

Four Things Learned About Loons

Thursday, July 17th @4pm

Meeting Summary

The meeting was a comprehensive discussion on loon behavior, ecology, and population trends in the Upper Midwest. Dr. Walter Piper, a behavioral ecologist, presented data showing declining loon populations, decreased chick survival rates, and the impact of environmental factors such as water clarity on loon reproduction and survival. The discussion concluded with potential causes for water clarity issues and suggestions for addressing the decline in loon populations, emphasizing the importance of improving water quality to support loon chick survival.

Next steps

- Attendees to focus on improving water clarity in lakes to support healthier loon populations.
- Attendees to consider implementing measures to reduce fertilizer runoff into lakes.
- Goodrich Lake community scientists to monitor nesting success and consider adding a third nesting platform if needed.
- Attendees to continue monitoring loon chick health and survival rates.
- Researchers to further investigate the relationship between winter habitat conditions and loon survival/breeding success.
- Attendees to educate others about the importance of water clarity for loon populations.
- Researchers to continue studying the long-term effects of chick mass on adult loon survival and reproductive success.

Loon Population and Migration Insights

Dr. Walter Piper, a behavioral ecologist, discussed the study of loons, highlighting the collaborative efforts of a team in tracking and banding these birds across Wisconsin and Minnesota. He emphasized that loons do not mate for life, as previously thought, and shared insights into the survival and migration patterns of banded loons. Dr. Walter Piper also addressed the population status of Upper Midwest loons, noting that while some challenges exist, the overall population appears stable.

Loon Territorial Behavior Patterns

Dr. Walter Piper discussed the territorial behavior of loons, explaining how males and females compete for and defend their territories. He shared examples of individual female loons who were evicted from their territories but survived and eventually found new mates and nesting sites. Dr. Walter Piper also presented data on the tendency of loons to reuse successful nesting sites, particularly when the male remains the same, but to move to new sites when a new male is involved.

Loon Reproductive and Social Strategies

Dr. Walter Piper discussed the differences in reproductive success and territorial behavior between male and female loons, explaining that males accumulate more useful familiarity with nest locations, leading to higher reproductive success over time. He also covered social gatherings, noting that participants include displaced breeders and young floaters, and described a strategy where loons with chicks attract floaters to neighboring territories. Finally, Dr. Walter Piper highlighted the value of marking and reciting loons, sharing examples of marked birds moving between territories and the challenges of tracking them.

Decline in Upper Midwest Loon Population

Dr. Walter Piper presented data showing a decline in the Upper Midwest loon population, with increased chick mortality and fewer two-chick broods. He demonstrated that chick mass has decreased by 11% since the 1990s, and found that water clarity is a strong predictor of chick mass, with clearer water leading to heavier chicks. Dr. Walter Piper also showed that the population of young adult loons has declined dramatically, with less than 10% of chicks now surviving to adulthood, compared to about 50% in the 1990s.

Loon Survival and Reproduction Factors

Dr. Walter Piper presented evidence of a "silver spoon effect" in loons, demonstrating that chicks who were well-fed during their first 5 weeks had higher survival rates, greater success in territorial settlement, and produced more offspring later in life. The data showed that fat and healthy chicks had a 50% chance of survival compared to 10-20% for emaciated chicks, and were more likely to establish territories (60-70% success rate) and reproduce successfully. Dr. Walter Piper also highlighted how environmental factors like declining water clarity and increased black fly abundance further compounded these effects, creating a "double whammy" impact on loon reproduction and survival.

Minnesota Loon Population Decline

Dr. Walter Piper presented data on the Minnesota loon population, showing a decline parallel to patterns observed in Wisconsin. He compared data from the Minnesota Loon

Monitoring Program and the Breeding Bird Survey, both indicating a decline since the 1990s. Dr. Walter Piper emphasized the need to address water clarity issues as a potential cause of the decline, noting a correlation between rainfall and water clarity. He concluded by suggesting the use of satellite data and other tools to monitor water clarity and explore solutions to protect loon populations in the Upper Midwest.

Water Clarity and Loon Survival

Dr. Walter Piper discussed the potential causes of water clarity issues in lakes, suggesting that fertilizer runoff could be a significant factor. He proposed that if fertilizer is indeed the cause, there would be an action plan to address it, as reducing fertilizer use could help improve water quality and loon chick survival. Dr. Walter Piper also shared insights on loon behavior, including the rarity of domestic disturbances between nesting pairs and the effects of salinity on adult loon survival and eviction rates during winter. He emphasized the importance of focusing on water clarity and chick feeding conditions rather than solely relying on platforms for nesting, as platforms alone may not address the underlying issues affecting loon populations.