

## Recommended Practices for Blue Lake Homeowners who choose to use aquatic pesticides

The most ecologically protective and conservative strategy for managing non-native aquatic weeds is to prevent them from entering the lake in the first place. Good practices to follow are:

- clean all parts of boats before bringing them into the lake
- minimize fertilizers used on lakeside lawns – nutrients like nitrate and phosphorus can run into the lake in lawn irrigation water or when it rains. Nutrients encourage the growth of aquatic weeds.

Once invasive weeds are a problem, as they are in Blue Lake, homeowners may want to control weed growth around their property. Ideally, aquatic weed management is done on a whole lake scale, rather than property by property, with actions coordinated through Metro, Blue Lake Improvement Association, and relevant agencies such as the Department of Environmental Quality and Oregon Dept. of Fish and Wildlife. Some reasons for such communication are:

- Without coordination and planning, various actions may compete against each other, such as large, rapid weed kills creating a dissolved oxygen problem for fish.
- Coordination allows agencies and other partners to measure the effects of various lake management strategies.

Still, if homeowners want to tackle weed problems around their docks on their own, they may, but DEQ asks that they keep the following in mind:

- Blue Lake has an Integrated Aquatic Vegetation Management Plan, written in March 2004. That plan recommended small scale physical removal of weeds and limited herbicide use as part of a coordinated, long-term strategy.
- Try other techniques before herbicides, such as:
  - raking or hand pulling
  - shading with bottom barriers
  - accepting some non-native weed presence
- Homeowners, as small-scale, private applicators, are automatically covered by DEQ's aquatic pesticide General Permit, and they do not need to register their aquatic pesticide use with DEQ. But homeowners are still required to have a copy of the permit and adhere to the terms listed in the permit. Those responsibilities include:
  - Use the optimal amount of pesticide consistent with the pesticide label directions
  - Prevent leaks, spills, or other unintended discharges of pesticides
  - Use the right pesticide for the problem plant
  - Use the pesticide at the right time (e.g. weather and plant's life stage) to be most effective
  - Conduct visual assessments of application sites for adverse effects caused by a pesticide application, such as observable harm to other plants or wildlife.
  - Contact the Oregon Emergency Response System at 800-452-0311 if such adverse effects are observed.

Homeowners may download the Aquatic Pesticide General Permit from the DEQ website: <http://www.deq.state.or.us/wq/wqpermit/docs/general/npdes2300a/2300aPermit.pdf> or call Karen Williams at (503) 229 - 6254 to receive a hard copy in the mail. On DEQ's website, homeowners will also find a fact sheet that explains under what circumstances registration of an aquatic pesticide application is required: <http://www.deq.state.or.us/wq/pubs/factsheets/permits/2300APesticides.pdf>

Several herbicides have been used in Blue Lake over the years, and the "problem plant" has changed from Eurasian watermilfoil, to curly leafed pondweed, back to milfoil, and now water lilies. A resource to learn what herbicides are effective against which plants is the Washington Dept. of Ecology webpage: <http://www.ecy.wa.gov/programs/wq/plants/management/aqua028.html>

Another good resource for information is the National Pesticide Information Center, located at Oregon State University: <http://npic.orst.edu/pest/weeds.html> and (800) 858 - 7378.

Some information from Washington Ecology's webpage is included here:

#### Glyphosate

Trade names for aquatic products with glyphosate as the active ingredient include Rodeo®, AquaMaster®, and AquaPro®. This systemic broad spectrum herbicide is used to control floating-leaved plants like water lilies and shoreline plants like purple loosestrife. It is generally applied as a liquid to the leaves. Glyphosate does not work on underwater plants such as Eurasian watermilfoil. Although glyphosate is a broad spectrum, non-selective herbicide, a good applicator can somewhat selectively remove targeted plants by focusing the spray only on the plants to be removed. Plants can take several weeks to die and a repeat application is often necessary to remove plants that were missed during the first application.

#### Fluridone

Trade names for fluridone products include Sonar® and Whitecap®. Fluridone is a slow-acting systemic herbicide used to control Eurasian watermilfoil and other underwater plants. It may be applied as a pellet or as a liquid. Fluridone can show good control of submersed plants where there is little water movement and an extended time for the treatment. Its use is most applicable to whole-lake or isolated bay treatments where dilution can be minimized. It is not effective for spot treatments of areas less than five acres. It is slow-acting and may take six to twelve weeks before the dying plants fall to the sediment and decompose. When used to manage Eurasian watermilfoil in Washington, fluridone is applied several times during the spring/summer to maintain a low, but consistent concentration in the water. Granular formulations of fluridone are proving to be effective when treating areas of higher water exchange or when applicators need to maintain low levels over long time periods. Although fluridone is considered to be a broad spectrum herbicide, when used at very low concentrations, it can be used to selectively remove Eurasian watermilfoil. Some native aquatic plants, especially pondweeds, are minimally affected by low concentrations of fluridone.

#### 2,4-D

There are two formulations of 2,4-D approved for aquatic use. The granular formulation contains the low-volatile butoxy-ethyl-ester formulation of 2,4-D (Trade names include AquaKleen® and Navigate®). The liquid formulation contains the dimethylamine salt of 2,4-D (Trade names include DMA\*4IVM). 2,4-D is a relatively fast-acting, systemic, selective herbicide used for the control of Eurasian watermilfoil and other broad-leaved species. Both the granular and liquid formulations can be effective for spot treatment of Eurasian watermilfoil. 2,4-D has been shown to be selective to Eurasian watermilfoil when used at the labeled rate, leaving native aquatic species relatively unaffected. By court-order the butoxy-ethyl-ester formulation of 2,4-D can not be used in waters with threatened and endangered salmon-bearing waters in the Pacific Northwest.

The section below provides some information on non-native aquatic weeds found in Blue Lake. Information about plant life cycles may be helpful in efforts to control aquatic weeds.



*Potamogeton crispus* (Curly-leaf Pondweed)

Curly-leaf pondweed is a rhizomatous, perennial herb that can grow up to 1m. It flowers from May through October. If *Potamogeton crispus* germinates, the new sprouts overwinter and bloom the following spring. Maximum biomass is reached in late spring/early summer before decay begins in July/August.



*Nymphae odorata* (Fragrant Water Lilly)

Fragrant water lilies are rooted aquatic plants with branched rhizomes that have floating leaves and flowers. Once the flowers are pollinated, the developing fruit bodies are pulled underwater for maturation. Aphids feed on fragrant water lily.



*Myriophyllum spicatum* (Eurasian Water Milfoil)

Eurasian water milfoil is a common aquatic weed in Oregon lakes. It has the ability to hybridize with other milfoil species. It can also develop new plants from dislodged fragments of a parent plant. Eurasian milfoil can grow up to 3m tall, which allow it to block out light from other aquatic plant species. It also has a longer growing season than other aquatic plants in Blue Lake. Shoot elongation is sensitive to light and temperature conditions. Eurasian milfoil begins growth when water reaches 15 °C. Low light actually contributes to stem elongation. Eurasian milfoil flowers at the surface in early summer. After flowering, biomass declines and fragmentation occurs. It is possible to have a second biomass peak in late season from additional flowering and fragmentation. Removal of loose milfoil fragments may help to prevent re-establishment.

Metro compiled this information from the following sources:

State of Washington Department of Ecology

[www.ecy.wa.gov/programs/wq/plants/weeds/aqua005.html](http://www.ecy.wa.gov/programs/wq/plants/weeds/aqua005.html)

Texas A&M Agrilife Extension

<http://aquaplant.tamu.edu/management-options/curly-leafed-pondweed/>

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