



Liming



STRATEGY SCALE

THREATS ADDRESSED

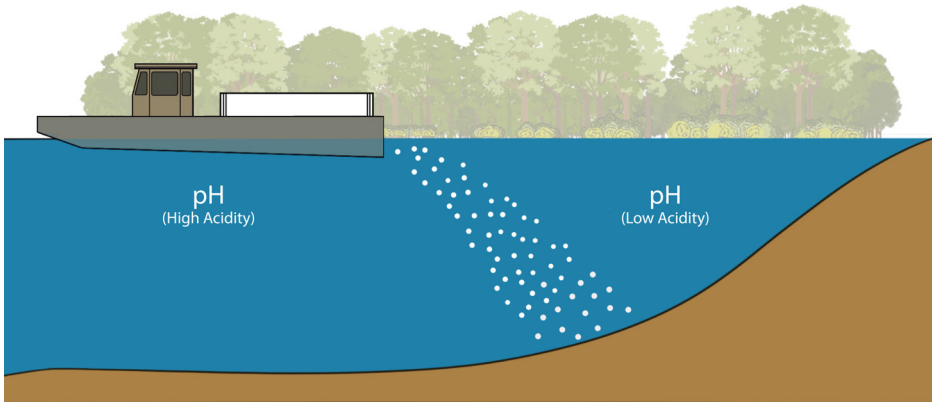
- Excess Nutrients
- Pollutant Inputs
- Algal Blooms
- Erosion
- Invasive/Nuisance Species

STRATEGY GOALS

- Protect
- Manage
- Rehabilitate

STRATEGY CO-BENEFITS

- Habitat Detrimental
- Aesthetics Neutral
- Recreation Neutral



- Permittable in Massachusetts**
Not permitted in MA. List of potential permits available [here](#).
- Implemented on Cape Cod**
Implemented in the 1980's on Cape Cod. See more current 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

Lime is applied to pond to stabilize water chemistry. Fish spawning and water quality can be impacted by low pH and liming is used to mitigate effects of acidification and aid in fisheries management. Liming directly increases alkalinity, and the total concentration of bases is usually made up of bicarbonate and carbonate. Alkalinity concentrations are important in any fishery because they indicate the water's ability to neutralize acid and stabilize pH. Liming neutralizes acid waters and can be an effective stopgap measure to maintain fish on a small scale in otherwise acidic lakes and ponds; however, liming has the potential to cause harm to other aquatic organisms, limiting its appropriateness and effectiveness.

ADVANTAGES

- Liming a pond to maintain consistent and optimal alkalinity concentrations can improve ecosystem health and maximize fish growth





CONSTRAINTS

- Raising pH may favor species previously not present or abundant and invites algal blooms
- Has the potential to alter the species composition of phyto- and zooplankton and benthic invertebrates
- Duration of benefit affected by degree of ongoing acid inputs
- Alters water chemistry
- Not "natural"



IMPLEMENTATION

POTENTIAL ACTORS

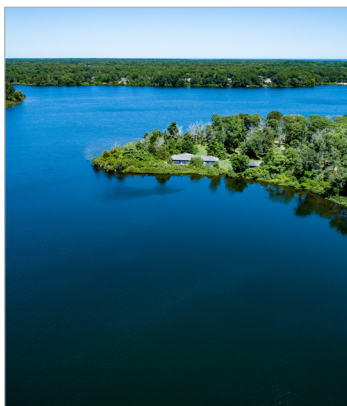
-  **Towns:** Towns may propose liming in town-managed ponds
-  **Pond Groups:** May propose or support the use liming in public or private ponds and provide a supportive role through education
-  **Private Landowners:** May propose or support the use of liming
-  **Land Trusts:** May provide a supportive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

SITING REQUIREMENTS

- Ponds where pH is low and fish production is primary goal

INFORMATION NEEDS

- Water chemistry
- Fisheries survey



IMPLEMENTATION EXAMPLES

Concerns about acid rain and its impacts on fish populations led to the addition of ground limestone in many stocked trout ponds in the 1980s, including several ponds on Cape Cod. The passage of clean air legislation has led to a notable reduction in acid rain impacts to Cape Cod ponds and reduced the need for liming.

RESOURCES

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

COST ESTIMATE

Variable

Varies depending on treatment area



ADDITIONAL FINANCIAL CONSIDERATIONS





Assessment: Planning, design, and permitting

Implementation: Cost of lime, logistics

Maintenance: Monitoring and reapplications, as needed



POTENTIAL FUNDING SOURCES

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

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