

# RIVERKEEPER'S Almanac

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## Riverkeeper:

### Treatment Plant *'amazing step forward'*

Chestertown's upgraded sewage treatment plant – over two years and more than \$9 million in the making – has had a rapid and positive impact on the quality of wastewater discharged into the Chester River.

Levels of phosphorus, ammonia and nitrogen have all posted significant declines since the state-of-the-art facility went online this summer. How significant? Here's some happy math: Phosphorus is now averaging .2 milligrams per liter, down from 4.5 milligrams prior to the upgrade. Ammonia, according to lab results, is registering at .1 milligram or less per liter, versus 15 milligrams. And total nitrogen is down to 3 milligrams per liter from upwards of 25 milligrams. As the process is fine-tuned, town officials expect a total nitrogen number of less than 2 milligrams.

The plant, which discharges treated wastewater into a current at the confluence of Radcliffe Creek and the Chester River, has been upgraded with the installation of an enhanced nutrient removal (ENR) system that is considered leading edge. Bob Sipes, the town's utilities director, said that less than one percent of sewage treatment plants in the country are currently meeting the nutrient removal goals of the Chestertown municipal plant. However, he said that is expected to change as environmental standards are strengthened nationwide.

"The focus, finally, has begun to be the environment. People across the country are starting to take steps to remediate. As technology increases and awareness of pollution increases, technology has driven your upgrades in treatment plants," Sipes said, adding: "What we do here directly impacts what happens to the river and we know that."

Chester Riverkeeper Tom Leigh, after a tour of the plant, remarked: "This is an amazing step forward. Certainly, it will have profound impacts on water quality because it is essentially putting cleaner water into the river than is in the river. It's practically gin-clear."

The new high-tech system, which treats roughly 723,000 gallons of water a day, uses activated sludge as a treatment process. First, wastewater is screened to remove solids like cigarette butts or gum wrappers. Then it is filtered for grit. Next, the wastewater

goes into aerobic and anaerobic tanks where microorganisms in the aeration pools clean up the sewage further by feeding on the bacteria that remove nitrogen and phosphorus from wastewater.

After that, the wastewater goes into a clarifying tank. Settled sludge is returned to the aeration pool for one final treatment by Sipes' "bugs." In the last stages of the process, clarified water goes through a set of denitrification filters and is then exposed to ultraviolet rays that sterilize any remaining organisms. When the water is discharged into the river, it is both clear and odorless.

Chestertown's first sewage conveyance system, built in 1900, discharged raw sewage into the river through underground pipes that went down Washington Avenue and High and Cannon streets. "Over the last 100 years, as the focus of the public has changed and efficiencies of wastewater treatment technology have changed, we have modified the treatment processes to better meet the needs of the public and the environment," notes Sipes. The town treatment plant most recently operated as a lagoon system. As technology advances and public perceptions change, Sipes envisions the ultimate reuse of treated wastewater: drinking water.

Up next: Sipes will begin toxicity testing – analyzing wastewater for its impact on aquatic life forms such as darters, minnows, shellfish and different types of algae.

[To arrange for a tour of the plant, contact Bob Sipes at 410-708-4603.]



Bob Sipes, left, and Tom Leigh

## Velsicol Chemical to *clean up pollution*

In a major win for the Chester River watershed, Velsicol Chemical Corp. in July signed a consent decree agreeing to clean up contaminated soil and groundwater at its Worton plant.

The Maryland Department of the Environment filed the suit in Kent County Circuit Court last fall after Chester River Association alerted state officials about chronic polluting practices at the global plastics and food additives producer.

Commenting on CRA's advocacy initiative, state Attorney General Doug Gansler said, "Pollution into the Chester River from the Velsicol site has been an ongoing problem for many years. I applaud the strong advocacy of the Chester River Association for bringing our attention to this significant environmental matter. It is my hope that their actions set an example for others to be a strong voice in our efforts to improve the health of the Chesapeake Bay."

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Velsicol, without admitting wrongdoing, agreed in the 23-page settlement to pay \$200,000 into the Maryland Clean Water Fund and to do significant remediation on the site. Water samples taken by CRA have shown the plant to be discharging excessive amounts of phosphorus and BEHP, an organic chemical used to make plastics, from a source that ultimately reaches Morgan Creek and the Chester River.

"The outcome of this litigation seems to put in place the oversight needed to monitor this pollution source," notes Chester Riverkeeper Tom Leigh. "To hold polluters accountable for their actions and effects on water quality is a goal of the Chester Riverkeeper and CRA. We will remain closely involved in the implementation of the consent decree and we will continue to monitor the water quality of Morgan Creek."

The consent decree does not put an end to the matter, however.

As CRA Executive Director Bob Parks frames it: "The real work starts now. We've got to keep their feet to the fire. We have to continue to monitor these guys. Believe me, CRA will follow up with Velsicol to ensure that this decree is carried out."

Among other things, the consent order requires Velsicol to provide the public with sampling data and the status of its remediation plans on a Web site. At press time, the Web site had not yet been launched.

"Getting that data is important," according to Jane Barrett, director of the University of Maryland's Environmental Law Clinic, which has worked pro bono with CRA on the Velsicol advocacy effort. "Under the terms of the consent decree, Velsicol must do some sampling and monitoring to pinpoint where their discharges are and where the contamination is."

Barrett said the Law Clinic will assist CRA in reviewing the data and the monitoring plan. Meanwhile, when Velsicol's state discharge permit comes up for renewal later this fall, Barrett added, "We will be assisting CRA in making sure the terms and conditions of that discharge permit are adequate to protect the Chester River resource."

Velsicol bought the chemical manufacturing plant in 1994 although predecessor companies have operated the facility in a similar fashion since the 1950s, according to the Maryland Department of the Environment. Had the company not signed the consent decree, it could have been subject to hundreds of thousands of dollars in penalties.



Jennifer Hicks, CRA Septic Specialist

CRA Septic Specialist Jennifer Hicks has conducted several informational open houses throughout the watershed to educate homeowners about the state's Bay Restoration Fund program. Here, she is pictured at the home of Bryan and Carrie Foreman, a Cliffs City couple who used the program to fund an upgraded septic system.

Septic contributes to 10 percent of the nitrogen in the Chester River – until recently the most ignored nitrogen problem in the entire Chesapeake Bay watershed. "It's a quiet source of nitrogen that hasn't gotten a lot of attention until lately," Hicks said. "It's a big part of people's lives here to be dealing with septic systems. This program is about getting it right and making sure it works well. The money is there, let's spend it."

About two-dozen people attended the workshop, including John Beskid, director of the Department of Environmental Health for Kent County. Beskid oversees the program. At press time, he said \$192,000 in state funds had been spent on 14 upgraded systems already in the ground. More than 60 others are in the works.

## CRA Appoints New President, *Expands Board*

Michael Moore, president of Dukes-Moore Insurance Agency, has been named president of Chester River Association's board of directors. He most recently served as treasurer.

Moore, who grew up in the watershed, said the issue of water quality continues to loom large. "I think we've probably stemmed the growth in nutrient loading but we haven't reduced it significantly. CRA has been trying to make a difference in the river's water quality for 20-plus years. I'd love to see us increase the rate of progress we are making. We have a lot of work ahead of us."

CRA also expanded its board of directors.

The four new directors are:

- Renee Bench, a former environmental consultant and currently vice president of Benchworks, a marketing and advertising firm.
- Caroline Gabel, founder of The Shared Earth Foundation, which supports endangered species, habitat protection and biodiversity. Prior to establishing the foundation in 1999, Gabel worked for 30 years on Capitol Hill as an aide dealing primarily with environmental issues associated with the U.S. Clean Water Act and the Army Corps of Engineers.
- Alison Howard, an education and outreach specialist with Queen Anne's County Soil Conservation and co-operator of Homestead Farms, which grows organic grains and vegetables in Millington.
- Richard Kalter, a retired real estate attorney who was among the first in the Chester River watershed to upgrade his home septic system to remove nitrogen as well as bacteria through a special state funding program promoted by CRA.

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## Front & Center *with Doug Gill*

Just over 10 years ago, Dr. Henry F. Sears presented research scientist Doug Gill with a challenge. Could Gill take corn and soybean fields on Maryland's Eastern Shore and recreate a native prairie grasslands habitat that was all but extinct on the eastern seaboard?

"It started out as a risky thing," the University of Maryland biology professor said in a keynote speech at CRA's annual meeting in June. "What do I know about these things?"

A lot, it turns out. During the last decade, Gill has led a massive effort to convert Chino Farms, the state's largest farm, into an extensive wildlife and grasslands habitat.

"It has been a field of dreams," says Gill, Scientific Director of the Native Grassland Restoration at the Chester River Field Research Center at Chino Farms in Queen Anne's County. "We have been enormously successful."

Gill said the number one cause for species losses is habitat destruction created by climate change, pollution, underharvesting, overharvesting and invasive species. The solution: Halt the destruction and you'll restore quality habitat on impacted lands and water.

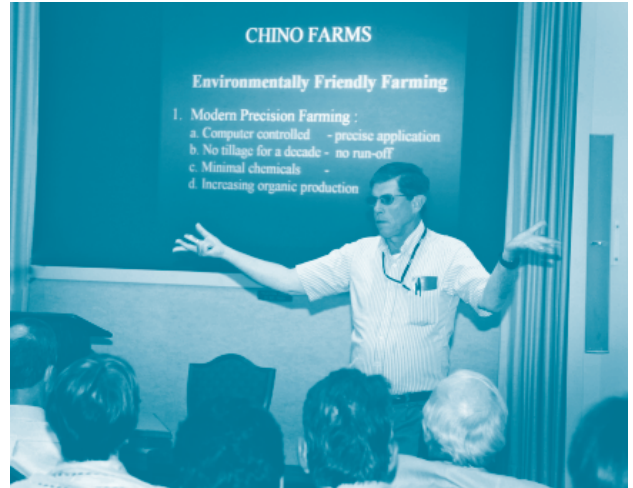
"We keep talking about things being fragile as if we will destroy it forever like shattering a piece of crystal. That's simply not true," Gill said. "Things will come back. They will recover if you give them a chance. That's the story here."

Consider this snapshot: Within two years, Gill converted 230 acres into rolling prairie grasslands with eight species of warm season grasses, including three that had been deemed extinct. Within a month, hundreds of the rare grasshopper sparrow took up residence and established a breeding population. As for the northern bobwhite quail, Gill says there are more at Chino Farms than anywhere else in Maryland.

"The conclusion is: Biology wins. Biology is resilient," said Gill. "Whether it's the river, whether it's a cornfield – they will recover."

In other business:

- Founding CRA board member Pat Herold Nielsen, who died of breast cancer in February, posthumously was named the recipient of the 2008 Riverkeeper Award.
- Chester Riverkeeper Tom Leigh presented the results of the 2007 Chester River Report Card. The river estuary ranked a D while non-tidal creeks in the watershed received a C. "If we stay vigilant, these grades will slowly turn," Leigh said. Work is currently underway on the 2008 report card.



*Doug Gill*



**BABY RIVERKEEPER** – Riverkeeper Tom Leigh and his wife Courtney with their first child, Sadie Annabelle Leigh. Sadie was born June 4.

### Upcoming SPECIAL EVENT

Saturday, October 25

#### **Chester Tester Training**

CRA Watershed Coordinator Brent Walls will train new volunteer Chester Testers at 9 a.m. at the John S. Toll Science Center at Washington College. Chester Testers take water samples twice a month, adding critical heft to CRA's monitoring efforts. Contact Walls at 410-810-7556 for details.

# Parting Thoughts: You, your Yard, and the Chester River

*Fall isn't a time when a lot of people focus on their yards. And that's too bad, particularly here in the Chester River watershed where our backyard actions can have a direct influence on the river's health.*

*The state recently launched a public relations campaign, "Backyard Actions for a Cleaner Chesapeake Bay," that applies best management practices of farmers to homeowners. It's a great message and it comes down to this: Look no further than a well-managed farm for reminders about what you could be doing in your own yard.*

*For example, in late summer and early fall – ideally as soon as the corn comes off – farmers begin to plant cover crops. Not only are cover crops good at scrubbing nitrates out of groundwater but they have two other benefits: soil moisture and weed control.*

*When you see that start to happen, it's a heads-up for you to do your part. Here's some best advice right out of the farmer's handbook:*

- Turn over your leaf litter, which can serve as breeding grounds for overwintering insects and larvae. Use a shovel or tiller to dislodge the insects from your soil. You can let the leaves decompose or rake them up, your choice.
- I get asked about fertilizing, another fall activity, all of the time. Personally, I am not an advocate of fertilizing. If you don't have to do it, don't. In my mind, having the greenest lawn in the watershed is not a goal. What's wrong with letting your lawn go natural with native grasses and even weeds that supply a good habitat for birds, butterflies, insects and other wildlife? If you must fertilize, take care not to over apply. Also, there is a big push locally and regionally to use environmentally sensitive chemicals. Do use water insoluble fertilizer so that a rainstorm won't wash it into a ditch as run-off. And avoid fertilizing trees, shrubs and grasses. Simply put, it exceeds the caring capacity of the soil.
- Natural, in my book, is the best way to go. This fall, plant natives that are naturally resistant to pests and drought. They are also tolerant of salt. Native plants also attract certain beneficial insects and they will help you conserve water as well as decrease the need for fertilizer, pesticides and herbicides.

–Tom Leigh, Chester Riverkeeper®

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