



A QUARTERLY PUBLICATION OF NEW HAMPSHIRE LAKES ASSOCIATION

Water Quality Assessments of New Hampshire Lakes



Members dedicated to protecting lakes

Volume XVII, No. 2, Summer 2008

by Bob Estabrook, Chief Aquatic Biologist, New Hampshire Department of Environmental Services

Did you know that every two years states are required to report to the United States Environmental Protection Agency on the status of their surface waters? This is known as the 305(b) report. Waters not meeting standards are put on a list of impaired waters known as the 303(d) list. The following article summarizes the assessment process and the assessment results for New Hampshire for 2008.

Lakes are assessed for their designated uses, which are water uses identified in state water quality standards that must be achieved and maintained as required under the federal Clean Water Act. The two uses of most interest for recreational lakes are the primary contact (swim) and aquatic life uses (other uses are secondary contact, drinking water, fish consumption and wildlife). For each designated use, a group of selected criteria are used to determine if the use is supported. The criteria used for swimming and aquatic life are shown in Table 1.

Table 1: Swimming and Aquatic Life Criteria

| Designated Use | Criteria |
|----------------|--|
| Swim | <i>E. coli</i> (bacteria), chlorophyll (algae), cyanobacteria scum (toxic algae) |
| Aquatic Life | pH, dissolved oxygen, toxics, exotic plants |

For a lake to fully support a designated use, a minimum of 10 data points less than 10 years old are required to make an assessment, and no more than one out of 10 results can exceed the criteria. The exception to this rule is bacteria where a 'full support' designation can be made with as few as two data points. In general, only lakes participating in the New Hampshire Department of Environmental Services' Volunteer Lake Assessment Program or the University of New Hampshire's Lay Lakes Monitoring Program have sufficient data to make a 'full support' determination. Many lakes are not assessed because of insufficient information. A 'not support' designation can be made with as few as two data points if both exceed the criterion.

Most assessed lakes support the swim use but do not support the aquatic life use, as shown in Table 2. The primary cause for aquatic life impairment is pH (acidity). The pH criterion is 6.5, so any value less than 6.5, at any depth and at any time of the year, violates the criterion. Because the summary is based on lake area, the presence of exotic plants is another major cause of aquatic life impairment. For example, Lake Winnepesaukee is impaired for exotics and represents 27% of all lake surface area in the state.

Table 2: 2008 Swimming and Aquatic Life Summary (by lake area)

| Designated Use | Full Support | Not Support | Not Assessed |
|----------------|--------------|-------------|--------------|
| Swim | 70.4% | 7.4% | 22.2% |
| Aquatic Life | 0.2% | 61.5% | 38.3% |

Water Quality, continued on page 3

From the President...

LAKESIDE

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NH LAKES office at (603) 226-0299.



It has already been a summer of impressive accomplishments and new endeavors for NH LAKES! In June, we celebrated our sixteenth anniversary with the establishment of a new event—LakeFest (page 6). Over one hundred and seventy members and friends joined us in Meredith on the evening of June 25 as we celebrated lakes with delicious tastings of food and drink from some of the finest restaurants and distributors in New Hampshire. The next day followed with our Lakes Congress, which offered valuable information about “the basics” of protecting lakes (page 5).

The challenges of protecting our lakes on a continual basis can be quite a daunting task. Thankfully, we have a talented staff

and board of directors who devote their time and energy in ensuring our continued high quality of life along and on our lakes. With such talent, it's no surprise that we had a successful 2008 legislative session (page 4). And, we are looking forward to great things from our new Development Coordinator (page 7).

Of course, volunteers play a critical role in protecting our lakes. Volunteer monitoring efforts help the University of New Hampshire and the Department of Environmental Services assess and protect our lakes and ponds (page 3). If you would like to know more about volunteer opportunities with NH LAKES, please contact our office.

And, please take a few minutes to fill out our 2008 Lake Issue Survey, included in this newsletter. We value your input and would like you to help shape our 2009 legislative agenda!

Thank you for your continued commitment to NH LAKES and enjoy the rest of the summer!

NH LAKES gratefully acknowledges the support of:



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whose generous contributions underwrite this issue of *Lakeside*.

A tabulation of the 2008 impaired lakes by number, not area, of lakes for each criterion for each designated use is provided in Table 3. Please note that a lake can be impaired for more than one reason. For example, 10 lakes were impaired for both chlorophyll (algae) and cyanobacteria (toxic algae).

Table 3: 2008 Impaired Lakes Summary

| Impaired Use | Criterion | Number of Lakes |
|--------------|-----------------------------|-----------------|
| Swim | <i>E. coli</i> (bacteria) | 9 |
| | Chlorophyll (algae) | 30 |
| | Cyanobacteria (toxic algae) | 33 |
| Aquatic Life | pH (acidity) | 252 |
| | dissolved oxygen | 18 |
| | percent saturation oxygen | 56 |
| | toxics (aluminum) | 20 |
| | toxics (chloride) | 4 |
| | exotic plants | 53 |

For more detailed information on the 305(b) report, 303(d) list and the specific procedures for assessing the status of surface waters, please visit www.des.state.nh.us/WMB/swqa/.

This website is updated as reports become available. The assessment results for individual lakes, including your favorite New Hampshire lake, can be obtained through this website. Specific questions can be addressed to Ken Edwardson at Kenneth.Edwardson@des.nh.gov.

By monitoring your lake through the NHDES Volunteer Lake Assessment Program or the UNH Lay Lakes Monitoring Program, you are helping assess New Hampshire lake quality. Thank you for your help!

If you are interested in joining a statewide lake monitoring program, please read the additional articles on this page.

NH Lay Lakes Monitoring Program turns 30!

The 2008 sampling season marks the 30th anniversary for the NH Lakes Lay Monitoring Program (LLMP). The LLMP has grown from a university class project on Chocorua Lake and pilot study on the Squam Lakes to a comprehensive state-wide program. The program was originally developed to establish a database for determining long-term trends of lake water quality for science and management and has expanded by taking advantage of the many resources that citizen monitors can provide. Data collected through the LLMP have been utilized for intensive watershed monitoring that have included nutrient and water budgets that provide insight into the sources of nutrients (phosphorus) into our lakes. Collaborative efforts with University of New Hampshire researchers have also utilized the data collected by volunteer monitors to provide insight into water quality threats and water quality fluctuations that are associated with climatic variations, to better understand how watershed development plays a role in creating potentially toxic algae blooms, and to document general relationships between annual rainfall and in-lake water quality.

Congratulations, LLMP!

For more information, contact Bob Craycraft, LLMP Educational Coordinator, at bob.craycraft@unh.edu or (603) 862-3696.



NHDES VLAP Receives Prestigious EPA Environmental Award!

This spring, the New Hampshire Department of Environmental Services' Volunteer Lake Assessment Program (VLAP) was awarded the U.S. Environmental Protection Agency "State Governmental Environmental Merit Award." Two volunteers began VLAP in 1985 to play a role in protecting one lake. Currently, more than 500 volunteers protect approximately 175 lakes and ponds through this program. Twenty-three years of data has allowed the state and local lake associations to develop long-term water quality trends, identify pollution sources and put in place ordinances and management systems to protect the state's water and its future.

Congratulations, VLAP!

For more information, please contact Sara Sumner, VLAP Coordinator, at Sara.Sumner@des.nh.gov or (603) 271-2658.

A volunteer lake monitor collects lake clarity data to help assess the quality of New Hampshire's lakes.
(Photo courtesy of NHDES VLAP.)

Long, But Successful Legislative Session for NH's Lakes

The 2008 legislative session un-officially wrapped up after the first week of June. In the end, both of NH LAKES' legislative proposals were successful and added several much-needed protections to our state's public waterbodies. In addition, NH LAKES worked with legislators on several other important lake-related bills that will safeguard New Hampshire's lakes and their various uses for years to come.

NH LAKES' Initiatives

Senate Bill 384 closes a legal loophole that allowed septic systems that endanger our public waters to go un-accounted for. SB 384, initiated through the joint efforts of NH LAKES and the NH Rivers Council and sponsored by Senator Kathy Sgambati (D-Tilton), requires that the New Hampshire Department of Environmental Services and local authorities be notified when a septic system is found to be failing during a site assessment of "developed waterfront property." SB 384 has been signed by the governor and the law will become effective on January 1, 2009.

Senate Bill 358 provides a remedy for lakes experiencing an overcrowding of moorings. Currently, boat moorings are only regulated on the six "big lakes" in New

Hampshire (Sunapee, Newfound, Ossipee, Winnepesaukee, Squam, and Winnisquam). SB 358, initiated by NH LAKES and sponsored by Senator Robert Letourneau (R-Derry), will allow those living around smaller public waterbodies to petition the Department of Safety for mooring regulations. SB 358 was signed by the governor and the law will become effective on August 31, 2008.

Other Notable Lakes-Related Legislation

2008 changes to the Comprehensive Shoreland Protection Act will make the law easier for homeowners to apply and will better protect water quality. During the 2008 legislative session, NH LAKES worked with developers and others to "flush out" some of the outstanding issues with the Comprehensive Shoreland Protection Act (CSPA). The changes that resulted bring about a balance between development, property rights, and water quality protection. These changes will help protect the long-term economic viability of our lakes. *Please note that the changes to the CSPA that were made during the 2008 legislative session clarify or improve upon more significant changes passed in 2007.*

For a complete list of changes that occurred during 2007 and 2008, please email ddurbin@nblakes.org.

Winnepesaukee speed limit bill passes despite heavy lobbying from opposition.

After years of debate, the legislature has passed a speed limit on Lake Winnepesaukee that will require boaters to keep their speed under 45 mph during the day and 25 mph at night. HB 847 was signed by the Governor and the law will become effective on January 1, 2009. The speed limit law will be re-visited by the legislature in 2011.

NH LAKES named as participant on Stormwater Study Commission. NH LAKES will participate for the next year in a commission to study all aspects of stormwater management and policy in New Hampshire. Stormwater runoff from roads, lawns and other "non-point" sources has been recognized nationally as a critical threat to water quality. HB 1295, sponsored by Representative Judith Spang (D-Durham), will help address several of the stormwater runoff problems that currently pollute New Hampshire's waterbodies.

NH LAKES helped to effectively defeat a bill that would have made it impossible for many towns to seek motorized boating and jet ski restrictions.

SB 380 would have required towns petitioning the Department of Safety for motorized boat or jet ski restrictions to obtain the signatures of 10% of the registered voters in each town in which a lake, pond, or river is located, in order to receive an agency hearing. NH LAKES testified strongly against SB 380, stating that such a policy would prove to be an administrative nightmare and act as a defacto moratorium on the process. SB 380 was "tabled" before the end of the legislative session, which effectively "kills" the bill.

NH LAKES thanks all of you who wrote letters to your representatives and attended hearings this legislative session to help better protect New Hampshire's lakes!



New Hampshire's lakes provide for a variety of summer recreational opportunities.

2008 Lakes Congress Highlights

“Back to the Basics: Protecting New Hampshire’s Lakes”

The fifteenth NH LAKES Lakes Congress, which was held on June 26 at the Inn at Church Landing in Meredith along the shores of Lake Winnepesaukee, was a record-breaking success! The 127 people who attended were able to participate in up to five of 16 informative sessions offered to learn about lake management related topics such as exotic aquatic species, the Comprehensive Shoreland Protection Act, watershed management planning, and alternative septic system technology. Seventeen exhibitors had display booths to discuss lake management

related products and services with attendees. On a scale of “1” (poor) to “5” (excellent), attendees rated the Congress as a “4.6,” signifying that the conference was a success!

If you missed this event, don’t miss the opportunity to view the informative presentations given at the 2008 Lakes Congress from the comforts of your home or office. Most of the session presentations can be viewed on the NH LAKES website at www.nhlakes.org. Be sure to check it out—there is surely one presentation that will be of interest to you or your association!



Lakes Congress attendees had numerous opportunities to enjoy the beautiful lake-side setting and network with other attendees.

Membership Matters

New Members – March 14 through June 17, 2008

Individuals

Teresa Bingham • George D. Bisbee • Lawrence D. Budreau • Dan and Joyce Curll
Ms. Lois Gould • Mr. Bill and Linda Lee • Richard and Angela Nicoletti
Emmet and Jolly O’Gara • Dr. Roger Eugene Poire • Douglas and Leslie Steele

Lakes Legacy

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NH LAKES Announces Squam Lake Watershed Study

Water protection focuses primarily on maintaining or improving water quality, but does not necessarily place an emphasis on maintaining a diversity of recreational “settings” and “opportunities” in a lake environment. Yet, New Hampshire, like many other states, markets its lakes not just for their relatively pristine water quality, but also for their countless recreational possibilities. In fact, the economic impact of swimming, fishing and boating accounts for approximately 1 billion dollars in economic revenue to the state. While a quiet evening kayak paddle across a still, small, lake or cove may be one person’s idea of a perfect lake experience, a water-skiing trip on one of New Hampshire’s larger lakes may be another’s perfect getaway.

The Water Resource Opportunity Spectrum (WROS), a method developed to inventory public waterbodies, recognizes that the protection of a diverse array of recreational setting and opportunities may be equally important to the general public as the quality of the water itself. Led by NH LAKES and the University of New Hampshire, in partnership with the Squam Lakes Association and the Squam Lakes Conservation Society, a WROS pilot study has been proposed for the Squam Lake watershed. When overlapped with existing water quality standards, the results of the WROS study will provide state and local decision-makers with a more comprehensive lake management tool.

Stay tuned for more information on this innovative study!



Squam Lake. (Photo courtesy of Lakes Region Conservation Trust and Phil Preston at www.lrct.org/.)

The First Annual LakeFest was a Huge Hit!

On the evening of June 25, fantastic food and drinks from vendors all over the lakes region, great auction items, and wonderful guests all came together at the Inn at Church Landing in Meredith to raise money and support for NH LAKES programs. People mingled, tasted, and bid during the silent auction with over 100 unique items to bid on. The night culminated with a live auction that included a Tuscan Holiday, a bottle of Dom Perignon, an African Safari, private boat tours of a few special lakes, and a golf weekend at the Balsams. LakeFest exceeded our fundraising goals for the evening, and the staff and planning committee extend a warm “thank-you” to all those who came and made the event a success.

Mark your calendars for next year’s LakeFest which will be held on Thursday, July 23, 2009, at the Inn at Church Landing in Meredith. Bring a few of your best friends and come out to support NH LAKES!



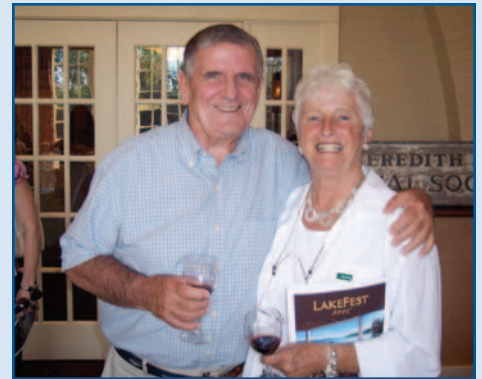
The weather couldn't have been better, adding to the beautiful setting for LakeFest along Lake Winnepesaukee.



Vintage meets Smuttynose in the silent auction and tasting tent.



The bidding begins!



Ann and Joe Farrelly enjoying LakeFest 2008!

Hal Richards Receives John F. Morten Award

As part of our annual meeting, which was held after the Lakes Congress on June 26, H. Hallock (“Hal”) Richards was presented the John F. Morten Memorial Award for Exemplary Lakes Stewardship in recognition of his many years of work protecting not only Lake Kanasatka in Moultonborough, but also helping establish NH LAKES!

Among his many accomplishments, we note that Hal:

- Has been active in the enjoyment and protection of Lake Kanasatka since the 1920's.
- Volunteered for the UNH Lay Lakes Monitoring Program.
- Lead the campaign to protect Red Hill and helped create the Lake Kanasatka Watershed Association.
- Helped establish the Lakes Federation to protect lakes through education, and later facilitated the merger with the Lakes Legislative Coalition to form NH LAKES.
- Is one of NH LAKES' founding fathers, the second Chairman of Board of Directors, and a current Honorary Director.

Hal typifies the selfless dedication to lake protection the John F. Morton Award is designed to recognize. We congratulate him for his tireless efforts on behalf of all New Hampshire's lakes!



Hal Richards (left), recipient of the 2008 Morton Award.

Dyanna Smith Hired as new Development Coordinator



Dyanna Smith, NH LAKES Development Coordinator.

Please join us in welcoming our newest full-time staff member, Dyanna Smith, to NH LAKES! Dyanna comes to our organization with more than 20 years of experience in nonprofits and fundraising. She has a varied background in wildlife protection, conservation, and field research in the U.S. and abroad.

Dyanna received her B.S. in Environmental Science from Westminster College in Pennsylvania. She

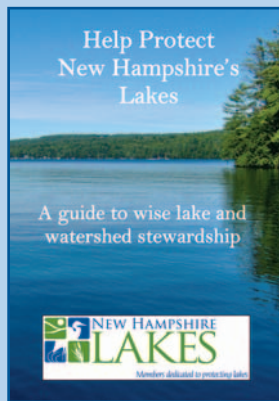
holds an M.S. in Resource Management and Administration from Antioch New England, and is currently working towards her PhD in Environmental Studies.

Dyanna will oversee fundraising and membership efforts at NH LAKES.

Get Your New NH LAKES Educational Materials!

New NH LAKES Publication!

Learn simple ways that watershed residents, shoreline residents, and lake recreationists can help protect the state's lakes by purchasing our newest publication: *"Help Protect New Hampshire's Lakes: A guide to wise lake and watershed stewardship."* This 39-page booklet features a wealth of information and attractive NH lake photos.



New NH LAKES T-shirts!

Show your support for NH LAKES and help educate others on how to keep New Hampshire's lakes clean by wearing one of our new "Top 10 Ways to Keep Lakes Clean" T-shirts. These shirts come in three attractive colors, five sizes, and are 100% cotton.



I would like to purchase the following:

| Item | Color (circle your choice) | Unit Price | Quantity | Subtotal |
|---|----------------------------|------------|----------|----------|
| "Help Protect NH's Lakes" publication | Not Applicable | \$5.00 | | |
| T-shirt (Adult Small) | Beige Green Blue | \$10.00 | | |
| T-shirt (Adult Medium) | Beige Green Blue | \$10.00 | | |
| T-shirt (Adult Large) | Beige Green Blue | \$10.00 | | |
| T-shirt (Adult X-Large) | Beige Green Blue | \$10.00 | | |
| T-shirt (Adult XXL) | Beige Green Blue | \$10.00 | | |
| Subtotal = | | | | |
| Base shipping and handling for one booklet or one shirt = | | | | \$2.50 |
| Extra shipping for each additional booklet or shirt (add \$0.50 for each additional item) = | | | | |
| Additional donation (if desired) = | | | | |
| Total = | | | | |

Payment Information (please select):

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Credit Card: (circle one) VISA MASTERCARD

Card Number: _____

Card Exp. Date: _____ verification code: _____

Name as it appears on card: _____

Signature: _____

Shipping Information:

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State: _____

Zip Code: _____

Phone Number: _____

Cut-out or photocopy order form and mail form and payment to: NH LAKES, 84 Silk Farm Road, Concord, NH 03301.

Questions?: Contact NH LAKES at (603) 226-0299 or info@nhlakes.org.

New Hampshire Fish Consumption Guidelines Updated

State officials responsible for monitoring New Hampshire waterways and protecting public health recently released updated fish consumption advice that includes several new recommendations: stocked (hatchery-grown) trout are exempt from the statewide advisory; perch are included with other species that have length restrictions regarding consumption; and four new waterbodies have specific advisories (Dubes Pond, Jackman Reservoir, Mascoma Lake and Tower Hill Pond).

Fish are a great source of low fat protein and other nutrients such as omega-3 fatty acids, but some fish contain mercury (a neurotoxin). Although mercury levels in fish are usually low, it's good to follow some precautions to limit mercury exposure if you eat fish often. Infants and children are particularly sensitive to the effects of mercury since their nervous systems are still forming. That is why it is especially important for women who may

become pregnant, infants and children to limit eating the fish that contain high levels of mercury.

The statewide mercury fish advisory recommends that women of childbearing age and children under age seven limit freshwater fish consumption to one meal per month, others can safely eat four meals per month. A meal equals 8 ounces of fish for adults and 4 ounces for children under age 7.

The New Hampshire Department of Environmental Services (NHDES) is currently revising the brochure "*Is it safe to eat the fish we catch?*" to reflect the updates; in the meantime, the updated advisory is available at www.des.nh.gov/factsheets/ehp/ard-ehp-25.htm.

This article was taken as an excerpt from a NHDES press release issued on April 25, 2008. Visit www.des.nh.gov/press/archive/2008/press04252008.htm for the complete press release.



Photo courtesy of the New Hampshire Fish and Game Department at http://www.wildlife.state.nh.us/Fishing/big_fish.htm.

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