



Water Quality Summary

Testing Date: 6/16/2010

Eight Point Lake Clare County

Water Quality Test Results:

	<u>2008</u>	<u>2009</u>	<u>2010</u>
East Shore			
Temperature:	71.2 °F	76.3 °F	71.0 °F
Transparency:	9'4"	12'3"	8'9"
pH:	8.7	8.3	8.84
TDS:	90 ppm	95 ppm	80 ppm
Conductivity:	178 µS	168 µS	160 µS
Dissolved Oxygen:	9.4 mg/L	6.8 mg/L	7.1 mg/L
Alkalinity:	81.0 ppm	108.0 ppm	102.0 ppm
Hardness:	118.0 ppm	136.5 ppm	98.0 ppm
Salinity:		183.0 ppm	170.0 ppm
Total Phosphorus:	19.0 ppb	160.0 ppb	180.0 ppb
Nitrates:	78.0 ppb	200.0 ppb	484.0 ppb
Deep Hole			
Temperature:	72.3 °F	71.0 °F	71.2 °F
Transparency:	9'4"	12'3"	8'2"
pH:	8.5	8.5	8.80
TDS:	90 ppm	93 ppm	79 ppm
Conductivity:	178 µS	157 µS	158 µS
Dissolved Oxygen:	9.7 mg/L	6.8 mg/L	7.5 mg/L
Alkalinity:	80.2 ppm	106.5 ppm	99.5 ppm
Hardness:	117.1 ppm	136.0 ppm	99.0 ppm
Salinity:		167.0 ppm	165.0 ppm
Total Phosphorus:	12.0 ppb	125.0 ppb	180.0 ppb
Nitrates:	45.6 ppb	186.0 ppb	572.0 ppb
North Shore			
Temperature:	73.7 °F	75.0 °F	71.4 °F
Transparency:	9'4"	12'3"	8'9"
pH:	8.5	8.6	8.98
TDS:	90 ppm	93 ppm	78 ppm
Conductivity:	178 µS	157 µS	157 µS
Dissolved Oxygen:	9.8 mg/L	7.4 mg/L	7.6 mg/L
Alkalinity:	81.3 ppm	106.5 ppm	103.5 ppm
Hardness:	119.2ppm	137.5 ppm	96.0 ppm
Salinity:		159.0 ppm	174.0 ppm
Total Phosphorus:	12.0 ppb	120.0 ppb	290.0 ppb
Nitrates:	55.6 ppb	185.0 ppb	704.0 ppb
West Beach			
Temperature:	72.3 °F	75.0 °F	70.9 °F
Transparency:	9'4"	12'3"	7'7"
pH:	8.9	8.8	8.90
TDS:	97 ppm	95 ppm	80 ppm
Conductivity:	192 µS	159 µS	159 µS
Dissolved Oxygen:	9.8 mg/L	7.2 mg/L	7.4 mg/L
Alkalinity:	81.1 ppm	106.0 ppm	103.5 ppm
Hardness:	118.2 ppm	136.0 ppm	98.5 ppm
Salinity:		163 ppm	171 ppm
Total Phosphorus:	19.0 ppb	115.0 ppb	528.0 ppb
Nitrates:	38.0 ppb	195.0 ppb	240.0 ppb



South Shore	<u>2008</u>	<u>2009</u>	<u>2010</u>
Temperature:	72.9 °F	72.8 °F	71.2 °F
Transparency:	9'4"	12'3"	8'11"
pH:	8.6	8.7	8.95
TDS:	96 ppm	98 ppm	79 ppm
Conductivity:	189 µS	163 µS	157 µS
Dissolved Oxygen:	9.6 mg/L	7.4 mg/L	7.3 mg/L
Alkalinity:	79.7 ppm	106.5 ppm	101.5 ppm
Hardness:	116.4 ppm	137.0 ppm	98.5 ppm
Salinity:		136.0 ppm	169.0 ppm
Total Phosphorus:	17.0 ppb	115.0 ppb	110.0 ppb
Nitrates:	67.5 ppb	180.0 ppb	484.0 ppb

Discussion

These results show that the water at Eight Point Lake is still very healthy. The results of our testing show that the aquatic environment is very suitable to support natural wildlife. Also, the lake is safe for swimming and other recreational uses, as there are no signs of pollution.

There have been several small changes since our last test date (6/22/2009). Some differences are slight variations that are expected from year to year. However, other parameters depict specific changes in the characteristics of the aquatic environment.

The **pH** and **Temperature** have changed only slightly from last year. Small changes such as these can be expected due to different weather patterns, spring rainfalls, and recreational use of the water. The **Total Dissolved Solids**, **Conductivity**, **Alkalinity**, and **Hardness** are similar to the readings from last year. These parameters remain at low levels that are characteristic of a low-productivity lake. This year, we continued testing for **Salinity** and the results from this year remain at desirable levels.

The **Transparency** decreased significantly from last year (3.75 feet). Most of this difference can be attributed to the very cloudy weather with winds gusting to 30 mph. The Secchi Disk was very hard to see with the waves and low sunlight.

The **Nitrate** and **Phosphorus** concentrations have continued to climb. The **Dissolved Oxygen** changed very little from 2009, suggesting little to no change in algae production. Although these could be fluctuations, the general trend from 2008-2010 indicates that a surplus of Nitrates and Phosphorus are flowing into the lake. The readings indicate the higher concentrations are on the north and west sides of the lake. However, this is not necessarily indicative of where the nutrients are entering, only where they are loading.

Zebra mussels have been found in the lake, however, the data does not suggest that zebra mussels are affecting the water quality. Although zebra mussels would increase Transparency, the Total Dissolved Solids, Conductivity, Phosphorus, Nitrates would decrease. These parameters either remained similar or increased, therefore, zebra mussels are most likely not the reason for the increased transparency.

Water samples were taken on 6/16/010 at 10:00 AM. Water tests were completed on 6/17/2009 at 8:00 AM. This report describes conditions at the time the samples were taken. The quality of the water was tested only to the parameters listed above.

Completed and Certified by: _____
Peter Filpansick, B.S.

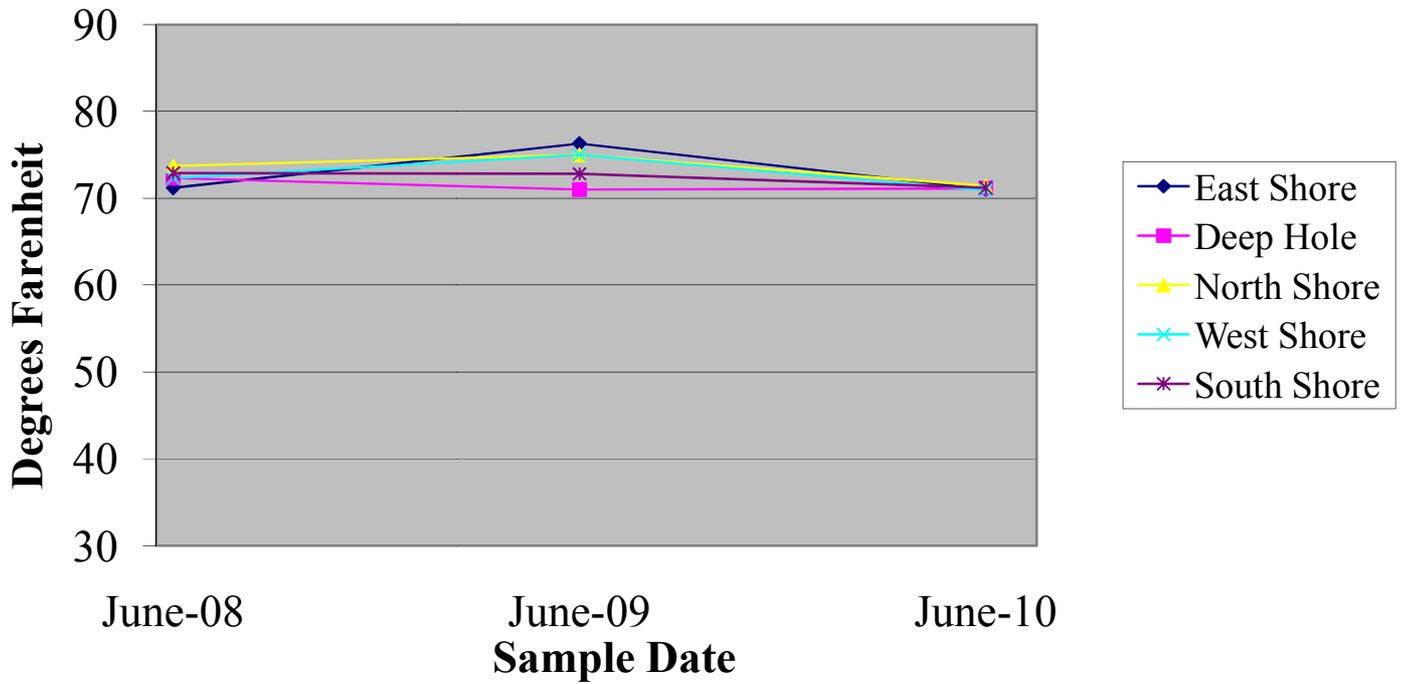
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Reviewed and Approved by: _____
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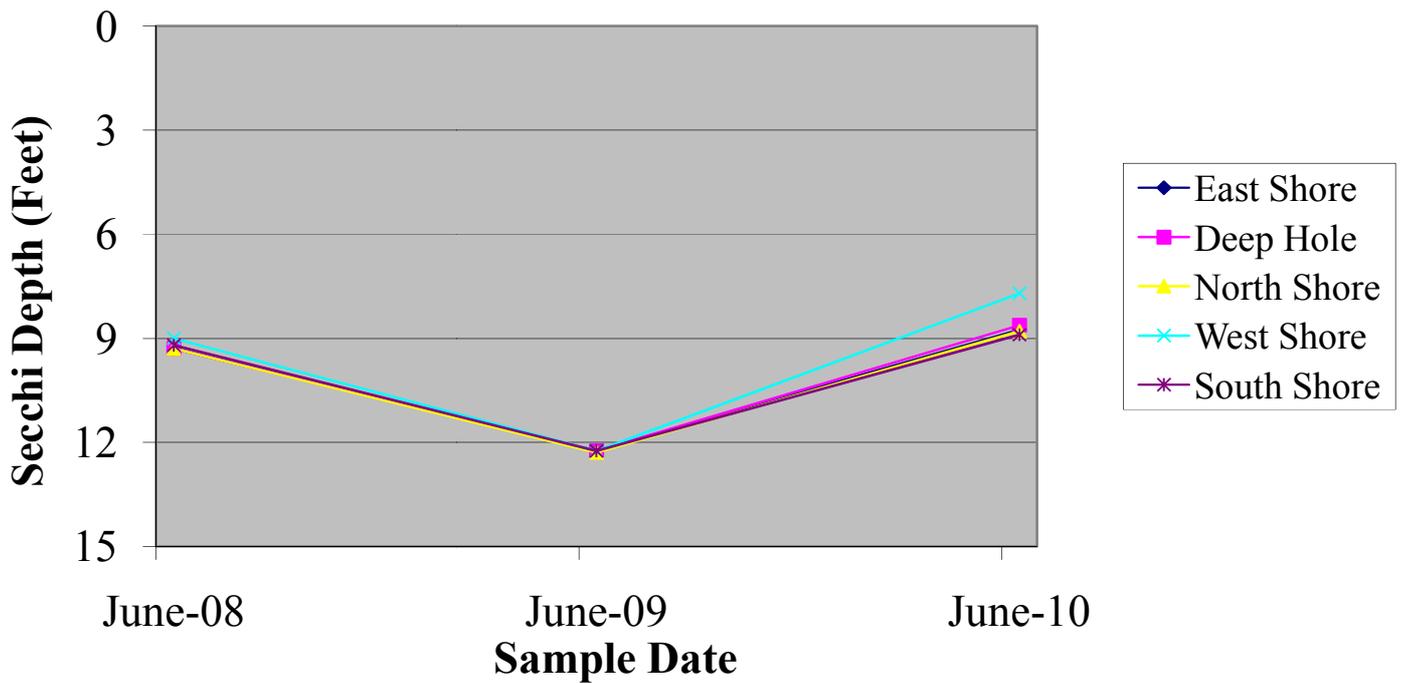
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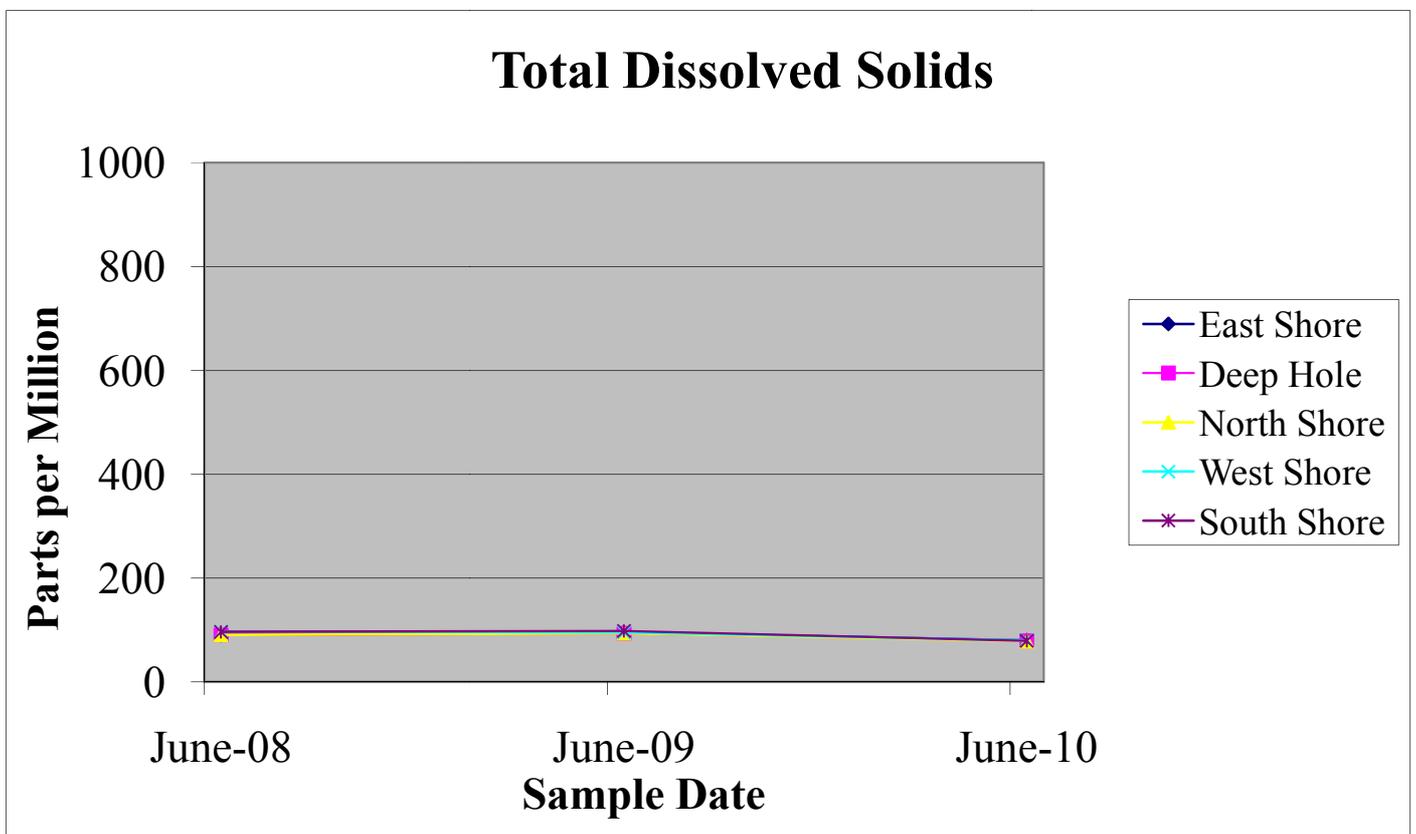
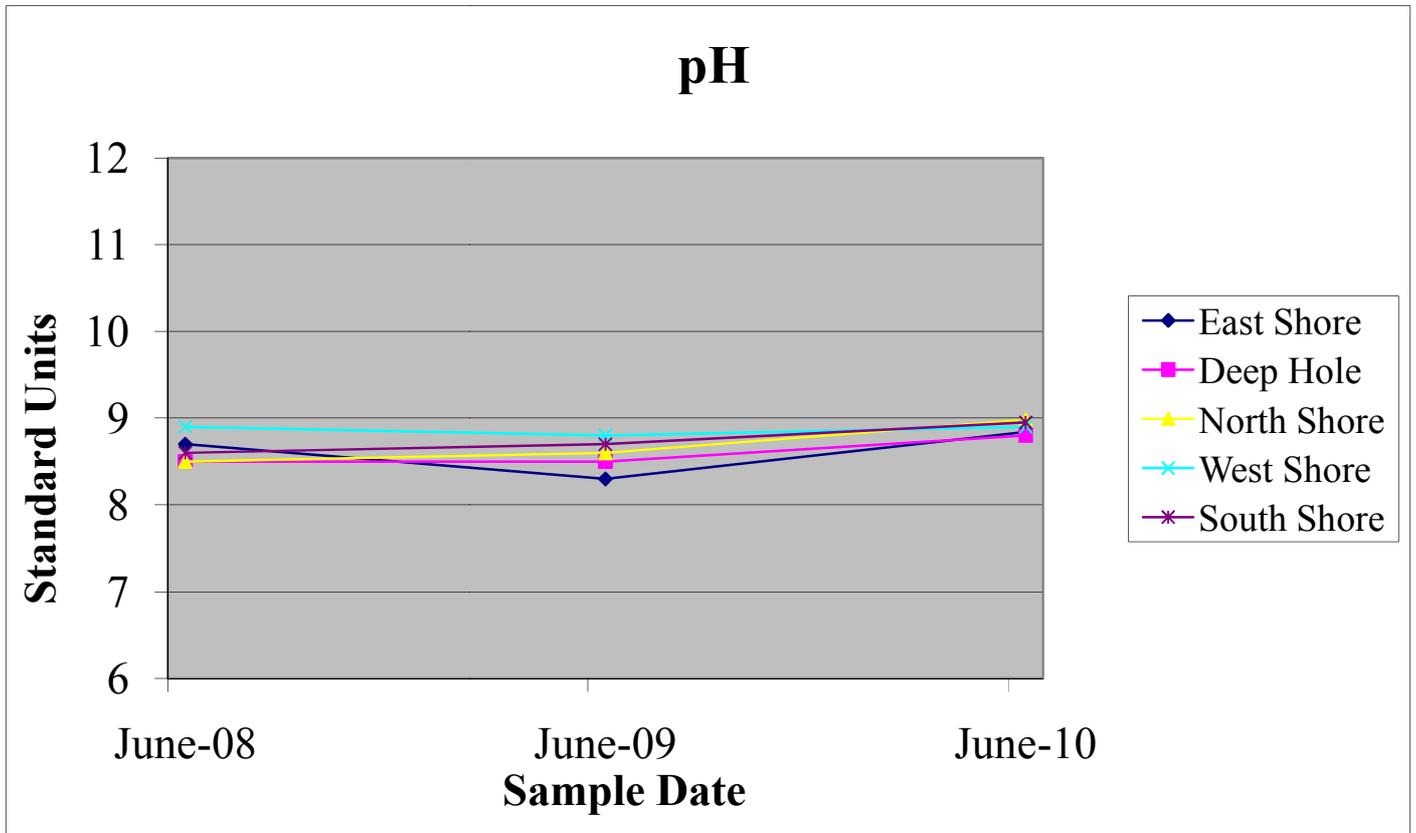


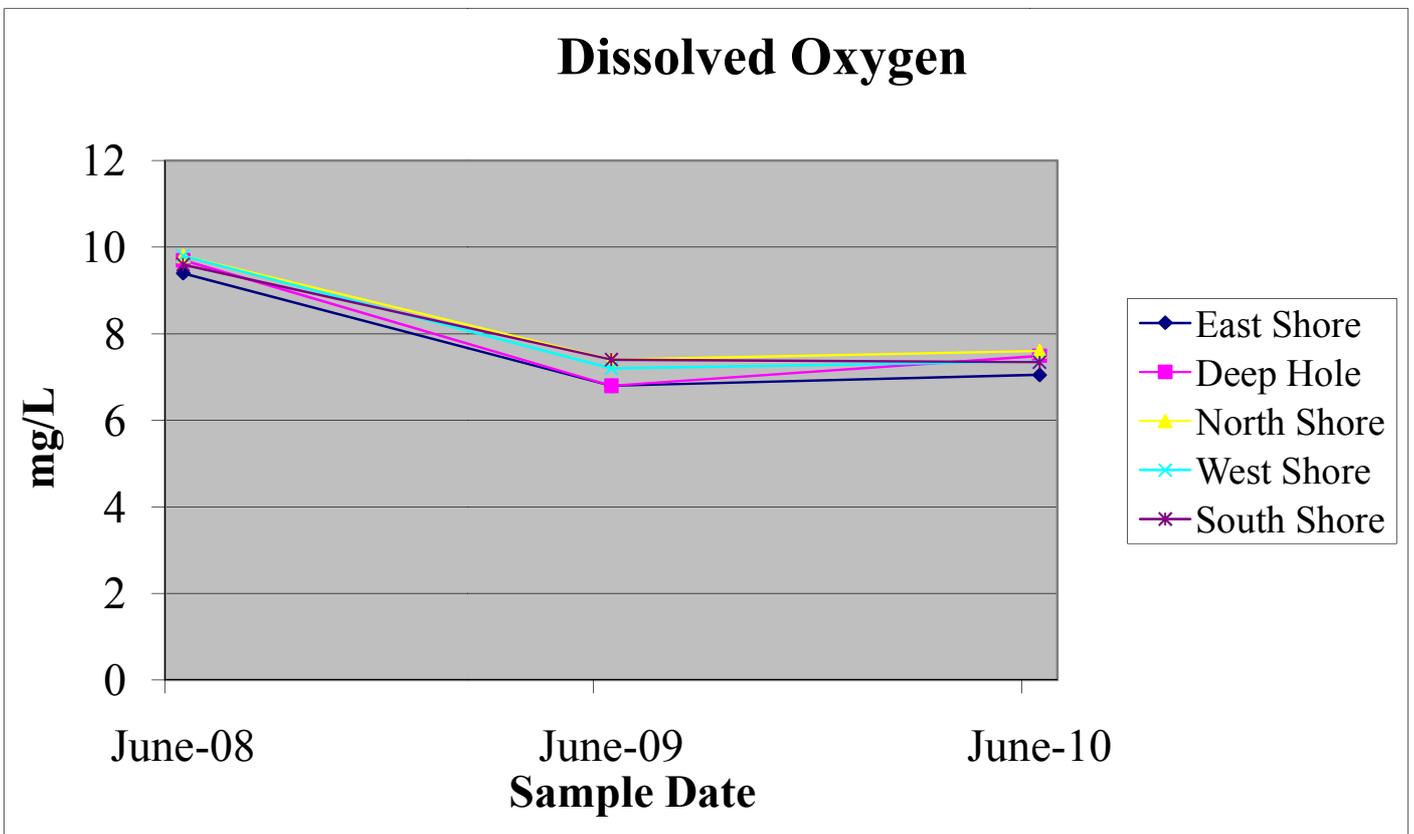
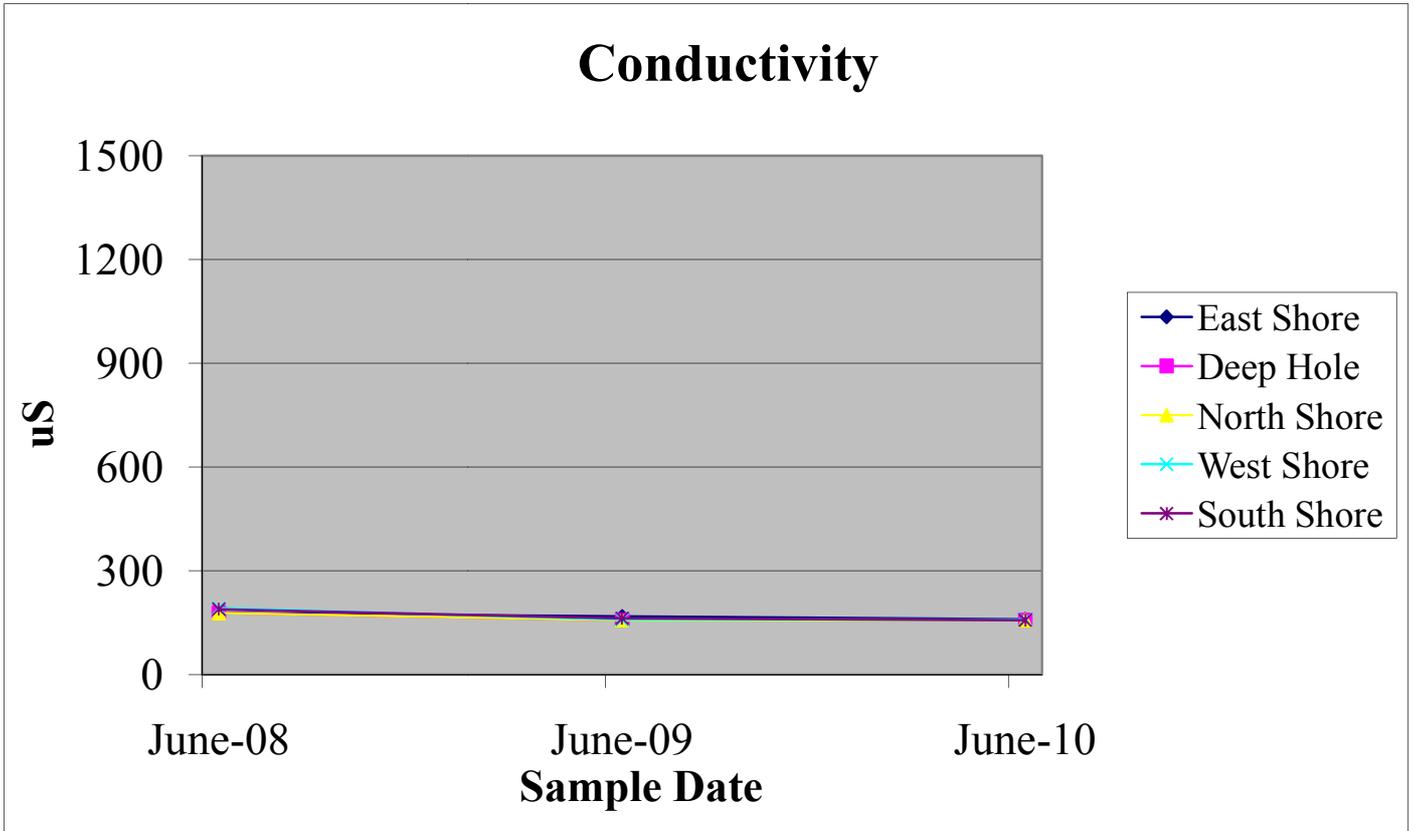
Lake Temperature

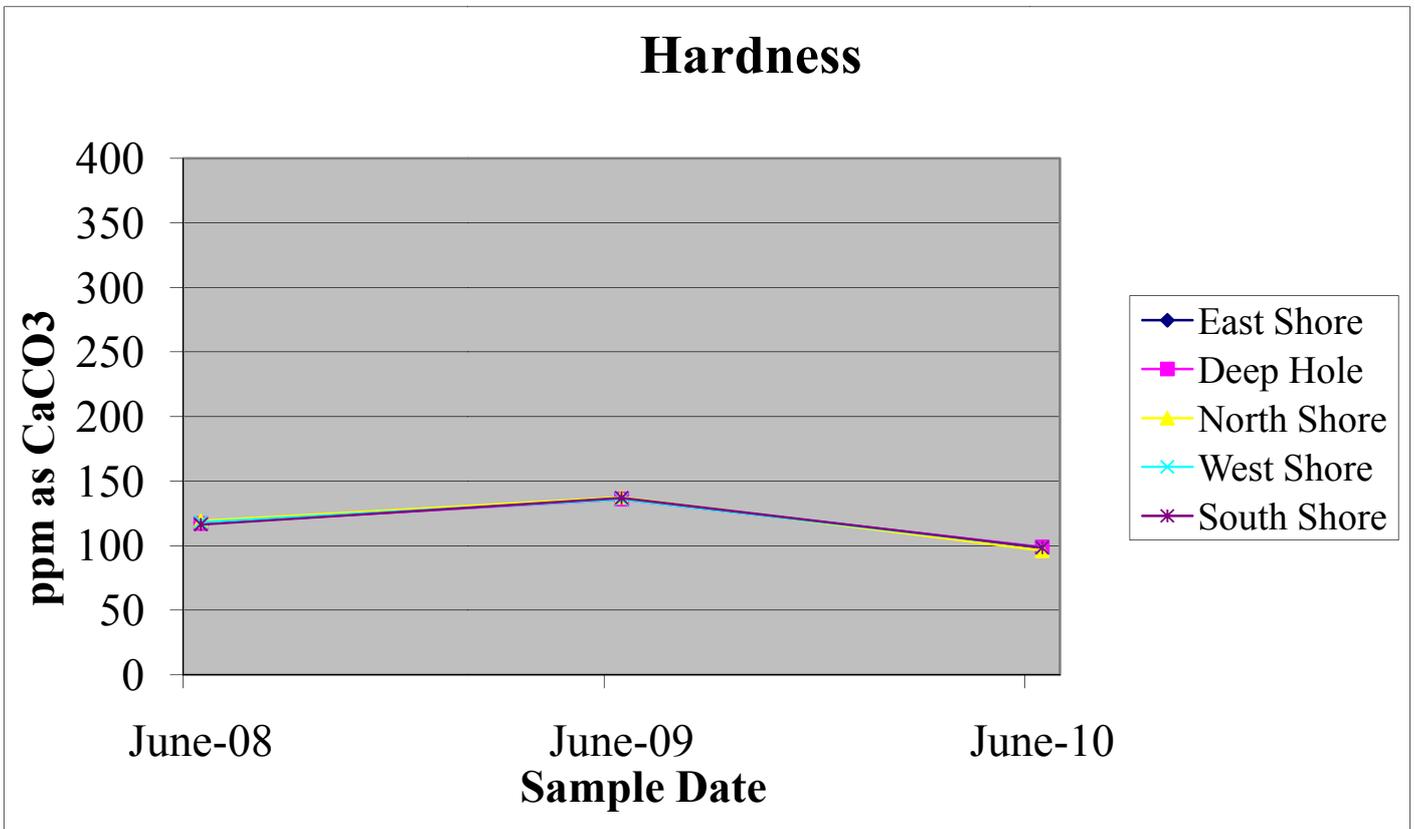
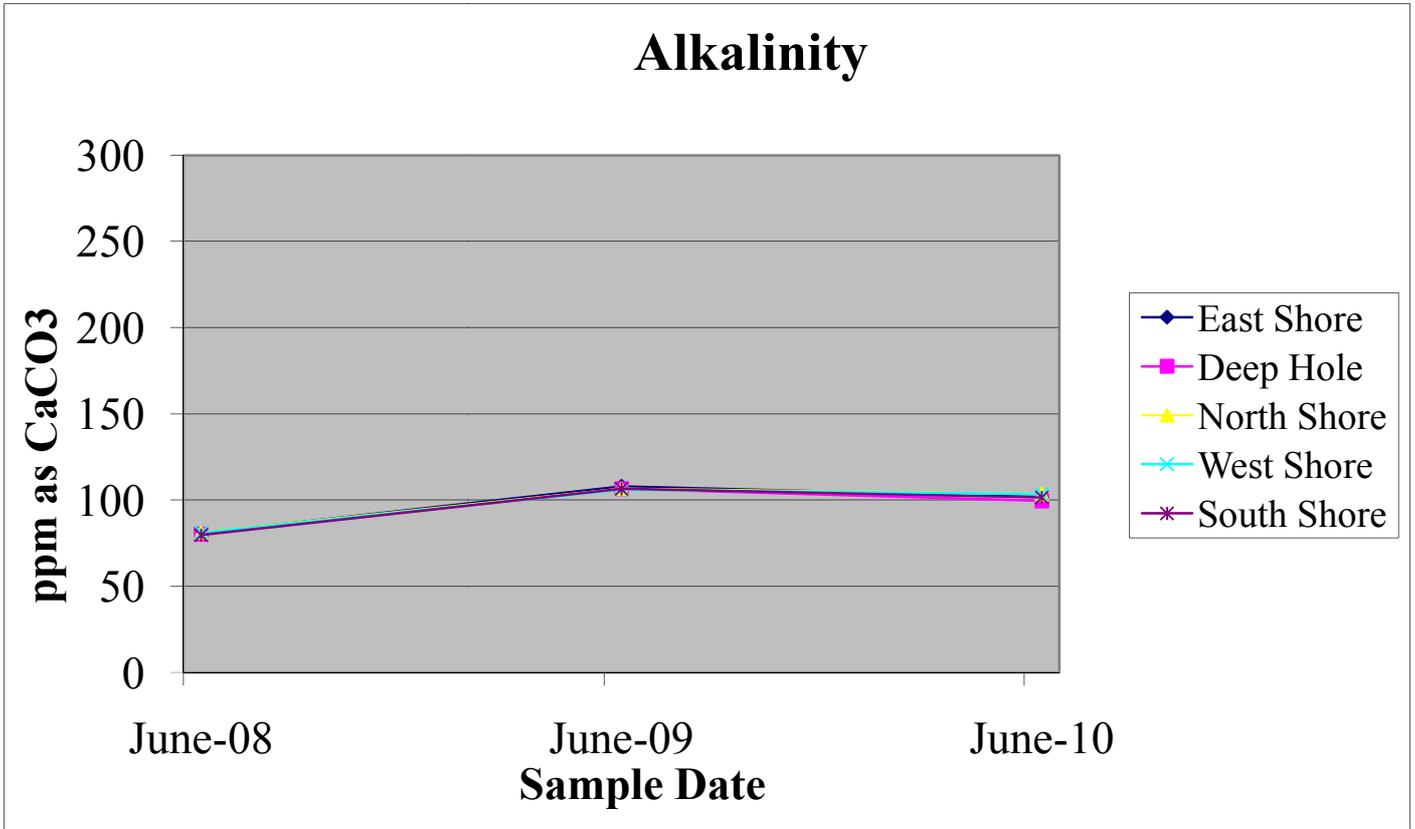


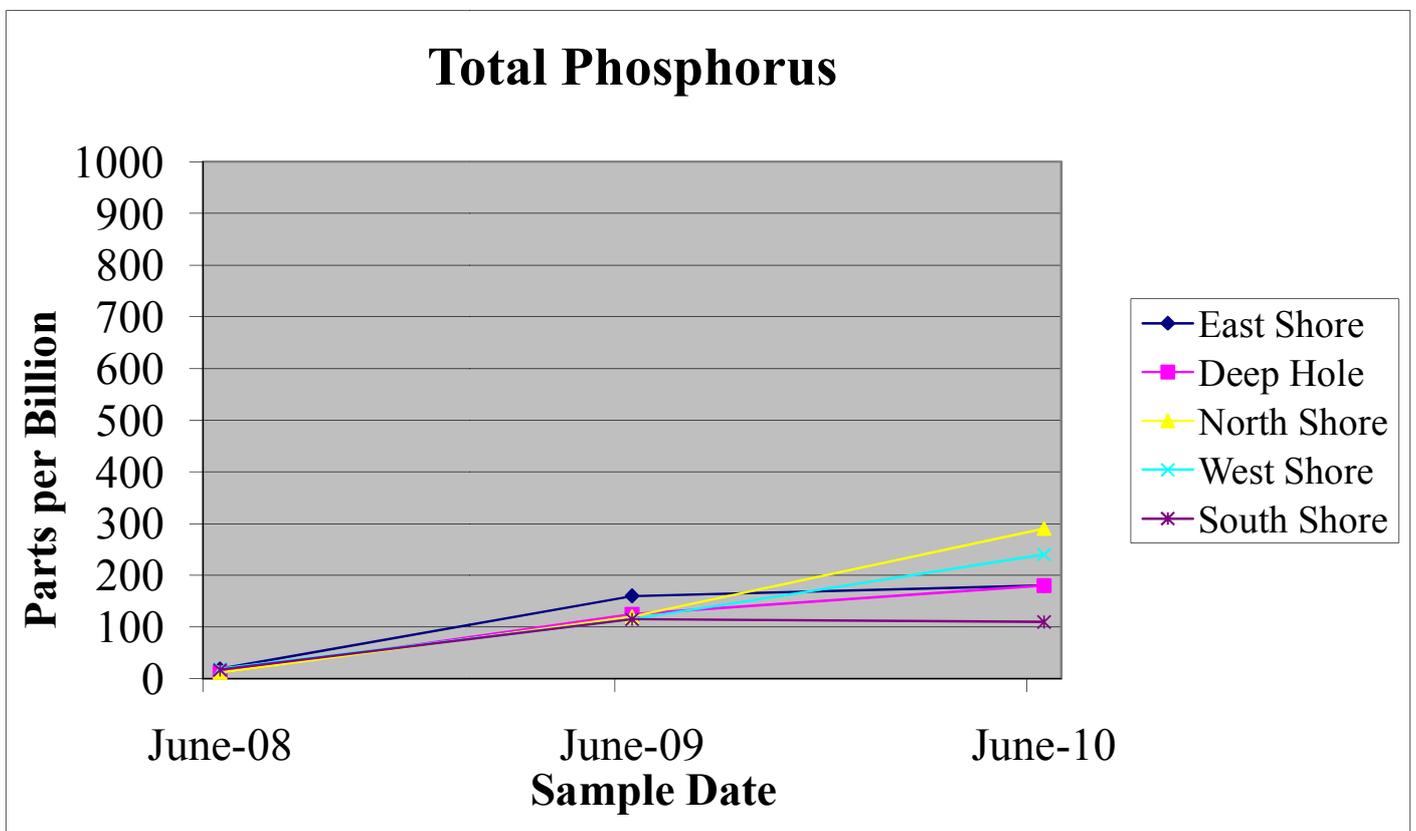
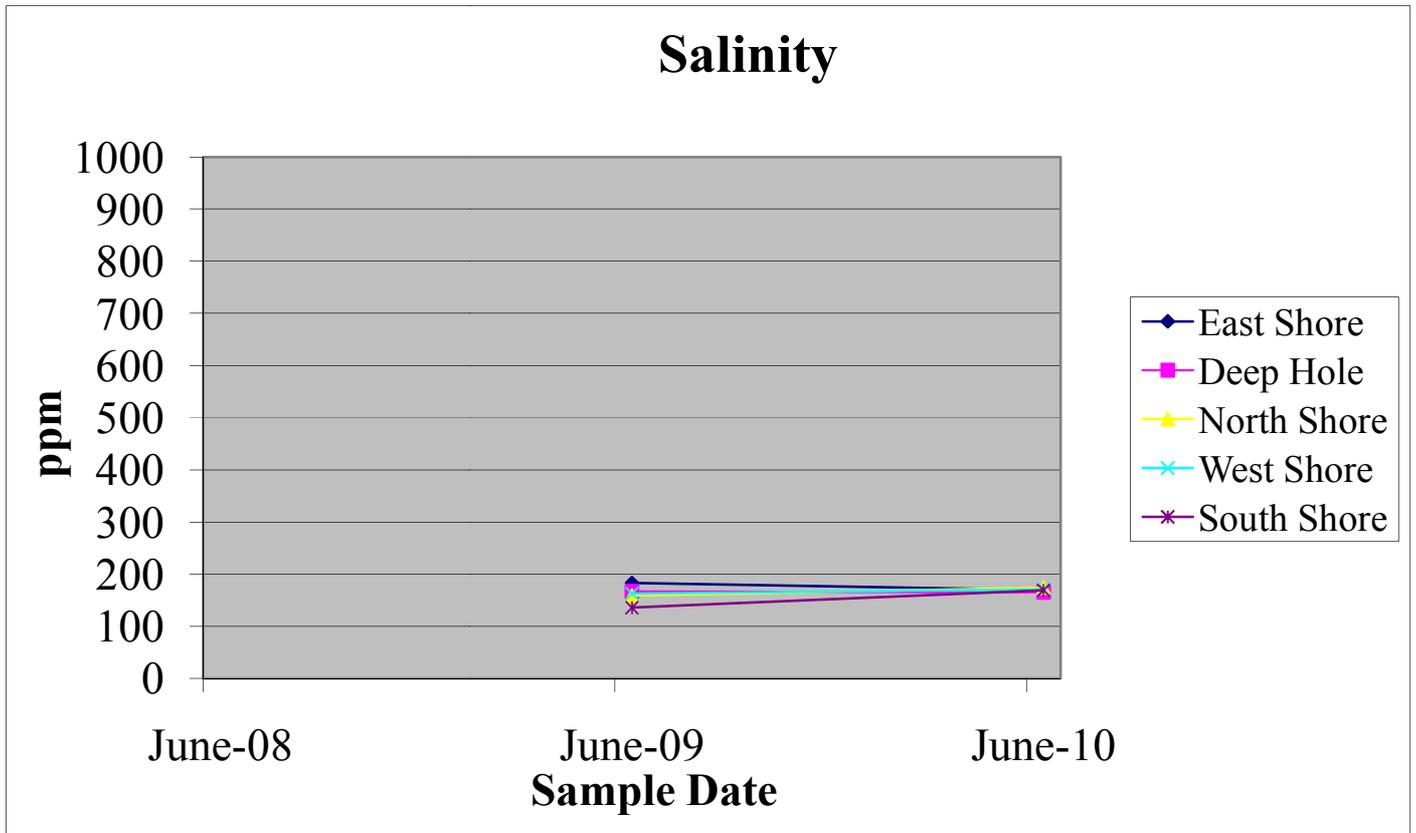
Transparency





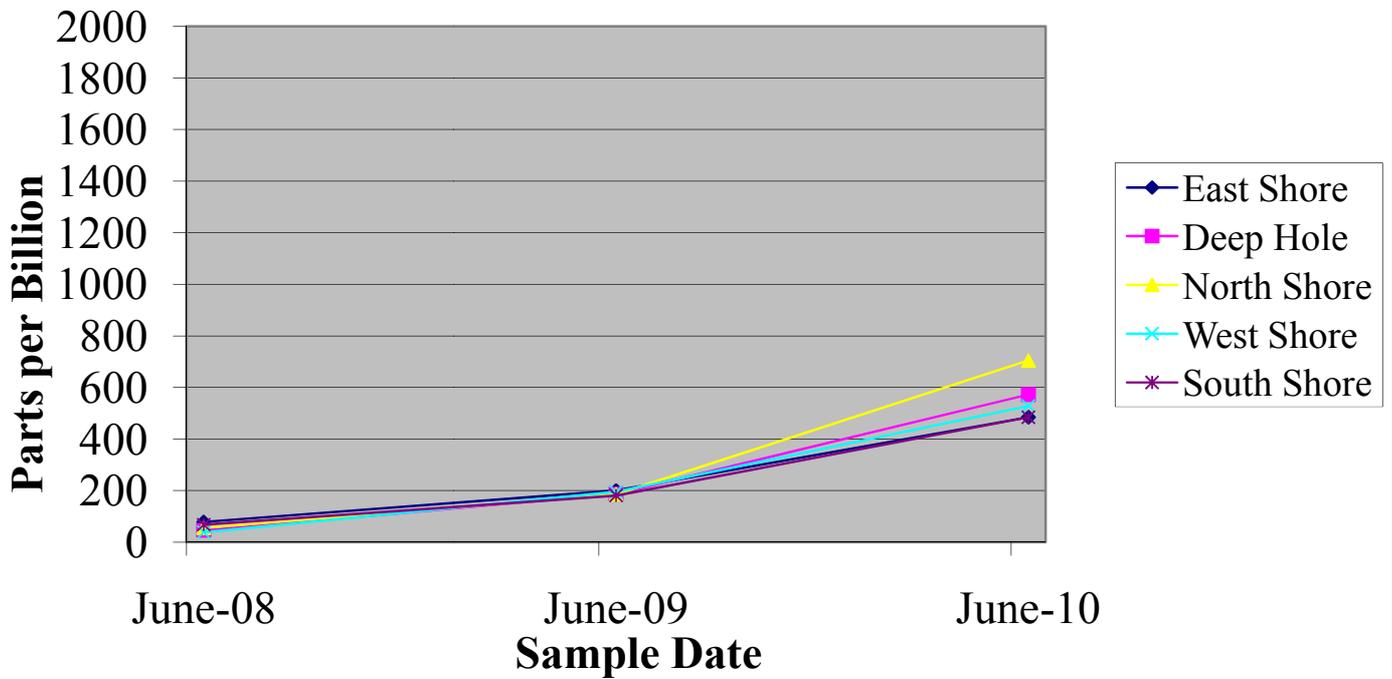




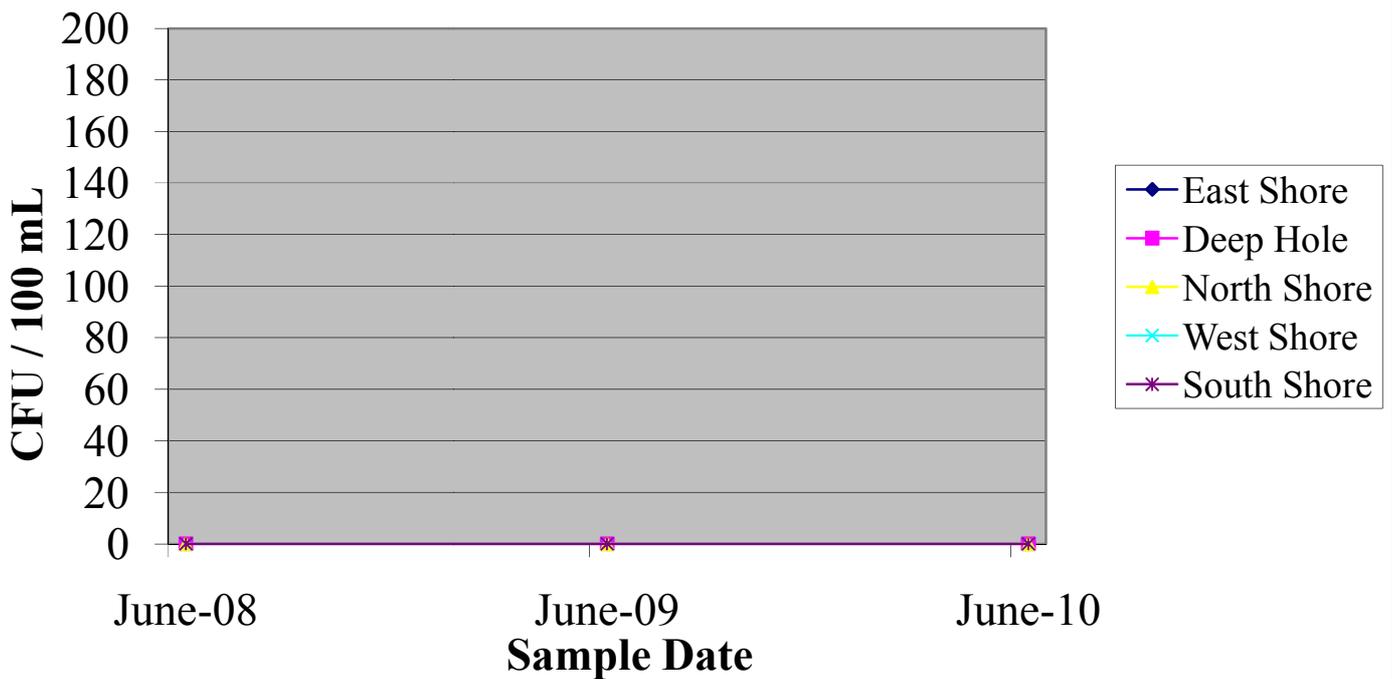




Nitrate



Fecal Coliforms





Analysis Information

 DANGEROUS  CRITICAL  HIGH  HEALTHY

Temperature:	The water temperature directly affects the amount of oxygen that is able to dissolve into the water. The temperature of surface waters is not indicative of the entire water column.
Transparency:	The ability of light to penetrate the water column is determined by the amount of dissolved and suspended particles in the water. Although aesthetically desirable, transparent water allows increased light to reach the lake bed and may result in vegetation growth.
pH:	pH is a measure of acidity or alkalinity. pH is a general measure of lake health and can roughly indicate the range of other measurements such as alkalinity and hardness. Target Range: 7-10 Standard Units Maximum Tolerance: 12 Standard Units
TDS:	Total Dissolved Solids is the amount of all organic and inorganic substances in the water in a molecular or ionized state. Higher values generally indicate richer and more productive water. Lower values usually indicate cleaner and less productive water. Target Range: 0-1,000 ppm Maximum Tolerance: 1,500 ppm
Conductivity:	Conductivity is a measure of the ability of water to conduct electricity. Dissolved ions in the water increase conductivity, thus TDS and Conductivity are closely related. Target Range: 0-1,500 ppm Maximum Tolerance: 5,000 ppm
Dissolved Oxygen:	D.O. is a measure of the amount of oxygen dissolved in the water. This oxygen is available to fish and other animals for respiration. Vegetation generally increases DO, particularly during the day and early evening. Animals and other respiring organisms consume the oxygen, mostly during the day. Oxygen is also added to the lake through wave action, rain, fountains and aerators. Target Range: 8-10 mg/L Minimum Tolerance: 5.0 mg/L
Alkalinity:	Alkalinity refers to the ability of the water to neutralize acids, mainly through the hydrogenation of carbonate ions. This is why the alkalinity is expressed as "ppm as CaCO ₃ ". However, other basic molecules in the water can also contribute to alkalinity. Target Range: 0-200 ppm as CaCO ₃ Maximum Tolerance: 200 ppm as CaCO ₃
Hardness:	Hardness is very closely related to alkalinity. It is a measure of the dissolved salts and metals in the water, including but not limited to CaCO ₃ . Target Range: 0-250 ppm as CaCO ₃ Maximum Tolerance: 200 ppm as CaCO ₃
Salinity:	Salinity is the measure of the dissolved salt content of water. Salinity influences the types of organisms that are able to survive in the water. Salinity also affects the chemistry of the water, and including conductivity and potability. Target Range: 0-500 ppm Maximum Tolerance: 1,000 ppm



Total Phosphorus:

Phosphorus is an essential nutrient for plant growth. However, concentrations exceeding 100 ppb can impair the water and results in nuisance vegetation growth. Phosphate is the form of phosphorous that is most readily available to plants and algae.

Target Range: 0-100 ppb

Maximum Tolerance: 1,000 ppb

Nitrate:

Nitrogen is also essential for plant growth. Nitrate is the predominant form of nitrogen in water. Excessive nitrate concentrations may also result in pollution and increased vegetation.

Target Range: 0-1,000 ppb

Maximum Tolerance: 10,000 ppb (10 ppm)