



# Minnesota Loon Monitoring Program

2020 Annual Report

Nongame Wildlife Program

## Overview

The Minnesota Loon Monitoring Program (MLMP) was initiated in 1994 to detect changes in Minnesota’s Common Loon population and in the health of their lake habitats in Minnesota. With the help of over 1000 volunteers, the Minnesota Department of Natural Resources (DNR) Nongame Wildlife Program has completed loon surveys in six 100-lake “Index Areas” annually since 1994. The Index Areas (Fig. 1) were chosen to represent different factors that may affect loons and their habitat throughout their breeding range within the state, including human population growth, acid rain sensitivity, densities of humans and roads, and predominant land ownership (public or private).

After 27 years of data collection, MLMP results suggest that Minnesota’s loon population remains stable with an average of 2 loons per 100 acres of lake across all six Index Areas. An average of 66% of the lakes within the Index Areas have had loons present during this 27-year period.

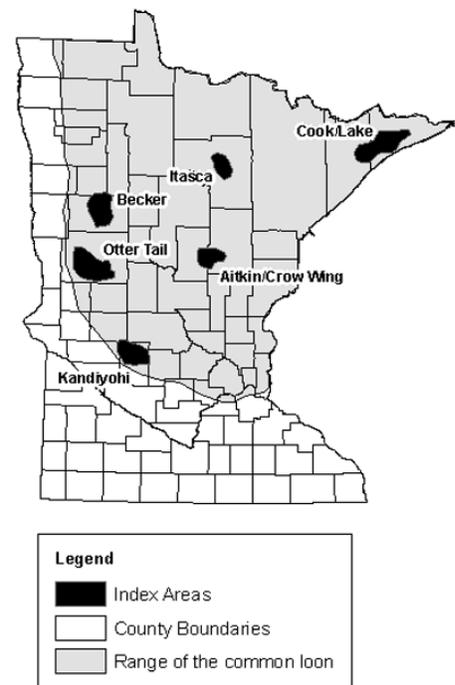


Figure 1. The six MLMP Index Areas.

## Methods

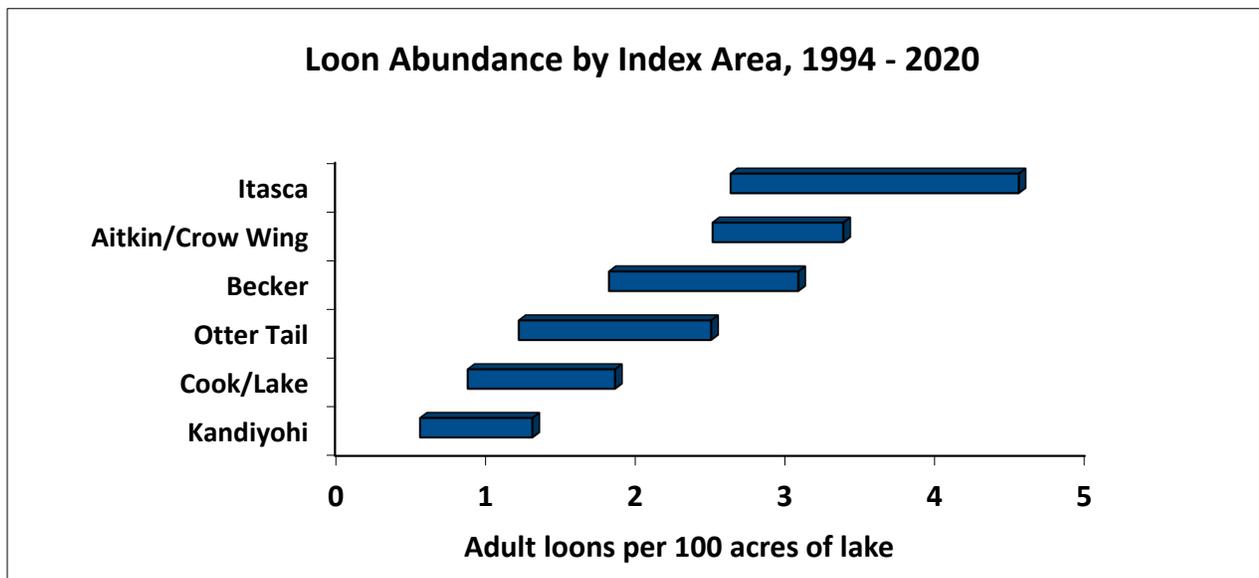
MLMP volunteers were assigned to survey one or more lakes during the morning hours (between 5 a.m. and noon) of one day within a 10-day period in late June to early July (in 2020, this period was from June 26th to July 6th). Only lakes over 10 acres in size and deep enough to overwinter fish were surveyed within each Index Area. Nongame Wildlife Program staff standardize data collection by providing survey guidelines to all volunteers.

Survey styles vary widely depending on the size of the lake. Some volunteers used boats or canoes, and others surveyed from the shore. Similarly, some used binoculars or a spotting scope, and others did not.

Surveyors scanned the entire surface of a lake, no matter what style of data collection that was used, and counted the number of adult and juvenile loons. In addition to the numbers of loons observed, volunteers were asked to report on factors such as weather and shoreline conditions. Once the survey was completed, volunteers returned data forms to the Nongame Wildlife Program for compilation and analysis.

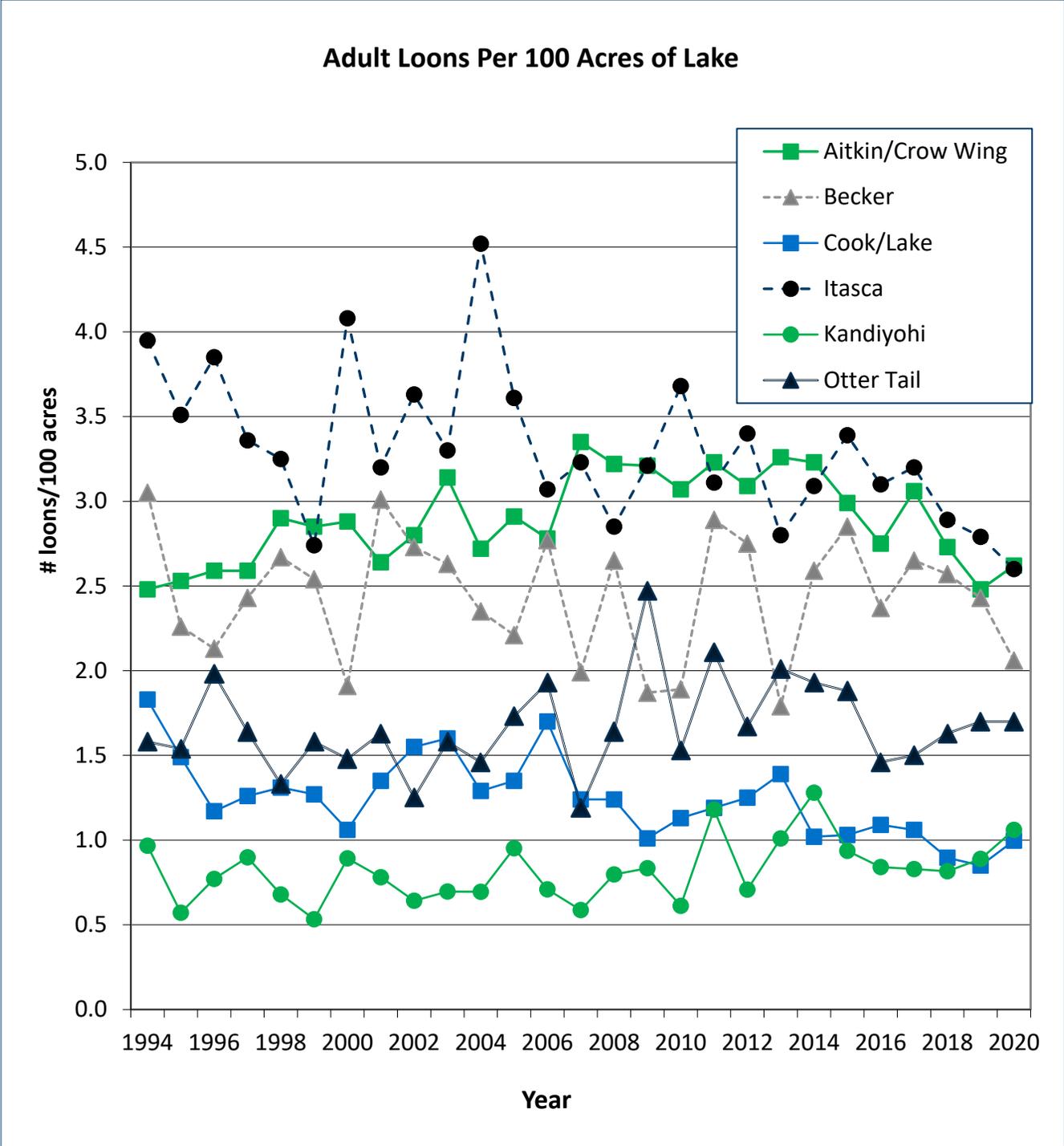
## 2020 Results

Loon abundance varies widely across the state, and continues to be lowest in the southwest (Kandiyohi) and highest in the northcentral (Itasca) Index Area (Fig. 2). The number of adults observed per 100 acres of lake has remained stable from 1994-2020 for three of the six Index Areas. A marginal increase was detected in the number of adult loons observed per 100 acres in the Otter Tail Index Area, and a marginal decrease in adults per 100 acres was observed in both the Cook/Lake and Itasca Index Areas over this time period (Fig. 3). The percentage of lakes occupied by loons has significantly increased in the Kandiyohi Index Area, significantly declined in the Cook/Lake Index Area, and remained stable in the other four Index Areas (Fig. 4).

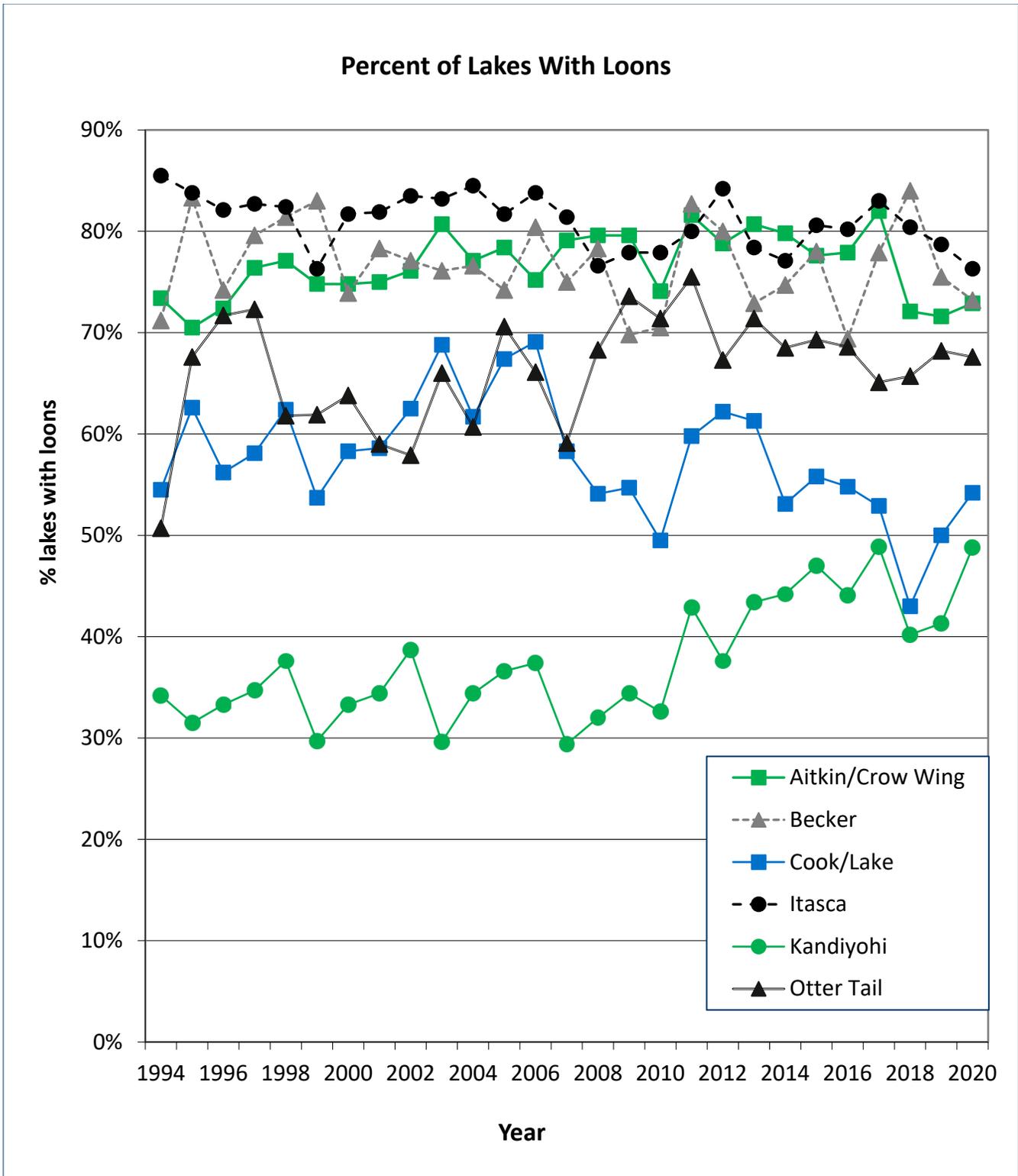


**Figure 2.** Loon abundance measured by the average number of loons per 100 acres of lake from 1994-2020 within each of the six MLMP Index Areas. Bar length is based on minimum and maximum abundance values.

While the average number of juvenile loons reported per pair of adults is highly variable from year to year, juvenile reports have remained stable in three of the six Index Areas (Fig. 5). Juvenile counts per pair of adults show a marginal increase in the Becker Index Area, a marginal decrease in the Otter Tail Index Area, and a highly significant decline in the Itasca Index Area. Volunteers observed low numbers of juvenile loons in 2018-2019 in the Itasca Index Area following a rebound in numbers from 2015-2017. This significant decline in juveniles is concerning and will continue to be monitored closely in future years.

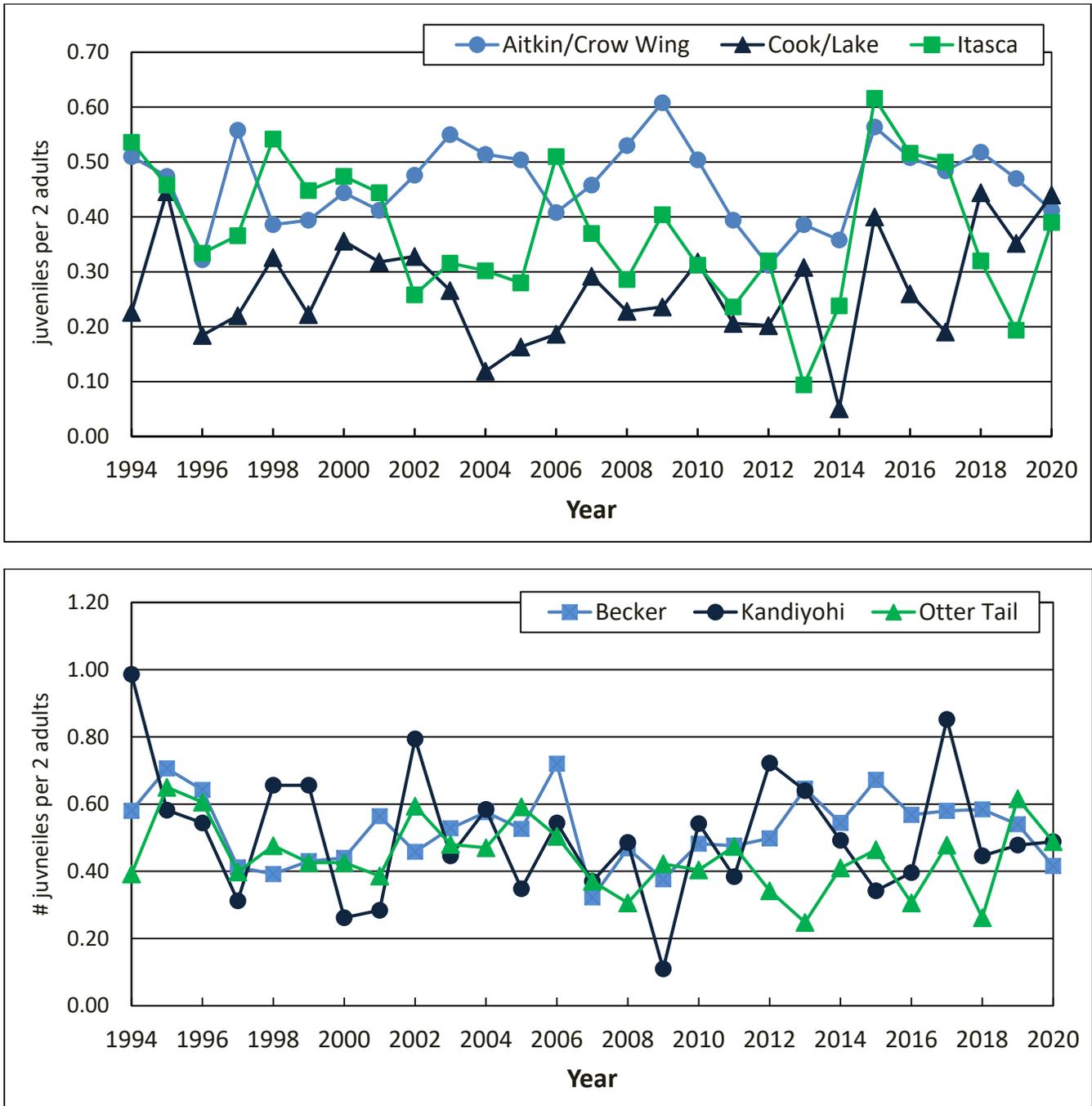


**Figure 3. LOON ABUNDANCE:** Number of adult loons observed per 100 acres of lake within each Index Area. The Otter Tail Index Area shows a marginally significant increase, and the Cook/Lake and Itasca Index Areas show a marginally significant decrease in loon abundance from 1994-2020. The other Index Areas exhibit no significant changes in loon abundance over the 27 years of the MLMP.



**Figure 4. PERCENTAGE OF LAKES WITH LOONS:** There has been a highly significant increase in the percentage of lakes with loons in the Kandiyohi Index Area, a significant decrease in in the Cook/Lake Index Area, and no statistically significant changes within the other four Index Areas.

### Number of Juvenile Loons Per Two Adults



**Figure 5. LOON REPRODUCTIVE SUCCESS:** Number of juvenile loons per two adults: a) Index areas in northeast/north central MN and b) Index areas in northwest/west-central MN. The number of juvenile loons per pair of adults has increased marginally in the Becker Index Area, decreased in the Otter Tail Index Area, and declined highly significantly in the Itasca Index Area from 1994-2020. The other three Index Areas exhibit no significant changes. Due to the difficulty of observing juvenile loons, reports are highly variable from year to year within each of the Index Areas, although they are relatively consistent across Index Areas.

## Summary

Overall, loon populations across the six Index Areas have remained relatively stable for the past 27 years with slight increases observed in some areas and slight decreases in others. This is good news for Minnesotans, who recognize and enjoy our state bird as an integral part of our lake ecosystems. Despite the good news statewide, the decline in juvenile loons observed by volunteers in the Itasca Index Area is concerning and will continue to be monitored closely in future years. The DNR Nongame Wildlife Program will continue to rely on MLMP to monitor loons as Minnesota's human population and lakeshore development continue to increase.

## Acknowledgements

### THANK YOU MLMP VOLUNTEERS!!!

We extend our heartfelt thanks to the hundreds of volunteer observers who continue to make the MLMP a success. Without your persistence and hard work, the DNR would not have as comprehensive of a long-term data set to track the health of our state bird. We and Minnesota's loons appreciate your commitment!

*The MLMP is supported by contributions to the Nongame Wildlife Checkoff on Minnesota's tax forms and by the State Wildlife Grants program administered by the U.S. Fish and Wildlife Service.*

You can donate online anytime at: [mndnr.gov/checkoff](http://mndnr.gov/checkoff)

## Contact Us to Participate

For more information, or if you are interested in participating in the MLMP, please visit:  
[mndnr.gov/eco/nongame/projects/mlmp\\_state.html](http://mndnr.gov/eco/nongame/projects/mlmp_state.html)

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