

Minnesota Loon Monitoring Program - 2016



NONGAME WILDLIFE PROGRAM
MINNESOTA DEPARTMENT OF NATURAL RESOURCES

The Minnesota Loon Monitoring Program (MLMP) was implemented in 1994 to detect changes in Minnesota's loon population and in the health of their lake habitats in Minnesota. With the help of over 1000 volunteers, the DNR's 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 which 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 predominantly public or private land ownership.

After twenty-three years of data collection, MLMP results indicate 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 23-year period.

Methods

Our 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 2016, this period was from June 24th to July 4th). Only lakes over 10 acres in size and deep enough to overwinter fish were surveyed within each Index Area. The 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 spotting scopes, and others did not. Nongame Wildlife Program staff standardize these various methods by providing survey guidelines to all volunteers.

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.

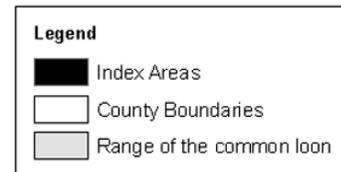
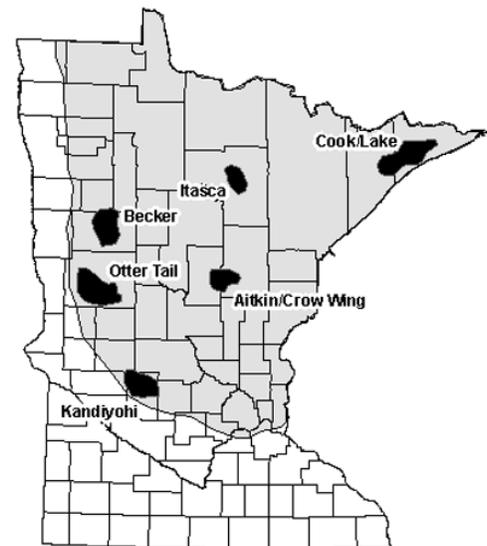


Figure 1. The six MLMP Index Areas.

2016 Results

Reports of adult loons in the 2016 survey are consistent with past years of the MLMP. 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 between 1994-2016 for four of the six index areas. An increase was detected in the number of adult loons observed per 100 acres in the Otter Tail Index Area and a marginal decrease was detected in the Becker Index Area over this time period (Fig. 3). The percent of lakes occupied by loons has remained stable or increased in all six areas (Fig. 4).

While the average number of juveniles reported per pair of adults is highly variable from year to year, juvenile reports have remained stable in four of the six areas (Fig. 5). Juvenile reports show a marginal decline in the Becker Index Area and a highly significantly decline in Itasca Index Area. Encouragingly, juvenile counts for Itasca have rebounded since 2014.

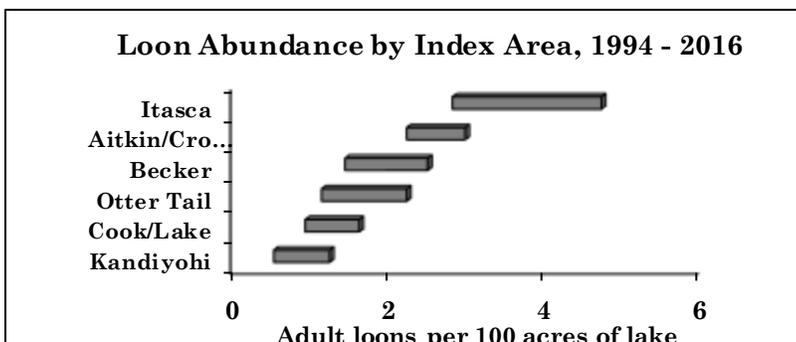
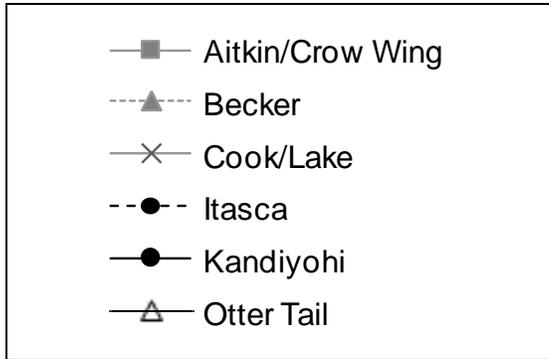


Figure 2. Loon Abundance between 1994-2016 within each of the six MLMP Index Areas.

Legend for Figures 3-5.



In Summary

Overall, loon populations within our six Index Areas have remained relatively stable for the past twenty-three years. This is good news for Minnesotans, who recognize and enjoy our state bird as an integral part of our lake ecosystems. The DNR's Nongame Wildlife Program will continue monitoring loons through the MLMP as Minnesota's human population and lake shore development continue to grow.

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 be without a means of tracking the health of our state bird. We and Minnesota's loons appreciate your commitment!

The MLMP is supported by the State Wildlife Grants program and by contributions to the Nongame Wildlife Checkoff on Minnesota's tax forms.

You can donate online anytime at: mndnr.gov/checkoff

For more information, or if you are interested in participating in the MLMP, please visit: mndnr.gov/eco/nongame/projects/mlmp_state.html

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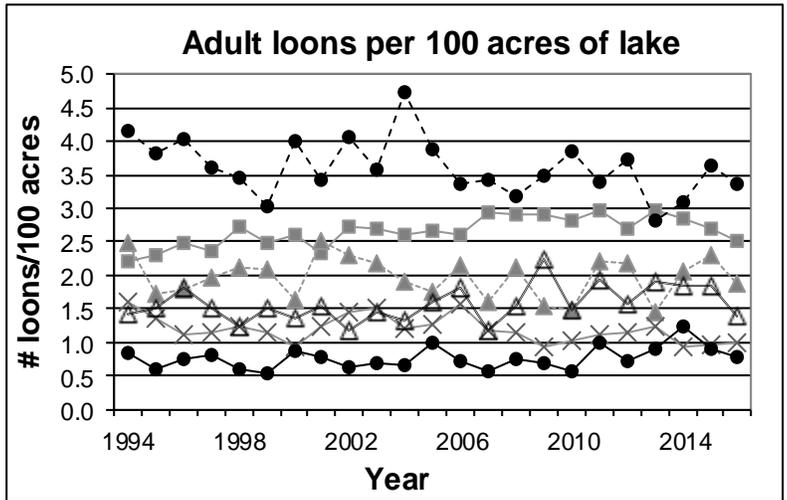


Figure 3. LOON ABUNDANCE: Number of adult loons observed per 100 acres of lake within each index area. The Otter Tail Index Area shows a statistically significant increase and the Becker Index Area shows a very marginal decrease in loon abundance between 1994-2016. The other index areas exhibit no significant changes in loon abundance over the twenty-three years of the MLMP.

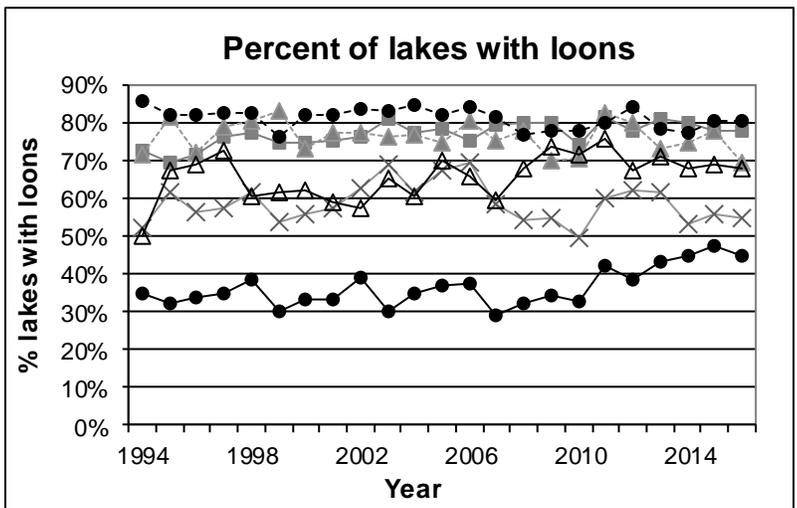


Figure 4. LOON OCCUPANCY: Percent of lakes with loons. There has been a highly significant increase in loon occupancy rates in the Kandiyohi Index Area, a marginal increase in the Otter Tail Index Area between 1994-2016, and no statistically significant changes within the other four areas.

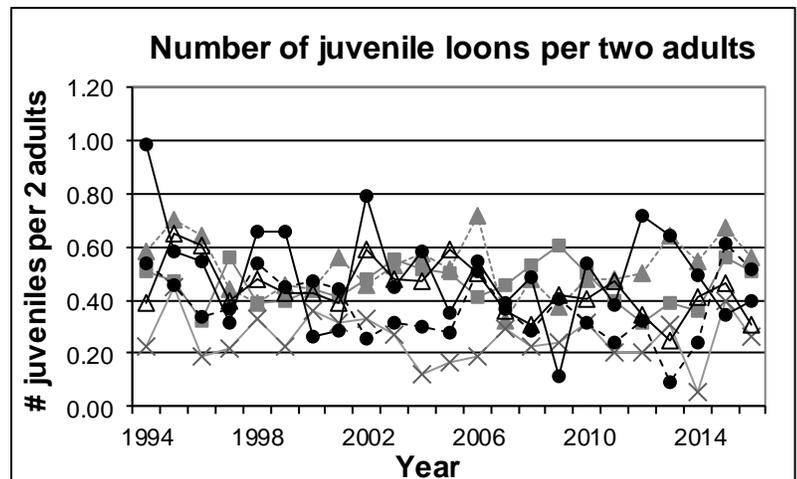


Figure 5. LOON REPRODUCTIVE SUCCESS: Number of juvenile loons per two adults. The Itasca Index Area shows a highly significant decline and the Becker Index Area a marginally-significant decline in reproductive success between 1994-2016, whereas the other four index areas exhibit no significant changes. 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.

