

Big Green in 'critical window' for restoration; GLA to take 'bold' action

Nonprofit details upcoming initiatives to record crowd at State of the Lake Breakfast

By Joe Schulz

jschulz@riponpress.com

Despite major efforts by stakeholders over the last decade, the health of Big Green Lake has continued to deteriorate.

The Lake Management Planning Team and the Green Lake Association (GLA) have implemented more than 140 best-management practices, which have been "insufficient" compared to the challenges facing Big Green.

But that doesn't mean the situation is without hope.

By using new technologies and scaling-up those prior initiatives, the GLA and its partner organizations hope to turn the tide and return the lake to the clean lake that has inspired many fond childhood memories.

"The GLA is entering a bold new era," GLA Executive Director Stephanie Prellwitz said. "Getting our arms around the scale of our challenges confirms that we need a bigger strategy, a bolder strategy."

That was the message at GLA's State of the Lake Breakfast and Annual Meeting Saturday, June 18, which saw record attendance.

Two hundred and fifty attendees learned about the challenges Green Lake is facing and what the GLA is doing to address them.

During the event, Prellwitz spoke about the challenges facing Green Lake and how the GLA is using a combination of innovative new technologies and traditional watershed-management strategies to improve water quality.

"If we're serious about improving Green Lake's water quality, we will not be successful if we solely rely on traditional watershed management that seeks phosphorus reductions acre by acre, field by field, landowner by landowner," she said.

She also discussed how the GLA is addressing the challenge of duckweed to make Green Lake more enjoyable.

Prellwitz noted the record attendance reaffirms the GLA's mission of creating a cleaner Big Green for future generations.

"It was a really amazing reflection of the concern and care that our community has for Green Lake," she said. "That is important because it's going to take all of us to protect Green Lake today and for future generations."

The biggest threat to Big Green Lake is phosphorus, a nutrient that comes from fertilizer, animal manure, eroding sediment and a host of other sources, Prellwitz said.

Phosphorus has been a concern since at least 2014, when the Wisconsin Department of Natural Resources listed Green Lake as an impaired water body because it wasn't meeting minimum standards for healthy aquatic life.

Green Lake has an invisible low dissolved oxygen zone located 30 to 60 feet beneath the surface of Big Green.

The GLA recently finished a lake-quality study, confirming that phosphorus was leading to more aquatic plants and algae and

less dissolved oxygen, which is a critical component for all aquatic life, Prellwitz said.

That research found that Green Lake needs a 50% reduction in phosphorus loading to restore it to minimum standards, and up to a 70% to make it a clean, "oligotrophic" lake.

That means that for every pound of phosphorus that makes its way to Green Lake, the GLA and its partners must find a way to cut it in half during a period when the watershed continues to be pounded by record-breaking rain events that partially undo progress.

"Cleaning up Green Lake will require looking throughout the 107-square mile watershed to make improvements on the land and its streams that prevent phosphorus from making its way to Green Lake," Prellwitz said.

In response to that data, the GLA and its partners are ramping up their phosphorus-reducing practices and using new, innovative technologies — coupled with traditional practices — because "the lake we love will not improve on its own," Prellwitz added.

Innovative technologies

Because Big Green Lake is short on time on the long-term approach of solely using best management practices, Prellwitz said innovation and technology must be part of the picture.

That means new tools and technologies must be used to intercept phosphorus, while the GLA and its partners work upstream to reduce the root causes of phosphorus pollution.

"Around the world, engineers, researchers and big thinkers have developed successful examples of using technology to quickly intercept phosphorus pollution from lakes and rivers," Prellwitz said. "Imagine this as a treatment facility that uses technology to clean up runoff and clean up our lake. The technology is there, so all we need to do is apply that innovation to solve our local challenge."

One of the new tools the GLA is using is the installation of a phosphorus sponge to the outlet of an existing agricultural retention pond in the Roy Creek Watershed.

During big rain events, retention ponds often fall short of intercepting phosphorus pollution.

The phosphorus sponge aims to change that by intercepting pollution before it can harm water quality, Prellwitz noted.

"It is a bathtub-sized box that's full of absorptive media used in the drinking water industry, where it soaks up phosphorus and specifically soaks up dissolved phosphorus," she said. "Then cleaner water heads toward Green Lake. It's similar to a Brita filter that you might use in your refrigerator."

If that pilot program is successful, there are 50 other retention ponds where the GLA and its partners could use a similar approach, Prellwitz added.

The research study that the GLA completed last year deter-



OVER THE LAST decade, 140 best management practices have been "insufficient" compared to the challenges facing Big Green. To restore the lake, the Green Lake Association and its partners plan to take bold actions, utilizing new technologies. *ClearView Productions LLC photo*

mined that nearly 80% of Big Green Lake's phosphorus loading flows under two bridges: 48% under County Highway A and 29% under County Highway K.

That means around 80% of the phosphorus floating from the Green Lake's 107-square-mile watershed flows under 58 feet of bridges.

"These two pollution pinch points represent two unique opportunities to intercept much of the phosphorus that's harming Green Lake's water quality," Prellwitz said.

The GLA has developed the concept of a stationary duckweed harvester, which would be placed under the County Highway A bridge, to capture duckweed before it can enter Green Lake.

"The stationary duckweed harvester is an important mitigation tool," Prellwitz said. "It's making the lake more usable today."

While harvesting duckweed would help harvest phosphorus from the lake, when it comes to putting a dent in those phosphorus reductions, that's not going to be accomplished by the stationary duckweed harvester.

The GLA has received approval from Green Lake County for the four-month stationary duckweed harvester program, but it is awaiting approval from the DNR.

It could potentially be installed either in September 2022 or the spring of 2023, depending on the timeline of the DNR review.

Beyond the duckweed harvester, the GLA hopes to complete a feasibility study of technological intervention at County Highway A and K bridges.

"We don't yet know what that is, but those solutions exist in the world," Prellwitz said. "We want to take those global solutions and apply them locally to help Green Lake."

In addition, the GLA has launched a weekly monitoring program to look for harmful algal blooms and worked with experts to update Green Lake's blue-green algae sampling protocols to reduce identification time from weeks to minutes.

"We're one of 20 organizations nationwide to be the beta testers of a new blue-green algae microscope," Prellwitz said.

Expanding traditional practices

In terms of increasing efforts toward traditional practices, the



GREEN LAKE ASSOCIATION Executive Director Stephanie Prellwitz presents to a record crowd about the challenges Green Lake is facing and how the GLA is addressing them. *submitted photo*

GLA continues to focus on stream restoration on White Creek, Roy Creek and Dakin Creek.

This year, it's expanding that work to identify stream bank "erosion hotspots" on Roy and Wuerches creeks, two streams that flow into Big Green, Prellwitz noted.

"These erosion hotspots are phosphorus hotspots, since soil and phosphorus are closely linked," she said.

Beyond streams, the GLA is working side by side with farmers in the Green Lake watershed to implement best practices, recently purchasing a no-till drill that enables farmers to experiment with planting buffers and cover crops.

"Like every new management tool, it's important to start small, and cover crops can require specialized equipment to be most successful," Prellwitz said. "We don't want access to that equipment to be a barrier to farmers being able to try new things."

So far, 350 acres of cover crops have been planted in the watershed using the no-till drill.

Anyone interested in using the no-till drill may reach out to the Green Lake County Land Conservation Department, which is handling the rental of equipment.

The GLA also sponsors a demonstration farm to serve "as a learning lab" for local farmers to exchange success stories and to empower their peers to try new lake-management strategies. It also hosts a field day each summer to discuss best land-management practices.

"I'm really proud of the positive relationship that the Green Lake Association has with farmers," Prellwitz said.

Additionally, the GLA con-

tinues to remove invasive carp from the County Highway K marsh. Carp seek shallow waters to spawn, preventing the wetland from properly functioning as a natural phosphorus filter, Prellwitz said.

"Removing carp is one common-sense measure to help this ecosystem rebound back into a healthy wetland that can absorb phosphorus pollution and prevent it from entering Green Lake," she said.

Hopes for the future

The GLA and its partners on the Lake Management Planning Team — the land conservation departments in Green Lake and Fond du Lac counties, the Natural Resources Conservation Service and the Green Lake Sanitary District — have an uphill battle in front of them.

Even so, Prellwitz remains optimistic that collective efforts can restore Big Green Lake as she is "full of so much hope for the future."

"The past year has been an important chapter in getting our arms around the scale of the problem," she said. "What we realized is that we were thinking too small. Now that we know we need a minimum of a 50% phosphorus reduction to hit baseline water quality goals, it allows us to dream bigger than we ever have before."

Despite that optimism, time is of the essence.

"If we don't move quickly enough, we will lose this critical window to be able to affect the lake for good," Prellwitz said. "But if we work together to do something significant, we could forever change Green Lake."