



SHORE RIVERS

REPORT CARD 2017
MIDSHORE RIVERS



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EXECUTIVE SUMMARY

ShoreRivers is pleased to release this eighth annual River Report Card regarding the Choptank, Miles and Wye Rivers, Eastern Bay, and their tributaries. This is produced from data collected by our scientists, Riverkeepers, and approximately 50 volunteer Midshore Creekwatchers who together sampled at over 100 sites from May to October 2017.

I am pleased to report that the results are in line with those from the past two years, reflecting improved water clarity, expanding grass beds, and reduced or stable pollution concentrations for many sampling locations. The year 2017 had wet and dry months and the data correlated to these weather trends. Months with increased rainfall washed from the land pollutants such as sediments and fertilizers into our rivers, an important indicator that river pollution comes from the surrounding land. As in years past, our organization has been heavily involved in installing pollution-reducing practices across our watersheds that are contributing to improved river health.

As many of you know, Midshore Riverkeeper Conservancy merged January 1, 2018 with the Chester River Association and the Sassafras River Association to become ShoreRivers, employing four Riverkeepers and a staff of twenty river advocates. We are in the process of developing a uniform program including a quality assurance project plan (QAPP) that will meet the standards set forth by the state and federal government for Tier III status so that our data will be acceptable to state and federal agencies for consideration in policy decision-making. And we are moving to issuing one ShoreRivers Report Card in future years. As a preview of this, on page nine we provide a 2017 comparison of all the grades from the tributaries that ShoreRivers now monitors.

We hope you find this Report Card informative and helpful. Please know that our staff and volunteers are working at every level to ensure that our rivers improve over time, and our new larger, stronger, and united ShoreRivers will provide the innovation and leadership to protect these resources.

Thank you for your support!
Jeffrey Horstman, Executive Director

Cover still photo from *High Tide in Dorchester*, a Bay Journal documentary produced and directed by local artists Sandy Cannon-Brown, Dave Harp, and Tom Horton, exploring the impacts of climate change on our coastal communities.

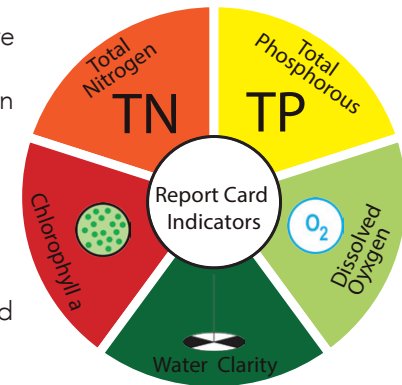


GRADING OUR RIVERS



Our data was collected by our Riverkeepers and scientists and approximately 50 Midshore Creekwatchers (acknowledged on back cover), who are trained by our Riverkeepers in methodology and protocols.

Our testers measured water clarity, dissolved oxygen, temperature, pH, and salinity. They sampled for nitrogen, phosphorus, and chlorophyll a. They recorded observations of flora and fauna, and reported unusual occurrences or sources of pollution to our Riverkeepers.



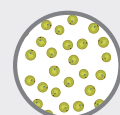
Nutrients, such as **nitrogen** and **phosphorous**, are essential for the development of all organisms. Nutrients naturally enter our waterways through the atmosphere and soil, but human activity has caused excess nutrients to enter our rivers. Primary sources include agricultural fertilizers, lawn fertilizers, septic systems, and wastewater. Excess nutrients cause excessive algae growth and declines in dissolved oxygen concentrations.



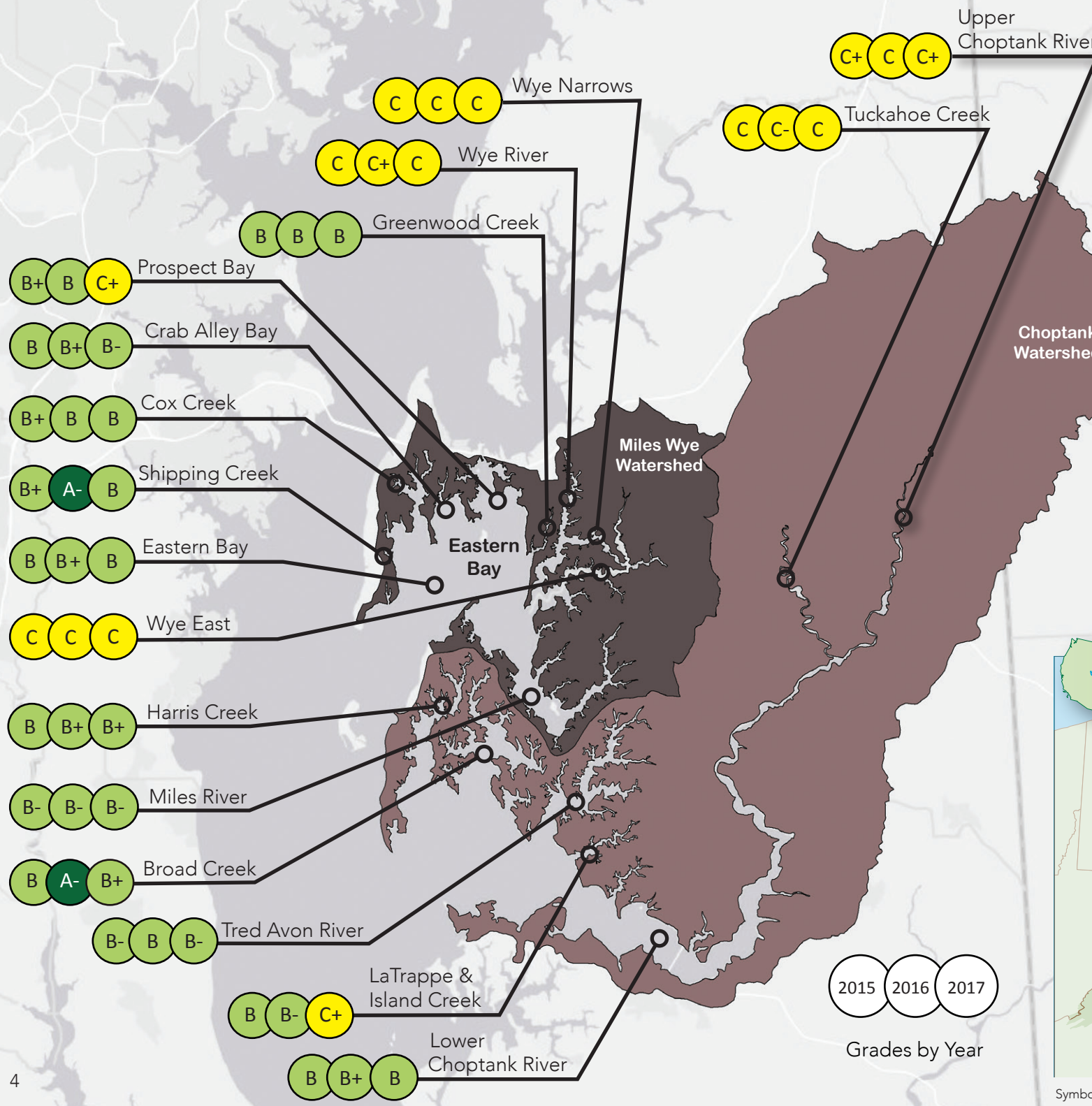
Oxygen is essential for life and is a key indicator of ecosystem health. Underwater, oxygen is found in the form of dissolved oxygen. Without it, aquatic wildlife can become stressed or die. Low levels of oxygen in the water are most often a result of eutrophication: excess nutrients in the water that cause excessive algae growth. As algae die, decomposition by bacteria depletes the available oxygen.



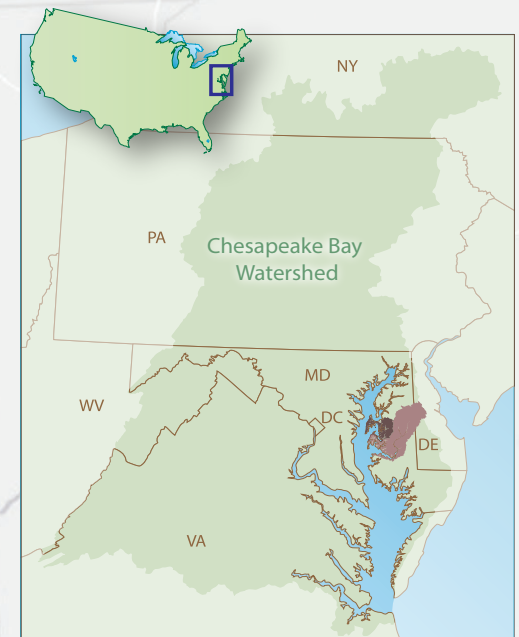
Clear water is essential for the life of underwater grasses. Sunlight must be able to reach these plants in order for them to grow. Our rivers become murky when excess nutrients and sediments wash into waterways and fuel algae growth.



Chlorophyll is the green pigment found in all plants that use the sun for photosynthesis. Measuring the amount of this pigment (as chlorophyll a) in our rivers measures the amount of phytoplankton present. When fed by excess nutrients, phytoplankton can quickly bloom, blocking out light from reaching underwater grasses and leading to oxygen depletion. The best way to reduce the amount of phytoplankton in our rivers is to minimize the amount of nutrient pollution entering our waterways.



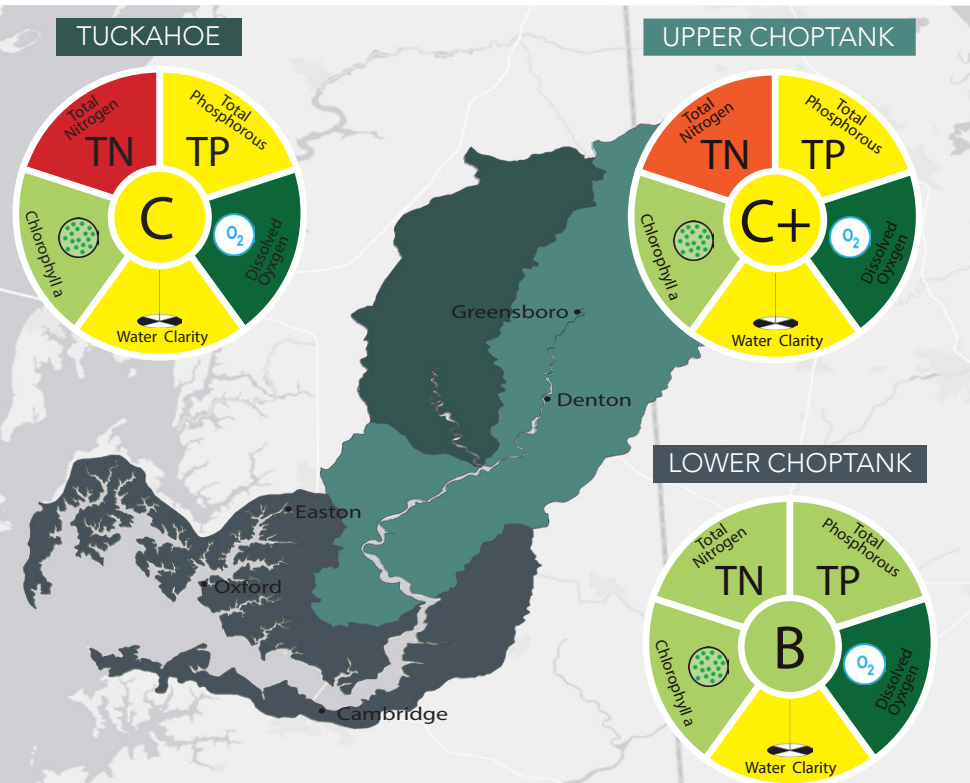
2017 REPORT CARD GRADES



CHOPTANK RIVERKEEPER

The overall pattern this year showed that the Upper Choptank River region had surprising improvements in water clarity and a notable improvement in TP; whereas the Lower Choptank River region reported worse water clarity and TN. Reviewing the weather data for 2017 pinpointed a unique rainfall pattern. The season saw an average amount of rainfall, but May, July, and August were very wet months with at least 7" of rain in each. In July and August, the rain was less frequent, but it was intense with greater amounts of precipitation per rain event. When the Lower Choptank River region received these storms, the runoff (or "input") was more impactful because the flow path from land to water was shorter. In the Upper Choptank region, where there are more narrow streams flowing through a larger landmass, that rainfall had more land to soak into before reaching our waterways. Many agricultural best management practices aim to slow down the flow of water to process pollution. We're optimistic that the many efforts to reduce the number of inputs coming from the land are working!

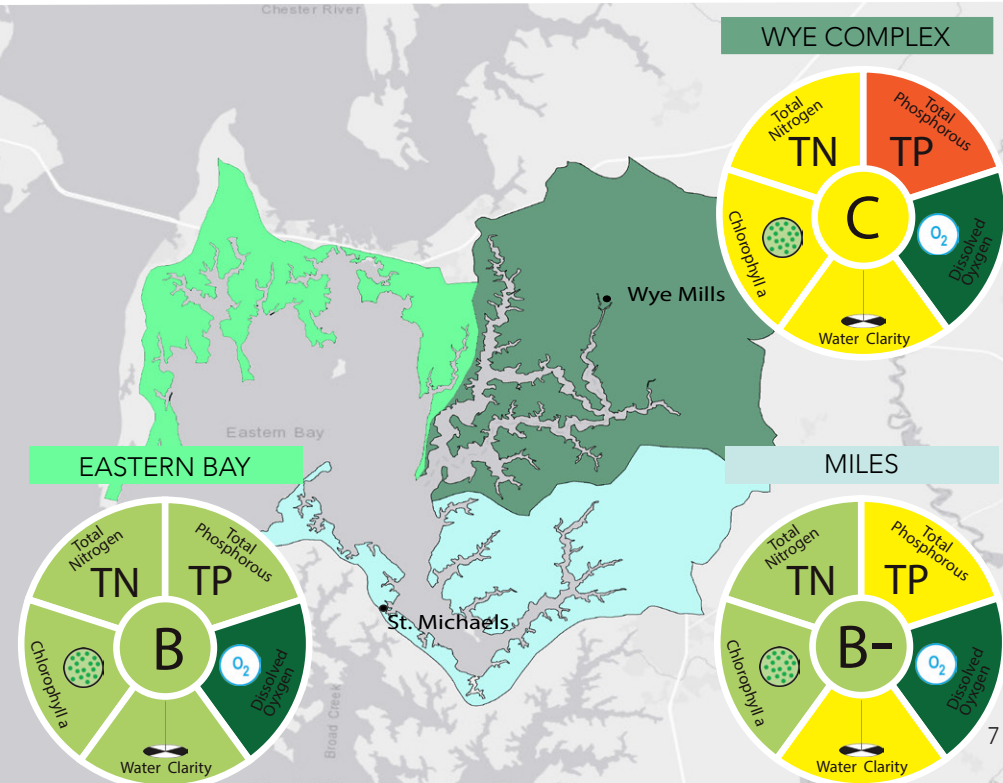
BAY HEALTH SCALE



MILES-WYE RIVERKEEPER

Results for the Eastern Bay Complex took an interesting turn in 2017. Looking at past trends, the open water areas, such as Prospect Bay, Shipping Creek, and Crab Alley, usually perform the best out of this complex. We saw the opposite this year, with Prospect Bay receiving an overall score 12 percentage points lower than average. The Miles River and Wye River Complex were slightly improved compared to the averages for those waterways. High intensity rains in July and August created a high volume of runoff in a short period of time. The shorter the distance that rain traveled to reach the river without the opportunity to soak in, the worse our water quality results were. The Kent Island area is more developed and with more impervious surface compared to the other watersheds, which could explain the poorer scores this year. On an encouraging note, 5-year trends for dissolved oxygen and water clarity are improving significantly throughout our creeks. Additionally, water clarity generally improved across the board, especially in Wye Narrows where the score improved 26 percentage points!

BAY HEALTH SCALE

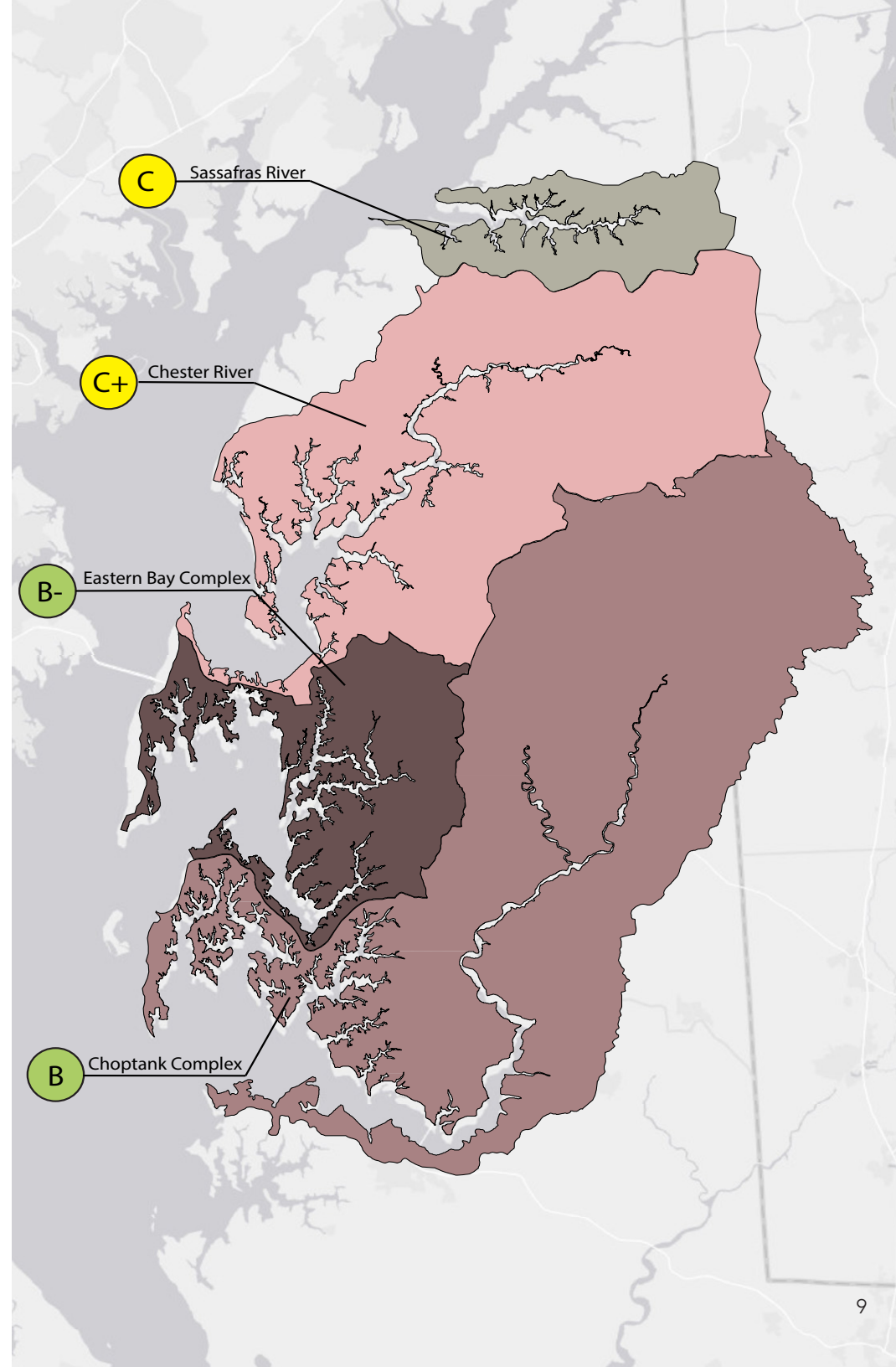




ShoreRivers' ribbon cutting, November 17, 2017

With the successful merger of our three legacy organizations, ShoreRivers has become more than just the sum of our parts—we are now one committed voice with more influence on policy, more capacity to enact programs, and more potential to undertake large restoration projects, all to reduce pollution. We will continue to maintain a local focus on Eastern Shore rivers with our four Riverkeepers, local watershed boards, and members like you who are committed to improving the health of our rivers, creeks, and streams. And together, with strong community support, we will continue to ensure that our rivers improve and remain protected.

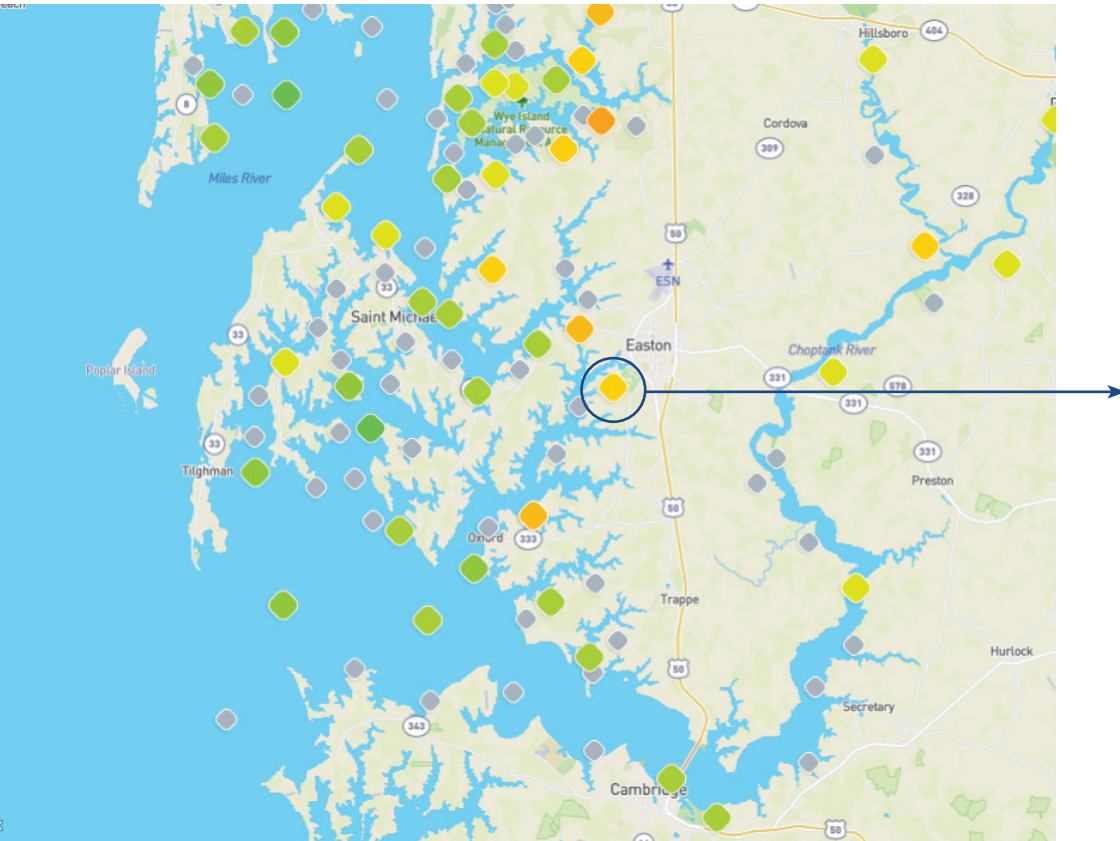
Become a ShoreRivers member and supporter. Join on our website, through the mail, or by contacting Kristan Droter, our director of development, at (443) 385-0511 or kdroter@shorerivers.org. Thank you.



INTRODUCING: RIVERWATCH

RiverWatch is a new resource that makes data collected by our Creekwatchers and Riverkeepers readily available on the ShoreRivers website. Working with Chesapeake Commons, a non-profit development firm that creates software to improve water quality, ShoreRivers will now be able to keep you informed about our rivers' water quality faster than ever!

Each monitoring site is displayed by a symbol. The colored diamonds are sites where we collect nutrients and represent the overall site grade. The gray sites are where we collect data on basic water quality parameters. When you click on a specific diamond, a window will appear that shows the different parameters tested at the site, including pH, temperature, dissolved oxygen (DO), salinity, and turbidity. The window also provides graphs that indicated changes in each parameter over time. We hope you enjoy using RiverWatch to stay up to date on the water quality of your watershed!



Station ID: **TA1** Overall Station Grade: **C+**

Tred Avon River-Choptank River ← Waterway

May 03, 2012 to Oct 05, 2017 ← Range of Sample Dates

Latest measurements

<p>Chlorophyll α · μg/L D-</p> <p>8.9</p> <p>7.4 ————— 64.62</p> <p>Historical range</p>	<p>Dissolved oxygen (bottom) · mg/L B+</p> <p>5.27</p> <p>1.4 ————— 8.7</p> <p>Historical range</p>
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Latest Measurement Grade: **B+**

Trends

Overall Parameter Grade at this site: **D-**

<p>Chlorophyll α · μg/L D-</p>	<p>Dissolved oxygen · mg/L A-</p>	<p>Dissolve mg/L</p>
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WHAT CAN YOU DO TO RAISE THE GRADE?



IN YOUR BACKYARD

Lawn fertilizer is rich in nitrogen, a major source of water pollution. Reduce or eliminate fertilizer and plant native grasses to create natural habitats and a healthy lawn. Install a rain garden to filter pollutants and reduce runoff. Properly dispose of your pet's waste.



GROW OYSTERS

Participate in oyster restoration efforts. Oysters filter pollution and create important habitat. Yet, they are in decline in the Chesapeake Bay. Ask us about opportunities to raise juvenile oysters at your dock that can be relocated to local sanctuary reefs.



GIVE VOICE TO OUR RIVERS

The support of community leaders is vital to improving the health of our rivers. Engage with your town, county and state political leaders. Email them, write them, call them—tell them relentlessly that you want them to support clean water initiatives.



CLEAN BOATING

Only discharge waste into a pumpout facility. Never discharge in the river. ShoreRivers' pumpout boat offers FREE pumpouts on the Miles and Wye Rivers. Don't allow gas or oil to spill into rivers or onto parking lots. Dispose of boat debris in trash cans.

SUPPORT CLEAN WATER ORGANIZATIONS

Donations of money, time and expertise are invaluable. ShoreRivers provides opportunities to help, including water quality monitoring, fundraising events, letter writing, oyster restoration, educational programs, and advocacy.

BECOME A CREEKWATCHER!

Thank you to our 2017 Creekwatchers: Dick Bemis, Randy Bengfort, Mike Bilek, Edward Binseel, Shelby Blythe, Mary Bollinger, Maura Bollinger, Roger Bollman, Jack Broderick, Stan Brown, Betty Brunetti, Peter Dunbar, Ned Egan, John Evans, Donna Ford, Roger Galvin, Paul Gilmore, Gil Gleim, Mitch Hager, Linda & Rich Harrison, Scott Hoover, Jason Jacobs, Joe Jelich, Kim Kaestner, Ron Ketter, Bob & Barbara Lawrence, Annabel & Ron Leshner, Lois Lindsey, Janet Mackey, Steve & Pam Masterman, Gail McConaughy, Jack & Jill Meyerhoff, Jack Moore, Phil Morrison, George Norberg, Brain O'Hare, David Parker, Leslie Passano, Perry Carmen, Arnold & Elinor Peterson, Bob Petizon, Dick Radlinski, William "Randy" Smith, George Strother, Kevin Sullivan, Mario & Elaine Tama, Marty Wells, Earle "Roo" Wood, and Ralph Young.