

# Archive for the 'Pond Weed Management' Category

## ENVIRONMENTALLY "FRIENDLY" CONTROL OF ALGAE

Tuesday, August 12th, 2008

### WITH THE LG SONICR ALGAE CONTROL UNIT

Since algae are found worldwide in both fresh and salt water as well as on land, control of or perhaps a more fitting term, "management of algae growth" continues to be a vexing problem for waterway owners who want their ponds, swimming pools and lakes to be pristine and free of unsightly surface and subsurface algae.

Since aquatic algae exist in many forms ranging from single cell microorganisms to multicellular, filamentous mat forming types to more complicated macrophytic types (of which some of the latter are even beneficial to the underwater environment), many techniques to manage or control algae growth are available.

Before attempts are made to control the growth of the many forms of aquatic algae, waterway owners must understand that despite the reputation of most algae as troublesome eyesores in ponds and lakes, many algae also provide a number of beneficial contributions to waterways. Like most aquatic plants, algae through their life processes employing chlorophyll utilize carbon dioxide from the water and produce oxygen, the element essential to most life forms. In addition many types of algae utilize (and thereby rid) potentially noxious nutrients from waterways; other algae provide food for some animal life.

Probably the most negative aspect of excessive algae growth commonly known as an "algae bloom" which result from a rapid, uncontrolled proliferation of some forms of algae which in turn causes a precipitous depletion of oxygen levels in waterways. Unfavorable outcomes are the ensuing death and decomposition of the "algae bloom" as well as the death of aquatic animal life forms also dependent upon oxygen for survival.

Since sunlight is essential for algae life processes, certain blue dyes have been introduced into waterways with a degree of success in limiting algae growth. Specifically formulated chemicals termed algaecides have provided the main techniques for the management of algae growth. Among the historically more cost effective cell toxic algaecides are the liquid and granular copper products (primarily copper sulfate) and the contact acting liquid and granular endothall products. All chemical algaecide applications must be carefully "customized" to the type algae targeted as well as to the amounts of algaecide applied since dead and decomposing algae cells severely deplete water way oxygen levels essential for fish and other aquatic life form's survival. Another chemical means of algae management is with the use of aluminum sulfate (not classified as an algaecide) which precipitates phosphorous, an element found in waterways which is essential for algae growth.

Physical or mechanical removal of algae remains a technique of limited effectiveness because of its high cost and since it is usually limited to the collection and removal of already dead algae mats floating on the surface of waterways.

More recent research into biological techniques to manage algae growth has centered upon the manipulation and / or reduction of nutrients found in waters (especially the nutrients phosphorous and nitrogen which are essential for algae growth). Young genetically sterilized aquatic weed eating triploid grass carp have also been shown to feed on mat forming algae as have tilapia which are somewhat effective in algae control and management,

While the general public is probably more familiar with the employment of ultrasound instruments in medicine, ultrasonics, a relatively new physical science which arose from the development of echo ranging sound / “SONAR” devices used to locate submarines in World Wars I and II, has also been successfully adapted to the field of algae management. Recent biological research has led to the findings that complex patterns of underwater ultrasonic vibrations (sound waves beyond human and animal perception and having no harmful effect on humans, animals or plant life other than most forms of algae) can cause the death of many types of algae. The mechanism of destruction of algae cells is by ultrasonic vibrations causing vacuoles within algae cells to tear apart resulting in algae cell death. The ultrasonic vibrations generated by a household 120 volt powered transducer which can travel up to 150 meters are especially effective against “roaming” air and rain transported algae and blue-green / cyanobacteria forms.

Water proof transducers of the LG Sonic algae control units marketed by Charles Aquatics, Inc. were designed and created by KLG Sound, the device’s manufacturer, to create resonating sound waves at the optimum frequency to cause alage death. The LG Sonic algae control device’s family is made up of a number of models for installation and for applications in lakes and ponds, irrigation reservoirs, swimming pools, drinking water storage impoundments, water works cooling towers, and waste water treatment plants.

LG Sonic algae control units, all of which operate “24/7” for algae management, are cost effective, are environmentally friendly, have very low energy consumption, require minimal maintenance, provide major reductions in the need for algaecides, and can be energized by solar power.

Charles Aquatics, Inc. can provide clients current color brochures and complete information on the cost, as well as the full range of applications of the LG Sonic algae control units upon request at Tool Free 1-866-990-0044.

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## **ALGAE, ANOTHER AQUATIC ENIGMA**

Monday, June 23rd, 2008

What are algae? The term “algae” encompasses a wide range of plant life forms of which some grow on land (terrestrial forms which are found in soil, on trees and even on exposed rocks) and some grow in water. Of the latter some algae are marine forms (saltwater / oceanic types which include minute plankton to huge seaweed masses) and some are freshwater forms. Growth of algae appears in many colors from the common green form to yellow-green, blue-green, brown, black, and even red. Algae may thrive in ponds, lakes and municipal reservoirs, especially where water flows are minimal or quiescent. Since most of us are more familiar with the freshwater forms of algae which are commonly known as pond scum or simply as slime, this article will confine itself to a discussion of the still broad spectrum of freshwater aquatic algae, some of its causes for growth, and probably most importantly to waterway owners: a description of what can be done to control the growth of algae in a subsequent newsletter?

Aquatic algae range from single cell microscopic forms to multi-cellular forms and to the more complicated forms which resemble submersed plants. Many authorities classify algae into (1) the planktonic types, which are the simplest forms and are made up of single cells or small colonies of algae cells; (2) the more complicated filamentous types which consist of chains of algae cells joined together to form thread-like structures and which can attach to waterway sediments where unsightly floating mats may develop; and (3) the macrophytic algae types, the most complex of the aquatic algae, of which some have been confused with aquatic plants since they develop stems and root structures in waterway sediments. Of the many types of algae, the macrophytic Chara and Nitella forms may provide a favorable submersed environment. Measures to control these algae forms should be tempered with the possible risk of altering the underwater environment.

It should be emphasized that while mankind and especially waterway owners may view all forms of algae (similar to noxious aquatic weeds) as troublesome, as unappealing eyesores, and potentially toxic to other life forms, algae nevertheless provide a number of otherwise beneficial and significant contributions to waterways. In common with most plant forms, aquatic algae's living processes produce oxygen and utilize carbon dioxide during daylight hours (a process which is “reversed” at night); many types of algae utilize nutrients from within and thereby rid them from waterways; and algae provide food for many forms of animal life.

The negative aspects of excessive algae growth, often referred to by the term algae blooms (primarily attributed to a rapid, uncontrolled proliferation and often harmful overgrowth of both the planktonic and filamentous forms) include the depletion of aquatic oxygen levels in waterways when algae die and decompose. Decreased oxygen levels are detrimental to the survival of other aquatic plant and animal life forms. Some forms of blue-green algae are toxic to animals which drink algae contaminated water; these type algae can also cause public drinking water supplies to become almost non-potable.

Summer in Florida brings Daylight Savings Time along with all the factors required for algae growth and for damaging harmful algae blooms: increased sunlight essential for algae's photosynthetic life processes; longer days; increased temperatures; and sporadic rainfall. With all those conditions currently in existence, it is almost inevitable for increased algae growth and the potential for harmful algae blooms to occur.

As a result of the aging changes of waterways in conjunction with the possible detrimental effects of excessive algae growth and their decomposition products, those water bodies undergo a recently described process known as eutrophication-a unique process which may present difficult problems for many waterway owners and managers to solve.

Algae exist worldwide in all marine and fresh waters and therefore cannot be totally eliminated from those natural water bodies. To illustrate the adaptability of those prolific plants to a broad range of environmental factors, algae have been found in the boiling temperatures of hot springs as well as in the near freezing waters of the Antarctic. Conditions affecting algae growth are multifold hence many of these need to be considered if any degree of algae control is to be successful. Since algae forms are so diverse and so widespread it may also be more appropriate to consider "algae control" in terms of "algae management."

Since algae require sunlight for their photosynthetic life processes, specially formulated blue dyes have been utilized to limit the growth of mat forming algae in deeper waters.

The more "conventional" management of the growth of algae and of "algae blooms" involves chemical herbicides which have been made specifically to target algae and are appropriately termed algaecides. Among the more effective cell toxic algaecides are the liquid and granular copper products as well as the contact acting liquid and granular endothall. Algaecide usage, however, must be carefully customized to the type of targeted algae and to the amounts applied since dead and decomposing algae cells and mat producing algae deplete oxygen levels vital for fish survival in waterways being treated.

Physical management of algae can be effected by the use of aluminum sulfate (alum) to precipitate phosphorus, a vital element for algae growth. Another more "environmentally and esthetically" friendly method of physically managing algae growth is by the installation of mechanical aerators. These bubble producing aeration devices, marketed by Charles Aquatics,

Inc., increase oxygenation levels of waterways thereby improving fish habitat and aid in preventing the release of certain forms of phosphorus essential for algae growth from waterway sediments.

A newer, environmentally “friendly,” and very effective physical method of managing all forms of algae is with the installation of an electrically powered sonic wave producing device into algae infested waterways ranging in size from lakes, ponds, municipal reservoirs, and swimming pools. The LG Sonic device, also sold by Charles Aquatics, Inc., has been successfully used to manage algae in the Jacksonville area as well as in many other parts of the world.

Mechanical methods to manage algae growth are of limited effectiveness and have been primarily aimed at the collection of dead algae mats which float to the waterway surface.

Of the biological management methods for algae, the manipulation and/or reduction of nutrients essential for algae growth into waterways are currently considered by authorities as the “environmentally ideal approach” for algae control over the long term. While young triploid grass carp may feed on mat forming algae and tilapia have been found to be somewhat effective in algae control, regulation of the amounts of nutrients, particularly phosphorous and to a lesser degree, nitrogen, introduced into waterways have been shown by extensive research to be the most effective means of algae growth management.

Control of algae and algae blooms can be very difficult and requires an aquatic management service which can best be provided by Charles Aquatics, Inc.

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## **[WHY ARE TRIPLOID GRASS CARP STOCKED IN WATERWAYS?](#)**

Wednesday, April 23rd, 2008

Of the three major methods of aquatic weed control, biological control in contrast to weed control with chemicals / aquatic herbicides or by labor intensive mechanical means (harvesting), is rapidly becoming the environmentally aquatic weed control method of choice.

Triploid grass carp, a non-native fish which can be “genetically sterilized” by a number of means and, therefore, cannot breed, have a preference to feed on certain noxious aquatic weeds. Hydrilla, one of Florida’s most undesirable, non-native and difficult to treat and control aquatic weeds, can be controlled by the introduction of a limited and State permitted number of those

fish into retention ponds, lakes, canals and waterways to subsequently provide a widely recognized safe and ideal method of hydrilla control.

While the stocking of triploid grass carp (“triploid” is a term referring to a modification in the genetic structure of the fish which makes them unable to breed), is strictly controlled by the State of Florida—both as to the number of carp which can be placed in a waterway and to a requirement for the installation of fish barriers specially designed barriers which ensure that the carp remain within the stocked waterway. Both of those strict mandates are always met by Charles Aquatics, Inc. prior to stocking triploid grass carp in waterways.

While some of the world’s population consume species of carp as a food source, (a practice which is somewhat questionable by U.S. tastes since carp are full of bones!), it is nevertheless a violation of Florida law to catch or in any other way disturb stocked triploid grass carp. Removal of or the destruction of the required triploid carp fish barriers is also a violation of Florida law. Removal of grass carp should be a “no brainer” for residents and property owners along waterways since the fish have been stocked for the sole purpose of controlling undesirable aquatic weeds! Triploid grass carp can be effective to control noxious aquatic weeds only if the fish are left to “work” unmolested!

Property owners and residents may rest assured that their waterways will continue to be maintained in an environmentally safe and cost effective manner by Charles Aquatics, Inc. to ensure that their ponds, canals and lakes will have an esthetically attractive appearance.

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## **A WORST CASE SCENARIO FOR AQUATIC WEEDS**

Wednesday, April 23rd, 2008

As difficult as it may be to comprehend these days, the growth of water hyacinths, an exotic, non-native aquatic weed, was so prolific and out of control after its introduction to Florida in the late 1800’s, the plant infested almost the entire length of the St. Johns River basin. By 1898 water hyacinths made it almost impossible for steamboats to navigate the St. Johns River, at which time steamboats were essential for commercial transportation in much of Florida.

Although many labor intensive and expensive water hyacinth control methods were tried over the years, the introduction and use of a safe and effective aquatic herbicide, 2,4-D, in the late 1940’s eventually brought water hyacinths under control and steamboat transportation so vital to Florida on the St. Johns and other state rivers was again made possible.

A question remains as to how potentially harmful plants, weeds, and fish, non-native to Florida as well as to many in other areas of the United States, are introduced into waterways. The answer

remains like so many other harmful environmental conditions we are now facing: careless, ignorant or thoughtless actions by individuals. The introductions of both water hyacinth and one of the currently most difficult and expensive to control aquatic weeds, hydrilla, are believed to have been brought to our state by individuals who purposely planted water hyacinth in Florida. In the case of hydrilla, an individual who may have become tired of his home aquarium fish and plants thoughtlessly disposed of them in the closest waterway! Sometimes local conditions may not be favorable for the growth of non-native plants and fish and no lasting harm is done. In the case of hydrilla, and with many other non-native aquatic plants and fish, however, Florida's environment may be favorable to their proliferation, breeding and uncontrolled growth—and those life forms become a real problem.

What can you-as a responsible individual-do to minimize the introduction of potentially harmful non-native aquatic plants, weeds and fish into Florida waterways? Home aquarium plants and other potentially invasive plants which are no longer of use should be-at a minimum-bagged prior to disposal to prevent their spread. A suggested “humane” way for an individual to rid oneself of unwanted aquarium fish is to place them in a plastic bag and freeze them before disposal.

Invasive species of plants and animals continue to be an acute threat to Floridians; problems arising from the growth and spread of invasive non-native plants and animals include the control costs to taxpayers, their impact on native plants and animals, and the possible damage to Florida crops, forests and fisheries.

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