



Patapsco River

2025 Report Card

Patapsco Heritage Greenway (PHG) is a non-profit organization dedicated to preserving, protecting, interpreting, and restoring the environment, history, and culture of the Patapsco River Valley. The Patapsco Valley is a certified Maryland Heritage Area, a designation by the Maryland Historical Trust that supports collaboration between individuals, nonprofits, businesses, and governments to protect the region’s environmental and historical value.

In 2021, PHG started a volunteer water quality monitoring program in partnership with the Chesapeake Monitoring Cooperative (CMC). PHG adopted the methodologies and quality assurance procedures of the CMC, thereby joining a large regional network of programs collecting similar data of known quality. Since then, the program has grown in number of volunteers engaged, parameters measured, sites assessed, types of monitoring performed, and data users.

During the 2024–2025 sampling year, PHG monitored 12 stations from Woodbine to Elkridge. Temperature, dissolved oxygen, pH, conductivity, nitrite, phosphorus, clarity, and *E. coli* bacteria are measured monthly. Twice a year, the benthic macroinvertebrate community is assessed using the procedures of the Izaak Walton League of America’s Virginia Save Our Streams program.



**Chesapeake
Monitoring
Cooperative**



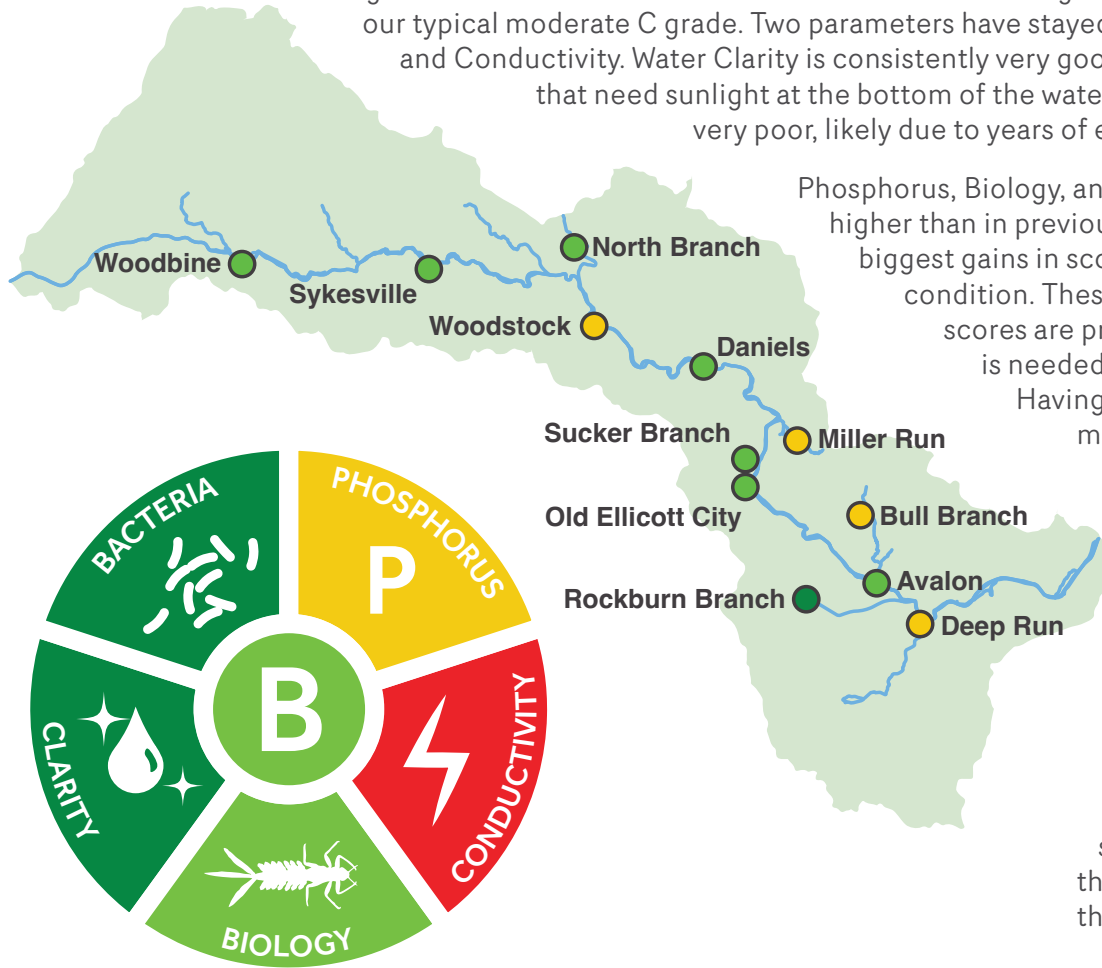
ALLIANCE
for the Chesapeake Bay



University of Maryland
CENTER FOR ENVIRONMENTAL SCIENCE
INTEGRATION AND APPLICATION NETWORK

The Patapsco River is in good condition

The non-tidal Patapsco River is in good condition this year, for the first time since monitoring began in 2021. The combined scores at all the sites averaged higher on the grading scale than our typical moderate C grade. Two parameters have stayed stable over time: Water Clarity and Conductivity. Water Clarity is consistently very good, which is important for organisms that need sunlight at the bottom of the waterway. Conductivity is consistently very poor, likely due to years of excessive winter salting practices.



Phosphorus, Biology, and Bacteria indicators all scored higher than in previous years. Biology showed the biggest gains in score, from moderate to good condition. These increases in benthic community scores are promising, but additional research is needed to support these species. Having a large and diverse population of macroinvertebrates shows that the river is capable of supporting a healthy aquatic ecosystem.

Site scores ranged from moderate to very good. The highest-scoring site was Rockburn Branch, and the lowest-scoring site was Bull Branch. River flow, human use and development, and pollution inputs can vary considerably from site to site. These factors explain the variation we see in site scores throughout the watershed.

A Very Good
100–80%

B Good
79–60%

C Moderate
59–40%

D Poor
39–20%

F Very Poor
19–0%

Comparing Report Cards

When comparing the annual report cards, readers may notice that there are now 12 monitored sites. Our most recent addition is Rockburn Branch, which we access from Rockburn Branch Park in Elkridge. Also, in this report card, we substituted a site on the North Branch of the Patapsco River for a site on the South Branch Patapsco River that became blocked by a downed tree.

How is the data used?

The Maryland Department of the Environment uses this data in a biennial Integrated Report to the U.S. EPA. This data provides insight on Maryland waters, which is required by the Clean Water Act. We also use the data to guide our own programming, like determining locations for stream cleanups and starting a Salt Watch program.

What do the indicators tell us?



Conductivity

Conductivity is the ability of the water to conduct electricity and is based on the number of charged particles, like chloride, in the water column. Excessive conductivity causes organisms stress and can affect their ability to regulate their internal chemistry.



Phosphorus

Phosphorus is a critical nutrient in our aquatic food web, but too much can be a problem. Even a modest increase can cause a chain of undesirable events including accelerated plant growth, algae blooms, low dissolved oxygen, and the death of some aquatic animals.



Bacteria

Bacteria are everywhere in our environment, but some bacteria can make water unsafe for contact. We measure *E. coli* bacteria in the water because some kinds are pathogenic, and high numbers of *E. coli* represent an increased risk to humans of becoming sick after coming in contact with the water.



Clarity

Particles in the water cause it to appear cloudy and can smother aquatic plants and animals. Particles can come from various sources of erosion and runoff.



Biology

A diverse and pollution-sensitive benthic macroinvertebrate community is an indicator of a healthy stream. Conversely, finding only organisms that are tolerant to pollution tells a different story. All these organisms (dragonfly nymphs, worms, snails, fly larvae) are also an important foundation for a healthy aquatic food web.

5 Year Anniversary

April 2026 marks five years of PHG conducting water quality monitoring in the Patapsco Valley! Beginning in September 2020, PHG hosted a Chesapeake Conservation and Climate Corps intern who worked with PHG staff to lay the groundwork for our volunteer monitoring program. Working closely with the Chesapeake Monitoring Cooperative, PHG began monitoring water quality at six sites in April of 2021. We added two more sites in May and three more in the fall to raise our total to 11. In 2022, we added macroinvertebrate monitoring to our array of assessments. In 2024 we added one more site into our rotation to make it a dozen sites in the non-tidal Patapsco watershed. In 2025, we piloted a Salt Watch program that we are expanding within our watershed.

Thank you to our volunteers!

Of all the partners that are so vitally important to PHG, volunteers are the foundation of our program. So many individuals have spent countless hours collecting water quality information. Some of our volunteers come out for a day or two just to see what it's all about. More commonly, people come out regularly to lend a hand and enjoy some pleasant outside time. Some people have been volunteering with PHG since the inception of the program. To all of you, we say thank you. Your contributions are appreciated more than you know. We've enjoyed spending time with you, exploring nature with you, and preserving, protecting, interpreting and restoring the Patapsco River Valley with you.



The Appeal of the Eel

Few organisms have as fascinating a life story as the eel. Eels along the east coast of the United States are freshwater American eels. They hatch from eggs laid in the Sargasso Sea, the area between Bermuda, the Azores, and the West Indies. The larvae drift in the ocean for a year, riding currents toward the rivers and estuaries where their predecessors grew to maturity. The larvae grow larger and more eel-like as they swim upstream from the mouth of the Chesapeake Bay. American eels can live about 20 years before reaching sexual maturity and making their final journey back to the Sargasso Sea to reproduce.

Eels are an important part of the food chain and a food source for many organisms, including humans, birds, snakes, and larger fish. Eels and other fish require river connectivity to reach their preferred nursery habitat: shallow headwaters, including in the Patapsco River. Eels are essential hosts to mussels as they go through their life cycle from larvae to juvenile. The Eastern elliptio mussel, the most abundant of Maryland's native mussels, relies on the American eel to carry mussel larvae on their gills as they swim upstream!

Mussels improve ecosystem and water quality by filtering pollutants and sediments out of the water column. While water volume filtered by a single mussel can vary, it is estimated to be between 10 and 20 gallons of water a day. When mussels are filtering water in order to breathe and feed, they remove suspended particles; including sediment, bacteria, and pollutants. Mussels can even remove pharmaceuticals, personal care products, and other contaminants from our waterways. These mussels and eels provide important ecosystem services in the Patapsco River.



Partners

Many of our partners adopt monitoring sites to help PHG cover the watershed. T. Rowe Price partners with PHG to monitor the Rockburn Branch Park site. For two years, a family adopted a set of three sites in the headwaters of the watershed. Maryland Conservation Corps members adopted a site near their worksite and monitored it for a year. If you have a group that would like to adopt monitoring sites, please reach out to us to find out more about the monthly commitment. Partnering with PHG in this way is a unique opportunity to learn skills, contribute to community science efforts, and even obtain certifications!

Acknowledgments

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