

2013 Stream Sampling ACLA-MVCA

Since 2003, the annual sampling program has had the purpose of general monitoring of the major watercourses sampled in 2001.

Sampling in 2013 was conducted roughly every other week from April 30th to October 8th for a maximum of 11 sampling events at 12 locations. High flows were prevalent in 2013; a stark contrast to the drought of 2012. The samples were analyzed by ALS Laboratory Group, Waterloo. Samples were tested for Escherichia coli (E. coli), nitrate and total phosphorus. The results are on the following pages.

Key findings as a result of the 2013 sampling include:

- Only the Maitland River consistently had E. coli concentrations of less than 100 cfu/100ml.
- The Nine Mile River had the lowest nitrate concentrations of the study sites.
- The Maitland River had the lowest total phosphorus concentrations of the study sites.
- Griffins Creek had the highest values of E. coli, and total phosphorus concentrations.
- Boyd Creek had the highest nitrate as N concentrations.
- Kintail Creek could not be sampled consistently. 2013 values have not been included in the summary tables.
- October 8th had the highest concentrations of bacteria and nutrients of any sampling date in 2013

A graph depicting the total daily precipitation has been included.

Ashfield-Colborne Lakefront Association Sampling 2013

Stream Name	Site	E.COLI (cfu/100ml)										
		Date										
		Apr 30/13	May 14/13	Jun 5/13	Jun 18/13	Jul 4/13	Jul 16/13	Jul 30/13	Aug 13/13	Aug 28/13	Sep 10/13	8-Oct-13
Boyd Creek	A1	10	10	130	60	290	760	440	460	110	120	1100
Eighteen Mile River	A2	40	20	40		150	150	190	980	470	180	1700
Kintail Creek	A3		20		440							
Kerry's Creek	A4	20	30	10	260	610	250	260	290	190	220	500
Near Kingsbridge	A5	10	20	90	1400						180	11900
Griffins Creek	A6	170	250	270	2180	1070	30	1420	520	970	220	2200
Near Midhuron	A7	10	140	170	390	110					130	300
Nine Mile River	A8	10	30	50	130	280	200	160	160	320	250	1600
Boundary Creek	A9	50	30	80	260	240		550	180	210	100	1100
Bogies Road Creek	C1	20	80	80	330	260	480	330	120	220	90	400
Allans Creek	C2	70	10	140	210	270	100	190	190	220	460	600
Maitland River	C3	10	10	30	20	20	20	110	50	110	100	
GeoMean		23	30	72	261	222	142	298	236	247	165	1120

- Exceeds recreation limit (100cfu/100mL) but less than 1000.
- Exceeds limit for recreation by more than 10x.
Microbiologists often consider an order of magnitude (10 fold) as a significant difference.
- Less than the detection limit

Count	2013 GeoMean	Percent of 2013 Samples above:		Grade	Rank
		100CFU/100mL	1000cfu/100mL		
11	143	73%	9%	C	5
10	169	60%	10%	C	9
11	139	73%	0%	C	4
6	194	50%	33%	C	10
11	475	91%	36%	C	11
7	122	86%	0%	C	2
11	138	73%	9%	C	3
10	167	70%	10%	C	8
11	159	64%	0%	C	7
11	155	82%	0%	C	6
10	33	20%	0%	B	1

Stream Name	Site	NITRATE as N (mg/l)										
		Date										
		Apr 30/13	May 14/13	Jun 5/13	Jun 18/13	Jul 4/13	Jul 16/13	Jul 30/13	Aug 13/13	Aug 28/13	Sep 10/13	8-Oct-13
Boyd Creek	A1	6.77	4.42	8.62	3.75	11.5	1.8	0.26	2.04	0.11	1.06	9.53
Eighteen Mile River	A2	4.87	3.37	7.88		6.06	0.84	0.1	0.23	0.1	0.17	5.78
Kintail Creek	A3		2.61		3.59							
Kerry's Creek	A4	6.36	5.16	9.18	5.39	2.71	1.92	2.33	1.53	1.23	1.76	1.9
Near Kingsbridge	A5	5.59	3.91	5.96	2.55						0.1	6.95
Griffins Creek	A6	7.83	4.12	6.34	3.5	0.1	0.1	0.1	0.1	0.1	0.1	8.83
Near Midhuron	A7	6.64	1.82	6.13	1.8	0.1					0.1	7.44
Nine Mile River	A8	1.96	1.76	1.7	1.48	1.17	1.11	1.13	1.06	1.05	1.12	2.33
Boundary Creek	A9	4.03	3.31	3.78	2.82	0.99		0.2	1.25	0.23	0.45	5.42
Bogies Road Creek	C1	7.72	4.19	5.26	7.63	0.33	0.1	0.19	0.73	0.1	0.55	4.64
Allans Creek	C2	4.91	4.82	5.38	7.3	2.72	0.4	1.27	1.47	0.72	1.72	10.3
Maitland River	C3	4.94	3.48	6.2	6.35	7.52	3.44	0.78	1.2	0.35	0.52	
75th Percentile		6.705	4.2475	7.11	5.87	5.225	1.83	1.13	1.47	0.72	1.09	8.4825

- Exceeds proposed Canadian Aquatic Objective of 2.9 mg/L of nitrate as N
- Exceeds Drinking Water Guidelines of 10 mg/L of nitrate as N
- Less than the detection limit.

Count	2013 75th Percentile	Percent of 2013 Samples above:		Grade	Rank
		Aquatic Protection Limit (2.93 mg/L as N)	Drinking Water Guideline (10 mg/L as N)		
11	7.70	55%	9%	D	11
10	5.55	50%	0%	C	7
11	5.28	27%	0%	C	6
6	5.87	67%	0%	C	8
11	5.23	45%	0%	C	5
7	6.39	43%	0%	C	10
11	1.73	0%	0%	A	1
10	3.66	40%	0%	B	2
11	4.95	45%	0%	B	3
11	5.15	45%	9%	C	4
10	5.89	60%	0%	C	9

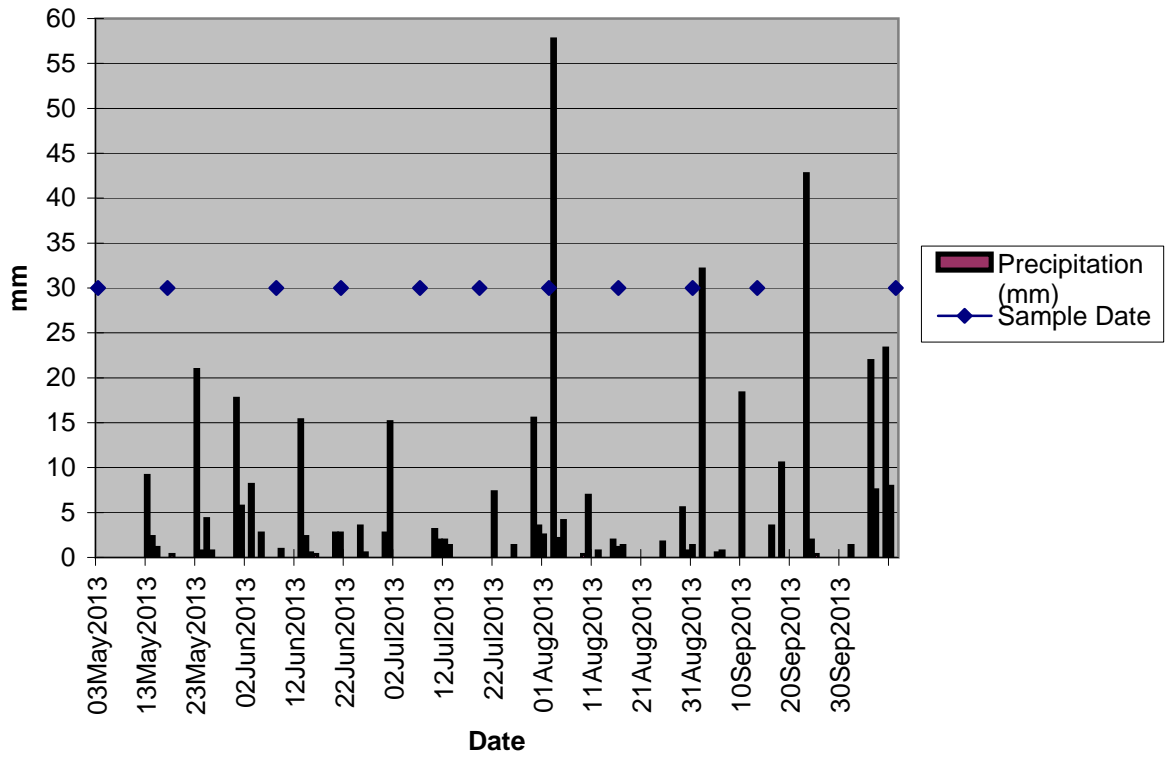
TOTAL PHOSPHORUS P (mg/l)

Stream Name	Site	Date										
		Apr 30/13	May 14/13	Jun 5/13	Jun 18/13	Jul 4/13	Jul 16/13	Jul 30/13	Aug 13/13	Aug 28/13	Sep 10/13	8-Oct-13
Boyd Creek	A1	0.0128	0.0363	0.0224	0.0167	0.0179	0.0283	0.0188	0.049	0.0203	0.0161	0.0585
Eighteen Mile River	A2	0.015	0.0078	0.0171		0.0098	0.05	0.0332	0.101	0.0151	0.0153	0.0519
Kintail Creek	A3		0.0215		0.0214							
Kerry's Creek	A4	0.0177	0.0132	0.0134	0.0239	0.0157	0.0433	0.0156	0.047	0.0223	0.0213	0.0275
Near Kingsbridge	A5	0.0146	0.0145	0.0175	0.0269					0.0507	0.749	
Griffins Creek	A6	0.0133	0.0125	0.0072	0.015	0.053	0.166	0.078	0.054	0.182	0.0901	0.0957
Near Midhuron	A7	0.0267	0.0185	0.009	0.0168	0.0393					0.0859	0.0562
Nine Mile River	A8	0.0092	0.0117	0.0095	0.0155	0.0116	0.0107	0.0109	0.03	0.0085	0.0063	0.0318
Boundary Creek	A9	0.0124	0.0164	0.0241	0.0833	0.0466		0.0729	0.046	0.0137	0.0237	0.0454
Bogies Road Creek	C1	0.0058	0.0153	0.0173	0.0217	0.0367	0.0393	0.028	0.03	0.0127	0.0162	0.0213
Allans Creek	C2	0.0117	0.0091	0.0219	0.0144	0.0218	0.026	0.0226	0.031	0.0235	0.0253	0.0359
Maitland River	C3	0.009	0.0103	0.0133	0.0098	0.017	0.0091	0.0101	0.03	0.0117	0.0055	
75th Percentile		0.0148	0.016925	0.0197	0.0228	0.03865	0.044975	0.0332	0.049	0.0223	0.038	0.057925

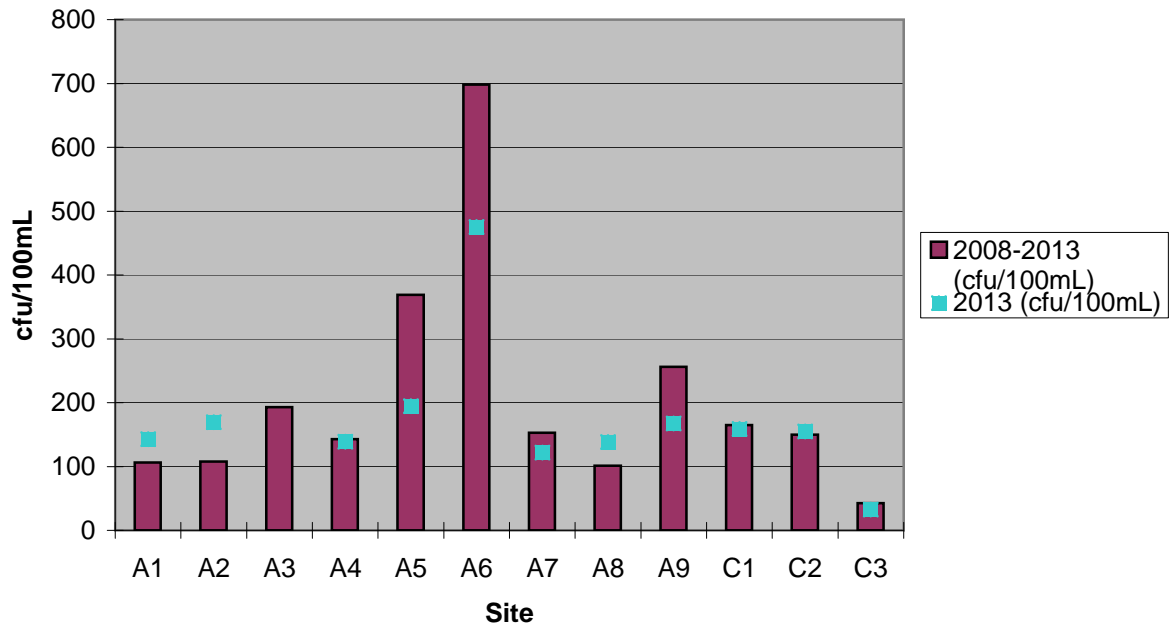
Count	2013 75th Percentile	Percent of 2013 Samples above:		
		Provincial Water Quality Objective (0.03mg/L)	Grade	Rank
11	0.0323	27%	C	6
10	0.0458	40%	C	8
11	0.0257	18%	B	4
6	0.0448	33%	C	7
11	0.0929	55%	D	11
7	0.0478	14%	C	10
11	0.0136	9%	A	2
10	0.0465	50%	C	9
11	0.0290	18%	B	5
11	0.0257	18%	B	3
10	0.0129	0%	A	1

Exceeds MVCA target to avoid excessive algae growth of .03mg/L Total Phosphorus as P (Interim Prov. Water Quality objective for streams and rivers is 0.03mg/L)
 Less than the detection limit

Total Daily Precipitation for 2013



Geometric Mean of E.coli Concentrations



2018 (mg/L)

2018 (mg/L)