A Message from Your Lake Association

As property owners on Lake Winona we are fortunate to have clear, clean water, water that is critical for fish, wildlife habitat and recreation. Winona is our most valuable resource and protecting it is an investment we all must make.

The problem is that our day-to-day actions can damage our lake. Many of the things we do, such as caring for our lawns, removing the natural vegetation around our cottages, neglecting to have our septic tanks pumped, clearing and building on the land, can add to lake pollution.

The “good news” is that each of us, as individuals and working with our neighbors and the lake association, can be part of the solution.

This information booklet contains lake protection tips and helpful information for maintaining a healthy lake. If you share your Lake Winona property with family, friends or rental guests, please familiarize them with the guidelines and principles presented in this handbook.

Join with the Lake Winona Improvement Association (LWIA) today to help protect Lake Winona – for our enjoyment, as well as for generations to come.

Keep this booklet available as a quick and useful reference guide for your family and your guests at Lake Winona.

For more information on the subject matter contained in this booklet, contact one of the following sources:

New Hampshire Department of Environmental Services (NHDES)
603-271-3503
www.des.state.nh.us

New Hampshire Marine Patrol
603-293-2037
www.nh.gov/safety/divisions/ss/marinepatrol/

The contents of this guide and additional information on the Lake Winona Improvement Association can be found at www.lakewinonanh.org

About the LWIA

The Lake Winona Improvement Association (LWIA) was founded in 1947 by a group of families with summer cottages on the West Shore Road. Over the past seven decades, the LWIA has developed into a lake-wide membership devoted to:

- preserving the water quality and the land's natural beauty
- promoting the safe, courteous and sensible use of the water
- encouraging friendly relations among members through social activities.

For the past 37 years, water quality analysis has been a top priority for the LWIA. This testing shows whether the water quality of the lake has deteriorated, improved or remained the same, and helps identify the location of specific problems so that corrective action can be initiated.

In addition, the LWIA has accomplished several major projects, including the purchase of the 53-acre York Conservation Area to be preserved and protected for future generations, and the banning of ski crafts (jet skis) on Lake Winona. In 2005, the association pooled contributions from members (plus a few friends from Lake Waukewan) to purchase a 20-acre conservation parcel known as "Fog Hill," situated along the southeast end of the lake overlooking both Winona and the Snake River. In 2013 an additional two acres was added to the York Conservation Area.

On-going programs include beaver population control and removal of dams to maintain the normal lake level, participation in the New Hampshire Lakes Association that promotes lake and shoreline protection on a state-wide basis, annual support of the Loon Preservation Committee, and periodic distribution of informational and educational publications regarding lake issues.

Annual membership is $30*. Members meet twice during the summer: once in June and again in mid-August. For additional information, please contact current LWIA president Katie Hedberg through the website, www.lakewinonanh.org

Lake Winona is a tremendous natural treasure that deserves our protection. We need to continue to build and maintain a strong and active lake association, and we invite you to join us. It's a small investment to make to ensure a healthy lake.

*Property owners on West Shore Road have a separate committee and dues for road upkeep, plowing and repairs.

Maintaining a Healthy Lake

Activities that increase the input of phosphorous and sediment erosion into lakes are not good. However, those that decrease these inputs will greatly help prolong the health of our lake. Listed below are activities that lake residents and others can do to help reduce phosphorous and sediment inputs.

1. Pump your septic tank every three to five years, or whenever the sludge level exceeds one-third of the tank capacity.

2. Maintain your septic system properly. (Contact the NHDES to obtain several free informational brochures.) Be sure your system is designed to handle the load it receives. A leach field should increase in size whenever the frequency or volume of use increases.

3. Check your leach field for soft or wet areas or septic smells. Replace faulty systems.

4. Do not bathe, shampoo or wash boats, pets or objects in the lake with soap or phosphorous-containing detergents.

5. Use low or non-phosphate detergent. Or if possible, take your clothes to a laundromat located outside the lake's drainage area.

6. Minimize land clearing activities. Revegetate bare areas to minimize erosion to the lake. Roads and paths to the lake should be curved to reduce erosion.

7. Maintain a buffer zone of natural vegetation along the shore to contain erosion and assimilate nutrients before they reach the lake.

8. Keep the shore natural. Man-made beaches do not stay and usually are illegal. You must obtain a permit from the State of New Hampshire Wetlands Board in order to put any amount of sand on the shoreline. The water currents and waves will wash away the sand. Algae blooms and increased weed growth will result and critical edge habitat belonging to freshwater clams, mussels and fish breeding will be jeopardized.

9. Do not fertilize within 25 feet of the lake shore. Only slow release nitrogen fertilizer is allowed within 250 feet to 25 feet of the lake shore.

10. Do not feed ducks or other aquatic animals. The feces of ducks, beavers and other aquatic animals causes increased nutrient levels as well as e coli bacteria in the water.

11. Do not burn brush or leaves near the shore. The nutrients remain behind and are washed into the lake during the first rain. Do not dump leaves or grass clippings into the lake or near the shore. They also add nutrients to the water.

The preceding Lake Protection Tips were taken from the Environmental Fact Sheet – NHDES Technical Bulletin WSPCD-BB-1989-12, which was produced by the New Hampshire Department of Environmental Services.

The Comprehensive Shoreland Protection Act

The main goal of the Comprehensive Shoreland Protection Act is to protect the quality of New Hampshire's lakes, ponds, rivers and coastal waters. The Act aims to protect the thin ribbon of land that hugs the lake shore. This lakeside edge is called the "protected shoreland" and includes all the land located within 250 feet of a public water body. Within the protected shoreland certain restrictions and prohibitions apply.

These standards serve to prevent and control water pollution, in addition to conserving shoreline cover and points of access to waters. Further, the standards were designed to conserve natural beauty and open spaces while anticipating and responding to the impacts of development in shoreland areas. A majority of the Shoreland Protection Act deals with leach field setbacks, building setbacks and limits on tree removal.

LWIA Position Statement on Fireworks Usage

Use of fireworks on the lake is a source of legitimate concern because of the potential impact of such displays on water quality, wildlife, neighbors, and property. Fireworks contain phosphorous and heavy metals that can have consequences for wildlife and recreational activities.

Therefore, the Lake Winona Improvement Association discourages the use of all fireworks near or along the shoreline of Lake Winona.

To the extent owners choose to exercise their right to use fireworks lawfully, we ask that you limit their use to the July 4th holiday, between dusk and 10 PM only (per local noise ordinances) and remove all debris from the lake as quickly as possible (per NH State Law).

Minimum Shoreland Protection Standards

LIMITS WITHIN THE PROTECTED SHORELAND 250 ft

Prohibited Uses (RSA 483-B:9, II)

- Establishment/expansion of salt storage yards, auto junk yards, solid waste & hazardous waste facilities.
- Use of low phosphate, slow release nitrogen fertilizer from 250 to 25 feet.

Uses Requiring State Permits

- Public water supply facilities (RSA 483-B:9, III)
- Public water & sewage treatment facilities (RSA 483-B:9, IV)
- Public utility lines (RSA 483-B:9, IV-b)
- Existing solid waste facilities (RSA 483-B:9, IV-c)
- All activities regulated by the DES Wetlands Bureau per RSA 482-A (RSA 483-B:9, II(c))

Other Restricted Uses

- All new lots, including those in excess of 5 acres, are subject to subdivision approval by DES. (RSA 483-B:9, V(b)(1))
- Setback requirements for all new septic systems are determined by soil
- characteristics. (RSA 483-B:9, V(b)(2))
- Minimum lot size in areas dependent on septic systems determined by soil type. (RSA 483-B:9, V(e)(1))
- Alteration of Terrain Permit standards reduced from 100,000 sq. ft. to 50,000 sq. ft. (RSA 483-B:6, I(d))
- Total number of residential units in areas dependent on on-site sewage and septic systems, not to exceed 1 unit per 150 feet of shoreland frontage. (RSA 483-B:9, V(e)(2))

NATURAL WOODLAND BUFFER RESTRICTIONS 150 ft

(RSA 483-B:9, V(a))

- Where existing, a natural woodland buffer must be maintained.
- Tree cutting limited to 50% of the basal area of trees, and 50% of the total number of saplings in a 20 year period. A healthy, well-distributed stand of trees, saplings, shrubs, and ground covers must be maintained.
- Stumps and their root systems must remain intact in the ground within 50 feet of the reference line.
- The opening for building construction is limited to 25 feet outward from the building, septic system, and driveway.
- The opening for accessory structures is limited to 10 feet outward from the footprint.

NEW SEPTIC SYSTEM LEACHFIELD SETBACKS

(RSA 483-B:9, V(b)(2))

- 125 feet where soil down gradient of leachfield is porous sand and gravel.
- 100 feet where soil maps indicate presence of soils with restrictive layers within 18 inches of natural soil surface.
- 75 feet where soil map indicates presence of all other soil types.
- 75 feet minimum setback from rivers.

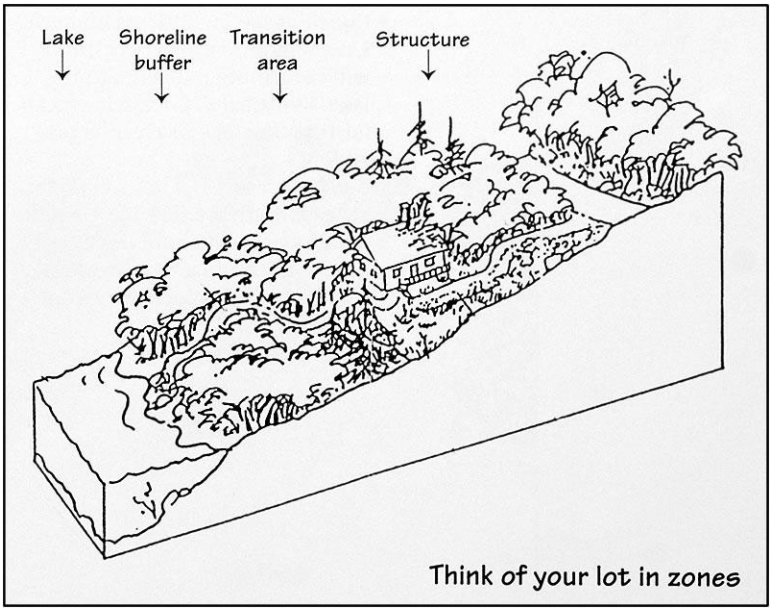
PRIMARY BUILDING LINE*

- Primary structure setback 50 feet from the reference line. (RSA 483-B:9, II(B))
- Fertilizer use is prohibited within 25 feet of reference line. (RSA 483-B:9, II(d))
- Accessory structure setback 20 feet from the reference line. (EnvWs 1405.04)

REFERENCE LINE (RSA 483-B:4, XVII)

- For coastal waters = highest observable tide line
- For rivers = ordinary high water mark
- For natural fresh waterbodies = natural mean high water level
- For artificially impounded fresh waterbodies = water line at full pond

* If a municipality establishes a shoreland setback for primary buildings, whether greater or lesser than 50 feet, that defines the Primary Building Line for that municipality.



The Importance of Buffer Strips

Vegetated phosphorus buffer strips are areas of natural vegetation that have been left undisturbed or are replanted to naturally existing species. These vegetative buffer strips are composed of trees, shrubs and a thick duff layer (pine needles, bark mulch, etc.).

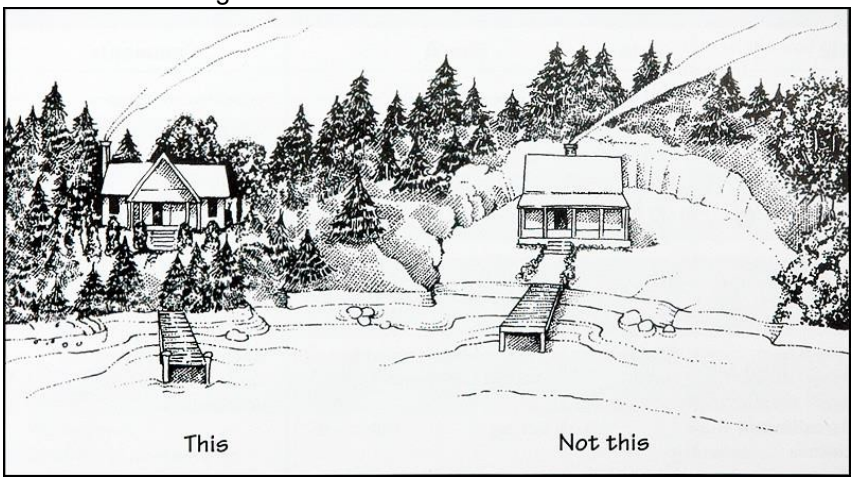
Why do we need them?

Where there are humans, there is nutrient pollution. The way we live tends to over-nourish and pollute our environment. Fertilizers, oils and greases from our cars and boats, and heavy vehicle and foot traffic near the shores, all hurt our lakes.

Vegetated buffers provide a filter and percolation area for the runoff that comes from our home and play areas. The vegetation in the buffer uses the nutrients carried in the storm water. If the nutrients reach the lake, the aquatic plants will use them and an algae bloom can occur, diminishing water quality.

Where should they be located?

Vegetated buffers need to be placed between people and the lakes and streams. We need to filter the storm water run-off from our houses, garages, driveways, roads (both paved and gravel) and road ditches through flat, vegetated areas. Lakesides parking area and playing fields should drain through a buffer too.



How do I make a buffer?

- Leave the depressions and irregularities in your lawn. Don't grade it directly into the lake.
- Don't mow down to the edge of the lake. Leave as much shrub and tree growth as possible between the lawn and the lake.
- If you have flat, wet spots on your property, use them as a filter. Direct run-off through them and allow them to grow naturally.
- For new construction, minimize the amount of roof, driveway and parking area, as well as other impervious surfaces.
- Minimize bare areas by defining and limiting your parking area, beach area and foot paths. Keep foot paths to the lake under six feet wide and winding. Stabilize heavily trafficked areas with wood chips, bark mulch or some of the newer erosion-control materials.
- Tell family and visitors about why it's important to protect the vegetation.

Planting a Vegetation Buffer

- Select a variety of trees, shrubs and ground covers to be used in your buffers. To make the best choice, look at what is already growing in your area and try to replace it.
- In areas where the view of the lake is desired, the predominant plants can be shrubs, but keep the opening in the tree canopy small.
- When you eliminate trees, you also reduce the quality of the buffer for deflecting raindrops and taking up nutrients.
- The natural duff layer that occurs in a forest needs to be replaced also. A thick layer of mulch material can be used.
- Width: Buffers range in width from 25 feet to 250 feet – make yours as wide as possible.
- Grading: In general, leave the buffer as irregular as possible.
- Footpaths: Foot traffic to the lake through the buffer should be limited to a winding path four to six feet wide at the maximum. Stabilize the footpath with bark mulch or a similar controller.

When contemplating any changes to your property, be sure to check with <u>both</u> your town and the State of NH DES to be sure you will comply with the relevant regulations.

Boating Rules and Regulations

During the summer, residents and guests on Lake Winona can enjoy excellent fishing, water skiing, sailing, and kayaking. If we use caution and consideration and follow the laws of the water, we can ensure everyone's safety and enjoy our individual activities in harmony with each other. The Marine Patrol Officers who patrol the lake are there to ensure safe enjoyment of the lake. Below are a few of the most important rules to observe.

Boat Operation

A vessel powered by more than 25 horsepower (other than a "ski craft") may be operated by:

- A person under 16 years of age only if he or she is accompanied by a person 18 years old or older who has a valid Safe Boater Certificate.
- A person 16 years of age or older only if he or she has obtained a Safe Boater Certificate as required by the "Schedule for Required Safe Boater Education."

Ski Craft (Jet-Ski) operation is prohibited on Winona Lake.

"Ski craft" is defined by law as any motorized vessel that is less than 13 feet in length, is capable of exceeding 20 miles per hour, and has the capacity to carry no more than an operator and one other person.

Safe Boater Education Certification

Effective January 1, 2007, persons can apply for a Safe Boater Education Certificate only by successfully passing one of the following:

- A proctored examination administered as part of a classroom boating safety course approved by the New Hampshire Marine Patrol
- A proctored equivalency examination approved by the New Hampshire Marine Patrol
- A National Association of State Boating Law Administrators–approved course and examination from another state

Personal Flotation Device (PFD):

No personal operating or in control of a boat or vessel upon the public waters of the state shall transport a child five years or age or younger unless said child is wearing a U.S. Coast Guard Approved PFD.

Safe Passage Law

When passing within 150 feet of another boat, swimmer, raft, shore, dock or mooring field, you must be at headway speed. Headway speed is the slowest speed at which a boat can be operated and maintain steerage and must not exceed six miles per hour. Headway speed is often referred to as “wake speed,” indicating a slow enough speed that no appreciable wake is created. This is especially important when passing close to shore or through narrow passages where a wake could damage moored boats or erode shorelines.

Responsibilities between Vessels

When a vessel is required to keep out of the way of another, it shall, if necessary, slacken its speed, stop, or reverse, and avoid crossing ahead of any other vessel.

If operating a power-driven vessel, you must give way to:

- Any vessel not under command, such as an anchored or disabled vessel
- Any vessel restricted in its ability to maneuver, such as a vessel towing, laying cable, or picking up navigation markers, or a vessel constrained by its draft such as a large ship in a channel
- A sailing vessel unless it is overtaking

If operating a sailing vessel, you must give way to:

- Any vessel not under command
- Any vessel restricted in its ability to maneuver

Canoes, rowboats and sailboats shall be given the right-of-way. This requirement shall not be construed to allow deliberate impediment of motorboats by canoes, rowboats or sailboats.

Waterskiing

- No boat shall tow more than two persons at the same time regardless of the device(s) being towed.
- There shall be at least one observer for each person being towed. Observers must be at least 13 years of age.
- All water skiers must wear approved PFDs.
- Persons may be towed behind a vessel on water skis or any other device during daylight hours (sunrise to sunset) only.

For a complete list of New Hampshire boating laws, please visit http://www.boat-ed.com/nh/handbook.

Boat Owner Responsibilities

Motorboat misuse can reduce water quality and disturb aquatic life. Boat owners should:

- Avoid propeller disturbance of the lake bottom. Churned nutrient-laden bottom sediments support increased algae growth and cause excess murkiness
- Respect speed limits: large wakes cause wave action that contribute to shoreline erosion and stir up bottom sediments
- Steer clear of exposed, steep or sloping banks
- Observe state and federal laws governing the use of approved Marine Sanitation Devices (MSDs)
- Use special care when fueling your boat
- Use petroleum-absorbing pads to avoid accidental fuel and oil spills when performing engine repairs and maintenance

Boating Supplies Checklist

- ✓ One US Coast Guard approved PFD for each passenger.
- ✓ Approved full-charged fire extinguisher for motor boats
- ✓ Bell or Whistle
- ✓ Paddle or oars
- ✓ Anchor and anchor line
- ✓ Tool kit and spare parts

- Select and use environmentally responsible cleaning products and marine paint
- Dispose of fish parts properly when cleaning fish. Parts should not be thrown into the lake

Information for this section was taken from “New Hampshire Boater’s Guide – A Digest of Boating Laws,” a publication of the New Hampshire Department of Safety, Marine Patrol, 1997.

Lake Winona Water Safety Code

To ensure everyone's safety on the lake, please observe the following water skiing and tubing rules:

- Do not ski or tube around or between the two islands.
- Ski or tube one-way, counter-clockwise.
- Stay 150 feet from shore and other boats and skiers.
- Provide one observe in addition to the driver.
- Tow only one skier or tuber at a time.
- The lake is small, so please do not overcrowd the lake with too many skiers and tubers at any one time.

Although our Marine Patrol Officers cannot be everywhere at the same time, they do an excellent job and are helping to keep our lake safe. The next time you see an officer on the lake please give a wave as a gesture of support and gratitude for their efforts!

If you see an infraction on the lake, call the New Hampshire Marine Patrol at 603-293-2037.

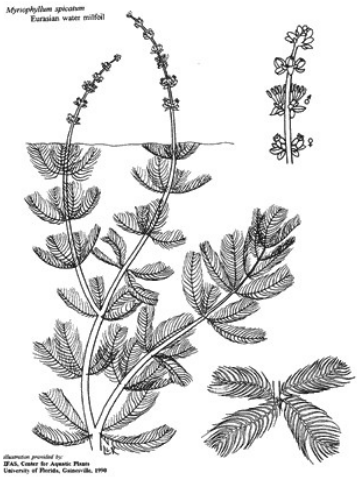
Help Prevent Lake Infestation

New Hampshire is currently battling five species of Exotic Aquatic Plants in its lakes and waterways. Over sixty water bodies are now impacted by exotic aquatic plants, including Squam and Winnipesauke lakes.

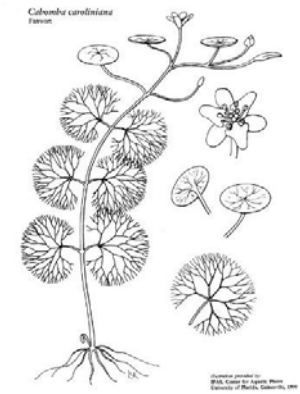
Once introduced, they can render an area unsuitable for fish by exhausting dissolved oxygen, by blocking sunlight essential to basic food production. Excessive growth also interferes with swimming and boating.

Once established, they are virtually impossible to eradicate and can decrease the economic value of waterfront property according to a 2001 study by the University of New Hampshire.

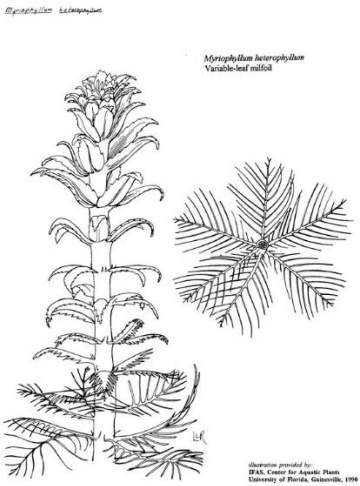
Eurasian Watermilfoil
(*Myriophyllum spicatum*)
Eurasian watermilfoil is a submersed perennial plant. The stems are reddish to brown. The leaves are olive green, occur in whorls of three to six and have ten to 16 very narrow, dissected segments on each side that give them the appearance of weatherbeaten feathers. Flowers occur on immersed spikes and usually in whorls of four.



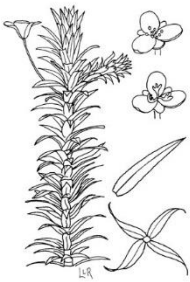
Fanwort (*Cabomba caroliniana*)
Fanwort is a submersed plant. The leaves are opposite and divided into several or many narrow, Y-branching segments. Distinctive, diamond shaped floating leaves sometimes occur. Flowers are attached at the base of the floating leaves. The flowers are white to pink or purplish and about ½“ long.



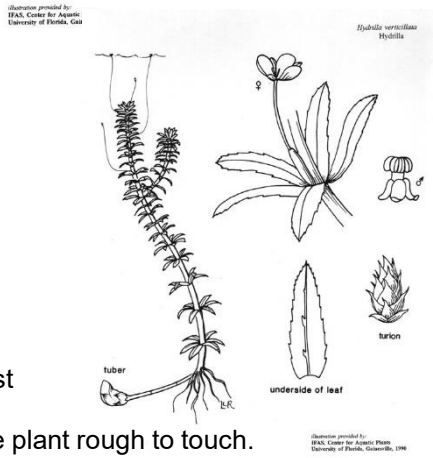
Variable Milfoil
(*Myriophyllum heterophyllum*)
Variable milfoil is a submersed perennial plant but often has immersed stems that rise up to six inches above the water surface. The leaves occur in whorls of four to six but are of two different types. The submersed leaves are limp, feather-like in appearance, 1” – 2½” long, 1” – 1½” wide and have eight to 18 very narrow, paired segments. The immersed leaves are stiff, not segmented, ½” – 1” long and 1/10” – ¼” wide. The flowers are inconspicuous and occur in whorls of four to six.



Brazilian Elodea (*Egeria densa*)
Brazilian elodea is a submersed plant that is superficially very similar in appearance to Hydrilla. The leaves occur in whorls of, usually, four to eight and have minute teeth on the margin. Very dense layers of overlapping leaves at the stem tips are useful in separating this plant from hydrilla. The midveins are smooth. Only male flowers have been observed. These are white and greenish, up to 1” across and usually extend above the water surface.



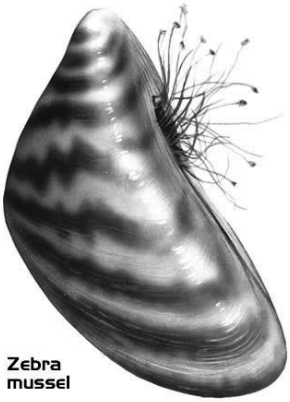
Hydrilla (*Hydrilla verticillata*)
Hydrilla is a submersed plant that has very long internodes (stem sections between leaves) in deep water and shorter internodes and extensive branching near the water surface that causes dense mats. The leaves occur in whorls of, usually, four to eight. The leaves are strap shaped, with visible, curved, coarse teeth on the margin. The midvein is often red and often has at least one spine or bump on the lower surface. The teeth on the leaves usually make the plant rough to touch.



Two different forms of hydrilla occur in the United States. One produces only female flowers (monoecious). The other produces both male and female flowers (dioecious). Female flowers are white, less than 1/3” across, attached to the plant and float on the water surface. Male flowers have three whitish-red or brown sepals that may be slightly larger than 1/10” long and less than 1/10” wide. They have three whitish or reddish petals that are less than 1/10” long and three stamens.

Water Chestnet (*Trapa natans*) Water chestnut has broad, toothed, diamond-shaped upper leaves which form tight floating rosettes. The leaves connect to the stem by swollen stalks just below the leaf blades. The thin limp stems give rise to long, narrow or feather-shaped underwater leaves and are rooted in the sediment. The fruit is a hard, woody nut with two to four sharp spines.

Zebra mussels
(*Dreissena polymorpha*)
Zebra mussels are small, freshwater mollusks from Eastern Europe, first discovered in North American in 1988. They have steadily invaded America's rivers and lakes where they clog water intake pipes, damage boat engines and alter native species populations. Zebra mussels get their name from the striped pattern of their shells, though not all shells bear this pattern. They're usually about fingernail size but can grow to a maximum length of nearly 2 inches. Zebra mussels live four to five years and inhabit fresh water at depths of six to 24 feet. A female zebra mussel begins to reproduce at two years of age, and produces between 30,000 and 1 million eggs per year.


Zebra mussel

Adult zebra mussels can be transported overland to non-invested water bodies by attaching to boat hulls, engines, anchors and other submerged equipment, while the microscopic larvae can be trapped in water boat engine cooling systems, bilges and live wells.

What You Can Do to Prevent Infestation

Before moving boats between water bodies, boaters are urged to:

- Inspect boat, trailer, propellers, anchors, wet well, and other boating equipment. Remove any plant material and/or zebra mussels and discard in the trash
- Drain all water from the boat, bilge, engine and other equipment
- Rinse all boat parts and equipment with hot tap water or leave the boat out of the water in the sun for at least two days

Identifying and Treating Weed Infestations

Never attempt to treat excessive weed infestation with chemicals, other biological controls or mechanical cutting. If weed growth has increased on your shoreline, the New Hampshire Department of Environmental Services can assist in identifying a weed and helping you manage its presence.

Please take a sample of the weed, place it in a Ziploc bag with a moist towel, note where the sample was taken from, and deliver the sample to the NHDES office in Concord.

New Hampshire Department of Environmental Services
Exotic Aquatic Species Program
29 Hazen Drive, PO Box 95
Concord, NH 03302-0095
603-271-2248
www.des.state.nh.us/wmb/exoticspecies