

Aquatic Plant Notes and Recommendations **2023 - Beecher Lake Annual Meeting**

Chuck Druckrey – Marinette County Water Resource Specialist

We conducted an aquatic plant survey of the lake on 08/15/23 to evaluate the aquatic plant population and document the extent of Eurasian Watermilfoil (EWM). I have included some graphs of the data, my analysis, and some options for EWM management.

I don't need to tell anyone on Beecher Lake that EWM has really taken off this year. Figure 1 tracks the EWM population by frequency of occurrence, which is just the percentage of the roughly 200 sample points that contain EWM. It has been updated for 2023 and shows the frequency of EWM in the lake with notes on management that has taken place to impact that growing season. This year EWM was found at 75% of the sample points, which ranks up there with the 2012 and 2015 as some of the worst years for EWM.

Of course frequency doesn't tell the whole story. Figure 2 and Figure 3 show the plant colonization rate by depth. You can see that in 2022 fewer than 40% of sites deeper than 6 feet contained any plants. In 2023 100% of the sites between 6 and 9 feet of depth had some plants. It's even more telling when you look at EWM frequency by depth. Figure 4 and Figure 5 show a drastic increase in EWM from 2022 to 2023 at all depths.

2021/22 Drawdown

Despite my first impressions, the data from 2021 and 2022 showed that the last drawdown did result in pretty good control of EWM below the 6-foot depth. Since the drawdown only lowers the lake by 5 feet it has no effect on EWM growing in deeper water (6-feet or more).

Maximum Rooting Depth

The first thing that struck me when I was on the lake this year is the water clarity. I don't remember ever being able to clearly see the bottom in 6 feet of water. While it is nice to have clear, unstained water, it also allows aquatic plants to expand into deeper water. Figure 6 shows how the maximum rooting depth in Beecher Lake has changed over time, from a low of 6.5 feet in 2018 to a high of 11 feet this year. Unfortunately, as the water gets clearer, the most aggressive pioneer plants are in the best position to move into that new space. In Beecher Lake that plant is EWM.

Recommendations for EWM Management

There are three viable options for managing EWM in Beecher Lake:

Winter Drawdown

- **(+)** This has been proven to work well when you get a good freeze (see 2018).
- **(+)** The money invested in the dam modifications and dredging means it is now free and easy.
- **(-)** It will not work to control EWM in water more than 5 feet deep.
- **(-)** There are concerns about increased fish harvest during winter drawdowns.

Chemical Control

- (+) While the results have been somewhat mixed, applications of 2,4-D have worked well in the past (see 2008, 2009, less so in 2013).
- (+) 2,4-D is relatively inexpensive compared to other chemicals.
- (-) 2,4-D doesn't work well on hybrid milfoil. We did genetic testing for hybrid milfoil around 2013 and didn't find it but since there are at least three species of milfoil native to Beecher Lake I would not be surprised if the milfoil had hybridized by now.
- (+) There is a newer chemical called Procella-cor that seems to give at least as good or better results in EWM reduction and the reduction seems to last longer (more than one summer). It also works well on hybrid EWM.
- (-) Procella-cor is more expensive than 2,4-D.
- (+) Chemicals will work in deeper waters

Harvesting

- (+) Harvesting works best in water more than 3 feet deep.
- (-) Harvesters can only cut to a five-foot depth and plants grow back quickly so it needs to be repeated a few times throughout the summer to be really effective
- (-/+) Harvesting causes fragmentation that can help spread EWM, but so do boats, and EWM has likely spread everywhere it already can. At this point harvesting would not likely make things worse.
- (-) Harvesting is very expensive. Contract harvesting multiple times a year would be more expensive than chemical treatment... purchasing a used harvester would likely cost at least \$75,000.00 plus operation and maintenance costs.

Assuming the lake remains nice and clear next year I think there are two alternatives for controlling EWM:

1. Conduct another winter drawdown now and treat EWM in the deep areas.
 - a. I estimate there would be about 10 acres of EWM that would need to be treated.
 - b. According to Schmidt's Aquatics Treating with Procella-cor would probably cost about \$1000.00 per acre
 - c. Treating with 2,4-D would likely cost about \$800.00 per acre.
2. Skip the drawdown and conduct a whole-lake treatment.
 - a. I have not been able to get a cost estimate for a whole-lake treatment.

Of course, if the stained water returns next year EWM will begin to retreat from the deeper areas of the lake again.

As always, I am more than happy to work with the District going forward. I will plan on doing another aquatic plant survey next year and discussing future management options.

Respectfully submitted,
Chuck Druckrey
Marinette County Water Resource Specialist.

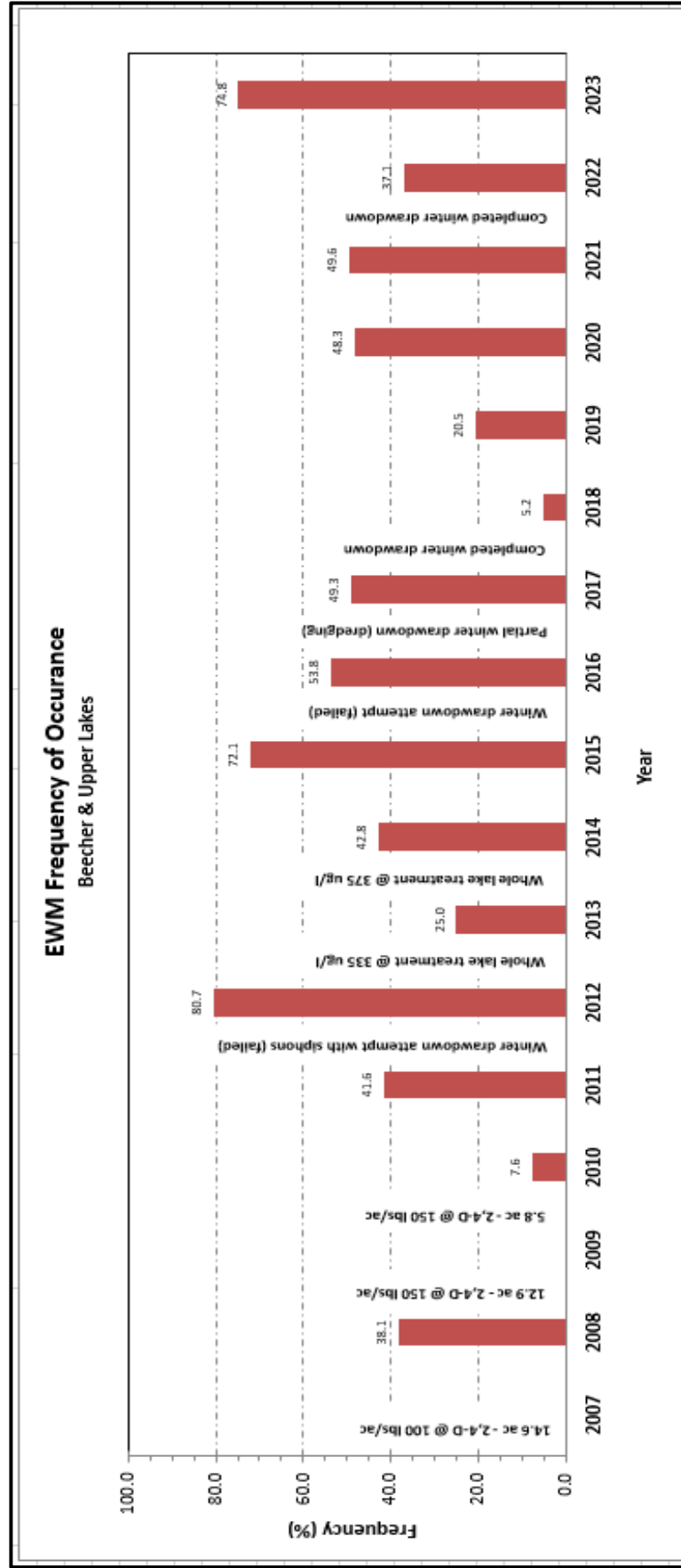


Figure 1. Annual EWM frequency in Beecher Lake with notes on management efforts.

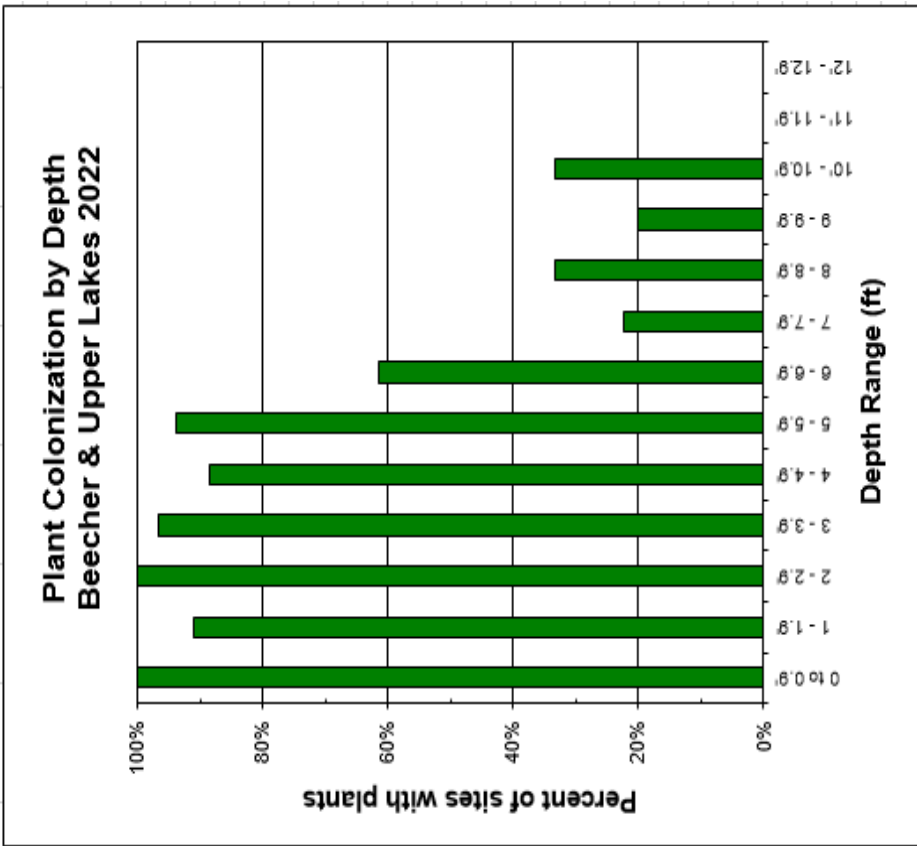


Figure 2. Percentage of sites by depth that contain some aquatic plants in 2022.

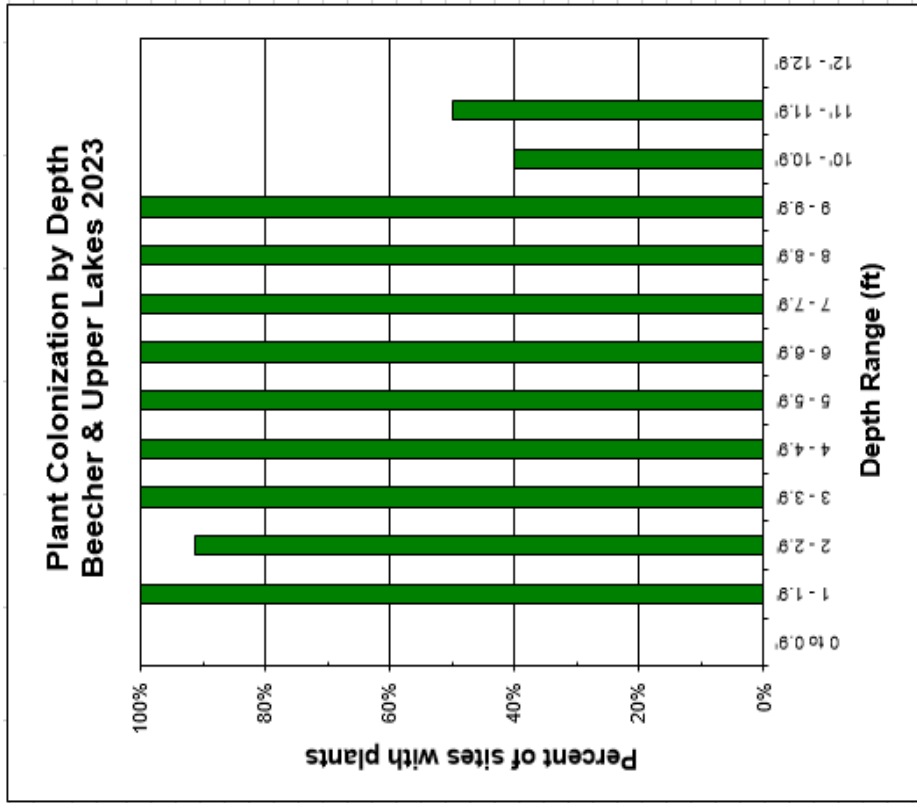


Figure 3. Percent of sites by depth that contain some aquatic plants in 2023.

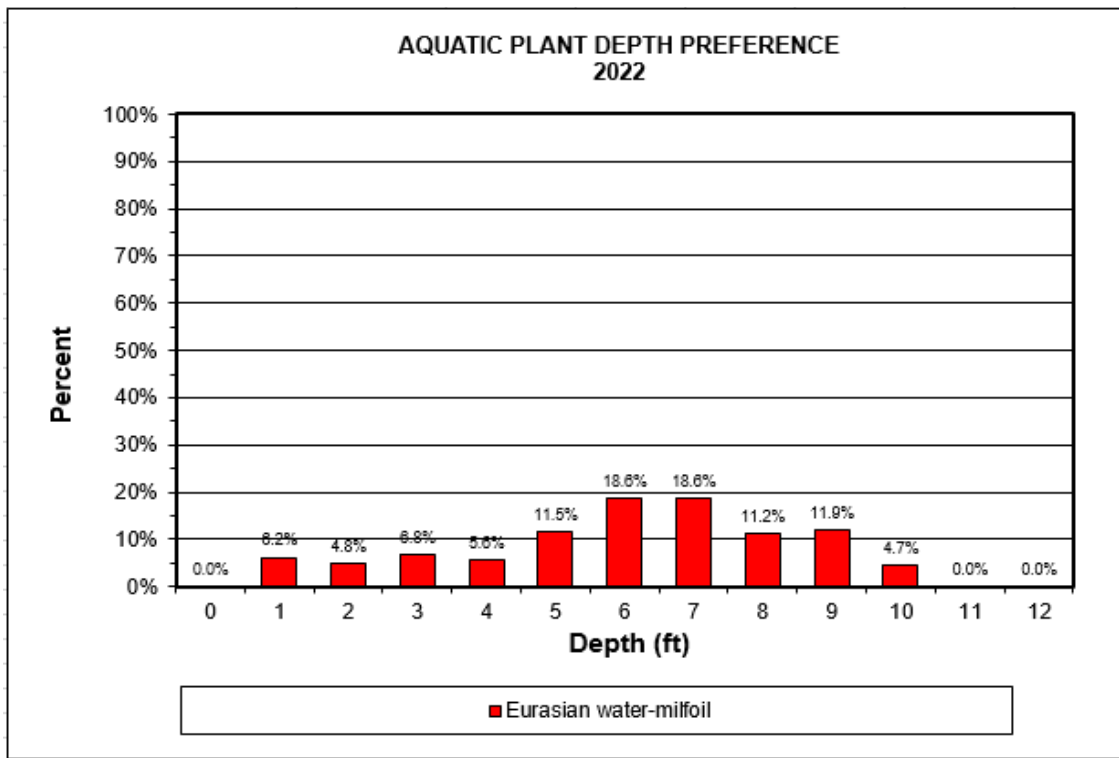


Figure 4. EWM frequency by depth in 2022

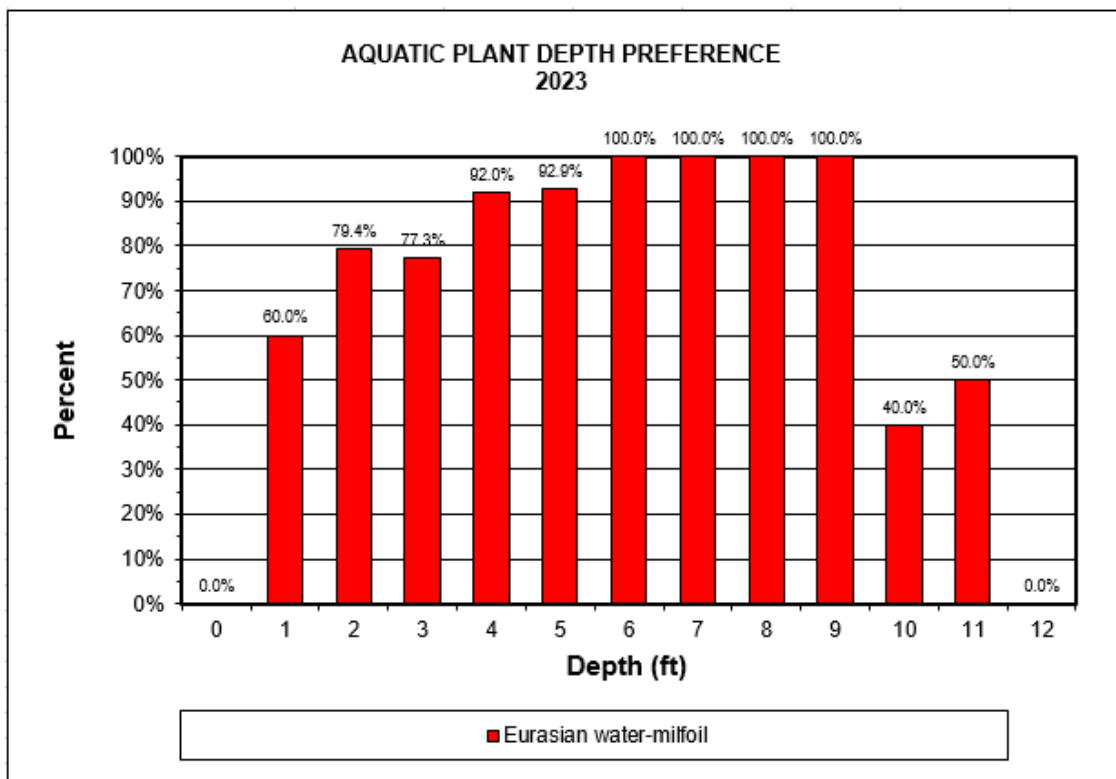


Figure 5. EWM frequency by depth in 2023.

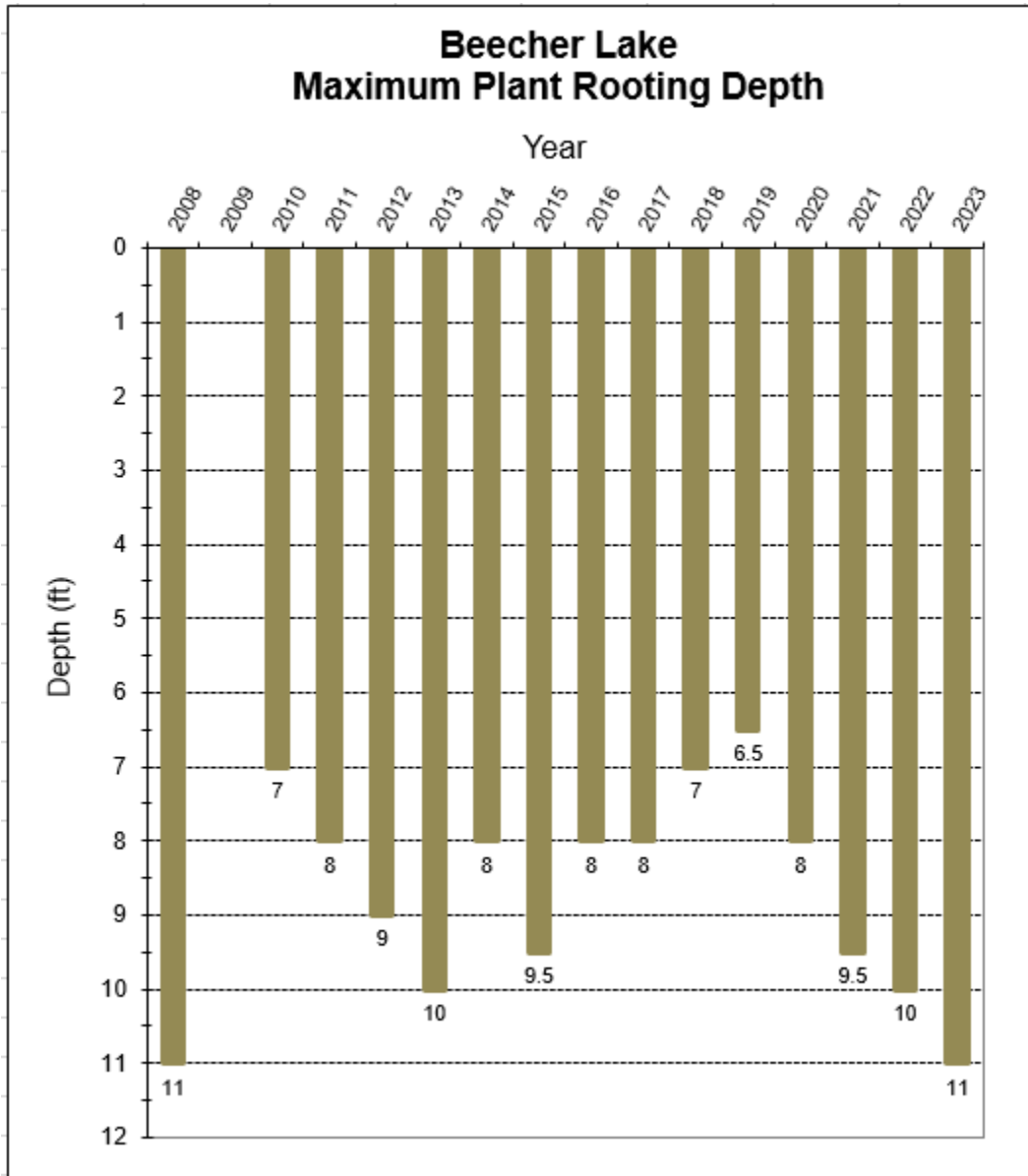


Figure 6. Maximum aquatic plant rooting depth over time.