

The Loon Flyer

Graduate Student Completes Research on New Pollutants in the Squam Lakes

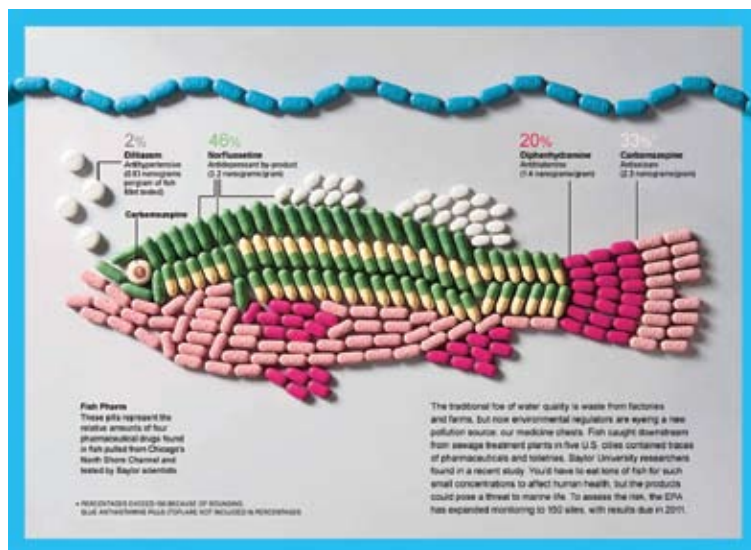
In the spring of 2008, Rebecca Harvey joined the SLA staff as Research Associate, a position supported jointly by Plymouth State University (PSU) and the SLA. With the SLA, Rebecca gained hands-on experience working with water quality monitoring, invasive plant management and other ecological projects, while also working towards the completion of her Master's in Environmental Science and Policy at PSU. "The dual nature of this program; gaining experience with the SLA while working towards my Master's at PSU, is what made it stand out," Rebecca reflects on what made her choose PSU, "I couldn't have found a better fit in a degree program."

In May of 2010, Rebecca successfully defended her Master's Thesis on the presence, fate and toxicity of pharmaceuticals and personal care products (PPCPs) in the environment, a topic of growing concern on a local, national and global scale. PPCPs (prescription and over-the-counter drugs, shampoos, perfumes, soaps, lotions, etc...) are being detected in lakes, streams and rivers at increasing frequencies and concentrations and have been connected to serious environmental health risks. "Recent studies have connected the antibiotic resistance in bacteria and pathogens to the presence of antibiotics in rivers and streams," explains Rebecca. "The feminization of fish has been linked to synthetic hormones in the environment, which has the potential for larger consequences on the balance of the species life cycle and their ecosystem."

How are PPCPs getting into the environment? When you take a medication, your body only absorbs a portion of the drug, releasing the rest down the toilet. Similarly, the soaps, shampoos and lotions you use in your daily life are easily rinsed from your body when you bathe. Septic systems and wastewater treatment facilities do not treat for these compounds, and most are released to the groundwater or waste effluent stream, direct sources to our environment. Additionally, many expired or unwanted drugs are disposed of via flushing down the toilet or drain and most beef-cattle are treated with hormones and antibiotics; their waste releases unused drugs directly to the environment.

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Recent studies have connected the antibiotic resistance in bacteria and pathogens to the presence of antibiotics in rivers and streams.



PPCPs as environmental pollutants have received growing attention in the scientific community and in popular media.

Image from National Geographic



Rebecca collects samples to test for pharmaceutical compounds in NH waters



Letter From the President

It's a sure sign of fall when our trail crew begins maintenance work on our 50 mile trail network. It's good to have them back to supplement the work our volunteers and SCC groups have done this summer. Reflecting on the summer, it certainly was memorable from a number of perspectives. The 244 participants in our youth programs enjoyed the outstanding warm and sunny weather, as did the campers who booked 871 sites this season. In addition, our 816 kayak, canoe and sailing rentals were a record setter. And speaking of record setting, our staff and volunteers removed 3,300 gallons of milfoil in our continuing fight to halt the spread of this infestation. A remarkable number considering that in past years we have measured our progress by the hundreds of gallons.

2010 will also be remembered forever as the year of the Fisher Family Youth Activity Barn raising. Thanks to the support of our members and friends in the community, we have built a place for our youth programs to grow. For years to come, the new barn will play a vital role as we continue our mission.

Fall also marks the start of our 2011 planning cycle. We will reflect on the achievements mentioned above and the other objectives that we established for 2010, and mirror our progress against our long term vision and strategic plans in order to establish priorities for next year. With your continued support these priorities will translate into successful action plans that will continue to protect the unique qualities of the Squam Lakes for future generations. Thanks again for your support!!

Earle Jenkins

The Squam Lakes Association is dedicated to conserving for the public benefit the natural beauty, peaceful character and unique resource values of the lakes and surrounding area. In cooperation with local and state authorities and other conservation organizations, the Association promotes the protection, careful use and shared enjoyment of the lakes, mountains, forests, open spaces and wildlife of the Squam Lakes region.

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Rebecca's thesis project researched the sources and toxic effects of pharmaceuticals but also involved a collaboration with the NH Department of Environmental Services to establish a laboratory method to detect and measure four PPCPs; caffeine, acetaminophen (pain killer), carbamazepine (anti-seizure), and trimethoprim (antibiotic). Using this new method, Rebecca collected samples from the Squam Lakes, rivers in northern/central New Hampshire, and the effluent stream of two municipal wastewater treatment facilities.

So, what did she find? None of the targeted compounds were detected in any of the Squam Lakes' samples while at least one compound was detected in both wastewater treatment facility effluent streams. Caffeine was detected the most frequently and at the highest concentrations, followed by carbamazepine and acetaminophen. Trimethoprim was not found in any of the samples. Rebecca said, "My primary conclusions were that, 1) the laboratory method works and 2) that the targeted compounds don't appear to pose a significant threat to the Squam Lakes." However, there are thousands of different compounds my method doesn't test for that may occur at high levels."

Rebecca has now been hired on at the SLA as Ecological Manager, where she hopes to continue sharing her research on PPCPs. This past July, she presented her work at the 2010 Pakistani Educational Leadership Institute conference, which was well received by the international educational leaders in attendance. She has also published a brief summary of the issue and her research in a white-paper available free-of cost at the SLA Resource Center. Stop by anytime to pick up a copy.

Battling Invasive Milfoil in the Squam Lakes

By Rebecca Harvey

Variable milfoil (*Myriophyllum heterophyllum*) is undoubtedly the most problematic invasive species in the Squam Lakes and arguably across New Hampshire. This exotic weed is a submerged aquatic plant characterized by feathery leaflets surrounding a thick, reddish main stem, often described as looking like a fluffy green raccoon tail. Milfoil prefers to grow



Support from the Robert Earll McConnell Foundation and the NH Lakes Association allowed the SLA to increase our efforts to combat variable milfoil!

in primarily calm and shallow waters (less than 20 feet deep) and spreads by fragmentation. Boats, swimmers, fishermen, and wind action break off fragments of the milfoil stalk, which float to other areas of the water body, root and create new infestations. Fragments can also be spread between water bodies via fragments caught on boat props or in fishing tackle.

In mid-July 2000, the NH Department of Environmental Services confirmed the presence of variable milfoil in the Squam River. It has since been found in many parts of Little Squam, the Squam River, the Squam Channel and some isolated sections of Big Squam.

Variable milfoil poses an ecological threat, recreational threat, and economic threat to the water bodies it infests. Variable milfoil out-competes native aquatic plants, creating

monocultures dominated by the single exotic species, limiting habitat availability for many fish and insects and altering the natural dynamics of an ecosystem. Additionally, when large mats of variable milfoil die and decompose, they consume large amounts of oxygen dissolved in the water, creating anoxic conditions that are lethal to many aquatic species. Thick infestations of variable milfoil clog boat propellers, snag fishing lines and make swimming impossible, significantly



Variable milfoil is often described as looking like a fluffy green raccoon tail.

(Photo by Kimmy Steinberger)

threatening the recreational enjoyment of infested water bodies and threatening the local communities' tourism industry. Some have seen shoreside property values drop 10 to 40 percent due to the infestations. The costs associated with the management of infestations are also significant; on average, the SLA spends \$20,000 annually on milfoil management.

Typically, this \$20,000 comes from membership contributions and donations. This year, however, the SLA was awarded a \$3,000 grant from the Robert Earll McConnell Foundation, a \$3,300 grant from the NH Lakes Association and over \$1,000 in the form of donations from residents in Grapevine Cove and Evans Cove. With the help of these grants, we were able to quadruple our efforts to combat milfoil. We purchased a second milfoil management boat and hired four summer interns dedicated to milfoil control. This summer we spent 750 hours removing over 3,300 gallons of milfoil in the Squam Lakes and Squam River, reducing our ~13 acres of infestation to ~6 acres. In 2009, the SLA worked just under 350 hours to remove about 400 gallons of milfoil. With the new equipment and specialized expertise of our summer interns, we were able to work more efficiently to remove 7.5 times more milfoil than in the past.

Unlike past seasons, we feel that this summer's work put a significant dent in the infestations in the lakes. This season's battle may be over, but the war will certainly continue in the spring. In order to continue to successfully manage our milfoil infestations, the SLA needs your help. We do not receive any financial support from our watershed municipalities or from your property taxes. Please consider making a donation to our milfoil management program to protect your shores from this invasive aquatic weed.

JSLA: A Year in Review



Committee Working to Honor Squam in National Historic Registry

Kayte Knower

Many visitors to Squam say that our watershed feels more quiet and serene than other New Hampshire lakes, like a step back in time. The region remains rich with historic farmhouses, ice houses, summer cottages, barns, and boat houses, and many of the simple values that settlers brought to the watershed are still prevalent in today's community.

To celebrate this unique heritage, an independent committee of historians and preservationists is currently working to nominate the Squam watershed to the National Register of Historic Places. If achieved, this listing will be a thematic nomination, which is strictly honorific and will impose no restrictions on property owners. Rather, participation by owners is entirely voluntary. Advocates of the nomination explain that adding Squam to the National Historical Register will provide a positive and unifying force in the community, document the unique cultural values of the region, and highlight the value of historic structures and landscapes. The nomination would also give Squam a voice on any government funded project that might negatively impact one of these historic structures.

For further information, or to add your support to the project, please contact Betsy Whitmore, project chair, at 968-7548.



2010 Squam Conservation Corps improving wildlife habitat, supported by US Fish and Game



The Squam Lakes remain rich with historic farmhouses, ice houses, summer cottages, barns, and boat houses

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Fisher Family Youth Activity Barn; Making a Dream a Reality

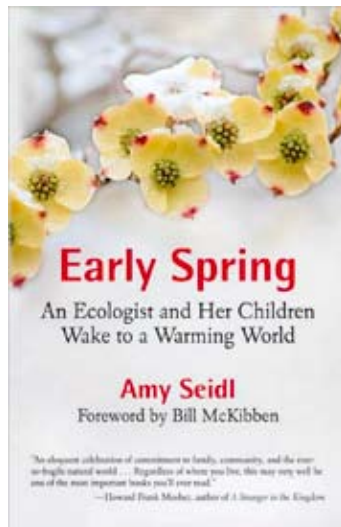
Jenne Walker and Rebecca Harvey



Over 200 joined us for the SLA's Annual Meeting, where the Youth Activity Barn was dedicated to the Fisher Family

It has been a long road, and you've been with us through it all, but this year's Annual Meeting celebrated the official opening of the SLA's Youth Activity Barn. Over 200 people joined us for our annual business meeting and the dedication of the barn to Audrey and Tim Fisher, and their children Brooks, Matt, Lilah and Nina, who graciously donated the timber for the barn's construction and pledged lead gifts to support the project. Following the dedication ceremony, guest speaker Amy Seidl (author of *Early Spring*; an ecologist and her children wake to a warming world) addressed the audience, discussing nature deficit disorder among children today.

Our use of the Fisher Family Youth Activity Barn was also evidenced at the Annual Meeting, where art created by JSLA and CYSP campers and counselors decorated the walls. A few days of rainy weather prior to the event allowed campers the opportunity to create this art while staying warm and dry in the barn. "I walked over to take some photos of campers using the barn," Jenne Walker, Youth Program Manager recalls, "but didn't hear anything, so I thought the counselors must have already left to take the campers canoeing or kayaking.



Seidl's book can be purchased directly from the publisher, Beacon Press, or online through Amazon or Barnes and Noble

I went into the barn and found all the campers quietly working on their own art projects; they were so excited to be using the barn and creating art to be displayed in it!"

Currently, the Fisher Family Youth Activity Barn stands three stories tall with garage space in the basement, an entirely open space on the second floor and an open mezzanine on the third floor. The west-facing wall of the barn is completely open from floor to ceiling, leaving space for our next exciting plan; a climbing wall!

As we enter the era of "plugged in" children we must

not overlook the need to not only engage children in outdoor activities but to also help them achieve a healthy lifestyle. Rock climbing is a total-body workout for children and adults alike. It improves muscular endurance, flexibility, coordination and balance. Rock climbing also builds self-confidence, fosters goal setting and develops focus and concentration.

Indoor climbing is fun, exciting, physically beneficial, mentally challenging, and socially enjoyable. This physical component of engaging children and young adults is just another opportunity that is available when the weather makes outdoor pursuits inaccessible. As we move ahead with equipping the Fisher Family Youth Activity Barn, it will be integral to offer a physically rewarding experience when the weather refuses to cooperate with our recreation based programming.

Any contribution is greatly appreciated but if you enjoy a great challenge become one of the first fifty people to sponsor at the \$250 level. Every level of support is a vital component to the final assembly and will greatly benefit the children as they reach for the top!



Indoor climbing is fun, exciting, physically beneficial, mentally challenging, and socially enjoyable

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John Zahr

This September, the SLA was saddened by the loss of John Zahr, a great friend of the lakes. John will be dearly missed.

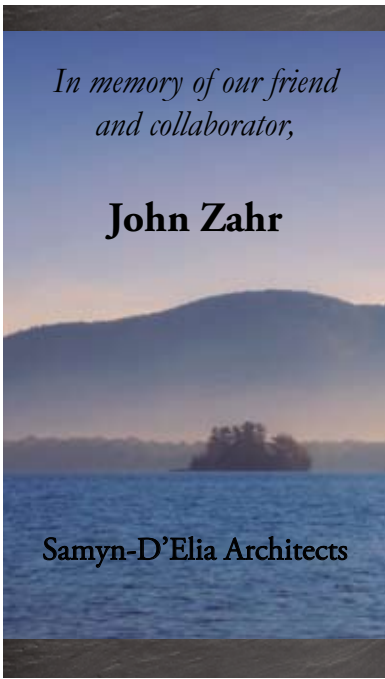
John H. Zahr, 64, died Sept. 8, 2010, at Dartmouth Hitchcock Hospital after injuries he sustained in a bicycling accident. John was an active member of the SLA Board of Directors, where he served on the Finance & Asset Management Committee and the Communications Committee.



Mr. Zahr was proud of his involvement in numerous construction projects throughout New Hampshire and beyond, such as: the Manchester Airport, Catholic Medical Center, the Currier Museum, Manchester City Hall, St. Paul's School in Concord and the Manchester Boys and Girls Club.

Mr. Zahr enjoyed life and being active; he golfed, skied, biked, played racquetball and enjoyed boating on Squam Lake, where he built his dream house a few years ago. In addition to his service on the board of the Squam Lakes Association, John was also a board member for the New Hampshire Institute of Art. He was past president of the Association of General Contractors and was a supporter of CASA and the Manchester Boys and Girls Club.

Thank you John, for your service to the Squam Lakes Region.



moving rocks into position. Please be advised: the Wentworth Trail will be subject to intermittent closures while some of the work takes place to ensure user safety.

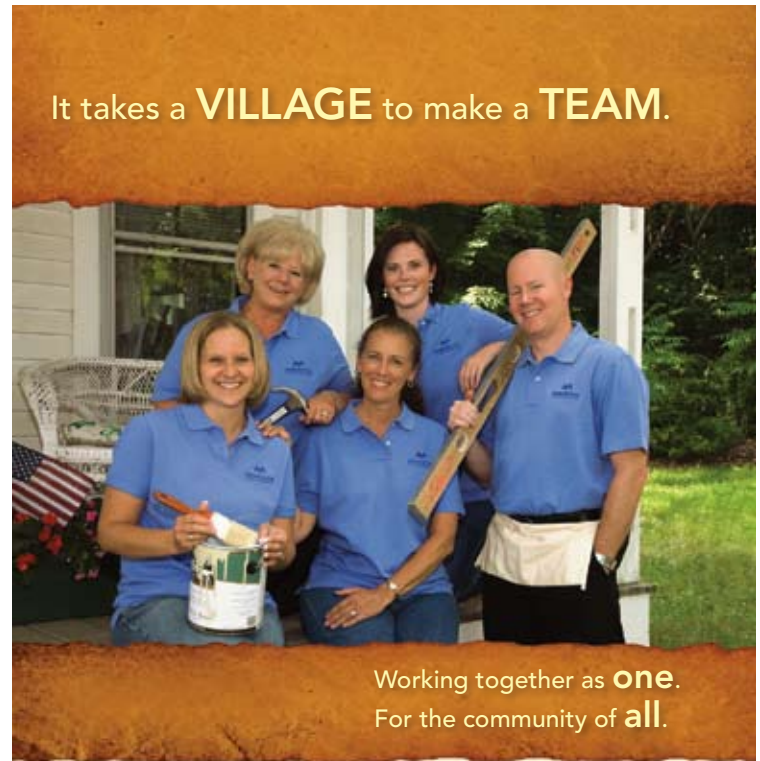
The Old Bridle Path up West Rattlesnake will be getting some work done on it as well. Many of you have probably seen the gravel pile in the parking lot slowly being moved up the mountain to harden the treadway. Lots of brush is also being brought in to keep people on the trail. Users walking off the trail undermine all the work that has gone into the trail and the brush alongside the trail functions as a barrier to keep users on track.

Please call the SLA if you would like to join the trail crew on their project, would like to help on the Old Bridle Path or would just like more information on our trails program. We are always looking for more trail adopters to help with our 50+ mile trail network. If you like hiking this is a great way to volunteer for something important while doing something you love. Stop by and lend a hand to the trail crew or just thank them for their hard work. See you on the trails!!!

Trail Work Throughout the Fall

By Brett Durham

The Squam Lakes Association (SLA) will be spending the fall 2010 trail work period focusing on the Wentworth Trail to the top of Mount Israel. The work will include building stone stairs, waterbars, and check steps along with general maintenance activities. The five-person trail crew consists of SLA Trail Crew leader Brian Gagnon, along with trail crew members Rich Shivers, Dan Newton, John Rene Toussaint, and Ben Moody. Jed Talbot from Off the Beaten Path will be holding training sessions with the crew and volunteers on how to place rock steps and waterbars as well as the use of skylines for



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2010 Squam Lakes Waterfowl Summary				
	Nesting Pairs	Chicks Hatched	Chicks Surviving	Inviabile Eggs
Loons	11	9	4	6
Eagles	1	2	2	0



Squam Lakes Association

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Squam Lakes Association 2010-2011 EVENTS CALENDAR



- OCT 31 Last night of Camping for the Season
- OCT 27 Asian Longhorned Beetle Workshop. Learn about this invasive and potentially devastating pest, 5 pm SLA Resource Center
- NOV Wilderness First Aid Certification. Details and dates TBD. For more information on attending this 2-day certification class, please call (603)968-7336
- NOV 16 Pharmaceuticals and Personal Care Products in the Environment. How are our daily activities impacting water resources? 5 pm SLA Resource Center
- JAN 15 Winterfest at SLA Headquarters from 12 pm -3 pm, rain or shine
- JAN-FEB Build your own adventure! Contact the SLA to plan your own outdoor expedition, day trips and overnights, catered meals, certified guides! 8-12 participants! Call today to start planning your trip. (603)968-7336
- FEB 12 Family Snowshoe. Join the SLA on a guided snowshoe tour of the Squam Watershed. Some snowshoes available for rent. First come first serve. Please call (603)968-7336 for more information
- MAY 1 Campsites open
- MAY 21 Boat Rentals open (weekends only)

Visit www.squamlakes.org and click on our "Events Calendar" for up-to-date event information and more information on SLA Events.

Member Address Change

Contact our office if your mailing address has changed or to share your e-mail address with the SLA. Also, if you have separate winter and summer addresses, please let us know the dates you are in residence at each address. SLA is fined 70¢ for every piece of forwarded bulk mail. You can either call the office at (603) 968-7336 or send an e-mail to info@squamlakes.org.