



# LOON PRESERVATION COMMITTEE NEWSLETTER

FALL 2022



Ray Hennessy Photo



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

**LPC Staff:**

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John H. Cooley, Jr.  
*Senior Biologist*  
Kellee A. Duckworth  
*Loon Center Manager*  
Tiffany J. Grade  
*Squam Lakes Project Biologist*  
Holly M. Heath  
*Development & Membership Manager*  
Caroline M. Hughes  
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*Loon Center Assistant*  
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## DIRECTOR'S MESSAGE

### *Keep Calm and Paddle On*

It was an eventful summer for Loon Preservation Committee staff. After two years of skating through the pandemic with only a single (known) staff case, Covid finally caught up with LPC this year, with no fewer than ten staff and two stalwart Loon Center volunteers with confirmed or possible (symptoms but no second line on home tests) Covid. A couple of staff injuries added to LPC's disabled list until it seemed like every day brought a new challenge for LPC staff in our work to help our loons cope with their new and continuing challenges.

The sum total of these absences would have been catastrophic for LPC even five years ago, but LPC's increased bench depth and its dedicated staff and volunteers managed to keep The Loon Center open as well as set new records for loons rescued, nesting rafts floated, and loon nests protected this year. We also delivered more educational interactions with our Loon WebCam viewers, more educational posts on social media, returned to in-person talks at (mostly outdoors) lake association meetings and other venues, and even began guided loon paddles – all to teach people about loons and their needs and encourage a culture of respect and appreciation for loons.

Loons responded to LPC's dramatically increased management and relatively stable weather this summer with record numbers of nesting pairs, chicks hatched, and surviving chicks, and the continued hard-won growth of New Hampshire's loon population to reach a new record of 345 territorial pairs.

The ongoing recovery of New Hampshire's threatened loon population is gratifying evidence of the effectiveness of our management and education to help these birds. Even as we work to return loons to our lakes, another part of our mission, monitoring the health of our loons as indicators of the health of our lakes and ponds, is expanding dramatically. LPC's groundbreaking work on contaminants in inviable loon eggs collected from failed nests has resulted in several new collaborations to measure PFAS (chemicals used in some stain repellants, food containers, and firefighting foam) in loons. Concern about PFAS is growing among researchers in the fields of wildlife and human health. LPC's intensive work on contaminants, including its recent report on contaminants in loon eggs and its archived store of inviable eggs, leave it well situated to contribute to efforts to measure PFAS in lake ecosystems and understand how it moves through those systems. We are grateful to our members and friends for supporting that work and the many benefits it provides, to loons, other wildlife, and people.

## 2022 Loon Monitoring Results: The Pace of Progress

New Hampshire's breeding loon population took advantage of good conditions and a little help from LPC this summer to notch a new high point in the gradual re-occupation of the state's lakes and ponds, with a record number of nesting pairs and hatched chicks (Table 1).

Nesting success was above average in seven of the nine LPC regions (Fig. 1). At some sites, success this year came after an initial failure or years of gradual pair establishment. For example, the pair we heralded a year ago for the first nest attempt in the modern era at Loon Pond in Gilmanton nested again this year and hatched successfully. But at small ponds like Cole Pond (17 acres) in the Sunapee region and Basin Pond on the Maine border (23 acres), there was less preamble, and 2022 was the first recorded year for the pair presence, nest activity, and chicks.

LPC field staff and volunteers recorded territorial pairs (two adult loons establishing a pair bond and defending a territory for at least four weeks) for the first time on almost a dozen lakes. Some of this recovery certainly reflects a wave of young adult loons recruited from cohorts hatched during other good nesting years in 2014-2015, who have now returned to win or establish their first territory as six- or seven-year olds, the average age at first breeding. Fortunately, this growth still leaves many vacant lakes for future cohorts. Close to a third of the lakes LPC surveyed in 2022 were suitable but unoccupied habitat. Some of these will be the lakes to watch in a few years, as the successful nests of 2022 pay off in the continued recovery of the population.



Seacoast field biologist Will Hein checking nest material on a new raft.

### Helping Nest Success

The bright spots in this year's monitoring results were due in part to human help. Over half of loon chicks hatched in the state (53%) came from nests protected by floating warning signs or rope-

lines, and almost a quarter of all chicks hatched (23%) came from a nesting raft, provided to buffer against fluctuating water levels and shoreline predators. LPC volunteers and staff built and floated a record 141 nest rafts this year, 37 more than last year. As these new

*continued on page 4*

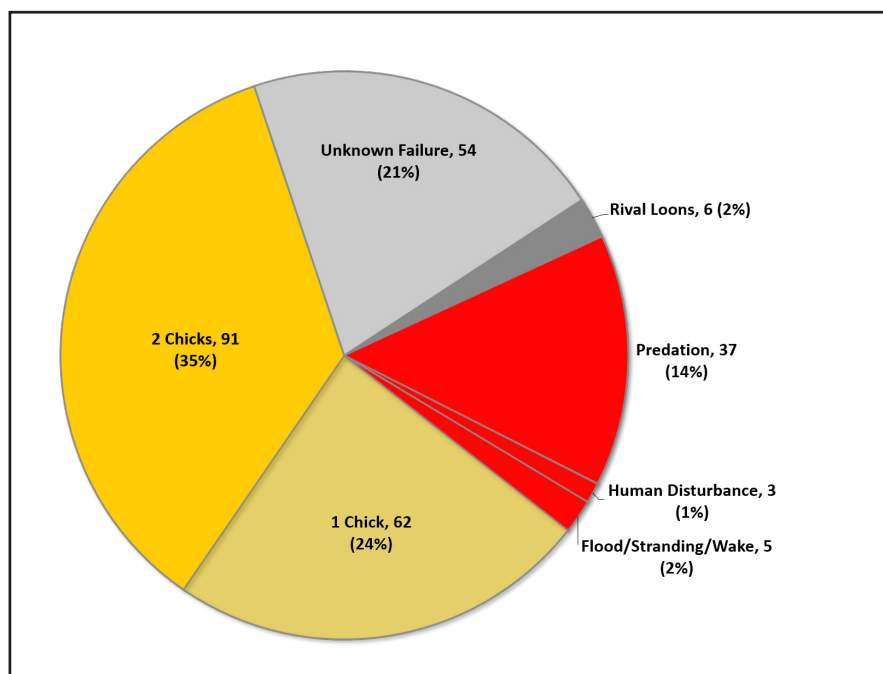


Fig. 1: Loon Nest Outcomes in 2022

*continued from page 3*

rafts improve nesting success in the future, they will bolster the prospects of continued population recovery in New Hampshire, while also mitigating the historic negative impact to the New England loon population of the Bouchard-B120 oil spill, which killed over 500 loons in April 2003 off the coast of Rhode Island and Massachusetts.

**Mortalities Reveal Continued Challenges**

Along with record-setting management and nesting success, LPC volunteers and staff have already collected a record number of loon mortalities this year: 31 adult loons, one subadult/immature loon (1-2 year old), and 18 juveniles or chicks. Preliminary necropsy findings have revealed familiar challenges. At least five loons have died from lead poisoning, one loon died after becoming entangled in fishing line, and boat collisions were the likely cause of death or injury requiring euthana-

sia in three cases. Sadly, all three of the adult loons killed in these boat strikes were parent loons with young loon chicks. It takes two loon parents to raise a chick, and the chicks all disappeared soon after their parent was lost. The eight documented cases of human-caused adult loon mortality exceed all other known natural causes in the cases examined this year. Also notable were anecdotal and documented cases of Bald Eagle predations or injuries. These have been on the rise as

New Hampshire’s eagle population grows. On Canobie Lake, for example, observers watched an eagle attack the nesting male loon, who succumbed to injury and infection a few weeks later. It’s remarkable that when this loon was originally banded at Canobie, 20 years ago, there were only a handful of breeding eagle pairs in the state (7 nests in 2002). Now there are over 80, and we are seeing the age-old battle between eagles and loons playing out more often, and on more lakes.



*LPC staff and volunteers rescued this tangled loon on Spectacle Pond in Groton in early October. Banded in 2019, he hatched two chicks this year. Unfortunately, the loon did not survive to be released.*

Table 1. Results and Highlights for 2022 Common Loon Breeding Season in New Hampshire

Population and Productivity	2022	Five-year Average (2017-2021)	2022 vs. prev 5 yrs.
Territorial Loon Pairs	345	313	+10%
Nesting Pairs	236	219	+8%
Chicks Hatched (CH)	244	196	+24%
Chicks Surviving to mid-August	177	144	+23%
Nest Failures	105	108	-3%
Chicks Surviving/Territorial Pair	0.51	0.46	+12%
<b>Management Activity</b>			
Rafts	141	95.4	+48%
Signs/Ropes	129	109.4	+18%
Loons Rescued	34	20.2	+68%
<b>Survey Effort (occupied or potential loon territories)</b>			
Occupied - Territorial (Paired) Loons	345	312	
Occupied - Unpaired Loons (only)	49	50	
Loons Absent	128	143	
<b>TOTAL</b>	<b>522</b>	<b>505</b>	

**Rescues and Returns**

This has also been a busy year for loon rescues. By mid-October, the tally stood at 23 adult loons, with 12 successfully released, and 11 juvenile loons, with five released. Usually the rescues fall randomly to only a few of the monitoring regions and field staff, but in 2022 every single one of a dozen seasonal LPC field staff had at least one rescue to respond to in their home region, and some had multiple. Seacoast field biologist Will Hein even found himself rescuing a loon with a broken wing that he encountered in a different monitoring region, on a rare day off in early August, fishing on Winnepesaukee. And just a few weeks ago, we convinced Monadnock field biologist Autumn Heil to set aside college classes long enough to return to summer duties and help untangle a loon on a pond near Plymouth State University. We owe a huge debt of gratitude to not only these dedicated field staff but also the many volunteers, cooperating agency partners, and wildlife rehabilitators who pulled off the teamwork needed for this record-setting rescue year.

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Field biologists Emma Purinton and Jayden Jech, and Tin Mountain Center volunteer, Tara Taylor, check on a 5-day old loon chick rescued on Lake Waukegan in mid-July. The chick was rehabilitated by Kappy Sprenger and released in Bridgton, Maine in September.



Above: NH Fish and Game Conservation Officer Eric Brown holds a loon rescued from the shoulder of Rt 103B near Newbury in late June, while LPC Senior Biologist John Cooley and Sunapee field biologist Phil Brown sample and band it before release.

Left: After banding, LPC Sunapee field biologist Phil Keefe releases the loon on Mountainview Lake, where it will be monitored in follow-up visits. Rehabilitator Maria Colby was also on the scene to examine the loon and oversee the release.

Photo courtesy of Maria Colby



Photo courtesy of Maria Colby

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The summer season also turned up surprisingly good news about past rescue efforts. Of the 10 loons rescued as the ice closed in on them on Lake Winnepesaukee last January, four were re-sighted on breeding territories this summer, and two more were found as unpaired loons on other New Hampshire lakes (Fig. 2). Their survival adds another chapter to this particular saga, and closes the loop on their contribution to the continued viability of the breeding population as a whole. Hopefully, they'll know enough to catch an earlier train for the coast as winter approaches this time around.

~John H. Cooley, Jr.

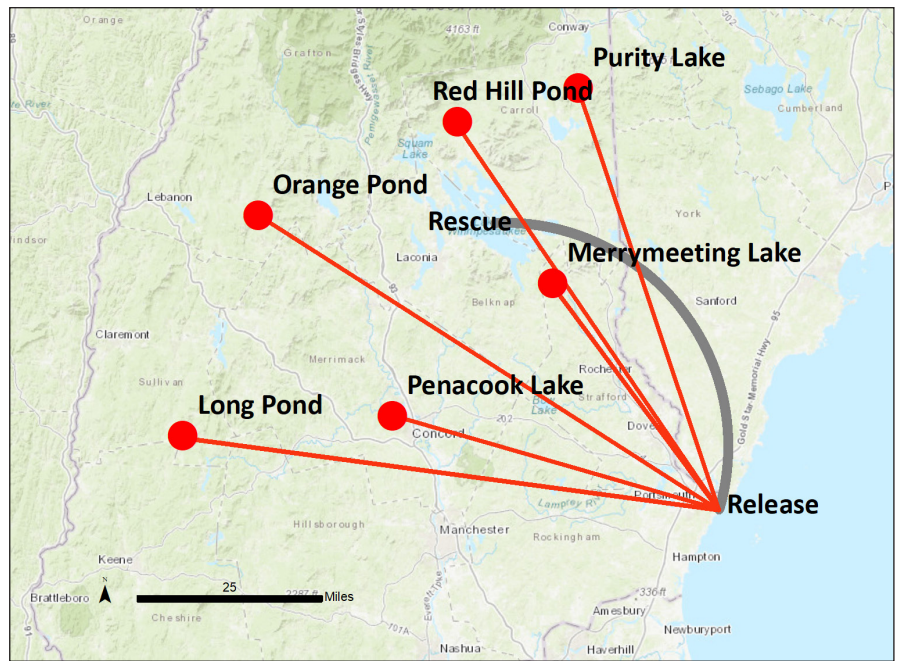


Fig. 2: Six of the ten loons rescued in January as the ice closed in on Winnepesaukee were re-sighted during the breeding season across the southern half of the state.



A well-placed LPC nest camera captures a nest exchange as the adult loons swap incubation duties at Green's Basin on Lake Winnepesaukee. Placed before the loons start nesting, cameras are used at a growing number of sites to document the number of eggs, the incubation behavior and timing, and the outcome of the nest (hatch, predation, or other failure). Some images also reveal the identity of banded loons. The un-banded loon on the nest is the female in this particular pair; the bands on her mate, the visibly larger male loon in the water, don't show in this frame but were obvious in other pictures.

## 2022 Loon Cam Delivers Another Dramatic Year of Loon Watching

Romantic rivals, attacks from above and below, and a (thankfully brief) chick abandonment – if there’s one thing that we can say for LPC’s 2022 Loon Cams, it’s that they had no shortage of drama to keep viewers on the edge of their seats!

Even before the loons began nesting on our first Loon Cam of the season, viewers were riveted by a plucky mother wood duck, who brought her ducklings to take refuge on the Loon Cam nest raft several nights but was often unceremoniously chased off by a pair of geese. On May 28th, both Mama wood duck and the geese were officially kicked off of the nest raft as the loons laid their first egg and took up residence. Things got off to a tough start for our Loon Cam 1 loons – their first-laid egg was nearly lost just a day after being laid, when the female loon rolled it with a bit too much gusto, causing it to leave the depths of the nest bowl and settle on the outskirts of the raft. What followed was six hours of both the female and the male trying to roll the egg back into the nest bowl, where it would be safer and less prone to rolling off of the raft. Fortunately, they eventually succeeded. The next day, the first egg was joined by a second. The countdown to the hatch was on.

Things didn’t slow down for our Loon Cam 1 pair – over the course of their 28-day incubation, they were visited by snapping turtles, osprey, and intruding loons. The camera captured several territorial displays, including yodels from the male, circle dances with up to five intruders at once, and even wing rowing (a behavior that occurs when rival loons chase each other across the surface of the water). Despite their many



*A mother wood duck and her ducklings took refuge on the Loon Cam 1 nest raft before the loon pair got down to business and laid their first egg.*

challenges, the loon pair made it through the incubation period, and their efforts were rewarded with the hatch of two chicks. Not wanting to leave us without one last bit of excitement, the male of the pair ramped up the drama on hatch day when he appeared to be attacked by something from underneath the water’s surface. Though we never got a clear view of what happened, what we did see was the male being startled and then slowly and laboriously wing-rowing across the lake, as if he was being dragged down by something. He disappeared around the corner, out of sight of the camera, and Loon Cam watchers were left to wonder when (or if!) he would return and what had happened. Fortunately, after 40 minutes of uncertainty, the male returned to his family and the remainder of the summer was remarkably peaceful for them. Both chicks survived to fledging age, a success for any loon pair.

Initially, it seemed like Loon Cam 2 would not be able to live up to the drama of Loon Cam 1 – a comforting thought for those of us watching! Through most of the incubation period, it was

smooth sailing for our Loon Cam 2 pair; however, all good things must come to an end. Hatch day dawned bright and sunny, but the afternoon brought storms. Ever persistent, the female of the pair stuck it out on the nest, shielding her new chick from the driving rain. The next day, the weather cleared up and the male took the first-hatched chick on a swim, leading it away from the nest. What happened next was confusing. The male seemed to abandon the chick, swimming away and leaving it on its own in the middle of the territory. The chick nestled itself against one of the buoys on the rope line that LPC staff put out to protect the nest, and though the male came within a few hundred feet of the chick several times, he never came to collect it. Eventually, the male disappeared entirely from the view of the camera, likely spending time on another part of the lake. After hours of watching and hoping in vain for the male to return, and with nightfall rapidly approaching, LPC staff opted to capture the chick and put it back on the nest with its mother and

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newly-hatched sibling.

The male did not return to the nesting area until the following morning. That afternoon, the reason for his long disappearance became apparent. Unbeknownst to the Loon Cam viewers, the male had been in the next cove over from the nesting area, fighting off an intruding loon. This intruder made itself known to us when it showed up close to the nest and engaged the Loon Cam male in a knock-down, drag-out fight that lasted several minutes. The two males gripped each other's necks in their bills and beat one another ferociously with their wings. They then wing-rowed out of the territory, leaving the female alone to tend to the chicks. She remained on the nest for several more hours with the chicks while, according to LPC volunteers in the area, the male continued to fight off the intruder in another part of the lake. The male of the pair returned to the nest cove intermittently to help care for the chicks, but spent much time in the days after the hatch continuing to drive intruders away. While all of that would be enough for any loon pair with young chicks to contend with, our Loon Cam 2 pair also had to cope with attacks from an eagle. One such attack, during which the eagle dove at one of the adults, was caught on camera. Fortunately, the loon was able to evade the eagle's talons, and shortly afterward the family moved out of the nesting cove and into their brooding area for good.

Sadly, one of the Loon Cam 2 chicks was lost in the following days – not a surprising turn of events, given all of the pressures the loons were dealing with. But the remaining chick survived the summer and made it to fledging age. While losing a chick is always sad, it is important to remember



*The Loon Cam 2 male was kept busy defending his territory on and off camera, including this aggressive battle caught on camera close to the nesting area.*

that fledging even one chick in a given year is a success for a loon pair.

The excitement provided to viewers is not the only benefit of live Loon Cams – from a scientific point of view, being able to view nesting loons 24/7 while they incubate is a relatively new development. These cameras have allowed us to learn more about the intricacies of loon nesting behavior. One LPC study that used footage from loon cams and trail cameras has already led us to modify our nest raft design to better help loons cope with increasing breeding season temperatures. We look forward to continuing to use these valuable tools to collect more data about loon nesting behavior and using that information to continue helping loons!

For those who missed the Loon Cams, or for those looking to relive the drama, clips of all events described above have been ar-

chived on the Loon Preservation Committee YouTube channel ([youtube.com/LoonOrgNH](https://youtube.com/LoonOrgNH)). Our live Loon Cam will return next May. Subscribe to our YouTube channel to receive email updates when it goes live!

*~Caroline Hughes*

*We owe a sincere thank you to many people who helped make our live Loon Cams a success this year, including: LPC Volunteer and Loon Cam Operator, Bill Gassman, and his assistants, who worked diligently to operate the camera and keep it focused on the action; Axis Communications, which donated two brand new, top-of-the-line cameras, and Loon Cam viewer Bill Puddicombe, who was instrumental in facilitating this donation; and the many loon cam viewers who tuned in and donated to help us purchase updated equipment to make next year's cams even better.*

## Keeping Up with LPC!

Our Facebook, Instagram, and Twitter accounts are updated frequently with loon photos, information about loons and loon activity in New Hampshire, and LPC's work. Use your phone camera to scan the QR code or visit [loon.org/socialmedia](https://loon.org/socialmedia) for links to all of our social media accounts!



SCAN ME



## *Collecting Tackle, Saving Loons – Lead Tackle Buyback Program Enters its Fifth Year*

In 2022, the Lead Tackle Buyback Program, operated jointly by the Loon Preservation Committee, New Hampshire Fish and Game, and tackle retailers throughout the state, entered its fifth year. For readers unfamiliar with the program, it allows those with lead tackle that is now illegal to buy or to use in freshwater in New Hampshire (lead sinkers and lead-headed jigs weighing one ounce or less) to turn in this tackle at a participating retail location. In return, Lead Tackle Buyback Program participants receive a \$10 voucher to the shop, with which they can purchase replacement tackle or other fishing supplies. They are also entered in our Collect to Protect Contest, which awards \$100 and \$50 prizes respectively to those who turn in the largest and second-largest amounts of illegal lead tackle at each participating shop. To date, the Lead Tackle Buyback Program has removed over 32,000 pieces of illegal lead tackle from circulation and use in New Hampshire, any one of which had the potential to kill a loon. The 2022 program runs through the end of the calendar year, so if you still have lead tackle in your tackle box, it's not too late to participate! Visit [www.loonsafe.org](http://www.loonsafe.org) for program details.

To spread awareness of the issue of loon deaths from lead tackle and to inform the public about our program, LPC ran advertisements on social media, in state-wide and local newspapers, and on several New Hampshire radio stations this year. We also made a point to include information on the danger that lead tackle poses to loons and other wildlife in all of the 141 presentations given by LPC staff throughout the state.

In addition to spreading awareness and incentivizing anglers to turn in their lead tackle, another core component of the Lead Tackle Buyback Program is increasing access to responsible lead disposal locations across the state. In 2022, LPC worked with the Lakes Region Planning Commission to collect lead tackle at eight Household Hazardous Waste days held across the Lakes Region, and ensured that lead tackle collection receptacles were present across the state. We also worked with 27 lake associations to spread the word about the dangers that lead tackle poses to loons and other wildlife and to collect lead tackle at their annual meetings. In addition, we deepened our partnership with the Newfound Lake Region Association and their Lake Host program to collect lead tackle from anglers at boat launches and hand out loon-safe, lead-free tackle in exchange.

Why are we going to such lengths to remove lead from tackle boxes? Lead poisoning resulting from the ingestion of lead fishing tackle is the number one cause of documented adult loon mortality in New Hampshire, accounting for over 40% of documented adult loon deaths from 1989-2021. Lead poisoning is the number one threat to loons in our state, and removing lead from your tacklebox is the single largest thing you can do to help New Hampshire's loons. Excitingly, preliminary results indicate that getting the lead out appears to be working! Between 2016 (the year the current lead tackle legislation went into effect) and 2021, the average annual per capita rate of documented lead tackle mortality

for the New Hampshire population declined by 27.6% from pre-2016 levels and by 57.4% from peak levels (1996 to 2000). Loon mortality rates can be highly variable year-to-year, and as such, six years of data is not sufficient to establish a trend. Nevertheless, these initial findings are encouraging and indicate that together, the legislation and the Lead Tackle Buyback Program may already be substantively reducing loon deaths resulting from ingested lead fishing tackle. We will continue to operate the program in 2023, so be sure to continue checking [LoonSafe.org](http://LoonSafe.org) for program details!

This year, our Lead Tackle Buyback Program greatly benefited from the help of Lead Tackle Buyback Intern, Natalie Ciardi, who worked diligently to get our radio ads up and running and to coordinate with our Household Hazardous Waste partners. We sincerely thank Natalie and all others who worked to promote and operate the program this year, including our partnering lake associations, household hazardous waste coordinators, and our partners at New Hampshire Fish and Game. We especially want to acknowledge our participating retail locations (see page 10), without whom the program would not be able to operate. If you are in need of fishing supplies or other sporting goods, please consider supporting these shops that support loons!

*~Caroline Hughes*

The Loon Preservation Committee gratefully acknowledges the following participating retail locations in the Lead Tackle Buyback Program, without whom the program could not operate. Please consider these retailers when you are in need of fishing supplies or other sporting goods!

LL Cote  
7 Main Street  
Errol, NH 03579

Pawtuckaway Trading Post  
61 Route 27  
Raymond, NH 03077

Squam Boat Livery, Inc.  
853 US Route 3  
Holderness, NH 03245

Newfound Sales & Trading Post  
381 Lake Street, #6  
Bristol, NH 03222

Pinnacle Sports  
5 Airport Road, Suite 10  
West Lebanon, NH 03766

The Tackle Shack  
54 NH Route 25, Unit C  
Meredith, NH 03253

Ossipee's Bait and Tackle  
306 Pine River Road  
Effingham, NH 03882

Rocky's Ace Hardware  
257 Newport Road  
New London, NH 03257

The Tackle Shack  
894 Route 103  
Newbury, NH 03255

# Loon Legacy Society

*Remembering Loons Now – Protecting Loons Forever*

Please consider remembering New Hampshire's loons with a legacy gift in your estate planning. Learn more at <https://loon.org/bequests> or contact Betsy McCoy at 603-476-5666 or [bmccoy@loon.org](mailto:bmccoy@loon.org).

We're deeply honored by those members and supporters who have informed us of their plans to remember LPC in their wills and trusts or other estate plans. These legacy gifts will support LPC's monitoring, research, management, and outreach to help loons far into the future.

Anonymous (4)  
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# Loon Preservation Committee

## ANNUAL REPORT 2022

APRIL 1, 2021 - MARCH 31, 2022

*The Loon Preservation Committee exists to restore and maintain a healthy population of loons throughout New Hampshire; to monitor the health and productivity of loon populations as sentinels of environmental quality; and to promote a greater understanding of loons and the natural world.*

People always ask me how I got involved with the loons and the Loon Preservation Committee (LPC). I often wonder that question myself. I was trained as a hydrogeologist so I have always been interested in understanding how things work and why they respond the way they do. My desire to better understand the biology, physiology and life cycle of the Common Loon came naturally to me. I was hooked the first time I saw the unique black and white feather pattern of the mature loon and heard their mournful yet majestic call. I have had so many questions through the years as I have tried to learn as much as I can about this amazing creature – Where do these birds spend their winters when the lakes are frozen? What do their four different vocalizations mean? How long do loons live? Do they mate for life? Do they return to the same lake where they were born? Who are their predators? How many chicks do they produce? What do they eat? Why do they molt from a black and white feather pattern in the summer to a muted brown, less impressive pattern in the fall/winter? What are the greatest threats to loons?

After leading the Lake Sunapee Protective Association's Loon Committee for more than 12 years and serving on the LPC Board of Directors for the last 8 years, I have had most of my questions answered, but I continue to want to learn so much more about these fascinating birds.

When LPC was created in 1975, little was known about the life cycle of the Common Loon. After 47 years of intensive monitoring, management, research, and education, LPC has the most comprehensive loon database in the world. Thanks to the dedicated staff at LPC, and the support of its extensive grassroots network of members and volunteers, LPC has advanced both the scientific and popular understanding and admiration of loons. Continued research will help us uncover new threats impacting New Hampshire's loons—including contaminants and a changing climate.

As my role of Chair comes to an end, I am feeling blessed to be a part of such a special organization as LPC and impressed with the positive impact LPC has had on the loons in New Hampshire. It has been an honor to serve with LPC's distinguished Board of Directors and work closely with Harry Vogel and the dedicated LPC staff and volunteers. I plan to remain involved with LPC and continue to learn as much as I possibly can about loons, taking action, when necessary, to improve the life and longevity of this iconic bird.

Kristen F. Begor, Chair



LPC staff rescue 10 loons trapped in the ice in late January on Lake Winnepesaukee.



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**EXECUTIVE DIRECTOR'S MESSAGE:**

**A Year of Extremes**

The Loon Preservation Committee's Fiscal Year that ended March 31st of 2022 (FY22) marked a year of extremes for loons and for LPC's work to help them. Last year New Hampshire's nesting loons were faced with a record-hot June and a record-wet July. LPC floated a record number of loon nesting rafts, most equipped with UV-blocking shade covers, to help loons ride out the heat and the water-level changes that were the demise of many natural loon nests. The result of that work was that one of every four loon chicks on New Hampshire's lakes last summer hatched on a raft floated by LPC biologists or volunteers. Even with these efforts we experienced one of the worst breeding seasons in LPC's 47 years of monitoring and managing our loons.

The impacts of climate change on our loons did not end there. A warm early winter resulted in many loons delaying their migration from our lakes to the ocean. This late departure might seem like a benign change for loons, and even a welcome delay to those of us who enjoy watching them on our lakes. The problem is that when warm weather and open water persist for too long, the freeze, when it comes, can catch loons in the midst of their winter wing-feather molt when they are unable to fly to escape the ice. That was the case for several loons, including ten birds in one incident on Lake Winnepesaukee in January of this year. LPC staff launched an intensive four-day effort to save those loons (the "Winni Ten" as they are now known here), and all ten were rescued and released to the Atlantic Ocean. Six of those banded loons have to date been sighted as members of nesting loon pairs, but the fate of the others is at this point uncertain.

It is sobering to see this evidence of increasing impacts of a changing climate on our loons. But it is also gratifying to me to know that the work LPC has done over the past two score and seven years, and the data we have collected and can now bring to bear on this issue, might hold the key to mitigating climate change impacts on loons and help create a larger awareness of the consequences of climate change. The new and continuing challenges facing our loons are matched by a growing awareness of the need to address these issues, and a growing base of support that has allowed LPC to continue, albeit slowly, the recovery of our loon population. Thank you for your support, through your time, effort, caring, and funds, to make our continued work possible.



Roy Hennessy Photo

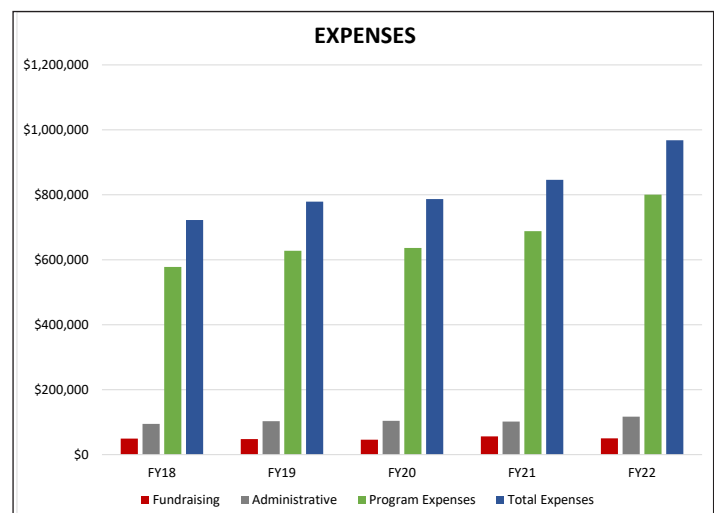
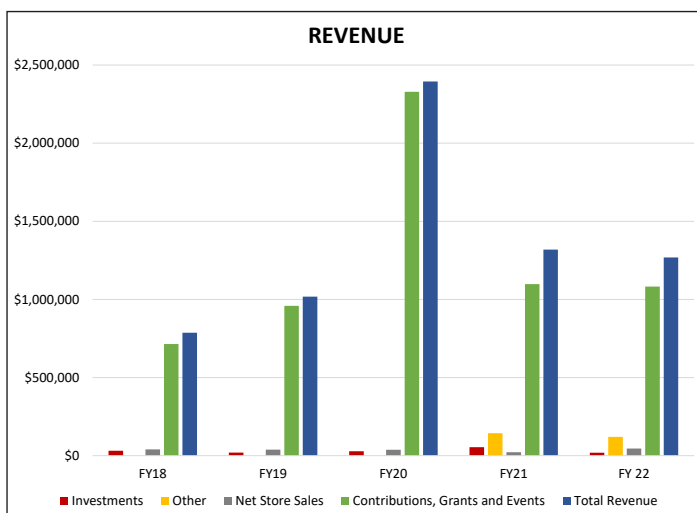
**Population and Productivity:**

	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Territorial Loon Pairs	296	309	313	321	326
Nesting Pairs	202	226	221	216	229
Chicks Hatched	168	224	193	203	192
Chicks Surviving to mid-August	126	157	148	156	133

## FINANCIAL SUMMARY:

**Loon Preservation Committee:** Summary of Activities and Changes in Net Assets  
Fiscal Year Ending: March 31

	FY18	FY19	FY20	FY21	FY22
<b>Revenue:</b>					
Contributions, Grants and Events	\$710,453	\$959,380	\$2,328,325*	\$1,098,165*	\$1,082,662
Store Sales, Net Cost of Goods	\$40,013	\$38,894	\$37,952	\$22,385	\$45,600
Investments	\$31,770	\$19,657	\$28,768	\$54,487	\$19,344
Other (PPP1, Energy Rebates, etc.)	—	—	—	\$144,066	\$120,681
<b>Total Revenue</b>	<b>\$782,236</b>	<b>\$1,017,931</b>	<b>\$2,395,045</b>	<b>\$1,319,103</b>	<b>\$1,268,287</b>
			<i>*Includes gifts received during the capital campaign</i>		
<b>Expenses:</b>					
Program Expenses	\$578,166	\$627,733	\$636,374	\$688,111	\$800,597
Administrative	\$94,855	\$103,132	\$104,337	\$108,672	\$117,219
Fundraising	\$49,053	\$48,182	\$46,166	\$49,390	\$50,338
<b>Total Expenses</b>	<b>\$722,074</b>	<b>\$779,047</b>	<b>\$786,877</b>	<b>\$846,173</b>	<b>\$968,154</b>
<b>Increase in Net Assets:</b>	<b>\$60,162</b>	<b>\$238,884</b>	<b>\$1,608,168</b>	<b>\$472,930</b>	<b>\$300,133</b>



LPC's financial records are audited by Rowley & Associates of Concord, NH. Copies of the audit and the IRS 990 return are available on our website: [www.loon.org](http://www.loon.org).



Lead fishing tackle is the leading cause of adult loon mortality in New Hampshire. Loons can ingest lead fishing tackle from a line or attached to a fish. Use only non-lead fishing tackle to protect loons and other wildlife—it's the law! And please dispose of fishing line and tackle properly to prevent entanglement and potential injury or death to loons. For more information on LPC's lead poisoning reduction initiative visit [loonsafe.org](http://loonsafe.org).

# Loons and a Changing Climate



Kirrie Wilson Photo

FY22 recorded New Hampshire's warmest ever June followed by the wettest ever July, with over 13 inches of rainfall in Concord (NH) and a dozen flooded loon nests. Both of these extremes are unfortunate for loons, a northern species. Avian guards offer shade from direct sun exposure while rafts protect nests from water-level fluctuations.

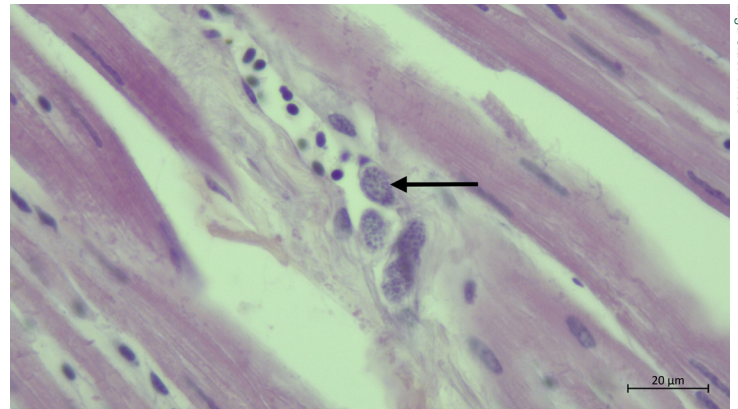


A male loon was washed downstream from Skatutakee Lake during July flooding. Monadnock Biologist, Mary Caffrey, joined volunteers Russ Cobb and Brett Thelen in retrieving the loon from a streambank, hundreds of yards from the lake. After a short rehab with Maria Colby, the loon was returned to its lake and resumed care of its young chick.



Jean Despres Photo

LPC and its partners began banding loons in 1993, and have banded nearly 600 New Hampshire loons since. Being able to identify individual loons helps us gain important information about loon life history, health, movement patterns, and wintering habitat, and improves our ability to evaluate and treat rescued loons.



Inga Sidor Photo

LPC's 2020 Winnepesaukee Biologist, Alyssa Neuhaus, presented her graduate work with Ellen Martinson (University of Vermont) on avian malaria in loons during the 32nd Northeast Loon Study Working Group conference. Avian malaria is an emerging threat in New Hampshire due to a warming climate, as several more cases were reported in 2021. The microscope photo above identifies malarial parasites in the heart tissue of a Squam Lake loon that died from the parasitic disease.



LPC staff rescued a group of 10 loons trapped in a 40-meter-long pool of open water on Lake Winnepesaukee in late January, roughly one mile offshore. Perhaps the warm temperatures of the previous months overrode the other cues that would normally have triggered the migration of these loons to the coast. Loon feathers littered the ice surrounding the hole, indicating that the loons were in the midst of moulting their flight feathers—typically done on the ocean. The loons found themselves trapped as temperatures dropped suddenly and the ice closed in.

LPC first discovered concerning levels of contaminants in inviable loon eggs from failed nests on Squam Lake almost 15 years ago. Since then we have tested 28 eggs from 27 different loon territories. Eggs were tested for PFAS, BDEs, PCBs, and DDT, and other pesticides. All of these classes of contaminants were found in all New Hampshire loon eggs that were tested. For more information, please see LPC's new report, *Contaminants in Loon Eggs in New Hampshire*, available at [www.loon.org](http://www.loon.org).

## A Tale of Two Territories

The first hatch in 10 years on Moultonborough Bay of Squam Lake made 2022 a landmark year for the territory! Two chicks hatched, and one of them grew up to fledge successfully in the fall.

Neighboring Sturtevant Bay had a very different year – different from Moultonborough Bay and different from its recent history. This year was only the third time in the past 10 years that the Sturtevant loons did not nest. In those 10 years, Sturtevant’s productive loons have hatched 10 chicks, successfully fledging 6 of them.

This is certainly a tale of two very different territories...and a tale of an unusual year for each territory. Putting these outcomes in the broader context of Squam Lake tells us a little more about each of these territories. Sturtevant Cove is consistently one of the most productive territories on the lake: in the past 10 years, it sits atop the lake rankings for both average hatch rate (chicks

hatched/nesting pair = 1.43) and for overall productivity (chicks surviving/territorial pair = 0.60; CS/TP). This CS/TP rate is above the statewide average (0.48) and much higher than the overall Squam Lake rate (0.24) for the same time period. Research has suggested that a rate of 0.48 CS/TP is needed to maintain a healthy loon population, so the Sturtevant pair has been doing quite well. Looking back to 2000, Sturtevant is still at the top of the board for hatch rate (1.39) and came in fourth of the sixteen Squam loon territories for CS/TP (0.48) – still a very good showing.

Moultonborough Bay’s (MB) hatching and productivity rates led to very different rankings, placing it near the bottom of the list in each category. Its hatch rate of 0.25 placed it in twelfth place for the past 10 years and a CS/TP of 0.10 landed it in tenth place. Going back to 2000, MB’s hatch rate and CS/TP earned it fourteenth and thirteenth places respectively.

While MB had a lot to celebrate this year and the Sturtevant loons were taking a year off as even productive loons occasionally do, LPC’s long-term dataset places these years in context. We look forward to more chicks for the Sturtevant loons and hope that the productive year for the MB loons this year solidified their hold on their territory and will spur them on to further success. As an added bonus, the female in MB is a very experienced loon, raising several chicks in other territories – including Sturtevant! Hopefully she and her mate will help MB overcome its long-term difficulties.

Why the difference in breeding success between these two territories? Loon productivity between territories is driven by many factors, from quality of nest sites and chick rearing habitat, food availability, prevalence of predators, longevity of pair members in the territory, and levels of human and loon disturbance. There is rarely

*continued on page 16*

Table 1: Mean contaminant levels in inviable loon eggs from failed nests in Sturtevant Bay and Moultonborough Bays on Squam Lake since 2000. Ranges are given in parentheses. All values are in nanograms/gram (parts per billion) wet weight.

	<b>Sturtevant Bay</b>	<b>Moultonborough Bay</b>
Total PCBs	972 (861-1,216)	4568 (779-12,849)
Total PFAS (component of stain repellents, firefighting foam, etc.)	438 (370-520)	383 (289-508)
BDEs (flame retardants in consumer products)	59 (47-70)	107 (25-301)
DDE (a breakdown product of DDT)	228 (164-270)	578 (301-875)
Total chlordane (insecticide)	23 (18-27)	58 (30-96)

*continued from page 15*

one single factor that can explain differences in productivity. But there is one other factor that may influence productivity for which LPC has data that may shed light on the differences between the two territories: contaminant levels.

LPC has tested three inviable eggs from failed nests in Sturtevant Bay and five from MB since 2000. The differences are stark, as demonstrated in Table 1, with mean PCB levels in MB eggs more than four times higher than the mean PCB level in Sturtevant eggs – and the highest level in MB was ten times higher than the highest level documented in Sturtevant. Of the various contaminant classes tested, only PFAS is slightly higher in Sturtevant than in MB. Otherwise, mean contaminant levels in MB eggs exceed those in Sturtevant eggs by twice or more.

What exactly these contaminant levels may mean for loons is unclear, but LPC continues to investigate possible effects of contaminant levels on loon breeding success. We are also working with New Hampshire Department of Environmental Services to study PFAS in inviable loon eggs throughout the state, investigating PFAS levels in loon eggs, possible effects on loons, and



Photo courtesy of Carl Lehner

*One of Squam's loons keeps a watchful eye over its 5-day-old chicks, both of whom fledged from the lake this fall.*

movement of PFAS in aquatic food webs (see LPC Spring 2022 newsletter).

Unfortunately, it's not just MB that has struggled: many loon territories on Squam continue to suffer from poor breeding success, and contaminants may be one of the contributing factors to these poor outcomes. Having identified areas of elevated contaminants in sediments at several sites around the lake, LPC is continuing to work with the Squam Lakes Association to investigate the extent

of contaminated sediments and options for mitigating these contaminated sites.

LPC's research into the effects of contaminants on loon breeding success and collaborations to benefit loons will continue to increase our understanding of factors affecting loon health and breeding success, and we will continue to apply lessons learned to benefit loons on Squam and throughout the state.

*~Tiffany Grade*



*Participants observe a loon nest from a responsible distance during a guided paddling trip with LPC Summer Outreach Intern Kaila Hodges. Learn more about these guided paddles on page 19.*





### *Terri and Bud Lynch Honored at Loon Preservation Committee's 2022 Annual Meeting*

Covid disrupted the Loon Preservation Committee's best attempts to have its 2022 Annual Meeting in person and so LPC held its third virtual Annual Meeting by Zoom on Thursday, August 25th this summer. Tom Deans opened the meeting on behalf of LPC Chair Kristen Begor, who was away to celebrate her son's wedding. Tom welcomed members, volunteers, and guests and relayed Kristen's thanks to LPC staff for their work during another challenging year due to Covid; to the 673 donors to the Capital Campaign who raised \$2.1 million to renovate, expand and modernize the Loon Center and construct and equip the new Kittie and John Wilson Field Operations Center; and to the LPC Board, a group of dedicated volunteers working behind the scenes in partnership with the staff to ensure the accomplishment of LPC's mission. Tom added a tribute to Kristen who chaired the Board through an eventful and challenging three years that included Covid and the continued advancement of LPC's mission in many ways including a successful Capital Campaign.

The meeting celebrated the achievements of retiring Trustee Sandy Helve, a valued member of LPC's Development and Stewardship Committee which she chaired for several years. Sandy's passion for stewardship of friends of LPC and her enthusiasm and leadership on the Board will be missed. A new slate of officers (Bob Rotberg, Chair; Brenda Stowe, Vice Chair; and Glyn Green, Treasurer) elected by the Board at its June meeting was presented to the membership. Incoming Chair, Bob Rotberg,

summers on Whitton Pond and has been a member of LPC for 40 years. Bob is a noted author on history and governance and before his retirement was a professor, college president and a foundation president. Bob stated that he was delighted to chair a strong Board and support the staff in their important work for the loons.

Brian Reilly, a retired physician and active conservationist, and a former Chair of the LPC Board, was re-elected to the Board and five current Trustees (Susan Goodwin, Dave Govatski, Jeff Patterson, Brenda Stowe, and Bob Varney) were re-elected for new three-year terms. Bob presented several changes to LPC's by-laws that were accepted by a vote of LPC members. Glyn Green, Treasurer, reported that LPC finished its Fiscal Year Ended March 31st 2022 in the black and that LPC continues to do an exceptional job of stewarding funds and using its resources to further its mission. He thanked members, donors and volunteers for their support and directed attendees to the Loon Preservation Committee FY22 Annual Report on the LPC website ([loon.org](http://loon.org)) where they could also find LPC's audited financial statements and IRS Form 990.



*2022 Spirit of the Loon Award recipients Bud and Terri Lynch lend a hand at an LPC raft building workshop at The Loon Center.*

A highlight of the Annual Meeting was the presentation of the 15th annual Spirit of the Loon Award, created to honor LPC's founder Rawson Wood by recognizing individuals who exemplify outstanding volunteer service to loons and the Loon Preservation Committee. LPC was thrilled to present the 2022 Spirit of the Loon Award to Terri and Bud Lynch of Mascoma Lake. Terri and Bud have been members of LPC and active volunteers since 2005. They have supported LPC's efforts for Mascoma loons in many ways, including assisting LPC staff with surveys of Mascoma's over 1,000 acres of water and organizing volunteers for the annual Loon Census. They have also built and floated loon nesting rafts and protective signs around active loon nests, distributed educational

*continued on page 18*

*continued from page 17*

signs and non-lead fishing tackle around the lake, and assisted with many loon rescues – three last year alone! One loon mortality on Mascoma last year was a result of ingested lead fishing gear. Terri and Bud have been great advocates for LPC's efforts to address lead mortality in loons for many years, including actively supporting legislation to restrict the sale and use of lead fishing tackle. They have collected lead tackle from neighbors, distributed loon-safe, non-lead tackle, and contributed to articles on lead and loons in newspapers and in the Mas-

coma Lake Newsletter. Terri and Bud have been important partners in LPC's efforts to protect and recover loons in New Hampshire. LPC and all of us who value wildlife owe them a debt of gratitude for their work and we were very pleased to name them our Spirit of the Loon Award recipients for this year.

Meeting attendees enjoyed noted wildlife photographer and long-time LPC volunteer and member John Rockwood's images and videos of loons, despite some technical difficulties during his presentation. Senior Biologist/

Executive Director Harry Vogel followed John's presentation with a report on LPC's monitoring, research, management, and educational programs in 2022, and the results of those efforts in safeguarding New Hampshire's loons (please see a full report on pages 3-6 of this LPC Newsletter). Thank you to all who attended LPC's virtual Annual Meeting to help us celebrate another year of good work in recovering New Hampshire's loon population!

*~Harry Vogel*

## *Loon Festival Returns after Three-Year Hiatus*

The 43rd Loon Festival was another success story, after a three-year hiatus due to COVID concerns. We had a great turnout with 305 people attending!

For close to 20 years running the Meredith Rotary Club (Heidi Barrett-Kitchen, Tim Bergquist, Keith Britton, Ted Fodero, Richard Gerkin, Carl Johnson, Ron Maher, Jim McFarlin, Fred Strader, and Donna Ulbricht), has provided hotdogs, chips, beverages and ice cream to our Festival guests. The Meredith Ben & Jerry's donated ice cream, and the Meredith Hannaford and Crystal Geysler Roxane donated water.

The NH Lakes Association (Kat Kelleher and Gloria Norcross) presented their Watershed Warrior Activity Circuit to kids who wanted to learn how to keep our lakes clean. Olivia Tatro was our creative balloonist, Emily Landry our amazing face painter, and The Sweetblood Duo our musical entertainment. The Science Center (Michelle Janosa, Chris Bird, Liz Hagar, and Phoebe Hartvigsen), provided both the Discovery Table and live animals, which were enjoyed by all. They brought a barred owl, a snapping turtle, a painted turtle and a bat. The barred owl was a real hit!

LPC's seasonal field staff had fun in the dunk tank, or helping kids answer questions and directing their throws to dunk another biologist! There was a loon toss game and nest building activity for kids, as well as arts & crafts. A kayak was on hand for kids to sit in and imagine being a loon biologist, and loon presentations were given over the course of the day by LPC's field biologists.

Lastly, a big thank you to our LPC volunteers: Steve Fresca, Glyn and Shirley Green, Eunice Jackson, Mike Ruyffelaert, Sue Scudder, and Eric and Marlene Taussig!

*~Bette Ruyffelaert*



## *12 Days of LOON-mas!*

*Share your love of LOONS this holiday season!*

A unique **SALE** for each of the twelve days The Loon Center is open from December 1 – December 24. (Thursday - Saturday, 9am - 5pm)



**X-MAS CARDS ♦ STOCKING STUFFERS ♦ UNIQUE GIFTS & MORE!**

*Visit us in person or online at [www.loon.org](http://www.loon.org) for more details!*

## Come Paddle with Us!

This summer LPC began hosting guided paddling trips on lakes across the state. Trips were open to the public and allowed participants to learn about loons and the challenges they face from LPC staff while watching loons on the water.

The loons gave us lots to talk about – on some trips, we were able to observe territorial displays such as circle dances and yodeling, and on other trips we watched loons nest and care for their young, including incubating eggs, sitting on the nest with newly hatched chicks, and feeding chicks on the water. On all trips, we emphasized the need to give loons space while observing them and taught participants how to recognize behaviors that indicate that an observer is too close.

We are excited to be able to continue these paddling trips next year. To keep up-to-date with when they are occurring, you can subscribe to our E-Newsletter ([loon.org/newsletter](http://loon.org/newsletter)), check the events page of our website ([loon.org/events](http://loon.org/events)), or follow us on Facebook or Instagram.

LPC would like to thank the Appalachian Mountain Club NH Paddling leaders, including Roscoe Diamond, Robin Diamond, Tim Jones, Marcy Stanton, and Caitlin Lemaire, for partnering with us on several of our 2022 guided paddling trips and helping to ensure group safety. We look forward to continuing this partnership in 2023 and beyond!

~Caroline Hughes



The Loon Center continues to serve as a participating retail location for our 2022 Lead Tackle Buyback program. Drop off one ounce or more of illegal lead fishing tackle (lead sinkers and lead-headed jigs weighing one ounce or less) and receive a \$10 voucher that can be used in The Loon's Feather Gift Shop! Lead poisoning from ingested lead fishing tackle is the largest cause of documented adult loon mortality in New Hampshire, and it is entirely preventable. Turn in your lead tackle, and you might just save a loon's life!



### JOIN LPC'S LOON LEADERSHIP CIRCLE

The Loon Preservation Committee has long relied on the strength and support of our grassroots network of donors, who have provided invaluable financial backing for LPC year after year. In 2021, the Loon Leadership Circle was formed to honor and thank the many supporters who have donated \$1,000 or more to support LPC's monitoring, research, management, and outreach for loons during a single year. Loon Leadership Circle members receive a complimentary annual membership to LPC.

LPC invites YOU to join the Loon Leadership Circle today! Gifts at this level may be single gifts or multiple gifts totaling \$1,000 or more. If you prefer, you may split your donation into monthly gifts through our website at <https://loon.org/donate>.

For more information about the Loon Leadership Circle please contact Betsy McCoy at 603-476-5666 or [bmccoy@loon.org](mailto:bmccoy@loon.org).

Turn in your lead tackle,  
and you might just save  
a loon's life!

### Collect to Protect Contest!

Those who turn in the largest and second-largest amounts of eligible lead tackle at each participating retailer (see page 10, including The Loon Center) through December 31st will win \$100 and \$50 cash prizes respectively. Start digging through that old tackle now – it's a win-win!

[loonsafe.org](http://loonsafe.org)

Loon Preservation Committee  
PO Box 604  
Moultonborough, NH 03254

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**The Loon Preservation Committee  
gratefully acknowledges**



**for underwriting this publication.**

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