



# Control pH, TSS, and Algae with MPC-Buoy Industrial

- ✓ Reduce chemical and operational costs
- ✓ Continuously monitor water quality
- ✓ Receive alerts for out of range water quality parameters
- ✓ Comply with discharge regulations
- ✓ Solar powered, chemical-free, low-maintenance
- ✓ Prevent filter clogging and biofouling

**LGSONIC**

# Comply with discharge regulations

## Meet the MPC-Buoy industrial

MPC-Buoy Industrial is a floating, solar-powered system that combines real-time water quality monitoring and ultrasound to help you comply with strict governmental regulations.

The combination of warm water temperatures, stagnant water, and nutrient overload causes harmful algae blooms to form. These organisms directly influence pH, total suspended solids (TSS), and biological oxygen demand (BOD) in water, making it difficult to comply with strict government regulations.



## Designed for your convenience

### Robust system

- ✓ The system is resistant to hot and cold climate.

### Customizable

- ✓ Choose the sensor package that fits your specific needs.

### Integrated alarm systems

- ✓ Get notified when changes in water parameters occur.

### Fast & easy assembly

- ✓ Assemble it yourself with remote support, or choose on-site assistance.

### Minimal maintenance

- ✓ MPC-Buoy Industrial requires only a few check-ups per year.

### Safe & secure data

- ✓ Your data is encrypted to protect your privacy.

### Turnkey solutions

- ✓ Our team of experts is ready to anticipate and respond to your concerns.

### Modular design

- ✓ Allows you to easily and indefinitely replace individual parts.



# Suitable for any industrial setting

MPC-Buoy Industrial is designed to keep key water quality parameters such as pH and TSS under control.

## Cooling ponds



## Wastewater ponds



## Treatment & settling ponds



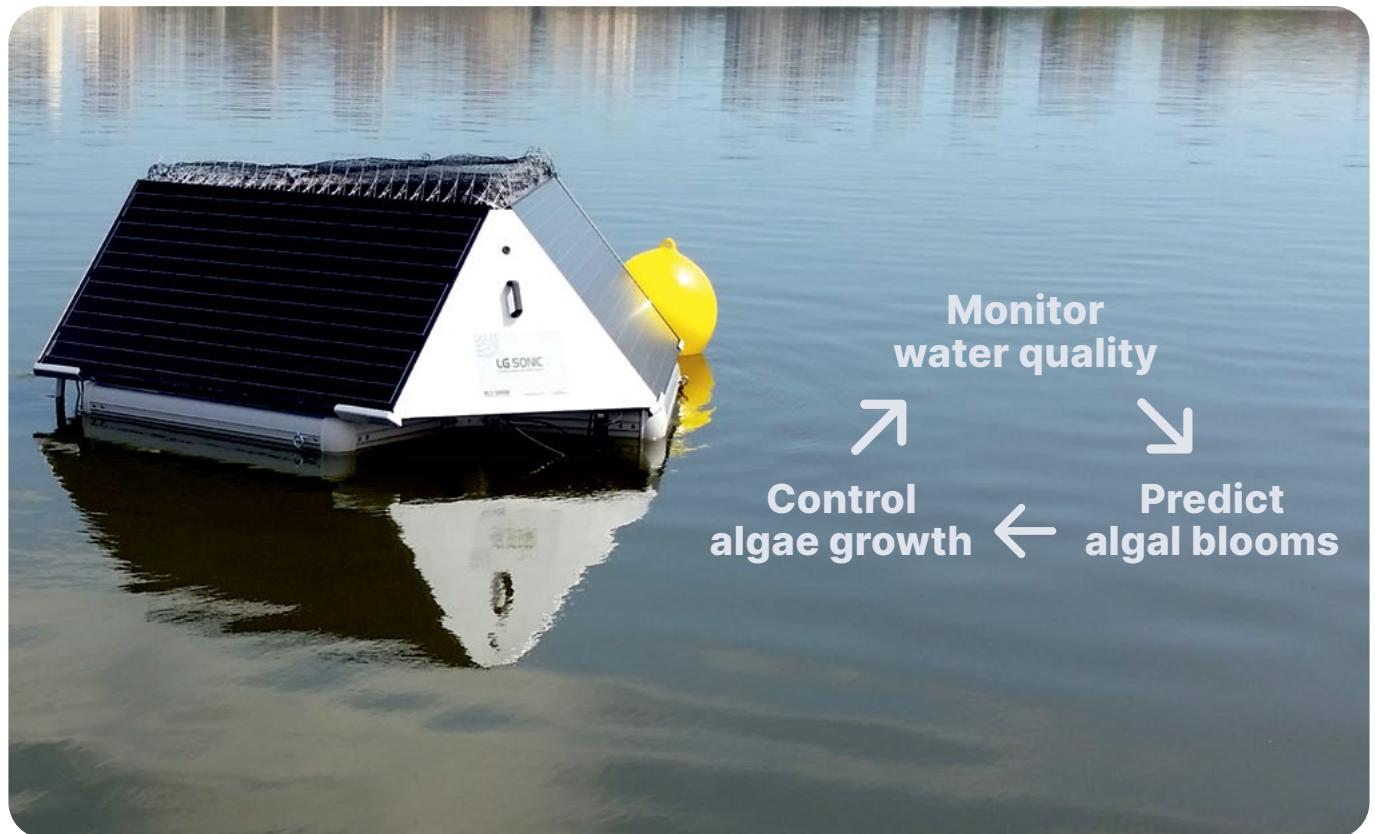
## Cooling towers\*



\* LG Sonic Industrial Line

# Monitor, predict, and control algae with ultrasound

The MPC-Buoy uses low-power ultrasound to stop algal growth without harming the environment.



## 1. Monitor water quality

The MPC-Buoy provides a complete overview of your water quality by collecting the following parameters\* every 10 minutes:

- Chlorophyll  $\alpha$  (green algae)
- Phycocyanin (blue-green algae)
- pH
- Turbidity
- Dissolved oxygen
- Temperature

## 2. Predict algae blooms

Our database contains more than 10 years of information collected from thousands of LG Sonic devices operating around the world. It includes datapoints on different types of water bodies, algae species, seasons, etc. Our database is continually refreshed with new information, always optimizing predictive algorithms for the benefit of all our customers.

## 3. Control algae growth

Algae can become resistant to treatment methods, including ultrasound. To avoid this, we'll determine the most effective ultrasonic program for your unique situation. The program parameters will be specific for wave form, frequency, pause, and amplitude. The key to long-term results is adjusting settings before the algae mutate.

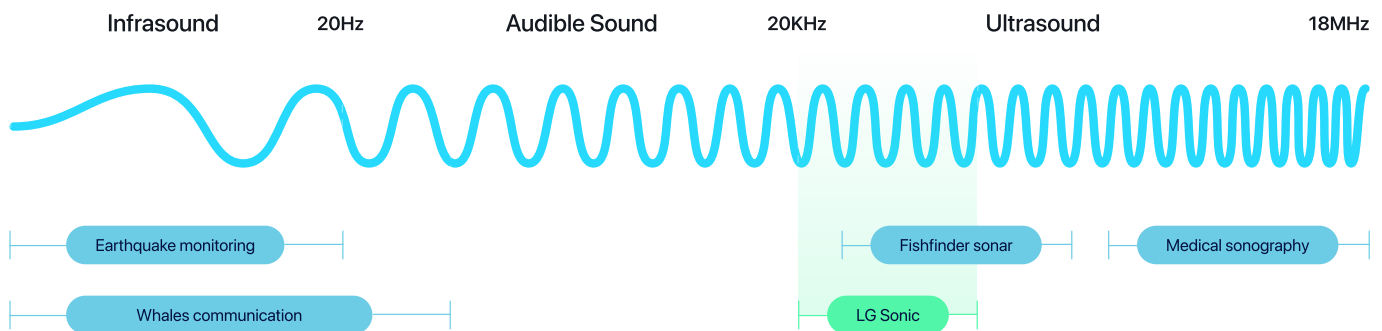
\* Additional sensors can be purchased separately

# How ultrasonic algae control works

## Eco-friendly ultrasonic treatment

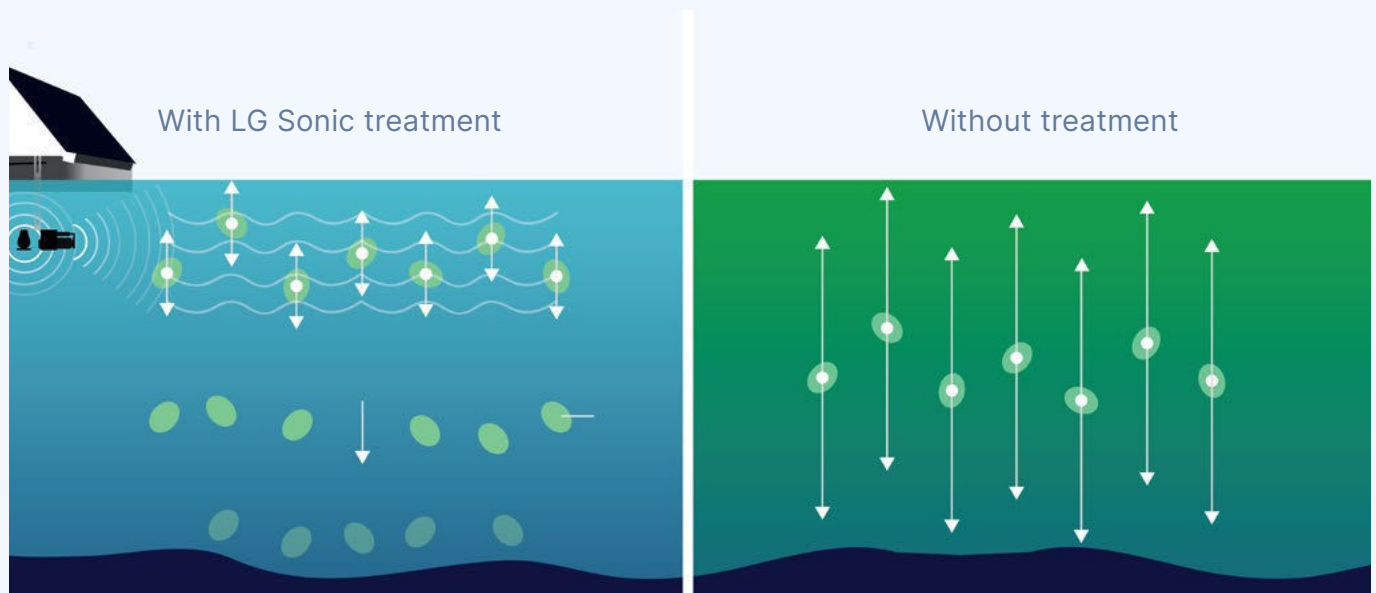
Algae blooms reduce light penetration, deplete oxygen, and release dangerous toxins, harming fish, plants, and other aquatic organisms. By controlling algal growth, LG Sonic's ultrasonic technology has the power to restore entire ecosystems.

After one year of treatment, algae levels will significantly reduce as water clarity increases, encouraging plant growth and therefore, increasing oxygen levels. Our ultrasonic treatment reduces algae blooms by up to 95%, compared to no treatment.



## How ultrasound targets the algae

- 1 Algae move to the water surface for photosynthesis. The ultrasound creates a sound layer at the top of a water body.
- 2 The ultrasound affects algae's vertical movement by fixing them in the water column.
- 3 Without sunlight and nutrients, the algae sink to the bottom, where they decompose without releasing toxins.
- 4 In time, bacteria will degrade the algae.





# MPC-Buoy components

## Solar-powered

- 3× 200 Wp high quality solar panel that provide power all year-round in any country
- 1× 24 Volt, 40 AMP lithium battery
- Switches to energy-saving program during periods of low sun irradiation

## Smart communication system

- 4G, Satellite, LAN
- Real-time water quality data with the MPC-View software
- Integrated alarm functions



## 4 ultrasonic transmitters

- Treatment range: 2600ft in diameter
- Integrated Aquawiper™: automatic cleansing system for the transmitters
- Chameleon Technology™ adjusts the ultrasonic program to specific water conditions

## Anchored floating construction

- Aluminium powder coated frame
- UV and corrosion resistant construction
- Unsinkable floats

## Complete quality sensor package

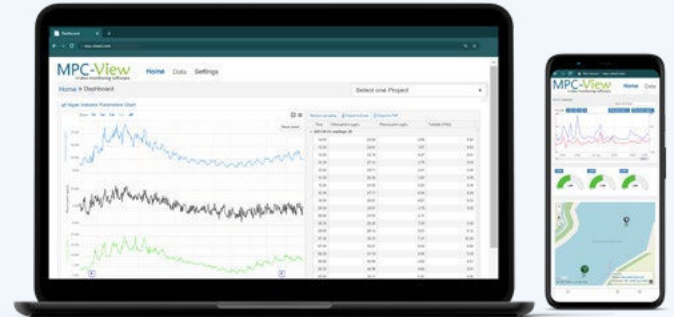
- In-situ water quality sensors to provide real-time data
- Monitors DO, turbidity, pH, chlorophyll  $\alpha$ , phycocyanin, and temperature
- Automatic antifouling wiper ensures optimal readings

# Get real-time water quality insights

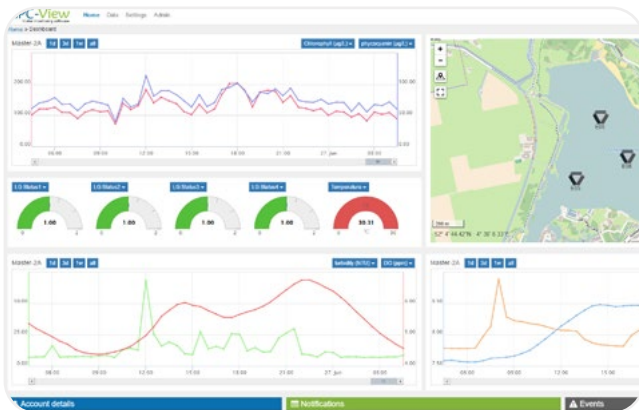
## Meet the MPC-View

MPC-View is an advanced web-based software. It provides a complete water quality overview of one or more water bodies.

- ✓ Real-time insights into your water quality
- ✓ Data transfer through 4G or satellite
- ✓ Ultrasonic programs change based on the water quality data received



## MPC-View software features



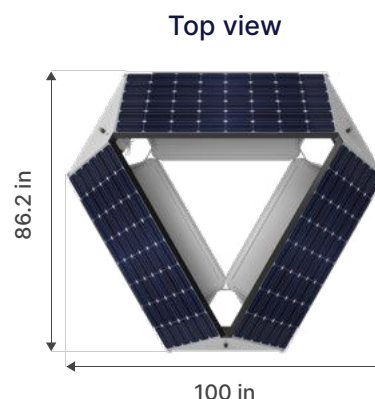
- ✓ The software receives, summarizes, and publishes data into charts, tables, and spreadsheets on your personal webpage.
- ✓ Allows you to follow the algae treatment progress and the status of the units.



- ✓ Based on the data, ecologists, biologists and technicians from LG Sonic modify the ultrasonic program for effective treatment.
- ✓ Set alarms for changing water conditions and maintenance activities.

*Remote sensing is also integrated into MPC-View. This allows you to view the historic data of a specific water body, and further optimize the treatment.*

# Technical specifications



<b>3x aluminum framed polyethylene buoy</b> <ul style="list-style-type: none"> <li>Material: Rotationally-moulded UV-stabilized HDPE polyethylene</li> <li>Filling: Closed-cell polyurethane foam</li> <li>Buoy frame: Anodized aluminum</li> <li>Weight: 33 lbs</li> <li>Size: 47 × 23.5 × 8 in</li> <li>Buoyancy capacity 600 lbs</li> </ul>	<b>Solar panels (3x)</b> <ul style="list-style-type: none"> <li>Solar cell: Monocrystalline cell</li> <li>Rated Power (Pmax): 200Wp Weight: 35.3 lbs</li> <li>Connectors IP67</li> <li>Size: 62.2 × 32 × 1.4 in</li> </ul>
<b>Telemetry</b> <ul style="list-style-type: none"> <li>GSM/GPRS</li> <li>CDMA (optional)</li> <li>Radio (optional)</li> <li>GPS (optional)</li> <li>Iridium Satellite (optional)</li> </ul>	<b>Data acquisition system</b> <p>4 x analog channel (user-configurable for either 4-20mA)</p> <ul style="list-style-type: none"> <li>1 x RS485 port for instruments</li> <li>1 x high frequency pulse counting channel</li> <li>1 SDI-12 input</li> <li>3X RS232</li> </ul>
<b>Battery</b> <ul style="list-style-type: none"> <li>1× 24 volt lithium lifepo4</li> <li>Capacity: 40 Ah</li> <li>Weight: 33 lbs</li> </ul>	<b>Solar Charge Controller</b> <p>Overcharge and Deep discharge protection</p> <p>Ip68 Protection</p>

## Water quality sensor package

<b>Fluorescence, including anti-fouling wiper:</b> chlorophyll a, phycocyanin, turbidity <ul style="list-style-type: none"> <li>470nm – Chlorophyll a</li> <li>610nm – Phycocyanin</li> <li>685nm Turbidity</li> </ul>	<b>Dissolved Oxygen</b> <ul style="list-style-type: none"> <li>Optical measure by luminescence</li> <li>Measure ranges:</li> <li>0.00 to 20.00 mg/L</li> <li>0.00 to 20.00 ppm</li> <li>0-200%</li> </ul>	<b>pH</b> <ul style="list-style-type: none"> <li>Combined electrode</li> <li>special glass, Ag/AgCl ref.</li> <li>Gelled electrolyte (KCl)</li> <li>Range 0 – 14 pH</li> <li>Resolution 0,01 pH</li> <li>Accuracy +/- 0,1 pH</li> </ul>
<b>Temperature</b> <ul style="list-style-type: none"> <li>Technology CTN</li> <li>Range 32°F to 122°F</li> <li>Resolution 0,02°F</li> <li>Accuracy ± 0,9°F</li> <li>Response time &lt; 5 s</li> </ul>		<p>It is possible to add additional sensors to the water quality sensor package.</p>

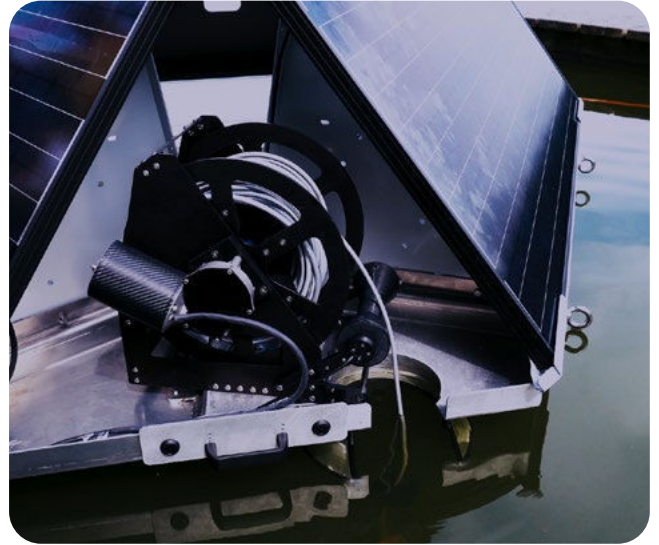


# What other products do you need?

## Vertical profiling system

LG Sonic Vertical Profiler can be pre-set to take samples from a wide range of depths within a water body and measure key water parameters in real-time. Data is transmitted through 4G, radio or satellite to the MPC-View online software.

- Easy maintenance: can be done from the boat, without bringing it back to shore
- Possible to measure up to 330 ft in depth
- 50% more affordable than other Vertical Profilers on the market



## PO<sub>4</sub> sensor

By measuring PO<sub>4</sub> in a water body, you're able to predict harmful algae blooms and you gain a better understanding of the different PO<sub>4</sub> sources in your water.

- Reliable measurements at different depths
- 2-POINT calibration with each measurement
- High durability of reagents
- User-friendly and highly customizable
- More affordable than other PO<sub>4</sub> sensors
- Operates completely autonomously
- The sensor can be supplied on a stable buoy

## Weather station

Our Weather Station is a low-maintenance unit that enables more accurate algae bloom predictions by integrating local weather data into your MPC-Buoy and MPC-View software.

- Real-time weather data
- Highly customizable
- Low maintenance



# Our customers



## The problem

Power generating companies like NIPSCO need to keep their discharge within strict pH and Total Suspended Solids (TSS) ranges to comply with the Environmental Protection Agency's NPDES regulations. For years, NIPSCO tried lowering TSS levels using algaecide, but it never gave consistent results.

## Solution & results

Since the installation of five MPC-Buoys in their 194- acre settling basin, TSS levels lowered to less than 3 ppm. There's been a 66% algaecide usage reduction within the first two years of deploying the MPC Buoys and NIPSCO's TSS values have been compliant with the NPDES regulations ever since.



## The problem

American Crystal Sugar Company's reservoirs contain high nutrient concentrations, increasing both TSS and pH levels. In the US, wastewater needs to comply with the NPDES effluent regulations before it can be discharged into the environment. TSS and pH are influenced by the presence of algae.[delete: excessive algae.] By controlling their growth, TSS and pH can be kept low and compliance with the NPDES can be achieved.

## Solution & results

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# About LG Sonic

We're global leaders in sustainable algae management. Our patented ultrasound integrated into our technologies can be remotely controlled by our team of experts.

For over 10 years, we've invested in research and development. Today, we deliver technological solutions that restore aquatic ecosystems without the use of chemicals or other pollutants.

# 100+

Clients

# 55+

Countries

# 12+

Industries served



## LG Sonic US

In 2018, we opened our US office and expanded our business in North America. Ever since, we've been able to better service the needs of our customers. We're running algae treatment projects across the states, including California, New York, Florida, New Jersey, Pennsylvania, Colorado, and Georgia.

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# LGSONIC



## Award-winning innovation



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