



2019 AIS Prevention & Management Plan

Comfort Lake–Forest Lake Watershed District

Lake Management Districts:

Bone Lake District

- Moody Lake
- Bone Lake

Little Comfort Lake District

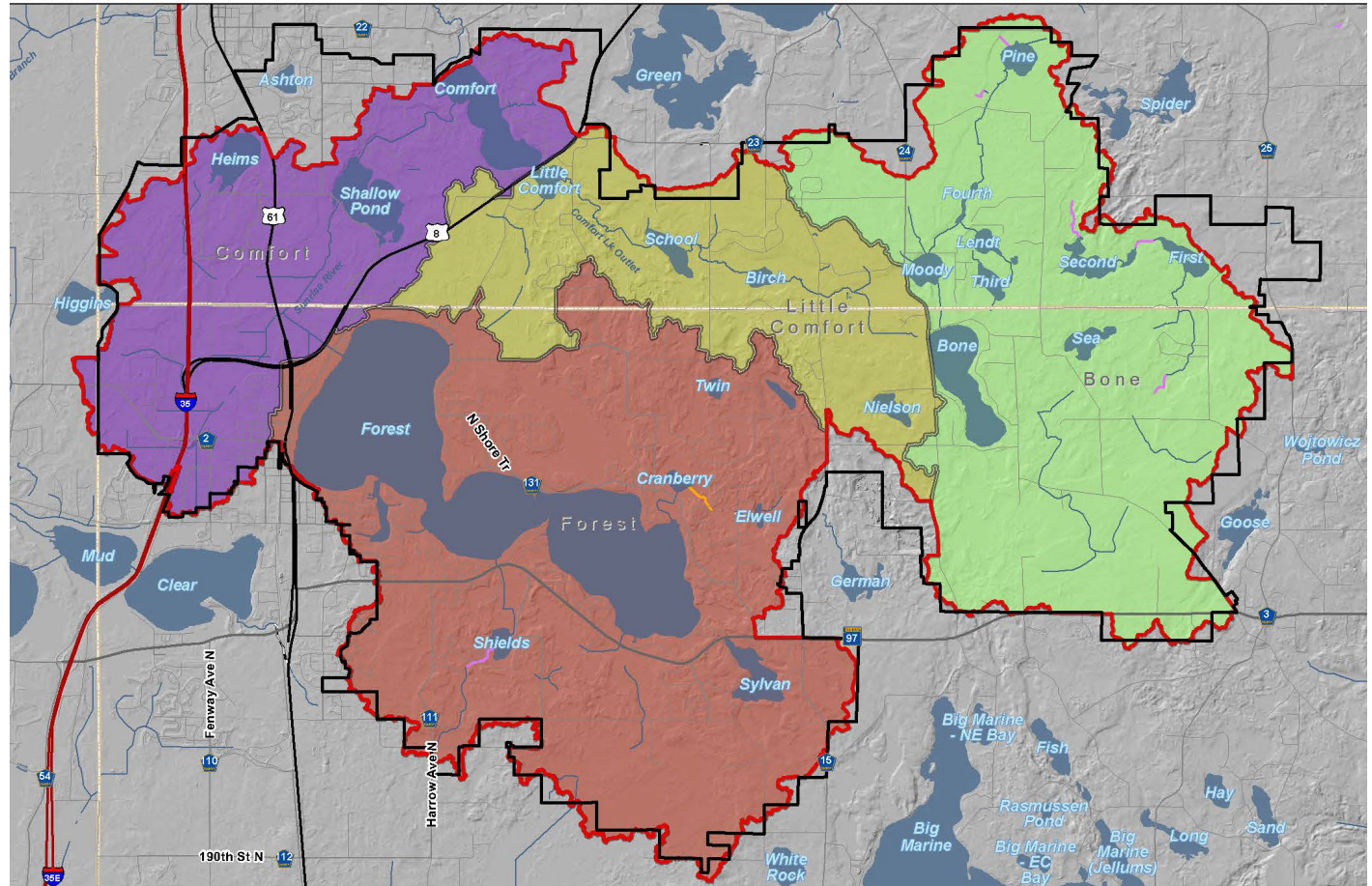
- Little Comfort Lake

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			(\$1,736)		\$5,264		
Moody	\$4,000	\$0	(\$1,200)	(\$2,800)		\$0	22	\$181.82
Bone	\$11,000	\$4,100	(\$3,900)	(\$11,200)		\$0	124	\$121.77
Little Comfort	\$0	\$0	\$0	\$0		\$0	16	\$0.00
Shields	\$4,000	\$0	(\$1,200)	(\$18,800)		(\$16,000)	22	\$909.09
Keewahtin	\$0	\$0	\$0	\$0		\$0	67	\$0.00
Forest	\$106,876	\$72,380	(\$12,300)	(\$154,855)		\$12,101	1,531	\$109.18
Comfort	\$13,700	\$5,500	(\$5,800)	(\$11,500)		\$1,900	90	\$192.22
Total	\$146,576	\$81,980	(\$24,400)	(\$200,891)	\$ (2,779.25)	\$486		

EOR AIS Program Management Costs		
Month of Services	Invoice #	Expense
January	00376-0019-1	\$ (1,826.00)
February	00376-0019-2	\$ (953.25)
March		
April		
May		
June		
July		
August		
September		
October		
November		
December		
	Running Total	\$ (2,779.25)

Budget Notes
*District-wide budget line items include General Program Mgmt, Comprehensive Plan & Policy Development, and AIS Prevention at Boat Launch Sites



Moody Lake

Management Narrative

Aeration system: The winter aerator was activated for the season on January 8, 2019 and will remain active until all ice has melted on the lake. After deactivating the system, District and EOR staff will canoe around Moody Lake and collect each of the thin ice signs. 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): The 2019 budget contains \$4,000 for Moody Lake AIS Management. Staff have been in communication with the Department of Natural Resources (DNR) regarding permitting for a potential curly-leaf pondweed treatment on Moody Lake this spring. Moody Lake is a Natural Environment Lake (unlike Bone, Forest, and Comfort which are either Recreational Development or General Development lakes). Due to this fact, regulations for using herbicides in Moody Lake are stricter than some other lakes in the District. In 2015, the District's permit application for herbicide treatment of 7.5 acres was denied. At that time the District explored the option for a mechanical harvest of CLP, and it was determined to have low cost-effectiveness due to the predicted difficulty launching at the lake. In 2015, the DNR suggested that, prior to treating curly-leaf pondweed with herbicide, the District should first address external loading and other sources of internal phosphorus loading by performing an alum treatment. With the near-completion of the Moody Lake Wetland Rehabilitation project and the whole-lake alum treatment, the District resumed conversations with the DNR regarding a potential treatment. Communications are ongoing, but at this point it appears that results of the delineation survey will have a significant impact on whether DNR will allow an herbicide treatment. Note that, according to Blue Water Science, CLP has the potential to release 7 pounds-phosphorus per acre of heavy growth. The 7 pounds-TP/ac is based on CLP tissue analysis and field collected biomass. Eight acres of heavy CLP growth in Moody has the potential to release 50 pounds of TP with CLP decomposition.

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	\$ -	\$ (1,200)	\$ (2,800)	\$ -											
Curly-Leaf Pondweed	Work Task	CLFLWD	Grants	BWS	Other	Total Expense											
	Surveys-Report			\$ (1,200)		\$ (1,200)	BWS								BWS		
	Permitting/Public Notice	\$ 4,000				\$ -	WD										
	Management				\$ (2,800)	\$ (2,800)		TBD									
	Total	\$ 4,000		\$ (1,200)	\$ (2,800)	\$ (4,000)											
Aeration System	Work Task	CLFLWD*	Grants	BWS	Other	Total Expense											
	Permitting					\$ -					WD						
	Setup - Public Notice					\$ -										WD	
	Operation/Inspections - Electricity					\$ -	WD									WD	
	Total	\$ -	\$ -	\$ -	\$ -	\$ -											
2019 General Program Management							WD/EOR										

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				
	2020 Goal	2030 Goal	2040 Goal	PRELIMINARY* 5-Year Avg (2014-2018)
Water quality rating at or above	C	C	C	D
Mean summer phosphorus concentration below (µg/L)	60	40	40	103
Mean summer secchi depth at or above (ft)	3.3	4.6	4.6	2.2

*2018 Monitoring Report not yet finalized

2018 Work	Status Summary
Aeration system	System was deactivated after ice-out and signs collected.
Curly-leaf pondweed	Chemical treatment of CLP not allowed by the DNR in the past. Staff has restarted conversations with DNR in 2018 re 2019 treatment.

2019 Work	Status Summary
Aeration system	Activated on 1/8/2019. Will be deactivated after spring ice-out.
Curly-leaf pondweed	Blue Water Science to survey this spring. Discussions begun with DNR regarding herbicide permitting. Delineation results will be significant factor in permitting.



Bone Lake

Management Narrative

Curly-leaf pondweed (CLP): Blue Water Science will perform a delineation survey of curly-leaf pondweed in Bone Lake shortly after the ice has melted from the lake. For reference, past years' CLP treatments are as follows – 2018: hand pulling only, 2017: treated 3.89 acres, 2016: no treatment, 2015: treated 2.45 acres. Blue Water Science plans to perform a delineation survey after spring ice-off.

Eurasian watermilfoil (EWM): As was the case in 2018, the 2019 budget does not contain any funding for Eurasian watermilfoil treatment. The District will still hire Blue Water Science to conduct delineation and assessment surveys. In 2018 and 2017, the District did not treat any EWM on Bone Lake. In 2016, the District treated 0.69 acres of EWM.

Fish barriers: Since October 30, 2018, the Bone Lake fish barriers have been completely opened in anticipation of spring snow runoff. The barriers 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. The latest stop log information can be found using this link: [Bone Lake Fish Barrier Operations Log](#).

Rough fish management: The 2019 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 2021 – gill net only survey, 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: A zebra mussel sampling plate will be deployed at one private dock on Bone Lake in 2019. No zebra mussels have been detected in Bone Lake to date.

Watercraft inspections: An estimated total of approximately \$10,100 will be available from the CLFLWD budget and project partners to support the 2019 watercraft inspection program on Bone Lake. This would support around 460 hours of inspections. In 2018, 520 inspection hours and 500 inspection surveys were completed. Inspector shifts will prioritize weekend and holiday hours to ensure that program funds are being spent efficiently. The inspection program will run from mid-May to mid-October.

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	\$ 4,100	\$ (3,900)	\$ (11,200)	\$ -											
Curly-Leaf Pondweed (CLP)	Work Task	CLFLWD	Grants/Other	BWS*	Other	Total Expense											
	Surveys-Report			\$ (2,000)		\$ (2,000)	BWS								BWS		
	Permitting/Public Notice	\$ 3,100				\$ -	WD										
	Management				\$ (1,100)	\$ (1,100)	TBD										
	Total	\$ 3,100	\$ -	\$ (2,000)	\$ (1,100)	\$ (3,100)											
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	\$ -				\$ -	WD										
	Total	\$ -	\$ -	\$ -	\$ -	\$ -											
Watercraft Inspections*	Work Task	CLFLWD	Grants/Other	BWS	Other	Total Expense											
	Inspection Hours	\$ 6,000	\$ 4,100		\$ (10,100)	\$ (10,100)	WD/Chisago Co.										
	Total	\$ 6,000	\$ 4,100	\$ -	\$ (10,100)	\$ (10,100)											
2019 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)
- Washington County AIS Prevention grant rec. award: \$1,000 (same as last year)
- Bone Lake Association: \$2,500
- City of Scandia: \$1,000
- Estimated Scandia Lions Club: \$500

Bone Lake Water Quality Goals				
	2020 Goal	2030 Goal	2040 Goal	PRELIMINARY* 5-Year Avg (2014-2018)
Water quality rating at or above	C	C	B	C
Mean summer phosphorus concentration below (µg/L)	40	40	30	37
Mean summer secchi depth at or above (ft)	4	4	7	4.9

*2018 Monitoring Report not yet finalized

2018 Work	Status Summary
CLP surveys and management	Delineated two, 0.5-acre patches on 5/8/18. Coord. w/ BLA/BWS for hand pulling effort on June 28.
EWM surveys and coordination	Delineated growth in multiple spots on 6/6/18. Included EWM pulling during CLP pulling effort, per BWS rec.
Zebra mussel early detection	No zebra mussel sightings in 2018
Common carp management	Continued operation of fish barriers per O&M manual
Watercraft inspections	520 inspection hours & 500 inspections performed
Point-Intercept macrophyte survey	Completed August 2

2019 Work	Status Summary
CLP surveys and management	Blue Water Science to survey this spring.
EWM surveys and coordination	Blue Water Science to survey this spring/summer.
Zebra mussel early detection	Continue to work with volunteer to monitor plate.
Common carp management	Continue operation of fish barriers per O&M manual.
Watercraft inspections	Finalize budget figures and begin hiring this winter/spring.



Little Comfort Lake

Management Narrative

Curly-leaf pondweed (CLP): The 2019 budget does not contain any funding for curly-leaf pondweed management in Little Comfort Lake. With recent hiring efforts, staff will likely have capacity in 2019 to perform a simple survey to confirm whether CLP continues to grow at primarily light densities (as in recent years) and that management is not needed in order to preserve water quality. The last survey was performed by staff in 2017.

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 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
		\$ -	\$ -	\$ -	\$ -	\$ -											
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	\$ -	\$ -	\$ -	\$ -	\$ -											
2019 General Program Management																	

2018 Work	Status Summary
CLP survey	Low densities in previous years suggest full delin/assessment not necessary.
Zebra mussel early detection	No sampler plate in 2018. Could not find volunteer.

Little Comfort Lake Water Quality Goals				
	2020 Goal	2030 Goal	2040 Goal	PRELIMINARY* 5-Year Avg (2014-2018)
Water quality rating at or above	C	C	B	C
Mean summer phosphorus concentration below (µg/L)	40	40	30	61
Mean summer secchi depth at or above (ft)	5	5	7	4.3

2019 Work	Status Summary
CLP survey	Staff may survey if feasible
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

*2018 Monitoring Report not yet finalized



Shields Lake

Management Narrative

Fish barrier: The mechanical fish barrier will be installed prior to July 1, 2019. District staff will continue to operate the electric fish barrier as is, pursuant to Administrator discretion.

Curly-leaf pondweed (CLP): The 2019 budget contains \$4,000 for Shields Lake AIS Management. Staff have been in communication with the Department of Natural Resources (DNR) regarding permitting for a potential curly-leaf pondweed treatment on Shields Lake this spring. Like Moody Lake, Shields Lake is classified as Natural Environment, and as such has stricter herbicide regulations. With the whole-lake alum treatment slated for fall 2019, the District will aim to manage other sources of internal loading such as CLP and common carp this year.

Rough Fish Management: Carp Solutions Inc. completed electrofishing surveys in August and September 2018. Carp Solutions estimated the biomass of carp currently in the lake is 530 kg/ha, or 5.3 times the recommended management threshold of 100 kg/ha (Bajer et al. 2009). The average mass was 5.9 kg (13 pounds) and length of 783 mm (30.8 inches). With an estimated population of 1,083 carp, it is estimated that there is approximately 14,000 pounds of carp in the lake. Carp Solutions recommended that at least 200, but ideally between 600-900 carp should be removed from the lake, or 60-80% of the population. The relatively large size of these carp means that the fish would have more power to dig deeper into sediments, which would not only cause internal phosphorus loading, but also potentially reduce the lifespan of the proposed Shields Lake alum treatment to be completed in fall 2019. Over the winter, staff researched pursuing a carp removal effort prior to fall 2019 either through a commercial fisherman or through other netting techniques. Carp Solutions provided a quote to perform box netting (\$16,000) and pre- and post-netting survey (\$6,500) for a total cost of \$22,500. Alternatively, staff has been in contact with the local commercial fisherman who may be interested in performing an open water seining (large-scale netting) this spring. In the case of the commercial fisherman, the District would want to provide a mobilization fee of \$1,000-\$2,000 plus pay 25 to 50 cents per pound removed. Staff recommends capping the per-pound payment to \$10,000. Therefore, the District would pay a maximum of \$12,000 for the commercial seining. This information is also provided in an accompanying memorandum and recommended board action to allocate reserve funds to this activity.

Zebra mussels: Staff continues to seek a volunteer who will monitor a sampler plate on their dock. Staff have not received any reports of zebra mussels in Shields Lake to date.

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	\$ -	\$ (1,200)	\$ (18,800)	\$ (16,000)											
Fish Barrier*	Work Task	CLFLWD	Grants	Staff/EOR	Other	Total Expense											
	Retrofit Project					\$ -	Contractor										
	Planning/Inspections/Oversight					\$ -	WD/EOR										
	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			\$ (1,200)		\$ (1,200)	BWS					BWS					
	Permitting/Public Notice	\$ 4,000				\$ -	WD										
	Management				\$ (2,800)	\$ (2,800)	TBD										
	Total	\$ 4,000	\$ -	\$ (1,200)	\$ (2,800)	\$ (4,000)											
Rough Fish Management	Work Task	CLFLWD	Grants	BWS	Other	Total Expense											
	Survey				\$ (16,000)	\$ (16,000)	Contractor										
	Total	\$ -	\$ -	\$ -	\$ (16,000)	\$ (16,000)											
2019 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				
	2020 Goal	2030 Goal	2040 Goal	PRELIMINARY* 5-Year Avg (2014-2018)
Water quality rating at or above	D	C	C	D-
Mean summer phosphorus concentration below (µg/L)	100	60	60	243
Mean summer secchi depth at or above (ft)	4.26	4.26	4.26	2.4

*2018 Monitoring Report not yet finalized

2018 Work	Status Summary
Zebra mussel early detection	No sampler plate in 2018
Fish barrier upgrades/maint.	Construction to be completed by July 1, 2019
Curly-leaf pondweed planning	Staff in communication with MN DNR about managing CLP in Shields Lake after the watershed P load is addressed
Rough fish management	Three electrofishing surveys completed in Aug/Sept, est. biomass ~530 kg/ha, carp removal recommended

2019 Work	Status Summary
Zebra mussel early detection	Continue to try to find a volunteer to monitor a zebra mussel sampler plate on their dock. In past years, public dock sampler went missing.
Fish barrier upgrades/maint.	Construction to be completed by July 1, 2019.
Curly-leaf pondweed	Blue Water Science to survey this spring. Discussions begun with DNR regarding herbicide permitting. Delineation results will be significant factor in permitting.
Rough fish management	Propose to perform carp removal prior to Shields Lake alum treatment in fall 2019. 2018 survey estimated population: 1,083 carp; estimated biomass: 529.8 kg/ha. This is more than 5 times the desired management threshold of 100 kg/ha (Bajer et al. 2009).



Lake Keewahtin

Management Narrative

AIS early detection survey: Staff plan to perform an early detection survey at Lake Keewahtin this summer, potentially with assistance from Blue Water Science as necessary. During this survey, staff will look for new invasive species such as Eurasian watermilfoil, flowering rush, or starry stonewort and monitoring the distribution of the existing invasive species, purple loosestrife and curly-leaf pondweed.

Purple loosestrife: Locations of purple loosestrife will be documented in the 2019 AIS early detection survey. Biocontrol insects may be collected and released to supplement existing populations if that is deemed necessary during the early detection survey.

Zebra mussels: A zebra mussel sampling plate will be deployed at one private dock on Lake Keewahtin in 2019. No zebra mussels have been detected in Lake Keewahtin to date.

Curly-leaf pondweed (CLP): CLP growth will be observed during the AIS detection survey this summer and hand-pulling feasibility will be evaluated. In previous years, there has not been enough growth of curly-leaf pondweed to warrant chemical treatment.

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
		\$ -	\$ -	\$ -	\$ -	\$ -											
Purple Loosestrife	Work Task	CLFLWD	Grants	BWS	Other	Total Expense											
	Check-Up Assessment					\$ -				WD							
	Biocontrol Collection and Release					\$ -				WD							
	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	\$ -	\$ -	\$ -	\$ -	\$ -											
Curly-leaf Pondweed	Work Task	CLFLWD	Grants	BWS	Other	Total Expense											
	Hand pulling					\$ -			TBD								
	Total	\$ -	\$ -	\$ -	\$ -	\$ -											
2019 General Program Management							WD/EOR										

Blue Water Science quote for 2019 AIS Detection survey is \$1,100. May not be necessary depending on staff availability to perform survey. Recent hiring will likely result in ability to perform these types of surveys in-house.

2018 Work	Status Summary
AIS early detection survey	Completed on Aug 16, no new invasives found
Purple loosestrife check-up	Completed on Aug 16
Zebra mussel early detection	Volunteer observed no ZM in 2018
Curly-leaf pondweed pulling	Plan to perform in 2019

Lake Keewahtin Water Quality Goals				
	2020 Goal	2030 Goal	2040 Goal	PRELIMINARY 5-Year Avg (2013-2017)*
Water quality rating at or above	A	A	A	A
Mean summer phosphorus concentration below (µg/L)	20	20	20	15
Mean summer secchi depth at or above (ft)	10	10	10	14.8

*2018 data not yet available at time of this report

2019 Work	Status Summary
AIS early detection survey	Plan for staff or potentially Blue Water Science to perform in late summer.
Purple loosestrife check-up	Plan for staff to perform in summer.
Zebra mussel early detection	Continue to work with same volunteer.
Curly-leaf pondweed pulling	Perform as capacity allows.



Forest Lake

Management Narrative

Curly-leaf pondweed (CLP): Blue Water Science will perform a delineation survey of curly-leaf pondweed in Forest Lake shortly after the ice has melted from the lake. For reference, past years' CLP treatments are as follows – 2018: 16.6 acres, 2017: 169 acres, 2016: 114 acres, 2015: 88 acres. Blue Water Science performed calculations in 2017 which showed that whole lake control of curly-leaf pondweed can be achieved when 131 acres are treated. This means that the concentration of chemical in the water throughout the entire lake is high enough to control CLP if 131 acres are treated. For this reason, staff recommends that the CLFLWD does not treat more than 131 acres of CLP in years going forward unless extenuating circumstances present themselves.

Eurasian watermilfoil (EWM): As was the case in 2018, the 2019 budget does not contain any funding for Eurasian watermilfoil treatment. The District will still hire Blue Water Science to conduct delineation and assessment surveys. In 2018 the Forest Lake Lake Association obtained a grant from Washington County and treated EWM. In 2017, the District treated a total of 33.4 acres of EWM. In 2016, the District treated a total of 13.9 acres of EWM.

Flowering rush (FR): The flowering rush management program that has been implemented by the CLFLWD since 2014 has been successful and will continue in 2019. The details of the program have gone through a few iterations and improvements year after year. Staff met with Blue Water Science, PLM, EOR, and FLLA earlier this year to discuss the upcoming season's plan. The proposed program for 2019 is roughly as follows: pre-treatment delineation survey (June), spot treatment #1 (June), follow-up survey (July), spot treatment #2 (July), spot treatment #3 (August), manual flower removal #1 (August), manual flower removal #2 if necessary (August/September), final effectiveness survey (September). Overall, this year's plan will entail more frequent, smaller herbicide spot treatments as opposed to two rounds of large-scale herbicide treatments that were the case in previous years. With FR density decreasing drastically over the years, it is possible to reduce the amount of herbicides being used this year, while still maintaining control.

Zebra mussels: Zebra mussels have now been detected throughout all of 1st, 2nd, and 3rd Lakes. The sampling plate program will continue in 2019 in order to provide information about zebra mussel population densities post-colonization.

Watercraft inspections: An estimated total of approximately \$59,500 will be available from the CLFLWD budget and project partners to support the 2019 watercraft inspection program on Forest Lake. This would support approximately 2,700 hours of inspections. In 2018, 1,983 paid inspection hours and 4,577 inspection surveys were completed (excluding DNR inspections). Inspector shifts will prioritize weekend and holiday hours. The inspection program will run from mid-May to mid-October.

Plant Harvester: The City of Forest Lake plans to operate the plant harvester similarly to how it was operated last year. 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. Curly-leaf pondweed beds are not avoided, because harvesting occurs in mid-late summer after the curly-leaf pondweed has died back.

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	
		\$ 106,876	\$ 72,380	\$ (12,300)	\$ (154,855)	\$ 12,101												
Curly-Leaf Pondweed	Work Task	CLFLWD	Grants/Other	BWS	Other	Total Expense												
	Delin-Report			\$ (2,900)		\$ (2,900)	BWS			BWS								
	Permitting/Public Notice	\$ 29,625				\$ -	WD											
	Management		\$ 16,380		\$ (80,000)	\$ (80,000)	TBD											
	Total	\$ 29,625	\$ 16,380	\$ (2,900)	\$ (80,000)	\$ (82,900)												
Flowering Rush	Work Task	CLFLWD	Grants/Other	BWS	Other	Total Expense												
	Delin-Report			\$ (6,100)		\$ (6,100)	BWS			BWS								
	Permit/Outreach/Pub. Notice	\$ 29,625	\$ 900		\$ (900)	\$ (900)	WD											
	Management		\$ 13,600		\$ (14,348)	\$ (14,348)	PLM											
	Total	\$ 29,625	\$ 14,500	\$ (6,100)	\$ (15,248)	\$ (21,348)												
Eurasian Watermilfoil	Work Task	CLFLWD	Grants/Other	BWS	Other	Total Expense												
	Surveys-Report	\$ 29,625		\$ (3,300)		\$ (3,300)	BWS			BWS								
	Coordination/Mgmt Assistance					\$ -	WD											
	Total	\$ 29,625	\$ -	\$ (3,300)	\$ -	\$ (3,300)												
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	\$ 41,500	\$ -	\$ (59,500)	\$ (59,500)	WD/Chisago Co.											
	Total	\$ 18,000	\$ 41,500	\$ -	\$ (59,500)	\$ (59,500)												
Plant Harvester	Work Task	CLFLWD	Grants/Other	BWS	Other	Total Expense												
	DNR Aquatic Plant Mgmt Permitting				\$ (107)	\$ (107)	WD											
	Harvester Operation					\$ -	City of Forest Lake											
	Total	\$ -	\$ -	\$ -	\$ (107)	\$ (107)												
Macrophyte Survey	Work Task	CLFLWD	Grants/Other	BWS	Other	Total Expense												
	Point-Intercept Survey					\$ -	BWS											
		\$ -	\$ -	\$ -	\$ -	\$ -												
2019 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: \$23,500

2018 Work	Status Summary
CLP surveys & management	Treated all delineated 16.6 acres on 5/30/18.
EWM surveys & coord.	Delineation on 6/15/18. FLLA treated on 7/23 & 7/24.
FR surveys & management	2 rounds of treatment & flower cutting. Assessment survey found good control (0.06 acres of FR).
ZM population monitoring	ZM discovered in 2015, densities increasing over time.
Watercraft inspections	1,983 paid inspection hours & 4,577 inspections performed.
Point-Intercept Macrophyte Survey	Completed August 15

Forest Lake Water Quality Goals				
	2020 Goal	2030 Goal	2040 Goal	PRELIMINARY* 5-Year Avg (2014-2018)
Water quality rating at or above	C	C	B	C+
Mean summer phosphorus concentration below (µg/L)	37	37	30	36
Mean summer secchi depth at or above (ft)	5	5	7	6.1

*2018 Monitoring Report not yet finalized

2019 Work	Status Summary
CLP surveys & management	Blue Water Science to survey this spring.
EWM surveys & coord.	Blue Water Science to survey this spring/summer.
FR surveys & management	Plan for alternating surveys and treatments from June through September.
ZM population monitoring	Continue working with volunteers to monitor population
Watercraft inspections	Finalize budget figures and begin hiring this winter/spring



Comfort Lake

Management Narrative

Curly-leaf pondweed (CLP): Blue Water Science will perform a delineation survey of curly-leaf pondweed in Comfort Lake shortly after the ice has melted from the lake. 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): As was the case in 2018, the 2019 budget does not contain any funding for Eurasian watermilfoil treatment. The District will still hire Blue Water Science to conduct delineation and assessment surveys. In 2017, the District treated a total of 3.2 acres of EWM in Comfort Lake. In 2016, the District treated a total of 7.5 acres of EWM.

Zebra mussels: Zebra mussels were discovered in Comfort Lake in 2017. The sampling plate program will continue in 2019 in order to provide information about zebra mussel population densities post-colonization.

Watercraft inspections: An estimated total of \$11,500 will be available from the CLFLWD budget and project partners to support the 2019 watercraft inspection program on Comfort Lake. This would support about 520 hours of inspections. In 2018, 575 inspection hours and 727 inspection surveys were completed. Inspector shifts will prioritize weekend and holiday hours to ensure that program funds are being spent efficiently. The inspection program will run from mid-May to mid-October.

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
		\$ 13,700	\$ 5,500	\$ (5,800)	\$ (11,500)	\$ 1,900											
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					\$ -	TBD										
	Total	\$ 2,500	\$ -	\$ (1,400)	\$ -	\$ (1,400)											
Eurasian Watermilfoil	Work Task	CLFLWD	Grants/Other	BWS	Other	Total Expense											
	Surveys-Report			\$ (1,800)		\$ (1,800)	BWS										
	Coordination/Mgmt Assistance	\$ 2,500				\$ -	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	\$ 2,700		\$ (2,600)		\$ (2,600)	BWS										
	Total	\$ 2,700	\$ -	\$ (2,600)	\$ -	\$ (2,600)											
2019 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

2018 Work	Status Summary
CLP surveys & management	Delineated no significant patches on 5/8/18. Coord. w/ CLA/BWS
EWM surveys & coordination	Delineated widespread growth on 6/6/18. Sent map to CLA. Included EWM pulling during CLP pulling effort, per BWS rec.
Zebra mussel monitoring	ZM discovered in 2017, densities increasing over time
Watercraft inspections	575.5 inspection hours & 727 inspections performed

Comfort Lake Water Quality Goals	2020 Goal	2030 Goal	2040 Goal	PRELIMINARY* 5-Year Avg (2014-2018)
Water quality rating at or above	C	C	B	B-
Mean summer phosphorus concentration below (µg/L)	40	40	30	34
Mean summer secchi depth at or above (ft)	5	5	7	5.7

*2018 Monitoring Report not yet finalized

2019 Work	Status Summary
CLP surveys & management	Blue Water Science to survey this spring.
EWM surveys & coordination	Blue Water Science to survey this spring/summer.
Zebra mussel monitoring	Continue to work with volunteer to monitor sampler plate.
Watercraft inspections	Finalize budget figures and begin hiring this winter/spring.