

REPORTER



C. Dalpra

Workers contain a 1993 pipeline break on Sugarland Run in Virginia that quickly entered the Potomac River. Its effects lasted for years in some downstream areas. The DWSPP has focused on working with pipeline operators and regional and federal emergency management agencies to minimize potential damage to the river and drinking water facilities in the event of a spill or other contamination.

Group Celebrates Five Years of Source Water Protection

What is causing some male fish found in our waterways to bear eggs or develop lesions? How many of the medications taken by people, as well as chemicals used in homes and farms, are getting into our waterways? What quantity of those substances are finding their way into drinking water? Are these minute concentrations a human health issue? How do our many activities and industries affect drinking water? These are topics being increasingly raised in the media, and generally, there are not definitive answers.

These very important issues have for years been on the minds of the region's water supply professionals, who five years ago joined to form the Potomac River Basin Drinking Water Source Protection Partnership (DWSPP). The group includes 20 member organizations,

including water utilities, and federal, state, local, and regional government agencies with drinking water responsibilities. The ICPRB serves as a member and facilitating agency for the group, which seeks to ensure that the basin's public drinking water sources are protected from contamination that could affect the health of consumers. For the metropolitan area those source waters include the Potomac River and its tributaries.

The partnership met in October to hold its annual meeting hosted by Loudoun Water (formerly the Loudoun County Sanitation Authority), a member utility that provides state-of-the-art water and wastewater treatment for the suburban Virginia county. The meeting began with a tour of the utility's new Broad Run Water Reclamation Facility, which treats water using innovative technology to an extremely

Our mission is to enhance, protect, and conserve the water and associated land resources of the Potomac River and its tributaries through regional and interstate cooperation.

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high degree of cleanliness.

The group was later briefed on several topics that affect water quality in the region's source waters.

First was a briefing on changes to Virginia's stormwater regulations that are aimed at reducing runoff pollution recognized as a major source of the pollution impacting area streams and the Chesapeake Bay. The proposed regulations would both reduce runoff amounts and provide enhanced treatment of runoff.

The group also learned about Loudoun County's Comprehensive Watershed Management Plan, aimed at providing the county with a sustainable, high-quality water supply for the future.

The keynote speaker at the meeting was Chuck Fox, the U.S. Environmental Protection Agency's senior advisor for Chesapeake Bay issues, who discussed the new federal involvement in the bay cleanup (see May/June 2009 *Reporter*). Fox reviewed the enhanced federal role in the bay region's water quality, including the Obama Administration's executive order, the increased focus of federal natural resources agencies, and the coming Chesapeake Bay TMDL that will produce an enforceable "pollution budget" for the region. Fox noted that federal leadership will bring "a new era of accountability" to the region. Unlike the past decades of efforts, failure to attain cleanup goals will carry consequences, including the loss of federal cleanup funds. Fox noted that an important ongoing effort will be in empowering local governments in cleanup efforts.

Partnership members reviewed their 2009 accomplishments, and set priorities for the coming year, focused on several categories, including agricultural issues, pathogens, emerging contaminants, early warning/emergency spill response, urban issues, and disinfectant by-products.

Agricultural practices in source water areas have a great impact on water quality, and the partnership has sought alliances with the agricultural community to minimize those impacts. Of particular concern is protecting water supplies from *Cryptosporidium*, the most significant pathogen threatening water quality. A tracking program completed in 2008 identified *Cryptosporidium* sources, resulting in an effort to raise awareness in the agricultural community about the link between *Cryptosporidium* and drinking water. In 2009, the partnership studied *Cryptosporidium* reduction strategies, reviewed watershed plans in the region to target education efforts, contacted agricultural groups in the basin, conferred with experts outside the watershed, and developed materials for an educational outreach program. In 2010, the partnership will focus on honing its campaign for



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Partnership members work with emergency response and other agency personnel to hone response to a spill or contamination incident that could threaten drinking water supplies.

distribution in the Maryland agricultural community, and work to expand its reach to other states and agricultural communities.

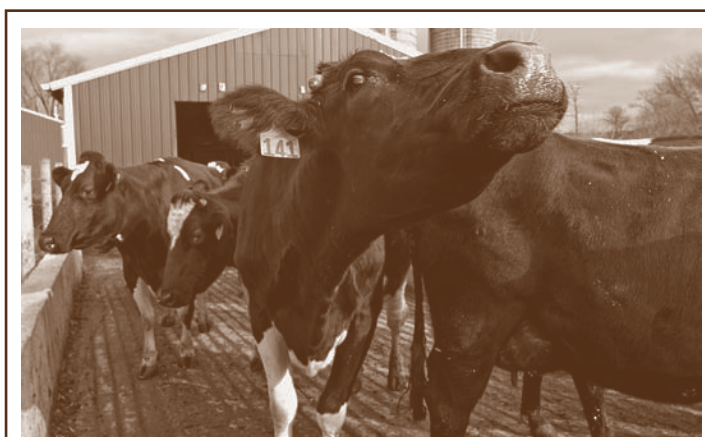
Emerging contaminants, and particularly endocrine disrupting chemicals (EDCs) have gained much notoriety in the media, in part because technology allows traces of these man-made chemicals to be identified in the parts-per-trillion range. A growing number of commonly used substances are being found to impact the endocrine, or hormonal systems of animals and people. These compounds include some herbicides and pesticides, household cleaning solutions, personal care products, and pharmaceuticals. Many of these substances enter waterways from runoff, and traces of some of the chemicals remain after treatment at wastewater and water treatment plants. Research points to EDCs as a possible cause or contributor to the gender-related fish health issues being found in the watershed.

The partnership is pushing for greater research on this poorly understood issue, increasing knowledge about the types of substances of greatest concern, how pervasive they are in the environment, and best management practices that can reduce loadings to waterways. The partnership has worked with federal and local government agencies on projects to promote proper disposal of controlled pharmaceuticals, participated in research programs, tracked information on legislative initiatives, and engaged in a range of projects that address the growing number of emerging contaminants, their potential health effects, the ability to control them at their sources of introduction into waterways, and potential treatment options.

The partnership will continue these activities in 2010, as well as tracking government efforts to shift the burden of proving a given chemical is safe to manufacturers instead of requiring the federal government to determine its safety and whether regulation is required.

Early warning systems can potentially detect contamination before it reaches water

supply intakes, and are an important part of an emergency response protocol to protect water quality. The partnership has worked with federal, state and local emergency response providers to ensure that drinking water systems are given a high priority in the event of spills. After a 2008 regional spill training workshop, the partnership shared information about time of travel models that can predict movement of a spill substance downstream, and organized a workshop to improve emergency spill response, hone cooperative spill notification and response procedures, and ensure that drinking water concerns are considered among the many agencies that may be involved in spill



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The partnership is working with the agricultural community on issues that threaten water quality, such as *Cryptosporidium*, which can be carried by cattle.

response. In the coming year, the partnership is planning spill notification exercises to test communication procedures to identify any weaknesses in the system and to ensure a timely response to a spill.

Urban issues, such as stormwater impacts, wastewater treatment, permitted discharges, and the use of salt and other deicers on roadways can affect sources of drinking water. The partnership had an opinion article on road deicing published in the *Washington Post*, drafted language on spill reporting for inclusion in discharge permits, and held informational meetings

that informed partnership members on the pollution permitting process in the basin states. The group plans to hold a workshop examining water quality standards under the federal Clean Water and Safe Drinking Water acts to identify ways to leverage the two sets of standards for improved source water protection and to identify and standards that water utilities think are missing on both lists. The partnership will continue to look for opportunities to join with area transportation departments in exploring ways to reduce the impacts of road salt and other deicers, and track other urban issues that may impact source water quality.

Disinfectant by-product precursors remain a DWSPP concern. Natural organic material in source water can be transformed into unwanted chemicals during the disinfection process that is critical to providing clean water. These by-products, such as trihalomethanes, are mitigated in the treatment process at water plants, but

more research is needed on how organics reduction can be approached through source water protection. The partnership is pursuing research funding for this relatively unexplored area.

“The partnership is looking to 2010 to build on its accomplishments in protecting the public drinking water sources of the more than five million people in the basin that rely on those systems,” said ICPRB Executive Director Joseph Hoffman. “The region and its residents benefit from this coalition of water providers and managers, who have taken on the extra efforts in ensuring that the region’s drinking water remains safe and pure,” he said.

In seeking improved source water protection for the region’s use, the partnership seeks greater participation by drinking water providers and managers throughout the Potomac basin. To join the partnership, or to become more informed about water protection activities, visit www.potomacdwspp.org

ICPRB CO-OP Potomac Monitoring Continues

Despite rain in various parts of the Potomac basin, it has been quite dry in much of the watershed, with mainstem river flows decreasing rapidly.

The low levels have triggered daily reviews of river flow and drinking water withdrawals for the metropolitan Washington area by ICPRB’s Section for Cooperative Water Supply Operations on the Potomac (CO-OP). The increased monitoring is the first step in a process that ensures adequate drinking water supplies for the metropolitan area even if faced with the worst of droughts.

Through a series of agreements, CO-OP has for decades worked with the region’s water suppliers to ensure that drinking water needs are met under all conditions while protecting and preserving the river’s natural values.

Storms early in the summer gave way to very dry conditions in August and September. Early in September, Potomac mainstem flows at Point of Rocks upstream of Washington fell below the level (2,000 cubic feet per second) that triggers daily monitoring.

If demands for water from the river become high enough and flows low enough, the metropolitan area suppliers would begin to cooperatively manage withdrawals from the Potomac and other off river sources, keeping enough water in the river below intakes to preserve the river’s ecological values. If needed, water would



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CO-OP Operations Director Cherie Schultz visits a river gage near Edwards Ferry used to help manage water supply.

be released from the Jennings Randolph Reservoir on the Potomac’s North Branch to bolster flow of the river.

The probability of the region requiring a reservoir release this year remains quite low. Releases become more likely after long dry periods, coupled with low groundwater levels. (Groundwater provides the base flow of rivers and streams between rain events.) Later in the year, waterways lose less water to demand from trees and plants and from evaporation. Demand for drinking water supplies also declines with decreases in lawn watering.

Lately, demand on the Potomac River for

water supply has been averaging more than 360 million gallons per day (mgd). Flow of the river after the withdrawals was about 1,030 mgd.

The situation was helped by scheduled releases from Jennings Randolph and Savage reservoirs that are unrelated to water supply. The metropolitan area water suppliers have about 13 billion gallons of water stored at Jennings Randolph Reservoir that is dedicated to water supply. This represents a water savings account for the suppliers, which pay for the storage.

Editor's Note: Recent rains in the watershed have boosted river levels back up above the stage that triggers the daily monitoring, which was discontinued.



Watching the River Flow

A strong dry trend continued in the basin in August and September, causing continued low river flows, according to provisional data collected by the U.S. Geological Survey. Provisional data has not been reviewed for accuracy.

The August average flow of the Potomac was about 2.4 billion gallons per day (bgd), about 28.8 percent less than the long-term average of 3.4 bgd. Daily extremes during the month ranged from a high of about 4.26 bgd on August 4, and dropping to a low of about 1.44 bgd on August 20. Water taken from the river for metropolitan water supply averaged about 500 million gallons per day (mgd).

September flow further declined, averaging about 1.4 bgd, or about 60 percent less than the long-term average of about 3.6 bgd. The river's flow ranged from a high of about 2.0 bgd on September 1, decreasing to the month's low of about 1.2 bgd on September 23. Water taken for municipal supply averaged about 400 mgd.

Congressional Support for ICPRB Grows



A broad, bipartisan coalition of 29 members of the U.S. House of Representatives in October signed a letter to President Obama in support of federal funding for ICPRB and its sister Mid-Atlantic river basin commissions.

Funding for ICPRB provided by Congress for decades was eliminated in 1996 as a cost-cutting measure. It was restored in FY 2009, but failed to be included in the 2010 budget (see July/August 2009 *Reporter*). The letter to the President requests that funding for the commissions be placed in the U.S. Army Corps of Engineers budget for 2011 and in subsequent years.

"The strong support expressed for ICPRB and the Susquehanna and Delaware river basin commissions by these members of Congress is truly heartening. They have made a strong statement about why the commissions should be included in the President's budget for 2011," said ICPRB Executive Director Joseph Hoffman.

The coalition includes representatives from Delaware, Maryland, New Jersey, New York, Pennsylvania, Virginia, and West Virginia. Signatories representing the Potomac River basin include Majority Leader Steny Hoyer and Chris Van Hollen of Maryland, Eleanor Holmes Norton of the District of Columbia, Bill Shuster and Todd R. Platts of Pennsylvania, Gerald E. Connolly and Robert J. Wittman of Virginia, and Shelly Moore Capito of West Virginia.

The letter notes that the commissions, each of which include federally appointed commissioners, perform a range of important services that would otherwise fall on the Corps of Engineers or other federal agencies. "Indeed, the Mid-Atlantic river basin commissions have a demonstrated track record of putting programs in place that prevent or avoid problems, rather than dealing with them in crisis mode—a cheaper and more effective use of taxpayer dollars," the letter states.

The three commissions received recent authorization to access federal funding in

the Water Resources Development Act of 2007. “We have worked very hard for more than a decade to have federal funding restored,” Hoffman said. “The federal government, with its large workforce and footprint in the watershed, needs to be a strong partner. Efforts to protect and preserve the water quality and resources of

the Potomac basin are crucial to cleaning up the Chesapeake Bay, to which the federal government has strongly committed itself. We will continue to work with Congress, the President, and our federal commissioners and secure the funding needed to protect and preserve the river,” Hoffman said.

Rain Barrels Dotted the Landscape

Despite the economic downturn, ICPRB sold nearly 400 rain barrels in 2009, a sign that the region’s citizens recognize the value of capturing and using stormwater in their gardens. Since 2006, ICPRB has distributed nearly 1,200 barrels in the Potomac watershed and reached about 1,500 people through rain barrel and watershed-wise garden workshops.

While rain barrels are a simple way to conserve water in the garden, they also provide a way to divert and use stormwater that would otherwise be washed into storm drains, taking sediment, fertilizer, oil, and other pollutants directly to the nearest waterway. A little more than 600 gallons of rainwater will be shed from a 1,000 square-foot roof during a one-inch rain



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ICPRB staff member Jennifer Willoughby teaches about rain barrels and water-wise landscapes at a workshop at the Accokeek Foundation.



storm. Rain Bear rain barrels can capture up to 60 gallons of that.

That is why rain barrels are only part of the picture. Watershed-wise gardens need to be installed in conjunction with the barrel to make any tangible reduction in stormwater runoff. As part of the rain barrel workshops, ICPRB and its partners, Stadler Nursery, the Accokeek Foundation, and Clarke County, Va., offer suggestions for

gardens that will keep that stormwater onsite and allow it to soak into the soil, slowly filtering out toxics and letting plants take up excess nutrients. Since its inception, ICPRB’s rain barrel project has been much more than an effort to encourage conservation. It has been an effort to help citizens make a difference on the individual lot level. These efforts will likely become even more important as greater nutrient reductions become mandated under the coming Chesapeake Bay TMDL (total maximum daily load).

According to the Chesapeake Bay Program’s “Sources of Nitrogen Loads to the Bay,” chemical fertilizer on developed lands accounts for about ten percent of the nitrogen reaching the Bay. According to the Bay Program’s “Sources of Phosphorus Loads to the Bay,” urban and suburban runoff and in-stream sediment account for a staggering 31 percent of the phosphorus reaching the Bay. These two nutrients are vital for plant growth; however, in excess they cause a range of problems starting at the base of the food chain: algae. They can prompt algae blooms and when the algae dies, large “dead zones” are created where fish, crabs, and other critters find it difficult to survive because of low oxygen levels in the water. An inexpensive fix calls for

reducing the size of lawns and other gardens that require fertilizers and allow runoff. Installing gardens that don't need those inputs and that help filter runoff that carries these nutrients to the waterway will help put a dent in the nitrogen and phosphorus load that makes it to the Potomac and Chesapeake Bay.

The ICPRB is taking the project one step farther in 2010, by challenging Potomac watershed residents to install watershed-

wise gardens and register them through the ICPRB website. The ICPRB is interested in knowing what kind of watershed-wise garden you've installed and its size. Garden types and sizes will be tallied and locations recorded on a map. The information will help ICPRB track citizen progress on the individual lot level. Join the ICPRB challenge and register your watershed-wise garden by visiting the website at www.potomacriver.org.

Gaging the Cost of Restored Waters

In Maryland, the treatment of highly acidic waters from abandoned deep mines has been going on for almost two decades, transforming streams such as the North Branch Potomac, its tributaries, and Georges Creek from lifeless streams to productive waters that protect public health and provide recreational opportunities such as trout fishing and canoeing.

These improvements have occurred with the treatment of impaired waters flowing from older abandoned mines not covered by current regulations through the use of lime dosers and passive treatment systems. These systems cost several million dollars to construct, along with several hundred thousand dollars spent annually to operate and maintain them. The Maryland Department of the Environment Bureau of Mines has used primarily Federal Office of Surface Mining and U.S. Environmental Protection Agency funds to construct the systems, and has developed technical and funding partnerships with industry, government agencies, and citizen groups. By law, a portion of the program grant funds received by the Maryland Abandoned Mine Land Program each year is placed in an account for the upkeep of the systems.

As the number of systems to restore damaged stream segments has increased, so has the annual cost of operation and maintenance, putting a strain on the program's finances. Operation and maintenance costs are expected to rise to about \$549,000 in 2010. The program has documented many improvements: miles of streams restored, removal of millions of pounds of acidity, and reduction of hundreds of thousands of pounds of leached minerals and metals that turn streams a sickly orange or yellow color.

Currently, there are no dedicated state funds that will address the growing costs of maintaining the infrastructure that currently keeps the miles of streams clean, noted Connie Loucks, a natural resources planner with the Maryland Department of the Environment's Abandoned Mine Land



Division. If dedicated funding is not found, there is concern that some of these efforts could slide, along with a decline in water quality and a decrease in the environmental health and recreational use of these streams.

A part of the value of the program that has not been quantified adequately, the economic value of restored stream, is being addressed by a study sponsored by the Maryland State Water Quality Advisory Committee and Garrett County Department of Economic Development with a grant from the Appalachian Regional Commission. Additional funds are made available through partnering with the Maryland Department of the Environment, the Maryland Department of Natural Resources, and Trout Unlimited. The study will primarily assess the economic value of the remediated streams in the North Branch Potomac, putting a dollar value on what could be lost if the systems no longer operate.

Improved water quality has restored fishing and recreation in the North Branch Potomac, Loucks noted, citing economic growth from angling, boating, and infrastructure such as hotels, stores, guide services, and other activities that have flourished after stream renovation. "We hope to make a case for dedicated funding for acid mine drainage remediation based on how clean water drives an important part of western Maryland's economy," Loucks said.

The study will be completed in 2010, and used as a tool to inform government agencies and the public about the consequences that could result from a resurgence of untreated acid mine drainage on the North Branch Potomac.

Pennsylvania Water Resources Meeting Set

The ICPRB has for several years assisted Pennsylvania in carrying out its Water Resources Planning Act that will provide the state a platform that will help ensure a sustainable future of water development and protection.

The state and its partners have been implementing the act since it was written in 2002. A major part of the act focuses on identifying Critical Water Planning Areas where existing or future water demands exceed or threaten to exceed the safe yield of the available water resources. These areas will receive special planning attention to help ensure sustainable water supplies.

An upcoming set of meetings will be held to get public input on watersheds nominated for critical area status. For Pennsylvania's portion of the Potomac basin, the Marsh and Rock creeks area around Gettysburg has been nominated, as well as Alloway Creek. The public is invited to learn about the nominations, the reasons behind them, and to provide comments at a public meeting and



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Marsh Creek, a tributary of the Monocacy River, is being considered as a critical planning area.

hearing. The event will take place on November 17, 2009 at the Adams County Agricultural and Natural Resources Center, 670 Old Harrisburg Road, Gettysburg, PA 17325. The public meeting will begin at 2 p.m., with the hearing slated immediately afterward at 3 p.m. For more information, contact Leslie Sarvis of the Department of Environmental Protection Water Planning Office at (717) 772-5634, or email her at lsarvis@state.pa.us.

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Permit No. 800



Potomac Basin

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Published six times a year by the Interstate Commission on the Potomac River Basin, 51 Monroe St., Suite PE-08, Rockville, MD 20850. (301) 984-1908.

(ISSN 1072-8627)

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This publication does not necessarily reflect official Commission policies. Funds for the *Reporter* are provided by the U.S. Environmental Protection Agency and the signatory bodies to ICPRB: District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia.

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51 Monroe St., Suite PE-08
Rockville, MD 20850

Address Service Requested

Printed on recycled paper with soy-based ink

September/October 2009