AQUATIC ECOSYSTEMS MANAGEMENT
P.O. Box 82 Golf, IL 60029-0082 Phone: 847-579-3090 Fax: 847-724-8212

AQUATIC PLANT MANAGEMENT

Types of Aquatic Plant Management

Except for those you plant yourself there is not a lot of control over the types of plants that will appear in your pond. Algae are very common organisms that often are first to arrive. Aquatic plants come later by way of seeds and fragments brought in by the wind, on the feet of waterfowl or tucked into animal fur.

Maintaining a healthy balance of aquatic plants is critical to a pond's ecosystem. It is rarely desirable to remove all the plants from a pond. Aquatic plants provide the basic resources for the rest of the pond community including oxygen production, spawning and nesting habitat and food resources. Emergent plants break wave energy, reducing erosion of the shoreline, while rooted, submersed plants stabilize bottom sediment, reducing turbidity and nutrient cycling that can lead to algae blooms. Management is often necessary to help maintain an appropriate balance. Strategies are often identified within one of four general categories: chemical, mechanical, physical and biological.

Chemical

Aquatic herbicides are the most common method to control nuisance rooted aquatic plants and algae. When used properly they can provide selective and reliable control. Products cannot be licensed for use in aquatic situations unless there is less than a 1 in 1,000,000 chance of any negative effects on human health, wildlife and the environment. Aquatic herbicides are not allowed to be environmentally persistent, bioaccumulate or have any bioavailability. Prior to herbicide application, licensed applicators should evaluate the lake's vegetation, choose the appropriate herbicide and treatment areas and apply the herbicides during appropriate conditions (i.e., low wind speed and temperature and high dissolved oxygen concentration). It is also important to use a qualified professional because over-treatment of plants with aquatic herbicides is a quick way to create a very murky pond, dominated by algae blooms.

Water dyes or colorants are used to limit the amount of sunlight coming into the water column thereby reducing algae growth. The dyes are generally blue and are usually non-toxic, water-soluble and degrade over a period of weeks. Permits are required for the use of dyes that have United States Environmental Protection Agency (USEPA) registration numbers. Dyes that do not claim to control plants or algae have not been required to complete the USEPA toxicity testing or product registration. Dyes may reduce the need for other management strategies, however if your pond has an occasional outflow it will be difficult to use a dye without discharging the colored water downstream.

Alum is used in ponds to precipitate phosphorus (a major aquatic plant nutrient) from the water column and reduce its release from bottom sediments. Pond sediments treated with alum may release fewer nutrients and prevent excessive algae blooms. Alum will not affect the growth of aquatic plants except for reducing algae and improving water clarity, improving conditions for aquatic plant growth. Alum will not bind to new phosphorus entering the pond so nutrient inputs should be reduced before treating the pond. The application of alum involves calculations based upon pH, hardness and water volume. It is recommended that a professional pond management firm be consulted prior to using alum.

AQUATIC ECOSYSTEMS MANAGEMENT
P.O. Box 82 Golf, IL 60029-0082 Phone: 847-579-3090 Fax: 847-724-8212

Mechanical

Mechanical harvesting on ponds can be an effective management tool. A variety of hand-held or boat mounted cutters are available. Removing the cut plants will help take nutrients out of the pond and limit algae growth. Fragments of certain plants can re-root and form new beds of plants. Decomposing plant fragments can deplete dissolved oxygen in the water. Harvested plants should be piled far away from the shore to prevent nutrients from leaching back into the pond. After the plants are allowed to dry they can be composted or mulched.

Physical

Raking may be the most cost-effective method of removing excess aquatic plants. The greatest advantage to raking is that it allows you to remove plant material along with their stored nutrients. A secondary advantage of raking is that you are also reducing the chance for oxygen depletion caused by plant decomposition. The drawback to raking is that it may be very labor intensive depending on the size and depth of your pond as well as the extent of aquatic plant growth.

Fountains, bubblers or air injection aeration units are used to increase the amount of dissolved oxygen in the water. This may reduce the recycling of nutrients from the sediment, making them unavailable for algae or duckweed growth. Air injection and bubbler aeration units increase turbulence within your pond, which may also reduce algae or duckweed growth. In a very silty pond, an aeration unit may continuously re-suspend bottom sediments, which may be aesthetically undesirable. Aeration has no affect on rooted aquatic plant growth.

Bottom barriers are constructed from polyvinyl chloride (PVC) liners, coated fiberglass mesh screen and other materials. These fabrics are anchored to the pond bottom controlling all plants beneath. Sand blankets are often used in conjunction with bottom fabrics to reface the pond bottom. Established aquatic plants are smothered while new plants may find it difficult to thrive in this altered environment. This method causes immediate and drastic changes to the pond so it is important to consider the impacts prior to implementation. Also, it is not uncommon for the sand to slide down the bottom slope and contribute to filling in the pond. In limited areas, washed peagravel may be a better alternative because it stays in place better and offers some habitat.

Studies have shown that **bales of barley straw** submerged around a pond's perimeter can reduce the occurrence of algae. This method seems to be most effective when used prior to large accumulations of algae. This method is best employed on small, private ponds without a considerable outflow. Results vary considerably and may not be part of a solution for every pond.

Biological

There are a number of biological control agents for aquatic plants, algae and even sediments being researched throughout the world. Research is being conducted in Wisconsin and Illinois on the effectiveness of a weevil *(Euhrychiopsis lecontei)* as a biological control agent for Eurasian water milfoil and on the ability of several species of beetles and weevils to repress purple loosestrife growth.