1.0 INTRODUCTION

Berry Lake, Menominee and Oconto Counties, is an approximately 209-acre seepage lake with a maximum depth of 27 feet and a mean depth of 8 feet (Figure 1.0-1, Photograph 1.0-1). This mesotrophic lake has a relatively small watershed when compared to the size of the lake. Eurasian water milfoil (EWM), later confirmed also having hybrid watermilfoil (HWM) has been present in Berry Lake since at least 2007. This report will refer to the overall invasive watermilfoil population of Berry Lake as "HWM."

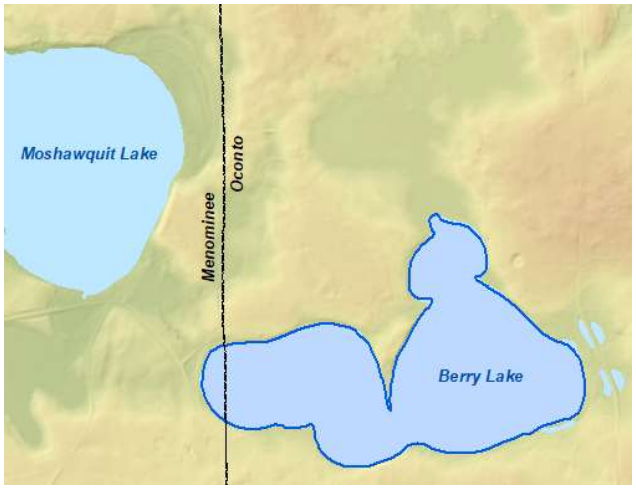


Figure 1.0-1. Berry Lake, Oconto-Menominee Counties.

Photograph 1.0-1. Berry Lake, Oconto-Menominee Counties. Photo Credit: Onterra

As a seepage lake lacking inlets and outlets, Berry Lake is subjected to dramatic fluctuations in water levels driven by regional climactic factors including rainfall and snow melt. Water levels in the Great Lakes region have been tied to a roughly 13 year oscillation (Watras et al. 2014). A USGS gauge station on Berry Lake provides a continuous record of water levels since 2013. These data have shown that water levels increased in the lake by about five feet since 2013 and peaked in 2020. In recent years water levels have trended lower, down nearly four feet since 2020. The impact that the water level fluctuations may have on the aquatic plant populations in Berry Lake is difficult to determine. Overall, some species likely struggle to adapt to the changing water levels, while other species may thrive in the natural disturbance.

The Berry Lake Property Association (BLPOA) was founded in 1940, leading HWM management and planning projects until recently. As of January 1, 2025, the Berry Lake Community District (BLCD) was formed and has taken the responsibility for carrying out lake protection, management, and enhancement activities on Berry Lake.

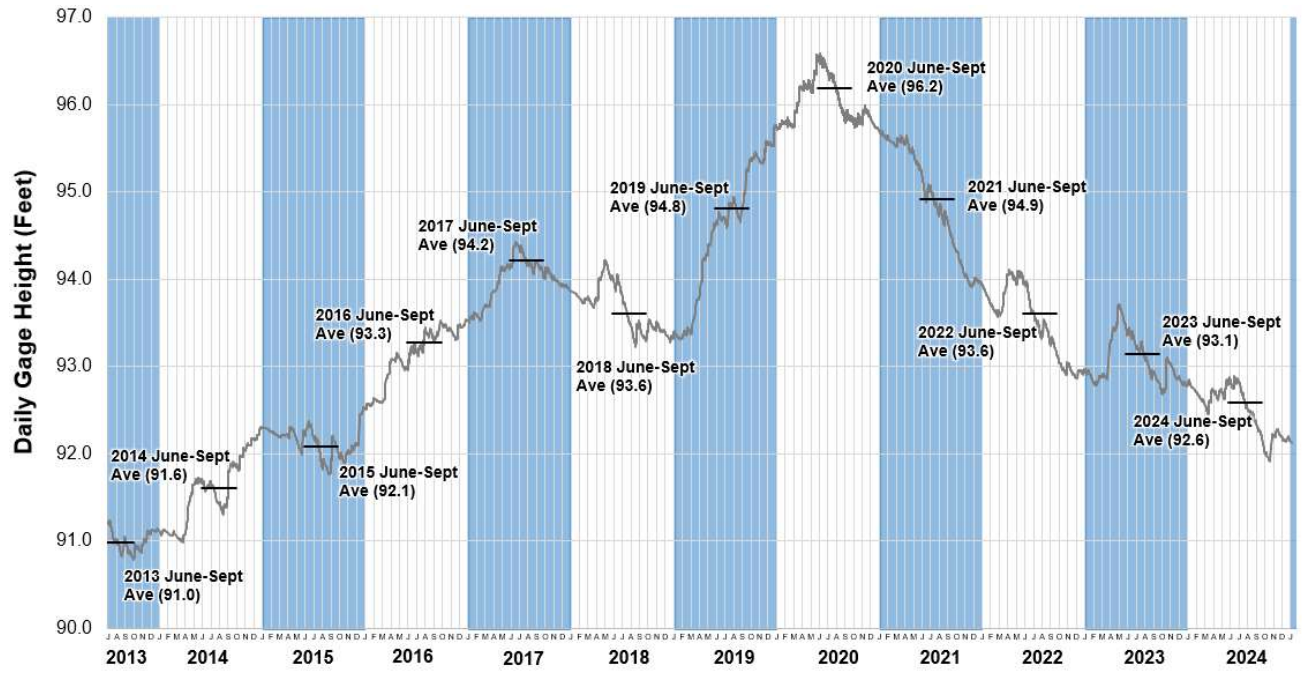


Figure 1.1-1. Berry Lake water levels from 2013-2024. Created using online data from USGS.

1.1 Recent HWM Management

Numerous management efforts have targeted the HWM population within Berry Lake since discovery, including volunteer and professional hand-harvesting efforts, and herbicide applications at various scales (spot, basin-wide, and whole-lake treatments). ProcellaCOR (florpyrauxifen-benzyl) was adopted for use in managing the lake's HWM population in recent years due to its increased efficacy on watermilfoil compared to other herbicides, and its narrower range of native aquatic species impacted by this chemistry.

The BLPOA completed an *Aquatic Plant Management (APM) Plan* in November 2023 and will be carried out by the BLCD, incorporating lessons learned over the past years, as well as accounting for evolved definitions of aquatic plant Best Management Practices (BMPs) and new invasive species management philosophies. The completion of the APM Plan also aligns the BLCD for future WDNR grants and permits, as the WDNR requires a lake group's Plan to have a completion date of no more than 5 years prior to the grant application deadline, amongst other stipulations.

1.2 2024 HWM Management & Monitoring Strategy

Based upon the 2023 Late-Season HWM Mapping Survey, the HWM population in the western basin exceeded levels that can be managed with hand-harvesting, so the BLPOA opted to move forward with a fall 2023 WDNR grant application to conduct a basin-wide ProcellaCOR treatment in the western basin during spring 2024. Unfortunately, the AIS Control Grant was not successful. After much discussion, the BLPOA opted to postpone the large-scale HWM management plan potentially until spring 2025 following another grant application opportunity in fall of 2024. The BLPOA instead focused their 2024 efforts on financial fundraising activities in the event that future grants continue to be difficult to obtain. This included the formation of the BLCD, which will allow a greater financial capacity for taking on

projects like this in the future. They also ensured the necessary pretreatment monitoring would be completed during 2024 to be prepared for a potential herbicide application in spring 2025.

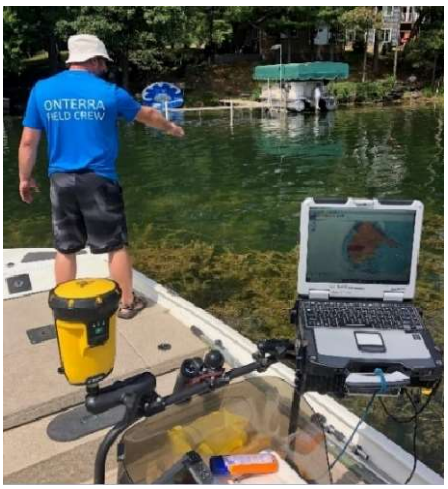
With changes in technologies and what is considered a Best Management Practice (BMP) for EWM management, the BLPOA used this new information to update their *Aquatic Plant Management Plan* (Nov 2023). The *APM Plan* discusses their desire for staggered eastern vs western whole-basin treatments (not in the same year) in an effort to protect the native plant community, particularly native dicots like bladderworts which are abundant in this system. Depending on the progression of the EWM population in 2024, the BLPOA would consider a whole-lake treatment in 2025 as opposed to their preferred staggered approach.

This report details the results of the monitoring that took place during 2024, with focus on developing a management strategy for 2025. No WDNR grant funds were used as cost-share for the 2024 monitoring and planning activities.

2.0 2024 AQUATIC PLANT MONITORING RESULTS

It is important to note that two types of surveys are discussed in the subsequent materials: 1) point-intercept surveys and 2) HWM mapping surveys. Overall, each survey has its strengths and weaknesses, which is why both are utilized in different ways as part of this project. The point-intercept survey provides a standardized way to gain quantitative information about a lake's aquatic plant population through visiting predetermined locations and using a rake sampler to identify all the plants at each location (Photograph 2.0-1). The survey methodology allows comparisons to be made over time, as well as between lakes. The point-intercept survey can be applied at various scales, but most often applied at the whole-lake scale.

Photograph 2.0-1. Point-intercept survey on Berry lake. Photo credit Onterra.



Photograph 2.0-2. EWM mapping survey on a Wisconsin lake. Photo credit Onterra.

While the point-intercept survey is a valuable tool to understand the overall plant population of a lake, it does not offer a full account (census) of where a particular species exists in the lake. During the HWM mapping survey, the entire littoral area of the lake is surveyed through visual observations from the boat (Photograph 2.0-1). Field crews supplemented the visual survey by deploying a submersible camera

along with periodically doing rake tows. The HWM population is mapped using sub-meter GPS technology by using either 1) point-based or 2) area-based methodologies. Large colonies >40 feet in diameter are mapped using polygons (areas) and are qualitatively attributed a density rating based upon a five-tiered scale from *highly scattered* to *surface matting*. Point-based techniques were applied to AIS locations that were considered as *small plant colonies* (<40 feet in diameter), *clumps of plants*, or *single or few plants*.

2.1 Whole-Lake Point-Intercept Survey

A point-intercept aquatic plant survey was first conducted on Berry Lake in 2007. Additional surveys were conducted by the WDNR in 2008-2015 as part of the EWM Long-Term Trends Monitoring Dataset and continued in 2016-2020 by Onterra as part of a WDNR grant-funded AIS control and monitoring project. Surveys were also completed during 2023-2024. A full matrix of the littoral frequency of occurrence data from whole-lake point-intercept surveys in Berry Lake is included in Appendix A.

Whole-lake point-intercept surveys are used to quantify the abundance of individual plant species within the lake. A total of 21 native aquatic plant species were physically encountered on the survey rake during the 2024 whole-lake point-intercept survey. Fern-leaf pondweed (28.6%), Muskgrasses (21.1%), and variable-leaf pondweed (20.3%) were the most frequently encountered native aquatic plant species in the survey (Figure 1.1-1).

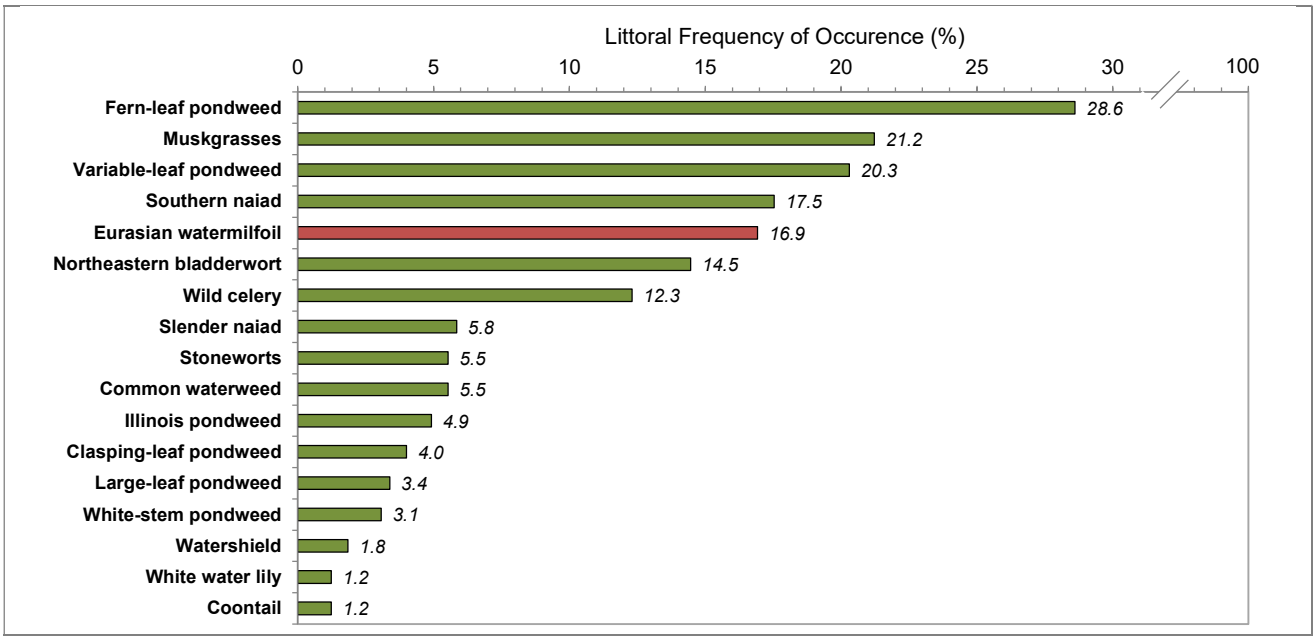


Figure 2.1-1. Littoral Frequency of Occurrence of Aquatic Plants from 2024 Point-Intercept Survey in Berry Lake. Species with >1.0 LFOO displayed.

In the field, it is often difficult to distinguish between certain species of aquatic plants that are very similar morphologically, especially when flowering/fruiting material is not present. Because of this, the littoral occurrences of the following morphologically-similar species were combined for the following analysis: muskgrasses (*Chara* spp.) and stoneworts (*Nitella* spp.), slender naiad (*Najas flexilis*) and southern naiads (*N. guadalupensis*), variable-leaf (*Potamogeton gramineus*) and Illinois pondweeds (*P. illinoensis*), as well as common waterweed (*Elodea canadensis*) and slender waterweed (*E. nuttallii*).

The following series of figures compares the 2024 aquatic plant population to past surveys that have occurred on the lake.

Charophytes have historically been one of the most frequently encountered species during the point-intercept surveys in Berry Lake (Figure 2.1-2). The combined occurrence of muskgrasses and stonewort species was 26.8% in 2024 which is similar to recent surveys.

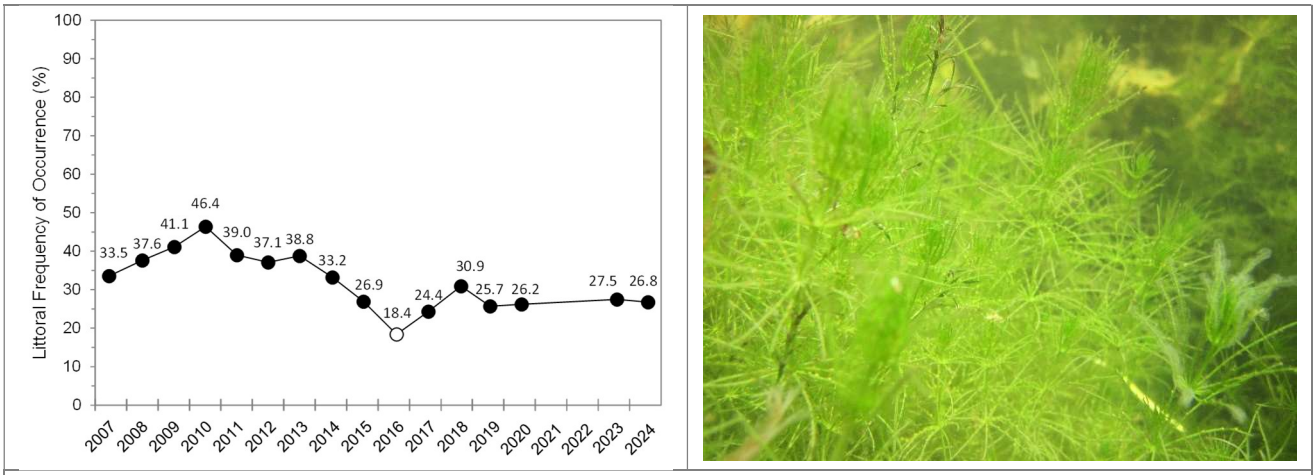


Figure 2.1-2. Charophytes Littoral Frequency of Occurrence in Berry Lake. Open circle represents statistically valid change from previous survey (Chi-Square α = 0.05).

Fern-leaf pondweed was the most frequently encountered species in the 2024 survey and has been historically common within the lake. The occurrence of fern-leaf pondweed in Berry Lake was fairly stable from 2007-2012 and then exhibited a gradual decline in occurrence from 2012-2020. The 2023-2024 survey show the occurrence increased since 2020 and is again approaching 30% occurrence.

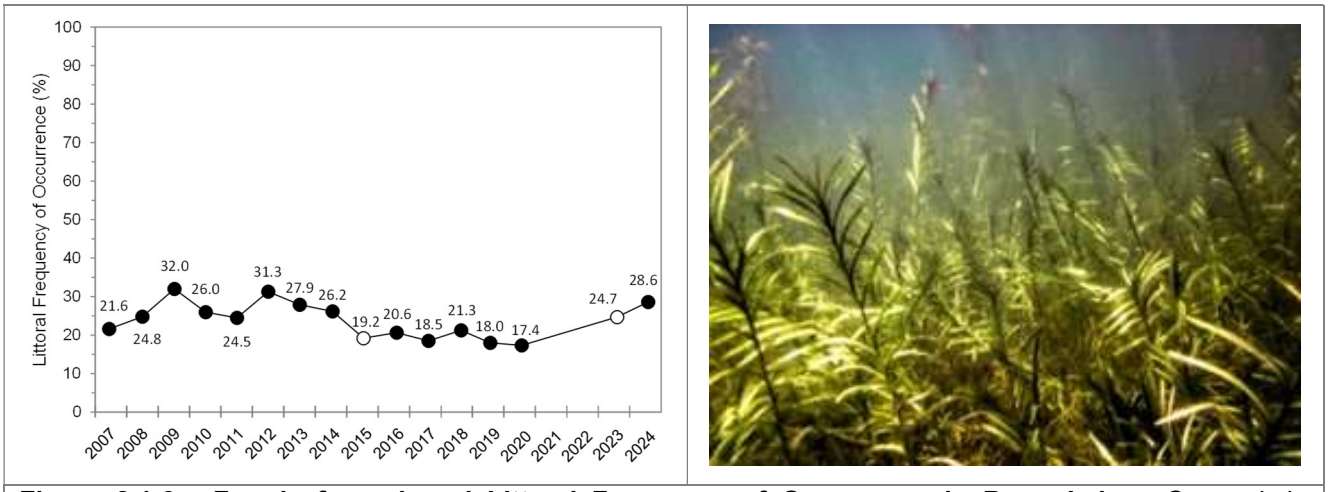


Figure 2.1-3. Fern-leaf pondweed Littoral Frequency of Occurrence in Berry Lake. Open circle represents statistically valid change from previous survey (Chi-Square α = 0.05).

Variable-leaf and Illinois pondweed are two of several pondweed species found in Wisconsin. These pondweeds produce long, slender stems with alternating lance-shaped leaves. These plants can look very different from lake to lake, with some populations having larger leaves and others possessing

smaller leaves. The occurrence of these pondweeds has been variable over time with some statistically valid changes in occurrence (Figure 2.1-4).

Northeastern bladderwort is considered a special concern species in Wisconsin because it is considered vulnerable due to a fairly restricted range. This species has been relatively stable throughout the monitoring timeframe although has trended lower in recent years and at 14.5% in the 2024 survey, was the lowest occurrence to date (Figure 2.1-4). The occurrence of wild celery has fluctuated slightly over time but overall has been relatively stable over the monitoring timeframe (Figure 2.1-4).

The combined occurrences of slender and southern naiads are common within Berry Lake. Populations have been variable over the monitoring timeframe and the 2024 occurrence was similar to the previous two surveys (Figure 2.1-4).

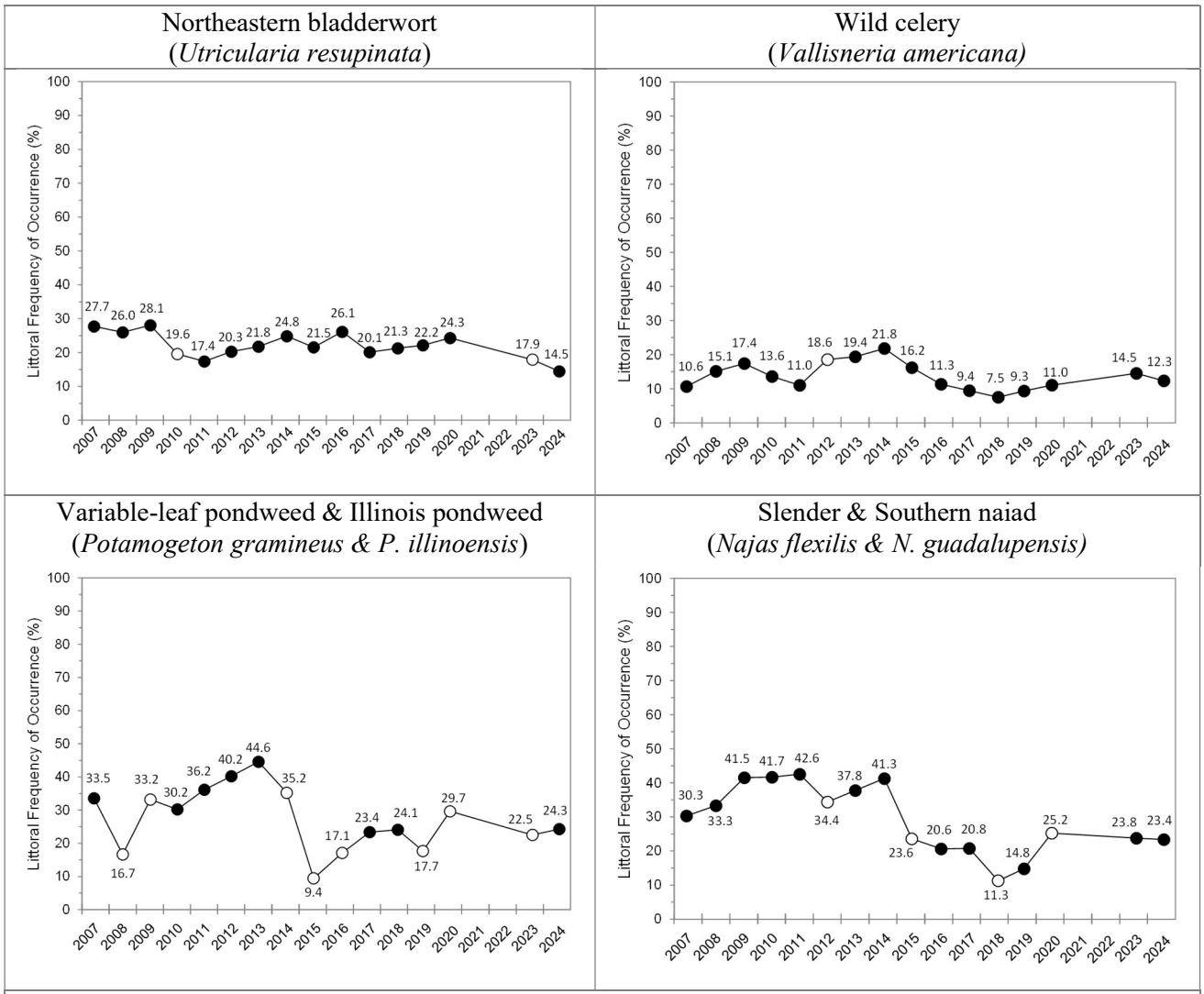


Figure 2.1-4. Littoral Frequency of Occurrence for select species common in Berry Lake. Open circle represents statistically valid change in occurrence from previous survey (Chi-Square α = 0.05).

The occurrence of HWM in the point-intercept surveys has been highly variable over time as a result of active management occurring on the system (Figure 2.1-5). Expanded discussion of the EWM population and its response to management are included in the Berry Lake *APM Plan* (November 2023). Five summers after the spring 2020 eastern basin ProcellaCOR treatment, the EWM population has rebounded to 16.9% occurrence in the 2024 survey.

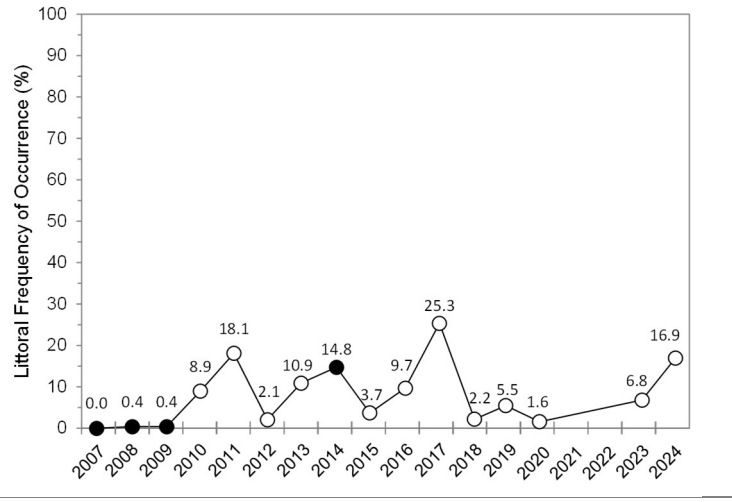


Figure 2.1-5. Hybrid watermilfoil Littoral Frequency of Occurrence in Berry Lake. Open circle represents statistically valid change from previous survey (Chi-Square α = 0.05).

Photograph 2.1-1. Hybrid watermilfoil from Berry Lake. Photo credit Onterra.

2.2 Late-Summer HWM Mapping Survey

Starting in 2013, late-season HWM mapping surveys began on Berry Lake using a consistent density rating system (Figure 2.2-1). These surveys approximate a census of all the HWM that can be observed through surface viewing. Please note that this figure only represents the acreage of mapped HWM polygons, not HWM mapped within point-based methodologies (*single or few plants, clumps of plants,* or *small plant colonies*). Said another way, HWM marked with point-based mapping methods do not contribute to colonized acreage as shown on Figure 2.2-1.

The most recent Late-Summer HWM Mapping Survey was conducted on August 30, 2024, to document the peak growth of the HWM population throughout the lake. The entire littoral zone was meandered and HWM occurrences were mapped by using the

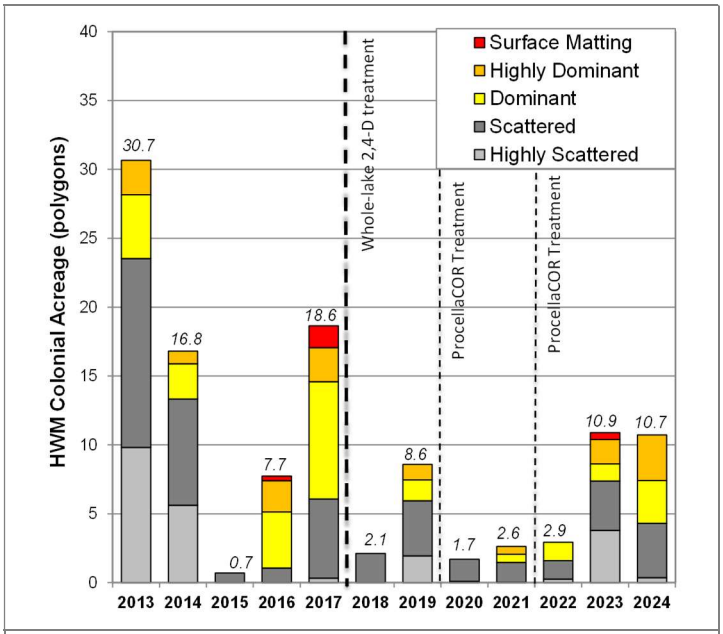


Figure 2.2-1. Berry Lake acreage of colonized HWM (polygons) from 2013-2024. Created using data from Onterra late-summer HWM mapping surveys.

methodology described above in Section 2.0. Survey conditions were cloudy with modest winds. Much of the plant biomass was near the waters' surface making for relatively straight-forward mapping conditions. In comparison, a few colonized areas mapped in 2023

A total of 10.7 acres of colonized HWM was mapped in the 2024 survey (Map 1). The colonized acreage is nearly the same as 2023; however, a larger proportion of the colonies consisted of *dominant* or greater density rating in 2024. The HWM population occupies approximately the same footprint as found within the 2023 survey, although there were some areas of reduced HWM presence observed between the two years (Map 1).

3. 0 CONCLUSIONS AND DISCUSSION

The 2024 point-intercept survey indicates the native aquatic plant community in Berry Lake continues to be of high quality. Some species exhibited statistically valid changes in occurrence since the previous survey but there were not any changes that are cause for concern. The EWM population increased to approximately 16% of the sampling locations within the littoral zone, the third highest population documented from Berry Lake.

The HWM population was similar between 2023 and 2024 with several colonized areas mapped around both basins of the lake with some increases in densities noted. Multiple colonies consisted of *dominant* or *highly dominant* density ratings which are indicative of nuisance conditions that interfere with recreational uses in the areas.

4.0 2025 HWM MANAGEMENT AND MONITORING STRATEGY

Based upon the surveys conducted in 2024, the HWM population has increased to a level that meets or exceeds the threshold outlined in the recently completed APM Plan for a whole-lake treatment. Therefore, the BLCD is pursuing a whole-lake herbicide treatment in 2025. An AIS Control Grant was application in the fall 2024 cycle, which if awarded, would provide funding assistance to carry out the proposed management and monitoring activities for 2025-2026.

The preliminary 2025 strategy targets the highest HWM occurrences in high-use areas, aiming for a whole-lake herbicide concentration sufficient to cause HWM mortality lake-wide. Extensive follow-up manual removal is planned for future years, the BLCD aims for the EWM population to be maintained below levels meeting the basin-wide herbicide trigger for 5+ years. All EWM colonies within the lake would be targeted with direct application of ProcellaCOR, reaching meaningful concentrations when uniformly mixed within each basin and within the lake (Map 2). This treatment would be conducted following best management practices and results in a lake-wide concentration of approximately 0.9 ppb with attention to reach uniform levels between each basin. However, measured whole-lake concentrations of florpyrauxifen-benzyl typically fall a little short of predicted levels as the herbicide converts into its acid metabolite form (florpyrauxifen acid) during the time it takes to mix evenly within the lake. This chemical metabolite is reported to have activity as an herbicide on aquatic plants, albeit to a lower degree than the active ingredient. Based upon Onterra's experience, florpyrauxifen-benzyl concentrations are anticipated to degrade below detection limits in 1-2 weeks, with florpyrauxifen acid concentration persisting above detection limits of 1-2 months.

4.1 Monitoring Plan

Pretreatment Confirmation & Refinement Survey

Onterra ecologists will conduct a Pretreatment Confirmation & Refinement Survey of the preliminary herbicide treatment areas. This meander-based survey would investigate for colonial expansion, reduced occurrence, growth stage of the HWM (and native plants), application area specifies (e.g. average depth & extents), and other aspects that would change treatment plan. Volunteers would collect temperature monitoring prior to treatment to assist with proper timing of the pretreatment survey. During this visit, Onterra staff would provide supplies and training to volunteers for conducting herbicide concentration monitoring. Berry Lake volunteers have participated in this form of monitoring in the past.

Following the Pretreatment Confirmation & Refinement Survey, an email-style report with map(s) of the survey results and finalized treatment plan would be provided to the BLCD, WDNR, and other project partners for review prior to the treatment. Spatial data would be provided to the herbicide applicator in appropriate format. The chosen contractor, in conjunction with the association, will be responsible for completing appropriate permit-related documentation and deliverables to the WDNR.

Herbicide Concentration Monitoring

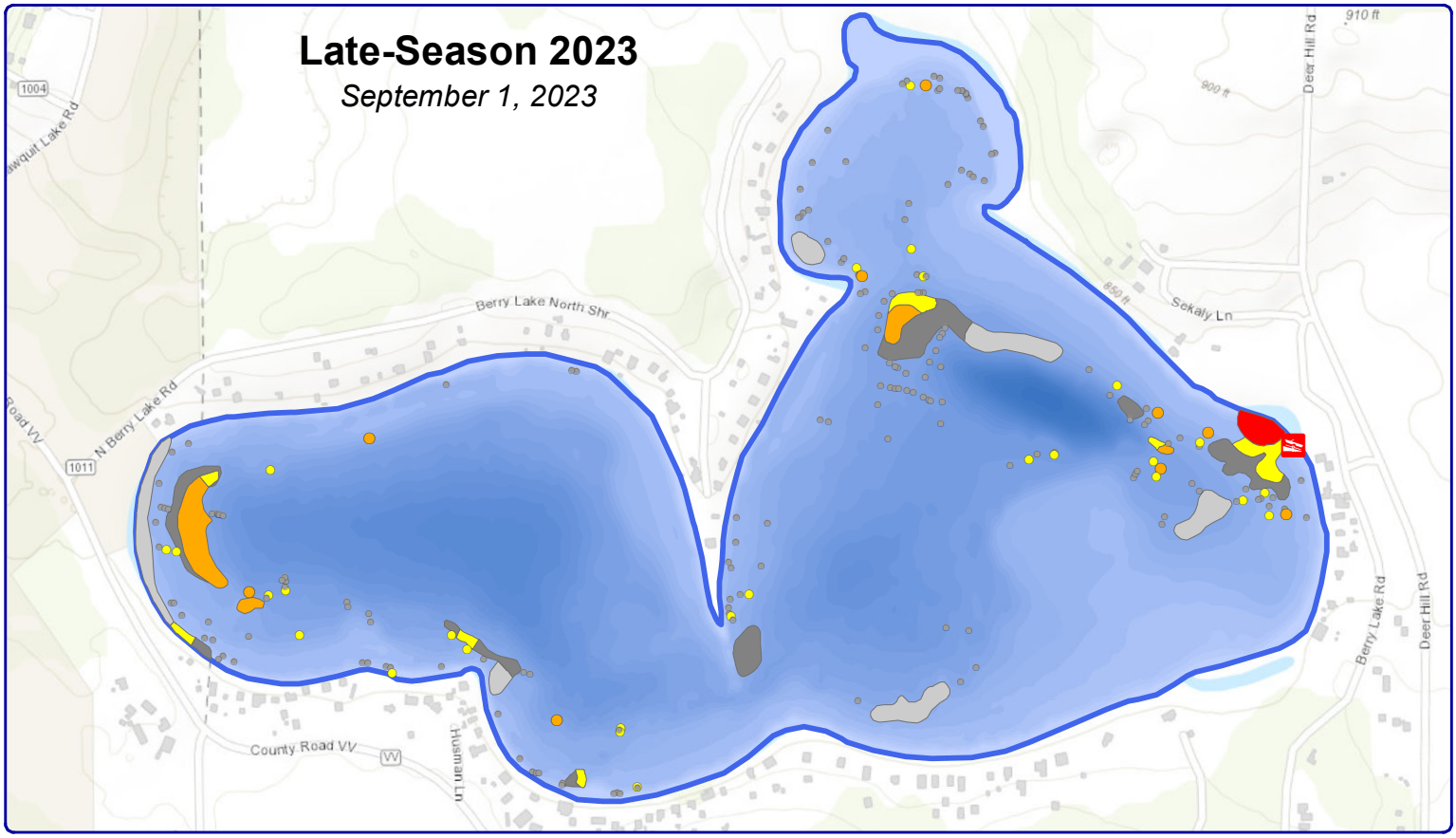
BLPOA volunteers would collect herbicide concentration monitoring during the hours/days following treatment. The volunteer-based sampling structure is currently modeled off of the 2025 WDNR's (central office) research project, but would adapt to evolved guidance as appropriate. Multiple samples would be collected at specified time intervals, roughly outlined in the 2024 AIS Control Grant Application as 42 samples. The properly preserved samples would be overnight delivered the Wisconsin State Lab of Hygiene (WSLH) where the herbicide analysis is conducted. The herbicide concentration monitoring results would be reported in the *2025 Berry Lake HWM Management & Monitoring Report*, with ambition to complete in the first quarter of 2026 (January-March).

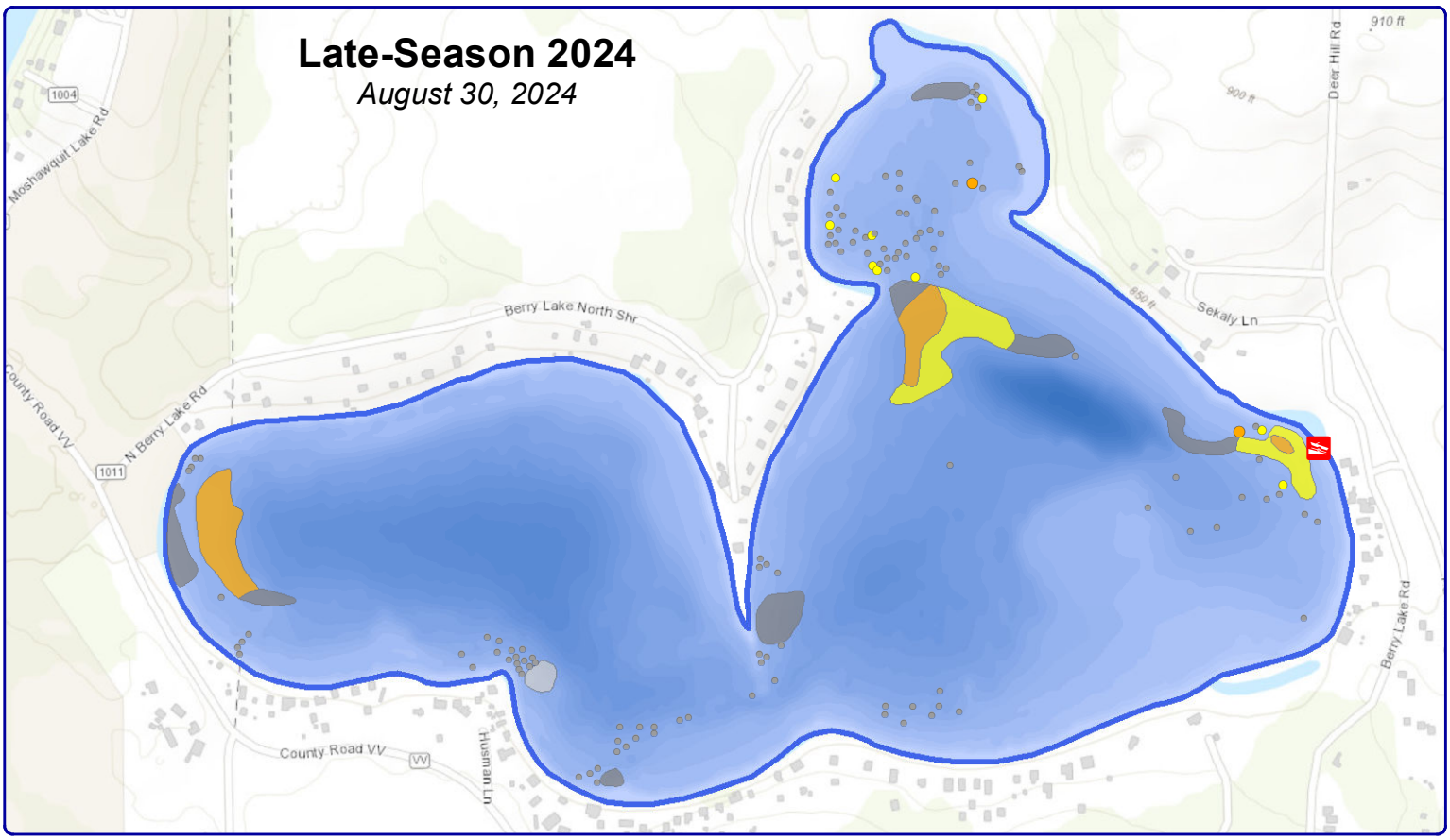
Quantitative Aquatic Plant Monitoring

Replications of the whole-lake point-intercept survey are planned to occur during *pretreatment* (2024), *year of treatment* (2025), and *year after treatment* (2026). The BLPOA has facilitated the collection of the *pretreatment* data during 2024 and the pending WDNR grant application would include funding to complete the 2025 and 2026 surveys. These data would be reported in the *2025 Berry Lake HWM Management & Monitoring Report*.

Late-Summer HWM Mapping Survey

A Late Season HWM Mapping Survey would be conducted towards the end of the growing season each year to produce the mapping data to document a census of the HWM population within the lake at the perceived peak growth stage. Comparing these data to previous surveys will help lake stakeholders understand management outcomes. The HWM mapping data are also valuable to develop management strategies for the following year. Again, these data would be reported in the *2025 Berry Lake HWM Management & Monitoring Report*.





850
Feet

Onterra LLC
Lake Management Planning
815 Prosper Rd
De Pere, WI 54115
920.338.8860
www.onterra-eco.com

Sources:
Roads and Hydro: WDNR
Bathymetry: Onterra, 2017
Basemap: ESRI AGOL
Aquatic Plants: Onterra
Map Date: January 24, 2025 - EJH

Project Location in Wisconsin

Legend

- Highly Scattered
- Scattered
- Dominant
- Highly Dominant
- Surface Matting
- Single or Few Plants
- Clumps of Plants
- Small Plant Colony

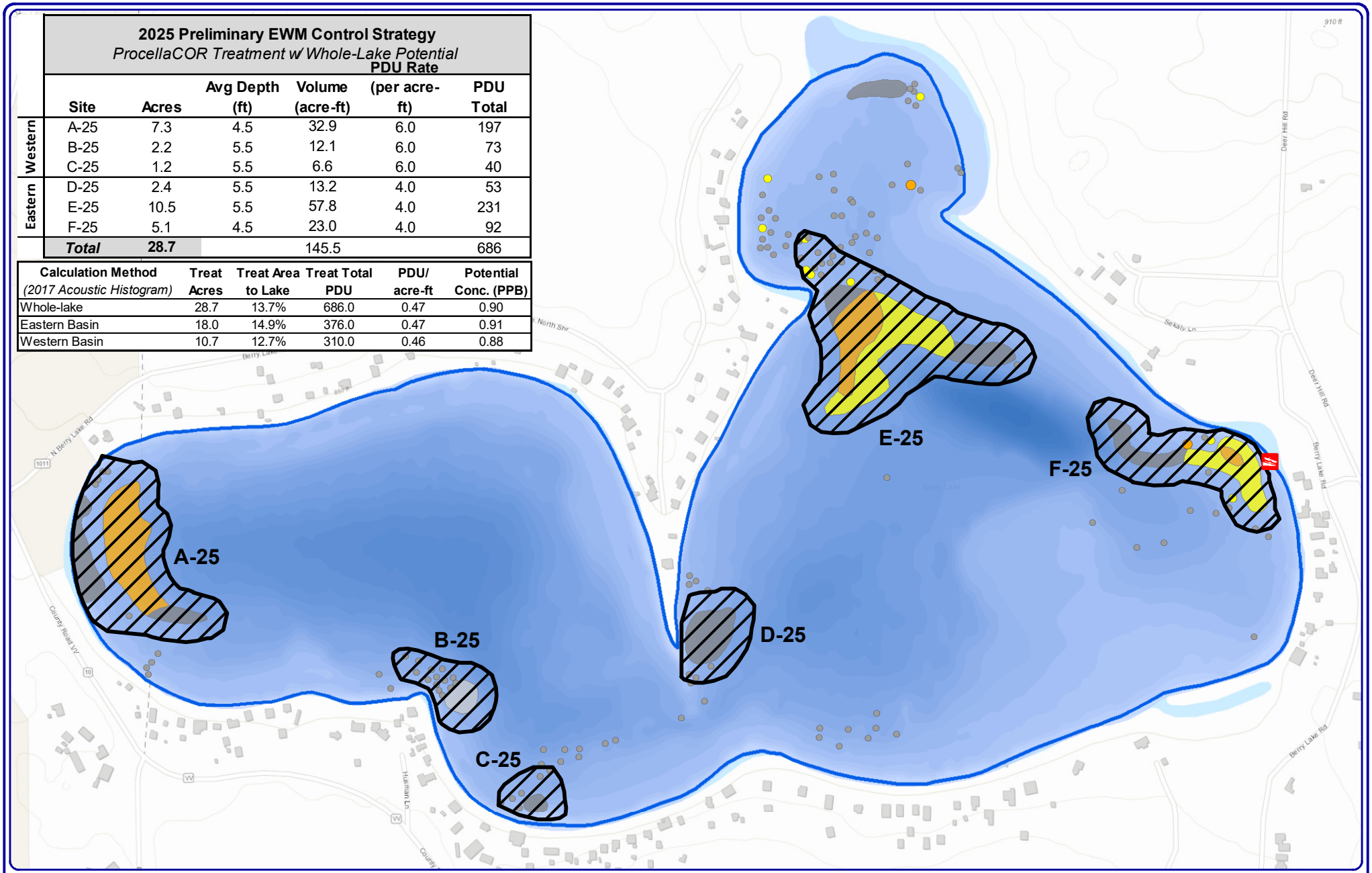
Map 1
Berry Lake
Oconto County, Wisconsin
2023-2024
Late-Season HWM Survey Results

2025 Preliminary EWM Control Strategy

ProcellaCOR Treatment w/ Whole-Lake Potential

	Site	Acres	Avg Depth (ft)	Volume (acre-ft)	PDU Rate (per acre-ft)	PDU Total
Western	A-25	7.3	4.5	32.9	6.0	197
Western	B-25	2.2	5.5	12.1	6.0	73
Western	C-25	1.2	5.5	6.6	6.0	40
Eastern	D-25	2.4	5.5	13.2	4.0	53
Eastern	E-25	10.5	5.5	57.8	4.0	231
Eastern	F-25	5.1	4.5	23.0	4.0	92
	Total	**28.7**		145.5		686

Calculation Method *(2017 Acoustic Histogram)*	Treat Acres	Treat Area to Lake	Treat Total PDU	PDU/ acre-ft	Potential Conc. (PPB)
Whole-lake	28.7	13.7%	686.0	0.47	0.90
Eastern Basin	18.0	14.9%	376.0	0.47	0.91
Western Basin	10.7	12.7%	310.0	0.46	0.88



N W E S

570

Feet

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815 Prosper Road
De Pere, WI 54115
920.338.8860
www.onterra-eco.com

Sources:
Basemap: ESRI AGOL
Bathymetry: Onterra, 2017
Aquatic Plant Survey: Onterra, 2024
Map Date: October 11, 2024 - EJH

Project Location in Wisconsin

Legend

EWM Survey Results (August 30, 2024)

- Highly Scattered
- Scattered
- Dominant
- Highly Dominant
- Surface Matting *(None)*
- Single or Few Plants
- Clumps of Plants
- Small Plant Colony

Prelim 2024 Herbicide Site

Map 2

Berry Lake

Oconto County, Wisconsin

Preliminary 2024 EWM/HWM Treatment Strategy v.1

A

APPENDIX A

- **Whole-Lake Point-Intercept Results Data Matrix**

Scientific Name	Common Name	LFOO (%)															
		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2023	2024
Chara & Nitella	Charophytes	33.5	37.6	41.1	46.4	39.0	37.1	38.8	33.2	26.9	18.4	24.4	30.9	25.7	26.2	27.5	26.8
Chara spp.	Muskgrasses	32.3	36.0	39.9	45.1	38.3	36.1	37.4	32.2	26.6	16.5	21.8	30.6	25.7	24.9	27.5	21.2
Najas flexilis & N. guadalupensis	Slender & Southern naiads	30.3	33.3	41.5	41.7	42.6	34.4	37.8	41.3	23.6	20.6	20.8	11.3	14.8	25.2	23.8	23.4
Potamogeton gramineus & P. illinoensis	Variable-leaf & Illinois pondweeds	33.5	16.7	33.2	30.2	36.2	40.2	44.6	35.2	9.4	17.1	23.4	24.1	17.7	29.7	22.5	24.3
Potamogeton robbinsii	Fern-leaf pondweed	21.6	24.8	32.0	26.0	24.5	31.3	27.9	26.2	19.2	20.6	18.5	21.3	18.0	17.4	24.7	28.6
Utricularia resupinata	Northeastern bladderwort	27.7	26.0	28.1	19.6	17.4	20.3	21.8	24.8	21.5	26.1	20.1	21.3	22.2	24.3	17.9	14.5
Potamogeton gramineus	Variable-leaf pondweed	14.8	7.0	22.9	27.2	24.8	29.6	34.7	30.9	9.4	14.2	16.9	18.8	14.1	24.0	18.5	20.3
Najas guadalupensis	Southern naiad	0.0	0.0	0.0	39.6	36.9	30.9	33.7	36.9	17.8	18.1	15.6	9.7	10.3	18.9	17.6	17.5
Vallisneria americana	Wild celery	10.6	15.1	17.4	13.6	11.0	18.6	19.4	21.8	16.2	11.3	9.4	7.5	9.3	11.0	14.5	12.3
Potamogeton praelongus	White-stem pondweed	18.4	13.2	18.6	23.8	18.4	21.6	19.7	23.8	16.8	16.8	14.6	3.4	2.9	2.2	7.1	3.1
Potamogeton illinoensis	Illinois pondweed	23.9	11.6	15.4	4.7	17.0	24.7	22.4	7.7	0.0	3.2	7.8	6.6	3.5	9.5	5.2	4.9
Najas flexilis	Slender naiad	30.3	33.3	41.5	2.6	5.7	3.4	4.1	5.7	7.4	2.6	5.2	1.6	4.8	7.9	6.5	5.8
Myriophyllum spicatum	Eurasian watermilfoil	0.0	0.4	0.4	8.9	18.1	2.1	10.9	14.8	3.7	9.7	25.3	2.2	5.5	1.6	6.8	16.9
Potamogeton amplifolius	Large-leaf pondweed	15.8	14.3	9.1	5.5	9.9	9.6	13.6	8.4	5.1	1.6	6.2	1.9	0.3	2.2	1.2	3.4
Brasenia schreberi	Watershield	3.9	1.9	2.8	3.0	3.9	7.2	6.8	5.7	6.7	6.5	6.8	5.6	4.8	3.2	4.0	1.8
Nitella spp.	Stoneworts	6.1	1.6	1.2	3.0	1.8	1.7	1.4	1.3	0.3	2.3	2.6	0.9	0.0	1.9	0.0	5.5
Utricularia gibba	Creeping bladderwort	0.0	5.8	1.2	2.1	2.8	5.8	2.7	1.0	1.3	0.6	1.0	2.8	1.6	0.0	5.2	0.0
Elodea canadensis & E. nuttallii	Common & Slender waterweeds	0.6	1.2	2.0	0.4	0.4	0.3	0.0	0.3	0.3	0.0	0.0	0.3	0.0	0.0	1.2	5.5
Elodea canadensis	Common waterweed	0.6	1.2	2.0	0.4	0.4	0.0	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	1.2	5.5
Nymphaea odorata	White water lily	0.6	0.4	0.0	0.0	1.1	1.0	1.7	1.7	1.3	0.0	0.3	0.9	1.9	1.3	2.5	1.2
Myriophyllum sibiricum	Northern watermilfoil	1.6	2.3	2.0	5.1	6.4	1.4	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Utricularia vulgaris	Common bladderwort	0.0	0.0	0.0	0.0	0.4	0.7	0.7	0.3	0.3	1.0	0.6	4.1	3.9	3.2	0.6	0.3
Potamogeton pusillus	Small pondweed	0.0	0.0	2.0	3.4	1.1	0.3	1.7	1.3	0.0	0.6	0.3	0.0	0.6	0.9	1.2	0.9
Potamogeton richardsonii	Clasping-leaf pondweed	0.0	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.0	4.0
Eleocharis acicularis	Needle spikerush	0.0	0.4	0.0	1.3	2.1	0.7	1.4	0.0	0.3	0.3	0.0	4.1	1.3	0.6	1.5	0.0
Myriophyllum tenellum	Dwarf watermilfoil	0.6	0.4	1.2	0.4	0.4	1.0	1.0	0.3	1.3	0.3	1.0	2.2	1.3	0.0	0.9	0.0
Stuckenia pectinata	Sago pondweed	1.0	1.9	2.0	1.3	0.4	2.1	2.7	0.3	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Utricularia intermedia	Flat-leaf bladderwort	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.7	0.3	0.3	1.6	1.6	0.6	0.6	0.0
Schoenoplectus pungens	Three-square rush	0.0	0.0	0.0	0.0	1.4	0.3	1.4	2.3	0.0	0.0	1.0	0.0	0.3	0.0	0.0	0.0
Utricularia geminiscapa	Twin-stemmed bladderwort	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	1.9	0.6	0.0	0.0	0.9
Schoenoplectus acutus	Hardstem bulrush	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	1.0	1.3	0.3	0.0
Ceratophyllum demersum	Coontail	0.0	0.0	0.0	0.4	0.0	0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.6	0.0	1.2
Sagittaria sp. (rosette)	Arrowhead sp. (rosette)	1.6	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.3
Utricularia minor	Small bladderwort	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.6	0.0	0.6
Juncus pelocarpus	Brown-fruited rush	0.3	0.0	0.8	0.9	0.4	0.0	0.3	0.7	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Potamogeton natans	Floating-leaf pondweed	0.0	0.0	0.4	0.0	0.0	0.0	0.3	0.0	0.0	0.6	0.0	0.0	0.3	0.6	0.6	0.0
Potamogeton strictifolius	Stiff pondweed	0.6	0.0	0.0	0.4	0.7	0.3	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.3	0.0	0.0
Potamogeton zosteriformis	Flat-stem pondweed	0.3	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.6	0.3	0.0
Fissidens spp. & Fontinalis spp.	Aquatic Moss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.9	0.0	0.0	0.0	0.0
Eleocharis palustris	Creeping spikerush	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.6	0.3	0.0	0.0	0.0
Schoenoplectus tabernaemontani	Softstem bulrush	0.0	0.0	0.0	0.0	0.4	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nuphar variegata	Spatterdock	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Isoetes spp.	Quillwort spp.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.6	0.0	0.0
Eriocaulon aquaticum	Pipewort	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0
Bidens beckii	Water marigold	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Lysimachia terrestris	Bulbil loosestrife	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sparganium sp.	Bur-reed sp.	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pontederia cordata	Pickerelweed	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Elodea nuttallii	Slender waterweed	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Potamogeton X scoliophyllus	Large-leaf X Illinois pondweed	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alisma spp.	Water plantain sp.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Typha spp.	Cattail spp.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sparganium eurycarpum	Common bur-reed	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Ranunculus aquatilis	White water crowfoot	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Persicaria amphibia	Water smartweed	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
Lemna minor	Lesser duckweed	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Elatine minima	Waterwort	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0