

SeSCRIPT Analysis Report: *Mendham Commons Pond*

Company: Black Lagoon

Waterbody Name: Mendham Commons Pond

Address: PO Box 9031 Hamilton, NJ 08650

Surface Area: 2.6 acre

Contact Person: Chris Borek

Average depth: 5 feet

Phone: (609) 815-1654

Date Sample Received: 8/4/11

Email: chrisborek@blacklagoon.us

SeSCRIPT Analysis Performed: Algae and Baseline
Water Quality Panel

Algae ID Results Mendham Commons Pond

Identification	Classification	Description	Density
<i>Staurostrum</i> sp. (dominant, low density)	Chlorophyta- green algae	Single-celled, planktonic	Total algae density ~ 5,700 cells/mL
<i>Crucigenia</i> sp. (low density)	Chlorophyta- green algae	Colonial, planktonic	
<i>Cyclotella</i> sp. (low density)	Bacillariophyta- diatoms	Single- celled/colonial, planktonic	
<i>Arthrodesmus</i> sp. (low density)	Chlorophyta- green algae	Single-celled, planktonic	
<i>Coelastrum</i> sp. (low density)	Chlorophyta- green algae	Colonial, planktonic	
<i>Scenedesmus</i> sp. (low density)	Chlorophyta- green algae	Colonial, planktonic	
<i>Cosmarium</i> sp. (low density)	Chlorophyta- green algae	Single-celled, planktonic	
<i>Aphanocapsa</i> sp. (low density)	Cyanophyta- Blue-green algae	Colonial, planktonic, mucilaginous	
<i>Pediastrum</i> sp. (low density)	Chlorophyta- green algae	Colonial, planktonic	

Water Quality *Baseline Results* Mendham Commons Pond

Analysis	Measurement	Description
pH (SU)	7.4	Near Neutral: Acceptable
Dissolved Oxygen (mg/L)	5.6	Acceptable for fish
Conductivity ($\mu\text{S}/\text{cm}$)	221	Typical freshwater
Alkalinity (mg/L as CaCO_3)	53	Moderately buffered
Hardness (mg/L as CaCO_3)	77	Moderately hard
Turbidity (NTU)	5.3	Relatively low
TDS (mg/L)	159	Moderate: Acceptable
TSS (mg/L)	12	Relatively Low

Water Quality *Nutrient Results* Mendham Commons Pond

Analysis	Measurement	Description
Total Phosphorus (ppb)	206	High amount: hypereutrophic
Free Reactive Phosphorus (ppb)	14	Relatively low
Total Kjeldahl Nitrogen (mg/L)	0.93	Relatively low
Nitrates & Nitrites (mg/L)	0.01	Low
Total Nitrogen (mg/L)	0.94	Low
Chlorophyll <i>a</i> ($\mu\text{g}/\text{L}$)	41.9	High

SeSCRIPT Discussion

The algae and water sample collected from **Mendham Commons Pond** was received on 8/4/11. Based on results from the water quality and algae analyses, proposed treatment recommendations for control of the problematic algae in **Mendham Commons Pond** were determined (see below).

With dense algal infestations, more than one application may be required to achieve control. Follow all algaecide label instructions. Check with local and state agencies for product restrictions and permit regulations prior to use.

SeSCRIPT Treatment Guidance

Mendham Commons Pond

Algae Control

In order to control the targeted algae at this site, apply:

Captain algaecide at a rate range of 0.3 to 1.2 gallons/acre foot (0.1-0.4 mg Cu/L).

Contact your SePRO Aquatic Specialist for further guidance on final application rate selection, technique and frequency based on site conditions, algae location and density at treatment time.

Nutrient Management

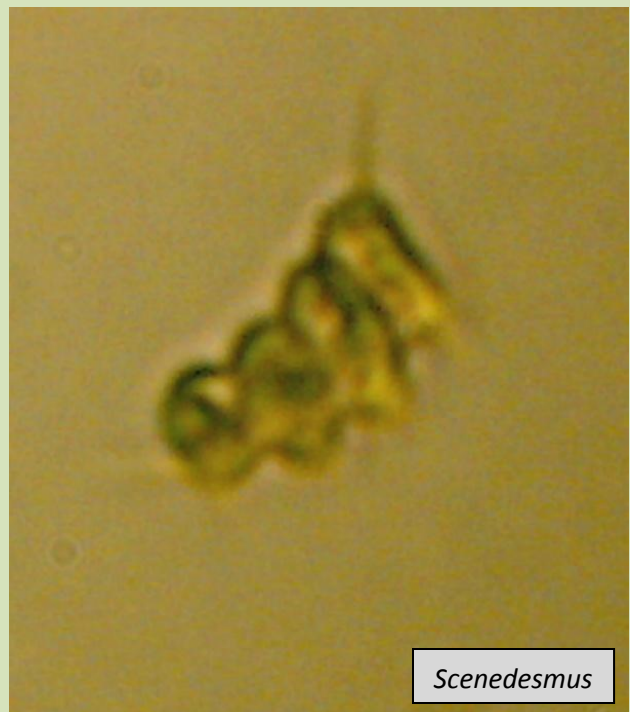
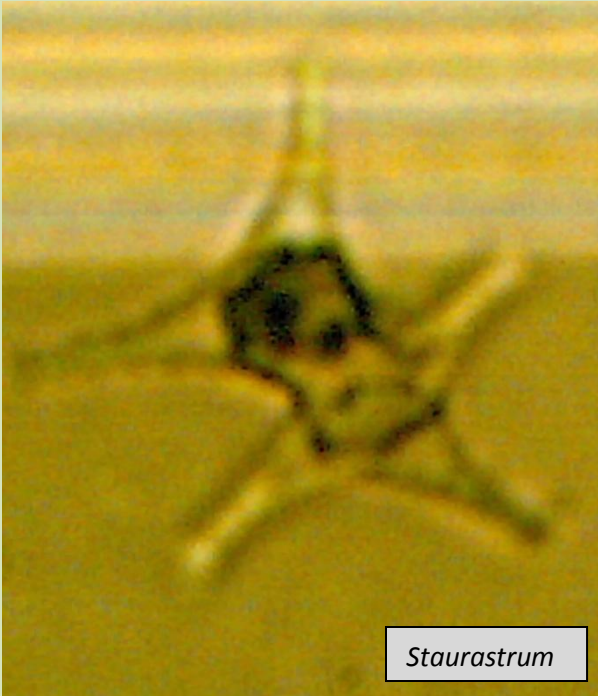
Analysis of the water quality parameters in this water body revealed this system is hypereutrophic. Based on these site specific water quality parameters, consider implementing one of the following Phoslock phosphorus removal solutions to restore water quality in the water body. If algae biomass is present, treat with a SePRO algaecide as described above and then initiate the Phoslock treatment program 3-7 days later. This will help maximize the effectiveness of the Phoslock treatment. Consult with your SePRO Aquatic Specialist to discuss site specific conditions and management objectives to design a treatment program that will maximize results.

Recovery Solution: A Recovery Solution is designed to restore water quality and removes free reactive phosphorus from the water column. Apply 800 pounds Phoslock to remove free reactive phosphorus from the water column based upon the sample analyzed. The calculated dose of Phoslock may be split into multiple applications over a season or repeated multiple times per season based upon the established objectives and site specific conditions.

Reset Solution: A sediment sample from the site is required to complete a determination of the amount of Phoslock required for a Reset Solution application. A Reset Solution is designed to restore water quality and permanently removes free reactive phosphorus in the water column and free reactive phosphorus that has accumulated in the water body sediments over time. A sediment sample should be collected and analyzed to determine the appropriate Reset Solution application dose for this water body.

Sarah Miller, SePRO Aquatic Specialist, Atlantic Coast
Phone: 252-903-8775 Email: sarahm@sepro.com

Algae Pictures



Water Quality Analysis Explanation

These water quality parameters are essential to document the condition of a water body and design custom treatment prescriptions to achieve desired management objectives.

pH- Measure of how acidic or basic the water is (pH7 is considered neutral)

(<6 notably acidic; 6 - 9 standard for typical freshwaters; >9 notably basic)



Hardness- Measure of the concentration of divalent cations, primarily consisting of calcium and magnesium in typical freshwaters.

0-60 soft; 61-120 moderately hard; 121-180 hard; > 181 very hard

Alkalinity- Measure of the buffering capacity of water, primarily consisting of carbonate, bicarbonate and hydroxide in typical freshwaters.

≤ 50 ppm low buffered, 51-100 ppm moderately buffered, 101-200 buffered, > 200 high buffered

Conductivity- Measure of the waters ability to transfer an electrical current, increases with more dissolved ions.

<50 relatively low concentration may not provide sufficient dissolved ions for ecosystem health, 50-1500 uS/cm typical freshwaters, > 1500 may be stressful to some freshwater organisms, though not uncommon in many areas

Dissolved Oxygen- amount of diatomic oxygen dissolved in the water.

(< 2 mg/L likely toxicity with sufficient exposure duration; < 5 stressful to many aquatic organisms, ≥ 5 able to support most fish and invertebrates)

Phosphorus- Essential nutrient often correlating to growth of algae in freshwaters.

(< 12 µg/L oligotrophic; 12-24 µg/L mesotrophic; 25-96 µg/L Eutrophic; > 96 µg/L hypereutrophic)

Nitrogen- Essential nutrient that can enhance growth of algae

< 1 ppm typical freshwater; 1-10 ppm potentially harmful; >10 ppm likely toxicity, above many regulated guidelines.

Chlorophyll a- primary light-harvesting pigment found in algae and a measure of the algal productivity and water quality in a system. 0-2.6µg/L oligotrophic; 2.7-20 µg/L mesotrophic; 21-56 µg/L Eutrophic; > 56 µg/L hypereutrophic