

Stream Water Chemistry Report Summary

Stream Name: Old Woman's River

Water Chemistry Parameters	Observed Value			Standard
	2013	2014	2015	
Total Suspended Solids	8.17 ± 2.44 mg/L	6.88 ± 2.64 mg/L	5.01 ± 6.89 mg/L	< 11.2 mg/L
Alkalinity	250.29 ± 16.35 mg/L	257.25 ± 17.66 mg/L	233.00 ± 74.05 mg/L	< 224.83 mg/L
Chloride	24.07 ± 2.50 mg/L	22.57 ± 2.70 mg/L	19.58 ± 6.63 mg/L	
Total Phosphorus	0.037 ± 0.01 mg/L	0.026 ± 0.01 mg/L	0.02 ± 0.01mg/L	< 0.01 - 0.03 mg/L
Chlorophyll a Content	1.24 ± 0.37 mg/L	0.277 ± 0.40 mg/L	1.66 ± 0.98 mg/L	
Temperature	14.96 ± 1.61 C	14.00 ± 1.61 C	14.97 ± 3.64 C	< 25.15 C
pH	8.00 ± 0.15	7.90 ± 0.13	7.73 ± 0.32	Between 6.5-8.5
Conductivity	0.475 ± 0.05 spc	0.534 ± 0.05 spc	0.622 ± 0.37 spc	
Dissolved Oxygen	7.10 ± 0.66 mg/L	7.56 ± 0.66 mg/L	7.73 ± 2.89 mg/L	> 6.0 mg/L
Total Organic Nitrogen	0.631 ± 0.04 mg/L	0.577 ± 0.04 mg/L	0.569 ± 0.21 mg/L	< 1.1mg/L
Caffeine			0.0216 ± 0.031 µg/L	

The water chemistry at Old Woman's River continues to be some of the least impacted of all the streams monitored. The total suspended solids, total phosphorus and total organic nitrogen levels have remained below recommended standard conditions throughout the 2014 and 2015 monitoring seasons. Moreover, since the exclusion of multiple cattle sites in the summer of 2014 water chemistry parameters have improved. For example total suspended solids, total phosphorus, and total organic nitrogen levels have decreased by 38%, 46%, 10% respectively from 2013 to 2015, corresponding with a 9% percent increase in dissolved oxygen content. The caffeine testing at this site, however, is suggestive of septic system impacts at this site, perhaps slowing further water quality improvements.

Like most other streams monitored in 2015, the chlorophyll a content at Old Woman's River increased notably in summer of 2015, rising by 500% from the summer of 2014 to 2015. Similarly high values have been reported in the summer of 2013, prior to cattle exclusion at this stream. As even the reference stream had notable increases in chlorophyll a content during the summer of 2015 it is likely these trends are at least partly due to naturally occurring environmental conditions. It is also possible such high chlorophyll a values are contributing to the apparent decrease in total phosphorus and total organic nitrogen concentrations. As nuisance plants grow in steam they utilize and incorporate phosphorus and nitrogen compounds, potentially decreasing in stream phosphorus and nitrogen concentrations.