

NC Division of Water Resources Algal Bloom Report

August 7, 2025

Collector(s): NC DWR Estuarine Monitoring Team (WaRO)

Locations and Date: Chowan River at Edenton, NC (Chowan County), 7/31/25

Reason Collected: discolored water/suspected bloom



Figure 1: Cyanobacteria bloom at Queen Anne's Creek on July 30th (CEEG)

Sample Information:

DWR received reports of potential algal blooms in the Chowan River at Edenton via the Fish Kill and Algal Bloom [Dashboard](#) on July 30th. DWR's Estuarine Monitoring Team was able to perform site investigations at Edenton Bay and Pembroke Creek on July 31st. Staff observed green surface scum on the water at time of sampling (Figure 1). Algal and toxin (microcystin) samples were sent to the DWR Chemistry and Algal Laboratories for analyses.

Results:

Algal and physical/chemical data (Tables 1 and 2) indicated the presence of blooms of the cyanobacteria (blue-green algae) *Dolichospermum spiroides* (Figure 2).

Table 1: Cell density, unit density, and biovolume of total algal assemblage at each sample location

Location	Depth (m)	Cell Density (cells/mL)	Unit Density (units/mL)	Biovolume (mm ³ /m ³)	Bloom Criteria Met?
Edenton Bay	0.4	209,700	11,600	12,600	yes
Pembroke Crk	0.3	253,700	8,300	16,500	yes
For the purpose of this report, total unit density $\geq 10,000$ units/mL OR biovolume $\geq 5,000$ mm ³ /m ³ indicates algal bloom activity.					

Table 2: Physical and chemical conditions at time of collection

Location	Depth (m)	Conductivity (μS/cm)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% sat)	pH	Bloom Criteria Met?
Edenton	0.4	305	35	15	208	9.6	yes
Pembroke	0.3	325	31	14	189	9.1	yes
For the purpose of this report, DO concentrations ≥ 9 mg/L (110% saturation) OR pH ≥ 8 indicates algal bloom activity.							

Table 3: Microcystin concentrations at sampling location

Location	Depth (m)	Strip Test Run?	Strip Test Results (ppb)*	ELISA Test Results (ppb)*	Exceeds Recommended Concentrations? **
Edenton	0.4	yes	BD	N/A	no
Pembroke	0.3	yes	BD	N/A	no
*Values with “BD” for the strip test and “U” for the ELISA test indicate the results were below the method detection limit for that specific test.					
**Values > 8 ppb (μg/L) of microcystin indicate an exceedance of EPA’s recommended human health recreational ambient water quality criteria. For more information, visit https://www.epa.gov/wqc/recreational-water-quality-criteria-and-methods .					

Ecological Significance:

Cyanobacteria such as *Dolichospermum* can bloom when environmental conditions are right (including increased nutrients and warm weather). *Dolichospermum* is capable of producing microcystin, a toxin that may be harmful to humans and pets. The N.C. Department of Health and Human Services’ algal bloom [website](#) states “when in doubt, stay out” to protect people and animals from potential harmful effects due to an algal bloom.



Figure 2: *Dolichospermum* July 31st Edenton Bay sample

Additional information:

NC DEQ/DHHS informational press release at start of swim season:

<https://www.deq.nc.gov/news/press-releases/2025/05/23/ncdeq-division-water-resources-urges-caution-around-discolored-water>.

The most recent press release issued on 6/30/2025, reminding the public to avoid contact with discolored water: <https://www.deq.nc.gov/news/press-releases/2025/06/30/ncdeq-division-water-resources-urges-caution-around-discolored-water>.

DHHS webpages about algal blooms and recreational water safety:

https://epi.dph.ncdhhs.gov/oec/a_z/algal_blooms.html

<https://epi.dph.ncdhhs.gov/cd/water/prevent.html>

<https://www.dph.ncdhhs.gov/blog/2024/07/01/6-ways-keep-your-pets-safe-during-water-activities>

Report prepared by: Elizabeth Fensin, NC DWR Algal Ecologist, elizabeth.fensin@deq.nc.gov