

2014 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 2014 was conducted roughly every other week from May 21st to October 14th for a maximum of 10 sampling events at 12 locations. 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 2014 sampling include:

- Limited samples were collected from Kintail Creek (A3) due to a lack of flow.
- The watercourse near Kingsbridge (A5) had the highest Geometric Mean of E. coli counts.
- Samples collected on September 30th had high E. coli concentrations.
- Griffins Creek (A6) had the highest concentrations of Nitrate as N and total Phosphorus.
- The Nine Mile River had the lowest Nitrate as N concentrations of the study sites. In fact, none of the samples collected from the Nine Mile River exceeded the limit for aquatic protection.
- The Nine Mile River also had the lowest total phosphorus concentrations of the study sites.

A graph depicting the total daily precipitation has been included.

Ashfield-Colborne Lakefront Association Sampling 2014

E. COLI (cfu/100ml)

Stream Name	Site	Date									
		21-May-14	4-Jun-14	19-Jun-14	3-Jul-14	22-Jul-14	11-Aug-14	9-Sep-14	23-Sep-14	30-Sep-14	14-Oct-14
Boyd Creek	A1	690	80	760	1240	110	80	40	630	970	820
Eighteen Mile River	A2	740	70	200	140	160	90	70	780	650	60
Kintail Creek	A3	1350	740								
Kerry's Creek	A4	330	420	240	480	170	20	90	350	580	90
Near Kingsbridge	A5	740	530	780	430	460			600	1090	120
Griffins Creek	A6	160	450	530	290	510	280	520	480	2060	900
Near Midhuron	A7	190	220	90	200	220	10	110	300	610	320
Nine Mile River	A8	440	40	280	120	220	190	130	670	270	40
Boundary Creek	A9	410	130	570	560	290	250	240	560	600	50
Bogies Road Creek	C1	350	270	200	140	210	170	120	210	1760	60
Allans Creek	C2	610	250	290	430	200	110	440	220	1810	80
Maitland River	C3	190	10	70	50	40	30	140	460	280	50
GeoMean		428	162	281	263	196	80	142	440	788	120

- 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	2014		Percent of 2014 Samples above:		Grade	Rank
	GeoMean	100CFU/100mL	100CFU/100mL	1000cfu/100mL		
10	314	70%	10%	0%	D	9
10	184	60%	0%	0%	C	4
10	197	70%	0%	0%	C	5
8	512	100%	13%	0%	D	11
10	486	100%	10%	0%	D	10
10	160	80%	0%	0%	C	2
10	172	80%	0%	0%	C	3
10	295	90%	0%	0%	C	7
10	219	90%	10%	0%	C	6
10	300	90%	10%	0%	C	8
10	77	40%	0%	0%	B	1

NITRATE as N (mg/l)

Stream Name	Site	Date									
		21-May-14	4-Jun-14	19-Jun-14	3-Jul-14	22-Jul-14	11-Aug-14	9-Sep-14	23-Sep-14	30-Sep-14	14-Oct-14
Boyd Creek	A1	6.68	2.45	0.47	0.33	2.52	0.1	0.1	7.56	3.64	4.82
Eighteen Mile River	A2	4.06	2.47	1.77	4.06	4.15	0.87	0.82	5.17	2.45	3.16
Kintail Creek	A3	7.57	1.16								
Kerry's Creek	A4	5.3	3.75	4.14	3.62	5.02	1.75	1.71	6.15	3.28	3.81
Near Kingsbridge	A5	6.22	2.09	0.69	1.33	2.47			5.93	2.18	4.04
Griffins Creek	A6	10.8	4.3	12.7	4.94	5.33	0.1	0.1	6.82	3.07	4.99
Near Midhuron	A7	6.99	0.85	1.49	2.35	1.97	0.1	0.1	5.18	2.13	4.03
Nine Mile River	A8	1.63	1.39	1.47	1.42	1.22	0.96	0.78	1.6	1.14	1.48
Boundary Creek	A9	3.68	2.38	2.11	2.44	2.46	0.36	0.47	3.1	1.15	2.25
Bogies Road Creek	C1	6.9	1.3	0.48	1.15	1.55	0.1	0.11	4.6	1.85	3.16
Allans Creek	C2	8.1	2.84	1.45	2.55	4.29	0.79	0.91	2.54	1.29	3.07
Maitland River	C3	3.7	1.82	1.62	2.94	2.44	1.14	3.02	2.99	1.83	3.23
75th Percentile		7.135	2.5625	1.94	3.28	4.22	0.9375	0.8875	6.04	2.76	4.035

- 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	2014 75th Percentile	Percent of 2014 Samples above:		Grade	Rank
		Aquatic Protection Limit (2.93 mg/L as N)	Drinking Water Guideline (10 mg/L as N)		
10	4.53	40%	0%	B	9
10	4.06	50%	0%	B	7
10	4.80	80%	0%	B	10
8	4.51	38%	0%	B	8
10	6.45	80%	20%	C	11
10	3.61	30%	0%	B	6
10	1.48	0%	0%	A	1
10	2.46	10%	0%	A	2
10	2.83	30%	0%	B	3
10	3.01	30%	0%	B	4
10	3.01	50%	0%	B	5

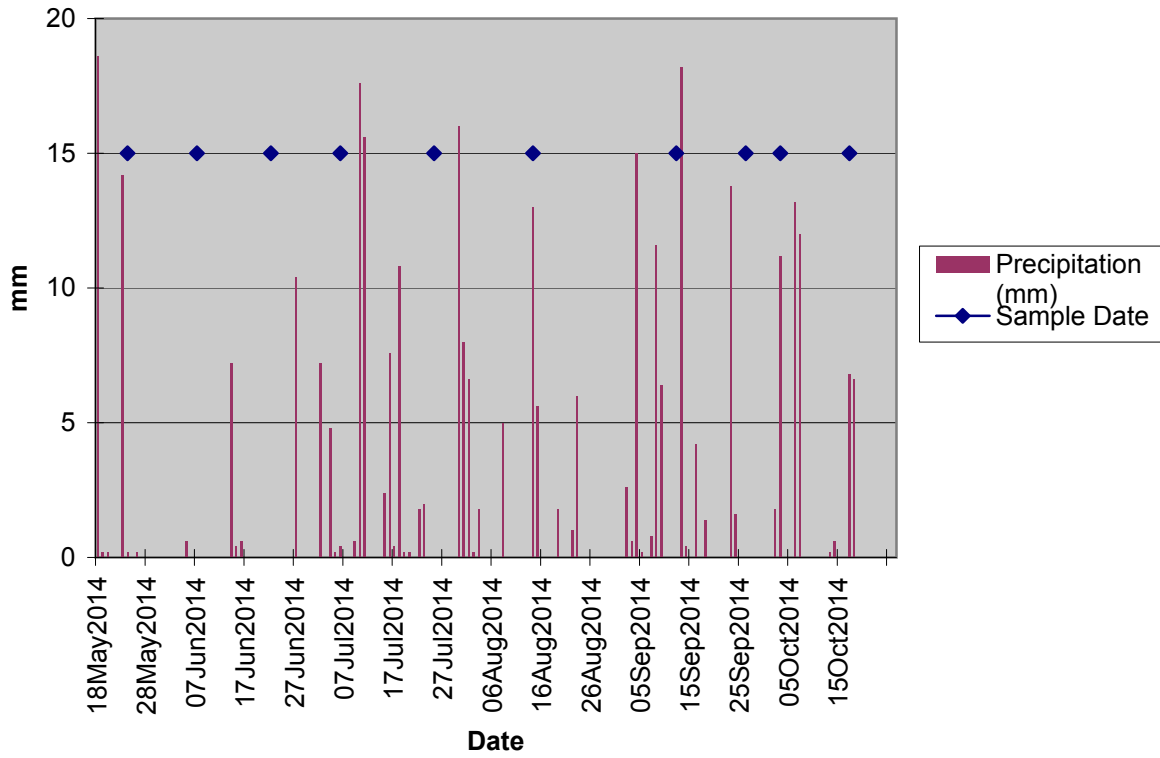
Stream Name	Site	TOTAL PHOSPHORUS P (mg/l)									
		Date	21-May-14	4-Jun-14	19-Jun-14	3-Jul-14	22-Jul-14	11-Aug-14	9-Sep-14	23-Sep-14	30-Sep-14
Boyd Creek	A1	0.0249	0.0192	0.0282	0.0372	0.0397	0.0228	0.12	0.0612	0.0414	0.0875
Eighteen Mile River	A2	0.0323	0.0126	0.0133	0.0194	0.0138	0.0218	0.0316	0.0938	0.0283	0.013
Kintail Creek	A3	0.0442	0.0388								
Kerry's Creek	A4	0.0271	0.02	0.0255	0.0241	0.0169	0.0267	0.0265	0.0763	0.0295	0.0167
Near Kingsbridge	A5	0.0686	0.0251	0.0422	0.0445	0.0249			0.116	0.0464	0.0241
Griffins Creek	A6	0.0546	0.0291	0.0306	0.0331	0.0233	0.113	0.112	0.0869	0.0636	0.274
Near Midhuron	A7	0.0252	0.0521	0.0469	0.0415	0.0196	0.037	0.0738	0.035	0.0328	0.0218
Nine Mile River	A8	0.0262	0.0137	0.0157	0.0152	0.011	0.0151	0.0101	0.0465	0.011	0.0068
Boundary Creek	A9	0.0514	0.0253	0.0462	0.0677	0.0329	0.0376	0.0552	0.0498	0.0441	0.0182
Bogies Road Creek	C1	0.03	0.0325	0.0522	0.0468	0.0284	0.0322	0.0334	0.0234	0.0474	0.0151
Allans Creek	C2	0.0201	0.0208	0.143	0.0503	0.0221	0.0247	0.0359	0.0349	0.0528	0.0214
Maitland River	C3	0.0444	0.0106	0.0137	0.0193	0.0092	0.0121	0.0353	0.0172	0.0062	0.005
75th Percentile		0.04615	0.02995	0.04655	0.04565	0.02665	0.0358	0.06915	0.0816	0.0469	0.02295

Count	2014 75th Percentile	Percent of 2014 Samples above: Provincial Water Quality Objective (0.03mg/L)	Grade	Rank
10	0.0308	30%	C	4
10	0.0270	10%	B	3
8	0.0520	63%	C	9
10	0.1057	70%	D	11
10	0.0456	70%	C	6
10	0.0156	10%	A	1
10	0.0510	80%	C	8
10	0.0435	60%	C	5
10	0.0467	50%	C	7
10	0.0188	20%	A	2

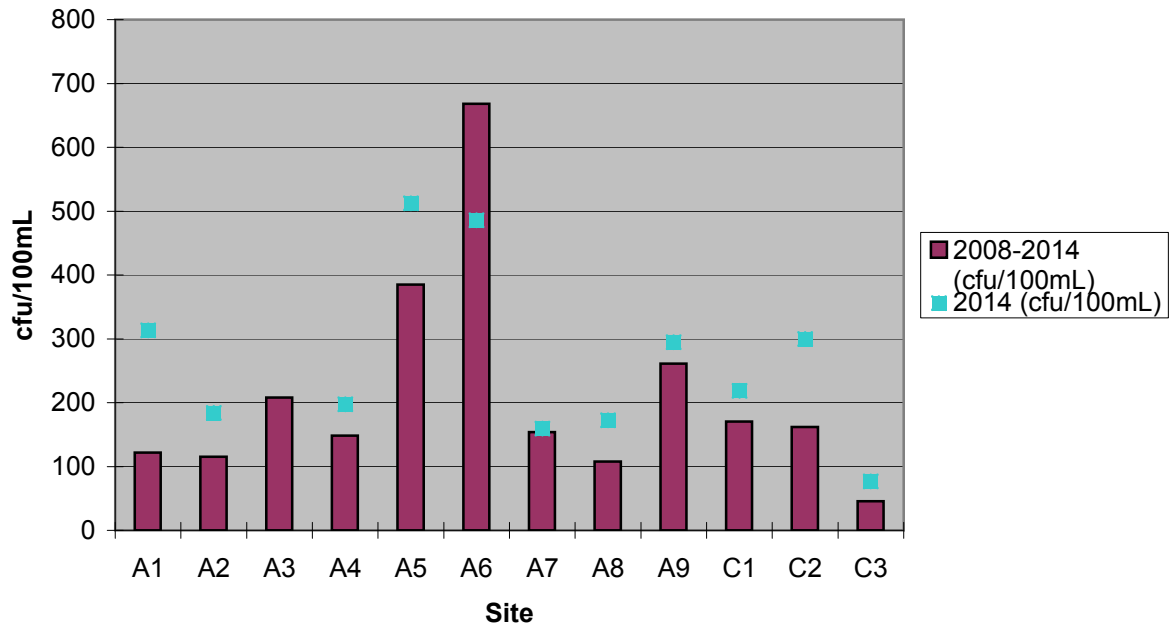
Exceeds MVCA target to avoid excessive algae growth of .03mg/L Total Phosphorus as P (Interim Prov. Water Quality objective for streams and rivers is 0.03mg/L)

Less than the detection limit

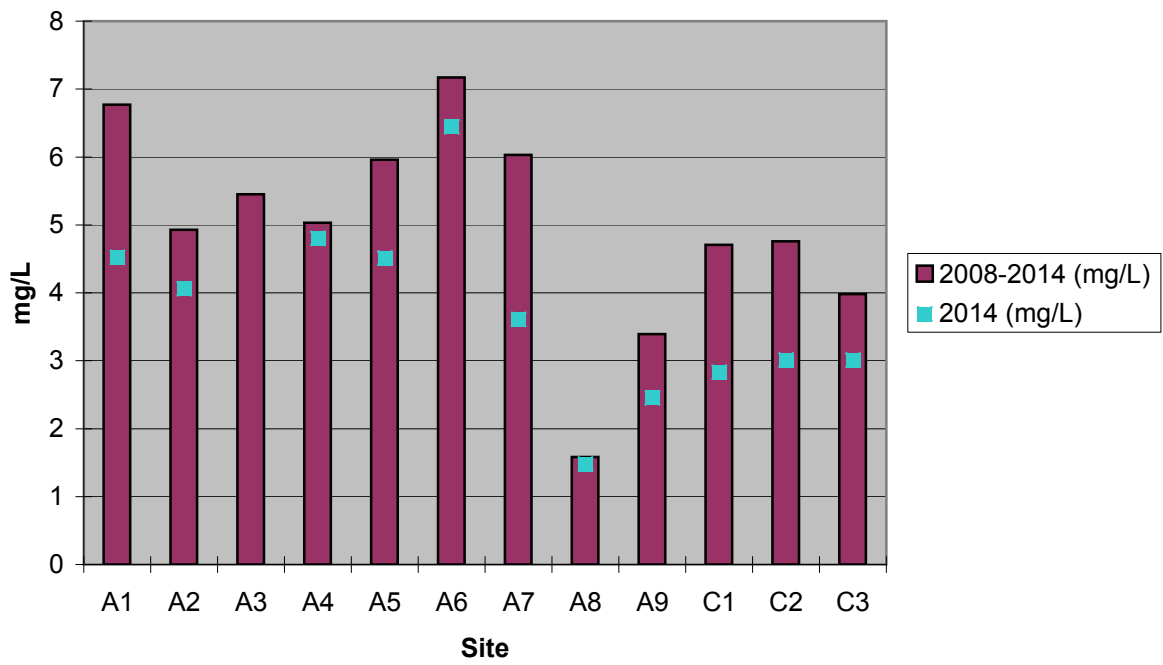
Total Daily Precipitation for 2013



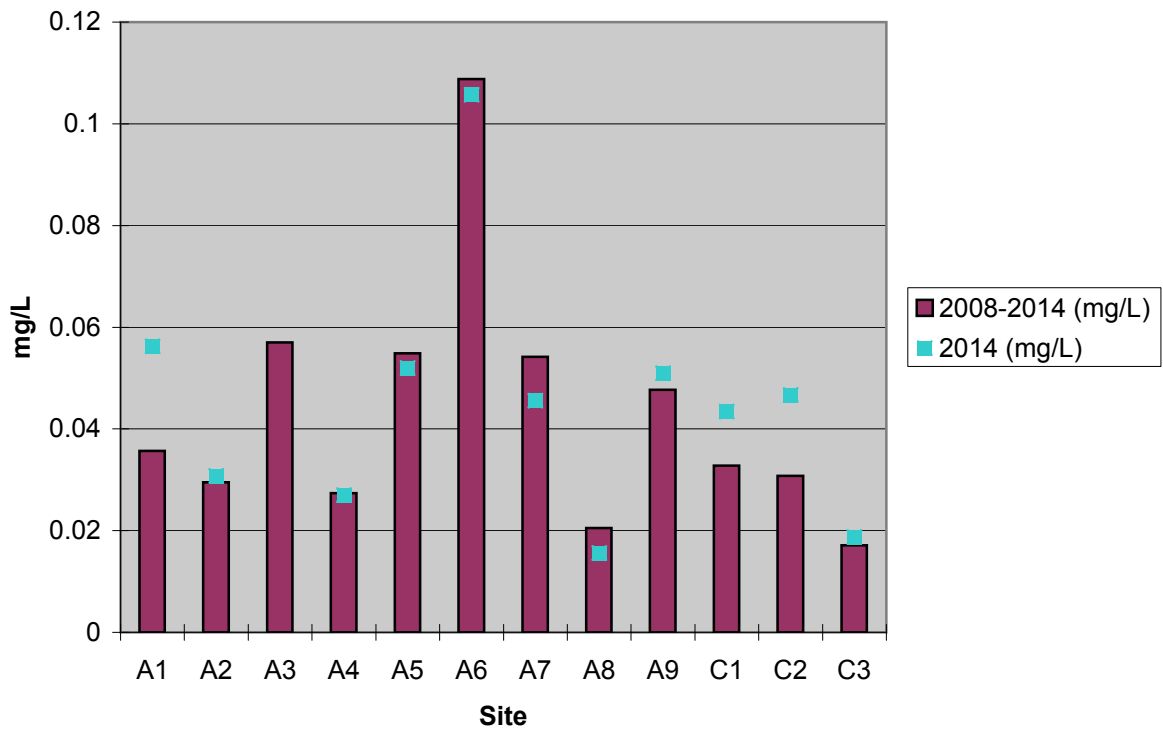
Geometric Mean of E.coli Concentrations



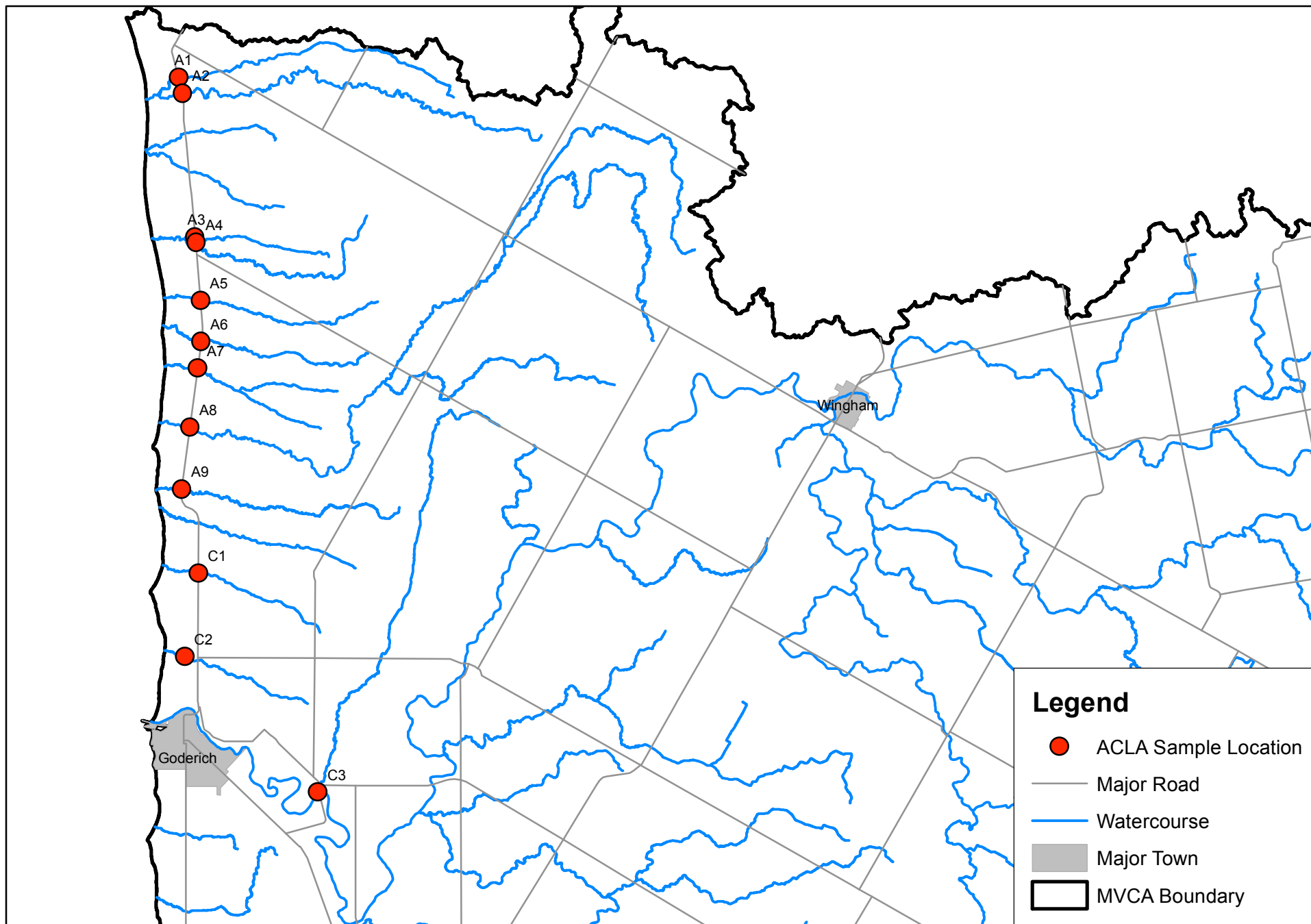
75th Percentile of Nitrate Concentrations



75th Percentile of Total Phosphorus Concentrations



ACLA Water Sample Locations 2014



N



0 2.5 5 10 15 20 Kilometers