

A photograph of a pond with a turtle on a rock, surrounded by green vegetation and water lilies. The scene is a natural, outdoor setting with a large rock in the foreground where a turtle is perched. The water is calm, reflecting the surrounding greenery. The background is filled with dense foliage and more rocks in the water.

Weed Watcher Program Training and Refresher – Sunapee Region

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Topics to Cover

- ▶ Weed Watcher Methods Review
- ▶ Plant Zonation
- ▶ Native Plants - Embrace them!
- ▶ Status of Infestations in NH
- ▶ Biggest threats for the Sunapee Area
- ▶ Invasive Plants and Animals - Fear them!
- ▶ Question/Answer

Why Develop a Weed Watcher Program?



- ▶ Proactive approach
- ▶ Catch infestations early
- ▶ Facilitate a Rapid Response Action
- ▶ Prevent the further spread

Weed Watching: What is Involved?

- ▶ The methods are simple!
 - ▶ Volunteers are trained to monitor waterbodies for invasive species
 - ▶ Once a month from May to September is recommended
 - ▶ You do NOT need to be an expert in biology, but you might find you are an expert in your waterbody!

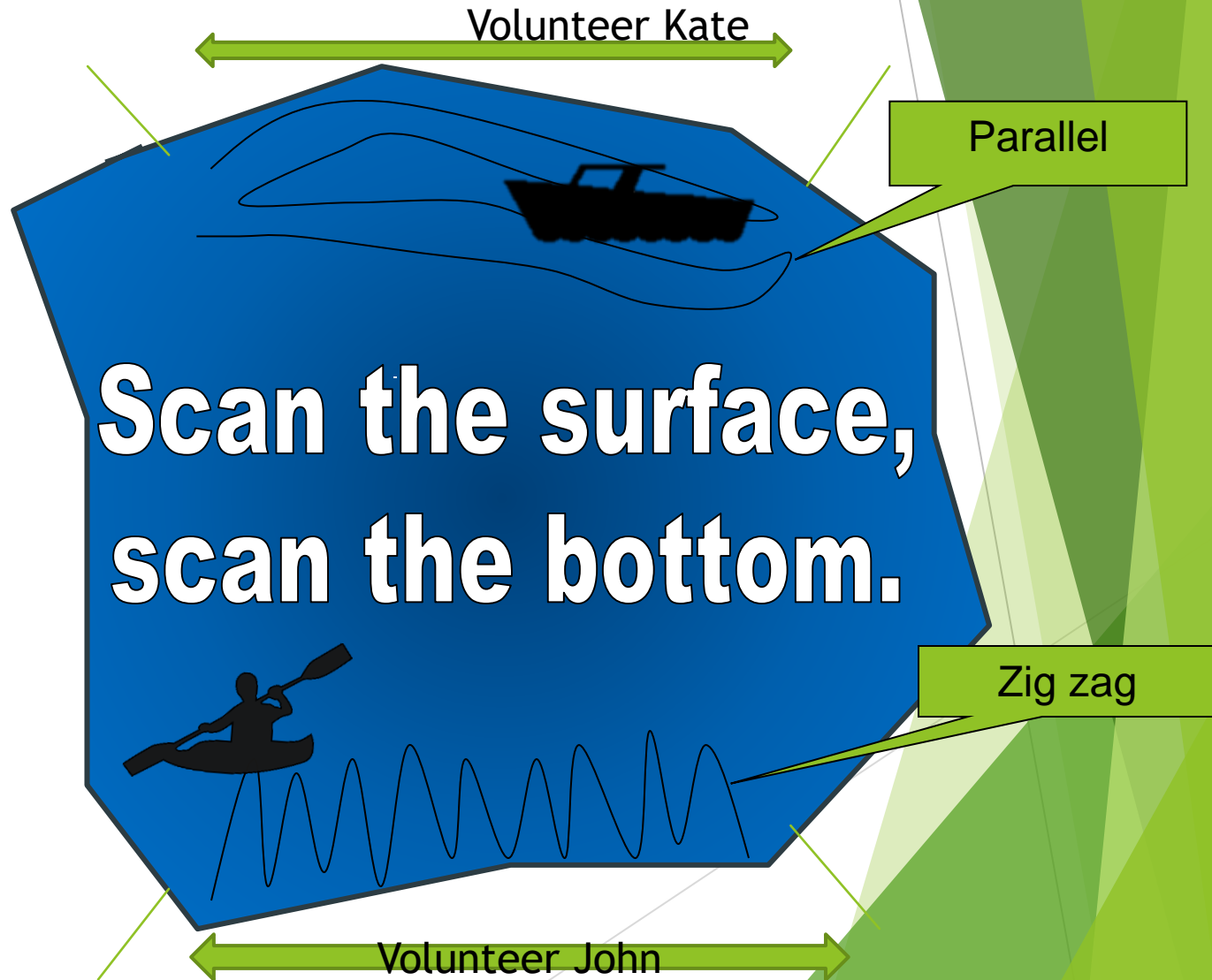


NHDES Provided Resources

- ▶ Weed Watcher Kit
- ▶ Suggested methods for Weed Watching
- ▶ Pictures of key invasive species
- ▶ Fact sheets
- ▶ Maps of the subject lake/pond, including depth and plant maps

On the Water

- Break the shoreline into sections and have volunteers sign up for each section
- In your section, from shore move in a zig-zag or parallel pattern out to deeper water to maximize how much area you cover in your survey.



What You Are Looking For?

- ▶ Anything in the water that is new or out of place
 - ▶ was not there last month, last year, etc
- ▶ Anything that appears to be growing quickly and taking over
 - ▶ appearing bigger each month
- ▶ For plants, if you see a lot of fragments drifting around a waterbody it could be a sign of an invasive
- ▶ Any animals like mussels or clams or snails that appear to be very high in number
- ▶ Any animals like clams or mussels that are stuck to surfaces

- ▶ *Carefully* collect a voucher specimen
 - ▶ If an animal, take only one, preferably photograph it and return it in case it is a rare species
 - ▶ If a plant, be careful not to let pieces float off, collect all pieces that break off
 - ▶ Collect any representative stems/leaves/flowers/fruits that may be present as it helps greatly with identification

After you
find
something
and make
note of
location,
collect a
voucher
specimen

What to do with your voucher specimen:

BEST

Email a digital photo

- Place the specimen on a piece of white paper/paper towel
- Arrange it so leaves/flowers or animal etc can be seen clearly
- Place a coin, pen or ruler next to the specimen
- Take a digital picture
- Email it to Amy.Smagula@des.nh.gov for identification

Alternate

Snail Mail

- Wrap the specimen in a moist paper towel
- Seal it in a specimen bag/resealable bag
- Mail that in an envelope to Amy Smagula, NH DES, 29 Hazen Drive, Concord, NH 03301

For Lake Sunapee:

- ▶ Extra triage step!
- ▶ Email or drop a voucher specimen to Susie Burbidge at Lake Sunapee Protective Association
 - ▶ susieb@lakesunapee.org

Native vs. Invasive Aquatic Plants

Native- A species that evolves or develops in one particular geographic area or region, usually marked as being present in an area prior to the advent of European colonization



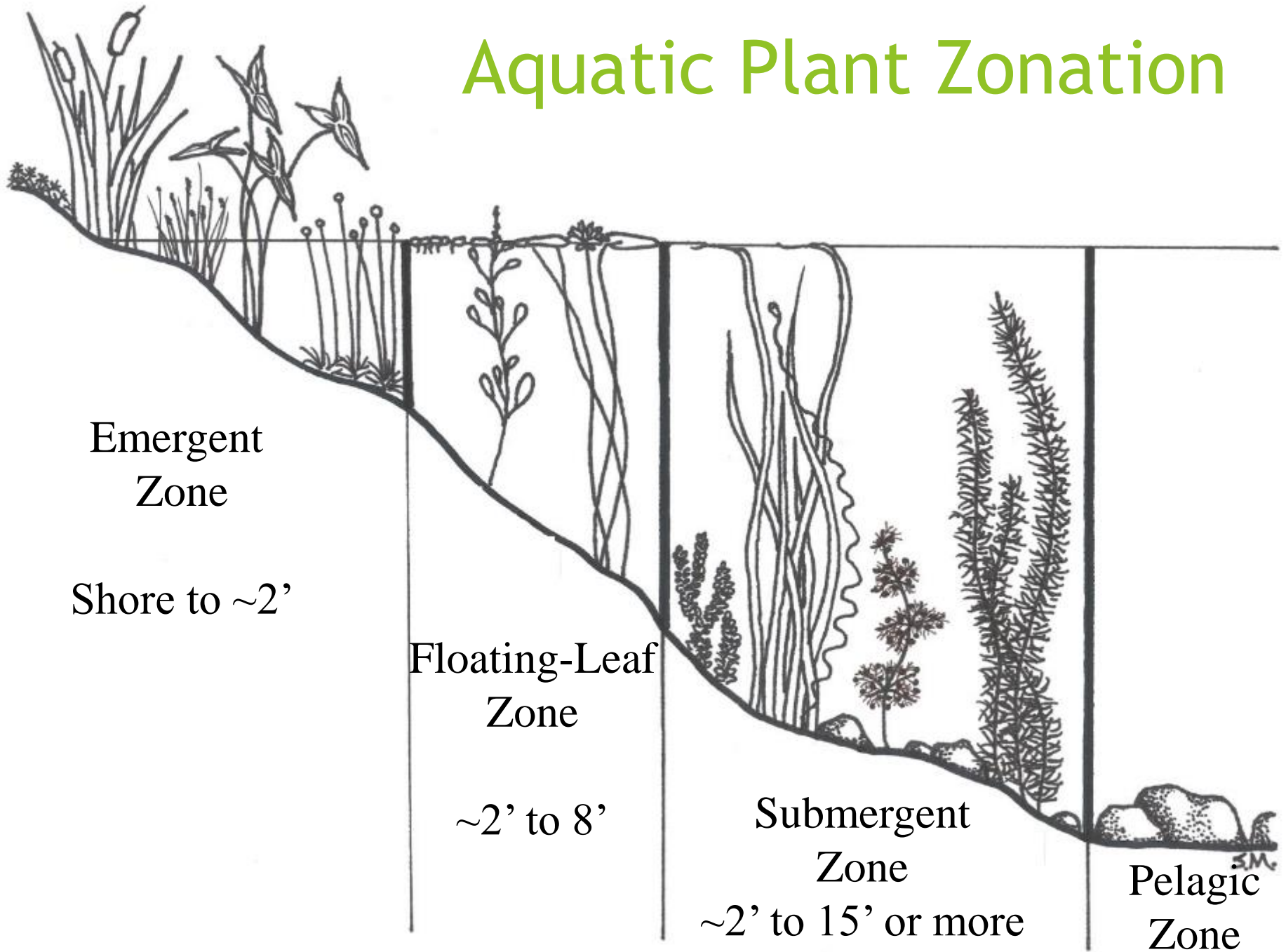
Native water milfoil

Invasive- A species that is non-native and that can cause economic and ecological harm, and harm to human health. To watch the webinar on invasive aquatic plants (and animals) in NH, click the link below.



Variable water milfoil (invasive)

Aquatic Plant Zonation



Zonation in the lake

Emergents

Floating

Submersed



Native Emergent Plants



Cattails



Pickerelweed



Arrowhead



Bur-reed



Grasses



Rushes



Sedges

Most lake edges have a mix of grasses, rushes and sedges

Pipewort





Water lobelia

Native Floating Plants



White water lily



Yellow water lily



Floating heart (white flower)



Watershield



5595770

Snail seed pondweed



SEINET

Large-leaf pondweed



Much of the
time the
floating
plants will
form a mosaic
of mixed
species on
the surface

(yellow water lily and
watershield shown here)

The background features a series of overlapping, semi-transparent green geometric shapes, primarily triangles and quadrilaterals, that create a dynamic, layered effect. The colors range from light lime green to dark forest green. The shapes are positioned on the right side of the frame, extending towards the center.

Native Submergent Plants



07/05/2013

Whorled bladderwort



Large bladderwort

A focus on bladderworts



Bladderwort is a very common native plant, most often confused for variable milfoil.

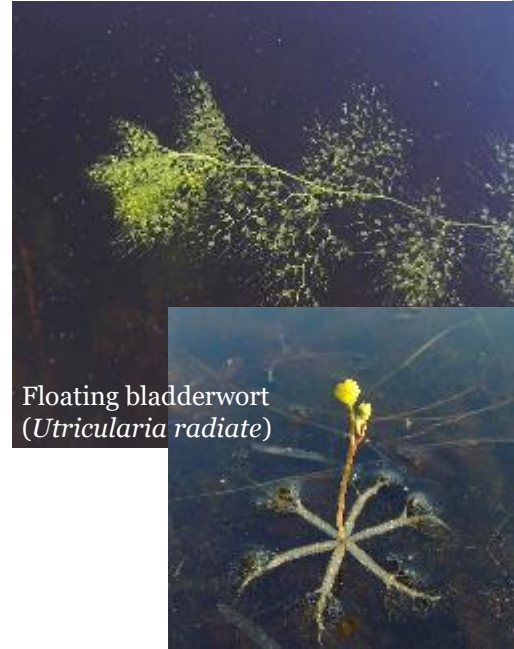
Large bladderwort
Utricularia vulgaris



Large bladderwort
Utricularia vulgaris



Floating bladderwort
(*Utricularia radiata*)



Intermediate bladderwort
Utricularia intermedia



Whorled bladderwort
Utricularia purpurea



Intermediate bladderwort
Utricularia intermedia



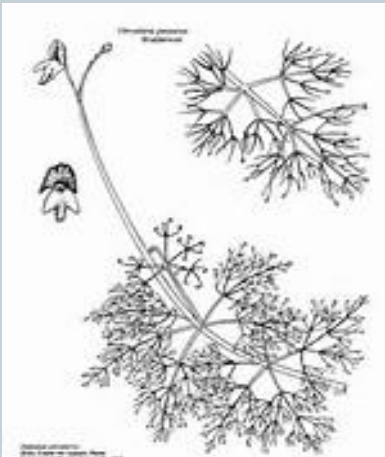
To be sure, check the leaves!



- Bladderwort leaves are more branching or forking, and usually have green, black, or clear “bladders” on them. They alternate.
- Milfoil leaves look like a feather and have no bladders (but beware of the algae globs! Variable milfoil leaves are in whorls).
- *When in doubt, collect a voucher for NHDES.*



Variable milfoil leaf whorl and single leaf. Note feather-like appearance.



Whorled bladderwort leaves can whorl around the stem, but they are branching, not feather-like.



Large bladderwort leaf with black bladders. Notice it appears like a feather, but not a true feather. It is lacier and branching at the tip.



Large bladderwort leaf that lost bladders. Notice it appears like a feather, but not a true feather. It is lacier and branching at the tip.



Intermediate bladderwort leaves are alternate along stem. Bladders are on a separate stem.



2017 © Peter M. Dziuk

Bassweed pondweed – very common in NH



Wikipedia

Plants of the world online

Claspingleaf pondweed



2017 © Peter M. Dziuk

Robb's pondweed

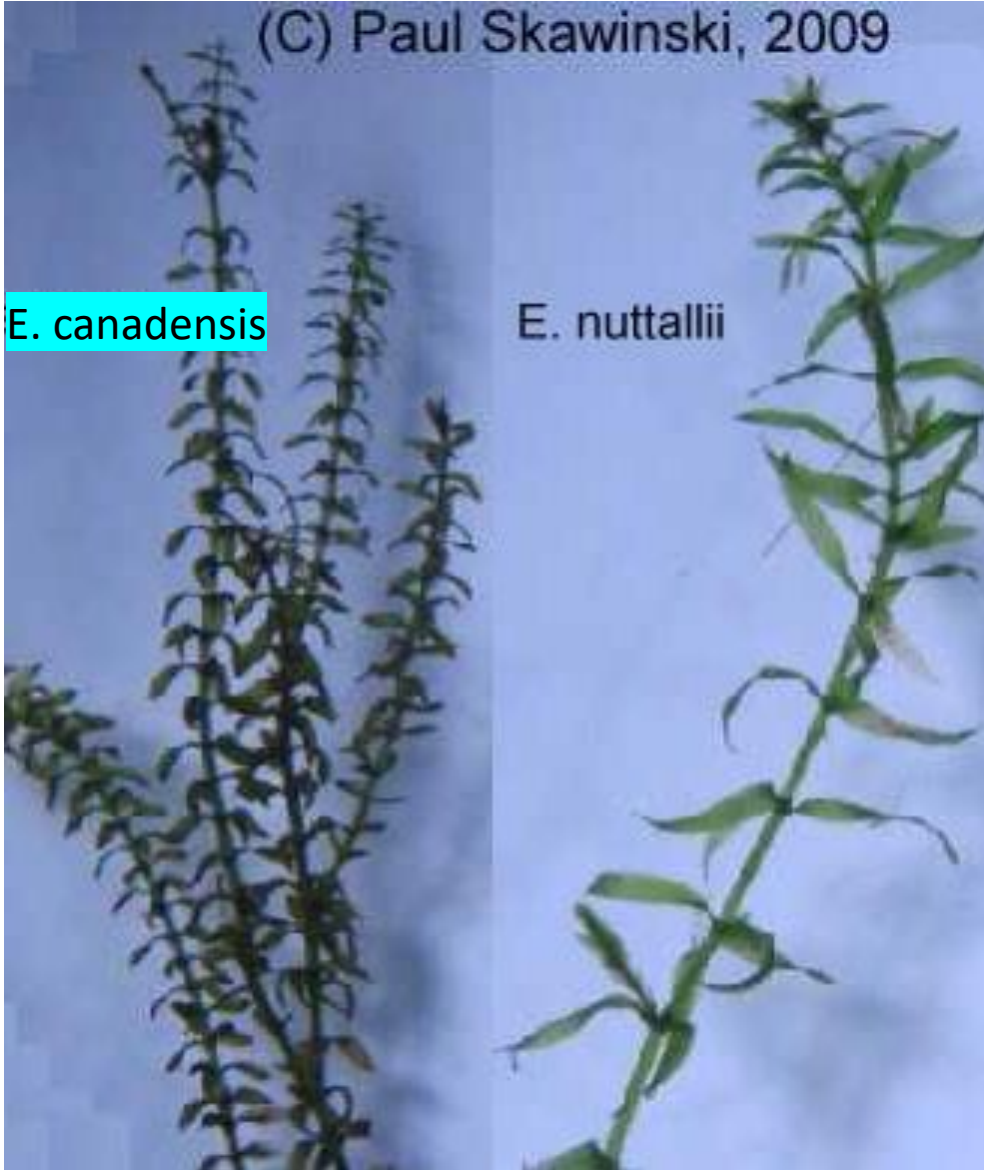


Grassy pondweed – a mix of floating and underwater leaves

(C) Paul Skawinski, 2009

E. canadensis

E. nuttallii



Waterweeds
– two
different
species

Water naiads



Go Botany

Nodding water nymph



(C) Paul Skawinski, 2009

Thread-like naiad



Native milfoil(s) – 6 native species, this one most common (*M. humile*)



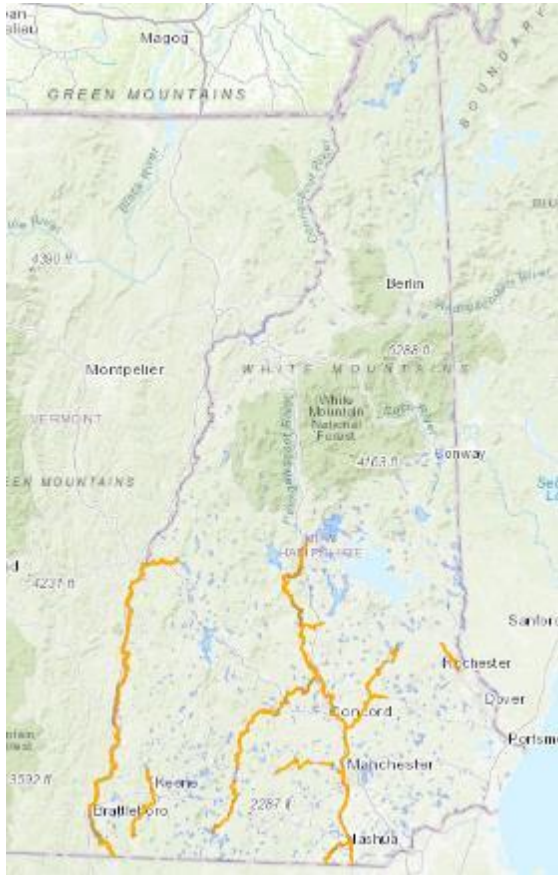
Aquatic Moss

https://www.google.com/url?sa=i&url=https%3A%2F%2Fmicroscopesandmonsters.wordpress.com%2Ftag%2Ffontinalis-antipyretica%2F&psig=AOvVaw12ASNydyZ3I_kqpucPZmzO&ust=1677673699311000&source=images&cd=vfe&ved=0CAwQjRxqFwoTCLCU4NybuP0CFQAAAAAdAAAAAD

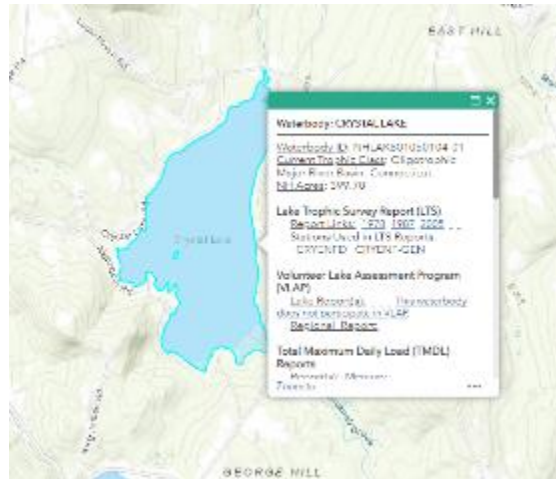


Finding plant lists for your lake

- Most waterbodies greater than 10 acres in size have had biologist visits, which include plant surveys
- To find your lake's map (and lake assessment reports), visit the NHDES "Lake Mapper" App
- Simply go online and type "NHDES Lake Mapper" into your search engine, or visit <https://www.arcgis.com/apps/webappviewer/index.html?id=1f45dc20877b4b959239b8a4a60ef540>



NHDES Lake Mapper State View



Zoomed in on a lake with dialogue box showing report options

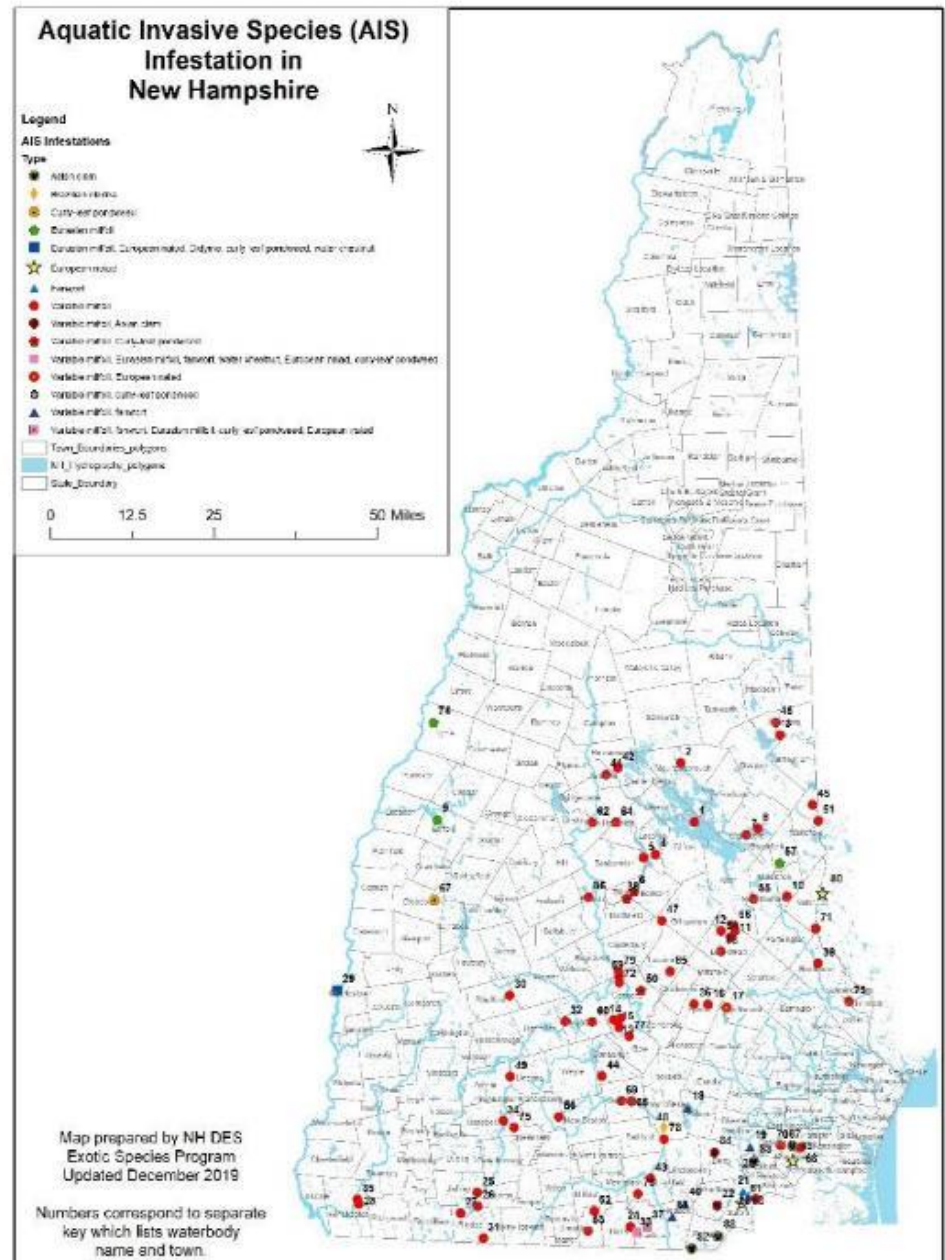


Find a Lake Assessment Report in the list and open it, pages include map and table of species

Aquatic Invasive Species

Status of Infestations

- ▶ 70+ variable milfoil infestations
- ▶ 5 Eurasian water milfoil infestations
- ▶ 9 fanwort infestations
- ▶ 2 water chestnut infestations
- ▶ 1 Brazilian elodea infestation
- ▶ 8 water naiad infestations
- ▶ 6 curly-leaf pondweed infestations
- ▶ 7 Asian clam infestations
- ▶ >80 Chinese mystery snail infestations





High Risk Species for Sunapee Area

- ▶ Based on water chemistry and geographic location
 - ▶ Plants
 - ▶ Purple loosestrife
 - ▶ Common reed
 - ▶ Variable milfoil
 - ▶ Curly-leaf pondweed
 - ▶ Hydrilla
 - ▶ Animals
 - ▶ Asian clam
 - ▶ Spiny water flea
 - ▶ Chinese mystery snail

Aquatic Invasive Plant and Animal Refresher

- ▶ Following are photos of the more common species to keep an eye out for while on the water

The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. These shapes are primarily located on the left and right sides of the frame, creating a modern, layered effect. The central area is a plain white space where the text is located.

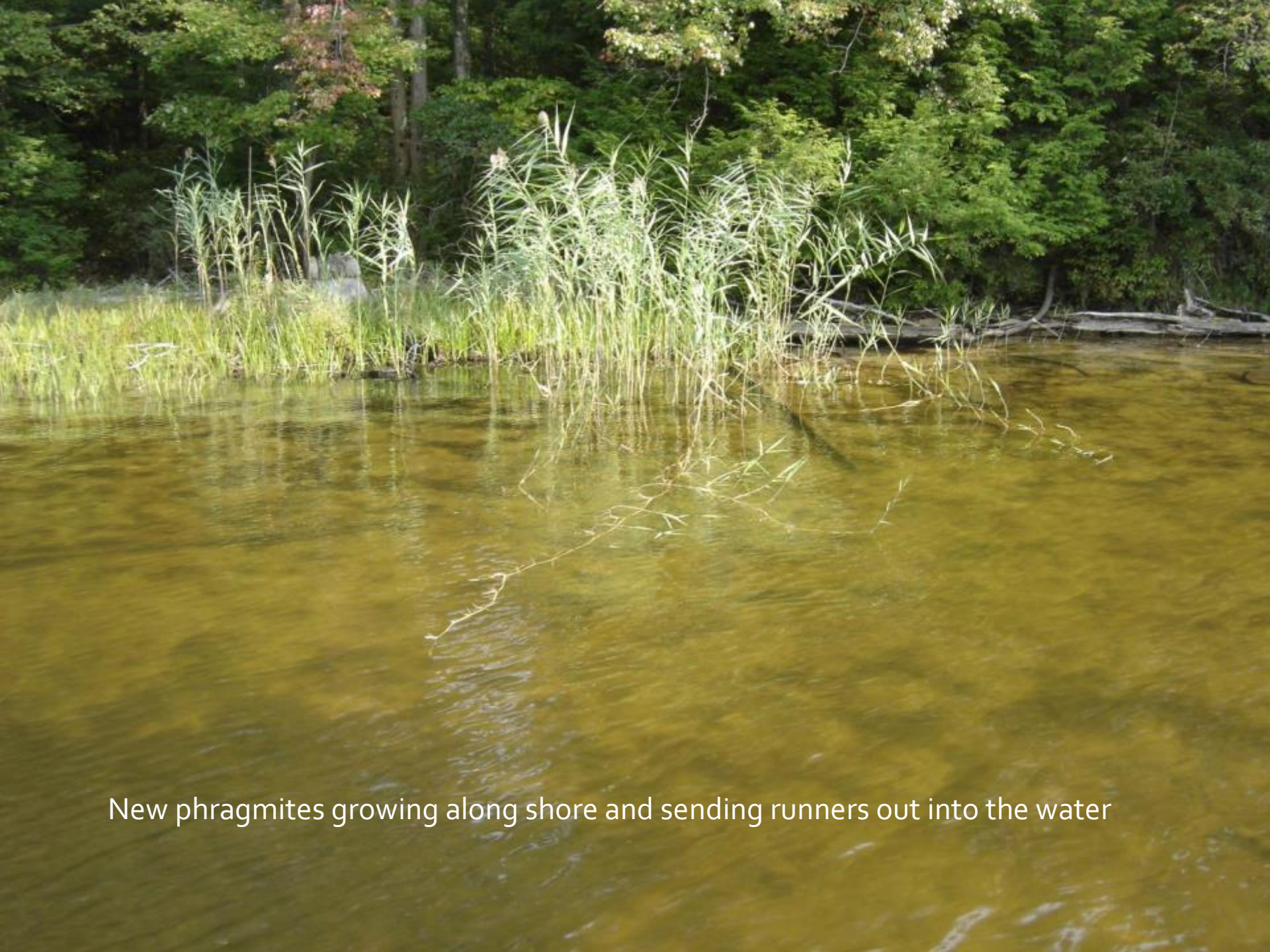
Emergent Invasive Plants



Purple loosestrife (EXOTIC)

Common reed (Phragmites)
EXOTIC





New phragmites growing along shore and sending runners out into the water


Submergent Invasive Plants




- Variable milfoil- *Myriophyllum heterophyllum*
- Native to southern and central U.S., not to NH
- In over seventy waterbodies in NH



Variable milfoil ID tips

An underwater photograph showing several milfoil plants. The plants have long, thin, feathery stems that branch out. A callout box with a teal background and a white border points to a specific stem. The text inside the callout box explains that the stems often have a 'squirrel's tail' appearance, consisting of a central stem and a fluffy, tubular growth around it. The background is a dark, murky blue-green color, typical of an underwater environment.

Think of a “squirrel’s tail” when you look at the stems of growth. You will often see the stem and then the fluffy tubular growth around it. There may be a single stem, or a few in a clump.

A photograph of a stream with a callout box pointing to bright green plants in the water. The stream is surrounded by dense green foliage and trees. The water is clear, showing the bright green plants growing in it. The callout box is a teal color with white text.

The plants often have bright green tips, or whole stems



Leaves are narrow with wavy (lasagna noodle) like edges to them, crisp like lettuce



Looks a lot like native waterweeds (*Elodea*)

Small narrow leaves whorled around stem. Note teeth on leaf edge for hydrilla.



- Hydrilla- *Hydrilla verticillata*
- Native to South America
- Not yet found in NH (but found in MA and ME)

Invasive Aquatic Animals

Asian Clam

- ▶ Roughly the diameter of a dime,
- ▶ sometimes a quarter





Asian clam shells littered on the bottom of Cobbett's Pond, Windham



Asian clam shells accumulated in fish beds in Cobbetts Pond, Windham

Chinese Mystery Snail



These are about the size of an apricot or golf ball!

Spiny Water Flea



Several spiny water fleas on fishing line



Spiny water flea on fingertip

Thank you!

Amy P. Smagula – Amy.Smagula@des.nh.gov

