

LOON PRESERVATION COMMITTEE NEWSLETTER

SUMMER 2018





The Loon Preservation Committee 183 Lee's Mill Road, P.O. Box 604 Moultonborough, NH 03254 603-476-LOON (5666); www.loon.org

The Loon Preservation Committee (LPC) is a non-profit, self-directed and self-funded organization affiliated with New Hampshire Audubon. Autonomous in membership and fundraising, LPC works to preserve loons and their habitats in New Hampshire through monitoring, research, management, and education.

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DIRECTOR'S MESSAGE

A Remembrance of Kittie

Loons and the Loon Preservation Committee lost a tremendous advocate and friend with the passing of Kittie Wilson, The Loon Lady of Pleasant Lake, this past May. Kittie first came to our attention at LPC about 15 years ago, when the loons on Pleasant Lake in New London nested for the first time since 1979. We were thrilled, as always, to welcome a new observer and new volunteer to help us help loons – but we had no idea at that time how important Kittie would become to loons and to all of us at LPC.

Kittie loved her loons, and she had a special relationship with them. She was enthralled with their attentiveness to their eggs, their teamwork caring for and feeding their chicks, and their devotion to each other. She began to document their lives in pictures, and began to share those photos with friends and neighbors around the lake, an effort that grew into her weekly "All Things Pleasant on The Lake" emails. Those pictures of her beloved loons and other aspects of nature grew into a phenomenon that introduced people around the state and the world to loons and other natural wonders.

But Kittie was not one to just observe the beauty of nature. She travelled around the state giving presentations about loons, and donated the proceeds to LPC to further our work to protect them. She created books and calendars with her photos and always included a conservation message and encouraged people to support LPC. After losing a loon on Pleasant Lake to lead fishing tackle, Kittie and husband John (both LPC Spirit of the Loon Award recipients, in 2009 and 2012 respectively) worked with fierce determination to pass legislation restricting the sale and use of lead tackle. And the day that legislation was implemented, she and John came to The Loon Center, with a cake, to help us celebrate a great day for loons.

We made full use of Kittie's passion and talents at LPC. Her beautiful portraits of her loons grace every one of our newsletters and reports since 2009. She is and always will be a Presence at The Loon Center, and the world is a better place, for people and for loons, because of her passion and generosity. We at LPC, and I hope all of you, will continue to draw strength and inspiration from Kittie's pictures – her love of loons and nature shines through them – and be reminded of the joys of a life lived close to nature.

Harry

LPC Partners with University of New Hampshire and Biodiversity Research Institute to Study Cyanobacterial Toxins

What do fruit bats in Guam, coots in Georgia, and fish in New Hampshire all have in common? They have all been found to accumulate - or bioconcentrate – neurotoxins produced by cyanobacteria, formerly known as blue-green algae. These cyanotoxins can be deadly. On Guam they have been blamed for a devastating disease akin to ALS (amyotrophic lateral sclerosis, or Lou Gherig's Disease) affecting the Chamorro people, whose diet includes fruit bats. In Georgia and other southeastern States, cvanotoxins have been linked to die-offs in American coots (Fulica americana) and the bald eagles that prey or scavenge them. Here

in New Hampshire, cyanobacterial algal blooms in freshwater lakes are now the subject of intense study as a source of toxins that can move through the aquatic food web, building up in fish, and posing a potential risk to long-lived apex predators who consume fish, including loons and humans. In all three systems – Guam, Georgia, and New Hampshire – the accumulation of cyanotoxins in the food web may put species at the top of the web at risk. LPC's work this summer will help measure cyanotoxins in New Hampshire lakes and identify mechanisms that could make them harmful to wildlife using loons as an indicator species.

All cyanotoxins are not alike. One broad class, microcystins, have long been known as a health hazard to humans and animals, including livestock and pets. Dr. James Haney, a limnologist at the University of New Hampshire's (UNH's) Center for Freshwater Biology, has been studying microcystins for several decades. Recently his research focus has broadened to include the cyanotoxin BMAA (Beta-Methylamino-L-alanine). BMAA is the compound that accumulates in fruit bats in Guam. It caught the attention of researches in New Hampshire, including Dr. Haney, when they realized that BMAA derived continued on page 4

Remembering Kittie...

Linda Egli Johnson, Newsletter Editor:

Kittie Wilson was a kind, generous, and dear friend to all of us at LPC, but especially to New Hampshire's loons. She devoted her summers to protecting loons in any way she could. A retired school teacher, she traveled the state with her husband, John, giving presentations on loons and donating her speaking fees to LPC. In addition to her great skills as an educator, Kittie was an exceptional photographer. She photographed her loon family on Pleasant Lake in great detail, always with



high powered lenses from a safe and respectful distance. And she shared her photography selflessly for the benefit of loon preservation. As the Editor of the LPC Newsletter, I have been immensely blessed to have Kittie's large archive of loon photography at my disposal. Her images tell a story that words cannot always capture. They offer enjoyment and a heightened awareness to the reader. And they set our publication apart with their professional quality and unique compositions.

It was just last fall that Kittie and I collaborated on a new column for the LPC Newsletter, "Looking at Loons—A Telephoto Look at the Natural History of New Hampshire's Loons" (see page 21). This column captured the subtle nuances of loon behavior that many of us would otherwise miss. Prior to her passing she submitted what would be her last article and accompanying photographs for this Summer 2018 issue. But she left us a treasure trove of loon images captured with her indomitable spirit for loon behavior and preservation. We will honor her legacy by continuing to share her images through the LPC Newsletter, e-news, website, and our educational outreach efforts throughout the state. We are forever grateful to Kittie for leaving her mark in such a positive and inspiring way!

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from cyanobacterial blooms might help explain an unusual cluster of human ALS cases around Mascoma Lake in Enfield. Environmental sampling to measure BMAA levels at the bottom of the food chain, in the plankton, and in the predators higher up, like fish, has also included loon blood, feather, and egg samples. Indeed, recent results based in part on LPC's samples has confirmed the idea that BMAA may be accumulating, or bioconcentrating, in lake predators like loons (see Figure 1).

But accumulating in the upper echelons of the food web may not be the only way to the figurative top for cyanotoxins. Recent work at Dr. Haney's lab has highlighted a different route. To bypass the long trip up the food chain, a cyanotoxin like BMAA need only be lofted from the water column into the air to become immediately available to humans, loons, and other organisms living and

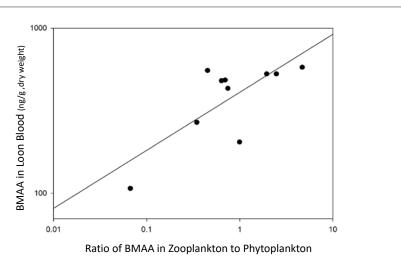


Figure 1: Loon blood BMAA concentrations (vertical axis) depend on the accumulation of BMAA in the food web. The horizontal axis indicates the rate of BMAA biomagnification (or concentration) as zooplankton consume phytoplankton, at the base of the aquatic food web. Greater biomagnification is correlated with higher loon blood levels. Data and chart adapted and reprinted by permission of Dr. James Haney, UNH, and Dr. Michelle Kneeland, Biodiversity Research Institute.

breathing at or near the surface of the lake. At the surface of a windswept or sun-baked lake, this aerosolization happens continuously, and may account for a substantial part of the total exposure to cyanotoxins. Species like loons that eat fish *and* breath only a few inches above the lake surface would be exposed through both pathways.

~John H. Cooley





In mid-May, North Country photographer Lorraine Virge discovered this Common Loon stuck in a small retention pond behind commercial buildings in Littleton, NH, without enough water to take flight. After several days, the loon headed over land across the parking lot between TJ Maxx and McDonald's. Virge and local law enforcement intercepted it just before it reached busy Route 3. Veterinary staff at Meadow Pond Animal Hospital in Moultonborough provided first aid and found no major injuries, and LPC staff released it the same day on Echo Lake in Franconia Notch, near the rescue site. Inclement weather the week before the rescue, which produced noted fall out of migrating waterbirds on large lakes throughout western NH, may have brought this loon to an unexpected landing.

Understanding and Managing for Climate Change in New Hampshire

ce-out on Winnipesaukee this spring came on April 26, a few days later than average, marking a welcome end to what felt like a long winter. A cold, late spring had kept the ice intact, making this a pretty ordinary year in the 132 years of local record keeping. But as our summer newsletter goes to press, the weather patterns seem to have returned to the new normal. The month of May featured only a third as much rain as usual, and temperatures were five degrees Fahrenheit above average. When we look past the varying weather, though, the long-term trends are clear. New Hampshire's climate is warming and changing, and that change is impacting wildlife, from moose to river herring to loons.

Nesting at the water's edge, loons are vulnerable to weather events that can flood or strand their nests. Near the southern limit of the species breeding range, the loon population that we monitor and manage in New Hampshire may also be pushing the climate envelope, assuming loons have evolved climate-driven adaptations better suited for breeding further north. Fortunately, our close monitoring, over decades of variable weather, can give us insight into how loons fare during a warmer or cooler summer, or in dry or wet years. And this can help us anticipate, adapt, and plan.

Our investigation of the effects of these challenges on loons has focused on the influence of weather—precipitation, temperature, and humidity—on loon nesting success. This has been complicated by the many other factors that also influence nesting. To highlight the role of weather, we have matched loon nesting



An adult loon vigorously pants on the nest in an attempt to cool itself. Loons will also leave the nest to drink and cool off in the water, leaving eggs vulnerable to predators.

data — the site location, nest initiation and completion dates, and other monitoring data painstakingly compiled since the 1970s by numerous field crews and volunteers — with daily weather data from local weather stations, using over 100 stations throughout New Hampshire to cover the 4,000+ loon nest attempts with precisely known dates. This, we hope, gives us the clearest possible picture of the relationship between weather and nesting success.

The results of this analysis confirm that precipitation—especially the flood events that can cause widespread nest failure—and high temperatures are both negatively associated with loon nesting success. Rainier or warmer weather during a nest attempt makes the nest significantly less likely to succeed. As we refine these results, we are also focused this summer on nest observations that pinpoint the direct effects of weather and temperature on loon behavior and egg viability, to

better understand this relationship.

LPC is also investigating how to protect loons in the future, as the climate changes. A proactive part of our nest observations this summer will be LPC Staff Biologist Caroline Hughes' thesis investigation of raft cover materials. Will a shaded, cooler raft be a haven for loons on a hot day, making a nest in southern New Hampshire feel a little more like one in central Canada, or a nest in the future a little more like one from a past, cooler climate? Perhaps modest alterations to the nesting habitat, such as a little more shade, can buy our loons many decades more of comfortable nesting conditions, as the climate warms. To investigate, Caroline's Master's thesis is comparing simulated egg temperatures under rafts with additional shade at three experimental sites in southern, central, and northern New Hampshire. She is

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also testing shade fabric on a few active nest rafts on Winnipesau-kee and Squam, to measure the temperature differences and loon behaviors on these different rafts. In addition to nest raft design, Caroline's results may point to important differences in natural shade conditions at loon nest sites around the state.

~John H. Cooley



Photo Courtesy of John Rockwood

Eggs left unattended, while incubating parents seek relief in the water from hot temperatures, are not only susceptible to predators but are at risk of overheating without the shade provided by the parents.

Master's Thesis Explores Raft Cover Materials and Nest Temperatures

iven that the effects of climate Jchange are already being felt by many species, particularly by those at the southernmost extent of their breeding ranges, LPC is gearing up to address the challenges that incubating loons are likely to face in New Hampshire as summers grow progressively warmer. Last summer, Staff Biologist and Field Program Coordinator Caroline Hughes conducted a pilot study to determine whether our nest raft covers could be modified with UV-blocking covers to provide shade, thus reducing heat stress on nesting loons. As the limited results of this pilot project were promising, Caroline is expanding upon that study this summer for her Master's Thesis.

The current study seeks to compare temperatures across multiple types of nests, with special emphasis on temperature differences between our current model raft, which has a cover consisting of one layer of camouflage netting stretched over an arch of lobster trap mesh, and our experimental model raft, which has a cover that incorporates a layer of UV-blocking shade fabric in addition to the camouflage netting and mesh. On lakes throughout New Hampshire, we have set up study sites that compare temperatures

among our experimental raft model, our current raft model, a nest raft with no cover, and shoreline (natural) nest sites. At each site, we are measuring both the ambient temperature and the temperature of mock eggs. Through this study, we hope to be able to determine whether the ambient and mock egg temperatures on the experimental raft model are significantly lower than on the current model rafts. We also hope to discover whether rafts in general (and the experimental rafts specifically) differ significantly from natural nest sites in terms of nest temperatures.

In addition to comparing temperatures among the raft types, we are also interested in determining whether the experimental raft covers provide a biologically significant temperature reduction for nesting loons. To determine this, we are equipping multiple nest rafts (with and without the UV-blocking fabric) that we expect will be used this season with a temperature sensor and with a game camera. Through this portion of the study, we hope to measure both temperature differences and differences in loon behavior (especially the expression of thermoregulatory behaviors, such as panting) between raft models. The results of this study should help us to improve the design of our rafts in order to better aid New Hampshire's loons as climate change progresses.



An experimental raft setup on Lake Massabesic will compare temperatures among raft types and materials.

LPC Launches New Lead Tackle Buy Back Program to Combat Continuing Loon Lead Deaths

uring a meeting this winter of the Loons & Lead Working Group at New Hampshire Fish & Game Headquarters in Concord, a radical idea was thrown on the table. "How about a lead tackle buy-back program?" Or as LPC's Harry Vogel likes to say, "Lead is still a serious problem for our loons. Let's give anglers some cold hard cash for their lead tackle!" The idea was discussed for a while longer, pros and cons presented, and a decision was made to try a pilot program during the summer of 2018.

The Loon Preservation Committee (LPC), New Hampshire Fish & Game Department (NHF&G), and two local tackle shops have teamed up to offer a lead tackle buy back between June 2 and September 3 (Labor Day). Anglers can exchange one ounce or more of banned tackle for a \$10 gift certificate to either AJ's Tackle in Meredith or The Tackle Shack in Newbury, the two participating shops this year.

This pilot program could not come at a better time, as we are on the heels of the highest number of adult loon deaths from ingested lead fishing tackle in the last 5 years. Eight loons were confirmed dead after ingesting lead sinkers and jigs in 2017. This was despite the new law that went into effect in New Hampshire on June 1, 2016, banning the sale and freshwater use of lead sinkers and jigs weighing one ounce or less, regardless of length or attachments. These loons were discovered on lakes or ponds in Alton, Auburn, Danbury, Franklin, Moultonborough, Pittsburg and Sunapee, which demonstrates the impact this issue is having across



This loon was picked up by Harbormaster Bion Pike's boat at Manchester-by-the-Sea in Massachusetts at the end of November. Bion called LPC, and The Animal Rescue League of Boston, whose staff was able to get it to Tufts Veterinary Clinic. Although lead tackle ingestion is only rarely documented on saltwater, this loon had ingested a lead-headed jig, tested very high for lead, and unfortunately died overnight. The lead levels in this loon's blood were more than 10 times as high as the upper limit of our test machine at LPC.

the state. They were a powerful reminder that it is one thing to have a law on the books, and another to have people aware of and follow that law. This new initiative is an attempt to offer an incentive to clean out Grandpa's old tackle box in the dusty corner of the garage and replace its lead tackle with new, loon-safe, nontoxic tackle.

In addition to the buy-back program, LPC and NHF&G will continue to educate anglers about the effects of lead poisoning on loons. Both organizations are part of a region-wide initiative called Fish Lead Free (www.fishleadfree. org) which is dedicated to providing resources for anglers across New England to help them make the switch to lead-free tackle. There are many safe alternatives to lead that are easy to find and

affordable. It is our hope that the continued outreach will remind anglers that they should not wait any longer to do the right thing for loons. Not to mention fishing with lead sinkers or jigs weighing one ounce or less is against the law in New Hampshire now! Collection receptacles for old lead tackle can be found at all NHF&G offices, at The Loon Center in Moultonborough, at the NH Lakes Association office in Concord, and several transfer stations around the state as well.

We will be excited to share results from the 2018 pilot program in our Fall Newsletter, and we are hopeful we can expand the program next year if more tackle shops are willing to participate.

~Susie Burbidge

Lead Tackle Continues to be a Major Problem for NH's Loons in 2017

7 hen all was said and done, **V** LPC's ongoing investigation of loon mortality produced a disappointing but very clear result in 2017: lead tackle ingestion continues to be a major problem for New Hampshire's loons. Forty percent of documented mortalities, or eight adult loons, died of lead poisoning. In 2017, another two loon mortalities involved fishing line entanglement, meaning that at least half of the documented adult loon mortalities were preventable. Other causes of adult mortality included infection (2), trauma (3), and injury from other loons (1). The cause of death could not be determined in five cases. In addition to adult cases, three immature loons (1-2-year olds) were collected, and seven juveniles or chicks (less than one year old). Most of the

juvenile mortalities were attributed to trauma (usually from attacks by other loons) but in one notable case on Conway Lake, from a bald eagle.

The 2017 mortality collections represented over a third of the mortalities expected in the adult loon population for the entire year, given a background mortality rate of 8% and an adult population estimated at about 700 loons. This is a remarkably high rate of collected and examined carcasses, for a free-ranging wildlife population, and speaks to the strong public interest and cooperation in reporting dead loons. We were surprised to find that in 2017 over a third of the adult mortality cases were banded loons, including three of the lead mortalities. Two of these lead poisoned loons were at least 21 years old (originally banded in 1999) and the third was at least 15 (originally banded in 2005). For one, banded in 1999 on Walker Pond in Boscawen, lead poisoning ended a successful recent breeding effort on Tower Hill Pond in Auburn. At 25 miles from Walker Pond, his establishment at Tower Hill Pond marked a record dispersal distance, across the Merrimack River Valley, for an adult male loon.

~John H. Cooley



LPC Hosts Tufts Veterinary Students - Olivia Bolus & Kim Freid

his summer, LPC will again host two Tufts University veterinary interns. Olivia Bolus (pictured left) is a rising second year veterinary student with a background in environmental science and marine mammal biology. Her previous experience includes work with Allied Whale, where she helped to manage the North Atlantic Humpback Whale catalog, responded to marine mammal strandings, and participated in necropsies. This summer, Olivia will focus on testing a new device to aid in the detection of aspergillosis (an opportunistic fungal disease) in loons. While this device has been used for humans, it has never before been used on wildlife. Our second intern, Kim Freid (pictured right), is a rising third year veterinary student. During her previous experience as a veterinary assistant, Kim developed an interest in toxins that affect wildlife after seeing mass seabird mortality as a result of red tide poisoning. This summer, Kim will be working closely with both LPC and the University of New Hampshire Center for Freshwater Biology to investigate the potential health



consequences to loons from exposure to the toxins produced by harmful algal blooms. We are glad for the continued opportunity to collaborate with Tufts University Cummings School of Veterinary Medicine and look forward to having both Kim and Olivia join our team this summer.

2018 LPC SUMMER FIELD STAFF

LAKES REGION



HENRY STEVENS

Henry is enrolled at Tufts University with a dual major in Biology and Environmental Science. He founded the Tufts Ornithological Society, a student organization promoting ornithology and avian biodiversity education and awareness.

SEACOAST



OWEN BRENNICK

Owen is enrolled at the University of New Hampshire majoring in Wildlife Conservation Biology. He served as a research assistant on a New England Cottontail monitoring and conservation project, overseeing data collection and integrity.

MONADNOCK



HILLARY SIENER

Hillary earned a B.S. in Geology /St. Lawrence University, and an M.S. in Environmental Studies/Antioch University New England. She has dedicated much of her career to date studying and banding birds throughout the northeast.

Noah is a recent graduate of St. Lawrence University/

Biology. He spent two sum-

mers as a field technician

Populations (IBP)—the first

on willow flycatchers, and

second on bumblebees—in

the remote Sierra Nevadas

for the Institute for Bird

SUNAPEE



SARAH CANTWELL

Sarah returns for a second summer monitoring the loons in New Hampshire's Sunapee Region. She continues her undergraduate studies in Wildlife Conservation Biology as a senior at the University of New Hampshire.

NORTH COUNTRY



NOAH BELIVEAU

WINNIPESAUKEE



ERIN HALEY

Erin is enrolled at the University of Montana majoring in Wildlife Biology. She volunteered for a Wolverine Watch Station in northwestern Montana, as well as for a habitat restoration project in the Blackfoot-Clearwater Game Range.

SUMMER INTERN



JULIAN MOULTON

Julian is an Organismal Biology and Ecology major at Colorado College. Research experience includes the Bronx Zoo, American Museum of Natural History, Cape Eleuthera Institute, and Ecology Project International in Costa Rica.

SUMMER INTERN



MATT TOLMAN

Matt is enrolled at Paul Smith College where he majors in Wildlife Biology. He has gained valuable experience surveying and banding birds through his course work and is eager to futher expand his field skills helping LPC this summer.

The SQUAM LAKE territory is monitored by Tiffany Grade, LPC's full-time Squam Lake Project Biologist.

LPC Hosts 29th Annual Northeast Loon Study Working Group

n March 15th-16th, the Loon Preservation Committee hosted the 29th Annual Northeast Loon Study Working Group (NELSWG) meeting at The Loon Center. NELSWG provides a forum for researchers from throughout the northeastern states, the eastern Canadian provinces, and beyond to share new findings about the basic biology and life history of loons; discuss continuing and emerging threats to loon populations; and improve our ability to address challenges facing loons through management and public education. Meeting as a group allows researchers and state-wide organizations like the Loon Preservation Committee to place their findings into a larger regional context, and facilitates indepth discussions about priorities for new research and new collaborations to benefit loons.

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An impressive list of close to 50 representatives of 19 not-for-profit organizations, industries, and government agencies attended the gathering. The subjects covered at the meeting were nearly as diverse as the participants, with a total of 29 presentations and discussion topics addressed over two

intensive days dedicated to safeguarding and recovering loons. An entire section of the meeting was devoted to the continuing challenges posed to loons by lead fishing tackle and ongoing research and education to reduce mort-

alities from ingested lead tackle.

LPC staff led discussions of new techniques to rescue and rehabilitate sick or injured loons based on our experience and recent successes, and considerable time and discussion were devoted to the threats of contaminants revealed by LPC's Squam Lake Loon Initiative (see page 16) and the continued progress of LPC's Loon Recovery Plan. The latter topic included initial results of LPC's comprehensive analysis of effects of temperature and rainfall on loon nesting success and an introduction to our pilot study on management techniques to mitigate these challenges.

NELSWG provides an important venue to share and critically



LPC Senior Biologist John Cooley discusses the potential effects of Climate Change on New Hampshire's loons.

examine LPC's monitoring, research, management, and educational activities. The peer review of the many initiatives reported at NELSWG helps hone the work of LPC and other organizations to assure a future for loons in the northeast. The Loon Preservation Committee and the Northeast Loon Study Working Group will continue to expand relationships among researchers and wildlife managers that are working to recover viable region-wide populations of loons and other wildlife. In so doing, NELSWG helps ensure that LPC's work continues to benefit loons and other wildlife in the northeast and beyond.

~Harry Vogel

The dramatic increases in LPC's monitoring, research, management, and education to recover loons have been funded by donations to LPC's Loon Recovery Plan. For more information about the Loon Recovery Plan, or to make a donation, please contact Harry Vogel, Senior Biologist/Executive Director at 603-476-5666 or hvogel@loon.org.

Thank you to our donors: April 1, 2017 - March 31, 2018 (\$100 and above)

The Board of Trustees and staff of the Loon Preservation Committee thank all our supporters for their passion and commitment to our mission. Every dollar and donation of goods and/or services makes a difference in our work to preserve loons and their habitats in New Hampshire. We regret that space limits this listing to monetary donations of \$100 or more. Although we make every effort to be accurate, we would appreciate any notice of errors or oversights.

\$10,000 and above

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The Rawson L. Wood Society Have you considered becoming a member of our Planned Giving Society? Your legacy gift is a way of helping us continue our mission to restore and maintain a healthy population of loons throughout New Hampshire. Contact Harry Vogel, Senior Biologist/Exec. Director, at 603-476-5666 for more information.

1111/201



LPC Annual Meeting August 23, 2018

The Loon Center

5:30 pm 6:45 pm 7:00 pm Potluck Dinner
Annual Meeting
Loon Presentation
& State of The Loon Report

Photo Courtesy of Kittie Wilson

Expanding the Circle of Concern for Squam

ver since LPC discovered Lelevated levels of chemical contaminants in unhatched loon eggs from Squam Lake over 10 years ago, we have been working to recruit partners to help in our efforts to track down the sources of these contaminants, from state and federal agencies to organizations around Squam Lake. These efforts met with mixed success because of limitations of funding and staff time of these agencies and organizations, so LPC took the initiative to sample crayfish and sediments throughout the Squam watershed with help and advice from researchers at New Hampshire Department of Environmental Services (DES), Plymouth State University (PSU), US Environmental Protection Agency, and US Fish and Wildlife Service to identify potential sources of contaminants.

These efforts culminated in spring 2017 with the submission of a report to DES reporting the results of LPC's sediment sampling and our discovery of three locations of contaminated sediments around Squam (one site for PCB's [industrial insulating agents] and dioxins/furans [by-products of manufacturing processes] and two sites for DDT [an insecticide]). At all three of these locations, the contaminant levels exceeded sediment quality guidelines indicating possible or probable harm to aquatic life.

Since the submission of this report to DES, staff from LPC, the Squam Lakes Association (SLA), and PSU have met on several occasions to review LPC's findings and plan our next steps to address this issue. This has been an education for LPC in the limits of what falls under the purview of DES: contamination in a lake

ecosystem manifesting itself in a top-level predator but which is not clearly from a factory pipe or other point source falls through the established programs of DES. Consequently, there is no state funding to address the issue.

As indicators of the health of the aquatic environment, Squam's loons originally alerted us to the problem of contamination on Squam Lake, and they will continue to serve as sensitive barometers of contamination in the watershed.

Within these limitations, DES is working with LPC to assist as they can to organize tasks among collaborators and move the project forward. Last fall, staff from New Hampshire Geological Survey completed an assessment of the culverts near the sites of contaminated sediments identified by LPC. Plans are underway

for late summer fish sampling on Squam to assess contaminants in the food web and potential human health effects from these contaminants. DES is in the process of securing funds from **US** Environmental Protection Agency for contaminant testing in these fish samples. PCB's come in many forms; and the SLA is, at present, planning to test sediment samples this summer for a limited set of PCB's and DDT. Researchers at PSU are planning a study of contaminant pathways at the sites identified as elevated for DDT by LPC. SLA is also planning on collecting local history information from Squam residents to learn about potential historic sources of contamination in the watershed. This past spring, LPC sent its collaborators detailed recommendations for future sediment sampling. It is hoped that these efforts will continue to help us track sources and extent of contamination in the watershed, with a goal of understanding what



Photo Courtesy of Kittie Wilson

steps may be taken towards remediation of contaminated sites.

Based on LPC's testing of unhatched Squam Lake loon eggs, Squam's loons are carrying a contaminant body burden that includes not just DDT and PCB's but dioxins, furans, flame retardants (PBDE's), stain repellants (PFC's), and chlordane (another insecticide). LPC remains concerned about the overall contaminant body burden of Squam's loons. LPC's sediment testing identified potential sources for DDT, PCB's, and dioxins/furans; but, to date, we have not identified sources for these other contaminants. Full testing of these contaminants in sediments is needed to identify, if possible, sources of other contaminants. LPC continues to advocate for testing that covers the full scope of contaminants of concern revealed by our efforts and will work to retain portions of samples for future testing.

The loons ultimately will tell us about the success of any work or remediation done on Squam. As indicators of the health of the aquatic environment, Squam's loons originally alerted us to the problem of contamination on Squam Lake, and they will continue to serve as sensitive barometers of contamination in the watershed. LPC has committed to continuing to test unhatched loon eggs from Squam for these contaminants, and we will continue to take a leadership role in contaminants work on Squam. This is an issue we are strongly invested in, and we are determined to see that the work continues to be done in a way that is best for the loons, for the health of the Squam ecosystem, and the wildlife and people that call Squam home.

~Tiffany Grade

LPC's "Loon Cam" Continues to Enthrall Viewers Worldwide

Tn 2017, for the fifth year, the Loon Preservation Committee streamed live footage of a pair of nesting loons on a lake in the Lakes Region of New Hampshire. The camera started streaming on May 3 but the loons did not start nesting until May 25. Up until that time viewers watched different species of turtles basking in the sun on the 2017 nest site and also had a chance to watch some pre-nesting loon behavior including copulation and nest building. The high definition video captured the first egg on May 25, and two eggs were seen on May 28.

Both of these adults are banded so we were able to confirm that the same pair of loons was back at the nest this year. The peak of nest initiation usually occurs the first week of June, and this loon pair was among the first loons in the state to initiate a nest. The female of this pair has been on the lake since she was first banded as an adult with chicks in 1998. Since the average age of first breeding in New Hampshire is 6 years old, she is probably 26 years old or older. This makes her the second oldest female still breeding in New Hampshire, that we know of, and she is even older than most of our field biologists! In 2017, this pair hatched one chick – probably the most famous loon chick in the world - that successfully fledged from the lake last fall!

We installed a new microphone this year that has volume control so we can hear all of the sounds close to the nest, while at the same time, muffling background sounds which helps protect the privacy of the homeowners on the lake. Each year we learn from our previous experience which allows us to make adjustments and improvements to the camera set-up. We are so fortunate to have the technical expertise of LPC volunteer Bill Gassman, who has been instrumental once again with the set-up and daily operation of our live "loon cam" this year. From dryruns with the new equipment over the winter to meeting the cable technician on-site to answering technical questions and participating in the chat forum on YouTube to catching highlights and creating video clips, Bill has contributed countless hours and has been there every step of the way with great enthusiasm. Thank you, Bill!

We look forward to giving our members a more in-depth summary of the "loon cam" in LPC's Fall Newsletter. We are hopeful it will be ranked in the top 5 again in the live animal and pet category on YouTube! After all, a local New Hampshire morning radio personality said "Move over April the Giraffe" in a recent article about LPC's webcam!

~Susie Burbidge

NEWS FLASH!

At press time, the "loon cam" pair had successfully hatched two chicks! A second "loom cam" is already underway on LPC's YouTube channel, website, and as a livestream at The Loon Center. See page 18 for more details!

LOON PRESERVATION COMMITTEE ACTIVITIES

"Each new year is a surprise to us.
We find that we had virtually forgotten the note of each bird,
and when you hear it again, it is remembered like a dream,
reminding us of a previous state of existence . . .
The voice of nature is always encouraging."

~Henry David Thoreau



"It takes a lake to raise loon chicks!" ~Kittie Wilson

- Loons do not stay on the nest with their chicks. They are true water birds and will always be out on the water.
- •Loon chicks are very small. They can only make short, shallow dives. They do not swim fast, and they cannot fly. They spend time tucked on their parent's back as well as bobbing by their parent's side.
- Loon families usually have a designated nursery area. Their range increases as the chicks grow stronger.
- Boaters beware! Slow down if you see a loon. You could run over a chick without ever seeing it. Keep a sharp eye ahead as you boat.
- Paddlers (kayaks, canoes, paddleboards, etc.): Keep at least 150 feet distance from the loons and never surround them. Stay only a short time to observe.
- Call LPC at 603-476-5666 to report a problem or an observation.

Lakes Region Audubon Chapter Birdathon/Bloomathon Report

The Birdathon/Bloomathon (B/B) is a volunteer fund-raising event The objective is to count as many birds and blooms as possible in a 24hour period during the peak of songbird migration and spring blooms. Bird and bloom teams solicit per species sponsors and outright donations to help raise money for the Chapter and for the Loon Preservation Committee. The Chapter has held their meetings at The Loon Center since its dedication in 1994, and members of LPC are also active Lakes Region Chapter members.

One hundred twelve species of birds and 84 species of flowering plants were the totals for this year's Birdathon/Bloomathon held on May 22nd—196 total species in Tamworth and contiguous towns. The day dawned clear, but clouds moved in and thickened during the morning, with showers and rain after 2 pm.

A Northern Parula, Cape May, Wilson's and Tennessee warbler boosted the warbler count to 22. An Olive-sided Flycatcher and Indigo Bunting were also among notable birds. Buckbean--a shallow water plant with hairy white or pinkish flowers--was an exciting new find this year, and Marsh Marigold and Fringed Polygala were back



This year's intrepid B/B Team included: Ingrid Albee, Ned Beecher, Tim Brown, Chris Clyne, Lynne Flaccus, Lucy Gatchell, Tiffany Grade, Michelle Langer, Randy Langer, Susan Lee, Jane Rice, Bob Ridgely, and Peg Ridgely.

"Tomorrow is a mystery. Today is a gift. That is why it is called the present."

~Eleanor Roosevelt

WHAT AM I?

Written by Charlie Winship, Age 8 Second Grade, Larkspur, CA Summers on Pleasant Lake, New London, NH

I am bold and black with shiny feathers.

I am speckled white with dark red eyes.

I have wings and live on lakes.

I am a mother that cares for her young.

I am a teacher who teaches her babies to dive.

I call to my young and it echoes for all to hear.

What am I?

(I am a Loon!)



SUMMER BULLETIN BOARD

Summer Nature Talks: Thursday Evenings at 7:00pm, July 5 - August 23; FREE

Loon Festival: Saturday, July 21; 10am - 2pm; FREE

Come by The Loon Center for loon-themed arts & crafts, face painting, balloon sculptures by Mo, educational loon slide shows, live animals and exhibits, music, refreshments & more!

<u>The Winni Swim—Making a Splash for Loons!</u>: Wednesday, July 18 (Rain date July 19) Join Pam Halsey and Brenda Gallagher for a swim or paddle around Ragged Island to call awareness to the plight of our loons. Registration is required and limited so sign up soon! Email: info@loon.org or call 603-476-5666 for more details.

<u>Carl Johnson Memorial Golf Tournament</u>: Monday, August 20; 7am-2pm; \$100 per golfer A fun morning of golf at Ridgewood Country Club. \$10,000 hole-in-one grand prize along with raffle and other prizes! Breakfast and lunch included. Pre-register by August 13.

LPC Annual Meeting: Thursday, August 23; 6:45pm

You are also welcome to attend the volunteer potluck dinner at 5:30pm and/or the end-of-season loon report immediately following the Annual Meeting (see page 15). Contact volunteers@loon.org.







Pick the Loon Preservation Committee from Amazon's list of participating charities and they will donate a portion of the purchase price to LPC!

"Ah, summer, what power you have to make us suffer and like it." ~Russell Baker

LOOKING AT LOONS

A Telephoto Look at the Natural History of New Hampshire's Loons by Kittie Wilson

Newly hatched loon chicks are adorable balls of fluffy down. They can swim, do shallow dives, and rise up and shake their tiny wings, but they are helpless to defend or feed themselves. The loon parents act as a floating nest for the newly hatched chicks and work hard to keep the chicks well fed.

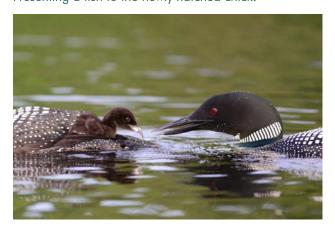
Loon chicks are fed mostly aquatic insects, small fish and tiny crayfish. During the first weeks of a chick's life, one parent stays with the chicks on the surface of the water while the other parent hunts underwater for suitable food.

Loon parents present the food down at the level of the chick, who might be nestled on the other parent's back, or bobbing in the water. Presentation is accompanied by soft hoots of encouragement. Fish are held crosswise in the bill. The chick must learn how to take the fish, then shift it 90 degrees so that the fish will be swallowed head first, which is typically the manner in which loons swallow fish. This shifting takes practice, and in the first weeks of life the chicks frequently drop the fish, at which time the parent must retrieve the fish and offer it again...and often again, and again, and again! The loons show infinite patience as their little chicks work to master the challenges of grasping and swallowing techniques.

References: The Common Loon, Spirit of Northern Lakes by Judith W. McIntyre



Presenting a fish to the newly hatched chick.



The chick turns the fish and swallows it head first.



The exchange of the fish from parent to chick.

In loving memory of Kittie Wilson, whose love for loons and generosity of spirit will forever be woven into the fabric of the Loon Preservation Committee and its mission.

Summer 2018 Nature Talk Series

at The Loon Center 183 Lee's Mill Road, Moultonborough, NH

Thursdays, 7:00pm ◆ Admission Free ◆ Donations Appreciated

July 5 A Wildlife Photographic Odyssey – Rick "MooseMan" Libby

Join nature photographer Rick "The Mooseman" Libby for a photographic tour of New Hampshire's wildlife. Enjoy his beautiful photos of the wildlife of the Lakes Region and beyond. You may even see a loon!

July 12 New Hampshire Wildlife – Squam Lake Natural Science Center

Are you curious about the critters that inhabit the Granite State? Meet three wild animals that you could encounter in our forests, fields, or wetlands and discover what makes them well suited for life in New Hampshire.

July 19 Learning from Loons – Mark Pokras, DVM, Tufts Veterinary School

The links between animal health, human health and the environment are undeniable. This talk will focus on how a long-term study of the common loon (Gavia immer) is contributing to our knowledge of these links.

July 26 A Century of Forest Conservation – Dave Anderson, Co-host of "Something Wild" At 84% forested, NH is the second-most forested state in the nation by total land area. Learn about NH's forest history, succession, and wildlife habitats, including historical photos of early White Mountain logging operations.

August 2 Eyes of the Wild: Hawks and Owls – Squam Lake Natural Science Center

Peer into the raptor world through an up-close experience with live hawks and owls that call NH home. Compare fascinating similarities and differences between hawks and owls and how they are perfectly suited for their habitats.

August 9 New Hampshire's Moose – Kristine Rines, New Hampshire Fish and Game

This program covers the history and life history of NH's moose. A review of current management practices and research, as well as a discussion of what the future holds for this icon of the northwoods, will be discussed.

August 16 Dragons and Damsels of New Hampshire – Pam Hunt, New Hampshire Audubon

This program provides an overview of the biology and ecology of dragonflies and damselflies, from their amazing life cycle to their incredible diversity. It also highlights a few of NH's notable species and their stories.

August 23 State of The Loon Report – LPC Senior Biologist/Executive Director, Harry Vogel and Wildlife Photographer, John Rockwood

Trends in New Hampshire's loon population and preliminary statistics on how loons fared in NH this year will be complemented by photographs and video of a local loon family from two southern NH lakes.



Save paper and send us your sightings on-line! You can submit this form at www.loon.org/census.php



New Hampshire Loon Census Saturday, 21 July 2018 8:00 AM - 9:00 AM

Lake:				Town:	
Observer(s)):				
Telephone:				E-mail:	
Address:					
Total numb	er of peopl	le in party:			
Observat	ions:				
	Time	# Adults	# Chicks	# Immatures	*Location/Direction
Example	8:17	1 AD			Flew in from east
1.					
2.					
3.					
4.					
TOTALS					
Please note ar	ny bald eagle	sightings during	g this hour & th	e loons' response (i.e	. vocalizations):

- (1) Record only the FIRST sighting of each loon or group, then be sure to total the number of loons observed on the appropriate line. Note the direction in which the loons move or fly.
- (2) If possible, please attach a sketch/map of census area and the location of any loons you observe.
- (3) It is CRITICAL that observations continue for the ENTIRE HOUR.
- (4) Remember, a report of zero is just as biologically important as a report of 10 loons.
- (3) Your sightings from throughout the summer are also valuable. Please comment on loon activity observed at other times on the reverse of this page.

CENSUS FORMS MUST BE RECEIVED BY JULY 31 TO BE INCLUDED IN THE FINAL TALLY.

Please return this form to the LPC: PO Box 604, Moultonborough, NH 03254, or you can fax it 603-476-5497 or email it to volunteers@loon.org.

If you were part of a coordinated census effort on a larger lake, please send this form to your coordinator so they can send the forms in all together.

Loon Preservation Committee PO Box 604 Moultonborough, NH 03254

