FO-06955
1997

UNIVERSITY OF MINNESOTA Extension SERVICE

Managing Aquatic Plants in Minnesota Lakes

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Why lakes need aquatic plants

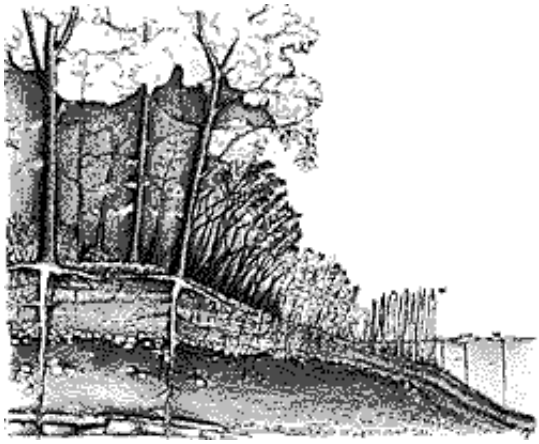

Figure 1. Plant roots stabilize sediments. Emergent plants dampen waves and stabilize shorelines.

Lakes are well served by emergent plants growing along their margins. These plants stabilize sediments and shorelines and increase water clarity. Floating-leaf plants and submerged vegetation provide food and shelter for fish. Shorelines with fine mud sediments need vegetation to anchor the sediments and prevent suspension of sediments that would otherwise result in turbid, murky waters.

After development, shorelines may need to be restored with appropriate native vegetation to keep the water clear. Restoration projects increase the diversity of native plants, stabilize sediments by using plants with both deep and shallow roots, and slow water flow and runoff into a lake. This bulletin does not focus on restoration of shorelines. Publications about restoration are available from MNDNR, the Hennepin County Conservation District, and other resources listed in the reference section at the end of the bulletin.

When too much vegetation is present or if exotic species predominate, management efforts are needed. Some lakesides may have shorelines clogged with vegetation, and residents feel intervention is necessary to allow lake access for recreational activities. The Aquatic Plant Management program in the Minnesota Department of Natural

Resources. (MNDNR) regulates management of aquatic vegetation.

This bulletin focuses on the benefits of aquatic vegetation for proper ecosystem functioning. It identifies aquatic plant species and provides information on management tactics when vegetation is overly abundant and interferes with lake access or when exotic aquatic plants are present.

Functions of aquatic vegetation

Aquatic plants are beneficial in many ways. Areas with plants produce more food items for fish, such as insect larvae, snails, and other invertebrates. Aquatic vegetation offers shelter for fish, as well as spawning habitat. Many submerged plants provide food for waterfowl and provide habitat for insects on which some waterfowl feed. Aquatic plants further benefit lakes by producing oxygen and by absorbing nutrients from runoff, such as phosphorus and nitrogen. Emergent plants also protect shorelines and bottoms by dampening wave action and stabilizing sediments (Figures 1 and 2).

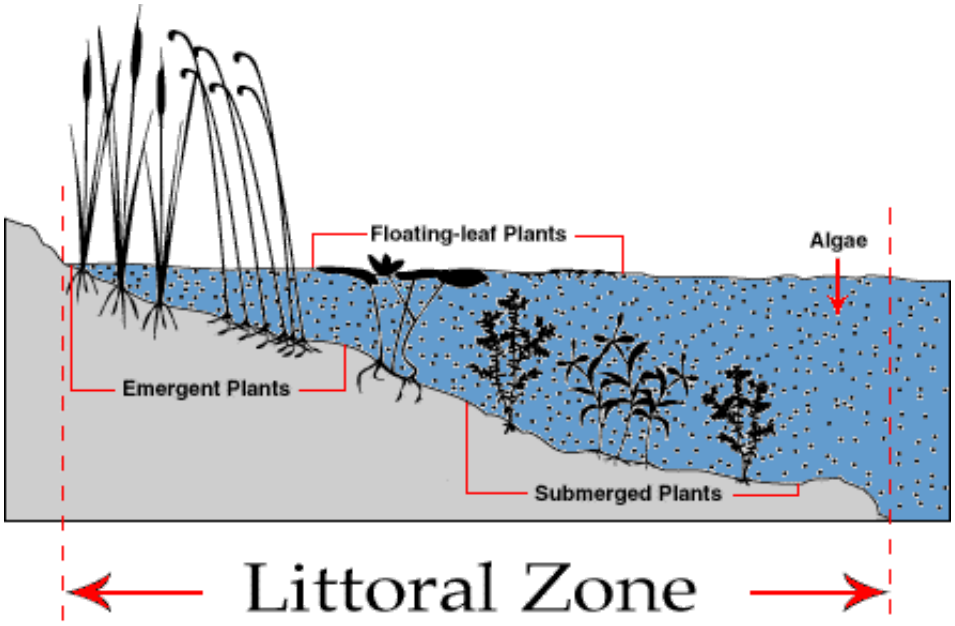

Figure 2. In many Minnesota lakes the littoral zone contains all plant types: emergent, submerged, floating-leaf, and algae.

Eurasion watermilfoil
Myriophyllum spicatum
Submerged

Northern watermilfoil
Myriophyllum exalbescens
Submerged

Figure 3. Northern watermilfoil and Eurasion watermilfoil are often confused, notice the similarity in the two plants pictured above.

Distribution of aquatic vegetation

Water bodies differ greatly in number and type of plant species. There are approximately 150 species of aquatic plants and macroscopic algae, such as Chara and Nitella, present in Minnesota. Aquatic plants are divided into four general classes. The free-floating plants including planktonic algae and duckweeds may occur anywhere in a lake. Vascular plants and macroscopic algae, collectively called macrophytes, are divided into the three classes of submerged, emergent, and floating-leaf. Class is defined by the leaf location in the water. The zone in which macrophytes occur is called the littoral zone, which in many Minnesota lakes extends to a depth of approximately 15 feet.

The distribution of plants within a lake is generally limited by light availability, which is controlled by water clarity. Water clarity is measured by lowering a Secchi disk (a plate-sized disk with black and white sections) through the water to the depth at which it can no longer be seen. The deeper the Secchi disk is lowered and still is visible, the clearer the water. As a general rule, the maximum depth to which plants grow is twice the midsummer Secchi depth. In lakes with a Secchi depth of more than 15 feet, rooted plants occur to depths of 15-20 feet.

In addition to available light, the type of sediment influences the distribution of rooted aquatic plants. Plants are more likely to be found in muddy or soft sediments containing organic matter, and less likely to occur where the substrate is sand or gravel. Lakes usually have more than one type of sediment. One edge of the lake might have a rich organic substrate, while the opposite edge of the same lake could have a sandy substrate because wave action has washed away the organic material. By examining the lake and lakeshore before you buy property, you can often tell how abundant aquatic vegetation will be. A muddy shoreline is a result of the wave action of water on the lake's substrates. It is not true that if you remove vegetation a sandy beach will appear. Removing vegetation will create more mobile soils resulting in murkiness and turbidity.

Finally, water chemistry influences which plants are found in a body of water. Plant species vary in pH tolerance. Some species prefer alkaline lakes like those in southwest Minnesota, while others flourish in the more acidic lakes found in northeast Minnesota.

Identification of submerged plants

Exotic Eurasian watermilfoil (Figure 3) is a rooted plant with submersed leaves that occurs in 75 lakes and rivers in Minnesota, most in the seven-county metropolitan area. It is native to Europe and Asia and spread throughout North America by growing from small plant fragments carried by boats. It has a high growth rate and may quickly dominate the littoral zone of a lake. It can form dense mats on the surface, shading out other plants, impeding boating and other recreational activities (Table 1).

The native species Northern watermilfoil, *Myriophyllum exalbescens*, (Figure 3) is one plant easily confused with the exotic species Eurasian watermilfoil, and in some areas its abundant growth interferes with recreational activities (Table 2). The two watermilfoils are differentiated by pairs of leaflets in each leaf. Native Northern watermilfoil has five to ten leaflet pairs, while exotic Eurasian watermilfoil, *Myrophyllum spicatum*, has twelve to twenty-one pairs. Additionally, Northern watermilfoil is much more rigid when out of the water. Native coontail (Figure 4) is another common Minnesota species easily confused with Eurasian watermilfoil. Unlike the feathery leaves of Eurasian watermilfoil, the leaves of coontail are spiny and forked. Native Canada waterweed, *Elodia canadensis*, grows abundantly and in some situations, can interfere with access to water (Figure 5). Canada waterweed is dark green, has small leaves whorled around the stem, and is often kept as an aquarium plant.

Figure 4. Coontail *Ceratophyllum demersum* Submerged

Figure 5. Canada waterweed *Elodea canadensis* Submerged

Exotic flowering rush (*Butomus umbellatus*) is also from Europe and Asia and occurs in ten Minnesota waterbodies throughout the state. It grows submersed in lakes and rivers, but is emergent along shorelines. although it spreads vegetatively, this hard-to-control species invades sparse or vegetation-free areas and spreads slowly due to low seed production. Exotic curlyleaf pondweed (*Potamogeton crispus*) was introduced from Europe more than 100 years ago, and is now widespread in Minnesota. This submersed perennial is often the first plant to emerge in the spring. Amazingly enough, it actively grows under ice and snow. The stems reach the surface and flower in June. Curlyleaf pondweed forms mats that are often mistaken for Eurasian watermilfoil. After flowering, these mats break apart and decompose, often becoming a nuisance around the first of July. Exotic curlyleaf pondweed is difficult to control because it forms vegetative propagules which remain in the sediments like seeds. Native species of *Potamogeton* are beneficial and need not be controlled. Be sure plants are correctly identified before a control program is begun. Contact the MNDNR if you need help identifying an aquatic plant.

Identification of emergent plants

Purple loosestrife, *Lythrum salicaria*, (Figure 6) is an emergent wetland plant from Europe and Asia. It is common in the Upper Midwest and was originally sold as a garden plant. This perennial has escaped and naturalized to many aquatic and marshy habitats. It is an attractive plant with brilliant purple flowers, grows in large stands, and produces enormous quantities of persistent seeds. After invasion, it outcompetes native vegetation, clogs drainage ditches, and destroys spawning areas for northern pike.

Figure 6. Purple loosetrife
Lythrum salicara
Emergent

Figure 7. Swamp loosestrife
Lysimacha terrestris
Emergent

Figure 8. Cattails
Typha spp.
Emergent

Because of these undesireable characteristics, it is now prohibited from sale. Native swamp loosestrife, *Lysimachia terrestris*, has flowers in whorls at leaf axis (Figure 7). Cattails, *Typha spp*., (Figure 8) are a familiar sight in ponds and lakes in Minnesota. These native plants are up to 10 feet tall and have a cigar shaped inflorescence that forms in the summer. Cattails provide cover for many game fish and nesting habitat for waterfowl. They also help stabilize shorelines and bottom sediments. Emergent plants like cattails (*Typha latifolia, Typha angustifolia*), bulrushes (*Scirpus spp.*), and others are problems when the plants clog small waterbodies (Table 2). However, control of emergents is usually strictly limited because they stabilize sediments and shorelines.

Table 1

Exotic aquatic plant species	
submerged	emergent
Eurasian watermilfoil (*Myriophyllum spicatum*) Flowering rush (*Butomus umbellatus*) Curlyleaf pondweed (*Potamogeton crispus*	Purple loosestrife (*Lythrum salicaria*)

Table 2

Native aquatic plant species that grow abundantly	
submerged	emergent
Northern watermilfoil (*Myriophyllum exalbescens*) Coontail (*Ceratyophyllum demersum*) Canada waterweed (*Elodea canadensis*)	Cattalis (*Typha latifolia, Typha angustifolia*) Bulrushes (*Scirpus spp*.)

Identification of floating-leaf plants

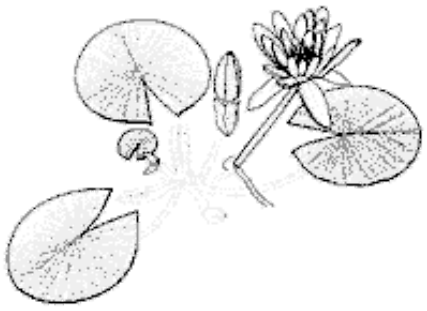

Figure 9. Waterlillies
Nymphaea spp.
Floating-leaf

Native waterlillies, *Nymphaea spp*., (Figure 9) are common floating leaved plants in Minnesota. The leaves are up to one foot across, may have purplish undersides, and have a slit running from the edge to the center. The flowers are white with a yellow center, opening in the morning and closing in the afternoon. Waterlillies provide excellent cover for game fish.

Native watershield, *Brasenia schreberi*, (Figure 10) has small oval leaves without a center slit. The leaf petioles are covered with a clear gelatinous material. In June they produce small purple flowers.

Figure 10. Watershield
Brasenia schreberi
Floating-leaf

The yellow lotus, *Nelumbo lutea*, (Figure 11) has large, grey-green leaves growing up to two feet across, with fragrant pale-yellow flowers opening up to 10 inches. **Yellow lotus is a protected species in Minnesota and cannot be removed.**

Cow lilies, *Nuphar spp.*, (Figure 12) are found in sheltered areas with shallow water. The heart-shaped leaves are 8 to 16 inches long and float on the water surface. It has bright yellow flowers, and produces fruit eaten by muskrats and waterfowl.

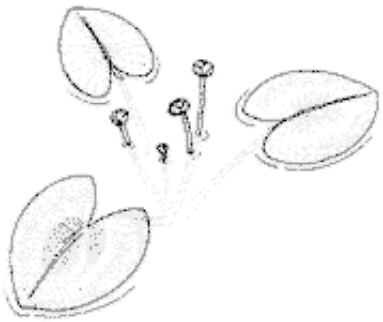

Figure 12. Cow Lilly
Nuphar spp.
Floating-leaf

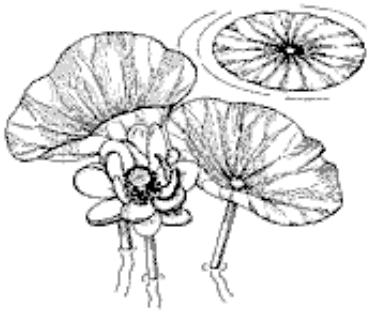

Figure 11. Yellow Lotus
Nelumbo lutea
Floating-leaf

Identification of algae and free-floating plants

The many types of algae in Minnesota lakes are sorted into three groups (Table 3). Filamentous algae, also called pondscum, look like masses of green cotton or wool on the surface of the water, and grow attached to logs and rocks. They provide cover for

Figure 13. Planktonic algae
Spirogyra spp.
Free-floating

the prey of small fish. Planktonic algae are free-floating algae growing near the waterís surface (Figure 13). Some types form large colonies that accumulate on windward shores and in backwater areas and provide food for some small fish. *Chara*, also called muskgrass (Figure 14), is another type of algae, though it more closely resembles larger plants. *Chara* is commonly two to three feet long, and provides habitat for the prey of small fish, and stabilizes sediment.

The duckweeds (Figure 15) and watermeal (*Wolfia columbiana*) are free-floating plants that occur primarily in small ponds or sheltered bays. All of these plants provide habitat for insects that feed fish, but in dense concentrations will shade out submersed plants below them.

Figure 14. Muskgrass
Chara spp.
Free-floating

Table 3

Native algae and free-floating plants</	
Pondscum/Filamentous algae (*Spirogyra* and many others)	
Blue-green/Planktonic algae (*Anabaena* and many others)	
Muskgrass (*Chara spp.*)	
Stonewort (*Nitella spp.*)	
Duckweeds (*Lemna minor and Spirodela polyriza*)	
Watermeal (*Wolffia columbiana*)	

Watermeal
Wolffia columbiana
Free-floating

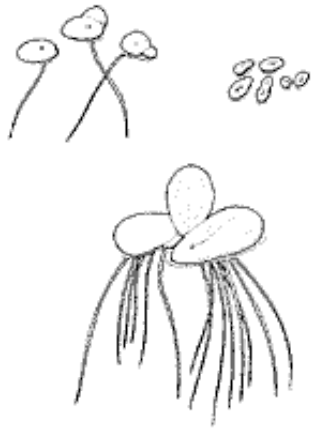

Figure 15. Duckweeds
Lemna spp., Spirodela spp.
Free-floating

Managing aquatic vegetation

By limiting exotic introductions: Perhaps the most important way to control invasive aquatic plants is to prevent their spread. By being aware of the problem and acting accordingly, expensive and difficult corrective actions are not necessary. Before leaving a lake or river with a boat, drain all water out of the live and transom wells. Inspect the boat and trailer, paying particular attention to the lower part of the motor and propeller, the trailer axle, rollers, and the hitch. Remove any attached vegetation, even if you do not think it is an exotic species. Transportation of any aquatic plant on public roads is illegal in Minnesota.

Some exotic plants were introduced by the aquarium and landscaping trade. Do not dump aquarium plants into lakes, streams, stormwater basins, or created ponds. Also, when landscaping a waterside, make certain the plants you use do not contain restricted exotics.

By limiting nutrient enrichment: Limiting the amount of nutrients entering a lake is a good way to reduce long-term plant growth. If you live on or near a lakeshore, use only the recommended amount of fertilizer and apply it only in the fall. use a no- or low-phosphorus fertilizer. Leave a buffer zone of unmowed, unfertilized lawn between the yard and the lake, or establish a filter strip of native vegetation. Never fertilize right up to the lake edge. Collect and compost lawn clippings and fallen leaves. Do not rake them into the lake or burn them near the shore. Finally, be sure that your septic system is operating correctly and not draining into the lake. For other ideas on how to limit nutrient input into bodies of water, refer to the Shoreland Best Management Practices packet from the Lake County Soil and Water Conservation District and the Minnesota Arrowhead Water Quality Team.

By sustainable lawn care: Manage lawn and garden through sustainable management practices which promote low inputs of fertilizers, herbicides, and insecticides into your yard. For instance, some grasses do not grow well in shady areas and the gardener might be tempted to use fertilizers and herbicides to encourage growth. Instead, replace grasses in shady areas with shade-tolerant ground covers. If weeds become a problem, spot spray weeds or remove them by hand. For more information, refer to Sustainability in Urban Ecosystems, a bulletin (FO-6709) and video (VH-6639) available from the University of Minnesota Extension Service at (612) 625-8173.

Leaves, grass clippings, and granules of fertilizer left on paved surfaces all find their way into your lake. Compost the leaves and grass clippings, and use a drop spreader for better control when fertilizing. If a buffer zone of native vegetation separates your grass from the lake, leave grass clippings on the lawn, whether or not you have a mulching mower. Lawn clippings do not

Bracted orchis
Habenaria spp.
Wet soil

Cardinal flower
Lobelia cardinalis
Wet soil

Blazing star
Liatris spp.
Wet soil

contribute to thatch build-up, because clippings decompose rapidly and add nutrients to the soil. Leaving the clippings all season is equivalent to one fertilizer application, saving money and time. When mowing, keep the turf height at about three inches, mow frequently, and take off no more than one-third of the leaf blade at a time so as not to stress the plants. All these methods promote turf growth and health in a more sustainable way.

A permit is needed if you intend to:

- Use any type of herbicide or algicide
- Control any tye of emergent vegetation
- Remove vegetation from an area larger than 2500 square feet, or from an area spanning more than 50 feet of shoreline or more than half of the property width
- Control floating leaf-vegetation in an area larger than a 15-foot wide boat channel connecting your lakeshore to open water
- Use an automated plant control device, such as a Crary weed roller

Do I have a problem?

The presence of aquatic plants does not necessarily indicate a problem needing corrective measures. A problem arises for homeowners when plants interfere with recreational activities such as swimming, boating, and fishing. Exotic plants have the additional effect of displacing native plant species, interfering with the food chain, and reducing fish populations. Proper identification of aquatic plants is the first step in understanding how to manage problem plants in a lake.

Controlling the vegetation of a lake can create unexpected management issues. Manipulating one component of a lake ecosystem has consequences for other components of the lake. For example, population growth of microscopic small green algae and macrophytes (large leafy plants and large plant-like algae) are inversely related. Lakes with abundant algae and poor water clarity generally have fewer submersed macrophytes. However, management efforts that reduce algae often result in increased growth of the remaining macrophytes. Removing the remaining macrophytes increases the effects of wind turbulence and redissolves nutrients in the sediments into the water. This results in an algal bloom, which turns the water green and has the opposite of the desired effect. The trade-off is clear water with abundant submersed macrophytes versus an algae bloom with low water clarity and few macrophytes.

The goals of a management plan should be clearly identified in advance. The expectation of a perfectly clear, vegetation- and algae-free lake is unrealistic, and leads to disappointing results. Shorelines with muddy substrates need aquatic vegetation to prevent suspension of the soil into the water. Sandy shorelines, although preferred by lakefront owners, are only one of many types of shorelines.

A permit is NOT needed if you intend to:

Do I need a permit?

- Remove submerged vegetation from an area less than 2500 square feet; remove the vegetation by hand, with hand tools, or with equipment that doesnít significantly alter the course, flow, or current of the water; and remove the vegetation from the water immediately after cutting or pulling.
- Manage a pond that is on private water, not on the MNDNRís protected waters inventory.

Be sure to comply with rules before starting on a plant control project. A permit is required if the area to be controlled is larger than 2500 square feet, extends more than 50 feet along the shore, or more than half of the shoreline length of your property, or if you intend to remove emergent or floating-leaf vegetation, or if you intend to use any herbicide or algicide.

You do NOT need a permit if the area of submerged vegetation to be controlled is 2500 square feet or less, extends no more than 50 feet along the shoreline (or half of the propertyís shoreline length, whichever is less), if the submerged vegetation is cut or pulled, and if all the harvested plants are immediately removed from the lake or pond. A permit is not needed to maintain a 15-foot-wide boat channel connecting the lakeshore to open water thru floating-leaf vegetation.

Further information explaining permits is available in MNDNRís publication *A Guide to Aquatic Plants: Identification and Management*. If you are unsure of the identification of an aquatic plant, want information on the appropriate control measures, or if you need a permit, contact an aquatic plant management specialist at the MNDNR. The phone numbers are listed at the end of this publication.

Removing aquatic vegetation

Pickerelweed
Pontederia cordata
Emergent

By removing vegetation: The two main ways to eliminate or reduce problem aquatic vegetation are harvesting or herbicide applications. Waterbodies that are private and not on MNDNRís protected waters inventory are not subject to the management rules of the MNDNR. However, the MNDNR will offer sound advice and, in some cases, a site visit.

By harvesting vegetation: The most obvious way to get rid of plants is to physically remove them. The removed plants must be taken from the lake and disposed of properly, such as at composting facilities. Cut plants left in the water usually regrow after removal.

Removal methods include pulling by hand; cutting with knives, cutters, or scythes; or dragging with rakes, drags, or nets. These methods offer an inexpensive solution for small areas. Different types of rakes and drags are available for purchase at farm stores or can be built from a wide array of household items. See Lakesmarts listed in the Reference section at the end of this publication.

For large jobs, machines that function as aquatic combines and harvest large quantities of vegetation are available. These expensive machines are available for hire from private contractors. A list of licensed companies is available from the MNDNR.

With chemicals: All herbicide and algicide usage requires a permit. Some aquatic herbicides are available for purchase and use by homeowners, but some may only be applied to public waters by applicators with an Aquatic Pest Control Applicator (APCA) category license from the Minnesota Department of Agriculture (MDA). A list of licensed aquatic pesticide applicators and appropriate herbicides is available from the MNDNR.

Appropriate considerations are necessary for herbicide application. Misapplications of herbicide costs money and time and may damage non-target aquatic vegetation. applying herbicide at the wrong time of year reduces success. Applying more than the recommended rate is illegal, harms fish, can cause public health hazards, and is usually ineffective. Finally, after an application of some herbicides or algicides, there is a waiting period for water activities. Before deciding to use herbicides, seek advice from a professional.

There are two general classes of herbicides that are used in aquatic habitats. Contact herbicides kill or damage the plant by direct contact. Systemic herbicides are taken up by the plant and transported through its vascular system. Use only herbicides labeled for use in aquatic systems. Read and follow all label directions. Using an herbicide not labeled for aquatic use is against the law. even though the active ingredients are the same in terrestrial and aquatic herbicides, their formulations differ. Remember that some herbicides are legally applied only by applicators with a current category APCA license from the MDA (See Tables 4-7).

Two commonly used contact herbicides contain the active ingredients diquat (Reward and Weedtrine D) and endothall (Aquathol and Hydrothol). Contact herbicides are effective against any aquatic plant at any time during the growing season. Contact herbicides are useful when used as a spot treatment to control plants in small areas.

Two common systemic herbicides contain 2,4 D (Aqua-Kleen), and glyphosate (Rodeo) as active ingredients. Systemic herbicides are usually applied in the spring, though some are applied in the fall. Midsummer applications are not recommended. Systemic herbicides are extensively used to control purple loosestrife and Eurasian watermilfoil.

Herbicides with copper as the active ingredient (Cutrine Plus) and dyes are used to control macrophytes, though they primarily control algae. Remember all herbicides have the potential to harm nearby plants. Another easily obtainable and effective control method is the use of dyes (Aquashade). Dyes limit the amount of sunlight penetrating the water. Less sunlight lowers

Najas
Najas guadalupensis
Submerged

Stonewart
Nitella spp.
Submerged

Small leaf pondweed
Potamogeton pusilus
Submerged

photosynthesis for both algae and rooted plants. Dyes are often used in small water bodies with little outflow.

One of the most common algicides is copper sulfate, which is applied from a boat. It has the added benefit of controlling the snails that cause swimmerís itch. Before using it, a permit is required from the MNDNR. Another algicide containing copper as its active ingredient is Cutrine Plus (see above).

By biological control: Biocontrol is the use of living organisms, such as insects and fungi, to control exotic plants. Using biocontrol organisms is a standard practice for controlling insect pests of vegetable crops, greenhouse plants, and ornamental plants. releasing herbivorous insects from the homeland of the exotic pest is the basis of biological control. When exotic plants were transported to North America, plants arrived without natural herbivores. Without herbivores to feed on the exotic plants, the plants grow with few constraints. Biocontrol programs try to restore the balance of nature by adding herbivores that feed selectively on the target plant. Often herbivorous insects feeding on different parts of the plant are introduced to further decrease plant growth. In this way, the various species of insects feed on different plant parts weakening the plant, reducing its growth, and the number of seeds it produces. Weakened plants have higher mortality.

Biocontrol for purple loosestrife focuses on five species of insects consuming different parts of the plant. In its larval form, the weevil Hylobius transversovittatus feeds on roots, while the adult chrysomelid beetles Galerucella calmariensis and Galerucella pusilla feed on leaves. Developing flowers and seeds are fed on by the weevils Nanophyes marmoratus and Nanophyes brevis. The University of Minnesota and the MNDNR have a cooperative program for culturing and releasing Galerucella beetles throughout the state. Contacts are listed at the end of publication.

Eurasian watermilfoil biocontrol programs focus on the native stem-boring weevil *Euhrychiopsis lecontei*. Biocontrol research looks promising.

Finally, other states use grass carp (*Ctenopharyngodon idella*) as a biocontrol agent. Grass carp are not legal in Minnesota since their first food choice is native plants. Carp switch to exotic species after the native plant populations dwindle. Consequently, the carp are a nuisance.

Illinois pondweed
Potamogeton illinoesis
Submerged

Duck potato
Sagittaria
Emergent

Table 4. Herbicides

Mode of Action	Active ingredient	Trade Name	Restricted Use by Public
contact herbicides	diquat	Reward	yes (if used in public waters)
		Weedtrine D	no
	endothall	Aquathol K liquid	no

		Aquathol granular	no
		Hydrothol 191 liquid	yes (if used in public waters)
		Hydrothol 191 granular	no
systemic herbicides	2,4 D	Aqua-Kleen	no
	glyphosate	Rodeo	no
	copper	Cutrine Plus	no
light limitation	blue dye	Aquashade	no

Table 5. Algicides			
Mode of Action	Active ingrediant	Trade name	Restricted Use by Public
systemic herbicide	copper	Cutrine Plus	no
	copper sulfate		no
light limitation	blue dye	Aquashade	no

Table 6. Chemical recommendations for aquatic plant control			
Eurasian watermilfoil (*Myriophyllum spicatum*)	2,4 D, endothall, diquat		
Purple loosestrife (*Lythrum salicaria*)	2,4 D, endothall, diquat		
Flowering rush (*Butomus umbellatus*)	2,4 D, endothall, diquat		
Curlyleaf pondweed (*Potamogeton crispus*)	endothall, diquat		
Northern watermilfoil (*Myriophyllum sibiricum*)	2,4 D, endothall, diquat		
Coontail (*Ceratophyllum demersum*)	2,4 D, diquat		
Canada waterweed (*Elodea canadensis*)	diquat, endothall		
Cattails (*Typha latifolia, Typha augustifolia*)	diquat, glyphosate		
Bulrushes (*Scirpus spp.*)	2,4 D		
Duckweeds (*Lemna minor and Spirodela polyriza*)	diquat, endothall		

Table 7. Chemical recommendations for algae control	
Pondscum /Filamentous algae (Spirogyra and others)	copper sulfate, hydrothol
Blue-green /Planktonic algae (Anabaena and others)	copper sulfate
Muskgrass (Chara spp.)	Cutrine Plus
Stonewort (Nitella spp.)	endothall

Where do I go for more information?

If you have a question about aquatic vegetation or how to control it, contact the MNDNR for further information:

Minnesota Department of Natural Resources

General Information	800-766-6000
DNR Bookstore	612-228-9165
Ecological Services	612-296-2835
Aquatic Plant Management Supervisor	612-296-0782
Eurasian Watermilfoil Coordinator	612-297-8021
Purple Loosestrife Coordinator	612-297-3763

Web Sites

The State of Washington Department of Ecology

http://www.ecy.wa.gov/programs/wq/wqhome.html Water Quality Program
http://www.ecy.wa.gov/programs/wq/wqguide/index.html Water Quality Guide
http://www.wa.gov/ecology/wq/plants/ Aquatic Plants and Lakes

USDA Aquatic Weed Control Research Lab, Davis CA.
http://veghome.ucdavis.edu/aquaticweed/aquatic.htm

University of Florida Center for Aquatic Plants
http://aquat1.ifas.ufl.edu/

University of Minnesota Milfoil Research
http://www.fw.umn.edu/research/milfoil/milfoilbc.html

Acknowledgements

Special thanks to the MNDNR Aquatic Plant Management program and others for reviewing and providing helpful comments that improved this publication.

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This publication may serve as a companion piece to the slide set SS-6956, CUES for Aquatic Weed Control

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