



**How does ENERWA assess water quality?**

Working in teams of two, a dedicated corps of volunteers, led by George Kaplan and Ron Hartman, takes monthly water samples at selected sites from April to November. Teams sample their assigned site(s) once each month. Some measurements are taken immediately in the field (temperature, pH, dissolved oxygen, etc .) while samples are also collected for later lab analysis to determine the total nitrogen and phosphorus content.

We especially thank the towns of **North East, Elkton, and Charlestown** for funding our lab fees. The printing and mailing of this report card were funded by the **Stormwater Management Division** of the Cecil County Department of Public Works. Thanks also to ENERWA's **members**, whose dues and contributions support the purchase of supplies, new equipment, and other costs.

**Join Us!**

If you are interested in learning more about how we sample or would like to volunteer, please contact us at [enerwa@hotmail.com](mailto:enerwa@hotmail.com). Training is provided and you can be teamed with an experienced volunteer as you learn and become comfortable with the process!

**Join ENERWA! Annual Membership Dues:**  
**\$20.00 Individual \$10.00 Students**

Checks payable to ENERWA  
 (see address on this page)

Or by credit card at:  
[elkandnortheastrivers.org](http://elkandnortheastrivers.org)



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Elk and North East Rivers  
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 P.O. Box 192  
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**We can all help to improve water quality:**

- Recycle, and dispose of trash properly
- Don't over fertilize lawns and never within 15 feet of a waterway or well
- Minimize rainwater runoff from your property by using rain barrels or rain gardens, and replacing lawn, where possible, with native plants
- Fix any oil, antifreeze, or other leaks from your vehicles
- Use commercial car washes (which recycle water)
- Maintain septic systems: pump out regularly
- Never discharge waste liquids from a boat
- Volunteer to help with a stream cleanup
- Support ENERWA's water sampling: volunteer or contribute to our expenses

*Do unto those downstream as you would have those upstream do unto you.*



**Elk and North East Rivers  
 Water Quality  
 Report 2025**



*Thanks to our partners:*



## What do we measure and why is it important?

- Air and water temperatures
- Total nitrogen
- Total phosphorus
- Water clarity (turbidity)
- pH
- Conductivity
- Dissolved oxygen

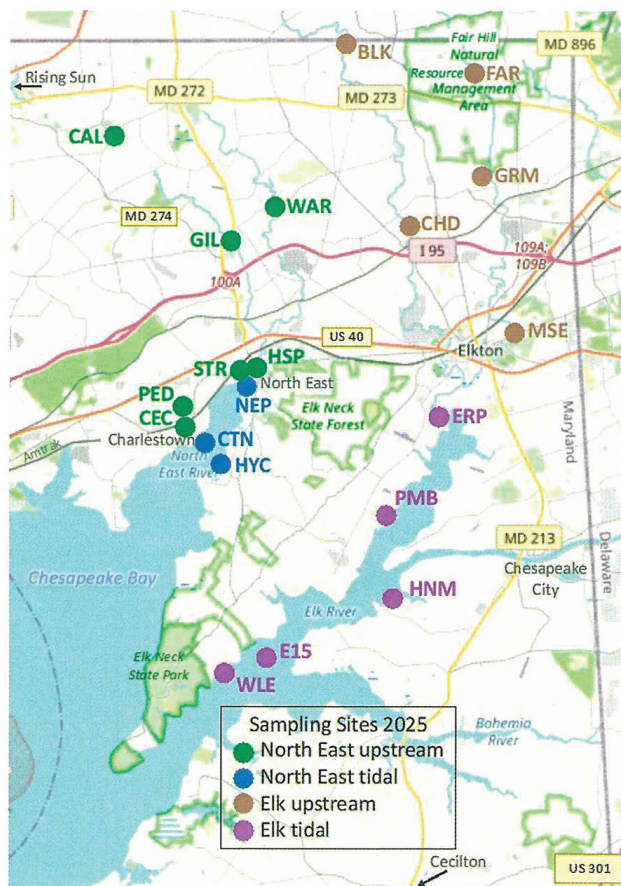
Nitrogen, phosphorus, and sediment are the three pollutants addressed by the Chesapeake Bay’s “pollution diet” overseen by the federal Environmental Protection Agency (EPA). In our measurements, total nitrogen, total phosphorus, and water clarity are the parameters that directly relate to these pollutants. Conductivity is another measure of undesirable solids dissolved in water, and dissolved oxygen tells us how well a waterway can support plant and animal life — underwater grasses, fish, invertebrates, etc.

## What about bacteria?

The Cecil County Health Department monitors the bacterial content of both rivers May-August and posts its results online at <http://cecilcountyhealth.org/services/environmental-health-services/bathing-beaches/>.

## What sites does ENERWA monitor?

The map below shows the sites that ENERWA monitored in 2025: 10 sites in the North East River watershed and 10 sites in the Elk River watershed.



## North East River Watershed

2025 Grade: **B-**

### Upstream Sites

Site	Conductivity	Nitrogen	Phosphorus	Clarity	Site Grade
CEC	D ↓	A+ =	B ↓	D ↑	C+ =
PED	C+ ↓	A+ =	B ↓	F ↓	B- ↓
STR	D+ ↓	A =	A- ↓	A ↑	B+ =
HSP	D- ↓	C- ↑	A- ↓	A ↓	C+ ↓
GIL	D ↑	D- ↑	B =	B ↓	C =
CAL	D ↑	F =	C ↓	B ↓	D+ ↓
WAR	C- ↑	C- ↑	C ↓	A ↓	C+ ↓
All sites	D+ =	C+ ↑	B ↓	B =	C+ =

### Tidal Sites

Site	Oxygen	Nitrogen	Phosphorus	Clarity	Site Grade
CTN	A+ =	A- ↑	B ↓	D- =	B =
HYC	A+ =	B ↓	A- ↓	D =	B =
NEP	A+ =	B- ↓	A- ↓	D =	B =
All sites	A+ =	B =	B+ ↓	D =	B =

## Elk River Watershed

2025 Grade: **C+**

### Upstream Sites

Site	Conductivity	Nitrogen	Phosphorus	Clarity	Site Grade
MSE	D =	F =	B ↓	B ↓	C =
CHD	D =	F =	D+ ↓	B+ ↓	D+ ↓
GRM	C- ↓	A ↑	C+ ↓	A- =	B =
FAR	D =	F =	C ↓	A ↑	C- =
BLK	D =	F =	D+ ↓	A ↑	C- ↓
All sites	D =	D ↑	C ↓	A- ↓	C =

### Tidal Sites

Site	Oxygen	Nitrogen	Phosphorus	Clarity	Site Grade
WLE	A+ =	A- =	A- ↓	B- ↑	A- =
E15	A+ =	B+ =	A- ↓	C =	B+ =
HNM	A+ =	B+ ↑	B ↓	D+ ↑	B =
PMB*	A+ =	A- ↑	B- ↓	D+ ↑	B =
ERP	A =	C- ↑	B- ↑	D+ ↑	C+ ↑
All sites	A+ =	B ↑	B ↓	C- ↑	B =

\* Comparison is with site SJM in 2024

The changes in the detailed scorings from 2024 to 2025 are indicated by the small marks on the right side of each box in the tables, where ↑ means a better score in 2025, ↓ means worse, and = means the scores for the two years are the same. Site PMB (on the tidal Elk) in 2025 replaced nearby site SJM in 2024, so for the year over year comparison, we have considered them to be at the same location.

## How do we calculate the grades?

ENERWA uses the sampling and analysis protocols developed by the Mid-Atlantic Tributary Assessment Coalition (MTAC), which are also used by other river organizations in the region.

You can view the raw ENERWA data from each site on the Chesapeake Monitoring Cooperative (CMC) Data Explorer: <https://cmc.vims.edu/#/home>, which is maintained by the Alliance for the Chesapeake Bay. Our data from 2026 is already being posted there.

The tables on the left show the complete scorecards, according to the MTAC protocols, for our 2025 measurements. Dissolved oxygen is not scored for the upstream sites (although it is used as a check) because oxygen is generally good in flowing streams. Conductivity is not scored for tidal sites because it is very sensitive to salinity (salt content).



## What trends do we see?

As in previous years, many of the upstream sites, especially in the Elk watershed, show high nitrogen content, which can come from agricultural runoff, septic systems, or overfertilized lawns. In 2025, we also saw an increase in phosphorus compared to previous years (lots of ↓ symbols in the Phosphorus column). Because we do not have large numbers of chicken farms like the lower shore, which has a significant phosphorus problem, this increase is a mystery. The nitrogen and phosphorus in the water tends to get diluted in the tidal sites, but these sites show poor water clarity, which can inhibit the growth of underwater grasses that are the basis for a healthy ecosystem.

We are also in contact with the Maryland Department of the Environment about high pH values that we have consistently measured in the tidal part of the North East River over the last few years. These values indicate basic or alkaline water there.

**The overall Elk River watershed score was a C+ in 2025, a downgrade from a B- in 2023 and 2024. The North East watershed received an overall grade of B- in 2025, the same as in 2023 and 2024.**