



## A Flight Towards a Cleaner Lake for Generations to Come

By Veronica Lundquist, Aitkin County SWCD

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This past spring, Aitkin SWCD, with help from the Mille Lacs Band and funding from the Rum River Watershed, flew a drone around the entire shoreline of Mille Lacs Lake. That's more than 80 miles! This project was pursued to identify properties showing signs of shore erosion so that the property's owners could be provided resources necessary to protect their shoreline and the lake.



*Veronica Lundquist*

Aitkin SWCD staff spent five days out on Mille Lacs Lake flying a drone along the lakeshore perimeter. The drone was flown about 45 feet above the water, 300 feet from shore, at a speed of about seven to nine miles per hour. The drone captured video footage as it flew along the shoreline; all the footage was obtained above public waters. The plan is to view the footage this winter and pick out the shorelines that need assistance in getting restored. Once we pinpoint the properties with active erosion, we will get the property owners in touch with the right people to help them out. These efforts to are intended to protect the existing bank and, in turn, reduce pollutants entering the lake from soil erosion and runoff.

Our ultimate goal for this project is to improve the lake's quality for recreation, fishing, and overall condition. We want to keep the lake clean for future generations.

### **Sustaining Healthy Shorelines for All Parties**

We all have a picture of what a good, healthy-looking shoreline looks like, but the question becomes, what is sustainable for all parties? Sure, a rocked shoreline can have aesthetic appeal and stabilize an eroding bank. But a rocked shoreline doesn't provide a safe place for wildlife to take cover from predators. For instance, our state bird, the loon, needs wild, vegetated shorelines for nesting and to protect its chicks from overhead predators. Loons have physical characteristics that make them adept at living in the water, but those same characteristics make it difficult for them to move around on land. Loons typically never come on land unless they are mating or nesting. Hence they prefer to nest in covered, protected areas, such as dense vegetation near water. So, it is arguable that rip-rap or rock shorelines are not sustainable for all parties because it is decreasing the available habitat for loons. Loons need vegetation to have a good chance at survival, for themselves and their chicks.

## **Building a Diverse Plant Community**

When you leave the shoreline vegetated, you are assisting the ecosystem by building diversity in the plant community. You typically do not want to have a stand of a single plant species because all the plants will bloom and die back at the same time leaving a large open space. If you have multiple species, you have different bloom times and different die-back periods, leaving some plants to fill in as others die back.

## **Best Mowing Practices**

Another practice that can cause erosion and harm to the shoreline is mowing directly to the edge of the bank. When you mow to the edge it depletes the vegetation on the shoreline, leaving the bank exposed. Fertilizing directly to the shore can be extremely harmful to the lake as well. If it rains shortly after fertilizing grass, all those excess nutrients, such as nitrogen and phosphorus, can run right into the lake without a buffer to stop them. This can lead to algae blooms, some of which are harmful to humans and animals.

## **Insights from Staff**

Sam Seybold was the lead and organizer for this project; he requested funding and organized all the large and fine details for the project. When asked the importance of this project, Sam said, “This footage will be extremely helpful to the soil and water districts that surround Mille Lacs Lake to help identify the shorelines that need some assistance due to erosion and lack of vegetation to help better overall lake quality and health.”



*Drone view*

The plan is to compile all the footage and create a scoring system to determine the shorelines that are most at risk. The footage will then be shared with the surrounding soil and water districts so they can reach out to those who may need assistance.

Our drone pilot for the study was Kyle Fredrickson of the Aitkin Soil and Water Conservation District. Kyle took time away from his forestry job to help make this study a success. Kyle encountered many obstacles in the more than 80 miles of flight. Birds, and bald eagles in particular, were among those obstacles. Kyle said, “Bald eagles are very territorial and must have a vendetta against drones, because they would swoop in out of nowhere. I am thankful for our Conservation Corps Intern, Jude Humphrey, who would spot the eagles and give me fair warning they were coming!”

Kyle also said it was beneficial having a spotter when approaching peninsulas, bays, tall flag poles, or even sail boats. When I asked Kyle about his excitement for the study he said, “This

study is going to provide a large variety of resources to multiple entities, not only for shoreline restoration, but also for forest health and so much more.”

Kyle was right in his excitement for this project. We will be able to look back at this footage for years to come, and remember what Mille Lacs Lake looked like in 2023 in a continuous video. Also, Kyle mentioned, we can look at forest health in this footage, identify trees in poor health, and reach out to landowners who may need assistance in protecting their shoreline. Lake quality is more than just the water itself. You must look at the surrounding vegetation and where that water is coming from and what is soaking it up; trees and forest play a major role in that.

Mille Lacs is a very large water body, the second largest lake (within state borders) in Minnesota. Minnesotans and many others from around the world visit the lake for fishing, swimming, family time, and much more. Our wish is to assist homeowners, cabin owners and frequent visitors in preserving this beautiful resource Minnesota has to offer.

If you have questions on what you can do to help the quality of the lake, give your local soil and water conservation district a call and ask how they can assist you in preserving lake quality.

Visit [MilleLacsWatershed.org](https://MilleLacsWatershed.org) to learn more about supporting a healthy lake environment