

# **AQUATIC MANAGEMENT**



# Nanobubble Solutions to Improve Lake & Pond Water Quality

Moleaer nanobubble generators provide a chemical free solution to treat lakes and ponds to restore ecosystem health and improve water quality. Nanobubbles can reduce algae and algae toxins, increase water clarity, reduce odors and off taste, improve sediment layer, and improve fish and aquatic ecosystem health. Moleaer has successfully treated >120 lakes and ponds around the globe.



## **Benefits of Nanobubbles** UNTREATED WATERBODY NANOBUBBLE INJECTION **Fish Kills** Algae Overgrowth Improved Water Clarity Healthy Fish **Suspended Algae & Toxins Elevated DO** Nutrients Release from Sediment Midge Flies Thick, Odorous Muck **Firm Sediment Layer** m at m MOI FAFR

INCLEAR	
Pain Point(s)	Moleaer Solution
Algae growth in lakes and ponds	Nanobubbles directly break down algae cells and reduce algae toxins without the need for harmful chemicals
Odor from the lake	Nanobubbles enable beneficial bacteria to outcompete algae for available food
Water is not clear or attractive	Increase water clarity and quality

#### Key Differences Between Traditional Aeration vs. Nanobubbles

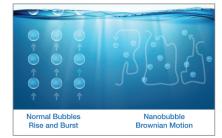


- Due to their size, nanobubbles lack the buoyancy to rise to the surface
- As a result, nanobubbles can remain suspended at all depths

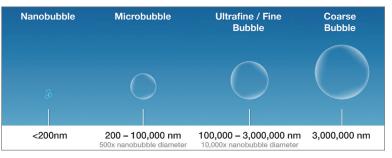
# How It Works

# **Nanobubbles**

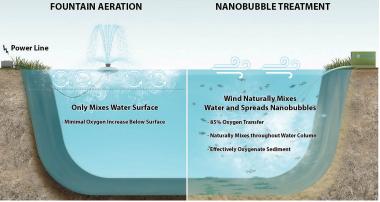
Moleaer's Nanobubble Generators produce trillions of nanobubbles each less then 200nm in diameter. Bubbles of this size exhibit, extraordinary properties including neutral buoyancy, a strong negative surface charge, and an enormous surface area per



unit volume. When applied to lakes or ponds, nanobubbles increase oxidation-reduction potential (ORP) which measures the ability of a lake or river to cleanse itself or break down waste products. Nanobubbles can also elevate dissolved oxygen (DO) evenly throughout the water column and into the sediment layer, maintaining a healthy ecosystem.



### Key Differences Between Fountains vs. Nanobubbles



Nanobubbles can effectively treat the entire water body and not only the surface

# **Case Studies**



#### **Moleaer Installation and Impact**

#### **Moleaer Nanobubbles Impact on Dissolved Oxygen**

6

4

2



Oxygen (mg/L) -Far Side of Lake 0 20 30 Days of Treatment 0 10 40 50 Oxygen at 8ft 8 6 Oxygen (mg/L) 4 ..... Near Aerator 2 - - Middle of Lake Far Side of Lake 0 0 10 20 30 40 50 Days of Treatment

Oxygen at 2ft

..... Near Aerator

- - - Middle of Lake

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