MEMO

TO: Town of Delavan Lake Committee

FROM: Delavan Lake Sanitary District

RE: DLSD Lake Management Activities for May

DATE: June 1, 2021

LAKE MONITORING RECORDS

May Precipitation – 1.52 inches
Number of Run-off events – 0
Precipitation Year-to-date – 6.66 inches
Ice On Date – January 21, 2021
Ice Off Date – March 18, 2021
Total Ice Cover - 56 days

May Secchi Disc Readings: Maximum – 32.0 feet
Average – 18.3 feet

LAKE LEVEL

DNR Summer Lake Elevation Expectations – 927.86 feet

Average Lake Elevation – 927.87 feet

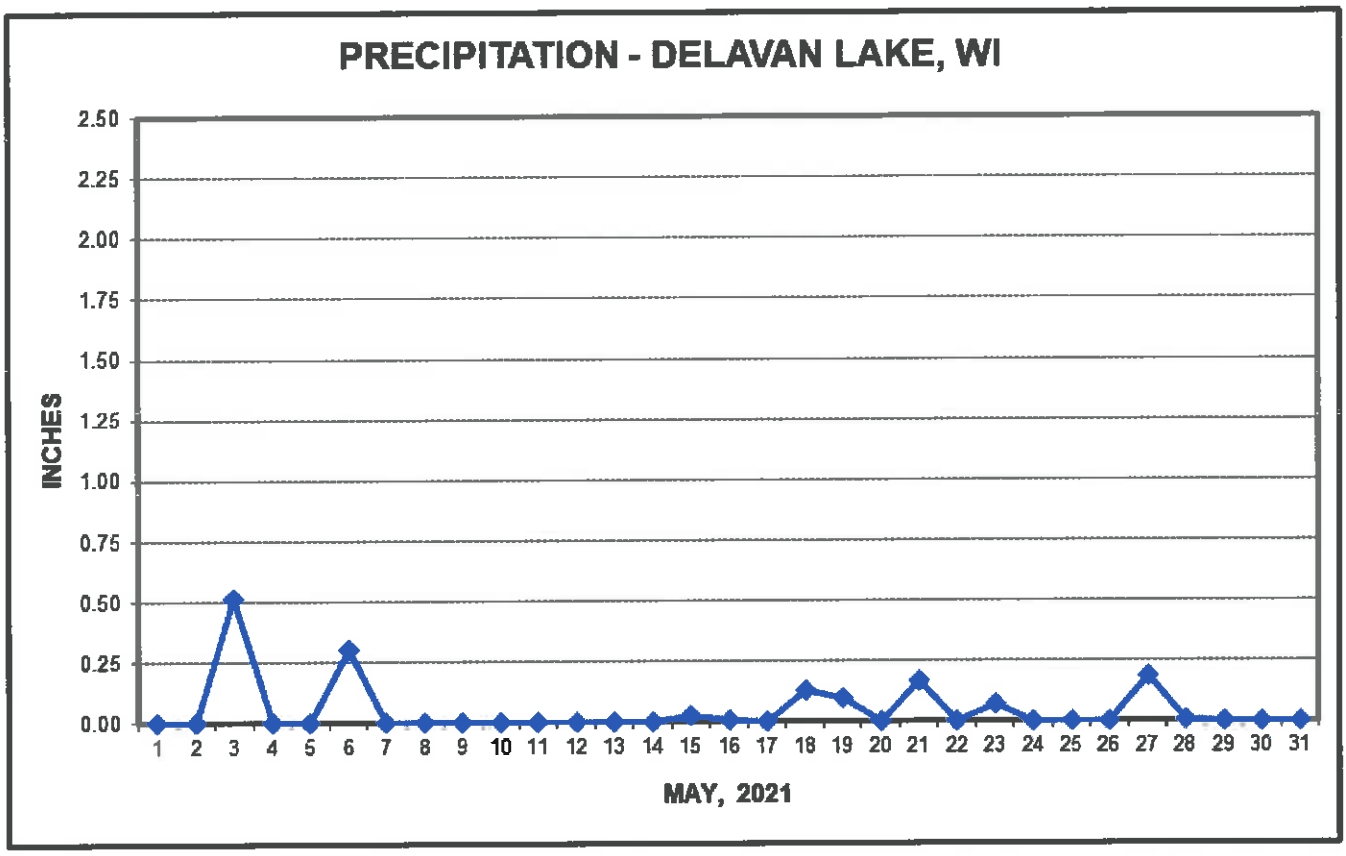
LAKE MANAGEMENT PROGRAM

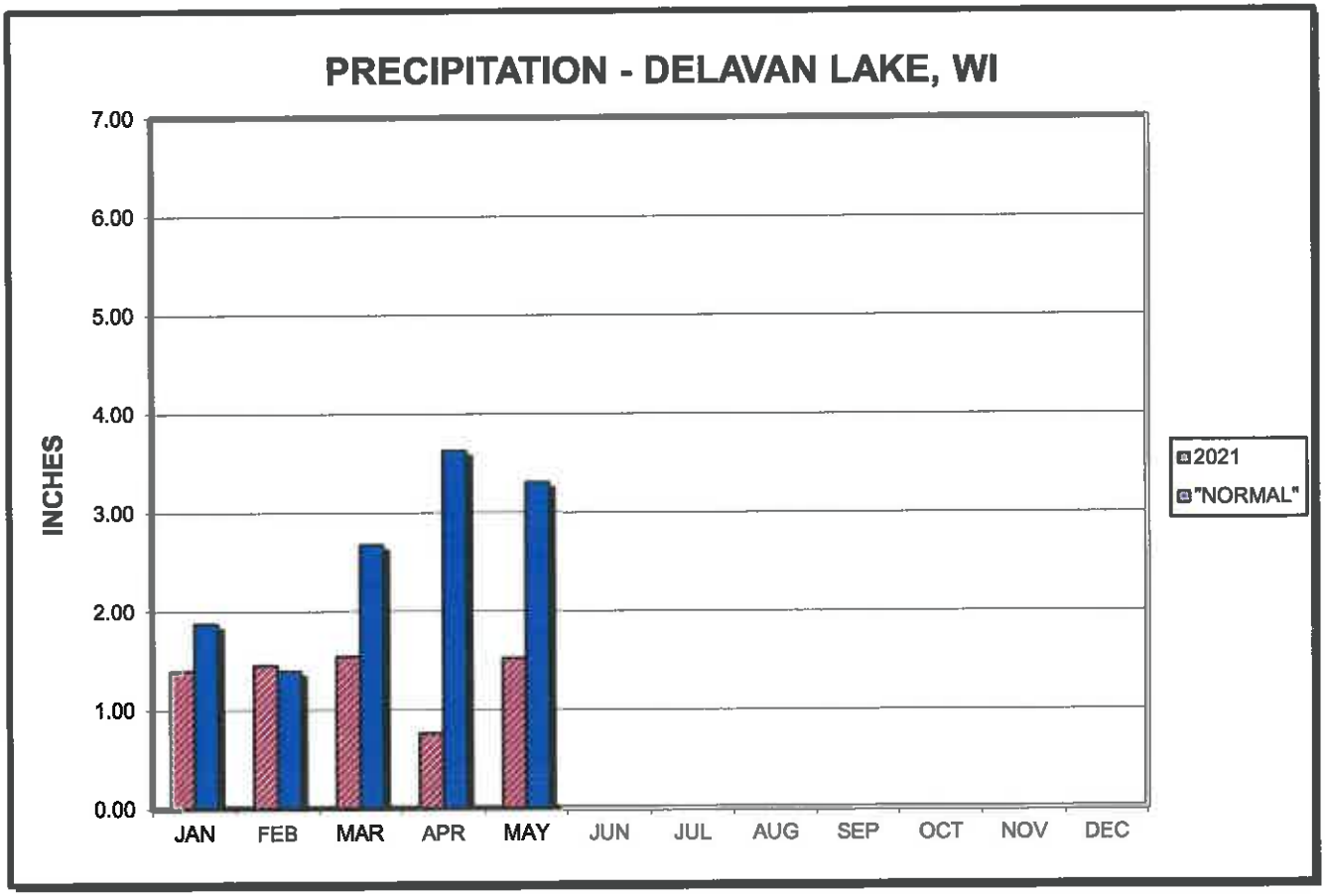
LS#3A rehab project is nearing final items. Grass pavers and generator room repainting is all that is left.

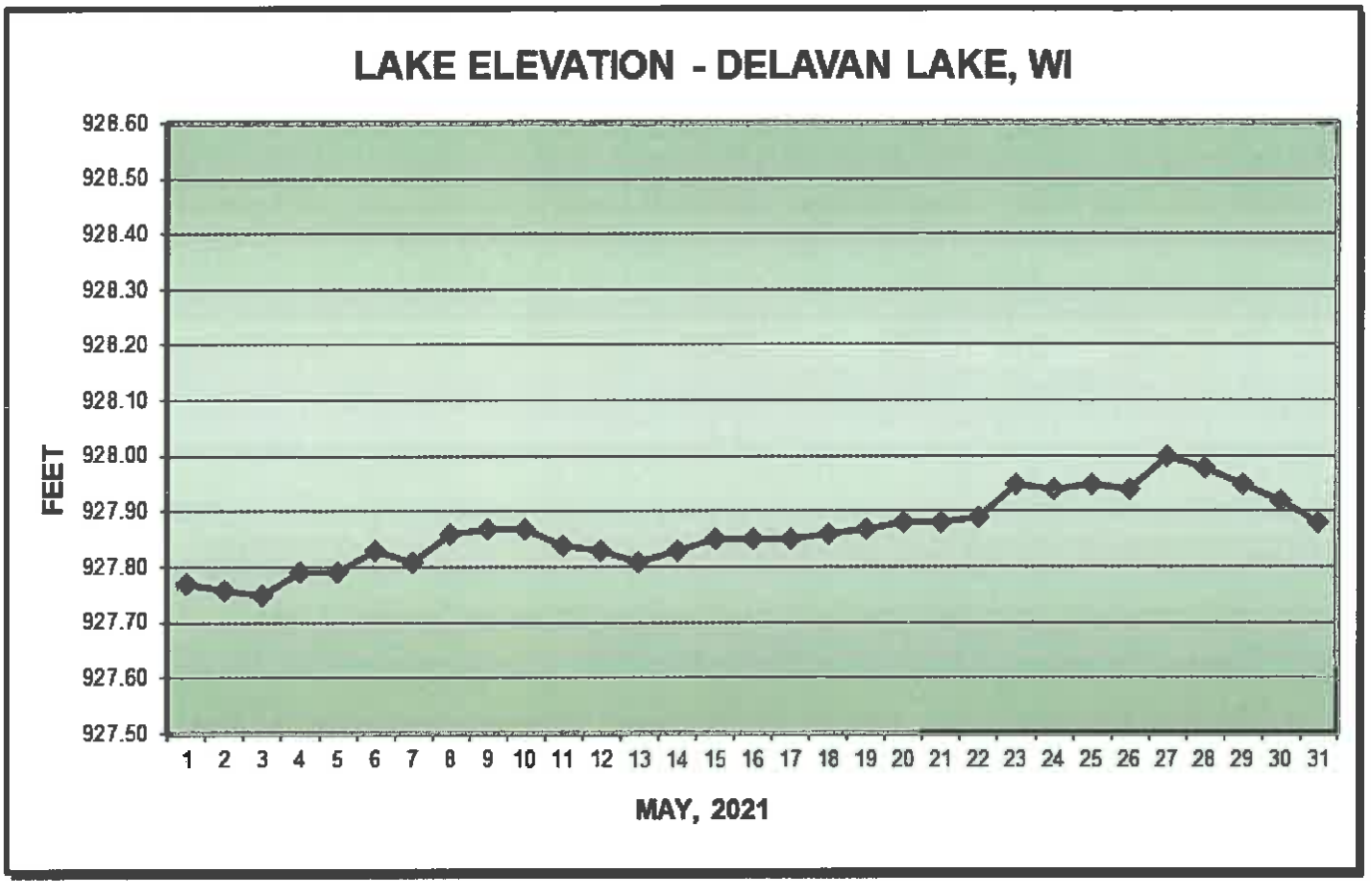
Grant application has been approved for barge rebuild and retro fitting for algae pick up, however during the week of May 25th, the DNR has put a hold on the program until PPE equipment specifically listed for Blue Green algae and approved disposal programs can be certified for use. See attachment regarding Surface Water Suctioning Pilot Program on Delavan Lake for more information.

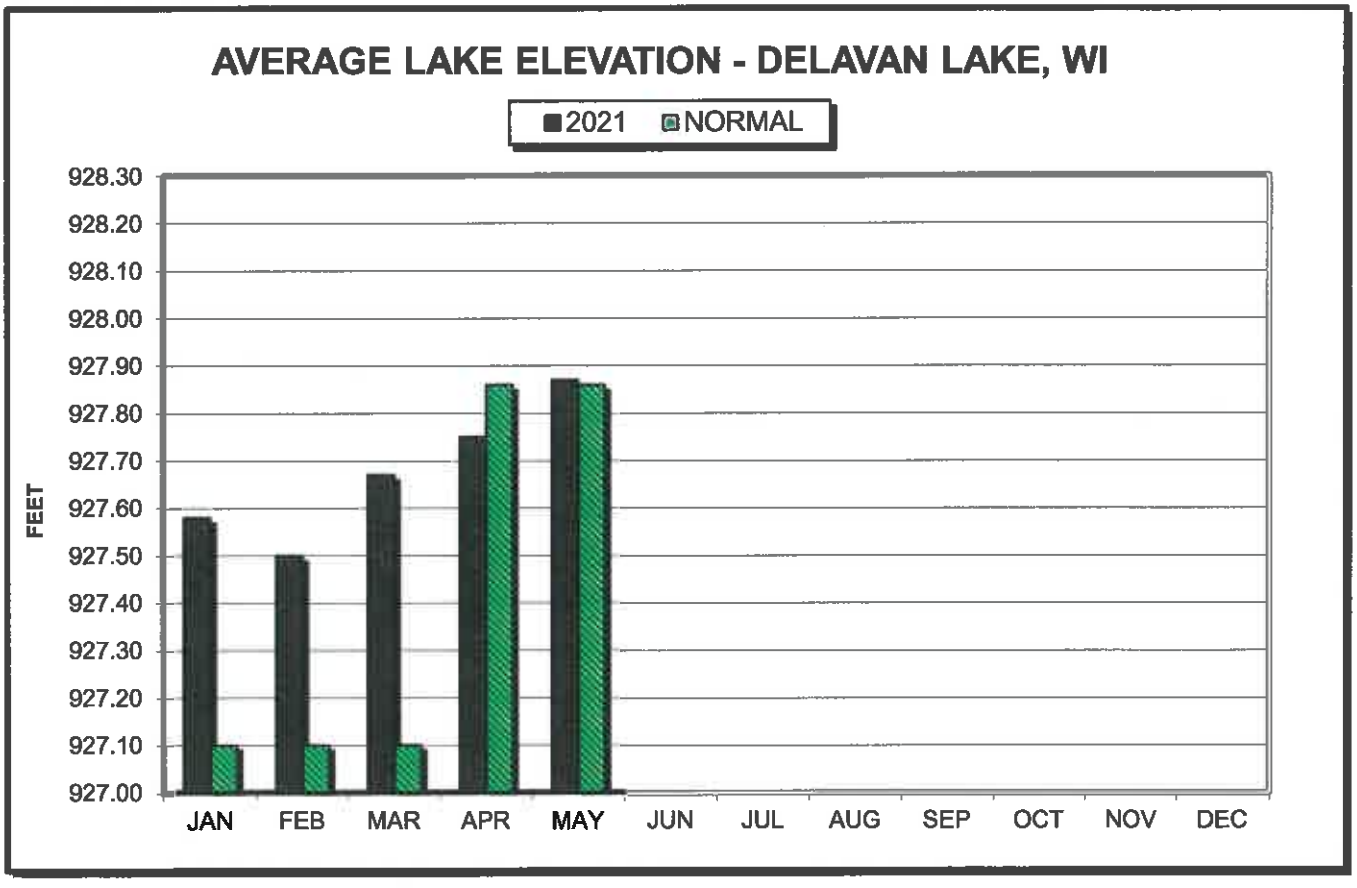
Regretfully one of our past commissioners is no longer with us. Edwin Brien served as a commissioner and President for the Delavan Lake Sanitary District for 23 years (1992 – 2015). He was closely involved with the Highland Channel dredging project as well as the overall Delavan Lake Rehabilitation Project. The commissioners and staff at Delavan Lake Sanitary District will always be grateful for Ed Brien's hard work and time devoted to the protection of DLSD and Delavan Lake.

Encl.: (3)


PRECIPITATION - DELAVAN LAKE, WI
INCHES
2.50
2.25
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
MAY, 2021


PRECIPITATION - DELAVAN LAKE, WI
INCHES
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
2021
"NORMAL"


LAKE ELEVATION - DELAVAN LAKE, WI
928.60
928.50
928.40
928.30
928.20
928.10
928.00
927.90
927.80
927.70
927.60
927.50
FEET
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
MAY, 2021


AVERAGE LAKE ELEVATION - DELAVAN LAKE, WI
2021
NORMAL
928.30
928.20
928.10
928.00
927.90
927.80
927.70
927.60
927.50
927.40
927.30
927.20
927.10
927.00
FEET
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

DATA SUMMARY
DELAVAN LAKE, WISCONSIN

Month	Ice On Date	Ice Off Date	Air Temperature			Precipitation		Lake Water Temp.	Average Lake Elevation	Secchi Disc		Cubic Yards Harvested	
			Max.	Min.	Mean	Month (In Inches)	Yr to Date (In Inches)			Average (In Feet)	Maximum (In Feet)	Month	YTD
2019													
JAN	1/11/19	1/8/19	50	-26	12	2.09	2.09	-	927.75	-	-	-	-
FEB			44	-4	20	3.35	5.44	-	927.72	-	-	-	-
MAR		3/27/19	62	-6	28	2.36	7.80	-	927.78	-	-	-	-
APR			79	19	49	2.01	9.81	42	927.86	11.0	11.5	-	-
MAY			80	34	57	7.29	17.10	59	927.82	23.8	26.0	112	112
JUN			92	46	69	5.05	22.15	69	927.85	15.3	20.0	695	807
JUL			92	54	73	3.68	25.83	78	927.85	9.0	12.5	1310	2117
AUG			87	51	69	4.89	30.72	78	927.86	7.3	8.5	1283	3400
SEP			85	48	67	9.26	39.98	71	927.98	5.8	8.0	359	3759
OCT			76	23	50	5.66	45.64	58	927.95	6.3	8.0	86	3845
NOV			53	5	24	1.62	47.26	-	927.63	-	-	-	-
DEC			55	6	25	2.35	49.61	-	927.58	-	-	-	-
2020													
JAN	1/17/20		48	1	24	2.26	2.26	-	927.52	-	-	-	-
FEB			46	-13	17	0.31	2.57	-	927.47	-	-	-	-
MAR		3/13/20	62	22	42	3.33	5.90	-	927.66	-	-	-	-
APR			78	23	51	3.85	9.75	48	927.72	10.0	12.0	-	-
MAY			88	28	58	3.60	13.35	67	927.88	16.4	25.0	202	202
JUN			93	47	70	3.63	16.98	75	927.85	8.2	17.0	1423	1625
JUL			94	57	76	3.97	20.95	79	927.87	9.6	13.0	1395	3020
AUG			88	38	50	5.38	26.33	75	927.90	7.9	9.8	714	3734
SEP			82	34	58	3.65	29.98	66	927.87	8.3	12.0	169	3903
OCT			82	26	56	2.90	32.88	62	927.85	6.3	7.0	-	-
NOV			75	22	53	1.92	34.80	47	927.77	14.7	17	-	-
DEC			56	5	31	1.91	36.71	-	927.74	-	-	-	-
2021													
JAN	1/21/21		38	-6	22	1.39	1.39	-	927.58	-	-	-	-
FEB			47	-15	16	1.45	2.84	-	927.50	-	-	-	-
MAR		3/18/21	65	9	37	1.54	4.38	-	927.67	-	-	-	-
APR			84	21	53	0.76	5.14	46	927.75	8.7	9	-	-
MAY			88	30	59	1.52	6.66	67	927.87	18.3	32.0	547	547
JUN													
JUL													
AUG													
SEP													
OCT													
NOV													
DEC													

Surface Water Suctioning Pilot Program on Delavan Lake

This pilot project is to suction floating filamentous algae, duckweed and watermeal from the surface of Delavan Lake at the Community Park Public Boat Launch and Public Beach in 2021.

Blue-green algae is also present in Delavan Lake, although it is unknown which type(s) of Blue-green algae is in the lake. Some, but not all, Blue-green algae produces toxins when it dies. A large die-off could occur from the surface suctioning process which would produce a large amount of toxin. Blue-green algae is not a target species for this project, but it will be mixed into some of the material that is suctioned off the surface of the lake. These toxins would likely become airborne in mist during the surface suctioning process.

Toxins that can be produced by Blue-green algae include neurotoxins, hepatotoxins, cytotoxins, or endotoxins, any of which can have extremely adverse effects on animals and humans.

Because some Blue-green algae would be present, it is necessary to protect workers that will be in the lake and close to the suctioned material during the suctioning process. Personal Protection Equipment (PPE) must include respirators with appropriate filters so that no person inhales the airborne particulates from the Blue-green algae. The selected PPE must be approved by OSHA, State, and County health officials.

On May 25, 2021 we were advised by Gina LaLiberte, Statewide Blue-green algae Coordinator for DNR, that to the best of her knowledge there is no data available regarding the efficacy of respirators to filter out blue-green algae droplets.

In addition, Gina stated that some of the toxins that can be produced persist in the soil and are taken up into the plant tissue of crops which would have a detrimental effect on consumers of the crops. This could also expose bugs and birds to the toxins. For that reason, our plan to dispose of the suctioned material on farm fields will not be possible. Gina did suggest a manure digester, but we are not sure if that has been tested.

Due to these safety issues, Heidi Bunk, DNR Lakes Biologist, has recommended that the Delavan Lake Sanitary District delay the implementation of the Pilot Surface Water Suctioning Project until we have the data needed to ensure the safety of our workers. Heidi recommended that we work with health officials on this issue such as the Walworth County Health Department or the State of Wisconsin Department of Health and Human Services.

** The good news is that the only expenses incurred to date is strictly staff time for writing the plan, permit, and grant. We should be able to cancel/put on hold the purchase of any equipment.

** Jane (Aquarius) has worldwide connections that she is contacting to see if any of them have done research on Blue-green algae and can provide data they have collected.

** Aquatic plant harvesting is a different process. While there could be Blue-green algae present on some of the aquatic plants that are harvested, the algae is not as concentrated as it would be during surface suctioning. Plus, the plants are conveyed onto the harvester where they lose a great deal of the lake water. In addition, workers sit high 5' above the conveyors placing them a good distance from plants and any Blue-green algae. For surface water suctioning workers would be in the water using the suctioning hose and once suctioned the material will be conveyed in a hose to storage tanks so no water would be lost.

** Heidi is willing to help design a study for the Delavan Lake Sanitary District to implement, if the District wishes. This study would look at numerous parts of the lake on a weekly basis to determine the type of blue-green algae present, density of the algae and the concentration of toxins present at the time samples are taken. This study would help give the District a better overall picture of blue-green algae species present in the lake, the range of blue-green algae density and the range of toxin concentrations released. This would be an expensive study and is not required.