

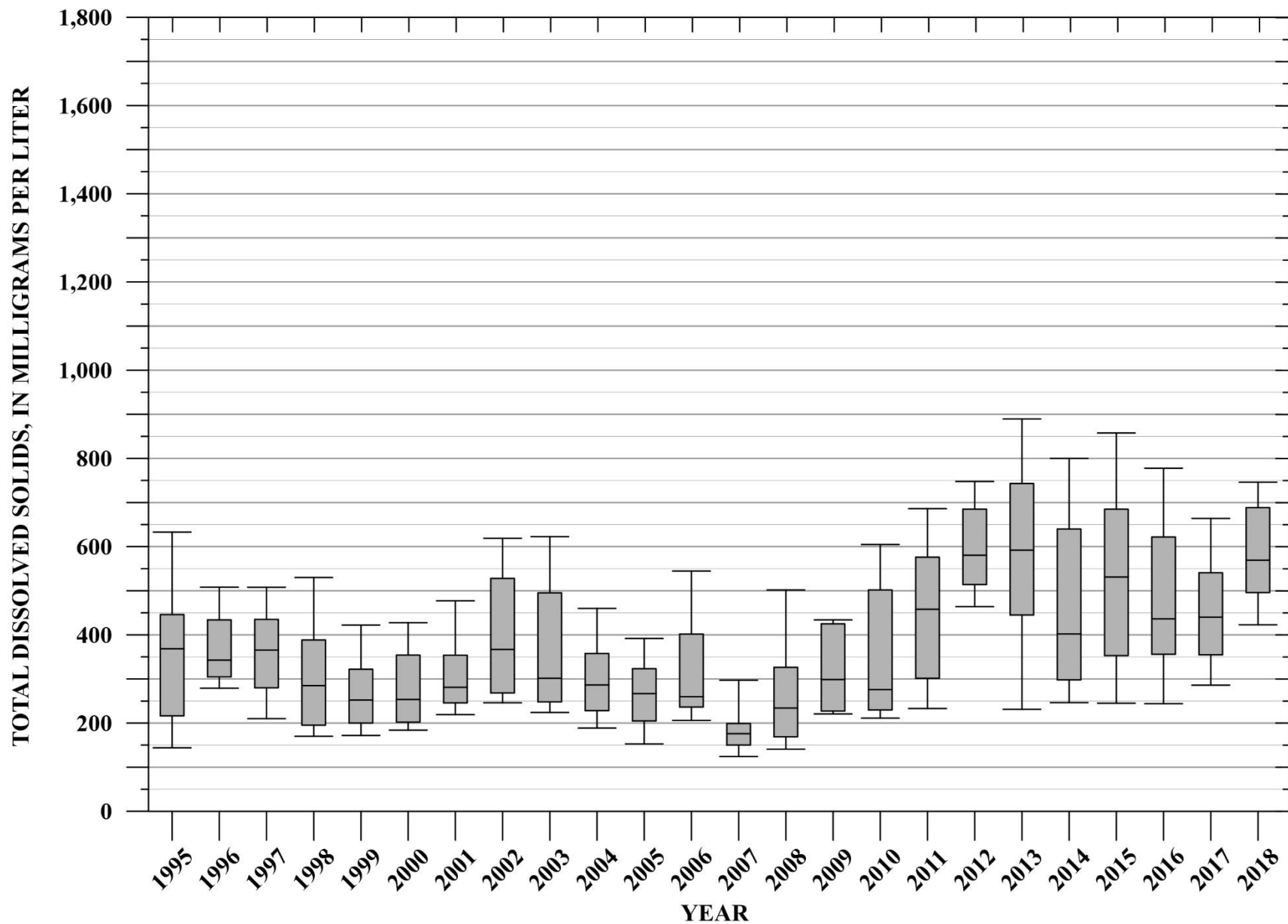


Figure B-1. Total Dissolved Solids boxplot for Reach 1

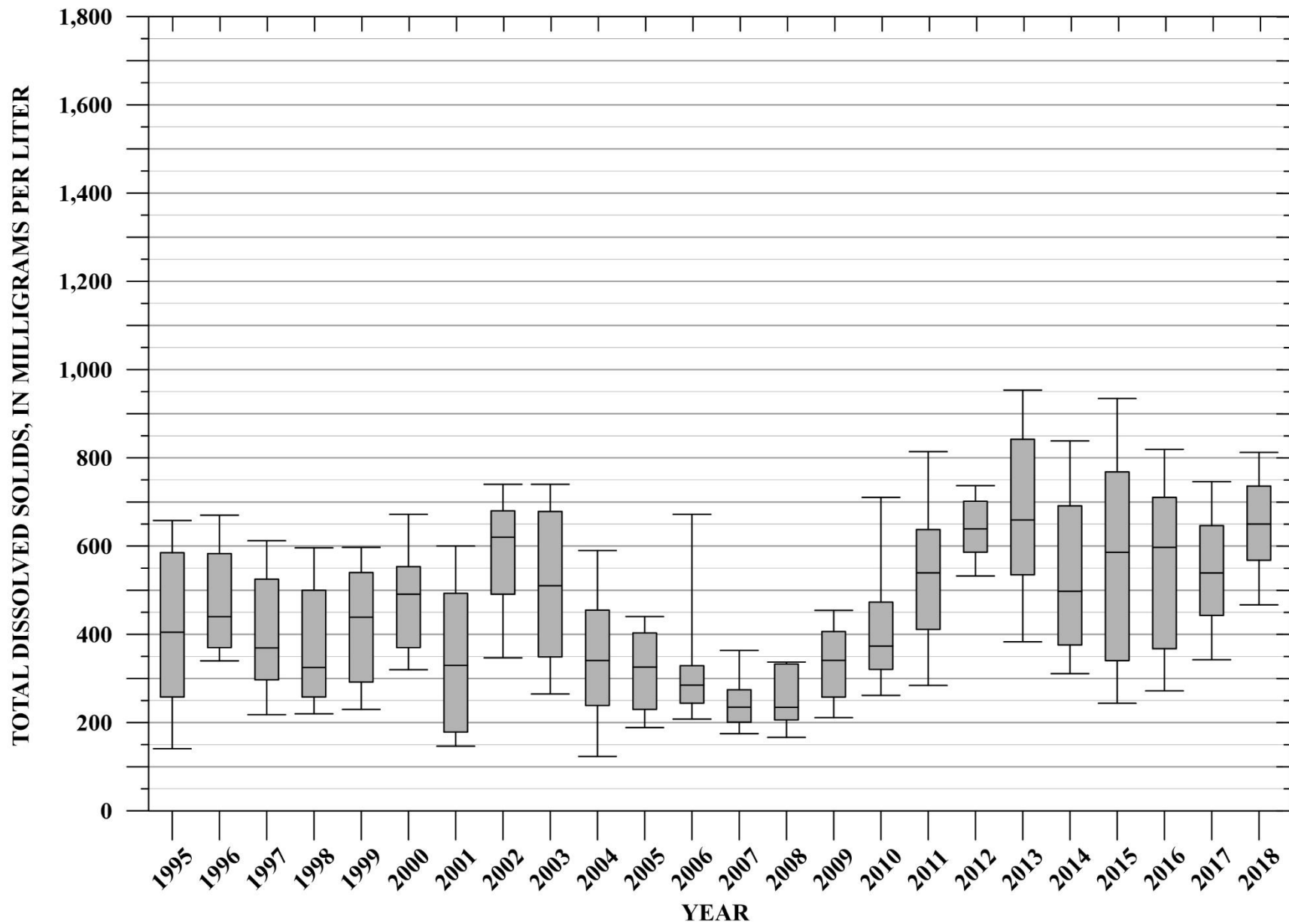


Figure B-2. Total Dissolved Solids boxplot for Reach 2

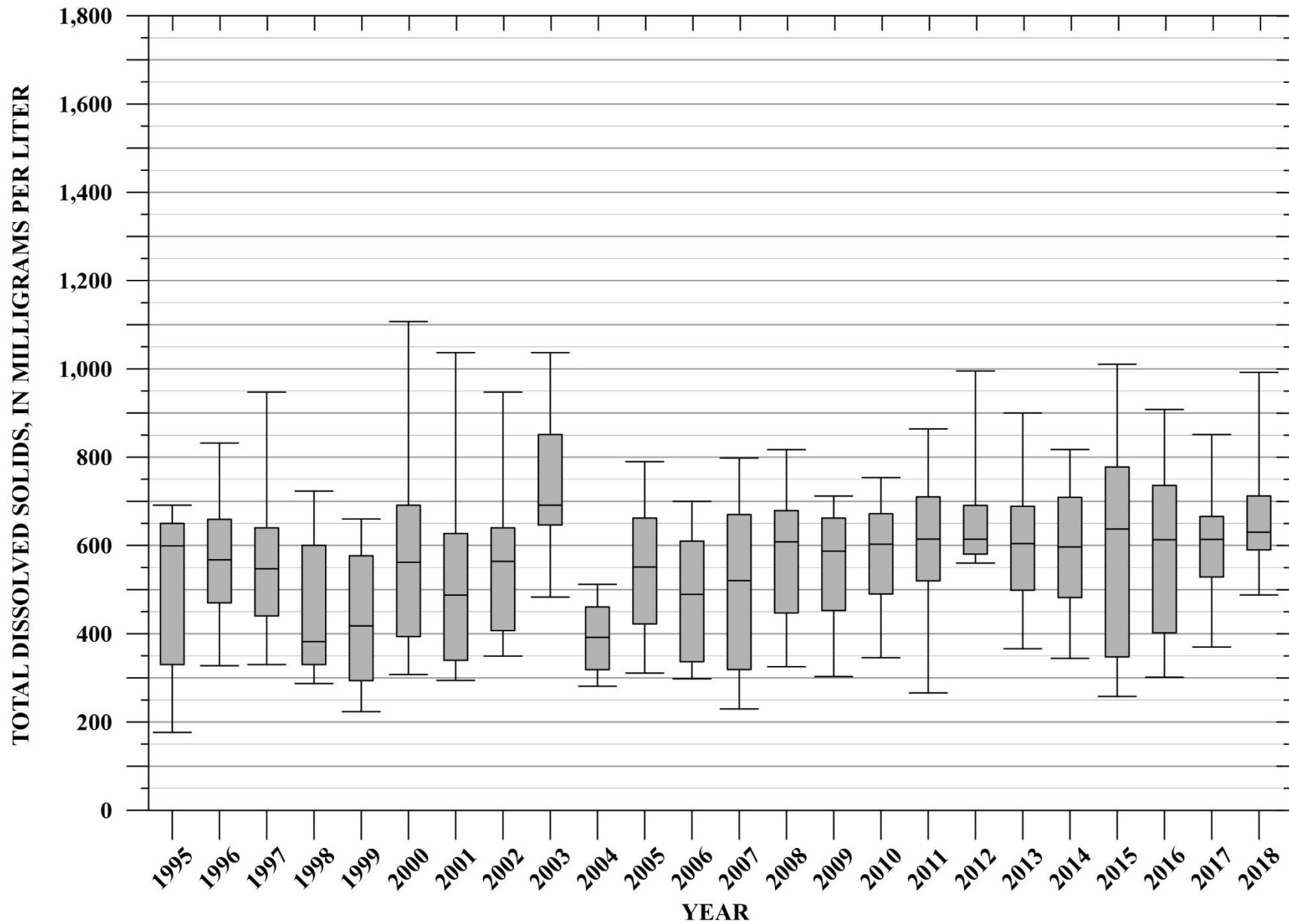


Figure B-3. Total Dissolved Solids boxplot for Reach 3

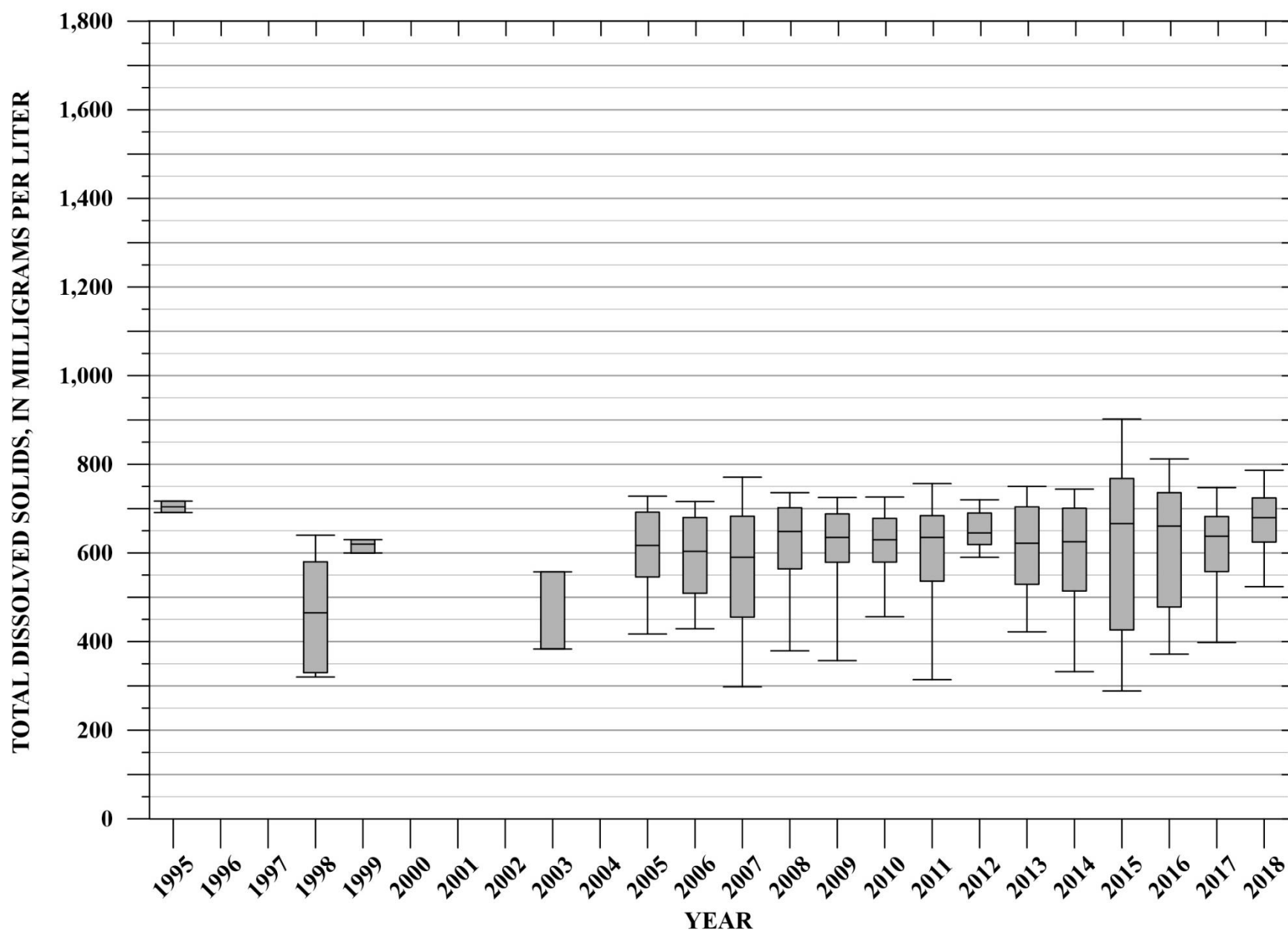


Figure B-4. Total Dissolved Solids boxplot for Reach 4

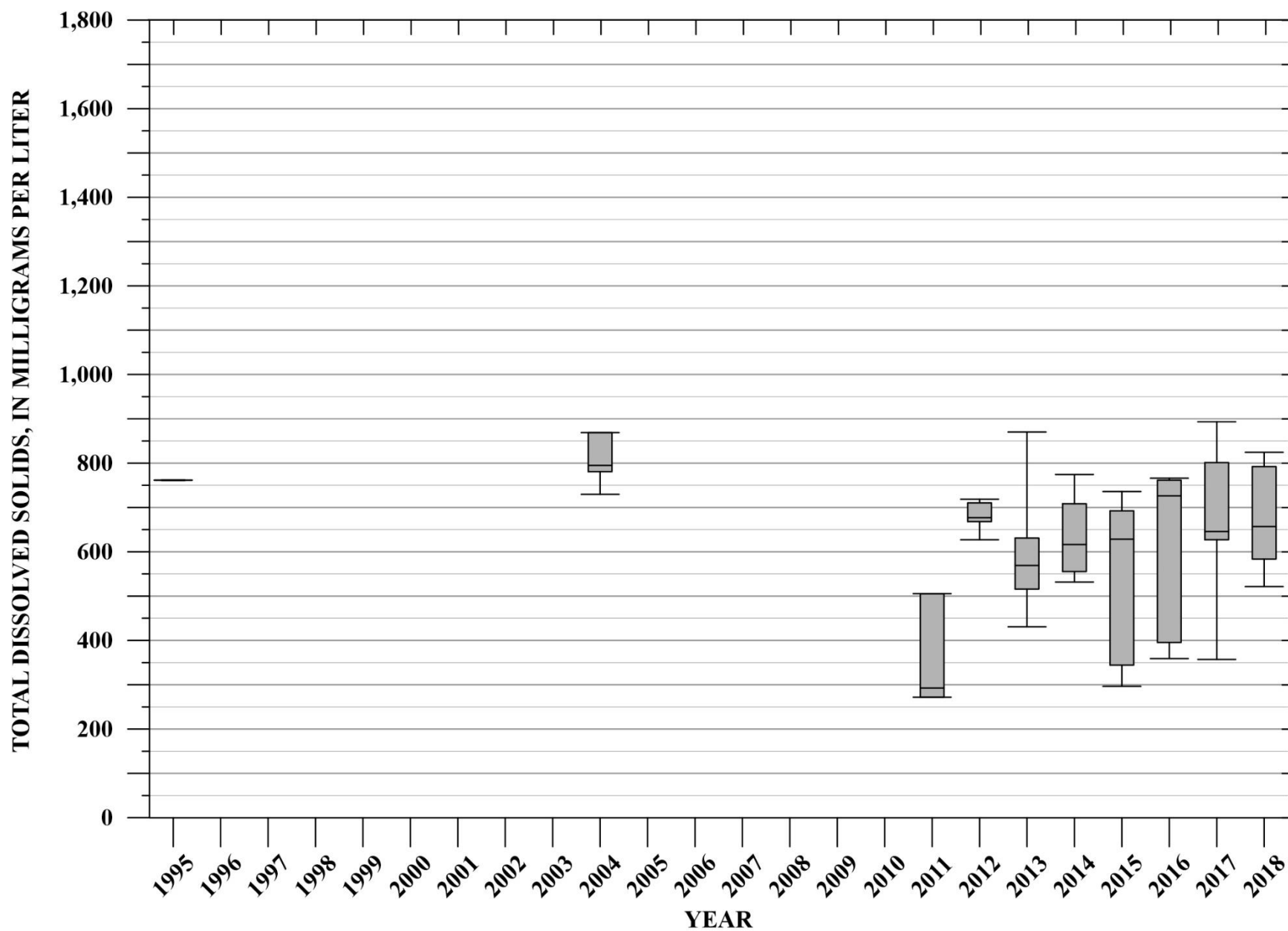


Figure B-5. Total Dissolved Solids boxplot for Reach 5

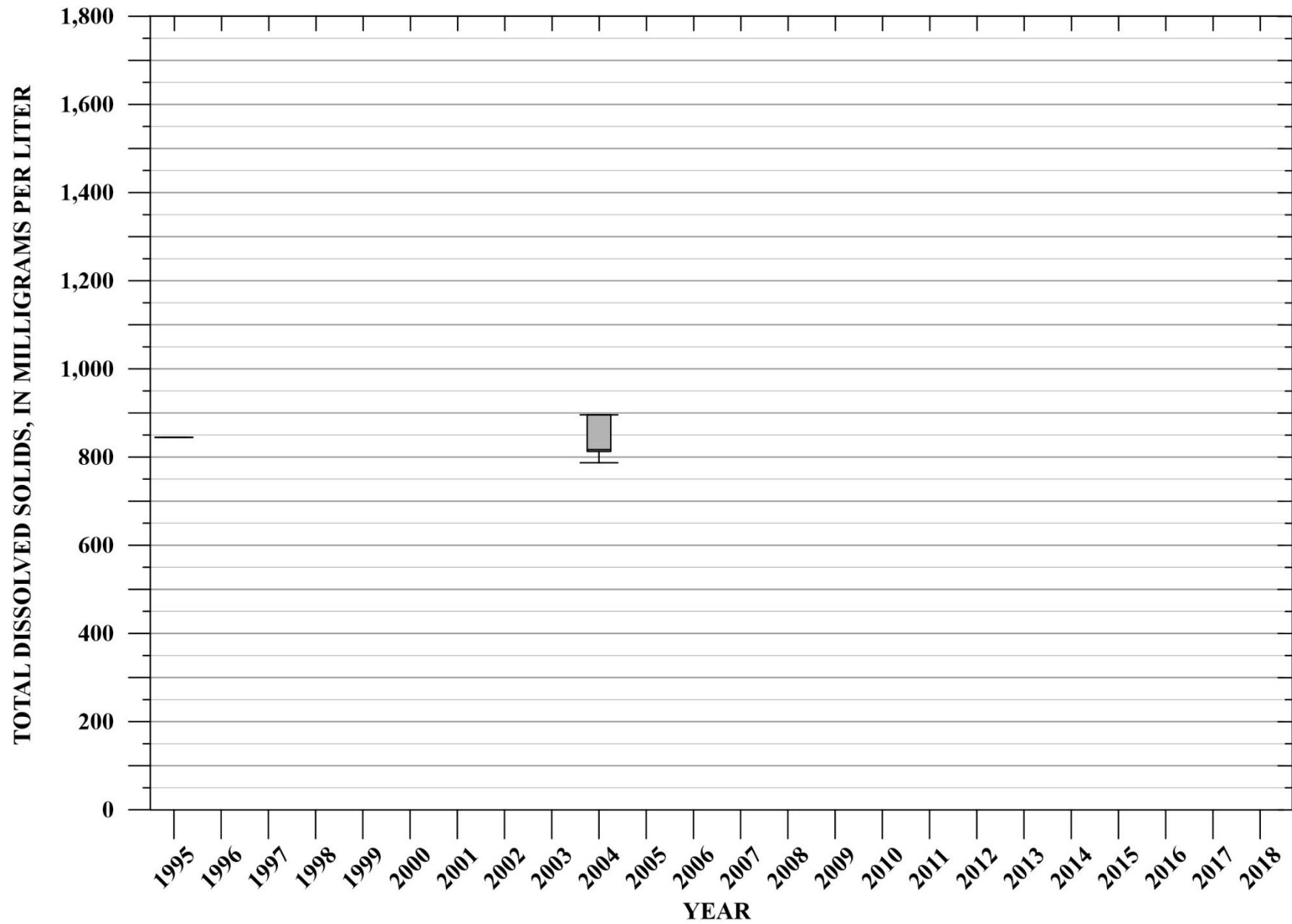


Figure B-6. Total Dissolved Solids boxplot for Reach 6

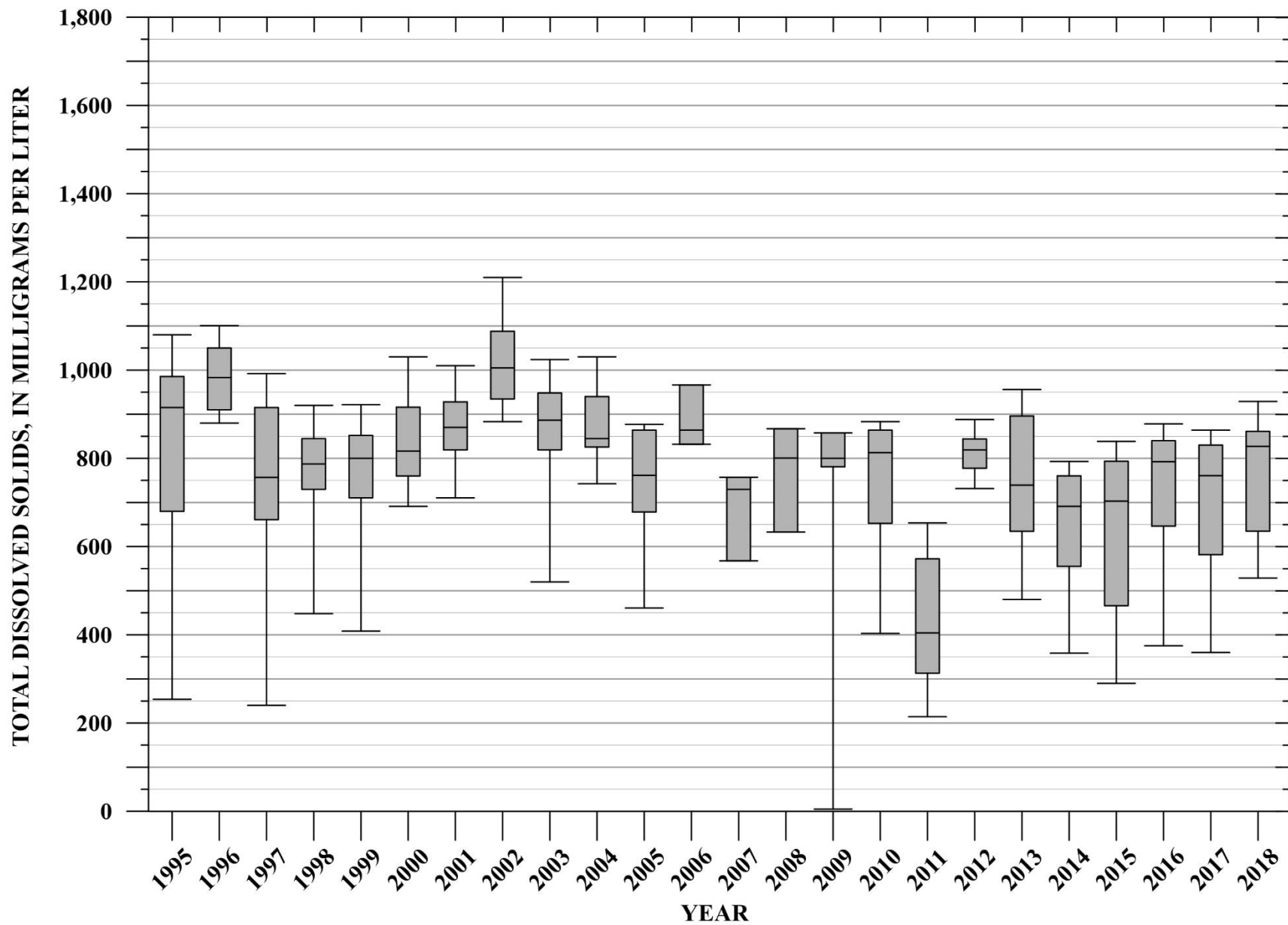


Figure B-7. Total Dissolved Solids boxplot for Reach 7

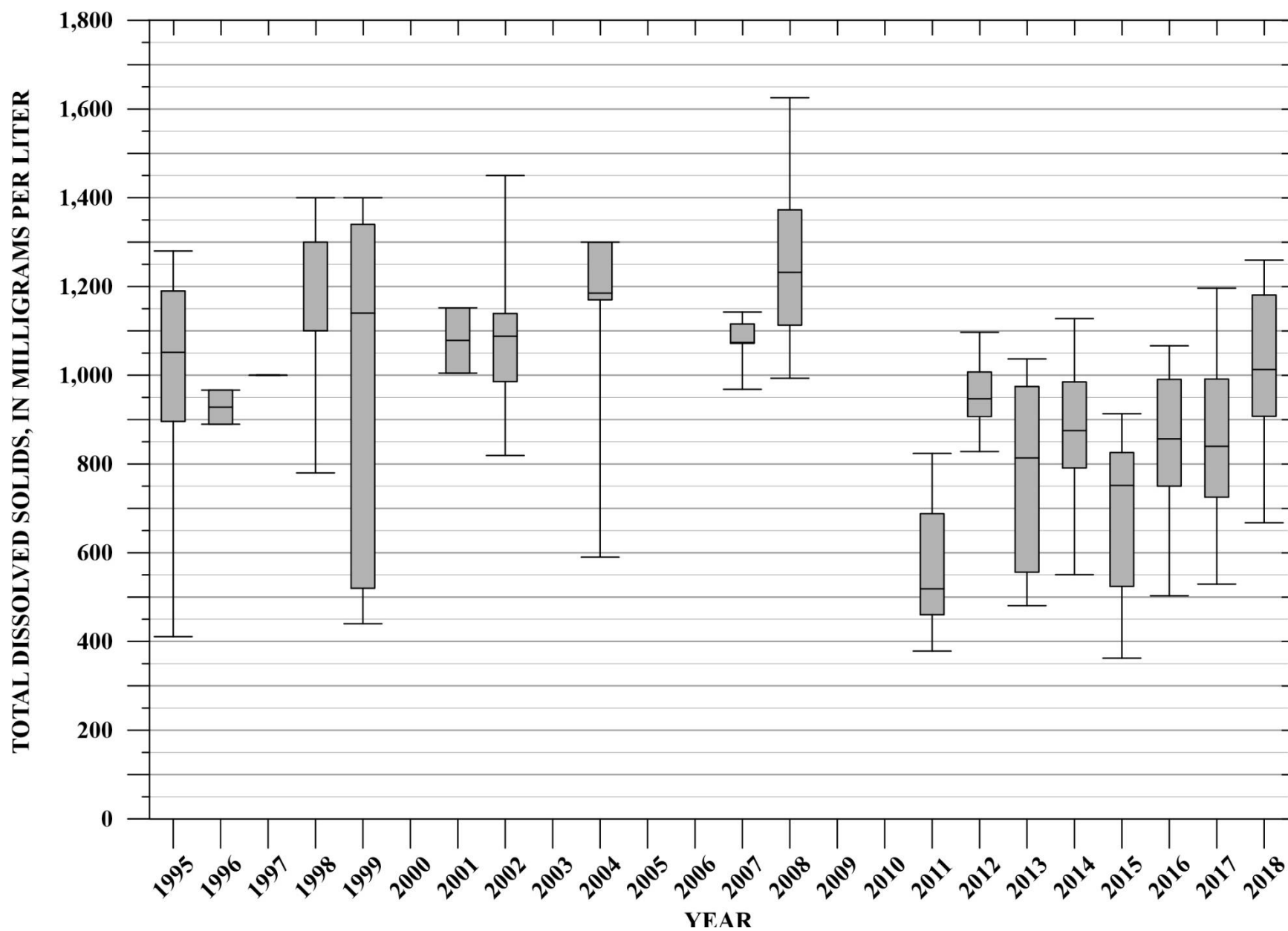


Figure B-8. Total Dissolved Solids boxplot for Reach 8

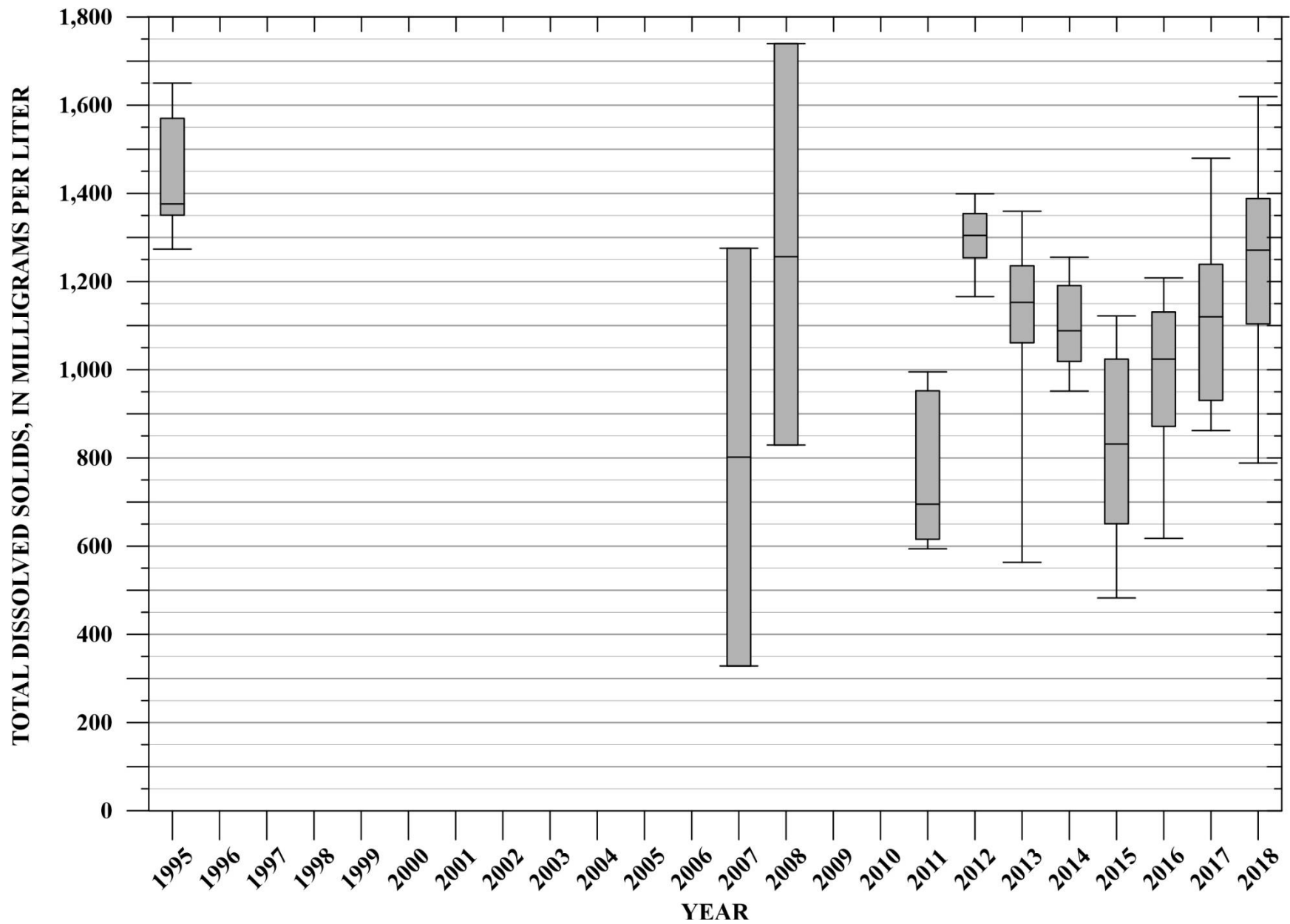


Figure B-9. Total Dissolved Solids boxplot for Reach 9

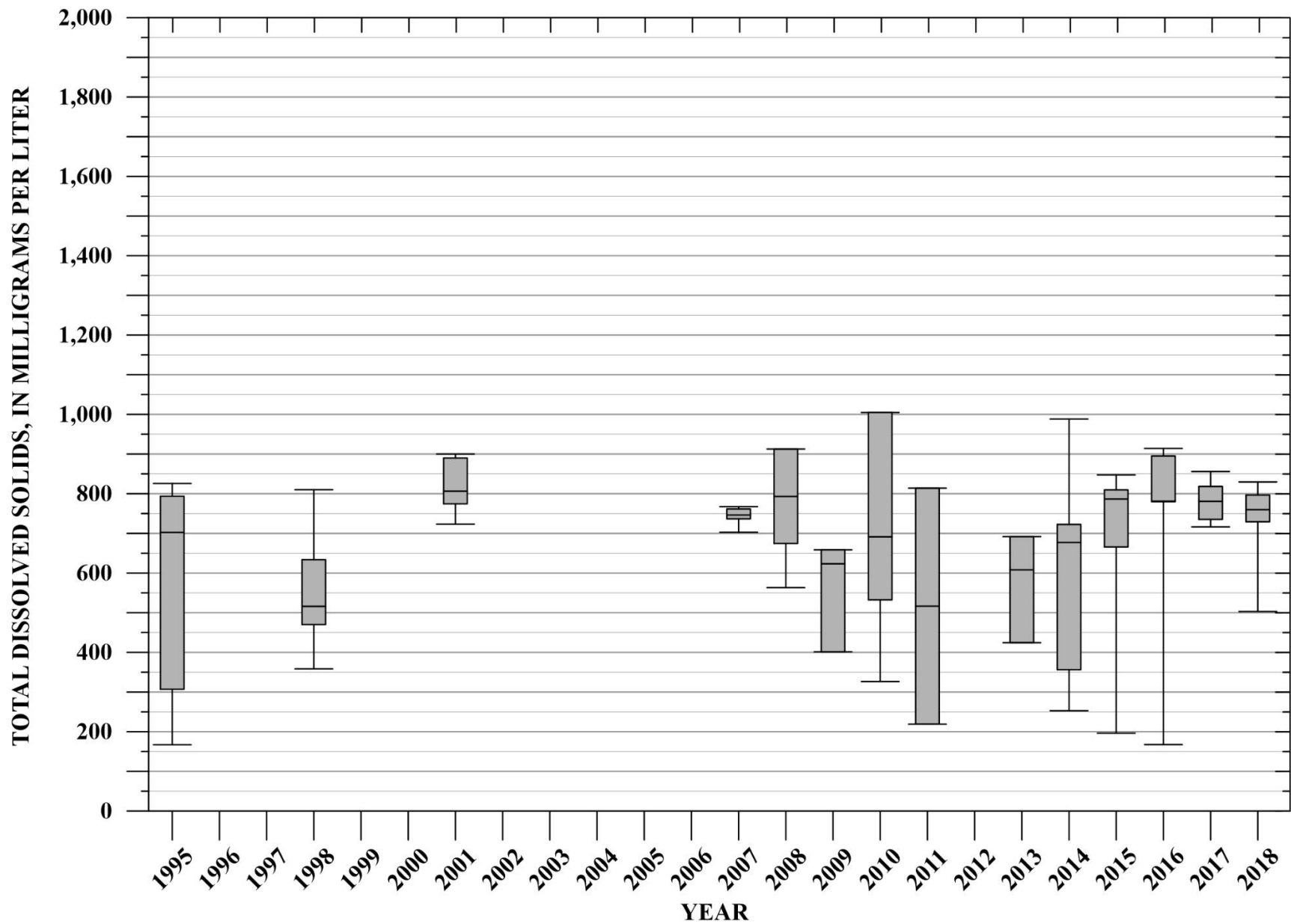


Figure B-10. Total Dissolved Solids boxplot for Saint Vrain Creek

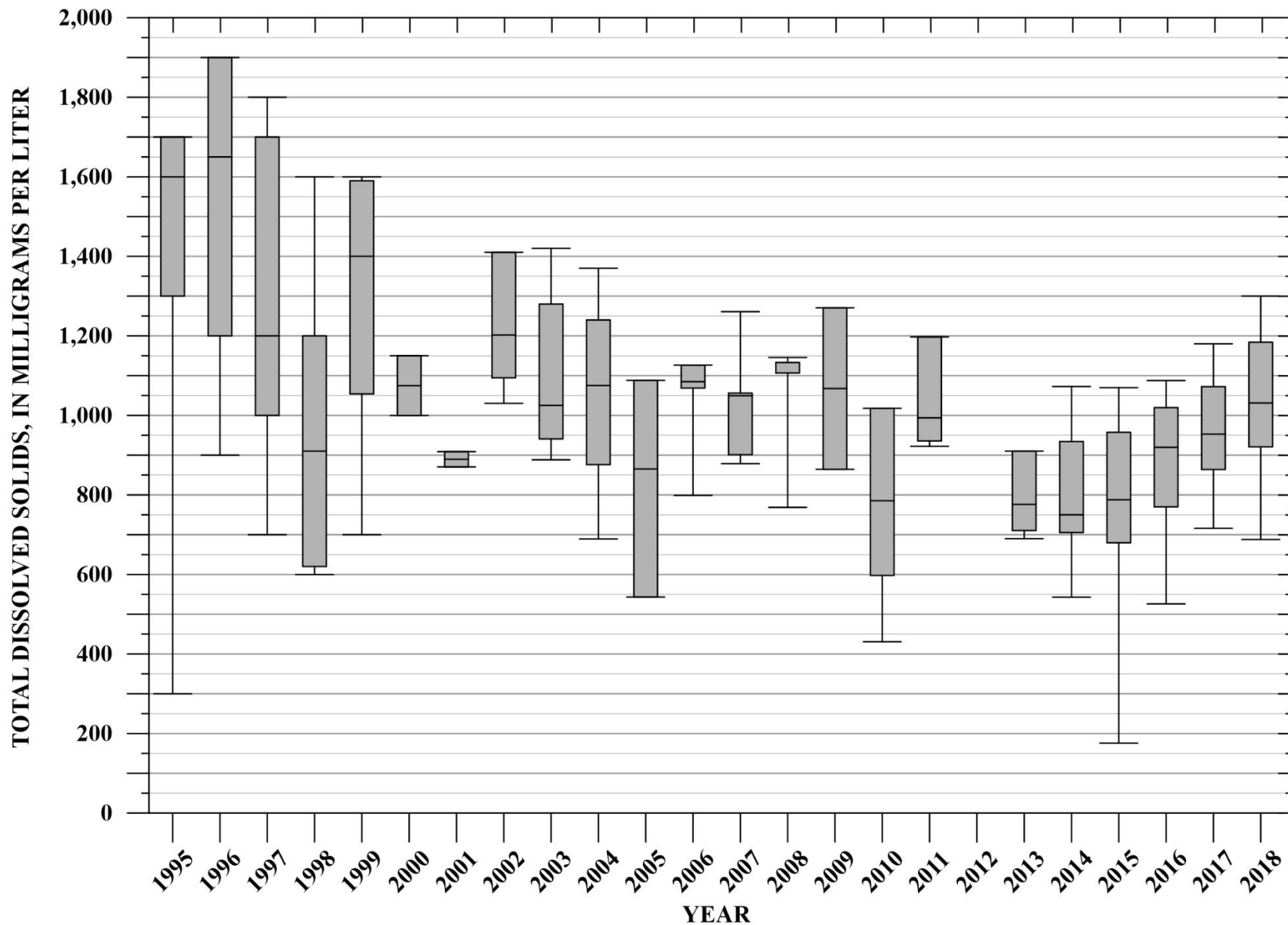


Figure B-11. Total Dissolved Solids boxplot for the Big Thompson River

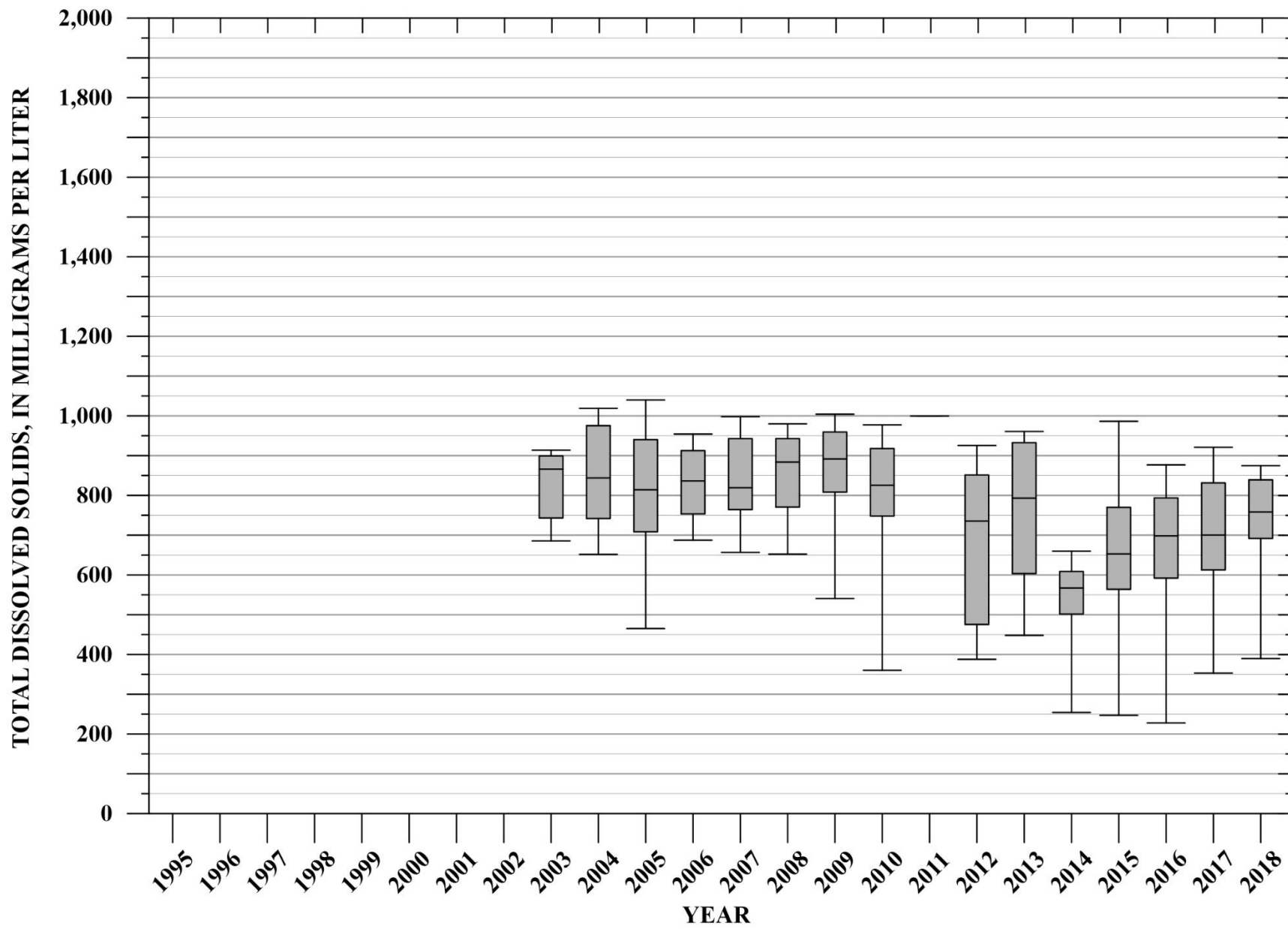


Figure B-12. Total Dissolved Solids boxplot for the Cache la Poudre River

APPENDIX B-2

TOTAL DISSOLVED SOLIDS STATISTIC SUMMARY

Table B-1. Total Dissolved Solids Statistics for South Platte River Reach 1

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Count	13	34	41	49	81	63	94	113	121	140	96	73
Mean	373.6	374.4	367.1	354.9	278.1	285.0	311.8	403.4	378.3	308.9	269.4	325.7
Minimum	128.0	227.8	166.0	144.0	124.0	148.0	170.0	190.0	140.0	130.0	117.0	161.0
Maximum	793.6	592.0	748.8	2500.0	659.2	597.8	704.0	743.0	933.0	820.0	520.3	684.8
Std Dev	191.7	91.2	126.5	342.1	114.2	107.5	101.5	152.9	166.4	125.4	90.2	131.4
10th Percentile	152.3	282.5	210.0	174.3	172.0	184.2	220.2	246.4	224.0	188.5	153.3	206.2
25th Percentile	216.3	305.0	280.0	195.2	200.0	203.1	245.8	268.2	248.0	228.0	204.6	236.2
50th Percentile	368.6	342.6	365.4	284.8	252.0	253.4	281.1	367.0	301.4	286.5	266.9	259.8
75th Percentile	446.1	432.7	435.0	388.5	321.9	348.0	352.2	528.0	495.4	355.8	322.2	401.9
90th Percentile	606.2	506.6	508.0	511.5	422.4	422.4	470.7	617.8	622.7	441.1	382.1	537.2
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Count	27	15	16	20	62	39	45	48	38	38	39	36
Mean	186.5	278.4	312.4	344.8	466.2	587.6	580.6	552.0	546.5	478.2	454.1	589.0
Minimum	91.5	125.4	211.8	144.6	74.9	170.9	29.0	185.0	162.0	5.6	237.0	335.0
Maximum	350.1	693.1	435.2	611.2	1068.8	953.6	1113.6	5414.4	1186.6	953.6	785.3	913.7
Std Dev	61.6	149.5	86.5	157.8	201.6	147.5	246.6	742.5	237.0	197.3	135.6	138.8
10th Percentile	128.0	152.1	221.1	209.6	233.1	467.6	240.0	254.0	257.6	246.1	295.6	429.5
25th Percentile	152.5	172.5	226.9	229.4	302.9	516.0	444.8	295.7	362.8	356.3	355.5	495.7
50th Percentile	176.0	234.2	298.9	275.8	457.9	580.5	592.0	402.2	531.2	436.1	440.0	569.2
75th Percentile	197.8	325.8	385.6	498.9	575.5	682.3	743.0	618.4	681.1	618.3	535.7	671.3
90th Percentile	259.7	433.2	431.7	603.6	686.0	743.4	882.2	788.1	844.2	739.6	660.2	745.6

Table B-2. Total Dissolved Solids Statistics for South Platte River Reach 2

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Count	60	37	68	108	113	78	65	59	78	142	103	43
Mean	406.9	475.4	405.4	374.0	420.8	488.5	345.1	585.9	515.0	362.7	326.8	344.4
Minimum	108.0	270.0	120.0	152.0	176.0	222.7	128.0	231.0	145.3	91.5	128.0	168.3
Maximum	748.8	736.0	750.0	684.8	722.0	844.8	690.0	828.0	1010.0	1440.0	700.0	857.6
Std Dev	198.1	127.6	147.5	141.9	142.6	136.8	172.7	140.3	202.8	205.8	118.2	171.6
10th Percentile	140.1	343.7	219.5	224.9	231.6	322.7	151.4	354.0	282.0	124.2	189.8	210.0
25th Percentile	238.5	370.0	287.8	257.5	291.8	375.0	178.6	513.0	351.8	241.6	232.8	245.2
50th Percentile	404.8	440.0	369.3	324.8	439.0	491.1	329.6	620.0	510.0	340.8	325.8	284.8
75th Percentile	581.3	583.0	522.8	493.3	540.0	552.0	492.8	675.0	676.8	453.0	402.2	327.0
90th Percentile	632.6	659.2	599.4	587.4	596.8	672.0	590.7	737.6	733.0	589.0	440.1	662.8
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Count	17	8	32	48	204	188	184	176	183	187	185	216
Mean	244.2	245.4	331.5	417.0	545.1	643.3	686.8	541.1	587.2	578.4	554.9	649.2
Minimum	158.0	166.4	188.8	188.2	183.7	41.0	148.0	124.0	5.3	5.9	226.0	286.0
Maximum	371.2	337.3	481.9	902.4	1292.8	1414.4	2099.2	1305.6	1209.6	1463.0	1606.4	1178.9
Std Dev	60.4	63.9	89.7	165.2	204.0	128.8	262.5	210.6	266.0	239.0	183.5	139.0
10th Percentile	186.4	183.0	211.5	262.2	284.4	534.9	386.0	315.0	244.1	274.4	347.0	473.5
25th Percentile	201.0	202.1	256.3	319.0	404.4	586.2	533.7	375.3	363.2	367.7	443.0	567.6
50th Percentile	234.9	234.6	341.1	373.4	539.2	639.2	659.2	497.5	586.0	597.0	539.0	650.1
75th Percentile	274.6	279.0	401.1	453.8	636.4	701.0	842.0	691.2	764.8	710.4	646.4	733.1
90th Percentile	333.2	334.1	454.1	705.9	812.5	734.1	951.7	838.4	934.4	815.4	742.0	810.3

Table B-3. Total Dissolved Solids Statistics for South Platte River Reach 3

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Count	79	22	30	36	46	20	33	51	13	86	153	165
Mean	520.2	581.0	575.7	463.7	448.9	579.5	555.8	586.7	743.4	395.7	584.2	510.0
Minimum	151.0	230.0	210.0	222.7	177.3	206.1	193.3	223.4	430.1	159.4	175.0	216.0
Maximum	1248.0	1017.6	1459.2	1024.0	980.0	1331.2	1254.4	1376.0	1248.0	652.8	2000.0	1680.0
Std Dev	225.6	189.3	253.2	193.8	189.6	273.0	283.5	260.1	224.2	96.4	291.3	228.5
10th Percentile	179.3	338.9	322.3	288.7	228.8	302.7	297.7	349.4	497.0	284.5	314.0	298.0
25th Percentile	359.5	480.0	441.9	330.0	297.0	386.2	340.0	407.4	646.4	321.0	422.4	336.6
50th Percentile	599.0	567.4	547.1	382.1	418.0	561.9	487.7	563.8	691.2	391.7	551.0	489.0
75th Percentile	648.2	651.9	637.6	597.8	574.2	630.3	627.2	640.0	851.2	460.6	662.0	610.0
90th Percentile	691.2	828.8	837.8	716.8	659.6	871.0	1026.6	947.2	1007.4	509.4	783.6	696.8
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Count	166	161	161	187	298	245	243	200	200	214	218	225
Mean	519.1	611.4	561.8	594.3	624.0	688.1	624.2	598.9	617.7	621.6	607.4	670.7
Minimum	145.0	131.2	200.0	174.0	4.9	532.0	222.0	198.4	155.5	206.0	152.0	194.6
Maximum	1260.0	2600.0	1420.0	1820.0	2010.0	1590.0	1690.0	1307.5	1287.0	1440.0	1330.0	1374.1
Std Dev	231.5	281.0	184.3	197.3	266.7	191.7	219.6	204.0	269.4	259.5	198.7	204.6
10th Percentile	230.4	325.1	303.0	347.0	268.9	560.0	368.6	344.1	257.8	302.2	373.1	491.5
25th Percentile	320.3	447.0	452.5	493.0	521.0	580.5	499.3	481.8	346.6	402.8	531.4	590.0
50th Percentile	520.5	608.0	587.0	602.9	614.5	614.4	604.2	596.5	637.1	612.9	613.8	630.0
75th Percentile	670.0	679.0	662.0	668.0	709.9	690.6	688.3	708.3	777.7	736.0	665.6	712.3
90th Percentile	795.0	817.0	712.0	750.4	857.0	988.3	898.4	803.5	993.9	907.3	850.8	989.4

Table B-4. Total Dissolved Solids Statistics for South Platte River Reach 4

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Count	2	0	0	6	3	0	0	0	3	0	137	120
Mean	704.0	--	--	466.7	616.7	--	--	--	441.6	--	608.5	592.3
Minimum	691.2	--	--	320.0	600.0	--	--	--	383.4	--	360.0	351.0
Maximum	716.8	--	--	640.0	630.0	--	--	--	557.4	--	884.0	884.0
Std Dev	18.1	--	--	142.2	15.3	--	--	--	100.3	--	112.9	108.7
10th Percentile	693.8	--	--	325.0	604.0	--	--	--	383.5	--	426.0	428.8
25th Percentile	697.6	--	--	340.0	610.0	--	--	--	383.7	--	546.0	508.5
50th Percentile	704.0	--	--	465.0	620.0	--	--	--	384.0	--	617.0	603.5
75th Percentile	710.4	--	--	575.0	625.0	--	--	--	470.7	--	692.0	677.8
90th Percentile	714.2	--	--	610.0	628.0	--	--	--	522.8	--	725.6	705.2
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Count	149	152	139	173	286	295	338	340	335	312	314	317
Mean	564.4	615.4	604.1	610.7	600.7	653.4	611.4	590.5	628.0	631.6	605.0	684.0
Minimum	132.0	287.0	292.0	264.0	194.0	536.0	275.2	6.1	73.6	250.0	7.2	366.1
Maximum	975.0	893.0	973.0	794.0	945.3	788.0	1001.0	1180.0	1230.1	1247.4	1130.0	1477.1
Std Dev	168.2	126.6	129.2	107.9	152.3	49.9	128.3	155.7	226.5	180.0	138.6	150.9
10th Percentile	298.8	380.0	365.8	459.6	316.4	590.0	422.0	331.8	289.2	372.0	399.8	524.1
25th Percentile	455.0	562.5	579.5	579.2	536.6	618.9	529.4	512.2	428.2	477.9	558.5	624.6
50th Percentile	590.0	648.5	635.0	629.8	635.1	645.1	622.0	625.3	666.0	660.5	637.8	679.7
75th Percentile	683.0	700.5	688.0	678.0	682.9	689.0	703.8	700.3	767.0	734.5	682.2	724.0
90th Percentile	768.6	735.9	724.2	726.0	755.8	720.0	750.0	742.6	899.9	811.6	746.9	786.2

Table B-5. Total Dissolved Solids Statistics for South Platte River Reach 5

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Count	1	0	0	0	0	0	0	0	0	4	0	0
Mean	761.6	--	--	--	--	--	--	--	--	797.1	--	--
Minimum	761.6	--	--	--	--	--	--	--	--	729.6	--	--
Maximum	761.6	--	--	--	--	--	--	--	--	869.0	--	--
Std Dev	--	--	--	--	--	--	--	--	--	58.1	--	--
10th Percentile	761.6	--	--	--	--	--	--	--	--	745.0	--	--
25th Percentile	761.6	--	--	--	--	--	--	--	--	768.0	--	--
50th Percentile	761.6	--	--	--	--	--	--	--	--	794.9	--	--
75th Percentile	761.6	--	--	--	--	--	--	--	--	824.0	--	--
90th Percentile	761.6	--	--	--	--	--	--	--	--	851.0	--	--
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Count	0	0	0	0	3	8	8	10	10	12	12	12
Mean	--	--	--	--	356.7	677.8	582.6	618.9	547.6	593.7	641.2	662.7
Minimum	--	--	--	--	272.0	627.2	430.7	343.0	229.8	60.8	321.9	371.8
Maximum	--	--	--	--	505.6	718.7	870.4	774.4	736.0	809.0	939.5	889.6
Std Dev	--	--	--	--	129.4	34.8	132.6	129.0	187.9	235.8	203.1	148.4
10th Percentile	--	--	--	--	276.1	631.2	469.2	513.0	289.7	361.3	358.5	522.4
25th Percentile	--	--	--	--	282.2	659.4	508.3	561.8	395.4	392.2	563.0	570.2
50th Percentile	--	--	--	--	292.5	677.1	569.3	616.3	628.5	726.1	645.8	657.0
75th Percentile	--	--	--	--	399.0	710.4	598.9	704.3	688.6	751.0	775.8	772.6
90th Percentile	--	--	--	--	463.0	712.9	702.8	770.9	698.6	765.6	884.2	821.1

Table B-6. Total Dissolved Solids Statistics for South Platte River Reach 6

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Count	1	0	0	0	0	0	0	0	0	4	0	0
Mean	844.8	--	--	--	--	--	--	--	--	829.3	--	--
Minimum	844.8	--	--	--	--	--	--	--	--	787.2	--	--
Maximum	844.8	--	--	--	--	--	--	--	--	896.0	--	--
Std Dev	--	--	--	--	--	--	--	--	--	46.8	--	--
10th Percentile	844.8	--	--	--	--	--	--	--	--	794.9	--	--
25th Percentile	844.8	--	--	--	--	--	--	--	--	806.4	--	--
50th Percentile	844.8	--	--	--	--	--	--	--	--	816.9	--	--
75th Percentile	844.8	--	--	--	--	--	--	--	--	839.8	--	--
90th Percentile	844.8	--	--	--	--	--	--	--	--	873.5	--	--
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Count	0	0	0	0	0	0	0	0	0	0	0	0
Mean	--	--	--	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	--	--	--	--	--	--	--
Maximum	--	--	--	--	--	--	--	--	--	--	--	--
Std Dev	--	--	--	--	--	--	--	--	--	--	--	--
10th Percentile	--	--	--	--	--	--	--	--	--	--	--	--
25th Percentile	--	--	--	--	--	--	--	--	--	--	--	--
50th Percentile	--	--	--	--	--	--	--	--	--	--	--	--
75th Percentile	--	--	--	--	--	--	--	--	--	--	--	--
90th Percentile	--	--	--	--	--	--	--	--	--	--	--	--

Table B-7. Total Dissolved Solids Statistics for South Platte River Reach 7

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Count	71	24	48	77	71	68	61	43	36	18	6	4
Mean	810.6	985.2	723.4	754.9	746.1	830.9	867.7	1017.9	847.8	873.6	733.9	881.6
Minimum	181.0	830.0	179.0	330.0	356.0	555.0	565.0	748.8	371.2	716.8	460.8	832.0
Maximum	1230.0	1210.0	1130.0	1060.0	1040.0	1180.0	1100.0	1290.0	1170.0	1040.0	876.8	966.4
Std Dev	289.4	96.4	242.0	167.6	174.9	127.6	118.7	121.4	180.2	92.1	157.0	64.1
10th Percentile	254.1	881.0	346.4	458.0	408.3	699.5	710.4	883.2	589.6	778.2	569.6	832.0
25th Percentile	724.0	909.7	659.0	729.6	711.7	758.8	819.2	934.7	816.0	826.7	684.8	832.0
50th Percentile	915.2	983.1	756.9	787.2	800.0	816.4	870.0	1004.8	886.4	844.8	761.6	864.0
75th Percentile	984.8	1035.0	891.2	844.8	851.6	910.6	928.0	1078.4	937.8	935.0	852.8	913.6
90th Percentile	1080.0	1100.6	987.8	916.4	921.6	1003.4	1010.0	1202.0	1022.0	1002.0	870.4	945.3
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Count	3	3	4	18	6	28	88	95	90	96	94	92
Mean	684.8	766.9	615.7	712.6	426.9	814.6	729.5	635.9	629.8	715.7	689.3	759.2
Minimum	567.7	633.0	5.1	213.8	214.4	673.3	6.3	183.0	220.2	200.0	235.0	313.6
Maximum	757.1	867.2	857.6	902.4	653.4	976.6	1050.0	919.7	912.0	977.0	953.6	1033.0
Std Dev	102.4	120.7	408.2	198.9	166.2	59.7	198.6	167.5	212.1	186.9	188.6	167.4
10th Percentile	600.1	666.5	237.8	431.9	263.7	738.2	484.9	359.2	288.5	389.1	361.6	529.5
25th Percentile	648.6	716.8	586.9	654.4	321.4	775.8	632.6	558.5	470.9	641.8	583.3	634.0
50th Percentile	729.6	800.6	800.0	812.8	404.2	819.2	739.3	691.2	703.0	792.3	760.8	827.3
75th Percentile	743.4	833.9	828.8	864.0	544.5	843.2	891.5	758.2	793.5	838.5	829.8	860.4
90th Percentile	751.6	853.9	846.1	874.2	612.8	869.8	953.2	792.6	836.1	877.4	862.8	927.0

Table B-8. Total Dissolved Solids Statistics for South Platte River Reach 8

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Count	50	2	1	8	7	0	2	9	0	4	0	0
Mean	950.2	928.0	1000.0	1113.8	1007.1	--	1078.4	1114.7	--	1065.0	--	--
Minimum	309.0	889.6	1000.0	780.0	440.0	--	1004.8	819.2	--	590.0	--	--
Maximum	1430.0	966.4	1000.0	1400.0	1400.0	--	1152.0	1450.0	--	1300.0	--	--
Std Dev	335.5	54.3	--	196.3	380.6	--	104.1	212.5	--	321.5	--	--
10th Percentile	409.2	897.3	1000.0	885.0	488.0	--	1019.5	906.2	--	764.0	--	--
25th Percentile	902.4	908.8	1000.0	1057.5	780.0	--	1041.6	985.6	--	1025.0	--	--
50th Percentile	1051.6	928.0	1000.0	1100.0	1140.0	--	1078.4	1088.0	--	1185.0	--	--
75th Percentile	1186.9	947.2	1000.0	1225.0	1255.0	--	1115.2	1139.2	--	1225.0	--	--
90th Percentile	1262.0	958.7	1000.0	1330.0	1364.0	--	1137.3	1442.0	--	1270.0	--	--
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Count	5	5	0	0	6	16	24	20	20	24	20	24
Mean	1074.4	1267.3	--	--	564.6	955.8	777.2	856.0	674.1	832.3	829.2	985.5
Minimum	968.3	993.3	--	--	378.2	780.8	477.0	506.2	275.2	440.3	378.2	444.2
Maximum	1142.4	1625.6	--	--	823.7	1185.9	1247.4	1239.7	922.2	1121.9	1281.9	1450.9
Std Dev	66.3	244.8	--	--	163.6	104.2	225.6	198.9	206.4	195.1	242.0	252.0
10th Percentile	1009.8	1041.2	--	--	419.2	840.0	483.1	550.3	356.2	503.8	515.3	669.4
25th Percentile	1072.0	1113.0	--	--	467.5	899.5	555.5	783.7	514.4	748.8	717.1	889.8
50th Percentile	1073.9	1232.0	--	--	518.7	946.9	813.8	875.2	751.7	856.6	840.0	1012.8
75th Percentile	1115.5	1372.8	--	--	653.0	1002.6	952.6	963.8	807.8	957.6	989.4	1157.8
90th Percentile	1131.6	1524.5	--	--	755.8	1080.6	1025.1	1082.2	868.9	1057.6	1121.9	1252.8

Table B-9. Total Dissolved Solids Statistics for South Platte River Reach 9

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Count	7	0	0	0	0	0	0	0	0	0	0	0
Mean	1430.1	--	--	--	--	--	--	--	--	--	--	--
Minimum	1273.6	--	--	--	--	--	--	--	--	--	--	--
Maximum	1650.0	--	--	--	--	--	--	--	--	--	--	--
Std Dev	133.6	--	--	--	--	--	--	--	--	--	--	--
10th Percentile	1319.7	--	--	--	--	--	--	--	--	--	--	--
25th Percentile	1353.6	--	--	--	--	--	--	--	--	--	--	--
50th Percentile	1376.0	--	--	--	--	--	--	--	--	--	--	--
75th Percentile	1501.8	--	--	--	--	--	--	--	--	--	--	--
90th Percentile	1602.0	--	--	--	--	--	--	--	--	--	--	--
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Count	2	3	0	0	6	16	18	20	20	24	24	23
Mean	801.9	1275.1	--	--	758.0	1286.4	1113.6	1067.8	811.8	967.6	1089.8	1233.5
Minimum	328.3	829.4	--	--	593.9	1059.8	550.4	656.6	374.4	581.1	497.9	714.2
Maximum	1275.5	1739.5	--	--	995.2	1411.2	1393.9	1285.8	1153.9	1271.0	1655.7	1665.9
Std Dev	669.8	455.3	--	--	176.1	94.2	228.3	167.5	241.4	215.5	268.0	272.6
10th Percentile	423.0	914.8	--	--	604.8	1174.1	892.0	923.3	474.3	619.5	868.6	795.1
25th Percentile	565.1	1042.9	--	--	621.9	1241.3	1067.4	1015.7	644.2	851.0	924.2	1112.3
50th Percentile	801.9	1256.3	--	--	695.4	1304.6	1153.0	1088.3	831.7	1024.0	1120.0	1271.0
75th Percentile	1038.7	1497.9	--	--	901.8	1350.9	1230.2	1168.5	995.7	1110.7	1188.6	1380.2
90th Percentile	1180.8	1642.9	--	--	973.8	1384.3	1341.0	1249.9	1105.8	1202.6	1454.9	1595.6

Table B-10. Total Dissolved Solids Statistics for Saint Vrain Creek

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Count	36	0	0	6	0	0	5	0	0	0	0	0
Mean	571.1	--	--	550.7	--	--	818.8	--	--	--	--	--
Minimum	148.0	--	--	358.4	--	--	723.2	--	--	--	--	--
Maximum	864.0	--	--	810.0	--	--	900.0	--	--	--	--	--
Std Dev	259.5	--	--	154.9	--	--	75.7	--	--	--	--	--
10th Percentile	197.0	--	--	414.2	--	--	743.7	--	--	--	--	--
25th Percentile	301.0	--	--	480.5	--	--	774.4	--	--	--	--	--
50th Percentile	702.3	--	--	516.0	--	--	806.4	--	--	--	--	--
75th Percentile	791.7	--	--	605.2	--	--	890.0	--	--	--	--	--
90th Percentile	819.4	--	--	721.8	--	--	896.0	--	--	--	--	--
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Count	9	11	3	4	2	0	3	7	6	5	5	8
Mean	744.5	779.6	561.1	678.4	516.5	--	574.7	624.7	682.0	707.6	781.3	735.5
Minimum	702.7	563.2	401.3	326.6	219.0	--	424.4	252.9	196.2	167.5	716.3	503.2
Maximum	767.4	947.2	658.6	1004.8	814.1	--	691.8	988.2	847.4	914.2	855.9	829.6
Std Dev	22.6	130.7	139.4	306.1	420.8	--	136.8	245.9	245.7	308.3	57.6	101.5
10th Percentile	716.5	563.2	445.7	388.4	278.5	--	461.1	315.0	430.9	412.5	723.9	648.5
25th Percentile	736.6	732.8	512.3	481.0	367.8	--	516.2	516.7	694.6	780.0	735.2	724.7
50th Percentile	746.2	793.0	623.3	691.2	516.5	--	607.9	677.1	786.7	781.2	780.7	759.7
75th Percentile	761.6	862.7	640.9	888.6	665.3	--	649.9	710.7	805.1	895.1	818.3	795.3
90th Percentile	767.4	912.6	651.5	958.3	754.6	--	675.1	828.8	828.5	906.5	840.9	806.6

Table B-11. Total Dissolved Solids Statistics for Big Thompson River

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Count	13	12	12	10	13	2	2	4	20	16	3	4
Mean	1355.4	1485.8	1211.7	947.0	1291.1	1074.8	889.6	1211.2	1087.2	1040.6	832.2	1023.7
Minimum	170.0	430.0	170.0	370.0	570.0	999.7	870.4	1030.4	824.3	586.9	543.4	798.7
Maximum	2000.0	2000.0	1800.0	1600.0	1770.0	1150.0	908.8	1410.0	1640.0	1450.0	1088.0	1126.4
Std Dev	553.7	470.3	497.1	405.7	379.8	106.3	27.2	178.5	219.0	244.4	273.8	151.8
10th Percentile	440.0	930.0	717.0	577.0	746.0	1014.7	874.2	1049.6	884.8	749.1	607.7	879.7
25th Percentile	1300.0	1200.0	967.5	630.0	1054.1	1037.3	880.0	1078.4	936.3	867.1	704.3	1001.3
50th Percentile	1600.0	1650.0	1200.0	910.0	1400.0	1074.8	889.6	1202.2	1025.2	1075.2	865.3	1084.8
75th Percentile	1700.0	1825.0	1700.0	1175.0	1590.0	1112.4	899.2	1335.0	1167.5	1164.4	976.6	1107.2
90th Percentile	1700.0	1900.0	1790.0	1510.0	1598.0	1135.0	905.0	1380.0	1380.4	1365.0	1043.5	1118.7
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Count	10	9	2	4	4	0	4	7	6	6	36	36
Mean	934.3	1051.8	1067.5	754.8	1026.9	--	788.2	783.5	743.1	873.8	952.8	1020.9
Minimum	117.1	768.6	864.6	430.8	922.2	--	689.9	542.9	175.7	526.0	327.0	638.7
Maximum	1260.8	1145.6	1270.4	1017.6	1197.4	--	910.1	1072.6	1069.9	1087.6	1350.0	1460.0
Std Dev	308.2	160.9	286.9	286.7	127.8	--	105.7	171.6	312.0	204.3	197.9	203.9
10th Percentile	802.6	768.6	905.2	480.8	926.3	--	696.1	640.3	427.7	648.0	751.6	718.4
25th Percentile	901.1	1106.6	966.1	555.7	932.3	--	705.3	709.1	695.4	794.0	856.3	906.7
50th Percentile	1049.6	1132.8	1067.5	785.4	993.9	--	776.3	750.1	787.8	919.6	953.0	1031.3
75th Percentile	1056.0	1132.8	1169.0	984.5	1088.5	--	859.2	850.2	926.4	1008.0	1064.9	1173.5
90th Percentile	1091.5	1145.6	1229.8	1004.4	1153.9	--	889.7	989.7	1013.7	1053.6	1175.0	1265.0

Table B-12. Total Dissolved Solids Statistics for Cache la Poudre River

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Count	0	0	0	0	0	0	0	0	35035	35136	35040	34929
Mean	--	--	--	--	--	--	--	--	817.0	839.5	791.4	824.8
Minimum	--	--	--	--	--	--	--	--	254.1	343.7	3.2	0.6
Maximum	--	--	--	--	--	--	--	--	975.4	1099.5	1287.0	1225.0
Std Dev	--	--	--	--	--	--	--	--	112.5	156.6	214.3	110.6
10th Percentile	--	--	--	--	--	--	--	--	685.4	651.5	465.3	687.4
25th Percentile	--	--	--	--	--	--	--	--	743.0	741.8	708.5	753.3
50th Percentile	--	--	--	--	--	--	--	--	865.9	843.8	814.1	836.5
75th Percentile	--	--	--	--	--	--	--	--	899.2	975.4	939.7	912.6
90th Percentile	--	--	--	--	--	--	--	--	913.9	1018.9	1040.0	954.2
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Count	35040	35139	35040	35040	1	34619	35040	34885	35033	35143	35047	35043
Mean	827.8	844.9	836.7	775.7	999.7	684.4	749.1	527.1	649.3	642.2	678.4	714.2
Minimum	4.5	4.5	4.5	4.5	999.7	4.5	222.1	4.5	133.1	112.6	161.9	106.9
Maximum	1272.3	1042.6	1087.4	1258.2	999.7	1105.3	1427.2	831.4	1207.0	988.8	1282.6	934.4
Std Dev	143.3	138.9	192.0	216.7	--	205.3	200.4	142.4	245.1	216.8	204.9	177.3
10th Percentile	656.6	652.2	540.8	360.3	999.7	387.8	448.0	254.1	247.0	227.8	353.3	389.8
25th Percentile	764.2	770.6	808.3	748.2	999.7	475.5	603.5	501.8	563.8	592.0	612.5	691.8
50th Percentile	819.2	883.8	891.5	825.6	999.7	735.4	793.0	567.0	652.8	698.2	700.2	758.4
75th Percentile	942.7	942.7	959.4	917.8	999.7	851.2	932.5	608.6	769.9	793.6	831.4	839.0
90th Percentile	997.8	979.8	1004.2	977.3	999.7	925.4	960.6	659.8	986.0	876.8	921.0	874.9

APPENDIX C

SALINITY VERSUS DISCHARGE RELATIONSHIPS

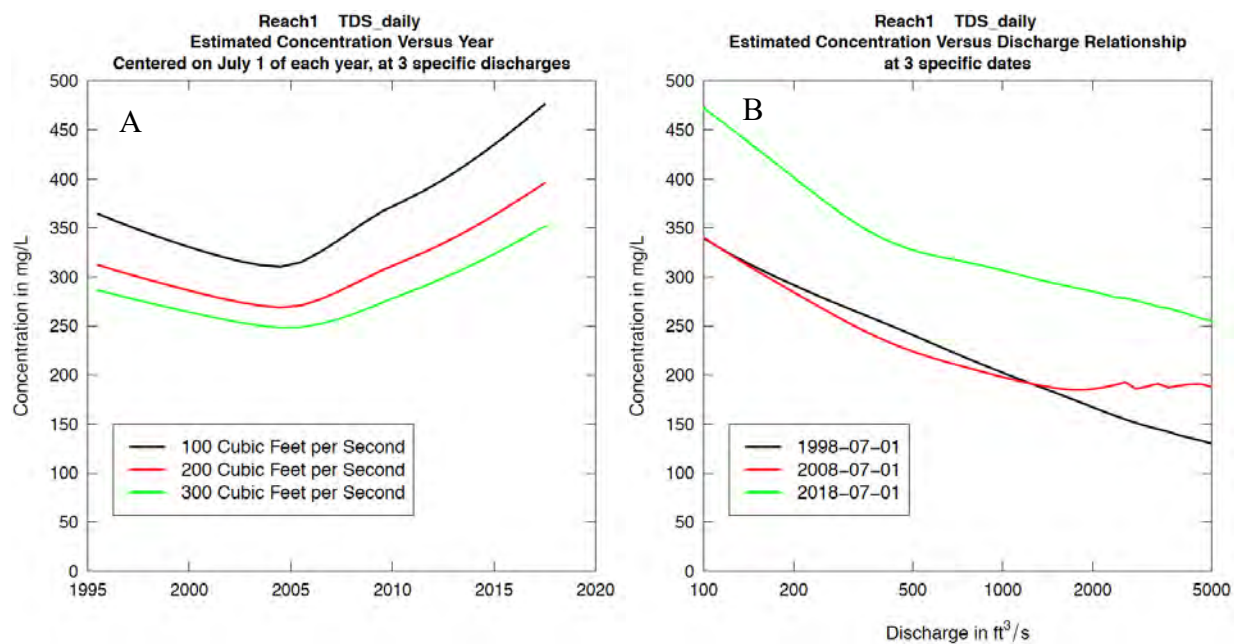


Figure C-1. Estimated Total Dissolved Solids concentrations by year (A) and streamflow (B) for Reach 1

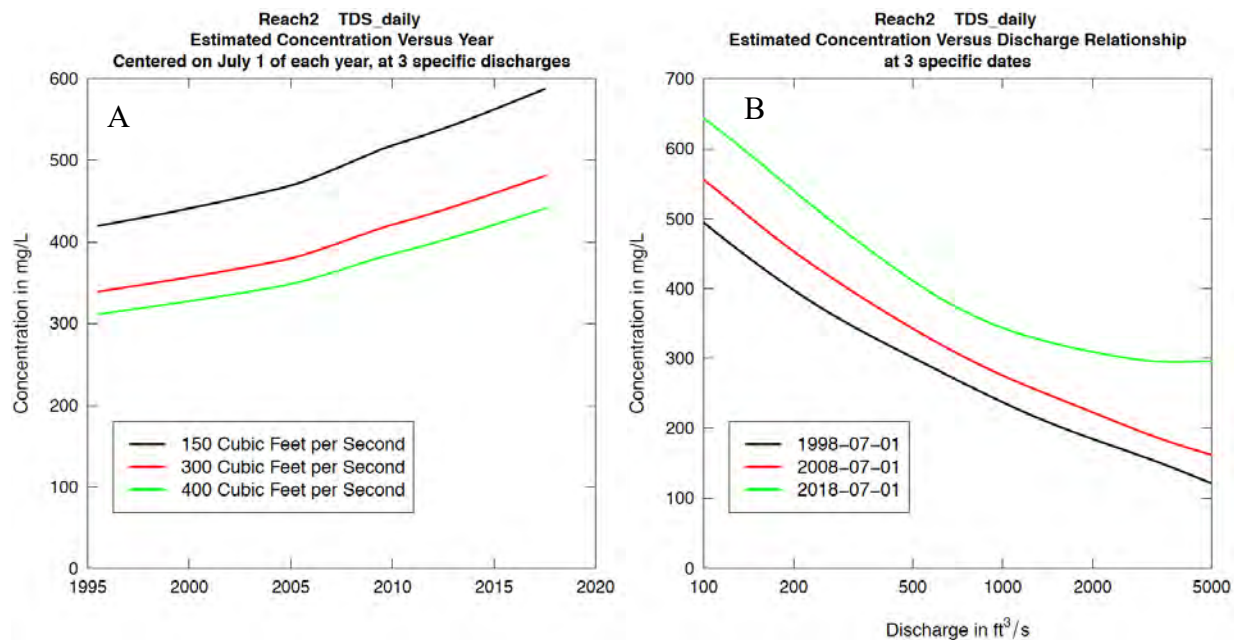


Figure C-2. Estimated Total Dissolved Solids concentrations by year (A) and streamflow (B) for Reach 2

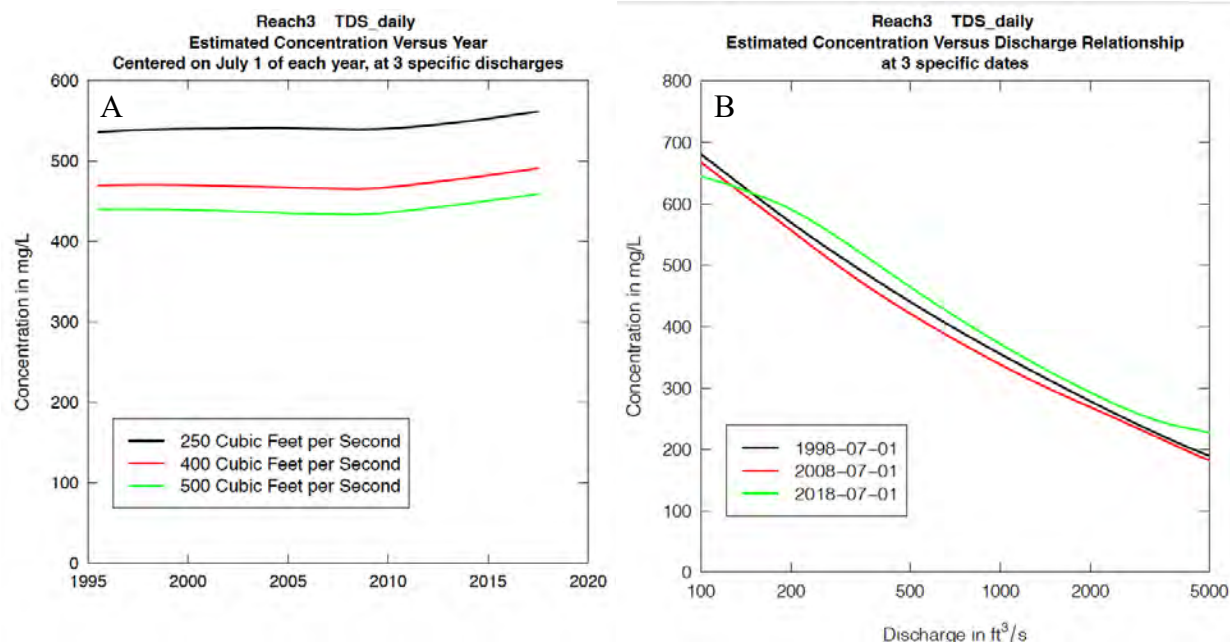


Figure C-3. Estimated Total Dissolved Solids concentrations by year (A) and streamflow (B) for Reach 3

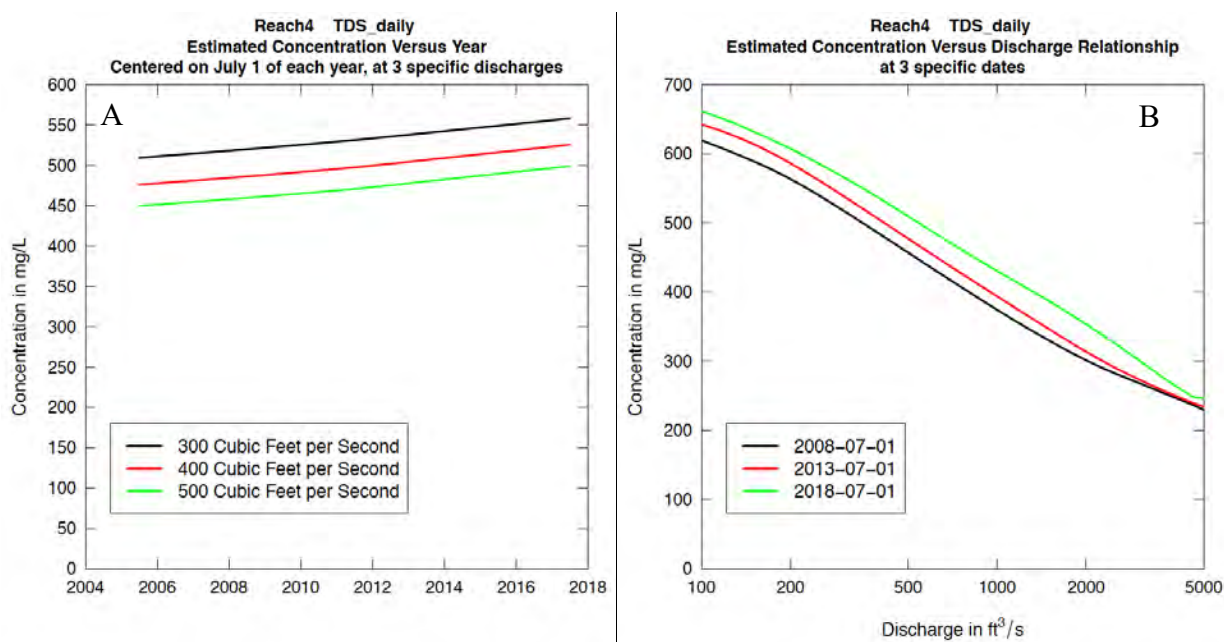


Figure C-4. Estimated Total Dissolved Solids concentrations by year (A) and streamflow (B) for Reach 4

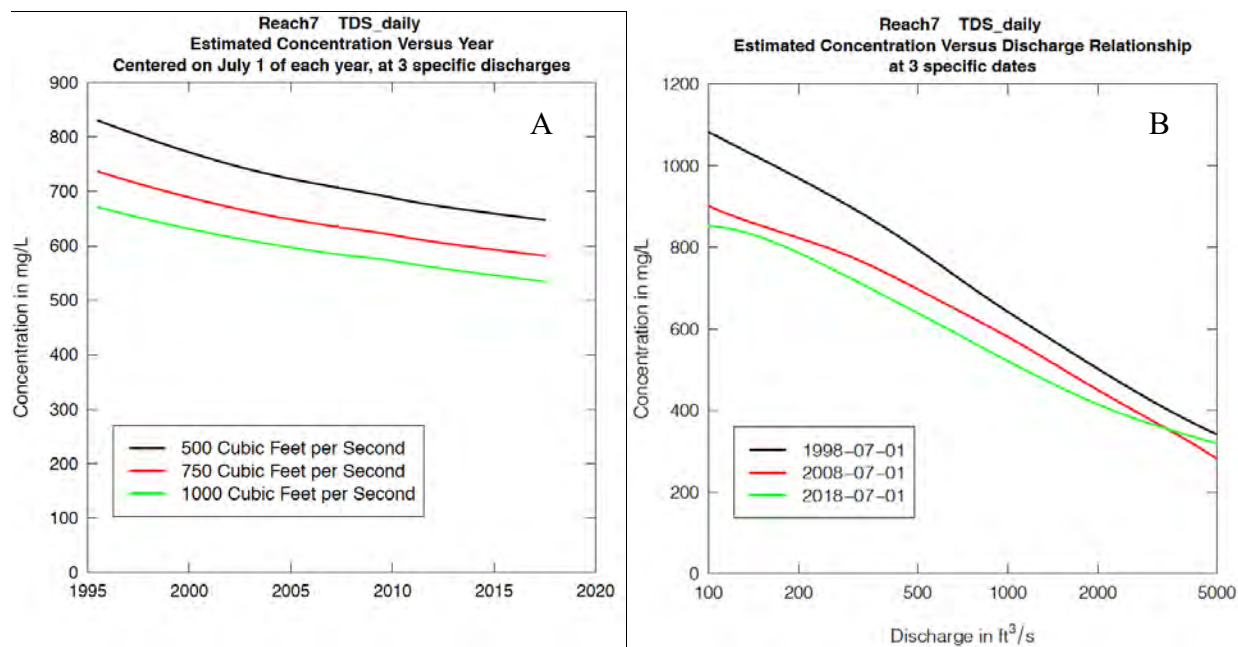


Figure C-5. Estimated Total Dissolved Solids concentrations by year (A) and streamflow (B) for Reach 7

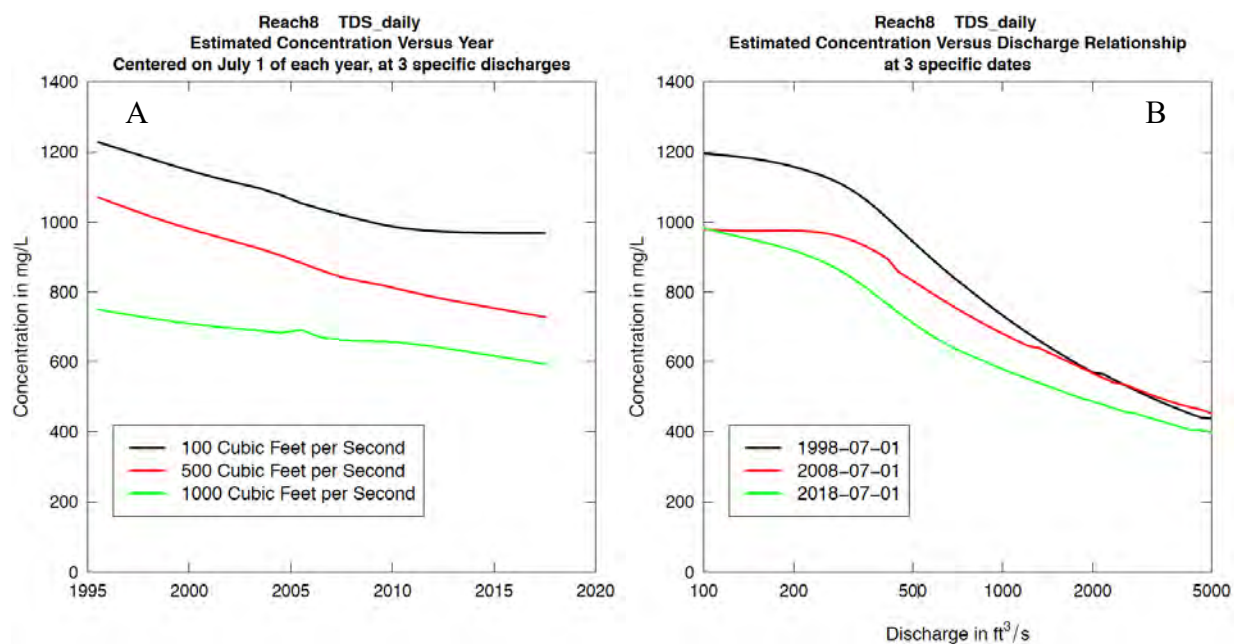


Figure C-6. Estimated Total Dissolved Solids concentrations by year (A) and streamflow (B) for Reach 8

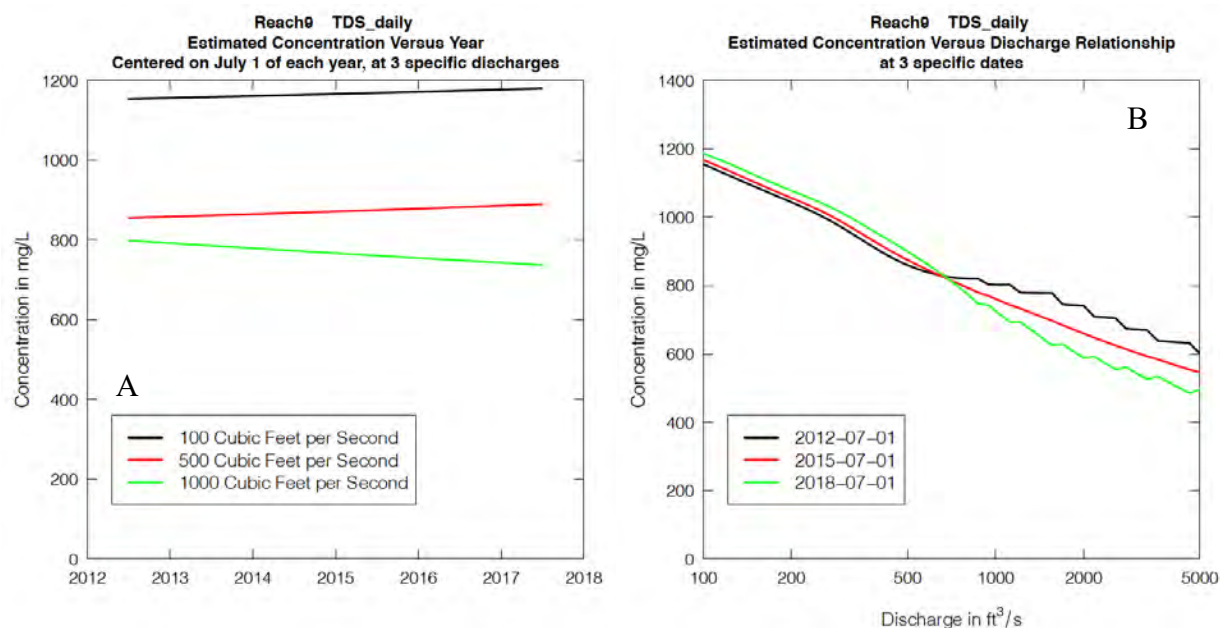


Figure C-7. Estimated Total Dissolved Solids concentrations by year (A) and streamflow (B) for Reach 9

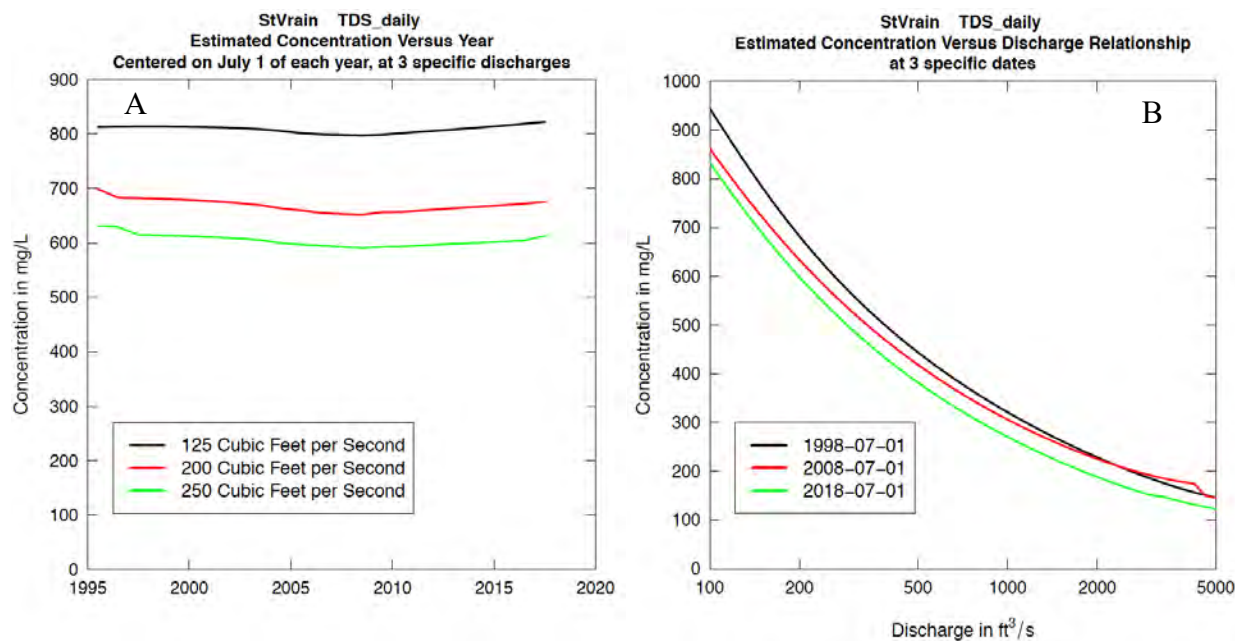


Figure C-8. Estimated Total Dissolved Solids concentrations by year (A) and streamflow (B) for Saint Vrain Creek

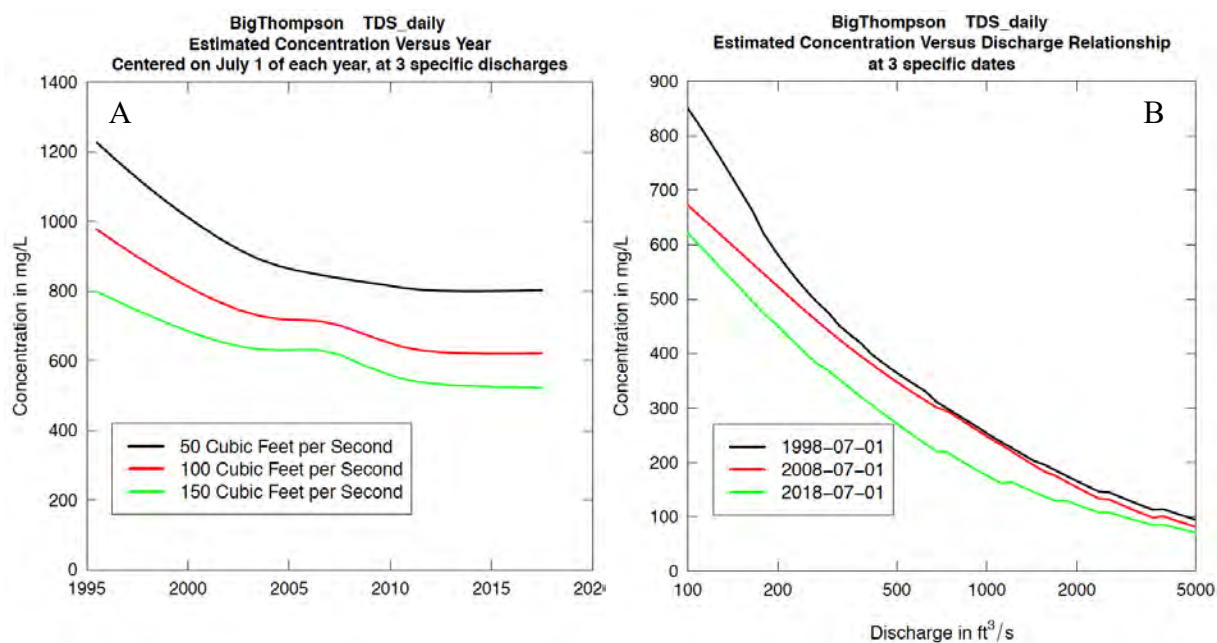


Figure C-9. Estimated Total Dissolved Solids concentrations by year (A) and streamflow (B) for Big Thompson River

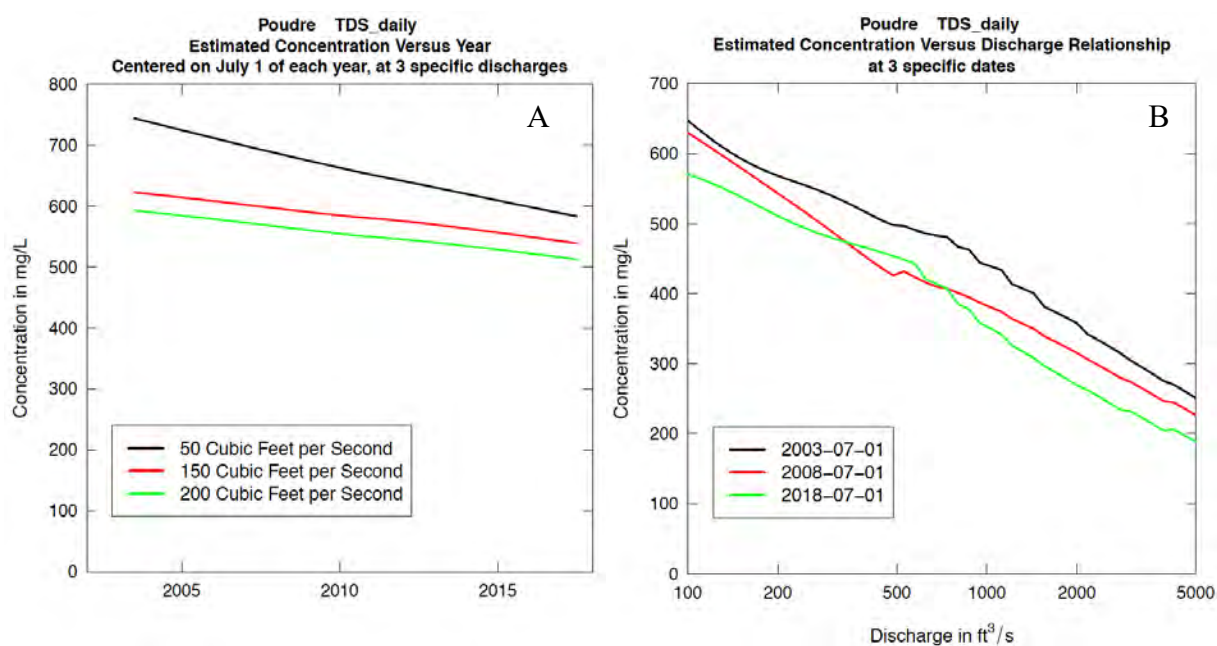


Figure C-10. Estimated Total Dissolved Solids concentrations by year (A) and streamflow (B) for Cache la Poudre River

APPENDIX D SALT LOADING

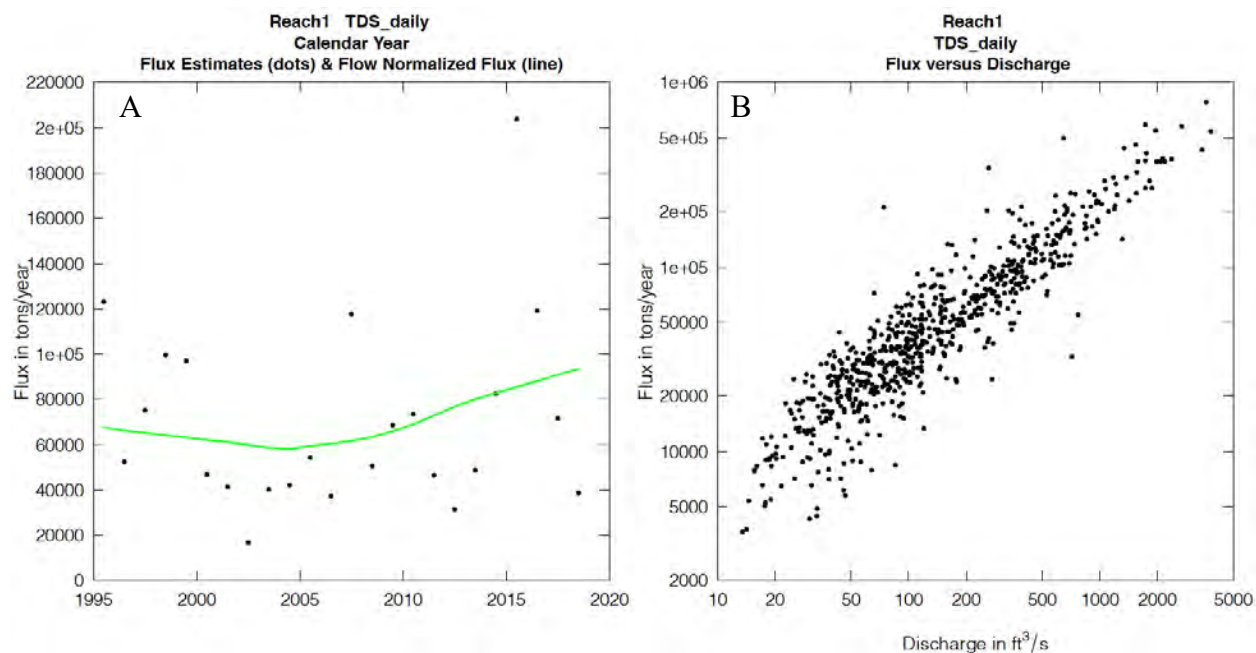


Figure D-1. Estimated salt loading (flux) by year (A) and streamflow (B) for Reach 1

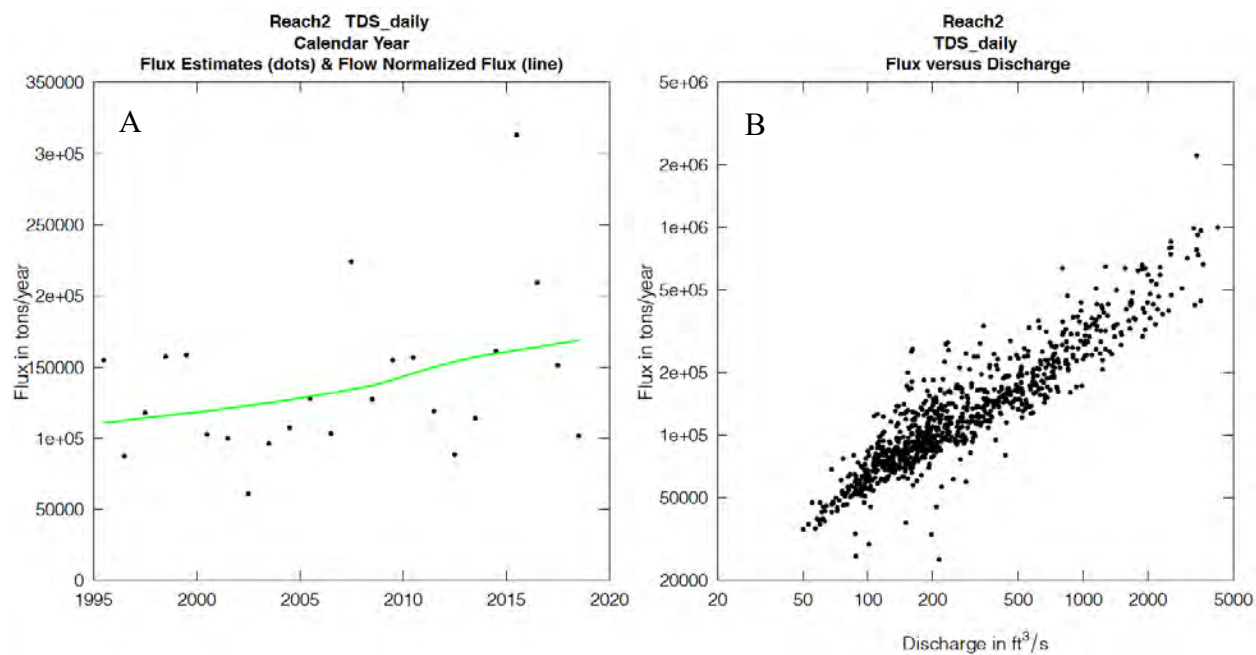


Figure D-2. Estimated salt loading (flux) by year (A) and streamflow (B) for Reach 2

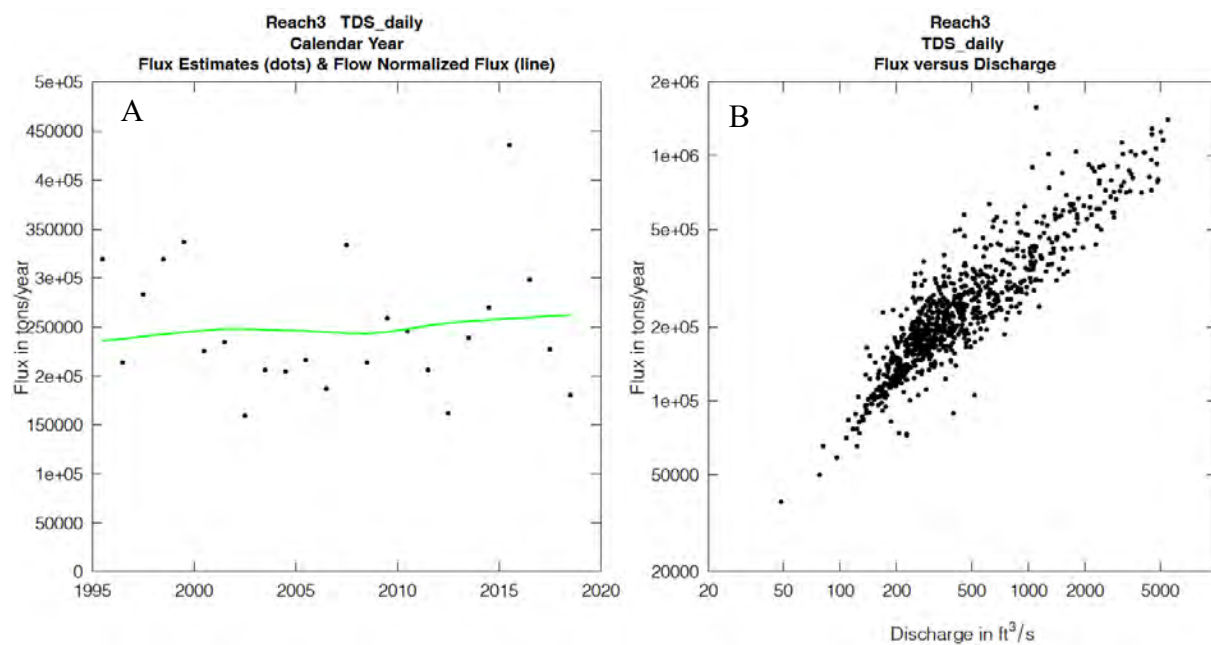


Figure D-3. Estimated salt loading (flux) by year (A) and streamflow (B) for Reach 3

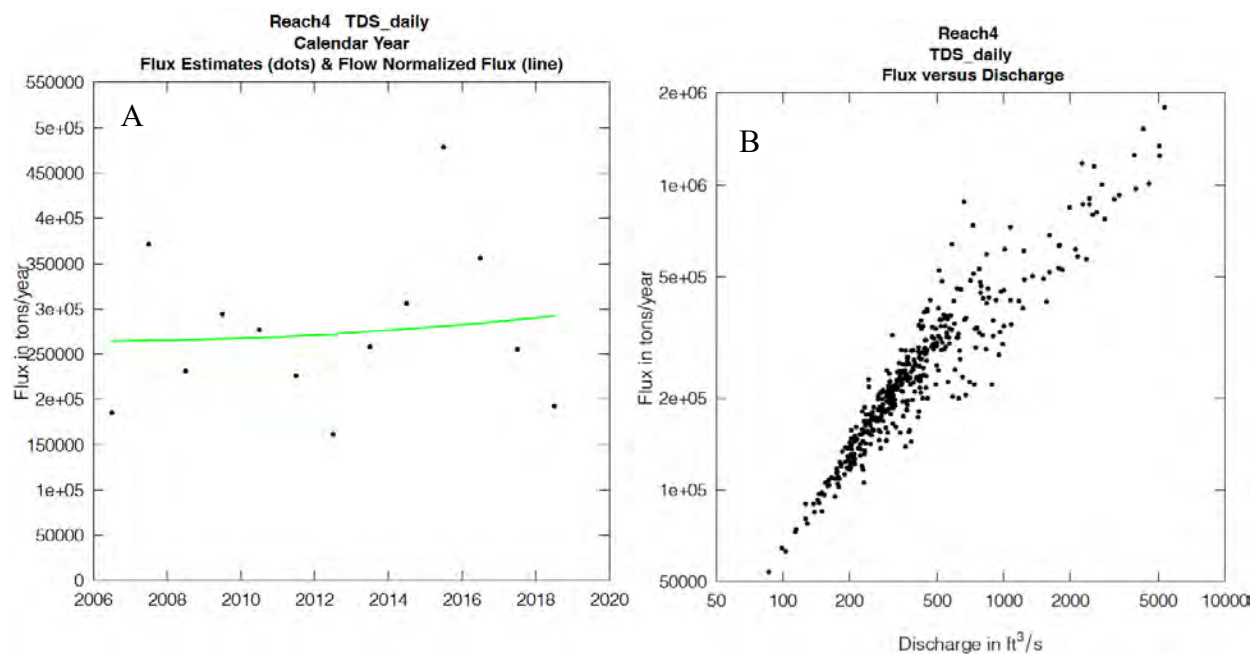


Figure D-4. Estimated salt loading (flux) by year (A) and streamflow (B) for Reach 4

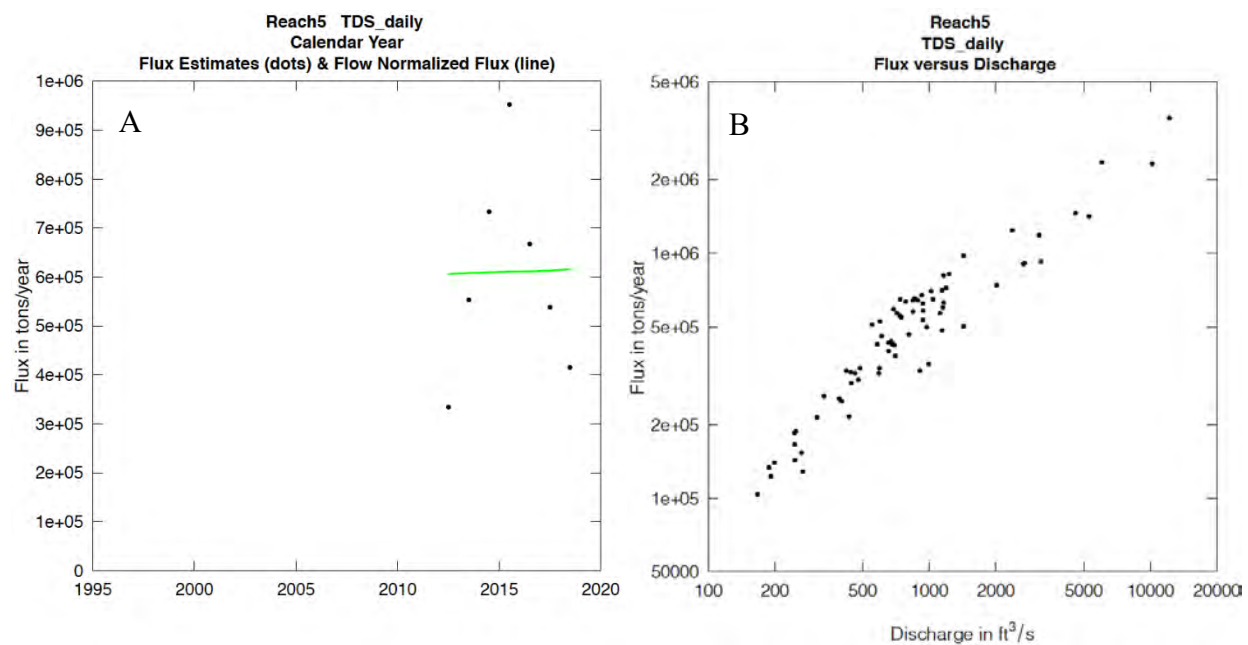


Figure D-5. Estimated salt loading (flux) by year (A) and streamflow (B) for Reach 5

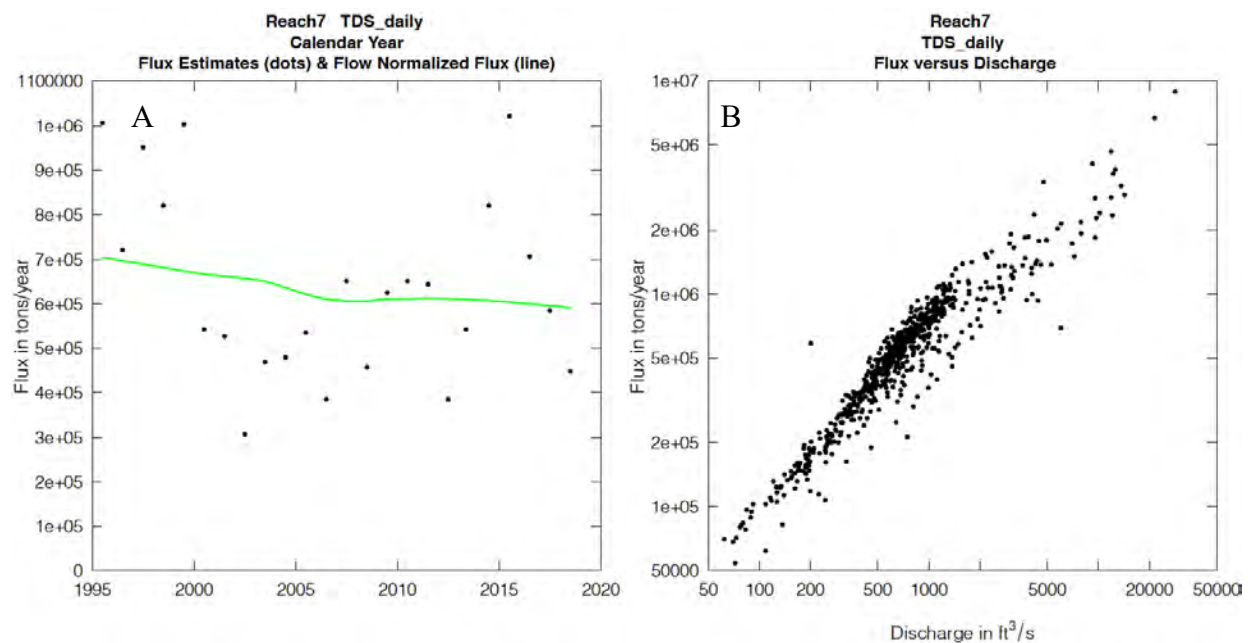


Figure D-6. Estimated salt loading (flux) by year (A) and streamflow (B) for Reach 7

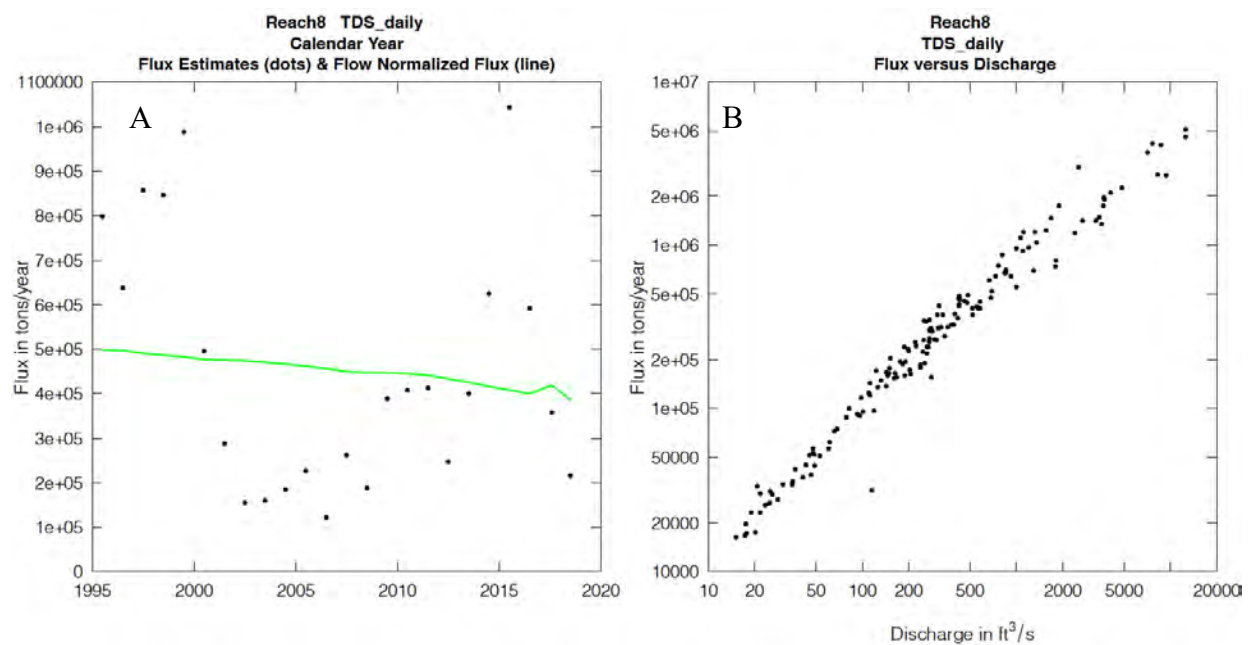


Figure D-7. Estimated salt loading (flux) by year (A) and streamflow (B) for Reach 8

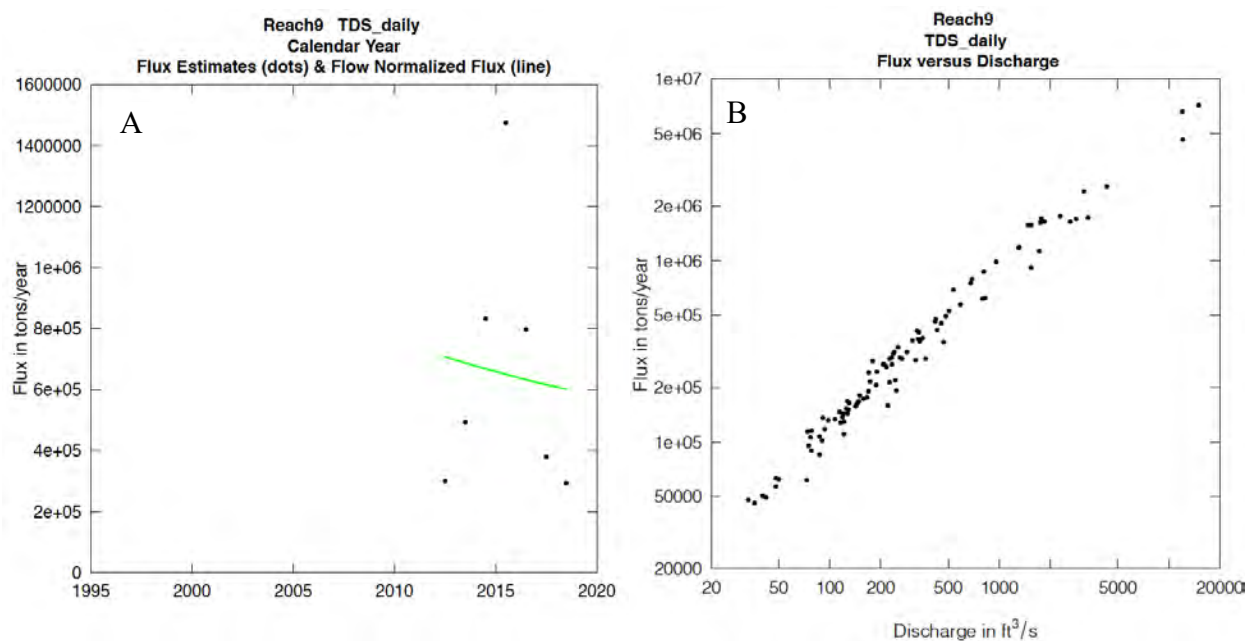


Figure D-8. Estimated salt loading (flux) by year (A) and streamflow (B) for Reach 9

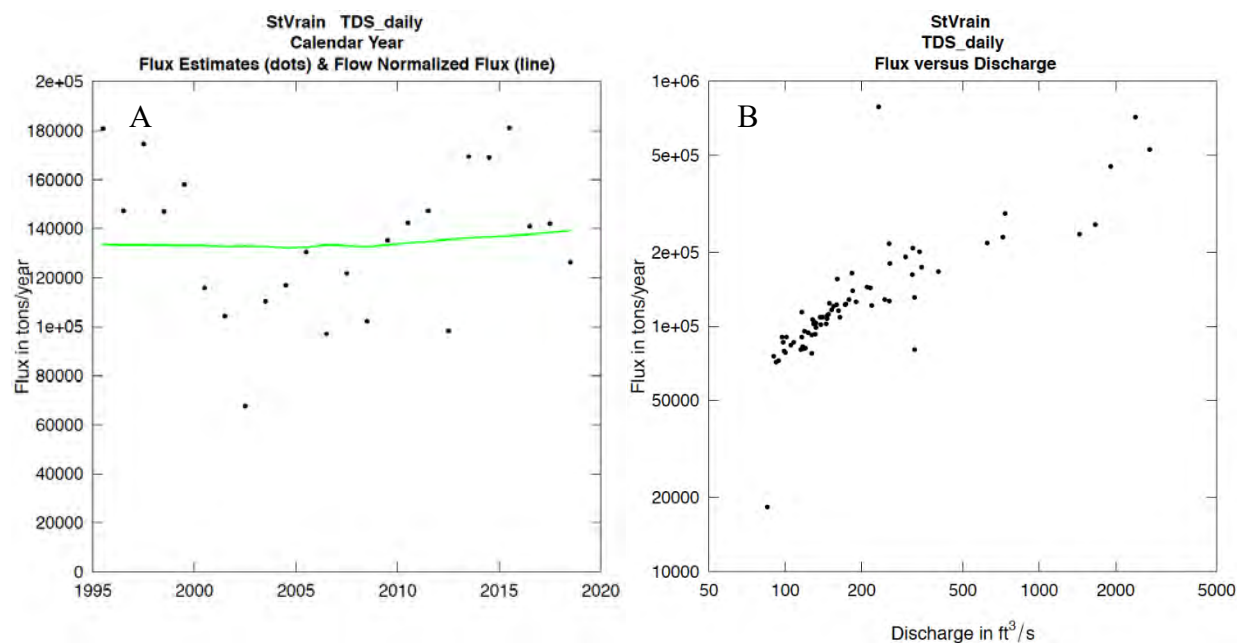


Figure D-9. Estimated salt loading (flux) by year (A) and streamflow (B) for Saint Vrain Creek

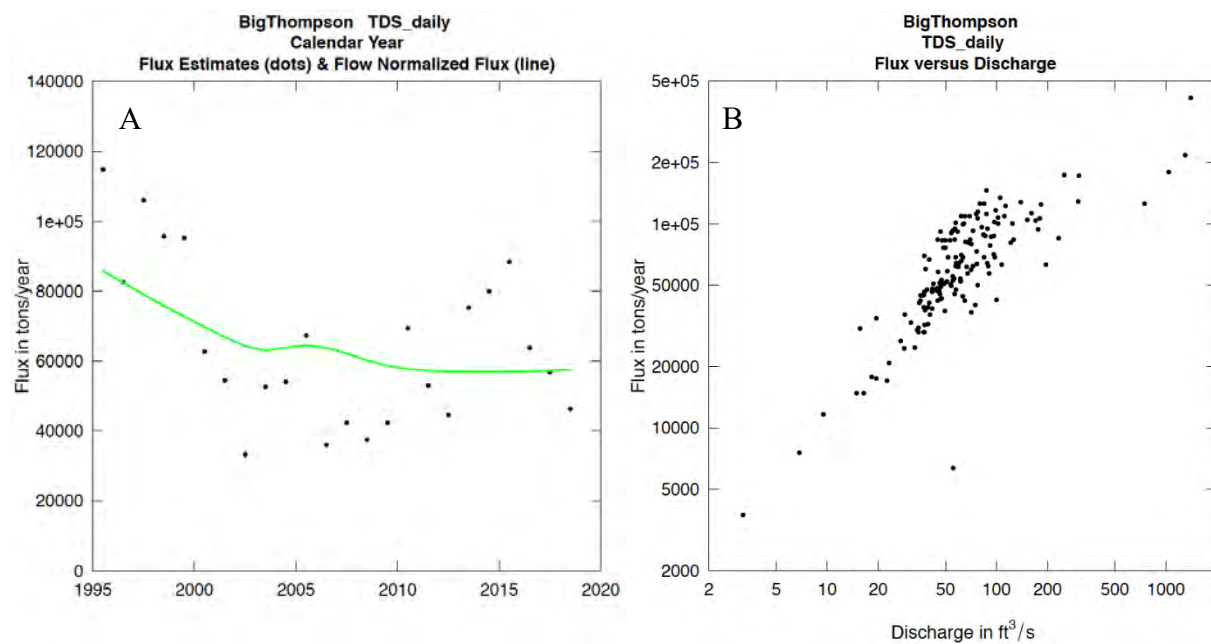


Figure D-10. Estimated salt loading (flux) by year (A) and streamflow (B) for Big Thompson River

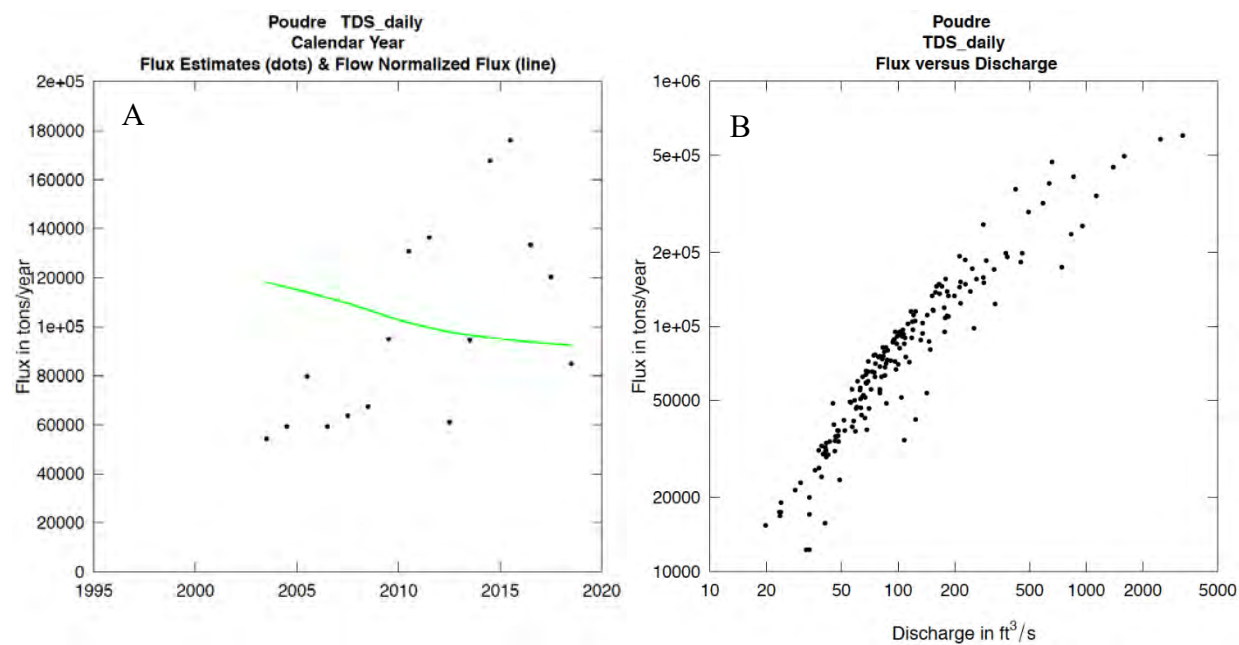


Figure D-11. Estimated salt loading (flux) by year (A) and streamflow (B) for Cache la Poudre River

APPENDIX E

SPROWG CONSTITUENTS

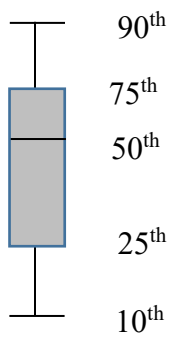
E-1 Boxplots

E-2 Summary Statistic Tables

APPENDIX E-1

SPROWG CONSTITUENT BOXPLOTS

Boxplot percentiles:



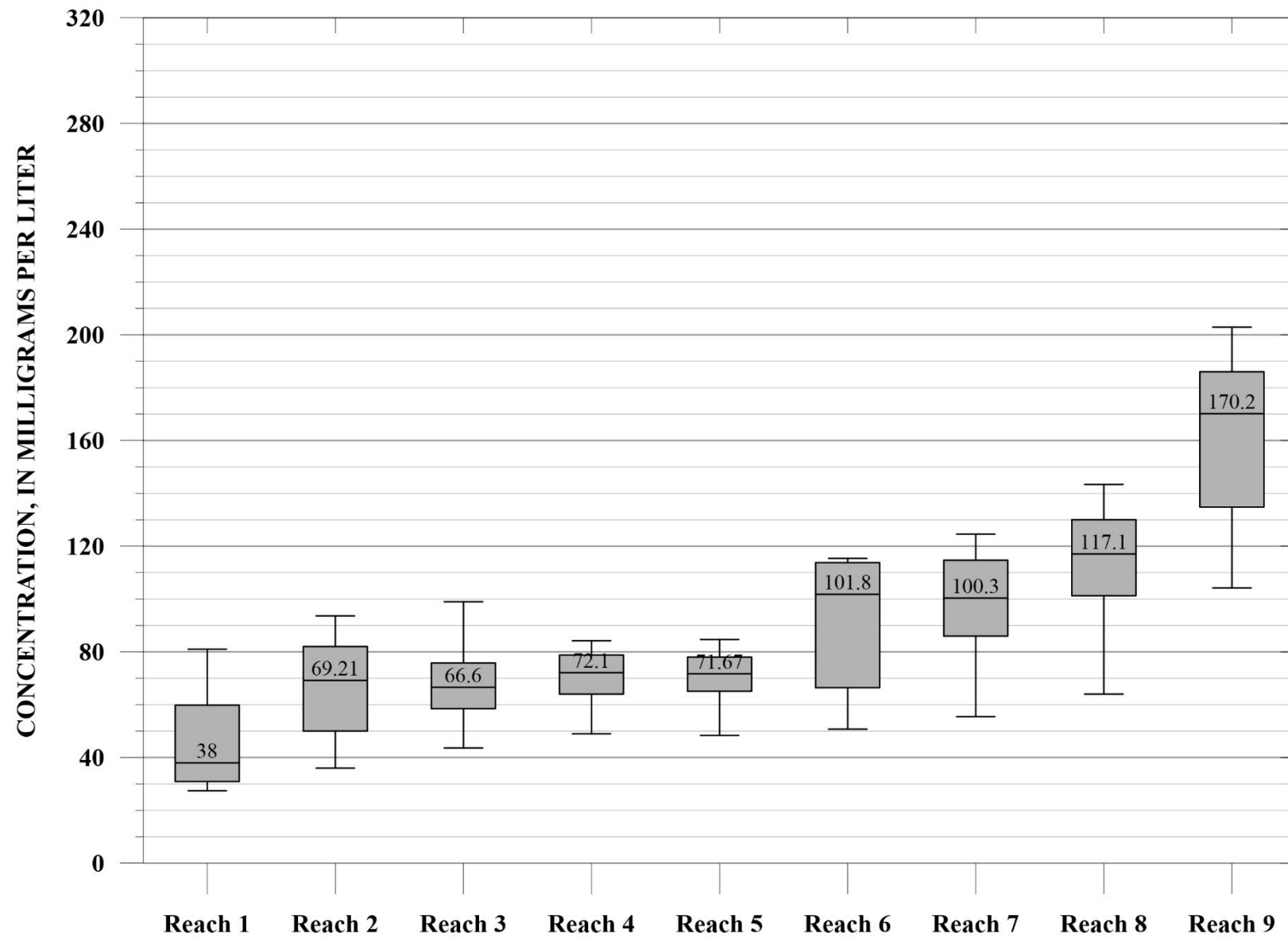


Figure E-1. Calcium boxplot, 1995-2018

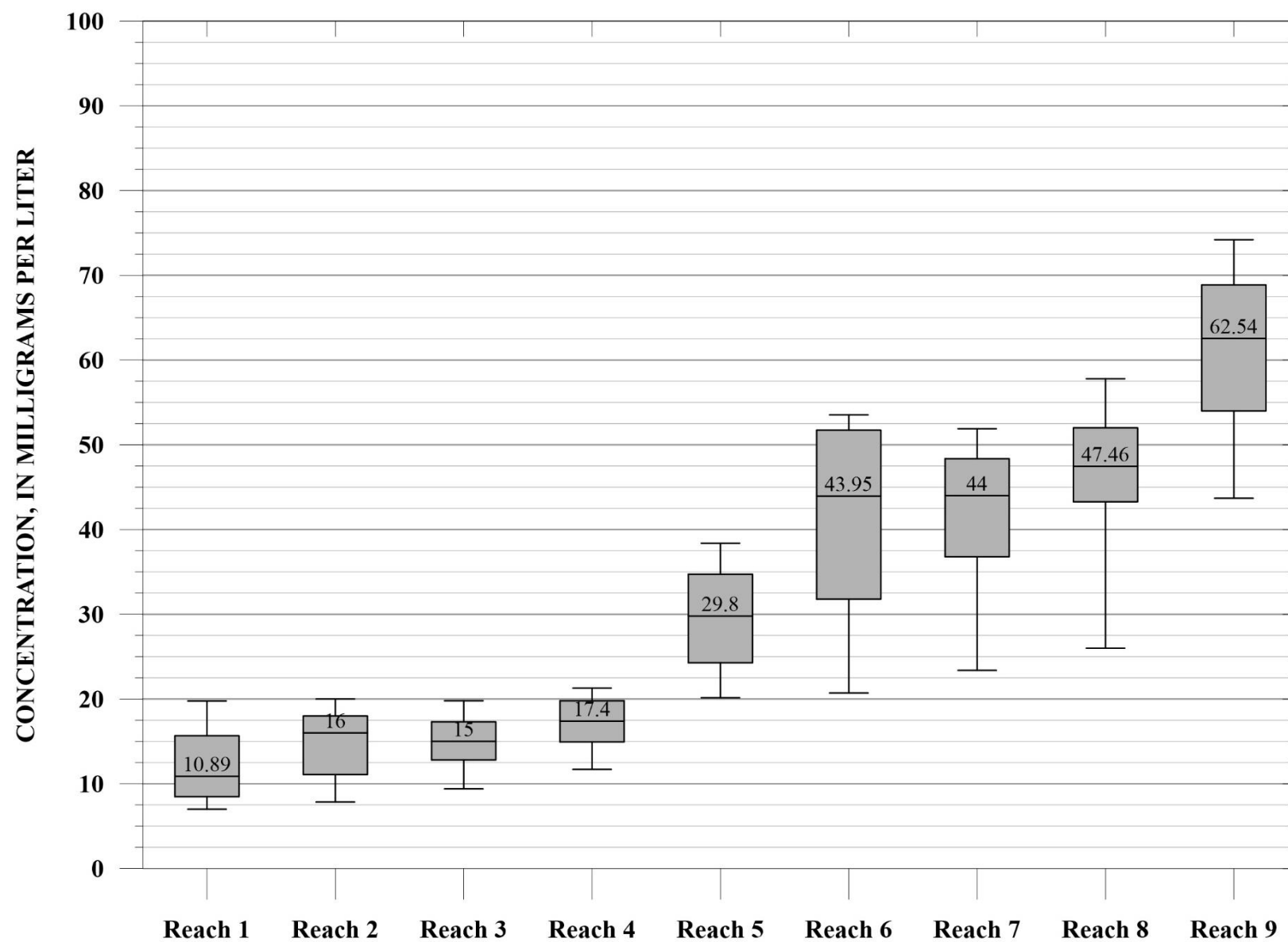


Figure E-2. Magnesium boxplot, 1995-2018

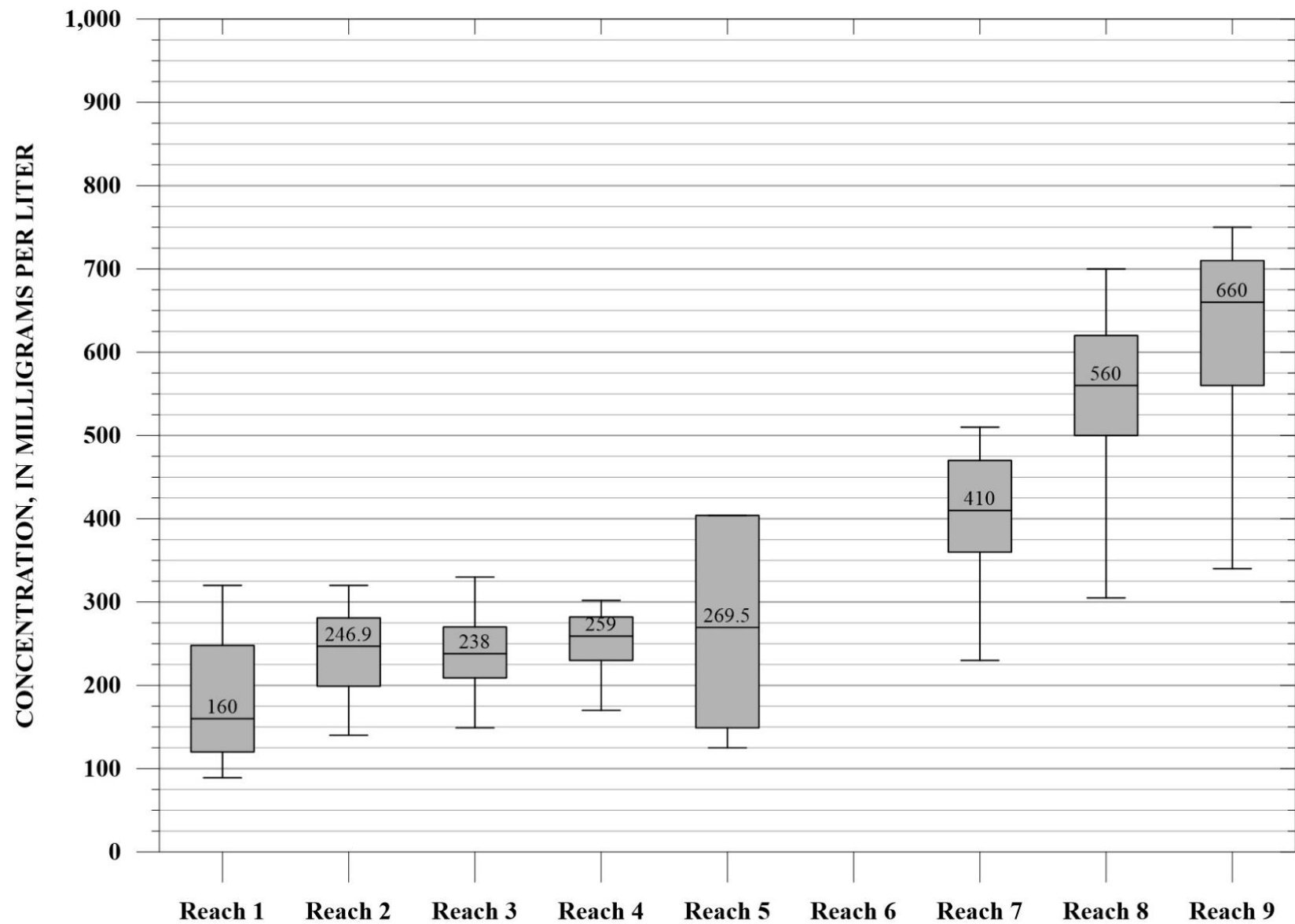


Figure E-3. Hardness boxplot, 1995-2018

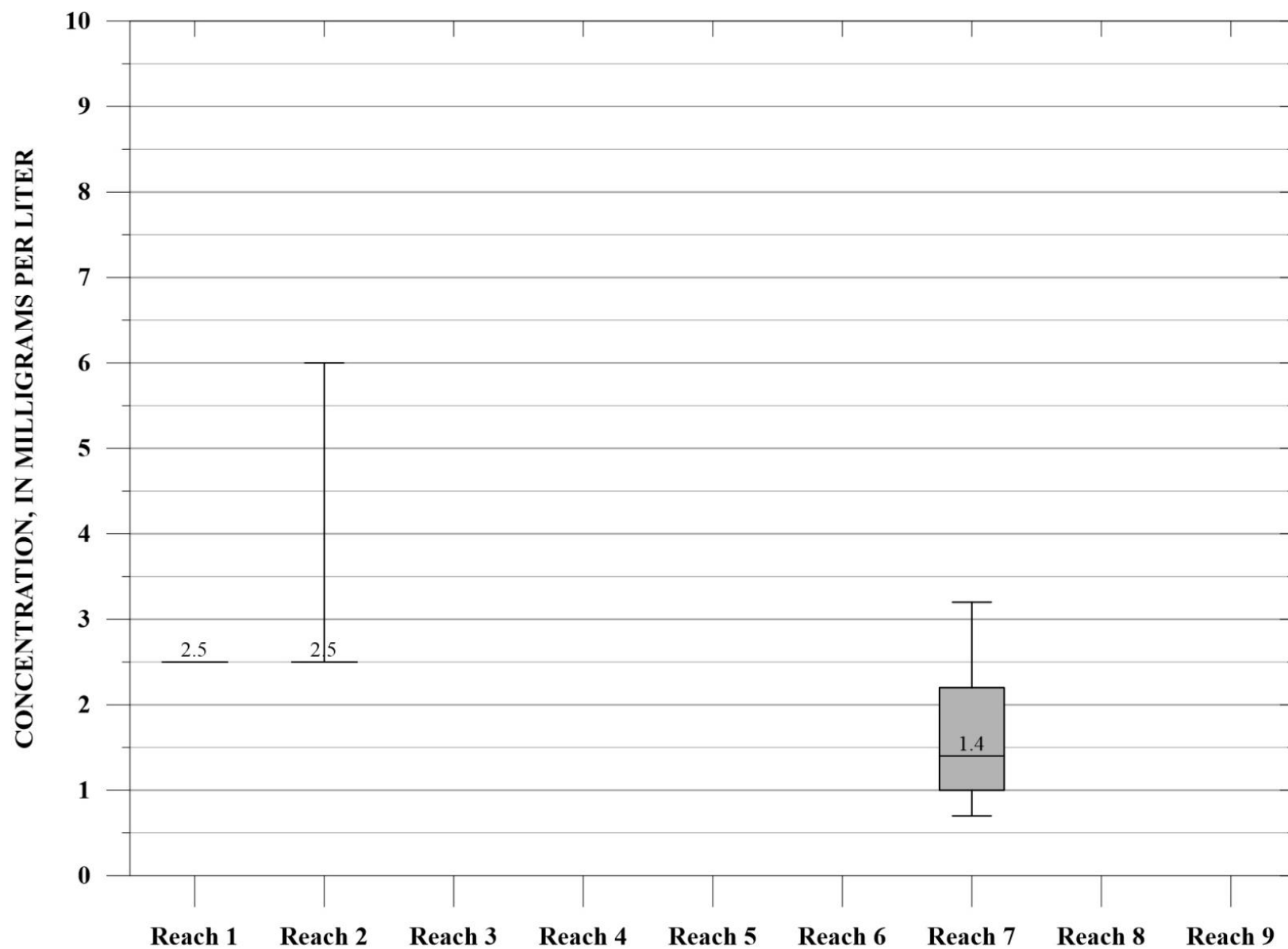


Figure E-4. Carbonate boxplot, 1995-2018

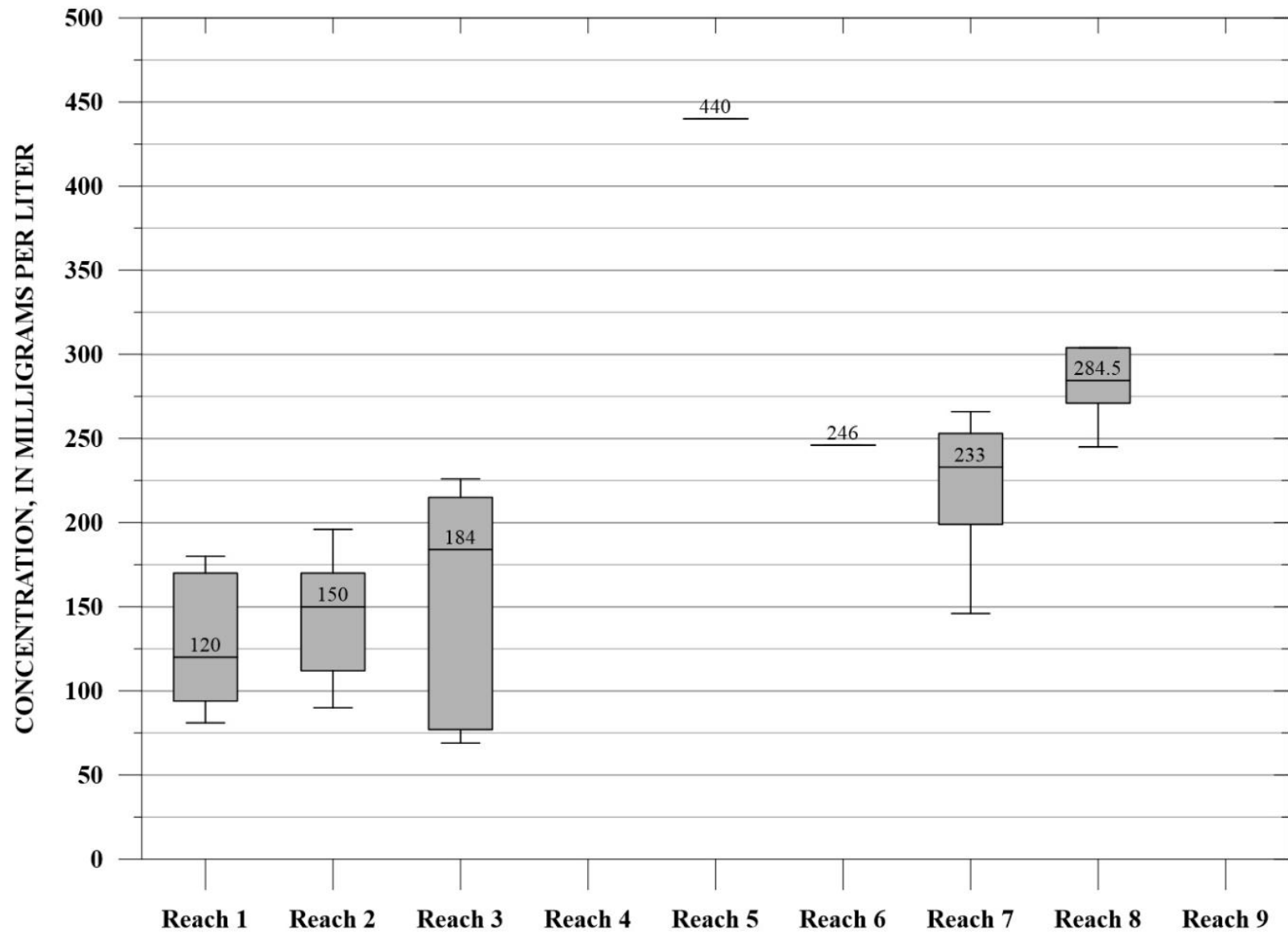


Figure E-5. Bicarbonate boxplot, 1995-2018

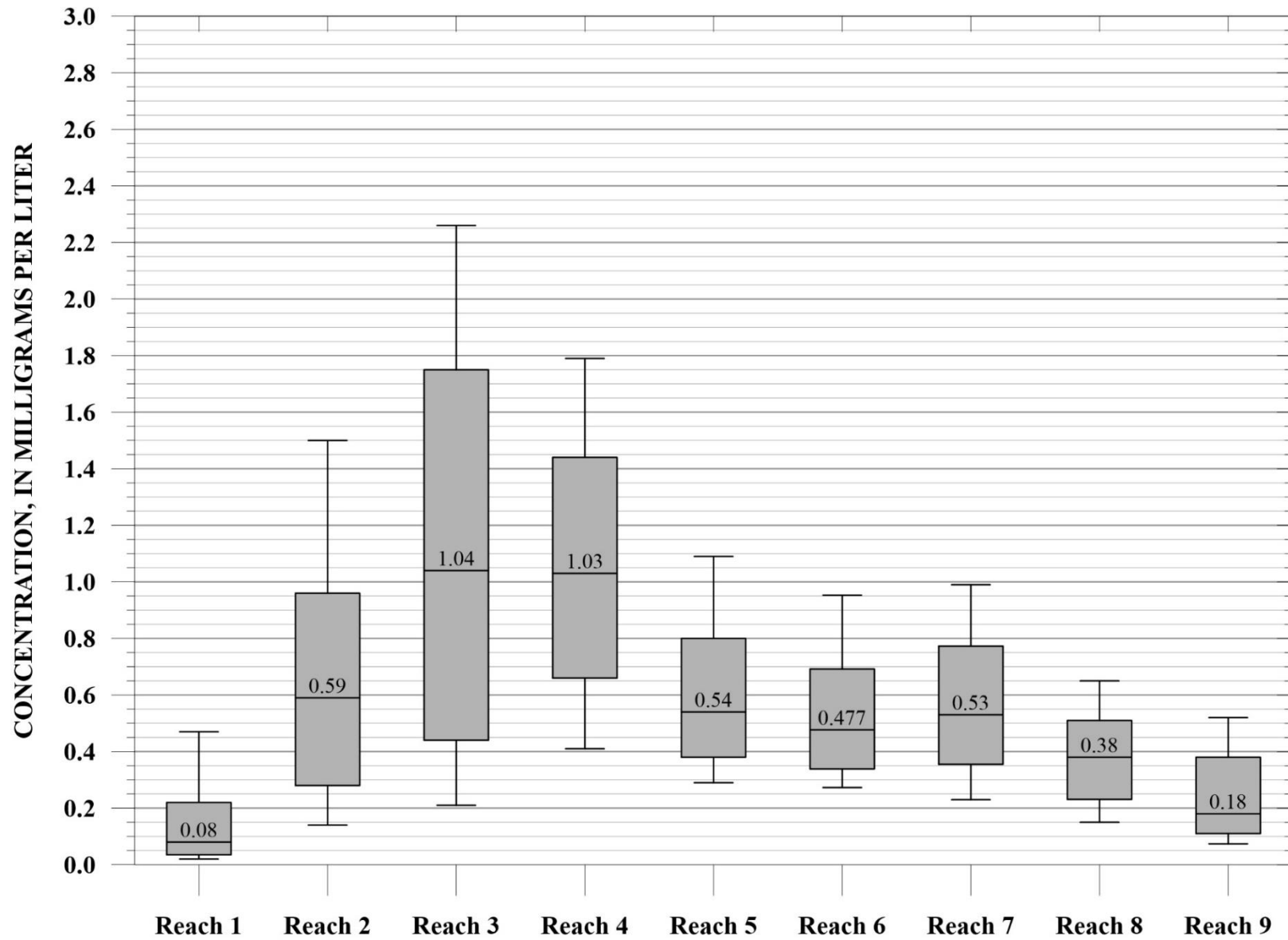


Figure E-6. Phosphorus boxplot, 1995-2018

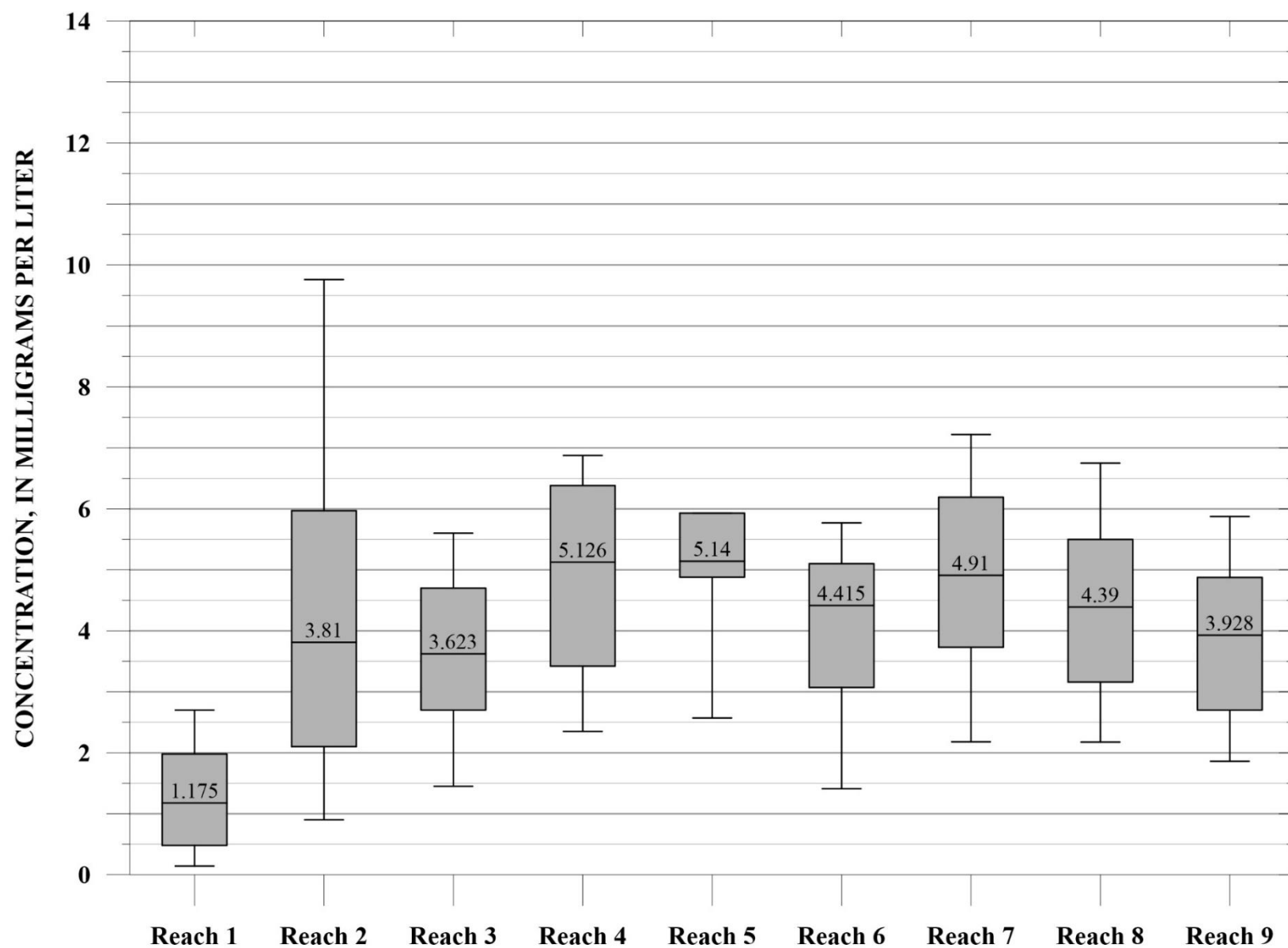


Figure E-7. Nitrate boxplot, 1995-2018

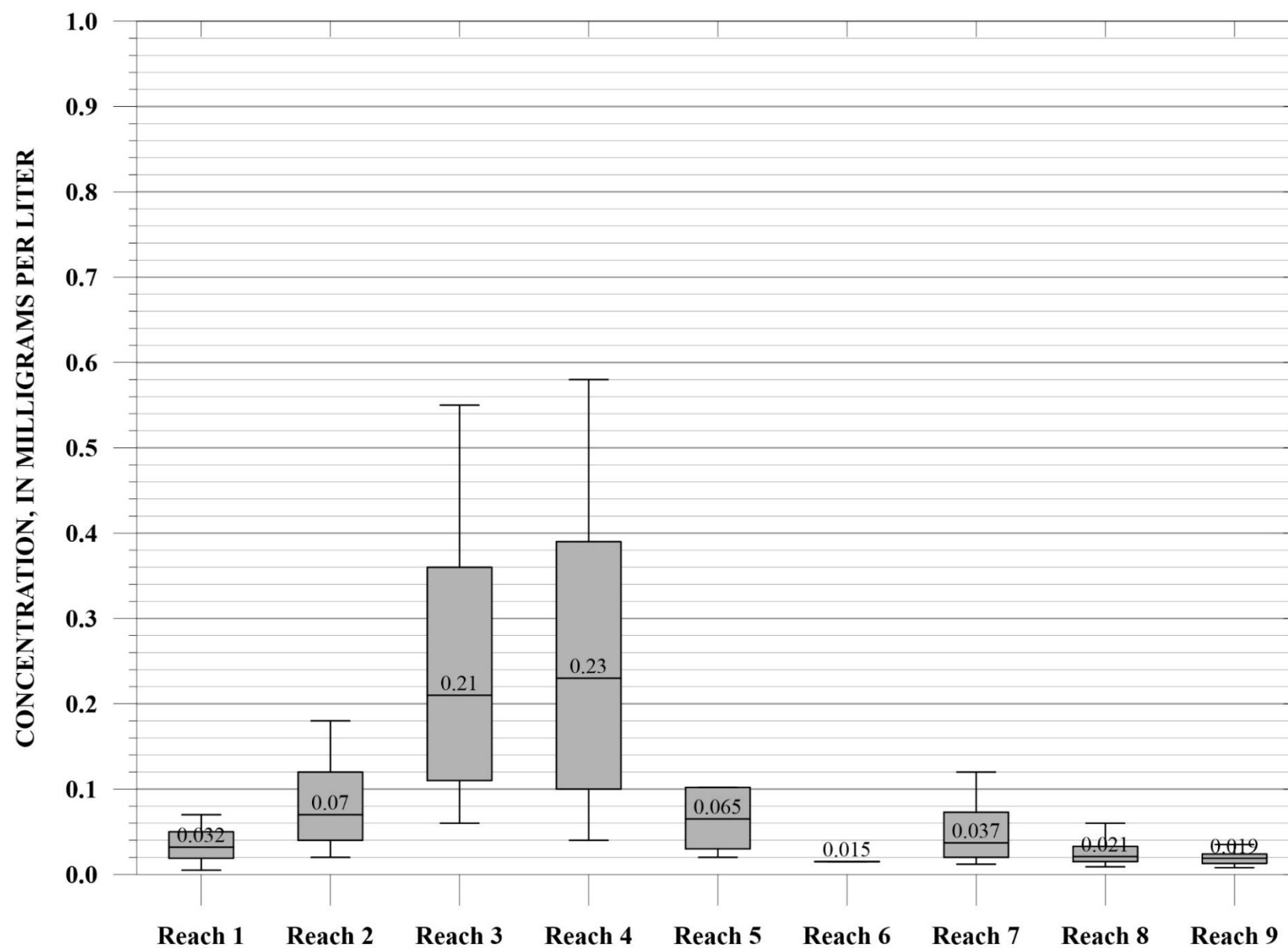


Figure E-8. Nitrite boxplot, 1995-2018

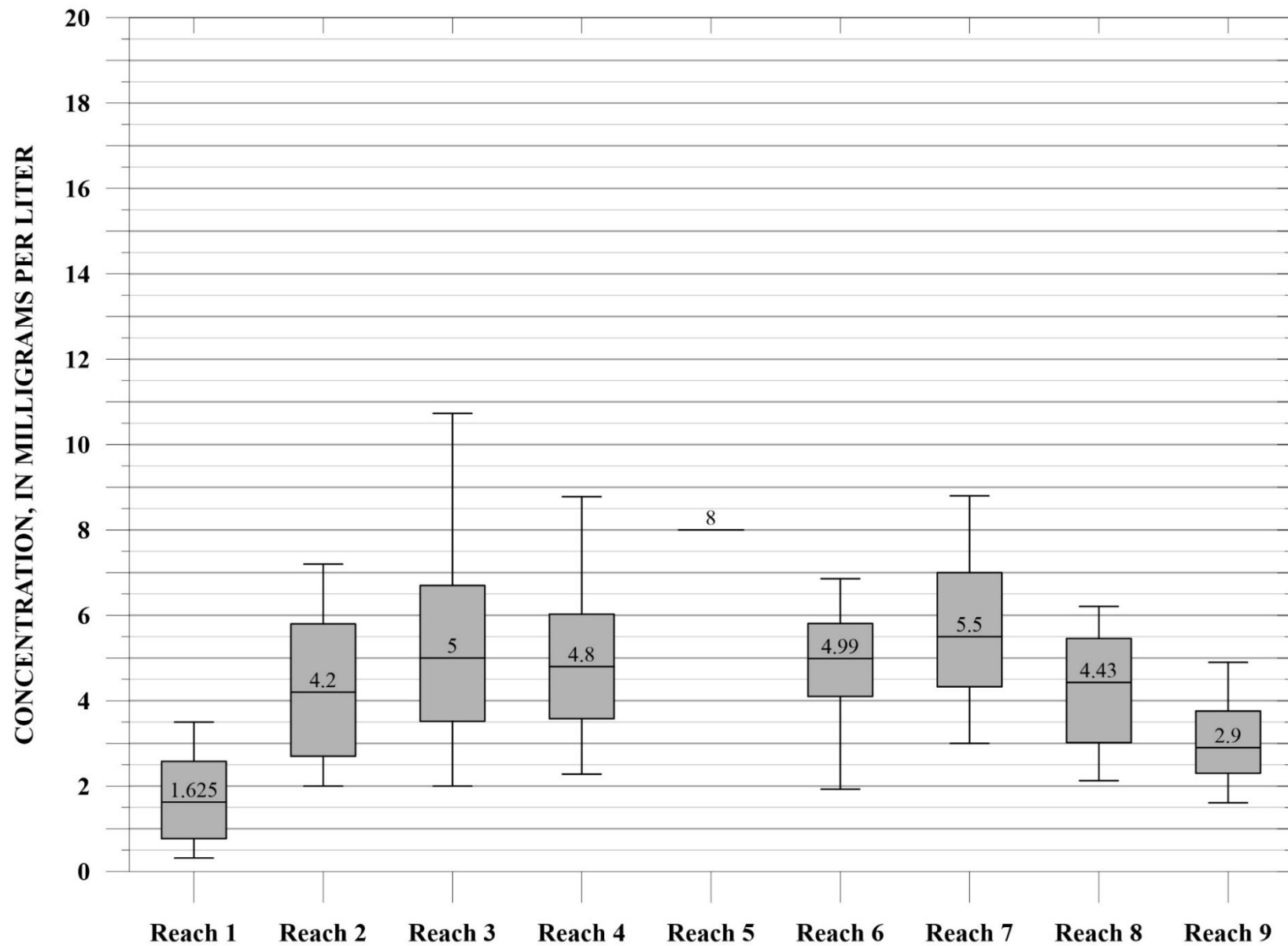


Figure E-9. Nitrogen (Mixed Forms) boxplot, 1995-2018

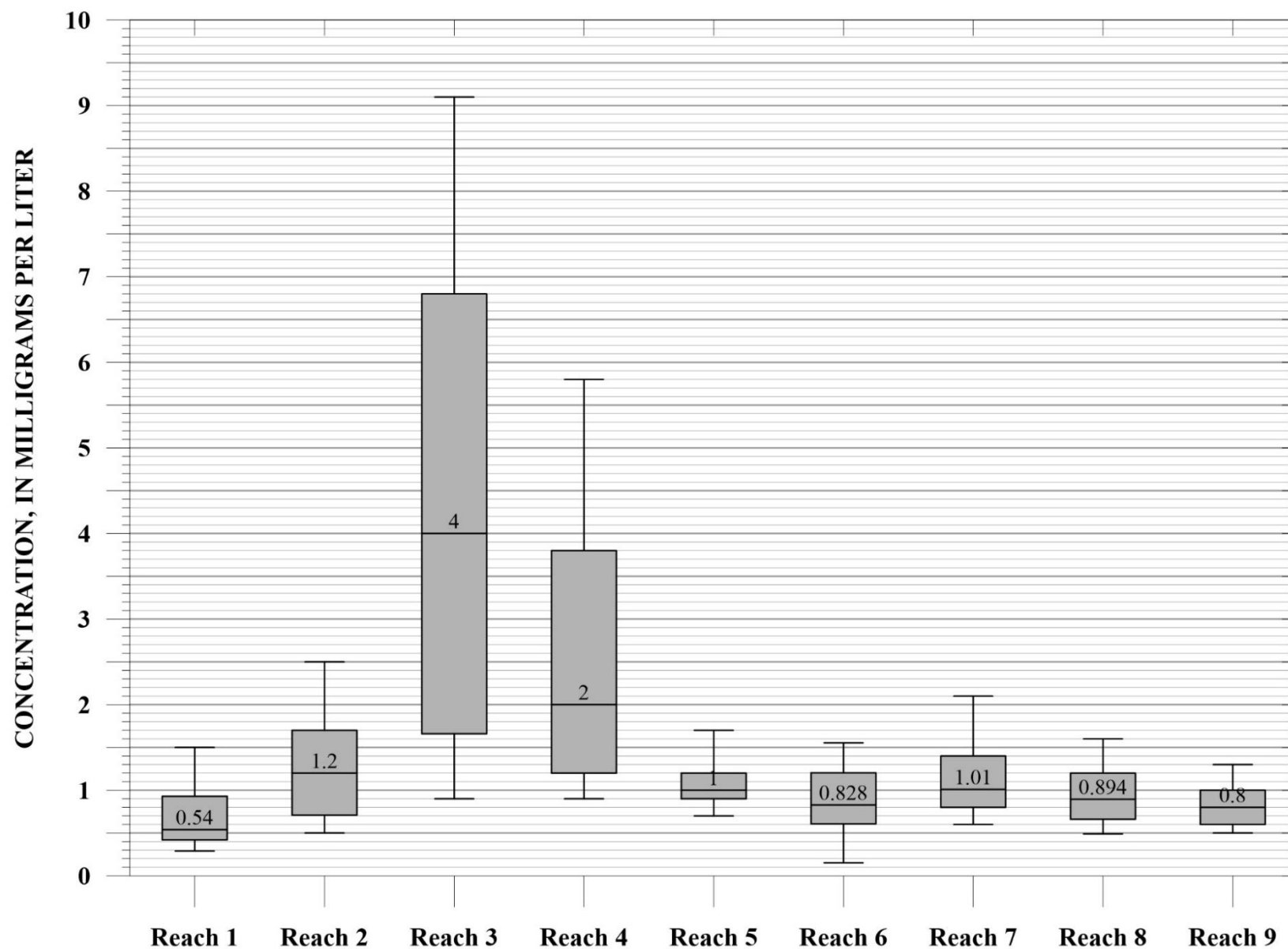


Figure E-10. Total Kjeldahl Nitrogen boxplot, 1995-2018

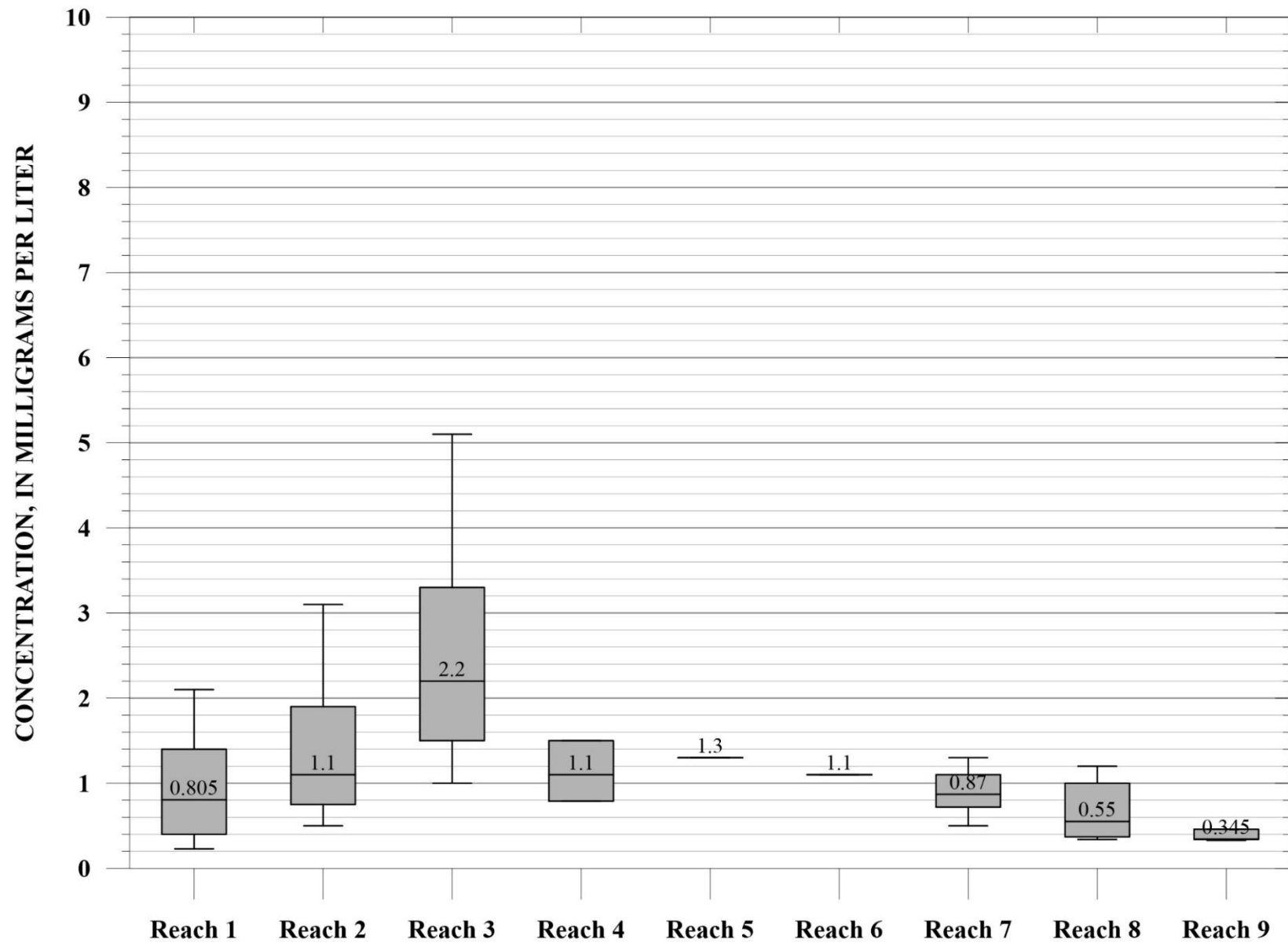


Figure E-11. Organic Nitrogen boxplot, 1995-2018

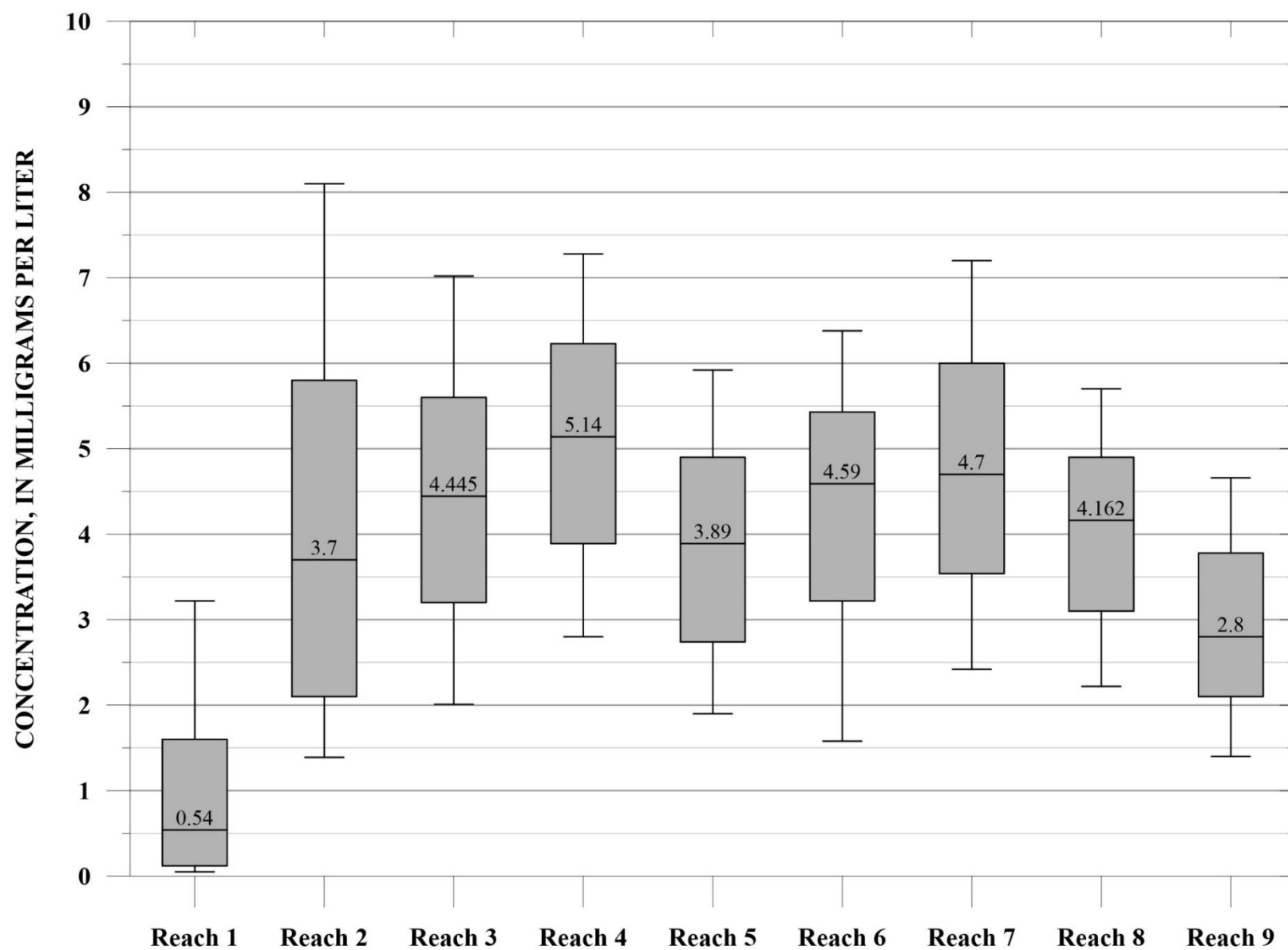


Figure E-12. Inorganic Nitrogen boxplot, 1995-2018

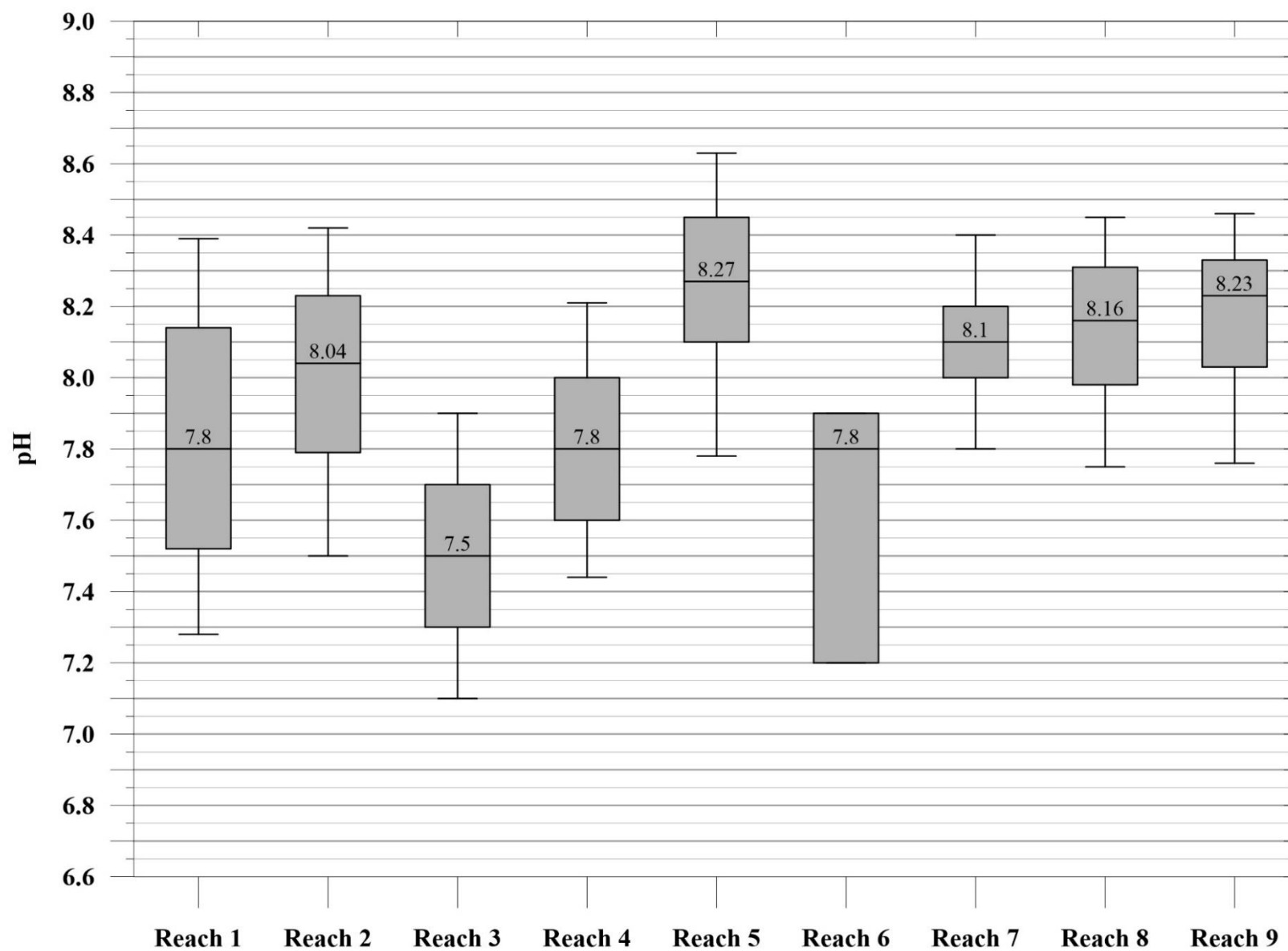


Figure E-13. pH boxplot, 1995-2018

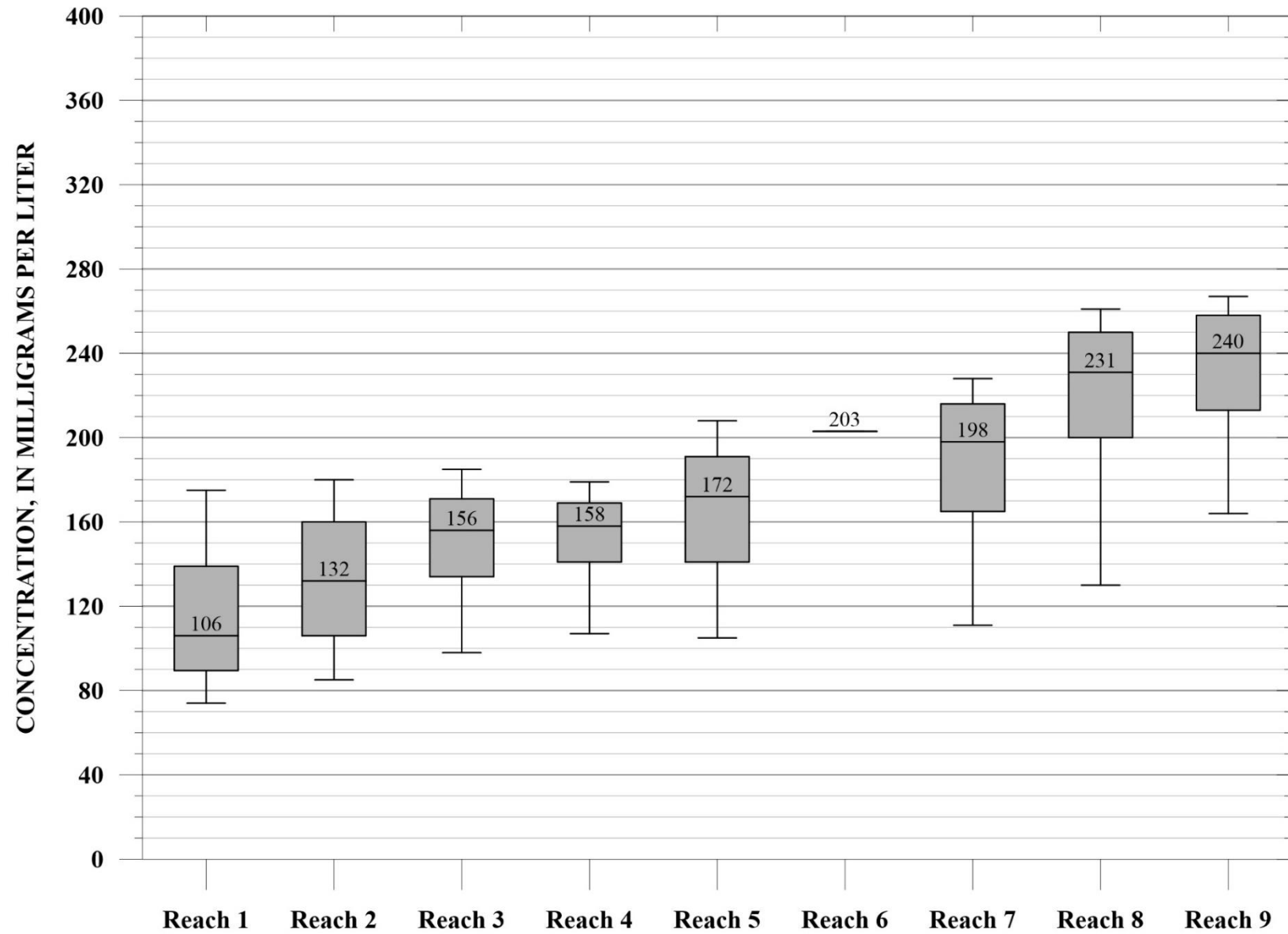


Figure E-14. Alkalinity boxplot, 1995-2018

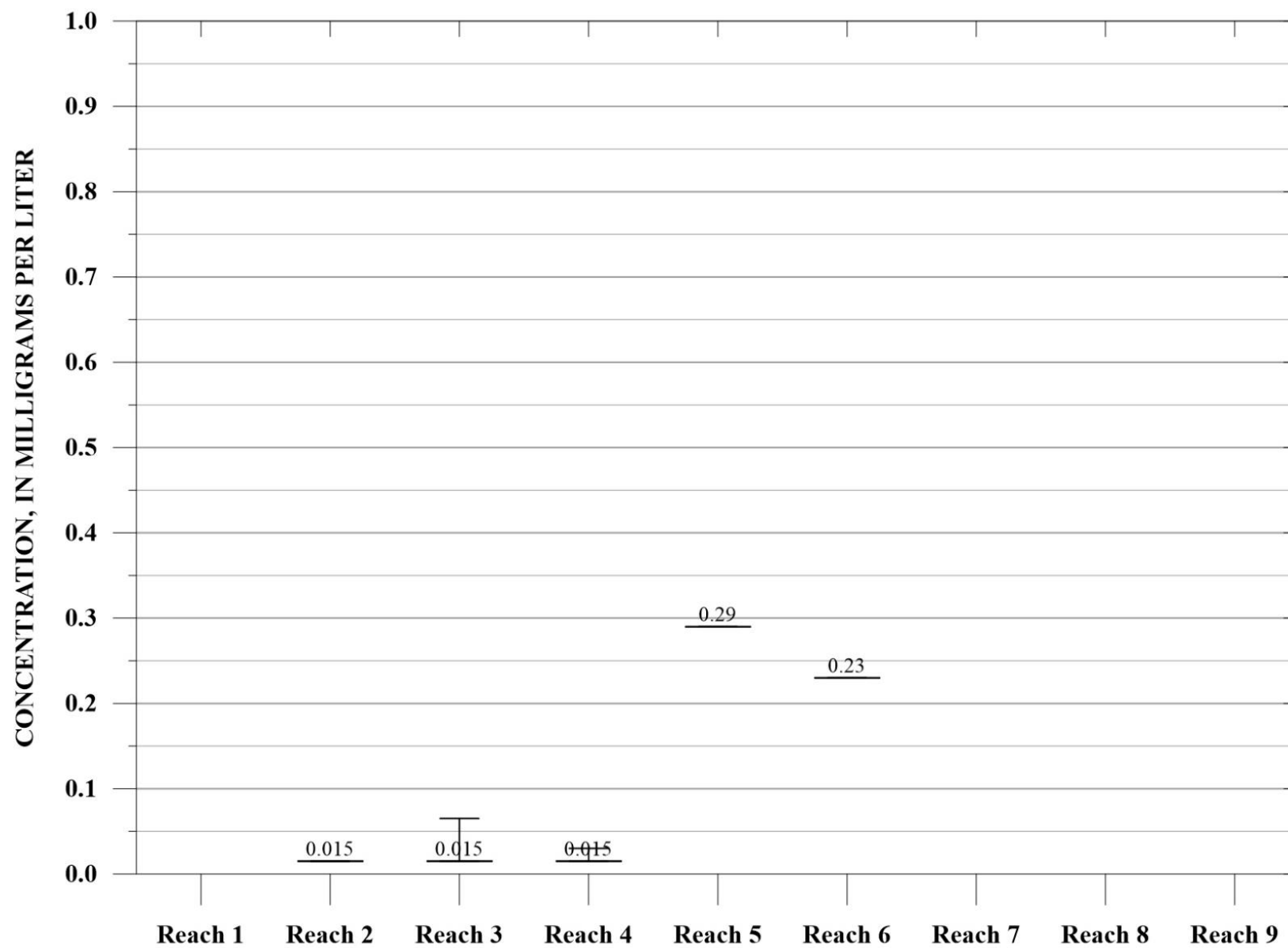


Figure E-15. Bromide boxplot, 1995-2018

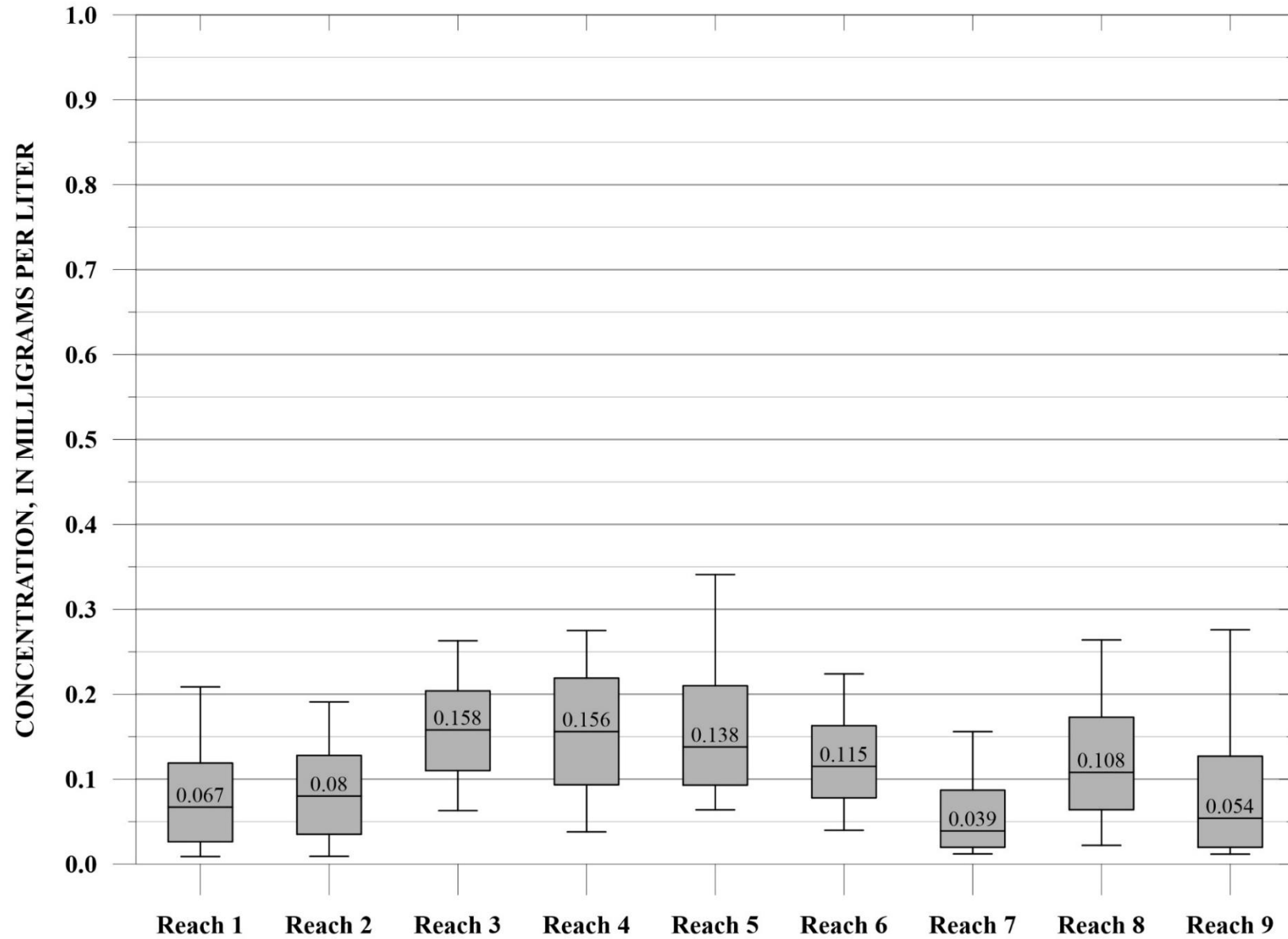


Figure E-16. Manganese boxplot, 1995-2018

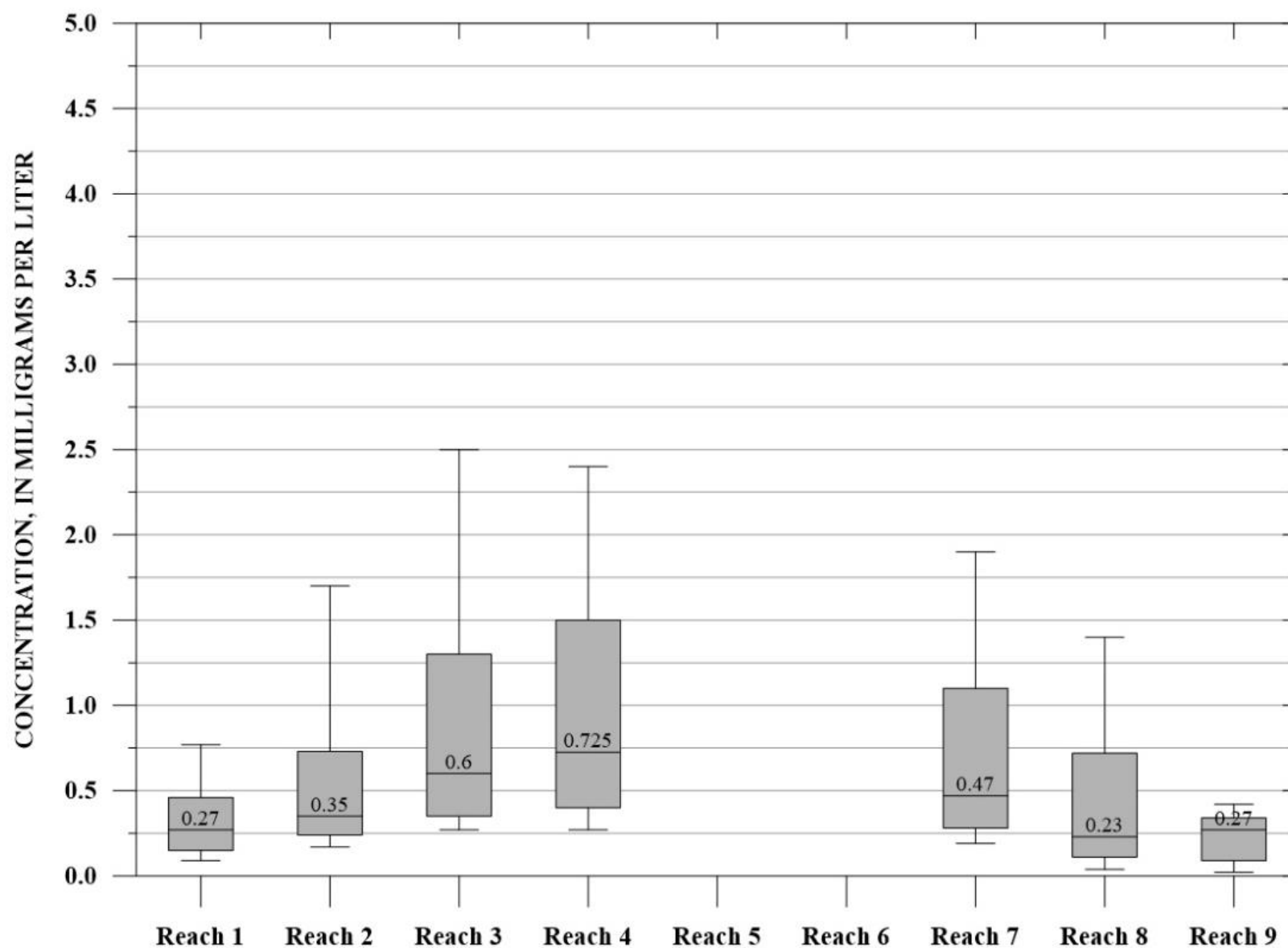


Figure E-17. Iron boxplot, 1995-2018

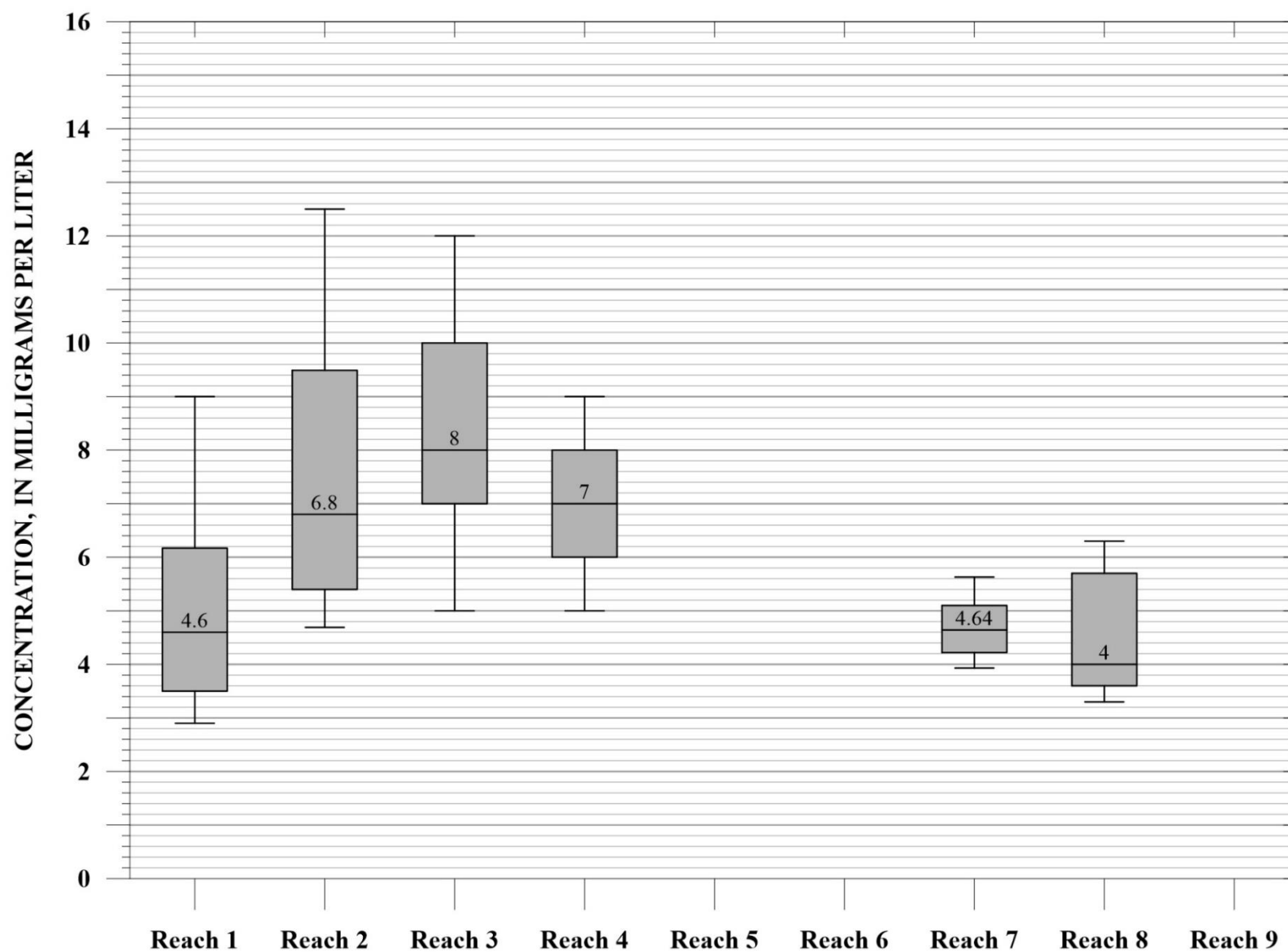


Figure E-18. Total Organic Carbon boxplot, 1995-2018

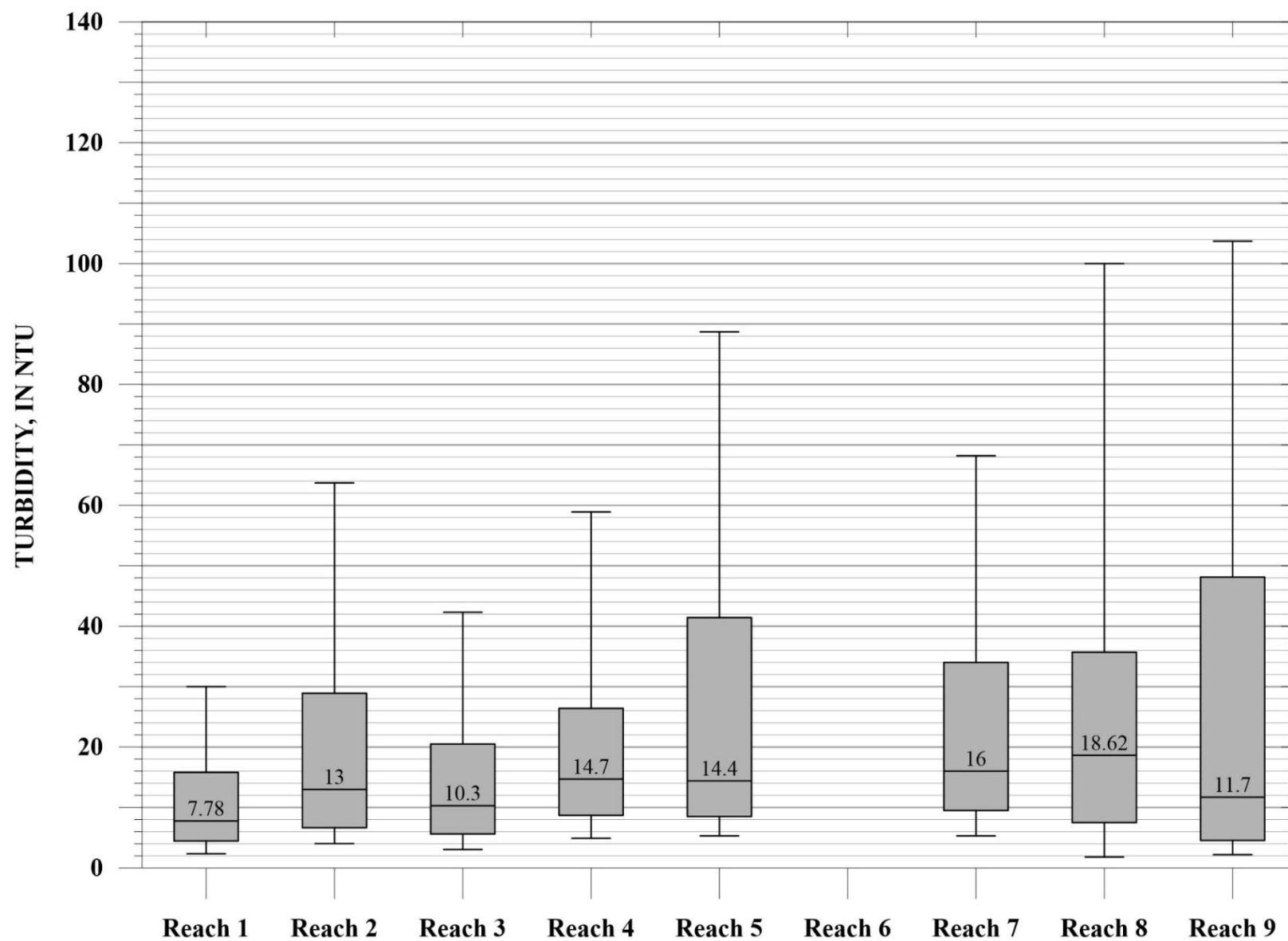


Figure E-19. Turbidity boxplot, 1995-2018

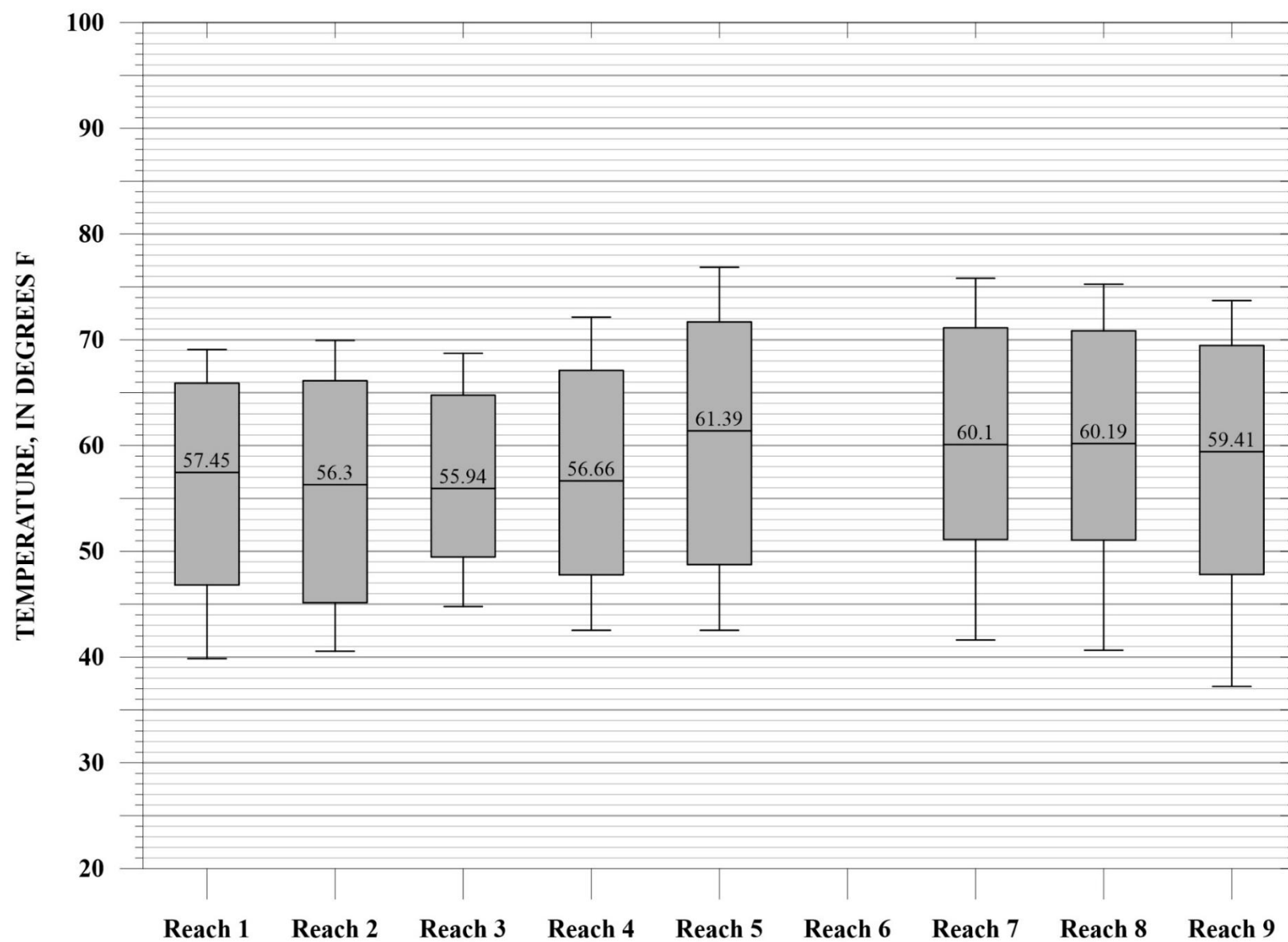


Figure E-20. Temperature boxplot, 1995-2018

APPENDIX E-2

SUMMARY STATISTICS TABLES

Table E-1. Calcium Statistics by South Platte River Reach for 1995-2018

	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Reach 8	Reach 9
Count	747	994	3081	3338	200	15	469	254	227
Mean	46.85	67.09	71.86	71.58	98.93	92.64	97.62	113.11	161.59
Minimum	0.02	0.01	0.50	17.00	0.27	50.69	11.64	20.28	45.52
Maximum	164.00	230.00	2508.50	3651.70	4273.31	116.87	219.63	208.90	284.35
Std Dev	22.64	23.60	52.52	63.80	324.77	24.75	26.60	30.64	42.10
10th Percentile	27.44	36.03	43.60	49.00	48.34	51.94	57.50	64.56	104.80
25th Percentile	30.95	50.00	58.50	64.00	65.07	79.13	86.00	101.31	135.08
50th Percentile	38.00	69.21	66.60	72.10	71.67	101.81	100.32	117.05	170.16
75th Percentile	59.75	82.00	75.80	78.80	77.93	111.86	114.67	129.93	186.01
90th Percentile	81.00	93.58	99.00	84.20	84.39	115.08	124.50	143.29	202.69

Table E-2. Magnesium Statistics by South Platte River Reach for 1995-2018

	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Reach 8	Reach 9
Count	716	972	2053	2007	193	15	466	248	223
Mean	12.4	14.8	15.6	17.8	29.3	41.1	41.3	45.9	59.9
Minimum	0.004	0.004	0.017	6.256	1.897	20.629	7.530	3.997	2.295
Maximum	45.0	51.0	1059.6	1509.5	49.1	53.7	107.9	74.6	91.7
Std Dev	5.3	5.2	23.5	33.5	7.5	12.2	11.5	11.1	13.3
10th Percentile	7.0	7.9	9.4	11.7	20.2	21.0	23.4	26.2	43.8
25th Percentile	8.5	11.1	12.8	15.0	24.3	35.6	36.8	43.3	54.0
50th Percentile	10.9	16.0	15.0	17.4	29.8	44.0	44.0	47.5	62.5
75th Percentile	15.6	18.0	17.3	19.8	34.7	50.7	48.4	51.9	68.9
90th Percentile	19.7	20.0	19.8	21.3	38.3	53.4	51.9	57.7	74.2

Table E-3. Hardness Statistics by South Platte River Reach for 1995-2018

	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Reach 8	Reach 9
Count	308	708	1589	1780	4	0	151	72	63
Mean	185.5	241.2	246.1	249.2	267.0	--	395.4	596.4	613.0
Minimum	1.6	1.4	57.0	74.0	125.0	--	100.0	195.0	220.0
Maximum	1200.0	1300.0	787.0	456.0	404.0	--	604.8	4810.0	812.0
Std Dev	106.8	80.8	84.7	48.9	150.5	--	104.0	520.9	147.5
10th Percentile	89.0	140.0	149.0	170.0	132.2	--	230.0	309.5	344.0
25th Percentile	119.8	198.3	209.0	230.0	143.0	--	360.0	497.5	575.0
50th Percentile	160.0	246.9	238.0	259.0	269.5	--	410.0	560.0	660.0
75th Percentile	242.0	280.3	270.0	282.0	393.5	--	470.0	620.0	710.0
90th Percentile	317.2	320.0	329.2	301.1	399.8	--	510.0	700.0	748.8

Table E-4. Carbonate Statistics by South Platte River Reach for 1995-2018

	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Reach 8	Reach 9
Count	65	234	0	0	0	0	123	0	0
Mean	2.7	3.7	--	--	--	--	2.0	--	--
Minimum	1.0	1.7	--	--	--	--	0.3	--	--
Maximum	13.0	36.0	--	--	--	--	18.0	--	--
Std Dev	1.4	4.0	--	--	--	--	2.2	--	--
10th Percentile	2.5	2.5	--	--	--	--	0.7	--	--
25th Percentile	2.5	2.5	--	--	--	--	1.0	--	--
50th Percentile	2.5	2.5	--	--	--	--	1.4	--	--
75th Percentile	2.5	2.5	--	--	--	--	2.2	--	--
90th Percentile	2.5	6.0	--	--	--	--	3.2	--	--

Table E-5. Bicarbonate Statistics by South Platte River Reach for 1995-2018

	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Reach 8	Reach 9
Count	72	277	10	0	1	1	233	4	0
Mean	130.3	147.1	159.5	--	440.0	246.0	219.1	279.5	--
Minimum	62.0	62.0	65.0	--	440.0	246.0	67.0	245.0	--
Maximum	310.0	330.0	226.0	--	440.0	246.0	312.0	304.0	--
Std Dev	44.8	46.7	64.6	--	--	--	49.0	27.1	--
10th Percentile	81.0	90.0	68.6	--	440.0	246.0	146.4	252.8	--
25th Percentile	93.8	112.0	97.8	--	440.0	246.0	199.0	264.5	--
50th Percentile	120.0	150.0	184.0	--	440.0	246.0	233.0	284.5	--
75th Percentile	162.5	170.0	211.0	--	440.0	246.0	253.0	299.5	--
90th Percentile	180.0	195.4	217.0	--	440.0	246.0	265.8	302.2	--

Table E-6. Phosphorus Statistics by South Platte River Reach for 1995-2018

	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Reach 8	Reach 9
Count	1319	1781	5762	5761	96	42	1398	878	401
Mean	0.18	0.84	1.18	1.08	0.61	0.55	0.63	0.42	0.29
Minimum	0.003	0.010	0.015	0.040	0.150	0.030	0.023	0.005	0.018
Maximum	3.65	8.93	69.30	29.50	1.57	1.29	27.60	8.00	6.20
Std Dev	0.27	0.98	1.32	0.66	0.30	0.29	1.10	0.45	0.40
10th Percentile	0.02	0.14	0.21	0.41	0.29	0.27	0.23	0.15	0.07
25th Percentile	0.04	0.28	0.44	0.66	0.38	0.34	0.36	0.23	0.11
50th Percentile	0.08	0.59	1.04	1.03	0.54	0.48	0.53	0.38	0.18
75th Percentile	0.22	0.96	1.75	1.44	0.79	0.69	0.77	0.51	0.38
90th Percentile	0.46	1.50	2.26	1.79	1.08	0.95	0.99	0.65	0.52

Table E-7. Nitrate Statistics by South Platte River Reach for 1995-2018

	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Reach 8	Reach 9
Count	594	1063	258	143	4	36	640	692	214
Mean	1.3	4.7	4.5	6.8	4.7	4.0	4.9	4.4	3.8
Minimum	0.003	0.020	0.130	0.930	2.570	0.660	0.040	0.225	0.550
Maximum	6.7	26.8	209.0	296.0	5.9	6.4	43.8	17.9	7.5
Std Dev	1.1	3.9	12.9	24.4	1.5	1.6	2.5	1.9	1.5
10th Percentile	0.1	0.9	1.5	2.4	3.3	1.5	2.2	2.2	1.9
25th Percentile	0.5	2.1	2.7	3.4	4.3	3.0	3.7	3.2	2.7
50th Percentile	1.2	3.8	3.6	5.1	5.1	4.4	4.9	4.4	3.9
75th Percentile	2.0	6.0	4.7	6.3	5.5	5.0	6.2	5.5	4.9
90th Percentile	2.7	9.7	5.6	6.9	5.8	5.6	7.2	6.7	5.9

Table E-8. Nitrite Statistics by South Platte River Reach for 1995-2018

	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Reach 8	Reach 9
Count	391	970	4258	3567	4	36	563	571	189
Mean	0.05	0.09	0.27	0.28	0.06	0.03	0.05	0.03	0.02
Minimum	0.001	0.005	0.005	0.005	0.020	0.015	0.001	0.001	0.003
Maximum	1.10	0.72	3.59	1.59	0.10	0.52	0.41	1.15	0.16
Std Dev	0.08	0.07	0.21	0.23	0.04	0.09	0.05	0.07	0.02
10th Percentile	0.01	0.02	0.06	0.04	0.02	0.02	0.01	0.01	0.01
25th Percentile	0.02	0.04	0.11	0.10	0.03	0.02	0.02	0.02	0.01
50th Percentile	0.03	0.07	0.21	0.23	0.07	0.02	0.04	0.02	0.02
75th Percentile	0.05	0.12	0.36	0.39	0.10	0.02	0.07	0.03	0.02
90th Percentile	0.07	0.18	0.55	0.58	0.10	0.02	0.12	0.06	0.03

Table E-9. Nitrogen (Mixed Forms) Statistics by South Platte River Reach for 1995-2018

	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Reach 8	Reach 9
Count	482	463	1037	338	1	37	536	289	101
Mean	2.0	4.4	5.7	5.1	8.0	4.9	5.7	4.3	3.4
Minimum	0.1	0.6	0.5	0.5	8.0	1.5	0.9	0.7	0.9
Maximum	18.0	13.0	27.1	11.8	8.0	8.8	13.9	8.8	30.0
Std Dev	1.9	2.3	3.5	2.3	--	1.7	2.2	1.5	2.9
10th Percentile	0.3	2.0	2.0	2.4	8.0	2.4	3.0	2.1	1.6
25th Percentile	0.8	2.7	3.5	3.6	8.0	4.1	4.3	3.0	2.3
50th Percentile	1.6	4.2	5.0	4.8	8.0	5.0	5.5	4.4	2.9
75th Percentile	2.6	5.8	6.7	6.0	8.0	5.8	7.0	5.5	3.8
90th Percentile	3.5	7.2	10.7	8.8	8.0	6.8	8.8	6.2	4.9

Table E-10. Total Kjeldahl Nitrogen Statistics by South Platte River Reach for 1995-2018

	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Reach 8	Reach 9
Count	833	1197	4723	3694	76	36	656	444	222
Mean	0.81	1.41	4.53	2.77	1.11	0.91	1.24	0.99	0.84
Minimum	0.05	0.15	0.10	0.07	0.60	0.05	0.03	0.04	0.25
Maximum	17.00	12.00	31.90	28.20	2.90	2.99	9.10	4.00	2.50
Std Dev	0.90	1.03	3.31	2.17	0.48	0.59	0.76	0.51	0.38
10th Percentile	0.29	0.50	0.90	0.90	0.70	0.25	0.60	0.49	0.50
25th Percentile	0.42	0.71	1.68	1.20	0.88	0.60	0.80	0.66	0.60
50th Percentile	0.54	1.20	4.00	2.00	1.00	0.83	1.01	0.89	0.80
75th Percentile	0.93	1.70	6.80	3.80	1.20	1.13	1.40	1.20	1.00
90th Percentile	1.50	2.50	9.10	5.80	1.65	1.50	2.06	1.60	1.30

Table E-11. Organic Nitrogen Statistics by South Platte River Reach for 1995-2018

	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Reach 8	Reach 9
Count	150	251	157	3	1	1	294	21	4
Mean	1.2	1.6	2.8	1.1	1.3	1.1	0.9	0.8	0.4
Minimum	0.1	0.2	0.3	0.8	1.3	1.1	0.1	0.3	0.3
Maximum	17.0	12.0	18.0	1.5	1.3	1.1	2.4	2.9	0.5
Std Dev	1.6	1.4	2.2	0.4	--	--	0.4	0.6	0.1
10th Percentile	0.2	0.5	1.0	0.9	1.3	1.1	0.5	0.3	0.3
25th Percentile	0.4	0.8	1.5	0.9	1.3	1.1	0.7	0.4	0.3
50th Percentile	0.8	1.1	2.2	1.1	1.3	1.1	0.9	0.6	0.3
75th Percentile	1.4	1.9	3.3	1.3	1.3	1.1	1.1	1.0	0.4
90th Percentile	2.1	3.1	4.9	1.4	1.3	1.1	1.3	1.2	0.4

Table E-12. Inorganic Nitrogen Statistics by South Platte River Reach for 1995-2018

	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Reach 8	Reach 9
Count	550	399	4564	3904	138	40	486	526	370
Mean	1.30	4.25	4.69	5.18	3.92	4.35	4.76	4.12	2.97
Minimum	0.01	0.56	0.00	0.02	0.83	0.66	0.58	0.08	0.35
Maximum	35.60	21.30	94.60	67.90	9.20	7.73	13.28	51.70	7.90
Std Dev	2.34	2.70	2.87	2.24	1.58	1.75	1.86	2.50	1.25
10th Percentile	0.05	1.40	2.02	2.80	1.90	1.56	2.47	2.23	1.40
25th Percentile	0.12	2.10	3.20	3.89	2.75	3.19	3.54	3.10	2.10
50th Percentile	0.54	3.70	4.45	5.14	3.89	4.59	4.70	4.16	2.80
75th Percentile	1.60	5.80	5.60	6.23	4.88	5.32	6.00	4.90	3.76
90th Percentile	3.22	8.02	7.02	7.28	5.91	6.36	7.20	5.70	4.61

Table E-13. pH Statistics by South Platte River Reach for 1995-2018

	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Reach 8	Reach 9
Count	669	1249	3921	3221	77	3	675	204	161
Mean	7.8	8.0	7.5	7.8	8.2	7.6	8.1	8.1	8.1
Minimum	6.1	6.4	3.4	4.0	7.1	7.2	7.0	7.1	6.3
Maximum	9.4	11.0	10.8	10.5	9.1	7.9	8.8	8.8	9.4
Std Dev	0.5	0.4	0.4	0.3	0.4	0.4	0.3	0.3	0.4
10th Percentile	7.3	7.5	7.1	7.4	7.8	7.3	7.8	7.8	7.8
25th Percentile	7.5	7.8	7.3	7.6	8.1	7.5	8.0	8.0	8.0
50th Percentile	7.8	8.0	7.5	7.8	8.3	7.8	8.1	8.2	8.2
75th Percentile	8.1	8.2	7.7	8.0	8.5	7.9	8.2	8.3	8.3
90th Percentile	8.4	8.4	7.9	8.2	8.6	7.9	8.4	8.4	8.5

Table E-14. Alkalinity Statistics by South Platte River Reach for 1995-2018

	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Reach 8	Reach 9
Count	787	861	4241	3545	76	1	642	220	194
Mean	115.7	139.6	149.8	150.9	164.9	203.0	187.8	217.6	230.4
Minimum	0.1	36.9	10.0	10.0	71.0	203.0	5.0	85.0	121.0
Maximum	564.0	1800.0	366.0	371.0	364.0	203.0	688.0	364.0	290.0
Std Dev	45.6	85.5	35.5	30.5	45.2	--	52.2	49.2	37.4
10th Percentile	74.0	85.1	98.0	107.4	106.0	203.0	111.0	130.0	164.3
25th Percentile	89.8	106.0	134.0	141.0	139.8	203.0	165.3	199.5	213.0
50th Percentile	106.0	132.0	156.0	158.0	172.0	203.0	198.0	231.0	240.0
75th Percentile	139.0	160.0	171.0	169.0	191.0	203.0	216.0	250.0	258.0
90th Percentile	174.4	180.0	185.0	179.0	206.0	203.0	228.0	260.1	267.0

Table E-15. Bromide Statistics by South Platte River Reach for 1995-2018

	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Reach 8	Reach 9
Count	0	11	55	75	1	1	0	0	0
Mean	--	0.027	0.026	0.020	0.290	0.230	--	--	--
Minimum	--	0.002	0.015	0.002	0.290	0.230	--	--	--
Maximum	--	0.155	0.164	0.114	0.290	0.230	--	--	--
Std Dev	--	0.043	0.027	0.019	--	--	--	--	--
10th Percentile	--	0.015	0.015	0.015	0.290	0.230	--	--	--
25th Percentile	--	0.015	0.015	0.015	0.290	0.230	--	--	--
50th Percentile	--	0.015	0.015	0.015	0.290	0.230	--	--	--
75th Percentile	--	0.015	0.015	0.015	0.290	0.230	--	--	--
90th Percentile	--	0.015	0.058	0.024	0.290	0.230	--	--	--

Table E-16. Manganese Statistics by South Platte River Reach for 1995-2018

	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Reach 8	Reach 9
Count	1525	1696	5209	4477	381	58	567	619	387
Mean	0.10	0.11	0.17	0.16	0.22	0.14	0.07	0.14	0.13
Minimum	0.0001	0.0001	0.0001	0.005	0.015	0.011	0.002	0.004	0.003
Maximum	1.72	3.16	1.84	2.80	4.80	0.91	0.71	1.47	3.63
Std Dev	0.12	0.16	0.11	0.12	0.45	0.12	0.09	0.12	0.30
10th Percentile	0.01	0.01	0.06	0.04	0.06	0.04	0.01	0.02	0.01
25th Percentile	0.03	0.04	0.11	0.09	0.09	0.08	0.02	0.06	0.02
50th Percentile	0.07	0.08	0.16	0.16	0.14	0.12	0.04	0.11	0.05
75th Percentile	0.12	0.13	0.20	0.22	0.21	0.16	0.09	0.17	0.13
90th Percentile	0.21	0.19	0.26	0.28	0.34	0.22	0.16	0.26	0.28

Table E-17. Iron Statistics by South Platte River Reach for 1995-2018

	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Reach 8	Reach 9
Count	408	658	71	26	0	0	95	39	5
Mean	0.41	0.76	0.93	1.11	--	--	0.95	0.70	0.23
Minimum	0.01	0.03	0.11	0.06	--	--	0.06	0.02	0.02
Maximum	6.55	13.00	3.50	5.00	--	--	14.00	6.40	0.42
Std Dev	0.54	1.27	0.84	1.15	--	--	1.64	1.29	0.17
10th Percentile	0.09	0.18	0.27	0.29	--	--	0.19	0.04	0.05
25th Percentile	0.15	0.24	0.36	0.41	--	--	0.29	0.13	0.09
50th Percentile	0.27	0.35	0.60	0.73	--	--	0.47	0.23	0.27
75th Percentile	0.46	0.73	1.25	1.43	--	--	0.99	0.72	0.34
90th Percentile	0.75	1.70	2.50	2.15	--	--	1.86	1.32	0.39

Table E-18. Total Organic Carbon Statistics by South Platte River Reach for 1995-2018

	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Reach 8	Reach 9
Count	906	1131	2490	2481	0	0	209	13	0
Mean	7.9	8.1	8.5	7.0	--	--	4.8	4.9	--
Minimum	0.3	1.0	0.5	1.0	--	--	1.7	3.2	--
Maximum	1900.0	46.9	41.3	20.0	--	--	14.1	12.0	--
Std Dev	63.8	4.7	2.9	1.7	--	--	1.2	2.4	--
10th Percentile	2.9	4.7	5.0	5.0	--	--	3.9	3.3	--
25th Percentile	3.5	5.4	7.0	6.0	--	--	4.2	3.6	--
50th Percentile	4.6	6.8	8.0	7.0	--	--	4.6	4.0	--
75th Percentile	6.2	9.4	10.0	8.0	--	--	5.1	5.7	--
90th Percentile	9.0	12.5	12.0	9.0	--	--	5.6	6.2	--

Table E-19. Turbidity Statistics by South Platte River Reach for 1995-2018

	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Reach 8	Reach 9
Count	405	798	1447	1833	74	0	261	148	150
Mean	21.99	27.08	25.19	39.03	36.11	--	30.26	33.69	34.91
Minimum	0.40	0.05	0.01	0.05	0.05	--	0.05	0.05	0.05
Maximum	2350.0	353.0	1800.0	4120.0	378.0	--	375.0	232.0	300.0
Std Dev	122.8	40.2	82.0	204.3	57.0	--	41.9	42.8	47.7
10th Percentile	2.3	4.1	3.1	4.9	5.5	--	5.3	1.9	2.1
25th Percentile	4.5	6.7	5.6	8.7	8.6	--	9.5	7.4	4.6
50th Percentile	7.8	13.0	10.3	14.7	14.4	--	16.0	18.6	11.7
75th Percentile	15.8	28.7	20.5	26.4	40.3	--	34.0	34.8	47.9
90th Percentile	29.7	63.6	42.2	58.8	86.4	--	68.2	99.0	101.3

Table E-20. Temperature Statistics by South Platte River Reach for 1995-2018

	Reach 1	Reach 2	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Reach 8	Reach 9
Count	462	845	1482	1872	75	0	150	148	151
Mean	55.8	55.9	56.7	57.2	60.9	--	59.9	59.6	57.2
Minimum	32.0	27.5	32.6	0.3	38.9	--	34.8	33.1	32.6
Maximum	81.0	330.8	339.1	82.8	80.2	--	81.7	80.8	81.3
Std Dev	11.1	14.8	11.7	11.5	12.3	--	12.3	12.6	13.3
10th Percentile	39.8	40.6	44.8	42.5	42.8	--	41.6	40.8	37.2
25th Percentile	46.9	45.1	49.5	47.8	49.6	--	51.3	51.0	47.8
50th Percentile	57.5	56.3	55.9	56.7	61.4	--	60.1	60.2	59.4
75th Percentile	65.9	66.1	64.8	67.1	71.7	--	71.1	70.7	69.2
90th Percentile	69.1	69.9	68.7	72.1	76.6	--	75.7	75.1	73.7