

### Other Lake Reports & Lake Associations with Monitoring Programs:

Bearcamp Pond: <http://www.des.state.nh.us/wmb/vlap/2003/documents/BearcampPond.pdf>

Chocorua Lakes Association: <http://www.chocorualake.org/About-Us/index.html>

Silver Lake Association: [http://www.silverlakemadison.com/pdf/silver\\_lake\\_monitoring\\_sites.pdf](http://www.silverlakemadison.com/pdf/silver_lake_monitoring_sites.pdf)

Squam Lakes Association: <http://www.squamlakes.org/index.php>

VLAP reports for other lakes (Dinsmore Pond; Freedom: Duck Pond; Tamworth: Moores Pond; Madison: Pea Porridge Pond; Effingham: Province Lake): <http://www.des.state.nh.us/wmb/vlap/2006/>

## III. Current and Potential Threats to Lakes and Ponds

### A. Milfoil & Exotic, Invasive Species of Plants

**Exotic species** are non-native types that have become introduced either intentionally (e.g., as ornamentals or for sport) or accidentally (e.g., attached to boat hulls or from aquariums).

**Invasive species** are exotics that encounter few restraints to rapid reproduction and spreading. Once introduced, such plants can grow out of control to become a nuisance to human recreational uses for waterbodies to the point of significantly impacting property values. They also replace native plants and habitat, disrupt the food chain, stunt fish growth, and degrade wildlife habitat.



**Chapter V A.3 Figure 2: Variable Milfoil** is the most widespread invasive exotic plant in New Hampshire. (photo NH DES)

According to the NH DES, the most wide-spread invasive exotic plant in the state, variable milfoil, *Myriophyllum heterophyllum* (Figure 2) spread from Lake Winnepesaukee to 38 other waterbodies, primarily through human activity. Live fragments of these plants that are capable of taking root often enter lakes attached to boat hulls, outboard motors, boat trailers, or fishing gear.

#### 1. Ossipee Lake Infestations

Variable milfoil infestations were first discovered in the Ossipee Lake system in the early 1990's. The map in figure 3 highlights locations of known milfoil infestations: Phillips Brook, Leavitt Bay, Portsmouth Cove and Danforth Pond. Nearby infestations in Maine and other states are also of concern since invasive species can survive for many days out of water, attached to boats, trailers, or even the feet, fur, or feathers of mobile wildlife.

For a complete list of infested waterbodies in NH go to:

[http://www.des.state.nh.us/wmb/exoticspeciesmilfoil\\_list.htm](http://www.des.state.nh.us/wmb/exoticspeciesmilfoil_list.htm)



Lists of infested waterbodies in Maine can be found at:

<http://www.maine.gov/dep/blwq/topic/invasives/doc.htm>

## 2. Treatment & Prevention Programs

**a) Removal Programs.** To date, there is no practical and environmentally safe means of permanently eradicating these plants. Once a waterbody has an infestation, it requires continuous often expensive management and control practices (see local examples in Table 4). Prevention or early detection of new infestations becomes the most important form of defense against the spread of milfoil and other invasives such as fanwort, water chestnut, Eurasian milfoil, purple loosestrife and common reed. Hand pulling, benthic barriers and herbicide treatments can be undertaken with the assistance of the DES. Since 1995, local businesses that depend upon the lake, Ossipee Lake Alliance (OLA), and surrounding towns have used these approaches (charts below), with marginal success at limiting growth. In 2006 New England Milfoil and OLA reported that approximately 25% of the milfoil in Phillips Brook and 5% of the plants in the area where it enters Leavitt Bay came back after hand pulling efforts the previous year.

Contractor	Location	Management Type	Cost	Chemical Application /Treatment Date	Treatment Area (acres)
Lycott Environmental Research	Leavitt Bay/ Phillips Brook Ossipee	Chemical	\$4,730.00 (Total)	Jun-95	6.1 acres
Aquatic control technology		Chemical	\$5,890.00 (total/DES)	Completion date: September 30 <sup>th</sup> 1996	6.1 acres
Cliff Cabral	Broad Bay Freedom	Hand pulling	\$10,000.00 (total) \$5,000.00 (DES 50%)	Summer 2005	4 acres

Chapter V-A.3 Table 4: Milfoil treatment in Ossipee Lake & Bays (source NH DES)

**b) Lake Host Program.** The New Hampshire Lake Association (NH LA) sponsors a Lake Host program that places a “Lake Host” at main boat access points to inspect boats and trailers for weed fragments and to educate the public about this problem. Since 2002, GMCG has hired local youth to prevent new introductions and further spread of exotic aquatic plants (such as variable milfoil) in Ossipee Lake. To date, Lake Hosts have inspected over 2,500 boats at the Pine River boat launch for weed fragments attached to boats, motors, trailers, or fishing gear and provided information to many more boaters about the lake’s milfoil infestations and how they can prevent the spread of exotic plants. Since 2002, at more than 60 lake access ramps statewide, the program has logged 135 “saves” (i.e., instances where invasive fragments have been found and removed prior to launching). Statewide, no new lake infestations have occurred since the program began. Within the Ossipee Watershed, the Ossipee Conservation Commission, Silver Lake Association of Madison, and Sandwich Conservation Commission also conduct Lake Host programs or milfoil inspections at various boat launch sites.

**c) Weed Watchers Program.** OLA participates in the NH DES Weed Watchers program to train volunteers to identify invasive plants and then monitor their local shoreline for new weeds. In 2004,

Alliance Weed Watcher volunteers found three new infestations on the lake that are now being treated. They also created the Exotic Species Prevention program to help the owners of the lake's more than 30 boat ramps - from marinas to campgrounds to condominium associations - increase milfoil awareness among those who use the ramps. In 2004 and 2005 OLA hosted workshops at which boat ramp owners created milfoil prevention plans for their site. Then with funding assistance from the NH DES, OLA helped the owners launch those plans, including distributing a new [milfoil prevention pamphlet](#) created specifically for Ossipee Lake. The Exotic Species Prevention program is an ongoing multi-community initiative involving town officials, conservation organizations and business owners from Freedom, Ossipee and Effingham. Within the Ossipee Watershed, the Silver Lake Association of Madison and Sandwich Conservation Commission also conduct Weed Watchers programs.

**d) Long Term Variable Milfoil Management.** In 2007, NH DES will be working with GMCG, OLA, towns, property owners and other stakeholders to review all of the information collected to date. All of the information collected will be thoroughly investigated and compiled into a Long-Term Variable Milfoil Management Plan for Lake Ossipee. . All infested waterbodies need such a comprehensive management plans in place before further management practices (particularly herbicides) are approved. Continued diligence in the form of educating boaters and lakefront homeowners and keeping infestations from spreading will be essential to preventing new infestations from occurring in the lake system or spreading to other sites.

#### **Helpful Links:**

Aquatic Plants & Algae in NH: <http://www.des.state.nh.us/wmb/ExoticSpecies/documents/PlantBook.pdf>

GMCG Lake Host Program: [www.gmcg.org](http://www.gmcg.org)

NH DES contact: Amy P. Smagula, (603) 271-2248 [asmagula@des.state.nh.us](mailto:asmagula@des.state.nh.us)

NH DES Chart of Exotic Species: [www.des.state.nh.us/wmb/ExoticSpecies/index.html](http://www.des.state.nh.us/wmb/ExoticSpecies/index.html)

NH Lakes Association/Lake Host Program: [www.nhlakes.org/](http://www.nhlakes.org/) ; <http://www.nhlakes.org/docs/06-LH-Manual-Org-List.doc>

OLA/Weed Watcher Program: June D'Andrea, (603)539-1643 [jmdandrea@ossipeelake.org](mailto:jmdandrea@ossipeelake.org);  
[www.ossipeelake.org](http://www.ossipeelake.org) :

Silver Lake Association of Madison: <http://www.silverlakemadison.com/>

## **B. Water Pollution**

### **1. Non-point Source (NPS) pollutants**

There are two categories of water pollution associated with natural and human causes that can degrade the quality of lakes and ponds: **Point source pollutants** that are derived from specific entry locations (e.g., effluent pipes, dump sites), and **non-point source pollutants**, which include substances generally distributed in the landscape that find their way into aquatic systems as precipitation waters wash over land surfaces. Point sources of pollution are often obvious and usually the first to be dealt with. In the Ossipee Watershed, NPS pollution is a greater threat to the water quality of lakes and ponds. Some examples and causes of NPS pollution include:

- **sand** and **salt**, which may come from winter road maintenance
- **oil** and **gas**, which may come from spills at home or leaks on the road
- **nutrients**, such as from uncovered manure piles, leaky septic systems, or excessive use of fertilizers
- **sediment**, which may come from natural or manmade erosion, construction sites, or clearcuts
- **litter, pesticides, insecticides, and herbicides.**
- **metals** such as **mercury** and increased **acidity** as precipitation/atmospheric fallout
- **bacteria** such as *E. coli* from leaking septic systems, excessive concentrations of waterfowl