



2020 AIS Program Yearend Summary

Comfort Lake–Forest Lake Watershed District

Lake Management Districts:

Bone Lake District

- Moody Lake
- Bone Lake

Little Comfort Lake District

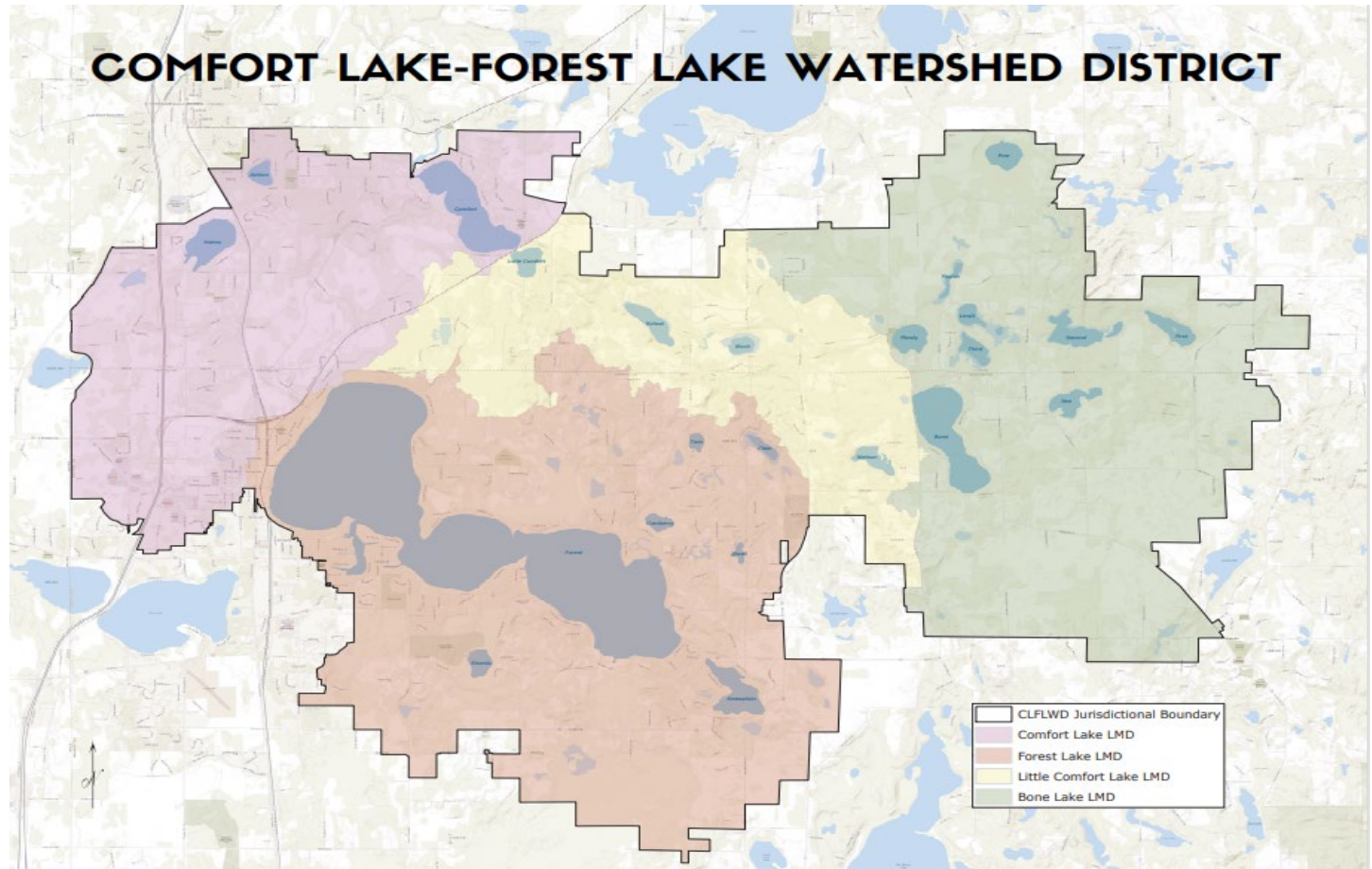
- Little Comfort Lake

Forest Lake District

- Shields Lake
- Lake Keewahtin
- Forest Lake

Comfort Lake District

- Comfort Lake



Comfort Lake-Forest Lake Watershed District

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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*	\$7,000	\$1,275		(\$24,917)		(\$16,642)		
Moody	\$4,000	\$1,391	(\$3,400)	(\$1,210)		\$781	22	\$209.54
Bone	\$11,000	\$6,194	(\$4,800)	(\$12,690)		(\$296)	124	\$141.05
Little Comfort	\$0	\$0	\$0	\$0		\$0	16	\$0.00
Shields	\$4,000	\$1,155	(\$3,300)	(\$7,300)		(\$5,445)	22	\$481.81
Keewahtin	\$2,400	\$0	(\$2,400)	\$0		\$0	67	\$35.82
Forest	\$118,000	\$80,123	(\$12,200)	(\$97,548)		\$88,375	1,531	\$71.68
Comfort	\$11,000	\$5,500	(\$3,200)	(\$11,500)		\$1,800	90	\$163.33
Total	\$157,400	\$95,638	(\$29,300)	(\$155,164)		\$68,574		

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 (Bone Lake zebra mussel rapid response)



Moody Lake

2020 Yearend Summary

Winter Aeration System

- The District continued operation of aeration system in winter months (2019-2020) to increase dissolved oxygen and reduce winterkills. This was the fifth winter the District ran the aerator.
- Oxygen levels were monitored throughout winter. As was observed on other District lakes of similar size, dissolved oxygen levels were lower compared to previous years (often below 2 mg/L throughout winter months). Despite this there was no observed winter fish kill on Moody Lake.
- The winter aerator was activated for the season on January 2, 2020 and remained active until April 2nd. Following deactivation, staff retrieved the floating ice signs and placed them in storage for the season.
- In early-November, staff submitted a public notice to the Forest Lake Times and the Chisago County Press for inclusion in two issues of their papers for the month of November. These public notices serve to inform Moody Lake visitors that the winter aeration system will be active starting on or after January 1st and to use caution when on the ice.

Curly-leaf Pondweed (CLP)

- The 2020 budget contained \$4,000 for Moody Lake AIS Management. Blue Water Science completed a curly-leaf pondweed delineation on April 27, 2020 and recommended 3.11 acres of treatment. Additionally, Blue Water Science also performed a point intercept survey on May 1st.
- After submitting the CLP delineation, the DNR approved the treatment permit on May 6th. This permit gave CLFLWD the authorization to apply the aquatic herbicide Aquathol K to the delineated patches of CLP in the lake, given landowner permission. The District mailed out letters to all landowners around the lake requesting permission to treat within 150 feet of the shore.
- On May 22nd, Lake Management Inc. treated all 3.11 acres with Aquathol K. The applicator dosed the treatment areas with approximately 1.25ppm of this herbicide. Due to this application rate, there was a total lake control of CLP this year. This treatment assessment was conducted by Blue Water Science on June 17th.
- Report:
 - BWS: Delineation and Assessment Report (Summary distributed in December, full report in January 2021).

Fish Survey (same as 2019)

- District staff previously reached out to the DNR Hinckley Area fisheries office to coordinate timing of fish surveys in future years. They indicated that Moody Lake is not surveyed on a regular basis. The last fish survey on Moody Lake was performed in 2012 and the next survey is tentatively scheduled for 2021.
- Since the District performed a survey in 2015, it should consider doing so again around in 2021 if the DNR does not perform one.

Moody Lake AIS Prevention and Management



		Revenues		Expenses		Annual Balance	Timeline (2019-2020)										
		CLFLWD	Grants	BWS	Other		April	May	June	July	August	September	October	November	December	January	February
		\$ 4,000	\$ 1,391	\$ (3,400)	\$ (1,210)	\$ 781											
Curly-Leaf Pondweed	Work Task	CLFLWD	Grants	BWS	Other	Total Expense											
	Surveys-Report			\$ (3,400)		\$ (3,400)											
	Permitting/Public Notice	\$ 4,000				\$ -											
	Management		\$ 1,391		\$ (1,210)	\$ (1,210)											
	Total	\$ 4,000	\$ 1,391	\$ (3,400)	\$ (1,210)	\$ (4,610)											
Aeration System	Work Task	CLFLWD*	Grants	BWS	Other	Total Expense											
	Permitting					\$ -											
	Setup - Public Notice					\$ -											
	Operation/Inspections - Electricity					\$ -											
	Total	\$ -	\$ -	\$ -	\$ -	\$ -											
2020 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)

Moody Lake Water Quality Goals & Measured Averages						
	2020 Goal	2030 Goal	2040 Goal	5-Year Avg (2005-2009)	5-Year Avg (2010-2014)	5-Year Avg (2015-2019)*
Water quality rating at or above	C	C	C	D-	D	D
Mean summer phosphorus concentration below (µg/L)	60	40	40	165	113	101
Mean summer secchi depth at or above (ft)	3.3	4.6	4.6	2.4	2.8	2.1

*2015-2019 average is in progress and based on the first 4 years of data. Note that the changes presented in the 5-year averages do not represent a statistical trend. A scientific trend analysis of District lake water quality is available in the District's 2017 Comprehensive Data Review available at www.clflwd.org/data.php.

DNR Lake Classification: Natural Environment

2019 Work	Status Summary
Aeration system	Deactivated on 4/9, signs collected.
Curly-leaf pondweed	Lake Management Inc. treated 7.81 acres of CLP with Aquathol K on May 20th. Blue Water Science conducted an assessment on June 18th and found there was a total lake control of CLP this season

2020 Work	Status Summary
Aeration system	Aeration system will be activated on or after January 1, 2021.
Curly-leaf pondweed	Blue Water Science delineated 3.11 acres of CLP for treatment. Lake Management Inc. treated all 3.11 acres on May 22nd. The treatment was found to have full lake control of CLP.



Bone Lake

2020 Yearend Summary

Curly-leaf Pondweed (CLP)

- **Delineation:** On April 27th, Blue Water Science (BWS) conducted a curly-leaf pondweed delineation on Bone Lake and identified 5.14 acres of CLP for treatment. The heaviest growth of CLP was observed in the north-eastern and south-western sections of the lake.
- **Treatment:** Lake Management Inc. conducted the CLP treatment on May 12th, applying Aquathol K to all 5.14 delineated acres at a dose rate of 1.25ppm or 3.2 gallons per acre.
- **Assessment:** On June 17th, BWS conducted a CLP treatment assessment and found that there was great CLP control within the treatment areas. Only a little light growth remained after treatment in the southwestern portion of the lake.
- **Report:**
 - BWS: Delineation and Assessment Report (Summary distributed in December, full report in January 2021).

Eurasian Watermilfoil (EWM)

- **Delineation:** On June 17th, Blue Water Science performed a EWM delineation and found no viable EWM in the entire lake.
- **Treatment:** As was the case in 2019, the 2020 budget did not contain funding for Eurasian watermilfoil treatment.
- **Assessment:** BWS performed the assessment survey on July 15th and found only a couple light growth patches that again did not warrant treatment.
- **Report:**
 - BWS: Delineation and Assessment Report (Summary distributed in December, full report in January 2021).

Rough Fish Management

- **Fish Barriers:**
 - Maintained and managed stop logs in the two fish barriers located at the inlet and outlet of the lake
 - Maintained [online spreadsheet](#) that is updated with stop log statuses

Zebra Mussels

- **Brief Background:** On May 28, 2019, six juvenile zebra mussels were discovered near the Bone Lake public access dock. Shortly following this discovery an eradication attempt was conducted where the public access was closed for 10 days while the area was treated with EarthTec copper sulfate. After the treatment was complete, district staff periodically surveyed the near shore area for remaining zebra mussels. To date, no zebra mussels have been found in Bone Lake since the treatment.
- **DNR Veliger Tow Results:** In early 2020, District staff received the results from the DNR's veliger tows that were conducted after the eradication attempt (veligers are microscopic zebra mussel larvae).

Unfortunately, veligers were found in high enough quantities that the DNR believes there to be a reproductive colony somewhere in the lake.

- **District Surveys and Sampler Plates:** In accordance with the District's [2014 Aquatic Invasive Species Action Plan for Bone Lake](#), District staff conducted several wading near shore surveys for zebra mussels 150 meters to either side of the public access. During these surveys, no zebra mussels were found. In addition to wading surveys, several new volunteers contacted the District and asked to hang a sampler plate from their dock. For most of the summer months, there were 6 sampler plates deployed all around the lake. Again, no zebra mussels were found on these plates.
- **Blue Water Science:** On September 22, 2020, Blue Water Science performed a diving survey 150 meters on either side of the public access. During their survey they found no zebra mussels.

Water Hyacinth

- Water hyacinth was first reported in Bone Lake on July 30th, 2019. Shortly after its discovery, CLFLWD and WCD staff surveyed the lake and removed all found water hyacinth plants. In 2020, no water hyacinth was found by District staff or reported by lake residents. It is likely that any plants that remained in the lake after the 2019 removal were eradicated by the winter weather. Staff will continue to keep an eye out for water hyacinth in 2021.

Non-native Phragmites Treatment

- On October 4, 2019, PLM Lake and Land Management Corp. treated 900sq. ft. of non-native phragmites near Bone Lake at the intersection of 235th St. N and Meadowbrook Ave. N. Staff surveyed the treatment area in the summer of 2020 and only found a couple remaining stems that did not warrant a second treatment. Staff will survey this area again in 2021 and determine if treatment is necessary.

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

- **Hours:** Inspectors performed 527.5 inspection hours on Bone Lake. Based on funding allocations, this year's goal was 500 hours.
- **Surveys:** 1049 inspection surveys were performed on Bone Lake.
- **Reports:**
 - Chisago County: 2020 AIS Prevention Report (Expected in early 2021)
 - CLFLWD: 2020 Watercraft Inspection Program Report

Bone Lake AIS Prevention and Management



		Revenues		Expenses		Annual Balance	Timeline (2019-2020)										
		CLFLWD	Grants/Other	BWS	Other		April	May	June	July	August	September	October	November	December	January	February
		\$ 11,000	\$ 6,194	\$ (4,800)	\$ (12,690)	\$ (296)											
Curly-Leaf Pondweed (CLP)	Work Task	CLFLWD	Grants/Other	BWS*	Other	Total Expense											
	Surveys-Report			\$ (1,900)		\$ (1,900)											
	Permitting/Public Notice	\$ 3,100				\$ -											
	Management		\$ 1,194		\$ (1,690)	\$ (1,690)											
	Total	\$ 3,100	\$ 1,194	\$ (1,900)	\$ (1,690)	\$ (3,590)											
Eurasian Watermilfoil (EWM)	Work Task	CLFLWD	Grants/Other	BWS	Other	Total Expense											
	Surveys-Report	\$ 1,900		\$ (2,000)		\$ (2,000)											
	Coordination/Mgmt Assistance					\$ -											
	Total	\$ 1,900	\$ -	\$ (2,000)	\$ -	\$ (2,000)											
Rough Fish Management	Work Task	CLFLWD	Grants/Other	BWS	Other	Total Expense											
	Spawning Observations	\$ -				\$ -											
	Harvest					\$ -											
	Total	\$ -	\$ -	\$ -	\$ -	\$ -											
Zebra Mussels (ZM)	Work Task	CLFLWD	Grants/Other	BWS	Other	Total Expense											
	Diving Survey			\$ (900)		\$ (900)											
	Samplers	\$ -				\$ (900)											
	Total	\$ -	\$ -	\$ (900)	\$ -	\$ (900)											
Watercraft Inspections*	Work Task	CLFLWD	Grants/Other	BWS	Other	Total Expense											
	Inspection Hours	\$ 6,000	\$ 5,000		\$ (11,000)	\$ (11,000)											
	Total	\$ 6,000	\$ 5,000	\$ -	\$ (11,000)	\$ (11,000)											
2020 General Program Management																	

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

*Planned watercraft inspection funding sources include:

- CLFLWD levy: \$6,000 (1 access)
- Washington County AIS Prevention grant rec. award: \$1,000 (same as last year)
- Bone Lake Association: \$2,000
- City of Scandia: \$1,000
- Estimated Scandia Lions Club: \$500

Bone Lake Water Quality Goals & Measured Averages						
	2020 Goal	2030 Goal	2040 Goal	5-Year Avg (2005-2009)	5-Year Avg (2010-2014)	5-Year Avg (2015-2019)*
Water quality rating at or above	C	C	B	C+	C	C+
Mean summer phosphorus concentration below (µg/L)	40	40	30	46	38	33
Mean summer secchi depth at or above (ft)	4	4	7	5.0	4.4	5.1

*2015-2019 average is in progress and based on the first 4 years of data. Note that that the changes presented in the 5-year averages do not represent a statistical trend. A scientific trend analysis of District lake water quality is available in the District's 2017 Comprehensive Data Review available at www.cflwd.org/data.php.

DNR Lake Classification: Recreational Development

2019 Work	Status Summary
CLP surveys and management	LMI treated 3.88 acres of CLP on May 20th. There was poor CLP control in 2019.
EWM surveys and coordination	BWS conducted a delineation on June 6th. No treatments were conducted in 2019.
Zebra mussel early detection	Zebra mussels were first discovered on May 28th. A treatment was conducted from June 17th to June 26th. Lake surveys were conducted periodically since the treatment. To date, no more zebra mussels have been discovered in the lake.
Common carp management	Continued operation of fish barrier per O&M manual
Watercraft inspections	575 inspection hours & 689 inspections performed

2020 Work	Status Summary
CLP surveys and management	On May 12th, Lake Management Inc. treated 5.14 acres of CLP in Bone Lake. Blue Water Science's assessment found the treatment had great control of CLP.
EWM surveys and coordination	BWS's delineation found no viable EWM in the entire lake.
Zebra mussel early detection	Staff have found no zebra mussels since initial discovery in 2019
Common carp management	Only one stop log is installed at both the inlet and outlet.
Watercraft inspections	In 2020, the watercraft inspection program performed 1049 surveys over the the course of 547.5 hours.



Little Comfort Lake

2020 Yearend Report

Curly-leaf Pondweed (CLP)

- The District did not treat curly-leaf pondweed on Little Comfort Lake this year.

Purple Loosestrife (PL)

- On August 5th, District staff surveyed Little Comfort Lake for purple loosestrife along the shoreline. In total, purple loosestrife was identified at approximately 73 sites ranging from single stems of PL to several mature plants in one area.

Zebra Mussels

- The District is still seeking a volunteer to monitor a zebra mussel sampler plate for Little Comfort Lake. As the Comfort Lake zebra mussel population expands over the years, sampler plates will help to track trends.

Little Comfort Lake AIS Prevention and Management



		Revenues		Expenses		Annual Balance	Timeline (2019-2020)									
		CLFLWD	Grants	BWS	Other		April	May	June	July	August	September	October	November	December	January
		\$ -	\$ -	\$ -	\$ -	\$ -										
Curly-Leaf Pondweed (CLP)	Work Task	CLFLWD	Grants	BWS	Other	Total Expense										
	Survey					\$ -										
	Summary					\$ -										
	Total	\$ -	\$ -	\$ -	\$ -	\$ -										
Zebra Mussels (ZM)	Work Task	CLFLWD	Grants	BWS	Other	Total Expense										
	Samplers					\$ -										
	Total	\$ -	\$ -	\$ -	\$ -	\$ -										
2020 General Program Management							WD/EOR									

2019 Work	Status Summary
CLP survey	No CLP surveys occurred on the lake this season and there are no plans to do a treatment.
Zebra mussel early detection	No sampler plate in 2019. Could not find volunteer.

2020 Work	Status Summary
CLP survey	Staff will perform a CLP survey in the Spring of 2021 and determine the feasibility of hand pulling.
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 zmspread from Big Comfort Lake
Purple Loosestrife	On August 5th, district staff found purple loosestrife at approximately 71 sites along the shoreline.

Little Comfort Lake Water Quality Goals & Measured Averages						
	2020 Goal	2030 Goal	2040 Goal	5-Year Avg (2005-2009)	5-Year Avg (2010-2014)	5-Year Avg (2015-2019)*
Water quality rating at or above	C	C	B	B	C+	C
Mean summer phosphorus concentration below (µg/L)	40	40	30	42	50	62
Mean summer secchi depth at or above (ft)	5	5	7	5.4	5.4	3.9

*2015-2019 average is in progress and based on the first 4 years of data. Note that the changes presented in the 5-year averages do not represent a statistical trend. A scientific trend analysis of District lake water quality is available in the District's 2017 Comprehensive Data Review available at www.cflwd.org/data.php.

DNR Lake Classification: General Development



Shields Lake

2020 Yearend Summary

Rough Fish Management

- Carp Removal
 - Brief Background: A common carp removal was attempted during the Fall of 2019 and yielded less carp than expected. In total, only 71 carp were removed that amounted to roughly 1,006lbs of biomass. According to WSB's "Shields Lake: 2019 Carp Removal Project Report" there are still between 364 and 630 individual carp that need to be removed from the lake to reach management goals. To achieve these goals, the CLFLWD hired WSB again in 2020 to attempt another removal.
 - Spring 2020 Carp Removal Attempt: To avoid disturbing lake bottom sediment after the District performed an alum treatment during the Fall of 2019, WSB and District staff sought removal strategies that were outside the main body of Shields Lake. Eyewitness claims suggested that carp were using a shallow pond to the north of the lake for spawning. From these claims a plan was created to use a one-way gate at the inlet of the pond and block the outlet. The goal was to let the carp enter the pond where they would become trapped and later return with seine nets or an electrofishing boat to remove them from the waterbody.
 - Results of Removal: Temporary barriers were left in-place from May 8th to July 20th. During this time, little to no spawning activity was observed both within the barriers and outside of the barriers. Following this unsuccessful attempt, District Staff chose to forego another large-scale removal attempt for the year.
 - Future Removal Plans: Carp removal on Shields Lake has proven to be very difficult to achieve good results due to restrictions set by the DNR, the shape of the Lake and its sediment composition, and avoiding disruption of alum in lake bottom sediments. With these challenges in-mind, the District is considering using bow fisherman to help remove carp from Shields Lake in 2021.

Zebra Mussels

- The District is seeking a volunteer to monitor a zebra mussel sampler plate on a private dock on Shields Lake. A sampler plate is no longer deployed on the public fishing pier because of past issues with damage and theft.

Curly-leaf pondweed (CLP)

- Delineation: On April 27th, Blue Water Science (BWS) conducted a curly-leaf pondweed delineation on Shields Lake and marked 3.54 acres for treatment.
- Treatment: On May 22nd, Lake Management Inc. treated all 3.54 acres with Aquathol K at a dose rate of 3.2 gallons per acre.
- Assessment: Blue Water Science performed a treatment assessment on June 17th and found that treatment had full lake control.
- Report: BWS: Delineation and Assessment Report (Summary distributed in December, full report in January 2021).

Shields Lake AIS Prevention and Management



		Revenues		Expenses		Annual Balance	Timeline (2019-2020)										
		CLFLWD	Grants	BWS	Other		April	May	June	July	August	September	October	November	December	January	February
		\$ 4,000	\$ 1,155	\$ (3,300)	\$ (7,300)	\$ (5,445)											
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					\$ -		WD									
	Total	\$ -	\$ -	\$ -	\$ -	\$ -											
Curly-Leaf Pondweed	Work Task	CLFLWD	Grants	BWS	Other	Total Expense											
	Surveys-Report			\$ (3,300)		\$ (3,300)		BWS								BWS	
	Permitting/Public Notice	\$ 4,000				\$ -		WD									
	Management		\$ 1,155		\$ (1,377)	\$ (1,377)		Lake Mgmt. Inc.									
	Total	\$ 4,000	\$ 1,155	\$ (3,300)	\$ (1,377)	\$ (4,677)											
Rough Fish Management	Work Task	CLFLWD	Grants	BWS	Other	Total Expense											
	Survey				\$ (5,923)	\$ (5,923)		Contractor									
	Total		\$ -	\$ -	\$ (5,923)	\$ (5,923)											
2020 General Program Management								WD/EOR									

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

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

Shields Lake Water Quality Goals & Measured Averages						
	2020 Goal	2030 Goal	2040 Goal	5-Year Avg (2005-2009)	5-Year Avg (2010-2014)	5-Year Avg (2015-2019)*
Water quality rating at or above	D	C	C	D	D	D-
Mean summer phosphorus concentration below (µg/L)	100	60	60	214	219	229
Mean summer secchi depth at or above (ft)	4.26	4.26	4.26	2.8	4.0	2.2

*2015-2019 average is in progress and based on the first 4 years of data. Note that that the changes presented in the 5-year averages do not represent a statistical trend. A scientific trend analysis of District lake water quality is available in the District's 2017 Comprehensive Data Review available at www.clflwd.org/data.php.

DNR Lake Classification: Natural Environment

2019 Work	Status Summary
Zebra mussel early detection	No sampler plate in 2019. Could not find volunteers
Fish barrier upgrades/maint.	Construction completed in August 2019
Curly-leaf pondweed planning	Lake Management Inc. completed CLP treatment on May 20th. Blue Water Science conducted a treatment assessment on June 18th and found there was total lake control of CLP.
Rough fish management	WSB, District staff, and the local commercial fisherman attempted several carp removals on Shields Lake and only removed 71 carp. WSB estimates there to be between 505 and 873 carp left in the lake.

2020 Work	Status Summary
Zebra mussel early detection	Seek volunteers to hang a sampler plate from their dock for the 2021 season.
Fish barrier upgrades/maint.	Operate per O&M manual.
Curly-leaf pondweed	Lake Management Inc. treated 3.54 acres on May 22nd. Blue Water Science's assessment found the treatment had full lake control of CLP.
Rough fish management	Spawning activity was not observed in the temporary barrier as hoped for. Staff is currently seeking alternative removal methods for 2021.



Lake Keewahtin

2020 Yearend Summary

AIS early detection survey

- Blue Water Science performed a point intercept survey on Lake Keewahtin on September 4th. A component of this work included an early detection survey, which looked for new invasive species such as Eurasian watermilfoil, flowering rush, or starry stonewort and monitor the distribution of existing in-lake invasive species, curly-leaf pondweed. During the survey, no non-native invasive species were observed in the lake.

Purple loosestrife

- This year purple loosestrife was included in the point intercept survey. Blue Water Science found the species growing around most of the lake's perimeter. If populations continue to grow treatment might be necessary to reduce spread.

Zebra mussels

- In 2020, District staff was not able to find a zebra mussel sampler plate volunteer. In 2021, staff will reach out to more potential candidates to find a volunteer.

Lake Keewahtin AIS Prevention and Management



		Revenues		Expenses		Annual Balance	Timeline (2019-2020)										
		CLFLWD	Grants	BWS	Other		April	May	June	July	August	September	October	November	December	January	February
		\$ 2,400	\$ -	\$ (2,400)	\$ -	\$ -											
Purple Loosestrife	Work Task	CLFLWD	Grants	BWS	Other	Total Expense											
	Check-Up Assessment					\$ -					BWS						
	Biocontrol Collection and Release					\$ -											
	Total	\$ -	\$ -	\$ -	\$ -	\$ -											
AIS Detection Survey	Work Task	CLFLWD	Grants	BWS	Other	Total Expense											
	Survey										WD/BWS						
	Total	\$ -	\$ -	\$ -	\$ -	\$ -											
Zebra Mussels	Work Task	CLFLWD	Grants	BWS	Other	Total Expense											
	Samplers			\$ -		\$ -					WD						
	Total	\$ -	\$ -	\$ -	\$ -	\$ -											
Point Intercept Survey	Work Task	CLFLWD	Grants	BWS	Other	Total Expense											
	PI Survey	\$ 2,400		\$ (2,400)		\$ (2,400)					BWS						
	Total	\$ 2,400	\$ -	\$ (2,400)	\$ -	\$ (2,400)											
2020 General Program Management											WD/EOR						

2019 Work	Status Summary
AIS early detection survey	Staff not able to survey in 2019
Purple loosestrife check-up	Staff not able to survey in 2019
Zebra mussel early detection	Volunteer observed no ZM in 2019
Curly-leaf pondweed pulling	Plan to perform in 2020

2020 Work	Status Summary
AIS early detection survey	BWS performed a point intercept survey in September. No AIS found in-lake.
Purple loosestrife check-up	Included in point intercept survey
Zebra mussel early detection	Did not find a volunteer in 2020.
Curly-leaf pondweed pulling	Survey in 2021 and determine feasibility of handpulling after survey.

Lake Keewahtin Water Quality Goals & Measured Averages						
	2020 Goal	2030 Goal	2040 Goal	5-Year Avg (2005-2009)	5-Year Avg (2010-2014)	5-Year Avg (2015-2019)*
Water quality rating at or above	A	A	A	A	A	A
Mean summer phosphorus concentration below (µg/L)	20	20	20	15	16	17
Mean summer secchi depth at or above (ft)	10	10	10	15.4	15.6	10.4

*2015-2019 average is in progress and based on the first 4 years of data. Note that the changes presented in the 5-year averages do not represent a statistical trend. A scientific trend analysis of District lake water quality is available in the District's 2017 Comprehensive Data Review available at www.clflwd.org/data.php.

DNR Lake Classification: Recreational Development



Forest Lake

2020 Yearend Summary

Curly-leaf Pondweed (CLP)

- **Delineation:** Blue Water Science conducted a curly-leaf pondweed delineation on April 23rd and identified 58.29 acres for treatment.
- **Treatment:** On May 12th, Lake Management Inc. treated all 58.29 acres of CLP with Aquathol K at a dose rate of 1.25 ppm or 7.2 gallons per acre.
- **Assessment:** On June 12th, Blue Water Science conducted a treatment assessment and found full basin control in FL3. However, FL1 and FL2 did not have great control as CLP is believed to have grown in after the delineation was performed and thus missed during the treatment.
- **Reports:**
 - BWS: Delineation and Assessment report (Summary distributed in December, full report in January 2021).

Eurasian Watermilfoil (EWM)

- **Delineation:** Blue Water Science conducted an Eurasian watermilfoil delineation on June 12th and found light to heavy growth around the perimeter of basin 1 with a few patches of light growth in basin 2. In total, BWS delineated 53.83 acres for treatment.
- **Treatment:** The District did not treat EWM in 2020. The Forest Lake Lake Association contracted with PLM Lake and Land Management Corp. to treat the entire delineated acreage using Tribune and ProcellaCOR EC herbicides on July 9th.
- **Assessment:** BWS conducted an EWM treatment assessment on August 26th and found that there was very good control within the treatment areas.
- **Reports:**
 - BWS: Delineation and Assessment report (Summary distributed in December, full report in January 2021).

Flowering Rush

- **Treatment Round 1:** On August 6th, PLM Lake and Land Management Corp. treated four large flowering rush patches totaling 5.91 acres, as well as performed 107 additional spot treatments around the lake.
- **Flower Cutting:** With the help of Washington Conservation District, District staff performed one round of manual flower removal so as to prevent the spread of the viable seeds. Overall, stem collection counts were similar to last year with 70 seed heads removed on August 19th, 2020 and 67 seed heads in 2019. It is hypothesized that the combination of herbicide treatments and flower removals is effective in reducing the amount of re-growth year after year.
- **Assessment Survey Round 1:** On August 26th Blue Water Science performed an assessment survey to evaluate treatment effectiveness. BWS determined that the first treatment of the year was effective within the treatment areas, but some regrowth had occurred since the treatment. Approximately 128 flowering rush sites and 5 large treatment areas totaling less than 5.14 acres remained for the second

treatment.

- Treatment Round 2: Using information from the assessment survey, PLM performed the 2nd round of herbicide treatment on September 2nd.
- Final Assessment: BWS observed excellent control during their October 12th treatment assessment. Less than 0.07 acres of flowering rush remained post-treatment. For comparison, flowering rush coverage was initially 7.8 acres in 2014.
- Reports:
 - BWS: Delineation and assessment report (Summary distributed in December, full report in January 2021).

Zebra Mussels

- Monitoring: Two zebra mussel sampling plates were deployed on Forest Lake this year. Zebra mussels were discovered in Forest Lake in 2015. It is expected that densities will continue to rise over the upcoming years, then potentially crash after reaching a peak.

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

- Hours: District inspectors performed 2,315 inspection hours on Forest Lake. Based on funding allocations, this year's goal was 2,357 hours. DNR inspectors performed 280 inspection hours on Forest Lake (at no cost to the District). Inspection hours on Forest Lake totaled 2,594.
- Surveys: a combined total of 8,093 inspection surveys were performed on Forest Lake (6,820 by District inspectors, 1,273 by DNR inspectors).
- Reports:
 - Chisago County: 2020 AIS Prevention Report (Expected in early 2021)
 - CLFLWD: 2020 Watercraft Inspection Program Report

Forest Lake AIS Prevention and Management



		Revenues		Expenses		Annual Balance	Timeline (2019-2020)											
		CLFLWD	Grants/Other	BWS	Other		April	May	June	July	August	September	October	November	December	January	February	
		\$ 118,000	\$ 80,123	\$ (12,200)	\$ (97,548)	\$ 88,375												
Curly-Leaf Pondweed	Work Task	CLFLWD	Grants/Other	BWS	Other	Total Expense												
	Delin-Report			\$ (2,900)		\$ (2,900)	BWS											
	Permitting/Public Notice	\$ 48,400				\$ -	WD											
	Management		\$ 34,143		\$ (35,038)	\$ (35,038)	Lake Mgmt Inc.											
	Total	\$ 48,400	\$ 34,143	\$ (2,900)	\$ (35,038)	\$ (37,938)												
Flowering Rush	Work Task	CLFLWD	Grants/Other	BWS	Other	Total Expense												
	Delin-Report			\$ (6,100)		\$ (6,100)	BWS											
	Permit/Outreach/Pub. Notice	\$ 48,400	\$ 7,080		\$ (863)	\$ (863)	WD											
	Management				\$ (4,746)	\$ (4,746)	PLM											
	Total	\$ 48,400	\$ 7,080	\$ (6,100)	\$ (5,609)	\$ (11,709)												
Eurasian Watermilfoil	Work Task	CLFLWD	Grants/Other	BWS	Other	Total Expense												
	Surveys-Report	\$ 3,200		\$ (3,200)		\$ (3,200)	BWS											
	Coordination/Mgmt Assistance					\$ -	WD											
	Total	\$ 3,200	\$ -	\$ (3,200)	\$ -	\$ (3,200)												
Zebra Mussels	Work Task	CLFLWD	Grants/Other	BWS	Other	Total Expense												
	Samplers					\$ -	WD											
	Total	\$ -	\$ -	\$ -	\$ -	\$ -												
Watercraft Inspections*	Work Task	CLFLWD	Grants/Other	BWS	Other	Total Expense												
	Inspection Hours	\$ 18,000	\$ 38,900	\$ -	\$ (56,900)	\$ (56,900)	WD/Chisago Co.											
	Total	\$ 18,000	\$ 38,900	\$ -	\$ (56,900)	\$ (56,900)												
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					\$ -												
	Total	\$ -	\$ -	\$ -	\$ -	\$ -												
2020 General Program Management							WD/EOR											

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

*Watercraft inspection funding sources include:

- CLFLWD Levy: \$18,000 (3 accesses)
- Washington County AIS Prevention grant rec. award: \$15,500 (same as last year)
- Forest Lake Lake Association: \$2,500
- City of Forest Lake: \$20,000

Forest Lake Water Quality Goals & Measured Averages							
	2020 Goal	2030 Goal	2040 Goal	5-Year Avg (2005-2009)	5-Year Avg (2010-2014)	5-Year Avg (2015-2019)*	
Water quality rating at or above	C	C	B	C+	C+	C+	
Mean summer phosphorus concentration below (µg/L)	37	37	30	36	34	37	
Mean summer secchi depth at or above (ft)	5	5	7	4.2	5.3	6.3	

*2015-2019 average is in progress and based on the first 4 years of data. Note that the changes presented in the 5-year averages do not represent a statistical trend. A scientific trend analysis of District lake water quality is available in the District's 2017 Comprehensive Data Review available at www.clflwd.org/data.php.

DNR Lake Classification: General Development

2019 Work	Status Summary
CLP surveys & management	Treated 99.12 acres. BWS found good control in treatment areas.
EWM surveys & coord.	BWS delienated 49.34 acres of EWM. FLLA contracted Clarke Aquatic Services for the treatment. EWM control was very good.
FR surveys & management	Only 0.06 acres of flowering rush remained at the end of the season following two spot treatments and a seed head removal.
ZM population monitoring	ZM discovered in 2015, densities increasing over time. Staff worked with two volunteers in 2019 to monitor sampling plates.
Watercraft inspections	The District achieved 2776 hours worth of watercraft inspections on Forest Lake this season resulting in 5,496 surveys.

2020 Work	Status Summary
CLP surveys & management	Lake Management Inc. treated 58.29 acres of CLP on May 12th. Blue Water Science found the treatment had great control in the 3rd basin, but poor control in basins 1 and 2.
EWM surveys & coord.	FLLA treated 53.83 acres of EWM on July 9th. Treatment was found to be very effective.
FR surveys & management	After two treatments and a seed head removal less than 0.07 acres of FR remained.
ZM population monitoring	Two volunteers hung samplers plates from their docks this year.
Watercraft inspections	In 2020, the watercraft inspection program performed 8093 surveys over the course of 2594.5 hours.
Purple Loosetrife	On August 18th, PLM treated approximately 45 PL sites.



Comfort Lake

2020 Yearend Summary

Curly-leaf Pondweed (CLP)

- **Delineation:** Blue Water Science (BWS) performed a delineation survey on April 29th, identifying only one light growth patch on the north side of the lake.
- **Treatment:** The District did not treat CLP on Comfort Lake in 2020 (same as the last four years).
- **Assessment:** BWS performed assessment on June 17th and only found one patch of moderate growth on the north end of the lake and one light growth spot on the southwest end.
- **Reports:**
 - BWS: Delineation and Assessment report (Summary distributed in December, full report in January 2021).

Eurasian Watermilfoil

- **Treatment #1:** The District did not treat EWM in 2020. However, the Comfort Lake Association (CLA) had purchased a boat and herbicide application equipment in 2019 and conducted their own treatment on May 29, 2020 on the southern portion of the lake. Typically, EWM treatments are conducted in late-June, but the CLA chose to treat early to avoid harm to native water lilies.
- **Delineation:** BWS performed a delineation survey on June 17, 2020 and found treatment had okay control.
- **Treatment #2:** In late-July, the CLA performed a second EWM treatment on the northern two bays of the lake.
- **Assessment:** BWS performed the assessment survey on September 4, 2020 and found light to moderate growth of EWM around the perimeter of the lake.
- **Reports:**
 - BWS: Delineation and Assessment report (Summary distributed in December, full report in January 2021).

Zebra Mussels

- **Monitoring:** Two zebra mussel sampling plates were deployed on Comfort Lake this year. At the end of the summer the plates had several mature zebra mussels attached to it. Zebra mussels were first discovered in Comfort Lake in 2017. It is expected that densities will continue to rise over the upcoming years, then potentially crash after reaching a peak.

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

- **Hours:** Inspectors performed 527.5 inspection hours on Comfort Lake. Based on funding allocations, this year's goal was 520 hours.
- **Surveys:** 1221 inspection surveys were performed on Comfort Lake.
- **Reports:**
 - Chisago County: 2020 AIS Prevention Report (Expected in early 2021)
 - CLFLWD: 2020 Watercraft Inspection Program Report

Comfort Lake AIS Prevention and Management



		Revenues		Expenses		Annual Balance	Timeline (2019-2020)											
		CLFLWD	Grants/Other	BWS	Other		April	May	June	July	August	September	October	November	December	January	February	
		\$ 11,000	\$ 5,500	\$ (3,200)	\$ (11,500)	\$ 1,800												
Curly-Leaf Pondweed	Work Task	CLFLWD	Grants/Other	BWS	Other	Total Expense												
	Surveys-Report			\$ (1,400)		\$ (1,400)	BWS											
	Permitting/Public Notice	\$ 2,500				\$ -	WD											
	Management (N/A)					\$ -												
	Total	\$ 2,500	\$ -	\$ (1,400)	\$ -	\$ (1,400)												
Eurasian Watermilfoil	Work Task	CLFLWD	Grants/Other	BWS	Other	Total Expense												
	Surveys-Report	\$ 2,500		\$ (1,800)		\$ (1,800)	BWS											
	Coordination/Mgmt Assistance					\$ -	WD											
	Total	\$ 2,500	\$ -	\$ (1,800)	\$ -	\$ (1,800)												
Zebra Mussels	Work Task	CLFLWD	Grants/Other	BWS	Other	Total Expense												
	Samplers					\$ -	WD											
	Total	\$ -	\$ -	\$ -	\$ -	\$ -												
Watercraft Inspections*	Work Task	CLFLWD	Grants/Other	BWS	Other	Total Expense												
	Inspection Hours	\$ 6,000	\$ 5,500		\$ (11,500)	\$ (11,500)	WD/Chisago Co.											
	Total	\$ 6,000	\$ 5,500	\$ -	\$ (11,500)	\$ (11,500)												
Macrophyte Survey	Work Task	CLFLWD	Grants/Other	BWS	Other	Total Expense												
	Point-Intercept Survey					\$ -												
	Total	\$ -	\$ -	\$ -	\$ -	\$ -												
2020 General Program Management							WD/EOR											

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

*Planned watercraft inspection funding sources include:

CLFLWD levy: \$6,000 (1 access)

Chisago County AIS Prevention Funds: \$5,000

Comfort Lake Association: \$500

Wyoming: TBD

Comfort Lake Water Quality Goals & Measured Averages						
	2020 Goal	2030 Goal	2040 Goal	5-Year Avg (2005-2009)	5-Year Avg (2010-2014)	5-Year Avg (2015-2019)*
Water quality rating at or above	C	C	B	B-	B-	B-
Mean summer phosphorus concentration below (µg/L)	40	40	30	30	35	32
Mean summer secchi depth at or above (ft)	5	5	7	6.0	4.8	6.1

*2015-2019 average is in progress and based on the first 4 years of data. Note that that the changes presented in the 5-year averages do not represent a statistical trend. A scientific trend analysis of District lake water quality is available in the District's 2017 Comprehensive Data Review available at www.cflwd.org/data.php.

DNR Lake Classification: General Development

2019 Work	Status Summary
CLP surveys & management	Blue Water Science delineated CLP in the lake and determined growth was not abundant enough for treatment.
EWM surveys & coordination	BWS conducted delineation and assesment surveys. No EWM treatments in 2019.
Zebra mussel monitoring	ZM discovered in 2017, densities increasing over time. One sampler plate volunteer in 2019.
Watercraft inspections	The District achieved 566 hours worth of watercraft inspections, resulting in 884 surveys.

2020 Work	Status Summary
CLP surveys & management	No treatment planned for 2020. Blue Water Science only found one patch of light growth in the whole lake.
EWM surveys & coordination	The Comfort Lake Association treated EWM on May 29th and in late-July. BWS found EWM around the perimeter of the lake following treatment.
Zebra mussel monitoring	Two samplers plates deployed on the lake this year.
Watercraft inspections	In 2020, the watercraft inspection program performed 1221 surveys over the the course of 537.8 hours.
Purple Loosestrife	BWS found no PL during survey of shoreline