



## Alum: Eco-Friendly Water Quality Improvement in Large Lakes

### Clean, Healthy Lakes = Happier, Healthier Communities

Lakes are vital assets that enrich lives, elevate property values, and provide drinking water to our communities. Nutrients like phosphorus and nitrogen are essential to support these aquatic resources, but in excess, nutrients can lead to weeds, algae, and fish kills. In turn, these water quality problems can result in regulatory violations, create public health risks, and damage the reputation of a community.

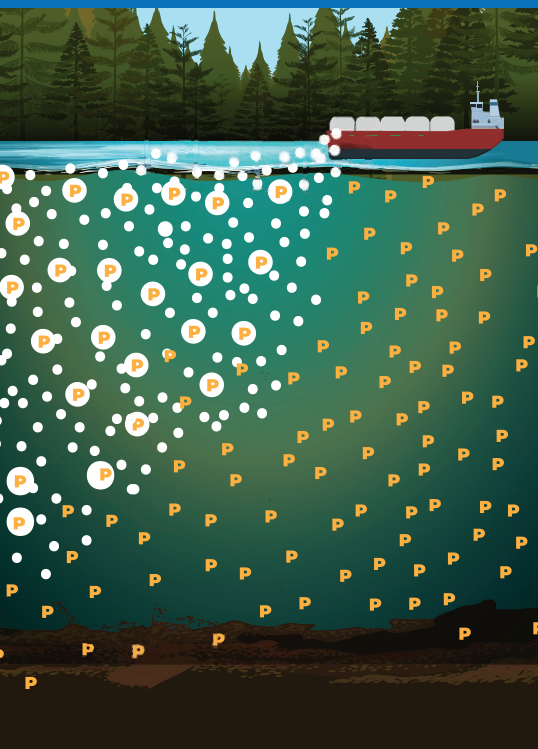
We know maintaining a clean, beautiful lake can be hard. For over 60 years, experts have used an eco-friendly product called aluminum sulfate (alum) to support clean, healthy lakes. Alum is a natural product that is endorsed by the North American Lake Management Society.

*SOLitude has decades of expertise using alum and a wealth of knowledge to help lake owners navigate the permitting process and secure funding through state and federal grants.*

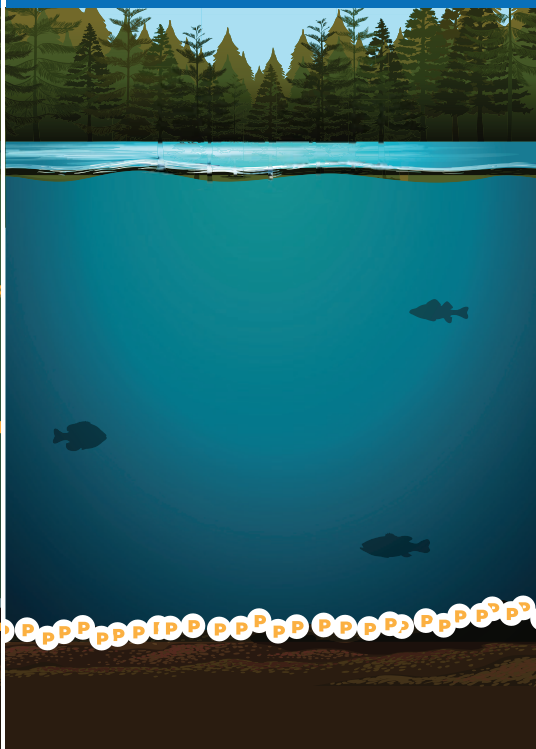
### What is alum? How does it work?

Alum is an extremely safe, well-studied substance. Aluminum is the third most abundant element in the earth's crust after oxygen and silicon. In addition to lake management, alum is used in drinking water and wastewater treatments, and is a common food additive. Swimming and other water activities can be safely enjoyed while an application is taking place.

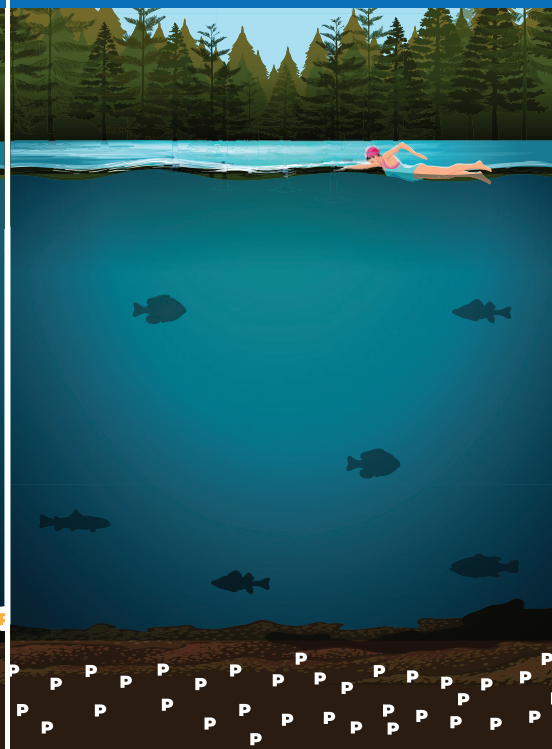
ALUM IS INJECTED BELOW THE SURFACE WHERE IT REACTS WITH WATER, FORMING A FLOC THAT BINDS WITH PHOSPHORUS AND OTHER PARTICLES.



AS THE FLOCK QUICKLY SINKS, WATER QUALITY AND CLARITY IMPROVE AND STEADILY ENHANCE OVER TIME.



THE SETTLED FLOC PROVIDES MILLIONS OF PHOSPHORUS-BINDING SITES, BLOCKING THE RELEASE OF PHOSPHORUS FROM THE SEDIMENT.



## The Science Behind Alum Applications

While safe, alum applications can lead to pH imbalances when conducted by inexperienced hands. SOLitude's skilled experts understand the science behind lake management and are educated on precise product calculations and application techniques. Professionals are also experienced in the application of sodium aluminate, which serves as a buffer to maintain healthy pH levels. A deep technical knowledge of proper product ratios allows our alum experts to maximize resources and eliminate risks of toxicity to humans and wildlife.

SOLitude employs custom-built floating vessels equipped with meticulously calibrated pump systems for applications. Operated via computerized GPS guidance, these systems dynamically adjust flow rates according to boat speed and depth readings, ensuring uniform alum dosage throughout the waterbody. Submerged nozzles minimize disruption from wind or surface currents.



**BEFORE**



**AFTER**



**BEFORE**



**AFTER**

## SOLitude's Experience and Success Stories

- SOLitude has completed over 200 alum projects, improving over 35,000 acres of water in recreational lakes and drinking water reservoirs.
- Our application process supports optimal water quality conditions by preventing undesirable pH fluctuations.
- Long-lasting outcomes are achievable. Vermont's Lake Morey was treated in 1986 and the results are apparent 38 years later.
- SOLitude has extensive experience helping lake associations and municipalities obtain grant funding, both for planning and treatment, and navigate complex permitting processes. We can guide you through each step of the process, from planning and educating stakeholders to securing funding and conducting treatments.

### List of recognizable lakes we have treated

- Pinto Lake, CA
- Lake Ketchum, WA
- Cedar Lake, WI
- Fish Lake, MN
- Bald Eagle Lake, MN
- Georges Pond, ME
- Congamond Lake, MA

*"The alum project on our lake has provided wonderful results. Previously, the smell and pea soup conditions in late July and August had us considering moving. Now we can see the bottom at the end of our dock and our granddaughters love swimming in the lake all summer long!"*

- Mike B., Lake Resident & Lake Association Member