

LBMD NEWSLETTER

WINTER 2023

LAKE BEULAH MANAGEMENT DISTRICT REPRESENTATIVES:

PATRICK BERGIN, CHAIRMAN
STAN ALGER, VICE CHAIR
CHRIS KUBICEK, TREASURER
VALERIE JOHNSON, SECRETARY
JOHN BECKER, COMMISSIONER
GREG THOMAS, COMMISSIONER
RICK STACEY, COMMISSIONER

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A Message From LBMD Chairman Pat Bergin:

As many of you know, Dave Bitter recently retired from his position as Chairman of the Lake Beulah Management District, and I was appointed by the remaining Commissioners to finish his term. I believe that I stepped into the Management District at a good time and wish to thank Dave for his many years of service to the Lake Beulah community. I have two very brief updates:

- Dresden- Guthart Dredging Permit: The DNR granted the dredging permit. The District petitioned the DNR for a contested case hearing. The petition was granted on two grounds:
 - Whether the DNR complied with the procedural requirements required to issue the dredging permit; and
 - Whether the issuance of the dredging permit was consistent with the public interest.

The dredging project was stayed, meaning that the applicant cannot begin the dredging project. We await a hearing date from the DNR.

- The Hotel Litigation: The Walworth County Zoning Agency granted D1341 Associates, LLC's ("the Hotel Owner") application for a conditional use permit ("CUP"). The District, remaining opposed to the Hotel project, sued to block the project in Walworth County Circuit Court. The Hotel Owner has taken the position that the District does not have legal standing to block the Hotel project. Briefing was recently completed. A decision is expected before the end of the year.

Please let me or one of the other Commissioners know if you have any questions. Otherwise, we will keep you apprised of updates in both matters. In the meanwhile, I hope to see you around the lake!

Summer 2023
Aquatic Plant Truck Load Total: 126

2024 Approved Budget

	2024 Budget	+/--% vs. 2023 Budget
Total Income	\$204,000	-3%
Total Administrative	\$109,200	+4%
Total Plant Harvesting and Control	\$75,560	+12%
Total Weed & Water Control	\$19,000	+22%
Capital Purchase (Dump Truck)	\$ 70,000	0%
Contingency Fund	\$N/A	0%
Total Expense	\$274,760	-5%
Net Budget Variance	\$70,760	----

Year End Harvesting Report

Another season has come to an end for the Lake Beulah Management District Harvesting Program. Our equipment has been cleaned, removed, and stored safely as we wait for next season. 2023 represented business as usual for the district with minimal maintenance required throughout the season. A special thanks must go out to our primary operator Doug Tracy, returning for his 7th season. Doug works tirelessly to cut aquatic plants and maintain the areas on our harvesting permit as well performing the necessary tasks of routine maintenance on the machines. In addition, based on his love for Lake Beulah, Doug goes beyond the call of duty to maintain areas of the lake that would otherwise go untouched. Doug makes it a regular practice to clean up areas like our public launch, cleaning weeds off the ramp to avoid aquatic hitchhikers leaving the area and maintaining the appearance of the shoreline as well. A great debt of gratitude is owed to him in his labors of care for the lake.

We have seen, over the past few years, a decline in our final aquatic plant load totals with about a 1/3 decrease this year from last season. We have attributed this to a lack of rainfall that is necessary to infiltrate the soil and wash nutrients into the lake, but likely there are other factors contributing as well. Every lake needs aquatic plants to have a healthy ecosystem and fewer load counts is not necessarily an indication of a declining ecosystem. Lake Beulah's biodiversity of aquatic plants represents a healthy ecosystem in so much as we do not see an overwhelming amount of one species, particularly invasive species, that can out pace and eliminate other plants. We will continue to monitor and maintain Lake Beulah's aquatic ecosystem, as we look forward to next season.

A few words from Town of East Troy Police Chief, A. Gorecki

We had another wonderful summer on the Lake. I was so pleased to report that there were no major incidents upon the waters of Lake Beulah for the summer of 2023. This is mainly due to safe boating practices by those using the lake. I'm sure there was caution thrown to the wind, but it didn't end with a crash or fatality.

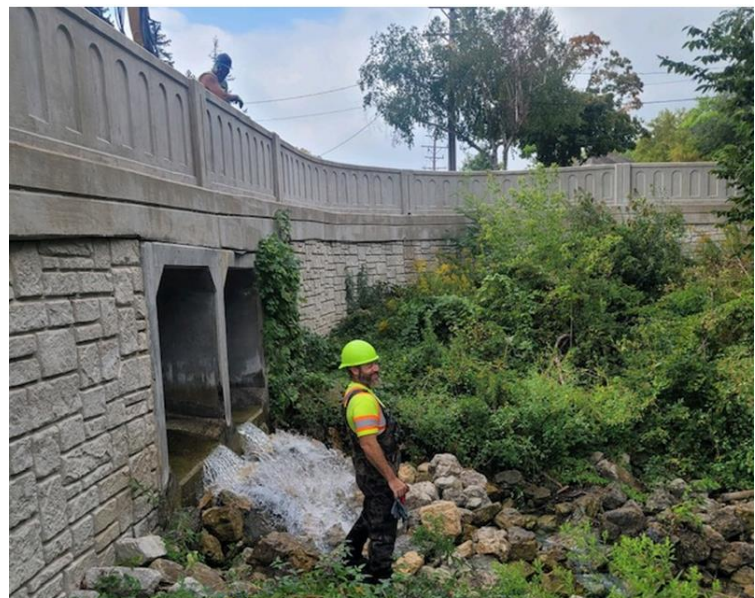
The Officers working the boat finally got their sea legs and for the year had 22 citations and 19 warnings. We worked a total of 356.25 hours on the water.

Lt. Runge and myself are already working on next years boating season and would like to add to our staffing to increase the patrol hours. The Town of East Troy Police Department would like to thank each of you for such a safe summer and hope you are all well and safe to return for the 2024 boating season.

Year	2023 Patrol Summary		
	2023	2022	2021
Citations	22	8	13
Warnings	19	13	40
Hours	356.25	223.5	439.5
% Change Cit from 2022	0	-63%	-40%
% Change Warn from 2022	0	-31%	110%
% Change Hours from 2022	0	-37%	23%

Hwy J Dam Maintenance

Every year LBMD works in conjunction with the Walworth County Department of Public Works to perform an inspection of Lake Beulah's Hwy J dam. This inspection comes at the request of the WIDNR and is carried out by a private company. The inspection ensures that we are maintaining the quality and condition of our dam, spillway, and earthen embankment. As a result of this past summer inspection, it was determined there were some things to be done. The captions below document the addition of rip rap rock to the spillway to replace the rock which has been moved by flowing waters. The rip rap rock functions to disperse water to reduce erosion caused by flowing water at its point of impact. It also acts as a diversion to reduce the immediate flow of water downstream. Here you see the County's Public Works Department completing the task of adding rip rap.



Lake Beulah Management District's

environmental consultants (Dr. Tim Ehlinger and Bob Nauta) continue to monitor groundwater levels and lakebed water quality, which are both being affected by the pumping at East Troy well 7. Two pairs of monitoring wells are in place between well 7 and the lake shore. The data collected from these wells tell us the impacts that the pumping of well 7 has on groundwater levels, as well as if the groundwater is discharging into the lake (as it should), or if the water is being captured by the well.

Additionally, Dr. Ehlinger has lakebed monitoring

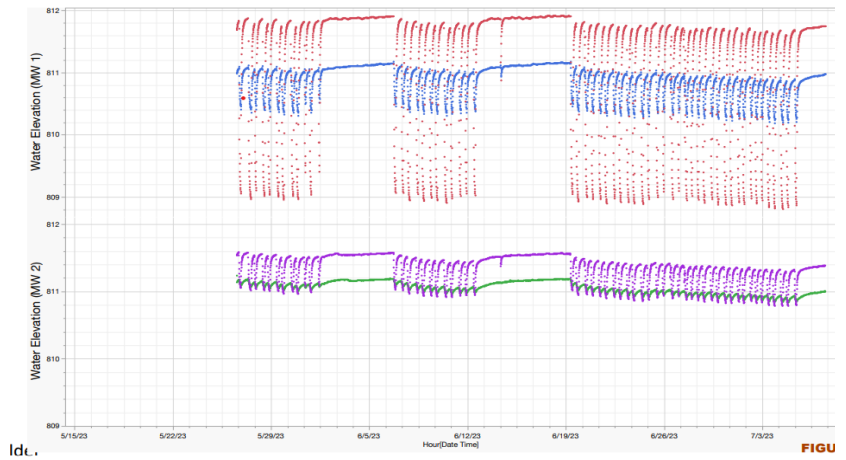
probes in four locations. Figure 1 shows data from the monitoring wells for June 2023. As the data in the graph show, water levels drop significantly when well 7 is in use, resulting in a reduction of groundwater discharging into the lake. When the red dots in the upper half drop below the blue dots, or if the purple dots in the lower graph drop below the green dots, that means that the well is pulling groundwater away from the lake. This is significant because the groundwater component of the lake's water budget is helping to maintain the high quality of the lake, due to the mineral content of the groundwater and because the groundwater is regulating the lake's pH. This regulation of the pH causes nutrients to precipitate out of the water, thereby reducing the ability for algae to bloom. Figure 2 shows the recorded specific conductivity and

temperature from the lakebed probes for the second half of May and the month of June. As expected, the temperature drops a little at night, and overall, the temperature has an upward trend during this period. However, there are frequent spikes and drops in the specific conductivity, mainly at the Johnson and Kubicek properties. These sites are closest to well 7. Specific conductivity is an indirect measurement of the mineral content in water, and the drop in specific conductivity may be a result of the reduction in groundwater discharge into the lake. Dr. Ehlinger and Bob Nauta are looking at other methods to determine specifically what is happening, and what the possible consequences of that may be. In addition to the work discussed above, the Lake Beulah Protective and Improvement Association (LBPIA) and United States Geological Survey (USGS) continue to monitor lake water quality. The data that they have collected can be summarized in a graph called the "Trophic State Index"

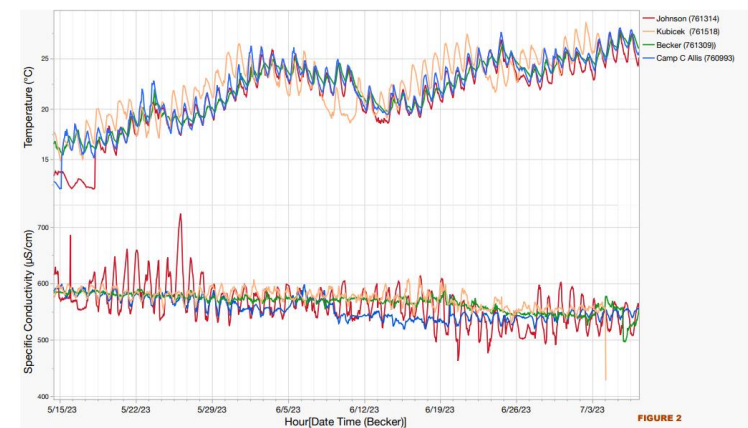
(TSI) is a plot of the historical TSI data. TSI calculations place a sample in one of three areas on the plot: eutrophic, mesotrophic or oligotrophic. A healthy lake falls in the small blue zone (mesotrophic). This means that the lake contains a moderate amount of nutrients, which can maintain a healthy plant population, essential for the lake's wildlife population. Samples collected from Lake Beulah have routinely resulted in TSI calculations that are in the mesotrophic range.

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Lake Beulah Groundwater Monitoring Well Elevations June 2023



Lake Beulah Temperature and Specific Conductance Readings May-June 2023



TROPHIC STATE INDEX

