

Pond Management

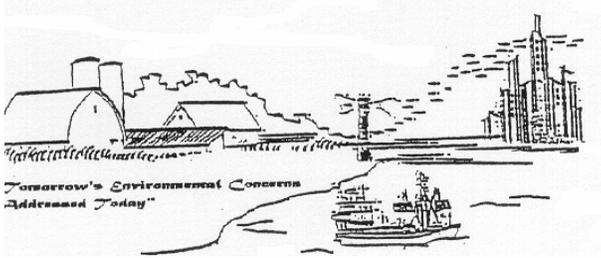
Do you have a pond that's not doing well ? Poor water quality - Nuisance weeds - Odors ?

Contact the District for information on pond management and an assessment concerning aquatic weeds, shore line stabilization using bio-engineering techniques, and habitat enhancement using native species. Our website is www.conservect.org. We will inspect and assess the condition of your pond by appointment and provide environmentally sound enhancement recommendations specific to your pond. Below are listed some typical pond management issues and possible solutions.

- **Eutrophication**-This natural aging process eventually causes the pond to fill in with sediment and vegetation. It then undergoes a natural succession from open water to marsh and eventually to meadow or forest.
- **Nuisance Vegetation**- Although pond vegetation is often regarded as a problem ,in most instances partial vegetative cover is necessary. The plants perform two vital functions: 1) form the base of the aquatic food chain, and 2) release dissolved oxygen into the water.
- **Nutrient Loading**- A pond needs to receive nutrients in appropriate quantities. Excessive nutrient loading can cause an overabundance of algal growth or dense concentrations of aquatic weeds and can accelerate the eutrophication process. Excessive nutrients can be caused by erosion and sedimentation, overuse of fertilizers on lawns, septic system failure, agricultural activities, runoff from road surfaces, domesticated and animal wastes.
- **Benthic Screening** - using physical barriers such as screens or sand to prevent aquatic plant growth. Cost \$500 to \$5000 per acre. One drawback is that the screening needs continued maintenance in order to be effective.
- **Biological Management**-introduced grass carp can eliminate many kinds of aquatic plant species and is a relatively inexpensive method. One drawback is that grass carp may also eat desirable vegetation.
- **Winter Drawdown**- Drawdown can be an inexpensive way to control aquatic weed management, although if dam or outlet structures require modification it can be expensive. Drawdown disrupts bottom sediments and can control most aquatic plant growth. One drawback is that it can have a negative impact on existing pond wildlife.
- **Dredging**- There are two basic methods for removing sediments from a pond, dry-dredging and wet-dredging. Increasing the depth of a shallow pond has long-term advantages, promoting fish growth, discouraging weed growth and increasing oxygen levels. Drawbacks include: wet dredging can be expensive -\$ 40,000 -\$ 100,000 an acre, dredging can kill many of the organisms in the pond and dredge spoil disposal can be problematic.
- **Herbicides & Algicides** can be used in some instances and can be highly effective in eliminating specific nuisance plant species. Their use can be relatively inexpensive but there can also be side effects such as oxygen depletion due to decay of dense weeds depleting oxygen levels and there may be toxic effects other than the target organisms. Use of chemicals requires a licensed applicator and state permit process.
- **Aeration**- can improve oxygen levels to benefit fish and help preclude growth of nuisance vegetation. The correct aeration device must be installed properly and will not manage all types of aquatic vegetation.
- **Siltation Reduction**- instream ponds will settle out sediments coming from upstream sources and these sediments can accelerate the filling in of the pond. A sediment forebay will collect these sediments before they enter the pond and prevent the pond from becoming shallower. Sediments may have to be removed often depending upon the size of the stream input and the extent of upstream sources of sediments.
- **Watershed Management**- water quality of a pond is usually determined by the quality of water that drains from its watershed. Improper land management (see "Excessive nutrients" above and the " non-point source pollution pages on our website) can accelerate the eutrophication process and shorten the life of the pond. Land management of your watershed typically requires the cooperation of individuals, government, businesses and other organizations on a multi-town level. As an individual one way you can participate in this planning is by joining your local citizens watershed organization. Contact the Southwest Conservation District and we can provide you with information on watershed management activities in your area.

The Landowners Incentive Program

New Connecticut Department of Environmental Protection Program focused on private landowners to provide " technical advice and cost-share assistance to landowners for habitat management projects that protect habitats that support fish , wildlife and plants considered rare or declining at risk species in Connecticut". Call the District for more information.



Southwest Conservation District

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Pond Management / Water Quality

CONTROLLING ALGAE WITH BARLEY STRAW

Pond algae is typically green, blue-green or brown, and free-floating. The two most common types of algae in this area are phytoplankton algae and filamentous algae. Phytoplankton algae may appear as a dense cloud in the water. Heavy blooms of phytoplankton algae can look and smell noxious. Filamentous algae are long and hair-like, and grow on the pond bottom in late winter through early summer. As water temperatures warm, oxygen and other gases collect under the filamentous mat and cause it to float to the surface, often giving it the appearance of floating moss.

Algae detracts from the beauty of ponds and can discourage recreational use. In addition, the decomposition of algae uses large quantities of oxygen, which can result in fish kills. As an alternative to expensive chemical control, many pond owners have found that placing loose bundles of barley straw in their pond prevents algae blooms.

There is no scientific consensus on how barley straw works. The leading theories relate to the byproducts of released lignins. Barley straw has not shown itself to have any negative effects on aquatic plants or animals.

There is no specific amount of barley to use or set frequency of use. However, below are guidelines which are intended to help those interested in utilizing this technique.

Rate: Rates are based on the size of the pond (surface area). One regular sized rectangular bale of barley straw is enough for approximately 20,000 square feet. However, every situation is different, so it may take some experimentation to find the optimal amount of barley to use.

Timing of application: The barley inhibits algae reproduction, so it needs to be in the water well before a bloom starts. If the bloom has already occurred, the barley will not kill the algae.

Frequency: The best results are gained by putting fresh barley in the water one to three times per year. The most commonly used frequency is two applications each summer. In a normal year, control can be achieved by putting barley in a pond in May and then again in late July. Here again, experimentation may be needed to determine the best frequency of application. Temperature is one factor. In cold water, the straw may take 3 months or more to be effective. In warm water (70 degrees F or more), it may only take one month. Also, it may help to put a new bale in and have some overlap time before removing the old one.

Location: For the greatest effectiveness, the inhibitor coming from the barley needs to be circulated throughout the pond. If there is an inlet feeding the pond, that is a good location for the barley. Aerators and fountains can also be used to help circulate the water near the barley. Also, the barley can be divided up and placed in multiple locations around the pond.

Flotation: The barley should be placed so that it is near the surface (for oxygen and sunlight). If the water is shallow enough (one to two feet deep), the barley can just sit on the bottom. Otherwise, some type of floatation should be used. Styrofoam “noodles”, like the ones kids use in swimming pools, work well (two per bale). The noodles can be reused over and over. Plastic bottles or other makeshift items can also be used.

Preparation: The bales need to be fluffed apart, not left in a tightly bound bale, so that water can circulate through the bale. Christmas tree netting (tubular netting) is an ideal type of netting to use to keep the straw from scattering about the pond. Other items, such as large (50 lb.) onion bags may work. One of the easiest methods of preparation is to take a 10 ft. length of Christmas tree netting and work the tube of netting over the bound bale. Next, insert styrofoam noodles into the tube of netting. Next, tie off the ends of the netting tube. Next, reach through the netting and cut the baling twine. After the twine has been cut, break and fluff the bale up as much as possible. (Note: If using plastic bottles for flotation, attach the bottles to the tied-off ends of the netting.)

Anchoring: If the barley is floating in the pond, some type of anchor (rock, block, brick, etc.) should be used to keep the barley in place. Or if the location allows, tie the bale to a stake(s) driven into the ground.

When it is time to replace the bale with a fresh one, pull the old bale onto shore and let it drain and dry for a few days, then move it to a location where it can decompose.