



Lake Anasagunticook Association Newsletter

Volume 6: April 2000

President's Corner

Spring has come to Lake Anasagunticook. The winter has been uneventful at the lake.

The name change from Canton Lake Association to Lake Anasagunticook Association has been submitted and we are just waiting for the paper work to come back. We'll need to amend or find a new logo. If you have an idea, please share it with us.

The smelters were not very busy this winter as compared to past winters. Maybe they got "word" that we were monitoring their activity. Ice fishermen did enjoy the lake but without any negative effect to the lake and the surroundings. They just had a good time.

The watershed committee, especially Jack Atwater, Judy Hamilton, and Jeff Stern (our grant project manager at Oxford County Soil and Water Conservation District), have been very busy so please read the insert in this newsletter. Thanks again for a great job!

I am still working on the stair project at the public beach. We poured the pad for the port-a-toilet, found the granite, and participated in "make a Difference Day" on October 23rd, 1999. I am waiting to see if our project will win a "cash award". If we should win I will use the money to put in the granite steps and correct some of the erosion problems at the public beach along route 140. If anyone knows someone who would be willing to cut and/or move the granite from Somer's sandpit to the beach to finish the project please contact me.

As directed, Ray Fortier should be closing the gates to the dam on or about April 15th. Beth Ray and Jeff Stern (OCSWCD) have had some communication with Ray lately concerning the water level. Join the lake association, provide us with your email address and stay up-to-date with all the latest news.

Eager to see you all this summer!

Submitted by Polly Bussiere, President L.A.A.

Lake Days/Annual Meeting: Aug. 5 & 6

Lake Days Committee is working on a grand celebration for Saturday, August 5th at the Hartford Town Beach. Anyone interested in working with them should contact Ruth Martin (597-2635),

Priscilla Brown, or Margaret Taylor (914-855-9156).

Sunday, August 6th, you are invited to attend the Annual Meeting at the Canton Community Building.

Introduction from Jeff Stern (OCSWCD)

Hi! My name's Jeff Stern. I'm the new district manager at the Oxford County Soil and Water Conservation District (the position vacated by Laura Lecker last fall). I'll be the project manager for the Lake Anasagunticook 319 Project.

For now, we'll have to make do with this written introduction, but I hope to meet you in person in the not-too-distant future. This is going to be a great project - there is a lot of enthusiasm, not only from the lake association but also from the Hartford and Canton selectmen.

I moved to Maine in January 2000, from Colorado, where I worked for conservation districts on river restoration. We partnered with locally led watershed projects to improve the health of riparian areas and to control erosion along stream banks. Rivers there had been damaged by channel straightening, pollution from abandoned mines and overgrazing. I've also worked extensively in the field of environmental risk assessment.

My move to Maine is a homecoming, of sorts. My father grew up in Biddeford, Maine, and his father served in the Maine legislature in the 1930s. I haven't lived in Maine until now. However, I've spent lots of time in the Lakes Region and Oxford Hills on vacations.

It'll take me a little time to get my bearings, but I'm a quick learner. I've got some great people to help me along. The grant should begin in early April. It looks to me like everything is coming together to make this project a huge success.

You can reach me at Oxford County SWCD, 1570 Main Street, Suite 10, Oxford, ME 04270, or call me at 207-743-5789, ext. 3. My email address is jmstern@ime.net.

Submitted by: Jeff Stern, Oxford County SWCD

Stay Up-to-Date get the Latest News

A distribution list of email addresses has been established to keep you posted on the latest happenings and news from the lake

association. Beth Ray and Jeff Stern have been keeping lake association members informed of their communications with Ray Fortier this spring through this email distribution list. We intend to use this communication vehicle to also keep you informed of the grant project progress. If you would like to be included in this email distribution list, join the lake association and include your email address on the membership form.

Water Level Management and the Dam

Dana Murch, DEP Dams & Hydro Supervisor, contacted Ray Fortier by letter of April 5 to remind him of his obligations as described in the Lake Anasagunticook (Canton) Lake Water Level Management Plan which states that "on or about April 15, two of the four spillway gates will be closed. On or about May 1, the remaining two spillway gates will be closed to start re-filling the lake to an interim target level at the bottom of Mark 19 on the staff gauge at the dam (located immediately upstream of the spillway gates on the Route 140 side of the dam, with numbered 3-inch wide bands or marks). Until May 15, gates will be opened as necessary to keep the water level from staying above the interim target level. This will ensure that some storage capacity remains in the lake to handle substantial rains."

The water level management plan goes on to state that "on or about May 15, and when the threat of substantial flooding appears to be passed, all four spillway gates will be closed to re-fill the lake to its final target level at the bottom of Mark 27 on the staff gauge at the dam. The final target level corresponds to the point 5 inches below the top of the old spillway gates and 11 inches below the top of the rebuilt spillway gates."

Dana Murch also wrote in his letter to the dam owner that "if April turns out to be a dry month, you (Ray Fortier) should plan to close the last two gates early. You are as much responsible for taking all reasonably available steps to raise the water level to the summer target level as you are for taking steps to keep the water from going above the summer target level. DEP will enforce all violations of the water level order, whether high or low, that result from improper operation of the dam."

Written by: Judy Hamilton, L.A.A. Treasurer & Editor

Fortier's Interested in Water Level

Many of you know that Beth Ray (L.A.A. member, Canton resident and lawyer), Jeff Stern

(see introduction page 1), Dana Murch (DEP Dams & Hydro Supervisor) and I have had visits and/or calls from Ray Fortier recently. Ray Fortier claims that the current level of the lake is appropriate to keep runoff from the shore from entering the lake and, therefore, he is concerned that the summer level is too high. He has also been trying to establish what the lowest water level recorded for the lake was last summer. The following is a letter from Dana Murch to Mr. Fortier of April 6, 2000 reproduced in its entirety by permission of Mr. Murch.

Dear Ray:

This is in response to your recent telephone message regarding Canton Lake.

I understand that, as part of an emergency action plan for the dam, you want to build/rebuild a dam near the natural outlet of the lake. This would allow you to operate the new dam to maintain lake levels while you drain the water in the stream impounded by the existing dam to facilitate dam repairs.

Please be advised that, notwithstanding any land and water "rights" you own, state law requires that you obtain a permit from DEP under the Natural Resources Protection Act (NRPA) in order to build/rebuild a dam at the outlet of Canton Lake. In order to have standing for a permit, you must demonstrate sufficient title, right or interest to all land and water rights (including construction access rights) necessary for the dam. And a permit will not be granted unless all of the standards of the NRPA are met. A copy of the law and an application booklet are enclosed for your information.

The DEP will take enforcement action against you in the event that you begin building/rebuilding a dam without the required permit.

I also understand that you believe the flooded stream between the existing dam and the natural outlet of the lake to be non-navigable, and that you have the right to prohibit boating on the stretch of water.

Please be advised that your belief is incorrect. The public has the right to boat and canoe, and to fish and swim from a boat or canoe, on all "floatable" rivers and streams. To be floatable, a stream only needs to be large enough to float logs at least once a year. There is no question but what the natural outlet stream from Canton Lake is a "floatable" stream.

The DEP will take enforcement action if you take action to block public use of any part of the natural Canton Lake outlet stream.

I am enclosing for your information a May 1994 publication from the University of Maine on the topic of access to coastal and inland waters. See especially the discussion on page 9.

Finally, I understand that you take the position that you own the land under the flooded stream and around the perimeter of the lake.

The DEP agrees that all land under the natural outlet stream and above the natural low water line of the lake is privately owned. State ownership only extends to the natural bed of a great pond up to the natural low water line, and to the surface waters of the lake and stream. Who owns the land around the lake (including that currently under water above the natural low water line) and the land under the stream are property law questions that I am not competent to answer.

I hope this has been helpful. If you have any questions, please call me at 287-3901. Sincerely, Dana Paul Murch, Dams & Hydro Supervisor.

To receive updates on these water level issues and other news, join the lake association and provide us with your email address. We'll see that you receive updates by email as it becomes available.

Submitted by: Judy Hamilton, L.A.A. Treasurer & Editor



How much do you know about Loons?
Can you answer these questions?
(Answers are on page 4.)

1. During migration, why are parking lots a hazard to loons?
2. Loons spend the winter months on the ocean. Off the coast of which state do the highest number of Loons winter?
3. What animal is most responsible for the extinction of loon populations in many states?
4. Loons have gizzards that aid in digestion; they swallow tiny pebbles that lodge in the gizzard and help grind the food. What else do loons swallow along with the pebbles? Hint: just one of these can poison a loon.
5. How fast can a loon fly?
6. How deep can a loon dive?

7. What threatens the survival of loon chicks even more than predators?
8. Protecting Lake Anasagunticook's watershed area has a direct impact on its loon population: if the lake loses its clarity (clearness) as happened at nearby China Lake, the loons will not return. Why?
Margaret Taylor, L.A.A. Director: Loon Protection

IN MEMORIAM: Lloyd Poland

Lloyd Poland of Hartford, Maine and Canton, Massachusetts died on September 16, 1999. A charter member of the lake association, Lloyd was an energetic spokesman and attended many town meetings relating to lake issues. His special interest was in preservation of the lake and watershed for future generations.

In the early years, Lloyd and Ann, as proprietors of Green Acres Inn, hosted both the annual lake day activities and the business meetings. Those who knew Lloyd will appreciate the appropriateness of his final resting place - the Green Acres golf course in his beloved Maine. He will be missed.
Margaret Taylor, L.A.A. Director

IN MEMORIAM: Dave Fisher

We will greatly miss L.A.A. Director, Dave Fisher who died November 1999 after successful heart surgery due to complications. Dave and his wife, Lil, have been active members of and contributors to the lake association since 1994 and Dave, a Director since 1995.

Dave was a retired insurance salesman who, along with Lil and their grandchildren enjoyed their summers at their camp on the west side of the Hartford -end of the lake and wintered in Hilton Head, North Carolina.

He will be solely missed by all.
Regina Hutchinson and Judy Hamilton

Error in C.L.A. Calendar 2000

It was brought to our attention that the month of August was printed incorrectly. The dates are off by four days. We apologize and ask that you make note of this on your calendar. Please also copy down the correct dates for Lake Days (8/5) and the Annual Meeting (8/6).

Water Temperature and Dissolved Oxygen in Lake Anasagunticook

Other than the obvious formation of ice every winter and the subsequent thawing in the spring, the seasons cause important, but subtle, changes in our lake. In the dead of winter, not surprisingly, the coldest water (0°C or 32°F) is at the surface just below the ice layer. In early spring, just after ice-off, the sun

gradually warms the water near the surface: as the water warms it sinks and mixes with the cooler water just below the surface. This mixing creates a uniform temperature distribution at all depths, but winds cause a deeper vertical movement of water (spring overturn) bringing nutrient-rich water to the surface and oxygen-rich water to the bottom.

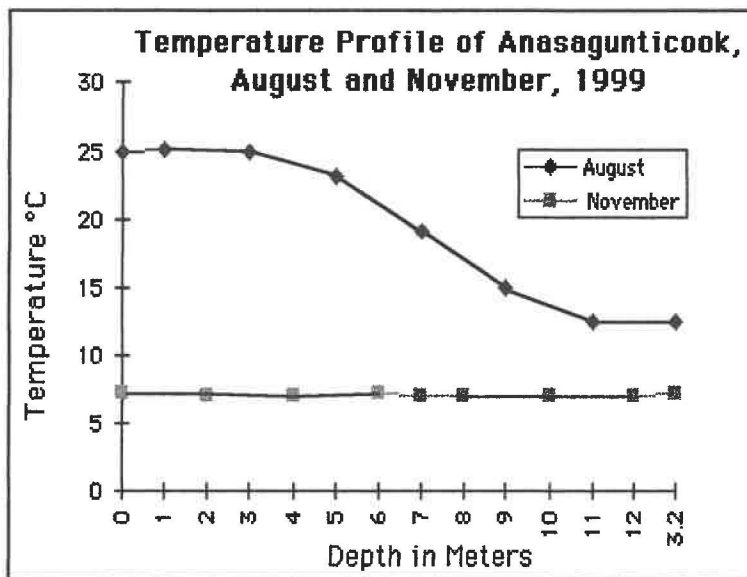
As spring progresses into summer, the heat from the sun and the air above the water warms the surface of the lake. Soon a layer of warm water forms as water near the surface gains heat faster than the deeper layer creating a zone of temperature contrast; this interface between the warm water above and the cooler water below is called the thermocline.

The thermocline has a profound affect on the lake because it is a layer across which water does not mix. At temperatures exceeding 4°C (39°F), the warm surface water literally floats on the cooler water below because as water temperature rises above 4°C the water becomes less dense. The upper layer consists of warmer water that has been enriched by nutrients brought from below during the spring overturn; it is penetrated by sunlight and is the site for most of the photosynthesis and plant growth in the lake. The upper layer is well oxygenated by photosynthesis and mixing caused by wind action on the surface. The lower layer, however, is cut off from the surface of the lake; its animal and bacterial life gradually deplete the deeper water of oxygen.

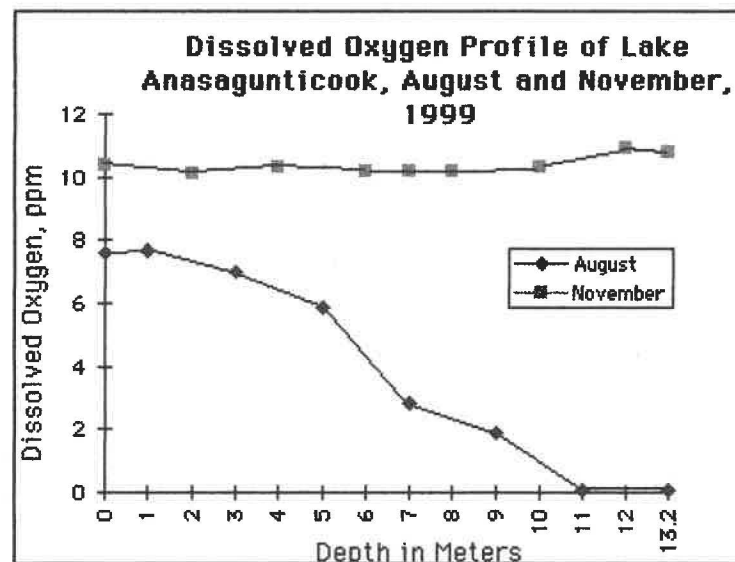
In the fall the surface layer of the lake cools more rapidly than the deeper layer and as it becomes denser it starts to sink. This vertical mixing is called the fall overturn and persists into late fall until the temperature at the surface goes below 4°C. The fall overturn produces considerable mixing and causes oxygen to be brought to the deeper water while nutrients are brought to the surface. During the summer when anoxic conditions (without oxygen) may exist near the bottom, nutrients (particularly phosphorus) can be released that had been "locked up" in organic matter in the sediments. As a result of the fall overturn these nutrients are brought to the surface where they are available to plants and algae. However, there is no doubt that once phosphorus levels exceed a critical level, and if temperatures are favorable for alga growth, the lake will experience a rapid growth of algae.

Between natural events and human activities there are obviously many things going on in Lake Anasagunticook, some apparent and some very subtle. The overall health of the lake is the result of many interrelated factors over which we

have little control; however, by understanding how these factors interact we can understand how the activities over which we do have control may affect our lake.



In brief: increasing phosphate levels are bad, decreasing dissolved oxygen levels at the deeper levels are bad and decreasing clarity over several years is bad.



Above are two graphs of the temperature and dissolved oxygen profile of Lake Anasagunticook for August and November 1999 that are based on data I collected using lake association equipment. Note the start of the August thermocline at about 5 meters (about 15 feet) with a temperature change of about 10 °C (18°F) over three meters. Notice also how in August the dissolved oxygen level decreases dramatically below the thermocline and reaches zero at 11 meters. No oxygen means that fish cannot live at

this level and phosphates (and other nutrients) are probably being released from the organic sediment during late summer and early fall. The data for November show that the fall overturn was well underway because oxygen-rich water was at the lowest depths and the temperature was fairly uniform throughout the water column.

Apologies to R. E. Ridelef's *Ecology*
Tom Hamilton, L.A.A. Director: Water Quality Monitor

Answers to Loon Notes Quiz

1. While migrating, loons may mistake parking lots for bodies of water. Since a loon cannot become airborne from any surface other than a body of water, loons that land on parking lots usually die of starvation.
2. The highest percentage of loons winter off the coast of South Carolina.
3. The animal most responsible for the extinction of loon populations is the *Homo Sapien* (human).
4. Lead sinkers (used to weight down fishing lines) that fall into the water are responsible for an increasing number of loon deaths. For this reason, legislatures are considering banning them. Many people who fish now use sinkers made with alternative nontoxic materials.
5. Pilots in small planes have clocked loon flight speeds of 100 miles per hour.
6. Loons have been known to dive as deep as

200 feet.

7. The most common reason for the death of a loon chick is getting chilled. Loon chicks depend on their parent's body heat to survive the early stage of life. That is one important reason that they ride on the back of the parent loon. Heat transfers from the parent to the chick.
8. Loons abandon lakes that do not have clarity (clearness) since it is a requirement for their survival. They must be able to see their food (mostly small fish) in order to catch it. Disturbing loons during daylight hours cuts down on their feeding time and may also result in loons abandoning lakes.

Summary of Responses to October Survey

Only 17 responded to the October lake association survey out of the 300+ newsletters mailed. There was not enough feedback to report in any detail. Water level management and dam safety were the most important issues for the lake association. Water quality, beaches and access to the lake were reported as "good" while water level management was seen as "poor". There was interest in seeing more activities during the month of July with no desire to change dues, Lake Days or the Annual Meeting.

Submitted by: Judy Hamilton, Newsletter Editor

Lake Anasaguntacook Association Membership 2000

Name: _____
 Mailing _____ (Give first names of each family member)
 Address: _____
 City, State, Zip: _____
 Telephone # _____
 Lake mailing address: _____ Canton, ME 04221
 Lake phone if different: _____
 Dates receiving mail at lake address: _____
 e-mail address: _____

Each year COLA asks for a list of our members with addresses. We will not share that information without your permission.

Yes, my name and address can be given to COLA.

One Year Subscription to COLA Newsletter, *For the Sake of Maine Lakes* is \$6.00
 Check below.

Add my name to the email distribution List (give address above)
 Suggestions and Comments:

CLA t-shirts @ \$10 (+ \$4 Shipping)
 per shirt Size S, M, L, XL, XXL
 _____ Indicate Size/s
 _____ Payment Enclosed

Dues: \$10/2000

Water Quality Monitoring Fund _____
 Fish Screen Fund _____
 COLA Newsletter (\$6) _____
 Unencumbered Donation _____
 Total for CLA t-shirt/s _____
 Total check: _____

Make payable to:
 Mail Check & Form to:



Lake Anasagunticook Association

39 Salem Street

Andover, MA 01810

Address Correction Requested

Canton Lake Association Officers:

President: Polly Bussiere
Vice President: Jack Atwater
Secretary: Mitzie Turnbull
Treasurer: Judy Hamilton

Board of Directors

Priscilla Brown, Lake Days
Bob Doucette, Water District
T. R. Hamilton, Water Quality Monitor
George Hinkley, at large
Carroll Howes, Water Level Monitoring
Regina Hutchinson, Fund Raisers
Ruth Martin, Lake Days
Tom Ryan, Pine Shores Association
Larry Savarese, at large
Margaret Taylor, Loon Protection

Lake Days -

Saturday, August 5 , 2000

Annual Meeting -

Sunday, August 6 , 2000

Dues are \$10 per family per year.

See mailing label for last year dues were paid.