

REPORTER



C. Dalpra

ICPRB joined the Water Environment Federation and a host of federal, state and local agencies for World Water Monitoring Day at Washington's East Potomac park on September 19. Watershed Coordinator Audra Lew helped local students learn about stream health using living benthic macroinvertebrates. For more on the event, visit the ICPRB website.

The Potomac Basin Beyond 70 Years

During the 2010 recognition of its 70th year of existence, the Interstate Commission on the Potomac River Basin (ICPRB) used its bimonthly newsletter to review actions and endeavors over the period. The discussion in the *Potomac Basin Reporter* highlighted facts and information about the basin history, cleanup efforts and water supply gains made to improve the basin's water resources for its more than six-million residents.

Today the basin and the Commission are challenged to address many factors confronting the region and its quality of life with respect to the water and related land resources of the watershed. At the top of the list is the serious fiscal situation confronting the United States and this region. This situation is raising serious budget concerns for the Commission members and the Commission itself. Despite these concerns,

the region can ill afford to lose ground in providing a safe and adequate drinking water supply now and for the future, or to let the quality of the region's waterways decline, and with it, the quality of life that the region enjoys. These efforts will require the public and political will to fund the management and protection of these natural resources.

The current economic reality is putting environmental restoration, including the Chesapeake Bay cleanup, at risk, as groups ranging from corporate agriculture to local governments complain that there simply isn't the money to even hold the line on degradation of the environment, and as funding for efforts such as ICPRB shrink.

These fiscal problems and the economic circumstances which underlie them, which suggest that again more should be done with less, point to the need for greater

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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Commissioners and their alternates are appointed by the state's governors, the mayor of the District of Columbia, and the President of the United States.

coordination and cooperation in efforts to preserve and protect environmental resources. Working cooperatively together, the jurisdictions can pool resources and save money in addressing the challenges to a healthy watershed that they hold in common, a process in which the Commission can play a vital part (see January/February 2011 *Reporter*).

This issue of the *Reporter* will identify ICPRB's existing and potential role in helping the jurisdictions to protect the watershed and highlight several over-arching programs that could help ensure the region's water resources future. These initiatives will not be easy to fund or complete, but they represent programs and goals to which the region should aspire.

ICPRB and the Potomac Basin

Created with an interstate compact by an Act of Congress in 1940, ICPRB is composed of commissioners representing the federal government, the states of Maryland, Pennsylvania, Virginia, West Virginia, and the District of Columbia. It is a non-regulatory agency of its member jurisdictions with the mission to enhance, protect, and conserve the water and associated land resources of the Potomac River and its tributaries through regional and interstate cooperation.

ICPRB accomplishes its roles and responsibilities and achieves its mission through a variety of actions to conduct, coordinate, and cooperate in studies and programs in the areas of water quality, water supply, living resources, and land resources. It uses exceptional science and technical skills to support its members in trying to improve the Potomac. It does not develop sediment control projects, operate treatment facilities, or construct public works. Also, the ICPRB Section for Cooperative Water Supply Operations on the Potomac River (CO-OP), was created as a technical operations center for management and coordination among the regional water utilities to avoid drinking water shortages in the Metropolitan Washington area during droughts.

Where does the ICPRB obtain its funding?

The ICPRB Compact specifies that the funding for the Commission in the administration of its business "shall be provided through appropriations from the signatory bodies and the United States, in the manner prescribed by the laws of the several signatory bodies and of the United States, and in amounts as follows:

"The pro rata contributions shall be based on such factors as population; the amount of industrial and domestic pollution; and a flat service charge; as shall be determined from time to time by the Commission, subject, however, to the approval, ratification and appropriation of such contribution by the several signatory bodies."

Over the years, the cost to operate the Commission has grown, along with most

everything else in the jurisdictions' budgets. In the 1940s, contributions averaged just a few thousand dollars. Of course, environmental infrastructure during that time consisted only of state health departments (no natural resource or environment

departments), and ICPRB was created as a response to the regional issue of Potomac River pollution. Another huge change since that time is the reliance on the Potomac River for much of the region's drinking water instead of wells. Increased use of the river for

ICPRB Responds to Budget Cuts

The ICPRB recently decided on a range of actions after some Potomac jurisdictions failed to honor their compact obligations to support the agency, and when consideration of the future of some ongoing contracts and programs with government agencies became unclear.

Over time, reductions in support will erode the commission's ability to perform needed water quality work and to develop watershed-based programs that will help the jurisdictions collaborate in creating a sustainable water quality and drinking water supply future for the Potomac basin (see related story).

Immediate steps to address budget shortfalls included reduction of the *Potomac Basin Reporter* to quarterly publication, suspension of foreign newsletter subscriptions, elimination of the ICPRB clipping service that informed ICPRB commissioners and others of basin news, and elimination of the multi-day Potomac River Ramble educational canoe trips. These immediate measures will reduce public outreach, education, and stewardship efforts, and opportunities to advance water resources enhancements in the basin.

Like many other agencies facing budget cutbacks, ICPRB has frozen staff salaries and hiring, restricted staff travel, and implemented other cost-cutting measures. Reduced ICPRB contributions to employees' medical and retirement funds and other cost curtailments are under discussion.

The actions were taken after Virginia announced that it would not pay its dues for at least the next two years. It had been paying its annual dues of \$151,500. The District of Columbia also suspended its annual funding of \$69,000 for the current and coming fiscal year. Additionally, the secretary of the army, acting through the U.S. Army Corps of Engineers, which by law was directed to provide a federal contribution, has not received the funding from Congress to do so. The ICPRB still receives funds under the Clean Water Act through the U.S. Environmental Protection Agency as water quality and Chesapeake Bay Program grants to perform certain projects, but there are indications that these funds could decrease in coming years.

The Virginia Department of Environmental Quality also is proposing that the state withdraw completely from ICPRB. The proposal was sent to a number of Virginia conservation and government groups,

and was later the subject of a *Washington Times* article that generated some letters of support for ICPRB. In response to a query about the Virginia actions, Department of Environmental Quality Director (and ICPRB Virginia Commissioner) David K. Paylor's office responded that because of the "large expense and tight budget times and we are currently evaluating the benefits of membership." Virginia's withdrawal from the 71-year-old agency must be approved by its general assembly.

Although the District of Columbia cut funding for ICPRB, they have described it as a temporary response to budget pressures. A statement issued by the District's Department of the Environment's chief of staff noted that "The District values the ICPRB's service to the Washington Metropolitan Region and we are hoping that we will be able to work toward a favorable outcome. Due to current budgetary constraints, however, we have been forced to take a step back and take on the difficult task of reevaluating our top priorities. This has left us in an unfortunate position where satisfying some very important fees will have to be delayed or postponed."

The ICPRB has provided each of the jurisdictions' commissioners with periodic updates about ICPRB's activities and how they benefit each of the jurisdictions. Those activities are overseen and guided by the commissioners.

While the need to cut expenditures and balance budgets are easily understood, governments should carefully assess what is being cut and what will be lost by those cuts. State expenditures for ICPRB are small, and make an easy target to shave some dollars from budgets. Hopefully, they will balance the funds spent on ICPRB with the returns that membership has brought. "Overall, the states receive more back than they spend because ICPRB uses the jurisdiction's annual contributions to match with grant or project funds from other sources," said ICPRB Executive Director Joseph Hoffman.

The ICPRB staff is assessing how to use its web space and social media sites to provide information to the public more economically, and appreciates any comments or suggestions.

More information about projects that ICPRB has performed within each of the jurisdictions can be found on our website, www.potomacriver.org.

both drinking water and to discharge (mostly) treated wastewater is the result of a basin population that has grown by more than half in just the last 30 years.

For FY 2011, the Commission's budget is \$ 2,896,348.

The member jurisdictions were asked to contribute as follows in FY 2011:

Maryland	\$157,750
Virginia	\$151,500
District of Columbia	\$ 69,000
West Virginia	\$ 55,500
Pennsylvania	\$ 50,500

The balance of the funding is through a variety of grants and contracts secured by the Commission largely to undertake the science-based research and projects requested by the members.

ICPRB Programs and Projects

Pursuant to its mission, ICPRB partners with other groups and agencies to leverage resources toward common goals. Partnerships not only increase the resources available, but also help to ensure stronger programs and results. A prime example of many groups cooperating under a "big tent" is the ICPRB-led American Shad Restoration Project.

American Shad Restoration

A coalition of federal, state, regional and local agencies, nonprofit groups, and commercial watermen, working with ICPRB, developed a program to reopen historic spawning and nursery habitat for native and anadromous fish in the Potomac River in 1995. Migratory fishes, and particularly the shad, had been excluded from a ten-mile area of the Potomac from Little Falls upstream to Great Falls for more than 50 years by the dam at Little Falls. The area, known as Mather Gorge, is prime spawning and nursery habitat for American shad, which had declined greatly in the river due to the blockage, pollution, and overfishing. Shad stocks remained depressed in the Potomac River, despite significant improvements in water quality made over the last several decades and a river harvest moratorium that has been in effect since 1982.

The program has been supported by Virginia, Maryland, and District of Columbia governments. The project also has benefitted from strong public support. Hundreds of volunteers have helped the project, many of them spending very late-night hours during the springtime collections of adult brood shad. The Living Classrooms of the National Capital Region, Schools-in-Schools partnership with the Chesapeake Bay Foundation, with assistance from the Earth Conservation Corps' Living Classrooms, the Anacostia Watershed Society and the Potomac Conservancy, have successfully involved many area schools and hundreds of students, both on the river and raising



C. Dalpra

Students release their hatched shad fry to the Potomac River. Education is an important part of shad restoration.

shad fry in the classroom. The students release the shad back to the Potomac after hatching the fry, and the lessons learned are incorporated into many aspects of the students' curriculae. American shad populations in the Potomac are stronger than in any decades, and the Potomac is the most productive American shad fishery in the Chesapeake Bay system.

Cooperative programs such as the shad project focus on a particular issue and have registered proven results. In many of its other projects and proposals, ICPRB also is focusing efforts on some of the watershed's larger challenges in which success is harder to define and where its benefits may take years to accrue. Yet these efforts are essential to preserving a basin that can meet the many needs and wishes that the residents of the region demand of the river and its tributaries: safe drinking water, productive fisheries, assistance in treating sewage and power generation, and a safe and desirable place to recreate.

Middle Potomac River Assessment

The U.S. Army Corps of Engineers (USACE), The Nature Conservancy (TNC), and the ICPRB are collaborating on a three-year project, the Middle Potomac River Watershed Assessment, to quantify Potomac watershed environmentally sustainable flows--flows that sustain healthy river ecosystems and the goods and services that humans derive from them. The effort will develop information resources and analytical tools to identify and assess human and environmental needs and uses of streamflows in the watershed. This information will support regional basin-wide planning for the sustainable use of available water resources for multiple purposes, including ecosystem protection. While the watershed assessment concentrates on the Middle Potomac River watershed, comprising 175 river miles and home to more than 75 percent of the Potomac basin's residents, it also considers and addresses hydrologic and ecological functions extending upstream into the Potomac's North Branch and downstream to the tidal Potomac.

Additionally, the project will develop a framework of analysis and a summary report to inform a future basin-wide comprehensive plan. In a period of diminished resources caused by the current economic climate, a solid plan can serve as a tool for the development and implementation of programs to better develop, conserve, and manage the region's water resources. This is especially critical in a basin like the Potomac, which has limited water storage capacity and a population that continues to experience growth with its increased demands on its water supply and waste water systems.

CO-OP Water Supply Program

The ICPRB Section for Cooperative Water Supply Operations on the Potomac River (CO-OP) was formed in 1979 and has helped coordinate water supply operations of the three independent water suppliers in the Washington, D.C., area during times of drought. In drought years, the CO-OP Section may request releases from regional reservoirs to ensure that minimum environmental flow requirements and water supply withdrawals can be met. In non-drought years, CO-OP works closely with member utilities to conduct an annual drought exercise to keep operations crisp.

The origin of cooperative water supply management in the Washington, D.C., metropolitan area began in the early 1960s, when projected growth in demand for Potomac water exceeded available supply. In 1963, the U.S. Army Corps of Engineers conducted a comprehensive study of the Potomac River basin to identify solutions to the anticipated shortfall in meeting projected demand. The proposed construction of 16 large multi-purpose reservoirs in the Potomac River basin was strongly resisted by the public and hampered by problems in appropriating the necessary funds. The drought of 1966 provided a wake-up call that river flows would not meet expected demands, which could cause the river to run dry. Increasing population and droughts in the 1970s added to the motivation to develop new resources. Of the 16 dams proposed, only Jennings Randolph Lake (originally called Bloomington) was constructed in 1981.

Other structural solutions considered included interbasin transfers of water, a pilot estuarine treatment plant and an emergency pumping station was constructed. A study of the situation was being conducted at that same time which suggested the combined distribution areas of the three major Washington metropolitan area utilities be treated as a single regional demand center, and investigated the coordinated operation of all the resources then available. The three utilities are the Fairfax County Water Authority, Washington Suburban Sanitary Commission, and the Washington Aqueduct Division of the Army Corps of Engineers. The analysis showed that coordinated management led to gains in reliability of the water resource. The results of the study and its lower cost non-structural features led to the adoption of the concept of coordinated management with the signing of the Water Supply Coordination Agreement in 1982.

The coordinated operation of the resources, extending until today, will allow the utilities to meet demands through the year 2030, even under a repeat of the drought of record. This is possible because of combined system gains in total yield realized under the cooperative management strategies. Thus, each of the three utilities has given up a small measure of autonomy



Watching the River Flow

Dry conditions brought increasingly low river flows in June, July, and August, which led to enhanced monitoring of the river for water supply purposes. Heavy rains in September later boosted river flows to well above normal.

Provisional data from the U.S. Geological Survey (provisional data has not been reviewed for accuracy) measured near Washington, D.C., found June flow of the Potomac averaging about five billion gallons per day (bgd), about 19.8 percent below the long-term June average of 6.2 bgd. Daily extremes during the month ranged from a high of about 11.8 bgd on June 1, decreasing to a low of about 3.04 bgd on June 30. Water taken from the river for metropolitan water supply averaged about 423 million gallons per day (mgd).

A drier July continued the fall of river levels, averaging about 2.4 bgd, or about 31.5 percent less than the long-term average of about 3.5 bgd. The river's flow ranged from a high of about 3.7 bgd on July 14, falling to a low of about 1.5 bgd on July 24. Water taken for metropolitan municipal supply averaged about 452 mgd.

August was drier still, with flow averaging about 1.7 bgd for the month, about 48.1 percent less than the average of about 3.4 bgd. Daily extremes for August ranged from a low of about 1.4 bgd on August 6 to a high of about 2.7 bgd on August 28. Water taken from the river for water supply averaged about 421 mgd.

in order to gain the substantial benefits of reduced capital costs through coordinated cooperative operations of their individually and jointly owned resources. As an independent interjurisdictional organization, ICPRB is particularly well suited to engage in multi-state coordinated cooperative functions.

The management of the cooperative water resource systems' operations is overseen by a committee of the water utilities. The water utilities provide the funding for these activities at ICPRB.

Basin-Wide Comprehensive Water Resources Planning

The planning that has ensured the metropolitan area of a reliable water supply into the future should logically be extended throughout the basin, as many areas continue to grow despite the economic downturn. The ICPRB proposes to develop, in collaboration with existing state authorities, a Potomac Basin comprehensive water resources plan to address this need as well as other issues related to the sustainable management of this interstate water resource. As an interstate organization with significant scientific and collaborative experience throughout the Potomac Basin, ICPRB is ideally situated to spearhead this effort. The ICPRB has been assembling the elements of such a plan, and will bring stakeholders together to obtain their input.

Development of the comprehensive plan will occur in four phases. Scoping of the basin-wide plan, Phase I, is currently underway through the Middle Potomac Watershed Assessment with funding from the U.S. Army Corps of Engineers and The Nature Conservancy. Phase II, pending approval and funding to move forward with basin-wide comprehensive planning, is a detailed identification of water resources issues. Phase III and IV will include the identification of a variety of solutions to for addressing water resources problems and to develop the comprehensive plan document.

While each of the jurisdictions has laws that deal with water resources development and protection, the Potomac River drainage area does not adhere to political boundaries. Management of the water resources across the multi-jurisdictional basin requires bridging jurisdiction differences in statutes, regulations, and priorities among others.

Utilizing the results of previous assessments and concurrent studies by ICPRB and other organizations, the comprehensive plan will make recommendations for actions to address identified problems and meet objectives utilizing a 50-70 year planning horizon. Recommended actions may relate to categories utilized by the U.S. Army Corps of Engineers, including watershed restoration planning for tributaries; hydrological, ecological, and chemical watershed model development; wetland creation,



restoration, and enhancement; hydrologic and floodplain function restoration; stream habitat restoration and channel modification; beneficial use of dredged material; land acquisition; flood protection and management; and water

supply and sustainable watershed management.

Addressing water resources issues related to the sustainable management of the Potomac Basin will include collaborative planning, adaptive management, and integrated water resources management (IWRM). Collaborative planning by the agencies and organizations responsible for water resources will strengthen relationships, improve communications, increase fiscal efficiency, and minimize redundancy. Moreover, collaboration will ensure that key issues regarding the management of this interstate water resource are considered and addressed. Adaptive management techniques will be required to manage water resources now and in the future. As understanding of predicted future land use change, climate change, population change, and related issues is enhanced, management decisions should be assessed and revised appropriately.

The potential benefits of basin-wide sustainable water resources management utilizing an IWRM framework and adaptive management techniques are well-documented. The Global Water Partnership states that "IWRM is a process which promotes the coordinated development and management of water, land, and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems."

A smaller-scale plan for the Rock and Marsh creeks watershed was begun by ICPRB in 2010 as a part of Pennsylvania's state water resources planning process. The expected outcomes of the project are to identify and quantify the current and potential future water resources issues in the watersheds and develop recommendations for addressing the issues, utilizing a participatory process and an interdisciplinary oversight committee of key stakeholders. A comprehensive water resources plan in the Potomac Basin could follow a similar structure.

A water resources assessment in the

Potomac Basin may face several challenges, including issues of scale, regulatory differences across jurisdictions, and availability of funding. Recommendations developed as part of the assessment should focus at the local level, where action and implementation typically occur (e.g. zoning ordinances); however, general basin-wide principles should also be developed for inclusion in state planning efforts. Recommendations should accommodate applicable federal, state, and local regulations. Collaborating with partners across the basin to meet common, interstate objectives towards the sustainable management of the basin's water resources will be a key aspect of success. Moreover, the proposed comprehensive water resources planning effort will utilize a participatory process to engage stakeholders throughout the basin. Encouraging stakeholder participation will facilitate the identification of water resources problems and the development of practical, implementable solutions. Working together will enhance the cost-effectiveness of the effort.

Although not unique to this project, the availability of funding will also be a challenge. Prior to establishment of an advisory committee and a clearly defined set of project goals, the project budget is difficult to estimate. Grants may be available to aid in the development and implementation of a comprehensive plan. However, contributions from entities within the Potomac Basin would facilitate the plan's timely completion.

A Potential Source of Funding

There are many pollution prevention and stream/river restoration initiatives in the Potomac watershed that await implementation because of funding limitations and competing priorities and commitments for that funding. These include, but are not limited to, urban and rural stream-bank stabilization and restoration, water conservation and wise water use projects for property owners, low-impact development projects, and conservation easements/buffers to preserve valuable ecological functions and improve public access for fishing, hunting, boating, birdwatching, trails for hiking and bicycling, and other natural resource recreational activities.

These remedial actions are important components of an integrated, comprehensive water resources planning program for the Potomac River watershed. All of these activities, and more, are needed to combat the impacts of growth and development in some of the most rapidly growing counties in the country. The need for multi-jurisdictional integrated water-use planning/conservation and restoration has never been more important to these initiatives, which are needed in order to reverse the increasing negative impacts on the quality of life for

citizens and visitors to our "Nation's River" - The Potomac River.

In many high-growth areas, increasing pollution loads are accompanied by concerns about the availability and quality of drinking water. For example, current average annual water use from the Potomac River by the three major Washington Metropolitan Area water suppliers alone is approximately 500 million gallons/day, or 183 billion gallons/year (BGY). Industrial withdrawals, another major water use in the basin, are even greater. A preliminary conservative estimate of all major water withdrawals in the Potomac River basin is 1,365 BGY. Connected with these water withdrawals are associated impacts and concerns, including consumptive use (water taken from the river and not returned after use, such as evaporative loss from power plant cooling), thermal loading, stream channel degradation, localized flooding caused by streams not being able to adequately handle and discharge flows, storm water management issues, waste water and sewage from development, and storm sewer and combined sewer discharges of contaminated water into the river and its tributaries. These all represent economic as well as serious environmental pollution impacts.

Because of these impacts, major water withdrawals in the basin can be used as a basis for developing the funding to pay for needed restoration efforts through a pilot or demonstration program. A "user fee" on major Potomac water withdrawals would be directly related not just to the growth in population, but to the even greater growth of impervious surfaces that contribute to increased runoff, streambank erosion, changes in stream hydrology, and infiltration/inflow that require remedial corrective action. For purposes of estimating revenues and assessing fees, only users above 500,000 gallons per day would be subject to the proposed fee due to the administrative burden of collecting small fees. Preliminary calculations show that a fee of only \$0.003 per 1,000 gallons (three tenths of a cent per 1000 gallons) of water withdrawn from the Potomac River, its tributaries, and its ground water resources, could annually generate over \$4 million in restoration funds.

Additional funding created by a water withdrawal fee, as proposed above, or other funding sources would allow ICPRB to intensify its restoration activities in the watershed. The ICPRB is well-positioned to take the lead with enhanced restoration initiatives. Though the ICPRB receives some funding from its member jurisdictions as well as federal and state grants and contracts, these funds only allow the agency to make small in-roads into the total pollution and restoration activity required in the basin.

The ICPRB has unique qualities and skills to lead in these restoration efforts. As a regional agency created by the Potomac

jurisdictions and the federal government, the agency serves as a platform from which these entities can communicate with each other to identify common issues and cooperative solutions. The ICPRB's small but diverse staff of professionals includes experts in hydrology, biology, engineering, and public education/outreach, and has solid experience in bringing together citizens, government, and other stakeholders

together to find solutions that are widely supported. The ICPRB's strong science and research background allows it to be viewed as an "honest broker" to help achieve environmental successes. With more than 70 years of experience in the watershed, ICPRB has strong relationships with most of the state and federal agencies operating in the watershed, as well as with many private and watershed-based groups.

Storms Swell Potomac

Drenchings from Hurricane Irene and Tropical Storm Lee brought summertime drought concerns to an end in the Potomac River basin. While the Potomac River swelled from both storms, major flooding was avoided, although potential damage to the river's ecology will take some time to determine.

The rains produced by Tropical Storm Lee dropped rain across the watershed, but the highest amounts fell in the river's tidal area. Just a few inches of rain came to places west of the Blue Ridge. By contrast, Colonial Beach, Va., registered about 20 inches of rain over the multi-day storm, with 12 inches coming in just one day.

The storms turned the tidal river an awful shade of mocha in some areas, a reminder of the impacts of stormwater on our waterways. Stormwater carries nutrients and debris from farms and cities into the river, along with, in some cases, millions of gallons of sewage overflow.

The stew of contaminants can affect submerged vegetation, oysters, and other river life. The nutrients in the storm flows can contribute to algae blooms and dead zones in the river, although the effects of this early fall storm will mostly impact next spring's conditions.

Scientists from federal and state agencies are working together to assess the likely damage from the storms.



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