WISCONSIN DEPARTMENT OF NATURAL RESOURCES

GRANT # ACEI-127-13

FINAL REPORT

Submitted by

Frances McCloskey
President
Gilmore Lake Association
PO Box 188
Minong, WI 54859

ACEI-127-13
Gilmore Lake Established Population Control Project
FINAL REPORT

BACKGROUND

Gilmore Lake is a 389-acre groundwater drainage lake in northern Washburn County that receives heavy recreational use. Despite a continuing CBCW inspection program, Eurasian watermilfoil (EWM) was discovered in 2009. Gilmore Lake Association (GLA) immediately began a collaborative program with the WDNR to detect and control EWM as well as educate lake users about it and other AIS.
Our first grant for Early Detection and Rapid Response (AIRR-17-10) extended from September 2009 through 2012. GLA was then awarded this Established Population Control Grant (ACEI-127-13) covering 2013 through 2017. Sufficient funds remained from the Rapid Response grant to support work through 2014 with consent of WDNR. GLA reported progress on this project in years 2015 through 2017. Funds remained as of the original expiration of the grant, and GLA applied for and received extensions each year from 2018 through 2023. Progress reports were filed as required from 2018 through 2023. This is the final report for this grant.

PROJECT GOAL AND OBJECTIVES

The goal of this project has been to control the EWM infestation in Gilmore Lake and preserve the lake's ecological integrity, aesthetic experience, and recreational value. To that end, the project has the following objectives:

1. Detection – To identify and map the full extent of EWM in Gilmore Lake and its response to control efforts.
2. Control – To use appropriate means to contain, reduce and where possible, eliminate EWM colonies.
3. Prevention – To prevent introduction of other AIS and export of EWM from Gilmore Lake
4. Education – To instill Gilmore Lake users with understanding and appreciation of our lake ecosystem.

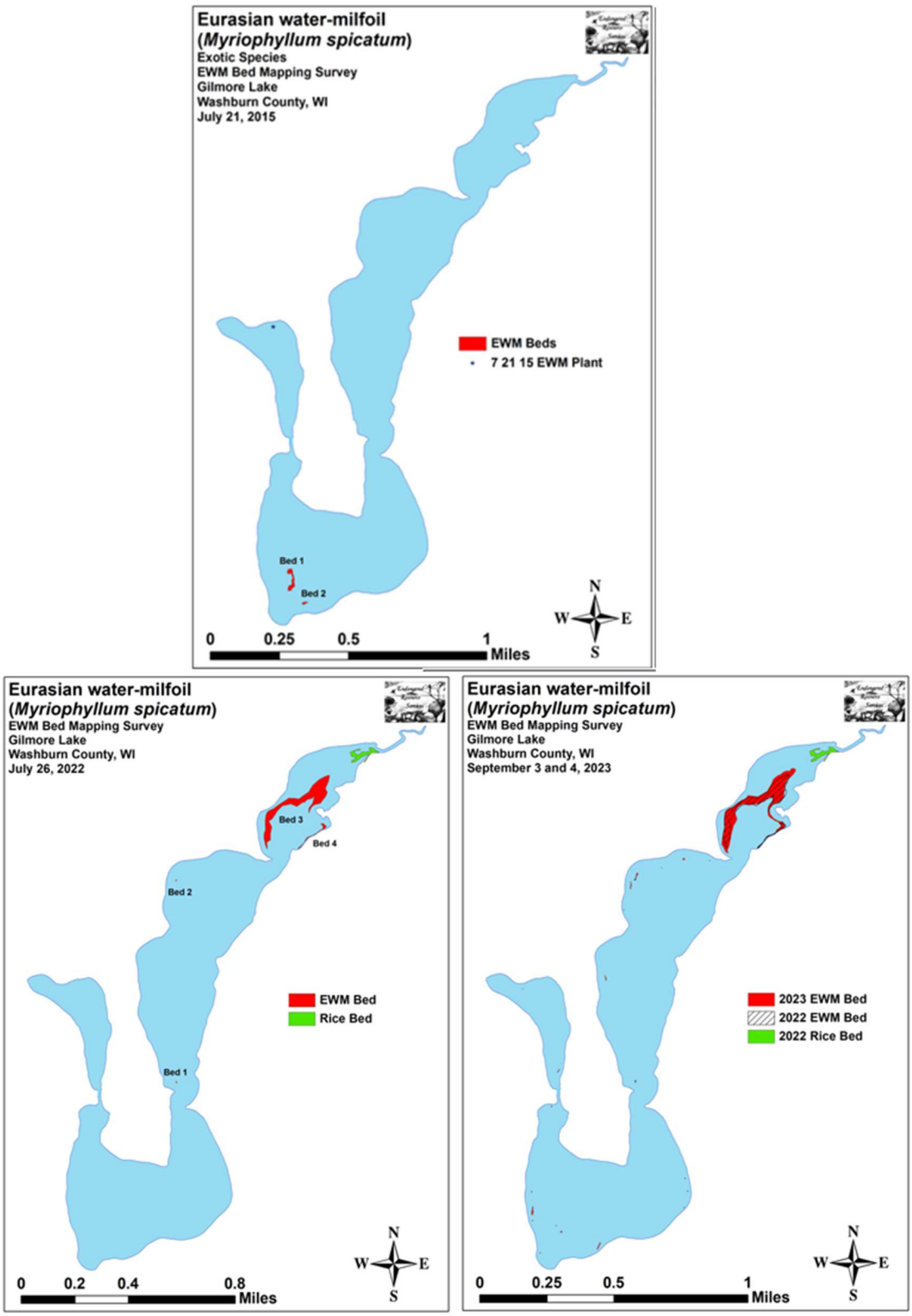
SUMMARY OF ACTIVITIES AND FINDINGS

This grant project has been ongoing for over 10 years, and has seen great successes in the control of EWM in Gilmore Lake, with the exception of the north basin (in which herbicide treatment is not presently permitted). As this grant closes, GLA will begin charting a new course of EWM control if herbicide use is restricted on a prolonged basis in the north basin. Other areas of the lake may be adversely affected and indications of greater and more profound EWM spread are already manifesting themselves.

AIS Detection and Distribution Changes 2015 to 2023

Throughout the course of this grant, GLA volunteers have monitored the distribution of EWM by visual inspection of potential colonization sites via meandering boat surveys. These were conducted annually from May through mid-September by members of the GLA Milfoil Committee, all of whom were trained in EWM identification. Professional surveys have been conducted annually by Endangered Resources LLC (Matthew Berg) providing pre-treatment bed mapping and monitoring of distribution of EWM throughout Gilmore Lake. Endangered Resources LLC has also conducted multiple (2017 and 2022) point-intercept surveys to evaluate aquatic plant distribution and density.

During the late summer or early fall a meandering survey of the entire lake is completed by Endangered Resources LLC with the sole purpose of mapping all beds of EWM and individual EWM plants. During the 2010 survey, the surveyor manually removed all clusters of Eurasian water-milfoil plants and microbeds found along the western shoreline of the south basin. During the 2015 bed mapping survey, two beds that totaled 0.65 acre (0.2% coverage) were delineated. One consisted of perhaps a few hundred canopied plants on the sunken island, and the other was a loose scattering of plants established on the southern shoreline of the south basin.
Between 2015 and 2023, several years of herbicide treatments in the South Basin and in Little Gilmore Lake were completed. During the 2022 survey, no evidence of EWM in these areas was documented. However, two low-density microbeds were present in the central basin, and two moderate to exceptionally dense canopied beds dominated much of the north basin. As of 2022, these four beds totaled 7.65 acres and covered approximately 2.1% of the lake's surface area. In 2023, EWM had spread in the north basin, now covering 10.41 acres, an increase of nearly 3 acres. EWM was also found in at least 20 microbeds throughout the rest of the lake (South, Central, and Little Gilmore basins) comprising another 0.38 acres, representing a significant change in the dispersion of EWM from 2022 when only two microbeds were detected in those areas.


Eurasian water-milfoil
(Myriophyllum spicatum)
Exotic Species
EWM Bed Mapping Survey
Gilmore Lake
Washburn County, WI
July 21, 2015
EWM Beds
7 21 15 EWM Plant
Bed 1
Bed 2
0 0.25 0.5 1 Miles
N
W E
S
Eurasian water-milfoil
(Myriophyllum spicatum)
EWM Bed Mapping Survey
Gilmore Lake
Washburn County, WI
July 26, 2022
Bed 3
Bed 4
Bed 2
Bed 1
EWM Bed
Rice Bed
0 0.2 0.4 0.8 Miles
N
W E
S
Eurasian water-milfoil
(Myriophyllum spicatum)
EWM Bed Mapping Survey
Gilmore Lake
Washburn County, WI
September 3 and 4, 2023
2023 EWM Bed
2022 EWM Bed
2022 Rice Bed
0 0.25 0.5 1 Miles
N
W E
S

Treatment

EWM was discovered in the south basin in 2009. Management of EWM began in 2009 with a fall treatment of about 2 acres of EWM using Navigate (granular 2,4-D) Physical removal was used in areas inaccessible to the contracted herbicide applicator. In 2014, several members of the GLA completed online training to become licensed herbicide applicators, and at least one received his certification. In 2016, EWM had spread to level that necessitated the hiring of a commercial herbicide applicator to treat areas in Gilmore Lake that again exceeded 2 acres. In both 2017 and 2018, a commercial applicator treated 1.25 acres in Gilmore Lake. Physical removal completed by the GLA continued. From 2018 to 2023, under the guidance of a new APMP, management efforts included small-scale herbicide applications applied by a commercial applicator.

EWM Management in Gilmore and Little Gilmore Lakes 2009-2016									
		2009	2010	2011	2012	2013	2014	2015	2016
Gilmore	NAS (small-scale herbicide)	2	NT	NT	1.61	1.02	NT	0.34	2.05
	Diver/physical Removal	x	x	x	x	x	x	x	x
Little Gilmore	NAS (small-scale herbicide)	NA	NA	NA	NA	NA	NA	NA	NA
	Diver/physical Removal	NA	NA	x	x	x	x	x	x
Notes		EWM found in Gilmore		EWM found in Little Gilmore, Milfoil Maurauder Commissioned		No treatment on Little Gilmore due to access issues with applicator			Year of Great Flood and Colton Flowage Dam Rupture

EWM Management in Gilmore and Little Gilmore Lakes 2017-2023									
		2017	2018	2019	2020	2021	2022	2023	2024
Gilmore	NAS (small-scale herbicide)	1.25	1.25	1.25	1.92	7.24	NT	NT	
	Diver/physical Removal	x	x	x	x	x	x	x	
	DASH (diver-assisted suction harvest)							3 days	
Little Gilmore	NAS (small-scale herbicide)	NA	NA	NA	NA	NA	NA	NA	
	Diver/physical Removal	x	x	x	x	x	x	x	
Notes						ProcellaCOR was used to treat all areas			Treatment parameters are as of yet undetermined

In 2021, ProcellaCOR was used for the first time in Gilmore Lake. Six beds covering more than 7 acres (not including the North Basin) of EWM was treated. During a pre-treatment survey of 101 points, EWM was found on the rake at 19 points scattered throughout the six treatment areas, and recorded as a visual at 18 additional sites. During the post-treatment, there was no evidence of EWM at or inter-point within the treatment areas. Statistically speaking, this resulted in a highly significant reduction in total distribution, total density, and visual sightings; a moderately significant reduction in rake fullness 2; and a significant reduction in rake fullness 3 and 1.

The littoral zone increased slightly from 10.0ft pretreatment to 12.5ft posttreatment; however, the frequency of plant occurrence dropped from 93.7% pretreatment to 88.8% posttreatment. Total richness increased from 16 species pretreatment to 21 species posttreatment; and the Simpson's Diversity Index also rose from a high pretreatment value of 0.87 to a very high 0.90 posttreatment. The Floristic Quality Index (another measure of native plant community health) also increased sharply from 23.5 pretreatment to 29.5 posttreatment. Mean native species richness at points with native vegetation demonstrated a highly significant increase from 2.32 species per point pretreatment to 3.14 per point posttreatment. Total mean rake fullness saw a nearly significant increase from a moderate 1.93 pretreatment to 2.10 posttreatment.
Because of the success in 2021 using ProcellaCOR, both in controlling EWM and not causing significant harm to native vegetation, no chemical treatment was needed in 2022.

Based on the infestation of EWM in the north basin, GLA requested permission to treat the north basin in 2023 with ProcellaCOR or another herbicide, and were not permitted due to proximity of wild rice. In consultation with WDNR, a treatment plan was developed to include herbicide use in most parts of Gilmore Lake, but excludes such use in the north basin due to concerns by WDNR and its partners (GLIFWC and St. Croix Ojibwe nation) over the presence of Wild Rice at the northern most area of the lake near the outlet to the Totagatic River. Upon recommendation of Lake Biologist, Pamela Toshner, GLA undertook a DASH treatment which occurred over three days in August 2023 treating two beds in the north basin identified in the July 2022 survey. DASH treatment resulted in removal of 387 cu.ft. of biomass. GLA also utilized diver removal services from Aquatic Plan Management LLC in September 2023 to treat smaller EWM colonies in the south and central basins of Gilmore Lake.

Prevention and Education

GLA has participated in the Clean Boats Clean Waters initiative through the Minong Town Lakes Committee for a number of years, and has contributed thousands of dollars of support to continue this program. The GLA board of directors includes a Milfoil Committee which is dedicated to monitoring, detection, and prevention of the spread of EWM in Gilmore Lake. This group typically has four to six members each season, and committee members perform surveys and physical removal efforts.
Education of Gilmore Lake property owners and recreational users has been an important initiative which includes use of an informational kiosk and signage at the boat landing, semi-annual newsletters with EWM and other AIS informational articles. We also report on Milfoil Committee activity at our annual meeting which is attended by 90 to 100 members residents of Gilmore Lake. Property owners have been trained to identify EWM and taught about the importance of cleaning boats and physical removal to prevent spread of EWM and other AIS.