

SCD Probiotics®

Case Study Summary – SCD Bio Klean™ for algal blooms in Mulberry Lake Kansas City, Missouri

Bioremediation – Algal blooms in lakes and ponds (CSS-037-2010)

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Industry:	Lake, pond treatment
Application:	SCD Bio Klean™ applied directly to various points of pond
Where:	Mulberry Lake – Kansas City, Missouri
When:	August 2010
Products:	SCD Bio Klean
SCD Customer:	OCCU-TEC

Background

Mulberry lake encountered a problem with algal bloom and in partnership with OCCU-TEC, SCD Probiotics® customer, wanted to address this by applying SCD Bio Klean at various points in the pond. There was significant reduction in the size of the algae in as little as 72 hours and 90% reduction was achieved within 14-day of application of SCD Bio Klean.

Introduction

Briarcliff Development is a residential and commercial developer that owns and manages Briarcliff Village, an office, retail, and residential community located just north of Kansas City, Missouri. Briarcliff Village is located on 600 treed acres along with Mulberry Lake (a 3-acre body of water). Visitors and tenants hold many community related events at Mulberry Lake including festivals. Mulberry Lake has also become a popular gathering point at Briarcliff Village. Briarcliff Development desired to maintain the lake in a sustainable fashion and did not want to introduce harmful or potentially toxic chemicals into the water in order to eliminate the algae.

Mulberry Lake doubles as a storm water retention area for the surrounding high-end residential community as well as the neighboring Class A office building. Storm water run-off from these highly landscaped areas has led to a nutrient rich environment due to the amount of fertilizers and chemicals used on these landscaped areas. With hot summer weather heating the temperature of the water, algae bloomed and covered most of the



shoreline as well as choking off and covering the entirety of the north end of the lake near a small manmade waterfall.

OCCU-TEC offered an natural solution to essentially manage the current ecosystem's microbial activity through the use of Probiotics technology. They partnered with SCD Probiotics, a Missouri-based life sciences company, to use SCD Bio Klean™, a cost-effective, green solution for controlling algae blooms in water bodies.

SCD Probiotics manufactures SCD Bio Klean through a natural fermentation process using beneficial microorganisms, where microorganisms are grown in what is known as consortia – a co-growth environment – allowing each strain to interact with other strains throughout development. This proprietary method is very similar to how microbes occur in nature, versus the more common practice of growing singular strains in a pure-culture format and then blending different strains together at the time of packaging. This consortia technology is what enables SCD Bio Klean to have high efficacy in a multitude of applications.

When applied consistently and following the proper usage guidelines, SCD Bio Klean can help improve water quality in public and/or private lakes. It helps to control unwanted microbes at the source, rather than waiting for them to show up in lakes and ponds. By targeting agricultural operations, septic systems, boat docks, waterfowl breeding areas, and sewer outfalls it is possible to control the amount of harmful bacteria that enters our recreational waters.

However, Mulberry Lake has nonpoint source run-off from the surrounding community, not unlike many other community lakes and ponds. Therefore direct application of SCD Bio Klean into the lake water is the best solution. The main objective of this trial is to control the algae present in the pond and improve its water quality.



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Methodology

OCCU-TEC determined the total volume of lake water by measuring the surface area and known depths (approximately 3,000,000 U.S. gal. of water). Working with SCD Probiotics technical team, OCCU-TEC developed an application protocol that would be both cost-effective and beneficial to the ecology of the lake. They applied SCD Bio Klean by spraying



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directly onto the algae blooms and surrounding water at a predetermined diluted ratio and application rate to ensure adequate coverage.

Results

After application, OCCU-TEC observed a significant reduction in the size of the algae blooms in as little as 72 hours. A 90% reduction was achieved within 14-day of application of SCD Bio Klean (see Figure 1). Due to the constant re-introduction of nutrients and other contaminants in Mulberry Lake via storm water run-off, OCCU-TEC's protocol called for application of SCD Bio Klean at a rate of $\frac{1}{2}$ of the initial application amount every two weeks during periods of hot weather (summer).

Figure 1: Documented photo on how algae was controlled in Mulberry Lake from August 1 – 14, 2010.



Conclusions

It can be seen from the results of the study that SCD Bio Klean has a great impact to the algae population. In just 14 days, there is a 90% reduction in the algal population. This provides good baseline information for other studies to be conducted in similar ponds contaminated with algae.

More information regarding this case study can be obtained by contacting: customerservice@scdprobiotics.com

