RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

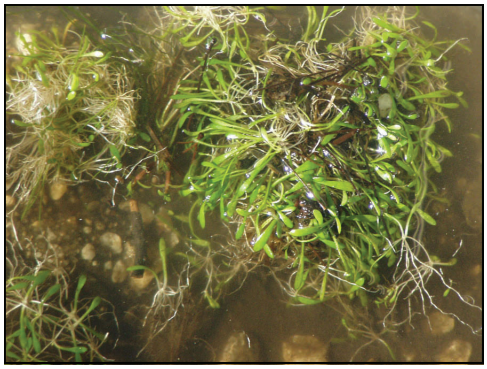
FACT SHEET

Office of Water Resources **September 2010**

Freshwater Aquatic Invasive Species in Rhode Island
Mudmat

Mudmat size relative to a fingernail **

Leaves of mudmat



Dense growth of mudmat †

Species Description and General Information

Mudmat (*Glossostigma cleistanthum)* is an aquatic plant characterized by tiny leaves rising from stems that grow horizontally below the soil surface. It appears as bright green, turf like patches developing on the muddy substrates of littoral zones. Plants can be both submerged and emergent. Where growth is submerged, the leaves of mudmat range between 0.5-2.5 in long and bear closed, self-fertilizing flowers that are nearly sessile. Leaves grow along the stem in opposite pairs that resemble rabbit ears. If water recedes and plants are emergent, leaves may be much smaller (0.2 to 0.5 in long). Emergent mudmat plants produce insect-pollinated flowers located on short stalks. Seeds, produced in capsules, are present in U.S. populations and are one of the contributing factors in its rapid expansion rate once mudmat is introduced into a water body.

Why is Mudmat Considered an Invasive Species?

Once introduced, mudmat spreads rapidly to cover prime littoral habitat, displace native species and reduce biodiversity. Due to its small size, it is unlikely to interfere with recreational lake uses such as boating, swimming, and fishing. However, in areas where plants reach extremely high densities (as many as 25,000 plants per square meter) mudmat is a threat to natural aquatic communities. Due to its affinity for oligotrophic (low nutrient, high water clarity) conditions, this species may be a particular threat to pristine water bodies. These pristine water bodies often contain rare native plants, several of which have been associated with the same habitat where mudmat is commonly found.

** *http://fl.biology.usgs.gov/Nonindigenous_Species/Glossostigma/glossostigma.html*

† *http://pest.ceris.purdue.edu/searchpest.php?selectName=PBFQABA*

How Did Mudmat Become Established in Rhode Island?

Mudmat is a native species of Australia, New Zealand, India and East Africa. The initial introduction of this invasive is thought to be due to an aquarium release. Subsequent movement to new water bodies has been attributed to natural movement throughout watersheds, migrating waterfowl, boating and fishing activities. mudmat was first detected in ponds and reservoirs in Connecticut in 1992 and has since spread to north central New Jersey, Rhode Island and southeastern Pennsylvania. Due to its inconspicuous size, mudmat may have a much more expansive distribution than is currently known and should be closely monitored.

What Methods Can Be Used to Control Mudmat?

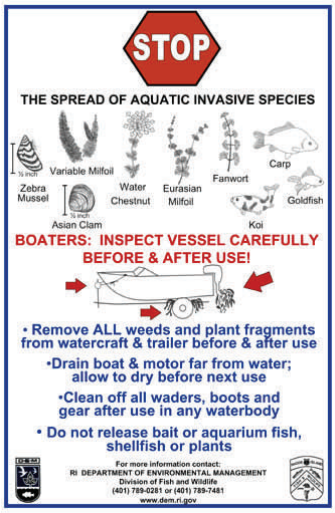
Due to its diminuitive size and close association with the bottom, physical removal of plants may prove difficult. By law, the manual removal of submerged aquatic vegetation is restricted to that area adjacent to, but no more than fifteen feet from, existing or permitted docks, beaches or swimming areas under the RI Fresh Water Wetlands Regulations (Rule 6.02). Manual plant removal outside this area or physical control of larger patches via mechanical cutting or harvesting requires a DEM wetlands permit or special permission from DEM (see contact information below).

Chemical control may be effective for large populations. The DEM Division of Agriculture licenses the applicators that can apply the regulated herbicides to treat invasive plants. Each herbicide treatment requires a specific permit from the Division of Agriculture to ensure proper use. The most appropriate means of selecting a specific treatment plan is to consult a lake manager or licensed herbicide applicator, who can provide targeted 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 Mudmat 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 lake covered with plants, so early detection is key! Identification resources are available on the RIDEM website at http://www.dem.ri.gov/programs/benviron/water/quality/surfwq/aisindex.htm.

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