Exhibit AH

Meeting with WDNR regarding Half Moon Lake Eurasian Watermilfoil Management

February 12, 2025

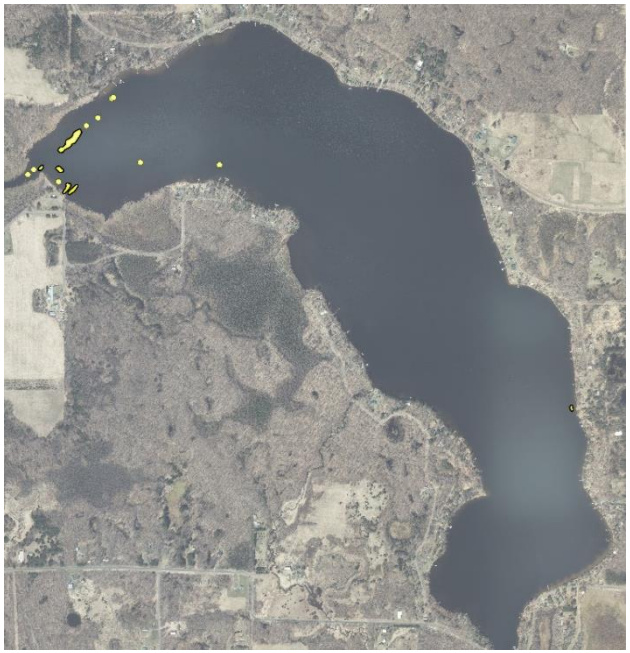
Half Moon Lake Eurasian Watermilfoil Management

Prepared for a February 12, 2025 Meeting with the Wisconsin Department of Natural Resources (James Yach, Secretary's Director, Northern WI)

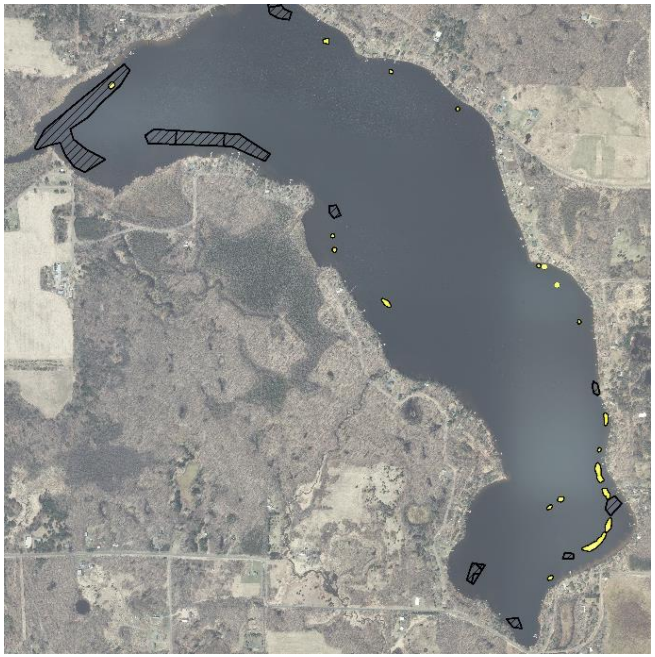
Prepared by Barr Engineering Co. for the Half Moon Lake Protection and Rehabilitation District

Half Moon Lake Eurasian Watermilfoil Occurrence

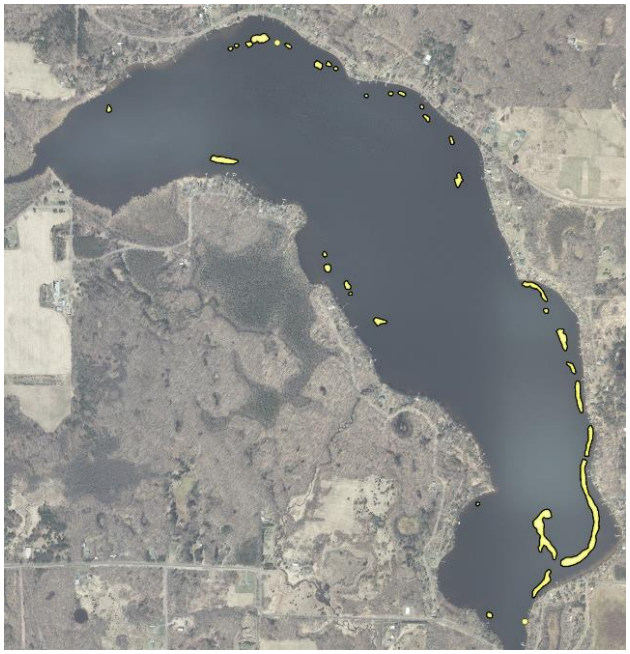
Fall 2021 (0.59 ac)



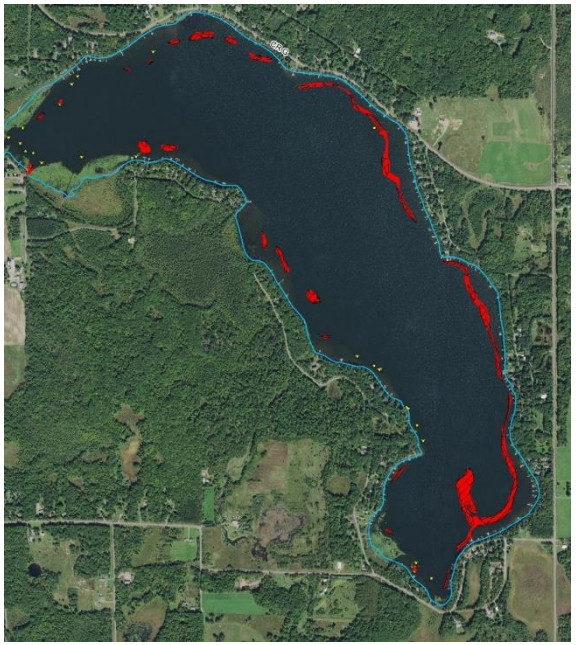
Fall 2022 (1 ac)



Fall 2023 (5.8 ac)

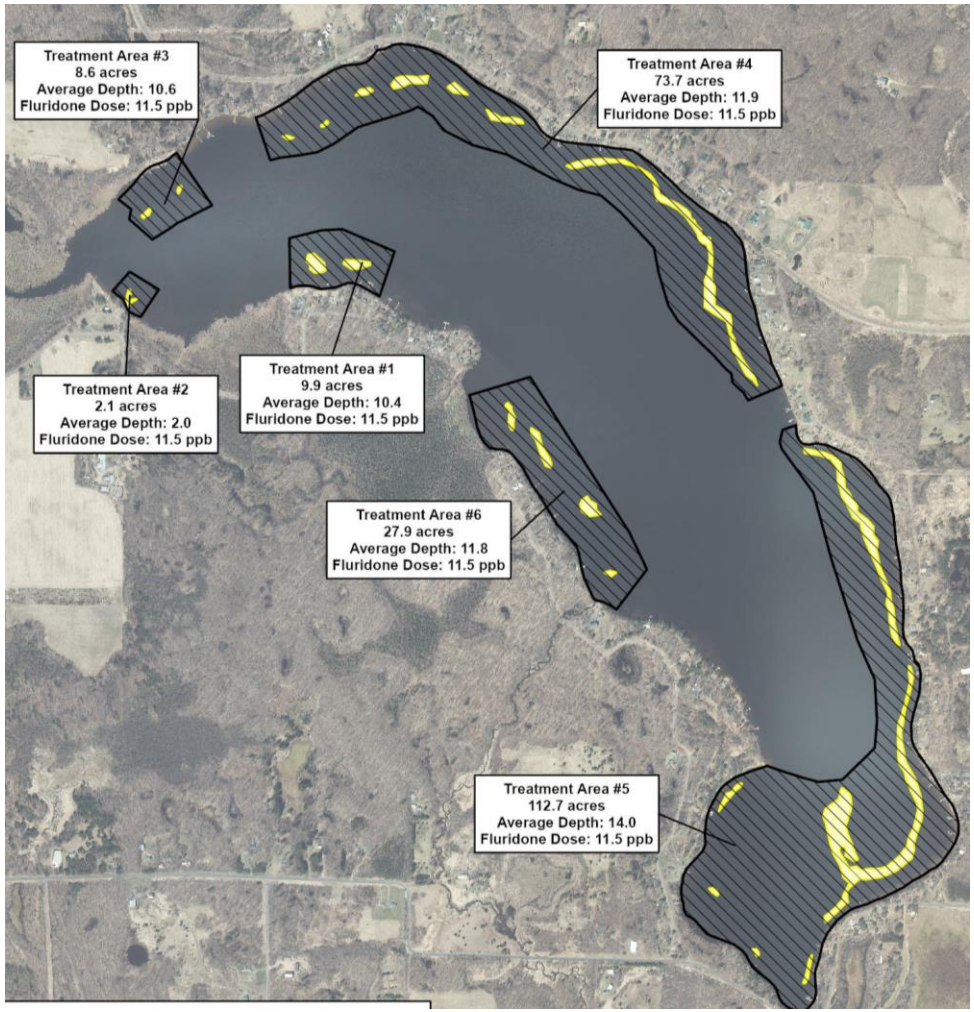


Fall 2024 (17 ac)

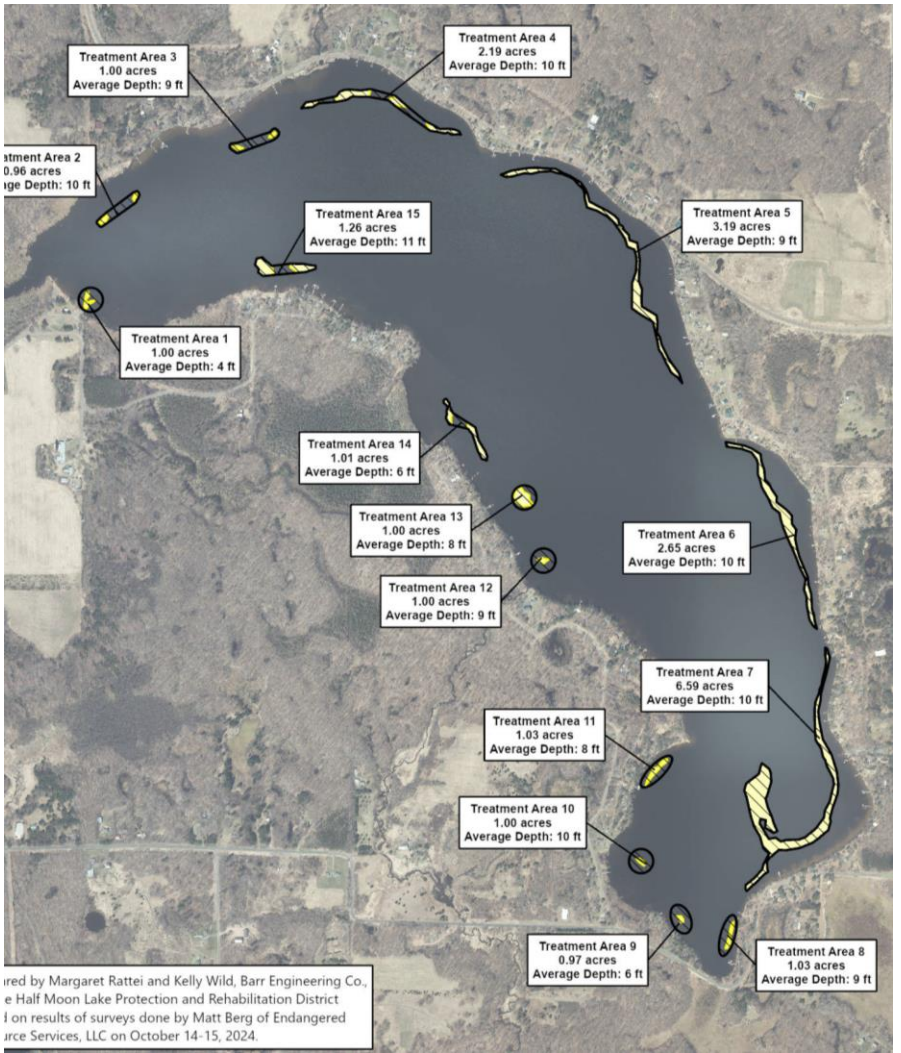


Half Moon Lake Proposed 2025 Eurasian Watermilfoil Herbicide Treatments

Fluridone Treatment
Treat 235 ac with 11.5 ppb fluridone to attain a whole lake concentration of 4 ppb and sustain 2-4 ppb concentration for about 90 days.



Aquastrike Treatment
Treat 26 acres with an Aquastrike dose of 6.5 quarts per acre foot.



WDNR Response to Proposals (Tyler Mesalk, 1/15/2025)

"The DNR does not support the use of Fluridone within Half Moon Lake due to the risk of reduction and/or removal of native plant species per this management method. The expected reduction of plants may reduce EWM presence but it is indiscriminate and will detrimentally affect the diverse thriving native plant community present in Half Moon lake which includes various pondweeds and native milfoils. The Fluridone application will most likely reduce habitat utilized by the fish community that relies heavily on vegetation for various uses and life stages within the waterbody."

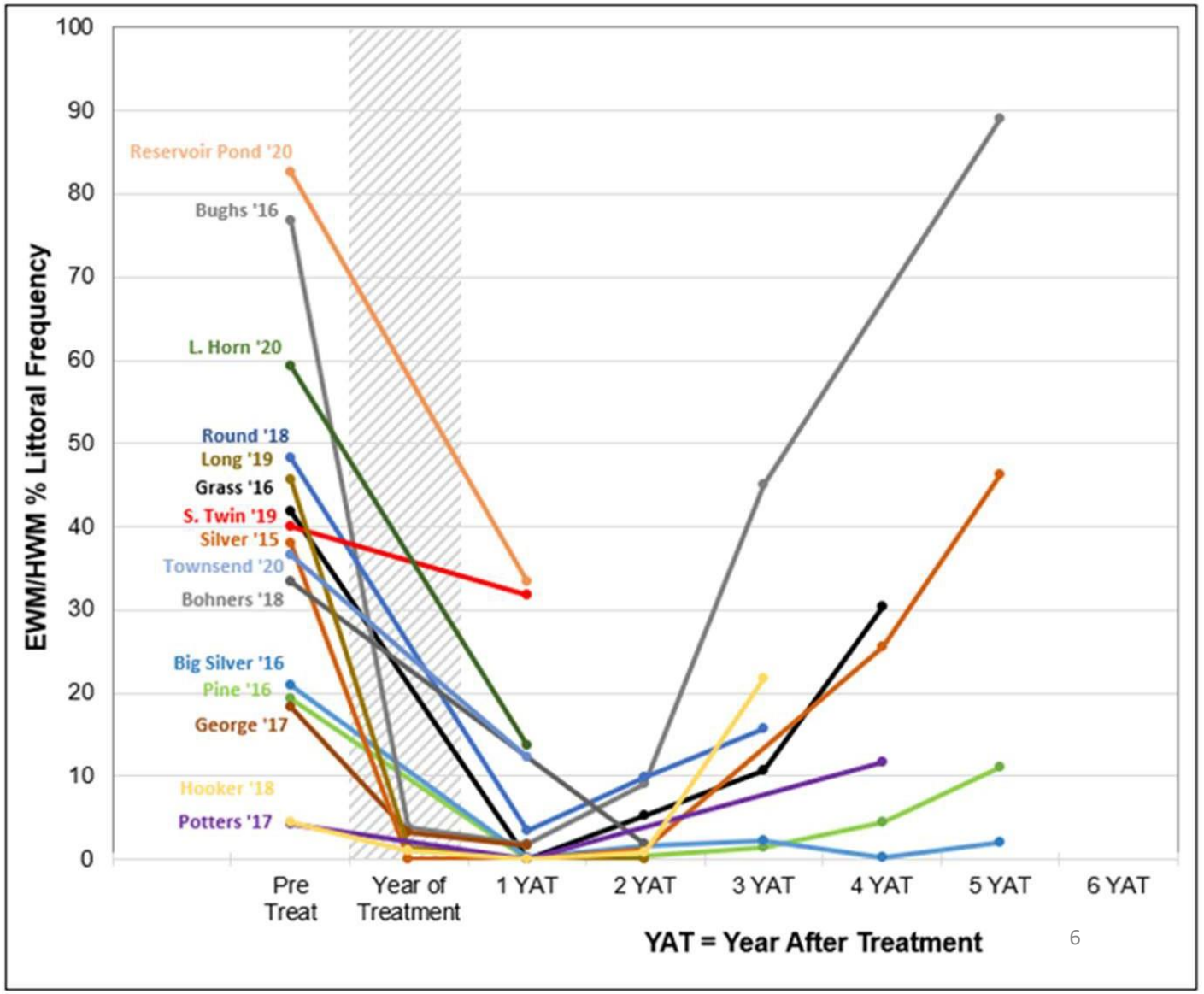
LOW DOSE SONAR PROJECTS:

targeting invasive watermilfoil and CLP – Minnesota & Wisconsin

Presentation Credit: Keegan Lund, SePro and formerly with Minnesota Department of Natural Resources

WI Lakewide Milfoil Sonar Treatments

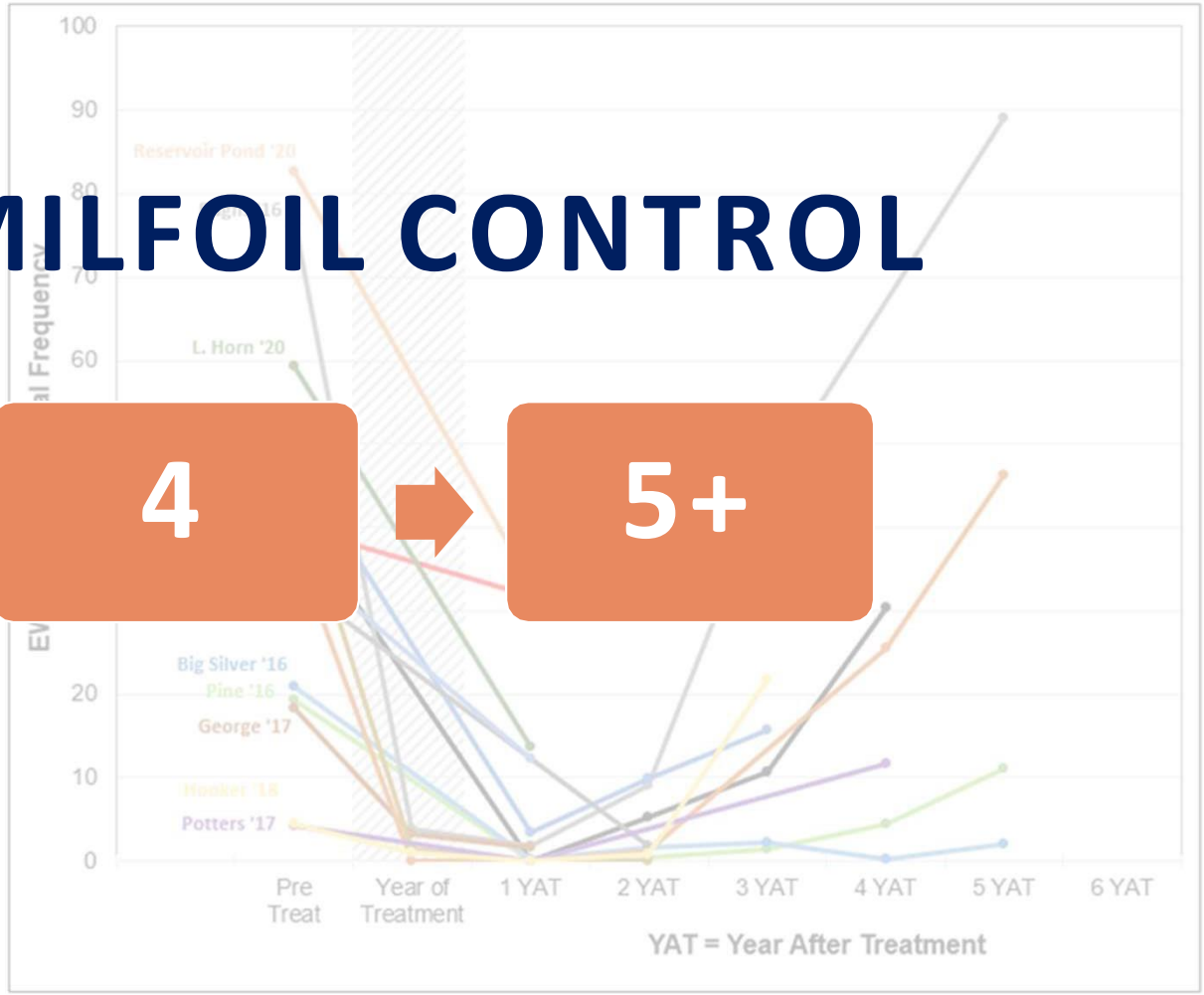
From Michelle Nault (WiDNR)



YEARS OF MILFOIL CONTROL

WI Lakewide Milfoil Treatments

3 → **4** → **5+**



From Michelle Nault (WiDNR)

Low Dose Sonar Cases in Minnesota

- Low dose rates are between **2-4 ppb** maintained lakewide
- Concentrations maintained **60-90 days** (spring or fall treatments)
- **Generally, 2-3+ years of control achieved after treatment year**
- Highly selective treatment at low doses targets milfoil/CLP

Fluridone Environmental Safety

- Use rates 100x lower than traditional auxin treatments like 2,4-D
- **Generally, 3 years of control achieved after treatment year**
- Minimal to no impact on most native plants at low dose use rates
- Some native plants are sensitive: coontail and elodea
- Other native plant species increase post treatment
- Heavily researched and non-toxic to fish
  - Fathead minnows exposed to fluridone (0.0, 3.0, 12, 25, 100 µg/L) showed no effects on survival (Cozzola/Dehnert 2022)
  - Maximum fluridone concentrations allowed by label (< 90 µg/L single application and 150 µg/L total in a season) do not cause fish mortality (Hamelink et al., 1986; Jin et al., 2020, 2018; Paul et al., 1994). (Cozzola/Dehnert 2022)
  - No observed effects on embryonic survival, temporal hatching, or heart rate and no observed deformities. (Cozzola/Dehnert 2022)

MN Lakewide Milfoil Sonar Projects

- Weaver, Hennepin – spring 2013
- Crooked, Anoka – spring 2016, 2024
- North Arm, Hennepin – spring 2018
- Schmidt, Hennepin – spring 2018
- Coon East, Anoka – spring 2019
- Clear, Washington – spring 2019, 2024
- Ham, Anoka – fall 2020
- Josephine, Ramsey – spring 2020
- Comfort Lake, Washington – spring 2022
- Clear, Waseca – spring 2022
- Staring, Hennepin – spring, 2022
- St. Albans, Hennepin – spring, 2022
- Olson, Washington – fall 2022-spring 2023
- Demontreville, Washington – fall 2022-spring 2023
- Silver, Ramsey – fall 2023-spring 2024
- Grays, Hennepin – spring 2023
- Fredrickson, Sherburne – spring 2024
- Lotus, Carver – spring 2024
- Owasso, Ramsey – spring 2024
- Jane, Washington – fall 2023-spring 2024
- Long, Washington – fall 2023-spring 2024

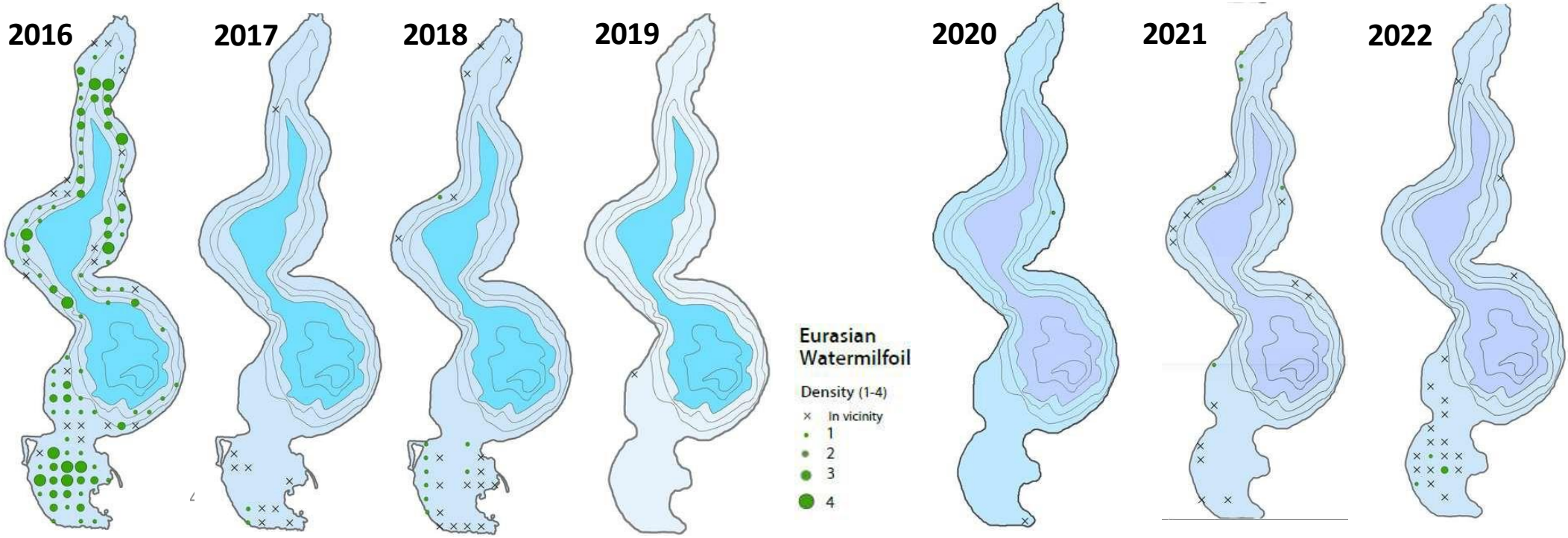
**Red indicates second fluridone treatment*

Crooked Lake

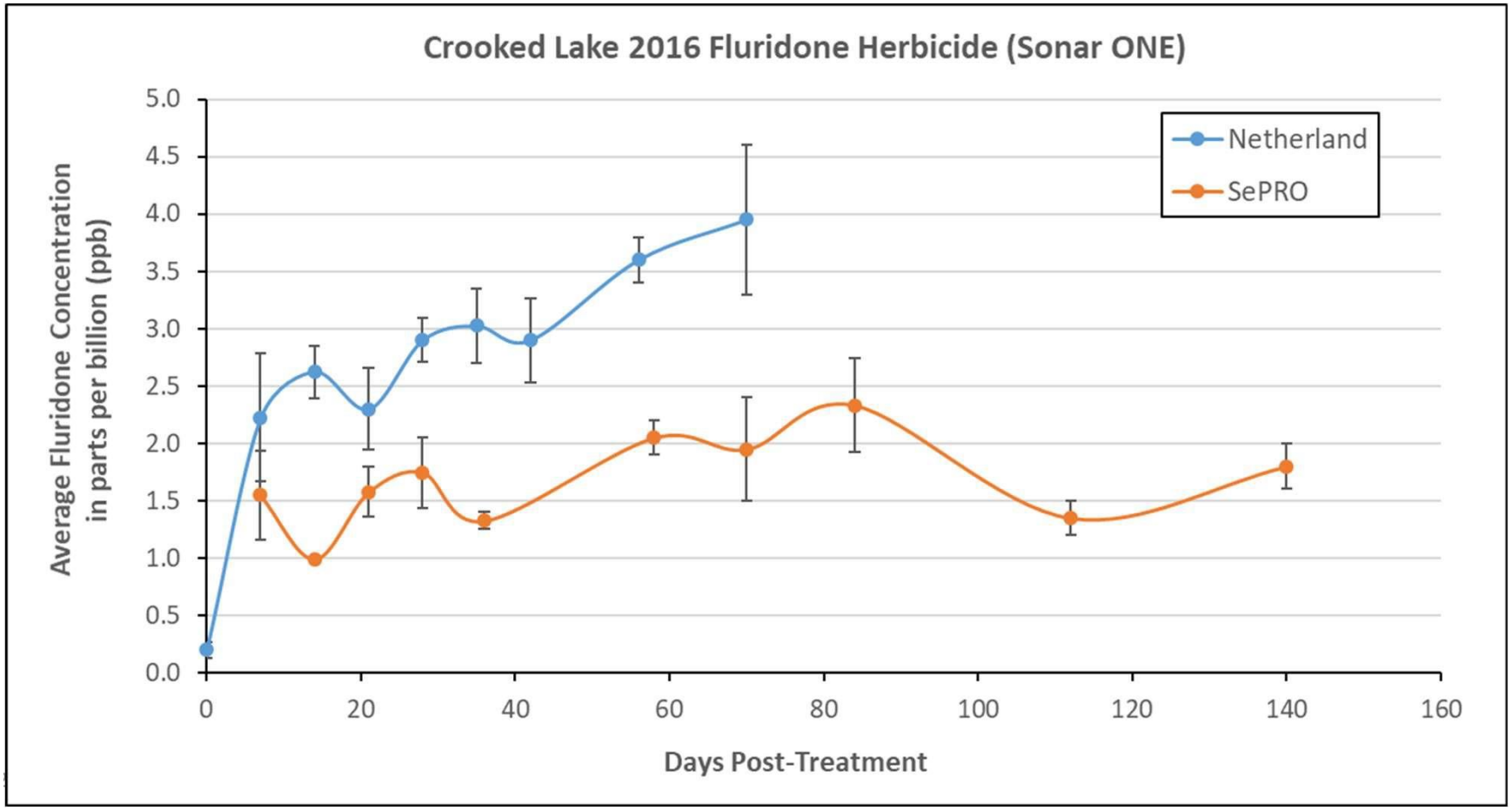
Hybrid Milfoil Occurrence

Year	Month	HWM FOO	% Littoral Points Vegetated	# Native Taxa (Submersed)	Mean Native Taxa Per Point
2015	8/19/2015	27		5	0.9
*2016**	8/5/2016	59.6	95	8	1.5
2017	8/14/2017	1	82	12	2
2018	8/14/2018	6	75	14	2
2019	8/8/2019	<1	85	13	2.1
2020	8/13/2020	4	86	15	2.8
2021	7/27/2021	2	86	10	2
2022	8/21/2022	1	70	12	1.7

TREATMENT YEAR



Crooked Lake Fluridone Concentration Monitoring



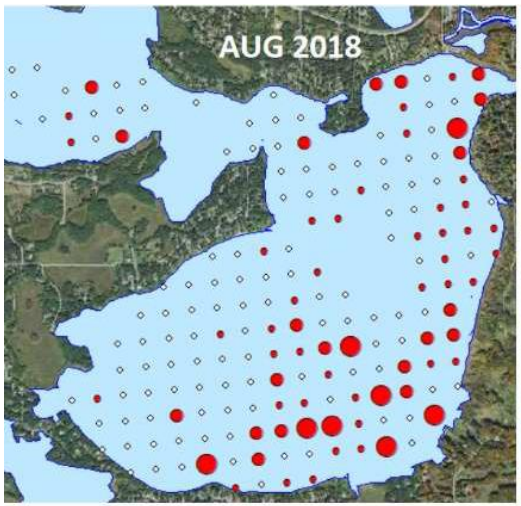
Coon Lake

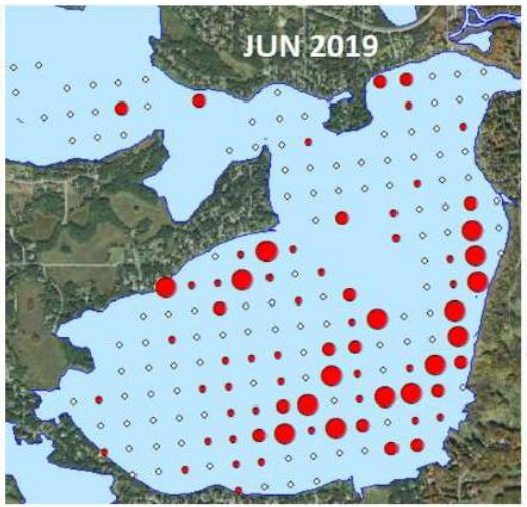
Eurasian Milfoil Occurrence

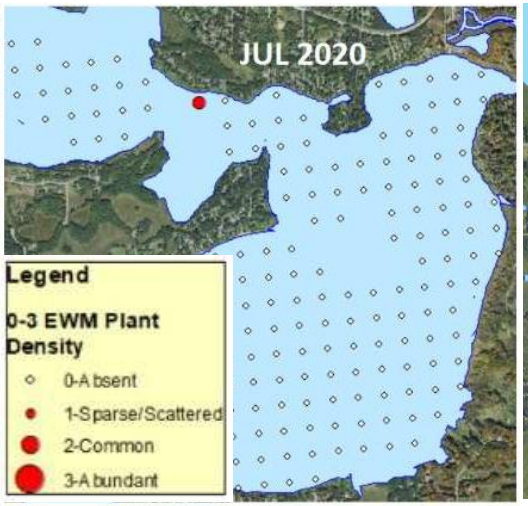
Year	EWM FOO	% of Points with Native Taxa	# Native Taxa
2018	39	93	23
*2019**	44	96	25
2020	1	91	21
2021	1	90	22

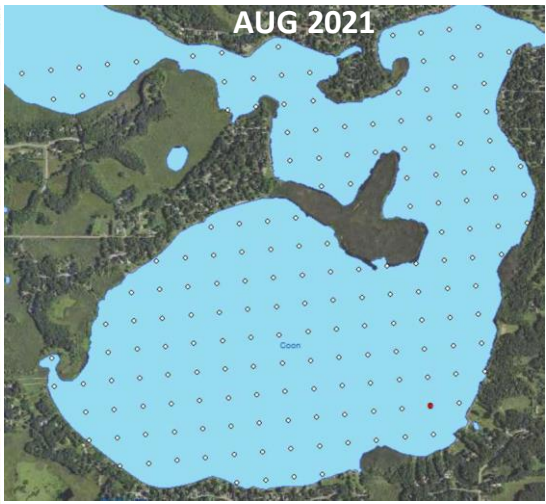
* Fluridone Treatment

TREATMENT YEAR









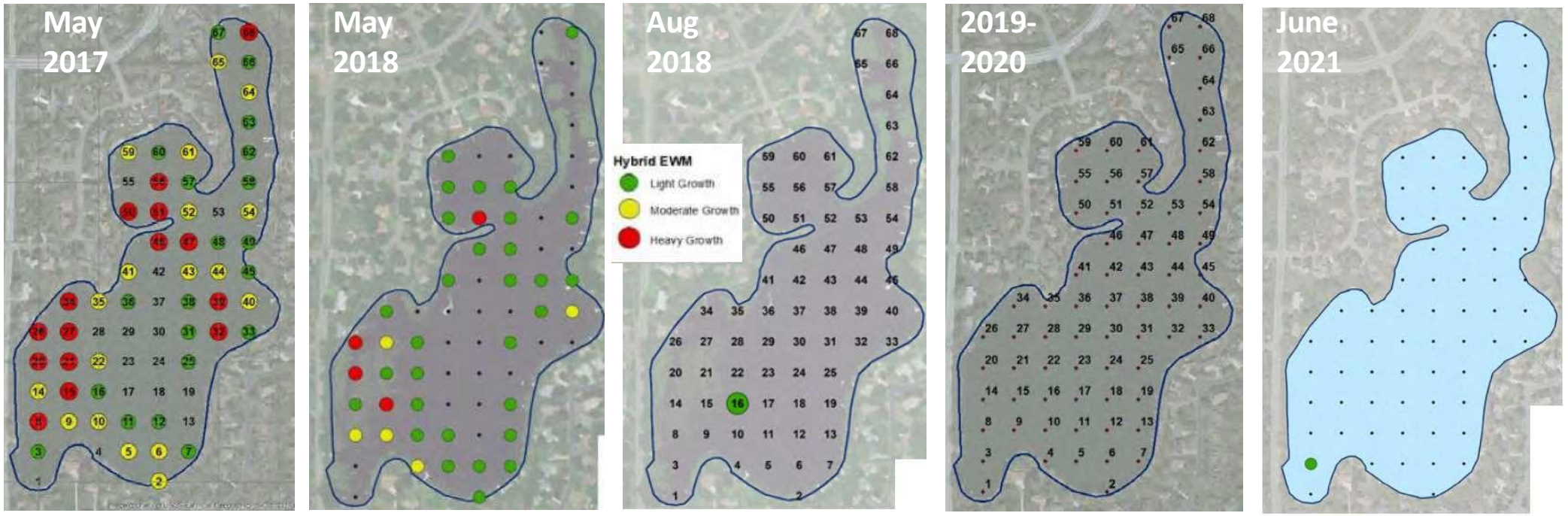
Schmidt Lake

Hybrid Milfoil Occurrence

Year	Month	HWM FOO	% of Points with Native Taxa	# Native Taxa (Submersed)	Mean Native Taxa Per Point
2017	May 23	78		10	
*2018**	May 29	62	98	6	1.2
*2018**	Aug 23	1	94	9	1.1
2019	May 30	0	85	7	1
2019	Aug 23	0	70	8	1.1
2020	June 19	0	72	8	1.1
2021	June 8	1	90	7	1.3

* Fluridone Treatment

TREATMENT YEAR

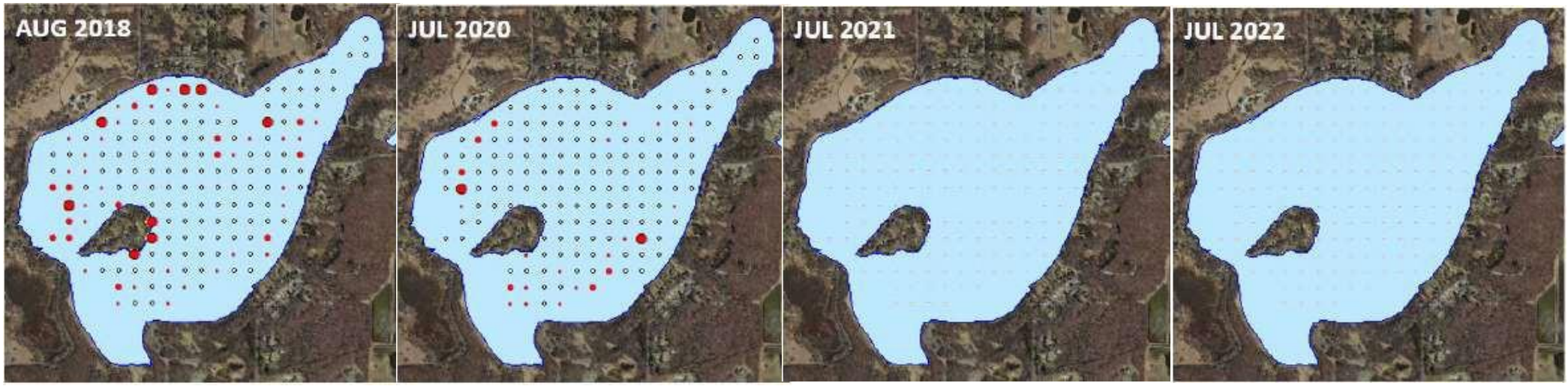


Ham Lake – fall treatment

Hybrid Milfoil Occurrence

Year	Month	HWM FOO	% of Points with Native Taxa	# Native Taxa (Submersed)	Mean Submersed Native Taxa/Point
2018	August	36	77	15	1.8
2019	July	6	87	15	1.7
2020	July	16	63	15	2.0
2021	July	0	64	14	1.5
2022	July	0	64	14	1.5

TREATMENT YEAR



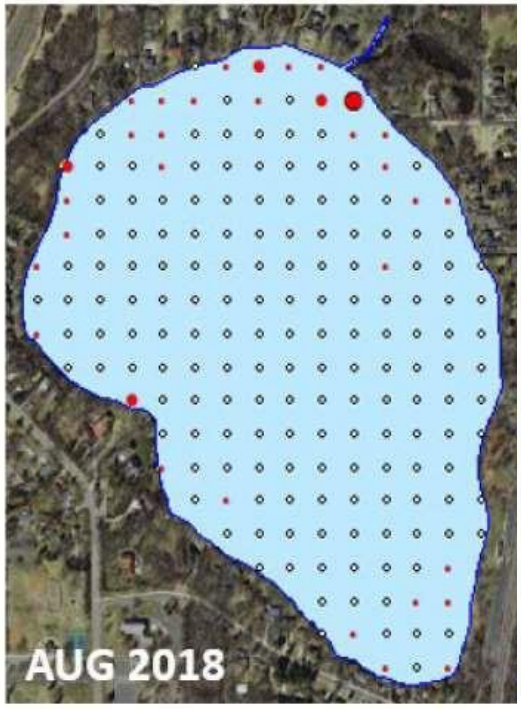
Lake Josephine

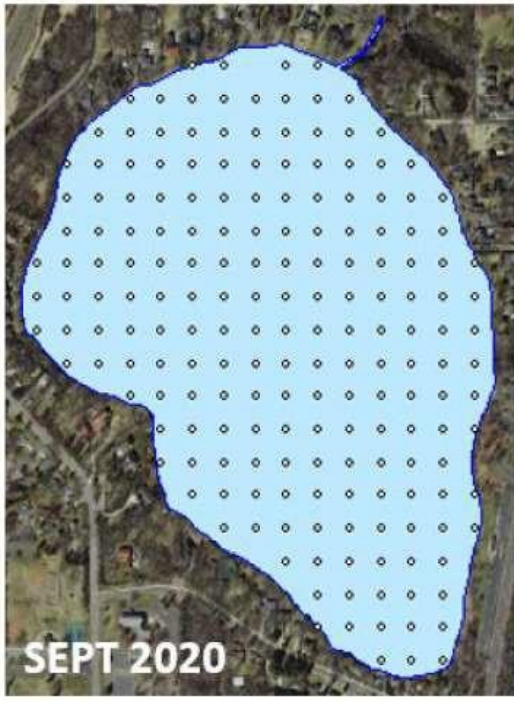
Hybrid Milfoil Occurrence

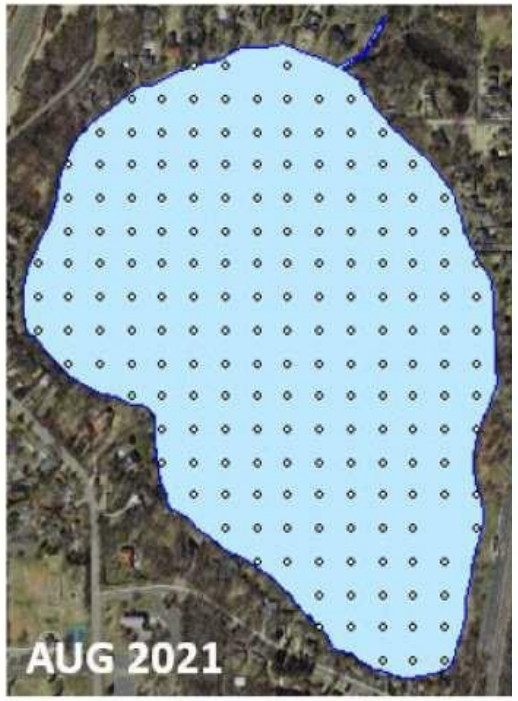
STATUS: **ERADICATION**

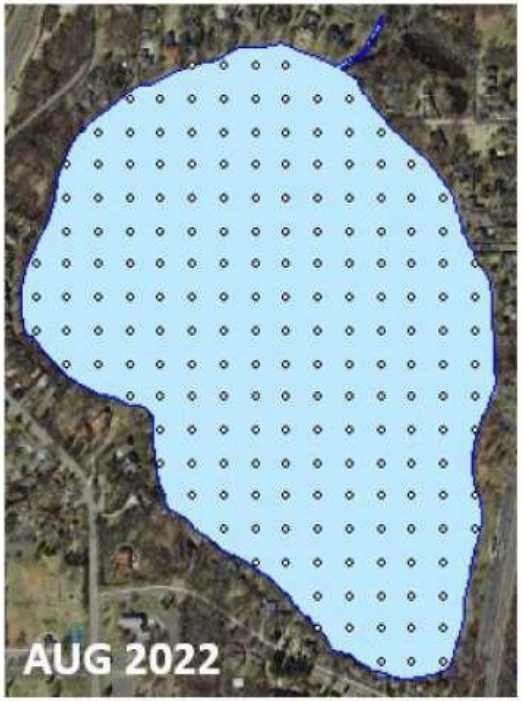
Year	Month	HWM FOO	% of Points with Native Taxa	# Native Taxa (Submersed)	Mean Native Plant Abundance (0-3)
2018	August	22	59	10	0.9
2020	September	0	47	7	0.6
2021	August	0	76	9	1.1
2022	Aug	0	36	10	0.7

TREATMENT YEAR







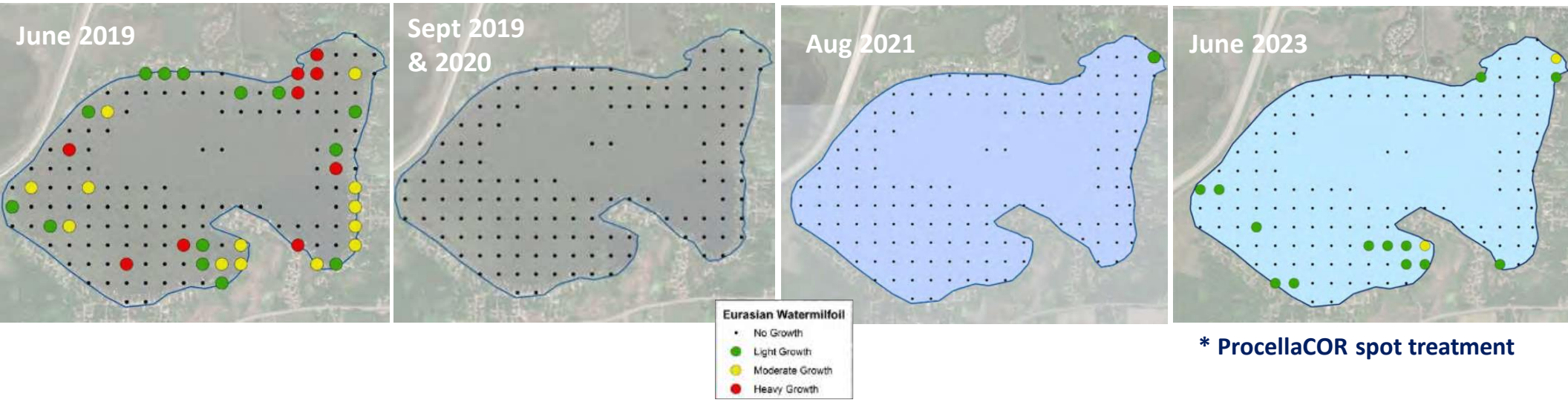


Clear Lake

Eurasian Milfoil Occurrence

Year	Month	EWM FOO	# Native Taxa (Submersed)	Mean Native Plant Abundance (0-3)
2018	June 11	23	7	1.2
2019	June	25	5	0.6
2020	June 9	0	8	1
2021	Aug 4	1	7	NA
2022	Aug 18	1	11	NA
2023	June 13	11*	12	NA

TREATMENT YEAR

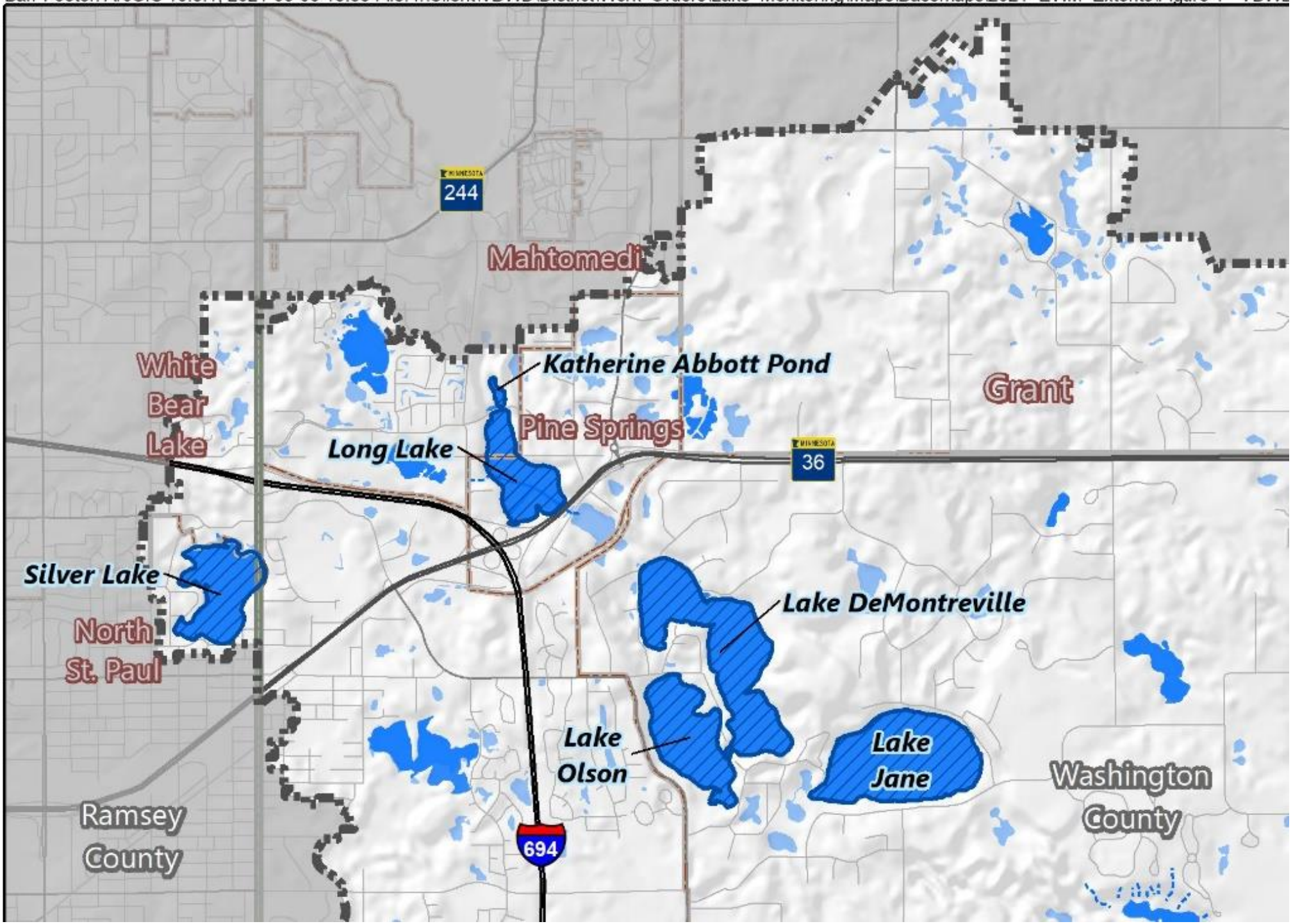


*** ProcellaCOR spot treatment**

Monitoring Results from SONAR PROJECTS in Valley Branch Watershed District (Ramsey and Washington Counties, Minnesota):

targeting invasive watermilfoil and CLP

Barr Footer: ArcGIS 10.8.1, 2021-08-06 15:33 File: I:\Client\VBWD\District\Work_Orders\Lake_Monitoring\Maps\Basemaps\2021_EWM_Extents\Figure 1 - VBWD



Silver Lake (Hybrid Watermilfoil)

Treatment Dates: 10/2/2023, 11/3/2023, 4/6/2024, and 5/8/2024, and 6/12/2024

Fluridone Concentrations:

10/7/2023 – 2.9 ppb; 10/16/2023 – 2.7 ppb

10/16/2023 – 2.4 ppb; 11/10/2023 – 4.3 ppb

4/2/2024 – 2.6 ppb; 4/24/2024 – 2.7 ppb

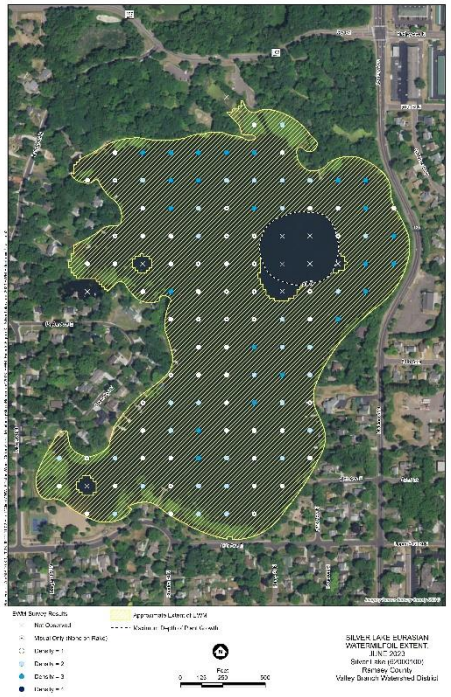
5/22/2024 – 3.3 ppb;

Year	Month	HWM (ac)	% of Points with Submersed Native Taxa	# Native Taxa (Submersed)	Mean # Submersed Native Taxa per Point
2021	June	16	38	8	0.5
2022	June	11	45	9	0.6
2023	June	71	45	9	0.6
2024	June	3	95	7	1.6

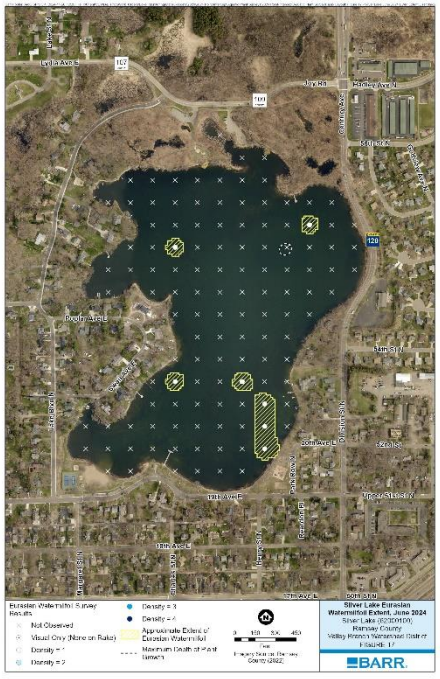
Treatment in Progress

June 22, 2021

June 20, 2022



June 22, 2023



June 18, 2024

Long Lake (Eurasian Watermilfoil)

Treatment Dates: 11/1/2023, 4/11/2024, and 5/21/2024

Fluridone Concentrations:

11/8/2023 – 4.2 ppb; 11/14/2023 – 3.5 ppb

4/4/2024 – 2.13 ppb; 4/25/2024 – 4.6 ppb

5/1/2024 – 3.7 ppb; 5/29/2024 – 4.7 ppb

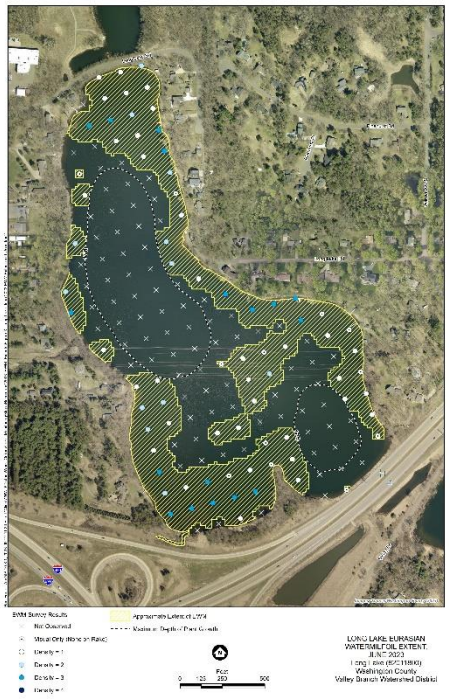
6/20/2024 – 3.2 ppb

***ProcellaCOR/Diquat Treatment in September**

Year	Month	EWM (ac)	% of Points with Submersed Native Taxa	# Native Taxa (Submersed)	Mean # Submersed Native Taxa per Point
2022	June	4	61	12	0.9
2023	June	29	57	15	1.0
2024	June	20	85	9	1.3
2024	September	2*	NA	NA	NA

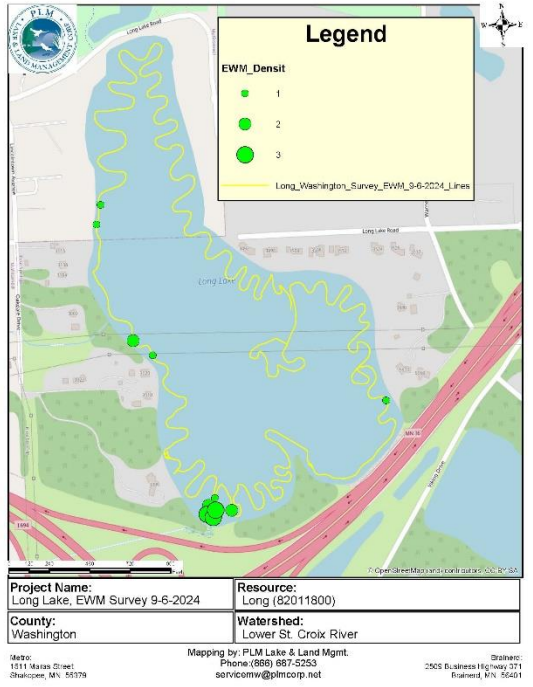
Treatment in Progress

June 22, 2022



June 23, 2023

June 20, 2024



September 2024

Lake DeMontreville (Hybrid Watermilfoil)

Treatment Dates: 10/11/2022, 11/8/2022, and 5/2/2023

*** Diquat treatment of 13 acres HWM on 6/2/2021**

**** Diquat treatment of 14 acres HWM on 6/7/2022**

Year	Month	HWM (ac)	% of Points with Submersed Native Taxa	# Native Taxa (Submersed)	Mean # Submersed Native Taxa per Point
2021	June	2*	96	10	1.7
2022	June	1**	95	10	1.5
2023	June	0	68	8	0.9
2024	June	0	92	11	1.4

TREATMENT YEAR

June 22, 2021

June 21, 2022

June 22, 2023

June 18, 2024

Lake Olson (Hybrid Watermilfoil)

Treatment Dates: 10/11/2022, 11/8/2022, and 5/2/2023

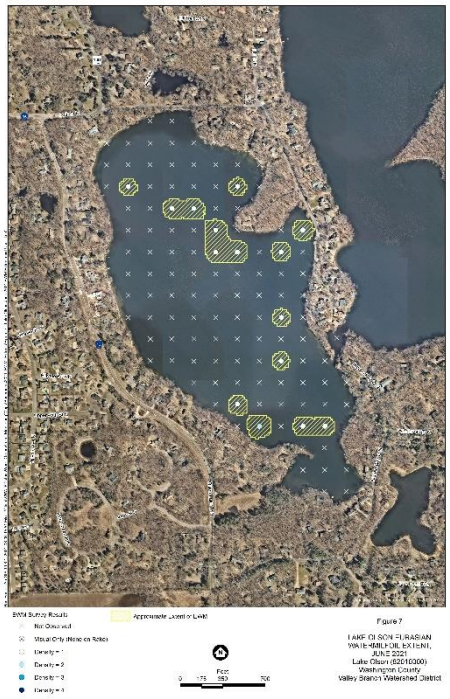
*** Diquat treatment of 9.2 acres HWM on 6/2/2021**

**** Diquat treatment of 9.2 acres HWM on 6/7/2022**

*****ProcellaCOR treatments of 1 acre on 6/27/2024 and 2 acres on 9/13/2024**

Year	Month	HWM (ac)	% of Points with Submersed Native Taxa	# Native Taxa (Submersed)	Mean # Submersed Native Taxa per Point
2021	June	8*	98	15	1.9
2022	June	2**	94	11	1.9
2023	June	0.44	97	11	2.1
2024	June	2.00***	95	12	1.9

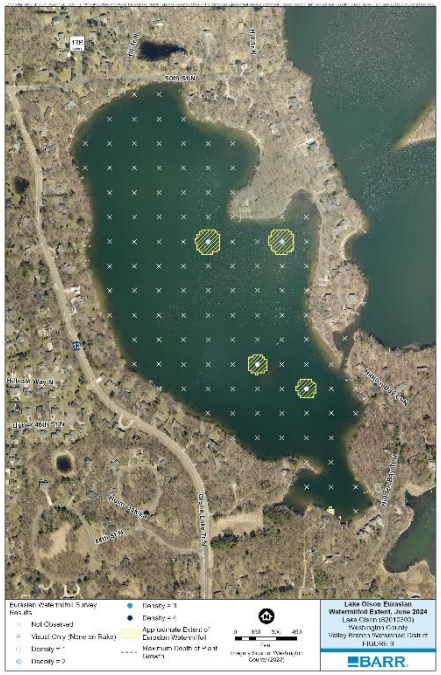
TREATMENT YEAR



June 22, 2021

June 21, 2022

June 22, 2023



June 18, 2024

Lake Jane (Eurasian Watermilfoil)

Treatment Dates: 11/1/2023, 4/11/2024, and 5/21/2024

Fluridone Concentrations:

11/8/2023 – 4.3 ppb; 11/14/2023 – 3.5 ppb

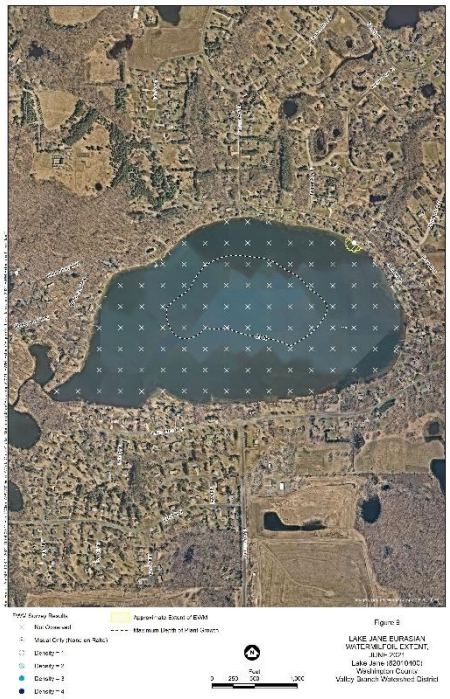
4/4/2024 – 2.5 ppb; 4/25/2024 – 3.1 ppb

5/1/2024 – 2.2 ppb; 5/29/2024 – 4.0 ppb

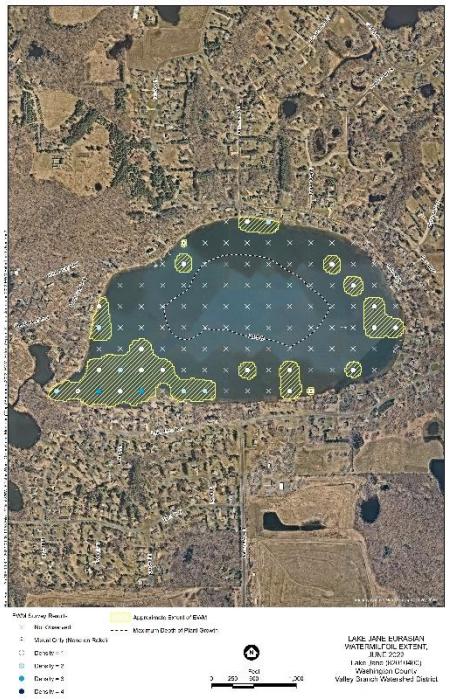
6/20/2024 – 3.2 ppb

Year	Month	EWM (ac)	% of Points with Submersed Native Taxa	# Native Taxa (Submersed)	Mean # Submersed Native Taxa per Point
2021	June	0.35	97	16	2.4
2022	June	32	94	17	1.8
2023	June	51	93	16	1.7
2024	June	11	100	13	2.0

Treatment in Progress



June 24, 2021



June 20, 2022

June 22, 2023

June 18, 2024

WDNR Response to Proposals (Tyler Mesalk, 1/15/2025)

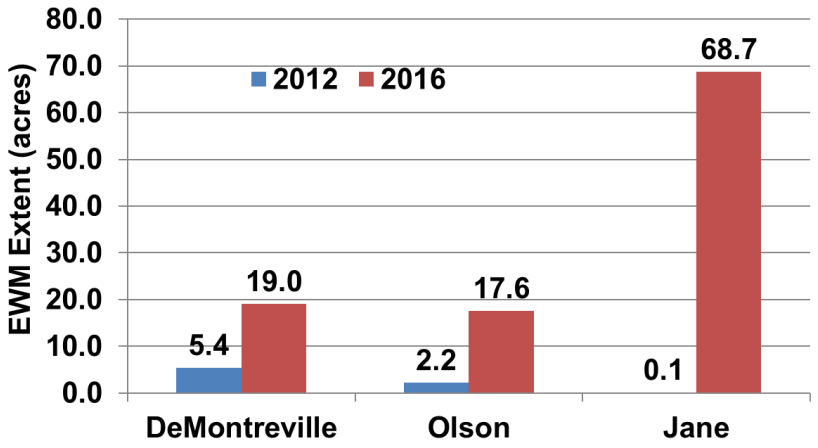
"Due to the scale and locations proposed with the use of Aquastrike, the DNR has similar concerns regarding the native plant community as previously stated for Fluridone. In order for the WDNR to consider an Aquastrike treatment, the proposed treatment areas will need to be revised. The DNR would only consider sites 7-11 provided the lake District can confirm that EWM is at a nuisance level and an impairment to navigation."

WDNR Response to Proposals (Tyler Mesalk, 1/15/2025)

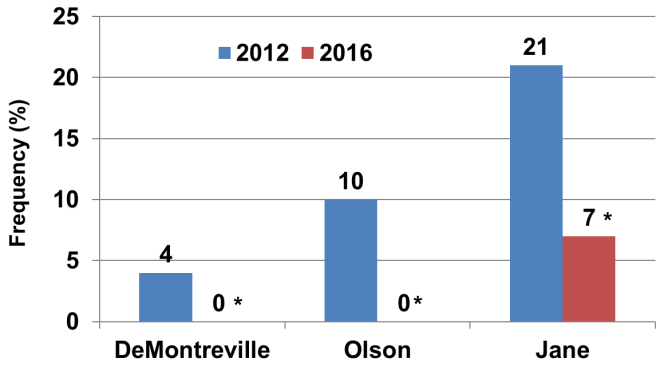
"The WDNR believes the proposed aquatic plant management activities could lead to significant reductions of native plant species and could provide the disturbance that invasive species, such as EWM prefer when they are either introduced or currently present in a system. The best defense in not providing EWM an environment in which it becomes the dominant plant species is maintaining a healthy and diverse aquatic plant community like what is currently present in Half Moon lake. It is highly unlikely EWM will ever be eradicated in Half Moon lake and EWM and native plant populations will fluctuate over time regardless of management activities. The WDNR is hopeful it can share the long term goal with the lake district of a diverse healthy aquatic plant community even with the presence of EWM."

Does Eurasian Watermilfoil Displace Native Species Resulting in Statistically Significant Frequency Reductions of Native Plant Species?

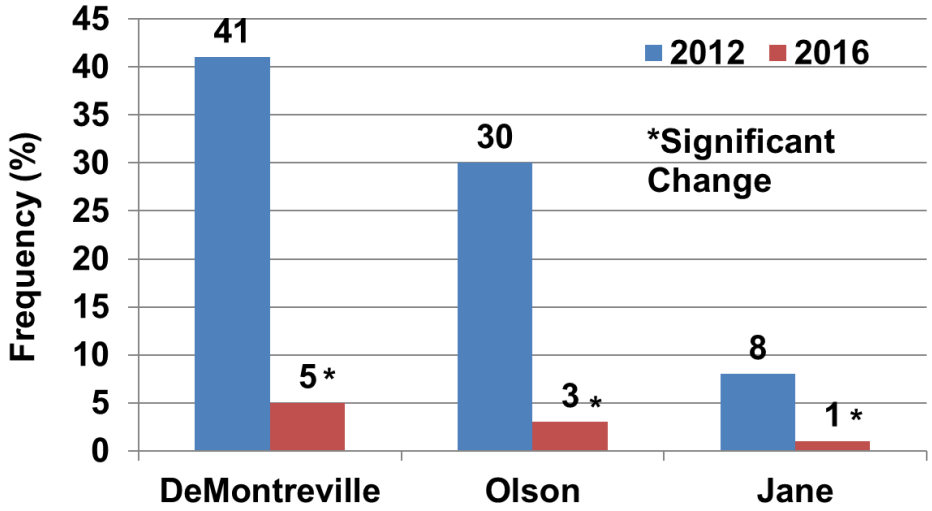
2012 and 2016 *Eurasian watermilfoil Extent* in Lake DeMontreville, Lake Olson, and Lake Jane



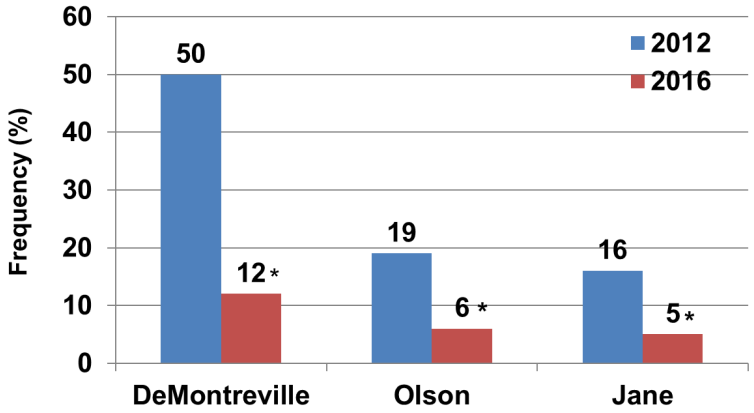
2012 and 2016 *Potamogeton amplifolius* Frequency in Lake DeMontreville, Lake Olson, and Lake Jane



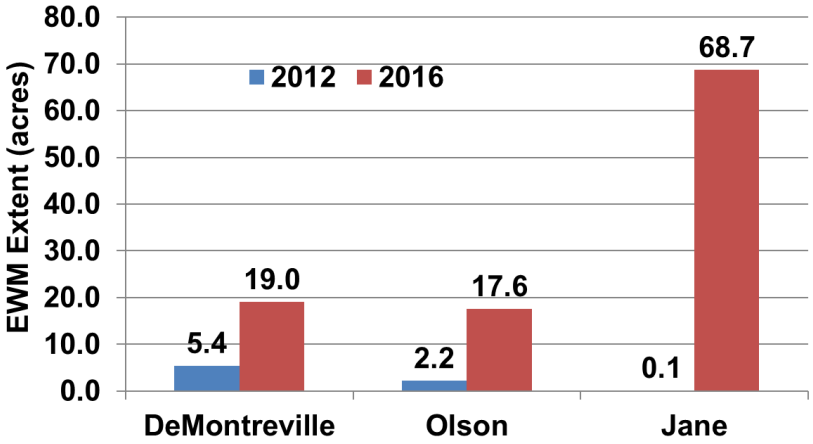
2012 and 2016 *Potamogeton pusillus* Frequency in Lake DeMontreville, Lake Olson, and Lake Jane



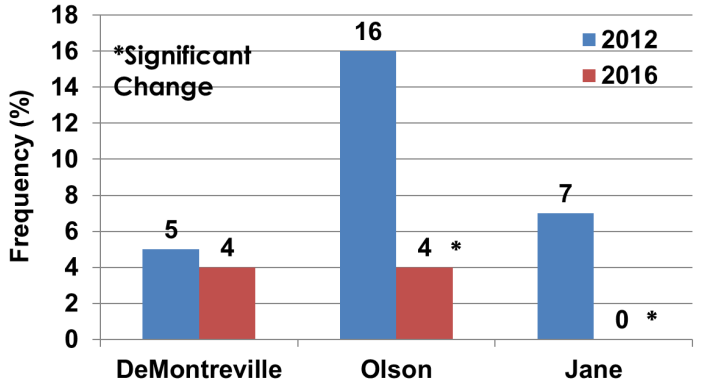
2012 and 2016 *Potamogeton zosteriformis* Frequency in Lake DeMontreville, Lake Olson, and Lake Jane



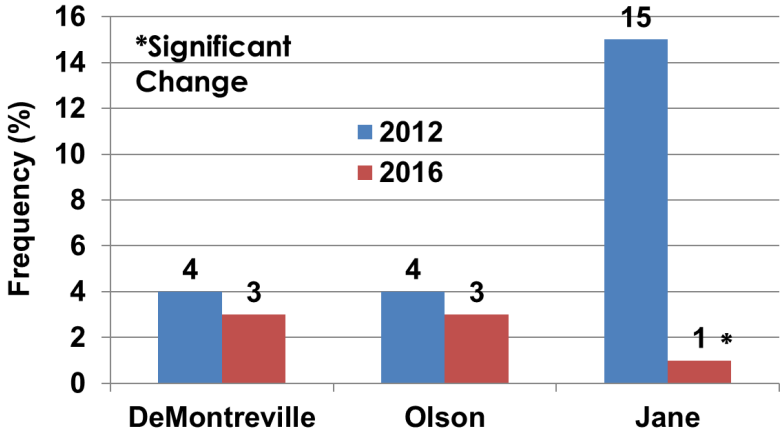
2012 and 2016 *Eurasian watermilfoil Extent* in Lake DeMontreville, Lake Olson, and Lake Jane



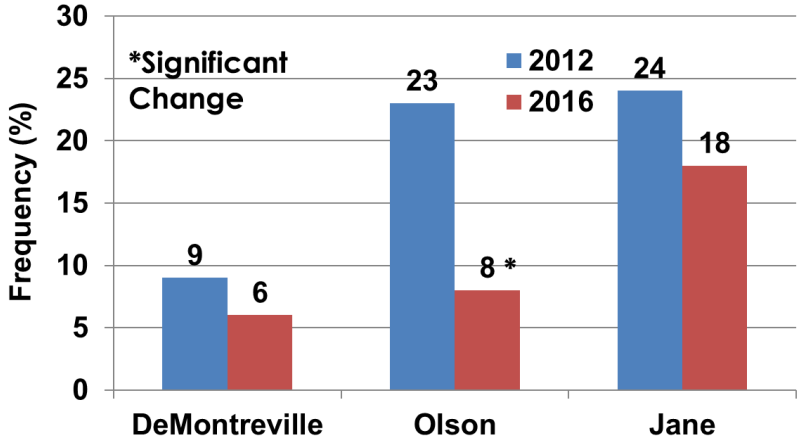
2012 and 2016 *Heteranthera dubia* Frequency in Lake DeMontreville, Lake Olson, and Lake Jane

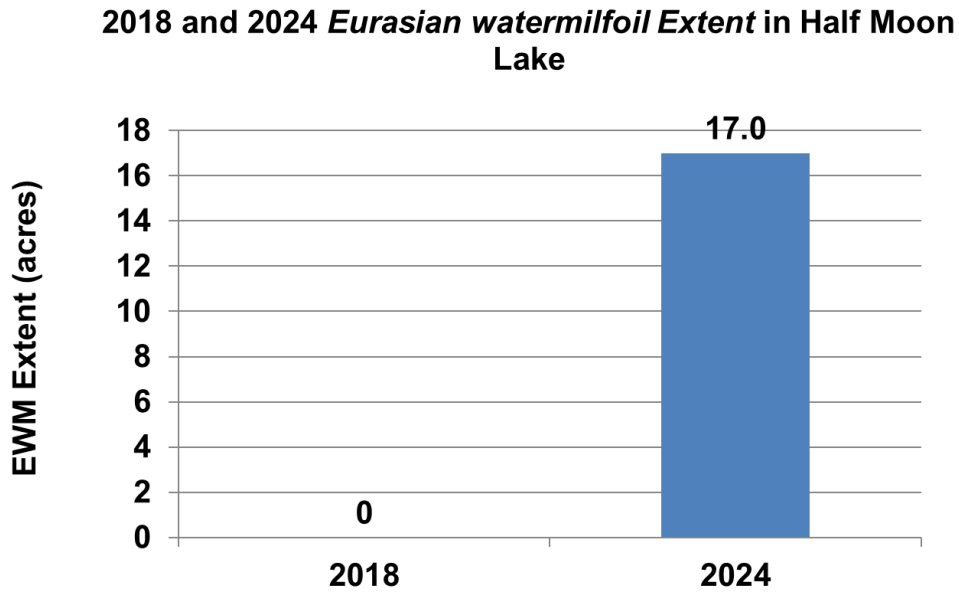


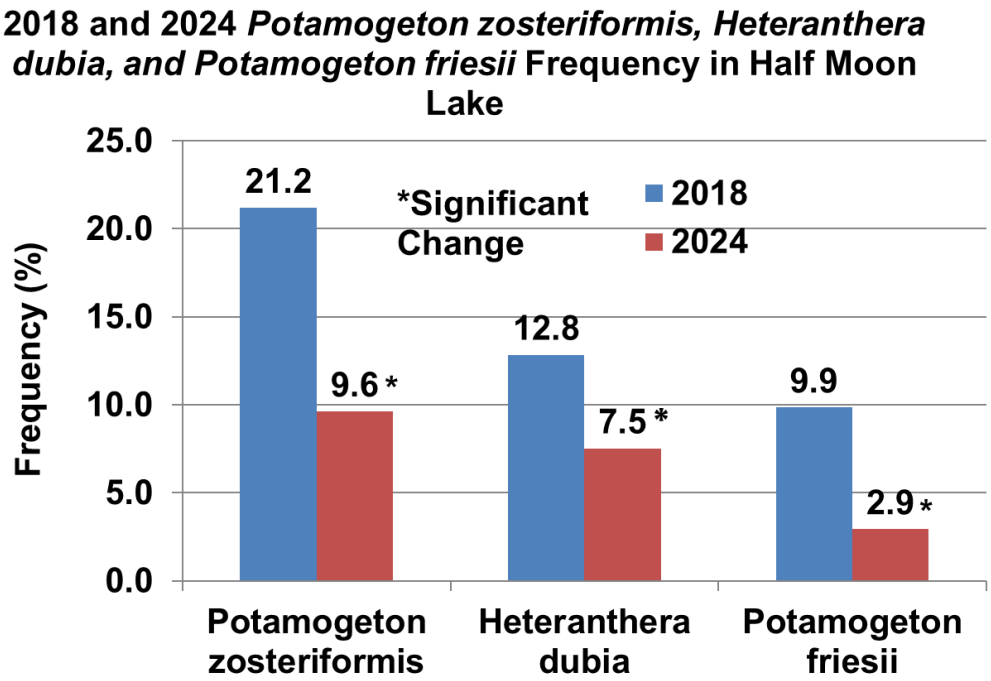
2012 and 2016 *Ranunculus aquatilis* Frequency in Lake DeMontreville, Lake Olson, and Lake Jane



2012 and 2016 *Potamogeton illinoensis* Frequency in Lake DeMontreville, Lake Olson, and Lake Jane




2018 and 2024 Eurasian watermilfoil Extent in Half Moon Lake
EWM Extent (acres)
18
16
14
12
10
8
6
4
2
0
17.0
0
2018
2024


2018 and 2024 Potamogeton zosteriformis, Heteranthera dubia, and Potamogeton friesii Frequency in Half Moon Lake
Frequency (%)
25.0
20.0
15.0
10.0
5.0
0.0
21.2
9.6*
12.8
7.5*
9.9
2.9*
*Significant Change
2018
2024
Potamogeton zosteriformis
Heteranthera dubia
Potamogeton friesii

Summary

- Fluridone is a highly selective treatment at low doses that targets Eurasian watermilfoil/hybrid watermilfoil
- Data from 11 lakes receiving fluridone treatments verify fluridone effectively removed Eurasian/Hybrid watermilfoil and a healthy native plant community was present after treatment
- Historically, WDNR has permitted fluridone treatments (e.g., 15 lakes treated with fluridone during 2015-2020 are shown on a graph provided by Michelle Nault)

Summary

- Data from Half Moon Lake and 3 additional lakes (Lake DeMontreville, Lake Olson, and Lake Jane) verify that significant reductions in native plant species frequency have occurred as Eurasian watermilfoil or Hybrid watermilfoil increased in extent.

Recommendation for WDNR

- WDNR provide permit for the proposed fluridone treatment in Half Moon Lake during spring 2025