

LAKE EDUCATION AND PLANNING SERVICES, LLC

# RED LAKE DOUGLAS COUNTY

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2024 MANAGEMENT SUMMARY REPORT  
WBIC: 2492100

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RED LAKE ASSOCIATION  
WASCOTT, WI 54859

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## INTRODUCTION

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The Red Lake Association (RLA) is currently completing Eurasian watermilfoil (EWM) management under the guidance of Lake Education and Planning Services (LEAPS) with financial support from a two-year WDNR AIS small-scale, population control grant awarded in February 2023. This report discusses lake management activities completed by the RLA and LEAPS throughout 2024, the second year of this two-year project. The following list of education and management actions were completed in 2023.

- EWM management and surveys
- Red Lake Association meetings
- Day-on-the-Lake educational event
- Water quality
- AIS monitoring and watercraft inspection
- 2025 preliminary EWM management
- Year Two of the 2023-24 AIS Population control project

Each of these actions will be summarized in the following sections of this report.

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## 2024 EWM MANAGEMENT AND SURVEY WORK

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EWM management in 2023 included a single treatment area that was 0.54 acres in size along the west central shoreline using ProcellaCOR (PCOR) applied at 7pdus/acft (Figure 1, Table 1). While this was the only bed of EWM to be chemically treated in 2023, it was hoped that the smaller beds of EWM along the same shoreline would also be “controlled”.



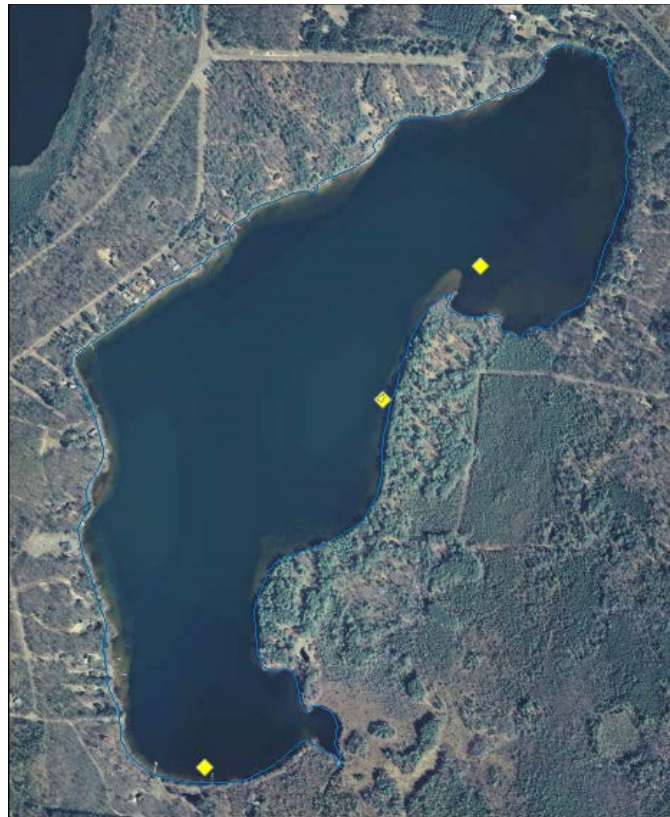
**Figure 1: 2023 EWM ProcellaCOR treatment area (white outline) in Red Lake**

**Table 1: 2023 Red Lake EWM treatment details**

2023 Red Lake, Douglas County Preliminary Spring EWM ProcellaCOR Treatment Proposal-11/10/2022								
Eurasian Watermilfoil — ProcellaCOR								
Treatment Location	Acreage	Mean Depth (feet)	Volume (acre-feet)	PDU/Site	*PDU/Acre-Foot	FL OZ (1PDU =3.17 floz)	Gallons (128 fl oz)	NOTES
West Shore - N. Central	0.54	8	4.32	30.24	7.0	95.86	0.75	Last chemically treated in 2022.
	0.54		4.32	30.24		95.86	0.7489125	
ProcellaCOR - 95.86 PDU @ \$75/PDU = \$7,189.50								
Total Treated Area = .54 acres								
<b>TOTAL COST ESTIMATE - \$7189.50 (herbicide) + \$300 (Trip Fee) = \$7489.50</b>								

Application of PCOR was completed by Northern Aquatic Services on June 7, 2023.

During a post-chemical treatment survey in mid-June, a couple single plants were found in the south basin and the north basin and a small, dense bed of EWM was found along the east shore. This bed was only a few feet in diameter but contained many multi-stemmed plants (Figure 2).



**Figure 2: June 24 Post-treatment EWM meandering survey results (LEAPS)**

In addition to an application of PCOR, free diving was completed on two different dates in 2023 – May 30 and June 27. During the first trip to the lake, the free diving team removed enough EWM plants to fill ¾ of an 18-gallon tote (Figure 2). The second trip was on June 27, to remove the new bed that was found earlier in June.



Figure 3: Free diver – Lana - bringing EWM to the boat (left), and the total EWM removed from Red Lake during the first trip on May 30, 2023

Based on 2023 fall EWM mapping (Figure 2), management of EWM in 2023 was mostly successful with no EWM found in the PCOR treatment area nor in areas adjacent to it during a fall survey. Only two small beds were found, one in the south end of the lake and one in the north end of the lake.

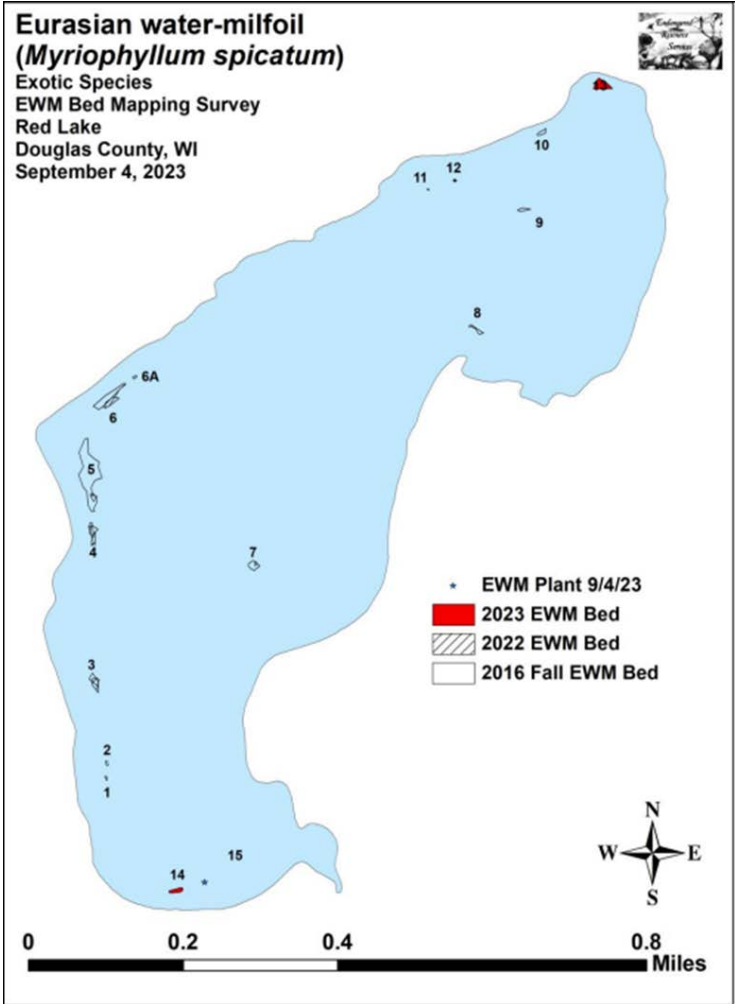


Figure 4: 2023 Fall EWM bed mapping results

## 2024 PRELIMINARY EWM MANAGEMENT PLANS

Going into 2024, EWM management was to only include physical removal via free diving. However, 2024 survey work identified several new or rebounding areas of EWM that were either in too deep of water, or too large for free diving to be effective. Diver-Assisted Suction Harvest (DASH) was added and completed late in the summer.

### 2024 EWM MANAGEMENT

On June 30th, LEAPS (Dave and Lana Blumer) removed an 18-gal tote of EWM from Beds 3, 4, and 5. During a survey on July 25, more EWM was found in Beds 1 and 2, and a new small, dense bed of EWM was found along the southeast shore of the lake in an area where EWM had not been found before (Bed 6). As a result, a mechanical harvesting – DASH permit was submitted to the WDNR and a DASH Contractor – Aquatic Plant Management, Inc was contacted and scheduled for a day of DASH removal. DASH removal occurred on August 29 in Beds 1,5, and 6. The DASH team was not able to get to any other locations on the lake.

During the DASH removal process, 5.6hrs of dive time was recorded. Approximately 10 onion bags of EWM were removed estimated at 28.5cuft (APM, 2024). A DASH report is included as a grant deliverable in 2024.

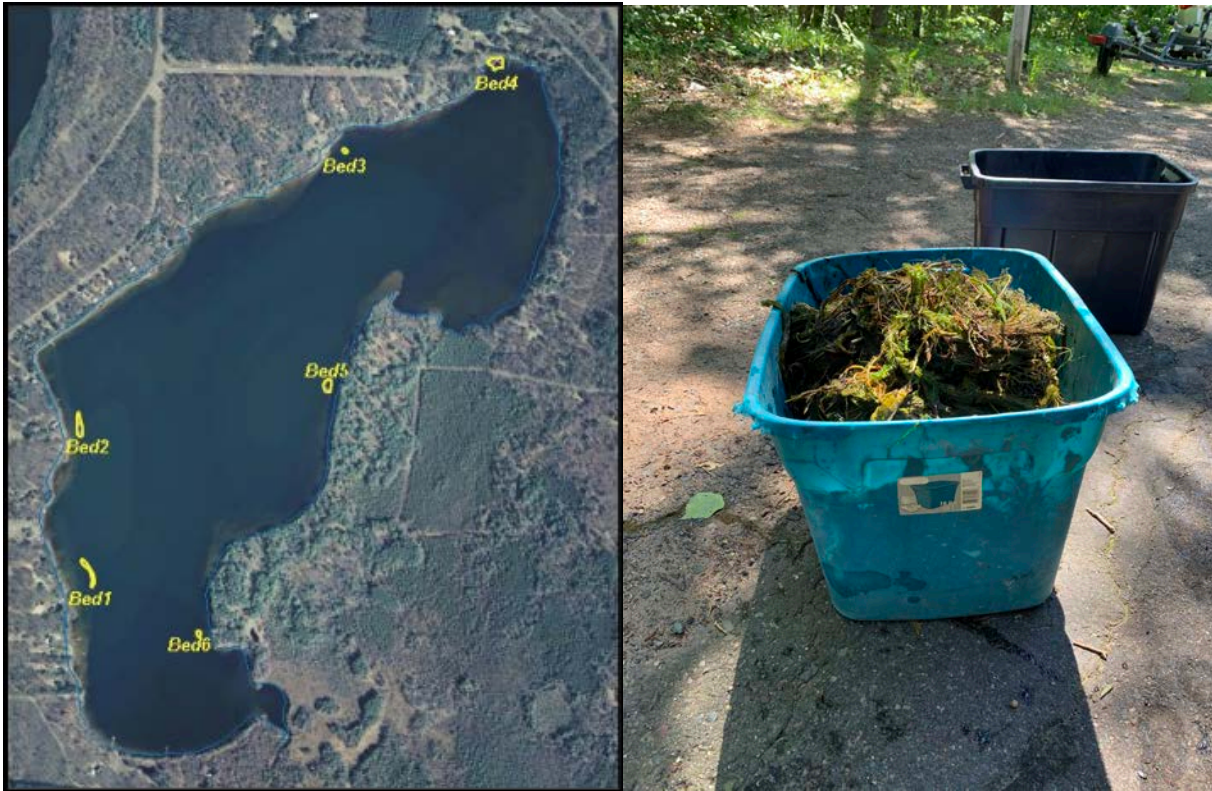


Figure 5: 2024 EWM beds and Free diving/DASH removal locations; EWM removed on June 30



**Figure 6: DASH removal of EWM on Red Lake, August 29, 2024. Aquatic Plant Management Inc was contracted to provide services.**

### **2024 FALL EWM BED MAPPING RESULTS**

On September 7, Endangered Resource Services (ERS) surveyed transects covering 12.4 miles on Red Lake spending extra time in the 2024 manual removal areas, the 2021, 2022, and 2023 treatment areas, looking at all areas that previously supported EWM. Skies were mostly sunny skies and calm winds which allowed surveyors to see down 7-8ft into the water column – slightly better than normal due to the exceptionally good conditions. There was no sign of EWM in the 2023 treatment area (Beds 6 and 6A). On the ERS map, beds 1,2,2a,3,4,11,11a,12,13 &16 were all included in either free diving or DASH removal. All these areas had EWM present, although at lower levels than they were earlier in the summer. The fall survey mapped 11 microbeds and high-density areas that totaled 0.54 acres (0.21%) of the lake’s surface area (Figure 7). The largest true bed was Bed 11 which covered 0.12 acre, was canopied, and seemed likely to cause at least minor navigation impairment. Conversely, “Beds” 2A, 13, and 16 had regular but only scattered EWM, and were likely better described as “high density areas”. Outside of these areas, five isolated individual plants were found and rake removed. Compared to the 0.19-acre (0.08% surface area) found in 2023, these results suggested a 0.35-acre (+184.21%) increase in total EWM coverage. This acreage was, however, like 2022 when eight areas totaling 0.45 acre (0.18% surface area) were found (Table 2).



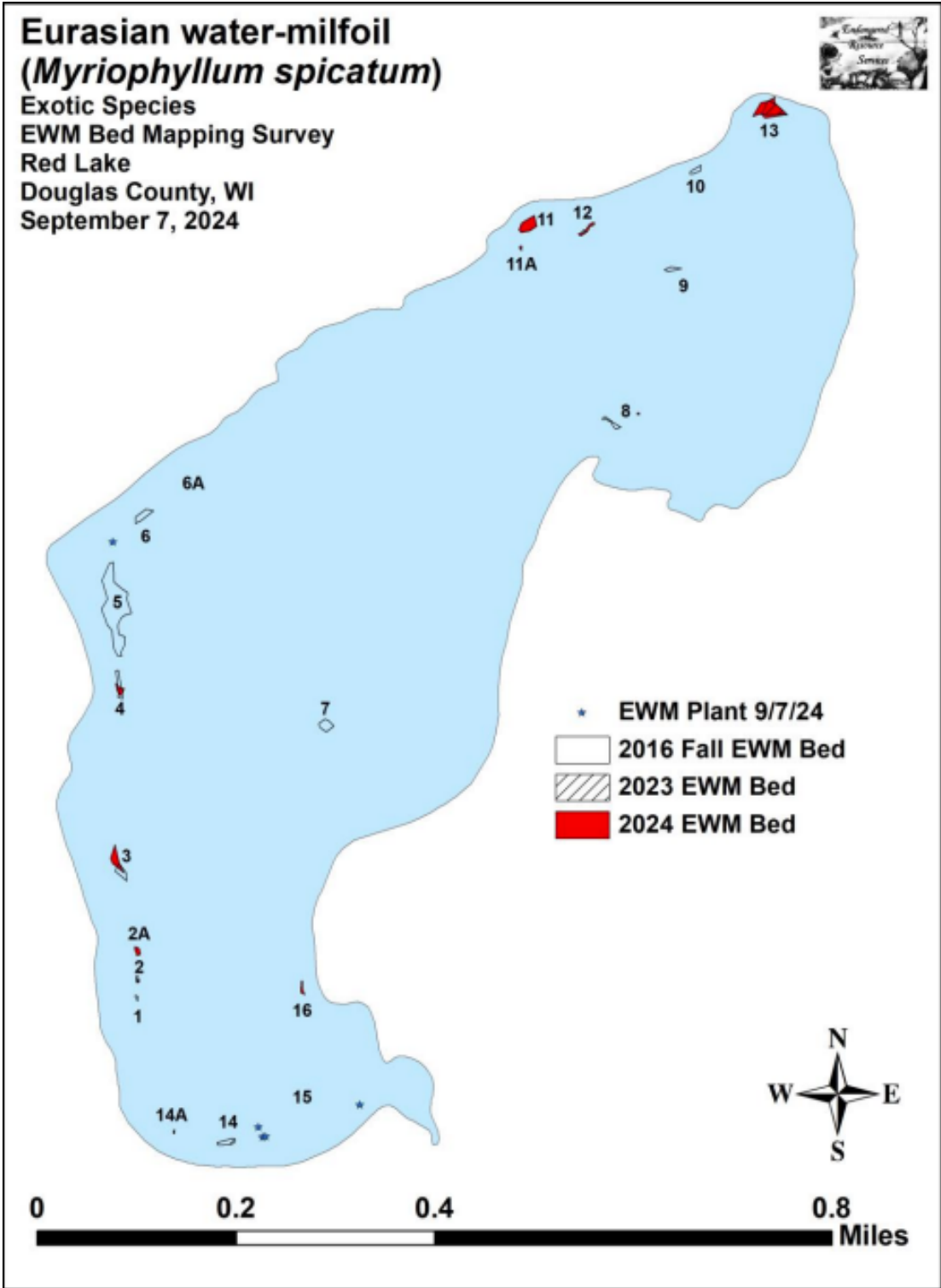


Figure 7: 2024 Fall EWM bed mapping results (ERS)

**Table 2: EWM Late Summer/Fall Bed Summary Red Lake - Douglas County, WI 2016-2024 (ERS)**

Bed Number	2024 Area in Acres	2023 Area in Acres	2022 Area in Acres	2021 Area in Acres	2020 Area in Acres	2019** Area in Acres	2018 Area in Acres	2017 Area in Acres	2016 Area in Acres	2023-24 Change in Acreage
1	0.01	0	0	0	0	0	0	0	<0.01	0.01
2	0.02	0	0	0	0	0	0	0	<0.01	0.02
2A	0.08	0	0	0	0	0	0	0	0	0.08
3	0	0	0.07	0	0.03	0	0	0	0.06	0
4	0.03	0	0.09	0	<0.01	0	0	0	0.06	0.03
5	0	0	0.02	0	0	0	0.01	0.09	0.83	0
6	0	0	0.25	0	0	0	0	0	0.07	0
6A	0	0	0.01	0	0	0	0	0	0	0
7	0	0	0.01	0	0	0	0.04	0	0.07	0
8	<0.01	0	0	0	0	0	0	0	0.03	<0.01
9	0	0	0	0	0	0.39	0	0	0.03	0
10	0	0	0	0	0	0	0	0	0.03	0
11	0.12	0	<0.01	0.01	0	0.49	0	0	0	0.12
11A	<0.01	0	0	0	0	0	0	0	0	<0.01
12	0.03	<0.01	<0.01	0	0	0.29	0	0	0	0.03
13	0.23	0.13	0	0	0	0.76	0	0	0	0.10
14	0	0.05	0	0	0.49	0	0	0	0	-0.05
14A	<0.01	0	0	0	0	0	0	0	0	<0.01
15	0	0	0	0	0.11	0	0	0	0	0
16	0.02	0	0	0	0	0	0	0	0	0.02
<b>Total</b>	<b>0.54</b>	<b>0.19</b>	<b>0.45</b>	<b>0.01</b>	<b>0.63</b>	<b>1.93</b>	<b>0.05</b>	<b>0.09</b>	<b>1.18</b>	<b>+0.35</b>

\*\*We did not survey in 2019 so treatment areas were used as an estimate

## 2024 RLA ANNUAL MEETING

The 2024 RLA Annual Meeting was held on May 25 at the Wascott Town Hall. LEAPS attended and went through a power-point presentation laying out the details of the new Red Lake Aquatic Plant Management Plan to cover the years 2024 to 2028. A handout was given to all attendees detailing the approach to EWM management over the next five years. During the meeting, RLA constituents approved the new APM Plan for posting and a 21-day online review period.

Another member meeting of the RLA was held on August 24, 2024.

### 2024-28 RED LAKE AQUATIC PLANT MANAGEMENT PLAN

Part of the 2023-24 AIS Population Control grant for Red Lake included the update of the existing APM Plan that officially ended December 31, 2023. A draft of the new 2024-28 APM Plan was completed with input from the RLA Board in early 2024 by LEAPS. LEAPS presented the Goals, Objectives, and Management Actions to the RLA constituency during the 2024 RLA Annual Meeting on May 25.

After approval by the RLA Board and its constituency, on June 5<sup>th</sup>, the APM Plan and its Appendices were posted at the following locations for a 21-day public review and comment period: Red Lake Public Facebook, Red Lake Private Facebook, Twitter (X), Instagram, the RLA website, and a link was provided for the RLA Google Drive. During the 21-day review period, no comments were received from the constituency or any other stakeholders/interested parties.

On August 26, the APM Plan and Appendices were sent to the WDNR with a request for review and approval. The WDNR responded on September 3 that it had received the APM Plan but has not commented on its approval yet. This may in part be because the RLA was not planning on applying for grant funds for the 2025 season and because of shortages in WDNR personnel. A new Northern Region Lake and AIS Coordinator is expected to be hired by the WDNR by the end of the year 2024.

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## 2024 DAY ON THE LAKE AIS EDUCATION EVENT

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The RLA hosted a Day on the Lake AIS Education Event on July 27, 2024. The event was set up at the boat landing. Several tables were set up with examples of the AIS of most concern: EWM, zebra mussels, and purple loosestrife (Figure 8). Many “look-a-likes” to EWM including hybrid watermilfoil, northern watermilfoil, coontail, and water marigold were also on display. After an onshore learning portion of the event, participants loaded onto two pontoons and spent some more time touring the lake putting to use what they had learned on shore. During the on-lake portion of the event, several areas with EWM were explored and plants were removed via rake. The new bed of EWM on the southeast shore was shown to the participants and management actions to control it and other areas of EWM were discussed. A total of 10 Red Lake property owners attended the event that ran from 9:00 – 11:30am.



**Figure 8: Photos from the 2024 Red Lake Association AIS Identification and Removal Event – July 27**

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## 2024 CITIZEN LAKE MONITORING NETWORK WATER QUALITY

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Red Lake is a part of the Citizen Lake Monitoring Network (CLMN) expanded water quality testing program. RLA volunteers collect Secchi disk readings of water clarity, and water samples for analysis of total phosphorus (TP) and chlorophyll-a (Chla). RLA volunteers were able to collect water samples on three of the four sampling periods, only missing the spring sample. Secchi disk readings of water clarity were taken at least ten times in 2024 (Table 3).

Table 3: 2024 Red Lake Deep Hole Trophic State Index samples and observations (WEx, 2024)

RED LAKE - DEEP HOLE (163383)									2024
Trophic State Index Samples and Observations									
Date	Secchi depth (ft)	Secchi hit bottom	TSI_Secchi	Total phosphorus (mg/L)	TSI_TotalP	Chlorophyll-a (ug/L)	TSI_Chla	Water color	User perception
2024-06-13		no						BLUE	1
2024-06-19	11.50	no	42					BLUE	1
2024-06-24	9.00	no	45	0.013	48	3.0	43	BLUE	1
2024-07-08	11.50	no	42					BLUE	1
2024-07-22	12.00	no	41			2.3	41	BLUE	1
2024-07-31		no						BLUE	1
2024-08-12	9.50	no	45					BLUE	2
2024-08-20	12.50	no	41			2.3	41	BLUE	1
2024-08-30	12.00	no	41					BLUE	1
2024-09-09	12.00	no	41					BLUE	1
2024-09-18	12.00	no	41					BLUE	1
2024-09-29	15.50	no	38					BLUE	1

Trophic state indices (TSI) indicate the amount of nutrients in the lake. The TSI equations use late summer (July 15 - September 15) averages of Secchi depth, total phosphorus, and chlorophyll-a. Eutrophic values indicate excess nutrients, lower water clarity, and greater risk of harmful algal blooms and hypoxia (low oxygen). Mesotrophic values indicate moderate levels of nutrients and moderate water clarity. Oligotrophic values indicate low levels of nutrients, high water clarity, and lower risk of hypoxia. TSI values for Red Lake over time indicate that it is mostly a mesotrophic lake (Figure 9).

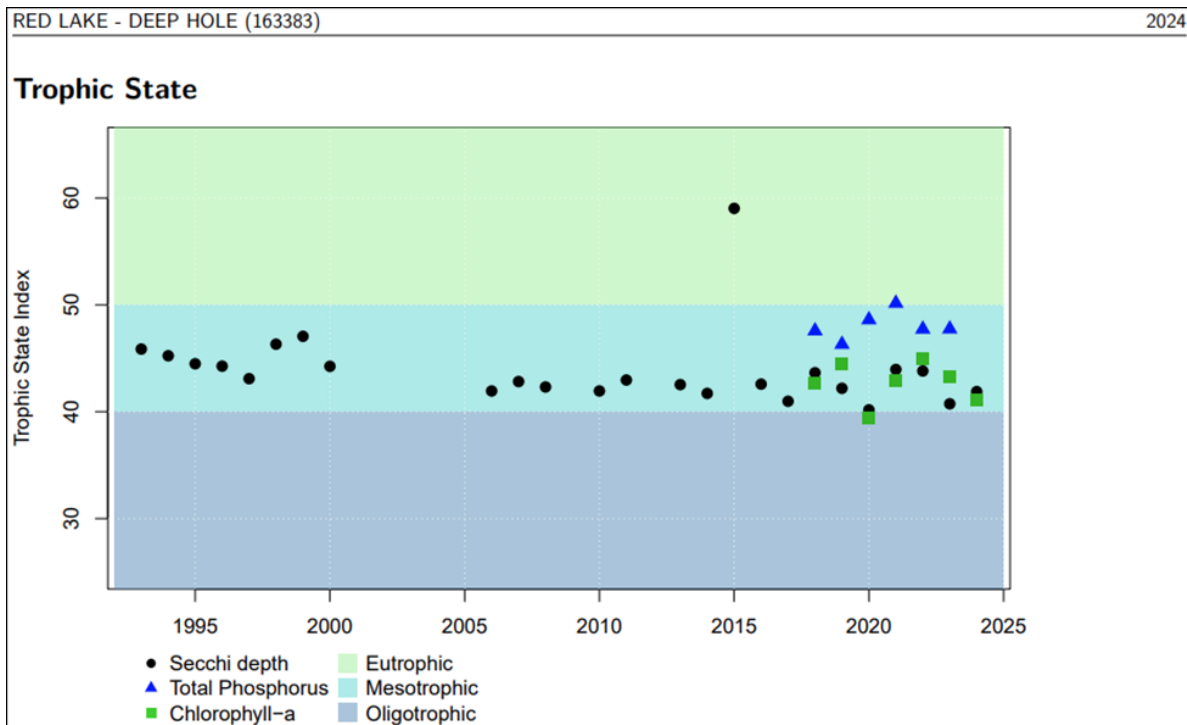


Figure 9: 1993-2024 Red Lake summer (July and August) TSI status (WEx, 2024)

Red Lake late summer trophic indicator averages (red) from the last 10 years compared to other similar deep seepage lakes (gray box and whiskers). Red Lake is better than average for TP and Chla, but less than average for Secchi depth readings of water clarity (Figure 10).

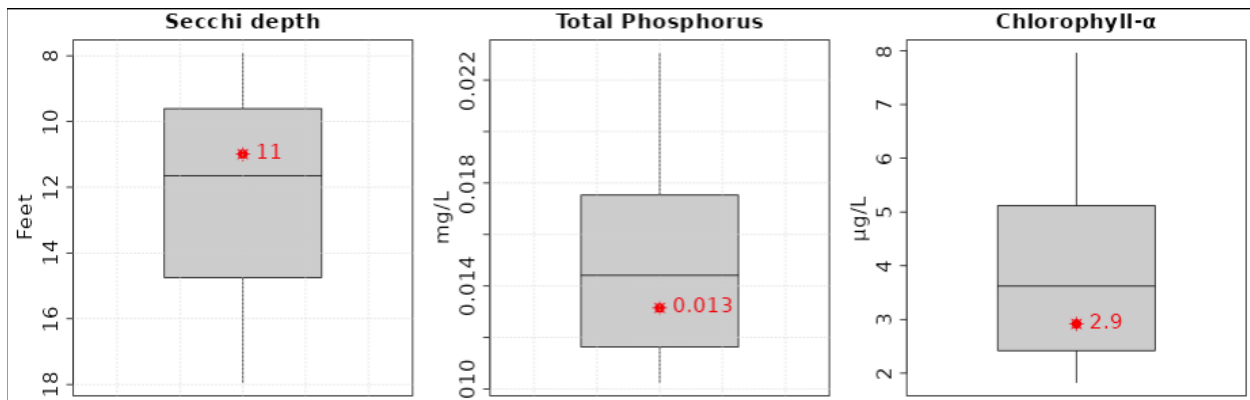


Figure 10: Trophic status of Red Lake compared to similar lakes (WEx, 2024)

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### 2024 AIS MONITORING AND WATERCRAFT INSPECTION

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No watercraft inspection was completed at the Red Lake boat landing in 2024. Aquatic invasive species (AIS) monitoring was completed several times in 2024.

- June 27 – LEAPS
- June 30 – LEAPS w/free diving removal
- July 25 – LEAPS
- July 27 – LEAPS and the Red Lake Association
- August 29 – LEAPS, RLA, APM (DASH removal)
- September 7 – Endangered Resource Services

In addition, RLA volunteers completed several surveys of the lake looking for EWM and other AIS.

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### 2025 EWM PRELIMINARY MANAGEMENT PLANNING

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2025 preliminary EWM management planning for Red Lake has already been completed (Figure 11, Table 4). Presently the RLA will need to decide whether it wants to pursue the application of herbicide (ProcellaCOR) to several areas of the lake or stick with free diving and DASH removal or just free diving and DASH removal. Management actions implemented in 2025 would be paid for by the RLA and with any remaining funds available in the existing grant through an extension.

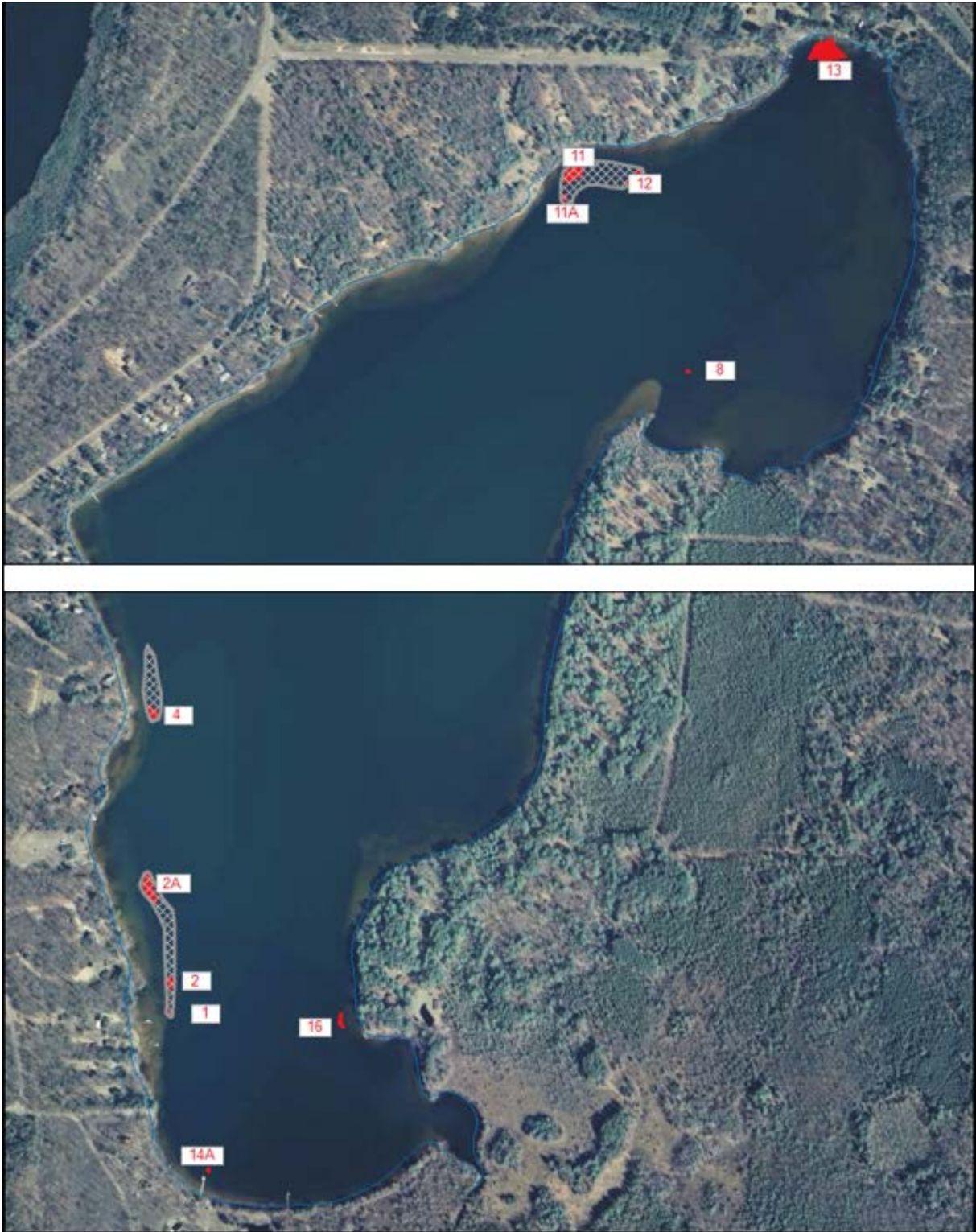


Figure 11: 2025 Preliminary EWM management map

**Table 4: 2025 Preliminary EWM management details and expected costs**

<b>2025 Red Lake Preliminary Chemical Treatment-ProcellaCOR</b>									
<b>2025 Red Lake, Douglas County Preliminary Spring EWM ProcellaCOR Treatment Proposal-10/7/2024</b>									
Eurasian Watermilfoil — Proc ellaCOR									
Treatment Location	ERS Bed #	Acreage	Mean Depth (feet)	Volume (acre-feet)	PDU/Site	*PDU/Acre-Foot	FL OZ (1PDU =3.17 floz)	Gallons (128 fl oz)	NOTES
Bed1-25	2,2A,3	0.96	8	7.68	46.08	6.0	146.07	1.14	Never been chemically treated
Bed2-25	4	0.56	7	3.92	23.52	6.0	74.56	0.58	Never been chemically treated
Bed3-25	11,11A,12	1.17	6	7.02	35.10	5.0	111.27	0.87	Last chemically treated in 2022.
		2.69		18.62	104.70		331.90	2.59	
<b>ProcellaCOR - 104.7 PDU @ \$80/PDU = \$8,376.00</b>									
<b>Total Treated Area =2.69 acres</b>									
<b>TOTAL COST ESTIMATE - \$8376.00 (herbicide) + \$300 (Trip Fee) = \$8676.00</b>									
<b>2025 Red Lake, Douglas County EWM FreeDiver/Diver/DASH Removal-10/7/2024</b>									
Eurasian Watermilfoil — Diver/DASH									
Treatment Location	ERS Bed #	Acreage	Mean Depth (feet)	Volume (acre-feet)	NOTES				
Bed4-25	13	0.23	3	0.69	Last chemically treated in 2020.				
Bed5-25	8	0.01	5	0.05	Last chemically treated in 2019.				
Bed6-25	no #	0.04	6	0.24	Never been chemically treated				
Bed7-25	16	0.02	7	0.14	Never been chemically treated				
Bed8-25	14,14A,15	0.01	6	0.06	Last chemically treated in 2021.				
		0.31		1.18					
<b>Two days of DASH (16 hours) = Estimated Cost = \$7,000.00</b>									

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**2024, YEAR TWO OF THE 2023-24 AIS SMALL-SCALE POPULATION CONTROL GRANT**

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2024 is the last year of the 2023-24 AIS population control grant for Red Lake. The activities in 2024 that LEAPS was responsible for have mostly been done (Table 5). The only remaining activities is follow-up over the approval of the new APM Plan and summary reporting of 2024 activities. The RLA is currently requesting an extension to the 2023-24 AIS population control grant and hope to use the remaining funds to support free diving and DASH removal of EWM, and/or application of ProcellaCOR in 2024.

With the completion of 2024 activities, there will be no more money available in the existing grant to cover Consultant costs and travel expenses.

Table 5: 2024 LEAPS activities

Lake Education and Planning Services REDLK 2023-24 ACEI Yr 2		Enter date as mm/dd/yy EV Table Date = 31-Oct-24					
Task Description	Manager	Start Date	Finish Date	Task Budget	Percent Complete	Earned Value	
Cost Code		1-Jan-24	31-Dec-24	\$ 5,575	97.6%	\$ 5,440	
1	Planning and Organization	DLB	1-Jan-24	31-Dec-24	x		
1a	EWM management planning		1-Jan-24	31-Dec-24	x	810	
1b	WDNR permit preparation		1-Feb-24	1-Aug-24	x	270	
1c	Update of APM Plan		1-Jan-24	31-Dec-24	x	2,052	
2	Communications	DLB	1-Jan-24	31-Dec-24	x		
2a	Sharing of information		1-Jan-24	31-Dec-24	x	180	
2b	Attendance at two meetings		1-Jan-24	31-Dec-24	x	1,080	
3	Target Species Management	DLB	1-Jan-24	31-Dec-24	x		
3a	Support for EWM management		1-Jan-24	31-Dec-24	x	360	
4	Knowledge and Resources	DLB	1-Jan-24	31-Dec-24	x		
4a	Support for EWM bed mapping		1-Apr-24	30-Nov-24	x	171	
5	Administration	DLB	1-Jan-24	31-Dec-24	x		
5a	General support		1-Jan-24	31-Dec-24	x	342	
5b	Travel		1-Jan-24	31-Dec-24	x	175	
TOTALS				5,575		5,440	
<b>Total Project Progress:</b>		<b>\$5,440</b>	<b>/ \$ 5,575 =</b>		<b>97.6%</b>		

REFERENCES

Berg, M. (2024). Eurasian water-milfoil (*Myriophyllum spicatum*) Late Summer Bed Mapping Survey Red Lake (WBIC: 2492100) Douglas County, Wisconsin

Wisconsin Water Explorer (WEx). <https://dnr-wisconsin.shinyapps.io/WaterExplorer/>