

**Kings Lake**  
**Water Quality Testing**

Sample Date: 5 Sept 2023

Report Date: 13 Nov 2023

Field Biologist: John Briers

Lab Analyst: Haley Canady

# SÖLITUDE

## LAKE MANAGEMENT

Site #1	2
Site #2	3
Site #3	4
Glossary	5

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LAKE MANAGEMENT

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# Water Quality Testing - Kings Lake, Site#1

Sample Date: 5 Sept 2023

Field Biologist: John Briers

Test	Desired Range	Result	This lake is
pH Reading	6.5 - 8.5	7.8	Healthy
Phosphorus, Total (ppb)	< 30	29	Healthy
Nitrogen, Total (ppb)	< 1,200	730	Healthy
Conductivity (uS/cm)	< 1,200	535	Healthy
Alkalinity, Total (ppm)	> 80	163	Healthy
Turbidity (NTU)	< 5	2.4	Healthy
Ammonia (ppb)	< 100	10	Healthy
<b>Recommendations</b> (based on field observations and laboratory data)	<ul style="list-style-type: none"><li>• Watershed management</li><li>• Ongoing water quality monitoring</li></ul>		

Please speak with your local SOLitude Lake Manager about the options for restoring balance in your aquatic resource.



## Water Quality Testing - Kings Lake, Site#2

Sample Date: 5 Sept 2023

Field Biologist: John Briers

Test	Desired Range	Result	This lake is
pH Reading	6.5 - 8.5	7.3	Healthy
Phosphorus, Total (ppb)	< 30	45	High
Nitrogen, Total (ppb)	< 1,200	1,190	Borderline
Conductivity (uS/cm)	< 1,200	507	Healthy
Alkalinity, Total (ppm)	> 80	121	Healthy
Turbidity (NTU)	< 5	2.6	Healthy
Ammonia (ppb)	< 100	31	Healthy
<b>Recommendations</b> (based on field observations and laboratory data)	<ul style="list-style-type: none"><li>• Phosphorus reduction</li><li>• Nitrogen reduction</li><li>• Watershed management</li><li>• Ongoing water quality monitoring</li></ul>		

Please speak with your local SOLitude Lake Manager about the options for restoring balance in your aquatic resource.



## Water Quality Testing - Kings Lake, Site#3

Sample Date: 5 Sept 2023

Field Biologist: John Briers

Test	Desired Range	Result	This lake is
pH Reading	6.5 - 8.5	7.6	Healthy
Phosphorus, Total (ppb)	< 30	33	Borderline
Nitrogen, Total (ppb)	< 1,200	1,100	Borderline
Conductivity (uS/cm)	< 1,200	487	Healthy
Alkalinity, Total (ppm)	> 80	139	Healthy
Turbidity (NTU)	< 5	2.4	Healthy
Ammonia (ppb)	< 100	33	Healthy
<b>Recommendations</b> (based on field observations and laboratory data)	<ul style="list-style-type: none"><li>• Phosphorus reduction</li><li>• Nitrogen reduction</li><li>• Watershed management</li><li>• Ongoing water quality monitoring</li></ul>		

Please speak with your local SOLitude Lake Manager about the options for restoring balance in your aquatic resource.

Water Quality Parameter	Desired Range	Action Level	Non-normal results may lead to	Common causes of non-normal levels
Phosphorus, total	< 30 ppb	> 100 ppb	Excessive algae growth, muck accumulation, nuisance midge fly population, unbalanced fishery, etc.	Reclaimed water discharge, landscape fertilizer runoff and agricultural drainage, phosphorus laden bottom sediments
Nitrogen, total	< 1,200 ppb	> 2,000 ppb	Excessive algae growth, muck accumulation, nuisance midge fly population, unbalanced fishery, etc.	Reclaimed water discharge, landscape fertilizer runoff and agricultural drainage, organic material input like grass clippings and leaf litter
Ammonia	< 100 ppb	> 250 ppb	May lead to fish and wildlife becoming unhealthy or passing, especially under high pH conditions	Organic decomposition, landscape/fertilizer runoff, and anoxic conditions (low oxygen), excessive waterfowl excrement
Dissolved Oxygen	> 4 ppm	N/A	Leads to nutrient recycling from the sediments (phosphorus), may cause fish kill events, foul odors, etc.	Stratification, higher than normal biological oxygen demand
Temperature	< 4 degree difference	N/A	Often leads to low dissolved oxygen, nutrient recycling, and unbalanced ecosystems	Natural processes
Alkalinity	> 80 ppm	N/A	Drastic pH swings and an unhealthy ecosystem to grow sportfish populations	Low background levels
Conductivity	< 1,200 uS/cm	N/A	Fish kills for salt intolerant species, damage to turf through irrigation, change in algae community (golden algae)	Salt water intrusion, road salt runoff, excessive additions of reclaimed / effluent water
Hardness	> 80 ppm	N/A	Buildup of solid material in water systems and an unhealthy environment for fish populations	Leaching of soil and rocks
Turbidity	< 5 NTU	N/A	Loss of clarity in water and in extreme conditions fish kills	Sediment run-off, bottom sediment in suspension, algae blooms, etc.
Secchi Disk	> 4 feet	N/A	Loss of clarity in water	Sediment run-off, bottom sediment in suspension, algae blooms, etc.
pH reading	6.5 - 8.5	N/A	Unbalanced ecosystems and potentially fish kill events	Watershed run-off, pool discharges, algae blooms, etc.

^The above thresholds are general goals that have been determined by decades of lake management experience from our lake management team and a variety of peer reviewed journal studies.