New generation ultrasonics

Recovering your waterbody

With Next-Generation Ultrasonics & PBE

PBE = Prebiotic Bacteria Enhancer

Revolutionary ultrasonic technology paired with biological nutrient recovery for long-term algae control

Case study summary

A plastic-lined irrigation dam in South Australia, with extreme legacy nutrient loading and ongoing backwash inflow, treated using ultrasonics plus PBE.

The Dam

Site background, challenge and recommended strategy

Context

South Australian plastic-lined irrigation dam servicing a hothouse vegetable and herb operation.

Roof runoff was normal. The deeper problem was years of pump backflush and hydroponic waste entering the dam.

Why risk escalated

- Nutrient concentrations measured at up to 230× recommended levels.
- Repeated copper sulphate and other algaecide use contributed to nutrient lock-up in water and sludge.
- Active algae could regrow faster than ultrasonics alone could suppress them.

Strategy

1. Ultrasonics to disrupt algae and suppress bloom formation.

2. PBE (live beneficial bacteria) to mobilise legacy nutrients into plant-available forms so crops can absorb them.

Early outcome

After six weeks, the combined system was already showing clear measurable impact: active algae suppression plus a visible nutrient-reduction trend.

Key question

Can the system keep pace with ongoing nutrient inflow from pump backwash while preventing algae re-invasion?

Why the two-pronged approach matters

It addresses both symptoms and source conditions — reducing current blooms while drawing down the nutrient reserve that fuels future events.

Total Algae Count

Interpretation matters: counts can rise later if the community shifts toward beneficial green algae

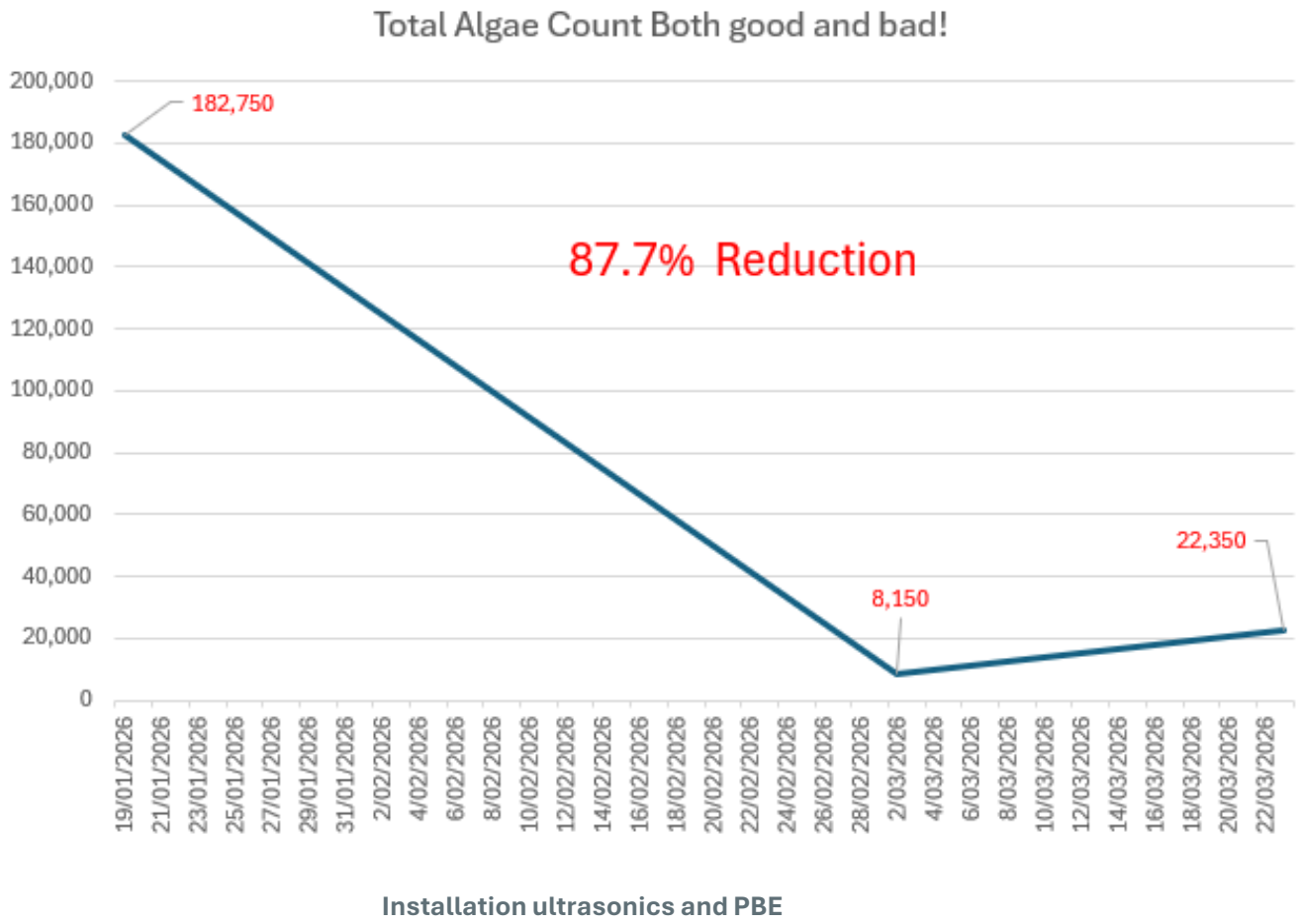
Readout

Higher total counts later on would not necessarily mean a worsening bloom. In a healthier waterbody, non-nuisance green algae can outnumber the original problem organisms.

Observed change

The chart shows a strong early decline from a very elevated baseline. A pre-installation lag means the actual count on installation day may have been materially higher still.

Takeaway: the trend supports ecosystem rebalancing, not just short-term algae knockdown.



Cyanophyceae – Blue Green Algae

The most problematic freshwater bloom-formers were driven down to collapse levels in the early treatment window

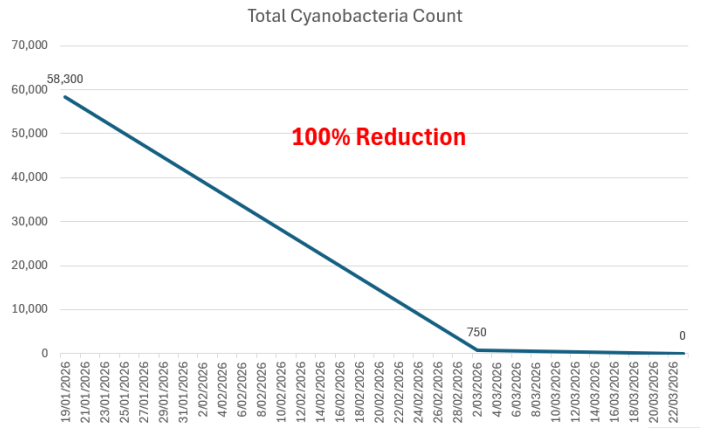
Why it matters

Cyanobacteria are bacteria, not true algae, and they are responsible for the most persistent and damaging bloom events in freshwater systems.

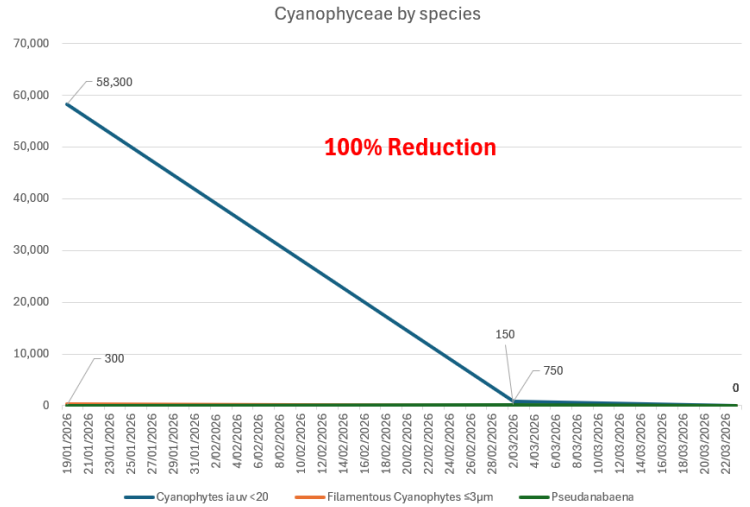
Interpretation

Achieving a collapse like this is an exceptionally strong result. While cyanobacteria can return in any natural system, the early performance is exactly what the treatment was designed to produce.

Total cyanobacteria count



Cyanophyceae by species



Chlorophyceae – Green Algae

Green algae are expected to become more prominent as the system rebalances, but that does not automatically mean nuisance conditions

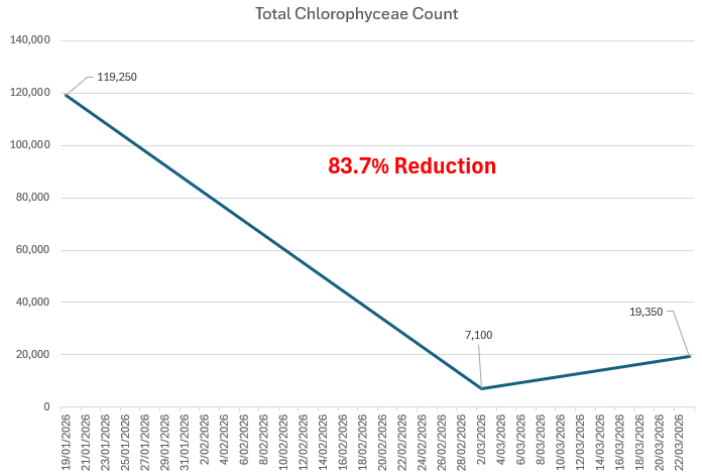
Context

Chlorophyceae are part of the green algae lineage. They are generally non-toxic, although some species can still cause nuisance growth or filter blockage.

What to expect next

Numbers may increase over time, but ideally among non-nuisance species as nutrient pressure falls. The current bloom remains linked to still-elevated nutrients, even though those levels are trending down.

Total chlorophyceae count



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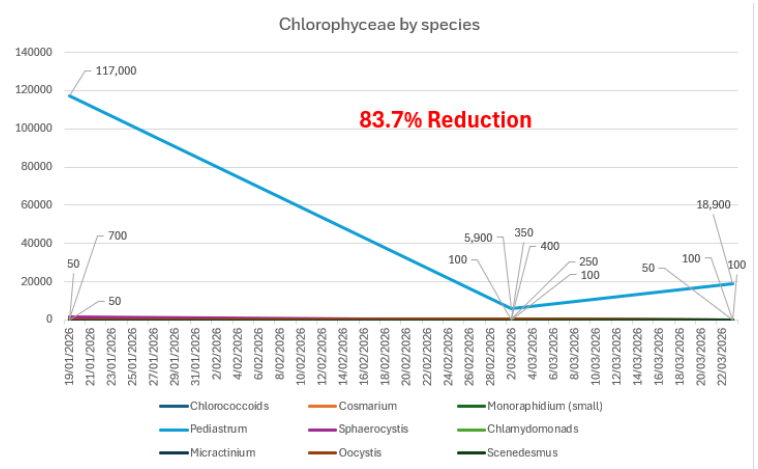


PBE & Placement

Deployment method and placement control support consistent treatment coverage

PBE block

Drone placement for larger jobs

Why placement matters

- Accurate placement supports optimum treatment coverage.
- The PBE block and drone deployment method suit larger treatment areas.
- Controlled positioning helps the biological system establish where it will be most effective.

"This drone is used to accurately drop the PBE in exact positions for optimum results, large jobs only."

Nutrient Counts – PBE the catalyst to change

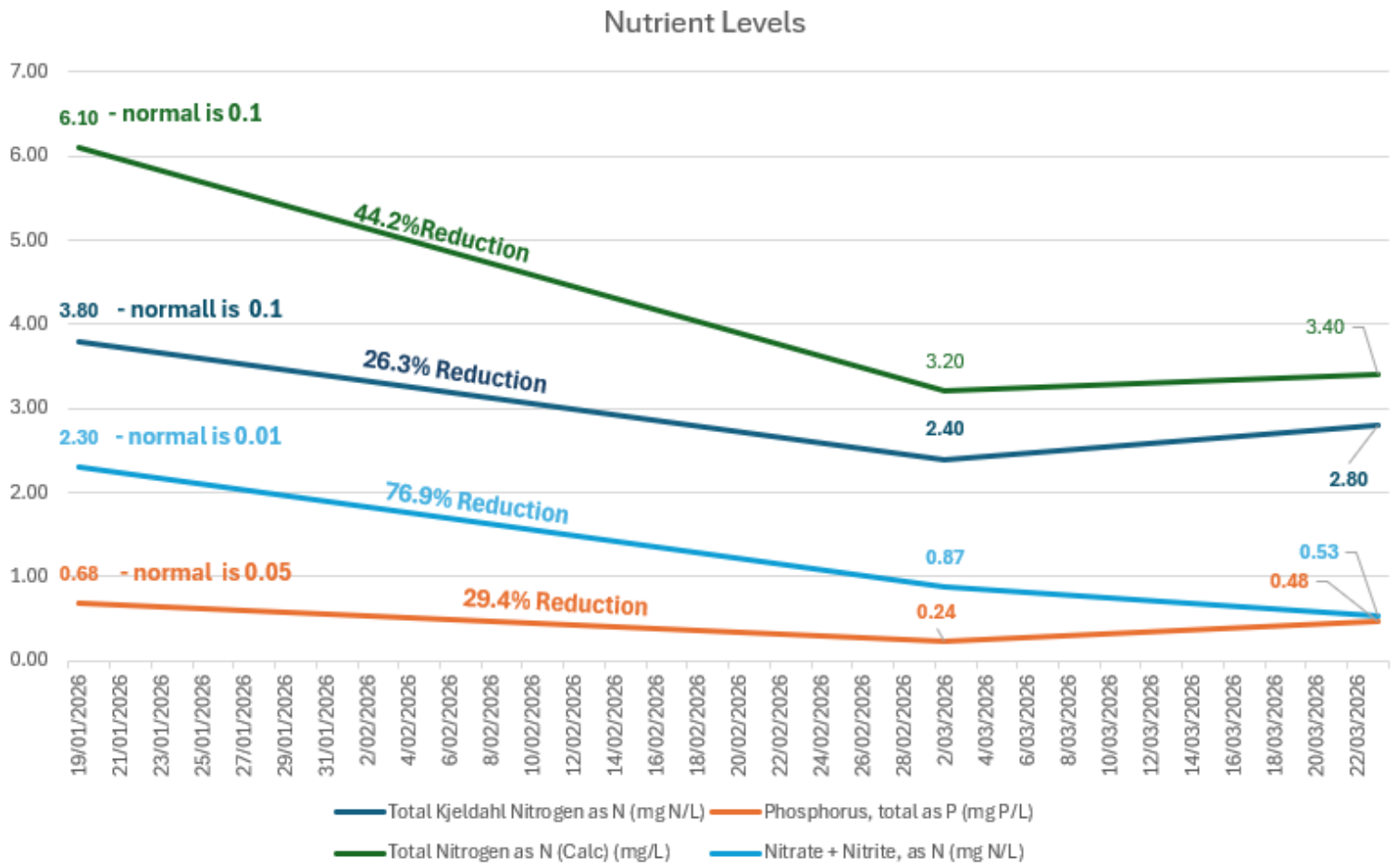
The PBE system is still establishing, so short-term movement matters less than the overall direction of travel

Interpretation

The slight increase observed at this stage was described as expected and consistent with the well-documented five-week rebound that can occur while algae are being actively suppressed.

Focus

What matters is the trajectory. The results achieved in a short time indicate the system is working and building momentum rather than stalling.



Aquatic Ecosystem Remediation & Restoration