



THREATS ADDRESSED

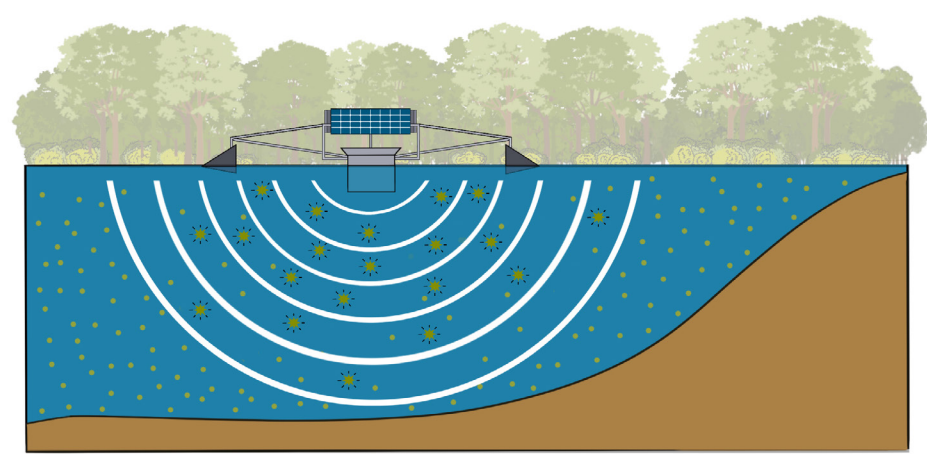
- Excess Nutrients
- Pollutant Inputs
- Algal Blooms
- Erosion
- Invasive/Nuisance Species

STRATEGY GOALS

- Protect
- Manage
- Rehabilitate

STRATEGY CO-BENEFITS

- Habitat Neutral
- Aesthetics Neutral
- Recreation Neutral



- Permittable in Massachusetts**
Local planning process. List of potential permits available [here](#).
- Implemented on Cape Cod**
See examples of pond projects implemented on Cape Cod [here](#).
- Listed in 208 Plan Technologies Matrix**
Learn more about the nutrient management strategies in the Tech Matrix [here](#).
- Can be Performed at Homeowner Scale**
In small, private ponds. Local review and permitting may be required.
- Nature-based Solution**

DURATION OF BENEFITS

- Less than one month
- One season or year
- Multiple seasons or years

MAINTENANCE REQUIREMENTS

- Monthly
- Annually
- Infrequent

DESCRIPTION

Ultrasound refers to sound waves with frequencies higher than the upper audible limit of human hearing. At specific frequencies, these sound waves can be used to control algae growth. Ultrasonic algae control uses a transducer to emit sound waves at specific vibrational frequencies that will interfere with algae. These ultrasonic vibrations pass through the water in an all-around pattern blocking algae's access to sunlight and nutrients or causing the vacuoles inside the algae cells to resonate and break, thus reducing excess levels of algae in a pond.

ADVANTAGES

- Works well on most problem cyanobacteria
- Safe for other aquatic life; no known direct impacts to zooplankton or fish
- Scalable

CONSTRAINTS

- Not all algae affected, ultimately favors resistant algal forms
- Lack of information on the upscaling of ultrasonic for algae control to larger water bodies
- Needs a consistent power supply
- Emerging technology - not well-studied



IMPLEMENTATION

POTENTIAL ACTORS



Towns: Towns may propose ultrasonic algae control in town-managed ponds



Pond Groups: May propose or support ultrasonic algae control in public or private ponds and provide a supportive role through education



Private Landowners: May propose or support ultrasonic algae control



Land Trusts: May provide a supportive role through education

SITING REQUIREMENTS

- Small ponds
- Where certain species of algae are present
- Defined treatment areas or pond-wide

INFORMATION NEEDS

- Phytoplankton abundance and species composition

IMPLEMENTATION EXAMPLES

There have been very few pond applications of ultrasonic algae control in Massachusetts and these have been at small, mostly private ponds.

RESOURCES

- The Massachusetts' Department of Conservation and Recreation's [Lakes and Ponds Program](#) provides related resources.
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COST ESTIMATE

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Relative to other in-pond strategies

Varies depending on size of treatment area

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ADDITIONAL FINANCIAL CONSIDERATIONS

Assessment: Planning, design, and permitting

Implementation: Transducers, installation, and power supply

Maintenance: Operations and maintenance including power supply

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POTENTIAL FUNDING SOURCES

- Community Preservation Act
- Capital Budget
- Grants
- Private Funding

Additional information regarding potential funding sources is available [here](#).