

## CASE STUDY of LAKE AUBURN & THE BASIN

### Manual Control of Variable Leaf Milfoil in a Public Drinking Water Source

By Mary Jane Dillingham

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**Waterbody:** Lake Auburn (MIDAS: 3748) and The Basin (MIDAS: 0071)

**Association(s):** Lake Auburn Watershed Protection Commission  
Auburn Water District  
Lewiston Water Division

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**Town(s) Waterbody Located In:** Auburn      **County Waterbody Located In:** Androscoggin

**Waterbody History:** Lake Auburn is the public water supply for the cities of Lewiston and Auburn. The Auburn Water District controls 80% of the lake shorefront. The lake is used for recreational fishing but swimming is forbidden due to the lake's status as a public water supply.

**Invasive Species Distribution:** A dense stand of approximately 15 acres of variable leaf water-milfoil (*Myriophyllum heterophyllum*) was identified in the northern end of Lake Auburn in 2000. The Basin, an area above the dam, is also significantly infested with various sized patches throughout. Infestations are believed to have been present in these areas since the early 1970s. In some areas on Lake Auburn, the milfoil stands have been found growing in 12 feet of water depth. In 2005, a milfoil infestation was confirmed in a wetland in the northwestern section of Lake Auburn.

**Management Objectives:** Due to the significant density of the milfoil growth in Lake Auburn and The Basin, management efforts are focused on minimizing the spread of the milfoil populations and decreasing the existing populations.

#### Management Timeline:

**2004** - Management efforts focused primarily on The Basin area. Control activities included hiring divers for hand removal and placement of benthic mats. In 2004, six 10'x10' benthic mats were placed in various areas throughout The Basin.

**2005** - Eleven additional benthic mats were placed for 60 days in the Basin

**2006** - Divers placed 21 benthic mats in the wetland infestation discovered in 2005. These mats have been left over winter, and are scheduled for removal in the spring of 2007.

**Prevention Strategies:** Invasive plant surveys are conducted to keep an eye on milfoil populations and locate new sites. In the summer of 2006 GPS (Geographic Positioning System) waypoints of the

infestation were marked and mapped in order to track the spread/decline of infestations. The courtesy boat inspection program is conducted May to November at key launches. It is an effective educational and control tool and will be continued in future seasons.

### **Project Successes:**

Benthic mat activities have been effective in reducing milfoil populations in The Basin.

The boat inspection program has educated boaters to be more aware of the problem Lake Auburn and The Basin are facing.

### **Project Challenges:**

Lake Auburn is a drinking water supply with a need for high water quality. There is concern regarding invasive plant management efforts in this type of waterbody with such elements as sediment disturbance, total organic carbon increases, and phosphorus release from the sediment. Additionally, decaying plant matter may increase turbidity and total organic carbon and can release phosphorus. These elements are monitored with regular testing.

Bodily contact is a restricted activity therefore divers are required to wear full wetsuits and take special precautions to assure cleanliness of equipment.

Since there is no lake association, work on the lake, and watershed, is done by Auburn Water District staff. Invasive plant management is only one area of a long list that requires staff time.

During benthic mat installation, staff time is required to assist divers, but due to high workload demands in other areas, coordination of staff and divers is difficult. A more independent method for benthic mat placement is currently being investigated.

**Project Costs:** Approximately \$3,000 per season is spent on divers and benthic mat materials (which are reusable).

### **Funding Sources:**

**2006** – Funding from Cost Share Grant from Maine Department of Environmental Protection (administered by Lakes Environmental Association) primarily cover the cost of contracted divers, Lake Auburn Watershed Protection Commission contributed funds to help pay for materials, and staff is paid through the Auburn Water District and the Lewiston Water Division.

Interns perform Invasive Plant Patrol (IPP) and Courtesy Boat Inspection (CBI) duties and assist with invasive milfoil manual harvesting activities. Interns are paid by the Auburn Water District and the Lewiston Water Division.

### **Lessons Learned:**

Benthic mats are best for larger infestations. Manual harvesting is suitable for smaller patches only.

Wetlands areas need to be checked regularly for infestations. It appears that emergent vegetation and beaver activity may increase the chances of milfoil becoming established in an area.

It is important to establish a methodical plan of action for all management efforts.