
Algae Removal from Water

Case Study



Algae in Lake Chapultepec



Biopolymer binds to algae protein,
floats it to the surface for easy removal

Introduction

LAKE CHAPULTEPEC - MEXICO

PROBLEM

Lake Chapultepec in Mexico had an extensive toxic algae bloom, caused by elevated levels of nutrients Nitrogen and Phosphorous, warm sunlight and shallow lake depth. Large algae blooms occur globally, and directly impact raw water supplies for municipal drinking water and use for agriculture or recreation.

ALGAE REMOVAL SOLUTION

Using a biopolymer, made from waste crab and shrimp shells, algae is readily removed from water by binding to a protein, then agglomerates the algae where it floats to the surface and is removed by top skimming. The removed algae can be dried, used as fertilizer or disposed of.

The biopolymer which removes turbidity from sediment, is a non-toxic, natural, clean green sustainable approach to removing algae along with total suspended solids (TSS) allowing the removed solids to either be safely land applied or in the case of algae, re-purposed as fertilizer.

Our biopolymers are certified for use treating *stormwater and agricultural runoff* that discharge to open bodies of water so treating raw water supplies to remove algae and reduce TSS to below 3 NTU or lower is very cost effective, simple to implement and every gallon treated is usable as there is no waste stream. Both the removed sediment and algae can safely be land applied.

NUTRIENT REMOVAL

Aquastry's certified nutrient removal media has the ability to sequester both Nitrogen (N) and Phosphorous (P) from water and agricultural runoff. Our nutrient removal media is OMRI listed for Organic Use, USDA approved 100% Bio-based Product and U.S. EPA approved for use on organic farms as an approved soil amendment. The nutrient removal media also holds 5X its weight in water and can bring both available nutrients and water to the soil.

PASSIVE & ACTIVE TREATMENT SYSTEMS

The *Passive Treatment System* is a **Floc Soc™**, where algae contaminated water is pumped through a 4" flex hose with a Floc Soc™ in it. The Floc Soc is engineered contains the biopolymer and engineered to slowly dissolve and binds to the algae. Our **Floc Soc Kit™** contains ten (10) **Floc Soc™** and can treat **1 Million gallons** of algae laden water.

Floc Socs™ can be used either as a single **Floc Soc™** or several connected in either series or in parallel. They can be pulled behind a jet ski or a boat through a body of water containing algae allowing the biopolymer to slowly dissolve, binding to the algae floating it to the top.

Additionally the dry biopolymer can be implemented manually by using a spreader (lawn fertilizer ore seed spreader) and by using the propeller on a motor boat, it can be mixed into a large body of water like a lake or waterway. This is how Lake Chapultepec was initially cleaned up.

An *Active Treatment System* is an engineered system that delivers an accurate dosage of dry biopolymer with an auger feeder and can be equipped with a variable frequency drive (VFD) that can double the output to handle either varying flow rates or algae concentrations. These units ship in a dry box, which is suitable for both indoor and outdoor installations and has an alarm to alert the operator to a low biopolymer level. The operator replaces the dry biopolymer in the hopper when needed.

Our nutrient removal media can be used in a **Float Soc™** to be floated on the surface of water with algae to sequester residual nutrients in it to dramatically reduce the algae population. The *Active Treatment System* for nutrient removal is an engineered system that pumps nutrient laden water, such as agricultural runoff or open bodies of water like reservoirs through a pressurized vessel system with the nutrient removal media discharging nutrient free water.

The nutrients are now on the nutrient removal media, which is certified safe for agricultural application returning the nutrients to the farm land.