



# Aquatics **in** Brief

Volume 6, Issue 4

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*Bufflehead*

## Fall and Spring Pond Visitors

By **Gavin Ferris, Ecologist**

I confess, as much as I love spending time in nature and learning about plants, animals, and insects, I have never been a "birder." I do, however, have the opportunity to see and enjoy many birds in and around the ponds and lakes in my care. In addition to the sparrows and Red-winged Blackbirds that make use of shoreline and wetland habitat, and the Mallards and Canada geese that can almost always be found on most ponds, we are treated every fall and spring to the special delight of visiting waterfowl that we do not get to see the rest of the year.

Many of these species are not going to be as approachable as the Mallards and geese that normally live among us and are used to being near people. These birds are long-distance migrants, and the ponds and lakes in our neighborhoods are usually just a place to stop, sleep, and eat before continuing a long journey. Some of these birds are from the far northern reaches of Canada, where they spend their summer raising their young,



*Hooded Merganser*

**A suburban pond in the Mid-Atlantic is to a migrating duck the equivalent of a Holiday Inn on I-95 to a weary business traveler.**

and are headed to the large swamps and wetlands in the southern US, or even the Gulf of Mexico. A suburban pond in the Mid-Atlantic is to a migrating duck the equivalent of a Holiday Inn on I-95 to a weary business traveler. They would not consider it a good place to put down roots, but your pond is *Continued on page 3*



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## Winterizing Your Pond By John Phelps, Environmental Scientist

**W**inter weather can wreak havoc on the spring and summer beauty and function of a lake, pond, or water feature. In fact, proper winterizing procedures are one of the best things you can do for a clear and healthy lake or pond next season. Much like the well-known parable of how the busy ant and the idle grasshopper fared through winter, a few key preparatory measures will provide a balanced aquatic ecosystem where fish and plants can survive the winter and be kept in top condition for the following season. Keep in mind that winterizing techniques are highly variable depending on geographic location, volume, depth, and source of water among other factors. Your lake or pond professional should have all information needed in your area to treat your lake or pond appropriately. The majority of techniques described in this article apply to lakes or ponds.



### When to Start Winterizing

You can start your winterizing processes when the water temperature begins to approach 60 degrees. This could be late fall to early winter. However, before the water's temperature dips below 60, you will want to clear up any visible remaining algae or weeds. For less regrowth in the spring, try to eliminate aquatic nuisances in the fall by removing organic debris, aerating, managing weeds, and performing routine maintenance.

### Manage Organic Debris

Organic debris develops during the fall and winter and its decay helps to load the system with excess nutrients and depletes the water of oxygen which causes algae, aquatic weeds, fish kills and odors. Leaves, sticks and any other floating or submerged organic material should be removed. Make sure your homeowners and landscapers never blow leaves or grass clippings into the water or the storm drains, gutters, and ditches that lead to the lake or pond.

### Aerate To Increase Oxygen and Water Flow

There are several reasons for winter pond aeration: to increase oxygen levels to prevent winter fish kills, to keep areas of water open for winter waterfowl and other wildlife, and to prevent freezing. Most importantly, aeration will help to remediate the accumulation of organic matter and fertilizer runoff that does ultimately flow into the lake or pond before it becomes fuel for algae growth the following spring. A fountain or water feature can serve to aerate. If you do not desire a visual water feature, it is recommended to add a submersed air diffused aerator.

### Manage Aquatic Weeds

Your lake or pond service provider should have an Integrated Pest Management (IPM) plan for your lake which includes using aquatic herbicides for aquatic weed control. One simple

improvement that can be made to many lake or pond management programs to help reduce the dependence on aquatic herbicides for control of nuisance and invasive aquatic weeds is the introduction of sterile grass carp. Fall is a great time to consider stocking these fish to help manage this unwanted growth in the coming season. Utilizing grass carp in combination with sustainable herbicide application techniques makes for an ideal

management strategy.

### Perform Surveys and Maintenance

Early winter, before the frigid weather comes, is a wonderful time to evaluate problems from the previous year, devise a mitigation plan for the upcoming year, and make improvements to your lake or pond that will pay huge dividends next spring.

There are two diagnostic tools that are recommended in the winter: pond survey and bathymetric survey. An inexpensive pond survey is performed using GPS technology to identify erosion problems along banks or damage from nuisance wildlife, inspect structural components and identify areas of the basin with major sediment accumulation. A more in-depth look at your lake or pond would include a bathymetric survey, where the surface area of the pond is mapped and the bottom depths are sampled and plotted on a map. This type of survey will disclose the overall volume of the pond and, when compared to previous surveys or as-built drawings of the pond, will determine the sedimentation rate over time. Once the sedimentation rate is calculated, you can forecast when a lake or pond might need dredging.

Surveying the structures around your lake or pond for damage or wear is a good thing to do as part of your annual maintenance. Making repairs to docks, piers, bulk heads, weir walls and discharge pipes can sometimes be done more easily during the early winter months, especially if the body of water has experienced a recent water-level drawdown.

### Budget and Plan

Once armed with information on the structure of your pond or lake, combining that with sound maintenance and evaluation strategies and careful inspection and planning, you can prevent or mitigate the need for costly repairs at a later date. Ultimately, if areas of concern are identified, a lake and pond owner can make the appropriations in their budgets before the problem gets out of hand.

Lake and pond winterizing is a very important part of your role as a steward to an aquatic resource in your backyard or community. If you customize the procedures discussed above to fit your specific situation, you will find that your spring maintenance will be significantly reduced, giving you more time to enjoy the awakening aquatic life. ■

# Is Your Pond Susceptible to a Fish Kill?

By **David Beasley, Fisheries Biologist**

**M**ost ponds fit within one of two categories, “balanced” or “unbalanced.” Ponds that are unbalanced are often plagued with significant algae and vegetation growth. Looking back at our years of pond management, we have witnessed how some individual water bodies respond poorly to the extreme heat that is common in the summer.

Ponds that are classified as “unbalanced” are at high risk of a fish kill on an annual basis. Low Dissolved Oxygen (DO) levels are often responsible for killing fish, but the low oxygen levels are simply a symptom of the real problem which is excess nutrients, such as Phosphorus and Nitrogen, and high water temperatures. Until unstable ponds strike a balance with their nutrient load, they will continue to experience undesired plant and algae growth and face the risk of a fish kill.

Even when professionally managed, ponds can suffer from an unbalanced fate. Pond management must include more than just weed and algae treatments if it is to be truly successful. We observe a few ponds every year that experience fish kills. Each of these ponds falls within the category of being unbalanced.

Plants and algae require proper temperature, nutrients and sunlight to grow. As favorable weather conditions allow plant matter to thrive, unbalanced ponds increasingly become more and more unstable. In addition to this, the need for oxygen in ponds is highest when water temperatures reach the 80’s. During these warm temperatures, water’s ability to hold oxygen is at its lowest. These two factors team together to reduce the stability of the pond’s oxygen supply, making the scenario of a fish kill more probable in the summer months.

If a pond is continually in need of management to keep algae and vegetation at an acceptable level, it is naturally unbalanced and is susceptible to fish kills. Many algae species can grow very rapidly under the correct conditions and as a result the biomass of algae can rapidly shift to a very dense population. Unbalanced ponds often require frequent algae and vegetation treatments.

Even with treatments every couple weeks, unbalanced ponds can have algae densities reach the point where a fish kill is probable. This high risk of a fish kill is likely to recur over the years unless steps are taken by the property owner to break this cycle.

Nuisance vegetation and algae growth are a symptom of the problem, not the problem. Nutrients are the problem. For water bodies that have difficulty maintaining balance, it is critical that other steps are taken to manage the nutrient load other than just treating undesired plant and algae growth. Simply treating the growth is only putting a band-aid on the actual issue. It is important to find ways to remediate the existing nutrient load in the water while preventing future nutrient accumulations.

Many tools are available to help reduce nutrients. One of the most overlooked ways to reduce nutrients is allowing beneficial vegetation to grow around the edges and other shallow areas of the pond. This vegetation can be aesthetically pleasing, with a variety of colorful flowers, leaving few reasons why pond owners would not desire these beneficial plants. The vegetation will help filter the water of nutrients as well as displace algae in shallow water that would otherwise be an ideal environment for excessive algae growth.

Aeration is probably the single best tool to help balance a pond. The natural processes that occur in well-aerated waters help to reduce the nutrient load on the pond and deliver adequate dissolved oxygen to the ponds during times of natural stress.

There are also products that can be applied to ponds to bind up all available Phosphorus, making it permanently unavailable, and thus greatly reducing the negative impact this nutrient would otherwise have on the pond.

Lake and pond owners and managers whose water bodies experience excessive plant and algae growth should strongly consider the use of an integrated approach that utilizes many of these tools to aid in the overall pond management strategy. The results of your efforts will improve the aesthetics and the health of the pond, while providing your fish with a much less stressful life. ■



## Fall and Spring Pond Visitors

*Continued from front cover*

probably a good place for them to take a rest, find a bite to eat, and be back on their way.

Last year I kept track of all the waterfowl species I saw visiting the ponds in my care during the fall and spring migration seasons. I saw a good number of Hooded Mergansers, a small fish-eater with a large feathered crest on the male’s head, and a few Buffleheads, also a crested bird. A good field guide to North American birds will help you identify any visitors with which you are not familiar or that have similar characteristics. *The Sibley Guide to Birds* helped me learn the difference between these two crested waterfowl.

Other species to keep an eye out for during migration

include Ringnecks, Ringbills, Canvasbacks, Wood Ducks, and Pintails. Coot, Gallinules, and other rail species may also visit ponds during their travels. I even saw a Redhead Duck hanging out for quite some time in a neighborhood in Fenwick Island, Delaware last year. Keep an eye to the sky as well, as huge flocks of snow geese will be winging their way from the arctic. These flocks may have a thousand birds cruising in formation together. The annual migrations of waterfowl are a truly fascinating and impressive natural phenomenon; and, if you have even marginal duck habitat in your area, you are very likely to observe some small fraction of it. So keep your binoculars and field guide near the window, you never know who might stop in for a visit. ■

# New SÖL

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.



**Tracy King,**  
*Director of Marketing &  
Brand Management*

**T**racy will be primarily responsible for the marketing strategy and execution of the company's branding, internet marketing, advertising, public relations and community outreach initiatives.

Tracy has over 10 years of marketing experience. She holds a Masters of Business Administration from Old Dominion University in Norfolk, Virginia and a Bachelor of Arts from Moravian College in Bethlehem, Pennsylvania. Prior to joining the SÖLitude team she worked for a prominent Virginia-based media company in key roles as Advertising Production Manager, Marketing Director and Special Publications Manager and for a high-end printing firm in Norfolk, Virginia as the Director of Sales and Marketing. Most recently she held a marketing communications and sales support role for an international fleet management company in the Philadelphia area.

"Tracy's success and experience in managing marketing programs and special projects is the perfect fit for SÖLitude Lake Management," said Owner and President, Kevin Tucker. "Her dedicated focus on continuing to develop our message for environmental stewardship and proactive lake management will solidify our position as the market leader. We are extremely pleased to have her as part of the team." ■

## SÖLution Snaphots

Our staff has been spotted all up and down the east coast being "a part of the SÖLution." This past summer over 100 hours of volunteer work has been donated to our communities. Here are a few of our SLM "celebrity" sightings!



June 2012: Gavin Ferris spent a morning working with the Center for Inland Bays in Delaware and helped remove the 2,640 pounds of trash.



June 2012: Shannon Junior, Dave Beasley, Matt Phillips, and David Riedl, from the Fredericksburg office, spent a hot summer afternoon helping over 260 animals, including a few from the Madison County Animal Shelter, find homes.



May 2012: Working with the SPCA, Trina Duncan had some additional two-legged help from her niece and nephew at this K9 Karnival at Mount Trashmore in Virginia Beach.



August 2012: Our staff presented a check to the Wounded Warrior Project to support our vets and their families. We made the donation based upon the new support we garnered on Facebook. Thank you to all who helped us increase our donation!



*Volunteer of the Quarter:*  
Congratulations to Shannon Junior for being named our Volunteer of the Quarter for 2nd quarter, 2012. Shannon keeps very involved helping the Madison County Animal Shelter find homes for their rescues, train these animals for temperament and obedience issues, and generally give them the love that they deserve. Even with the many hours she donates each month, we chose her as the Volunteer of the Quarter for a different reason. Shannon's enthusiasm and desire to get others involved was contagious. Thank you for "being part of The SÖLution."

# Bye Bye Birdie

By **Jessica Mueller, Aquatic Specialist**

**W**hile you have been out enjoying your lake, you may have noticed large, magnificent white birds wading along the shoreline. You may have even heard their cry: “Cuk Cuk Cuk!” The Great Egret is a long-legged wader that can grow to about three feet tall and weigh approximately two pounds. You can tell them apart from other egrets and herons by their yellow bills and black legs.

An unfortunate fish, frog, or even a small snake who wanders too close to the Great Egret will become his next meal. These patient hunters will stand very still and wait for their dinner to come to them. When it does, the egret will spear his prey with his sharp bill and swallow it whole.

In the evening hours, after a day of hunting, the Great Egret will fly back to the nest. If you look up you will see they have a huge wing



span of 52 to 67 inches. It's hard to miss them flying overhead with wings that large. Their nests are constructed out of sticks and placed in trees that are close to wetlands and large lakes. It is interesting to note that Great Egrets are monogamous birds. Nests are often found in colonies of “paired” birds.

The beautiful Great Egret was once hunted, nearly to extinction, for its plumage. Their population was significantly reduced, but it has made a comeback due to their protection by law. The Great Egret serves as the symbol for the National Audubon Society, an organization founded to stop the hunting of birds for their feathers. Their journey back from near disappearance represents success for the organization in their conservation efforts.

Being a partially migratory bird, you will see Great Egrets flying overhead to “winter” in warmer climates. You can't really blame them. So, when you see them “flying South,” take a moment to wish them safe travels and look forward to their return next spring. ■



## Phragmites Control — A Restoration Plan

By **David Ellison, Aquatic Biologist**

**P**hragmites *australis* is an invasive species that we often find intruding into wetlands and marsh habitats that we manage or maintain. These plants have many different characteristics that allow for them to thrive and outcompete surrounding plants, often making control difficult. When addressing a phragmites problem the best approach is to look for long term control solutions due to the quick growth of the plants.



Phragmites will typically thrive in marsh habitats. They have very long rhizomes, sometimes extending outward from the base of the plant up to seventy feet, that will prevent other plants from establishing a root system. The plants have been documented to secrete an enzyme that will cause the surrounding plants to die. Phragmites also grow to significant heights and shade other species of plants. In a beneficial habitat for growth, these competitive characteristics will allow phragmites to grow to up to fifteen feet high.

Much of the new phragmites growth is from seed or the expanding rhizomes of the plants. One single phragmites plant has been documented to contain 500 to 2000 seeds per flower. These seeds are typically transported by wind and water. Previous seasons' seed banks also contribute to new phragmites growth and some research suggests that seeds can remain submerged or buried for almost one year before germination and new plant growth. Tidal cycles and flooding events can play a large role in seed transport, helping to spread the plant into new areas.

Control of phragmites is often necessary when found in most any wetland or marsh habitat, due to the plants potential to overtake the area. Treatment can be performed by applying herbicides followed by burning or cutting the stalks. The best time to treat the plants is at the end of the growth season (usually September to late October).

When managing phragmites, the best approach is to encourage the growth of native vegetation after successful control of the phragmites has been achieved. This approach is usually the most successful and often required with phragmites. Multi-year treatments are usually necessary due to the plant's aggressive nature, seed bank, and seed transport from nearby sources.

A management plan of approximately five years, depending on the site where phragmites have invaded, is a realistic starting point. When control of the phragmites begins to be obtained, the native species will start to grow back and the area will begin to look as it did before. Restoring a habitat after an invasive species has taken over will not occur immediately but will take continued action and a defined management plan to restore the site. ■

## Buffer Zone Scalping *By Greg Blackham, Aquatic Specialist*

This is a subject I have wanted to write about for some time. More and more as I drive past various communities I notice an unhealthy trend in the way that riparian buffer zones around ponds are being mowed. In some instances I get this slash-and-burn feeling, almost as if the purpose of the buffer is not understood, and its very existence is shunned and should be hidden. I have to remind myself that when most people move in to a community, the purpose of the pond buffers is not completely understood. Unless residents specifically ask about the purpose, it is presumed the buffer is an area of poorly managed weeds and chaos. In the extreme this might be the case, yet even a wild, jungle-like pond buffer is better for the pond than no pond buffer.

At SÖLitude Lake Management, we have written many newsletter articles on why riparian buffer zones are important, so I will just briefly refresh the subject. I am more interested in illustrating the beauty and bio-diversity that comes with a large, healthy, and verdant system, even if it only changes a handful of peoples' perceptions.

The buffer zone serves a multifold purpose. Erosion control may be arguably its primary benefit. A wide buffer can slow down and even stop sheet erosion depending on the severity. This is just surface water from a strong rain pushing soil, contaminates, and other particles downward in a wave. A tall buffer helps to combat rain impact erosion or "splash" erosion. This is simply the crater made in the soil when a rain drop hits the surface and loosens the soil that eventually joins the surface water heading towards the pond.

Big, thick buffers also block and trap trash and organic materials trying to make their way to the pond. Lawn care providers, both professional and "DIY," are notorious for sending leaves and grass clippings into a pond, even when they are being careful. Thick, tall buffers also help to deter geese. The taller the vegetation, the more hesitant a goose will be to approach the pond in fear of a predator lying in wait. The list of practical benefits goes on, from nitrogen and phosphorous mitigation through uptake from herbaceous plants, to overall bank stabilization.

When a buffer zone is repeatedly and systematically trimmed, it can rob the viewer of a beautiful arrangement of flowers. Most

plants have an amazing array of flowers, even if there was no initial planting design. The native herbs and shrubs never get to display this expression when the buffer is constantly trimmed. It is such a waste of uniqueness to see just a foot of green around a string of ponds, especially if mowed all the way to the ground. If I was a pond owner, I would want something to distinguish my pond from a swimming pool or a livestock watering hole. The monotony of the shoreline can be livened and highlighted with plants of varying heights and widths as the buffer creates a signature for the pond. The majority of ponds were created to handle and process storm water, but that does not mean they need to look like mini wastewater processing plants!

With plant bio-diversity comes wildlife diversity. This has to be the most exciting aspect in experiencing a lush, unique buffer zone. As the vegetation grows tall and free, it attracts exponentially more wildlife than a routinely mowed buffer. You begin to see all manner of insects, birds, frogs, reptiles, and mammals as they move into what looks like a comfortable replication of areas they prefer naturally. Sure you will still have wildlife with a short, neat buffer, but



**The monotony of the shoreline can be livened and highlighted with plants of varying heights and widths as the buffer creates a signature for the pond. The majority of ponds were created to handle and process storm water, but that does not mean they need to look like mini wastewater processing plants!**

it will be sparse and cookie-cutter in nature. A lot of waterfowl need different levels of plant cover to attract them and only a few species will visit a pond with no buffer. Plant seed diversity will bring all types of foraging wildlife as well.

Buffers should be tall, wide and impacted sparingly. This does not mean that they do not need management. Invasive plants need to be rooted out systematically to prevent them from

establishing a monoculture and/or overtaking the pond itself. Most people are familiar with phragmites and their aggressive tendencies. Other invasive plants should be dealt with using a similar low to no tolerance stance.

In a lot of storm water situations, tree saplings need to be discouraged as well, especially on or around dams. In less structurally sensitive areas, small trees and shrubs can be encouraged, but the main thing you want to avoid is having trees grow tall and falling into the pond, taking a chunk of the shoreline with it.

There are some situations where mowing/trimming should be done but this is on a case by case basis. If the vegetation is creating some type of hazard, undermining the integrity of the system, or impeding designed water flow areas, it may need to be trimmed or removed. Also, if the vegetation has grown so tall that you cannot see the pond anymore, you may want to give it a light trimming. Just remember



Example of Good Buffer



Example of No Buffer

that no matter how carefully you remove clippings, there will always be some portion of debris that will end up decomposing in the pond, so keep that in mind when considering how much to trim.

If your pond buffer consists of relatively unattractive vegetation, consult with your pond/lake management company and let them know what you would like to achieve. They can recommend many types of native plants that can make your pond look more pleasing.

I have stressed letting the buffer grow tall, but when the zone is only a couple of feet wide this can look very scraggly. An easy and inexpensive way to fix this is to increase the width. Tall herbs and grasses look a lot less raggedy in a 10' width than they do in a 2' width. This adjustment can also cut down on the turf that needs to be mowed and you may be able to get a discount on your landscaping management costs. (or your labor if you mow it yourself!)

If you have always maintained your buffer zone at a very short height, and have now decided to let it grow, give it time to show its appeal. At first you might be uncomfortable with the look as it appears to be getting out of control. Once you start to see it for the unique ecosystem that it is, you can begin to enjoy the amazing flowers and wildlife that begin to sculpt the pond in a brilliant expression of nature at work. The pond will become much more than just a stop for storm water on its way to the next destination and a greater overall peace will resonate in the community as a small area of preserve is brought back into this world of development, concrete, and manicured hardscapes. Let it flourish! ■

## Check Us Out...

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

### Oct 11 - 13

**Pond Boss V Conference & Expo** — Big Cedar Lodge, Branson, MO

### Oct 16

**Chesapeake Region Chapter of CAI's Annual Symposium & Expo "Controlled Chaos – Managing Meeting Mayhem"** — Martin's West, Baltimore, MD

### Oct 19

**North Carolina Chapter of CAI's Annual Conference** — Charlotte, NC

### Oct 27

**New Jersey Chapter of CAI's Annual Conference & Expo** — New Jersey Convention & Expo Center, Edison, NJ

### Nov 3

**Central Virginia Chapter of CAI's Annual Luncheon** — Fleming's Prime Steakhouse, Richmond, VA

### Nov 12 -14

**Carolinas Golf Course Superintendent Association Conference and Trade Show** — Myrtle Beach, SC

## Find Us On Facebook:



Want helpful pond tips all the time? "Like" us on Facebook (SOLitude Lake Management®) or read our Blog ([solitudelake-management.blogspot.com](http://solitudelake-management.blogspot.com)).



## Ponder These Thoughts

**S**ōlitude Lake Management® wants you to be prepared for the Autumn season and all of the wonderful cool weather it brings. With this in mind, we recommend you consider the following tips as you enjoy the fall months on your lake or pond:

- Fall is budget and planning season in most communities and households! Along with your contract for annual maintenance, be certain to contact our office about scheduling a Bathymetric Study and Inspection of your pond. This will allow for proper budgeting for future dredging and repair of any physical problems with your pond and its related structures.
- Fall is a good time to think about repairing and maintaining the areas around your pond. Be sure to trim the buffer zone and make certain that it is free of any woody vegetation. Repair any eroded areas around your pond before they become major issues. Erosion repair can easily be done in the fall months when you can oversee and apply an erosion blanket to allow for soil stabilization until the new seed germinates.
- If your pond has a fountain, fall is the perfect time to schedule an Oil and Seals service which should be performed every three years.
- While sprucing up lawns in the fall, it may be tempting to over-fertilize. However, it is best to limit the amount of fall fertilization in all communities with stormwater ponds. Excess fertilizer will run into ponds during rain events and lawn watering leading to nutrient build-up and eventual algae and vegetation issues.
- If you live on a lake, blowing leaves and other yard debris may end up in the water. Try to keep leaves, clippings and other debris out of the water as this adds nutrients which could lead to the growth of algae and other unwanted vegetation.
- For those who live in the colder climates, you may desire removal and winter storage for your fountain. If so, this should be completed by early December. ■



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