



May 2023 AIS Update

Comfort Lake–Forest Lake Watershed District

Lake Management Districts:

Bone Lake District

- Moody Lake
- Bone Lake

Little Comfort Lake District

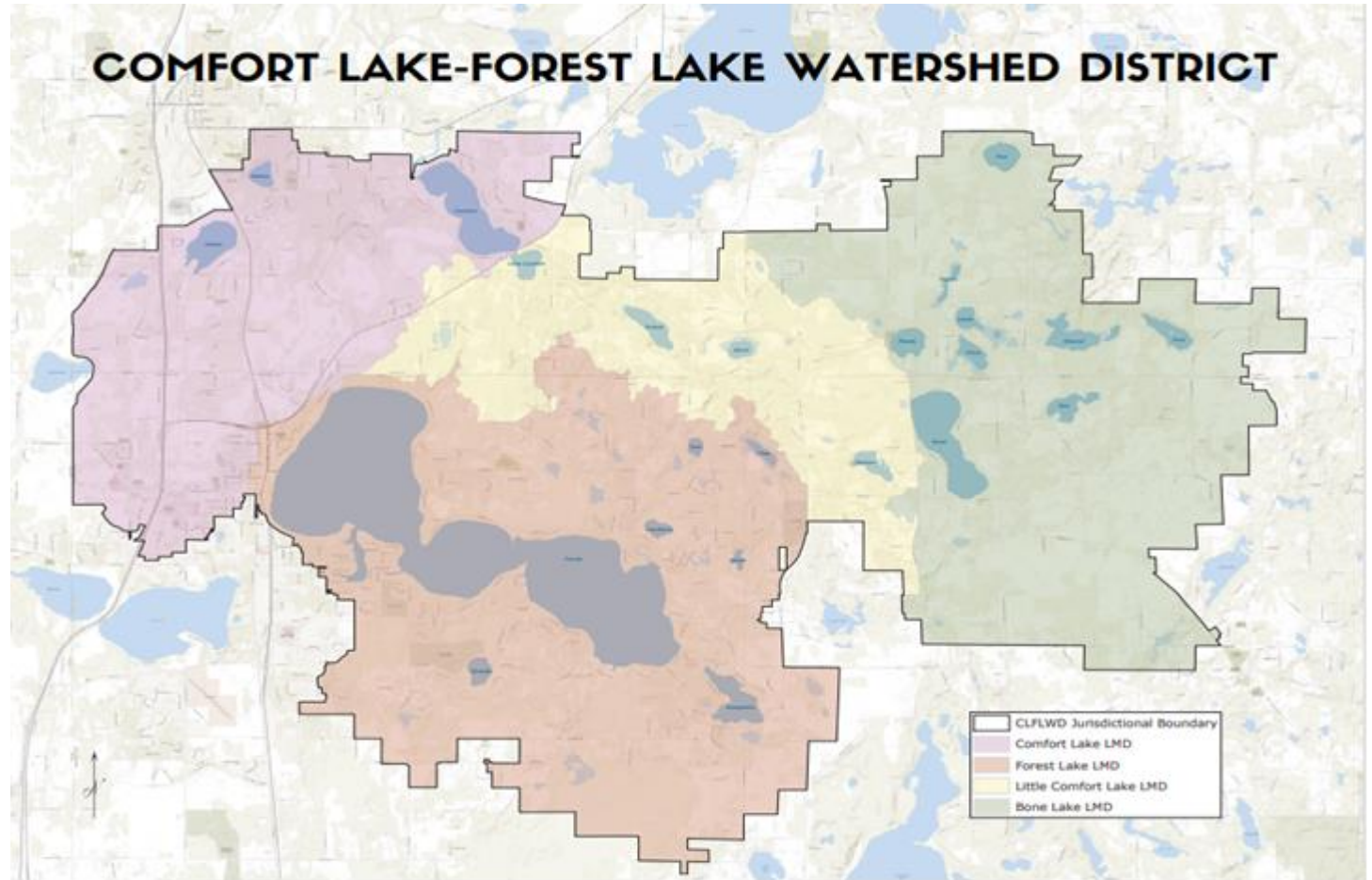
- Little Comfort Lake

Forest Lake District

- Shields Lake
- Lake Keewahtin
- Forest Lake

Comfort Lake District

- Comfort Lake



Comfort Lake – Forest Lake Watershed District

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44 Lake Street South, Suite A Forest Lake, MN 55025

5/17/2023

AIS Budget Summary



| Lake | Funding Sources | | Estimated Yearend Expense Totals | | | Balance** | Littoral Acreage | Expense/Littoral Acre |
|----------------|------------------|-----------------|----------------------------------|--------------------|------------------|-----------------|------------------|-----------------------|
| | CLFLWD Local | Grants/Cont. | Blue Water Science | Contractor/ Other | EOR | | | |
| District-Wide* | \$5,000 | | | (\$2,500) | (\$2,500) | \$0 | | |
| Moody | \$1,500 | \$0 | (\$3,100) | \$0 | | (\$1,600) | 22 | \$140.91 |
| Bone | \$14,500 | \$6,500 | (\$4,700) | (\$16,704) | | (\$404) | 124 | \$172.61 |
| Little Comfort | \$0 | \$0 | \$0 | \$0 | | \$0 | 16 | \$0.00 |
| Shields | \$3,500 | \$1,500 | (\$3,100) | (\$1,347) | | \$553 | 22 | \$202.14 |
| Keewahtin | \$800 | \$0 | \$0 | (\$800) | | \$0 | 67 | \$11.94 |
| Forest | \$113,000 | \$38,636 | (\$15,800) | (\$79,609) | | \$56,227 | 1,531 | \$62.32 |
| Comfort | \$14,000 | \$5,000 | (\$3,200) | (\$15,000) | | \$800 | 90 | \$202.22 |
| Total | \$152,300 | \$51,636 | (\$29,900) | (\$115,960) | (\$2,500) | \$55,576 | | |

** Remaining Balance

| EOR AIS Program Management Costs | | |
|----------------------------------|-----------|---------|
| Month of Services | Invoice # | Expense |
| January | | |
| February | | |
| March | | |
| April | | |
| May | | |
| June | | |
| July | | |
| August | | |
| September | | |
| October | | |
| November | | |
| December | | |
| Running Total | | \$ - |

Budget Notes

*District-wide budget line items include General Program Mgmt (includes EOR time), Comprehensive Plan & Policy Development, AIS Prevention at Boat Launch Sites, AIS Rapid Response
 ** Unspent funds from budget



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Moody Lake

Management Narrative

Aeration system: The winter aerator was activated for the season on January 5, 2023, and remained active until the week of April 3rd. After deactivating the system, District staff collected each of the thin ice signs and placed them in dry storage. The purpose of the aeration system is to keep Moody Lake's dissolved oxygen levels above the thresholds needed to support game fish species over the winter, which will help keep rough fish populations in check.

Curly-leaf pondweed (CLP): On April 25th, Blue Water Science (BWS) conducted a delineation point intercept survey to assess the CLP population. Out of 85 sampling locations, only 17 sites of growth were found. Growth was primarily light, so no treatment was recommended again this year. For reference, no CLP was treated on Moody Lake in 2022 or 2021, 3.11 acres in 2020, and 7.81 acres in 2019.

Fish Survey: The Minnesota Department of Natural Resource's Hinckley Area Fisheries office has communicated to staff for the last few years that Moody Lake is due for a bluegill gill-netting fish survey. However, they have not been able to provide a definitive timeline for the survey. Staff reached out and are awaiting a response regarding 2023.

Native Aquatic Plant Transplanting Project: Since early-2022, District staff have had conversations with the DNR, Blue Water Science, and EOR staff regarding transplanting native aquatic plants into other waterbodies. Moody Lake's improving water quality and currently low plant diversity make it a good candidate to test a transplanting project. Staff are working with researchers and partners to develop a plan for implementation this summer.

5/17/2023

Moody Lake AIS Budget Summary



| | | Revenues | | Expenses | | Annual Balance | Timeline (2023-2024) | | | | | | | | | | | |
|--|-------------------------------------|----------|--------|------------|-------|----------------|----------------------|-----|------|------|--------|-----------|---------|----------|----------|---------|----------|--|
| | | CLFLWD | Grants | BWS | Other | | April | May | June | July | August | September | October | November | December | January | February | |
| | | \$ 1,500 | \$ - | \$ (3,100) | \$ - | \$ (1,600) | | | | | | | | | | | | |
| Curly-Leaf Pondweed | Work Task | CLFLWD | Grants | BWS | Other | Total Expense | | | | | | | | | | | | |
| | Surveys-Report | | | \$ (3,100) | | \$ (3,100) | | | | | | | | | | | | |
| | Permitting/Public Notice | \$ 1,500 | | | | \$ - | | | | | | | | | | | | |
| | Management | | | | | \$ - | | | | | | | | | | | | |
| | Total | \$ 1,500 | | \$ (3,100) | \$ - | \$ (3,100) | | | | | | | | | | | | |
| Aeration System | Work Task | CLFLWD* | Grants | BWS | Other | Total Expense | | | | | | | | | | | | |
| | Permitting | | | | | \$ - | | | | | | | | | | | | |
| | Setup - Public Notice | | | | | \$ - | | | | | | | | | | | | |
| | Operation/Inspections - Electricity | | | | | \$ - | | | | | | | | | | | | |
| | Total | \$ 1,500 | \$ - | \$ (3,100) | \$ - | \$ (3,100) | | | | | | | | | | | | |
| Native Plant Transplanting | Work Task | CLFLWD* | Grants | BWS | Other | Total Expense | | | | | | | | | | | | |
| | Planning and Permitting | | | | | | | | | | | | | | | | | |
| | Implementation | | | | | | | | | | | | | | | | | |
| | Project Monitoring and Reporting | | | | | | | | | | | | | | | | | |
| | Total | \$ - | \$ - | \$ - | \$ - | \$ - | | | | | | | | | | | | |
| 2023 General Program Management | | | | | | | | | | | | | | | | | | |

Figures in italics are cost estimates/haven't been invoiced yet

*Aeration system dollars removed because not under AIS Program in budget (under 3010 - Operations and Maintenance)

| 2022 Work | Status Summary |
|---------------------|--|
| Aeration system | Deactivated on March 29, 2022. |
| Curly-leaf pondweed | Blue Water Science did not find sufficient CLP to warrant treatment this year on Moody Lake. |

| 2023 Work | Status Summary |
|--|--|
| Aeration system | Activated on January 5, 2023 and deactivated during the week of April 3rd. |
| Curly-leaf pondweed | No treatment needed this season |
| Native Aquatic Plant Transplanting Project | Staff will attempt a native plant transplanting into Moody this Summer. |

| Moody Lake Water Quality Goals & Measured Averages | | | |
|--|-----------|------------------------|---|
| | 2031 Goal | 5-Year Avg (2018-2022) | Long-Term Trend |
| Water quality rating at or above | C | C | N/A |
| Mean summer phosphorus concentration below (µg/L) | 40 | 55.9 | Significantly Improving (-79%) since 2013 |
| Mean summer secchi depth at or above (ft) | 4.6 | 3.8 | Improving since 2005 |

- Improving or declining trends means that the water quality parameter is consistently increasing or decreasing from year to year over the time period, but NOT in a statistically significant way.
- Significantly improving or significantly declining means that the water quality parameter is consistently increasing or decreasing from year to year over the time period, AND in a statistically significant way. The percent change in the parameter over the entire time period is reported for statistically significant trends.
- A scientific trend analysis of District lake water quality is available in the District's Draft 2022 Water Monitoring Report available at: <https://www.clflwd.org/>

DNR Lake Classification: Natural Environment



Management Narrative

Point-Intercept Macrophyte Survey (PI Survey): The last PI survey was performed on Bone Lake in 2018. Following the District's 5-year rotation for PI surveys, Bone Lake is due for another in 2023. Blue Water Science will again be hired to perform the survey and produce a thorough report detailing the aquatic plant community.

Curly-leaf pondweed (CLP): Blue Water Science performed a delineation survey for curly-leaf pondweed in Bone Lake on May 1st. Only five locations of light growth were found in the entire lake. No treatment is recommended for this season. For reference, past years' CLP treatments are as follows – 2022: No treatment, 2021: 4.38 acres, 2020: 5.14 acres, 2019: 3.88 acres, 2018: hand pulling only, 2017: treated 3.89 acres, 2016: no treatment, 2015: treated 2.45 acres.

Eurasian watermilfoil (EWM): 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 or greater) will be managed by the District.

Fish barriers: The inlet barrier will start to be actively managed once the surface water temperature of Bone Lake is 55 degrees F or higher and the lake level is less than 908.6 feet.

Rough fish management: The 2023 budget does not contain any funding for rough fish management on Bone Lake. Observations of staff and lake homeowners have indicated that the carp population appears to be declining since the installation of the inlet and outlet fish barriers. Staff has been in communication with the DNR East Metro Fisheries Supervisor in order to coordinate fish survey scheduling and efforts. The DNR typically performs fish surveys on a 5-6 year rotation (except for Forest Lake which is on a 2-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.

Zebra mussels: To date, no zebra mussels have been found in the lake since their initial 2019 discovery. District staff plan to perform another veliger tow this summer.

Watercraft inspections: An estimated total of approximately \$15,000 will be available from the CLFLWD budget and project partners to support the 2023 watercraft inspection program on Bone Lake. The inspection program began on May 12th this year.

Bone Lake AIS Budget Summary



| | | Revenues | | Expenses | | Annual Balance | Timeline (2023-2024) | | | | | | | | | | | |
|--|------------------------------|-----------|--------------|-------------|-------------|----------------|----------------------|-----|------|------|--------|------|-----|-----|----------|---------|----------|--|
| | | CLFLWD | Grants/Other | BWS | Other | | April | May | June | July | August | Sept | Oct | Nov | December | January | February | |
| | | \$ 14,500 | \$ 6,500 | \$ (4,700) | \$ (16,704) | \$ (404) | | | | | | | | | | | | |
| Curly-Leaf Pondweed (CLP) | Work Task | CLFLWD | Grants/Other | BWS* | Other | Total Expense | | | | | | | | | | | | |
| | Surveys-Report | | | \$ (1,900) | | \$ (1,900) | BWS | | | | | | BWS | | | | | |
| | Permitting/Public Notice | \$ 2,600 | | | | \$ - | WD | | | | | | | | | | | |
| | Management | | \$ 1,500 | | \$ (1,704) | \$ (1,704) | Lake Mgmt Inc. | | | | | | | | | | | |
| | Total | \$ 2,600 | \$ 1,500 | \$ (1,900) | \$ (1,704) | \$ (3,604) | | | | | | | | | | | | |
| Eurasian Watermilfoil (EWM) | Work Task | CLFLWD | Grants/Other | BWS | Other | Total Expense | | | | | | | | | | | | |
| | Surveys-Report | \$ 1,900 | | \$ (1,900) | | \$ (1,900) | BWS | | | | | | BWS | | | | | |
| | Coordination/Mgmt Assistance | | | | | \$ - | WD | | | | | | | | | | | |
| | Total | \$ 1,900 | \$ - | \$ (1,900) | \$ - | \$ (1,900) | | | | | | | | | | | | |
| Rough Fish Management | Work Task | CLFLWD | Grants/Other | BWS | Other | Total Expense | | | | | | | | | | | | |
| | Spawning Observations | \$ - | | | | \$ - | WD | | | | | | | | | | | |
| | Harvest | | | | | \$ - | TBD | | | | | | | | | | | |
| | Total | \$ - | \$ - | \$ - | \$ - | \$ - | | | | | | | | | | | | |
| Zebra Mussels (ZM) | Work Task | CLFLWD | Grants/Other | BWS | Other | Total Expense | | | | | | | | | | | | |
| | Samplers | | | \$ (900.00) | | \$ (900.00) | WD | | | | | | | | | | | |
| | Total | \$ - | \$ - | \$ (900.00) | \$ - | \$ (900.00) | | | | | | | | | | | | |
| Watercraft Inspections* | Work Task | CLFLWD | Grants/Other | BWS | Other | Total Expense | | | | | | | | | | | | |
| | Inspection Hours | \$ 10,000 | \$ 5,000 | | \$ (15,000) | \$ (15,000) | WD/Chisago Co. | | | | | | | | | | | |
| | Total | \$ 10,000 | \$ 5,000 | \$ - | \$ (15,000) | \$ (15,000) | | | | | | | | | | | | |
| 2023 General Program Management | | | | | | | WD/EOR | | | | | | | | | | | |

Figures in italics are cost estimates/haven't been invoiced yet

*Planned watercraft inspection funding sources include:

- CLFLWD levy: \$10,000 (1 access)
- Washington County AIS Prevention grant rec. award: \$1,000 (same as last year)
- Bone Lake Association: \$2,500
- City of Scandia: \$1,000
- Scandia Lions Club: \$500

| 2022 Work | Status Summary |
|------------------------------|---|
| CLP surveys and management | No CLP treatment needed in 2022 |
| EWM surveys and coordination | Mostly light growth found along the perimeter of the lake |
| Zebra mussel early detection | A zebra mussel veliger tow occurred in July. Analysis of the samples found no veligers. |
| Carp management | Continued operation of fish barrier per O&M. |
| Watercraft inspections | In 2022, 542.5 hours worth of inspections were performed on Bone Lake. |

| Bone Lake Water Quality Goals & Measured Averages | | | |
|---|-----------|------------------------|---|
| | 2031 Goal | 5-Year Avg (2018-2022) | Long-Term Trend |
| Water quality rating at or above | B | B | N/A |
| Mean summer phosphorus concentration below (µg/L) | 30 | 24.9 | Significantly Improving (-39%) since 2013 |
| Mean summer secchi depth at or above (ft) | 7 | 5.9 | Significantly Improving (85%) since 2013 |

- Goals shown in green are currently being met according to their latest 5-year average
- Improving or declining trends means that the water quality parameter is consistently increasing or decreasing from year to year over the time period, but NOT in a statistically significant way.
- Significantly improving or significantly declining means that the water quality parameter is consistently increasing or decreasing from year to year over the time period, AND in a statistically significant way. The percent change in the parameter over the entire time period is reported for statistically significant trends.
- A scientific trend analysis of District lake water quality is available in the District's Draft 2022 Water Monitoring Report available at: <https://www.clflwd.org/>

| 2023 Work | Status Summary |
|-----------------------------------|---|
| CLP surveys and management | No treatment is needed this year |
| EWM surveys and coordination | BWS will conduct delineation and assessment surveys for EWM in 2023. |
| Zebra mussel early detection | Another zebra mussel veliger tow is scheduled for the lake this summer. |
| Point-Intercept Macrophyte Survey | Blue Water Science is scheduled to perform a PI Survey this summer. |
| Watercraft inspections | District inspections began on May 12th |

DNR Lake Classification: Recreational Development



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Little Comfort Lake

Management Narrative

Curly-leaf pondweed (CLP): The 2023 budget does not contain any funding for curly-leaf pondweed management in Little Comfort Lake. Staff will conduct a meandering survey to assess CLP's growth within the lake.

Zebra mussels: Staff continues to seek a volunteer who will monitor a sampler plate on their dock. Staff have not heard any reports of zebra mussels in Little Comfort Lake yet, although it is listed as infested by the DNR due to its connectivity with Comfort Lake.

Little Comfort Lake AIS Budget Summary



| | | Revenues | | Expenses | | Annual Balance | Timeline (2023-2024) | | | | | | | | | | | | |
|---------------------------------|-----------|----------|--------|----------|-------|----------------|----------------------|--------|------|------|--------|-------|------|------|------|------|------|--|--|
| | | CLFLWD | Grants | BWS | Other | | April | May | June | July | August | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | | |
| | | \$ - | \$ - | \$ - | \$ - | \$ - | | | | | | | | | | | | | |
| Curly-Leaf Pondweed (CLP) | Work Task | CLFLWD | Grants | BWS | Other | Total Expense | | | | | | | | | | | | | |
| | Survey | | | | | \$ - | | WD | | | | | | | | | | | |
| | Summary | | | | | \$ - | | WD | | | | | | | | | | | |
| | Total | \$ - | \$ - | \$ - | \$ - | \$ - | | | | | | | | | | | | | |
| Zebra Mussels (ZM) | Work Task | CLFLWD | Grants | BWS | Other | Total Expense | | | | | | | | | | | | | |
| | Samplers | | | | | \$ - | | WD | | | | | | | | | | | |
| | Total | \$ - | \$ - | \$ - | \$ - | \$ - | | WD/EOR | | | | | | | | | | | |
| 2023 General Program Management | | | | | | | WD/EOR | | | | | | | | | | | | |

| 2022 Work | Status Summary |
|------------------------------|---|
| CLP survey | Staff conducted a survey on August 2nd. |
| Zebra mussel early detection | No volunteer was found in 2022. |

| 2023 Work | Status Summary |
|------------------------------|---|
| CLP survey | Staff will survey the lake this summer |
| Zebra mussel early detection | Continue to try to find a new volunteer to monitor a zebra mussel sampler plate on their dock in order to monitor zm spread from Big Comfort Lake |

| Little Comfort Lake Water Quality Goals & Measured Averages | | | |
|---|-----------|------------------------|---|
| | 2031 Goal | 5-Year Avg (2018-2022) | Long-Term Trend |
| Water quality rating at or above | B | C+ | N/A |
| Mean summer phosphorus concentration below (µg/L) | 30 | 42 | Significantly improving since 2013 (-48%) |
| Mean summer secchi depth at or above (ft) | 7 | 5.9 | Improving since 2013 |

- Goals shown in green are currently being met according to their latest 5-year average
- Improving or declining trends means that the water quality parameter is consistently increasing or decreasing from year to year over the time period, but NOT in a statistically significant way.
- Significantly improving or significantly declining means that the water quality parameter is consistently increasing or decreasing from year to year over the time period, AND in a statistically significant way. The percent change in the parameter over the entire time period is reported for statistically significant trends.
- A scientific trend analysis of District lake water quality is available in the District's Draft 2022 Water Monitoring Report available at: <https://www.clflwd.org/>

DNR Lake Classification: General Development



Shields Lake

Management Narrative

Aeration system: The winter aerator was activated for the season on January 5, 2023, and remained active until the week of April 3rd. After deactivating the system, District staff collected each of the thin ice signs and placed them in dry storage. The purpose of the aeration system is to keep Shields Lake's dissolved oxygen levels above the thresholds needed to support game fish species over the winter, which will help keep rough fish populations in check.

Fish barrier: 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 in 2023.

Curly-leaf pondweed (CLP): The 2023 budget contains \$3,000 for Shields Lake AIS Management. Blue Water Science (BWS) conducted a CLP delineation on April 25th and identified two treatment areas totaling 3.07 acres. Treatment will occur by the end of May. For reference, 3.27 acres of CLP were treated in 2022.

Rough Fish Management: In 2022, the District contracted WSB to update the lake's common carp population assessment. Results indicated Shields Lake is very near its carp population management threshold of 100 kg/ha. For 2023, District staff are discussing low-cost in-house options for carp management to ensure the population remains below that threshold.

Shields Lake AIS Budget Summary



| | | Revenues | | Expenses | | Annual Balance | Timeline (2023-2024) | | | | | | | | | |
|---------------------------------|--------------------------------|----------|----------|------------|------------|----------------|----------------------|-----|------|------|--------|-------|------|------|------|------|
| | | CLFLWD | Grants | BWS | Other | | April | May | June | July | August | Sept. | Oct. | Nov. | Dec. | Jan. |
| Fish Barrier* | Work Task | CLFLWD | Grants | Staff/EOR | Other | Total Expense | | | | | | | | | | |
| | Retrofit Project | | | | | \$ - | | | | | | | | | | |
| | Planning/Inspections/Oversight | | | | | \$ - | | | | | | | | | | |
| | Total | \$ - | \$ - | \$ - | \$ - | \$ - | | | | | | | | | | |
| Zebra Mussels | Work Task | CLFLWD | Grants | BWS | Other | Total Expense | | | | | | | | | | |
| | Samplers | | | | | \$ - | | | | | | | | | | |
| | Total | \$ - | \$ - | \$ - | \$ - | \$ - | | | | | | | | | | |
| Curly-Leaf Pondweed | Work Task | CLFLWD | Grants | BWS | Other | Total Expense | | | | | | | | | | |
| | Surveys-Report | | | \$ (3,100) | | \$ (3,100) | | | | | | | | | | |
| | Permitting/Public Notice | \$ 1,500 | | | | \$ - | | | | | | | | | | |
| | Management | | \$ 1,500 | | \$ (1,347) | \$ (1,347) | | | | | | | | | | |
| | Total | \$ 1,500 | \$ 1,500 | \$ (3,100) | \$ (1,347) | \$ (4,447) | | | | | | | | | | |
| Rough Fish Management | Work Task | CLFLWD | Grants | BWS | Other | Total Expense | | | | | | | | | | |
| | Survey | \$ 2,000 | | | | \$ - | | | | | | | | | | |
| | Total | \$ 2,000 | \$ - | \$ - | | \$ - | | | | | | | | | | |
| 2023 General Program Management | | | | | | | | | | | | | | | | |

Figures in italics are cost estimates/haven't been invoiced yet

| Shields Lake Water Quality Goals & Measured Averages | | | |
|--|-----------|------------------------|---|
| | 2021 Goal | 5-Year Avg (2018-2022) | Long-Term Trend |
| Water quality rating at or above | C | C | N/A |
| Mean summer phosphorus concentration below (µg/L) | 60 | 84 | Significantly Improving Since 2013 (-92%) |
| Mean summer secchi depth at or above (ft) | 4.3 | 4.7 | Improving Since 2013 |

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- A scientific trend analysis of District lake water quality is available in the District's Draft 2022 Water Monitoring Report available at: <https://www.clflwd.org/>

DNR Lake Classification: Natural Environment

| 2022 Work | Status Summary |
|------------------------------|--|
| Zebra mussel early detection | Staff monitored for zebra mussels by checking lake debris and man-made structures |
| Curly-leaf pondweed planning | Full lake control of CLP was achieved again in 2022 |
| Rough fish management | An updated common carp population estimate suggests carp are near the 100 kg/ha management threshold |

| 2023 Work | Status Summary |
|------------------------------|---|
| Zebra mussel early detection | Staff will monitor the lake for the presence of zebra mussels by checking lake debris and man-made structures. |
| Fish barrier | Operate per O&M manual. |
| Curly-leaf pondweed | 3.07 acres of CLP will be treated by the end of May |
| Rough fish management | Staff are researching low cost options to maintain or reduce the current common carp population in Shields Lake |



CLFLWD
WATERSHED DISTRICT

Lake Keewahtin

Management Narrative

AIS early detection survey: District staff will perform an early detection survey at Lake Keewahtin this 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.

Purple loosestrife: In late-August of 2022, the District performed a purple loosestrife treatment around the perimeter of the lake. In 2023, staff will assess the effectiveness and will likely schedule another round of treatments.

Zebra mussels: No zebra mussels have been detected in Lake Keewahtin to date. If a volunteer can be found, a sampler plate will be deployed on the lake to help monitor for their presence.

Curly-leaf pondweed (CLP): District staff will conduct a meandering survey to map the distribution and abundance of CLP in the lake if present.



CLFLWD
WATERSHED DISTRICT

Forest Lake

Management Narrative

Curly-leaf pondweed (CLP): Blue Water Science performed a delineation survey of curly-leaf pondweed in Forest Lake on May 9th and identified eight treatment locations totaling 61.55 acres. A treatment will occur by the end of May. For reference, past years' CLP treatments are as follows – 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): 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 or greater) will be managed by the District. Additionally, the Forest Lake Lake Association applied for several grants and will likely conduct their own EWM treatment as needed.

Flowering rush (FR): The flowering rush management program that has been implemented by the CLFLWD since 2014 has been successful and will continue in 2023. The details of the program have gone through a few iterations and improvements year after year. The proposed program for 2023 is roughly as follows: spot treatment #1 (Mid to Late July), follow-up survey (Late-July or Early-August), spot treatment #2 (Mid-August), follow-up survey (Late-August), spot treatment #3 (Optional- September). Staff will perform frequent surveys of the lake and remove all seed heads found. In addition, staff will be implementing their own spot treatments to help manage hard to reach growth sites, such as areas in shallow water or on shore.

Zebra mussels: Zebra mussels have now been detected throughout all of 1st, 2nd, and 3rd Lakes. The sampling plate program will continue in 2023 in order to provide information about zebra mussel population densities post-colonization.

Purple Loosestrife (PL): The District has been managing large populations of purple loosestrife on Forest Lake since 2020. After 3 years of treatment, staff are seeing a reduction in the overall abundance of purple loosestrife in these areas. A staff performed PL survey will be conducted this summer and a treatment is anticipated to follow.

Watercraft inspections: An estimated total of \$54,126 will be available from the CLFLWD budget and project partners to support the 2023 watercraft inspection program on Forest Lake. The inspection program began this year on May 12th.

Plant Harvester: In the past, staff have worked with the City and the Forest Lake Lake Association to develop a harvesting map that avoids all Eurasian watermilfoil and flowering rush beds. Harvesting typically occurs in mid-late summer after the curly-leaf pondweed has died back, regardless, curly-leaf pondweed beds are avoided as much as possible.

Point-Intercept Macrophyte Survey (PI Survey): The last PI survey was performed on Forest Lake in 2018. Following the District's 5-year rotation for PI surveys, Forest Lake is due for another in 2023. Blue Water Science will again be hired to perform the survey and produce a thorough report detailing the aquatic plant community.

Rough Fish Management: Staff are working with WSB to coordinate a common carp population assessment survey on Forest Lake this summer.

Forest Lake AIS Budget Summary



| | | Revenues | | Expenses | | Annual Balance | Timeline (2023-2024) | | | | | | | | | | | | | |
|---------------------------------|-----------------------------------|------------|--------------|-------------|-------------|----------------|----------------------|--------------|-----|-------|-------|-----|------|------|------|-------|------|------|------|------|
| | | CLFLWD | Grants/Other | BWS | Other | | CLFLWD | Grants/Other | BWS | Other | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. |
| | | \$ 113,000 | \$ 38,636 | \$ (15,800) | \$ (79,609) | \$ 56,227 | | | | | | | | | | | | | | |
| Curly-Leaf Pondweed | Work Task | CLFLWD | Grants/Other | BWS | Other | Total Expense | | | | | | | | | | | | | | |
| | Delin-Report | | | \$ (2,900) | | \$ (2,900) | BWS | | | | | | | | | | | | | |
| | Permitting/Public Notice | \$ 57,000 | | | | \$ - | WD | | | | | | | | | | | | | |
| | Management | | \$ 7,714 | | \$ (19,025) | \$ (19,025) | Lake Mgmt Inc. | | | | | | | | | | | | | |
| | Total | \$ 57,000 | \$ 7,714 | \$ (2,900) | \$ (19,025) | \$ (21,925) | | | | | | | | | | | | | | |
| Flowering Rush | Work Task | CLFLWD | Grants/Other | BWS | Other | Total Expense | | | | | | | | | | | | | | |
| | Delin-Report | | | \$ (6,300) | | \$ (6,300) | BWS | | | | | | | | | | | | | |
| | Permit/Outreach/Pub. Notice | \$ 13,000 | \$ 7,000 | | \$ (1,014) | \$ (1,014) | WD | | | | | | | | | | | | | |
| | Management | | | | \$ (4,000) | \$ (4,000) | PLM | | | | | | | | | | | | | |
| | Total | \$ 13,000 | \$ 7,000 | \$ (6,300) | \$ (5,014) | \$ (11,314) | | | | | | | | | | | | | | |
| Eurasian Watermilfoil | Work Task | CLFLWD | Grants/Other | BWS | Other | Total Expense | | | | | | | | | | | | | | |
| | Surveys-Report | \$ 7,000 | | \$ (3,200) | | \$ (3,200) | BWS | | | | | | | | | | | | | |
| | Coordination/Mgmt Assistance | | | | | \$ - | WD | | | | | | | | | | | | | |
| | Total | \$ 7,000 | \$ - | \$ (3,200) | \$ - | \$ (3,200) | | | | | | | | | | | | | | |
| Purple Loosestrife | Work Task | CLFLWD | Grants/Other | BWS | Other | Total Expense | | | | | | | | | | | | | | |
| | Survey Work and Treatment | \$ 2,000 | | | \$ (1,648) | \$ (1,648) | WD | | | | | | | | | | | | | |
| | Total | \$ 2,000 | \$ - | \$ - | \$ (1,648) | \$ (1,648) | | | | | | | | | | | | | | |
| Watercraft Inspections* | Work Task | CLFLWD | Grants/Other | BWS | Other | Total Expense | | | | | | | | | | | | | | |
| | Inspection Hours | \$ 30,000 | \$ 23,922 | \$ - | \$ (53,922) | \$ (53,922) | WD/Chisago Co. | | | | | | | | | | | | | |
| | Total | \$ 30,000 | \$ 23,922 | \$ - | \$ (53,922) | \$ (53,922) | | | | | | | | | | | | | | |
| Plant Harvester | Work Task | CLFLWD | Grants/Other | BWS | Other | Total Expense | | | | | | | | | | | | | | |
| | DNR Aquatic Plant Mgmt Permitting | | | | | \$ - | WD/FLLA | | | | | | | | | | | | | |
| | Harvester Operation | | | | | \$ - | City of Forest Lake | | | | | | | | | | | | | |
| | Total | \$ - | \$ - | \$ - | \$ - | \$ - | | | | | | | | | | | | | | |
| Macrophyte Survey | Work Task | CLFLWD | Grants/Other | BWS | Other | Total Expense | | | | | | | | | | | | | | |
| | Point-intercept Survey | \$ 4,000 | | \$ (3,400) | | \$ (3,400) | | | | | | | | | | | | | | |
| | Total | \$ 4,000 | \$ - | \$ (3,400) | \$ - | \$ (3,400) | | | | | | | | | | | | | | |
| 2023 General Program Management | | | | | | | WD/EOR | | | | | | | | | | | | | |

Figures in italics are cost estimates/haven't been invoiced yet

*Watercraft inspection funding sources include:

CLFLWD levy: \$30,000 (3 accesses)

Washington County AIS Prevention grant rec. award: \$14,150

Forest Lake Lake Association:

City of Forest Lake: \$9,772 in 2022

| Forest Lake Water Quality Goals & Measured Averages | 2031 Goal | 5-Year Avg (2018-2022) | Long-Term Trend | | |
|---|-----------|------------------------|-----------------------------------|----------------------|----------------------|
| | | | Forest- West | Forest- Middle | Forest- East |
| Water quality rating at or above | B | B- | Sig. Improving (-38%) since 2013 | Declining since 2013 | Declining since 2013 |
| Mean summer phosphorus concentration below (µg/L) | 30 | 32.7 | Sig. Improving (+116%) since 2013 | Declining since 2013 | Improving since 2013 |
| Mean summer secchi depth at or above (ft) | 7 | 6.7 | Sig. Improving (+116%) since 2013 | Declining since 2013 | Improving since 2013 |

- Goals shown in green are currently being met according to their latest 5-year average
- Improving or declining trends means that the water quality parameter is consistently increasing or decreasing from year to year over the time period, but NOT in a statistically significant way.
- Significantly improving or significantly declining means that the water quality parameter is consistently increasing or decreasing from year to year over the time period, AND in a statistically significant way. The percent change in the parameter over the entire time period is reported for statistically significant trends.
- A scientific trend analysis of District lake water quality is available in the District's Draft 2022 Water Monitoring Report available at: <https://www.clflwd.org/>

DNR Lake Classification: General Development

| 2022 Work | Status Summary |
|--------------------------|--|
| CLP surveys & management | The May 24th treatment on 103.96 acres was very successful. |
| EWM surveys & coord. | The FLLA contracted PLM to perform a 22.3 acre EWM treatment. No viable EWM found in lake after treatment. |
| FR surveys & management | The final assessment only found 0.29 acres of FR left in the lake. |
| Watercraft inspections | Conducted 2,071 hours of inspections on Forest Lake. |

| 2023 Work | Status Summary |
|--------------------------|---|
| CLP surveys & management | 61.55 acres will be treated by the end of May |
| Watercraft Inspections | District inspections began on May 12th |
| EWM surveys & coord. | The FLLA is anticipated to treat EWM again this year. |
| FR surveys & management | The District will continue its management approach of 2 to 3 herbicide applications throughout the summer and early fall, in conjunction with seed head removals and staff performed spot treatments. ☐ |
| Purple Loosetrife | Survey the treated populations of PL from 2022 and coordinate another treatment if needed |



Comfort Lake

Management Narrative

Curly-leaf pondweed (CLP): Blue Water Science performed a delineation survey of curly-leaf pondweed in Comfort Lake on April 24th. Only four locations of light growth were identified in the entire lake. No treatment is necessary this season. For reference, CLP hasn't been observed in high enough densities to warrant treatment since 2015 when the District treated 1 acre.

Eurasian watermilfoil (EWM): Blue Water Science will perform a springtime point intercept survey to assess EWM and the native plant community, per the Comfort Lakes Association's (CLA) DNR reporting requirements. Areas of heavy growth that pose an ecological threat (180 EWM stems per sq. meter or greater) will be managed by the District. In addition, the CLA has been performing their own EWM treatments for several years. However, the CLA performed a whole-lake Fluridone treatment in 2022, so EWM is not expected to be an issue in 2023.

Zebra mussels: Zebra mussels were discovered in Comfort Lake in 2017. The sampling plate program will continue in 2023 in order to provide information about zebra mussel population densities post-colonization.

Watercraft inspections: An estimated total of \$15,000 will be available from the CLFLWD budget and project partners to support the 2023 watercraft inspection program on Comfort Lake. The inspection program began on May 12th this year.

Comfort Lake AIS Budget Summary



| | | Revenues | | Expenses | | Annual Balance | Timeline (2023-2024) | | | | | | | | | | | |
|---------------------------------|------------------------------|-----------|--------------|------------|-------------|----------------|----------------------|-----|------|------|--------|-----------|---------|----------|----------|---------|----------|--|
| | | CLFLWD | Grants/Other | BWS | Other | | April | May | June | July | August | September | October | November | December | January | February | |
| | | \$ 14,000 | \$ 5,000 | \$ (3,200) | \$ (15,000) | \$ 800 | | | | | | | | | | | | |
| Curly-Leaf Pondweed | Work Task | CLFLWD | Grants/Other | BWS | Other | Total Expense | | | | | | | | | | | | |
| | Surveys-Report | | | \$ (1,400) | | \$ (1,400) | BWS | | | | | | | | | | | |
| | Permitting/Public Notice | \$ 2,000 | | | | \$ - | WD | | | | | | | | | | | |
| | Management (N/A) | | | | | \$ - | | | | | | | | | | | | |
| | Total | \$ 2,000 | \$ - | \$ (1,400) | \$ - | \$ (1,400) | | | | | | | | | | | | |
| Eurasian Watermilfoil | Work Task | CLFLWD | Grants/Other | BWS | Other | Total Expense | | | | | | | | | | | | |
| | Surveys-Report | \$ 2,000 | | \$ (1,800) | | \$ (1,800) | BWS | | | | | | | | | | | |
| | Coordination/Mgmt Assistance | | | | | \$ - | WD | | | | | | | | | | | |
| | Total | \$ 2,000 | \$ - | \$ (1,800) | \$ - | \$ (1,800) | | | | | | | | | | | | |
| Zebra Mussels | Work Task | CLFLWD | Grants/Other | BWS | Other | Total Expense | | | | | | | | | | | | |
| | Samplers | | | | | \$ - | WD | | | | | | | | | | | |
| | Total | \$ - | \$ - | \$ - | \$ - | FALSE | FALSE | | | | | | | | | | | |
| Watercraft Inspections* | Work Task | CLFLWD | Grants/Other | BWS | Other | Total Expense | | | | | | | | | | | | |
| | Inspection Hours | \$ 10,000 | \$ 5,000 | | \$ (15,000) | \$ (15,000) | WD/Chisago Co. | | | | | | | | | | | |
| | Total | \$ 10,000 | \$ 5,000 | \$ - | \$ (15,000) | \$ (15,000) | | | | | | | | | | | | |
| Macrophyte Survey | Work Task | CLFLWD | Grants/Other | BWS | Other | Total Expense | | | | | | | | | | | | |
| | Point-Intercept Survey | | | | | \$ - | | | | | | | | | | | | |
| | | | \$ - | | \$ - | \$ - | | | | | | | | | | | | |
| 2023 General Program Management | | | | | | | WD/EOR | | | | | | | | | | | |

*Planned watercraft inspection funding sources include:
 CLFLWD levy: \$10,000 (1 access)

 Chisago County AIS Prevention Funds: \$5,000
 Comfort Lake Association: X
 Wyoming: TBD

| Comfort Lake Water Quality Goals & Measured Averages | | | |
|--|-----------|------------------------|---|
| | 2021 Goal | 5-Year Avg (2018-2022) | Long-Term Trend |
| Water quality rating at or above | B | B+ | N/A |
| Mean summer phosphorus concentration below (µg/L) | 30 | 27 | Improving since 1994 |
| Mean summer secchi depth at or above (ft) | 7 | 6.6 | Significantly Improving (+52%) since 2013 |

- Goals shown in green are currently being met according to their latest 5-year average
- Improving or declining trends means that the water quality parameter is consistently increasing or decreasing from year to year over the time period, but NOT in a statistically significant way.
- Significantly improving or significantly declining means that the water quality parameter is consistently increasing or decreasing from year to year over the time period, AND in a statistically significant way. The percent change in the parameter over the entire time period is reported for statistically significant trends.
- A scientific trend analysis of District lake water quality is available in the District's Draft 2022 Water Monitoring Report available at: <https://www.clflwd.org/>

DNR Lake Classification: General Development

| 2022 Work | Status Summary |
|----------------------------|---|
| CLP surveys & management | Blue Water Science's survey did not find sufficient CLP growth to warrant treatment this year. |
| EWM surveys & coordination | The CLA conducted a whole lake Fluridone treatment in 2022. No EWM was found in the lake following. |
| Watercraft inspections | The District performed 643.5 hours of inspections. |

| 2023 Work | Status Summary |
|----------------------------|--|
| CLP surveys & management | No treatment needed this year |
| EWM surveys & coordination | The District will again hire BWS to perform the surveys. No management is anticipated this year. |
| Zebra mussel monitoring | The District will continue the zebra mussel plate program in 2023 on Comfort Lake. |
| Watercraft inspections | District inspections began on May 12th |