

LAKE EDUCATION AND PLANNING SERVICES, LLC

LOWER TURTLE LAKE BARRON COUNTY

2021 MANAGEMENT SUMMARY REPORT
WBIC: 2079700

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LOWER TURTLE LAKE MANAGEMENT DISTRICT

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INTRODUCTION

This report discusses lake management activities completed by the Lower Turtle Lake Management District (LTLMD) and Lake Education and Planning Services (LEAPS) throughout 2021. The following actions were completed by LEAPS in order to assist the LTLMD in aquatic plant management and lake stewardship education.

- Contracting Northern Aquatic Services to treat Curly-leaf pondweed (CLP)
- Performing CLP bed mapping surveys
- Developing a CLP treatment plan
- Participating in board and district meetings
- Managing Clean Boats, Clean Waters (CBCW) monitoring at the public boat launch

Below is a timeline of 2021 and the participating contractor for each event.

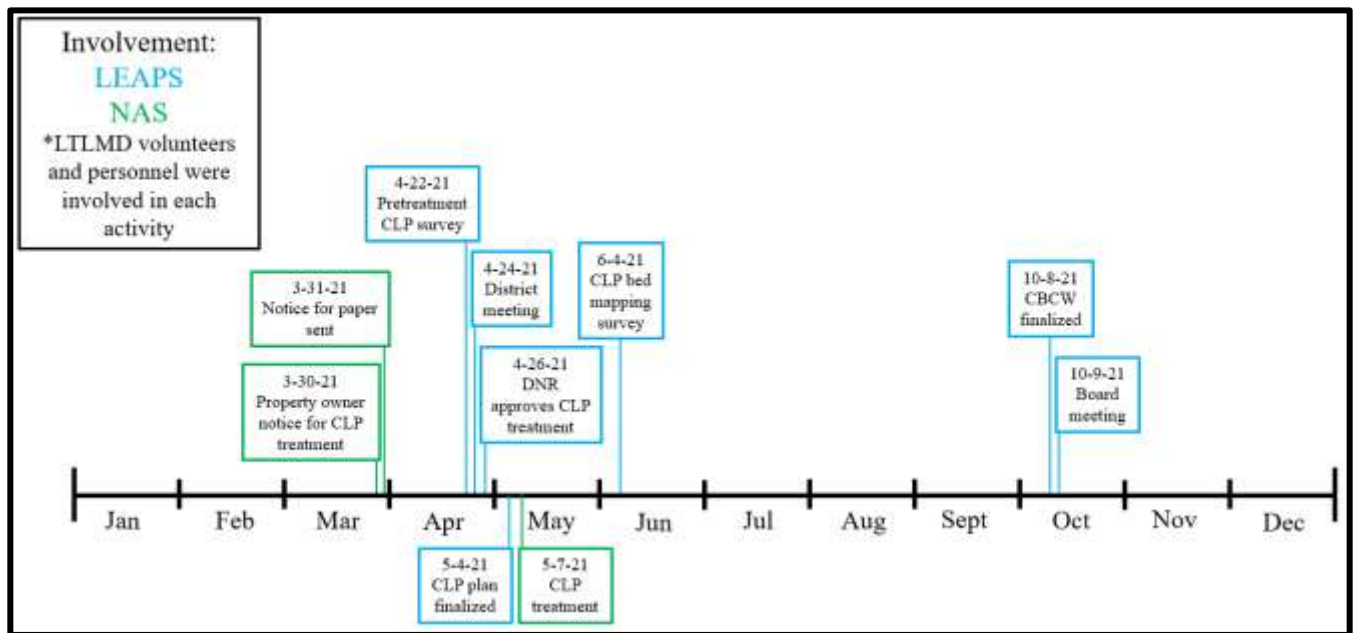


Figure 1. Timeline of 2021 Lower Turtle Lake management events involving LEAPS and other hired contractors

2021 LEAPS AND LTLMD SERVICES AGREEMENT

On February 9th, 2021, the LTLMD entered a professional services agreement with LEAPS to begin on March 1st and end on October 31st, 2021. It was agreed that LEAPS would provide consulting services for the LTLMD related to 2021 CLP management planning, CLP survey work, and general project support, including meeting attendance. This agreement has since ended, and all actions have been completed.

2021 CLP MANAGEMENT

LEAPS constructed a treatment plan for CLP in Lower Turtle Lake based on bed mapping that took place on April 22nd, 2021. Shoreline property owners adjacent to the treatment areas were notified in March of the upcoming treatment, and a notice was submitted to the local newspaper as well. The Wisconsin Department of Natural Resources (WDNR) approved the treatment plan on April 26th, 2021, and the plan was finalized on May 4th, 2021. On May 7th, 2021, 4 areas totaling 6.16 acres were treated by Northern Aquatic Services (NAS – Dale Dressel) using 35.84 gallons of liquid Aquathol K at 2.0-2.5 ppm (Figure 2). Following the treatment, LEAPS performed a CLP bed mapping survey on June 4th, 2021 and found 13.33 acres (Figure 2). Treated areas generally had less CLP than areas that were not treated, but the total acreage of CLP in the lake increased to 13.33 acres (Figure 2). This increase can likely be attributed to being later in the season when CLP growth had peaked and was more visible.

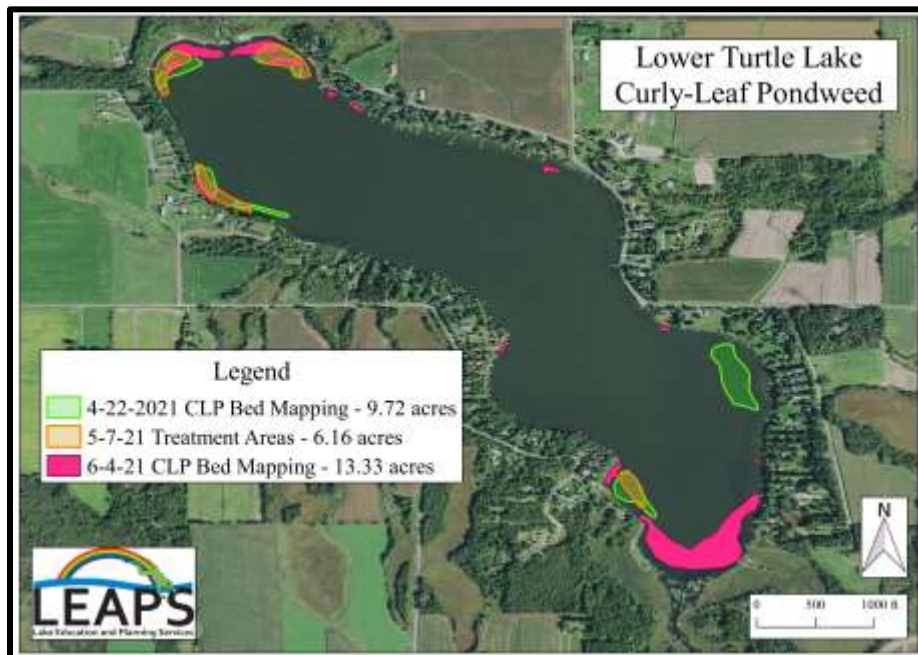


Figure 2. 2021 Lower Turtle Lake Curly-leaf pondweed management

2021 APRIL DISTRICT MEETING

On April 24th, 2021, the LTLMD hosted its annual district meeting. LEAPS personnel presented the ongoing CLP management plan and answered questions from the constituents pertaining to management. It was highlighted that the process included obtaining a WDNR chemical application permit, completing a CLP pretreatment survey, modifying the treatment proposal if needed, hiring a contractor to treat the CLP areas, and performing a CLP posttreatment survey – all of which have been completed.

2021 LTLMD CBCW

As part of the LTLMD 2020 CBCW Aquatic Invasive Species Grant (ID: CBCW82920), LEAPS provided watercraft inspection following WDNR CBCW guidelines at the public boat launch from May 2nd to August 31st, 2021. This included hiring personnel, scheduling, data entry into the WDNR SWIMS database, and an end of season summary. Ultimately, 219 hours were spent on the lake (205 hours on the east landing and 15 hours on the west landing), 4 hours were spent on data entry, and 4 hours of LEAPS personnel time was spent scheduling and creating the end of year summary (Table 1). Ultimately, 160 boats were inspected and 345 people were contacted over the course of the summer. Of the 160 boats inspected, 35 (22%) had been on another lake in the last five days, of those, 158 (94%) had been on a lake with a known aquatic invasive species (AIS; Table 2).

Table 1. 2021 Lower Turtle Lake CBCW hours

Month	Monitoring (hrs)	Data Entry (hrs)
May	32	0.0
June	36	0.5
July	71	2.0
August	57	1.5

Table 2. 2021 Lower Turtle Lake CBCW boats contacted information

Lower Turtle Lake			
Lake	County	# of Times	AIS
Upper Turtle Lake	Barron	6	CLP
Rice Lake	Barron	5	CLP, HEWM
Moon Lake	Barron	3	CLP
Beaver Dam	Barron	2	CLP, EWM
Granite Lake	Barron	2	CLP
Grindstone Lake	Sawyer	2	CLP
Long Lake	Washburn	2	CLP
Balsam Lake	Washburn	1	CLP
Big Bass Lake	Washburn	1	
Big Chetac	Sawyer	1	CLP
Big Round Lake	Polk	1	CLP
Callahan Lake	Sawyer	1	EWM
Echo Lake	Barron	1	EWM
Horseshoe	Barron/Polk	1	CLP, HEWM
Kekegama Lake	Washburn	1	
Lauderdale Lake Chain	Walworth	1	CLP, EWM, ZM
Round Lake	Burnett	1	CLP, EWM
Tainter Lake	Dunn	1	CLP, JK
Vermillion Lake	Barron	1	CLP, EWM
Wapogasset Lake	Polk	1	CLP, JK, YI

2021 CITIZEN LAKE MONITORING

Water quality data was collected by volunteers in 2021 from the deep hole site (Station ID: 033161). Total phosphorus (TP) samples were collected on four dates throughout the summer and ranged from 27.6 ug/L to 56.3ug/L and averaged 41.6 ug/L (Table 3). Chlorophyll samples were collected three times throughout the summer, ranging from 16.5 ug/L to 59.8 ug/L and averaging 39.1 ug/L (Table 3). Secchi disk readings were taken seven times over the summer and ranged from 3 to 8 feet, averaging 5.5 feet (Table 3). These results gave the lake an average Trophic Status Index (TSI) score of 57.2, placing the lake in the eutrophic range, which is consistent with the results of previous years (Figure 3). Eutrophic lakes are characterized by decreased water clarity, oxygen-depleted bottom waters, excessive plant growth, and a warm-water fishery. These conditions accurately describe Lower Turtle Lake in 2021.

LEAPS supports the collection of these data and uses it to inform management decisions and educate LTLMD members and lake users about the lake.

Table 3. 2021 Lower Turtle Lake water quality data

Sample Date	TP (ug/L)	Chl-a (ug/L)	Secchi (ft)	
4/30/2021	27.6	-	8	
6/11/2021	-	-	8	
6/23/2021	49.6	41	4	
7/13/2021	-	-	5	
7/21/2021	32.9	16.5	5.5	
7/29/2021	-	-	5	
8/25/2021	56.3	59.8	3	
Average	41.6	39.1	5.5	
Average TSI	56.5	61.7	53.3	= 57.2

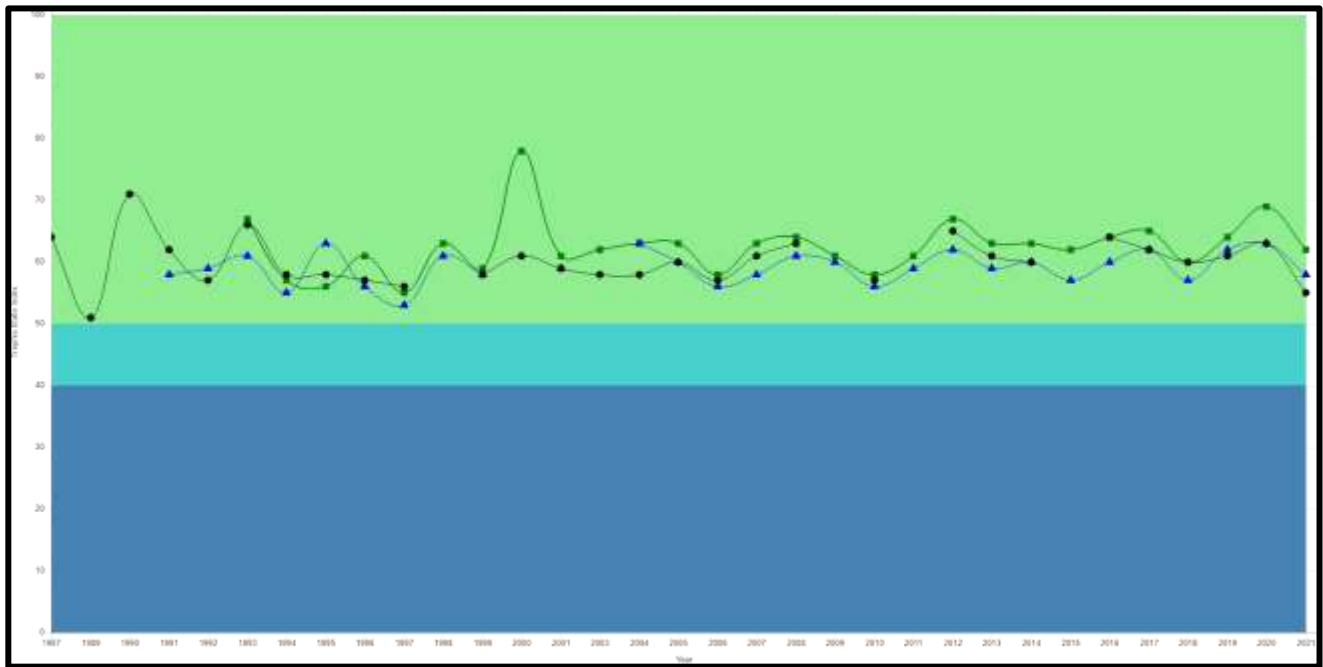


Figure 3. 1987-2021 Lower Turtle Lake summer (July and August) TSI status

2021 OCTOBER BOARD MEETING

LEAPS attended the October 9th, 2021 LTLMD board meeting. Attending this meeting was part of the services agreement for LEAPS to provide consulting services and general project support. LEAPS personnel answered questions pertaining to the year's management, water quality, and future management plans.

2021 AIS MONITORING

Aquatic invasive species (AIS) monitoring has been completed by volunteers on Lower Turtle Lake for several years. CLP was first verified and vouchered in the lake in 2008, and Chinese mystery snails were first verified to be in the lake since 2012. No other AIS are verified on the lake, but purple loosestrife, Japanese knotweed, and several other species are known to be in the immediate area. To stay ahead of the current infestations, as well as any other future AIS concerns, monitoring and education will continue in the future to prevent new introductions and limit their spread should they occur. The group will be recommended to continue with its education events and encouraging lake users to monitor for, and if found report and remove any other AIS including purple loosestrife and EWM.

2022 CLP PRELIMINARY MANAGEMENT PLANNING

Based on the results of the posttreatment bed mapping survey, chemical control will likely be warranted in 2022. The existing APM Plan which guides CLP management in Lower Turtle Lake through 2024 requires that CLP treatment areas be at least 1.0 acres in size, and it recommends treating the same areas at least three years in a row, unless not CLP is present during a pre-treatment survey. This is a possibility, because winter conditions can have a large impact on CLP growth, an early season CLP survey should be completed beforehand to determine if treatment is necessary.

A preliminary CLP treatment plan has been completed for Lower Turtle Lake for 2022. It includes four treatment areas covering 9.23 acres. The four areas include what was chemically treated in 2021 and expanded chemical treatment areas in the north basin on either side of the inlet from Upper Turtle Lake. Prior to 2021, CLP had last been chemically treated in 2017. 2021 started what is at a minimum of three years' worth of CLP management.