restoration Study (2003) as an area with severe and frequent problems and in need of restoration. Preliminary invasive species management was completed this fall, to be followed by forest planting.

Agricultural Progress

A summary of the progress made during the past year by both the Howard and Montgomery SCDs is provided in Table 3. The SCDs use funding from local, state and Federal programs to provide technical and financial assistance to landowners with the installation of BMPs. The numbers reported account for activity from July 1, 2009 through June 30, 2010.

Table 3. Agricultural Progress for 2010 in the Patuxent Reservoirs Watershed

	Howard SCD	Montgomery SCD
Conservation Plans developed	7 (484.2 acres)	15 (537 acres)
Conservation Plans Revised	3 (360.8 acres)	-
Landowners Applying BMPs	19	7
Educational/Outreach Events*	3	3
Best Management Practices Installed	70	70
Best Management Practice		
Ag Waste Storage Structure	1	
Brush Management (acres)	7	207
Cover Crop (acres)	611.5	388
Critical Area Planting (acres)	1.0	-
Conservation Crop Rotation (acres)	-	208
Conservation Tillage (acres)	-	184
Diversion (feet)	850	-
Forest Stand Improvement (acres)	-	94
Forage Harvest Management	-	35
Livestock Exclusion Fencing (feet)	2,294	-
Grade Stabilization Structure (each)	-	-
Grassed Waterways (acres)	1.0	-
Heavy Use Area Protection (acres)	0.7	0.6
Lined Waterway or Outlet (feet)	155	-
Livestock Watering System	1	3
Nutrient Management (acres)	927.6	560
Pasture /Hayland Planting (acres)	72.4	18.3
Pest Management (acres)	376.5	395
Pipeline (feet)	-	900
Prescribed Grazing (acres)	41.3	9
Residue Management (acres)	623.8	-
Roof Runoff System	3	-
Stream Crossing	-	-
Spring Development	-	1
Waste Utilization (acres)	-	12

The MDA has sponsored a new Equine Specialist for Montgomery County. This specialist is now employed with MSCD, has received the needed training, and has applied this training by completing several conservation plans within the Patuxent Reservoirs Watershed. Plans for 2011 include a targeted mailing to landowners with small equine operations to inform them of technical and financial assistance offered by the MSCD including the Patuxent Reservoirs Agricultural Cost-Share Program.

Patuxent Reservoirs Watershed Agricultural Cost-Share Program

In 1998, the Patuxent Reservoirs Watershed Protection Group created the *Patuxent Reservoir Protection Strategy Memorandum of Understanding*, which established as its second initiative the Patuxent Reservoirs Watershed Agricultural Cost-Share Program. This cost-share program focuses on implementing best management practices that will benefit nearby stream systems.

For FY 2010, the Howard County Soil Conservation District (HSCD) used the remaining funds from this cost-share program to assist one land owner who installed a livestock watering trough. There remains a need for renewing funding for this cost-share program in Howard County to reach the small equine operations (personal communication, Michael Calkins, Equine Specialist, HSCD). The remaining funds in this cost-share program are $51,845 (Table 4). For the Montgomery SCD (MSCD), the amount of funds remaining has changed only slightly since 2004.

In 2011, the TAC will develop options for: 1) providing HSCD with additional cost share funding, and 2) removing impediments to the continued use of these funds by MSCD.

Table 4. Remaining Funds in Patuxent Reservoirs Cost-Share Program

Soil Conservation District	Patuxent Reservoirs Cost Share Program
Howard	$0
Montgomery	$51,845
Total	$51,845

Public Outreach Initiatives

The TAC agencies and other groups in the watershed continued to coordinate public outreach and involvement initiatives during 2010. Under the coordination of WSSC Communications and Community Relations Office staff, there were several outreach activities in 2010 as well as other successful outreach events coordinated by other TAC agencies that occurred in Howard and Montgomery Counties.

H2O Fest, Watershed Festival

Again this year 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 24, 2010. 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 300 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, and staff from several of the TAC agencies. 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 less than last year due to inclement weather predictions and gray skies all day. Outside agencies and local environmental groups will be invited to participate in the planning for future events to improve the presentation and enlarge the attendance.

Patuxent River Clean-up

In cooperation with the office of the Patuxent Riverkeeper, WSSC Communications and Community Relations Office participated again in the annual Patuxent River Clean-up Day on Saturday, April 10, 2010. Approximately 100 watershed neighbors, church groups, and Boy and Girl Scouts formed crews at nine WSSC recreation areas, and collected hundreds of pounds of trash and recyclables. Some sites were cleaned on other weekends in April and included in the final tallies for the Riverkeeper. Site leaders for this effort volunteered their time to organize, recruit, and report for the Clean-up event. Several school groups participated and collected trash at locations around the reservoirs as school service projects.

Annual Family Campfire

This annual event was held on October 8, 2010 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 perfect with clear skies and warm temperatures. Registration for this event was approximately 400. WSSC provided the master of ceremonies speaker and a welcome on behalf of the Patuxent Reservoirs Watershed Protection Group was given by Deborah Weller of the Prince George's County DER. At this year's campfire WSSC recognized the 16 local schools that participated in the oyster reef ball building project. Several schools and WSSC's Communications and Community Relations Office displayed informational posters and a reef ball that was built over the summer. The campfire was handled by a local Boy Scout troop and music and refreshments of marshmallows, graham crackers and chocolate were

provided by WSSC. The WSSC takes great pride in this event and provides the staff for all before and after preparation of the site.

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

The Izaak Walton League of America-Wildlife Achievement Chapter (IWLA-WAC) in Damascus led a number of outreach and involvement events opened to the general public during 2010. The IWLA-WAC completed its 25th year of the annual Spring Watershed Clean-up, working on the roadsides and with the MD DNR on State Parkland. During the spring clean-up, there were 35 volunteers who collected over 800 pounds of materials, including 38 bags of trash, 28 tires, and numerous miscellaneous items that couldn't easily fit into a trash bag. The IWLA-WAC conducted two other Adopt-A-Road events on Mullinix Mill Road and their annual Fall Watershed Clean up during 2010, with Montgomery County's Department of Transportation disposing of all trash collected.

Other conservation activities to directly protect the Patuxent Watershed this past year included:

- Free workshop to 'Make and Take' Rain Barrels for 25 participants.
- Participated in the Spring WSSC Watershed event at Supplee Park.
- Held two work days for deer exclusion and invasives maintenance for the Reddy Branch reforestation, led by M-NCPPC Planning.
- Assisted at Our House facility in Brookeville in removing invasives and establishing a two-acre native tree and shrub planting along a tributary to the Reddy Branch.
- Returned to a tree planting site on WSSC property from 10 years ago to undertake some tough invasives management and committed to annual follow up visits at these sites.

Rainscapes Rewards Program

The Montgomery County DEP continued its countywide Rainscapes Rewards Program with a total of 26 projects installed in the Patuxent Reservoirs Watershed. 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. Many of these were tree plantings that occurred after the RainScapes Program's first landscape contractor training which increased awareness among contractors and property owners about the combined savings possible using $25 coupons from both DNR and M-NCPPC and the $200 per tree rebate.

Soil Conservation District Agriculture Outreach Efforts

In Howard County, about 73 people attended three educational events held within the Patuxent Reservoirs Watershed. HSCD staff conducted two pasture walks to educate horse owners on topics including manure composting, rotational grazing, pasture management, and sacrifice and heavy use areas. The other outreach event occurred during the Mid-Winter Agricultural Meeting.

The MSCD continued to help 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.

Table 5. 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, DO, and TOC 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, and TOC 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	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, and TOC 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 6. Work Plan Expenditures for Current and Upcoming Year

PATUXENT RESERVOIRS WATERSHED WORK PROGRAM FOR FY11 and FY12					
PRIORITY RESOURCES PROTECTED	**IMPLEMENTATION NEED**	**IMPLEMENTATION ITEM**	**AGENCY**	**FY 2011 / CY 2010**	**FY 2012/CY 2011 (planned)**
Reservoir/Water Supply	Reservoir and tributary water chemistry monitoring	Reservoir monitoring and lab analysis	WSSC	$105,000 (in-kind)	$110,000 (in-kind)
		5 US Geological Survey (USGS) stream flow gauging stations	WSSC	$60,000	$60,000
		5 year Trends Analysis	WSSC	$8,000 (in-kind)	$0
Stream System Aquatic Biota	Tributary biological and habitat monitoring	Conduct third round of biomonitoring program in the reservoirs watershed	HC	$0	$0
		Upper Patuxent and Hawlings River	MC	in-kind	$0
		Hawlings River Restoration Monitoring	MC	$0	$0
Reservoir/Water Supply Stream System Aquatic Biota	Stream corridor management	Patuxent Restoration Project Inventory	MC	$0	$320,000
		Reddy Branch Project Implementation	M-NCPPC	$10,000 $ 5,000 (in-kind)	$10,000 $ 5,000 (in-kind)
		Rachel Carson Park Project Implementation	M-NCPPC	$100,000 $ 5,000 (in-kind)	$100,000 $ 5,000 (in-kind)

PATUXENT RESERVOIRS WATERSHED WORK PROGRAM FOR FY11 and FY12					
PRIORITY RESOURCES PROTECTED	**IMPLEMENTATION NEED**	**IMPLEMENTATION ITEM**	**AGENCY**	**FY 2011 / CY 2010**	**FY 2012/CY 2011 (planned)**
ALL Priority Resources	Agricultural management local cost-share initiative	Funding for local cost-share program	HC, MC, WSSC	$0	$0
		Program oversight for voluntary implementation of agricultural BMPs	HSCD	$80,000 (in-kind)	$80,000 (in-kind)
ALL Priority Resources	Public outreach and involvement initiatives	Rainscapes Rewards	MC	Rebates available to county residents for 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	$140,000 (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	$10,000 In-kind	$10,000 In-kind
		Printing and distribution	WSSC	$200	$200
	Coordination and Collaboration	Provide administrative support & coordination among partners	WSSC	$35,000	$35,000

PATUXENT RESERVOIRS WATERSHED WORK PROGRAM FOR FY11 and FY12					
PRIORITY RESOURCES PROTECTED	**IMPLEMENTATION NEED**	**IMPLEMENTATION ITEM**	**AGENCY**	**FY 2011 / CY 2010**	**FY 2012/CY 2011 (planned)**
Reservoir/Water Supply Terrestrial Habitat Stream System Aquatic Biota Public Awareness & Stewardship	Assessment of potential watershed protection & restoration opportunities	Watershed Restoration Planning Effort in PG County portion of Rocky Gorge Reservoir Watershed	PG	$10,000 (in-kind)	$12,000 (in-kind)
Reservoir/Water Supply Stream System Aquatic Biota Public Awareness & Stewardship	TMDL Implementation	Fund position at SCD office to gather data needed to develop a non-point source part of TMDL Implementation Plan	HC, MC	$0	** ($80,000)
		Develop a point source part of TMDL Implementation Plan for Howard County portion of the watershed. (includes large lot residential development)	HC	$0	$40,000
		Develop a point source part of TMDL Implementation Plan for Montgomery County portion of the watershed. (does not include large-lot residential development)	MC	$8,000	$0
TOTAL FUNDING				**$568,700**	**$919,700**

** The TAC determined this initiative as a priority to complete the TMDL implementation plan. However, no funding source was identified. The cost estimate for this initiative is not counted toward the total funding planned for FY2012.