



**THREATS ADDRESSED**

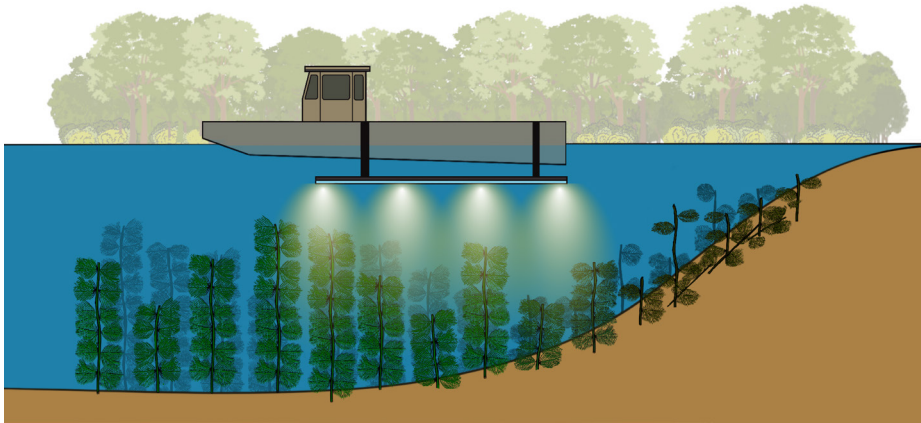
- Excess Nutrients
- Pollutant Inputs
- Algal Blooms
- Erosion
- Invasive/Nuisance Species

**STRATEGY GOALS**

- Protect
- Manage
- Rehabilitate

**STRATEGY CO-BENEFITS**

- Habitat  Neutral
- Aesthetics  Neutral
- Recreation  Neutral



- Permittable in Massachusetts**  
Not permitted in MA. 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

UV-C light is used to treat microbes and other living organisms and is used in applications such as food, air and water purification. UV-C light is a short-wave electromagnetic radiation light that damages the DNA and cellular structure of organisms. In a pond setting, UV-C light can be used to control aquatic plants and their fragments. Exposing plants to UV-C light kills the plants, reducing excess levels of nuisance or invasive aquatic species.

## ADVANTAGES

- May remove undesirable species, improving aesthetics, habitat, and recreational access
- May kill plants in 7-14 days after exposure to UV-C light
- May treat an acre a day depending on the size of the light array, number of barges, and crew
- Non-toxic

## CONSTRAINTS

- Timing, temperature, and water quality all play a role in treatment effectiveness
- Macrophytes should be treated early in the growing season and treatment may need to be conducted several times throughout a season or multiple seasons - plant height and density may predicate additional treatments
- Optimum intensity and duration of UV-C light treatment may not be known
- UV-C light does not penetrate the sediment, so roots may be shielded
- Requires specialized equipment - lights, barge(s), fish deterrents
- Non-selective and not well-studied

## IMPLEMENTATION

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### POTENTIAL ACTORS

- Towns:** May propose UV-C in town-managed ponds
- Pond Groups:** May propose or support the use UV-C in public or private ponds and provide a supportive role through education
- Private Landowners:** May propose or support the use of UV-C
- Land Trusts:** May provide a supportive role through education

### SITING REQUIREMENTS

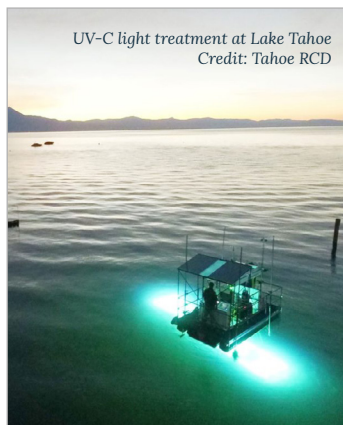
- All ponds with excessive nuisance or invasive plants (littoral zone)
- Access/launch site

### INFORMATION NEEDS

- Macrophyte survey (species composition and abundance)
- Fish habitat survey

### IMPLEMENTATION EXAMPLES

UV-C light treatment has not been used in Massachusetts. In Lake Tahoe, California, the use of UV-C light has been tested at [Lakeside Marina and Lakeside Beach](#) to treat Eurasian watermilfoil and curly-leaf pondweed. The results from the project support initial laboratory findings that the application of UV-C light results in observed mortality of submerged aquatic plants, both in an enclosed waterbody (i.e., marinas) and open waterbody (i.e., beach littoral) systems.



### RESOURCES

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

## COST ESTIMATE

# Variable

Varies depending on treatment area and equipment costs



## ADDITIONAL FINANCIAL CONSIDERATIONS

**Assessment:** Planning, design, and permitting, including macrophyte survey

**Implementation:** Equipment, logistics

**Maintenance:** Monitoring and maintenance of equipment, reapplications, as needed



## POTENTIAL FUNDING SOURCES

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

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