ALGAE CONTROL AUSTRALIA

Scan for case studies

WASTEWATER & DRINKING WATER TREATMENT

Removing algae and controlling biofilm in wastewater and drinking water treatment plants



Ultrasound technology from SonicPure, supplied and supported in Australia by Algae Control Australia, is a proven, cost-effective and reliable solution for controlling harmful algae, cyanobacteria and biofilm in wastewater and drinking-water plants.

Clarifiers | Lagoons and basins | Drinking water reservoirs | Chemical-free, 24/7

The challenge: algae and biofilm are undermining plant productivity and driving up operating costs

Excess nutrients, especially nitrogen and phosphorus, fuel algal growth, and some species release harmful toxins that contaminate water. Warming trends make the problem worse: toxic blue-green algae (cyanobacteria) and biofilms flourish in warm, slow-moving water, increasing both the frequency and severity of outbreaks.

Excess nitrogen and phosphorus can overwhelm aquatic ecosystems, triggering rapid algal bloom growth (Figure 1).

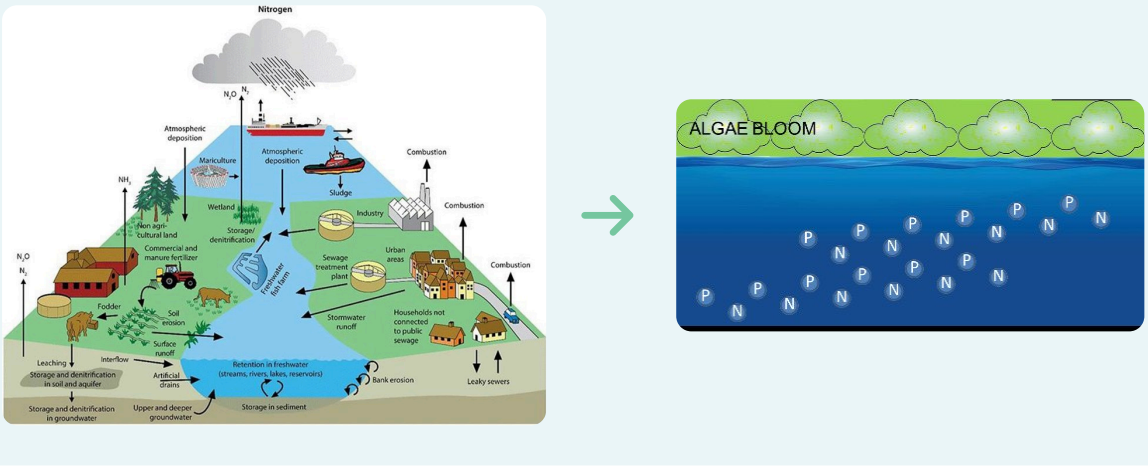


Fig. 1 Excess nitrogen and phosphorus can overpower an ecosystem and drive rapid growth of algal blooms.

Harmful algal blooms and biofilm are increasing in frequency and severity

Nutrient runoff

Fertilisers and urban stormwater wash nitrogen and phosphorus into waterways, fuelling algae and biofilm in nutrient-rich basins.

Rain and drought

Heavy storms deliver nutrient pulses; dry spells concentrate them and reduce flushing. Blooms can surge after both.

Warmer water

Longer hot seasons speed algal growth and extend bloom windows, especially in slow-moving reservoirs and lagoons.

Sediments

Nutrients stored in bottom sediments can recycle during mixing or low oxygen, re-fuelling algae blooms.

The impact on your operations

For wastewater and drinking water professionals, rising nutrient loads make licence compliance and community standards harder to meet. The operational impact is immediate: crews spend more time cleaning clarifiers and basins and managing ponds and lagoons. At the same time, chemical and downstream treatment costs rise to stay compliant and meet public expectations for clean, safe and visually clear water.

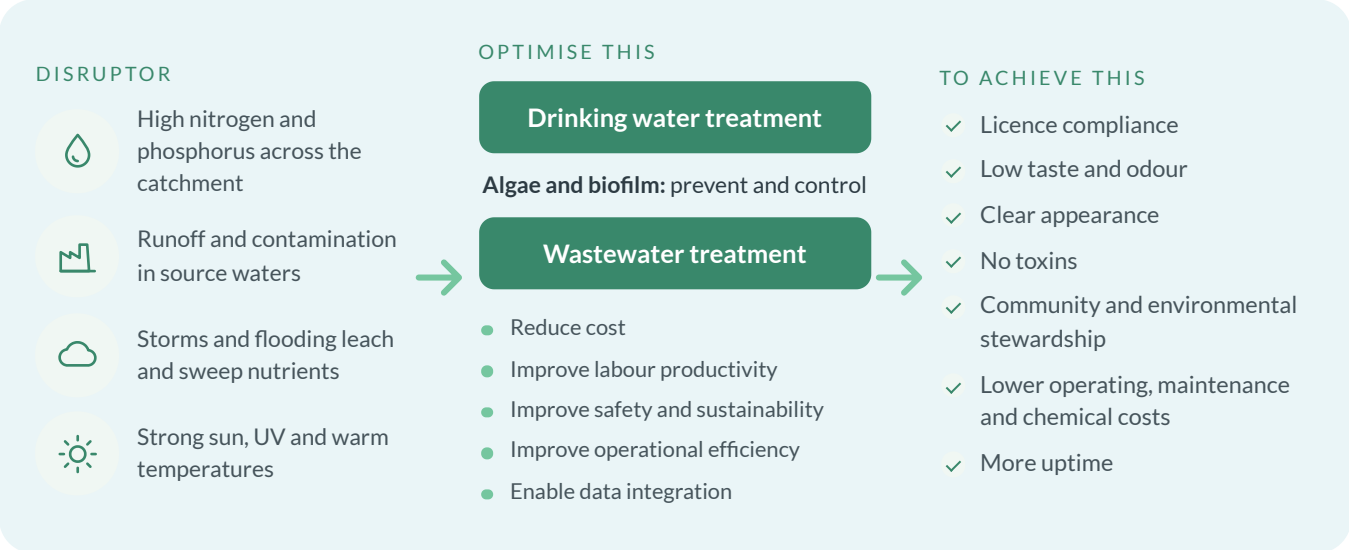


Fig. 2 The challenge for water processing professionals.

Where algae and biofilm affect operations

Areas affected include wastewater lagoons, clarifiers and basins, and source water reservoirs for drinking water.

- Equipment fouling; elevated TSS/BOD; compliance risk
- TSS/BOD over licence limits can trigger penalties and added polishing (e.g. SAGR)
- Drinking water: cyanotoxins; taste and odour (T&O) complaints; appearance issues
- Higher labour and chemical use; more unplanned downtime; tighter regulatory scrutiny

Other locations affected

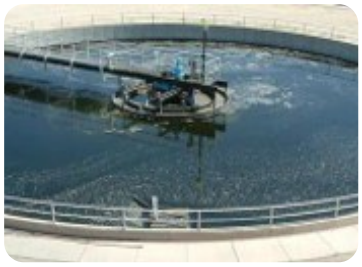
- Raw-water reservoirs and lagoons
- Sedimentation basins
- Finished-water tanks
- Polishing ponds
- Any location where biofouling interferes with operations

The issues addressed by Pulsar ultrasound



Wastewater lagoons

- High algal load → TSS/BOD over limits
- More downstream treatment (e.g. SAGR for ammonia)
- Effluent compliance risk



Clarifiers

- High algal load → TSS/BOD over limits
- Effluent compliance risk
- Wall biofilm; scum rings
- Increased labour, cleaning and safety exposure



Reservoirs feeding drinking water plants

- Cyanobacteria; microcystin toxins
- Taste and odour (T&O) complaints
- Higher labour and downtime
- Recreational closures; fish kills
- Supply reservoir shutdown risk

Fig. 3 The issues addressed by the Pulsar's ultrasound technology.



One technology, every stage of the plant

From source-water reservoirs to clarifier walls and polishing ponds, the Pulsar 4400 targets algae and prevents biofilm continuously, without adding chemicals to the treatment train.

- ✓ Runs 24/7 on AC, DC or solar power
- ✓ Cloud monitoring through IQCloud
- ✓ Installed and supported by our Australian team

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 tracks water-quality metrics (e.g. chlorophyll-a, turbidity, pH, dissolved oxygen).

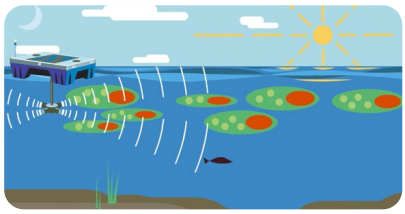
On biofilm

- 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 forming, hindering biofilm growth.
- Keeps surfaces cleaner, reducing maintenance and operating costs.
- No chemicals required.

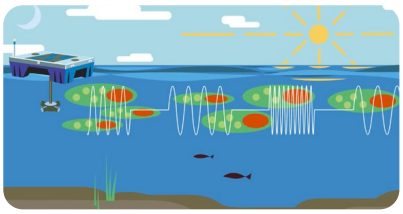




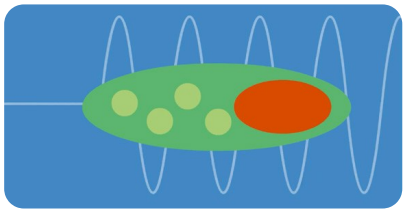
Critical structural resonance disrupts cellular structures at specific frequencies. With 4,400 frequencies, SonicPure's Pulsar 4400 affects a broad spectrum of harmful algal species, including cyanobacteria.



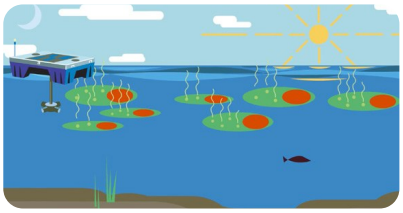
1 Emits sound waves in a 360° pattern, 24 hours a day.



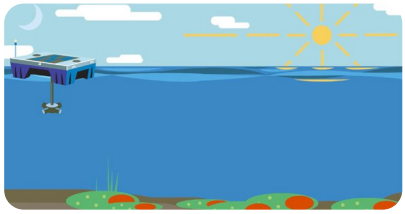
2 Deploys 4,400 discrete ultrasonic frequencies across two bands to target blue-green algae (cyanobacteria) and other harmful algae.



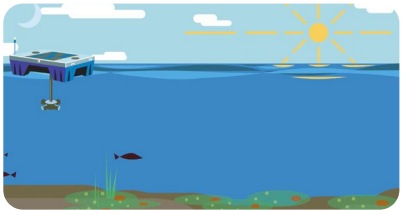
3 Disrupts gas vesicles and other cellular structures, impairing buoyancy and function.



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



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



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

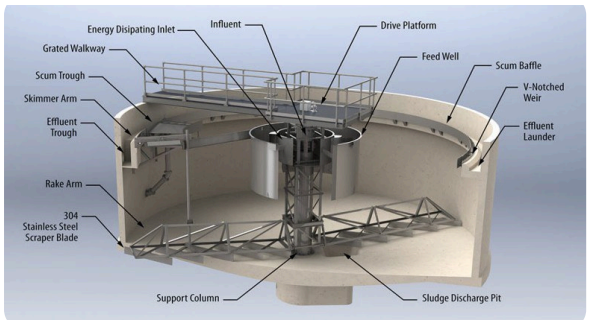
Fig. 4 How ultrasound combats algae.

Placing a Pulsar in a clarifier or reservoir

The Pulsar 4400 can be installed in multiple configurations and power modes: AC, DC or solar, land-based or floating.

- **Clarifiers:** place the unit beside the weir, about 0.6–0.9 m below the surface. For a typical circular clarifier, two Pulsars are recommended; both can run from a single power source.
- **Drinking-water reservoirs:** placement and unit count depend on reservoir shape, size and flow patterns. Our team designs the optimal configuration for each site.

Clarifiers



Pulsar units are deployed along the edges, with the cable fed under the scum baffle, to prevent and combat biofilm and keep operation clear.

- Reduce manual biofilm clean-up; free staff for operations
- Control biofilm before it affects productivity
- Lower compliance-related downstream treatment costs
- Can also be deployed in settling tanks and lagoons

Drinking water reservoirs



Pulsar unit deployed on a Sentinel AIQ solar-powered float, with optional water-quality probes.

- Prevent algae and cyanobacteria before blooms form
- Suppress algae and cyanobacteria during bloom events
- Protect source-water quality (reduced T&O)
- Support community confidence

Fig. 5 Deployment options.

By using ultrasound in clarifiers, reservoirs and lagoons, plants can cut downstream processing, chemical use and manual cleaning, lowering operating costs while stabilising treatment and improving water quality. The Pulsar helps you meet targets at a lower total cost of operation.

Take action now

Drinking water and wastewater plants are increasingly affected by blue-green algae (cyanobacteria), green algae and biofilm. Why it's rising:

- Heavy storms and runoff add nutrients (N and P)
- Warmer temperatures and calm zones favour growth
- Upwelling, turnover and resuspension bring nutrients to the surface
- Ageing assets and limited staffing stretch response times

Start addressing these issues now. Ultrasound provides a sustainable, round-the-clock way to prevent and control algae, cyanobacteria and biofilm, without harsh chemicals or overtaxing limited resources.



Proven at hundreds of sites, the Pulsar 4400 delivers:

- ✓ Multi-frequency control (up to 4,400 frequencies) for targeted impact on algae and biofilm
- ✓ Sustainable operation: chemical-free, low-touch
- ✓ Compatibility with beneficial bacteria programs
- ✓ Continuous 24/7 operation
- ✓ Cloud monitoring with live dashboards

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.

See what's possible



Before: toxic bloom at Harrietville dredge hole, VIC, 9 December 2025.



After: clear water, 28 August 2026. Toxic cyanobacteria down from 35,900 cells/mL to zero (independent lab tests).

What our clients say

Carr Farming · 200 ML recycled water dam

"We're now down to just a quarter of the coagulant we used to use, which is a significant cost saving. We're impressed enough that we've ordered a second ultrasonic unit for our next dam."

Sarah, Carr Farming

Harrietville dredge hole · DEECA

What remains is a diverse community of healthy, beneficial algae and phytoplankton, "unlikely to influence water quality".

Independent laboratory report, 19 October 2026

ALGAE
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TALK TO OUR TEAM

Discuss your plant's requirements

Share your clarifier, lagoon or reservoir details and the problems you want to solve. We'll design the right Pulsar configuration and support your operators from installation to monitoring.

02 5017 9829

hello@algaecontrol.com.au

algaecontrol.com.au



For case studies and more information, scan here.

Algae Control Australia is the sole authorised distributor of SonicPure in Australia and the Asia-Pacific. Product specifications are supplied by SonicPure. Cover image is illustrative.