2022
Volume 16, Issue 2

AquaticsinBrief

INSIDE:

SOLITUDE LAKE MANAGEMENT

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

How to Achieve A Beautiful, Clean Lake with Natural Management Solutions

By **Marc Bellaud, Aquatic Biologist and Director of Technical Services**

Anyone who owns or manages a lake or pond understands the struggle of dealing with algae, aquatic weeds, and other water quality issues. We all want clean, beautiful water, but many lake owners or managers don't have the time, knowledge, or resources to achieve the water they desire. We understand how frustrating it can be to maintain water year-round.

Everyone deserves to have clean water to enjoy. In fact, science shows that simply being in or around water can improve our well-being and help us create meaningful memories. That's why our experts help water-lovers like you achieve safe, beautiful lakes by utilizing natural management solutions that improve water quality and enhance your aquatic resource.

Before implementing any solution, an expert will assess the current state of your lake to determine which tools will help you achieve your goal. If aquatic weeds are your main frustration, mechanical harvesting or hydro-raking can be utilized to naturally remove invasive vegetation. Hydro-raking can also be used to remove organic muck by scooping up bottom debris, which helps remove excess nu-

Hydro-raking

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How to Achieve A Beautiful, Clean Lake

Continued from front cover

trients from the water. In addition to these eco-friendly tools, Triploid Grass Carp can be utilized to control the growth of specific aquatic weeds. Once lake weeds are under control, solutions like nutrient remediation should be implemented to help further enhance your water quality.

Nutrient remediation is the process of improving water quality by reducing excess nutrient levels. Nutrients like phosphorus and nitrogen often build up in lakes due to stormwater runoff, fertilizer, and urban development. Solutions like Alum, Phoslock, and EutroSORB are utilized to improve water quality by targeting excess nutrients. Similarly, beneficial bacteria are used to accelerate the decomposition process and remove excess nutrients from the aquatic system. When nutrient levels are balanced, weeds and algae are less likely to develop, which means you spend less time worrying about your water and more time enjoying it.

Aeration

Erosion Repair

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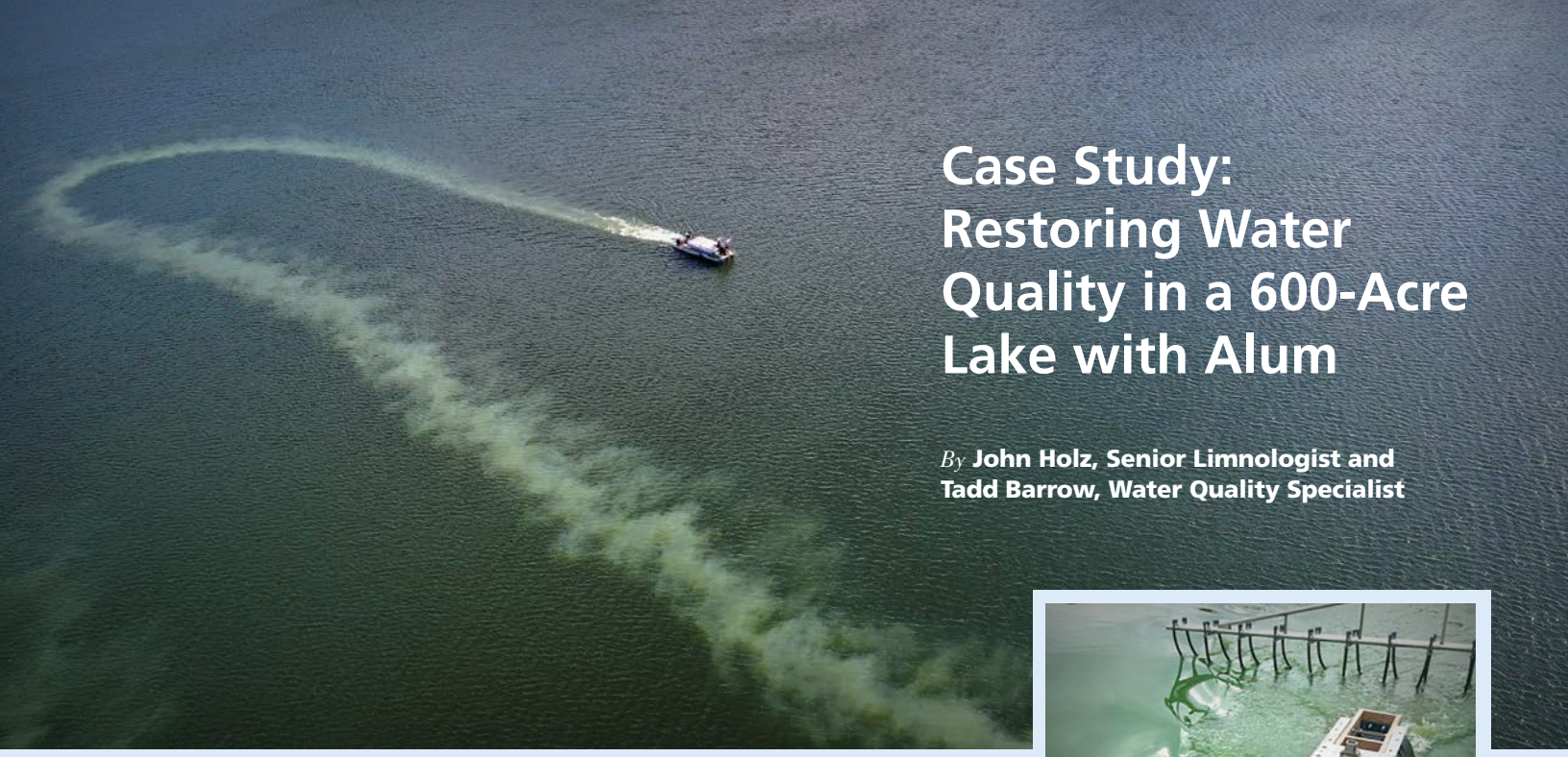
Nutrient levels can also be managed with solutions like floating fountains and submersed aerators. Floating fountains not only add beneficial dissolved oxygen to the water, but also elevate aesthetics with their spray patterns and lighting features, making them a stunning feature your community can admire. Submersed aerators utilize bottom diffusers that release air bubbles that rise to the surface. This process helps increase dissolved oxygen levels while circulating the water column. Both systems help enhance water quality so you can spend time in and around the water with family and friends.

Beneficial buffers can also help improve the health of your lake while adding beauty. Flowering plants and other native vegetation planted in the littoral zone and along the bank can help filter excess nutrients and reduce shoreline erosion. If your shoreline is in need of repair before planting native vegetation, the mesh SOX system can be installed to regain lost shoreline and prevent future erosion damage.

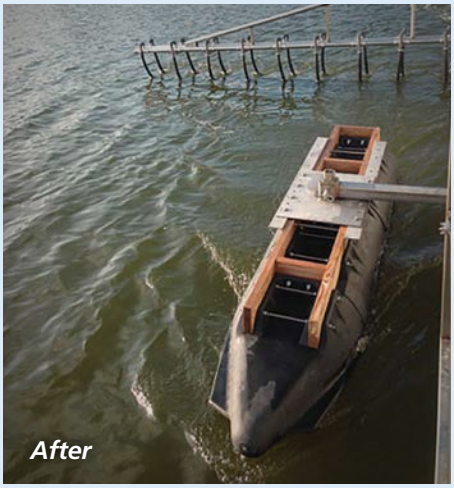
Whether the waterbody you are responsible for is a recreational lake, stormwater pond, private lake, or golf course pond, you shouldn't have to worry about the way your water looks or functions. But we know you care about your water, and we care too. Our lake management experts are ready to partner with you and guide you through building a custom plan that will transform your waterbody — so you can stop dealing with the frustrations and finally enjoy your water. ■

Native Shoreline Plants in Your Region



Case Study: Restoring Water Quality in a 600-Acre Lake with Alum

By **John Holz, Senior Limnologist and Tadd Barrow, Water Quality Specialist**



Imagine, it's a warm summer day and you're loading up the boat for a fun day on the lake, but when you head into the open water, all you can see is green scum as far as the eye can see. This is exactly what a community in Minnesota experienced when their large lake succumbed to an algal bloom that hindered recreational activities for many families.

After conducting a Total Maximum Daily Load (TMDL) study, it was determined that the 600-acre lake was impaired by excess levels of phosphorus. After researching management strategies, the watershed district determined alum was the most effective solution and partnered with our water quality management experts to develop an action plan.

Alum or aluminum sulfate is a natural element that binds with nutrients in highly turbid waterbodies. Phosphorus and nitrogen are the two main nutrients that can cause water quality issues like algal blooms or aquatic weed growth. These nutrients can enter the water from stormwater runoff, industrial wastewater, animal waste, grass clippings, and fertilizer. The excess nutrients, combined with warm temperatures, created the ideal environment for algae to develop.

When introduced to the water using a specialized barge and GPS application technology, alum forms a floc that binds with excess nutrients and suspended particles within the water column. As the floc settles, it forms a cover over the lake bottom and deactivates phosphorus throughout the water column and sediment, thus improving water quality. When water quality is more balanced, lakes are less likely to experience water quality issues.

Before the application, a water quality study determined that 220 µg/L [micrograms per liter] phosphorus was present in the lake. The first dose of alum was applied over the course of 11 days in the fall. In total, our alum experts applied 292,000 gallons of liquid alum, which adequately covered the areas of concern. The lake's water quality was monitored throughout the application to ensure levels remained balanced. Following the alum application, a water quality study was conducted and reported that phosphorus dropped to 59 µg/L, over a 70% reduction.

The alum application helped significantly reduce the phosphorus levels in the water, which, in turn, made water quality more balanced. Not only was water quality enhanced, but alum helped improve the water clarity.

Through the implementation of alum applications and water quality monitoring, this popular recreational lake went from an unsafe eyesore to a beautiful, clean resource the community can use for swimming, boating, and fishing.

To learn more about the benefits of alum and other nutrient remediation solutions, reach out to your local lake management professional. ■

Scan Here to Learn About Alum

3 Steps to Achieving Your Dream Fishery

By David Beasley, Fisheries Biologist and Director of Fisheries

For many of us, time spent fishing with family and friends is a favorite pastime. From seeing the excitement in your kids' faces as they reel in a big Bluegill to catching your personal best Largemouth Bass, each smiling face and high-five leaves a fond memory. However, those moments can be hard to come by if your fishery is poorly managed.

Building and maintaining a thriving fishery isn't easy and requires data-driven solutions. How you manage your fishery depends on your end goal. Do you want a trophy fishery filled with big bass? Is your objective to have high catch rates for the kids? No matter the goal, these three steps can help you achieve it.

1 Partner with a Fisheries Biologist to Assess Your Fishery

Assessing the current state of your fishery will help Fisheries Biologists determine which management strategies to implement to achieve your goals. First, Fisheries Biologists collect data through electrofishing studies and review angler catch data to determine the fish species present, fish size class structure, fish weight, and many other indicators of fish population health. Determining if you have the proper ratio of bait fish to predator fish, as well as suitable fish sizes, will depend on your goals. For example, if you desire high catch rates, there should be more predator fish than if your goal is to catch trophy-size fish.

In addition to collecting this information on fish, Fisheries Biologists collect data on the habitat to ensure it's supporting fish growth goals. Water quality is the most important component of the fishery's habitat. Poor water quality can hinder fish development and, in severe cases, cause fish kills. To avoid these failures, it's important to introduce aeration if needed and conduct regular water quality testing to ensure nutrient and dissolved oxygen levels are sufficient. With the proper data collected and your goal in mind, the next step to achieving your dream fishery is building a plan to get there.

2 Build a Custom Fisheries Management Plan

Once the necessary data is collected, fisheries experts can create a plan that's built around your fishery's current state, goals, and budget. Strategies like installing fish cover or feeders may be suggested to improve fish habitat and growth. Aeration or liming may also be implemented to help you establish water quality that supports fish growth. Our team has access to tools and technologies that will help you reach your goals while staying within budget.

3 Enjoy Your Fishery!

After data has been collected and solutions have been implemented, you are on your way to enjoying the fishery you've always wanted. In time, you will be able to watch your friends and family reel in fish after fish. Or, perhaps, you can finally achieve your goal of catching a trophy Largemouth Bass you're proud of. No matter what success looks like to you, our experts are here to help.

If you're ready to build the fishery of your dreams, contact your local Fisheries Biologists and discover how they can help you achieve your goals. ■

Oxygenation Solutions for Lakes & Ponds: Floating Fountains vs. Surface Aerators vs. Submersed Aeration

By **David Riedl, Environmental Scientist and Technical Services Manager**

Healthy, functional lakes and ponds require oxygen. Unfortunately, organic build-up that naturally occurs over time reduces a waterbody's ability to maintain adequate oxygen levels. Waterbodies with poor water quality can suffer from water quality impairments like algae, toxic cyanobacteria, and aquatic weed growth. These water quality issues can be a headache for anyone who owns or manages a waterbody. Fortunately, lake managers can utilize three solutions to increase oxygen: floating fountains, surface aerators, and submersed diffused aeration.

Simply put, a floating fountain is an electric motor attached to a float that physically forces water into the air. As water is propelled into the air, circulation occurs around the fountain, and the natural oxygenation of the water column is enhanced. Floating fountains come in different shapes, sizes, and spray patterns and can serve as the focal point of a pond while helping improve water quality. One thing to keep in mind is that the more appealing the display, either with a nozzle or special flow chamber, the less water is being circulated which can limit oxygen introduction.

Surface aerators are designed similarly to floating fountains but have the sole purpose of water movement and oxygen input. These systems run at lower speeds with large propellers that produce a boil-like flow on the surface of the water. Surface aerators are excellent for problematic ponds due to their ability to maintain a high flow and inject up to 3 lbs of oxygen per horsepower, per hour into the water. Ponds with less than 4 to 6 feet of average depth should consider either a floating fountain or surface aerator.

Submersed aeration can effectively increase DO levels in lakes and ponds with average depths above 4 to 6 feet. Submersed aeration systems have a compressor on shore that pumps air through tubing to diffusers located on the lake bottom that release fine air bubbles, creating a lifting action. These systems do not directly inject oxygen into the pond, but help circulate large amounts of water, which helps increase oxygen levels. These systems work better in deeper and larger waterbodies and are usually the best solution to break thermal and oxygen stratification.

There are many techniques to help increase dissolved oxygen levels, and aeration is a tried and true method. These solutions can be paired together to help introduce more oxygen to your waterbody. Whether you should combine these aeration solutions will depend on your goals for the waterbody.

Water quality issues, logistics, and your overall goals will dictate which system is the best fit for your lake or pond. It is recommended to work with a lake management professional to properly size, install, and maintain the aeration systems to ensure they function properly for years. Remember, lakes and ponds with aeration can still present water quality issues, so it is important to regularly monitor your water to stay ahead of issues, resulting in a beautiful pond all year round. ■


Floating Fountain


Surface Aerator


Submersed Aerator

Scan Here for More Aeration Benefits

Florida Community Wins $10K Extreme Shoreline Makeover Giveaway!

Shoreline erosion can be unsightly, but it can also threaten property value, home foundations, and other valuable assets near the water. In February 2022, SOLitude Lake Management launched the Extreme Shoreline Makeover Giveaway to help one lucky winner restore their waterbody's shoreline. The giveaway included $10,000 of shoreline restoration services, which included the installation of a SOX Erosion Control System. After reviewing over 200 submissions, SOLitude selected the Southshore Falls community as the Extreme Shoreline Makeover Giveaway winner!

Southshore Falls in Apollo Beach, FL, is a 55+ community that offers a premium lifestyle for its residents. From beautifully landscaped walking trails to the scenic ponds located throughout the community, these residents enjoy spending their time outdoors. Over the years, the community has maintained its aquatic resources by implementing solutions such as aeration, dredging, and nutrient remediation. However, their pond shorelines have become eroded due to high activity and runoff, which became an eyesore and a safety hazard to residents.

With $10,000 worth of shoreline restoration, SOLitude's erosion repair team restored a large section of eroding shoreline on one of their popular ponds. Utilizing a hydraulic dredge, muck and sediment from the pond bottom were pumped into the SOX system. This both restabilized the shoreline and increased the depth of the shallow cove where the restoration took place. After additional material was brought in to fill the SOX, we sodded over the system to help create a natural living shoreline. Now, the residents at Southshore Falls can safely enjoy their walks around their pond and enjoy the view of their beautiful, new shoreline. ■


After


Before


During

Honoring Our Volunteers of Quarter One and Two

We are proud to have colleagues who not only care about the environment but also care about their local community. Through SOLitude's corporate volunteering and community outreach program, The SOLution, colleagues are encouraged to volunteer in their communities. From trash pick-ups to making cards for children's hospitals, our team is passionate about serving others. We are thrilled to name Customer Service Representative Flo Paterno as The Volunteer of Quarter One and Aquatic Biologist and Field Operations Manager Ean Sims and Senior Aquatic Biologist Eggy Suarez as Co-Volunteers of Quarter Two. Thank you all for everything you do!

Before & After Showcase

Duckweed, Watermeal, Primrose, & Southern Naiad Management

Property type: Private Landowner

Acreage: 0.7 Acres

Spencer Hering, Aquatic Specialist, MO

Azolla Management & Fountain Installation

Property type: Community Pond

Acreage: 0.15 Acres

Logan Wooley, Operations Manager, FL

Filamentous Algae Management

Property type: Community Lake

Acreage: 1.5 Acres

Austin Hogan, Aquatic Specialist, TX

Cyanobacteria Management

Property type: Community Lake

Acreage: 9 Acres

Kyle Follansbee, Aquatic Specialist, FL

THANK YOU TO OUR VENDOR PARTNERS

Aqua Master Fountains and Aerators — Master the Power and Beauty of Water

vertex Aquatic Solutions

SOX Erosion Solutions

the MappingNetwork — certified service provider

The Stewards of Water

MB Ranch King

Texas Hunter Products

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3 Reasons the Water You're Responsible for Looks Bad

When managing a waterbody, you strive to maintain clean, beautiful water that everyone can enjoy. However, when nuisance water quality issues arise, your oasis may become less desirable, which can be extremely frustrating. Three common reasons lakes and ponds look bad are because of low dissolved oxygen, excess nutrients, and eroded shorelines. Don't let these water quality issues stress you out!

When faced with algae, weeds, or erosion, several solutions can be implemented to help restore the water you're responsible for:

- Introduce dissolved oxygen with floating fountains and submersed aeration. A well-oxygenated lake is less likely to experience water quality issues and fish kills. Floating fountains also add an aesthetic element to your pond, making it the focal point of the property.
- Consider nutrient remediation solutions like Phoslock, alum, or EutroSORB to help restore ecological balance to your lake. These technologies reduce excess nutrients and turbidity, creating a healthier lake.
- Stabilize your shoreline and add beauty to your waterbody by establishing a beneficial buffer and littoral zone with native plants. If your bank has severe erosion damage, SOX systems can be employed to restabilize the shoreline.

These sustainable solutions can help you achieve beautiful water that can be enjoyed by all. Partner with a lake management expert to build a custom lake management plan that will transform your waterbody. ■