Painted Hills Lake Management Update

Ciera Baird, Ph.D.
Aquatic Ecotoxicologist, Specializing in Harmful Algal Bloom Management
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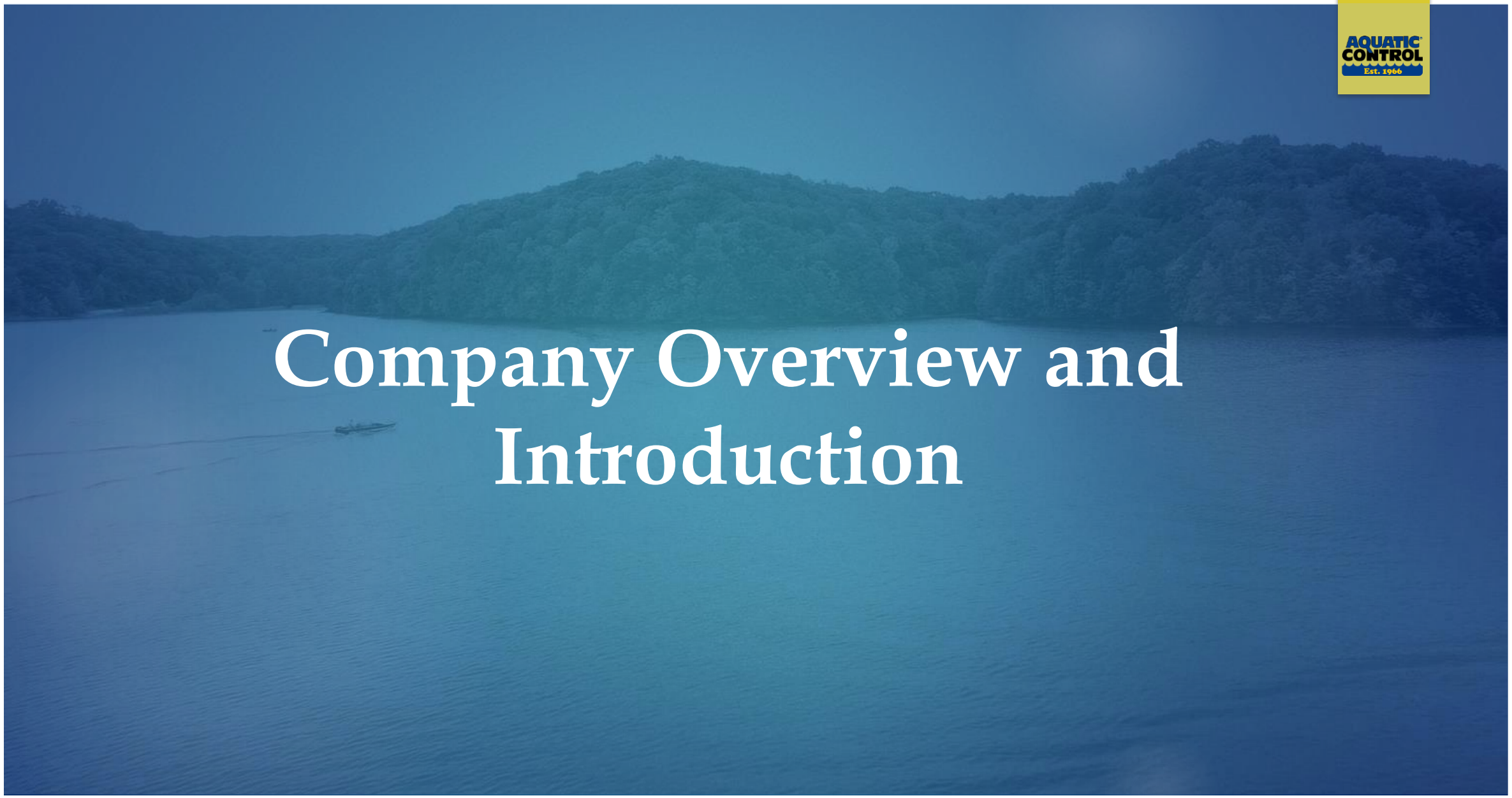
Outline

- Company Introduction
- History of Relationship with Painted Hills
- 2020 Harmful Algal Bloom (HAB) Monitoring Summary



Company Overview and Introduction

Aquatic Control Inc.

- Private lake and pond management company
- Started in 1966
- Specialize in aquatic vegetation and algae management, fountain and aeration systems sales/service, fisheries management, aquatic product sales, application and distribution
- 500 years experience on staff solving lake and pond management issues
- Seven regional offices

Timeline of work with Painted Hills

2003

Fish Survey: Bluegill, Largemouth Bass, Redear Sunfish = 95% of collection

2006

Fish Survey and began purchasing herbicides (Sonar Q, Reward, Cutrine Granular)

2008

Fish Survey + continued herbicide purchases

2018 & 2019

Harmful algal bloom monitoring following pink algae bloom

2019

Fish Stocking in September

(Channel Catfish)

2020

Harmful algal bloom monitoring continued

Present

Continued purchases of herbicides for in-house treatments

2020 Activities

The Solution for Lake Problems

2020 HAB Monitoring

- Initiated in early 2018 following *Planktothrix* (pink algae) bloom in the winter
- In 2018 and 2019, we conducted bi-monthly sampling at Holiday Lake and Nebo Lake
- In 2020, we transitioned to monthly throughout warmer season to stagger data to more critical months (in absence of winter blooms)
- Analysis at our laboratory for identification and enumeration of algae present and toxin (microcystin) testing
- Goal: detect presence of blue-green algae at low densities to trigger an algaecide treatment if needed and minimize potential for risks

January Results

A surface film became apparent on Nebo Lake in January, prompting an early year monitoring event.

- Harmful Algae Identified
  - *Aphanizomenon sp.*

    84,000 - 220,000 cells/mL

Toxin Testing:

All samples tested negative for microcystins.

Our recommendation was to avoid contact with the water when surface films were present. However, a treatment was not recognized as critically necessary due to lack of toxin production and limited human and pet contact in the winter.

April Results

- Harmful algae identified
  - *Aphanizomenon sp.* 550-50,000 cells/mL
  - *Oscillatoria sp.* 3,300 cells/mL
- Toxin Testing
  - All samples tested negative for microcystins.

Due to the time of year and lack of toxin production, our recommendation was to monitor the situation and perform an algaecide treatment if the film appeared to get worse in the following week. Springtime rains and cooler weather can come unexpectedly, and we didn't want the association spending money on a treatment unnecessarily.

May Results

- Harmful Algae Identified
  - *Phormidium sp.*- 1,200 cells/mL
- Toxin Testing
  - All samples tested negative for microcystins.

Due to low cell density of blue-green algae and lack of toxin production, an algaecide treatment was not necessary at this time.

June Results

- Harmful Algae Identified
  - *Aphanizomenon sp.* 404-3,278 cells/mL
  - *Dolichospermum sp.* 378-4,167 cells/mL
  - *Limnoraphis sp.* 76 cells/mL
  - *Woronichinia sp.* 3,893 cells/mL

Due to low cell density of blue-green algae and lack of toxin production, an algaecide treatment was not necessary at this time.

- Toxin testing
  - All samples tested negative for microcystins.

July Results

- Harmful Algae Identified
  - *Aphanizomenon sp.* 618-547,500 cells/mL
  - *Dolichospermum sp.* 765-1,018 cells/mL
  - *Microcystis sp*. 2,829 cells/mL
- Toxin testing
  - All samples tested negative for microcystins.

Although toxin production was not detected, the total cell density of *Aphanizomenon* at Lake Holiday was sufficiently high to warrant a treatment. We advised for the association to perform an algaecide treatment.

August Results

- Harmful Algae Identified
  - *Aphanizomenon sp.* 1,150-11,130 cells/mL
  - *Dolichospermum sp.* 271-288 cells/mL
  - *Microcystis sp.* 6,786 cells/mL
- Toxin testing
  - All samples tested negative for microcystins

Due to low cell density of blue-green algae (below trigger levels) and lack of toxin production, an algaecide treatment was not necessary at this time.

September Results

- Harmful Algae Identified
  - *Aphanizomenon sp.* 8,982-51,232 cells/mL
  - *Dolichospermum sp.* 968 cells/mL
  - *Microcystis sp.* 10,065 cells/mL
- Toxin testing
  - All samples tested negative for microcystins.

Cell densities currently exceed trigger thresholds for algaecide treatment. Although toxins were not detected, it may be beneficial to treat to suppress populations that can survive colder weather (*Aphanizomenon*).

HAB Monitoring Summary

- Samples collection complete for 2020 unless additional visits requested
- Residents are encouraged to continue to watch for signs of blue-green algae even in "off-season"

HAB Monitoring Summary

- Proactive detection and management is key
- Treatments should ideally take place as soon as cell densities reach or exceed 20,000 cells/mL
- By controlling growth of the blue-green algae, we can control toxin levels

Next Steps

- Herbicide/algaecide order has been placed for next year's treatments
  - Treatments will continue to be conducted in-house
  - Application services by AC available if needed
- We are available for advice and consultation on demand
- HAB Monitoring Services available if association desires to continue next year

Thank you!

Ciera Baird
Aquatic Ecotoxicologist
cierab@aquaticcontrol.com
812-497-2410 ext. 2520