

REPORTER

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Interstate Commission on the Potomac River Basin

May/June 2011



J. Palmer

Kayakers and canoeists entertained a large crowd as they paddled in the annual Great Falls Race, a part of the Potomac Whitewater Festival, on June 25. The whitewater community now works with the National Park Service to patrol whitewater areas. Paddlers traversing Great Falls are now a normal occurrence.

Bay, Potomac Receive Poor Grades

An annual report card for 2010 has graded the health of the Chesapeake Bay a “C-,” and the Potomac River, its second-largest tributary, a “D.” The bay’s health index fell from the C it received in 2009, and is the first time in four years that the index has declined. The Potomac’s health index dropped a full letter grade from 2009, when it scored a “C.” The Potomac is one of 15 tidal subwatersheds that make up the bay health index.

The report card is released each year by EcoCheck, a partnership between the National Oceanic and Atmospheric Administration (NOAA) and the University of Maryland Center for Environmental Science.

The ICPRB is one of a host of organizations that helped to develop the indicators and assessed the data used for the assessment. The raw data are routinely collected by state and federal partners as part of the coordinated Chesapeake Bay monitoring program.

The six indicators used to assess bay and subwatershed health include three water quality indicators and three biotic indicators. The bay system and its subwatersheds are very complex systems and many of these indicators are affected by others. Indicators for the report card relate to the management objectives established in the Chesapeake 2000 Agreement and

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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represent key ecological processes.

The water quality indicators include chlorophyll *a*, dissolved oxygen, and water clarity. Chlorophyll *a* is a measure of the amount of phytoplankton (microalgae). It is influenced by water temperature, sunlight penetration, and nutrient availability. Elevated phytoplankton levels can lead to reduced water clarity and decomposing phytoplankton can lead to reduced dissolved oxygen levels. Dissolved oxygen is essential for healthy biological communities, and different species have different needs. Water clarity determines how much sunlight penetrates through the water column. Concentrations of algae or sediment suspended in the water limit sunlight needed for growth of aquatic plants and phytoplankton abundance.

The biotic indicators in the EcoCheck index include aquatic grasses, phytoplankton communities, and benthic (bottom) communities. Aquatic grasses were once lush throughout the Chesapeake Bay, providing critical habitat for fish, crabs and other creatures, and helped to contain sediment and oxygenate the water. Aquatic plants in the system crashed from sediment and pollution, but are now returning strongly in some areas, including the Potomac. Phytoplankton are the base of the bay's food web and their condition an important indicator of health. The benthic communities, such as shellfish and other bottom-dwelling organisms, are a critical food source for many finfish species.

The 2010 report card combines the water quality and biotic indicators in an overall health index. The bay's overall rating of C- was the first decline in four years, and indicates a system in moderately poor health, according to the report. The upper bay became the top-ranked region, taking over from the upper Western Shore, which decreased markedly.

The falling grade for the Potomac was influenced by the severe storms and high streamflows in the late winter and early spring. January and March saw particularly high flow events in the river, followed by some very low flow conditions in the late spring and early summer. The high flows brought massive amounts of sediments and nutrients into the system. These weather patterns help to explain why four of the Potomac's six indicators fell sharply for 2010. The score for phytoplankton dropped to its lowest level in 14 years and chlorophyll *a* was the poorest (highest concentration) since 1986. Water clarity and benthic community scores fell after several years of improvement, according to the report.

The Potomac's D health grade in 2010 means that few water quality and biological indicators meet desired levels. Water quality tends to be poor, often leading to poor habitat conditions for fish and shellfish, the report noted.

Among the river's water quality indicators,



C. Dalpra

The tidal Potomac downstream of Washington holds large stands of aquatic grasses.

dissolved oxygen levels remained relatively steady, close to long-term averages, while water clarity and chlorophyll *a* scores declined. Water clarity had previously been improving, but declined in 2010.

For the biotic indicators, aquatic grasses remained steady, declining slightly since peaking in 1995. The area from Piscataway Bay down to the U.S. Route 301 Bridge at Morgantown is the most productive area. The lower Potomac is still far below its restoration goal. Phytoplankton and benthic community scores dropped sharply. Phytoplankton peaked in 1992, then crashed in 1996. The 2010 index was slightly higher than the 1996 index, and was rated as very poor. The benthic community index had improved steadily from 2006 to 2009, before the steep fall last year.

A team of scientists and monitoring staff led by ICPRB Associate Director for Aquatic Habitats Claire Buchanan worked on the development of the phytoplankton index used by Chesapeake EcoCheck. Other ICPRB staff routinely process much of the raw data used to calculate the three water quality indicators and the phytoplankton index.

Buchanan also performed another assessment of Potomac water quality using data collected from continuous monitoring devices deployed by Maryland and Virginia natural resource agencies in shallow waters. While the rating system for her assessment of the tidal Potomac differs from that used in the report card, it did illustrate how severe storms can decrease the health of the Potomac. The results suggest that restoration efforts targeted at these shallow water estuary sites could expedite the recovery of the river as a whole.

The study found evidence for a succession of plant types as the river shallows recover, from phytoplankton to benthic algae (attached to sediments) and underwater grasses. The report noted that Piscataway, Pohick, and Fenwick bays and Mattawoman Creek contained abundant aquatic plant populations, with Piscataway and Mattawoman already meeting restoration goals. Healthy stands of grasses were smaller and more isolated downriver.

Those areas also had the poorest indices (higher value) for turbidity, phytoplankton, and chlorophyll *a*.

The study used a numerical range of -8 to +8 as a rating, with most of the stations grouped slightly above or below 0, the middle of the range. The upper stations, from Piscataway Bay to Blossom Point were all at least +0.5, with Mattawoman Creek rated at +4. Downstream areas were a mix of positive and negative scores, with the Wicomico and Saint Mary's rivers rated at -2.5.

These assessments point to the large gains made in river health compared to the 1960s and 1970s, when the nutrient-rich river hosted

massive summer blooms of blue-green algae that coated large expanses of the upper tidal river. They also point to a river that has recovered to a degree, but whose gains and status are so fragile that adverse weather conditions can send that recovery into a tailspin that can take years from which to recover.

In the long view, bay trends for the last 25 years, assessed by the U.S. Geological Survey and the Chesapeake Bay Program show that most health factors for the bay are improving due to the decline in nutrient and sediment concentrations in most parts of the bay.

These trends suggest that the many pollution reduction and habitat improvement projects made over the years are having a positive effect, but further reductions will be required to meet the bay agreement goals. The many efforts to improve the health of the bay and Potomac also will require time to take effect.

In the meantime, bay residents can adopt practices that contribute to a healthier bay, including decreasing or stopping fertilizer use, containing and filtering runoff with rain barrels, rain gardens and other conservation landscaping, planting riparian buffers, maintaining and improving septic systems, and decreasing household and transportation energy use.

For more information on the report card, visit www.eco-check.org.

Blue Plains: Less Pollution, Greater Efficiency

The Washington, D.C., Blue Plains Advanced Wastewater Treatment Plant has processed the wastes of District and suburban residents since 1938. Its significant upgrades in the 1970s are credited with the metropolitan Potomac's strong rebound at the end of that decade and into the 1980s. The regional plant is operated by DC Water, the city's water and sewer authority.

Since that time, continuing expansion has made the facility the largest advanced wastewater treatment plant in the world, serving more than 2-million people and designed to process an average of 370 million gallons of sewage each day.

At a May 17 press conference, General Manager George Hawkins proudly announced the next step in the evolution of the plant, a \$1.4-billion set of projects that will further reduce nitrogen loadings to the Potomac River, and an innovative new process that will generate electricity as a byproduct of treatment. At the same time, sludge created by the plant will be of a higher standard, allowing for its increased use as a fertilizer.

Construction is beginning on enhanced nutrient removal facilities that will reduce the plant's effluent nitrogen to meet the Chesapeake bay program goals of 4.7 million pounds per year. In 2000, the plant released more than eight million pounds of nitrogen, a major pollutant to Chesapeake Bay.

The solids generated by wastewater treatment plants generally are stabilized with lime and trucked away for application on farm fields growing non-food crops. Blue Plains will now employ a process that has been used in Europe, but on a larger scale than ever before. Known as thermal hydrolysis, solids will be heated under high pressure, followed by a bacterial digestion. The heat from the hydrolysis process will be used to generate 13 megawatts of electricity, saving



DCWASA

Blue Plains is the largest advanced wastewater treatment facility in the world.

Blue Plains about \$10 million in electricity cost per year.

"DC Water is the largest consumer of electricity in the District, and the digesters should cut our consumption by a third," Hawkins said. The process will decrease the amount of sludge that needs to be hauled away, and will be of a higher quality that can be used more widely. The process should save another \$10 million in trucking costs and reduce the plant's carbon footprint by half, Hawkins noted.

Both projects are scheduled for completion in 2014.

Reducing Runoff One Garden at a Time

About 700 square feet of lawn has been replaced with native plants in Kingston Chase, a Fairfax County, Va., neighborhood just outside Herndon. After attending neighborhood lectures about garden design, native plants, and water quality issues (including two programs by ICPRB's Jen Willoughby about rain barrels and turf reduction), the Conservation Corps of the Kingston Chase Homeowner's Association decided it was time to ditch the training wheels and implement a garden of their own.

Always the main goal of their project, the garden will serve to enhance the beauty of the neighborhood's common grounds and provide a basis for communication and education about native plants, pollinators, and water quality. "We really wanted this to be an education garden," said ICPRB's Senior Hydrogeologist and Kingston Chase resident Jim Palmer.

The garden sits next to the neighborhood's clubhouse and pool, a prime location to capture the attention of children and adults that frequent the amenities. A true community effort, the garden sports stepping stones made by children, each stone being sold to help raise funds for the space. Two



J. Palmer

The completed garden.

girl scout troops helped with the planting and an Eagle Scout organized the volunteer labor, materials delivery, and planting. Neighborhood volunteers helped turn the soil and plant the garden. Some donated plants or funds to purchase plants. All funds and donated time were used as a match for a \$1,900 grant from Fairfax County's Neighborhood Enhancement Partnership Program. The Kingston Chase Conservation Corps will continue to organize volunteers to maintain the garden.

The ICPRB's rain barrel program was designed specifically for projects like these. The goal of the rain barrel program has never been to simply sell rain barrels. Rather, it is an effort to educate citizens about their role in reducing storm water, creating vital habitat, and reducing pollution. Since the rain barrel program's inception, Willoughby has provided technical assistance to ten garden projects using rain barrel funds. The program has educated about 1,200 people through more than 60 free workshops about rain barrels, turf reduction, native gardens, and water quality, encouraging attendees to plant a garden, install a rain barrel, and continue to

reduce their impacts to the watershed.

These community on-the-ground efforts are an important way for residents to reduce pollution yard by yard. All those yards add to a healthier Potomac watershed and Chesapeake Bay.

ICPRB Reaches Out to Watershed Groups

Last winter ICPRB set out to collect some information on the basin's watershed groups in hopes of discovering who was "out there", where they were working, what they were doing, what they had in common, and what assistance they might need. This spring the full report was published on ICPRB's website. The following is a brief synopsis of the results.

The 75 survey respondents were made up of non-profit groups (57%), government agencies (16%), for profit entities (8%), and "other" (19%). The survey focused on five topics: fundraising, outreach, group projects, future directions, and collaboration/assistance.

Fundraising

Fifty-seven percent of the groups responding indicated they had been successful in fundraising, listing annual membership dues, contributions, and giving campaigns as major funding sources. Other funding sources mentioned were government and corporate grants, local business donations, and community oriented events including golf tournaments, 5K races, river festivals, rain barrel sales, native plant sales, annual silent auctions, banquets, raffles, and even yard sales.

According to survey respondents, funds are most commonly used for environmental outreach education and the production of outreach materials: brochures, posters, and public demonstration materials. Equipment purchases were listed next (water-quality monitoring equipment like field microscopes, magnifying glasses), restoration project materials, annual stream walk and clean-up goods (gloves, trash bags), tree planting supplies, storm drain labeling materials, and for the all important provision of food and water for volunteers. Funds also are commonly used to plan, facilitate, analyze, map, or study environmental issues, to pay staff salaries, and for general needs (office equipment and operating expenses, printing, website fees, insurance).

Reaching out

Nearly all (97%) of the groups responding indicated they have a website with a majority of the groups (59%) reporting that they update them once to several times per month. Seventy percent of the respondents



Watching the River Flow

Flow of the Potomac River measured near Washington, D.C., was above normal during April and May 2011, according to provisional data collected by the U.S. Geological Survey.

In April, average flow of the Potomac, measured near Washington, D.C., was about 28.8 billion gallons per day (bgd), about 16 percent more than the long-term average of 13.3 bgd. Daily flow extremes during the month ranged from a low of about 7.5 bgd on April 4, and reaching its monthly high of about 105.4 bgd on April 18. Water taken from the river for metropolitan water supply averaged about 364 million gallons per day (mgd).

May rose even higher from continuing storms, with an average flow for the month of about 22.0 bgd, or about 27 percent more than the May average of about 9.7 bgd. The river's flow ranged from a low of about 7.0 bgd on May 14, quickly rising to a high of about 93.1 bgd on May 31. Water taken for water supply averaged about 394 mgd in May.

The ICPRB Section for Cooperative Water Supply on the Potomac River (CO-OP), in its most recent water supply outlook reported a very low possibility that reservoir releases of stored water will be needed for water supply and environmental flow by this year.

indicated they produced either a hard copy or electronic version of a newsletter. Some indicated that they utilize both. A resounding 42% indicated that they used Facebook and 23% indicated they use the Chesapeake Network. Twitter, Google and Yahoo groups, and blogs were also indicated as social networking tools.

Group projects

Fifty-three groups answered the question "What is the average number of projects the group completes per year?" Answers ranged from 1-100, with an average of 19. Public education, volunteer monitoring, and clean-ups were listed as the most performed projects. Other types of projects included rain garden installations, tree plantings, rain barrels, and storm drain stenciling, along with many other quite interesting projects.

Future directions

The groups were asked about their top two priorities for 2011, and gave some amazing answers with the overall theme being to spread the word through public education about restoration, protection and stewardship of our beloved waterways and surrounding forests. Top constraints reported included tightened budgets, a decrease in giving, lack of volunteers, and limited staff and resources.

Collaboration/Assistance

The top answers given when asked what type of collaboration/assistance would be useful were partnering on grants (22%), in-kind services such as printing and web design (17%), grant seeking and writing (16%), designing and delivering educational presentations (15%), technical or scientific



assistance (15%), organization of group (6%) and other (8%). In respect to the "other" category, the answers included more active volunteers, funding, general support, promotion of programs & membership, data-base management, technical seminars, advocating, and riparian plant materials.

The ICPRB hopes this information will be helpful to watershed groups in the basin, and ICPRB will use this information to better target services that can help sustain watershed groups and forward their goals. The ICPRB has assisted many watershed groups with a variety of projects including raingardens, drain stenciling, and signage, and has helped form and sustain new groups, such as the Friends of Rock Creek's Environment (FORCE).

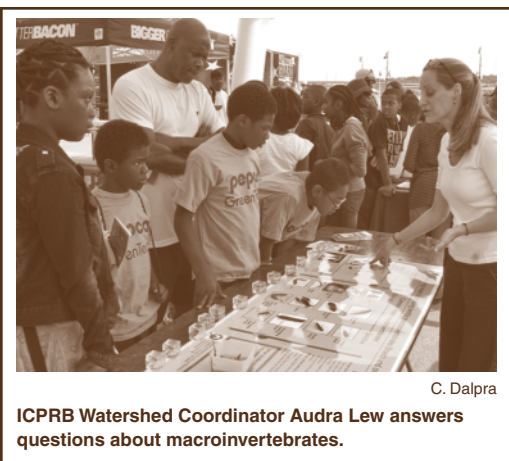
Full survey results are available online on the ICPRB website as well as on the Chesapeake Network Potomac Basin Stewards group page (<http://www.chesapeakenetwork.org/PotomacBasin>). Also as a part of the survey project, ICPRB created a web-based map indicating watershed steward organizations in the basin. The map can also be found on the Chesapeake Network Potomac Basin Stewards Group as well as ICPRB's website.

Nation's River Bass Tournament Brings Students to the Water, Fish to the Classroom

Fishing remains a popular pastime in the Potomac watershed, although for some kids, fishing or even getting out into nature are activities that aren't readily available. Kids that can get out to enjoy the natural environment and its many pleasures become proponents for its conservation for others to enjoy.

Hundreds of school students arrived in waves at the pier at National Harbor in Prince George's County, Md., both to learn about their local environment and to fish with professional bass guides. For most of the kids, it was their first time fishing.

The Nation's River Bass Tournament, now in its fourth year, is an event held by the Living Classrooms Foundation of the National Capital Region. The foundation uses the tournament as an educational opportunity and to help raise funds for its many environmental and educational



C. Dalpra

ICPRB Watershed Coordinator Audra Lew answers questions about macroinvertebrates.

programs, including the educational segment of the ICPRB-led American Shad Restoration Program.

Dozens of students left early on the

morning of June 3, each on the boat of a volunteer bass guide and staff from the events partners, including the U.S. Fish and Wildlife Service, ICPRB, and many other groups and organizations. Those sponsors are providing critical support to connect regional youth to the Potomac River to advance the goals of growing new anglers and conservationists

While some of the students fished the morning away, many others visited the pier to learn more about the Potomac environment, fishing, safety on the water, and other topics. The pier was crowded with many interactive displays and very excited kids.

The ICPRB display on “creek critters” was very popular. Biologists trapped stream-

dwelling insects the previous evening, and the living macroinvertebrates were on display for the students to handle and learn about the importance of healthy bug populations and how they can be used to gauge stream quality. Several of the students gazed in wonder at the small insects, surprised to learn that these might be residents of a stream near their house or school.

Living Classrooms runs the education segment of ICPRB’s American Shad Restoration Program. Working with ICPRB and other partners hundreds of students have helped collect shad eggs with watermen and biologists, and thousands have helped to raise shad fry through Living Classrooms’ Schools In Schools program.

Former ICPRB Commissioner, Conservationist, Passes Away

Minnie Pohlmann, an ICPRB Maryland Alternate Commissioner for 25 years, passed away on June 8. She was 92.

Pohlmann’s involvement with ICPRB began in 1978, as a participant in the Thames-Potomac Seminars, a series of water management exchanges that took place in both Washington, D.C. and London. Several ICPRB commissioners were involved in the project. She was appointed a Maryland alternate commissioner in 1985.

At that time, she already had gained a reputation for her efforts to conserve the rural nature of the Dickerson, Md., area and particularly the area around Sugarloaf Mountain, near the family homestead. She also was involved in curbing land use change in the area as the Dickerson power plant came on line, and was part of the effort that stopped the construction of the Sixes Bridge Dam on the Monocacy River that would have created a large reservoir over thousands of acres of farmland.

In preparing a resume for ICPRB upon her appointment, Pohlmann wrote: *Introducing myself to those who are not familiar with my thought and activities, I am apt to state that “My bias is conservation”—conservation of natural resources.*

During her long tenure at ICPRB, Pohlmann, always in her polite, unassuming way, helped to keep her fellow commissioners focused on the big picture of conservation of the land and waters of the Potomac basin. Her quiet demeanor commanded attention whenever she spoke out about an issue.

Her efforts at keeping the agency focused on its core mission followed a long list of involvements and accomplishments as a member of many organizations. Pohlmann was on the planning staff of the Frederick County Planning and Zoning Commission, and later served on the county’s Parks and



C. Dalpra

Recreation Commission. She also served as a planning advisor to the Planning Commission for the Urbana, Md., region.

Pohlmann volunteered to serve with many conservation organizations. When she was appointed to ICPRB, she was a member of the C&O Canal National Historical Park Advisory Commission, Maryland State Water Quality Advisory Committee, Middle Potomac Basin Planning Committee (Md.), Metropolitan Washington Council of Governments, Western Maryland Power Plant Siting Program, Maryland Conservation Council, C&O Canal Association, Nature Conservancy, Audubon Society, Potomac Valley and River Rights Council, as well as other civic organizations.

She was strongly involved in land use

issues at the family's farm at the foot of Sugarloaf Mountain, preserving the land through conservation easements on her property, as well as encouraging others to do the same.

Over the course of her long career, she was cited by environmental and conservation groups numerous times for her many efforts.

Pohlmann also helped with the creation of a large 1990 exhibit celebrating the Potomac's history and ICPRB's 50th anniversary, which was displayed for several months at the Smithsonian Institution Museum of Natural History, and then traveled to each state capital in the basin.

Pohlmann liked to describe herself as a "little old lady in tennis shoes" whose grandmotherly demeanor put people at ease, even among those who disagreed with her politics. That demeanor, coupled with her tireless devotion to conservation causes, made her a well-known champion for the environment.

One of the best compliments paid to her came from then-President Bill Clinton in 1995 as he held a press conference in Rock Creek Park to decry congressional efforts to weaken the Clean Water Act and promised a veto of the bill. Pohlmann was enough of an

environmental icon to be invited to introduce the President at the press conference, and described herself again as the "little old lady in tennis shoes." Clinton began his remarks by saying "This country would be better off if we had a few more little old ladies in tennis shoes, don't you think?"

Yes, we would. It is unfortunate that Pohlmann's passing leaves us with one less, but she does leave all the residents of the Potomac basin with a clearer path to follow. She will be missed.

Snakeheads Stay Put?

The reports of a snakehead fish being captured above Great Falls has drawn suspicion from fisheries managers (see March/April 2011 *Reporter*). Officials have heard some conflicting stories and now do not believe the fish was actually caught upstream of Great Falls, which could mean that the invasive species would have access to the upper Potomac. It remains crucial that people do not transplant fish from where they were caught.



Potomac Basin

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