Appendix A: Basic Statistics of Trended Water Quality Parameters

Table A1: Battle River Statistics

Parameter	n	Mean	SD	Max	90th %ile	Median	10th %ile	Min
Nutrients (mg/L)								
Ammonia Dissolved	356	0.133	0.206	1.47	0.412	0.044	0.0151	0.0025
Nitrate as N	505	0.131	0.238	2.6	0.45	0.01	0.005	0.0005
Nitrogen Total	176	1.255	0.77	6.38	1.904	1.098	0.639	0.453
Phosphorous Total	420	0.108	0.127	0.75	0.254	0.061	0.0255	0.01
Phosphorous Total Dissolved	393	0.0284	0.0272	0.245	0.05	0.02	0.011	0.003
Major Ions (mg/L)								
Chloride Dissolved	509	22.531	13.208	175	37	21	9	0.4
Fluoride Dissolved	455	0.237	0.0716	0.79	0.31	0.233	0.16	0.025
Sodium Dissolved/Filtered	509	121.853	45.439	336	180	122	64	4.5
Sulphate Dissolved	508	139.203	48.71	389	197.35	140	78.3	14
Total Dissolved Solids	332	616.075	215.906	1728.714	873.173	601.798	352.1	218.366
Physicals (Units)								
Oxygen Dissolved (mg/L)	415	7.79	3.916	18.7	12.5	8.6	1.2	0.01
pH – Field (pH units)	414	8.194	0.448	9.23	8.7	8.3	7.592	7
Sodium Adsorption Ratio (units)	401	3.332	0.978	7.506	4.649	3.237	2.104	1.181
Total Suspended Solids (mg/L)	437	69.766	159.561	1146	178.4	13	2.8	0.5
Metals (µg/L)								
Aluminum Total	175	632.851	1470.353	11800	1580	156	44.3	15.9
Chromium Total	175	1.011	2.176	15.3	2.33	0.3	0.1	0.066
Cobalt Dissolved	118	0.891	1.074	6	2.175	0.455	0.209	0.163
Cobalt Total	175	1.19	1.694	11.7	2.9	0.6	0.3	0.196
Copper Dissolved	118	2.095	1.863	13	4	1.535	0.773	0.13
Copper Total	175	3.158	3.788	32	6	2	1	0.27
Iron Dissolved	175	223.771	859.342	6640	128	32	13	5
Iron Total	120	1604.983	2954.031	18300	3895	567.5	204.5	100
Lithium Dissolved	118	75.522	30.797	210	110.7	76.95	35.81	6
Lithium Total	120	95.561	45.665	319	166.5	87.95	45.5	28.4
Manganese Dissolved	175	162.971	501.768	3700	300	13	2	1
Manganese Total	120	278.311	616.725	4300	665	91.7	17.5	7.88
Molybdenum Dissolved	118	1.954	0.914	7	3	1.81	1.078	0.637
Molybdenum Total	120	1.652	0.469	3.6	2.21	1.6	1.13	0.64
Nickel Total	175	5.27	4.264	32.2	9.2	3.96	2.7	1.5
Vanadium Total	175	2.665	4.137	28.2	5.9	1.5	0.323	0.05
Zinc Total	175	5.698	11.926	90.5	14	2.17	0.73	0.0025

Table A2: Beaver River Statistics

Parameter	n	Mean	SD	Max	90th %ile	Median	10th %ile	Min
Nutrients (mg/L)								
Ammonia Dissolved	304	0.2	0.332	2.78	0.649	0.05	0.0129	0.0025
Nitrate as N	414	0.12	0.144	0.972	0.3	0.06	0.005	0.0005
Nitrogen Total	154	1.018	0.472	3.48	1.522	0.921	0.599	0.27
Phosphorous Total	384	0.0968	0.0853	0.72	0.16	0.0715	0.044	0.026
Phosphorous Total Dissolved	356	0.0393	0.0416	0.54	0.0599	0.03	0.016	0.009
Major Ions (mg/L)								
Chloride Dissolved	387	4.369	3.187	34.9	7.582	3.7	1.7	0.05
Fluoride Dissolved	373	0.14	0.0477	0.55	0.19	0.13	0.09	0.025
Sodium Dissolved/Filtered	388	19.343	11.744	95.3	33.82	17.15	8	1.6
Sulphate Dissolved	388	14.979	9.428	82.1	25.65	13.3	6.1	1.65
Total Dissolved Solids	253	241.137	93.972	687.884	368.2	230	139	83
Physicals (Units)								
Oxygen Dissolved (mg/L)	373	7.405	4.043	14.6	12	8.5	0.8	0.0001
pH – Field (pH units)	370	7.853	0.435	8.9	8.37	7.9	7.3	5.9
Sodium Adsorption Ratio (units)	335	0.597	0.265	2.05	0.914	0.561	0.316	0.175
Total Suspended Solids (mg/L)	387	16.233	25.447	202	35.88	6.3	2.6	0.5
Metals (µg/L)								
Aluminum Total	153	152.081	208.785	1510	366.6	69	25.24	1.4
Boron Dissolved	153	42.345	18.531	161	64.2	37	23.96	11
Chromium Total	153	0.471	0.635	5.8	1	0.3	0.1	0.054
Cobalt Dissolved	95	0.424	0.706	5	1	0.128	0.058	0.043
Cobalt Total	153	0.374	0.332	1.9	1	0.245	0.125	0.05
Copper Total	153	0.924	1.419	16.6	1.236	0.7	0.4	0.1
Iron Dissolved	153	332.192	774.703	6370	491.6	170	51.16	18
Lithium Dissolved	95	13.058	6.824	50	21	11	7.1	4
Lithium Total	97	15.574	10.352	78.3	27.48	12.6	7.82	5.5
Manganese Dissolved	153	280.68	677.366	3450	880.4	25	3.946	1.37
Manganese Total	97	318.162	697.137	3690	795.8	87.5	30.86	13.3
Molybdenum Dissolved	95	0.746	0.478	3	1	0.602	0.39	0.209
Molybdenum Total	97	0.665	0.288	1.7	1	0.6	0.377	0.202
Zinc Total	153	2.188	2.061	13	4.576	1.6	0.524	0.025

Table A3: Cold River Statistics

Parameter	n	Mean	SD	Max	90th %ile	Median	10th %ile	Min
Nutrients (mg/L)								
Ammonia Dissolved	55	0.0114	0.0105	0.078	0.016	0.01	0.0025	0.0025
Nitrate as N	55	0.0238	0.0259	0.089	0.066	0.005	0.005	0.005
Nitrogen Total	54	0.424	0.0809	0.956	0.461	0.407	0.38	0.33
Phosphorous Total	55	0.0202	0.0166	0.134	0.023	0.018	0.012	0.01
Phosphorous Total Dissolved	55	0.00998	0.00601	0.038	0.017	0.01	0.004	0.003
Major Ions (mg/L)								
Chloride Dissolved	78	0.852	0.303	2.7	1.007	0.815	0.606	0.23
Fluoride Dissolved	78	0.107	0.0191	0.18	0.12	0.11	0.09	0.04
Sodium Dissolved/Filtered	78	9.149	0.485	10.8	9.741	9.09	8.676	7.37
Sulphate Dissolved	78	3.537	0.777	5.1	4.7	3.37	2.733	2.1
Total Dissolved Solids	74	149.87	6.666	166.022	160.109	148.962	143.74	132
Physicals (Units)								
Oxygen Dissolved (mg/L)	75	11.169	1.599	14	13.04	11.4	9.16	7
pH – Field (pH units)	73	8.312	0.272	8.77	8.648	8.32	7.984	7.5
Sodium Adsorption Ratio (units)	78	0.351	0.014	0.395	0.365	0.352	0.339	0.286
Total Suspended Solids (mg/L)	55	1.755	1.577	7.8	3.4	1.5	0.5	0.5
Metals (µg/L)								
Aluminum Total	65	7.125	9.903	57	14	3.9	1	0.1
Iron Total	42	13.065	20.027	131	24.69	7.7	4.17	0.025
Lithium Dissolved	40	8.217	0.652	10.3	9.1	8	7.6	7
Lithium Total	42	9.017	1.056	13.7	10.23	8.75	8.1	7.8
Manganese Total	42	1.383	1.071	6.3	2.397	1.07	0.594	0.13
Molybdenum Total	42	0.555	0.246	1.7	0.619	0.5	0.435	0.4

Table A4: North Saskatchewan River Statistics

Parameter	n	Mean	SD	Max	90th %ile	Median	10th %ile	Min
Nutrients (mg/L)								
Ammonia Dissolved	248	0.13	0.171	0.825	0.37	0.0235	0.005	0.0025
Nitrate as N	248	0.327	0.227	0.915	0.633	0.335	0.005	0.005
Nitrogen Total	176	0.794	0.484	4.112	1.228	0.72	0.256	0.161
Phosphorous Total	247	0.102	0.178	1.72	0.21	0.055	0.017	0.008
Phosphorous Total Dissolved	247	0.033	0.0327	0.215	0.086	0.021	0.006	0.001
Major Ions (mg/L)								
Chloride Dissolved	193	3.993	1.977	13.4	6.132	3.62	1.916	1.13
Fluoride Dissolved	192	0.153	0.024	0.24	0.18	0.15	0.12	0.08
Sodium Dissolved/Filtered	192	8.924	3.666	34.5	12.23	8.315	5.832	1.35
Sulphate Dissolved	193	46.136	10.154	75	55.58	47.4	33.76	2.4
Total Dissolved Solids	192	204.097	27.783	317	236.237	203	172.7	105
Physicals (Units)								
Oxygen Dissolved (mg/L)	245	10.095	1.85	14.96	12.63	9.92	7.8	5.55
pH – Field (pH units)	246	8.255	0.396	9.14	8.8	8.23	7.77	7.28
Sodium Adsorption Ratio (units)	192	0.299	0.114	1.016	0.424	0.273	0.202	0.0483
Total Suspended Solids (mg/L)	248	73.493	238.401	2436	171.6	10.25	2.86	0.5
Metals (µg/L)								
Aluminum Total	174	834.084	2072.916	18100	2041	159	56.8	13.4
Chromium Total	174	1.386	3.236	29.3	3.45	0.4	0.1	0.042
Cobalt Dissolved	117	0.438	0.781	7	1	0.113	0.0492	0.026
Cobalt Total	174	0.795	1.999	21.5	2	0.221	0.1	0.05
Copper Total	174	2.652	4.575	44.2	6.3	1.265	0.7	0.1
Iron Dissolved	173	22.856	34.744	249	46.34	12	6	0.25
Iron Total	120	1506.592	4488.628	39600	2750	166.5	82.6	6.2
Lithium Dissolved	117	5.85	8.545	96	6.98	5	3.6	0.5
Lithium Total	120	6.395	3.792	40.4	8.45	5.5	4.4	3.9
Manganese Total	120	46.226	127.554	1220	88	9.73	4.235	1.14
Molybdenum Dissolved	117	1.456	1.154	11.9	2	1.11	0.941	0.5
Molybdenum Total	120	1.249	1.007	11.5	1.515	1.1	0.872	0.456
Nickel Total	174	2.779	5.74	61.4	6.02	1.115	0.7	0.2
Vanadium Total	174	2.152	4.829	42.1	5.01	0.6	0.299	0.119
Zinc Total	174	6.961	15.651	160	15.18	2.345	1.096	0.1

Table A5: Red Deer River near Bindloss Statistics

Parameter	n	Mean	SD	Max	90th %ile	Median	10th %ile	Min
Nutrients (mg/L)								
Ammonia Dissolved	353	0.0443	0.0816	0.8	0.1	0.018	0.007	0.0025
Nitrate as N	506	0.211	0.331	3.84	0.52	0.067	0.005	0.0005
Nitrogen Total	173	0.902	1.053	7.1	1.624	0.59	0.35	0.182
Phosphorous Total	434	0.164	0.576	11	0.34	0.0595	0.01	0.0015
Phosphorous Total Dissolved	403	0.0142	0.0182	0.18	0.0302	0.008	0.003	0.001
Major Ions (mg/L)								
Chloride Dissolved	457	5.292	3.269	45	8.8	4.71	2.2	0.05
Fluoride Dissolved	399	0.16	0.0422	0.6	0.2	0.16	0.12	0.017
Sodium Dissolved/Filtered	458	26.476	9.956	78	39.11	25	15.5	9.7
Sulphate Dissolved	457	65.79	21.086	163	93.94	62.9	43.06	24
Total Dissolved Solids	265	288.097	72.598	589.1	388.143	277.834	212	1
Physicals (Units)								
Oxygen Dissolved (mg/L)	414	9.261	2.776	18.3	12.719	9.2	6.235	0.6
pH – Field (pH units)	425	8.189	0.315	8.99	8.6	8.2	7.8	7.2
Sodium Adsorption Ratio (units)	356	0.811	0.303	2.494	1.173	0.761	0.49	0.358
Total Suspended Solids (mg/L)	452	254.979	649.702	6600	570.4	52.4	3.87	0.5
Metals (µg/L)								
Aluminum Total	175	3330.123	9469.44	86700	6150	632	69	2.1
Chromium Total	174	3.305	7.674	70.4	7.37	0.8	0.1	0.057
Cobalt Dissolved	117	0.414	0.473	2	1	0.148	0.0672	0.038
Cobalt Total	174	2.274	4.72	34.3	5.763	0.659	0.1	0.049
Copper Dissolved	117	1.942	1.21	7	3.456	1.5	0.86	0.5
Copper Total	174	7.032	12.751	81.2	16.26	2.81	1.089	0.6
Iron Dissolved	173	27.496	77.174	745	58.28	6	2	0.7
Iron Total	120	4460.863	10362.576	67100	12350	770.5	89.55	5.2
Lead Total	174	3.355	7.272	48.6	8.145	0.613	0.1	0.007
Lithium Dissolved	117	12.221	4.231	26.9	18.08	11.2	7.84	5
Lithium Total	120	16.644	9.951	69.5	24.35	13.35	9.5	7.7
Manganese Dissolved	173	3.31	2.716	15	6.316	2.38	1	0.49
Manganese Total	120	130.781	249.937	1710	415	45.75	5.59	0.12
Molybdenum Dissolved	117	1.628	0.615	5	2	1.52	1	0.904
Molybdenum Total	120	1.259	0.412	3.07	1.72	1.225	0.765	0.3
Nickel Total	174	6.692	12.599	93.7	15.55	2.58	0.9	0.2
Vanadium Total	174	6.211	13.113	116	14.54	1.955	0.308	0.1
Zinc Total	174	17.66	39.799	267	39.55	4.57	1.181	0.05

Table A6: South Saskatchewan Statistics

Parameter	n	Mean	SD	Max	90th %ile	Median	10th %ile	Min
Nutrients (mg/L)								
Ammonia Dissolved	347	0.0756	0.128	0.97	0.207	0.025	0.007	0.0025
Nitrate as N	530	0.427	0.454	1.9	1.1	0.263	0.005	0.0005
Nitrogen Total	189	0.883	0.608	4.637	1.556	0.771	0.31	0.24
Phosphorous Total	508	0.09	0.149	1.67	0.217	0.039	0.014	0.002
Phosphorous Total Dissolved	466	0.0169	0.0322	0.483	0.0339	0.008	0.004	0.001
Major Ions (mg/L)								
Chloride Dissolved	402	6.406	3.339	17.8	10.7	6	2.277	0.05
Fluoride Dissolved	391	0.152	0.0351	0.36	0.19	0.15	0.11	0.025
Sodium Dissolved/Filtered	406	16.967	6.164	51.3	24.4	16.65	9.11	4.1
Sulphate Dissolved	402	59.122	16.435	102	79.15	59.6	35.8	20.8
Total Dissolved Solids	260	232.549	43.523	374.213	286.375	228.5	177.5	98
Physicals (Units)								
Oxygen Dissolved (mg/L)	412	10.577	2.232	16.5	13.5	10.5	7.8	5.5
pH – Field (pH units)	417	8.305	0.36	9.2	8.718	8.37	7.8	7.1
Sodium Adsorption Ratio (units)	352	0.573	0.182	1.169	0.825	0.548	0.346	0.199
Total Suspended Solids (mg/L)	500	94.708	212.989	2150	254	19	4	0.5
Metals (µg/L)								
Aluminum Total	174	965.798	2549.051	23000	2091	251	94.46	9.4
Chromium Total	174	1.275	3.045	29.1	3.01	0.339	0.1	0.078
Cobalt Dissolved	118	0.438	0.543	3	1	0.138	0.0713	0.039
Cobalt Total	174	0.802	1.589	12.4	2	0.3	0.147	0.084
Copper Dissolved	118	1.322	1.034	7	3	1	0.5	0.44
Copper Total	174	2.715	4.24	32.4	5.115	1.4	0.899	0.5
Iron Dissolved	174	16.443	38.695	348	23.1	8.6	4.09	1.8
Iron Total	120	1386.805	4084.502	31300	2365	301	128	11.2
Lithium Dissolved	118	8.018	2.32	15	11	8	5.3	4
Lithium Total	120	9.766	3.619	28	13.35	8.8	6.8	5.9
Manganese Dissolved	174	1.968	2.42	24.2	3.469	1.15	0.778	0.37
Manganese Total	120	43.282	99.361	696	88.8	15.25	5.135	2.23
Molybdenum Dissolved	118	1.595	0.603	4	2	1.465	1	0.5
Nickel Total	175	2.853	6.273	62	4.98	1.2	0.8	0.1
Vanadium Total	174	2.388	5.491	53.7	4.924	0.8	0.4	0.147
Zinc Total	174	6.72	14.115	116	14.74	2.7	0.999	0.06

Table A7: Assiniboine River Statistics

Parameter	n	Mean	SD	Max	90th %ile	Median	10th %ile	Min
Nutrients (mg/L)								
Ammonia Dissolved	361	0.163	0.248	2.52	0.395	0.06	0.026	0.0025
Nitrate as N	463	0.214	0.418	4.75	0.6	0.046	0.005	0.0005
Nitrogen Total	170	1.493	0.545	4.543	2.043	1.352	1	0.716
Phosphorous Total	450	0.151	0.128	1.176	0.268	0.117	0.0545	0.013
Phosphorous Total Dissolved	412	0.0907	0.109	1.067	0.16	0.0585	0.028	0.007
Major Ions (mg/L)								
Chloride Dissolved	444	24.154	20.221	155	44.12	19	8.309	1.6
Fluoride Dissolved	432	0.204	0.0699	0.69	0.26	0.2	0.14	0.04
Sodium Dissolved/Filtered	446	45.633	24.647	203	68.98	43	20.25	3.7
Sulphate Dissolved	446	202.554	75.594	609	299.9	198	117	38
Total Dissolved Solids	316	643.455	181.11	1440	834.411	644.952	417.795	2
Physicals (Units)								
Oxygen Dissolved (mg/L)	407	8.039	2.672	17.89	11.5	7.9	4.8	0.1
pH – Field (pH units)	430	7.87	0.376	10.94	8.3	7.9	7.4	6.5
Sodium Adsorption Ratio (units)	395	0.929	0.431	3.67	1.276	0.867	0.531	0.0711
Total Suspended Solids (mg/L)	427	21.021	28.171	347	46.32	12	3.4	0.5
Metals (µg/L)								
Aluminum Total	170	257.875	222.191	1320	582	179.5	71.6	3.5
Chromium Total	170	0.64	0.76	6	1.195	0.4	0.2	0.092
Cobalt Dissolved	117	0.667	0.561	4	1	0.496	0.26	0.191
Cobalt Total	170	0.713	0.748	6	1.045	0.588	0.333	0.1
Copper Dissolved	117	1.828	1.394	9	3.8	1.19	0.962	0.5
Copper Total	170	2.207	1.598	12.5	3.295	1.785	1.2	0.98
Iron Dissolved	170	63.62	165.06	1720	105	31.15	9.75	4
Iron Total	120	685.033	435.654	2250	1380	549	244	50
Lithium Dissolved	117	57.926	19.54	124	77	56.9	36.6	15.9
Lithium Total	120	70.883	31.049	268	108.5	65.7	45.35	19.3
Manganese Dissolved	170	146.655	173.144	1720	289	98.5	28	1
Manganese Total	120	231.994	141.77	940	366.5	206	97.6	45.8
Molybdenum Dissolved	117	2.723	0.895	6	4	2.56	1.784	1
Molybdenum Total	120	2.613	0.982	7	3.68	2.38	1.7	1.4
Vanadium Total	170	2.22	1.461	7	4.135	1.84	0.7	0.4
Zinc Total	170	3.481	2.235	15.3	6.11	2.76	1.395	0.8

Table A8: Carrot River Statistics

Parameter	n	Mean	SD	Max	90th %ile	Median	10th %ile	Min
Nutrients (mg/L)								
Ammonia Dissolved	313	0.182	0.247	1.54	0.454	0.056	0.023	0.008
Nitrate as N	393	0.0979	0.238	2.16	0.182	0.025	0.005	0.004
Nitrogen Total	169	1.148	0.645	5.831	1.758	1.007	0.629	0.425
Phosphorous Total	386	0.0899	0.0877	0.597	0.205	0.058	0.028	0.0025
Phosphorous Total Dissolved	368	0.0253	0.0301	0.28	0.058	0.015	0.006	0.0015
Major Ions (mg/L)								
Chloride Dissolved	337	242.848	222.521	1280	544.8	163.9	36.12	2.2
Fluoride Dissolved	339	0.18	0.0575	0.46	0.25	0.17	0.12	0.05
Sodium Dissolved/Filtered	339	155.619	137.58	800	357	105	30.88	8.4
Sulphate Dissolved	341	65.659	33.193	202	114	57.5	30.46	6
Total Dissolved Solids	249	727.955	458.435	2769	1331.3	565	300.06	167.3
Physicals (Units)								
Oxygen Dissolved (mg/L)	379	6.475	4.007	17.74	11.5	6.9	0.54	0.0001
pH – Field (pH units)	387	7.62	0.363	9.67	8.056	7.6	7.18	6.67
Sodium Adsorption Ratio (units)	327	3.551	2.585	13.182	7.478	2.761	0.919	0.299
Total Suspended Solids (mg/L)	389	42.762	88.84	1083	99.12	14	5.68	0.5
Metals (µg/L)								
Aluminum Total	114	336.932	468.879	2280	883.2	147.5	44.18	9
Boron Dissolved	114	83.266	48.958	295	145.6	69.05	41.27	23.9
Cadmium Total	114	0.133	0.193	1.6	0.31	0.09	0.0229	0.011
Chromium Total	113	0.832	1.007	5.66	2	0.5	0.2	0.1
Cobalt Dissolved	81	0.669	0.581	3	1.016	0.5	0.194	0.099
Cobalt Total	114	0.776	0.571	4.16	1.325	0.6	0.367	0.05
Copper Dissolved	81	1.268	1.024	8	2.02	1	0.41	0.21
Copper Total	114	2.225	2.503	23.2	3.926	1.6	0.827	0.5
Iron Total	82	1792.159	1713.541	11000	4006	1165	569	395
Lead Total	114	0.514	0.677	3.73	1.303	0.261	0.1	0.075
Lithium Dissolved	81	35.527	19.13	127	59.64	31.6	17.48	7.4
Lithium Total	82	45.623	33.5	256	87.98	36.1	20.56	9.9
Manganese Dissolved	114	534.03	677.767	3040	1631	188	48.33	2.71
Manganese Total	82	630.399	711.162	3060	1709	263	97.445	36.5
Molybdenum Dissolved	81	2.031	0.837	4	3	2	1.11	0.5
Molybdenum Total	82	1.988	0.762	5.1	2.93	1.805	1.3	0.2
Vanadium Total	114	1.745	1.93	11.5	3.768	1.21	0.3	0.025
Zinc Dissolved	81	1.437	1.188	8.88	2.534	1	0.526	0.27
Zinc Total	114	3.812	4.768	27.7	7.695	2.075	1.034	0.6

Table A9: Churchill River Statistics

Parameter	n	Mean	SD	Max	90th %ile	Median	10th %ile	Min
Nutrients (mg/L)								
Ammonia Dissolved	161	0.0253	0.0269	0.26	0.05	0.018	0.0056	0.0025
Nitrate as N	222	0.0271	0.08	1.1	0.0573	0.005	0.005	0.003
Nitrogen Total	62	0.373	0.0692	0.62	0.465	0.368	0.287	0.267
Phosphorous Total	221	0.0181	0.0173	0.195	0.025	0.016	0.008	0.004
Phosphorous Total Dissolved	203	0.00663	0.004	0.03	0.01	0.006	0.003	0.001
Major Ions (mg/L)								
Chloride Dissolved	223	1.327	0.629	6.4	1.9	1.2	0.8	0.005
Fluoride Dissolved	223	0.0973	0.0244	0.24	0.12	0.1	0.08	0.005
Sodium Dissolved/Filtered	223	3.147	0.992	12.3	4.212	3	2.264	1.72
Sulphate Dissolved	223	3.071	2.471	37	4.1	2.8	2	0.6
Total Dissolved Solids	158	44.952	16.363	195.034	59	41.9	32.03	25
Physicals (Units)								
Oxygen Dissolved (mg/L)	211	11.144	2.356	18	14.2	11	8.2	6.16
pH – Field (pH units)	216	7.438	0.449	8.46	8	7.435	6.9	6.2
Sodium Adsorption Ratio (units)	215	0.224	0.0346	0.434	0.266	0.219	0.188	0.15
Total Suspended Solids (mg/L)	217	3.313	2.27	15	6	3	0.82	0.5
Metals (µg/L)								
Copper Total	58	0.724	0.728	5.6	1.167	0.585	0.33	0.1
Manganese Dissolved	58	1.41	0.824	5	2	1	0.864	0.52
Manganese Total	37	16.222	8.168	35.3	28.44	12.7	7.964	6.8
Molybdenum Total	37	0.156	0.136	0.908	0.2	0.139	0.0576	0.05
Zinc Total	58	1.101	1.506	11.3	1.766	0.755	0.4	0.3

Table A10: Qu'Appelle River Statistics

Parameter	n	Mean	SD	Max	90th %ile	Median	10th %ile	Min
Nutrients (mg/L)								
Ammonia Dissolved	304	0.0607	0.0666	0.9	0.12	0.0485	0.022	0.007
Nitrate as N	369	0.119	0.165	1.19	0.332	0.046	0.005	0.005
Nitrogen Total	150	1.262	0.461	3.97	1.81	1.122	0.935	0.346
Phosphorous Total	368	0.199	0.0862	0.68	0.298	0.186	0.111	0.029
Phosphorous Total Dissolved	368	0.123	0.0649	0.333	0.213	0.111	0.0483	0.01
Major Ions (mg/L)								
Chloride Dissolved	329	74.169	18.507	124	96	75.7	52.54	10
Fluoride Dissolved	332	0.211	0.0442	0.57	0.25	0.21	0.167	0.02
Sodium Dissolved/Filtered	329	161.017	37.037	244	207	165	113.4	23.6
Sulphate Dissolved	331	396.387	82.893	591	486	410	299.2	16.7
Total Dissolved Solids	264	958.536	162.59	1358	1144.6	975.982	777.8	226.666
Physicals (Units)								
Oxygen Dissolved (mg/L)	362	9.579	2.225	15.7	12.3	9.715	6.507	1.4
pH – Field (pH units)	363	8.15	0.291	9.29	8.47	8.18	7.8	7.17
Sodium Adsorption Ratio (units)	329	3.362	0.683	4.948	4.241	3.389	2.45	0.904
Total Suspended Solids (mg/L)	371	54.688	60.024	418	119.4	34	9.12	0.5
Metals (µg/L)								
Aluminum Total	109	555.582	500.081	2250	1258	350	98.16	1
Cadmium Total	109	0.195	0.617	6.2	0.42	0.066	0.022	0.014
Chromium Total	109	1.088	1.337	9	2.042	0.543	0.227	0.1
Cobalt Dissolved	62	0.602	0.924	4	2	0.232	0.145	0.118
Cobalt Total	109	0.852	0.74	5	1.524	0.677	0.29	0.05
Copper Dissolved	62	1.923	1.65	7	5	1.25	0.781	0.5
Copper Total	109	2.722	1.862	9.7	4.766	2.03	1.114	0.1
Iron Dissolved	109	14.238	20.224	157	31.48	8	3.4	2
Iron Total	66	894.727	864.819	4770	2171	494.5	235.2	172
Lithium Dissolved	62	97.958	16.832	132	117.6	98	82.26	40.6
Lithium Total	66	117.57	28.808	209	166.3	109	91.91	59
Manganese Dissolved	109	58.745	84.878	518	107.6	36.6	8.772	1.07
Manganese Total	66	194.841	138.191	767	347.1	142	85.14	54
Molybdenum Dissolved	62	4.393	0.813	6	5.205	4.54	3.315	2.05
Vanadium Total	109	3.655	2.242	10.2	6.786	3.1	1.4	0.05
Zinc Dissolved	62	1.618	2.352	13.9	2.756	1	0.272	0.1
Zinc Total	109	4.936	3.817	22.3	9.428	3.84	1.36	0.1

Table A11: Red Deer River at Erwood Statistics

Parameter	n	Mean	SD	Max	90th %ile	Median	10th %ile	Min
Nutrients (mg/L)								
Ammonia Dissolved	237	0.0687	0.124	1.3	0.145	0.042	0.017	0.009
Nitrate as N	352	0.171	0.296	2.25	0.586	0.02	0.005	0.0005
Nitrogen Total	86	1.08	0.389	2.45	1.527	1.046	0.652	0.48
Phosphorous Total	311	0.051	0.086	1	0.1	0.025	0.014	0.008
Phosphorous Total Dissolved	282	0.0208	0.0255	0.25	0.04	0.014	0.0077	0.0015
Major Ions (mg/L)								
Chloride Dissolved	358	5.144	2.863	25	8.1	4.4	2.6	0.5
Fluoride Dissolved	330	0.138	0.0417	0.35	0.19	0.135	0.09	0.05
Sodium Dissolved/Filtered	358	14.981	7.834	76.3	23.74	13	7.395	1.8
Sulphate Dissolved	358	65.838	35.656	314	106.7	62.1	24.89	2.26
Total Dissolved Solids	219	322.731	133.105	824.498	503	277	182	46.024
Physicals (Units)								
Oxygen Dissolved (mg/L)	298	10.023	2.517	15.24	13.17	10.15	6.73	1
pH – Field (pH units)	309	7.974	0.433	10.9	8.43	8	7.4	7
Sodium Adsorption Ratio (units)	295	0.392	0.122	0.922	0.529	0.377	0.256	0.0424
Total Suspended Solids (mg/L)	311	13.964	34.425	346	34.16	3	1	0.5
Metals (µg/L)								
Boron Dissolved	81	41.52	16.622	116	62.08	40	26.42	2
Cobalt Total	81	0.311	0.274	1.85	0.607	0.2	0.1	0.05
Copper Dissolved	49	1.265	1.456	8	1.602	1	0.5	0.45
Copper Total	81	1.476	1.43	11	2.44	1.1	0.7	0.5
Lithium Dissolved	49	23.812	11.433	63	38.2	20.6	12.34	3
Lithium Total	50	28.623	14.085	85.05	44.55	26.8	15.15	3.4
Manganese Dissolved	81	19.373	20.05	130	36.7	14	6	0.81
Molybdenum Dissolved	49	1.826	0.994	5	3.428	1.65	1	0.128
Molybdenum Total	50	1.813	0.757	4.2	3	1.605	1.11	0.136
Zinc Total	81	2.576	3.323	18	6.84	1.24	0.476	0.1

Table A12: Saskatchewan River Statistics

Parameter	n	Mean	SD	Max	90th %ile	Median	10th %ile	Min
Nutrients (mg/L)								
Ammonia Dissolved	278	0.0439	0.0418	0.41	0.09	0.0295	0.012	0.0025
Nitrate as N	358	0.117	0.142	1.17	0.329	0.05	0.005	0.002
Nitrogen Total	145	0.61	0.238	2.617	0.778	0.575	0.4	0.328
Phosphorous Total	358	0.0552	0.0444	0.446	0.107	0.044	0.019	0.009
Phosphorous Total Dissolved	339	0.0113	0.0113	0.148	0.017	0.009	0.005	0.001
Major Ions (mg/L)								
Chloride Dissolved	358	8.979	17.837	300	9.6	7.2	5.2	3.6
Fluoride Dissolved	358	0.146	0.0323	0.3	0.18	0.15	0.11	0.0176
Sodium Dissolved/Filtered	358	17.264	10.727	183	20.4	16.2	12.53	2.44
Sulphate Dissolved	358	49.438	12.441	157	63.56	48.35	36.1	25
Total Dissolved Solids	267	226.74	55.664	746.174	269.8	217.481	182.181	146
Physicals (Units)								
Oxygen Dissolved (mg/L)	346	10.065	2.258	15.9	12.845	10.2	7.191	3.5
pH – Field (pH units)	351	7.971	0.366	10.88	8.344	8	7.53	7.01
Sodium Adsorption Ratio (units)	348	0.572	0.256	4.319	0.643	0.548	0.448	0.152
Total Suspended Solids (mg/L)	357	48.172	47.712	392	102	35	7.64	0.5
Metals (µg/L)								
Aluminum Total	147	1169.997	5427.428	66100	1538	551	142.2	55.3
Cadmium Total	148	0.265	1.404	17	0.4	0.058	0.0202	0.013
Chromium Total	146	1.261	1.014	6	2.3	1	0.303	0.1
Cobalt Total	146	0.632	0.509	4	1.09	0.5	0.191	0.1
Copper Dissolved	95	1.472	0.886	5	2.45	1.15	0.89	0.5
Copper Total	146	2.384	1.209	9.4	3.596	2.155	1.3	0.97
Iron Total	98	1133.592	949.99	4410	2226	964.5	243.1	165
Lead Total	148	1.326	3.387	25	1.9	0.599	0.1	0.1
Lithium Dissolved	95	9.322	2.058	19.2	11.8	9.2	7	5
Lithium Total	98	11.281	1.973	21.5	13.37	11	9.3	7.4
Manganese Dissolved	146	4.413	7.236	51	9.883	2	1	0.5
Manganese Total	98	42.834	28.135	137	74.48	33.7	16.09	9.7
Molybdenum Dissolved	95	1.32	0.506	3	2	1.18	0.889	0.5
Molybdenum Total	99	26.404	251.143	2500	1.52	1.14	0.868	0.4
Nickel Total	147	2.741	3.719	45	3.668	2.2	1.4	1
Vanadium Total	146	2.175	1.565	8	4	1.9	0.6	0.421
Zinc Total	146	6.218	19.652	238	8.19	3.93	1.323	0.89