April 2024 Aquatic Invasive Species Update

Moody Lake
Bone Lake

Little Comfort Lake
Shields Lake

Lake Keewahtin
Forest Lake

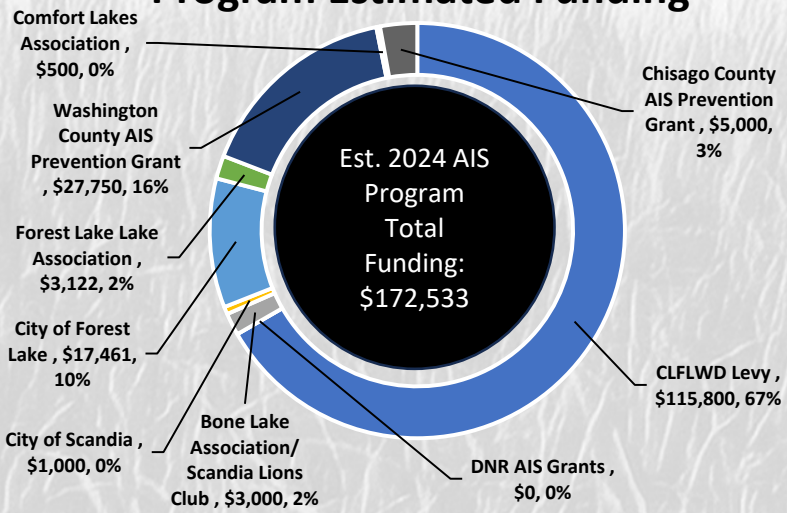
Comfort Lake

CLFLWD
WATERSHED DISTRICT

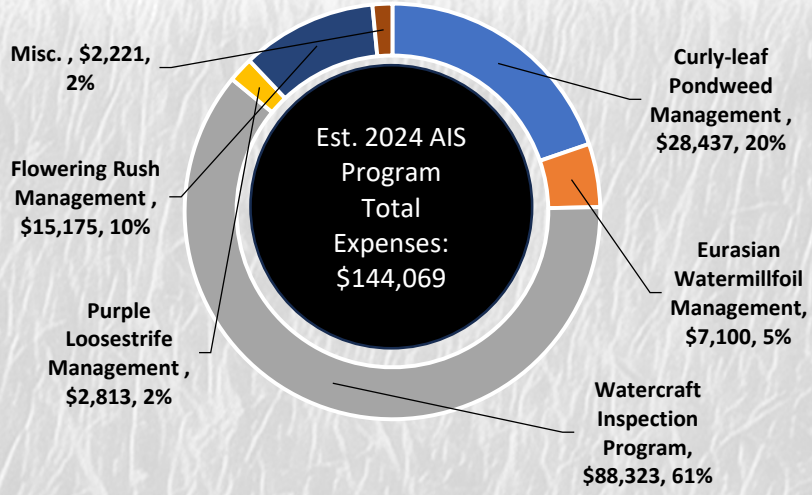
4/18/2024

District-Wide AIS Budget Summary

CLFLWD's 2024 District-Wide AIS Program Estimated Funding



CLFLWD's 2024 District-Wide AIS Program Estimated Expenses



Moody Lake

2024 AIS Update

Aeration System - (No new updates)

- **Operation:** The District activated the aeration system on January 24th and only ran the unit until January 31st. The unseasonably warm weather created a larger than normal open water area. Additionally, oxygen levels remained well within healthy ranges this season.
- **Monitoring:** Dissolved oxygen (DO) level monitoring was only conducted twice due to unsafe ice conditions. Both monitoring events found DO levels to be at healthy levels.
- **2024:** District staff collected the thin ice signs in early-April.

Curly-leaf Pondweed—(CLP)

- **Overview:** Blue Water Science conducted a delineation survey on April 5th and identified 2.26 acres for treatment. Due to the District's native planting project in 2023, no chemical treatment will be conducted this season to avoid any possible incidental harm to native plantings.

Native Aquatic Plant Transplanting Project - (No new updates)

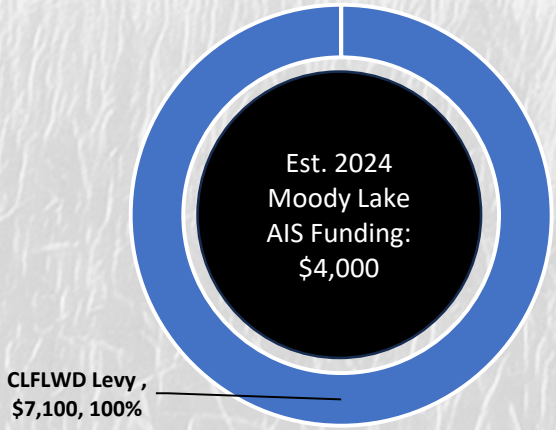
- **Overview:** On August 1st, District staff and a researcher from the University of Minnesota implemented a native aquatic plant transplanting project on Moody Lake. A variety of native species were collected from Keewahtin Lake and planted in Moody Lake. In total, more than 700 clay balls with attached aquatic plants were planted in the lake. This season, staff will survey the lake for signs of new species establishing themselves after the project. Results will aid the researchers in their much broader study on the effectiveness of this new type of aquatic plant management practice.

Moody Lake Aeration

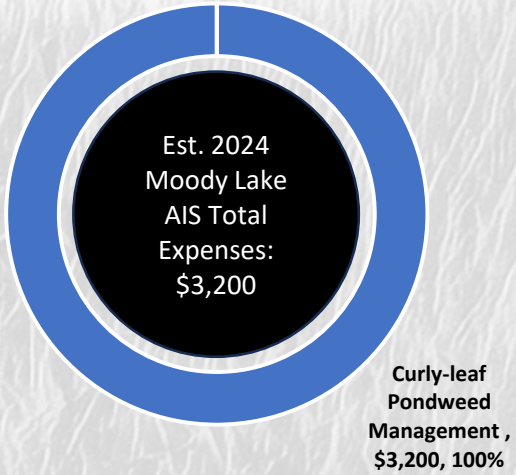
An opportunistic beaver used one of the Thin Ice signs to construct their home.

Moody Lake AIS Budget Summary

CLFLWD's 2024 Moody Lake AIS Estimated Funding



CLFLWD's 2024 Moody Lake AIS Program Estimated Expenses



Bone Lake

2024 AIS Update

Curly-leaf Pondweed (CLP)

- **Overview:** Blue Water Science performed a CLP delineation survey on April 18th and found some areas of growth on the north and southwest ends of the lake. No treatment is recommended this season.
- **History:** For reference, past years' CLP treatments are as follows—2023: No treatment, 2022: No treatment, 2021: 4.38 acres, 2020: 5.14 acres, 2019: 3.88 acres, 2018: hand pulling only,

Eurasian Watermilfoil (EWM) - (No new updates)

- **Overview:** The District will hire Blue Water Science to conduct delineation and assessment surveys this summer. EWM is not anticipated to be abundant this season.

Zebra Mussels— (No new updates)

- **Overview:** In 2024, the first juvenile zebra mussel was discovered since the initial 2019 discovery. Additionally, District staff performed two veliger tows in 2023 and found evidence of a reproductive colony. The plan for 2024 is to continue our long-term population monitoring through the zebra mussel sampler plate program.

Rough Fish Management—(No new updates)

- **Fish Barrier:** Continue to maintain and manage stop logs in the two fish barriers located at the inlet and outlet of Bone Lake.
- **Surveys:** The DNR typically performs fish surveys on a 5-6 year rotation. The upcoming survey schedule for Bone Lake is as follows: June 2024 – standard survey, June 2027 – gill net only survey. Surveys are performed more frequently on Bone Lake than many other District lakes since the DNR stocks Bone Lake with walleye.

Bone Lake Water Monitoring

Victoria D'Amico conducting lake monitoring on a foggy October (2023) morning.

Watercraft Inspections (brief overview; see full report for more details)

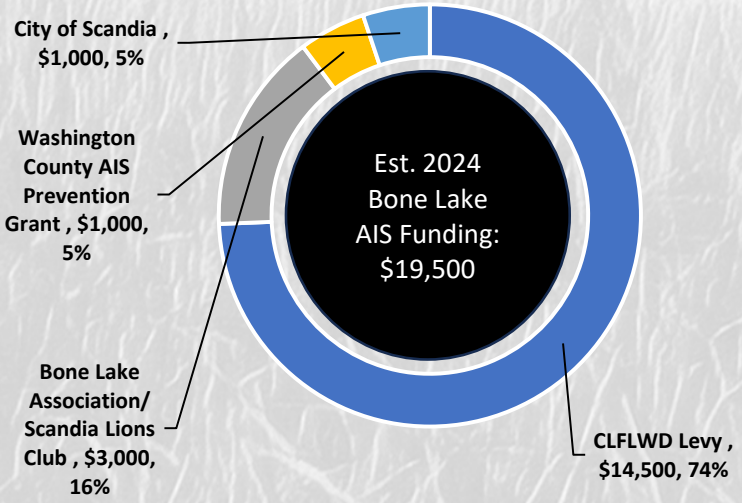
- **Overview:** The District has an estimated $15,000 budgeted for watercraft inspections on Bone Lake this season. This could support up to an estimated 650 hours.

White Water Lily

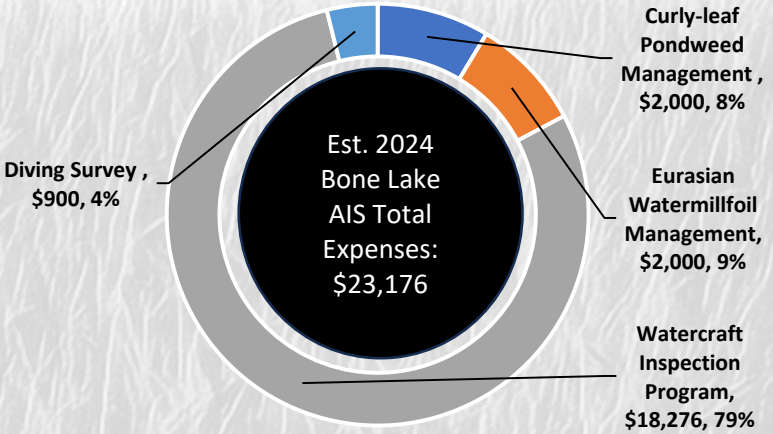
The Bone Lake outlet is home to a healthy population of white water lilies that typically bloom from June to September

Bone Lake AIS Budget Summary

CLFLWD's 2024 Bone Lake AIS Estimated Funding



CLFLWD's 2024 Bone Lake AIS Program Estimated Expenses



Little Comfort Lake

2024 AIS Update

Curly-leaf Pondweed (CLP)

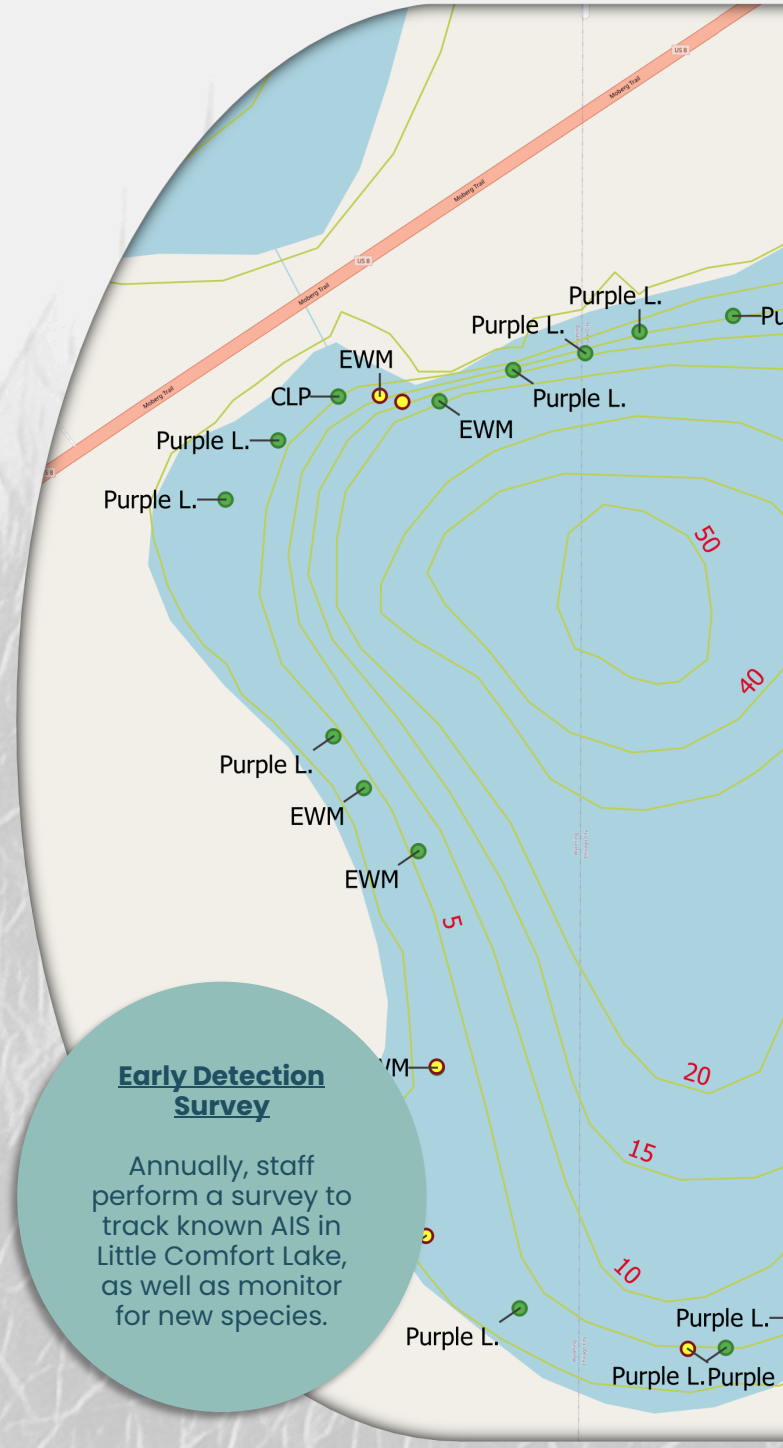
- **Overview:** District staff performed a CLP delineation in early-April and found several locations of growth. All growth sites were single stems that pose no ecological or recreational threat. A survey map is currently being developed.

Eurasian Watermilfoil (EWM) - (No new updates)

- **Discovery:** EWM was first discovered in Little Comfort Lake in 2021 by the MN Department of Natural Resources Invasive Species Program.
- **2024 Survey:** District staff will monitor for EWM during the annual early detection survey. Staff do not anticipate finding EWM in high abundances.

AIS Tracking and Early Detection Survey—(No new updates)

- **Overview:** Annually, District staff perform an AIS tracking and early detection survey on Little Comfort Lake. Staff will not only track the abundances of known species such as CLP, EWM, and purple loosestrife, but also monitor for the presence of new invasive species.



Little Comfort Lake AIS Budget Summary

CLFLWD's 2024 Little Comfort Lake AIS Funding

CLFLWD's 2024 Little Comfort Lake AIS Program Expenses

Shields Lake

2024 AIS Update

Aeration System

- **Operation:** The District activated the aeration system on January 24th and only ran the unit until January 31st. The unseasonably warm weather created a larger than normal open water area. Additionally, oxygen levels remained well within healthy ranges.
- **Monitoring:** Dissolved oxygen (DO) level monitoring was only conducted twice due to unsafe ice conditions. Both monitoring events found DO levels to be at healthy levels.
- **2024:** District staff collected the thin ice signage in early-April

Curly-leaf pondweed (CLP)

- **Summary:** Blue Water Science conducted a CLP delineation survey on April 5th and marked 1.18 acres for treatment. A treatment will be conducted by the end of April.

Rough Fish Management —(No new updates)

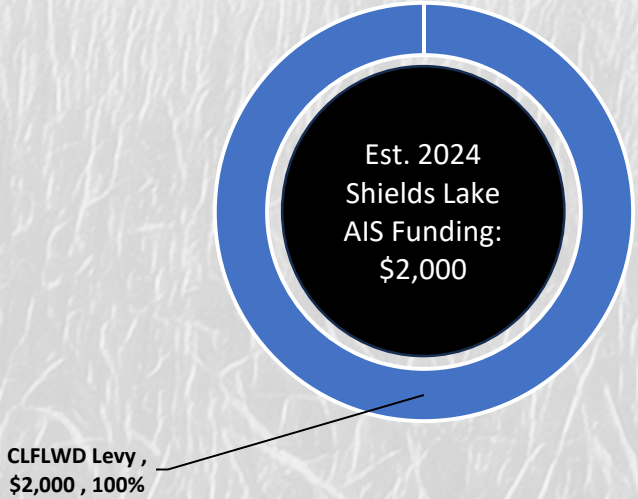
- **Fish Barriers:** The mechanical fish barrier was installed in August 2019. District staff will continue to operate the electric fish barrier as is, pursuant to Administrator discretion.
- **2022 Carp Survey Results:** Data from the three electrofishing attempts in 2022 were used to calculate an updated CPUE population estimate, which now suggests there are between 39.9 ± 26.3 kg/ha of carp biomass remaining in the lake. This estimate puts Shields Lake below the District's adopted management threshold of 100 kg/ha, which is accepted by scientists as the level where carp biomass has minimal impact on water quality.

Aeration System

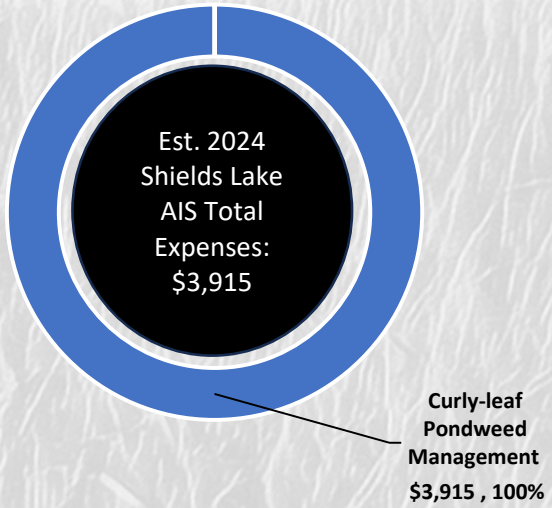
The District updated the Shields Lake aeration system in 2022 to help protect the health of the native fishery.

Shields Lake AIS Budget Summary

CLFLWD's 2024 Shields Lake AIS Estimated Funding



CLFLWD's 2024 Shields Lake AIS Program Estimated Expenses



Lake Keewahtin

2024 AIS Update

AIS Tracking and Early Detection Survey —(No new updates)

- **Overview:** District staff will perform an AIS tracking and early detection survey this spring/summer. During this survey, staff will look for new invasive species such as Eurasian watermilfoil, flowering rush, or starry stonewort and monitor the distribution of existing invasive species, purple loosestrife and curly-leaf pondweed.

Curly-leaf pondweed (CLP) —(No new updates)

- **Survey Results:** During the AIS tracking and early detection survey, staff will monitor for populations of CLP. Historically, CLP has been observed in very low abundances.

Purple Loosestrife —(No new updates)

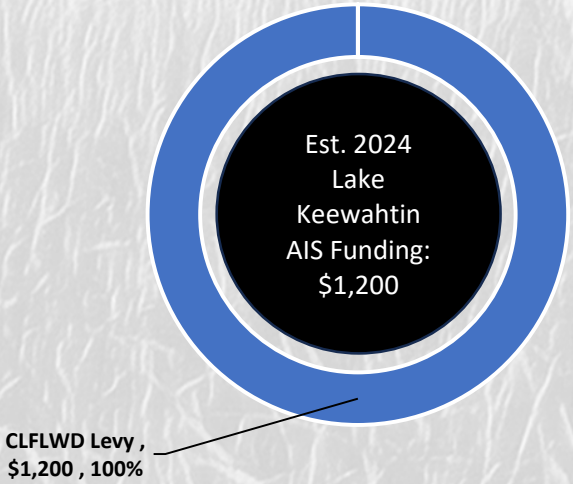
- **Overview:** The District has performed herbicide treatments the last three years to manage purple loosestrife populations on Lake Keewahtin. Overall, staff are noticing a reduction in the total area of purple loosestrife. Staff plan to coordinate another treatment in 2024 to further reduce the abundance and distribution of purple loosestrife

Wild Rice

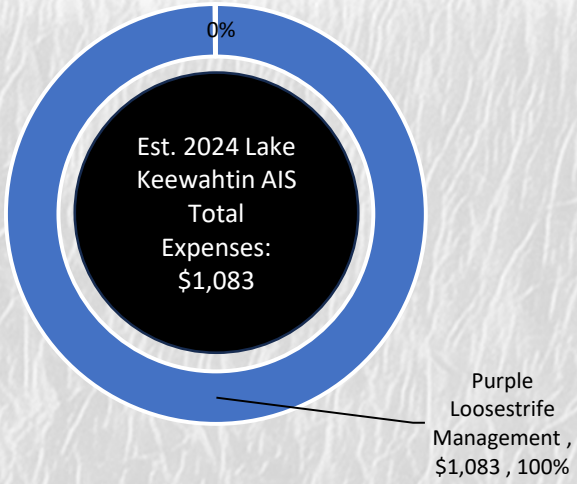
District staff noted a patch of wild rice growing in Lake Keewahtin during the 2023 AIS tracking and early detection survey

Lake Keewahtin AIS Budget Summary

CLFLWD's 2024 Lake Keewahtin AIS Estimated Funding



CLFLWD's 2024 Lake Keewahtin AIS Program Estimated Expenses



Forest Lake

2024 AIS Update

Curly-leaf Pondweed (CLP)

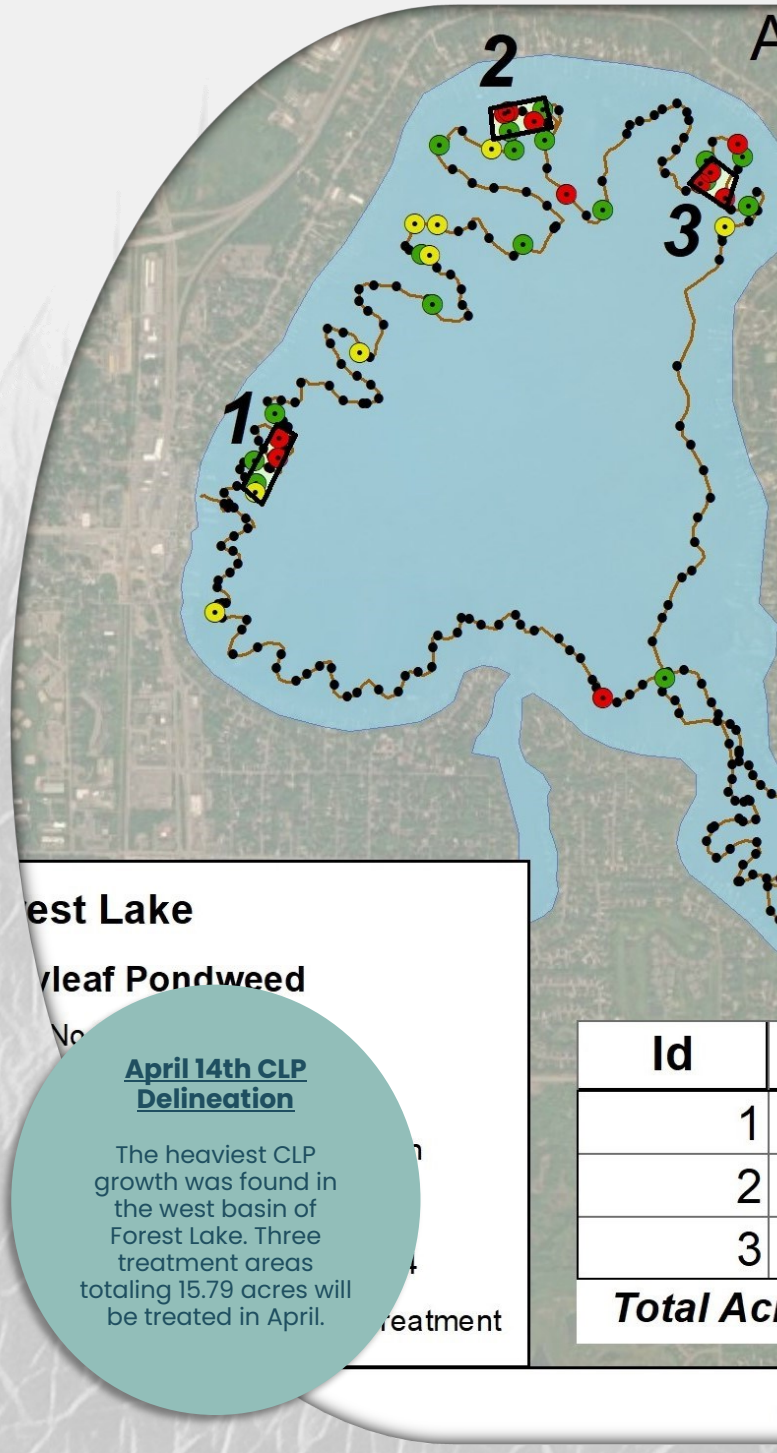
- **Overview:** Blue Water Science performed a CLP delineation on April 14th and found only 15.79 acres of CLP to treat. The District will conduct an herbicide treatment by the end of April.
- **History:** For reference, past years' CLP treatments are as follows – 2023: 61.55 acres, 2022: 103.96 acres, 2021: 120.34 acres, 2020: 58.29 acres, 2019: 99.12 acres, 2018: 16.6 acres, 2017: 169 acres, 2016: 114 acres, 2015: 88 acres.

Eurasian Watermilfoil (EWM)—(No new updates)

- **Overview:** The District will hire Blue Water Science to conduct delineation and assessment surveys. Areas of heavy growth that pose an ecological threat (+180 EWM stems per sq. meter) will be managed by the District. All other EWM growth will be managed at the discretion of the lake association.
- **History** The Forest Lake Lake Association coordinated a treatment for 8.41 acres of EWM in the west basin of Forest Lake in 2023.

Flowering Rush—(No new updates)

- **Overview:** The District's flowering rush management program has been operating since 2014 and has been very successful at reducing its overall abundance. The management program will continue in 2024 and will roughly follow the schedule described below:
  - June 15th – 30th: Spot Treatment
  - July 1st – 15th: Blue Water Science Delineation #1
  - July 16th – 31st: Shoreline Walk, Spot and Area Treatments as Needed
  - August 1st – 15th: Blue Water Science Delineation #2



April 14th CLP Delineation

The heaviest CLP growth was found in the west basin of Forest Lake. Three treatment areas totaling 15.79 acres will be treated in April.

- August 16th – 31st: Shoreline Walk, Spot Area Treatments As Needed
- September 1st – 15th: Blue Water Science Delineation #3

Optional - Depends on results of the August 16th – 31st treatments

- September 16th – 30th: Spot Treatments
- October 1st – 15th: Final assessment

- **Seed Head Collection:** District staff will periodically survey the lake and cut seed heads when present. In 2023, staff removed more than 4,000 seed heads from Forest Lake.
- **2024 Plans:** After eight years of management, Forest Lake has fewer large beds of flowering rush and more smaller patches. Shoreline walking with backpack sprayers has been identified as an effective strategy to stay on top of these scattered patches. In addition, new herbicide formulations and shoreline owner engagement are planned to be introduced into 2024's flowering rush management plan.

Purple Loosestrife —(No new updates)

- **Overview:** The District has been managing large populations of purple loosestrife on Forest Lake since 2020. After four years of management, staff are noticing an overall reduction in the abundance and distribution of purple loosestrife on Forest Lake. In 2024, staff will perform a delineation survey and likely coordinate another round of treatment.

Zebra Mussels —(No new updates)

- **Overview:** Zebra mussels were discovered in Forest Lake in 2015 and can now be found in all three basins. The District will continue its zebra mussel sampler plate program in 2024 to track the population size.

Plant Harvester —(No new updates)

- **Overview:** The Forest Lake native aquatic plant harvester is operated solely by the City of Forest Lake, and the District only helps to create a harvesting map that avoids locations of AIS.

Watercraft Inspections (brief overview; see full report for more details)

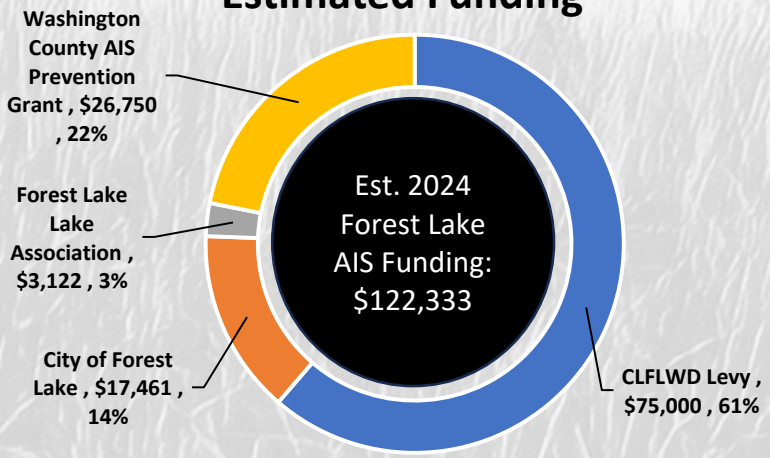
- **Overview:** The District has an estimated $65,000 budgeted for watercraft inspections on Forest Lake this season. This could support up to an estimated 2,826 hours.

Common Carp Population Survey

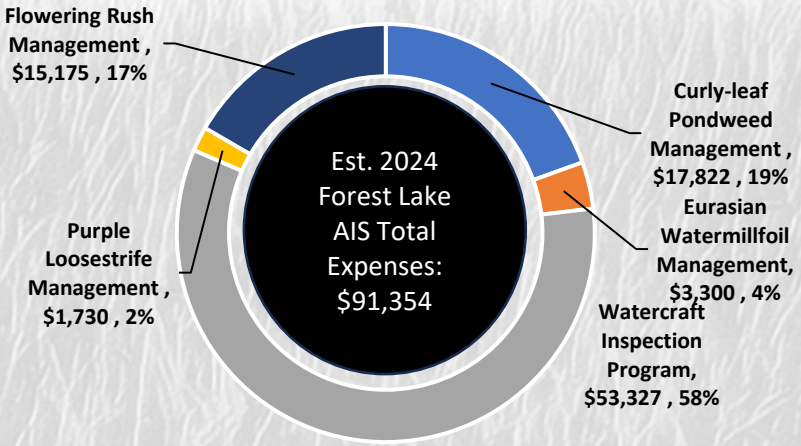
Beth Carreno (CLFLWD Senior Program Manager) holding a carp captured during the 2023 population survey

Forest Lake AIS Budget Summary

CLFLWD's 2024 Forest Lake AIS Estimated Funding



CLFLWD's 2024 Forest Lake AIS Program Estimated Expenses



Comfort Lake

2024 AIS Update

Curly-leaf Pondweed (CLP)

- **Overview:** Blue Water Science performed a CLP delineation survey on April 9th and found 9.45 acres of growth to treat. For reference, CLP hasn't been observed in high enough densities to warrant treatment since 2015 when the District treated 1 acre. A treatment will be conducted by the end of April.

Eurasian Watermilfoil (EWM) —(No new updates)

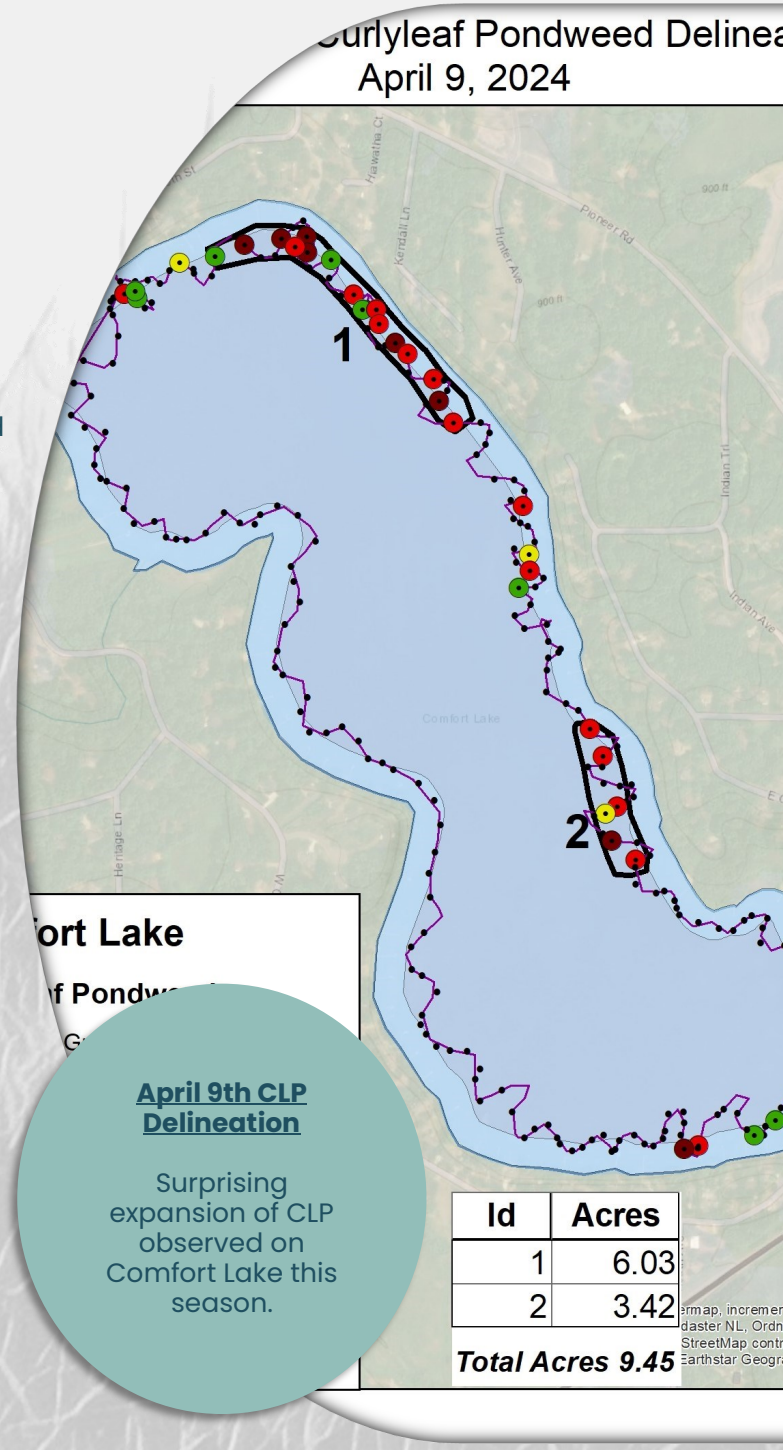
- **Overview:** The District will again hire Blue Water Science to conduct delineation and assessment surveys. Areas of heavy growth that pose an ecological threat (+180 stems per sq. meter) will be managed by the District. In addition, the Comfort Lake Association (CLA) has been performing their own EWM treatments for the last several years and are expected to continue to do so in 2024.

Zebra Mussels —(No new updates)

- **Overview:** Zebra mussels were first discovered in Comfort Lake in 2017 and are now widely distributed around the lake. The sampling plate program will continue in 2024 to monitor the population size.

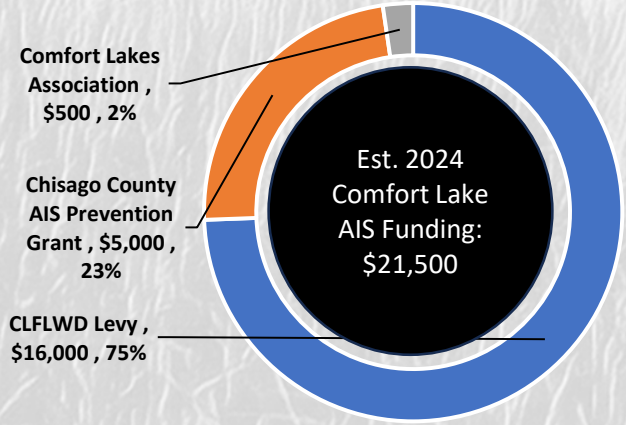
Watercraft Inspections (brief overview; see full report for more details)

- **Overview:** The District has an estimated $15,500 budgeted for watercraft inspections on Comfort Lake this season. This could support up to an estimated 674 hours.



Comfort Lake AIS Budget Summary

CLFLWD's 2024 Comfort Lake AIS Estimated Funding



CLFLWD's 2024 Comfort Lake AIS Program Estimated Expenses