

WHAT IS ALGAE?

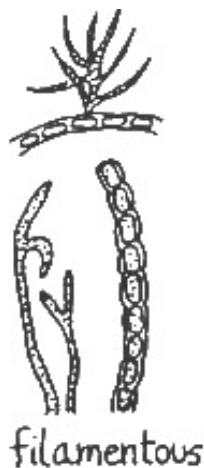
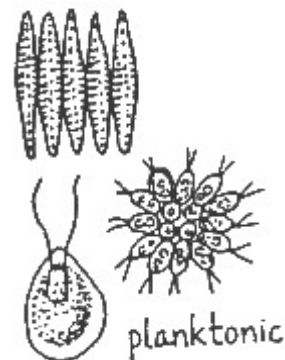
Algae are tiny microscopic plants that do not have true leaves, roots or flowers like other aquatic plants. They are the base of the aquatic food chain in lakes and are eaten by microscopic animals, insects and fish that are in turn eaten by large predators.

Algae growth is a natural occurrence in all waterbodies, with some lakes and ponds supporting larger algae populations than others. An algal bloom is a dense concentration of these plants which, in many cases, is most common during hot weather when algae reproduce more rapidly. As with rooted aquatic plants, algae growth can be stimulated by the introduction of cultural sources of nutrients to a point where nuisance conditions occur. The only complete and long-term solution to nuisance algae growth is to locate the source of nutrients and reduce their availability to the pond or lake. It should be realized that there is no way to permanently or completely eliminate algae from lakes and ponds, nor is this desirable. Some amount of algae growth is beneficial to lakes and ponds.

Types of Algae

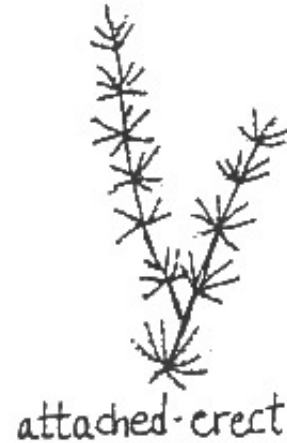
The three general forms of algae are planktonic (free-floating), filamentous and attached-erect.

- **Planktonic algae** usually appear as "pea soup" green masses or brownish colored particles suspended in the water. Some species may cause odor problems which have often been described as fishy, musty or septic.



- **Filamentous algae**, often called "pond scum", typically form large greenish-colored, stringy mats along the edges or bottom of a pond. Some forms may be slimy or cottony in appearance. These algal colonies can fill with gases and float to the surface in large masses.

- **Attached-erect algae** is a complex form of algae often mistaken for a rooted aquatic plant. The most common species, *Chara* sp., which is commonly called Muskgrass or Stonewort. It has a unpleasant musky or garlic odor, and feels gritty when held by hand due to calcium deposits on the leaves and stem. Another species of plant-like algae, *Nitella* sp., is very similar in appearance to *Chara* sp. but is not crusty and does not have an unpleasant odor. Dense low-growing mats of *Chara* sp. or *Nitella* sp. may cover the bottom of an entire pond.



Controlling Nuisance Algae Conditions

Controlling the Source of the Problem

Searching for and eliminating sources of nutrients should be a primary concern when algae control is desired. Begin by evaluating the land surrounding the water and identifying possible nutrient and sediment sources. Examples of potential sources are:

- < animal manure
- < agricultural runoff
- < bare, exposed soil
- < areas of lawn, garden or farm fertilizer use
- < unstable stream banks and roadside ditches
- < faulty/failing septic systems

Any of the above conditions can result in nutrient and sediment pollution of a lake or pond.

Prevention

Filamentous and planktonic types of algae can best be controlled by preventative actions that reduce the flow of nutrients entering a lake or pond.

Some steps you can take to reduce or eliminate sources of excessive nutrients to lakes and ponds are listed below:

- < Locate animal holding area well back from waterways; don't allow runoff from these areas to run directly into streams and ponds

- < Locate septic systems at least 50 to 100 feet from surface water. Routinely maintain septic systems.
- < Reduce the use of fertilizer and, where possible, eliminate its use **within 100 feet** of streams or ponds.
- < Whenever possible, leave a buffer strip of **at least 100 feet** between land uses and a waterbody. A vegetation mixture of trees, shrubs and ground cover will provide for optimum treatment of polluted runoff by the vegetation.
- < Reduce channelized flow (except existing streams) from land by encouraging flow to spread out and run through well vegetated areas.

For more information contact the VTDEC, Water Quality Division, 103 South Main Street, Waterbury, VT 05671-0408, telephone (802) 241-3777.

Nonchemical Control

Muskgrass or Stonewort can be effectively controlled by regular hand-pulling and raking. The use of hand-held cutters may also be effective in removing these forms of algae from the water. Additionally, the use of bottom barriers, large mats of material placed over the Muskgrass, will help to control their growth by blocking sunlight necessary for algae growth. Drawing down the water level to expose Muskgrass to a period of drying and freezing may help to decrease its population during the next growing season and in following years. However, remember, the presence of these thick low-growing plants may help to stabilize bottom sediments and keep other more obnoxious plants from inhabiting the pond.

Chemical Control

Chemical treatment of nuisance algae conditions are usually only a temporary solution, Aquatic algicides only kill existing algae and do not affect the sources of nutrients that will stimulate nuisance levels of algae growth again. Treatments often must be repeated on a yearly basis to be effective, and in many situations, chemicals may not provide desirable results.

Copper based compounds may provide some relief for nuisance algae conditions in small ponds. Copper compounds registered as algicides for the control of nuisance algal conditions may be used without receiving a permit if the proposed project meets the following criteria: a) the waterbody is **one acre or less** in size; b) the waterbody is located **entirely** on one individual's property (all the property surrounding the waterbody must be owned by one person); **and**, c) any outlet from the waterbody must be **controlled for at least three days** after any treatment. All other applications of algicides, which do not qualify for the above exemption, can only be applied after a permit is obtained from the VTDEC, Water Quality Division, 103 South Main Street, Waterbury, VT 05671-0408, telephone (802) 241-3777.