



Scan to see
case studies!



SonicPure

Sustainable Algae & Biofilm Control

Wastewater
Aquaculture

Drinking Water
Industrial

Lakes & Ponds
Mining

Agriculture
Golf

Introducing Pulsar 4400

The Highest Precision Algae
Targeting Available

4400 frequencies target green and blue-green algae, golden algae, and also dinoflagellates. Our frequency set delivers the highest targeting precision for algae and biofilm control.



 **Pulsar4400**

SonicPure is the leading supplier of solutions that prevent and combat algae using advanced ultrasonic technology—restoring water to its natural state quickly and sustainably without the use of harmful chemicals.

The Pulsar represents the next generation in ultrasonic defense systems designed for prevention, performance, and reliability. Our systems operate 24/7 and provide high-reliability telemetry and cloud connectivity to enable real-time monitoring of system status, operational performance and water quality.

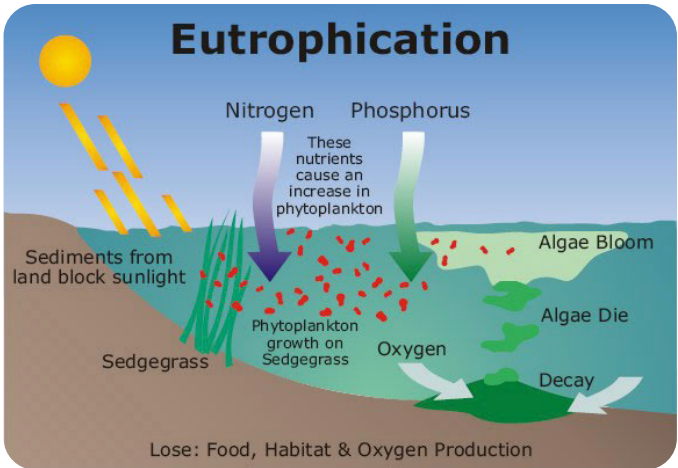
The Problem

Algae blooms are excessive accumulations of algae, often driven by elevated nitrogen and phosphorus together with warm temperatures. Additional contributors include water chemistry and species characteristics. While nitrogen and phosphorus are normal parts of healthy ecosystems, concentrations can



spike due to agricultural runoff, wastewater, stormwater, and household sources—and can be amplified by severe weather that disrupts typical water cycles. The result is nutrient enrichment (eutrophication) and uncontrolled algal growth.

Among the most problematic blooms are those caused by cyanobacteria (blue-green algae), which may produce toxins harmful to people and pets and directly impact water quality and use. Other algae—including green, golden, and red—can restrict recreation, raise the cost of producing drinking water, disrupt wastewater processing, and impede industrial operations and agricultural irrigation.



“ Chemical base treatments have proven ineffective... We looked to the latest science and technology to find new and more effective solutions. ”

— Ginger Cove HOA, Nebraska

Why is this urgent?

Situation	Implication
Chemicals are harmful — to your water and your local ecosystem.	Most formulations keep ingredients as trade secrets, and copper sulfate (CuSO ₄) is toxic, requiring full PPE to apply. Chemical application conflicts with environmental sustainability goals/certifications.
CuSO₄ persists and accumulates — degrading water quality over time.	Chemicals can destroy beneficial bacteria and trigger rebound blooms.
Most remediation is expensive — and requires ongoing work to remove algae and biofilms.	Lost productivity and higher O&M costs. Alternatives like chlorination and UV are costly to operate and can disrupt downstream processes.
Algae disrupts productivity — it clogs pumps and drip lines and creates compliance/cost issues in wastewater, drinking-water, irrigation, and aquaculture systems.	Can shut down critical water distribution and spread cyanotoxins to crops, fish and shrimp.
Some algae are highly toxic — to people, pets, fish, and aquatic life.	Cyanotoxins can harm people and animals, contaminate crops, and cause fish kills; golden algae kills fish and red tide can devastate communities.

How it Works on Algae:

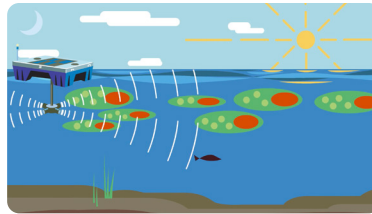
- Targeted ultrasonic frequencies induce resonance in the algal cell's simple structures — disrupting mechanisms and disabling algae.
- Algae sink to the bottom and die without releasing toxins.
- No chemicals required.
- Operates 24/7 on AC or solar power.
- Remote cloud monitoring provides real-time system status and enables tracking of water-quality metrics (e.g., chlorophyll-a, turbidity, pH, dissolved oxygen).

How it Works on Biofilm:

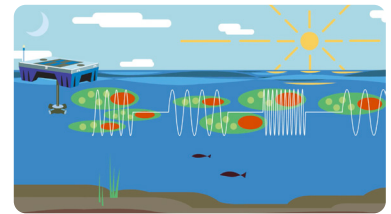
- Ultrasonic waves simulate water turbulence that disrupts early bacterial attachment.
- Prevents anaerobic bacteria from bonding and forming the sticky layer that holds biofilm together.
- Stops the anaerobic layer from forming, hindering biofilm growth.
- Keeps surfaces cleaner, reducing maintenance and operating costs.
- No chemicals required.



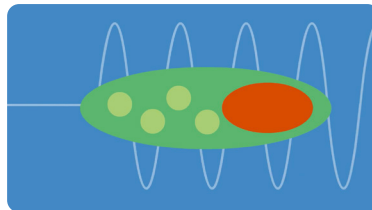
Critical structural resonance disrupts cellular structures at specific frequencies—with 4,400 frequencies, SonicPure's Pulsar 4400 impacts a broad spectrum of harmful algal species, including cyanobacteria.



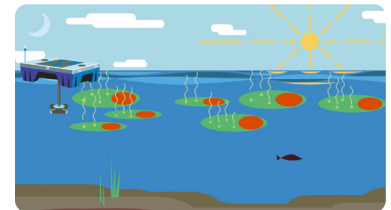
Emits sound waves in a 360-degree pattern, 24 hours/day.



Deploys 4,400 discrete ultrasonic frequencies across two bands to target blue-green algae (cyanobacteria) and other harmful algae.



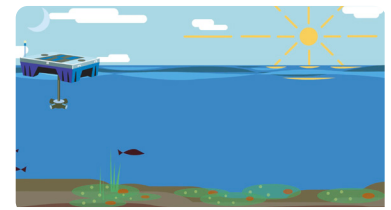
Disrupts gas vesicles and other cellular structures, impairing buoyancy and function.



Causes gas to permeate cell membranes, reducing buoyancy without releasing toxins.

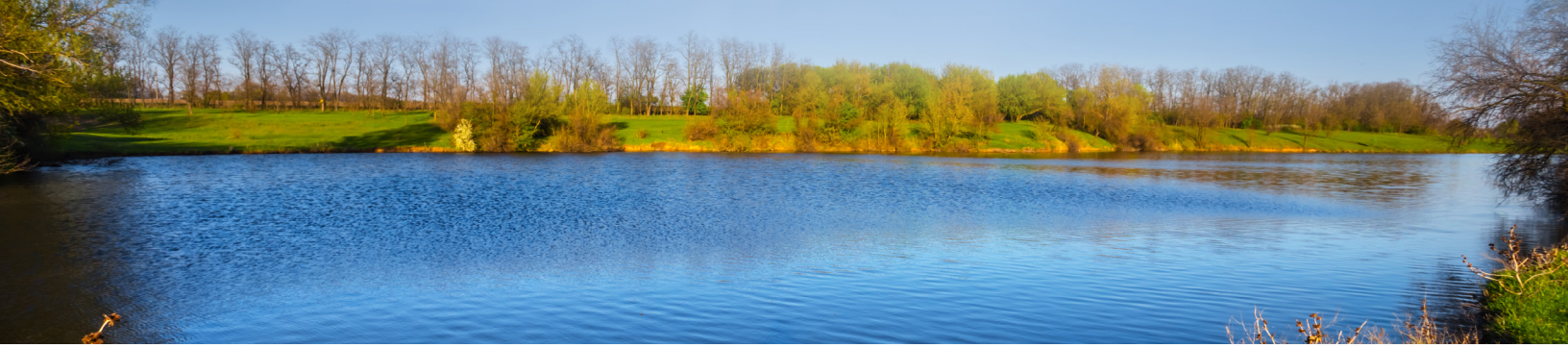


Sinks algae to the bottom, where light deprivation drives cell death and toxins diminish over time.



Sustains beneficial aerobic bacteria and does not increase phosphorus release that can fuel new blooms.





High Impact Use Cases



Drinking Water — reservoirs and plants

- Prevent blooms before they start
- Control active blooms
- Protect source and finished water
- Reduce taste/odor events and chemical demand



Wastewater Processing — clarifiers, settling ponds and lagoons

- Reduce biofilm cleanup for your operations and maintenance (O&M) team
- Prevent biofilm before it forms
- Lower downstream treatment and compliance costs
- Reduce chemical demand and improve settling/clarity



Lakes & Ponds

- Prevent cyanobacteria blooms; avoid closures and advisories
- Protect people, pets, and fish from harmful algal toxins—without chemicals
- Improve clarity and aesthetics while reducing odors
- Cut ongoing maintenance costs and chemical spend



Agriculture

- Keep irrigation water available (prevent algae/biofilm)
- Chemical-free; supports organic practices
- Avoid algicide downtime and waiting periods
- Improve pump/filter/emitter performance; fewer clogs
- Reduce maintenance and labor



Aquaculture

- Control harmful algae without chemicals—does not harm fish or shrimp
- Reduce golden, blue-green (cyanobacteria), and green algae; support beneficial bacteria
- Mitigate raphidophytes (e.g., Chattonella) linked to gill clogging and brevetoxin events in shrimp
- Initial success in trial deployments reducing sea-lice pressure in salmon



Our Solution Family

SonicPure provides comprehensive, powerful solutions to manage algae—preventing harmful blooms, combating active events, and sustaining long-term improvements. Built on the Pulsar platform, our advanced ultrasonic technology disrupts and remediates harmful algae and cyanobacteria. The platform is configurable to your site with options for water monitoring, multiple power and deployment modes, and cloud services—either integrated with your IT systems or standalone.

- **Pulsar 4400** — advanced ultrasonic systems that prevent and mitigate algae blooms
- **SenselQ** — water-quality probes that track metrics including chlorophyll-a, cyanotoxins, temperature, dissolved oxygen (DO), oxidation-reduction potential (ORP), pH, conductivity, and turbidity
- **Sentinel AIQ & Shoreline Solar** — on-water and shoreline solar power options for Pulsar deployments; plus AC power and fixed/floating mounts; optional integrated water monitoring
- **IQCloud** — tiered cloud platform for end users, reseller partners, and SonicPure to monitor system performance and real-time data

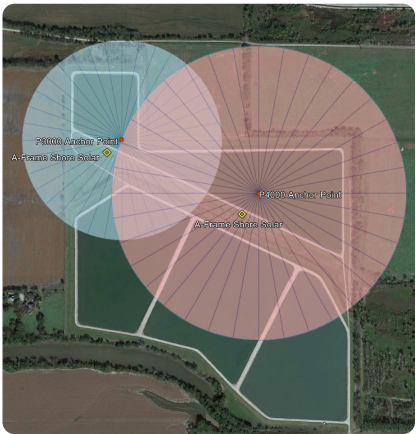
Feature	Pulsar 4400
Number of Frequencies	4,400
Number of Piezo Transducers/ head	4 heads @ 90 degrees
Algae targets	Most cyanobacteria (blue-green), green, selective golden algae, and dinoflagellates
Green Algae Target Range	150M Radial (17 acres)
Blue-Green Algae Target Range	400M Radial (124 acres)
Biofilm Target Range	60M Radial (2.8 acres)
Power Options	120v/240v, 24vDC, Solar, Sentinel AIQ/+
Head Options	Single Unit or Dual Units to the same power supply

Feature	Pulsar 4400
Antifouling – non-mechanical	✓
Clarifier Option for integrated cable	✓
Custom Cable lengths	✓
Standard Monitoring/Telemetry including on/off, restart, reboot, sync and measurement of operational performance and water quality metrics at set intervals	✓
Water Quality Monitoring – MiniSenselQ –Chlorophyll A, Phycocyanin (Cyanobacteria)	✓
Water Quality Monitoring – SenselQ8 – Basic + ORP, pH, DO, Turbidity	✓
IQCloud Integration and Access	✓



Coverage – How many do I need?

	Speed	Range
Cyanobacteria / Blue-Green Algae	Impact visible in 7–10 days —gas vesicles are disrupted, algae lose buoyancy and sink, and cells die due to lack of light/photosynthesis.	400 meters radially or 124 acres
Green Algae and Diatoms	Green algae and diatoms die in 3–4 weeks via cellular disruption.	150 meters radially or 17 acres
Biofilms	Simulated turbulence disrupts anaerobic bacterial attachment and colonization, preventing biofilm formation.	60 meters radially or 2.8 acres



The Rest of the Story...



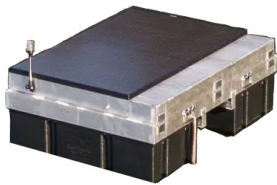
Shoreline Solar

Solar power for applications where AC power is unavailable and a cable run is feasible



AC Power Hub

Power supply for applications where AC power is available and a cable run is feasible; converts AC to DC



Sentinel and Sentinel AIQ+

On-water solar platform for larger or remote applications where a cable run isn't feasible



Pulsar Float System

The standard solution for land based systems – cable linked from the shore to the float



SenseIQ

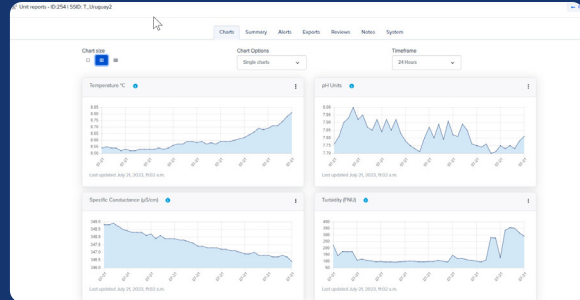
Available in a small format MiniSense and eight sensor SenseIQ8 models

Ultrasound complements approaches that oxygenate water or encourage beneficial bacteria to tackle heavy nutrient loads and sunken biomass. Depending on site conditions, a combined strategy may be best for rapid recovery. Only ultrasound directly targets algae—and in many cases it can resolve issues on its own.



Systems and IQCloud

Do you need water-health visibility to meet regulatory requirements or environmental goals? IQCloud is our cloud-based monitoring platform with flexible commercial options to help you manage water assets—especially when blooms form and time is critical.



Purchase or Rent

Purchase for long-term ownership and lowest total cost with SonicPure's 3-year warranty, or choose a monthly rental to convert CAPEX to OPEX with included support and telemetry access. Optional water-quality monitoring available.



Efficacy and Case



Teton Pines -- Blue-Green



Wilson Pond -- Spirogyra



For case studies and
more info, scan here



Get In Touch!

sales@sonicpure.com

+1 (310) 955-4005