

# Stream Water Chemistry Report Summary

## Stream Name: Unnamed Stream

Water Chemistry Parameters	Observed Value			Standard
	2013	2014	2015	
Total Suspended Solids	14.93 ± 8.07 mg/L	18.99 ± 7.47 mg/L	18.80 ± 37.79 mg/L	< 11.2 mg/L
Alkalinity	238.14 ± 24.34 mg/L	236.86 ± 24.34 mg/L	263.78 ± 28.44 mg/L	< 224.83 mg/L
Chloride	8.31 ± 1.29 mg/L	10.21 ± 1.29 mg/L	9.52 ± 7.57 mg/L	
Total Phosphorus	0.03 ± 0.01 mg/L	0.037 ± 0.06 mg/L	0.032 ± 0.02 mg/L	< 0.01 - 0.03 mg/L
Chlorophyll a Content	1.12 ± 0.48 mg/L	0.412 ± 0.48 mg/L	0.983 ± 0.87 mg/L	
Temperature	14.08 ± 2.47 C	11.01 ± 2.29 C	14.67 ± 3.96 C	< 25.15 C
pH	7.80 ± 0.28	7.85 ± 0.12	7.80 ± 0.20 mg/L	Between 6.5-8.5
Conductivity	0.393 ± 0.08 spc	0.536 ± 0.07 spc	0.570 ± 0.30 spc	
Dissolved Oxygen	6.69 ± 1.31 mg/L	7.38 ± 1.21 mg/L	9.64 ± 2.42 mg/L	> 6.0 mg/L
Total Organic Nitrogen	0.637 ± 2.63 mg/L	4.19 ± 2.63 mg/L	0.506 ± 0.14 mg/L	< 1.1mg/L
Caffeine			0.0286 µg/L	

The water chemistry at Unnamed Stream has remained relatively consistent across the three seasons it has been observed. As cattle exclusion efforts are still pending at this location this consistency in water chemistry is as expected. The greatest exception to these trends is the total organic nitrogen values, which peaked strongly during the summer of 2014. These nitrogen values, however, were entirely driven by a storm event in April 2014. In general both the total phosphorus and total organic nitrogen levels at this site in 2015 were near or below the recommended standards to minimize the growth of nuisance vegetation. These nutrient conditions paired with some of the highest dissolved oxygen concentrations, conditions ideal to support aquatic life. That said, this stream supports the highest caffeine concentrations of any monitored streams. This indicates that inputs from septic systems in the region are the greatest at this particular stream.

The total suspended solids at this site are clearly above the recommended standard to minimize impacts on aquatic life. These high levels of total suspended solids have been reported at this stream for all three seasons it has been observed. This demonstrates that the sediment loading at this stream is a consistent issue, most likely propagated by continued cattle watering in this stream.

The notably high conductivity level at this site indicates that it has a strong ground water connection. This strong ground water connection is likely naturally increasing the  $\text{CaCO}_3$  in the stream. The bedrock in this region is predominately limestone, a rock composed of  $\text{CaCO}_3$ . This same compound is what is used to measure alkalinity. Thus the ground water that comes in contact with the bedrock will be naturally rich in  $\text{CaCO}_3$ , increasing the alkalinity of this site above that observed at this reference stream.