

Collector(s): Estuarine Monitoring Team (WaRO)

Locations and Date: Albemarle Sound—Chowan River near Harrellsville and Perquimans River near Hertford, May 13-14, 2019

Reason Collected: Discolored water/suspected blooms



Figure 1: Locations of blooms in Albemarle Sound during May

Sample Information: The Estuarine Monitoring Team (EMT) responded to reports of green water on the Chowan River on May 13th near Harrellsville, NC and on the Perquimans River on May 14th near Hertford, NC.

Results of Analysis: The dominant alga in the Harrellsville sample was *Aphanizomenon* (Figures 2 and 3). The Hertford sample contained *Dolichospermum* (Figure 4). Both algae are filamentous cyanobacteria.

Physical data and algal results from the sites can be found in Tables 1 and 2. DWR definitions of an algal bloom include dissolved oxygen concentrations at or above 9 mg/L (110% saturation), pH higher than 8. Additional DWR definitions of algal blooms include algal concentrations at or

above 10,000 units/ml (unit density) or 5,000 mm³/m³ (biovolume). Physical data did not confirm the presence of a bloom at either site. Algal data did confirm the presence of a bloom at the Harrellsville site but not at the Hertford site. However, both the EMT and residents confirmed the presence of green water at both sites.

Ecological Significance: The Chowan River and Albemarle Sound experienced cyanobacteria blooms during the summers of 2015-2018. Most filamentous cyanobacteria can grow quickly in summer when the daylight is more intense and temperatures are higher. Cyanobacteria are known to form blooms that discolor water and may cause taste and odor problems. Some cyanobacteria, such as *Aphanizomenon* and *Dolichospermum*, may produce cyanotoxins. These blooms are commonly referred to as harmful algal blooms (HABs) and can cause illnesses in humans and have been attributed to the death of pets and livestock. Fortunately, no human or animal illnesses have been attributed to HABs in NC.

Table 1: Physical parameters

Location	Time	Cond (μS/cm)	Temp (C°)	DO (mg/L)	pH (su)	Salinity (ppt)
Harrellsville	11:15 AM	86	23.5	7.5 (89%)	7	0.04
Hertford	10:35 AM	249	23.9	5.4 (65%)	6	0.12

Table 1: Algal concentrations

Location	Dominant Algae	Cell density (cells/ml)	Unit density (units/ml)	Biovolume (mm ³ /m ³)
Harrellsville	<i>Aphanizomenon</i>	697,300	18,400	9,800
Hertford	<i>Dolichospermum</i>	9,000	150	700



Figure 2: Chowan River on May 13th



Figure 3: *Aphanizomenon*



Figure 4: *Dolichospermum*

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Albemarle Sound 180513 and 180514