

# Aquatic Vegetation and Algae

**Vegetation  
Management**

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**Vegetation  
Management**



This web site cannot provide comprehensive information regarding vegetation management in ponds, since that subject goes well beyond issues of fish management. However, since pond owners are frequently concerned about managing vegetation, a few links to source of information on that subject are provided. More comprehensive information on the [management of pond plants](#) can be found on the Cornell Department of Natural Resources web-site.

Plant identification can be found at the following commercial site:

<http://www.killlakeweeds.com/weeds.cfm>

(These commercial links are not to be considered as endorsements of chemical control methods or any other methods described on these web sites)

In general, it is important to note that many smaller life stages of fish require

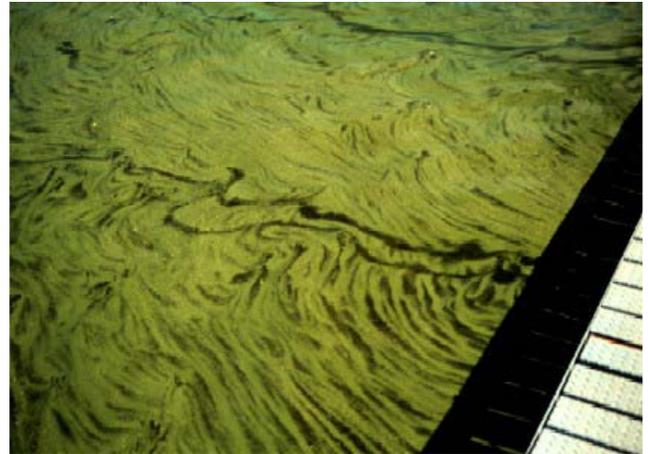
## Algae Blooms

Algae are an essential part of pond ecosystems- in fact they provide the main source of oxygen for living things in ponds. However, when temperature and nutrient levels are just right- usually during the summer, algal growth can progress uncontrollably forming an "algae bloom." As with most things in excess, too much algae is a bad thing. Algae blooms are characterized by dense mats of green or red colored algae on the pond surface. These mats wreck havoc with oxygen levels within ponds by preventing light from penetrating the deep areas of the pond and thus preventing submerged plants from photosynthesizing and producing oxygen. Because most of the oxygen produced by algae on the pond surface is lost to the atmosphere, most algae blooms lead to an oxygen reduction within ponds. Depending on how long the algae bloom lasts, this oxygen depletion can lead to a fish kill.

Managing pond conditions to prevent algae blooms and resultant fish kills is a challenge all pond owners face during the summer months when blooms most frequently occur. There are two different types of strategies to control blooms: proactive and reactive approaches.

Since an excess of nutrients is the main culprit responsible for uncontrolled algae growth, a proactive (and most effective) approach to preventing algae blooms involves reducing the amount of nutrient input to your pond. Buffer strips and other best management practices (BMP's) can be used to reduce nutrient inputs to ponds which drain agricultural watersheds. Direct inputs such as manure along pond edges and direct, unfiltered drainage to the ponds should be avoided. Since nutrients can accumulate in sediments over time, arranging to have a contractor dredge the pond bottom, may prove successful in older ponds.

Reactive approaches to controlling algae blooms include mechanical and chemical. Removing algae by harvesting is an expensive and time-consuming process. When applied in the spring or fall, barley straw can be effectively used to suppress algae growth. Some chemical algaecides are effective however, some such as copper sulfate compounds can have negative repercussions on fish and invertebrate



Dense Filamentous Algae Bloom



Using Plankton Net to Collect Algae Samples



Using Plankton Net to Collect Algae Samples



## **Algae Control with Barley Straw**

Although the exact manner in which barley straw controls algae is not fully understood, barley straw placed in water begins to decay and during this process, lignins are released from the barley cell walls. If dissolved oxygen levels are sufficient, lignins can be oxidized via bacteria to produce humic acids and other humic substances. In the presence of sunlight, hydrogen peroxide in aquatic systems is believed to inhibit the growth of algae. Peroxides are very reactive in solution and will only last for very short periods of time. However, when high levels of dissolved oxygen and sunlight are present, the continuous decay of barley straw may provide a sufficient level of humic substances that are converted to hydrogen peroxide. The use of barley straw does not kill algae, but appears to limit the growth of new algal cells.

For barley to work properly, it must remain near the surface of the water body (e.g. within the photic zone where algal growth and reproduction occurs), and be applied prior to the onset of algae growth. In New York, this generally means that barley straw must be applied by late May or early June, though fall applications may provide some benefit the following spring. The surface waters must contain high concentrations of dissolved oxygen and have good sunlight penetration. It has also been found to be useful to keep the barley straw suspended in the photic zone using floats and some type of device to contain the straw, such as netting. Within the netting, the straw cannot be packed too tightly or it will become anoxic (low oxygen levels).

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