

Stream Water Chemistry Report Summary

Stream Name: Black Creek (Reference Site)

Water Chemistry Parameters	Observed Value		Standard
	2013	2014	
Total Suspended Solids	6.48 ± 1.05 mg/L	3.53 ± 0.96 mg/L	N/A
Alkalinity	179.86 ± 16.18 mg/L	158.92 ± 17.45 mg/L	N/A
Chloride	6.86 ± 0.50 mg/L	6.58 ± 0.54 mg/L	
Total Phosphorus	0.011 ± 0.004 mg/L	0.015 ± 0.004 mg/L	< 0.01 - 0.03 mg/L
Chlorophyll a Content	0.328 ± 0.05 mg/L	0.176 ± 0.06 mg/L	
Temperature	15.15 ± 1.39 C	12.46 ± 1.39 C	N/A
pH	7.93 ± 0.37	8.01 ± 0.23	Between 6.5-8.5
Conductivity	0.263 ± 0.02 spc	0.307 ± 0.02 spc	
Dissolved Oxygen	6.17 ± 0.57 mg/L	7.24 ± 0.58 mg/L	> 6.0 mg/L
Total Organic Nitrogen	0.557 ± 0.04 mg/L	0.523 ± 0.04 mg/L	< 1.1mg/L

The two seasons of water chemistry data continues to indicate the high water quality of this reference site. All measured parameters are well below the recommended guidelines to prevent nuisance vegetation and maintain healthy aquatic life. Of particularly note are the low total phosphorus and total organic nitrogen values reported. When in excess these nutrients can stimulate problem surface algal growth in slow moving waters. Total phosphorus at this site is consistently well below the more widely accepted guideline of 0.03 mg/L, although it is slightly above the more rigid standard of 0.01 mg/L. This suggests that unaltered phosphorus content in this region may be naturally above 0.01 mg/L. The total organic nitrogen at this site was also consistently well below the recommended guideline of 1.1 mg/L.

This site also has the lowest chlorophyll *a* content and total suspended solid concentration. Chlorophyll *a* levels are indicative of suspended algal growth within the stream. These low levels are likely due to the low nutrient levels at this site; however, they may also be due to low incoming light. The low chlorophyll *a* levels are likely contributing to the low total suspended solid levels at this site. Total suspended solid is a measure of all the material suspended in the water column, including sediments and algae. This measure also indicates that erosion within this stream's watershed is minimal. There is notable natural variation in total suspended solid levels at this site between the years sampled, with higher values occurring in 2013 (2013 = 6.48 ± 1.05 mg/L; 2014= 3.53 ± 0.96 mg/L). This suggests that significant decreases in total suspended solid levels from 2013 to 2014 at impacted sites may simply be natural variation.

The remaining variables are indicative of local geological conditions, particularly the strength of the ground water connection. Of particular note is the conductivity at this site, which is the lowest of all sites monitored. This suggests that this site has a particularly low ground water connection and has a large rain water component.