

LAKE EDUCATION AND PLANNING SERVICES, LLC  
221B 2ND STREET  
CHETEK, WISCONSIN 54728

# RICE LAKE, BARRON COUNTY

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## 2017 LAKE MANAGEMENT SUMMARY REPORT

WDNR WBIC: 2103900

Prepared by: Dave Blumer, Lake Educator

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RICE LAKE-LAKE PROTECTION  
AND REHABILITATION DISTRICT

PO BOX 446  
RICE LAKE, WI 54868

[WWW.RLLAKEDISTRICT.ORG](http://WWW.RLLAKEDISTRICT.ORG)



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# 2017 LAKE MANAGEMENT SUMMARY REPORT

PREPARED FOR THE RICE LAKE – LAKE PROTECTION AND REHABILITATION DISTRICT

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## INTRODUCTION

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The Rice Lake – Lake Protection and Rehabilitation District (Lake District) completed its new Aquatic Plant Management Plan (APMP) in 2014 and began implementation of it in 2015 after receiving an Aquatic Invasive Species (AIS) Established Infestation Control Grant (AEIC) in the spring of 2015. The Lake District also completed a Comprehensive Lake Management Plan (Comp Plan) in 2014 and applied for WDNR Lake Protection Grant funding in 2015 and 2016 to begin implementation, but neither grant was awarded. In December of 2016, the Lake District applied for a Lake Management Planning grant. This grant and another grant for CBCW funding were awarded in early 2017.

Aquatic plant management included curly-leaf pondweed (CLP) harvesting and herbicide application in both the main and south basins of the lake, and harvesting of native plants within predetermined navigation channels. Lake District employees and volunteers attempted to map curly-leaf pondweed beds, and continued AIS monitoring throughout the season and collected water quality data through Citizen Lake Monitoring Network (CLMN). Watercraft inspection was completed at three main landings supported by paid staff and volunteers.

As a part of the Lake Planning grant project, water samples and flow data were collected at ten tributary sites. The second phase of this project was a stormwater drainage on the Barron County Fairgrounds. The bulk of this project was completed in 2017 with the installation of a stormwater infiltration system near one of the livestock barns on the fairgrounds. In addition to the installation of a Best Management Practice (BMP) on the fairgrounds, the Lake District also accepted bids from engineering firms to develop a stormwater management plan for the entirety of the fairgrounds.

Lake education events included Rice Lake Aquafest and the Barron County Fair.

The goals and objectives identified in the Comprehensive Lake Management Plan were discussed and priorities set, including full support for shoreland improvements, native plantings, and other riparian best management practices, funded almost entirely by money set aside by the Lake District to support its Native Planting Committee and their activities.

The following provides a brief description of actions completed by the Lake District in 2017.

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## CURLY-LEAF PONDWEED MANAGEMENT

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As mentioned in the introduction, the Lake District continued to manage non-native aquatic plant growth and nuisance native aquatic plant growth in 2017. The APMP recognized control of CLP as important to maintaining and improving water quality and lake use, and laid out guidelines for both chemical control of CLP and large-scale harvesting. A 3-yr AEIC grant was awarded at the beginning of 2015 which helped cover the costs associated with a management plan that had a goal of eliminating CLP from the south basin. Through the previous five years of management no early season harvesting of CLP occurred in the south basin, allowing all three harvesters owned by the Lake District to concentrate CLP harvesting efforts in the main basin. Large-scale application of herbicides was used between 2009 and 2012 to control CLP in the main basin along Lakeshore Drive and sparingly in the south basin. No herbicide application occurred in the south basin in 2013 or 2014. The new APMP continued to support no use of harvesting in the south basin and modified the goal of CLP control in the south basin, now targeting all the CLP with herbicide application for a minimum of three years in an effort to nearly eliminate it from the basin. Herbicide application in 2015 was the first of those three years, with 2016 being the second. 2017 marked the third year of chemical management of CLP in the south basin in an attempt to severely curtail its growth and turion production.



## CHEMICAL MANAGEMENT

A chemical treatment proposal for three CLP beds in the South Basin was prepared in early 2017 that targeted the same three areas of CLP that were targeted in 2016. In the preliminary proposal for 2017, the three beds in the south basin totaled 13.46 acres. After the pretreatment survey, Beds B and C were split into two different beds and bed A was modified a little giving the final treatment plan which included five treatment areas (Figure 1). Aquathol K, a liquid formulation with the active ingredient endothal, was recommended at 1.5 ppm in bed A and at 2.0 pm in the other areas (Table 1). It was decided to use a lower concentration in 2017 than was used in 2016 because despite resulting in near 100% reduction in CLP, the higher concentration used in 2017 also caused significant decline in two native species.

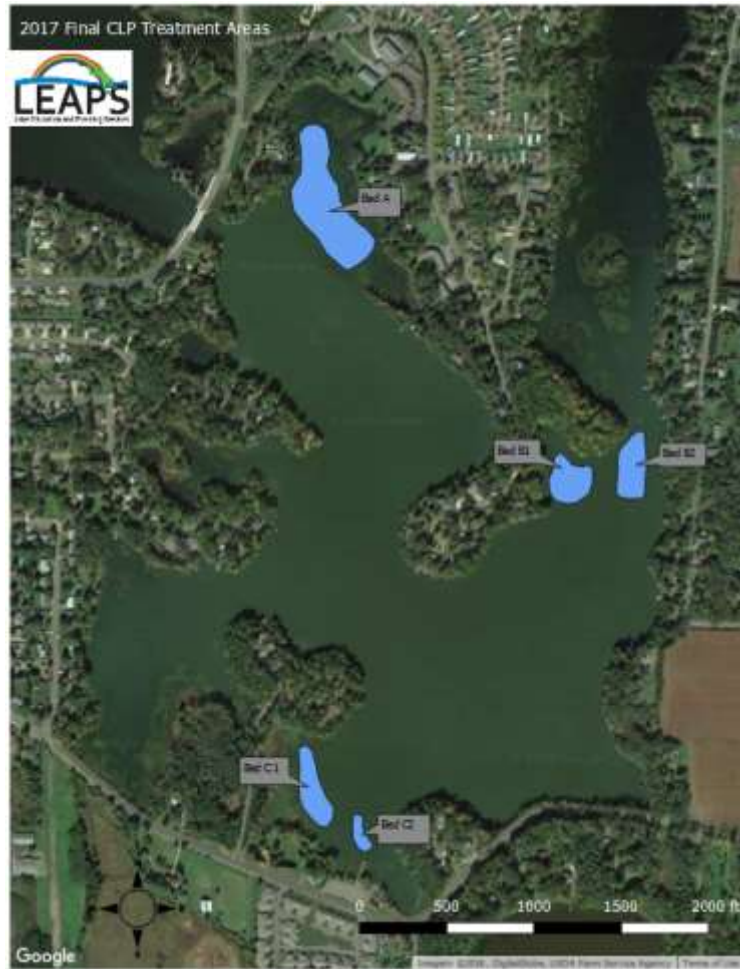


Figure 1 – 2017 Final Treatment Areas in Rice Lake

Table 1- CLP Treatment Area Characteristics (LEAPS, 2017)

2017 Preliminary Curly-Leaf Pondweed Treatment South Basin - Endothall (4-21-2017 LEAPS)						
Treatment Area Characteristics				Aquathol® K (liquid)		
Bed	Acreage	Mean Depth (ft)	Acre-Feet	Target A.I. (ppm)	Total Treatment (gallons)	Density
BedA-2017	4.30	5.9	25.37	1.5	25.37	Moderate
BedB1-2017	1.18	7.6	8.97	2	11.66	Moderate
BedB2-2017	1.25	7.6	9.50	2	12.35	
BedC1-2017	1.24	7.3	9.05	2	11.77	Moderate
BedC2-2017	.33	7.3	2.41	2	3.13	
<b>TOTAL</b>	<b>8.30</b>		<b>55.30</b>		<b>64.28</b>	

PRE AND POST-TREATMENT SURVEY

A pre-treatment survey of just the proposed treatment areas in the south basin was conducted on April 9, 2017. Figure 2 shows the presence/absence of CLP during the pretreatment survey of the proposed treatment areas in the south basin. Pre and posttreatment survey in the south basin is required in the 3-yr AIS Control grant. As a result of the pre-treatment survey slight modifications from the preliminary CLP treatment proposal were made, specifically, Bed C at the transition from Clearwater Bay to the south basin, was split into two beds as was bed B near the Veteran’s boat landing. Treatment was completed on April 25<sup>th</sup> by Northern Aquatic Services. Water temperature was 53°F, and air temperature was 63°F. Winds were variable from 2-4 mph out of the south southeast, nearly perfect conditions for the treatment. A post-treatment survey was completed on June 7<sup>th</sup> approximately 7 weeks after treatment. At this time, CLP would normally still be very prevalent in the water column. Figure 3 shows the presence of CLP during the post-treatment survey, there was very little CLP in the treatment areas. Table 2 shows the frequency and density data from pre to post treatment survey. Almost all of the CLP in the treatment areas was killed by the 2016 spring treatment.



Figure 2 – April 9, 2017 Pre-treatment Survey Results (Schieffer, 2017)



Figure 3- June 7, 2017 Post-treatment Survey Results (Schieffer, 2017)

Table 2 – Summary of Treatment Surveys in Regard to Frequency and Density (Schieffer, 2017)

Bed	Pretreatment 2017 freq. (freq. comparable to 2016 beds)	Post Treatment 2017 freq.	Pretreatment 2016 freq.	Post treatment 2016 freq.	Post 2017 Mean density	Post 2016 mean density
A	72.3% (60.7%)	4.2%	67.9%	0.0%	0.04	0.0
B1	80.0% (56.0%)	0.0%	56.0%	0.0%	0.0	0.0
B2	66.7%	0.0%	n/a	n/a	0.0	n/a
C1	46.7%(31.2%)	0.0%	51.5%	0.0%	0.0	0.0
C2	100%	0.0%	n/a	n/a	0.0	n/a
All	69.0% (51.3%)**	2.4%**	60.4%	0.0%	0.024	0.0

**\*\*Statistically significant as indicated by a chi-square analysis.**

#### TURION DENSITY MONITORING

In order to further reflect potential future growth and the cumulative success of treatments, a CLP turion analysis was conducted in 2015, 2016, and again in 2017. This analysis involves going to sample points near the middle of the CLP bed where it is assumed that the highest density will be reflected. At each point a petite PONAR dredge is lowered to the lake sediment and a sample is obtained. CLP turions are then counted and the density of turions is

calculated in turions/square meter. Consistently successful treatments should show a trend of reduced turion density each year. If this occurs, then it is known that the treatments are killing plants prior to them being able to produce new turions, resulting in an overall reduction in CLP in those beds over time.

A turion analysis of the treatment areas in the south basin was conducted on Oct. 7, 2017. Table 3 shows the turion density in turions/m<sup>2</sup>. The turion density from 2012 (the last time CLP was treated before the 2015 treatment), 2015, and 2016 (the most recent treatment analyses) are included for comparison purposes (Beds A and B had far fewer sample points and the beds were a different size during the 2012 turion analysis and bed C was not treated in 2012). Although the sample locations are different, it allows some valid comparison in turion density within those beds. Beds A and B show a significantly downward trend over the three years of treatment while bed C showed a sharp drop from 2015-2016, but the highest reading is from 2017. This is due to bed C being split into two smaller beds for the 2017 treatment because no CLP was found in the area between the beds after the 2016 treatment. This means there were fewer sample points within the treatment areas. If the points from the 2015 and 2016 surveys are added in for bed C, the turion density is lower in 2017 than it was in 2016 or 2015.

**Table 3 - Turion Density from 2012 and 2015 -2017 Turion Analysis (Schieffer, 2017)**

<b>Bed</b>	<b>2012(last treatment before 2015)</b>	<b>2015 Turion density (T/m<sup>2</sup>)</b>	<b>2016 Turion density (T/m<sup>2</sup>)</b>	<b>2017 Turion density (T/m<sup>2</sup>)</b>
<b>A</b>	91.4*	48.2	41.2	32.76
<b>B</b>	30.7*	47.8	26.9	21.5
<b>C</b>	Not a bed in 2012	43.0	27.4	46.7(22.6)*
<b>All</b>	*fewer sample points and bed different size.	46.6	34.3	32.8

*\*Bed C was divided and if points included in 2016 analysis are included, the density is lower in ( ).*

2017 was the last year of chemical treatment in the south basin, so there will not be any turion density data collected in 2018.

### 2017 HARVESTING

Unlike to the spring of 2016, 2017 saw a late-winter snow melt which allowed sunlight to penetrate the ice and allowed CLP to begin growing earlier than it normally would. In addition to the jump start provided by the late-February snow melt, most of the spring was fairly cold which prevented the water from warming as fast as it normally does. These two factors provided ideal growing conditions for CLP and allowed the explosive population growth of it throughout regional lakes. The levels of CLP seen in Rice Lake were the highest it has been in over ten years. The AIS Control grant only provided funding for aquatic plant survey support in the south basin. A total of 679 hours of harvesting and disposal work was completed by Lake District employees. This resulted in the removal of an estimated 417.5 tons of CLP, native plants, and mystery snails which also appeared to have a large population growth in 2017.

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NATIVE AQUATIC PLANTS

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In addition to evaluating the impacts of management on CLP during pre and post-treatment surveys, impacts on native species are evaluated. This is to determine if any adverse effects occurred on the native plants from the herbicide. Table 4 contains the frequency data of native plants and compares their changes from 2016 to 2017.

**Table 4 - Frequency comparison and statistical analysis on native species 2016 to 2017 (Schieffer, 2017)**

<b>Native Species</b>	<b>Frequency 2016 post treatment</b>	<b>Frequency 2017 post treatment</b>	<b>Significant reduction (p&lt;0.05)</b>
<i>Chara sp.</i>	0.9%	0.0%	no
<i>Ceratophyllum demersum</i>	85.6%	69.0%	Significant decrease p=0.004
<i>Elodea canadensis</i>	44.1%	63.1%	increase
<i>Elodea nuttalli</i>	13.5%	15.5%	increase
<i>Lemna triscula</i>	4.5%	0.0%	no
<i>Nymphaea odorata</i>	9.9%	4.8%	no
<i>Potamogeton richardsonii</i>	1.8%	3.6%	increase
<i>Potamogeton praelongus</i>	0.0%	2.4%	increase
<i>Vallisneria americana</i>	6.3%	3.6%	no
<i>Bidens beckii</i>	2.7%	0.0%	no
<i>Nuphar variagata</i>	2.7%	1.2	no
<i>Heteranthera dubia</i>	2.7%	0	no
Aquatic moss	0.9%	0	no

Table 4 shows that there was a significant reduction in only one native species from 2016 to 2017; *Ceratophyllum demersum*. The cause for the reduction in this species is not known, but could be the result of herbicide management. It could have also been season variation (plants late to come out of dormancy) and/or sampling variation (it is difficult to sample in the precise location each time, thus leading to differences in species composition on the sample rake). Interestingly, the two species that showed a significant decline in 2016, *Elodea nuttalli* and *Potamogeton robinsii*, both showed notably increases in the 2017 post-treatment survey. Continued monitoring of natives species must continue to determine any trends.

Three other parameters that allow for evaluation of the health of the native aquatic plant community are species richness, Simpson's diversity index and Floristic Quality Index. These parameters were calculated for the 2015, 2016, and 2017 post treatment surveys to allow for future comparison after future treatments. Table 5 shows those data. A slight decrease in diversity and FQI occurred from 2015 to 2016 and is likely due to reduced species sampled, but there was no change in the native species richness from 2016-2017. It is unknown if this is herbicide related, but native species should be monitored in the future.

**Table 5 - Species Richness, SDI, and FQI Comparisons 2015 to 2017 Post-treatment**

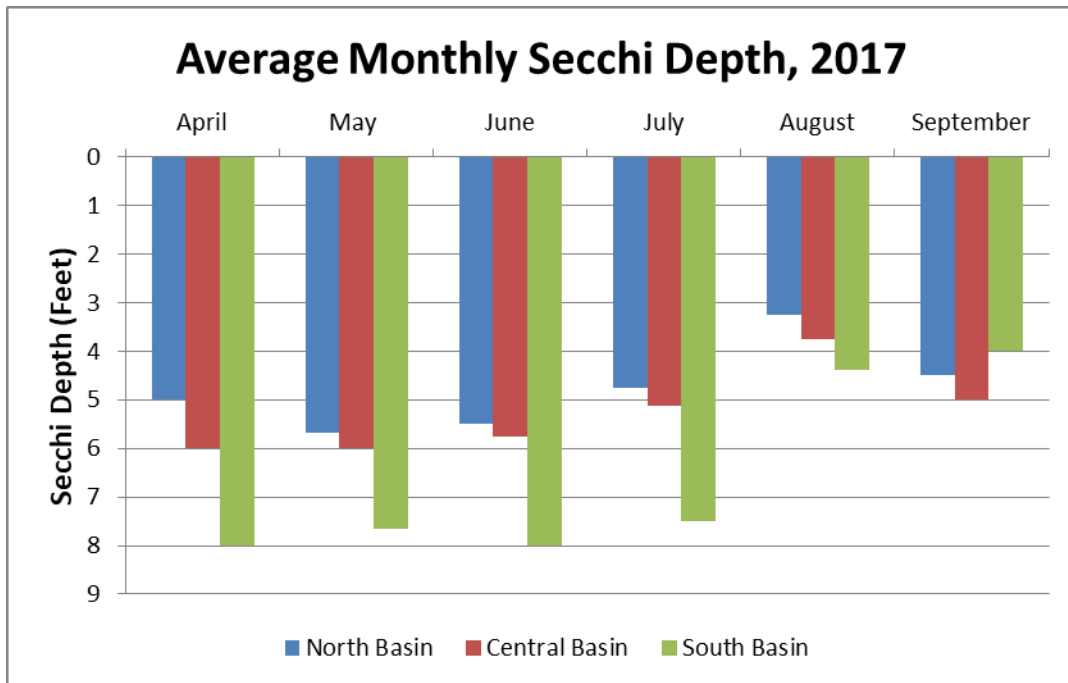
<b>Rice Lake Post Treatment Beds A, B and C</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
Native species richness	16	12	12
Simpson's diversity index	0.94	0.86	0.86
Floristic Quality Index	25.71	20.5	19.6

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## WATER QUALITY

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Water quality data through the CLMN program was collected by Lake District Employees in 2017 from three locations on the lake: North Basin, Central Basin, and South Basin. Total phosphorus, chlorophyll, water clarity, and dissolved oxygen/temperature profiles were collected from the South Basin and the Central Basin. Only water clarity and dissolved oxygen/temperature profiles were collected from the North Basin. Temperature/ dissolved oxygen profiles were taken on almost on a weekly basis for all three sites. Secchi readings were also taken almost weekly at all three sites throughout the season. Figure 5 shows a comparison of the monthly average Secchi depth readings for each site. With the exceptions of April and September, four Secchi readings were taken each month of the season in 2017. There was only one reading taken in both April and September. The best water clarity was found in the south basin which averaged a Secchi depth of 6.7 feet from April to September. Conversely, the north basin had the poorest water clarity with the April-September Secchi depths averaging 4.7 feet. The central basin fell in the middle of these two averaging 5.2 feet. As with most lakes, each of these basin's average Secchi depth is slightly lower for the summer (June-August) averages though this pattern remained in place with the south basin averaging 6.6 feet, the central basin was 4.9 feet, and the north basin was the lowest at 4.5 feet for the summer. This is the same trend shown in 2016, but overall clarity was lower in 2017 than it was in 2016. This is especially true for the north basin which was almost a foot lower than the 5.3 feet summer average seen in 2016. The central basin was 0.5 feet lower in 2017 than in 2016, and the south basin was only 0.2 feet lower. It is possible that the heavy rainfalls seen in 2016 essentially flushed the system resulting in higher water clarity than was seen in 2017 which had significantly less rain than 2016.



**Figure 4: Average Monthly Secchi Depth Readings, April- September 2017**

Total phosphorus and chlorophyll values in the south basin typically spike in late August - early September, while Secchi readings of water clarity tank, due to an influx of phosphorus from the bottom waters. The south basin of the lake normally stratifies in the early summer creating a layer of warm oxygen-rich water at the surface separated from cooler water in the bottom by the thermocline. With a thermocline in place, oxygen in the surface waters cannot mix with the cooler water, setting up the opportunity for the bottom waters to become anaerobic or devoid of oxygen in

the mid to late summer. When this happens, phosphorus formally locked up in the sediments is released back into the water column and becomes available for algae growth, turning the south basin green. Because the main basin of the lake is continually mixed by the influx of water from Bear Creek and the Red Cedar River, it does not stratify. However, both of these tributaries carry in a lot of phosphorus attached to suspended solids in the river water and may cause spikes in phosphorus like what is seen in the late June sample from the central basin. Chlorophyll values (which measure the amount of algae in the lake) don't spike, because the water from the tributaries carries on through the lake and over the dam relatively quickly, before algae can use it to turn the water green.

As previously stated, average summer water clarity in 2017 was notably lower than what was recorded in 2016. Total phosphorus and chlorophyll a values for 2017 were also significantly higher in 2017 than was seen in 2016. In the central basin, the average chlorophyll was almost two times higher in 2017 at 28.7 µg/l than the 14.4 µg/l average seen in 2016. This was also notably higher than the average of 15.3 µg/l for the Norwest Georegion. The total phosphorus levels increased as well with the 2017 average of 43.4 µg/l. This was an increase of 12.9 µg/l from the 2016 total phosphorus levels in the central basin.

In the south basin, similar to the central basin, both of the chemistry parameters that were tested for showed notable increases in 2017 from the 2016 levels. These increases in the south basin were not as large as was found in the central basin. The total phosphorus average for the south basin only showed an increase of 7.0 µg/l from 29.0 µg/l in 2016 to 36.0 µg/l in 2017. The chlorophyll average for 2017 showed the smallest increase from 18.4 µg/l in 2016 to 20.0 µg/l in 2017. Similar to the decreased water clarity, the increases in both total phosphorus and chlorophyll can likely be, at least partially, attributed to the lower rainfall amounts. Another factor that likely played into these increases was the amount of CLP that was present within Rice Lake. The spring of 2017 provided next to ideal conditions for CLP. This meant that despite the best efforts of the Lake District, there was likely a large amount of CLP that died off by early- July and released large amounts of phosphorus into the water column.

While the overall water quality was lower than has been seen in recent years, it was not the worst year on record. Figures 6-8 show the average yearly TSI for Secchi depth, and total phosphorus, and chlorophyll (when this data was collected) since 2001. The TSI values for the central and south basins were derived from the chlorophyll data while the north basin TSI was derived from the Secchi readings. The north and south basins both had an average TSI of 57 in 2017 this was no change in the south basin and a slight increase in the north basin. The highest TSI value was found in the central basin which had an average of 60 for 2017. This was also the largest increase which was likely due to the decrease in rain which would have the strongest impact on the central basin due to the location of the outlet at the Red Cedar River.



### Trophic State Index Graph: Rice Lake - North Basin - Barron County

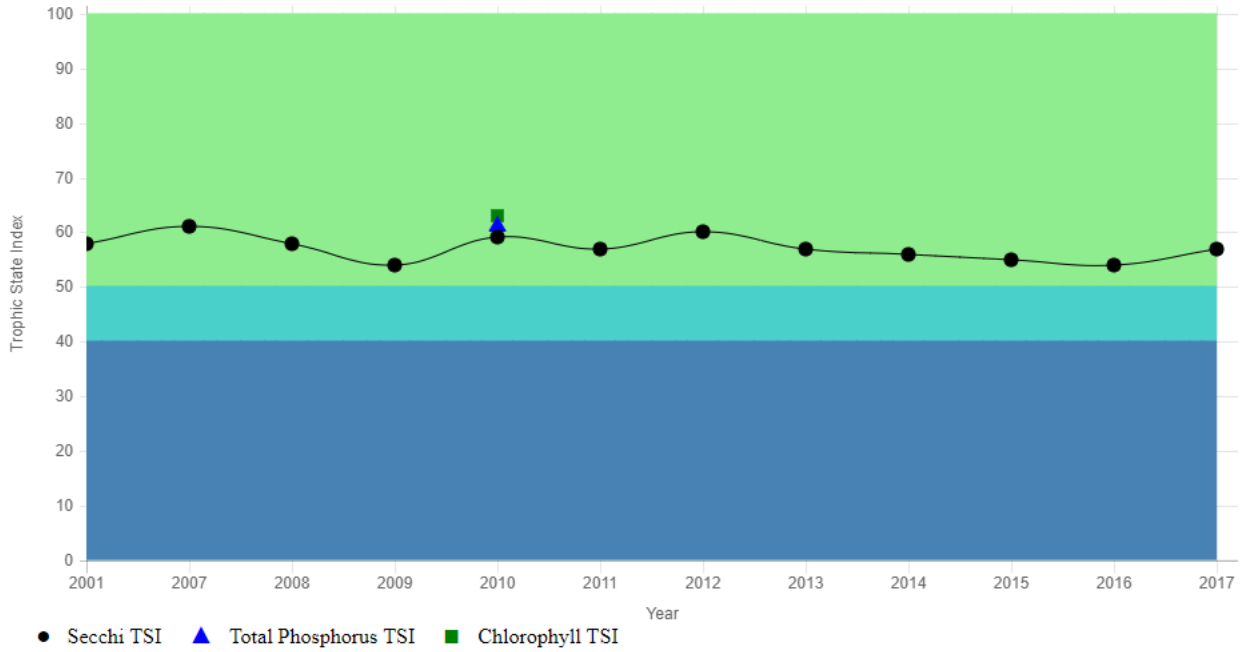


Figure 5: Average Yearly TSI- North Basin

### Trophic State Index Graph: Rice Lake - Site B/Central Basin - Barron County

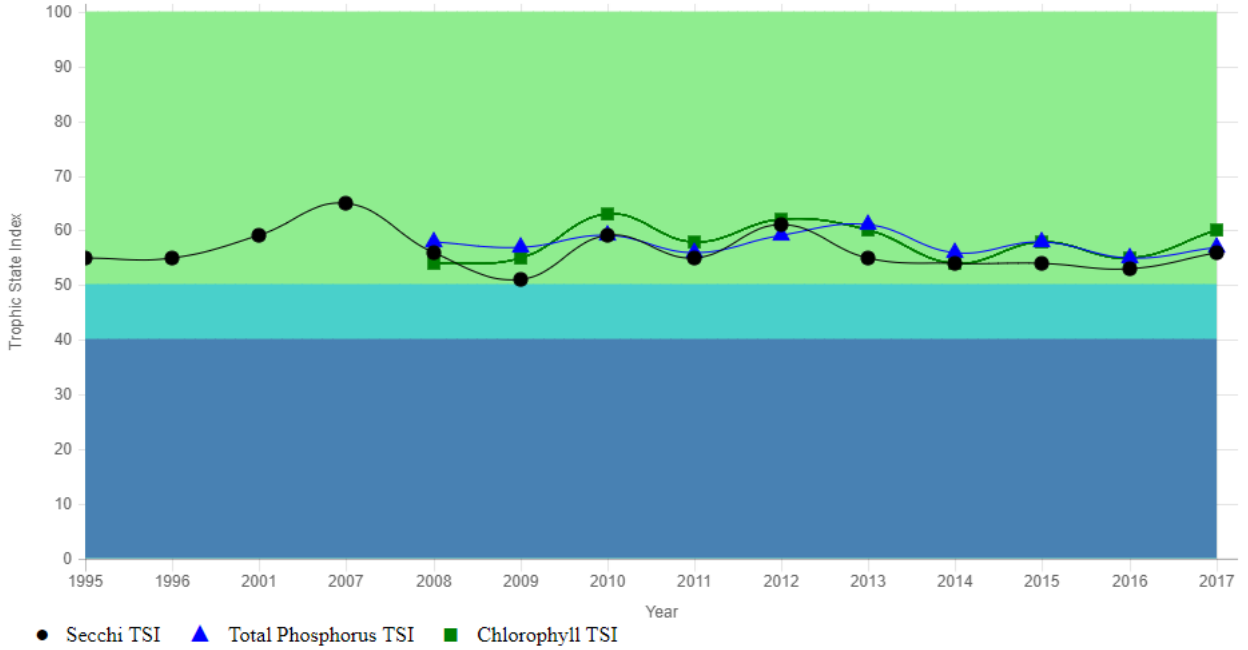
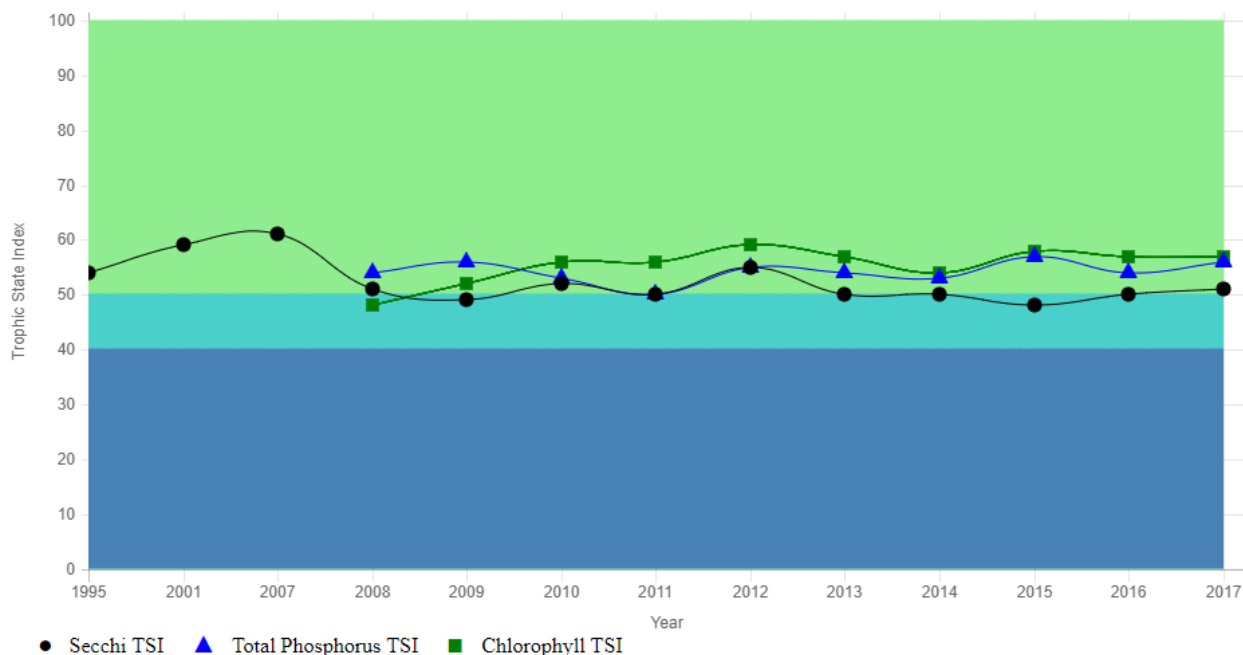


Figure 6: Average Yearly TSI- Central Basin

## Trophic State Index Graph: Rice Lake - Site C/South Basin - Barron County



**Figure 7: Average Yearly TSI- South Basin**

### DISSOLVED OXYGEN AND TEMPERATURE PROFILES

Lake District employees collected dissolved oxygen (DO) and temperature (Temp) profiles almost weekly from April 21<sup>st</sup> through September 1<sup>st</sup> at three sites. In the South Basin, the water column became fully stratified by June 2<sup>nd</sup> with the thermocline established in the 12-15 foot range. Oxygen levels were below 2.0 ppm at 18-ft from late May to September. Oxygen levels were below 2.0 ppm below 15-ft of water from mid-June through the last sampling date on September 1<sup>st</sup> except for two weeks in August.

In the Central and North Basins, the water column remained mixed for most of the season, with oxygen levels only dipping below 2.0 ppm briefly a couple of times in the August and September. Mixing in the Central and North Basins occurs because of the amount of water coming into the Main Basin from Bear Creek and the Red Cedar River providing nearly continuous flushing. There is no such tributary entering into the South Basin, so flushing does not occur as continuously, leading to low oxygen levels and phosphorus release from the bottom sediments at times when no oxygen is present in the deep water. As has been mentioned in past reports, the South Basin and the Main Basin are basically two different types of lakes connected by a narrow channel. Water moves from the South Basin into the Main Basin. Water does not flow into the South Basin from the Main Basin.

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### TRIBUTARY MONITORING

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As part of the Lake Planning Grant Awarded in 2017, nine stream tributaries to Rice Lake were monitored each month from April through October. In addition to the monthly sampling, samples were collected at the stream tributaries during the major snowmelt event in February and a large rain event in August. Samples were also taken at the Stump Lake Narrows on a monthly basis, though this was not sampled during the rain event or the snowmelt period.

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## SHORELAND IMPROVEMENTS PROJECTS

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The Native Plant Committee of the Lake District was formed a couple of years ago with this goal in mind: To minimize nutrient and toxin exposure for Rice Lake and its surrounding watershed. Some methods for achieving this goal are designing and building rain gardens to slow runoff and allow water percolation and filtering before draining into the lake; and installing lake shore buffers with native plants to slow runoff from streets, lawns, and other surfaces. To that end, the Lake District established a new line item in its annual budget to fund runoff reduction and diversion projects within the boundaries of the Lake District. As a part of this budget, the Committee has made a commitment to fund up to \$200 for consultant costs to come up with a design, and then if the project goes forward, the cost of the project would be split 50/50 with the Property Owner up to \$500 from the Lake District per project. Larger projects undertaken by larger public entities like the City of Rice Lake or a local town would similarly be split with up to \$2,000.00 from the Lake District. Other projects can be undertaken but would be handled case by case. Payments would be made after a project is completed and invoices for expenses submitted to the Lake District by the property owner.

The Lake District continued maintenance and care of several previous sites including the Lumbering Hall of Fame Park and Shutlick Park. In 2016 the old beach house at the old beach site was removed by the City of Rice Lake, and an informal agreement made with the Lake District to restore the site to something more desirable that both reduces runoff from the site and improves the aesthetics of the site. This was done over the summer of 2017, though no formal agreement was made with the City. A native planting was installed at this site and the necessary watering was taken care of by Lake District volunteers with some assistance from the Elks Club. The following projects were either: planned, planned and implemented, started, or completed in 2017.

- Planning and Installation of a Rain Garden Along the Beach Walk
- Cleanup of Native Planting Site at Narrows Bridge
- Installation of Erosion Mats at the Former Wolfinger Bird Sanctuary

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## LAKE EDUCATION EFFORTS

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### AIS MONITORING

Lake District employees monitored Rice Lake for AIS nearly every week from late May to early September 2017. One or both of the employees would go out on the Lake District Boat late in the week and survey the nearshore area, shallow water, and shoreline for AIS like EWM, purple loosestrife, and CLP. No EWM was found in 2017. Rice Lake is already known to have Chinese mystery snails, rusty crayfish, Japanese knotweed, and CLP. These AIS were again found in 2017, and where necessary, control work or removal was completed.

### CLEAN BOATS, CLEAN WATERS

A CBCW grant was applied for and received by the Lake District and Sharon Pacholski was retained to continue managing CBCW efforts on Rice Lake in 2017. Another CBCW grant was submitted in December 2017 to solicit funding to support the 2017 CBCW program. Additionally, two watercraft inspectors were hired from Rice Lake High School to man boat landings through the 2017 season. The CBCW program was incredibly active in 2017 with paid inspectors putting in 517.5 hours with an additional 86.5 hours put in by volunteers for a total of 604 hours of watercraft inspection. These inspectors, both paid and volunteer, inspected 772 boats and spoke to 1,275 boaters during the 2017 season.

### LAKE EDUCATION EVENTS

#### RICE LAKE AQUAFEST PARADE

The Lake District planned on again being represented in the Rice Lake Aquafest Parade in early June, but due to a severe storm, the Aquafest parade was cancelled. To make up for this, the float that was built for the aquafest parade was entered into the Fourth of July Parade in Mikana. The float was entered under the theme “Life’s a Beach” featuring a working storm water runoff model of waterfront property (Figure 8). The float was also featured at the Barron County Fair where LEAPS was also present to answer questions from the public.



**Figure 8 – Rice Lake Aquafest/ Mikana Fourth of July Parade Float (Blumer, 2017)**

#### BARRON COUNTY FAIR

The Lake District once again had a display booth in the WDNR/Barron County Building during the Barron County Fair in mid-July. Literature was provided to the public at the booth and a LEAPS employee was present much of the time to answer questions. Another feature of the Fair was the Storm Water Runoff Prevention Plinko

Game to teach people young and old about what they can do to reduce runoff pollution into lakes, rivers, and streams.

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## 53 & V PROJECTS

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Back in 2013 and 2014, the Lake District and the Bear Lake Association were awarded a sum of money as reparation for damage caused in 2012 when major sediment runoff from the Highways 53 and V Interchange Construction site fouled Bear Lake, Bear Creek, Stump Lake, and Rice Lake. The intent of the money was to use it for on-the-ground, shovel ready projects that would reduce future surface water runoff and sediment from entering waterways within the Rice Lake and Bear Lake watersheds. Several projects were proposed at the initial award. Some of those projects have been completed, others have been modified, and new projects have been proposed. The following projects were either: started, started and completed, or introduced in 2017.

### **BARRON COUNTY FAIRGROUNDS STORMWATER RETENTION BASIN/RAIN GARDEN**

A lake management planning grant was submitted and awarded in early 2017 to develop a storm water management plan for the Barron County Fairgrounds. Initially it was expected that a large infiltration trench would be installed along the Poultry Barn, and Barron County had begun preliminary planning for its construction. After review by a Cedar Corp, and engineer retained by the Rice Lake Protection and Rehabilitation District and Barron County Soil and Water Conservation Department, a new plan for the installation of a large stormwater retention basin/rain garden behind the Poultry Barn was developed. This plan was approved by Barron County, the Lake District, and the Barron County Fair Board. Construction of this project was completed in November of 2017 (Figure 9). The Lake District will be adding rain garden plants to the site in 2018. Public education signs will also be installed in 2018.





**Figure 9 - Barron County Fairgrounds Stormwater Retention Basin**

With the completion of this project and the four past projects, all of the Hwy 53 & V funds offered by the WiDOT have been incorporated into several different stormwater reduction projects.

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**FINAL WORD**

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Again, it was a busy year, a testament to the concerned, interested, and capable people that make up the Lake District Board. As in 2016, it seems the community is mostly satisfied with what is happening in and around Rice Lake, as regardless of the amount of publicity, only a few people ever show up at the Lake District Annual Meeting in October.

**Respectfully Submitted by Dave Blumer, LEAPS**