2004

G04-1529 Controlling Pond Plant Growth with Bottom Barriers

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IANR NebGuide
University of Nebraska Lincoln
Published by University of Nebraska–Lincoln Extension, Institute of Agriculture and Natural Resources

G1529

Controlling Pond Plant Growth with Bottom Barriers

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Although plants are an important part of a lake's ecosystem, it's important to control their growth to assure a healthy, aesthetic environment. This NebGuide offers ideas for controlling plant growth.

Rooted aquatic plants are a natural part of the lake ecosystem and comprise a critical component of a healthy lake. They stabilize shorelines, oxygenate water, provide cover and spawning areas for fish, and provide habitat for aquatic invertebrates that are critical for juvenile fish growth. Uncontrolled plant growth, however, quickly can overtake swimming beaches, impede boating access around docks, limit angler success, and may result in an aesthetically unwelcome situation. When excessive vegetation growth affects the recreational and economic potential of a lake, it may be desirable to directly control rooted aquatic vegetation. Typically this is accomplished through the application of herbicides. Bottom barriers, however, provide an alternative method that avoids the environmental, health, social and economic concerns that can be associated with chemical treatments.

What Is a Bottom Barrier and Where Do I Put It?

Bottom barriers are sheets of synthetic or natural material anchored to the bottom of the lake to obstruct sunlight, which controls the growth of aquatic plants. The concept is comparable to using landscape fabric to control weed growth around ornamental bushes and plants in residential yards. Bottom-barrier treatments are intended for small areas of a lake and are most commonly installed in high use areas such as swimming beaches, docks and boat ramps. The barrier can also be installed to create edge habitat for predator fish such as largemouth bass, bluegill and crappie. Predator fish that are popular with anglers commonly reside along weed edges. Bottom barriers increase the amount of edge habitat within a lake and may increase angler success.

There is a variety of "bottom barrier" or "screen" products available that aim to suppress aquatic plant growth by reducing or blocking light. Ideally, bottom barriers should be heavier than water but porous enough to allow gas bubbles produced by bottom sediments and decomposing plant material to pass through the barrier without "ballooning" the material off the bottom. Plastic sheeting products such as tarps or hog lagoon liners should be avoided because they are non-porous and difficult to install. Burlap is inexpensive and porous, but it is a natural fiber that decomposes and may lose its effectiveness within two years. Geotextile fabric products are superior to burlap or plastic sheet liners as they are rot-, tear-, and puncture-resistant, permeable enough to allow gas evacuation, and have a density greater than water. Numerous

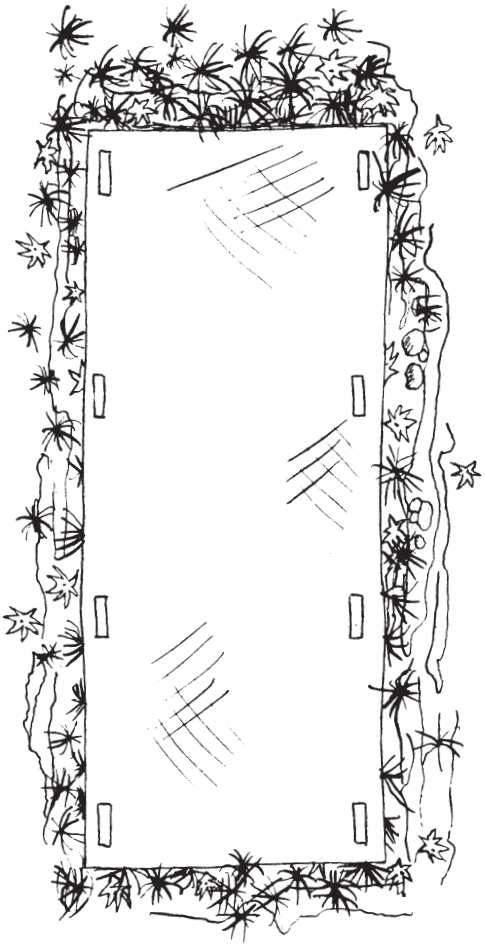

Figure 1. Topview of a bottom barrier with plants on either side.

geotextile fabrics are available, but it is important to choose one that has the proper density and porosity. See NebFact 03-586 for a current list of suppliers.

When and How to Install Barriers

Bottom barrier installation is easiest in the spring before the plants are well established. If installation must take place later in the year, then aquatic plants should be hand pulled or cut prior to installation. Barriers installed in areas with minimal vegetation are the most likely to remain in place and avoid disturbance from ballooning. Bottom barriers will typically kill the plants under them within 1 to 2 months, after which the barriers may be removed or moved to other areas. Barriers can be left in place for annual weed suppression.

Installation of the bottom barriers requires considerably less effort if the sediments are exposed and dry. Exposed sediments typically occur before filling a newly constructed pond, during periods of draw down, or in drought years. However, installation when the pond is at full pool is the most common technique.

Installation of the barrier material simply requires rolling it out and anchoring it to the pond bottom sediments. It is important to anchor the barriers, because even porous materials will balloon when gas from decomposing plants is produced underneath the barrier. For anchoring, 1/2 inch diameter rebar can be placed through loops or hems constructed (with waterproof thread!) on the edges of the material. However, placing rocks and/or bricks every three feet along the edges and every five feet in the middle of the material is also quite effective and is the easiest anchoring method. Installation in deeper water becomes more difficult and likely will require snorkeling equipment or SCUBA gear.

Alternatively, the barrier material can be stapled to frames constructed of 2" x 2" lumber. The corners of the frames are then anchored with bricks or sandbags and left in place for 1 to 2 months to achieve effective control of the vegetation. The frames can then be moved to other locations around the lake or removed and stored until the following year. Frames should be a manageable size (approximately 12 feet x 12 feet) and the placement of hinges at midpoint of the frames will allow them to fold to 6 feet x 12 feet for easier winter storage. Several frames can be placed next to each other to control vegetation in larger areas.

Pricing and Availability

Prices may vary depending on supplier and availability of product.

- Geotextile fabrics are distributed through numerous dealers and can typically be ordered in any width or length
- Burlap is commonly sold in four foot widths can be found at most garden stores
- An 8 foot x 100 foot roll of geotextile fabric costs around $150
- An 8 foot x 100 foot roll of burlap (using two four-foot widths) costs around $100

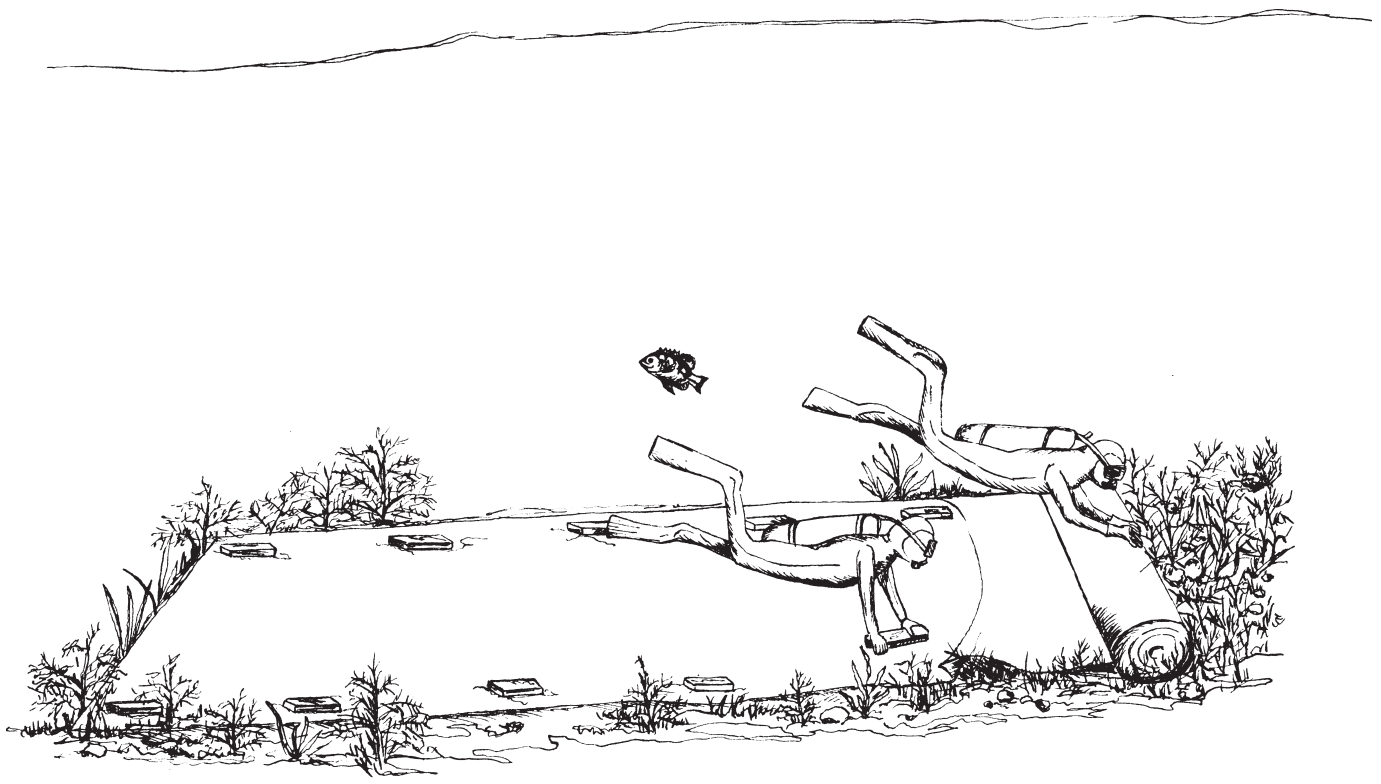

Figure 2. SCUBA divers rolling out and anchoring with bricks the material, creating a plant free substrate.

Best Time for Installation

- During construction of the lake
- During periods of draw down
- During times of drought
- Before vegetation becomes established (Spring)

Advantages

- Ideal for small applications
- Bottom screens are relatively easy to install by homeowners
- Can target high use areas such as swimming beaches, boat ramps and docks
- Creates important edge habitat for fish
- An alternative to chemical control
- If cared for properly, they can be used over multiple seasons

Disadvantages

- Expensive for treating large areas
- Can be difficult to install in deep areas and may require divers
- Boat anchors, heavy swimming use, dredges, weed harvesters, etc. may damage materials
- Can be difficult to anchor in deep muck sediments
- In time, sediments can build up on top of the mat, allowing plants to colonize
- Wave action from wind or boat use could dislodge if not properly anchored

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Issued January 2004