



CONCERNING INFORMATION REGARDING THE STATE OF GREEN LAKE

On April 14th, Dr. Dale Robertson of the U.S. Geological Survey (USGS), presented the USGS's annual "State of Big Green Lake" to the GLSD Board of Commissioners, the GLA Board of Directors, and the Lake Management Planning (LMP) Team. The focus of the meeting was for Dr. Robertson to provide an overview of the nutrient loading (specifically phosphorus) into the lake from the watershed as well as recap lake sampling results from 2019 and 2020. Phosphorus is the main nutrient that drives plant and algae production in Green Lake.

The USGS, with primary funding from the Green Lake Sanitary District (GLSD), has monitored Big Green Lake dating back to 2004 and its tributaries dating back to the 1980s. The USGS monitors the lake/tributaries for such things as phosphorus, nitrogen, chlorophyll-a, and depth profiles for water temperature/dissolved oxygen/pH/specific conductance. Much of the tributary monitoring is automated and occurs daily. This monitoring is undertaken to evaluate short and long-term trends which may indicate positive or negative changes in the various subwatersheds. This is also a critical tool in determining where funding for agricultural best management practices (BMPs) should be spent. The GLSD's annual contract with the USGS comes to around \$87,000 per year; twenty percent is paid for by the federal

government. Approximately 70% of the tributary flow into the lake is monitored annually.

Utilizing this data, from 2012 to 2020, the GLSD has worked closely with our Lake Management Team partners to help fund over 130 BMPs throughout the watershed. These efforts have saved approximately 5,300 lbs of phosphorus from entering Green Lake. Even with all the hard work being done by the GLSD and our partners, weather and climate are two of the main drivers of nutrient loading into the lake. The following points were made by Dr. Robertson.

- Successive wet years from late 2018 – 2020, increased watershed runoff dramatically. Nutrient loading that had been trending downward in the mid-2010's was shifted in the opposite direction due to these excessively wet years.
- In two years, Green Lake's phosphorus inputs increased by 25%, from 16,700 in 2016 to 20,800 pounds in 2018.
- We have crossed an important threshold for the lake's water quality: Green Lake's phosphorus levels have been consistently high enough that the lake is now eligible to also be listed as impaired for high phosphorus. Deep lakes like Green Lake should have a maximum phosphorus concentration of 15 µg/L to support healthy aquatic life. Yet, based on US Geological

Survey monitoring up to 2018, the lake has an average surface phosphorus concentration of 19.4 µg/L.

- The Water Clarity has lessened over these wet years as well. We determine water clarity by using the secchi disc method which, in 2020, was read to an average depth of around 9 feet. Prior to the wet years of late 2018, all of 2019, and early 2020, the average depth of a secchi disc reading was found to be around 21 feet.

WHAT IS BEING DONE TO HELP THE WATER QUALITY OF GREEN LAKE?

The GLSD along with our Lake Management Planning (LMP) Team partners are working with the Wisconsin Department of Natural Resources (DNR) and local farm community to continually add best management practices (BMPs) to keep soil on the landscape. To this end, the GLSD was just awarded a \$200,000 Lake Protection grant by the DNR to ramp up outreach into our agricultural community as well as fund critical BMPs such as our new Green Lake Watershed Soil Health Program. Participation in these practices is voluntary for the agricultural community; we cannot be successful without their support.

HOW LONG WILL IT TAKE TO MAKE REAL CHANGE TO BENEFIT THE LAKE?

This is a tough question. Every BMP makes positive change for the lake. To make substantial change, we need to see continual soil coverage by high residue management, cover crops, or land use production shifting to practices such as grazing. Limiting soil or fertilizer runoff from lakeshore properties is part of the solution as well. As mentioned above, weather/climate have a big role in this equation. Intense rain events or excessively wet years work against the efforts being made. As it takes between 15 and 21 years to for water to cycle through Green Lake, change will not be seen overnight. Additionally, the advent of invasive species such as zebra mussels and their promotion of thick algae mats on the lakebed may cloud our ability to see water quality improvements as they happen. Continued monitoring of the lake and its tributaries is critical to understanding how the lake is responding to the work being done in the watershed.

THE GREEN LAKE WATERSHED SOIL HEALTH PROGRAM

We are very excited to announce the Green Lake Watershed Soil Health Program. Based on a program created by the Fond du Lac County Land and Water Resources Dept., this new outreach program has the potential to bring great change to the Big Green Lake watershed. With a focus on overall soil health, this program strives to keep soil in place on ag fields throughout the watershed while enriching the soil through the buildup of organic matter and healthy soil organisms.

The program is being administered and implemented by the Green Lake and Fond du Lac Counties' Land and Water Conservation Departments. Primary funding for the program is from two DNR Lake Protection grants acquired by the GLSD with additional funding also provided directly by the GLSD. The goal of the funding is to assist farmers in utilizing these soil coverage practices or to use the funding toward the purchase or modification of their current equipment. Through these practices we hope to achieve significant reductions of soil loss into Green Lake.

Landowners or operators interested in becoming involved with the program are encouraged to contact either the Green Lake or Fond du Lac Counties' Land Conservation Departments. Their direct phone numbers are: Green Lake County – (920) 294-4051 or Fond du Lac County – (920) 904-5530.

PROTECTING GREEN LAKE ONE PROPERTY AT A TIME

RAIN GARDENS

The GLSD has a wonderful cost share program for not only shoreline restoration, but also rain gardens. A newer conservation practice, rain gardens are becoming popular around Green Lake as many landowners look to limit stormwater runoff on their properties. The GLSD is excited to have been involved with two projects in the Green Lake Terrace area last fall. While these two projects will not solve the runoff issues in the Terrace on their own, we know that as more landowners complete projects like this, we will see less runoff reaching Green Lake carrying things like pet waste and lawn chemicals. We hope to have additional photos and project information in our fall newsletter.

CONSTRUCTION SITE EROSION CONTROL

You may note that much of the watershed protection information we're highlighting in this newsletter is agriculture based. However, it is critical that we consider the impacts our own property management can have on the lake. One of the biggest impacts we are seeing right now on our shoreline properties is construction. Whether it is new home/addition construction or the addition of a boathouse, these projects can have a cumulative impact on the water quality of the lake.

As part of construction, bare and stockpiled soil is placed in close proximity to the water we are working hard to keep clean and healthy. Many of us assume the necessary steps are being taken by our contractors to protect the lake, but ultimately, this responsibility belongs to the landowner. Please don't hesitate to question your contractor to see if they are utilizing all possible steps to help protect the lake we all care so deeply for. The photos shown are of poor construction site erosion efforts at one location near Green Lake in 2020. The silt fence was not adequately installed and no additional straw bales, cover crop seeding, etc. measures were utilized to protect the lake. The result was the sediment plume you see in the channel. The city and DNR were immediately notified of the issue. We can and must do better.



Rain Garden install in Green Lake Terrace before (top photo), during (middle photo), and after (bottom photo).



Poor site erosion efforts at a construction site near Green Lake.



DO YOU OWN FARMLAND IN THE BIG GREEN LAKE WATERSHED?

LAND MANAGEMENT PLANNING

The best strategies for managing land vary from property to property depending on proximity to waterways, topography, soil type, etc. Through our Lake Management Planning Team, the Green Lake Watershed has experienced land managers available to work with landowners to determine how best to manage land while protecting Green Lake, its tributaries, and wetlands.

Best management practices (BMP's) such as prairie strips, buffers, sediment retention basins, and streambank stabilization projects are examples of BMP's commonly utilized in the Big Green Lake watershed. These practices help to retain soils in upland areas thereby improving the water quality of the lake itself. Additionally, the land use professionals on our team will work with you to find available project funding through the local, state, or federal cost share programs.

LAND PRESERVATION

Landowners that wish to protect the land they own by limiting agricultural production, either for a limited number of years or in perpetuity, may be interested in programs such as the Conservation Reserve Program (CRP), Farmland Preservation (FPP), conservation easements, or switching their land production to regenerative agriculture. There is an array of programs designed to conserve and protect critical lands within the Green Lake watershed.

Several of these programs provide financial incentives to



The Green Lake Sanitary District will soon be releasing this brochure to inform new landowners in the Green Lake watershed about available options for land management planning and land preservation.

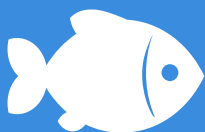
landowners for removing environmentally sensitive lands from agricultural production. Additionally, they may help fund the restoration of native vegetation that will improve the quality of the soils on the landscape. The land use professionals on our Lake Management Team can work with you to determine the best program to make your land use vision a reality.



Photo Credit: Dr. Rachel Seman-Varner

BMP SPOTLIGHT – NO TILL

The best management practice of 'no-till' is just what it sounds like. A no-till field management system avoids disturbing soil with tools like chisel plows, field cultivators, disks, and plows. Plowing breaks up the soil surface or flips the top layer of soil which breaks up soil stability and incorporates nearly all crop residue deeper into the soil profile. No-till management of crop fields allows the previous year's crop to help hold and cover bare soil. This helps retain soil on fields used for cropping. No-till relies on natural processes including healthy soil microbes to break down residue from the previous crop. The watershed benefits of no-till include improved soil structure and health, reduced potential for soil erosion, and reduced fuel use.



GREEN LAKE FISHING NEWS

In March the GLSD was notified that, as part of the Badger Bounce Back Plan, the GLSD will be receiving lake trout fry at the Green Lake Fish Rearing Facility again this fall. Though we did release trout in early 2020, due to state Covid restrictions, the GLSD did not receive trout fry to rear in the fall of 2020.

DYNAMIC AND REWARDING

by Jerry Specht, GLSD President

In 2001, the late Charlie Marks (former GLSD administrator), suggested I run in the 2002 election for a position as one of the three GLSD commissioners. I can remember his statement, “It will take only 3 hours a month of your time; 1 ½ hour to read the packet and 1 ½ hour for the monthly meeting.” That “only 3 hours” turned into many rewarding years of Charlie asking me, “Do you have two minutes?”

In my almost 20 years as a GLSD commissioner I can best describe my time with the GLSD organization as DYNAMIC, REWARDING, and EYE OPENING! I have learned or experienced the functioning of the GLSD in all its capacities. The most critical role of the GLSD is keeping our lake clean. Surprising to many folks is the fact that the Sanitary District currently operates at around 33% of its flow capacity – meaning the facility was constructed to treat all the wastewater generated within its boundaries. Sewer collection service is slowly being added to more areas of the lake. This will benefit the lake as old septic systems are removed from service. To ensure our wastewater system is being well maintained and operating efficiently, GLSD staff undertake preventative maintenance projects such as the video monitoring of our sewer lines and the cleaning, inspection, and exercising of critical valves as well as our backup generators. However, our responsibilities and actions go well beyond the operation of our wastewater treatment plant and its associated 80 miles of sewer piping and 26 pumping stations.

In the past 19 years, the GLSD has worked hard with the DNR, NRCS, County Land Conservation Departments, and Green Lake Association on programs to reduce soil/phosphorus washing into the lake. An example of these joint efforts are the 130+ Best Management Practices (BMPs) implemented on farms throughout the watershed. Reducing the flow of phosphorus into Green Lake is a major problem being tackled by ALL our local conservation organizations and government bodies. The work is challenging; factors such as changing weather and the introduction of invasive species such as zebra mussels have accelerated various kinds of algae growth around the lake. We are fortunate that we’ve seen limited amounts of blue-green algae so far. Other lakes in Wisconsin are not so fortunate!

Some of the other major programs the District manages for our residents:

- About 15 years ago, Green Lake County was planning to discontinue raising the lake trout for stocking into Green Lake. The Sanitary District jumped in and took over the responsibility of the Green Lake Fish Rearing Facility with financial donations from local fishing guides, Green Lake

County, the City of Green Lake, and the GLA. With good help from the DNR, the GLSD continues to raise and stock these lake trout which is critical to maintaining the population we now have.



- In recent years, the increase of duckweed in the Sunnyside wetland and on the main lake has required the GLSD to expand our Aquweed harvesting efforts. Previously, our aquatic plant harvesting focused heavily on invasive species such as Eurasian water milfoil and curly leaf pondweed as well as ensuring adequate navigational channels around the lake. The GLSD now spends a great deal of its harvesting time addressing dense areas of duckweed to ensure safe navigation and water access. While the GLSD works hard to address landowner concerns regarding duckweed, please note that we are limited by the aquatic plant harvesting permit issued by the DNR.
- The GLSD continues to own and manage (sharing expenses with the GL Conservancy) about 15 conservancy properties. Managing these properties is a major but rewarding undertaking. We owe a tremendous THANK YOU to the many volunteers who have done a beautiful job restoring the land through the removal of buckthorn, trails work, and prescribed burning.
- Solid waste management – At one time, I thought garbage collection would be easy; but changing contractors, having to switch to wheeled carts and the ever-changing volumes due to seasonal vacationers cause a multitude of problems. Our staff does an outstanding job in handling these issues.
- Funding and managing the Revitalization of Shoreline Vegetation Program (RSVP)
- Raising purple loosestrife beetles
- Maintaining the carp barriers and assisting our commercial carp harvester
- Coordinating aquatic invasive species treatments

Did I mention that the GLSD has only 4 full time employees (plus 3 part time summer employees that help harvest the lake weeds)? Much of the GLSD’s work is done in conjunction with our lake management partners mentioned earlier. All of which have the same goal; to preserve, protect and improve Green Lake. The GLSD is dynamic, and the work is ever changing. It has been rewarding for me to be a part of such an efficient organization and to work with such wonderful partners.

GLSD COMPLIANCE WITH TMDL REQUIREMENTS

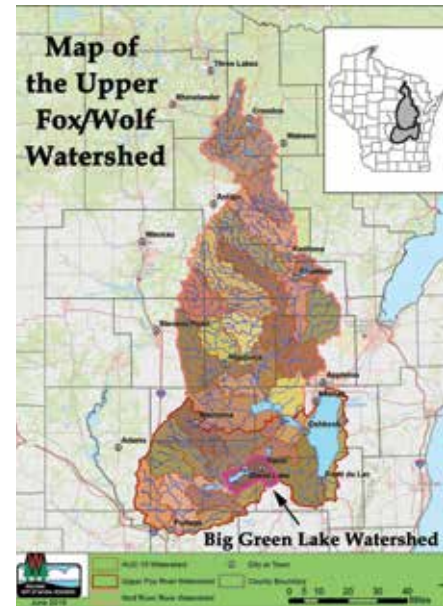
As we focus heavily on the health of Green Lake, it is important to note that we are part of a greater watershed – the Upper Fox/Wolf Basins. As an impaired waterbody, the health of Green Lake is a concern to the DNR and the federal government as well. Water from Green Lake makes its way into Lake Winnebago and ultimately into the Lower Fox River Basin where it outlets into Green Bay. The waters located within the Upper Fox/ Wolf Basins are designated as impaired due to excess phosphorus and total suspended solids (TSS).

The Federal Clean Water Act requires states to identify and restore impaired waterbodies. To restore waters within the Fox/Wolf Basins, the DNR developed a Total Maximum Daily Load (TMDL) for phosphorus and total suspended solids being discharged into the Fox/Wolf Rivers. The TMDL identifies the sources of the pollutants and the reductions necessary to address water quality impairments. To restore water quality in the Winnebago Lakes as well as the Lower Fox basin, restrictions on phosphorus and TSS discharge have been placed on wastewater treatment facilities. Additionally, the DNR is working with various watersheds throughout the Fox/Wolf basins to limit non-point source phosphorus loading (generally from streambank erosion and urban and agricultural runoff). These non-point source reductions benefit our local waterbodies but ultimately reduce loading downstream into the Lower Fox River and Green Bay.

How this impacts the Green Lake Sanitary District is twofold. In our efforts to fund best management practices (BMPs) in the watershed, the GLSD is further able to capitalize on the DNR’s non-point source reduction grants. This funding will continue the focus of the District and our partners on improving the quality of the water entering the lake. We are cautiously optimistic about our future watershed protection efforts.

The second way the TMDL impacts the GLSD is specific to our role as a wastewater treatment facility. The DNR has dramatically decreased the amount of phosphorus we will be able to discharge to the Fox River beginning in 2026. Many people do not realize that the GLSD does not discharge into Green Lake or any of our tributaries. Our treated effluent is discharged through an 8” force main pipe that extends around 5.5 miles to the Fox

River south of the City of Princeton. Like most other wastewater municipalities in WI, the GLSD is in the process of researching our best options to meet the TMDL requirements. This research has the District working closely with the DNR as well as our wastewater consultants at Cedar Corporation. Several compliance options have been identified as suitable for us as a two-cell aerated lagoon treatment facility. We are currently weighing environmental impacts, long-term feasibility, costs, and staffing needs for the various options. We hope to have additional information for our customers as we move through the compliance process.



GLSD FYI ...

Keep our Wastewater System Healthy – We are asking everyone to please do not flush disposable wipes into the sewer system. These items cause great damage by failing to breakdown, and ultimately clog the lift stations attempting to send the wastewater back to the wastewater treatment plant. The wipes can also get caught in the homeowner’s private lateral which is a cost that must be paid for by the homeowner. Our other culprit is grease; please refrain from sending grease down your sink drain or any drain that ties into the sewer.

The sewer system is owned by everyone using it around the lake, proper use saves everyone from expensive repairs which are eventually passed on to those who use it. Our customers have done a great job over the years being responsible with our sewer system, thank you.

TRASH COLLECTION WITHIN THE DISTRICT

- Keep carts in visible locations–near your fire number or mailbox is recommended.
- Have carts out by 6 am Monday mornings.
- Place carts with top handles facing away from the road.
- Do not place extra bags on ground next to the WM-issued trash cart.

- Remember that trash collection may extend into Tuesday after busy weekends.
- If roads are unsafe due to ice or snow, WM may not venture down that road. Safety is always a first priority.
- Many residents have contacted us because they are being serviced by garbage trucks that say Viola or Advance Disposal. Waste Management has acquired both these companies and now utilizes their trucks for service in our District.
- Holiday trash collection for 2021:
 - Memorial Day Weekend – Collection on Tuesday, June 1st
 - 4th of July Weekend – Collection on Monday, July 5th

SPRING CLEANUP RETURNS TO MAY

The Green Lake Sanitary District's Annual Spring Cleanup event is back! The garbage containers will be located within the Wastewater Treatment Plant Facility fences and identification of being a GLSD property owner will be required. The containers will be available for garbage drop off from 8am until 3pm for the following days: Tuesday (6/1/21), Wednesday (6/2/21), Thursday (6/3/21) and Friday (6/4/21). The containers will also be available for garbage drop off from 8:00am until noon for the following days: Saturday (5/29/21) and Saturday (6/5/21). Most trash will be accepted as well as scrap metal and yard waste.

We will not accept hazardous materials such as used oils, paints, batteries, tires, microwaves, recyclables and appliances containing fluids etc. Electronic waste (e-waste) will also not be accepted. The following is a list of the items not accepted: Televisions (any size), desktop or laptop computers, mice, keyboards, any computer cables, computer speakers, desktop printers, CD players, DVD players, VCRs, DVRs, and other video players, CPUs, monitors, fax machines, scanners, video recorders/players, video game consoles, zip drives, hard drives, external modems, copy machines, fluorescent light bulbs.

The City of Princeton is planning to schedule an e-waste collection event in the next month or so. Specific dates/times and other drop-off information can be obtained by calling the Princeton Clerk's Office for more information 920-295-6612. You do not have to be a City resident to take advantage of this event. Additionally, hazardous waste materials can be disposed of on August 13, 2021, at the Green Lake County Land Conservation "Clean Sweep" event. This event will run from 11am through 5pm. Please contact Green Lake County Land Conservation Department at (920) 294-4051 for more information. Preregistration is required.

Reusable Items – For the 17th year in a row, we will provide an area for reusable items to be placed. If you have gently used items that are not ready for the landfill, we will accept them and donate them to people and organizations that can reuse them.

We reserve the right to turn away property owners who abuse the privilege of this special service (i.e. bringing in multiple loads of garbage/brush/waste which would be inconsistent with a normal single residence spring cleaning). If you are unsure about an item, contact the District Office at (920) 295-4488 between 8am and 4pm for clarification.

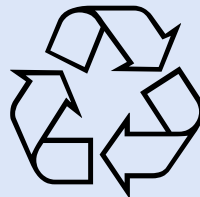
- Labor Day Weekend – Collection on Tuesday, September 7th
- Christmas Weekend – Collection on Monday December 27th

WOULD YOU LIKE TO HAVE RECYCLING SERVICE?

Waste Management can provide you with a 64-gallon, yellow-topped cart. The cost for the new cart is only \$6.00 per month per cart. The recycling cart will be picked up the first Monday of each month. You may request additional 64-gallon recycling carts at a cost of an additional \$6.00 per cart per month. If you are not currently a recycling customer with Waste Management and would like to sign up for this service, you

must call Waste Management at (888)-960-0008. Be sure to let them know you are within the Green Lake Sanitary District so you are charged correctly. WM invoices on a quarterly basis.

In addition to the curbside trash collection/recycling service for our residents, be aware that recycling can be dropped off to your local township as well. The list below outlines the services provided to residents of each township within the GLSD boundaries.



RECYCLING CENTERS

In addition to the curbside trash collection/recycling service for our residents, be aware that recycling can be dropped off to your local township as well. The list below outlines the services provided to residents of each township within the Green Lake Sanitary District boundaries.

TOWN OF BROOKLYN
N6285 Berlin Rd, Green Lake

Accepts garbage, recycling, and yard waste.

HOURS (NOV – APR)
Sat.: 7:30–11:30 am
Mon.: 7:30–10:30 am

HOURS (MAY – OCT)
Sat.: 7:30 am – 1:30 pm
Mon.: 7:30 – 11:30 am

TOWN OF GREEN LAKE
N2298 City Road A
(920) 398-2405
www.townofgreenlake.com

Accepts recycling and yard waste.

HOURS
Sat.: 8:00 am – 2:00 pm

TOWN OF PRINCETON
County Trunk D
(920) 295-4057
www.cityofprincetonwi.com

Accepts recycling only.

HOURS
1st and 3rd Saturday of each month
from 8:00 am – 12:00 pm

TOWN OF MARQUETTE
306 Lyons St., Markesan
(920) 229-6360

Accepts recycling only.

Recycling receptacle available for township residents that can be accessed 24 hours per day.



N5295 CTY RD TT
PRINCETON, WI 54968

PRSR STD
US POSTAGE
PAID
OSHKOSH WI
PERMIT NO 90

GLSD COMMISSIONERS

Jerry Specht | *President*
Ken Bates | *Treasurer*
Boni Jensen | *Secretary*

GLSD STAFF

Lisa Reas
Administrator
Paulette Janssen
Admin. Asst.
Stuart Marks
Plant Operator
Dallas Lewallen
Plant Operator

OFFICE HOURS

7am–3pm, Mon–Fri

For sewer emergencies
after hours, please contact
Dallas Lewallen at
(608) 345-7484 or Stuart
Marks at (920) 369-8199.

GLSD E-BLASTS

The GLSD is collecting customer e-mail addresses to reach you more efficiently on important GLSD issues such as updates on garbage collection, beach advisories, and GLSD newsletters. Paulette Janssen, GLSD administrative assistant, will be accepting the new contact information by phone at (920) 295-4488 or by e-mail at paulettej@glakesd.com. Please provide your e-mail addresses, GLSD property address, and current phone number. Please note that as a municipality, the GLSD cannot provide our customers' / residents' contact information to a third party.



SPOTLIGHT – SUGAR ISLAND

The Sugar Island Conservancy property is situated on the eastern shore of Silver Creek across from Sunset Park and County Road A. The 30+ acre property sits along 2,400 feet of Silver Creek. Sugar Island is a mixture of submergent and emergent marsh, shrub-carr, lowland forest, and on the island/peninsula itself – a woodland where the Ho-Chunk Nation is known to have made maple sugar. The island can be accessed via a short paddle from Sunset Park, the Sunnyside Conservancy Property, or the Spaulding Bridge Canoe launch. In addition to the winter 'Walk to Sugar Island' across the ice, summer

hiking and bird watching are common on the island.

The property was purchased for \$195,000 in 2004 through a mix funding from the Green Lake Sanitary District, Green Lake Conservancy, Green Lake Association, the DNR and private donations. The property had existed in a very natural state until around 2013 when work began in earnest to remove buckthorn from the site. There are no structures on the property but several old, fallen trees provide wonderful benches to rest upon while exploring this unique landscape.