

**DUCK LAKE
LAKE IMPROVEMENT BOARD
SPECIAL MEETING MINUTES**

November 28th, 2022

A Special Meeting of the Duck Lake, Lake Improvement Board was held at the Crystal Community Center, 217 West Park Street, Crystal, Michigan on the 28th day of November 2022.

PRESENT: Shirley Pyle, Member
Crystal Township Representative

David Wight, Secretary & Treasurer
Abutting Property Owners Representative

Chris Johnston, Vice Chairman (arrived late to meeting)
Montcalm County Board of Commissioners

Phillip Foster, Member
Crystal Township Representative

ABSENT: Todd Sattler,
Montcalm County Drain Commissioner

The meeting was called to order by Vice Chairman Chris Johnston at 7:00 PM.

2022 WATER QUALITY TEST RESULTS

David presented a summary of the Spring and Fall Water Quality testing. (see attachment 1)

2022 WEED SURVEY RESULTS

David presented the results of the Spring and Fall AVAS weed surveys, and noted several significant changes in the weed coverage that were affected by this summers herbicide treatments and weed harvesting efforts. (see attachments 2,3, and 4)

JANUARY MEETING PREPARATORY DISCUSSION

David noted that he is resigning his position on the board effective January 15th, or sooner should the board appoint a new Abutting Property Owner Representative.

To assist with the transition David discussed the actions that the board would need to take at the January 9th, 2023 DLIB meeting:

Appointment of Abutting Property Owner Representative

- 1) Current Board member is resigning his position effective January 15th or sooner if another member is appointed.**
- 2) New member must own property that abuts the lake shore.**

Election of Officers

- 1) Four (4) Positions will need to be appointed.**
- 2) Chairman:**
- 3) Vice Chairman**
- 4) Secretary**
- 5) Treasurer**

Set Meeting Dates for 2023

- 1) First Monday after the first Tuesday of January, April, July, October.**
- 2) April 10th, July 10th, October 9th, and January 8, 2024.**

Authorize the signing of Contracts for: (see budget)

- 1) Herbicide Treatment of Weeds in Duck Lake**
- 2) Water Quality Testing**
- 3) Weed Harvesting**

Authorize Payment for EGLE Permit Application:

- 1) Check made out to the State Of Michigan**
- 2) Mailed to Contractor for Herbicide Treatment.**

PUBLIC COMMENT

The public was given an opportunity to address the board.

ADJOURN

Shirley motioned to adjourn the meeting. David seconded the motion; all voted aye.
Meeting adjourned at 7:42 PM.

State of Michigan)
) ss:
County of Montcalm)

I hereby certify that the foregoing is a true and complete copy of the minutes of a meeting of the Duck Lake Improvement Board, Montcalm County, Michigan held on November 28th 2022 and that said minutes are on file at the Crystal Township Office and are available to the public.

I further certify that notice of the meeting was posted at least 18 hours before the meeting at the Crystal Township Office, which is the principal office of the Duck Lake, Lake Improvement Board.

David Wight, Secretary/Treasurer
Dated: November 29th, 2022



ATTACHMENT 1**Water Quality Test Results for 2022**

Dissolved Oxygen	Spring			Fall		
	4/13/2022		9/23/2022			
Depth (m)	Temp	mg/L	%	Temp	mg/L	%
0	52.7	10.9	100	65.84	8.4	90
1	51.8	11	101	65.3	9	96
2	51.98	11.2	102	64.76	9.5	101

Healthy water should generally have dissolved oxygen concentrations above 6.5-8 mg/L and dissolved oxygen saturation between about 80-120%

Analytical Results

Conductivity	315	uS/cm		326	
Total Dissolved Solids	257	mg/L		251	Moderate Concentration of Dissolved Salts
PH	8.4	S.U.		8.4	Slightly Alkaline
Alkalinity	181	mg CaCO ₃ /L	Water is very hard	178	Water is hard
Total Phosphorus	16	ug/L	Moderately Enriched	8	Not Enriched
Nitrates	610	ug/L	Moderately Enriched	100	Not Enriched

Inlet Samples

Total Phosphorus	9	ug/L	Not Enriched	10	Slightly Enriched
Nitrates	2500	ug/L	Highly Enriched	425	Slightly Enriched

Standard Aquatic Vegetation Summary Sheet

		Total number of AVAS's for each Density Category				Calculations				Sum of Columns 5-8	Total No. of AVAS	Col 9 divided by Col 10
Code	No	A	B	C	D	A x 1	B x 10	C x 40	D x 80	9	10	11
	Plant Name	1	2	3	4	5	6	7	8			
1	Eurasian watermilfoil	14	26	17	4	14	260	680	320	1274	70	18.20
2	Curly leaf pondweed	18	7	0	0	18	70	0	0	88	70	1.26
3	Chara	18	11	32	0	18	110	1280	0	1408	70	20.11
4	Thinleaf pondweed	15	3	0	0	15	30	0	0	45	70	0.64
5	Flatstem pondweed	0	0	0	0	0	0	0	0			
6	Robbins pondweed	10	14	2	0	10	140	80	0	230	70	3.29
7	Variable pondweed	18	28	0	0	18	280	0	0	298	70	4.26
8	White stem pondweed	9	7	0	0	9	70	0	0	79	70	1.13
9	Richardsons pondweed	0	0	0	0	0	0	0	0			
10	Illinois pondweed	3	34	6	0	3	340	240	0	583	70	8.33
11	Large leaf pondweed	2	4	0	0	2	40	0	0	42	70	0.60
12	American pondweed	0	0	0	0	0	0	0	0			
13	Floating leaf pondweed	2	0	0	0	2	0	0	0	2	70	0.03
14	Water stargrass	0	0	0	0	0	0	0	0			
15	Wild celery	0	0	0	0	0	0	0	0			
16	Sagittaria (submersed)	0	0	0	0	0	0	0	0			
17	Northern watermilfoil	0	0	0	0	0	0	0	0			
18	Rush	0	0	0	0	0	0	0	0			
19	Variable leaf watermilfoil	0	0	0	0	0	0	0	0			
20	Coontail	0	0	0	0	0	0	0	0			
21	Elodea	0	0	0	0	0	0	0	0			
22	Bladderwort	4	0	0	0	4	0	0	0	4	70	0.06
23	Mini Bladderwort	0	0	0	0	0	0	0	0			
24	Buttercup	0	0	0	0	0	0	0	0			
25	Naiad	4	3	0	0	4	30	0	0	34	70	0.49
26	Brittle naiad	0	0	0	0	0	0	0	0			
27	Sago Pondweed	11	21	9	4	11	210	360	320	901	70	12.87
28	Starry Stonewort	9	8	2	5	9	80	80	400	569	70	8.13
29	Cabomba	0	0	0	0	0	0	0	0			
30	Water Lily	12	18	4	0	12	180	160	0	352	70	5.03
31	Spatterdock	8	21	1	0	8	210	40	0	258	70	3.69
32	Water shield	8	17	2	1	8	170	80	80	338	70	4.83
33	Common Duckweed	0	0	0	0	0	0	0	0			
34	Greater duckweed	0	0	0	0	0	0	0	0			
35	Watermeal	0	0	0	0	0	0	0	0			
36	Arrowhead	0	0	0	0	0	0	0	0			
37	Pickerelweed	0	0	0	0	0	0	0	0			
38	Arrow arum	0	0	0	0	0	0	0	0			
39	Cattail	2	3	9	18	2	30	360	1440	1832	70	26.17
40	Bulrush	5	15	1	0	5	150	40	0	195	70	2.79
41	Iris	0	0	0	0	0	0	0	0			
42	Swamp loosestrife	5	2	2	0	5	20	80	0	105	70	1.50
43	Purple loosestrife	0	0	0	0	0	0	0	0			
44	Phragmites	0	0	0	0	0	0	0	0			
45	Frogbit	0	0	0	0	0	0	0	0			
46	Slender spikerush	0	0	0	0	0	0	0	0			
47	Smartweed	0	0	0	0	0	0	0	0			
48	Water marigold	0	0	0	0	0	0	0	0			
49	American lotus	0	0	0	0	0	0	0	0			
50		0	0	0	0		0	0	0			

Total cumulative cover

123.39

Standard Aquatic Vegetation Summary Sheet

		Total number of AVAS's for each Density Category				Calculations				Sum of Columns 5-8	Total AVAS	Col 9 divided by Col 10
Code No	Plant Name	A 1	B 2	C 3	D 4	A x 1	B x 10	C x 40	D x 80			
1	Eurasian watermilfoil	21	11	4	0	21	110	160	0	291	70	4.16
2	Curly leaf pondweed	0	0	0	0	0	0	0	0			
3	Chara	17	26	0	3	17	260	0	240	517	70	7.39
4	Thinleaf pondweed	9	2	0	0	9	20	0	0	29	70	0.41
5	Flatstem pondweed	0	0	0	0	0	0	0	0			
6	Robbins pondweed	3	12	0	0	3	120	0	0	123	70	1.76
7	Variable pondweed	13	26	4	0	13	260	160	0	433	70	6.19
8	White stem pondweed	0	0	0	0	0	0	0	0			
9	Richardsons pondweed	0	0	0	0	0	0	0	0			
10	Illinois pondweed	11	6	0	0	11	60	0	0	71	70	1.01
11	Large leaf pondweed	10	0	0	0	10	0	0	0	10	70	0.14
12	American pondweed	0	0	0	0	0	0	0	0			
13	Floating leaf pondweed	3	2	0	0	3	20	0	0	23	70	0.33
14	Water stargrass	0	0	0	0	0	0	0	0			
15	Wild celery	8	14	1	0	8	140	40	0	188	70	2.69
16	Sagittaria (submersed)	0	0	0	0	0	0	0	0			
17	Northern watermilfoil	0	0	0	0	0	0	0	0			
18	Rush	0	0	0	0	0	0	0	0			
19	Variable leaf watermilfoil	0	0	0	0	0	0	0	0			
20	Coontail	0	0	0	0	0	0	0	0			
21	Elodea	0	0	0	0	0	0	0	0			
22	Bladderwort	12	22	0	0	12	220	0	0	232	70	3.31
23	Mini Bladderwort	0	0	0	0	0	0	0	0			
24	Buttercup	0	0	0	0	0	0	0	0			
25	Naiad	20	14	0	0	20	140	0	0	160	70	2.29
26	Brittle naiad	0	0	0	0	0	0	0	0			
27	Sago Pondweed	5	16	0	0	5	160	0	0	165	70	2.36
28	Cabomba	0	0	0	0	0	0	0	0			
29	Starry Stonewort	15	10	3	4	15	100	120	320	555	70	7.93
30	Water Lily	7	25	9	4	7	250	360	320	937	70	13.39
31	Spatterdock	3	6	0	0	3	60	0	0	63	70	0.90
32	Water shield	7	8	5	1	7	80	200	80	367	70	5.24
33	Common Duckweed	0	2	0	0	0	20	0	0	20	70	0.29
34	Greater duckweed	0	0	0	0	0	0	0	0			
35	Watermeal	0	0	0	0	0	0	0	0			
36	Arrowhead	0	0	0	0	0	0	0	0			
37	Pickeralweed	5	10	0	0	5	100	0	0	105	70	1.50
38	Arrow arum	0	0	0	0	0	0	0	0			
39	Cattail	2	4	10	13	2	40	400	1040	1482	70	21.17
40	Bulrush	9	6	0	0	9	60	0	0	69	70	0.99
41	Iris	2	0	0	0	2	0	0	0	2	70	0.03
42	Swamp loosestrife	4	8	7	2	4	80	280	160	524	70	7.49
43	Purple loosestrife	3	0	0	1	3	0	0	80	83	70	1.19
44	Phragmites	0	0	0	0	0	0	0	0			
45	Frogbit	0	0	0	0	0	0	0	0			
46	Slender spikerush	0	0	0	0	0	0	0	0			
47	Smartweed	0	0	0	0	0	0	0	0			
48	Water marigold	0	0	0	0	0	0	0	0			
49	American lotus	0	0	0	0	0	0	0	0			
50		0	0	0	0		0	0	0			

Total cumulative cover

92.13

ATTACHMENT 4

SIGNIFICANT CHANGES

	Spring	Fall	Delta
Eurasian Watermilfoil	18.2	4.1	-14.1
Chara	20.1	7.4	-12.7
Robins Pondweed	3.3	1.8	-1.5
Illinois Pondweed	8.3	1.0	-7.3
Sago Pondweed	12.8	2.4	-10.5
Starry Stonewort	8.1	7.9	-0.2
Water Lily	5.0	13.4	8.4
Swamp Loosestrife	1.5	7.5	6.0