



Green Lake Looking South Across Dartford Bay, Late September, 2022.

SUMMER IN REVIEW

The summer of 2022 was beautiful on Big Green Lake. The minimal snow cover in our area last winter caused limited spring runoff to the lake. Additionally, we saw a very gradual warming of the lake itself along with limited spring and early summer rainfall. These factors helped to create better water quality in 2022 than we've seen in many years on Big Green Lake.

These observations are reinforced by 2022 USGS water sampling results that showed **in-lake phosphorus levels dropped to around 15.5 ppm**. In the past 20 years alone, we've seen in-lake phosphorus levels as high as 33.8 ppm phosphorus (in 2000) and as low as 13.3 ppm (in 2012). **Our 20-year average is roughly 20.8 ppm**. It is critical to note that 15 ppm is the DNR's baseline water quality goal for the lake, though this would need to be sustained over a 5-year period to indicate the lake was meeting the DNR goal. While this year's data is positive, the GLSD and our lake management partners are realistic about the lack of snowfall/rainfall and the impact these dry conditions had on the lake. The years of 2018 though 2020 were 3 of the wettest years on record and brought significantly higher than average nutrient loading into the lake. We cannot rely on drought years to improve the lake's water quality. The GLSD and our lake management partners must continue to develop and help fund projects throughout the watershed to limit nonpoint source runoff.

As mentioned above, **Big Green Lake's water levels were again very low** throughout the summer. The GLSD fielded calls from residents curious about who controls the level of the lake and why there was still water being allowed over the dam in town. Under Sec. 31.02 of the Wisconsin Statutes, the DNR regulates and controls the level and flow of water in all navigable waters, including the Big Green Lake. Subsequently, the City of Green Lake operates the dam in town and manages the lake level within the range the DNR has established. However, Sec. 31.34 of the Wisconsin Statutes requires that the City of Green Lake maintain at least 25% of the natural flow to the Puchyan River at all times to support aquatic habitat downstream. Therefore, in times of drought, the City of Green Lake is not able to stop the flow of water over the dam in order to increase the level of Green Lake.

Aquatic plant growth was slow to begin for much of the lake early, but dense stands were seen in the usual areas by August. The DNR allows the GLSD to operate our harvesting



Ripples in the lake bottom are seen in very clear water by the Terrace, June, 2022.

program from June 1st to August 31st each year. Per the permit, our crews focus their efforts on creating ease of navigation adjacent to piers and boat lifts. Please know that the crews try to meet landowner expectations while adhering to the permit limitations.

As in the past, the GLSD weekly beach sampling program ran from Memorial Day to Labor Day. Every week, GLSD staff sampled at each public beach on the lake as well as several boat launches to determine E. coli levels at these locations. For much of the summer, elevated levels of E. coli were found at the Sunset Park boat launch and for one reading in July, a sample taken at the Dodge Park boat landing showed similar results. Discussions with the WI State Lab of Hygiene and the WI DNR suggest possible impacts from large amounts of goose and seagull droppings washing into the water from the black-topped/concreted landings. The GLSD will continue to monitor this issue in 2023.

WHAT DO YOUR GLSD TAX DOLLARS DO FOR GREEN LAKE?

In the last 60 years, the lake has faced negative impacts from increased shoreland development, intensive agriculture throughout the watershed, the advent of harmful aquatic invasive species, increasingly intense rainfall events, and many of the wettest years on historical record. These are significant challenges to overcome. As we work to meet our long-term water quality goals of a roughly 50% reduction in phosphorus loading to the lake, these are some of the programs the GLSD operates to help protect Green Lake.

AGRICULTURAL BEST MANAGEMENT PRACTICE (BMP)

FUNDING – The funding of soft practices such as cover crops as well as structural practices such as sediment retention basins on farm fields is a focus of the GLSD. A sediment retention basin can cost anywhere from \$25,000 to in excess of \$60,000. Funding these projects annually through your tax dollars alone would require a significant increase in our GLSD tax levy. Therefore, GLSD staff have worked very closely with the WI DNR and our Lake Management Partners to acquire grant funding to get these projects on the landscape. The GLSD was recently notified by Eric Evensen of the WIDNR that the Targeted Runoff Management grant written by the GLSD on behalf of the Lake Management Team this past April, ranked very high and will be funded beginning in 2023. This grant will provide nearly \$600,000 toward funding agricultural BMPs in our watershed. It is critical to point out that identifying and qualifying for this funding would not have been possible without our partners at the GLA and the Green Lake and Fond du Lac

County Land Conservation Departments. Both the GLA and the counties provide additional funding and/or staff time that we also use as match on these critical lake protection projects. *Annual GLSD tax levy funding toward creating and maintaining agricultural BMPs – \$70,000*

WATERSHED COORDINATOR – In response to the current (and likely) grant funding available to be spent on agricultural lands in the watershed, it became apparent that the watershed management team needed additional staffing to help get this funding spent on the landscape. To this end, the GLSD hired Hannah Vorrie (formerly of the WIDNR), as our Watershed Coordinator. Hannah's job is to reach out to farmers around the watershed to discuss funding programs available to them, listen to their concerns, and develop projects to reduce nutrient (both phosphorus and nitrogen) loading into Green Lake. We are very excited to be working with Hannah and appreciate the projects she has already helped to create in her few short months as a GLSD employee. A big thank you to the Green Lake and Fond du Lac County Land Conservation Departments for their partnership in the training and work that Hannah is doing for the lake.

Annual GLSD tax levy funding (covering wage, benefits, training, and associated costs) – \$100,000

USGS MONITORING OF THE LAKE AND WATERSHED – As we look to prioritize funds for BMPs in the watershed, it is critical to know where the main phosphorus loading areas are. For

AQUATIC PLANT SPOTLIGHT – WATER CELERY (*VALLISNERIA AMERICANA*)

Common names: Water celery, eelgrass, tapegrass.

This plant is commonly found all over Green Lake in depths up to 15 feet. Its green leaves are ribbon-like and grow below the water surface. In late summer it produces a tiny flower, supported by a thin, coiled stem. This stem is often a challenge to boaters and kayakers as it wraps around paddles and props. Its flat, slippery leaves, which extend from the lake bottom to the water surface, are very difficult for the GLSD aquatic plant harvesters to cut effectively as they tend to sway/bend as the harvesters maneuver over them. Hand-pulling or raking can work to remove them, though floating, uprooted plants often re-establish themselves in other shallow water locations.

Importance of plant: Provides shade and shelter for bluegills, young perch, and largemouth bass; choice food of waterfowl, particularly diving ducks; attracts muskrats, marsh birds, and shore birds.

-From MN Department of Natural Resources



almost 40 years, the GLSD has been funding US Geological Survey monitoring stations on various tributaries around the watershed. In addition to the baseline stream data, each year the GLSD funds in-lake sampling to determine the lake water quality trends over time. In 2022, the GLA began funding additional USGS water quality monitoring in the watershed to provide additional information on nutrient loading/cycling in the lake and watershed.

Annual GLSD tax levy funding toward USGS monitoring – \$74,000

AQWEED PROGRAM (AQUATIC PLANT HARVESTING) – The GLSD owns and operates 2 aquatic plant harvesters on Green Lake. We work within the parameters of a DNR permit which allows the program to operate between June 1st and August 31st each year. The DNR permits the program for the purpose of ensuring navigational ability for boating around the lake. The program has been in place since the 1980's. Our crew work hard to provide good service to the lakeshore residents while working in accordance with the DNR permit. This is also a great partnership project as we receive annual donations from partners such as the City of Green Lake and the Green Lake Association for this program.

Annual GLSD tax levy funding toward operating 2 harvesters and the associated crews – \$55,000

CONSERVANCY PROPERTY MAINTENANCE – The GLSD maintains 15 Conservancy Properties around our watershed. These properties were acquired for the purpose of protecting Green Lake; some lands were acquired to limit further development or to take priority phosphorus loading fields out of agricultural

production. This past October, the GLSD hired Scott Neuman to work part-time on the properties to remove invasive species and assist with the coordination of projects. We could not manage these properties without our funding partners – the Green Lake Conservancy and the Green Lake Association along with private landowner contributions.

Annual GLSD tax levy funding for management of the properties – \$53,500

Please note there are many additional programs the GLSD manages such as weekly trash collection (\$200,000 annually), the Green Lake Fish Rearing Facility, managing the carp harvesting program, weekly E. coli testing at the beaches, etc. that also make up the GLSD's annual budget. We strive to keep costs contained while providing good service to the residents of the District.



Drone footage of Silver Creek agricultural lands, Late July, 2022. Provided by James Knapp.

DISTRICT WASTE MANAGEMENT UPDATE

The GLSD is late in the 4th year of a 5-year contract with Waste Management for weekly trash collection for our residents. In 2023, the GLSD will begin preparing for our next trash collection contract which starts Jan. 1, 2024. Feedback from residents within the District has shown a significant interest in twice monthly recycling collection in addition to the weekly household trash collection. In addition to Waste Management, the GLSD will be requesting proposals from several other garbage collection companies in central and southeastern WI for consideration for our next 5-year contract.

Here are some reminders about trash collection:

- WM collects household waste only – no yard waste/electronics. Do not place extra bags or waste items on the ground next to the trash cart. It will not be collected.
- Keep carts in easy to see locations. Having it near your fire number or mailbox is recommended.
- Have carts out Sunday evenings or by 6 am Mondays.
- Remember to place carts with top handles facing away from the road.
- Remember that on Mondays following busy weekends, trash collection may extend into Tuesday.
- If roads are unsafe due to ice or snow, WM may not venture down that road. Safety is always a priority.
- Check our Facebook page for updates on trash collection around holidays.

If you would 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, call our office (920) 295-4488, and GLSD staff will work with WM to get an account set up for you. WM invoices on a quarterly basis.

Additional trash disposal options – Washkovck Inc. has recently begun accepting household trash for a minimal fee at their W4950 Cradle Road location near the City of Princeton on the 1st and 3rd Saturday of each month from 8 am until 12 noon. They accept bagged garbage but also larger items such as mattresses and furniture. Call (920) 295-6092 for additional details and specific costs. Green Lake Freight & Garbage Pickup offers a pickup service for extra bagged garbage residents may have as well as larger items such as microwaves and televisions. Call (920) 979-4809 for additional details and specific collection costs. As always, 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 shown in the adjacent margin outlines the services provided to residents of each township within the Green Lake Sanitary District boundaries.



RECOMMENDATIONS FOR SEPTIC SYSTEMS

As we see increasing numbers of Airbnb's and other home rental use on Green Lake, the functionality of older septic systems is being questioned. In situations where we see rental properties around the District being used by large numbers of people for days or weeks at a time, even newer septic systems may struggle to function properly. However, when large volumes of water continually flow into a septic system, sometimes the solids are not able to settle efficiently to the bottom of the tank. In those cases, the septic drainfield can become clogged and stop functioning. Many residents think their aged system is in good shape since it is 'inspected' every 3 years. **Please note the '3-year inspection' is only a check to see if a system needs to have the solids pumped from the septic tank, not whether the system is functioning well.** Landowners often fail to realize that septic systems don't last forever. They have an average life span of approximately 30 years depending on how heavily they are used and how often they are maintained. In our area, the cost of having a new septic system installed can range from \$25,000 to \$65,000+.

In addition to regular pumping and inspections, if you reduce the amount of wastewater and solids that enter your septic system, you can often prolong its life. Common methods include minimizing the amount of water you use, avoiding the use of a garbage disposal (which sends solids into your septic tank) and avoiding the regular repetitive use of bleach and other chemicals which kill the bacteria your septic system relies upon. One of the biggest things to remember – don't flush wipes down the pipes! Even if a product label says it is flushable, **DO NOT FLUSH WIPES OF ANY KIND.** For more information, visit the EPA's website: www.epa.gov/septic/how-care-your-septic-system.



UPDATE ON GLSD WASTEWATER PERMIT COMPLIANCE AND FUTURE SEWERING

DNR WPDES Permit Compliance - As mentioned in previous newsletters, the GLSD is required to meet new, stringent wastewater discharge requirements set forth by the State of WI. District staff continue to work with the WIDNR to gain approval for the use of our treated wastewater as irrigation waters on nearby farm fields. The District is committed to this option as it is both the most environmentally friendly, but also the most cost effective. A demonstration pilot project proposed by the District and our Engineers at Cedar Corp. is currently being evaluated by the WIDNR. Initial feedback from the state has been very positive.

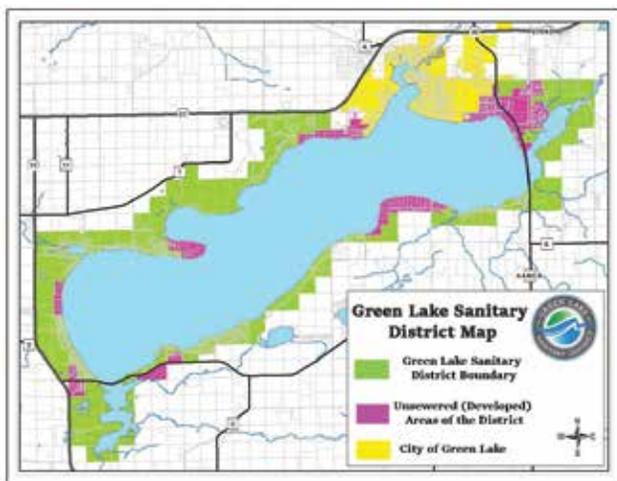
Costs for planning, design, construction, etc. of both the pilot project and the final compliance option has required an increase to our wastewater treatment rates. As we work through the DNR permit process, the GLSD has been working with financial specialists from Ehlers, Inc., to determine revenues needed to reach final compliance in the next few years.

GLSD CURRENT SEWERING UPDATE - In September, the GLSD Board of Commissioners authorized a sewer extension project which would complete the GLSD sewer system along the east end of Orchard Ave., Butternut Lane, and Pheasant Run. This area has average septic system ages of >30 years with some systems being in excess of 42 years.

Separate from our tax-funded lake protection work, the most critical effort the GLSD can make in protecting the lake is by getting rid of old septic systems, holding tanks, and cesspools. The GLSD municipal sewer system eliminates inputs of both phosphorus and nitrogen into the soils on our lakeshore that, over time, seep into Green Lake via new and old private onsite systems.

GLSD FUTURE SEWERING UPDATE - In response to petitions by landowners from several of the remaining unsewered areas of the District, the GLSD Board of Commissioners authorized the District Engineer, Cedar Corp., to complete a feasibility study to evaluate the difficulty and potential costs of providing service to these (developed) unsewered areas of the District. This study is nearing completion. The Board will evaluate project costs, benefits to the lake and groundwater, ages of existing septic systems /holding tanks /cesspools, connectivity to current sewer infrastructure, development history & potential, among other factors to create a prioritization of project areas. The goal is to provide landowners with information about future sewerage timelines so they may plan accordingly for new home construction, expansion of their existing home, necessary septic repairs, etc.

Over the next few months, the GLSD will be reaching out to landowners in the areas under consideration for sewerage to make them aware of preliminary information meetings (PIMs) in which potential project information will be provided. The GLSD is working with Green Lake County Zoning to address the permitting of new or temporary holding tanks/septic systems in areas that may be recommended for sewerage in just a few years. Updates on GLSD Future Sewering Plans will be posted to our website and included in future newsletters.



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 Cty 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.

THE GLSD WELCOMES NEW STAFF

WATERSHED COORDINATOR – HANNAH VORRIE (Soon To Be Hannah Niewoehner (Knee-Wah-Ner))

Hannah was hired this past June to provide outreach to local farmers and landowners in order to develop new conservation projects in the Big Green Lake watershed. Hannah has a diverse background in the natural resources field with a degree in Animal Ecology from Iowa State University. Most recently, Hannah has worked in the water resources field as an Urban Conservationist in Iowa and a Watershed Restoration Coordinator with the Wisconsin DNR. She is an Iowa native, and her family farms corn and soybeans in North Central Iowa. Utilizing her professional and personal background, she hopes to provide quality service to farmers and landowners in the Big Green Lake watershed. If you are interested in trying a new conservation practice on your farm, she's happy to assist! As a new face in the area, she's looking forward to getting to know our local farmers and landowners.



CONSERVANCY PROPERTY TECHNICIAN – SCOTT NEUMAN

Scott Neuman was hired in October to help manage and maintain our 15 Conservancy Lands properties. Scott has been working with the GLSD staff as a consultant on prescribed burns, invasive species removal, and project development since 2013. During his years as a private consultant, he spent much of his time working on projects with the WI DNR but also private landowners across WI. Scott is a 1997 graduate of Wautoma High School and a 1999 graduate of Gateway Technical College in Kenosha. Scott and his wife Stephanie have 2 daughters and live in Ripon.



GREEN LAKE FISHING NEWS



On October 20th, approximately 28,000 lake trout fry were delivered to the Green Lake Fish Rearing Facility operated by the GLSD in partnership with the WI DNR, City of Green Lake, Green Lake County, Walleyes for Tomorrow, the Green Lake Association, and local fishing guides. GLSD staff will care for these fish over the next 6 months to prepare them to be released into the lake in late April. As part of the lake-wide fish survey this year, the DNR handled some very large fish including a 36" 23.6 lb. lake trout that is estimated to be in excess of 50 years old. The GLSD would like to extend our appreciation to the DNR Fisheries staff for the significant amount of time they've spent on Big Green Lake this year completing the fisheries survey.

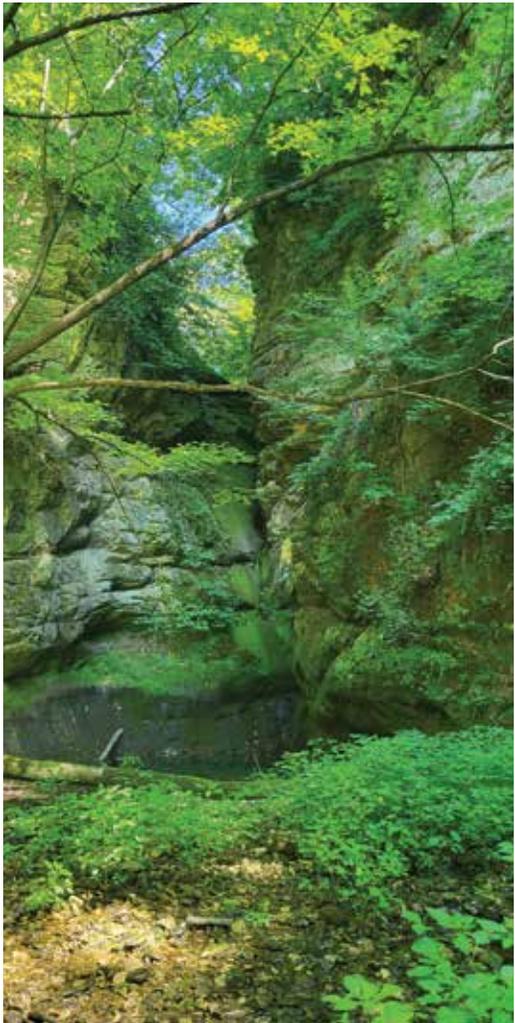
The GLSD is excited to announce that, in partnership with The Dry Dock, we were awarded a \$15,000 FishAmerica grant for Green Lake. The FishAmerica funds will be used to match local donations from the public for the purpose of creating fish habitat structures that will be placed at depths of 10' to 30' around Green Lake to support our diverse fishery. Thank you to Chuck Hurley, owner of The Dry Dock, and Adam Nickel, WIDNR Fisheries, for their partnership in getting this funding. If you are interested in making a donation to these efforts, please contact Chuck at The Dry Dock, (920) 295-3462.



SPOTLIGHT – MITCHELL GLEN

Purchased in 2004 though funding provided by the GLSD, Green Lake Conservancy, Green Lake Association, and WIDNR, Mitchell Glen is an extraordinary property located southeast of Green Lake. This spectacular site was formed 12,000 years ago when post-glacial meltwater eroded the sandstone bedrock, resulting in a steep-sided and timbered gorge. The unique geological formations and springs which are the headwaters of Glen Creek, are part of a high-quality corridor that supports outstanding biodiversity including one of the few maple-basswood climax forests in Green Lake County.

The shaded sandstone cliffs with cold-air drainage and springs at the base of the gorge render a moist, cool microclimate that sustains certain plant species more typical of northern Wisconsin. Please note that because many of the plants and rock formations on this site are fragile and warrant extra protection from human impacts, the property is only accessible during two annual, guided hikes each year. The vulnerability of the site, along with its exceptional connection with groundwater flows, are cause for significant concern by the GLSD and our partner organizations the Green Lake Conservancy and Green Lake Association regarding the proposed Skunk Hollow Mine to be located less than ¼ mile from the property. .



Portions and map taken from the Green Lake Conservancy Website.





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*
Justin Ellis | *Secretary*

GLSD STAFF

Lisa Reas
Administrator

Hannah Vorrie
Watershed Coordinator

Paulette Janssen
Admin. Asst.

Scott Neuman
Conservancy Property Technician

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 IS NOW ON FACEBOOK

In order to reach residents of the District more efficiently regarding time-sensitive issues such as garbage collection, beach advisories, etc., the GLSD can now be found on Facebook. Additionally, from time to time we will be posting information about our Conservancy Properties, various programs we manage, and general lake information. Please check us out.

