



# SwanCav

A Prasinos Tech Innovations product



## Smart Buoy for Controlling Harmful Algal Blooms for a Balanced Ecosystem For Healthy Waters & Happy Communities

Chemical-free & autonomous

Safe for humans & animals

Eliminates & prevents ~95% of algae

Remember when in your childhood, where you and your parent would take you and your siblings for boating, where on a all your family- cousins, uncles and aunties, gathered for a family picnic?

How beautiful are these memories!

Children splashing in the shallows.

Fishermen cast their lines in hopes of a good catch.

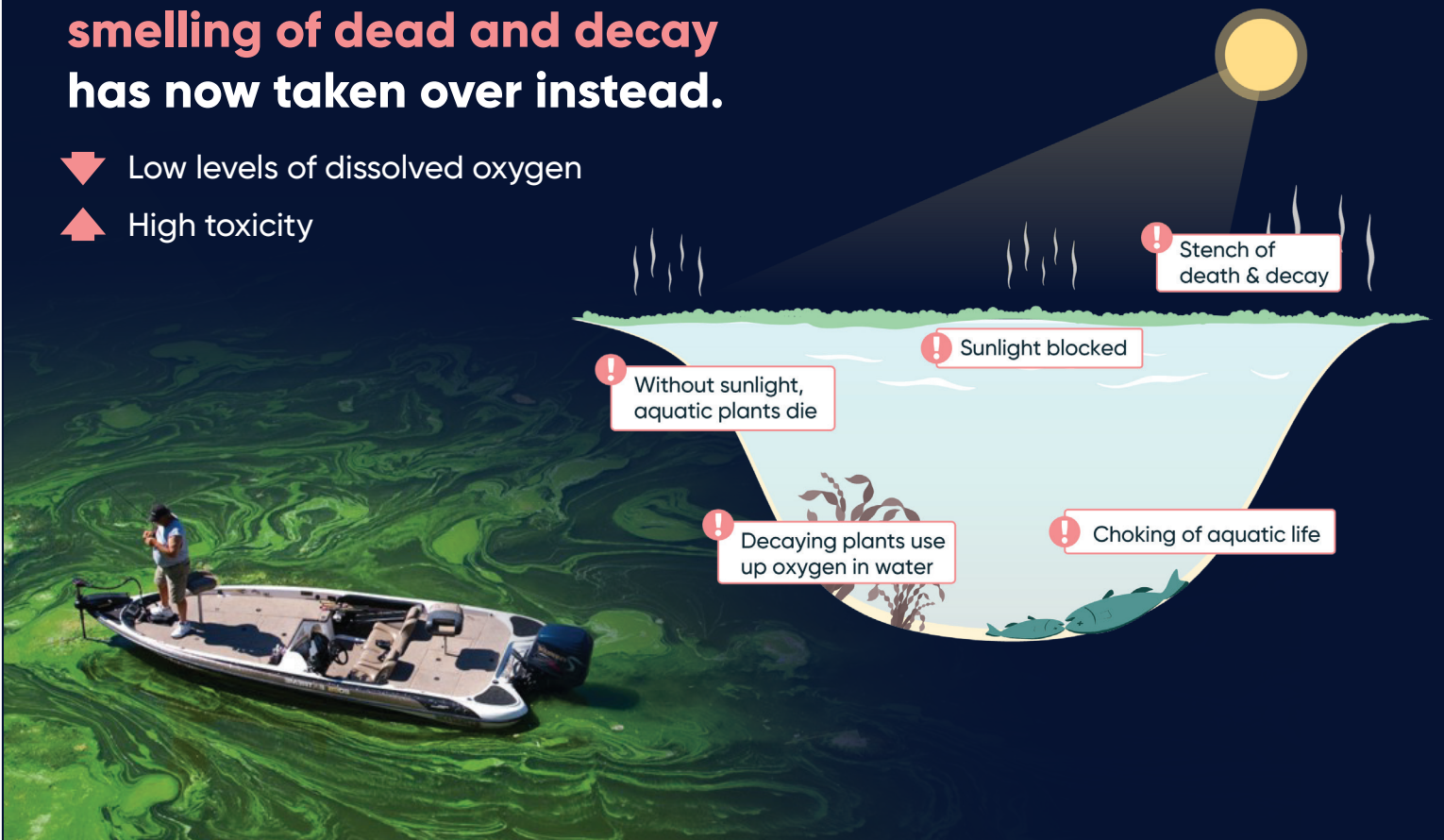
Chances are that your and my kids today probably do not have this privilege of belonging to a world where water bodies are in harmony with nature & are a source of health and healing.



Because

**a thick, green layer of algae,  
smelling of dead and decay  
has now taken over instead.**

- ➡ Low levels of dissolved oxygen
- ➡ High toxicity



## What's the Deal with Algae?

Algae are simple, plant-like organisms that can be found in water bodies around the world. They range from tiny, single-celled creatures to large seaweeds. Algae are essential to aquatic ecosystems because they produce oxygen through photosynthesis and serve as food for many aquatic organisms.

However, not all algae are beneficial!

When conditions are just right—lots of sunlight, warm temperatures, and plenty of nutrients (often from pollution)—algae can grow excessively, leading to what's known as an algal bloom.

These blooms can turn a beautiful water body into a murky, smelly mess, causing a variety of problems.

Algal blooms occurred in **126 out of the 153 coastal countries** examined between 2003–2020. Globally, the spatial extent of blooms **increased by 13.2%** and the frequency increased by 59.2% over this period

Dal Lake, Kashmir,  
in its former glory generated about  
**INR 170 Cr. revenue annually.**

Today a vast stretch of Dal lake has turned brick red due to presence of rampant red algae



## What happens when algal blooms take over?

When they grow out of control, they can create serious environmental and economic issues:

**Oxygen Depletion:** Algal blooms can suck up oxygen in the water, making it hard for fish and other aquatic life to survive.

**Toxin Production:** Some types of algae produce toxins that can contaminate water, making it unsafe.

**Disruption of Food Chains:** Algal overgrowth disrupts the natural food web. Fish and other aquatic organisms struggle to find food, leading to a decline in biodiversity.

**Economic Impact:** Tourism Decline: Murky, smelly water deters tourists. Locations like Vembanad Lake in Kerala or Powai Lake in Mumbai, once tourist hotspots, suffer from decreased visitor numbers.

Fishing Industry Struggles: Algal blooms affect fish populations, impacting local fishermen's livelihoods. In places like Chilika Lake in Odisha, this economic blow is felt deeply by communities reliant on fishing.

**Increased Water Treatment Costs:** Municipalities must invest heavily in treating water to ensure it's safe for consumption, raising operational costs.

**Health Risks Due to Water Contamination:** Algal toxins can contaminate water supplies, posing serious health risks such as liver damage, neurological issues, and gastrointestinal illnesses.

**Skin and Respiratory Issues:** Contact with algae-infested water during recreational activities can cause skin rashes, eye irritation, and respiratory problems.

**Harmful Algal Blooms are responsible for over  
60,000 human illnesses and 300 deaths per year worldwide**

## Are algae blooms always poisonous & toxic?

No. But, **Its hard to tell by looking.**

Some Algae is harmless, in controlled quantities is even useful, but the poisonous cyanobacteria can be of any colour; blue-green, green, yellow, white, brown, purple, or red.

If contaminated, it can even be fatal.

Affects everyone from humans, animals, fishes & plants!  
Causing anything from allergies to death!



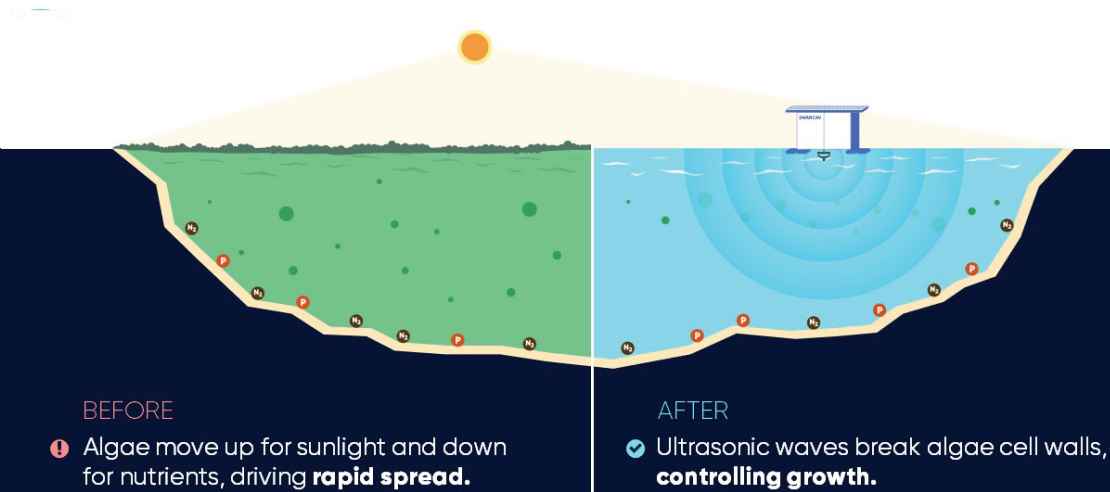


# The Magic of SwanCav: How It Works

SwanCav operates on a simple yet effective principle – using ultrasonic waves to target algae.

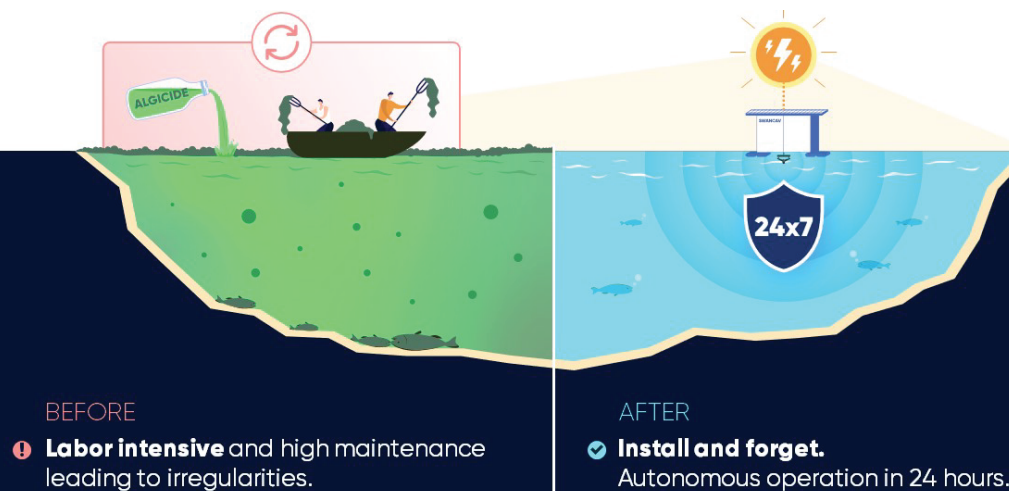
## 1. Effective:

**Ultrasonic-tech kills ~95% algae, especially the toxic cyanobacteria.**



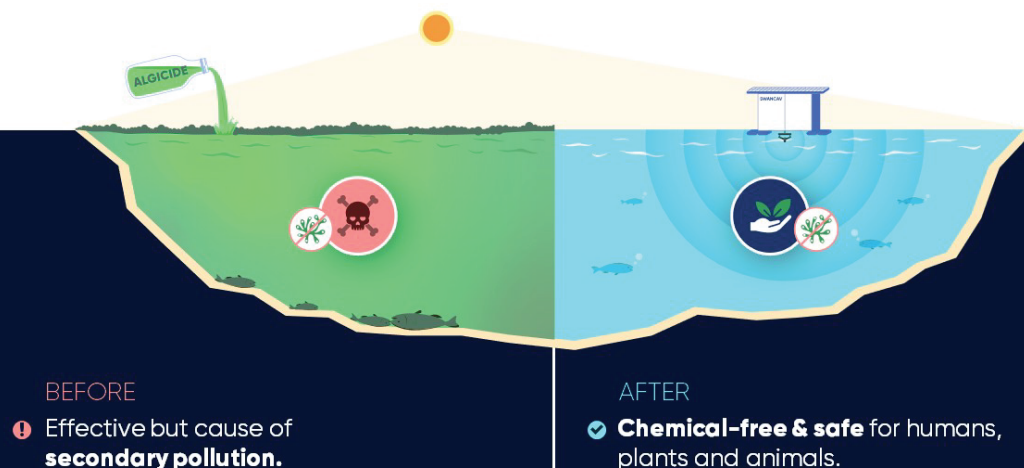
## 2. Easy:

**Quick installation & no maintenance, works 24x7 autonomously.**



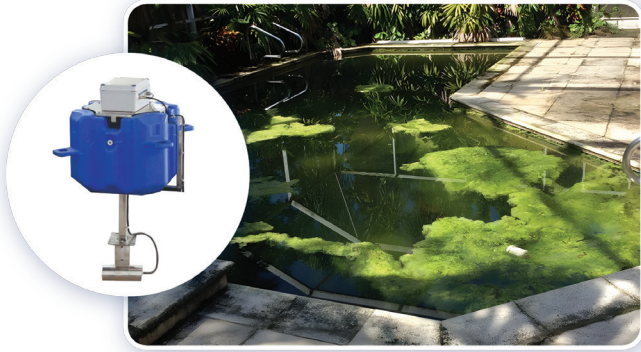
## 3. Eco-Friendly:

**An environment-friendly, long-term solution.**





## The SwanCav Series:



### SwanCav Mini

For industrial cooling towers, clarifiers, water tanks & swimming pools



### SwanCav L & XL

For small, medium and large lakes, ponds and reservoirs

	SwanCav Mini	SwanCav L	SwanCav XL
<b>Effective area (LxB) in sq.m.</b>			
Blue-Green Algae	400x200	650x200	650x280
Other Type of Algae	150x70	250x80	380x140
Biofilm	50x20	65x40	100x50
<b>Power Source</b>	AC	DC - Solar Based	DC - Solar Based
<b>Frequency (kHz)</b>	20-60	20-60	20-60
<b>Power Consumption (W/h)</b>	20	50	90
<b>Operational Time (h)</b>	24	24	24
<b>Weight of System (Kg)</b>	5.5	76	150
Buoy Frame	SS	SS	SS
Enclosure	MS Powder Coated	MS Powder Coated	MS Powder Coated
<b>Alarm Indicator</b>	No	Yes	Yes

**A holistic, chemical-free approach for maintaining the well-being of our water bodies**



## SwanCav Features:

### Ultrasonic transmitter for effective algae control

- Effective treatment coverage area up to 650m x 280 m per device for Blue-Green Algae.
- Variable frequency range of the ultrasonic transmitters from 20-60 kHz.
- Low power ultrasound technology below cavitation threshold.

### Weatherproof control box & battery

- Weatherproof design to protect against outdoor conditions.
- Lithium ion battery with battery backup for 24 h operations.
- Same ultrasonic transducer carrying multiple piezo-electric crystals for varying frequency.

### UV resistive frames & alarm system

- UV & corrosion resistive frames for all time exposure to light & water.
- Integrated alarm security.
- Anchoring arrangement with the floaters.

### Optional

- Installation bracket for SwanCav Mini or anchoring facility to install.
- Onshore solar system for SwanCav-L & SwanCav-XL for autonomous power supply.
- Water quality monitoring probes for in-situ water quality measurements..
- IoT facility for real-time monitoring.
- Easy installation with the flexi-arm.
- Alarm indicator.



## Hands-down, the best long-lasting solution

	Algicide	Aeration	Mixing	Ultrasound
Ease of Operations	✗	✗	✗	✓
Ease of Maintenance	✗	✗	✗	✓
Efficacy	✓	✗	✗	✓
Sustainable	✗	✓	✓	✓
Fast Action	✓	✗	✗	✗
Lasting Results	✗	✗	✗	✓

# Case Study

## The successful restoration of Chikahali Lake, Pune

On 6th Feb 2024, we installed a SwanCav to treat an algae infested lake absorbing sewage from Pimpri-Chinchwad treatment plant

BEFORE



AFTER



### Verified through rigorous water quality testing

	Safety Levels	Day 0		Day 10	Day 20	Day 30	Day 40	
Dissolved oxygen (DO) (mg/L)	>4	2.5	Poor	3.5	4.1	4.9	5	Optimal for aquatic life
BOD (mg/L)	2-8	9.2	Poor	9	8	8	7.4	Better water quality
Chlorophyll (mg/m3)	0.025	0.05	Unsafe	0.026	0.029	0.021	0.017	Safe and non-toxic
Turbidity (NTU)	<1	0.5		0.1	0.1	0.08	n/a	Visibly clean water
pH	6.5-8.5	7.2		7.3	7.15	7.1	7.15	Absence of heavy metals



The machine made our lake **clean and nice**. For a year, the lake had a strong, unpleasant odor but now the **bad smell is gone**, and the water is very clear now. Even **the birds have come back**, which shows how well the device works.

- Local Resident, Near Chikahali Lake



## About Us:

Prasinos Tech Innovations Pvt. Ltd is a clean tech startup pioneer in developing and promoting breakthrough scientific innovations and working towards translational research for **sustainable development and circular economy**.

**SUSTAINABLE DEVELOPMENT GOALS**



They are currently focusing in the area of Process Engineering and Intensification from a commercialization point of view, thereby attempting to connect the dots between know-why and know-how using their own patented technologies.

Prasinos consists of a unique team of professionals and technocrats having several decades of experience in the chemical industry, innovation and troubleshooting, technology development & commercialization.

At Prasinos, we are committed to deliver innovative technological solutions considering the environmental regulations, which are practically cost-effective, energy-efficient, and eco-friendly.



# Prasinos Tech Innovations Private Limited



## Let's Heal Our Water Bodies Together!

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