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SOLITUDE
LAKE MANAGEMENT

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



Is Your Community Contributing to the Nutrient Loading Pandemic?

By **Marc Bellaud, President**

Is it alarmist to refer to nutrient loading as a pandemic that is threatening our waterways? Not if you work in the lake and pond management industry or have a passion for preserving our aquatic resources. As an Aquatic Biologist who has managed water resources for more than 25 years, I firmly believe nutrient loading is a rising crisis that needs to be dealt with on a national and global scale.

Almost daily, we see news headlines broadcasting dangerous cyanobacteria blooms, red tides, dead zones and algal toxins that degrade water quality, spur massive fish kills and threaten human health. These Harmful Algal Blooms (HABs) are fueled by nutrients like nitrogen and phosphorus, which enter waterways through stormwater runoff that emerges from livestock facilities, agricultural farms, urban developments, and incidents of excess wastewater discharge.

While awareness around the topic of nutrient loading has undoubtedly increased in recent years, so has the frequency of HABs due to continued pressure from population



growth, worldwide travel, climate change and pollution.

There is no question that nutrient loading is a problem, but the question remains: What are we doing to fix it?

For far too long, homeowners, communities and municipalities have been led to address water quality problems with short-term
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Is Your Community Contributing to the Nutrient Loading Pandemic?

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reactive fixes because they are “quicker and cheaper.” However, these quick fixes tend to cause problems that worsen over time and prematurely ‘age’ lakes and ponds through a rapid loss in depth. Without the knowledge or understanding about the dangers of improper management, waterbody owners may find them-

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selves facing a steep quote for dredging services—the final resort to restore an ailing water resource.

Today’s industry leaders understand the importance of long-lasting, holistic solutions that resolve the root of the problem, but we must all take on the roles of environmental stewards. From driving a car to mowing the lawn, we each play a role in contributing to nutrient loading. Thankfully, there are many small ways to help offset this vicious cycle. Picking up after pets, clearing yard waste and reduc-

ing fertilizer use on lawns and gardens can make a big difference in the reduction of unnecessary nutrients and, thus, the health, appearance and lifespan of nearby waterbodies.

If you are fortunate enough to live or work on the water, you are our front lines. Choose natural management tools like pond aeration and nanobubble technology to help oxygenate the water and reduce the availability of excess nutrients. Talk to an aquatic management professional about ongoing nutrient remediation as part of an Annual Management Plan, which physically removes undesirable phosphorus and nitrogen from the water column. Consider introducing a living shoreline 3-5 ft around the water’s edge. The growth of native flowering plant species will help intercept nutrient-rich sediment runoff, further preventing water quality problems.

Up front, proactive management tools can be an investment, but they are an investment into the longevity of your lake or pond, the balance of our precious oceans and waterways, and the health of future generations. And that’s not an investment that we can afford to ignore. ■

How You Can Help Reduce Nutrient Loading in Your Community:

- Use lawn fertilizer without phosphorus and avoid over-fertilizing
- Regularly rake and bag leaves, lawn clippings and organic waste to prevent obstructing stormwater facility pipes
- Pick up pet waste
- Use environmentally-friendly, biodegradable detergents and cleaners when washing vehicles and pressure-washing houses
- Create landscaping swales (natural filtering systems) using native vegetation, pebbles and rocks to filter water of excess nutrients
- Plant vegetative buffers along the shoreline to help decrease soil and nutrient run-off





Debunking Common Aquatic Herbicide Misconceptions: Glyphosate

By **Shannon Junior, Aquatic Ecologist and Senior Business Development Consultant**

One of the most common questions asked by clients is whether the products that we use to control aquatic weeds and algae in their waterbodies are “safe.” These concerns have become considerably more widespread in light of the recent controversies surrounding the herbicide glyphosate. Unfortunately, there is a lot of misinformation that is circulating, making it difficult to discern the difference between public outcry and peer-reviewed scientific data.

Glyphosate is the most widely used herbicide in history. It is a broad-spectrum product that is used worldwide to control weeds in agricultural, turf, ornamental, and aquatic environments. The glyphosate controversy gained momentum in 2015 when the International Agency for Research on Cancer (IARC), an arm of the World Health Organization (WHO), classified it as a probable carcinogen after reviewing public studies. And in recent years, a series of multi-million-dollar verdicts have been awarded by California juries to people who have successfully argued that glyphosate caused their cancer. However, after further review uncovered deficiencies in the validity of the findings, two of the studies used as evidence in the trials have now been retracted by the journals in which they were published. After reviewing all of the available studies and information, in 2017 the United States Environmental Protection Agency (EPA) concluded that “glyphosate is not likely to be carcinogenic to humans . . . (and there are) no other meaningful risks to human health when the product is used according to the pesticide label.” In addition, in January of 2020, the U.S. EPA finished

a regulatory review that found glyphosate is not a carcinogen. This conclusion is widely shared by other global regulatory and research agencies.



Another misconception about glyphosate is that it kills frogs, which would be extremely concerning for aquatic uses if it were true. However, there is only one study that has been cited by opposition groups to this use pattern, and it was done using a glyphosate formulation that was not approved for aquatic use and should never be used in aquatic environments. The only glyphosate products used in SOLitude’s management programs

are specially formulated or tank-mixed with an appropriate surfactant that is completely safe for aquatic organisms.

Most of us in the lake and pond management industry have chosen our profession because we are passionate about water resources and we strive to provide the most environmentally sustainable aquatic weed treatment and water quality management solutions available. While chemical algaecides and herbicides are important tools in our management toolbox, the best approach to achieving a healthy waterbody is through an integrated Annual Management Plan. However, if your lake or pond is already suffering from an overgrowth of aquatic weeds or shoreline vegetation, the appropriate

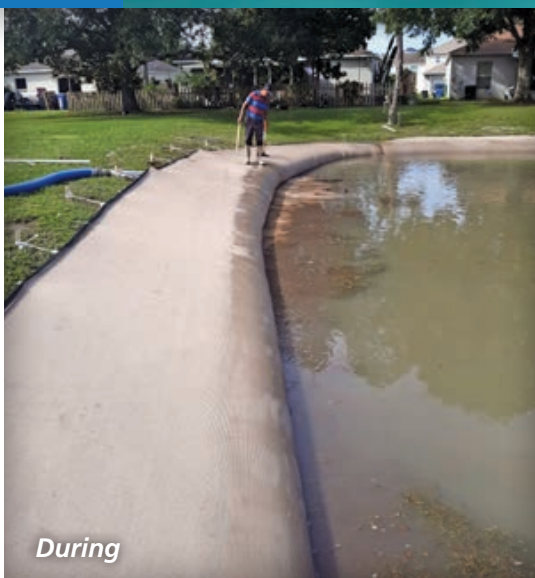
algaecides and herbicides can help get your waterbody back to square one. When applied by experienced professionals, licensed and approved chemical products are safe and effective management solutions that can help regain control of your lake or pond so proactive solutions can be implemented. ■

What do global regulatory and research agencies conclude about the health impact of GLYPHOSATE?

 <small>United States Environmental Protection Agency</small>	<p>“Human health risk assessment concludes that glyphosate is not likely to be carcinogenic to humans... [and] no other meaningful risks to human health when the product is used according to the pesticide label” 2017</p> <p>“EPA continues to find that there are no risks of concern to human health when glyphosate is used in accordance with its current label. EPA also found that glyphosate is unlikely to be a human carcinogen.” 2020</p>
 <small>United States Environmental Protection Agency Office of Pesticide Programs</small>	<p>“Not strong support for... ‘suggestive evidence of carcinogenic potential...’ based on the weight-of-evidence... Even small, non-statistically significant changes... were contradicted by studies of equal or higher quality. The strongest support is for ‘not likely to be carcinogenic to humans’” 2017</p>
 <small>World Health Organization</small>	<p>“Under usual conditions, the presence of glyphosate and AMPA [aminomethylphosphonic acid, glyphosate’s primary metabolite] in drinking-water does not represent a hazard to human health” 2016</p>



Before



During



After

Erosion Control Case Study: Establishing a Living Shoreline in a Florida Community

By **Robbin Huffines, General Manager, Shoreline Restoration**

In June of 2019, a community in Tampa, FL, contacted SOLitude with concerns over erosion and the functionality of their five stormwater ponds. Constructed in 2005, the retention ponds were designed to not only serve as aesthetic focal points but also to capture stormwater runoff, filter pollutants, and slowly release water back into the environment after rainstorms. Over the years, however, shoreline erosion and sedimentation worsened, hindering the ponds' functionality. Without intervention, flooding, further property damage and endangerment to community members could become a real and costly threat.

After evaluation, SOLitude determined that four out of the five ponds were in unsatisfactory condition and a customized management plan was developed. Several solutions are available for addressing eroded shorelines, including rocks, rip rap and bulkheads, however these options are not considered long-lasting nor do they provide a living shoreline. With this in mind, the community chose to install a SOX Erosion Solutions system.

SOX systems offer an innovative and eco-friendly solution for the restoration of delicate banks and aging hillsides.

Comprised of a patented knitted mesh technology, they help create a stable, aesthetically pleasing living shoreline that halts erosion and nutrient loading without losing integrity over time.




One of the many benefits of SOX systems is that they are specially designed to contain dredged materials. There are many ways to fill these systems with organic material, but one of the most effective options is with a hydraulic dredge. A hydraulic dredge utilizes a rotating underwater cutter to break up organic matter on the bottom of a waterbody, creating a liquid mixture of sediment and water which can be pumped out through a pipeline. For properties like this community, a hydraulic dredge is a win-win situation: It increases depth and provides the organic material to fill the SOX system without the need to drain the pond or ship the dredged material off site.

For phase one of the project, SOLitude tackled the lake suffering from the most severe conditions. With no trouble, the hydraulic dredge was loaded into the pond and began dredging the bottom of the pond. More than 900 cubic yards of muck and sediment was pumped from the pond bottom directly into the SOX system. 1,800 feet of eroded shoreline was replaced by the SOX system and the pond's depth was restored, thereby improving stormwater functionality.

Once the SOX system was in place, our team was able to immediately walk onto the newly restored shoreline and begin sodding. (SOX systems also serve as a solid foundation for the planting of native grasses and flowering vegetation.)

Phase one of this project was completed in November 2019. In under four months, this community pond's shoreline was completely restored (many homes reclaimed as much as six feet of shoreline) which improved property value for the waterfront homeowners and enhanced the community's overall aesthetics. The community was so pleased with the project that they have elected to utilize this impactful solution on their remaining four waterbodies—and SOLitude looks forward to continuing these efforts! ■



Nanobubble Treatments vs. Fountains vs. Submersed Aeration Systems: What's the Difference?

By **Bo Burns**, Market Development Manager

Natural processes facilitate the exchange of dissolved oxygen (DO) at the surface of our lakes and ponds, allowing desirable life to thrive below. However, pollution, invasive aquatic weed growth and nuisance algae blooms can cover the surface of the water, preventing DO from reaching the areas that need it. The result—poor water quality, bad odors, bottom muck, massive fish kills and potentially deadly toxic algae blooms.

Luckily, several lake and pond management solutions are available to help naturally correct imbalanced DO conditions—each with their own unique benefits and limitations.

Floating and architectural fountains are one option for aeration in lakes and ponds. In addition to serving as an aesthetic focal point, properly-sized fountains provide essential water column mixing in shallow waterbodies. As fountain water falls from the air in pleasing patterns, it bursts across the surface, accelerating the release of submersed gases, helping to reverse nutrient pollution, and introducing beneficial DO into the top layer of water. When the fountain is turned off, however, these benefits can subside.

Another solution that is often recommended for use in large lakes and ponds is submersed aeration. In contrast to fountains, submersed aeration systems utilize an on-shore compressor to pump air through a subsurface tube that oxygenates the water from bottom to top. As bubbles rise from the depths, they increase DO throughout the waterbody and disrupt undesirable stratification by circulating the bottom water up to the surface where it is exposed to surface air. Like

floating fountains, submersed aeration systems help convert nutrients to more diluted forms that cannot sustain nuisance aquatic weed and algae growth, though they do not directly target these infestations. For the best results, these systems should be placed in greater depths as they do not properly circulate shallow water.

New technology, like nanobubble treatments, have helped maximize the benefits of both fountains and submersed aeration systems. Nanobubbles are produced by an on-shore gas transfer mechanism and are about 1 million times smaller than ordinary bubbles and have a strong negative surface charge. As a result, nanobubble treatments provide long-lasting oxygenation within the water column—and even the sediments—for up to 2-3 months without popping. Because nanobubbles do not rise to the surface, they do not offer the vertical mixing benefits provided by fountains and submersed aeration systems.

Nanobubble treatments are effective at reducing odors, breaking down bottom muck and restoring water quality. Unlike floating fountains and submersed aeration systems, you don't have to own an actual nanobubble system to reap the benefits. Through an Annual Management Plan, nanobubbles can be introduced into your waterbody via recurring treatments when the aquatic ecosystem needs it. This approach helps ensure your waterbody receives the custom, balanced care it requires without the need to purchase or permanently install a nanobubble system on your property.

Aeration systems and nanobubble devices work differently to provide oxygen to the water column. It's important to



remember that nanobubble treatments provide a different form of dissolved gases; therefore, pairing nanobubble treatments with a submersed aeration system may help better target your unique water quality problems. No matter how you use your waterbody, it's worth leveraging these natural management tools to ensure the future of your freshwater resource. ■

The SOLution Creating A Better World

2019 ACCOMPLISHMENTS

As part of our commitment to environmental stewardship and community involvement, we strive to foster our company's core values both inside and outside of the workplace. Through our volunteering and community outreach program, The SOLution, we believe that we can help to make a difference in the world.

16,877

HOURS VOLUNTEERED BY COLLEAGUES,
PARTNERS & FAMILIES SINCE THE
PROGRAM'S INCEPTION IN 2012

3,854 hours volunteered in 2019

Average of 9 hours per colleague
(420 Colleagues)

\$518,855

IN DONATIONS INCLUDING GOODS AND
IN-KIND SERVICES SINCE THE PROGRAM'S
INCEPTION IN 2012

\$183,022 donated in 2019



Participated in...

50

Trash clean-ups



Recycled over...

42,000

Plastic Containers

NATIONAL RECOGNITION:

Congratulations to Becky Snyder (MA) on being appointed National Volunteering Ambassador for Rentokil Cares. With this role, Becky will oversee our entire organization's volunteering efforts and non-profit donations throughout North America.



HEART & SOL DAY:

Colleagues volunteered 423 total hours across SOLitude's 35+ nationwide offices on November 22.



LOVE YOUR LAKE:

Donated fish stocking services at Fair Play Camp School and installed an aeration system at Camp Conquest.



LITTLE GOBBLERS:

Provided 292 under resourced families with Thanksgiving turkeys or grocery store gift cards.



HOLIDAY CHEER:

Purchased gifts for 8 "adopted" families (24 kids) and for sick children at four children's hospitals.

"Our patients and families absolutely love the toys. We truly appreciate your act of kindness."

— Sherry Brooks,

Hospital Office Coordinator, CHKD

**Learn how you can be
a part of The SOLution:**

solitudelakemanagement.com/solution

VOLUNTEER HIGHLIGHTS

- First Annual Heart and SOL Day
- Grass and Tree Plantings
- Invasive Species Removals
- River, Bay, Lake & Beach Clean Ups
- Dog and Cat Adoption Events
- Fishing Tournaments and Outdoor Kids' Events
- Equine Rescue
- Habitat for Humanity Builds
- Foodbank Backpack Program

VOLUNTEER AWARDS

Q1 Volunteer of the Quarter:
Shannon Junior (VA)

Q2 Co-Volunteers of the Quarter:
Scott Dye (FL) and
Errol Walsh (FL)

Q3 Volunteer of the Quarter:
Bella Bhagroo (VA)

Q4 Volunteer of the Quarter:
Becky Snyder (MA)

HEART & SOL AWARD



**Congratulations,
Jim Sheeran! (FL)**

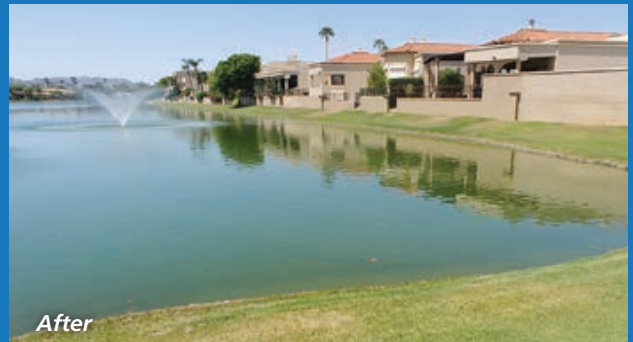
This is an annual award given to the colleague who goes above and beyond with personal volunteering, inspires others and has a true commitment and passion to make the world a better place.



Before & After Showcase

Green Algae (*B. braunii*, rare algae species) Treatment

Robert Truax,
Natural
Resources
Scientist, AZ



Filamentous Algae Treatment

Rease Patrick,
Aquatic
Specialist, TX



Salvinia, Torpedo Grass and Pennywort Treatment

Travis Hunt,
Aquatic
Specialist, FL



Come See Us

SOLitude will
be participating
in the following
events over the
coming months.
Come say 'hello'!

April 1 – 3

Florida Chapter of the
American Fisheries Society
Annual Meeting
Haines City, FL

April 3

South Gulf Coast
Chapter of Community
Associations Institute's
Trade Show & Expo
Fort Myers, FL

April 17

Central Virginia Chapter
of Community Association
Institute's Trade Show
Richmond, VA

April 22 – 24

Virginia Apartment
Management Association
Conference & Trade Show
Norfolk, VA

April 23

Tampa Bay Condo &
HOA Expo
Tampa, FL

May 1 – 2

New York State Federation
of Lake Associations
Conference
Lake George, NY

May 7 – 8

Pennsylvania &
Delaware Valley Chapter
of Community Association
Institute's Conference
& Expo
King of Prussia, PA

May 13

Atlanta Apartment
Association Trade Show
Atlanta, GA

May 13

St. Louis Chapter of
Institute of Real Estate
Management
Clayton, MO

May 14

South Gulf Coast
Chapter of Community
Associations Institute's
Trade Show & Expo
Bluffton, SC

May 28 – 29

New Hampshire Lake
Congress Conference
Meredith, NH

June 4

Orlando Condo &
HOA Expo
Orlando, FL

THANK YOU TO OUR VENDOR PARTNERS



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Services and Consultation Offered Nationwide

- Annual Lake & Pond Management
- Water Quality Restoration
- Fountain & Aeration Systems
- Algae & Aquatic Weed Control
- Fisheries Management
- Water Quality Testing
- Bathymetric Studies
- Biological Augmentation
- Mechanical Harvesting & Hydro-Raking
- Erosion Control & Bioengineered Shorelines

Say Goodbye to Snail Mail and Go Green! Help us reduce our environmental footprint by opting to only receive a digital copy of this newsletter. Visit solitudelakemanagement.com/gogreen



PPCECO
It's our nature to be green.

This paper contains 10% Post-Consumer Waste and is printed using soy-based ink.



BBB RATING: A+

Top 3 Proactive Tips to Help Manage Midges

By **Sam Sardes, Weed Science Director, Certified Lake Professional**

Spring brings beautiful weather for most of the country, but with the joys of spring, we should prepare for our six-legged, winged friends: midges. Midges are an important part of the aquatic food web as many fish rely on them as a primary food source. However, too much of a good thing leads to midges ruining our poolside sunbathing, cookouts and other outdoor activities, which is why it's important to proactively manage their arrival.

Proactive Lake and Pond Management Tips to Help Manage Midges:

1. Install a submersed aeration system to increase low dissolved oxygen levels in your waterbody. This promotes a healthy aquatic habitat for fish species that feed on midge fly larva.
2. Utilize nutrient remediation technologies that reduce organic buildup in lakes and ponds. Midge flies feed on decaying organic material!
3. Stock native fish species like Bluegill and Redear Sunfish that naturally feed on midge fly larva to keep midge growth at bay.

Overall, it is our goal to manage nuisance populations of midge flies, not to completely eradicate them. Eradication would leave the food web unbalanced and could have negative effects on your aquatic resource. The same goes for mosquitoes, and though the management strategies differ compared to midges, they can still be managed in a safe and sound way so no harm is done to the environment. Let our aquatic management professionals plan a proactive midge or mosquito management program so you and your family can enjoy your time in and around your waterbody. ■

