

# PURPOSE

Fifty Years of Preserving Loons and Their Habitats in New Hampshire





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*LPC also recognizes and thanks the many past Trustees who have volunteered their time and expertise to guide the work of the Loon Preservation Committee.*

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*LPC also recognizes and thanks the many past year-round and seasonal staff whose hard work and persistence have contributed to the loon's recovery in New Hampshire.*

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# PURPOSE

FIFTY YEARS OF PRESERVING LOONS AND  
THEIR HABITATS IN NEW HAMPSHIRE

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## THE MISSION

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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.



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*This report is dedicated to thousands of Loon Preservation Committee volunteers and donors, whose efforts and support over 50 years have shown that coordinated and thoughtful action can reverse the decline of a threatened species.*

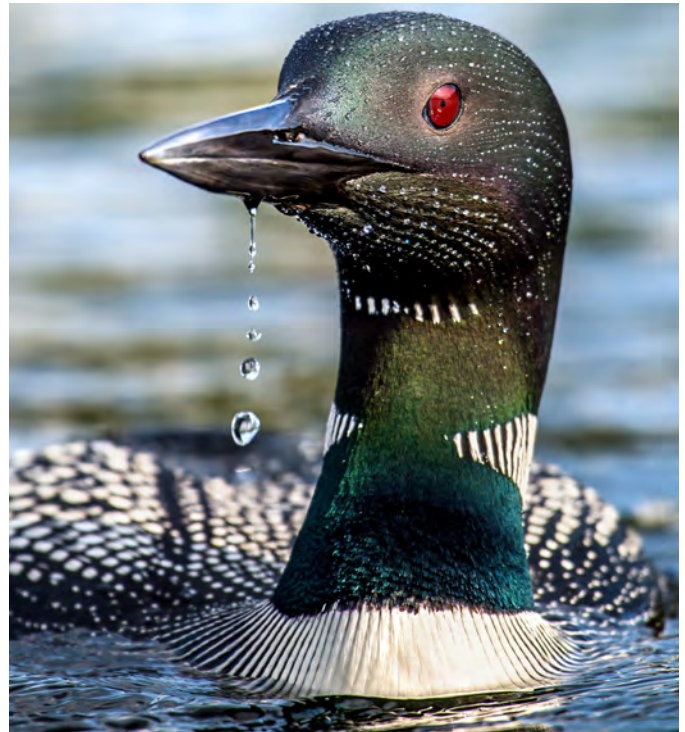
# MESSAGE FROM THE CHAIR

*Robert Rotberg, Chair, Loon Preservation  
Committee Board of Trustees, 2022-2025*

Fifty years of nurturing the loon population of New Hampshire and becoming the globe's leading research center on the Common Loon, aka the Great Northern Diver, merits serious celebration. It is not only that, despite occasional setbacks, New Hampshire Common Loon numbers have grown over fifty years from 214 adult loons counted during the first state-wide surveys in 1976, soon after Rawson Wood first established the Loon Preservation Committee, to 862 common loons counted on New Hampshire's lakes in 2025. There were 250 chicks successfully hatched in 2025; in 1976 we counted only 57 chicks. We who are part of the Loon Preservation family are proud to be closely associated with such robust Common Loon recovery, with the systematic care and observation of loons that our seasonal biologists deliver so well each summer, with banding of loons year round, and with loon rescues in ice-bound winters.

Much of what we are immensely proud has been achieved by our gifted Executive Director of a mere twenty-eight years and the dedicated and energetic staff that he has assembled and leads. Chairing the LPC for the past three years has been an immense privilege. My fellow Trustees are all focused on the health of our loon population as well as on ensuring the LPC's financial stability and other organizational attributes. Fortunately, Executive Director Harry Vogel and his team make that oversight easy for us custodians. The LPC is fiscally sound and tightly, if not frugally, run.

What is not always apparent to the public, however, is how formidable the LPC is in the research realm. Thanks to autopsies at the Cummings School of Veterinary Medicine at Tufts University, and increasingly at LPC's upgraded laboratory facility, we now know more about loon mortality than we did twenty-five and fifty years ago. We know about lake contaminants (research is ongoing), and we have managed, as a result of research, to persuade many (not all) anglers to swap poisonous lead sinkers (which loons ingest, and die) for nonlead tackle that catch fish just as well. Our groundbreaking Lead Tackle Buyback Program is now eight years old, and very successful. Loons live much longer as a result. But we have yet to find a way to remove PCBs and other long-lasting poisons from our waters. Fish consume those contaminants and loons



eat the fish and, too often, suffer.

The LPC began as a self-funded project of the Audubon Society of New Hampshire (as New Hampshire Audubon was known at the time). For the past 18 years we have operated independently of our esteemed parent. This year we anticipate cutting our final property ties to New Hampshire Audubon, with its amicable encouragement. These changes will enhance the LPC's ability to serve loons and the public that welcomes them to their lakes.

The LPC is blessed with strong backing from several very generous major donors, from our growing circle of leadership supporters, from sustaining members, and from those across the globe who watch loon chicks hatch on our webcam and donate from afar. As an organization, the LPC could not preserve and nurture loons and undertake a broad research agenda without the much-appreciated financial backing of our loyal admirers of loons. Writing on behalf of the LPC Board of Trustees, I humbly thank each of you reading this message. Thank you for doing what you do to keep loons eating fish and hatching chicks on New Hampshire's lakes and ponds.



# MESSAGE FROM THE SENIOR BIOLOGIST/ EXECUTIVE DIRECTOR

A 1976 report detailing the first efforts of the fledgling Loon Preservation Committee (LPC) to recover New Hampshire's ailing loon population was ominously titled, "New Hampshire and the Disappearing Loon." The report, written by LPC's founder, Rawson Wood, and its original director, Dave Hammond, detailed the first tentative steps to halt an alarming decline in the state's loons. This decrease mirrored the decline or disappearance of the loon in neighboring states.

It was, by all accounts, a shaky beginning to a great enterprise. Not included in that report, but part of the lore of LPC passed down by early biologists and directors, was LPC's placement of its first loon nesting raft, which promptly sank to the bottom of Lake Francis; boat motors that routinely caught fire while attempting to carry out surveys or management of loons; and successive dock visits with volunteers and donors, each offering afternoon cocktails, that left biologists too tipsy to make their way home on the lakes.

A staff of three biologists and over 150 volunteer observers were recruited that first field season to monitor loons, help them as they could, and discover and protect nests. Initial results of this work were sobering. Historic accounts of early naturalists reported "loons on every lake," but LPC's first statewide survey in 1976 found only 91 pairs of loons that had established territories on 55 lakes. Those loons hatched 57 chicks, of which 51 survived to presumably fledge from their natal territories. Only one pair of loons was successful on Lake Winnepesaukee,

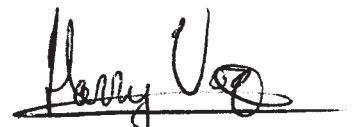
hatching one chick. A total of three chicks were hatched south of the state capital and only one in all of Hillsborough County.

There was no time to lose, and those first staff members had to learn quickly. Their second nesting raft – made of seasoned wood – floated, and loons began to take to rafts and nest successfully. Biologists used their own boats and motors or fixed LPC's antique equipment, and they learned to politely decline libations in favor of actionable information about loons. A world-class pioneering effort to understand and address the reasons for a rapidly diminishing loon population had begun.

LPC was created in 1975 with two objectives: "To survey the loon population of the state and determine the causes of its decline, and to sponsor corrective measures for the protection of the species." In the decades since, many hundreds of staff and many thousands of volunteers have worked to recover New Hampshire's loon population through monitoring, research, management, and education. Those efforts and their results, chronicled in this report, are impressive: together we managed to reverse the decline of loons and return loons to many, though not yet all, of their former lakes and breeding territories.

As we worked to help loons, we learned that they are uniquely able to illuminate threats to other wildlife and to the aquatic environments on which we all depend. That insight led to an expansion of LPC's mission to include monitoring the health and productivity of loons as indicators of environmental quality. As we gained an awareness of the interconnectedness of loons with all things in nature, we added a third part to our mission: to promote a greater understanding of loons and the natural world. Today we are working on projects – and with partners – that we could hardly have imagined at the start of our work to help loons.

It is gratifying to see our work recognized by our peers and our elected officials (see next page) – but our most important recognition has always come from you, our members, supporters, and volunteers. Purpose, doggedly persistent optimism, and effort have driven the successes described in this report. These ideals underscore the certain knowledge that, with the continued support of friends of loons, we will be successful in our work to continue the recovery of the loon in New Hampshire.



LPC staff, 1978 (top to bottom): Ralph Kirshner, Ann Levandowski, Jeff LeBaron, Mary Hall, Karen Parker, Scott Sutcliffe.

*The State of New Hampshire*  
*By Her Excellency*  
*Kelly A. Ayotte, Governor*

*A Commendation*

In the year of our Lord Two Thousand and Twenty-Five

**RECOGNIZING THE LOON PRESERVATION COMMITTEE**  
**SEPTEMBER 22, 2025**

*WHEREAS*, loons are a treasured symbol of New Hampshire's wilderness, whose haunting calls and striking presence are a cherished part of our state's natural identity; and,

*WHEREAS*, in response to a dramatic decline in the loon population, the Loon Preservation Committee was founded fifty years ago by dedicated citizens determined to protect and restore this iconic species; and,

*WHEREAS*, through the use of sound science, innovative conservation strategies, and tireless advocacy, the Committee has helped more than quadruple the number of loons in New Hampshire; and,

*WHEREAS*, the Committee's extensive research and public education efforts have shaped policy, including a first-in-the-nation ban on toxic lead fishing tackle—helping loons and people thrive together across our state; and,

*WHEREAS*, the success of the Loon Preservation Committee has served as a model for conservation organizations across North America and stands as a powerful reminder that when New Hampshire communities come together, even the most threatened species can recover and flourish;

*NOW, THEREFORE, I, KELLY AYOTTE, GOVERNOR* of the State of New Hampshire, do hereby commend the **LOON PRESERVATION COMMITTEE** for 50 years of visionary leadership, excellence, and heartfelt stewardship of one of our most beloved native species.



*IN TESTIMONY WHEREOF*, I have hereunto set my hand and caused the Seal of the State of New Hampshire to be affixed this 22<sup>nd</sup> day of September, 2025.

*Kelly A. Ayotte*

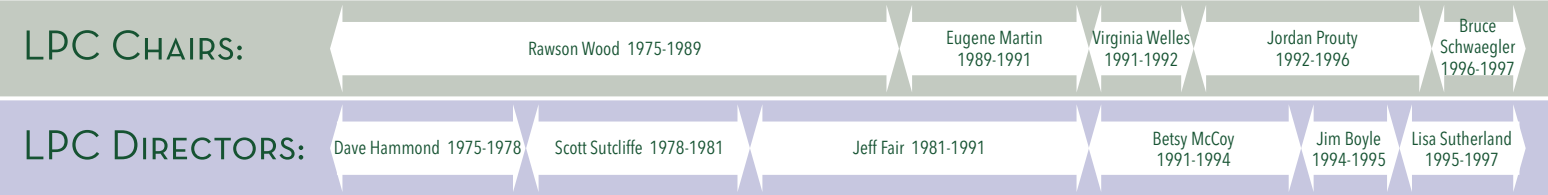
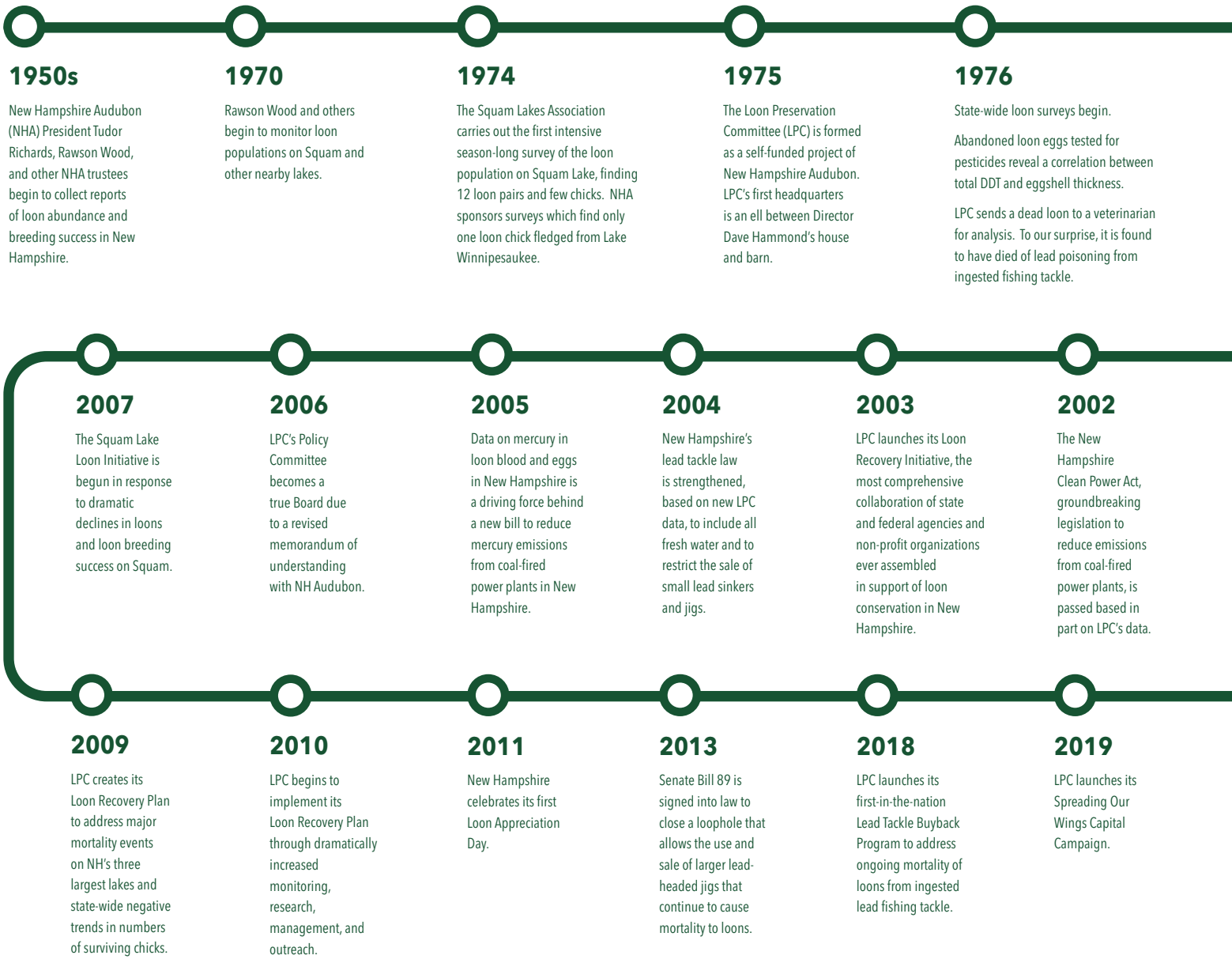
Kelly A. Ayotte  
Governor

# THE BEGINNING

The Loon Preservation Committee was created in 1975 in response to dramatically declining loon populations and productivity and concerns about the effects of human activities on loons. Our founders reasoned that if human activities had played a role in those declines, then human activities, if they were thoughtful

and coordinated, could reverse them.

In part, these declines were due to our lack of knowledge of loons and their needs and the ways in which we could help our loon population thrive. The first loon to be found dead with an ingested lead fishing sinker, our first nesting raft, and the first intimation that contaminants



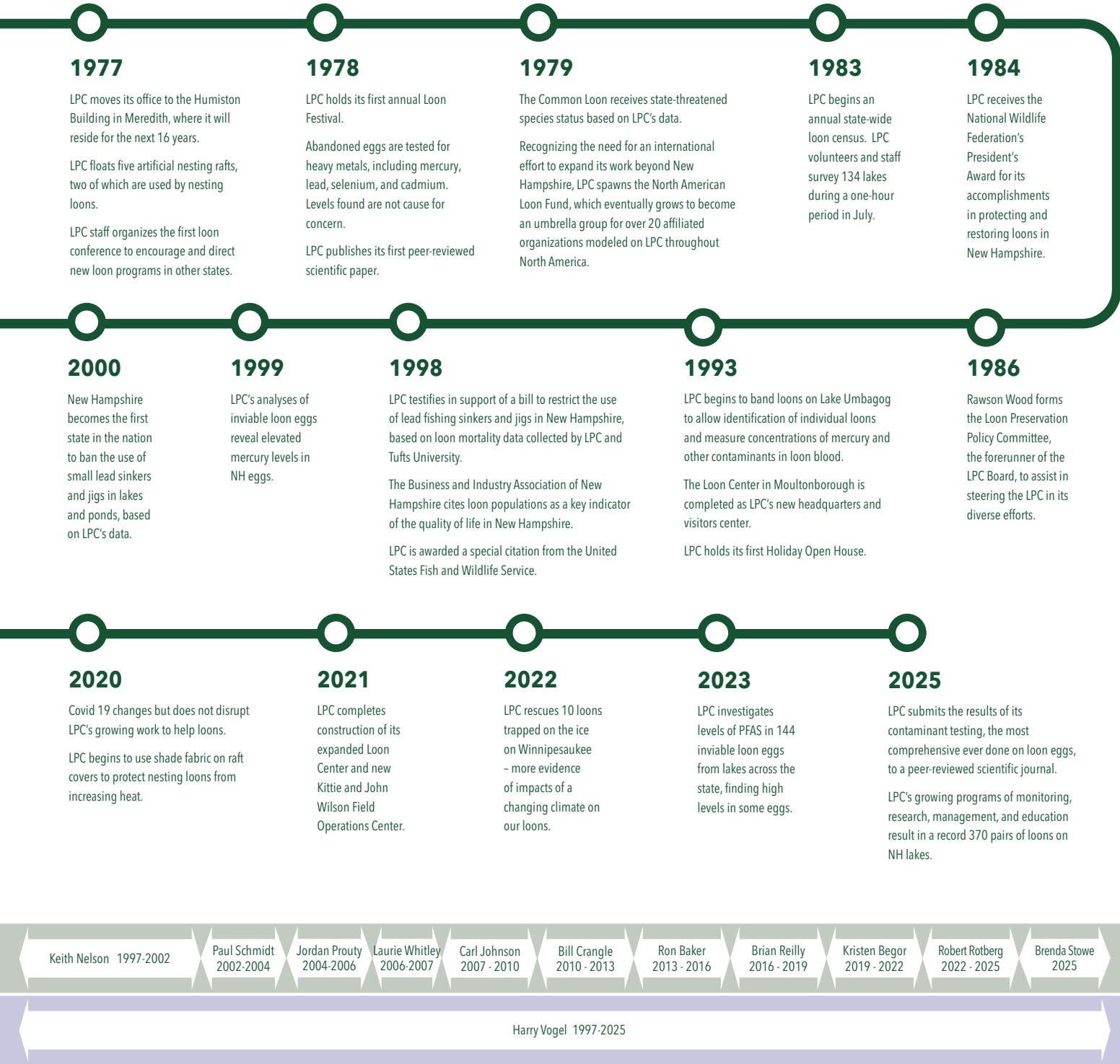


were problems for our loons were all still in our future. But we were beginning to learn about the challenges facing loons and the ways in which we could help loons persist on New Hampshire's lakes.

The Common Loon was listed as a state-threatened species in 1979 based on LPC's monitoring data. As we improved our knowl-

edge of the needs of loons, their numbers slowly and tentatively began to rise. Today our lakes hold more than four times as many loons as were present at that quiet point in New Hampshire's past.

The following are some of the milestones in LPC's celebrated history:



# THE WORK

*The Loon Preservation Committee works to preserve loons and their habitats in New Hampshire through monitoring, research, management, and public education, all fostered by an extensive network of dedicated members and volunteers. Many of LPC's initiatives to address threats to loons involve close coordination with federal and state agencies and other non-profit organizations.*





# MONITORING LOON POPULATIONS

## First, seek to understand

Observation is the foundation of all good science, and the Loon Preservation Committee’s work to help loons begins and ends with monitoring. Statewide counts of loon adults and chicks provide the first indication of problems with our loon population and are the ultimate measure of our success in helping loons overcome their challenges in New Hampshire.

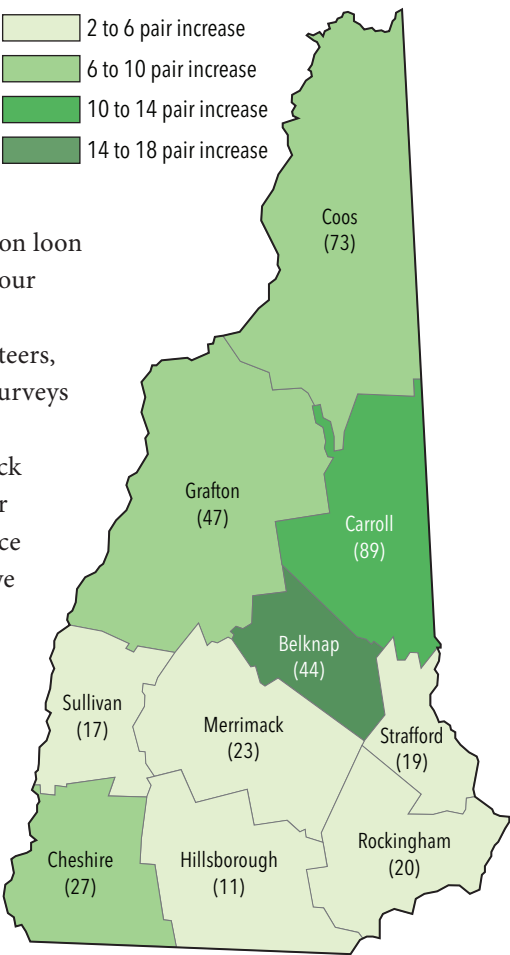
LPC staff and volunteers monitor over 350 lakes throughout the state each year to collect data on numbers of adult loons, numbers of territorial loon pairs (pairs that defend an area of water and have the potential to produce young), nesting success, and survival of chicks. Not all of these lakes hold loons, but all of them have the potential to do so, and we are working



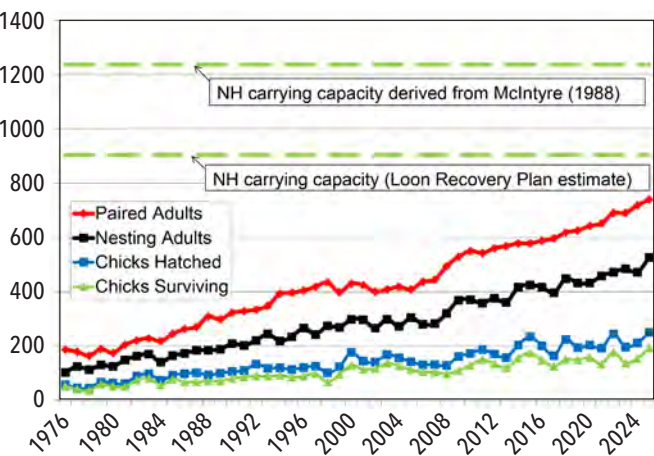
LPC carries out statewide surveys for loons on lakes throughout New Hampshire every year

to ensure that more of them will have loons in the future. Our annual statewide loon census in July mobilizes LPC’s small staff and our large network of volunteers to provide a mid-season check on loon populations that complements our season-long monitoring.

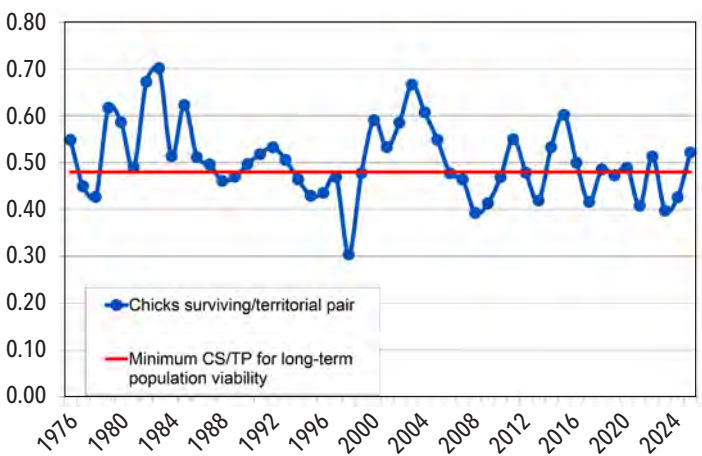
With the help of our volunteers, we have carried out statewide surveys of loons since 1976, and we are confident that we have kept track of virtually every territorial pair of loons in New Hampshire since the late 1970s. In the process, we have created a database of loon populations and productivity that is unequalled anywhere in the world. This database is an invaluable tool to provide insight into trends in loon populations over time, assess factors impacting New Hampshire’s loon population, and measure our effectiveness in addressing the causes of declines in loons.



Territorial Loon Pairs by County in 2025 and Population Trends, 2016-2025



Loon Paired Adults, Nesting Adults, Chicks Hatched, and Chicks Surviving, 1976-2025



Loon Chicks Surviving per Territorial Pair in New Hampshire, 1976-2025

## RESEARCH

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*LPC's efforts help ensure that development and use of our lakes is done in a way that recognizes and respects the needs of loons and other wildlife.*

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In addition to monitoring loons, the Loon Preservation Committee conducts research to learn about loon life history, the severity and extent of challenges facing loons, and our ability to mitigate these challenges through focused management and public education. LPC shares its research with the wider scientific community by publishing its findings in technical reports and peer-reviewed scientific journals.

### *Identifying and Protecting Critical Loon Habitat*

A loon's legs are adapted for swimming rather than for walking and loons have limited mobility on land; therefore, loon nests are always built at the water's edge. Development of lake shorelines and recreational pressures on lakes can displace loons from traditional nesting sites and have been implicated in declines in loon abundance and breeding

success. LPC is working to determine the effects of these changes on loons and to protect nesting sites and nursery areas for loons.

LPC digitally maps loon nesting and brooding sites to identify areas of important loon habitat across the state. The resulting maps are shared with the New Hampshire Department of Environmental Services and the New Hampshire Fish and Game Department. These agencies forward permit applications for shoreline alterations, dam repairs, and lake drawdowns to LPC for comment to minimize impacts on nesting loons.

LPC works to ensure that development and use of our lakes is done in a way that recognizes and respects the needs of loons and other wildlife. This work includes cooperative efforts with other conservation organizations to preserve critical loon habitats through management, education, land acquisitions, and conservation easements.



A loon with its head lowered over the nest is indicating stress, often caused by the close approach of people.

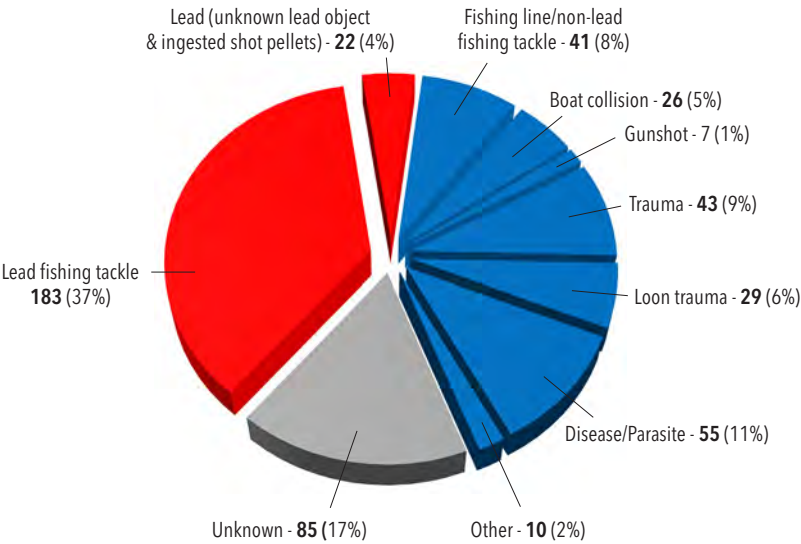


Assessing Causes of Mortality and Nest Failure

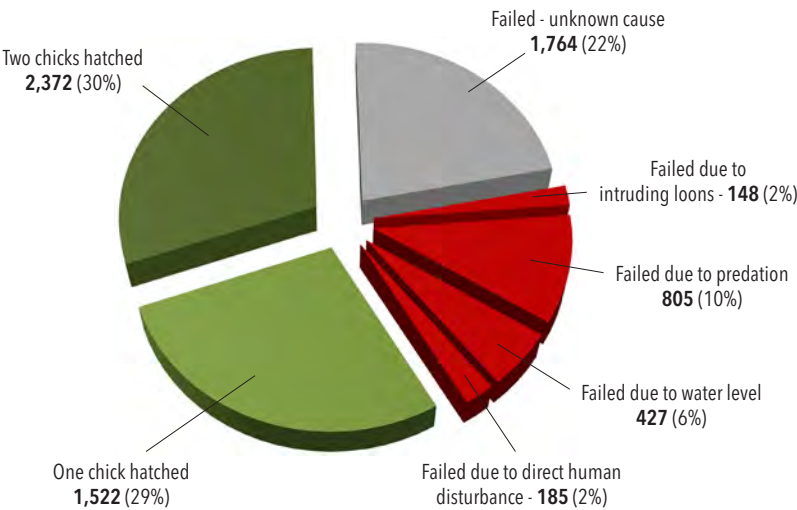
One of the best ways to discover the challenges facing New Hampshire’s loon population is to determine causes of mortality of individual birds. For the past 50 years, LPC has collected dead loons and inviable loon eggs found by the public and LPC volunteers and staff. Since 1989, the majority of necropsies (animal autopsies) on dead loons have been performed by Dr. Mark Pokras and his students at the Cummings School of Veterinary Medicine at Tufts University or, increasingly, by LPC staff in LPC’s newly upgraded laboratory facilities. Samples of tissues from dead loons are sent to collaborating scientists working on diverse loon research and conservation efforts and are archived at The Loon Center for use in future projects.

These necropsies have revealed that lead poisoning from ingested lead fishing sinkers and lead-headed jigs is by far the largest known cause of adult loon mortality in New Hampshire. Loons can swallow lead sinkers or jigs attached to a fish that has broken an angler’s line, or directly from an angler’s line as tackle is trolled or retrieved. Less commonly, loons can swallow lead tackle from the lake bottom along with the pebbles they ingest to help grind up and digest food. Swallowing a single lead sinker or lead-headed jig can kill a loon or other waterbird. Using our long-term databases on statewide loon populations and causes of mortality, LPC demonstrated that mortality from lead fishing tackle has had a population-level impact on New Hampshire’s loons. LPC used its data on loon mortality to inform discussions in the state legislature on the issue of lead fishing tackle, which resulted in a series of laws to protect loons from lead tackle (see “Legislation” section).

We know less about chick mortality than adult mortality because many chicks disappear, or are scavenged, obscuring the cause of death. Young loon chicks are exposed to danger because they are small, dark, and too buoyant to dive well. The largest known source of human-caused chick mortality is from collisions with fast-moving boats and personal watercraft.



Causes of Adult Loon Mortality in New Hampshire, 1975-2025



Loon Nest Fates in New Hampshire, 1975-2025

Human intrusions on loon families can also lead to mortality by disrupting parental care and feeding of chicks. In addition to human-caused mortality, chicks can be taken by predators or killed by intruding adult loons or an older sibling.

LPC also works to document causes of loon nest failure. Water level rises or waves caused by storm events or powerboats can flood nests, and lake drawdowns for flood control or power production can leave nests stranded and

unreachable for loons. The close approach of people can cause incubating loons to abandon their nest, sometimes leading to loss of eggs by scavenging birds and mammals. LPC places motion-activated trail cameras around some loon nests to learn more about causes of nest failures and improve our ability to protect nests. Inviolate loon eggs collected from failed

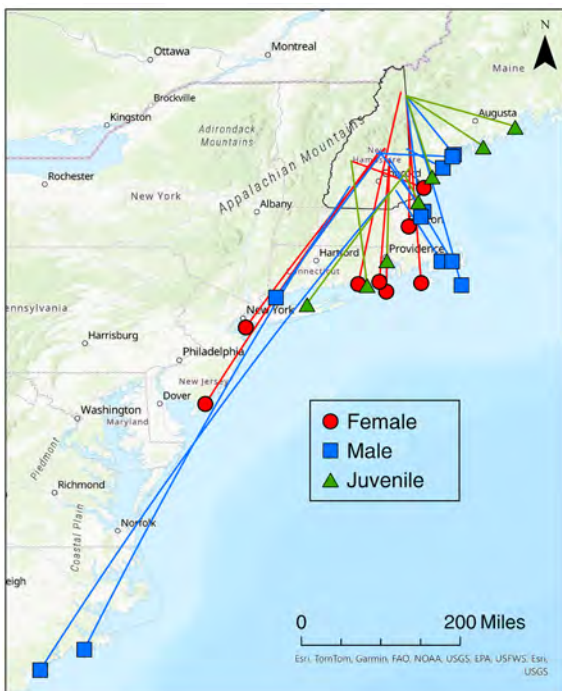


LPC places unique combinations of bands on loons' legs to identify and track individual loons.

nests are weighed, measured, x-rayed to determine embryo development, and archived at LPC to be available for future reference and research. Each year, LPC sends a number of these eggs to laboratories that specialize in measuring contaminants (see the "Measuring Contaminants" section).

LPC uses data on causes of loon mortality and nest failures to understand threats facing New Hampshire's loon population and to refine our management and education efforts to address these threats and enhance protections for loons. These data are shared with federal and state agencies and are compiled in a regional dataset available to collaborators throughout North America.

Ocean Recovery Sites  
for Loons Banded on  
Freshwater Lakes in  
New Hampshire



## Banding and Tracking Loons

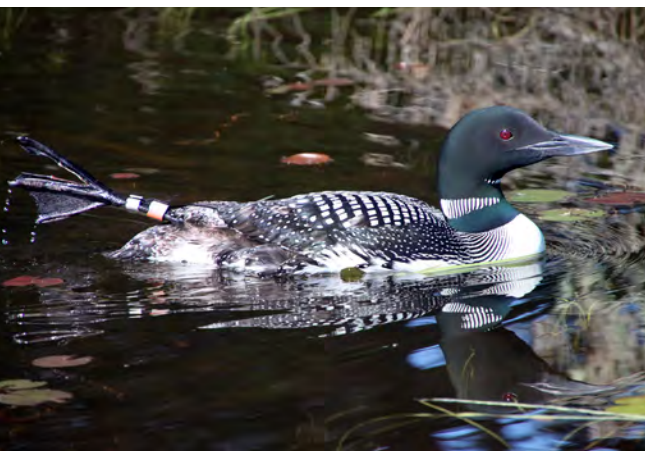
In 1993, LPC and the Biodiversity Research Institute in Maine began placing colored bands on the legs of loons on Lake Umbagog and, starting in 1998, on lakes throughout New Hampshire. Over the past thirty-two years, we have banded 822 loons throughout the state, each receiving a unique combination of colored bands. These bands allow us to identify and track individual loons to investigate aspects of their life history, such as life span, age at first breeding, fidelity to mates and breeding territories, and the relationship between their breeding and wintering grounds. Information gained from banding has provided a basis for the creation of loon population models and underscored the critical importance of adult survival to recover a viable loon population in New Hampshire. Staff biologists and the large network of LPC volunteers monitoring loons increase the chances of banded loons being sighted and reported.

In its 1976 report, *New Hampshire and the Disappearing Loon*, LPC wrote, "No knowledge of the wintering area of New Hampshire loons is available." Since then, resightings of banded loons on the ocean have revealed that New Hampshire's loons typically winter off the Atlantic coast from Maine to Rhode Island, remaining in New England year-round. A small number of New Hampshire loons have been documented as far south as North Carolina. Winter band resights have been essential to establish the harm to New Hampshire loons from marine oil spills in New England. The capture of loons for banding also allows the collection of blood and feather samples for analysis of toxic contaminants, stress-indicating hormones, genetic markers, blood parasites, and other disease-causing organisms.

## Measuring Contaminants

With a diet that consists almost entirely of fish, loons are at risk from contaminants that can biomagnify (increase at higher levels of aquatic food webs) and bioaccumulate (increase in long-lived animals over their lifetimes). LPC has been researching mercury, a potent

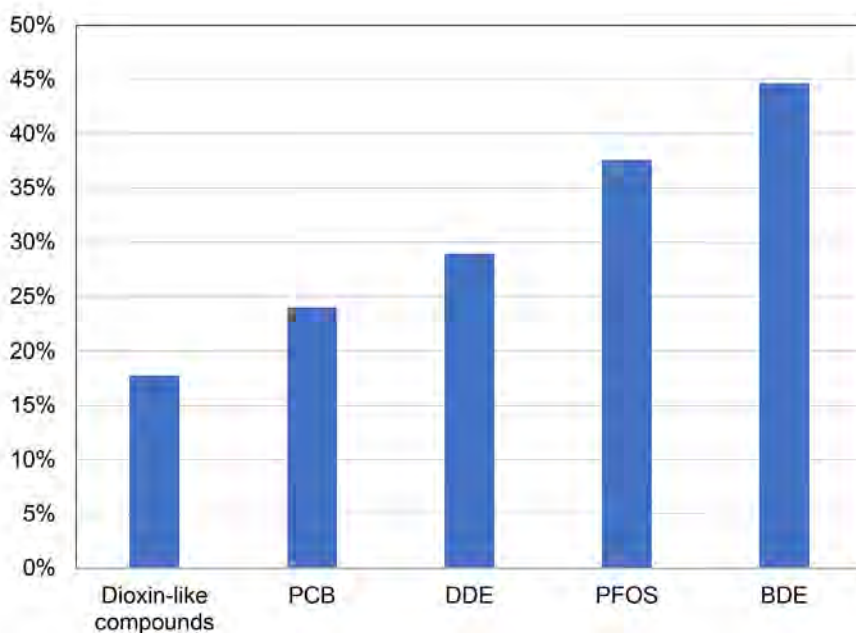
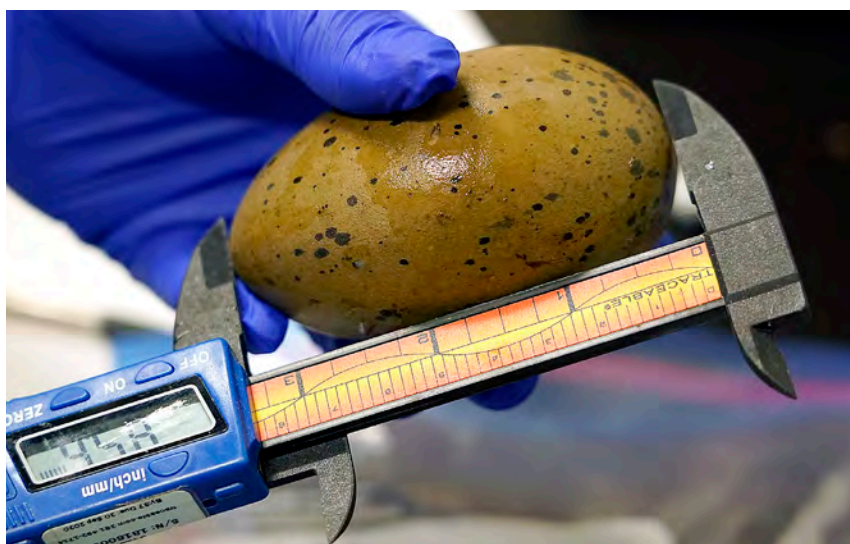




*The Sweats Meadow female loon banded on Lake Umbagog in 1993 hatched two chicks that year. Banding studies have shown that loons do not begin to breed until four years old at the earliest and average six years old at first breeding; therefore, when this loon was resighted in 2025, we knew that she was at least 36 years old and probably 38 years old or older, making her the oldest known loon in the northeastern United States.*

neurotoxin that can reach toxic levels in loons and other aquatic wildlife, in loon eggs and loon blood since the 1970s. In partnership with Biodiversity Research Institute, our research showed that loons in New Hampshire had among the highest concentrations of mercury recorded in loons anywhere in North America. Legislation passed in the wake of these studies reduced mercury emissions from coal-fired power plants in New Hampshire, and LPC has documented a decline in mercury levels in loon blood and eggs (see the “Legislation” section).

LPC began testing inviable loon eggs from failed nests for bioaccumulative organic contaminants in 1975, publishing its first results on PCBs (industrial cooling agents) and pesticides such as DDT in 1978. Following a steep decline in loon abundance and breeding success on Squam Lake between 2005 and 2007, LPC expanded its testing to include BDEs (flame retardants), dioxins/furans (byproducts of industrial processes), PFAS (e.g., stain and water repellants, non-stick coatings), and chlordane (an insecticide). We have since expanded this research statewide; and, since 1975, LPC has analyzed 331 loon eggs for organic contaminants. In many cases, these contaminants exceeded lowest observed effects levels (levels known to cause measurable declines in health and/or reproductive success) in other fish-eating birds. This work represents the most comprehensive testing ever done on loon eggs and the only long-term, systematic sampling of these contaminants in any New Hampshire wildlife.



Percentage of Loon Eggs Exceeding Contaminant Levels of Concern Established for Other Bird Species

### Investigating Pathogens in Loons

As with all living organisms, loons are at risk from pathogens (disease-causing organisms). LPC monitors loon health, including documenting the impacts of known diseases and tracking the emergence of novel pathogens through our banding, blood-sampling, loon rescues, and necropsies.

In 2015, LPC's research led to the discovery of the first known case of a loon death from avian malaria. In the years since, we have documented the deaths of 10 additional New Hampshire loons from this disease. Prior to 2015, loons were believed to be free of malaria parasites, based on screenings of hundreds of loon blood samples. The recent emergence

of this disease as a threat to loons is likely a result of the climate change-induced northward range expansion of mosquito species that carry malaria parasites. We continue to work towards a better understanding of the extent and severity of malaria infections within our loon population.

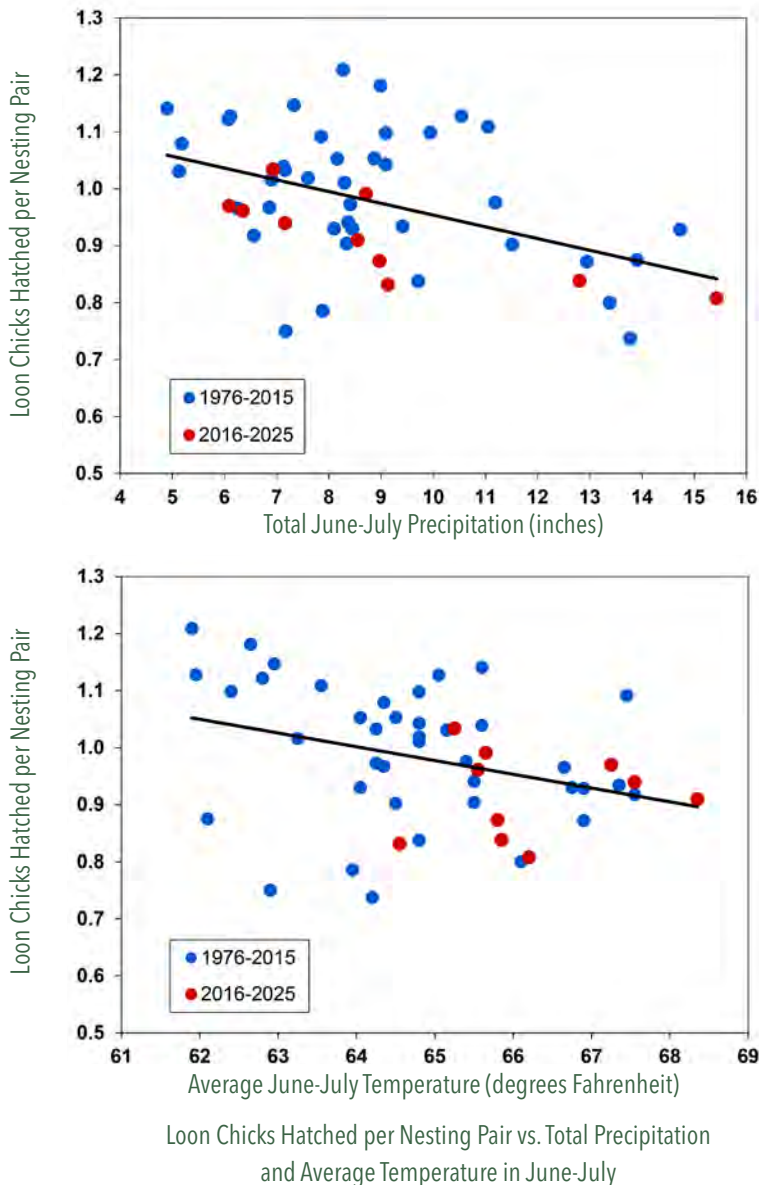
LPC has screened New Hampshire loons for highly pathogenic avian influenza (HPAI) since 2020, when a strain of the virus emerged as a global concern for both domestic and wild bird populations. While HPAI has caused a small number of loon deaths nationwide, particularly on the wintering grounds, it has not been detected in New Hampshire breeding loons to date.

LPC contributes loon blood and tissue samples to researchers investigating aspergillosis (a fungal respiratory disease), toxins produced by cyanobacteria, and other pathogens potentially affecting loons. By collaborating with these researchers, we work to better understand and respond to these threats to loon health and survival.

### Climate Change

LPC is researching the effects of climate change as a potentially existential threat to New Hampshire's loons. New Hampshire's loons are close to the southern limit of their breeding range and nest at the water's edge. They are therefore at risk from both high temperatures, which can stress loons on the nest, and rain events, which can flood loon nests. National Weather Service records indicate that the average New Hampshire June-July (loon nesting season) temperature has increased by 2.5 degrees Fahrenheit and total June-July rainfall has increased more than 2.5 inches in the time LPC has monitored New Hampshire's loon population.

LPC has found that loon nesting success, as measured by the number of chicks hatched per nesting loon pair, has declined as temperatures and rainfall have increased in New Hampshire. If further increases in temperatures and rainfall predicted by climate change models occur, these and a range of other possible effects of climate change will increasingly challenge New Hamp-





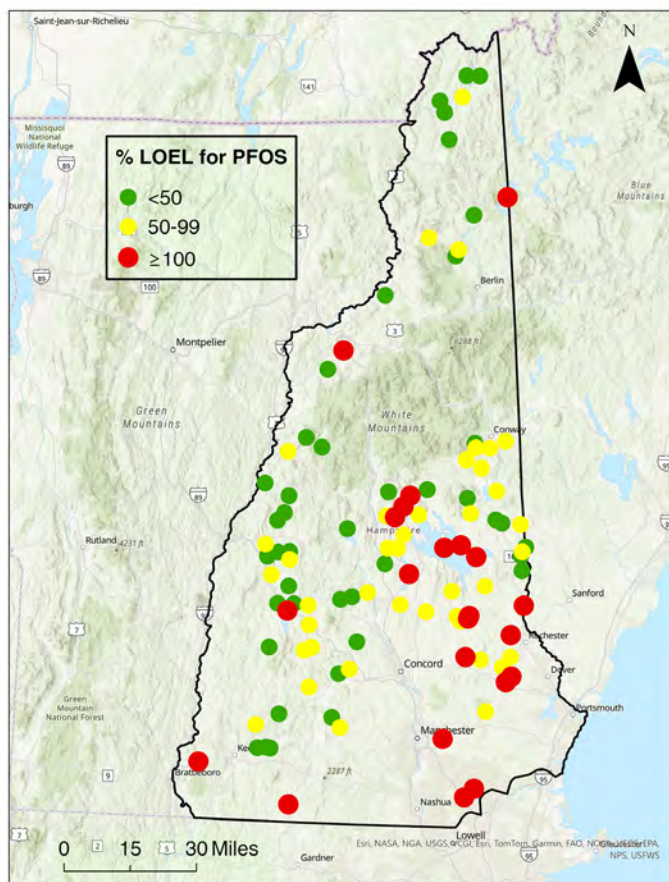
shire's loons. LPC is studying the effects of climate change on loons and ways in which we can help loons cope with these changes.

### *Loons as Environmental Indicators*

As long-lived birds at the top of aquatic food webs, loons are good indicators of the health of our environment. LPC's research into contaminant levels in loons and loon eggs, from the earliest days of our mercury and DDT research to our current investigations on emerging contaminants like PFAS, has highlighted the widespread threat of chemical contamination in New Hampshire's aquatic ecosystems. Our work has also highlighted other ways in which loons are indicators of environmental health: from shoreline development to pathogens and climate change, loons shine a spotlight on New Hampshire's changing lake environments.

The lakeside development affecting loon nesting sites affects other wildlife that depend on natural shorelines. The lead legislation that is saving loons will also help the 32 other avian species that have been documented to ingest lead tackle. Our investigations into avian malaria and reduced breeding success in loons as a result of a changing climate underscores this potentially existential threat to many northern species. LPC's research has drawn attention to hotspots for both legacy and emerging contaminants, which has led to follow-up studies and fish consumption advisories for PCBs and PFAS to protect human health. LPC's egg sampling, banding, blood work, and monitoring of loon reproductive success addresses a growing suite of contaminants, drawing scientific and public attention to specific, local risks, and identifying mitigation priorities.

Like the canary in the coal mine, a healthy loon can be an indicator of a healthy, functioning ecosystem. LPC's research and monitoring is focused on addressing threats to loons from these and other stressors, as well as the role of loons as a sentinel species to benefit the health of their – and our – environment.



LPC's research has helped to identify areas of New Hampshire with concentrations of PFOS that are potentially harmful to loons, other wildlife, and people.

Levels of PFOS (a type of PFAS) in New Hampshire loon eggs as a percentage of lowest observed effects levels for other bird species.

# MANAGEMENT

Each year, Loon Preservation Committee field biologists and volunteers conduct intensive statewide management to benefit loons. Some of the most evident signs of LPC's presence in New Hampshire are loon nesting rafts and signs protecting nesting loons. Increased nesting success at managed sites and the survival of rescued loons has had a direct, measurable impact on the ongoing recovery of New Hampshire's loons.

## Nest Rafts

Nesting loons face a number of challenges during their 28-day incubation of eggs. Loon nests are vulnerable to natural or human-in-

duced water level changes that flood nests or leave them stranded out of reach of parents. Floating nest rafts rise and fall with water levels and help loons cope with these water level changes. Nest rafts also provide alternate nest sites to help loons displaced from traditional sites by shoreline development or recreational use of lakes and offer protection from raccoons and other scavengers, whose populations have increased to unnaturally high levels due to the availability of human food and garbage.

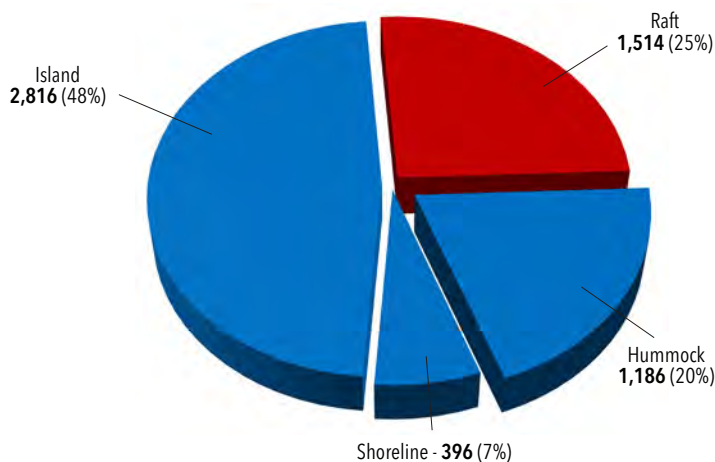
LPC volunteers and staff have floated loon nesting rafts on New Hampshire lakes 2,860 times since their first use in 1976. Over one in five loon chicks hatched in New Hampshire in that time have been hatched from rafts, and in some years, rafts have accounted for up to 100% of chicks hatched on more developed lakes like Squam and Winnepesaukee. In 2006, LPC began to fit rafts with covers to help protect nests from predation by eagles and other avian egg predators. These covers also seem to reduce nest abandonment due to human disturbance. In 2019, LPC began to add UV-blocking fabric to raft covers to shade heat-stressed incubating loons.

When used correctly, nesting rafts are a very effective management tool. However, rafts are not a cure-all for loons. Nesting rafts can do more harm than good if they lure loons away from sheltered and well-hidden natural nesting sites to nest in more exposed or visible areas of the lake. We would much rather see loons nesting on natural sites than on man-made rafts, and preserving natural shorelines is still a priority for LPC because these measures help loons as well as provide habitat for other wildlife. Over time, we hope that our education efforts will encourage shoreline conservation and other practices that reduce the need for nesting rafts. Until then, rafts are the most practical solution to some of the problems facing nesting loons.

In addition to floating rafts, LPC works with lake associations, power companies, and other dam owners to hold lake water levels steady during critical loon nesting periods. This cooperative management reduces our reliance



More than one of every five loon chicks hatched in New Hampshire since 1975 has come from an LPC nesting raft.



Loon Chicks Hatched in New Hampshire by Known Nesting Site, 1975-2025



on floating rafts and benefits other wildlife that also rely on stable water levels.

### *Signs and Float Lines*

A well-hidden loon nest is often safe from detection and disturbance; however, in cases where nests are threatened because of their visibility or proximity to shoreline developments or water traffic, LPC staff and volunteers place signs and sometimes float lines around nesting loons to help assure loons of the space they need to incubate eggs.

Since their first use in 1975, LPC staff and volunteers have protected 2,532 loon nests with signs and/or ropelines. Loons protected by these measures have hatched 2,480 chicks, more than one of every three chicks hatched over those years, and more than one of every two chicks hatched in the past ten years. Once chicks have hatched, LPC will often float “Caution: Loon Chicks” signs to increase public awareness and slow down boat traffic in chick nursery areas.

### *Loon Rescues*

LPC will attempt to rescue loons in distress as a result of sickness or injury. Loons may require a rescue due to fishing line entanglement, lead poisoning, fights with other loons, or a number of other causes. Winter rescues of individuals and groups of loons have become more common as warm winters and delayed ice-in of lakes has increasingly corresponded with the flightless period of winter wing feather molt. These groups, up to 20 or more loons, have been in imminent peril from predation, starvation, or exposure to the elements and have required immediate action to effect rescue and transport to their wintering habitat on the ocean.

LPC works with a growing network of veterinarians and wildlife rehabilitators to diagnose and attempt to treat and release ailing loons. As we have learned more about loon life history and the critical importance of adult survival in maintaining a stable loon population, LPC has increased our capacity to respond to loons in distress. In 2024, LPC acquired a



LPC floats signs around at-risk loon nests to protect nesting loons.

portable x-ray machine to allow on-site diagnosis of rescued loons and determine treatment options to give rescued loons the best chance of survival and a return to the wild. Even with this progress, loons remain notoriously difficult to rehabilitate after an illness or injury. For this reason, a large part of LPC’s work is focused on educating the public to teach people about loons and their needs to avert potential problems before they happen.

LPC staff rescue loons in distress, including increasing numbers of iced-in loons.



## OUTREACH AND PUBLIC EDUCATION

*In nature nothing  
exists alone.*

*Those who  
contemplate the  
beauty of the  
earth find reserves  
of strength that  
will endure as  
long as life lasts.*

*But man is a  
part of nature,  
and his war  
against nature is  
inevitably a war  
against himself.*

*~ Rachel Carson*

The Loon Preservation Committee's vision is to realize a future of loons and people thriving together in New Hampshire – but it will take more than our small but dedicated staff to realize that vision. If we have learned anything in our 50 years of monitoring, research, management, and education, it is that a caring and involved public is the key to preserving loons – or, for that matter, any wildlife species. Therefore, all of LPC's research and management initiatives have an outreach component to illustrate the effects of human activities on loons and encourage a culture of appreciation and respect that will allow loons to thrive.

Loon preservation touches on a wide range of issues, from human land use to fair and wise use of limited resources like lakes; from environmental contaminants, energy conservation, and recycling to scavenger wildlife populations and proper disposal of garbage; and from general education about loons and their needs to changing specific

practices like the use of lead fishing tackle.

LPC presents information about loons and their challenges to the public at The Loon Center; through presentations at lake associations, schools, and other venues throughout the state; and through one-on-one contact to engage the public and lake users "in the field." We host special events, including our annual Loon Festival, to celebrate loons and our fascination with them. In addition to this in-person outreach, LPC shares information about loons with the public via educational signs posted at lake access points and lakeside businesses, our Loon Preservation Committee Newsletter, press releases, and guest articles written in the newsletters of collaborating organizations. Through our online channels, including our website (loon.org), e-newsletters, and our Facebook, Instagram, and YouTube accounts, we teach tens of thousands of people about loon natural history, the challenges they face, and LPC's work to support New Hampshire's threatened loon population.



LPC staff present information on loons and their challenges at venues throughout New Hampshire.





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### *LoonCams*

Initially launched in 2014, LPC's live LoonCams offer viewers the opportunity to closely observe nesting loons. Now streaming two nests each year, our LoonCams have received up to 362,000 views from 122,000 viewers in a single breeding season. LoonCam viewers have a front-row seat to watch the loons build their nests, incubate eggs, and, hopefully, hatch chicks. Viewers also witness firsthand the range of challenges facing nesting loons, from blackflies and eagles to boat wakes and the close approach of boaters. A live chat that accompanies the cams provides opportunities for viewers to engage with LPC's volunteer LoonCam Operator Bill Gassman and LPC staff about loon biology and behavior, threats to loon survival and breeding success, and LPC's work to help New Hampshire's loon population.



LPC's live LoonCams have captured moments of high drama, such as this confrontation between an eagle and loon at the nest.



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*In 2021, LPC built the Kittie and John Wilson Field Operations Center to support its expanding work to help a growing number of loons cope with their increasing challenges. This new Center includes space to build and maintain nesting rafts and signs and to maintain and store boats and other field equipment and supplies. At the same time, LPC expanded and upgraded The Loon Center, including increased office and meeting space, an upgraded laboratory and educational exhibits, and dedicated storage for field equipment and biological samples.*

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### ***The Loon Center and Markus Wildlife Sanctuary***

The Loon Center, located on the north shore of Lake Winnepesaukee on the Frederick and Paula Anna Markus Wildlife Sanctuary in Moultonborough, was built as the new headquarters of the Loon Preservation Committee in 1993. In addition to staff offices, public meeting rooms, and a research laboratory, The Loon Center houses exhibits, displays, and The Loon's Feather Gift Shop, with all proceeds from the store benefitting LPC's work to protect and recover New Hampshire's loon population. Our interpretive exhibits, presentations, and 200-acre wildlife sanctuary (including 1.7 miles of trails and almost a mile of pristine shoreline on the shore of Lake Winnepesaukee) give close to 10,000 yearly visitors an introduction to the natural environment of New Hampshire and promote a greater understanding of the natural world.



The newly-expanded Loon Center in Moultonborough, New Hampshire, is LPC's headquarters and visitor center.



## Legislation

The results of the Loon Preservation Committee's research are increasingly being used to direct conservation activities and legislation to benefit wildlife and their habitats. LPC has presented its cooperative research findings to encourage informed discussion of many bills that directly impact loons and other wildlife. LPC's data have been a driving force behind landmark legislation to reduce mercury and other contaminants from coal-fired power plants and have contributed to efforts to reduce or eliminate mercury in consumer goods.

Data on ingested lead fishing tackle, collected in collaboration with the Cummings School of Veterinary Medicine at Tufts University, resulted in first-in-the-nation legislation to restrict the use of small lead sinkers and jigs on lakes and ponds within New Hampshire in 2000. This was followed by legislation to extend this ban to all fresh waters in New Hampshire beginning in 2005 and to restrict the sale of this same tackle beginning in 2006. Senate Bill 89 was passed in 2013 to close a loophole that allowed the use and sale of larger lead-headed jigs that were continuing to kill loons. As of June of 2016, the sale and freshwater use of all

lead sinkers and lead-headed jigs weighing one ounce or less is restricted in New Hampshire, continuing the state's leadership in protecting loons from this avoidable cause of mortality. Since the peak of documented loon mortality from lead fishing tackle in the late 1990s, the documented rate of adult loon mortality from lead tackle has declined by 68%. In addition to safeguarding New Hampshire's loons, our efforts have prompted legislation or regulations restricting the sale or use of lead tackle in Maine, New York, Vermont, and Massachusetts. The success of these bills is evidence that LPC and its collaborators are making progress in encouraging a conservation ethic in our legislatures and among the public.

Education to help people understand the worth of loons and a healthy environment are logical endpoints for the work that our dedicated volunteers and staff have carried out over these past 50 years. The more we can encourage these connections between wildlife, the public, and our legislators, the greater the chance that the data LPC is collecting has its desired purpose of helping to shape a world-view that values a healthy Earth and all of its communities.

*There is a symbolic as well as actual beauty in the migration of the birds... there is something infinitely healing in the repeated refrains of nature—the assurance that dawn comes after night and spring after winter.*

~ Rachel Carson



Governor Hassan signs Senate Bill 89 at The Loon Center to protect loons from lead fishing tackle.



# PARTNERSHIPS FOR CONSERVATION

*Conservation and environmental organizations face common challenges in their efforts to help wildlife populations. The collaborative research and working relationships with other environmental groups, agencies, and individuals working toward the conservation of loons and their habitats is vital to the accomplishment of the Loon Preservation Committee's mission.*





**LPC** contributes data to the New Hampshire Natural Heritage Inventory and consults with the New Hampshire Fish and Game Department and the New Hampshire Department of Environmental Services on contaminants, proposed shoreline developments, dam repairs, and other lake modifications. We also share our findings and expertise through our partnerships with universities, veterinary colleges, environmental organizations, and federal agencies. Throughout its history, LPC has benefitted tremendously from its associations with these and other organizations, programs, and people too numerous to list.

LPC chairs and hosts the Northeast Loon Study Working Group (NELSWG), a consortium of federal and state agencies, universities, and non-profit organizations from New England states and eastern Canadian provinces created because of widespread concerns about the health of loons. With input from LPC and other members, NELSWG coordinates cooperative research and other actions on issues beyond the scope of its member organizations.

Building on our success in securing legislation to ban the sale and freshwater use of lead sinkers and jigs weighing one ounce or less in New Hampshire, LPC launched its first-in-the-nation Lead Tackle Buyback Program in 2018. This program protects loons by accelerating the removal of now-illegal lead fishing tackle from



*The loons were calling, I can hear them yet, echoes rolling back from the shores and from unknown lakes across ridges until the dusk seemed alive with their music.*

~ Sigurd F. Olson

active use in New Hampshire. In partnership with New Hampshire Fish and Game, local tackle shops, Scouting America, the Lakes Region Planning Commission, and several lake associations and transfer stations, the Lead Tackle Buyback Program provides financial incentives and convenient opportunities for anglers to safely dispose of their lead tackle. From 2018–2025, the Lead Tackle Buyback Program collected over 90,000 pieces of lead tackle – any one of which could have killed a loon had it remained in use – from tackle boxes across New Hampshire.



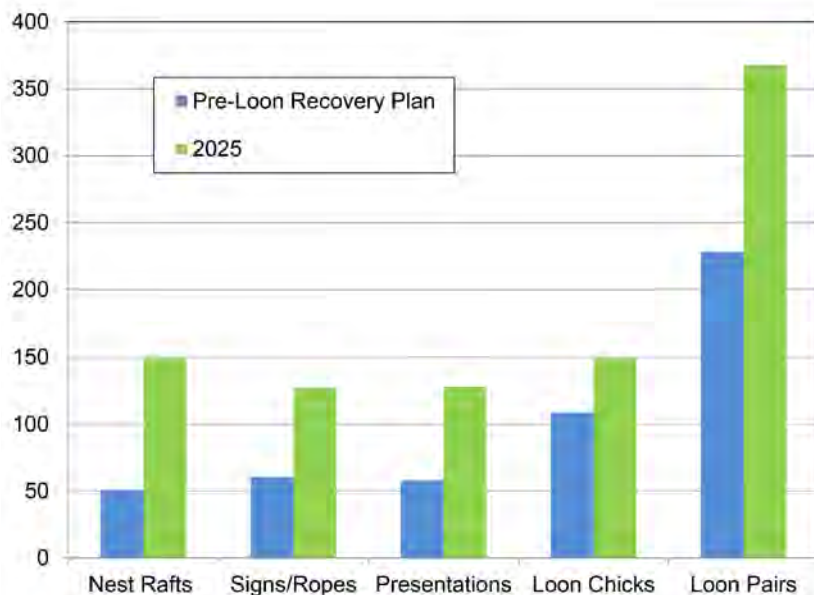
Northeast Loon Study Working Group (NELSWG) members meeting at The Loon Center.

## The Loon Recovery Plan

The Loon Preservation Committee's monitoring recorded significant population declines or mortality incidents on New Hampshire's three largest lakes (Winnepesaukee, Umbagog, and Squam) between 2001 and 2008 and five consecutive years of statewide declines in the number of surviving loon chicks from 2004 to 2008. These declines threatened to undo the hard-won gains that LPC's research,



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The Loon Recovery Plan has driven dramatic increases in LPC's statewide research, management, and educational activities to protect and recover New Hampshire's loons.

management, and educational efforts had achieved to that point and were the impetus for the creation of the Loon Recovery Plan (LRP), a plan to inform and direct LPC's work to promote a healthy and growing loon population throughout New Hampshire. The Loon Recovery Plan includes:

1. Analyses that estimate New Hampshire's statewide carrying capacity for loons to establish the number of loons New Hampshire's lakes can and should support;
2. Population models that measure the effects of man-made stressors on loon survival and breeding success to target our resources toward mitigating these stressors;
3. An assessment of our ability to help loons cope with these challenges through research, management, and outreach/education; and,
4. Strategies that will be implemented to increase loon populations to historical, pre-decline levels of an estimated 450-600 or more loon pairs.

The Loon Recovery Plan has helped us identify gaps in our knowledge of loons; implement new studies to establish the relative importance of a large number of physical, chemical, and cultural factors on the abundance and reproductive success of loons; develop and implement new management plans; and increase our organizational capacity and public involvement in safeguarding our loon population. It also provides a conceptual framework to integrate our educational products and programs with new and ongoing research and management activities to preserve loons.

The implementation of the Loon Recovery Plan has resulted in a dramatically increased monitoring, research, management, and outreach effort to help loons cope with the growing impacts of human activities and achieve LPC's ultimate goal of a recovered and viable loon population in New Hampshire. The LRP also serves as a model to plan and implement the recovery of other threatened or endangered species in New Hampshire, as well as the recovery of loons in other states.



## *The Squam Lake Loon Initiative*

Between the fall of 2004 and the spring of 2005, Squam Lake lost seven of its 16 loon pairs – a 44% decline that remains unprecedented on any large lake in LPC’s 50-year history of monitoring loons throughout New Hampshire. This decline brought Squam’s loon population to its lowest level since LPC began to survey Squam Lake in 1975, and it was followed by the near-complete reproductive failure of the remaining loon population: in 2007, Squam produced only one surviving chick. Loons on Squam had not experienced a breeding failure of this magnitude since 1978, the year LPC petitioned to have loons added to the Threatened Species list in New Hampshire.

The Squam Lake Loon Initiative (SLLI) was created to understand the causes of these declines and restore a healthy population of loons to the lake. Loons on Squam are facing multiple stressors, including increases in boating, egg predators, temperatures, and rain events. All of these factors are common to loons on lakes throughout New Hampshire, yet declines on Squam have been more severe and protracted than those on other lakes.

LPC’s groundbreaking research revealed levels of BDEs (flame retardants), PFAS (e.g., stain and water repellants, non-stick coatings), PCBs (industrial insulating/cooling agents), DDT and chlordane (both pesticides), and dioxins and furans (byproducts of industrial

processes) in Squam loon eggs that were up to six times higher than levels found in eggs collected from other lakes. Our work also revealed a rate of loon mortality from ingested lead fishing tackle that had increased to twice the statewide rate with increased boating and fishing activity on the lake. In addition to focused research on Squam Lake, LPC also carries out an extended field season on Squam to monitor loon survival and intensive management and outreach activities on and around the lake to protect and benefit Squam’s loons.

The Squam Lake Loon Initiative has already provided critical baseline data on contaminants and other environmental stressors on loons, and the knowledge gained from the SLLI extends well beyond Squam Lake. LPC’s renewed contaminants testing, which began in response to the declines on Squam Lake, has expanded statewide and revealed the scope of chemical contaminants in loon eggs across the state. LPC’s work on Squam has led to an increased understanding of the complex web of factors leading to declines in loon populations and will help avoid future declines of loons on Squam and on other lakes. It has also brought to light larger systemic problems on Squam indicated by the decline of loons and informs other LPC initiatives such as the Loon Recovery Plan, helping LPC and others make more informed decisions to protect loons and other wildlife on Squam Lake and throughout New Hampshire.

*No one who has ever heard the diver’s music—the mournful far-carrying callnotes and the uninhibited, cacophonous, crazy laughter—can ever forget it.*

*~ Oliver Austin*

Nest cameras, like this one focused on a nesting raft on Squam Lake, provide valuable insights into potential sources of disturbance and threats to nesting loons.





# THE VOLUNTEERS

*From the beginning, LPC has been a grassroots effort. LPC's members, donors, and volunteers are a vital part of all of our work and are our greatest resource in our mission to help loons.*





We have benefitted from the assistance of many thousands of dedicated people over the past 50 years. Our volunteers conduct LPC's annual mid-summer loon census, record the presence of loon adults and chicks throughout the breeding season, look for dead loons and unhatched loon eggs, help build and float nest rafts and signs, watch over nesting loons, and work to prevent conflicts between loons and people. Loon Center volunteers offer invaluable assistance with building upkeep, hospitality, mailings, office work, and store operations.

The efforts of our volunteers have allowed LPC to conduct the research, management, and public education needed to restore and maintain a healthy loon population throughout New Hampshire. LPC has worked to encourage a stewardship ethic in its supporters and volunteers, and they in turn have become powerful advocates for loons and extended LPC's efforts and message of hope far beyond the reach of our small staff. Without our volunteers, LPC could never have demonstrated that coordinated and



Volunteers at an LPC raft-building day at The Loon Center.

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*Every year this mission gets a little bigger and every year our volunteers and donors take up the slack, often with little recompense except a haphazard note from the director and the sound of calling in the night (also sometimes from the director).*

*~ Jeff Fair, Spring 1989 Loon Preservation Committee Newsletter*

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thoughtful human intervention could reverse the decline of a threatened species like the loon.

## THE LOON PRESERVATION COMMITTEE BOARD

The Loon Preservation Committee Board is comprised of a wide variety of professionals with diverse skills who volunteer their time and expertise to oversee LPC's activities. Several committees, including a Technical Committee that assesses LPC's research efforts and ensures that LPC's science in support of its mission meets the highest standards, are organized under the Board and report to the Board on a regular basis.

Trustees of the Board and members of its committees include business and community leaders and biologists from the New Hampshire Fish and Game Department, the New Hampshire Department of Environmental Services, the United States Fish and Wildlife Service, and the United States Environmental Protection Agency. In the winter of 2025-2026, the LPC Board, its committees, and LPC staff will work together to update LPC's Strategic Plan and its short- and long-term goals to guide LPC's

efforts in the years ahead.

One measure of LPC's success in its important work is the quality of people that are attracted to serve its worthy cause. We are fortunate at LPC to have such an active group of extraordinary people willing to volunteer their time for this organization. Their guidance is integral to LPC's continued success in preserving loons and their habitats in New Hampshire.

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*The loon recovery effort is as much a "movement" as an organization. And the responsibility for protecting and assisting the loon population is right where it belongs – on the minds and shoulders of the human population.*

*~ LPC Ten Year Report*

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# Lead

By Mary Oliver

*Here is a story  
to break your heart.  
Are you willing?  
This winter  
the loons came to our harbor  
and died, one by one,  
of nothing we could see.  
A friend told me  
of one on the shore  
that lifted its head and opened  
the elegant beak and cried out  
in the long, sweet savoring of its life  
which, if you have heard it,  
you know is a sacred thing,  
and for which, if you have not heard it,  
you had better hurry to where  
they still sing.  
And, believe me, tell no one  
just where that is.  
The next morning  
this loon, speckled  
and iridescent and with a plan  
to fly home  
to some hidden lake,  
was dead on the shore.  
I tell you this  
to break your heart,  
by which I mean only  
that it break open and never close again  
to the rest of the world.*





# PURPOSE AND EFFORT

In 1976, Dave Hammond and Rawson Wood wrote that only one of the seven waterbodies in New Hampshire named “Loon Lake” or “Loon Pond” still held loons, with no chicks on any of them. This summer, we recorded loons on three of those lakes, each of which held a territorial pair. Two of those pairs nested and one, on Loon Pond in Hillsborough, hatched two chicks, one of which was still thriving in August and will likely fledge to fly to the ocean. It should be noted that a couple of New Hampshire’s Loon Ponds are small, 10-20 acres, and perhaps represented wishful thinking by those historical namers rather than prime loon habitat; but even now, after 50 years of study and work, we are continuing to learn about the resilience of loons, so you never know. The lessons here? Maybe that we have come a long way, there is a long way to go, and there is still a lot to learn about loons, our effects on them, and ways in which we can help them thrive.

There are a few things we do know: there is room left for our loon population to grow, and a future for loons in New Hampshire despite their increasing challenges, and work left for LPC to do. The evolution of this organization has led us in new and unexpected directions, from confronting the obvious challenges facing loons to insidious threats that our founders could not have anticipated, and toward continually more focused, refined, and diverse work to help loons. The unlikely and welcome result is that, despite seemingly insurmountable obstacles, our loons are persisting, with the chance to thrive.

Despite 50 years of effort and progress in recovering New Hampshire’s loon population, the loon remains a threatened species in our state. Our growing human population will continue to make wild places and quiet spaces harder to find, and we will need to find creative solutions to help loons survive. The world has shrunk in the past five decades – today we are intensely aware of the smallness of our planet and the

interconnectedness of all things. The threats that demanded an “all out, last ditch preservation effort” in 1976 still face our loons today, and new perils like climate change and forever chemicals have compounded these hazards, with potentially grave consequences for humans and wildlife.

It’s hard to imagine that one small organization protecting one species of bird in one of these United States could have much of an impact on that vast challenge. But, over the past 50 years, we have proven that purpose and effort can effect positive change. LPC was one of the first organizations anywhere to show that coordinated and thoughtful human actions could reverse the decline of a threatened or endangered species. And the impacts of our work extend far beyond loons and far beyond New Hampshire. Our success has inspired the creation of statewide, regional, and even international organizations to help loons, and our work continues to benefit other species that depend on clean water, natural shorelines, and functioning ecosystems.

Fifty years ago, the Loon Preservation Committee was a voice in the wilderness for a voice in the wilderness. In the years between, we have shown that loons and people can live together if we value loons and respect their needs. Their challenges will continue to grow in number and scope; but, with

the continued support of our members and friends, we will keep working for informed choices and for wise stewardship of loons. LPC was created to fulfill the promise of a real and substantive renewal of the spirit of these northern lakes. May the next 50 years bring as much passion, purpose, and effort as have served us so well in the past as we aspire to a bright future for loons and for people in New Hampshire.

*What was the purpose of all this effort? To reverse the impending loss of Gavia immer (the Common Loon) as a breeding species in New Hampshire and to ensure that its wild, clear, spine-tingling call will still ring across our waters and not be lost forever.*

*~ Loon Preservation Committee, 1976*



This chick being chased by its parents with food was the first chick to be hatched on Meredith Bay of Lake Winnepesaukee since before LPC began its work in 1975.

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*The Loon Preservation Committee gratefully acknowledges  
Meredith Village Savings Bank and  
The Annette and George William Cottrell, Jr. Fund  
of the New Hampshire Charitable Foundation  
for funding LPC's 50 Year Report.*



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