



The Lake Matters

March, 2013

The official publication of the Lake St. Catherine Conservation Fund, Inc.

Issue No. 7

PO Box 52, Wells, VT 05774 www.lakematters.org

Early Results from Aeration Show Increased Depth

Our last newsletter announced the opening of our aeration project in Little Lake, the first of its kind in the state of Vermont. The major goal of the aeration system is to reduce the sediment buildup that has plagued the lake for decades, causing the lake to become shallower and allowing many forms of vegetation to flourish. We are happy to report in this issue that our careful and consistent monitoring has provided clear evidence that the aeration is indeed working as expected. While the actual system was not put into operation until July 31 of last summer, and only ran for three months, the results are most encouraging. As can be seen in this graph, the depth has improved at each of the nine diffuser locations.

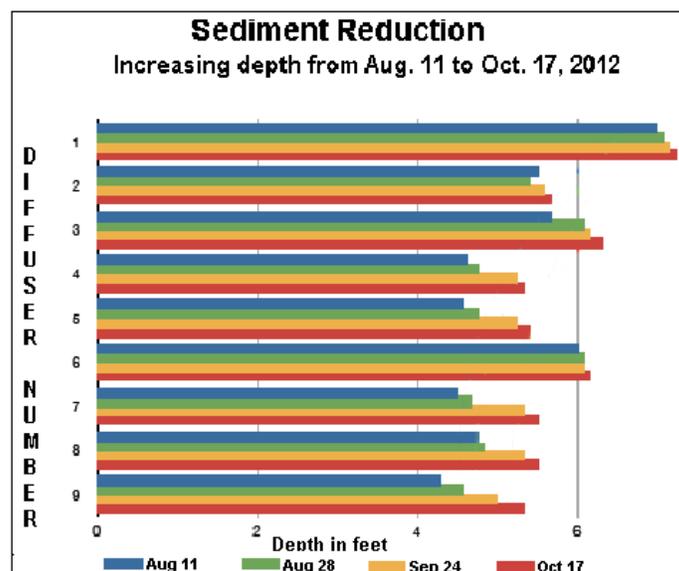
The reduction of sediment takes place because the addition of dissolved oxygen enables the natural bacteria to go about their job of decomposing—"eating"—the sediment. To monitor the progress, vice president David Emmons has taken depth measurements to soft bottom over the time the nine diffusers have been in place in the lake, using a device designed and constructed by Fran Gilman.

Overall, the measurements show that the aeration system has increased the depth to soft bottom at the nine diffuser locations by an average of six inches in only the two and one-half months that the system was operating at the time of the last reading. By contrast, depth outside of the aeration zone remained the same or even became shallower at the control points, evidence that the aeration is doing its job.

Encouraged by this progress, we expect the deepening of the lake to continue in the aeration zone, and have applied to the state to allow us to expand the zone even more for 2013.

Certain other benefits have accrued from the aeration system. As expected, the dissolved oxygen content of the water has risen greatly in the zone, providing a healthier environment for fish, and no fish kills were reported during the hottest days of summer in 2012. Further, underwater

videos taken throughout the season show evidence that the population of Eurasian milfoil is becoming sparser.



Finally, our monitoring regimen has shown that water quality has also improved in several ways. Aeration is constantly removing noxious gases and carbon dioxide. The constant flow of air has led to improved oxygen levels and a healthy fish population which we have documented through video monitoring. Check it out on YouTube under Lake St. Catherine. In February, we filed an application with the Agency of Natural Resources for a permit to expand our aeration system with another four diffusers. This followed our application for a Vermont Watershed Grant to help fund the program and also fund the introduction of enzymes into the system. Unfortunately we were not awarded the grant because the state had not completed an evaluation of the existing aeration system and had not approved the use of enzymes at the time of the application. We are working to improve these factors for future grant efforts.

The President's Perspective...

One of the questions I get asked regularly by our members and my neighbors is some form of, "What have you done for me lately?" The question is a real one and a fair one. The answer is, "Today, more than we were able to do yesterday, and tomorrow more than we can do today!" Here's what I mean specifically ...

- A year ago we were still waiting to get an aeration permit and now we have one that is implemented and which is working! In the aeration zone, the soft bottom has deepened 6" on average and as much as a foot at some diffusers. We are submitting a permit application to expand the aeration zone this spring.
- A year ago our hydraulic dredging permit was not moving ahead and now it is almost a reality. Fund raising and implementation will follow.
- A year ago we were facing another herbicide treatment (Renovate again?) without any significant alternative. Recently, we submitted a permit application to apply a native insect predator to the milfoil problem. Moreover, the Town of Wells has applied to the State of Vermont Agency of Natural Resources (ANR) to finance this environmentally friendly project ~ the LSCCF would function as project manager.
- A year ago we were hoping to get another hydro raking permit so our neighbors around the lake could clean up their shorefronts. We successfully managed that work and we have another hydro raking permit application in for 23 members ~ okay this one is pretty much the same as last year.
- A year ago we had a good lake quality monitoring program with phosphorus, chlorophyll and pH regularly monitored. This past year we added dissolved oxygen, temperature and soft bottom depth measurement. This summer we will add x-ray measurement of the soft and hard bottom to this extensive monitoring program.

- Moreover, we were asked by the State of Vermont ANR to prepare a shoreland management plan as part of our aeration permit. This has been completed and reviewed by ANR and will lead us toward a cooperative, voluntary program of shoreland cleanup and maintenance that will contribute to a healthy lake. I urge members to read proposed Bill H.223 and form your own opinion on the regulation approach in this bill, versus the voluntary cooperative approach recommended in our plan. Form your own opinion and let your State of Vermont Representative and Senators know your conclusions.



- We will continue to work for you, our members and neighbors and we will advocate for a healthy and sustainable Lake Saint Catherine that is restored to the beautiful accustomed use we all know is possible.

I want to thank my fellow Directors for their hard work this year. We have an amazing and dedicated team and I am proud of them. If you have a chance, express your thanks also. We don't need it to do the work, but your appreciation makes the load a little lighter.

Thanks to all members and the voters in the Town of Wells for your support over the years. Keep your membership going as it is working. And keep those questions coming. Your reasoned questions are fair questions, and they keep us accountable and "on our toes."

God bless, PB (aka Bill Steinmetz)

Wells Voters Support LSCCF

On March 4, 2013, for the third year in a row, the voters in Wells have supported the LSCCF by upholding our petition for \$10,000 for the coming year. This year the vote was more supportive than ever, with the yes votes being more than twice the no votes. With 19 fewer total votes cast this year, the LSCCF gained 2 more Yes votes and 21 fewer No votes.

On two days preceding voting day, Director Bill Frye and member Ron Dreher spent many hours going around town and delivering a flyer to voters. The flyer described our activities and plans and asked folks to vote yes on our petition.

The Town Meeting is held the night before the voting. At that time, President Bill Steinmetz made a brief slide presentation showing what the LSCCF was doing and how it would use the money asked for in our petition.

Bill Steinmetz and Directors Bill Frye and Joel Pliner also worked tirelessly at the polls to encourage voters on the day of the voting. .

Change of Membership Year to be Amended

As we enter our fourth year, the board of Directors has determined that we need to simplify our membership year. Until now, memberships began and ended on September 30. This has clearly caused some confusion among members, who logically assumed the membership ran according to the calendar year. As a result, we have had difficulty with renewals, and have had to send out reminders as each September approached. In an effort to rectify this, we have decided to have the membership year coincide with the calendar year. To make this change, we must amend our bylaws, and this must be voted upon at our Annual Meeting on Saturday, May 25. Currently the article in the by-laws reads as follows:

4.1 Due Dates: Dues are payable upon joining the LSCCF. Members renewing annual membership must have made payment by September 30 of each year.

The proposed amended article will read:

4.1 Due Dates: The membership year is from January 1 to December 31. Dues are payable upon joining the LSCCF. Members renewing annual membership must have made payment by January 1 of each year.

Members will have an opportunity to comment on this amendment and cast their votes at our Annual Meeting.

Progress with Weevils

We are continuing to focus on milfoil-destroying weevils as a means of controlling that invasive species in the lake. Last fall, we enlisted one of Vermont's top weevil experts, Integrated Milfoil Management, Inc. to survey the lake and prescribe a weevil plan for Little Lake. We accompanied them as they assessed the lake conditions and the distribution of vegetation. Subsequently, they presented their recommendation to a meeting of LSCCF directors, describing how they would introduce the weevils over a two-year period, and breaking down the costs. Then in October, they made the presentation once again, this time at our public Lake Forum meeting. One very encouraging point is that the weevils thrive in an oxygen-rich environment, so our aeration project would only serve to enhance their effectiveness.

With the positive response to these presentations, the evidence we have seen of the effectiveness of weevils, and the fact that they are already approved and are in use in Vermont lakes, we decided to pursue this as part of our overall strategy.

In January, we applied for a grant to help fund the project, and in February, we filed an application for a permit to use weevils with the state of Vermont. We are waiting for a response to both applications.

If we are granted the permit, we will need to secure the cooperation of the Lake St. Catherine Association, which holds a permit to use herbicides in the lake. The weevils will not thrive in the presence of herbicides, so we would need to get the LSCA to agree to refrain from using herbicides in Little Lake for at least the next two years.

For a complete description of how weevils can control milfoil, please refer to our previous newsletter or go to the following web site:

<http://enviromscienceinc.com/the-milfoil-weevil/>



Weevils are selected from approved sources and bred carefully in a lab where they are inserted into growing milfoil plants. These plants will then be attached to milfoil that is growing in the lake.



Autumn at the falls on North Street

LSCCF Meets with Lake Bomoseen Association

On February 7 President Steinmetz and Vice-president David Emmons attended a meeting of the Lake Bomoseen Association Board of Directors in response to their invitation. Also present at the meeting were Vermont ANR agents Susan Warren, Ann Bove, and Ethan Swift.

The meeting was held to discuss current lake management activities taking place in Vermont. At the meeting, Bill Steinmetz presented a slide show about our work in Lake St. Catherine. The presentation was extremely well received, and LBA president Ellen Oppenheimer followed up with a letter of high praise for our efforts. She wrote, *“We want to thank you for taking the time to inform us of the progress at Little Lake. The work you have accomplished to date is enviable. It did not go unnoticed how extensive your efforts are and your planning for the future of your lake. You benefit all lakes and ponds that can reference your program. We have much to learn and we so appreciate your mentorship. We will be sure to keep our communications with you consistent. Your example and advisement is an asset we will continue to rely upon for our future efforts on Lake Bomoseen.”*

Mapping the Lake with Radar

This spring the LSCCF will conduct complete radar mapping of Little Lake, all through the generous voluntary services of Neil Murphy, the Customer Technical Service Representative of Geophysical Survey Systems Inc. of New Hampshire. Neil has a real fondness for the lake, having spent a lot of time here with his wife’s parents, Bill and Tonya Frye.

Neil will be using very expensive, sophisticated equipment that will provide a profile of the entire lake bottom, including depth to soft bottom, depth to hard bottom, and striations within those levels. The equipment is being provided by his company, which has also offered to process the data using their own software. Once the processing is complete, Neil will provide us with a complete report of the results of the survey.

As is commonly known, there has long been a misconception that the lake is very shallow—as little as eight feet deep. The LSCCF disproved that notion twice over the last few years with manually-taken depth measurements that have proved the lake is at least 40 feet deep in some areas. This radar mapping of the lake will be a very scientific verification of what we have found, and will provide quite precise data about the profile of the Little Lake bottom.

Originally the survey was to take place on the ice during February of 2013, but there was a fear that the snow and wind could damage the equipment. As a result the operation will take place from a boat in April on a calm day. Several of the LSCCF directors will be there assisting with the surveying.



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Hydro-raking Project 2013

The LSCCF is continuing to offer to manage lakeshore hydro-raking for its members. Last year we were able to assist 17 of our members, and this season we have 23 residents signed up to have their waterfront dredged.



The hydro-rake scoops up material from the lake and deposits it on the property owners shoreline.

The hydro-raking provides a temporary relief for waterfronts that are clogged by sediment and choked out with vegetation. A barge-mounted device scoops up the muck and weeds and deposits the debris on the shore of the resident. The state permits an area no greater than 50 by 50 feet to be dredged. Once the pile is on shore, it is then up to the homeowner to have the debris removed. A local contractor is available to do the hauling. For those whose property is very steep or otherwise inaccessible by truck, the material can be placed on a floating barge and taken to a more convenient location, all for an extra charge.

The charge for the hydro-raking service runs in the vicinity of 200 dollars per hour, and most properties can be done in one hour. Residents can, however, request more time if needed.

The LSCCF is awaiting approval on its application for a permit for this season, and we expect its issuance to be imminent. Before granting approval, however, the state requires a survey of the properties to be dredged to see that there will be no significant damage to habitats or disturbance of protected species.

As a courtesy to the town of Wells, the LSCCF this year has included the new Wells Lakeside Park in the application, and will also manage the dredging of the area at the park. The lovely park has had tremendous use in its first season, mostly by picnickers and boaters. Hydro-raking around part of its shoreline may provide a small area for swimming as well.

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Annual Meeting

Dear members:

Our annual meeting will be held on **May 25 at 10:00 AM** at the Wells Village School. Please try to attend. We have items to vote on and are looking forward to sharing all that is happening with our members. See you there!

2012 was an especially exciting year for the LSCCF. The installation of our aeration system was the beginning of a new era in Vermont lake management. After an effort that lasted two and a half years we finally saw our efforts come to fruition. Now we see that the system is producing slow but definite results, and we have more projects now on the front burners. Your support has always been both remarkable and rewarding, and we couldn't be where we are without your confidence and your financial support.

The Board of Directors thanks you all for your loyal and steadfast sponsorship.

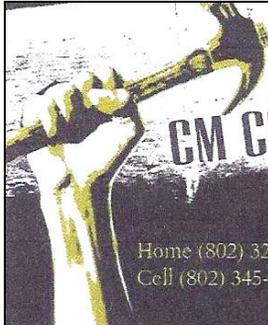
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Renew your membership!

The deadline for dues for 2012-13 is September 1. As noted above, a number of our members have already signed up for another year, and have generously accompanied their \$50 dues with tax-deductible contributions. Any amount in addition to the dues is now IRS tax-deductible. Regular membership dues are \$50 (Silver level). We designate participation levels above \$50 as Gold (\$100) and Platinum (\$150+). There is also a Commercial Level of \$300.



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All amounts above \$50 are tax deductible

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LSCCF Creates Shoreline Management Plan

In granting our aeration permit, the Vermont Agency of Natural Resources asked us to develop a program for the management of lakeshore properties to help protect the lake from the runoff of undesirable substances. Director Bob Short undertook this challenge and produced a comprehensive proposal ranging from 2012 until 2016, complete with annotated satellite mapping showing existing culverts, retaining walls, and runoff areas.

Shoreline development takes its toll on lakes everywhere, and Lake St. Catherine is no exception. As stated in Bob's proposal, "According to the Vermont agency of Natural Resources and the United States Environmental Protection Agency the Vermont Lakes shoreland is in either fair or poor condition. Our goal is to reverse the effects that development has had on our shoreland....we know this will be a long-term project...if we do not address this issue we will continue to see a decline in property values, water quality, town tax revenue, fish habitat, and tourism."

The plan calls for specific activities to take place in each of the four years. These activities range from conduction inspections and surveys, recording shoreline conditions via video, providing public information, reporting to the state, and meeting with town officials.

Surveys of shoreline properties will look specifically at such things as culverts and drainage ditches, buffer zones (lack of, or potential), septic discharge, and other general runoff conditions.

What about Hydraulic Dredging?

The LSCCF has submitted an application to the Vermont ANR for a permit to conduct a hydraulic dredging project in Little Lake. Hydraulic dredging is a process that uses a large suction device with a cutting head to remove sediment and nuisance vegetation from the lake. It differs from hydro-raking in several ways. Because it sucks up the material and pumps it through a large conduit into a containment bag on shore, almost none of it is released into the lake itself, so there is far less turbulence. Once the material is in the bag, it slowly filters out through porous sides, and comes out as basically clean water. This water can then be returned to the lake without polluting in any way. It is a very environmentally friendly way to remove material from the lake, and is done in pristine Lake George and other carefully managed lakes in the Northeast.

In a meeting with Vermont ANR in January 2011, a highly respected and prominent water resources manager, Dr. Ken Wagner, recommended dredging as the best solution for Little Lake's problems. Dredging may be the only solution in places in Little Lake where the sediment has built up to the point where there is less than a foot of water and land masses are beginning to form.



A typical hydraulic dredging. Material is sucked off the bottom and discharged through a large flexible hose to an onshore site.

Unfortunately, the process is very expensive, and current LSCCF funds could not support a hydraulic dredging project without some further supplementation. Nonetheless, we are pursuing the permit in order to have the option open in the event we can proceed in the future. Our permit application calls for a small hydraulic dredging project in the northwest corner of the lake, where navigation and other uses no longer are possible. Our current plan is to pump the material across North Street to an open lot near Lake Lucidian.

The permit application has now passed through the "public comment period" in which local residents have an opportunity to raise any concerns about it. At this point, we believe all questions have been satisfied, and we expect issuance of the permit will be forthcoming.

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Are you a webber?

The LSCCF web site is in need of a good facelift, and we are looking for a member who can help us to re-design and upgrade our presence on the Internet. If you can help us out, please notify Lee Evans at 908-665-0125 or drfiddler@aol.com. Thanks.



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Here are some tips from the National Water Safety Program

**Boaters! Before Getting Underway:
Know your boat and know the rules of the road.**

- Take a safe boating course.
- Check your boat for all required safety equipment.
- Consider the size of your boat, the number of passengers and the amount of extra equipment that will be on-board. **DON'T OVERLOAD THE BOAT!**
- If you will be in a power boat, check your electrical system and fuel system for gas fumes.
- Follow manufacturers suggested procedures **BEFORE** starting up the engine.
- Wear your life jacket – don't just carry one on board.
 - Leave alcohol behind to increase your safety and decrease your risk.



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