Brawley Consulting Group, LLC

Land Conservation and Management Services

Memo

Date: October 31, 2025

To: Bantam Lake Protective Association

From: Brawley Consulting Group

Re: Results of Cyanobacteria Monitoring of October 29, 2025

Summary

Based on visual assessments and cyanobacteria cell counts from October 17, 2025, the risk to the public from cyanobacteria and harmful algal blooms was low to moderate. Relative phycocyanin concentrations and Secchi disk transparencies supported that assessment. For the first time this season, the abundance of the cyanobacteria *Aphanizomenon spp*. surpassed that of the cyanobacteria *Dolichospermum spp.*

Methods and Conditions

On Wednesday, October 29, 2025, the Brawley Consulting Group collected data and samples from the lake and analyzed those the next several days as part of the biweekly Cyanobacteria Monitoring Program. Detailed methods have been described in past summaries. Data and samples were collected at the North Bay, Center Lake, and South Bay sites. Data was also collected at the Point Folly site, but water samples were not.

Arrival at the Lake was at approximately 3pm. Cyanobacteria blooms were not observed along the shoreline or in open water areas of the lake. The skies were cloudy, the winds were light, and out of the north and northeast (Weather Underground 2025).

Cyanobacteria and Algae Community

There were 25 algae genera identified in the plankton net or whole water samples collected on October 29th. Chlorophyta (aka green algae) and Cyanophyta (aka blue-green algae or cyanobacteria) had the greatest richness (numbers of identified genera) with 10 and 7 genera identified, respectively. Three different Bacillariophyta (aka diatoms) genera were identified. Four other taxonomic groups were represented by 1 or 2 genera each.

Total algal cell concentrations were between approximately 17,421 cells/mL at South Bay and 25,035 cells/mL at Center Lake. The approximate percentage of total cells that were cyanobacteria ranged from 77% at Center Lake to 92% at North Bay. The dominant cyanobacteria genera were *Aphanizomenon spp.* and *Woronichinia spp.* Other cyanobacteria

genera observed included *Aphanocapsa spp., Dolichospermum spp., Gomphosphaeria spp., Microcystis spp., Planktothrix spp.*

Cyanobacteria cell concentrations in the samples were moderate (Table 1). Site concentrations and lake average of approximately 20,252 cells/mL were close or exceeded the State's Visual Rank Category 2 threshold which indicates moderate risk to human health from harmful algal blooms (Fig. 2). The Visual Rank Category 2 cell range is listed as 20,000 to 100,000 cells/mL (CT DPH & CT DEEP 2023).

Table 1. Site characteristics and cyanobacteria cell concentrations at Bantam Lake on October 29, 2025.

Sites	Cyanobacteria cells (cells/mL)	Total Depth (m)	Secchi Transparency (m)	Temperature Top/Bottom (°C)	Oxygen Top/Bottom (mg/L)
North Bay	18,300	6.06	2.42	12.1 / 12.0	10.0 / 9.7
Center Lake	25,035	7.94	2.34	12.2 / 11.9	10.1 / 9.6
South Bay	17,421	4.37	2.06	11.9 / 11.8	10.6 / 10.5
Folly Point	---	6.42	2.20	12.2 / 12.1	10.6 / 9.5

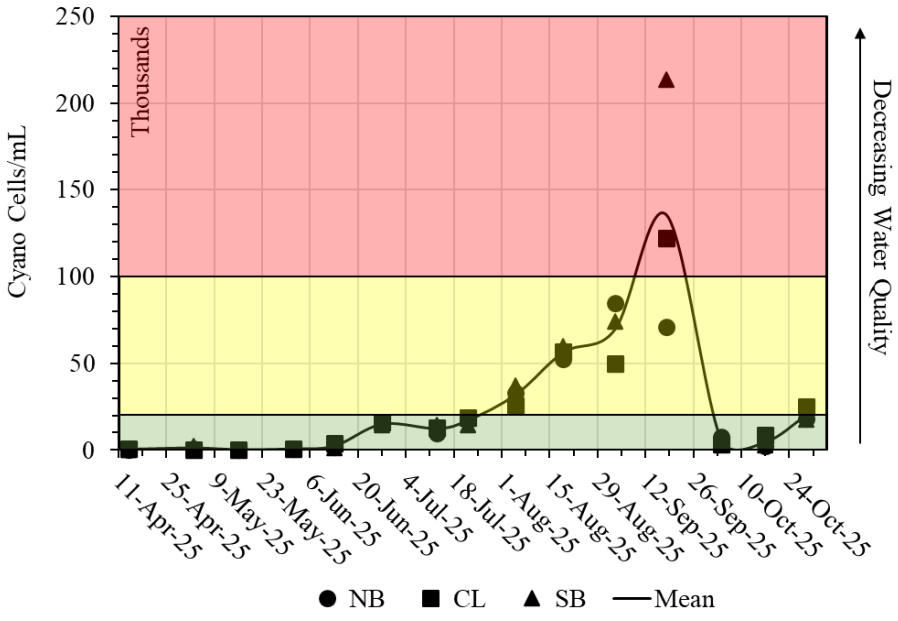

Figure 1. Cyanobacteria cell concentrations at the North Bay (NB), Center Lake (CL), and South Bay (SB) sites in the 2025 season at Bantam Lake. The plot is color coded to represent the CT DEEP's Visual Rank Categories for risk from harmful algal blooms: green = low risk; yellow = moderate risk; red = high risk.

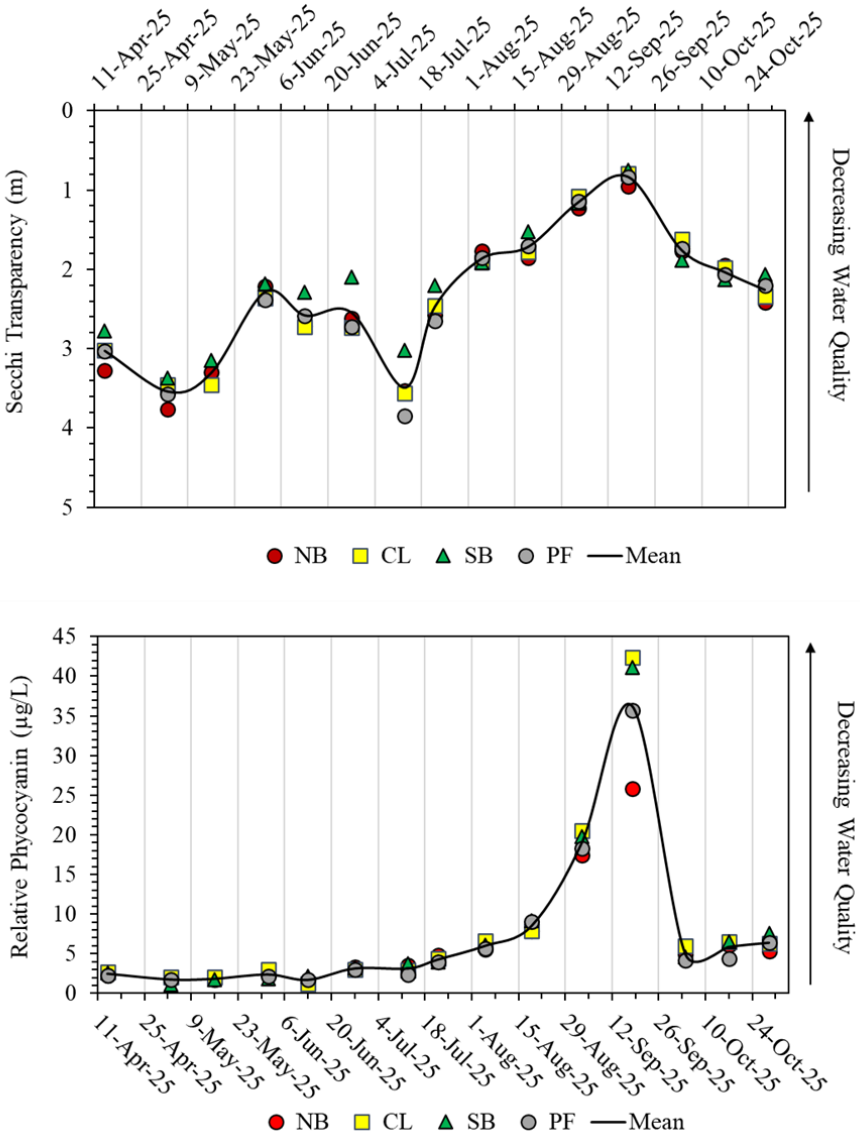

Figure 2. Secchi disk transparencies (top) and relative phycocyanin concentrations (bottom) at the North Bay (NB), Center Lake (CL), South Bay (SB), and Folly Point (PF) sites on Bantam Lake in 2025.

Water Quality

Two other indicators of cyanobacteria productivity and water quality measured as part of this monitoring program are Secchi disk transparency and relative phycocyanin concentration. Secchi transparency is a measurement indicating how far light transmits through the water column. The more algae and other particulate matter suspended in the water column, the less Secchi disk transparency will be and vice versa. Secchi transparencies on October 29th were between 2.1 and 2.4 meters (Table 1), and the lake average was 2.26 meters, which was the highest average since late July (Fig. 3).

Phycocyanin is a photosynthetic pigment used as an indicator of freshwater cyanobacteria. It was measured throughout the water column with the fluorimeter in the scientific instrumentation used in the monitoring program. Measures are relative in that the instrument was not calibrated with a primary standard. Although relative, they are useful in that they are comparable to measurements collected at different depths and dates. The average measurements taken in the top three meters of the water column were used for a site average, as they have in the past.

Relative phycocyanin levels and the lake average on October 29th were generally low, indicating low cyanobacteria biovolume in the water at the sampling sites. October 29th site readings and lake average were like those throughout October and notably lower than those measured in September sampling events (Fig. 3).

Water temperature near the surface was approximately 12°C at all sites. Temperatures at the bottom of the water columns were similar (Table 1). Water columns of the four sites were thermally mixed, i.e. no thermocline. Oxygen concentrations throughout the water column were between 9.5 and 11 mg/L.

Conclusions

For all October sampling events, cyanobacteria cell counts, relative phycocyanin concentrations, and Secchi disk transparencies at the sampling sites exhibited marked improvements in water quality over conditions observed in September and were indicative of low risk to moderate risk from harmful cyanobacteria blooms. The shift in dominance from the larger-celled cyanobacteria *Dolichospermum spp*. to the smaller-celled *Aphanizomenon spp.* and *Woronichinia spp*. Remnants of earlier blooms were not observed in the open water or along the shoreline. Based on these assessments, risk from harmful cyanobacteria blooms was low to moderate.

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Literature Cited

Connecticut Department of Public Health and Connecticut Department of Energy and Environmental Protection. 2023. Guidance to Local Health Departments for Blue–Green Algae Blooms in Recreational Freshwaters. See https://portal.ct.gov/-/media/DPH/EHDW/Blue-Green-Algae-Blooms/Guidance-to-LHD-for-Blue-Green-AlgaeBlooms.pdf