

AquaticsⁱⁿBrief

WINTER 2015



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Phoslock – A Proven Strategy for Water Quality Improvement

By **Shannon Junior, Aquatic Ecologist**

As part of SOLitude Lake Management's dedication to Integrated Pest Management strategies, we are constantly searching for new and environmentally sustainable practices that will reduce the quantity of aquatic herbicides that we apply to waterbodies, while still achieving the goals of our clients to have healthy and attractive ponds and lakes. Our firm works diligently to develop improved lake management strategies, working hand in hand with manufacturers to provide field research for new product development. We are always eager to try new technologies, and to incorporate them into our management programs when we find successful new products.

SOLitude was fortunate to be among the first companies in the U.S. to have the opportunity to use an innovative new phosphorus binding product called Phoslock. Since 2012, we have applied it to hundreds of ponds and lakes, and we are very excited about its implications for our clients'

waterbodies and the Lake Management industry in general.

Over time, sediment and organic matter slowly accumulate in the bottom of a waterbody. This natural aging process, known as eutrophication, is one of the worst enemies of a healthy pond or lake. Phosphorus is a key fraction of the organic matter, and it's the primary limiting nutrient in the development of harmful algal blooms. Phoslock can literally reverse the aging process of a waterbody by removing available phosphorus from the system.

Phoslock is derived from a naturally occurring mineral called lanthanum, which has a high affinity to bind with free reactive phosphorus. The reaction forms an inert complex known as rhabdophane (LaPO₄), which is extremely stable and insoluble. As a result, phosphorus is permanently removed from the water column and is no longer available as a food source for algae blooms.

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SOLITUDE
LAKE MANAGEMENT

*A Full Service
Lake, Pond, and Fisheries
Management Company*

Phoslock *Continued from front cover*

The product is completely safe for use in the aquatic environment, with no adverse effects on fish, macroinvertebrates, or other wildlife.

Because of the high specificity of Phoslock, the amount required to mitigate phosphorus in a pond or lake can be directly calculated by performing laboratory testing on the water and sediment. Once the results are evaluated, a site-specific phosphorus removal prescription can be developed to directly address the nutrient issues of a waterbody. Even without the laboratory testing, we have also had very good luck applying a moderate baseline rate of the product to ponds and lakes on an annual basis as part of our management program to reduce the prevalence of algae blooms and the frequency of reactionary algaecide applications. While this is not the preferred scenario, we have had proven and measurable success using this strategy when our clients do not have the budget available for a comprehensive mitigation program.



In order to evaluate the effectiveness of Phoslock when used as part of an annual management program, we applied a moderate rate of the product to 100 ponds in 2012, and developed an objective rating system to quantify the results. Without the laboratory testing to specifically measure phosphorus levels, we instead used the frequency and quantity of herbicide applications as an indicator of the Phoslock efficacy. For ponds where there was no obvious difference from the historical program, we used the rating "Neutral". Ponds where there was a reduction in herbicide applications were rated as "Positive", and ponds with a significant (i.e., greater than 50%) reduction were rated as "Excellent".

We observed Positive to Excellent results in 83% of the ponds where the product was used (49% Excellent, 34% Positive). The rest were neutral with no negatives. In most cases, algaecide applications were not required for several weeks after the Phoslock treatment, and the subsequent blooms were less severe and required less herbicide to achieve control. In the more extreme cases, algaecide use became very infrequent, and the results continued to improve after the first year. For example, one stormwater pond where we applied the product resulted in a 50% reduction in herbicide use in 2012, an 85% reduction in 2013, and a 99.9% reduction in 2014 when compared to the 2011 program.

Moving forward, we will continue to implement Phoslock programs to reduce the frequency and scale of the herbicide applications required to manage our clients' ponds and lakes. Although Phoslock is not necessarily less costly than herbicides from a monetary standpoint, we feel that a more environmentally sustainable strategy is the best value that we can provide for a long-term management program. ■

Considerations for Waterfowl Management

By **Gavin Ferris, Ecologist**

All lakes and ponds are unique and serve various purposes, but whether your waterbody is a quarter acre stormwater retention pond or a 3,000-acre recreational lake, it provides habitat for countless species of wildlife from insects to eagles. Some, like mosquitoes, we wish to discourage. A reasonable number of appropriate waterfowl species, on the other hand, may well be the most popular visitors. Migratory species like ducks can use all of the welcoming waterbodies they can find, as many species are facing challenges from shrinking habitats throughout their ranges.

If you wish to make your property more hospitable to ducks and other waterfowl, it is important to consider which species you want to encourage, and how many individuals the surrounding area can support. If you attract too many birds to your pond, they may defoliate the surrounding area. Canada geese can be particularly destructive in large numbers, especially if they leave the pond to graze on land. The best way to discourage geese from leaving the water is to grow taller vegetation along the shoreline, with plants that also provide habitat value to desirable waterfowl. Plants like Arrow Arum, Duck Potato, and Pickerelweed all provide a food source for waterfowl while discouraging birds from foraging on land.

Not all plants that are beneficial for waterfowl will work in every pond. The setting and primary purpose of a waterbody are important to consider when deciding which species to plant and which to exclude. Emergent species like those listed above are great additions to almost any pond. Sago Pondweed and Wild Celery are exceptional plants for providing food to waterfowl and would be a great choice for a refuge pond, but have no place in a stormwater pond as submersed vegetation can affect its ability to function. Wild Rice is a great plant for a meadow wetland, not so much for a neighborhood pond.

It is also important to remember that the species present and their habitat requirements change through the year. In the spring and summer, mallards and wood ducks are in need of nesting habitat throughout the mid-Atlantic. You can help furnish this by providing nest boxes for the ducks that frequent your pond. In the winter, a wide variety of migratory ducks are visiting our area looking for open water and calories. A submersed aeration system will keep ice from forming in the areas around the diffusers, providing waterfowl with a place to swim, rest, and feed. Aeration also helps improve the health of the pond itself, which in turn provides habitat for insects, mollusks, and crustaceans that waterfowl rely on.

Some ponds have greater habitat potential than others, and some may require some changes to the landscape to reach their full potential. Given the challenges faced by our migratory waterfowl, any effort taken on their behalf will be greatly appreciated by ducks and all who love them. Who doesn't love ducks? ■

Planting Enhancement Concept Plans:

Early Planning Means Long Term Success

By **Sandy Phelps, Garden Design Consultant**

Over the past two years, I have collaborated with SOLitude Lake Management to create solutions for wet areas around residential homes and to enhance private and municipal park ponds. Pairing the knowledge of water management with native plantings has resulted in long term solutions to wet areas and eroded areas while, at the same time, returning native flora and fauna to these areas. The key to our successful projects, whether it is a home rain garden or municipal pond, is a long term concept plan.

Creating an individualized Pond Buffer, Rain Garden or Drainage Enhancement concept plan is important, and the benefits are many.

Long Term Vision

Clients often specify one or more problem areas around an aquatic zone that are of concern to them. However, the entire area or property's watershed should be viewed as a living organism where each zone interacts with the others. We search for and address the needs of each zone while prioritizing the most urgent ones for immediate work. An overall concept plan will help the client visualize the future of the property as the problem-free and beautiful area it could be.

Customizing the Plan to Meet the Needs of the Individual Space

Think of the concept plan as building a custom house. An overall plan sets the vision of the end product, while still allowing for customization as the plan is implemented. Each zone within the overall space may have different soil types, drainage issues and sun light requirements. The space may be used by people and wildlife in different ways. An overall concept plan will address each issue and space just as a builder would address the needs and uses of each room of a house. Customizing the plan to

Kenilworth Municipal Park in North Coventry, PA Planting Project:



Spring 2013 - Pre-project conditions: Grass swale with zero water renovation or infiltration



Fall 2013 - Installation of 2-inch plugs according to planting concept plan. Installation labor provided by township staff, project oversight provided by SOLitude



Spring 2014 - Project swale one month into 2014 growing season, nice establishment of native grass buffer and 2 inch plugs (perennials) are now 6-12 inches and getting ready to bud/flower

the specific needs of the human and wildlife community is efficient and economical in the long term.

Returning the Native Flora and Fauna to the area

A well-conceived design plan will incorporate knowledge of how native plants and wildlife interact with the specific requirements of an area. Plants are used

that will stabilize a steep embankment, help filter unwanted particulates in rainwater runoff from rushing into a pond and create a beautiful natural setting with less mowing and maintenance. We select native plants that provide food sources and nesting materials to encourage beneficial insects and birds to repopulate the area. By creating a more natural environment, less mowing and overall maintenance is needed to keep the area an attractive space for wildlife and humans to cohabitate.

Meeting Budgetary Needs by Phasing In the Project

Whether you are developing a solution to a home, municipal or commercial project, creating an overall vision of the entire property can actually save money, time and effort in the long run. Cost is often a factor in deciding how large a project area can be installed at one time. You can prioritize any size project into manageable sections and install it in phases. Costs can be contained by using mainly young plants or "plugs." While small when first planted, plugs will cover a large area quickly, establishing and maturing into full sized plants within three seasons.

A Small Investment Goes a Long Way

SOLitude Lake Management has always been committed to enhancing areas in the most economical, efficient and practical way. They start by assessing the overall needs of the area and creating a concept plan that addresses both the short and long term needs. They work within your budget to find manageable solutions and phase in the project area over time if desired, and are able to address your problem areas by constructing a beautiful, natural space that attracts people and wildlife for years to come. ■

Creating a Better World

We invite you to join us in becoming part of The SOLution. Throughout the year, our team and partners donate time and resources to benefit a variety of non-profit organizations and under resourced families in the communities we serve. Whether you follow us on our social media pages, where we pledge to donate to a great cause on your behalf, join us at the Foodbank, meet up at a local park for a creek cleanup, or inform us about a non-profit's lake or pond that is in need of our donated services, we welcome you to join us in the excitement! www.solitudelakemanagement.com/community



Making "A Splash" in 2014

The SOLution was a HUGE success and we exceeded all of our volunteering goals! Here is a brief look at some of the impact this program had on our local communities in 2014:

Company SOLutions

Although geographically we have a large footprint, we are still a local company with a lot of local ties. Each office plans team volunteering events several times a year, in addition to each employee's personal volunteering passions:

- The Foodbank's Backpack Program
- Fishing Tournaments and Outdoor Kids' Educational Events
- River and Creek Clean Ups
- Dog Adoption Events
- Lake Restorations for Kids' Camps
- And so much more!



Little GOBBLERS

Our Little GOBBLERS program helps school age children, in the markets we serve, bring home a Thanksgiving turkey or grocery store gift card to purchase needed food supplies.

11 elementary and middle schools located in Virginia Beach, Norfolk, Newport News, Fredericksburg and Charlottesville, VA, Raleigh, NC, Lincoln, DE and West Grove, PA all identified a need within their schools and 138 families were extremely grateful for SOLitude's assistance this time of the year. The SOLitude team also donated time to the VA Peninsula Foodbank to assist in preparing 1,140 bags of food for under resourced families during the holiday season.



HOLIday Cheer

In addition to partnering with the B-Strong Foundation, a non-profit that assists families with children who have been diagnosed with cancer at The Children's Hospital of Philadelphia (CHOP), this year a donation was also made to the Children's Hospital of The King's Daughters (CHKD), in Norfolk, VA. SOLitude donated \$1000

total to both hospitals in toys and games, which increased \$10 for every new social media follower SOLitude received in the month of November.

The "HOLIday Cheer" families adopted this year live in Charlottesville, VA, Raleigh, NC and Lincoln, DE. These families, which included 9 children in total, were selected by SOLitude staff and faculty at local schools based on nominations showing a true need for additional HOLIday Cheer and financial support during a very trying time. Every employee on the SOLitude team generously purchased items from the childrens' wish lists to help bring Christmas morning smiles.



Recycling

Each office takes the time to clean, shred, and recycle all pesticide containers used throughout the year. We care about our environment and keeping these containers and other recyclable items, like paper and cardboard, from filling up our landfills! ■

The SOLution Stats for 2014:

Dollars Donated: \$56,430 (\$21,540 in 2013)
Hours Volunteered: 1,056 (798 hours in 2013)
Under Resourced Families Helped: Over 4,000
Plastic Pesticide Containers Recycled: 6,210
Recycled Cardboard, Plastics & Paper: 5,990 lbs.
Good Feelings Created: Immeasurable!

A special thank you to the SOLitude family, our vendor partners, social media fans and clients who support The SOLution and our ongoing initiatives to help create a better world. Join us in being "Part of the SOLution" in 2015!
www.solitudelakemanagement.com/solution

The SOLution
 creating a better world

New SOLs

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

Q Where did you grow up and how did you get to where you are today?

A I grew up in Marathon, a small town in upstate New York, where I spent my childhood playing sports and exploring the backwoods, rivers and ponds around my parent's house. I grew up with a fascination for the outdoors and was quickly drawn to the biology program at Cazenovia College. I went on to complete a Master of Science degree in Lake Management from SUNY Oneonta that enabled me to pursue a career in lake management.



Jason Luce
*Lake Management Scientist,
Fisheries & Wildlife Scientist,
Certified Lake Manager*

Q What are you most proud of throughout your schooling?

A During my time at Oneonta I worked very closely with the Hatch Lake and Bradley Brook Reservoir Lake's Association to study both of their basins and to eventually develop a management plan to direct the lake association on future management actions. The management plan was created to improve both basins and focused on weed and algae control, nutrient management, septic system reform and fisheries enhancement. I am excited to see the improvement of both basins in the near future.

Q What excites you most about your job and what is your biggest challenge?

A I have always enjoyed spending time fishing, boating and swimming and having the ability to improve lakes and ponds for other people to enjoy is very rewarding. One of my biggest challenges is expressing the importance of nutrient management and the protection of our lakes, rivers and ponds. Future generations are relying on decisions being made today and it is important to put emphasis on protecting our valuable ecological resources.

Q Where did you grow up and how did you get to where you are today?

A I was born in Mobile, Alabama. I was a USCG military dependent so I've lived in Alabama, Florida, Guam, Connecticut, North Carolina, Ohio and Virginia. At age 18, I joined the Navy for a 14 year career which brought me to Hampton Roads, VA. I earned my degree in accounting but my passion was with computers, database construction and management. I worked for the Special Education Department in the Virginia Beach City Public Schools as an Information Processing Specialist, and also worked for two government contractor companies before coming to SOLitude in 2014.



Donna Knemeyer
Customer Service

Q What excites you most about working at SOLitude?

A I really like the people at SOLitude. I work out of the Newport News office on the Customer Service team and we enjoy each other's company and support. We all look forward to our daily 3 p.m. chocolate break and spending time with the entire staff at our monthly educational team meetings.

I have a variety of administrative responsibilities that help the sales and marketing teams flourish and I am your first point of contact at SOLitude, so I enjoy welcoming new clients and prospects and helping them find solutions to their needs and requests.

Q Where can we find you when you're not working?

A My husband and I enjoy taking day trips on the weekends mostly to the mountains to watch University of Virginia football games (we have season passes to all the home games), spending the occasional weekend with our grandchildren, going to the movies, reading good books and cooking.

Volunteer of the Quarter:

Congratulations to our Volunteer of the Third Quarter, Trina Duncan!

Trina Duncan made a personal commitment to volunteer at least once a month in 2014. She is a staple at Virginia Beach SPCA adoption events, taking dogs in need of a forever home to adoption events and recruited and inspired her husband Bobby and other teammates to also get involved with the SPCA. Trina enthusiastically participates in team volunteer events at the Virginia Peninsula Foodbank and at the Chesapeake Bay Foundation's Annual Save the Bay Clean-Up Day. Trina recorded over 40 individual hours and over 12 family hours of volunteer time in 2014. ■



Congratulations to our Volunteer of the Fourth Quarter, Aaron Cushing!

After his recent move to Charlottesville, VA, Aaron quickly sought out an environmentally focused non-profit to get involved with. The Rivanna Conservation Society is a perfect fit for Aaron's



passion for the environment, controlling invasive species and keeping our waterways free of trash and debris with monthly group trash-gathering events. He is working to become a Rivanna Conservation Society River Guardian. Aaron eagerly coordinates and participates in various team volunteering events and often involves his wife and family. Aaron recorded 50 individual hours and over 44 family hours of volunteer time in 2014. ■

New SOLs

My Education Versus Real World Experience in Lake and Pond Management

By **Derek Johnson, Lake Management Scientist, Fisheries & Wildlife Scientist, Certified Lake Manager**

While working through the Master of Lake Management program at SUNY Oneonta, I often thought about the work I was doing and how it would impact my future real world experiences.

I was one of four students in the charter class for the program under the guidance of Dr. Willard Harman, a seasoned veteran in the field of lake management and an excellent mentor. Otsego Lake was the backdrop for our studies as we worked alongside the well-qualified staff at the Biological Field Station in Cooperstown, New York. Dr. Harman's intent for the program was to prepare us for careers as professional lake managers with the understanding that watershed and in-lake issues are a delicate balancing act. For my thesis, I wrote a comprehensive management plan for Panther Lake, a 131-acre fresh waterbody in Oswego County, New York. After countless hours of sampling, monitoring, and writing, it proved to be the most exhausting, yet most gratifying project and challenge I have ever faced. In May 2014, I made my way up to the stage to be hooded by Dr. Harman and it was then that I felt confident to go out into the field of lake management with my master's degree and the prestigious title of Certified Lake Manager.

I was hired at SOLitude Lake Management shortly after completing the master's program. It didn't take long before I began to see similarities and differences between learning about lake management and actually experiencing it firsthand. One noticeable difference is the diversity of the waterbodies I work on each day. Working on fifteen to twenty ponds in a day with SOLitude has really shown me how vastly different two waterbodies, within the same region, can truly be. Another obvious difference is the diversity of species I run into each day. In New York, Panther Lake's main issue of concern was Eurasian milfoil (*Myriophyllum spicatum*), an invasive species that is prominent in many waterbodies throughout that area. Since I started working with SOLitude, I have run into many different species of algae, aquatic macrophytes, and shoreline plant species. These differences have really helped to broaden my understanding of various lake issues and through extensive on-the-job training, are allowing me to become a more well-rounded lake management professional.



In both my current work experiences and throughout my schooling, I found that whether a lake is half an acre or 131 acres, there will always be similar concerns among the residents and land owners. Many of these concerns stem from nuisance algae and aquatic weeds causing aesthetic issues such as color of the water, taste and odor. However, some residents are simply curious about what types of fish and living organisms are in their lake or pond. Other similarities are the concerns that can arise when the use of aquatic herbicides are suggested as a control method. Using aquatic herbicides in ponds can have a negative connotation to some residents and pond managers, which mainly stems from a lack of knowledge about how they work. I have recently found many situations where the use of aquatic herbicides is not only cost

effective, but can also be one of the most environmentally sound and effective ways to control a very serious problem.

One sure thing that has followed me through school and my new career is the need for ponds and lakes to be managed by professionals. It can seem very overwhelming to identify and understand the biological interactions within a lake (algae, fish, etc.) and between a lake and its watershed without the help of trained professionals. It is very important that a lake manager has the experience and proven track record of investigating and properly controlling the various types of issues that may arise in a waterbody in the most environmentally sound way.

Having knowledge of the various regulations in each state is also imperative. Another important measure when selecting a pond management company is the capabilities of their equipment to address the problems in your lake. Having the proper technology and tools, such as bathymetric equipment that will accurately map the depths and sediment buildup in your waterbody, electrofishing equipment to assess the fish populations, and water testing tools that can be used to assess the quality of the water of your pond, are all essential for properly managing a lake or pond. I am happy to have found a company that truly understands all aspects of lake management and whose number one goal is to restore the ecological balance of our local freshwater resources. ■

10 Reasons to Feed Your Fish With A Feeder

1. Pellet fish feed is the most cost effective management approach to grow fish
2. They provide an opportunity for rapid fish growth
3. Two pounds of quality fish feed will convert into one pound of fish compared to ten pounds of stocked fish to equal one pound of fish growth
4. Many fish species eat fish feed (Bluegill, fathead minnows, golden shiners, channel catfish, carp/koi, gizzard shad and trout naturally eat pellet feed, while most species of bass require training)
5. Feeders create a great fishing location to take children and those anxious to catch a fish
6. They are reliable and feed on time, every time
7. Feeders allow you to observe your fish feeding
8. Feeders come in multiple sizes to meet your exact needs and are solar powered
9. They can be installed on the shore, on a dock or a float out in the water
10. Quality feeders require minimal maintenance and can last a lifetime



Visit www.solitudelakemanagement.com/supplementalfeeding for more information.

Check Us Out...

SOLitude Lake Management will be participating in the following events over the coming months. We encourage you to come see us! If you need information on attending any of these events, please call our office at 888-480-LAKE.

January 20-22

16th Annual Northeast Aquatic Plant Management Society Conference
Gideon Putnam Resort & Spa
Saratoga Springs, NY

February 19-21

Pond Boss VI Conference & Expo
Hilton Dallas/Rockwall Lakefront, Dallas, TX

March 7

Washington Metro Chapter of Community Associations Institute's Annual Conference and Expo
Walter E. Washington Convention Center
Washington, DC

March 17

Central Virginia Chapter of Community Associations Institute's Trade Show and Education Expo
Doubletree by Hilton Hotel
Richmond/Midlothian, VA

March 28

29th Annual Southeastern Virginia Chapter of Community Associations Institute's Annual Community Associations Day
Virginia Beach Convention Center
Virginia Beach, VA

April 17

CAI-North Carolina Annual Conference & Expo
Embassy Suites Concord-Charlotte
Charlotte, NC

SOLitude Named One of the Fastest Growing Companies in Hampton Roads

SOLitude Lake Management was named to Inside Business' Roaring 20 list for the second consecutive year. Inside Business, the business journal of Coastal Virginia, honors only twenty businesses in southeastern Virginia who exhibit revenue and employee growth as well as make significant contributions to the local economy. SOLitude experienced a 73 percent growth in staff by increasing their team from 15 employees in 2011 to 26 employees in 2013, and continues to grow in all of the markets they serve.

SOLitude continues to hire the best people and only uses the latest and greatest technology, equipment and products, so they can give each of their clients, and their clients' lakes and ponds, the special attention and utmost care they deserve.



(L to R): Shane Thomas, Kurt Taves, Managing Partner of Hampton Roads' Cherry Bekaert, Ann Marie Dori, Ellen Stace, Kevin Tucker, Owner and Ed Power, Publisher, Inside Business



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- Fisheries Management
- Water Quality Testing
- Bathymetric Studies
- Biological Augmentation
- Ultrasonic Algae Control

Aquatics**in**Brief

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Ponder These Thoughts

SOLitude Lake Management wants to be certain that your pond is prepared for 2015. With this in mind, we recommend that you consider the following during the winter months:

- Review your lake/pond budget and Replacement Reserve funds to ensure that funds are available for bathymetry to determine if and when you will have a need for dredging.
- Evaluate your pond and determine if you need to add aeration to meet your management goals and objectives for 2015, and don't forget to schedule annual maintenance and service for your fountains and aeration systems this winter.
- Think ahead to spring and pesky mosquitoes! Keep them at bay by stocking minnows in your pond.
- Consider installing a Sonic Solutions algae control device prior to spring to help prevent the onset of algae blooms as the weather warms.
- 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.
- Failure of your stormwater pond is never an option. A structural inspection can ensure your pond is functioning properly.
- Consult with a Fisheries Biologist to set the ground work for an annual youth fishing tournament or environmental education day.
- Most importantly, implement a sustainable annual management program for your lake or pond.

