POTOMAC RIVER BASIN DRINKING WATER SOURCE PROTECTION PARTNERSHIP

2006 Annual Report

Accomplishments this year:

- *Cryptosporidium* Study Initiated
- Road De-icing, Urban Stormwater and Conservation Lands Mini-Workshops Held at Quarterly Meetings
- Spill Exercises Conducted
- Basin Source Water Assessments Compiled

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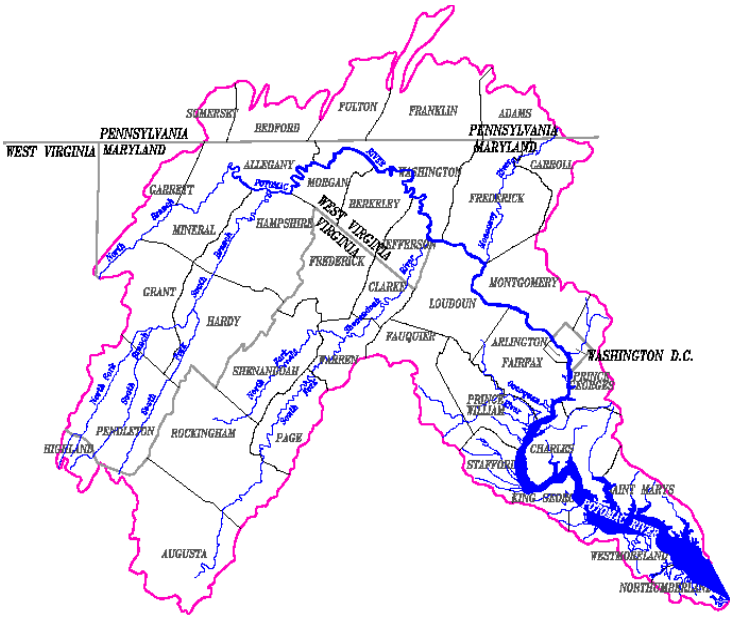
LETTER FROM THE CO-CHAIRS

Established in 2004, the Potomac River Basin Drinking Water Source Protection Partnership (Partnership) is a voluntary organization of drinking water suppliers and government agencies working to protect drinking water sources. Through work groups and active discussion at partnership meetings, the Partnership has identified priorities and is engaged in activities for source water protection in the Potomac basin. Nineteen government agencies and drinking water utilities from throughout the Potomac basin have formally joined the Partnership.



We are pleased to report strong progress in the second year of the Partnership. Over the past year, the Partnership has initiated a Cryptosporidium Source Tracking Study (Study). The year-long Study is a joint effort between the Partnership, the Centers for Disease Control (CDC), and the US Environmental Protection Agency (EPA). We successfully applied for and were awarded an EPA Regional Applied Research Effort (RARE) grant to fund the cost of molecular analysis for this project. Water quality sampling and microscopic analysis is being done through member Utilities, as part of their in-kind matching contribution to the Study. As a result of the grant award, we are pleased to have a nationally renowned laboratory, led by Dr. LiHua Xiao of the CDC, as a project partner conducting the Cryptosporidium genotyping. Pathogens such as *Cryptosporidium* are identified as a priority issue in the Partnership's Strategic Plan for Source Water Protection in the Potomac River Basin. We look forward to reporting on the preliminary findings of the Study at this time next year.

In addition to the regular business meetings, the Partnership held a series of mini-workshops over the past year on several topics identified in the Partnership's Strategic Plan. The first of these workshops covered the topic of roadway deicers, a seasonal source water quality concern and a timely topic (the meeting was held in the middle of February). Other mini-workshops held this year included urban stormwater and land conservation. Each of these meetings gave the Partnership an opportunity to hear about programs going on in the Potomac basin that impact our source water. We would like to express our gratitude to all of our workshop speakers for their presentations.

Protection of raw water sources remains an important aspect of the drinking water business. We are pleased with progress of the Partnership over the past year and we look forward to building on this momentum as the Partnership moves forward.

Charles M. Murray,
General Manager,
Fairfax Water
Co-Chair, Potomac River Basin Drinking Water Source Protection Partnership

Jon M. Capacasa,
Director,
Water Protection Division,
US Environmental Protection Agency, Region III
Co-Chair, Potomac River Basin Drinking Water Source Protection Partnership

The Partnership's Mission Statement

To serve as a cooperative and voluntary partnership working towards the goal of improved source water protection of the Potomac River in recognition of the vital role of the river in supplying drinking water to millions of people within the Potomac watershed and in support of the multi-barrier approach to safeguarding the drinking water supply for public health.

ABOUT THE PARTNERSHIP

The Potomac River Basin Drinking Water Source Protection Partnership (DWSPP) is a unique regional organization formed to help ensure that the basin's public drinking water sources, serving more than 5 million people, are protected from contamination that could adversely affect the health of consumers. The Partnership was formalized through a signing ceremony held on September 24, 2004 at Black Hill Regional Park in Boyds, Maryland, adjacent to Little Seneca Reservoir, a crucial element of the Washington Metropolitan Area water supply. At the present time, nineteen drinking water utilities and government agencies from throughout the Potomac River Basin are signatory members of the DWSPP.

The Partnership is currently comprised of two main committees, a **Government Partners Committee**, and a **Metropolitan Area Utility Source Water Protection Committee**. The Government Partners Committee includes representatives from state (Maryland, Virginia, West Virginia, and Pennsylvania), interstate, and federal agencies and the District of Columbia. Representatives are generally responsible for source water protection programming. The Metropolitan Area Utility Source Water Protection Committee focuses on water supply for the Washington, D.C. metropolitan area and includes representatives from the D.C. metropolitan area water suppliers. Additional **utility and/or regional committees** will be developed as the Partnership moves forward. Each Committee selects a chairperson to facilitate meetings and represent the Committee. The Chairperson for the overall Partnership rotates on an annual basis among the chairpersons of the Committees. Each committee may act independently, but the Partnership's actions or positions will be based on the consensus of its interested members. The **Interstate Commission on the Potomac River Basin (ICPRB)**, as an independent agency whose charter encompasses the entire Potomac River Basin, is the Partnership Coordinator. The ICPRB works with the Partnership committee chairpersons to host meetings, prepare agendas, and meet other needs for Partnership and Committee meetings.

Through work groups and active discussion at Partnership meetings, the DWSP Partnership is implementing a strategy for carrying forward source water protection as recommended by source water assessments that were prepared throughout the Potomac basin.

The goals of the Partnership are to:

- Identify regional priorities for source water protection efforts.
- Coordinate, where appropriate, source water and drinking water protection efforts to benefit multiple water systems.
- Establish and maintain a coordinated dialogue, including a Partnership framework, between water suppliers and government agencies involved in drinking water source protection within the Potomac River Watershed.
- Establish and maintain a coordinated dialogue between the Partnership agencies and other groups working towards watershed protection within the Potomac River Watershed.
- Promote information sharing among groups working on, and affected by, safe drinking water issues.
- Enhance coordinated approaches to water supply protection measures in the Potomac basin, especially for boundary waters and for project planning that impacts interstate waterways.
- Develop new initiatives within the drinking water community and with partners that will fill program voids ensuring higher quality drinking water supplies.

Web Site: http://www.potomacriver.org/water_quality/safewater.htm

PARTNERSHIP MEMBERS

Current Signatory List

City of Frederick, Maryland
City of Hagerstown, Maryland
City of Rockville, Maryland
Fairfax Water
Frederick County, Maryland
Interstate Commission on the Potomac River Basin
Maryland Department of the Environment
Pennsylvania Department of Environmental Protection
Town of Leesburg, Virginia
United States Environmental Protection Agency Region III
United States Geological Survey
Virginia Department of Environmental Quality
Virginia Department of Health
Washington Aqueduct, U.S. Army Corps of Engineers
Washington County, Maryland
Washington, D.C. Department of Health
Washington Suburban Sanitary Commission
West Virginia Department of Health and Human Resources
West Virginia Department of Environmental Protection

ROAD DE-ICING MINI-WORKSHOP

The Partnership's February 15th meeting included presentations on road de-icing and its impact on drinking water. Counties and municipalities in the United States use thousands of tons of chemical de-icers each winter to help keep roads free of ice and snow. The most common de-icer is road salt, primarily composed of sodium chloride, but often also containing smaller amounts of other elements such as phosphorus, nitrogen, copper, and even cyanide, which is sometimes added as an anti-caking agent. The following presentations were given:

PHOTO: RIVERKEEPER

Road De-icers: Drinking Water Standards and Consumer Concerns, by Victoria Binetti, Water Protection Division, US EPA Region III: Information was presented on drinking water advisory levels, recommended dietary intakes, and health effects of sodium and of chloride.

Road Salt Contamination of the Baltimore Metropolitan Reservoirs, by William Stack, City of Baltimore, Department of Public Works: Mr. Stack presented information on rising chloride and sodium levels in Baltimore's streams and reservoirs.

De-icers: Water Resource Threat?, by Rod Frederick and Robert Goo, US EPA Office of Wetlands, Oceans, and Watersheds: This presentation discussed impacts on vegetation and aquatic life, increasing chloride levels in ground water, alternative de-icers, and best management practices that help reduce the impact of de-icers on water quality.

URBAN STORMWATER MINI-WORKSHOP

The focus of the afternoon portion of the Partnership's June 1 meeting was urban stormwater and its effects on drinking source water. Urban areas have a high percentage of impervious surfaces, that is, rooftops, roads, parking lots, and other areas which do not allow rain water to infiltrate naturally into the ground. Instead, storm water tends to runoff these surfaces and rapidly enter nearby streams, either directly or via a storm sewer system, leading to excessive stream flows during storm events. Urban storm water also carries with it high levels of bacteria, nutrients, oil and grease, and other pollutants which have been washed off the land's surfaces.

Introduction and Background, Traci Kammer Goldberg, P.E., Source Water Protection and Planning, Fairfax Water: Ms. Goldberg provided an overview of urban stormwater in the Potomac basin, noting that 14% of the sediment, 15% of the nitrogen, and 15% of the phosphorus in basin streams has been attributed to urban runoff. The primary government program regulating urban stormwater, the Federal municipal separate storm sewer systems (MS4) permitting program, currently affects the following Potomac basin jurisdictions: Montgomery County, Frederick County, and Carroll County in Maryland, and Fairfax County, Berkeley County, City of Winchester, and City of Harrisonburg, in Virginia.

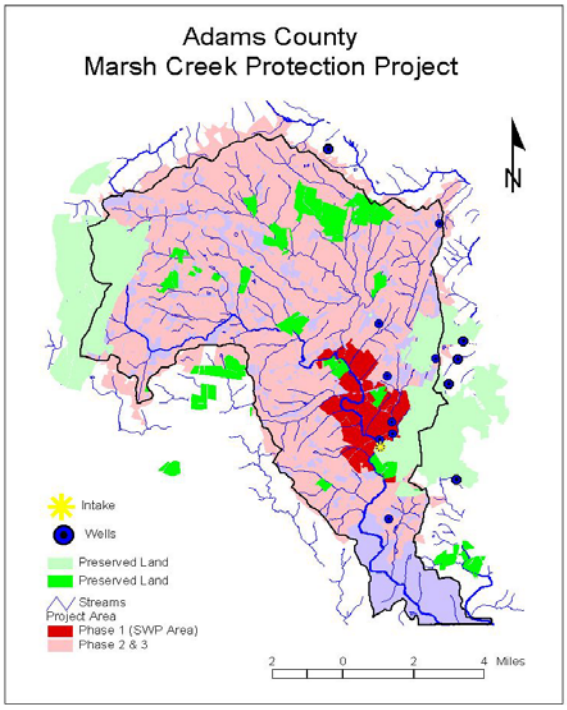
Federal Stormwater Requirements, Paula Estornelle, P.E., US EPA Region 3: This presentation summarized the Federal NPDES stormwater management program, including permit requirements for MS4's, construction sites, and industrial facilities.

Maryland's Stormwater Management Program, Ken Pensyl, Maryland Department of the Environment: Mr. Pensyl discussed the adverse impacts of increasing urbanization on water quality in Maryland. He outlined Maryland's strategy for stormwater management, supported by the 2000 Maryland Stormwater Design Manual, which includes providing better design guidance for BMP's, improve the quality of constructed BMPs, providing guidance for "total site design", offering incentives for "green" techniques, and reducing reliance on structural controls, such as stormwater management ponds.

Frederick County Watershed Management, Shannon Moore, Frederick County, and **Loudoun County Water Resources Management Program**, Wm. Kelly Baty, Loudoun County Department of Building and Development: Frederick County, MD and Loudoun County, VA, provided two case studies on how to integrate information and tools from a variety of Federal, State, and local efforts to effectively assess, restore, and protect water quality in streams. In response to requirements of the Safe Drinking Water Act, the Chesapeake Bay Program's 2000 Agreement, and the Clean Water Act, Frederick County has formed extensive partnerships and implemented a comprehensive program to restore watersheds, including detailed stream corridor assessments of 476 miles of streams. Loudoun County is obtaining input and support from local stakeholders by means of its Strategic Watershed Management Solutions (SWMS) Stakeholder Teams, and is supporting and encouraging Low Impact Development (LID) measures to help reduce the amount of impervious surface in new developments.

The Potomac Conservancy, Bryan Seipp, Potomac Conservancy: Mr. Seipp described the role of the Conservancy in protecting drinking source water, by educating and partnering with private landowners, and promoting improved land use regulations and increased funding for conservation. Conservancy activities include stream restoration, providing private landowners with information on septic systems, forest buffers, and stream fencing, promoting LID, and providing technical support to state and local governments on conservation easements.

CONSERVATION LANDS MINI-WORKSHOP



Presentations at the Partnership's August 16 meeting concentrated on land conservation as an important tool to protect source water, especially in the headwaters of a drainage basin. Land conservation can be provided by Federal or State protection, in the form of protected parklands, forests, or wetlands, or it can be provided by private landowners by means of conservation easements.

Land Protection Efforts in West Virginia, Kevin Mack, Potomac Conservancy: The Conservancy has primarily focused its conservation easement efforts in West Virginia, where it has placed properties under easement in five counties, protecting over 15 miles of stream frontage.

Program Open Space, Chip Price, Maryland Department of Natural Resources (MDDNR): Maryland's Program Open Space, funded in part by the State Real Estate Transfer Tax, seeks both to protect natural resources and to provide opportunities for recreation. The program has resulted in the protection of 283,000 acres, now under management by MDDNR, and an additional 39,000 acres of parkland, under management by local governments.

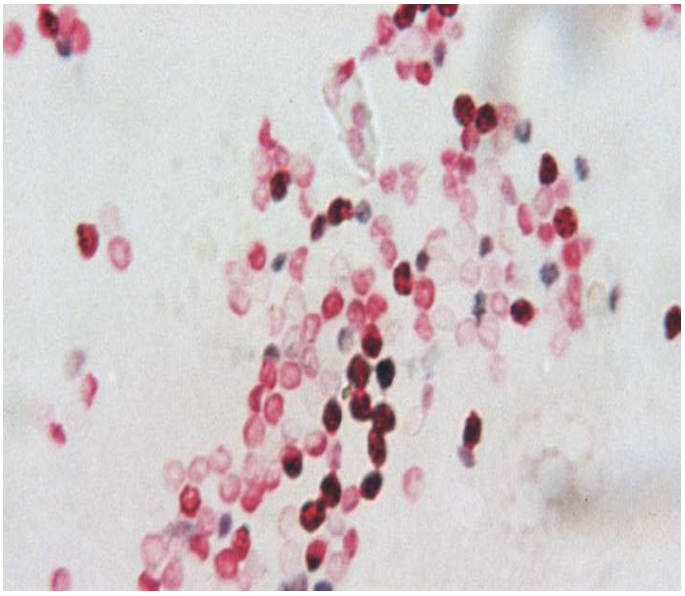
20 Virginia Land Conservation Questions, Robert Lee, Virginia Outdoors Foundation (VOF): Mr. Lee described the successes and challenges of the VOF, which holds more conservation easements than any public land trust in the nation – more than 2,000 easements on over 350,000 acres. In April of 2006, Governor Kaine announced that Virginia's goal for the year 2010 is to protect an additional 400,000 acres, including 350,000 acres in the Chesapeake Bay watershed.

Marsh Creek Watershed Protection Project, Sidney Kuhn, Land Conservancy of Adams County (LCAC), Adams County Conservation District (ACCD): Prompted by concerns about rapid development in the Gettysburg area, the LCAC has initiated a project to establish conservation easements in the Marsh Creek drainage area, using funding from the Pennsylvania Department of Environmental Protection (PADEP). Marsh Creek is a source of drinking water for the Gettysburg area and a tributary of the Monocacy River. Land parcels were ranked according to their potential impact on drinking water, using criteria developed by ACCD, PADEP, and the Gettysburg Municipal Authority. Easement restrictions include prohibitions on underground storage tanks, land application of sludge and off-site waste-water, mineral extraction, solid/hazardous waste disposal, restrictions on impervious surfaces and on livestock in waterways, and requirements of conservation plans for agricultural production. The LCAC has received a 2006 EPA Region III Source Water Protection Award for this project.

Protecting Drinking Water Through Land Conservation, Kelley Hart and Caryn Ernst, Trust for Public Lands (TPL): It has been estimated that open lands in America are disappearing at a rate of 3 million acres per year. TPL discussed the importance of land conservation as a component in source water protection programs, ranking systems for prioritization of efforts, and potential funding sources.

CRYPTOSPORIDIUM STUDY BEGINS

The Drinking Water Source Protection Partnership (DWSPP) has identified *Cryptosporidium* (*Crypto*) as a public health concern for the water utilities in the Potomac River watershed. *Crypto* are protozoan parasites that are excreted by infected animals and humans and have been found in most drinking water sources. *Crypto* oocysts (the dormant form of the organism) are resistant to disinfection by chlorination and cause significant gastrointestinal illness and in some cases death. The existing *Crypto* data only quantify the oocysts in the raw water and do not identify the human infection potential or the specific sources.



Cryptosporidium, photo by Thaddeus Graczyk , Johns Hopkins University

In February 2006 the Potomac River Basin DWSPP was awarded a Regional Applied Research Effort (RARE) grant to join with the US Environmental Protection Agency (EPA) Office of Research and Development (ORD) and the Centers for Disease Control (CDC) on a source tracking project to identify the specific source of a contaminant, whether livestock, wildlife or human. The suspected sources of *Crypto* in the Potomac River watershed include agricultural activities/animal operations, combined sewer overflows or wastewater treatment discharges, wild animals, and storm water runoff.

The RARE grant amount was $90,000 for the first year and possibly $90,000 for the second year. The RARE project will be the first use of genotyping to identify and track specific *Crypto* sources in the Potomac watershed and will build on previous work to provide both quantitative and qualitative information.

During the pilot study period, monthly raw water base-flow samples will be collected from two water treatment plant intake sites: Washington Suburban Sanitary Commission's Potomac Water Filtration Plant and Fairfax Water's Corbalis Water Treatment Plant. Samples will also be collected at three sub-watershed locations: Great Seneca Creek in Maryland, the Monocacy River in Maryland and the North Fork Shenandoah River northeast of Edinburg, Virginia. Additional storm-event samples will be collected from each site for six wet-weather events throughout the year. The monitoring will reflect seasonal and hydrologic variations in *Crypto* occurrence and source contributions. The filter(s) from one aliquot will be processed for *Crypto* oocyst detection and enumeration by EPA Method 1623 and the other aliquot will be processed by CDC for Crypto detection and genotyping by molecular diagnostic methods. CDC will use molecular methods to identify specific genotypes/hosts of *Crypto* species. Although this method is not quantitative, it provides a means, in conjunction with a well designed monitoring program, for identifying the most significant sources of *Crypto* to be addressed through source protection efforts.

RIVER-SPILL EARLY WARNING MODEL

Partnership members participated in two exercises of emergency response measures that would be used in the event of a spill or release of hazardous substances in the Potomac River or one of its tributaries. On May 16, the Interstate Commission on the Potomac River Basin (ICPRB) used the River-Spill computer model to simulate a plume of a chemical contaminant in the river that resulted from a hypothetical spill near Brunswick, MD. River-Spill, developed by SAIC, Inc with funding from US Environmental Protection Agency (EPA), was used to estimate the peak concentrations of the contaminant and the plume's time of arrival at downstream water supply intakes. The Metropolitan Washington Council of Government's "RICCS Roam Secure Alert Network" communication system was used to notify water suppliers and appropriate government agencies. Additional spill-related information was made available to Partnership members and other water suppliers via a password-protected page at the ICPRB web-site. A follow-up exercise was conducted on June 15, and an evaluation of River-Spill was conducted by comparing it with the existing spill/time of travel model that was developed through ICPRB's Cooperative Water Supply Section (CO-OP). The two spill exercises and the River-Spill evaluation were funded by an Urban Areas Security Initiative Grant from the Department of Homeland Security.

SUMMARY OF STATE SOURCE WATER ASSESSMENTS

EPA completed a compilation of all the source water assessments containing surface water intakes in the Potomac Basin. The source water assessments completed as part of the Safe Drinking Water Act Amendments in 1996 were required by law. The assessments included a delineation of the source waters, potential sources of contamination, susceptibility analysis, and report to the public. This information will be used to help identify priority sub-watersheds for development of implementation plans to improve source waters.

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ABOUT THE PARTNERSHIP LOGO

The Partnership thanks **Eileen Bowling**, a free-lance graphic designer and resident of the Potomac River Basin from Gettysburg, Pennsylvania, for her contribution to the Partnership, in the development of the logo. The logo illustrates the different kinds of land uses in the basin and includes a representative image of the basin itself. The logo is used on Partnership letters and other documents.

JOIN THE PARTNERSHIP!

The Potomac Drinking Water Source Protection Partnership is always looking for new members to help carry out its mission. For information on joining the Partnership, please contact the Interstate Commission on the Potomac River Basin at (301) 984-1908 or send an e-mail to info@icprb.org.

HIGHLIGHTS FROM THE 2006 ANNUAL MEETING

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