



# 2017 AIS Program Yearend Summary

## Comfort Lake – Forest Lake Watershed District

### Lake Management Districts:

#### Bone Lake District

- Moody Lake
- Bone Lake

#### Little Comfort Lake District

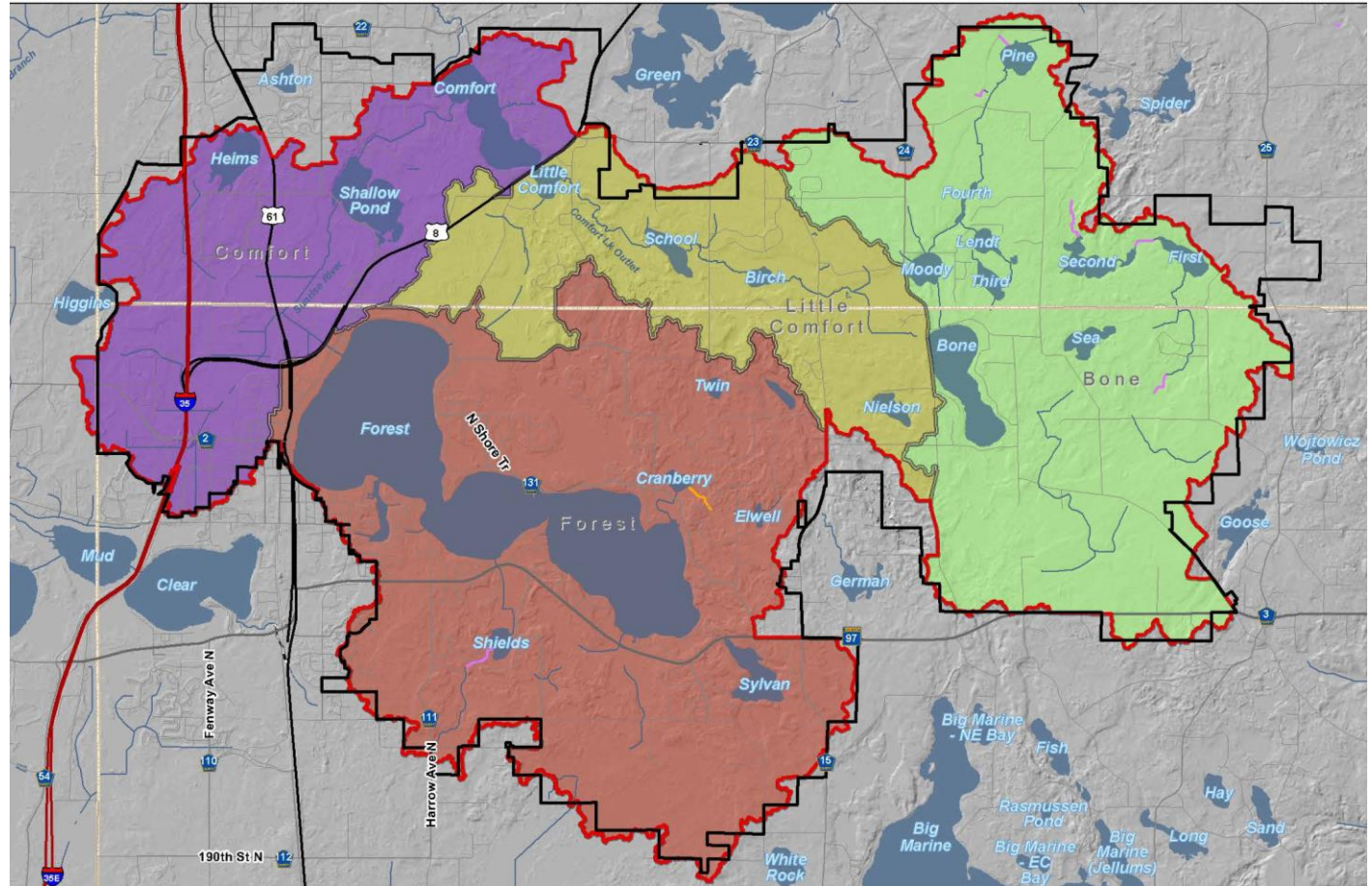
- Little Comfort Lake

#### Forest Lake District

- Shields Lake
- Keewahtin (Sylvan) Lake
- Forest Lake

#### Comfort Lake District

- Comfort Lake



Comfort Lake – Forest Lake Watershed District

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# Budget Summary



Lake	2017 Budget	Grants/Cont.	Yearend Totals			Balance	Littoral Acreage	Expense/Littoral Acre
			Blue Water Science	Contractor/ Other	EOR			
District-Wide*	\$12,900			(\$2,059)		\$10,841		
Moody	\$4,000	\$0	\$0	(\$493)		\$3,507	22	\$22.40
Bone	\$16,600	\$200	(\$4,100)	(\$7,171)		\$5,529	124	\$90.90
Little Comfort	\$1,000	\$0	\$0	\$0		\$1,000	16	\$0.00
Shields**	\$0	\$0	\$0	\$0		\$0	22	\$0.00
Sylvan	\$0	\$0	\$0	\$0		\$0	67	\$0.00
Forest	\$110,500	\$93,965	(\$11,400)	(\$175,381)		\$17,684	1,531	\$122.00
Comfort	\$14,700	\$7,375	(\$3,700)	(\$14,382)		\$3,993	90	\$200.91
<b>Total</b>	<b>\$159,700</b>	<b>\$101,540</b>	<b>(\$19,200)</b>	<b>(\$199,485)</b>	<b>\$ (776.00)</b>	<b>\$41,778</b>		

EOR AIS Program Management Costs		
Month of Services	Invoice #	Expense
January	N/A	\$ -
February	00376-0154-1	\$ (442.75)
March	00376-0154-2	\$ (176.75)
April	00376-0154-3	\$ (80.50)
May	00376-0154-4	\$ (40.25)
June	N/A	\$ -
July	00376-0154-5	\$ (35.75)
August	N/A	\$ -
September	N/A	\$ -
October	N/A	\$ -
November	N/A	\$ -
December		
	Running Total	\$ (776.00)

Budget Notes
*District-wide budget line items include Rapid Response Fund, Invasive Species Policy Development & Mgmt Plan, Zebra Mussel Monitoring, Invasive Species Control Pilot Projects, and Boat Launch Improvements/Upkeep.
**Budget and expense dollars for Shields Lake fish barrier have been removed because not funded under 3011 AIS Program and constitute a one-time capital expense rather than ongoing AIS management.



# Moody Lake

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## 2017 Yearend Summary

### Winter Aeration System

- Continued operation of aeration system in winter months to increase dissolved oxygen and reduce winterkills. This is the second winter the District has run the aerator.
- Oxygen levels were monitored throughout winter. The effect of aeration system and mild winter conditions kept Moody Lake's dissolved oxygen levels well-above the thresholds needed to support game fish species over the winter.
- After deactivating the system in March, District and EOR staff canoed around Moody Lake and collected each of the thin ice signs.
- Currently preparing to publish public notice warning about thin ice during aeration operation and explanation of aeration system purpose. Additionally, a mailer to Moody Lake residents will be sent out including information about the aerator, deep sediment core results, and Moody Lake wetland rehabilitation project.

### Curly-leaf Pondweed (CLP)

- The District did not treat curly-leaf pondweed in Moody Lake in 2017. In 2015 the District was notified by the DNR that the external phosphorus load to Moody Lake should be addressed before internal loading from CLP is managed via chemical treatment. Therefore, a permit for herbicide use was not granted. This is largely due to the fact that Moody Lake is classified as a Natural Environment Lake (this is unlike most other District lakes which are classified as Recreational Development or General Development).
- The District may want to give more consideration to CLP after major sources of phosphorus loading have been addressed by the current Moody Lake Wetland Rehabilitation project.

### Fish Survey

- District staff 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 not yet scheduled.
- Since the District performed a survey in 2015, it should consider doing so again around 2020 or 2021.

# Moody Lake Management



		Sub Totals				Annual	Timeline										
		Budget	Grants	BWS	Other	Balance	April	May	June	July	August	September	October	November	December	January	February
Moody Lake 2017 Activities		\$ 4,000	\$ -	\$ -	\$ (493)	\$ 3,507											
Curly-Leaf Pondweed	Work Task	2016 Budget				Total Expense											
	Survey					\$ -											
	Summary	\$ 1,000				\$ -											
	Total	\$ 1,000		\$ -	\$ -	\$ 1,000											
Aeration System	Work Task	2017 Budget*	Grants	BWS	Other	Total Expense											
	Permitting					\$ -					WD						
	Setup - Public Notice	\$ -			\$ -	\$ -											WD/EOR
	Operation/Inspections - Electricity				\$ (493)	\$ (493)											WD/EOR
	Total	\$ -	\$ -	\$ -	\$ (493)	\$ (493)											
Rough Fish Management	Work Task	2017 Budget	Grants	BWS	Other	Total Expense											
	Survey	\$ 3,000				\$ -											
	Total	\$ 3,000	\$ -	\$ -	\$ -	\$ -											
2017 Work Plan and Budgeting							WD/EOR										

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

2016 Work	Status
Aeration system permit	Approved
Aeration system public notice	Published two in local papers
Aeration system run time	January 9, 2017 - ice out

Moody Lake Water Quality Goals					
	2020 Goal	2030 Goal	2040 Goal	2016 Data	5-Year Average
Water quality rating at or above	C	C	C	D+	D
Mean summer phosphorus concentration below (mg/L)	60	40	40	104	116
Mean summer secchi depth at or above (ft)	3.3	4.6	4.6	2.7	2.7

2017 Work	Status
CLP Survey	No survey or treatment in 2017 (chemical treatment not allowed by DNR until watershed P load addressed)
Aeration System	Ongoing permitting, operation and maintenance
Rough fish survey	Last survey performed in 2015. Next survey should occur in 2020 or 2021.



# Bone Lake

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## 2017 Yearend Summary

### Curly-leaf Pondweed (CLP)

- **Delineation:** Blue Water Science (BWS) performed delineation survey on April 21, 2017, identifying 3.89 acres for treatment.
- **Treatment:** Lake Management Inc. treated 3.89 acres on May 12, 2017.
- **Assessment:** BWS observed excellent control in north treatment area and good control in south treatment area.
- **Reports:**
  - BWS: Delineation and Assessment Report (Summary included in December board packet, full report in January 2018).

### Eurasian Watermilfoil (EWM)

- **Delineation:** BWS performed delineation surveys on April 21, June 13, and July 14, identifying no areas of nuisance growth for treatment by the District.
- **Treatment:** The District did not treat EWM on Bone Lake in 2017.
- **Assessment:** BWS observed that EWM was fairly widespread in 2017 but at mostly light densities. An assessment on July 14 did not find any heavy EWM growth and some EWM had died back compared to the June delineation survey.
- **Reports:**
  - BWS: Delineation and Assessment Report (Summary included in December board packet, full report in January 2018).

### 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 regularly updated with stop log statuses

### Zebra Mussels

- **Detection Monitoring:** One volunteer monitored a sampler plate on their private dock for early detection. No zebra mussels detected in 2017.

### Watercraft Inspections (brief overview; full report is attached)

- **Hours:** Inspectors performed 315 inspection hours on Bone Lake, surpassing the goal of 300 hours.
- **Surveys:** 277 inspection surveys were performed on Bone Lake.
- **Reports:**
  - Chisago County: 2017 AIS Prevention Report (Expected in early 2018)
  - CLFLWD: Watercraft Inspections Summary (Included with 2017 AIS Yearend Summary)

# Bone Lake Management



		Sub Totals				Annual	Timeline											
		Budget	Grants	BWS	Contractor	Balance	April	May	June	July	August	September	October	November	December	January	February	
Bone Lake 2017 Activities		\$ 16,600	\$ 200	\$ (4,100)	\$ (7,171)	\$ 5,529												
Curly-Leaf Pondweed	Work Task	2017 Budget	Grants	BWS	Contractor	Total Expense												
	Delin-Report			\$ (2,100)		\$ (2,100)	BWS (4/21/17)							BWS				
	Permitting/Public Notice	\$ 4,550			\$ (102)	\$ (102)	WD											
	Management		\$ 200		\$ (624)	\$ (624)		LMI (5/12/17)										
	Total	\$ 4,550	\$ 200	\$ (2,100)	\$ (726)	\$ (2,826)												
Eurasian Watermilfoil	Work Task	2017 Budget	Grants*	BWS	Contractor	Total Expense												
	Delin-Report			\$ (2,000)		\$ (2,000)		BWS (7/14/17)						BWS				
	Permitting/Public Notice	\$ 4,550				\$ -	N/A											
	Management		\$ -		\$ -	\$ -		No treatment										
	Total	\$ 4,550	\$ -	\$ (2,000)	\$ -	\$ (2,000)												
Rough Fish Management	Work Task	2017 Budget	Grants	BWS	Contractor	Total Expense												
	Spawning Observations	\$ 1,500				\$ -		WD										
	Harvest					\$ -		No harvest										
	Total	\$ 1,500	\$ -	\$ -	\$ -	\$ -												
Zebra Mussels	Work Task	2017 Budget	Grants	BWS	Contractor	Total Expense												
	Samplers					\$ -	WD											
	Total	\$ -		\$ -	\$ -	\$ -												
Boat Launches	Work Task	2017 Budget	Grants/Cont.	BWS	Contractor	Total Expense												
	Inspection Hours	\$ 6,000			\$ (6,446)	\$ (6,446)	WD/Chisago Co.											
	Total	\$ 6,000	\$ -	\$ -	\$ (6,446)	\$ (6,446)												
2017 Work Plan and Budgeting							WD/EOR											

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

\*\$50 DNR grant for EWM removed as EWM treatment will not occur

2016 Work	Status
CLP Delin & Assessment	<a href="#">Final report received (hyperlink to doc)</a>
CLP Treatment	No treatment in 2016
EWM Delin & Assessment	<a href="#">Final report received (hyperlink to doc)</a>
EWM Treatment	Treated 0.69 acres on 8/3/16
Carp spawning habitat survey	Complete: Sea Lake not a refuge for carp
Carp flow trap netting	Attempted in spring 2016; no harvest
Carp Telemetry	Completed in spring 2016

Bone Lake Water Quality Goals					
	2020 Goal	2030 Goal	2040 Goal	2016 Data	5-Year Average
Water quality rating at or above	C	C	B	C	C
Mean summer phosphorus concentration below (mg/L)	40	40	30	39	40
Mean summer secchi depth at or above (ft)	4	4	7	4.2	4.0

2017 Work	Status
CLP Delin & Assessment	Delin. 3.89 acres for treatment on 4/21/17
CLP Treatment	Treated 3.89 acres on 5/12/17
EWM Delin & Assessment	Delin. 0 acres for treatment on 7/14/17
EWM Treatment	No treatment in 2017
Watercraft Inspections	Bone Lake goal = 300 hours. YE total = 315 hours, 277 inspection surveys performed.
Zebra mussel early detection	Worked with volunteers to monitor samplers
Common carp	Monitored for spawning activity; no harvest in 2017



# Little Comfort Lake

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## 2017 Yearend Report

### Curly-leaf Pondweed

- District staff performed a curly-leaf pondweed survey on May 5, 2017. As in the past two years, CLP was observed at light densities at few locations around the lake.
- The District did not treat curly-leaf pondweed on Little Comfort Lake this year.
- Reports
  - CLFLWD: [Survey results memo \(5/5/17\)](#)

### Zebra Mussels

- Volunteer from previous years declined to monitor sampler plate on private dock this year.
- The District was unable to find a replacement volunteer this year. Considering the recent zebra mussel infestation in the well-connected Comfort Lake, we anticipate an eventual spread into Little Comfort.
- Staff will re-double efforts to find a volunteer for 2018 in order to track this species as best we can. Mike Sorensen will advertise the need for a volunteer at the next Comfort Lakes Association meeting he attends.

# Little Comfort Lake Management



		Sub Totals				Annual	Timeline										
		Budget	Grants	BWS	Contractor	Balance	April	May	June	July	August	September	October	November	December	January	February
Little Comfort Lake 2017 Activities		\$ 1,000	\$ -	\$ -	\$ -	\$ 1,000											
Curly-Leaf Pondweed	Work Task	2017 Budget	Grants	BWS	Contractor	Total Expense											
	Survey					\$ -	WD (5/5/17)										
	Summary	\$ 1,000				\$ -		WD									
	Total	\$ 1,000	\$ -	\$ -	\$ -	\$ -											
Zebra Mussels	Work Task	2017 Budget	Grants	BWS	Contractor	Total Expense											
	Samplers					\$ -	No monitoring in 2017 (no volunteer)										
	Total	\$ -	\$ -	\$ -	\$ -	\$ -											
2017 Work Plan and Budgeting							WD/EOR										

2016 Work	Status
CLP Delin & Assessment	<a href="#">Final report received (hyperlink to doc)</a>
CLP Treatment	No treatment in 2016
Fish Survey	<a href="#">Final report received (hyperlink to doc)</a>
Sediment sampling	<a href="#">Final report received (hyperlink to doc)</a>

Little Comfort Lake Water Quality Goals					
	2020 Goal	2030 Goal	2040 Goal	2016 Data	5-Year Average
Water quality rating at or above	C	C	B	C	C
Mean summer phosphorus concentration below (mg/L)	40	40	30	68	67
Mean summer secchi depth at or above (ft)	5	5	7	3.7	4.8

2017 Work	Status
CLP Survey	Survey by WD staff on 5/5/17. Summary memo and map attached to May AIS Update. No treatment occurred.
Zebra mussel early detection	New volunteer to monitor sampler plate was not found for 2017. Staff will work with Comfort Lakes Association to find volunteer for 2018.





# Shields Lake

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## 2017 Yearend Summary

### **Fish Barrier**

- Continued operation and maintenance of electric fish barrier located on tributary between Shields Lake and Forest Lake.
- Received Conservation Partners Legacy grant for \$30,600 (with a match of \$8,000) to fund installation of passive barrier that would result in long-term cost savings.
- Began project design and construction quote solicitation. Anticipate 2018 construction start date.

### **Zebra Mussels**

- Due to theft issues in past years, a zebra mussel sampler plate was not installed at the public dock on Shields Lake this year. Staff hopes to find a lakeshore resident to volunteer to monitor a sampler plate on their private dock in 2018.

### **Curly-leaf pondweed (CLP)**

- At the February 23<sup>rd</sup> regular meeting, the Board of Managers authorized a fund transfer of \$1,000 from this line item in the 2017 budget (Shields AIS Management) to the Watershed Management Plan Update line item. The purpose of this transfer was to ensure sufficient funding for assistance from Emmons & Olivier Resources on the 2017 Watershed Management Plan Amendment.
- This line item was chosen for the transfer due to the fact that District staff may perform a curly-leaf pondweed survey on Shields Lake in 2017 if necessary. If this were to occur, it would be funded from the Staff Management & Coordination line item instead of the Shields AIS line item. However, it is recommended that the external phosphorus load to the lake be addressed first via the Shields Lake Stormwater Harvest and Irrigation Reuse project before looking at the internal load.
- Implementation of a whole-lake alum treatment and curly-leaf pondweed treatment will likely be slated for 2018 or 2019.

# Shields Lake Management



		Sub Totals				Annual	Timeline											
		Budget	Grants	BWS	Contractor	Balance												
		\$ -	\$ -	\$ -	\$ -	\$ -	April	May	June	July	August	September	October	November	December	January	February	
Shields Lake 2017 Activities																		
Fish Barrier*	Work Task	2017 Budget	Grants	Staff/EOR	Contractor	Total Expense												
	Retrofit Project					\$ -							Contractor					
	Planning/Inspections/Oversight					\$ -	WD/EOR											
	Total	\$ -	\$ -	\$ -	\$ -	\$ -												
Zebra Mussels	Work Task	2017 Budget	Grants	BWS	Contractor	Total Expense												
	Samplers					\$ -	WD											
	Total	\$ -	\$ -	\$ -	\$ -	\$ -												
Curly-Leaf Pondweed	Work Task	2017 Budget**	Grants	BWS	Contractor	Total Expense												
	Survey Summary	[transferred]				\$ -												
	Total	\$ -	\$ -	\$ -	\$ -	\$ -												
2017 Work Plan and Budgeting							WD/EOR											

Figures in italics are cost estimates

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

\*\*Budget transfer of \$1,000 to 3006F Watershed Management Plan Update

2016 Work	Status
DNR CPL grant application	Awarded

2017 Work	Status
Zebra mussel early detection	No sampler plate on public dock in 2017. Find volunteer private dock for 2018.
Fish barrier upgrades/maint.	Construction to begin in 2018
Curly-leaf pondweed	No CLP survey/management proposed until watershed phosphorus load is addressed; after Shields Lake SW Harvest, Irrigation Reuse, and Alum

Shields Lake Water Quality Goals					
	2020 Goal	2030 Goal	2040 Goal	2016 Data	5-Year Average
Water quality rating at or above	D	C	C	D-	D
Mean summer phosphorus concentration below (mg/L)	100	60	60	194	240
Mean summer secchi depth at or above (ft)	4.26	4.26	4.26	2.7	3.3



# Lake Keewahtin (Sylvan)

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## 2017 Yearend Summary

### Lake News

- Washington County officially changed the lake's name to Keewahtin. The name has been updated on the DNR's [LakeFinder webpage](#) as well. [A news article was published in the Forest Lake Lowdown.](#)

### AIS early detection survey

- District staff performed a survey on July 27<sup>th</sup>. No new invasive species such as Eurasian watermilfoil, flowering rush, or starry stonewort were found. Purple loosestrife and curly-leaf pondweed, both pre-existing, were the only invasives to be found.
- Report
  - CLFLWD: [Detection survey memo \(7/27/17\)](#)

### Purple loosestrife

- Approx. 200 purple loosestrife-eating beetles were collected in White Bear Lake and released at Lake Keewahtin on May 31<sup>st</sup>, 2017. They were used to supplement the population of insects that were introduced to the lake in June 2016.
- Locations of purple loosestrife were documented in the AIS early detection survey on July 27<sup>th</sup>.

### Zebra mussels

- One volunteer monitored a sampler plate on private dock for early detection. No zebra mussels detected in 2017.

### Fund Transfer

- At the February 23<sup>rd</sup> regular meeting, the Board of Managers authorized a fund transfer of \$1,000 from the Sylvan (Keewahtin) AIS Management line item in the 2017 budget to the Watershed Management Plan Update line item. The purpose of this transfer was to ensure sufficient funding for assistance from Emmons & Olivier Resources on the 2017 Watershed Management Plan Amendment. This line item was chosen for the transfer due to the fact that, as in 2016, District staff and local volunteers may complete a biological control collection and release on Sylvan Lake in 2017 to control purple loosestrife. Staff will perform a follow-up survey to assess insect propagation and damage to purple loosestrife plants.

# Lake Keewahtin (Sylvan Lake) Management



		Sub Totals				Annual	Timeline										
		Budget	Grants	EOR	Contractor	Balance	April	May	June	July	August	September	October	November	December	January	February
Sylvan Lake 2017 Activities		\$ -	\$ -	\$ -	\$ -	\$ -											
Purple Loosestrife	Work Task	2017 Budget**	Grants	EOR	Contractor	Total Expense											
	Check-Up Assessment					\$ -					WD/EOR						
	Biocontrol Collection and Release	[transferred]				\$ -					WD/EOR (5/31/17)						
	Summary					\$ -						WD					
	Total	\$ -	\$ -	\$ -	\$ -	\$ -											
AIS Detection Survey	Work Task	2017 Budget**	Grants	EOR	Contractor	Total Expense											
	Survey	[transferred]									WD						
	Total	\$ -	\$ -	\$ -	\$ -	\$ -											
Zebra Mussels	Work Task	2017 Budget	Grants	EOR	Contractor	Total Expense											
	Samplers			\$ -		\$ -	WD										
	Total	\$ -	\$ -	\$ -	\$ -	\$ -											
2017 Work Plan and Budgeting							WD/EOR										

\*\*Budget transfer of \$1,000 to 3006F Watershed Management Plan Update

2016 Work	Status
Purple Loosestrife biocontrol assessment	Performed on 8/25/16
AIS detection survey report	Included in July 28th meeting packet

Sylvan Lake Water Quality Goals					
	2020 Goal	2030 Goal	2040 Goal	2016 Data	5-Year Average
Water quality rating at or above	A	A	A	A	A
Mean summer phosphorus concentration below (mg/L)	20	20	20	18	16
Mean summer secchi depth at or above (ft)	10	10	10	13.7	14.9

2017 Work	Status
AIS Detection Survey	Completed on 7/27/17; no new AIS found
Biocontrol Collection and Release	Collected and released on 5/31/17
Purple Loosestrife Check-Up	Locations documented on 7/27/17
Zebra mussel early detection	Volunteer observed no ZM in 2017



# Forest Lake

## 2017 Yearend Summary

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### Curly-leaf Pondweed (CLP)

- **Delineation:** Blue Water Science (BWS) performed delineation survey on April 12, 2017 identifying 169 acres for treatment.
- **Treatment:** Lake Management Inc. treated 169 acres on May 9, 2017 using an average treatment depth of 9 feet. This was an increase from 113 acres in 2016.
- **Assessment:** BWS performed assessment on June 8, 2017. The assessment indicated that the applicators were successful this year and obtained excellent control. CLP was completely controlled in all three basins except for one small patch by the public beach on the west basin (1st Lake). Many other lakes in the region had CLP sprout after delineations and saw marginal control.
- **Reports:**
  - BWS: Delineation and Assessment report (Summary included in December board packet, full report in January 2018).

### Eurasian Watermilfoil (EWM)

- **Delineation:** BWS performed two delineation surveys: June 8<sup>th</sup> and July 11<sup>th</sup>.
- **Treatment:** Clarke Aquatic Services Inc. performed two separate rounds of split-treatment herbicide applications. As in previous years, the District took an aggressive approach to controlling EWM growth in Forest Lake.
  - First round: treated 10.4 acres on June 22 and June 23. This area was near the west basin public boat launch, therefore a high risk of spread via boat traffic.
  - Second round: treated 23 acres on August 7 and August 8.
- **Assessment:** BWS observed good control during assessment survey. EWM was observed in several treatment sites at mostly light growth and was absent in one treatment area.
- **Reports:**
  - BWS: Delineation and Assessment report (Summary included in December board packet, full report in Jan '18).

### Flowering Rush

- **Delineation:** BWS delineated 1.6 acres of flowering rush in July.
- **Treatment:** PLM Lake and Land Management Inc. completed two rounds of large-patch herbicide treatment and two rounds of spot herbicide treatment via backpack sprayer.
  - First herbicide treatment occurred on 8/14/17; total area was 40.2 acres.
  - **Second herbicide treatment occurred on 9/27/17; total area was 31.1 acres. PLM only spot treated on the 2<sup>nd</sup> basin due to observed lower densities of flowering rush.**
- **Flower Cutting:** Mike Sorensen and Jerry Grundtner performed two rounds of manual flower removal so as to prevent the spread of the viable seeds.



# Forest Lake

## 2017 Yearend Summary

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- First round occurred on 8/24/17; 800 stems (flowers) were collected (up to 11 million seeds)
- Second round occurred on 9/27/17; 36 stems (flowers) were collected (up to 500,000 seeds)
- **Assessment:** BWS observed good control during assessment; surveyed 0.06 acres of flowering rush post-treatment. For comparison, flowering rush coverage was initially 7.8 acres in 2014.
- **Reports:**
  - BWS: Delineation and assessment report (Summary included in December board packet, full report in January 2018).
  - CLFLWD: Flowering rush management summary (To be completed in December).

### Zebra Mussels

- **Monitoring:** Four zebra mussel sampling plates were deployed around Forest Lake this year. In 2016 and 2015, zebra mussels were only found in 1st and 2nd lakes. They are now being found in high densities in 3<sup>rd</sup> Lake, which means that they are fully spread around Forest Lake. The monitoring plates will continue to be deployed in future years to monitor the density of the mussels in the lake and the population crash that is expected approximately five years after the initial infestation.

### Watercraft Inspections (brief overview; full report is attached)

- **Hours:** District inspectors performed 2,752 inspection hours on Forest Lake, surpassing the goal of 2,500 hours. DNR inspectors performed 310 inspection hours on Forest Lake (at no cost to the District). Inspection hours on Forest Lake totaled 3,062.
- **Surveys:** 7,353 inspection surveys were performed on Forest Lake.
- **Reports:**
  - Chisago County: 2017 AIS Prevention Report (Expected in early 2018)
  - CLFLWD: Watercraft Inspections Summary (Included with 2017 AIS Yearend Summary)

# Forest Lake Management



		Sub Totals				Annual	Timeline											
		Budget	Grants/Cont.	BWS	Contractor	Balance	April	May	June	July	August	September	October	November	December	January	February	
Forest Lake 2017 Activities		\$ 110,500	\$ 93,965	\$ (11,400)	\$ (175,381)	\$ 17,684												
Curly-Leaf Pondweed	Work Task	2017 Budget	Grants/Cont.	BWS	Contractor	Total Expense												
	Delin-Report			\$ (2,800)		\$ (2,800)												
	Permitting/Public Notice	\$ 30,833			\$ (108)	\$ (108)												
	Management		\$ 28,719		\$ (86,249)	\$ (86,249)												
	Total	\$ 30,833	\$ 28,719	\$ (2,800)	\$ (86,357)	\$ (89,157)												
Flowering Rush	Work Task	2017 Budget	Grants/Cont.	BWS	Contractor	Total Expense												
	Delin-Report			\$ (5,200)		\$ (5,200)												
	Permit/Outreach/Pub. Notice	\$ 30,833	\$ 1,500		\$ (1,500)	\$ (1,500)												
	Management		\$ 17,846		\$ (12,646)	\$ (12,646)												
	Total	\$ 30,833	\$ 19,346	\$ (5,200)	\$ (14,146)	\$ (19,346)												
Eurasian Watermilfoil	Work Task	2017 Budget	Grants/Cont.	BWS	Contractor	Total Expense												
	Delin-Report			\$ (3,400)		\$ (3,400)												
	Permitting/Public Notice	\$ 30,833				\$ -												
	Management		\$ 8,900		\$ (18,348)	\$ (18,348)												
	Total	\$ 30,833	\$ 8,900	\$ (3,400)	\$ (18,348)	\$ (21,748)												
Zebra Mussels	Work Task	2017 Budget	Grants/Cont.	BWS	Contractor	Total Expense												
	Samplers					\$ -												
	Total	\$ -	\$ -	\$ -	\$ -	\$ -												
Boat Launches	Work Task	2017 Budget	Grants/Cont.	BWS	Contractor	Total Expense												
	Inspection Hours	\$ 18,000	\$ 37,000		\$ (56,530)	\$ (56,530)												
	Total	\$ 18,000	\$ 37,000	\$ -	\$ (56,530)	\$ (56,530)												
2017 Work Plan and Budgeting							WD/EOR											

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

2016 Work	Status
CLP Delin & Assessment	<a href="#">Final report received (hyperlink to doc)</a>
CLP Treatment	Treated 113.7 acres between 5/2 and 5/4
EWM Delin & Assessment	<a href="#">Final report received (hyperlink to doc)</a>
EWM Treatment	Treated 13.9 acres on 7/18/16
FR Delin & Assessment	<a href="#">Final report received (hyperlink to doc)</a>
FR Treatment	Treated 36+ acres twice on 8/3/16 and 8/31/16
ZM Population Monitoring	Complete

Forest Lake Water Quality Goals					
	2020 Goal	2030 Goal	2040 Goal	2016 Data	5-Year Average
Water quality rating at or above	C	C	B	C+	C+
Mean summer phosphorus concentration below (mg/L)	37	37	30	42	36
Mean summer secchi depth at or above (ft)	5	5	7	5.2	5.5

2017 Work	Status
CLP Delin & Assessment	BWS performed initial delineation survey on 4/12/17. 169.3 acres delineated for treatment.
CLP Treatment	Treated 169.3 acres on 5/9/17
EWM Delin & Assessment	1st delineation on 6/8/17; 2nd delin. on 7/11/17.
EWM Treatment	1st split tmt 10.4 acres on 6/22 & 6/23. 2nd split tmt 23 acres on 8/7 & 8/8.
FR Delin & Assessment	BWS delineation on 8/1/17
FR Treatment	1st round treatment of 40.2 acres on 8/14/17; 2nd round on 31.1 acres on 9/27/17 (only spot treat on 2nd basin)
ZM Population Monitoring	Worked with volunteers to monitor samplers
Watercraft Inspections	Forest Lake goal = 2,500 hours. YE total = 3,062 hours, 7,353 inspection surveys performed.



# Comfort Lake

## 2017 Yearend Summary

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### Curly-leaf Pondweed (CLP)

- **Delineation:** Blue Water Science (BWS) performed delineation survey on April 21, 2017, identifying no areas of nuisance growth for treatment by the District.
- **Treatment:** The District did not treat CLP on Comfort Lake in 2017 (same as 2016).
- **Assessment:** BWS performed assessment on 5/6/16, identifying no major changes since the delineation survey.
- **Reports:**
  - BWS: Delineation and Assessment report (Summary included in December board packet, full report in January 2018).

### Eurasian Watermilfoil

- **Delineation:** BWS performed delineation survey on May 5, 2017, identifying 6.4 acres for treatment.
- **Treatment:** DNR allowed only 3.2 acres for treatment under Invasive Aquatic Plant Management permit, citing water lily growth near some proposed treatment areas. The DNR aims to protect native plants such as water lilies through its permit program. Clarke Aquatic Services treated the DNR-approved 3.2 acres of EWM on May 24.
- **Assessment:** BWS performed a post-treatment assessment survey on June 13 and found heavier growth compared to May. Steve McComas suggested that it appears delineating EWM in May is too early. The purpose of performing the early-season treatment was to allow the District to treat a larger acreage of EWM, since water lilies would not yet be growing and we wouldn't be required to modify the treatment areas to avoid them. This approach seemed to work in 2016. However, due to timing issues (as described in more detail in the [May AIS Update](#)) this did not work out as well in 2017. Mr. McComas has suggested that EWM is distributed all around the nearshore area of Comfort Lake, and that additional treatments would have little effect of preventing the spread. Full description from last meeting can be found in the June AIS Update. ([Direct link for PDF](#))
- **Reports:**
  - BWS: Delineation and Assessment report (Summary included in December board packet, full report in January 2018).

### Zebra Mussels

- A zebra mussel infestation was discovered in Comfort Lake in July 2017.
- **Detection:** Sightings were initially reported by a homeowner on July 13<sup>th</sup> and 15<sup>th</sup>. After an initial site visit on July 14<sup>th</sup> to confirm mussel identification, District staff alerted the DNR and consulted the Early Detection, Rapid Response, and Control Plan for Comfort Lake.
- **Rapid Response Assessment Survey:** A lake-wide search with DNR, BWS, lake association members and some board members was performed on July 21<sup>st</sup>, confirming the invasion. Single adult mussels were found at five different sites around the north section of Comfort Lake. Mussel age estimates suggest that the population was likely introduced in 2016 or even 2015. Blue Water Science prepared a report





# Comfort Lake

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## 2017 Yearend Summary

with eradication index suggesting that eradication is not feasible at this point.

- **Outreach:** District staff attended the August 10<sup>th</sup> Comfort Lakes Association meeting to give a presentation on the matter and answer any questions. The presentation can be found on the District's webpage for Comfort Lake at [www.cflwd.org/waterbody-comfort-lake.php](http://www.cflwd.org/waterbody-comfort-lake.php). ([Direct link to PDF](#))
- **Reports:**
  - BWS: Rapid Response Assessment (received on July 27, 2017)

### **Watercraft Inspections** (brief overview; full report is attached)

- **Hours:** Inspectors performed 660 inspection hours on Comfort Lake, surpassing the goal of 650 hours.
- **Surveys:** 610 inspection surveys were performed on Comfort Lake.
- **Reports:**
  - Chisago County: 2017 AIS Prevention Report (Expected in early 2018)
  - CLFLWD: Watercraft Inspections Summary (Included with 2017 AIS Yearend Summary)

# Comfort Lake Management



		Sub Totals				Annual	Timeline											
		Budget	Grants/Cont.	BWS	Contractor	Balance	April	May	June	July	August	September	October	November	December	January	February	
Comfort Lake 2017 Activities		\$ 14,700	\$ 7,375	\$ (3,700)	\$ (14,382)	\$ 3,993												
Curly-Leaf Pondweed	Work Task	2017 Budget	Grants/Cont.**	BWS	Contractor	Total Expense												
	Delin-Report			\$ (1,400)		\$ (1,400)	BWS (4/21/17)								BWS			
	Permitting/Public Notice	\$ 4,350				\$ -	WD											
	Management				\$ -	\$ -	N/A											
	Total	\$ 4,350	\$ -	\$ (1,400)	\$ -	\$ (1,400)												
Eurasian Watermilfoil	Work Task	2017 Budget	Grants/Cont.	BWS	Contractor	Total Expense												
	Delin-Assess			\$ (2,300)		\$ (2,300)	BWS (5/5/17)								BWS			
	Permitting/Public Notice	\$ 4,350			\$ -	\$ -	WD											
	Management		\$ 375		\$ (592)	\$ (592)	Clarke (5/24/17)											
	Total	\$ 4,350	\$ 375	\$ (2,300)	\$ (592)	\$ (2,892)												
Zebra Mussels	Work Task	2017 Budget	Grants/Cont.	BWS	Contractor	Total Expense												
	Samplers					\$ -	WD											
	Total	\$ -	\$ -	\$ -	\$ -	\$ -												
Boat Launches	Work Task	2017 Budget	Grants/Cont.	BWS	Contractor	Total Expense												
	Inspection Hours	\$ 6,000	\$ 7,000		\$ (13,790)	\$ (13,790)	WD/Chisago Co.											
	Total	\$ 6,000	\$ 7,000	\$ -	\$ (13,790)	\$ (13,790)												
2017 Work Plan and Budgeting							WD/EOR											

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

\*\*\$50 DNR grant for CLP removed as CLP treatment will not occur

2016 Work	Status
CLP Delin & Assessment	<a href="#">Final report received (hyperlink to doc)</a>
CLP Treatment	No treatment in 2016
EWM Delin & Assessment	<a href="#">Final report received (hyperlink to doc)</a>
EWM Treatment	Treated 7.5 acres on 5/11/16

Comfort Lake Water Quality Goals					
	2020 Goal	2030 Goal	2040 Goal	2016 Data	5-Year Average
Water quality rating at or above	C	C	B	B-	C+
Mean summer phosphorus concentration below (mg/L)	40	40	30	34	36
Mean summer secchi depth at or above (ft)	5	5	7	5.5	5.0

2017 Work	Status
CLP Delin & Assessment	Delineation on 4/21/17
CLP Treatment	No treatment in 2017
EWM Delin & Assessment	Delin. 6.4 acres on 5/5/17; DNR rev. to 3.2 acres on 5/16/17
EWM Treatment	3.2 acres treated on 5/24/17
Watercraft Inspections	Comfort Lake goal = 650 hours. YE total = 660 hours, 610 inspection surveys performed.
Zebra mussel monitoring	Population assessment survey completed; worked with volunteer to monitoring sampler plate on private dock