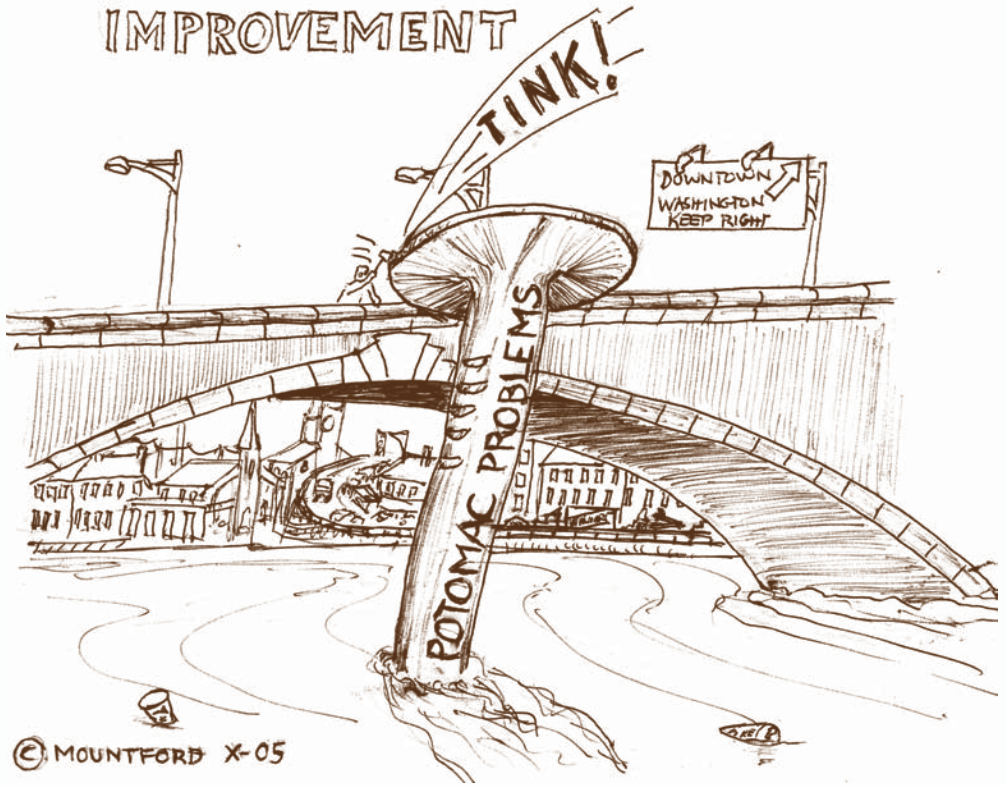


REPORTER

WASHINGTON POST OCTOBER 31, 2005



ICPRB CONFERENCE HITS NAIL ON HEAD FOR RIVER IMPROVEMENT



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In addition to his science expertise, conference presenter Kent Mountford is also an artist, and drew this cartoon while listening to the remarks of Reds Wolman, who noted that researchers predicting problems in the 1970s had “Hit the nail on the head, except the nail is much larger [than they originally thought].”

ICPRB Biology Symposium

Leading Academia Gives Potomac a Passing Grade—With Some Reservations

A veritable “Who’s Who” of Potomac River researchers during the last 30 years convened in October to assess progress and provide guidance on a direction for the future of the Potomac watershed. Each of the presenters at the ICPRB conference, “Human Influences on the Biology of the Potomac River,” gave the basin a letter grade for different aspects of the river, based on their expertise. The conference audience also participated in grading the

watershed, which overall scored a qualified “C+.”

The conference, based on two biological conferences held by ICPRB in the mid-1970s, featured many of the same researchers, who brought their expertise, credibility, and subsequent research back to help reassess the river’s biological condition and establish a new course for the river’s health. “The symposium, based on the earlier meetings, builds on the

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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Potomac's living resources legacy, and will provide greater direction to the continuing effort to protect and preserve the region's heritage and quality of life through its greatest natural asset, the river," said ICPRB Executive Director Joseph Hoffman.

M. Gordon "Reds" Wolman, a professor of geography and international affairs, Johns Hopkins University, and one of a number of participants who contributed to the 1970s seminars, opened with an overview of the river's recent past, and discussed the predictable and unpredictable futures.

A veteran of the Potomac's struggles, Wolman (who has published articles about river issues since the 1950s) noted that a success of the recent past has been that the river, particularly in the metropolitan area, has improved greatly, despite the 40 percent population growth that has caused great stress. Wolman alluded to the "Red Queen" character from "Through the Looking Glass," who noted that we must run faster and faster just to stay in the same place.

In his optimistic way, Wolman spoke hopefully of the predictable future, noting that assessments of the river's current biology provides the basis for management in the future. He noted that some of the major tools needed to continue the Potomac's restoration exist in the form of total maximum daily load plans (TMDL), which are taking the place of ambient water quality standards, and best management practices to mitigate non-point source or runoff pollution in both urban and agricultural areas. These tools are more complex, Wolman noted, because restoring the rivers is about "more than just wastewater treatment plants." Our commitment to using these tools, and how they are used will help to determine if we reach restoration goals in the face of increasing population and development pressure.

Looking back on the results of the 1970s symposia, Wolman praised the group for the foresight shown in using biology as the best judge of a river's health, in moving the focus of pollution prevention to nonpoint source issues, and in citing urban/suburban expansion as the major challenge. "They were right then," Wolman said. "They hit the nail on the head, except the nail is much larger [than originally thought]," Wolman said.

Reaching out to discuss the "unpredictable future," Wolman noted that his biggest concern is our (society's) behavior. Our behavior determines the scale of urban development, our attitude about natural resources and how they are treated. We should expect that our unpredictable future will include challenges such as increased frequency of flooding and pollution that comes with a growing



C. Dalpra

M. Gordon "Reds" Wolman, like his father, Abel has been working on Potomac issues for many decades, and has served as a mentor to following generations of researchers.

population and development, the introduction of foreign species such as the snakehead and zebra mussel, and increasing demand on our finite water resources.

In addressing these issues, one thing that seems to be lacking from the toolkit used in the 1970s is enthusiasm, Wolman noted. Today, the environmental movement wonders if the current approach will carry us forward, he said. Although environmental education in schools is at a much higher level than 30 years ago, it is unclear whether that momentum will result in cleaner rivers. Wolman sees today's kids as the most effective way to teach the environment to older generations as well as those that follow. Wolman wondered if the students benefitting from environmental education today will be paying as much attention after they are 20 years old.

Overall, Wolman thought that we had in many ways done well by the river, especially in the face of rapidly expanding population growth and land development. "We do have bragging rights in some areas," he said. Wolman gave a grade of B to the river's health, mostly in acknowledgment of the Red Queen as we have managed to hold our place by running fast. He added that he has always been considered an easy grader.

Wolman was followed by a long list of authorities, including Kent Mountford, historian, ecologist, and retired chief scientist of the Chesapeake Bay Program; Don Kelso, who has studied the river for more than 20 years as a professor at George Mason University; Kirby Carpenter, executive secretary of the Potomac River Fisheries Commission; George Harmon, who has held numerous positions in the Maryland Department of Natural Resources; Joe Fletcher, an avid angler who ran Fletcher's Boat House on the river; Albert

Todd of the U.S. Forest Service; Neil Gillies of the Cacapon Institute; and representatives of several citizens watershed organizations and other agencies. In addition to reviewing the basin's ongoing challenges, several presenters covered newer issues, including the newly discovered intersex fishes (male bass with eggs), the impacts of exotic species like the rapidly multiplying snakehead fish and Japanese stiltweed, a plant that is damaging the forest under story, and recent fish kills in two major tributaries, the Shenandoah and the South Branch.

As each successive presenter, serving as a "professor" covered an aspect of the river's biological health, they produced a letter grade for the river, and were joined by symposium attendees, who also gave a grade. Overall, the river received a "C+" after the two days of presentations, with many admonishments that despite a passing grade, parent-teacher conferences stressing commitment and action are needed if the river is to progress further.

Special guest speaker Lynn Scarlett, deputy secretary, U.S. Department of the Interior, addressed the group after lunch on the first day. Scarlett lent encouragement to the group, noting that "The tale of the Potomac is one of reconciliation with nature." The Potomac, a haven of history and recreation, is a place touched by its residents. Scarlett noted that ideas about conservation are changing in the face of urbanization and that the challenges of conservation have brought a more-holistic attitude, from separate issues to "landscape" issues. She noted that effective conservation is a "choreography of cooperation between government agencies and stakeholders."

The symposium organizer, ICPRB Director of Living Resources Jim Cummins, noted the value of bringing these scientists and experts back together to provide far-reaching perspectives. "It is sad that many of those who had gathered in the 1970s are no longer with us or were unavailable because of health concerns. Our environmental memories tend to be short-term; the past is too easily forgotten," Cummins said.

Many presenters noted the challenge in passing along an improved river to future generations, given the tremendous pressures of the region's growth. Top priorities listed by the presenters included better understanding of hormone-mimicking chemicals in the environment, forest health and regeneration, increasing personal and local stewardship of the river's land and water resources, and sufficient political, societal, and financial support. Responses were hauntingly similar to the issues of the 1970s. As one attendee noted, "We know what's wrong, and we know how to fix it. We just don't have the resolve."

The ICPRB wishes to thank all the presenters who lent their time and expertise to these issues, and to the Eastman Kodak

Company, The Conservation Fund, Arlington County, Va., and the National Rural Electric Cooperative Association Conference Center, who provided support and resources for the conference.

Presentations from the conference, the report card, and materials from the earlier 1970s symposia are all available on ICPRB's website, www.potomacriver.org.

“C+” Grade for Potomac the Result of Many Expert Opinions

The ICPRB's conference on “Human Influences on the Biology of the Potomac River” resulted in a collective grade of C+. While the grade is not meant to be conclusive, it is an important statement about the status of the Potomac and efforts at restoration.

The overall grade reflected the professional opinions of the basin's most-noted researchers, who each delivered a grade related to their presentation and put together as a report card. Conference attendees added their voices in grading the river overall.

The following paragraphs provide an annotated version of the “University of the Potomac Basin Report Card” developed from the conference.

1.) Potomac: Past and Prospect. M. Gordon “Reds” Wolman, Johns Hopkins University—B

Wolman's presentation is discussed in the related article.

2.) Potomac Prologue: A look in the past for lessons in environmental quality. Kent Mountford, Cove Corp.; former EPA Chesapeake Bay Program Scientist—D

Mountford took the audience on a fascinating jaunt through the Potomac's past, noting the many changes that have occurred, many not for the good. Mountford sees human selfishness continuing, and seems hopeful but not optimistic about the Potomac's future.

3.) Zooplankton of the lower Potomac River, then and now. Marcia Olson, Morgan State University Estuarine Research Center (retired)—C+

Populations of this important class of Potomac residents has changed over time, with some more-extreme population swings seen in the last decade. Estuaries, where salt and freshwater environments collide, always experience changing diversity and numbers of organisms, but some overall fluctuations in certain species are troubling. Increasing jellyfish populations (which influence plankton populations) and their presence earlier in the season are an example.

4.) Twenty years of changes in the middle tidal freshwater Potomac River. Don Kelso, George Mason University—B

Despite the impacts of population growth and development, this section of the river has seen improvements in dissolved oxygen, increased aquatic vegetation, and decreased frequency of algal blooms. The one constant is change, as over time some populations of fish increase while others decrease. Pressure on the river remains a real threat, Kelso noted.

5.) Tidal fisheries of the Potomac River. A.C. Carpenter, Executive Secretary, Potomac River Fisheries Commission—C+

Carpenter gave a series of grades to specific fisheries, culminating in an overall grade. The oyster fishery is a remnant of what it was, the crab fishery has seen increasing fishing pressure, striped bass and shad are greatly improved, and menhaden and eel fisheries are stable.

6.) Shenandoah River studies—has anything improved in 30-plus years? John Kauffman and Steve Reeser, Virginia Department of Game and Inland Fisheries—D

Skyrocketing poultry production has put stress on the Shenandoah. Fish kills in the river over the last couple of years have raised many questions among residents and researchers. These fish kills have removed about 80 percent of the adult smallmouth bass population from both the North and South forks of the river, and could take five to ten years to restore. The kills have sparked efforts to learn more about the river's problems.

7.) Biological water monitoring perspectives. George Harman, Maryland Department of the Environment—B

Technology has led to dramatic changes in monitoring over the decades, from a time when researchers were inventing their own measurement devices in their offices to today, when water quality stations send results via satellite link to computers. Many new tools have allowed for greater understanding of many environmental problems, and there is a much greater emphasis on biological parameters.

8.) Aquatic toxicology methodology. Ronald Preston, Canaan Valley Institute—B-

Increased testing for toxic substances through the 1980s resulted in a reduction of toxic discharges from major municipal and industrial discharges. That success, along with state budget constraints, has recently led to elimination of some testing labs run by the basin states. Many smaller dischargers not affected by the earlier program have toxicity issues as well. Further, nonpoint source pollution has been linked to degraded biological conditions in streams. Addressing these problems in the future will take a great commitment of

resources.

9.) The North Branch: Perils, progress, and projections. Raymond Morgan, University of Maryland Center for Environmental Studies Appalachian Laboratory–B-

The North Branch's legacy of coal mining remains, although greatly reduced. Issues with acid mine drainage will continue, land development is likely to grow as an issue, and its ample forest land will be increasingly attractive to the timber industry. In general, water quality continues to improve.



Watching the River Flow

October marked the wettest month on record with 9.41 inches of rain—more than seven inches fell in a two-day period, according to the National Weather Service. November followed with about two inches of rain, about one inch lower than average, reducing Potomac river flows significantly.

Provisional data collected near Washington, D.C., by the U.S. Geological Survey reflected the torrent with flows averaging 3.6 billion gallons per day (bgd), 77 percent more than the normal two bgd. Daily extremes ranged from 1.1 bgd on October 6 to 10.8 bgd on October 8, the 48-hour period of heaviest rainfall. Water withdrawn for drinking use averaged about 400 million gallons per day (mgd), about the same as October 2004. Freshwater inflow to the Chesapeake Bay averaged about 37.3 bgd, about 34 percent above the historical average. The Potomac contributed about 13 percent of the total.

November flows averaged 2.9 bgd, about 45 percent below the normal flow of 5.3 bgd. Flows ranged from 1.4 bgd on November 1 to 8.8 bgd on November 30. Water withdrawn for drinking use averaged about 373 mgd, about the same as November 2004. Freshwater inflow to the Chesapeake Bay was about 38 bgd, about three percent below the historical average. The Potomac contributed 11 percent of the total.

10.) Fifty years of fishing on the river. Joe Fletcher–C

Fletcher, whose family has run the iconic Fletcher's Boat House on the metropolitan river for generations, has seen the river's fish population decline over time, noting smaller sizes and fish with lesions.

11.) Power Plants and the Potomac River: Impetus for study and changing perspectives. Bill Richkus, VERSAR, Inc.–B+

Maryland's Power Plant Siting Program, along with related efforts, have added much to knowledge of the watershed. Atlases, fisheries research and restoration, flow studies and other research, conducted to better plan for and place power generation facilities, have added greatly to the Potomac basin knowledge base.

12.) Aquatic communities—Rising to tell how healthy their home is, and ultimately, our own. Jim Cummins, ICPRB–C-

While being a true success story for the last few decades, the river's aquatic communities are again showing signs of stress. We have a more accurate picture from increased biological monitoring of streams. There is room for improvement, particularly in the estuary. State, federal, and local agencies and groups should work more closely together to meet restoration goals.

13.) Submersed aquatic vegetation in the Potomac River. Nancy Rybicki, U.S. Geological Survey–B-

The river's critical aquatic plant communities have improved greatly since the 1970s, but healthy plant communities envisioned under restoration are still a goal. Generally, the level of plant communities sought are limited by poor water clarity, which keeps sunlight from penetrating deep enough into the water to support photosynthesis. Overall, the trend is improving slowly.

14.) Biological effects of endocrine-disrupting chemicals on fishes. Vicki Blazer and Luke Iwanowicz, U.S. Geological Survey–C

The discovery of male smallmouth bass containing eggs has focused fisheries research on the many hormone-mimicking chemicals that enter streams from treatment plants and runoff. A wide range of chemicals, including pesticides, PCBs, pharmaceuticals, hormones, and anti-microbial compounds enter waterways in runoff, or are not completely removed by treatment. A combination of these substances, found in minute amounts, could be affecting fish populations in various ways. Many questions remain as to the amounts, fate, and effects of these substances. New research is being conducted in the watershed and nationally.

15.) Forests of the Potomac watershed: Preliminary findings, State of the Chesapeake Forest Project. Albert Todd, U.S. Department of Agriculture, Forest

Service—C+

Watershed health depends on healthy forests, which filter runoff, decrease sedimentation and use nutrients. The watershed currently is about 58 percent forested, but trends point to decreasing acreage. The majority of forest in the basin is privately owned, so programs aimed at aiding owners in conservation are very important. Invasive species and deer overpopulation add great stress.

16.) Engaging the community in watershed protection. Elenor Hodges, Arlingtonians for a Clean Environment—C-

Arlingtonians for a Clean Environment is engaged in a variety of citizen-lead projects, including stream monitoring, gardening efforts, school outreach, and other programs. The groups's projects are environmental, with their efforts focused on engaging and channeling efforts of citizens. The work is personal, and often one-on-one, necessary for a grassroots organization.

17.) Revisiting the Cacapon River baseline. W. Neil Gillies, Cacapon Institute—C-

The Cacapon watershed in West Virginia is one of the most beautiful and pristine in the Potomac watershed. It has benefitted from the presence of the nonprofit Cacapon Institute, which performed a baseline study of the river to provide a method for assessing river health over time. The watershed is still in good shape, but showing definite signs of stress from development and agriculture, and those influences are increasing.

18.) Sideling Hill Creek: Can we hold on to forested watershed? Donnelle Keech, The Nature Conservancy—B+

Much like the Cacapon, the Sideling Hill Creek watershed holds beautiful streams and rare plant and animal species. Both Maryland and Pennsylvania governments hold the watershed in high regard, but it is under increasing development pressure. Sediment pollution, nutrients, and agricultural impacts are growing.

19.) The Monocacy River: The challenges of continuous change. M. Drew Ferrier, Hood College—C-

Much public and private effort toward the river has kept it from heavily deteriorating in the face of very large population increases and reliance on it as a drinking water supply. This interstate watershed, which includes the towns of Frederick, Md., and Gettysburg, Pa., is affected by nutrients, sediments, and increasing wastewater treatment loads. The watershed contains several active groups and programs trying to improve and protect the river.

20.) Anacostia River's urban impacts. Jim Connolly, Anacostia Watershed Society—D

As one of the foremost citizen groups in the watershed, the society has been

involved in a wide range of activities, organizing trash cleanups, monitoring, outreach to schools, and many other activities. The group also has worked with government and industries and have done much to forward the Anacostia's visibility among the public and decision-makers. The issues of urban rivers—nonpoint pollution, litter, bacterial and toxic pollution—require strong citizen support for their solution.

George's Creek: A Bump in the Long Road to Recovery

Twenty-five years ago, no one would go near the North Branch Potomac River or many of its tributaries. Acid mine drainage and direct sewage discharge pipes plagued the small waterways and made them uninhabitable by wildlife and unusable for recreation. Today, many are high-quality trout runs and whitewater paddling venues. Ribbioned with small streams, hardwood forests, and rural towns, the area is prime habitat for game and fish.

One of the most prominent streams in the area is George's Creek, a small tributary that runs through the towns of Lonaconing, Barton, and Westernport, Md. The creek's stocked rainbow and brown trout attract local fisherman and its scenery attracts birdwatchers, hikers, and whitewater enthusiasts. That changed in August after the abandoned McDonald mine began seeping highly acidic drainage into a small tributary of George's Creek. The drainage was not unusual, but it's orange, soupy consistency was. The Maryland Department of Environment (MDE) reports on a fact sheet created in response to the change in drainage, *McDonald Mine: Acid Mine Drainage Impacts*, that "the mine discharges the worst acid mine drainage in Maryland, which is the most significant pollutant in the lower portion of George's Creek."

The area historically is linked to coal and is stippled with abandoned mines, which typically generate some acid mine drainage that can be controlled with lime or other treatments. Lime dosers in the George's Creek watershed help neutralize acid mine drainage seeping from abandoned coal mines in the area. In the 1990s, ICPRB and other groups were instrumental in getting several lime dosers placed in the North Branch watershed. Since then, others have been added.

Since 2001, a doser has been successfully neutralizing drainage that flows from the abandoned McDonald Mine

into an unnamed tributary of George's Creek. In August, the mine began seeping highly acidic drainage that overpowered the doser's ability to buffer the water. With increased acidity, the water entering the tributary of Georges Creek and eventually into the North Branch has killed the fish population and macroinvertebrates living in the lower four miles of George's Creek. Without a more-powerful lime dosing system and with river flows at their lowest in decades, the creek is unable to dilute the increased acidity.

Though the pH of the drainage did not change much, the acidity has increased ten-fold and colored the water orange. Acidity is a measure of the amounts of metals in the seep water, noted Joe Mills of Maryland Bureau of Mines (BOM). The metals in the coal seam are exposed by deep shaft mining, a process used at the turn of the century, and usually slowly leach out over time. A private firm with expertise in mining has been hired to determine possible causes and solutions for the McDonald drainage issue.

Initially, active surface mine operations nearby were blamed for the change in the abandoned mine drainage. Mills explained that mine blasting occurs in the area almost daily and the change in acid mine drainage from the McDonald mine was probably not a result of the nearby blasts. "The closest active mine is over 1/4 of a mile from the McDonald mine and over 400 feet above the mine workings," said Mills. He further noted that it is difficult to determine exactly what happened in the McDonald Mine that caused the seep's change in chemistry, although he suspects that subsidence within the mine caused the problem. "The BOM is doing everything possible to determine its cause and a remedy for the problem," said Mills. The Maryland BOM has called on several groups for assistance, including the George's Creek Watershed Association, a group they have worked with since its inception.

For about 10 years, George's Creek Watershed Association (GCWA) volunteers have worked with the BOM, the Nemaquin Chapter of Trout Unlimited, Canaan Valley Institute, and other organizations and government agencies to protect the watershed in many ways. The GCWA volunteers monitor the watershed's waterways once per month, install raingardens, develop fishing areas with handicap accessibility, clean up trash, plant trees with school children on strip mines, gain funding for restoring stream channels and bank stabilization, and many other targeted watershed endeavors. One GCWA site on Neff Run is used by graduate and biology students from the Appalachian Environmental Laboratory of the University of Maryland. Local schools also use the area as an outdoor classroom for learning

stream ecology.

Though much of their work is dedicated to restoring the creeks and engaging youth, GCWA members hope to encourage more fishermen and whitewater enthusiasts to visit the area. The tourist dollars would bring money into the local economy and instill a sense of pride in the local waterways. George's Creek is a class III whitewater creek, full of challenging rapids and beautiful scenery. The last four miles of George's Creek is a vital trout fishery and attracts fishermen from across the state.

Many locals used the waterway for recreation and the soupy water has kept them away from George's Creek and downstream waterways. "The anglers have abandoned the thought of fishing in the devastated portion of the creek in the near future. Travelers using Route 36 have been totally appalled by the change in appearance of the stream," said George's Creek Watershed Association (GCWA) President Bob Miller.

Despite the interest from locals in the fish and wildlife of the area, only a small percentage of the local population participates in restoration activities. Miller suspects that many young people who would be active in the community have left the area to seek higher education and work. At the height of the coal boom, the population of the area was around 8,000 people, but now numbers about 2,000.

Along with the changing population, the watershed has also dramatically changed in the past quarter century. Miller noted that much of the land has been surface mined so now grass and second-growth timber have increased. Health officials estimated that as much as 75 percent of the area's human waste went directly into the creek. Bill Richmond, an active GCWA member also noted that raw sewage was being directly discharged into George's Creek 25 years ago, but "beginning around 1980, this practice was eliminated with the building of the George's Creek sanitary sewer system."

The George's Creek Wastewater Treatment Plant will be upgraded beginning in 2006-2007 and will take about 18 months to complete. Much of the project will be funded by MDE grants, from the Bay Restoration Fund, and the upgrades will likely include Biological Nutrient Removal and Enhanced Nutrient Removal. Both will help reduce nutrient loads from the wastewater before flowing into George's Creek, the Potomac River, and eventually the Chesapeake Bay.

George's Creek and its tributaries are still on the road to recovery and will likely move past this latest bump in the road with the help of dedicated agencies and citizen organizations. For more information about the GCWA, contact Kelly Martin at (301) 463-2305 or via email at kjmartin@allconet.org.

Virginia Appoints New Slate of Commissioners

Virginia Governor Mark Warner has appointed Commissioners to represent the commonwealth's interests before the Interstate Commission on the Potomac River Basin. The new appointments run until February 28, 2009.

Robert G. Burnley, the Director of the Virginia Department of Environmental Quality (DEQ), was reappointed. Burnley has served in other positions with DEQ, including Director of the Water Division, Director of Program Support and Evaluation, and Director of Technical Services and Information Systems Divisions. Burnley is a member of the Virginia Economic Developers Association, Water Environment Federation, Virginia Water Environment Association, and the Air and Waste Management Association.

Scott W. Kudlas, the Director of the Office of Water Supply Planning at DEQ, will serve as Burnley's alternate commissioner. He previously attended ICPRB meetings as Burnley's representative. Kudlas was an environmental planning professional before working for the DEQ. In addition, he has experience working with Virginia governmental agencies and with the Virginia General Assembly, primarily on environmental, economic development, local government, and other issues.

John D. Markley, Jr., a General Partner at Columbia Capital Equity Partners, has been appointed to succeed Gloria Taylor Fisher. Markley specializes in communications

and information technology and has served at the Federal Communications Commission.

Andrew H. Macdonald, Alexandria City Council member and owner of Patowmack River Studio in Alexandria, Va., was reappointed as an alternate commissioner for Markley. Macdonald has worked with the commission in setting up its recent biology conference, and has been active in the Potomac Trash-Free effort.

Delegate Joe T. May, Founder and CEO of Electronic Instrumentation and Technology, an electronic engineering and manufacturing firm, was appointed to succeed Delegate Robert Marshall. May serves as chairman of the Virginia House of Delegates Science and Technology Committee, and is a member of the House Appropriations Committee, where he chairs the Appropriations sub-committee on Transportation and is the vice-chairman of the House Transportation Committee.

"Together, the Virginia delegation brings a set of interests, expertise, and vision to the commission," ICPRB Executive Director Joseph Hoffman said. "We look forward to their fresh perspective, and the new energy they can bring to ICPRB."



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