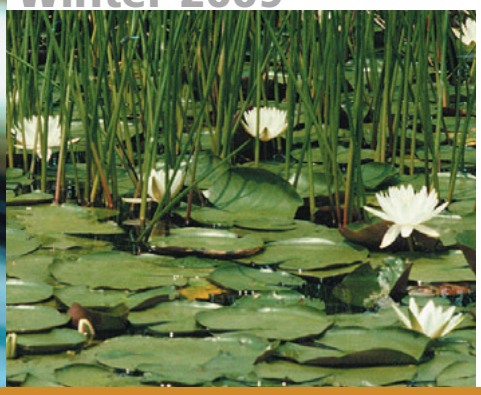
Winter 2009

AquaticsinBrief



Volume 3, Issue 1

Inside:

Are there fish in my pond?

By **Lee Abernathy, Environmental Scientist**

This question has been posed multiple times in the short while that I have worked for Virginia Lake Management. It is a question that people really want to know, whether for fishing purposes or their own personal knowledge. For 90% or more of the ponds we service the answer is yes, there are fish in your pond. If the fish were not stocked there intentionally, it is likely that they have made it there by some other means. Birds, flooding, and connecting inflow pipes aid in the movement of fish from pond to pond. So even if you did not put them there, fish are now calling your pond home.

The question we should all be asking, however, is what good do fish do in your pond? Even if you are a fisherman and believe that the fish are good in your pond because you can catch them, there are other reasons why they should be there. Don't get me wrong, I love fishing for bass and bream (or bluegill as they are so often called), but besides their obvious purpose of pleasing me when they bite my hook, I have to look at the other benefits that fish bring.

It turns out that having fish correlates to the propagation of flowering plants. Ponds that contain fish attract more bees which in turn promote flowering plant growth in the area. Bees tend to avoid ponds that do not contain fish because of the presence of dragonflies, a predator to the bees. In fish-free ponds, flies and moths are the predominant pollinator and flowering plants are not as abundant.

Now we know that if we want to reduce flies, moths, and mosquitoes then a natural way to do so is to stock your pond with fish. Freshwater fish introductions have the potential to alter competitive relationships among terrestrial plants, hampering the competitiveness of non-insect pollinated plants. So the next time your think about stocking your pond, consider the benefits the fish will bring to your flower garden and the surrounding landscape. ■

VIRGINIA LAKE MANAGEMENT

A Full Service Lake and Pond Management Company

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The Eastern Shore of Virginia: Bringing Back the Natural Habitat

By **Kyle Finerfrock, Environmental Scientist and Kevin Tucker, President**

The Eastern Shore is the Virginia portion of the Delmarva Peninsula which separates the Atlantic Ocean and the Chesapeake Bay. This area of land primarily consists of rural farmland which produces a multitude of agriculture products. Being located on the coast, the Eastern Shore is also a major producer of seafood in Virginia. In order to protect and preserve the natural plants and animals in this region the U.S. Fish and Wildlife Service has set aside many areas of land, to include all of the barrier islands, as well as two areas of land located at the southern tip of the peninsula which are called the Eastern Shore National Wildlife Refuge and Fisherman Island National Wildlife Refuge.

This land is being preserved to be a haven for plants and wildlife. These refuges are important to native and migratory land birds and waterfowl. It is imperative that this natural habitat be restored and preserved in order to sustain healthy wildlife populations in these areas.

Exotic invasive plants and organisms can be detrimental to any habitat because they can outcompete and drive away native species. One such invasive plant that has done this is *Phragmites australias.* When Phragmites invades a wetland it out competes and suffocates the native marsh plants, eliminating that vital habitat for wildlife. Phragmites itself, because of its dense patterns of growth, provides a generally poor habitat for wildlife. It tends to dominate and create a monoculture, thus eliminating essential plant diversity.

In order to restore this habitat, a program of herbicide applications to affected areas has been undertaken to minimize and ultimately eliminate the Phragmites populations in these areas.

By design, these areas are uninhabited and in some cases, completely off limits to man, so accessibility is quite challenging. Amphibious vehicles and other specialty equipment are an essential part of any ground attack on this vegetative invader.

Virginia Lake Management Company is a certified aquatic pesticide applicator in Virginia, Maryland, North Carolina, West Virginia, Delaware, and Pennsylvania, and as such, was contracted by the US Fish and Wildlife Service in a partnership with helicopter applicators to provide the ground application resources required to treat the areas of Phragmites growth that was not able to be treated through aerial applications. As a Cabela's (The World's Foremost Outdoor Outfitter) mapping partner, Virginia Lake Management used GPS mapping technologies to document and provide detailed maps and aerial photography of the areas in which the Phragmites were treated.

Not only did this allow the customer to quantify the acreage of areas treated and evaluate the costs of the project, it also allowed them to track the progress of the program as compared to previous years. This was the second year that Virginia Lake Management was involved in this project, and progress can already be seen. The density of the Phragmites after the first year's treatment has been decreased, and much of the natural vegetation has started to recover and return to the areas that were once dominated by Phragmites.

As anyone familiar with Phragmites, its durability, and its extremely aggressive patterns of growth can attest, this will be an ongoing effort that will likely take many years. However, with the right treatment, and the proper tools and technology, we are able to make great strides towards our goals of eradication of the Phragmites and the restoration of this beautiful natural habitat. ■

Reducing Our Environmental Footprint

Virginia Lake Management is a firm committed to environmental stewardship. As stewards of our most precious resources, we work tirelessly every day to promote environmental responsibility in all of the work we perform. We incorporate many environmentally friendly practices into our company culture and internal processes. We utilize nothing but EPA approved products in all of our lake management work, and maintain the highest level of education, licensing, and internal controls found in the industry.

Most importantly of all, because of our superior knowledge, training, and experience, we minimize the amount of herbicide and algaecide waste in the aquatic environment through the proper selection and application of exactly the right amount of product needed to control the target problem. Not only is this approach to sound and precise application a benefit to the environment, it benefits our customer's wallet, as money is not wasted on overly costly or unneeded treatments. ■

Herbicides: Don't Be Afraid

By **David Ellison, Aquatic Biologist**

When a pond owner decides that chemical treatment of excessive weed or algae growth is necessary one of the main concerns is the impact the herbicides used will have on the animals in the pond. All of the products we apply are regulated and approved for use by the Environmental Protection Agency (EPA). The EPA sets strict rules regarding the amount of herbicides that can be released into lakes and ponds. These regulations are set depending upon the use of the specific product, the target pest, and several other factors including the impact the product may have on the stability of the lake's ecosystem.

"The treatment of weeds and algae involves many variables including: proper plant identification, weather, and water use restrictions."

The treatment of weeds and algae involves many variables including: proper plant identification, weather, and water use restrictions. Some herbicides react quickly providing fast results. There are some herbicides that produce gradual results but will give a longer lasting control. Our choice of which depends on environmental factors, target plant species, and the dynamics of your pond.

One of the factors that we also take into account is the impact the products will have on the organisms in the pond. The EPA has set guidelines for toxicity levels of animals to all herbicides/pesticides and labeled each product with this information. We apply products at rates below toxicity levels of those to fish and other species found in lakes and ponds to ensure their continued health. The environmental health of fish, turtles, and other animals in your pond is dependent upon the proper treatment and use of the appropriate products. As environmentalists, we are also conscious of the aquatic life in the ponds we service and see it as our duty to ensure they are not negatively impacted by any potential treatment. ■

Water Moccasins

By **Greg Blackham, Aquatic Specialist**

Spotting a snake swimming in a lake can be a frightening experience, especially if you are swimming too. Almost stepping on one can be just as scary. The good news is there is only one venomous water-loving snake in the United States; the water moccasin. Another popular name for this snake is the cottonmouth; scientific name: Agkistrodon piscivorus. If you can determine the snake you encountered is not a moccasin, then you can be assured it is not poisonous. Some moccasins can live up to one mile from a notable body of water, but this is rare.

Common misconceptions are that water moccasins are highly aggressive. While they will sometimes stand their ground if escape seems risky, it is virtually unheard of for one to purposely chase or target a person. Most studies show that they will only strike when the object of threat is very close and aggressive. If one decides to stand their ground, often times it will give a warning. The moccasin will turn its head up almost 90 degrees and open its mouth wide, displaying fangs and a cottony white inner mouth, hence its nickname, the cottonmouth. It may also wave its tail, when threatened. Even with moccasins, the common rule still applies: The creature is probably more scared than the human.

Water moccasins belong to the pit viper family, which includes rattlesnakes and copperheads. Their venom is extremely dangerous, but rarely fatal. In most cases, a fatality occurred because proper medical attention was lacking. If a bite directly injects venom into a vein, artery, lymph node, or a nerve, death could occur in as little as 30 seconds. If bitten, and a victim is still alive after 30 minutes, this is a good sign that this did not occur, and they will have at the least 12 hours to get medical attention. The only thing one should do after a snake bite is: treat for shock, call 911, and wash the wound with mild soap and water. On average, only about 10 people a year die in the United States from snake bites.

Distinguishing water moccasins from other snakes from far away can be difficult, but up close, it is a lot easier. Adult snakes are generally a dark color ranging from olive, tan, brown to almost black. Dark, cross band patterns wrap the snake. As the snake ages, its color darkens, until it is almost indistinguishable from these cross bands. From far away, one would have to note the general build and shape of the snake. Moccasin adults are about 3 feet in average length. They are much thicker around than other water-loving snakes. Their heads are triangular shaped and have a very distinct separation from the rest of their body.

Up close there are more definite signs. There is a pit between the eye and the nostrils. The pupils of the eyes are elliptical, like a cat's, as opposed to round pupils of harmless snakes. Standing directly above the head, the eyes cannot be seen and there are plate-like scales between the eyes. Extending from the eye backwards is a dark broad stripe. The tail is short and stubby. The scales along the body are keeled, so if the snake looks real shiny, it is not a moccasin. The fangs are about a half an inch long and hollow.

All things considered, most snakes found next to water will not be water moccasins, and if they are, will not come after you. With this in mind, and having an idea of their description, you shouldn't worry too much about a snake related injury near your lake or pond. Just don't provoke them, and watch where you step! ■

The "Do-It-Yourself" Dilemma

By **Shannon Junior, Aquatic Ecologist**

I often respond to calls from homeowners and property managers who have been working hard to control nuisance vegetation problems in their ponds or lakes, but have been unsuccessful. They have done extensive internet research and have talked to plant "experts" over the phone. Based on the information gathered, they have purchased aquatic herbicides and applied them to their ponds. Others have even taken a more hands-on approach and have tried to manually remove vegetation with rakes or nets. Along with many success stories for these strategies, there are more than a few dismal failures.

The absolute most important component of any nuisance vegetation eradication or control program is the proper identification of the target pest. And while the internet is full of valuable information, there is no substitute for having a qualified professional evaluate the problem. I have visited numerous ponds where owners were complaining of "lily pads" when the problem was actually watershield. It's very easy to mistake duckweed or watermeal for algae – they all look like "green slime" on the surface of the pond. And there are some species of vegetation, like hydrilla and egeria, that even some experienced ecologists have difficulty distinguishing from one another.

> **"Knowing your pest is essential for identifying the appropriate treatment protocol, and many do-it-yourself pond managers have spent valuable time and money on unsuccessful strategies."**

Knowing your pest is essential for identifying the appropriate treatment protocol, and many do-it-yourself pond managers have spent valuable time and money on unsuccessful strategies. For instance, copper-based herbicides are widely available on-line and at local farm cooperatives. However, these are probably the most often misused herbicides. While they do have a fairly broad spectrum, they will not help in every situation, and no amount of copper will control species like watershield or watermeal. I have also visited sites where people were manually harvesting hydrilla, which can reproduce by fragmentation. By implementing that strategy for control, they were unwittingly helping the plant to proliferate. The most tragic failed treatment plans for me are sites where improper herbicide use has resulted in a fish kill.

Chemical herbicides are safe when used for appropriate target pests and in a manner consistent with their label. Aquatic pesticides must go through an EPA registration process that includes comprehensive environmental and laboratory testing before they are released for public use. Inexperienced consumers often misuse the products, applying them to the wrong target pests, using inappropriate application equipment, or applying the wrong amount or concentration of the herbicides.

Virginia Lake Management is dedicated to environmental stewardship, and we strive to educate our clients and the public about the fundamentals of long-term pond and lake management. We are happy to provide a free on-site consultation regarding nuisance vegetation problems in your pond or lake. Whether you chose to hire a professional applicator or want to do it yourself, we can help you formulate an appropriate strategy to ensure the long-term health of your aquatic resource. ■

Lakes and Ponds: What's the Difference Anyway?

By **Kyle Finerfrock, Environmental Scientist**

Many people are curious as to what differentiates a lake from a pond. In a general sense this is easy to determine, a lake is large and a pond is small. At what point does a body of water become too large to be a pond or to small to be a lake. The truth is that there are no set parameters to make this distinction. You have to take into consideration several factors which include: surface area, water depth, vegetation growth, and temperature.

For a body of water to be considered a pond, water depth is the second most important factor. A pond is usually shallow enough to support rooted vegetation across the entire bottom. Ponds are also too shallow to have any significant variation in water temperature from the surface to the bottom. In lakes, rooted vegetation is usually found around the shoreline until the water depth becomes too deep for light to penetrate to the bottom. In the summer and winter months a lake can become stratified based on temperature change. At this point the water temperature at the surface is significantly different than at the bottom.

Climate is another factor in determining a classification. Ponds are always affected by the climate of a region, whereas a lake can affect a region's climate. During the winter months in some parts of the country, larger lakes can bring excess amounts of lake effect snow to an area. In the summer months, areas adjacent to large lakes may experience cooler than expected temperatures.

Aquatic Biologists often need to define these parameters in order to properly maintain a body of water. When treating nuisance vegetation, you may choose to treat the same weed with different products or at different application rates depending on whether it is located in a lake or pond. ■

Check Us Out…

Virginia Lake Management will be participating in the following events over the next couple of months. We encourage you to come see us! If you need information on attending any of these events, please call our office.

January 13 – 14	Virginia Turfgrass Council Trade Show, Fredericksburg, VA
February 19	Central Virginia Chapter of Community Associations Institute Annual CA Day and Trade Show, Richmond, VA
February 25 – 26	Pennsylvania Lake Management Society Annual Conference, State College, PA
March 8 – 10	Virginia Water Conference, Richmond, VA
March 14	Southeastern Virginia Chapter of Community Associations Institute Annual CA Day and Trade Show, Virginia Beach, VA
March 28	Washington Metro Chapter of Community Associations Institute Annual Expo, Washington, DC
April 29	Pennsylvania/Delaware Valley Chapter of Community Associations Institute Annual Trade Show

"Pond"er These Thoughts

Virginia Lake Management wants you to be prepared for 2009. With this is mind, we recommend thinking about the following during the winter months:

- If you have not been maintaining the vegetation growing on land along your shoreline and the sloped areas adjacent to your lake, schedule thinning of the vegetation in these areas.
- Schedule annual maintenance for your fountains and aeration systems
- Start planning for an annual maintenance program for your lake or pond
- Schedule a physical inspection of your lake or pond
- Review your budget and reserve funds to plan for bathymetry to determine if and when you will have a need for dredging. If needed, schedule early!

Working Hard to Reduce our Environmental Footprint

By **Kevin Tucker, President**

Virginia Lake Management's commitment to the environment and sustainability are demonstrated daily in our efforts to leave this world a little better than we found it! The following are some examples of how we are working to lessen our environmental footprint through the recycling of the wastes that are generated in our daily operations…

- We recycle all paper and plastic waste generated through our daily operations
- All of the cardboard that we receive in the way of boxes and shipping cartons is either reused for outbound shipping or recycled.
- We produce our marketing materials, newsletters, and other company publications on paper that includes 50% recycled materials, half of which is post consumer waste, and is FSC and Rainforest Certified.
- All of the algaecide, herbicide, and other plastic containers are triple-rinsed following use and transported to a recycling facility to be shredded, ground up, and sent to manufactures for re-use in the production of new plastic products.
- All herbicide and algaecide rinsate from the cleaning of plastic containers and spray equipment is collected and re-used in future treatments so as to eliminate all waste and eliminate potentially adverse impacts on the environment in non-target areas.
- All fountain equipment that we sell uses food-grade oil as the means for cooling the motors that run this equipment, eliminating any chance for leaks of toxic petroleum based lubricants into the lakes and ponds in which these fountains operate.
- All used oils are collected and sent to recyclers who filter, clean, and reuse it in the production of new oil products.

Algae in the Winter!?

By **Terry Owens, Environmental Scientist**

Winter is upon us and with it brings colder temperatures. These colder temperatures trigger plants to shut down and slow their growth. Algae and aquatic weeds are like any other plant, as the water temperature begins to drop in the pond, it triggers the plant to shut down. However, seasonal fluxes in temperature can trigger a rapid resurgence of algae and aquatic weed growth.

Now, one might take great concern in this, because we all want our ponds to be algae free. However, the key in understanding algae and weed growth in the winter is to understand that this temperature change is only temporary. Water is a fantastic thermal sink, meaning it can absorb and retain heat very efficiently. The shallow sections of ponds are very susceptible to this warming. A couple days of warm temperatures coupled with sunlight during the winter can dramatically increase the water temperature, making it very favorable for weed and algae growth.

So the question begs, how do you control algae growth in the winter? The first response for most people would be to treat it with an algaecide/herbicide. However, the products that we use specify a constant minimum water temperature to ensure effective treatment. If this water temperature is not maintained, which it is not with these temporary temperature swings that only last a few days, we can not ensure proper algae control in your pond using algaecides. The best answer to this question is patience. By understanding the growth habits of algae and weeds we know that these growths during the winter months are only temporary. We can use Mother Nature to our advantage by simply waiting a few days and allowing this temperature swing to subside, resulting in the natural control of the weeds and algae that is typical with colder water temperatures. By utilizing this more natural control method you are saving yourself money, because we are not using products that will be ultimately be ineffective in the long term. By limiting the unnecessary use of algaecides and herbicides, we are also reducing the impact on your pond and the overall aquatic environment. ■

VIRGINIA LAKE MANAGEMENT

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