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Naturalake Biosciences Case Study 2021

Nutrient Reduction Using Nature's Blend - Jacob Lowry

SUMMARY: A 13-acre lake with over 400 acres of farm field runoff was having extreme Planktonic/Cyanobacteria outbreaks throughout the entire lake. Normal treatments with just chelated copper were not enough. Every heavy rain would cause a spike in nutrient levels, on top of already high levels of Phosphates and Nitrates.

GOAL: To reduce nutrient levels in the lake to better control Planktonic/Cyanobacteria Algae outbreaks.

TREATMENT FOR PLANKTONIC: Tank mix of chelated copper, AquaSticker, and Pondzilla Pro.

TREATMENT TO CONTROL NUTRIENTS: Nature's Blend at 3 lbs. per acre;
MuckBiotics at 12 lbs. per acre.



Water samples were taken to establish a baseline

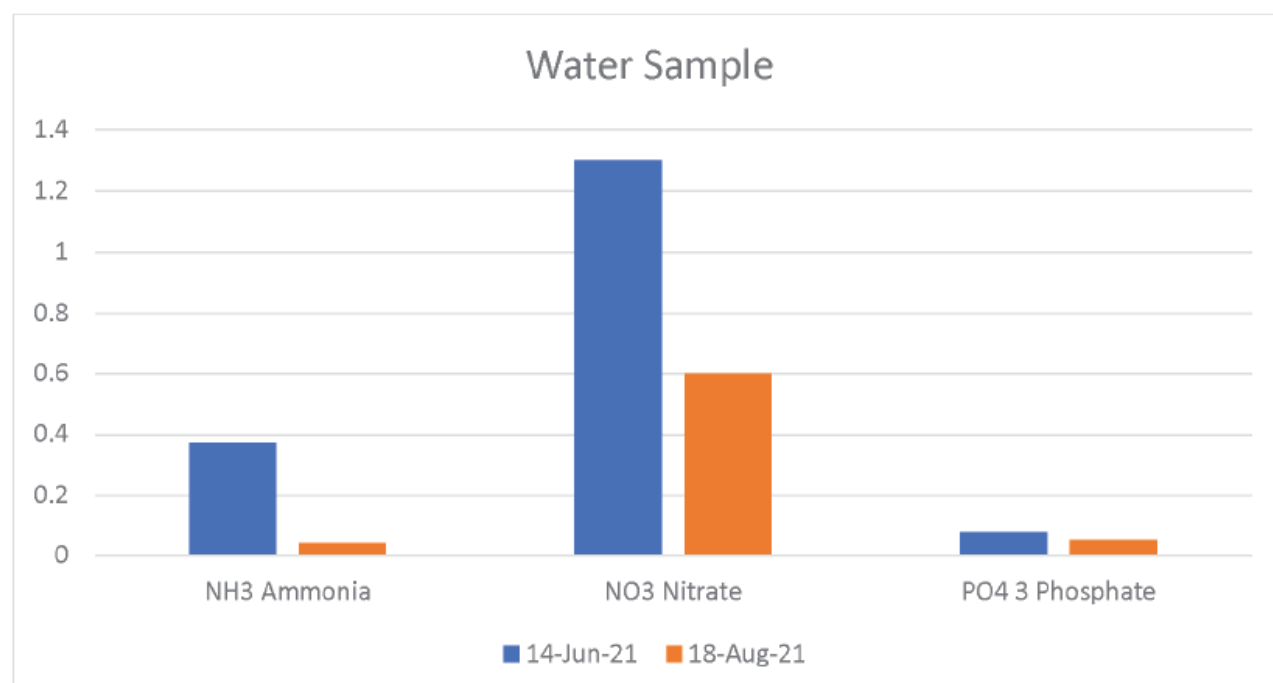
Sample: June 8, 2021

Date	Sample
Conductivity	341.9 μS
Salinity (NaCl)	0.165 ‰
Total Dissolved Solids	227.9 ppm
pH @ 18.1C	6.55
NH ₃	0.37 ppm
NO ₂ ⁻	0.033 ppm
NO ₃ ⁻	1.3 ppm
PO ₄ ³⁻	0.08 ppm
Total Iron (undigested sample)	0.05 ppm
SiO ₂	0.9 ppm
Total Hardness	136 ppm as CaCO ₃
Calcium Hardness	56 ppm as CaCO ₃
Magnesium Hardness	80 ppm as CaCO ₃
Total Alkalinity	104 ppm as CaCO ₃
Phenolphthalein Alkalinity	0 ppm as CaCO ₃

Sample: August 17, 2021

08/17/21	Sample A
Conductivity	212.2 μS
Salinity (NaCl)	0.101 ‰
Total Dissolved Solids	137.3 ppm
pH @ 21.0C	7.05
NH ₃	0.04 ppm
NO ₂ ⁻	0.01 ppm
NO ₃ ⁻	0.6 ppm
PO ₄ ³⁻	0.05 ppm
Total Iron (undigested sample)	0.04 ppm
SiO ₂	6.5 ppm
Total Hardness	52 ppm as CaCO ₃
Calcium Hardness	4 ppm as CaCO ₃
Magnesium Hardness	48 ppm as CaCO ₃
Total Alkalinity	0 ppm as CaCO ₃
Phenolphthalein Alkalinity	0 ppm as CaCO ₃

Results: In just 2 months, nutrient levels that caused extreme outbreaks were reduced by half if not more.



CONCLUSION: Using Nature's Blend, we were able to reduce nutrient levels in the lake by more than half. We saw better response to chemical treatment on the Planktonic/Cyanobacteria and water clarity improvement. Treatments of Nature's Blend will continue during the warmer months and rotating to Polar Blend during the cooler months for continued year-long nutrient control. Without these products the Planktonic/Cyanobacteria would continue to be an uncontrollable nuisance.

