Christmas Lake AIS Inspection and Decontamination Program
2023 Program Report

There are 5 sections in this report regarding the 2023 AIS inspection program conducted at the Christmas Lake public access.

- Section I describes the AIS inspection program as conducted in 2023
- Section II provides summary level information about the 2023 inspection activity. A second more detailed report from Waterfront Restoration will be provided later. This detailed report analyses the DNR inspection data as reported by the AIS inspectors at the ramp
- Section III looks at the various AIS infestations in Christmas Lake as well as three species of greatest concern that we hope to keep out of the lake
- Section IV provides a summary of the costs of the program, historical comparisons, and a breakdown of the sources of funding for the program
- Section V looks ahead to 2024 and attempts to highlight what we perceive as inappropriate public policy at the state level regarding the burden of AIS protection and control.

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I. The AIS Inspection Program

While the ice went out at the historical average date of April 14, extreme cold weather delayed the start of AIS Inspections at the Christmas Lake ramp until May 2. Decontamination services were available starting May 4. Level 2 inspectors from prior years were used until all our inspectors were certified at Level 2 by the DNR. Inspection services continued through October 27, 2023 when freezing temperatures hit the region and were projected through the end of the month. For the year, inspection services were available for a total of 2,515 hours over 179 days.

Waterfront Restoration performed AIS inspection and decontamination services for Christmas Lake again in 2023 as they have since 2015. Throughout the boating season, DNR-certified level 2 inspectors conducted 2,812 watercraft inspections at the Christmas Lake public access. The contracted rate per hour for inspection services increased nearly 10% due to market conditions in services industries. More detail is provided in the Cost section of this report.

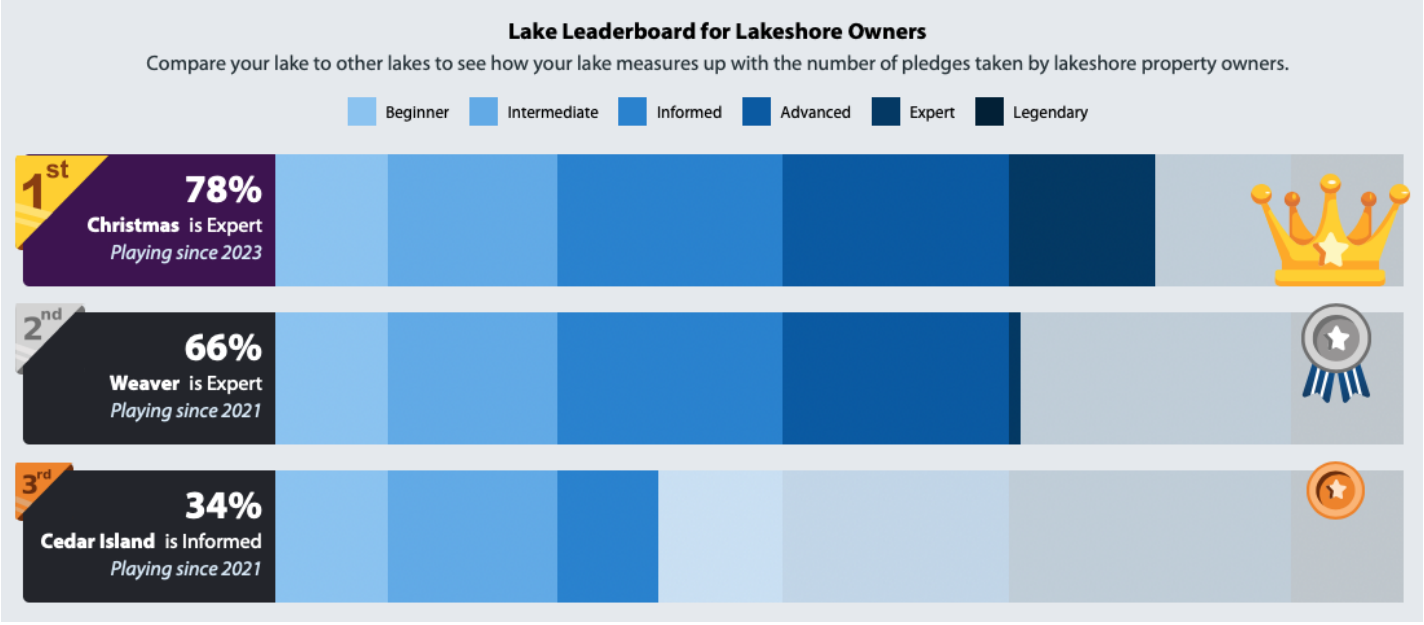
Our schedule compliance remained very strong at 99.83% and this represented an improvement over 2022. To put this into perspective, there were only 4 hours when the ramp was left without an inspector on site during the season. Waterfront Restoration's on-call model is the reason for these strong results and it is especially important as we use only 1 inspector to staff the ramp.

The Christmas Lake Homeowner's Association owns and maintains the decontamination unit that stays on site at the boat ramp. We coordinate our maintenance routine with the Public Works staff at the City of Shorewood to achieve high availability of the decontamination unit. Typically, the decontamination unit is offsite less than an hour every two weeks for maintenance.

As noted above, we stopped the inspection program as of October 27 due to freezing temperatures. In prior years, we took the decontamination unit off-site to a heated garage overnight and brought it back to the ramp when temperatures rose above freezing, but late-October's daytime temperatures would not allow us to have the decontamination unit on-site.

As noted in previous year's reports, we limit the hours of operation after dark as well as seasonally. We made no additional changes in 2023 as we are pleased with the current model and as the risk from late evening launches is very low. The lake is well protected, with AIS inspectors on duty from 6 am to 9 pm, May 1 through August 15, including the peak summer season.

In 2023, Christmas Lake participated in Hennepin County's Lake Pledge program to increase awareness of AIS among Christmas Lake property owners and their families. By the end of our campaign, 78% of Christmas Lake properties had taken the pledge to help protect the lake by understanding how their water activities can spread AIS and actions they can take to reduce the risk of spread.



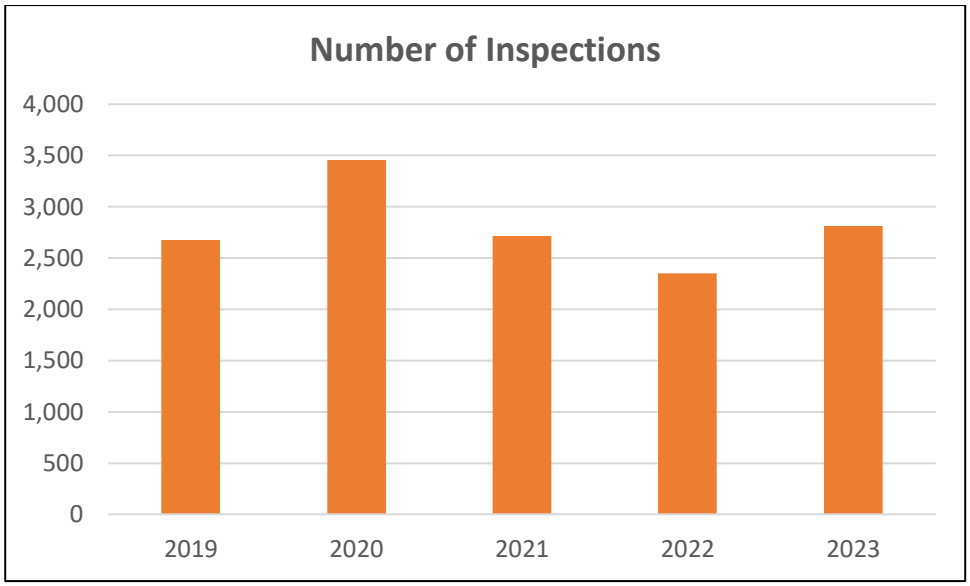
Additionally, 174 lake visitors (not property owners) listed Christmas Lake as their favorite lake and took the pledge.

We intend to communicate the Lake Pledge program to new property owners when properties change hands as a part of our welcoming activities.

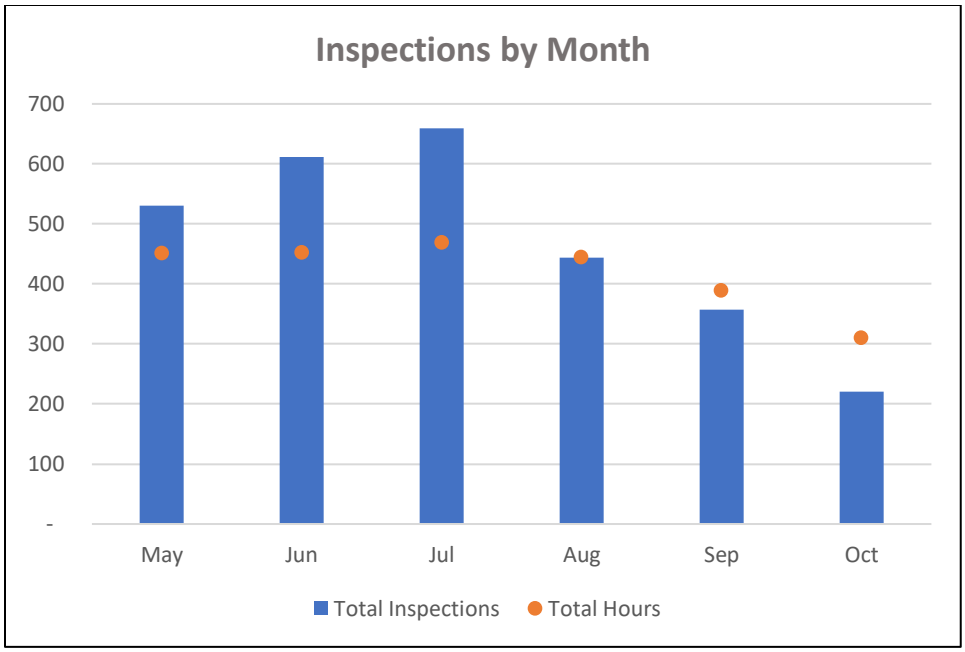
We also plan to promote the Lake Pledge program to lake visitors who use the Christmas Lake access for recreation.

II. AIS Inspection Activity

As indicated on the chart below, inspection counts were higher than last year by 460. While there was likely some reduction in launches on peak volume days due to the implementation of the parking ordinance, the overall level of entry inspections increased by 16%.



The seasonality of the inspections is shown on the chart below. This chart also highlights the seasonality of our on-duty inspector hours.



III. AIS and Christmas Lake

From a macro view, nothing has changed regarding AIS in Christmas Lake as of the end of 2023, and that is a good thing. "We have what we have", and the AIS threats remain the same.

As of the end of 2023, Christmas Lake is infested with 3 key aquatic invasive species: curly-leaf pondweed, Eurasian watermilfoil, and zebra mussels. We are pleased that the Eurasian watermilfoil infestation continues at "below nuisance" levels. While the invasive plant has not been eradicated, the abundance of the species has been decreased significantly. And there are no wide patches of Eurasian watermilfoil creating a dense mat on the surface of the water. While other metro area lakes have also noticed a reduction in Eurasian watermilfoil in recent years, we believe the milfoil weevil program provided the basis for the significant reduction in Christmas Lake.

Zebra mussels were found in late 2014, so 2023 was the 9th boating season since the infestation was declared by the DNR.

The zebra mussels are typically attracted to watercraft that sit in the water for the season and are seldom used. During the end of season watercraft pullouts, we noticed this attraction was significantly greater in 2023 than in prior years. Massive numbers of zebra mussels were discovered on several pontoon boats that sit in the water and are rarely used.

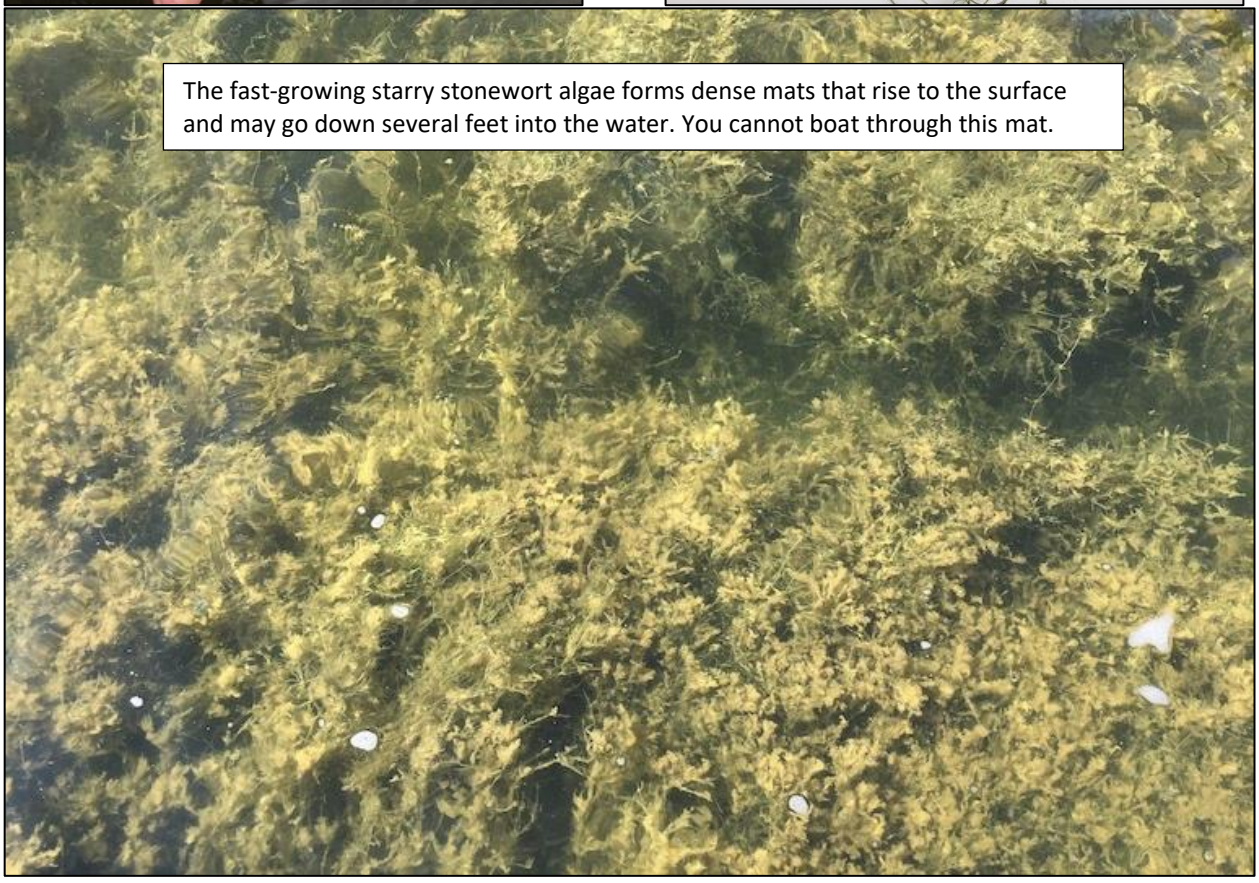
Beyond, these situations mentioned above, the number of zebra mussels found on resident's watercraft at the end of the season were not high. This suggests that the lake is getting closer to a stabilization level, or it may be entering a trough in the sinusoidal pattern as mother nature seeks to find equilibrium of the zebra mussel population.

Two aquatic invasive species already in Minnesota represent a real threat to Christmas Lake: starry stonewort and spiny water fleas.

Starry stonewort is a kind of AIS algae that grows thick and spreads very rapidly, in many cases making boating impossible. Controlling this species after infestation is possible but is expensive and must be done annually.

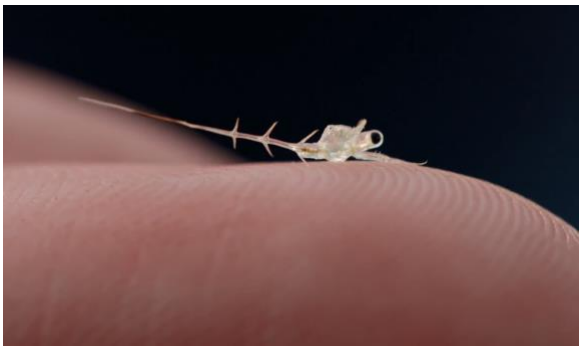
Six additional lakes were declared infested with starry stonewort in 2023, and now Minnesota has 27 infested lakes. The first infestation was found in 2015 in Lake Koronis in Stearns County, and the closest infestation to Christmas Lake is Medicine Lake.

Modeling from the AIS Research Center at the University of Minnesota gives nearby Lake Minnetonka a starry stonewort infestation risk score of just under 0.4 on a scale from 0 to 1. Given that nearly 30% of inbound boater traffic into Christmas Lake comes from Lake Minnetonka, Lake Minnetonka is really our canary in the coal mine.



Starry stonewort photos: Joe Shneider

Spiny water fleas are a kind of AIS animal that eats microorganisms critical to the fish food chain. Like zebra mussels, spiny waterfleas make the water clearer but not better. Adding spiny water fleas to Christmas Lake's zebra mussel infestation will dramatically change the lake's fishery. As confirmed by MN DNR, the Mille Lacs walleye population was dramatically reduced due to this pair of AIS as they consumed over 60% of the zooplankton, one of the critical levels of the fish food chain. On a positive note, with the notable exception of Mille Lacs, most spiny water flea infestations are in northern Minnesota counties.



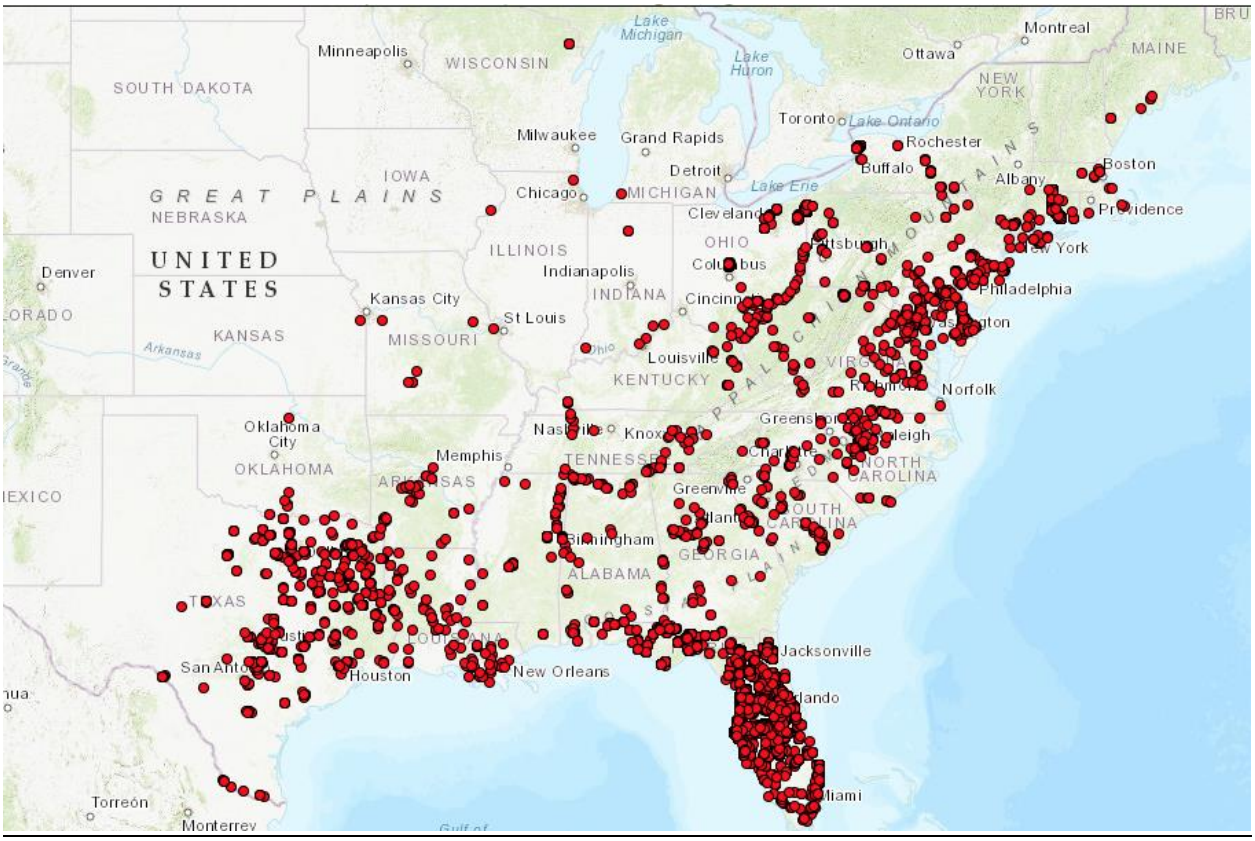
Spiny water flea photos: Minnesota Aquatic Invasive Species Research Center (MAISRC)

Beyond starry stonewort and spiny water fleas, ***Hydrilla*** is one of the most concerning AIS for Minnesota and specifically Christmas Lake. Hydrilla roots in the lakebed and has long stems (up to 25 feet in length) that branch at the surface forming dense mats making boating very difficult. As noted by the U.S. Fish and Wildlife Service: "Hydrilla is an aquatic plant that has earned the illustrious title *world's worst invasive aquatic plant*". While not yet in Minnesota, hydrilla infestations are extensive in Florida where it was unintentionally introduced, then the infestations traveled up the eastern part of the US, with major infestations found in New York.

Close-up of Hydrilla. Photo: Chris Evans, River to River CWMA, Bugwood.org

Hydrilla infestation of small lake. Photo: Tim Murphy, University of Georgia, Bugwood.org

And hydrilla is also heading north into the Midwest. In 2023, Hydrilla was found in Berrien County in southwestern Michigan, in the town of Crystal Lake in northeastern Illinois, and in the Mississippi River near Davenport, Iowa. (See map on the following page)



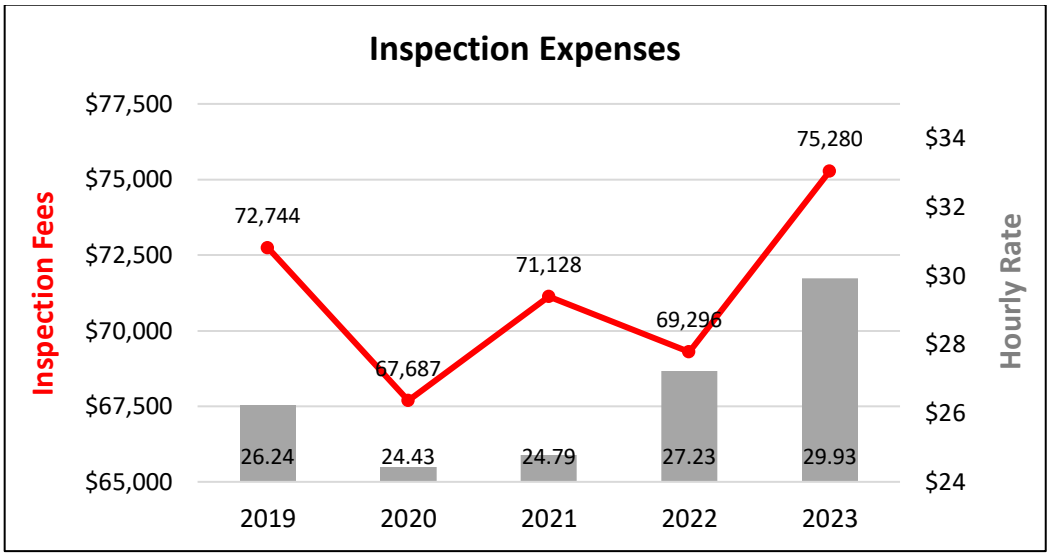
USGS Hydrilla verticillate infestation map as of December 18, 2023

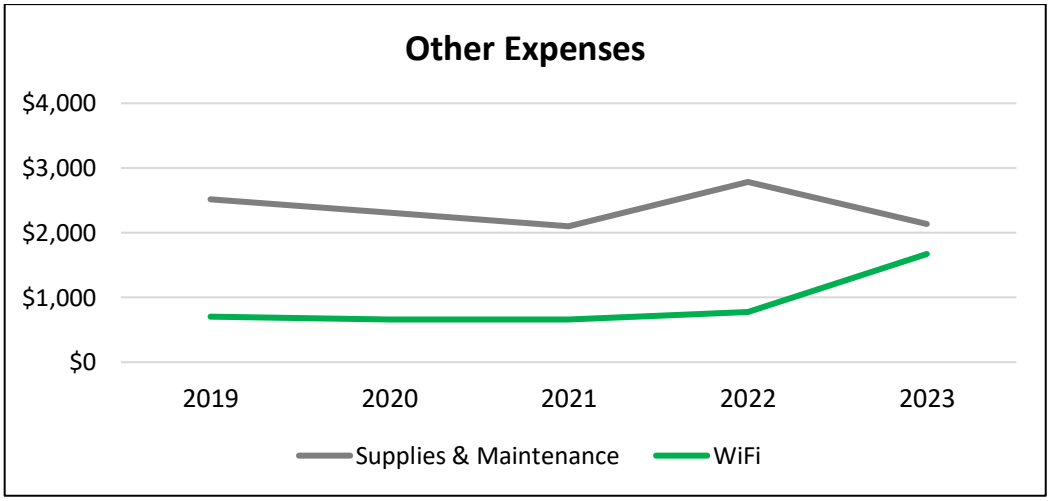
IV. Costs

The total costs for the 2023 AIS inspection and decontamination program were $79,092.

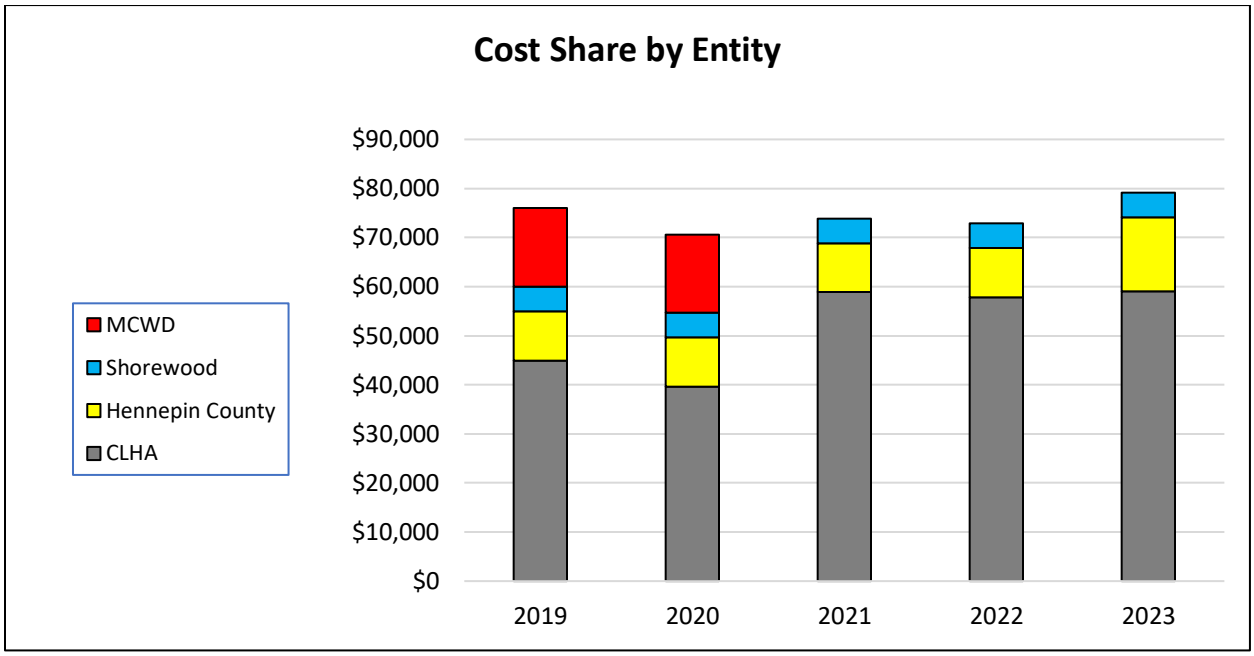
	2019 Expenses	2020 Expenses	2021 Expenses	2022 Expenses	2023 Expenses
Inspection fees	$72,744	$67,687	$71,128	$69,296	$75,280
Operating supplies & maintenance	$2,518	$2,308	$2,100	$2,785	$2,140
Wi-Fi operation & maintenance	$699	$660	$660	$774	$1,672
Total expense	$75,962	$70,655	$73,888	$72,855	$79,092

The largest variation in overall costs are related to inspection fees, while the other costs stay fairly static from year to year. The staffed hours were just slightly less than in 2022, but the hourly rate increase caused the inspection fees to increase by nearly $6,000 over 2022. The increase in the Wi-Fi expense was required to meet the increased bandwidth needed for the new security cameras.





The 2023 costs were split between 3 entities with $5,000 (6%) coming from the City of Shorewood, $15,000 (19%) from Hennepin County's portion of the State's AIS Prevention Aid, and $59,092 (75%) from the Christmas Lake Homeowner's Association. Funding from the Minnehaha Creek Watershed District ceased in 2020.

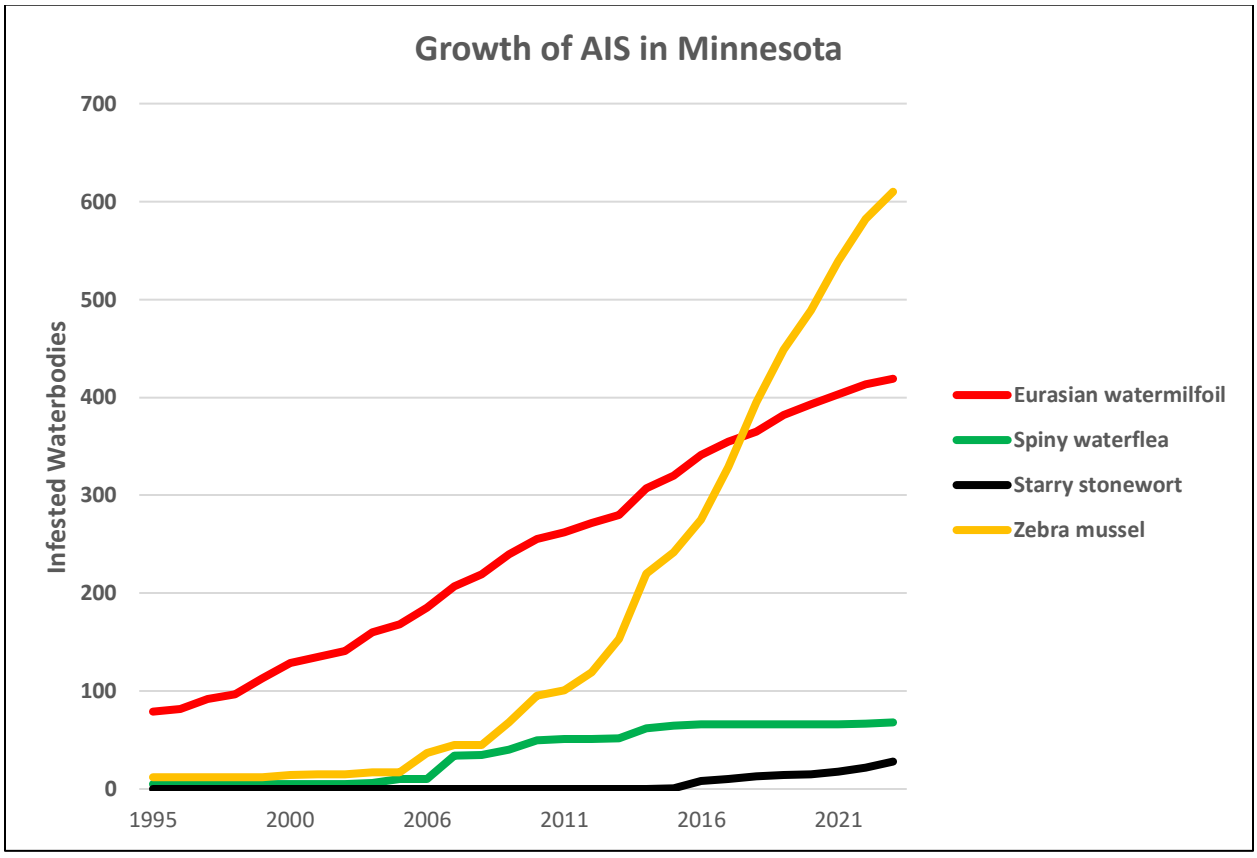


V. Plans for 2024

We are pleased with the 2023 AIS program and plan to continue operating in this same model in 2024.

As noted in prior reports, we believe that the financial burden placed on the Christmas Lake homeowners to protect and control a state-owned public resource from the ecological and recreational effects from AIS is an issue. Many Christmas Lake homeowners are growing weary of the continuing cost that we gather through annual dues to the homeowner's association which are now $600 per household.

That said, this fairness question is not unique to Christmas Lake; many lake associations around the state are left to carry the burden of preventing and controlling aquatic invasive species. As evidenced in the graph below, the State's approach to stopping new AIS from entering the state and preventing the spread of AIS within the state has simply not worked well enough.



Data from MN DNR's Infested Waters list – November 30, 2023

The State's program is better than doing nothing, but it has not achieved its goals. As of the end of 2023, a huge percentage of the surface water of the State is now infested with 1 or more AIS.

The State's AIS control prevention and control programs are insufficiently funded to keep the lake protected and usable by the public. Generally, the burden for filling the funding gap falls to lake associations and some local government organizations.

This model of using private and local government funding for protecting lakes and controlling the impacts of AIS, using approaches that we can see are not working, seems to be bad for the lakes and bad public policy. Understanding that government responses typically lag, the handwriting of this public policy problem has been on the wall for the past 15-20 years. It is time to have a substantive debate on how to move forward, and the Christmas Lake Homeowner's Association would be very interested in participating.

Thank you for taking the time to read this report.