# Cedar Lake, St. Croix County EWM Evaluation-2023

In 2021, three beds of EWM were delineated with high enough density to deem herbicide mitigation for 2022. The herbicide application was canceled in 2022 due to a lack of EWM in the beds. In 2023, a permit was submitted and approved. Again, due to a lack of EWM, the treatment was canceled.

This evaluation summarizes the findings of three surveys that occurred on Cedar Lake in June and July 2023. The first survey was a pretreatment survey to verify EWM presence in the treatment beds. This was followed by a long-term survey protocol outlined in the Aquatic Plant Management Plan. The third was a meander survey to determine if EWM was present in other areas within the Cedar Lake littoral zone.

## 2023 Pretreatment Survey

On June 14, 2023, a pretreatment survey was conducted to verify EWM presence within the treatment beds. The map below shows the results of the pretreatment survey.



Amazingly, no EWM was sampled or viewed within the treatment beds. The EWM has disappeared. The map below shows the 2021 EWM density within these beds for comparison. As the map shows, extensive EWM density in the areas was later delineated into treatment polygons.



The cause of the EWM disappearance is unknown. In late 2021 and throughout the 2022 growing season, EWM was decreasing. One possibility for the decline may have been poor water clarity in 2021 and 2022. However, the 2023 water clarity is much better, yet EWM did not rebound.

## Long-term EWM Survey

The APMP for Cedar Lake outlines a survey method to show long-term changes in EWM growth. The survey involves surveying at sample points in a sample point grid generated in and adjacent to areas with historical EWM growth. The changes may result from herbicide treatments or natural fluctuations in the EWM growth. Native plants were also sampled in this grid starting in 2023 to evaluate any changes in the native plant community in the grid area long-term. The native plant frequency changes could result from herbicide application, extensive EWM growth, or natural fluctuation in growth.

The map below shows the EWM distribution within the long-term sample grid. This survey occurred on July 19, 2023. The APMP calls for an earlier EWM evaluation than typical due to historical water clarity issues (poor clarity) in August and September.



As the map shows, only one sample point that EWM was sampled or viewed. This also supports a substantial reduction in EWM coverage and density since 2021. The frequency of occurrence within the long-term grid was 0.58%.

For comparison, the map below shows the long-term survey results from 2021. The grid was changed in 2023 and will be used each year in future years. However, these grids overlap enough to provide a valid comparison. The map shows that the EWM coverage and density were higher in 2021. The frequency of occurrence in the 2021 long-term grid was 6.2%



#### Meander survey

The meander survey in 2023 occurred on July 19, 2023. The entire littoral zone in Cedar Lake was traveled looking for EWM. If EWM is located, the GPS position is recorded, along with the EWM density and water depth. If a bed occurs, it is delineated by traveling the observed EWM bed border and recording GPS positions. The bed is then outlined using GIS software. No beds were observed, and no EWM plants were observed in the 2023 meander survey.

#### **Discussion/Recommendations**

The coverage and density of EWM growth in Cedar Lake have declined immensely. Only 1 location in three different surveys showed EWM plants. The density at this location was low (1 on a scale of 0-3). The cause of this decline is unknown, but it is desirable as no herbicide application has had to occur. The future growth of EWM is unknown and cannot be predicted. It may be related to water clarity.

Continued monitoring of EWM using the long-term sample grid and a meandering survey should occur in mid-July. This monitoring will allow for documentation of changes in EWM coverage and density growth. If beds should be observed, they can be delineated and presented for potential herbicide mitigation.