



**PATUXENT RESERVOIRS WATERSHED  
ANNUAL REPORT  
2006**

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## List of Acronyms

DNR	DNR - Maryland Department Of Natural Resources
DEP	Montgomery County Department Of Environmental Protection
DO	Dissolved Oxygen
GIS	Geographic Information System
HSCD	Howard Soil Conservation District
ICPRB	Interstate Commission On The Potomac River Basin
IWL	Izaak Walton League
MDE	Maryland Department Of The Environment
MGS	Maryland Geological Survey
MSCD	Montgomery County Soil Conservation District
SOD	Sediment Oxygen Demand
TAC	Technical Advisory Committee
TMDL	Total Maximum Daily Loads
TOC	Total Organic Carbon
TU	Trout Unlimited
WSSC	Washington Suburban Sanitary Commission

## A MESSAGE FROM THE CHAIR

The Patuxent Reservoirs Watershed Technical Advisory Committee (TAC) herein submits the *Patuxent Reservoirs Watershed Annual Report 2006*. 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 landscape; and public awareness and stewardship. This report also presents the TAC's proposed work program and budget for the coming year.

For the past two years, the TAC has been involved in an effort to secure dedicated staffing and project funding to further long-term protection of the six priority resources. At the 2004 Policy Board meeting, the Policy Board initiated and the TAC supported a request to the Washington Suburban Sanitary Commission (WSSC) for two full-time staff positions and \$500,000 in project seed money. One staff position would provide needed coordination to expand watershed stewardship, while the second position would provide technical assistance and pursue grant funding opportunities to support the TAC's work program.

In 2005, the TAC set priorities for how the requested project seed money would be spent. The TAC decided that establishing and maintaining forested riparian buffers should be the highest priority implementation project. Forest buffers provide multiple benefits for the reservoirs and stream water quality, terrestrial habitat and instream habitat, and help maintain the rural landscape character.

At the 2005 Policy Board meeting, the TAC presented a request for \$485,000 to support pilot riparian buffer planting projects in Howard and Montgomery County. The Policy Board declined this request, but did agree to provide contract staff through WSSC to assist the TAC in seeking grant funding. WSSC subsequently allocated funding in fiscal year 2007 and hired a consultant in August 2006. The consultant has since been working with the TAC to identify possible grant funding sources. The first project to move forward for grant solicitation will be a 10-acre riparian buffer planting in Reddy Branch Stream Valley Park in Montgomery County.

The TAC work program during 2006 continued its emphasis on encouraging environmental stewardship. The Public Outreach Workgroup and its watershed partners organized and conducted the annual Family Campfire Program in October 2005 as well as nine Earth Month activities in April 2006. The Campfire Program attracted nearly 500 participants and Earth Month attracted over 400 participants. Throughout the year, the Outreach Workgroup also maintained its focus on school-based activities through the Patuxent Reservoirs Watershed Schools Mentoring Partnership.

During 2006, TAC member agencies also made significant progress on the other established work program items for: reservoir and tributary monitoring; stream restoration; water quality modeling for the reservoirs and watershed; agricultural best management practices; the reservoir bathymetry and sedimentation study; and the forest management and recreational use study.

## **1 Background**

Since 1997, the TAC has completed an Annual Report to summarize accomplishments and identify funding needs to address watershed priority resource issues. The priority resources are: reservoirs and drinking water supply; terrestrial habitat; stream systems; aquatic biota; rural character and landscape; and public awareness and stewardship. Table 1, *Priority Resources Chart*, lists each priority resource and describes the associated issue, measures, goals, implementation items, time line, and responsible partners.

While a number of implementation items listed in Table 1 are ongoing, there are also a number of new items that will require additional staff and funding resources to move forward. In 2005, the TAC prioritized these new implementation items and selected increasing riparian forest buffers as a priority, because it would provide multiple benefits for all priority resources.

At the November 2005 Policy Board meeting, the TAC requested new funding to implement pilot riparian forest buffer planting projects. The Policy Board decided instead to provide contract staff through WSSC to assist the TAC in seeking grant funding. WSSC allocated funding in fiscal year 2007 and hired a consultant in August 2006. The consultant has since been working with the TAC to identify possible grant funding sources and develop templates for grant applications.

The first project to move forward for grant solicitation will be a riparian buffer planting in Reddy Branch Stream Valley Park in Montgomery County. This proposed project involves approximately 10 acres of reforestation in the headwaters of Reddy Branch. Howard County will work to identify specific planting sites for additional grant applications.

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 at the end of the year.

**TABLE 1: PRIORITY RESOURCES CHART**

**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 eutrofication, reduce disinfectant by-products precursors, and limit reservoirs capacity loss.

Measures	Goals	Implementation Items	Time Line	Responsible Partner
Chlorophyll-a	<ul style="list-style-type: none"> <li>Chl-a not to exceed a 10 ug/l mean during the growing season and not to exceed a 30 ug/l instantaneous concentration</li> </ul>	<ul style="list-style-type: none"> <li>Perform reservoir monitoring for Chl-a, DO, and TOC during the growing season</li> </ul>	Ongoing	WSSC
Dissolved oxygen (DO)	<ul style="list-style-type: none"> <li>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</li> </ul>	<ul style="list-style-type: none"> <li>Enhance and fine tune model reliability for watershed management.</li> </ul>	Ongoing	WSSC/MDE
Suite of water quality parameters in reservoir monitoring protocol	<ul style="list-style-type: none"> <li>Five year data trend analysis for other monitored water quality parameters shows no net deterioration</li> </ul>	<ul style="list-style-type: none"> <li>Develop and begin implementation of a plan to reduce nutrients, based on model/TMDL requirements.</li> </ul>	2006 - 2008	TAC
Total organic carbon (TOC)	<ul style="list-style-type: none"> <li>TOC – 20% annual reduction goal, with 40% reduction for peak quarter at the location where water is withdrawn for treatment purposes</li> </ul>	<ul style="list-style-type: none"> <li>Update trend analysis for reservoir water quality parameters on a 5-year cycle</li> </ul>	2009	WSSC
Sediment	<ul style="list-style-type: none"> <li>Sediment accumulation rate not to exceed previous years</li> </ul>	<ul style="list-style-type: none"> <li>Perform bathymetric survey of reservoirs at 10 year intervals or less</li> </ul>	2006	WSSC

**TABLE 1: PRIORITY RESOURCES CHART**

**Resource: Terrestrial Habitat**

**Issue:** Preservation of forests provides water quality benefits by reducing sediment and nutrient loading of streams from surrounding land uses.

<b>Measures</b>	<b>Goals</b>	<b>Implementation Items</b>	<b>Time Line</b>	<b>Responsible Partner</b>
Forest Cover	<ul style="list-style-type: none"> <li>• Maintain and increase forest cover</li> <li>• Increase forest interior habitat</li> <li>• Improve forest connectivity (larger forest tracts are connected by forest corridors)</li> <li>• Ensure diverse forest communities (communities contain a variety of species and ages)</li> <li>• Ensure forests are self-sustaining and capable of long-term natural regeneration</li> </ul>	<ul style="list-style-type: none"> <li>• Encourage private property owners to participate in tree planting programs.</li> </ul>	Ongoing	TAC
Forest Connectivity			<ul style="list-style-type: none"> <li>• Ensure publicly owned parkland and open space is forested to the maximum extent possible.</li> <li>• Target reforestation and forest conservation programs to increase forest connectivity and forest interior habitat.</li> <li>• 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.</li> </ul>	2006 - 2023
Forest Size		Ongoing		TAC
Forest Diversity		2006 - 2013		TAC
Forest Sustainability		<ul style="list-style-type: none"> <li>• Implement deer management programs.</li> <li>• Implement strategies for control of invasive plants.</li> </ul>	Ongoing	TAC
	2006 - 2008		TAC	

**TABLE 1: PRIORITY RESOURCES CHART**

<b>Resource: Stream System</b>				
<b>Issue:</b> 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 stormflow 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.				
<b>Measures</b>	<b>Goals</b>	<b>Implementation Items</b>	<b>Time Line</b>	<b>Responsible Partner</b>
Buffer Corridor width and continuity	<ul style="list-style-type: none"> <li>A minimum 35-foot riparian buffer on all streams on properties that were developed prior to current stream buffer requirements</li> </ul>	<ul style="list-style-type: none"> <li>Establish and maintain minimum 35' riparian buffers on all publicly-owned land</li> </ul>	2006 -2013	WSSC, MNCP&PC, HC, MC
		<ul style="list-style-type: none"> <li>Accelerate programs to establish and maintain streamside buffers to a minimum of 35' on privately-owned lands to the maximum extent possible</li> </ul>	2006 - 2023	WSSC, MNCP&PC, HC, HSCD, MC, MSCD
Stream bank and stream channel stability	<ul style="list-style-type: none"> <li>No areas of "severe" or "very severe" stream bank erosion based on the Stream Corridor Assessments and other locally collected data.</li> </ul>	<ul style="list-style-type: none"> <li>Establish and maintain streamside fencing programs to keep all livestock out of streams to the maximum extent possible</li> </ul>	2006 - 2013	HSCD, MSCD
		<ul style="list-style-type: none"> <li>Address <u>significant</u> areas of stream bank and channel instability through stream restoration projects and stormwater retrofits to the maximum extent possible</li> </ul>	2006 - 2013	HC, HSCD, MNCP&PC, MC

**TABLE 1: PRIORITY RESOURCES CHART**

<b>Resource: Aquatic Biota</b>				
<b>Issue:</b> 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.				
<b>Measures</b>	<b>Goals</b>	<b>Implementation Items</b>	<b>Time Line</b>	<b>Responsible Partner</b>
IBI - Index of Biological Integrity	<ul style="list-style-type: none"> <li>No subwatershed with a benthic IBI indicating "fair" or "poor" condition</li> </ul>	<ul style="list-style-type: none"> <li>Aggressively pursue cost-share funds to construct agricultural BMPs, stream restoration, and stormwater retrofit projects to address factors contributing to degraded biological integrity</li> </ul>	2006 - 2023	HC, HSCD, MC, MSCD, MNCP&PC
		<ul style="list-style-type: none"> <li>Mitigate runoff impacts from land use changes</li> </ul>	2006 - 2023	HC, MC, MNCP&PC
	<ul style="list-style-type: none"> <li>Preserve conditions in subwatersheds with "excellent" and "good" benthic IBIs</li> </ul>	<ul style="list-style-type: none"> <li>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</li> </ul>	2006 - 2023	HC, HSCD, MC, MSCD, MNCP&PC

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

**TABLE 1: PRIORITY RESOURCES CHART**

**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
<p>Agricultural Preservation Enrollment</p> <ul style="list-style-type: none"> <li>• Total Acres Enrolled</li> <li>• Number of Farms Enrolled</li> </ul> <p>Agricultural Demographics</p> <ul style="list-style-type: none"> <li>• Acres of Ag Land</li> <li>• Market Value of Ag Production</li> <li>• Size of Farms</li> <li>• Types of Farms</li> </ul> <p>Open Space and Parkland Acquisition and Easement Programs</p> <ul style="list-style-type: none"> <li>• Acres of open space land preserved by non-agricultural easements or acquisition</li> </ul> <p>Participation in agricultural conservation programs and percent of conservation plans that are implemented</p>	<ul style="list-style-type: none"> <li>• Preserve the agricultural and rural nature, and open space of the watershed</li> <li>• Create a landscape that is protective of water quality</li> </ul>	<ul style="list-style-type: none"> <li>• Continue zoning and land use policies in the watershed to maintain rural character</li> <li>• Continue easement acquisition through agricultural land preservation programs</li> <li>• Encourage participation in other conservation and open space preservation programs</li> <li>• Continue agricultural economic development programs</li> <li>• Encourage enrollment in federal and state nutrient management and stream protection programs</li> <li>• Promote greater utilization of funding provided by the Reservoir Protection Group to supplement federal and state agricultural programs</li> <li>• Utilize effective open space land management practices that are beneficial to water quality</li> <li>• Create and routinely update an electronic map based system to track BMP implementation</li> </ul>	<p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p> <p>2006 - 2013</p>	<p>HC, MNCP&amp;PC</p> <p>HC, MC</p> <p>HC, MC, MNCP&amp;PC</p> <p>HC, MC</p> <p>HSCD, MSCD</p> <p>HSCD, MSCD</p> <p>HC, MNCP&amp;PC, WSSC</p> <p>HSCD, MSCD</p>

**TABLE 1: PRIORITY RESOURCES CHART**

<b>Resource: Public Awareness and Stewardship</b>				
<b>Issue: Awareness and support by residents and resource users</b>				
<b>Measure</b>	<b>Goals</b>	<b>Implementation Items</b>	<b>Time Line</b>	<b>Responsible Partner</b>
Residents participating in stewardship activities	<ul style="list-style-type: none"> <li>Citizen action to improve watershed resources – see evidence of watershed friendly activities and practices</li> <li>10 to 15 stewardship offerings per year</li> </ul>	<ul style="list-style-type: none"> <li>Identify citizen groups throughout watershed and be available for presentations upon request</li> <li>Organize stewardship events and participate in other community events</li> <li>Recognize good stewards through annual awards</li> </ul>	<p>2006 - 2008</p> <p>Ongoing</p>	TACTAC
Schools participating in mentoring	<ul style="list-style-type: none"> <li>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</li> </ul>	<ul style="list-style-type: none"> <li>Form “Friends of the Watershed” group of citizen volunteers that will take on tasks such as newsletter preparation and some Earth Month planning</li> <li>Continue and expand Green Schools Mentoring Partnership</li> </ul>	<p>2006 - 2008</p> <p>2006 - 2008</p> <p>–Ongoing</p>	<p>MC, PGC, HC, MNCP&amp;PC</p> <p>TAC</p> <p>WSSC, HC, MC, PGC, MNCP&amp;PC</p>
Active support by elected officials	<ul style="list-style-type: none"> <li>Routine communication with elected officials</li> </ul>	<ul style="list-style-type: none"> <li>Routine communication with elected officials</li> </ul>	<p>Ongoing</p>	TAC
Routine coverage by media	<ul style="list-style-type: none"> <li>Expanded media coverage of watershed events – print, radio and TV</li> </ul>	<ul style="list-style-type: none"> <li>Increase communication with media</li> <li>Support regional efforts to establish media-savvy campaigns that emphasize water quality protection</li> </ul>	<p>2006 - 2008</p> <p>2006 - 2008</p>	

Implementation dates are contingent upon adequate staff support, with limited support focus will be on Earth Month activities and Green Schools Partnership

## **2 Progress on Implementation Items**

Table 2, Patuxent Reservoirs Watershed Work Program for FY07 and FY08, lists ongoing implementation items and identifies the priority resource or resources that will be protected or enhanced by completion of the associated task. Progress for each implementation item in 2006 is given below.

### **2.1 Reservoir and Tributary Water Chemistry Monitoring**

The WSSC is in the 15<sup>th</sup> year of monitoring reservoir water quality to provide data for technical analysis and long-term trending to support protection of the reservoirs and drinking water supply. Three sites at each reservoir are monitored monthly or bimonthly. The reservoirs are monitored for phosphorus, nitrogen, total organic carbon, pesticides, metals, turbidity, fecal coliform and chlorophyll. In addition, in-situ transparency and profile measurements of pH, conductivity, temperature, reduction-oxidation potential and dissolved oxygen are performed. To date, the reservoirs still show a trend towards low dissolved oxygen during the summer months.

### **2.2 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.

In March 2005, Howard County started the second round of benthic biomonitoring in the Rocky Gorge, and the Upper and Lower Brighton Dam watersheds. The benthic sampling was completed July 2005 and the final report is referenced on the County webpage at [http://www.co.ho.md.us/DPW/watershed\\_management.htm](http://www.co.ho.md.us/DPW/watershed_management.htm).

During 2005, the Montgomery County Department of Environmental Protection (DEP) monitored for fish and benthic macroinvertebrates in both the Hawlings River and the Upper Patuxent Watershed. There were 8 stations monitored in the Hawlings River watershed and 18 stations monitored in the Upper Patuxent watershed. Station results were ranked on a scale of excellent, good, fair or poor.

In the Hawlings River, the stations ranged from fair to good conditions for both fish and benthic macroinvertebrates. One station, in the James Creek tributary, showed a fish community representative of a stream that may dry up during warmer conditions. None of the stations monitored in the Hawlings River watershed showed biological impairments in both the benthic macroinvertebrate and fish communities.

In the Upper Patuxent, stations scored from 'good' to 'excellent' for benthic macroinvertebrates and 'fair' to 'excellent' for fish. Habitat varied from 'fair' to 'excellent' for both taxa. There were no stations that showed impairment with poor habitat and biology and therefore no stations were identified as impaired by other than habitat conditions.

### **2.3 Stream Corridor Management**

Stream corridor management activities include stream channel stabilization and restoration, and implementing streamside best management practices. 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.

In fall 2005, Montgomery County completed construction of its first restoration project in the Patuxent River Watershed: Project 7a, in the Lower Hawlings River. The project cost \$460,405, which included \$125,000 in grant funding from the Maryland Department of Natural Resources (DNR). The project covers the 2,700-foot reach of the Hawlings River above Brighton Dam and improves streambank stability, floodplain access, and in-stream habitat. The project has withstood the test of several significant runoff events during 2006.

This project was enhanced using approximately \$2,000 in Chesapeake Bay Trust funding to the Patuxent-Potomac Chapter of Trout Unlimited (TU) for replanting and enhancing the riparian area. At the Lower Hawlings Project, about 200 native trees were planted along part of the 2,700-foot restored reach. TU has committed to monitoring and maintaining the buffer planting over the next several years to control invasive plant overgrowth. The DEP provided technical guidance and also acted as a liaison with three local high schools to solicit additional volunteers for the planting phase.

Howard County continues to improve the Cherry Creek Watershed, which drains directly to the Rocky Gorge Reservoir. Using a \$25,000 grant from the DNR and \$37,600 from the Chesapeake Bay Trust, the County restored 300 linear feet of headwater stream. The County also constructed three new stormwater management ponds in the headwaters. Construction of the ponds and the stream restoration was completed in early 2006. Howard County is also now in the design phase for the restoration of an additional 500 feet of stream.

Prince George's County continued to make progress with the Hillsborough Low Impact Development Retrofit. The County conducted an evaluation of project alternatives intended to address non-point source pollution associated with urban development. The project may include bioretention, reforestation, or monitoring.

## **2.4 Reservoir and Watershed Models**

The Maryland Department of the Environment (MDE) and the Interstate Commission on the Potomac River Basin (ICPRB) are refining and enhancing existing watershed and reservoir models. These enhanced models will be used to develop Total Maximum Daily Loads (TMDL) to address nutrient impairments in the Rocky Gorge Reservoir and nutrient and sediment impairments in the Triadelphia Reservoir. The TMDLs are scheduled to be submitted to the Environmental Protection Agency for review and approval in fall 2007. Implementation of the TMDLs will help support protection of the reservoirs and water supply. MDE and ICPRB made substantial progress in development of the modeling framework for the Patuxent Reservoirs for the simulation period 1998-2003.

## **2.5 Agricultural Management Local Cost-Share Initiative**

The Local Cost-Share Initiative pools funding from WSSC, the Howard Soil Conservation District (HSCD) and the Montgomery County Soil Conservation District (MSCD), to provide cost-share funds for agricultural landowners implementing streamside best management practices. The cost-share program supports protection of all priority resources by improving habitat and water quality, and by supporting the economic health of the farming community. Table 3, 2006 Progress for Agricultural Best Management Practices, provides information on all best management practices planned and/or implemented in the Patuxent Reservoirs Watershed in 2006.

## **2.6 Sediment Study**

In response to a request by the Watershed Services Division of DNR, the Maryland Geological Survey (MGS) was contracted by the WSSC to study the bathymetry and sedimentation of Triadelphia and Rocky Gorge Reservoirs. Information from this study will update WSSC's previous surveys and will help in assessing changes in the sedimentation rate, supporting protection of the reservoirs and water supply.

This is a three-year study, from July 2004 to June 2007. Phase I of the study was completed in June 2006. Bathymetric data was collected for the reservoirs, the current water storage capacities and drawdown curves were determined, and sedimentation rates for the reservoirs were calculated. Bathymetric data for the reservoirs was collected in 2004 for Triadelphia, and in 2005 for Rocky Gorge.

An additional study being funded by WSSC in conjunction with the MGS is conducting in-situ sediment oxygen demand (SOD) measurements in the Triadelphia Reservoir to support development of the reservoir model and TMDL.

The SOD results will be used to compare reservoir model output to actual data collected at the Rocky Gorge Reservoir. Originally the actual data collection had been scheduled for Triadelphia, but it was rescheduled for Rocky Gorge due to low water levels in Triadelphia caused by dam maintenance activities.

## **2.7 Forestry Management and Recreational Use Survey**

In May 2003, DNR entered into an agreement with WSSC to conduct a study of forest resources and associated recreational uses on WSSC land in the Patuxent Reservoirs Watershed. The results of this study will help support protection of all priority resources.

Based on the results of this study, a Forest Conservation Plan has been drafted for the WSSC-owned forest lands surrounding the Triadelphia and Rocky Gorge/Howard T. Duckett Reservoirs. The goal of the plan is to identify and promote forest practices to improve water quality and regional biological diversity in the reservoirs watershed. Components of the plan include forest stand and understory data summaries, forest management recommendations, and recreational use and attitude surveys.

Invasive exotic plants are a more pervasive problem than anticipated, particularly where reservoir properties are narrow. The impact of deer on forests in the area was also assessed. Obvious browse effects were seen along exclosure boundaries, and interaction with spread of invasive species, particularly Japanese stiltgrass, was observed.

Forests around the reservoirs tend to have fairly dense stocking and basal area levels, particularly in areas planted to pine after the reservoirs were created. Most of these areas have not been thinned or harvested. Thinning, timber stand improvement cuts, and shelterwood or seed tree harvests are recommended based on existing stand conditions.

Recreation surveys were designed with input from the TAC and the WSSC Environmental Advocacy Committee. Three different surveys were prepared for the different audiences: WSSC rate-payers, recreation area users, and property owners adjoining the reservoir lands. For the rate-payer survey, half received a one-page summary of reservoir forest management issues, and half did not, to allow evaluation of the effect of information on attitudes and beliefs on this topic. Initial analysis of returns from the rate payers showed broad support for recreational use of the reservoir properties. There was a positive relationship between level of knowledge and willingness to increase user fees to cover costs of providing the recreation opportunities.

## 2.8 Public Outreach and Involvement Initiatives

The TAC has identified the need for sustained environmental stewardship as critical to long-term protection of all priority resources and significant efforts continue despite limited funding and staff.

During 2006, the focus continued on Earth Month activities, including the family Campfire which is held in October, and the Schools Mentoring Partnership. This year's projects were accomplished with strong support from WSSC, as there has been less participation by other agencies of the TAC. Currently, both Prince George's County Department of Environmental Resources and Montgomery County DEP have not committed to participation on the Outreach Workgroup for the upcoming year. However, Montgomery County will continue to support Earth Month events in Montgomery County and work with community groups such as the IWLA-Wildlife Achievement Chapter in Damascus for conservation and stewardship activities. During 2006, for example, this Chapter sponsored a spring and fall watershed clean-up, as well as adopt-a-road clean-ups in June and August, 'Build a nest box' workshop in February, 'Make and Take' Rain Barrel workshop in March, a 'Community Outreach' Day in May, and an 'Energy Conservation Workshop' in September. Total participation in these events was over 300.

In June 2006, WSSC formed a new Communication and Community Relation Office. This office reorganized existing outreach staff to better coordinate outreach efforts. WSSC believes this reorganization will offer more resources for outreach in the Patuxent Reservoirs watershed.

The "Family Campfire" held at the Brighton Dam Recreation Center on September 30, 2005 was again a tremendous success, with over 500 people registered. A large display of informational posters on source water protection was created for an educational component to this year's event. The WSSC provided strong support with preparation of the campfire area by maintenance staff, lighting and sound equipment provided by telecommunications staff, parking and traffic control by security staff, registration website assistance by Information Technology staff, and volunteers from WSSC on the night of the program, in addition to several TAC Outreach Workgroup members.

Total attendance for all Earth Month 2006 events was over 400 people for 9 offerings on this year's calendar. The clean up days were highly successful, with over 150 people participating over two days. About 50 people came out to the IWLA-Wildlife Achievement Chapter Upper Patuxent clean up. The IWLA-Wildlife Achievement Chapter provided lunch and a free t-shirt to participants. The WSSC encouraged its employees to help on Patuxent River Clean Up Day, and in addition to other watershed neighbors, about 50 employees signed up to assist at several of the WSSC recreation areas around the reservoirs. WSSC also supplied work gloves, plastic bags, snacks, water and a free T-shirt to all participants. The "Bike Around the Reservoir" event attracted 50 riders this year, and WSSC again

assisted with strong support for registration, publicity, and volunteers on the day of the event. WSSC also provided a support vehicle for the ride, and coffee and snacks from the Customer Outreach Group with its Emergency Response Van. The library programs for this year were well attended and were held at a branch in each of the three counties. The "Watershed Day" event planned for Earth Day, April 22, was cancelled due to strong winds and heavy rain. However, the fishing workshop was rescheduled and held on June 3 with 35 people attending.

The Patuxent Reservoirs Watershed Schools Mentoring Partnership also continues to move forward. Another one of the schools, Burtonsville Elementary in Montgomery County, earned Maryland Green School certification and was honored at a ceremony in June 2006. Two meetings were held for mentors this past year with programs including presentations by DNR, TreeMendous Maryland, Environmental Concerns, recycling programs, and other items. The Mentoring Partnership "Gazette" may continue to be produced and sent electronically to the teachers, parents and administrators in our partnership. However, with the current loss of Outreach Workgroup members, it may have to be suspended. Additional attempts will be made to reach other schools in the group. A program of watershed tours for administrators and teachers may be designed to show how their efforts at environmental projects can positively affect the watershed.

**TABLE 2. PATUXENT RESERVOIRS WATERSHED WORK PROGRAM FOR FY07 and FY08.**

<b>PRIORITY RESOURCES PROTECTED</b>	<b>IMPLEMENTATION NEED</b>	<b>IMPLEMENTATION ITEM</b>	<b>AGENCY</b>	<b>FY 2007</b>	<b>FY 2008 (proposed)</b>
Reservoir/Water Supply	1. Reservoir and tributary water chemistry monitoring	Reservoir monitoring and lab analysis	WSSC	In-kind	In-kind
		5 USGS watershed flow gauge stations	WSSC	\$50,000	\$50,000
Stream System Aquatic Biota	2. Tributary biological and habitat monitoring	Continue second round of biomonitoring program in the reservoir watershed	HC	\$0	\$0
		Upper Patuxent and Hawlings River	MC	In-kind services (monitoring)	\$0
		Hawlings River Restoration Monitoring	MC	\$5,000	\$0
Reservoir/Water Supply Stream System Aquatic Biota	3. Stream Corridor Management	Cherry Creek Study and Implementation	HC	\$140,000	\$220,000
		Hillsborough Low Impact Development Retrofit	PG	\$15,000	\$0
Reservoir/Water Supply	4. GIS-based planning level model and WSSC watershed studies	Complete reservoir eutrophication model and data trend analysis and support ongoing model enhancement	MDE WSSC	\$20,000	Not determined yet
Reservoir/Water Supply Stream System Aquatic Biota Rural Character Public Stewardship	5. Agricultural BMP 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	In kind services	In kind services
Reservoir/Water Supply	6. Sediment Study	Perform bathymetric survey to assess delta formation at selected tributaries and track sediment accumulation in the reservoirs	WSSC	\$60,000	Not determined yet

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<b>PRIORITY RESOURCES PROTECTED</b>	<b>IMPLEMENTATION NEED</b>	<b>IMPLEMENTATION ITEM</b>	<b>AGENCY</b>	<b>FY 2007</b>	<b>FY 2008 (proposed)</b>
Reservoir/Water Supply Terrestrial Habitat Stream System Aquatic Biota Rural Character Public Stewardship	7. Forestry Management and Recreational Use Study	Study on status and threats to sustainable forests on WSSC properties including recreational uses	DNR	\$9,800 (Federal grant for survey)	\$0
			WSSC	in-kind services	\$0
Reservoir/Water Supply Terrestrial Habitat Stream System Aquatic Biota Rural Character Public Stewardship	8. Public outreach and involvement initiatives	Earth Month, Annual Policy Board Meeting and other outreach activities	All TAC agencies	In-kind services \$ 500 HC \$500 MC	In-kind services \$ 500 HC \$ 1000 WSSC \$ MC
		Green Schools Mentoring Partnership	WSSC and MC	\$ 1,000 WSSC In-kind services (WSSC and MC)	\$ 1500 WSSC In-kind services (WSSC and MC)
Reservoir/Water Supply Terrestrial Habitat Stream System Aquatic Biota Rural Character Public Stewardship	9. Complete Annual Report	Compilation and editing	All TAC Agencies	In-kind services	In-kind services
		Printing and distribution	WSSC	\$200	\$200
	Partnership Coordinator	Provide admin. support, coordination among partners, secure grant funding	WSSC	\$100,000 (one year contract)	Not determined yet
<b>TOTAL FUNDING*</b>				\$402,000	\$273,200

**Table 3. 2006 Progress for Agricultural Best Management Practices**

<b>Practice</b>	<b>Howard SCD</b>	<b>Montgomery SCD</b>
Conservation Plans Developed	3 (55 acres)	5 (750 acres)
Conservation Plans Revised	6 (687.4 acres)	
Landowners Contacted or Requested Information	107	40
Landowners Applying BMP's	11	10
BMP's Installed	25	61
Cover Crop	10 (367.8 acres.)	255 acres
Pond	1	
Spring Development	2 (2 each)	
Conservation Tillage		118 acres
Grassed Waterways	1 (0.1 acres)	4 (4 acres)
Diversion		
Fencing	4 (7,454 linear feet)	
Filter Strip		
Grade Stabilization Structure		
Heavy Use Area	1 (0.1 acres)	
Nutrient Management		417 acres
Pest Management		325 acres
Roof Runoff		
Stream Crossing	1	
Trough	3 (3 each)	
Waste Storage Structure	1	
New Cost Share Agreements	1	12 EQIP & MACS
Cost Share Agreements Completed	0	
Pipeline	2 (855 linear feet)	
Ag Chemical Facility		
Subsurface Drainage	3 (2,485 linear feet)	
Educational/Outreach Events		5 (3,400 people)