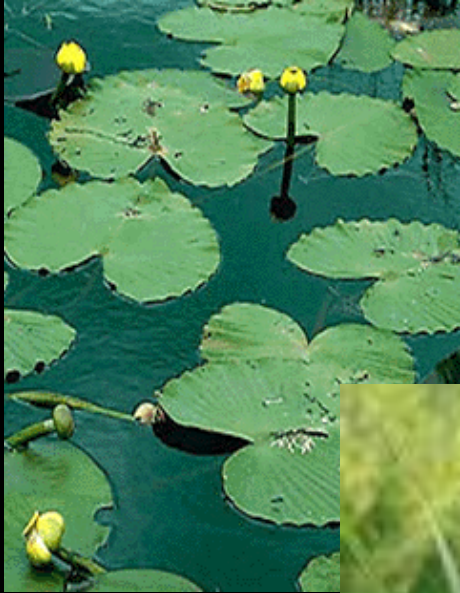


Preventing and Controlling Aquatic Problem Plants in Freshwater

Tom Flannery, Aquatic Ecologist
Massachusetts
Department of Conservation & Recreation
Lakes & Ponds Program



Overview and Essential Information



Native species:

- Originated here in New England
- Adapted to our climate and other species that live here
- Enhance the biodiversity of the area
- Provide food, habitat, oxygen



Non-native species:

- Introduced from other parts of the country, region, world
- Many lack natural controls (other species that limit their growth)



Mauserts Pond



Hydroraking



Some Impacts of AIS



- Out-compete/drive out native species & lower species richness and diversity
- Form dense mats that render fishing, swimming and boating impossible
- Reduce the flood retention capacity
- Decrease property values

How do AIS arrive here?



- Ship Ballast Water
- Accidental or intentional release from aquariums and water gardens
- Mixed in with other plant shipments

Once here, how are they spread?



- Hitchhiking on boats, trailers & gear

- In bait buckets, live wells & cooling water

- By fragments in water currents

- Occasionally by wildlife



Some Established AIS in MA

Plants

Variable Milfoil

Eurasian Milfoil

Fanwort

European Naiad

Curly-leaved Pondweed

Water Chestnut

Purple Loosestrife

Common Reed

Animals

Asian Clam



Eurasian Milfoil

Myriophyllum spicatum



- Leaves are 2" long, feathery and olive green
- Leaves have blunt tips
- Generally in whorls of 4
- Stems are red/brown or pinkish white
- May be confused with native milfoils (ex. *M. alterniflorum*)

Variable Milfoil

Myriophyllum heterophyllum



- Pipe cleaner appearance
- Feathery leaves 2" long & 1" wide
- Leaves are in whorls of 4-6
- Thick reddish stem
- Forms an emergent bract
- May be confused with native Low Water Milfoil

Lake Cochituate



Diver-Assisted Suction Harvesting (DASH)



Fanwort

Cabomba caroliniana



- Bright green fan shaped leaves
- Opposite pairs on stem
- Cream colored flowers
- May produce small oval or diamond shaped floating leaves
- May be confused with Water Marigold or Bladderwort

Curly Pondweed

Potamogeton crispus



- Rippled 3" long thin leaves
- Leaf margins serrated
- Distinct midvein and vein pattern
- Leaves arranged alternately
- Only non-native pondweed

Fanwort in Cleveland Pond



European Naiad *Najas minor*



- Leaves are lime green, brittle & re-curved
- Distinctly lobed leaf base and 6-15 deep teeth on leaf margin
- Plant appears bushy
- May be confused with other native bushy pondweeds

Water Chestnut *Trapa natans*



- Diamond shaped leaves form rosettes
- Leaves have deep margins
- Submerged leaves feathered
- Leaf stalks are inflated
- Sharp 1" dark barbed nuts

Fiske Pond



Mechanical Harvesting



“New” Infestations: High Concern in MA

- Parrot Feather
- South American Water-weed
- Hydrilla
- Zebra Mussels

Parrot Feather

Myriophyllum aquaticum

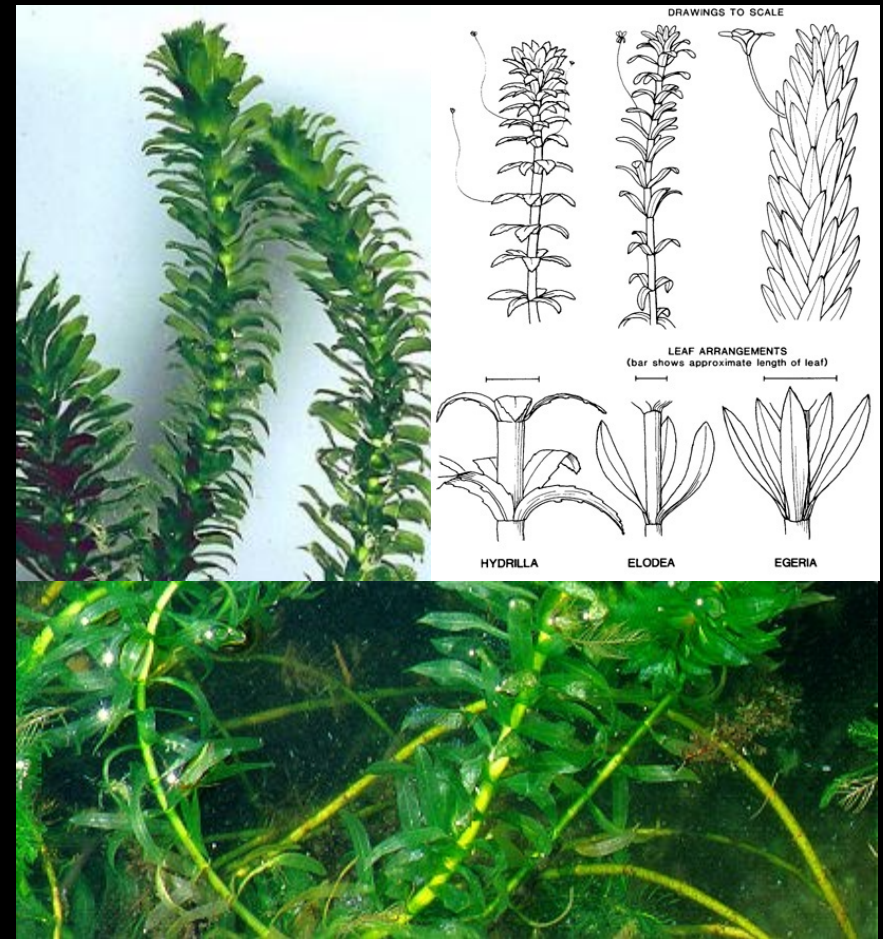
- Only 2 known infestations
- Emergent leaves are bright blue green (like miniature fir trees)
- Leaves are 1-2" long and deeply serrated
- Whorls of 4-6
- Underwater leaves are limp, reddish and may be confused with Eurasian Milfoil



South American Waterweed

Egeria densa

- Only three known infestations
- Popular aquarium species- often sold as *Elodea* or *Anacharis*
- Spreads rapidly via fragmentation
- Can grow over 30 ft long
- 1" long strap shaped leaves
- Closely spaced whorls of 3-6
- Serrations on leaf margins may be visible
- Often confused with native *Elodea* and non-native *Hydrilla*. However, this species has longer leaves and is thicker and more robust.



Lake Rico EDRR (Benthic Matting/Hand-Pulling)



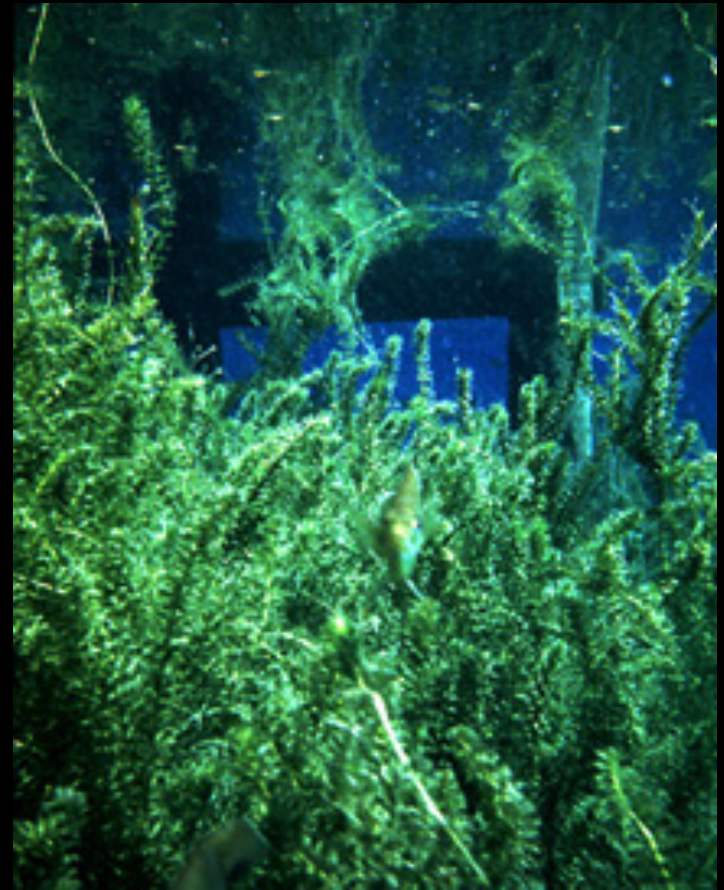
Hydrilla Description and Background

- Grows an inch per day
- 50% of the biomass occurs in the top ½ meter of the water column
- Low light requirements, water quality not limiting
- Has dominated southern U.S. waters and is now found in Massachusetts (5 recreational lakes)



Distribution in Massachusetts

- Long Pond, Barnstable (2002)
- Hobomock Pond, Pembroke (2008)
- Magoun Pond, Marshfield (2009)
- Mystic Lake, Barnstable (2010)
- South Meadow Pond, Clinton (2010)



A person wearing a light blue shirt and a tan hat is seated in a wooden canoe on a pond. They are pulling a net that is heavily laden with dark, stringy seaweed. The water is dark and appears to be covered in a thin layer of algae or seaweed. In the background, there is a dense line of green trees and a utility pole with power lines. The sky is clear and blue.

South Meadow Pond
Clinton, MA
August 31, 2010



Aquatic Herbicides



Mystic Lake, Barnstable (2010):





What Are We Doing In MA?

- **Plant I.D. Program**

Free training to teach citizens to monitor for AIS

- **Boat Ramp Monitoring**

During the summer, at busy ramps, DCR Seasonal staff inspect boats for AIS, and educate boaters.

- **Outreach Materials**

Educational Brochures, Signs, Key Rings, Guides, Volunteer Monitoring Kits, Website, Reporting Page



DCR Boat Wash Station



What Can You Do?

- CLEAN

- DRAIN

- DRY

- CLEAN

- DRAIN

- DECONTAMINATE

Monitor



IT'S THE LAW!

“Aquatic Nuisance”: undesirable or excessive substances or populations that interfere with the recreational or ecological potential of a body of water or interfere with the natural resources thereof and that shall include, but not be limited to, rooted aquatic vegetation and algae populations, dreissena mussels, spiny water fleas and any other invasive species that the commissioner declares to be an aquatic nuisance.

“Commissioner” refers to Commissioner of Dept. of Conservation and Recreation.

Questions?



**Tom Flannery, Aquatic Ecologist
MA DCR Lakes and Ponds Program**

WWW.MASS.GOV/LAKESANDPONDS

tom.flannery@state.ma.us