

CRA
CHESTER RIVER
ASSOCIATION

CURRENTS

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Letter from the PRESIDENT

The health of the Chester River is better than it has been for many years. Last year's monitoring data showed a general uptick in water quality throughout the watershed. The Chesapeake Bay as a whole also had its best report in years.



This is cause for celebration (and we did at our fabulous Summer Solstice dinner dance in June!) and an encouraging sign that our efforts are having an impact. We are moving in the right direction but much remains to be done. Many sectors are on track to meet the 2017 interim goals for nutrient and sediment reduction mandated by the Chesapeake Bay "pollution diet." But the low hanging fruit has been plucked. Meeting the 2025 goals will become exponentially more difficult—and expensive.

CRA is incredibly proud of our leadership role in implementing nutrient reduction practices. Among other things, our organization has:

- advanced Best Available Nitrogen Technology in new septic systems.
- led the way in promoting cover crops.
- planted hundreds of acres of switchgrass while finding innovative ways to use the biomass—most recently as bedding material in poultry houses.
- promoted large-scale implementation of fertilizer use efficiencies by farmers, including the use of "precision ag" technology to apply fertilizer only where it is needed by crops.
- educated kids about our watershed by installing tree buffers, native shrubs and living shorelines near schools and camps.

Our track record is strong and we are constantly seeking new ways to reduce nutrient transport in our tributaries. We continue to expand our signature programs. At the same time, we are working on a major new initiative to develop a comprehensive nutrient program with our farming partners that is designed to reduce the amount of soluble nitrogen available to escape the crop root zone at any given time throughout the year.

Our members—you—are the key to our success. I hope all of you feel engaged in and proud of the work you support. There is a long road to travel, but we're moving in the right direction.

Brennan Starkey

CRA MISSION

Achieve our vision of a healthy Chester River for our community and future generations through science-based advocacy, restoration, and outreach.



ABOUT THE CHESTER

The Chester River is a pipe-shaped river with its narrow stem in Delaware and its wide bowl opening into the Chesapeake Bay at Love Point. The main stem is 60 miles long and is fed by 43 named tributaries. The river forms a natural border between Kent and Queen Anne's counties and its watershed encompasses about 250,000 acres. The Chester is a defining feature of our landscape, plays an integral role in our rural lifestyle, and is a significant driver in our local economy. CRA was founded in 1986 by Kent and Queen Anne's citizens who were alarmed at the river's decline. CRA hired its first Riverkeeper in 2002. Through restoration projects, community outreach, volunteer opportunities, and events, CRA strives to improve water quality and increase public awareness of river and watershed issues. To learn more about our programs and to find contact information for our staff, visit www.chesterriverassociation.org. Email info@chesterriverassociation.org with inquiries. Follow us on Facebook. We encourage anyone who would like to get involved to contact us!

Cover photo of Trey Hill by Shane Brill.

Farmers— protectors or polluters of the Chester River?

Story by John Lang
Photos by Shane Brill

Farming is the biggest polluter of the Chester River. Farmers are some of the most dedicated environmentalists in the watershed. That is not a contradiction.

"I think of myself as an environmentalist," says Trey Hill, one of the largest-scale farmers on the Eastern Shore. "A lot of people don't get it, that I can be a farmer and environmentalist, too." One who does get it is U.S. Secretary of Agriculture Tom Vilsak, who invited Hill to the White House last year, honoring him as one of 11 Champions of Change for his "sustainable and climate-smart agriculture."

What Hill is doing is leading edge. On the 10,000 acres he plants and harvests in mostly leased fields scattered from above the Sassafras to the Wye River, he plows only five percent of it. He plugs the rest of the land, dropping seeds into holes drilled into the soil through a cover crop of aging plants. The no-till fields are never bare and, as a result, they're not scoured by rainfall runoff.

Hill contends that farmers on the Shore are working hard not to foul the waters. As he puts it: "It's simply in our own interests."

But when two and a half inches of rain fall in a half hour, as happened in parts of Kent and Queen Anne's counties in early July, the runoff is bad at all but the most carefully managed farms. Consider: The nitrogen load on Queen Anne's County from farming alone is nearly 1.4 million pounds yearly, according to the U.S. Environmental Protection Agency's Chesapeake Bay Program. The total from all other sources—septic, urban runoff and wastewater—is about one-fifth of that. In Kent County, the nitrogen load each year from agriculture amounts to almost 1.3 million pounds, nine-tenths of the total.



Quail habitat planted by the Ingersoll family on Silver Hill Farm should improve the Chester River's water quality.

"We get grief from some environmental organizations for being 'in bed' with farmers."

— Tim Trumbauer, CRA Watershed Manager

It is farmers' topsoil along with algae blooms enhanced by fertilizers that cloud the river after heavy rainfalls. And that's something farmers have to restore and enrich again when the sun comes out. It's also money spilled from their pockets.

An inconvenient truth comes up when farmers are blamed for fouling the waterways: People need to eat. What's grown locally—mostly corn, soybeans and wheat—is at the base of the nation's food chain. According to a national ag census, there are 530 farms in Queen Anne's covering 157,000 acres and producing crops and livestock with an annual market value of \$167 million. In Kent are 367 farms totaling 133,000 acres and producing foodstuffs worth \$112 million. Other enterprises don't come close to

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15,000 Native Plants— A Success Story in Worton

By Isabel Hardesty, Chester Riverkeeper®

The Chester River Association’s aim is to build a healthier river for our communities and future generations. One recent project particularly embodies this mission: a large-scale ecosystem restoration project, including tree planting and wetland creation, at Kent County High School and the adjacent Worton Park. The restoration effort will certainly help improve the health of the river. How? By the end of the project, we will have restored 12 acres of land at the headwaters of two impaired streams, filtering stormwater from about 200 acres of athletic fields, parking lots, and roofs before it enters the Chester River.

But I would argue its biggest accomplishment will be the positive impact on our community—on students who will learn from this work-in-progress and on the park-users who will enjoy these spaces for years. I hope that these restored natural areas inspire an appreciation for nature and stewardship of our environment.

The project began in the winter of 2014. The

Liza recommended we also involve Cindy King, a Certified Professional Horticulturalist at Kingstown Farm, Home & Garden. Cindy, a Kent County native living in Worton, was excited about the opportunity to create natural ecosystems and increase local plant and animal diversity. Think of these two as Team Green.

Engaging the Next Generation

Most students would simply plant trees for a project like this. Not this bunch. Liza wanted to engage her students from the very beginning. First, we had to get permission for the project from the landowners: the Kent County Board of Education and the Kent County Commissioners. Liza’s class developed a presentation explaining the project and how it fit into the school’s effort to become more “green.” A small group of students presented the information to the school board and the commissioners and formally requested landowner permission. Not surprisingly, both parties were

attracted to the concept of improving public land.

Last year, students planted 1,700 trees and 8,000 wildflowers. This fall, they will observe the wetland construction in Worton Park and next spring they will plant 5,000 shrubs and wildflowers to complete the project.

“To have students not only learn about the concepts of reforestation and wetlands but actively participate in the restoration is an invaluable tool that can’t be replicated in the classroom,” Liza says. “Getting their hands in the mud, smelling the fresh air and working with peers turns on all parts of the brain for learning and is fun too.”

And it doesn’t stop there. The students will continue to work within the restored areas. Already, classes are monitoring the health of the plants, measuring the growth of the trees, recording the animal species that have arrived, and building wooden bird boxes.

Liza explains: “Getting kids outside is a critical role in education today. Students don’t have to sit in chairs at a desk to be learning. Many times when they are laughing and having fun they are learning and don’t even realize it.”

I hope that through this hands-on citizen

Shane Brill photos



Kent County High School student MacKenzie Peacock investigates insect presence and pressure.

properties sit at the headwaters of two impaired streams: Churn Creek, which flows to the Chesapeake Bay, and Riley’s Mill, which flows to the Chester River. At the time, both the high school and the park were mainly comprised of turfgrass and athletic fields and would have benefited from natural areas to slow stormwater, attract birds and butterflies, and offer a more beautiful landscape.

Liza Goetz is the Kent County High School agriscience teacher. She tries to get her students outside as much as possible and is continually working to “green” the high school. She was ecstatic about the idea of doing something big on school property.

engagement and restoration experience, Chester River Association is helping create the foundation for our students to grow up as stewards of their environment. It's also a huge lesson in what it means to be involved in their county's political process.

Return to a Natural State

The end goal of the project is to let these areas regenerate to their natural states. These natural areas will slow and filter stormwater before it enters local creeks and the Chester River. They will create native habitat for birds, butterflies, frogs, toads, turtles, and other animals, and will enhance the beauty of the school and park. They will also bring students and park-users closer to nature, a connection that is increasingly lacking in our air-conditioned, plugged-in world—but one that we are starting to discover is vitally important to our mental, physical, and social well-being.

"I grew up on the Eastern Shore and remember dipping soft crabs from the grass around Eastern Neck, catching eels, oysters, hunting and enjoying the abundant wildlife," Cindy recalls. "I would walk the woods for hours observing orioles, scarlet tanagers, warblers and all kinds of plant species. Anything that I can do to try and restore these environs is a must. I so hope that the newly planted native areas surrounding Worton Park and Kent County High School allow for some return to normal for our diversity in this area."

Cindy's expertise and passion for natural diversity has been vital to the project's success. Based on her knowledge of the local environment, she developed a list of wildflowers, understory trees, and canopy trees that would reflect the diversity found naturally in this area. She and Liza then made detailed planting plans so each species would be planted where it was most likely to survive based on its preference for sun or shade, wet or dry roots. The pair also took great care to ensure the plantings were aesthetically pleasing by considering blooms, fall colors, and evergreens in the placement of species across 10 acres. The survival rate of the trees planted is 88 percent in the park and 70 percent at the high school – very good survival rates, according to Francis Smith, the Maryland Department of Natural Resources (DNR) forester who performed the survey.

Our hope is that as the years progress, the areas we've planted will look more and more like a natural forest: canopy trees spreading shade above a diversity of understory trees; native wildflowers



Students Riley Stafford, MacKenzie Peacock and Ethan Miller, from left to right, are on the hunt for invasive species.

and shrubs carpeting the floor; and all of it providing animal habitat, color and texture to a once monoculture landscape.

Working Together for the Common Good

We are pleased to report that DNR and the Kent County Commissioners provided over \$220,000 to fund the restoration. Both were particularly supportive because the project's location at a public school and park provides for lasting educational and enjoyment opportunities for the community.

The commitment of all these parties—DNR, the Kent County Commissioners, the Kent County school board, Liza Goetz, and Cindy King—has made the project a reality. As for what's next, we are about to break ground on a 1.27-acre wetland and wildflower meadow in the park. Best yet, more than 100 students have been closely involved in the project so far.

This is the kind of work we need to be doing across our watershed if we want to see a difference in the health of our local waters. Chester River Association will continue to put restoration projects in the ground to improve water quality, and we encourage everyone who lives here to do their part—by planting trees, letting a buffer grow up around a ditch, and replacing turfgrass with native gardens.

"If we continue with no consideration and taking no responsibility for our actions we are going to increase the demise of this planet exponentially. We have to look at accumulative actions when it concerns habitat destruction, pesticide usage, and the increase of extremes in climate change," Cindy says. "Our footprint can be a deep furrow in the sand or just a very light impression. I want mine to be a very light impression."

It Takes a Village... to Save a River

By Tim Trumbauer

Let's keep this simple...I'm going to tell you the three very important things you need to know right up front.

1) Pollution, specifically nutrient and sediment pollution, is damaging the Chester River.

2) Most of the pollution in the Chester River comes from our own watershed.

3) Restoration works—we can all make a difference in improving water quality.

Now let's back up a bit...The Chester River is a brackish tributary of the Chesapeake Bay located primarily in rural Kent and Queen Anne's counties. The Chester's 500 or so square mile watershed is home to oysters, catfish, striped bass, diamondback terrapin, blue heron, perch, and the famed Chesapeake blue crab. While beautiful on the surface, a closer look reveals that the Chester River is at risk from pollution.

We know the river is at risk because Chester River Association (CRA) staff and our Chester Tester Citizen Scientists collect nearly 10,000 data points at over 60 sites each year. In fact, CRA's **scientific water quality monitoring program** is the foundation of our efforts to identify and eliminate pollution sources throughout the watershed. In 2016, we greatly expanded our water quality monitoring program by adding more sampling sites in more areas and adding bacteria sampling, an important human health indicator for our community. Now more than ever, we are able to identify water pollution issues on a macro and micro basis. Watershed-wide issues are targeted with our advocacy and outreach programs, while specific issues are addressed through our restoration and legal enforcement programs.

Our **water quality monitoring program** follows



Shane Brill photos

Pat Bjorke is one of more than 60 Chester Testers.

"Staring into the murky waters while waiting for a sample bottle to fill, I wonder what secrets lie below."

— Chester Tester Pat Bjorke

the rigorous guidelines of the Mid-Atlantic Tributary Assessment Coalition's protocols for tidal and non-tidal indicators. This combined effort of staff and our **60-plus Chester Tester Citizen Scientist Volunteers** includes initial orientation and training and an annual quality control training plan. Chester Testers commit to monitoring one or more sites twice a month, twelve months a year. They sample for common water quality indicators including dissolved oxygen, temperature, nutrient pollution, and clarity. This amazing volunteer group includes a professional engineer, a Girl Scout troop leader, retired business executives, environmental scientists,

an army of chemists from LaMotte Company, three schools, a group from an active retirement community, a couple of pilots, a physician, and many more. **These volunteers collectively invest nearly 2,000 hours sampling each year.**

So what motivates a Chester Tester to invest so much time and energy? We asked one:

"Being a Chester Tester allows me the hands-on experience of being actively involved in the health of one

tiny slice of the Chester River watershed. So often large environmental problems like water quality seem far too overwhelming for an ordinary person to do anything about, and there is a tendency toward developing a fatalistic attitude. By assisting CRA with water quality monitoring throughout the year in 'my' little piece of the river, I feel empowered, that I am making a difference. On a more personal level, being a Chester Tester has provided me with the opportunity to form an intimate connection to a little part of the natural world. Staring into the murky waters while waiting for a sample bottle to fill, I wonder what secrets lie below. Once in a while I am given a glimpse of that world: a turtle pokes its head above the water, or a rippling school of fish flashes by. Sometimes it is more mysterious, such as a slow stream of bubbles that lazily pop to the surface. There is a peacefulness and mindfulness that comes with my trek to this site twice a month; a sense of rhythm and purpose not unlike the ebb and flow of the river itself."—Pat Bjorke, Chester Tester Volunteer

Thank you to Pat and all of our Chester Testers. The immense and invaluable data they generate provides the proof in the pudding for the three very important things we started with. Let's take a closer look...

Nutrient and Sediment Pollution is Damaging the Chester River: Algae blooms fueled by nutrient pollution create de-oxygenated dead zones and resulting fish kills. Sediment pollution smothers oysters and clouds the water, blocking sunlight to habitat-creating submerged aquatic vegetation. Unfortunately, we see this on the river almost every summer.

Most of the pollution in the Chester River comes from within our watershed: A popular approach to eliminating local pollution is to point fingers. If only the urban areas on the Western Shore would stop dumping all that sewage. If only we could stop the pollution from the Susquehanna. While those things are important for an overall healthy Chesapeake ecosystem, our data show that the farther upriver and away from the bay you go in the Chester River or any of our monitored tidal tributaries, nutrient and

sediment pollution increases. We also know from our data analysis that the Chester River does not exchange well with the Chesapeake Bay. All this strongly supports the conclusion that most of the pollution in the Chester River comes from our own watershed. Now if you are feeling as guilty about this as I am, I have good news! If we are the problem, we are also the solution. And our data show that...

Restoration works: If you were to review all of our Chester River Report Cards (available on our

Most of the pollution in the Chester River comes from within our watershed.

website—www.chesterriverassociation.org/report-cards) you would notice a fairly consistent trend—water quality has improved year after year. Our first grade issued in 2007 was a D, while the Chester earned a C+ in our most recent report. Submerged aquatic vegetation is booming from Crumpton to Eastern Neck Island. The water is the clearest it has been in years. Based on our conversations with our members, many of you are noticing the positive changes as well. We believe this sustained improvement is a result of the efforts from CRA and our partners and other stakeholders' work to improve water quality.

So is the job done? Not even close! While the improvement is encouraging, any steps backwards could lead to a precipitous decline. Our watershed is under increasing pressure from development, sea level rise, and rollback of environmental regulations. Now that we know our efforts are working and we are seeing a return on our investment in the river, it is time to double down and work harder than ever to achieve our vision of a healthy Chester River for our community and future generations. We'll keep doing our thing, but YOU can help by reducing or eliminating lawn fertilizer, reducing lawn area and planting native flowers, shrubs and trees, properly maintaining your septic system, and urging your elected officials to support environmental regulations. Thank you all for your continued support...it takes a village to save a river!

Tim Trumbauer is CRA's Watershed Manager.



OPINION

Critical Area — It's Critical!

By Isabel Hardesty

The Critical Area really IS critical. Established by Maryland's Chesapeake Bay Critical Area Protection Act of 1984, it's the land that lies within 1,000 feet of tidal waters and wetlands and it acts as a filter for pollution, a buffer for our rivers. The 1,000-foot Critical Area, and the 100-foot Critical Area Buffer that lies within it, are the last line of defense that stands between the land and our rivers.

Chester River Association (CRA) believes the 100-foot Critical Area Buffer should be sacrosanct. Currently, row crops and turfgrass lawns are allowed within the buffer, and both can be fertilized to within 10 feet of mean high tide. ***But evidence shows that a 100-foot buffer planted with native grasses, shrubs, and trees has significant benefits for reducing nutrient and sediment pollution and for providing essential habitat for native species.***

It's our thinking that a well-managed 1,000-foot Critical Area is one that is filled with native trees and shrubs, where lawns are minimized and unfertilized, and where farmers carefully manage fertilizer application to crops and runoff from their fields.

Due to the Chester's miles of tidal creeks and coves, a significant amount of land in Kent and Queen Anne's counties lies within the Critical Area. That's why CRA developed an outreach, monitoring, and enforcement program to keep watch over this, yes, critical area. We are vigilant—and we are present. We have a team of volunteers acting as eyes and ears in our creeks and streams. We also hear routinely from citizens who share our concerns. Together, we are working to support and sustain a robust and healthy Critical Area that will protect and enhance our river.

If you see a violation or have a concern, contact Riverkeeper Isabel Hardesty at Riverkeeper@ChesterRiverAssociation.org.

If you live in the Critical Area and are planning construction, please contact your local county for the appropriate permit. Queen Anne's County Planning & Zoning: 410-758-1255. Kent County Planning, Housing & Zoning: 410-778-7475.

Common Questions and Concerns

Critical Area Buffer is the 100 feet of land immediately adjacent to a tidal waterway or wetland; sometimes the buffer is expanded to 200-300 feet in the case of erodible soils, steep slopes, or wetlands. Construction and land disturbance are generally prohibited, except for timbering and farming (with the appropriate management plans and sediment controls) and construction of water-dependent



Critical Area Buffer in the early morning light at Wilmer Park in Chestertown.

Shane Brill

structures such as docks or access ramps.

Enhancement is required when a property owner increases lot coverage by adding a porch, addition, patio, or shed in the Critical Area. Enhancement consists of planting in the buffer to offset the increased runoff from pervious surfaces. As an example, if you add a 500 square-foot porch, you are required to enhance the buffer by planting 500 square feet with trees and shrubs.

Cutting Trees in the Critical Area and Critical Area Buffer is allowed if they are dead, diseased, dying, dangerous, or invasive, and you have a permit and a Buffer Management Plan. All of these require mitigation based on canopy spread with the exception of removing dead trees. Cutting trees in the 100-foot buffer requires mitigation at a two-to-one rate and the replacement trees must be planted within the buffer itself. Cutting trees within the Critical Area but outside of the 100-foot buffer requires mitigation at a one-to-one rate and the replacement trees can be planted anywhere in the Critical Area.

Timbering is allowed within the Critical Area up to 50 feet from mean high tide. Timbering within the Critical Area must occur with a permit and a Timber Harvest Plan, can be select-harvest only (no clear-cutting), and must be mitigated with tree plantings.

Farming is allowed within the Critical Area and practices are covered by the farmer's Conservation Plan. Row crops can be planted up to 10 feet from mean high tide; fertilizer applied within 35 feet of mean high tide must be directly applied (as opposed to less precise broadcast method.)

Enforcement and Violations are handled by the local county's planning and zoning office. You can also call the CRA office to report a violation or express a concern.

Isabel Hardesty is the Chester RIVERKEEPER®.

Is Your Yard River-Friendly?

By Emily Harris



Concerned citizens turn out for a CRA workshop.

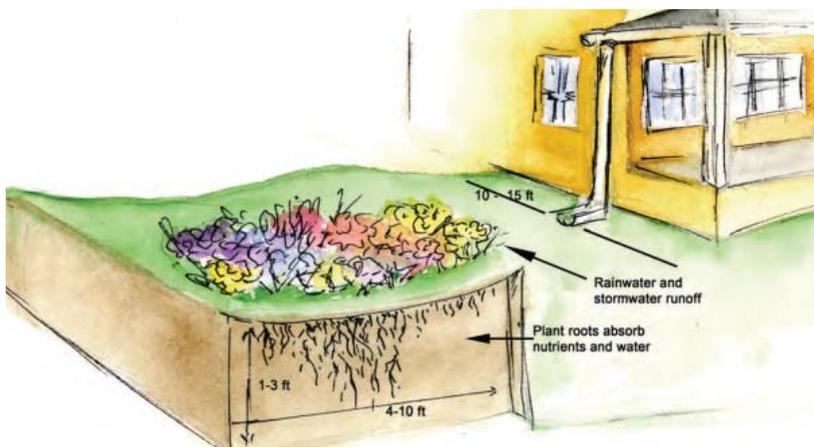
Go to any Chester River Association event and you will hear staff talk about sources of nutrient pollution. Agriculture represents the largest land use in the watershed so it's no surprise that fertilizer is responsible for a significant amount of nutrient pollution. Wastewater treatment plants and septic systems also play a part. But so do people like you and me. How can you reduce pollution in the Chester River? Look no further than your own back yard.

Last spring, CRA launched an initiative to raise awareness about the impact lawn fertilizer has on water quality. The goal: to help homeowners and residents in the watershed make informed decisions about lawn care. Our outreach started with a series of River-Friendly Yards workshops about lawn fertilizer regulation in Maryland and the steps people can take to reduce nutrient pollution.

We plan to continue that outreach, hoping to promote a sense of personal accountability that empowers each of us to do our part. If you want a CRA staffer to speak to your neighborhood organization, homeowners' association, or other community group, call our office at 410-810-7556 or email eharris@chesterriverassociation.org.

As a river-centric community, we should all hold each other accountable for the sustained health of the Chester River. That starts with reducing our individual nutrient loading, one yard at a time.

Emily Harris is CRA's Watershed Coordinator.



Source: University of Maryland Extension

Reduce/eliminate your use of lawn fertilizer. Applying nutrients solely for aesthetic purposes increases the amount of fertilizer running off the land into the river without yielding any significant benefit. Nutrient pollution from sources such as fertilizer contributes to algae blooms that can cause dead zones.

If you use lawn fertilizer, conduct a soil test. A soil test will indicate what nutrients your lawn actually needs, as opposed to what the label on the bag of fertilizer recommends. Visit the University of Maryland Extension website at www.extension.umd.edu for instructions on how to take soil samples and where to send them for analysis.

Replace turfgrass with native ground cover. Native ground covers like Pennsylvania sedge require less fertilizer and less maintenance, making them ideal replacements for your traditional grass lawn. In addition to reducing lawn fertilizer runoff, native species also offer other ecosystem benefits such as increasing biodiversity and supporting pollinator species. Resources include the Maryland Native Plant Society (www.mdflora.org) and Adkins Arboretum (www.adkinsarboretum.org).

Install a rain garden. Rain gardens are areas that incorporate soil, mulch, and native plants to collect and absorb rainwater. They reduce polluted runoff from your lawn and ultimately reduce the nutrient and sediment pollution in the Chester. Any practice that slows runoff and encourages infiltration into the ground is an effective way to lessen the impact your yard has on the river. Rain Gardens Across Maryland is an excellent resource available for download on the University of Maryland Extension's website.

agriculture's contribution to the area's economy.

And there's the rub. Some environmentalists think the Chester River Association should be pressuring farmers harder. In fact, CRA took a hit last spring when it lost a longstanding grant due to its work with conventional ag. Tim Trumbauer, CRA's Watershed Manager, says, "We get grief from some environmental organizations for being 'in bed' with farmers." CRA Agricultural Specialist Paul Spies hears that, too, noting, "A lot of times the criticism comes from the watersheds where the predominant use is not agriculture."

There's a reason for that. On the Western Shore, water pollution is primarily driven by urban stormwater runoff, industrial facilities, and wastewater treatment plants, which are regulated by the federal and state governments. Runoff from row crop agriculture is not regulated under the Clean Water Act, meaning you can't sue a farmer for what's running off his field.

"Right now, 65 percent of the land use here is monoculture row crop agriculture," says Chester Riverkeeper Isabel Hardesty. "Our mission is a clean Chester River, and we have to work with what we have here. We've chosen the collaborative approach. We want to help farmers with practices that are both environmentally sound and economically beneficial, because a profitable farm is going to be the best kind of farm environmentally as well."

Two recent initiatives launched by CRA are aimed at exactly that. One uses precision ag technology

known as GreenSeeker. Here's how it works: A computer in the cab of the tractor reads sensors on the fertilizer spreader that measure crop color, size and density. The computer then makes a real-time analysis of nitrogen needs and applies just the right amount of fertilizer as the tractor passes through the field. That's a major departure from the conventional practice of spreading uniform amounts of fertilizer across fields.

Eight farms in Kent and Queen Anne's counties are currently using the technology in a three-year pilot project to demonstrate its effectiveness.

CRA has invested some \$120,000 in equipping the farmers with the software and sensors to analyze crop fertilizer needs. "It's easier to use than I thought it would be," says Jonathan Quinn, who farms in Kent and Cecil counties. "GreenSeeker helps my operation grow a profitable crop while improving water quality."

"Farmers around the Chesapeake have been under the microscope so much more than, say, a guy in Montana."

— Mike Twining, Willard Agri-Service

The other initiative promotes a not-ready-for-primetime-but-likely-to-be-soon crop that is a pollution fighter supreme: switchgrass. The initial goal is for this plant to be established in marginal lands like slopes and drainages where cash crops don't flourish. The deep roots and dense growth of switchgrass soak up the runoff of water and nutrients like little else. Beginning in 2010 the CRA set incentives of \$200 per acre per year for three years to grow these grasses, enlisting 32 farmers who planted 600 acres on critical plots in the Chester watershed.

There currently is no funding to expand the acreage largely because the market for switchgrass is still being established. "It can be used for



Harborview Farm is running an experiment using various rates of nitrogen on a test plot of corn.

mushroom compost, cattle bedding, garden mulch, and chicken bedding," reports Spies. CRA is working with Perdue Farms and Mountaire Farms, as well as with the Nature Conservancy, to make it a major source for their poultry house bedding.

A study from University of Maryland and University of Delaware shows switchgrass performs as well as the

existing poultry bedding of pine shavings, which has to be transported from the Carolinas. Perdue has committed to using switchgrass in 10 houses this year, representing about 150 acres of switchgrass. Yet challenges remain. "The holdup is there needs to be logistics for getting the plant from fields to poultry growers," says Spies.

"Maryland farmers are leading the way," observes Mike Twining, general manager of Willard Agri-Service, which sells specialty fertilizers and provides crop nutrition management for clients farming more than 200,000 acres around the Chesapeake watershed. "Farmers around the Chesapeake have been under the microscope so much more than, say, a guy in Montana. Every farmer I know who farms the Chesapeake watershed wants a clean Bay. Our farmers want to run their business as efficiently as possible and you don't do that by allowing fertilizers you are buying to flow into the Chesapeake," he adds. "You don't want it to go anywhere but into the crop you are feeding. That's a basic, simple fact."

Three Farmers, Doing Good

There are farmers involved with CRA whose commitments to land stewardship go beyond environmental incentives, which, they note, often come and go, running short of funds or having limited spans. They are making long-term changes, sometimes on their own, sometimes with an eye to greater profits, sometimes not. Their aim: to refresh the Chester River. Here are three such men working on vastly different scales, each in his own way helping to preserve the land and its waters.



Trey Hill examines decomposing cover crop of barley and clover.

Trey Hill: 95 percent no-till, and counting

Turn off Eastern Neck Road onto Harborview Farm and a neglected-looking field of wispy, browning plants catches the eye. A closer look reveals a rich growth of green leaves below that scraggly stuff. Turns out, "If you told my father 15 years ago his fields were going to look like that, he'd have said you were nuts," says Trey Hill, smiling. Today, he says, his father Herman Hill Jr. drives equipment that helps make it look that way. And it looks much the same on all the 10,000 acres the Hills are farming

"It doesn't matter what size you are, you can improve what you do. All farmers, big and small, should do their part."

— Trey Hill

in fields scattered around Cecil, Kent and Talbot counties. Ninety-five percent of the land is in no-till farming and the aim is to get to 100 percent. They plant various mixes of cover crops—usually rye, barley, radish or clover; then when that's maturing they punch through it and seed their cash crops of corn, soybeans and wheat.

"The cover decays as the cash crop grows over it," the 41-year-old Hill explains. "Worms tunnel up

to feast on the dead cover. The roots of the cash crop reach down the worm holes and are fertilized by the castings of the night crawlers. Then the roots sink deeper into the damper earth below that, which has been kept moist by the cover crop on the surface." And he adds, "In a drought year no-tilled land will be holding far more moisture than tilled acres."

In addition to no-tilling, Hill has taken a number of steps to minimize his environmental footprint. Harborview has 25 acres in switchgrass as buffers to water frontage. Hill grows four acres of wildflowers around his house for the bees. Three-plus acres of solar panels power all the buildings on the farm. "The system isn't broken but a system can be improved," says Hill. "It doesn't matter what size you are, you can improve what you do. All farmers, big and small, should do their part."

Casey Owings: Next gen, same dirt

"When I was growing up the mentality of farmers was you plow every single acre every year," says Casey Owings, 36. "Yeah, it trashed the river."

Owings, who began working his family's land as a boy, grows corn, wheat and soybeans on 2,700 acres that straddle Rt. 291. His home farm has a mile of Chester waterfront beginning just below the Crumpton Bridge, and he's devoted to not trashing the river.

Most of his farming is done "minimum till." That is, instead of a curved plow that turns over the soil and buries crop residue, he has a straight blade that slices the earth and doesn't get rid of plant matter, leaving some to fertilize, retain moisture and stop erosion.

"But I'm leaning more and more toward no-till," he says. "On tilled land, when you get big rains, you see mud in the river. With no-till it's clear."

Owings keeps 25 acres in switchgrass even though his grant for growing it ran dry. There's a field of alfalfa he put in just for the deer (which he bow hunts). The dirt lanes that divide his fields all have 20-foot-and-wider buffers of switchgrass alternating with lines of young trees. His buffer of woods along the Chester is 100 feet deep in places, and wherever it thins he's planting stands of newer trees.

"Over the past eight years or so I've put in a couple thousand trees, mostly oaks," he says. He's got a sweetheart arrangement that makes him grin to talk about: "The folks at Angelica nursery are



Casey Owings with his labs, Belle and Maggie.

good friends and every year they have an overstock of trees they can't sell and can't put back in the ground. So after their season they drive here with a truckload."

Owings has visible proof that changes in farming done by his generation are making a difference. "It's been incredible the last two years how clear the water in the Bay has been. Down at Hoopers Island where my in-laws have land, you can see 10 feet down."

Bob Ingersoll: Building for the birds

Drive the long lane through the woods of Silver Hill Farm till it leads to open meadows and the first thought that comes is: *Somebody needs to mow this place.*

Somebody actually does. Bob Ingersoll, 69, is



Bob Ingersoll planted warm season grasses as quail habitat in June.

out on his tractor more days than he wants mowing down "my biggest problem," Johnson grass. The rest of the lush tangle, four feet high in places, is the way he wants it or getting so. It's a mix of native grasses, shrubs and flowering plants he is establishing—for some little brown birds.

For the past 15 years the Ingersoll family has grown hay for cattle and goat feed on his 60 tillable acres. Then last fall he quit that.

"Everything you see now," he says, hand pointing over the low rolling fields that surround his house and outbuildings, "is all quail habitat."

It's for birds he'll never hunt – not that there are any here, yet. Ingersoll has devoted his entire farm into the Natural Lands Project that began last year as a partnership between Washington College's Center for Environment & Society and CRA funded at \$750,000 by the Maryland Department of Natural

"Everything you see now is all quail habitat."

— Bob Ingersoll

Resources. His is the biggest commitment to the project in Kent County. The idea behind the plan is that habitat Ingersoll is growing improves water quality for the Chester and the Chesapeake because quail hangouts serve as filters.

Farmers in the program must agree to maintain quail habitat for a minimum of 10 years. They get a per-acre stipend during the first three years, but after that the cost is all out of their own pockets. And keeping it right is hard, hot work. Ingersoll will have

to burn a third of the acreage every three years to keep the grasses from becoming so dense the quail can't move through it. Meantime, there are his hours on the tractor, chopping down invasive plants.

There's a long environmental tradition on Ingersoll's land, semi-circled by Jarrett Creek with long views of the Chester near Quaker Neck Landing. "There's been no use of herbicides or pesticides on this farm since 1911, when the family bought it," he says. There are six wetlands on the property, one natural pond and impoundments that he'll plant in corn and then flood in the fall to feed ducks and geese, which will be hunted. Ten acres are planted in 20 types of flower-bearing plants for pollinators like bees and butterflies.

Ingersoll has three "cash crops:" waterfowl, deer and the sun.

"There's a tremendous amount of deer here. We've had hunting contracts leased for the past 35 years. Last year they took 25 deer and the day after hunting season I watched 16 deer stroll across the field right there near the house. It's like they knew."

"But there's my No. 1 cash crop," Ingersoll says, pointing to a spread of solar panels on the roof of his workshops. This year we're going to have zero energy costs unless we have a very bad winter."

And the quail? He hasn't heard their song—Bob White? Bob White?—hereabouts since farmers plowed up the hedgerows in the 60's and 70's. He's hoping they'll turn up on their own. If not, he says, he'll buy them.

Chestertown writer John Lang has reported for The Associated Press, Scripps Howard News Service, New York Post, U.S. News & World Report and The Washington Post. Lang has also edited two anthologies of essays for Literary House Press, "Here on the Chester" and "Athey's Field."

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Summer day on South East Creek.

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Tim Trumbauer

Migration

Mist rising off the water

as sunrise ignites
the marsh grass.

Mist tumbling
downriver in strands and

tangles, hurrying
to go

someplace
gone

Meredith Davies Hadaway