Division of Water Resources Algal Bloom Report **August 4, 2017**

Collector(s): Estuarine Monitoring Team (WaRO)
Locations and Date: 104 Cypress Shores, Roper, NC, 8/2/2017
Reason Collected: Discolored water/suspected bloom

Figure 1: Location of bloom

Sample Information: The Estuarine Monitoring Team (EMT) collected samples for algal analysis in response to a citizen's complaint at Cypress Shores in Roper on August 2nd (Figure 1). Discolored waters with a musty smell were observed (Figures 2 and 3).

Results of Analysis: The algae forming the blooms was the filamentous bluegreen *Dolichospermum* (formerly called *Anabaena,* Figure 4). These algae have been forming blooms in the Chowan River and Albemarle Sound since mid-June.

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 mm^3/m^3 (biovolume). Physical data collected at the site by the EMT confirm a bloom was in progress (Tables 1 and 2).

Ecological Significance: The different colors and smell observed at the site indicate decomposing bluegreen algal blooms. The Chowan River and Albemarle Sound also experienced bluegreen blooms during the summers of 2015 and 2016. *Dolichospermum*, like most 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*, 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 at Cypress Shores

Location	Time	Cond (µS/cm)	Temp (C°)	DO (mg/L)	pH (su)
Cypress Shores	11:25 AM	468	27.4	8.8 (110%)	8.2

Table 2. Algal density and biovolume in sample collected at Cypress Shores

Location	Dominant Algae	Cell density (cells/ml)	Unit density (units/ml)	Biovolume (mm^3/m^3)
Cypress Shores	*Dolichospermum*	56,000	4,700	2,500

Figures 2 and 3: Decomposing algal bloom (courtesy M. Brady, 8/1/17)

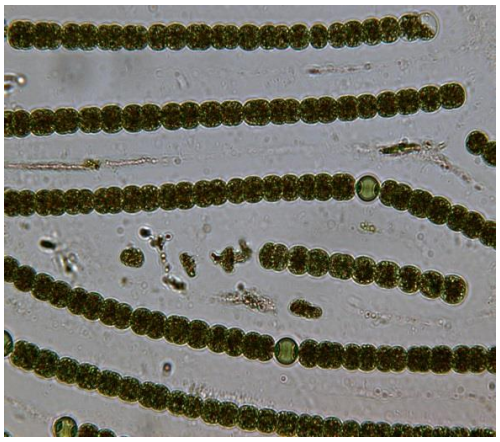

Figure 4: *Dolichospermum planktonicum*

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