A scenic view of a river flowing through a rocky gorge. The water is turbulent, creating white rapids and a waterfall cascading over dark, jagged rocks. The surrounding landscape is lush with green trees and vegetation under a clear blue sky.

Potomac River Basin Drinking Water Source Protection Partnership

"For Life, For Health, Clean Water"

ANNUAL REPORT 2010

Potomac River Basin Drinking Water Source Protection Partnership

Our mission is to serve as a cooperative and voluntary partnership working toward the goal of improved source water protection within the Potomac River basin in recognition of the vital role of the river and its tributaries in supplying drinking water to millions of people and in support of the multi-barrier approach to safeguarding drinking water supply for public health.

The Potomac River Basin Drinking Water Source Protection Partnership (Partnership or DWSP) is a voluntary alliance of water utilities and state, interstate, and federal authorities working to protect sources of drinking water in the Potomac River basin.

Established in 2004, 20 organizations are official members of the Partnership with many others participating in Partnership meetings, workshops, and activities.

Partnership priorities include:

- identifying the sources of contaminants entering the Potomac River;
- improving our understanding of the impact these contaminants have on drinking water; and
- developing strategies to minimize the presence of the contaminants and their effect on drinking water.



Member Organizations

City of Frederick, Md.

City of Hagerstown, Md.

City of Rockville, Md.

D.C. Department of the Environment

Fairfax Water, Va.

Frederick County, Md.

Interstate Commission on the
Potomac River Basin

Loudoun Water, Va.

Md. Department of the Environment

Pa. Department of Environmental Protection

Town of Leesburg, Va.

U.S. Environmental Protection Agency, Region 3

U.S. Geological Survey

Va. Department of Environmental Quality

Va. Department of Health

Washington Aqueduct, U.S. Army Corps of Engineers

Washington County, Md.

Washington Suburban Sanitary Commission, Md.

W.Va. Department of Health and Human Resources

W.Va. Department of Environmental Protection

ON THE COVER: The Great Falls of the Potomac, just north of Washington, where the river begins its drop to the coastal plain and becomes a tidal estuary. Photo courtesy of Jim Palmer.

Letter From the Co-Chairs

DWSPP 2010 Initiatives

Providing life's most precious resource--clean, safe water--for generations to come is a critical undertaking that sustains our health, safety, and economy. Ensuring our drinking source water is protected is the critical first step in fulfilling that mission. The Potomac River Basin Drinking Source Water Protection Partnership, formed from water utilities and local, regional, state, and federal agencies, has actively supported this necessity in the Potomac River watershed. The success of the Partnership's activities and the commitment to a clean and safe Potomac River depends on the cooperation of all those who live and work in the Potomac River basin. This report details some of the Partnership's activities over the last year to protect our drinking water supplies.

Thanks to the hard work of the Partnership's six Workgroups and two Committees, DWSPP accomplished a variety of important initiatives this past year. For example, the Partnership continued to engage the community in source water protection in the Potomac Basin by hosting a workshop on the Clean Water Act and water quality standards and how they can be used for source water protection. Additionally, DWSPP attended a Maryland State Technical Advisory Committee of the Natural Resources Conservation Service meeting and provided a presentation on *Cryptosporidium* and drinking water. A selection of the Partnership's 2010 initiatives are described in this report under 2010 Project Highlights.

We are already looking forward to next year and all the source water protection potential it holds. One major goal for next year is to refresh the Partnership's Strategic Plan. Additionally, each Workgroup has defined their own targets for the year, which can be found in the 2011 workplan online at <http://www.potomacdwspp.org/>. As the Partnership concludes our sixth year



of source water protection collaboration , we'd like to commend those agencies that make up the Partnership and thank them for their unwavering dedication to protect our environment and the welfare of the people who depend on the Potomac River basin for our precious water. We invite other water utilities and government agencies to join us in this important work and welcome you to attend any of the upcoming quarterly meetings, special workshops or Workgroup meetings. We look forward to 2011 as we continue to build and sustain our efforts in the Potomac Basin.

Teresa Daniell

*Former Deputy General Manager,
Washington Suburban Sanitary Commission
Co-Chair, Potomac River Basin Drinking Water
Source Protection Partnership*

Scott Kudlas

*Director, Office of Surface and
Ground Water Supply Planning, Virginia
Department of Environmental Quality
Co-Chair, Potomac River Basin Drinking Water
Source Protection Partnership*

2010 Project Highlights

The Partnership's activities are structured to address priority issues, and it has organized the membership into workgroups to focus on these priorities. Listed below are several of the Partnership's workgroups, with an example or two of their source water protection activities this year.

Urban Issues

This workgroup is intended to position the Partnership to better communicate drinking water needs in the Potomac River basin to the agencies who oversee implementation of urban stormwater management and other NPDES programs.

In 2010, the Urban Issues Workgroup:

- Held an informational workshop on "Leveraging Clean Water Act water quality standards for Source Water Protection in the Potomac Basin." Presentations summarizing Water Research Foundation projects on Drinking Water Source Protection Through Effective Use of TMDLs and Total Maximum Daily Loads and Drinking Water Utilities were provided. These projects describe specific measures that have been used to include drinking water objectives in TMDLs. The session also featured presentations from the Potomac basin states on water quality standards (WQS) for stream stretches designated as drinking water supplies. The results of this workshop can be used to help members suggest changes to the WQS during the review process undertaken by each state.
- Drafted comments for consideration on proposed EPA Airport Deicing Effluent Guidelines and on proposed legislation requiring the Maryland State Highway Administration and local jurisdictions to create a road salt management program. The legislation did not pass.

Emerging Contaminants

This workgroup tracks and reports on both research and monitoring efforts for persistent and newly identified threats posed to the Potomac River drinking water supply with a primary focus on endocrine disrupting chemicals.

During 2010, the group:

- Provided regional support for the national effort to increase drug take-back programs that keep pharmaceuticals out of source waters.
- Co-Sponsored a EPA "listening session" on



C. Dalpra

Salt-laden melting snow is carried by storm drains directly to the nearest stream. Assessing this issue remains a priority for the Urban Issues Workgroup.

the EPA's new strategy for protecting public health as it relates to drinking water (<http://www.epa.gov/safewater/sdwa/dwstrategy.html>).

Agricultural Issues

The Agricultural Issues workgroup takes an active role in building alliances with the agricultural community in order to minimize water pollution, particularly Cryptosporidium, in the region's sources of drinking water. The Pathogens workgroup identified Cryptosporidium as the most significant pathogenic public health threat to water suppliers. Since the completion of the Cryptosporidium Source Tracking Project in 2008, which identified the sources of Cryptosporidium in the basin, the Pathogen and Agriculture workgroups have joined together to develop an educational outreach program to raise awareness of the links between agriculture, Cryptosporidium, and drinking water.

During 2010, the group:

- Formed an advisory committee comprised

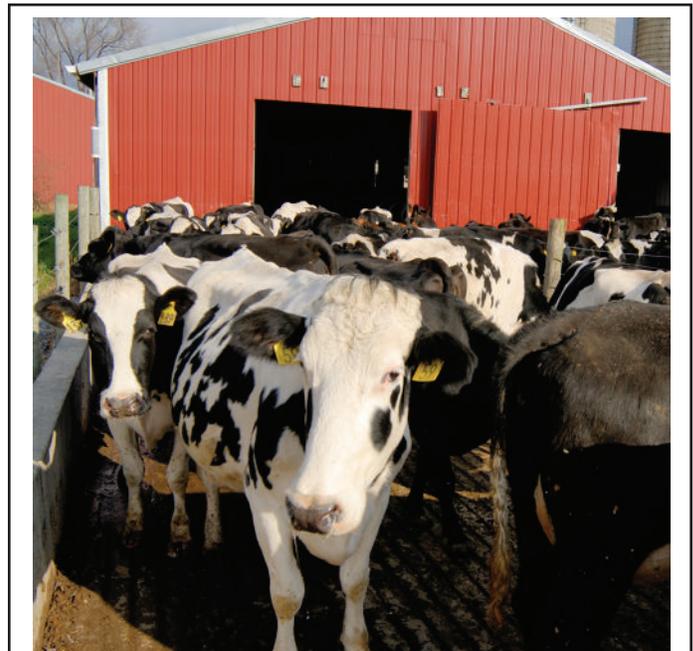
of individuals with expertise in various areas, from veterinarian researchers to extension agents. Organized a webinar entitled, “*Cryptosporidium*, Cattle & Drinking Water: Critical linkages between best management practices (BMPs) and safe drinking water.” This ran live on July 22 as part of the Penn State University Agriculture and Environment Center’s *Manure du Jour* webinar series. The purpose was to provide information on the link between *Cryptosporidium* and drinking water and to gather information from participants on the best way to present this information to other audiences. The webinar is archived at the Penn State webinar library (www.aec.cas.psu.edu).

Early Warning and Emergency Response

Early warning systems can potentially detect contamination events before they reach water supply intakes. This workgroup was formed to monitor ongoing work in this field, to propose specific projects to benefit water suppliers in the Potomac basin, and to ensure that an emergency response plan is in place.

During 2010, the group:

- Demonstrated the capabilities of the Water/Wastewater Agency Response Network (WARN) and its interaction with the Regional Incident Communications and Coordination System (RICCS) at the annual meeting. The system is being assessed as to how it can be better used by water managers and utilities in



C. Dalpra

Better cattle management can decrease *Crypto* in source waters. The Agricultural Issues Workgroup is spreading this message among the farm community.

the event of spills or other emergencies that could affect drinking and source water.

- The After Action Report from the 2008 spill exercise was reviewed and updated.
- The factsheet, Interstate Notification & Time-of-Travel Estimates for Spills in the Potomac River Basin, was updated with current contact information for regional response personnel. This information was posted to the DWSPP and ICPRB websites and distributed at the annual meeting.

DWSPP Assists in Keeping Drugs from Source Water

The Potomac River Basin Drinking Water Source Protection Partnership (DWSPP) members participated in hosting six sites where consumers could return unused pharmaceuticals for proper disposal. The September 25 event was the first national Prescription Drug Take Back Day, organized by the U.S. Drug Enforcement Administration (DEA). At more than 4,000 locations across the country, people were able to drop off out-of-date or unused prescription medications. The collected drugs were taken into the custody of law enforcement officers until the medications could be incinerated according to federal and state

environmental guidelines.

Recent studies that found a significant increase in the abuse and misuse of prescription pain relievers during the past decade were a driving force behind the federal initiative for DEA. The effort also served to highlight the issue of trace amounts of pharmaceuticals being detected in drinking water supplies around the country. Technological advances that allow researchers to document contaminants in the parts-per-trillion range have caused concern among the public, even though the pharmaceuticals found may be thousands of times less than a single therapeutic dose. These chemicals

can enter waterways by various means, including passing through people and animals after use, improper disposal, and because sewage treatment plants are not designed to completely remove them.

The DWSPP members assisted in coordinating drop-off sites in Adams County, Pa., (three sites), College Park, Md., Leesburg, Va., and Kearneysville, W.Va., where they distributed information about pharmaceuticals and drinking water issues among attendees. At the College Park (University of Maryland) site, a steady trickle of people resulted in the collection of nearly 50 pounds of medicines.

The Gettysburg site was organized as a drive-through dropoff. More than 80 cars came through to dispose of pharmaceuticals. Nationally, about 121 tons were collected, according to DEA.

General guidelines for disposing of pharmaceuticals where no program is available:

- Call your local government and ask about the recommended means of pharmaceutical disposal.
- Do not flush prescription drugs down the toilet or drain unless the label or accompanying patient information specifically instructs you to do so.
- Take your prescription drugs out of their original



Police officers assist at a drop-off drug return site in Adams County, Pa.

containers unless disposal instructions indicate otherwise.

- Mix drugs with an undesirable substance, such as cat litter or used coffee grounds.
- Put the mixture into a disposable container with a lid, such as an empty margarine tub, or into a sealable bag.
- Place the sealed container with the mixture, and the empty drug containers, in the trash.
- Conceal or remove any personal information, including Rx number, on the empty containers by covering it with black permanent marker or duct tape, or by scratching it off.

Emerging Contaminants: Responding to Public Concerns

Enhancements to technology have allowed researchers to peer deeper and deeper into the chemistry of water to detect constituents even into the parts-per-trillion range.

The accumulation of knowledge about the presence of traces of contaminants in both source water and finished drinking water now easily exceeds what is known about how those substances might affect humans consuming the water, as well as the fish and other creatures living in it.

Emerging contaminants, substances of all sorts newly detected in water, are a major interest of the Partnership. Of greatest concern and interest to the public are endocrine disrupting chemicals (EDCs)—substances that can interfere with human and animal hormonal systems that regulate growth, development, and sexual reproduction.

These substances are contained in a variety of products, including personal care products, medications, birth control pills, cleaning products, pesticides, solvents, fire retardants, and other products. They enter waterways through various waste streams and in the case of drugs, small amounts are passed through the human body and are only partially removed by wastewater treatment.

The public has grown increasingly concerned about EDCs as their presence has been linked to problems such as the intersex fish found in the Potomac River. Overall, very little is known about how many of these compounds affect humans and animals, or at what levels they may cause problems.

The Partnership is addressing these concerns on a number of fronts, including supporting research, sponsoring informational meetings among the

group, and providing testimony and guidance to government agencies.

The Partnership has worked with Congress and the U.S. Environmental Protection Agency to increase research on these substances, many of which are unstudied and unregulated. Members of the Partnership are involved in studies both on the substances themselves and on how water utilities can best respond to the issue.

The Partnership continues to track other research and legislative efforts that would devise new methods for removing EDCs from drinking water, require greater research into new compounds before they are used in products, and determine how these products can be handled in ways that keep them out of source waters in the first place.

One Partnership member, the Washington Aqueduct, which provides drinking water for the District of Columbia and portions of northern Virginia, is participating in a major federal study that will prioritize anticipated future drinking water quality challenges.

Sustainable Water Use Explored at Freshwater Institute

The DWSP membership visited the campus of the Freshwater Institute during its 2010 annual meeting in Shepherdstown, W. Va., on October 12. A program of nonprofit The Conservation Fund, the Freshwater Institute offers sustainable solutions through affordable technologies and engineering and technical counsel. Launched 20 years ago, the institute is globally recognized for sustainable agriculture methods that save water and money while minimizing the environmental footprint of projects.

While the institute has long worked on agricultural issues as they relate to water resources, and other efforts that research and find solutions for spring and well protection, the highlight of the tour focused on aquaculture research.

Focusing on salmon, char, and other valuable species, the institute is pioneering fish farming using nearly closed systems where the bulk of all water used is cleansed using several methods and recycled back into the system. Proper reuse and disposal of



In a process that includes both researchers and community stakeholders, a range of contaminants including emerging contaminants, pathogens, and byproducts from disinfection treatment are being assessed to identify the best ways of dealing with these substances in the water purification process, as well as through source water protection efforts.

wastes from the system is one of the major focuses of the project.

On a tour of the facility, DWSP members were impressed by very large tanks where salmon were being grown. Through light attenuation, the salmon can grow to market size in the fresh, rather than salt water. A strong current in the deep circular tanks inside a warehouse made the two-foot salmon appear to be swimming in place. The tanks are constantly filtered, using several innovative systems that are being tested. One system, for example, made use of tree bark and wood pieces that help balance the water's mineral and nutrients to provide the engineered environment needed to keep the fish healthy and growing.

The driving concept is to find ways to grow the fish as economically, and sustainably as possible. Freshwater Institute Program Director Joseph Hankins noted that aquaculture advances are greatly needed as a growing number of species are over-fished in the open ocean and coastal fisheries. As

aquaculture accounts for a greater proportion of fish needed to feed people, innovative ways to make it both efficient and environmentally friendly are crucial.

Hankins also noted that the program takes great pride in that the fish grown in this research project are donated to food banks to feed the hungry.

Hankins also spoke from the perspective as a member of the local Jefferson County, W.Va., Public Service Commission as the keynote speaker for the meeting luncheon. He discussed the fragmented nature of local water planning, and how issues such as drinking water supply, sewage treatment, and stormwater control need to be addressed holistically from a planning perspective, and that a national water policy could go a long way toward helping local governments and communities to comprehensively plan for the future. Hankins noted that planning for water reuse is critical, as it is the only way to sustainably manage water resources.

He used the example of a greatly upgraded local sewage treatment plant as an illustration of the types of innovation needed. The plant will produce a very clean effluent, with a plan for interstate nutrient trading with agricultural operations to cover the increased nutrient loads to be generated by future development. He noted that West Virginia currently does not have a state-based trading program of its own and will have to work in an interstate mode.



The visit to the Freshwater Institute included a tour and discussion of methods and equipment used to purify and recycle water for aquaculture (above). Below, salmon can be seen through a viewing port in a huge cylindrical tank. The current generated in the tank keeps the fish largely swimming in place. Photos: C. Dalpra.



Please contact us for more information on Partnership activities and participation.

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