

## TREATING BLUE GREEN ALGAE ON MONA LAKE

There are several methods of controlling unwanted algae in surface water, including chemical treatments, shading with chemical additives, harvesting, and aeration—all of which have limitations. The Mona Lake Improvement Association works with a licensed applicator to treat target areas for Eurasian Milfoil (EWM) and blue-green algae. All chemical applications are regulated by the Michigan Department of Environmental Quality.

Milfoil is treated with “Reward” which is a non-selective contact herbicide. 2,4-D and Triclopyr can also be used as a selective control option for EWM. The Association also conducts water treatments for algae using copper sulfate. The DEQ no longer permits the application of copper sulfate over an entire water body because of concerns with its impact on the ecology of the lake (e.g. it also kills the “good” algae that fish eat, it can kill untargeted organisms like some fish and snails, and it can reduce dissolved oxygen in the water as mass blooms decompose--sometimes causing fish kills). Residual copper can also collect in the sediments eliminating life on the bottom of the lake. Currently, the copper levels permitted in treatment applications are at or below those permitted in drinking water (per MDEQ requirements). The Lake Improvement Association has used Cutrine-plus (which contains copper sulfate) and Cygnet-plus (a non-ionic surfactant) which assists with herbicide absorption into plants. The Improvement Association is only permitted to treat algae in areas of less than 5-feet in depth. A new product under investigation that presumably only targets blue green algae and not the “good” algae is Phycomycin. However, it is likely that concerns regarding the impact on dissolved oxygen levels will remain because of large amounts of decomposing plant material as well as decomposing algae.

Aluminum Sulfate bonds with Phosphorus, taking it out of the nutrient cycle, which can inhibit but not prevent algal blooms. However, the greater the watershed phosphorus contribution (i.e., coming in from the creeks and adjacent properties), the less effective this treatment can be. If pollutants continue to wash into the water, this tactic is of limited utility. This application is not currently used in Mona Lake and would likely not be effective because of the current nutrient loading into the lake.

“Shading” chemicals are added to restrict light from getting into the water column, which retards algae growth. The MDEQ does not permit the addition of shading chemicals in waters where people swim because of safety issues. Emergency services personnel may have difficulty in finding and retrieving victims in shaded water. Additionally, people may and have suffered spinal cord injuries when diving in shallow waters that appeared deep because of shading agents. Entities using shading products may have liability in these cases.

### **Physical Controls**

Skimmers and harvesting take algae and noxious (injurious or harmful to health) or nuisance weeds from the water, but this does little to impact the problem. In fact, some harvesting, like pruning, can actually stimulate additional growth with some aquatic plants.

### **Aeration**

Dissolved oxygen in the water is a major contributor to good water quality. In addition to aquatic life needing it, aerobic bacteria use it when they decompose organic matter (plants, algae, etc.). Aeration is the process of increasing the oxygen content of the water by infusing air into a water body. Natural bacteria are stimulated by aeration and circulation and they feed on muck, organics and the food that normally feeds algae blooms or aquatic plant growth. Out of curiosity we asked a company that makes lake and pond aerators what it would take to aerate a 656 acre lake that averages 14 feet deep. The reply: “*To aerate that much water would cost probably over one million dollars. It is possible, but you would have to purchase 60 of our 10 acre solar pond aerators.*” Aerators should only be used after a thorough assessment of the waterbody as they may only be needed in certain problem areas of the lake.

### **Conclusion**

The best treatment for excessive blue green algae blooms is still one of prevention. Limit an infusion of phosphorus into the lake to help prevent severe algal blooms. Note: one pound of phosphorus makes a staggering 300 to 500 pounds of algae.