

## Impact of Eurasia Milfoil

Some exotic species of milfoil are very aggressive, displacing native species. Eurasian milfoil is an exotic invasive submersed perennial. It reproduces both vegetative and, less commonly, sexually (seeds). Rhizome division, budding and fragmentation are examples of vegetative reproduction. A single piece of fragmented Eurasian milfoil can multiply into 250 million new plants in one year!

Eurasian milfoil can take over a lake in two years. Large masses of Eurasian milfoil can lead to flooding and interfere with fishing, swimming and boating. Eurasian milfoil mats can increase mosquito habitat and decrease oxygen levels.

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### **CAN EURASIAN WATERMILFOIL BE ERADICATED FROM A LAKE OR RIVER?**

Once Eurasian watermilfoil is established in a lake, it is nearly impossible to eradicate. It does not cause problems in every water body, but for those that it does, three of the most common measures for managing nuisance growth are listed below. Most often, state and federal agencies use more than one of these treatment options to control Eurasian watermilfoil. Increasing public awareness about infestations can help prevent further spread by boaters and anglers to nearby lakes.

### **CONTROL OF EURASIAN WATERMILFOIL**

1. [Mechanical Harvesting](#)
2. [Biological Control \(Univ. of MN Biological Control Research\)](#)
3. Chemical Treatment
4. [Control Of Eurasian Watermilfoil In Lake Minnetonka](#)

University of Minnesota

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### **FACTS**

Impacts of Eurasian watermilfoil based on research:

- Increased boat repair and maintenance costs (One boat owner in Vermont spent \$800 repairing his boat when the motor intake became clogged with milfoil)
- Declined native plant diversity (Madsen, et. al. 1991; Trebitz 1993)
- Depressed real estate values (Bates et. al 1985)
- Inhibited water circulation (Smart and Doyle 1995)
- Reduced levels of dissolved oxygen, enables nutrients to accumulate...possibly creating unfavorable conditions for macroinvertebrates and fish (Lillie & Budd 1992)
- Reduced density of invertebrates (fish food) (Keast 1984)
- Three to four times fewer fish versus native plant beds (Keast 1984)
- Caused significant increases in permanent pool mosquitoes (Bates et. al 1985)

- Facts compiled and presented by Larry Space and Joanna Wright, "The Impact on Small Lakes of Vermont by the Invasion of Eurasian Watermilfoil: A Property Owner's Perspective."

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Three huge floating cutters normally would be chomping up tons of Eurasian water milfoil this week on Lake Minnetonka. Another would be cutting back weeds in Lake Calhoun in Minneapolis to prepare for the popular Aquatennial milk carton boat races next Sunday.

Not this year.

Permits to harvest the invasive weed have been suspended by the Minnesota Department of Natural Resources because no one from the state is available to oversee the work.

The DNR sent letters and e-mails to dozens of cities, counties, lake associations and private companies just before the July 1 shutdown, suspending all permits that use mechanical harvesters or chemicals to control invasive milfoil, curly-leaf pondweed or other unwanted vegetation.

Minnesota DNR

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[Eurasian Water Milfoil](#) is an invasive plant that has taken over parts of the lake in depths from about 3 feet to about 18 feet. The plant has been a problem in Lake Wononscopomuc since at least 1975. In 1988 the lake association with generous help from The Hotchkiss School bought a marine harvester and donated it to the town of Salisbury. Each year since the Town, Hotchkiss and the association have spent up to \$30,000 per year to trim the milfoil during the growing season. The plant can crowd out native plants depriving the lake of the diversity it needs to survive in a healthy state and support its normal aquatic life population.

Connecticut

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As Eurasian watermilfoil infests a lake, adding to the total macrophyte growth, property values can diminish by  $\hat{A}$  1% to 16% for incremental increases in the infestation level. Hence, policies that successfully prevent infestations have significant economic benefits to owners of lakefront properties and local communities.

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[Ecological Economics](#) (Impact Factor: 2.86). 01/2010; 70(2):394-404.

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Source: [RePEc](#)

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**Aquatic Plant Management - Mechanical Harvesting**

## Description of Method

Mechanical harvesters are large machines which both cut and collect aquatic plants. Cut plants are removed from the water by a conveyor belt system and stored on the harvester until disposal. A barge may be stationed near the harvesting site for temporary plant storage or the harvester carries the cut weeds to shore. The shore station equipment is usually a shore conveyor that



mates to the harvester and lifts the cut plants into a dump truck. Harvested weeds are disposed of in landfills, used as compost, or in reclaiming spent gravel pits or similar sites.

Harvesting is usually performed in late spring, summer, and early fall when aquatic plants have reached or are close to the water's surface. Harvesters can cut and collect several acres per day depending on weed type, plant

density, and storage capacity of the equipment. Harvesting speeds for typical machines range from 0.5 to 1.5 acres per hour. Depending on the equipment used, the plants are cut from five to ten feet below the water's surface in a swath 6 to 20 feet wide. Some modern harvesters can cut plants in a range of water depths. Because of machine size and high costs, harvesting is most efficient in lakes larger than a few acres. Harvesting can be an excellent way to create open areas of water for recreation and fishing access.

Along with plants, harvesters also collect a large number of small fish and invertebrates. Amphibians and turtles have been known to be collected as well. In the harvesting machine shown above which was harvesting Eurasian watermilfoil from Long Lake, Thurston County, the operator is watchful for fish as the cut plants move up the conveyer belt. She uses a pole to flick fish from the belt into the lake before they reach the storage area.

If you hire harvesting services make sure that the harvester has been thoroughly cleaned and inspected before allowing it to be launched into the waterbody. This is extremely important if the harvester has been working in waterbodies known to be infested with noxious species such as Eurasian watermilfoil, hydrilla, Brazilian elodea, or with exotic animals such as the zebra mussel or spiny water flea.

## Advantages

- Harvesting results in immediate open areas of water.
- Removing plants from the water removes the plant nutrients, such as nitrogen and phosphorus, from the system.
- Harvesting as aquatic plants are dying back for the winter can remove organic material and help slow the sedimentation rate in a waterbody.
- Since the lower part of the plant remains after harvest, habitat for fish and other organisms is not eliminated.

- Harvesting can be targeted to specific locations, protecting designated conservancy areas from treatment.

## **Disadvantages**

- Harvesting is similar to mowing a lawn; the plant grows back and may need to be harvested several times during the growing season.
- There is little or no reduction in plant density with mechanical harvesting.
- Off-loading sites and disposal areas for cut plants must be available. On heavily developed shorelines, suitable off-loading sites may be few and require long trips by the harvester.
- Some large harvesters are not easily maneuverable in shallow water or around docks or other obstructions.
- Significant numbers of small fish, invertebrates, and amphibians are often collected and killed by the harvester.
- Harvesting creates plant fragments which may increase the spread of invasive plant species such as Eurasian watermilfoil throughout the waterbody.
- Although harvesters collect plants as they are cut, not all plant fragments or plants may be picked up. These may accumulate and decompose on shore.
- Harvesters are expensive and require routine maintenance.
- Harvesting may not be suitable for lakes with many bottom obstructions (stumps, logs) or for very shallow lakes (3-5 feet of water) with loose organic sediments.
- Harvesters brought into the waterbody from other locations need to be thoroughly cleaned and inspected before being allowed to launch. Otherwise new exotic species could be introduced to the waterbody.

## **Permits**

Harvesting in Washington requires hydraulic approval from the [Department of Fish and Wildlife](#). Some Shoreline Master Programs may also require permits for harvesting. Check with your city or county before proceeding with a harvesting project. Because harvesting collects fish along with aquatic plants, some additional monitoring may be required when harvesting in salmon bearing waters, or a permit may be denied.

## **Costs**

Costs per acre vary with numbers of acres harvested, accessibility of disposal sites to the harvested areas, density and species of the harvested plants, and whether a private contractor or public entity does the work. Costs as low as \$250 per acre have been reported. Private contractors generally charge \$500 to \$800 per acre. The purchase price of harvesters ranges from \$35,000 to \$110,000. There are several harvester manufacturers in the United States and some lake groups may choose to operate and purchase their own machinery rather than contracting for these services.

State Of Washington

<http://www.weedooboats.com/boats.php>

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Another strategy for removing Milfoil is for divers to go underwater and physically remove the plants.

