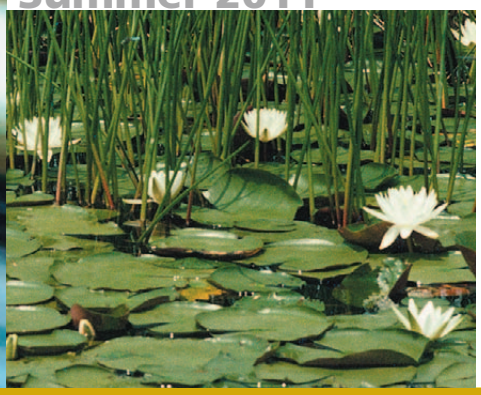
Summer 2011

AquaticsinBrief



Volume 5, Issue 3

Inside:

SŌLITUDE LAKE MANAGEMENT

A Full Service Lake and Pond Management Company

Is It Safe To Fish?

By **Greg Blackham, Aquatic Specialist**

The registration process is so strict and comprehensive that only 13 active ingredients have been approved for aquatic use over the last 50 years!

Is it safe to fish? The answer is always "yes." As a professional applicator I'm often approached in the middle of an aquatic treatment and asked a variety of questions. Most people want to know if the products being administered to their pond pose any danger to them, their families, their pets, nearby wildlife, or the environment in general. They have good reason to be nervous, because unlike landscape applications and home pest control, aquatic herbicide knowledge is relatively foreign to most people and it is being applied directly to the water.

Aquatic herbicides undergo a massive amount of testing in order to be registered with the EPA. There is, on average, 100 different studies performed on risk assessment alone for a single product. This process can take up to 10 years to reach the final testing phase before it is presented to the EPA, and then on average three more years to be approved. Not only is the active ingredient of the product to be registered tested, but all of the inert ingredients as well.

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Life in a Fishless Pond

By **Gavin Ferris, Ecologist**

Nobody will debate against the value of stocking a pond with fish. Their value as a mosquito control is unparalleled, seeing them breech the surface to catch an insect is a small thrill every time, and the joy and excitement of angling is an obvious benefit to having fish in your pond. But, alas, not every pond is suitable for fish. Whether they're too small or too prone to drought, some ponds are just not appropriate for stocking and will not do as permanent fish habitat.

Those with ponds that are necessarily fishless can take heart, however, in the knowledge that fishless ponds are still vital and extremely interesting ecosystems, home to countless organisms, some of which can only survive in the absence of fish predators. Many of the singing frogs that enhance our summer evenings, like the melodious and chameleon-like Grey Tree Frog, can only breed in ponds that lack fish, as their eggs and tadpoles would make an easy meal for a hungry bluegill or bass. Many other amphibians, such as the Spotted Salamander, Marbled Salamander, Jefferson's Salamander, and Spadefoot Toad also start their lives in fishless ponds.

Green heron

Grey tree frog

Smaller ponds are particularly good habitat for the diminutive but striking Green Heron as it seeks to make a living on frogs and snakes.

The youngest of newly hatched turtles also often seek refuge in ponds that lack fish because, believe it or not, fish can and will gladly consume turtles at their smallest and most vulnerable life stage. These ponds are not without their predators, however. While an eagle or osprey is not likely to come diving at the surface of a small, ephemeral pond anytime soon, egrets and herons will gladly wade about in even the smallest pond looking for a departure from their usual diet of fish. Smaller ponds are particularly good habitat for the diminutive but striking Green Heron as it seeks to make a living on frogs and snakes.

Perhaps the most interesting creatures of fishless ponds, however, are the unique communities of insects that reign supreme in the absence of fish. As with any pond, stocked or otherwise, hundreds of species of insects spend part or all of their lives submerged beneath the surface of small and temporary ponds. Many are too easily caught by fish to coexist with them, and can only survive in fishless waters.

Without fish around to hog up all the food, insect predators also take center stage. Tadpoles and snails may be safe from fish in an ephemeral pond, but a large dragonfly larvae can be just as efficient a predator as any fish. Hiding motionless until a prey wanders by, then springing out with a set of lightning-fast pincers, few species can compete with a Green Darner dragonfly larvae as a top predator. Few, that is, besides the Giant Waterbug or Predaceous Diving Beetle that may also inhabit this pool. While the largest of these organisms could still fit in the palm of your hand (though just barely, in some cases), watching them stalk their prey is like watching tiny lions on a tiny Serengeti.

A pond that occasionally dries up or is only a foot deep may not provide the fun and excitement of fishing for largemouth bass, but for those that care to look, there is still plenty of fun and excitement to be had watching the goings on of any pond, with or without fish. ■

Shoreline Beneficial Plants: Rushes and Sedges

By **David Ellison, Aquatic Biologist**

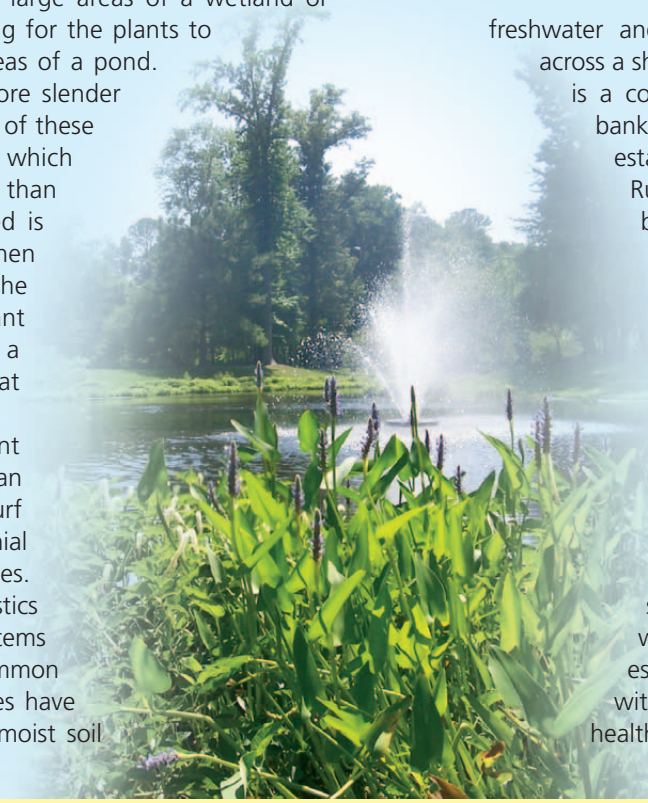
Aquatic plants will often add beauty as well as provide nutrient absorption to a shallow area within a body of water that is partially wet. The plant area may only be wet during tidal cycles or only hold water during heavy rain events. Plants that thrive in these areas must be able to survive such extremes and stress with respect to the availability of water. They must be able to store water within their tissues and utilize it when necessary. Some plants that are often found in this zone are cattails, pickerelweed, sedges, and rushes.

Cattails will often take over large areas of a wetland or pond and trap sediment, allowing for the plants to grow further into the deeper areas of a pond. Sedges and rushes stems are more slender than cattails and the root system of these two plants is less extensive, which causes less trapping of sediment than occurs with cattails. Pickerelweed is a low growing plant and ideal when low borders or water views are the goal. For areas where a taller plant is desired, sedges and rushes are a more likely fit as they will reach at least three feet high.

There are over 100 different species of sedges and many can be found from aquatic to turf environments. Sedges are perennial plants and often look like grasses. The main identification characteristics of sedges are the triangular stems with a spike on top and a common identification statement is "sedges have edges". They grow in shallow, moist soil and will often form large clumps of plants. The plants will frequently form a meadow within a shallow bank and typically establish this area by seed propagation.

Rushes are another type of plant that will thrive in shallow, moist environments. They are often found in both salt and freshwater and, like sedges, form large meadows across a shallow bank. Soft Rush (Juncus effuses) is a common rush encountered along pond banks and in salt marshes and will also establish areas by seed propagation. Soft Rush, like some other rushes is identified by its slender smooth stems, a cluster of small flowers a few inches from the tip, and a sharp tip.

Pickerelweed is a low growing plant and ideal when low borders or water views are the goal.



Sedges and Rushes are extremely beneficial to lakes, ponds, and wetlands for bank stabilization and nutrient uptake. They also help maintain an area by keeping out non-native species. The plants are used for habitat by many invertebrates and amphibians. Waterfowl use the height of the rushes and sedges for shelter and to acquire food. Having a well maintained buffer zone and a well established shoreline or wetland area with the proper plants is vital to having a healthy lake, pond or wetland. ■

Is It Safe To Fish?

Continued from cover

Part of this testing includes how the ingredients will breakdown into the environment under every possible condition.

Tests are also conducted on every type of living organism the product could ever possibly come into contact with, whether directly or as a different compound created in the breakdown process. The registration process is so strict and comprehensive that only 13 active ingredients have been approved for aquatic use over the last 50 years! Even after they are registered, they are continually tested and if deemed harmful, would be taken off of the market immediately. Because there is always a chance that any treated water can and probably will be exposed to potable water sometime in the future, an aquatic herbicide cannot be registered if it is even 1/100 of a "no effect level". This same criteria is set for swimming restrictions as well. In some cases an aquatic treatment may have water use restrictions (i.e. swimming, drinking, and irrigation). These restrictions are clearly identified on the product label, which to a licensed applicator, is the law!

In short, when aquatic herbicides are applied according to their label, they pose no threat to people, their pets, fish, birds, or any other wildlife, short or long term. In the case that there is a one day swimming restriction, or any other restriction, a licensed applicator will always communicate this to anyone with access to the water, as well as posting any relevant signs. As far as fishing goes, there is no aquatic herbicide with any fishing restrictions. ■

Taking Kids Fishing

By **David Beasley, Fisheries Biologist**

The fast pace of our society has made it common for kids to spend less time in the outdoors. Due to the advances in technology and the financial need to have both parents working to pay the bills, it seems that most people have become complacent with kids not getting as involved with outdoor activities. Involving children with nature is critical for the preservation of the environment and the successful development of our culture. One fun way to get kids involved with "Mother Nature" is to take them fishing.

Catching Bluegill in a pond can be done easily if Bluegill are present in the water body. If you have a pond near you, it may be as simple as asking for permission. If you own a pond, you may have plenty of Bluegill waiting to be caught. The best part about Bluegill in ponds is that once you have stocked them, you almost never need to stock them again because they reproduce very well. Hand feeding the Bluegill on the pond can be easy; and, if you feed them consistently in the same place with floating fish feed, it will create a great fishing spot to take the kids. Catching Bluegill is not only fun and easy for kids to do, but it also feels good on your wallet. The tackle needed to catch bluegill is the most inexpensive fishing tackle of any fishing type. So, with a fishing spot chosen, bait purchased, and kids waiting, all you need to do is grab a fishing pole!

Whether you are an advanced angler or a first timer yourself, take the time to introduce a child to fishing. Many types of fish can live in ponds, and as kids get hooked, they will likely want to move on to a more challenging species. If at all possible this summer, set time aside to introduce kids to the outdoors, it just might be the most influential thing you can do. ■

Beaver Dam-age?

By **Ethan Chappell, Aquatic Specialist**

Getting a glimpse of a beaver has been a rare treat for most of my life. Hunted to near extinction for their pelts, beavers were tied to a fashion craze that Abe Lincoln himself sported. The 'Stove Pipe' hat that he and countless others wore was made of beaver pelts. These industrious creatures were a critical part of the riparian systems of early American history. Rivers and streams were dammed by beavers and the flow of water was constantly changed within any given watershed. As flowing streams were converted into ponds and oxbows cut off from the main flow of a channel, sediment and vegetation eventually filled in the old channel. The beaver would then move on to build a new dam and leave behind the fertile soil that would become farmland to Native Americans and then the early settlers.

Action should be taken at the first sign of chew damage.

The same characteristics today can make the beaver a neighborhood menace. As the rural country side is converted into homes, roadways, and city infrastructure, there is no room for streams and rivers to go changing course as they once did. Imagine the small stream at the back of your yard today meandering through your living room tomorrow. You investigate only to find that all of your beloved fruit trees and flowering ornamentals have been chopped down and dragged to the creek. The sheer dollar value of an unchecked beaver family can be staggering. Modern beaver dams can make use of all manner of discarded objects: trash, basketballs and, of coarse, ornamental shrubbery. They also seem to understand our storm water systems very well. By clogging outflows and stand pipes they have been known to flood very large areas with very little effort.

The best way to prevent this situation from happening is vigilance. A beaver will usually move into an area and begin to set up shop by himself or with a mate. If they can get a lodge going and reproduce, it will be very difficult to get rid of all of them. Action should be taken at the first sign of chew damage. Look at the base of the trees near your pond. Six inches to a foot up the trunk you may notice tell-tail notches bitten out of the bark and into the wood. If these notches expose fresh wood, then you likely have recent beaver activity. You may also notice a mound of sticks beginning to take shape somewhere on the pond. This would be the beaver's lodge and an indication that they would like to become residents. They will not, however, be paying any HOA dues.

A local trapper can typically take care of a beaver problem within a week or two depending on the number of animals and state laws. While these tenacious creatures can cause serious property damage, it is important to note that they have managed to come back from near extinction. While they can be a nuisance in our neighborhoods, their resilience and determination is inspiring. ■

Which is the Best Aeration System for your Pond?

By **Randy Bolin, Business Development**

One of the more frequent questions asked by our customers is, "Which aeration system is best for my pond — a subsurface aerator or a fountain surface aerator?"

The answer is simple: Both are great sources of aeration for ponds or lakes of any size, but there are differences between the two.

When a customer poses this question, we ideally like to visit the pond. On our first site visit, we will measure the square footage and depth of the pond or lake to determine the proper size of submersed aeration or fountain aeration system that will best suit the pond. The shape of the pond, water quality, and water source is also a large factor in determining our recommendations. Our main priority is to match the right system with each customer's personal request and also stay within the customer's budget.

Floating fountain aerators offer both the aeration and an aesthetic quality that many customers desire. The only downside of fountain aeration is that the aeration is generally localized and works great for ponds that are symmetrical shapes like oval, square, triangular, or round. They work by taking in water from the upper few feet of water and throwing it into the air, where it picks up oxygen. The induced circulation this causes creates a cycle of returning oxygenated water to the pond. Irregular shaped ponds can benefit from just fountain aeration, but more units would be needed to achieve uniform aeration for the whole pond, with a potentially higher cost to the customer.

Submersed Aeration Systems, or bottom diffused systems, release oxygen directly into the water column at precise locations within the pond. These systems can supply aeration for any pond, but work extremely well for irregular shaped ponds such as kidney shaped or long and narrow ponds. In irregular shaped ponds, fountain surface aerators are generally limited because they are placed centrally in an effort to cover the most surface; however, this creates dead zones in the odd shaped areas of the pond. In these situations, surface aerators will almost always have to be supplemented with submersed aeration to achieve the ideal aeration for the pond. Using all submersed aeration systems in irregular shaped ponds will create the best overall aeration and will, in most cases, cost the customer slightly less than surface aeration.

Basically, aerator placement is the most crucial piece to this puzzle. If the pond is round, placing a fountain aerator (in the center) large enough to aerate the pond would be fine. It would create a nice spray pattern display plus the proper aeration for the pond; but, if the pond is irregular in shape, then specific placement of submersed bottom diffusers would be the best option so as to target the entire body of water.

The best option in dealing with ponds of irregular shapes where the community wants the aesthetic look of a fountain but needs to aerate parts of the pond that a fountain may not reach is to install a fountain nearest to the center of the pond and add diffused aeration to the outlying areas of the pond.

Whichever option suits your community and your budget, an aeration system can be a big investment for your community but it will protect a bigger investment by ensuring a long and healthy life for your pond. ■

The Mayfly Effect

By **Matthew Phillips, Aquatic Biologist**

About a year ago I was on a lake in Northern Minnesota doing a little night Walleye fishing when my fishing buddy and I noticed something peculiar starting to take place. All around us, little tiny objects were appearing on the surface of the water. Nothing was falling from the sky so for a brief moment we both sat there perplexed. We soon realized that these objects were coming from the bottom of the lake and were surfacing on the water with a small ripple. The "objects" were mayfly larvae coming to the surface where they would then molt and turn into a winged adult.

Mayflies are found in the Order Ephemeroptera (from the Greek *ephemeros* or "short lived" and *pteron* or winged, referring to the brief lifespan of the adult). Like many terrestrial insects, mayflies begin their life in a body of water. They are primarily found in rivers but a few species are lake dwellers where they can be quite prolific. Eggs are typically laid on the surface of the water where they will then sink and hatch into the naiad. Naiads will molt 20-30 times over the span of a few months to a couple of years, depending on the species. When mature, the naiads will float to the surface of the water where they will break out of their exoskeleton and crawl onto it, using it as a raft. The mayflies are still not mature adults and are called a subimago at this stage. The subimago will fly to the nearest object where it will molt one last time, becoming a mature adult. The mayfly is the only known insect in the world to undergo a second molt after acquiring functional wings.

Mayflies are unique in several other ways besides being the only insect to molt twice after the larval form. As their Greek name indicates, mayflies live for a very short time. Some live for as little as a few minutes while others might make it past a day. Once they become adults, they do not feed or seek food, in fact the adults have no functional feeding mouthparts and their digestive tract is filled with air. Once they emerge from their larval stage, their sole purpose is to find a mate, reproduce, and then die. Another interesting phenomenon with the mayfly is the sheer numbers attributed to an emergence. When a population of mayflies emerges, they do it in an enormous mass or hatch. This hatch can reach several thousand in numbers, so large and dense that many Doppler radars pick up the hatch as a spontaneous forming cloud. This hatch typically occurs in May, hence their name, but can also occur throughout late spring and early summer, depending on the species.

So there my buddy and I were in the middle of the start of a mayfly emergence and within minutes the boat, motor, ourselves, and everything else were covered in these insects. In the coming weeks more populations started to hatch out of the various lakes in Northern Minnesota, creating such a vast amount of numbers, that people were literally using snow shovels to remove the spent insects from their doorways. As if shoveling snow 7 months out the year in Minnesota wasn't already enough! If you have a fly fisherman in the family, I am sure you are already familiar with mayfly emergences. If not, keep an eye on your local pond this summer and maybe you will be fortunate enough to witness one the more amazing events in the insect community. ■

The "NEW"s from SŌLitude

SŌLitude Lake Management has a few exciting new things to share this Summer. We have welcomed two new faces to the team as well as one new location! Please join us in celebrating!!!

In May, we had the privilege of welcoming Stephanie Bates, Environmental Scientist, who joins our Northern Virginia, WV, Maryland, and PA Team. Stephanie brings an infectious enthusiasm to the SŌLitude staff that is a pleasant addition to any workplace. Originally from Orange County, Virginia, Stephanie is a graduate of Christopher Newport University where she also earned her Masters in Environmental Science. Her great passion for the environment makes her an instant fit among her colleagues and her presence is welcomed in the Fredericksburg office as SŌLitude's Northern VA, Maryland, and Pennsylvania client bases continue to grow.

Bates

Harris

In June, to serve the growing client base in the North Carolina Region, SŌLitude Lake Management welcomed Brad Harris, Forestry Biologist, who will act as the Regional Manager for North Carolina. Brad was educated at Paul Smith's College in the Adirondacks, New York and NC State University where he studied Forestry Management. After college, Brad pursued a career in the landscape industry where he began as a laborer and worked his way to managing a multi-million dollar landscape maintenance division. He became stormwater BMP certified in 2008, which sparked his interest in water quality. Brad embraces the significance of working with property owners and managers to help protect, restore and maintain watersheds, BMP's, ponds and lakes. His work ethic and philosophy will be an asset to the SŌLitude staff.

To add to Brad's welcome, we celebrated the opening of our new Raleigh, North Carolina office. With an ever-growing presence and client base in the North Carolina market, we found it necessary to expand our business to include an operation center in Central North Carolina. This will enable us to better serve clients in the region as well as in neighboring parts of Virginia. ■

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"Pond"er These Thoughts

SōLitude Lake Management® wants you to be prepared for the summer season. With this is mind, we recommend you consider the following tips as you enjoy the warm summer months on your lake or pond:

- Warm summer weather seems to bring out the best and the worst in ponds. Although algae and aquatic weeds seem to be more abundant at this time of year, a year-round maintenance plan is the best way to ensure a healthy pond all year long.
- Summer is the perfect time to think about aeration. The warmer water temperatures can cause changes to the health of your pond. Increase the oxygen and keep the aquatic life happy with a new aeration system.
- Mosquitoes can ruin summer fun. Think about stocking your pond with minnows or other fish that help to control the mosquito population. This, along with larvicides and proper aeration, can eliminate a potentially big problem.
- Living on a lake brings responsibility. Remember to respect the natural buffer around the lake and never mow all the way to the water. Also, be sure to keep clippings and other debris out of the water as this adds nutrients and spurs algae growth.
- Summer months = Good Fishing! Make sure you maintain your fish habitat with good water quality and cover. Consult our experts if you have questions about proper maintenance of your fishery.

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