

Little Muskego Lake plant survey shows mixed results

Survey

Drawdown ineffective at combating starry stonewort

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MUSKEGO — A 2018 plant survey on Little Muskego Lake following the extended drawdown commissioned by lake biologists in 2017 revealed an increase in starry stonewort, which is the invasive algae species that the Wisconsin Department of Natural Resources had hoped to reduce on the lake.

In 2017, DNR biologists drew Little Muskego Lake water levels down by six feet over the winter to expose the invasive species' reproductive structures to freezing temperatures. The measure was supposed to combat invasive species such as starry stonewort and Eurasian watermilfoil to make way for native

plant species on the lake.

The drawdown rejuvenated much of the lake's native plant species, but to the surprise of lake biologists, the measure also increased the presence of starry stonewort by more than 50%, DNR Lakes Biologist Heidi Bunk told a Freeman reporter.

Lakes biologists first discovered the presence of starry stonewort in Wisconsin on Little Muskego Lake in 2014. To reduce the invasive species, DNR began using chemicals to attack their reproductive structures. However, the method was costly and proved to be ineffective with starry stonewort, Bunk previously told a Freeman reporter.

Combating starry stonewort by drawdown proved successful in a lab experiment previously conducted by the New York Botanical Garden, but Little Muskego

Lake's drawdown was the first-ever field experiment to reduce starry stonewort, Bunk said.

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The 2017 extended drawdown on Little Muskego Lake drew water levels down by approximately 6 feet and reduced the surface area of the lake by 51.3%.

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Although starry stonewort returned in greater numbers, Eurasian watermilfoil and other plant species that biologists hoped to curtail with a drawdown saw a significant reduction, Bunk added.

Experiment

reduced, much of the shoreline is exposed, causing sediment to crack. As sediment cracks, the seeds of dormant native plant species are exposed to oxygen, allowing them to germinate in spring. At the same time, reproductive structures of starry stonewort, known as rhizoids and bulbils, are exposed to cold temperatures that stop them from reproducing.

In October of 2017, biologists stopped drawing water from the lake at 72 inches to protect reptiles and amphibians, many of which

of 2018, several inches of snowfall insulated the starry stoneworts' reproductive structures, which were in part already protected from moistened sediment, Bunk added. In the absence of other plant species on the lake, biologists believe starry stonewort seized the opportunity and began to thrive.

Biologists were aware of how certain weather patterns could influence the success of the experiment, but several factors such as possible flooding downstream and protecting other organisms on the lake played a role in how they

Little Muskego Lake has been drawn down by 20 inches every year for the last 17 years to prevent shoreline erosion from contracting and expanding ice floes near the shoreline. However, in August 2017, the DNR, in coordination with the Little Muskego Lake Protection and Rehabilitation District, conducted an extended and deeper drawdown — a measure that not only extended the time that water was drawn from the lake, but also the amount of water.

The extended drawdown was supposed to have reduced water levels by 7 feet, but that level was never achieved due to multiple factors, some of which may have impacted the results of the survey, Bunk said.

When water levels are

burrow into the mud in shallow water to survive winter.

Complications

A series of heavy rainfalls began to fill the lake following the drawdown. More importantly, rainfall recharged the groundwater and in turn, kept much of the cracked sediment moist, Bunk said.

“The result was we had a continual amount of groundwater flowing into the lake all winter,” Bunk said. “We had less of a drawdown than we had hoped for and a lot of the sediment stayed moist.”

In January and February

chose to conduct the experiment, Bunk added.

Even though the ideal conditions weren't in place, biologists still knew the drawdown would reduce Eurasian watermilfoil while restoring native plant species to the lake based on historical data, she said.

“When we talked to the city, we laid out that this was experimental,” Bunk said. “The results we got for the other plants were consistent with what we had historically seen with drawdowns.”