

THE COMMON LOON

Population Status and Fall Migration in Minnesota



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A Survey of Common Loons on Small Lakes in Central Minnesota

Pamela Skoog Perry and Kevin Woizeschke

This pioneering and previously unpublished survey of small lakes in Crow Wing County documented the importance of these lakes for the Common Loon breeding population in central Minnesota. Loon usage of lakes smaller than 25 acres was especially noteworthy, since previous studies in Minnesota had not identified the significance of this small lake size class.

Small lakes, those less than 50 acres, have been considered to have less use by the Common Loon (*Gavia immer*) than larger lakes. Sjölander and Ågren (1972), McIntyre (1975), and Zimmer (1979) all reported limited use of lakes less than 30 acres (12 ha). McIntyre (1986) described good loon territories as having an abundance of food, clear water, at least two nest sites, a quiet nursery location, and an average size of between 50 and 200 acres.

In central Minnesota, however, there have been frequent reports of Common Loons not only feeding but nesting on lakes less than 50 acres in size (unpublished data, Minnesota DNR Loon Watcher Survey). In 1987, Common Loon survey reports were received on five small lakes that ranged in size from 13 to 20 acres in Crow Wing and adjacent Cass counties. All five lakes had nesting loons and all produced chicks; three lakes had one chick and two produced two chicks.

A literature search revealed that loons had been reported using small lakes in other states, although infrequently. In a survey of Wisconsin lakes, Zimmer (1979) reported a 10-acre lake with one adult loon and a 16-acre lake with a breeding pair of loons. Di-Bello (1984) reported loons using an 11-acre lake in southern Maine. It seems that the question is not whether loons use small lakes, but what proportion of these lakes are being used.

This question becomes important when designing loon surveys for population estimates, especially if there are large numbers of small lakes. For example, a statewide survey of loons in Minnesota is a formidable task considering the large number (15,291) of lakes larger than ten acres (Minnesota Department of Conservation 1968), the inaccessibility of some areas, and the large size of the state. The methods for this type of survey need to be chosen carefully, taking into account both validity and cost efficiency.

In Minnesota there are 4,482 lakes between 10 and 24 acres in size, and 3,728 lakes between 25 and 49 acres, together comprising 54% of the lakes in the state (Minnesota Department of Conservation 1968). Considering this large number of small lakes, it is essential to know the proportion used by Common Loons and subsequently whether the use of small lakes is significant enough to include them in a statewide population survey.

The purpose of this two-year survey was to determine what proportion of the lakes less than 50 acres are used by loons in Crow Wing County. Although these results would not necessarily be directly applicable to other counties or states, it would provide information on whether these small lakes warrant further study in other areas of

Lake Size (acres)	Percent of lakes with loons			Percent with nesting loons		
	1988	1989	avg.	1988	1989	avg.
10–24	34.6 (9)	34.8 (8)	34.7	26.9 (7)	16.7 (4)	21.8
25–49	52.8 (19)	19.4 (7)	36.1	22.2 (8)	13.9 (5)	18.1

Table 1. Percent (number) of lakes with loons, and percent (number) of lakes with nesting loons — chicks or incubating adults — for two lake size classes.

the Common Loon’s range and whether they should be included in statewide surveys.

Methods

Surveys were conducted in 1988 and 1989 using two separately selected random samples of Crow Wing County lakes chosen from the two smallest lake size-groups (Minnesota Department of Conservation 1968). The number of lakes surveyed was chosen to approximate a 95% confidence interval and were selected randomly each year. Of 58 lakes in the 10 to 24 acre size-group, a sample of 26 was surveyed in 1988 and 23 in 1989. Of 89 lakes in the 25 to 49 acre size-group, a sample of 36 was surveyed both years.

Lakes were surveyed from shore by Department of Natural Resources Nongame Wildlife Program personnel and volunteers. One visit was made to each lake between the last week of June and the third week of July. A minimum 15 minute observation was made at each lake. Observations of any adult loons or chicks that were either on the lake or on a nest were recorded.

Results

The percentage of lakes in the 10 to 24 acre size-group that had at least one loon present were 34.6% and 34.8% in 1988 and 1989, respectively, with an average of 34.7% for the two years (Table 1). The average number of loons observed per lake was 0.54 and 0.61 adults, and 0.19 and 0.26 chicks for 1988 and 1989, respectively (Table 2). The number of lakes that had chicks or an incubating adult (indicating nesting on the lake) was seven (26.9%) in 1988 but only four (16.7%) in 1989 for a combined percentage of 21.8% (Table 1).

The percentage of lakes in the 25 to 49 acre size-group that had at least one loon present were 52.8% and 19.4% in 1988 and 1989, respectively, with an average of 36.1% for the two years. The average number of loons observed per lake was 0.81 and 0.33 adults, and 0.31 and 0.14 chicks for 1988 and 1989, respectively. The number of lakes that had chicks or an incubating adult was eight (22.2%) in 1988 and five (13.9%) in 1989.

Discussion

Even though there were differences in the survey results between years in the 25 to 49 acre size-group, the results of the 10 to 24 acre size-group were similar and when the two years were averaged together, the results of the two size-groups were remarkably similar. Overall, the usage of small lakes by loons in this study, especially the lakes less than 25 acres, was greater than expected based on the results of other studies.

In Wisconsin, Olson (1986) reported 0.67 adults and 0.12 chicks per lake from a sample of 67 lakes 25–50 acres in size. His results are similar to what was found in our study for lakes of comparable size. However, the smallest lake with adults and chicks

Lake Size (acres)	Average # of adults per lake			Average # of chicks per lake		
	1988	1989	avg.	1988	1989	avg.
10–24	0.54 (14)	0.61 (14)	0.58	0.19 (5)	0.26 (6)	0.23
25–49	0.81 (29)	0.33 (12)	0.57	0.31 (11)	0.14 (5)	0.23

Table 2. Average (and actual number) of adult loons and chicks per lake in 1988 and 1989 — and the average for both years — for two lake size classes.

found in Olson’s study was 32 acres. In our study, the smallest lake that produced chicks was 11-acre Jim Lake in 1988, which had one chick. In 1989 there were two 15-acre lakes with chicks: Little Markee Lake had two and an unnamed lake (#18-274) had one. In Olson’s study, lakes smaller than 25 acres were not included in the survey and were probably considered unimportant to the population estimate total.

In another Wisconsin study, Zimmer (1979) found that only 5 of 143 lakes (3.5%) less than 30 acres in size had loons. This is much less than the percentages reported in our study. However, Zimmer also reported that 26% of the lakes in the 30 to 59 acre size had nesting loons, which is similar to the results found in our study.

The reason for the greater usage by Common Loons of small lakes in our study is not known, but may be related to lake characteristics such as degree of eutrophication, geologic history, food resources, lakeshore development on larger lakes, or other factors that make the lakes in this survey different. For example, DiBello *et al.* (1984) reported a difference in loon usage of lakes between northern and southern Maine. The smallest lake with loons was 40 acres in northern Maine but only 11 acres in southern Maine. Apparently there are geographic or geologic differences in the types of lakes that loons use.

It is possible that since many previous studies have been done in more remote areas and on oligotrophic lakes farther north into the Common Loon’s range, some generalizations have developed that do not hold true across all of the loon’s range. Central Minnesota, where this study was done, is closer to the edge of the Common Loon’s nesting range, but is still considered excellent loon habitat. Lakes in this region tend to be numerous, with a few larger lakes and many small ones. With the proximity to farmland, some of these lakes tend to be more eutrophic than those in the northeastern part of the state.

Overall, Minnesota has diverse lake habitat types — from prairie potholes to boreal boundary waters. Whether similar small lake usage by loons will be found in other parts of the state remains to be seen, but with more than 8,000 lakes in Minnesota that are between 10 and 50 acres in size, it is worth investigating.

Finally, another factor to consider is the finding of Miller and Dring (1988) who described multiple lake territories being defended by nesting pairs of loons in Michigan’s Upper Peninsula. Perhaps some loons are able to use small lakes because of their ability to defend these multiple lake territories. This hypothesis should be further investigated, especially considering the results of this study.

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