Common Loon Status Report 2020

MINNESOTA

bri

A Series Publication of BRI's Center for Waterbird Studies

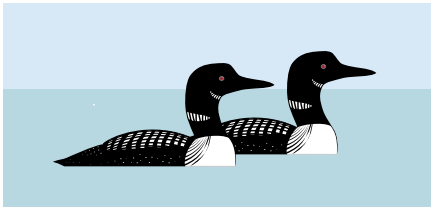
Status of the Breeding Loon Population in Minnesota

Distribution

Historically, Common Loons (*Gavia immer*) bred throughout the state, as far south as northern Iowa, although they were likely uncommon in the prairies. By 1900, breeding loons were pushed north of Minneapolis. Today, breeding loons range across the northern two-thirds of the state and are beginning to return to parts of their historical range in the south-central part of Minnesota. (Figure 1).

Minnesota's nearly 4,700 territorial pairs comprise the largest breeding loon population in the contiguous United States.

Territorial Loon Pairs in Minnesota



4,650
Total Number of Territorial Pairs in MN

11,160
Total Number of Breeding Adults in MN

6,500
Total Number of Territorial Pairs in the U.S. Great Lakes

Loon Monitoring Program

In 1994, the Minnesota Department of Natural Resources (DNR) implemented a Loon Monitoring Program. With the assistance of volunteers, the DNR annually gathers information on Common Loons on more than 600 lakes, distributed among six regions, or index areas, that include: Kandiyohi, Otter Tail, Becker, Aitkin/ Crow Wing, Itasca, and Cook/Lake Counties (Figure 1). These regions represent different stressors that may affect loons and their habitats such as densities of roads, human population, and acid rain sensitivity (Hanson 1996).

Results from the monitoring program indicate that Minnesota's loon population has been stable for more than two decades.

Although the average number of loon chicks reported per pair of adults is highly variable from year to year, their numbers have also remained stable across all index areas.

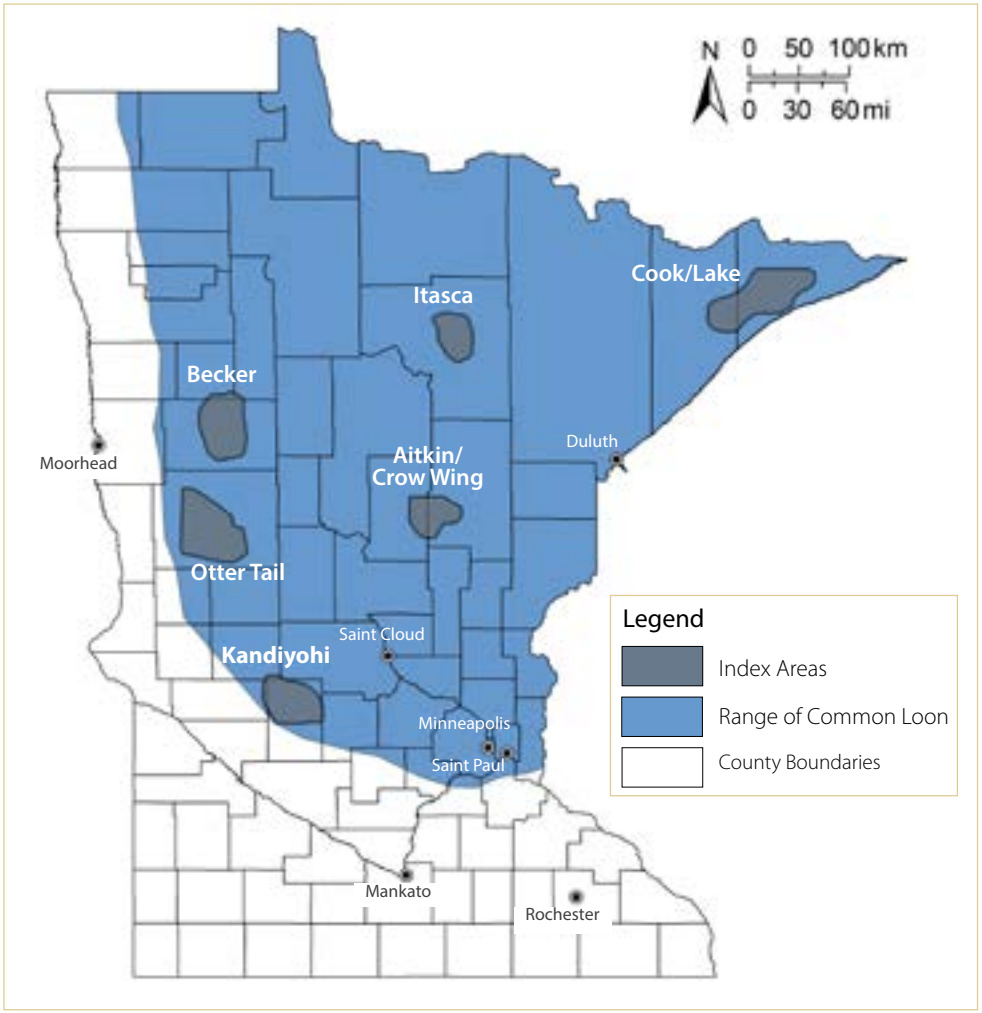
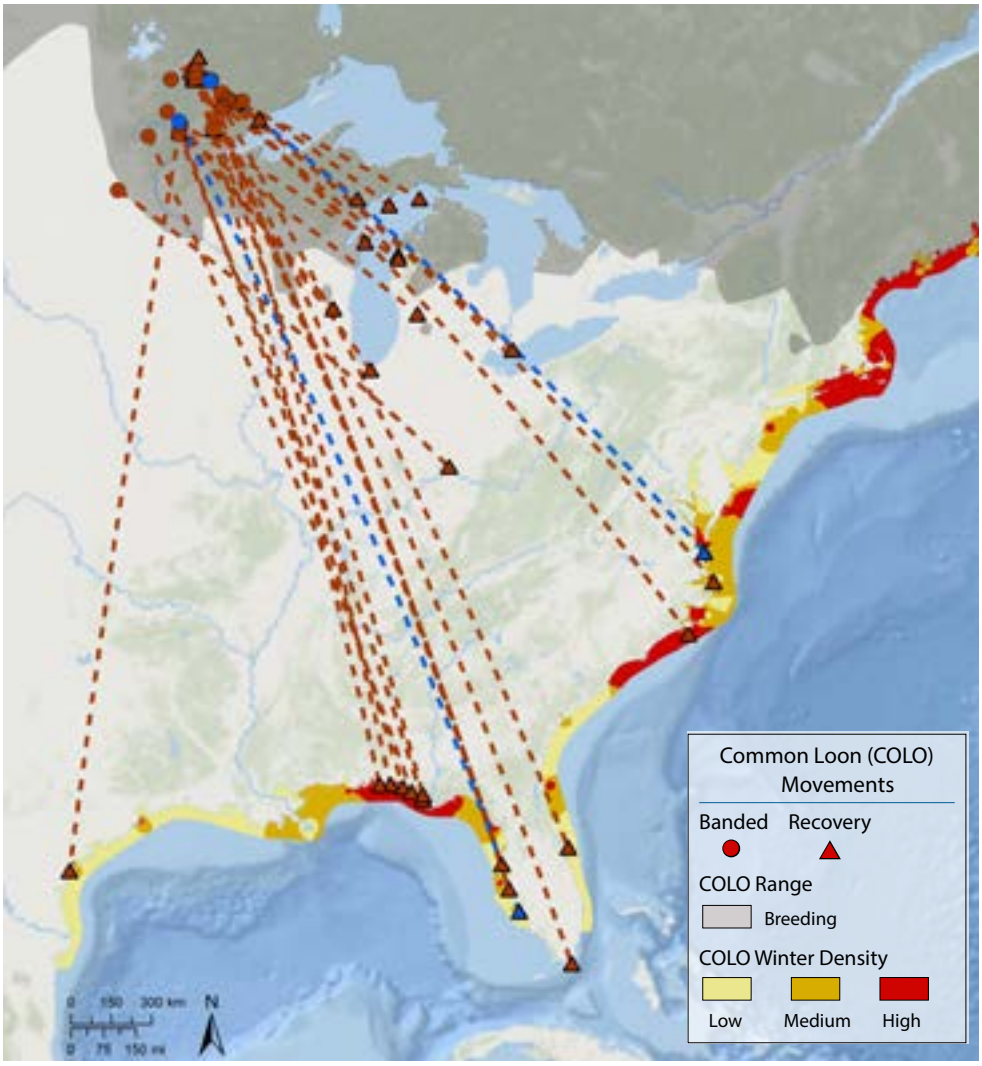


Figure 1. Breeding range of Minnesota Common Loons and six index areas where the Minnesota Loon Monitoring Program focuses monitoring efforts (Minnesota DNR 2019).



Movements

Loons migrate from Minnesota in late fall. They are often observed on Lake Michigan, where they stage before migrating south. Adults leave before juveniles, so young loons arrive on the wintering grounds without prior knowledge or experience.

Band recoveries indicate that loons in Minnesota spend the winter in either the Gulf of Mexico or along the Atlantic coast (Figure 2).

In the Gulf of Mexico they range as far west as Corpus Christi, Texas and east to Tampa Bay, Florida. In the Atlantic, loons winter off the shores of Virginia and North Carolina. Recent satellite tracking showed one adult spent the winter at an inland reservoir in Tennessee (Kenow et al. 2002).

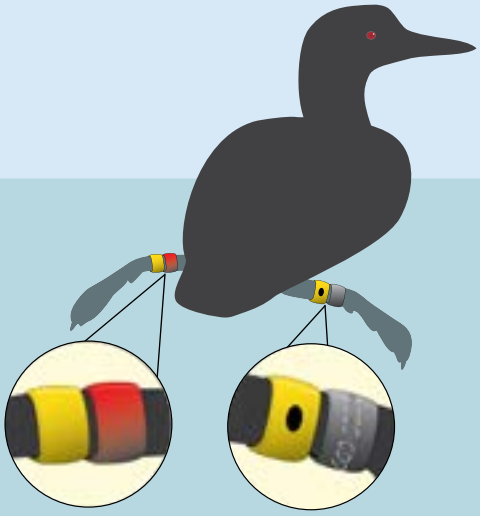
Figure 2. Breeding and wintering range for the Common Loon. Movements of loons are based on recoveries and observation of individuals banded by Biodiversity Research Institute (BRI). The winter range densities are from the National Audubon Society's Christmas Bird Count, 2002-2012. Data from birds/party hour are log transformed.

BRI Banded Common Loons

346
Minnesota
(since 1992)

2,478
Great Lakes
(since 1987)

5,699
North America
(since 1989)



Capture and color-marking programs are necessary for careful tracking of individuals and provide invaluable information on loon life history. Tracking banded loons have increased our knowledge of territory fidelity, mate fidelity, initial age of breeding, dispersal within the breeding area, and migratory movements.

Leg bands enable researchers to identify individual loons from a distance in the field.

Plastic color bands are used in unique combinations (left leg) and metal bands are engraved with a unique I.D. number (right leg).

Loons and Lead: A Lethal Mix

Lead poisoning is the most significant cause of mortality in adult loons

Mortality Statistics

2-3

The number of weeks it takes for loons to die after ingesting lead from fishing tackle. Even a small piece of lead is fatal.

12%

The annual rate of lead poisoning in Minnesota's loons.

Source:
Minnesota DNR Fact Sheet

It's easy to save lives

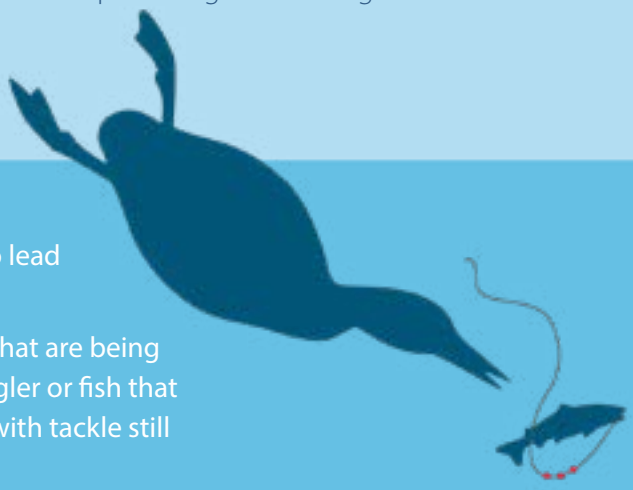
Nonlead fishing tackle is not a novelty product. Ask for it at retailers and shops.

Minnesota's Pollution Control Agency maintains a database of companies that offer lead-free tackle—weights of all shapes and sizes.

The cost is minimal to switch from lead to nonlead tackle.

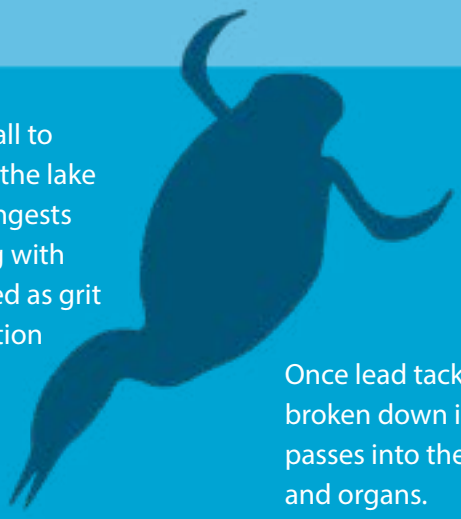
For a list of Manufacturers and Retailers, click here.

Loons are long-lived, have low fecundity and a low annual adult mortality rate—significant changes in breeding populations are symptomatic of chronic stressors such as lead poisoning from fishing tackle.



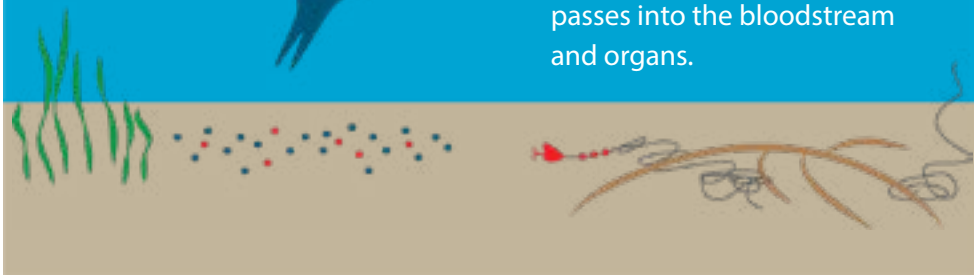
Loons are exposed to lead in two ways:

1) they feed on fish that are being reeled in by an angler or fish that have broken free with tackle still attached



2) lead weights fall to the bottom of the lake and the loon ingests the lead along with pebbles needed as grit to aid in digestion

Once lead tackle is ingested, it is broken down in the gizzard and passes into the bloodstream and organs.



Minnesota's Nonlead Tackle Initiative: *Get the Lead Out!*

Loons, Lead, and Anglers

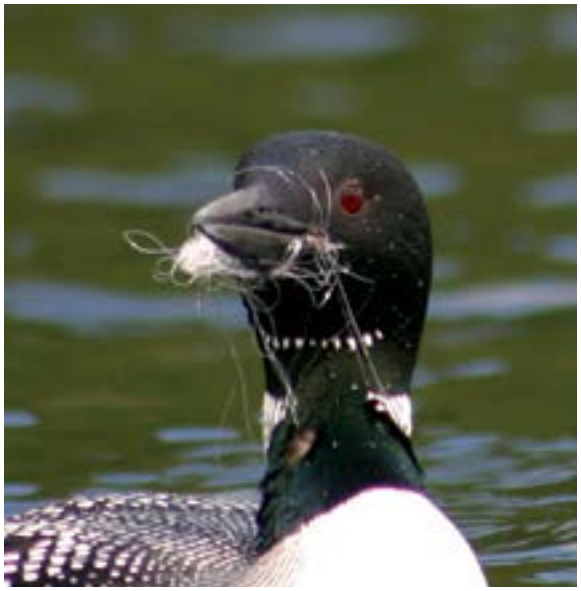
Anglers can help prevent lead poisoning in loons. A study conducted by the Minnesota Pollution Control Agency (MPCA) found that lead poisoning accounted for 12 percent of the dead adult loons with known causes of death. Inexpensive and ecologically sound alternatives to lead fishing weights are available. Through MPCA's ***Get the Lead Out!*** campaign, Minnesota's anglers are asked to consider switching from lead fishing tackle to nontoxic alternatives such as tin, bismuth, steel, and tungsten-nickel alloy.

A Campaign to Safeguard Wildlife and Human Health

On April 20, 2010, an explosion on the Deepwater Horizon oil rig resulted in 168 million gallons of oil spilling into the Gulf of Mexico for more than 87 days, killing thousands of birds, fish, and marine mammals. Minnesota's breeding loon population overwinters in the Gulf of Mexico; research by the Minnesota Department of Natural Resources (DNR) established that the oil spill adversely affected Minnesota's loons. Minnesota was eligible for compensation for environmental damages caused by the disaster to protect and enhance the state's loon population. Restoration of loon-years-lost (i.e., injury) is a common way for governmental environmental trustees (e.g., U.S. Fish and Wildlife Service) to compensate for such losses (Evers et. al. 2019).

The MPCA was awarded $1.2M to carry out a three-year campaign to educate Minnesotans on the dangers that lead tackle poses to breeding loons and to promote the availability and use of nonlead tackle. The ***Get the Lead Out!*** initiative is supported by the state government, as well as lake associations, conservation organizations, and those involved in the fishing and tackle industry.

The Minnesota DNR is also receiving oil spill funds to protect habitat and enhance nesting sites throughout prime loon breeding areas in the deepwater lakes region of Minnesota.



Top: X-ray shows a lead sinker in a loon's gizzard. Bottom: Discarded fishing line can also cause fatal harm to loons.

How You Can Help

- Use nonlead fishing weights.
- Take all unwanted/unusable lead and suspected lead fishing tackle to your local Household Hazardous Waste Collection program for recycling.
- Spread the word. Tell other anglers about the problem, and encourage them to switch to nonlead sinkers and jigs.
- Ask your favorite retailers to stock nonlead fishing tackle.
- Use sufficiently strong fishing line and leaders when fishing with sinkers and jigs.
- Tie lures and jigs using strong knots.
- Tightly crimp split-shot weights using pliers.

For more information, visit:

Get the Lead Out

Loon Restoration

Translocating Loon Chicks in Minnesota

In collaboration with the Minnesota Department of Natural Resources, in 2014, five chicks were translocated from northern Minnesota (Itasca County) and released in southern Minnesota (Le Sueur County). The translocation site was on Fish Lake, west of Lakeville. An additional seven chicks in 2015 and five more in 2016 were released. Overall, 17 chicks were successfully translocated to southern Minnesota (Table 1).

Loon chicks started returning in 2017 based on a sighting of a color-banded loon in the release area. Further survey efforts are needed. Based on results on a loon translocation site in Massachusetts, we expect 40% (7) of the loon chicks will have returned to establish a breeding population in southern Minnesota.

See BRI's publication: *Loon Translocation: A Summary of Methods and Strategies for the Translocation of Common Loons* at:

www.briloon.org/translocation

When able to forage on their own, the loons are released and carefully monitored until they fledge.

BRI staff developed methods for captive rearing loon chicks. Translocated chicks are raised in specially designed pens until they are old enough to feed on their own (9-10 weeks old; Kneeland et al. 2020).

Table 1. List of loon chicks translocated from northern to southern Minnesota lakes. (Methods: CR=captive reared; DR=direct release.) The source population was from lakes near Grand Rapids.

Release Year	Band #	Color Band Combo		Sex*	Method
		Left Leg	Right Leg		
2014	1058-00613	silver/green stripe	yellow/yellow	M	CR
2014	0938-78720	white dot/silver	yellow/red	M	CR
2014	0938-78715	silver/white dot	white/red	F	CR
2014	0938-06495	green stripe/silver	green/blue	M	CR
2014	1058-00624	green/silver	red/green	M	CR
2015	0938-66686	silver/orange bicolor	green	M	DR
2015	1058-00650	silver/orange bicolor	white dot	F	DR
2015	0938-66690	silver/orange bicolor	green dot	F	CR
2015	0938-79000	orange bicolor/silver	white dot	M	CR
2015	1058-00632	orange bicolor/silver	blue dot	F	CR
2015	0938-66688	silver	yellow dot	F	DR
2015	1058-00631	silver/orange bicolor	red dot/white	F	CR
2015	0938-66687	silver/orange bicolor	white stripe	M	CR
2016	1058-00634	silver/orange bicolor	orange stripe	F	DR
2016	0938-44481	silver/red stripe	blue/white	F	DR
2016	0938-44476	silver/red stripe	blue/green dot	U	DR
2016	0938-44500	silver/red stripe	yellow stripe/green	M	DR
2016	0938-44479	silver/red stripe	blue dot/green	F	DR
2016	0938-44483	silver/red stripe	blue dot/ yellow	M	DR

**All chicks were sexed through blood genetics.*

Recommendations for 2020

Evidence of the loon's ability to acclimate suggests that properly designed conservation efforts can be beneficial in many instances (Evers et. al 2020). BRI led a project from 2014-2016 to restore breeding loons to southern Minnesota. Surveys in 2020 will measure that success.

Over the years, BRI's research has found the following actions to be successful or have potential for success:

Monitoring

Continue and expand the Minnesota Loon Monitoring Program into the south central region of the state. Use standardized survey methods to collect data on the number of territorial pairs, nesting pairs, location of nests, chicks hatched, and those surviving >6 weeks of age. Special emphasis should be placed on the loon restoration area near Lakeville.

Research

Determine survival rates, track intra- and inter-seasonal movements for adults and juveniles (using color-marked individuals and transmitters), assess effectiveness of signs and rafts, and investigate risks from contaminants such as mercury in breeding, staging, and wintering areas (Figure 3). BRI is conducting such studies in New England for comparative purposes.

Outreach

At visitor centers in public parks, create greater awareness of the presence and requirements of loons through the use of dioramas, exhibits, communication pieces, and video and slide presentations. The new National Loon Center provides an important gathering place for information dissemination (see back page).

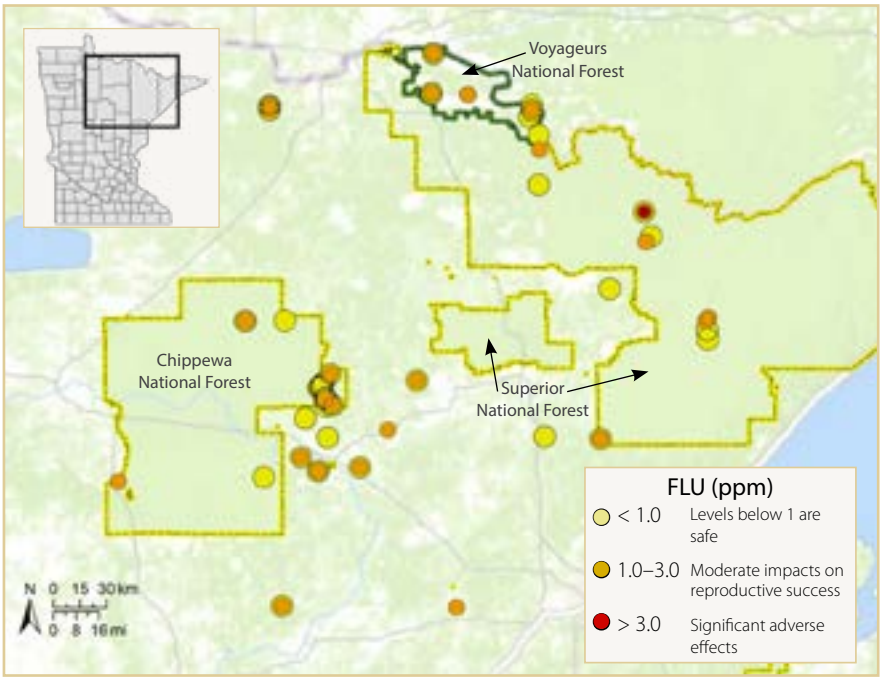


Figure 3. Mercury concentrations measured in adult and juvenile loons and inviable eggs from northeastern Minnesota. Age and sex classes and different tissue types can be converted to one unit (Female Loon Unit or FLU) based on well-established models (Evers et. al 2011).

Rafts are proven to be an effective management tool in Common Loon reproductive studies on New England lakes and ponds. With rafts, hatching success increased by 51% on lakes with stable water levels and 119% on those with fluctuating systems (DeSorbo et al. 2007).

The generous assistance of hundreds of volunteers allows the Minnesota Department of Natural Resources to monitor loons each year on more than 600 lakes (Minnesota DNR 2019).

The newly formed National Loon Center, a 15,000-square-foot facility scheduled to open in Crosslake, Minnesota in 2022, will be an interactive educational destination that will transform visitors into champions for loons and fresh water everywhere. The Center will focus on loon species protection and freshwater habitat conservation through citizen science and technology. For more information, visit: www.nationallooncenter.org.

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Biodiversity Research Institute's mission is to assess emerging threats to wildlife and ecosystems through collaborative research and to use scientific findings to advance environmental awareness and inform decision makers.

Related Links

Journey North
University of Wisconsin–Madison

A citizen science program that engages volunteers to track wildlife migrations. To learn how you can participate, visit:

www.journeynorth.org

Northeastern Minnesotans for Wilderness

Campaign to Save the Boundary Waters aims to protect the water, air, and forest landscape of the Boundary Waters Canoe Area Wilderness.

www.savetheboundarywaters.org

Have You Seen a Loon?

PLEASE report any loon sightings on southern Minnesota lakes, especially those within a 20-mile radius of Lakeville, Minnesota.

If you see a loon, please contact Minnesota DNR or Biodiversity Research Institute at:

minnesotaloons@briloon.org

You can also visit: **www.briloon.org/loonoutreach** to complete a sighting form online.

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