



FACT SHEET

Office of Water Resources / June 2009

Aquatic Invasive Species in Rhode Island: Variable Milfoil



Size of variable milfoil relative to a penny



Bract of variable growing above the water



Fragments of variable milfoil washed ashore

Species Description/General Information

Variable milfoil (*Myriophyllum heterophyllum*) is a submerged aquatic plant with fine, densely packed, feather-divided leaves whorled around a main stem. There are generally 5 to 14 pairs of leaflets per leaf, and 4 to 6 leaves per whorl. Stems range from green to bright red in color. In July, plants may exhibit a three- to six-inch green spike-like flower (bract) above the waterline. Flowers are small, white and occur in the axils of the bracts. Variable milfoil grows in both still and flowing waters in a variety of substrates at depths from 1 to 5 meters. Plants reproduce by spreading rhizomes, turions, seeds and fragmentation.

Why is Variable Milfoil Considered a Nuisance Species?

Milfoil spreads rapidly and displaces beneficial native plant life. Thick growth of milfoil also degrades water quality for aquatic life and can provide breeding areas for mosquitoes. Dense stands can impede recreation such as swimming, fishing and boating and can devalue waterfront property. Milfoil is very difficult to control once it becomes fully established. Where this species grows in its native environment, insects and fish may feed on this plant at such a rate as to control its growth. However, in Rhode Island, milfoil has no natural predators to keep its population in check. Under optimum temperature, light and nutrient conditions, milfoil may grow up to an inch per day.

How Did Exotic Milfoil Become Established in Rhode Island?

Variable milfoil is native to the Southeastern and Midwestern United States. It was first observed in New England in Bridgeport, CT in 1932 and now resides in every New England state except Vermont. Initial introductions were most likely from aquarium releases or from "stowaway" fragments attached to a boat or trailer. Milfoil can live out of water for many hours if it remains moist, like when it's wound around a wet

carpeted bunk on a boat trailer. Milfoil is usually first found near boat launch sites. Once introduced, milfoil can spread through fragmentation, whereby plant fragments break off from the parent plant through wind or boat action, grow roots and settle in a new location.

What Methods Are Currently Being Used to Control Milfoil?

Hand pulling may be effective for small patches. The manual removal of submerged aquatic vegetation is restricted to that area adjacent to, but no more than fifteen feet from existing or permitted docks, beaches or swimming areas under the RI Fresh Water Wetlands Regulations (Rule 6.02). Manual plant removal outside this area or control of larger patches via mechanical cutting or harvesting requires a DEM wetlands permit (see below). Physical removal methods, such as mechanical harvesting, are generally not recommended for milfoil species because the plant can reproduce by fragmentation. Experience from other states has indicated that infestations of fragmenting species can actually be made worse by mechanical harvesting activities that unintentionally promote the spread of the plant.



Chemical control may be effective for large populations. The DEM Division of Agriculture licenses the applicators that can apply the regulated herbicides to treat target invasive plants. Each herbicide treatment requires a specific permit from the Division of Agriculture. The most appropriate means of selecting a specific treatment plan is to consult a lake manager or licensed herbicide applicator, who can provide treatment options and estimate associated costs. A more detailed survey of the entire water body will likely be needed to assess the severity of the infestation and develop the most effective and cost efficient long-term management plan.

Please Help Prevent the Spread of Aquatic Invasive Species in Rhode Island!

Learn to identify invasive plant species and be on the lookout for new plants in your lake. It is much easier to manage a small patch of invasive plants than an entire cove covered with plants so early detection is key! The University of Rhode Island Watershed Watch Program, in cooperation with the Rhode Island Natural History Survey (RINHS) and DEM, has hosted training workshops for volunteers interested in learning how to survey and identify plants, including invasives, in lakes. For information on the anticipated availability of AIS training, contact the URI Watershed Watch Program or RINHS (see below).

RIDEM also encourages the use of clean boat hygiene practices. Boats (trailers and motors too) should be inspected for plant fragments before launching in the water and after boats have been hauled out of the water. See posted reminders at state boat ramps:

For more information also see:

- Guide to Understanding Freshwater Aquatic Plants, RIDEM
<http://www.dem.ri.gov/programs/benviron/water/quality/surfwq/pdfs/aquaplnt.pdf>
- Aquatic Invasive Species in Rhode Island
<http://www.dem.ri.gov/programs/benviron/water/quality/surfwq/aisindex.htm>
- RI DEM Herbicide permit application
<http://www.dem.ri.gov/programs/bnatres/agricult/pesticide.htm>
- RI DEM Water Quality and Wetland Restoration Team
<http://www.dem.ri.gov/programs/benviron/water/wetlands/pdfs/wqwrteam.pdf>
- RI DEM Wetlands permit application
<http://www.dem.ri.gov/programs/benviron/water/permits/fresh/index.htm>
- The URI Watershed Watch Program
www.uri.edu/ce/wq/ww
- The Rhode Island Natural History Survey
<http://www.rinhs.org/>

