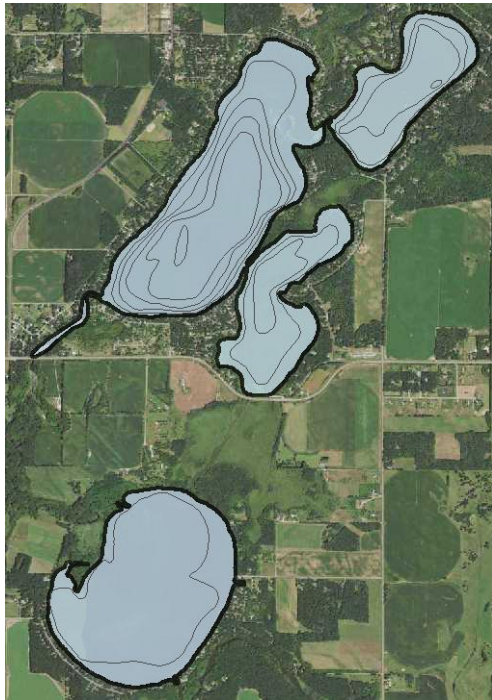


2023 Eurasian Watermilfoil Search for Briggs Chain

- **Rush Lake** (#71-0147)
- **Briggs Lake** (#71-0146)
- **Julia Lake** (#71-0145)
- **Big Elk Lake** (#71-0141)

Surveyed June 20, 2023



Surveys, Analysis, and Reporting by:

James A. Johnson – *Aquatic Ecologist, Freshwater Scientific Services, LLC*



Purpose of Surveys

These surveys were conducted on June 20, 2023 to assess the presence, distribution, and density of any Eurasian watermilfoil (EWM) in Briggs Lake, Julia Lake, Rush Lake, and Big Elk Lake. The results from these surveys will help to guide management of EWM in the lakes and meet DNR permit and grant requirements.

Survey Methods

EWM Search & Delineation Surveys

Freshwater Scientific Services surveyed Briggs, Julia, Rush, and Big Elk Lake on June 20, 2023. Rush and Big Elk have had EWM growth documented in the past, but both lakes have been actively managing EWM with hand-pulling and herbicide treatments. Briggs and Julia have had no known occurrences of Eurasian watermilfoil. During each of these surveys, we navigated a meandering search path over the vegetated portion of each lake. While navigating these search paths, we used a combination of surface observations, sonar readings, and rake tosses to locate and delineate any areas of EWM growth. Sonar and visual assessments were conducted continuously, with subsequent rake tosses to assess EWM presence and abundance at locations where plants were not identifiable from the surface.

Results & Management Context

Rush, Briggs, & Julia

During the 2023 surveys, we did not find any areas of EWM in the northern three lakes of the chain (Briggs, Julia, or Rush; map on page 4). This strongly suggests that the past management in Rush Lake successfully controlled EWM and has kept it from expanding into Briggs and Julia.

Big Elk Lake

History of Management

Between 2020 and 2021, the newly-discovered area of EWM in Big Elk Lake expanded from a few isolated patches to sporadic EWM plants found throughout a 10-acre portion of the southern end of the lake (all very light growth). This expansion prompted a herbicide treatment of 10.4 acres in late August of 2021. The lake received a two-year DNR control grant (2022-2023) to conduct monitoring and management in this area. This grant required three detailed point-intercept surveys to be conducted in the treated area to document the effectiveness of EWM control, and the impact of treatments on native plants in the treated area (positive or negative).

2023 Surveys

In June 2023, we conducted a lake-wide EWM search and a follow-up point-intercept survey in the treated plot (required by DNR) to further track the effectiveness of the herbicide treatment and document any effects on the native plant community a year after being treated. We have submitted the data from the point-intercept survey to the DNR to meet the June 30 grant deadline. DNR staff will be conducting an analysis of 2022-2023 results from Big Elk and other grant-recipient lakes to help improve EWM management statewide.

We found no EWM growing in Big Elk Lake in 2023 (map on page 4). This is very promising, but we recommend that the BLCA continue to conduct summer surveys for the next few years to look for any regrowth of EWM in the lake.

Briggs Lake Chain

2023 Eurasian Watermilfoil Search & Delineation Surveys



- Search Path
- ▭ Managed Plot
- PI Survey Points

Surveyed: June 20, 2023
Methods: Visual, Sonar, Rake
Surveyor: JA Johnson



15771 Creekside Lane
Osseo, MN 55369
fixmylake.com
(651) 336-8696

Point-Intercept Plant Survey Results

Lake Big Elk
Date Surveyed 6/20/23
Surveyor JA Johnson



PLOT SURVEY

Plot Area 24.7 acres
 Total Points Sampled 69 points
 % Points Vegetated 68.1 %
 Max Depth of Growth (Observed) 3.3 ft
 Max Depth of Growth (95%) 3.0 ft
 # Points shallower than MaxDOG95 45 points
 Area Vegetated 16.8 acres
 % Plot Area Vegetated 67.7 %

 % Points w/ Native Submersed 59% %
 Mean Vegetation Density Score 0.80
 Plot Mean Depth 2.5 ft

| | Taxon | Common | Litt %Occ | Litt MeanDensity |
|------|------------------------|---------------------|------------------|-------------------------|
| Pcri | Potamogeton crispus | Curly-leaf pondweed | 33 | 0.4 |
| Spec | Stuckenia pectinata | Sago pondweed | 10 | 0.2 |
| Ecan | Elodea canadensis | Canadian waterweed | 4 | 0.0 |
| Pfol | Potamogeton foliosus | Leafy pondweed | 3 | 0.0 |
| Hdub | Heteranthera dubia | Water stargrass | 1 | 0.0 |
| Pnod | Potamogeton nodosus | Long-leaf pondweed | 1 | 0.0 |
| Cdem | Ceratophyllum demersum | Coontail | P | - |

COMMUNITY METRICS

Total Number of Taxa 8
 • Submersed Taxa 8
 • Floating Taxa 0
 • Emergent Taxa 0

 Number of Invasive Taxa 1
 Number of Native Taxa 7
 • Native Submersed Taxa 7
 • Native Floating Taxa 0
 • Native Emergent Taxa 0

 Mean Native Taxa per Point 0.71
 Mean Native Submersed Taxa per Point 0.71
 Number of Sensitive Taxa (for AMCI) 1

 Simpson Diversity 64.9
 FQI 12.4
 Mean Coeff of Conservatism 4.4
 Aq Macrophyte Community Index (AMCI) 27.0

Online Resources & Contacts

Minnesota Administrative Rules for Aquatic Plant Management
<https://www.revisor.mn.gov/rules/?id=6280>

Minnesota DNR – Aquatic Plant Management Regulations & Permit Application Forms
<http://www.dnr.state.mn.us/apm/index.html>

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