

Harmful Blue-green Algal Blooms in Virginia: *Updates to the Public Advisory Process*

What are Harmful Algal Blooms (HABs)?

Algae blooms are rapid growths of algae that can occur naturally in Virginia’s waterways. Not all blooms are harmful. HABs occur when algae produce toxins that adversely affect human health. In fresh waters, blue-green algae, known as cyanobacteria, can produce toxins that can damage the kidneys, liver, nervous system, and brain. In extreme cases, these toxins can cause severe illness or death in humans or animals when they are ingested.



The Virginia Department of Environmental Quality (DEQ) investigates most reports of HABs in Virginia, and the Virginia Department of Health (VDH) issues recreational advisories when an HAB poses a potential human health risk based on investigations.

Prior to 2025, DEQ and VDH monitored both the concentration of blue-green algae (known as cell counts) and the concentration of toxins in water samples. When cell counts exceeded 100,000 cells per milliliter (mL) of water, or when toxin concentrations exceeded any of the levels listed in the table, VDH issued advisories recommending that the public avoid swimming and other activities that pose a risk of ingesting water. Note that these advisories are not closures—they are recommendations, but don’t prohibit swimming in a waterbody under an advisory.

VDH algae toxin thresholds:

Advisories are recommended if toxin levels are exceeded in water samples.

Toxin Name	Concentration <i>(micrograms per liter)</i>
Microcystins	≥8
Cylindrospermopsin	≥15
Anatoxin-A	≥8
Saxitoxin	≥4

How is the approach to issuing advisories based on blue-green algae cell counts changing?

Advisory decisions will now be based solely on toxin concentrations in water. In the past, advisories were issued based on both cell counts and toxin concentrations. In the new approach, advisories will be based on toxins only.

Why is the approach to advisories changing?

Toxins generated by HABs are the primary concern with protecting public safety. Issuing advisories based on toxin concentrations will increase certainty; **when an advisory is issued, it will mean that there is a substantial health risk from HAB toxins.**

Initial management of HAB advisories in Virginia has been conservative in ensuring public safety. As DEQ and VDH have collected data over recent years throughout the state, it became clear that high cell counts do not necessarily indicate elevated toxin levels. DEQ and VDH analyzed more than 400 samples from HAB investigations since 2020 across the state. While almost 1/4 of the samples exceeded the cell count thresholds, none of these samples had toxin levels above VDH thresholds. This change in approach, which is consistent with the U.S. Environmental Protection Agency's [recommendations based on toxin concentrations](#), is based on a better understanding of the science derived from data collected in Virginia.

What should I know about swimming in natural waterbodies in Virginia?

Swimming or other activities in any natural body of water always pose some health risk because the water is not disinfected. For more information on recreational water safety, visit

www.SwimHealthyVA.com.



As it relates to recreational advisories for HABs, VDH cannot predict with absolute certainty when and where toxins may be present. However, advisories due to HABs are extremely rare in Virginia. Although advisory determinations will be made based on toxin concentrations, VDH, DEQ, and other experts will use all available information to analyze and alert the public of the risk of an algal bloom.

What can I do about algae blooms in my waterways?

Scan QR for VDH Report Form

If you suspect an algae bloom, please report it using the [VDH online report form](#) or call the HAB Hotline at (888) 238-6154. Include pictures, visual observations, and describe odors, if possible. Some people collect scientific data, such as algae pigment concentrations, water quality measurements, or cell counts, which may be indicators of a bloom.



Although **advisories** will be based on toxins only, all of this information is useful. VDH can consider any type of information about a potential HAB and may use it to **alert** the public that a bloom might be present, or to help communities develop such alerts for their waterways. Even if a HAB has not been confirmed, if water is discolored, murky, has an odor or appears to have a film on the surface, humans and pets should stay out of the water.

When in doubt, stay out!

Contacts:

DEQ	VDH
Drew Garey Water Monitoring Manager (804) 659-2673 Andrew.Garey@deq.virginia.gov	Margaret Smigo Waterborne Hazards and Marina Programs Manager (804) 731-1352 Margaret.Smigo@vdh.virginia.gov