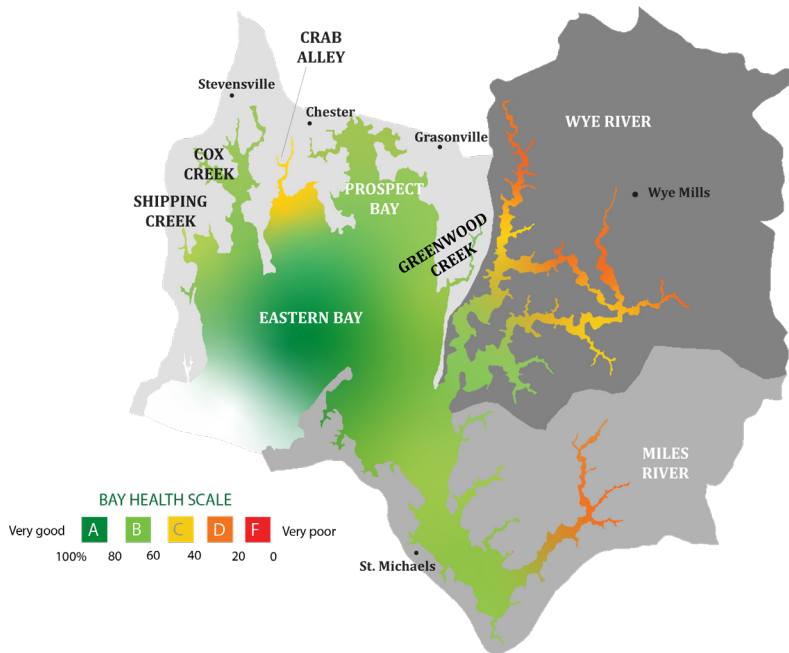


# MILES, WYE, & EASTERN BAY REPORT CARD

## 2023



- DISSOLVED OXYGEN
- TOTAL NITROGEN
- TOTAL PHOSPHORUS
- WATER CLARITY
- CHLOROPHYLL A

ShoreRivers uses Mid-Atlantic Tributary Assessment Coalition scientific protocols to collect and evaluate water quality data. A numeric **Water Quality Index** is calculated using established thresholds for water quality parameters, then converted to a letter grade.

In 2023, likely due to less precipitation across the watershed, especially in the spring, **water quality across the Miles, Wye, and Eastern and Prospect bays improved marginally.** All sampling areas had heightened salinity levels, with increases above the 10-year average of 4-6 parts per thousand (ppt), depending on the sampling site. The benefits of reduced rainfall include reduced nutrient inputs, greater oyster reproduction, healthier underwater grass beds, and smaller low-oxygenated areas (dead zones), while the costs include increased oyster diseases, poor reproduction of anadromous fish like striped bass, and increased prevalence of sea nettles.

**Although some improvements were noted in dissolved oxygen and clarity near the mouths of our rivers and in Eastern and Prospect bays, the upper tributaries did not see the increased clarity notable in the downstream sampling locations.** Nitrogen and phosphorus levels showed a marked improvement, but remain a significant concern throughout the system, especially as sites were sampled further upstream.

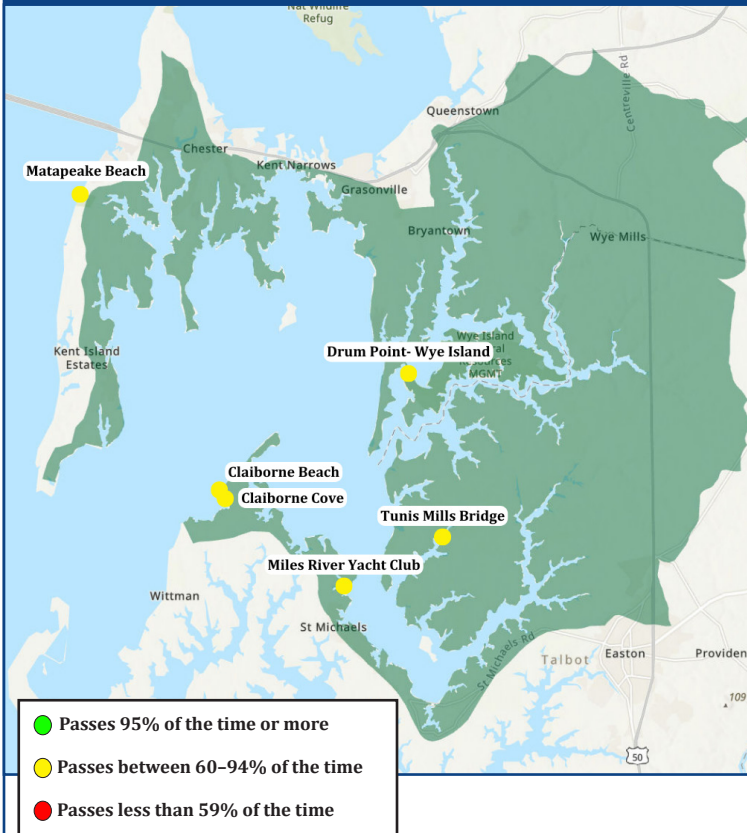
**Ben Ford, Miles-Wye Riverkeeper**  
[bford@shorerivers.org](mailto:bford@shorerivers.org)  
 443.385.0511 ext 213



SHORERIVERS

|                       | DISSOLVED OXYGEN | TOTAL NITROGEN | TOTAL PHOSPHORUS | WATER CLARITY | CHLOROPHYLL A | WATER QUALITY INDEX | 2023 GRADE |
|-----------------------|------------------|----------------|------------------|---------------|---------------|---------------------|------------|
| Eastern Bay           | 90%              | 87%            | 87%              | 71%           | 80%           | 83%                 | A-         |
| Shipping Creek        | 100%             | 78%            | 75%              | 31%           | 54%           | 68%                 | B          |
| Cox Creek             | 100%             | 84%            | 72%              | 38%           | 60%           | 71%                 | B          |
| <b>B</b> Crab Alley   | 83%              | 64%            | 64%              | 34%           | 54%           | 60%                 | B-         |
| Prospect Bay          | 100%             | 78%            | 74%              | 48%           | 71%           | 74%                 | B          |
| Greenwood Creek       | 100%             | 73%            | 65%              | 35%           | 51%           | 65%                 | B-         |
| Wye Narrows           | 50%              | 49%            | 31%              | 29%           | 28%           | 37%                 | D+         |
| <b>C-</b> Wye River   | 58%              | 58%            | 41%              | 38%           | 44%           | 48%                 | C          |
| Wye East              | 84%              | 45%            | 28%              | 26%           | 23%           | 41%                 | C-         |
| <b>C+</b> Miles River | 81%              | 63%            | 51%              | 40%           | 38%           | 55%                 | C+         |

# BACTERIA MONITORING ON THE MILES, WYE, & EASTERN BAY | 2023



| Site                   | Pass Rate | Average Failing CFU* |
|------------------------|-----------|----------------------|
| Drum Point Beach       | 86%       | 466                  |
| Broad Cove Claiborne   | 86%       | 288                  |
| Claiborne Beach        | 79%       | 350                  |
| Tunis Mills Bridge     | 64%       | 159                  |
| Miles River Yacht Club | 93%       | 121                  |
| Matapeake Beach        | 86%       | 133                  |

Each season our volunteer SwimTesters, as a part of the Swimmable ShoreRivers program, test for bacteria pollution at shoreline sites along our rivers, including popular public access locations, marinas, yacht clubs, and town piers. These tests are conducted weekly from Memorial Day through Labor Day. The program follows the Environmental Protection Agency’s standard protocols for collecting and analyzing samples and uses a pass/fail system to determine the level of risk that bacteria levels pose for water contact activities.

**This year, the pass rate increased across all sites, and the average failing CFU (a measure of indicator bacteria) decreased.** These averages indicate how significantly a site fails to meet water quality standards, with anything higher than 104 CFU being considered a failing score. While this is a positive step, it’s likely a product of the reduced precipitation during the testing season rather than an ongoing trend.

The tide, recent rainfall, water temperature, and distance from bacteria sources (like wastewater treatment plants and failing or out-of-date septic systems) all play a major role in bacteria counts.

**Thank you to our sponsors and volunteers for making our program possible!**

CFU = Colony Forming Units  
Pass/Fail Threshold = 104 CFU

\*Indicates the average of all failing scores this season

## BACTERIA MONITORING STUDY SUPPORTS TIPS FOR SAFE SWIMMING

Thanks to funding from the Chesapeake Bay Trust, Morgan Buchanan, ShoreRivers’ Education Programs Coordinator, conducted a continuous bacteria monitoring study at Morgan Creek Landing on the Chester River to better understand the relationship between tidal cycles and bacteria pollution in our waterways.

**Results support our understanding that outgoing tides bring the highest bacteria levels of each tidal cycle. This can be seen in the figure to the right, showing results for the tidal cycle sampled on July 11, 2023, which saw no rain in the 24 hours prior to sampling. The highest bacteria level that day occurred one hour prior to low tide and with a reading of 471 CFU, whereas the average bacteria level that day was 124 CFU.**

