

10/16/14

Customer Name	Placido Bayou Community Association	Sample Date	Oct 13, 2014
Account Number	0980-2	Technician ID	JMH
Site Number	1	Report Date	Oct 16, 2014

Standard Water Analysis

Site 1

Test	Observed	Results:		
		Expected	Levels	Observations and Explanations
Water Depth (ft)				
Dissolved Oxygen (mg/L)	5.82	> 6	<input type="radio"/> Normal <input checked="" type="radio"/> Borderline <input type="radio"/> High <input type="radio"/> Low	Oxygen levels during the daytime are sufficient to support fish and other aquatic biota, but will likely decline during night and early morning hours, creating temporary periods of sub-optimal oxygen levels. This can result in fish stress and/or death.
pH	7.25	6.5 - 9.5	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	pH levels are within the range required to support a healthy lake system.
Total Alkalinity (mg/L CaCO ₃)	180	> 80	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	Total alkalinity levels are within the range required to support a healthy lake system.
Total Hardness (mg/L CaCO ₃)	200	> 80	<input checked="" type="radio"/> Normal <input type="radio"/> High	Total hardness levels are within the range required to support a healthy lake system.
Chloride (mg/L)	98	0 - 600	<input checked="" type="radio"/> Normal <input type="radio"/> High	Chloride levels are within the range required to support a healthy lake system.
Total Dissolved Solids (mg/L)	370	< 500	<input checked="" type="radio"/> Normal <input type="radio"/> High	Total dissolved solids levels are within the range required to support a healthy lake system.
Conductivity (µS/cm)	713	0 - 1200	<input checked="" type="radio"/> Normal <input type="radio"/> High	Conductivity levels are within the range required to support a healthy lake system.
Color mg/L PtCo	68	0 - 300	<input checked="" type="radio"/> Normal <input type="radio"/> High	Color levels are within the range required to support a healthy lake system.
Turbidity (NTU)	1.15	0 - 5	<input checked="" type="radio"/> Normal <input type="radio"/> High	Turbidity levels are within the range required to support a healthy lake system.
Phosphate (µg PO ₄ /L)	900	10 - 150	<input type="radio"/> Normal <input checked="" type="radio"/> High <input type="radio"/> Low	Elevated phosphate levels may be due to naturally occurring phosphorus in phosphatic rocks, fertilizer runoff from lawns, infiltration of nutrient rich water from storm water, high levels of suspended plankton and/or organic materials in water column, high levels of decomposing organic material (e.g. dead plant, algal, animal matter) which release phosphorus into the water column, or inputs of bird or other animal excretions into water.
Ammonia (µg NH ₃ /L)	300	< 500	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	Ammonia levels are within the range required to support a healthy lake system.

Observations and Recommendations

A standard water chemistry analysis was performed at Placido Bayou as part of an annual routine. Chemistry results show that Site 1 is experiencing elevated Phosphate levels. Elevated phosphorus levels may be due to fertilizer runoff, infiltration of nutrient rich storm water from the surrounding watershed, grass clippings and other landscaping debris, and internal cycling from phosphorus rich bottom sediments.

It is recommended that phosphorus levels be reduced and oxygen concentrations increased. Further investigation into the lake's watershed is also warranted.

Note: Read our chemistry fact sheet for further explanations. Aquatic Systems, Inc. is not a state certified laboratory for water quality analysis.

Customer Name	Placido Bayou Community Association
Account Number	0980-2
Site Number	2

Sample Date	Oct 13, 2014
Technician ID	JMH
Report Date	Oct 16, 2014

Standard Water Analysis Site 2

Test	Observed	Results:		
		Expected	Levels	Observations and Explanations
Water Depth (ft)				
Dissolved Oxygen (mg/L)	5.6	> 6	<input type="radio"/> Normal <input checked="" type="radio"/> Borderline <input type="radio"/> High <input type="radio"/> Low	Oxygen levels during the daytime are sufficient to support fish and other aquatic biota, but will likely decline during night and early morning hours, creating temporary periods of sub-optimal oxygen levels. This can result in fish stress and/or death.
pH	7.41	6.5 - 9.5	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	pH levels are within the range required to support a healthy lake system.
Total Alkalinity (mg/L CaCO ₃)	180	> 80	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	Total alkalinity levels are within the range required to support a healthy lake system.
Total Hardness (mg/L CaCO ₃)	250	> 80	<input checked="" type="radio"/> Normal <input type="radio"/> High	Total hardness levels are within the range required to support a healthy lake system.
Chloride (mg/L)	129	0 - 600	<input checked="" type="radio"/> Normal <input type="radio"/> High	Chloride levels are within the range required to support a healthy lake system.
Total Dissolved Solids (mg/L)	414	< 500	<input checked="" type="radio"/> Normal <input type="radio"/> High	Total dissolved solids levels are within the range required to support a healthy lake system.
Conductivity (µS/cm)	801	0 - 1200	<input checked="" type="radio"/> Normal <input type="radio"/> High	Conductivity levels are within the range required to support a healthy lake system.
Color mg/L PtCo	71	0 - 300	<input checked="" type="radio"/> Normal <input type="radio"/> High	Color levels are within the range required to support a healthy lake system.
Turbidity (NTU)	1.25	0 - 5	<input checked="" type="radio"/> Normal <input type="radio"/> High	Turbidity levels are within the range required to support a healthy lake system.
Phosphate (µg PO ₄ /L)	750	10 - 150	<input type="radio"/> Normal <input checked="" type="radio"/> High <input type="radio"/> Low	Elevated phosphate levels may be due to naturally occurring phosphorus in phosphatic rocks, fertilizer runoff from lawns, infiltration of nutrient rich water from storm water, high levels of suspended plankton and/or organic materials in water column, high levels of decomposing organic material (e.g. dead plant, algal, animal matter) which release phosphorus into the water column, or inputs of bird or other animal excretions into water.
Ammonia (µg NH ₃ /L)	350	< 500	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	Ammonia levels are within the range required to support a healthy lake system.

Observations and Recommendations

A standard water chemistry analysis was performed at Placido Bayou as part of an annual routine. Chemistry results show that Site 2 is experiencing elevated Phosphate levels. Elevated phosphorus levels may be due to fertilizer runoff, infiltration of nutrient rich storm water from the surrounding watershed, grass clippings and other landscaping debris, and internal cycling from phosphorus rich bottom sediments.

It is recommended that phosphorus levels be reduced and oxygen concentrations increased. Further investigation into the lake's watershed is also warranted.

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Customer Name	Placido Bayou Community Association	Sample Date	Oct 13, 2014
Account Number	0980-2	Technician ID	JMH
Site Number	3	Report Date	Oct 16, 2014

Standard Water Analysis Site 3

Test	Observed	Results:		
		Expected	Levels	Observations and Explanations
Water Depth (ft)				
Dissolved Oxygen (mg/L)	7.84	> 6	<input checked="" type="radio"/> Normal <input type="radio"/> Borderline <input type="radio"/> High <input type="radio"/> Low	Oxygen levels are within the range required to support a healthy lake system.
pH	7.56	6.5 - 9.5	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	pH levels are within the range required to support a healthy lake system.
Total Alkalinity (mg/L CaCO ₃)	180	> 80	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	Total alkalinity levels are within the range required to support a healthy lake system.
Total Hardness (mg/L CaCO ₃)	200	> 80	<input checked="" type="radio"/> Normal <input type="radio"/> High	Total hardness levels are within the range required to support a healthy lake system.
Chloride (mg/L)	98	0 - 600	<input checked="" type="radio"/> Normal <input type="radio"/> High	Chloride levels are within the range required to support a healthy lake system.
Total Dissolved Solids (mg/L)	322	< 500	<input checked="" type="radio"/> Normal <input type="radio"/> High	Total dissolved solids levels are within the range required to support a healthy lake system.
Conductivity (µS/cm)	629	0 - 1200	<input checked="" type="radio"/> Normal <input type="radio"/> High	Conductivity levels are within the range required to support a healthy lake system.
Color mg/L PtCo	55	0 - 300	<input checked="" type="radio"/> Normal <input type="radio"/> High	Color levels are within the range required to support a healthy lake system.
Turbidity (NTU)	0.64	0 - 5	<input checked="" type="radio"/> Normal <input type="radio"/> High	Turbidity levels are within the range required to support a healthy lake system.
Phosphate (µg PO ₄ /L)	640	10 - 150	<input type="radio"/> Normal <input checked="" type="radio"/> High <input type="radio"/> Low	Elevated phosphate levels may be due to naturally occurring phosphorus in phosphatic rocks, fertilizer runoff from lawns, infiltration of nutrient rich water from storm water, high levels of suspended plankton and/or organic materials in water column, high levels of decomposing organic material (e.g. dead plant, algal, animal matter) which release phosphorus into the water column, or inputs of bird or other animal excretions into water.
Ammonia (µg NH ₃ /L)	220	< 500	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	Ammonia levels are within the range required to support a healthy lake system.

Observations and Recommendations

A standard water chemistry analysis was performed at Placido Bayou as part of an annual routine. Chemistry results show that Site 3 is experiencing elevated Phosphate levels. Elevated phosphorus levels may be due to fertilizer runoff, infiltration of nutrient rich storm water from the surrounding watershed, grass clippings and other landscaping debris, and internal cycling from phosphorus rich bottom sediments.

It is recommended that phosphorus levels be reduced. Further investigation into the lake's watershed is also warranted.

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Customer Name	Placido Bayou Community Association
Account Number	0980-2
Site Number	4

Sample Date	Oct 13, 2014
Technician ID	JMH
Report Date	Oct 16, 2014

Standard Water Analysis

Site 4

Test	Observed	Results:		
		Expected	Levels	Observations and Explanations
Water Depth (ft)				
Dissolved Oxygen (mg/L)	7.48	> 6	<input checked="" type="radio"/> Normal <input type="radio"/> Borderline <input type="radio"/> High <input type="radio"/> Low	Oxygen levels are within the range required to support a healthy lake system.
pH	7.37	6.5 - 9.5	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	pH levels are within the range required to support a healthy lake system.
Total Alkalinity (mg/L CaCO ₃)	120	> 80	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	Total alkalinity levels are within the range required to support a healthy lake system.
Total Hardness (mg/L CaCO ₃)	200	> 80	<input checked="" type="radio"/> Normal <input type="radio"/> High	Total hardness levels are within the range required to support a healthy lake system.
Chloride (mg/L)	89	0 - 600	<input checked="" type="radio"/> Normal <input type="radio"/> High	Chloride levels are within the range required to support a healthy lake system.
Total Dissolved Solids (mg/L)	280	< 500	<input checked="" type="radio"/> Normal <input type="radio"/> High	Total dissolved solids levels are within the range required to support a healthy lake system.
Conductivity (µS/cm)	546	0 - 1200	<input checked="" type="radio"/> Normal <input type="radio"/> High	Conductivity levels are within the range required to support a healthy lake system.
Color mg/L PtCo	153	0 - 300	<input checked="" type="radio"/> Normal <input type="radio"/> High	Color levels are within the range required to support a healthy lake system.
Turbidity (NTU)	1.33	0 - 5	<input checked="" type="radio"/> Normal <input type="radio"/> High	Turbidity levels are within the range required to support a healthy lake system.
Phosphate (µg PO ₄ /L)	490	10 - 150	<input type="radio"/> Normal <input checked="" type="radio"/> High <input type="radio"/> Low	Elevated phosphate levels may be due to naturally occurring phosphorus in phosphatic rocks, fertilizer runoff from lawns, infiltration of nutrient rich water from storm water, high levels of suspended plankton and/or organic materials in water column, high levels of decomposing organic material (e.g. dead plant, algal, animal matter) which release phosphorus into the water column, or inputs of bird or other animal excretions into water.
Ammonia (µg NH ₃ /L)	310	< 500	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	Ammonia levels are within the range required to support a healthy lake system.

Observations and Recommendations

A standard water chemistry analysis was performed at Placido Bayou as part of an annual routine. Chemistry results show that Site 4 is experiencing elevated Phosphate levels. Elevated phosphorus levels may be due to fertilizer runoff, infiltration of nutrient rich storm water from the surrounding watershed, grass clippings and other landscaping debris, and internal cycling from phosphorus rich bottom sediments.

It is recommended that phosphorus levels be reduced. Further investigation into the lake's watershed is also warranted.

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Customer Name	Placido Bayou Community Association
Account Number	0980-2
Site Number	5

Sample Date	Oct 13, 2014
Technician ID	JMH
Report Date	Oct 16, 2014

Standard Water Analysis Site 5

Test	Observed	Results:		
		Expected	Levels	Observations and Explanations
Water Depth (ft)				
Dissolved Oxygen (mg/L)	4.98	> 6	<input type="radio"/> Normal <input type="radio"/> Borderline <input type="radio"/> High <input checked="" type="radio"/> Low	Low oxygen levels may be due to warm water temperature, prolonged shading of water (e.g. over hanging trees; cloudy weather), stratification of water (i.e. no water circulation), high organic loading, high oxygen consumption by bacteria breaking down organic materials, high oxygen consumption by bacteria breaking down decaying plankton blooms, or infiltration of ground water with low oxygen levels.
pH	7.33	6.5 - 9.5	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	pH levels are within the range required to support a healthy lake system.
Total Alkalinity (mg/L CaCO ₃)	120	> 80	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	Total alkalinity levels are within the range required to support a healthy lake system.
Total Hardness (mg/L CaCO ₃)	160	> 80	<input checked="" type="radio"/> Normal <input type="radio"/> High	Total hardness levels are within the range required to support a healthy lake system.
Chloride (mg/L)	72	0 - 600	<input checked="" type="radio"/> Normal <input type="radio"/> High	Chloride levels are within the range required to support a healthy lake system.
Total Dissolved Solids (mg/L)	221	< 500	<input checked="" type="radio"/> Normal <input type="radio"/> High	Total dissolved solids levels are within the range required to support a healthy lake system.
Conductivity (µS/cm)	426	0 - 1200	<input checked="" type="radio"/> Normal <input type="radio"/> High	Conductivity levels are within the range required to support a healthy lake system.
Color mg/L PtCo	116	0 - 300	<input checked="" type="radio"/> Normal <input type="radio"/> High	Color levels are within the range required to support a healthy lake system.
Turbidity (NTU)	1.29	0 - 5	<input checked="" type="radio"/> Normal <input type="radio"/> High	Turbidity levels are within the range required to support a healthy lake system.
Phosphate (µg PO ₄ /L)	650	10 - 150	<input type="radio"/> Normal <input checked="" type="radio"/> High <input type="radio"/> Low	Elevated phosphate levels may be due to naturally occurring phosphorus in phosphatic rocks, fertilizer runoff from lawns, infiltration of nutrient rich water from storm water, high levels of suspended plankton and/or organic materials in water column, high levels of decomposing organic material (e.g. dead plant, algal, animal matter) which release phosphorus into the water column, or inputs of bird or other animal excretions into water.
Ammonia (µg NH ₃ /L)	240	< 500	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	Ammonia levels are within the range required to support a healthy lake system.

Observations and Recommendations

A standard water chemistry analysis was performed at Placido Bayou as part of an annual routine. Chemistry results show that Site 5 is experiencing elevated Phosphate levels. Elevated phosphorus levels may be due to fertilizer runoff, infiltration of nutrient rich storm water from the surrounding watershed, grass clippings and other landscaping debris, and internal cycling from phosphorus rich bottom sediments.

It is recommended that phosphorus levels be reduced and oxygen concentrations increased. Further investigation into the lake's watershed is also warranted.

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Customer Name	Placido Bayou Community Association	Sample Date	Oct 13, 2014
Account Number	0980-2	Technician ID	JMH
Site Number	6	Report Date	Oct 16, 2014

Standard Water Analysis Site 6

Test	Observed	Results:		
		Expected	Levels	Observations and Explanations
Water Depth (ft)				
Dissolved Oxygen (mg/L)	6.62	> 6	<input checked="" type="radio"/> Normal <input type="radio"/> Borderline <input type="radio"/> High <input type="radio"/> Low	Oxygen levels are within the range required to support a healthy lake system.
pH	7.42	6.5 - 9.5	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	pH levels are within the range required to support a healthy lake system.
Total Alkalinity (mg/L CaCO ₃)	160	> 80	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	Total alkalinity levels are within the range required to support a healthy lake system.
Total Hardness (mg/L CaCO ₃)	200	> 80	<input checked="" type="radio"/> Normal <input type="radio"/> High	Total hardness levels are within the range required to support a healthy lake system.
Chloride (mg/L)	98	0 - 600	<input checked="" type="radio"/> Normal <input type="radio"/> High	Chloride levels are within the range required to support a healthy lake system.
Total Dissolved Solids (mg/L)	310	< 500	<input checked="" type="radio"/> Normal <input type="radio"/> High	Total dissolved solids levels are within the range required to support a healthy lake system.
Conductivity (µS/cm)	597	0 - 1200	<input checked="" type="radio"/> Normal <input type="radio"/> High	Conductivity levels are within the range required to support a healthy lake system.
Color mg/L PtCo	74	0 - 300	<input checked="" type="radio"/> Normal <input type="radio"/> High	Color levels are within the range required to support a healthy lake system.
Turbidity (NTU)	0.86	0 - 5	<input checked="" type="radio"/> Normal <input type="radio"/> High	Turbidity levels are within the range required to support a healthy lake system.
Phosphate (µg PO ₄ /L)	1050	10 - 150	<input type="radio"/> Normal <input checked="" type="radio"/> High <input type="radio"/> Low	Elevated phosphate levels may be due to naturally occurring phosphorus in phosphatic rocks, fertilizer runoff from lawns, infiltration of nutrient rich water from storm water, high levels of suspended plankton and/or organic materials in water column, high levels of decomposing organic material (e.g. dead plant, algal, animal matter) which release phosphorus into the water column, or inputs of bird or other animal excretions into water.
Ammonia (µg NH ₃ /L)	200	< 500	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	Ammonia levels are within the range required to support a healthy lake system.

Observations and Recommendations

A standard water chemistry analysis was performed at Placido Bayou as part of an annual routine. Chemistry results show that Site 6 is experiencing elevated Phosphate levels. Elevated phosphorus levels may be due to fertilizer runoff, infiltration of nutrient rich storm water from the surrounding watershed, grass clippings and other landscaping debris, and internal cycling from phosphorus rich bottom sediments.

It is recommended that phosphorus levels be reduced. Further investigation into the lake's watershed is also warranted.

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Customer Name	Placido Bayou Community Association
Account Number	0980-2
Site Number	7

Sample Date	Oct 13, 2014
Technician ID	JMH
Report Date	Oct 16, 2014

Standard Water Analysis Site 7

Test	Observed	Results:		
		Expected	Levels	Observations and Explanations
Water Depth (ft)				
Dissolved Oxygen (mg/L)	5.5	> 6	<input type="radio"/> Normal <input type="radio"/> Borderline <input type="radio"/> High <input checked="" type="radio"/> Low	Low oxygen levels may be due to warm water temperature, prolonged shading of water (e.g. over hanging trees; cloudy weather), stratification of water (i.e. no water circulation), high organic loading, high oxygen consumption by bacteria breaking down organic materials, high oxygen consumption by bacteria breaking down decaying plankton blooms, or infiltration of ground water with low oxygen levels.
pH	7.40	6.5 - 9.5	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	pH levels are within the range required to support a healthy lake system.
Total Alkalinity (mg/L CaCO ₃)	60	> 80	<input type="radio"/> Normal <input type="radio"/> High <input checked="" type="radio"/> Low	Low total alkalinity levels may be the result of low levels of calcium carbonate in the underlying bedrock.
Total Hardness (mg/L CaCO ₃)	200	> 80	<input checked="" type="radio"/> Normal <input type="radio"/> High	Total hardness levels are within the range required to support a healthy lake system.
Chloride (mg/L)	98	0 - 600	<input checked="" type="radio"/> Normal <input type="radio"/> High	Chloride levels are within the range required to support a healthy lake system.
Total Dissolved Solids (mg/L)	276	< 500	<input checked="" type="radio"/> Normal <input type="radio"/> High	Total dissolved solids levels are within the range required to support a healthy lake system.
Conductivity (µS/cm)	536	0 - 1200	<input checked="" type="radio"/> Normal <input type="radio"/> High	Conductivity levels are within the range required to support a healthy lake system.
Color mg/L PtCo	54	0 - 300	<input checked="" type="radio"/> Normal <input type="radio"/> High	Color levels are within the range required to support a healthy lake system.
Turbidity (NTU)	1.18	0 - 5	<input checked="" type="radio"/> Normal <input type="radio"/> High	Turbidity levels are within the range required to support a healthy lake system.
Phosphate (µg PO ₄ /L)	190	10 - 150	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	Phosphate levels are within the range required to support a healthy lake system.
Ammonia (µg NH ₃ /L)	170	< 500	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	Ammonia levels are within the range required to support a healthy lake system.

Observations and Recommendations

A standard water chemistry analysis was performed at Placido Bayou as part of an annual routine. Chemistry results show that Site 7 is experiencing elevated Phosphate levels. Elevated phosphorus levels may be due to fertilizer runoff, infiltration of nutrient rich storm water from the surrounding watershed, grass clippings and other landscaping debris, and internal cycling from phosphorus rich bottom sediments.

It is recommended that phosphorus levels be reduced and oxygen concentrations increased. Further investigation into the lake's watershed is also warranted.

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Customer Name	Placido Bayou Community Association	Sample Date	Oct 13, 2014
Account Number	0980-2	Technician ID	JMH
Site Number	8	Report Date	Oct 16, 2014

Standard Water Analysis

Site 8

Test	Observed	Results:		
		Expected	Levels	Observations and Explanations
Water Depth (ft)				
Dissolved Oxygen (mg/L)	6.5	> 6	<input type="radio"/> Normal <input checked="" type="radio"/> Borderline <input type="radio"/> High <input type="radio"/> Low	Oxygen levels during the daytime are sufficient to support fish and other aquatic biota, but will likely decline during night and early morning hours, creating temporary periods of sub-optimal oxygen levels. This can result in fish stress and/or death.
pH	7.56	6.5 - 9.5	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	pH levels are within the range required to support a healthy lake system.
Total Alkalinity (mg/L CaCO ₃)	80	> 80	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	Total alkalinity levels are within the range required to support a healthy lake system.
Total Hardness (mg/L CaCO ₃)	200	> 80	<input checked="" type="radio"/> Normal <input type="radio"/> High	Total hardness levels are within the range required to support a healthy lake system.
Chloride (mg/L)	89	0 - 600	<input checked="" type="radio"/> Normal <input type="radio"/> High	Chloride levels are within the range required to support a healthy lake system.
Total Dissolved Solids (mg/L)	278	< 500	<input checked="" type="radio"/> Normal <input type="radio"/> High	Total dissolved solids levels are within the range required to support a healthy lake system.
Conductivity (µS/cm)	538	0 - 1200	<input checked="" type="radio"/> Normal <input type="radio"/> High	Conductivity levels are within the range required to support a healthy lake system.
Color mg/L PtCo	46	0 - 300	<input checked="" type="radio"/> Normal <input type="radio"/> High	Color levels are within the range required to support a healthy lake system.
Turbidity (NTU)	0.89	0 - 5	<input checked="" type="radio"/> Normal <input type="radio"/> High	Turbidity levels are within the range required to support a healthy lake system.
Phosphate (µg PO ₄ /L)	260	10 - 150	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	Phosphate levels are within the range required to support a healthy lake system.
Ammonia (µg NH ₃ /L)	180	< 500	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	Ammonia levels are within the range required to support a healthy lake system.

Observations and Recommendations

A standard water chemistry analysis was performed at Placido Bayou as part of an annual routine. Chemistry results show that Site 8 is experiencing elevated Phosphate levels. Elevated phosphorus levels may be due to fertilizer runoff, infiltration of nutrient rich storm water from the surrounding watershed, grass clippings and other landscaping debris, and internal cycling from phosphorus rich bottom sediments.

It is recommended that phosphorus levels be reduced and oxygen concentrations increased. Further investigation into the lake's watershed is also warranted.

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Customer Name	Placido Bayou Community Association
Account Number	0980-2
Site Number	9

Sample Date	Oct 13, 2014
Technician ID	JMH
Report Date	Oct 16, 2014

Standard Water Analysis Site 9

Test	Observed	Results:		
		Expected	Levels	Observations and Explanations
Water Depth (ft)				
Dissolved Oxygen (mg/L)	4.42	> 6	<input type="radio"/> Normal <input type="radio"/> Borderline <input type="radio"/> High <input checked="" type="radio"/> Low	Low oxygen levels may be due to warm water temperature, prolonged shading of water (e.g. over hanging trees; cloudy weather), stratification of water (i.e. no water circulation), high organic loading, high oxygen consumption by bacteria breaking down organic materials, high oxygen consumption by bacteria breaking down decaying plankton blooms, or infiltration of ground water with low oxygen levels.
pH	7.28	6.5 - 9.5	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	pH levels are within the range required to support a healthy lake system.
Total Alkalinity (mg/L CaCO ₃)	180	> 80	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	Total alkalinity levels are within the range required to support a healthy lake system.
Total Hardness (mg/L CaCO ₃)	425	> 80	<input checked="" type="radio"/> Normal <input type="radio"/> High	Total hardness levels are within the range required to support a healthy lake system.
Chloride (mg/L)	550	0 - 600	<input checked="" type="radio"/> Normal <input type="radio"/> High	Chloride levels are within the range required to support a healthy lake system.
Total Dissolved Solids (mg/L)	1227	< 500	<input type="radio"/> Normal <input checked="" type="radio"/> High	Total dissolved solids are higher than the normal range for fresh water due to the presence of high levels of magnesium, calcium or other dissolved minerals.
Conductivity (µS/cm)	2310	0 - 1200	<input type="radio"/> Normal <input checked="" type="radio"/> High	Conductivity levels are high for fresh water due to the proximity of the lake to the ocean (i.e. salt water intrusion increases salinity and conductivity), low water levels which cause salts to become more concentrated within the water body, resulting in higher conductivity or high concentrations of dissolved solids.
Color mg/L PtCo	88	0 - 300	<input checked="" type="radio"/> Normal <input type="radio"/> High	Color levels are within the range required to support a healthy lake system.
Turbidity (NTU)	1.21	0 - 5	<input checked="" type="radio"/> Normal <input type="radio"/> High	Turbidity levels are within the range required to support a healthy lake system.
Phosphate (µg PO ₄ /L)	1110	10 - 150	<input type="radio"/> Normal <input checked="" type="radio"/> High <input type="radio"/> Low	Elevated phosphate levels may be due to naturally occurring phosphorus in phosphatic rocks, fertilizer runoff from lawns, infiltration of nutrient rich water from storm water, high levels of suspended plankton and/or organic materials in water column, high levels of decomposing organic material (e.g. dead plant, algal, animal matter) which release phosphorus into the water column, or inputs of bird or other animal excretions into water.
Ammonia (µg NH ₃ N/L)	390	< 500	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	Ammonia levels are within the range required to support a healthy lake system.

Observations and Recommendations

A standard water chemistry analysis was performed at Placido Bayou as part of an annual routine. Chemistry results show that Site 9 is experiencing elevated Phosphate levels. There is also a high amount of salt in the lake based on conductivity, total dissolved solids, and chloride levels. Although chloride is essential to plants in very low amounts, it can become toxic to sensitive crops at high concentrations. Salt levels may be the result of low water levels (causing salts to become more concentrated) or saltwater intrusion.

It is recommended that phosphorus levels be reduced and oxygen concentrations increased. Further investigation into the lake's watershed is also warranted.

Note: Read our chemistry fact sheet for further explanations. Aquatic Systems, Inc. is not a state certified laboratory for water quality analysis.

Customer Name	Placido Bayou Community Association	Sample Date	Oct 13, 2014
Account Number	0980-2	Technician ID	JMH
Site Number	10	Report Date	Oct 16, 2014

Standard Water Analysis

Site 10

Test	Observed	Results:		
		Expected	Levels	Observations and Explanations
Water Depth (ft)				
Dissolved Oxygen (mg/L)	5.37	> 6	<input type="radio"/> Normal <input type="radio"/> Borderline <input type="radio"/> High <input checked="" type="radio"/> Low	Low oxygen levels may be due to warm water temperature, prolonged shading of water (e.g. over hanging trees; cloudy weather), stratification of water (i.e. no water circulation), high organic loading, high oxygen consumption by bacteria breaking down organic materials, high oxygen consumption by bacteria breaking down decaying plankton blooms, or infiltration of ground water with low oxygen levels.
pH	7.33	6.5 - 9.5	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	pH levels are within the range required to support a healthy lake system.
Total Alkalinity (mg/L CaCO ₃)	80	> 80	<input type="radio"/> Normal <input type="radio"/> High <input checked="" type="radio"/> Low	Low total alkalinity levels may be the result of low levels of calcium carbonate in the underlying bedrock.
Total Hardness (mg/L CaCO ₃)	300	> 80	<input checked="" type="radio"/> Normal <input type="radio"/> High	Total hardness levels are within the range required to support a healthy lake system.
Chloride (mg/L)	637	0 - 600	<input type="radio"/> Normal <input checked="" type="radio"/> High	High chloride levels may be caused by the proximity of the lake to the ocean (i.e. salt water intrusion increases chlorides), or low water levels which cause salts to become more concentrated within the water body.
Total Dissolved Solids (mg/L)	1227	< 500	<input type="radio"/> Normal <input checked="" type="radio"/> High	Total dissolved solids are higher than the normal range for fresh water due to the presence of high levels of magnesium, calcium or other dissolved minerals.
Conductivity (µS/cm)	2830	0 - 1200	<input type="radio"/> Normal <input checked="" type="radio"/> High	Conductivity levels are high for fresh water due to the proximity of the lake to the ocean (i.e. salt water intrusion increases salinity and conductivity), low water levels which cause salts to become more concentrated within the water body, resulting in higher conductivity or high concentrations of dissolved solids.
Color mg/L PtCo	111	0 - 300	<input checked="" type="radio"/> Normal <input type="radio"/> High	Color levels are within the range required to support a healthy lake system.
Turbidity (NTU)	3.26	0 - 5	<input checked="" type="radio"/> Normal <input type="radio"/> High	Turbidity levels are within the range required to support a healthy lake system.
Phosphate (µg PO ₄ /L)	1020	10 - 150	<input type="radio"/> Normal <input checked="" type="radio"/> High <input type="radio"/> Low	Elevated phosphate levels may be due to naturally occurring phosphorus in phosphatic rocks, fertilizer runoff from lawns, infiltration of nutrient rich water from storm water, high levels of suspended plankton and/or organic materials in water column, high levels of decomposing organic material (e.g. dead plant, algal, animal matter) which release phosphorus into the water column, or inputs of bird or other animal excretions into water.
Ammonia (µg NH ₃ /L)	440	< 500	<input checked="" type="radio"/> Normal <input type="radio"/> High <input type="radio"/> Low	Ammonia levels are within the range required to support a healthy lake system.

Observations and Recommendations

A standard water chemistry analysis was performed at Placido Bayou as part of an annual routine. Chemistry results show that Site 10 is experiencing elevated Phosphate levels. There is also a high amount of salt in the lake based on conductivity, total dissolved solids, and chloride levels. Although chloride is essential to plants in very low amounts, it can become toxic to sensitive crops at high concentrations. Salt levels may be the result of low water levels (causing salts to become more concentrated) or saltwater intrusion.

It is recommended that phosphorus levels be reduced and oxygen concentrations increased. Further investigation into the lake's watershed is also warranted.

Note: Read our chemistry fact sheet for further explanations. Aquatic Systems, Inc. is not a state certified laboratory for water quality analysis.

Water Quality Assessment Guideline Information

Although multiple factors influence lake health, the following table offers a general classification of lake trophic states.

Trophic State	Total Phosphorus (µg/L)	Secchi Disk Depth (ft)	Total Nitrogen (µg/L)	Lake conditions	
Oligotrophic	< 10	18 – 36 ft	< 350	- Very low biological productivity - Well oxygenated	- Clear Water; bottom - Few plants and animals
Mesotrophic	10-35	9 – 18 ft	350 – 650	- Low to medium biological productivity - Abundant plant growth	- Moderately clear water
Eutrophic	35-100	4.5 – 9 ft	650 – 1200	- High biological productivity - Dense plant growth and algae mats	- Fair water clarity; muck accumulation
Hypereutrophic	>100	< 4.5 ft	> 1200	- Very high productivity; plankton algae blooms; low oxygen; fish kills - Poor water clarity & quality; muck accumulation - Limited submersed plant growth; bottom and surface algae mats dominate	

*Adapted from: Dodds, W.K. (2002). *Freshwater Ecology: Concepts and Environmental Applications*. San Diego, California: Academic Press

Water Chemistry Facts

Dissolved Oxygen/Temperature

Dissolved oxygen is the most critical indicator of a lake's health and water quality. Dissolved oxygen levels in natural waters are dependent on the physical, chemical and biochemical activities prevailing in the water body. Oxygen is added to aquatic ecosystems by aquatic plants and algae through the process of photosynthesis and also by diffusion at the water's surface and atmosphere interface. Primarily, animal, plant and bacteria respiration deplete oxygen. Oxygen is required for fast oxidation of organic wastes including bottom muck. When the oxygen is used up in the bottom of the lake, anaerobic bacteria continue to breakdown organic materials, creating toxic gasses such as hydrogen sulfide, in the process. For a healthy game-fish population, oxygen levels in the 6-10 mg/L range are necessary. Respiration stress in most fish occurs when oxygen levels are reduced below 4-5 mg/L.

Temperature must also be considered when looking at oxygen levels in lakes since warmer water cannot hold as much oxygen as cooler water. A difference of 1°C or more between surface temperature and temperature at depth indicates that the lake is stratified, and is therefore in danger of having low oxygen levels below the surface.

Reduction Oxidation Potential

Redox values tend towards positive (>0) when dissolved oxygen is readily available for respiration in the water column. Therefore, generally, the higher the dissolved oxygen levels, the higher the Redox potential. When oxygen levels are low, organisms use other substrates for respiration (e.g. NO₃⁻, Mn⁴⁺, Fe³⁺, SO₄²⁻) and Redox values become negative. The more oxygen deprived a system is, the more negative the Redox potential value will be.

pH

The pH value of a body of water expresses its tendency to donate or accept hydrogen ions on a scale of 0 (very acidic) to 14 (very basic). Natural waters generally range from pH 6.5 to pH 8.5 but can vary. Areas with calcium carbonate substrates tend to have higher, or more basic pH levels; such is the case with many Florida ponds and lakes. pH levels can also fluctuate throughout the day in response to respiration rates (which lowers pH) and photosynthesis rates (which increases pH). Any major pH deviations over time for a given water body could indicate the onset of intrusion of strongly acidic or alkaline wastes.

Water with long-term pH readings below 5.5 or above 9.5 can be corrosive, causing potential problems with irrigation equipment or other manmade structures in a water body. When pH is higher we might suspect some marine influence and when pH is lower we become concerned that the water may not have enough buffering capacity. Aquatic animals are greatly affected by changes in pH. An abrupt change of 1 or 2 pH units is enough to mortality in some species. In itself, a pH outside of the desirable range is not necessarily a concern unless the other parameters in the lake suggest problems.

Hardness/Alkalinity

Alkalinity indicates the water's buffering capacity; i.e. the water's capacity to resist changes in pH. Good buffering capacity can limit dangerous pH swings caused by the introduction of highly acidic or basic substances. Total hardness is defined as the concentration of calcium and magnesium in the water. Calcium is necessary for proper fish egg and fry development. Closely related to alkalinity and pH, sufficient hardness levels can help decrease ammonia and pH toxicity.

Conductivity/TDS

These measurements estimate the total concentration of ionized substances dissolved in the water. Total Dissolved Solids (TDS) is a measure of ionized substances dissolved in water. The inorganic anions dissolved in water include carbonates, chlorides, sulfates and nitrates, while inorganic cations include sodium, potassium, calcium and magnesium. The capacity of water to conduct an electrical current is related to the type and amount of ions in the water and conductivity is a measure of this capacity. There is therefore a relationship between total dissolved solids and conductivity, whereby the concentration of dissolved substances can be estimated based on the water's ability to conduct an electrical current.

Lake water TDS and Conductivity levels vary naturally based on the specific characteristics of the lake (e.g. geology, proximity to the sea, etc). For example, freshwater generally exhibits conductivity less than 500 $\mu\text{S}/\text{cm}$. If levels above this are observed, it may be an indication of pollution or simply be due to some marine influence. A significant and acute increase in conductivity may indicate a recent increase in domestic or industrial pollution. High dissolved solids may cause irrigation water to stain vehicles and other surfaces in the general vicinity.

Secchi

Secchi depth is a mechanical test to judge water clarity. It is accomplished by lowering a black and white disk into the water and recording the point at which it can no longer be seen. Higher values of Secchi disk depth indicates greater water clarity. Generally, nutrient rich lakes tend to have Secchi depths less than 9 feet and highly enriched sites less than 3 feet. However, many lakes are exceptions to this rule based on other parameters, and Secchi disk depth in isolation cannot be used to diagnose a lake's overall health.

Turbidity

Lack of clarity, known as turbidity, in natural waters is caused by the presence of suspended solids such as silt, clay, fine organic and inorganic matter, plankton and other microscopic organisms. The turbidity test measures an optical property of the water sample and is used as an index of water clarity. Turbidity values of 10 N.T.U.'s (Nephelometric Turbidity Units) or more indicate high levels of suspended solids. Elevated turbidity levels are often due to increased runoff, higher flow, or construction activity in the drainage basin. The degree to which turbidity affects wildlife depends on both the level of turbidity and the duration of exposure. Levels as low as 5 NTU can begin to stress fish within a few hours.

Phosphate

Phosphorus is a naturally occurring component of aquatic systems and it is necessary for ecosystem function. Elevated levels of phosphorus can however cause shifts in the balance of ecosystem function and this is the most common cause of undesirable growth of aquatic weeds and algae. The discharge of treated wastewater and agricultural drainage into a lake will increase a lake's phosphorus levels. Lawn and landscape fertilizer runoff is another major source of phosphorus in lakes and their use should be avoided near the water.

Total phosphorus (TP) refers to all the various forms of phosphorus in the water, while phosphate (PO_4) refers specifically to the dissolved form of phosphorus in the water column. Phosphate is the most biologically active form of phosphorus.

Acceptable range numbers for TP and PO_4 are based upon commonly used wastewater guidelines for discharge of treated wastewater. Phosphorus levels above 450 $\mu\text{g}/\text{L}$ are very high for retention ponds and tend to cause significant algae blooms, but levels this high are not uncommon. When levels are higher than 1000 $\mu\text{g}/\text{L}$, it is likely that the pond is being exposed to unusual discharges (such as treated wastewater). In such case, multiple management strategies may be required to lower phosphorus levels.

Ammonia

Nitrogen is a product of the natural metabolism of plant and animal matter, as well as a component of fertilizer residues that enter water bodies as runoff. Organic nitrogen can take many forms in water, including Nitrate, Nitrite, and Ammonia. If ammonia is present in significant quantities, it can indicate that the water column does not have sufficient oxygen to oxidize ammonia to nitrite and nitrate. When available, all three of these nutrients can promote plant and algae growth when phosphorus levels are sufficient. Ammonia concentrations below 300 $\mu\text{g}/\text{L}$ significantly help to limit plant and algae growth in low phosphorus lakes. Reduced fertilizer applications near shorelines can sometimes help prevent increases in these and other nutrient levels, but much of the ammonia and phosphate present in older lakes (5+ years) is recycled from the sediment. Both aeration and dredging can reduce this internal loading.

Ammonia can be toxic to fish and other animals. The levels of toxicity is however based on the total ammonia concentration, pH, and temperature. When levels are higher than 1000 $\mu\text{g}/\text{L}$, it is likely that the pond is being exposed to unusual discharges (such as treated wastewater). In such case, multiple management strategies may be required to lower ammonia levels.

