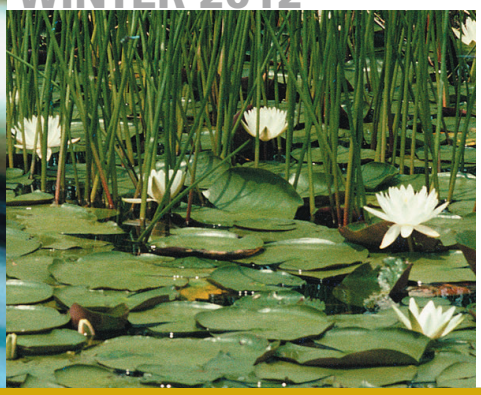
WINTER 2012

AquaticsinBrief



Volume 6, Issue 1

Inside:

SŌLITUDE LAKE MANAGEMENT

A Full Service Lake and Pond Management Company

Buffer Zone Functions and Benefits

By **David Ellison, Aquatic Biologist**

Stormwater maintenance will typically include recommendations about buffer management and what is needed for the buffer around the pond. Often pond owners and those who live around a pond or lake will know that a buffer is good for the pond, but not the dynamics as to how a buffer benefits in the filtration of water, nutrient reduction, erosion control, goose control, and mosquito control.

When rain water drains through parking lots, streets and then grassy areas, the water will have accumulated a significant amount of nutrients that will lead to algae blooms. Without a buffer the water will continue to flow across the grass unimpeded and nutrients will only be filtered by the grass before it reaches the pond. Established tall grasses will do the most effective job of filtering nutrients because they have a strong root system and can sequester nutrients quickly. Studies have shown that buffers will be most effective at removing nutrients beginning at three meters wide and even wider buffers will do a better job at filtering nutrients. Although a short manicured buffer may look aesthetically appealing, the cultural practice that is healthy for ponds and lakes is to allow the native grasses to grow and remove the non-beneficial species that will reduce the

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Buffer zones are often an overlooked aspect of the aquatic habitat and the function of the buffer is significant to the overall health of the pond.

Mind the Frogs

By **Gavin Ferris, Ecologist**

"What happened to all the frogs?" is a question I have been asked frequently this year. It seemed like everywhere there were fewer frogs than usual to be seen and heard in ponds that are usually swarming with amphibian life. It's a good question, and one that I am glad to have been asked. All over the world, frog, toad, and salamander populations have been on the decline. They are threatened by increasing UV radiation due to ozone depletion, habitat losses, introduced diseases, environmental pollutants, and a nasty invasive fungus that kills amphibian eggs. Most amphibians require both an aquatic habitat in which to breed and terrestrial habitat for at least part of their adult life, thus doubling the chances that at least one of their habitats may be lost or degraded. Amphibians also have a highly permeable skin, through which they do most of their breathing. While this thin skin is great for living partially in the water and partially on land, it is also very susceptible to pollution, radiation, and drying out. When Kermit sang, "It's not easy being green," he wasn't kidding!

Fortunately, the conspicuous lack of frogs you may have noticed this year is likely not due to one of the many major problems faced by the global amphibian population. Quite simply, 2011 was a rough year to be a frog in the Mid Atlantic region. Much of the area experienced a hot dry summer. Droughts mean lower water levels, and fewer breeding areas for amphibians. Fewer breeding habitats mean fewer new frogs. It also means more frogs will try to travel from one water source to another, hoping to escape the dropping water levels. Travelling across land is dangerous, and many frogs dry out in the sun, are eaten by predators, flattened by cars or wind up on the losing side of a fight with the lawnmower. Even in the relative safety of a pond or lake, a dry year is no picnic. The water may have dropped lower than usual, and left a wide bare area between the safety of the water and shoreline vegetation. Frogs that get spotted crossing this no-frog's-land are easy pickings for herons, egrets, and other predators. Because fewer frogs are born and more adult frogs meet untimely ends, dry summers like the one we experienced this year are always tough on amphibians.

There is good news, though, both for the local populations suffering from a short-term setback and for global populations struggling against more serious problems. When a female frog lays eggs, she does so with gusto, sometimes laying hundreds or even thousands of eggs at a time! The odds of any individual egg surviving to adulthood are low, and most offspring do not make it, but when conditions are good, a low amphibian population can rebound very quickly due to the high number of potential new recruits. So, if the weather is a little wetter next year, and if we start being nicer to our amphibian neighbors all over the world, they'll do their part and repopulate the available habitats in short order. To help frogs in your neck of the woods, the best things you can do are keep the pond clean and healthy through regular maintenance, encourage native vegetation in wetland and shoreline areas, and watch where you step when frogs are out and about. ■

How Did That Weed Get in My Pond?

By **Dustin Kennedy, Aquatic Biologist**

In the lake management business we are always asked "where does this weed come from?" There are several answers to this question. Humans can contribute to the spread of aquatic weeds by transferring them on boats, boots, waders, and fishing equipment. It is very important to wash these items after being in the water. Weeds can stick to them and then they are washed off when put into another water body. Waterfowl and reptiles also help in the movement of aquatic weeds. As they move from one location to another location, they transfer the weeds that may be stuck to them. If the right conditions are present, weeds will flourish in their new home.

Also one water body can cause another water body to become infested. If a water body upstream (rivers, creek, stream, ponds/lakes) is infested with aquatic weeds it can flow down stream and infest a new water body.

These are just a couple of answers to the question but surely there are many unique and natural situations that can cause aquatic weeds to appear in your pond. If your water body is infested with an unwanted aquatic weed, proper pond management is always the only answer. ■

NPDES is Here *By* **Shannon Junior, Aquatic Ecologist**

After many years of judicial and legislative battling, the NPDES permit for aquatic pesticide applications has been finalized and went into effect on October 31, 2011. If you are a recipient of this newsletter, then there is a high probability that this new permit will directly affect you and your pond. NPDES stands for National Pollutant Discharge Elimination System, and it is the primary federal legislation that regulates point source pollution to the waters of the U.S. Although aquatic pesticide applications were previously exempt from this permitting requirement, recent judicial reinterpretation of the law has mandated that the residues resulting from these applications should be regulated within the same framework as other water pollutants. So basically, if you own or manage a property with a pond, then you will be responsible for making sure that all pesticide applications related to the pond meet the requirements of the new permit. Some of the activities that will be regulated under this permit include algae and weed treatments in the water, shoreline vegetation control, and mosquito control. And the most important part of this new law is that as a decision maker or financier for the applications, you are just as liable for permit compliance as the applicator.

Although NPDES is a Federal permit, the legislation is implemented by the individual states in most cases, so the permit requirements are not the same in every state. At SŌLitude Lake Management®*, we are licensed to apply pesticides in eight states, and are very familiar and up to date with all of the necessary regulatory compliance required in all of these jurisdictions, ensuring that all of our clients will be properly covered. In general, the permit requirements are geared to minimize the overall amount of pesticides applied to the water, to reduce the number of adverse incidents related to pesticide applications, and to ensure that violators are held accountable for their actions.

Since the decision maker/financier and the applicator are "co-permittees" (defined in the permit as "operators"), the conditions of compliance may be the responsibility of one party, but are the liability of both. For instance, the decision maker/financier will need to demonstrate that Integrated Pest Management (IPM) strategies have been considered prior to the decision to apply pesticides. This may include non-chemical control methods such as aeration, beneficial bacteria, and triploid grass carp. Other permit requirements, such as the identification of target vegetation and the proper calibration of the application equipment would be controlled by the applicator. Permit compliance information will need to be maintained for each site, in addition to detailed documentation of each pesticide application. For operators exceeding certain applications thresholds (limits vary by state), a Pesticide Discharge Management Plan (PDMP) will need to be prepared and continually updated, which will outline the specific procedures utilized by that operator to control and minimize the amount of pollutants discharged into state waters. Some states will also require that all operators exceeding the thresholds will submit a Notice of Intent (NOI) prior to any treatments, with a permit fee to be paid at the time of submittal.

So exactly what is your responsibility as the pond owner or manager? Because the permit requirements vary by state and are based on site-specific conditions, there is no standard answer to this question. However, you will need to be familiar with the specific pesticide regulations for your state and work with a qualified aquatic pesticide applicator to develop a compliance program for your pond or lake. It is important to ensure that all aquatic pesticide applications to your pond or lake are completed by knowledgeable and experienced applicators that are aware of and compliant with the new regulations. SŌLitude Lake Management utilizes a specialized lake management software program to manage our application data, and many facets of permit compliance are already part of our daily operations. We will work with our clients and our industry partners to ensure that all of our operations are compliant with these new permit requirements, and can provide consulting services for any operator in the development of a NPDES Pesticide General Permit compliance program.

Unfortunately, as we move forward and the full extent of these new regulations are realized, you could be faced with some additional permit compliance fees or other associated costs related to the required filings and compliance work resulting from the Federal NPDES permitting. We will keep all of our clients abreast of the changes as they occur. ■

For information on the specific regulations for each state, please visit http://cfpub.epa.gov/npdes/contacts.cfm?program_id=410&type=STATE

Buffer Zone Functions and Benefits *Continued from cover*

ability of the grasses to filter the nutrients.

Maintaining a healthy stand of plants within the buffer will also allow for the root system to become well established and lower the risk of erosion. Routinely cutting the buffer zone, scalping the turf along the pond banks and allowing trees to grow in the buffer can all lead to erosion and additional nutrient loading. This will lead to the addition of sediment, increased algae, and the shallowing of the pond over time.

Geese can also be a nuisance problem around ponds, often establishing nests and remaining for many years. One of the most effective practices to reduce or eliminate geese is to maintain a healthy, dense, tall buffer. Geese will often go to another body of water rather than deal with the difficulty of accessing a pond or lake that has an established buffer that does not allow a line of sight to the body of water. Buffers will also provide habitat for numerous non threatening species and mosquito-consuming predators.

Having a healthy, beautiful pond in your community will give families a place to fish and increase home values. Buffer zones are often an overlooked aspect of the aquatic habitat and the function of the buffer is significant to the overall health of the pond. Establishing buffer zones is a simple practice that will provide great results for the health of the water body. ■

Our SŌLs

David Beasley
Fisheries Biologist

David Beasley is an integral part of what makes SŌLitude Lake Management a "one stop shop" for everything needed in lake and pond management. David heads the Fisheries Division of the company. While maintaining a base in SŌLitude's Fredericksburg, Virginia office, David travels with the Fisheries Division throughout the company's service area and nationwide when the need arises. Being a highly respected expert in his field definitely puts David in demand. Word is out that SŌLitude is the place to call if you want to create and maintain a trophy fishery, and it is due in large part to the professionalism and experience of David Beasley.

David graduated from the State University of New York in Cobleskill with a BS in Fisheries and Aquaculture. For nearly five years following graduation, David worked as a fisheries manager at the private fish and game preserve "Savannah Dhu" in upstate New York. The property consists of 450 acres of water, broken down into 4 lakes, 60 ponds and an indoor culturing facility. From the start David worked very close with Bob Lusk "The Pond Boss" learning to manage ponds, culture fish and make good decisions. David has first hand experience raising and managing 24 species of fish including warm, cool and cold water species. David's work experience included growing, transporting and stocking both forage and predator fish, improving fish habitat and manipulating fish populations to improve fishing. Through these experiences David learned how to create and maintain balanced fisheries, trophy fisheries and how to manage both ponds and indoor facilities for aquaculture purposes. He also guided hundreds of fishing outings on these bodies of water, seeing first hand the results of good fisheries management, aiding in his overall understanding of fish behavior and fisheries management.

David is a licensed aquatic pesticide applicator in Virginia, North Carolina, West Virginia, Delaware, Maryland, Pennsylvania, New Jersey and New York. He is a SePRO preferred applicator and is experienced with all types of fountains and aeration systems. So, not only can David balance and maintain a fishery, but he can maintain every aspect of a pond.

A born leader, David is ambitious and determined. He is a hard worker who is respected by his colleagues for his knowledge and his initiative. David's intellect and organization skills afford him the ability to participate in many aspects of the SŌLitude Lake Management team in addition to his Fisheries duties. David assists in managing the field operations for the Northern Virginia, Maryland and Western Pennsylvania Regions. He is a strong member of the sales team and regularly participates in marketing.

David is one of SŌLitude's many newlyweds. He and his beautiful wife, Sara, live in Northern Virginia. He enjoys taking part in many outdoor activities, including his two favorite: whitetail archery and ice fishing. David enjoys all types of hunting, fishing, camping, water sports and just relaxing in the outdoors. ■

In each issue, staff members from SLM will be highlighted. It is our pleasure to introduce the incredibly talented members of our staff and give you insight into the vast array of knowledge and experience they offer.

Greg Blackham

Aquatic Specialist

Greg Blackham is an Aquatic Specialist with SŌLitude Lake Management, but his title hardly describes the contribution Greg makes to the team. He has a warm smile and a willful sincerity that can charm immediately. Combine these with a "can-do" attitude and natural skills and abilities and you have a team member who can whip through his lake and pond management work, author a newsletter article, train new team members, and meet with clients to help educate them about their ponds.

Greg Blackham is tenacious by nature which feeds his constant thirst for knowledge. In addition to attending educational opportunities provided by industry professionals, Greg will often do research on his own time if he comes across an issue that is extraordinary. He rarely lets anything "stump" him. This makes him a client favorite and his ability to then communicate his findings and experiences with the clients only endears him more.

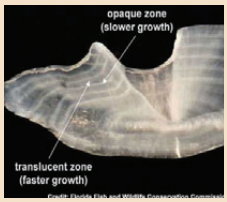
Greg is a well-rounded lake and pond manager. He is a licensed Aquatic Pesticide Applicator in Virginia, West Virginia, Maryland, New Jersey, Delaware, North Carolina and Pennsylvania. Each year Greg is part of the Company's on going technical training, maintaining his status as a preferred applicator. Greg is also a fountain and aerator factory trained service technician.

Greg grew up in California and moved to Virginia after his active duty service in the Army. Before finding his way to SŌLitude Lake Management, Greg worked in commercial construction and landscaping. It is his landscaping and horticulture experience which has proven to be a very valuable part of his work with SŌLitude Lake Management. Greg began his career working from the Newport News, Virginia office and transferred to our Delaware office as the lead technician.

It is hard to believe that Greg actually has spare time, but with such a beautiful family, he wouldn't have it any other way. So, when you aren't finding Greg on the water, you can find him spending his time with his lovely wife and two adorable daughters. ■

The Benefits of Electro-Fishing

By **David Beasley, Fisheries Biologist**



Electro-fishing……Sounds hard on the fish doesn't it? Surprisingly most fish species find the process to be simple with minimal stress. The process requires a power source which is usually a generator. That power is regulated to keep power levels minimal rather than just putting as much electricity into the water as possible. Generators produce Alternating Current (AC) power which is transformed into Direct Current (DC) power is because DC is easier on the fish.

It is important to point out that many parts of the electro-fishing process have been developed to make the process safe for the fish. Once fish enter the field of electricity produced by the boat they are temporarily stunned and collected using a net. This controlled location where electricity is stunning fish is in front of the boat in an area usually 8-10 feet wide by 8-10 feet long and around 6 feet deep. Once the fish have been netted they are then placed in a live well on the boat where they await data collection. Data collection usually consists of recording the species, length and weight of each fish captured. Once the needed data is collected the fish are released back into the water.

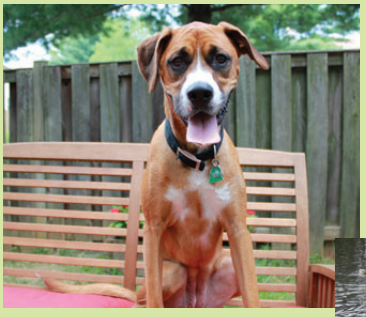
Depending on the goals of the study the fish can be aged as well. Aging fish is nearly identical to aging a tree. Like a tree fish are always producing layers of growth. The two primary ways to age fish are to use either scales from the fish or removing the otolith (inner ear bone). During times of slow growth such as winter these layers of growth are closer together forming a dark line. In the summer when fish are growing more quickly these layers of growth spread out resulting in a lighter area. This allows biologists to determine how many winters and summers a fish has lived. The most amazing part of this is that you can actually determine how many inches the fish grew each year of its life using some basic math. This fish growth knowledge can be very important to understanding the water bodies history and current condition.

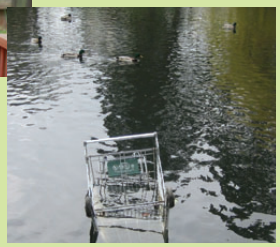
Management implications that result from the electro-fishing process are tailored to the goals of the client. One benefit to electro-fishing aside from collecting fish data is having a biologist examine the water body to understand why it is in its current state. Knowing that the fish population is out of balance is one thing, but understanding how to fix the problem and make necessary improvements to keep the fishery from reverting back to its old ways is equally important. The frequency in which a water body has an electro-fishing study completed is directly related to the goals of the water body. Those who want a balanced, healthy fishery should consider a 3-5 year rotation between studies whereas those who want a trophy fishery or want to make big improvements in a relatively short period of time will require electro-fishing every year if possible. ■

Object Permanence

By **Ethan Chappell, Aquatic Specialist**

My dog Martha has a fantastic sense of object permanence. Half golden retriever, she has always been a natural when it comes to fetch. She has an intense desire to bring me things all the time. I cannot sit in my home without being given a toy and pressured to throw it. Martha is keenly aware of the location of "ball" at all times. If for any reason there is a loss of contact with "ball" an immediate man down drill is performed. If we close her in a room at night she will continue the search in the morning as soon as she can get there. She will find it. She will not forget. I wonder about our own sense of object permanence. I see issues on ponds all the time that suggest that we are not as dogged in our approach to nutrient management.





Summer sun and warm weather bring algae and plant growth to ponds that are dormant in the winter months. That growth is also fueled by nutrients that are introduced year round. Leaves and woody debris from rain, wind and snow storms all end up in our storm water systems and then in our ponds. Although nutrients may enter the system naturally, humans tend to add their own "special sauce" to the mix.

Lawn clippings and pruning debris should never be dumped in a storm water pond or drainage area. Christmas trees, dead house plants, bicycles, scooters, bird feeders, skate boards and shopping carts are also not approved for pond consumption. While most of these items break down and cause algae blooms and extreme plant growth, the rest serve to fill up the pond. This defeats the purpose which is, of course, to hold water not shopping carts.

A quick fix is not without its charms; however, consider taking the extra step with regard to your pond. The depths might be out of sight, but keep them in mind. Avoid sweeping problems under the rug in the winter and suffer fewer problems in the summer months. When it comes to the health of your pond, remember: object permanence. Otherwise, we may have to run a man down drill for those missing lawn clippings. ■

Lake Intervention!

By **Greg Blackham, Aquatic Specialist**

Lakes and ponds have existed for millions of years, and up until recent civilization, took care of themselves. If a lake is left to its own devices, it will correct itself. Both of these statements are true, but what is the definition of "correct"? Mother Nature's plan for a lake may have it as a wetland or swamp down the road, we don't know. In fact, a large portion of the time Mother Nature, like people, deals with problems in a reactive as opposed to proactive way. Nature's plan doesn't automatically account for the 150 unit community scheduled to be developed in the watershed next year. No one informed the lake that it was going to be used for fishing, swimming, drinking, and "by the way" filtration for hundreds of man-made pollutants, including 10 times the amount of available nutrients

it was accustomed to before people inhabited and industrialized the surrounding area. Will Mother Nature still attempt to correct the lake? Yes!

It will begin by trying to consume all the contamination with its strongest competitors, which ultimately are toxic blue-green algae and relentless invasive plants that can flourish in a myriad of conditions. These workers will continue to block out sunlight and accumulate mass, causing the water volume to shrink until the lake is shallow enough to usher in a new wave of remedial aggressors. The diverse plant, fish, and wildlife cultures that once inhabited the lake will have to find a new home or perish. The pristine beauty that once described the lake will have a new meaning, which may not fit into everyone's perception of beauty. Utility will also be drastically altered. By evolutionary standards, this process will be rapid. What may have taken thousands of years to possibly occur could happen in less than a hundred years!

No matter what pond or lake we look at, this process has already begun to accelerate. Even bodies of water isolated from watershed changes and pollution are affected by atmospheric pollution. Since we have to deal with this truth, the time for intervention is now. There are many ways we can slow down this process and in some cases halt some of the variables contributing to the eventual end of a lake. There are nutrient mitigation technologies available as well as cultural practices to stop overloading. There are professional solutions that stop large masses of invasive weeds and algae from choking out the native balance. Numerous oxygen enhancing and aerating devices are available that can stimulate aerobic bacteria to help break down pollutants while providing dissolved oxygen critical for aquatic life. All of this shouldn't have to rest on Mother Nature's shoulders! After all, almost all harmful changes, (and some positive) can be attributed back to man – not nature. ■

Check Us Out…

SŌLitude 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.

February 7
Hampton Roads Product Show and Seminars, CSI-Tidewater Chapter, Holiday Inn, Newtown, Greenwich Road, Virginia Beach, VA
(*Kevin Tucker, guest speaker.*)

February 21
VTC's Turf Grass and Virginia's Waters, Virginia Beach Convention Center, Virginia Beach, VA
(*Kevin Tucker, guest speaker.*)

February 23
Central Virginia Chapter of Community Associations Institute Annual CA Day and Trade Show, Richmond, VA

March 3
Southeastern Virginia Chapter of Community Associations Institute's Annual CA Day Trade Show and Education Expo, Virginia Beach, VA

March 4-6
Virginia Water Conference (Virginia Lakes and Watersheds Association), Richmond, VA

March 31
Washington Metro Chapter of Community Associations Institute's 2011 Conference and Expo, Washington, DC

April 19
Pennsylvania/Delaware Valley Chapter of CAI's Annual Conference and Trade Show, Citizens Bank Park, Philadelphia, PA

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AquaticsinBrief WINTER 2012 | Volume 6, Issue 1

"Pond"er These Thoughts

SŌLitude Lake Management® wants to be certain that your pond is prepared for 2012. With this is mind, we recommend that you consider the following during the winter months:

- Consider installing a Sonic Solutions algae control device prior to spring to help prevent the onset of algae blooms as the weather warms
- Evaluate your pond and determine if you need to add aeration to meet your management goals and objectives for 2012
- If you have not been maintaining the vegetative buffer along the shoreline and the sloped areas adjacent to your pond, schedule thinning of the vegetation in these areas
- Schedule annual maintenance service for your fountains and aeration systems
- Implement an annual maintenance program for your lake or pond
- Think ahead to Spring and pesky mosquitoes! Keep them at bay by scheduling a minnow stocking for your pond
- Failure of your stormwater pond is never an option. Schedule a structural inspection to ensure your pond is functioning properly

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