

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. (In 2020 we were only able to sample from June to November due to the governor's stay-at-home order in the spring.) Each site is accessible from the shore and teams sample each site once each month. Some analysis is performed in the field (temperature, pH, dissolved oxygen, etc.) while samples are also collected for total nitrogen and phosphorus and sent to a lab for analysis.



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



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

LOCAL POSTAL CUSTOMER

Things we can all do to improve water quality:

- Recycle, and dispose of trash properly
- Don't fertilize lawns unless a soil test indicates a need
- Minimize rainwater runoff from your property: use rain barrels or rain gardens
- 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 stream cleanup
- Support ENERWA's water sampling: volunteer or contribute to lab costs



North East and Elk Rivers Water Quality Report 2020



Thanks to our partners:



What is being measured and why is it important?

- Air and water temp.
- Total nitrogen (TN)
- Total phosphorus (TP)
- Turbidity (water clarity)
- pH
- Conductivity
- Dissolved oxygen (DO)

Nitrogen, Phosphorus, and sediment are the three pollutants addressed by the Bay's "pollution diet" overseen by the EPA. In our measurements, TN, TP, and turbidity are the parameters that directly relate to these pollutants. Conductivity is another measure of undesirable solids dissolved in water, and DO tells us how well a waterway can support living things — fish, invertebrates, etc.

What sites are now being monitored?

In the North East River watershed:

3 tidal (1 replaced in 2021), 7 upstream (1 new in 2021)

In the Elk River watershed:

3 tidal (all new in 2021), 5 upstream (3 new in 2021)

See map.

What about the Elk River?

Although we began sampling two upstream sites in the Elk watershed in 2020, only in August of 2021 were we able to start sampling a complete set of sites in the Elk watershed — thanks to new volunteers and funding from the Town of North East. An overall grade for the Elk River watershed will have to wait until the end of the 2022 sampling season. In the meantime, here are the results of the two upstream sites for 2020. FAR is at Fair Hill (next to the covered bridge) on Big Elk Creek and CHD is in Childs on Little Elk Creek.

Site	Conductivity	TN	TP	Clarity	Site Grade
FAR	D	F	C	C+	D+
CHD	D	F	D	C	D



North East River Watershed 2020

Grade: C

Upstream Sites

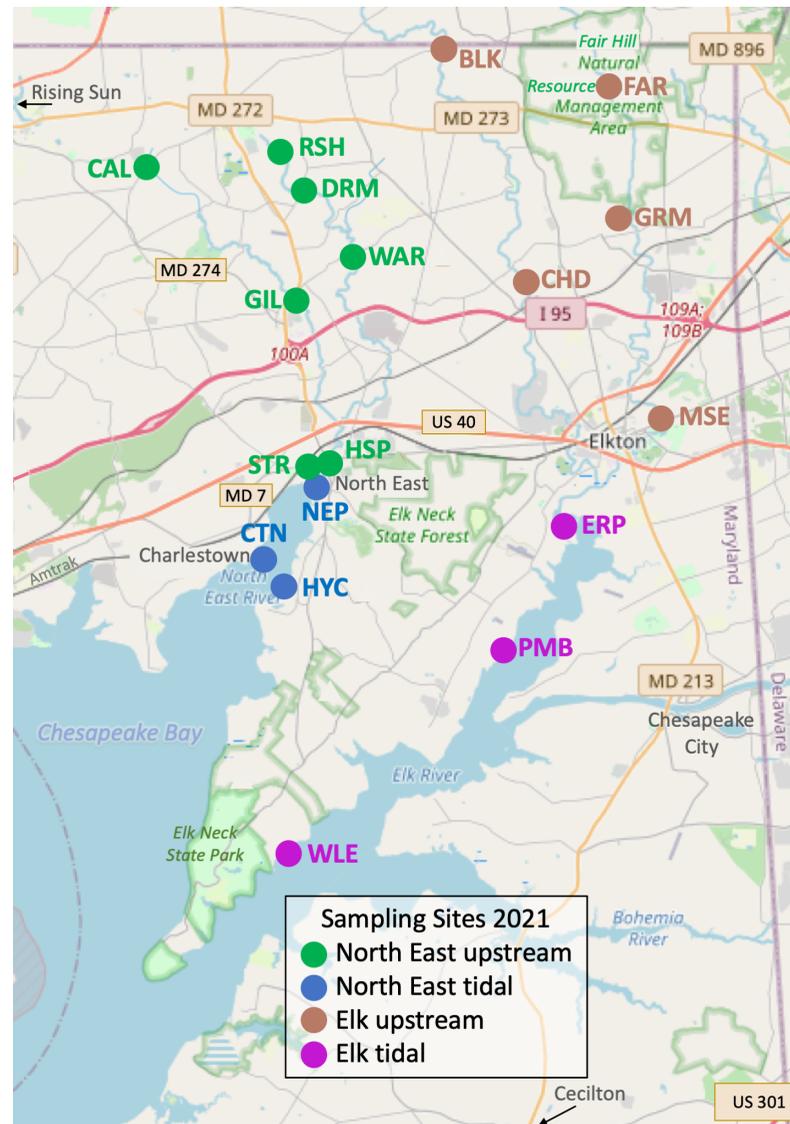
Site	Conductivity	TN	TP	Clarity	Site Grade
STR	C ↑	A	B ↑	A- ↑	B ↑
HSP	D+ ↓	D- ↓	B- ↓	D ↓	D+ ↓
GIL	C-	F ↓	D ↓	C	D ↓
CAL *	C-	F	D	C	D
WAR	D+ ↓	D ↓	C- ↑	C ↓	C- ↓
DRM	D+	F ↓	F ↓	F ↓	F ↓
All sites	C-	D ↓	C- ↓	C	D+ ↓

Tidal Sites

Site	DO	TN	TP	Clarity	Site Grade
CTN	A- ↓	B ↑	B+ ↓	C- ↑	B
NEP	A+	C ↓	B- ↓	D ↑	C+ ↓
SMA **	A+	D- ↓	B	C- ↑	C+
All sites	A ↓	C	B	D+ ↑	B-

* CAL was new in 2020

** SMA replaced by HYC in 2021



How is the grade calculated?

ENERWA uses the sampling and analysis protocols developed by the Mid-Atlantic Tributary Assessment Coalition (MTAC). There are specific protocols for tidal sites and non-tidal sites.

View the raw ENERWA data at 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.



The tables on the left show the complete scorecard, according to the MTAC protocols, for our 2020 measurements in the North East River watershed. As can be seen, the tidal sites scored somewhat better than the upstream sites, which was also the case for 2019. Dissolved oxygen (DO) is not scored for the upstream sites (although it is used as a check) because DO is generally good in flowing streams. Conductivity is not scored for tidal sites because it is very sensitive to changes in salinity (salt content). In fact, we often see very high conductivity readings during the late summer or fall of the year, due entirely to small increases in upper Bay salinity from reduced rainfall then.

The differences in scoring from 2019 to 2020 are indicated by the small ↑ or ↓ marks in the lower right corner of each box, where ↑ means better in 2020 and ↓ means worse. No mark means the 2020 score is the same as for 2019. Although overall it appears that water quality got worse in 2020, we were not able to sample in April or May due to the governor's COVID stay-at-home order, which may have affected the results. And, although the overall grade for the watershed was C for both 2020 and 2019, numerically it is significantly lower for 2020.