

**2006/2007 Aquatic Invasive Species Eradication Grant  
(ISEG) Program**

**2007 Application**

Prepared by the Lake Colby Association

**Eradication of Eurasian Watermilfoil Control on Lake Colby, 2007-2010**

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# Aquatic Invasive Species Eradication Grant 2006/2007 Application

## Part 1. Application Form

### Part A. Applicant Information

**APPLICANT (name of municipality or not-for-profit)**

Name:	Lake Colby Association		
Mailing address: (street, suite, PO Box)	PO Box 934		
City, State, Zip:	Saranac Lake, NY 12983		
Classification of Applicant: (municipality, not-for-profit)	Not -for-profit		
Federal ID # : 75-3074896	Charities Registration# : 072545		

**AUTHORIZED OFFICIAL**

Name: Ernest E. Keet	
Title: Treasurer	
Telephone # : 518 261 6608	FAX # : 208 275 7423
E-mail address:	Lee@LakeColby.Org
Business address:	
Street, Suite, PO Box:	PO Box 934
City, State, Zip:	Saranac Lake, NY 12983
Name:	

Title:	
Telephone # :	FAX #:
E-mail address:	
Business address:	
(Name, Bldg)	
Street, Suite, PO Box:	
City, State, Zip:	

## Part B. Project Summary

1. Project Name: Eradication of Eurasian Watermilfoil Control on Lake Colby

2. Target Species: Plant  Animal  Multiple

A. Common/Scientific name(s): Eurasian Watermilfoil/Myriophyllum Spicatum

B. Verified by: Paul Smith's Watershed Institute, Adirondack Ecologists, New York Statewide Citizens Assessment Program (CSLAP)

3. Project Site/ Location: lake or <sup>P</sup>ond  river or stream  wetland

Name:	Lake Colby	Size of wetland or waterbody, in acres:	286	Size of project site, in acres	35
County:	Franklin	Town:	Harrietstown		
Coordinates, if available, for the project's center of mass:	Latitude:	44° 20' 40"	Longitude:	74° 09' 06"	
	UTM Easting:		UTM Northing:		

4a. Public Access (Waterbody only)

Is public access to the waterbody available? YES  NO

If yes describe: Saranac Lake Village Public Beach, Town of Harrietstown Latour Park, NYSDEC boat launch

Is the project proposed for a waterbody that serves as a source of potable drinking water or is a public water supply reservoir? YES  NO

4b. Public Access (wetland)

Is the project proposed for a wetland that is on public land? YES  NO

If not, does the wetland connect to adjacent wetlands on public land? YES  NO

5. Did the invasive species first appear within the past 1 - 3 years? YES  NO

6. If 5. is YES, is there any record of the same species being present in the wetland or waterbody at any time in the preceding 10 years? YES  NO

7. Will the proposed project treat:

- A. The entire infestation within the waterbody or wetland
- B. Only a portion of the infestation within the waterbody or wetland
- C. If B is checked, what percentage of the total waterbody or wetland is infested?
- D. If B is checked, what percentage of the total infestation will be treated?

8. Is the waterbody upstream of uninfested, connected waters? YES  NO

9. Is the waterbody downstream of infested, connected waters? YES  NO

10. Will the project correct an identified impairment of a DoW priority waterbody? YES  NO

11. Summarize level of impairment to human uses caused by the infestation:

Use/Activity	Level of Impact (Check one - see Appendix D for explanation of terms)	<b>Narrative Description of Impact:</b> Briefly defend or explain the level of impact selected. Level of impact applies to the entire waterbody, not just the area of the proposed project. For example, 3 - 4 acres of Eurasian Watermilfoil in a 25 acre lake could not cause a "Precluded" level of impact under most any circumstances.
A. Recreation (swimming, boating, hunting, and fishing)	<input type="checkbox"/> Precluded <input type="checkbox"/> Impaired <input checked="" type="checkbox"/> Stressed <input type="checkbox"/> Threatened	Lake Colby has five distinctly different public-use facilities, all of which have been impacted: the NYSDEC Environmental Camp, DEC Boat launch, Harrietstown's Latour Park, two DEC-approved campsites, and the Village of Saranac Lake Municipal Beach. A five-year project to remove milfoil has already improved swimming, boating, and other water recreation opportunities, but the job is far from complete.
B. Habitat value, Biodiversity	<input type="checkbox"/> Precluded <input type="checkbox"/> Impaired <input checked="" type="checkbox"/> Stressed <input type="checkbox"/> Threatened	Large dense beds of Eurasian Watermilfoil crowded out all other aquatic plant life in six large areas of the lake, including nearly the entire western end of West Bay, the eastern shore of North Bay, a substantial portion of the western shore of "Trestle" Bay, and much of the southern shore. The project to date has removed most of these dense beds but significant numbers of multi-stemmed plants remain, and if not removed the slow recovery of native species will be reversed.
C. Aesthetic Appeal	<input type="checkbox"/> Precluded <input checked="" type="checkbox"/> Impaired <input type="checkbox"/> Stressed <input type="checkbox"/> Threatened	The biomass of the decaying milfoil has caused blue-green algae (Aphanizomenon) blooms in each of the last four years. The 2005 bloom was so bad it made front page news in the Adirondack Daily Enterprise and has caused many local residents to shun the public beach and picnic areas. Another bloom in 2006 caused water clarity to decline precipitously for over a week.
D. Other: Identify Potable Water	<input type="checkbox"/> Precluded <input checked="" type="checkbox"/> Impaired <input type="checkbox"/> Stressed <input type="checkbox"/> Threatened	As of 2006 a majority of the shoreowners on the lake used the lake as their potable water. The impact of the milfoil on the quality of the water (see above) raises serious health issues for these residents. In addition, there have been cases of "duck itch fever" which have been related to algae blooms resulting from deteriorating biomass.

12. Will the project utilize and/or train volunteers for controlling target aquatic invasive species, and monitoring for and responding to reinfestation?

YES  NO

13. Has a permit for this or a similar project ever been denied or deemed incomplete?:

YES  NO

14. Have you received an Invasive Species Grant in the past?:

YES  NO

### Part C. Project Timing and Costs

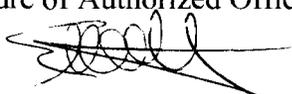
1. Proposed project start date: September 2007

2. Proposed project completion date: September, 2010 (or earlier if targets are achieved)

3. Grant amount requested: \$30,000 4. Applicant's total match funds: \$30,000

5. Total Project Cost: \$60,000 (Equal to grant amount + applicant's match funds)

\* Applicant's match funds may include cash, billed labor, volunteer labor, professional services, equipment expenditures, supplies and materials, and donated services from public and private sources. Donated professional services are valued at the professional rate per hour. Volunteer, non-professional services are valued at New York State minimum wage, as of the time the volunteer service was provided. The New York State minimum wage increased to \$7.15 per hour as of January 1, 2007.

APPLICANT CERTIFICATION AND ACCEPTANCE: I certify that the statements herein are true, complete, and accurate to the best of my knowledge. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties.	Signature of Authorized Official: 
	Date of Signature: June 18, 2007

### Part D. Include the Following Attachments:

- Attachment A - Project Narrative
- Attachment B - Project Budget
- Attachment C - Project Schedule
- Attachment D - Resolution of Support/Endorsement
- Attachment E Maps and Photographs
- Attachment F - Invasive Species Management Plan
- Attachment G - Ownership Documentation and Permission
- Other requirements (see page 17):
  1. Target species identification verification letter;
  2. Documentation of Applicant funding sources;
  3. Copies of permits.

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## Part 2. Attachments

### **Attachment A: Project Narrative**

**Overview:** The Lake Colby milfoil eradication project is one of the earliest and most important demonstration projects for non-chemical control of Eurasian Watermilfoil in the Adirondack Park. Lake Colby is a strategic resource that is home to the D.E.C. Environmental Education Camp, the Town of Harrietstown's Latour Park, the Village of Saranac Lake's only public swimming facility, several public camp sites, and a DEC boat launch. The Lake hosts only seven private shoreowners, four of whom use the lake for drinking water, the rest of the Lake (16,000 out of 17,500 feet of shoreline) being either public-use or forever wild lands. Due to the low private ownership on the Lake, finding funds for the project to-date has been an ongoing effort. Thanks to support from shoreowners, the Town of Harrietstown, the Village of Saranac Lake, and the Lake Champlain Basin Program, funds provided from 2002 to 2005 were sufficient to make slow but steady progress, but were insufficient to deliver a final knockout punch to the spreading milfoil. In 2006 the LCA's first ISEG grant allowed the first complete harvesting of the lake. Other lakes with sufficient financial resources to do multi-pass harvesting have demonstrated that Eurasian Watermilfoil can be brought under complete control within two to three years if (and only if) consecutive multi-pass harvests are conducted each season, eliminating in-season re-growth and seeding.

The first year of the current effort was 2002. Milfoil was identified by a CSLAP survey in 1999, but resources could not be marshaled and necessary permits obtained until 2001 for a 2002 launch. By that time, large beds of milfoil had spread in each of the three major bays on the lake, along the entire southern shore, and in a concentrated bed on the eastern edge of the Lake. Harvests from 2002 through 2005 removed over 20 wet tons of milfoil in single-pass harvests, but each subsequent season found significant re-growth. In 2006 diver productivity was more than doubled through the use of a floating compressor system (known colloquially as a "hookah" or SNUBA rig). Thanks to an initial ISEG grant this increased productivity was applied in two full passes of the lake, removing more wet tonnage than in the prior four years combined. Plans are to extend this multi-pass approach to three full passes in 2007 and, if necessary, in 2008, with smaller harvesting cycles in 2009 and a "maintenance" harvest in 2010. If results in Lake Colby prove similar to those in Upper Saranac Lake, which is now in maintenance mode with tiny amounts of remaining milfoil, maintenance status should be reached by late 2008, or in 2009 at the latest.

At 286 acres, Lake Colby is small enough to serve as a manageable demonstration that benthic matting and hand harvesting can control Eurasian Watermilfoil at reasonable cost. This premise has yet to be fully demonstrated, but infestation in the Lake has been reduced dramatically by these means and only a lack of funding has prevented the repetitive and complete harvesting of the Lake which has been proven to be essential to reversing the weed's geometric expansion. Despite limited funds, all major milfoil beds have already been harvested at least once and the number of remaining multi-stemmed plants in the lake has been reduced dramatically. Most of the remaining clustered plants are concentrated in several highly defined areas.

The Lake Colby Association's (LCA's) early project techniques have been adopted (and improved upon) by other lakes, including Upper Saranac Lake. Our website ([www.LakeColby.org](http://www.LakeColby.org)) is visited by other lake associations and municipalities regularly to learn from our project techniques and results.

In the late spring of 2006 GPS coordinates of the remaining plants were taken and appropriate buoys were set by volunteers so the paid professionals could resume productively in June. The beds identified (see map) were all harvested at least twice. In 2007 this process is being repeated. This will involve re-setting the benthic barriers and three complete hand harvestings of remaining multi-stemmed plants and clusters. The Upper Saranac project, which thanks to over 550 shoreowners has had sufficient funding to allow multiple annual harvests, has demonstrated that multiple pickings in a single season will eliminate much or all of the possibility of seed reproduction and most of the plant's expansion via fragmentation. Lacking funds to perform multiple pickings in a season, the LCA project up to 2006 had four single annual harvests, none of which completely encompassed the Lake. In effect, we were taking two steps forward and one backward due to new infestations from seed growth and fragmentation. In 2006 in part thanks to a NYSDEC ISEG grant the lake was picked twice using a floating "SNUBA" air compressor that can support multiple divers. Productivity doubled over prior years, and more milfoil was removed in 2006 than in all previous years combined. The 2007 project, now underway, has three complete harvests as its goal. If the 2007 Aquatic Invasive Species Eradication Grant is approved, the project plan will allow a second and third year of three complete harvestings of the infested areas, with the goal of complete eradication of the remaining plants, mimicking the success of Upper Saranac Lake. In addition the 42 existing benthic barriers will be re-set on high-growth areas and 30 new mats (to be acquired from Upper Saranac Lake Foundation) will be set on any remaining dense populations. Without the grant the best outcome would be continued reduction in the plant population without any real hope of total eradication and given other funding cutbacks a regression is clearly possible<sup>1</sup>.

The LCA project work is performed by volunteers who manage and assist professional divers. The Paul Smith's Watershed Institute has been the primary subcontractor for dive related activities, supplying a dive leader, divers, and surface support. Volunteers have provided additional surface support, some dive support, milfoil disposal (in an APA-specified composting bin), and materials (e.g., support watercraft).

A five-person professional team (four divers and one surface person) subcontracted from the Paul Smith's Watershed Institute costs about \$1,800 per day. Without the support of a 2007 Aquatic Invasive Species Eradication Grant the LCA and its partners would be able to provide a maximum of eight days of matting and harvesting in 2008, enough for less than two full passes of the Lake. This level of activity would reduce the level of multi-stemmed plants, but would not allow a full second or third harvest to suppress secondary growth and seed propagation. With an Aquatic Invasive Species Eradication Grant, a complete three-pass

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<sup>1</sup> In 2007 the Lake Colby Association was awarded a \$7,000 grant by the Lake Champlain Basin Program who noted that this project was a "high priority". This grant was later rescinded due to federal cutbacks. Thanks to heroic efforts by the shoreowners, the Town of Harrietstown, and the Village of Saranac Lake, the 2007 program is continuing but these heroic measures are unsustainable, which is why this ISEG grant is so critical to the project's completion.

harvesting will be undertaken to completely harvest all remaining or emergent plants. Under this scenario the Lake could reach a maintenance state by as early as late 2008 but certainly by 2009 if other project experiences are repeated here. There would, of course, be ongoing monitoring and rapid response required thereafter, and monitoring, rapid response, and maintenance harvesting are included in this three-year grant request.

## **1. Project Goals and Objectives**

To eliminate all remaining Eurasian Watermilfoil plants in Lake Colby

## **2. Site Description**

### **A. Location**

Lake Colby lies just north of the Village of Saranac Lake. Its eastern shore is now (since 1964) defined by Route 86 which provides access to the Lake's public access facilities, including the D.E.C.'s Camp Colby Environmental Education Camp, the Town of Harrietstown Latour Park, the Village of Saranac Lake's only public swimming facility, several public camp sites, and a DEC boat launch. Six of the seven private residences on the Lake are on the south shore, accessed by Moir Road, and the one in West Bay is accessed solely by water. The largest employer in the region, the Adirondack Medical Center, sits on the eastern side of Route 86 with a gorgeous view of the Lake from all patient windows. AMC, who has a narrow strip of lakefront between the highway and the Lake, is a long-term member of the Lake Colby Association and an outspoken supporter of the milfoil eradication efforts.

### **B. Type**

Lake Colby is a natural lake, fed by springs and runoff. For many years it was a restricted trout lake stocked by the D.E.C. It is a site favored by local fishermen in part because of the easy access, in part due to the abundance of game fish, and in part due to the "quiet" nature of the Lake – no motorboats of over 10HP may be launched at the D.E.C. launch site. Its annual replacement rate is extremely low – 70% - making it very vulnerable to pollutants and biomass buildup.

### **C. Size**

286 acres with roughly 17,000 feet of shoreline.

### **D. Depth**

The Lake varies in depth with rapid runoff from the shoreline, other than in the three bays, to a maximum depth of 44 feet.

### **E. Description of Shoreline**

The Lake has approximately 17,000 feet of rocky shoreline characterized by many glacial erratics and several rock ledges running into the Lake. It is the center of the watershed area it represents, extending from Mt Pisgah on the east to the Forest Home Road on the west and bordered by hills on the north and south. The Lake was divided when the Delaware and Hudson rail bed was laid in the 19th century, and a part of the Lake (known as Little Colby) is adjoined by a trestle under the railbed. Water flows from the Lake into Little Colby and then through a series of culverts and streams into Lower Saranac Lake and thence into the Saranac River and into Lake Champlain.

### **F. Public & Private Access Facilities**

As previously noted, public access to the Lake is via the State boat launch or through the NYS Environmental Education Camp. Additional shoreline use is provided at

Harrietstown's Latour Park and at the Village of Saranac Lake's Public Beach. Two recognized camping sites are used regularly in the summer months, one in North Bay and the other on the point between West Bay and "Trestle Bay", sometimes known as Bradley Point.

Other than the eastern shore defined by Route 86, shoreline development is limited to the Environmental Protection Camp on the northeast corner, a portion of the southern shore accessed via Moir Road, and one small private plot that divides the forever-wild land in West Bay. The southern shore accessed via Moir Road is home to one small (four cottage) commercial resort, and six private residences. The total private shoreline is approximately 1200 feet on the southern shore and 200 feet in West Bay. The eastern shore along Route 86, totaling roughly 2,600 feet, is made up of the Village Beach, Latour Park, State Boat Launch and a small section fronting on the Adirondack Medical Center which sits on the eastern side of Route 86. Approximately 1,800 feet of shoreline on the Northeastern shore is owned by the State of New York and used by the D.E.C. Environmental Education Camp.

The Lake is home to two nesting loon families, three osprey, three blue heron, multiple ducks, and two transient eagles who visit the Lake regularly. There is one beaver lodge on the Lake and one immediately downstream in Little Colby.

#### **G. Habitat**

Four of the six residences on the southern shore and the one in West Bay are seasonal, as is the four-cottage commercial resort. Moir Road is a private road maintained by the residents. There is no public water or sewerage along Moir Road and the residents rely on either wells or lake water for their potable water. The two all-year residences are two-storey homes, as are two of the seasonal residences. The two others and the one in West Bay are single-storey frame structures.

### **3. The work proposed**

#### **A. The species targeted for eradication**

Eurasian Watermilfoil/Myriophyllum Spicatum

#### **B. Adverse impacts the milfoil is causing to human activities and the ecological quality of the waterbody/wetland**

- Crowding out of native milfoil (including the endangered myriophyllum alterniflorum, potamogeton, and other common species).
- Increased nutrient loading of the Lake resulting in gradual eutrophication, loss of water clarity, and increased algae counts resulting in fall algae blooms
- Reduced shoreline for swimming
- Interference with watercraft
- Impact on weekly environmental classes held at the NYS Environmental Education Camp
- "Duck" or "swimmers" itch has been a recurring problem for Lake Colby swimmers, primarily at the Village of Saranac Lake public beach. This condition has been linked to milfoil infestation in many lakes.

### **C. Methods**

The LCA has demonstrated that a combination of benthic matting (on dense beds) and hand harvesting can dramatically reduce the plant population of the Lake without adversely impacting native species. In 2006 we used 12 existing benthic barriers that we hand-constructed and 30 mats purchased from the Upper Saranac Lake Foundation to smother the few remaining clusters of multi-stemmed plants (in North Bay) and again used professional divers to harvest the plants, but for the first time using an on-water compressor that more than doubled diver productivity. This program is continuing into 2007. If the Aquatic Invasive Species Eradication Grant is approved we will harvest the Lake commencing in May 2008 with nearly continuous harvesting until the lake has been picked no less than three times. The benthic mats will be moved in May and 30 new mats will be set in areas identified after the first pass of the lake has been completed.

### **D. How the project will reduce or eliminate the impairment to human uses/activities or threat to the ecosystem of the waterbody/wetland caused by the target species**

Eurasian Watermilfoil, unlike most aquatic plants, is a net generator of phosphorous. As the milfoil has spread in Lake Colby its phosphorus levels have steadily increased and the frequency of algae blooms has also increased. By reversing this process we expect the Lake's phosphorus loading to gradually decrease, improving the quality of the water and eliminating the (recent) seasonal algae blooms. Improved water quality will benefit users of the public beach, hopefully eliminate the now-frequent problem of duck-itch or swimmers-itch, and will improve the quality of the water used for drinking by some of the residents. Left unchecked, the many public uses to which the Lake is put (swimming, boating, sailing, fishing, etc.) would move up the chain from threatened to precluded, and as was almost the situation at the start of our project in 2002 there is a point at which a tipping point is reached and there is no reversal possible using conventional means.

### **E. Why the method selected for eradication is the most effective method for achieving the project objectives**

Because Lake Colby is used for public recreation, is a drinking water source, and is upstream from much of the Saranac chain, chemical means were eliminated as a choice and would probably be impractical given the Lake's relative depth. Because much of the Lake has a limited area of shoreline favorable for plant growth, hand harvesting of the approximately 20% of the Lake favorable to such growth was deemed possible and preferable. Because six dense beds were identified, benthic matting was chosen as the first technique for those areas, to be followed by hand harvesting one year later. This process was successful starting in 2002 and at the end of 2005 no large and dense beds remained. However, in 2006 significant re-growth was discovered in areas previously matted, proving perhaps the now-current theory that killing the plants by matting gives their seeds a (one-year?) opportunity to germinate and replace their parents. With this new knowledge we are re-matting areas a second time in 2007 to insure that no seed growth potential remains. We will continue this re-matting in 2008 and 2009 if the ISEG grant is approved. In areas where the plants are scattered, which is now the rule, there is no alternative to hand harvesting. We believe the techniques we are proposing have been proven effective when used in combination and with continuous harvesting and matting. Our past mistakes have consisted of applying inadequate follow-up to initial harvesting and matting, primarily due to a lack of resources. This valuable feedback has

shown us how we can be more productive and successful against this resilient weed.

#### **4. The role of those involved with the project**

The project has been and will be managed for the LCA by Ernest E. (“Lee”) Keet, who is the Treasurer and Water Quality Manager for the Association. Lee has an M.S. in Mechanical Engineering from Cornell and an M.S. in Operations Research from NYU.

All underwater work is performed by the Paul Smith’s Watershed Institute, which provides a dive team, dive leader, surface person(s), insurance, and dive equipment. Divers at the Institute are coordinated by Michael De Angelo, Professor of Natural Resources and Director of the Watershed Program at Paul Smith’s. Mike has an M.A. in Instrumental and Inorganic Chemistry from SUNY Plattsburgh and has been on the faculty at Paul Smith's College since 1984. Mike teaches courses in chemistry, environmental impact assessment, fisheries, and limnology. He has been studying Adirondack lakes and rivers for 20 years in collaboration with federal and state agencies, NGOs such as the Sierra Club and the Residents Committee to Protect the Adirondacks, municipalities, and lake associations. Mike teaches courses in limnology, fisheries management, and chemistry. He is actively engaged in the community, most notably for serving on the Franklin County Water Quality Coordinating Committee and as an advisor to the Boy Scouts of America. Mike has authored numerous reports on water quality and management of lakes in the Adirondacks. Mike works for Dan Kelting, Executive Director of the Adirondack Watershed Institute and Associate Professor of Natural Resources. Dan has a Ph.D. in Forestry and Soil Science from Virginia Polytechnic Institute and State University. He has a wide range of expertise in natural resources science and management with particular emphasis on forest productivity, soils, and nutrient cycling. Dan has published in *Forest Ecology and Management* (1995 and 1999), *Water Air and Soil Pollution* (1995), *Environmental and Experimental Botany* (1997), *Soil Biology and Biochemistry* (1998), *Journal of Environmental Quality* (1998), *New Zealand Journal of Forest Research* (2000), *Canadian Journal of Forest Research* (2003), and *Soil Science Society of America Journal* (2004).

In addition to the professionals, volunteer divers have in the past worked under the direction of the Paul Smith’s dive leader, and additional volunteers are hoped for in the future but are not of significance in the overall plan (as their productivity is small compared to the professionals). Shoreowner volunteers from the LCA assist the surface person(s) in gathering escaped fragments and in ferrying the picked milfoil to the collection boats. Both the ferry boat for the divers and the collection boats are loaned to the project by LCA members. In the past, the Department of Environmental Conservation has provided access at its boat launch and at the Environmental Education Camp, boats for use in moving the benthic barriers, and personnel. We are not counting on such support in this application and access can (and has been) though member properties on Moir Road, but if past is prologue the possibility of additional volunteer support from Town and D.E.C. sources is great.

#### **5. Relationship of the project to any significant resources on the property and how those resources will be protected from any project-related impacts**

- A. There are no other habitats affected.
- B. There are no unresolved environmental issues associated with the project

C. The Adirondack Park Agency permit issued in 2002-7 for the matting and hand harvesting of the Eurasian Watermilfoil in Lake Colby (see Attachment J) specified techniques to be used to avoid any impact on rare or endangered species such as *Myriophyllum alterniflorum* and mechanisms for the safe disposal of the harvested milfoil. These techniques have been and will continue to be followed precisely.

## **6. Past efforts, if any, over the preceding 10 years to prevent, control, or eradicate the target species**

Our expert advisors (Adirondack Ecologists and the Adirondack Watershed Institute) and the 2001 CSLAP survey told us that if the milfoil spread was not stopped immediately, conventional control means would no longer be an option. This proved optimistic – the Lake was seriously infested with Eurasian Milfoil when our 2002 harvesting program began. Despite this, aggressive efforts in 2002 removed over ten wet tons of milfoil and killed an additional 4,000 square feet through the use of barriers. At the end of 2003 we had reduced the milfoil by an additional five tons. In 2004 we removed three and a half additional tons, mostly from a virulent re-growth in an area picked clean in 2003; a pattern we have seen repetitively but which we believe strongly supports the approach of picking twice in a season<sup>2</sup>. In 2005 we discovered two additional beds that consumed much of our effort and yielded four additional tons. In 2006 we were surprised by the aggressive re-growth, especially in areas that had previously been matted<sup>3</sup>, with plants nearly to the surface by early June. This may have been in part due to the wet spring and low snow cover on the ice, but nonetheless it was a setback, as we started too late to complete three full passes. Thanks to the use of surface based SNUBA compressors we were able to harvest an immense amount of milfoil, and are hopeful that with a very early start (May 14<sup>th</sup>) in 2007 we can complete three full passes of the lake and repeat this three-pass process again in 2008. Thereafter, should re-growth occur, we should be able to maintain a steady-state of minimal weed levels with non-heroic efforts.

Benthic barriers have played a significant role in attacking the dense beds. With the assistance volunteers and loaned resources (e.g., Department of Environmental Conservation boats and personnel) in support of LCA volunteers, the benthic mats were installed and moved three times in 2002, three times in 2003 twice in 2004, and once in 2005, killing roughly 1200 square feet of dense beds in each application. In 2006 we added 30 20' x 20' new mats which allowed us to add 12,000 feet of lakebed that is fully free of plants. Our experience is that once the mats are removed some seed growth will take place but a second killing ends the cycle. In 2007 we will add 30 more recycled mats from the Upper Saranac Lake Foundation, and we will re-set these mats a second time in July and then again in early 2008.

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<sup>2</sup> There is little scientific data, and much of what there is is being developed by projects such as ours. However, it appears that Eurasian Watermilfoil seeds are inefficient and have a single-year of 'shelf life', i.e., if you mat an area with seeded plants those seeds can germinate in the following season but not in subsequent years. Similarly, if you pick an area by hand and stir up the bottom you induce both local fragmentation and seed germination. In sum, picking or matting followed by a second harvest a month or more later can result in virtual elimination of subsequent re-growth.

<sup>3</sup> It now seems clear that matting kills the parents but opens up a fertile area for seed growth. Paul Smith's studies suggest that seeds are fragile and annual and that a secondary harvest of the new growth can completely eliminate the plant from the area matted and then harvested or re-matted. This is the technique we are now using.

## **7. Long term monitoring plan**

A. The LCA is committed to a perpetual monitoring program that will involve surface and underwater inspection to insure that there is no recurrence once the milfoil is eliminated.

B. The starting point will be a new survey to be done by volunteers in the spring of 2007 which will include GPS mapping of visible plants and the placement of locator buoys to speed the dive team's efforts. This will constitute the starting point and baseline for the 2007 project. This will be repeated in 2008. It should be noted that, as an ongoing project, the LCA has survey data for each of the last five years which will continue to be used as a reference point and which demonstrates the steady progress that the efforts to date have had.

## **8. Financial resources**

Our grant request for 2007-2010 is based on new funds totaling \$30,000 during this period, \$9,000 of which will come from the Town of Harrietstown, \$9,000 from the Village of Saranac Lake, \$7,000 from the Lake Champlain Basin Program and the balance from the Lake Colby Association. A grant of \$7,000 for 2007 was conditionally approved by the Lake Champlain Basin Program but was withdrawn temporarily in early 2007 due to lack of funding. We have every confidence that this grant will be fully funded in 2008. If not, as in 2007, a special assessment of LCA members will make up the difference. As these community and local support funds represent only half of the three-year need, the approval of this grant is all the more critical to our continued success.

## **9. Potential SEQRA issues, Federal or State permits, or county/municipal/local permits or approvals.**

There are no SEQRA issues and all permits for the project have been obtained and can be found in Attachment J.

## **10. Other Endorsements**

The grant application does not suggest that letters of support or endorsement should be enclosed so we have not done so. We would nonetheless note that the following letters of support for the project have been received and are available on request:

- Historic Saranac Lake [Mary Hotaling, Director]
- River Corridor Commission [Deborah McDonnell, Director]
- Adirondack Medical Center [Chandler Ralph, President]
- Paul Smith's College Watershed Management Institute [Dan Kelting, Executive Director]
- Town of Harrietstown [Larry Miller, Supervisor]
- Village of Saranac Lake [Deborah McDonnell, Office of Community Development]
- NYS Department of Environmental Conservation [Art Stemp, Lake Champlain Coordinator]

Copies of the letters of support received in 2004 and 2005 are on the Lake Colby Association website at <http://www.lakecolby.org/Letters of Support.pdf>

**Attachment B. Budget Summary Form, Aquatic Invasive Species Eradication Grant**

<b>Expenditure Class</b>	<b>Applicant Funds</b>	<b>State Funds</b>
<b>1. Personal Service Expenditures (PS)</b>		
A. Professional/Consultant/Legal/Service and paid staff Support		
B. Professional/Consultant/Legal/Service Fringe		
C. Volunteer Service		
<b>D. Total Personal Service (sum of 1A+1B+1C)</b>		
<b>2. Non-Personal Service Expenditures (NPS)</b>		
A. Supplies and Materials		
B. Equipment		
C. Travel Related Expenses		
D. Contractual Service (i) 2007-8 Paul Smith's Watershed Institute fees (ii) 2008-9 Paul Smith's Watershed Institute fees (iii) 2009-2010 Paul Smith's Watershed Institute fees	\$12,000 \$10,000 \$8,000	\$12,000 \$10,000 \$8,000
<b>E. Total Non-Personal Service (NPS) (sum of 2A+2B+2C+2D)</b>	\$30,000	\$30,000
<b>Total Personal Service (PS) (from Line 1D)</b>	\$0	\$0
<b>Total Costs (2E + 2F):</b>	<b>\$30,000.00</b>	<b>\$30,000.00</b>

## **Attachment C: Project Schedule (2007-2010)**

September 2007: Survey of Lake using surface and in-water volunteers. GPS coordinates recorded for all noted Eurasian Watermilfoil plants and clusters. Placement of buoys where appropriate to set firm reference points.

May 2008: Transfer of 72 existing benthic barriers from their current wintering site to clusters identified in survey

Mid- May 2008: Pass one of hand harvesting of all plants using a four-person dive team from the Paul Smith's Watershed Institute plus one professional and several volunteer surface personnel.

Early June 2008: Pass two of hand harvesting of all plants using a four-person dive team from the Paul Smith's Watershed Institute plus one professional and several volunteer surface personnel.

Late June 2008: Pass three of hand harvesting of all plants using a four-person dive team from the Paul Smith's Watershed Institute plus one professional and several volunteer surface personnel.

Mid-July 2008: Re-setting of 72 benthic barriers

September 2008: Season ending survey of the Lake noting any remaining plants with GPS coordinates.

May 2009: Survey of Lake using surface and in-water volunteers. GPS coordinates recorded for all noted Eurasian Watermilfoil plants and clusters. Placement of buoys where appropriate to set firm reference points.

May 2009: Transfer of 72 existing benthic barriers from their current wintering site to clusters identified in survey

Mid- May 2009: Pass one of hand harvesting of all plants using a four-person dive team from the Paul Smith's Watershed Institute plus one professional and several volunteer surface personnel.

Early June 2009: Pass two of hand harvesting of all plants using a four-person dive team from the Paul Smith's Watershed Institute plus one professional and several volunteer surface personnel.

Mid-June 2009: Survey of the Lake noting any remaining plants with GPS coordinates. The following plans are conditioned on a need for a third harvest:

Late June 2009: Pass three of hand harvesting of all plants using a four-person dive team from the Paul Smith's Watershed Institute plus one professional and several volunteer surface personnel.

Mid-July 2009: Re-setting of 72 benthic barriers

September 2009: Season ending survey of the Lake noting any remaining plants with GPS coordinates.

May 2010: Survey of Lake using surface and in-water volunteers. GPS coordinates recorded for all noted Eurasian Watermilfoil plants and clusters. Placement of buoys where appropriate to set firm reference points.

May 2010: Removal of 72 existing benthic barriers from their current wintering site assuming there are no remaining clusters to be matted

Mid- May 2010: Pass one of hand harvesting of all plants using a four-person dive team from the Paul Smith's Watershed Institute plus one professional and several volunteer surface personnel.

The following plans are conditioned on a need for a second harvest:

Late June 2010: Pass two of hand harvesting of all plants using a four-person dive team from the Paul Smith's Watershed Institute plus one professional and several volunteer surface personnel.

September 2010: Final survey of the Lake noting any remaining plants with GPS coordinates.

It is our expectation that future plans from this point will include annual maintenance harvesting of approximately one week's duration.

## Attachment D - Resolution of Support/Endorsement



**Lake Colby Association, Inc.**  
**Post Office Box 934**  
**Saranac Lake, NY 12983-7934**

**Officers:**

President: Nancy R. Keet  
Secretary: Debbie Neill  
Treasurer: Lee Keet

**Board of Directors:**

Chandler Ralph  
Ernest E. "Lee" Keet  
Marge Greene

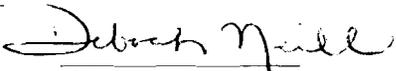
**Resolution of Support Authorizing Submission of Grant Application**

RESOLVED:

That Ernest E. Keet, as Treasurer of the Lake Colby Association is hereby authorized and directed to file an application for funds from the Aquatic Invasive Species Eradication Grant Program in an amount not to exceed \$30,000, and upon approval of said request to enter into and execute a State Assistance Contract with the New York State Department of Environmental Conservation for such financial assistance to the Lake Colby Association for Eradication of Eurasian Watermilfoil Control on Lake Colby and further, to carry out and comply with the terms of such project agreement.

Date: June 18, 2006

I, Deborah Neill, the duly elected and qualified secretary of the Lake Colby Association of Saranac Lake, New York, do hereby certify that the preceding resolution was adopted by unanimous consent of the Board of Directors, which consents are incorporated in the minutes books of the Association, and that said resolution has not been altered, amended or revoked and is in full force and effect.

  
(Signature of Secretary)

**Attachment E: Maps, Drawings & Photos**



**Satellite Image of Lake Colby (courtesy of Google Earth)**



**Annotated U.S. Geological Survey Map of Lake Colby**

2006 Milfoil Bed Locations  
surveyed on 06/14/06 -





**Project site (southern Trestle Bay) with divers down**



**Controlling fragments at the surface**



**Volunteers installing a benthic barrier from the surface with diver support (West Bay)**



**Shuttling the milfoil from divers to the boat (West Bay)**



**Volunteers stage the milfoil for transport to the compost site**



**Composting site and bird-proof pen**

## Attachment F: Invasive Species Management Plan

- Problem Statement

### Map(s) Indicating Areas Infested or Inhabited<sup>4</sup>



<sup>4</sup> The areas indicated were all harvested at least once and in most cases twice in 2006. A new survey and harvest program is underway with limited resources for 2007.

- **Identification of Target Aquatic Invasive Species:**  
Eurasian Watermilfoil/Myriophyllum Spicatum. Verified by: Paul Smith's Watershed Institute, Adirondack Ecologists, New York Statewide Citizens Assessment Program (CSLAP)

### **History of Infestation**

The date of earliest infestation is unknown, but Eurasian Watermilfoil was first identified in the Lake in the CSLAP survey conducted in 1999. It appeared to be well established at that point. Speculation is that the milfoil arrived via the State boat launch, that frequent trips carrying construction materials between the launch site and West Bay, the most upwind point on the Lake, introduced the weed to this spot which has ideal growing conditions. Once established in West Bay drifting fragments most likely caused the rest of the infestations.

### **Uses Impaired**

Lake Colby is a heavy-use recreational facility within walking distance of the Village of Saranac Lake. The Village's only municipal beach is on the Lake. Adjoining the beach is the Town of Harriestown's Latour Park, a site with lawn running to the water and picnic tables. Further to the north along Route 86 is the State boat launch, which is very popular with transient fishing parties, both day and night. At the northeast corner of the Lake is the New York State Environmental Education Camp and Conference Center, home to a series of one-week educational camping stays by selected grammar school students throughout the summer months.

All of the foregoing uses have been impacted by the infestation of milfoil and its byproduct effects, most notably increased nutrient loading of the Lake and the resulting development of blue-green algae blooms. Another byproduct has been the development of "duck itch" or "swimmers itch" infections which have made the public beach a far less attractive destination than it should be.

### **Rare/Endangered Species of Concern**

Myriophyllum Alterniflora. See APA Permit in Attachment J for restrictions on harvesting and matting, which the LCA has carefully respected.

- **Management History**

#### **Description of Previous Management Efforts**

- The first year of the current effort was 2002. Milfoil was identified by a CSLAP survey in 1999, but resources could not be marshaled and necessary permits obtained until 2001 for a 2002 launch. By that time, large beds of milfoil had spread in each of the three major bays on the lake, along the entire southern shore, and in a concentrated bed on the eastern edge of the Lake.
- In 2002 thirteen benthic mats were constructed by volunteers and Steve LaMere of Adirondack Ecologists. These were placed on the larger beds identified in three successive applications two in West Bay and the final one in North Bay, one month apart starting in July. The Paul Smith's (then) Watershed Institute provided a dive team who, with the help of volunteer divers and surface personnel removed over ten wet tons of milfoil.

- In 2003 the (now) twelve benthic mats were moved twice to new locations on the south shore of the lake where several additional large beds were identified. Divers returned to work with volunteers and five additional wet tons of milfoil was harvested. Fund and resource limitations prevented the harvesting or matting of three large remaining beds.
- In 2004 the twelve benthic mats were moved to Trestle Bay where several huge beds of milfoil remained. Divers then harvested around the mats removing nearly four wet tons of additional material.
- In 2005 the large bed in Trestle Bay was finally completely harvested and sections of North Bay and a small bed just north of the public beach were also harvested. Again, resources were insufficient for a complete harvesting of known multi-stemmed clusters.
- In 2006 a wet spring and low snow-cover on the Lake spurred a dramatic re-growth. Harvesting started too late to complete three passes, but use of new equipment (surface compressor “Hookah” rig) increased productivity and the harvest yield dramatically. More tonnage was removed in 2006 than in the prior four years combined.
- The 2007 season started earlier than prior years under a new plan. LCA member funding (including the final use of all accumulated financial reserves), funding from the Town of Harrietstown, and the Village of Saranac Lake, will permit the three complete passes so long hoped for. If the ISEG is approved this same process will be repeated in 2008, with decreasing harvesting needed thereafter.

#### **Evaluation of Successes and Failures**

- Although frustrated by a lack of resources, the Lake Colby project has largely been a success and is nearing victory. Mistakes made have been as part of a learning process which is now aiding other lakes in their efforts and the Lake Colby project in completing its own tasks
- The LakeColby.org web site has proven to be a rich source of information for other lakes just embarking on projects like ours. Permitting processes, matting construction and placement, grant sources, legal issues, etc. are all difficult for small lake associations to negotiate and the Lake Colby site is trying to make these experiences simpler for others to follow.
- The Lake Colby Association assisted the Upper Saranac Lake Foundation (USLF) in its design for a \$1.5mm multi-year program to control Eurasian Watermilfoil on that lake, using techniques (and personnel) developed on Lake Colby. Mistakes made on Lake Colby included matting seeded plants (plants died, seeds lived), picking too late in the season (promoted fragmentation), and not picking the same areas twice in a season due to limited resources. All of these errors were considered in the USLF plan and their success has been spectacular to date.
- Both the USLF and the Lake Colby Association have been working with Paul Smith’s Watershed Institute to better understand the mechanisms of Eurasian Watermilfoil propagation. Using “quadrants” of soil from the bed of the Upper Lake, seed germination under laboratory conditions is being observed. The results are encouraging: it appears that milfoil seeds

are annual and not long-lived. Fragmentation and sub-surface root extension therefore appear to be the major means of plant growth, both of which lead to the conclusion that early harvesting and a second “clean” picking can eliminate the plant from an area entirely.

### **Lessons Learned**

- As noted above, the single most important lesson learned is pick early, pick often. Failure to re-pick an area leaves it much like freshly turned earth, i.e., a fertile area for new weeds to settle. When combined with benthic matting this multi-pass technique appears to permit the eradication of milfoil at reasonable (not low) cost per acre.
- Mats should be used early in the season for a maximum of two applications as later movement of the mats can (i) smother parent plants but not their seeds, thus inducing seed growth in the subsequent season, and (ii) cause added fragmentation as the later-season plants become more fragile. We induced unnecessary re-growth early in our efforts due to a lack of understanding of this phenomenon.
- Milfoil is easiest to spot (iridescent, faster growing) early in the season, and it is also both seedless and sturdier and therefore less subject to fragmentation. Picking as early as divers can operate (late May, early June) followed by a second picking of the same area matted or picked previously (late June, early July) appears to be the most effective means to true plant elimination

### **Existing Lake Management Plan**

- The Lake Colby Milfoil Project is part of a Master Plan for the watershed developed by the Lake Colby Association the ties into the Saranac Lake Local Waterfront Revitalization Plan and has been submitted to the NYS Department of Transportation for use in the future development of runoff plans on Route 86 and to the NYS DEC for use in the development of the Unit 5 Management Plan. A copy of the Master Plan is attached at the end of this document as Attachment L.
- The Saranac Lake Local Waterfront Revitalization Plan includes the control of Eurasian Watermilfoil as a major objective and Lake Colby’s project as a key part of that program.

### **Description of Public Involvement in Management Efforts**

- The management effort to date has been directed by the Lake Colby Association (LCA) in cooperation with the Town of Harrietstown and the NYS Department of Environmental Conservation. Harrietstown has provided continuous financial support to the LCA.
- The Village of Saranac Lake Community Development office and the LCA worked together on the Saranac Lake Local Waterfront Revitalization Plan which dovetails with the Lake Colby Master Plan.
- The NYS DEC provided access (via the State boat launch), watercraft, and volunteers to assist in the movement of mats in most of the four years of this project
- The Lake Champlain Basin Program has adopted the Lake Colby Project as a demonstration of hand harvesting techniques that could assist other Basin waterbodies and has provided continuous financial support through

the four previous years of this project (and committed to funding in 2007 before federal cutbacks forced elimination of the grant). Without these funds, albeit limited, this project could never have taken place.

- **Management Objectives**

- **Extent of Preferred Control.**

- Complete elimination of all identifiable Eurasian Milfoil by the end of each picking season to be followed by annual surveys of the lake (volunteers) with selective harvesting of any new growth on a rapid-response basis. Maintenance status (less than one week of required harvesting) within three years.

- **Expected Use Benefits.**

- Improved water quality, rejuvenation of native plants, reduction of phosphorus loading, and reduction of seasonal algae blooms to improve swimming and other recreational uses of the Lake.

- **Critical Areas to Protect.**

- Nesting loons, low sea walls for several shoreowners, marshy areas in Trestle, West and North Bays that provide homes to many varieties of waterfowl.

- **Management Alternatives**

- **Local Control**

- For a 286 acre lake “local” and “lakewide” is practically the same thing, especially since only 20% of the Lake is hospitable to Eurasian Watermilfoil. Because the Lake is used for potable water, has extremely low replenishment rates, and is upstream from much of the Saranac chain, chemical means have been excluded. Continued hand harvesting, as required, will be the sole means used and will be implemented on a rapid-response basis after the Lake is cleared of all known Eurasian Milfoil plants.

- **Lakewide Control**

- See above with respect to current programs
    - Biological control: Future control should include the use of natural means to keep any regrowth in check. The LCA has met with the USDA invasive control program in Montpelier France, and has communicated with their counterparts at the Army Corps of Engineer’s invasive species control laboratory in Vicksburg, Mississippi and with the Cornell Cooperative Program. All three have been investigating various form of fungi, moths, weevils and other natural predators that appear to control milfoil. We are also working with Paul Smith’s to try to get a local biological control research program initiated, on the premise that if pathogens or natural predators can be identified and their population increased in the laboratory, these could be re-released into their original habitat with no side effects other than a more rapid “Darwinian” process to create a natural balance. We intend to continue to work with these institutions to try to seek some longer-term alternative to expensive and resource-consuming (but unavoidable) projects like the one at hand. Chemical control: not an alternative for Lake Colby (see above)

- **No Action Alternative**

- No action is not an alternative as at this stage milfoil would reclaim the lake in a

decade or so if the now-reduced population were left to regenerate itself. Lake Colby is too valuable a resource for this to be let to happen.

### **Preferred Alternative(s)**

The potential availability of additional funding through an Aquatic Invasive Species Eradication Grant would let the LCA, for the first time, truly harvest the entire Lake with a three-pass program ending in a final survey. The ISEG 2006 grant allowed us to complete two passes with the most productive results in our five-year history. A 2008-2010 grant should let us complete this process.

### **Integrated Management**

The management process in place is working and if resources are made available we are confident that success is possible in the coming season.

### **• Pre-, During- and Post Treatment Actions Planned**

#### **Monitoring-**

- **Aquatic Invasive Species** – Annual survey using surface and in-water inspection with GPS coordination of any new plant growth, conducted by Lake Colby Association volunteers. Results to be posted with coordinates and maps for follow-up by professional divers from the Watershed Institute, as required.
- **Water Quality-** the Lake Colby Association is a member of the Adirondack Lake Assessment (and formerly of the CSLAP) Program wherein volunteers take water samples each month from June through October with results summarized in an annual report. The 2006 report is attached.
  - **Early Response:** hand pulling as individual plants or benthic mats as small beds of reinfested watermilfoil are identified, once in June and as necessary a second time in July.
  - **Educational programs:** via the Lake Colby website and participation in the Annual Paul Smith's Water Quality conference

#### **Source Management**

- **Signage/pamphlets at local launches.** The Lake Colby Association maintains signage at the local boat launch and a distribution box with handouts. See Attachment K for an image of the handouts provided.

- **Strategies for reducing sediment load to lake.** The LCA has worked with the Village of Saranac lake to apply for (and has



received) a \$175,000 grant to construct a sand/salt shed on Van Buren Street, the current open storage area for the Village. This open sand and salt storage leaches directly into Lake Colby through “Colby Brook” and is a major source of chlorides, phosphates, and electrolytes, all of which contribute to reduced water quality. The Town of Harrietstown maintains an open sand/salt pile which is also upstream of the Lake and while not yet precisely measured clearly contributes to the high chloride levels in the Lake. In early 2007 the Town of Harrietstown and the Village of Saranac Lake agreed to share a \$575,000 shed. The shed should be constructed in the fall 2007 and water quality should improve thereafter. In addition, the LCA has held two meetings with the NYSDOT to get assistance in re-engineering three drainage culverts under Route 86. The DOT has committed to

engineering assistance in the design of baffles, sedimentation basins, and increased natural filtration. This project is planned for 2006 with applications for funding to follow.

- **Evaluation of Efficacy.** The Lake Colby Master Plan is being pursued aggressively and all early indications are that it is working. We hope, with the help of the DEC's new funding initiative, to be able to declare the Lake clear of Eurasian Watermilfoil at each fall survey during the grant period and to turn to monitoring, rapid response, and the other water quality initiatives discussed above no later than the completion date, and hopefully sooner.

## Attachment G: Ownership Documentation and Permission

Landowners on the Lake and their tax-roll id's are, as of the beginning of 2005:

<b>Property</b>	<b>Parcel #'s</b>
Keet	446.-1-20.100 & 200
Neill	446.-1-18
Greene	446.-1-19
Hofheimer	446.-1-21
Gaukin	446.-1-23
Leopold	446.-1-22
Phillips	446.-1-24
Laramie	446.-1-28
Donofrio	446.-1-31,32,33 &34
Town (Park)	446.-1-28
Hospital	446.-2.1
Village Beach	446.-1-29
State Camp	435.-1-6

The bed of the waterbody of Lake Colby belongs to the People of the State of New York, and therefore additional information on shoreowners is not provided here, but is available on request.

As all project activity other than the launching of boats with divers and the retrieval of harvested milfoil takes place on the water, no other permissions are required. The launching of the workboats and the retrieval of same, including the milfoil collection boat are through the State's DEC launch site on the Lake.

# Adirondack Watershed Institute at Paul Smith's College

P.O. Box 244, Paul Smiths, New York 12970-0244

tel: 518 327-6214; fax: 518 327-6369

email: [deangem@paulsmiths.edu](mailto:deangem@paulsmiths.edu); world wide web: <http://www.paulsmiths.edu/aai>

Ernest "Lee" Keet  
Lake Colby Association  
P.O. Box 1199  
Saranac Lake, NY 12983

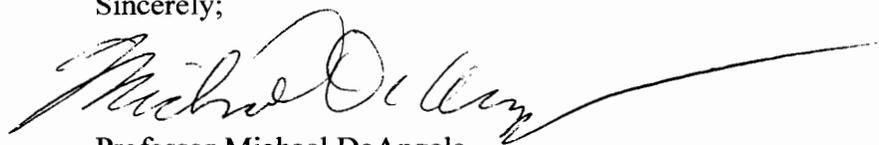
Lee;

The Adirondack Watershed Institute supplied divers and top water personnel for the eradication of Eurasian milfoil in Lake Colby during August 2002, June 2003, August 2003, July 2004 and July 2005. The program is in its fourth year at Lake Colby while the diver program is in its eighth year at the Adirondack Watershed Institute. The program was established to help eradicate Eurasian milfoil from Lake Colby and to continue into later years as a maintenance program.

While diving and performing their duties during July 2005, the divers and the top water personnel mapped the existing Eurasian milfoil beds that exist in Lake Colby. The map that was included with this letter is the final copy of the map for 2005. This map shows the distribution of Eurasian milfoil around Lake Colby based on location and density. The highest density beds were found along the railroad tracks in the south and west bays of the lake. The lowest density beds of Eurasian milfoil were found in the northeast corner of the lake from the Route 86 area to the Department of Environmental Conservation Youth Camp.

This map will be important for future control efforts and to be able to place the divers on to the high density beds as the top priority followed by medium density and low density beds. If you have any further questions or comments please feel free to contact me at the Adirondack Watershed Institute.

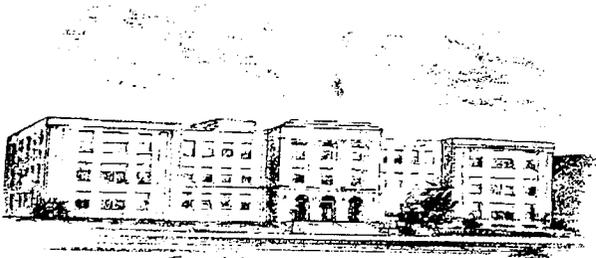
Sincerely;



Professor Michael DeAngelo  
Adirondack Watershed Institute  
@ Paul Smith's College

**FRANKLIN COUNTY CLERK  
WANDA D. MURTAGH**

DOCUMENT #: 2000403  
LIBER: 14 PAGE: 324



*Franklin County Court House  
Malone, N.Y.*

DOCUMENT #: 2000403

07/24/2002 10:14:39 A.M.

RECEIPT: 5550

WANDA D. MURTAGH

FRANKLIN COUNTY CLERK

VOL: AP LIBER: 14 PAGE: 312

Type of Document: APA Permit

Property Location: Harrietstown  
Town/Village

Parties To Transaction:

Lake Colby Association

Consideration \_\_\_\_\_

TO

Record and Return to:

Ernest E. Keet

P.O. Box 1199

Saranac Lake, N.Y.

12983

# of Pages 13

This sheet constitutes the Clerk endorsement required by Section 316-A(5) for the Real Property Law of the State of N.Y.

- **APA Permit**



Transmittal of Permit

Authorized by the Deputy Director, Regulatory Programs

To: **Ernest Keet**

Project/Permit: **2002-71**

Enclosed is the original copy of the above numbered permit issued by the Adirondack Park Agency's Director of Regulatory Programs pursuant to authority delegated by the Agency.

This project may not be undertaken until the permit is recorded in the office of the **Franklin** County Clerk. In addition, the permit will be void unless it is recorded on or before **September 17, 2002** in the names of all owners of record of any portion of the project site on the date of recordation. On the top right corner of the permit, we have provided the names of the landowners to the best of our knowledge on the date the permit is issued. If there are additional landowners, the applicant must add them to the list on the top right of the front page of the permit. *In order for the permit to be recorded in the County Clerk's Office, the applicant must pay the County Clerk the following fees at the time of recording: Ten dollars, and in addition thereto, three dollars for each page or portion of a page of the permit and any attachments to it. The original of the permit will be returned to the applicant by the County Clerk. Note – beginning July 1, 2002, Essex County will charge 25.00, rather than 10.00, for the initial fee.*

If you find minor factual discrepancies in the permit and accompanying findings, please bring them to the Agency's attention before recording the permit. In most cases these are easily resolved and the Agency will issue a corrected permit if necessary for recording.

If on the other hand you wish to dispute the terms or conditions imposed in the permit, you are entitled to have the Agency Members review the matter and render their own decision before you undertake the project. In this case, provide a detailed written description specifically outlining what terms or conditions of the permit you wish to appeal and why you believe your appeal should be granted. Return it to the Agency on or before **August 19, 2002**. Notices of appeal received after this date will not be considered by the Agency unless you show good cause for not notifying the Agency sooner. Do not, however, record the permit if you intend to appeal its terms.

You should be aware that once you notify the Agency of your intent to dispute the permit, the process will require at least 20 days to allow for public notification. Also, delays can occur depending on when the appeal is filed relative to the regular monthly meeting dates of the Agency. The Agency regularly meets on the second Thursday and Friday of each month.

If you have any questions concerning these procedures, please direct them to the Review Officer named below. Thank you for your cooperation in this matter.

**Richard D. Jarvis**  
**Environmental Program Specialist**  
**(518) 891-4050**

<p style="text-align: center;"><b>STATE OF NEW YORK ADIRONDACK PARK AGENCY P.O. Box 99 Ray Brook, New York 12977 (518) 891-4050</b></p>	<p style="text-align: center;"><b>APA Project Permit 2002-71</b></p>
<p>In the Matter of the Application of</p> <p style="text-align: center;"><b>LAKE COLBY ASSOCIATION</b></p> <p>for a permit pursuant to 9 NYCRR Part 578</p>	<p>Date Issued: July 19, 2002</p> <p>To the County Clerk: This permit must be recorded on or before September 17, 2002. Please index this permit in the grantor index under the following names:</p> <p><b>1. Lake Colby Association</b></p>

**SUMMARY AND AUTHORIZATION**

Lake Colby Association is granted a permit, on conditions, authorizing a five-year program to control of Eurasian watermilfoil, *Myriophyllum spicatum*, (hereafter milfoil) by hand harvest and installation of temporary benthic mats in Lake Colby in an area classified as submerged lands by the Official Adirondack Park Land Use and Development Plan Map in the Town of Harrietstown, Franklin County.

This project may not be undertaken until this permit is recorded in the Franklin County Clerk's Office. This permit shall expire unless so recorded on or before September 17, 2002, 2002 in the names of all persons listed on the first page hereof and in the names of all owners of record of any portion of the project site on the recordation date.

This project shall not be undertaken or continued unless the project authorized herein is in existence within two years from the date the permit is recorded. For purposes of determining whether a project is in existence, the Agency will consider completion of the first year of milfoil control.

Nothing contained in this permit shall be construed to satisfy any legal obligations of the applicant to obtain any governmental approval or permit from any entity other than the Agency, whether federal, State, regional or local.

### AGENCY JURISDICTION

The project consists of two physical means to control the invasive non-native milfoil which is wetland vegetation, or regulated activities involving emergent and deep water marsh wetlands, a wetlands project requiring an Agency permit pursuant to 9 NYCRR 578.2 and 578.3(n)(1)(iv) and (2)(ii) which, if done improperly, would substantially impair the values and functions of wetlands. In January 1996, following recommendation of the Ecology Committee, the Agency stated that there should be a 2 meter (6.6 feet) water depth limit for delineation of wetlands in waterbodies during summer low water mark. However, vegetated areas deeper than 2 meters are considered valuable deep water habitat.

### PROJECT DESCRIPTION AS PROPOSED

The project site is an approximate 286 acres of submerged lands of Lake Colby located in the Town of Harrietstown, Franklin County, in an area classified as submerged lands surrounded by lands classified as Hamlet, Resource Management, State Intensive Use (Camp Colby) and predominately State Forest Preserve Wild Forest on the Adirondack Park Land Use and Development Plan Map.

The Lake Colby Association is currently an unincorporated partnership group of seven family and two business riparian shoreowners of Lake Colby, plus 8 non-shoreowner members that have organized to protect and manage the ecological, aesthetic and recreational qualities of the lake. The president of the association was authorized to develop and implement a milfoil control program, including this application. The association has begun a non-profit incorporation process. The technical aspects of the control of milfoil were provided by the association's consultant Adirondack Ecologist. The lake bottom is generally shown on Town of Harrietstown Tax Map Sections 435 and 446. Based on consultation with NYS OGS, there is no state ownership of the lake bottom.

The project as proposed and conditionally approved herein is summarized as follows: The applicant proposes the selective management and control of the invasive non-native Eurasian watermilfoil in Lake Colby over five years. The objectives are to eliminate as much milfoil as possible from the lake and to prevent its spread to other areas of the lake. Control will consist of diver hand harvesting of milfoil and temporary installation of benthic mats in the larger beds of milfoil. Beds of milfoil are defined areas of relatively dense concentration of milfoil plants.

Smaller, less concentrated areas of milfoil found throughout the lake will be hand harvested. Experienced SCUBA divers, trained and supervised by a certified lake manager (CLM), will work with trained

volunteers in teams to remove the milfoil crown and stalk and its root crown, placing them in a fine mesh bag to be periodically emptied into containers on an accompanying support vessel. At least one person at the surface will collect milfoil fragments, direct and assist divers and provide for safety. All harvested milfoil will be composted at a secure upland area.

In larger areas of milfoil beds, at the discretion of the project manager and CLM, temporary benthic mats will be used. Cleaned plastic mill fabric or equivalent clean material would be used, anchored down with PVC coated rebar and concrete blocks on the corners if necessary. Prior to installation of the mats, a detailed plant survey (species present and percent cover) will be conducted to ensure that no state protected plants are covered by the mats. Mats will be periodically inspected and vented and will be left in place for at least 30 days or up to one season and removed in the fall. Plant surveys will be done for two years after removal of the mats and GPS and submerged buoys will be used to mark the boundaries of the treatment areas. Based on August 2001 survey, four beds of milfoil were found. Sites 1 and 3 will be matted, with hand harvesting adjacent areas as needed. Sites 2 and 4, if 2002 survey indicates suitable, will be hand harvested. After control of these four sites, hand harvesting of scattered plants will be done over the next five years to achieve substantial control.

Control activities will take place annually in the summer beginning in late June or early July, with actual dates depending on growth stage of milfoil and funding. Each summer, a survey to evaluate the distribution and abundance of milfoil and native plants and a summary report of control activities will be prepared and sent to the Agency at the end of the year. Education at the association annual meeting, and posting of signs at access points will be done to complement the control program. Staging for equipment and transfer of harvested milfoil will be at the public launch or private shoreowner. Annual cost is estimated to range between \$10 to 15,000. For 2002, a NYS DEC Aid to Localities contract #MO20018 grant was awarded for \$30,000 and a grant of \$4,235 was made from the Lake Champlain Basin Program.

The general locator map inventory of the four milfoil beds as of August 2001 is shown on a scaled copy of the map attached as a part of this permit.

#### CONDITIONS

BASED UPON THE FINDINGS BELOW AND INFORMATION CONTAINED IN THE PROJECT FILE, THE PROJECT IS APPROVED SUBJECT TO THE FOLLOWING CONDITIONS:

1. The project shall be undertaken as described in the completed application, the Project Description as Proposed and Conditions herein. In the case of conflict, the Conditions control.

Failure to comply with the permit is a violation and may subject the applicant, successors and assigns to civil penalties and other legal proceedings, including modification, suspension or revocation of the permit.

2. This permit is binding on the applicant(s), all present and future owners of the project site and all contractors undertaking all or a portion of the project. Copies of this permit and the approved map referred to herein shall be furnished by the applicant(s) to all contractors prior to undertaking the project.
3. The Agency may conduct such on site investigations, examinations, tests and evaluations as it deems necessary to ensure compliance with the terms and conditions hereof. Such activities shall take place at reasonable times and upon advance notice where possible.
4. This project shall be done only under the periodic on-site supervision of personnel experienced in aquatic plant identification and management, and having received the training in the identification and protection of NYS protected plants specified in Finding of Fact 5 herein. Every effort shall be made to hand harvest only *M. spicatum*, to leave all other native aquatic plants, to collect milfoil fragments, to not disturb native plants in adjacent areas, and to minimize disturbance to the lake bottom.

A pre management annual survey of each site shall be performed by qualified personnel to identify, mark and record by GPS location(s) any NYS protected plant species within the milfoil management area, and shall notify the project personnel prior to undertaking the physical management. All reasonable efforts shall be taken to not disturb or impact these protected resources. The annual report to the Agency and applicant shall include confidential information on these resources, their general location and measures taken to protect.

The diver support vessel and personnel shall be equipped with nets or appropriate equipment which shall be utilized to capture any milfoil fragments, and all milfoil collected shall be composted/disposed of in a suitable upland facility or approved county landfill.

5. On sites containing NYS protected aquatic plants, only hand harvesting shall be used around the protected plants. Benthic barriers or mats shall not be used or installed at sites containing the protected plants. No benthic barrier, after control of milfoil, shall be left installed more than one growing season. Management priorities shall include control of adjacent milfoil by hand harvesting before removal of the mat.
6. The applicant shall provide the Agency with the annual summary milfoil management report including presence of protected plants,

aquatic plant survey and milfoil report and the next year's workplan by March 30 of each year.

#### Wetlands

7. Beyond the five-year physical milfoil control program authorized herein, no "regulated activity" as defined in the Agency's Freshwater Wetland Regulations (9 NYCRR Part 578) shall occur on the project site without prior Agency approval. Such activities include, but are not limited to, new land use or development in, subdivision of, clearcutting more than three acres within, or dredging or filling of a wetland, or any other activity, whether or not occurring within the wetland, which pollutes it or substantially impairs its functions, benefits or values.

#### Review of Future Aquatic Plant Management

8. Any other milfoil control efforts, by any method, or by any applicant, shall require Agency review and approval. Any application, therefore, shall include new or additional detailed scientific information on the status and behavior of milfoil in the lake, ability of the applicant to undertake the project, options for the maximum protection of native wetland plants including protected species, wetland and deep water communities and their values and functions, the extent of water use interference by the nuisance plant, evaluation of new or additional control alternatives and status of a comprehensive aquatic plant management plan.

### FINDINGS OF FACT

#### Background/Prior History

1. Lake Colby has not been subject to prior Agency wetland permits. The outlet, consisting of a large culvert under the Adirondack Railroad, contains no water level control facilities.

#### Existing Environmental Setting

2. The emergent and deepwater marsh wetlands and deep water habitat associated with Lake Colby are present throughout the lake's littoral zone, estimated to be waters less than 10 feet. Emergent marsh covertype wetlands have an overall value rating of "2". Deep water marsh wetlands have an overall value rating of "3"; however, when it is more than 20 acres and associated with open water, these wetlands have a higher value rating of "1" or "2" pursuant to 9 NYCRR 578.5 and 6. Where protected plant species are present (see Finding 5 below), the wetland has a "1" value rating [§578.5(q)].

Generally deep water marshes provide fish and waterfowl habitat, and enhance water quality by stabilizing the lake bottom, reducing turbidity and trapping suspended sediments. Emergent marshes are the most valuable and highest productivity of all temperate ecosystems that provide waterfowl and wildlife habitat and cycle large quantities of nutrients into the food chain. Wetlands described herein are intended to alert landowners and others that wetlands are present on the project site. However, this may not identify all wetlands on or adjacent to the project site.

The wetlands in the lake are further described as having a number of species. Native species found included *Potamogeton amplifolius*, *P. robinsii*, *P. richardsonii*, *P. pusillus*, *P. gramineus*, *P. epihydrus*, *Brasera schreberi*, *Typha latifolia*, *Elodea canadensis*, *Vallisneria americana*, *Lobelia dortmanna*, *Pontederia cordata*, *Eriocaulon aquaticum*, *Nuphar spp.*, *Nymphaea odorata*, *Sparganium spp.*, *Myriophyllum farwellii*, *M. humile*, and *M. alterniflorum*.

4. The Association has indicated the water uses of the lake are boating, swimming, and fishing. There are no known water intakes. The lake association has indicated that the existing milfoil has begun impacting boating and swimming particularly near the existing camps along Moir Road, but the project is primarily to prevent milfoil from becoming a significant nuisance.
5. The August 15 and 16, 2001 aquatic plant inventory was conducted by a certified lake manager consisting of surface boat reconnaissance along the shore, supplemented by snorkeling to determine the species of aquatic vegetation, but primarily the search for milfoil and map its general location. *Myriophyllum spicatum*, Eurasian watermilfoil (milfoil) is an invasive non-native plant in Lake Colby, generally found in up to 10-foot water depths. Based on an inventory, Lake Colby contained site 1 (30' x 15'), site 2 (several thousands of milfoil plants), site 3 (30' x 15'), and site 4 (long, thin band) of dense milfoil.

The NY Natural Heritage Program and Steve LaMere, CLM have indicated *Myriophyllum alterniflorum*, a threatened plant in New York State, has been identified as being present in the lake. There are no other records of known occurrences of rare or state listed animals or plants, significant natural communities or other significant habitats in the lake.

There are native species of milfoil in the Adirondack Park, some of which, such as *M. sibiricum*, can be difficult to distinguish from the non-native species.

Consultation with lake association members indicated that common loons, a state species of special concern, use and nest at the lake. Ducks, great blue herons, beaver, otter, mink, muskrat, raccoon, turtles and amphibians, and many aquatic invertebrate and benthic organisms inhabit the lake and its associated wetlands.

#### Water Resources

6. Lake Colby (DEC #020106) is approximately 286 acres in size, with a maximum depth of 47 feet, an average depth of 25 feet, a 0.7 times per year flushing rate, a bottom of 60% sand and 20% muck and organic, per 1984 Adirondack Lakes Survey Corporation (ALSC) data. Data from ALSC indicated that the pH was 7.65, secchi transparency of 5 meters, total phosphorus of 0.032 ug/L, and color of 20 Pt-Co. Fish species present include kokanee, rainbow trout, golden shiners, brown bullheads, pumpkinseed sunfish, yellow perch, and small mouth bass.
7. The land uses adjacent to the control site 4 include private docks along Moir Road. There is also a public water access area for fishermen with a 10-horsepower limit and the Village of Saranac Lake municipal beach along Route 86 and the east shoreline. NYS DEC operates a summer camp on the northeastern shoreline.

#### Public Notice and Comment

8. The Agency notified all riparian landowners and those parties as statutorily required by §809 of the Adirondack Park Agency Act and published a Notice of Complete Permit Application in the Environmental Notice Bulletin. A letter from the Adirondack Medical Center was received in support of the project.

#### Other Regulatory Permits and Approvals

9. In a letter dated March 28, 2002, the NYS DEC stated that the benthic mats would require an Article 15, Title 5 permit if fill is placed on top to anchor. Any buoys for any purposes would require a Floating Objects permit pursuant to Navigation Law, Section 35a.

ECL §§ 9-1503, 9-0105.1 and 9-0105.3 provide for limited authority regarding the protection of endangered, threatened, rare and exploitably vulnerable plants.

PROJECT IMPACTS

Wetlands

10. As a wetland species, *M. spicatum* or milfoil provides many of the functions and benefits provided by other wetland species. However, based upon our knowledge at this time, milfoil poses a threat to the diversity of wetlands and biota. There is a risk that the wetland benefits and values provided by the diverse native wetland vegetation may be displaced and reduced if milfoil becomes the dominant plant species. The non-native plant interferes with water use in shallow water areas. The prompt and complete control of the relatively small areas of the exotic milfoil proposed by this project will likely benefit the wetland complexes and reduce the potential of milfoil to displace the native aquatic vegetation and further spread in the lake.

An effective program of non-native plant management is appropriate in Lake Colby in order to minimize the growth and spread of Eurasian watermilfoil on a long-term basis. The selective hand harvest of milfoil, while retaining native plants, will hopefully ensure maintenance and protection of the overall wetland communities and their values and functions. The efforts of Lake Colby Association and others in control of non-native species and lake management are important to the maintenance of wetland values and functions.

11. Proper training and supervision of divers in plant identification, collection of milfoil fragments, identification of dense bed area, the follow-up efficacy survey and a public education program are all important components of a control program which will prevent undue impacts to the native wetland communities including any protected species.

Improper project implementation would result in undue adverse impacts to the wetlands and possibly aggravate the growth and spread of milfoil. Extensive fragmentation of milfoil and disturbance of native plants and bottom sediments could increase the presence and density of milfoil.

13. Benthic mats, also referred to as bottom barriers, have been used for nuisance macrophyte control since the 1970's. Benthic mats act to smother plants or screen required sunlight from reaching aquatic macrophytes which results in mortality of the light dependent plants, including the roots and rhizomes, usually within two to four weeks of installation. A key to successful control is proper anchoring of the mat to the sediment with

stakes, reinforcing rods, stone or cinder blocks. Where anchoring is difficult over tall growth, placement of mats can be preceded by hand harvesting.

Benthic mats for control of dense milfoil beds are an excellent control option, having specific advantages over the other control measures. They require no restrictions on potable water use, fish consumption, or recreational use (except during time of installation). Adverse impacts to other wetland and deep water habitat vegetation and benthic organisms are limited to the area of the mats. Mats are readily available, will provide immediate control of autofragmentation, and can be used for multiple season control. For candidate mat sites (dense milfoil beds), a pre-management native plant survey of the area for presence or absence of aquatic plants listed on the state protected plant list (see Finding of Fact 5 above) should be done. If protected plants are found, the plants should be field marked for protection and located by GPS. The site then should be managed only by selective hand harvesting Eurasian watermilfoil in the immediate vicinity of the protected plant(s) to avoid impacts to the protected native species.

Successful use of mats to control dense beds of nuisance macrophytes, including milfoil, has been reported by the Lake George Park Commission, Seattle Department of Parks and Recreation, University of Wisconsin Madison, Cayuga County Soil and Water Conservation District, U.S. Army Corps of Engineers Aquatic Plant Control Research Program Waterways Experiment Station, British Columbia Ministry of the Environment Water Investigations Branch, Municipality of Metropolitan Seattle, officials of New York State DEC, Cornell and United States Department of Agriculture Soil Conservation Service, and product manufacturers.

#### Operational Issues Affecting Nearby Land Uses

14. For hand harvesting, turbidity does result from the removal the sediments from the harvested root mass. Short-term reduced water clarity could potentially affect residences or commercial establishments if water intakes are located in or immediately adjacent to the management sites. There are no known potable water intakes. Three of the sites where harvesting will occur are adjacent to undeveloped shoreline. There may also be short term inconvenience to recreational use of the water; however, control of the milfoil will restore recreational uses currently impacted by nuisance milfoil growth.

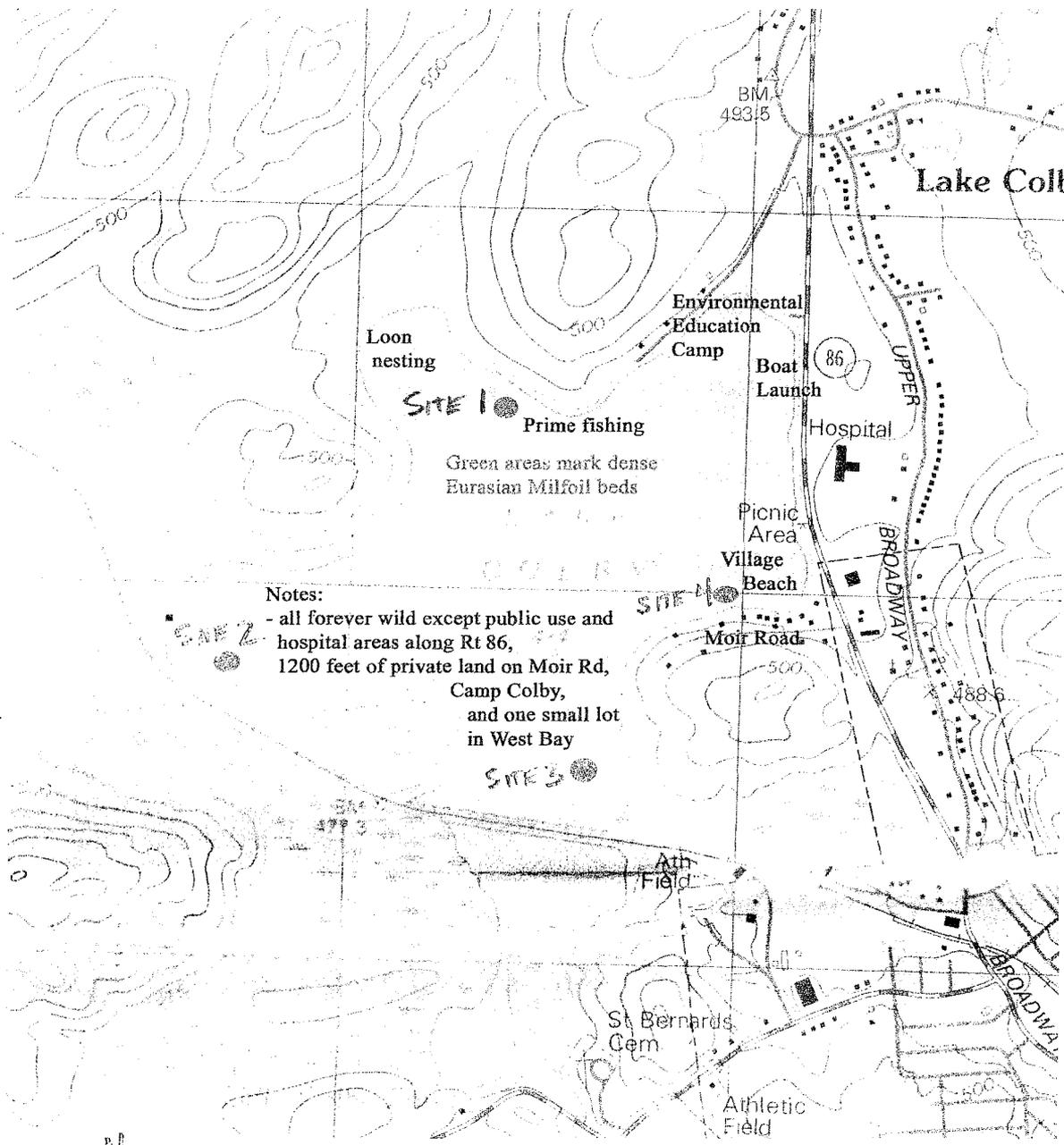
Historic Sites or Structures

15. Based on review of available resource inventory, the project as proposed and authorized herein will not cause any change in the quality of "registered," "eligible," or "inventoried" property as those terms are defined in 9 NYCRR 426.2 for the purposes of implementing §14.09 of the New York State Historic Preservation Act of 1980.

CONCLUSIONS OF LAW

If undertaken in compliance with the conditions herein:

1. The project would not have an undue adverse impact upon the natural, scenic, aesthetic, ecological, wildlife, historic, recreational or open space resources of the Park or upon the ability of the public to provide supporting facilities and services made necessary by the project, taking into account the economic and social benefits that might be derived therefrom.
2. The Agency has considered the public policy of the State set forth in ECL 24 0103, the statement of legislative findings set forth in ECL 24 0105, and the effect of the project upon the public health and welfare, fishing, flood, hurricane and storm dangers, and the protection and enhancement of the several wetland functions and benefits. The applicable findings of 9 NYCRR Part 578 can be made.
3. The project would result in minimal degradation or destruction of the wetland with a value rating of "2" or its associated values, and is the only alternative which reasonably can accomplish the applicant's objectives.
4. The project would result in the minimum possible degradation or destruction of any part of the wetland with a value rating of "3" or its associated values; is the only alternative which reasonably can accomplish the applicant's objectives; and would, weighing the benefits of the activity against its cost and the wetland values lost, provide a net social and/or economic gain to the community.



BASED ON SOURCE BY  
 STATE OF MASS, DNR  
 Aug. 2001

**Attachment K: LCA Milfoil Handout**

## Helping Lake Colby

Eurasian watermilfoil forms thick underwater stands of tangled stems and vast mats at the surface, making boating, swimming, and fishing difficult or impossible. Plants spread by small fragments that “hitchhike” on watercraft and are then introduced to new waters. Once a water body is infested, controlling these aggressive invaders is very difficult and very expensive.

For Lake Colby, controlling milfoil is the highest priority.

- Please avoid boating through weed-infested areas, as your wake and propeller action can increase fragmentation and therefore spread the milfoil.
- Try to keep wake action near shallow areas to a minimum.
- Collect floating milfoil and discard it on land.
- Avoid areas with diver-down flags—there will be men underwater harvesting milfoil when these flags are up.
- If you visit Little Colby:
  - do not use a motor: the entire pond is infested with large milfoil plants that motors fragment
  - Inspect your boat before returning into the main lake
- Tell your friends about how to prevent spreading milfoil and pass on this brochure.

### What does milfoil look like?

- It is a submerged plant that grows horizontally when it reaches the surface, creating a mat
- It grows from early spring when it appears brighter and larger than the other lake plants
- The stem ranges from pale pink to reddish brown
- It has feathery leaves, with more than 10 “feathers” on each stem
- The growing tips are usually red
- The ends of the leaf appear to have been snipped
- Three to five leaves grow in a whorl around the stem
- It goes limp around the stem when out of water
- Plants in Lake Colby are harvested (at great cost) by divers each year, so the plants are usually smaller and submerged
- Little Colby is not harvested yet so the plants reach the surface and are larger and multi-stemmed
- The picture on the front and interior of this brochure will help you identify it



### Lake Colby Association

PO Box 934  
Saranac Lake, NY 12983  
Email: [info@LakeColby.org](mailto:info@LakeColby.org)  
Website: [www.LakeColby.org](http://www.LakeColby.org)

*Fishermen and Boaters*

**Lake Colby is a  
milfoil infected  
lake!**



**Eurasian Water Milfoil is in Lake Colby. Unless careful, you could infect other lakes when you re-launch your boat.**

**Most Adirondack lakes remain free of this invasive plant. Please read this brochure for what you can do to prevent cross-infections.**

# Eurasian Water Milfoil can destroy a lake—you can help



*Eurasian Water Milfoil*

## EURASIAN WATERMILFOIL HAS INVADED MANY ADIRONDACK LAKES

Eurasian watermilfoil is currently reported in Upper, Middle, and Lower Saranac Lakes, Fish Creek Ponds, Floodwood Pond, Copperas Pond, Follensby Clear Pond, Lake Flower, Lake Kiwassa, Oseetah Lake, Meacham Lake and others throughout the region, including Lake Colby.

This non-native plant overwhelms native plants, eventually forming a thick surface mat that suffocates a lake, destroys fishing, and promotes algae growth. Swimming, boating, fishing, and all other water sports can be its victim.

Once in a lake, Eurasian milfoil can never be fully eradicated, and control is costly. Lake Colby is in its fifth year of harvesting and matting. Four tons were removed this year alone!

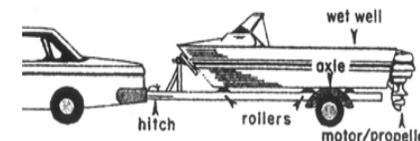
### You could spread this plague

If you launch your boat here you can later infect other lakes when you re-launch. Waters such as Lake Placid, Long Lake, Rollins Pond, Hoel Pond, Buck Pond, Rainbow Lake, Lake Kushaqua, Barnum Pond, Mountain Pond, Upper and Lower St. Regis Lakes, Spitfire Lake, Osgood Pond, Tupper Lake, St. Regis Canoe Area and many others ARE NOT yet reported to have aquatic invasive plants.

Milfoil hides in wheel housings of trailers, wrapped around propellers, between trailer pads and your boat, etc.

### So, before you launch and as you leave:

- **INSPECT** boat, trailer, tackle, downriggers, anchors, centerboards, rudders, rollers, axles, (i.e., all boat parts and all equipment inside and outside the boat) carefully before entering and when leaving any waterbody.
- **REMOVE** mud, plants and plant fragments from all surfaces and cavities and discard on dry land away from the waterbody.
- **DRAIN** live wells, bilge, transom, and motor away from the water before entering and when leaving any waterbody.
- **EMPTY** bait buckets on land away from the water. Never release live bait into a waterbody or transport animals from one waterbody to another.
- **WASH** boat and equipment with high pressure water (preferably hot water, 140F, if possible) and flush water through the motor's cooling system. Leave the boat and equipment out of water for 3 to 14 days (plant fragments can live for days out of water).



## WHERE TO LOOK FOR MILFOIL

### Milfoil hides:

- Under trailer pads
- In wheel housings
- Around props
- On anchors
- In bilge water

**A one inch fragment can infect an entire lake!**

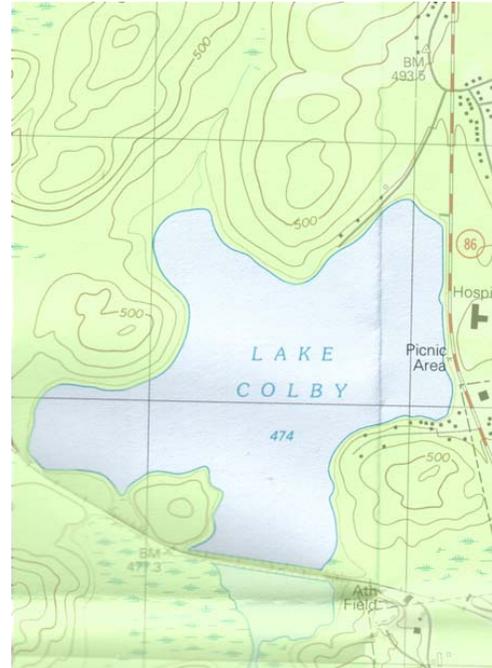
# Attachment L: Saving Lake Colby – Master Plan for a Small Lake

## Introduction

Lake Colby is a small (286 acre) body of water in the Lake Champlain watershed with a strikingly high public-use profile. Of its approximately 19,000 feet of shoreline only less than 8% is privately owned. More than 70% is forever wild land owned by the State. The balance is comprised of high-use areas like the Village of Saranac Lake public beach, the Town of Harrietstown’s Latour Park, the NYSDEC boat launch, and the Environmental Education Camp, also run by the Department of Environmental Conservation.

Lake Colby is spring-fed, with only seasonal inlets. Its one permanent outlet is through “Little Colby” and hence into Lower Saranac Lake. The volume of flow out of the Lake is extremely low (20-50 gpm) resulting in a lake with very low turnover (50-70% per year. As a result, Lake Colby is a natural sump for any unnatural inputs into the watershed.

Until Route 86 was constructed and opened in 1964 Lake Colby was both isolated and pristine. With the addition of Route 86 came many sources of strain for the lake: the state boat launch, the Village beach, industry along the highway, and winter salting of the road bed. Construction on the slopes of Mt. Pisgah with the associated runoff into the lake have added to the strain. Open-air storage of sand and salt by the Village of Saranac Lake on the banks of Colby Brook, a stream that drains the eastern side of the divide that runs along the Forest Home Road back into Colby, provides an additional source of mineral and chemical burden to the lake.



Lake Colby is a well-loved asset for the community. It is a pleasant vista for the patients at the Adirondack Medical Center (AMC) and for visitors entering Saranac Lake from the north. It serves as the local beach for the larger Saranac Lake community, and the Latour Park is in constant use by picnickers and shore-fishers. The D.E.C. boat launch is a high volume facility given the restrictions on launch (10HP), and the lake is enjoyed by numerous fishermen both during the day and at night. Because of the horsepower limitation and the lack of communicating waterways the lake is a preferred venue for fly fishermen, canoers, swimmers, and sailors. Two approved camping sites on the State land are in nearly constant use throughout the summer months. In the winter the lake is a favored target for ice fishing and serves host to numerous ice events. The Environmental Education Camp is home to weekly programs for campers who come to learn about natural processes and ecology.

The Village of Saranac Lake Local Waterfront Revitalization Plan includes the following action items with respect to Lake Colby:

### **Wallace Memorial Park (Village of Saranac Lake public beach)**

- Develop a four-season plan that includes year-round restrooms. Use guidelines for various winter events such as ice fishing, ice skating, ATV and snowmobile races.
- Provide new sand on the beach and in the immediate swimming area.
- Address the point and non-point stormwater runoff problems through a mitigation plan.
- Develop a strategy to address the long-term control of non-native aquatic vegetation in the swimming area at the beach.

### **Land on Moir Road**

- Tear down the existing building on the Village-owned property adjacent to Wallace Memorial Park. Construct a large picnic pavilion in its place with a deck that provides handicapped fishing access.
- Dedicate an area for a launch site for canoes and kayaks.

### **Walkways to the Beach**

- Address safety issues and enhance the sidewalk and trail from the Village to Lake Colby and Lake Flower.
- Provide a more visible pedestrian crossing from the hospital to the Village's Wallace Park.

The LWRP goes on to say "Lake Colby is an exceptional resource for fishing, swimming and use of small boats (10 horsepower or less). The Village owns property along the southeastern shore of the lake. Village holdings include the William J. Wallace Park and an adjacent parcel on Moir Road.

Several impediments exist at Lake Colby and actually discourage the use of this important public resource. The lake bottom is extremely mucky in the designated swimming area. There is also a thick bed of aquatic vegetation growing at this location. In addition, the sand on the beach and in the lake is of poor quality and uninviting to swimmers."

Much of the vegetation referred to in the report is of recent vintage and is most probably linked to the increased levels of phosphorus and other nutrients in the lake, including the decomposing bio-mass from the huge recent increase in Eurasian milfoil (now nearly under control).

Boat wakes and propeller churn contribute greatly to shore erosion, loon nest destruction, but also to spreading milfoil. For these and other reasons the shore-owners have made enforcement of the 10HP limit a top priority.

Noting that the D.E.C. launch limit of 10 HP does not apply to boats that residents launch from their own properties, the Lake Colby Association (representing 100% of the current shore-owners, the Town of Harrietstown, and the Village of Saranac Lake petitioned the State to make the 10HP limit a part of the Navigation Law of New York State. This legislation was introduced in early 2007 by Senator Betty Little and is currently in committee in the State Legislature. The LCA wants such a permanent change to eliminate the possibility that future owners could bring high-powered craft onto the lake, something deemed to be contrary to the best interests of the other residents, the users of the public beach and park, to the children at the Environmental Education Camp, to patients at the hospital, to the two pair of nesting loons, to low sea-walls, to the milfoil control efforts, and to everyone who currently uses the lake for quiet pursuits.

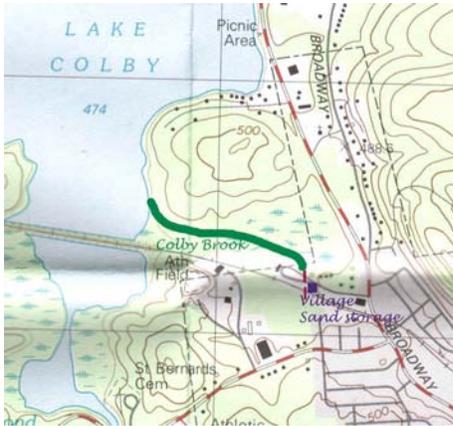
In 1999 the Lake Colby Association (LCA), through its participation in the New York Citizens Statewide Lake Assessment Program (CSLAP) discovered that the lake had been infected at some earlier date by Eurasian Water-milfoil (*Myriophyllum spicatum*) and that three large beds had established themselves in each of the lake's three bays. A vigorous hand-harvesting and benthic barrier program was initiated in 2002 and continues into this report, funded by the LCA, the Lake Champlain Basin Program (LCBP), New York State, the Village of Saranac Lake, and the Town of Harrietstown. Results have been promising and it is hoped that if additional funding can be found the lake will soon be in a state where simply annual maintenance can keep the threat of milfoil overrun at bay. However, as Eurasian milfoil is phosphorus-generating, the phosphorus loads in the lake have increased unacceptably, and the resulting annual late-fall blooms of blue-green algae (*Aphanizomenon*) have not yet abated.



Most of the residents on the lake use its waters for drinking, making the potentially toxic algae blooms extremely problematic. Accordingly, reducing phosphorus and other mineral loading of the lake has become a major priority.

There are three culverts under Route 86 that carry run-off from the eastern side of the road into the Lake. This runoff originates as far away as Mount Pisgah, for which Lake Colby is the western watershed. After the spring melt or heavy rain these culverts carry silt, phosphates and salts into the lake. The streams that feed these culverts do not currently pass through any natural or man-made filters. One of the culverts, as shown in the attached picture, runs directly onto the public beach. As

construction has increased on Mt. Pisgah the amount of sand, silt and minerals running into the lake through these channels has increased.



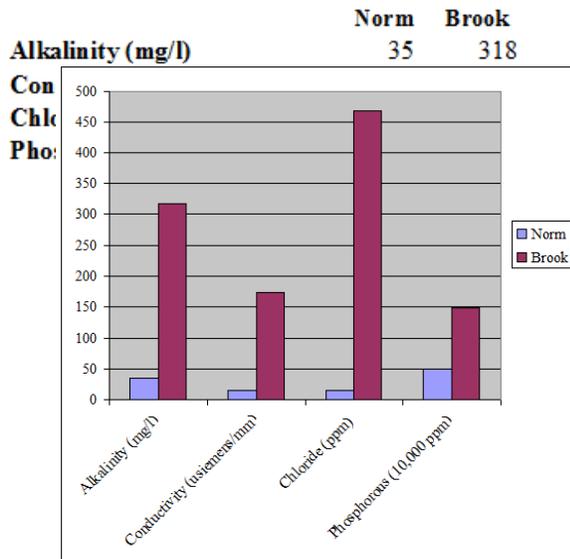
A fourth stream flows year round into Lake Colby from across Van Buren Street on the southwest side of the lake (see map)

The Village of Saranac Lake and the Town of Harrietstown both store their sand and salt mixture for road treatment in facilities at the ends of Van Buren and Munn Streets, both of which lead directly into the Lake. This is also the



confluence of a drainage system that takes water from the entire northwestern sector of the village and passes it into Colby Brook. The brook passes from the marshy area adjoining the Civic Center through a culvert into a pond that literally defines the edge of the sand/salt pile (purple) before entering a second culvert (in red) that carries the water into Colby Brook. The pile itself is on a tilted plateau insuring that any rain will leach material directly into the brook.

A sample taken mid-stream at Colby Brook on August 18th, 2003, several days after any rain (and therefore at presumably minimal levels of contamination) showed the following:



The “normal” levels shown are those as measured in the lake itself by the Paul Smith’s Adirondack Watershed Institute over a period of years. These figures have remained at these levels or worsened into 2006. Clearly, the Village and Town sites are pumping heavy levels of minerals and salts into the lake.

As is noted in the map above, nearly all of the private residences on the lake are found along Moir Road, a short (1200 foot) private road on the south shore of the lake. While the hospital (Adirondack Medical Center or AMC), the Environmental Education Camp, and the public beach are all on the Village sewer system, none of these residences are currently connected. One business (Camp Colby Cabins) has a private tie-in to the sewerage system. All of the private residences rely on cesspools or septic systems, three of which have leaching fields on the north

side of Moir Road in areas no longer acceptable for such use. For several years the Lake Colby Association has been asking for support in creating a Moir Road Sewer District so that at least these houses can be added to the Village system. No testing of the lake water has yet been done to determine if nutrients are leaching into the lake, but such testing is planned.

Several additional items should be noted that would affect the production of a true master plan for Colby. First, there have been a number of unfortunate incidents of shooting from the railroad tracks that separate Colby from Little Colby, and in one recent case a large male loon was killed by gunfire. There is no logical reason for gun discharge along the western edge of the lake: there is no possible hunting there and firing a high-powered rifle over water is extremely dangerous to anyone on the lake. The LCA has recommended that the State adopt a no-shooting zone along the western edge of the lake le still providing hunters with access to the wooded areas beyond the lake.

There are two well-established camp sites on the State land abutting the lake. There are no other suitable or safe places for day or overnight camping. The LCA has requested that the two existing sites be designated as officially-approved camp sites and that any other use of the state land by campers be discouraged.

### **Plan for Action**

Saving Lake Colby will require the cooperation and coordination of the following constituencies:

- 1) Village of Saranac Lake
- 2) Town of Harrietstown
- 3) Franklin County
- 4) State of New York:
  - a) Adirondack Park Agency
  - b) Department of Environmental Conservation Unit 5
  - c) Department of Transportation Region 7
- 5) Lake Champlain Basin Program
- 6) The Lake Colby Association
- 7) Local business along Route 86
  - a) Evergreen Auto
  - b) Upstate Auto
  - c) Adelpia
  - d) National Grid
  - e) Adirondack Medical Center

The first step will be to convert the LCA's overview "wish-list" as presented below into an engineering plan that can be costed, funded, and implemented. None of the pieces of the project are impossible or even difficult to achieve, and the cost of the entire program is not expected to be a barrier given the immense returns. A coordinated plan and an ongoing means to implement it will be essential, however.

### **Starting Point – the LCA Wish-List**

The following annotated map contains all of the items that the Lake Colby Association has listed as being either desirable or essential for the future well-being of the lake.



**Recommended Department of Transportation Actions on Route 86**

- Move the 40 MPH zone north of the Trudeau Road intersection. The current 55 MPH zone ends less than 100 yards north of the (AMC) hospital entrance. Morning traffic heading south must decelerate rapidly exactly where employees are making left-hand turns into the hospital. Left turns from Trudeau Road onto Route 86 are also difficult and dangerous. Moving the 40 MPH zone north just 500 yards would (a) improve safety at the "four corners" intersection at Trudeau Road, (b) reduce the chance of a serious rear-end accidents at the hospital entrance, and (c) reduce road noise in front of the hospital.
- Create a 1000-yard "quiet" zone around the hospital with appropriate signage on Route 86.
- Install catch basins for the three inlets into Colby, the most important of which is on the eastern side of Route 86 leading into the inlet adjoining the public beach. This basin should be filtered to reduce phosphates and salts. The other two inlets need some mechanical filtering and greater natural filtering, i.e., more wetlands on either side of the road to absorb nutrients.
- Coordinate construction with the Village and Town when the expanded sewer line along Route 86 and the new sewer district on Moir Road are added.
- While resurfacing or maintaining Route 86 assist local businesses (e.g., Upstate Auto, Evergreen Auto, Adelpia, and Niagara Mohawk) in the installation of run-off controls from their parking areas, all of which were formerly wetlands that filtered water flowing into the lake.

### ***Recommended Department of Environmental Conservation Actions on or near Lake Colby***

- Confirm the two current camp sites on the lake (see map) and make it clear that other sites are both inappropriate and unsanctioned.
- Improve signage at the State boat launch site to make it much clearer that only boat with 10HP motors or less can be legally launched. At present the sign noting this is tiny and incorporated into the entry sign. A separate sign at the launch site itself would make the restriction far clearer to users and would reduce enforcement calls.
- Improve the invasive species notifications at the launch site. At present it warns of water chestnut only and does not note that Colby contains Eurasian Watermilfoil. More appropriate signage would warn users to wash their boats and trailers after removing them from the lake. The LCA has posted its own signs and distributes educational brochures, but better DEC coordination is recommended.

### ***Recommended Actions by the Village of Saranac Lake***

- Eliminate runoff from sand and salt storage on Van Buren Street. This facility leaches directly into Colby Brook and thence into Lake Colby. The pile is currently uncovered, with no run-off controls. The land slopes directly towards the brook, insuring that contaminants will run into the lake with each rain storm. While covered storage would mimic State standards for its own road sand and salt, and run-off and evaporation controls would be a major first step towards reducing pollution in the lake, storing the sand and salt away from a major watershed would be a better overall solution. Provide facilities to the Town to accommodate a Moir Road sewer district. This could most easily be done in conjunction with the expansion of the Route 86 sewer line. To the extent that construction on Route 86 is required and the D.O.T. is involved, a simultaneous upgrade of run-off controls and holding basins with filters would minimize disruption and expense.
- Reduce the parking area at the Village Beach to increase the natural wetland filter zone on the northern side of the lot. This lot is never full and reducing the parking area by 20-30 feet would not impact its use but would restore critically needed environmental buffers for runoff.
- Provide financial support to the milfoil control efforts on Lake Colby
- Support the implementation of a “hospital zone” and the relocation of the start of the 40 mph speed limit to the north side of Trudeau Road.

### ***Recommended Actions by the Town of Harrietstown***

- Eliminate runoff from sand and salt storage on Munn Street. This facility leaches indirectly into Colby Brook and thence into Lake Colby. The pile is currently uncovered, with no run-off controls.
- Create a Moir Road sewer district to handle the houses and businesses at Moir Road to the crest in the road (Upstate Auto, Gilpin, Laramie, Phillips, Colby Cabins (already on a private hook-up), and Leopold). Greene, Keet, and Neill have modern septic systems on the south side of Moir Road but could also be considered for future hook up.
- Provide continued financial support to the milfoil control efforts on Lake Colby
- Support the implementation of a “hospital zone” and the relocation of the start of the 40 mph speed limit to the north side of Trudeau Road.

### ***Recommended Actions for Adirondack Scenic Railroad***

- Denote and enforce a "no shooting" zone along the railroad bed from the Village limit to West Bay of Lake Colby. This pathway is frequently used by both responsible hunters and irresponsible shooters, but does not contain any potential hunting opportunities and does invite malicious and dangerous shooting across open water, e.g., the killing of a full-grown male loon in 2000.

### **Funding**

Several of the initiatives listed above would require funding beyond the current capabilities of the parties, e.g., doing the engineering and construction work for settlement basins, expanded runoff filters, a Moir Road Sewer District, etc.. There are numerous funding sources to be explored, including:

- For the never-ending struggle to fund the eradication of Eurasian Watermilfoil in Lake Colby applications have been made to the Lake Champlain Basin Program (approved) the Fish and Wildlife Fund (denied) and to the NYS DEC for its new Aquatic Invasive Species Eradication Grant Program.
- The Clean Water State Revolving Fund for Water Pollution Control. A major part of the going-forward effort would be for the task force to explore this and other sources of low-coast long-term loans and grants.

- NYS Aid to Localities grants may be an additional source of funding, to be discussed with Senator Betty Little and Assembly Members Duprey and Sayward). It is possible that a “member item” could be included in an omnibus funding bill to assist with the engineering work required for the Moir Road sewer district.
- A USDA Technical Assistance Grant might apply to both the work to be done by the Village of Saranac Lake in containing is salt and sand and to the planned Moir Road Sewer District engineering studies.
- The Governor’s Small Cities Fund might also be a source of funding for the Van Buren Street sand and salt storage facility.
- The State is providing grants to support the Local Waterfront Revitalization Plans of local towns and villages. In part the master plan for Lake Colby may fall under this initiative.
- An additional source of funding may be the recently-approved "General Management Plan" (GMP) of the Lake Champlain Basin Program and the Army Corp of Engineers (ACOE) for watershed improvement projects in the basin. The Lake Colby issues outlined in this paper would appear to be a perfect fit for the ecosystem restoration, preservation and conservation intent of the grant, and will be pursued.
- The annual Lake Champlain Basin Program may also be a source of grant funds for the preliminary engineering studies to determine the costs and alternative approaches to solving the nutrient loading problems of the lake. Grants are normally issued in the spring of each year and the LCA will attempt to work with the affected constituencies to draft grant request(s) that will allow the planning to proceed in late 2004.

The first step will be to seek minimal seed funding (estimated at under \$20,000) to do a comprehensive pre-engineering review of the following projects:

- Moir Road Sewer District, including cost estimates to bring a line from Route 86 to the crest of Moir Road, including an estimate of the cost of potential removal of bedrock in the road bed.
- Creation of sedimentation basins and natural filtering for the three culverts that currently feed Lake Colby under Route 86. This will be done in conjunction with and possibly by the Department of Transportation, but must tie in with changes required in the parking lot at the Saranac Lake public beach.
- Containment of the sand and salt at the Van Buren Street maintenance facility of the Village of Saranac Lake. There are models for such structures, including the existing facility at the Town of Franklin and the planned facility at the Town of Brighton (modeled after Franklin’s) which can be applied at minimal cost.
- Storm water controls and filters for the businesses along Route 86, including an analysis of directing this water back through the natural wetlands at the south side of the ridge south of Moir Road (so the runoff is filtered before entering the lake via Colby Brook – see map).

### **Next Steps**

The next immediate step is for the various constituents to meet to create a Lake Colby Task Force that could provide inter-organization coordination and then to begin the detailed planning to turn the “wish list” into an agreed action plan. Once the action plan and associated engineering studies have been completed, the entire program should be agreed to by the various affected organizations and should be adopted as a part of their internal planning, e.g., the D.E.C.’s Unit 5 master plan and the D.O.T.’s Section 7 long-term highway plan.