

# Maitland Valley Conservation Authority



*Working for a Healthy Environment*

## 2006 Stream Sampling ACLA-MVCA

The 2006 sampling marked the sixth year of a cooperative arrangement between the Ashfield-Colborne Lakefront Association and the Maitland Valley Conservation Authority. The 2005 report summarized all of the data for the first five years with the following findings:

- Kingsbridge and Griffins were elevated compared to the other sites for *E.coli*
- all sites but the Nine Mile River were similar for nitrate and have levels of concern
- Kintail, Kingsbridge, Griffins and Midhuron had levels above all other sites for total phosphorus which may indicate a more continual source

Since 2003, the annual program has had the purpose of general monitoring of the major watercourses sampled in 2001. Refer to the attached map for the site locations. Copies of the 2001 to 2005 results are available from the MVCA or the ACLA website:

[www.northwesthuron.com/associationinfo/Association.htm](http://www.northwesthuron.com/associationinfo/Association.htm)

Sampling in 2006 was conducted every other week from April 11 to November 7 for a total of 16 sampling events. The samples were analyzed by Maxxam Analytical for *E.coli*, nitrate and total phosphorus. The results are on the following pages.

Key findings as a result of the 2006 sampling include:

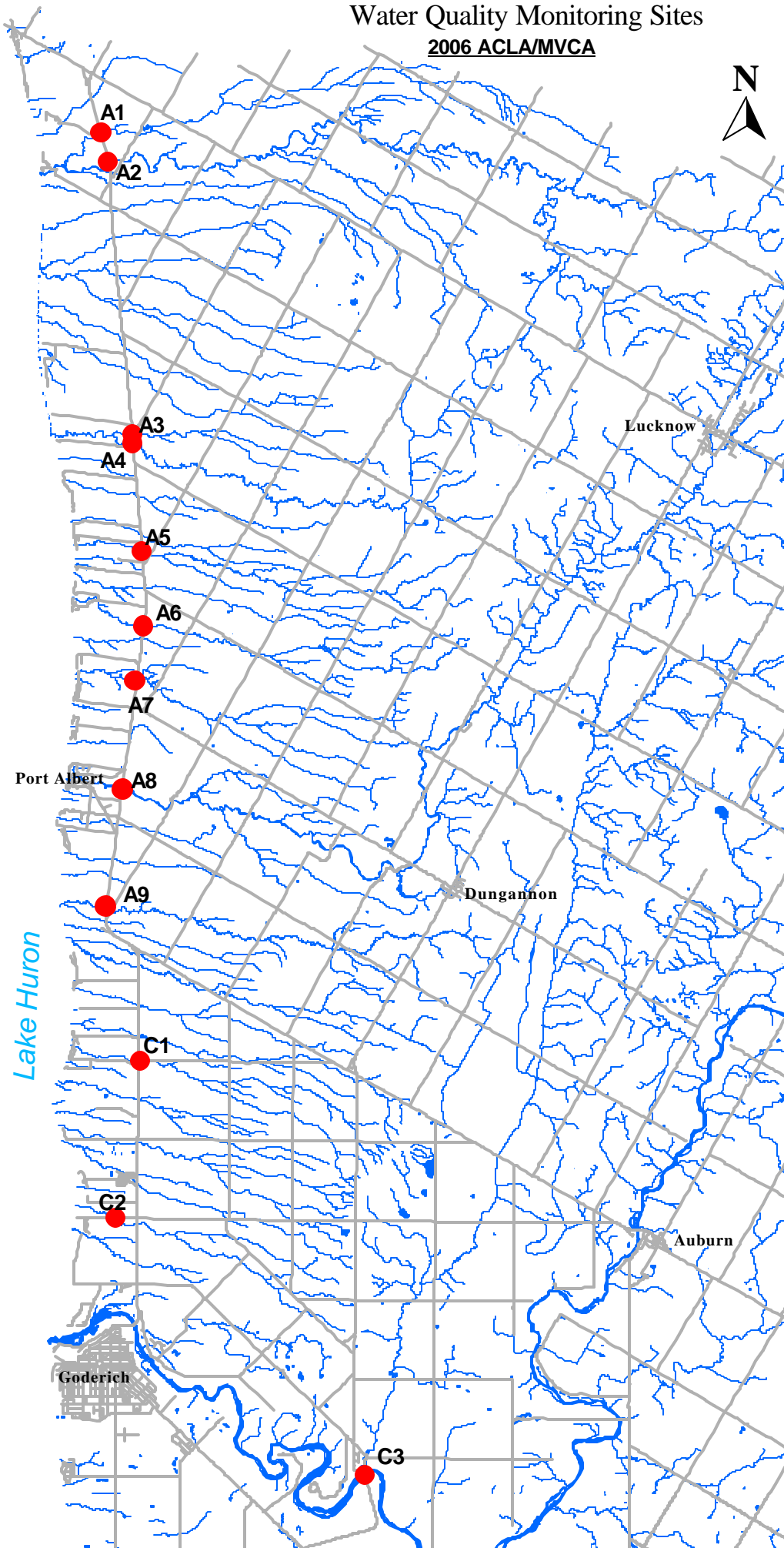
- The shoreline watercourses have a bacterial pollution level to be concerned about and levels in 2006 appear higher than other years. All streams were above the recreation level for *E.coli* at least sixty percent of the samples. Griffins Creek stands out with *E.coli* concentrations above 1000 cfu/100ml over fifty percent of the samples.
- Four sites had over forty percent of the samples with nitrate levels high enough to harm aquatic organisms. Three sites had total phosphorus concentrations above the recommended levels to prevent algae for at least fifty percent of the samples. Boundary, Griffins and Midhuron stand apart from the other sites. The sites with only 6 samples are not included in the above points.
- *E.coli* does not respond to rain in the same fashion as nitrate and phosphorus, as demonstrated by the July 4 sample which came after two very light rain events. June 6 sampling followed a 15 mm rain with very high *E.coli* levels, low nitrate and moderate phosphorus. This indicates that the pathways of *E.coli* and nutrients are influenced differently, as well as for nitrate compared to phosphorus. Refer to the graph of 2006 precipitation amounts.

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A MEMBER OF THE CONSERVATION ONTARIO NETWORK

Water Quality Monitoring Sites  
2006 ACLA/MVCA



Ashfield-Colborne Lakefront Association Water Sampling 2006

E. COLI (cfu/100ml)

Stream Name	Site	April 11/06	April 25/06	May 9/06	May 23/06	June 6/06	June 20/06	July 4/06	July 18/06	Aug. 1/06	Aug. 15/06	Aug. 29/06	Sept. 12/06	Sept. 26/06	Oct. 10/06	Oct. 24/06	Nov. 7/06
Boyd Creek	A1	10	70	10	30	2300	270	2000	3800	360	770	170	80	3000	2500	540	250
Eighteen Mile River	A2	30	1900	210	60	270	370	1400	6000	260	560	310	60	290	500	4800	210
Kintail Creek	A3	30	1500	200	100	90	90										
Kerrys Creek	A4	30	320	50	150	6600	2400										
Near Kingsbridge	A5	40	310	120	570	400	320										
Griffins Creek	A6	20	390	320	90	3500	4200	1200	3500	350	890	2100	5500	580	2000	570	1200
Near Midhuron	A7	10	220	3000	320	5900	30	290	580	70	240	280	160	670	2000	380	110
Nine Mile River	A8	10	310	90	40	210	140	180	250	200	370	250	160	350	300	1300	120
Boundary Creek	A9	20	280	50	120	570	410	1100	770	450	300	110	800	310	500	1000	1200
Bogies Road Creek	C1	10	120	60	140	2100	320	3000	3800	350	120	230	400	460	600	440	6800
Allans Creek	C2	50	970	60	120	390	380	2000	770	400	760	2000	760	180	600	360	400
Maitland River	C3	50	110	20	60	360	30	30	150	180	120	130	160	200	900	270	30

Exceeds recreation limit (100 cfu/100ml) but less than 1000  
 Exceeds limit for recreation by 10x  
 Microbiologists often consider an order of magnitude (10 fold) as a significant difference

Percentage of samples over:

Recreation Limit (100 cfu/100ml)	1000 cfu/100ml	Geomean
69%	31%	298
81%	25%	386
33%	17%	139
67%	33%	323
83%	0%	218
88%	50%	817
81%	19%	291
81%	6%	174
88%	19%	324
88%	25%	386
88%	13%	407
63%	0%	105

NITRATE as N (mg/l)

Stream Name	Site	April 11/06	April 25/06	May 9/06	May 23/06	June 6/06	June 20/06	July 4/06	July 18/06	Aug. 1/06	Aug. 15/06	Aug. 29/06	Sept. 12/06	Sept. 26/06	Oct. 10/06	Oct. 24/06	Nov. 07/06
Boyd Creek	A1	6.6	5.9	6.2	9.5	2.6	0.7	0.2	4.0	0.2	0.1	0.1*	0.1*	0.60	7.0	17.0	10.0
Eighteen Mile River	A2	4.1	3.5	3.4	4.1	1.4	0.2	0.2	0.9	0.2	0.1*	0.1	0.2	0.1*	3.0	9.9	7.6
Kintail Creek	A3	3.4	3.1	0.1*	2.5	0.1*	0.1*										
Kerrys Creek	A4	5.5	4.4	4.1	5.0	2.0	1.3										
Near Kingsbridge	A5	5.4	5.1	3.4	5.5	0.1	0.1*										
Griffins Creek	A6	7.1	5.4	2.5	4.7	0.3	0.1*	0.1*	1.2	0.1*	0.1*	0.1*	0.1*	0.3	0.6	15.0	11.0
Near Midhuron	A7	6.4	4.2	1.9	5.1	0.1*	0.1*	0.1*	1.1	0.1*	0.1*	1*	0.1	0.2	2.1	11.0	11.0
Nine Mile River	A8	2.0	1.7	1.7	1.5	1.3	1.1	0.8	1.0	0.8	0.8	1.0	1.0	1.0	1.3	4.4	2.9
Boundary Creek	A9	4.0	2.9	3.1	3.7	2.2	0.9	0.1*	3.6	0.5	0.1*	0.1*	0.1*	1.2	0.7	11.0	6.1
Bogies Road Creek	C1	5.5	4.2	2.7	5.4	1.4	0.2	0.1*	2.3	0.1*	0.1*	0.1*	0.1*	2.6	1.8	10.0	7.8
Allans Creek	C2	4.5	4.5	4.6	6.2	3.0	2.4	1.7	3.1	2.0	2.8	2.4	2.6	3.2	2.5	9.7	
Maitland River	C3	4.0	4.1	3.3	4.6	6.8	1.4	0.3	2.9	1.8	0.8	0.4	0.3	0.8	2.0	7.7	

\* indicates that nothing was detected during sampling so the RDL number was used.  
 Exceeds proposed Canadian Aquatic Objective of 2.9 mg/L of nitrate as N

Percentage of samples over:

Aquatic Protection Limit (2.93 mg/L as N)	Drinking Water Guideline (10 mg/L as N)
50%	6%
44%	0%
33%	0%
67%	0%
67%	0%
31%	13%
31%	13%
6%	0%
38%	6%
31%	0%
53%	0%
40%	0%

TOTAL PHOSPHOROUS P (mg/l)

Stream Name	Site	April 11/06	April 25/06	May 9/06	May 23/06	June 6/06	June 20/06	July 4/06	July 18/06	Aug. 1/06	Aug. 15/06	Aug. 29/06	Sept. 12/06	Sept. 26/06	Oct. 10/06	Oct. 24/06	Nov. 07/06
Boyd Creek	A1	0.002*	0.002*	0.004	0.008	0.020	0.008	0.016	0.025	0.045	0.014	0.022	0.011	0.012	0.008	0.039	0.016
Eighteen Mile River	A2	0.013	0.030	0.007	0.003	0.02*	0.010	0.022	0.061	0.010	0.018	0.014	0.055	0.008	0.011	0.076	0.008
Kintail Creek	A3	0.010	0.030	0.041	0.012	0.040	0.047										
Kerrys Creek	A4	0.004	0.002*	0.020	0.006	0.020	0.014										
Near Kingsbridge	A5	0.010	0.002*	0.011	0.059	0.060	0.110										
Griffins Creek	A6	0.014	0.002*	0.016	0.018	0.040	0.068	0.120	0.120	0.012	0.110	0.110	0.230	0.058	0.016	0.053	0.027
Near Midhuron	A7	0.007	0.002*	0.017	0.011	0.040	0.087	0.150	0.051	0.130	0.055	0.098	0.140	0.120	0.036	0.054	0.024
Nine Mile River	A8	0.006	0.030	0.005	0.008	0.02*	0.026	0.011	0.011	0.004	0.015	0.008	0.010	0.009	0.002*	0.042	0.006
Boundary Creek	A9	0.004	0.040	0.005	0.021	0.1*	0.036	0.043	0.058	0.083	0.052	0.049	0.068	0.027	0.010	0.023	0.009
Bogies Road Creek	C1	0.002*	0.020	0.012	0.016	0.02*	0.047	0.029	0.026	0.014	0.027	0.026	0.024	0.016	0.008	0.014	0.007
Allans Creek	C2	0.012	0.002*	0.005	0.007	0.030	0.025	0.019	0.056	0.017	0.023	0.023	0.016	0.063	0.008	0.021	
Maitland River	C3	0.006	0.002*	0.002*	0.002	0.030	0.007	0.007	0.019	0.007	0.012	0.013	0.005	0.008	0.003	0.023	

\* indicates that nothing was detected during sampling so the RDL number was used.  
 Exceeds MVCA target to avoid excessive algae growth of 0.03 mg/L Total Phosphorus as P (Interim Prov. Water Quality Objective for streams and rivers is 0.03 mg/L)

Percentage of samples over Provincial Water Quality Objective (0.03 mg/L)

19%
19%
50%
0%
50%
56%
69%
6%
50%
6%
13%
0%

# Daily Total Precipitation

April 1 - November 15, 2006

