

# REPORTER



J. Dotson

A Potomac River Swim for the Environment swimmer heads toward Maryland with a long way to go. The annual 7.5-mile distance swim across the Potomac near its mouth raises environmental awareness and funds for several river groups. See story inside.

## Upper Potomac River Fisheries Healthy, But Threats Persist

A greater understanding of the status of the free-flowing Potomac River's fisheries was gained by ICPRB commissioners and staff attending the commission's quarterly business meeting in June, hosted by the C&O Canal National Historic Park at its Hagerstown, Md., headquarters.

Challenges to the health of the up-river fisheries also were discussed, particularly the discovery of smallmouth bass with traits of both sexes found both in the South Branch and mainstem Potomac.

Ed Enamait, a biologist with the Maryland Department of Natural Resources (DNR), provided an overview of the river's fish populations. Smallmouth bass are what most anglers in the free-

flowing Potomac pursue, and Enamait began by describing the Potomac population's condition. The reproductive success of smallmouth bass can vary greatly from year to year, based on weather and other river conditions. He expects that anglers will find more and larger fish this season, after the high flows and poor water clarity of the last two years limited angler's success. Reproduction in the Potomac is generally good, and the population is stable.

Angling for walleye is a growing attraction on the Potomac. Enamait noted that DNR stocked the Potomac from 1979-2000, and the river now holds a sustaining population. Walleye can be found throughout the free-flowing Potomac, and is prized for its fight

***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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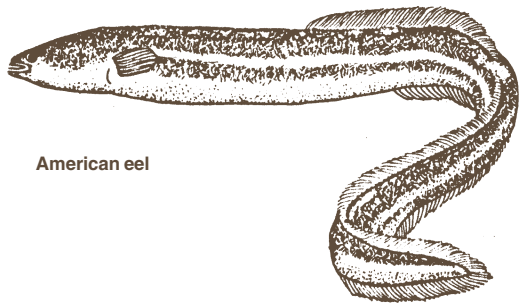
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and flavor. The river around C&O Canal Dam 4 is a popular springtime walleye spot. Enamait noted that the 2004 spawning season was very successful, and those fish should reach the 15-inch minimum size in three years. Enamait added that a healthy population of walleye is sustained by preying on several species of suckers, a very common river fish.

The river also holds a tremendous population of catfish, the most common of which is the channel cat. The species was introduced to the Potomac more than 100 years ago, and is a popular fish to catch. Although they are common, the introduction of channel cats hasn't seemed to alter the makeup of other Potomac fisheries, and the spring spawn provides fry that serve as food for smallmouth bass and other species. A much larger member of the family, the blue catfish, is a relatively recent resident of the Potomac. The fish can grow to more than 100 pounds, and is an



**American eel**

opportunistic feeder. The population in the free-flowing Potomac remains small, and Enamait has never seen one. He noted that catch reports of 30 to 40 pound catfish are likely blues, which are increasingly common in parts of the tidal river.

Another very common fish through much of the river is another introduced species, the carp. Enamait would like to see better marketing of catfish and carp, noting that increased angling for the fish would help to keep populations better balanced in the river.

Enamait also touched on a river denizen that is becoming less common—the American eel. Eels are fished commercially in the tidal river, but the fish also spend several years upstream in the free-flowing river to grow after being spawned in the Atlantic Ocean. Eels are known to even leave the water for short periods to navigate around river obstructions such as Great Falls. Much remains unknown about eels' lives and habits, clouding the reasons for its decline. Increased research is being preformed to learn more about the eel and its decline, Enamait noted.

The upper river's fisheries are generally healthy and robust. Their health remains good in the face of increasing pressure, Enamait noted. Changes in land use and population with associated stresses from

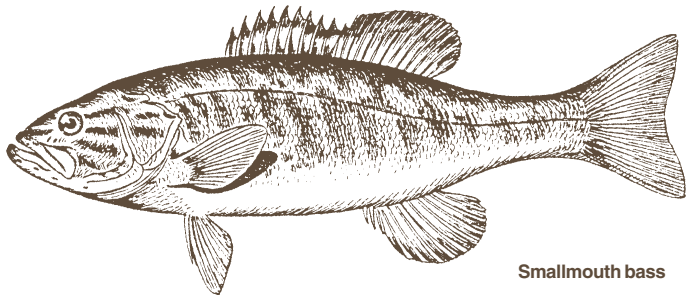
sediment, nutrients, sewage, and related impacts “make keeping the river and its fish healthy a challenge,” Enamait said.

The fish and other creatures and plants that call the river home interact with the environment and each other in complex relationships, and activities on land can affect these complex interactions in both strong and subtle ways. That message was brought home by Luke Iwanowicz, a researcher with the U.S. Geological Survey (USGS) lab in Leetown, W.Va.

Iwanowicz is part of a USGS team studying Potomac smallmouth bass that have both male and female traits. The condition, known as intersex has been found in male smallmouth bass that carry eggs in their sperm ducts. The first intersex fish found in the watershed came from the South Branch Potomac in West Virginia in 2002. The USGS was investigating fish kills and fish with lesions in the South Branch. While the cause of the kills and lesions was never identified, the detailed analysis revealed the intersex condition. More intersex smallmouth bass were found during a follow-up 2003 sampling. Other intersex fish were found downstream on the mainstem Potomac as the investigation expanded. In all the sampling, high percentages of male smallmouth bass had the condition.

While the Potomac smallmouth bass were the first found in the watershed, the condition has been observed around the world in both freshwater and marine fish, Iwanowicz noted. In the U.S., the intersex condition has been observed in largemouth bass, sturgeon, white perch, and suckers. The condition is linked to disruption of the fish’s hormone levels, usually from a contaminant that chemically mimics hormones or disrupts hormone levels or how they are used. Precious little is known about the particulars of the contamination, or how it can affect fish populations. In fact, a first step is to find out how often the intersex trait occurs naturally in the population, Iwanowicz said.

Iwanowicz stressed that the questions far outnumber the answers. It is not known if intersex fish can successfully spawn, if their sperm retains its motility and vitality, how many other types of fish may be affected, and other information. Researchers, following information already collected, are looking for estrogen-like compounds in the water that are altering the fish. Research suggests that exposure to pollutants at early and specific points in a fish’s life may create the problem. Iwanowicz noted that extremely small amounts of hormones and hormone-like substances can induce profound biological



Smallmouth bass

effects.

A vast range of chemicals and substances can mimic natural hormones, including PCBs, dioxins, DDT and other pesticides, other agricultural chemicals, food additives (human and animal), and hormonal medications taken by humans (birth control pills, male “enhancement” pills) part of which passed unused through the body. These substances are not removed by most sewage treatment processes. “Many of these chemicals are found in small amounts in agricultural and urban stormwater runoff,” Iwanowicz said.

He noted that research had revealed a “long list” of these substances, known collectively as endocrine disruptor chemicals, in the South Branch Potomac, including flame retardants, insecticides, and fungicides. Iwanowicz noted that studies suggest that it is likely that a combination of substances is causing a problem. Further, the cause at one location may be different from others, he said. The water chemistry of a certain area or other environmental factors may magnify the effect at a particular location.

Likely chemical entry points include sewage treatment plants, concentrated animal operations, and other agricultural sites. Iwanowicz used cattle operations as an example. He noted that nationally 63 to 90 percent of beef cattle are implanted with hormones to promote growth. Between 8 and 65 percent of the implanted hormones go through the animal and are dispersed to the environment.

Research is continuing both in the Potomac and nationally, Iwanowicz said, but is difficult because of the complexity of the problem, the relatively small amounts of contaminants that can affect fish, and, of course, the need for funding to pursue the research.

Iwanowicz provided a roadmap for future efforts in the basin. Some questions that need answers include the effects of endocrine disruptor chemicals on individual fish, effects on the population as a whole, and if the problem may also be affecting human health. “Are these fish the canaries in the coal mine about waste treatment?” he asked. Iwanowicz gave some details about research conducted in other parts of the U.S. on different species of fish, which showed that afflicted fish produced less sperm,

which showed less motility and resulted in lower fertilization of eggs. The substances may also affect fish behavior, such as courtship rituals, nest guarding habits, or being ready for breeding at the wrong season. Testing the motility of affected fish in the Potomac system will focus on these questions during the year, as well as subjecting fry to the substances to see if the

condition of captured fish can be replicated in the lab.

It is likely that the occurrence of intersex fish from the Potomac will grow as more tests are conducted, as well as revealing new insights into how the use and disposal of many types of chemicals affect the quality of the river and of human life in the watershed.

## ICPRB Assists Pennsylvania with Water Resources Planning Effort

Pennsylvania currently is implementing a statewide water resources plan to assess the existing availability and uses of water and provide guidance and tools for local decision-makers on how water resources can be developed in the future. The ICPRB is assisting the state with plans for its portion of the Potomac basin.

Pennsylvania passed the Water Resources Planning Act (Act 220) in 2002, which created a structure for the state to update its water plan by 2008. The act guides the state's Department of Environmental Protection (DEP) to work with both statewide and regional committees that will engage the public in creating an overall plan that addresses the specific needs of each region.

Potomac Regional Water Resources Chairman Charlie Bennett and the committee held a public meeting for the Potomac watershed on May 19. Bennett provided an overview of the process and the Potomac plan before taking public comments from the audience, which consisted of a mix of township and borough officials, farmers, representatives of watershed groups, and citizens.

Bennett explained that the first steps of the plan are inventorying the available water resources, the water's quality and threats to it, and how it can be used in the future to provide for current and future needs, while preserving its natural values. This balancing act includes consideration of land uses and how they change, infrastructure considerations, comprehensive planning, and managing growth. For the Potomac basin, agriculture, land development, wastewater treatment, and ecological issues are part of the major focus, Bennett noted.

Members of the audience spoke on a variety of issues, including the need to provide agricultural guidance while understanding the particular needs of that community, forestry issues, particularly as they relate to control of stormwater on harvested areas, increasing riparian buffers, and better control of community stormwater, among other topics. A



C. Dalpra

**Conococheague Creek is one of many watersheds that Pennsylvania shares with other states.**

representative of the Antietam Watershed Association offered to help the committee with data collected by volunteer stream monitors. Several local officials requested model stormwater ordinances that could be used as a basis for regulations in their communities.

One question focused on a large challenge for comprehensive planning in the state: How will the state get local governments to enhance their water resources planning? In Pennsylvania, government decisions on land and water use, infrastructure, and zoning are made at the local level, comprising about 2600 township and borough governments throughout the state. The role of the state water plan is to provide guidance and tools for the local governments to plan for current and future water resources, noted ICPRB Executive Director Joseph Hoffman, a member of the Potomac committee. "Act 220 does not change governmental control," Hoffman said. Chairman Bennett added that the plan will "Provide tools and encourage," those governments to plan in a way that would preserve resources and the quality of life of residents. "Regional planning for these things is something new for the state," Bennett said.

The ICPRB assisted DEP and the Potomac committee in organizing the meeting. As the plan progresses, ICPRB will continue to contribute with involvement in the committee and may help the state with future studies on particular areas of concern within the watershed. The Potomac



committee will meet again in August.

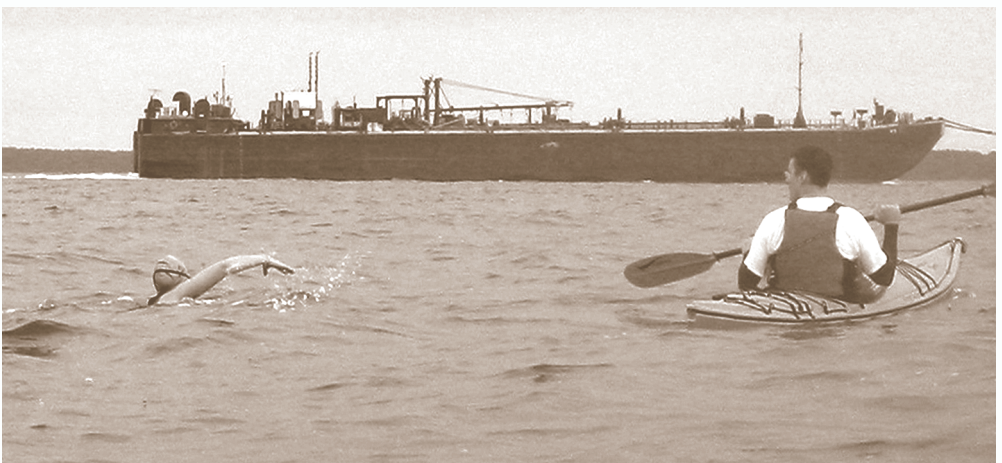
"The water plan is a priority for the state into the future, said John Hines, executive director of the DEP Water Planning Office and an ICPRB Pennsylvania commissioner. "The plan was last updated about 25 years ago, and the state's water resources use has changed greatly. This focus on the future of how water use is planned and accommodated looks at the needs of Pennsylvania communities, and brings a focus to the use of the many interstate waters that Pennsylvania shares with its neighbors," Hines said.

For more information about Pennsylvania's water plan and how you can get involved, visit [www.dep.state.us](http://www.dep.state.us) and type in the keyword "Water Resources." The state also has an Act 220 hotline at 1-888-457-6653.

## New Seedlings for Kindergartners

The United States Department of Agriculture Forest Service, Northeastern Area State and Private Forestry, has offered to replace 50 seedlings that were vandalized in late April (see March/April 2005 *Reporter*). Kindergartners planted the seedlings in an Emmitsburg, Md., park with the help of ICPRB, New Forest Society, and Canaan Valley Institute. The children, parents, teachers and cooperating organizations are grateful to the Forest Service for their generous support. The seedlings will be planted next spring.

## Swimmers Race for the River



J. Dotson

**Swimmer Alicia Markey navigates past a barge with the help of a support kayaker. The U.S. Coast Guard kept lanes clear for swimmers.**

Twenty-one swimmers plunged into the chilly Potomac River on Saturday, June 4 for the 12<sup>th</sup> annual Potomac River Swim for the Environment. The annual swim highlights the ongoing cooperation between recreational users and environmental organizations to help preserve and restore the Potomac River and its tributaries.

Swimmers were boated to the starting point at Hull Neck, Va., via the skipjack *Dee of Saint Mary's* to begin the 7.5-mile race. The 65-degree water, overcast skies, one-foot waves, and ebb tide did not stop the swimmers from reaching the Maryland shoreline. Support kayakers guided the swimmers through tide and current across the river to Point Lookout State Park, Md., compensating for the tide and current. The U.S. Coast Guard was on hand to redirect river traffic and other support boats

surrounded the group for safety.

The overall winner, Alicia Markey of Wilmington, Del., swam ashore in three hours and 19 minutes. This was Markey's third year in the swim, but her first win and the swim's first overall female winner. Igor Meskelis of Arlington, Va., was second to arrive at the beach, only three minutes after Ms. Markey, and was the winner in the non-wetsuit category.

Support kayakers not only help swimmers stay on the course, but they also stop the swimmers periodically to give them food and water. With about one mile to go, Alicia Markey, said between strokes, "I want a hamburger," (*stroke*) "and cookies." While kayakers carry a plethora of packaged food and drinks for their assigned swimmer, a grill is difficult to manage on the deck of a moving kayak. When Markey arrived on

shore, she headed to the nearby picnic table to satisfy her craving.

Anna and Joseph Badiatta, the swim's first father-daughter team finished together in just under four hours. During the race, Joseph asked support kayakers about 16-



## Watching the River Flow

April and May received slightly more precipitation than normal, according to the U.S. Geological Survey, resulting in above-average Potomac River flows in April, with slightly below-average flows in May.

Provisional data collected near Washington, D.C., logged an April river flow average of about 16 billion gallons per day (bgd), 49 percent higher than normal for the month. Daily extremes ranged from a high of about 53.2 bgd on April 3 to a low of about 6.5 bgd on April 22. Water withdrawn for drinking use averaged about 372 million gallons per day (mgd), about four percent less than in April 2004. Freshwater inflow to the Chesapeake Bay averaged about 121.6 bgd, 30 percent above normal. The Potomac contributed about 16 percent of the total.

Despite nearly one inch more precipitation than normal, May flows were 6.9 bgd, about 27 percent less than the average of about 9.5 bgd. Flows ranged from a low of about 4.3 bgd on May 19 to a high of about 10.6 bgd on May 25. Water withdrawn for drinking use averaged about 384 mgd, about ten percent less than May 2004. The lower flows in the Potomac and other Chesapeake Bay tributaries resulted in freshwater inflows about 43 percent below the normal 36.2 bgd. The Potomac contributed about 25 percent of the total.

According to ICPRB's Cooperative Water Supply Operations (CO-OP) team, the probability of a water supply release this year is between eight and 13 percent, based on precipitation, groundwater levels, and historical data. Visit [www.potomacriver/water\\_supply/status](http://www.potomacriver/water_supply/status) for monthly Water Supply Outlooks and Status Reports between April and October, during months of higher water demand.

year old Anna to be sure she was safe and doing well. The Badiattas were among the top fundraisers for the swim. Brian Main, who swam in honor of his recently deceased mother, was the top fundraiser.

The challenge draws athletes from the Potomac region and across the nation whose pledges benefit local environmental organizations, including the Interstate Commission on the Potomac River Basin, West Virginia Rivers Coalition, Potomac Conservancy, Chesapeake Bay Foundation, Southern Maryland Sierra Club, Potomac River Association, and Ridge, Maryland Fire and Rescue.

Visit [www.crosslink.net/~cherylw/pr2005i.htm](http://www.crosslink.net/~cherylw/pr2005i.htm) for more information about the swim.

## Let the River Run Silver Again

American shad caught a break in 1995 when Jim Cummins, ICPRB's Director of Living Resources, began a stocking and monitoring program to increase the fish's presence in the Potomac River. The project, covered in ICPRB's newsletters and annual reports, involved many cooperating organizations including the United States Fish and Wildlife Service and local schools. Sandy Burk details the journey of Westbrook Elementary School students and their contributions to the comeback of the Potomac's American shad in her new book, "Let the River Run Silver Again!"

About 15.6-million American shad fry were stocked in the Potomac just below Great Falls between 1995 and 2002 by school students and other organizations during the shad restoration project. The Schools-in-Schools program, supported by the Living Classrooms Foundation, Chesapeake Bay Foundation, and dozens of local schools, allowed students to participate in the fish's recovery by raising fry in classroom aquaria and releasing them into the river each year. Monitoring data for 2004 revealed the highest shad population seen in the river since the restoration program began, a testament to its success. "Though this year's numbers were lower, several natural factors, including cool weather, a rough hurricane season, algae blooms, and a normal population flux all came into play," said Jim Cummins. But shad are used to overcoming challenges, he added.

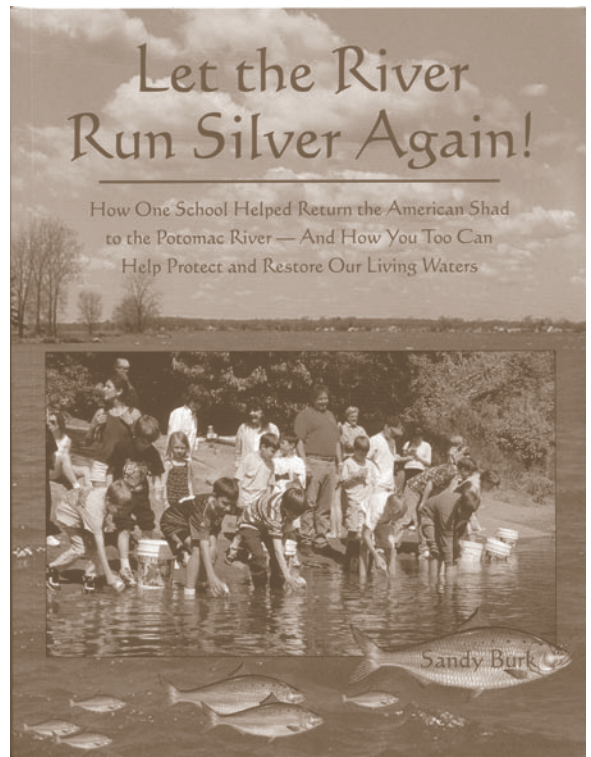
The fish take an amazing journey from their birth in the river to the Atlantic Ocean and back to the river to spawn, but it is their journey in the river that is most challenging. Because the population was so diminished,



a moratorium on shad fishing in the mainstem Potomac River has been in place since 1982. Until 2000, Brookmont Dam at Little Falls impeded the fishes' passage to the base of Great Falls. The Potomac Gorge, a 10-mile river segment of excellent shad spawning and nursery habitat, lies between the dam and Great Falls. A fish weir was added to the dam that allows shad to swim upstream to the falls. The shad's challenging journey, as well as the journey of students as they learn the science and ecology of the fish is highlighted in Burk's book.

The students learn about shad life with hands-on experiences. They learned about how shad eggs turn into fry and then to adult fish when they went shad fishing with Louis Harley, a Virginia waterman. They even had the opportunity to squeeze eggs and milt from adult shad they had caught and watch as the eggs were fertilized in bowls. The students cared for the tiny fry in classroom aquaria until they were ready for release into the river. Releasing the fish and then restoring the habitat for the shad brought the students full circle in their learning experience.

The American shad restoration project was such a success, that the Virginia Department of Game and Inland Fisheries used the model to stock shad in the Rappahannock River, a direct tributary to the Chesapeake Bay. In 2005, the project's third year, about 4-million Potomac shad fry



were stocked in the depleted Rappahannock.

*Let the River Run Silver Again!* is a terrific story of how young people became river stewards and will continue to watch over the Potomac's resources. The book is being marketed to both the public and environmental educators and is available through online bookstores. Visit [www.potomacriver.org/living\\_resources/shad.htm](http://www.potomacriver.org/living_resources/shad.htm) for more information on Potomac shad restoration.



C. Dalpra

The Monocacy Aqueduct, which carried the C&O Canal over the Monocacy River, was rededicated in a large ceremony on May 21. The \$6-million restoration project preserved the historic structure, which was held in place with scaffolding after severe damage from the 1996 Potomac flood. Maryland ICPRB Commissioners Jim Gilford and Minnie Pohlman, members of the C&O Canal Association, were part of a constituency that worked to preserve the structure. The association raised \$150,000 toward the restoration.

# ICPRB Seeks Pa., W.Va., Water Quality Data

The ICPRB is seeking water quality data collected by any local agencies, groups, or organizations in the Potomac watershed in Pennsylvania and West Virginia.

Data collected as far back as 1985 is needed to assist the State of Maryland in preparing Total Maximum Daily Load (TMDL) plans for water bodies in the state that are impaired by sediment or nutrients. The waterways in neighboring states may contribute to the impairments, and need to be accounted for in the TMDL process. A TMDL plan assesses pollutants impacting the stream from all sources, and creates a plan for reducing pollutants so that the stream meets designated standards.

If your Pennsylvania or West Virginia group or organization has collected data, please contact ICPRB so arrangements can be made to get a copy. A description of the sampling program, quality assurance and



control protocols, metadata, or other relevant information also is requested.

To share your data or for more information, please contact Ross Mandel, [rmandel@icprb.org](mailto:rmandel@icprb.org), or call Mandel at (301) 984-1908 X118.



*Potomac Basin*

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