

FROM THE WATERSHED streamings

Oconomowoc Watershed Protection Program Newsletter



OCONOMOWOC

WATERSHED PROTECTION PROGRAM

2023 UPCOMING EVENTS

WED / JANUARY 18

WED / APRIL 12

WED / SEPTEMBER 20

**Lake Country Clean Waters
Quarterly Meetings**

Starts at 6pm. Contact Tall Pines Conservancy to get on the contact list.
lakecountrycleanwaters.org

SAT / JUNE 24

**12th Annual Lake Country
Clean Water Festival**

A wide variety of fun family activities at Lakefront Park in Pewaukee.
cleanwaterfestival.com

SAT / JULY 8

**9th Annual OWPP
Paddle Event & River Clean-Up**

Fun for the whole family! Join us for a scenic trip along our beautiful local waterways. Bring your own canoe, kayak, paddleboard or contact us for rental information.
conomowocwatershed.org

SAT / AUGUST 12

15th Annual Ride to the Barns
A fundraising bicycling event to benefit land conservation.
tallpinesconservancy.org

NORTH LAKE DREDGING - IS HAPPENENING!

The dredging of two northern bays in North Lake is proceeding this fall, with an ambitious plan to remove 125,000 cubic yards of watery sediment (aka "muck") that has been deposited into North Lake over decades. The Funk's Dam failure and removal in 1992, as well as the Monches Dam replacement in 2013, released a significant amount of sediment and phosphorous into North Lake, along with annual movement of soils downstream from upland watershed areas. The result is a significant accumulation of material at the bottom of the lake, particularly in the two northern bays known as Schneider Bay and Ice House Bay. North Lake is impaired for phosphorous, and phosphorous is bound to sediment and releases into the water by way of re-suspension and/or diffusion.

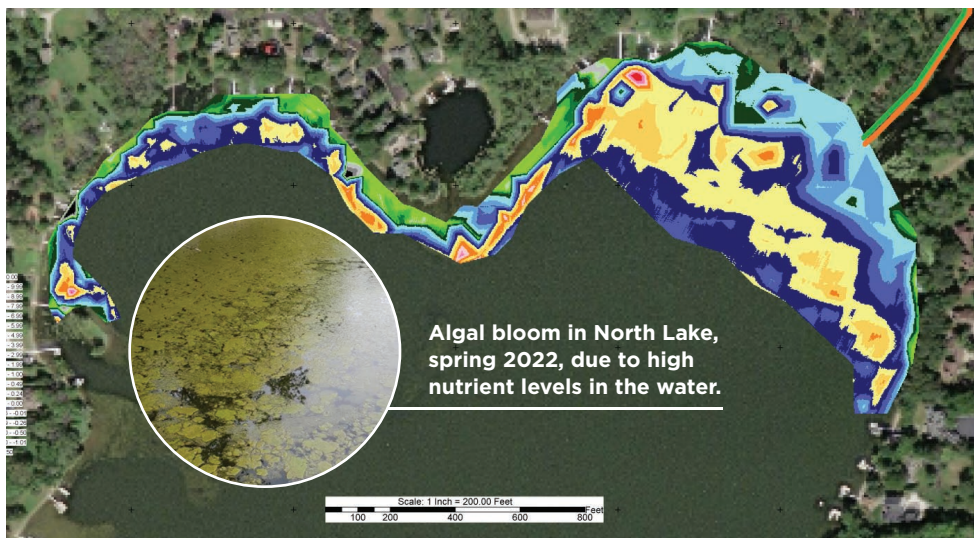
North Lake Management District, a resident on North Lake, has shepherded the project over the last 2 years, from planning and permitting, to securing dewatering



Dredge and floating pipe for removing sediment.

areas and giving over 30 presentations to community members and potential donors. The total project cost is \$2.4 million and 90% has been raised as of mid-October, with the majority of donations coming from private donors in the North Lake district and a \$50,000 contribution from OWPP. If the remaining \$240,000 is not raised, the project will stop short of completion.

[continued on back]



Algal bloom in North Lake, spring 2022, due to high nutrient levels in the water.

Scale: 1 inch = 200.00 Feet
100 200 400 600 800 feet

Areas to be dredged at North Lake. In some spots, the muck is 4 feet deep!



©Julian Kegel

2022 PADDLE EVENT - A HUGE SUCCESS!

On July 9th we set out on familiar water with a new purpose. This year to enjoy the river, AND, to see what we could find for trash or treasures. There was some debate on whether there was enough trash to really worry about. But guess what we found?

On a gorgeous Saturday morning, we departed from the boat launch at the dam on Wisconsin Ave in the Village of Oconomowoc Lake. We proceeded to the lake downstream; some went for just pleasure paddling while others went on the hunt for trash and whatever else could be found that didn't belong. There were 32 of us that departed around 9:00. By noon we returned with our finds. Included in the

myriad of trash and miscellaneous objects were four car tires, parts to an old wood stove, a bicycle frame, many glass bottles, pieces of clay pipe, a steel car wheel, many ceramic dishes, part of a 55 gallon drum, a runner from an old sleigh, fishing lures, a base of a water pump, a large rat trap, a piece of heavy duty chain, many aluminum cans, part of a fishing pole, and even a snowman Christmas ornament. Also doing some cleanup on another section of the river near The Kilte, a family removed another batch of trash. All totaled we estimated we had collected more than 400 lbs of "stuff." After returning, our river cleaners and paddlers enjoyed brats and hot dogs off the grill. A big THANKS to our volunteer help, and Tall Pines and the City for sponsoring this fun and very functional event. 🌊



Paddlers removed an estimated 400 lbs of waste and garbage.



SAVE THE DATE!
2023 Paddle on
Saturday, July 8th

DID WE HAVE A 25- OR 50-YEAR RAIN EVENT OR... ?



The rain event on September 10th and 11th was classified as a 25- to 50-year rain episode. Or was it? With the help of the Southeastern WI Regional Planning Commission (SEWRPC), we were able to pull the current NOAA precipitation frequency chart for the Oconomowoc area categorization of rain events. Whether a storm counts as 10-, 25-, 50-year or more event depends both on the amount of water and the length of time of the rain event,

which reflects intensity. Two inches of rainfall in 30 minutes (50-year frequency) is a much different event than 2 inches that falls in 12 hours (1-year frequency). You can refer to the chart below if you want a quick reference guide. The Sept 10th/11th rain event was between a 25- to 50-year event, depending on where you live and exactly how much you received. Curiously, however, at the Oconomowoc Wastewater Treatment Facility where we have a National Oceanic

and Atmospheric Association (NOAA) weather station, we have recorded this size of an event 3 times in the last 15 years, recording 6.5 inches over two days in June 2008 and 5+ inches over two days in July 2010.

It makes one wonder about the phrase we are hearing more these days... is this a "new normal"? 🌊

Duration:	Average Recurrence (years)								
	1	2	5	10	25	50	100	200	500
5-min	.345	.414	.523	.611	.729	.816	.901	.984	1.09
10-min	.506	.606	.766	.895	1.07	1.20	1.44	1.60	1.71
15-min	.617	.739	.934	1.09	1.30	1.46	1.61	1.76	1.95
30-min	.839	1.01	1.29	1.51	1.81	2.02	2.24	2.44	2.71
60-min	1.07	1.29	1.66	1.96	2.39	2.72	3.04	3.38	3.83
2-hour	1.30	1.57	2.03	2.42	2.97	3.41	3.85	4.32	4.94
6-hour	1.75	2.05	2.59	3.09	3.85	4.48	5.18	5.91	6.98
12-hour	2.11	2.38	2.90	3.40	4.19	4.87	5.62	6.45	7.65
24-hour	2.42	2.73	3.31	3.86	4.71	5.44	6.24	7.13	8.40
2-day	2.69	3.12	3.88	4.56	5.57	6.41	7.31	8.27	9.63
3-day	2.96	3.41	4.20	4.91	5.96	6.84	7.78	8.78	10.2
4-day	3.20	3.66	4.46	5.18	6.26	7.16	8.12	9.15	10.60

A two inch rain fall in 30 minutes is a 50 year event.



<https://hdsc.nws.noaa.gov/hdsc/pfds/index.html>



IT'S A BIRD, IT'S A PLANE, IT'S A... DRONE!

In previous years, you may have seen a yellow helicopter with a hanging bucket, flying low over fields in the Oconomowoc River watershed. Farmers for Lake Country has typically spread fall cover crops by air, which has several advantages. Cover crops can be sown well before the cash crop is harvested, sometimes as much as 6 to 8 weeks earlier, and the earlier start allows the seed to germinate and establish deeper root structure before winter arrives. The benefit is seen even more so in spring, when the lush top growth spreads and roots go deeper, creating biomass that holds soil and prevents wind and rain erosion.

This year, due to mechanical issues, our contracted helicopter seeding company was unable to aerial apply seed during the ideal window in early September. Solution?... Drone seeding! A couple of the farmers in our producer-led group, Farmers for Lake Country, made arrangements to have 600 acres spread by drone. The drones have six props and a wing span about the size of a human. They can carry up to 50 lbs of seed, enough to cover one acre, usually one to two minutes at a time, before returning to base for refilling and a battery swap which occurs every other trip. Factoring in loading and logistics, we were able to spread 12 to 15 acres an hour. That's faster than the typical way of planting cover crop seed with a grain drill, and also avoids tractor wear/tear and fuel. Drones are also

amazingly accurate and energy efficient. Liftoff and landing are handled by the operator, but the path of travel is chosen by the drone for maximum efficiency. When spreading, the drone pauses when the seed hopper is empty, flies back to home base for refilling and then returns to the field to keep spreading where it last left off. There's a learning curve associated with any new



technology, but this is clearly the wave of the future. We hope to continue to cover the acres needed in an ideal window of time, in a manner that benefits both farmers and the watershed. 🌍

WELCOMING PAUL MEUER TO TALL PINES CONSERVANCY

Tall Pines Conservancy is excited to announce the hiring of Paul Meuer as their new Land Protection Manager. Paul brings a wealth of experience in ecological restoration, native plant communities, wetland delineation and restoration,



construction oversight, project management, GPS mapping and more. He will be helping Tall Pines manage and grow their easement projects, as well as teaming with Darrell Smith on heading up Farmers for Lake County conservation farming initiatives. Farmers for Lake Country has recently expanded its boundaries to several watersheds adjacent to the Oconomowoc River watershed, so his joining the Tall Pines staff comes at an exciting time. Paul is a graduate of Ripon College with a degree in environmental science and maintains certification as a Professional Wetland Scientist (PWS).

Paul is a year-round outdoorsman and enjoys mountain biking, kayaking, backpacking, and exploring Wisconsin. He also maintains a collection of antique vehicles, tools, and cameras.

We welcome Paul and hope you'll get a chance to meet him and tap into his deep knowledge of our natural areas. 🌍

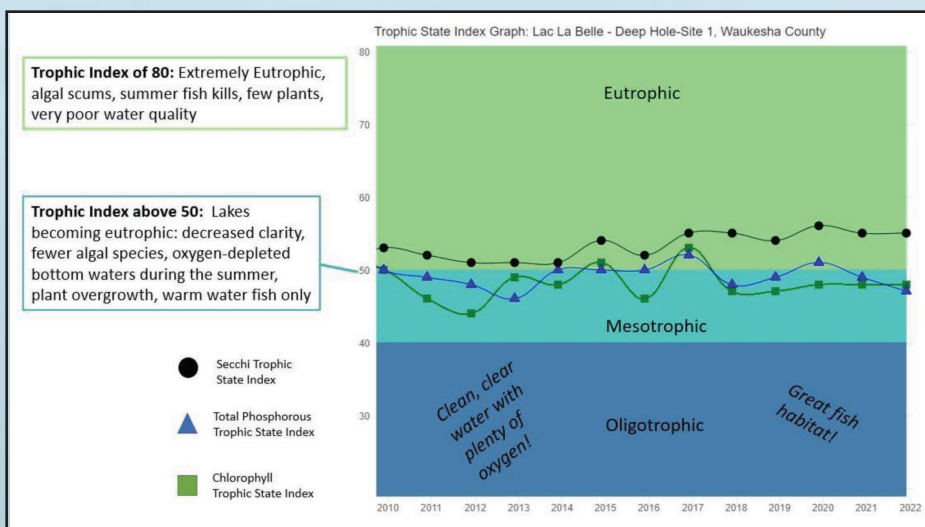
LAKES IN THE WATERSHED - AN UPDATE ON WATER QUALITY

In the Oconomowoc River Watershed, there are 18 lakes. Five lakes are on the Impaired Waters List. The table below gives a quick summary of the current water quality of each lake.

Lake Name	Size Acres	Max Depth	Impaired	Why	Lake Type	Clarity Secchi disk	Trophic Status
Friess	121	51	yes	Phos	Drainage	5'	Eutrophic
Lit Friess	16	30	yes	Phos	Drainage	8'	Meso/Eut
Loew	23	23	no	-	Drainage	-	Meso
Keesus	235	42	no	-	Spring fed	10'	Meso
Murphy	17	37	no	-	Seepage	-	-
Malloy	6	24	no	-	Spring fed	-	-
McConville	14	37	no	-	Seepage	-	-
Beaver	313	46	no	-	Spring fed	-	Meso
Cornell	18	12	no	-	Drainage	-	-
Pine	711	85	no	-	Drainage	24'	Meso/Oligo
North	440	78	yes	Phos	Drainage	10'	Meso
Moose	83	61	no	-	Seepage	15'	Oligo
Okauchee	1210	90	yes	Phos	Drainage	11'	Meso
Upper Ocon.	35	11	no	-	Drainage	-	Meso
Oconomowoc	818	60	no	-	Drainage	9'	Meso
Fowler	97	50	no	-	Drainage	15'	Meso/Oligo
Lac La belle	1154	45	yes	Phos/PCBs	Drainage	5'	Meso/Eutr.
Silver	217	40	no	-	Seepage	12'	Meso/Oligo

The Trophic level places each lake in a category ranging from:

- Oligotrophic - Excellent water quality
- Mesotrophic - Medium water quality
- Eutrophic - Poor water quality



DIFFERENT TYPES OF LAKES

(from wisconsinlakes.org)

Seepage Lakes

These lakes do not have an inlet or an outlet, and only occasionally overflow. As landlocked water bodies, the principal source of water is precipitation or runoff, supplemented by groundwater from the immediate drainage area. Since seepage lakes commonly reflect groundwater levels and rainfall patterns, water levels may fluctuate seasonally. Seepage lakes are the most common lake type in Wisconsin.

Seepage lakes frequently have a less diverse fishery because they are not influenced by streams. Seepage lakes also have a smaller drainage area, which may help to account for lower nutrient levels

Spring Lakes

These lakes have no inlet, but do have an outlet. The primary source of water for spring lakes is groundwater flowing into the bottom of the lake from inside and outside the immediate surface drainage area. Spring lakes are the headwaters of many streams and are a fairly common type of lake in northern Wisconsin.

Drainage Lakes

These lakes have both an inlet and outlet where the main water source is stream drainage. Most major rivers in Wisconsin have drainage lakes along their course. Drainage lakes support fish populations which are not necessarily identical to the streams connected to them. Drainage lakes usually have higher nutrient levels than many natural seepage or spring lakes. 🌊

MASON CREEK UPDATE

Work began on the Mason Creek Re-meandering project on August 23rd. The project will create a 1600-foot meandered streambed with sloped banks that integrate the creek into the surrounding floodplain and reduce erosion during periods of higher flow. The project will prevent sediment and phosphorous from moving downstream to North Lake, with an estimated load reduction of 100 lbs of phosphorous annually. It will also create improved habitat for fish and other aquatic life.



Mason Creek Sept 10th

The project site had significant flooding with the heavy rains in mid-September, pushing the timeline back about 10 days. Fortunately, the erosion protection that was installed successfully prevented soil from the construction site from washing out.

After the flood receded, digging crews encountered another surprise. Equipment unearthed an artesian aquifer, caused by the heavy precipitation adding downward pressure on the water table, resulting in groundwater surfacing in a small geyser! Sections of newly-dug channel were refilled with water. Although this backflow is only temporary, it gives us an idea of what the stream will look like after we connect it with the main stem of Mason Creek at project end.

With the adjustments in the schedule, we are targeting an early November completion. 🌍



HOW MUCH RAIN WATER?

When you empty your backyard rain gauge, you're generally pouring out anywhere from a few ounces to a pint of water. But did you ever wonder how much water falls from the sky during an extreme storm event like we had September 10th and 11th? In Southeastern Wisconsin, the average rainfall for this event was somewhere around the 7" mark over a 2- to 3-day period. An extreme event indeed, occurring only once every 25 years. In recent decades, however, it appears it is occurring more frequent, like once every 10 to 15 years.

So how much volume does actually fall as rain during an event like this?

Let's just look at Waukesha county as an example. If we use the 581 square mile area that the county covers and calculate the volume using a conservative value of 6" of rain, we come up with a whopping figure of 60.5 BILLION gallons received that weekend. How much water is this?

Well, many comparisons are done using Olympic size swimming pools which hold about 660,000 gallons. So, to put a 6" rainfall event in perspective in just Waukesha County, that's equivalent to 92,000 Olympic size swimming pools. To put it another way, a 6" rainfall over the County is enough water to fill Lac La Belle 8 times. So thanks to our rivers and lakes, our storm water systems, and groundwater absorption we don't see water sitting around 6" deep after a rain event like this. But we do see localized flooding and basements flooded and wastewater and stormwater systems struggling to keep up during these times. The duration of the storm event also plays a part in it. Thankfully the September 10th/11th event was a stretched-out event which allowed our natural and infrastructure systems to handle this event relatively well.

So the next time you dump out your full or overflowing rain gauge, think billions of gallons, not ounces. 🌍




Mason Creek flooded Sept 12th, and...



Artesian aquifers flooded the creek on Sept 19th! Although the water is not flowing, this is a sneak peek at what the creek will look like when full in the future.

NORTH LAKE DREDGING... [from page 1]

The details of the project are astounding. The dredging will be done 24 hours a day, 6 days a week until lake freeze up. The contractor, Michels Corporation, installed a new 8-acre dewatering basin that links up with pre-existing settling basins at North Lake Sand and Gravel. This allows the dredged material to separate into clear water and sediment. After settling, pumps send the clear water off the top into successive ponds for additional settling, before eventually returning to North Lake via the Little Oconomowoc River.

The Oconomowoc Watershed Protection Program is grateful for the dedicated work of North Lake Management District and all the donors that have contributed to make the project happen and remove phosphorous from an impaired area of the watershed. 

Pathway of sediment piped to dewatering basins at North Lake Sand and Gravel, and the return of clear water to the lake.



WHO'S WHO

For more information on the OWPP, please contact us:



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oconomowocwatershed.com tallpinesconservancy.org farmersforlakecountry.org lakecountrycleanwaters.org



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