



Elk and North East Rivers
Watershed Association
P.O. Box 192
North East, MD 21901

LOCAL POSTAL CUSTOMER



North East and Elk Rivers Water Quality Report 2023

How does ENERWA perform water quality sampling?

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

We especially thank the towns of **North East** and **Elkton** 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. Member 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. 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

TAX DEDUCTIBLE

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.



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

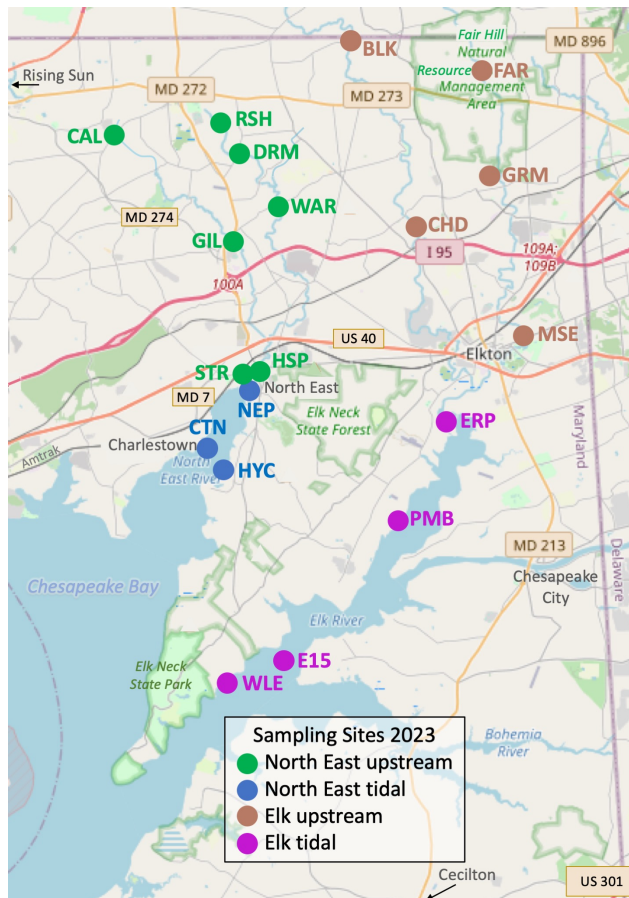
Nitrogen, phosphorus, and sediment are the three pollutants addressed by the Chesapeake Bay’s “pollution diet” overseen by the federal Environmental Protection Agency (EPA). In our measurements, total nitrogen, total phosphorus, and water clarity are the parameters that directly relate to these pollutants. 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 2023: 10 sites in the North East River watershed and 9 sites in the Elk River watershed.



North East River Watershed

2023 Grade: **B-**

Upstream Sites

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

Tidal Sites

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

Elk River Watershed

2023 Grade: **B-**

Upstream Sites

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

Tidal Sites

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



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. Data from 2024 is already being posted there.

The tables on the left show the complete scorecards, according to the MTAC protocols, for our 2023 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).



The changes in the detailed scorings from 2022 to 2023 are indicated by the small marks on the right side of each box in the tables, where ↑ means a better score in 2023, ↓ means worse, and = means the scores for the two years are the same.

As in previous years, many of the upstream sites show high nitrogen content, which can come from agricultural runoff, septic systems, or overfertilized lawns. 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.

Many of the 2023 scores were significantly better than those in previous years, but this may be a temporary improvement due to the dry conditions in many months last year. Lack of rainfall means less runoff, so that less pollutants are carried into the creeks. Both the Elk and North East watersheds received an overall grade of B- in 2023, up from C in 2022.