

Algae and Weed Control and How We Make It Safe



Algae and weeds are normal sights in aquatic ecosystems and thrive in environments rich in nutrients, sunlight, and warm temperatures. In balanced levels, they play an essential role in the food chain by providing food and refuge for wildlife, producing healthy dissolved oxygen, and absorbing nutrients like phosphorus. However, if this delicate balance is disrupted, [algae and weeds](#) could quickly become a nuisance and safety risk by interfering with recreation,

clogging stormwater equipment, or releasing harmful toxins.

Lakes and ponds are sensitive ecosystems prone to imbalances when exposed to external pollutants from weather, urban development, recreation, landscaping, and agriculture. These environmental factors and human activities can introduce unnatural levels of nutrients into the water, creating conditions that are hospitable to nuisance growth.

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We believe clean, beautiful lakes promote good health, happiness and meaningful experiences.

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Keep Your Water Safe: Your Guide to Identifying Toxic Algae

SOLITUDE
LAKE MANAGEMENT

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Restoring Balance.
Enhancing Beauty.

Algae and Weed Control and How We Make It Safe

Continued from front cover

Proactive water quality management solutions are the recommended way to help avoid algae and weeds, but when waterbodies are left unmanaged, reactive applications of algaecides or herbicides are often the best solution to help quickly restore balance. We understand how essential it is to protect our lakes and ponds. That's why SOLitude only uses EPA-registered products that are carefully designed to target nuisance plants and algae with minimal risk to native vegetation and wildlife. As a certified company, we have access to many well-researched, professional-grade products that are not available to the general public.

Our experienced technicians undergo rigorous training on safe application

methods and the use of precise product dosages. They must pass an examination to obtain a license for product application and these requirements can vary by state. When applied by a certified applicator according to guidelines set forth by the EPA, [aquatic herbicides and algaecides](#) are considered extremely low risk for the ecosystem, wildlife, and humans.

We are dedicated to using the highest quality products and advancing our industry through technological research and innovation. Collaborating with industry-leading manufacturers allows us to test newer, more eco-friendly products and support the continual development of sustainable, long-lasting solutions.

Additionally, SOLitude is well-versed in

permitting and regulatory compliance.

This includes notifying communities and the public about applications. Clear communication with the public helps prevent liabilities and signals when water activities can safely resume.

Herbicides and algaecides are excellent tools to safely and rapidly eliminate nuisance growth; however, they should not be depended on for extended periods. After successfully controlling algae and weed outbreaks, we encourage clients to implement proactive and sustainable measures that deter the reoccurrence of algae and weeds. These may include [nutrient remediation tools](#), [fountains and aerators](#), [beneficial bacteria](#), [vegetative buffer plantings](#), and shoreline restoration. Ongoing [water quality testing](#) and visual surveys can help professionals identify potential nutrient imbalances before nuisance algae and weeds appear.

For those interested in all-natural management, SOLitude offers several solutions to target nuisance growth and enhance water quality. An aquatic expert can help you evaluate your options and determine the most suitable approach based on your goals and budget.

Responsible lake management goes beyond controlling a problem; it requires a comprehensive understanding of aquatic ecosystems, innovative solutions, and an unwavering commitment to safety and sustainability. SOLitude strives to incorporate as many solutions as possible to achieve your goals and maintain a balanced, beautiful ecosystem that brings you happiness, not stress. ■





5 Natural Water Quality Improvement Solutions for Your Lake

Lakes and ponds require nutrients to keep water healthy and clean, however, excess nutrients from pollution, agriculture, and urban development make it difficult for waterbodies to regulate themselves. These environmental stressors can lead to the emergence of nuisance weeds, algae, bottom muck, and unpleasant odors.

Strict water management regulations may further compound these issues by limiting how stakeholders can intervene to restore equilibrium. Due to these limitations, prevention must be prioritized to maintain clean, safe, balanced water. Professionals recommend integrating five core solutions as part of a proactive management approach.

1. Aeration

Well-oxygenated water promotes healthy conditions that are less hospitable to weeds and algae. [Floating fountains](#) and [surface aerators](#) circulate stagnant water and help [increase dissolved oxygen \(DO\)](#) levels while providing visual beauty. [Submersed aerators](#) create continuous vertical mixing to increase DO in deeper waters.

2. Natural Vegetative Buffers

[Native shoreline plants](#) and vegetation can help naturally filter pollutants from stormwater runoff as it flows into the waterbody. [Native buffer vegetation](#)

also helps prevent shoreline erosion by holding sediment in place. Eroded shorelines can be repaired by creating “[living shorelines](#)” using geotextile systems that can then be planted with grass or other native plantings.

3. Nutrient Remediation

[Water quality imbalances](#) are often connected to excess phosphorus and nitrogen. When nutrient levels are balanced, weeds and algae are less likely to grow. Several eco-friendly products are available to help [reduce nutrients](#) by either binding with or physically removing them. Professionals choose products based on the waterbody’s size, depth, and function to ensure optimal results and restore balanced water quality conditions.

4. Mechanical Raking and Harvesting

[Mechanical hydro-rakes](#), Aquamogs and Truxors physically remove plants and their root structures, and are equipped with a back hoe that scoops up muck and debris from the bottom to restore depth. [Mechanical harvesters](#) utilize a cutting mechanism to cut, collect, and remove rooted and floating plants and are capable of clearing 1-2 acres per day. Invasive weeds can rapidly take over an entire ecosystem, making harvesting an important solution in regions with strict herbicide regulations.

5. Nanobubbles and Oxygenation

[Nanobubble units](#) generate bubbles that are about one million times smaller than ordinary bubbles and can go two to three months without popping. Instead of rising to the surface, they disperse within the water column and bottom sediments, providing long-lasting oxygenation.

New side-stream oxygenation technologies allow for oxygen to be directly injected into the water to help correct deficiencies. This can greatly increase oxygen concentrations throughout the water column and promote the natural decomposition of bottom muck.

An integrated lake management program that incorporates proactive strategies may not only be more cost-effective over time, but also healthier for the environment. Preventative actions can help stakeholders avoid large, unexpected expenses and slow the natural deterioration of aquatic ecosystems, promoting clean, healthy waterbodies for generations to enjoy. ■

The Safety and Financial Risks of Shoreline Erosion and How to Avoid Them

The health and safety of a waterbody aren't solely tied to the water itself, but also hinge significantly on the condition of the shoreline. Deteriorating shorelines often put unnecessary stress on an aquatic ecosystem, as well as the people responsible for maintaining it. Erosion is a natural process, however, human activities like recreation, urban development, and poor landscaping practices can expedite the deterioration. It's essential to identify erosion and intervene as early as possible to limit these risks:

1. Decline in Lake Health:

Eroded sediment brings unnatural and unhealthy quantities of pollutants and nutrients into the water. Eroded sediment may also form a layer of bottom muck that diminishes the water-holding capacity. This can heighten flooding risks and exacerbate evaporation concerns during times of drought, especially if the waterbody is used for irrigation.



2. Safety/Liability Risks:

Visitors and residents, landscaping crews, and individuals fishing or launching boats can be injured if shorelines collapse. These accidents could result in severe consequences or imply negligence for the property owner or manager.

3. Loss of Property Value:

Erosion shrinks lot sizes and contributes to the loss of precious waterfront property. As water encroaches on homes and buildings, it can jeopardize the structural integrity of foundations, decks, and fencing, and may lead to a depreciation in property value. Other assets like sprinkler or irrigation systems and stormwater equipment can become exposed and damaged.



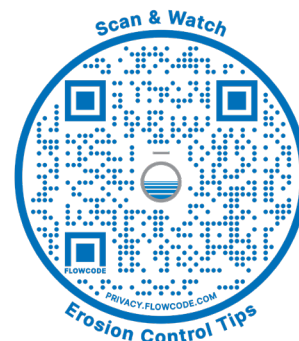
The consequences of erosion can be severe, but through proactive management, they can be limited or avoided. One of the simplest and most cost-effective solutions is to maintain a [vegetative shoreline buffer](#). Native plants and grasses established around a lake or pond's perimeter can help reduce the effects of erosion by slowing runoff, filtering excess nutrients, and stabilizing the bank through complex root systems.

Ensuring all stakeholders are well-informed about signs of erosion, particularly overlooked indicators like turbid water and exposed pipes or root systems, is also crucial. Early detection allows experts to correct issues before they escalate. However, severely eroded or hazardous shorelines may require reconstruction.

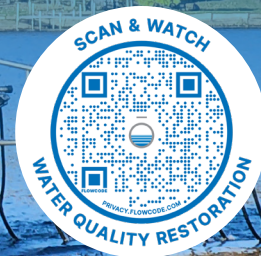
Experts can implement modern [bioengineering techniques](#) to rebuild a living shoreline. This involves reshaping the eroded shoreline using a knitted geotextile mesh that is filled with sand or soil and then secured to the stable part of the bank. After installation, [native plants](#) can be planted through the mesh or sod can be placed on top. The roots will penetrate through the material to anchor the system, creating a beautiful living shoreline, and offering years of stability. With this method, several feet of waterfront land may be restored to a property.



The risks associated with [shoreline erosion](#) should not be underestimated. Erosion that is left unaddressed can leave property owners and managers with financial and liability problems. No matter the current condition of your shoreline, now is the time to take preventative action. ■



Debunking Common Misconceptions About Alum



Nutrients play a crucial role in sustaining aquatic ecosystems, but excess levels can lead to poor water quality. [Alum \(aluminum sulfate\)](#) is one of the original solutions used in the lake management industry for water quality restoration. Despite its effectiveness, it remains a misunderstood product. Allow us to debunk four common misconceptions about alum and explore its benefits for aquatic ecosystems.

Misconception 1: pH levels will be disrupted after an alum application



While changes in pH can happen after an application, when applied correctly with the right ratio and buffer of Sodium Aluminate, alum does not disturb the pH balance. Professional applications are a precise and controlled process. [Trained experts](#) apply alum to the water via submerged nozzles that counteract external disturbances caused by wind or surface currents. This helps maintain accurate product dosage and prevent fluctuations in water quality parameters. Real-time pH monitoring also ensures that the pH remains within predetermined thresholds, preventing stress on the aquatic ecosystem.

Misconception 2: Alum is an outdated technology



After more than 60 years of use in the lake management industry, some may consider alum an outdated technology, but it remains a trusted solution endorsed by the North American Lake Management Society (NALMS). [Alum](#) is a widely studied, well-understood substance with a long history in wastewater treatment and drinking water clarification. When applied by licensed professionals, it is both safe and effective.

Misconception 3: Alum applications are too expensive

When applied to large lakes, alum is considered a cost-effective solution that provides long-lasting results. Companies can buy bulk products at negotiated prices and can recommend more cost-effective alternatives for nutrient remediation in smaller waterbodies. Following an application, water clarity improves rapidly and the results continue to evolve over time, even decades later, which can also help reduce future management costs. Additionally, assistance with [grants and funding](#) may be available. SOLitude

has experience helping stakeholders navigate the complicated process of obtaining financial resources.

Misconception 4: Alum is harmful to the environment



Aluminum is one of the most common elements found in the Earth's crust. Aluminum sulfate is commonly used in food and as a treatment to balance source water in drinking water reservoirs. To achieve desired results, professionals use [state-of-the-art technologies](#) to conduct applications. SOLitude's custom-built vessels are equipped with precision pump systems and integrated GPS tracking. Once alum is applied, recreational activities can quickly and safely resume.

Despite the proven safety and effectiveness of alum, it's crucial to recognize that do-it-yourself attempts can lead to problems due to a lack of equipment, expertise, and proper permits, underscoring the importance of partnering with professionals. SOLitude has used alum to restore over 35,000 acres of water across hundreds of projects and is committed to upholding the highest standards for precision and safety. ■

The SOLution

creating a better world

2023 Accomplishments

Our volunteering and community outreach program, [The SOLution](#), encourages employees to make a difference in the communities we serve. In 2023, our colleagues went above and beyond to give back to their communities through volunteerism and service.

and SOL DAY

Our 5th annual Heart & SOL Day encouraged colleagues to give back to their communities through service. In 2023, 75 of our team members partnered with 25 local organizations or neighborhoods and accumulated over 319 volunteer hours.

KINDSOLS FOOD DRIVE

In 2023, we launched our new outreach program, [Kind SOLs](#). This company-wide food drive aims to give back during the holiday season. Offices across the country collected non-perishable foods and donated them to local food banks. To further extend a helping hand, colleagues also took time out of their work week to volunteer at local food banks.



DONATIONS INCLUDING IN-KIND SERVICES AND GOODS

\$550,855

DONATED SINCE 2012



25,381

HOURS VOLUNTEERED
SINCE 2012

1,043

HOURS VOLUNTEERED
IN 2023

Volunteer Highlights

- Food Bank meal programs
- Park, beach, and community trash clean-ups
- Animal sanctuary clean-ups
- Hand-made cards for children, seniors, and veterans

Volunteers of the Quarter

Eryn Adrian
Aquatic Biologist, CO

Matthew Drake
Certified Field Trainer, FL

Raquel Mason
Regional Administrator, FL

David Manch
Operations Manager, MA

Heart & SOL Award

Congratulations to Matthew Drake, Certified Field Trainer (FL) and Collin Brown, Operations Manager (FL)!

This annual award is given to colleagues who go above and beyond with personal volunteering, inspire others, and have a true commitment and passion to make the world a better place.

BEFORE & AFTER SHOWCASE

WATER CHESTNUT REMOVAL VIA MECHANICAL HARVESTING

Property type:
Apartment Complex Lake

Location: Yonkers, NY

Josh Hall
Mechanical Specialist

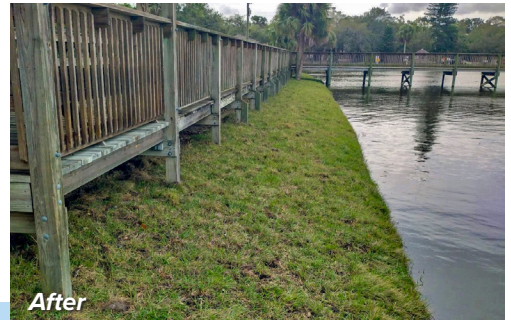
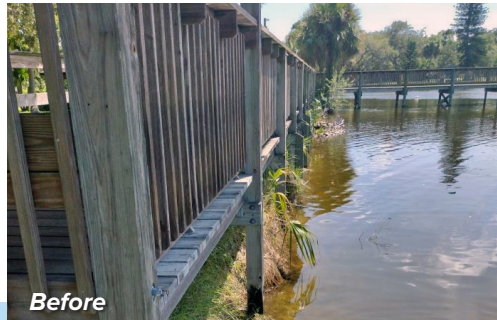


SHORELINE EROSION REPAIR

Property type:
City Park Pond

Location: Indian Harbor Beach, FL

Justen Soloman
Erosion Repair Specialist



GREEN FILAMENTOUS ALGAE CONTROL

Property type:
Community Pond

Location: Greenwich, CT

Jeff Schulz
Aquatic Specialist



CHARA & SURFACE ALGAE REMOVAL VIA MECHANICAL TRUXOR

Property type:
Community Pond

Location: Ft Myers, FL

Alan Meadows
Aquatic Specialist



FILAMENTOUS ALGAE CONTROL

Property type:
Community Pond

Location: Bryan, TX

Rafe Dean
Operations Manager



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
- Shoreline Management & Erosion Repair

For helpful lake, pond, wetland and fisheries management tips visit:



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Keep Your Water Safe: Your Guide to Identifying Toxic Algae

Before you head out to the local lake for a boat day or let your dog swim in the community pond, it's important to know if the water is safe. As warm temperatures continue to heat lakes and ponds, algal blooms can begin to thrive. While many algae species are harmless, certain ones like cyanobacteria can release dangerous toxins.

[Cyanobacteria blooms](#) often appear as blue, blue-green, or "pea soup" green scum that resembles oil or spilled paint on the water's surface. Blue-green algal blooms are also known to have an "earthy" odor.

A type of Harmful Algal Bloom (HABs), cyanobacteria can produce toxins that are harmful (or deadly in severe cases) to wildlife and pets. The toxins can also become airborne and contaminate air droplets, which may lead to irritation of the eyes, nose, throat, or lungs in both humans and animals.

The best way to help prevent HABs is by maintaining healthy nutrient and oxygen levels through proactive lake management solutions like aeration, nutrient remediation, or shoreline buffers. When water quality is balanced, toxic algae is less likely to develop. Everyone can do their part in maintaining healthy water quality to limit nutrient pollution by properly disposing of trash and debris, picking up pet waste, and bagging yard clippings.

Keep yourself and your loved ones safe by learning how to spot a toxic algal bloom and follow these [best management practices](#) to help protect and preserve our precious lakes and ponds. ■

