

AquaticsⁱⁿBrief

FALL 2016



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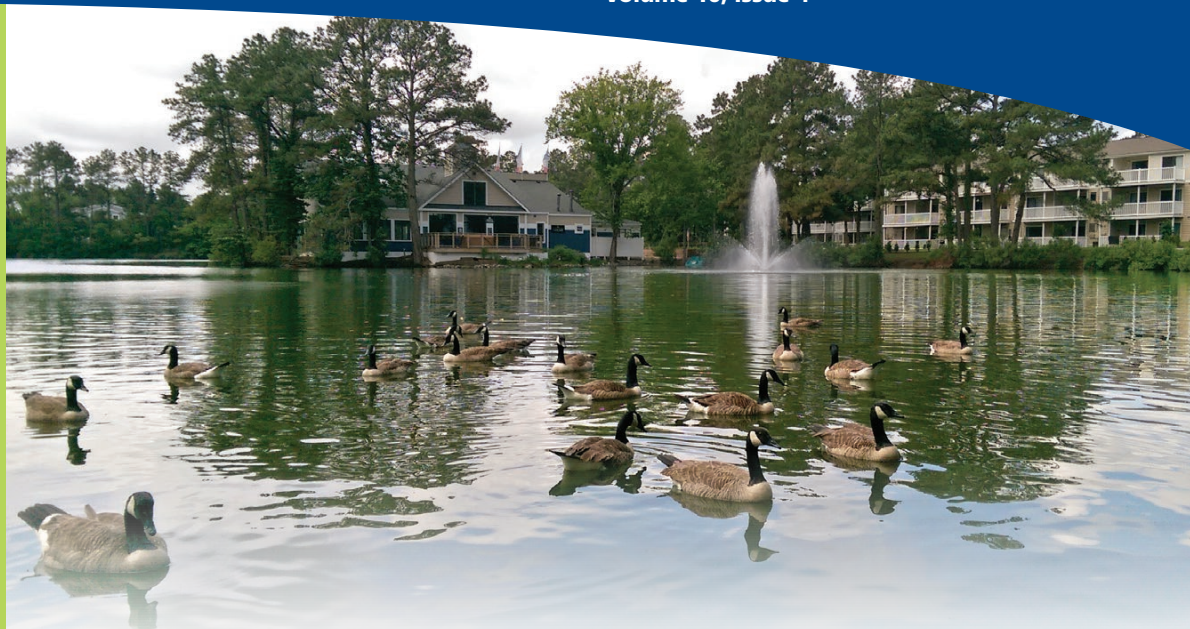
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Ponder These Thoughts



Don't Feed the Wildlife!

By **Gavin Ferris, Ecologist**

In March 2015, residents of South Hampton, New Hampshire found six dead deer on a suburban lot. Several biologists and a game warden then investigated the site and found six more. The deer had not been shot or killed by predators, nor had they starved or died of exposure. They had been fed to death. With their stomachs and digestive systems used to their winter diet of woody browse, a sudden bounty of corn from a well-meaning human can be a shock to the system, in this case resulting in fatal enterotoxemia.

This example is dramatic, perhaps even extreme, but it illustrates the potential consequences of feeding wildlife. Certainly, not every animal that gets fed by a human will inevitably suffer a gruesome and untimely death. All the same, it usually isn't good for the wildlife, it might not be good for the environment or its human inhabitants, and in the vicinity of a lake or pond it can be extremely



bad for the water. It is perfectly natural, even admirable, for people to want to help the wildlife that they share their surroundings with. Unfortunately, there are several major consequences to feeding wildlife that make anything more than a backyard bird feeder quite unhealthy for all involved.

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Don't Feed the Wildlife!

Continued from front cover

The foods we provide to wildlife are not the foods they are adapted to eat. Corn, bread and other grain-based foods are high in carbohydrates, which few natural foods are. Wildlife that eat these foods may become unhealthy as a result of taking in too many carbohydrates in a short time, or it may interfere with their ability to process the rest of their more natural diet. Some aquatic animals, such as turtles, may become reliant on food provided by humans. As a result, they may stop eating



The foods we provide to wildlife are not the foods they are adapted to eat.

aquatic plants and decaying matter, which can negatively affect the balance of the ecosystem.

The feeds provided by humans to wildlife also generally amount to junk food, and can cause excessive weight gain.

This is particularly true of waterfowl in areas where bread feeding is popular. In addition to the direct effect on their health, this weight gain can inhibit migration, and affect their long-term fitness.

Access to feeding sites also alters animal behavior. Animals that are typically dispersed over a wide area in order to find food will instead congregate near the food source. This increased population density makes disease transmission more likely. It also goes against the natural territoriality present in many species, and the inevitable altercations may result in injuries or even death. Higher densities of animals also equates to higher densities of those animals' parasites. In the case of deer this means ticks, including the deer ticks that transmit Lyme disease, and the dog ticks and lone star ticks that transmit a number of other pathogens.

The feeding of waterfowl in particular has an additional environmental impact, as the practice affects nutrient levels in lakes and ponds. Whether from bread that is missed by the ducks and geese being fed, or from their resulting droppings, feeding waterfowl can be a significant source of phosphorus. As an undergraduate I was involved in a study of Pymatuning Reservoir, a man-made lake located on the border of Pennsylvania and Ohio. We found that people feeding bread to the carp and waterfowl that congregate by the spillway was the largest single source of phosphorus going into the reservoir. Excess phosphorus is the leading cause of algae blooms and ultimately fish kills in freshwater ponds and lakes.

It is perfectly natural to want to help the wildlife that shares your environment, and I encourage you to do so. You can provide food for wildlife by planting native plants that support the food chain. You can provide habitat by leaving areas unmowed to provide cover, and by installing nest boxes and bat boxes. In short, the better your efforts to aid the wildlife in your community mimic the resources that animals would make use of under natural conditions, the more successful they will be. ■

Help Us Spread HOLIDAY Cheer

The holiday season is right around the corner, and in addition to providing Thanksgiving turkeys to local school children and their families in need, we are seeking nominations to help families who have fallen on hard times. Our annual HOLIDAY Cheer program allows us to help bring some much needed joy to deserving children and families who are suffering physically, financially and emotionally. We will be selecting families who are in dire need and our staff will be purchasing items from the children's wish lists to include winter



coats, warm clothes and shoes, dolls, sports gear, and new toys and games. Each family will also receive a Target gift card to allow them to purchase additional holiday presents and needed household items. As part of The SOLution, our community outreach program, SOLitude will also be donating a variety of games and toys to health stricken children who will be spending their holidays in the hospital.

To submit a nomination for a family you would like us to support this holiday season, or to make a contribution to support our HOLIDAY Cheer program, please contact Tracy Fleming, Director of Marketing, at info@solitudelake.com. Be sure to include the family's location, the ages and genders of the children under 18, as well as a brief description of why this family is deserving of much needed HOLIDAY Cheer. Nominations will be accepted through November 4th and all details and family names will be kept confidential.

Join the SOLitude staff in being part of The SOLution through our HOLIDAY Cheer program and other community outreach and volunteering efforts throughout the year! ■

Visit: www.solitudelakemanagement.com/solution

HOLIDAY Cheer

The Restoration of Cliff Pond, Brewster, MA

By **Dominic Meringolo, Senior Environmental Engineer and Territory Leader**

Cliff Pond, located in Brewster, Massachusetts, is one of the most popular destinations on Cape Cod for water recreation. It also serves as the highlight attraction of Nickerson State Park, a heavily used property which includes a large campground that is often booked solid each summer. Cliff Pond has a surface area of 207 acres and is the deepest pond on Cape Cod with a maximum water depth of about 88 feet. Unfortunately, in the past few years the waterbody has experienced frequent blue-green algae (cyanobacteria) blooms. Water quality issues have also resulted in a frequent loss of suitable cold-water habitat for what once was a very healthy and productive trout fishery.

Cliff Pond began having problems with nuisance algal blooms in the 1980s, and in the late '90s two dog deaths were attributed to algal toxin consumption. In recent years, following the establishment of state guidelines on Harmful Algae Blooms, advisories have been in place restricting use of the pond for contact recreation for most of the summer. Realizing the deteriorating condition of the pond and its impact on recreational use, the state of Massachusetts through its Department of Conservation and Recreation (MA DCR) contracted with SOLitude Lake Management for a comprehensive study in 2014 and 2015.

The results of the study, which was completed in conjunction with Dr. Ken Wagner of Water Resource Services, identified internal loading of phosphorus as the primary factor contributing to poor water quality conditions. Phosphorus is a vital nutrient required for algae growth and its concentration in the water dictates the types and amount of algae growing. Elevated concentrations of phosphorus, along with warmer summer temperatures, favor potentially toxic blue-green species of algae.

Based on the recommendations in the study, treatment with aluminum sulfate (alum) and sodium aluminate was chosen as the



most appropriate and cost effective approach to reduce phosphorus levels in Cliff Pond. Aluminum binds and inactivates phosphorus in the water and sediments, and similar treatments have proven very successful at a number of other lakes on Cape Cod and across the country. After securing funding for the project, MA DCR contracted with Water Resource Services and SOLitude Lake Management to conduct the treatment in the spring of 2016.

Following extensive pre-treatment sampling, the treatment process began with mobilization of equipment to the pond in mid-April. SOLitude's custom designed treatment vessel was utilized for this project. The vessel consists

Immediate improvements to the pond included an increase in water clarity from approximately 10 feet just prior to treatment to over 23 feet by the completion of treatment.

of 1,500 gallons of on-board product storage, delivery systems, spray boom, flow meters and GPS guidance. Over the course of nine days, approximately 65,000 gallons of aluminum sulfate and sodium aluminate were applied to 74 acres of the pond.

Immediate improvements to the pond included an increase in water clarity from approximately 10 feet just prior to treatment to over 23 feet by the completion of treatment. While this initial level of clarity

decreased to some degree, this summer's average water clarity was nearly three times better than that observed in recent years and preliminary water quality data indicate that both surface and deeper water phosphorus concentrations have been decreased significantly. Follow-up monitoring is planned through at least the summer of 2017, but all observations point to a very successful restoration project and, most importantly, the pond was open for enjoyment all summer long! ■

Strategies for Stocking Triploid Grass Carp while Protecting the Fishery

By **Paul Dorsett, Fisheries Biologist and Territory Leader**

At first glance, the idea of stocking triploid grass carp appears to be a win-win. Win number one is that grass carp offer a herbicide-free alternative to controlling nuisance aquatic vegetation. Win number two is that they are cost effective and offer long lasting results. But, how do you keep an aquatic weed problem from becoming a grass carp problem?

Stocking triploid grass carp in your lake or pond can be a beneficial strategy as part of your overall fisheries management plan. Overstocking can be a concern, particularly when predator species such as largemouth bass are your management goal. Although they are sterile and will not reproduce, overstocked grass carp can denude the entire waterbody of vegetation and increase turbidity in the form of suspended solids or harmful algae blooms while also disrupting the balance of the fishery. If not managed properly, stocking grass carp can be worse for your aquatic ecosystem than not stocking them at all. The best way to get the most benefit from triploid grass carp, while minimizing risk, is to work with a fisheries biologist to tailor a custom stocking rate based on the needs of the waterbody.

SOLitude's typical strategy for stocking grass carp is to stock a limited number in late winter or early spring, before weeds start growing, and to evaluate weed coverage the following summer. Then, we may add additional grass carp the following spring depending on the results. When budgeting for grass carp stocking, it is important to reserve funds for herbicide in order to spot treat problem areas during this period of finding the appropriate balance. Over time, the need to spot treat with herbicide may eventually shift to a need to harvest grass carp. This attempt for balance is like a swinging pendulum, where an excess of nuisance aquatic weeds and an excess of grass carp represent the ends of the swing. To achieve balance, the pendulum



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must reach its center point. This is not an easy task and our job as lake and pond managers is to keep the pendulum swing minimized—not allowing it to swing too far in either direction.

While stocking grass carp can be a balancing act, we have seen success. A client in Texas with a 1.2-acre private pond had a productive bass fishery that required annual treatment with herbicide to keep southern naiad (*Najas guadalupensis*) from covering over half of the pond. Following the winter of 2013, we added three triploid grass carp to the pond in an effort to control the southern naiad. The following spring, we observed little reduction in weed growth and herbicide treatment similar to previous years was required. Following the winter of 2014, we added two additional grass carp and observed a significant decline in weed coverage, which required only limited

herbicide use. After finally adding two more TGC this past winter, weed coverage was reduced to less than 5% of the total pond area. There are no plans to add additional grass carp this winter, and we are encouraging the client to harvest one or two of the original fish. Having multiple cohorts of limited numbers of grass carp in this pond has provided sustainable weed management while minimizing excess herbivory.

Keep in mind that many states require permits prior to stocking fish. And in some states, triploid grass carp are not legal. A qualified fisheries biologist can advise if grass carp are a fit and, if so, how they can be utilized as part of an effective fisheries management program. When stocked judiciously, grass carp are a cost effective, long lasting tool that lake and pond managers can use to maintain weeds while protecting the health of the fishery. ■

New SOLs

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

Vic DiCenzo, PhD
Fisheries Biologist
Charlottesville, Virginia

Vic recently earned his doctorate from Virginia Tech in Fish and Wildlife Conservation. He has over 20 years of experience as a Fisheries Biologist with the Virginia Department of Game & Inland Fisheries. Vic is responsible for serving clients throughout the U.S., as we continue to revolutionize our superior fisheries management programs.



Joe Onorato
Business Development Consultant
Shrewsbury, Massachusetts

As a member of the Sales and Business Development team, Joe builds new relationships with potential clients and maintains already existing relationships with current customers throughout New England. Prior to joining SOLitude, he spent six years as a top performing Sales Representative for PepsiCo-Frito Lay.



Amy Howard
Director of Technology
Virginia Beach, Virginia

Amy is responsible for the review and implementation of processes that support corporate initiatives. She manages all IT and software vendors as well as related upgrades and customization projects. Amy also trains SOLitude staff members in the use of these systems that are used to better serve clients.



Paul Conti
Environmental Scientist
Shrewsbury, Massachusetts

Paul Conti returns to SOLitude Lake Management full time after two summer seasons working in Delaware, Pennsylvania and Maryland. He recently completed his master's degree in Environmental Science. At SOLitude, Paul provides clients in New England with sustainable lake and pond management solutions.



Brandon Tindley
Aquatic Specialist
Georgetown, Delaware

Brandon, an aquatic specialist, has worked in the lake and pond management industry for ten years. He is responsible for providing water quality management, fountain and aerator service, and stormwater compliance services to our clients throughout the Mid-Atlantic.



Evgeny Burlyaev
Water Quality Specialist
Hackettstown, New Jersey

As a water quality specialist, Evgeny conducts water quality monitoring and testing programs for clients throughout the Mid-Atlantic. He previously worked as a seasonal team member for SOLitude, and is a welcome addition to our Biology team.



Yvette Gomez
Business Operations Analyst
Virginia Beach, Virginia

Yvette previously worked for Dollar Tree as a telecom analyst tasked with managing projects across the U.S. and Canada. At SOLitude, she assists our Business Management and Operations Management teams. Her responsibilities include reviewing and posting service orders, purchasing and inventory, and processing service contracts.



Griffin Lang
Business Support Specialist
Virginia Beach, Virginia

Griffin earned his bachelor's degree in Business Management, and joined our operations team to help support our growing business. He is responsible for processing service contacts, and assists our Business Manager with other projects necessary to support operations.



The Solar Solution: Solar Powered Aeration for Lakes and Ponds

By **Brent Weber, Environmental Scientist and Territory Leader**

The list of benefits that an aeration system can provide a lake or pond is endless. Besides helping to enhance fish habitat, improve water quality, reduce algae and remove unwanted nutrients, aeration can also break down unwanted bacteria, help prevent mosquito infestation and remove foul odors from a waterbody—all by circulating the water and adding dissolved oxygen. Sometimes, though, it's not feasible to install an aeration system in an isolated lake or pond with no economical way to provide a power source. This predicament presents itself in a variety of different areas, including golf course lakes, farm ponds, private waterbodies, and homeowner association stormwater ponds.

Fortunately, there is a solution for those who are unable to get electric power to their lake or pond. Solar aeration systems were introduced to the lake and pond management market about a decade ago, and have made great strides in their overall effectiveness and efficiency over that time. Instead of going through the hassle or expense of running electricity to an area in need, there are now a variety of viable solar powered alternatives available from many different manufacturers. So, that waterbody on "the other side of the property" can now get the proper



attention and aeration it needs to help keep it healthy and balanced.

A solar powered aeration system incorporates most of the same components, and utilizes much of the same technology, as an electric aeration system. Both electric and solar systems include an on-shore compressor that pumps air through bottom-weighted tubing to diffusers in the waterbody. The air helps circulate water through the water column, thus adding dissolved oxygen and equalizing the water temperature. The only real difference between the two systems is that a solar aeration system utilizes the sun's rays as its power source.

A solar panel is ideally placed in an open area, free of shade and other obstacles that would block the sun. The panel powers the compressor after converting the sun's direct current (DC) to a viable source of alternating current (AC) that the compressor can use. Some solar aerators currently on the market also have the ability to store power through a battery back-up system that can effectively be used to power the system during times when the sun is not shining. So, throughout the night when there isn't any sunlight available or during cloudy weather that compromises the effectiveness of the solar panel, aeration will remain running thanks to the battery back-up. There is also little to no cost associated with powering a solar aeration unit, which allows the system to help pay for itself over time.

Overall, the addition of aeration to a lake or pond helps ensure a longer and healthier lifespan for your waterbody. And with new efforts and strides in solar technology since the rise of alternative energy sources, it's possible to aerate any waterbody that was previously restricted due to its poor access to power. If you feel that your lake or pond may be a good candidate for solar aeration, consult your lake management professional to determine which system will be right for you. ■

Volunteer of the Quarter

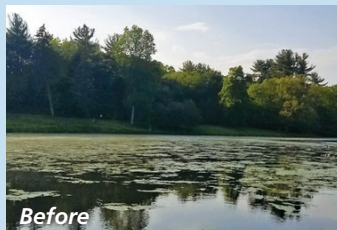
Congratulations to our Volunteer of the Second Quarter, Chris Doyle!

As part of the SOLitude family, Chris has embraced the SOLution and volunteered 42 hours in the first half of the year, with much of that time spent volunteering with his family. In 2014, Chris and his wife, Lisa, created their own club at their local 4H called the CardBoard Gamers. The club is designed to introduce kids to the joys of tabletop board games, and teaches them important life skills such as sportsmanship, respect and face-to-face communication with their peers. Chris also spent time earlier this year volunteering for a charity bike ride event, the Tour de Franklin, by installing and painting road signs in preparation for the annual fundraiser. He is a valued member of the SOLitude team and we appreciate his commitment to mentoring youth and giving back to his local community. Congratulations, Chris! ■



Before and After Showcase

Excellence in Water Quality Treatments



Before



After

Location: Shrewsbury, Massachusetts
Surface Area: 8 acre public park pond
Primary Target: Filamentous algae
Restored By: Josh Perry, Environmental Scientist



Before



After

Location: Richmond, Virginia
Surface Area: 0.2 acre private pond
Primary Target: Planktonic algae
Restored By: Derek Johnson, Lake Management Scientist & Certified Lake Manager



Before



After

Location: Carlisle, Massachusetts
Surface Area: 8.5 acre private pond
Primary Target: Waterlily, watershield, bladderwort, water lotus
Restored By: Matthew Salem, GIS and Aquatic Specialist



Before



After

Location: Brenham, Texas
Surface Area: 2.2 acre private pond
Primary Target: Southern Naiad
Restored By: Matt Ward, Biologist and Project Manager



Before



After

Location: Wolf Trap, Virginia
Surface Area: 3.5 acre recreational lake
Primary Target: Watershield
Restored By: David Riedl, Environmental Scientist and Territory Leader

Check Us Out

SOLitude Lake Management will be participating in the following events over the coming months. We encourage you to come see us!

October 18
Chesapeake Chapter of Community Associations Institute Annual Symposium & Expo
 Baltimore, MD

October 22
San Antonio Chapter of Community Associations Institute CA Day
 Helotes, TX

October 22
Long Island Chapter of Community Associations Institute 10th Annual Trade Show
 Melville, NY

October 26
New Jersey Chapter of Community Associations Institute Annual Conference & Expo
 Somerset, NJ

November 1-4
North American Lake Management Society (NALMS) 36th International Symposium
 Banff, Alberta, Canada

November 14-16
Carolinas Golf Course Superintendents Association (GCSA) Annual Conference & Trade Show
 Myrtle Beach, SC

November 16-17
New York State Turfgrass Association Turf & Grounds Exposition
 Rochester, NY

December 7-8
New Jersey Turfgrass Association Turf & Landscape Conference
 Atlantic City, NJ

January 9-11
18th Annual Northeast Aquatic Plant Management Society (NEAPMS) Conference
 Portsmouth, NH

January 9-11
51st Annual Tennessee Turfgrass Conference and Tradeshow
 Murfreesboro, TN

The SOLitude Knowledge Bank

Helping You Make Informed Decisions

When you partner with SOLitude Lake Management, we provide you with a wealth of lake and pond management resources. Our expert scientists and biologists will educate you on the services that are being provided. We will also give you what you need to help you disseminate valuable information to your community members, adjacent land owners, or other stakeholders and interested parties on a variety of engaging lake, pond and fisheries management topics.

Be sure to subscribe to the SOLitude blog (www.solitudelakemanagement.com/blog), and view past issues of Aquatics In Brief, various published articles and our FREE downloadable educational guides. ■

Visit: www.solitudelakemanagement.com/education to unlock the SOLitude Knowledge Bank today!





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- Biological Augmentation
- Mechanical Harvesting
- Ultrasonic Algae Control

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Ponder These Thoughts

SOLitude 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 colorful fall months on your lake or pond:

- Fall is a good time to think about repairing and maintaining the areas around your lake or pond. Be sure to trim the buffer zone and make certain that it is free of woody vegetation. Repair any eroded areas around your waterbody before they become major issues. Erosion repair can easily be done in the fall months when you can plant and seed the areas to allow for soil stabilization.
- Schedule a bathymetric study as well as a structural 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.
- Falling leaves and other yard debris may blow into your lake or pond. Try to keep leaves, clippings and other debris out of the waterbody and the ditches and storm drains that lead to it, as this adds nutrients which could lead to the growth of algae and other unwanted vegetation.
- If your lake or pond has a fountain, now is the perfect time to schedule an Oil and Seals service which should be performed every three years. 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.
- Liming is an important method of correcting many water quality issues, as well as helping to improve fish productivity in ponds. This process, if needed, should be done in the fall or winter.
- Fall is a great time to stock rainbow trout. Trout serve as a very entertaining fish to catch and will survive in ponds during the fall, winter and spring months. During this time they transform your warm water fishery into a fun and entertaining cold water fishery that everyone can enjoy.

