Wisconsin Department of Natural Resources
Surface Water Grants Program
Aquatic Invasive Species
Grant # AIRR-23419

Buckatabon Lakes Eurasian Watermilfoil Control and Prevention Rapid Response Project

Upper and Lower Buckatabon Lakes - Vilas County, WI

2019 Annual Reporting

Submitted To:
Wisconsin Department of Natural Resources
Attention: Carol Warden, Aquatic Invasive Species Specialist –UW Trout Lake
Trout Lake Station, 3110 Trout Lake Station Dr, Boulder Junction, WI 54512
Phone: 608.890.4721

And

Buckatabon Lakes Association, Inc.
P.O. Box 133
Conover, WI 54519

Submitted By:

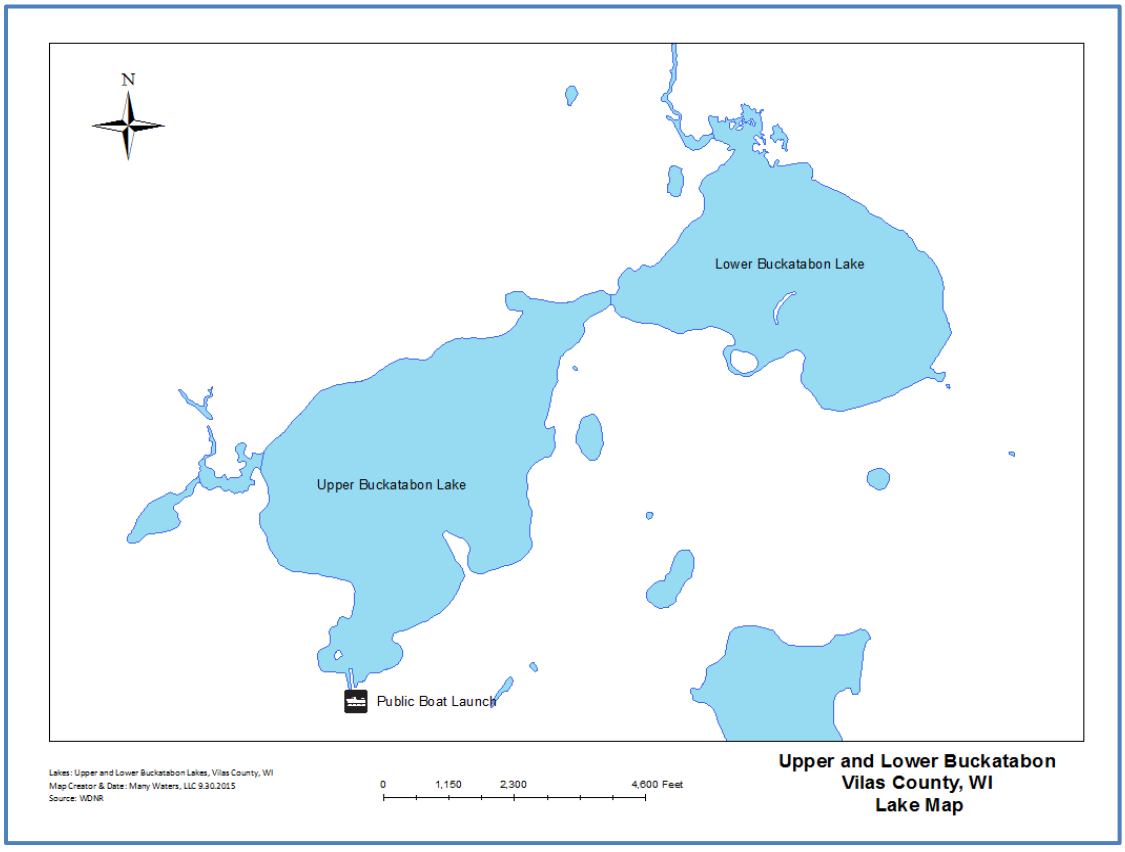
Many Waters, LLC
2527 Lake Ottawa Road
Iron River, MI, 49935
906.284.2198

Contact: Bill Artwich; billartwich@gmail.com
Barb Gajewski; skih2o@hotmail.com

PROJECT OVERVIEW

Upper and Lower Buckatabon Lakes are connected water bodies located in Conover Township, Vilas County, WI with 493 and 378 surface water acres respectfully. Upper Buckatabon has a maximum depth of 47 feet and Lower Buckatabon has a maximum depth of 16 feet. Both lakes are drainage lakes and Two-Story Natural Communities. The WDNR defines two-story lakes as those that "are often more than 50 feet deep and are always stratified in the summer". These lakes have the potential to support coldwater fish, such as Cisco, in cooler deeper waters of the lake. Recently, the WDNR listed both Upper and Lower Bucktabon Lakes on the State's impairment listing for exceeding phosphorous levels defined for a two-story natural community.

Buckatabon Creek flows into Upper Buckatabon Lake from the north. This creek is a cool-cold headwater creek that supports a Class II trout stream. Located in the Tamarack Pioneer River Watershed, land cover is primarily forests (63%), wetlands (18%), and open water (10%). This watershed ranks medium for nonpoint sources affecting lakes. A dam owned and operated by Wisconsin Valley Improvement Company is located along the eastern end of Lower Buckatabon that drains Buckatabon Creek to the Wisconsin River. A public boat launch owned by Vilas County is located on Upper Buckatabon, whereas a channel between Upper Buckatabon and Lower Buckatabon provides public access to Lower Buckatabon. Private boat launches also provide access to Lower Buckatabon. Aquatic invasive species known to occur on the Buckatabon Lakes include banded mystery snails, Chinese mystery snails, Eurasian watermilfoil and yellow iris.



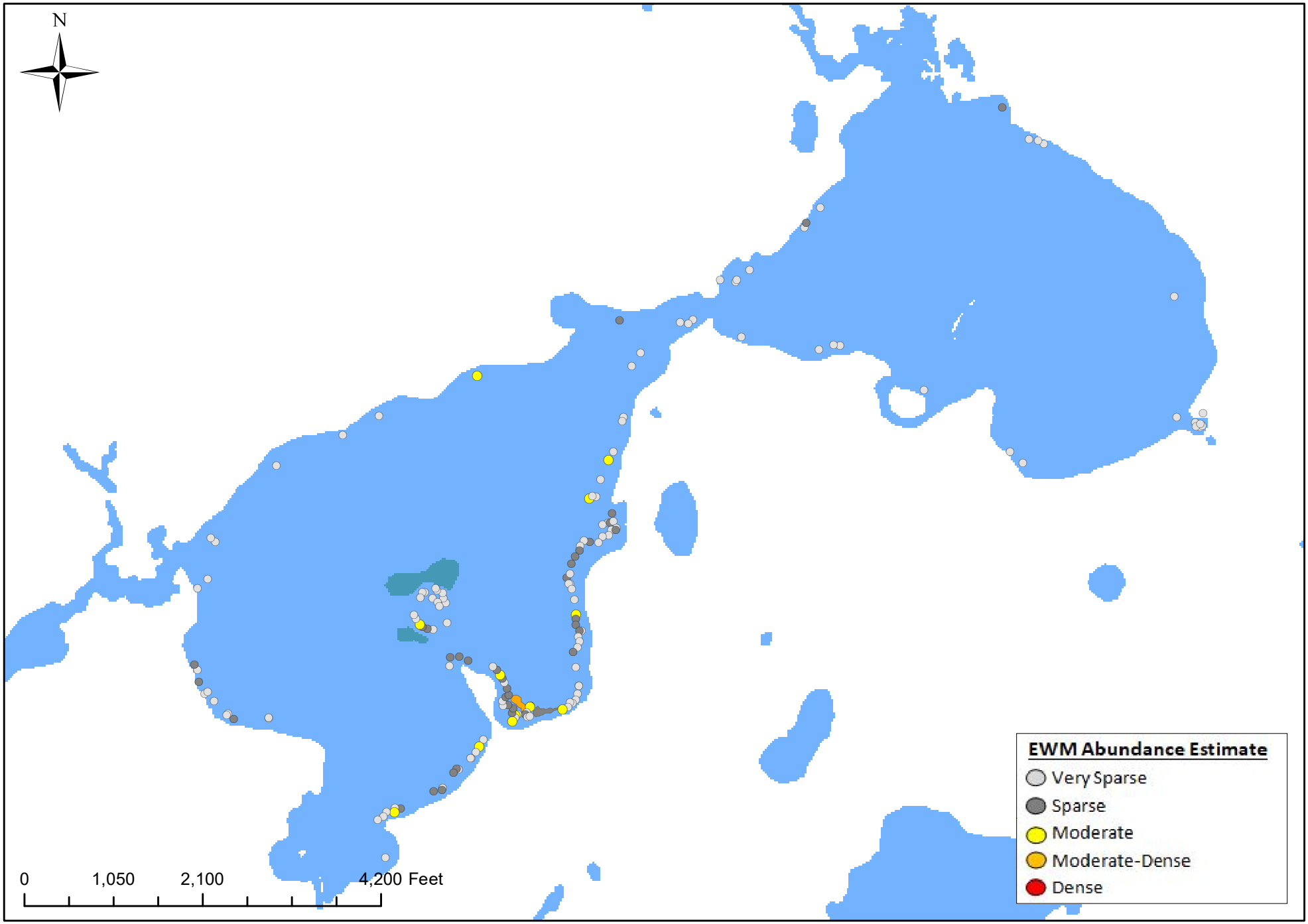
This report is a summary of 2019 activities completed under the WDNR Aquatic Invasive Species Grant # AIRR-23419 for Eurasian watermilfoil (EWM) including (1) Eurasian watermilfoil (EWM) monitoring, (2) EWM management strategies and, (3) discussion of project highlights.

EWM SEASONAL MONITORING

Aquatic invasive species (AIS) monitoring targets Eurasian watermilfoil but includes other aquatic and wetland invasive plant species. The first survey, timed during the first half of the growing season, reconfirms previous EWM locations to refine management strategies and monitors for EWM, mainly in shallow waters. The second survey, timed to capture EWM plants at or near their greatest annual growth potential occurs during the second half of the growing season and includes deeper waters and off shore locations where vegetation grows.

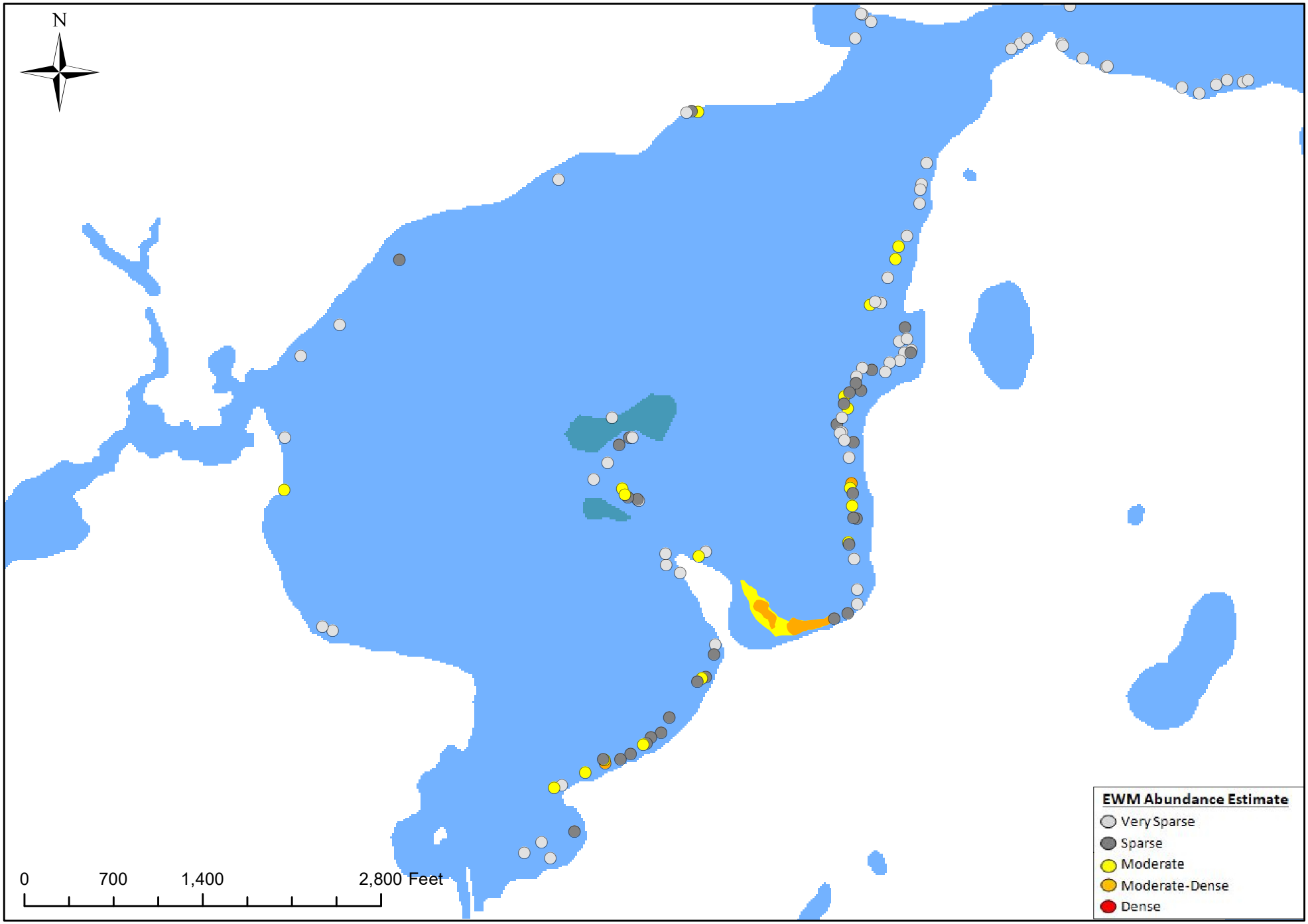
Monitoring efforts are qualitative in nature, meaning information collected describes the condition or population of the target AIS rather than relying on measured or quantitatively collected and calculated values. Smaller sites are geo-referenced with a GPS point and extent is determined by visually estimating coverage in foot-circumference. This is an observed estimate of exact extent, not footprint. On average, these sites are less than a 0.10 of an acre in size. Larger sites, typically greater than a 0.10 of an acre in size, are circumnavigated and extent in acres is calculated and represented on a map with a polygon.

Early season monitoring took place on July 8th and focused on relocating existing EWM locations and high likelihood areas including boat launches, shallow bays and regions adjacent to known locations. Populations of EWM within the general regions of previous known sites grew in size and density since the end of the 2018, with highest abundances found in Upper Buckatabon. Multiple new locations of EWM found on Lower Buckatabon consisted of sparse to very sparse colonies. Mid/Late season EWM monitoring took place on September 28th detecting EWM in the general locations already known to exist on Upper and numerous new locations on Lower Buckatabon Lakes.



Lake: Upper and Lower Buckatabon, Vilas County, WI
Map Date & Creator: 8.13.19, updated 3.18.20,Many Waters, LLC
Survey Date: 7.8.19
Source: WDNR hydro, EWM-Many Waters
File: Buckatabon_ES_2019

Early Season EWM Survey
Upper and Lower Buckatabon Lakes
2019

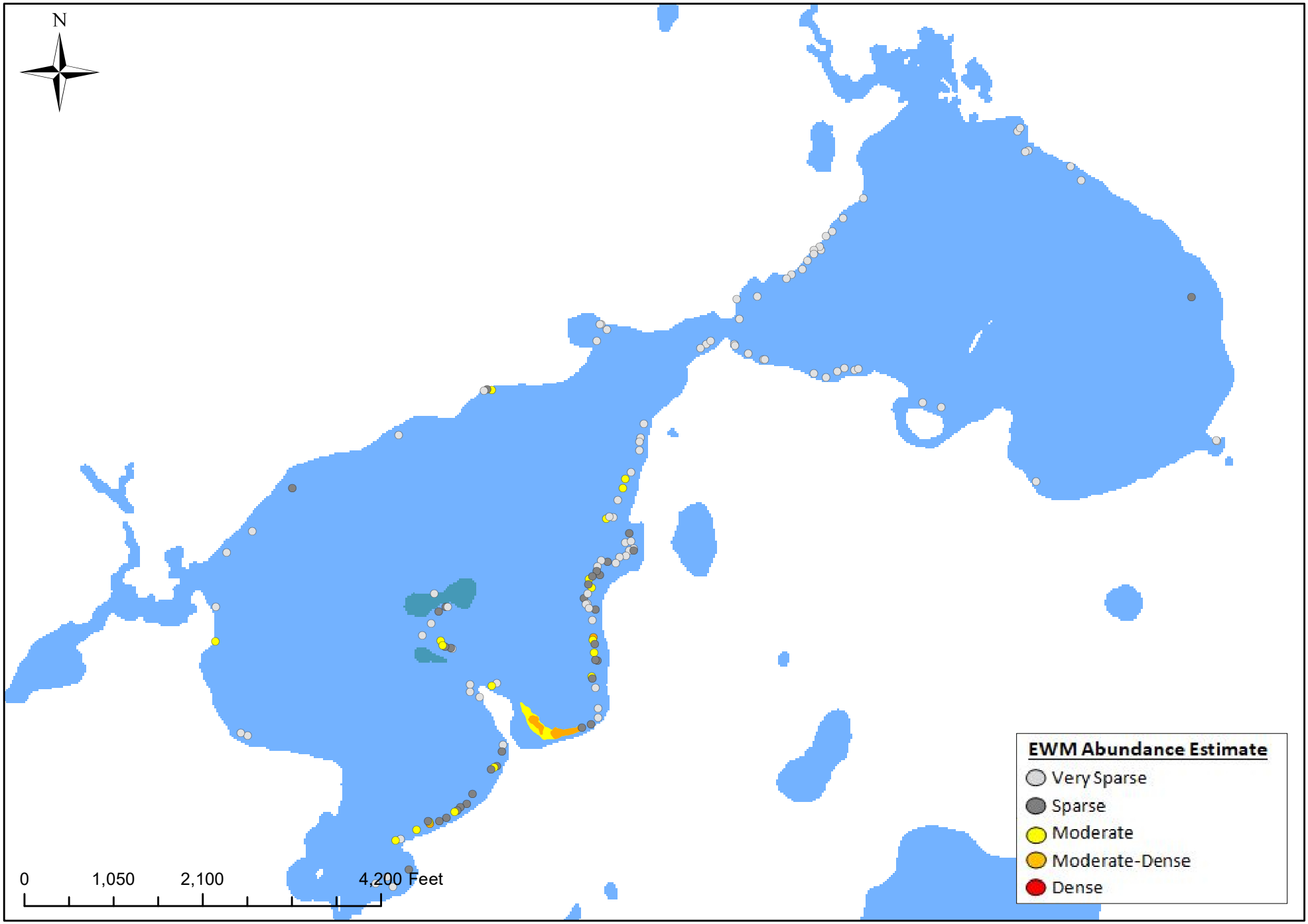


Lake: Upper Buckatabon, Vilas County, WI
Map Date & Creator: 3.18.20,Many Waters, LLC
Survey Date: 9.28.2019
Source: WDNR hydro, EWM-Many Waters
File: Buckatabon_MLSS_EOY_2019

Upper Buckatabon Lake
Mid/Late Season EWM Survey
2019

Lake: Lower Buckatabon, Vilas County, WI
Map Date & Creator: 8.13.19, updated 3.18.20,Many Waters, LLC
Survey Date: 7.8.19
Source: WDNR hydro, EWM-Many Waters
File: Buckatabon_ES_2019

Early Season EWM Survey
Lower Buckatabon
2019



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Mid/Late Season EWM Survey
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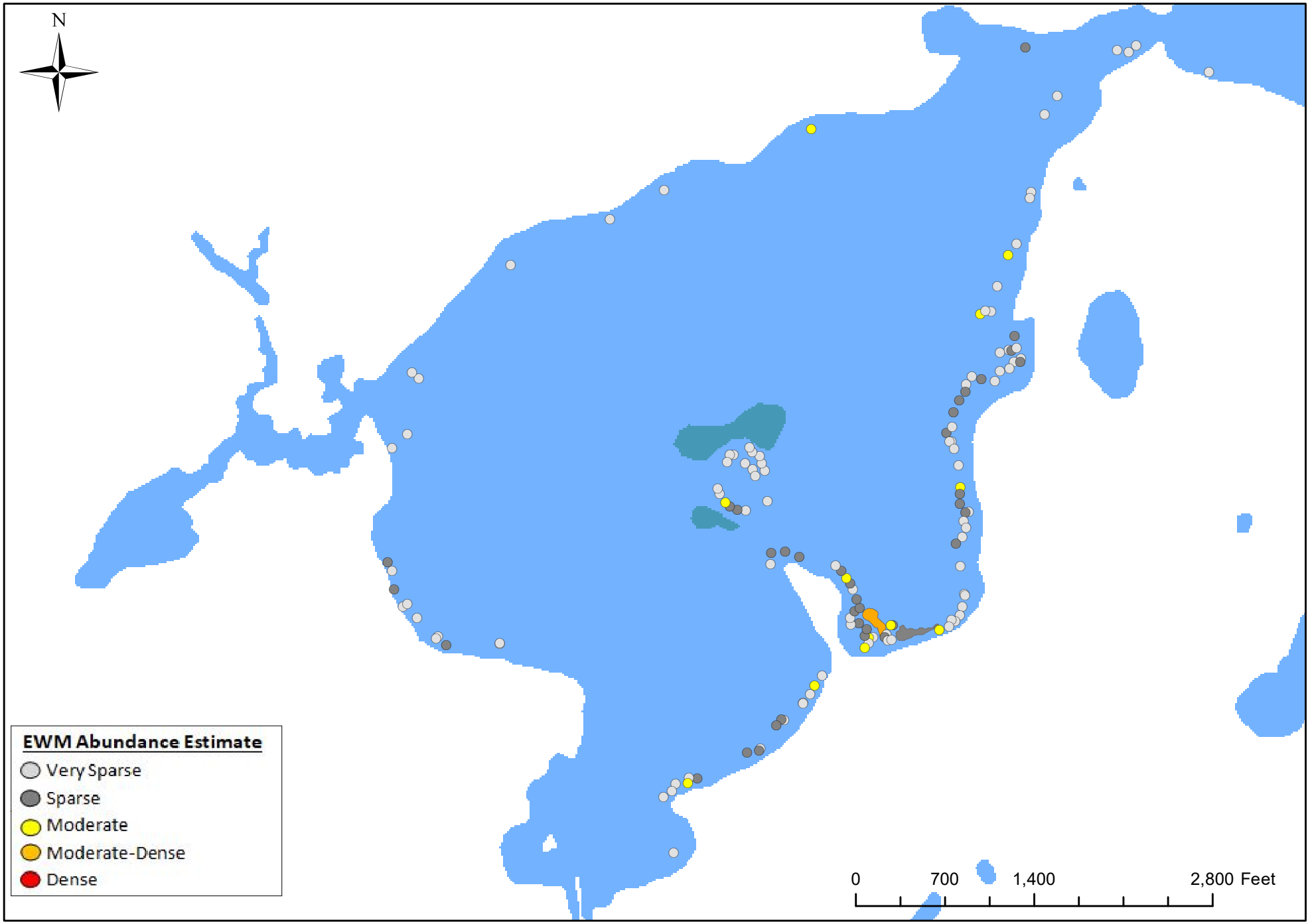

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Early Season EWM Survey
Upper Buckatabon
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Lower Buckatabon Lake
Mid/Late Season EWM Survey
2019

EWM MANAGEMENT

Due to the expansion of EWM across Upper Buckatabon and several new locations of EWM found in Lower Buckatabon, EWM management sought to reduce distribution (foot-print) of EWM rather than overall abundance. The approach included hand removing all EWM locations on Lower Buckatabon and emphasizing low density and regionally isolated sites on Upper Buckatabon. The distribution reduction rationale was to target these smaller less dense sites before they could potentially expand and reduce lake-wide footprint. This meant that no DASH work was performed in 2019. Given the current status of EWM of Upper Buckatabon, DASH efforts may have reduced EWM abundance at very localized level, but would have done very little to reduce lake-wide abundance or foot-print.

All known locations based on the early season mapping were dove on Lower Buckatabon. In total divers removed 200 plants weighing 30 pounds (wet weight). Dive efforts focused on isolated locations of EWM on Upper Buckatabon starting north of the boat launch working clock-wise around the lake to the first moderate colony found just south of the entrance to the springs. In total divers removed 67 plants weighing 14 pounds (wet weight).

Figure 1: Change in EWM acreage (point based and polygon based mapping combined) categorized by estimated abundance 2015-2019 – Upper and Lower Buckatabon Lakes Combined.

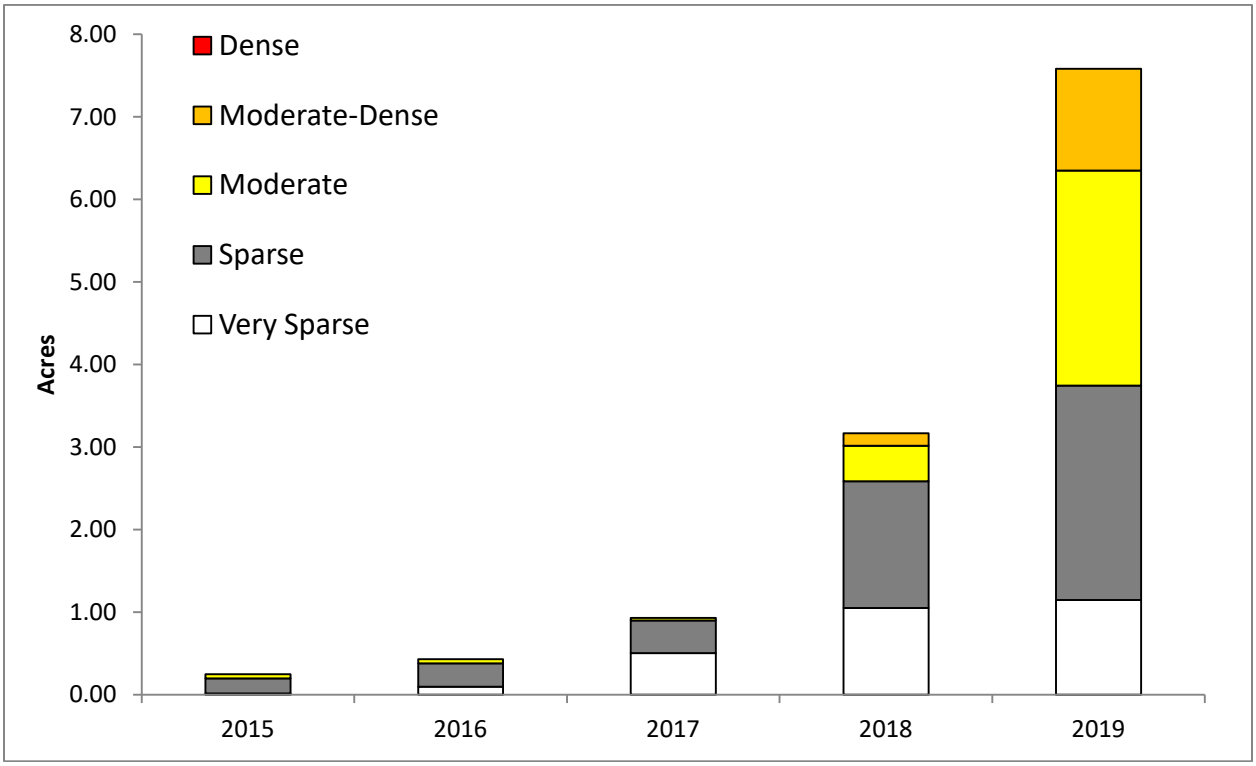

Table 1: Change in EWM acreage (point based and polygon based mapping combined) categorized by estimated abundance 2015-2019 – Upper and Lower Buckatabon Lakes Combined.

EWM Abundance Estimate	2015	2016	2017	2018	2019
Very Sparse	0.02	0.10	0.50	1.05	1.15
Sparse	0.18	0.28	0.40	1.54	2.60
Moderate	0.05	0.05	0.03	0.43	2.61
Moderate-Dense	0.00	0.00	0.00	0.15	1.23
Dense	0.00	0.00	0.00	0.00	0.00
TOTALS (acres)	**0.25**	**0.43**	**0.93**	**3.17**	**7.58**

FUTURE MANAGMENT EWM

Eurasian watermilfoil can potentially alter native aquatic plant ecosystems and cause recreational use and impairment issues. Conversely, not all lakes may experience high populations of Eurasian watermilfoil, particularly in Northern Wisconsin.[1] Recent WDNR research suggests that across the State of Wisconsin, many lakes do not reach lake-wide high densities, as previously once thought. Nonetheless, it is important to recognize that aquatic ecosystems are dynamic and a lake may have a "low" lake-wide EWM population, but still experience localized lake use and access issues caused by EWM. Annual variations in both native and invasive plants occur and further research is needed to understand how lake ecology and climate may play a role in seasonal variability. Lake-wide, EWM makes up a small portion of the aquatic plant community on both Upper and Lower Buckatabon Lakes. A point intercept survey in 2019 detected a frequency of littoral occurrence of EWM on Upper Buckatabon Lake of 1.80% and 0.23% on Lower Buckatabon.

Many sites on Upper Buckatabon documented in 2018 have expanded in 2019, with a notable expansion along most of the southeastern shore. The current EWM population represents a small portion of the total littoral area colonized; however, there are sites on Upper Bucktabon Lake that are at nuisance levels. There is subjectivity in defining nuisance, based on perspective, lake use, and knowledge of invasive species. However, a narrative description of the regions of nuisance would describe EWM effecting reasonable access and use of the lake and in some locations impede watercraft mobility. Having to motor around EWM beds to access property or having to clear a prop is effecting reasonable access and lake use. To address spread caused in EWM abundant areas of the lake, the BLA buoys off these areas to limit boat traffic and fragmentation caused by boat props. The main area currently buoyed each year is the bay located southeast of the islands. Continuing a foot-print reduction with the use of hand removal and DASH, coupled with additional control measured discussed below would be the designed approach going into 2020.

End of the season EWM locations on Lower Buckatabon have varied since monitoring began in 2015, with anywhere from zero to 13 sites documented. At the end of the 2019 season, monitoring detected 39 EWM locations. Most sites still consist of sparse to very sparse EWM. Continuing to target each known location one to two times a season would be the designed approach going into 2020.

The BLA is taking a very proactive approach to EWM management and AIS prevention. Prevention efforts include participating in Clean Boats Clean Waters inspections and initiating a new campaign in 2020 to educate lake users about the importance of not tossing all weeds collected on recreational equipment back into the lake. The BLA is working with Vilas County Land and Water Conservation Department to initiate a weevil rearing program for Buckatabon Lakes. The County received WDNR surface water grant funds and will be working with Association members on this project beginning in 2020. Golden Sands RC&D Council is providing technical assistance and 2020 stock weevils.

[1] Nault, M. 2016. The science behind the "so-called" super weed. Wisconsin Natural Resources 2016: 10-12.