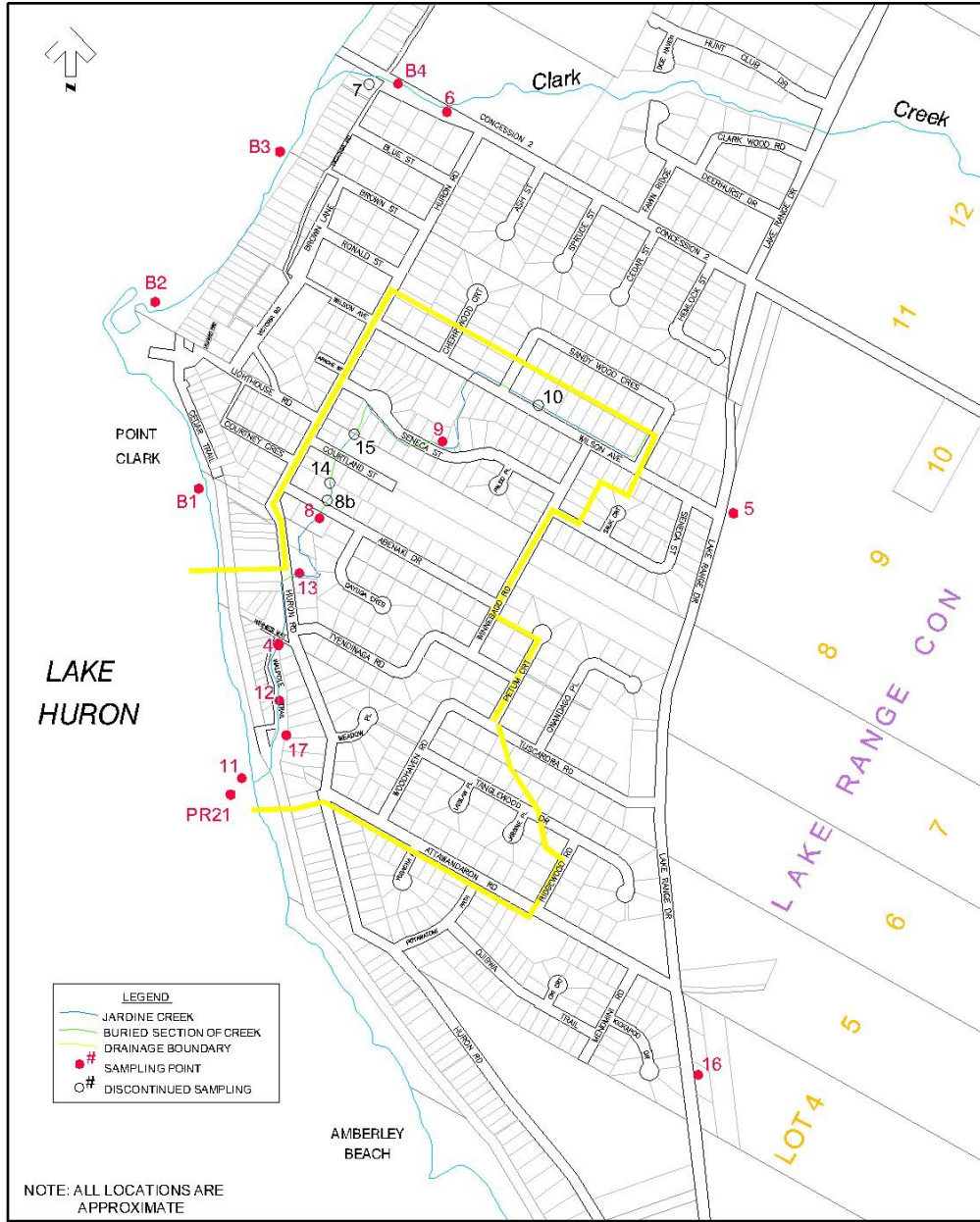


TOWNSHIP OF HURON-KINLOSS

ANNUAL REPORTING SURFACE WATER QUALITY MONITORING

FEBRUARY 6, 2023

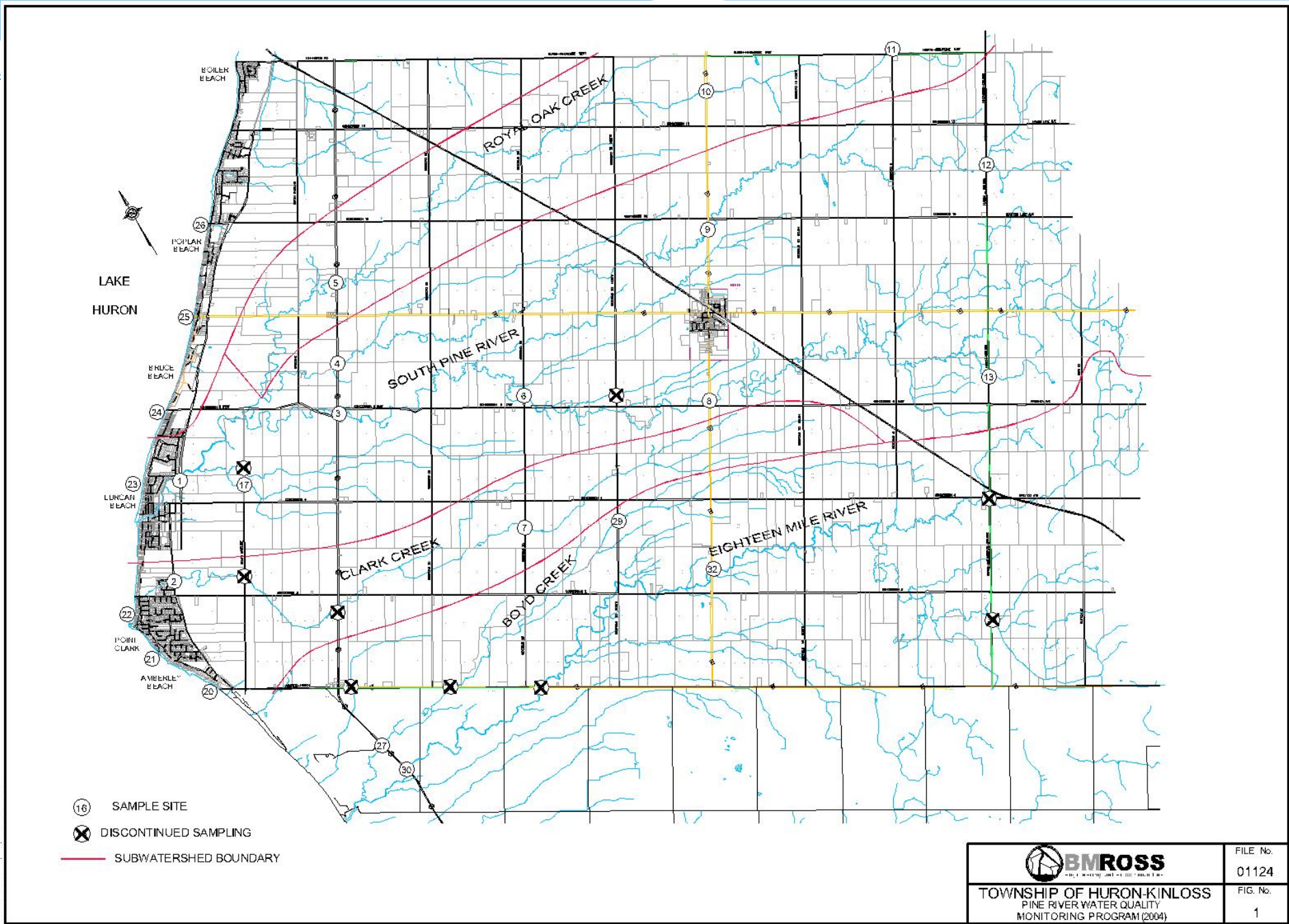




LEGEND	
	JARDINE CREEK
	BURIED SECTION OF CREEK
	DRAINAGE BOUNDARY
	SAMPLING POINT
	DISCONTINUED SAMPLING

NOTE: ALL LOCATIONS ARE APPROXIMATE

	Township of Huron-Kinloss Point Clark Water Quality Monitoring Program 2005	DATE May 12, 2005	PROJECT No. 93147
		SCALE 1:10,000	FIGURE No. 1



2023 Sampling Season Precipitation

Sampling Year	Seasonal Precipitation (March–November)
2022	551.9 mm
2021	797.3 mm
2020	507.3 mm
2019	624.7 mm
2018	656.9 mm
2017	771.4 mm
2016	704.9 mm
2015	544.6 mm
2014	695.9 mm
2013	720.3 mm
2012	406.9 mm
2011	833.3 mm
2010	608.5 mm
2009	582.9 mm
2008	972.4 mm
2007	584.0 mm
2006	661.2 mm
2005	564.9 mm
2004	496.8 mm
2003	514.0 mm
2002	491.6 mm

Figure 3.1 - 2022 Precipitation at Goderich, TCID: WGD

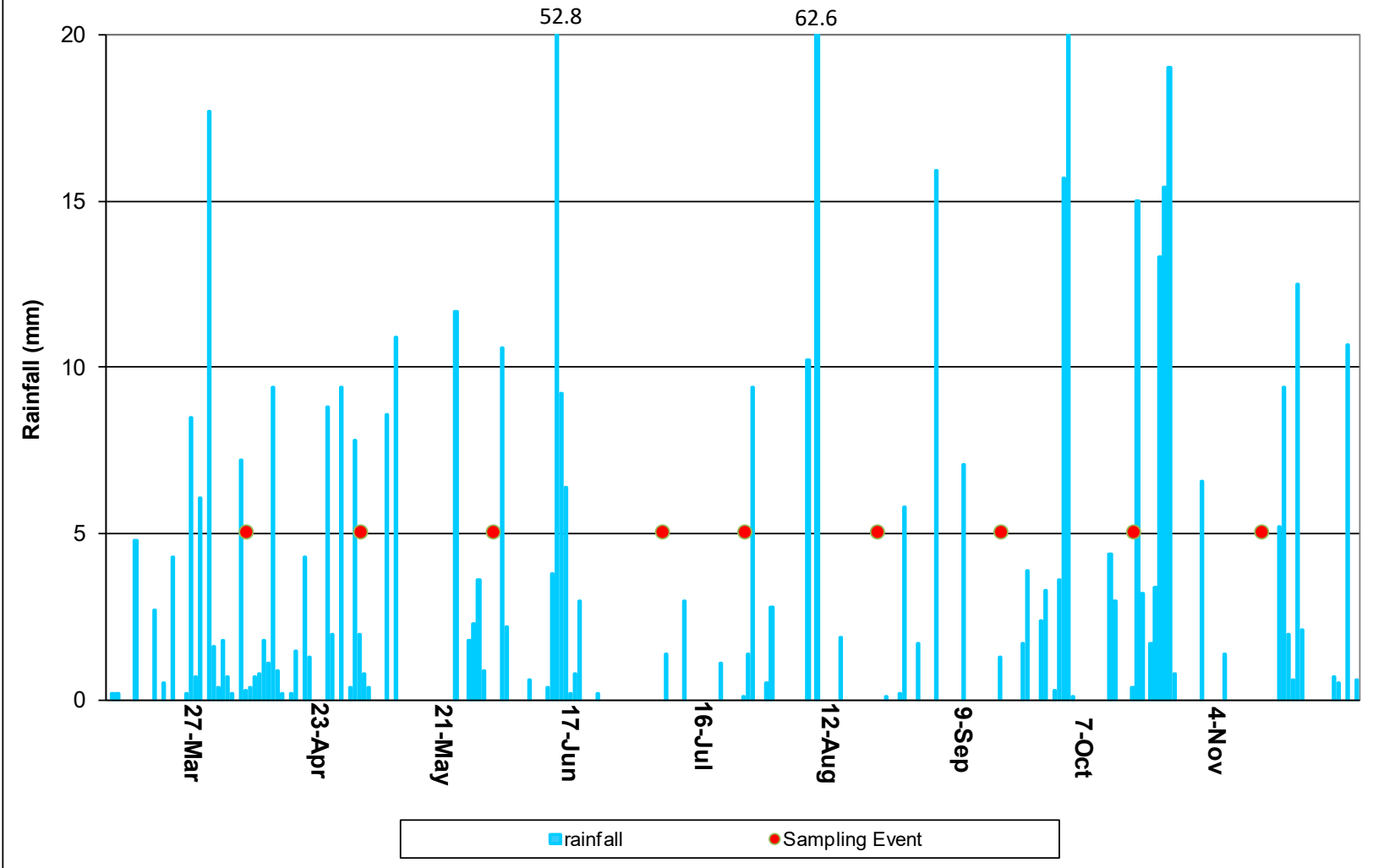
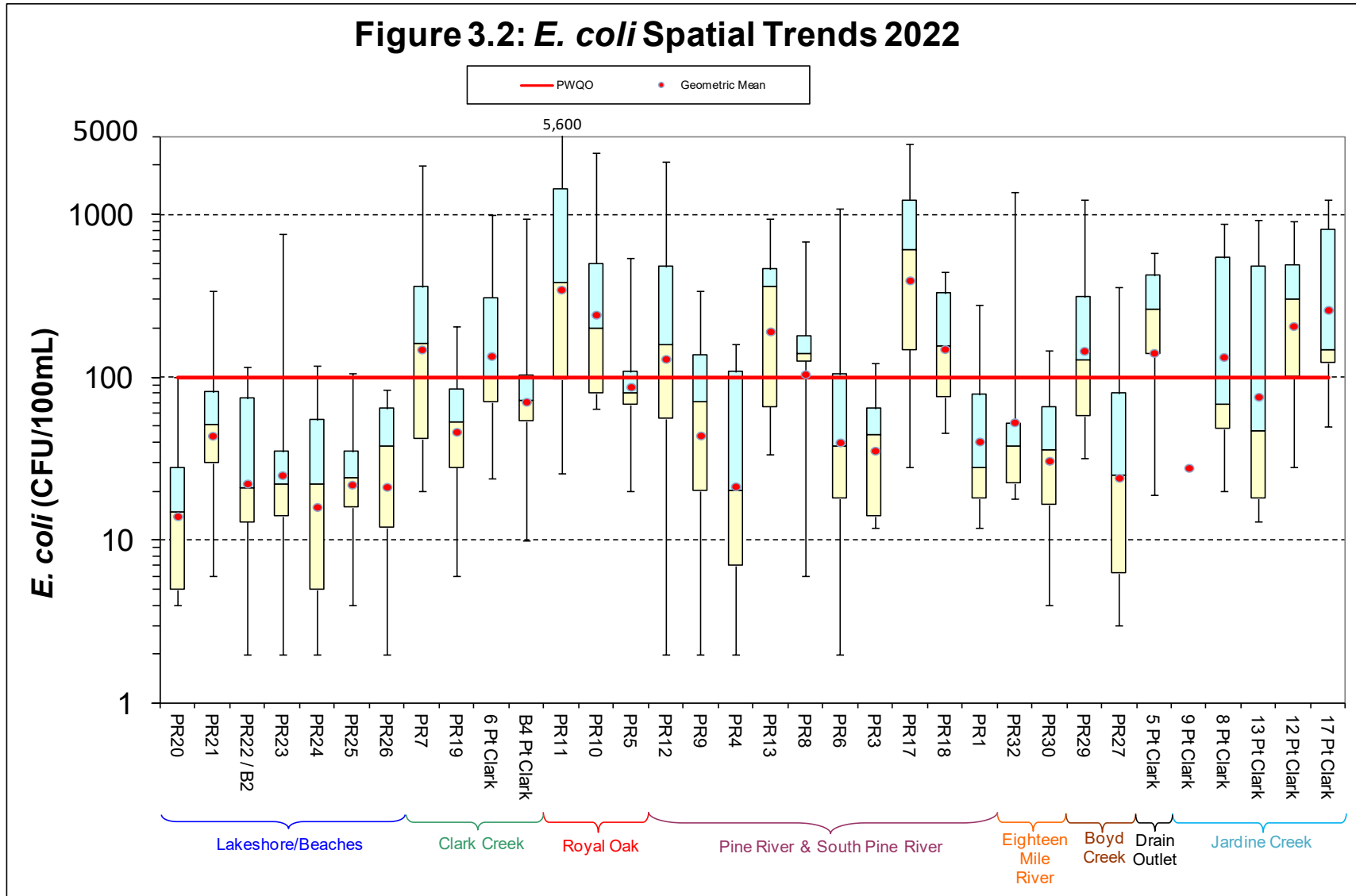


Figure 3.2: *E. coli* Spatial Trends 2022



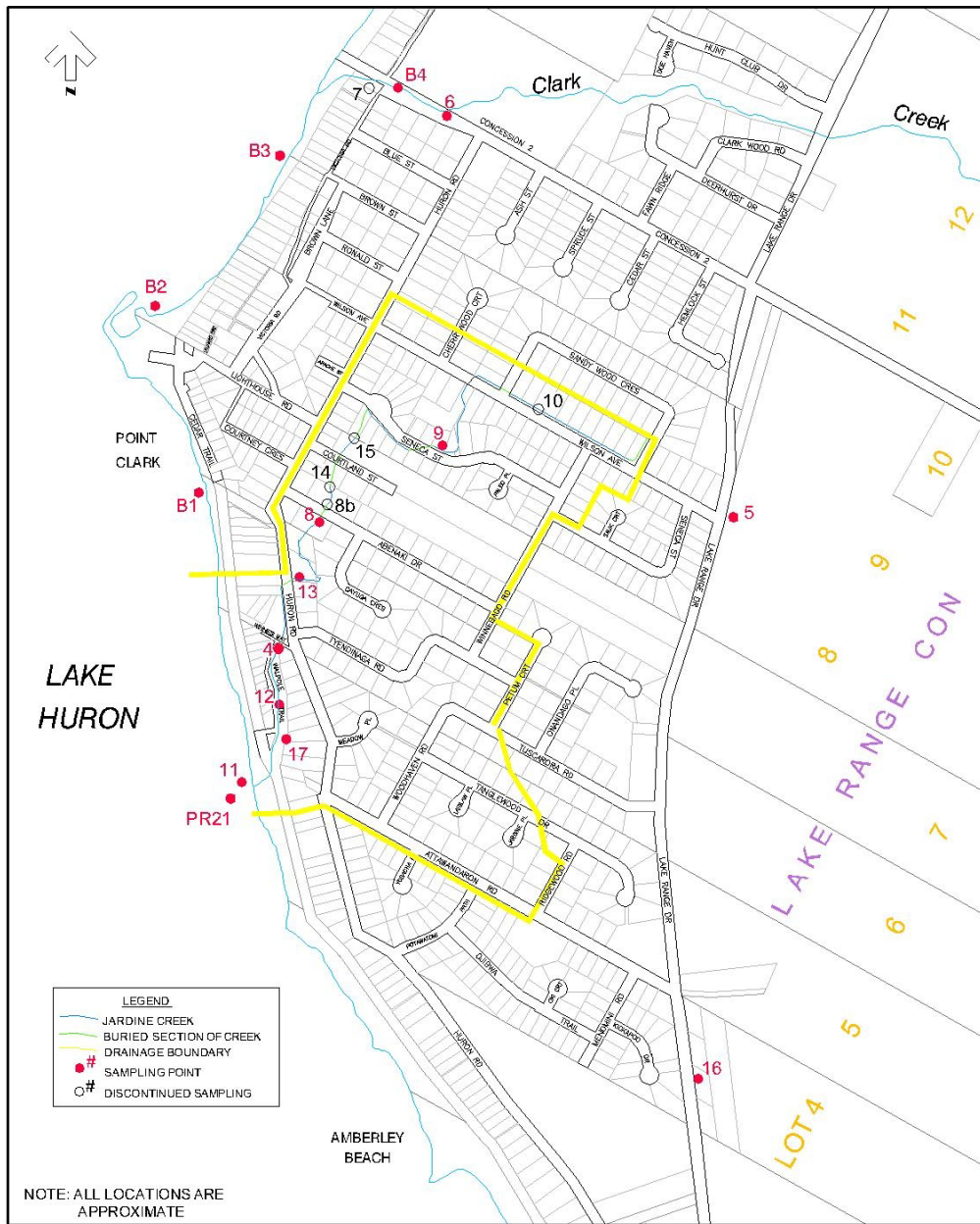
**Municipality of Huron-Kinloss
Pine River Water Quality Monitoring Program
2022 Sampling Results**

GREEN	Below Guideline
RED	=> 100 cfu/100mL
GREY	No Data

**E. Coli (cfu/100mL)
Sample Date**

SAMPLE ID	LOCATION	Mar 31	Apr 25	May 24	June 30	July 18	Aug 16	Sept 12	Oct 11	Nov 8
PR1	Pine River-'Bridge on Lake Range Road, south of Lurgan Road	280	78	28	27	18	42	144	14	12
PR3	South Pine River-Bridge on Hwy. 21 at 6th Conc.	122	52	44	64	112	14	20	14	12
PR4	Pine River Tributary-Bridge on Hwy. 21 North of 6th Conc.	108	16	148	160	20	4	22	< 2	7
PR5	Pine River Tributary-Bridge on Hwy. 21 North of 8th Conc.	540	108	20	87	68	146	80	54	72
PR6	South Pine River-Bridge on Sideroad 25 North of 6th Conc.	1080	30	2	104	58	38	168	6	18
PR7 - Upstream	Clark Creek-Culvert on Sideroad 25 South of 4th Conc.	209	1080	42	24	160	360	1980	20	70
PR8	South Pine River-Culvert on the 15th North of 6th Conc.	680	136	140	180	220	6	156	26	126
PR9	Pine River-Bridge on the 15th South of 10th Conc.	340	48	138	192	4	20	71	2	132
PR10	Royal Oak Creek-Bridge on the 15th North of the 12th Conc.	2400	94	64	1600	500	200	80	64	256
PR11	Royal Oak Creek-Culvert on Sideroad 5 north Huron-Kincardine East	5600	1700	126	640	Dry	Dry	Dry	26	88
PR12	Pine River-Bridge on Huron Twp./Kinloss Twp. Boundary South of 12th Conc.	126	58	190	2100	940	320	Dry	2	48
PR13	South Pine River-Bridge on Huron Twp./Kinloss Twp. Boundary South of 8th Conc.	940	34	360	400	460	66	600	48	90
PR17 - Upstream	Pine River Tributary-Southern Culvert on South Baseline Road North of 4th Conc.	720	148	214	600	2700	1220	1780	106	28
PR18 - Upstream	Pine River Tributary- Middle Culvert on South Baseline Road North of 4th Conc.	62	80	350	120	320	190	Dry	440	46
PR19 - Upstream	Clark Creek-Southern Culvert on South Baseline Road North of 2nd Conc.	207	54	* UAL	172	30	56	52	6	22
PR20	Beach at Hwy. 86 -Amberely Road.	Ice Cover	4	* UAL	15	4	28	Overgrown	6	28
PR21	Beach off of Attawandron Road-Public Walkway	Ice Cover	6	* UAL	51	10	62	Overgrown	340	50
PR22	Beach-Point Clark Swimming Area	Ice Cover	6	* UAL	21	98	20	50	2	116
PR23	Lurgan Beach-Public Walkway	Ice Cover	20	* UAL	36	8	34	760	2	22
PR24	Beach at 6th Conc.	Ice Cover	6	* UAL	81	4	22	118	< 2	28
PR25	Beach at 8th Conc.	Ice Cover	24	* UAL	106	10	22	44	4	26
PR26	Beach at 10th Conc.	Ice Cover	20	* UAL	84	2	72	56	4	38
PR27	Boyd Creek at Hwy. 21 before Amberely	360	14	* UAL	122	36	7	3	4	66
PR29	Boyd Creek on Sideroad 20 North of 6th Conc.	520	56	* UAL	186	240	70	1240	32	58
PR30	Eighteen Mile Creek at Hwy. 21 before Amberely	91	58	* UAL	37	146	12	4	34	18
PR32	Eighteen Mile Creek on the 15th North of 2nd Conc.	1360	52	* UAL	27	18	38	Overgrown	52	18
B4	Clark Creek at the Lake	940	68	* UAL	99	10	66	116	18	76
5	Ditch at field drain outlet, Lake Range Road	19	580	* UAL	260	Dry	Dry	Dry	Dry	Dry
6	New outlet to Clark Creek across from 3491 2nd Conc.	1000	70	* UAL	110	70	98	900	24	102
8	Jardine Creek at Abenaki St.	55	20	* UAL	880	640	68	Overgrown	440	42
9	Jardine Creek at Seneca	No Sample	28	* UAL	No Sample	Dry	Dry	Dry	Dry	Dry
12	Halfway to lake from Road	132	440	* UAL	900	540	300	Overgrown	70	28
13	CSP where creek crosses Huron Rd.	30	14	* UAL	620	Dry	13	Overgrown	64	920
17	Outlet in Jardine Creek between sites 11 & 12	148	50	* UAL	140	106	600	Overgrown	1020	1220

Note * UAL - Unreliable Age Limit (Time from sample to analysis exceeded; courier delay), No sample - Unable to obtain sample, Overgrown - with E. Coli



NOTE: ALL LOCATIONS ARE APPROXIMATE



Township of Huron-Kinloss
Point Clark
Water Quality Monitoring Program

2005

DATE
May 12, 2005

PROJECT No.
93147

SCALE
1:10,000

FIGURE No.
1

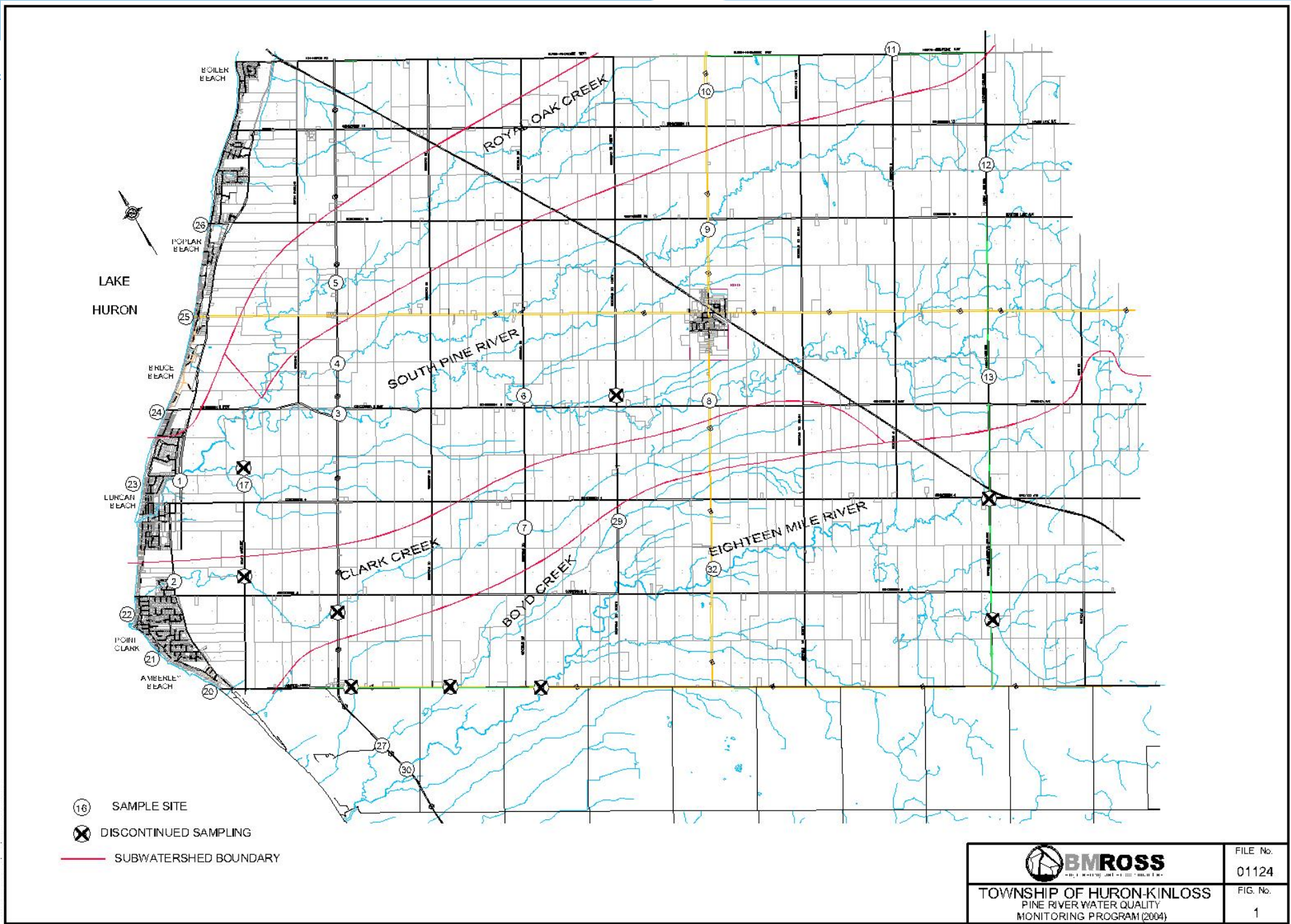
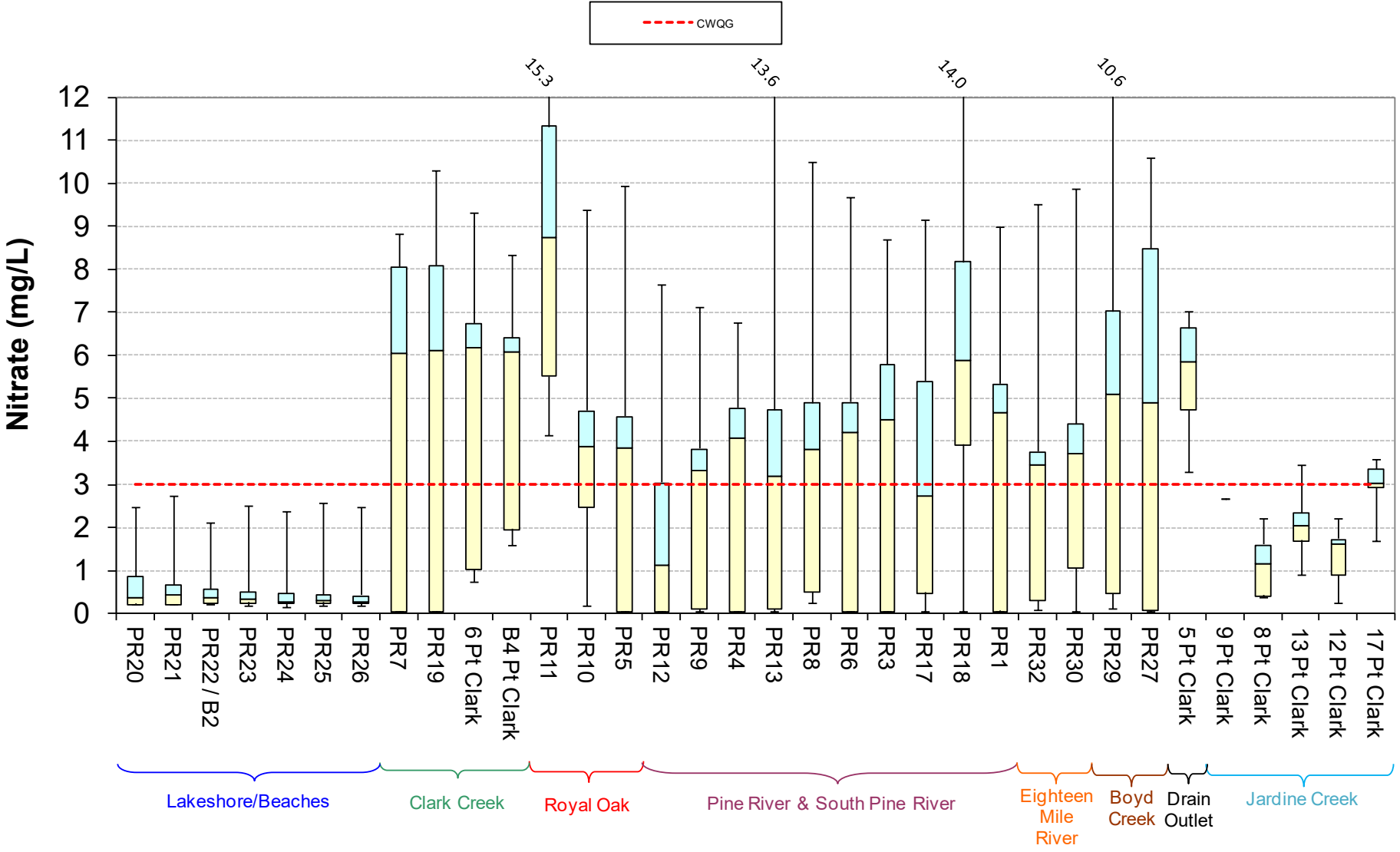


Figure 3.3: Nitrate Spatial Trends 2022



Municipality of Huron-Kinloss
Pine River Water Quality Monitoring Program
2022 Sampling Results

Below Guideline
=> 3 mg/L
No Data

Nitrate as N (mg/L)

Sample Date

SAMPLE ID	LOCATION	Mar 31	Apr 25	May 24	June 30	July 18	Aug 16	Sept 12	Oct 11	Nov 8
PR1	Pine River-Bridge on Lake Range Road, south of Lurgan Road	4.71	4.70	3.81	8.98	0.06	< 0.06	0.08	5.35	5.98
PR3	South Pine River-Bridge on Hwy. 21 at 6th Conc.	4.66	4.52	3.64	8.68	< 0.06	< 0.06	< 0.06	5.98	5.79
PR4	Pine River Tributary-Bridge on Hwy. 21 North of 6th Conc.	4.34	4.09	2.89	6.77	< 0.06	< 0.06	< 0.06	5.82	4.79
PR5	Pine River Tributary-Bridge on Hwy. 21 North of 8th Conc.	4.36	4.60	3.65	9.94	< 0.06	< 0.06	< 0.06	3.87	7.43
PR6	South Pine River-Bridge on Sideroad 25 North of 6th Conc.	4.24	4.74	4.93	9.67	< 0.06	< 0.06	< 0.06	< 0.06	6.33
PR7 - Upstream	Clark Creek-Culvert on Sideroad 25 South of 4th Conc.	6.06	7.62	3.72	8.84	< 0.06	< 0.06	< 0.06	8.46	8.07
PR8	South Pine River-Culvert on the 15th North of 6th Conc.	3.83	4.91	3.85	10.50	0.52	0.25	0.37	1.12	5.80
PR9	Pine River-Bridge on the 15th South of 10th Conc.	3.45	3.99	3.33	7.12	< 0.06	0.12	< 0.06	1.31	3.84
PR10	Royal Oak Creek-Bridge on the 15th North of the 12th Conc.	3.32	4.73	4.22	9.39	2.49	0.18	0.38	3.91	7.28
PR11	Royal Oak Creek-Culvert on Sideroad 5 north Huron-Kincardine East	4.13	6.96	10.50	15.30	Dry	Dry	Dry	5.05	11.60
PR12	Pine River-Bridge on Huron Twp./Kinloss Twp. Boundary South of 12th Conc.	2.41	2.15	4.99	7.65	< 0.06	< 0.06	Dry	< 0.06	0.17
PR13	South Pine River-Bridge on Huron Twp./Kinloss Twp. Boundary South of 8th Conc.	3.20	4.20	4.75	13.60	0.07	< 0.06	0.12	0.56	7.21
PR17 - Upstream	Pine River Tributary-Southern Culvert on South Baseline Road North of 4th Conc.	5.41	6.13	2.77	9.16	< 0.06	< 0.06	0.51	0.97	4.70
PR18 - Upstream	Pine River Tributary- Middle Culvert on South Baseline Road North of 4th Conc.	6.46	7.13	5.24	14.00	< 0.06	< 0.06	Dry	5.31	11.30
PR19 - Upstream	Clark Creek-Southern Culvert on South Baseline Road North of 2nd Conc.	6.14	7.39	4.90	10.30	< 0.06	< 0.06	< 0.06	10.10	8.10
PR20	Beach at Hwy. 86 -Amberely Road.	Ice Cover	2.47	0.67	1.50	0.24	0.22	0.24	0.26	0.51
PR21	Beach off of Attawandron Road-Public Walkway	Ice Cover	2.74	0.68	0.67	0.23	0.22	0.22	0.28	0.68
PR22	Beach-Point Clark Swimming Area	Ice Cover	2.12	0.62	0.51	0.26	0.24	0.21	0.29	0.58
PR23	Lurgan Beach-Public Walkway	Ice Cover	2.50	0.45	0.73	0.27	0.26	0.20	0.28	0.43
PR24	Beach at 6th Conc.	Ice Cover	2.38	0.36	0.67	0.26	0.26	0.16	0.26	0.43
PR25	Beach at 8th Conc.	Ice Cover	2.59	0.40	0.44	0.28	0.27	0.19	0.26	0.49
PR26	Beach at 10th Conc.	Ice Cover	2.47	0.36	0.42	0.26	0.27	0.17	0.26	0.50
PR27	Boyd Creek at Hwy. 21 before Amberely	4.92	5.76	4.69	10.60	0.08	0.09	< 0.06	8.49	9.33
PR29	Boyd Creek on Sideroad 20 North of 6th Conc.	5.12	7.04	6.12	13.10	0.11	0.21	0.48	3.15	12.50
PR30	Eighteen Mile Creek at Hwy. 21 before Amberely	4.41	4.32	3.73	9.87	1.08	0.09	< 0.06	3.68	5.09
PR32	Eighteen Mile Creek on the 15th North of 2nd Conc.	3.47	3.78	3.37	9.51	0.32	0.1	0.24	4.56	3.78
B4	Clark Creek at the Lake	6.09	6.36	4.40	8.33	1.65	1.97	1.60	7.33	6.42
5	Ditch at field drain outlet, Lake Range Road	6.51	5.23	3.28	7.01	Dry	Dry	Dry	Dry	Dry
6	New outlet to Clark Creek across from 3491 2nd Conc.	6.18	6.43	4.42	8.68	1.05	0.96	0.74	9.31	6.76
8	Jardine Creek at Abenaki St.	1.61	1.61	1.80	0.41	0.97	0.37	0.44	1.19	2.22
9	Jardine Creek at Seneca	No Sample	2.67	No Sample	No Sample	Dry	Dry	Dry	Dry	Dry
12	Halfway to lake from Road	2.21	1.93	1.64	0.63	0.26	1.23	0.92	1.72	1.75
13	CSP where creek crosses Huron Rd.	2.14	2.31	1.99	1.76	Dry	1.59	0.92	3.47	2.48
17	Outlet in Jardine Creek between sites 11 & 12	2.26	3.40	3.36	3.36	3.05	2.95	1.69	2.96	3.59



Figure 4.3
Nitrate Concentrations at PR-1

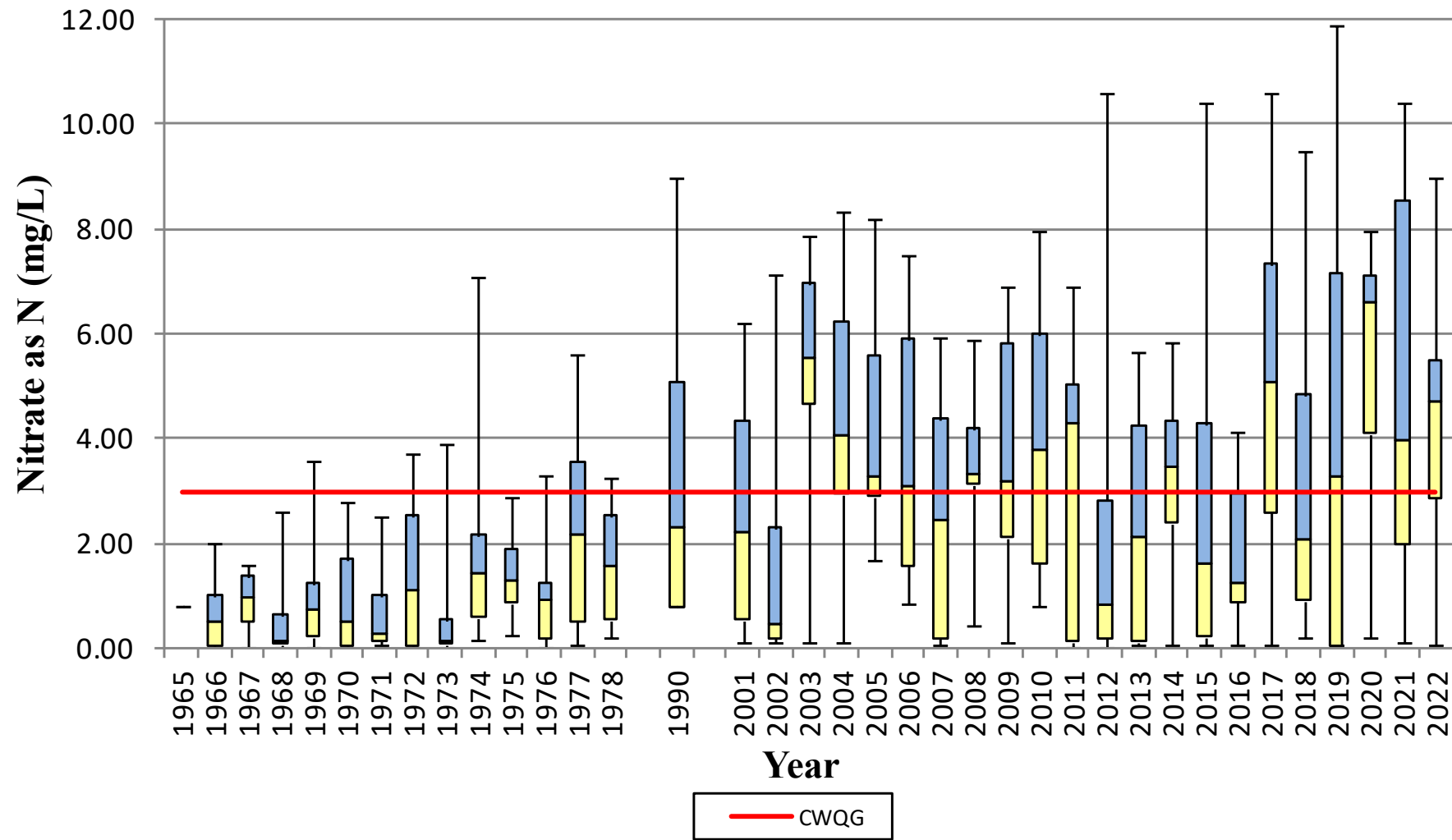


Figure 4.12: 5 Year Comparison of Nitrate at Inland Sites

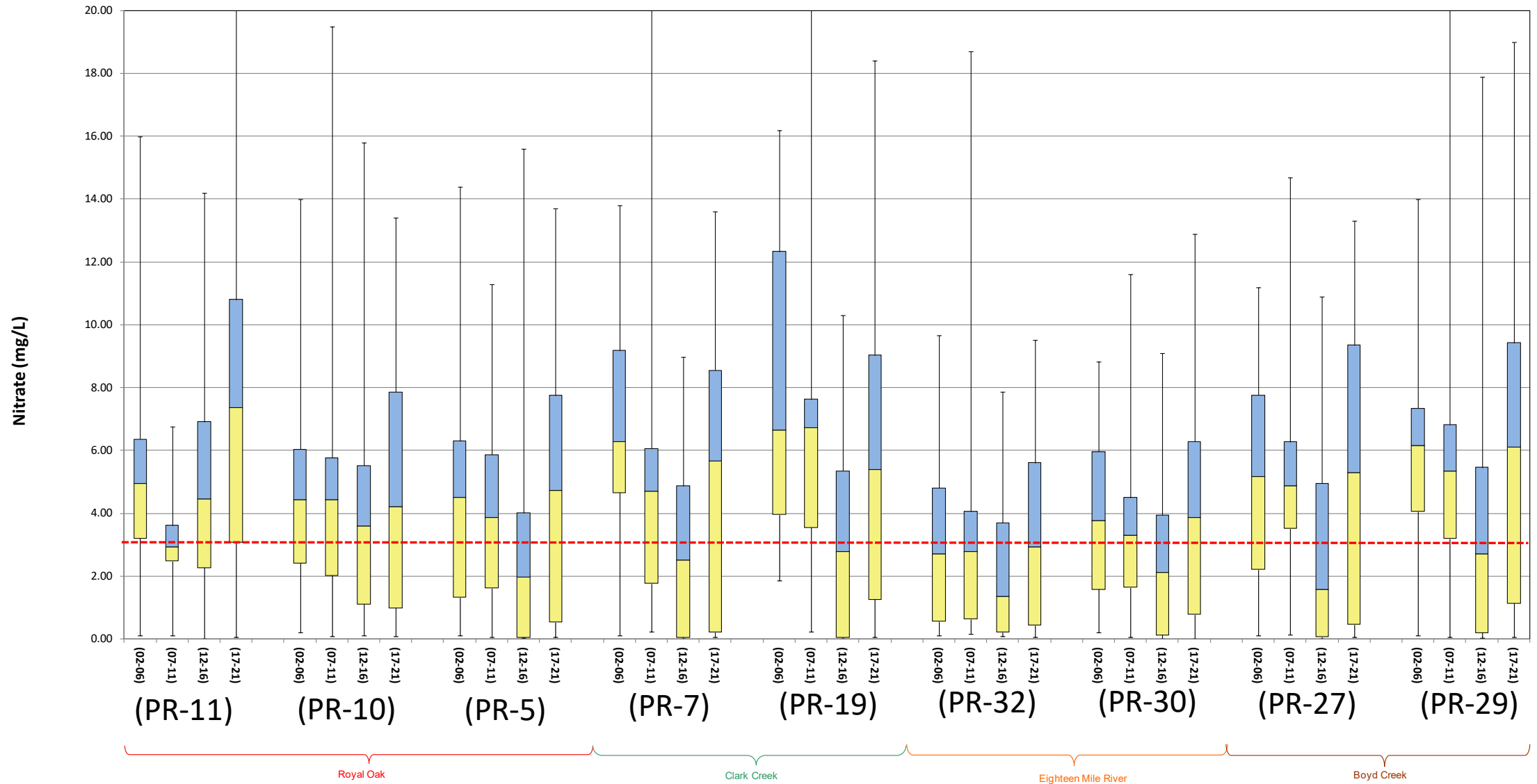


Figure 3.4: Total Phosphorus Spatial Trends 2022

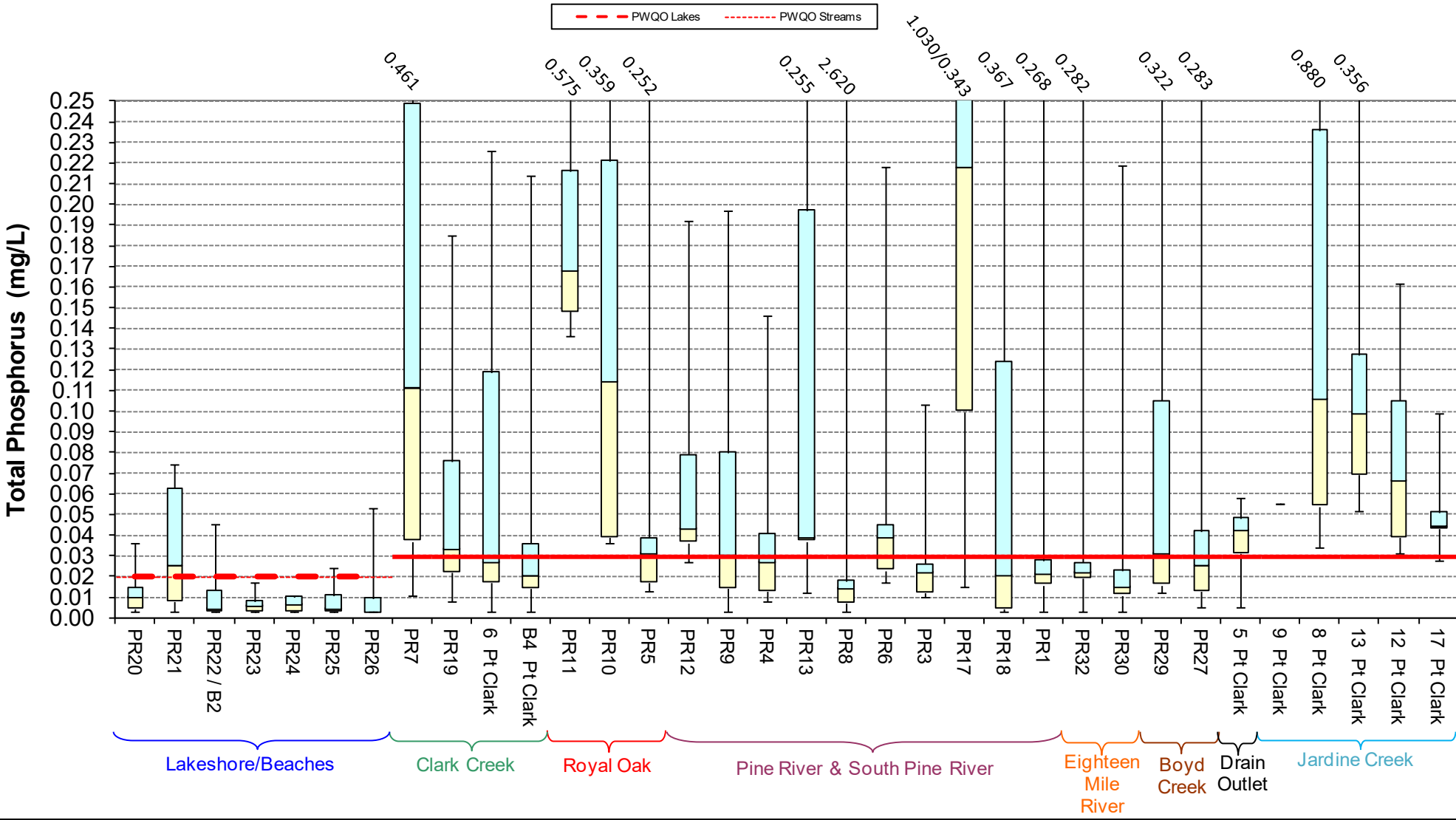
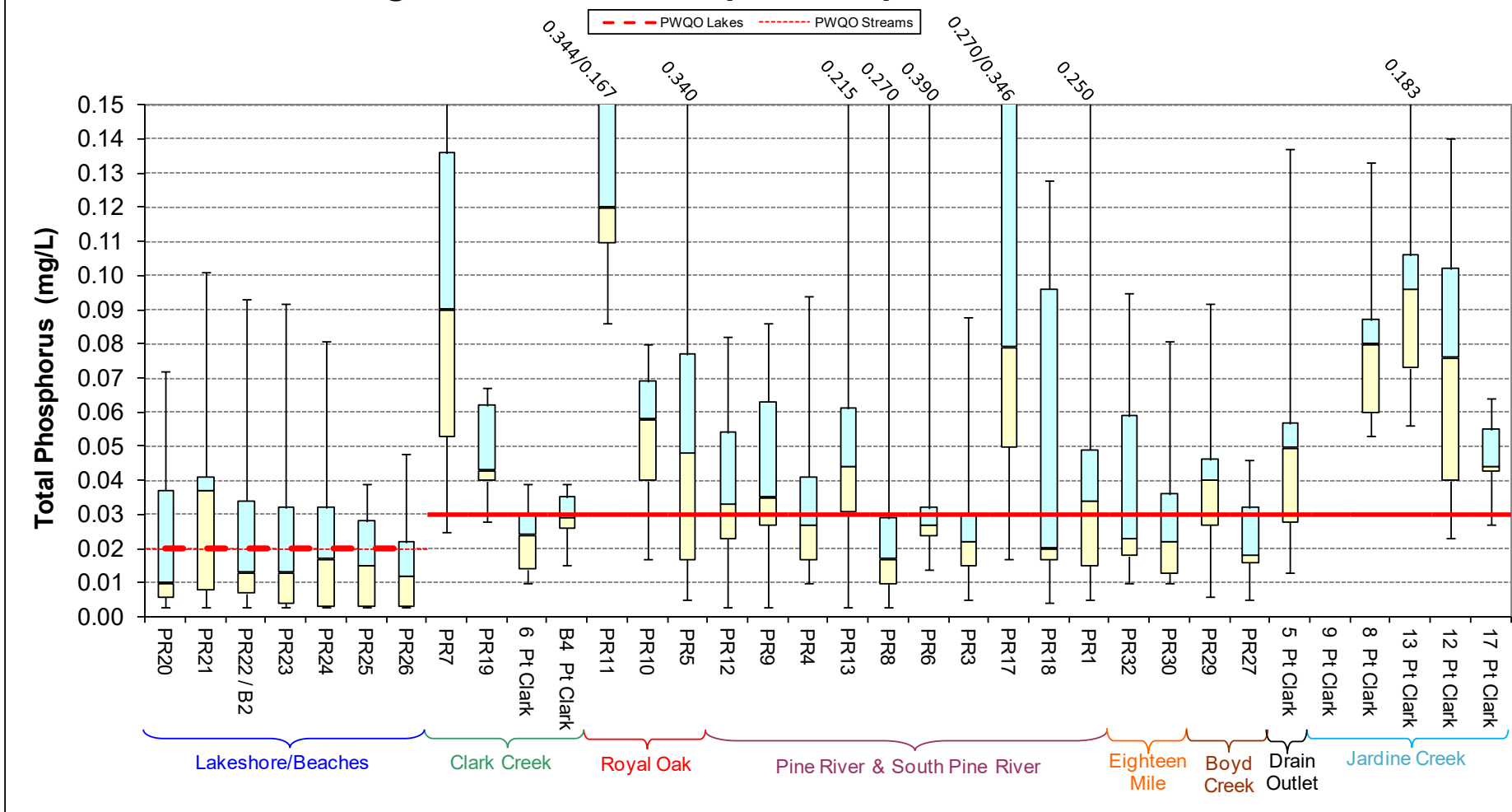


Figure 3.4: Total Phosphorus Spatial Trends 2021



Municipality of Huron-Kinloss
Pine River Water Quality Monitoring Program
2022 Sampling Results

Lakes => 0.02 mg/L

Streams => 0.03 mg/L

No Data

Total Phosphorus (mg/L)

Sample Date

SAMPLE ID	LOCATION	Mar 31	Apr 25	May 24	June 30	July 18	Aug 16	Sept 12	Oct 11	Nov 8
PR1	Pine River-Bridge on Lake Range Road, south of Lurgan Road	0.268	0.028	0.009	0.023	0.019	0.016	0.037	0.021	< 0.003
PR3	South Pine River-Bridge on Hwy. 21 at 6th Conc.	0.103	0.017	0.012	0.026	0.024	0.010	0.030	0.022	0.012
PR4	Pine River Tributary-Bridge on Hwy. 21 North of 6th Conc.	0.146	0.013	0.010	0.024	0.027	0.008	0.044	0.032	0.041
PR5	Pine River Tributary-Bridge on Hwy. 21 North of 8th Conc.	0.252	0.031	0.013	0.021	0.131	0.015	0.039	0.035	0.017
PR6	South Pine River-Bridge on Sideroad 25 North of 6th Conc.	0.218	0.023	0.045	0.025	0.023	0.039	0.097	0.040	0.017
PR7 - Upstream	Clark Creek-Culvert on Sideroad 25 South of 4th Conc.	0.249	0.061	0.011	0.037	0.294	0.238	0.461	0.111	0.033
PR8	South Pine River-Culvert on the 15th North of 6th Conc.	2.620	0.014	0.007	0.018	0.019	< 0.003	0.016	0.010	< 0.003
PR9	Pine River-Bridge on the 15th South of 10th Conc.	0.197	0.030	0.014	0.016	0.162	< 0.003	0.080	0.042	0.010
PR10	Royal Oak Creek-Bridge on the 15th North of the 12th Conc.	0.359	0.114	0.036	0.040	0.221	0.120	0.266	0.039	0.037
PR11	Royal Oak Creek-Culvert on Sideroad 5 north Huron-Kinloss East	0.575	0.232	0.136	0.169	Dry	Dry	Dry	0.167	0.142
PR12	Pine River-Bridge on Huron Twp./Kinloss Twp. Boundary South of 12th Conc.	0.192	0.04	0.032	0.051	0.038	0.046	Dry	0.027	0.163
PR13	South Pine River-Bridge on Huron Twp./Kinloss Twp. Boundary South of 8th Conc.	0.255	0.037	0.012	0.016	0.138	0.197	0.244	0.038	0.039
PR17 - Upstream	Pine River Tributary-Southern Culvert on South Baseline Road North of 4th Conc.	0.218	0.082	0.235	0.015	0.410	0.343	1.030	0.100	0.163
PR18 - Upstream	Pine River Tributary- Middle Culvert on South Baseline Road North of 4th Conc.	0.123	0.005	0.009	0.003	0.128	0.367	Dry	< 0.003	0.032
PR19 - Upstream	Clark Creek-Southern Culvert on South Baseline Road North of 2nd Conc.	0.185	0.008	0.032	0.016	0.093	0.033	0.076	0.022	0.040
PR20	Beach at Hwy. 86 -Amberely Road.	Ice Cover	0.010	0.005	0.036	< 0.003	< 0.003	0.010	0.009	0.029
PR21	Beach off of Attawandron Road-Public Walkway	Ice Cover	0.020	0.009	0.065	< 0.003	0.005	0.074	0.030	0.062
PR22	Beach-Point Clark Swimming Area	Ice Cover	0.015	0.005	0.013	< 0.003	< 0.003	< 0.003	< 0.003	0.045
PR23	Lurgan Beach-Public Walkway	Ice Cover	0.008	0.008	0.008	< 0.003	< 0.003	< 0.003	< 0.003	0.017
PR24	Beach at 6th Conc.	Ice Cover	0.011	0.01	0.009	< 0.003	< 0.003	< 0.003	< 0.003	0.011
PR25	Beach at 8th Conc.	Ice Cover	0.020	0.008	0.005	< 0.003	< 0.003	< 0.003	< 0.003	0.024
PR26	Beach at 10th Conc.	Ice Cover	0.020	0.006	0.003	< 0.003	< 0.003	< 0.003	< 0.003	0.053
PR27	Boyd Creek at Hwy. 21 before Amberely	0.283	0.013	0.019	0.030	0.046	0.005	0.042	0.007	0.025
PR29	Boyd Creek on Sideroad 20 North of 6th Conc.	0.322	0.016	0.015	0.031	0.105	0.074	0.197	0.012	0.030
PR30	Eighteen Mile Creek at Hwy. 21 before Amberely	0.219	0.031	0.011	0.015	0.011	< 0.003	0.003	0.017	0.023
PR32	Eighteen Mile Creek on the 15th North of 2nd Conc.	0.282	0.024	0.022	0.027	0.020	0.011	0.058	0.019	< 0.003
B4	Clark Creek at the Lake	0.214	0.014	0.010	0.020	0.046	0.035	0.036	0.019	< 0.003
5	Ditch at field drain outlet, Lake Range Road	0.058	0.005	0.040	0.045	Dry	Dry	Dry	Dry	Dry
6	New outlet to Clark Creek across from 3491 2nd Conc.	0.226	0.017	0.011	0.028	0.170	0.020	0.027	0.119	< 0.003
8	Jardine Creek at Abenaki St.	0.034	0.049	0.090	0.236	0.880	0.211	0.326	0.106	0.054
9	Jardine Creek at Seneca	No Sample	0.055	No Sample	No Sample	Dry	Dry	Dry	Dry	Dry
12	Halfway to lake from Road	0.042	0.031	0.039	0.105	0.162	0.100	0.149	0.066	0.037
13	CSP where creek crosses Huron Rd.	0.052	0.054	0.084	0.162	Dry	0.113	0.356	0.116	0.074
17	Outlet in Jardine Creek between sites 11 & 12	0.052	0.028	0.037	0.044	0.043	0.051	0.099	0.046	0.043

Figure 4.5
Total Phosphorus Concentrations at PR-1

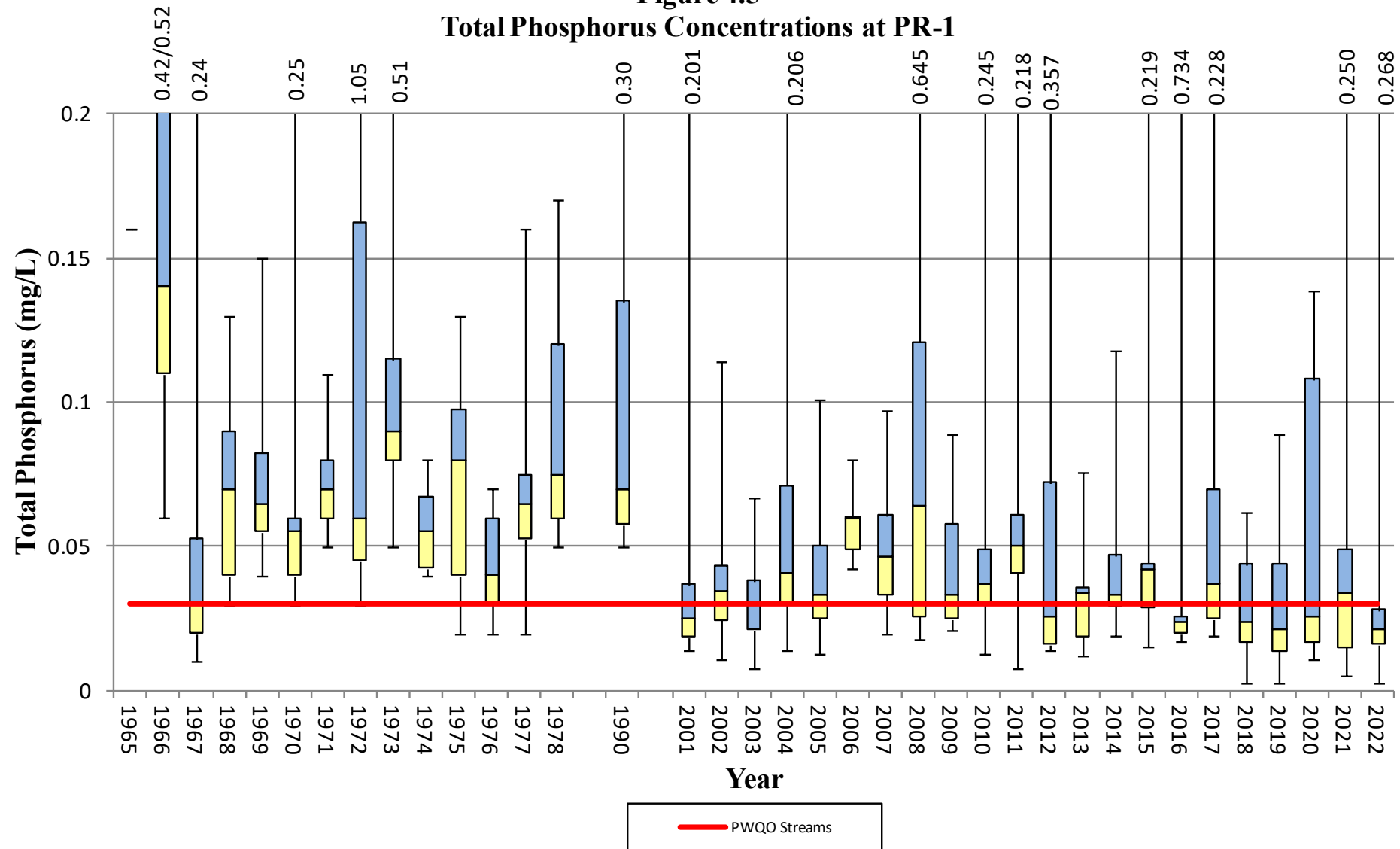


Figure 4.18: 5 Year Comparison of Phosphorus at Pine River Sites

