



C. Dalpra

Students participating in the Schools in Schools program release the shad fry they grew in the classroom into the river near Old Angler's Inn. The students also planted shad bushes at the site.

## Shad Returning to Upper Potomac

**F**or many people who meet him, especially on the river, ICPRB Associate Director for Living Resources Jim Cummins is a student of the American shad. Much of his time is spent thinking about the species and its history as one of the most important fish populations to have inhabited the Potomac River.

Collecting information on the history of the species, whose numbers are currently a shadow of the populations found even a half-century ago, is a pastime of Cummins. The restoration of the population to some semblance of its past health is a passion.

That passion was rewarded recently when, for the second year, shad were found upstream of the dam at Little Falls, which has long blocked the travel of the migratory fish. A fish passage structure was completed at the site in February 2000, reopening about 10 miles of prime spawning and nursery habitat between

the dam and Great Falls. A cooperative restoration project led by ICPRB has placed shad fry in the upstream area each spring since 1995 in hopes that the adult fish would return there to spawn after returning from life in the ocean. Finding that fish are indeed returning is a triumph of years of cooperative effort with project partners including the U.S. Fish and Wildlife Service, The Virginia Chesapeake Bay Restoration Fund, the National Fish and Wildlife Foundation, and a cadre of volunteers, students, and nonprofit groups.

As in past years, Cummins, local waterman Lewis Harley, and volunteers spent spring evenings on the river at the change of tide, netting American shad to bolster the fish's presence on the Potomac. Into the night, they fished drift nets in the river near Fort Belvoir, Va., collecting female shad ripe with eggs. Eggs taken from females are mixed with sperm from male

*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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Stringing a net to capture shad just below Great Falls.

shad in a bowl of river water. After the eggs are fertilized, they change color and grow to several times their size in less than an hour. The shiny eggs are decanted and sent to a U.S. Fish and Wildlife Service hatchery in Virginia, where they are hatched, grown out for a few days, and marked with a harmless chemical tag for future identification. The fry are later released to the upstream Mather Gorge area, with the rest left up to nature.

Some of the eggs are given to a growing number of area schools, where students hatch and raise the shad for release at the same area. Raising fry and learning about the importance of the fish is a part of the students' science curriculum. This year, 15 schools participated in the "Schools in Schools" program, run by the Chesapeake Bay Foundation and the Potomac Conservancy. The ICPRB supports the program by providing the fertilized eggs.

With the help of 41 volunteers, approximately 3.3-million shad fry were stocked in the river, a new record for the program, which seeks to place at least one million during each of the project's six years. The high numbers of fry raised this year and last (about 3.2 million in 2000) reflect relatively strong spawning runs in the river during the last two years, according to Maryland Department of Natural Resources fishery surveys. The data suggest that these spawning runs were the best since the late 1970s.

Perhaps the best news for the project came in searching for shad in the previously blocked area of the river. Fifteen shad were captured near Great Falls, most with a dip net worked by Mike Odom of the U.S. Fish and Wildlife Service from the rocky outcrops that jut into the river. Low water in the river made boat access to the area with electroshocking equipment difficult, and stringing a capture net in the eddies just below the falls was challenging. Cummins noted that catching those 15 fish is a strong indication

that many more made it over the dam at Little Falls. “Shad restoration work on rivers like the Susquehanna is easier to quantify,” Cummins said. “They are counted as they are mechanically lifted over the dam.”

While the news is exciting for fisheries managers and volunteers, the educational component of the project is just as important and exciting. Volunteers and students alike are impressed with the role the fish has played in the river’s history and current status.

During the project, hundreds of students have learned that George Washington was a shad fisherman, using crews of workers to cast long nets across the Potomac from Mount Vernon, barreling thousands of shad each year. They learn about the steep decline of shad stocks in the 1950s due to fishing pressure, pollution, and loss of access to habitat, such as was caused by construction of the dam. (A fishway was constructed on the dam in the 1950s, but was not used by migrating fish.) Stocks fell to such low levels that Maryland banned the harvest of shad in 1980, the Potomac River Fisheries Commission halted harvests on the Potomac in 1982, and Virginia following in 1993. The students also learn that the problems are not only on the Potomac, but throughout the Chesapeake Bay and the Eastern Seaboard. They are taught that even with their hard work, and efforts throughout the bay watershed, that shad populations are currently only about 10 percent of their historical average.

A final treat for the school groups is a release party of sorts for the fry they have raised. As in past years, classes from the schools gathered at the river, acclimating their fry with river water before releasing them, and wishing them well on their journey through Mather Gorge, and down the river to the ocean, where they will grow for several years before swimming back upstream to complete the cycle. The event allowed the students to compare experiences with other schools, and to plant shad bushes, which flower about the time of the shad run, along the shore. Volunteers also are invited to a “shad planking” where split fish are roasted on boards next to an open fire, hosted by waterman Lewis Harley.

The fry-stocking part of the project is expected to end next season. Cummins is working to create a strong monitoring program to track the results of the project and changes to the shad population that result.

Cummins, who enjoys a good piece of shad smoked, fried, or planked looks forward to the day when he and other anglers can again enjoy eating the fish that is steeped in the Potomac’s history. He may need to be patient, however.

Dale Weinrich, a natural resources biologist with Maryland’s Department of

Natural Resources, agreed that shad runs have improved in some parts of the Chesapeake Bay watershed during the last two years. He said the state was beginning an examination of data—especially from the upper bay, which is the largest data set—to reach a greater understanding of American shad stocks. He noted that there are many factors to consider when making determinations on the health of a fishery, and that ongoing assessment could take years. While heartened by recent developments, Weinrich noted that “Biologically, even a limited fishery is some distance off.” He said that catch-and-release fishing for shad is occurring in the state now.

Cummins agrees that even a limited fishery is a couple of years away, but believes that planning for it should begin now to avoid having to quickly react to a recovery that “may surprise many people.”

## Tidal Potomac Shows Improvement, but More Needed



C. Dalpra

Livelihoods depend on the Potomac’s water quality.

The tidal Potomac is “getting better but it has got a long way to go,” noted Claire Buchanan, ICPRB’s Aquatic Ecologist, when asked about the health of the tidal Potomac. This is the message of a recently completed analysis of tidal Potomac monitoring data, a project headed by Buchanan.

For many years, different agencies at the federal, state, and local levels have been collecting data throughout the tidal portions of the Potomac River. “The Potomac was one of the first rivers to be monitored intensively, particularly to see the results of sewage treatment upgrades,” explained Buchanan. Even though the agencies had similar goals for their monitoring programs, data were collected to fit standards and needs established by each agency. As a result, the wealth of data were not available in a consistent form usable to researchers and water resource managers. The recently

completed ICPRB project, “The Tidal Potomac Integrative Analysis Project,” is the first time all of this data has been brought together and analyzed collectively in an attempt to understand the long-term trends in the tidal Potomac ecosystem.

The long-term project began with compiling all of the monitoring information collected throughout the years in the tidal Potomac. Then, once the data was integrated and standardized, researchers examined the information to see if they could find trends in the health of the tidal Potomac ecosystem.



C. Dalpra

**Aquatic plants are flourishing near the Wilson Bridge, although other areas of the river can't support healthy plant life.**

The project looked at several major indicators, including nutrients, sediments, dissolved oxygen, and water clarity. The nutrients of greatest concern are phosphorous and nitrogen. These are currently the targets of pollution control efforts for the Potomac and Chesapeake Bay. Too much nitrogen and phosphorous decrease oxygen levels, decrease water clarity, and increase harmful algae levels. The study found that residual nutrient loads from wastewater treatments plants, a major source of pollution in the tidal Potomac, have been significantly reduced, but nutrient levels in the estuary are still not low enough to control damaging algal blooms.

Phosphorous loads in wastewater from sewage treatment plants were significantly reduced in the 1970s. Water quality improvements are evident in 10-year averages of phosphorous concentrations downstream of the metropolitan area. Seasonal implementation of biological nutrient removal (BNR) at Blue Plains Regional Wastewater Treatment Plant implemented in late 1996 is showing evidence of lower nitrogen concentrations downstream. Biological nitrogen removal continues to be implemented at additional treatment plants.

Sediments from agricultural and forested lands, suburbs, and city streets, carry nutrients and toxic substances into waterways. Sediments reduce water clarity, destroy the habitats of plants and animals,

and require dredging of navigational channels. The study showed that the amount of sediments carried into the estuary is highly dependent on the frequency and severity of storm events.

Water clarity is a sign of a healthy waterway, denoting acceptable nutrient and sediment levels. Clear water allows more sunlight to reach desirable aquatic plants, creating better biological habitat. Water clarity has not improved across most of the estuary, but does meet aquatic plant habitat requirements near the river's mouth and the metropolitan Washington area. Water

clarity levels for most of the lower Potomac River are not presently at levels sufficient for healthy aquatic plant growth, however.

Dissolved oxygen is critical to life in the river. Levels of oxygen in the water, used by fish and plants and required for the decay of matter in the river, are affected by nutrient and sediment loadings and aquatic vegetation. The study shows that oxygen levels are generally adequate in the non-tidal

river and upper estuary, but deep waters are oxygen-starved during the summer. Wastewater treatment plant upgrades significantly improved the very low dissolved oxygen levels in the 1970s below the metropolitan area. Dissolved oxygen concentrations at the bottom of the river channel now meet the dissolved oxygen habitat requirements of living resources in the metropolitan area. However, the dissolved oxygen levels in the lower estuary are some of the lowest in the Chesapeake Bay watershed.

Buchanan sees this project as only part of a larger effort. “Putting forward the management messages we've learned [in the study] is our real task now,” she noted. The ICPRB staff, with the many participants in the project, will be working to disseminate the information learned as a result of the project to water resource managers throughout the region. Throughout the course of the project, ICPRB has worked collaboratively with many individuals and organizations including government agencies at the federal, state, and local levels, several area universities, as well as several area laboratories.

Staff at ICPRB are also currently working on a similar project for the non-tidal Potomac Basin. The Executive Summary of the Tidal Integrative Analysis Project will be available on ICPRB's website. For more information about the project or to receive a hard-copy of the report's Executive Summary, contact ICPRB.



## Distance Swimmers Cross Potomac to Raise Awareness, Funds



Joe Stewart with his award from the Sierra Club, presented by Bob Boxwell.

A sign on an information table overlooking the river at Point Lookout State Park, Md., on Saturday, June 2, read "A Swimmable, Fishable Potomac." The river, about 7.5 miles wide at that point, was very swimmable according to contestants in the 8th annual Potomac River Swim for the Environment.

Event winner Bob Astheimer won for the fourth consecutive time out of five attempts. "It was really good water today," he said shortly after finishing. "The waves were gentle and rolling, there was a tailwind that helped push us along, and there were few jellyfish," he said. The conditions were in sharp contrast to last year's event, where several swimmers did not finish, and Astheimer's time was nearly 50 minutes longer.

The event, which takes swimmers from Hull Point, Va., across the river to Point Lookout State Park in Maryland, provides a challenging distance swim for the participants while raising environmental awareness about the river as well as funds for several Potomac environmental groups.

While none of the contestants set a new record for the swim, as a group they did set a new record in raising more than \$7,000 to help environmental groups. Swimmer Dan Dooher led the way collecting \$2,100. The funds benefit the Potomac River Association, Southern Maryland Sierra Club, Chesapeake Bay Foundation, Point Lookout State Park, and the Interstate Commission on the Potomac River Basin. Members of those groups held a picnic at the park while waiting for the swimmers to arrive that provided a chance to discuss environmental issues.

The event began the previous evening, when the swimmers and support volunteers met for a pasta supper prepared by parishioners at the Trinity Parish Hall in St.

Mary's City, with desserts provided by the Patuxent Friends Meeting of Lusby, Md. The next morning, swimmers were ferried from Point Lookout State Park across the river to Hull Neck, Va., and began their swim back to the park at 8:16 a.m. Each swimmer was accompanied on the crossing by a volunteer kayaker from the Chesapeake Paddlers Association or the Association of North American Kayakers. The kayakers and their boats were taken

across the Potomac by Captain Jack Russell aboard his skipjack, *Dee of St. Mary's*. Members of the Chesapeake Bay Boston Whalers Club volunteered their boats and time as lead, escort, and tail boats for the race, along with public safety vessels and staff provided by the U.S. Coast Guard, Maryland Natural Resources Police, Charles County Dive and Rescue, Ridge, Md., Volunteer Fire Co., and the Ridge Rescue Squad.

Race organizer Joe Stewart, who began the event in 1993 with a solo "Swim for the River's Sake," noted that the race would not exist without the many volunteers who make the event a success. Special thanks was given to Stewart, who had earlier announced that this would be his last effort at organizing the event, along with several other charity swims he runs each year. "After these many years, it's time for me to take a break. He will be ably succeeded by Cheryl Wagner, who has participated in several of the swims. Stewart's years of organizing and coordinating the event were noted with the presentation of the Bernie Fowler Award for Conservation and Environmental Action in Southern Maryland by the Sierra Club.

Other contributors to the event included Bob Knight, Point Lookout State Park, the National Oceanic and Atmospheric Administration, Sheible's Fishing Center, Hale House, local boaters, and David Hyatt/Creative Imaginations. Southern Maryland artist Jeanne Hammett designed tee shirts for the event.

Plans for the 2002 event, which will include a May 31 pasta supper and the swim on Saturday, June 1, are underway. For more information, contact Cheryl Wagner at (202) 387-2361, or email at [cherylw@crosslink.net](mailto:cherylw@crosslink.net).

## Potomac River Swim for the Environment Results (hours:minutes:seconds)

1.) Bob Astheimer, Alexandria, Va., 2:59:49; 2.) Emily Watts, Millers, Md., 3:04:04; 3.) Matthew Fetter, Vienna, Va., 3:19:40; 4.) Julie Peterson, Crofton, Md., 3:22:16; 5.) Meryem Tangoren-Masood, New York, N.Y., 3:36:15; 6.) Richard Wallace, Manalapan, N.J., 3:52:06; 7.) Mike Maier, Ellington, Conn., 4:00:28; 8.) Dan Dooher, Washington, D.C., 4:03:47; 9.) Nick Olmos-Lau, Washington, D.C., 4:10:27; 10.) Henry Eckstein, New York, N.Y., 4:21:04; 11.) Peter Garver, Baltimore, Md., 4:25:11; 12.) Janet Carpenter, Washington, D.C., 4:47:51; 13.) Bob Aitcheson, Charlestown, W.Va., 4:54:07; 14.) Mark "Enzo" Rodriguez, Lexington Park, Md., 5:08:31

## Citizens Canoe Monocacy, Discuss Current River Issues



J. Caddick

As the early morning sky threatened rain, a group of paddlers, including several ICPRB staff, gathered at Buckeystown Park along the Monocacy River and began preparing their gear to canoe for the day on the Monocacy. The participants were part of the first annual Monocacy Riverkeepers canoe and kayak expedition sponsored by Community Commons, a group based out of Frederick, Md.

Throughout the week of May 14-19, the Riverkeepers paddled the length of the Monocacy taking note of river conditions, meeting with area 6<sup>th</sup> graders to educate about river conservation, and meeting with local residents each evening to discuss conservation issues. Several participants paddled for several days while others joined for just a small portion. Hilari Benson, Community Commons Executive Officer, explained that the trip was created to introduce community members to the river and to educate students and community members about issues facing the river.

The group met with over 140 area 6<sup>th</sup> graders throughout the week. Each morning before beginning their paddling for the day, volunteers worked with the students on interactive environmental education activities that introduced students to Monocacy river issues. The students participated in a trash pickup and analysis, a demonstration of how a watershed works, and they learned where their drinking water comes from and basic water conservation

techniques they can do at home.

In the evenings, Benson organized a series of potluck dinners that featured a panel of speakers discussing issues of interest to Monocacy watershed residents. The potluck dinner topics included nutrient management, growth in Frederick County, changes in the local farm economy and land protection, and regional water supply use and demands. According to Benson, the dinners drew over 100 residents and each night resulted in a lively exchange of ideas between the panelists and community members.

After each night's dinner, Benson distributed surveys to get a sense of the topics of interest to community members. Benson noted that according to the survey, the most urgent topic to be addressed in the Monocacy watershed is growth management and planning. The second most urgent issue is the increased use and demand of the regional water supply.

As a follow up to this event, Community Commons along with the Adams County Conservation District will be co-sponsoring, with ICPRB and Friends of the Potomac, a community workshop to further explore these issues. The community workshop will be held Saturday, September 8. Further details about the workshop will be announced in the coming weeks. For more information about the workshop, contact Karen Fligger, ICPRB's Watershed Coordinator, at (301) 984-1908, ext. 103.

## Kids, Families Gather to Fish and Learn About Potomac Issues

Over thirty children, along with parents and scout leaders, came out on a warm, sunny June day for the first annual Potomac River Fish-In and River Celebration at Fletcher's Boathouse in Washington, D.C. The day's events included a fishing contest, educational activities focusing on Potomac River issues, and a "Wade-In" as an informal test of Potomac River water quality. The day provided an opportunity for kids to have fun while learning about fishing and water quality issues in the Potomac River.

Throughout the morning, participants fished along the banks of the Potomac as well as in the adjacent C&O Canal.



J. Caddick

Water clarity testing using the Fowler Method.

Volunteers worked with each child to teach proper catch-and-release fishing techniques, safe fishing practices, and to tally each catch for inclusion in the awards ceremony. Despite muddy conditions in the Potomac, dozens of fish were caught throughout the morning. At a ceremony, awards were presented in several categories including largest fish, smallest fish, most unusual fish, and most fish caught.

The event was an extension of the "Wade-In" begun by former Maryland State Senator Bernie Fowler. He began wading into the Patuxent River 14 years ago with friends and family to highlight concerns about declining water quality in Maryland's tributaries and the Chesapeake Bay.

Participants in the Potomac "Wade-In" gathered along the banks of the Potomac, and slowly waded into the river while keeping an eye on their feet. Once they lost sight of their feet through the water, they marked the height of the water on their legs and returned to shore. Once on shore, the mark on each person's leg was measured and the depth they reached was announced to the group. On average, participants only reached a depth of about 12 inches. The Potomac was very muddy due to heavy rains throughout the basin, earlier in the week. Several participants inquired about the reasons for the high sediment levels in the river. As explained by Claudia Donegan, the Middle Potomac Tributary Team coordinator, sedimentation can be caused by many factors particularly erosion and runoff from impervious surfaces, such as parking lots and roads, and non-paved areas, such as farms and construction sites, throughout the basin.

The event was organized by the Maryland Middle Potomac Tributary Team along with Potomac Conservancy, Coastal Conservation Association, the National Park Service, and ICPRB. This year, all of Maryland's tributary teams held events on the same day as the Fowler "Wade-In" on the Patuxent to raise awareness about tributaries to the Chesapeake Bay throughout Maryland.



### Watching the River Flow

Flow of the Potomac River near Washington, D.C., in May was well below normal, according to the U.S. Geological Survey. Flow measured at Little Falls was about 5.2 billion gallons per day (bgd) during the month, about 55 percent less than the long-term May average of about 9.5 bgd. Daily flows during the month ranged from a high of about 12.4 bgd on May 26 to a low of about 2.5 bgd on May 18.

Diversions from the river for municipal drinking water supplies averaged about 433 million gallons per day (mgd), about eight percent more than in May 2000.

Total freshwater inflow to the Chesapeake Bay was about 33.1 bgd, or about 54 percent less than the long-term average of 61.8 bgd. The Potomac contributed about 21 percent of the total.

Several days in May experienced record-low flows for those days historically. Provisional data are not yet available for June, although frequent basin-wide storms have brought river flow up to flows that are higher than the median for the month. The rains have boosted both flows and will benefit groundwater levels that make up the river's base flow for the critical late-summer and fall months.

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# Experience the Potomac

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## Water Taxi to Maryland's Birthplace

The St. Clement's Island-Potomac River Museum in Colton's Pt. Md., is offering water taxi tours to St. Clement's Island, the "Birthplace of Maryland." The water taxi is available every weekend through October, weather permitting, from noon to 4 p.m. Tickets are \$5 and \$3 for children under 12, and includes admission to the museum.

St. Clement's Island is the landing site of the first Maryland colonists who arrived from England on March 25, 1634. The island is a Maryland State Park and visitors are encouraged to enjoy the picnic facilities, interpretive history panels, numerous waterfowl, and the natural beauty of the surrounding Potomac River. The museum is located in historic St. Mary's County, along with many other historical attractions. For more information, call the museum at (301) 769-2222.

## Paddle the River

The staff at Riverbend Park, upstream of Great Falls on the Virginia side of the river, is running several levels of kayaking trips during the summer. No experience is necessary for many of the tours, while others require paddling skills. The tour

groups are small, only 10 people, allowing for good interpretation of the river.

Reservations are required, along with a fee for rental of equipment. Weather and river conditions may cause cancellations. For more information, call the park at (703) 759-9018.

## Walk Along the River

The Capital Hiking Club offers many outings along the C&O Canal towpath, Shenandoah National Park, and other areas. The public is welcome to join in. For more information, visit their website at [www.webwalking.com/chc.shtml](http://www.webwalking.com/chc.shtml).

## More Paddling

The C&O Canal Association hosts several canoe excursions and hikes along the Potomac and the C&O Canal. Information on membership and inquiries can be had by calling (301) 983-0825.



Potomac Basin

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