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Aquatic Plant Management - Bottom Screens

Description of Method

A bottom screen or benthic barrier covers the sediment like a blanket, compressing aquatic plants while reducing or blocking light. Materials such as burlap, plastics, perforated black Mylar, and woven synthetics can all be used as bottom screens. Some people report success using pond liner materials. There is also a commercial bottom screen fabric called Texel™, a heavy, felt-like polyester material which is specifically designed for aquatic plant control and a product called the noWEEDmat™ which is sold by a Canadian firm.

An ideal bottom screen should be durable, heavier than water, reduce or block light, prevent plants from growing into and under the fabric, be easy to install and maintain, and should readily allow gases produced by rotting weeds to escape without "ballooning" the fabric upwards. Even the most porous materials, such as window screen, will billow due to gas buildup. Therefore, it is very important to anchor the bottom barrier securely to the bottom. Unsecured screens can create navigation hazards and are dangerous to swimmers. Anchors must be effective in keeping the material down and must be regularly checked. Natural materials such as rocks or sandbags are preferred as anchors.

The duration of weed control depends on the rate that weeds can grow through or on top of the bottom screen, the rate that new sediment is deposited on the barrier, and the durability and longevity of the material. For example, burlap may rot within two years, plants can grow through window screening material, and can grow on top of felt-like Texel™ fabric. Regular maintenance is essential and can extend the life of most bottom barriers.



Bottom screens will control most aquatic plants, however freely-floating species such as the bladderworts or coontail will not be controlled by bottom screens. Plants like Eurasian watermilfoil will send out lateral surface shoots and may canopy over the area that has been screened giving less than adequate control.

In addition to controlling nuisance weeds around docks and in swimming beaches, bottom screening has become an important tool to help eradicate and contain early infestations of noxious weeds such as Eurasian watermilfoil and Brazilian elodea. Pioneering colonies that are too extensive to be hand pulled, can sometimes be covered with bottom screening material. For these projects, we suggest using burlap with rocks or burlap sandbags for anchors. By the time the material decomposes, the milfoil patches will be dead as long as all plants were completely covered. Snohomish County staff reported native aquatic plants colonizing burlap areas that covered pioneering patches of Eurasian watermilfoil. When using this technique for Eurasian watermilfoil eradication projects, divers should recheck the screen within a few weeks to make sure that all milfoil plants remain covered and that no new fragments have taken root nearby.

In this photo, bottom screening material is being prepared prior to installation around a boat dock.

Bottom screens can be installed by the home owner or by a commercial plant control specialist. Installation is easier in winter or early spring when plants have died back. In summer, cutting or hand-pulling the plants first will facilitate bottom screen installation. Research has shown that much more gas

is produced under bottom screens that are installed over the top of aquatic plants. The less plant material that is present before installing the screen, the more successful the screen will be in staying in place. Bottom screens may also be attached to frames rather than placed directly onto the sediment. The frames may then be moved for control of a larger area (see instructions for constructing and installing bottom screens).

***Case Study from the Conesus Lake Association:** "One Conesus Lake resident built five 12' x 12' bottom barriers to treat a swimming area adjacent to his dock. The barriers were introduced in early June as weed growth was just getting underway. The frames were left in place for three weeks and then moved to an adjacent location for another three weeks to treat a total area of 24' by 60'. Barriers were secured to the bottom by concrete blocks in each corner and one at each end of the cross brace (total of six per frame). Sand bags would probably be less obtrusive, but the blocks seemed to do an effective job.

The barriers were removed from the lake, rinsed off and put away for storage in mid-July. The result was effective reduction of the weeds for an entire summer swimming season! There was no difference in weed growth noted from where the barriers were in July versus June. Based on the amazing amount of silt that had accumulated on top of the barriers in just six weeks, it is strongly advised not to leave the barriers in the lake for more than a few weeks. It is possible the silt accumulated over an entire year could support new growth of milfoil on top of the barrier! Removal should also extend their life.

The frames were built from 2 x 2's as prescribed by Ecology's website. Corner gussets and center braces were also used in accordance with the suggested construction in the article. The bottom barrier fabric used was meraflex "stabilizing paper." This is a fiberglass material that is very strong and is used under new asphalt road tops. The fabric was only available in 504 foot long rolls (more than 6,000 square feet)! The cost was \$289 plus tax. This was more than enough for all this resident's neighbors to build their own screens! One improvement made to the Washington design was to cut the 2 x 2's next to the cross brace after the fabric was installed and add strap hinges to that the 12 x 12 frames could be folded to 6' by 12' for easier winter storage."

* The Conesus Lake Association, Inc. in Lakeville, New York has graciously allowed Ecology to reproduce some case studies of the use of these methods on our website. These excerpts are from "*The Conesus Lake Dockside/Near-Shore Lake Weed and Algae Treatment Guide*" 2002 Edition. Price \$8.00.

Advantages

- Installation of a bottom screen creates an immediate open area of water.
- Bottom screens are easily installed around docks and in swimming areas.
- Properly installed bottom screens can control up to 100 percent of aquatic plants.
- Screen materials are readily available and can be installed by homeowners or by divers.

Disadvantages

Because bottom screens reduce habitat by covering the sediment, they are suitable only for localized control.

- For safety and performance reasons, bottom screens must be regularly inspected and maintained.
- Harvesters, rotovators, fishing gear, propeller backwash, or boat anchors may damage or dislodge bottom screens.
- Improperly anchored bottom screens may create safety hazards for boaters and swimmers.
- Swimmers may be injured by poorly maintained anchors used to pin bottom screens to the sediment.
- Some bottom screens are difficult to anchor on deep muck sediments.
- Bottom screens interfere with fish spawning and bottom-dwelling animals.
- Without regular maintenance aquatic plants may quickly colonize the bottom screen.

Permits

Bottom screening in Washington requires hydraulic approval, obtained from the [Department of Fish and Wildlife](#). Check with your local jurisdiction to determine whether a shoreline permit is required.

Costs

Barrier materials cost \$0.22 to \$1.25 per square foot. The cost of some commercial barriers includes an installation fee. Commercial installation costs vary depending on sediment characteristics and type of bottom screen selected. It costs up to about \$750 to have 1,000 square feet of bottom screen installed. Maintenance costs for a waterfront lot are about \$120 each year.

[See how one lake group went about installing a bottom screen.](#)

Vendors

The following list of vendors is provided for your information. It is not our intention to endorse or promote specific vendors or products and this list may not be comprehensive. Vendors who wish to be added to this list should [contact us](#).

The following vendors sell bottom barriers on-line

- Alex Milne Associates Ltd - [noWeedmat](#)
- Lake Bottom Blanket - <http://www.lakebottomblanket.com>
- Water Weed Mat - <http://www.waterweedmat.com>
- Lake Mat - <http://www.lakemat.com>

The following vendors install bottom barriers in the Pacific Northwest

- [Aquatic Weed Control](#)
- [AquaTechnex](#)
- [Northwest Aquatic Management](#)
- A.C.E. Diving 208-755-0800 acediving@hotmail.com
- [DBi Services](#) 503-542-0906, [Email](#)

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