

# 2018 River Report Card

Sassafras | Chester | Miles & Wye | Choptank

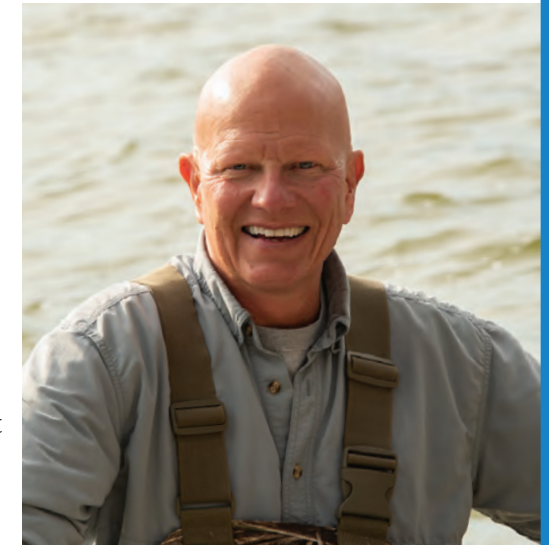


SHORE RIVERS



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For the first time, ShoreRivers is presenting a combined report card for all of our rivers - the Sassafras, Chester, Miles & Wye, and Choptank. While we still include detailed information for each of our rivers, this regional approach allows us to identify big picture trends and increase our regional impact. Thank you to all of our water quality volunteers who make this effort possible.



As suggested by our 2018 Report Card cover photo, the overwhelming theme of this year on our rivers was rain. Our region averaged more than 70 inches of rain, which is about double the rain of a typical year. What is the impact of all that rain on our rivers? The short answer - it isn't good.

More rain equals more runoff and generally more pollutants in our rivers. Accordingly, we marked an overall decline in water quality and increase in pollution in 2018, particularly evident with increased nutrient pollution in the Miles, Wye, and Choptank Rivers.

While the decline in water quality is a concern, there is a silver lining - it could have been much worse. Even though we experienced a two-fold increase in rain, our water quality only declined by a few percentage points overall, though there were more significant impacts in specific areas like my home river - the Wye. Does this show how our restoration efforts are working and the Chesapeake and our rivers are demonstrating ecological resilience? I certainly hope so - but one thing is for sure - as climate volatility increases and both extremes of rain and drought become the norm, we will need to do everything we can to protect and restore our rivers.

Thank you for your continued support.

**We will clean these rivers.**

**Jeff Horstman, Executive Director**

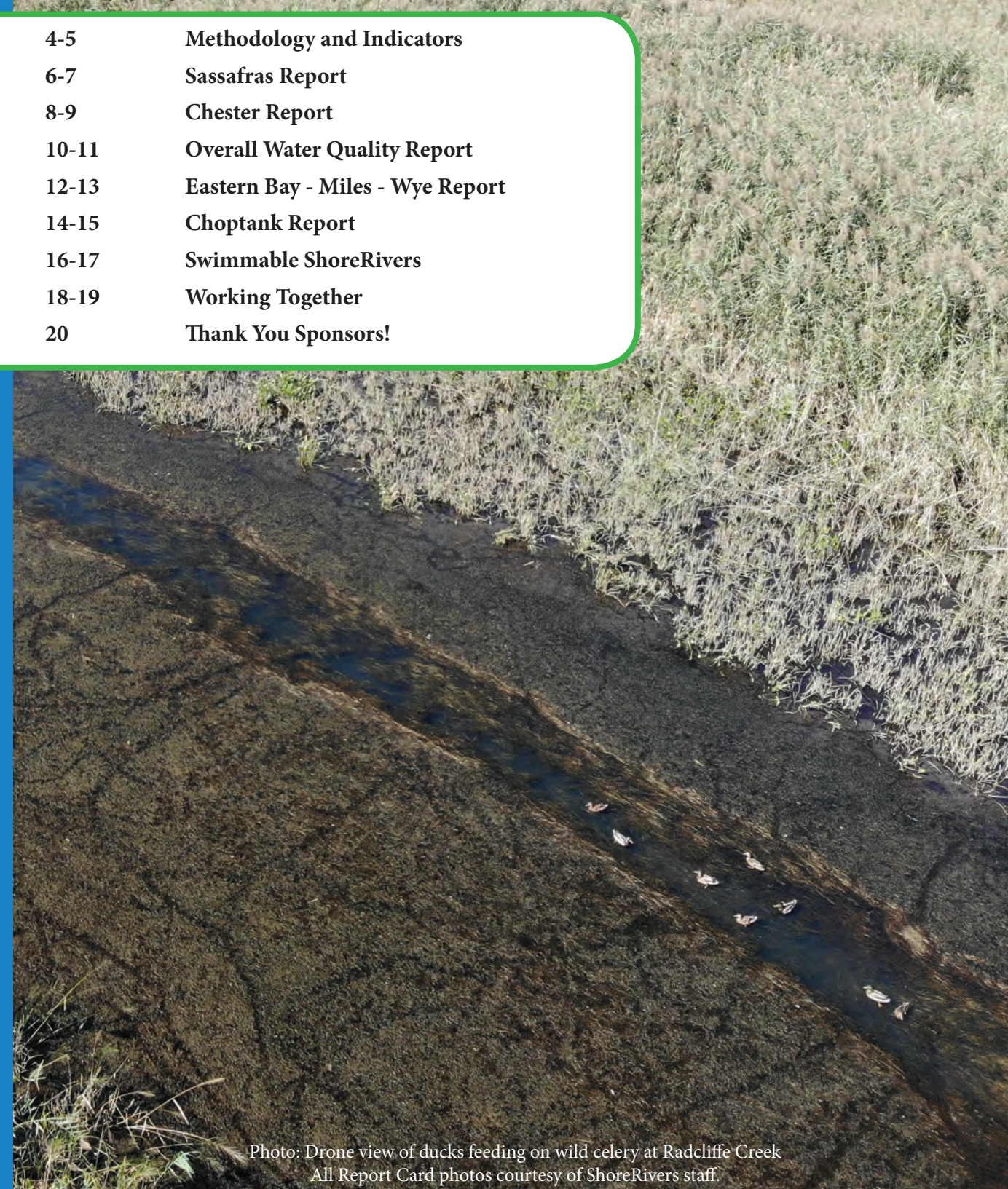


Photo: Drone view of ducks feeding on wild celery at Radcliffe Creek  
All Report Card photos courtesy of ShoreRivers staff.





ShoreRivers uses Mid-Atlantic Tributary Assessment Coalition (MTAC) scientific protocols to collect and evaluate water quality data. A numeric **Water Quality Index** (WQI) is calculated using established thresholds for water quality parameters, then converted to a letter grade. We send a special thank you to our **Sassafras Sampler, Chester Tester, and Creek Watcher** volunteers for their continued dedication to our monitoring program and to our rivers. Overall, ShoreRivers monitors nearly **200 sites** for water quality.



**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.



**Nutrients**, such as total nitrogen (TN) and total phosphorous (TP), are necessary 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, stormwater, and wastewater. Excess nutrients cause algal blooms and declines in dissolved oxygen concentrations.

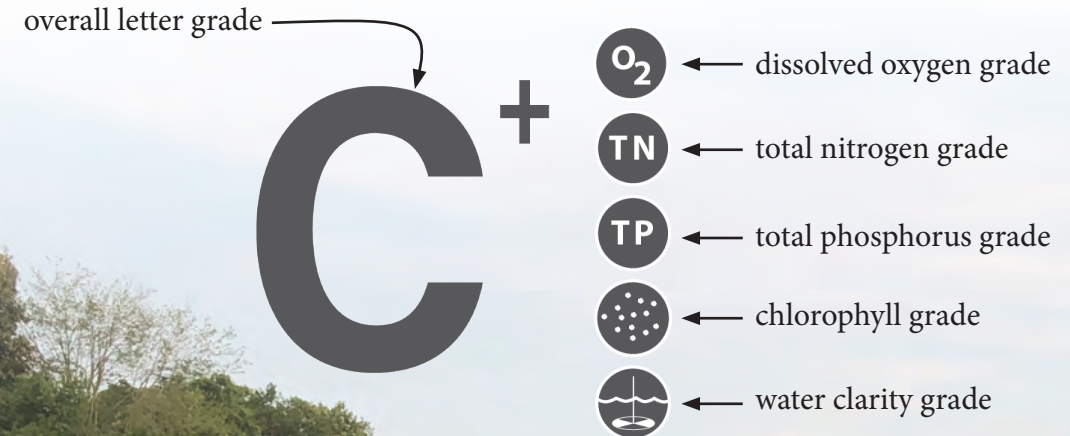


**Chlorophyll** is the green pigment found in all plants that use the sun for photosynthesis. Measuring the amount of this pigment (as chlorophyll a) in our rivers measures the amount of phytoplankton present. When fed by excess nutrients, phytoplankton can quickly bloom, blocking out light from reaching 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.



**Clarity** promotes the growth of underwater grasses, commonly referred to as submerged aquatic vegetation, or SAV. 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.

We use **grade blocks** to communicate an overall water quality grade for Shore-Rivers, grades for each water quality parameter, and grades for each river and sub-watershed. Grades are color coded according to the **Bay Health Scale** below.



Each grade block represents a letter grade and corresponding color code according to the below **Water Quality Index** (WQI) scale.

**BAY HEALTH SCALE**



Photo: Algal bloom on Rosin Creek fueled by nutrient pollution.

# sassafras river



**Sassafras Riverkeeper**  
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Follow the Sassafras Riverkeeper on Facebook and Instagram for updates on the Sassafras River.

2018 was a **year of transition** on the Sassafras. The Sassafras River Association, Chester River Association, and Midshore Riverkeeper Conservancy merged into ShoreRivers to become a leading voice for our Eastern Shore waterways. We moved our Sassafras office to the heart of Galena in order to be an active and accessible member of the community. After six and a half years of service to the Sassafras as riverkeeper Captain Emmett Duke retired to his next adventure and I assumed the mantle of the voice of the Sassafras. It is a tremendous honor to represent such a **beautiful river**, its natural resources, and its residents.

Our river faced a difficult year but came out alright on the other side. **Historic levels of rainfall** flushed out our creeks and streams but also brought increased runoff and sediment into the Sassafras. This rainfall prompted the frequent opening of flood gates at Conowingo Dam, causing pollution and debris to wash up on our shores. We identified **harmful algal blooms** and continued the battle against **invasive water chestnuts**. Yet the Sassy is resilient.

The overall grade only dropped slightly from last year, which shows that our restoration projects and community efforts are making a difference and holding the line regardless of weather. I look forward to working with you all to continue improving the quality of our river. **I'll see you on the river!**

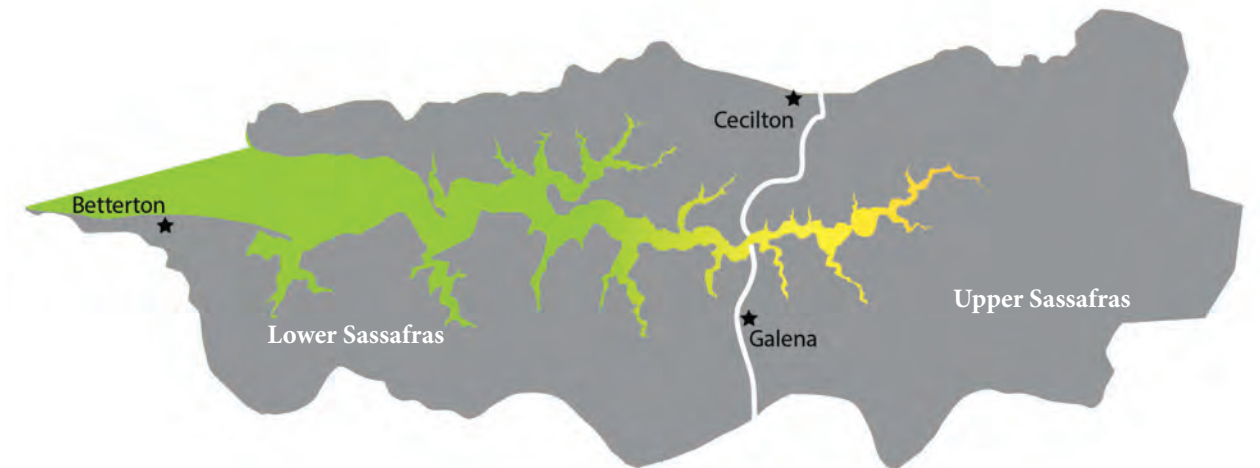


Photo: American Lotus (*Nelumbo lutea*) bloom on Dyer Creek.

## Lower Sassafras



## Sassafras River Overall Grade



### BAY HEALTH SCALE



For more detailed information on specific areas, summaries for all sampling stations are available in the **ShoreRivers 2018 Water Quality Technical Report** at: [www.shorerivers.org/report-cards](http://www.shorerivers.org/report-cards)

# chester river



**Chester Riverkeeper**  
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Follow the Chester Riverkeeper on Facebook and Instagram for updates on the Chester River.

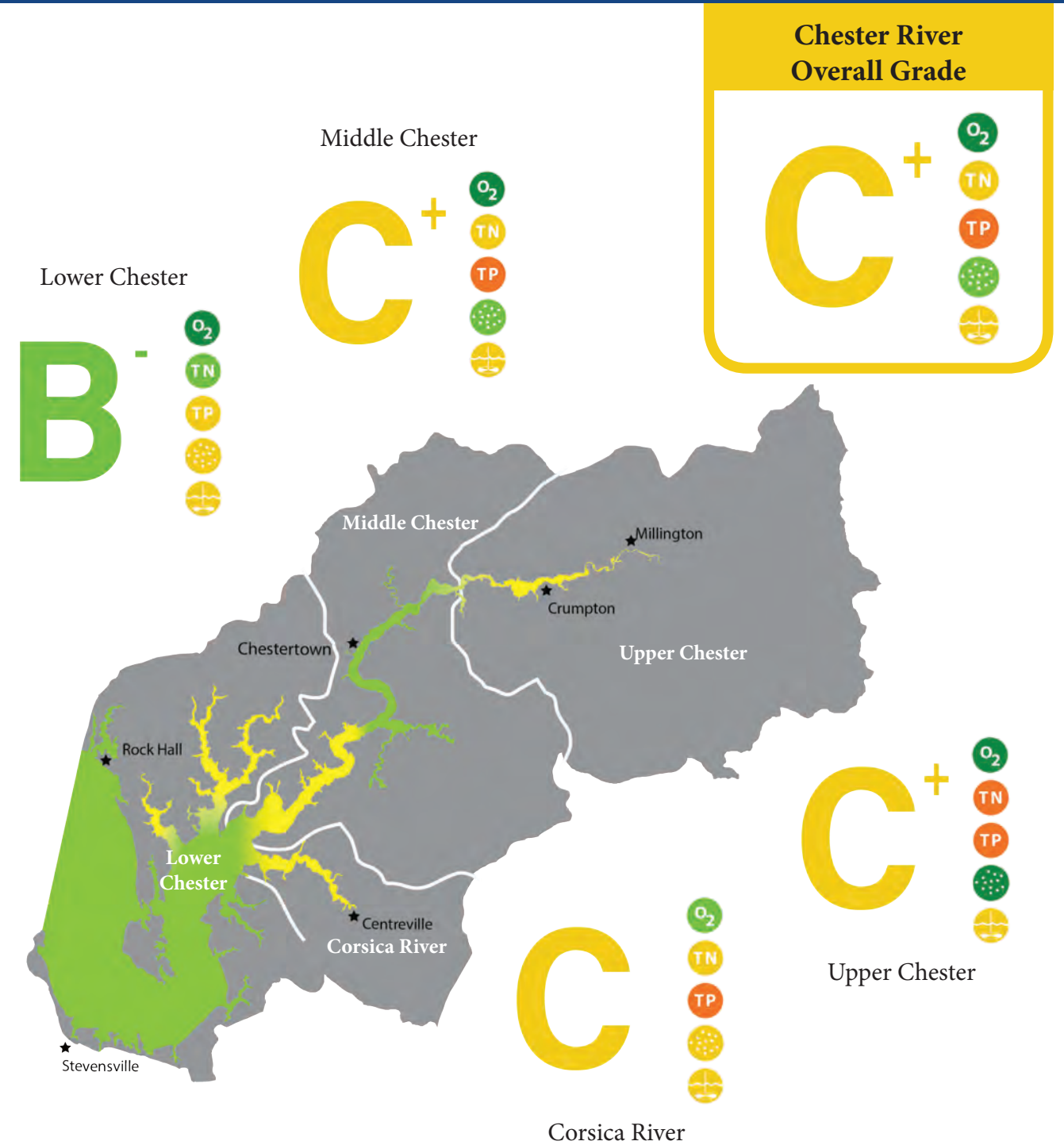
For the fourth consecutive year, the Chester River received a C+ for water quality. This is actually quite remarkable considering the extreme rainfall we received in 2018. ShoreRivers' volunteers and staff **sampled at more than 50 locations** this year, and this is what we discovered...

Similar to previous years, our monitoring shows that the Chester River is polluted and **most of the pollution is coming from local sources**. The farther upriver we travel in the Chester or any of the major tributaries, the more pollution we typically find - this was true in 2018 for all Chester locations except for the Corsica River.

In the Corsica, we recorded an improvement in water quality, specifically in the area of the Corsica Wharf. We believe this improvement was caused by **Dark False Mussels**, a native filter feeder that thrives when salinity is depressed by rainfall.

Elsewhere, although recorded algal levels overall were less than in previous years, we did notice **significant algal blooms later in the summer and early fall**. This was likely due to a combination of runoff from rainfall and the unseasonably warm late season water temperatures.

On the positive side, we continue to see increased **submerged aquatic grasses** particularly in areas near and upriver of Chestertown. **Thank you for your support!**

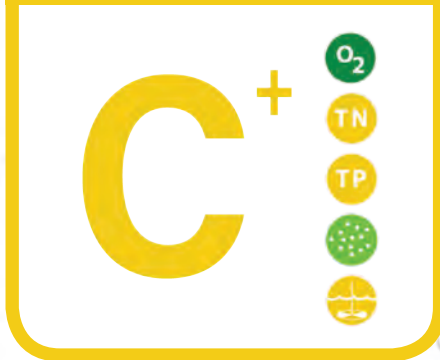


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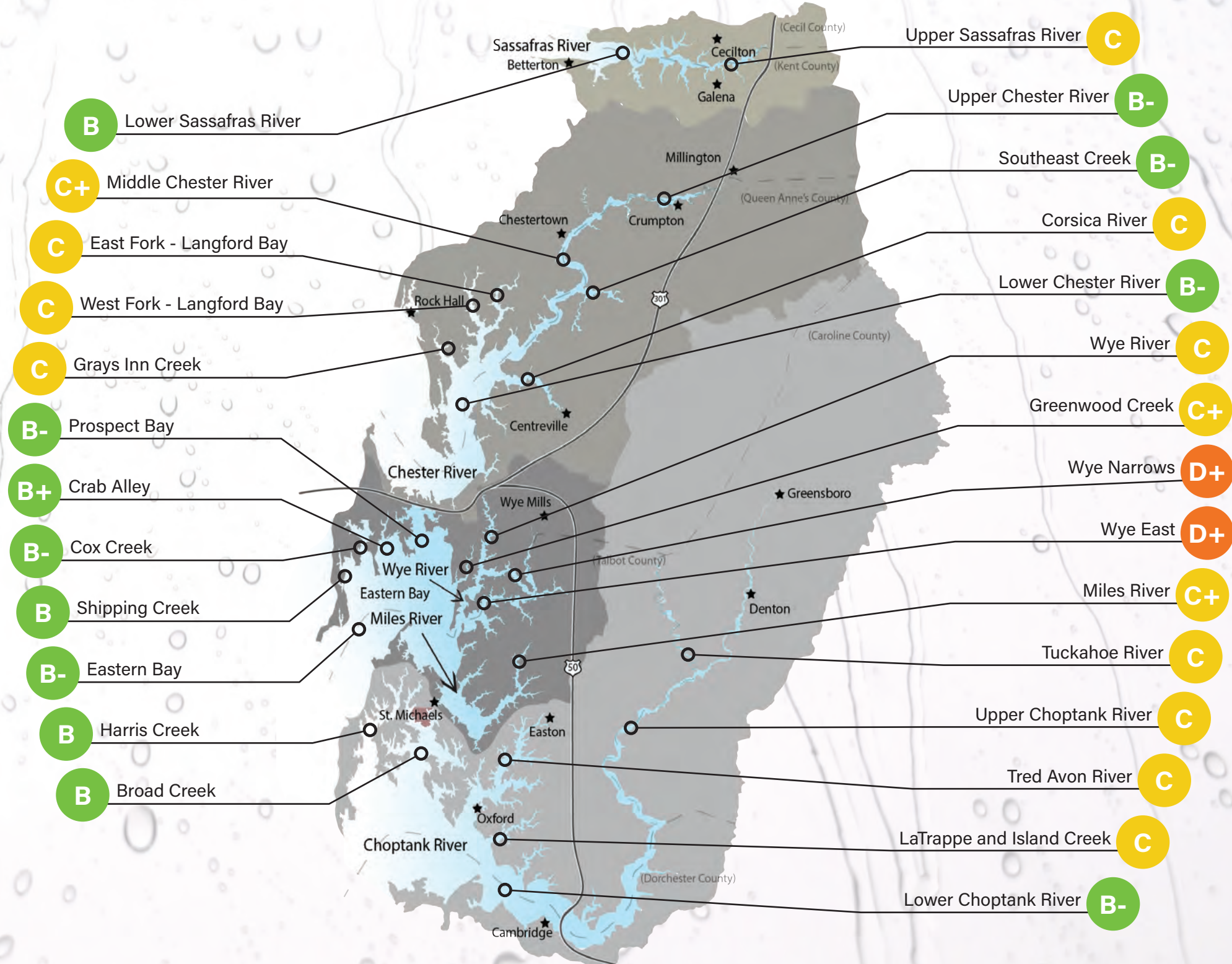
# ShoreRivers water quality report

## ShoreRivers Grade

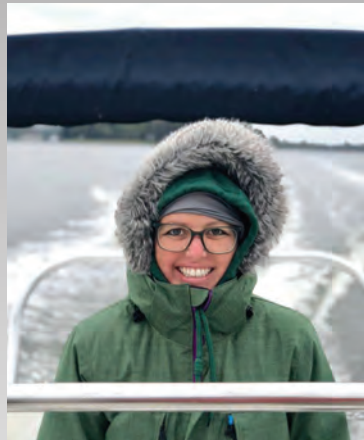


**Our rivers are polluted.** In 2018, ShoreRivers volunteers and staff monitored water quality at nearly **200 locations**. Our scientific data points show an ecological system that is out of balance due primarily to nutrient and sediment pollution. In 2018, water quality was significantly impacted by historic levels of **rainfall**, with several areas recording above average nutrient pollution and below average water clarity.

For more detailed information on specific areas, summaries for all sampling stations are available in the **ShoreRivers 2018 Water Quality Technical Report** at: [www.shorerivers.org/report-cards](http://www.shorerivers.org/report-cards)



# eastern bay + miles & wye rivers



**Miles-Wye Riverkeeper**  
Elle Bassett

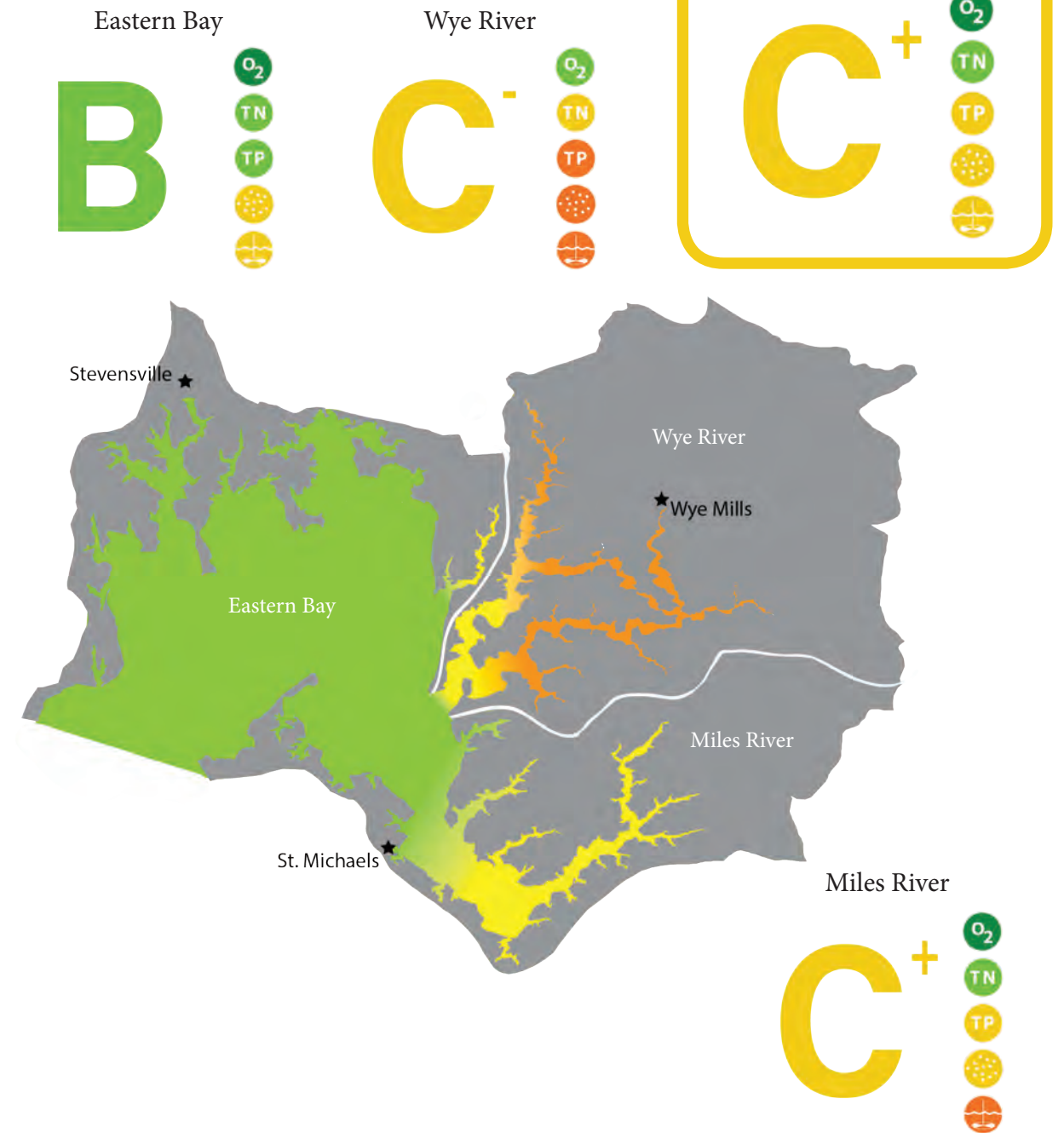
ebassett@shorerivers.org  
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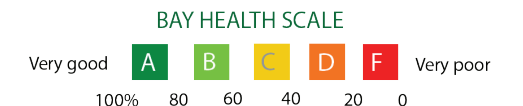
Follow the Miles-Wye Riverkeeper on Facebook and Instagram for updates on the Eastern Bay and the Miles & Wye Rivers.

**2018 was a tough year for most of our tributaries in the Eastern Bay Complex**, most likely due to the record levels of rain fall and associated runoff. The Wye East and Wye Narrows in particular have dropped to not only the lowest scores they have ever received, but recorded the worst water quality in all of ShoreRivers' watershed at D+ (shown in orange on the opposing page). With the exception of dissolved oxygen, all parameters scored below 40%. **Chlorophyll scores were among the lowest** - an indicator of algal blooms. The Wye Narrows scored a total of 23% for Chlorophyll measurements, 47 percentage points less than the highest scoring tributary, Crab Alley. These high chlorophyll measurements are an indicator that we have **too much nutrient pollution**, fueling algal growth. The Miles River also saw a decline in water quality, especially in the upper portions of the river where water clarity only scored a total of 23%, 30 percentage points lower than the clarity score at the mouth of the Miles River.

On the positive side, **we saw improvements in some of the Eastern Bay tributaries**, including Crab Alley Bay, Prospect Bay and Shipping Creek. In fact, 2018 was Crab Alley's best year since we started monitoring in the early 2010's. This could be because, like Shipping Creek and Prospect Bay, Crab Alley has a smaller land to water ratio and experiences flushing from Eastern Bay, meaning the heavy rains throughout the year did not create as large an impact on water quality compared to our other tributaries.



For more detailed information on specific areas, summaries for all sampling stations are available in the **ShoreRivers 2018 Water Quality Technical Report** at: [www.shorerivers.org/report-cards](http://www.shorerivers.org/report-cards)



# choptank river



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Follow the Choptank Riverkeeper on Facebook and Instagram for updates on the Choptank River.

In 2018, the entire Choptank River and its tributaries **declined in water quality**. The region received nearly **6 feet of rain** (71”) putting a lot of pressure on our natural lands and filters to slow down and treat the increased runoff. Water quality improvements in previous years demonstrate that the Choptank is capable of resisting the pressures of normal rainfall, but what’s normal anymore?

Ten inches of rain fell over a week-long period in mid-May, causing **bacteria levels to rise above safe swimming levels**. As a result of the poor water quality, an open water swim event across the Choptank River was canceled, hindering the recreational use and economic value of the river. Spring rain also caused **major problems for the agricultural community** which accounts for nearly 60% of the land use in the watershed. Planting delays occurred and those farms that were able to plant prior to the heavy rains ended up having much of their crop and nutrient-rich fertilizer washed into the river. Frequent summer rains were often followed by intense heat and humidity that **spiked the water temperature**, promoting algal blooms and stressing fish.

We have to restore the river’s natural ability to process and filter nutrient and sediment pollution. We won’t get there by working alone, but by **working with our communities, our partners and our members**, we can envision a **healthy Choptank River**.



Tuckahoe River

**C**



**Choptank River Overall Grade**

**C<sup>+</sup>**



Lower Choptank

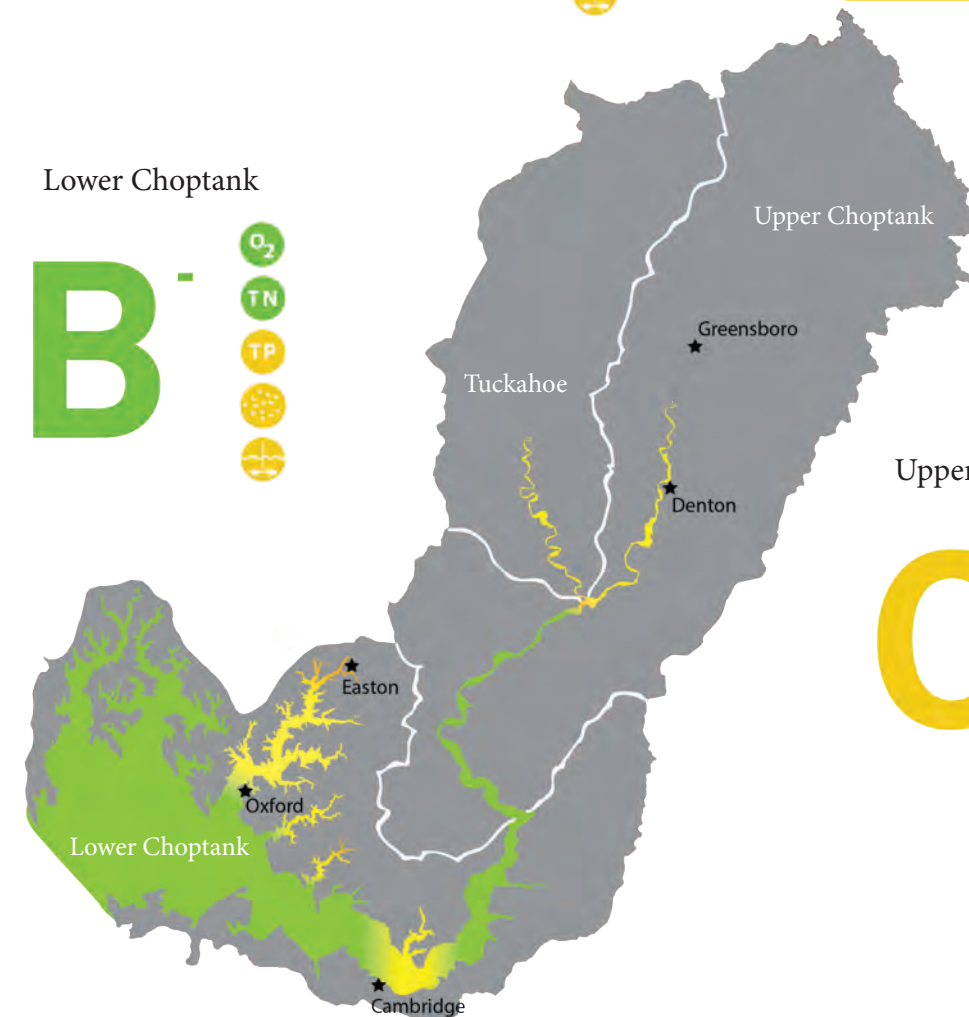
**B<sup>-</sup>**



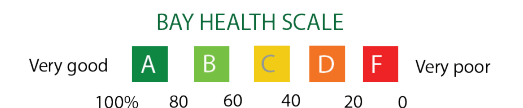
Upper Choptank

Upper Choptank

**C**



For more detailed information on specific areas, summaries for all sampling stations are available in the *ShoreRivers 2018 Water Quality Technical Report* at: [www.shorerivers.org/report-cards](http://www.shorerivers.org/report-cards)







## We have a right to swimmable rivers.

ShoreRivers samples for *enterococci* bacteria pollution at 21 popular swimming areas on the mid and upper Eastern Shore. *Enterococci* bacteria is designated by the Environmental Protection Agency (EPA) as a common indicator of **waterborne illnesses**.

There is an inherent risk in open water swimming, but to lower that risk, please:

- don't swim within 24 hours of a significant rain event
- don't swim with open cuts or wounds
- don't swim if the water has an odd look or smell
- do rinse off with clean water after swimming

ShoreRivers partners with **Swim Guide** to share bacteria monitoring results. For the latest monitoring results, download the Swim Guide app at [www.swimguide.org](http://www.swimguide.org) or follow [#SwimmableShoreRivers](https://www.facebook.com/SwimmableShoreRivers) on Facebook and Instagram.



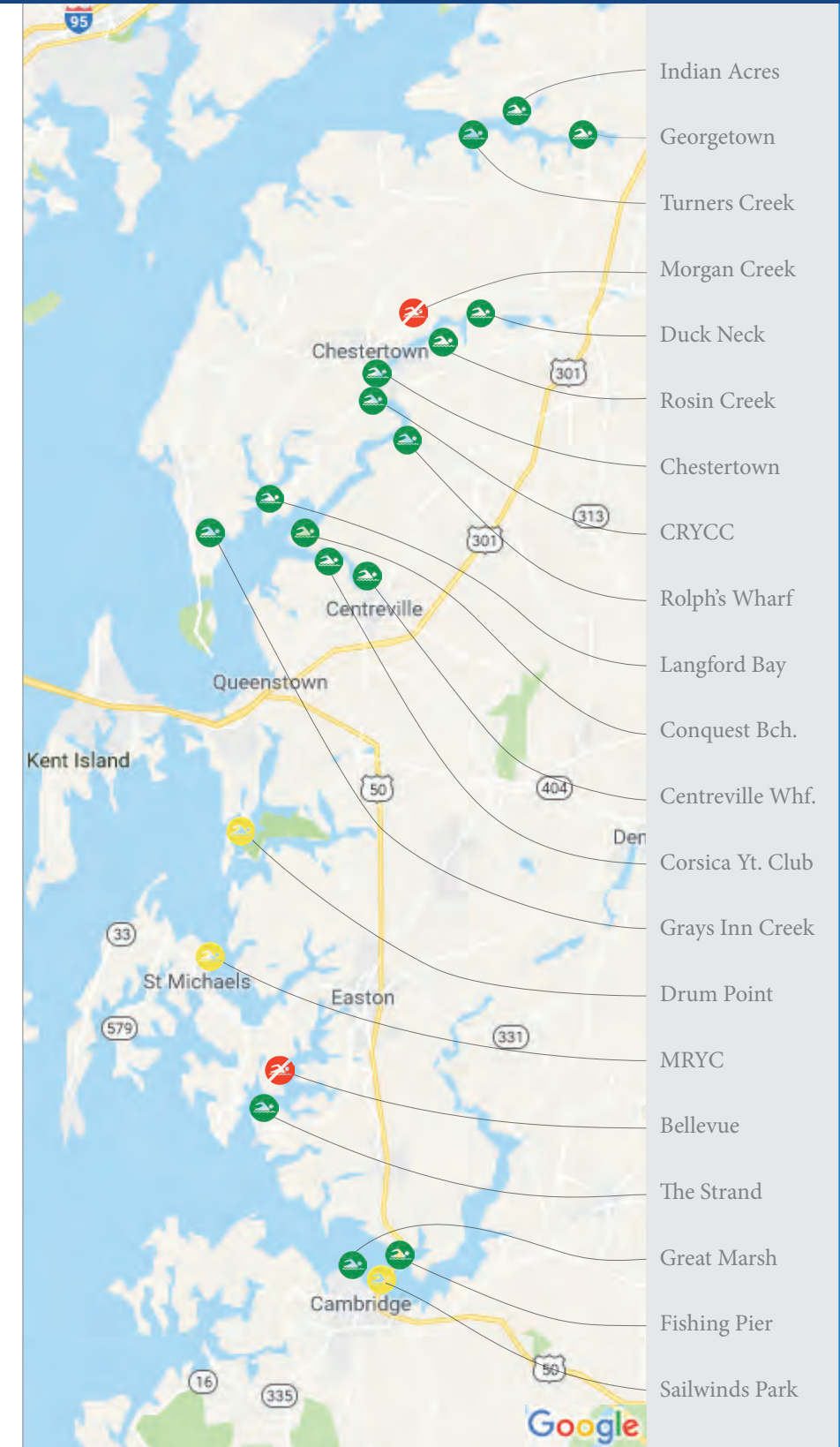
**95% or more**  
of samples passed  
water quality standards



**60-95%**  
of samples passed  
water quality standards



**60% or Less**  
of samples passed  
water quality standards  
(swimming not recommended)



*ShoreRivers' mission is to protect Eastern Shore waterways through science-based advocacy, restoration, and education.*



## Advocacy

The ShoreRivers' Riverkeeper team has been active in dozens of legislative and policy initiatives. We have advocated for and provided expert testimony on **oysters and fisheries, underwater grasses, septic systems, manure management, environmental enforcement**, and more.

## Volunteer

Our volunteers significantly expand our ability to achieve our mission. If you are passionate about clean rivers and are able to help us with our **Marylanders Grow Oysters (MGO) program, our water quality monitoring program, or provide support for events**, please contact Suzanne Sullivan ([ssullivan@shorerivers.org](mailto:ssullivan@shorerivers.org)). **Thank you!**



## Restoration

From farm field to school yard, ShoreRivers has installed more than **85 restoration projects** across the Eastern Shore. Each year, these projects prevent more than 40 tons of nitrogen pollution, 7 tons of phosphorus pollution, and 2700 tons of sediment pollution from entering our rivers. And we're just getting started...

## River-Friendly Yards

How **river-friendly is your yard**? Even small changes can make a big difference. Reduce lawn area and fertilizer use. Plant native flowers, shrubs, and trees. Install rain gardens or rain barrels. If you want to learn more about River-Friendly yards, please contact Zack Kelleher ([zkelleher@shorerivers.org](mailto:zkelleher@shorerivers.org)).



## Education

Education and outreach are essential components in the fight for healthier, cleaner rivers. ShoreRivers is dedicated to investing in **future generations** of river stewards through education and teaching the value, importance, and fun found on our local rivers. We educate in our **schools** and in **our communities**.

## Join Us!

When you **donate to ShoreRivers**, you join thousands of other Marylanders willing to stand up for clean water. Thank you to all of our supporters. Not a member yet? Add your voice to ours by becoming a member today at [www.shorerivers.org/join](http://www.shorerivers.org/join).



Report Pollution

443.385.0511

## partners and supporters



Our work is made possible by the generous support of our River Guardians, sponsors, members, foundations, and volunteers. **Thank you!**

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