



C. Dalpra

Students, teachers, and parents gather at the Northeast Branch of the Anacostia to learn about herring restoration, and collect eggs to grow in the classroom.

Migratory Fish Restoration Programs Continue to Grow Fish, Awareness

Efforts to restore American shad and river herring populations in the Potomac watershed, led by ICPRB, are helping restore both the fisheries and their value among the region's residents.

The ICPRB's American shad restoration program also benefitted the neighboring Rappahannock watershed in Virginia.

The American shad and river herring restoration programs share the goal of restoring depleted stocks of both historically and economically important species to the river and some tributaries. Both fisheries share a legacy of decline from pollution, loss of historical habitat, and fishing pressure. Both programs include important educational elements, which use volunteers to assist in the work, and provide a wealth of opportunities for students to learn more about the fish in

the context of a hands-on ecology curriculum integrated into their school work.

The American shad project, which began in 1995, has exceeded its annual goal of placing more than a million shad fry in the Potomac River. Each year, ICPRB staffer Jim Cummins and waterman Lewis Harley, with the help of volunteers, cast drift nets from a boat during spring nights in the vicinity of Mount Vernon. The nets intercept the migratory American shad, swimming up the Potomac from the sea to spawn. The fish are stripped of their milt and eggs, combined, and the fertilized eggs are taken to a U.S. Fish and Wildlife hatchery in Virginia. After the fish hatch, the fry are treated with a chemical that allows identification as fish raised by the program. Other eggs are given to school groups, which raise the fry in the classroom for

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release into the river.

The fry are released in Mather Gorge, a ten-mile segment of the Potomac between Little Falls and Great Falls. For decades, the dam at Little Falls blocked the migration of the shad, denying them those miles of high-quality spawning and nursery habitat. A major goal of the project was completed in early 2000, when the dam was modified to allow the passage of fish upstream.

The 2003 season called for a continuation of the netting operation, primarily to monitor fish stocks, and search for evidence of the returning hatchery-reared fish. (Fry eventually swim downriver to the sea, returning to the river to spawn after several years.) This year's netting operation took on a new priority when a request for assistance came from biologists working to restore American shad to the Rappahannock River. Plans on the Rappahannock called for a similar restocking operation, timed with the removal of blockages to migration, but biologists were unable to capture enough shad on the river. The Rappahannock program made use of about 1.4-million Potomac fry to jump-start operations on the Virginia river.

Biologists suggested that Potomac stocks were a closer genetic match with Rappahannock populations than with those of the James River. The Rappahannock and Potomac rivers also are more similar physically, noted Tom Gunter, a Virginia fisheries biologist who coordinates the state's shad restoration efforts.

Efforts are underway to remove dam blockages by 2006 on the Rappahannock, and Gunter is aiming for a restored population in 10 to 15 years. "American shad are important economically and ecologically," Gunter said. "Shad are the number three species caught on the James," he noted, adding that the recreational fishery at the fall line on the James is valued at about \$168,000 per year. Ecologically, the species is important in many ways, including as a forage fish for other species, such as tuna. "We're very excited about the program on the Rappahannock. This program is built on a partnership among many agencies and organizations. It would be hard to succeed without the help of organizations such as ICPRB," Gunter said.

Cummins also noted that the Potomac experienced an exceptionally strong run of American shad in 2003, following the great 2002 spawn. "We were able to get the eggs for the Rappahannock with less fishing effort because of the strong run," Cummins said. As a way of gaging the strength of the spawning run, researchers look at the number of fish captured in each set of the drift net. In 2002, the Potomac effort yielded 50 American shad per net set; the level climbed to 93.4 in 2003.

Rainfall in the spring probably helped the run in the Potomac. "High waters are good for shad. Historically, shad and herring benefitted from spring freshets that allow for easier passage upstream. Those rains bring higher levels of plankton (food for the fry), and turbid waters can mean less predation by other fish," Cummins said. The large volume of fish returning also makes for a population that is large enough to withstand years with poor weather or other stressful conditions, Cummins added.

The spring weather, which has lasted into summer, hindered efforts to find the fish previously released into Mather Gorge. High water has made it all but impossible to search the river just downstream of Great

The Pull of Spring



C. Dalpra

ICPRB's Jim Cummins discusses the release with returnees Julia Robbins and Nick Richman.



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For the ICPRB restoration program, a herring in the hand may be worth many in the stream.

Falls for signs of the fish released through the program, although several fish were captured last year, and it is likely that even more returned this season. Funding considerations also limited the involvement of the U.S. Fish and Wildlife Service, which monitored populations in the tidal river last year.

The commission's efforts with shad were lauded this year by the Congressional Sportsmen's Foundation, comprised of members of Congress with interests in the outdoors, and the American Fly Fishing Trade Association. Jim Range, the association's government affairs advocate, and a former ICPRB commissioner, helps plan an annual event on the Potomac to raise congressional awareness in outdoor resources. An award was made to Cummins at the event held on the river, where Secretary of the Interior Gail Norton lauded the "tireless efforts promoting shad restoration on the Potomac."

In partnership with the Metropolitan Washington Council of Governments, the ICPRB effort to restore river herring to Anacostia River tributaries also was successful. This year, about 2.9-million herring fry were placed in Anacostia

It is timeless. Winter ends, and nature begins its inevitable spring pull. Snow melts, the temperature rises, buds poke from the ground, and the shad and herring begin their relentless journey from the sea up the Potomac to spawn. It is a constant that has spanned many centuries.

This year, not only the shad returned to the river, but two of the first students who participated in the Schools in Schools program in 1996. They met with the current year's students at the annual sendoff of fry into Mather Gorge. Julia Robbins and Nick Richman, now high school seniors preparing for college, watched as students carefully released their shad fry to the Potomac, and spoke to them about what they had learned from the program.

The project inspired Robbins. "We calculated that we would be seniors when [the fry] came back, and they have," Robbins said. "When we released our baby shad, we knew it would be a long journey back. They had to travel all the way to the Atlantic ocean and back." Richman noted that "We somehow knew that they would make it up the fish passage and back here." Both of the students attribute a greater sense of environment to their experience. Robbins who crews a rowing shell at school, wonders about the shad she raised every morning during rowing. "I know they are down there, and I look for them," she smiled. In high school she is raising aquatic grasses with the ecology club.

watershed streams and Rock Creek, bringing the total for the four years of the project to 11.3-million fry. The Anacostia tributaries are benefitting from the removal of stream blockages to migration, with fry being seeded in the upstream areas, similar to the American shad project. The numbers

of fry stocked were down somewhat from the previous year due to the persistently high flows from the wet spring. While related to American shad, the river herring seek out smaller streams to spawn, and those streams are more affected by the higher flows. Monitoring of the fish populations also was problematic, again due to the wet spring and high streams. The river herring project is funded through environmental mitigation for the loss of habitat in the construction of the Woodrow Wilson Bridge replacement span.

Both of the restoration efforts share a strong education and outreach component. This year, 16 schools in classes from kindergarten to 12th grade assisted through

the “Schools in Schools” program, which is run by the Living Classrooms Foundation with help from Chesapeake Bay Foundation and the Anacostia Watershed Society. More than 1,400 students participated in capturing fish, hatching eggs, and growing out the fry in their classrooms. The project includes teacher training, allowing the effort to become an integral part of students’ science curricula. The lateness of the spawning run and spring break limited the work of the two schools working with river herring. Students raising shad again held a release ceremony to place their fry in the river and send them off on their long journey.

Education Program Seeks to Curb Poaching



Poaching, the illegal taking of fish, has been recognized as a growing problem, particularly in the metropolitan Washington area. A growing population of non-English speaking residents adds to the complexity of the problem. The introduction of a new campaign to stop poaching on the Potomac River focuses on educating anglers about the regulations and how sustainable fishing works for all of us. In April, the Potomac Conservancy, in cooperation with the National Park Service and the BoatU.S. Foundation, hit the river banks to get the word out about fishing regulations and to encourage litter control along the Potomac.

Fishing regulations along the Potomac River are different in each of the jurisdictions, and create confusion. Obtaining the correct license can be a challenge, especially for residents who do not read English. Matt Berres of the Potomac Conservancy recognized the need to make the regulations simpler to understand and is working in cooperation with the two agencies to bring educational outreach to fishermen. Dana Dirks, a supervisory park ranger at George Washington Memorial Park, stated that there has to be “education along with enforcement” in order to control poaching and encourage sustainable use of the resource.

The solution was to develop informative packets explaining the regulations for all areas of the Potomac. Packets include a plastic ruler for measuring the catch, a D.C. regulations booklet with color pictures of

fish for easy identification, two brochures clearly mapping out license requirements for the different areas of the Potomac, trash bags, and a sheet of size limits matched to color pictures of the fish. Information is available in both English and Spanish to accommodate a growing Hispanic population in the Washington metro area. Berres, who has helped hand out packets near Fletcher’s Boat House, said the “message has been very well-received thus far” and the Hispanic fishermen he had spoken to were “enthused to have resources available to them.”

Dirks reported that the more popular sites, such as the area near Fletcher’s Boat House, Chain Bridge, and Great Falls, tend to be problematic because of the number of visitors. The U.S. Park Police, Virginia Department of Game and Inland Fisheries, Maryland Department of Natural Resources, the D.C. Harbor Patrol, and the U.S. Fish and Wildlife Service are all part of the *Task Force Potomac*, a multi-agency group developed to control poaching and public use violations. Dirks reported that over the course of two weekends in early May, tickets were issued for 160 violations, including the use of cast nets, snagging, license violations, and the illegal taking of striped bass and American shad.

Regulations are set to sustain fish populations in the Potomac. The protection of American shad and striped bass, among other fish, is important to sustaining the Chesapeake Bay ecosystem. Without regulations to protect certain species, fish stocks could plummet. American and hickory shad, as well as sturgeon catches are prohibited in an effort to restore their stocks. The ICPRB has been involved in restoring American shad populations in the Potomac River. Now that the stocking has been completed, ICPRB staff will continue

to monitor the population (see related article). There are no large-scale efforts to stock the river with hickory shad or sturgeon, but a moratorium on the fisheries will aid in recovery.

The National Park Service will be working to train Potomac Conservancy volunteers several times this summer to spread the educational awareness throughout the season. Dirks stated that they have had good response from volunteers and are looking for more. The bilingual packets are also being distributed to partners and parks around the George Washington Memorial Park so that they can hand them out to fishermen. In the future, Dirks and Berres hope to obtain more funding to print the fishing packets in Vietnamese and create bulletin boards throughout the park displaying information about fishing regulations and trash removal.

If you are interested in volunteering for this educational endeavor, please call Matt Berres at 703.276.2777 or Dana Dirks at 703.289.2552 for more information.

Monocacy Residents Learn of River Up Close

More than 500 people of all ages participated in a week-long journey along the Monocacy River, a major Potomac tributary. The paddlers who signed on for just a day or the whole trip, experienced the history of the landscape, conservation of the river, and how to support their watershed. This year marked the third anniversary of the Monocacy River paddle, hosted by Community Commons of Frederick, Md. The ICPRB was among the partner organizations that supported citizen involvement in the watershed event. Other partners included local businesses and organizations.

Community Commons has been “working since 1978 to enhance and preserve the natural and social resources of the Monocacy River watershed,” according to Hilari Varnadore, Community Commons’ executive director. Thus far, Community Commons has been involved in projects such as the Monocacy River Trail and the Monocacy Basin Stream Monitoring Project, as well as organizing the Green Living Lecture and Workshop series and the annual Monocacy paddle. The purpose of the paddle is to offer hands-on lessons for local middle-school students, a forum for regional landowners to express conservation concerns, and to monitor the health of the river. At the end of each paddle, local

farmers, conservationists, government officials and others held discussions about the Monocacy basin and its conservation issues.

The Monocacy River is the largest Maryland tributary to the Potomac River. Near the Mason-Dixon line in Frederick County at the confluence of Marsh and Rock Creeks, begins the Monocacy River. The river meanders its 58 miles through Frederick County before it empties into the Potomac, passing through forests, the City of Frederick, neighborhoods, and farms. The paddle enlightened participants about the varied landscapes of the Monocacy River.

The trip started on Monday, May 12th with a “Pass the Paddle” ceremony in which Harry Stokes, an Adams County, Pa., commissioner, passed a paddle to Leonard Thompson, a Frederick County, Md., commissioner, exemplifying the regional support for the Monocacy watershed. In addition, Joe Hoffman, ICPRB executive director, spoke about the importance of regional cooperation to bring together citizens, local organizations, and government for the good of the basin. He went on to say, “Watersheds do not know state bounds,” and that these trips “help us to understand the importance of regional cooperation.”

Though Monday was windy and cloudy, it did not stop veteran and novice paddlers from going on the sojourn. Eric Johnson, a repeat participant in the annual event, showed his support for the education that everyone gains from a trip like this. “There are a lot of people who have never been on a river that get something out of the paddle, like understanding the concept of a watershed,” said Johnson. He also made the point that everyone benefits from the comradery and contributes something to the group.

Among the educational talks and activities throughout the week was one lunch discussion led by a U.S. Fish and Wildlife Service (USFWS) representative. His discussion focused on projects, such as bank



J. Caddick

The Monocacy is Maryland's first Scenic River.

restoration, that the USFWS leads to help protect the Monocacy watershed as well as others. Many of the participants agreed that the educational talks and activities were excellent and encourage conservation efforts in the watershed.

The week-long paddle ended early because of flood conditions on the Monocacy River and its tributaries. A make-up day will



Watching the River Flow

The flow of the Potomac River continued to reflect the wet conditions throughout the basin, according to the U.S. Geological Survey.

In April, daily flow of the Potomac measured near Washington, D.C., averaged about 18.9 billion gallons per day (bgd), or about 176 percent of the historical average of about 10.7 bgd. Daily extremes ranged from a high of about 48.8 bgd on April 13 to a low of about 8.8 bgd on April 30. Metropolitan area water suppliers withdrew about 370 million gallons per day (mgd) during the month, about nine percent less than April 2002. Total freshwater inflow to the Chesapeake Bay averaged about 104 bgd, about 11 percent more than the historical average. The Potomac contributed a near-average 22 percent.

May was even wetter, with flow for the month averaging about 22 bgd, or about 232 percent of the historical average of about 9.5 bgd. Daily extremes ranged from a low of about 7.9 bgd on May 2 to a high of about 51.7 bgd on May 17. Metropolitan water supply withdrawals averaged about 379 mgd, about eight percent less than May 2002. Total inflow to the bay averaged about 87 bgd, or about 36 percent more than the historical average of about 64.1 bgd. The Potomac contributed an above-average 30 percent of the total.

Water supply reservoirs are full, and groundwater levels throughout the basin are at normal or above-normal levels.

be scheduled. However, that did not stop several participants from finding other rivers to paddle. Tim Goodfellow, a Frederick County planner, took advantage of the high water with a raft trip down the Potomac River. He reported that the water was “moving fast and the rapids were big”, but it made the trip enjoyable. He joined the rest of the paddle participants at the River Jam and Barbecue, the traditional ending for the paddle, where about 60 participants celebrated the Monocacy River despite the continued rain and wind.

The festivities included dinner, a raffle for prizes, live music from the BOA, and the presentation of the Spirit of the Monocacy Award. This year’s award was presented to Kim Roberts, a Frederick County citizen, for her outstanding volunteer efforts as a graphic designer who created eye-catching posters, brochures, and fliers for Community Commons.

Potomac Basin Builds Green

In addition to the traditional clean-ups, tree plantings, and stream monitoring to help clean the bay, more citizens are discovering an even bigger role at home and work. According to sources at the Virginia Housing and Environment Network, Maryland’s Green Building program, and Arlington County Department of Planning, low-impact housing and commercial real estate, also known as “green” building, is becoming a priority for environmental homeowners and business people who recognize the ecological value of their spaces. Building green is a concept for the entire space, not just the edifice, to bring together the concepts of pollution control, invasive species control, recycling, wise water use, and enhanced water quality into a single yard or city block. By including native plants in the landscape to minimize erosion, water use, and chemicals, situating buildings for energy efficiency, and building the structure from natural materials, green spaces are a systematic solution to many of the bay’s environmental problems, including nutrient pollution and sedimentation.

Interest in learning to live and work sustainably and comfortably is growing. Arlington County, Va., in particular, is in the forefront of green design. Joan Kelsh, a planner with Arlington County, stated that their new county buildings are all designed to meet the highest ecological standards. These buildings are certified by LEED (Leadership in Energy and Environmental Design). From the ground up, these



buildings will provide the best in indoor and outdoor air, water, and aesthetic qualities and the highest energy efficiency available. In addition, Arlington County is taking the opportunity to educate builders by requiring them to submit information about the “greenness” of their plans in order to get the permits. By building to meet LEED standards, the county offers incentives, such as density credits for about 5% additional space, depending on the plan. Kelsh explained that though only one builder thus far has altered his plans to take advantage of incentives, Arlington County is hopeful that others will follow his good example.

Sean McGuire of Maryland Green Building Network, a group created by the state’s Department of Natural Resources, is excited about the upward trend of green building in the metro area. The network is a group of builders interested in applying green methods to their buildings. According to McGuire, there is a strong move to give local government buildings a green design, but the trend has not yet caught on with homeowners. “Until homeowners request green building, home builders will not embrace it,” says Annette Osso of the non-profit educational organization, Virginia Housing and Environment Network (VaHEN). The U.S. Department of Energy has awarded VaHEN a grant for eight Virginia builders to build energy efficient homes, one of them in northern Virginia. Certainly the unique qualities of the green homes and government buildings will gain the attention of local communities.

Sigi Koko of Down To Earth, a green design and consulting group, has worked on both residential and commercial projects that focus on using natural, sustainable building materials, such as straw infill and lime plaster. Koko says the two major benefits to the homeowner associated with green design are the long-term money savings and overall personal health. Straw-bale homes are well-insulated with a rating of R42 as opposed to the typical R12 rated insulation of traditional homes. In addition, the walls are made of breathable plaster, which allows moisture to escape for better control of mold. Depending upon the homeowner or business, homes and offices are built to meet specific needs inside and outside the building. To see examples of Down To Earth designs, visit their website at www.buildnaturally.com.

Koko explained the five main areas of green design: site issues, water conservation, energy conservation, resources, and indoor air quality. According to Koko, water conservation is the easiest of the five to tackle because it can be achieved with native plants, low flow fixtures, composting (no flush) toilets, and even living roofs. When asked about retro-fitting homes, Koko said that it can be done and that water conservation would be a good place to start for the homeowner. The energy savings of green spaces are the most appealing to the homeowner and the straw bale home has plenty to offer. Coupled with energy tight windows, radiant heating and cooling, and better insulation, the straw bale home is a sound alternative to the traditional variety.

There are other options for achieving green spaces. Because it is a systematic approach, the goal is to best match the local environment, which may be straw, concrete, or even recycled materials. An exemplary green space in the Potomac basin is ThorpeWood, an environmental education center nestled in the mountains of Thurmont, Md. ThorpeWood is owned by Thorpe Foundation, a private non-profit organization. This ecologically sensitive building is fully equipped with composting toilets, a graywater recycling system, and was created from recycled building materials, in addition to being energy efficient. The building itself “is cooled naturally, situated on a favorable aspect, under the tree canopy, not far from a hollow, and the building is designed to use and create convection current circulation patterns,” says Sam Castleman, executive director of Thorpe Foundation. Although there are no wind turbines on site, ThorpeWood relies on 100% wind power from West Virginia and New York for all electrical needs. Roof runoff is directed to natural depressed areas of native wetland plants. The gardens were designed to best follow the original landscape. Native plantings attract butterflies, bees, birds, deer, snakes, and even bears. There are many other aspects that make the space green, including cement insulation and wood burning furnaces. Staying true to green space design principles, the building works in conjunction with nature and takes little from it. To learn more about ThorpeWood, visit their website at www.thorpewood.org.

Not all of us are able to afford to renovate or build to meet green building standards, but we can rejuvenate spaces and fixtures in and around our homes for low or no cost. Green spaces are a sensible way to live in the basin and means greening up our pocket books as well as our landscapes. For more ways to give your home a “green” makeover, visit the “Get Involved” section of our website at www.icprb.org.

Virginia Hosts Potomac Forum

The Forum will bring together leaders and decision-makers in the private and public sectors to explore the latest information on tributary strategies, Total Maximum Daily Load plans, and water supply issues. The Potomac Council and Virginia Department of Conservation and Recreation will host its third Potomac Watershed Forum at George Mason University's Prince William Campus in Manassas on August 8 from 9 a.m. to 3 p.m. This forum is a continuation of Virginia's efforts to meet the Chesapeake Bay Program goals. The first Potomac Watershed Forum resulted in the Potomac Roundtable, a quarterly meeting for participants to discuss issues in the watershed. This year's forum will provide a platform for discussion of goals that need to be met and what needs to be done to meet them.

The tributary strategy teams, a major focus of the forum, will organize plans for future work. Two full hours will be dedicated to the tributary strategies, including time for public discussion about local goals for the Potomac watershed. Tributary strategies discussions will be lead by Jack Frye, Director of the Soil and Water Division of the Department of Conservation and Recreation and Marc Aveni, Regional Manager of the Potomac Watershed Office of the Department of Conservation and Recreation. Water supply issues will be

discussed by Virginia's Deputy Secretary of Natural Resources and Drought Coordinator, David Paylor.

Stakeholder groups are encouraged to participate and help formulate plans to meet goals and develop solutions to address the issues. The forum is a good opportunity for representatives to network with agency officials and to understand the approaches that are being suggested for meeting the Chesapeake Bay Program goals for Virginia's Potomac basin.

Cost for attending the Potomac Watershed Forum is \$20, and includes continental breakfast and lunch. The registration deadline is July 28. To download the registration form, please visit www.fairfaxcounty.gov/nvswcd/potomacforum.htm. Contact Andrea Ceisler of the Northern Virginia Soil and Water Conservation District at 703.324.1460 or conservationdistrict@fairfaxcounty.gov or Marc Aveni of the Department of Conservation and Recreation at maveni@dcr.state.va.us with questions.



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