Control Pond Algae with Light, Nutrient Control, Filtration, & Algaecides

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Managing algae has been the nemesis of pond owners for as long as ponds have been in existence. It is unsightly and can become a menace if not controlled. In extreme instances, algae can grow until it suffocates your plants and fish, and completely fills a pond. However, there are reasons this occurs and plenty of precautionary measures that can be taken to prevent such uncontrolled growth.

Algae thrive for the same reason the plants in your garden thrive. They need a light source available, nutrients to feed on, and water. Without any one of these three present, algae will not be able to grow. In order to control algae in your pond, you will need to control one or all of these factors. We will obviously ignore the water factor, since we do not have a pond at all if we do not have water. That leaves us with light and nutrients as elements we can control.

Controlling Light

Controlling the amount of light that your pond receives is an easier task to accomplish than it sounds. We cannot change the fact that the sun shines, nor do we want to, but there are several ways we can limit the amount of sunlight that reaches the pond's surface. One way this can be accomplished is in the initial design and construction of the pond. The pond should be constructed in a location where the amount of direct sunlight will not be a problem. Before digging, study the shadows in your yard to determine the place that best fits your needs. Make sure to not locate your pond directly under a tree. Falling leaves and dripping sap can create havoc to the water quality of your pond and can even be toxic in some instances. The kind of pond you are planning on installing (e.g., a heavily planted water garden, or a fish-only koi pond) will determine how much direct sunlight per day your pond will require. The fish-only koi pond will require far less sunlight than the water garden. Only several hours of direct sunlight each day is sufficient for a koi pond. The fish will benefit from obtaining some sunlight but do not need a full day's worth and can actually get sunburned if there is no shading or shelter available. The water garden on the other hand, will require a minimum of six hours of direct sunlight per day. This is an adequate amount of light for most of the plants available.

A second way to control the amount of light that penetrates the surface of the pond is through the use of plants. Floating plants and other surface dwelling plants are a great way to minimize the amount of light that penetrates the surface of the water. Water Hyacinths and Water Lettuce are two of the most widely available floating plants that can be of benefit. Both of these plants are very aggressive growers and will reproduce in large quantities. Both Water Hyacinths and Water Lettuce can be very invasive and are considered a nuisance in some southern states. In northern states, this is not the case. Neither plant is cold-hardy, so they will usually not survive winter. Typically, these are inexpensive plants and therefore, they can easily be replaced each year without digging too far into your pocketbook. Good submersed plants to help block out sunlight would include Water Lilies or Lotus. Lily pads are normally seen resting on the surface of the water. Lotus pads, on the other hand, will grow out of the water and take their form resting well above the waters surface. By blocking the surface of the pond these plants limit the amount of sunshine the algae receives, slowing its growth and helping you maintain control of your pond.

Nutrient Control

The most important factor to address in algae control is the nutrients the algae need to grow. The nutrients that feed algae come from many sources and anything you can do to minimize the influx of these nutrients will help you control algal growth. Rainwater can be a problem since it carries air pollutants and particulates into the pond which can, in turn, increase the amount of nutrients in the pond water. Fish food, whether consumed by your fish or not, is another source of nutrients for algae. Food that is eaten by your fish is digested and excreted. The excretion is a byproduct of the fish food and a source of nutrients for plants and algae. Uneaten food rots and decays, this process provides ammonia and other nutrients found in the food to disperse in the pond water and allows algae to use it as food. Lawn and garden fertilizers are another source of nutrients. Water that runs into your pond from lawns and gardens can also be a problem. Lawn and garden fertilizers contain a high concentration of nutrients and can lead to major algae growth.

Nutrients can easily be controlled using some simple procedures. First, make sure that gutter downspouts are not directed toward your pond. This will help keep rain runoff from entering the pond. It will also help prevent fertilizers that may be present on the lawn from flowing into the pond. You will also want to build a slight, raised lip around the pond; this will divert rain runoff around the pond and help keep foreign particulates out. Good feeding habits also help in the control of algae. You want to make sure that all the food you feed the fish is consumed within about five minutes. Food not consumed within five minutes is adding harmful nutrients to the water. Finally, the introduction of additional plants to your pond can be

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very effective in algae control. Plants and algae compete for the same food. With enough plants, you can starve the algae of nutrients as the higher plant life forms consume the nutrients first. The use of oxygenating plants can reduce the amount of carbon dioxide in the water, which is needed by both plants and algae. The oxygenating plants, Elodea being the most popular, use the carbon dioxide in the water for fuel, and in turn, produce oxygen. Since the plants are using up the carbon dioxide, there is less of it available for the algae to feed. The increased oxygen content of the water increases the pond's ability to sustain life.

Filtration and UV Sterilizers

Keeping your filter clean and working efficiently is equally important in controlling algae growth. Filtration is important for algae control for several reasons. Your filter traps debris. Although this debris is no longer visible in the pond, it is in your filter, and therefore, still in the water. If left in the filter, this debris will be broken down further and the remaining particulates will be small enough to pass through the filter and become part of the water. This in turn adds nutrients to the water. Debris that is left in the filter can also clog the filter and kill off the beneficial bacteria that grow there. These beneficial bacteria are responsible for the breakdown of fish waste. When you lessen the bacteria's ability to consume waste product, it leaves that much more available for the plants and algae to consume. By keeping your filter free of this debris, you will keep your helpful bacteria alive and optimize their ability to consume waste. Without proper filter maintenance, algae growth will be left unchecked.

UV sterilizers are another effective way to control algae. When water is pumped through the UV sterilizer, the ultraviolet light that is emitted will break down the cell wall of the algae and the algae will then die. Some UV sterilizers are designed specifically for outdoor use. Make sure to get the appropriate sized UV sterilizer for your pond. One that is too small for the pond will not provide any benefit. The recommended flow rates and sizes of UV sterilizers for controlling algae in ponds are given below.

Size of Pond	Size of Sterilizer
450-1000 gallons	40 watt
1000-1500 gallons	64 watt
1500-2500 gallons	80 watt
2500-4000 gallons	120 watt

Algaecides

We also have other means for controlling algae including water additives. Additives can take on many forms, with the most common being the liquid types of algaecides. Most of the liquid algae inhibitors available to pond owners today are very effective in controlling algae; however, they can also be very effective in killing your plants. There are a few products on the market that are liquid-based algae inhibitors that do not affect plants. When using one of the liquid algae inhibitors, always check the label to make sure that it is safe for the plants in your pond. Coloring agents, which typically color the water a dark shade of blue, work well for controlling algae growing below the water's surface. They simply color the water so that the sunlight is unable to penetrate to the depths of the pond. Without light, the algae starve.

Another solution that has been used for years in Europe and has started to become more popular here in the US, and that is the use of barley straw. Barley straw needs to be placed in a location with good water flow and must also have sunlight. Given these conditions, after several weeks, the barley straw will start to decompose creating hydrogen peroxide, which will then kill off algae.

Remember that algae growth is normal in all ponds, and a small amount can provide many benefits including providing a source of food for the fish and helping to control nitrate levels. However, once the level of algae exceeds healthy limits, it can reduce oxygen levels, cloud water, and restrict circulation, not to mention being unsightly. By carefully planning your pond's location and installing a quality filter and possibly a UV sterilizer, you can prevent the majority of algae blooms from occurring and make your pond a healthy place for your fish and a place of beauty.

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