

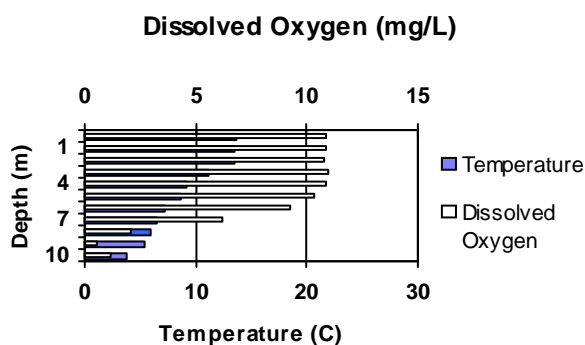
# LAKE CHECK Water Quality Monitoring Report

2019036

Customer	Waterbody	Sample Information
Woodbeck Chain of Lakes	Banks Lake	Date: 4/25/2019
		Site: Deep Hole

## On-Site Results

Depth (m)	Temperature (degrees C)	Dissolved Oxygen (mg/L)	
		mg/L	%
0	13.6	10.9	105
1	13.5	10.9	105
2	13.4	10.8	103
3	11.1	10.9	99
4	9.2	10.9	95
5	8.6	10.3	87
6	7.2	9.2	77
7	6.5	6.2	54
8	6.0	2.1	19
9	5.4	0.5	5
10	3.8	1.2	0



Secchi Disk Depth 5.3 meters

Thermocline Depth 3.0 meters

## Analytical Results

Parameter	Result	Units	Interpretation
Fecal Bacteria (E. coli)		CFU/100 mL	N/A
Conductivity	367	uS/cm	
Total Dissolved Solids	239	mg/L	Moderate concentration of dissolved salts
pH	8.1	S.U.	Water is slightly alkaline
Alkalinity	124	mg CaCO3/L	Water is hard
Total Phosphorus	16	ug/L	Moderately phosphorus enriched
Nitrates	200	ug/L	Not nitrogen enriched
Chlorophyll	N/A		

## Trophic State Evaluation

	TSI	Trophic Status
Based on Secchi Disk Depth	36	meso-oligotrophic
Based on Total Phosphorus	40	mesotrophic
Based on Chlorophyll	N/A	

---

## Conclusions

- Conditions are good for fish growth.
- Minimum dissolved oxygen is nearly low enough to adversely affect sensitive fish.
- Bottom water is deoxygenated, preventing fish from living in cooler water at bottom of lake.
- pH is within acceptable limits.
- Sample is somewhat phosphorus enriched. Create natural buffer between lawn & lakeshore.
- Repeat LakeCheck in Fall.

- 
- WARNING, condition requires immediate attention.
  - CAUTION, condition requires further evaluation.
  - OK, condition within acceptable limits.
  - NEUTRAL, condition neither good nor bad.

## Notes

Report describes conditions at the time the sample was collected.

Approved by

*Jaimee Conroy*

Date 11/21/2019

Mrs. Jaimee Conroy, Technical Services Manager

FROM YOUR **WQ  
PRO** DEALER



PLM Lake & Land Management Corp  
P.O. Box 132  
Caledonia MI 49316-  
Phone: (616) 891-1294

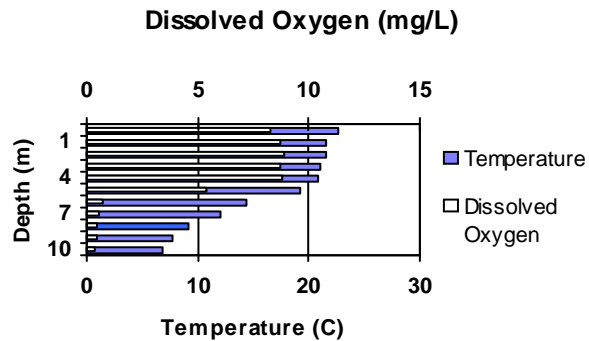
# LAKE CHECK Water Quality Monitoring Report

2019037

Customer	Waterbody	Sample Information
Woodbeck Chain of Lakes	Banks Lake	Date: 9/5/2019
		Site: Deep Hole

## On-Site Results

Depth (m)	Temperature (degrees C)	Dissolved Oxygen (mg/L)	
		mg/L	%
0	22.6	8.3	83
1	21.6	8.7	87
2	21.5	8.9	88
3	21.1	8.7	86
4	20.8	8.8	86
5	19.2	5.4	58
6	14.3	0.7	7
7	12.0	0.5	5
8	9.2	0.5	4
9	7.7	0.4	4
10	6.9	0.4	3



Secchi Disk Depth 3.0 meters  
 Thermocline Depth 5.5 meters

## Analytical Results

Parameter	Result	Units	Interpretation
Fecal Bacteria (E. coli)		CFU/100 mL	N/A
Conductivity	388	uS/cm	
Total Dissolved Solids	252	mg/L	Moderate concentration of dissolved salts
pH	8.5	S.U.	Water is slightly alkaline
Alkalinity	169	mg CaCO3/L	Water is hard
Total Phosphorus	29	ug/L	Moderately phosphorus enriched
Nitrates	200	ug/L	Not nitrogen enriched
Chlorophyll	N/A		

## Trophic State Evaluation

	TSI	Trophic Status
Based on Secchi Disk Depth	44	mesotrophic
Based on Total Phosphorus	48	moderately eutrophic
Based on Chlorophyll	N/A	

---

## Conclusions

- Conditions for fish growth are FAIR. (see cautions/warnings below)
- Minimum dissolved oxygen is nearly low enough to adversely affect sensitive fish.
- Bottom water is deoxygenated, preventing fish from living in cooler water at bottom of lake.
- pH is within acceptable limits.
- Sample is somewhat phosphorus enriched. Create natural buffer between lawn & lakeshore.
- Sample is somewhat phosphorus enriched. Create natural buffer between lawn & lakeshore.
- Deep water sample indicates possible internal loading of nutrients.
- REPEAT LakeCheck NEXT YEAR!

- 
- WARNING, condition requires immediate attention.
  - CAUTION, condition requires further evaluation.
  - OK, condition within acceptable limits.
  - NEUTRAL, condition neither good nor bad.

## Notes

Report describes conditions at the time the sample was collected.

Approved by

*Jaimee Conroy*

Date 11/21/2019

Mrs. Jaimee Conroy, Technical Services Manager

FROM YOUR **WQ PRO** DEALER



PLM Lake & Land Management Corp  
P.O. Box 132  
Caledonia MI 49316-  
Phone: (616) 891-1294

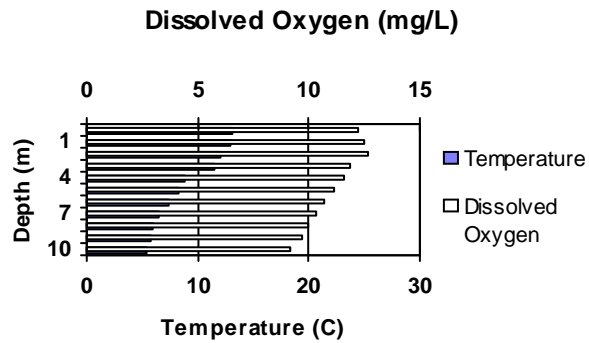


# Water Quality Monitoring Report

Customer	Waterbody	Sample Information
Woodbeck Chain of Lakes	Halfmile Lake	Date: 4/25/2019
		Site: Deep Hole

## On-Site Results

Depth (m)	Temperature (degrees C)	Dissolved Oxygen (mg/L)	
		mg/L	%
0	13.2	12.3	117
1	12.9	12.5	118
2	12.1	12.6	118
3	11.5	11.9	109
4	8.8	11.6	100
5	8.2	11.1	94
6	7.4	10.7	89
7	6.4	10.4	84
8	5.9	10.0	80
9	5.7	9.7	78
10	5.4	9.1	73



Secchi Disk Depth 1.9 meters  
 Thermocline Depth meters

## Analytical Results

Parameter	Result	Units	Interpretation
Fecal Bacteria (E. coli)		CFU/100 mL	N/A
Conductivity	366	uS/cm	
Total Dissolved Solids	238	mg/L	Moderate concentration of dissolved salts
pH	8.4	S.U.	Water is slightly alkaline
Alkalinity	135	mg CaCO3/L	Water is hard
Total Phosphorus	19	ug/L	Moderately phosphorus enriched
Nitrates	580	ug/L	Moderately nitrogen enriched
Chlorophyll	N/A		

## Trophic State Evaluation

	TSI	Trophic Status
Based on Secchi Disk Depth	51	moderately eutrophic
Based on Total Phosphorus	42	mesotrophic
Based on Chlorophyll	N/A	

---

## Conclusions

- Conditions are good for fish growth.
- Minimum dissolved oxygen is adequate for good fish production.
- pH is within acceptable limits.
- Sample is somewhat nutrient (N and P) enriched. Adopt appropriate lakeshore landscaping and lawn care practices.
- Repeat LakeCheck in Fall.

- 
- WARNING, condition requires immediate attention.
  - CAUTION, condition requires further evaluation.
  - OK, condition within acceptable limits.
  - NEUTRAL, condition neither good nor bad.

## Notes

Report describes conditions at the time the sample was collected.

Approved by

*Jaimee Conroy*

Date 11/21/2019

Mrs. Jaimee Conroy, Technical Services Manager

FROM YOUR **WO  
PRO** DEALER



PLM Lake & Land Management Corp  
P.O. Box 132  
Caledonia MI 49316-  
Phone: (616) 891-1294

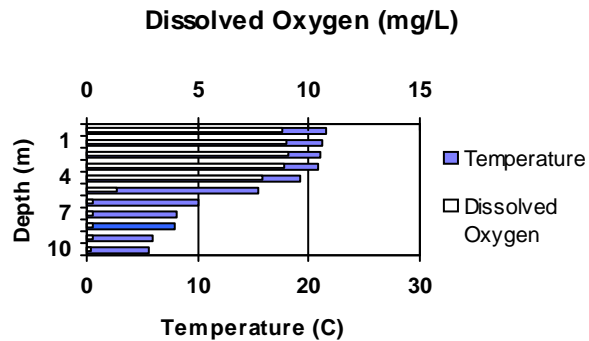
# LAKE CHECK Water Quality Monitoring Report

2019071

Customer	Waterbody	Sample Information
Woodbeck Chain of Lakes	Halfmile Lake	Date: 9/5/2019
		Site: Deep Hole

## On-Site Results

Depth (m)	Temperature (degrees C)	Dissolved Oxygen (mg/L)	
		mg/L	%
0	21.6	8.8	89
1	21.2	8.9	89
2	21.0	9.1	91
3	20.8	8.9	88
4	19.3	7.9	77
5	15.5	1.3	14
6	10.1	0.3	2
7	8.0	0.3	2
8	7.9	0.3	2
9	6.0	0.3	3
10	5.5	0.2	3



Secchi Disk Depth 2.5 meters

Thermocline Depth 4.5 meters

## Analytical Results

Parameter	Result	Units	Interpretation
Fecal Bacteria (E. coli)		CFU/100 mL	N/A
Conductivity	386	uS/cm	
Total Dissolved Solids	251	mg/L	Moderate concentration of dissolved salts
pH	8.6	S.U.	Water is slightly alkaline
Alkalinity	162	mg CaCO3/L	Water is hard
Total Phosphorus	24	ug/L	Moderately phosphorus enriched
Nitrates	630	ug/L	Moderately nitrogen enriched
Chlorophyll	N/A		

## Trophic State Evaluation

	TSI	Trophic Status
Based on Secchi Disk Depth	47	mesotrophic
Based on Total Phosphorus	46	mesotrophic
Based on Chlorophyll	N/A	

---

## Conclusions

- Conditions for fish growth are FAIR. (see cautions/warnings below)
- Minimum dissolved oxygen is nearly low enough to adversely affect sensitive fish.
- Bottom water is deoxygenated, preventing fish from living in cooler water at bottom of lake.
- pH is within acceptable limits.
- Sample is somewhat nutrient (N and P) enriched. Adopt appropriate lakeshore landscaping and lawn care practices.
- REPEAT LakeCheck NEXT YEAR!

- 
- WARNING, condition requires immediate attention.
  - CAUTION, condition requires further evaluation.
  - OK, condition within acceptable limits.
  - NEUTRAL, condition neither good nor bad.

## Notes

Report describes conditions at the time the sample was collected.

Approved by

*Jaimee Conroy*

Date 11/21/2019

Mrs. Jaimee Conroy, Technical Services Manager

FROM YOUR **WQ  
PRO** DEALER



PLM Lake & Land Management Corp  
P.O. Box 132  
Caledonia MI 49316-  
Phone: (616) 891-1294





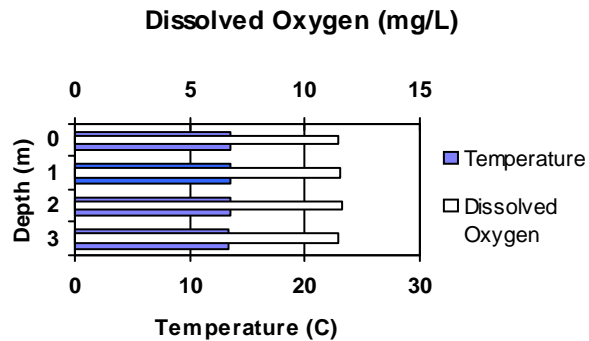
# Water Quality Monitoring Report

2019072

Customer	Waterbody	Sample Information
Woodbeck Chain of Lakes	Horseshoe Lake	Date: 4/25/2019
		Site: Deep Hole

## On-Site Results

Depth (m)	Temperature (degrees C)	Dissolved Oxygen	
		mg/L	%
0	13.6	11.5	110
1	13.6	11.5	111
2	13.5	11.6	111
3	13.3	11.4	111



Secchi Disk Depth	3.0 meters
Thermocline Depth	meters

## Analytical Results

Parameter	Result	Units	Interpretation
Fecal Bacteria (E. coli)		CFU/100 mL	N/A
Conductivity	286	uS/cm	
Total Dissolved Solids	186	mg/L	Low concentration of dissolved salts
pH	8.3	S.U.	Water is slightly alkaline
Alkalinity	112	mg CaCO3/L	Water is soft
Total Phosphorus	7	ug/L	Slightly phosphorus enriched
Nitrates	200	ug/L	Not nitrogen enriched
Chlorophyll	N/A		

## Trophic State Evaluation

	TSI	Trophic Status
Based on Secchi Disk Depth	44	mesotrophic
Based on Total Phosphorus	28	oligotrophic
Based on Chlorophyll	N/A	

---

## Conclusions

- Conditions are good for fish growth.
- Minimum dissolved oxygen is adequate for good fish production.
- pH is within acceptable limits.
- Phosphorus and Nitrogen are within acceptable limits.
- Repeat LakeCheck in Fall.

- 
- WARNING, condition requires immediate attention.
  - CAUTION, condition requires further evaluation.
  - OK, condition within acceptable limits.
  - NEUTRAL, condition neither good nor bad.

## Notes

Report describes conditions at the time the sample was collected.

Approved by

*Jaimee Conroy*

Date 11/21/2019

Mrs. Jaimee Conroy, Technical Services Manager

FROM YOUR **WO PRO** DEALER



PLM Lake & Land Management Corp  
P.O. Box 132  
Caledonia MI 49316-  
Phone: (616) 891-1294

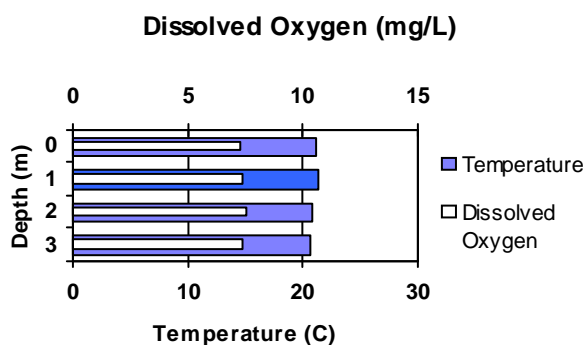
# LAKE CHECK Water Quality Monitoring Report

2019073

Customer	Waterbody	Sample Information
Woodbeck Chain of Lakes	Horseshoe Lake	Date: 9/5/2019
		Site: Deep Hole

## On-Site Results

Depth (m)	Temperature (degrees C)	Dissolved Oxygen	
		mg/L	%
0	21.1	7.3	72
1	21.4	7.4	71
2	20.8	7.6	74
3	20.6	7.3	73



Secchi Disk Depth	3.0 meters
Thermocline Depth	meters

## Analytical Results

Parameter	Result	Units	Interpretation
Fecal Bacteria (E. coli)		CFU/100 mL	N/A
Conductivity	286	uS/cm	
Total Dissolved Solids	186	mg/L	Low concentration of dissolved salts
pH	8.4	S.U.	Water is slightly alkaline
Alkalinity	109	mg CaCO3/L	Water is soft
Total Phosphorus	27	ug/L	Moderately phosphorus enriched
Nitrates	200	ug/L	Not nitrogen enriched
Chlorophyll	N/A		

## Trophic State Evaluation

	TSI	Trophic Status
Based on Secchi Disk Depth	44	mesotrophic
Based on Total Phosphorus	47	mesotrophic
Based on Chlorophyll	N/A	

---

## Conclusions

- Conditions are good for fish growth.
- Minimum dissolved oxygen is adequate for good fish production.
- pH is within acceptable limits.
- Sample is somewhat phosphorus enriched. Create natural buffer between lawn & lakeshore.
- REPEAT LakeCheck NEXT YEAR!

- 
- WARNING, condition requires immediate attention.
  - CAUTION, condition requires further evaluation.
  - OK, condition within acceptable limits.
  - NEUTRAL, condition neither good nor bad.

## Notes

Report describes conditions at the time the sample was collected.

Approved by

*Jaimee Conroy*

Date 11/21/2019

Mrs. Jaimee Conroy, Technical Services Manager

FROM YOUR **WO  
PRO** DEALER



PLM Lake & Land Management Corp  
P.O. Box 132  
Caledonia MI 49316-  
Phone: (616) 891-1294

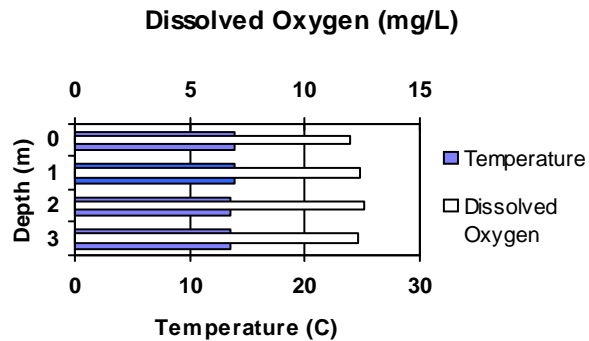


# Water Quality Monitoring Report

Customer	Waterbody	Sample Information
Woodbeck Chain of Lakes	Thomas Lake	Date: 4/25/2019
		Site: Deep Hole

## On-Site Results

Depth (m)	Temperature (degrees C)	Dissolved Oxygen	
		mg/L	%
0	13.9	12.0	116
1	13.8	12.4	120
2	13.6	12.6	120
3	13.5	12.3	118



Secchi Disk Depth 2.3 meters  
 Thermocline Depth meters

## Analytical Results

Parameter	Result	Units	Interpretation
Fecal Bacteria (E. coli)		CFU/100 mL	N/A
Conductivity	357	uS/cm	
Total Dissolved Solids	232	mg/L	Moderate concentration of dissolved salts
pH	8.5	S.U.	Water is slightly alkaline
Alkalinity	119	mg CaCO3/L	Water is soft
Total Phosphorus	12	ug/L	Moderately phosphorus enriched
Nitrates	200	ug/L	Not nitrogen enriched
Chlorophyll	N/A		

## Trophic State Evaluation

	TSI	Trophic Status
Based on Secchi Disk Depth	48	moderately eutrophic
Based on Total Phosphorus	36	meso-oligotrophic
Based on Chlorophyll	N/A	

---

## Conclusions

- Conditions are good for fish growth.
- Minimum dissolved oxygen is adequate for good fish production.
- pH is within acceptable limits.
- Sample is somewhat phosphorus enriched. Create natural buffer between lawn & lakeshore.
- Repeat LakeCheck in Fall.

- 
- WARNING, condition requires immediate attention.
  - CAUTION, condition requires further evaluation.
  - OK, condition within acceptable limits.
  - NEUTRAL, condition neither good nor bad.

## Notes

Report describes conditions at the time the sample was collected.

Approved by

*Jaimee Conroy*

Date 11/21/2019

Mrs. Jaimee Conroy, Technical Services Manager

FROM YOUR **WO  
PRO** DEALER



PLM Lake & Land Management Corp  
P.O. Box 132  
Caledonia MI 49316-  
Phone: (616) 891-1294

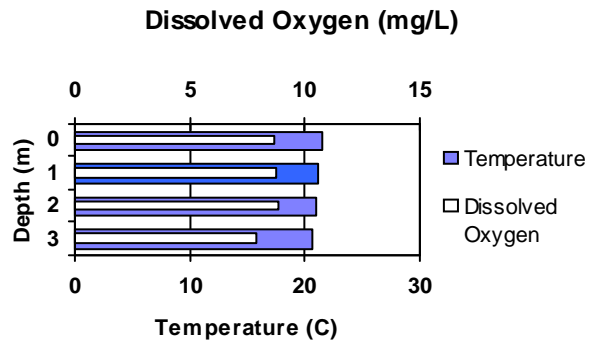


# Water Quality Monitoring Report

Customer	Waterbody	Sample Information
Woodbeck Chain of Lakes	Thomas Lake	Date: 9/5/2019
		Site: Deep Hole

## On-Site Results

Depth (m)	Temperature (degrees C)	Dissolved Oxygen (mg/L)	
		mg/L	%
0	21.5	8.7	86
1	21.1	8.8	86
2	20.9	8.9	87
3	20.6	7.9	77



Secchi Disk Depth 2.3 meters  
 Thermocline Depth meters

## Analytical Results

Parameter	Result	Units	Interpretation
Fecal Bacteria (E. coli)		CFU/100 mL	N/A
Conductivity	383	uS/cm	
Total Dissolved Solids	249	mg/L	Moderate concentration of dissolved salts
pH	8.4	S.U.	Water is slightly alkaline
Alkalinity	155	mg CaCO3/L	Water is hard
Total Phosphorus	27	ug/L	Moderately phosphorus enriched
Nitrates	260	ug/L	Slightly nitrogen enriched
Chlorophyll	N/A		

## Trophic State Evaluation

	TSI	Trophic Status
Based on Secchi Disk Depth	48	moderately eutrophic
Based on Total Phosphorus	47	mesotrophic
Based on Chlorophyll	N/A	

---

## Conclusions

- Conditions are good for fish growth.
- Minimum dissolved oxygen is adequate for good fish production.
- pH is within acceptable limits.
- Sample is somewhat phosphorus enriched. Create natural buffer between lawn & lakeshore.
- Deep water sample indicates possible internal loading of nutrients.
- REPEAT LakeCheck NEXT YEAR!

- 
- WARNING, condition requires immediate attention.
  - CAUTION, condition requires further evaluation.
  - OK, condition within acceptable limits.
  - NEUTRAL, condition neither good nor bad.

## Notes

Report describes conditions at the time the sample was collected.

Approved by

*Jaimee Conroy*

Date 11/21/2019

Mrs. Jaimee Conroy, Technical Services Manager

FROM YOUR **WQ PRO** DEALER



PLM Lake & Land Management Corp  
P.O. Box 132  
Caledonia MI 49316-  
Phone: (616) 891-1294



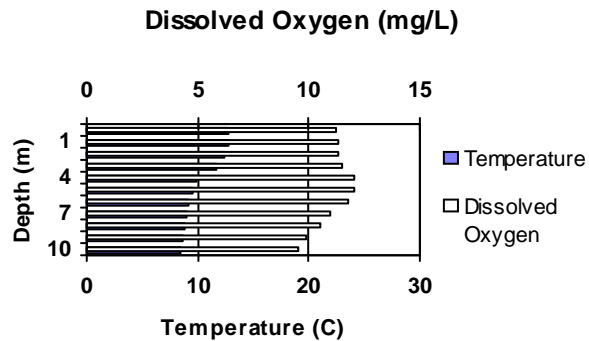


# Water Quality Monitoring Report

Customer	Waterbody	Sample Information
Woodbeck Chain of Lakes	Woodbeck Lake	Date: 4/25/2019
		Site: Deep Hole

## On-Site Results

Depth (m)	Temperature (degrees C)	Dissolved Oxygen	
		mg/L	%
0	12.7	11.2	106
1	12.7	11.3	107
2	12.4	11.4	106
3	11.7	11.5	106
4	9.9	12.0	106
5	9.5	12.0	105
6	9.2	11.8	102
7	8.9	11.0	95
8	8.8	10.5	90
9	8.6	9.9	85
10	8.5	9.5	82



Secchi Disk Depth 5.5 meters  
 Thermocline Depth 3.5 meters

## Analytical Results

Parameter	Result	Units	Interpretation
Fecal Bacteria (E. coli)		CFU/100 mL	N/A
Conductivity	299	uS/cm	
Total Dissolved Solids	195	mg/L	Low concentration of dissolved salts
pH	8.3	S.U.	Water is slightly alkaline
Alkalinity	117	mg CaCO3/L	Water is soft
Total Phosphorus	7	ug/L	Slightly phosphorus enriched
Nitrates	200	ug/L	Not nitrogen enriched
Chlorophyll	N/A		

## Trophic State Evaluation

	TSI	Trophic Status
Based on Secchi Disk Depth	35	meso-oligotrophic
Based on Total Phosphorus	28	oligotrophic
Based on Chlorophyll	N/A	

---

## Conclusions

- Conditions are good for fish growth.
- Minimum dissolved oxygen is adequate for good fish production.
- pH is within acceptable limits.
- Phosphorus and Nitrogen are within acceptable limits.
- Repeat LakeCheck in Fall.

- 
- WARNING, condition requires immediate attention.
  - CAUTION, condition requires further evaluation.
  - OK, condition within acceptable limits.
  - NEUTRAL, condition neither good nor bad.

## Notes

Report describes conditions at the time the sample was collected.

Approved by

*Jaimee Conroy*

Date 11/21/2019

Mrs. Jaimee Conroy, Technical Services Manager

FROM YOUR **WO PRO** DEALER



PLM Lake & Land Management Corp  
P.O. Box 132  
Caledonia MI 49316-  
Phone: (616) 891-1294

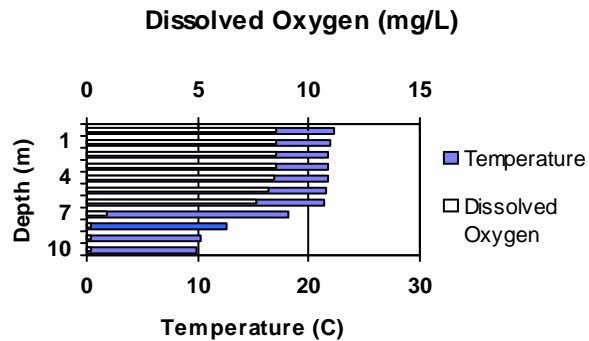


# Water Quality Monitoring Report

Customer	Waterbody	Sample Information
Woodbeck Chain of Lakes	Woodbeck Lake	Date: 9/5/2019
		Site: Deep Hole

## On-Site Results

Depth (m)	Temperature (degrees C)	Dissolved Oxygen (mg/L)	
		mg/L	%
0	22.3	8.6	85
1	22.0	8.5	85
2	21.8	8.5	85
3	21.7	8.5	85
4	21.7	8.4	84
5	21.6	8.2	82
6	21.4	7.7	76
7	18.1	0.9	10
8	12.5	0.2	2
9	10.3	0.2	2
10	9.9	0.2	2



Secchi Disk Depth 2.8 meters  
 Thermocline Depth 6.5 meters

## Analytical Results

Parameter	Result	Units	Interpretation
Fecal Bacteria (E. coli)		CFU/100 mL	N/A
Conductivity	292	uS/cm	
Total Dissolved Solids	189	mg/L	Low concentration of dissolved salts
pH	8.4	S.U.	Water is slightly alkaline
Alkalinity	145	mg CaCO3/L	Water is hard
Total Phosphorus	40	ug/L	Phosphorus enriched
Nitrates	200	ug/L	Not nitrogen enriched
Chlorophyll	N/A		

## Trophic State Evaluation

	TSI	Trophic Status
Based on Secchi Disk Depth	45	mesotrophic
Based on Total Phosphorus	53	moderately eutrophic
Based on Chlorophyll	N/A	

---

## Conclusions

- Conditions for fish growth are FAIR. (see cautions/warnings below)
- Minimum dissolved oxygen is nearly low enough to adversely affect sensitive fish.
- Bottom water is deoxygenated, preventing fish from living in cooler water at bottom of lake.
- pH is within acceptable limits.
- Sample is somewhat phosphorus enriched. Create natural buffer between lawn & lakeshore.
- Deep water sample indicates possible internal loading of nutrients.
- REPEAT LakeCheck NEXT YEAR!

- 
- WARNING, condition requires immediate attention.
  - CAUTION, condition requires further evaluation.
  - OK, condition within acceptable limits.
  - NEUTRAL, condition neither good nor bad.

## Notes

Report describes conditions at the time the sample was collected.

Approved by Jaimee Conroy Date 11/21/2019  
Mrs. Jaimee Conroy, Technical Services Manager

FROM YOUR **WO PRO** DEALER



PLM Lake & Land Management Corp  
P.O. Box 132  
Caledonia MI 49316-  
Phone: (616) 891-1294