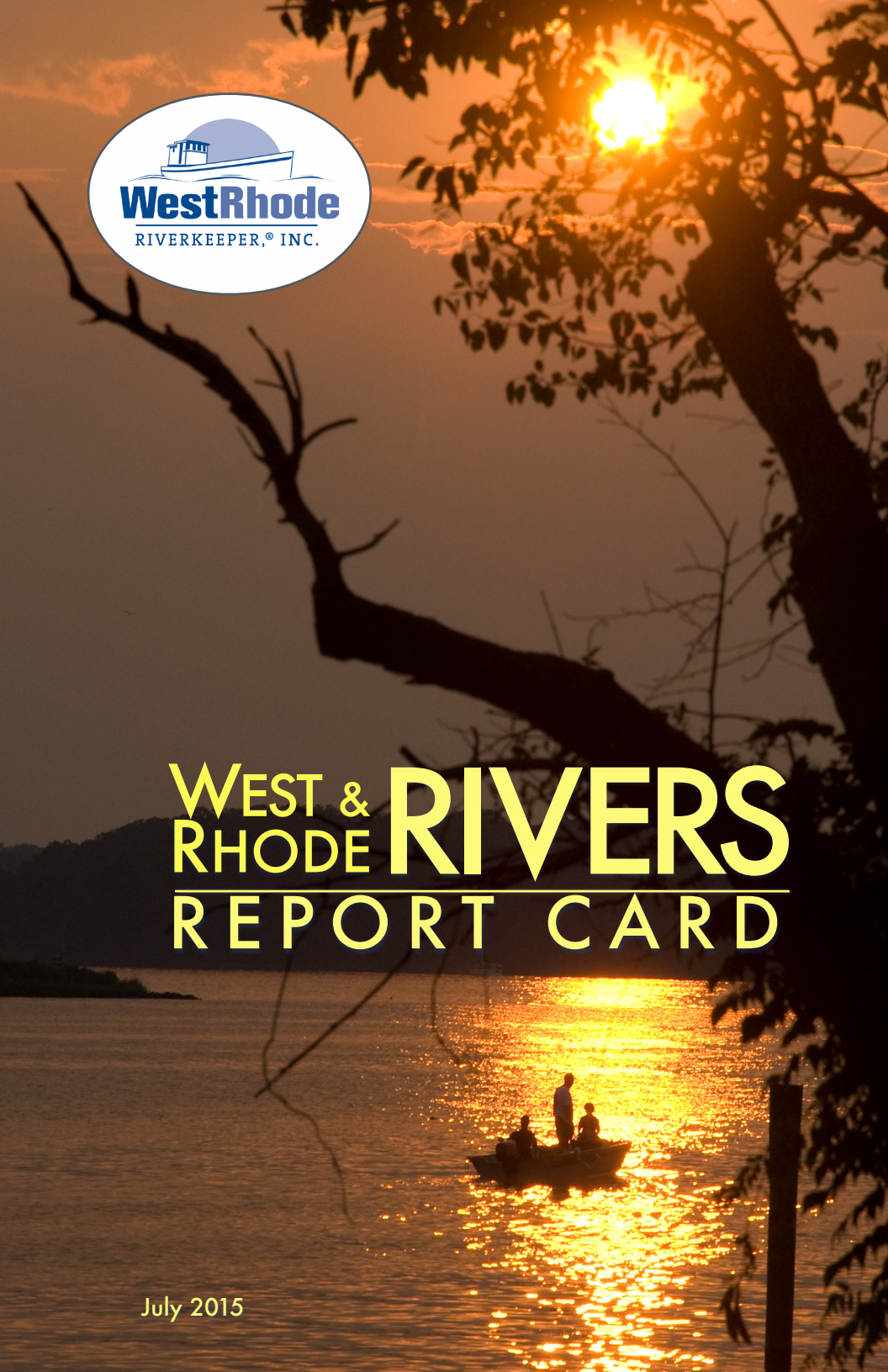

WestRhode
RIVERKEEPER,® INC.
WEST & RHODE RIVERS
REPORT CARD
July 2015

MESSAGE FROM THE RIVERKEEPER

The grades are up slightly over last year's report card, which means we're making progress here in our 10th season of working as the only citizen-based environmental organization dedicated solely to protecting our rivers -- the West and Rhode Rivers.

We've just created another 960 feet of living shoreline on the Rhode River, we're restoring a stretch of Muddy Creek, and dramatically expanding public access to our waterways at Franklin Point State Park. All this, in addition to our work to advocate for better environmental policies, enforce environmental law, stage community-building programs like the Ride for the Rivers and the RiverFest, and keep sewage from our rivers by providing pump-out service to recreational boats.

How do we make this possible? **We leverage your donation with grants from foundations and other resources so every dollar you give means we can do $5 worth of work** – planting trees, growing oysters, restoring marshes and streambeds, creating wetlands and living shorelines that will help protect the West and Rhode Rivers for generations to come.

I believe that we have a unique opportunity to give our grandchildren the gift of clean

waterways – teeming with underwater grasses, fish, crabs and oysters – the way it was in our grandparents' time. We can do this together, one creek at a time.

I hope we can count on your support for our work this year. See www.westrhoderiverkeeper.org to make a secure donation on line.

Jeff Holland, Riverkeeper
jeff@westrhoderiverkeeper.org
410.867.7171

Cover photo by Tim Laur

2014 Grades

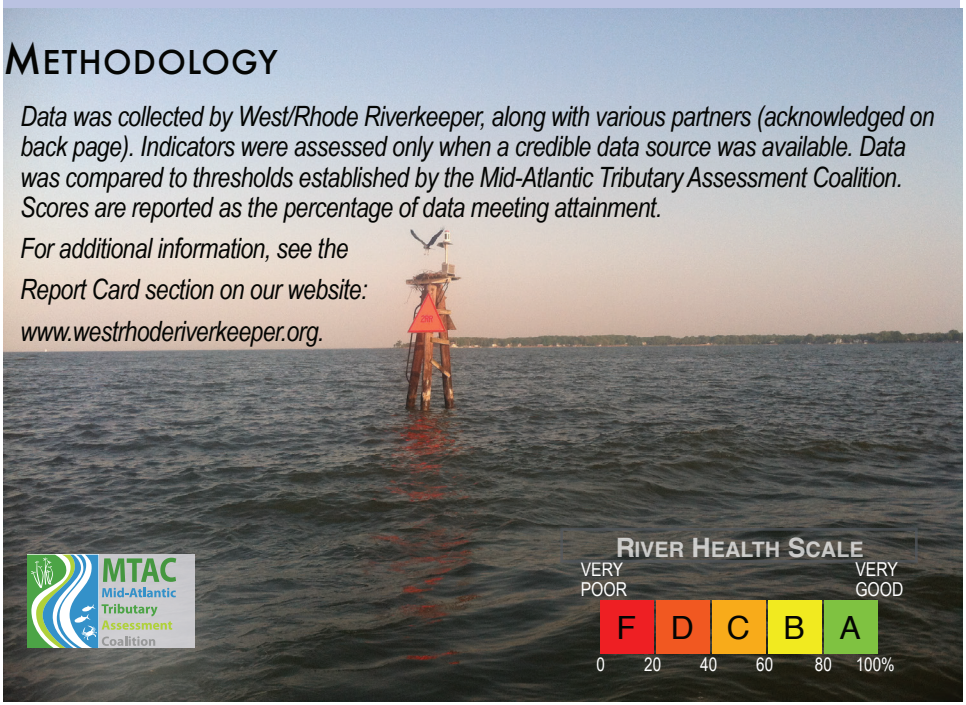
Indicator	West River	Rhode River	Grade	Notes
Water Clarity	22%	25%	D-	Same as 2013. Clarity not good enough to support robust beds of underwater grasses.
Dissolved Oxygen	76%	85%	A-	Slightly better than 2013, pockets of low oxygen form in the shallow creeks & deep channels.
Nutrients	76%	50%	C+	Slightly better than 2013, still high enough to fuel excessive algae growth, but a good step forward.
Chlorophyll (algae)	37%	28%	D	Same as 2013. Summer algae blooms were more severe than spring blooms, and more severe in the Rhode River.
Underwater Grasses	0%	0%	F	Still no robust grasses; though increases in other parts of the Bay may provide seed source for our rivers.
Average Scores	**40%**	**38%**	**D+**	**Modest improvements in all parameters led to a slightly better grade than last year's D.**
Bacteria	84%	83%	A-	Good but there are still "hot spots" in our shallow headwaters, making it unsafe to swim after most storms.

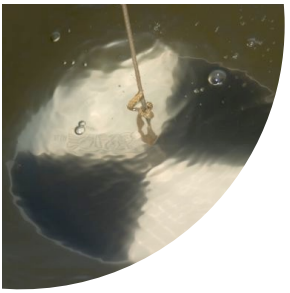
Note: Bacteria is unlike the other indicators and was not used to calculate the average grade above.

Methodology

Data was collected by West/Rhode Riverkeeper, along with various partners (acknowledged on back page). Indicators were assessed only when a credible data source was available. Data was compared to thresholds established by the Mid-Atlantic Tributary Assessment Coalition. Scores are reported as the percentage of data meeting attainment.

For additional information, see the Report Card section on our website: www.westrhoderiverkeeper.org.





Water Clarity

D-

Why is monitoring Water Clarity important?

Murky water blocks out sunlight making it difficult for underwater grasses to grow. Sediment and algae in the water absorb light so it can't reach the bottom of the river. Sediment is dirt in the water, which can also cause creeks and streams to "silt in," which can interfere with boating and bury oyster reefs.

What is the status?

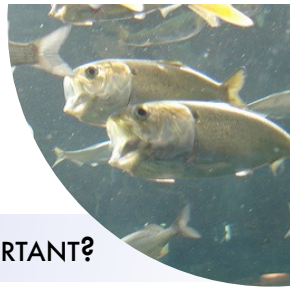
Water clarity in both the West and Rhode Rivers is poor. After a heavy rainfall, the rivers may look murky due to sediment runoff from agricultural and residential areas. Algae blooms resulting from nutrient pollution also cloud the water. Clarity must improve before we can expect to see robust underwater grass beds.

What affects Water Clarity?

Runoff from storms collects sediment and nutrients from impervious surfaces, lawns and farmland. The stormwater runoff delivers these pollutants to our rivers. Sediment remains suspended in the water until it can settle to the bottom, where it can get stirred up again from wind and waves. Nutrients cause algae blooms, which also block the light. **You can help by planting native trees, shrubs and grasses to absorb stormwater before it enters our rivers.**

The Riverkeeper's corps of citizen-scientist volunteers monitor 29 sites on the West and Rhode Rivers every week from May through October. They measure clarity with the black-and-white Secchi disc like the one on the upper left corner of this page. Want to help us? Send an email to: volunteer @westrhoderiverkeeper.org

A- Dissolved Oxygen



Why is monitoring Dissolved Oxygen important?

Fish, crabs, and other aquatic life need oxygen to breathe, just as we do. Without enough oxygen in the water, these species can become stressed or even die.

What is the status?

Stormwater washes nutrients into the waterways and sparks explosive growth of algae. Algae cloud the water, blocking sunlight. Lack of sunlight kills the algae. When the algae die, they use up the oxygen in the water and create "dead zones." The reduced concentration of dissolved oxygen is called hypoxia. This process is called "eutrophication." The depleted oxygen levels can kill fish and shellfish.

What affects Dissolved Oxygen?

Runoff from agriculture and development, pollution from sewers and septic systems, sewage sludge spreading, and other human-related activities increase the flow of nutrients into our rivers and creeks.

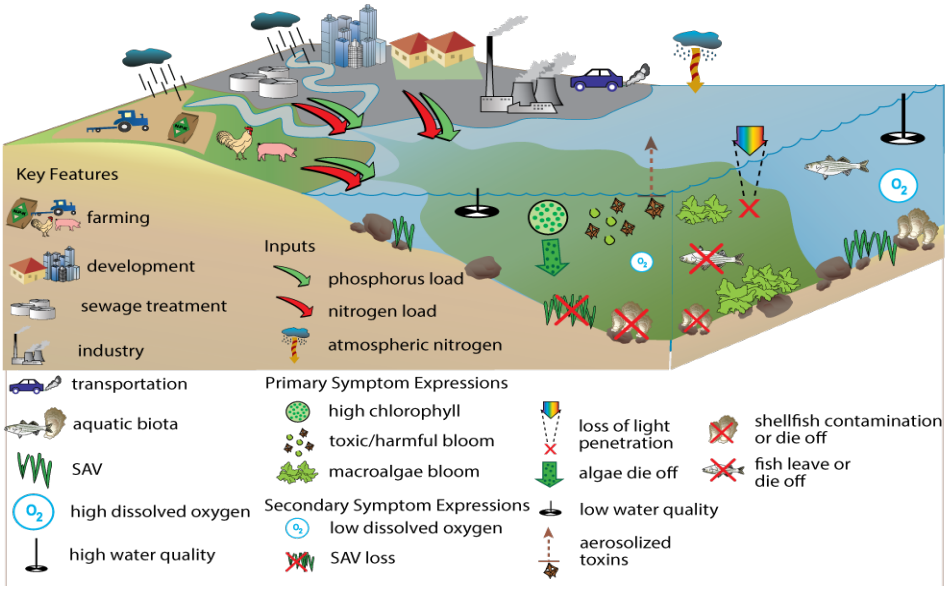


Diagram courtesy of the integration & Application Network, University of Maryland Center for Environmental Science


Image courtesy NOAA

Nutrients

C+

Why is monitoring Nutrients important?

Nutrients are an important part of natural ecosystems, but excessive levels cause algal blooms, which block sunlight and consume oxygen. Nitrogen and phosphorus are the two most prominent nutrients, which are the active ingredients in fertilizer.

What is the status?

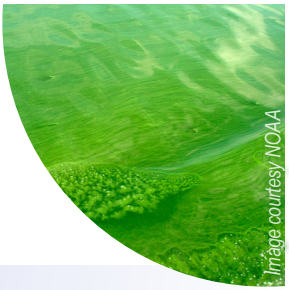
In 2014, nutrient levels showed a modest improvement in both rivers. If the amount of nutrient pollution continues to decrease, we'll soon see less algae and the water will be clearer.

What affects Nutrients?

Most of the nutrient pollution in our watershed comes from runoff from residential areas and farm fields. However, nutrients from septic systems and the Mayo wastewater treatment facility are a significant source — especially of nitrogen. The County intends to upgrade the Mayo facility and pipe the effluent up to the existing Annapolis treatment facility by 2016. This could reduce the total amount of nitrogen in our rivers by 10%. **You can help by reducing or eliminating fertilizer use, and planting native plants that don't need fertilizing.**

Stormwater flushes fertilizer containing nutrients like nitrogen and phosphorus into the waterways, causing algae blooms like this one in Parrish Creek on the Rhode River. Use less fertilizer on your lawn, and fewer nutrients will be washed into our rivers.

D Chlorophyll (Algae)



Why is monitoring Chlorophyll important?

Algae are a vital food source for many types of fish and other marine life, like shrimp and shellfish. However, excess nutrients can stimulate the algae population to grow out of control—a situation referred to as an algal bloom. These blooms can result in low-oxygen "dead zones,"and some algae species are even harmful to humans *and* our pets.

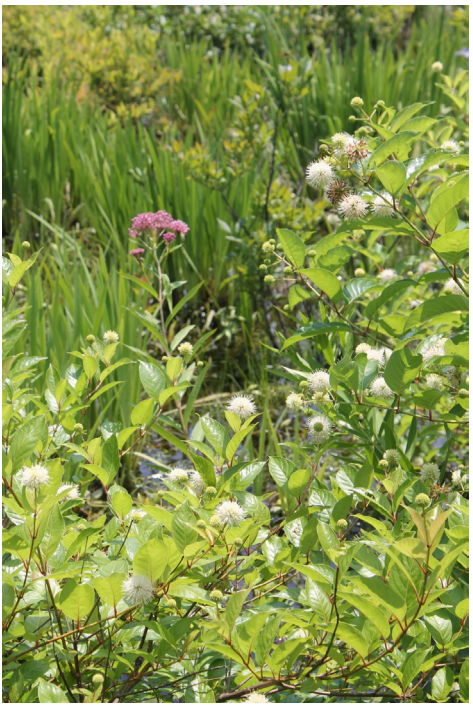
What is the status?

The abundance of algae is determined by the level of chlorophyll *a*, a green pigment found in most plant life. Chlorophyll levels in the West and Rhode Rivers in 2014 were about the same as they were in 2013.

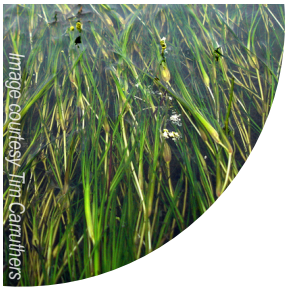
What affects Chlorophyll?

Nutrient pollution fuels algae growth. When there are excessive amounts of nutrients in our rivers, algae begins to grow out of control. Summer algae blooms have more potential to cause oxygen problems because warm water holds less oxygen to begin with.

You can help by reducing impervious surfaces and installing rain gardens and rain barrels. This will slow the stormwater, allow it to soak into the soil, and cool off before it gets into the waterways.



Rain gardens like this one at Discovery Village in Shady Side keep stormwater from polluting the waterways while adding habitat and beauty to your landscape. A Master Watershed Steward can show you how — see www.aawsa.org.



Underwater Grasses

Why is monitoring Underwater Grasses important?

Underwater grasses provide habitat for marine life like juvenile fish, terrapins and crabs. They also generate oxygen. Grass beds can also serve to protect shorelines from erosion by dampening wave energy.

What is the status?

The state goal for the West and Rhode Rivers is 298 acres of underwater grasses. Yet for the 10th year in a row, no robust grass beds were mapped in 2014. A bright spot is the increasing amount of horned pondweed that grows in the early spring.

What affects Underwater Grasses?

There is too much dirt and algae in the water during the summer months. Sunlight can't shine through to reach the bottom, so grasses cannot survive. Too much nutrient pollution can also limit growth by forming a layer of biological growth on the leaves and stems. **You can help by installing a living shoreline on your waterfront property. Contact the Riverkeeper to learn how.**

Here's what we're doing to help: we partnered with Arlington Echo Outdoor Education Center to have 600 local 6th graders plant marsh grasses and submerged aquatic vegetation at the Riverkeeper's new living shoreline at the end of the Camp Letts peninsula on the Rhode River.

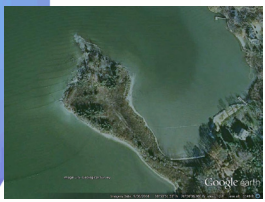
Celebrating 10 years of working to make our rivers swimmable, fishable, crabable & kayakable

Created new marsh & reforested acres of muddy horse pasture

Built new living shoreline to slow erosion & create habitat

Monitoring 29 sites for water quality, testing 14 sites for bacteria

Built 3 acres of living shoreline at Shady Cove



Providing pump-out service to hundreds of boaters — *15,000 gallons every year!*

Working with community groups to halt illegal development on Deep Creek

Expanding public access to the Bay, opening 477-acre Franklin Point State Park

Bacteria

A-

Why is monitoring Bacteria important?

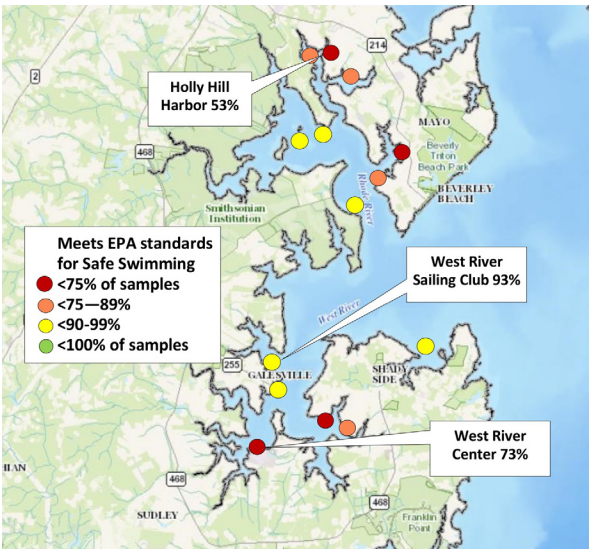
Harmful strains of bacteria can thrive in our rivers. Coming into contact with water containing high levels of bacteria can lead to infections or other illness.

What is the status?

Of the 14 sites we monitor each summer, no sites were safe for swimming 100% of the time. Six of the sites were safe more than 90% of the time. Areas near the mouth of the rivers were generally safest. Many areas were found to have higher levels of bacteria after rain storms, showing that the pollution is from a local source.

What affects Bacteria?

Harmful bacteria come from the intestines of warm-blooded animals (including people) and survive longer in warmer water. Bacteria sources include failing septic systems, sewer leaks or overflows, illegal boat discharge, pet waste, and wildlife waste. You can help by always picking up after your pet and not feeding ducks or geese.



Every week from Memorial Day through Labor Day, West & Rhode Riverkeeper's corps of citizen scientist volunteers monitor 14 sites for bacteria. Results are posted on a free app for smartphones called "The Swim Guide." Using the Swim Guide, you can get the weekly bacteria data right on your phone so you can see whether it's safe for your family to swim. See www.theswimguide.org

Path to Clean & Healthy Rivers

Goals We Strive to Achieve

Associated Indicator(s) We Monitor

- Water Clarity & Nutrients
- Nutrients & Chlorophyll (Algae)
- Bacteria
- Underwater Grasses & Dissolved O_2
- All Indicators

Things You Can Do to Help Achieve These Goals

Reduce Stormwater Runoff Pollution

- Install a Rain Barrel
- Create a Rain Garden
- Stabilize Soil by Planting Trees and Plants

Prevent Excess Nutrient Runoff

- Eliminate or Reduce Fertilizer Use
  - Test Your Soil and Use ONLY the Amount of Fertilizer Required (if any)
- Practice Sustainable Lawn Care
- Upgrade to a Nitrogen-Reducing Septic System

Reduce Harmful Bacteria in our Waterways

- Clean Up After Pets
- Don't Feed Waterfowl
- Service Septic Systems Every 3-5 Years
- Pump Out Boat Waste

Promote a Natural Ecosystem

- Convert to a "Living Shoreline" (Grants Help)
- Grow Oysters Off Your Dock
- Plant Native Trees and Plants

Get Involved

- Support a Local Watershed Organization (like W/RR)
  - Find Volunteer Opportunities
  - Find Stewardship Programs
  - Find Other Ways to Improve the Rivers
- Advocate for Clean Water
  - Contact Elected Representatives

Every little bit helps! Together we can make a real difference.

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WATERKEEPER® ALLIANCE
MEMBER

West/Rhode Riverkeeper works to protect families and communities by stopping pollution. We strive for healthy and safe rivers and streams. We work together with communities to enforce environmental law, promote restoration, and advocate for better environmental policy.

Join West/Rhode Riverkeeper in protecting the right of our families and communities to enjoy clean and safe water. Log on to www.westrhoderiverkeeper.org.

Thank You!

Funding for the West/Rhode Rivers Report Card is provided by the Chesapeake Bay Trust.

A copy of this report can be found on our website.

Content and data analysis by Jeff Holland and Joe Ports. Design template by Kelly Myers.

Special thanks to our West/Rhode Riverkeeper volunteer water quality monitoring team. Thanks, too, to Dr. Sally Hornor and Dr. Tammy Domanski, who conducted bacteria analysis at Anne Arundel County Community College with their staff of scientists.

Other data courtesy of Maryland Department of Natural Resources, the Virginia Institute of Marine Science, and Dr. Charles Gallegos and Dr. Thomas Jordan of the Smithsonian Environmental Research Center.

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