

Collector(s): Hughie White (Division of Marine Fisheries)

Locations and Date: Little River, Point Vista Drive, Pasquotank County, 7/18/2017

Reason Collected: Discolored water/suspected bloom



Figure 1: Locations of algal bloom investigation on Little River in Pasquotank County

Sample Information: Division of Marine Fisheries personnel investigated an algal bloom on the Little River (Figure 1). Samples were collected and sent to the Water Sciences Section for analysis.

Results of Analysis: The algae forming the blooms was the filamentous bluegreen *Dolichospermum* (formerly called *Anabaena*, Figure 2). Blooms of these algae have been occurring in the Chowan River and Albemarle Sound since mid-June. The sample from Site 2 was almost exclusively full of *Dolichospermum*, but the sample from Site 1 was dominated by the filamentous bluegreens *Planktolylnbya*, *Cylindrospermopsis*, and *Dolichospermum* (Figures 2-4).

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 (pH) and algal results at the two sites investigated by the DMF confirm a bloom was in progress (Tables 1 and 2).

Ecological Significance: The algae seen in the Little River samples are common in the state's freshwaters during summer. The Chowan River and Albemarle Sound also experienced bluegreen blooms during the summers of 2015 and 2016. *Dolichospermum* and other filamentous bluegreens, can grow quickly in summer when the daylight is more intense and temperatures are higher. Bluegreen algae are known to form blooms that discolor water and may cause taste and odor problems. Some bluegreens, such as *Dolichospermum* and *Cylindrospermopsis*, may produce cyanotoxins. These blooms are commonly referred to as potential harmful algal blooms (pHABs) 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 pHABs in NC.

Table 1. Physical parameters of Little River locations on 7/18/2017

Location	Time	Cond ($\mu\text{S}/\text{cm}$)	Temp ($^{\circ}\text{C}$)	DO (mg/L)	pH (su)
Site 1	daytime	1861	29.8	7.98	8.74
Site 2	daytime	1889	29.8	7.90	8.97

Table 2. Algal densities and biovolume of Little River samples

Location	Dominant Algae	Cell density (cells/ml)	Unit density (units/ml)	Biovolume (mm^3/m^3)
Site 1	<i>Planktolyngbya</i>	652,800	63,900	5,800
Site 2	<i>Dolichospermum</i>	409,179	44,700	26,745



Figure 2: *Dolichospermum spirooides*

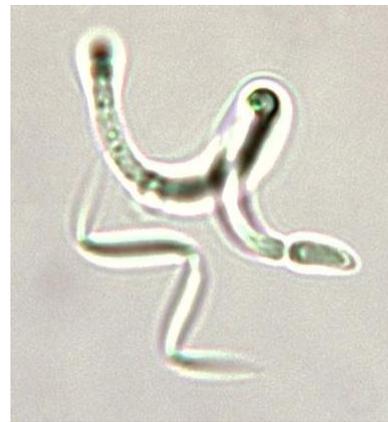


Figure 3: *Cylindrospermopsis*



Figure 4: *Planktolyngbya*

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