SOLUTION_SPREAD																											
-units µg/kgw																											
Description	Temperature	pH	Alkalinity	Ag	Al	Ba	Be	Br	Ca	Cd	Cl	Cyanide	Cr	Cu	O(0)	Fe	Hg(0)	K	Mg	Mn	Na	N(-3)	Ni	P	Pb	S(6)	Zn
											charge				mg/kgw												
DK001SW_A_20120406	10.64	7.82	100000	0.5	69	19.5	0.5	35000	290000	0.2	13000000	2	1	2.9	8.61	272	0.00332	211000	862000	70.8	7440000	382	2.3	168	1	1600000	19.6
DK001SW_C2_20120406	10.09	7.9	97000	0.5	94	14.7	0.5	46000	315000	0.2	15000000	2	1	2.8	9	243	0.00455	229000	951000	46.6	8180000	401	0.9	131	1	1900000	10
DK011SW_A_20120406	11.49	7.64	100000	0.5	36	19.9	0.5	37000	278000	0.2	14000000	3	1	2.6	7.01	345	0.0026	206000	856000	72.4	7400000	447	1.2	191	1	1600000	18.3
DK011SW_C_20120406	10.37	7.5	100000	0.5	65	15.6	0.5	36000	308000	0.2	14000000	2	1	2.6	4.84	273	0.00412	225000	915000	58.6	7910000	662	0.8	197	1	1700000	14.7
EB010SW_A_20120405	11.88	7.53	110000	0.5	10	27.5	0.5	31000	273000	0.2	12000000	4.6	1	3.7	6.49	270	0.0039	192000	802000	87.8	6920000	440	2.8	194	1	1600000	20.7
EK006SW_A_20120405	13.3	8.03	110000	0.5	25	27.4	0.5	70000	268000	0.2	12000000	3	1	3.4	10.96	410	0.00403	191000	783000	111.2	6850000	370	3.6	153	1	1600000	17.2
EK006SW_C_20120405	10.54	7.44	100000	0.5	38	21.2	0.5	34000	291000	0.2	13000000	2	1	3.3	4.42	617	0.00388	209000	861000	84.7	7470000	708	3.6	190	1	1600000	10
EK014SW_A_20120404	12.21	7.76	110000	0.25	25	28.2	0.5	35000	258000	0.2	12000000	3	1	4.1	8.37	356	0.00552	238000	733000	135.8	6330000	349	3.1	176	1	1400000	42.5
EK014SW_C_20120404	10.67	7.37	110000	0.25	10	28.6	0.5	36000	272000	0.2	13000000	2	1	3.1	3.69	584	0.00356	255000	772000	104	6640000	739	2.5	219	1	1600000	15.1
EK022SW_A_20120404	11.46	7.65	110000	0.25	10	26.6	0.5	30000	256000	0.2	12000000	3	1	4.6	7.2	412	0.00581	237000	719000	128.7	6210000	482	3	293	1	1500000	15.7
MC008SW_A_20120406	11.08	7.71	110000	0.5	22	26.3	0.5	34000	274000	0.2	13000000	2	1	5	8.49	313	0.00295	195000	805000	85.5	6960000	307	3.1	177	1	1600000	26.8
NC007SW_A_20120403	9.63	7.76	99000	0.25	114	16.8	0.5	33000	276000	0.2	14000000	3	1	3.7	8.5	312	0.00701	265000	818000	54.4	7030000	437	1.5	142	1	1700000	10
NC007SW_C_20120403	9.45	7.81	98000	0.25	174	14.7	0.5	43000	278000	0.2	14000000	4	1.6	2.7	8.65	380	0.00791	268000	827000	46	7120000	424	0.5	131	1	1800000	10
NC020SW_A_20120408	10.26	7.92	96000	0.5	190	14.1	0.5	33000	315000	0.2	14000000	4	1	2.7	9.18	404	0.00625	233000	951000	40.5	8310000	352	0.8	112	1.7	1700000	15
NC020SW_C_20120408	9.96	7.97	96000	0.5	147	14.2	0.5	44000	305000	0.2	14000000	3	1	2.7	9.25	303	0.00605	228000	933000	46.3	8110000	352	1.5	123	1	1900000	13.1
NC034SW_A_20120403	10.71	7.86	100000	0.25	30	23.4	0.5	39000	256000	0.2	13000000	2	1	4.6	8.95	280	0.00489	242000	746000	89.7	6400000	392	2.5	150	1	1700000	12.5
NC034SW_C_20120403	9.64	7.81	97000	0.25	150	14.6	0.5	44000	284000	0.2	14000000	3	1	3.7	8.36	336	0.00835	273000	845000	51	7240000	480	0.5	147	1	1700000	10
NC046SW_A_20120408	10.36	7.84	100000	0.5	85	21.9	0.5	39000	300000	0.2	14000000	2	1	3.6	8.58	452	0.00451	216000	902000	85.6	7770000	276	2.5	128	1	1600000	15.6
NC046SW_C_20120408	10.36	7.84	98000	0.5	165	14.7	0.5	37000	308000	0.2	14000000	0.5	1	3.1	8.4	373	0.00743	227000	923000	59.1	8060000	349	1.6	135	1	1800000	10
NC068SW_A_20120402	11.2	7.84	100000	0.25	60	22.2	0.5	37000	265000	0.2	13000000	2	1	5	8.11	353	0.00712	250000	781000	82.5	6650000	493	2.6	166	1.8	1600000	15.8
NC068SW_C_20120402	10.11	7.65	100000	0.25	123	17.7	0.5	49000	272000	0.2	14000000	2	1.8	11.5	6.74	691	0.0178	260000	810000	72.6	6930000	618	3.3	229	3.5	1700000	19.5
NC070SW_A_20120405	12.08	7.91	110000	0.5	630	26.4	0.5	37000	259000	0.2	13000000	3	1.7	3.3	9.61	444	0.00311	188000	765000	89.8	6680000	377	3.6	174	1	1600000	19.2
NC070SW_C_20120405	10.57	7.66	100000	0.5	110	19.1	0.5	39000	288000	0.2	13000000	4	1	14.5	7	478	0.00529	208000	861000	72.1	7510000	540	4.2	170	3	1700000	29.3
NC079SW_A_20120402	10.19	7.8	110000	0.25	59	26.5	0.5	31000	259000	0.2	12000000	4	1	6.2	8.31	384	0.0104	235000	746000	88.3	6370000	441	3	171	2.6	1600000	17.9
NC079SW_C_20120402	10.25	7.46	100000	0.25	35	20.1	0.5	38000	271000	0.2	14000000	3	1	4.8	4.3	653	0.00632	257000	803000	82.7	6880000	634	2.5	191	1.8	1700000	13.2
WC001SW_A_20120403	10.56	7.81	100000	0.25	55	21.5	0.5	35000	268000	0.2	13000000	2	1	3.4	8.72	286	0.00452	257000	792000	78	6810000	300	2.1	235	1	1600000	12.5
WC001SW_C_20120403	9.84	7.8	99000	0.25	847	19.3	0.5	38000	289000	0.2	14000000	0.5	4.1	9	8.22	1770	0.0341	276000	848000	78.9	7280000	300	3	235	5.1	1700000	20.7
DK001SW_A_20120809	26.99	8.2	99000	0.5	78	22.1	0.5	48000	270000	0.5	16000000	0.5	1	4.2	14.72	286	0.00824	293000	838000	95.6	7000000	79	1.8	262	2.7	2400000	10
DK001SW_C_20120809	25.74	7.27	96000	0.5	380	16.6	0.5	50000	283000	0.5	15000000	0.5	1	5.7	4.62	579	0.0248	302000	863000	82.3	7180000	381	1.2	258	3.9	2200000	16.8
DK011SW_A_20120809	26.98	7.75	100000	0.5	10	25.3	0.5	43000	274000	0.5	14000000	0.5	1	2.6	9.32	282	0.00197	282000	829000	115.9	6990000	75	1.3	276	1	1900000	10
DK011SW_C_20120809	23.84	6.66	310000	0.5	10	34.9	0.5	43000	306000	0.5	15000000	6	1	1.4	0.26	293	0.00413	306000	884000	144.7	7540000	4220	8	1150	1	1900000	10
EB010SW_A_20120808	26.07	6.98	110000	0.5	10	23.6	0.5	37000	275000	0.5	14000000	0.5	1	2.4	1.08	278	0.00221	289000	841000	113.7	7200000	386	1.8	316	1	2000000	10
EK006SW_A_20120808	25.54	7.31	110000	0.5	10	22.7	0.5	35000	272000	0.5	14000000	2	1	4	4.49	305	0.0059	280000	807000	113	6850000	371	1.9	344	1	2000000	10
EK006SW_C_20120808	25.11	6.96	110000	0.5	29	21	0.5	38000	266000	0.5	14000000	52	1	3.8	3.5	348	0.0113	278000	813000	108.8	6840000	815	1.7	448	2.3	2100000	10
EK014SW_A_20120807	26.65	8.66	100000	0.5	10	23.8	0.5	38000	253000	0.5	14000000	0.5	1	3.6	18.5	206	0.00369	252000	772000	102.6	6450000	75	1.8	301	1	2000000	10
EK014SW_C_20120807	25.07	6.99	110000	0.5	20	21.4	0.5	41000	275000	0.5	15000000	0.5	1	3.3	0.49	286	0.00425	272000	834000	122	7040000	642	1.5	477	1	2000000	10
EK022SW_A_20120807	26.03	8.13	100000	0.5	10	25.8	0.5	35000	269000	0.5	13000000	0.5	1	2.9	12.72	224	0.00325	267000	799000	129.3	6660000	75	1.4	324	1	2000000	10
MC008SW_A_20120806	27.5	8.42	100000	0.5	69	26.9	0.5	34000	271000	0.5	13000000	0.5	1	5.1	18.29	456	0.00438	259000	783000	107.1	6630000	75	2.3	318	2	1800000	10
NC007SW_A_20120805	25.27	7.28	94000	0.5	122	16.3	0.5	40000	284000	0.5	1900000	[illegible]	[illegible]	[illegible]	4.07	414	0.0194	262000	891000	71.3	7620000	465	1.3	204	1	2500000	10

570218

SOLUTION_SPREAD																											
-units µg/kgw																											
Description	Temperature	pH	Alkalinity	Ag	Al	Ba	Be	Br	Ca	Cd	Cl	Cyanide	Cr	Cu	O(0)	Fe	Hg(0)	K	Mg	Mn	Na	N(-3)	Ni	P	Pb	S(6)	Zn
											charge				mg/kgw												
NC007SW_C_20120805	25.28	7.29	96000	0.5	243	18	0.5	48000	265000	0.5	17000000	0.5	1	4.6	4.05	752	0.278	234000	870000	89.6	7430000	399	1.5	216	3.3	2600000	10
NC020SW_A_20120805	25.44	7.32	94000	0.5	78	16.6	0.5	44000	264000	0.5	16000000	0.5	1	3.4	4.23	285	0.00702	234000	857000	66.6	7380000	408	1.1	178	1	2300000	10
NC020SW_C_20120805	25.18	7.27	94000	0.5	184	16.6	0.5	42000	271000	0.5	15000000	0.5	1	4.6	3.85	467	0.0151	238000	884000	90.4	7570000	381	1.3	214	2.3	2200000	10
NC034SW_A_20120807	25.69	7.71	97000	0.5	43	21.6	0.5	40000	294000	0.5	15000000	0.5	1	3.1	8.76	261	0.00406	292000	825000	104.3	6960000	167	1.7	248	1	2100000	10
NC034SW_C_20120807	25.4	7.08	95000	0.5	296	17.1	0.5	52000	288000	0.5	19000000	0.5	1	5.5	3.18	694	0.0244	292000	907000	101.4	7670000	448	1.3	259	3.9	2600000	10
NC046SW_A_20120805	27.3	8.56	100000	0.5	33	22	0.5	40000	245000	0.5	15000000	2	1	2.9	20.29	279	0.00429	225000	807000	106.1	6920000	75	1.5	276	1	2200000	10
NC046SW_C_20120805	25.54	7.23	96000	0.5	97	16.1	0.5	49000	300000	0.5	18000000	2	1	3.8	3.47	401	0.0119	286000	917000	96.8	7890000	475	1.3	245	2.4	2500000	10
NC068SW_A_20120815	25.71	7.5	100000	0.5	27	22.8	0.5	47000	255000	0.5	16000000	0.5	5.6	2.2	5.37	201	0.00345	244000	843000	107	7100000	325	1.1	290	1	2400000	10
NC068SW_C_20120815	25.12	7.12	100000	0.5	68	15.3	0.5	45000	250000	0.5	16000000	0.5	5.5	3.3	1.05	261	0.00509	240000	826000	93.7	6850000	505	1	285	1	2400000	10
NC070SW_A_20120815	25.58	7.65	100000	0.5	43	22.7	0.5	38000	237000	0.5	15000000	2	6.5	4.7	7.04	223	0.00315	225000	843000	106.6	7390000	238	1.8	247	1	2100000	10
NC070SW_C_20120815	25.08	7.19	100000	0.5	88	18	0.5	39000	274000	0.5	17000000	0.5	6.3	4	1.35	332	0.00667	263000	903000	105.7	7650000	500	1.5	282	2	2300000	10
NC079SW_A_20120808	25.77	7.36	100000	0.5	10	22.4	0.5	43000	260000	0.5	13000000	2	1	4.4	5.65	273	0.00325	269000	756000	108	6350000	221	2.1	375	1	1900000	10
NC079SW_C_20120808	25.22	6.94	100000	0.5	31	20.3	0.5	39000	281000	0.5	14000000	7	1	3.9	0.41	324	0.00508	289000	855000	109.6	7210000	750	1.4	424	1	1900000	10
WC001SW_A_20120809	27.42	8.31	98000	0.5	31	21.4	0.5	41000	267000	0.5	13000000	0.5	1	3.2	16.29	196	0.00348	280000	798000	85.9	6800000	75	1.5	228	1	1900000	10
WC001SW_C_20120809	25.48	7.21	98000	0.5	210	17.2	0.5	51000	290000	0.5	14000000	0.5	1	5.8	3.9	699	0.0233	303000	888000	91.5	7590000	484	1.2	252	3.5	2200000	10
DK001SW_A_20121202	8.1	7.73	110000	2.5	50	28.7	2.5	39000	256000	2.5	15000000	2	5	5	8.69	250	0.00135	213000	778000	51.5	6840000	249	2.5	207	5	2000000	50
DK001SW_C_20121202	8.67	7.63	99000	2.5	50	17	2.5	40000	265000	2.5	16000000	2	5	5	7.63	250	0.00419	227000	831000	18.2	7350000	479	7	214	5	2200000	50
DK011SW_A_20121207	7.72	7.62	110000	2.5	50	17.6	2.5	37000	277000	2.5	15000000	2	5	5	7.73	250	0.00105	224000	799000	76.7	6980000	363	2.5	165	5	2000000	50
DK011SW_C_20121207	9.09	7.34	110000	2.5	50	15.5	2.5	39000	252000	2.5	15000000	2	5	5	4.42	250	0.00135	208000	743000	33.9	6530000	617	2.5	209	5	2100000	50
EB010SW_A_20121204	9.27	7.16	110000	2.5	50	26.9	2.5	37000	247000	2.5	15000000	2	5	5	4.04	250	0.00144	205000	745000	46.5	6550000	487	2.5	188	5	2000000	50
EK006SW_A_20121206	8.29	7.62	110000	2.5	50	21	2.5	37000	283000	2.5	14000000	2	5	5	7.47	656	0.00177	230000	820000	39.3	7160000	370	2.5	155	5	1900000	50
EK006SW_C_20121206	8.83	7.5	110000	2.5	50	16.9	2.5	37000	286000	2.5	14000000	2	5	5	5.84	250	0.00217	237000	839000	52.7	7290000	504	2.5	165	5	2000000	50
EK014SW_A_20121205	9.36	7.33	110000	2.5	50	17.1	2.5	38000	266000	2.5	15000000	2	5	7.5	6.01	250	0.00202	227000	802000	60.6	7110000	565	2.5	186	5	2000000	50
EK014SW_C_20121205	9.03	7.38	110000	2.5	50	10.3	2.5	38000	248000	2.5	15000000	2	5	7.5	6.14	250	0.00178	210000	746000	25.5	6600000	580	2.5	164	5	2100000	50
EK022SW_A_20121205	10.62	7.04	140000	2.5	50	23.9	2.5	27000	225000	2.5	10000000	3	5	7.5	3.34	250	0.00473	172000	594000	217.8	5230000	846	2.5	234	5	1400000	50
MC008SW_A_20121203	8.99	7.66	120000	2.5	50	21.2	2.5	35000	251000	2.5	14000000	2	5	5	8.29	250	0.00243	204000	750000	57.7	6650000	306	2.5	170	5	2000000	50
NC007SW_A_20121206	8.69	7.67	98000	2.5	103	19.6	2.5	38000	281000	2.5	15000000	1	5	5	6.39	250	0.00759	235000	841000	30.8	7340000	497	2.5	185	5	2100000	50
NC007SW_C_20121206	8.94	7.64	100000	2.5	127	8.7	2.5	39000	291000	2.5	16000000	0.5	5	5	5.79	250	0.0104	246000	863000	34.8	7580000	500	2.5	220	5	2200000	50
NC020SW_A_20121203	9.15	8.13	110000	2.5	50	29.5	2.5	37000	249000	2.5	15000000	2	5	5	11.15	250	0.00114	210000	757000	46.1	6680000	153	2.5	164	5	2100000	50
NC020SW_C_20121203	8.88	7.64	100000	2.5	50	13.5	2.5	40000	263000	2.5	16000000	2	5	5	4.56	250	0.0043	225000	809000	23.9	7170000	449	6.5	212	5	2300000	50
NC034SW_A_20121202	8.06	7.79	110000	2.5	50	20.5	2.5	36000	242000	2.5	14000000	3	5	5	9.38	250	0.0013	200000	721000	66	6380000	215	7	191	5	2000000	50
NC034SW_C_20121202	8.64	7.65	100000	2.5	50	19	2.5	40000	274000	2.5	16000000	5	5	5	7.83	250	0.00543	234000	865000	18	7630000	433	2.5	196	5	2200000	50
NC046SW_A_20121202	8.28	8.16	120000	2.5	50	30.1	2.5	36000	254000	2.5	14000000	3	5	5	13.07	250	0.00133	207000	741000	65.6	6570000	135	8.6	191	5	2100000	50
NC046SW_C_20121202	8.69	7.67	100000	2.5	132	14.5	2.5	41000	261000	2.5	16000000	11	5	7.4	8	250	0.00452	223000	827000	25.5	7320000	428	11.1	193	5	2100000	50
NC058SW_A_20121204	9.8	7.96	110000	2.5	50	19.8	2.5	36000	256000	2.5	14000000	2	5	5	8.09	250	0.00138	210000	760000	60.6	6770000	184	10.6	155	5	2100000	50
NC058SW_C_20121204	8.93	7.66	100000	2.5	50	10.9	2.5	40000	245000	2.5	16000000	2	5	5	4.62	250	0.00214	210000	767000	27.9	6810000	351	9.5	181	5	2300000	50
NC068SW_A_20121203	8.36	7.7	120000	2.5	50	34	2.5	36000	231000	2.5	14000000	2	5	7.1	9.04	250	0.0013	191000	698000	61.4	6140000	224	2.5	149	5	2000000	50
NC068SW_C_20121203	8.71	7.56	100000	2.5	50	10.8	2.5	39000	259000	2.5	16000000	2	5	5	7.19	250	0.00207	216000	780000	18.9	6910000	408	2.5	190	5	2200000	50
NC070SW_A_20121205	9.34	7.87	110000	2.5	50	17.3	2.5	38000	258000	2.5	15000000	4.5	5	7.5	7.04	250	0.00138	225000	784000	38	6920000	282	2.5	158	5	2100000	50

SOLUTION_SPREAD																											
-units µg/kgw																											
Description	Temperature	pH	Alkalinity	Ag	Al	Ba	Be	Br	Ca	Cd	Cl	Cyanide	Cr	Cu	O(0)	Fe	Hg(0)	K	Mg	Mn	Na	N(-3)	Ni	P	Pb	S(6)	Zn
											charge				mg/kgw												
NC070SW_C_20121205	8.95	7.59	100000	2.5	50	7	2.5	39000	255000	2.5	15000000	2	5	7.5	4.51	250	0.00485	215000	776000	23.3	6880000	501	2.5	178	5	2200000	50
NC079SW_A_20121204	8.99	7.64	110000	2.5	50	21.5	2.5	36000	252000	2.5	14000000	2	5	5	7.82	250	0.00164	207000	748000	58	6590000	204	11.6	165	5	2000000	50
NC079SW_C_20121204	8.78	7.49	100000	2.5	50	15.5	2.5	39000	240000	2.5	15000000	2	5	5	6.03	250	0.00151	200000	734000	16.8	6540000	443	2.5	186	5	2200000	50
WC001SW_A_20121206	8.38	7.77	100000	2.5	50	17.2	2.5	38000	285000	2.5	15000000	2	5	7.2	6.68	250	0.00187	240000	856000	39.7	7490000	370	2.5	164	5	2100000	50
WC001SW_C_20121206	8.92	7.65	100000	2.5	50	14.9	2.5	41000	296000	2.5	15000000	2	5	5	4.92	250	0.00582	253000	888000	18.5	7730000	483	2.5	186	5	2100000	50
DK001SW_A_20120212	4.83	7.96	99000	0.5	62	16.2	0.5	49000	268000	0.5	13000000	4	0.5	2.3	13.3	203	0.00245	460000	1040000	38.7	6810000	472	0.5	125	0.5	1600000	13.2
DK001SW_C_20120212	4.9	7.76	97000	0.5	53	13.7	0.5	36000	264000	0.5	14000000	0.5	0.5	2.1	11.52	155	0.0044	460000	1040000	23.8	6840000	450	0.5	129	0.5	1600000	5
DK011SW_A_20120207	6.07	7.39	100000	0.05	46	20.4	0.05	34000	247000	0.1	12000000	4	0.06	0.2	7.5	277	0.00178	267000	1010000	48.8	6480000	541	0.13	140	0.5	1400000	13.6
DK011SW_C_20120207	5.83	7.45	97000	0.05	48	17.8	0.05	36000	259000	0.1	12000000	2	2.5	0.2	6.8	255	0.00152	280000	1060000	39.1	6780000	546	2.3	158	0.5	1500000	12.6
EB010SW_A_20120210	5.94	7.51	100000	0.5	21	19.5	0.5	34000	251000	0.5	12000000	5	0.5	2.4	6.91	228	0.00167	425000	959000	50.9	6310000	676	1.5	166	0.5	1400000	21.4
EK006SW_A_20120212	4.6	7.71	110000	0.5	70	22	0.5	33000	253000	0.5	12000000	0.5	0.5	2.2	9.85	236	0.00331	427000	957000	59.4	6320000	544	1.4	128	0.5	1400000	19.7
EK006SW_C_20120212	5.52	7.65	100000	0.5	24	16.6	0.5	36000	253000	0.5	13000000	0.5	0.5	2.6	8.63	222	0.00283	368000	980000	45.6	6460000	538	1.3	158	0.5	1500000	19.8
EK014SW_A_20120208	4.95	7.54	110000	0.05	28	26.5	0.05	29000	231000	0.1	10000000	5	0.08	3	9.23	277	0.00422	242000	927000	66.9	5960000	527	2.6	147	1.5	1200000	22.4
EK014SW_C_20120208	5.61	7.51	110000	0.05	104	24.6	0.05	33000	237000	0.2	10000000	0.5	0.1	4.1	8.13	347	0.006	247000	957000	67.7	6130000	558	2.8	151	1.9	1200000	24.3
EK022SW_A_20120208	4.94	7.55	130000	0.05	27	36.1	0.05	42000	225000	0.2	9800000	2	0.08	2.8	8.51	403	0.00451	220000	844000	248.9	5440000	75	2.7	226	1.5	1200000	27.9
EK022SW_C_20120208	5.45	7.48	110000	0.05	52	25.5	0.05	26000	233000	0.2	11000000	4.6	0.1	3	7.99	353	0.0115	235000	949000	74.6	6080000	676	2.7	208	2.5	1400000	23
MC008SW_A_20120209	4.58	7.54	110000	0.5	27	29	0.5	30000	243000	0.5	10000000	4.6	0.5	3.2	8.55	252	0.00229	252000	957000	60.7	6190000	572	3.4	110	0.5	1300000	28.3
NC007SW_A_20120208	5.5	7.71	100000	0.05	57	21	0.05	35000	236000	0.1	12000000	4.8	0.08	2.5	9.98	254	0.00256	235000	960000	54.6	6170000	467	2.2	183	0.7	1400000	16.6
NC007SW_C_20120208	5.44	7.88	96000	0.05	578	16.6	0.05	37000	281000	0.1	13000000	2	0.2	4	4.6	975	0.023	286000	1140000	51.7	7340000	369	0.17	178	3.2	1600000	14.1
NC020SW_A_20120212	4.84	7.95	95000	0.5	82	13.4	0.5	43000	267000	0.5	13000000	3	0.5	2.4	11.52	219	0.00588	467000	1060000	25.2	6920000	436	1.6	129	0.5	1700000	5
NC020SW_C_20120212	4.91	7.95	96000	0.5	113	14.9	0.5	42000	280000	0.5	13000000	0.5	4.4	2.1	11.53	277	0.00498	414000	1100000	27.3	7190000	430	3.4	137	0.5	1600000	5
NC034SW_A_20120207	4.88	7.58	100000	0.05	33	23.2	0.05	35000	233000	0.1	11000000	3	0.06	2.3	11.21	195	0.00186	245000	916000	64.5	5940000	482	0.2	109	0.5	1400000	19.4
NC034SW_C_20120207	5.52	7.78	95000	0.05	88	14.6	0.05	38000	266000	0.05	12000000	0.5	0.06	0.18	11.11	193	0.00317	255000	1070000	22.4	6880000	481	0.08	146	0.5	1500000	12.3
NC046SW_A_20120207	5.32	7.64	110000	0.05	31	27.9	0.05	30000	250000	0.1	10000000	3	0.06	2.5	9.88	223	0.00178	248000	994000	82.3	6400000	474	2.8	154	0.6	1300000	18.9
NC046SW_C_20120207	5.64	7.83	96000	0.05	72	16.1	0.05	37000	276000	0.1	12000000	0.5	0.06	0.19	10.82	179	0.00223	292000	1110000	27.8	7100000	430	0.1	109	0.5	1500000	11
NC068SW_A_20120209	5.51	7.64	100000	1.6	70	20.3	0.5	31000	221000	0.5	11000000	4	0.5	1.4	9.59	50	0.00217	386000	930000	55.5	6180000	554	0.5	136	0.5	1300000	21.4
NC068SW_C_20120209	5.5	7.77	100000	0.5	101	18.2	0.5	35000	246000	0.5	12000000	5	2	21.3	9.83	322	0.023	424000	933000	40.3	6240000	516	4.3	159	4.3	1500000	34.4
NC070SW_A_20120206	4.5	6.88	110000	0.05	23	30.6	0.05	30000	233000	0.1	10000000	2	0.6	2.5	9.14	219	0.00141	230000	913000	74.9	5860000	545	2.9	128	0.6	1200000	23.2
NC070SW_C_20120206	5.55	7.62	96000	0.05	46	16.9	0.05	34000	256000	0.1	12000000	9	0.5	2.2	10.2	173	0.00182	264000	1040000	33.9	6710000	455	1.4	138	0.7	1400000	14.2
NC079SW_A_20120210	5.93	7.57	100000	0.5	27	19.4	0.5	30000	245000	0.5	12000000	0.5	0.5	2.8	8.49	244	0.00298	416000	942000	56.7	6220000	558	2.5	157	0.5	1400000	21.6
NC079SW_C_20120210	5.53	7.71	100000	0.5	44	16.4	0.5	36000	247000	0.5	12000000	3	0.5	2.6	9.48	212	0.00271	425000	967000	42.3	6350000	527	1.8	148	0.5	1600000	17.2
WC001SW_A_20120210	5.39	7.87	100000	0.5	42	17.5	0.5	33000	258000	0.5	12000000	6	0.5	2.2	10.53	200	0.00265	439000	994000	46.8	6520000	455	0.9	121	0.5	1500000	13.6
WC001SW_C_20120210	5.21	7.94	95000	0.5	89	13.6	0.5	39000	264000	0.5	14000000	2	0.5	2.4	11.05	228	0.00361	456000	1030000	27.1	6820000	463	0.5	141	0.5	1700000	13
DK001SW_A_20120711	24.24	7.4	100000	0.5	28	21.7	0.5	43000	281000	0.5	14000000	2	1	1	6.42	234	0.00292	249000	878000	92	7430000	197	0.5	245	1	2000000	10
DK001SW_C_20120711	23.81	7.23	96000	0.5	70	16.3	0.5	38000	300000	0.5	14000000	0.5	1	1	4.46	311	0.00694	264000	937000	74.4	7880000	415	0.5	237	1	2000000	10
DK011SW_A_20120711	25.87	8.31	110000	0.5	10	29.1	0.5	37000	285000	0.5	12000000	3	1	1	15.32	208	0.00183	246000	868000	108.2	7320000	90	0.5	154	1	1800000	10
DK011SW_C_20120711	22.13	6.73	220000	0.5	10	31.8	0.5	28000	287000	0.5	12000000	2	1	1	0.25	261	0.00482	254000	901000	123.1	7540000	2830	0.5	734	1	1600000	10
EB010SW_A_20120710	23.78	6.95	110000	0.5	10	28.8	0.5	41000	273000	0.5	15000000	2	1	3	0.25	268	0.00315	282000	806000	99.6	6810000	314	1.3	318	1	2200000	10
EK006SW_A_20120712	25.26	8.25	110000	0.5	10	26.4	0.5	47000	292000	0.5	13000000	4	1	1	16.71	400	0.00222	257000	886000	127.3	7500000	75	0.5	350	1	1800000	10

SOLUTION_SPREAD																											
-units µg/kgw																											
Description	Temperature	pH	Alkalinity	Ag	Al	Ba	Be	Br	Ca	Cd	Cl	Cyanide	Cr	Cu	O(0)	Fe	Hg(0)	K	Mg	Mn	Na	N(-3)	Ni	P	Pb	S(6)	Zn
											charge				mg/kgw												
EK006SW_C_20120712	23.45	7.01	100000	0.5	10	21.1	0.5	41000	292000	0.5	13000000	0.5	1	1	0.79	392	0.00216	263000	907000	93.8	7600000	650	0.5	398	1	1900000	10
EK014SW_A_20120710	22.93	7.13	110000	0.5	23	21.5	0.5	44000	275000	0.5	14000000	2	1	2.3	2.46	518	0.00213	265000	821000	114.7	7050000	489	2.1	453	1	2200000	10
EK014SW_C_20120710	22.84	6.95	110000	0.5	10	20.5	0.5	39000	280000	0.5	12000000	3	1	2.5	0.21	714	0.00287	283000	843000	113.9	7260000	990	2.3	579	1	2000000	10
EK022SW_A_20120712	23.6	7.08	110000	0.5	10	25	0.5	32000	277000	0.5	12000000	0.5	1	1	0.83	498	0.00222	247000	851000	127.9	7150000	905	0.5	584	1	1800000	10
MC008SW_A_20120710	25.98	7.14	140000	0.5	30	38.1	0.5	52000	272000	0.5	13000000	2	1	2	1.13	294	0.00464	270000	791000	98.2	6720000	670	1.5	482	1	2100000	10
NC007SW_A_20120708	23.88	7.45	98000	0.5	54	19.3	0.5	43000	279000	0.5	13000000	0.5	1	3.2	6.37	225	0.00851	247000	850000	86.9	7310000	221	1.3	192	1	2000000	10
NC007SW_C_20120708	23.18	7.3	94000	0.5	523	15.8	0.5	42000	303000	0.5	13000000	0.5	2.8	7.5	4.87	1200	0.0312	274000	890000	104.6	7490000	331	2.1	220	5.8	1900000	10
NC020SW_A_20120708	23.97	7.51	94000	0.5	79	18.3	0.5	32000	263000	0.5	12000000	0.5	1	4.3	6.63	251	0.00757	231000	785000	76.8	6660000	191	1.7	237	1	1700000	10
NC020SW_C_20120708	23.08	7.29	94000	0.5	280	15.4	0.5	40000	287000	0.5	17000000	0.5	1	3.7	4.74	622	0.0106	259000	854000	76.6	7230000	361	1	201	2.5	2500000	10
NC034SW_A_20120709	25.01	7.72	96000	0.5	99	18.9	0.5	42000	276000	0.5	14000000	0.5	1	3.5	8.18	248	0.00633	243000	807000	75.7	6740000	178	1.8	177	1	2100000	10
NC034SW_C_20120709	23.35	7.28	93000	0.5	188	14.4	0.5	44000	272000	0.5	13000000	0.5	1	4.8	4.61	486	0.0177	249000	837000	70.1	7030000	330	1.4	227	1	2100000	10
NC046SW_A_20120709	24.05	7.42	98000	0.5	55	21.1	0.5	42000	270000	0.5	14000000	0.5	1	3.8	5.51	240	0.00506	240000	805000	93.5	6760000	266	1.8	217	1	2000000	34.9
NC046SW_C_20120709	23.52	7.2	96000	0.5	290	16.6	0.5	40000	276000	0.5	13000000	2	2.7	6	3.69	726	0.0203	250000	830000	86.4	7040000	331	1.4	244	3	1900000	10
NC068SW_A_20120711	25.46	8.15	110000	0.5	10	24.7	0.5	36000	276000	0.5	13000000	2	1	1	14.97	293	0.00253	244000	852000	100.1	7180000	75	0.5	255	1	1700000	10
NC068SW_C_20120711	23.54	7.06	100000	0.5	33	21.1	0.5	41000	301000	0.5	13000000	3	1	1	2.13	396	0.00366	264000	919000	93.3	7720000	548	0.5	288	1	1800000	10
NC070SW_A_20120708	26.57	8.52	110000	0.5	40	27.3	0.5	45000	282000	0.5	14000000	0.5	1	3.2	20.14	242	0.00431	248000	819000	88.3	6880000	37	2.1	379	1	2000000	10
NC070SW_C_20120708	23.1	7.11	99000	0.5	66	16.6	0.5	38000	280000	0.5	13000000	0.5	1	3.5	2.67	365	0.0054	245000	828000	89.7	7090000	386	2.2	302	1	1900000	35.4
NC079SW_A_20120712	23.94	7.71	110000	0.5	10	24.3	0.5	30000	288000	0.5	12000000	3	1	1	8.86	392	0.00181	254000	875000	119.5	7330000	99	0.5	377	1	1700000	10
NC079SW_C_20120712	23.53	7.02	100000	0.5	10	20	0.5	42000	292000	0.5	13000000	0.5	1	1	0.92	373	0.00194	256000	919000	90.4	7700000	611	0.5	355	1	1900000	10
WC001SW_A_20120709	24.32	8.02	96000	0.5	38	24.9	0.5	40000	254000	0.5	13000000	0.5	1	3.8	10.54	200	0.00347	217000	772000	86	6580000	64	2.3	220	1	1800000	13.6
WC001SW_C_20120709	23.42	7.16	95000	0.5	80	14.6	0.5	54000	278000	0.5	14000000	0.5	1	2.7	3.68	272	0.00449	237000	745000	72	6290000	335	1.5	219	1	1800000	10
DK001SW_A_20120604	19.94	8.16	94000	0.5	46	20.9	0.5	28000	183000	0.5	9600000	0.5	1	3.9	12.02	243	0.00548	204000	610000	77.4	5420000	208	1.7	232	1	1200000	10
DK001SW_C_20120604	19.17	7.29	400000	0.5	60	15.3	0.5	36000	231000	0.5	12000000	0.5	1	1.9	3.45	241	0.00358	254000	789000	61.5	6940000	338	0.5	198	1	1600000	10
DK011SW_A_20120606	21.23	8.55	110000	0.5	10	28	0.5	38000	262000	0.5	13000000	2	1	2.1	22.22	253	0.00223	245000	785000	94	6680000	75	1	250	1	1700000	10
DK011SW_C_20120606	18.67	6.8	100000	0.5	50	15.6	0.5	47000	243000	0.5	13000000	2	1	1.4	1.66	170	0.00454	229000	818000	68.1	7120000	1020	0.5	432	1	1700000	10
EB010SW_A_20120606	19.84	6.76	110000	0.5	20	20	0.5	39000	231000	0.5	12000000	2	1	1.5	3.6	294	0.00324	219000	699000	74.5	6020000	657	1.7	368	1	1500000	10
EK006SW_A_20120608	19.83	8.02	100000	0.5	10	23	0.5	38000	258000	0.5	12000000	3	1	2.1	14.26	293	0.00169	235000	802000	78.6	6900000	202	1.3	442	1	1400000	10
EK006SW_C_20120608	18.98	6.96	100000	0.5	26	17.4	0.5	45000	238000	0.5	13000000	2	1	2.8	1.76	396	0.00209	214000	792000	77.6	6840000	380	1.2	207	1	1800000	10
EK014SW_A_20120605	18.95	7.44	100000	0.5	10	21.6	0.5	37000	246000	0.5	12000000	18	1	2	7.96	502	0.00363	224000	748000	84.2	6440000	285	1.4	372	1	1600000	10
EK014SW_C_20120605	18.89	7.42	100000	0.5	21	22.4	0.5	34000	234000	0.5	12000000	2	1	2	7.55	496	0.00305	211000	760000	81.2	6600000	411	1.6	288	1	1500000	10
EK022SW_A_20120605	18.83	7.04	110000	0.5	23	33.1	0.5	28000	202000	0.5	11000000	2	1	2.2	2.05	489	0.00489	174000	646000	131	5660000	464	1.5	341	1	1500000	10
MC008SW_A_20120607	19.58	7.51	100000	0.5	10	20.7	0.5	36000	242000	0.5	13000000	2	1	2.5	8.17	254	0.00342	222000	743000	76.2	6390000	155	1.2	218	1	1600000	10
NC007SW_A_20120604	19.22	7.35	91000	0.5	209	14.6	0.5	34000	221000	0.5	11000000	2	1	2.5	6.19	467	0.0109	226000	812000	49.1	7010000	340	1	131	1	1600000	10
NC007SW_C_20120604	19.06	7.42	93000	0.5	228	14.4	0.5	31000	260000	0.5	12000000	0.5	1	2.9	6	497	0.0116	337000	860000	63.2	7740000	340	1.4	159	1	1600000	10
NC020SW_A_20120604	20.4	7.57	92000	0.5	33	21.3	0.5	26000	168000	0.5	9200000	4.9	1	4.9	8.14	167	0.00295	194000	546000	74.4	4900000	1840	2.2	448	1	1200000	10
NC020SW_C_20120604	18.93	7.44	93000	0.5	133	14.2	0.5	38000	238000	0.5	12000000	0.5	1	2.5	5.6	332	0.00718	275000	800000	56.4	7080000	337	0.5	166	1	1700000	10
NC034SW_A_20120603	21.62	7.91	91000	0.5	32	21.5	0.5	30000	201000	0.5	10000000	4	1	2.9	11.35	305	0.00304	194000	687000	84.1	5850000	106	1.9	239	1	1400000	10
NC034SW_C_20120603	18.87	7.32	95000	0.5	135	12.7	0.5	38000	237000	0.5	13000000	4	1	2.8	4.89	363	0.00681	233000	807000	57.9	6840000	351	0.5	178	1	1600000	10
NC046SW_A_20120603	21.03	8.23	89000	0.5	52	21.8	0.5	29000	179000	0.5	9300000	2	1	3.5	14.86	297	0.00374	172000	615000	96.3	5250000	58	1.7	272	1	1300000	10

SOLUTION_SPREAD																											
-units µg/kgw																											
Description	Temperature	pH	Alkalinity	Ag	Al	Ba	Be	Br	Ca	Cd	Cl	Cyanide	Cr	Cu	O(0)	Fe	Hg(0)	K	Mg	Mn	Na	N(-3)	Ni	P	Pb	S(6)	Zn
											charge				mg/kgw												
NC046SW_C_20120603	18.92	7.41	91000	0.5	136	13.8	0.5	36000	246000	0.5	13000000	0.5	1	2.6	5.45	349	0.0084	244000	836000	55.3	7140000	382	1.1	220	1	1700000	10
NC068SW_A_20120603	20.35	7.62	84000	0.5	37	20.7	0.5	34000	196000	0.5	10000000	13	1	3.5	8.85	322	0.00428	183000	657000	77.1	5570000	263	1.8	335	1	1500000	10
NC068SW_C_20120603	19.14	7.17	95000	0.5	139	16.9	0.5	38000	249000	0.5	13000000	2	1	14.7	3.8	588	0.00453	243000	842000	68.9	7150000	389	3.4	222	3.3	1700000	10
NC070SW_A_20120606	19.08	7.87	100000	0.5	20	20.2	0.5	25000	238000	0.5	14000000	0.5	1	2.9	10.59	196	0.00193	219000	758000	76.3	6530000	174	0.5	206	1	1800000	10
NC070SW_C_20120606	18.86	7.15	98000	0.5	76	17.5	0.5	37000	261000	0.5	12000000	0.5	1	2.6	3.8	301	0.00343	244000	809000	69.1	6970000	358	1.3	203	1	1600000	10
NC079SW_A_20120607	19.44	7.8	100000	0.5	10	23.1	0.5	93000	217000	0.5	12000000	2	1	2.4	11.43	256	0.00201	193000	745000	73.6	6540000	128	1.8	393	1	1600000	10
NC079SW_C_20120607	18.8	7.03	97000	0.5	60	15.9	0.5	39000	254000	0.5	13000000	2	1	2.2	2.42	360	0.00169	237000	831000	75	7170000	338	0.5	245	1	1700000	10
WC001SW_A_20120605	18.62	7.48	98000	0.5	88	17.3	0.5	39000	255000	0.2	12000000	2	1	2.7	6.04	253	0.00331	238000	811000	68	6960000	505	0.5	158	1	1500000	10
WC001SW_B_20120605	18.82	7.44	98000	0.5	122	14.2	0.5	39000	266000	0.5	12000000	2	1	1.9	5.52	264	0.00457	256000	823000	61.1	7040000	287	0.5	147	1	1700000	10
WC001SW_C_20120605	18.56	7.47	96000	0.5	231	14.2	0.5	44000	276000	0.5	13000000	4	1	2.8	5.65	422	0.00894	267000	859000	62.5	7300000	354	0.5	142	1	1800000	10
DK001SW_A_20120323	12.6	8.55	110000	0.25	66	21	0.5	51000	299000	0.2	13000000	2	1	1	18.23	253	0.00444	313000	919000	68.7	8010000	75	0.5	140	1	1400000	10
DK001SW_C_20120323	9.99	8.1	99000	0.25	198	16.6	0.5	42000	279000	0.2	12000000	2	1	1	10.98	355	0.00722	300000	867000	49.7	7610000	329	0.5	135	1	1400000	10
DK011SW_A_20120320	17	8.69	120000	0.25	10	25.4	0.5	26000	273000	0.2	12000000	2	1	1.6	18.48	260	0.00694	282000	825000	86.5	7220000	38	1.7	92	1	1300000	10
DK011SW_C_20120320	8.89	8.31	100000	0.25	53	18.2	0.5	32000	276000	0.2	12000000	2	1	1.1	17.5	272	0.00242	294000	846000	59.3	7390000	119	0.5	157	1	1400000	10
EB010SW_A_20120321	11.93	7.06	130000	0.25	77	38.5	0.5	29000	251000	0.2	10000000	2	1.8	3.3	2.74	415	0.00887	247000	724000	102.9	6290000	648	1.4	306	3.5	1200000	10
EK006SW_A_20120322	12.25	8.4	120000	0.25	33	21.9	0.5	34000	264000	0.2	12000000	2	1	1	15.51	271	0.00412	277000	804000	104	7090000	382	1.9	129	2.1	1400000	15.2
EK006SW_C_20120322	9.84	8.14	110000	0.25	58	20.7	0.5	43000	270000	0.2	12000000	4	1	3.5	11.98	322	0.00569	288000	839000	70.4	7280000	343	2.9	156	1.9	1400000	14.4
EK014SW_A_20120322	10.32	8.17	110000	0.25	31	21.5	0.5	36000	268000	0.2	12000000	2	1	1	12.27	320	0.00444	284000	816000	100.3	7190000	335	1.2	148	1	1400000	15.4
EK014SW_C_20120322	9.77	8.09	110000	0.25	50	25.5	0.5	55000	266000	0.2	13000000	2	1	2.1	11.02	470	0.0055	283000	815000	87.1	7200000	377	2.3	189	1.9	1400000	15.8
EK022SW_A_20120322	9.78	7.84	120000	0.25	44	24.5	0.5	37000	268000	0.2	12000000	2	1	2.5	9.46	383	0.00745	284000	820000	109.1	7210000	422	2.2	193	2	1400000	15.7
MC008SW_A_20120320	10.46	8.43	110000	0.25	51	21.1	0.5	31000	320000	0.2	12000000	0.5	1	3.3	15.28	227	0.00371	330000	976000	63	8390000	63	1.6	201	1	1500000	10
NC007SW_A_20120325	10.36	8.35	100000	0.25	72	16.7	0.5	45000	279000	0.2	12000000	2	1	1	13.27	172	0.00326	299000	867000	56.4	7620000	148	0.5	120	1	1400000	10
NC007SW_C_20120325	9.72	8.04	100000	0.25	146	14.1	0.5	46000	281000	0.2	13000000	2	1	1	9.95	238	0.00558	306000	891000	42.6	7820000	347	0.5	162	1	1400000	10
NC020SW_A_20120325	10.59	8.41	100000	0.25	73	19.8	0.5	42000	282000	0.2	13000000	2	1	1	14.25	202	0.00397	298000	860000	77.9	7600000	102	0.5	159	1	1500000	10
NC020SW_C_20120325	9.78	8.06	100000	0.25	146	14.6	0.5	45000	278000	0.2	12000000	2	1	1	9.99	265	0.00605	301000	874000	49.3	7700000	336	0.5	137	1	1300000	10
NC034SW_A_20120321	11.23	8.41	110000	0.25	90	24.6	0.5	30000	270000	0.2	12000000	2	1.6	2.1	14.47	294	0.00363	284000	825000	115.5	7190000	136	1.7	123	1	1400000	10
NC034SW_C_20120321	9.41	8.16	100000	0.25	1050	21.7	0.5	28000	277000	0.2	12000000	2	5.5	9	11.63	2180	0.0321	297000	864000	85.6	7530000	263	2.8	290	6.8	1400000	10
NC046SW_A_20120320	10.68	8.64	110000	0.25	65	21.8	0.5	29000	277000	0.2	12000000	2	1	2.3	18.98	211	0.00306	293000	848000	69.3	7390000	48	1.4	144	1	1400000	10
NC046SW_C_20120320	8.88	8.18	100000	0.25	117	18.1	0.5	32000	283000	0.2	13000000	2	2.2	2.6	11.32	325	0.00477	302000	875000	57.6	7630000	324	1.1	158	1	1400000	10
NC068SW_A_20120319	11.37	8.65	110000	0.25	58	22.4	0.5	28000	272000	0.2	12000000	3	1.7	4.6	19.55	235	0.0043	287000	834000	69.3	7260000	74	1.4	145	1	1400000	10
NC068SW_C_20120319	8.31	8.11	100000	0.25	86	18	0.5	26000	287000	0.2	13000000	3	1	6.3	10.71	276	0.00497	306000	884000	58.9	7680000	326	2.6	214	1	1400000	10
NC070SW_A_20120325	10.42	8.15	100000	0.25	46	19.2	0.5	43000	273000	0.2	12000000	2	1	1	11.68	197	0.00286	291000	841000	65.5	7390000	147	1.3	147	1	1300000	10
NC070SW_C_20120325	10.28	8.03	100000	0.25	439	38.3	0.5	50000	278000	1.1	13000000	0.5	9.4	90.2	9.78	1180	0.102	298000	859000	116.5	7530000	357	16.7	187	16.4	1400000	62
NC079SW_A_20120323	12.48	8.48	110000	0.25	39	21.5	0.5	35000	271000	0.2	12000000	3	1	1.9	16.42	252	0.00487	288000	833000	77.3	7290000	75	1.8	117	1	1300000	12.5
NC079SW_C_20120323	10.15	8.06	110000	0.25	70	20	0.5	44000	275000	0.2	12000000	2	1	3.1	10.26	405	0.00465	293000	849000	71.1	7490000	296	2.7	167	1	1400000	12
WC001SW_A_20120319	9.85	8.45	100000	0.41	96	18.9	0.5	32000	273000	0.2	12000000	4.8	1.5	2	15.71	237	0.00331	293000	842000	57	7380000	148	1.1	140	1	1400000	10
WC001SW_C_20120319	8.54	8.16	100000	0.25	343	16.7	0.5	32000	281000	0.2	13000000	3	2.1	3.3	11.61	723	0.00897	299000	867000	53.9	7560000	451	1.1	165	1.9	1400000	10
DK001SW_A_20120509	14.57	7.55	97000	0.5	51	25.2	0.5	44000	237000	0.5	11000000	0.5	1	4.4	7.92	277	0.00655	245000	899000	94.1	6260000	654	1.8	224	1.7	1300000	13.9
DK001SW_C_20120509	13.65	7.45	97000	0.5	150	15	0.5	38000	254000	0.5	14000000	0.6	1	2.7	6.85	435	0.00837	273000	1010000	56.7	7040000	495	1.2	188	1	1700000	10

SOLUTION_SPREAD																											
-units µg/kgw																											
Description	Temperature	pH	Alkalinity	Ag	Al	Ba	Be	Br	Ca	Cd	Cl	Cyanide	Cr	Cu	O(0)	Fe	Hg(0)	K	Mg	Mn	Na	N(-3)	Ni	P	Pb	S(6)	Zn
											charge				mg/kgw												
DK011SW_A_20120511	13.03	7.88	110000	0.5	10	31.4	0.5	21000	222000	0.5	11000000	0.5	1	3.4	11.34	333	0.00293	212000	829000	140.3	5830000	282	1.6	159	1	1400000	12
DK011SW_C_20120511	13.88	6.96	110000	0.5	25	20	0.5	37000	247000	0.5	13000000	0.5	1	1	0.44	368	0.00262	296000	989000	82.3	6930000	974	1	415	1	1600000	10
EB010SW_A_20120508	13.52	7	100000	0.5	10	19.9	0.5	32000	279000	0.5	13000000	0.5	1	1.8	0.69	386	0.00172	177000	924000	81	7530000	722	0.5	284	1	1600000	10
EK006SW_A_20120510	14.91	7.75	100000	0.5	32	23	0.5	34000	257000	0.5	12000000	0.5	1	2.9	10.1	241	0.00361	271000	988000	79	6850000	394	2.1	265	1	1500000	16.2
EK006SW_C_20120510	13.96	7.18	100000	0.5	10	19.1	0.5	33000	243000	0.5	12000000	0.5	1	2.8	4.03	439	0.00225	301000	978000	80	6900000	623	2.2	251	1	1600000	10
EK014SW_A_20120508	13.54	7.18	110000	0.5	10	22.7	0.5	37000	271000	0.5	12000000	0.5	1	2.4	4.59	429	0.00145	172000	892000	106.1	7270000	769	1.5	247	1	1500000	10
EK014SW_C_20120508	13.53	7.16	100000	0.5	48	18.9	0.5	34000	273000	0.5	12000000	0.5	1	2.3	3.89	461	0.00175	177000	920000	90.2	7510000	734	0.5	253	1	1500000	10
EK022SW_A_20120510	14.76	7.18	110000	0.5	20	24.2	0.5	25000	239000	0.5	12000000	0.5	1	2.1	3.71	348	0.00547	242000	929000	114.9	6520000	811	1.6	284	1	1400000	10
MC008SW_A_20120511	16.72	7.42	120000	0.5	39	39.6	0.5	32000	224000	0.5	11000000	0.5	1	3.2	5.46	294	0.00385	221000	839000	75.6	5910000	325	1.9	175	1	1300000	10
NC007SW_A_20120506	12.98	7.48	95000	0.5	266	16.3	0.5	32000	269000	0.5	12000000	0.5	1	2.8	6.76	584	0.00909	182000	816000	52.3	6830000	652	0.9	136	1.8	1400000	10
NC007SW_C_20120506	12.88	7.46	97000	0.5	223	16.1	0.5	44000	272000	0.5	12000000	0.5	1	3.5	6.45	529	0.0125	187000	849000	58.7	7140000	530	1.3	165	1	1500000	10
NC020SW_A_20120506	14.32	7.31	100000	0.5	40	22.4	0.5	38000	279000	0.5	12000000	0.5	1	3	5.39	227	0.00261	188000	829000	85.2	6900000	637	0.9	213	1	1600000	10
NC020SW_C_20120506	12.93	7.45	96000	0.5	212	15.9	0.5	43000	270000	0.5	14000000	0.5	1	4	6.07	500	0.00706	188000	837000	78.2	6960000	597	1.9	296	2.1	1700000	12.6
NC034SW_A_20120507	14.27	7.41	100000	0.5	46	19.7	0.5	33000	267000	0.5	12000000	0.5	1	1.8	6.43	261	0.00292	179000	806000	82.1	6740000	560	1.7	177	1	1400000	10
NC034SW_C_20120507	13.31	7.44	100000	0.5	93	17.2	0.5	33000	273000	0.5	13000000	0.5	1	2.3	6.43	321	0.00367	187000	840000	66.4	7030000	557	1.1	182	1	1500000	10
NC046SW_A_20120510	14.93	7.72	98000	0.5	48	18.2	0.5	38000	238000	0.5	12000000	0.5	1	2	9.29	214	0.00342	273000	975000	77.9	6860000	434	1.3	170	1	1500000	10
NC046SW_C_20120510	13.96	7.32	98000	0.5	69	17.1	0.5	37000	267000	0.5	13000000	0.5	1	2.2	5.56	307	0.00434	279000	1020000	72.1	7180000	502	1.6	200	1	1500000	10
NC068SW_A_20120507	14.5	7.36	100000	0.5	28	22.7	0.5	45000	270000	0.5	12000000	0.5	1	2.3	6.07	272	0.00213	182000	812000	83	6750000	603	2.2	185	1	1500000	10
NC068SW_C_20120507	13.9	7.26	100000	0.5	53	19.7	0.5	39000	276000	0.5	12000000	0.5	1	2.8	4.84	363	0.00506	186000	827000	70.9	6920000	667	1.9	215	1	1500000	10
NC070SW_A_20120509	14.35	7.34	100000	0.5	44	22.9	0.5	36000	224000	0.5	12000000	3	1	3.1	6.4	317	0.00564	296000	919000	74.5	6470000	644	2	368	1	1400000	16.6
NC070SW_C_20120509	13.95	7.35	100000	0.5	54	18.5	0.5	34000	241000	0.5	12000000	0.5	1	2.7	6.22	283	0.00453	281000	968000	69.1	6790000	492	1.8	205	1	1500000	10
NC079SW_A_20120509	14.21	7.29	100000	0.5	26	20.4	0.5	42000	248000	0.5	12000000	0.5	1	2.6	5.68	305	0.00495	262000	954000	76.4	6630000	461	2	310	1	1500000	10
NC079SW_C_20120509	13.91	7.29	100000	0.5	29	17.8	0.5	29000	262000	0.5	12000000	0.5	1	3.1	5.43	365	0.00303	281000	1010000	71.8	6990000	493	2	184	1	1300000	10
WC001SW_A_20120507	13.68	7.38	99000	0.5	79	18.2	0.5	39000	281000	0.5	12000000	0.5	1	2.4	6.24	264	0.00295	192000	858000	71.6	7140000	531	1.3	182	1	1600000	10
WC001SW_C_20120507	13.11	7.48	98000	0.5	1680	21.7	0.5	49000	280000	0.5	12000000	0.5	8.1	17.2	6.75	3470	0.0953	189000	842000	112	7050000	554	4.8	362	15	1500000	33.6
DK001SW_A_20121113	11.91	7.13	100000	2.5	50	19.4	2.5	38000	281000	2.5	15000000	3	5	21.9	4.96	250	0.0022	250000	859000	41.9	7320000	501	2.5	216	5	2100000	50
DK001SW_C_20121113	11.91	7.22	100000	2.5	50	16.8	2.5	38000	278000	2.5	15000000	0.5	5	12	5.68	250	0.00371	239000	838000	30.5	7200000	509	2.5	230	5	2100000	50
DK011SW_A_20121115	11.65	7.17	100000	2.5	50	22.4	2.5	40000	286000	2.5	15000000	1	5	5	5.75	250	0.00249	254000	813000	38.8	6920000	545	2.5	218	5	2100000	50
DK011SW_C_20121115	11.15	7.23	100000	2.5	50	22.6	2.5	39000	297000	2.5	15000000	0.5	5	5	6.48	250	0.00404	273000	882000	36	7460000	491	2.5	191	5	2100000	50
EB010SW_A_20121113	12.11	6.99	110000	19.2	50	21.1	2.5	35000	279000	2.5	14000000	4	5	22.5	21.62	250	0.00283	240000	839000	50	7180000	791	5.4	349	5	2000000	50
EK006SW_A_20121115	10.53	6.75	120000	2.5	50	22.4	2.5	37000	271000	2.5	14000000	0.5	5	5	0.15	250	0.00426	245000	797000	55.7	6740000	389	2.5	252	5	1900000	50
EK006SW_C_20121115	11.15	6.96	110000	2.5	50	23.8	2.5	40000	269000	2.5	14000000	1	5	5	3.69	250	0.00528	243000	792000	49.4	6710000	552	5.5	209	5	2000000	50
EK014SW_A_20121116	9.59	6.71	120000	2.5	50	29.7	2.5	37000	251000	2.5	14000000	2	5	5	0.31	250	0.00531	213000	745000	117.7	6420000	607	2.5	276	5	1900000	50
EK014SW_C_20121116	11.14	6.9	110000	2.5	50	16.7	2.5	39000	264000	2.5	14000000	3	5	5	2.97	250	0.00755	226000	778000	58.3	6690000	534	2.5	273	5	2000000	50
EK022SW_A_20121116	10.82	6.79	130000	2.5	50	35.6	2.5	36000	252000	2.5	14000000	1	5	5	0.19	250	0.00543	218000	744000	126.7	6350000	730	2.5	288	5	1900000	50
EK022SW_C_20121116	11.08	6.8	110000	2.5	50	22	2.5	38000	241000	2.5	14000000	2	5	5	0.07	250	0.0039	210000	748000	59.5	6410000	568	2.5	227	5	1900000	50
MC008SW_A_20121112	12.08	6.95	120000	2.5	50	31.5	2.5	34000	262000	2.5	13000000	0.5	5	10	1.88	250	0.00283	225000	759000	74.9	6400000	785	6.8	245	5	1800000	50
NC007SW_A_20121111	10.87	7.04	110000	2.5	50	29.9	2.5	34000	258000	2.5	13000000	2	5	9.2	3.09	250	0.00511	222000	761000	85.7	6410000	781	2.5	243	5	1800000	50
NC007SW_C_20121111	11.61	7.48	98000	2.5	50	14	2.5	40000	278000	2.5	15000000	0.5	5	10.7	7.56	250	0.00398	252000	868000	21.9	7340000	480	2.5	188	5	2100000	50

SOLUTION_SPREAD																											
-units µg/kgw																											
Description	Temperature	pH	Alkalinity	Ag	Al	Ba	Be	Br	Ca	Cd	Cl	Cyanide	Cr	Cu	O(0)	Fe	Hg(0)	K	Mg	Mn	Na	N(-3)	Ni	P	Pb	S(6)	Zn
											charge				mg/kgw												
NC020SW_A_20121111	11.49	6.97	120000	2.5	50	27.8	2.5	32000	246000	2.5	13000000	3	5	7.7	1.31	250	0.00656	207000	717000	89	6080000	817	6.4	251	5	1800000	50
NC020SW_C_20121111	11.58	7.13	99000	2.5	50	14.6	2.5	38000	280000	2.5	15000000	0.5	5	16.5	7.16	250	0.00898	255000	867000	26.8	7410000	460	2.5	186	5	2200000	50
NC034SW_A_20121114	11.4	7.08	110000	2.5	50	23.1	2.5	38000	269000	2.5	14000000	0.5	5	5	2.9	250	0.00314	251000	797000	54.7	6790000	534	2.5	353	5	2000000	50
NC034SW_C_20121114	11.44	7.23	100000	2.5	50	16.2	2.5	40000	287000	2.5	15000000	2	5	5	2.9	250	0.00639	260000	840000	37	7130000	493	2.5	207	5	2100000	50
NC046SW_A_20121114	11.42	7.11	110000	2.5	50	18	2.5	39000	294000	2.5	14000000	2	5	5	5.74	250	0.00328	262000	855000	47.2	7230000	537	2.5	207	5	2000000	50
NC046SW_C_20121114	11.47	7.33	100000	2.5	50	24.7	2.5	41000	299000	2.5	15000000	2	5	5	5.43	250	0.00411	276000	920000	21.9	7820000	538	2.5	198	5	2100000	50
NC058SW_A_20121114	11.28	7.11	100000	2.5	50	13.4	2.5	39000	272000	2.5	14000000	2	5	13	5.47	250	0.00361	249000	818000	34.9	6920000	500	2.5	195	5	2100000	50
NC058SW_C_20121114	11.47	7.31	100000	2.5	50	17.6	2.5	39000	287000	2.5	14000000	3	5	5	7	250	0.00782	265000	870000	20.7	7410000	409	2.5	199	5	1900000	50
NC068SW_A_20121111	11.84	6.97	110000	2.5	50	30.6	2.5	34000	264000	2.5	13000000	0.5	5	13.5	1.46	250	0.00467	229000	772000	70	6540000	751	7.2	261	5	1900000	50
NC068SW_C_20121111	11.67	7.26	100000	2.5	50	16.3	2.5	37000	274000	2.5	15000000	0.5	5	7.7	5.59	250	0.00509	246000	833000	34.9	7070000	580	2.5	214	5	2100000	50
NC070SW_A_20121112	12.5	7.07	110000	2.5	50	24.3	2.5	35000	270000	2.5	14000000	2	5	10.9	3.44	250	0.00346	237000	811000	59.5	6820000	741	5.2	260	5	2000000	50
NC070SW_C_20121112	11.75	7.31	100000	2.5	50	17.8	2.5	38000	279000	2.5	15000000	1	5	10	6.04	250	0.00354	250000	853000	30.5	7200000	522	2.5	211	5	2100000	50
NC079SW_A_20121113	12.13	7.02	110000	7.7	50	23	2.5	35000	262000	2.5	14000000	4	5	16.6	2.19	250	0.00293	227000	778000	57	6660000	556	2.5	233	5	2000000	50
NC079SW_C_20121113	11.87	7.2	100000	2.5	50	22.2	2.5	37000	279000	2.5	15000000	1	5	25.1	4.56	250	0.00576	246000	855000	33.5	7290000	640	19.3	235	5	2100000	50
WC001SW_A_20121112	11.86	7.1	110000	2.5	50	23.6	2.5	34000	266000	2.5	14000000	4	5	12.1	3.78	250	0.00305	231000	778000	70	6570000	655	2.5	217	5	1900000	50
WC001SW_C_20121112	11.68	7.43	98000	2.5	50	17.2	2.5	38000	276000	2.5	15000000	0.5	5	7.6	7.02	250	0.00298	256000	856000	16.2	7230000	471	2.5	148	5	2200000	50
DK001SW_A_20121001	20.76	7.24	100000	0.5	22	23.8	0.5	39000	276000	0.5	16000000	0.5	1	2.4	4.87	50	0.00433	256000	864000	73.1	7430000	485	1.3	255	1	2200000	10
DK001SW_C_20121001	20.39	7.22	99000	0.5	146	19.1	0.5	41000	260000	0.5	16000000	2	2.7	4.4	4.09	417	0.0131	247000	805000	58.9	6780000	479	1.7	308	2.5	2300000	10
DK011SW_A_20121004	21.29	6.99	110000	2.5	50	24.6	2.5	39000	270000	2.5	14000000	2	5	5	3.67	250	0.00209	257000	810000	86	6780000	153	2.5	267	5	2000000	50
DK011SW_C_20121004	20.89	6.56	200000	2.5	50	24.7	2.5	41000	289000	2.5	15000000	2	5	5	0.21	250	0.00342	268000	849000	70.9	7130000	2150	2.5	501	5	2100000	50
EB010SW_A_20121004	21.16	6.7	120000	2.5	50	28.2	2.5	39000	273000	2.5	14000000	3	5	5	0.2	250	0.00339	253000	840000	108	7220000	1220	2.5	440	5	2000000	50
EK006SW_A_20121005	20.61	7.43	110000	2.5	50	23	2.5	40000	271000	2.5	14000000	2	5	5	7.27	250	0.00218	254000	786000	98.8	6500000	405	2.5	287	5	2000000	50
EK006SW_C_20121005	20.75	6.87	100000	2.5	50	22	2.5	41000	293000	2.5	15000000	2	5	5	0.39	250	0.00374	270000	828000	79.3	6890000	780	16.3	277	5	2100000	50
EK014SW_A_20121002	19.55	8.13	120000	0.5	10	35.3	0.5	32000	242000	0.5	13000000	4	1	5.6	14.78	175	0.00245	206000	705000	135.4	5890000	37	2.6	288	1	1800000	10
EK014SW_C_20121002	21.28	6.95	110000	0.5	10	23.4	0.5	41000	290000	0.5	14000000	4	1	3	1.12	196	0.00149	251000	807000	89.8	6500000	885	1.6	342	1	2000000	10
EK022SW_A_20121002	20.9	7.21	130000	0.5	10	30.7	0.5	33000	251000	0.5	13000000	4	1	2.9	4.98	212	0.00312	217000	716000	189	5830000	310	2.3	370	1	1900000	10
EK022SW_C_20121002	21.2	6.89	120000	0.5	10	24	0.5	40000	277000	0.5	14000000	0.5	1	1	0.18	230	0.00186	238000	763000	108.7	6240000	1230	2.1	361	1	2000000	10
MC008SW_A_20121003	20.81	6.91	110000	2.5	50	26.9	2.5	40000	273000	2.5	14000000	0.5	5	5	0.24	250	0.00489	251000	799000	88.2	6750000	638	2.5	306	5	2000000	50
NC007SW_A_20121001	20.2	7.35	100000	0.5	52	16.9	0.5	41000	264000	0.5	15000000	2	1	2	5.46	130	0.00618	246000	806000	33.9	6790000	393	1.2	188	1	2200000	10
NC007SW_C_20121001	20.31	7.29	97000	0.5	94	17.8	0.5	42000	275000	0.5	16000000	2	1	3.9	5.09	272	0.0124	261000	863000	49.5	7320000	445	1.1	238	2.8	2200000	10
NC020SW_A_20120930	20.2	7.17	100000	0.5	22	25.8	1.3	46000	254000	0.5	14000000	2	1	3.3	3.85	198	0.00591	233000	779000	81.2	6590000	608	1.9	254	1	2100000	10
NC020SW_C_20120930	20.7	7.28	98000	0.5	73	18.2	0.5	49000	294000	0.5	16000000	4	2.1	5.4	5.06	216	0.0085	272000	913000	50.6	7790000	432	0.5	269	1	2300000	10
NC034SW_A_20120930	21.41	7.07	110000	0.5	20	24.7	0.5	43000	283000	0.5	15000000	0.5	1	1.9	2.81	202	0.00341	262000	860000	98.7	7340000	525	0.5	235	1	2100000	10
NC034SW_C_20120930	20.95	7.18	100000	0.5	155	15.9	0.5	46000	274000	0.5	16000000	3	1	6.8	4	453	0.015	259000	850000	64.9	7280000	464	0.5	151	4.3	2300000	10
NC046SW_A_20120930	19.98	7.26	110000	0.5	29	31.6	0.5	38000	239000	0.5	12000000	0.5	1	2.6	4.91	178	0.00829	219000	737000	121.8	6360000	683	2.7	245	2	1800000	14.8
NC046SW_C_20120930	20.88	7.25	100000	0.5	148	17.5	0.5	47000	279000	0.5	16000000	0.5	1	7.4	4.58	487	0.0196	263000	862000	54	7380000	460	0.5	278	4.2	2300000	10
NC058SW_A_20121003	20.57	7.13	110000	2.5	50	24.2	2.5	38000	261000	2.5	14000000	2	5	5	4.64	250	0.0166	239000	763000	88.1	6280000	304	2.5	234	5	1900000	50
NC058SW_C_20121003	20.63	7.08	97000	2.5	319	20	2.5	42000	288000	2.5	15000000	0.5	5	5	3.82	752	0.0202	269000	862000	60.2	7270000	489	2.5	288	5	2000000	50
NC068SW_A_20121005	20.62	7.05	110000	2.5	50	27.5	2.5	39000	275000	2.5	14000000	0.5	5	5	4.31	250	0.00461	254000	808000	83.8	6780000	311	2.5	280	5	2000000	50

SOLUTION_SPREAD																											
-units µg/kgw																											
Description	Temperature	pH	Alkalinity	Ag	Al	Ba	Be	Br	Ca	Cd	Cl	Cyanide	Cr	Cu	O(0)	Fe	Hg(0)	K	Mg	Mn	Na	N(-3)	Ni	P	Pb	S(6)	Zn
											charge				mg/kgw												
NC068SW_C_20121005	20.75	6.89	100000	2.5	50	19	2.5	40000	280000	2.5	15000000	2	5	5	1.71	250	0.00403	259000	819000	58.7	6810000	601	2.5	278	5	2100000	50
NC070SW_A_20121003	20.98	7.48	100000	2.5	50	23.2	2.5	36000	264000	2.5	13000000	2	5	5	7.67	250	0.00605	242000	779000	77.3	6470000	206	2.5	287	5	1800000	50
NC070SW_C_20121003	20.8	6.93	100000	2.5	50	19.5	2.5	40000	290000	2.5	14000000	4	5	5	1.57	250	0.00774	270000	866000	61.8	7270000	647	2.5	280	5	2000000	50
NC079SW_A_20121004	21.81	7.58	110000	2.5	50	27.6	2.5	37000	272000	2.5	13000000	3	5	5	8.86	250	0.00374	249000	785000	87.5	6560000	377	2.5	351	5	1800000	50
NC079SW_C_20121004	20.75	6.89	100000	2.5	50	16.7	2.5	41000	282000	2.5	14000000	2	5	5	1.02	250	0.00276	268000	876000	72	7590000	712	2.5	257	5	2000000	50
WC001SW_A_20121001	20.33	7.14	100000	0.5	36	20.5	0.5	43000	268000	0.5	15000000	2	1	2.5	3.56	185	0.00492	245000	808000	73.4	6840000	493	0.5	247	1	2300000	10
WC001SW_C_20121001	20.43	7.23	98000	0.5	129	18.2	0.5	43000	282000	0.5	16000000	0.5	2	5.4	4.47	404	0.0473	270000	887000	50.2	7530000	446	1.5	265	3.2	2200000	10
DK001SW_A_20120912	22.9	7.28	98000	0.5	26	26	0.5	44000	245000	0.5	12000000	2	1	3.3	5.29	169	0.00213	222000	714000	117.5	7390000	203	2.2	253	1	2000000	13.2
DK001SW_C_20120912	23.95	7.18	95000	0.5	156	15.8	0.5	47000	288000	0.5	13000000	4	1	3	3.66	456	0.00791	262000	857000	79.8	8860000	469	1.9	243	2.2	2000000	10
DK011SW_A_20120912	23.23	7.18	110000	0.5	10	27.2	0.5	41000	249000	0.5	12000000	0.5	1	1.7	1.48	275	0.000165	230000	739000	131.8	7900000	497	1.1	336	1	1800000	10
DK011SW_C_20120912	24.27	6.82	130000	0.5	36	22	0.5	50000	290000	0.5	13000000	36	1	1.2	0.23	215	0.00351	272000	853000	94.5	7630000	1230	1.5	417	1	2000000	10
EB010SW_A_20120913	24.59	6.81	130000	0.5	10	25.3	0.5	44000	276000	0.5	12000000	6	1	1	0.3	230	0.00248	244000	797000	121.6	9330000	585	1.3	453	1	1900000	10
EK006SW_A_20120914	23.57	7	110000	0.5	28	24.9	0.5	44000	278000	0.5	13000000	0.5	1	4.5	0.94	268	0.00558	254000	834000	122.9	7290000	556	2.1	472	1	2000000	10
EK006SW_C_20120914	24.29	7	100000	0.5	52	19.5	0.5	41000	272000	0.5	14000000	0.5	4.6	6.9	0.21	262	0.013	247000	807000	96	7160000	778	2.6	436	3.6	2100000	15.3
EK014SW_A_20120911	23.89	7.65	96000	0.5	20	24.6	0.5	28000	206000	0.5	9200000	4.9	1	2.4	7.79	173	0.00177	181000	579000	129.7	4480000	369	1.4	336	1	1200000	10
EK014SW_C_20120911	24.56	6.9	130000	0.5	27	24	0.5	60000	269000	0.5	14000000	5	1	1	0.28	230	0.0029	249000	822000	131.9	6730000	1040	1.2	506	1	2000000	10
EK022SW_A_20120913	24.33	6.87	140000	0.5	20	26.3	0.5	47000	270000	0.5	13000000	4.6	1	1.4	0.2	215	0.00269	245000	809000	147.5	7400000	1380	2.2	514	1	1900000	10
MC008SW_A_20120910	24.06	6.97	100000	0.5	33	35.3	0.5	21000	187000	0.5	7600000	2	1	3	2.66	212	0.00364	167000	538000	115.9	4110000	574	1.1	339	1	990000	10
NC007SW_A_20120909	25.09	7.18	96000	0.5	80	20.2	0.5	30000	255000	0.5	12000000	3	1	4	3.49	251	0.00462	235000	769000	80.3	6120000	526	1	300	1	1700000	10
NC007SW_C_20120909	24.9	7.23	98000	0.5	121	18	0.5	46000	280000	0.5	13000000	2	1	5.3	3.89	462	0.00762	261000	844000	111.4	6880000	424	2.5	202	1	1800000	10
NC020SW_A_20120912	24.25	7.34	96000	0.5	164	20	0.5	47000	284000	0.5	14000000	10	1	3.8	5.17	475	0.00926	261000	835000	89.8	7570000	301	2.3	242	2.1	2100000	10
NC020SW_C_20120912	24.16	7.25	95000	0.5	256	17.7	0.5	47000	282000	0.5	14000000	9	1	4.7	4.25	616	0.0123	263000	855000	87.8	9650000	402	1.4	252	2.9	2000000	10
NC034SW_A_20120909	25.49	7.28	87000	0.5	76	22.7	0.5	28000	199000	0.5	8800000	16	1	3.2	4.42	257	0.00587	183000	592000	105.6	4570000	577	1.4	276	2.5	1300000	10
NC034SW_C_20120909	24.81	7.21	100000	0.5	362	17.4	0.5	48000	297000	0.5	14000000	2	6.6	6.8	3.32	1020	0.0181	276000	916000	77.3	7720000	411	2.7	250	4.6	2100000	10
NC046SW_A_20120909	24.53	7.01	72000	0.5	96	20.4	0.5	23000	161000	0.5	6800000	2	1	6.9	2.19	378	0.00708	142000	453000	128.4	3380000	691	2.3	324	3.5	930000	22.3
NC046SW_C_20120909	24.98	7.01	100000	0.5	735	18.6	0.5	50000	290000	0.5	13000000	2	1	2.3	1.31	382	0.00542	277000	876000	92	7210000	494	1.1	290	2.1	1800000	10
NC068SW_A_20120910	22.68	7.08	93000	0.5	39	24.7	0.5	34000	196000	0.5	8000000	5	1	3.8	3.34	189	0.00371	169000	552000	109.9	4330000	595	1	271	1	1000000	10
NC068SW_C_20120910	24.81	6.94	110000	0.5	10	20.8	0.5	39000	295000	0.5	11000000	2	1	1	0.22	139	0.00168	277000	898000	102.9	7360000	695	1.1	389	1	1600000	10
NC070SW_A_20120911	20.75	7.43	92000	0.5	23	29.7	0.5	33000	189000	0.5	9200000	3	1	2.7	6.55	133	0.00257	177000	567000	99.7	4430000	394	1.1	264	1	1400000	10
NC070SW_C_20120911	24.88	6.98	110000	0.5	32	20.3	0.5	50000	286000	0.5	14000000	8	1	2.7	0.31	266	0.00245	261000	846000	101.2	6910000	793	2.1	438	1	2000000	10
NC079SW_A_20120910	22.61	7.21	79000	0.5	40	23.8	0.5	22000	164000	0.5	7300000	2	1	3.4	5.12	149	0.00487	144000	469000	80.3	3430000	560	1.3	280	1	1200000	14.4
NC079SW_C_20120910	24.67	6.92	110000	0.5	10	21.7	0.5	35000	290000	0.5	13000000	2	1	1	0.29	197	0.00194	267000	862000	109.1	6920000	937	1.2	480	1	2100000	10
WC001SW_A_20120911	23.43	7.35	98000	0.5	21	23.3	0.5	38000	242000	0.5	12000000	3	1	3.7	6.03	149	0.00175	211000	678000	109.9	5550000	410	1.2	263	1	1500000	10
WC001SW_C_20120911	24.08	7.15	99000	0.5	434	19.3	0.5	47000	301000	0.5	13000000	6	3	6.7	3.1	1060	0.018	274000	895000	94.5	7440000	467	2.4	304	4.3	1800000	10
DK001SW_A_20130108	4.9	7.57	109000	2.5	50	18.3	2.5	33000	241000	2.5	12900000	0.5	5	5	8.11	250	0.00335	255000	709000	70.2	6100000	581	7.1	171	5	1650000	50
DK001SW_C_20130108	5.12	7.7	98800	2.5	123	17.1	2.5	37400	266000	2.5	14800000	3	5	5	8.81	250	0.0202	271000	815000	32.3	6990000	442	15.1	180	5	1900000	50
DK011SW_A_20130111	5.11	7.26	105000	2.5	50	16.9	2.5	37000	268000	2.5	13900000	0.5	5	5	7.39	250	0.00004	233000	810000	53.7	6910000	561	2.5	167	5	1820000	50
DK011SW_C_20130111	5.32	7.34	101000	2.5	50	7.4	2.5	38600	268000	2.5	14800000	0.5	5	5	8.49	250	0.00423	234000	841000	20	7260000	439	2.5	190	5	1920000	50
EB010SW_A_20130110	4.89	7.34	115000	2.5	50	23.3	2.5	34100	261000	2.5	12900000	0.5	5	5	6.61	250	0.0035	211000	772000	38.3	6630000	663	2.5	137	5	1660000	50

SOLUTION_SPREAD																											
-units µg/kgw																											
Description	Temperature	pH	Alkalinity	Ag	Al	Ba	Be	Br	Ca	Cd	Cl	Cyanide	Cr	Cu	O(0)	Fe	Hg(0)	K	Mg	Mn	Na	N(-3)	Ni	P	Pb	S(6)	Zn
											charge				mg/kgw												
EK006SW_A_20130110	5.1	7.59	107000	2.5	50	12	2.5	35100	274000	2.5	13500000	0.5	5	5	5.64	250	0.00828	239000	838000	55.4	7060000	555	2.5	183	5	1740000	50
EK006SW_C_20130110	5.25	7.58	104000	2.5	50	20.5	2.5	36700	297000	2.5	14200000	0.5	5	5	6.49	250	0.00829	259000	910000	31.4	7820000	545	2.5	215	5	1910000	50
EK014SW_A_20130108	5.56	7.41	113000	2.5	50	31.9	2.5	32300	240000	2.5	12600000	1	5	5	7.74	250	0.00391	231000	672000	90.8	5770000	742	2.5	224	5	1610000	50
EK022SW_A_20130108	5.74	7.29	113000	2.5	50	30.3	2.5	32500	236000	2.5	12400000	0.5	5	11.6	6	250	0.00498	226000	658000	79.4	5680000	729	2.5	232	5	1600000	50
MC008SW_A_20130111	5.15	7.88	109000	2.5	50	10.8	2.5	35300	266000	2.5	13700000	0.5	5	5	7.84	250	0.00281	225000	801000	46.3	6880000	542	2.5	180	5	1790000	50
NC007SW_A_20130106	3.85	7.47	110000	2.5	50	20.1	2.5	32400	245000	2.5	12300000	0.5	5	9.1	7.39	250	0.00276	222000	691000	85.7	5860000	557	2.5	147	5	1620000	50
NC007SW_C_20130106	4.77	7.62	97600	2.5	148	18.6	2.5	38600	260000	2.5	14600000	0.5	5	9.2	9.93	250	0.0337	270000	820000	30.9	7020000	469	2.5	174	5	1890000	50
NC020SW_A_20130106	4.02	7.59	111000	2.5	50	26.1	2.5	31700	239000	2.5	12100000	0.5	10.4	5	6.1	250	0.00327	216000	682000	82.8	5750000	528	6.8	179	5	1570000	50
NC020SW_C_20130106	4.74	7.58	97300	2.5	50	17	2.5	37700	277000	2.5	14500000	0.5	5	5.5	7.6	250	0.00655	278000	812000	26.3	6910000	418	7.5	170	5	1880000	50
NC034SW_A_20130106	4.35	7.6	107000	2.5	50	14.5	2.5	30400	232000	2.5	11700000	0.5	5	5.3	6.02	250	0.00365	218000	658000	120.4	5610000	554	2.5	169	5	1500000	50
NC034SW_C_20130106	4.83	7.66	96100	2.5	50	14.4	2.5	38500	294000	2.5	14800000	0.5	5	5.1	10.31	250	0.00554	274000	832000	23.6	7080000	436	2.5	156	5	1900000	50
NC046SW_A_20130107	4.8	7.57	107000	2.5	50	18.3	2.5	32800	244000	2.5	12900000	0.5	5	5	9.46	250	0.0032	255000	690000	72.5	5850000	493	2.5	159	5	1640000	50
NC046SW_C_20130107	5	7.74	96200	2.5	50	14.8	2.5	37000	267000	2.5	14500000	0.5	5	5	12.21	250	0.00462	272000	817000	22.8	6960000	449	2.5	163	5	1870000	50
NC058SW_A_20130107	4.5	7.43	110000	2.5	50	23.8	2.5	31400	218000	2.5	12300000	0.5	5	5	7.13	250	0.00394	232000	677000	83.9	5720000	584	2.5	164	5	1580000	50
NC058SW_C_20130107	4.96	7.68	98100	2.5	50	11.2	2.5	35100	261000	2.5	13500000	0.5	5	5	10.83	250	0.00299	287000	791000	36	6700000	460	6	150	5	1730000	50
NC068SW_A_20130107	4.05	7.45	115000	2.5	50	26.4	2.5	29900	239000	2.5	11900000	0.5	5	8.4	7.32	250	0.00429	251000	687000	92.4	5840000	629	2.5	180	5	1520000	50
NC068SW_C_20130107	4.86	7.64	99100	2.5	50	18.5	2.5	36200	256000	2.5	14000000	0.5	5	5	8.83	250	0.00492	271000	803000	22.4	6740000	479	2.5	155	5	1800000	50
NC070SW_A_20130109	5.23	7.51	111000	2.5	50	22.4	2.5	34600	264000	2.5	13000000	1	5	5	6.86	250	0.00349	215000	793000	44.2	6770000	670	2.5	187	5	1690000	50
NC070SW_C_20130109	5.17	7.6	101000	2.5	50	18.2	2.5	37600	306000	2.5	14500000	0.5	5	5	8.79	250	0.00384	251000	870000	13.9	7380000	478	2.5	170	5	1880000	50
NC079SW_A_20130109	5.09	7.33	108000	2.5	50	15.7	2.5	34400	260000	2.5	13200000	0.5	5	5	7.1	250	0.00338	214000	805000	40.4	6840000	642	8.9	207	5	1720000	50
NC079SW_C_20130109	5.13	7.49	99900	2.5	50	11	2.5	38000	269000	2.5	14500000	2	5	5	11.52	250	0.00317	230000	879000	16.5	7550000	509	8.8	177	5	1900000	50
WC001SW_A_20130109	5.13	7.59	109000	2.5	50	11.7	2.5	34800	263000	2.5	13300000	0.5	5	5	7.32	250	0.0035	212000	805000	55.6	6890000	535	13.6	176	5	1720000	50
WC001SW_C_20130109	5.22	7.66	98700	2.5	50	10.1	2.5	38600	284000	2.5	14700000	0.5	5	5	8.47	250	0.00737	241000	882000	20.9	7640000	469	2.5	177	5	1910000	50

SOLUTION_SPREAD																											
-units µg/kgw																											
Description	Temperature	pH	Alkalinity	Ag	Al	Ba	Be	Br	Ca	Cd	Cl	Cyanide	Cr	Cu	O(0)	Fe	Hg(0)	K	Mg	Mn	Na	N(-3)	Ni	P	Pb	S(6)	Zn
											charge				mg/kgw												
DK011SW_A_20140521	15.81	7.36	98900	1.4	34	21.8	1	34900	210000	1	10300000	5	2	3.5	5.85	220	0.001	230000	570000	87.7	5700000	464	5	218	2	1920000	12.3
DK011SW_C_20140521	12.96	6.83	233000	1.4	45	36	1	45500	220000	1	12100000	7	2	2	0	110	0.002	250000	600000	187	6300000	2960	5	981	2	2160000	10.5
DK011SW_A_20140806	24.08	7.48	103000	2.8	40	22.4	2	30800	250000	2	12900000	5	4	4	6.28	20	0	290000	770000	97.2	6500000	73	10	148	6.8	2230000	20
DK011SW_C_20140806	22.23	6.93	167000	2.8	40	22.2	2	31600	260000	2	13300000	5	4	4	0.09	56	0.001	300000	800000	85.6	6600000	2590	10	503	4	2300000	20
EB010SW_A_20140520	16.02	7.43	97800	1.4	20	24.5	1	30700	190000	1	9590000	5	2	4.1	5.84	10	0	190000	520000	82	4900000	412	5	126	2	1770000	19.9
EB010SW_A_20140807	24.99	8.63	125000	2.8	40	33.4	2	28000	240000	2	11900000	5	4	4	17.95	63	0	270000	720000	103	4800000	240	10	126	5.8	2040000	15.6
EK022SW_A_20140519	15.82	7.25	105000	1.4	20	25.5	1	27400	180000	1	8710000	5	2	3.9	5.31	40	0	180000	480000	138	4500000	676	5	174	2.2	1540000	24.7
EK022SW_A_20140806	24.2	7.13	121000	2.8	40	30.2	2	27600	230000	2	11600000	5	4	4.4	2.3	20	0	260000	720000	183	5800000	815	10	341	6.2	2020000	17.2
MC008SW_A_20140520	17.95	7.39	95900	1.4	20	23.8	1	30200	200000	1	9850000	8	2	2.6	5.79	10	0	200000	560000	90.1	5200000	503	5	95	2.3	1710000	19.7
MC008SW_A_20140804	26.49	8.02	170000	2.8	40	64.4	2	11200	160000	2	4570000	4	4	4	7.81	20	0.001	140000	390000	70.8	3200000	204	10	84	4.6	762000	23.6
MC008SW_C_20140804	24.46	7.24	108000	2.8	40	26.6	2	30900	240000	2	12500000	4	4	5.4	3.78	20	0	290000	740000	101	6400000	253	10	230	4	2220000	20
NC172SW_A_20140520	15.38	7.52	95900	1.4	20	21.7	1	36500	200000	1	10400000	5	2	2.9	6.42	21	0	210000	550000	90.2	5500000	493	5	122	2	1910000	15.5
NC172SW_C_20140520	14.46	7.42	92800	1.4	20	19	1	36700	210000	1	11000000	7	2	4	5.05	26	0	220000	600000	77.1	5800000	529	5	212	2	1970000	13.7
NC172SW_A_20140807	23.32	7.58	102000	2.8	40	21.4	2	30500	250000	2	12900000	5	4	4	7.84	20	0	290000	770000	84.6	6700000	150	10	169	4.2	2240000	20
NC172SW_C_20140807	23.09	7.12	103000	2.8	40	18.8	2	31000	250000	2	13000000	5	4	5.6	1.66	75	0	290000	770000	89.6	6600000	562	10	302	4	2070000	15.2
NC208SW_A_20140522	16.2	7.23	91000	1.4	35	25	1	28600	160000	1	8170000	5	2	4	5.2	25	0.001	180000	440000	75.5	4400000	913	5	191	2.2	1350000	33.7
NC208SW_C_20140522	14.45	7.54	90800	1.4	44	16.3	1	49900	220000	1	11900000	5	2	2.6	5.98	28	0	250000	620000	61.7	6500000	397	5	148	2	2090000	10.2
NC208SW_A_20140805	14.45	7.54	100000	2.8	40	19.4	2	30900	240000	2	12900000	5	4	5.6	13.13	20	0	300000	790000	84.2	6400000	33	10	137	5.2	2260000	16
NC208SW_C_20140805	22.96	7.31	98300	2.8	100	16.2	2	31800	250000	2	13200000	5	4	5.4	4.39	20	0	310000	740000	76	6200000	297	10	283	5.2	2300000	30.8
NC226SW_A_20140519	14.29	7.66	88200	1.4	20	15.9	1	27500	210000	1	11200000	5	2	4.6	6.74	10	0	220000	580000	29.7	5800000	322	5	107	2	1950000	9.1
NC226SW_C_20140519	14.11	7.66	87100	1.4	280	17.2	1	33700	220000	1	11300000	5	2	6.1	6.62	470	0	230000	600000	52.4	6100000	349	5	83	2	1940000	7.4
NC226SW_A_20140804	23.48	7.52	101000	2.8	40	19.2	2	31900	250000	2	13200000	2	4	4	6.54	20	0	310000	770000	83.4	6900000	255	10	207	5.2	2220000	20
NC226SW_C_20140804	22.44	7.4	95500	2.8	53	14.8	2	33400	250000	2	13600000	5	4	4	4.4	20	0	320000	800000	52	6800000	316	10	172	6.6	2260000	20
NC227SW_A_20140521	14.92	7.5	93000	1.4	34	17.9	1	43000	210000	1	11200000	5	2	3.4	6.67	10	0	230000	570000	64.3	5800000	417	5	142	2	2110000	12.8
NC227SW_C_20140521	14.03	7.6	90200	1.4	44	14.2	1	45600	230000	1	12500000	5	2	3.3	7.14	10	0	260000	610000	32.5	6700000	417	5	134	2	2300000	8.4
NC227SW_A_20140805	24.04	7.72	102000	2.8	40	20	2	31000	240000	2	13000000	4	4	6.8	9.18	20	0	310000	780000	88.8	6500000	37	10	147	5	2220000	20
NC227SW_C_20140805	22.7	7.33	95500	2.8	40	15	2	32200	250000	2	13400000	4	4	5	4.33	20	0	320000	810000	61.4	6800000	318	10	210	4	2260000	20
SELECTED_OUTPUT																											
-file PHase2_out.xls																											
-selected_out true																											
-simulation false																											
-state false																											
-solution true																											

-distance false																											
-time false																											
-step false																											
-ph true																											
-alkalinity true																											
-ionic_strength true																											
-charge_balance true																											
-percent_error true																											
-totals Cyanide Alkalinity Cu Ni Cd Zn Fe																											
Ag Hg																											
-molalities Ca2Fe(Cyanide)6 CaFe(Cyanide)6- CaFe(Cyanide)6-2 CaHFe(Cyanide)6-2																											
Cd(Cyanide)2 Cd(Cyanide)3- Cd(Cyanide)4-2 CdCyanide+																											
Cu(Cyanide)2- Cu(Cyanide)3-2 Cu(Cyanide)4-3 Cyanide-																											
Fe(Cyanide)6-3 Fe(Cyanide)6-4 Fe2(Cyanide)6 H2Fe(Cyanide)6-2																											
HCyanide HFe(Cyanide)6-3 K2Fe(Cyanide)6-2 K2H2Fe(Cyanide)6																											
K3HFe(Cyanide)6 KFe(Cyanide)6-3 KHFe(Cyanide)6-2 MgFe(Cyanide)6-																											
MgFe(Cyanide)6-2 Na2Fe(Cyanide)6-2 NaFe(Cyanide)6-3 NaHFe(Cyanide)6-2																											
Ni(Cyanide)2 Ni(Cyanide)3- Ni(Cyanide)4-2 NiH(Cyanide)4-																											
NiH2Cyanide4 NiH3(Cyanide)4+ Zn(Cyanide)2 Zn(Cyanide)3-																											
Zn(Cyanide)4-2 NH4Fe(Cyanide)6-3 NH5Fe(Cyanide)6-2 Ag(Cyanide)2-																											
Ag(Cyanide)3-2 Ag(Cyanide)OH- HgCyanide+ Hg(Cyanide)2																											
Hg(Cyanide)2Cl- Hg(Cyanide)3- Hg(Cyanide)3Br-2 Hg(Cyanide)3Cl-2																											
Hg(Cyanide)4-2																											

Speciation ID	Location ID	Sample ID	Sample Date	CN ug/l MDL	Free Cyanide (µg/L)	Free Cyanide (%)
1_84	DK001SW_20120212	DK001SW-A-20120212	2/12/2012	4 J	1.24 J	31
1_85	DK001SW_20120212	DK001SW-C-20120212	2/12/2012	2 U	0.21 U	10
1_167	DK001SW_20120323	DK001SW-A-20120323	3/23/2012	2 J	0.78 J	39
1_168	DK001SW_20120323	DK001SW-C-20120323	3/23/2012	2 J	0.92 J	46
1_1	DK001SW_20120406	DK001SW-A-20120406	4/6/2012	2 J	0.17 J	8
1_2	DK001SW_20120406	DK001SW-C2-20120406	4/6/2012	2 J	0.16 J	8
1_194	DK001SW_20120509	DK001SW-A-20120509	5/9/2012	2 U	0.24 U	12
1_195	DK001SW_20120509	DK001SW-C-20120509	5/9/2012	2.4 U	0.46 U	19
1_139	DK001SW_20120604	DK001SW-A-20120604	6/4/2012	2 U	0.07 U	4
1_140	DK001SW_20120604	DK001SW-C-20120604	6/4/2012	2 U	0.68 U	34
1_112	DK001SW_20120711	DK001SW-A-20120711	7/11/2012	2 J	1.23 J	62
1_113	DK001SW_20120711	DK001SW-C-20120711	7/11/2012	2 U	1.16 U	58
1_28	DK001SW_20120809	DK001SW-A-20120809	8/9/2012	2 U	0.1 U	5
1_29	DK001SW_20120809	DK001SW-C-20120809	8/9/2012	2 U	0.5 U	25
1_281	DK001SW_20120912	DK001SW-A-20120912	9/12/2012	2 J	0.44 J	22
1_282	DK001SW_20120912	DK001SW-C-20120912	9/12/2012	4 J	1.8 J	45
1_251	DK001SW_20121001	DK001SW-A-20121001	10/1/2012	2 U	0.72 U	36
1_252	DK001SW_20121001	DK001SW-C-20121001	10/1/2012	2 J	0.35 J	17
1_221	DK001SW_20121113	DK001SW-A-20121113	11/13/2012	3 J	0.18 J	6
1_222	DK001SW_20121113	DK001SW-C-20121113	11/13/2012	2 U	0.29 U	14
1_55	DK001SW_20121202	DK001SW-A-20121202	12/2/2012	2 J	0.08 J	4
1_56	DK001SW_20121202	DK001SW-C-20121202	12/2/2012	2 J	0.11 J	6
1_308	DK001SW_20130108	DK001SW-A-20130108	1/8/2013	2 U	0.15 U	8
1_309	DK001SW_20130108	DK001SW-C-20130108	1/8/2013	3 J	0.14 J	5
2_88	DK011SW_1405	DK011SW-A-20140521	5/21/2014	1 U	0.43 U	43
2_89	DK011SW_1405	DK011SW-C-20140521	5/21/2014	1.4 U	1.07 U	77
2_90	DK011SW_1408	DK011SW-A-20140806	8/6/2014	1 U	0.35 U	35
2_91	DK011SW_1408	DK011SW-C-20140806	8/6/2014	1 U	0.42 U	42
1_86	DK011SW_20120207	DK011SW-A-20120207	2/7/2012	4 J	3.28 J	82
1_87	DK011SW_20120207	DK011SW-C-20120207	2/7/2012	2 J	1.8 J	90
1_169	DK011SW_20120320	DK011SW-A-20120320	3/20/2012	2 J	0.62 J	31
1_170	DK011SW_20120320	DK011SW-C-20120320	3/20/2012	2 J	0.78 J	39
1_3	DK011SW_20120406	DK011SW-A-20120406	4/6/2012	3 J	0.91 J	30
1_4	DK011SW_20120406	DK011SW-C-20120406	4/6/2012	2 J	0.36 J	18
1_196	DK011SW_20120511	DK011SW-A-20120511	5/11/2012	2 U	0.12 U	6
1_197	DK011SW_20120511	DK011SW-C-20120511	5/11/2012	2 U	1.33 U	67
1_141	DK011SW_20120606	DK011SW-A-20120606	6/6/2012	2 J	0.29 J	14
1_142	DK011SW_20120606	DK011SW-C-20120606	6/6/2012	2 J	1.3 J	65
1_114	DK011SW_20120711	DK011SW-A-20120711	7/11/2012	3 J	1.64 J	55
1_115	DK011SW_20120711	DK011SW-C-20120711	7/11/2012	2 J	1.56 J	78
1_30	DK011SW_20120809	DK011SW-A-20120809	8/9/2012	2 U	0.3 U	15
1_31	DK011SW_20120809	DK011SW-C-20120809	8/9/2012	6 J	4.98 J	83
1_283	DK011SW_20120912	DK011SW-A-20120912	9/12/2012	2 U	0.99 U	50
1_284	DK011SW_20120912	DK011SW-C-20120912	9/12/2012	36	28	77
1_253	DK011SW_20121004	DK011SW-A-20121004	10/4/2012	2 J	0.51 J	25
1_254	DK011SW_20121004	DK011SW-C-20121004	10/4/2012	2 J	1.04 J	52
1_223	DK011SW_20121115	DK011SW-A-20121115	11/15/2012	1 J	0.18 J	18
1_224	DK011SW_20121115	DK011SW-C-20121115	11/15/2012	2 U	0.44 U	22
1_57	DK011SW_20121207	DK011SW-A-20121207	12/7/2012	2 J	0.11 J	5
1_58	DK011SW_20121207	DK011SW-C-20121207	12/7/2012	2 J	0.19 J	9
1_310	DK011SW_20130111	DK011SW-A-20130111	1/11/2013	2 U	0.33 U	17
1_311	DK011SW_20130111	DK011SW-C-20130111	1/11/2013	2 U	0.3 U	15
2_92	EB010SW_1405	EB010SW-A-20140520	5/20/2014	1 U	0.33 U	33
2_93	EB010SW_1408	EB010SW-A-20140807	8/7/2014	1 U	0.19 U	19
1_88	EB010SW_20120210	EB010SW-A-20120210	2/10/2012	5	3	51
1_171	EB010SW_20120321	EB010SW-A-20120321	3/21/2012	2 J	0.49 J	25
1_5	EB010SW_20120405	EB010SW-A-20120405	4/5/2012	4.6 J	1.58 J	34
1_198	EB010SW_20120508	EB010SW-A-20120508	5/8/2012	2 U	1.08 U	54
1_143	EB010SW_20120606	EB010SW-A-20120606	6/6/2012	2 J	1.24 J	62
1_116	EB010SW_20120710	EB010SW-A-20120710	7/10/2012	2 J	0.77 J	39
1_32	EB010SW_20120808	EB010SW-A-20120808	8/8/2012	2 U	1.15 U	57
1_285	EB010SW_20120913	EB010SW-A-20120913	9/13/2012	6	5	87
1_255	EB010SW_20121004	EB010SW-A-20121004	10/4/2012	3 J	1.22 J	41
1_225	EB010SW_20121113	EB010SW-A-20121113	11/13/2012	4 J	0.29 J	7
1_59	EB010SW_20121204	EB010SW-A-20121204	12/4/2012	2 J	0.27 J	14
1_312	EB010SW_20130110	EB010SW-A-20130110	1/10/2013	2 U	0.27 U	14
1_89	EK006SW_20120212	EK006SW-A-20120212	2/12/2012	2 U	0.2 U	10
1_90	EK006SW_20120212	EK006SW-C-20120212	2/12/2012	2 U	0.22 U	11
1_172	EK006SW_20120322	EK006SW-A-20120322	3/22/2012	2 J	0.84 J	42
1_173	EK006SW_20120322	EK006SW-C-20120322	3/22/2012	4 J	0.89 J	22
1_6	EK006SW_20120405	EK006SW-A-20120405	4/5/2012	3 J	0.31 J	10
1_7	EK006SW_20120405	EK006SW-C-20120405	4/5/2012	2 J	0.28 J	14
1_199	EK006SW_20120510	EK006SW-A-20120510	5/10/2012	2 U	0.22 U	11
1_200	EK006SW_20120510	EK006SW-C-20120510	5/10/2012	2 U	0.66 U	33
1_144	EK006SW_20120608	EK006SW-A-20120608	6/8/2012	3 J	1.2 J	40
1_145	EK006SW_20120608	EK006SW-C-20120608	6/8/2012	2 J	0.75 J	38
1_117	EK006SW_20120712	EK006SW-A-20120712	7/12/2012	4 J	1.78 J	44
1_118	EK006SW_20120712	EK006SW-C-20120712	7/12/2012	2 U	1.43 U	72
1_33	EK006SW_20120808	EK006SW-A-20120808	8/8/2012	2 J	0.36 J	18
1_34	EK006SW_20120808	EK006SW-C-20120808	8/8/2012	52 J	23.69 J	46
1_286	EK006SW_20120914	EK006SW-A-20120914	9/14/2012	2 U	0.86 U	43

Speciation ID	Location ID	Sample ID	Sample Date	CN ug/l MDL	Free Cyanide (µg/L)	Free Cyanide (%)
1_287	EK006SW_20120914	EK006SW-C-20120914	9/14/2012	2 U	0.72 U	36
1_256	EK006SW_20121005	EK006SW-A-20121005	10/5/2012	2 J	0.2 J	10
1_257	EK006SW_20121005	EK006SW-C-20121005	10/5/2012	2 J	0.63 J	31
1_226	EK006SW_20121115	EK006SW-A-20121115	11/15/2012	2 U	0.94 U	47
1_227	EK006SW_20121115	EK006SW-C-20121115	11/15/2012	1 J	0.26 J	26
1_60	EK006SW_20121206	EK006SW-A-20121206	12/6/2012	2 J	0.11 J	6
1_61	EK006SW_20121206	EK006SW-C-20121206	12/6/2012	2 J	0.15 J	8
1_313	EK006SW_20130110	EK006SW-A-20130110	1/10/2013	2 U	0.17 U	9
1_314	EK006SW_20130110	EK006SW-C-20130110	1/10/2013	2 U	0.2 U	10
1_91	EK014SW_20120208	EK014SW-A-20120208	2/8/2012	5	2	44
1_92	EK014SW_20120208	EK014SW-C-20120208	2/8/2012	2 U	0.22 U	11
1_174	EK014SW_20120322	EK014SW-A-20120322	3/22/2012	2 J	0.9 J	45
1_175	EK014SW_20120322	EK014SW-C-20120322	3/22/2012	2 J	0.32 J	16
1_8	EK014SW_20120404	EK014SW-A-20120404	4/4/2012	3 J	0.2 J	7
1_9	EK014SW_20120404	EK014SW-C-20120404	4/4/2012	2 J	0.31 J	15
1_201	EK014SW_20120508	EK014SW-A-20120508	5/8/2012	2 U	0.71 U	36
1_202	EK014SW_20120508	EK014SW-C-20120508	5/8/2012	2 U	0.78 U	39
1_146	EK014SW_20120605	EK014SW-A-20120605	6/5/2012	18	6	34
1_147	EK014SW_20120605	EK014SW-C-20120605	6/5/2012	2 J	0.59 J	29
1_119	EK014SW_20120710	EK014SW-A-20120710	7/10/2012	2 J	0.74 J	37
1_120	EK014SW_20120710	EK014SW-C-20120710	7/10/2012	3 J	1.45 J	48
1_35	EK014SW_20120807	EK014SW-A-20120807	8/7/2012	2 U	0.07 U	3
1_36	EK014SW_20120807	EK014SW-C-20120807	8/7/2012	2 U	0.99 U	49
1_288	EK014SW_20120911	EK014SW-A-20120911	9/11/2012	4.9 J	2.79 J	57
1_289	EK014SW_20120911	EK014SW-C-20120911	9/11/2012	5 J	4.21 J	84
1_258	EK014SW_20121002	EK014SW-A-20121002	10/2/2012	4 J	0.11 J	3
1_259	EK014SW_20121002	EK014SW-C-20121002	10/2/2012	4 J	1.85 J	46
1_228	EK014SW_20121115	EK014SW-A-20121116	11/16/2012	2 J	0.63 J	32
1_229	EK014SW_20121115	EK014SW-C-20121116	11/16/2012	3 J	0.71 J	24
1_62	EK014SW_20121205	EK014SW-A-20121205	12/5/2012	2 J	0.16 J	8
1_63	EK014SW_20121205	EK014SW-C-20121205	12/5/2012	2 J	0.13 J	6
1_315	EK014SW_20130108	EK014SW-A-20130108	1/8/2013	1 J	0.08 J	8
2_94	EK022SW_1405	EK022SW-A-20140519	5/19/2014	1 U	0.36 U	36
2_95	EK022SW_1408	EK022SW-A-20140806	8/6/2014	1 U	0.33 U	33
1_93	EK022SW_20120208	EK022SW-A-20120208	2/8/2012	2 J	0.2 J	10
1_94	EK022SW_20120208	EK022SW-C-20120208	2/8/2012	4.6 J	2.03 J	44
1_176	EK022SW_20120322	EK022SW-A-20120322	3/22/2012	2 J	0.21 J	11
1_10	EK022SW_20120404	EK022SW-A-20120404	4/4/2012	3 J	0.19 J	6
1_203	EK022SW_20120510	EK022SW-A-20120510	5/10/2012	2 U	0.73 U	36
1_148	EK022SW_20120605	EK022SW-A-20120605	6/5/2012	2 J	0.72 J	36
1_121	EK022SW_20120712	EK022SW-A-20120712	7/12/2012	2 U	1.3 U	65
1_37	EK022SW_20120807	EK022SW-A-20120807	8/7/2012	2 U	0.13 U	6
1_290	EK022SW_20120913	EK022SW-A-20120913	9/13/2012	4.6 J	3.54 J	77
1_260	EK022SW_20121002	EK022SW-A-20121002	10/2/2012	4 J	1.71 J	43
1_261	EK022SW_20121002	EK022SW-C-20121002	10/2/2012	2 U	1.42 U	71
1_230	EK022SW_20121115	EK022SW-A-20121116	11/16/2012	1 J	0.33 J	33
1_231	EK022SW_20121115	EK022SW-C-20121116	11/16/2012	2 J	0.55 J	28
1_64	EK022SW_20121205	EK022SW-A-20121205	12/5/2012	3 J	0.31 J	10
1_316	EK022SW_20130108	EK022SW-A-20130108	1/8/2013	2 U	0.17 U	9
2_112	MC008SW_1405	MC008SW-A-20140520	5/20/2014	8	6	70
2_113	MC008SW_1408	MC008SW-A-20140804	8/4/2014	4 J	0.61 J	15
2_114	MC008SW_1408	MC008SW-C-20140804	8/4/2014	4 J	0.66 J	16
1_95	MC008SW_20120209	MC008SW-A-20120209	2/9/2012	4.6 J	1.84 J	40
1_177	MC008SW_20120320	MC008SW-A-20120320	3/20/2012	2 U	0.06 U	3
1_11	MC008SW_20120406	MC008SW-A-20120406	4/6/2012	2 J	0.1 J	5
1_204	MC008SW_20120511	MC008SW-A-20120511	5/11/2012	2 U	0.36 U	18
1_149	MC008SW_20120607	MC008SW-A-20120607	6/7/2012	2 J	0.37 J	19
1_122	MC008SW_20120710	MC008SW-A-20120710	7/10/2012	2 J	0.83 J	41
1_38	MC008SW_20120806	MC008SW-A-20120806	8/6/2012	2 U	0.06 U	3
1_291	MC008SW_20120910	MC008SW-A-20120910	9/10/2012	2 J	0.55 J	28
1_262	MC008SW_20121003	MC008SW-A-20121003	10/3/2012	2 U	0.86 U	43
1_232	MC008SW_20121112	MC008SW-A-20121112	11/12/2012	2 U	0.49 U	24
1_65	MC008SW_20121203	MC008SW-A-20121203	12/3/2012	2 J	0.1 J	5
1_317	MC008SW_20130111	MC008SW-A-20130111	1/11/2013	2 U	0.09 U	4
1_96	NC007SW_20120208	NC007SW-A-20120208	2/8/2012	4.8 J	1.87 J	39
1_97	NC007SW_20120208	NC007SW-C-20120208	2/8/2012	2 J	0.09 J	4
1_178	NC007SW_20120325	NC007SW-A-20120325	3/25/2012	2 J	0.86 J	43
1_179	NC007SW_20120325	NC007SW-C-20120325	3/25/2012	2 J	0.98 J	49
1_12	NC007SW_20120403	NC007SW-A-20120403	4/3/2012	3 J	0.28 J	9
1_13	NC007SW_20120403	NC007SW-C-20120403	4/3/2012	4 J	1.41 J	35
1_205	NC007SW_20120506	NC007SW-A-20120506	5/6/2012	2 U	0.35 U	18
1_206	NC007SW_20120506	NC007SW-C-20120506	5/6/2012	2 U	0.34 U	17
1_150	NC007SW_20120604	NC007SW-A-20120604	6/4/2012	2 J	0.49 J	25
1_151	NC007SW_20120604	NC007SW-C-20120604	6/4/2012	2 U	0.5 U	25
1_123	NC007SW_20120708	NC007SW-A-20120708	7/8/2012	2 U	0.46 U	23
1_124	NC007SW_20120708	NC007SW-C-20120708	7/8/2012	2 U	0.42 U	21
1_39	NC007SW_20120805	NC007SW-A-20120805	8/5/2012	2 U	0.6 U	30
1_40	NC007SW_20120805	NC007SW-C-20120805	8/5/2012	2 U	0.52 U	26
1_292	NC007SW_20120909	NC007SW-A-20120909	9/9/2012	3 J	0.68 J	23
1_293	NC007SW_20120909	NC007SW-C-20120909	9/9/2012	2 J	0.35 J	17
1_263	NC007SW_20121001	NC007SW-A-20121001	10/1/2012	2 J	0.63 J	32

Speciation ID	Location ID	Sample ID	Sample Date	CN ug/l MDL	Free Cyanide (µg/L)	Free Cyanide (%)
1_264	NC007SW_20121001	NC007SW-C-20121001	10/1/2012	2 J	0.37 J	18
1_233	NC007SW_20121111	NC007SW-A-20121111	11/11/2012	2 J	0.24 J	12
1_234	NC007SW_20121111	NC007SW-C-20121111	11/11/2012	2 U	0.18 U	9
1_66	NC007SW_20121206	NC007SW-A-20121206	12/6/2012	1 J	0.06 J	6
1_67	NC007SW_20121206	NC007SW-C-20121206	12/6/2012	2 U	0.18 U	9
1_318	NC007SW_20130105	NC007SW-A-20130106	1/6/2013	2 U	0.13 U	6
1_319	NC007SW_20130105	NC007SW-C-20130106	1/6/2013	2 U	0.11 U	6
1_98	NC020SW_20120206	NC020SW-A-20120212	2/12/2012	3 J	0.9 J	30
1_99	NC020SW_20120206	NC020SW-C-20120212	2/12/2012	2 U	0.15 U	7
1_180	NC020SW_20120325	NC020SW-A-20120325	3/25/2012	2 J	0.82 J	41
1_181	NC020SW_20120325	NC020SW-C-20120325	3/25/2012	2 J	0.96 J	48
1_14	NC020SW_20120408	NC020SW-A-20120408	4/8/2012	4 J	1.25 J	31
1_15	NC020SW_20120408	NC020SW-C-20120408	4/8/2012	3 J	0.76 J	25
1_207	NC020SW_20120506	NC020SW-A-20120506	5/6/2012	2 U	0.49 U	24
1_208	NC020SW_20120506	NC020SW-C-20120506	5/6/2012	2 U	0.31 U	15
1_152	NC020SW_20120604	NC020SW-A-20120604	6/4/2012	4.9 J	0.95 J	19
1_153	NC020SW_20120604	NC020SW-C-20120604	6/4/2012	2 U	0.46 U	23
1_125	NC020SW_20120708	NC020SW-A-20120708	7/8/2012	2 U	0.32 U	16
1_126	NC020SW_20120708	NC020SW-C-20120708	7/8/2012	2 U	0.55 U	27
1_41	NC020SW_20120805	NC020SW-A-20120805	8/5/2012	2 U	0.58 U	29
1_42	NC020SW_20120805	NC020SW-C-20120805	8/5/2012	2 U	0.57 U	28
1_294	NC020SW_20120912	NC020SW-A-20120912	9/12/2012	10	6	57
1_295	NC020SW_20120912	NC020SW-C-20120912	9/12/2012	9	5	55
1_265	NC020SW_20120930	NC020SW-A-20120930	9/30/2012	2 J	0.47 J	24
1_266	NC020SW_20120930	NC020SW-C-20120930	9/30/2012	4 J	0.69 J	17
1_235	NC020SW_20121111	NC020SW-A-20121111	11/11/2012	3 J	0.41 J	14
1_236	NC020SW_20121111	NC020SW-C-20121111	11/11/2012	2 U	0.3 U	15
1_68	NC020SW_20121203	NC020SW-A-20121203	12/3/2012	2 J	0.04 J	2
1_69	NC020SW_20121203	NC020SW-C-20121203	12/3/2012	2 J	0.11 J	5
1_320	NC020SW_20130106	NC020SW-A-20130106	1/6/2013	2 U	0.13 U	7
1_321	NC020SW_20130106	NC020SW-C-20130106	1/6/2013	2 U	0.16 U	8
1_100	NC034SW_20120207	NC034SW-A-20120207	2/7/2012	3 J	1.13 J	38
1_101	NC034SW_20120207	NC034SW-C-20120207	2/7/2012	2 U	1.44 U	72
1_182	NC034SW_20120321	NC034SW-A-20120321	3/21/2012	2 J	0.29 J	15
1_183	NC034SW_20120321	NC034SW-C-20120321	3/21/2012	2 J	0.03 J	1
1_16	NC034SW_20120403	NC034SW-A-20120403	4/3/2012	2 J	0.07 J	4
1_17	NC034SW_20120403	NC034SW-C-20120403	4/3/2012	3 J	0.26 J	9
1_209	NC034SW_20120507	NC034SW-A-20120507	5/7/2012	2 U	0.52 U	26
1_210	NC034SW_20120507	NC034SW-C-20120507	5/7/2012	2 U	0.44 U	22
1_154	NC034SW_20120602	NC034SW-A-20120603	6/3/2012	4 J	1.52 J	38
1_155	NC034SW_20120602	NC034SW-C-20120603	6/3/2012	4 J	1.77 J	44
1_127	NC034SW_20120709	NC034SW-A-20120709	7/9/2012	2 U	0.24 U	12
1_128	NC034SW_20120709	NC034SW-C-20120709	7/9/2012	2 U	0.49 U	25
1_43	NC034SW_20120807	NC034SW-A-20120807	8/7/2012	2 U	0.28 U	14
1_44	NC034SW_20120807	NC034SW-C-20120807	8/7/2012	2 U	0.74 U	37
1_296	NC034SW_20120909	NC034SW-A-20120909	9/9/2012	16 J	9.68 J	60
1_297	NC034SW_20120909	NC034SW-C-20120909	9/9/2012	2 J	0.34 J	17
1_267	NC034SW_20120930	NC034SW-A-20120930	9/30/2012	2 U	1.04 U	52
1_268	NC034SW_20120930	NC034SW-C-20120930	9/30/2012	3 J	0.42 J	14
1_237	NC034SW_20121111	NC034SW-A-20121114	11/14/2012	2 U	0.54 U	27
1_238	NC034SW_20121111	NC034SW-C-20121114	11/14/2012	2 J	0.27 J	14
1_70	NC034SW_20121202	NC034SW-A-20121202	12/2/2012	3 J	0.11 J	4
1_71	NC034SW_20121202	NC034SW-C-20121202	12/2/2012	5 J	0.94 J	19
1_322	NC034SW_20130106	NC034SW-A-20130106	1/6/2013	2 U	0.13 U	6
1_323	NC034SW_20130106	NC034SW-C-20130106	1/6/2013	2 U	0.15 U	7
1_102	NC046SW_20120207	NC046SW-A-20120207	2/7/2012	3 J	0.97 J	32
1_103	NC046SW_20120207	NC046SW-C-20120207	2/7/2012	2 U	1.41 U	70
1_184	NC046SW_20120320	NC046SW-A-20120320	3/20/2012	2 J	0.15 J	8
1_185	NC046SW_20120320	NC046SW-C-20120320	3/20/2012	2 J	0.12 J	6
1_18	NC046SW_20120408	NC046SW-A-20120408	4/8/2012	2 J	0.12 J	6
1_19	NC046SW_20120408	NC046SW-C-20120408	4/8/2012	2 U	0.17 U	9
1_211	NC046SW_20120510	NC046SW-A-20120510	5/10/2012	2 U	0.29 U	14
1_212	NC046SW_20120510	NC046SW-C-20120510	5/10/2012	2 U	0.6 U	30
1_156	NC046SW_20120603	NC046SW-A-20120603	6/3/2012	2 J	0.06 J	3
1_157	NC046SW_20120603	NC046SW-C-20120603	6/3/2012	2 U	0.49 U	24
1_129	NC046SW_20120709	NC046SW-A-20120709	7/9/2012	2 U	0.41 U	21
1_130	NC046SW_20120709	NC046SW-C-20120709	7/9/2012	2 J	0.33 J	17
1_45	NC046SW_20120805	NC046SW-A-20120805	8/5/2012	2 J	0.08 J	4
1_46	NC046SW_20120805	NC046SW-C-20120805	8/5/2012	2 J	0.49 J	24
1_298	NC046SW_20120909	NC046SW-A-20120909	9/9/2012	2 J	0.23 J	12
1_299	NC046SW_20120909	NC046SW-C-20120909	9/9/2012	2 J	0.91 J	45
1_269	NC046SW_20120930	NC046SW-A-20120930	9/30/2012	2 U	0.58 U	29
1_270	NC046SW_20120930	NC046SW-C-20120930	9/30/2012	2 U	0.42 U	21
1_239	NC046SW_20121114	NC046SW-A-20121114	11/14/2012	2 J	0.35 J	18
1_240	NC046SW_20121114	NC046SW-C-20121114	11/14/2012	2 J	0.25 J	12
1_72	NC046SW_20121202	NC046SW-A-20121202	12/2/2012	3 J	0.06 J	2
1_73	NC046SW_20121202	NC046SW-C-20121202	12/2/2012	11 J	2.51 J	23
1_324	NC046SW_20130107	NC046SW-A-20130107	1/7/2013	2 U	0.15 U	7
1_325	NC046SW_20130107	NC046SW-C-20130107	1/7/2013	2 U	0.12 U	6
1_271	NC058SW_20121003	NC058SW-A-20121003	10/3/2012	2 J	0.36 J	18
1_272	NC058SW_20121003	NC058SW-C-20121003	10/3/2012	2 U	0.69 U	35

Speciation ID	Location ID	Sample ID	Sample Date	CN ug/l MDL	Free Cyanide (µg/L)	Free Cyanide (%)
1_241	NC058SW_20121114	NC058SW-A-20121114	11/14/2012	2 J	0.18 J	9
1_242	NC058SW_20121114	NC058SW-C-20121114	11/14/2012	3 J	0.38 J	13
1_74	NC058SW_20121204	NC058SW-A-20121204	12/4/2012	2 J	0.05 J	3
1_75	NC058SW_20121204	NC058SW-C-20121204	12/4/2012	2 J	0.1 J	5
1_326	NC058SW_20130107	NC058SW-A-20130107	1/7/2013	2 U	0.19 U	10
1_327	NC058SW_20130107	NC058SW-C-20130107	1/7/2013	2 U	0.13 U	7
1_104	NC068SW_20120209	NC068SW-A-20120209	2/9/2012	4 J	2.38 J	59
1_105	NC068SW_20120209	NC068SW-C-20120209	2/9/2012	5	0	1
1_186	NC068SW_20120319	NC068SW-A-20120319	3/19/2012	3 J	0.04 J	1
1_187	NC068SW_20120319	NC068SW-C-20120319	3/19/2012	3 J	0.06 J	2
1_20	NC068SW_20120402	NC068SW-A-20120402	4/2/2012	2 J	0.07 J	4
1_21	NC068SW_20120402	NC068SW-C-20120402	4/2/2012	2 J	0.06 J	3
1_213	NC068SW_20120507	NC068SW-A-20120507	5/7/2012	2 U	0.5 U	25
1_214	NC068SW_20120507	NC068SW-C-20120507	5/7/2012	2 U	0.55 U	28
1_158	NC068SW_20120603	NC068SW-A-20120603	6/3/2012	13	5	35
1_159	NC068SW_20120603	NC068SW-C-20120603	6/3/2012	2 J	0.19 J	10
1_131	NC068SW_20120711	NC068SW-A-20120711	7/11/2012	2 J	1.12 J	56
1_132	NC068SW_20120711	NC068SW-C-20120711	7/11/2012	3 J	2.26 J	75
1_47	NC068SW_20120815	NC068SW-A-20120815	8/15/2012	2 U	0.49 U	25
1_48	NC068SW_20120815	NC068SW-C-20120815	8/15/2012	2 U	0.77 U	38
1_300	NC068SW_20120910	NC068SW-A-20120910	9/10/2012	5 J	1.99 J	40
1_301	NC068SW_20120910	NC068SW-C-20120910	9/10/2012	2 J	1.43 J	71
1_273	NC068SW_20121005	NC068SW-A-20121005	10/5/2012	2 U	0.68 U	34
1_274	NC068SW_20121005	NC068SW-C-20121005	10/5/2012	2 J	0.6 J	30
1_243	NC068SW_20121111	NC068SW-A-20121111	11/11/2012	2 U	0.41 U	21
1_244	NC068SW_20121111	NC068SW-C-20121111	11/11/2012	2 U	0.32 U	16
1_76	NC068SW_20121203	NC068SW-A-20121203	12/3/2012	2 J	0.06 J	3
1_77	NC068SW_20121203	NC068SW-C-20121203	12/3/2012	2 J	0.12 J	6
1_328	NC068SW_20130107	NC068SW-A-20130107	1/7/2013	2 U	0.14 U	7
1_329	NC068SW_20130107	NC068SW-C-20130107	1/7/2013	2 U	0.15 U	7
1_106	NC070SW_20120206	NC070SW-A-20120206	2/6/2012	2 J	0.7 J	35
1_107	NC070SW_20120206	NC070SW-C-20120206	2/6/2012	9 J	3.02 J	34
1_188	NC070SW_20120324	NC070SW-A-20120325	3/25/2012	2 J	0.95 J	48
1_189	NC070SW_20120324	NC070SW-C-20120325	3/25/2012	2 U	0.02 U	1
1_22	NC070SW_20120405	NC070SW-A-20120405	4/5/2012	3 J	0.38 J	13
1_23	NC070SW_20120405	NC070SW-C-20120405	4/5/2012	4 J	0.09 J	2
1_215	NC070SW_20120509	NC070SW-A-20120509	5/9/2012	3 J	0.74 J	25
1_216	NC070SW_20120509	NC070SW-C-20120509	5/9/2012	2 U	0.48 U	24
1_160	NC070SW_20120606	NC070SW-A-20120606	6/6/2012	2 U	0.17 U	8
1_161	NC070SW_20120606	NC070SW-C-20120606	6/6/2012	2 U	0.76 U	38
1_133	NC070SW_20120708	NC070SW-A-20120708	7/8/2012	2 U	0.08 U	4
1_134	NC070SW_20120708	NC070SW-C-20120708	7/8/2012	2 U	0.78 U	39
1_49	NC070SW_20120815	NC070SW-A-20120815	8/15/2012	2 J	0.17 J	9
1_50	NC070SW_20120815	NC070SW-C-20120815	8/15/2012	2 U	0.7 U	35
1_302	NC070SW_20120911	NC070SW-A-20120911	9/11/2012	3 J	0.86 J	29
1_303	NC070SW_20120911	NC070SW-C-20120911	9/11/2012	8 J	5.82 J	73
1_275	NC070SW_20121003	NC070SW-A-20121003	10/3/2012	2 J	0.19 J	9
1_276	NC070SW_20121003	NC070SW-C-20121003	10/3/2012	4 J	1.21 J	30
1_245	NC070SW_20121112	NC070SW-A-20121112	11/12/2012	2 J	0.23 J	11
1_246	NC070SW_20121112	NC070SW-C-20121112	11/12/2012	1 J	0.1 J	10
1_78	NC070SW_20121205	NC070SW-A-20121205	12/5/2012	4.5 J	0.11 J	2
1_79	NC070SW_20121205	NC070SW-C-20121205	12/5/2012	2 J	0.08 J	4
1_330	NC070SW_20130109	NC070SW-A-20130109	1/9/2013	1 J	0.07 J	7
1_331	NC070SW_20130109	NC070SW-C-20130109	1/9/2013	2 U	0.18 U	9
1_109	NC079SW_20120210	NC079SW-C-20120210	2/10/2012	3 J	0.88 J	29
1_108	NC079SW_20120210	NC079SW-A-20120210	2/10/2012	2 U	0.24 U	12
1_190	NC079SW_20120323	NC079SW-A-20120323	3/23/2012	3 J	0.89 J	30
1_191	NC079SW_20120323	NC079SW-C-20120323	3/23/2012	2 J	0.09 J	5
1_24	NC079SW_20120402	NC079SW-A-20120402	4/2/2012	4 J	0.14 J	3
1_25	NC079SW_20120402	NC079SW-C-20120402	4/2/2012	3 J	0.27 J	9
1_217	NC079SW_20120509	NC079SW-A-20120509	5/9/2012	2 U	0.54 U	27
1_218	NC079SW_20120509	NC079SW-C-20120509	5/9/2012	2 U	0.53 U	26
1_162	NC079SW_20120607	NC079SW-A-20120607	6/7/2012	2 J	0.27 J	14
1_163	NC079SW_20120607	NC079SW-C-20120607	6/7/2012	2 J	0.84 J	42
1_135	NC079SW_20120712	NC079SW-A-20120712	7/12/2012	3 J	2.06 J	69
1_136	NC079SW_20120712	NC079SW-C-20120712	7/12/2012	2 U	1.43 U	71
1_51	NC079SW_20120808	NC079SW-A-20120808	8/8/2012	2 J	0.29 J	14
1_52	NC079SW_20120808	NC079SW-C-20120808	8/8/2012	7 J	3.96 J	57
1_304	NC079SW_20120910	NC079SW-A-20120910	9/10/2012	2 J	0.26 J	13
1_305	NC079SW_20120910	NC079SW-C-20120910	9/10/2012	2 J	1.41 J	70
1_277	NC079SW_20121004	NC079SW-A-20121004	10/4/2012	3 J	0.25 J	8
1_278	NC079SW_20121004	NC079SW-C-20121004	10/4/2012	2 J	0.66 J	33
1_247	NC079SW_20121113	NC079SW-A-20121113	11/13/2012	4 J	0.3 J	7
1_248	NC079SW_20121113	NC079SW-C-20121113	11/13/2012	4 U	0.31 U	8
1_80	NC079SW_20121204	NC079SW-A-20121204	12/4/2012	2 J	0.1 J	5
1_81	NC079SW_20121204	NC079SW-C-20121204	12/4/2012	2 J	0.13 J	7
1_332	NC079SW_20130109	NC079SW-A-20130109	1/9/2013	2 U	0.29 U	14
1_333	NC079SW_20130109	NC079SW-C-20130109	1/9/2013	2 J	0.15 J	7
2_115	NC172SW_1405	NC172SW-A-20140520	5/20/2014	1 U	0.51 U	51
2_116	NC172SW_1405	NC172SW-C-20140520	5/20/2014	7	4	51
2_117	NC172SW_1408	NC172SW-A-20140807	8/7/2014	1 U	0.34 U	34

Speciation ID	Location ID	Sample ID	Sample Date	CN ug/l MDL	Free Cyanide (µg/L)	Free Cyanide (%)
2_118	NC172SW_1408	NC172SW-C-20140807	8/7/2014	1 U	0.23 U	23
2_119	NC208SW_1405	NC208SW-A-20140522	5/22/2014	1 U	0.35 U	35
2_120	NC208SW_1405	NC208SW-C-20140522	5/22/2014	1 U	0.55 U	55
2_121	NC208SW_1408	NC208SW-A-20140805	8/5/2014	1 U	0.13 U	13
2_122	NC208SW_1408	NC208SW-C-20140805	8/5/2014	1 U	0.19 U	19
2_123	NC226SW_1405	NC226SW-A-20140519	5/19/2014	1 U	0.24 U	24
2_124	NC226SW_1405	NC226SW-C-20140519	5/19/2014	1 U	0.07 U	7
2_125	NC226SW_1408	NC226SW-A-20140804	8/4/2014	2 J	0.23 J	11
2_126	NC226SW_1408	NC226SW-C-20140804	8/4/2014	1 U	0.36 U	36
2_127	NC227SW_1405	NC227SW-A-20140521	5/21/2014	1 U	0.43 U	43
2_128	NC227SW_1405	NC227SW-C-20140521	5/21/2014	1 U	0.45 U	45
2_129	NC227SW_1408	NC227SW-A-20140805	8/5/2014	4 J	0.19 J	5
2_130	NC227SW_1408	NC227SW-C-20140805	8/5/2014	4 J	0.66 J	17
1_111	WC001SW_20120210	WC001SW-C-20120210	2/10/2012	2 J	0.19 J	10
1_110	WC001SW_20120210	WC001SW-A-20120210	2/10/2012	6	2	29
1_192	WC001SW_20120319	WC001SW-A-20120319	3/19/2012	4.8 J	1.03 J	22
1_193	WC001SW_20120319	WC001SW-C-20120319	3/19/2012	3 J	0.34 J	11
1_26	WC001SW_20120403	WC001SW-A-20120403	4/3/2012	2 J	0.12 J	6
1_27	WC001SW_20120403	WC001SW-C-20120403	4/3/2012	2 U	0.09 U	5
1_219	WC001SW_20120507	WC001SW-A-20120507	5/7/2012	2 U	0.49 U	24
1_220	WC001SW_20120507	WC001SW-C-20120507	5/7/2012	2 U	0.14 U	7
1_164	WC001SW_20120605	WC001SW-A-20120605	6/5/2012	2 J	0.37 J	18
1_165	WC001SW_20120605	WC001SW-B-20120605	6/5/2012	2 J	0.64 J	32
1_166	WC001SW_20120605	WC001SW-C-20120605	6/5/2012	4 J	1.74 J	43
1_137	WC001SW_20120709	WC001SW-A-20120709	7/9/2012	2 U	0.12 U	6
1_138	WC001SW_20120709	WC001SW-C-20120709	7/9/2012	2 U	0.73 U	36
1_53	WC001SW_20120809	WC001SW-A-20120809	8/9/2012	2 U	0.1 U	5
1_54	WC001SW_20120809	WC001SW-C-20120809	8/9/2012	2 U	0.58 U	29
1_306	WC001SW_20120911	WC001SW-A-20120911	9/11/2012	3 J	0.53 J	18
1_307	WC001SW_20120911	WC001SW-C-20120911	9/11/2012	6 J	1.35 J	22
1_279	WC001SW_20121001	WC001SW-A-20121001	10/1/2012	2 J	0.64 J	32
1_280	WC001SW_20121001	WC001SW-C-20121001	10/1/2012	2 U	0.52 U	26
1_249	WC001SW_20121112	WC001SW-A-20121112	11/12/2012	4 J	0.31 J	8
1_250	WC001SW_20121112	WC001SW-C-20121112	11/12/2012	2 U	0.23 U	11
1_82	WC001SW_20121206	WC001SW-A-20121206	12/6/2012	2 J	0.06 J	3
1_83	WC001SW_20121206	WC001SW-C-20121206	12/6/2012	2 J	0.12 J	6
1_334	WC001SW_20130109	WC001SW-A-20130109	1/9/2013	2 U	0.17 U	8
1_335	WC001SW_20130109	WC001SW-C-20130109	1/9/2013	2 U	0.16 U	8

Row Labels	Count of UCL_KEY1	Sum of RESULT_VALUE_MDL	Sum of D_RESULT_VALUE_MDL	lookup_result_value_MDL	lookup_freeCyanide	d_lookup_freeCyanide
DK001SW-A-20120212	1	0.004	1	4 J	1.24	1
DK001SW-A-20120323	1	0.002	1	2 J	0.78	1
DK001SW-A-20120406	1	0.002	1	2 J	0.17	1
DK001SW-A-20120509	1	0.002	0	2 U	0.24	0
DK001SW-A-20120604	1	0.002	0	2 U	0.07	0
DK001SW-A-20120711	1	0.002	1	2 J	1.23	1
DK001SW-A-20120809	1	0.002	0	2 U	0.1	0
DK001SW-A-20120912	1	0.002	1	2 J	0.44	1
DK001SW-A-20121001	1	0.002	0	2 U	0.72	0
DK001SW-A-20121113	1	0.003	1	3 J	0.18	1
DK001SW-A-20121202	1	0.002	1	2 J	0.08	1
DK001SW-A-20130108	1	0.001	0	2 U	0.15	0
DK001SW-C-20120212	1	0.002	0	2 U	0.21	0
DK001SW-C-20120323	1	0.002	1	2 J	0.92	1
DK001SW-C-20120509	1	0.002	0	2.4 U	0.46	0
DK001SW-C-20120604	1	0.002	0	2 U	0.68	0
DK001SW-C-20120711	1	0.002	0	2 U	1.16	0
DK001SW-C-20120809	1	0.002	0	2 U	0.5	0
DK001SW-C-20120912	1	0.004	1	4 J	1.8	1
DK001SW-C-20121001	1	0.002	1	2 J	0.35	1
DK001SW-C-20121113	1	0.001	0	2 U	0.29	0
DK001SW-C-20121202	1	0.002	1	2 J	0.11	1
DK001SW-C-20130108	1	0.003	1	3 J	0.14	1
DK001SW-C2-20120406	1	0.002	1	2 J	0.16	1
DK011SW-A-20120207	1	0.004	1	4 J	3.28	1
DK011SW-A-20120320	1	0.002	1	2 J	0.62	1
DK011SW-A-20120406	1	0.003	1	3 J	0.91	1
DK011SW-A-20120511	1	0.002	0	2 U	0.12	0
DK011SW-A-20120606	1	0.002	1	2 J	0.29	1
DK011SW-A-20120711	1	0.003	1	3 J	1.64	1
DK011SW-A-20120809	1	0.002	0	2 U	0.3	0
DK011SW-A-20120912	1	0.002	0	2 U	0.99	0
DK011SW-A-20121004	1	0.002	1	2 J	0.51	1
DK011SW-A-20121115	1	0.001	1	1 J	0.18	1
DK011SW-A-20121207	1	0.002	1	2 J	0.11	1
DK011SW-A-20130111	1	0.001	0	2 U	0.33	0
DK011SW-A-20140521	1	0.002	1	1 U	0.43	0
DK011SW-A-20140806	1	0.001	1	1 U	0.35	0
DK011SW-C-20120207	1	0.002	1	2 J	1.8	1
DK011SW-C-20120320	1	0.002	1	2 J	0.78	1
DK011SW-C-20120406	1	0.002	1	2 J	0.36	1
DK011SW-C-20120511	1	0.002	0	2 U	1.33	0
DK011SW-C-20120606	1	0.002	1	2 J	1.3	1
DK011SW-C-20120711	1	0.002	1	2 J	1.56	1
DK011SW-C-20120809	1	0.006	1	6 J	4.98	1
DK011SW-C-20120912	1	0.036	1	36	27.7	1
DK011SW-C-20121004	1	0.002	1	2 J	1.04	1
DK011SW-C-20121115	1	0.001	0	2 U	0.44	0
DK011SW-C-20121207	1	0.002	1	2 J	0.19	1
DK011SW-C-20130111	1	0.001	0	2 U	0.3	0
DK011SW-C-20140521	1	0.005	1	1.4 U	1.07	0
DK011SW-C-20140806	1	0.001	0	1 U	0.42	0
EB010SW-A-20120210	1	0.005	1	5	2.55	1
EB010SW-A-20120321	1	0.002	1	2 J	0.49	1
EB010SW-A-20120405	1	0.0046	1	4.6 J	1.58	1
EB010SW-A-20120508	1	0.002	0	2 U	1.08	0
EB010SW-A-20120606	1	0.002	1	2 J	1.24	1
EB010SW-A-20120710	1	0.002	1	2 J	0.77	1
EB010SW-A-20120808	1	0.002	0	2 U	1.15	0
EB010SW-A-20120913	1	0.006	1	6	5.24	1
EB010SW-A-20121004	1	0.003	1	3 J	1.22	1
EB010SW-A-20121113	1	0.004	1	4 J	0.29	1
EB010SW-A-20121204	1	0.002	1	2 J	0.27	1
EB010SW-A-20130110	1	0.001	0	2 U	0.27	0
EB010SW-A-20140520	1	0.001	0	1 U	0.33	0
EB010SW-A-20140807	1	0.001	1	1 U	0.19	0
EK006SW-A-20120212	1	0.002	0	2 U	0.2	0
EK006SW-A-20120322	1	0.002	1	2 J	0.84	1
EK006SW-A-20120405	1	0.003	1	3 J	0.31	1
EK006SW-A-20120510	1	0.002	0	2 U	0.22	0
EK006SW-A-20120608	1	0.003	1	3 J	1.2	1
EK006SW-A-20120712	1	0.004	1	4 J	1.78	1
EK006SW-A-20120808	1	0.002	1	2 J	0.36	1
EK006SW-A-20120914	1	0.002	0	2 U	0.86	0
EK006SW-A-20121005	1	0.002	1	2 J	0.2	1
EK006SW-A-20121115	1	0.001	0	2 U	0.94	0
EK006SW-A-20121206	1	0.002	1	2 J	0.11	1
EK006SW-A-20130110	1	0.001	0	2 U	0.17	0
EK006SW-C-20120212	1	0.002	0	2 U	0.22	0
EK006SW-C-20120322	1	0.004	1	4 J	0.89	1
EK006SW-C-20120405	1	0.002	1	2 J	0.28	1
EK006SW-C-20120510	1	0.002	0	2 U	0.66	0
EK006SW-C-20120608	1	0.002	1	2 J	0.75	1
EK006SW-C-20120712	1	0.002	0	2 U	1.43	0
EK006SW-C-20120808	1	0.052	1	52 J	23.6	1
EK006SW-C-20120914	1	0.002	0	2 U	0.72	0
EK006SW-C-20121005	1	0.002	1	2 J	0.63	1
EK006SW-C-20121115	1	0.001	1	1 J	0.26	1
EK006SW-C-20121206	1	0.002	1	2 J	0.15	1
EK006SW-C-20130110	1	0.001	0	2 U	0.2	0
EK014SW-A-20120208	1	0.005	1	5	2.19	1
EK014SW-A-20120322	1	0.002	1	2 J	0.9	1
EK014SW-A-20120404	1	0.003	1	3 J	0.2	1
EK014SW-A-20120508	1	0.002	0	2 U	0.71	0
EK014SW-A-20120605	1	0.018	1	18	6.1	1
EK014SW-A-20120710	1	0.002	1	2 J	0.74	1
EK014SW-A-20120807	1	0.002	0	2 U	0.07	0
EK014SW-A-20120911	1	0.0049	1	4.9 J	2.79	1
EK014SW-A-20121002	1	0.004	1	4 J	0.11	1
EK014SW-A-20121116	1	0.002	1	2 J	0.63	1
EK014SW-A-20121205	1	0.002	1	2 J	0.16	1
EK014SW-A-20130108	1	0.001	1	1 J	0.08	1
EK014SW-C-20120208	1	0.002	0	2 U	0.22	0
EK014SW-C-20120322	1	0.002	1	2 J	0.32	1
EK014SW-C-20120404	1	0.002	1	2 J	0.31	1
EK014SW-C-20120508	1	0.002	0	2 U	0.78	0
EK014SW-C-20120605	1	0.002	1	2 J	0.59	1
EK014SW-C-20120710	1	0.003	1	3 J	1.45	1
EK014SW-C-20120807	1	0.002	0	2 U	0.99	0
EK014SW-C-20120911	1	0.005	1	5 J	4.21	1
EK014SW-C-20121002	1	0.004	1	4 J	1.85	1
EK014SW-C-20121116	1	0.003	1	3 J	0.71	1
EK014SW-C-20121205	1	0.002	1	2 J	0.13	1
EK022SW-A-20120208	1	0.002	1	2 J	0.2	1
EK022SW-A-20120322	1	0.002	1	2 J	0.21	1
EK022SW-A-20120404	1	0.003	1	3 J	0.19	1
EK022SW-A-20120510	1	0.002	0	2 U	0.73	0

Row Labels	Count of UCL_KEY1	Sum of RESULT_VALUE_MDL	Sum of D_RESULT_VALUE_MDL	lookup_result_value_MDL	lookup_freeCyanide	d_lookup_freeCyanide
EK022SW-A-20120605	1	0.002	1	2 J	0.72	1
EK022SW-A-20120712	1	0.002	0	2 U	1.3	0
EK022SW-A-20120807	1	0.002	0	2 U	0.13	0
EK022SW-A-20120913	1	0.0046	1	4.6 J	3.54	1
EK022SW-A-20121002	1	0.004	1	4 J	1.71	1
EK022SW-A-20121116	1	0.001	1	1 J	0.33	1
EK022SW-A-20121205	1	0.003	1	3 J	0.31	1
EK022SW-A-20130108	1	0.001	0	2 U	0.17	0
EK022SW-A-20140519	1	0.001	0	1 U	0.36	0
EK022SW-A-20140806	1	0.002	1	1 U	0.33	0
EK022SW-C-20120208	1	0.0046	1	4.6 J	2.03	1
EK022SW-C-20121002	1	0.002	0	2 U	1.42	0
EK022SW-C-20121116	1	0.002	1	2 J	0.55	1
MC008SW-A-20120209	1	0.0046	1	4.6 J	1.84	1
MC008SW-A-20120320	1	0.002	0	2 U	0.06	0
MC008SW-A-20120406	1	0.002	1	2 J	0.1	1
MC008SW-A-20120511	1	0.002	0	2 U	0.36	0
MC008SW-A-20120607	1	0.002	1	2 J	0.37	1
MC008SW-A-20120710	1	0.002	1	2 J	0.83	1
MC008SW-A-20120806	1	0.002	0	2 U	0.06	0
MC008SW-A-20120910	1	0.002	1	2 J	0.55	1
MC008SW-A-20121003	1	0.002	0	2 U	0.86	0
MC008SW-A-20121112	1	0.001	0	2 U	0.49	0
MC008SW-A-20121203	1	0.002	1	2 J	0.1	1
MC008SW-A-20130111	1	0.001	0	2 U	0.09	0
MC008SW-A-20140520	1	0.001	0	8	5.63	1
MC008SW-A-20140804	1	0.003	1	4 J	0.61	1
MC008SW-C-20140804	1	0.001	1	4 J	0.66	1
NC007SW-A-20120208	1	0.0048	1	4.8 J	1.87	1
NC007SW-A-20120325	1	0.002	1	2 J	0.86	1
NC007SW-A-20120403	1	0.003	1	3 J	0.28	1
NC007SW-A-20120506	1	0.002	0	2 U	0.35	0
NC007SW-A-20120604	1	0.002	1	2 J	0.49	1
NC007SW-A-20120708	1	0.002	0	2 U	0.46	0
NC007SW-A-20120805	1	0.002	0	2 U	0.6	0
NC007SW-A-20120909	1	0.003	1	3 J	0.68	1
NC007SW-A-20121001	1	0.002	1	2 J	0.63	1
NC007SW-A-20121111	1	0.002	1	2 J	0.24	1
NC007SW-A-20121206	1	0.001	1	1 J	0.06	1
NC007SW-A-20130106	1	0.001	0	2 U	0.13	0
NC007SW-C-20120208	1	0.002	1	2 J	0.09	1
NC007SW-C-20120325	1	0.002	1	2 J	0.98	1
NC007SW-C-20120403	1	0.004	1	4 J	1.41	1
NC007SW-C-20120506	1	0.002	0	2 U	0.34	0
NC007SW-C-20120604	1	0.002	0	2 U	0.5	0
NC007SW-C-20120708	1	0.002	0	2 U	0.42	0
NC007SW-C-20120805	1	0.002	0	2 U	0.52	0
NC007SW-C-20120909	1	0.002	1	2 J	0.35	1
NC007SW-C-20121001	1	0.002	1	2 J	0.37	1
NC007SW-C-20121111	1	0.001	0	2 U	0.18	0
NC007SW-C-20121206	1	0.001	0	2 U	0.18	0
NC007SW-C-20130106	1	0.001	0	2 U	0.11	0
NC020SW-A-20120212	1	0.003	1	3 J	0.9	1
NC020SW-A-20120325	1	0.002	1	2 J	0.82	1
NC020SW-A-20120408	1	0.004	1	4 J	1.25	1
NC020SW-A-20120506	1	0.002	0	2 U	0.49	0
NC020SW-A-20120604	1	0.0049	1	4.9 J	0.95	1
NC020SW-A-20120708	1	0.002	0	2 U	0.32	0
NC020SW-A-20120805	1	0.002	0	2 U	0.58	0
NC020SW-A-20120912	1	0.01	1	10	5.71	1
NC020SW-A-20120930	1	0.002	1	2 J	0.47	1
NC020SW-A-20121111	1	0.003	1	3 J	0.41	1
NC020SW-A-20121203	1	0.002	1	2 J	0.04	1
NC020SW-A-20130106	1	0.001	0	2 U	0.13	0
NC020SW-C-20120212	1	0.002	0	2 U	0.15	0
NC020SW-C-20120325	1	0.002	1	2 J	0.96	1
NC020SW-C-20120408	1	0.003	1	3 J	0.76	1
NC020SW-C-20120506	1	0.002	0	2 U	0.31	0
NC020SW-C-20120604	1	0.002	0	2 U	0.46	0
NC020SW-C-20120708	1	0.002	0	2 U	0.55	0
NC020SW-C-20120805	1	0.002	0	2 U	0.57	0
NC020SW-C-20120912	1	0.009	1	9	4.93	1
NC020SW-C-20120930	1	0.004	1	4 J	0.69	1
NC020SW-C-20121111	1	0.001	0	2 U	0.3	0
NC020SW-C-20121203	1	0.002	1	2 J	0.11	1
NC020SW-C-20130106	1	0.001	0	2 U	0.16	0
NC034SW-A-20120207	1	0.003	1	3 J	1.13	1
NC034SW-A-20120321	1	0.002	1	2 J	0.29	1
NC034SW-A-20120403	1	0.002	1	2 J	0.07	1
NC034SW-A-20120507	1	0.002	0	2 U	0.52	0
NC034SW-A-20120603	1	0.004	1	4 J	1.52	1
NC034SW-A-20120709	1	0.002	0	2 U	0.24	0
NC034SW-A-20120807	1	0.002	0	2 U	0.28	0
NC034SW-A-20120909	1	0.016	1	16 J	9.68	1
NC034SW-A-20120930	1	0.002	0	2 U	1.04	0
NC034SW-A-20121114	1	0.001	0	2 U	0.54	0
NC034SW-A-20121202	1	0.003	1	3 J	0.11	1
NC034SW-A-20130106	1	0.001	0	2 U	0.13	0
NC034SW-C-20120207	1	0.002	0	2 U	1.44	0
NC034SW-C-20120321	1	0.002	1	2 J	0.03	1
NC034SW-C-20120403	1	0.003	1	3 J	0.26	1
NC034SW-C-20120507	1	0.002	0	2 U	0.44	0
NC034SW-C-20120603	1	0.004	1	4 J	1.77	1
NC034SW-C-20120709	1	0.002	0	2 U	0.49	0
NC034SW-C-20120807	1	0.002	0	2 U	0.74	0
NC034SW-C-20120909	1	0.002	1	2 J	0.34	1
NC034SW-C-20120930	1	0.003	1	3 J	0.42	1
NC034SW-C-20121114	1	0.002	1	2 J	0.27	1
NC034SW-C-20121202	1	0.005	1	5 J	0.94	1
NC034SW-C-20130106	1	0.001	0	2 U	0.15	0
NC046SW-A-20120207	1	0.003	1	3 J	0.97	1
NC046SW-A-20120320	1	0.002	1	2 J	0.15	1
NC046SW-A-20120408	1	0.002	1	2 J	0.12	1
NC046SW-A-20120510	1	0.002	0	2 U	0.29	0
NC046SW-A-20120603	1	0.002	1	2 J	0.06	1
NC046SW-A-20120709	1	0.002	0	2 U	0.41	0
NC046SW-A-20120805	1	0.002	1	2 J	0.08	1
NC046SW-A-20120909	1	0.002	1	2 J	0.23	1
NC046SW-A-20120930	1	0.002	0	2 U	0.58	0
NC046SW-A-20121114	1	0.002	1	2 J	0.35	1
NC046SW-A-20121202	1	0.003	1	3 J	0.06	1
NC046SW-A-20130107	1	0.001	0	2 U	0.15	0
NC046SW-C-20120207	1	0.002	0	2 U	1.41	0
NC046SW-C-20120320	1	0.002	1	2 J	0.12	1
NC046SW-C-20120408	1	0.002	0	2 U	0.17	0
NC046SW-C-20120510	1	0.002	0	2 U	0.6	0
NC046SW-C-20120603	1	0.002	0	2 U	0.49	0

Row Labels	Count of UCL_KEY1	Sum of RESULT_VALUE_MDL	Sum of D_RESULT_VALUE_MDL	lookup_result_value_MDL	lookup_freeCyanide	d_lookup_freeCyanide
NC046SW-C-20120709	1	0.002	1	2 J	0.33	1
NC046SW-C-20120805	1	0.002	1	2 J	0.49	1
NC046SW-C-20120909	1	0.002	1	2 J	0.91	1
NC046SW-C-20120930	1	0.002	0	2 U	0.42	0
NC046SW-C-20121114	1	0.002	1	2 J	0.25	1
NC046SW-C-20121202	1	0.011	1	11 J	2.51	1
NC046SW-C-20130107	1	0.001	0	2 U	0.12	0
NC058SW-A-20121003	1	0.002	1	2 J	0.36	1
NC058SW-A-20121114	1	0.002	1	2 J	0.18	1
NC058SW-A-20121204	1	0.002	1	2 J	0.05	1
NC058SW-A-20130107	1	0.001	0	2 U	0.19	0
NC058SW-C-20121003	1	0.002	0	2 U	0.69	0
NC058SW-C-20121114	1	0.003	1	3 J	0.38	1
NC058SW-C-20121204	1	0.002	1	2 J	0.1	1
NC058SW-C-20130107	1	0.001	0	2 U	0.13	0
NC068SW-A-20120209	1	0.004	1	4 J	2.38	1
NC068SW-A-20120319	1	0.003	1	3 J	0.04	1
NC068SW-A-20120402	1	0.002	1	2 J	0.07	1
NC068SW-A-20120507	1	0.002	0	2 U	0.5	0
NC068SW-A-20120603	1	0.013	1	13	4.54	1
NC068SW-A-20120711	1	0.002	1	2 J	1.12	1
NC068SW-A-20120815	1	0.002	0	2 U	0.49	0
NC068SW-A-20120910	1	0.005	1	5 J	1.99	1
NC068SW-A-20121005	1	0.002	0	2 U	0.68	0
NC068SW-A-20121111	1	0.001	0	2 U	0.41	0
NC068SW-A-20121203	1	0.002	1	2 J	0.06	1
NC068SW-A-20130107	1	0.001	0	2 U	0.14	0
NC068SW-C-20120209	1	0.005	1	5	0.05	1
NC068SW-C-20120319	1	0.003	1	3 J	0.06	1
NC068SW-C-20120402	1	0.002	1	2 J	0.06	1
NC068SW-C-20120507	1	0.002	0	2 U	0.55	0
NC068SW-C-20120603	1	0.002	1	2 J	0.19	1
NC068SW-C-20120711	1	0.003	1	3 J	2.26	1
NC068SW-C-20120815	1	0.002	0	2 U	0.77	0
NC068SW-C-20120910	1	0.002	1	2 J	1.43	1
NC068SW-C-20121005	1	0.002	1	2 J	0.6	1
NC068SW-C-20121111	1	0.001	0	2 U	0.32	0
NC068SW-C-20121203	1	0.002	1	2 J	0.12	1
NC068SW-C-20130107	1	0.001	0	2 U	0.15	0
NC070SW-A-20120206	1	0.002	1	2 J	0.7	1
NC070SW-A-20120325	1	0.002	1	2 J	0.95	1
NC070SW-A-20120405	1	0.003	1	3 J	0.38	1
NC070SW-A-20120509	1	0.003	1	3 J	0.74	1
NC070SW-A-20120606	1	0.002	0	2 U	0.17	0
NC070SW-A-20120708	1	0.002	0	2 U	0.08	0
NC070SW-A-20120815	1	0.002	1	2 J	0.17	1
NC070SW-A-20120911	1	0.003	1	3 J	0.86	1
NC070SW-A-20121003	1	0.002	1	2 J	0.19	1
NC070SW-A-20121112	1	0.002	1	2 J	0.23	1
NC070SW-A-20121205	1	0.0045	1	4.5 J	0.11	1
NC070SW-A-20130109	1	0.001	1	1 J	0.07	1
NC070SW-C-20120206	1	0.009	1	9 J	3.02	1
NC070SW-C-20120325	1	0.002	0	2 U	0.02	0
NC070SW-C-20120405	1	0.004	1	4 J	0.09	1
NC070SW-C-20120509	1	0.002	0	2 U	0.48	0
NC070SW-C-20120606	1	0.002	0	2 U	0.76	0
NC070SW-C-20120708	1	0.002	0	2 U	0.78	0
NC070SW-C-20120815	1	0.002	0	2 U	0.7	0
NC070SW-C-20120911	1	0.008	1	8 J	5.82	1
NC070SW-C-20121003	1	0.004	1	4 J	1.21	1
NC070SW-C-20121112	1	0.001	1	1 J	0.1	1
NC070SW-C-20121205	1	0.002	1	2 J	0.08	1
NC070SW-C-20130109	1	0.001	0	2 U	0.18	0
NC079SW-A-20120210	1	0.002	0	2 U	0.24	0
NC079SW-A-20120323	1	0.003	1	3 J	0.89	1
NC079SW-A-20120402	1	0.004	1	4 J	0.14	1
NC079SW-A-20120509	1	0.002	0	2 U	0.54	0
NC079SW-A-20120607	1	0.002	1	2 J	0.27	1
NC079SW-A-20120712	1	0.003	1	3 J	2.06	1
NC079SW-A-20120808	1	0.002	1	2 J	0.29	1
NC079SW-A-20120910	1	0.002	1	2 J	0.26	1
NC079SW-A-20121004	1	0.003	1	3 J	0.25	1
NC079SW-A-20121113	1	0.004	1	4 J	0.3	1
NC079SW-A-20121204	1	0.002	1	2 J	0.1	1
NC079SW-A-20130109	1	0.001	0	2 U	0.29	0
NC079SW-C-20120210	1	0.003	1	3 J	0.88	1
NC079SW-C-20120323	1	0.002	1	2 J	0.09	1
NC079SW-C-20120402	1	0.003	1	3 J	0.27	1
NC079SW-C-20120509	1	0.002	0	2 U	0.53	0
NC079SW-C-20120607	1	0.002	1	2 J	0.84	1
NC079SW-C-20120712	1	0.002	0	2 U	1.43	0
NC079SW-C-20120808	1	0.007	1	7 J	3.96	1
NC079SW-C-20120910	1	0.002	1	2 J	1.41	1
NC079SW-C-20121004	1	0.002	1	2 J	0.66	1
NC079SW-C-20121113	1	0.003	0	4 U	0.31	0
NC079SW-C-20121204	1	0.002	1	2 J	0.13	1
NC079SW-C-20130109	1	0.002	1	2 J	0.15	1
NC172SW-A-20140520	1	0.001	0	1 U	0.51	0
NC172SW-A-20140807	1	0.001	0	1 U	0.34	0
NC172SW-C-20140520	1	0.001	0	7	3.6	1
NC172SW-C-20140807	1	0.001	0	1 U	0.23	0
NC208SW-A-20140522	1	0.002	1	1 U	0.35	0
NC208SW-A-20140805	1	0.001	0	1 U	0.13	0
NC208SW-C-20140522	1	0.002	1	1 U	0.55	0
NC208SW-C-20140805	1	0.002	1	1 U	0.19	0
NC226SW-A-20140519	1	0.001	0	1 U	0.24	0
NC226SW-A-20140804	1	0.003	1	2 J	0.23	1
NC226SW-C-20140519	1	0.001	0	1 U	0.07	0
NC226SW-C-20140804	1	0.011	1	1 U	0.36	0
NC227SW-A-20140521	1	0.001	1	1 U	0.43	0
NC227SW-A-20140805	1	0.001	0	4 J	0.19	1
NC227SW-C-20140521	1	0.001	1	1 U	0.45	0
NC227SW-C-20140805	1	0.001	0	4 J	0.66	1
WC001SW-A-20120210	1	0.006	1	6	1.73	1
WC001SW-A-20120319	1	0.0048	1	4.8 J	1.03	1
WC001SW-A-20120403	1	0.002	1	2 J	0.12	1
WC001SW-A-20120507	1	0.002	0	2 U	0.49	0
WC001SW-A-20120605	1	0.002	1	2 J	0.37	1
WC001SW-A-20120709	1	0.002	0	2 U	0.12	0
WC001SW-A-20120809	1	0.002	0	2 U	0.1	0
WC001SW-A-20120911	1	0.003	1	3 J	0.53	1
WC001SW-A-20121001	1	0.002	1	2 J	0.64	1
WC001SW-A-20121112	1	0.004	1	4 J	0.31	1
WC001SW-A-20121206	1	0.002	1	2 J	0.06	1
WC001SW-A-20130109	1	0.001	0	2 U	0.17	0
WC001SW-B-20120605	1	0.002	1	2 J	0.64	1
WC001SW-C-20120210	1	0.002	1	2 J	0.19	1

Row Labels	Count of UCL_KEY1	Sum of RESULT_VALUE_MDL	Sum of D_RESULT_VALUE_MDL	lookup_result_value_MDL	lookup_freeCyanide	d_lookup_freeCyanide
WC001SW-C-20120319	1	0.003	1	3 J	0.34	1
WC001SW-C-20120403	1	0.002	0	2 U	0.09	0
WC001SW-C-20120507	1	0.002	0	2 U	0.14	0
WC001SW-C-20120605	1	0.004	1	4 J	1.74	1
WC001SW-C-20120709	1	0.002	0	2 U	0.73	0
WC001SW-C-20120809	1	0.002	0	2 U	0.58	0
WC001SW-C-20120911	1	0.006	1	6 J	1.35	1
WC001SW-C-20121001	1	0.002	0	2 U	0.52	0
WC001SW-C-20121112	1	0.001	0	2 U	0.23	0
WC001SW-C-20121206	1	0.002	1	2 J	0.12	1
WC001SW-C-20130109	1	0.001	0	2 U	0.16	0

UCL Statistics for Data Sets with Non-Detects			
User Selected Options			
Date/Time of Computation	########		
From File	FreeCyanide_150831.xls		
Full Precision	OFF		
Confidence Coefficient	95%		
Number of Bootstrap Operations	2000		
lookup_freeCyanide			
General Statistics			
Total Number of Observations		362	Number of Distinct Observations	148
Number of Detects		215	Number of Non-Detects	147
Number of Distinct Detects		128	Number of Distinct Non-Detects	72
Minimum Detect		0.03	Minimum Non-Detect	0.02
Maximum Detect		27.7	Maximum Non-Detect	1.44
Variance Detects		7.422	Percent Non-Detects	40.61%
Mean Detects		1.168	SD Detects	2.724
Median Detects		0.49	CV Detects	2.332
Skewness Detects		7.28	Kurtosis Detects	63.01
Mean of Logged Detects		-0.742	SD of Logged Detects	1.277
Normal GOF Test on Detects Only				
Shapiro Wilk Test Statistic		0.382	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value		0	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic		0.338	Lilliefors GOF Test	
5% Lilliefors Critical Value		0.0604	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level				
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs				
Mean		0.751	Standard Error of Mean	0.114
SD		2.156	95% KM (BCA) UCL	0.951
95% KM (t) UCL		0.939	95% KM (Percentile Bootstrap) UCL	0.947
95% KM (z) UCL		0.939	95% KM Bootstrap t UCL	1.072
90% KM Chebyshev UCL		1.093	95% KM Chebyshev UCL	1.247
97.5% KM Chebyshev UCL		1.462	99% KM Chebyshev UCL	1.883
Gamma GOF Tests on Detected Observations Only				
A-D Test Statistic		6.183	Anderson-Darling GOF Test	
5% A-D Critical Value		0.804	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic		0.127	Kolmogrov-Smirnoff GOF	
5% K-S Critical Value		0.0647	Detected Data Not Gamma Distributed at 5% Significance Level	
Detected Data Not Gamma Distributed at 5% Significance Level				
Gamma Statistics on Detected Data Only				
k hat (MLE)		0.677	k star (bias corrected MLE)	0.67
Theta hat (MLE)		1.726	Theta star (bias corrected MLE)	1.743
nu hat (MLE)		290.9	nu star (bias corrected)	288.2
MLE Mean (bias corrected)		1.168	MLE Sd (bias corrected)	1.427
Gamma Kaplan-Meier (KM) Statistics				
k hat (KM)		0.121	nu hat (KM)	87.94
Approximate Chi Square Value (87.94, α)		67.32	Adjusted Chi Square Value (87.94, β)	67.25
95% Gamma Approximate KM-UCL (use when n>=50)		0.982	95% Gamma Adjusted KM-UCL (use when n<50)	0.983
Gamma ROS Statistics using Imputed Non-Detects				
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs				
GROS may not be used when kstar of detected data is small such as < 0.1				
For such situations, GROS method tends to yield inflated values of UCLs and BTVs				
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates				
Minimum		0.01	Mean	0.698
Maximum		27.7	Median	0.115
SD		2.173	CV	3.112
k hat (MLE)		0.347	k star (bias corrected MLE)	0.346
Theta hat (MLE)		2.011	Theta star (bias corrected MLE)	2.017

nu hat (MLE)					251.4	nu star (bias corrected)					250.6		
MLE Mean (bias corrected)					0.698	MLE Sd (bias corrected)					1.187		
						Adjusted Level of Significance (β)					0.0493		
Approximate Chi Square Value (250.65, α)					215	Adjusted Chi Square Value (250.65, β)					214.9		
95% Gamma Approximate UCL (use when n>=50)					0.814	95% Gamma Adjusted UCL (use when n<50)					0.815		
Lognormal GOF Test on Detected Observations Only													
Lilliefors Test Statistic					0.0491	Lilliefors GOF Test							
5% Lilliefors Critical Value					0.0604	Detected Data appear Lognormal at 5% Significance Level							
Detected Data appear Lognormal at 5% Significance Level													
Lognormal ROS Statistics Using Imputed Non-Detects													
Mean in Original Scale					0.744	Mean in Log Scale					-1.372		
SD in Original Scale					2.16	SD in Log Scale					1.32		
95% t UCL (assumes normality of ROS data)					0.931	95% Percentile Bootstrap UCL					0.951		
95% BCA Bootstrap UCL					1.009	95% Bootstrap t UCL					1.085		
95% H-UCL (Log ROS)					0.716								
UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed													
KM Mean (logged)					-1.368	95% H-UCL (KM -Log)					0.738		
KM SD (logged)					1.337	95% Critical H Value (KM-Log)					2.422		
KM Standard Error of Mean (logged)					0.0777								
DL/2 Statistics													
DL/2 Normal						DL/2 Log-Transformed							
Mean in Original Scale					0.784	Mean in Log Scale					-1.166		
SD in Original Scale					2.151	SD in Log Scale					1.22		
95% t UCL (Assumes normality)					0.971	95% H-Stat UCL					0.762		
DL/2 is not a recommended method, provided for comparisons and historical reasons													
Nonparametric Distribution Free UCL Statistics													
Detected Data appear Lognormal Distributed at 5% Significance Level													
Suggested UCL to Use													
95% KM (Chebyshev) UCL					1.247								
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.													
Recommendations are based upon data size, data distribution, and skewness.													
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).													
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.													

ATTACHMENT B2
BARIUM CONTINUOUS CHRONIC CRITERION: UPDATE AND RECALCULATION

Table B2-1
Freshwater Acute Data for Barium

Species Common Name[a]	Species Scientific Name	Concentration[b] (µg/L)	GMAV (µg/L)	Effect Measurement	Endpoint	Observed Duration Mean (Days)	Taxonomic Group for WQC Goal	For Criteria
Water Flea	*Daphnia magna*	13,500	74,398	Mortality	LC50	2	Daphnia (planktonic crustacean)	A planktonic crustacean (e.g., cladocceran, copepod)
Water Flea	*Daphnia magna*	410,000	N/A	Mortality	LC50	2	Daphnia (planktonic crustacean)	A planktonic crustacean (e.g., cladocceran, copepod)
Crayfish	*Orconectes limosus*	78,000	78,000	Mortality	LC50	4	Invertebrate (benthic crustacean)	A benthic crustacean (e.g., ostracod, isopod, amphipod, crayfish)
Bluegill	*Lepomis macrochirus*	198,000	198,000	Mortality	LC50	4	Fish	One other family (preferably a commercially or recreationally important warm water species) in the class Osteichthyes (e.g., bluegill, channel catfish)
Scud	*Gammarus pulex*	238,000	238,000	Mortality	LC50	4	Invertebrate (benthic crustacean)	A benthic crustacean (e.g., ostracod, isopod, amphipod, crayfish)
Western Mosquitofish	*Gambusia affinis*	1,640,000	4,049,691	Mortality	LC50	4	Fish	A third family in the phylum Chordata (e.g., fish, amphibian)
Western Mosquitofish	*Gambusia affinis*	10,000,000	N/A	Mortality	LC50	4	Fish	A third family in the phylum Chordata (e.g., fish, amphibian)

Notes:
a = All listed species are native to North America.
b = Source of data is U.S. Environmental Protection Agency's ECOTOX Online Database (2015).

Acronyms:
µg/L = micrograms per liter
GMAV = genus mean acute value
LC50 = lethal concentration for 50% of the test organisms
N/A = not applicable
WQC = water quality criteria

Table B2-2
Freshwater SACR Calculation

Tier II Parameters	SACR Calculation[1]	Notes
ACR	17.9	Assumed ACR (USEPA 1993; Suter and Tsao 1996)
ACR	17.9	Assumed ACR (USEPA 1993; Suter and Tsao 1996)
ACR	70.69	ACR for barium from Suter and Tsao (1996)
Geomean ACRs = SACR	28.29	

Note:
1 = SACR must be based on three ACRs. If not known, assume 17.9 (USEPA 1993; Suter and Tsao 1996).

Acronyms:
ACR = acute chronic ratio
SACR = secondary acute chronic ratio

References:
Suter and Tsao (Suter, G.W. and C.L. Tsao), 1996. *Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Aquatic Biota: 1996 Revision* . Prepared for U.S. Department of Energy, Office of Environmental Management.
USEPA (U.S. Environmental Protection Agency), 1993. *Water Quality Guidance for the Great Lakes System and Correction; Proposed Rules* . Federal Register 58(72):20802-21047. April 1993.

Table B2-3
Freshwater Tier II Screening Value Calculation

Tier II Parameters	Tier II Values	Notes
FAVF	6.5	FAVF assumption for four LC50s that are appropriate for criteria development (Suter and Tsao 1996)
SAV	11446, µg/L	--
SACR	28.29	--
SCV	404.5, µg/L	--

Acronyms:
-- = none
µg/L = micrograms per liter
FAVF = final acute value factor
GMAV = genus mean acute value
LC50 = lethal concentration for 50% of the test organisms
SACR = secondary acute chronic ratio
SAV = secondary acute value
SCV = secondary chronic value
where:
SAV = Lowest GMAV in database/FAVF; 11446 = 74398/6.5
SCV = SAV/SACR; 404.5 = 11446/28.29

Reference:
Suter and Tsao (Suter, G.W. and C.L. Tsao), 1996. *Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Aquatic Biota: 1996 Revision* . Prepared for U.S. Department of Energy, Office of Environmental Management. ES/ER/TM-96/R2. June 1996.

Table C1-1
Benthic Community Analysis Weisberg Biotic Index Scores

SYS_LOC_CODE	PARENT_ LOC _CODE	Collection _date	Season	Area	subfacility_code	Creek Mile	Miles from Newtown Creek Mouth	X Coordinates	Y Coordinates	Average of Abundance (square meters)	Average of Richness	Average of Percent Pollution Indicating Taxa	Average of Percent Sensitive Taxa	Average of Percent Carnivores/ Omnivores	Average of Weisberg Biotic Index	Average of Richness Score	Average of Abundance Score	Average of Percent Sensitive Score	Average of Percent Pollution Indicating Score	Average of Percent Carnivores/ Omnivores Score
DK001SG_1405	DK001SG	20140523	Spring	Study Area	Dutch Kills	0.014	0.90	999141.23	208068.11	9272	8.3333	65.2622	0	0.945321338	1.6667	1	4.333333	1	1	1
DK036SG_1406	DK036SG	20140624	Spring	Study Area	Dutch Kills	0.131	1.02	999725.7	208255.64	9046.3333	7.6667	76.7283	0.1061	1.123986591	1.6667	1	4.333333	1	1	1
DK037SG_1405	DK037SG	20140520	Spring	Study Area	Dutch Kills	0.361	1.25	1000719.96	208990.88	62622.3333	12.6667	36.6386	0	2.72280648	1.6667	1.666667	1	1	2.333333	2.333333
DK040SG_1406	DK040SG	20140609	Spring	Study Area	Dutch Kills	0.508	1.40	1000985.39	209729.84	8741.3333	6.6667	54.4995	0	0.407566686	1.8	1	3.666667	1	2.333333	1
EB006SG_1405	EB006SG	20140521	Spring	Study Area	East Branch	0.245	3.06	1005319.36	200021.38	23059	5.6667	27.4812	0	18.26056062	1.6667	1	1	1	3	2.333333
EB036SG_1406	EB036SG	20140602	Spring	Study Area	East Branch	0.307	3.13	1005153.49	199742.09	10391.3333	6.6667	67.1555	0	2.904808723	1.5333	1	3	1	1	1.666667
EK006SG_1405	EK006SG	20140521	Spring	Study Area	English Kills	0.25	3.07	1003883.41	200505.72	7740.3333	4.6667	71.1415	0	0	1.6667	1	3.666667	1	1.666667	1
EK013SG_1406	EK013SG	20140620	Spring	Study Area	English Kills	0.614	3.43	1003468.06	199104.22	5532.3333	6.3333	49.2882	0	0.413734414	1.9333	1	5	1	1.666667	1
EK051SG_1406	EK051SG	20140623	Spring	Study Area	English Kills	0.501	3.32	1003060.69	199669.6	6877.3333	4	65.2585	0	0	1.4	1	3	1	1	1
EK054SG_1406	EK054SG	20140619	Spring	Study Area	English Kills	0.033	2.85	1004933.25	200967.96	8999	5	91.8295	0	0.083177376	1.6667	1	4.333333	1	1	1
EK057SG_1406	EK057SG	20140613	Spring	Study Area	English Kills	0.204	3.02	1004052.15	200733.34	10401.6667	9.3333	64.1263	0	2.413930761	1.5333	1	3.666667	1	1	1
EK059SG_1405	EK059SG	20140520	Spring	Study Area	English Kills	0.483	3.30	1003280.7	199756.14	59243.3333	10.6667	60.554	0	1.234687149	1.1333	1.666667	1	1	1	1
EK061SG_1406	EK061SG	20140624	Spring	Study Area	English Kills	0.597	3.42	1003349.81	199233.01	8725.3333	5.3333	38.146	0.0883	0.211916858	1.8	1	3.666667	1	2.333333	1
EK062SG_1406	EK062SG	20140623	Spring	Study Area	English Kills	0.619	3.44	1003404.62	199150.65	6219	6.3333	60.767	0	0	1.5333	1	3.666667	1	1	1
EK063SG_1406	EK063SG	20140620	Spring	Study Area	English Kills	0.614	3.43	1003437.02	199135.44	6679.3333	7.3333	65.133	0	1.749127136	1.5333	1	3	1	1.666667	1
EK065SG_1405	EK065SG	20140523	Spring	Study Area	English Kills	0.685	3.50	1003002.27	199023.88	11017.6667	7.3333	79.2457	0	3.118604269	1.6667	1	3.666667	1	1	1.666667
EK066SG_1406	EK066SG	20140620	Spring	Study Area	English Kills	0.716	3.54	1003125.07	198925.5	7183	5	75.7467	0	0.048309179	1.5333	1	3.666667	1	1	1
EK067SG_1406	EK067SG	20140619	Spring	Study Area	English Kills	0.766	3.59	1003079.19	198633.76	13235	7.3333	33.8914	0.0564	0.550039975	1.9333	1	3.666667	1	3	1
EK068SG_1406	EK068SG	20140619	Spring	Study Area	English Kills	0.767	3.59	1003088.68	198633.47	11002	6	57.5364	0	0	1.6667	1	3.666667	1	1.666667	1
EK069SG_1406	EK069SG	20140625	Spring	Study Area	English Kills	0.768	3.59	1003181.93	198656.46	8409.6667	8.3333	70.6837	0	0.095648015	1.6667	1	4.333333	1	1	1
EK071SG_1406	EK071SG	20140620	Spring	Study Area	English Kills	0.769	3.59	1003217.78	198662.94	10739.6667	6.6667	39.1523	0	0.325647225	1.6667	1	3.666667	1	1.666667	1
EK072SG_1405	EK072SG	20140522	Spring	Study Area	English Kills	0.8	3.62	1003207.98	198425.87	9893.3333	8.6667	49.2718	0	3.531240294	2.0667	1	4.333333	1	2.333333	1.666667
EK076SG_1405	EK076SG	20140530	Spring	Study Area	English Kills	0.981	3.80	1003568.3	197537.37	7461	6.3333	72.1446	0	4.16104769	1.5333	1	2.333333	1	1.666667	1.666667
GC009SG_1406	GC009SG	20140620	Spring	Reference	Gerritsen Creek	0.468	(blank)	1008101.48	154481.56	9871.6667	8.6667	55.4058	0	3.999719175	1.9333	1	4.333333	1	1.666667	1.666667
GC010SG_1406	GC010SG	20140609	Spring	Reference	Gerritsen Creek	0.805	(blank)	1006901.63	155759.97	10348.3333	9	67.6692	0	1.345154196	1.5333	1	3.666667	1	1	1
GC011SG_1406	GC011SG	20140610	Spring	Reference	Gerritsen Creek	0.968	(blank)	1006251.13	156337.05	16153.6667	10.6667	71.9378	0	0.267335004	1.4	1	3	1	1	1
GC012SG_1406	GC012SG	20140613	Spring	Reference	Gerritsen Creek	1.306	(blank)	1004961.26	157516.75	8606.6667	9	61.0532	0	1.581435592	1.8	1	5	1	1	1
GC013SG_1405	GC013SG	20140530	Spring	Reference	Gerritsen Creek	1.472	(blank)	1004334.23	158133.94	9239.3333	6.6667	85.2809	0	8.980820758	1.9333	1	3.666667	1	1	3
GC014SG_1405	GC014SG	20140529	Spring	Reference	Gerritsen Creek	1.641	(blank)	1003668.6	158731.21	9165	7.6667	84.8471	0	1.837468752	1.8	1	4.333333	1	1	1.666667
GC017SG_1406	GC017SG	20140612	Spring	Reference	Gerritsen Creek	0.65	(blank)	1007481.73	155168.65	11821.3333	7.6667	77.2129	0	0.837438889	1.4	1	3	1	1	1
GC018SG_1405	GC018SG	20140530	Spring	Reference	Gerritsen Creek	1.551	(blank)	1004167.55	158596.22	4799	7	64.1774	0	4.308411427	1.9333	1	3.666667	1	2.333333	1.666667
HB009SG_1406	HB009SG	20140619	Spring	Reference	Head of Bay	0.777	(blank)	1049749.43	168096.85	9497	6	37.3319	0	0	1.8	1	3.666667	1	2.333333	1

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HB010SG_1406	HB010SG	20140618	Spring	Reference	Head of Bay	1.005	(blank)	1050828.31	168858.5	8511.3333	7	93.1662	0.0853	0.274274281	1.6667	1	4.333333	1	1	1
HB011SG_1406	HB011SG	20140617	Spring	Reference	Head of Bay	1.391	(blank)	1052718.99	169782.31	9218.6667	8.6667	49.373	0.0526	0.402163272	1.8	1	4.333333	1	1.666667	1
HB012SG_1406	HB012SG	20140617	Spring	Reference	Head of Bay	1.214	(blank)	1051878.62	169378.71	10702	7	62.2594	0	0.101615805	1.5333	1	3	1	1.666667	1
HB013SG_1406	HB013SG	20140611	Spring	Reference	Head of Bay	1.698	(blank)	1053901.2	170514.12	12491.3333	7	78.1073	0	1.444113186	1.5333	1	3.666667	1	1	1
HB014SG_1406	HB014SG	20140616	Spring	Reference	Head of Bay	1.666	(blank)	1054208.27	170124.55	16948	7.6667	64.7166	0	3.27083168	1.6667	1	3	1	1.666667	1.666667
HB017SG_1406	HB017SG	20140619	Spring	Reference	Head of Bay	1.28	(blank)	1053056.53	167958.62	6759.3333	6.6667	66.0434	0.0557	3.289531074	1.6667	1	3.666667	1	1	1.666667
HB018SG_1406	HB018SG	20140616	Spring	Reference	Head of Bay	1.747	(blank)	1055055.8	170562.01	9512.6667	6.6667	66.5387	0	0.105694279	1.6667	1	3.666667	1	1.666667	1
MC005SG_1405	MC005SG	20140528	Spring	Study Area	Maspeth Creek	0.097	2.52	1005697.67	203105.38	7322.3333	5	74.2678	0	0	1.6667	1	4.333333	1	1	1
MC017SG_1405	MC017SG	20140527	Spring	Study Area	Maspeth Creek	0.021	2.44	1005280.51	203047.01	10734.6667	6.6667	28.0178	0	0.383693046	1.8	1	3	1	3	1
MC018SG_1406	MC018SG	20140616	Spring	Study Area	Maspeth Creek	0.031	2.45	1005337.46	202932.77	9833.6667	9	72.6241	0	4.494737044	1.9333	1	4.333333	1	1	2.333333
MC020SG_1406	MC020SG	20140617	Spring	Study Area	Maspeth Creek	0.089	2.51	1005630.09	202919.18	8104	6	81.0433	0	1.060810867	1.5333	1	3.666667	1	1	1
MC021SG_1406	MC021SG	20140616	Spring	Study Area	Maspeth Creek	0.132	2.55	1005872.52	203091.11	9620.3333	5.6667	82.5778	0	0.055875677	1.8	1	5	1	1	1
MC023SG_1405	MC023SG	20140529	Spring	Study Area	Maspeth Creek	0.204	2.62	1006220.11	202873.56	7060	8	76.7598	0	0.182344117	1.6667	1	4.333333	1	1	1
NC013SG_1406	NC013SG	20140617	Spring	Study Area	Newtown Creek	0.487	0.49	997049.72	208674.64	4033.6667	4.3333	86.5157	0	0.484584571	1.4	1	3	1	1	1
NC037SG_1406	NC037SG	20140603	Spring	Study Area	Newtown Creek	1.254	1.25	1000614.61	206899.47	10428.6667	9.3333	62.8729	0	1.037347481	1.6667	1	3.666667	1	1.666667	1
NC046SG_1405	NC046SG	20140529	Spring	Study Area	Newtown Creek	1.536	1.54	1001176.74	205542.55	9212.6667	5.6667	48.6105	0	3.411589637	1.6667	1	3.666667	1	1	1.666667
NC065SG_1406	NC065SG	20140603	Spring	Study Area	Newtown Creek	2.231	2.23	1004368.84	203968.32	10659.3333	8	48.5732	0	2.498096477	1.6667	1	3	1	1.666667	1.666667
NC071SG_1406	NC071SG	20140602	Spring	Study Area	Newtown Creek	2.432	2.43	1004847.04	202984.31	10445.3333	8.3333	57.8222	0	1.106894586	1.5333	1	3.666667	1	1	1
NC146SG_1406	NC146SG	20140618	Spring	Study Area	Newtown Creek	1.541	1.54	1001178.12	205675.02	10343	9.6667	74.2223	0	0.212441081	1.4	1	3	1	1	1
NC153SG_1406	NC153SG	20140609	Spring	Study Area	Newtown Creek	0.052	0.05	994929.33	207968.65	4917	8.3333	59.4084	0	2.094735776	1.6667	1	3.666667	1	1.666667	1
NC154SG_1406	NC154SG	20140604	Spring	Study Area	Newtown Creek	0.155	0.16	995334.49	208302.72	4258	5.6667	85.1705	0	1.384662203	1.8	1	4.333333	1	1	1.666667
NC155SG_1406	NC155SG	20140619	Spring	Study Area	Newtown Creek	0.148	0.15	995508.04	207961.91	9448	8.3333	59.7199	0.1398	0.054594465	1.6667	1	4.333333	1	1	1
NC156SG_1406	NC156SG	20140611	Spring	Study Area	Newtown Creek	0.262	0.26	995912.55	208452.16	9722	5.6667	34.0313	0	0.267227845	2.0667	1	5	1	2.333333	1

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NC157SG_1406	NC157SG	20140616	Spring	Study Area	Newtown Creek	0.327	0.33	996162.13	208734.51	8928.3333	8.6667	61.9977	0	1.211345283	1.5333	1	3.666667	1	1	1
NC158SG_1406	NC158SG	20140612	Spring	Study Area	Newtown Creek	0.344	0.34	996302.76	208623.76	9802	8	79.2695	0	0.193833666	1.6667	1	4.333333	1	1	1
NC161SG_1405	NC161SG	20140528	Spring	Study Area	Newtown Creek	0.624	0.62	997755.43	208510.5	3203	5.6667	97.8969	0	0.103720991	1.5333	1	3.666667	1	1	1
NC162SG_1406	NC162SG	20140613	Spring	Study Area	Newtown Creek	0.773	0.77	998468.88	208173.75	10096.6667	5.3333	95.2101	0	0	1.6667	1	4.333333	1	1	1
NC164SG_1406	NC164SG	20140606	Spring	Study Area	Newtown Creek	1.105	1.11	1000071.12	207460.98	8372	8	65.6718	0	8.507054536	1.6667	1	2.333333	1	1	3
NC165SG_1406	NC165SG	20140612	Spring	Study Area	Newtown Creek	1.395	1.40	1000864.27	206198.14	8933.3333	8.6667	70.3156	0	1.115505717	1.6667	1	4.333333	1	1	1
NC167SG_1406	NC167SG	20140610	Spring	Study Area	Newtown Creek	1.746	1.75	1002066.77	204926.31	11205.6667	7	55.3902	0	3.831305807	1.9333	1	3.666667	1	2.333333	1.666667
NC168SG_1405	NC168SG	20140530	Spring	Study Area	Newtown Creek	1.918	1.92	1002923.28	204592.82	10327.3333	8.3333	69.4073	0	8.113395523	1.8	1	3	1	1	3
NC169SG_1406	NC169SG	20140605	Spring	Study Area	Newtown Creek	1.984	1.98	1003285.07	204641.32	10391	9	63.4347	0	1.184503006	1.8	1	4.333333	1	1.666667	1
NC174SG_1406	NC174SG	20140606	Spring	Study Area	Newtown Creek	2.353	2.35	1004537.85	203310.86	6834.6667	8.6667	63.3207	0	3.031739912	1.8	1	3.666667	1	1	2.333333
NC177SG_1406	NC177SG	20140616	Spring	Study Area	Newtown Creek	2.51	2.51	1005151.26	202860.56	9936.3333	9	52.4835	0	0.265188375	1.6667	1	3.666667	1	1.666667	1
NC179SG_1406	NC179SG	20140618	Spring	Study Area	Newtown Creek	2.574	2.57	1004989.89	202466.87	19346.6667	7.3333	75.1818	0	2.251116654	1.5333	1	3.666667	1	1	1
NC180SG_1406	NC180SG	20140610	Spring	Study Area	Newtown Creek	2.637	2.64	1005233.37	201981.57	14682	8.3333	50.9317	0	1.537487312	1.5333	1	3	1	1.666667	1.666667
NC181SG_1406	NC181SG	20140604	Spring	Study Area	Newtown Creek	2.817	2.82	1005128.24	200961.58	14521.6667	7	78.9206	0	1.420642703	1.4	1	3	1	1	1
NC293SG_1406	NC293SG	20140605	Spring	Study Area	Newtown Creek	2.561	2.56	1004690.15	202172.9	10101.6667	7.3333	68.2348	0	0.690384171	1.5333	1	3	1	1.666667	1
SP009SG_1406	SP009SG	20140606	Spring	Reference	Spring Creek	0.228	(blank)	1024615.21	174856.47	8576	7.6667	63.1558	0	4.118176233	1.9333	1	5	1	1	1.666667
SP010SG_1406	SP010SG	20140605	Spring	Reference	Spring Creek	0.371	(blank)	1024330.7	175532.53	5533	6.6667	57.8485	0	1.677115987	1.8	1	3.666667	1	1.666667	1.666667
SP011SG_1406	SP011SG	20140603	Spring	Reference	Spring Creek	0.664	(blank)	1023699.96	176899.96	10269.3333	9	65.6838	0	1.067290918	1.9333	1	4.333333	1	1.666667	1.666667
SP012SG_1406	SP012SG	20140603	Spring	Reference	Spring Creek	0.837	(blank)	1023261.77	177704.01	5479.3333	5.6667	77.2604	0.0483	1.384503928	1.5333	1	3	1	1	1.666667
SP013SG_1406	SP013SG	20140604	Spring	Reference	Spring Creek	0.955	(blank)	1022868.21	178183.13	4729.6667	5	88.8971	0	1.05002561	1.1333	1	1.666667	1	1	1
SP014SG_1406	SP014SG	20140602	Spring	Reference	Spring Creek	1.097	(blank)	1022451.99	178738.13	8505.6667	5.3333	67.4971	0	0.817875049	1.4	1	2.333333	1	1.666667	1
SP017SG_1406	SP017SG	20140605	Spring	Reference	Spring Creek	0.651	(blank)	1023983.84	177100.21	12137	8.6667	41.8354	0	0.507868393	1.8	1	3.666667	1	2.333333	1
SP018SG_1406	SP018SG	20140604	Spring	Reference	Spring Creek	1.022	(blank)	1022448.5	178221.75	11532.3333	10.3333	57.7402	0	5.62644419	1.5333	1	3	1	1	1.666667
WC010SG_1406	WC010SG	20140611	Spring	Study Area	Whale Creek	0.006	0.94	999200.43	207662.5	9807.3333	7.6667	36.6823	0	2.8377923	2.0667	1	4.333333	1	2.333333	1.666667

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WC012SG_1405	WC012SG	20140522	Spring	Study Area	Whale Creek	0.136	1.07	998934.14	207038.8	18334	9	44.7031	0	0.229092072	1.6667	1	3	1	2.333333	1
WE009SG_1405	WE009SG	20140523	Spring	Reference	Westchester Creek	0.796	(blank)	1027828.55	236843.82	7498.3333	6.6667	41.8912	0	0	1.9333	1	5	1	1.666667	1
WE010SG_1405	WE010SG	20140527	Spring	Reference	Westchester Creek	1.025	(blank)	1028585.57	237857.44	10648.3333	6.3333	41.2069	0	5.955121187	1.8	1	3	1	1.666667	2.333333
WE011SG_1405	WE011SG	20140528	Spring	Reference	Westchester Creek	1.557	(blank)	1028037.97	240529.25	9759	6.6667	27.7216	0	0.543225735	2.0667	1	5	1	2.333333	1
WE012SG_1405	WE012SG	20140522	Spring	Reference	Westchester Creek	1.925	(blank)	1028156.27	242315.77	4022.6667	5.3333	83.9332	0	0.212758884	1.2667	1	2.333333	1	1	1
WE013SG_1405	WE013SG	20140521	Spring	Reference	Westchester Creek	2.227	(blank)	1028693.45	243732.24	10493.3333	7.6667	39.4974	0	1.214725989	1.8	1	3.666667	1	1.666667	1.666667
WE014SG_1405	WE014SG	20140520	Spring	Reference	Westchester Creek	2.452	(blank)	1028566.45	244913.75	47110.3333	7.3333	7.9276	0	6.393760731	2.0667	1.666667	1	1	4.333333	2.333333
WE017SG_1405	WE017SG	20140523	Spring	Reference	Westchester Creek	0.724	(blank)	1028587.09	236236.75	9100.3333	5.6667	63.8495	0	3.868600707	1.9333	1	3.666667	1	1.666667	2.333333
WE018SG_1405	WE018SG	20140527	Spring	Reference	Westchester Creek	2.017	(blank)	1028546.55	242626.82	9936.3333	6.3333	35.6095	0	4.256779636	1.9333	1	3.666667	1	2.333333	1.666667
DK036SG_1408	DK036SG	20140805	Summer	Study Area	Dutch Kills	0.132	1.02	999724.45	208263.27	17810	7.333333333	67.55295685	0	2.095851749	1.4	1	3	1	1	1
DK037SG_1408	DK037SG	20140805	Summer	Study Area	Dutch Kills	0.367	1.26	1000723.2	208988.25	17355	7.666666667	43.5633291	0	3.463707807	1.8	1	3	1	1.666667	2.333333
EB036SG_1408	EB036SG	20140808	Summer	Study Area	East Branch	0.31	3.13	1005144.08	199744.9	2518	4.333333333	63.43278933	0	0.21831082	1.4	1	3	1	1	1
EK013SG_1408	EK013SG	20140806	Summer	Study Area	English Kills	0.614	3.43	1003468.26	199108.17	7440	9.666666667	50.88179575	0	1.227969714	1.8	1	4.333333	1	1	1.666667
EK051SG_1408	EK051SG	20140806	Summer	Study Area	English Kills	0.5	3.32	1003064.54	199676.34	6733	9	73.30716127	0	13.82768391	2.333333	1	4.333333	1	1	4.333333
EK054SG_1408	EK054SG	20140806	Summer	Study Area	English Kills	0.034	2.85	1004932.98	200966.05	14135.33333	7.666666667	92.97752426	0	2.323554755	1.533333	1	3.666667	1	1	1
EK057SG_1408	EK057SG	20140807	Summer	Study Area	English Kills	0.208	3.03	1004050.26	200725.29	18291.33333	8.333333333	76.57639855	0	1.273053178	1.266667	1	2.333333	1	1	1
EK061SG_1408	EK061SG	20140806	Summer	Study Area	English Kills	0.596	3.42	1003337.34	199235.08	6502.333333	8.666666667	45.98992971	0	7.994487405	2.2	1	5	1	1.666667	2.333333
EK062SG_1408	EK062SG	20140807	Summer	Study Area	English Kills	0.619	3.44	1003403.52	199153.24	2104.666667	6.333333333	97.4346202	0	1.38695251	1.533333	1	3.666667	1	1	1
EK063SG_1408	EK063SG	20140807	Summer	Study Area	English Kills	0.614	3.43	1003437.14	199130.64	4798.666667	9	70.08753588	0	4.496388416	1.933333	1	5	1	1	1.666667
EK066SG_1408	EK066SG	20140807	Summer	Study Area	English Kills	0.715	3.54	1003129.77	198928.61	6417	6.666666667	63.42848629	0	9.040247731	2.066667	1	4.333333	1	1	3
EK067SG_1408	EK067SG	20140806	Summer	Study Area	English Kills	0.767	3.59	1003078.54	198631.56	12239	9.333333333	63.80992659	0	10.44230606	1.8	1	3	1	1	3
EK068SG_1408	EK068SG	20140806	Summer	Study Area	English Kills	0.767	3.59	1003087.09	198630.67	13439.33333	9	40.21235213	0	4.123032658	1.933333	1	3.666667	1	1.666667	2.333333
EK069SG_1408	EK069SG	20140807	Summer	Study Area	English Kills	0.768	3.59	1003183.39	198656.46	13502.66667	11	64.88330745	0	3.4676059	1.666667	1	3.666667	1	1	1.666667
EK071SG_1408	EK071SG	20140807	Summer	Study Area	English Kills	0.77	3.59	1003216.06	198660.24	11762.66667	6.666666667	60.93821938	0	1.990301146	1.666667	1	3	1	1.666667	1.666667
GC017SG_1408	GC017SG	20140813	Summer	Reference	Gerritsen Creek	0.651	(blank)	1007478.03	155167.51	16578	8.333333333	72.22484212	0	1.773779695	1.533333	1	3	1	1	1.666667
GC018SG_1408	GC018SG	20140813	Summer	Reference	Gerritsen Creek	1.551	(blank)	1004165.44	158592.71	2860.666667	6.666666667	62.02663175	0	3.233330802	1.8	1	4.333333	1	1	1.666667
HB017SG_1408	HB017SG	20140811	Summer	Reference	Head of Bay	1.28	(blank)	1053054.01	167958.78	25854.33333	9.666666667	65.57492053	0	4.313589581	1.4	1	1.666667	1	1	2.333333
HB018SG_1408	HB018SG	20140811	Summer	Reference	Head of Bay	1.747	(blank)	1055059.47	170560.22	16642.33333	9	66.21035128	0	3.912979858	1.533333	1	3	1	1	1.666667

Table C1-1
Benthic Community Analysis Weisberg Biotic Index Scores

SYS_LOC_CODE	PARENT_ LOC _CODE	Collection _date	Season	Area	subfacility_code	Creek Mile	Miles from Newtown Creek Mouth	X Coordinates	Y Coordinates	Average of Abundance (square meters)	Average of Richness	Average of Percent Pollution Indicating Taxa	Average of Percent Sensitive Taxa	Average of Percent Carnivores/ Omnivores	Average of Weisberg Biotic Index	Average of Richness Score	Average of Abundance Score	Average of Percent Sensitive Score	Average of Percent Pollution Indicating Score	Average of Percent Carnivores/ Omnivores Score
MC005SG_1408	MC005SG	20140808	Summer	Study Area	Maspeth Creek	0.099	2.52	1005698.2	203105.19	13942.66667	7.666666667	66.58531036	0	8.65572743	2.066667	1	3.666667	1	1	3.666667
MC018SG_1408	MC018SG	20140811	Summer	Study Area	Maspeth Creek	0.031	2.45	1005334.87	202943.41	11849	7.333333333	59.59309403	0	10.62334107	2.2	1	3.666667	1	1.666667	3.666667
MC020SG_1408	MC020SG	20140812	Summer	Study Area	Maspeth Creek	0.089	2.51	1005629.94	202925.71	4622	8	86.25238458	0	11.95225336	2.333333	1	5	1	1	3.666667
MC021SG_1408	MC021SG	20140812	Summer	Study Area	Maspeth Creek	0.133	2.55	1005876.16	203091.47	22444	6.333333333	85.99739505	0	1.267306034	1.266667	1	2.333333	1	1	1
MC023SG_1408	MC023SG	20140811	Summer	Study Area	Maspeth Creek	0.207	2.63	1006219.06	202872.37	7081	8	71.57091206	0	1.616302744	1.8	1	5	1	1	1
NC146SG_1408	NC146SG	20140804	Summer	Study Area	Newtown Creek	1.542	1.54	1001178.92	205668.94	19239.33333	8	63.33190411	0	2.130156044	1.4	1	2.333333	1	1	1.666667
NC154SG_1408	NC154SG	20140804	Summer	Study Area	Newtown Creek	0.158	0.16	995338.85	208302.23	4686.666667	7.333333333	67.31398698	0	1.539811712	1.933333	1	5	1	1	1.666667
NC155SG_1408	NC155SG	20140804	Summer	Study Area	Newtown Creek	0.148	0.15	995506.12	207965.06	27799.66667	7.333333333	41.6080168	0	0	1.133333	1	1	1	1.666667	1
NC157SG_1408	NC157SG	20140804	Summer	Study Area	Newtown Creek	0.328	0.33	996170.9	208725.65	13144	7	54.30779951	0	2.055677393	1.8	1	3.666667	1	1.666667	1.666667
NC168SG_1408	NC168SG	20140805	Summer	Study Area	Newtown Creek	1.946	1.95	1002918.45	204597.4	20246.33333	7.333333333	70.45821471	0	2.413863923	1.4	1	2.333333	1	1	1.666667
NC177SG_1408	NC177SG	20140805	Summer	Study Area	Newtown Creek	2.51	2.51	1005140.09	202867.52	22828.66667	8.666666667	51.59806004	0	6.988866542	1.266667	1	1	1	1	2.333333
NC179SG_1408	NC179SG	20140805	Summer	Study Area	Newtown Creek	2.575	2.58	1004982.51	202462.28	10948.33333	8.666666667	55.00711886	0	12.2099872	2.2	1	4.333333	1	1	3.666667
NC180SG_1408	NC180SG	20140805	Summer	Study Area	Newtown Creek	2.678	2.68	1005230.33	201980.78	9817	8.666666667	50.04539594	0	1.780467286	1.533333	1	3.666667	1	1	1
SP017SG_1408	SP017SG	20140812	Summer	Reference	Spring Creek	0.651	(blank)	1023982.17	177100.76	11634	7.666666667	78.94944515	0	1.370230366	1.533333	1	3.666667	1	1	1
SP018SG_1408	SP018SG	20140812	Summer	Reference	Spring Creek	1.022	(blank)	1022450.97	178218.8	16609.66667	9.666666667	70.41465077	0	4.406509356	1.533333	1	3	1	1	1.666667
WE017SG_1408	WE017SG	20140808	Summer	Reference	Westchester Creek	0.725	(blank)	1028589.44	236236.37	9881	8.333333333	79.61150196	0	10.05401208	1.933333	1	3.666667	1	1	3
WE018SG_1408	WE018SG	20140808	Summer	Reference	Westchester Creek	2.016	(blank)	1028542.83	242624.63	19239.66667	8.666666667	75.14035956	0	1.706536868	1.4	1	3	1	1	1

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GET
  FILE='C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav'.
DATASET NAME DataSet1 WINDOW=FRONT.
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(1 3)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes		
Output Created		14-Jun-2016 14:39:38
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 3) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	1.00	54	8571.20	3396.354	462.185
	3.00	24	10000.63	4520.223	922.687

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	.094	.760	-1.545	76	.127	-1429.421	925.366	-3272.447	413.605
	Equal variances not assumed			-1.385	35.033	.175	-1429.421	1031.972	-3524.365	665.522

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(1 4)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:38
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 4) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.015
	Elapsed Time	00:00:00.015

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2		1.00	54	8571.20	3396.354	462.185
		4.00	24	10455.04	5799.901	1183.900

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Abundance_m2	Equal variances assumed	.047	.830	-1.799	76	.076	-1883.838	1047.303	-3969.723	202.047	
	Equal variances not assumed			-1.482	30.240	.149	-1883.838	1270.919	-4478.536	710.860	

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(1 5)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes		
Output Created		14-Jun-2016 14:39:38
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 5) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).

Resources	Processor Time	00:00:00.000									
	Elapsed Time	00:00:00.000									

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2		1.00	54	8571.20	3396.354	462.185
		5.00	24	8345.29	4666.837	952.614

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	4.524	.037	.241	76	.810	225.912	938.528	-1643.329	2095.153
	Equal variances not assumed			.213	34.278	.832	225.912	1058.815	-1925.215	2377.039

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(1 6)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
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T-Test

Notes

Output Created	14-Jun-2016 14:39:38
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 6) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2		1.00	54	8571.20	3396.354	462.185
		6.00	24	13571.08	27368.234	5586.517

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Abundance_m2	Equal variances assumed	5.357	.023	-1.330	76	.187	-4999.880	3758.558	-12485.696	2485.937	
	Equal variances not assumed			-.892	23.315	.382	-4999.880	5605.604	-16587.279	6587.519	

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(1 3)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
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T-Test

Notes		
Output Created		14-Jun-2016 14:39:38
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
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	Filter	<none>
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	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 3) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).

Resources	Processor Time	00:00:00.015
	Elapsed Time	00:00:00.015

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	1.00	15	17023.20	9608.877	2481.001
	3.00	6	9719.33	7726.306	3154.251

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	.056	.815	1.652	19	.115	7303.867	4420.396	-1948.129	16555.862
	Equal variances not assumed			1.820	11.525	.095	7303.867	4013.062	-1479.976	16087.709

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(1 4)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
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T-Test

Notes

Output Created	14-Jun-2016 14:39:38
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
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	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 4) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2		1.00	15	17023.20	9608.877	2481.001
		4.00	6	21248.33	5158.738	2106.046

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Abundance_m2	Equal variances assumed	1.386	.254	-1.010	19	.325	-4225.133	4184.313	-12983.001	4532.735	
	Equal variances not assumed			-1.298	16.890	.212	-4225.133	3254.351	-11094.622	2644.356	

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(1 5)
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  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes		
Output Created		14-Jun-2016 14:39:38
Comments		
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	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 5) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).

Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	1.00	15	17023.20	9608.877	2481.001
	5.00	6	14121.83	3109.793	1269.568

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	4.193	.055	.715	19	.483	2901.367	4058.102	-5592.339	11395.072
	Equal variances not assumed			1.041	18.701	.311	2901.367	2786.964	-2938.127	8740.861

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(1 6)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:38
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 6) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.015
	Elapsed Time	00:00:00.015

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2		1.00	15	17023.20	9608.877	2481.001
		6.00	6	14560.33	5938.834	2424.519

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Abundance_m2	Equal variances assumed	1.214	.284	.580	19	.569	2462.867	4247.359	-6426.958	11352.691	
	Equal variances not assumed			.710	15.057	.489	2462.867	3468.957	-4928.589	9854.323	

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(2 3)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes		
Output Created		14-Jun-2016 14:39:38
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 3) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).

Resources	Processor Time	00:00:00.000									
	Elapsed Time	00:00:00.000									

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2		2.00	114	12873.05	15539.342	1455.393
		3.00	24	10000.63	4520.223	922.687

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	3.147	.078	.895	136	.372	2872.428	3208.425	-3472.428	9217.284
	Equal variances not assumed			1.667	123.818	.098	2872.428	1723.229	-538.375	6283.230

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(2 4)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:38
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 4) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2		2.00	114	12873.05	15539.342	1455.393
		4.00	24	10455.04	5799.901	1183.900

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Abundance_m2	Equal variances assumed	2.664	.105	.750	136	.455	2418.011	3225.933	-3961.468	8797.490	
	Equal variances not assumed			1.289	99.017	.200	2418.011	1876.110	-1304.590	6140.612	

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(2 5)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes		
Output Created		14-Jun-2016 14:39:38
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 5) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).

Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	2.00	114	12873.05	15539.342	1455.393
	5.00	24	8345.29	4666.837	952.614

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	1.696	.195	1.410	136	.161	4527.761	3210.215	-1820.635	10876.157
	Equal variances not assumed			2.603	121.237	.010	4527.761	1739.437	1084.154	7971.368

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(2 6)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:38
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 6) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2		2.00	114	12873.05	15539.342	1455.393
		6.00	24	13571.08	27368.234	5586.517

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Abundance_m2	Equal variances assumed	.746	.389	-.172	136	.864	-698.031	4063.113	-8733.084	7337.022	
	Equal variances not assumed			-.121	26.203	.905	-698.031	5772.984	-12560.088	11164.026	
Temporary.											
Select if (Year = 2014 and Season = "Summer").											
T-TEST GROUPS=Sub_Area2(2 3)											
/MISSING=ANALYSIS											
/VARIABLES=Abundance_m2											
/CRITERIA=CI(.95).											
T-Test											
Notes											
Output Created		14-Jun-2016 14:39:38									
Comments											
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav									
	Active Dataset	DataSet1									
	Filter	<none>									
	Weight	<none>									
	Split File	<none>									
	N of Rows in Working Data File	108									
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.									
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.									
Syntax		T-TEST GROUPS=Sub_Area2(2 3) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).									

Resources	Processor Time	00:00:00.015									
	Elapsed Time	00:00:00.014									

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2		2.00	69	11242.68	6538.348	787.125
		3.00	6	9719.33	7726.306	3154.251

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	.902	.345	.540	73	.591	1523.348	2820.431	-4097.763	7144.458
	Equal variances not assumed			.469	5.641	.657	1523.348	3250.979	-6556.042	9602.738

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(2 4)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:38
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 4) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	2.00	69	11242.68	6538.348	787.125
	4.00	6	21248.33	5158.738	2106.046

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Abundance_m2	Equal variances assumed	.362	.549	-3.643	73	.001	-10005.652	2746.694	-15479.805	-4531.499	
	Equal variances not assumed			-4.450	6.485	.004	-10005.652	2248.331	-15408.888	-4602.416	

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(2 5)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes		
Output Created		14-Jun-2016 14:39:38
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 5) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).

Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	2.00	69	11242.68	6538.348	787.125
	5.00	6	14121.83	3109.793	1269.568

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	4.238	.043	-1.063	73	.291	-2879.152	2708.156	-8276.500	2518.196
	Equal variances not assumed			-1.927	9.480	.084	-2879.152	1493.776	-6232.421	474.116

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(2 6)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:38
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 6) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2		2.00	69	11242.68	6538.348	787.125
		6.00	6	14560.33	5938.834	2424.519

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Abundance_m2	Equal variances assumed	.290	.592	-1.199	73	.234	-3317.652	2766.179	-8830.639	2195.335	
	Equal variances not assumed			-1.302	6.105	.240	-3317.652	2549.090	-9529.247	2893.943	

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(1 3)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes		
Output Created		14-Jun-2016 14:39:38
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 3) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).

Resources	Processor Time	00:00:00.015
	Elapsed Time	00:00:00.015

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Richness	1.00	54	7.43	2.336	.318
	3.00	24	8.29	2.196	.448

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	.172	.679	-1.538	76	.128	-.866	.563	-1.987	.255
	Equal variances not assumed			-1.575	46.804	.122	-.866	.550	-1.972	.240

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(1 4)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:38
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 4) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.016
	Elapsed Time	00:00:00.016

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Richness	1.00	54	7.43	2.336	.318
	4.00	24	7.08	2.062	.421

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Richness	Equal variances assumed	.349	.556	.619	76	.538	.343	.554	-.760	1.445	
	Equal variances not assumed			.649	49.693	.519	.343	.528	-.717	1.402	

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(1 5)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes		
Output Created		14-Jun-2016 14:39:38
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 5) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).

Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Richness	1.00	54	7.43	2.336	.318
	5.00	24	7.29	2.851	.582

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	.458	.501	.219	76	.828	.134	.614	-1.089	1.357
	Equal variances not assumed			.202	37.330	.841	.134	.663	-1.209	1.477

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(1 6)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:38
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 6) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Richness	1.00	54	7.43	2.336	.318
	6.00	24	6.50	2.638	.538

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Richness	Equal variances assumed	.231	.632	1.552	76	.125	.926	.596	-.262	2.114	
	Equal variances not assumed			1.481	39.736	.147	.926	.625	-.338	2.190	
Temporary.											
Select if (Year = 2014 and Season = "Summer").											
T-TEST GROUPS=Sub_Area2(1 3)											
/MISSING=ANALYSIS											
/VARIABLES=Richness											
/CRITERIA=CI(.95).											
T-Test											
Notes											
Output Created		14-Jun-2016 14:39:38									
Comments											
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav									
	Active Dataset	DataSet1									
	Filter	<none>									
	Weight	<none>									
	Split File	<none>									
	N of Rows in Working Data File	108									
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.									
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.									
Syntax		T-TEST GROUPS=Sub_Area2(1 3) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).									

Resources	Processor Time	00:00:00.015									
	Elapsed Time	00:00:00.015									

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Richness		1.00	15	7.40	1.298	.335
		3.00	6	7.50	1.049	.428

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	.277	.605	-.167	19	.869	-.100	.598	-1.351	1.151
	Equal variances not assumed			-.184	11.469	.857	-.100	.544	-1.291	1.091

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(1 4)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:38
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 4) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.016
	Elapsed Time	00:00:00.016

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Richness	1.00	15	7.40	1.298	.335
	4.00	6	9.33	.816	.333

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Richness	Equal variances assumed	1.104	.307	-3.362	19	.003	-1.933	.575	-3.137	-.730	
	Equal variances not assumed			-4.090	14.816	.001	-1.933	.473	-2.942	-.925	

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(1 5)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes		
Output Created		14-Jun-2016 14:39:38
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 5) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).

Resources	Processor Time	00:00:00.016
	Elapsed Time	00:00:00.016

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Richness	1.00	15	7.40	1.298	.335
	5.00	6	8.67	2.160	.882

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	2.338	.143	-1.668	19	.112	-1.267	.759	-2.856	.322
	Equal variances not assumed			-1.343	6.501	.224	-1.267	.943	-3.533	1.000

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(1 6)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:38
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 6) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Richness	1.00	15	7.40	1.298	.335
	6.00	6	8.50	1.761	.719

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Richness	Equal variances assumed	.640	.434	-1.587	19	.129	-1.100	.693	-2.550	.350	
	Equal variances not assumed			-1.387	7.289	.206	-1.100	.793	-2.960	.760	

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(2 3)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes		
Output Created		14-Jun-2016 14:39:38
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 3) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).

Resources	Processor Time	00:00:00.000									
	Elapsed Time	00:00:00.000									

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Richness		2.00	114	7.25	2.744	.257
		3.00	24	8.29	2.196	.448

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	.609	.437	-1.751	136	.082	-1.046	.597	-2.227	.135
	Equal variances not assumed			-2.024	39.731	.050	-1.046	.517	-2.091	-.001

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(2 4)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:38
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav									
	Active Dataset	DataSet1									
	Filter	<none>									
	Weight	<none>									
	Split File	<none>									
	N of Rows in Working Data File	264									
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.									
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.									
Syntax		T-TEST GROUPS=Sub_Area2(2 4) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).									
Resources	Processor Time	00:00:00.000									
	Elapsed Time	00:00:00.000									
[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav											
Group Statistics											
	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean					
Richness		2.00	114	7.25	2.744	.257					
		4.00	24	7.08	2.062	.421					
Independent Samples Test											
		Levene's Test for Equality of Variances		t-test for Equality of Means							
									95% Confidence Interval of the Difference		
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper	

Richness	Equal variances assumed	.851	.358	.274	136	.785	.162	.593	-1.011	1.335	
	Equal variances not assumed			.329	42.152	.744	.162	.493	-.833	1.158	

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(2 5)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes		
Output Created		14-Jun-2016 14:39:38
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 5) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).

Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Richness	2.00	114	7.25	2.744	.257
	5.00	24	7.29	2.851	.582

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	.044	.835	-.074	136	.941	-.046	.620	-1.273	1.181
	Equal variances not assumed			-.072	32.596	.943	-.046	.636	-1.341	1.249

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(2 6)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:38
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav									
	Active Dataset	DataSet1									
	Filter	<none>									
	Weight	<none>									
	Split File	<none>									
	N of Rows in Working Data File	264									
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.									
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.									
Syntax		T-TEST GROUPS=Sub_Area2(2 6) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).									
Resources	Processor Time	00:00:00.016									
	Elapsed Time	00:00:00.016									
[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav											
Group Statistics											
	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean					
Richness		2.00	114	7.25	2.744	.257					
		6.00	24	6.50	2.638	.538					
Independent Samples Test											
		Levene's Test for Equality of Variances		t-test for Equality of Means							
									95% Confidence Interval of the Difference		
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper	

Richness	Equal variances assumed	.000	.995	1.218	136	.225	.746	.612	-.465	1.957	
	Equal variances not assumed			1.250	34.318	.220	.746	.597	-.466	1.958	

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(2 3)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes		
Output Created		14-Jun-2016 14:39:38
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 3) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).

Resources	Processor Time	00:00:00.000									
	Elapsed Time	00:00:00.000									

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Richness		2.00	69	8.00	1.831	.220
		3.00	6	7.50	1.049	.428

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	2.134	.148	.657	73	.513	.500	.761	-1.017	2.017
	Equal variances not assumed			1.038	7.961	.330	.500	.482	-.611	1.611

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(2 4)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:38
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav									
	Active Dataset	DataSet1									
	Filter	<none>									
	Weight	<none>									
	Split File	<none>									
	N of Rows in Working Data File	108									
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.									
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.									
Syntax		T-TEST GROUPS=Sub_Area2(2 4) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).									
Resources	Processor Time	00:00:00.000									
	Elapsed Time	00:00:00.000									
[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav											
Group Statistics											
	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean					
Richness		2.00	69	8.00	1.831	.220					
		4.00	6	9.33	.816	.333					
Independent Samples Test											
		Levene's Test for Equality of Variances		t-test for Equality of Means							
									95% Confidence Interval of the Difference		
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper	

Richness	Equal variances assumed	3.408	.069	-1.760	73	.083	-1.333	.758	-2.843	.177	
	Equal variances not assumed			-3.336	10.186	.007	-1.333	.400	-2.222	-.445	

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(2 5)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes		
Output Created		14-Jun-2016 14:39:38
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 5) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).

Resources	Processor Time	00:00:00.016									
	Elapsed Time	00:00:00.015									

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Richness		2.00	69	8.00	1.831	.220
		5.00	6	8.67	2.160	.882

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	.171	.681	-.844	73	.401	-.667	.790	-2.241	.907
	Equal variances not assumed			-.733	5.643	.493	-.667	.909	-2.926	1.592

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(2 6)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:38
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 6) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Richness	2.00	69	8.00	1.831	.220
	6.00	6	8.50	1.761	.719

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Richness	Equal variances assumed	.103	.749	-.643	73	.522	-.500	.777	-2.049	1.049	
	Equal variances not assumed			-.665	5.981	.531	-.500	.752	-2.341	1.341	

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(1 3)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes		
Output Created		14-Jun-2016 14:39:38
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 3) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores

Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	1.00	54	1.983665	3.6065278	.4907863
	3.00	24	2.894713	3.7626276	.7680431

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	.574	.451	-1.016	76	.313	-.9110477	.8965396	-2.6966610	.8745656
	Equal variances not assumed			-1.000	42.540	.323	-.9110477	.9114611	-2.7497591	.9276637

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(1 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:38
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 4) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores
Resources	Processor Time	00:00:00.015
	Elapsed Time	00:00:00.016

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	1.00	54	1.983665	3.6065278	.4907863
	4.00	24	1.111029	2.1752625	.4440236

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Percent_Carnivores_Omnivores	Equal variances assumed	3.077	.083	1.098	76	.276	.8726356	.7950509	-.7108455	2.4561168	
	Equal variances not assumed			1.319	68.900	.192	.8726356	.6618369	-.4477270	2.1929983	

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(1 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes		
Output Created		14-Jun-2016 14:39:39
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 5) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores

Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	1.00	54	1.983665	3.6065278	.4907863
	5.00	24	2.031171	3.7067702	.7566413

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	.002	.961	-.053	76	.958	-.0475060	.8922914	-1.8246584	1.7296464
	Equal variances not assumed			-.053	43.113	.958	-.0475060	.9018743	-1.8661709	1.7711588

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(1 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:39
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 6) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	1.00	54	1.983665	3.6065278	.4907863
	6.00	24	2.805625	3.4912988	.7126584

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Percent_Carnivores_Omnivores	Equal variances assumed	.375	.542	-.938	76	.351	-.8219602	.8763188	-2.5673002	.9233799	
	Equal variances not assumed			-.950	45.544	.347	-.8219602	.8653052	-2.5642000	.9202796	
Temporary.											
Select if (Year = 2014 and Season = "Summer").											
T-TEST GROUPS=Sub_Area2(1 3)											
/MISSING=ANALYSIS											
/VARIABLES=Percent_Carnivores_Omnivores											
/CRITERIA=CI(.95).											
T-Test											
Notes											
Output Created		14-Jun-2016 14:39:39									
Comments											
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav									
	Active Dataset	DataSet1									
	Filter	<none>									
	Weight	<none>									
	Split File	<none>									
	N of Rows in Working Data File	108									
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.									
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.									
Syntax		T-TEST GROUPS=Sub_Area2(1 3) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores									

Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	1.00	15	1.627907	2.3040920	.5949140
	3.00	6	2.503550	2.5080033	1.0238881

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	.049	.828	-.768	19	.452	-.8756433	1.1397284	-3.2611224	1.5098357
	Equal variances not assumed			-.739	8.596	.479	-.8756433	1.1841746	-3.5737484	1.8224617

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(1 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:39
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 4) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores		1.00	15	1.627907	2.3040920	.5949140
		4.00	6	4.113300	3.0581848	1.2484987

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Percent_Carnivores_Omnivores	Equal variances assumed	.653	.429	-2.038	19	.056	-2.4853933	1.2194359	-5.0377020	.0669153	
	Equal variances not assumed			-1.797	7.392	.113	-2.4853933	1.3829938	-5.7208059	.7500192	
Temporary.											
Select if (Year = 2014 and Season = "Summer").											
T-TEST GROUPS=Sub_Area2(1 5)											
/MISSING=ANALYSIS											
/VARIABLES=Percent_Carnivores_Omnivores											
/CRITERIA=CI(.95).											
T-Test											
Notes											
Output Created		14-Jun-2016 14:39:39									
Comments											
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav									
	Active Dataset	DataSet1									
	Filter	<none>									
	Weight	<none>									
	Split File	<none>									
	N of Rows in Working Data File	108									
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.									
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.									
Syntax		T-TEST GROUPS=Sub_Area2(1 5) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores									

Resources	Processor Time	00:00:00.016
	Elapsed Time	00:00:00.016

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	1.00	15	1.627907	2.3040920	.5949140
	5.00	6	2.888367	3.0874839	1.2604600

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	.007	.934	-1.030	19	.316	-1.2604600	1.2239609	-3.8222397	1.3013197
	Equal variances not assumed			-.904	7.346	.395	-1.2604600	1.3938013	-4.5251010	2.0041810

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(1 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:39
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 6) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores
Resources	Processor Time	00:00:00.016
	Elapsed Time	00:00:00.016

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores		1.00	15	1.627907	2.3040920	.5949140
		6.00	6	5.880267	5.7032474	2.3283410

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Percent_Carnivores_Omnivores	Equal variances assumed	13.026	.002	-2.493	19	.022	-4.2523600	1.7058786	-7.8228049	-.6819151	
	Equal variances not assumed			-1.769	5.666	.130	-4.2523600	2.4031426	-10.2178192	1.7130992	
Temporary.											
Select if (Year = 2014 and Season = "Spring").											
T-TEST GROUPS=Sub_Area2(2 3)											
/MISSING=ANALYSIS											
/VARIABLES=Percent_Carnivores_Omnivores											
/CRITERIA=CI(.95).											
T-Test											
Notes											
Output Created		14-Jun-2016 14:39:39									
Comments											
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav									
	Active Dataset	DataSet1									
	Filter	<none>									
	Weight	<none>									
	Split File	<none>									
	N of Rows in Working Data File	264									
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.									
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.									
Syntax		T-TEST GROUPS=Sub_Area2(2 3) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores									

Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	2.00	114	1.680263	5.3726996	.5031994
	3.00	24	2.894713	3.7626276	.7680431

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	.528	.469	-1.053	136	.294	-1.2144493	1.1534691	-3.4955045	1.0666058
	Equal variances not assumed			-1.323	45.285	.193	-1.2144493	.9182047	-3.0634874	.6345887

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(2 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:39
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 4) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores
Resources	Processor Time	00:00:00.015
	Elapsed Time	00:00:00.016

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	2.00	114	1.680263	5.3726996	.5031994
	4.00	24	1.111029	2.1752625	.4440236

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Percent_Carnivores_Omnivores	Equal variances assumed	.530	.468	.509	136	.611	.5692340	1.1180742	-1.6418257	2.7802937	
	Equal variances not assumed			.848	89.850	.399	.5692340	.6710936	-.7640409	1.9025089	
Temporary.											
Select if (Year = 2014 and Season = "Spring").											
T-TEST GROUPS=Sub_Area2(2 5)											
/MISSING=ANALYSIS											
/VARIABLES=Percent_Carnivores_Omnivores											
/CRITERIA=CI(.95).											
T-Test											
Notes											
Output Created		14-Jun-2016 14:39:39									
Comments											
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav									
	Active Dataset	DataSet1									
	Filter	<none>									
	Weight	<none>									
	Split File	<none>									
	N of Rows in Working Data File	264									
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.									
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.									
Syntax		T-TEST GROUPS=Sub_Area2(2 5) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores									

Resources	Processor Time	00:00:00.016
	Elapsed Time	00:00:00.015

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	2.00	114	1.680263	5.3726996	.5031994
	5.00	24	2.031171	3.7067702	.7566413

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	.056	.814	-.305	136	.761	-.3509077	1.1519253	-2.6289100	1.9270947
	Equal variances not assumed			-.386	46.012	.701	-.3509077	.9086890	-2.1799907	1.4781754

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(2 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:39
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 6) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores		2.00	114	1.680263	5.3726996	.5031994
		6.00	24	2.805625	3.4912988	.7126584

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Percent_Carnivores_Omnivores	Equal variances assumed	.397	.530	-.982	136	.328	-1.1253618	1.1461684	-3.3919795	1.1412559	
	Equal variances not assumed			-1.290	49.163	.203	-1.1253618	.8724057	-2.8783793	.6276556	
Temporary.											
Select if (Year = 2014 and Season = "Summer").											
T-TEST GROUPS=Sub_Area2(2 3)											
/MISSING=ANALYSIS											
/VARIABLES=Percent_Carnivores_Omnivores											
/CRITERIA=CI(.95).											
T-Test											
Notes											
Output Created		14-Jun-2016 14:39:39									
Comments											
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav									
	Active Dataset	DataSet1									
	Filter	<none>									
	Weight	<none>									
	Split File	<none>									
	N of Rows in Working Data File	108									
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.									
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.									
Syntax		T-TEST GROUPS=Sub_Area2(2 3) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores									

Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	2.00	69	5.324599	5.6845779	.6843428
	3.00	6	2.503550	2.5080033	1.0238881

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	4.492	.037	1.200	73	.234	2.8210486	2.3518393	-1.8661604	7.5082575
	Equal variances not assumed			2.291	10.314	.044	2.8210486	1.2315323	.0882967	5.5538004

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(2 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:39
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 4) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.016

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	2.00	69	5.324599	5.6845779	.6843428
	4.00	6	4.113300	3.0581848	1.2484987

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Percent_Carnivores_Omnivores	Equal variances assumed	2.739	.102	.513	73	.609	1.2112986	2.3599040	-3.4919834	5.9145805	
	Equal variances not assumed			.851	8.400	.418	1.2112986	1.4237535	-2.0448621	4.4674592	

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(2 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes		
Output Created		14-Jun-2016 14:39:39
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 5) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores

Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	2.00	69	5.324599	5.6845779	.6843428
	5.00	6	2.888367	3.0874839	1.2604600

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	3.836	.054	1.032	73	.305	2.4362319	2.3603773	-2.2679934	7.1404571
	Equal variances not assumed			1.699	8.329	.126	2.4362319	1.4342540	-.8485619	5.7210257

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(2 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:39
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 6) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores
Resources	Processor Time	00:00:00.016
	Elapsed Time	00:00:00.016

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	2.00	69	5.324599	5.6845779	.6843428
	6.00	6	5.880267	5.7032474	2.3283410

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Percent_Carnivores_Omnivores	Equal variances assumed	.002	.962	-.230	73	.819	-.5556681	2.4200621	-5.3788450	4.2675088	
	Equal variances not assumed			-.229	5.898	.827	-.5556681	2.4268286	-6.5188966	5.4075603	
Temporary.											
Select if (Year = 2014 and Season = "Spring").											
T-TEST GROUPS=Sub_Area2(1 3)											
/MISSING=ANALYSIS											
/VARIABLES=Percent_Pollution_Indicating_Taxa											
/CRITERIA=CI(.95).											
T-Test											
Notes											
Output Created		14-Jun-2016 14:39:39									
Comments											
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav									
	Active Dataset	DataSet1									
	Filter	<none>									
	Weight	<none>									
	Split File	<none>									
	N of Rows in Working Data File	264									
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.									
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.									
Syntax		T-TEST GROUPS=Sub_Area2(1 3) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa									

Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	1.00	54	67.651026	22.5497070	3.0686264
	3.00	24	70.948050	21.8366916	4.4573960

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	.090	.765	-.602	76	.549	-3.2970241	5.4796974	-14.2107873	7.6167392
	Equal variances not assumed			-.609	45.530	.545	-3.2970241	5.4115476	-14.1929426	7.5988944

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(1 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:39
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 4) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa
Resources	Processor Time	00:00:00.015
	Elapsed Time	00:00:00.016

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa		1.00	54	67.651026	22.5497070	3.0686264
		4.00	24	64.692067	25.5642705	5.2182849

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Percent_Pollution_Indicating_Taxa	Equal variances assumed	1.942	.167	.513	76	.609	2.9589593	5.7658754	-8.5247769	14.4426954	
	Equal variances not assumed			.489	39.602	.628	2.9589593	6.0536737	-9.2797999	15.1977184	

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(1 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes		
Output Created		14-Jun-2016 14:39:39
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 5) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa

Resources	Processor Time	00:00:00.016
	Elapsed Time	00:00:00.016

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	1.00	54	67.651026	22.5497070	3.0686264
	5.00	24	64.989788	23.8423065	4.8667904

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	.266	.607	.473	76	.638	2.6612384	5.6298974	-8.5516739	13.8741508
	Equal variances not assumed			.463	42.040	.646	2.6612384	5.7534440	-8.9493581	14.2718349

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(1 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:39
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 6) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa		1.00	54	67.651026	22.5497070	3.0686264
		6.00	24	42.704638	27.0804018	5.5277639

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Percent_Pollution_Indicating_Taxa	Equal variances assumed	1.123	.293	4.235	76	.000	24.9463884	5.8905931	13.2142554	36.6785214	
	Equal variances not assumed			3.946	37.802	.000	24.9463884	6.3223921	12.1451743	37.7476026	

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(1 3)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes		
Output Created		14-Jun-2016 14:39:39
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 3) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa

Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	1.00	15	59.403980	13.9685992	3.6066768
	3.00	6	67.125767	8.7167764	3.5586090

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	1.722	.205	-1.249	19	.227	-7.7217867	6.1816522	-20.6601334	5.2165600
	Equal variances not assumed			-1.524	14.924	.148	-7.7217867	5.0667362	-18.5260814	3.0825081

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(1 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:39
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 4) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa		1.00	15	59.403980	13.9685992	3.6066768
		4.00	6	65.892650	6.9168098	2.8237758

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Percent_Pollution_Indicating_Taxa	Equal variances assumed	2.337	.143	-1.074	19	.296	-6.4886700	6.0402759	-19.1311128	6.1537728	
	Equal variances not assumed			-1.417	17.750	.174	-6.4886700	4.5805925	-16.1218745	3.1445345	

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(1 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes		
Output Created		14-Jun-2016 14:39:39
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 5) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa

Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	1.00	15	59.403980	13.9685992	3.6066768
	5.00	6	74.682033	7.4987859	3.0613665

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	1.666	.212	-2.512	19	.021	-15.2780533	6.0827691	-28.0094354	-2.5466713
	Equal variances not assumed			-3.230	16.891	.005	-15.2780533	4.7307592	-25.2639991	-5.2921075

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(1 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:39
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 6) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa		1.00	15	59.403980	13.9685992	3.6066768
		6.00	6	77.375917	11.9011362	4.8586185

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Percent_Pollution_Indicating_Taxa	Equal variances assumed	.088	.770	-2.765	19	.012	-17.9719367	6.4995586	-31.5756691	-4.3682042	
	Equal variances not assumed			-2.970	10.852	.013	-17.9719367	6.0509744	-31.3122539	-4.6316194	
Temporary.											
Select if (Year = 2014 and Season = "Spring").											
T-TEST GROUPS=Sub_Area2(2 3)											
/MISSING=ANALYSIS											
/VARIABLES=Percent_Pollution_Indicating_Taxa											
/CRITERIA=CI(.95).											
T-Test											
Notes											
Output Created		14-Jun-2016 14:39:39									
Comments											
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav									
	Active Dataset	DataSet1									
	Filter	<none>									
	Weight	<none>									
	Split File	<none>									
	N of Rows in Working Data File	264									
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.									
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.									
Syntax		T-TEST GROUPS=Sub_Area2(2 3) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa									

Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	2.00	114	60.927710	24.3884202	2.2841848
	3.00	24	70.948050	21.8366916	4.4573960

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	1.535	.217	-1.861	136	.065	-10.0203404	5.3846516	-20.6688162	.6281355
	Equal variances not assumed			-2.001	36.158	.053	-10.0203404	5.0085806	-20.1766686	.1359879

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(2 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:39
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 4) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa
Resources	Processor Time	00:00:00.015
	Elapsed Time	00:00:00.016

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa		2.00	114	60.927710	24.3884202	2.2841848
		4.00	24	64.692067	25.5642705	5.2182849

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Percent_Pollution_Indicating_Taxa	Equal variances assumed	.378	.540	-.682	136	.497	-3.7643570	5.5228304	-14.6860898	7.1573758	
	Equal variances not assumed			-.661	32.416	.513	-3.7643570	5.6963144	-15.3615328	7.8328187	
Temporary.											
Select if (Year = 2014 and Season = "Spring").											
T-TEST GROUPS=Sub_Area2(2 5)											
/MISSING=ANALYSIS											
/VARIABLES=Percent_Pollution_Indicating_Taxa											
/CRITERIA=CI(.95).											
T-Test											
Notes											
Output Created		14-Jun-2016 14:39:39									
Comments											
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav									
	Active Dataset	DataSet1									
	Filter	<none>									
	Weight	<none>									
	Split File	<none>									
	N of Rows in Working Data File	264									
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.									
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.									
Syntax		T-TEST GROUPS=Sub_Area2(2 5) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa									

Resources	Processor Time	00:00:00.016
	Elapsed Time	00:00:00.015

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	2.00	114	60.927710	24.3884202	2.2841848
	5.00	24	64.989788	23.8423065	4.8667904

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	.109	.742	-.744	136	.458	-4.0620779	5.4567344	-14.8531017	6.7289460
	Equal variances not assumed			-.756	33.914	.455	-4.0620779	5.3761649	-14.9887799	6.8646242

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(2 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:39
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 6) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa
Resources	Processor Time	00:00:00.016
	Elapsed Time	00:00:00.016

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa		2.00	114	60.927710	24.3884202	2.2841848
		6.00	24	42.704638	27.0804018	5.5277639

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Percent_Pollution_Indicating_Taxa	Equal variances assumed	.121	.728	3.263	136	.001	18.2230721	5.5841287	7.1801183	29.2660260	
	Equal variances not assumed			3.047	31.339	.005	18.2230721	5.9811097	6.0298669	30.4162774	

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(2 3)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes		
Output Created		14-Jun-2016 14:39:39
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 3) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa

Resources	Processor Time	00:00:00.015
	Elapsed Time	00:00:00.016

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	2.00	69	65.292432	17.5154493	2.1086123
	3.00	6	67.125767	8.7167764	3.5586090

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	4.688	.034	-.253	73	.801	-1.8333348	7.2604515	-16.3033938	12.6367243
	Equal variances not assumed			-.443	9.045	.668	-1.8333348	4.1364168	-11.1834070	7.5167375

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(2 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:39
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 4) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa
Resources	Processor Time	00:00:00.016
	Elapsed Time	00:00:00.015

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	2.00	69	65.292432	17.5154493	2.1086123
	4.00	6	65.892650	6.9168098	2.8237758

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Percent_Pollution_Indicating_Taxa	Equal variances assumed	5.403	.023	-.083	73	.934	-.6002181	7.2363659	-15.0222745	13.8218383	
	Equal variances not assumed			-.170	11.860	.868	-.6002181	3.5241957	-8.2888713	7.0884351	

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(2 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes		
Output Created		14-Jun-2016 14:39:39
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 5) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa

Resources	Processor Time	00:00:00.031
	Elapsed Time	00:00:00.016

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	2.00	69	65.292432	17.5154493	2.1086123
	5.00	6	74.682033	7.4987859	3.0613665

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	4.411	.039	-1.296	73	.199	-9.3896014	7.2435551	-23.8259859	5.0467830
	Equal variances not assumed			-2.526	10.693	.029	-9.3896014	3.7172854	-17.6000798	-1.1791231

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(2 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	14-Jun-2016 14:39:39
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 6) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Comments\Benthos\Benthic_Replicates_All2_update_061416.sav

Group Statistics

	Sub_Area2	N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	2.00	69	65.292432	17.5154493	2.1086123
	6.00	6	77.375917	11.9011362	4.8586185

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

Percent_Pollution_Indicating_Taxa	Equal variances assumed	1.449	.233	-1.652	73	.103	-12.0834848	7.3163388	-26.6649270	2.4979574	
	Equal variances not assumed			-2.281	7.043	.056	-12.0834848	5.2964535	-24.5922949	.4253253	

Notes:

T-TEST GROUPS	Variable Code	Location
Sub_Area2	1	CM 0 − 2
Sub_Area2	2	CM 2+ and Tributaries
Sub_Area2	3	Gerritsen Creek
Sub_Area2	4	Head of Bay
Sub_Area2	5	Spring Creek
Sub_Area2	6	Westchester Creek

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(1 3)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-JAN-2017 12:19:54
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Responses\Benthic_Community\T_Test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 3) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	1.00	54	1.681481	0.3168680	0.0431203
	3.00	24	1.716667	0.4249467	0.0867419

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.710	0.402	-0.406	76	0.686	-0.0351852	0.0866210	-0.2077059	0.1373356
	Equal variances not assumed			-0.363	34.848	0.719	-0.0351852	0.0968685	-0.2318693	0.1614990

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(1 4)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-JAN-2017 12:19:54
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Responses\Benthic_Community\T_Test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1

	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 4) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	1.00	54	1.681481	0.3168680	0.0431203
	4.00	24	1.666667	0.3265986	0.0666667

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.194	0.661	0.189	76	0.851	0.0148148	0.0784663	-0.1414643	0.1710939
	Equal variances not assumed			0.187	43.004	0.853	0.0148148	0.0793965	-0.1453031	0.1749327

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(1 5)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-JAN-2017 12:19:54
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Responses\Benthic_Community\T_Test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 5) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	1.00	54	1.681481	0.3168680	0.0431203
	5.00	24	1.633333	0.4555614	0.0929911

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	9.537	0.003	0.539	76	0.592	0.0481481	0.0894102	-0.1299277	0.2262240
	Equal variances not assumed			0.470	33.286	0.642	0.0481481	0.1025022	-0.1603260	0.2566223

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(1 6)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-JAN-2017 12:19:54
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Responses\Benthic_Community\T_Test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>

	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 6) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	1.00	54	1.681481	0.3168680	0.0431203
	6.00	24	1.850000	0.3967257	0.0809813

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	1.976	0.164	-2.003	76	0.049	-0.1685185	0.0841478	-0.3361134	-0.0009237
	Equal variances not assumed			-1.837	36.614	0.074	-0.1685185	0.0917460	-0.3544798	0.0174427

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(2 3)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		25-MAY-2017 12:29:23
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.

Syntax		T-TEST GROUPS=Sub_Area2(2 3) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).								
Resources	Processor Time	00:00:00.00								
	Elapsed Time	00:00:00.03								

Group Statistics

Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	2.00	114	1.659649	0.3406707	0.0319067
	3.00	24	1.716667	0.4249467	0.0867419

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.303	0.583	-0.712	136	0.477	-0.0570175	0.0800257	-0.2152732	0.1012382
	Equal variances not assumed			-0.617	29.535	0.542	-0.0570175	0.0924240	-0.2458972	0.1318621

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(2 4)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes		
Output Created		25-MAY-2017 12:29:23
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 4) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02
Group Statistics		

Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	2.00	114	1.659649	0.3406707	0.0319067
	4.00	24	1.666667	0.3265986	0.0666667

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.000	0.997	-0.092	136	0.927	-0.0070175	0.0759844	-0.1572813	0.1432463
	Equal variances not assumed			-0.095	34.376	0.925	-0.0070175	0.0739086	-0.1571574	0.1431223

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(2 5)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		25-MAY-2017 12:29:23
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1

	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 5) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	2.00	114	1.659649	0.3406707	0.0319067
	5.00	24	1.633333	0.4555614	0.0929911

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	7.675	0.006	0.323	136	0.747	0.0263158	0.0814497	-0.1347560	0.1873875

	Equal variances not assumed			0.268	28.653	0.791	0.0263158	0.0983127	-0.1748619	0.2274935

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area2(2 6)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		25-MAY-2017 12:29:23
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.

Syntax		T-TEST GROUPS=Sub_Area2(2 6) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	2.00	114	1.659649	0.3406707	0.0319067
	6.00	24	1.850000	0.3967257	0.0809813

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	1.118	0.292	-2.416	136	0.017	-0.1903509	0.0787802	-0.3461435	-0.0345583
	Equal variances not assumed			-2.187	30.545	0.037	-0.1903509	0.0870403	-0.3679779	-0.0127239

```
Temporary.
Select if (Season = "Spring" and Area_N =1).
T-TEST GROUPS=Year_4(1 2)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes		
Output Created		25-MAY-2017 12:25:30
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	270
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Year_4(1 2) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\Benthic_Replicates_All2_update_061416.sav

Group Statistics

Year_4		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	1	102	1.688235	0.6879866	0.0681208
	2	168	1.666667	0.3324139	0.0256463

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	49.109	0.000	0.346	268	0.730	0.0215686	0.0624141	-0.1013158	0.1444530
	Equal variances not assumed			0.296	130.080	0.767	0.0215686	0.0727886	-0.1224341	0.1655713

```
Temporary.
Select if (Season = "Summer" and Area_N =1).
T-TEST GROUPS=Year_4(1 2)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	25-MAY-2017 12:25:30
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\Benthic_Replicates_All2_update_061416.sav								
	Active Dataset	DataSet1								
	Filter	<none>								
	Weight	<none>								
	Split File	<none>								
	N of Rows in Working Data File	186								
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.								
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.								
Syntax		T-TEST GROUPS=Year_4(1 2) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).								
Resources	Processor Time	00:00:00.00								
	Elapsed Time	00:00:00.01								
Group Statistics										
Year_4		N	Mean	Std. Deviation	Std. Error Mean					
Weisberg_BI	1	102	0.749020	0.7486946	0.0741318					
	2	84	1.738095	0.4047622	0.0441632					
Independent Samples Test										

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	114.863	0.000	-10.867	184	0.000	-0.9890756	0.0910158	-1.1686443	-0.8095070
	Equal variances not assumed			-11.462	160.771	0.000	-0.9890756	0.0862897	-1.1594831	-0.8186682

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(1 3)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-JAN-2017 12:19:54
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Responses\Benthic_Community\T_Test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>

	N of Rows in Working Data File	108								
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.								
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.								
Syntax		T-TEST GROUPS=Sub_Area2(1 3) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).								
Resources	Processor Time	00:00:00.00								
	Elapsed Time	00:00:00.01								
Group Statistics										
Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean					
Weisberg_BI	1.00	15	1.533333	0.3598942	0.0929243					
	3.00	6	1.666667	0.3265986	0.1333333					
Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.036	0.851	-0.785	19	0.442	-0.1333333	0.1697608	-0.4886467	0.2219800
	Equal variances not assumed			-0.820	10.179	0.431	-0.1333333	0.1625198	-0.4945884	0.2279218
Temporary.										
Select if (Year = 2014 and Season = "Summer").										
T-TEST GROUPS=Sub_Area2(1 4)										
/MISSING=ANALYSIS										

```
/VARIABLES=Weisberg_BI
/CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-JAN-2017 12:19:54
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Responses\Benthic_Community\T_Test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 4) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	1.00	15	1.533333	0.3598942	0.0929243

	4.00	6	1.466667	0.3011091	0.1229273					

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.417	0.526	0.400	19	0.694	0.0666667	0.1668420	-0.2825377	0.4158710
	Equal variances not assumed			0.433	11.057	0.674	0.0666667	0.1540975	-0.2722847	0.4056181

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(1 5)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-JAN-2017 12:19:54
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Responses\Benthic_Community\T_Test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108

Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 5) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	1.00	15	1.533333	0.3598942	0.0929243
	5.00	6	1.533333	0.2065591	0.0843274

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	1.486	0.238	0.000	19	1.000	0.0000000	0.1577621	-0.3301999	0.3301999
	Equal variances not assumed			0.000	16.059	1.000	0.0000000	0.1254832	-0.2659334	0.2659334

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(1 6)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-JAN-2017 12:19:54
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Responses\Benthic_Community\T_Test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(1 6) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	1.00	15	1.533333	0.3598942	0.0929243
	6.00	6	1.666667	0.3265986	0.1333333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.036	0.851	-0.785	19	0.442	-0.1333333	0.1697608	-0.4886467	0.2219800
	Equal variances not assumed			-0.820	10.179	0.431	-0.1333333	0.1625198	-0.4945884	0.2279218

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(2 3)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-JAN-2017 12:19:54
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Responses\Benthic_Community\T_Test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108

Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 3) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	2.00	69	1.782609	0.4025494	0.0484613
	3.00	6	1.666667	0.3265986	0.1333333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.188	0.666	0.685	73	0.496	0.1159420	0.1693193	-0.2215108	0.4533948
	Equal variances not assumed			0.817	6.400	0.443	0.1159420	0.1418671	-0.2260014	0.4578855

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(2 4)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-JAN-2017 12:19:54
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Responses\Benthic_Community\T_Test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 4) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	2.00	69	1.782609	0.4025494	0.0484613
	4.00	6	1.466667	0.3011091	0.1229273

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.729	0.396	1.872	73	0.065	0.3159420	0.1687320	-0.0203403	0.6522244
	Equal variances not assumed			2.391	6.663	0.050	0.3159420	0.1321348	0.0002615	0.6316226

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(2 5)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-JAN-2017 12:19:54
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Responses\Benthic_Community\T_Test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108

Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.								
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.								
Syntax		T-TEST GROUPS=Sub_Area2(2 5) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).								
Resources	Processor Time	00:00:00.02								
	Elapsed Time	00:00:00.01								

Group Statistics

Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	2.00	69	1.782609	0.4025494	0.0484613
	5.00	6	1.533333	0.2065591	0.0843274

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	1.680	0.199	1.493	73	0.140	0.2492754	0.1669577	-0.0834709	0.5820216
	Equal variances not assumed			2.563	8.778	0.031	0.2492754	0.0972605	0.0284038	0.4701469

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area2(2 6)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-JAN-2017 12:19:54
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\EPA_Responses\Benthic_Community\T_Test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area2(2 6) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area2		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	2.00	69	1.782609	0.4025494	0.0484613
	6.00	6	1.666667	0.3265986	0.1333333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.188	0.666	0.685	73	0.496	0.1159420	0.1693193	-0.2215108	0.4533948
	Equal variances not assumed			0.817	6.400	0.443	0.1159420	0.1418671	-0.2260014	0.4578855

Notes:

T-TEST GROUPS	Variable Code	Location
Sub_Area2	1	CM 0 – 2
Sub_Area2	2	CM 2+ and Tributaries
Sub_Area2	3	Gerritsen Creek
Sub_Area2	4	Head of Bay
Sub_Area2	5	Spring Creek
Sub_Area2	6	Westchester Creek

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(22 3)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:26:18
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 3) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	22	12	22420.50	28259.535	8157.825
	3	24	10000.63	4520.223	922.687

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	19.785	0.000	2.129	34	0.041	12419.875	5833.020	565.753	24273.997
	Equal variances not assumed			1.513	11.282	0.158	12419.875	8209.839	-5594.839	30434.589

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(22 4)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:26:18
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 4) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	22	12	22420.50	28259.535	8157.825
	4	24	10455.04	5799.901	1183.900

Independent Samples Test

		Levene's Test for Equality of Variances	t-test for Equality of Means

		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Abundance_m2	Equal variances assumed	17.886	0.000	2.018	34	0.051	11965.458	5927.971	-81.628	24012.545
	Equal variances not assumed			1.452	11.466	0.173	11965.458	8243.284	-6088.365	30019.281

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(22 5)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:26:18
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 5) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	22	12	22420.50	28259.535	8157.825
	5	24	8345.29	4666.837	952.614

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Abundance_m2	Equal variances assumed	17.607	0.000	2.409	34	0.022	14075.208	5842.774	2201.262	25949.155
	Equal variances not assumed			1.714	11.301	0.114	14075.208	8213.256	-3943.471	32093.887

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(22 6)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:26:18
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 6) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	22	12	22420.50	28259.535	8157.825
	6	24	13571.08	27368.234	5586.517

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	1.326	0.258	0.905	34	0.372	8849.417	9779.194	-11024.298	28723.131
	Equal variances not assumed			0.895	21.477	0.381	8849.417	9887.329	-11684.626	29383.459

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(22 3)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 3) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	22	6	17582.50	950.946	388.222
	3	6	9719.33	7726.306	3154.251

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	64.386	0.000	2.474	10	0.033	7863.167	3178.052	782.025	14944.309
	Equal variances not assumed			2.474	5.151	0.055	7863.167	3178.052	-234.563	15960.897

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(22 4)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.

Syntax		T-TEST GROUPS=Sub_Area22(22 4) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	22	6	17582.50	950.946	388.222
	4	6	21248.33	5158.738	2106.046

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	64.337	0.000	-1.712	10	0.118	-3665.833	2141.529	-8437.457	1105.790
	Equal variances not assumed			-1.712	5.339	0.144	-3665.833	2141.529	-9067.203	1735.536

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(22 5)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 5) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	22	6	17582.50	950.946	388.222
	5	6	14121.83	3109.793	1269.568

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	7.336	0.022	2.607	10	0.026	3460.667	1327.599	502.592	6418.741
	Equal variances not assumed			2.607	5.927	0.041	3460.667	1327.599	202.422	6718.911

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(22 6)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108

Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 6) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	22	6	17582.50	950.946	388.222
	6	6	14560.33	5938.834	2424.519

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	10.052	0.010	1.231	10	0.247	3022.167	2455.404	-2448.814	8493.148
	Equal variances not assumed			1.231	5.256	0.271	3022.167	2455.404	-3198.219	9242.553

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(33 3)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 3) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	33	18	8779.17	2704.786	637.524
	3	24	10000.63	4520.223	922.687

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	0.140	0.710	-1.016	40	0.316	-1221.458	1201.880	-3650.549	1207.632
	Equal variances not assumed			-1.089	38.371	0.283	-1221.458	1121.511	-3491.119	1048.202

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(33 4)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 4) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	33	18	8779.17	2704.786	637.524
	4	24	10455.04	5799.901	1183.900

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	0.346	0.559	-1.134	40	0.263	-1675.875	1477.428	-4661.868	1310.118
	Equal variances not assumed			-1.246	34.364	0.221	-1675.875	1344.640	-4407.447	1055.697

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(33 5)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 5) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.03

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	33	18	8779.17	2704.786	637.524
	5	24	8345.29	4666.837	952.614

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	6.279	0.016	0.352	40	0.727	433.875	1232.808	-2057.722	2925.472
	Equal variances not assumed			0.379	37.924	0.707	433.875	1146.259	-1886.759	2754.509

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(33 6)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 6) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	33	18	8779.17	2704.786	637.524
	6	24	13571.08	27368.234	5586.517

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	2.020	0.163	-0.738	40	0.465	-4791.917	6494.197	-17917.179	8333.346
	Equal variances not assumed			-0.852	23.598	0.403	-4791.917	5622.776	-16407.239	6823.406

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(33 3)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 3) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	33	15	11987.73	7462.694	1926.859
	3	6	9719.33	7726.306	3154.251

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	0.102	0.752	0.623	19	0.540	2268.400	3638.765	-5347.624	9884.424
	Equal variances not assumed			0.614	8.981	0.555	2268.400	3696.226	-6095.698	10632.498

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(33 4)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 4) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	33	15	11987.73	7462.694	1926.859
	4	6	21248.33	5158.738	2106.046

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	1.448	0.244	-2.766	19	0.012	-9260.600	3348.013	-16268.071	-2253.129
	Equal variances not assumed			-3.244	13.497	0.006	-9260.600	2854.508	-15404.399	-3116.801

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(33 5)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 5) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	33	15	11987.73	7462.694	1926.859
	5	6	14121.83	3109.793	1269.568

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	6.782	0.017	-0.669	19	0.511	-2134.100	3188.872	-8808.486	4540.286
	Equal variances not assumed			-0.925	18.848	0.367	-2134.100	2307.507	-6966.407	2698.207

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(33 6)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 6) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	33	15	11987.73	7462.694	1926.859
	6	6	14560.33	5938.834	2424.519

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	1.088	0.310	-0.751	19	0.462	-2572.600	3426.481	-9744.306	4599.106
	Equal variances not assumed			-0.831	11.651	0.423	-2572.600	3096.947	-9342.766	4197.566

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(22 3)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 3) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	22	12	8.83	3.040	0.878
	3	24	8.29	2.196	0.448

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.701	0.408	0.613	34	0.544	0.542	0.884	-1.255	2.338
	Equal variances not assumed			0.550	16.939	0.590	0.542	0.986	-1.538	2.621

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(22 4)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 4) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	22	12	8.83	3.040	0.878
	4	24	7.08	2.062	0.421

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.972	0.331	2.043	34	0.049	1.750	0.856	0.010	3.490
	Equal variances not assumed			1.798	16.234	0.091	1.750	0.973	-0.311	3.811

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(22 5)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.

Syntax		T-TEST GROUPS=Sub_Area22(22 5) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	22	12	8.83	3.040	0.878
	5	24	7.29	2.851	0.582

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.011	0.918	1.497	34	0.144	1.542	1.030	-0.552	3.635
	Equal variances not assumed			1.464	20.871	0.158	1.542	1.053	-0.649	3.732

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(22 6)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 6) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	22	12	8.83	3.040	0.878
	6	24	6.50	2.638	0.538

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.061	0.806	2.379	34	0.023	2.333	0.981	0.340	4.327
	Equal variances not assumed			2.266	19.515	0.035	2.333	1.030	0.182	4.484

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(22 3)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.

	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 3) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	22	6	7.50	1.378	0.563
	3	6	7.50	1.049	0.428

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	1.250	0.290	0.000	10	1.000	0.000	0.707	-1.576	1.576
	Equal variances not assumed			0.000	9.336	1.000	0.000	0.707	-1.591	1.591

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(22 4)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 4) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	22	6	7.50	1.378	0.563
	4	6	9.33	0.816	0.333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	3.750	0.082	-2.803	10	0.019	-1.833	0.654	-3.291	-0.376
	Equal variances not assumed			-2.803	8.124	0.023	-1.833	0.654	-3.338	-0.329

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(22 5)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>

	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 5) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	22	6	7.50	1.378	0.563
	5	6	8.67	2.160	0.882

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.938	0.356	-1.115	10	0.291	-1.167	1.046	-3.498	1.164
	Equal variances not assumed			-1.115	8.492	0.295	-1.167	1.046	-3.555	1.222

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(22 6)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 6) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	22	6	7.50	1.378	0.563
	6	6	8.50	1.761	0.719

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.135	0.721	-1.095	10	0.299	-1.000	0.913	-3.034	1.034
	Equal variances not assumed			-1.095	9.455	0.300	-1.000	0.913	-3.050	1.050

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(33 3)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav

	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 3) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	33	18	6.72	1.904	0.449
	3	24	8.29	2.196	0.448

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.212	0.647	-2.423	40	0.020	-1.569	0.648	-2.878	-0.261
	Equal variances not assumed			-2.474	39.090	0.018	-1.569	0.634	-2.852	-0.287

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(33 4)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 4) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	33	18	6.72	1.904	0.449
	4	24	7.08	2.062	0.421

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.122	0.729	-0.580	40	0.565	-0.361	0.623	-1.619	0.897
	Equal variances not assumed			-0.587	38.215	0.561	-0.361	0.615	-1.606	0.884

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(33 5)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	28-MAR-2018 11:30:15
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 5) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	33	18	6.72	1.904	0.449
	5	24	7.29	2.851	0.582

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	1.356	0.251	-0.733	40	0.468	-0.569	0.777	-2.140	1.001
	Equal variances not assumed			-0.775	39.559	0.443	-0.569	0.735	-2.055	0.916

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(33 6)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 6) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	33	18	6.72	1.904	0.449
	6	24	6.50	2.638	0.538

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	1.220	0.276	0.303	40	0.764	0.222	0.734	-1.261	1.706
	Equal variances not assumed			0.317	39.963	0.753	0.222	0.701	-1.194	1.639

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(33 3)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 3) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	33	15	7.47	1.552	0.401
	3	6	7.50	1.049	0.428

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.562	0.463	-0.048	19	0.962	-0.033	0.694	-1.486	1.419
	Equal variances not assumed			-0.057	13.813	0.955	-0.033	0.586	-1.293	1.226

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(33 4)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 4) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	33	15	7.47	1.552	0.401
	4	6	9.33	0.816	0.333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	1.354	0.259	-2.767	19	0.012	-1.867	0.675	-3.279	-0.455
	Equal variances not assumed			-3.581	17.125	0.002	-1.867	0.521	-2.966	-0.767

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(33 5)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
```

```
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 5) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	33	15	7.47	1.552	0.401
	5	6	8.67	2.160	0.882

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	1.044	0.320	-1.433	19	0.168	-1.200	0.837	-2.952	0.552
	Equal variances not assumed			-1.239	7.169	0.254	-1.200	0.969	-3.480	1.080

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(33 6)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 6) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	33	15	7.47	1.552	0.401
	6	6	8.50	1.761	0.719

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.139	0.714	-1.329	19	0.200	-1.033	0.778	-2.661	0.594
	Equal variances not assumed			-1.256	8.306	0.243	-1.033	0.823	-2.919	0.852

```
Temporary.
```

```
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(22 3)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 3) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	22	12	1.299925	1.3101964	0.3782211
	3	24	2.894713	3.7626276	0.7680431

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	7.861	0.008	-1.417	34	0.166	-1.5947875	1.1254120	-3.8818998	0.6923248
	Equal variances not assumed			-1.863	31.620	0.072	-1.5947875	0.8561200	-3.3394697	0.1498947

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(22 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 4) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	22	12	1.299925	1.3101964	0.3782211
	4	24	1.111029	2.1752625	0.4440236

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					
									95% Confidence Interval of the Difference
								Std. Error	

		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	0.772	0.386	0.276	34	0.784	0.1888958	0.6852259	-1.2036508	1.5814425
	Equal variances not assumed			0.324	32.600	0.748	0.1888958	0.5832737	-0.9983370	1.3761286

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(22 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 5) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	22	12	1.299925	1.3101964	0.3782211
	5	24	2.031171	3.7067702	0.7566413

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	2.996	0.093	-0.659	34	0.514	-0.7312458	1.1096272	-2.9862796	1.5237879
	Equal variances not assumed			-0.864	31.781	0.394	-0.7312458	0.8459062	-2.4547659	0.9922743

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(22 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 6) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22	N	Mean	Std. Deviation	Std. Error Mean

Percent_Carnivores_Omnivores	22	12	1.299925	1.3101964	0.3782211					
	6	24	2.805625	3.4912988	0.7126584					

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	9.320	0.004	-1.436	34	0.160	-1.5057000	1.0488678	-3.6372558	0.6258558
	Equal variances not assumed			-1.866	32.406	0.071	-1.5057000	0.8068043	-3.1483001	0.1369001

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(22 3)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 3) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	22	6	2.779750	1.4924489	0.6092897
	3	6	2.503550	2.5080033	1.0238881

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	0.682	0.428	0.232	10	0.821	0.2762000	1.1914616	-2.3785419	2.9309419
	Equal variances not assumed			0.232	8.147	0.822	0.2762000	1.1914616	-2.4627349	3.0151349

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(22 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.

Syntax		T-TEST GROUPS=Sub_Area22(22 4) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	22	6	2.779750	1.4924489	0.6092897
	4	6	4.113300	3.0581848	1.2484987

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	3.125	0.108	-0.960	10	0.360	-1.3335500	1.3892383	-4.4289658	1.7618658
	Equal variances not assumed			-0.960	7.254	0.368	-1.3335500	1.3892383	-4.5954214	1.9283214

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(22 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 5) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	22	6	2.779750	1.4924489	0.6092897
	5	6	2.888367	3.0874839	1.2604600

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	0.670	0.432	-0.078	10	0.940	-0.1086167	1.3999977	-3.2280059	3.0107725
	Equal variances not assumed			-0.078	7.216	0.940	-0.1086167	1.3999977	-3.3991332	3.1818999

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(22 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108

Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 6) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	22	6	2.779750	1.4924489	0.6092897
	6	6	5.880267	5.7032474	2.3283410

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	11.372	0.007	-1.288	10	0.227	-3.1005167	2.4067417	-8.4630714	2.2620381
	Equal variances not assumed			-1.288	5.682	0.248	-3.1005167	2.4067417	-9.0705368	2.8695034

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(33 3)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:15
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 3) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	33	18	1.029578	2.1256867	0.5010292
	3	24	2.894713	3.7626276	0.7680431

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	5.950	0.019	-1.886	40	0.067	-1.8651347	0.9890095	-3.8639975	0.1337281
	Equal variances not assumed			-2.034	37.542	0.049	-1.8651347	0.9170172	-3.7222823	-0.0079871

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(33 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	28-MAR-2018 11:30:16
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 4) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	33	18	1.029578	2.1256867	0.5010292
	4	24	1.111029	2.1752625	0.4440236

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	0.009	0.923	-0.121	40	0.904	-0.0814514	0.6717311	-1.4390706	1.2761678
	Equal variances not assumed			-0.122	37.220	0.904	-0.0814514	0.6694678	-1.4376514	1.2747487

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(33 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 5) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	33	18	1.029578	2.1256867	0.5010292
	5	24	2.031171	3.7067702	0.7566413

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	2.014	0.164	-1.025	40	0.312	-1.0015931	0.9771469	-2.9764806	0.9732945
	Equal variances not assumed			-1.104	37.768	0.277	-1.0015931	0.9074890	-2.8390795	0.8358933

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(33 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 6) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	33	18	1.029578	2.1256867	0.5010292
	6	24	2.805625	3.4912988	0.7126584

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	6.406	0.015	-1.906	40	0.064	-1.7760472	0.9317253	-3.6591343	0.1070399
	Equal variances not assumed			-2.039	38.598	0.048	-1.7760472	0.8711557	-3.5387132	-0.0133812

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(33 3)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 3) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.03

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	33	15	6.823000	6.2503738	1.6138396
	3	6	2.503550	2.5080033	1.0238881

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	6.253	0.022	1.621	19	0.122	4.3194500	2.6651539	-1.2587812	9.8976812
	Equal variances not assumed			2.260	18.944	0.036	4.3194500	1.9112365	0.3183924	8.3205076

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(33 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 4) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.10

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	33	15	6.823000	6.2503738	1.6138396
	4	6	4.113300	3.0581848	1.2484987

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	4.191	0.055	1.004	19	0.328	2.7097000	2.7002015	-2.9418867	8.3612867
	Equal variances not assumed			1.328	17.860	0.201	2.7097000	2.0403988	-1.5794284	6.9988284

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(33 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 5) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.03

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	33	15	6.823000	6.2503738	1.6138396
	5	6	2.888367	3.0874839	1.2604600

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	5.160	0.035	1.456	19	0.162	3.9346333	2.7022481	-1.7212369	9.5905035
	Equal variances not assumed			1.921	17.772	0.071	3.9346333	2.0477397	-0.3714595	8.2407262

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(33 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 6) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.03

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	33	15	6.823000	6.2503738	1.6138396
	6	6	5.880267	5.7032474	2.3283410

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	0.123	0.730	0.319	19	0.753	0.9427333	2.9519631	-5.2357964	7.1212630
	Equal variances not assumed			0.333	10.124	0.746	0.9427333	2.8329578	-5.3590431	7.2445097

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(22 3)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 3) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	22	12	58.282158	24.3980791	7.0431188
	3	24	70.948050	21.8366916	4.4573960

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	1.078	0.306	-1.578	34	0.124	-12.6658917	8.0246116	-28.9738645	3.6420811
	Equal variances not assumed			-1.520	20.039	0.144	-12.6658917	8.3351006	-30.0504488	4.7186655

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(22 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 4) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	22	12	58.282158	24.3980791	7.0431188
	4	24	64.692067	25.5642705	5.2182849

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	0.059	0.810	-0.720	34	0.477	-6.4099083	8.9070286	-24.5111683	11.6913517
	Equal variances not assumed			-0.731	23.067	0.472	-6.4099083	8.7656157	-24.5400505	11.7202338

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(22 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.

Syntax		T-TEST GROUPS=Sub_Area22(22 5) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.03

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	22	12	58.282158	24.3980791	7.0431188
	5	24	64.989788	23.8423065	4.8667904

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	0.181	0.673	-0.790	34	0.435	-6.7076292	8.4935978	-23.9686966	10.5534383
	Equal variances not assumed			-0.784	21.652	0.442	-6.7076292	8.5610263	-24.4786903	11.0634320

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(22 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 6) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	22	12	58.282158	24.3980791	7.0431188
	6	24	42.704638	27.0804018	5.5277639

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	0.002	0.964	1.679	34	0.102	15.5775208	9.2781639	-3.2779768	34.4330185
	Equal variances not assumed			1.740	24.313	0.095	15.5775208	8.9533064	-2.8886024	34.0436440

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(22 3)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108

Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 3) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	22	6	55.558133	17.0600711	6.9647449
	3	6	67.125767	8.7167764	3.5586090

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	2.016	0.186	-1.479	10	0.170	-11.5676333	7.8212128	-28.9943814	5.8591147
	Equal variances not assumed			-1.479	7.444	0.180	-11.5676333	7.8212128	-29.8405398	6.7052731

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(22 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 4) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.03

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	22	6	55.558133	17.0600711	6.9647449
	4	6	65.892650	6.9168098	2.8237758

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	2.777	0.127	-1.375	10	0.199	-10.3345167	7.5154096	-27.0798927	6.4108594
	Equal variances not assumed			-1.375	6.601	0.214	-10.3345167	7.5154096	-28.3259917	7.6569584

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(22 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	28-MAR-2018 11:30:16
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 5) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	22	6	55.558133	17.0600711	6.9647449
	5	6	74.682033	7.4987859	3.0613665

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	2.206	0.168	-2.514	10	0.031	-19.1239000	7.6078667	-36.0752834	-2.1725166
	Equal variances not assumed			-2.514	6.863	0.041	-19.1239000	7.6078667	-37.1869566	-1.0608434

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(22 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 6) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	22	6	55.558133	17.0600711	6.9647449
	6	6	77.375917	11.9011362	4.8586185

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	0.389	0.547	-2.569	10	0.028	-21.8177833	8.4919871	-40.7391097	-2.8964570
	Equal variances not assumed			-2.569	8.935	0.030	-21.8177833	8.4919871	-41.0494316	-2.5861350

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(33 3)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 3) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.04

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	33	18	69.215072	22.7593760	5.3644364
	3	24	70.948050	21.8366916	4.4573960

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	0.009	0.927	-0.250	40	0.804	-1.7329778	6.9325153	-15.7441138	12.2781582
	Equal variances not assumed			-0.248	35.922	0.805	-1.7329778	6.9746367	-15.8792680	12.4133125

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(33 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 4) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	33	18	69.215072	22.7593760	5.3644364
	4	24	64.692067	25.5642705	5.2182849

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	1.980	0.167	0.594	40	0.556	4.5230056	7.6116540	-10.8607209	19.9067320
	Equal variances not assumed			0.604	38.749	0.549	4.5230056	7.4838275	-10.6175948	19.6636059

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(33 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 5) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	33	18	69.215072	22.7593760	5.3644364
	5	24	64.989788	23.8423065	4.8667904

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	0.501	0.483	0.579	40	0.566	4.2252847	7.2925491	-10.5135067	18.9640762
	Equal variances not assumed			0.583	37.649	0.563	4.2252847	7.2431227	-10.4421382	18.8927077

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(33 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 6) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	33	18	69.215072	22.7593760	5.3644364
	6	24	42.704638	27.0804018	5.5277639

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	1.091	0.303	3.356	40	0.002	26.5104347	7.8993180	10.5453175	42.4755520
	Equal variances not assumed			3.442	39.419	0.001	26.5104347	7.7028145	10.9353168	42.0855527

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(33 3)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 3) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	33	15	73.999813	16.6014318	4.2864713
	3	6	67.125767	8.7167764	3.5586090

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	2.263	0.149	0.953	19	0.353	6.8740467	7.2146191	-8.2263246	21.9744180
	Equal variances not assumed			1.234	17.145	0.234	6.8740467	5.5711340	-4.8724640	18.6205574

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(33 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 4) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	33	15	73.999813	16.6014318	4.2864713
	4	6	65.892650	6.9168098	2.8237758

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	2.830	0.109	1.143	19	0.267	8.1071633	7.0938592	-6.7404546	22.9547812
	Equal variances not assumed			1.579	18.849	0.131	8.1071633	5.1329860	-2.6421473	18.8564739

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(33 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 5) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.03

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	33	15	73.999813	16.6014318	4.2864713
	5	6	74.682033	7.4987859	3.0613665

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	2.202	0.154	-0.096	19	0.925	-0.6822200	7.1300761	-15.6056407	14.2412007
	Equal variances not assumed			-0.130	18.470	0.898	-0.6822200	5.2674283	-11.7285418	10.3641018

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(33 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.

Syntax		T-TEST GROUPS=Sub_Area22(33 6) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	33	15	73.999813	16.6014318	4.2864713
	6	6	77.375917	11.9011362	4.8586185

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	0.425	0.522	-0.451	19	0.657	-3.3761033	7.4888028	-19.0503477	12.2981410
	Equal variances not assumed			-0.521	13.000	0.611	-3.3761033	6.4791982	-17.3735732	10.6213665

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(22 3)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 3) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.03

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	22	12	1.700000	0.3015113	0.0870388
	3	24	1.716667	0.4249467	0.0867419

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.879	0.355	-0.121	34	0.904	-0.0166667	0.1376448	-0.2963945	0.2630611
	Equal variances not assumed			-0.136	29.693	0.893	-0.0166667	0.1228817	-0.2677335	0.2344002

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(22 4)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264

Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 4) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	22	12	1.700000	0.3015113	0.0870388
	4	24	1.666667	0.3265986	0.0666667

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.978	0.330	0.296	34	0.769	0.0333333	0.1126769	-0.1956536	0.2623203
	Equal variances not assumed			0.304	23.779	0.764	0.0333333	0.1096367	-0.1930572	0.2597239

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(22 5)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 5) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	22	12	1.700000	0.3015113	0.0870388
	5	24	1.633333	0.4555614	0.0929911

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	6.673	0.014	0.458	34	0.650	0.0666667	0.1456897	-0.2294104	0.3627438
	Equal variances not assumed			0.523	31.078	0.604	0.0666667	0.1273699	-0.1930796	0.3264129

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(22 6)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 6) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	22	12	1.700000	0.3015113	0.0870388
	6	24	1.850000	0.3967257	0.0809813

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	2.098	0.157	-1.151	34	0.258	-0.1500000	0.1303276	-0.4148576	0.1148576
	Equal variances not assumed			-1.262	28.186	0.217	-0.1500000	0.1188854	-0.3934533	0.0934533

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(22 3)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 3) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	22	6	1.600000	0.3346640	0.1366260
	3	6	1.666667	0.3265986	0.1333333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.000	1.000	-0.349	10	0.734	-0.0666667	0.1909043	-0.4920279	0.3586946
	Equal variances not assumed			-0.349	9.994	0.734	-0.0666667	0.1909043	-0.4920622	0.3587289

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(22 4)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 4) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	22	6	1.600000	0.3346640	0.1366260
	4	6	1.466667	0.3011091	0.1229273

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.204	0.661	0.725	10	0.485	0.1333333	0.1837873	-0.2761703	0.5428370
	Equal variances not assumed			0.725	9.890	0.485	0.1333333	0.1837873	-0.2767862	0.5434529

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(22 5)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 5) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.03

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	22	6	1.600000	0.3346640	0.1366260
	5	6	1.533333	0.2065591	0.0843274

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	1.509	0.247	0.415	10	0.687	0.0666667	0.1605546	-0.2910713	0.4244046
	Equal variances not assumed			0.415	8.327	0.688	0.0666667	0.1605546	-0.3010593	0.4343926

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(22 6)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(22 6) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	22	6	1.600000	0.3346640	0.1366260
	6	6	1.666667	0.3265986	0.1333333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.000	1.000	-0.349	10	0.734	-0.0666667	0.1909043	-0.4920279	0.3586946
	Equal variances not assumed			-0.349	9.994	0.734	-0.0666667	0.1909043	-0.4920622	0.3587289

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(33 3)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 3) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	33	18	1.733333	0.2057983	0.0485071
	3	24	1.716667	0.4249467	0.0867419

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	4.436	0.042	0.153	40	0.879	0.0166667	0.1088343	-0.2032957	0.2366290
	Equal variances not assumed			0.168	35.003	0.868	0.0166667	0.0993836	-0.1850921	0.2184254

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(33 4)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 4) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	33	18	1.733333	0.2057983	0.0485071
	4	24	1.666667	0.3265986	0.0666667

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	7.463	0.009	0.759	40	0.452	0.0666667	0.0878235	-0.1108312	0.2441645
	Equal variances not assumed			0.809	39.008	0.424	0.0666667	0.0824463	-0.1000956	0.2334289

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(33 5)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:16
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 5) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	33	18	1.733333	0.2057983	0.0485071
	5	24	1.633333	0.4555614	0.0929911

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	20.740	0.000	0.865	40	0.392	0.1000000	0.1155502	-0.1335357	0.3335357
	Equal variances not assumed			0.953	33.831	0.347	0.1000000	0.1048822	-0.1131857	0.3131857

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(33 6)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:17
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 6) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	33	18	1.733333	0.2057983	0.0485071
	6	24	1.850000	0.3967257	0.0809813

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	9.127	0.004	-1.136	40	0.263	-0.1166667	0.1027064	-0.3242441	0.0909108
	Equal variances not assumed			-1.236	36.166	0.224	-0.1166667	0.0943976	-0.3080834	0.0747500

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(33 3)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:17
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.

Syntax		T-TEST GROUPS=Sub_Area22(33 3) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	33	15	1.933333	0.4450789	0.1149189
	3	6	1.666667	0.3265986	0.1333333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.654	0.429	1.323	19	0.201	0.2666667	0.2015147	-0.1551085	0.6884418
	Equal variances not assumed			1.515	12.687	0.154	0.2666667	0.1760231	-0.1145631	0.6478964

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(33 4)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:17
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 4) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	33	15	1.933333	0.4450789	0.1149189
	4	6	1.466667	0.3011091	0.1229273

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	1.400	0.251	2.344	19	0.030	0.4666667	0.1990621	0.0500248	0.8833085
	Equal variances not assumed			2.773	13.795	0.015	0.4666667	0.1682779	0.1052434	0.8280899

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(33 5)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:17
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108

Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 5) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	33	15	1.933333	0.4450789	0.1149189
	5	6	1.533333	0.2065591	0.0843274

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	2.857	0.107	2.089	19	0.050	0.4000000	0.1915160	-0.0008475	0.8008475
	Equal variances not assumed			2.806	18.289	0.012	0.4000000	0.1425393	0.1008745	0.6991255

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(33 6)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:30:17
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(33 6) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	33	15	1.933333	0.4450789	0.1149189
	6	6	1.666667	0.3265986	0.1333333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.654	0.429	1.323	19	0.201	0.2666667	0.2015147	-0.1551085	0.6884418
	Equal variances not assumed			1.515	12.687	0.154	0.2666667	0.1760231	-0.1145631	0.6478964

Notes:

T-TEST GROUPS	Variable Code	Location
Sub_Area22	1	CM 0 – 2
Sub_Area22	2	CM 2 – 3
Sub_Area22	3	Gerritsen Creek
Sub_Area22	4	Head of Bay
Sub_Area22	5	Spring Creek
Sub_Area22	6	Westchester Creek
Sub_Area22	22	Dutch Kills
Sub_Area22	33	Maspeth Creek
Sub_Area22	44	East Branch
Sub_Area22	55	English Kills

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(44 3)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:39
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 3) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	44	6	16725.17	15400.576	6287.259
	3	24	10000.63	4520.223	922.687

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	17.547	0.000	1.916	28	0.066	6724.542	3510.014	-465.395	13914.478
	Equal variances not assumed			1.058	5.217	0.336	6724.542	6354.603	-9408.077	22857.160

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(44 4)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:39
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 4) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	44	6	16725.17	15400.576	6287.259
	4	24	10455.04	5799.901	1183.900

Independent Samples Test

		Levene's Test for Equality of Variances	t-test for Equality of Means

		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Abundance_m2	Equal variances assumed	11.687	0.002	1.642	28	0.112	6270.125	3818.406	-1551.526	14091.776
	Equal variances not assumed			0.980	5.359	0.369	6270.125	6397.753	-9849.582	22389.832

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(44 5)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:39
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 5) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	44	6	16725.17	15400.576	6287.259
	5	24	8345.29	4666.837	952.614

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	17.394	0.000	2.365	28	0.025	8379.875	3542.697	1122.989	15636.761
	Equal variances not assumed			1.318	5.232	0.242	8379.875	6359.017	-7751.219	24510.969

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(44 6)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:39
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 6) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	44	6	16725.17	15400.576	6287.259
	6	24	13571.08	27368.234	5586.517

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	0.013	0.909	0.269	28	0.790	3154.083	11704.876	-20822.268	27130.435
	Equal variances not assumed			0.375	14.101	0.713	3154.083	8410.636	-14872.822	21180.988

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(44 3)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:39
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 3) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	44	3	2518.00	296.697	171.298
	3	6	9719.33	7726.306	3154.251

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	37.958	0.000	-1.559	7	0.163	-7201.333	4618.713	-18122.853	3720.186
	Equal variances not assumed			-2.280	5.029	0.071	-7201.333	3158.899	-15307.273	904.606

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(44 4)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:39
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.

Syntax		T-TEST GROUPS=Sub_Area22(44 4) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	44	3	2518.00	296.697	171.298
	4	6	21248.33	5158.738	2106.046

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	46.437	0.000	-6.071	7	0.001	-18730.333	3084.974	-26025.138	-11435.528
	Equal variances not assumed			-8.864	5.066	0.000	-18730.333	2113.001	-24140.816	-13319.850

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(44 5)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:39
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 5) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	44	3	2518.00	296.697	171.298
	5	6	14121.83	3109.793	1269.568

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	6.411	0.039	-6.232	7	0.000	-11603.833	1861.837	-16006.379	-7201.288
	Equal variances not assumed			-9.058	5.179	0.000	-11603.833	1281.072	-14862.917	-8344.750

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(44 6)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:39
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108

Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 6) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.03

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	44	3	2518.00	296.697	171.298
	6	6	14560.33	5938.834	2424.519

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	6.191	0.042	-3.391	7	0.012	-12042.333	3550.904	-20438.886	-3645.781
	Equal variances not assumed			-4.955	5.050	0.004	-12042.333	2430.563	-18271.833	-5812.834

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(55 3)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:39
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 3) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	55	51	11727.00	16513.124	2312.300
	3	24	10000.63	4520.223	922.687

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	1.513	0.223	0.502	73	0.617	1726.375	3440.736	-5131.001	8583.751
	Equal variances not assumed			0.693	63.681	0.491	1726.375	2489.595	-3247.642	6700.392

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(55 4)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	28-MAR-2018 11:34:39
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 4) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	55	51	11727.00	16513.124	2312.300
	4	24	10455.04	5799.901	1183.900

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	1.212	0.275	0.366	73	0.716	1271.958	3477.588	-5658.865	8202.782
	Equal variances not assumed			0.490	69.298	0.626	1271.958	2597.759	-3910.031	6453.947

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(55 5)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:39
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 5) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	55	51	11727.00	16513.124	2312.300
	5	24	8345.29	4666.837	952.614

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	0.660	0.419	0.982	73	0.329	3381.708	3444.512	-3483.195	10246.612
	Equal variances not assumed			1.352	64.381	0.181	3381.708	2500.841	-1613.726	8377.142

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(55 6)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:39
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 6) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	55	51	11727.00	16513.124	2312.300
	6	24	13571.08	27368.234	5586.517

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	0.815	0.370	-0.362	73	0.718	-1844.083	5089.650	-11987.741	8299.574
	Equal variances not assumed			-0.305	31.135	0.762	-1844.083	6046.148	-14173.111	10484.944

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(55 3)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:39
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 3) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	55	36	9780.50	5712.940	952.157
	3	6	9719.33	7726.306	3154.251

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	2.639	0.112	0.023	40	0.982	61.167	2646.484	-5287.578	5409.911
	Equal variances not assumed			0.019	5.946	0.986	61.167	3294.830	-8018.877	8141.211

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(55 4)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:39
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 4) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	55	36	9780.50	5712.940	952.157
	4	6	21248.33	5158.738	2106.046

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	0.003	0.954	-4.606	40	0.000	-11467.833	2489.934	-16500.179	-6435.488
	Equal variances not assumed			-4.962	7.210	0.001	-11467.833	2311.284	-16901.066	-6034.601

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(55 5)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:39
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 5) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	55	36	9780.50	5712.940	952.157
	5	6	14121.83	3109.793	1269.568

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	2.725	0.107	-1.805	40	0.079	-4341.333	2405.825	-9203.687	521.021
	Equal variances not assumed			-2.736	11.679	0.018	-4341.333	1586.948	-7809.572	-873.094

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(55 6)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 6) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	55	36	9780.50	5712.940	952.157
	6	6	14560.33	5938.834	2424.519

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	0.000	0.998	-1.888	40	0.066	-4779.833	2531.836	-9896.864	337.197
	Equal variances not assumed			-1.835	6.639	0.111	-4779.833	2604.783	-11007.783	1448.117

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(44 3)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 3) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	44	6	6.17	2.563	1.046
	3	24	8.29	2.196	0.448

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.428	0.518	-2.054	28	0.049	-2.125	1.034	-4.244	-0.006
	Equal variances not assumed			-1.867	6.954	0.104	-2.125	1.138	-4.820	0.570

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(44 4)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 4) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	44	6	6.17	2.563	1.046
	4	24	7.08	2.062	0.421

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.689	0.413	-0.930	28	0.360	-0.917	0.986	-2.936	1.103
	Equal variances not assumed			-0.813	6.712	0.444	-0.917	1.128	-3.607	1.773

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(44 5)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.

Syntax		T-TEST GROUPS=Sub_Area22(44 5) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	44	6	6.17	2.563	1.046
	5	24	7.29	2.851	0.582

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.000	0.986	-0.880	28	0.386	-1.125	1.279	-3.745	1.495
	Equal variances not assumed			-0.940	8.399	0.374	-1.125	1.197	-3.863	1.613

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(44 6)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 6) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	44	6	6.17	2.563	1.046
	6	24	6.50	2.638	0.538

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.010	0.922	-0.278	28	0.783	-0.333	1.198	-2.787	2.120
	Equal variances not assumed			-0.283	7.879	0.784	-0.333	1.177	-3.054	2.387

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(44 3)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.

	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 3) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	44	3	4.33	1.528	0.882
	3	6	7.50	1.049	0.428

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.470	0.515	-3.716	7	0.007	-3.167	0.852	-5.182	-1.152
	Equal variances not assumed			-3.230	2.988	0.048	-3.167	0.980	-6.294	-0.039

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(44 4)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 4) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	44	3	4.33	1.528	0.882
	4	6	9.33	0.816	0.333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	1.697	0.234	-6.614	7	0.000	-5.000	0.756	-6.787	-3.213
	Equal variances not assumed			-5.303	2.591	0.019	-5.000	0.943	-8.287	-1.713

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(44 5)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>

	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 5) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	44	3	4.33	1.528	0.882
	5	6	8.67	2.160	0.882

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.566	0.476	-3.064	7	0.018	-4.333	1.414	-7.677	-0.989
	Equal variances not assumed			-3.474	5.714	0.014	-4.333	1.247	-7.423	-1.244

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(44 6)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 6) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	44	3	4.33	1.528	0.882
	6	6	8.50	1.761	0.719

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.119	0.740	-3.472	7	0.010	-4.167	1.200	-7.005	-1.329
	Equal variances not assumed			-3.662	4.709	0.016	-4.167	1.138	-7.147	-1.187

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(55 3)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav

	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 3) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	55	51	6.75	3.117	0.436
	3	24	8.29	2.196	0.448

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	1.313	0.256	-2.185	73	0.032	-1.547	0.708	-2.957	-0.136
	Equal variances not assumed			-2.472	61.739	0.016	-1.547	0.626	-2.797	-0.296

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(55 4)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 4) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	55	51	6.75	3.117	0.436
	4	24	7.08	2.062	0.421

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	1.636	0.205	-0.483	73	0.630	-0.338	0.700	-1.733	1.057
	Equal variances not assumed			-0.558	64.651	0.579	-0.338	0.606	-1.549	0.873

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(55 5)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	28-MAR-2018 11:34:40
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 5) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	55	51	6.75	3.117	0.436
	5	24	7.29	2.851	0.582

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.083	0.774	-0.727	73	0.469	-0.547	0.751	-2.044	0.951
	Equal variances not assumed			-0.751	49.012	0.456	-0.547	0.727	-2.008	0.915

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(55 6)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 6) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	55	51	6.75	3.117	0.436
	6	24	6.50	2.638	0.538

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.219	0.641	0.333	73	0.740	0.245	0.736	-1.222	1.712
	Equal variances not assumed			0.354	52.692	0.725	0.245	0.693	-1.145	1.635

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(55 3)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 3) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	55	36	8.44	1.764	0.294
	3	6	7.50	1.049	0.428

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	2.660	0.111	1.267	40	0.213	0.944	0.746	-0.563	2.452
	Equal variances not assumed			1.818	10.492	0.098	0.944	0.519	-0.205	2.094

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(55 4)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 4) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	55	36	8.44	1.764	0.294
	4	6	9.33	0.816	0.333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	4.311	0.044	-1.203	40	0.236	-0.889	0.739	-2.382	0.604
	Equal variances not assumed			-2.000	14.545	0.065	-0.889	0.444	-1.839	0.061

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(55 5)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
```

```
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 5) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	55	36	8.44	1.764	0.294
	5	6	8.67	2.160	0.882

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.202	0.655	-0.277	40	0.783	-0.222	0.802	-1.843	1.398
	Equal variances not assumed			-0.239	6.162	0.819	-0.222	0.930	-2.483	2.038

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(55 6)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 6) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	55	36	8.44	1.764	0.294
	6	6	8.50	1.761	0.719

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.117	0.734	-0.071	40	0.943	-0.056	0.778	-1.627	1.516
	Equal variances not assumed			-0.072	6.785	0.945	-0.056	0.777	-1.904	1.793

```
Temporary.
```

```
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(44 3)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 3) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	44	6	10.582683	21.2210210	8.6634455
	3	24	2.894713	3.7626276	0.7680431

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	15.262	0.001	1.756	28	0.090	7.6879708	4.3790611	-1.2821292	16.6580709
	Equal variances not assumed			0.884	5.079	0.417	7.6879708	8.6974237	-14.5654899	29.9414315

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(44 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 4) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	44	6	10.582683	21.2210210	8.6634455
	4	24	1.111029	2.1752625	0.4440236

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					
								Std. Error	95% Confidence Interval of the Difference

		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	20.608	0.000	2.260	28	0.032	9.4716542	4.1908429	0.8871016	18.0562068
	Equal variances not assumed			1.092	5.026	0.324	9.4716542	8.6748168	-12.7926293	31.7359377

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(44 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 5) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	44	6	10.582683	21.2210210	8.6634455
	5	24	2.031171	3.7067702	0.7566413

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	15.876	0.000	1.956	28	0.060	8.5515125	4.3709011	-0.4018726	17.5048976
	Equal variances not assumed			0.983	5.077	0.370	8.5515125	8.6964243	-13.7024063	30.8054313

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(44 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 6) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22	N	Mean	Std. Deviation	Std. Error Mean

Percent_Carnivores_Omnivores	44	6	10.582683	21.2210210	8.6634455					
	6	24	2.805625	3.4912988	0.7126584					

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	15.974	0.000	1.792	28	0.084	7.7770583	4.3404328	-1.1139151	16.6680318
	Equal variances not assumed			0.895	5.068	0.411	7.7770583	8.6927079	-14.4785803	30.0326970

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(44 3)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 3) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	44	3	0.218300	0.3781067	0.2183000
	3	6	2.503550	2.5080033	1.0238881

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	2.640	0.148	-1.518	7	0.173	-2.2852500	1.5056165	-5.8454672	1.2749672
	Equal variances not assumed			-2.183	5.437	0.076	-2.2852500	1.0469010	-4.9126434	0.3421434

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(44 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.

Syntax		T-TEST GROUPS=Sub_Area22(44 4) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.09

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	44	3	0.218300	0.3781067	0.2183000
	4	6	4.113300	3.0581848	1.2484987

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	5.489	0.052	-2.125	7	0.071	-3.8950000	1.8331940	-8.2298149	0.4398149
	Equal variances not assumed			-3.073	5.298	0.026	-3.8950000	1.2674399	-7.0986990	-0.6913010

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(44 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 5) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	44	3	0.218300	0.3781067	0.2183000
	5	6	2.888367	3.0874839	1.2604600

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	1.702	0.233	-1.443	7	0.192	-2.6700667	1.8506508	-7.0461603	1.7060270
	Equal variances not assumed			-2.087	5.293	0.088	-2.6700667	1.2792241	-5.9044917	0.5643583

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(44 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108

Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 6) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	44	3	0.218300	0.3781067	0.2183000
	6	6	5.880267	5.7032474	2.3283410

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	9.148	0.019	-1.660	7	0.141	-5.6619667	3.4113370	-13.7284969	2.4045636
	Equal variances not assumed			-2.421	5.087	0.059	-5.6619667	2.3385523	-11.6425080	0.3185746

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(55 3)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 3) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	55	51	1.055125	2.4752561	0.3466052
	3	24	2.894713	3.7626276	0.7680431

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	7.974	0.006	-2.526	73	0.014	-1.8395870	0.7283241	-3.2911348	-0.3880392
	Equal variances not assumed			-2.183	32.698	0.036	-1.8395870	0.8426301	-3.5545318	-0.1246422

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(55 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 4) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	55	51	1.055125	2.4752561	0.3466052
	4	24	1.111029	2.1752625	0.4440236

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	0.004	0.952	-0.095	73	0.925	-0.0559037	0.5903292	-1.2324280	1.1206206
	Equal variances not assumed			-0.099	50.879	0.921	-0.0559037	0.5632869	-1.1868144	1.0750070

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(55 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 5) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	55	51	1.055125	2.4752561	0.3466052
	5	24	2.031171	3.7067702	0.7566413

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	2.923	0.092	-1.350	73	0.181	-0.9760453	0.7227733	-2.4165305	0.4644398
	Equal variances not assumed			-1.173	32.997	0.249	-0.9760453	0.8322507	-2.6692778	0.7171871

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(55 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 6) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	55	51	1.055125	2.4752561	0.3466052
	6	24	2.805625	3.4912988	0.7126584

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	7.639	0.007	-2.494	73	0.015	-1.7504995	0.7017539	-3.1490931	-0.3519059
	Equal variances not assumed			-2.209	34.285	0.034	-1.7504995	0.7924753	-3.3605095	-0.1404895

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(55 3)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 3) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.05

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	55	36	5.132803	5.8605568	0.9767595
	3	6	2.503550	2.5080033	1.0238881

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	3.855	0.057	1.074	40	0.289	2.6292528	2.4487743	-2.3199047	7.5784102
	Equal variances not assumed			1.858	16.312	0.081	2.6292528	1.4150639	-0.3658963	5.6244018

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(55 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 4) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.05

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	55	36	5.132803	5.8605568	0.9767595
	4	6	4.113300	3.0581848	1.2484987

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	2.358	0.133	0.414	40	0.681	1.0195028	2.4639256	-3.9602766	5.9992821
	Equal variances not assumed			0.643	12.334	0.532	1.0195028	1.5851839	-2.4239799	4.4629855

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(55 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 5) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.05

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	55	36	5.132803	5.8605568	0.9767595
	5	6	2.888367	3.0874839	1.2604600

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	3.259	0.079	0.911	40	0.368	2.2444361	2.4648135	-2.7371379	7.2260101
	Equal variances not assumed			1.408	12.181	0.184	2.2444361	1.5946218	-1.2242413	5.7131135

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(55 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 6) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.05

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	55	36	5.132803	5.8605568	0.9767595
	6	6	5.880267	5.7032474	2.3283410

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	0.001	0.972	-0.290	40	0.773	-0.7474639	2.5756939	-5.9531355	4.4582077
	Equal variances not assumed			-0.296	6.884	0.776	-0.7474639	2.5249220	-6.7383617	5.2434339

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(44 3)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 3) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	44	6	47.318400	30.7655021	12.5599636
	3	24	70.948050	21.8366916	4.4573960

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	0.199	0.659	-2.186	28	0.037	-23.6296500	10.8080954	-45.7690297	-1.4902703
	Equal variances not assumed			-1.773	6.317	0.124	-23.6296500	13.3274553	-55.8481545	8.5888545

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(44 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 4) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	44	6	47.318400	30.7655021	12.5599636
	4	24	64.692067	25.5642705	5.2182849

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	0.128	0.723	-1.433	28	0.163	-17.3736667	12.1265079	-42.2136921	7.4663588
	Equal variances not assumed			-1.277	6.831	0.243	-17.3736667	13.6008523	-49.6966866	14.9493533

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(44 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.

Syntax		T-TEST GROUPS=Sub_Area22(44 5) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	44	6	47.318400	30.7655021	12.5599636
	5	24	64.989788	23.8423065	4.8667904

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	0.004	0.950	-1.535	28	0.136	-17.6713875	11.5105603	-41.2497014	5.9069264
	Equal variances not assumed			-1.312	6.582	0.233	-17.6713875	13.4699048	-49.9374302	14.5946552

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(44 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 6) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	44	6	47.318400	30.7655021	12.5599636
	6	24	42.704638	27.0804018	5.5277639

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	0.041	0.842	0.364	28	0.719	4.6137625	12.6771930	-21.3542902	30.5818152
	Equal variances not assumed			0.336	7.067	0.746	4.6137625	13.7225675	-27.7727678	37.0002928

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(44 3)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108

Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 3) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	44	3	63.432767	3.1212019	1.8020268
	3	6	67.125767	8.7167764	3.5586090

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	0.885	0.378	-0.691	7	0.512	-3.6930000	5.3411793	-16.3228822	8.9368822
	Equal variances not assumed			-0.926	6.779	0.386	-3.6930000	3.9888593	-13.1879336	5.8019336

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(44 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 4) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	44	3	63.432767	3.1212019	1.8020268
	4	6	65.892650	6.9168098	2.8237758

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	1.336	0.286	-0.572	7	0.585	-2.4598833	4.2986301	-12.6245283	7.7047617
	Equal variances not assumed			-0.734	7.000	0.487	-2.4598833	3.3497776	-10.3809553	5.4611886

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(44 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	28-MAR-2018 11:34:40
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 5) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	44	3	63.432767	3.1212019	1.8020268
	5	6	74.682033	7.4987859	3.0613665

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	2.925	0.131	-2.428	7	0.046	-11.2492667	4.6340568	-22.2070697	-0.2914636
	Equal variances not assumed			-3.167	6.972	0.016	-11.2492667	3.5523605	-19.6559922	-2.8425411

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(44 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 6) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	44	3	63.432767	3.1212019	1.8020268
	6	6	77.375917	11.9011362	4.8586185

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	4.695	0.067	-1.934	7	0.094	-13.9431500	7.2094631	-30.9908213	3.1045213
	Equal variances not assumed			-2.691	6.178	0.035	-13.9431500	5.1820338	-26.5351133	-1.3511867

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(55 3)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 3) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	55	51	61.406853	25.8329320	3.6173340
	3	24	70.948050	21.8366916	4.4573960

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	2.556	0.114	-1.564	73	0.122	-9.5411971	6.1002655	-21.6990086	2.6166145
	Equal variances not assumed			-1.662	52.747	0.102	-9.5411971	5.7405126	-21.0564964	1.9741023

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(55 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 4) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	55	51	61.406853	25.8329320	3.6173340
	4	24	64.692067	25.5642705	5.2182849

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	0.004	0.950	-0.515	73	0.608	-3.2852137	6.3737252	-15.9880298	9.4176023
	Equal variances not assumed			-0.517	45.575	0.607	-3.2852137	6.3494569	-16.0692283	9.4988008

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(55 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 5) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	55	51	61.406853	25.8329320	3.6173340
	5	24	64.989788	23.8423065	4.8667904

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	0.615	0.435	-0.574	73	0.568	-3.5829346	6.2435501	-16.0263119	8.8604428
	Equal variances not assumed			-0.591	48.608	0.557	-3.5829346	6.0638894	-15.7712624	8.6053933

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(55 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 6) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	55	51	61.406853	25.8329320	3.6173340
	6	24	42.704638	27.0804018	5.5277639

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	0.021	0.885	2.880	73	0.005	18.7022154	6.4934797	5.7607290	31.6437018
	Equal variances not assumed			2.831	43.267	0.007	18.7022154	6.6061546	5.3820088	32.0224221

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(55 3)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 3) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.03

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	55	36	66.710603	18.5620133	3.0936689
	3	6	67.125767	8.7167764	3.5586090

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	4.957	0.032	-0.053	40	0.958	-0.4151639	7.7761083	-16.1312651	15.3009373
	Equal variances not assumed			-0.088	14.251	0.931	-0.4151639	4.7153457	-10.5119060	9.6815782

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(55 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:40
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 4) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.03

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	55	36	66.710603	18.5620133	3.0936689
	4	6	65.892650	6.9168098	2.8237758

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	5.719	0.022	0.106	40	0.916	0.8179528	7.7320052	-14.8090126	16.4449182
	Equal variances not assumed			0.195	20.075	0.847	0.8179528	4.1886151	-7.9172598	9.5531653

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(55 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:41
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 5) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.03

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	55	36	66.710603	18.5620133	3.0936689
	5	6	74.682033	7.4987859	3.0613665

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	4.762	0.035	-1.029	40	0.310	-7.9714306	7.7451802	-23.6250237	7.6821625
	Equal variances not assumed			-1.832	17.778	0.084	-7.9714306	4.3523272	-17.1235246	1.1806635

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(55 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:41
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.

Syntax		T-TEST GROUPS=Sub_Area22(55 6) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.04

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	55	36	66.710603	18.5620133	3.0936689
	6	6	77.375917	11.9011362	4.8586185

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	1.757	0.192	-1.354	40	0.183	-10.6653139	7.8780479	-26.5874426	5.2568148
	Equal variances not assumed			-1.852	9.650	0.095	-10.6653139	5.7599445	-23.5627119	2.2320842

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(44 3)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:41
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 3) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	44	6	1.600000	0.5513620	0.2250926
	3	24	1.716667	0.4249467	0.0867419

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.495	0.487	-0.568	28	0.575	-0.1166667	0.2054563	-0.5375249	0.3041915
	Equal variances not assumed			-0.484	6.564	0.644	-0.1166667	0.2412277	-0.6948542	0.4615209

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(44 4)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:41
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264

Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 4) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	44	6	1.600000	0.5513620	0.2250926
	4	24	1.666667	0.3265986	0.0666667

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	1.729	0.199	-0.388	28	0.701	-0.0666667	0.1719404	-0.4188706	0.2855372
	Equal variances not assumed			-0.284	5.906	0.786	-0.0666667	0.2347576	-0.6433263	0.5099930

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(44 5)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:41
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 5) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	44	6	1.600000	0.5513620	0.2250926
	5	24	1.633333	0.4555614	0.0929911

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.000	1.000	-0.154	28	0.879	-0.0333333	0.2163918	-0.4765918	0.4099251
	Equal variances not assumed			-0.137	6.809	0.895	-0.0333333	0.2435447	-0.6125118	0.5458451

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(44 6)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created	28-MAR-2018 11:34:41
Comments	

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 6) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	44	6	1.600000	0.5513620	0.2250926
	6	24	1.850000	0.3967257	0.0809813

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.460	0.503	-1.278	28	0.212	-0.2500000	0.1955609	-0.6505882	0.1505882
	Equal variances not assumed			-1.045	6.355	0.334	-0.2500000	0.2392167	-0.8275076	0.3275076

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(44 3)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:41
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 3) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	44	3	1.400000	0.0000000	0.0000000
	3	6	1.666667	0.3265986	0.1333333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	9.333	0.018	-1.366	7	0.214	-0.2666667	0.1951800	-0.7281941	0.1948607
	Equal variances not assumed			-2.000	5.000	0.102	-0.2666667	0.1333333	-0.6094109	0.0760776

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(44 4)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:41
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 4) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	44	3	1.400000	0.0000000	0.0000000
	4	6	1.466667	0.3011091	0.1229273

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	4.403	0.074	-0.370	7	0.722	-0.0666667	0.1799471	-0.4921739	0.3588406
	Equal variances not assumed			-0.542	5.000	0.611	-0.0666667	0.1229273	-0.3826612	0.2493279

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(44 5)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:41
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 5) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	44	3	1.400000	0.0000000	0.0000000
	5	6	1.533333	0.2065591	0.0843274

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	18.667	0.003	-1.080	7	0.316	-0.1333333	0.1234427	-0.4252289	0.1585622
	Equal variances not assumed			-1.581	5.000	0.175	-0.1333333	0.0843274	-0.3501038	0.0834372

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(44 6)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:41
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(44 6) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	44	3	1.400000	0.0000000	0.0000000
	6	6	1.666667	0.3265986	0.1333333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	9.333	0.018	-1.366	7	0.214	-0.2666667	0.1951800	-0.7281941	0.1948607
	Equal variances not assumed			-2.000	5.000	0.102	-0.2666667	0.1333333	-0.6094109	0.0760776

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(55 3)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:41
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 3) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	55	51	1.643137	0.3401499	0.0476305
	3	24	1.716667	0.4249467	0.0867419

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.125	0.725	-0.805	73	0.423	-0.0735294	0.0913350	-0.2555599	0.1085011
	Equal variances not assumed			-0.743	37.397	0.462	-0.0735294	0.0989587	-0.2739669	0.1269081

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(55 4)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:41
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 4) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	55	51	1.643137	0.3401499	0.0476305
	4	24	1.666667	0.3265986	0.0666667

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.026	0.872	-0.283	73	0.778	-0.0235294	0.0831574	-0.1892618	0.1422030
	Equal variances not assumed			-0.287	46.857	0.775	-0.0235294	0.0819336	-0.1883717	0.1413129

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(55 5)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:41
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 5) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	55	51	1.643137	0.3401499	0.0476305
	5	24	1.633333	0.4555614	0.0929911

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	6.123	0.016	0.104	73	0.917	0.0098039	0.0941409	-0.1778186	0.1974264
	Equal variances not assumed			0.094	35.527	0.926	0.0098039	0.1044797	-0.2021888	0.2217967

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(55 6)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:41
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 6) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	55	51	1.643137	0.3401499	0.0476305
	6	24	1.850000	0.3967257	0.0809813

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.704	0.404	-2.328	73	0.023	-0.2068627	0.0888506	-0.3839417	-0.0297838
	Equal variances not assumed			-2.202	39.492	0.034	-0.2068627	0.0939502	-0.3968193	-0.0169062

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(55 3)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:41
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.

Syntax		T-TEST GROUPS=Sub_Area22(55 3) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	55	36	1.811111	0.3762809	0.0627135
	3	6	1.666667	0.3265986	0.1333333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.002	0.961	0.884	40	0.382	0.1444444	0.1633466	-0.1856913	0.4745802
	Equal variances not assumed			0.980	7.405	0.358	0.1444444	0.1473457	-0.2001447	0.4890336

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(55 4)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:41
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 4) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	55	36	1.811111	0.3762809	0.0627135
	4	6	1.466667	0.3011091	0.1229273

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.117	0.734	2.124	40	0.040	0.3444444	0.1621518	0.0167234	0.6721655
	Equal variances not assumed			2.496	7.865	0.038	0.3444444	0.1380003	0.0252640	0.6636249

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(55 5)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:41
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108

Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 5) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	55	36	1.811111	0.3762809	0.0627135
	5	6	1.533333	0.2065591	0.0843274

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.566	0.456	1.752	40	0.087	0.2777778	0.1585135	-0.0425900	0.5981456
	Equal variances not assumed			2.643	11.555	0.022	0.2777778	0.1050909	0.0478232	0.5077324

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(55 6)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		28-MAR-2018 11:34:41
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\Update 052017\Benthic_Community\T_Test\SPSS\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(55 6) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	55	36	1.811111	0.3762809	0.0627135
	6	6	1.666667	0.3265986	0.1333333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.002	0.961	0.884	40	0.382	0.1444444	0.1633466	-0.1856913	0.4745802
	Equal variances not assumed			0.980	7.405	0.358	0.1444444	0.1473457	-0.2001447	0.4890336

Notes:

T-TEST GROUPS	Variable Code	Location
Sub_Area22	1	CM 0 – 2
Sub_Area22	2	CM 2 – 3
Sub_Area22	3	Gerritsen Creek
Sub_Area22	4	Head of Bay
Sub_Area22	5	Spring Creek
Sub_Area22	6	Westchester Creek
Sub_Area22	22	Dutch Kills
Sub_Area22	33	Maspeth Creek
Sub_Area22	44	East Branch
Sub_Area22	55	English Kills

```
GET
  FILE='C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav'.
DATASET NAME DataSet1 WINDOW=FRONT.
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(2 3)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:53:58
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 3) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

```
[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
```

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	2	21	12266.90	8475.249	1849.451
	3	24	10000.63	4520.223	922.687

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	3.183	0.081	1.139	43	0.261	2266.280	1989.665	-1746.263	6278.822
	Equal variances not assumed			1.096	29.600	0.282	2266.280	2066.838	-1957.158	6489.717

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(2 4)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:53:58
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 4) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	2	21	12266.90	8475.249	1849.451
	4	24	10455.04	5799.901	1183.900

Independent Samples Test

		Levene's Test for Equality of Variances	t-test for Equality of Means

		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Abundance_m2	Equal variances assumed	1.962	0.168	0.846	43	0.402	1811.863	2142.306	-2508.508	6132.234
	Equal variances not assumed			0.825	34.685	0.415	1811.863	2195.925	-2647.551	6271.277

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(2 5)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:53:58
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 5) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	2	21	12266.90	8475.249	1849.451
	5	24	8345.29	4666.837	952.614

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	1.005	0.322	1.955	43	0.057	3921.613	2005.765	-123.398	7966.625
	Equal variances not assumed			1.885	30.173	0.069	3921.613	2080.371	-326.048	8169.275

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(2 6)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:53:58
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 6) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	2	21	12266.90	8475.249	1849.451
	6	24	13571.08	27368.234	5586.517

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	0.889	0.351	-0.209	43	0.835	-1304.179	6225.294	-13858.680	11250.323
	Equal variances not assumed			-0.222	27.932	0.826	-1304.179	5884.696	-13359.755	10751.398

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(2 3)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:53:58
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 3) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.03

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	2	9	14531.33	6404.556	2134.852
	3	6	9719.33	7726.306	3154.251

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	1.195	0.294	1.315	13	0.211	4812.000	3659.158	-3093.131	12717.131
	Equal variances not assumed			1.263	9.398	0.237	4812.000	3808.792	-3748.845	13372.845

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(2 4)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:53:58
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 4) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.07

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	2	9	14531.33	6404.556	2134.852
	4	6	21248.33	5158.738	2106.046

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	0.685	0.423	-2.140	13	0.052	-6717.000	3139.252	-13498.943	64.943
	Equal variances not assumed			-2.240	12.383	0.044	-6717.000	2998.837	-13228.558	-205.442

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(2 5)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:53:58
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 5) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.54

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Abundance_m2	2	9	14531.33	6404.556	2134.852
	5	6	14121.83	3109.793	1269.568

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	6.776	0.022	0.144	13	0.887	409.500	2836.351	-5718.064	6537.064
	Equal variances not assumed			0.165	12.215	0.872	409.500	2483.827	-4991.763	5810.763

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(2 6)
  /MISSING=ANALYSIS
  /VARIABLES=Abundance_m2
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:53:59
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 6) /MISSING=ANALYSIS /VARIABLES=Abundance_m2 /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.11

Group Statistics

Sub_Area22	N	Mean	Std. Deviation	Std. Error Mean

Abundance_m2	2	9	14531.33	6404.556	2134.852						
	6	6	14560.33	5938.834	2424.519						

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Abundance_m2	Equal variances assumed	0.348	0.565	-0.009	13	0.993	-29.000	3283.263	-7122.059	7064.059
	Equal variances not assumed			-0.009	11.455	0.993	-29.000	3230.462	-7104.883	7046.883

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(2 3)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:53:59
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 3) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.08

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	2	21	8.00	1.975	0.431
	3	24	8.29	2.196	0.448

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.601	0.442	-0.466	43	0.644	-0.292	0.626	-1.555	0.972
	Equal variances not assumed			-0.469	42.961	0.641	-0.292	0.622	-1.546	0.962

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(2 4)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:53:59
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 4) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.04

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	2	21	8.00	1.975	0.431

	4	24	7.08	2.062	0.421					

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.469	0.497	1.517	43	0.137	0.917	0.604	-0.302	2.135
	Equal variances not assumed			1.522	42.628	0.136	0.917	0.602	-0.299	2.132

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(2 5)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:53:59
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 5) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.07

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	2	21	8.00	1.975	0.431
	5	24	7.29	2.851	0.582

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	2.054	0.159	0.955	43	0.345	0.708	0.742	-0.788	2.204
	Equal variances not assumed			0.978	40.972	0.334	0.708	0.724	-0.754	2.171

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(2 6)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 6) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.05

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	2	21	8.00	1.975	0.431
	6	24	6.50	2.638	0.538

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	1.904	0.175	2.134	43	0.039	1.500	0.703	0.082	2.918
	Equal variances not assumed			2.175	42.059	0.035	1.500	0.690	0.108	2.892

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(2 3)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 3) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.05

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	2	9	8.67	1.323	0.441
	3	6	7.50	1.049	0.428

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.343	0.568	1.807	13	0.094	1.167	0.645	-0.228	2.561
	Equal variances not assumed			1.898	12.466	0.081	1.167	0.615	-0.167	2.500

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(2 4)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 4) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.03

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	2	9	8.67	1.323	0.441
	4	6	9.33	0.816	0.333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	1.287	0.277	-1.095	13	0.293	-0.667	0.609	-1.981	0.648
	Equal variances not assumed			-1.206	12.976	0.249	-0.667	0.553	-1.861	0.528

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(2 5)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 5) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.03

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	2	9	8.67	1.323	0.441
	5	6	8.67	2.160	0.882

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	1.689	0.216	0.000	13	1.000	0.000	0.893	-1.930	1.930
	Equal variances not assumed			0.000	7.519	1.000	0.000	0.986	-2.299	2.299

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(2 6)
  /MISSING=ANALYSIS
  /VARIABLES=Richness
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 6) /MISSING=ANALYSIS /VARIABLES=Richness /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Richness	2	9	8.67	1.323	0.441
	6	6	8.50	1.761	0.719

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Richness	Equal variances assumed	0.449	0.515	0.210	13	0.837	0.167	0.794	-1.549	1.882
	Equal variances not assumed			0.198	8.701	0.848	0.167	0.843	-1.751	2.084

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(2 3)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 3) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	2	21	1.471924	1.7106332	0.3732908
	3	24	2.894713	3.7626276	0.7680431

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	7.515	0.009	-1.593	43	0.118	-1.4227887	0.8931085	-3.2239136	0.3783362
	Equal variances not assumed			-1.666	33.030	0.105	-1.4227887	0.8539533	-3.1601096	0.3145322

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(2 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 4) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	2	21	1.471924	1.7106332	0.3732908

P	4	24	1.111029	2.1752625	0.4440236					

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	0.014	0.906	0.612	43	0.544	0.3608946	0.5894912	-0.8279277	1.5497170
	Equal variances not assumed			0.622	42.555	0.537	0.3608946	0.5800888	-0.8093198	1.5311091

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(2 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 5) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.08

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	2	21	1.471924	1.7106332	0.3732908
	5	24	2.031171	3.7067702	0.7566413

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	2.258	0.140	-0.634	43	0.529	-0.5592470	0.8818828	-2.3377333	1.2192392
	Equal variances not assumed			-0.663	33.291	0.512	-0.5592470	0.8437133	-2.2752252	1.1567311

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(2 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 6) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.05

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	2	21	1.471924	1.7106332	0.3732908
	6	24	2.805625	3.4912988	0.7126584

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	8.463	0.006	-1.590	43	0.119	-1.3337012	0.8388364	-3.0253761	0.3579737
	Equal variances not assumed			-1.658	34.376	0.106	-1.3337012	0.8045048	-2.9679926	0.3005903

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(2 3)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 3) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	2	9	6.993111	5.6983006	1.8994335
	3	6	2.503550	2.5080033	1.0238881

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	5.099	0.042	1.800	13	0.095	4.4895611	2.4945044	-0.8994880	9.8786103
	Equal variances not assumed			2.081	11.739	0.060	4.4895611	2.1578217	-0.2235566	9.2026788

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(2 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 4) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.07

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	2	9	6.993111	5.6983006	1.8994335
	4	6	4.113300	3.0581848	1.2484987

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	3.145	0.100	1.125	13	0.281	2.8798111	2.5592447	-2.6491008	8.4087230
	Equal variances not assumed			1.267	12.633	0.228	2.8798111	2.2730149	-2.0452788	7.8049010

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(2 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 5) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.03

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	2	9	6.993111	5.6983006	1.8994335
	5	6	2.888367	3.0874839	1.2604600

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	3.834	0.072	1.602	13	0.133	4.1047444	2.5630003	-1.4322811	9.6417700
	Equal variances not assumed			1.801	12.667	0.096	4.1047444	2.2796068	-0.8332413	9.0427302

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(2 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Carnivores_Omnivores
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 6) /MISSING=ANALYSIS /VARIABLES=Percent_Carnivores_Omnivores /CRITERIA=CI(.95).

Resources	Processor Time	00:00:00.00									
	Elapsed Time	00:00:00.03									

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Carnivores_Omnivores	2	9	6.993111	5.6983006	1.8994335
	6	6	5.880267	5.7032474	2.3283410

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Carnivores_Omnivores	Equal variances assumed	0.001	0.980	0.370	13	0.717	1.1128444	3.0042712	-5.3774888	7.6031777
	Equal variances not assumed			0.370	10.863	0.718	1.1128444	3.0048327	-5.5109628	7.7366517

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(2 3)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 3) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.03

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	2	21	63.842167	18.0644619	3.9419888
	3	24	70.948050	21.8366916	4.4573960

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	0.577	0.452	-1.179	43	0.245	-7.1058833	6.0269744	-19.2604356	5.0486690
	Equal variances not assumed			-1.194	42.881	0.239	-7.1058833	5.9504332	-19.1070366	4.8952699

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(2 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.

Syntax		T-TEST GROUPS=Sub_Area22(2 4) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	2	21	63.842167	18.0644619	3.9419888
	4	24	64.692067	25.5642705	5.2182849

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	6.148	0.017	-0.127	43	0.900	-0.8499000	6.6904954	-14.3425698	12.6427698
	Equal variances not assumed			-0.130	41.281	0.897	-0.8499000	6.5398603	-14.0546891	12.3548891

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(2 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 5) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.14

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	2	21	63.842167	18.0644619	3.9419888
	5	24	64.989788	23.8423065	4.8667904

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	2.351	0.132	-0.180	43	0.858	-1.1476208	6.3796314	-14.0133737	11.7181321
	Equal variances not assumed			-0.183	42.194	0.855	-1.1476208	6.2629805	-13.7851100	11.4898683

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(2 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.

	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 6) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.10

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	2	21	63.842167	18.0644619	3.9419888
	6	24	42.704638	27.0804018	5.5277639

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	3.315	0.076	3.033	43	0.004	21.1375292	6.9695445	7.0821032	35.1929551
	Equal variances not assumed			3.113	40.343	0.003	21.1375292	6.7893629	7.4193473	34.8557110

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(2 3)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 3) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	2	9	52.216867	4.2137456	1.4045819
	3	6	67.125767	8.7167764	3.5586090

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	1.052	0.324	-4.464	13	0.001	-14.9089000	3.3395972	-22.1236611	-7.6941389
	Equal variances not assumed			-3.897	6.579	0.007	-14.9089000	3.8257742	-24.0739763	-5.7438237

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(2 4)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108

Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 4) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	2	9	52.216867	4.2137456	1.4045819
	4	6	65.892650	6.9168098	2.8237758

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	1.084	0.317	-4.791	13	0.000	-13.6757833	2.8542086	-19.8419260	-7.5096406
	Equal variances not assumed			-4.336	7.494	0.003	-13.6757833	3.1538167	-21.0349456	-6.3166211

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(2 5)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 5) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.04

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	2	9	52.216867	4.2137456	1.4045819
	5	6	74.682033	7.4987859	3.0613665

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	3.070	0.103	-7.471	13	0.000	-22.4651667	3.0071289	-28.9616736	-15.9686597
	Equal variances not assumed			-6.670	7.129	0.000	-22.4651667	3.3682065	-30.4005487	-14.5297847

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(2 6)
  /MISSING=ANALYSIS
  /VARIABLES=Percent_Pollution_Indicating_Taxa
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:01
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>

	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 6) /MISSING=ANALYSIS /VARIABLES=Percent_Pollution_Indicating_Taxa /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.05

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Percent_Pollution_Indicating_Taxa	2	9	52.216867	4.2137456	1.4045819
	6	6	77.375917	11.9011362	4.8586185

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Percent_Pollution_Indicating_Taxa	Equal variances assumed	9.089	0.010	-5.903	13	0.000	-25.1590500	4.2623135	-34.3672186	-15.9508814
	Equal variances not assumed			-4.975	5.845	0.003	-25.1590500	5.0575709	-37.6143928	-12.7037072

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(2 3)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:01
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 3) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	2	21	1.571429	0.3703280	0.0808122
	3	24	1.716667	0.4249467	0.0867419

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.007	0.936	-1.214	43	0.231	-0.1452381	0.1196634	-0.3865624	0.0960862
	Equal variances not assumed			-1.225	43.000	0.227	-0.1452381	0.1185528	-0.3843226	0.0938464

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(2 4)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:01
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>

	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 4) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	2	21	1.571429	0.3703280	0.0808122
	4	24	1.666667	0.3265986	0.0666667

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.383	0.539	-0.917	43	0.364	-0.0952381	0.1038722	-0.3047163	0.1142401
	Equal variances not assumed			-0.909	40.268	0.369	-0.0952381	0.1047619	-0.3069260	0.1164498

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(2 5)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:01
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 5) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.01

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	2	21	1.571429	0.3703280	0.0808122
	5	24	1.633333	0.4555614	0.0929911

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	2.346	0.133	-0.496	43	0.623	-0.0619048	0.1249268	-0.3138437	0.1900342
	Equal variances not assumed			-0.502	42.791	0.618	-0.0619048	0.1231988	-0.3103940	0.1865845

```
Temporary.
Select if (Year = 2014 and Season = "Spring").
T-TEST GROUPS=Sub_Area22(2 6)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:01
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav

	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	264
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 6) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	2	21	1.571429	0.3703280	0.0808122
	6	24	1.850000	0.3967257	0.0809813

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	0.058	0.810	-2.424	43	0.020	-0.2785714	0.1149431	-0.5103763	-0.0467666
	Equal variances not assumed			-2.435	42.803	0.019	-0.2785714	0.1144053	-0.5093225	-0.0478203

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(2 3)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:01
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 3) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	2	9	1.666667	0.4472136	0.1490712
	3	6	1.666667	0.3265986	0.1333333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	1.770	0.206	0.000	13	1.000	0.0000000	0.2135042	-0.4612478	0.4612478
	Equal variances not assumed			0.000	12.806	1.000	0.0000000	0.2000000	-0.4327389	0.4327389

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(2 4)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:01
Comments		

Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 4) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	2	9	1.666667	0.4472136	0.1490712
	4	6	1.466667	0.3011091	0.1229273

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	2.947	0.110	0.955	13	0.357	0.2000000	0.2094628	-0.2525168	0.6525168
	Equal variances not assumed			1.035	12.978	0.320	0.2000000	0.1932184	-0.2174957	0.6174957

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(2 5)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:01
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 5) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	2	9	1.666667	0.4472136	0.1490712
	5	6	1.533333	0.2065591	0.0843274

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	6.981	0.020	0.677	13	0.510	0.1333333	0.1968412	-0.2919161	0.5585828
	Equal variances not assumed			0.778	11.977	0.451	0.1333333	0.1712698	-0.2399113	0.5065779

```
Temporary.
Select if (Year = 2014 and Season = "Summer").
T-TEST GROUPS=Sub_Area22(2 6)
  /MISSING=ANALYSIS
  /VARIABLES=Weisberg_BI
  /CRITERIA=CI(.95).
```

T-Test

Notes

Output Created		29-APR-2018 19:54:01
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\Benthic Community\SPSS\T-test\Benthic_Replicates_All2_update_061416.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	108
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST GROUPS=Sub_Area22(2 6) /MISSING=ANALYSIS /VARIABLES=Weisberg_BI /CRITERIA=CI(.95).
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Group Statistics

Sub_Area22		N	Mean	Std. Deviation	Std. Error Mean
Weisberg_BI	2	9	1.666667	0.4472136	0.1490712
	6	6	1.666667	0.3265986	0.1333333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Weisberg_BI	Equal variances assumed	1.770	0.206	0.000	13	1.000	0.0000000	0.2135042	-0.4612478	0.4612478
	Equal variances not assumed			0.000	12.806	1.000	0.0000000	0.2000000	-0.4327389	0.4327389

Notes:

T-TEST GROUPS	Variable Code	Location
Sub_Area22	1	CM 0 – 2
Sub_Area22	2	CM 2 – 3
Sub_Area22	3	Gerritsen Creek
Sub_Area22	4	Head of Bay
Sub_Area22	5	Spring Creek
Sub_Area22	6	Westchester Creek
Sub_Area22	22	Dutch Kills
Sub_Area22	33	Maspeth Creek
Sub_Area22	44	East Branch
Sub_Area22	55	English Kills

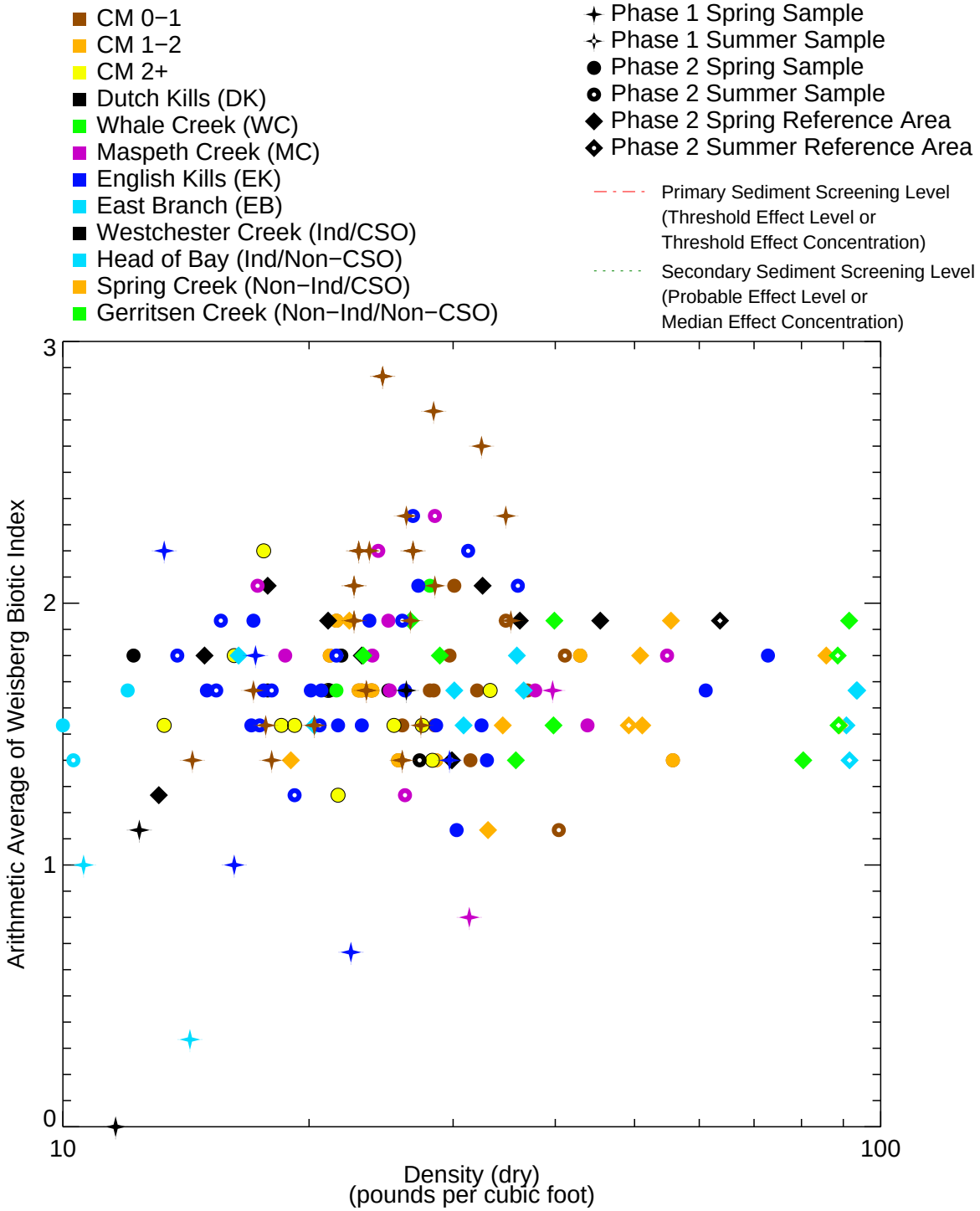

Figure C3−1

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Density (Dry)
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

SMS,CH − \\austin2\Austin\D_drive\Projects\Newtown_Creek\RI−FS\Risk_assessment\Triads\Benthic_Community\IDL\Benthic_Metric_vs_Analyte_crossplot_onepanel_spring_summer_RIedit.pro Mon May 07 12:21:06 2018

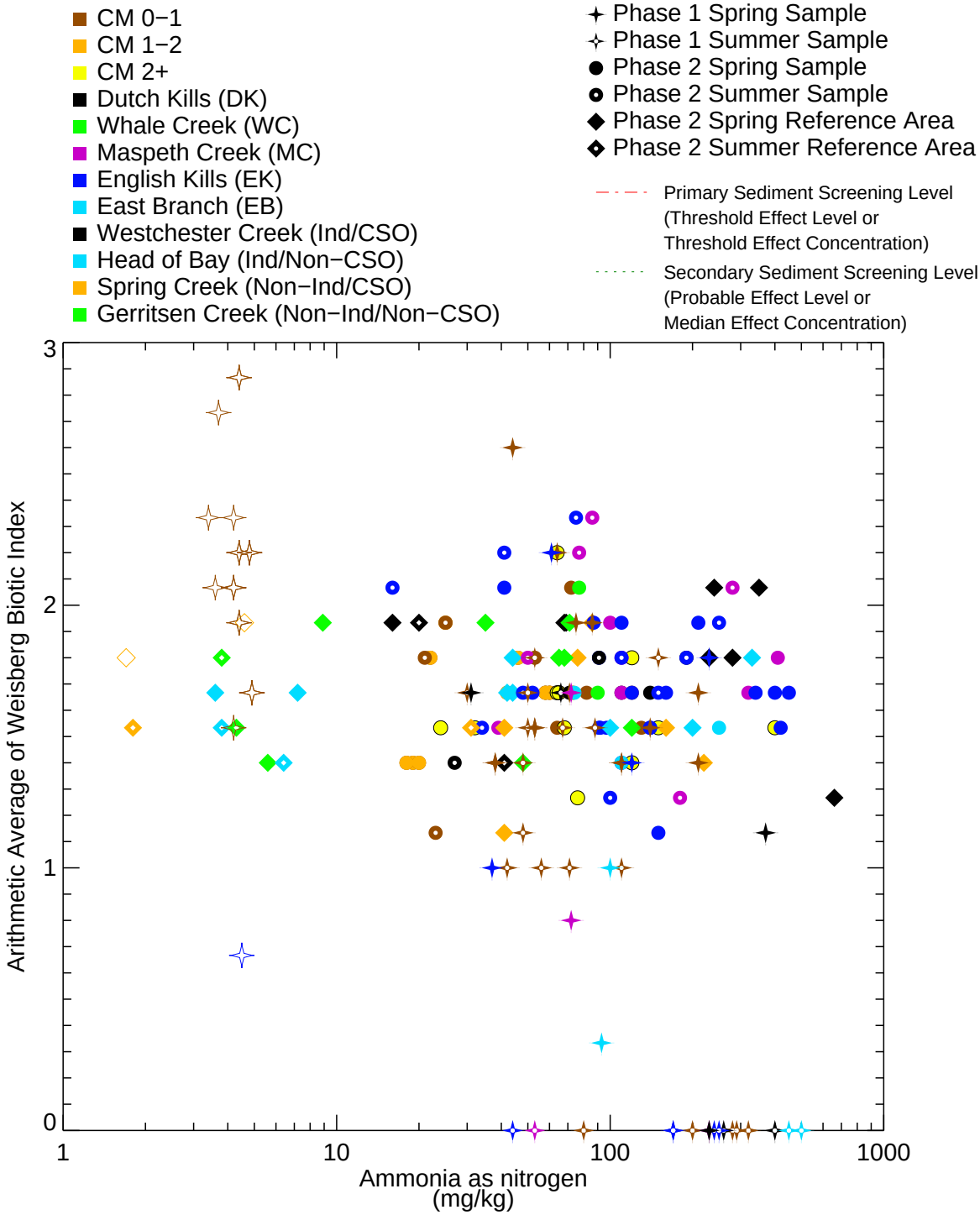

Figure C3−2

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Ammonia as Nitrogen
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

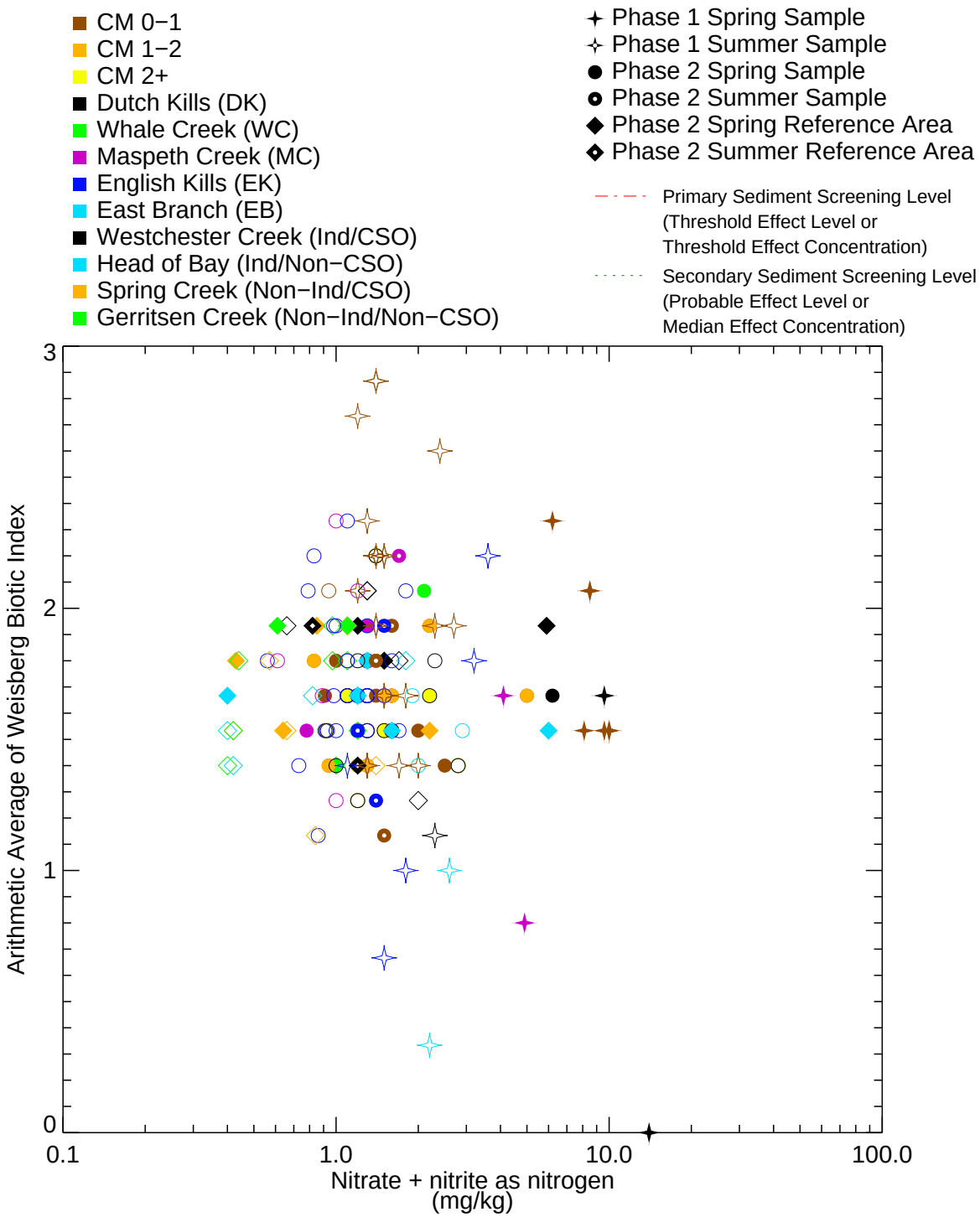

Figure C3−3

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Nitrate + Nitrite as Nitrogen
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

SMS,CH − \\austin2\Austin\D_drive\Projects\Newtown_Creek\RI−FS\Risk_assessment\Triads\Benthic_Community\IDL\Benthic_Metric_vs_Analyte_crossplot_onepanel_spring_summer_RIedit.pro Mon May 07 12:21:07 2018

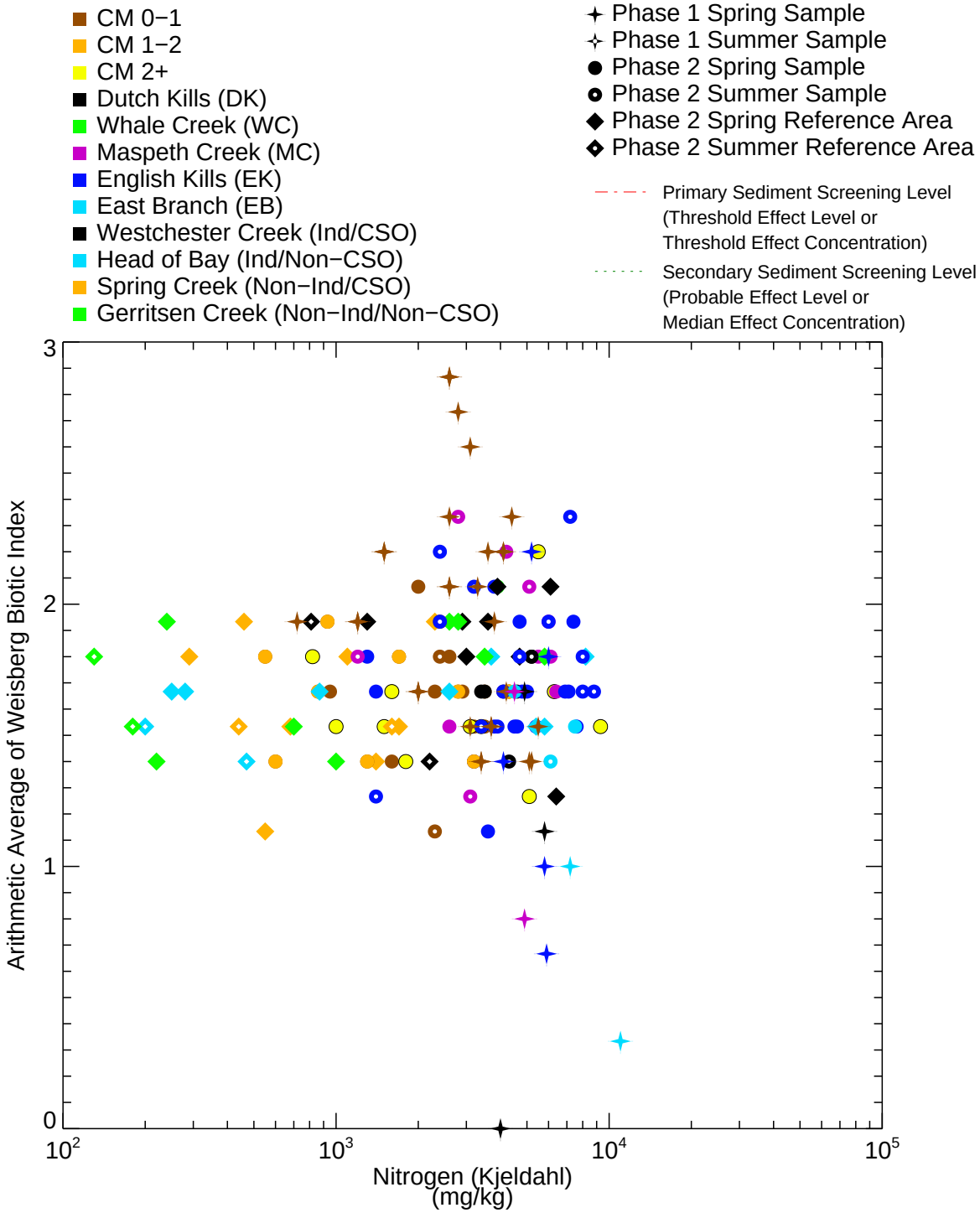

Figure C3−4

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Nitrogen (Kjeldahl)
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

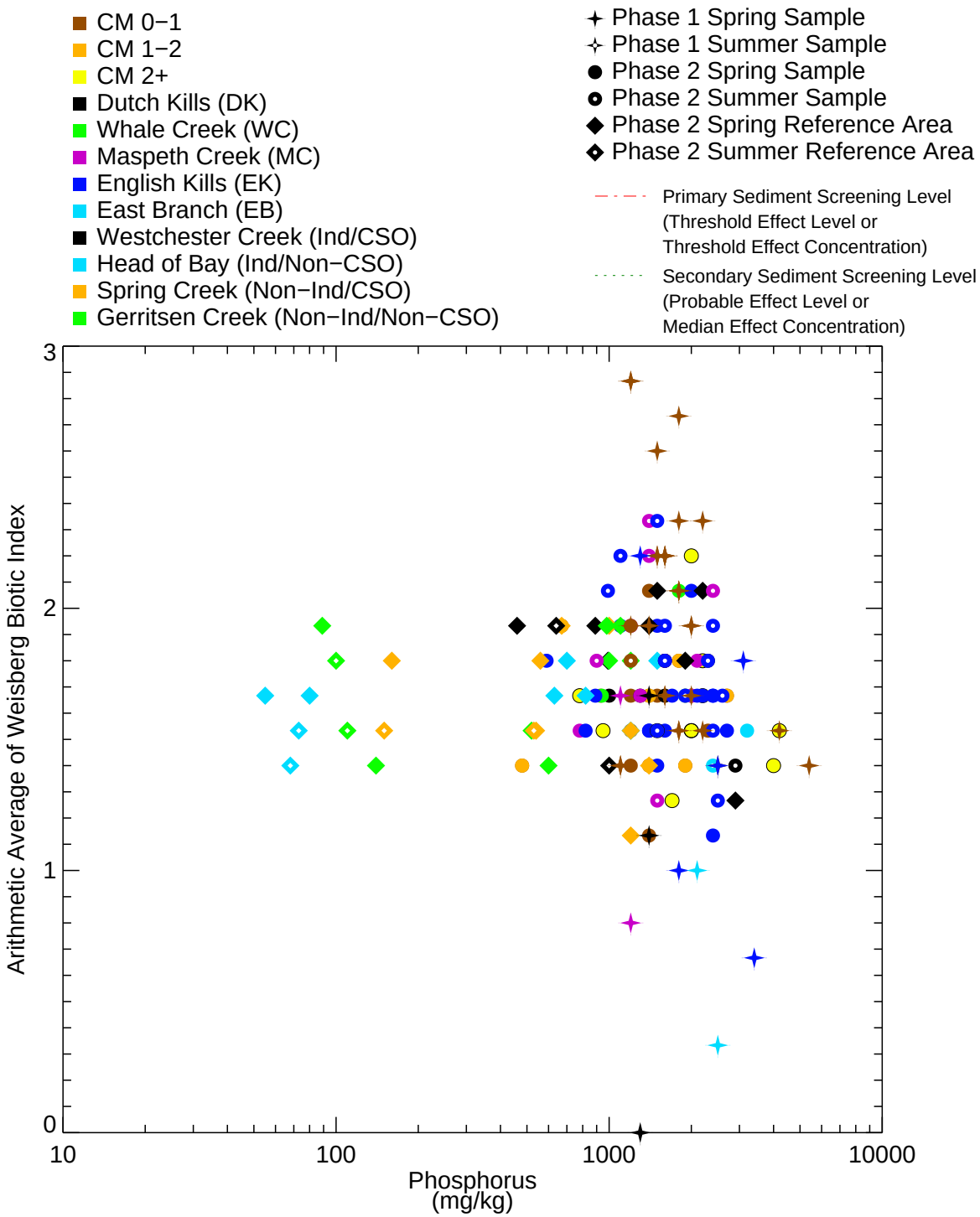

Figure C3−5

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Phosphorus
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

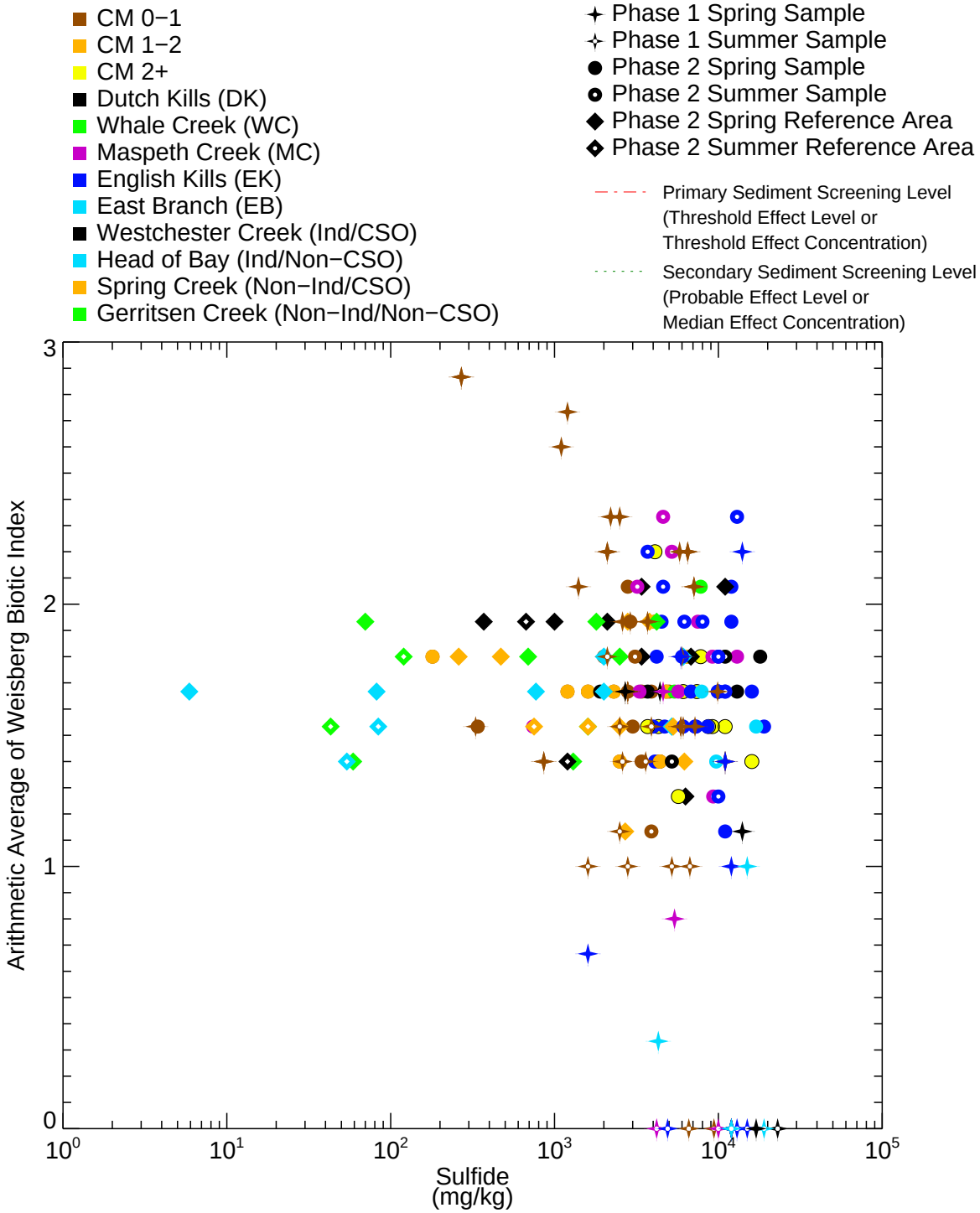

Figure C3−6

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Sulfide

Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

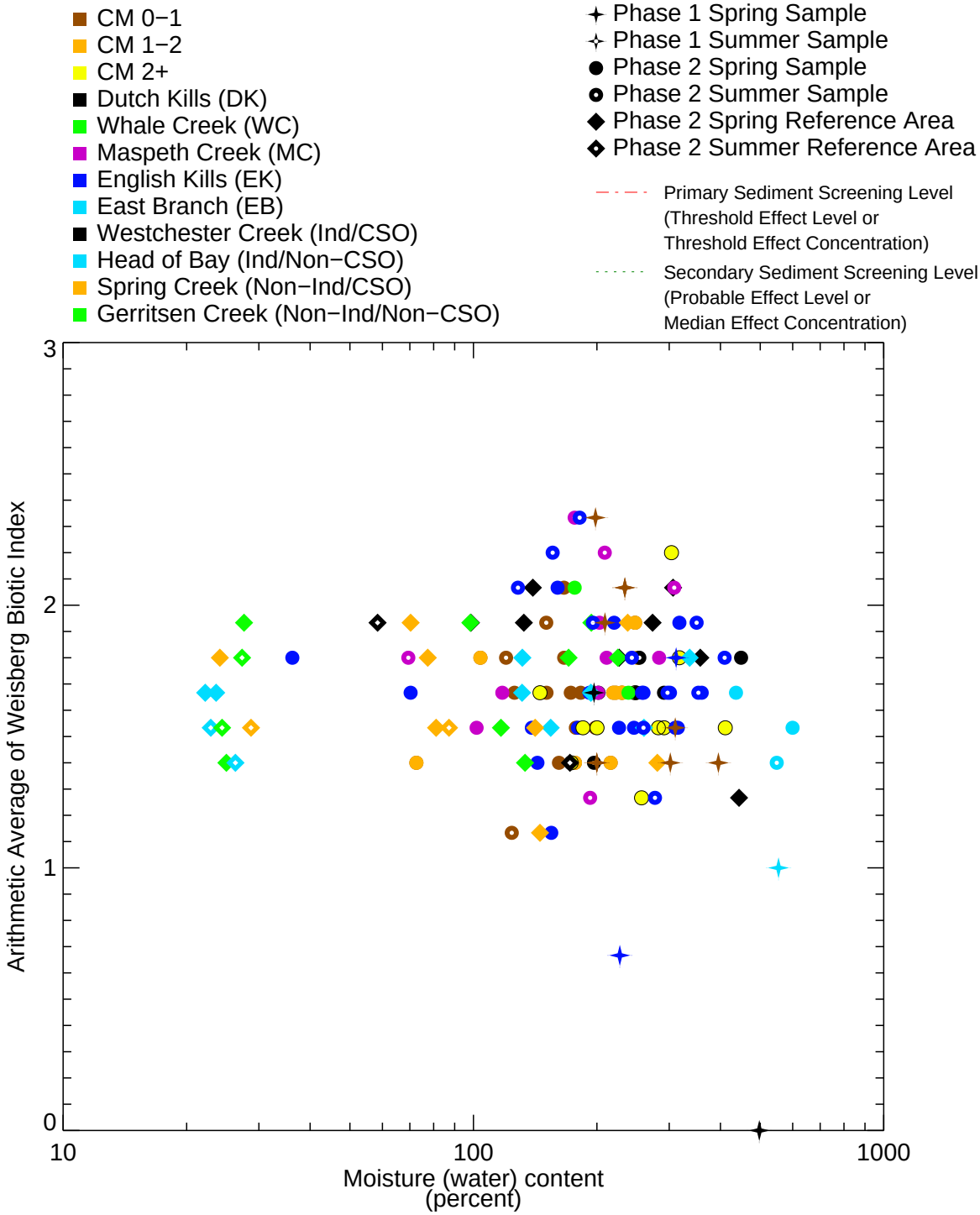

Figure C3−7

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Moisture (Water) Content
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

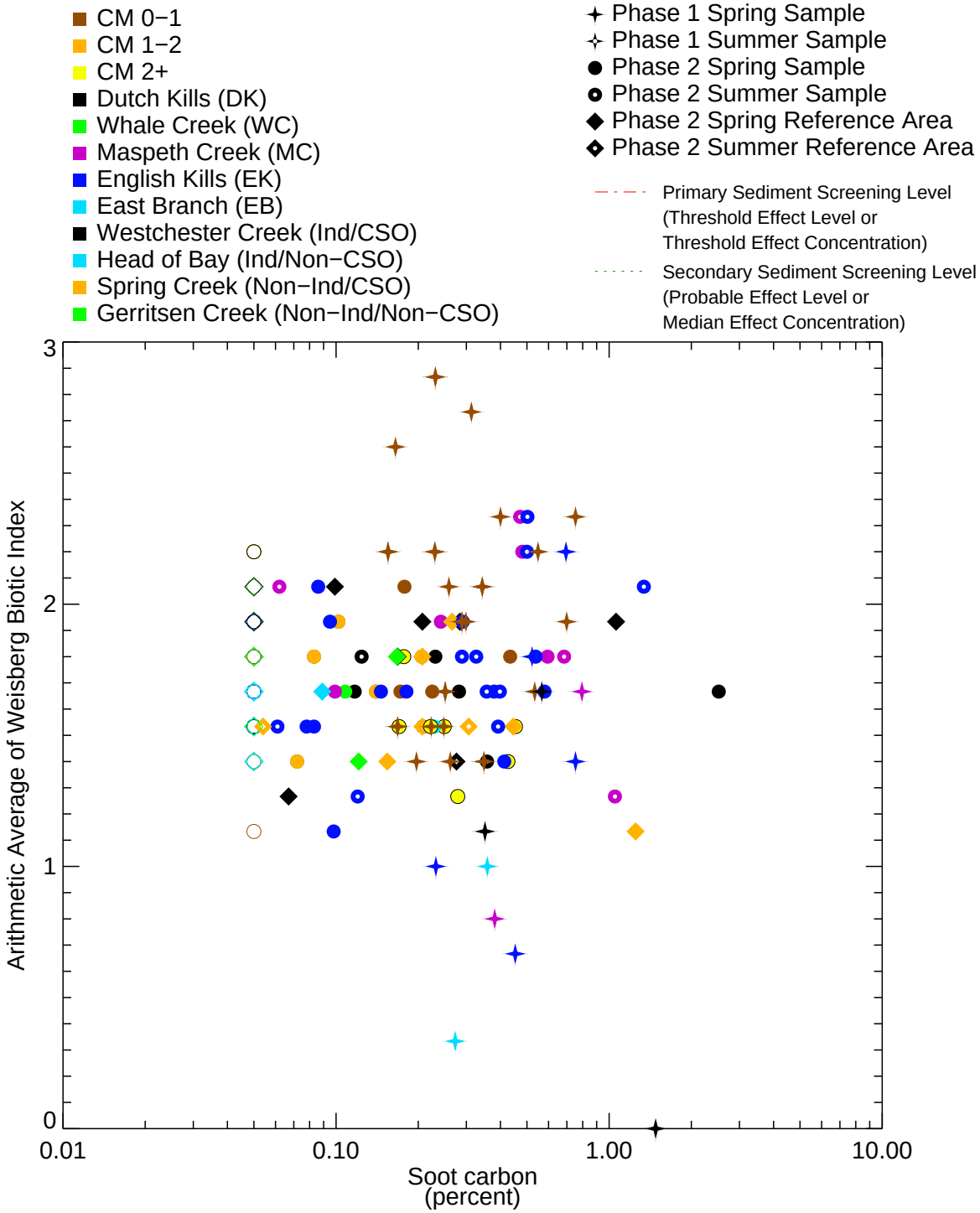

Figure C3−8

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Soot Carbon
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

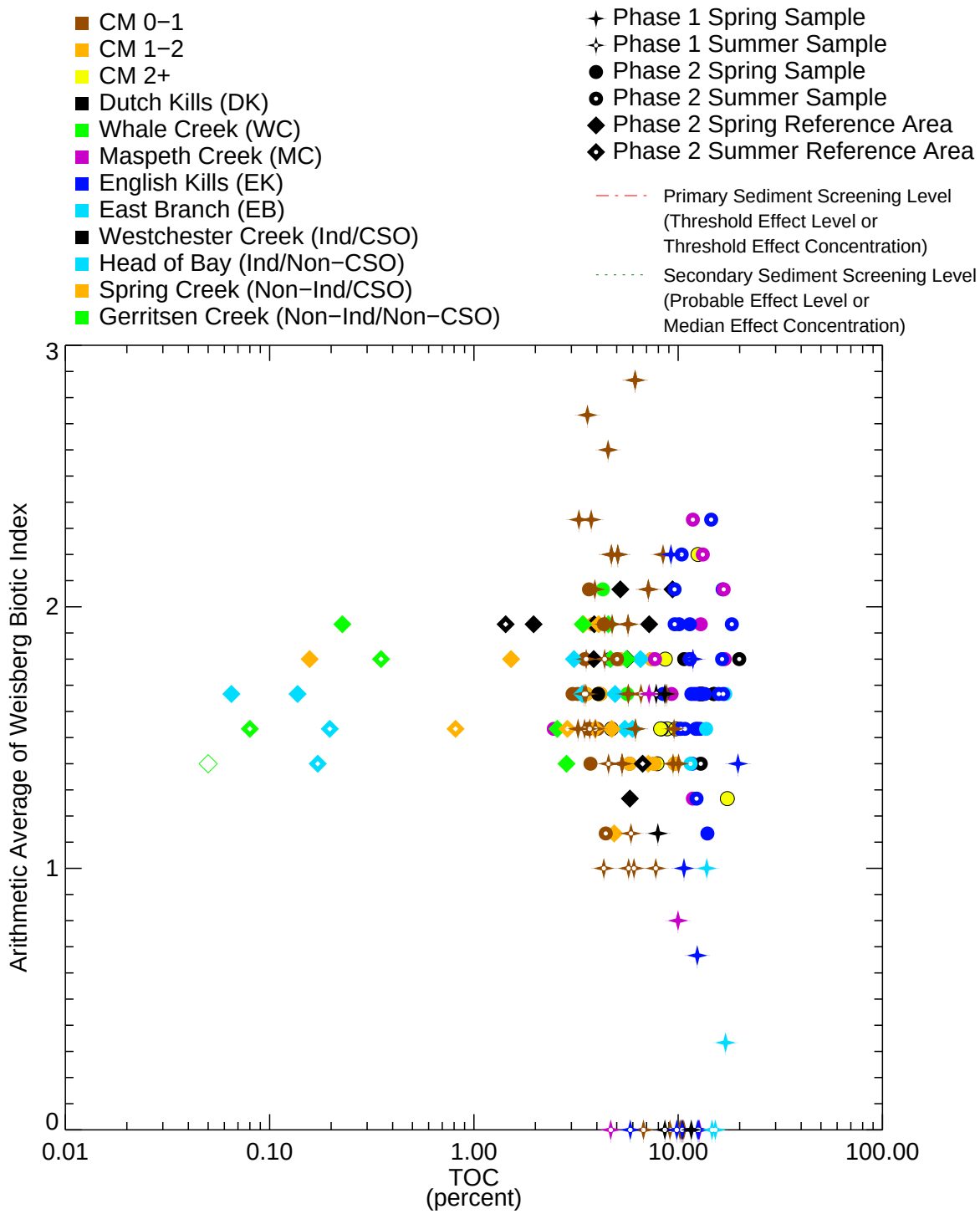

Figure C3−9

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: TOC

Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

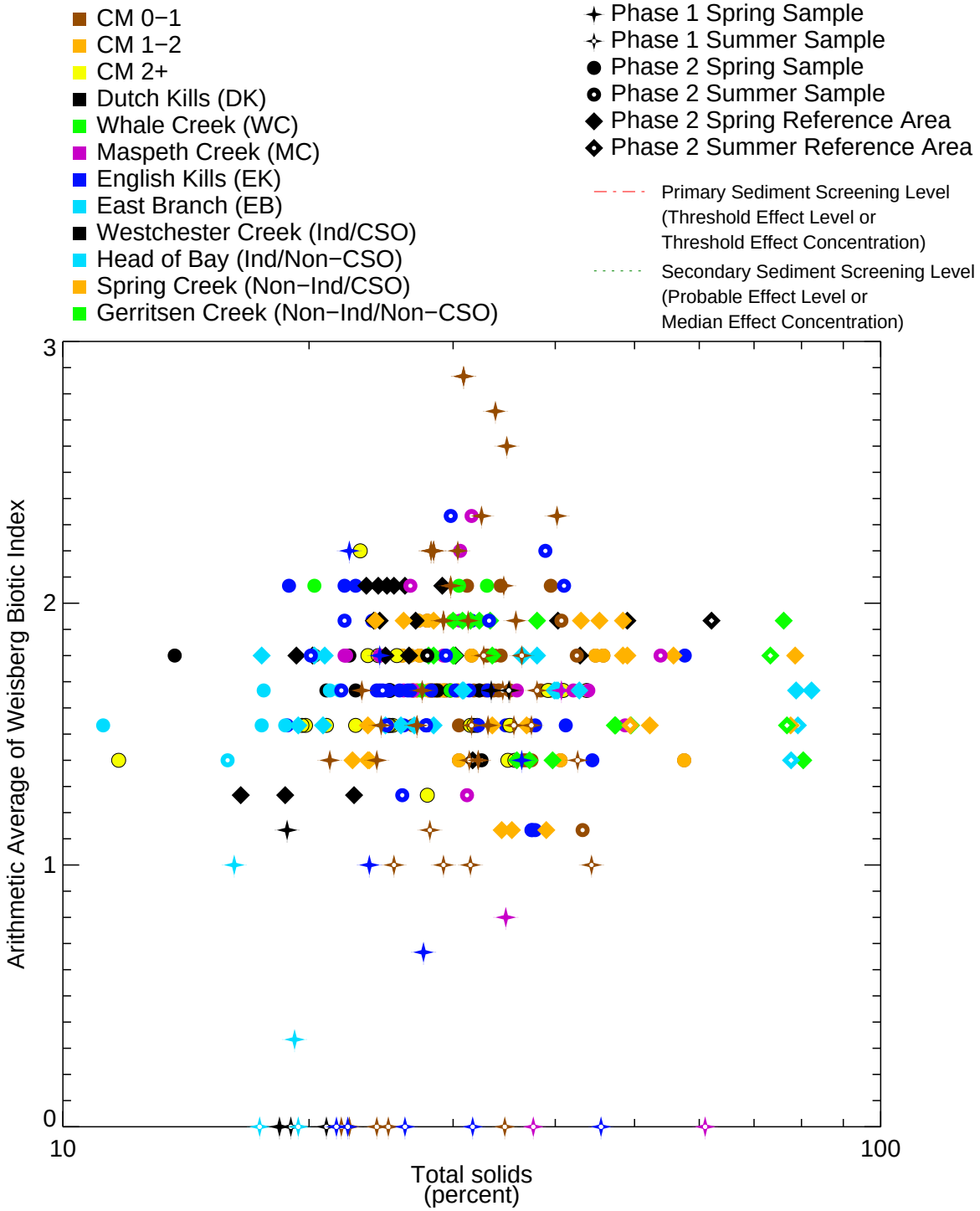

Figure C3−10

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Total Solids
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

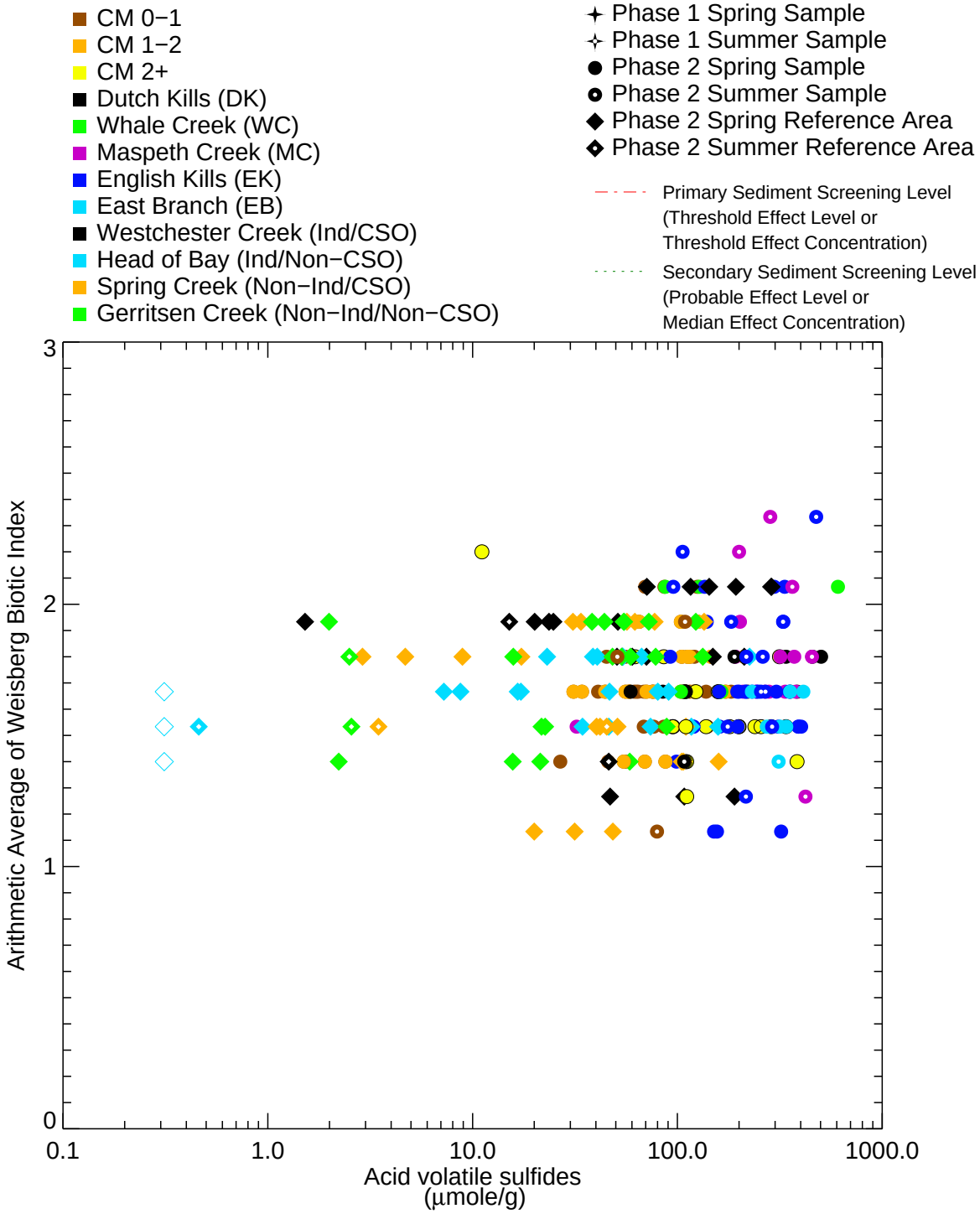

Figure C3−11

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Acid Volatile Sulfides
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

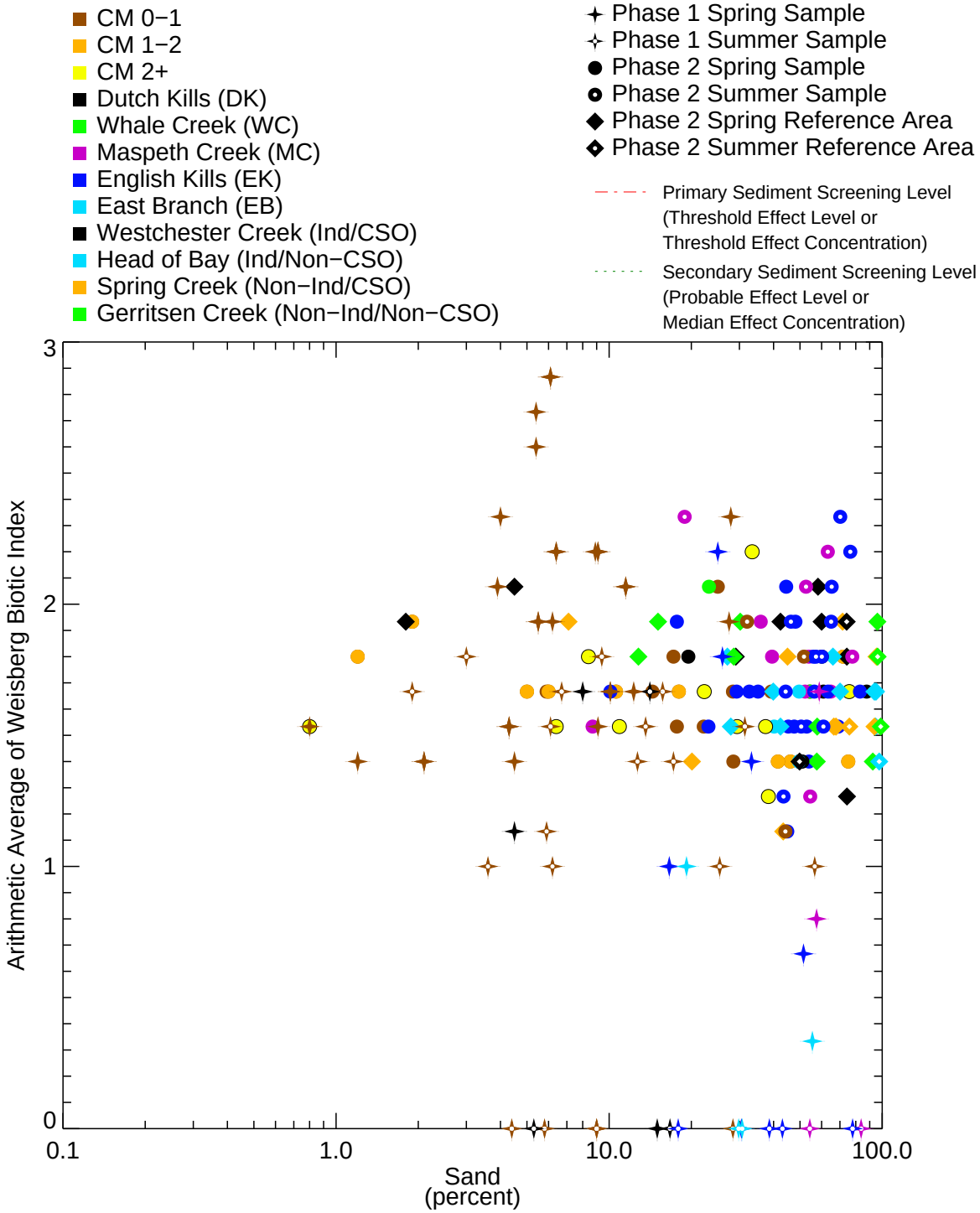

Figure C3−12

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Sand

Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

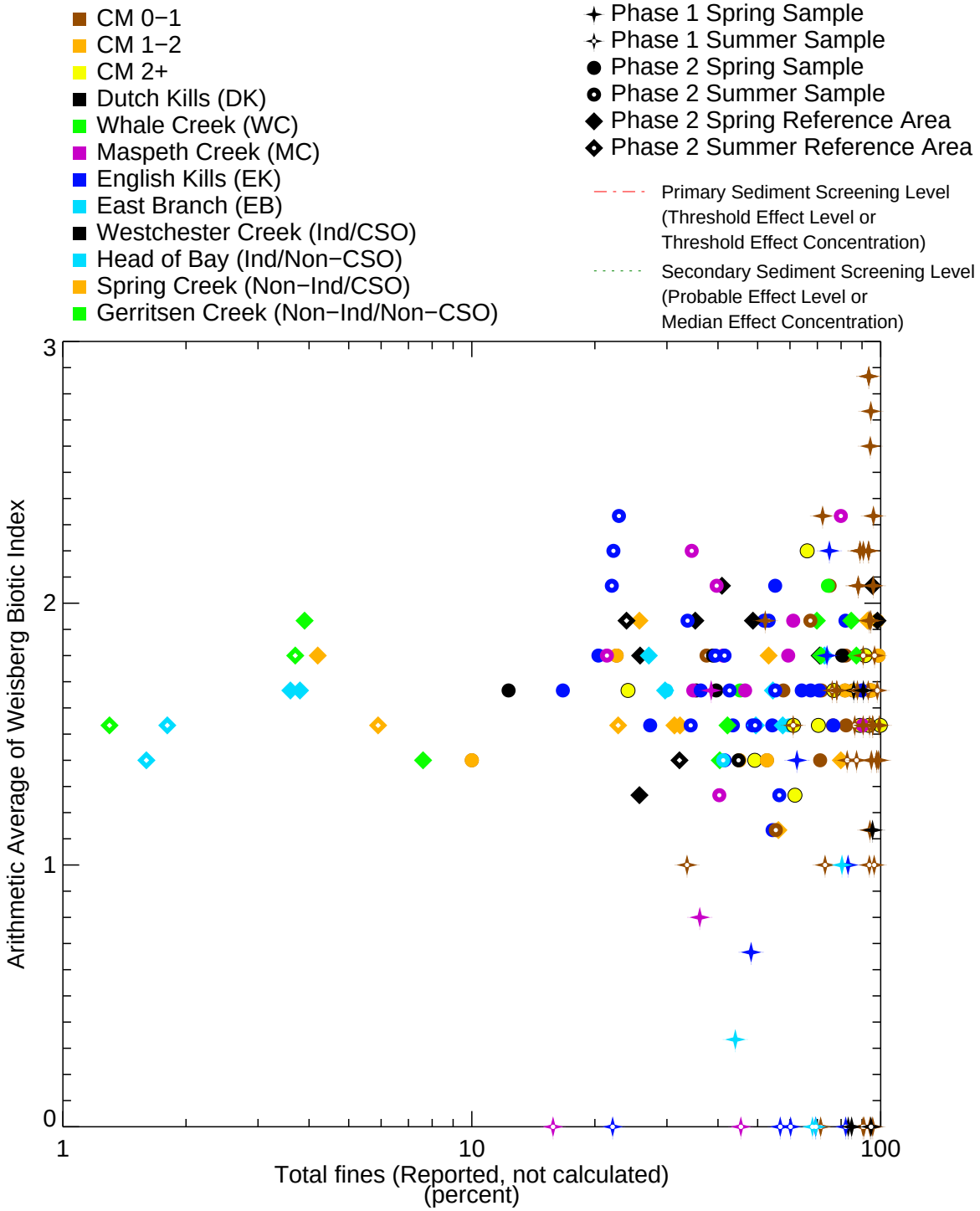

Figure C3−13

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Total Fines (Reported, Not Calculated)
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

ANCHOR QEA

Notes: Non−detects shown as open symbols.

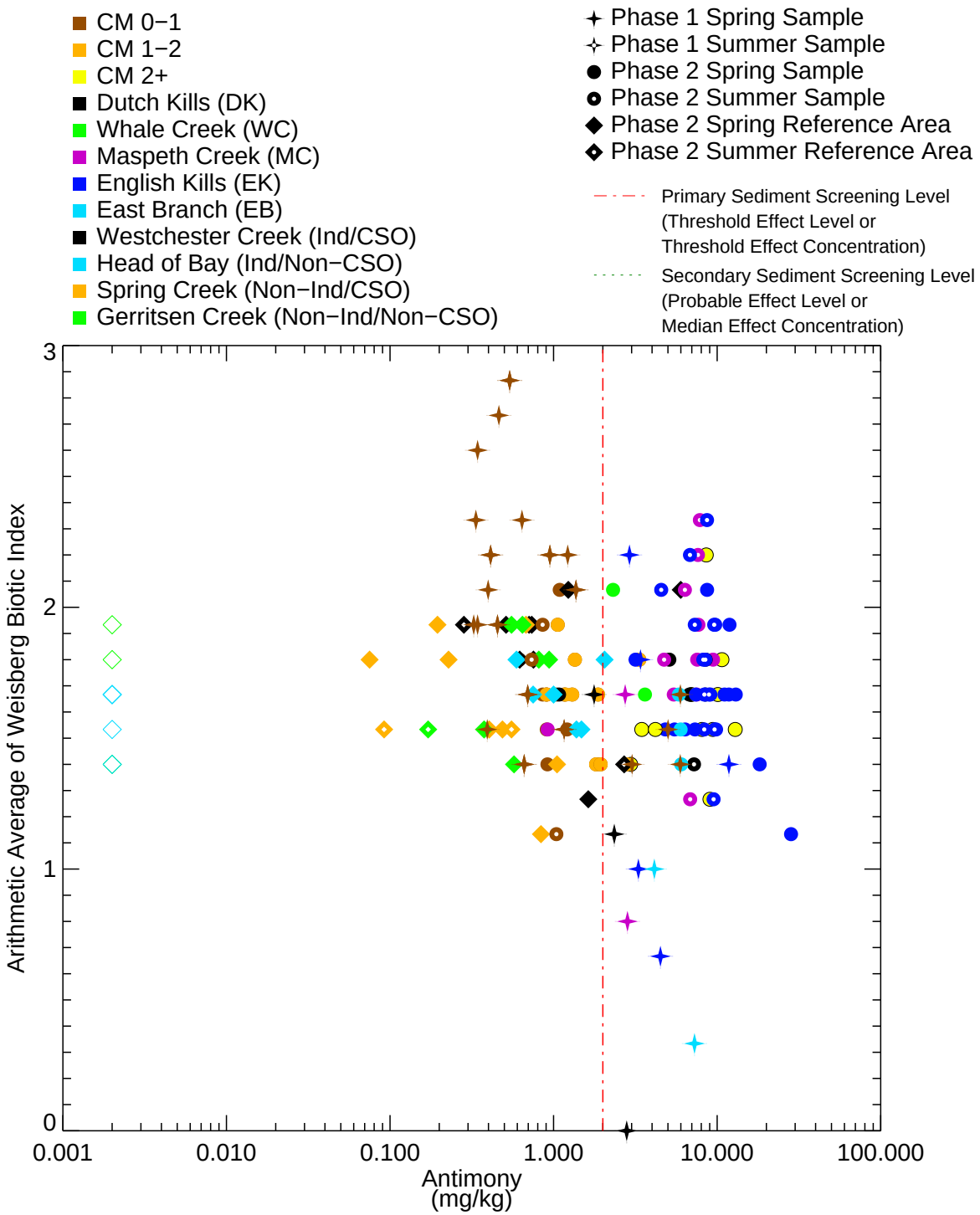

Figure C3−14

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Antimony
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

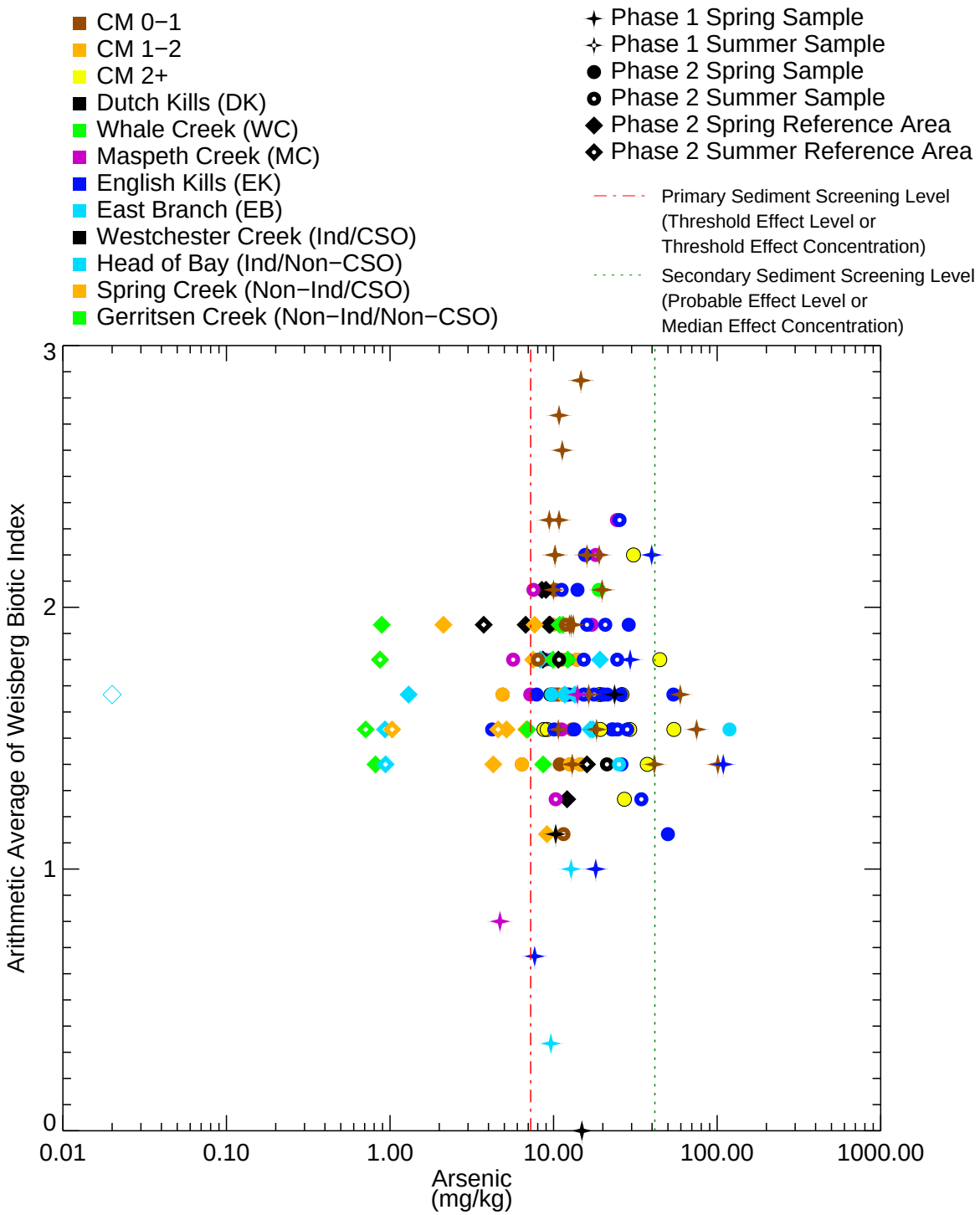

Figure C3−15

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Arsenic
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

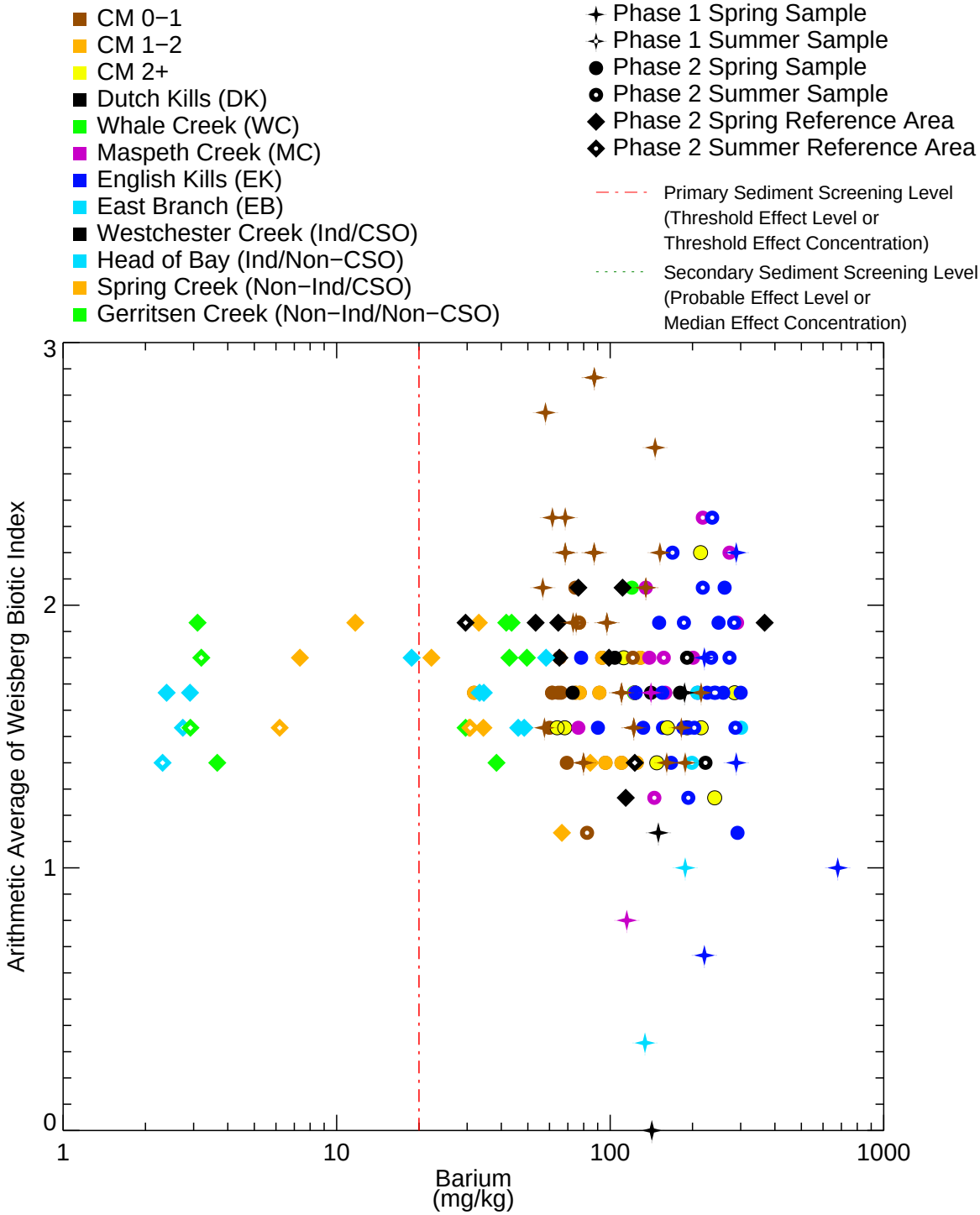

Figure C3−16

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Barium
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

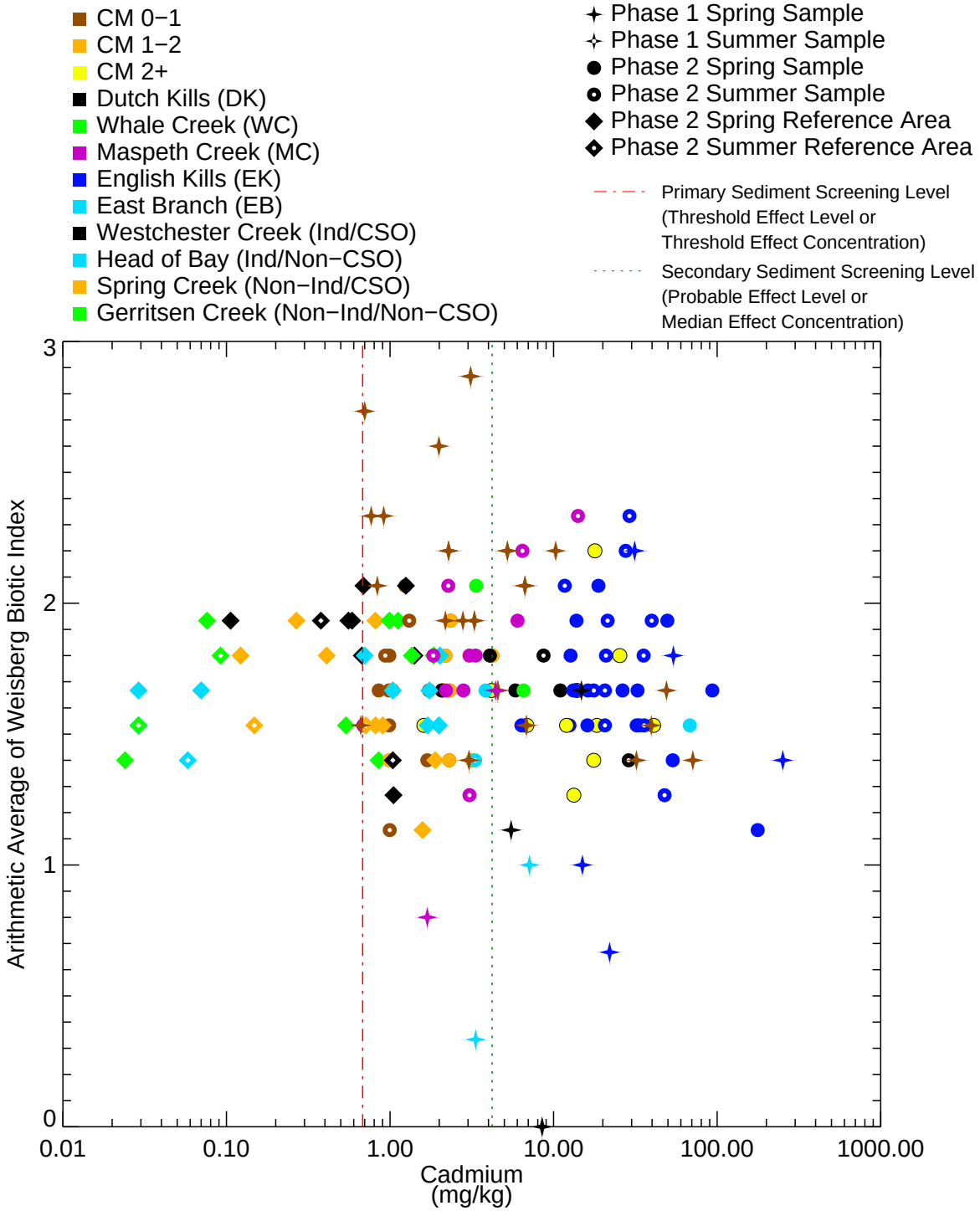

Figure C3−17

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Cadmium

Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

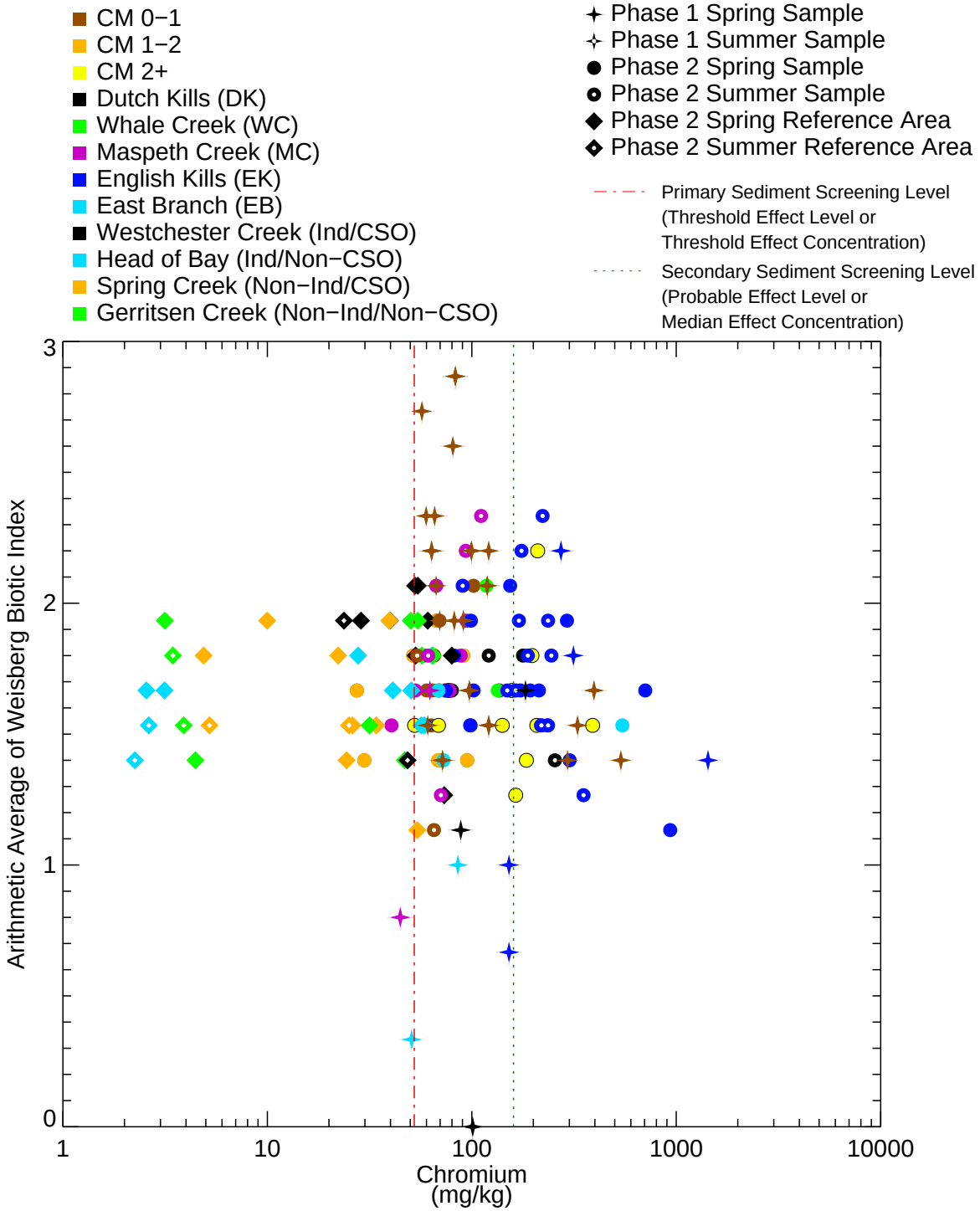

Figure C3−18

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Chromium

Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

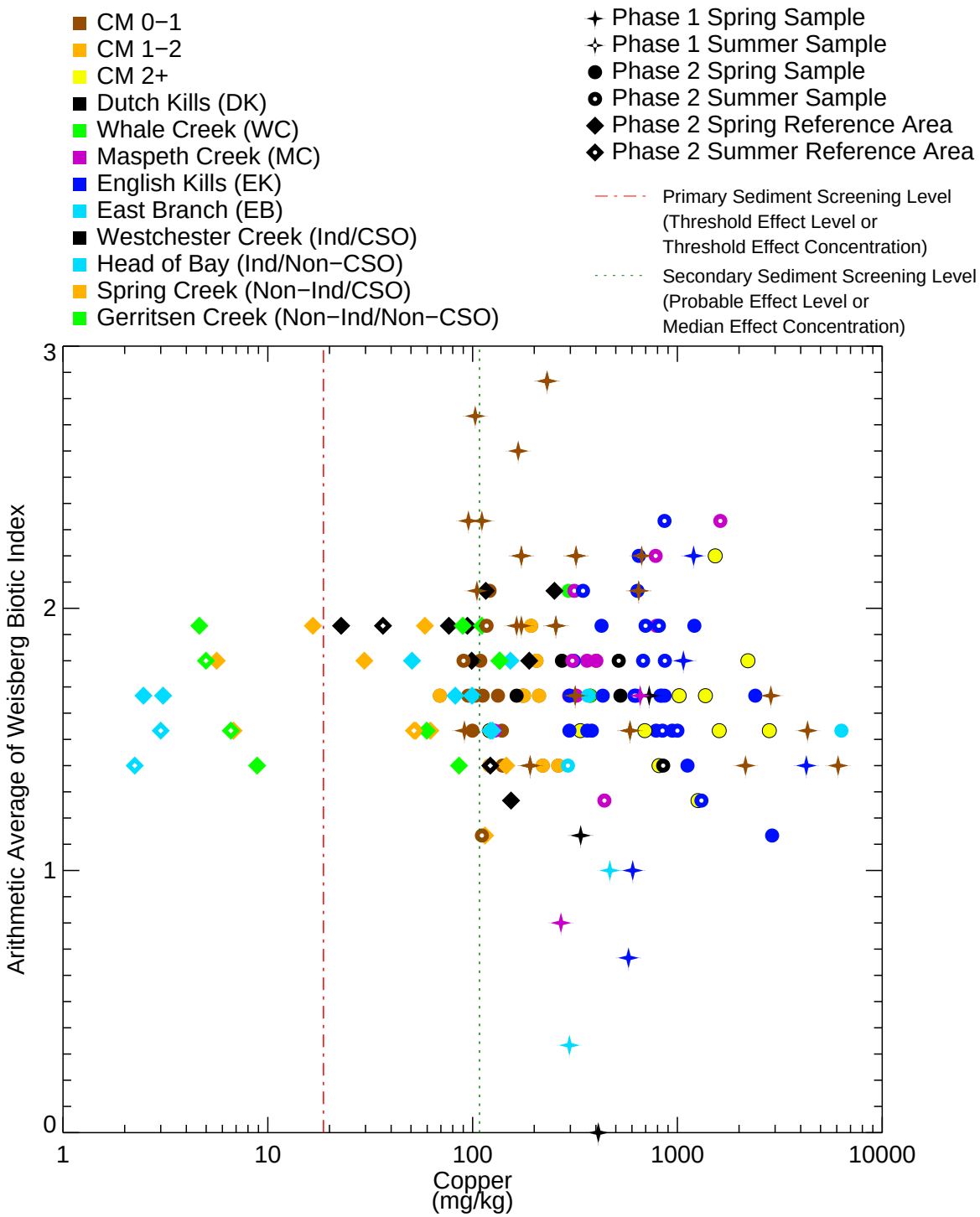

Figure C3−19

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Copper

Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

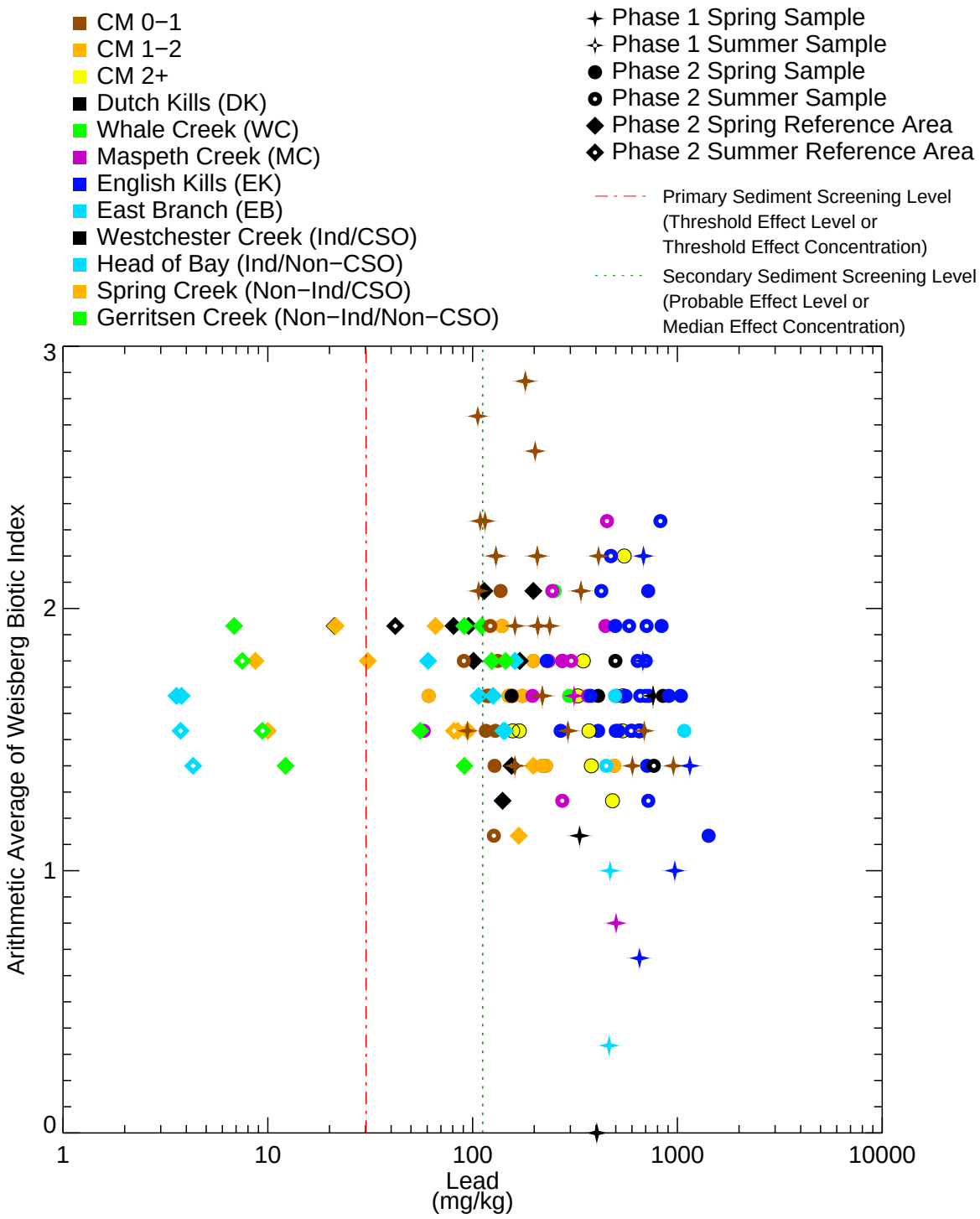

Figure C3−20

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Lead

Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

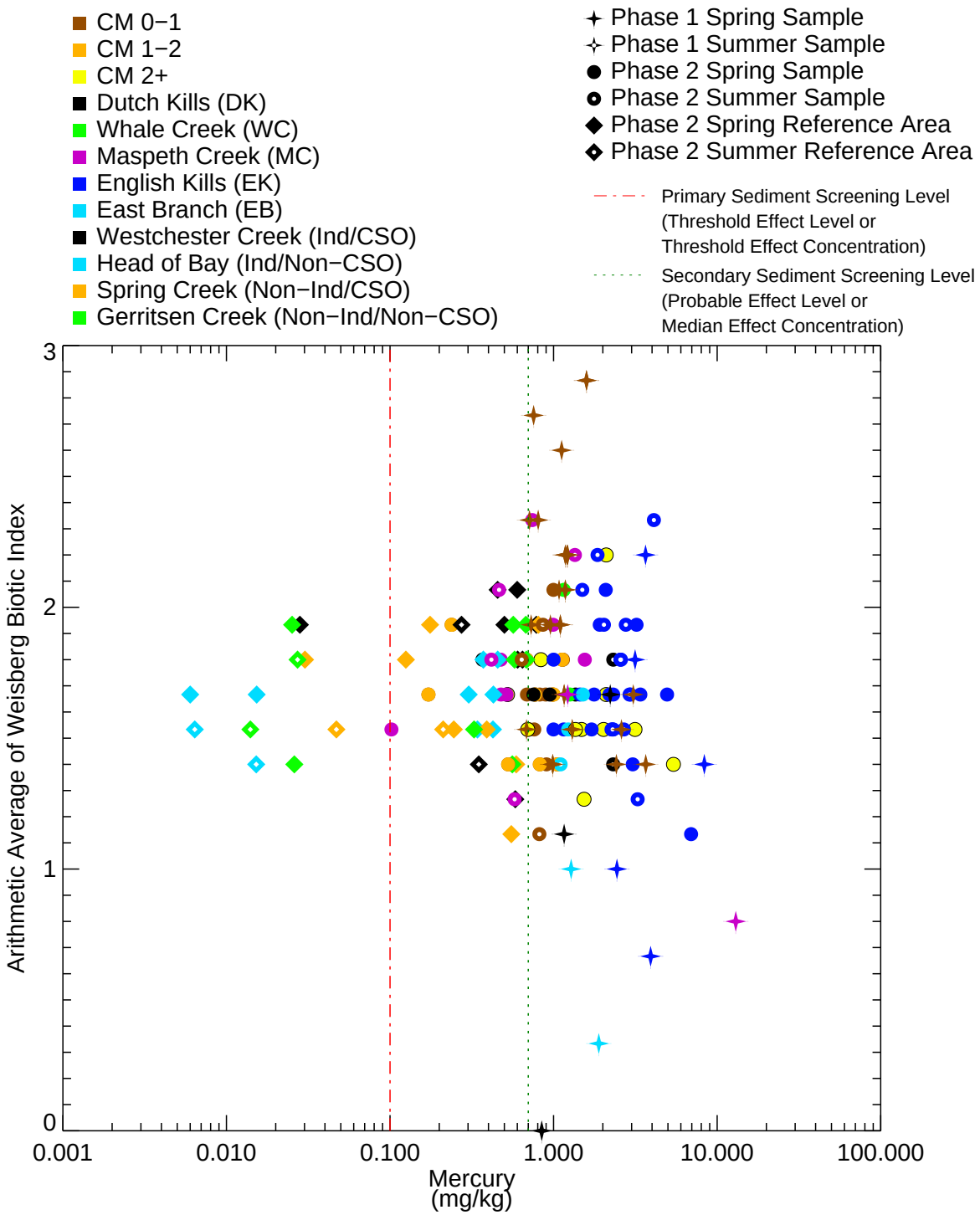

Figure C3−21

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Mercury
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

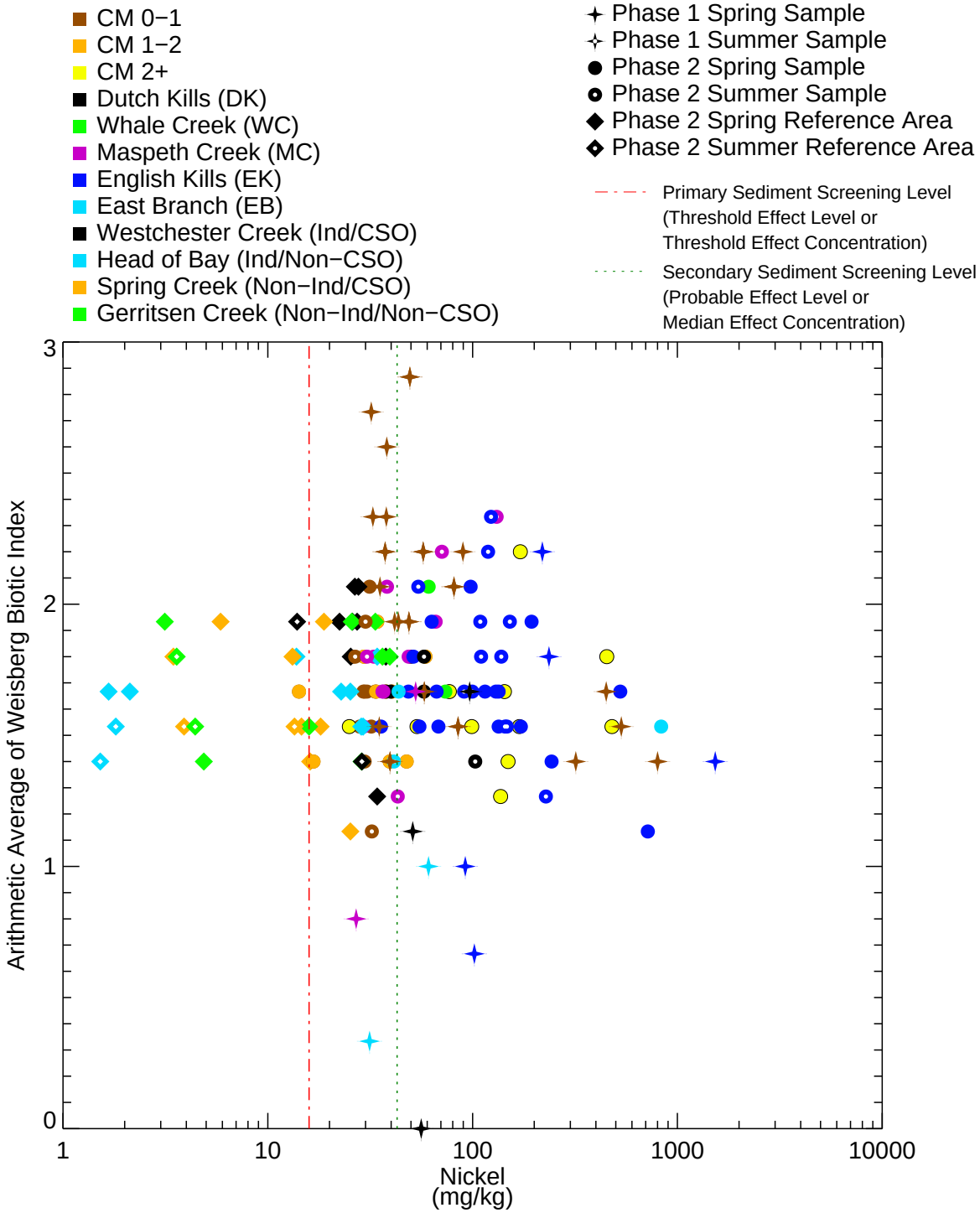

Figure C3−22

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Nickel

Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

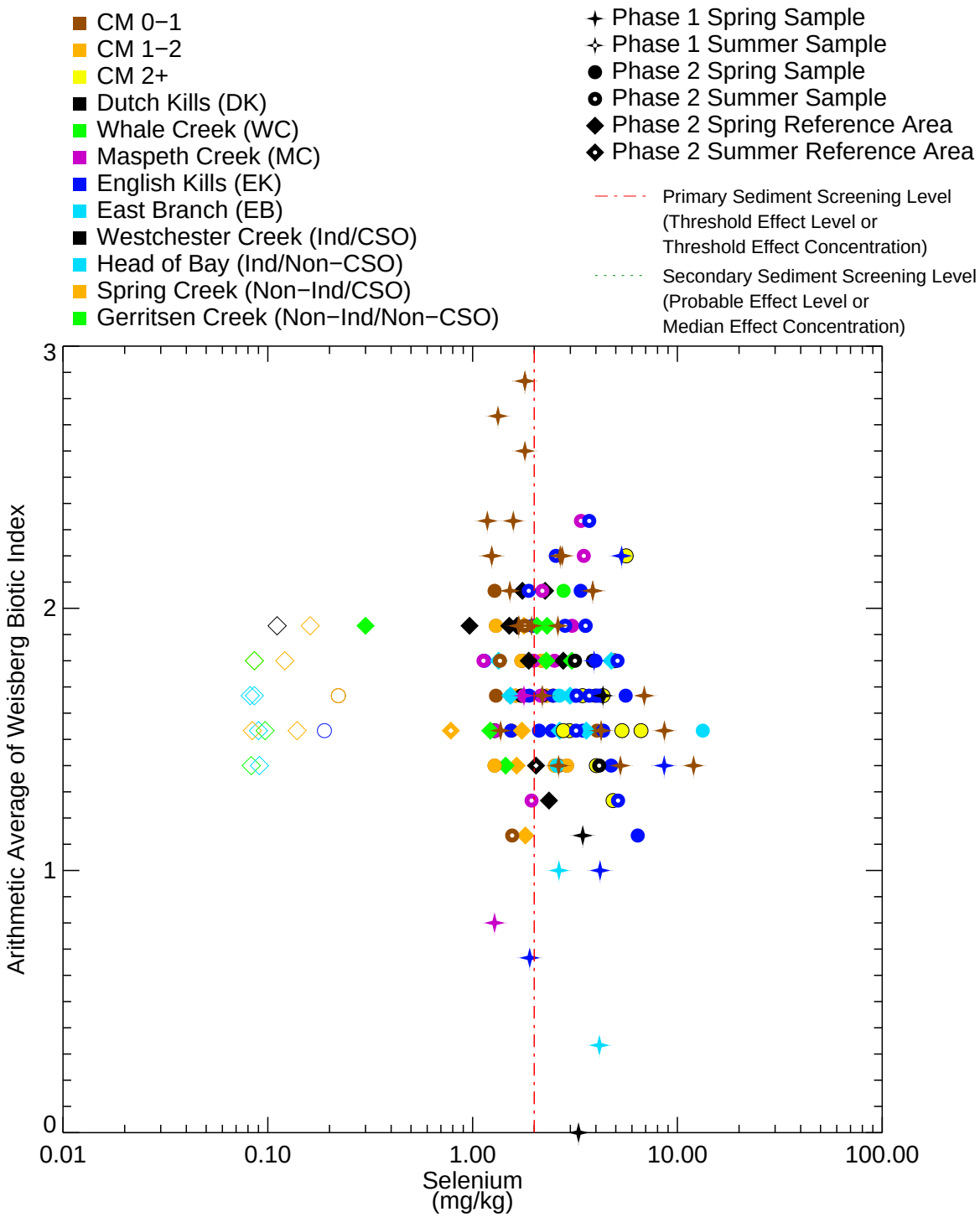

Figure C3−23

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Selenium
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

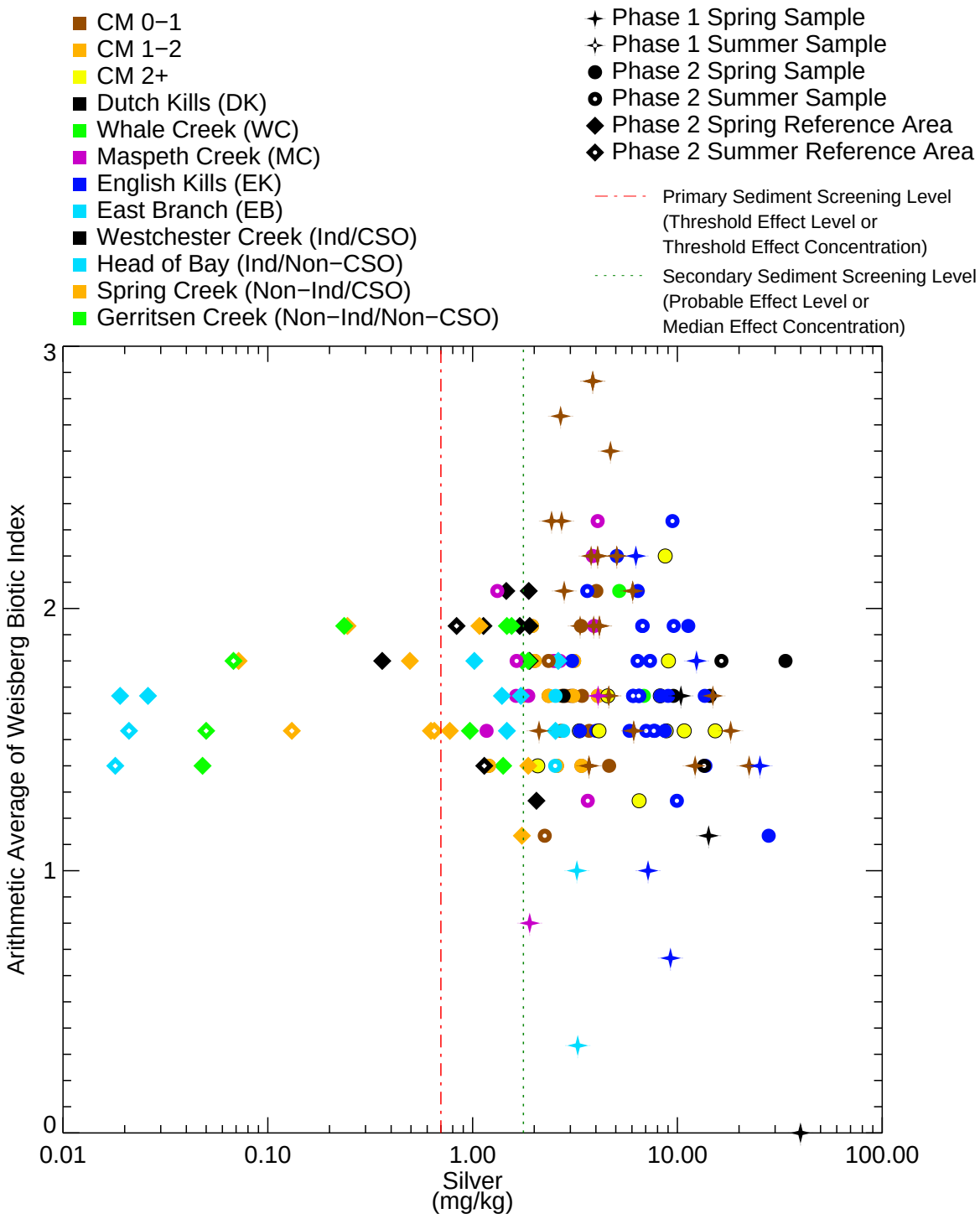

Figure C3−24

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Silver

Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

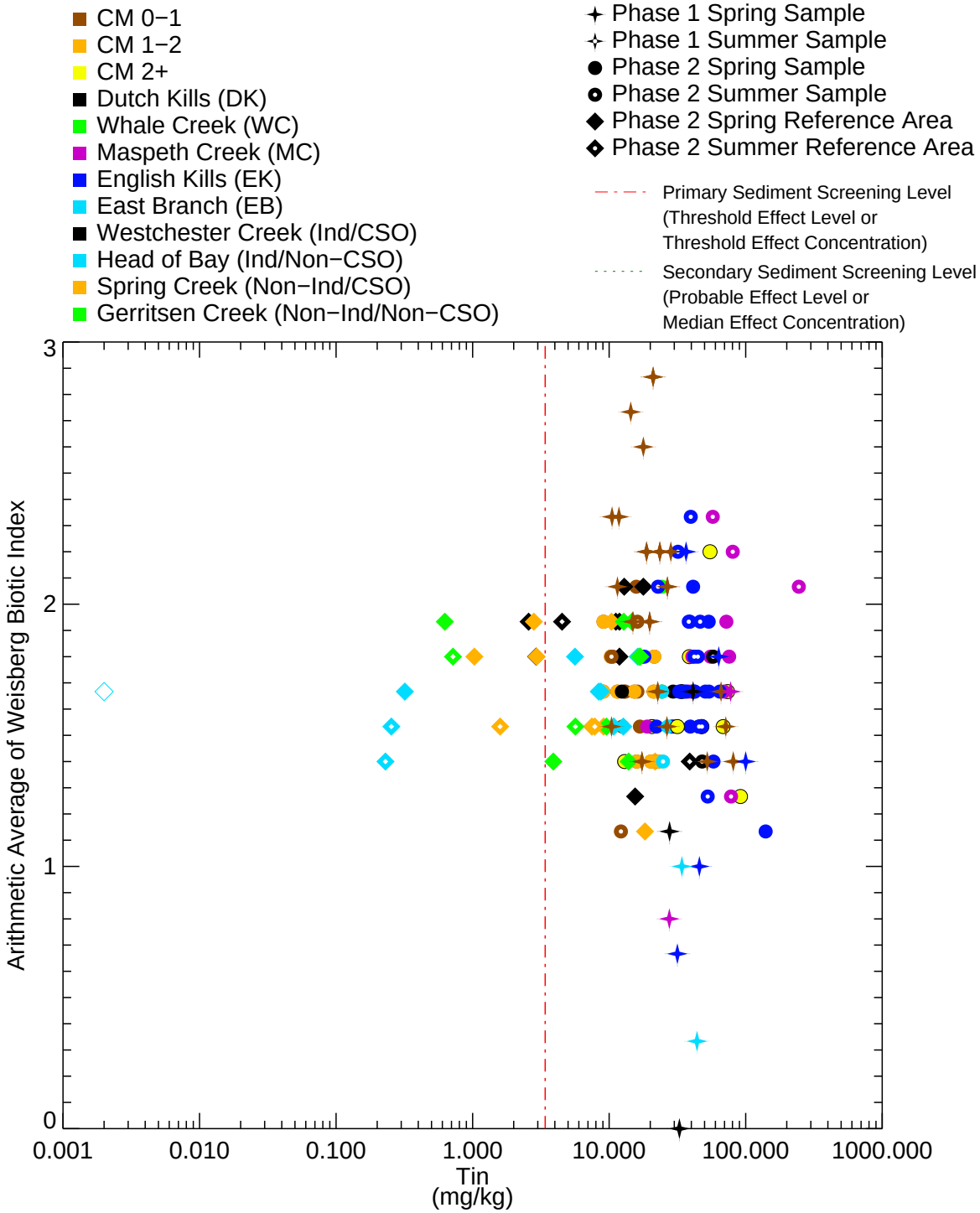

Figure C3−25

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Tin

Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

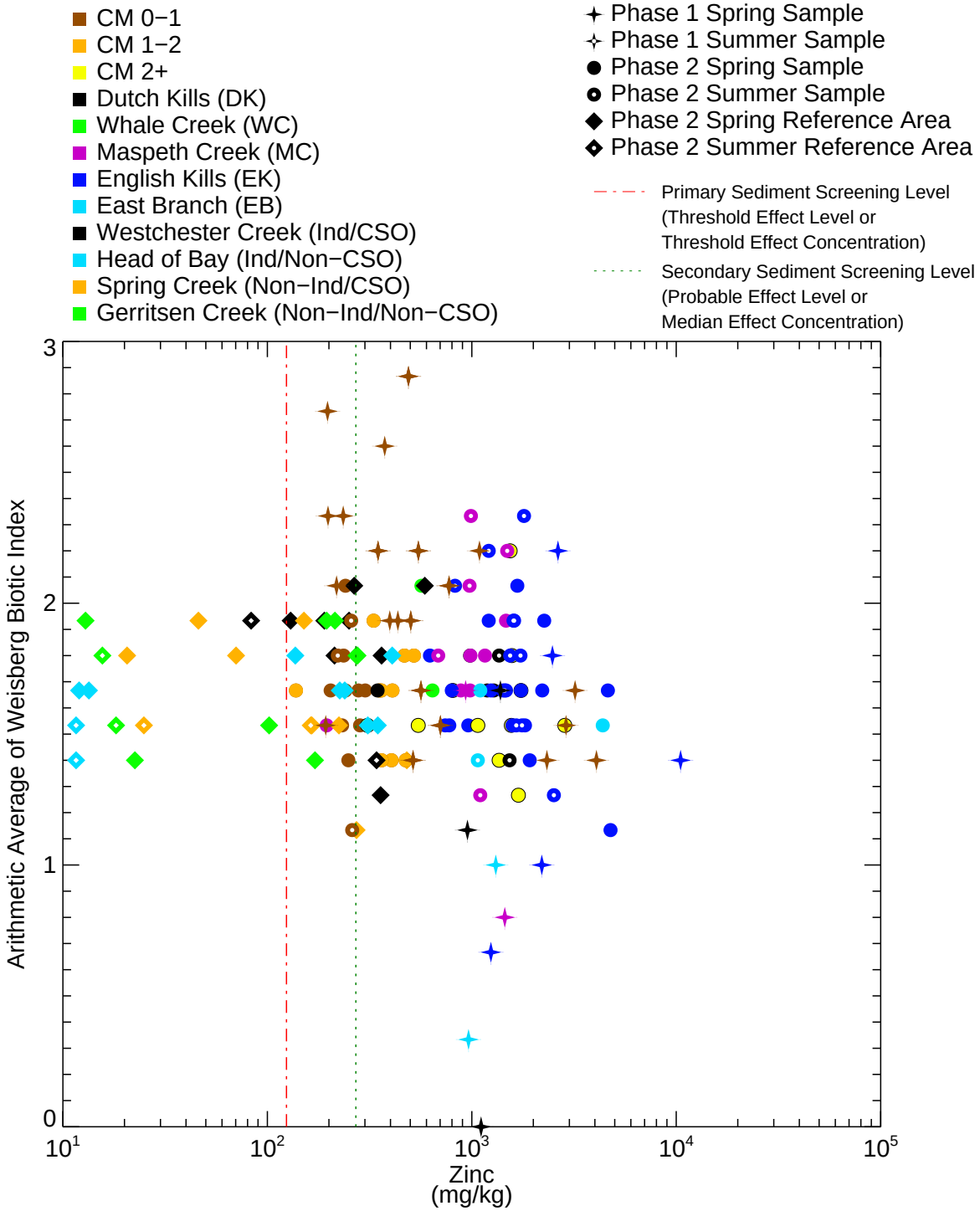

Figure C3−26

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Zinc

Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

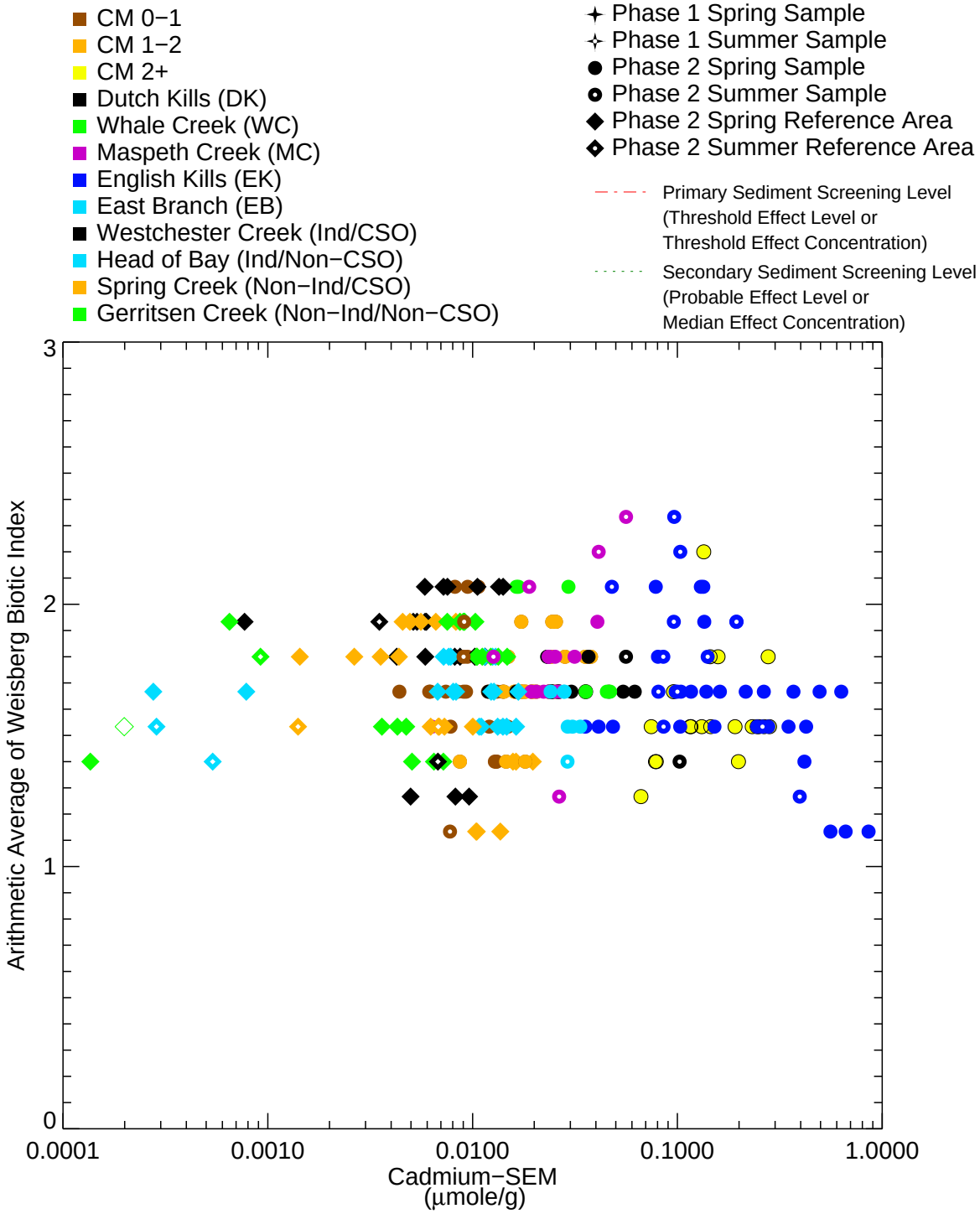

Figure C3−27

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Cadmium−SEM
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

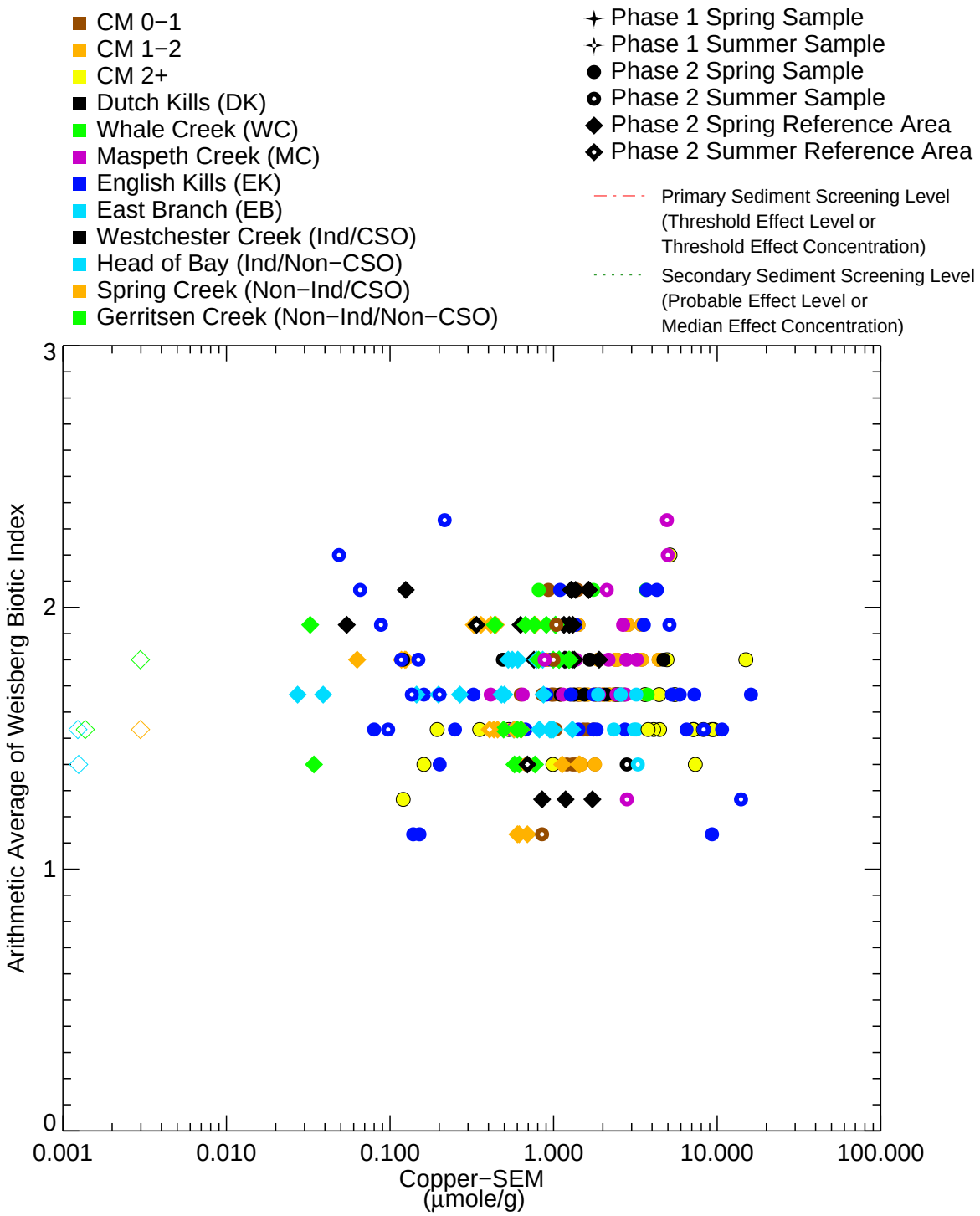

Figure C3−28

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Copper−SEM
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

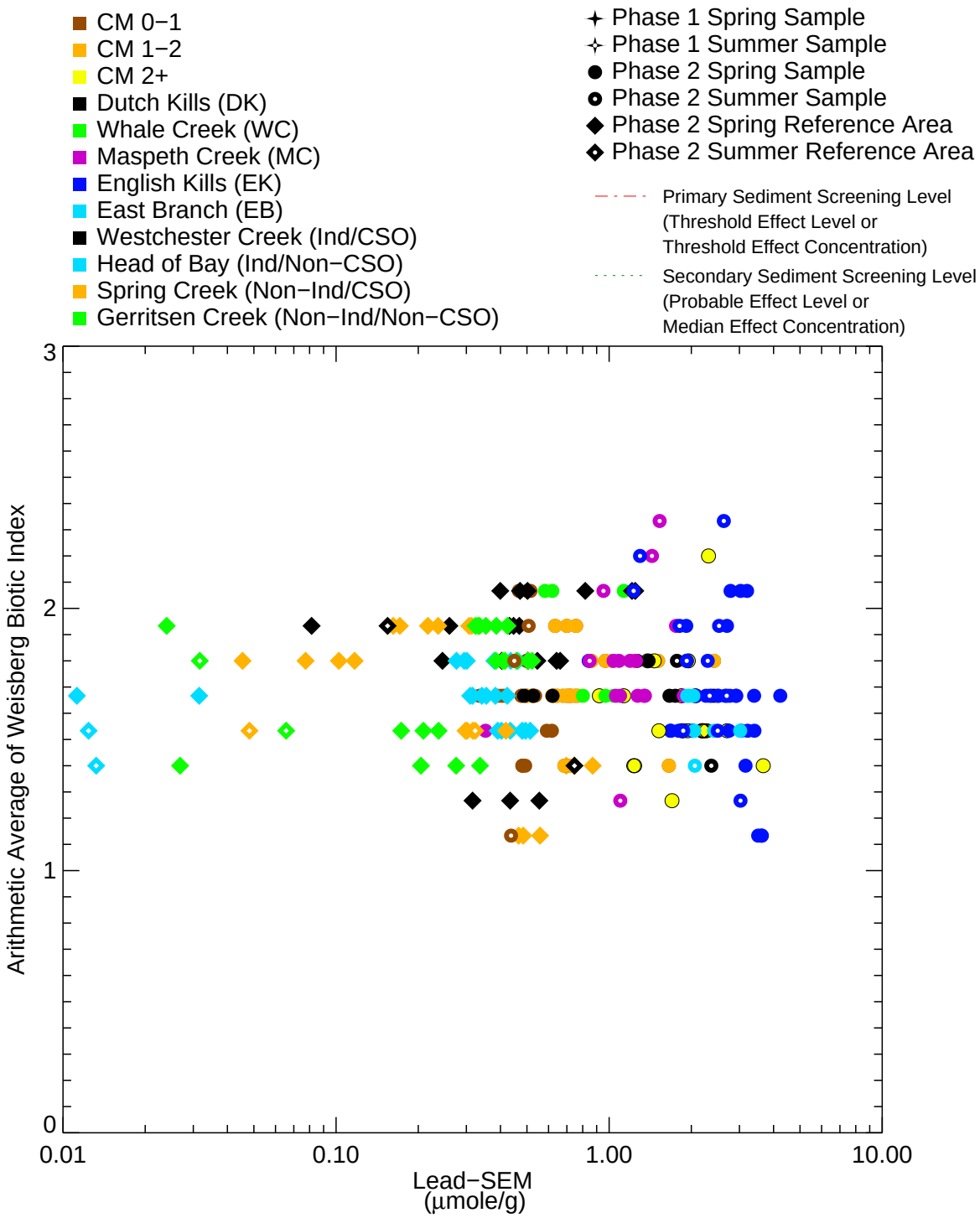

Figure C3−29

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Lead−SEM
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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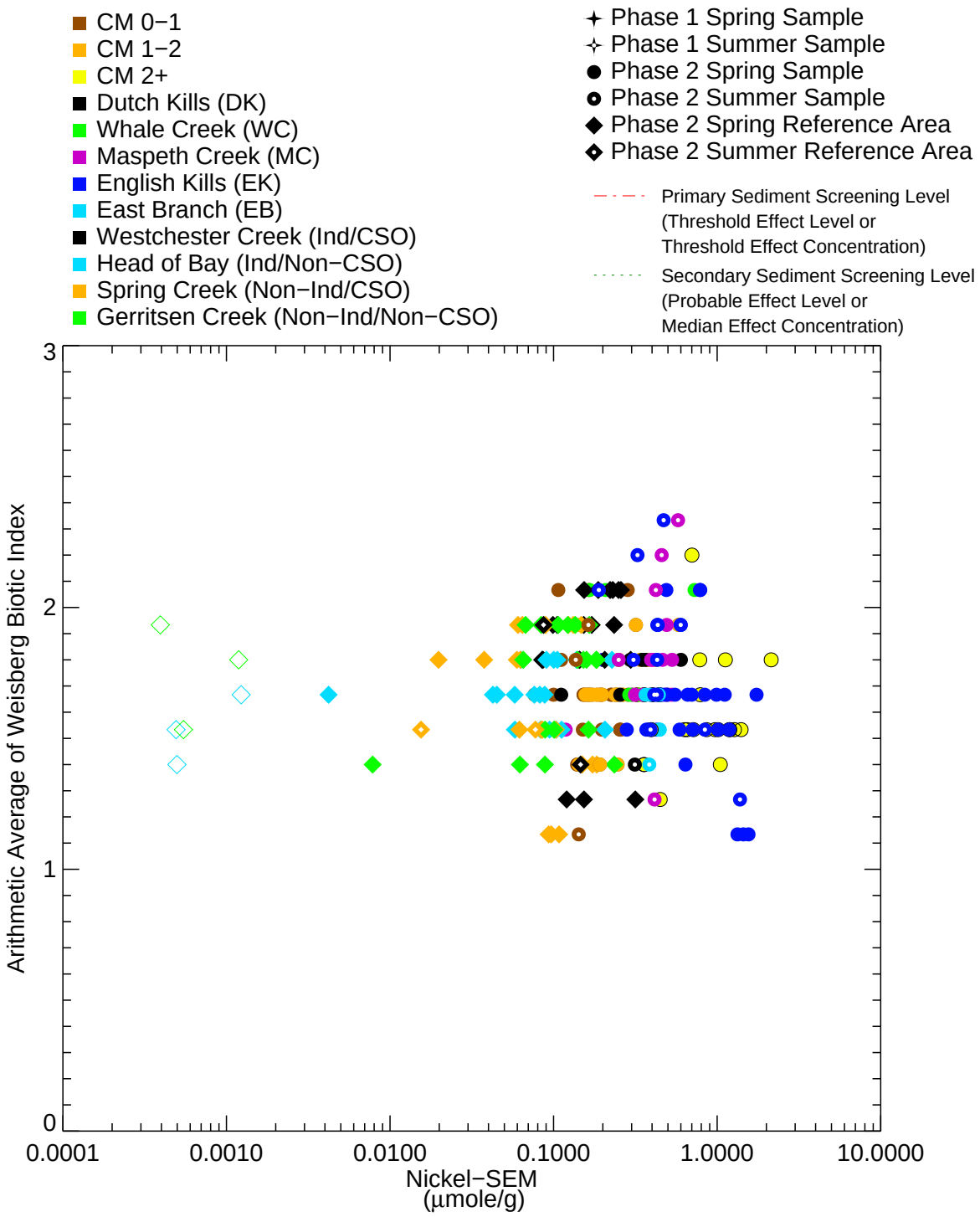

Figure C3−30

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Nickel−SEM
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

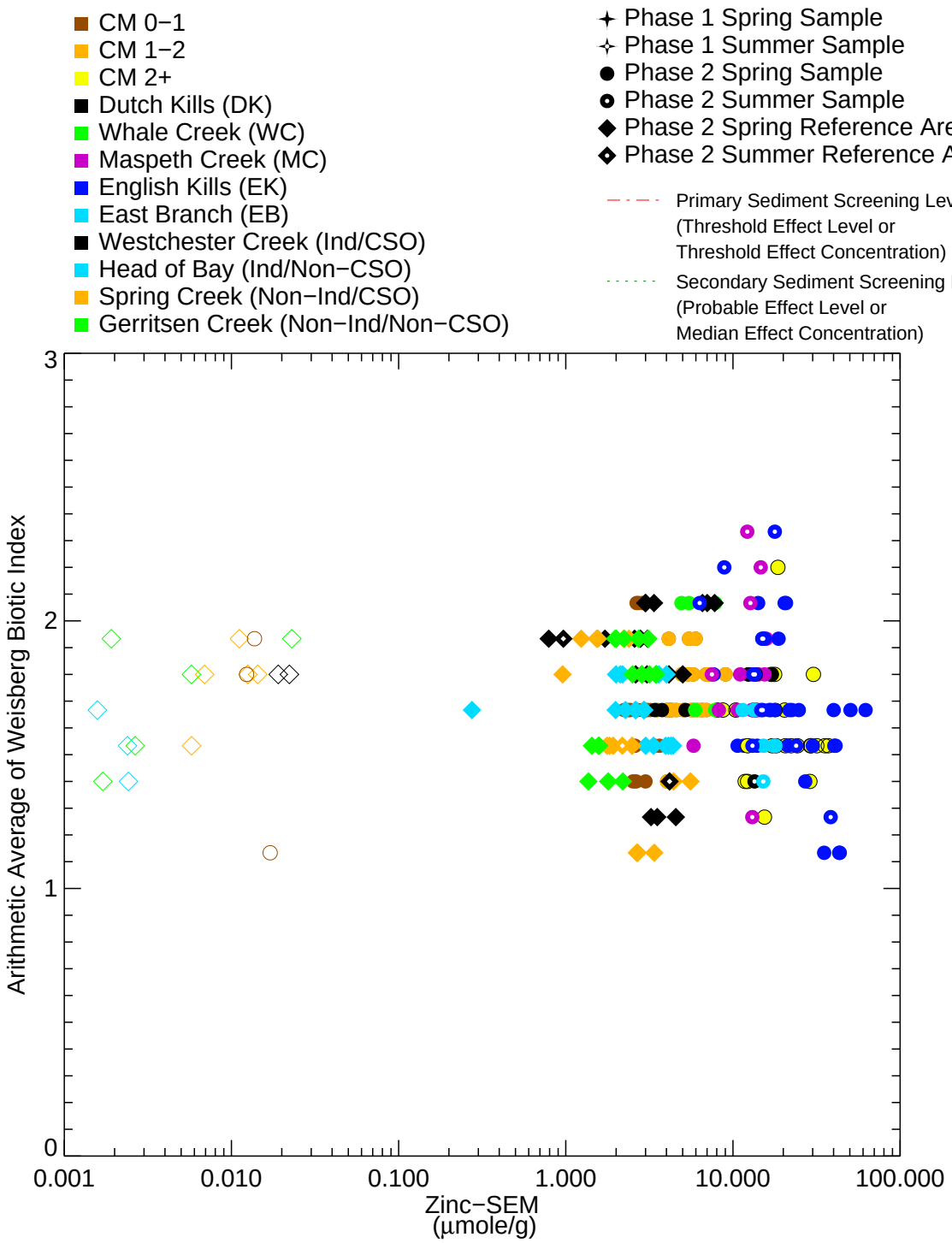

Figure C3−31

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Zinc−SEM
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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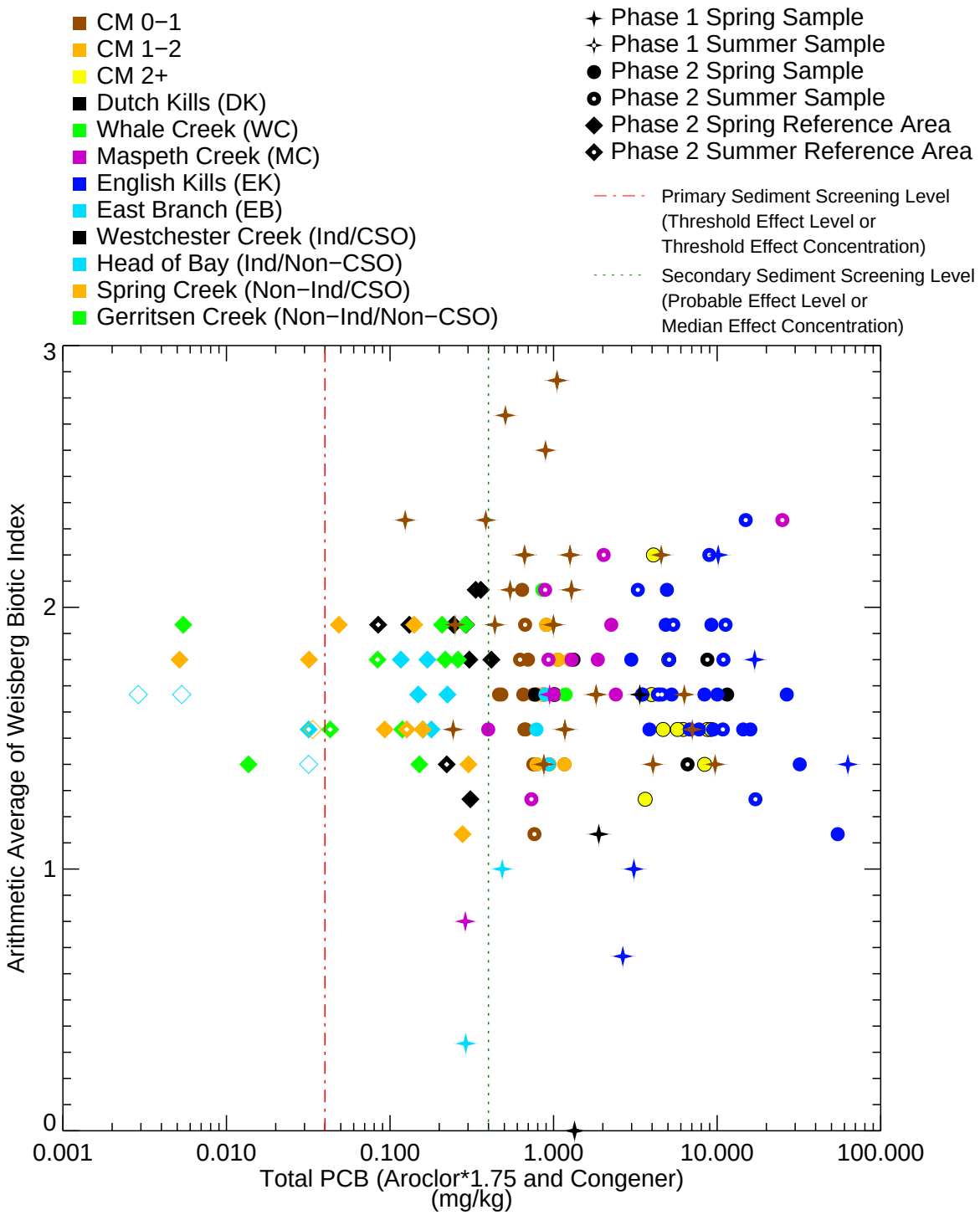

Figure C3−32

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Total PCB (Aroclor*1.75 and Congener)
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

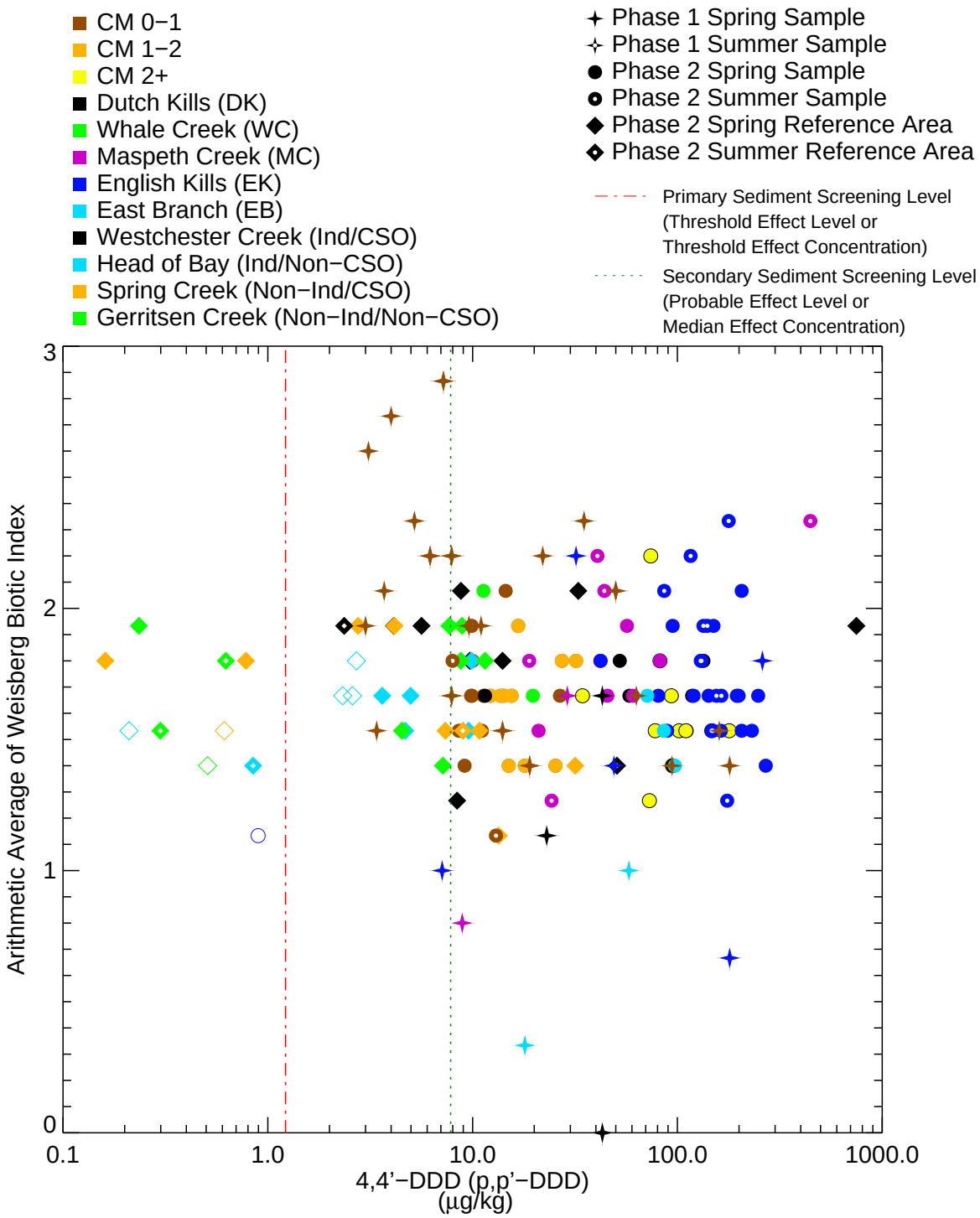

Figure C3−33

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: 4,4'−DDD (p,p'−DDD)
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

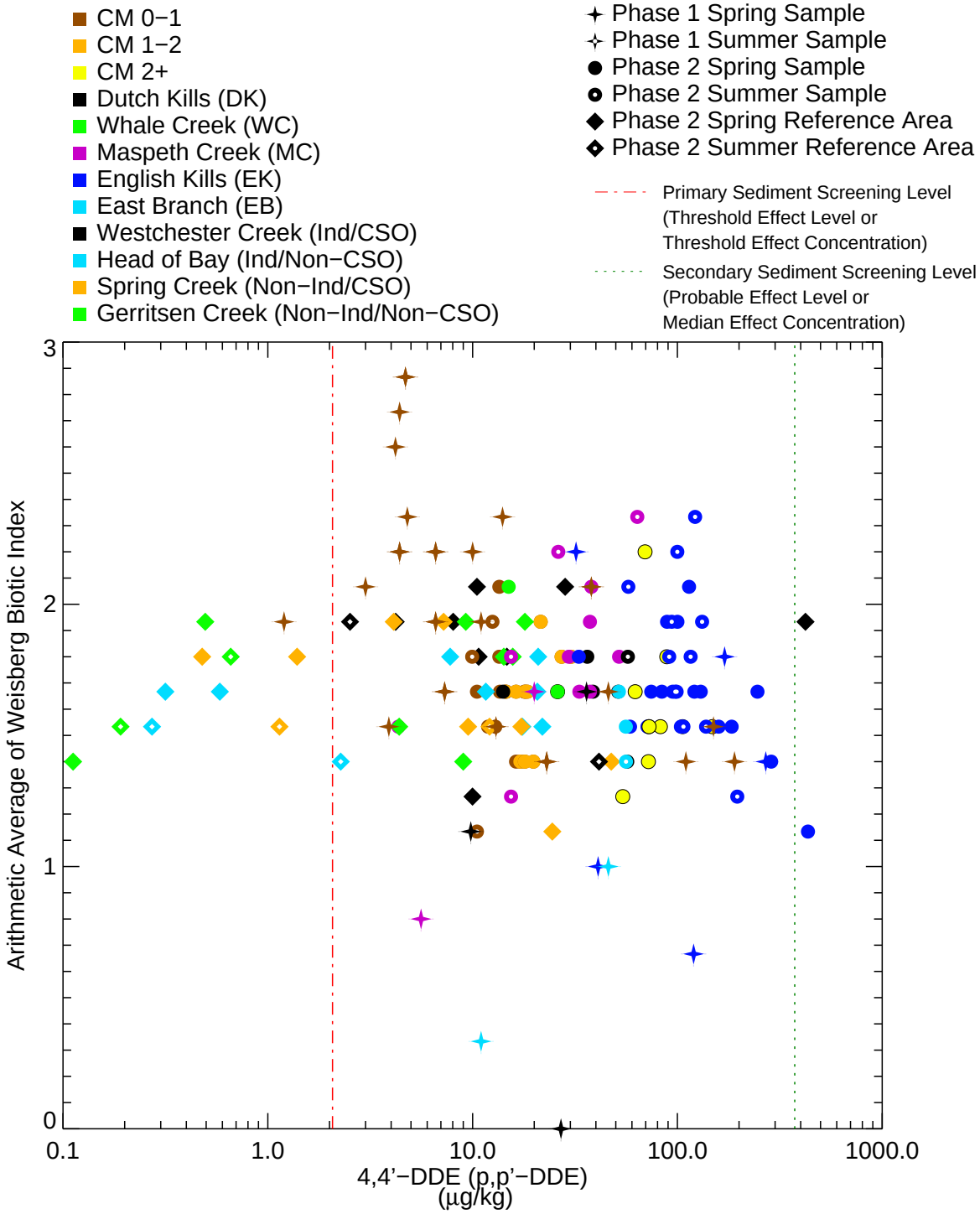

Figure C3−34

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: 4,4'−DDE (p,p'−DDE)
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

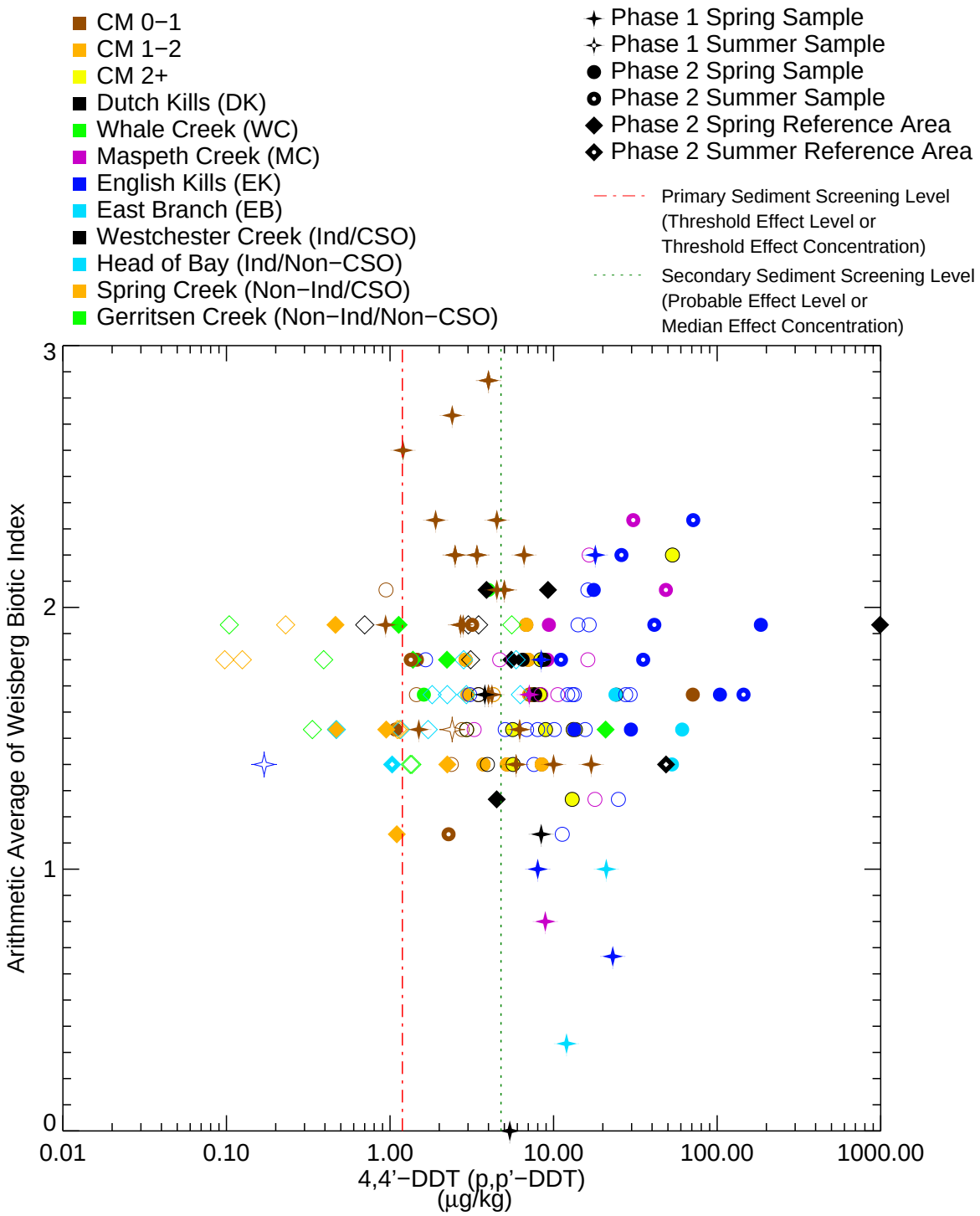

Figure C3−35

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: 4,4'−DDT (p,p'−DDT)
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

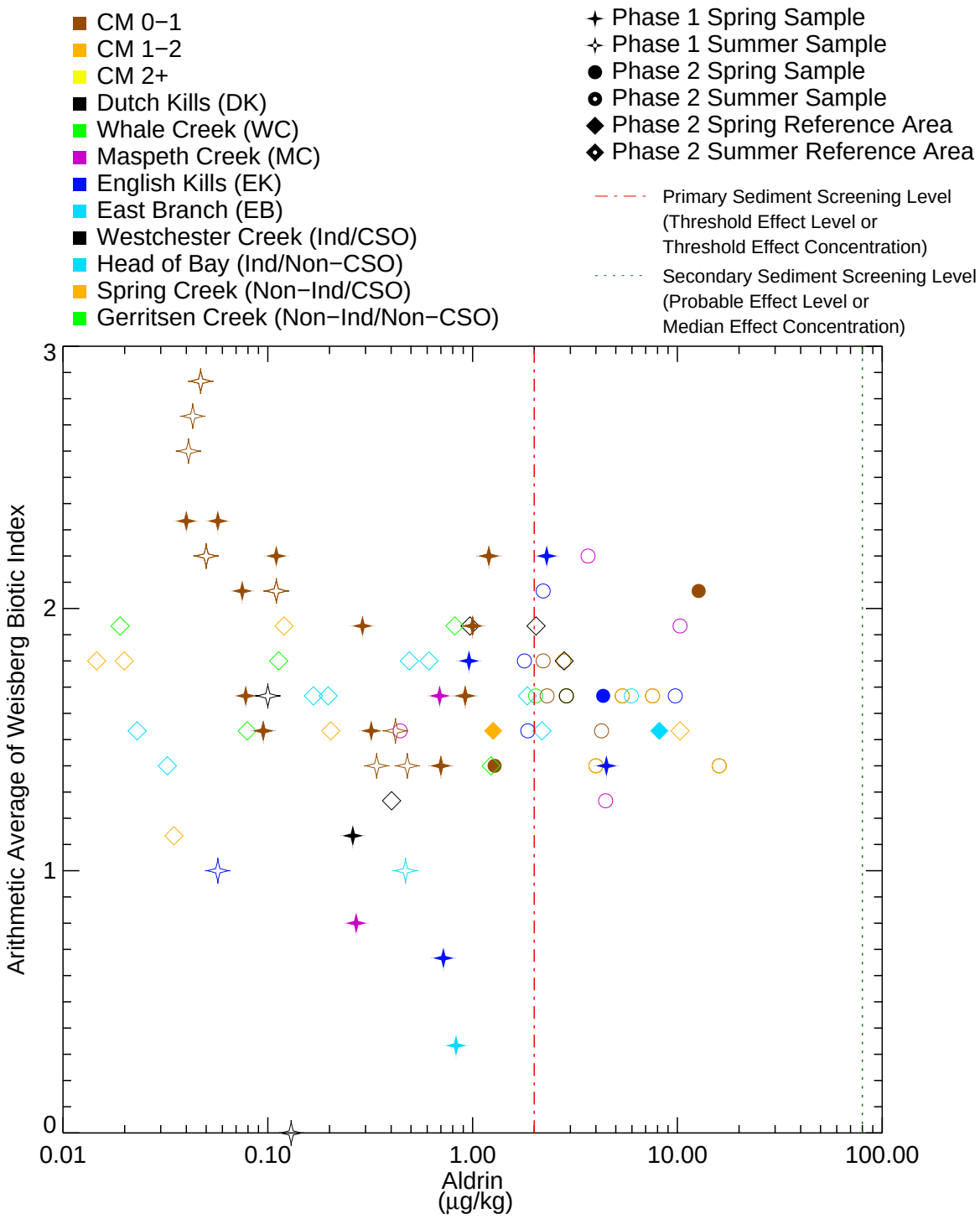

Figure C3−36

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Aldrin

Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

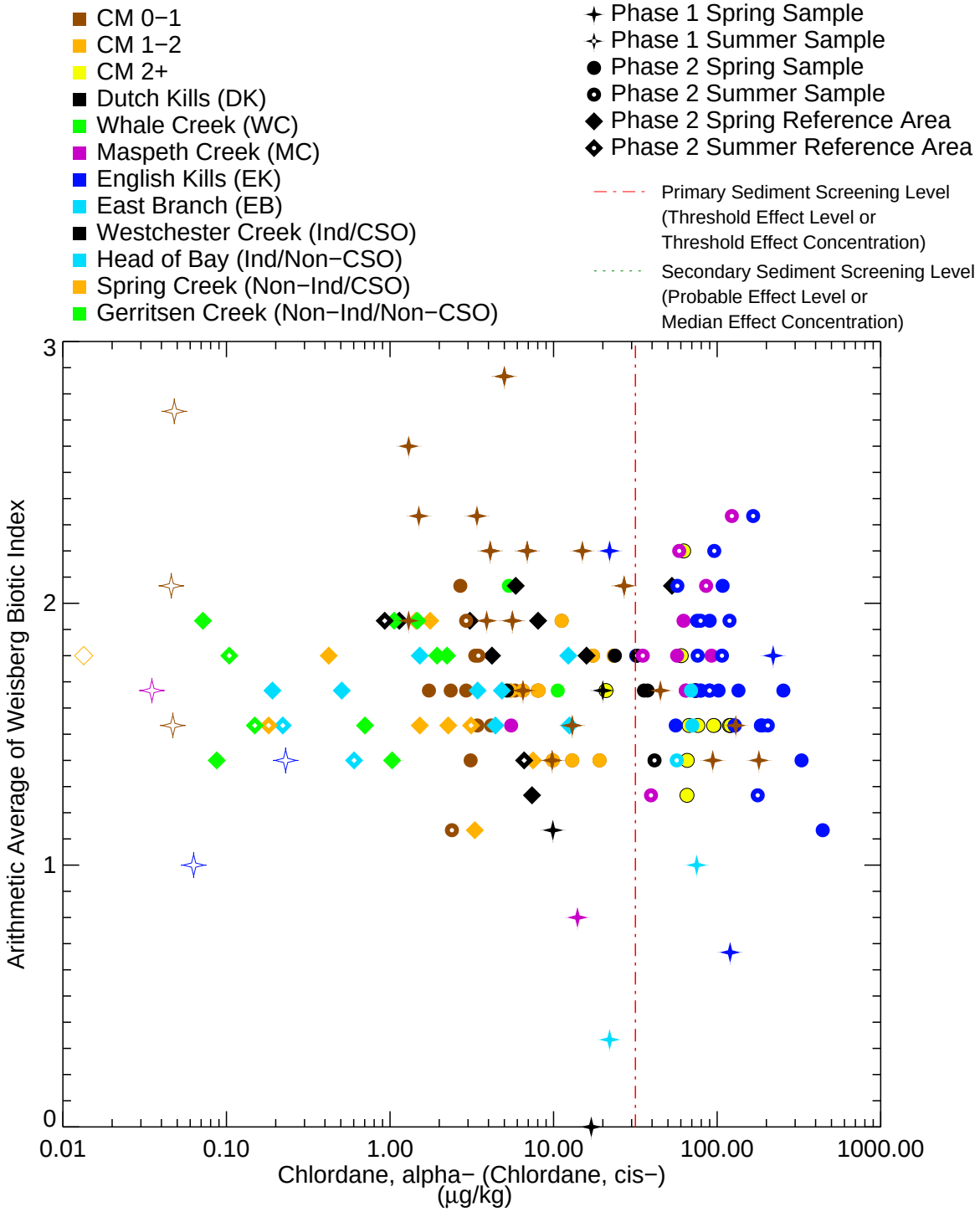

Figure C3−37

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Chlordane, Alpha− (Chlordane, Cis−)
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

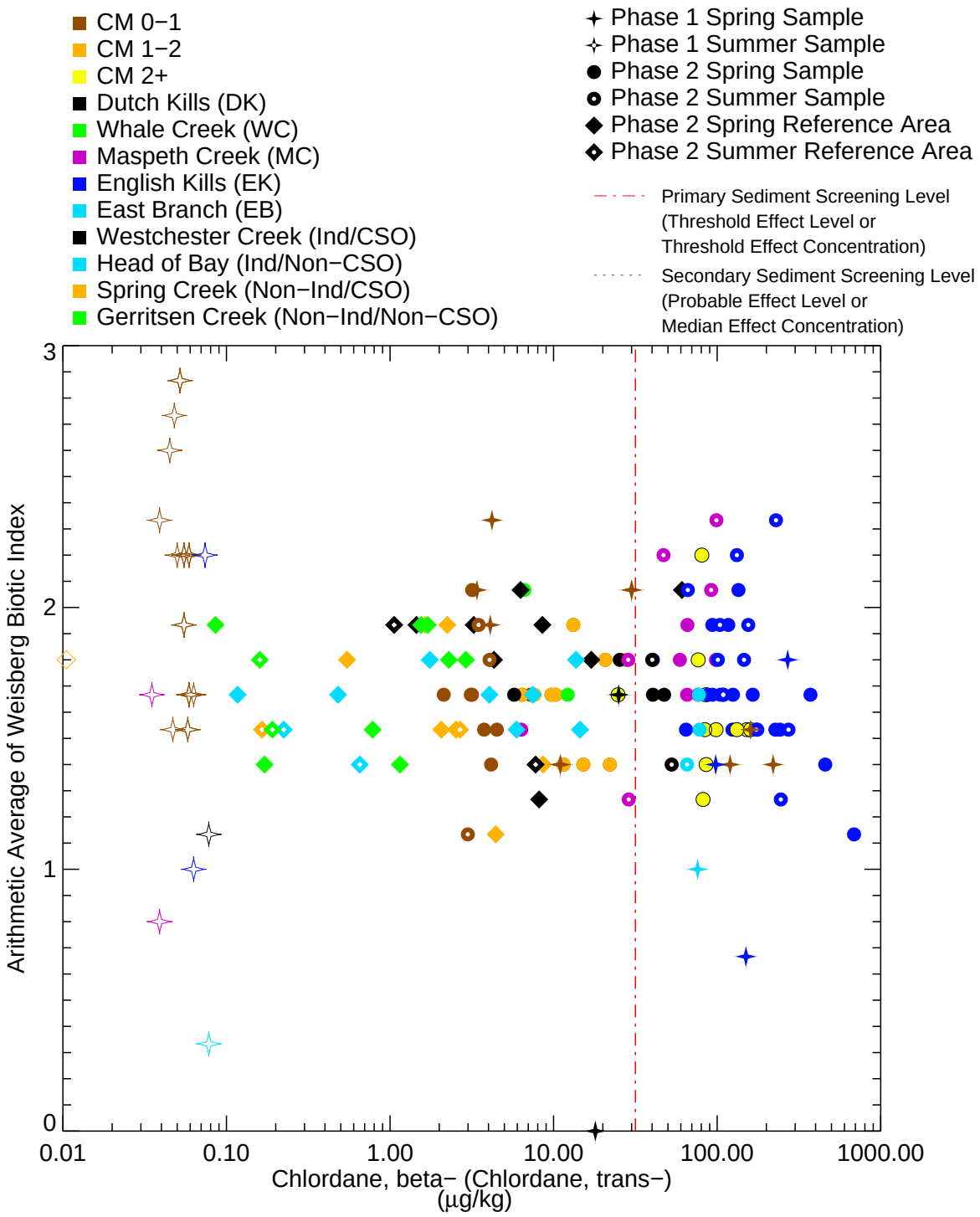

Figure C3−38

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Chlordane, Beta− (Chlordane, Trans−)
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

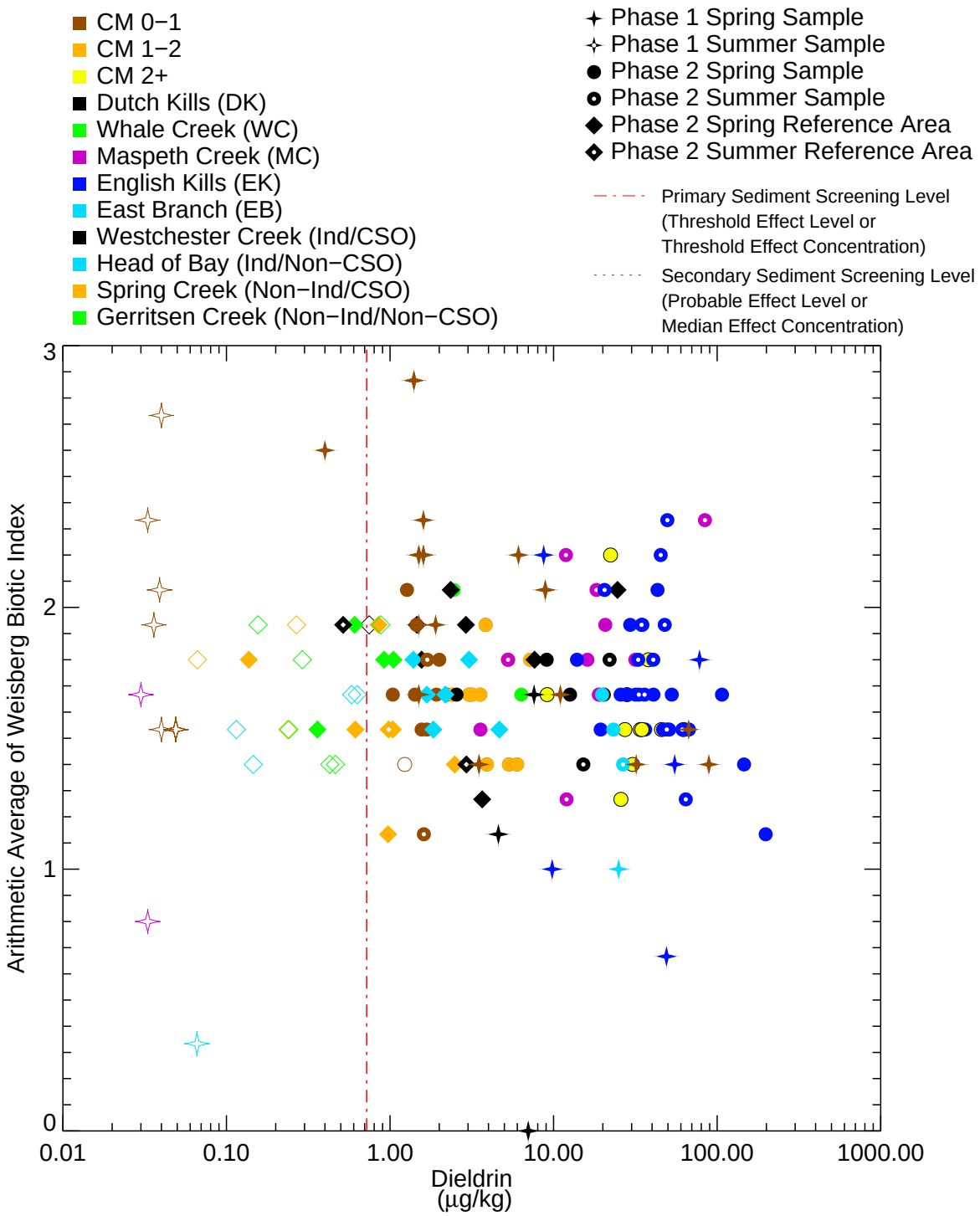

Figure C3−39

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Dieldrin
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

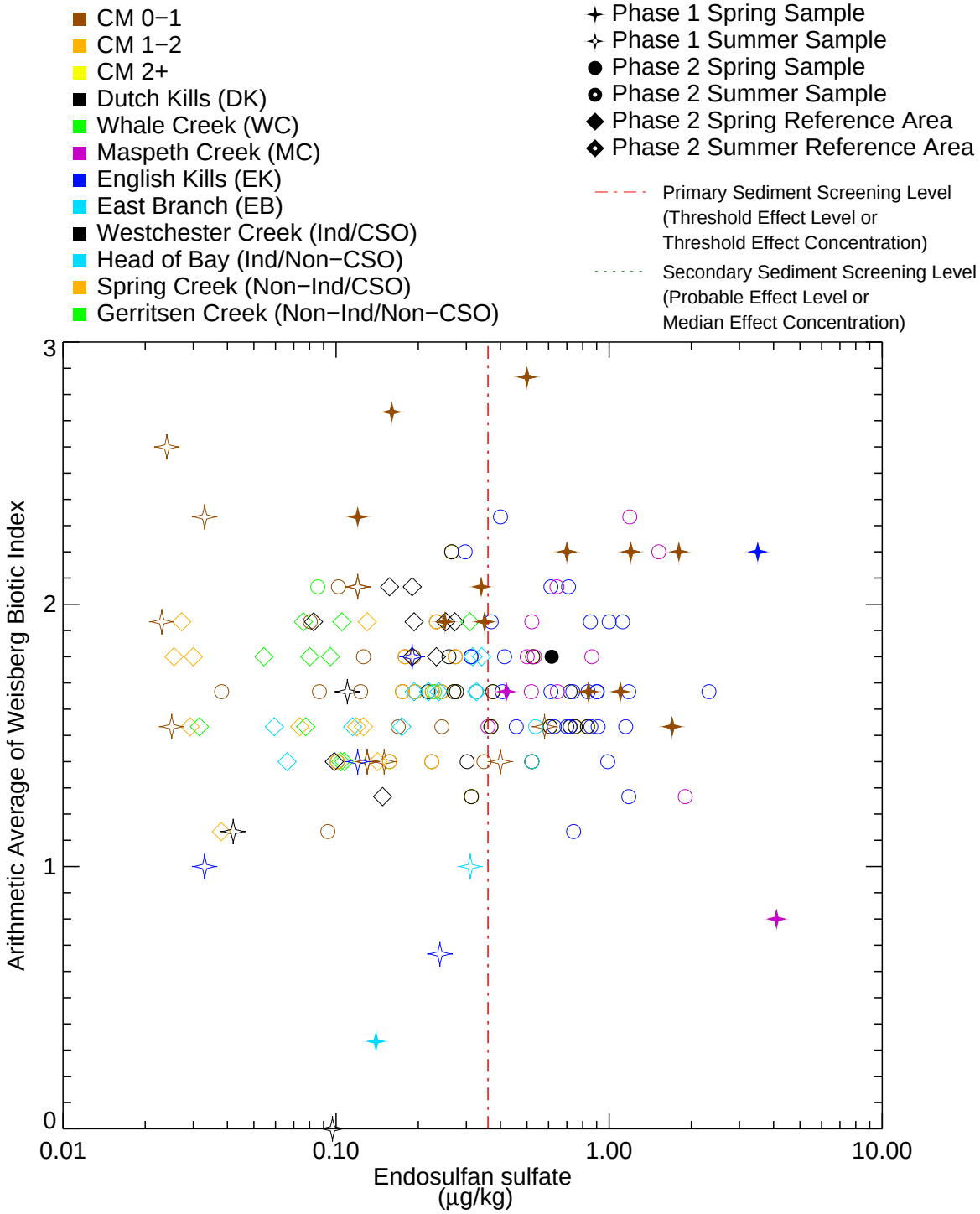

Figure C3−40

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Endosulfan Sulfate
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

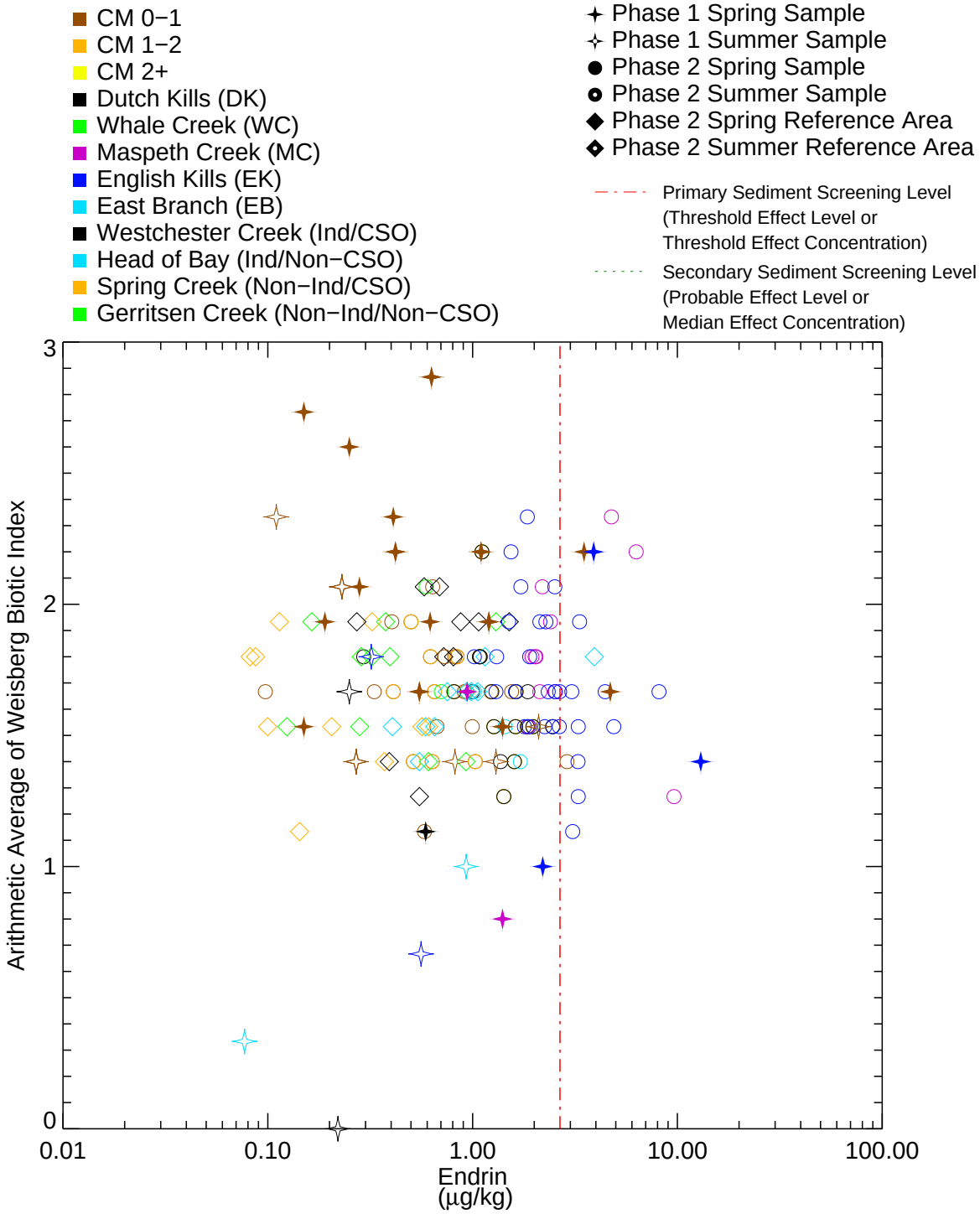

Figure C3−41

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Endrin

Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

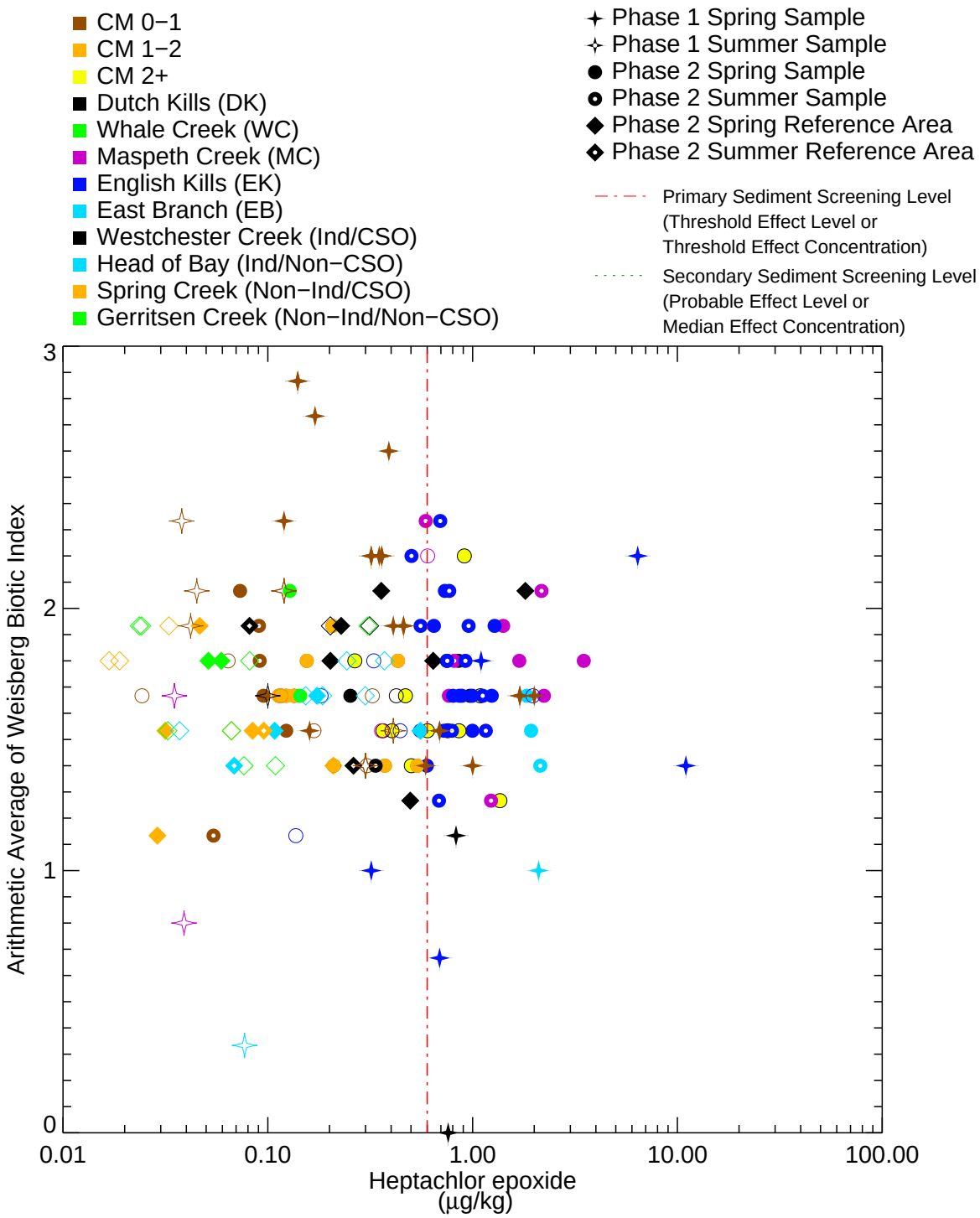

Figure C3−42

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Heptachlor Epoxide
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

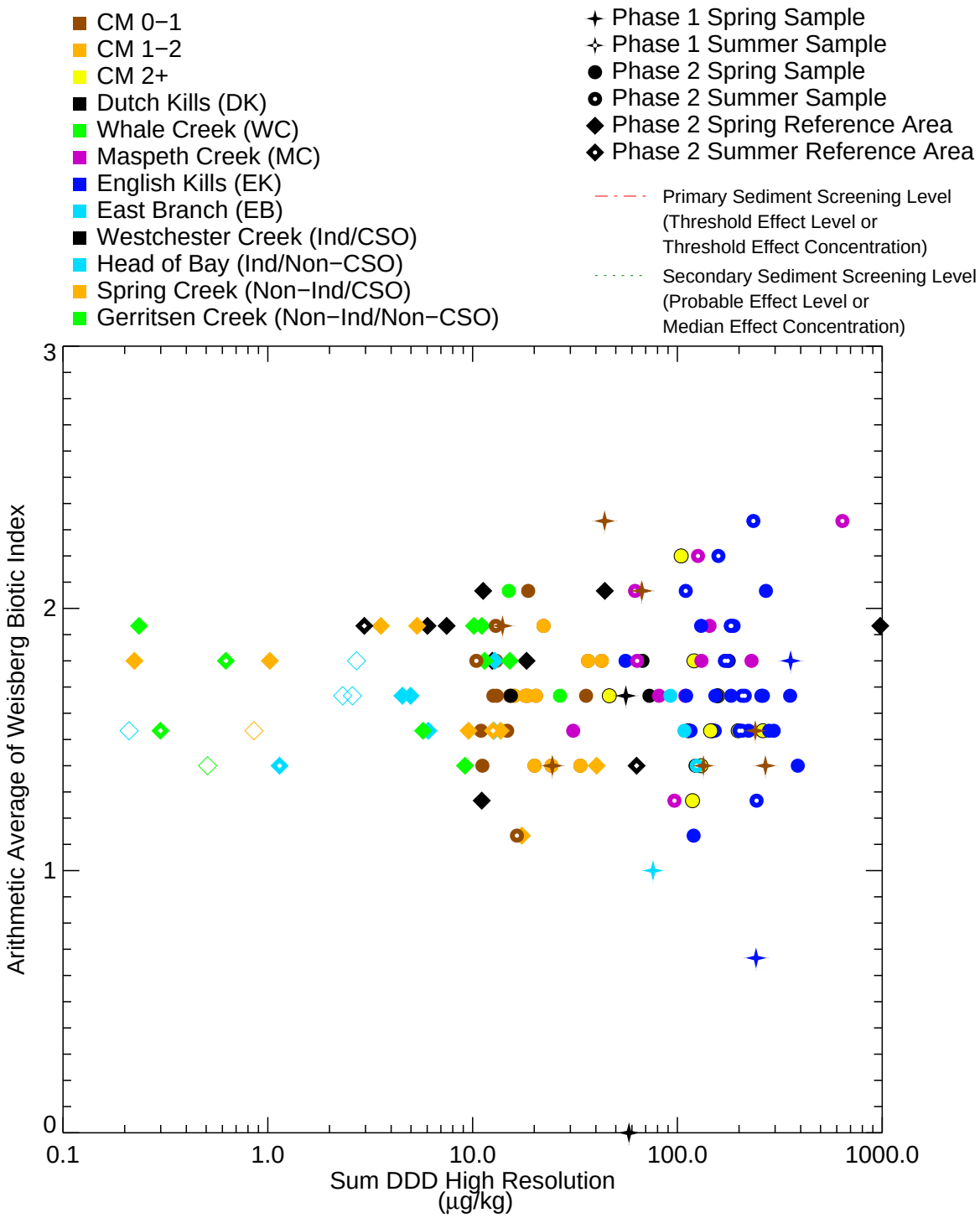

Figure C3−43

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Sum DDD High Resolution
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

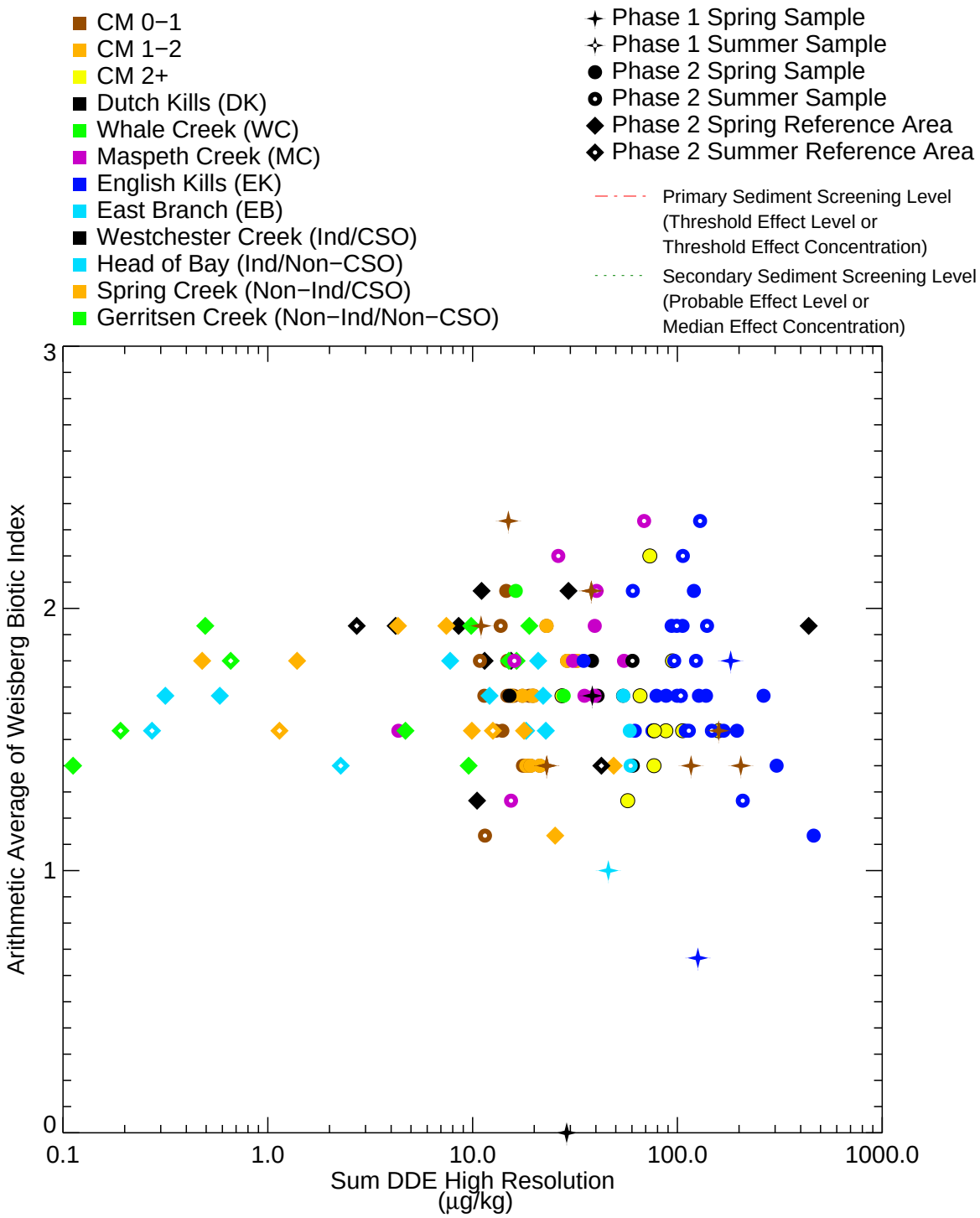

Figure C3−44

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Sum DDE High Resolution
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

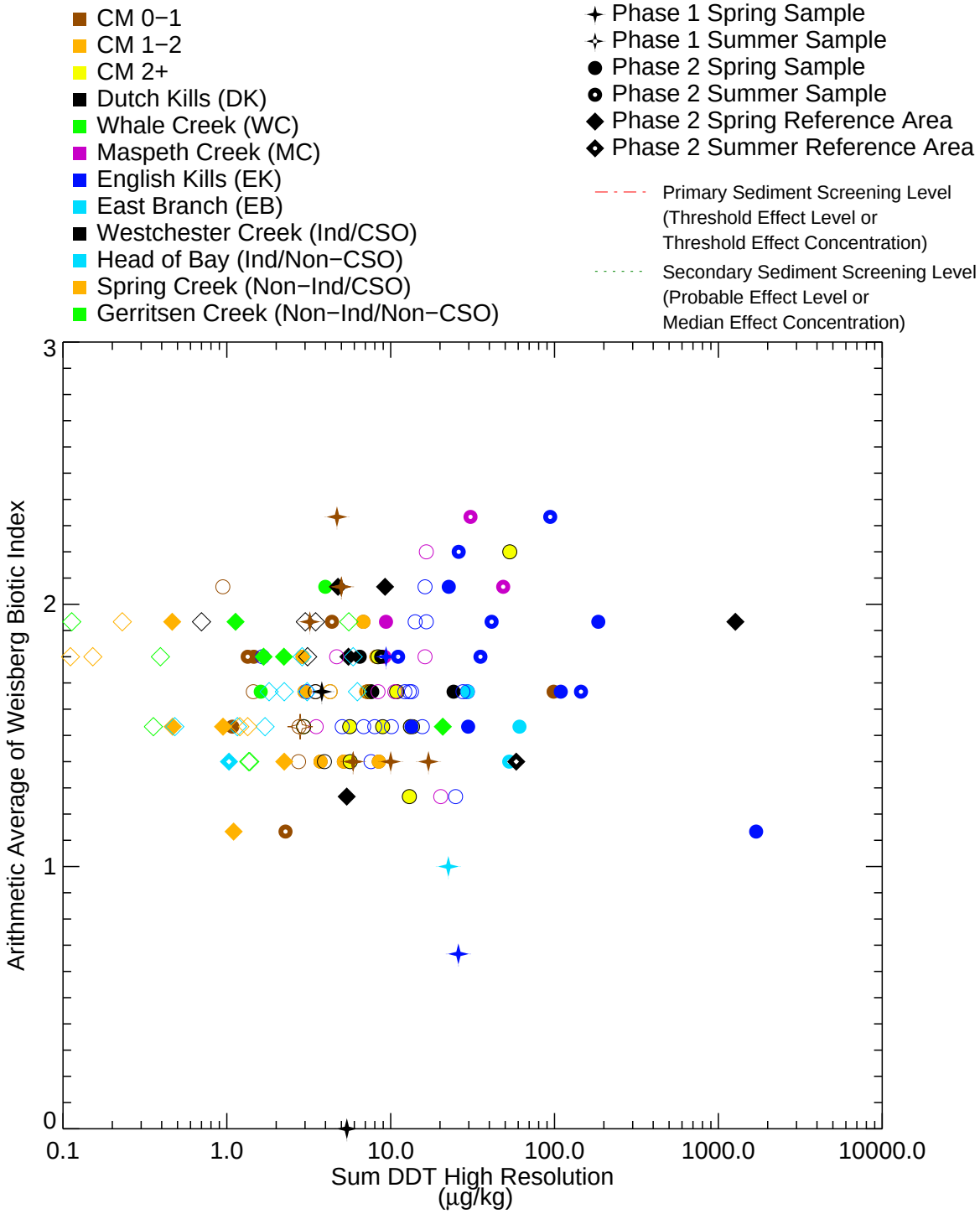

Figure C3−45

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Sum DDT High Resolution
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

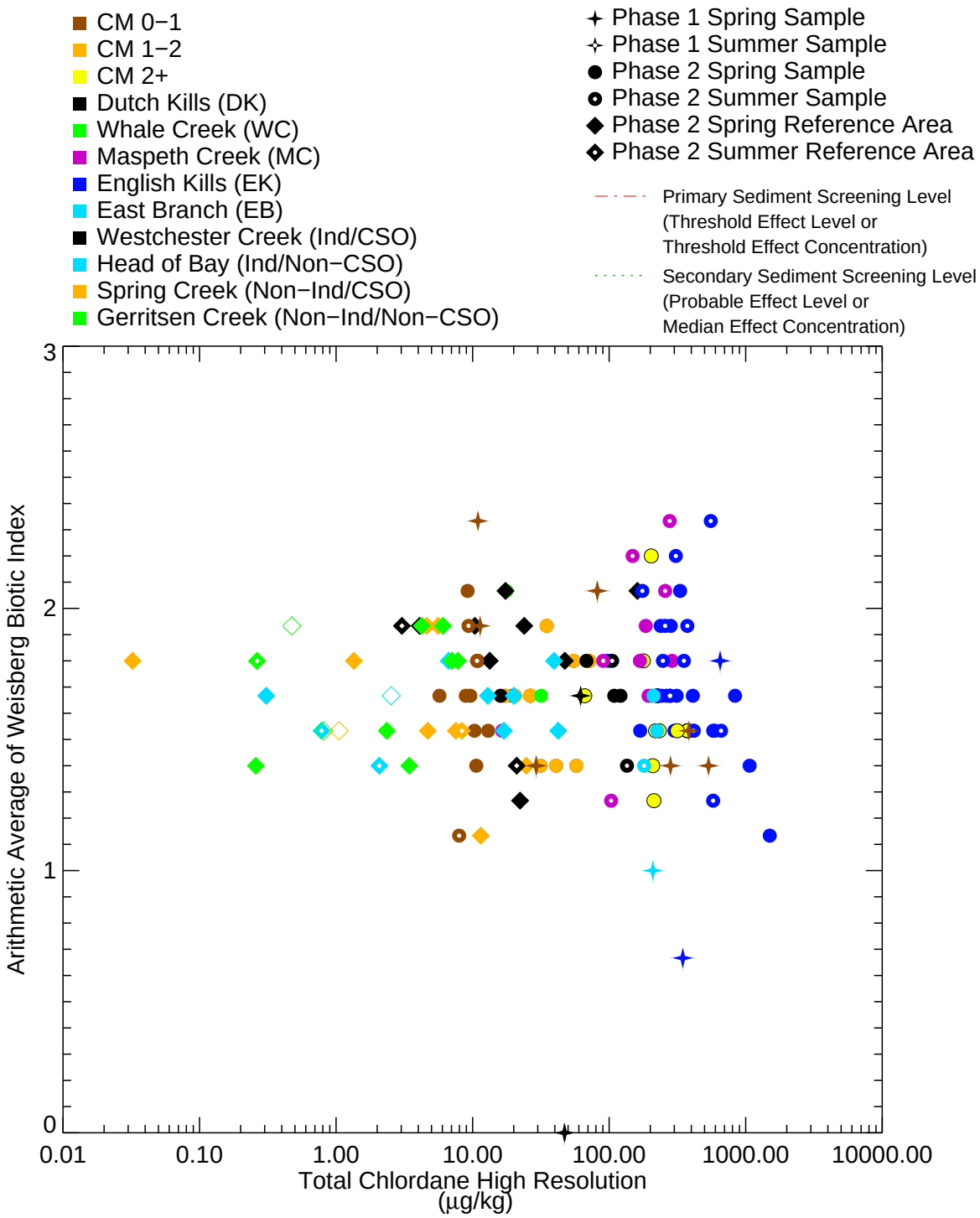

Figure C3−46

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Total Chlordane High Resolution
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

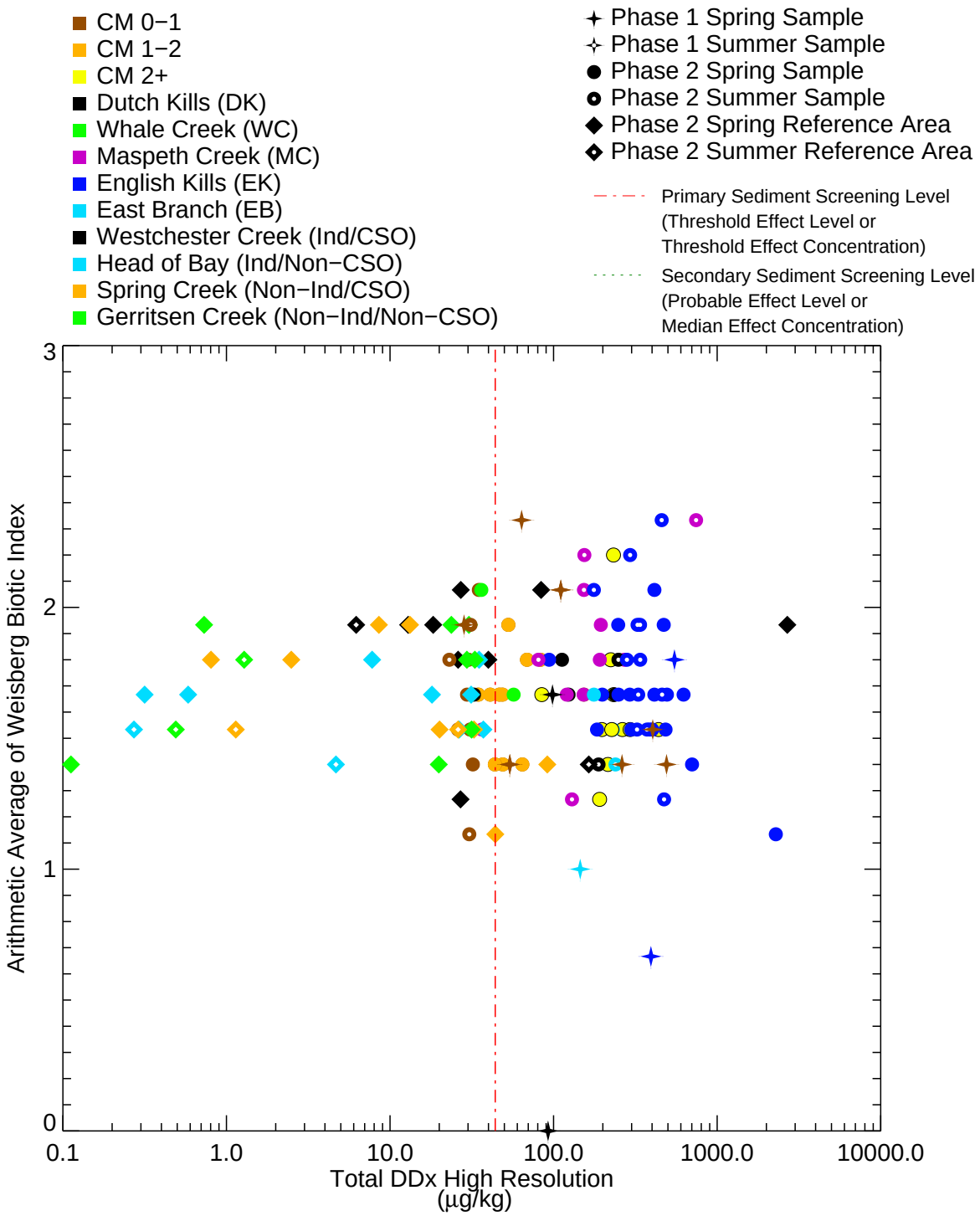

Figure C3−47

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Total DDx High Resolution
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

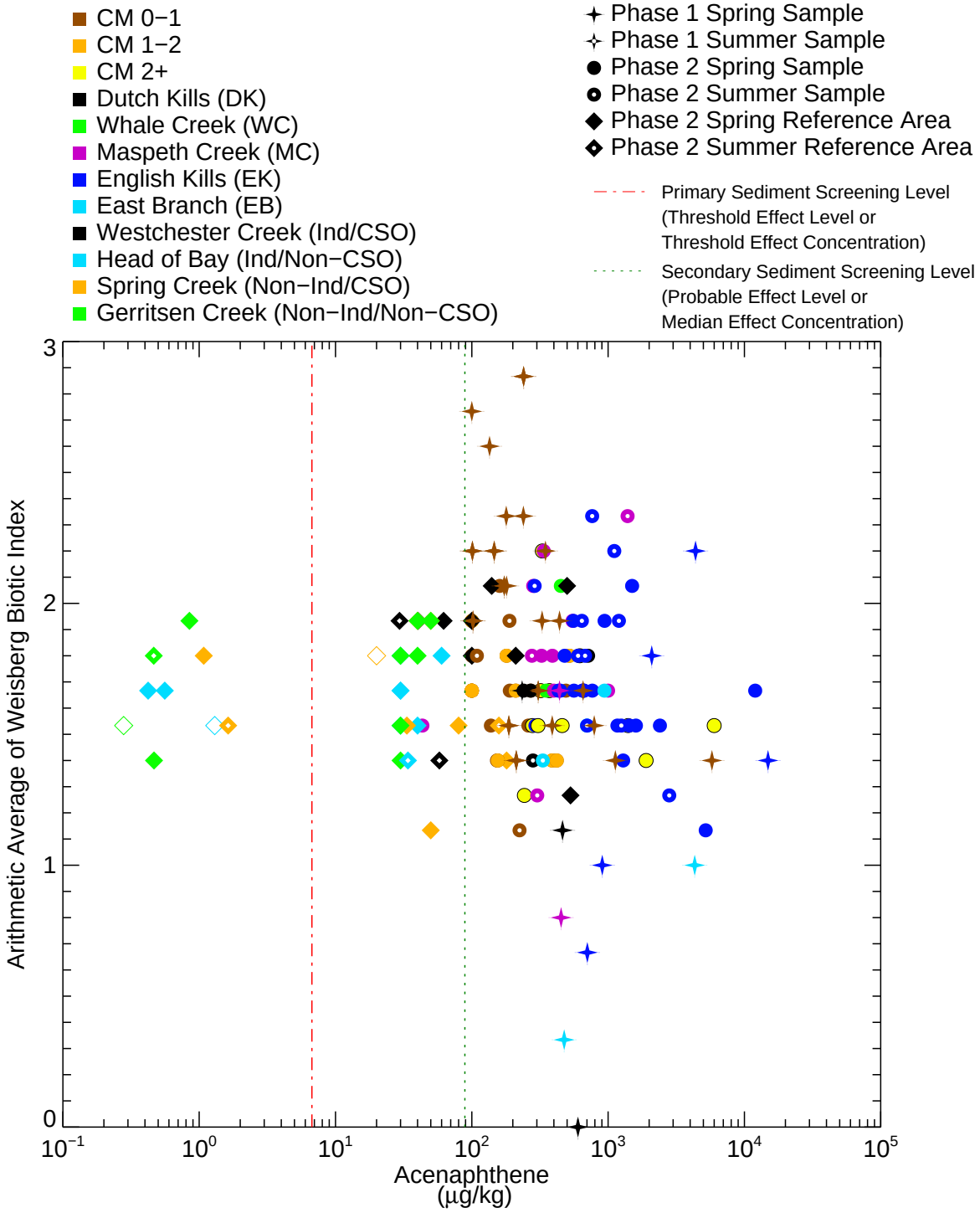

Figure C3−48

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Acenaphthene
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

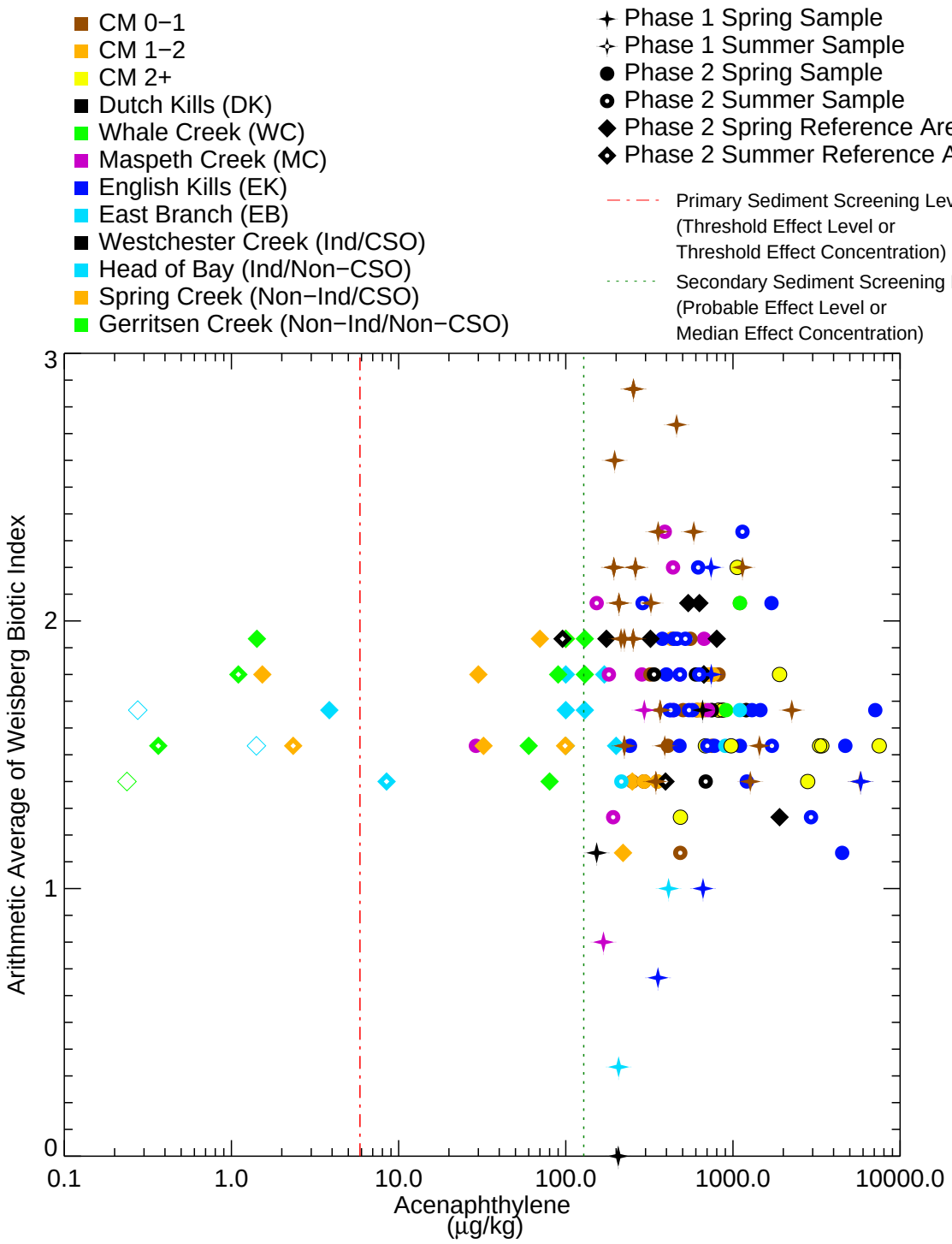

Figure C3−49

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Acenaphthylene
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

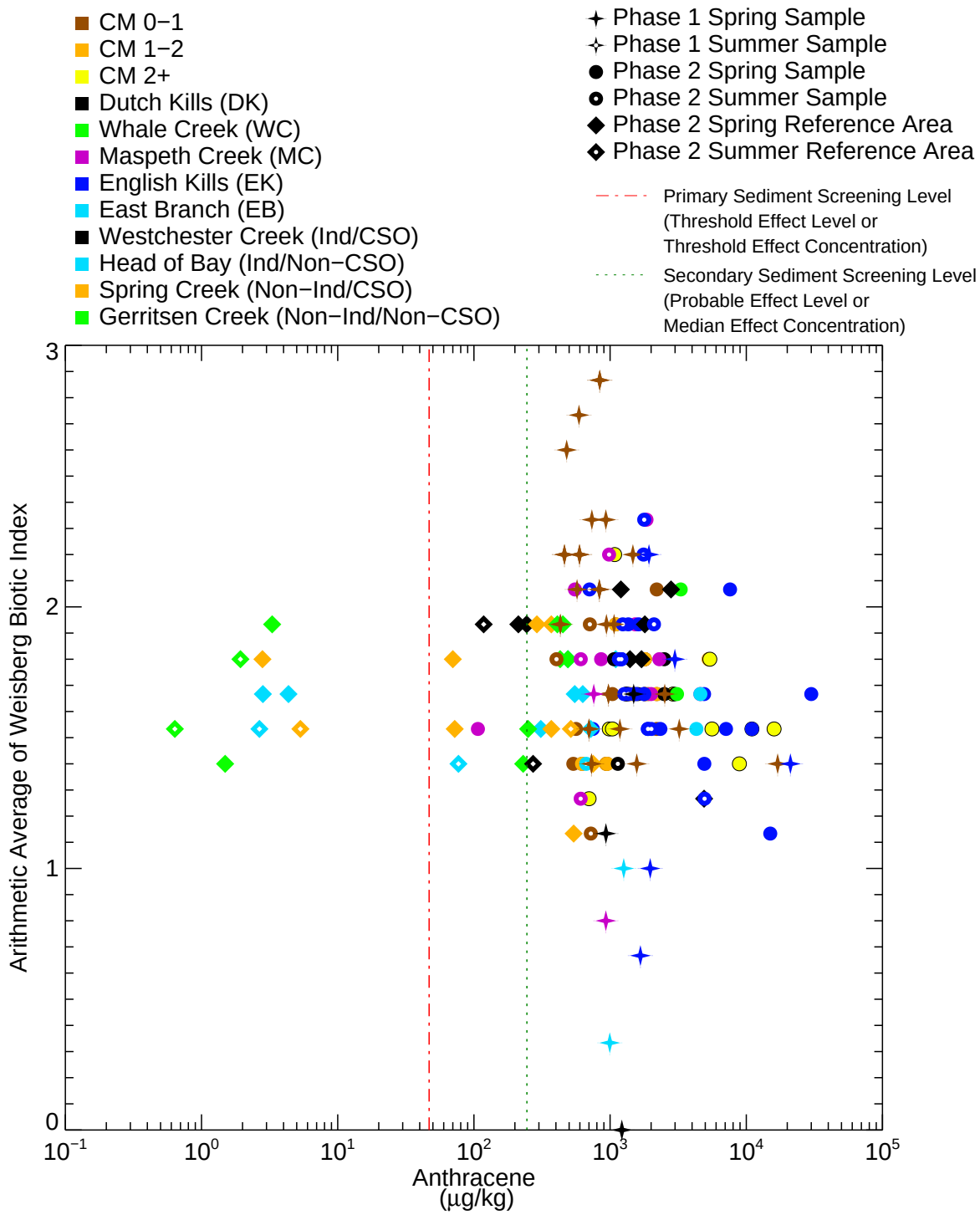

Figure C3−50

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Anthracene
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

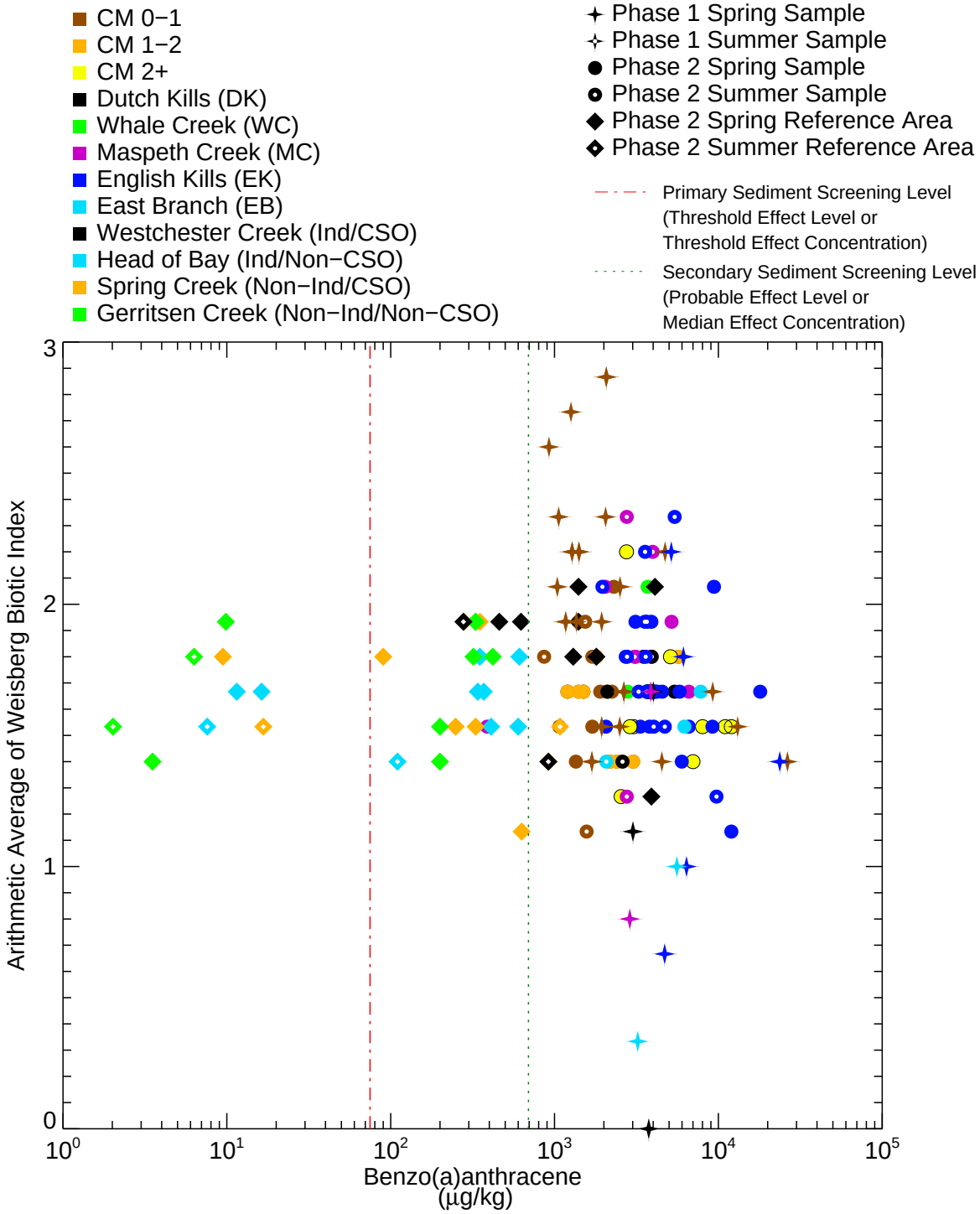

Figure C3−51

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Benzo(a)anthracene
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

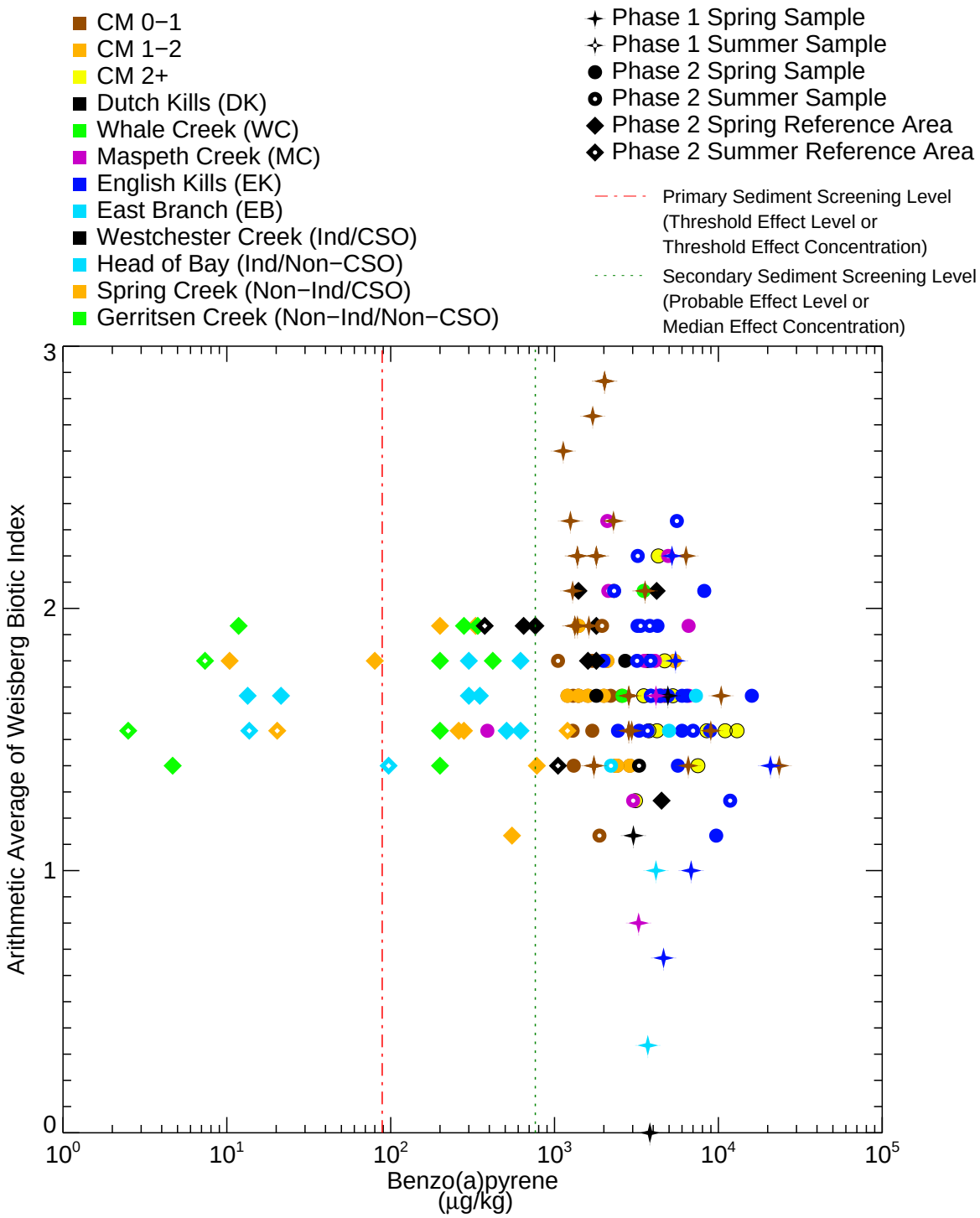

Figure C3−52

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Benzo(a)pyrene
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

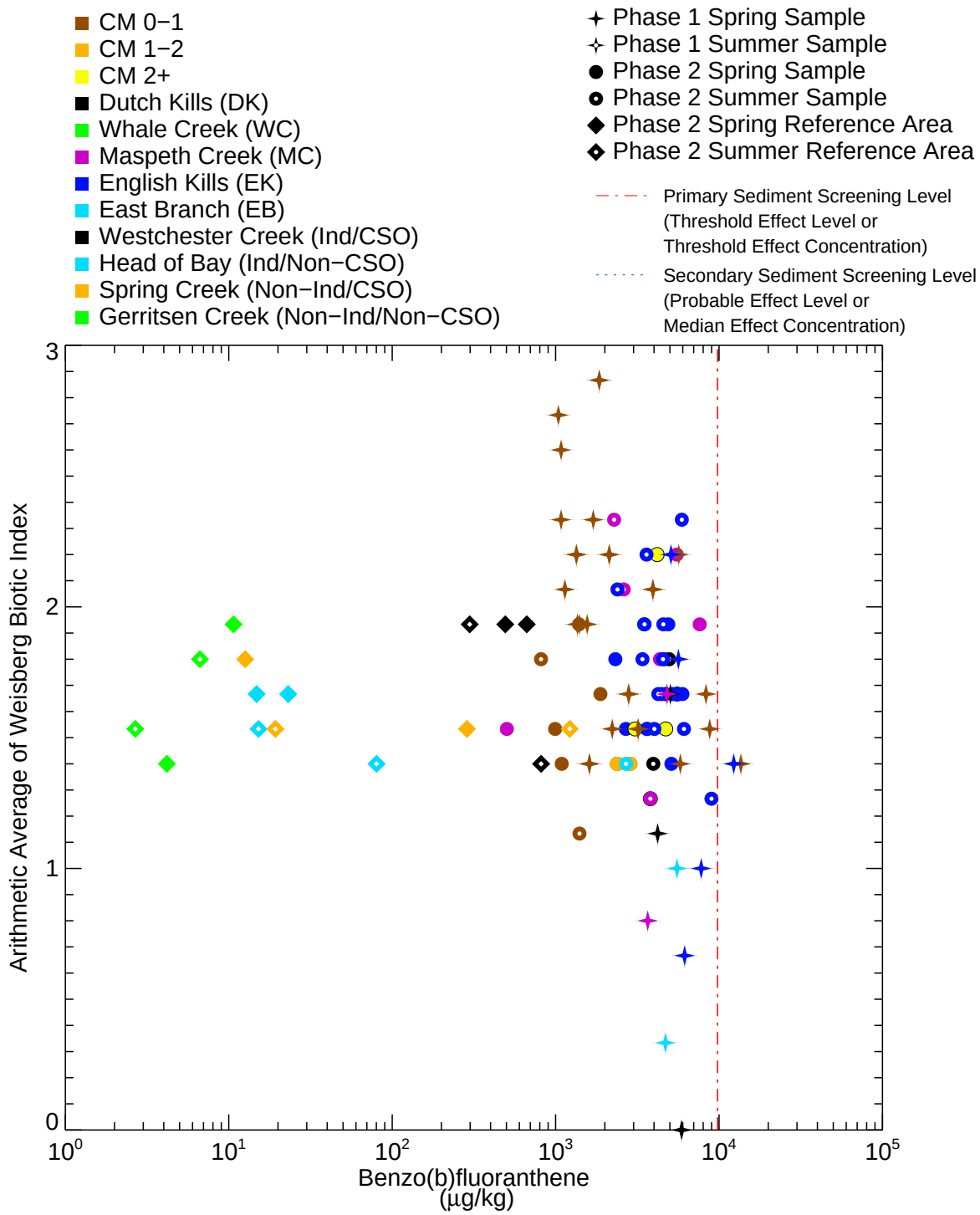

Figure C3−53

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Benzo(b)fluoranthene
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

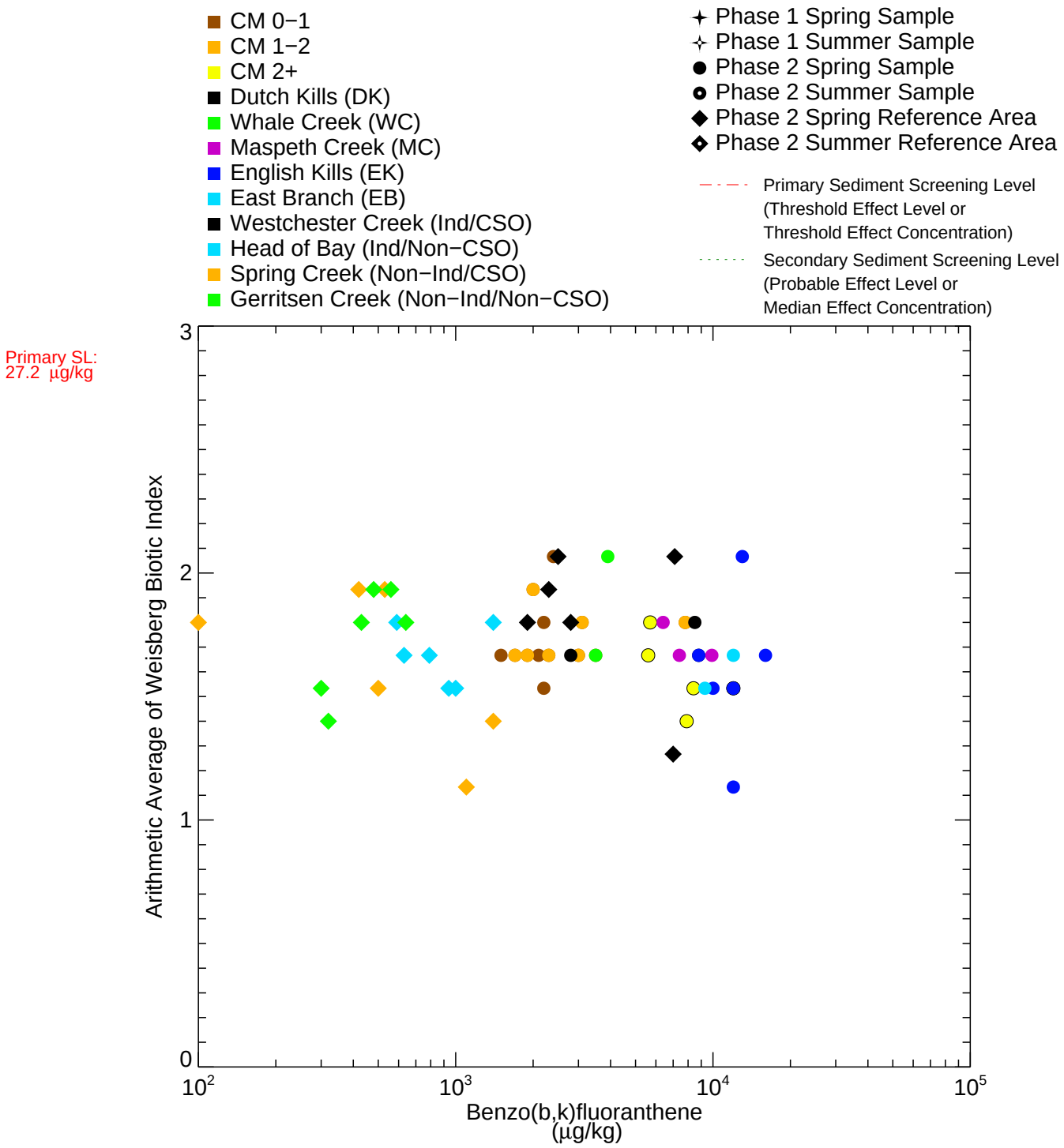

Figure C3−54

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Benzo(b,k)fluoranthene
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

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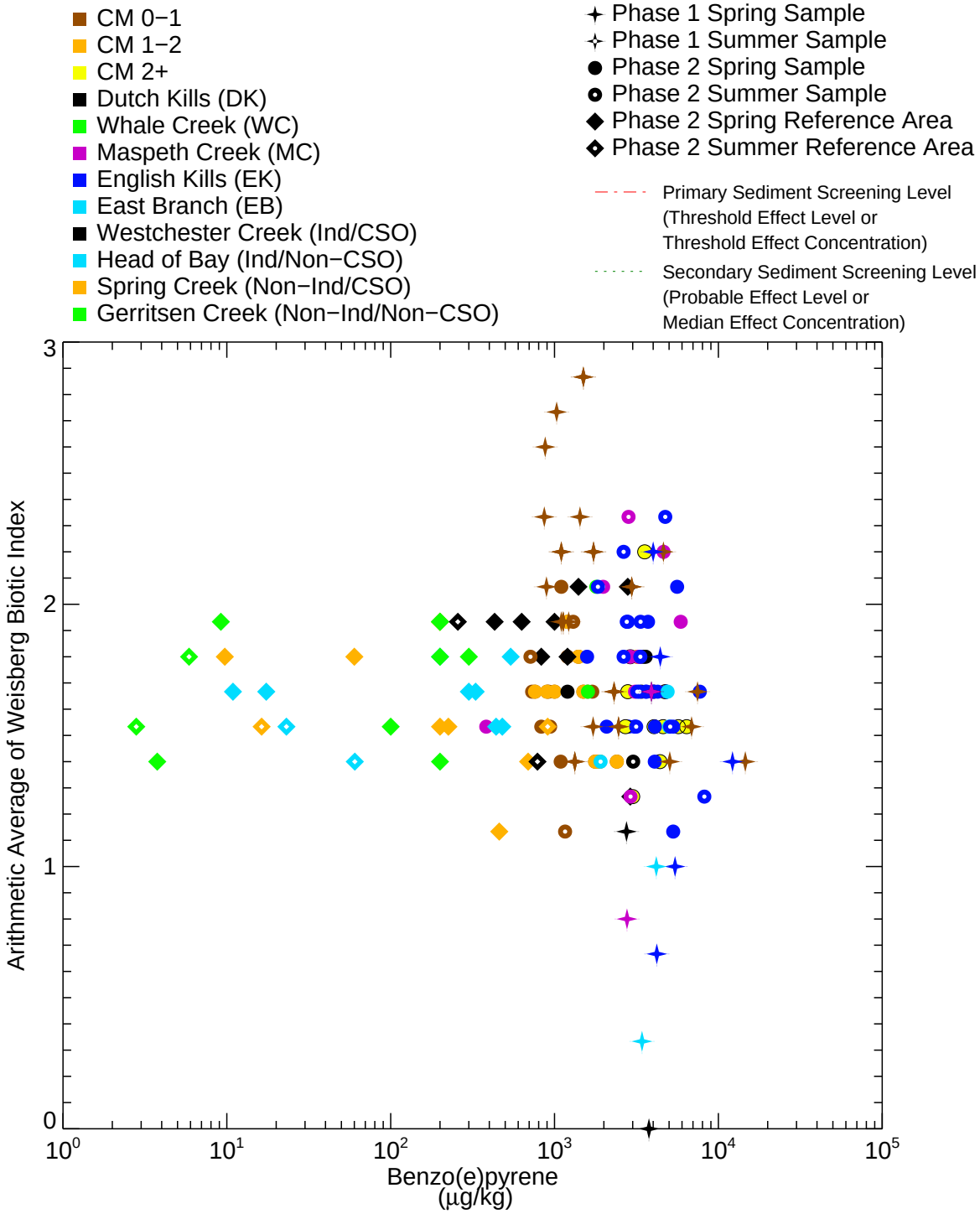

Figure C3−55

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Benzo(e)pyrene
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

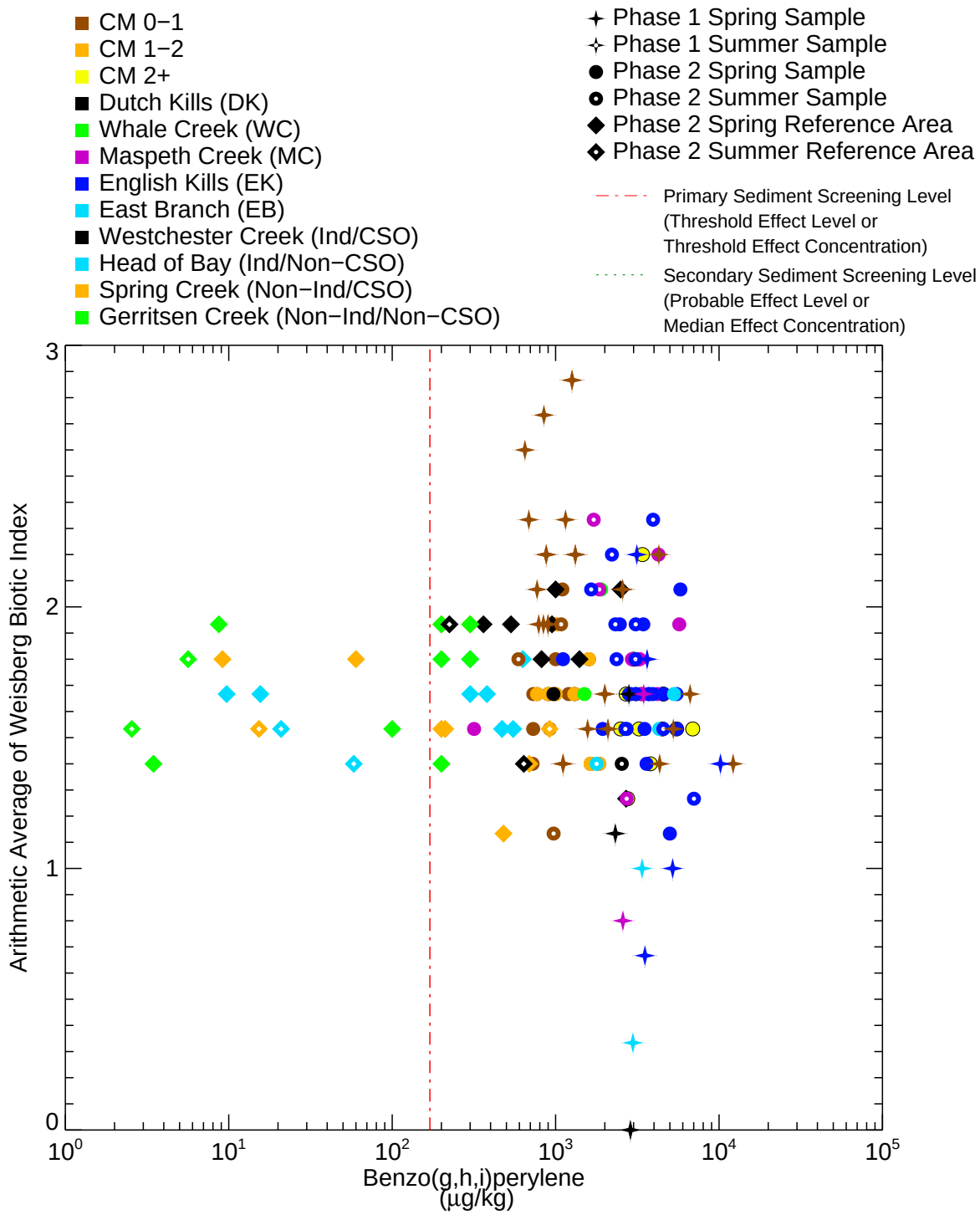

Figure C3−56

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Benzo(g,h,i)perylene
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

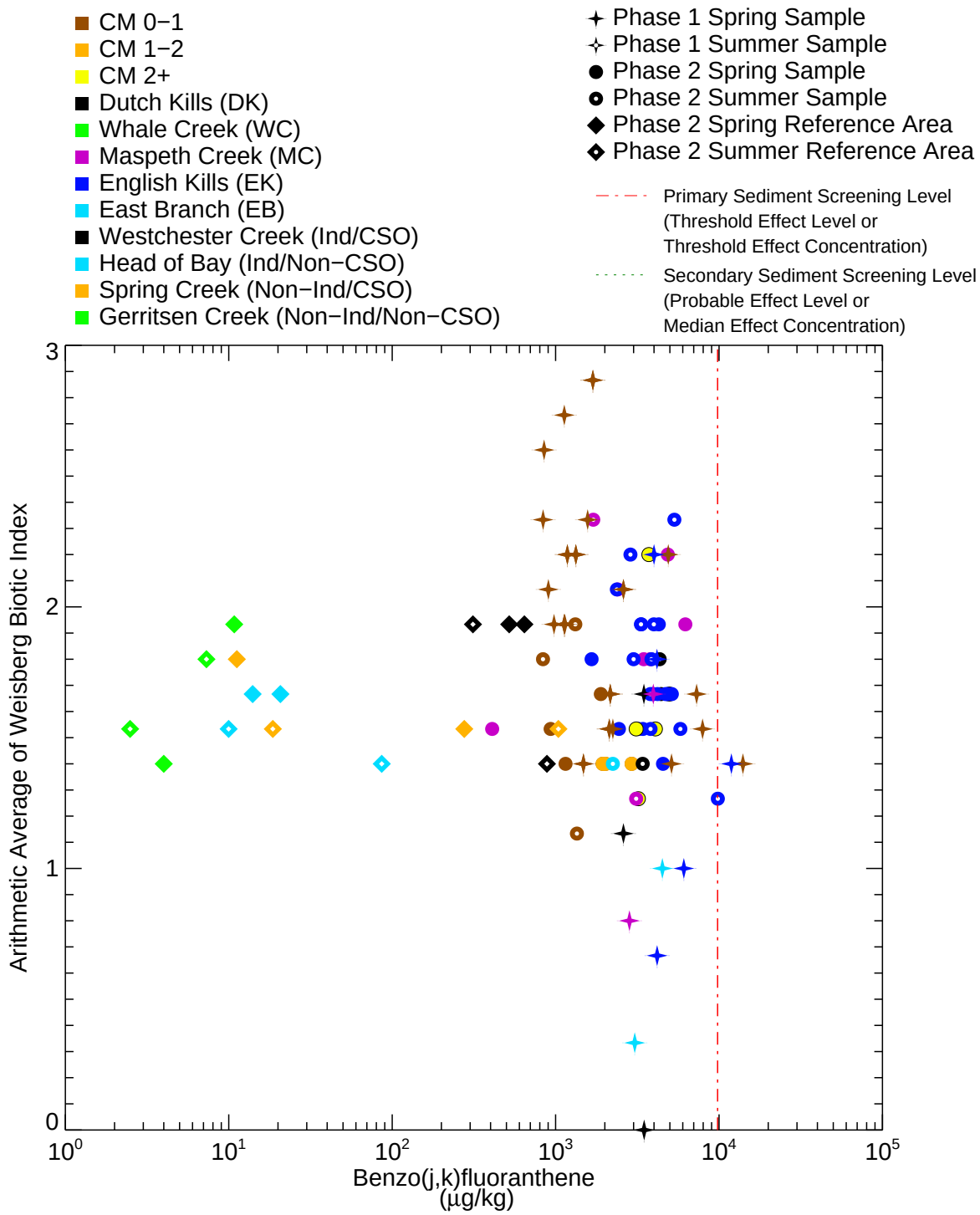

Figure C3−57

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Benzo(j,k)fluoranthene
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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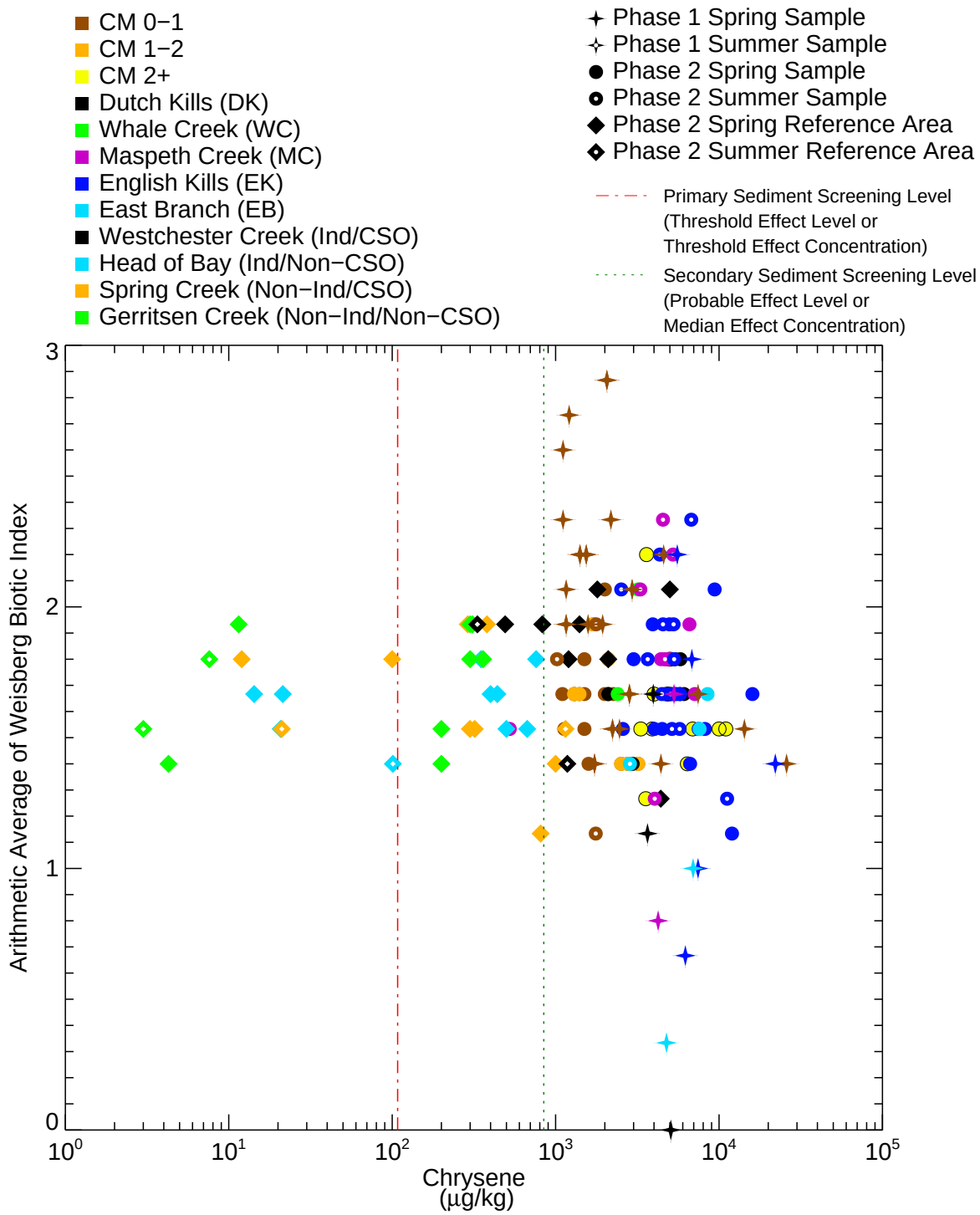

Figure C3−58

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Chrysene
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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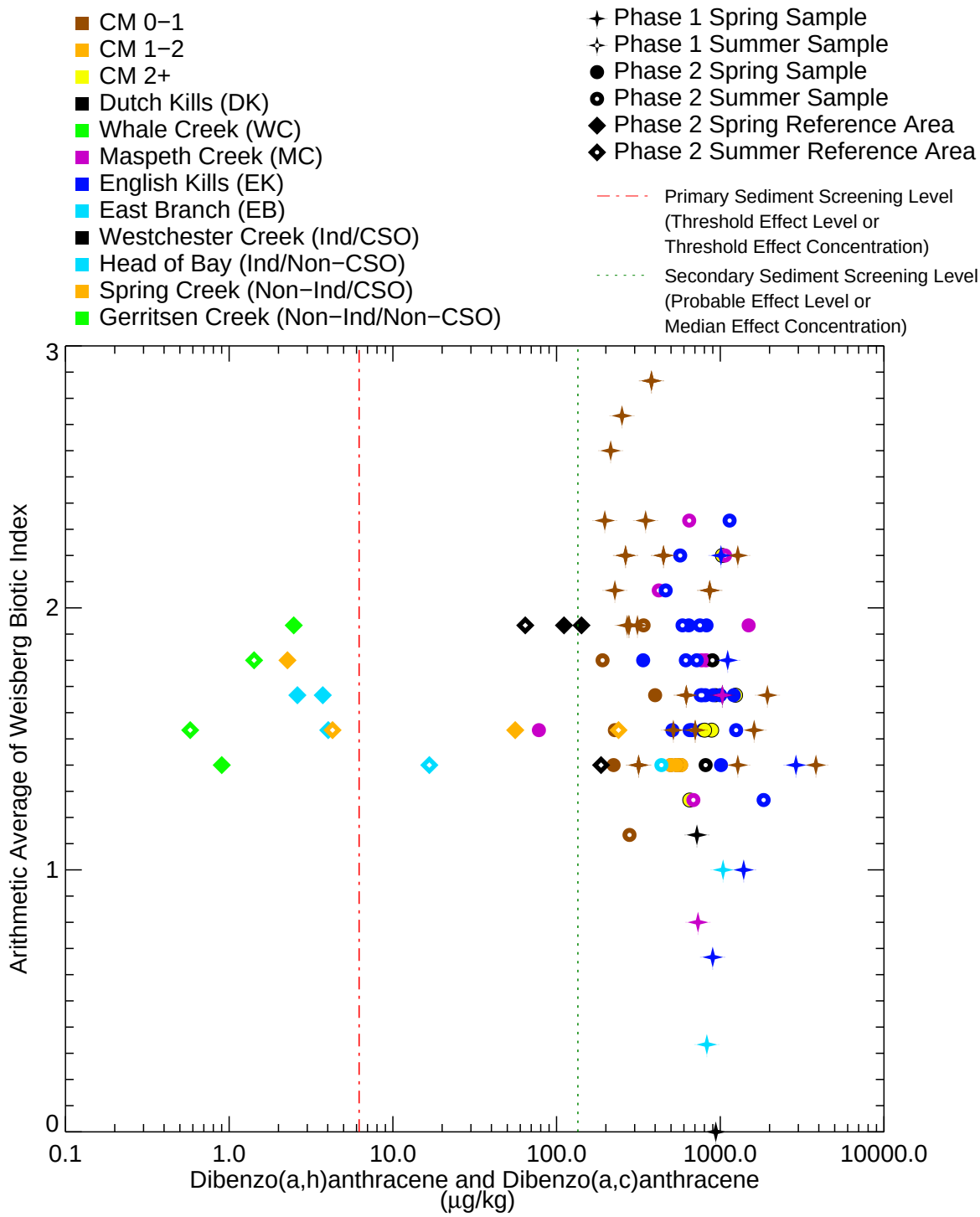

Figure C3−59

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Dibenzo(a,h)anthracene and Dibenzo(a,c)anthracene
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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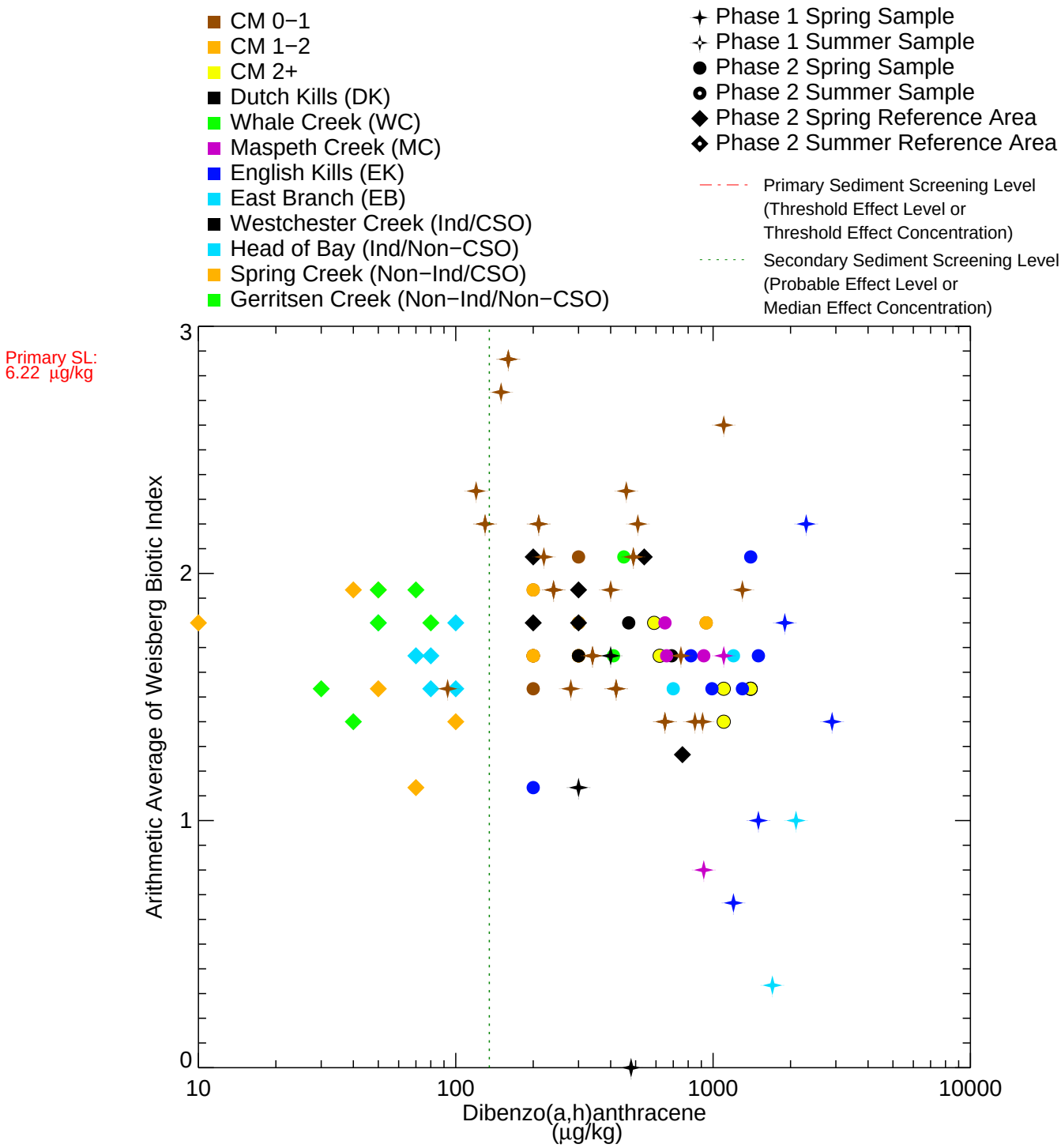

Figure C3−60

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Dibenzo(a,h)anthracene
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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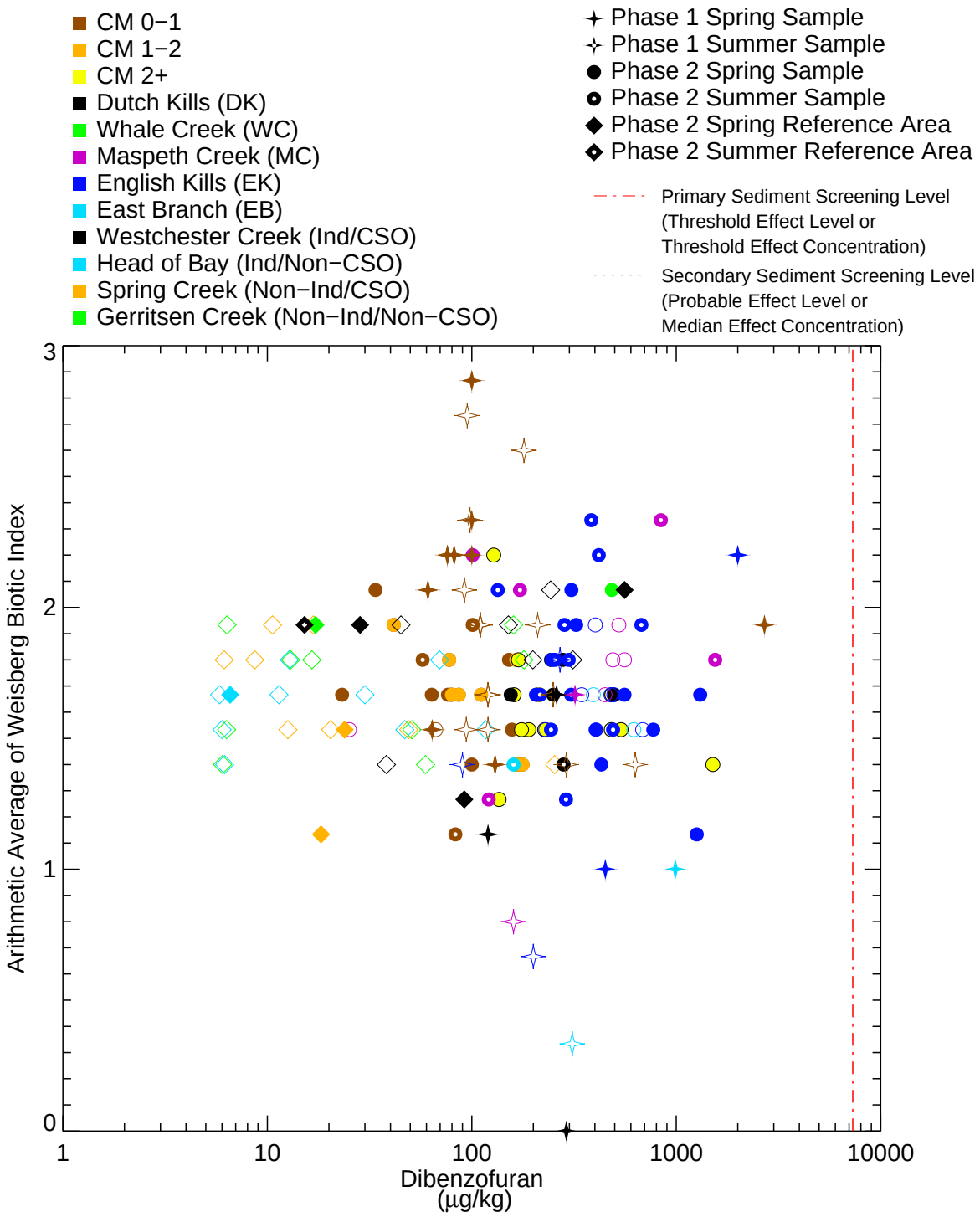

Figure C3−61

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Dibenzofuran
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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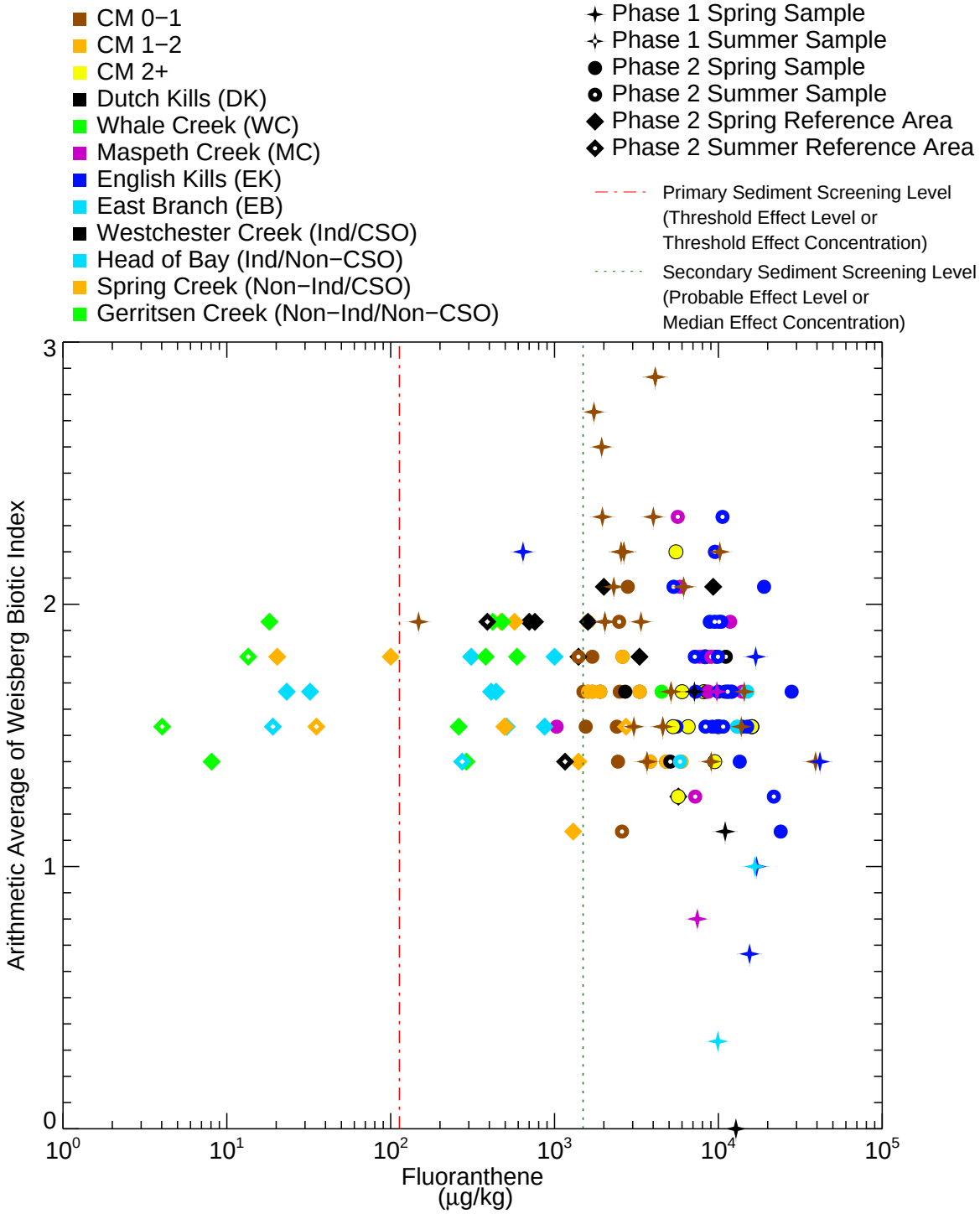

Figure C3−62

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Fluoranthene
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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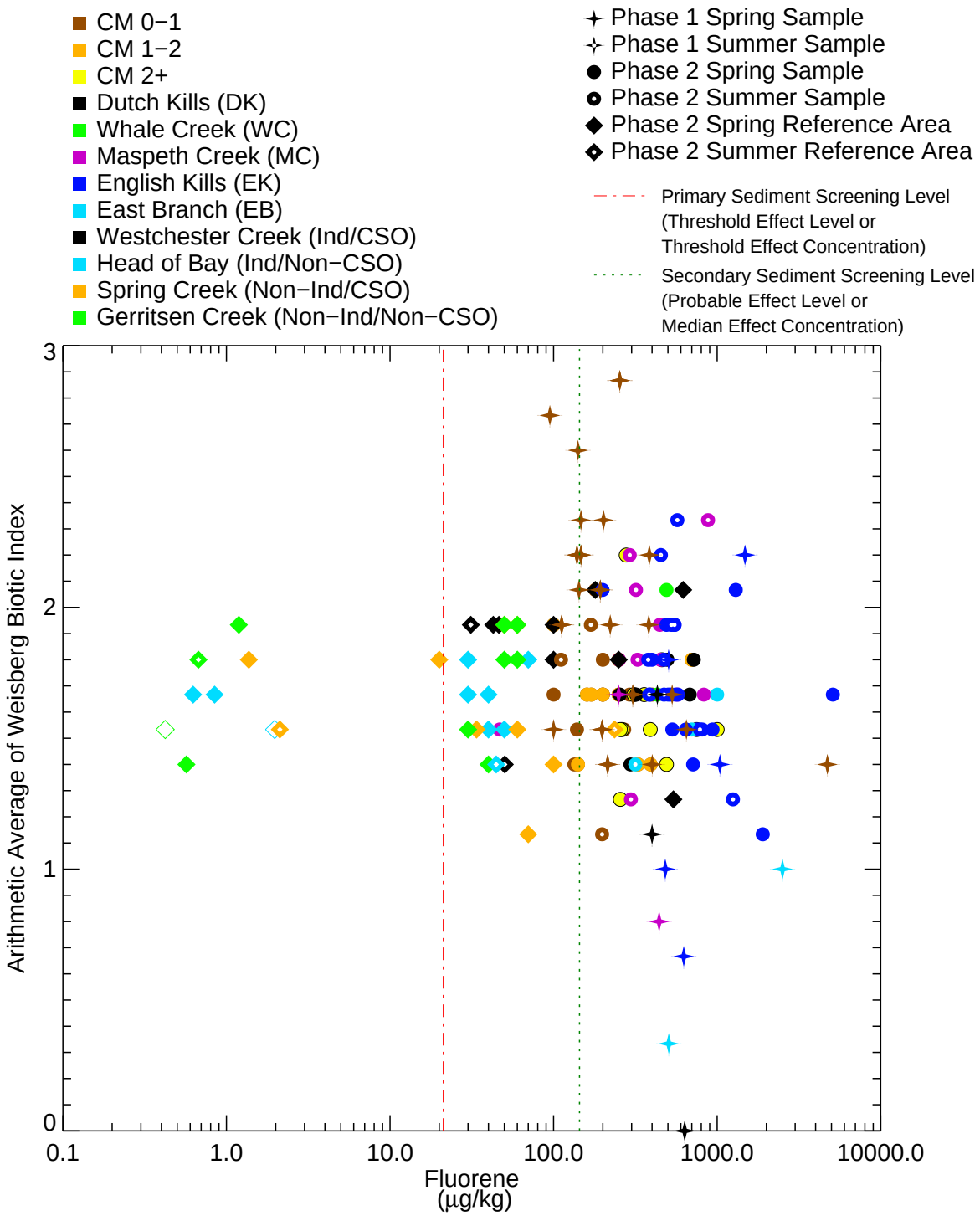

Figure C3−63

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Fluorene
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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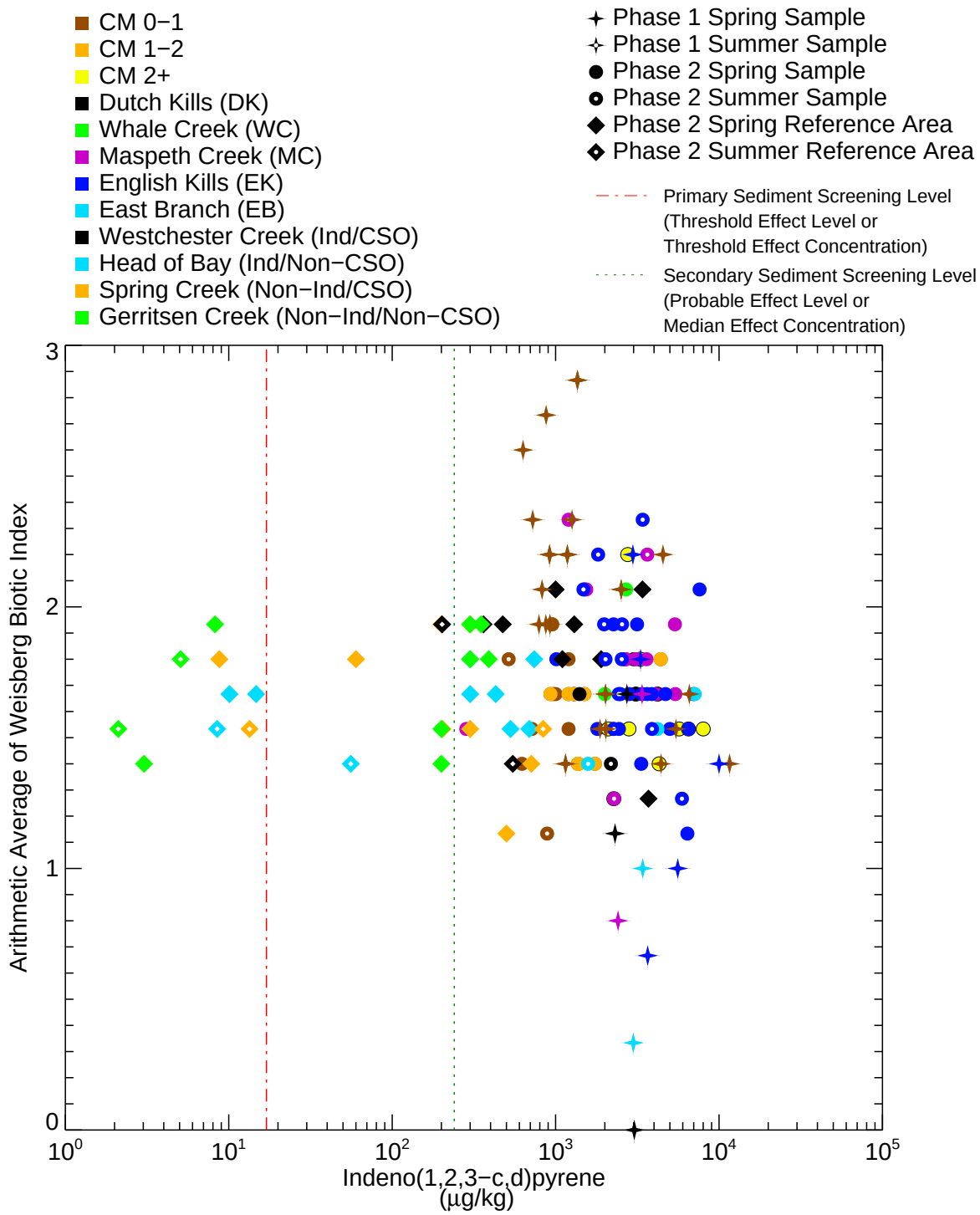

Figure C3−64

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Indeno(1,2,3−c,d)pyrene
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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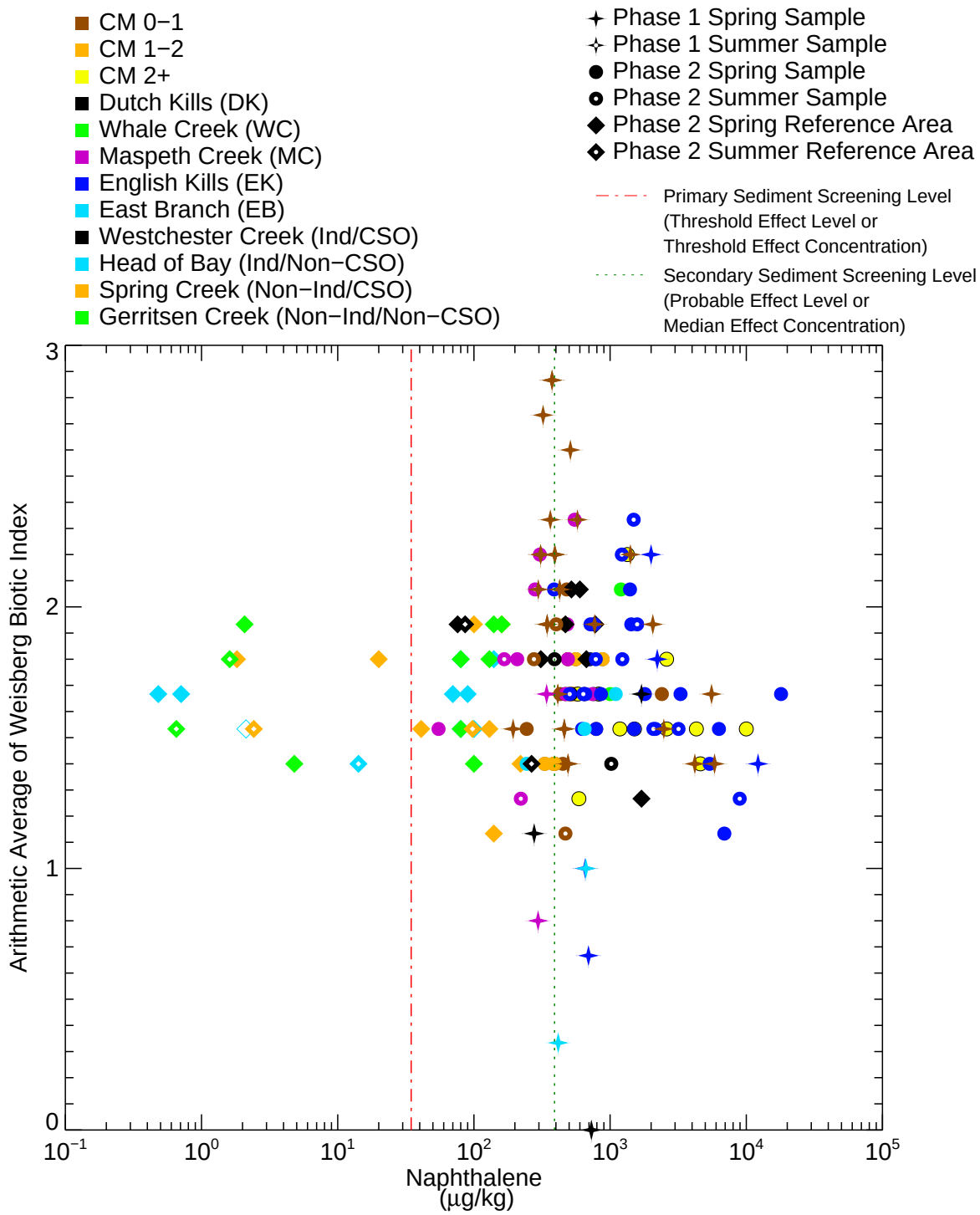

Figure C3−65

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Naphthalene
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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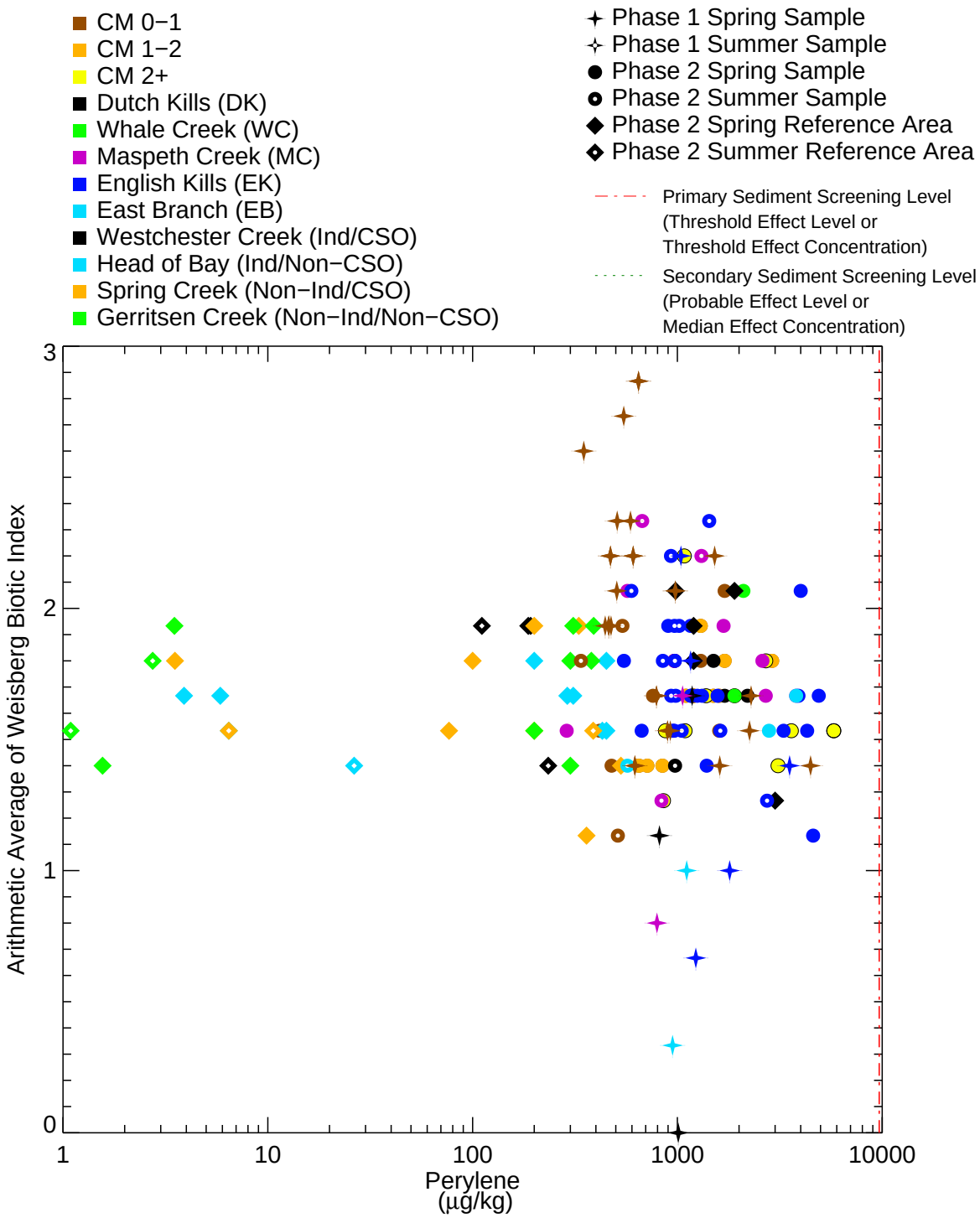

Figure C3−66

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Perylene
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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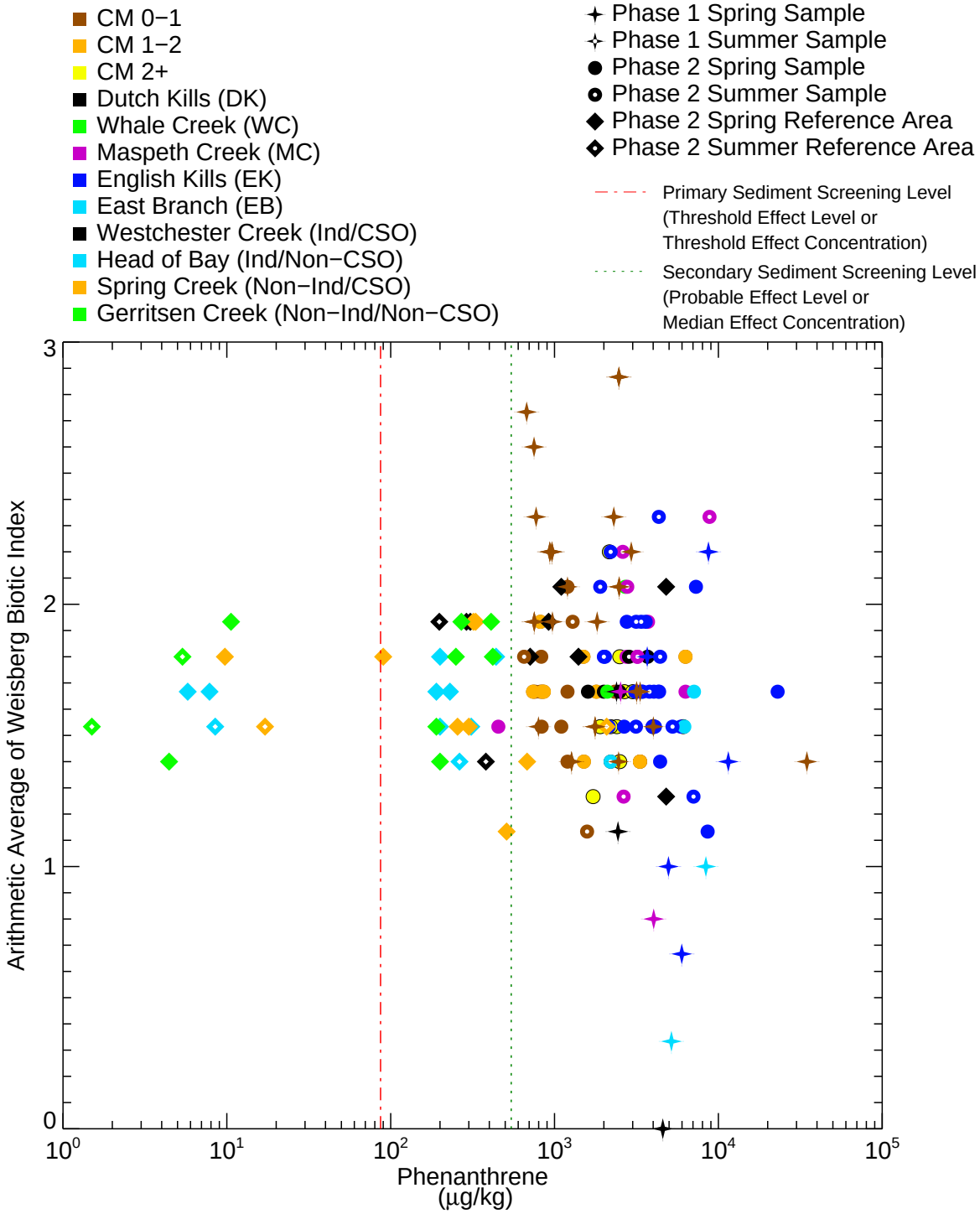

Figure C3−67

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Phenanthrene
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

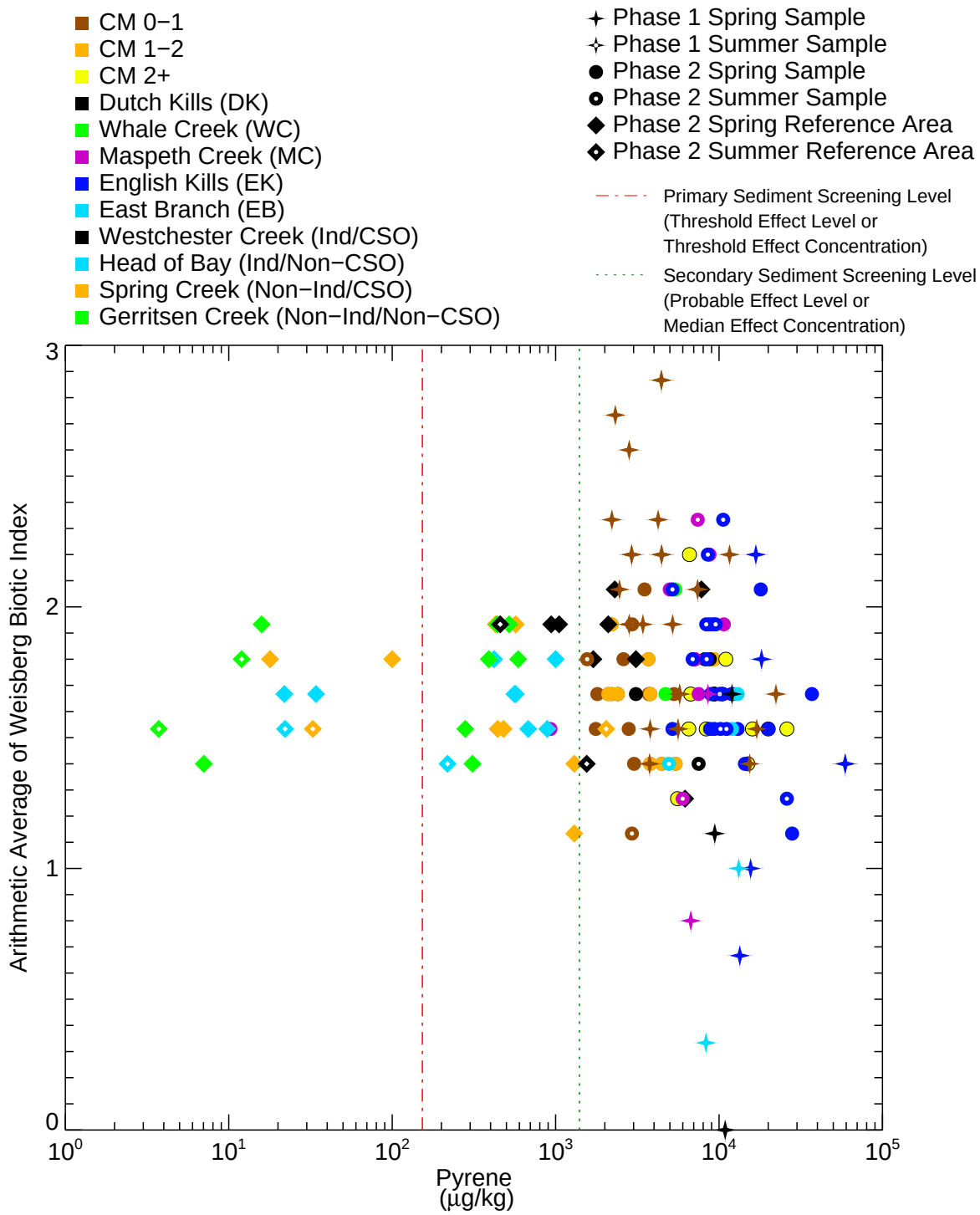

Figure C3−68

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Pyrene
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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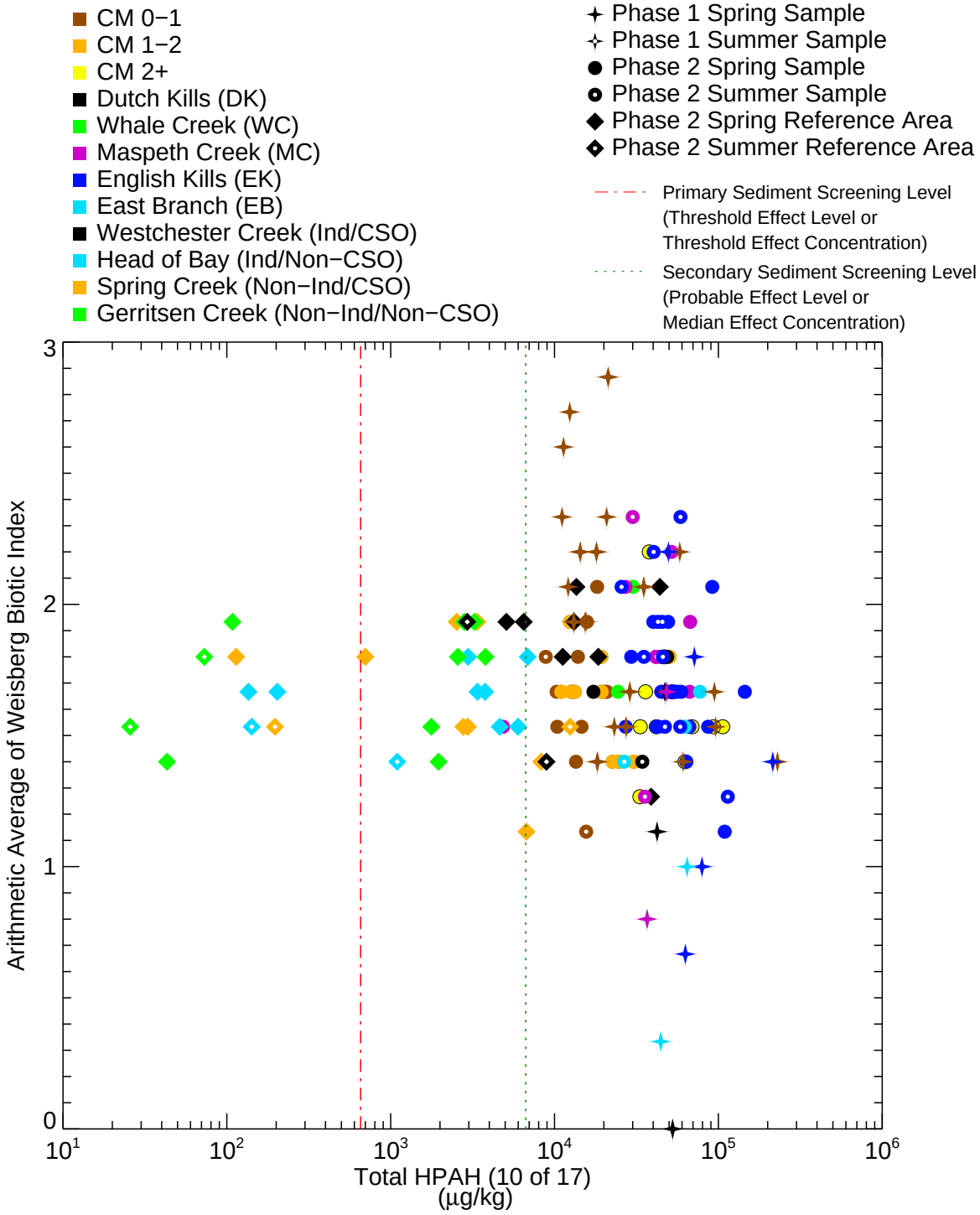

Figure C3−69

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Total HPAH (10 Of 17)
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

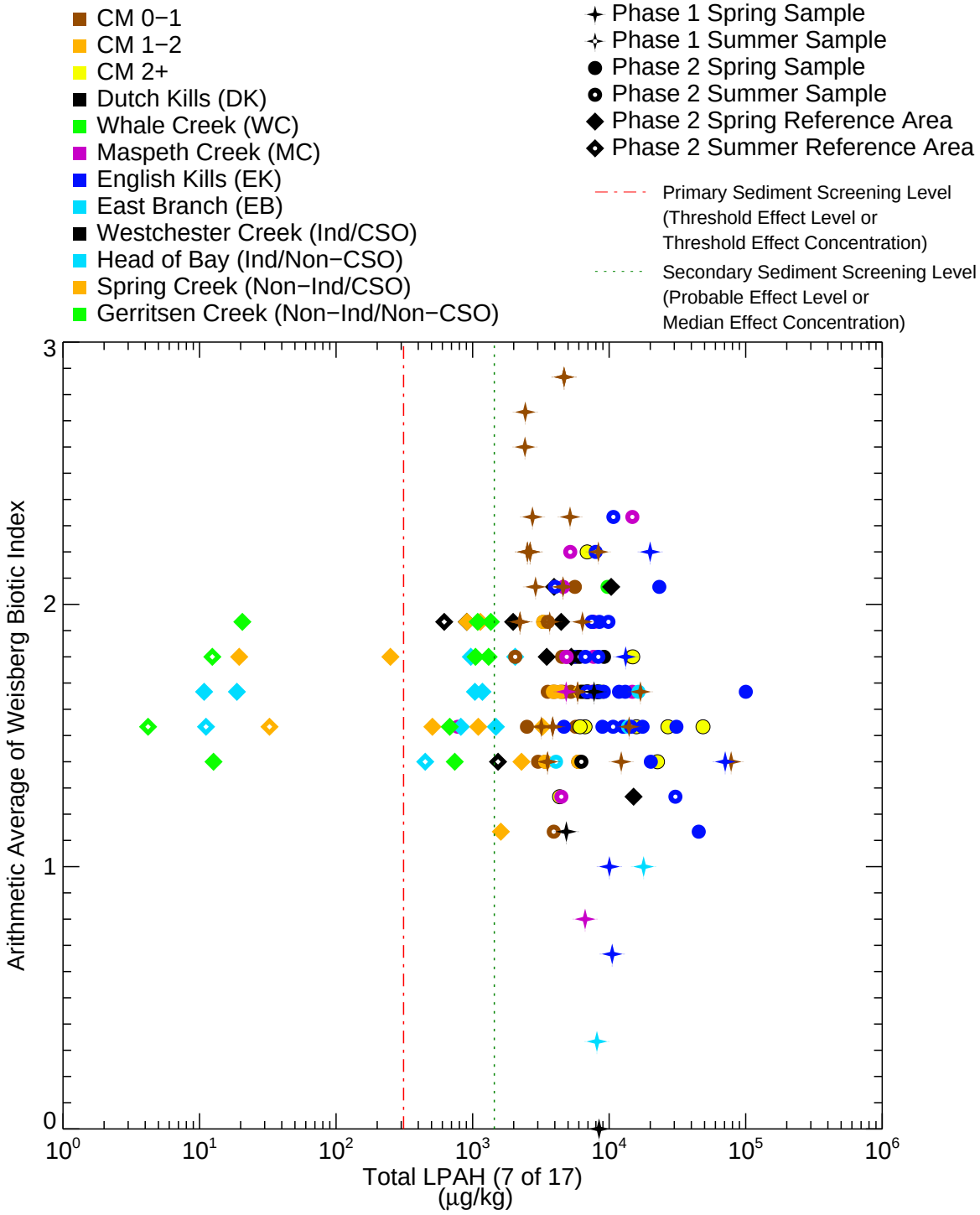

Figure C3−70

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Total LPAH (7 Of 17)
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

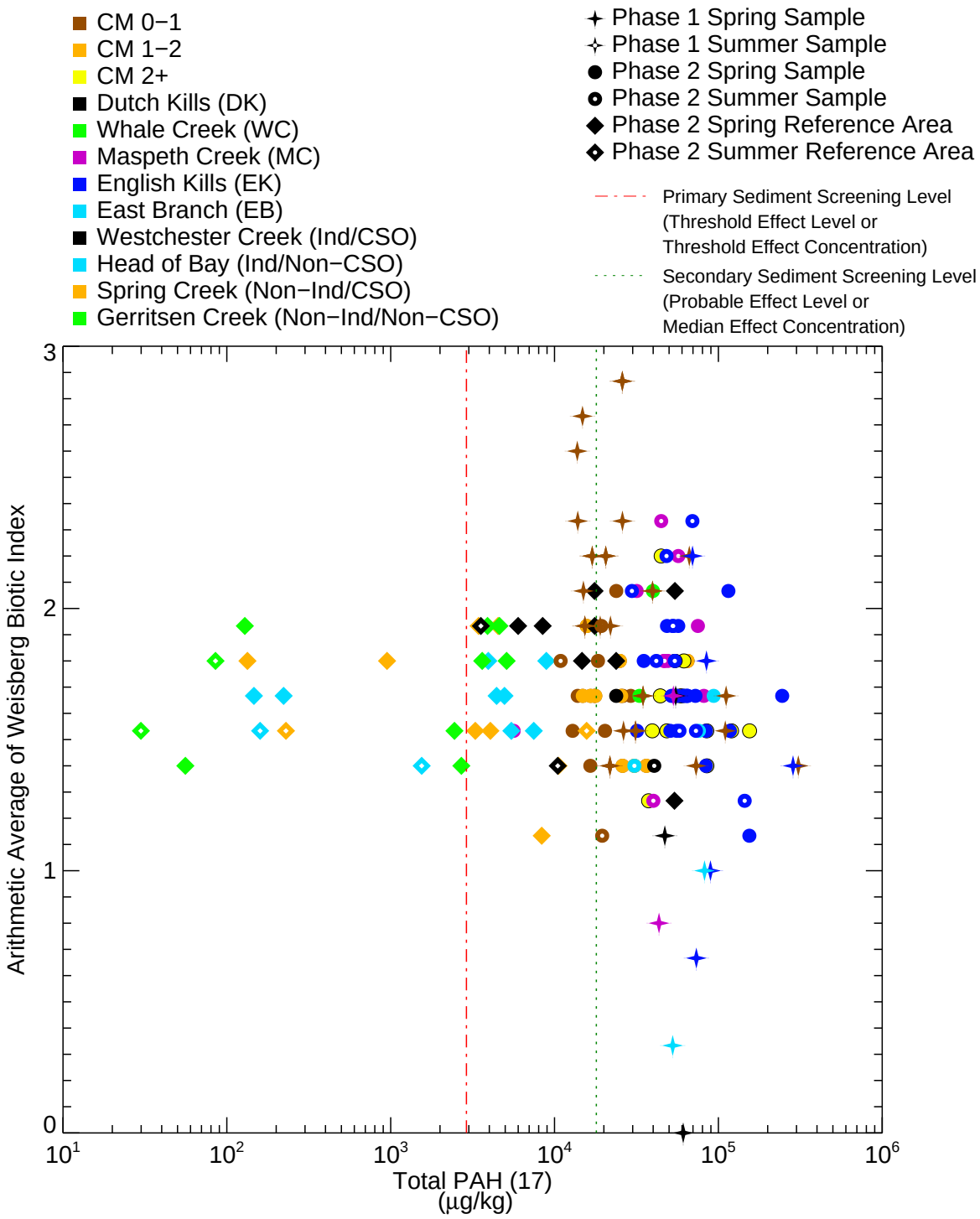

Figure C3−71

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Total PAH (17)
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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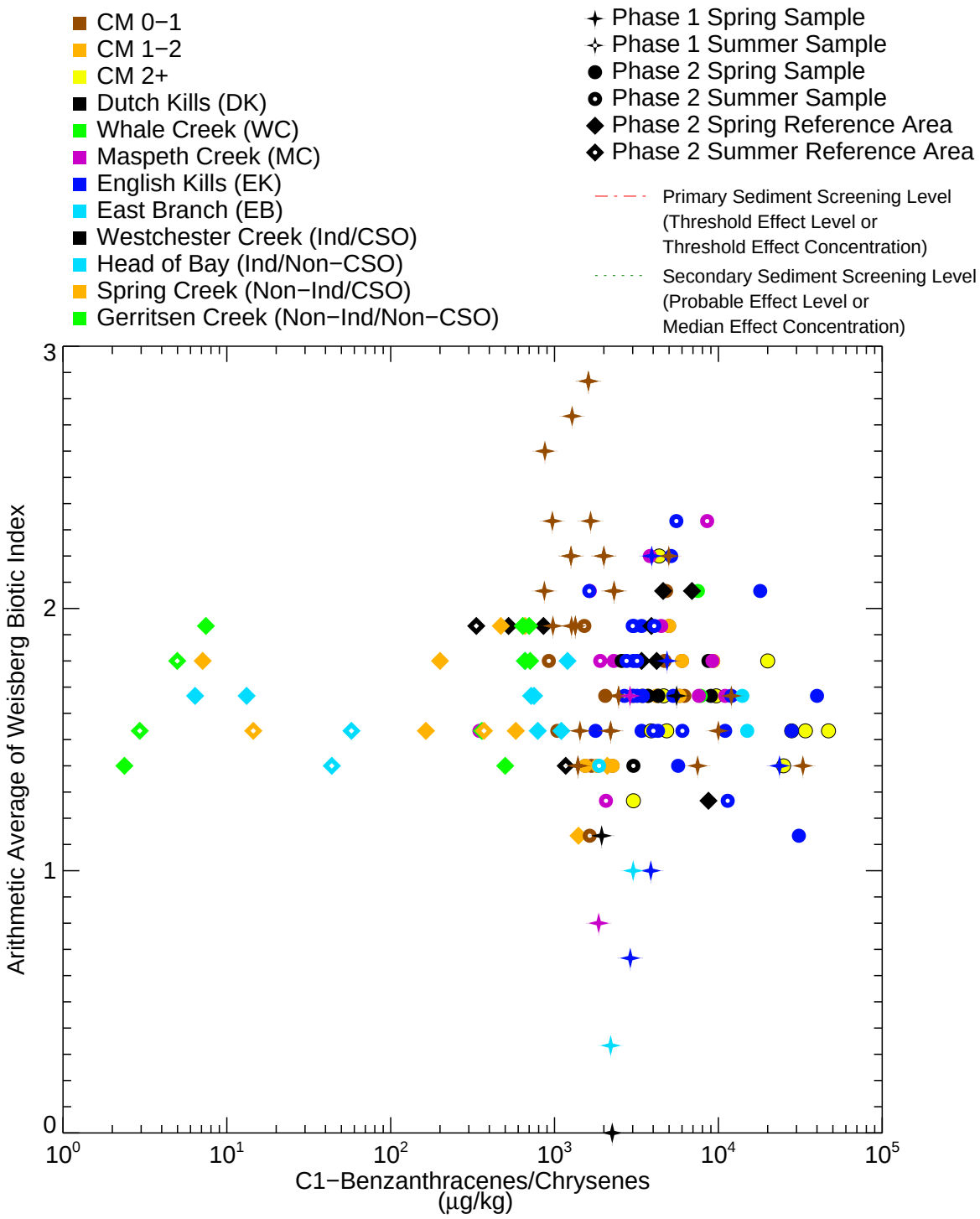

Figure C3−72

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C1−Benzanthracenes/Chrysenes
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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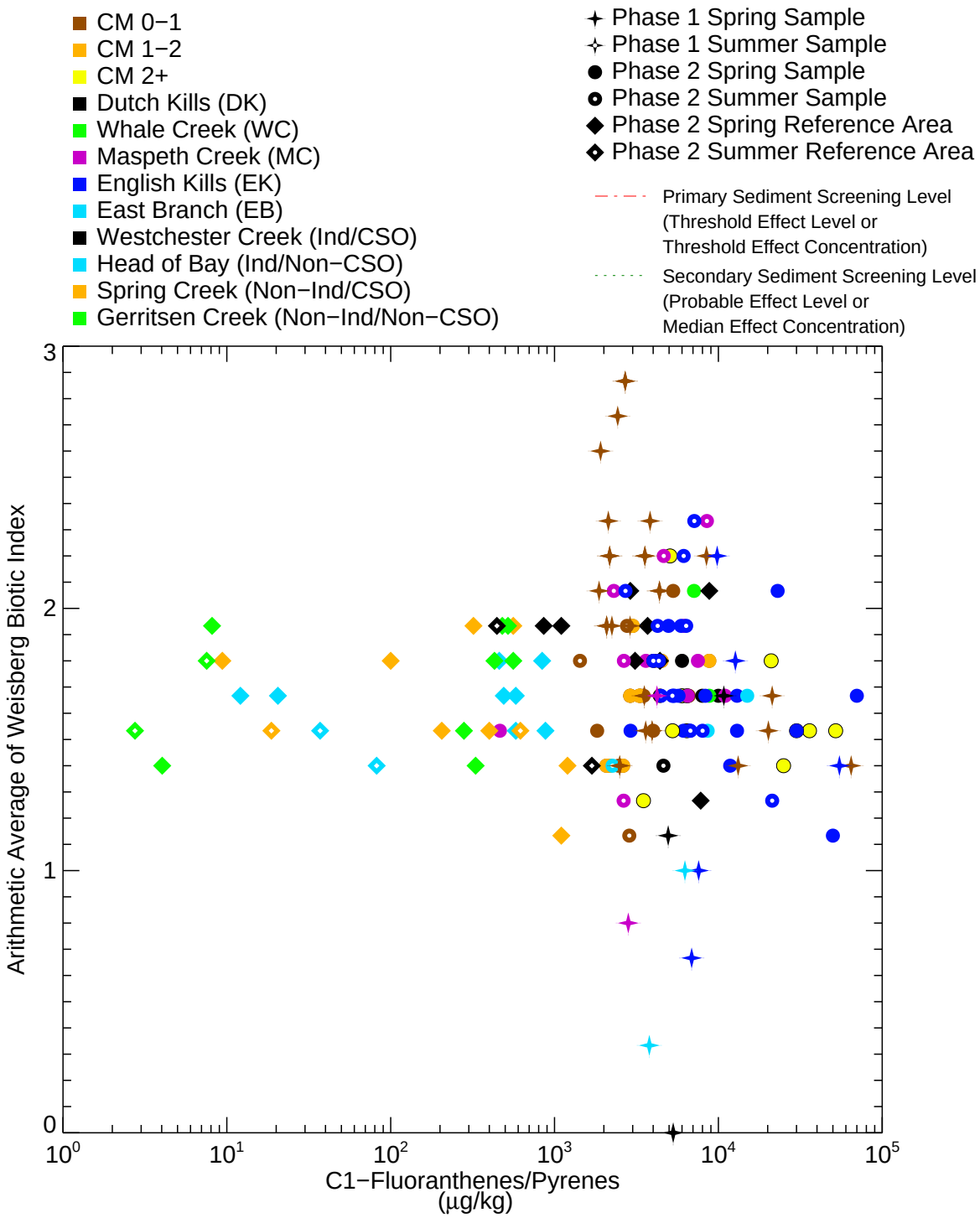

Figure C3−73

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C1−Fluoranthenes/Pyrenes
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

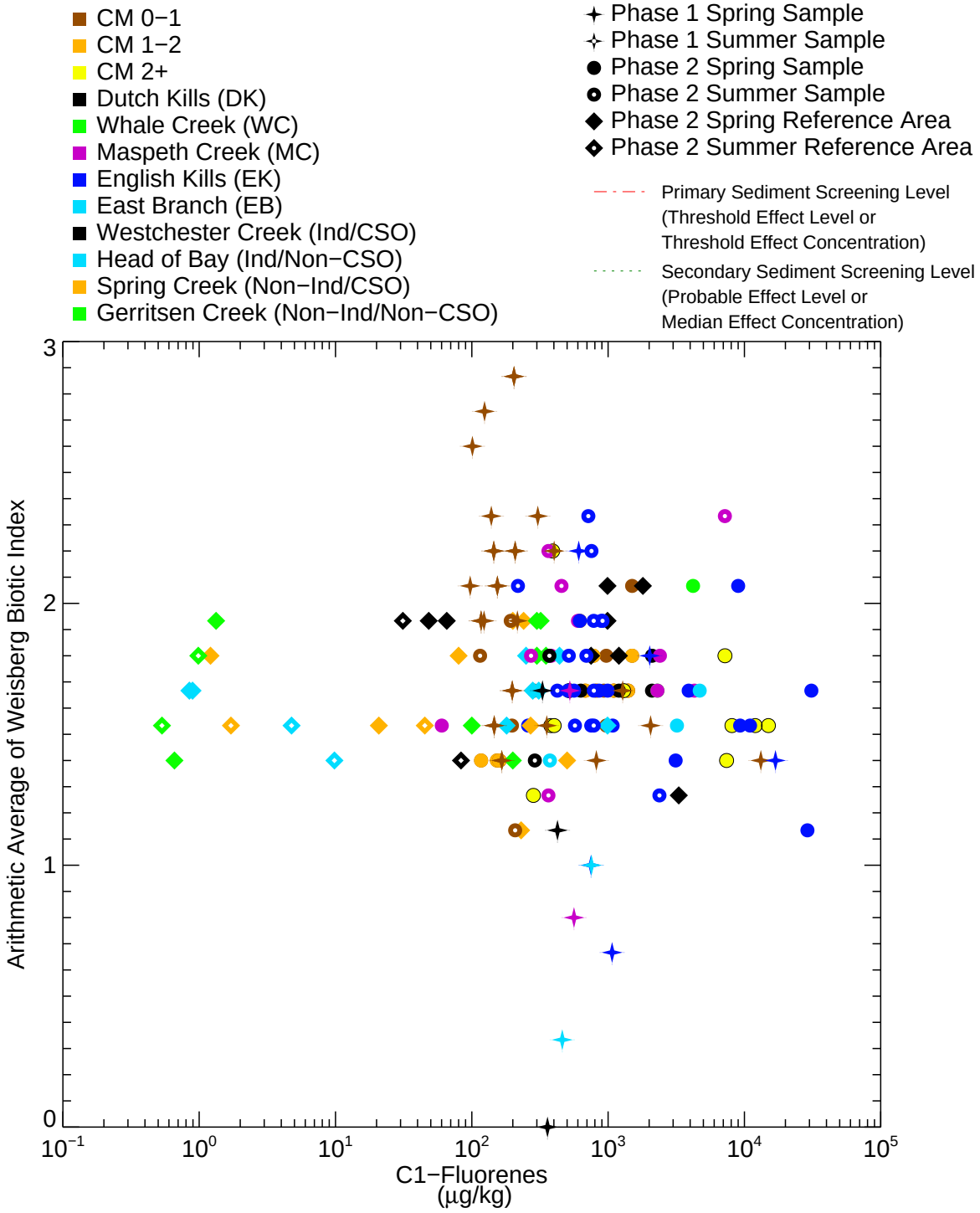

Figure C3−74

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C1−Fluorenes
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

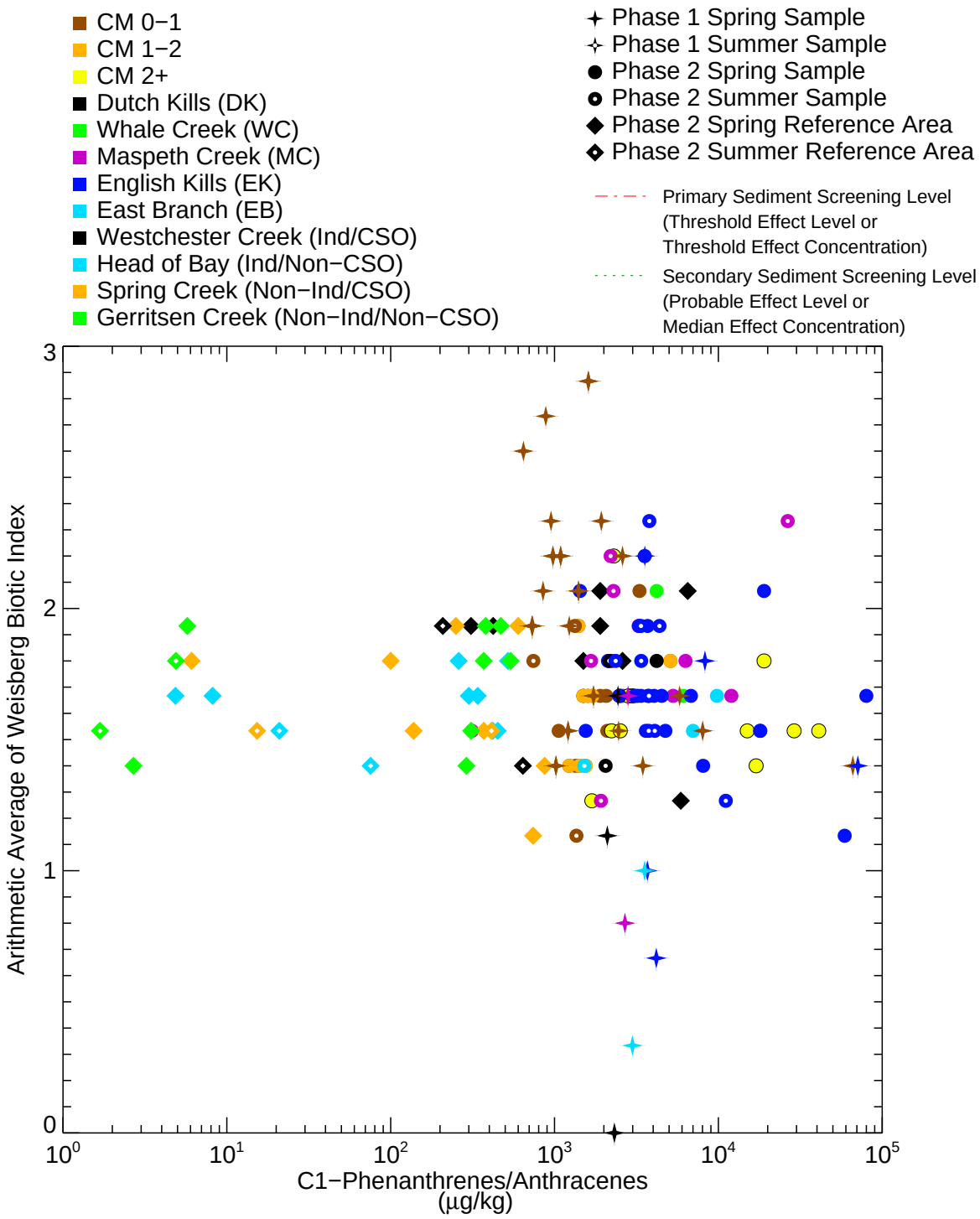

Figure C3−75

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C1−Phenanthrenes/Anthracenes
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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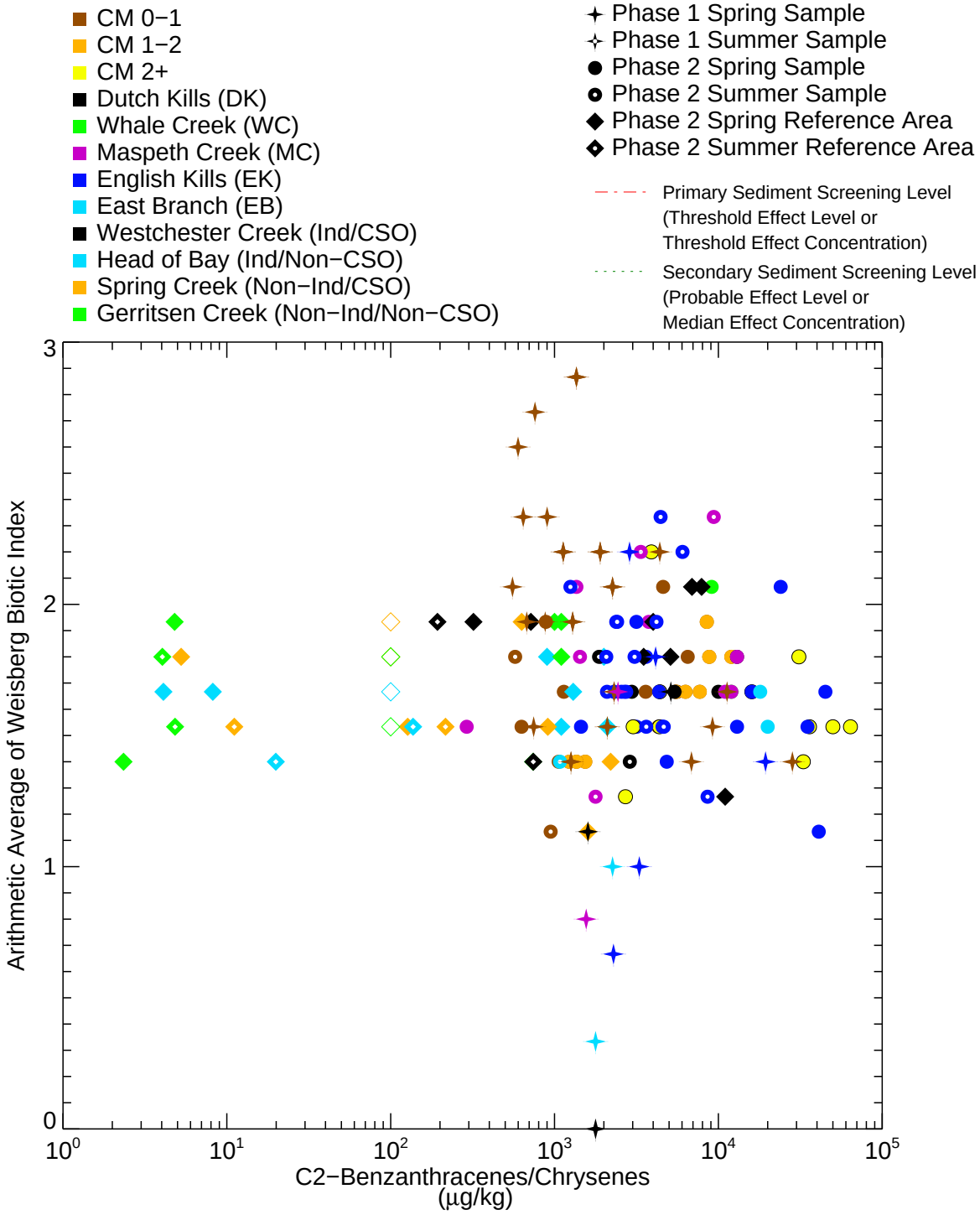

Figure C3−76

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C2−Benzanthracenes/Chrysenes
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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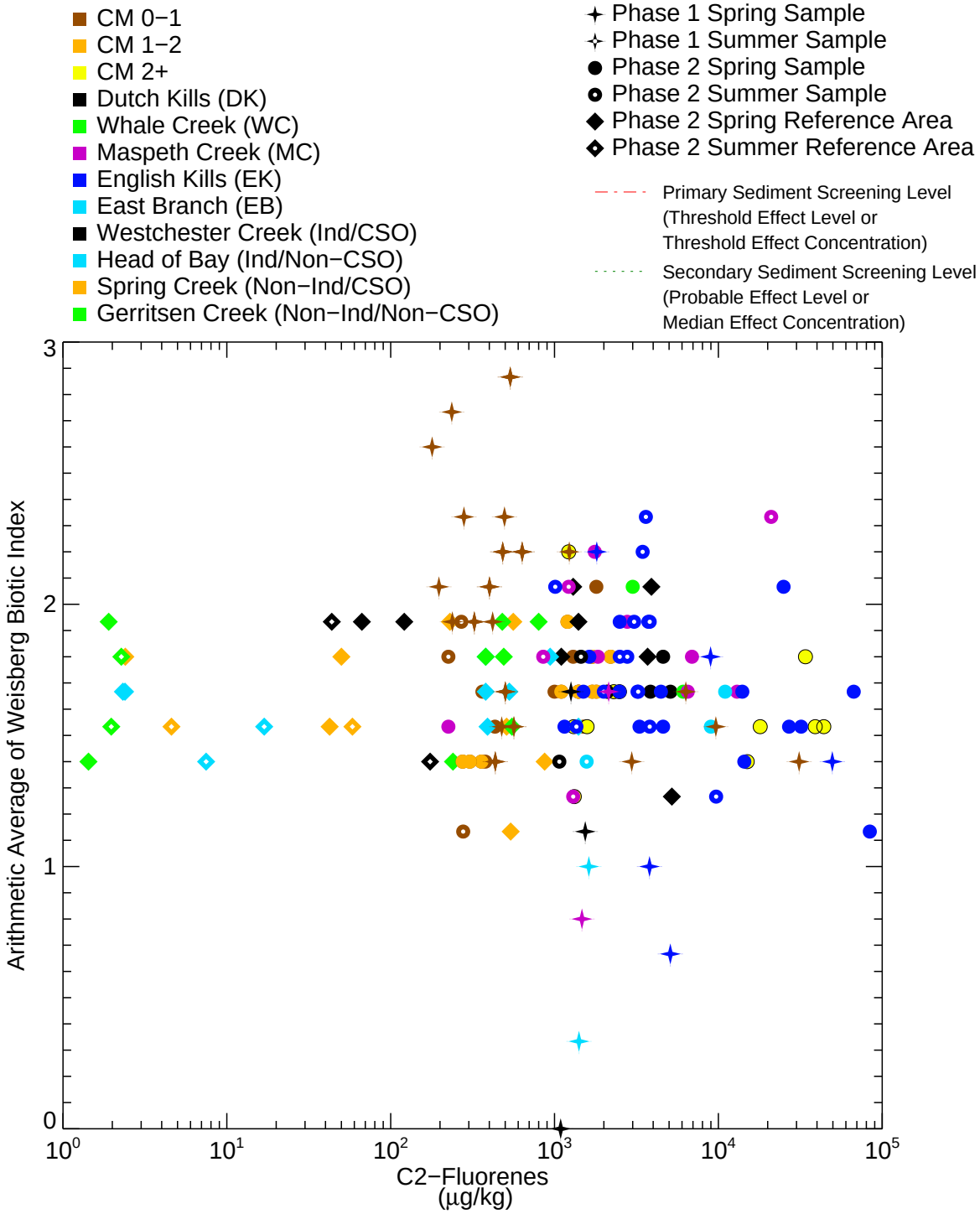

Figure C3−77

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C2−Fluorenes
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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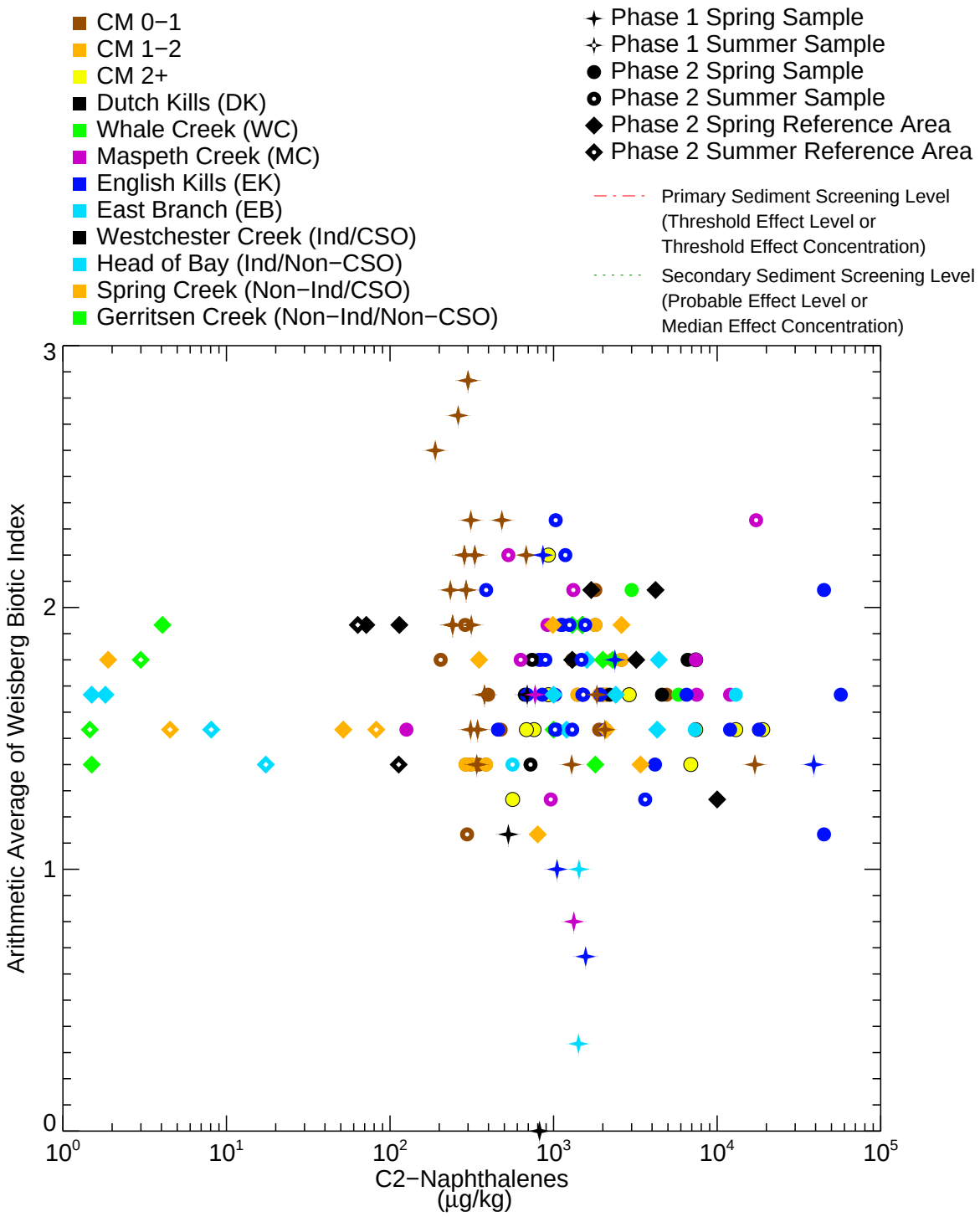

Figure C3−78

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C2−Naphthalenes
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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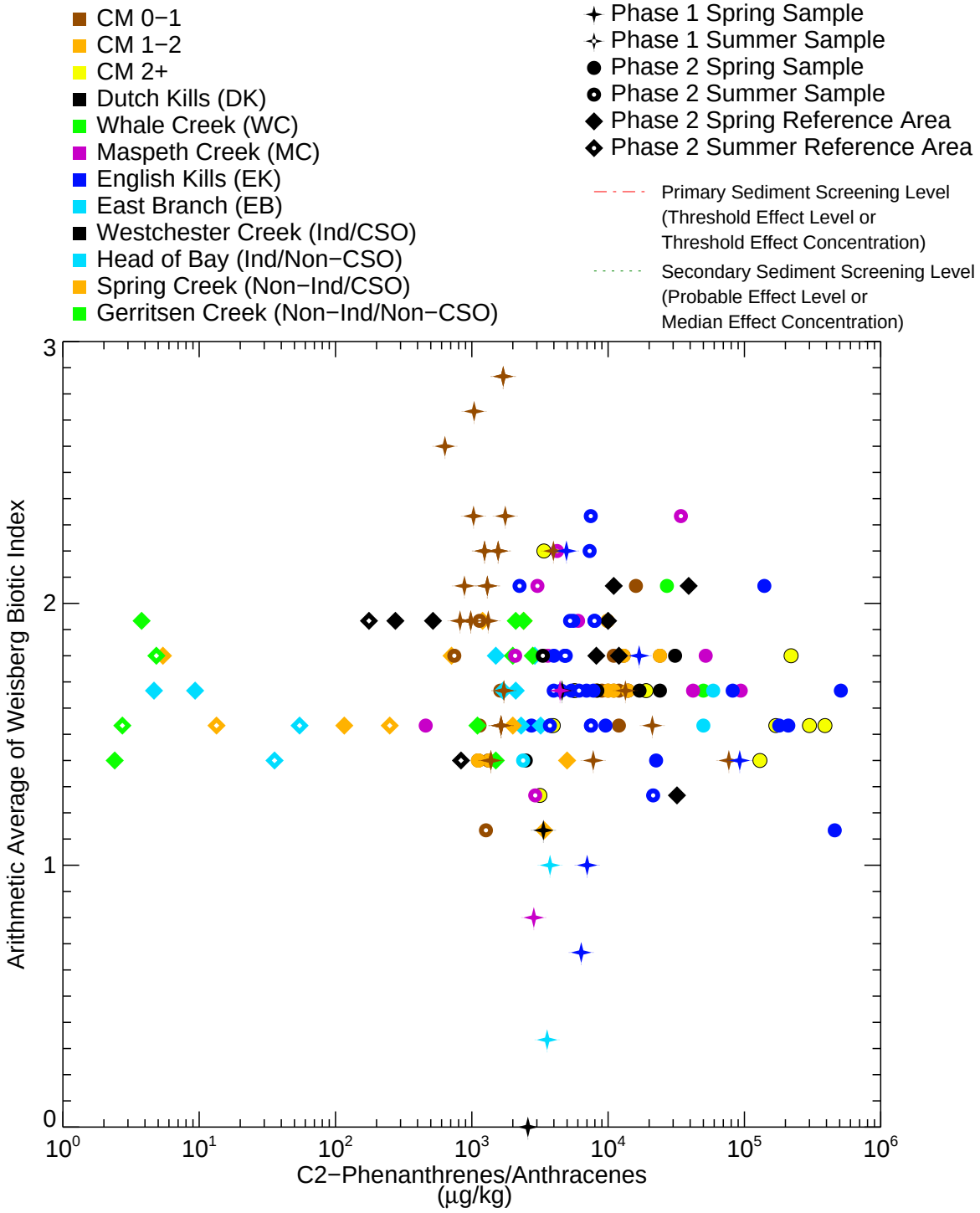

Figure C3−79

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C2−Phenanthrenes/Anthracenes
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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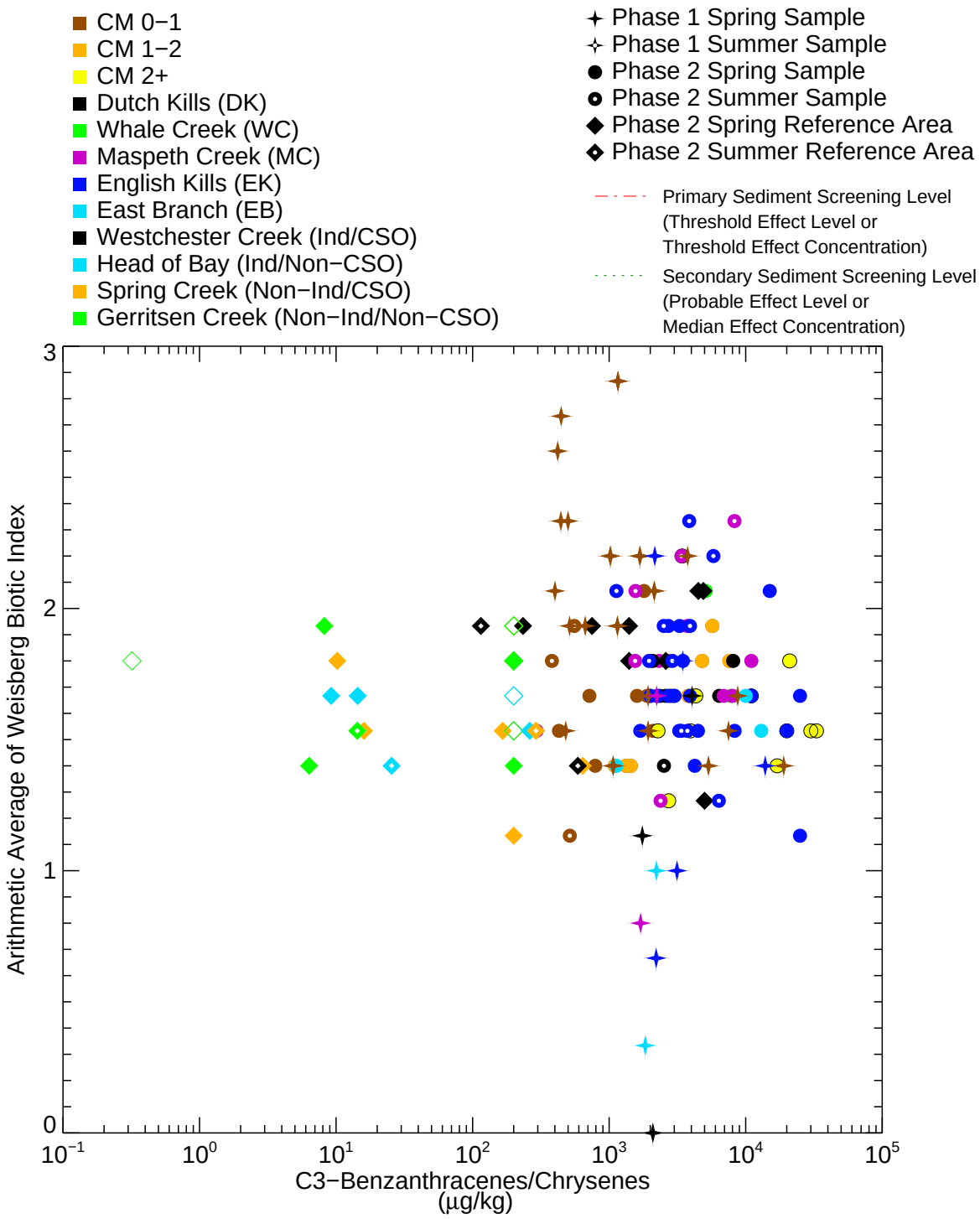

Figure C3−80

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C3−Benzanthracenes/Chrysenes
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

ANCHOR QEA

Notes: Non−detects shown as open symbols.

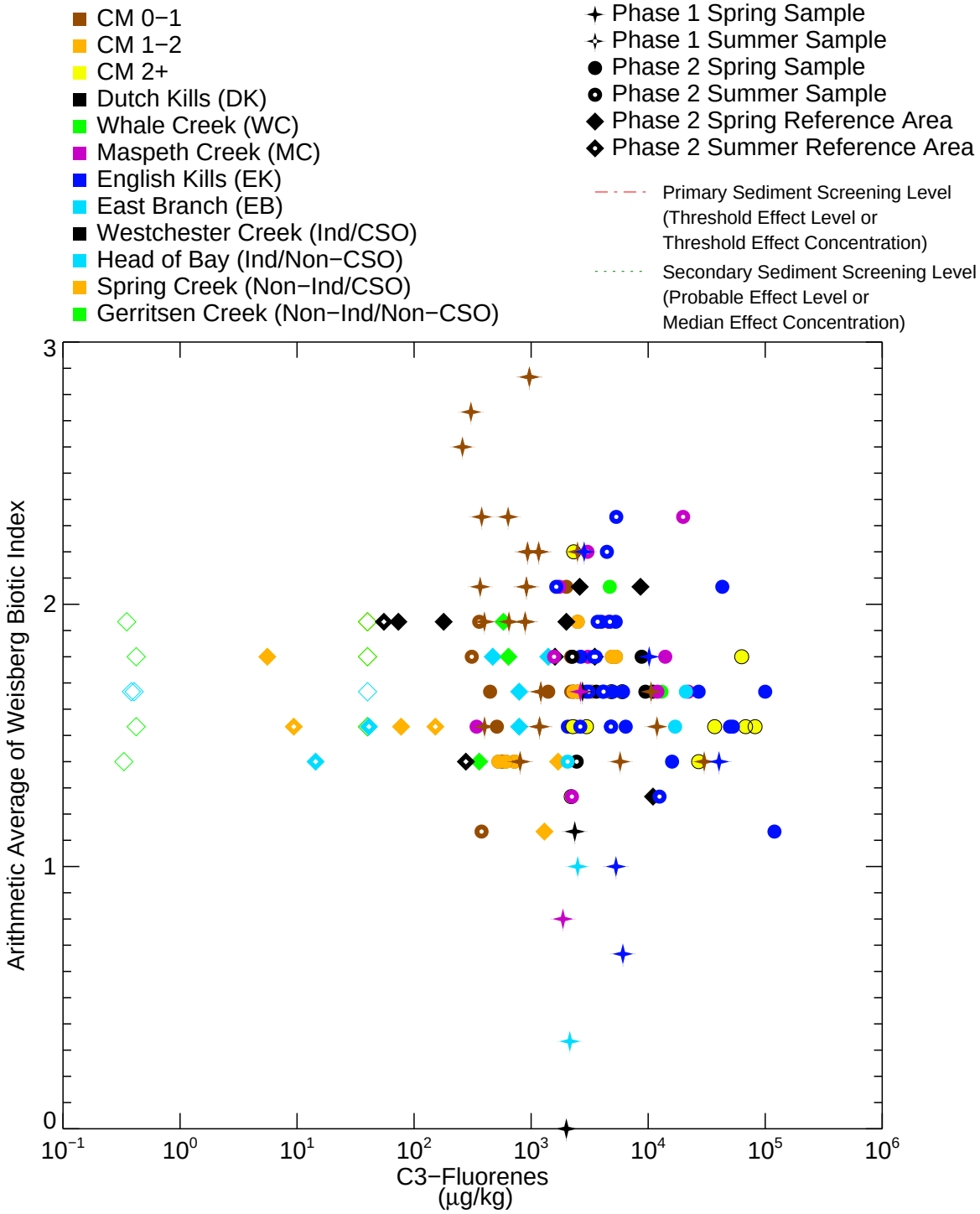

Figure C3−81

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C3−Fluorenes
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

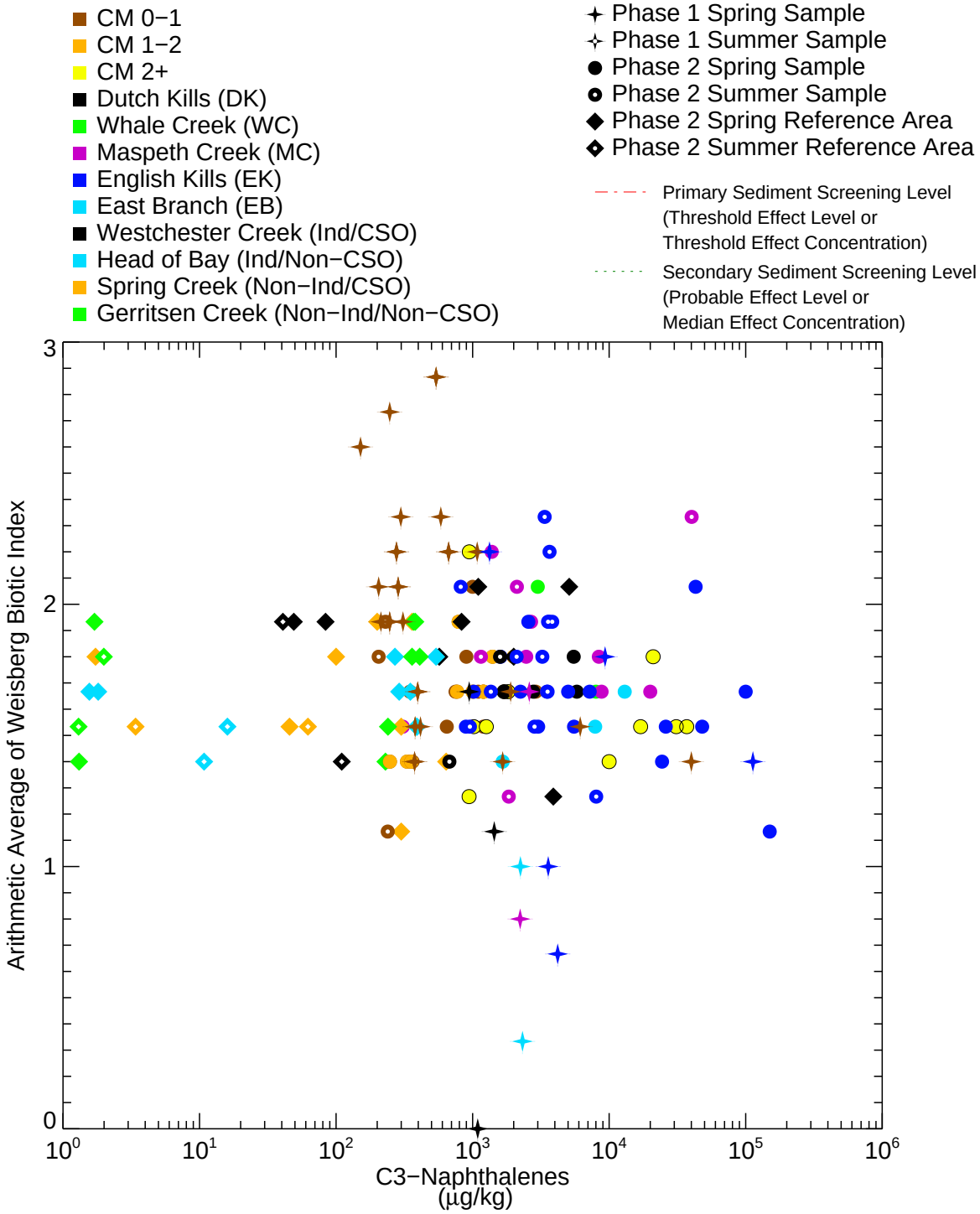

Figure C3−82

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C3−Naphthalenes
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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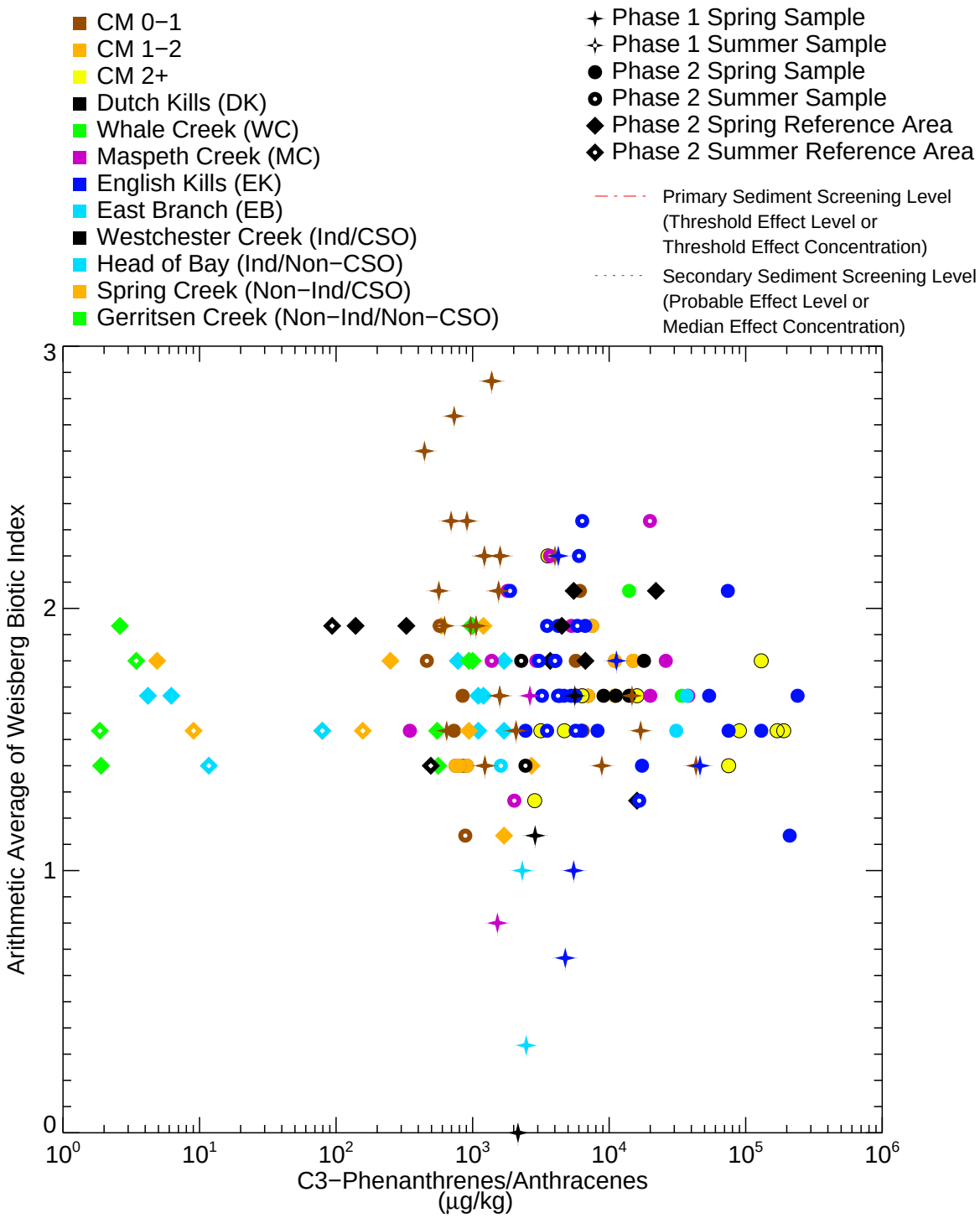

Figure C3−83

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C3−Phenanthrenes/Anthracenes
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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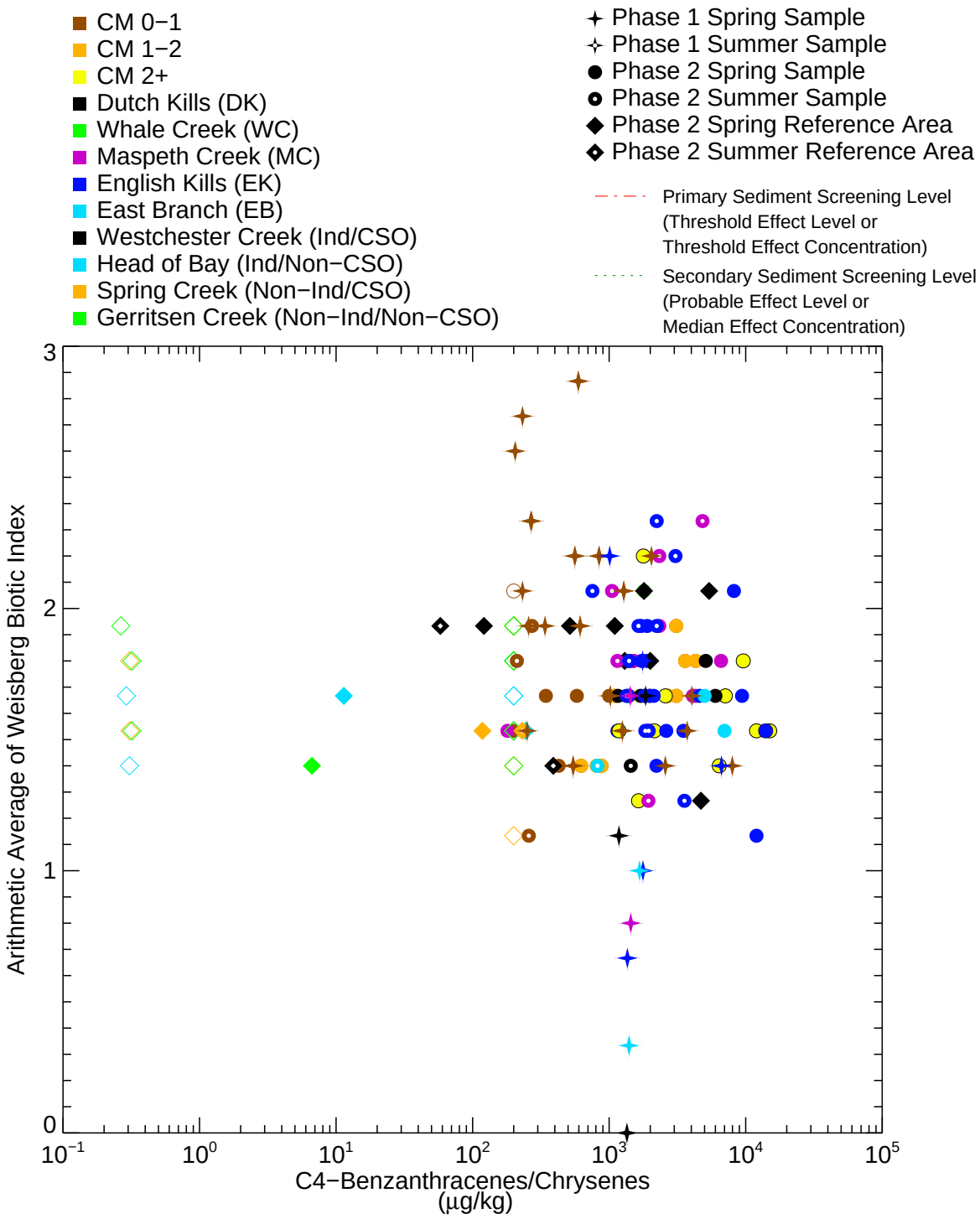

Figure C3−84

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C4−Benzanthracenes/Chrysenes
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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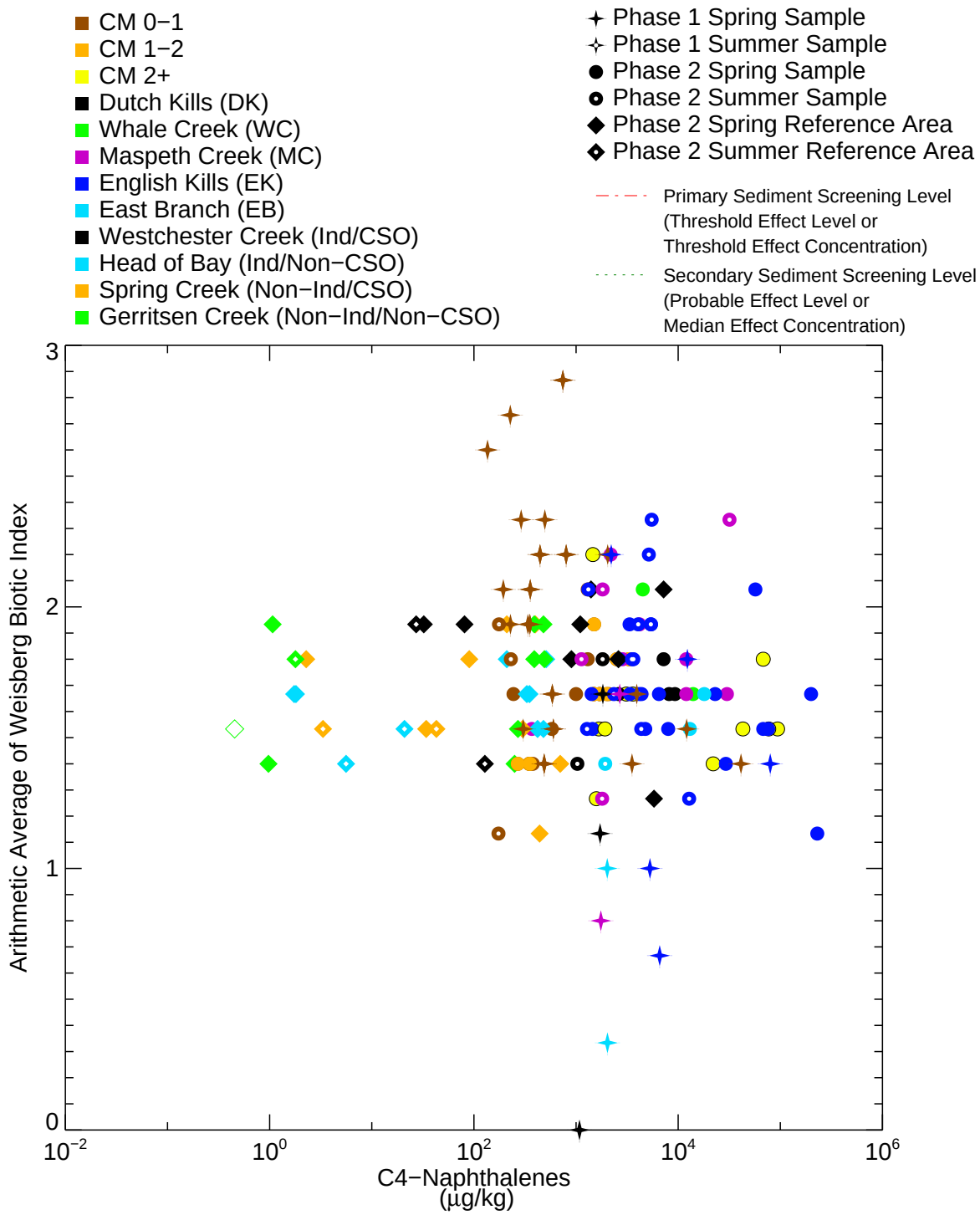

Figure C3−85

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C4−Naphthalenes
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

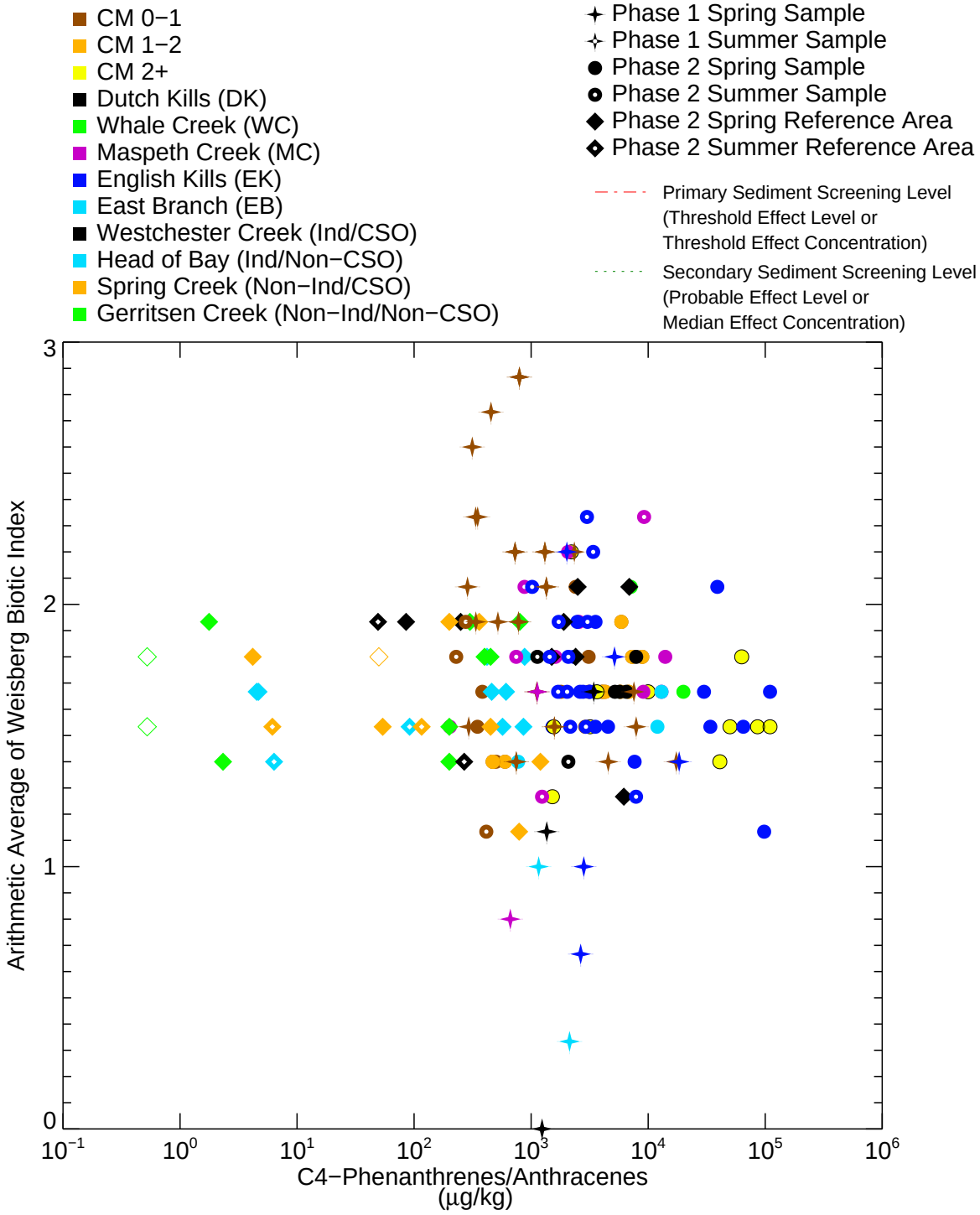

Figure C3−86

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C4−Phenanthrenes/Anthracenes
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

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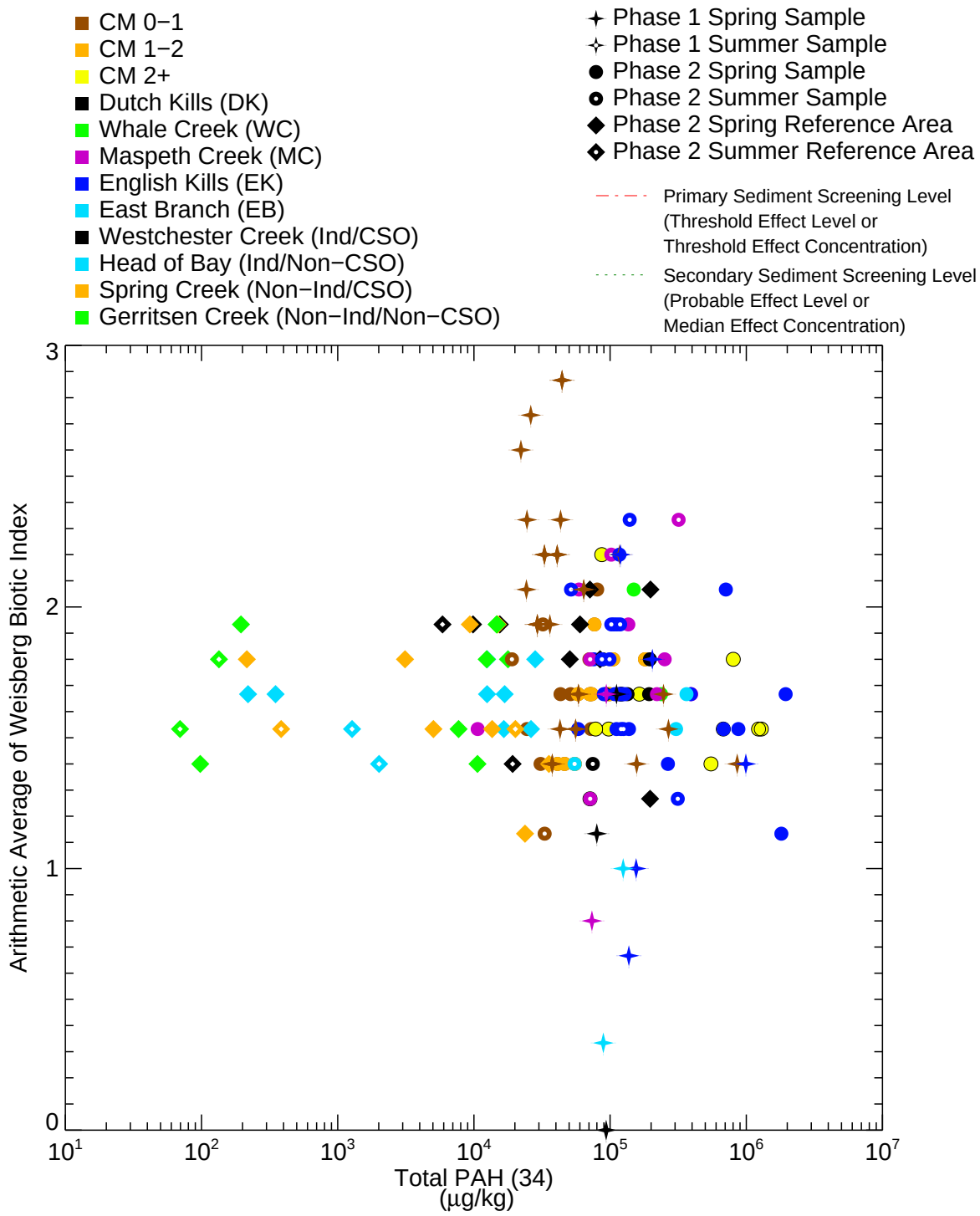

Figure C3−87

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Total PAH (34)
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

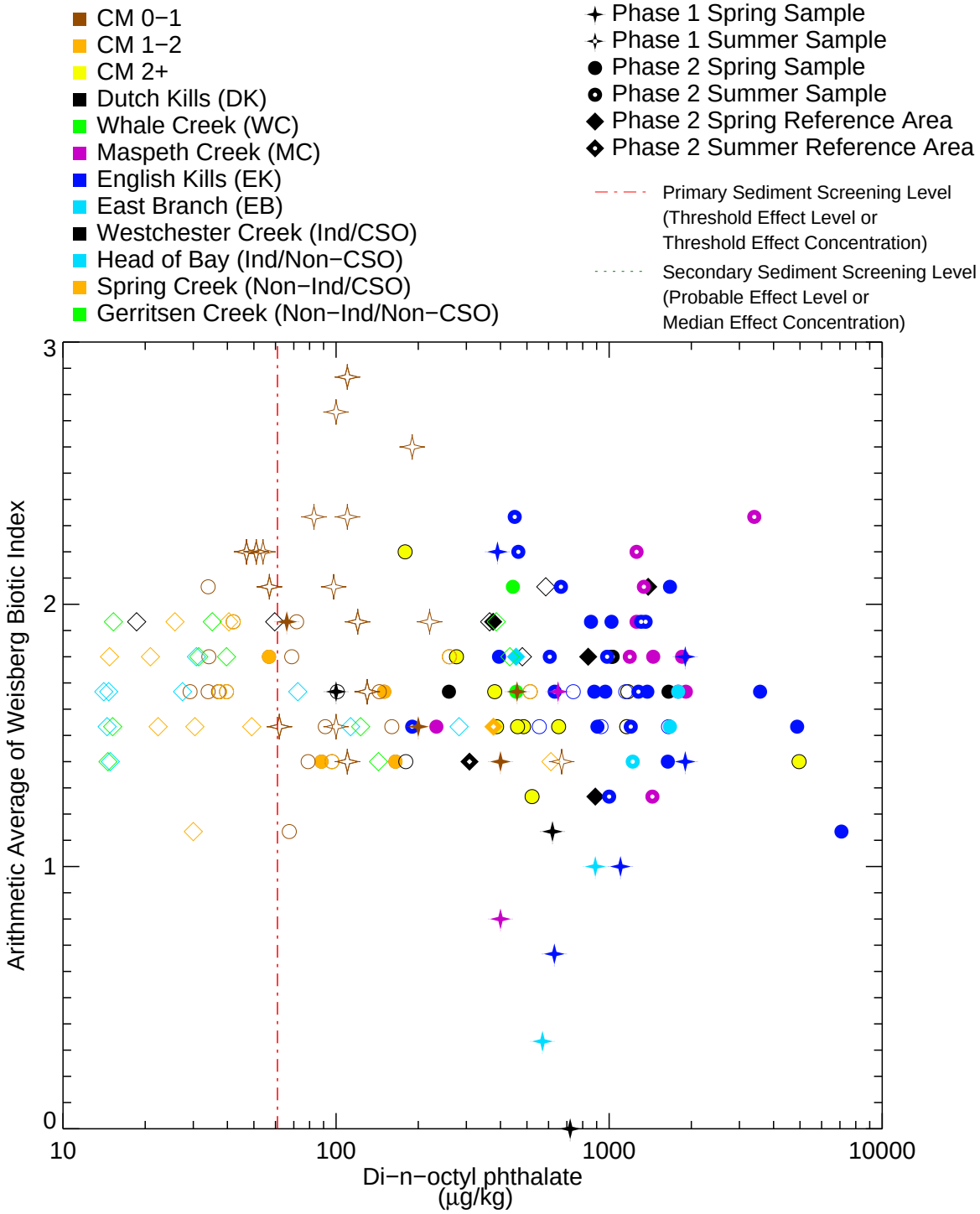

Figure C3−88

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Di−n−octyl Phthalate
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

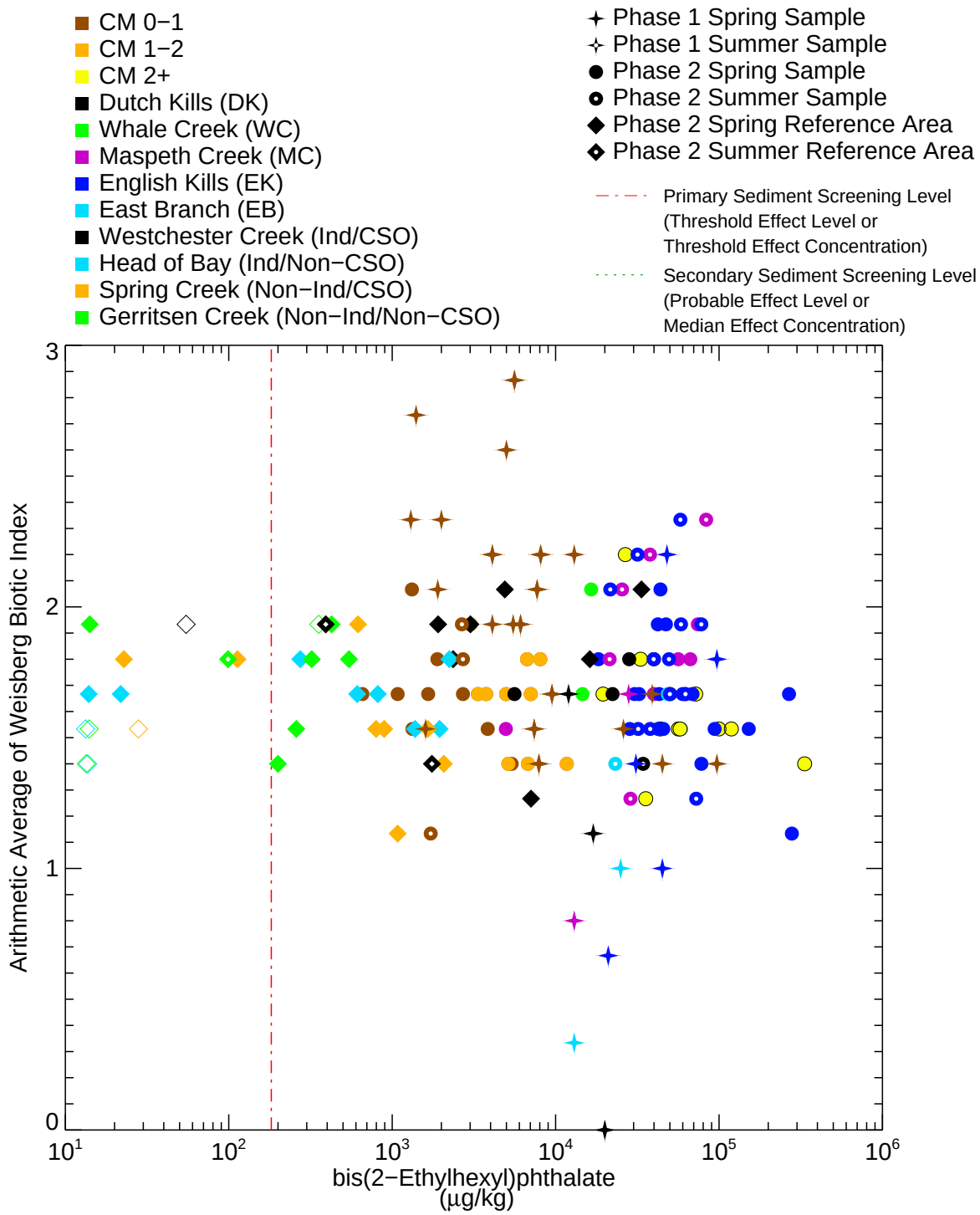

Figure C3−89

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Bis(2−Ethylhexyl)phthalate
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

SMS,CH − \\austin2\Austin\D_drive\Projects\Newtown_Creek\RI−FS\Risk_assessment\Triads\Benthic_Community\IDL\Benthic_Metric_vs_Analyte_crossplot_onepanel_spring_summer_RIedit.pro Mon May 07 12:22:08 2018

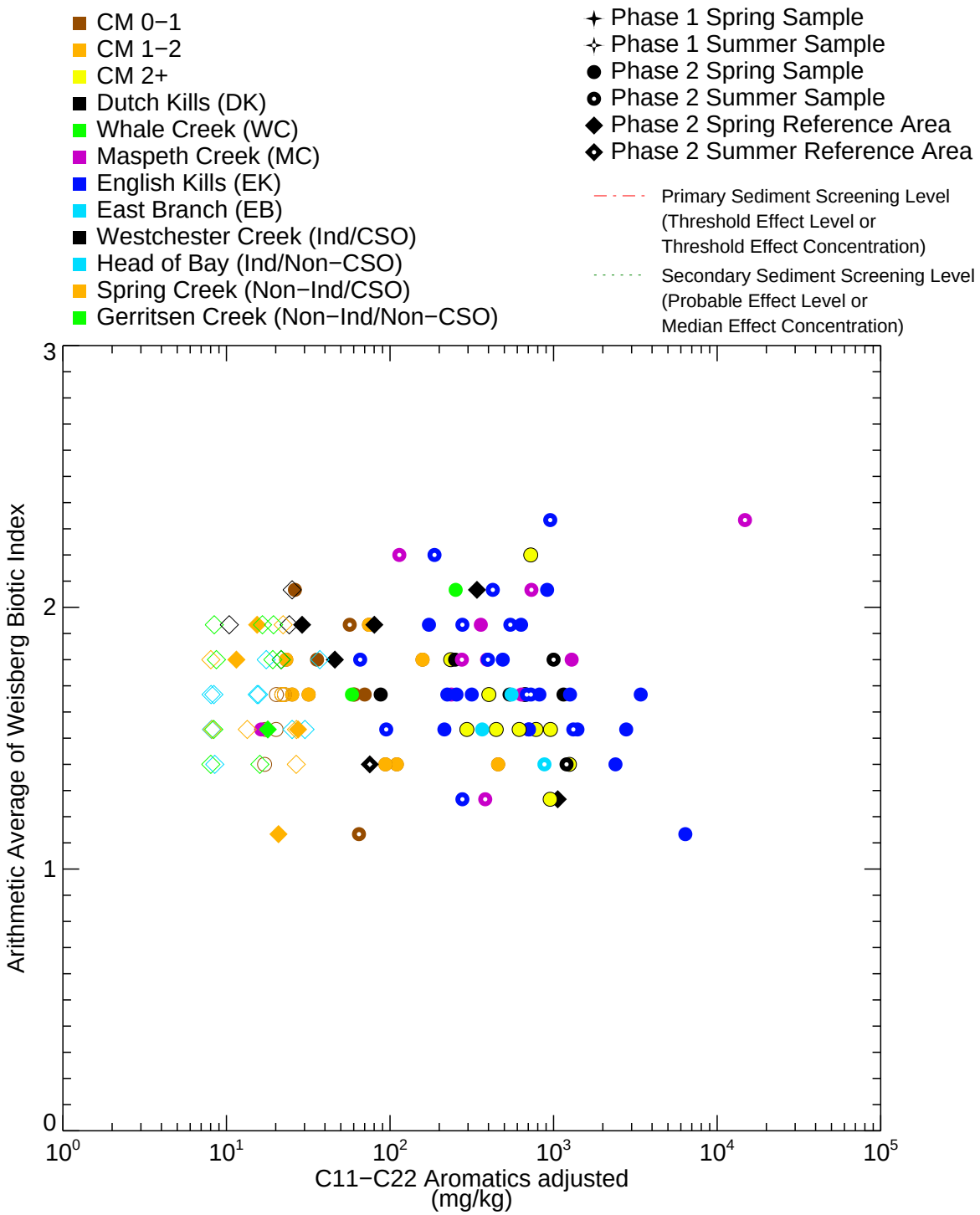

Figure C3−90

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C11−C22 Aromatics Adjusted
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

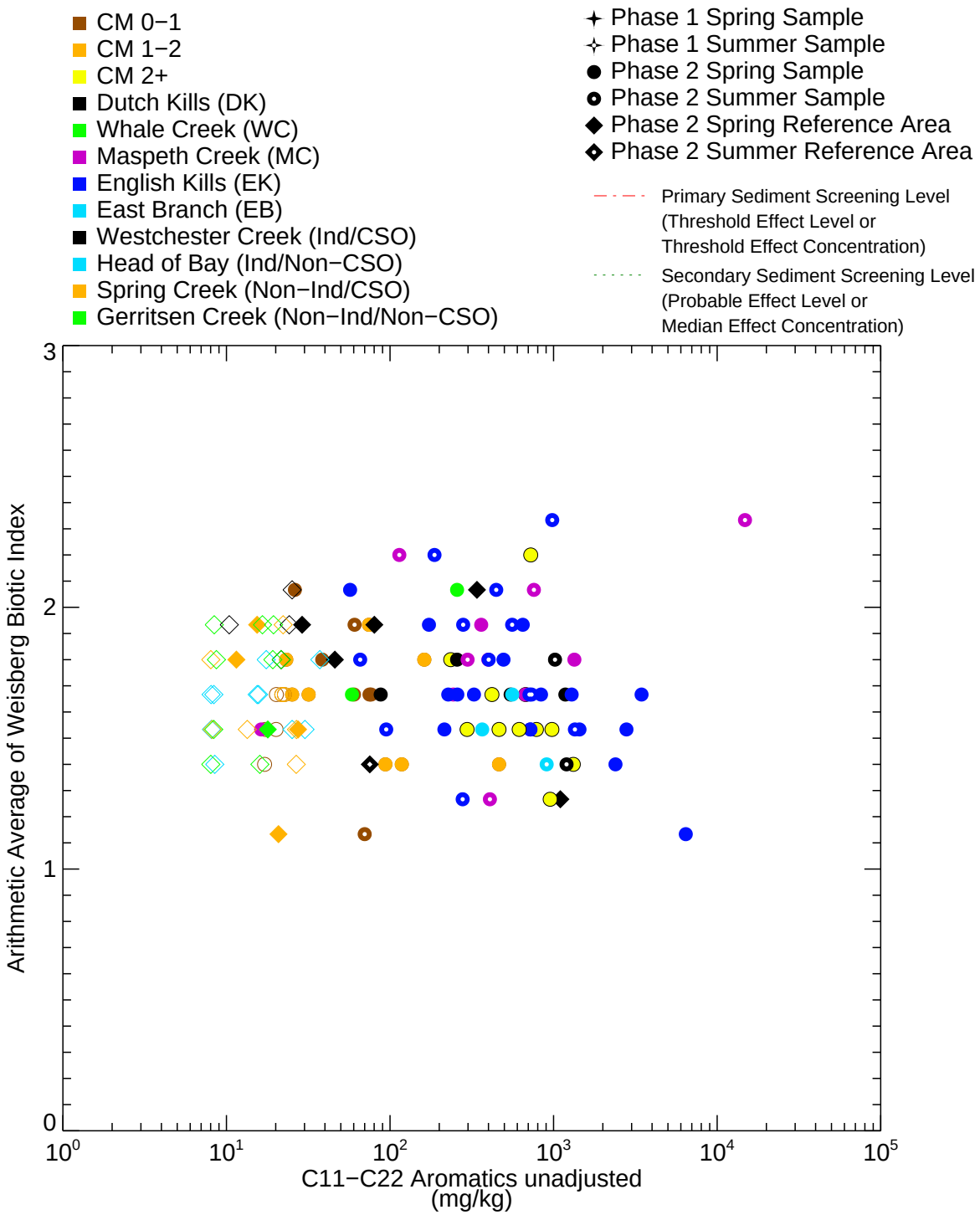

Figure C3−91

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C11−C22 Aromatics Unadjusted
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

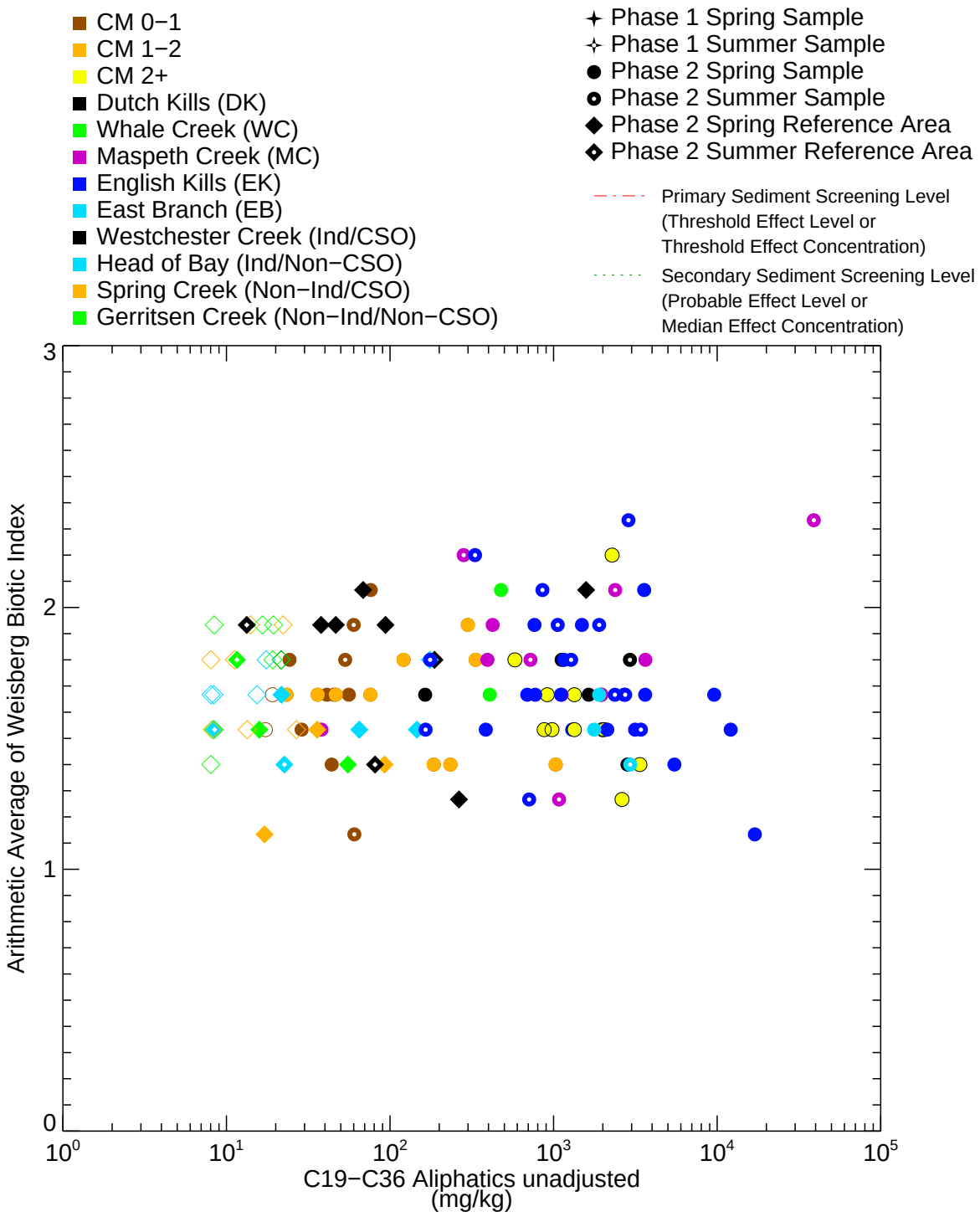

Figure C3−92

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C19−C36 Aliphatics Unadjusted
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

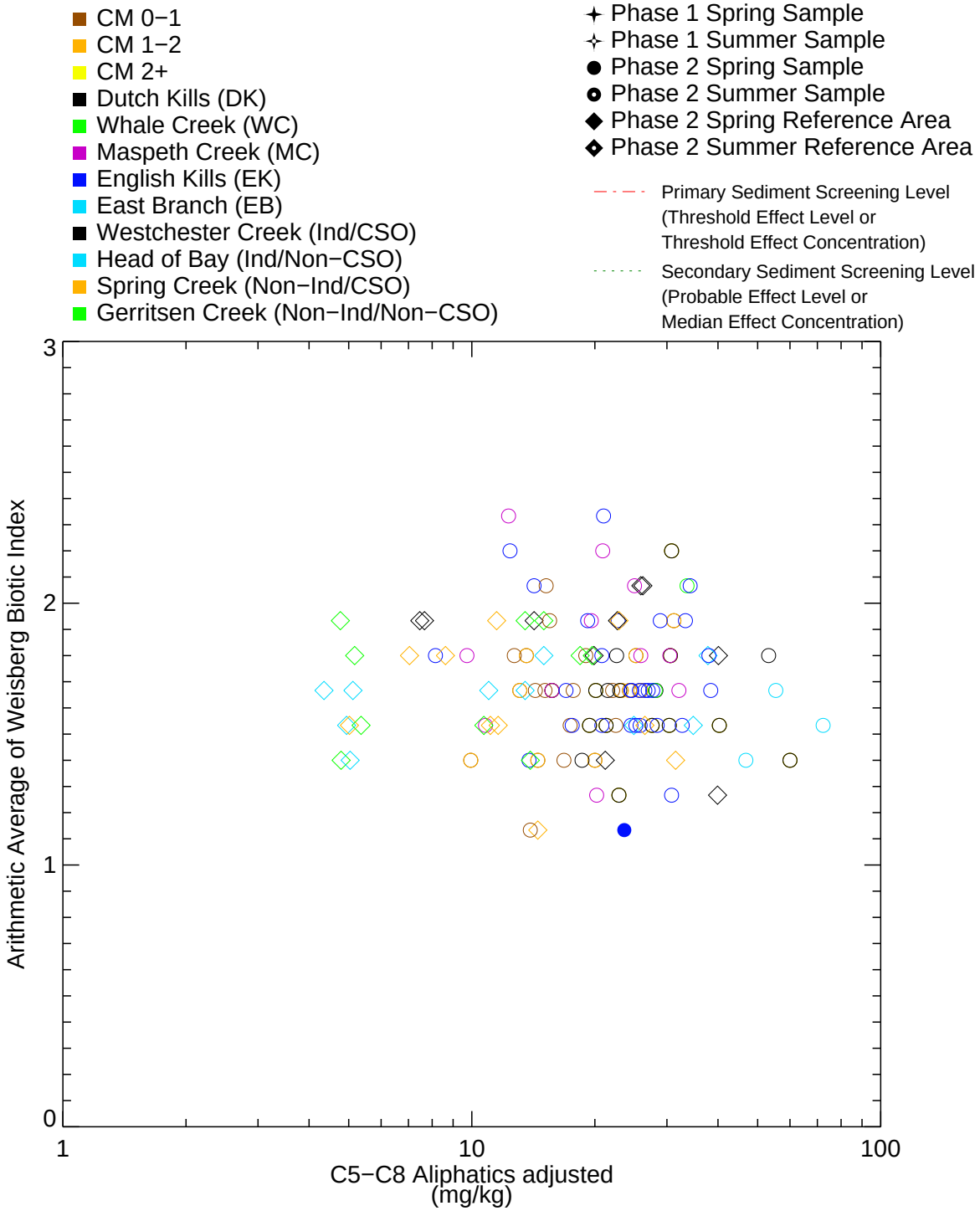

Figure C3−93

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C5−C8 Aliphatics Adjusted
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

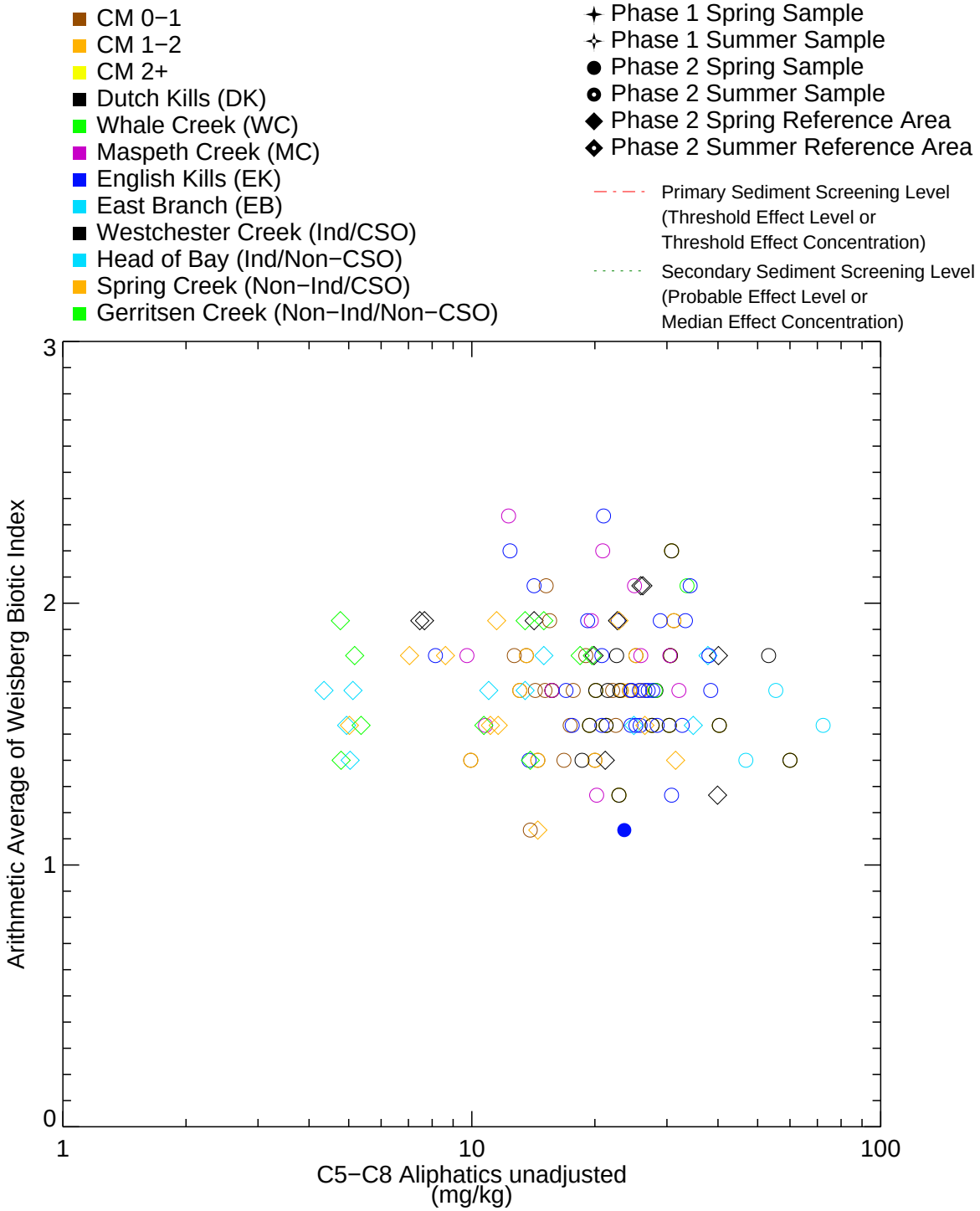

Figure C3−94

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C5−C8 Aliphatics Unadjusted
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

SMS,CH − \\austin2\Austin\D_drive\Projects\Newtown_Creek\RI−FS\Risk_assessment\Triads\Benthic_Community\IDL\Benthic_Metric_vs_Analyte_crossplot_onepanel_spring_summer_RIedit.pro Mon May 07 12:22:11 2018

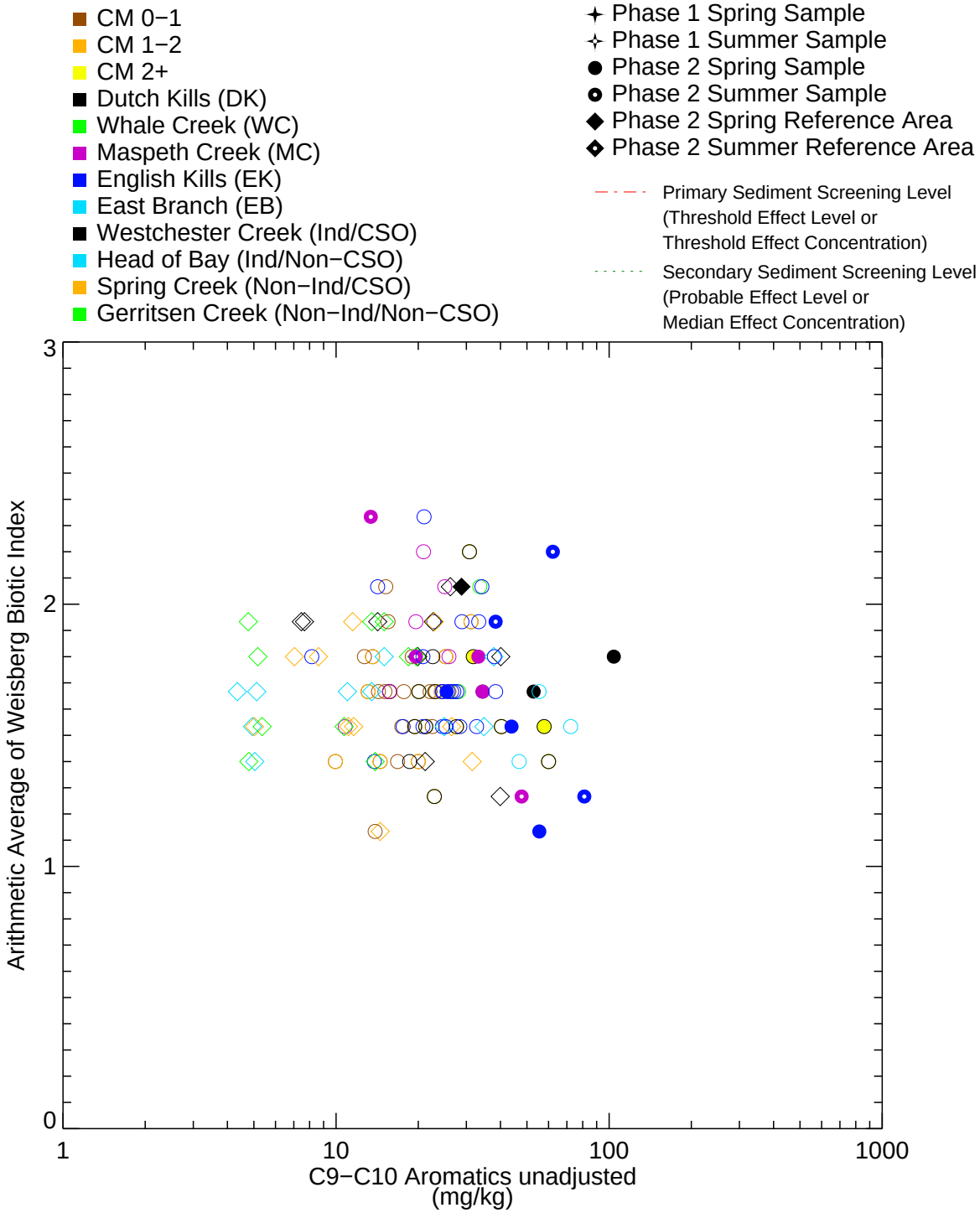

Figure C3−95

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C9−C10 Aromatics Unadjusted
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

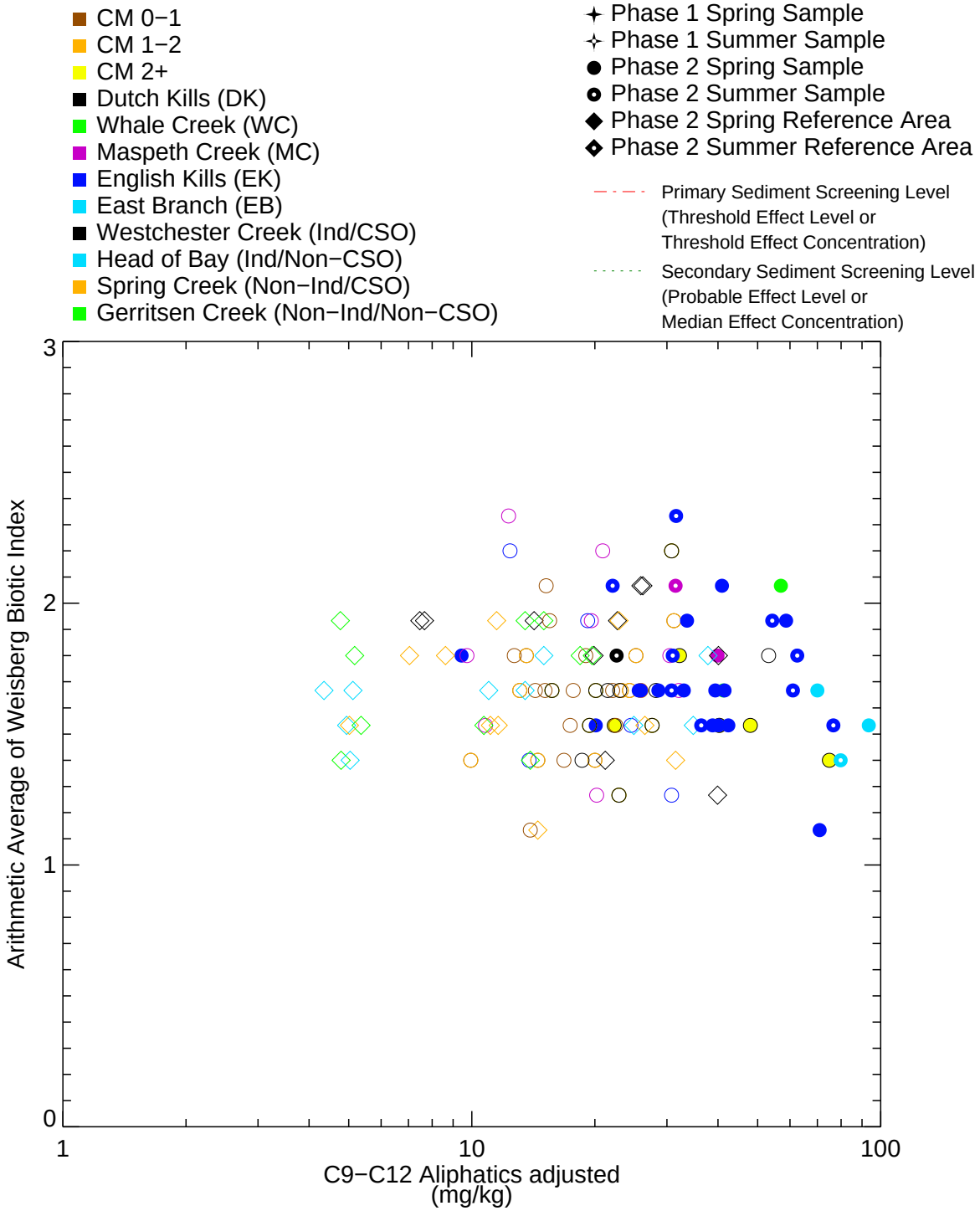

Figure C3−96

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C9−C12 Aliphatics Adjusted
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

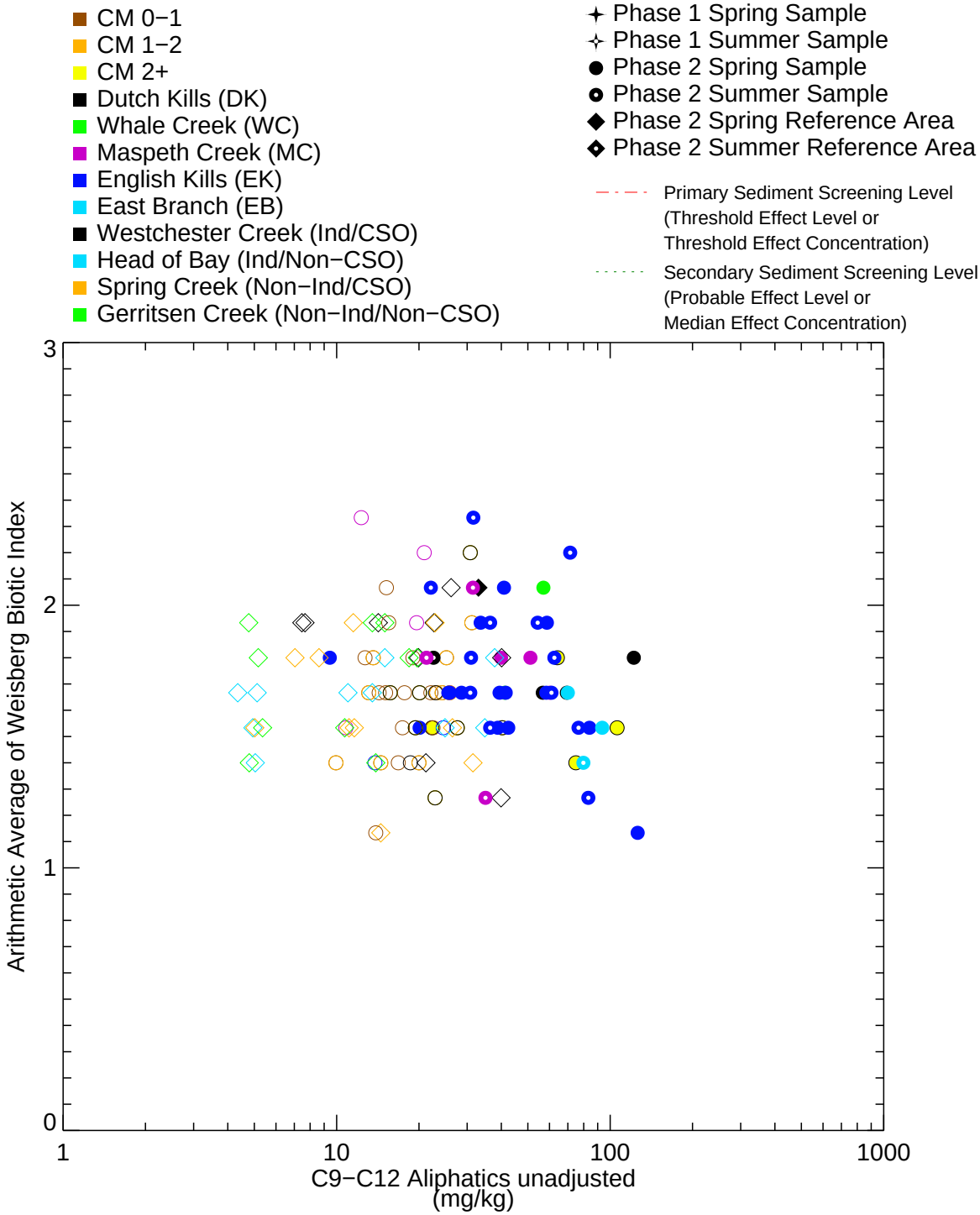

Figure C3−97

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C9−C12 Aliphatics Unadjusted
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

SMS,CH − \\austin2\Austin\D_drive\Projects\Newtown_Creek\RI−FS\Risk_assessment\Triads\Benthic_Community\IDL\Benthic_Metric_vs_Analyte_crossplot_onepanel_spring_summer_RIedit.pro Mon May 07 12:22:13 2018

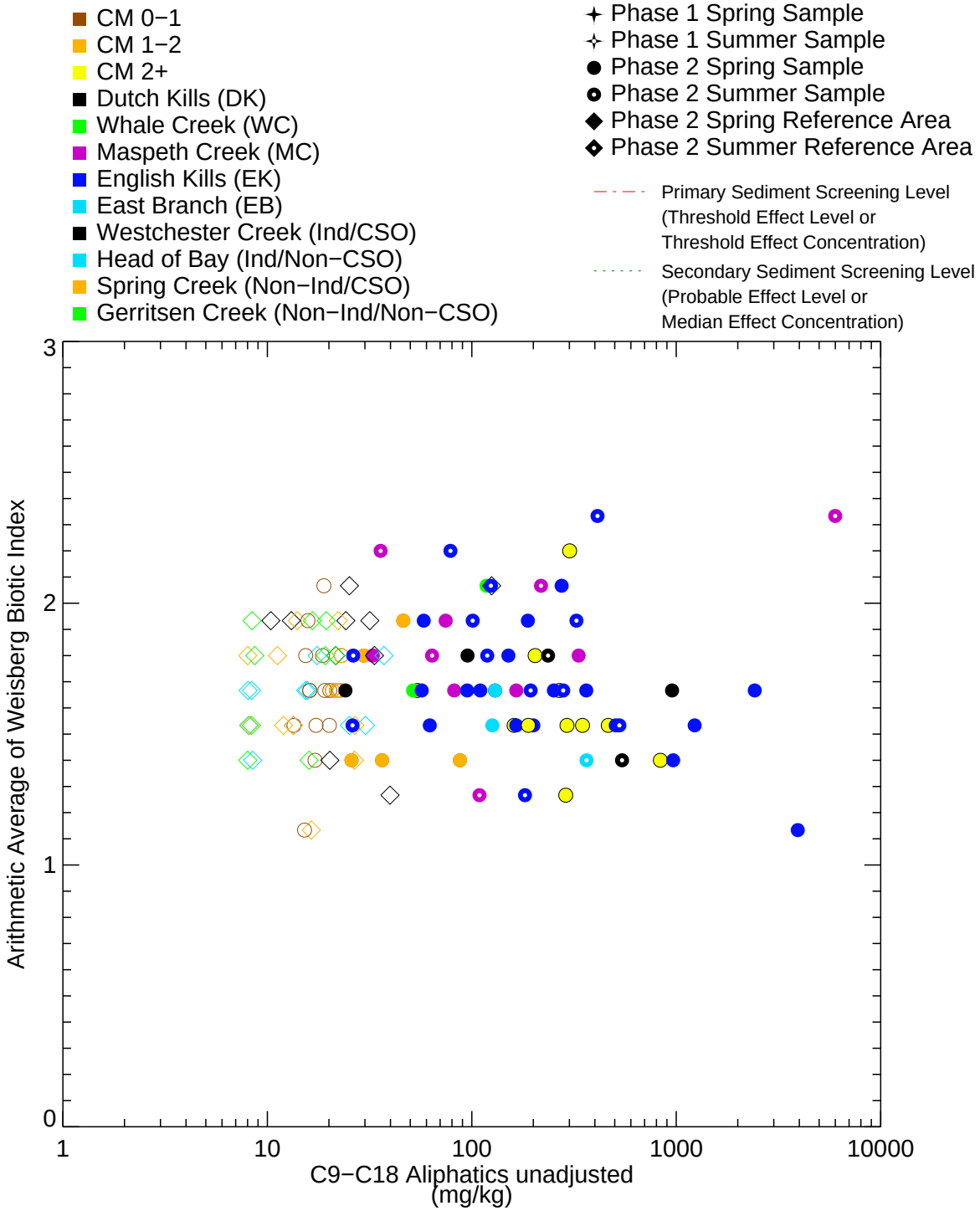

Figure C3−98

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: C9−C18 Aliphatics Unadjusted
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

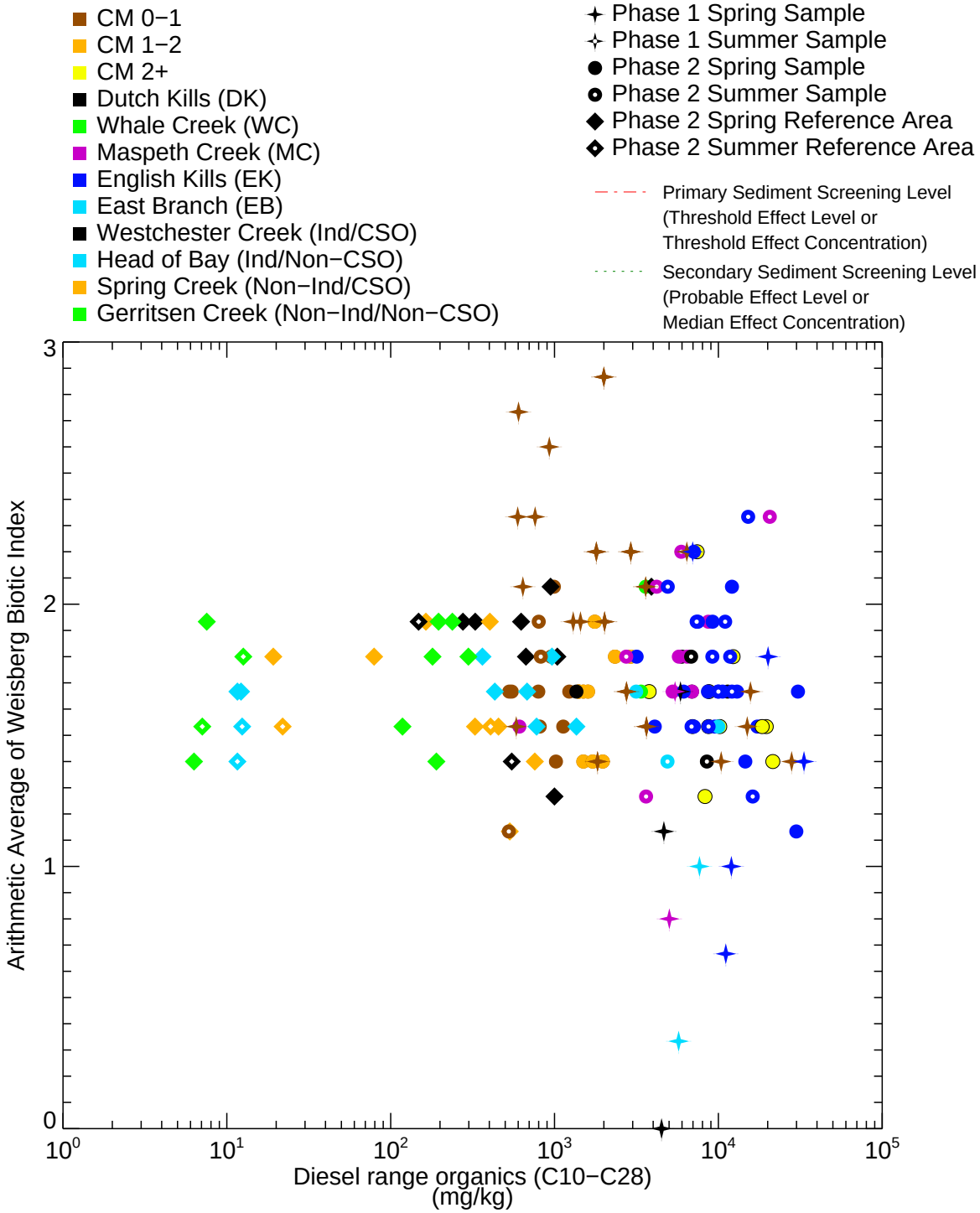

Figure C3−99

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Diesel Range Organics (C10−C28)
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

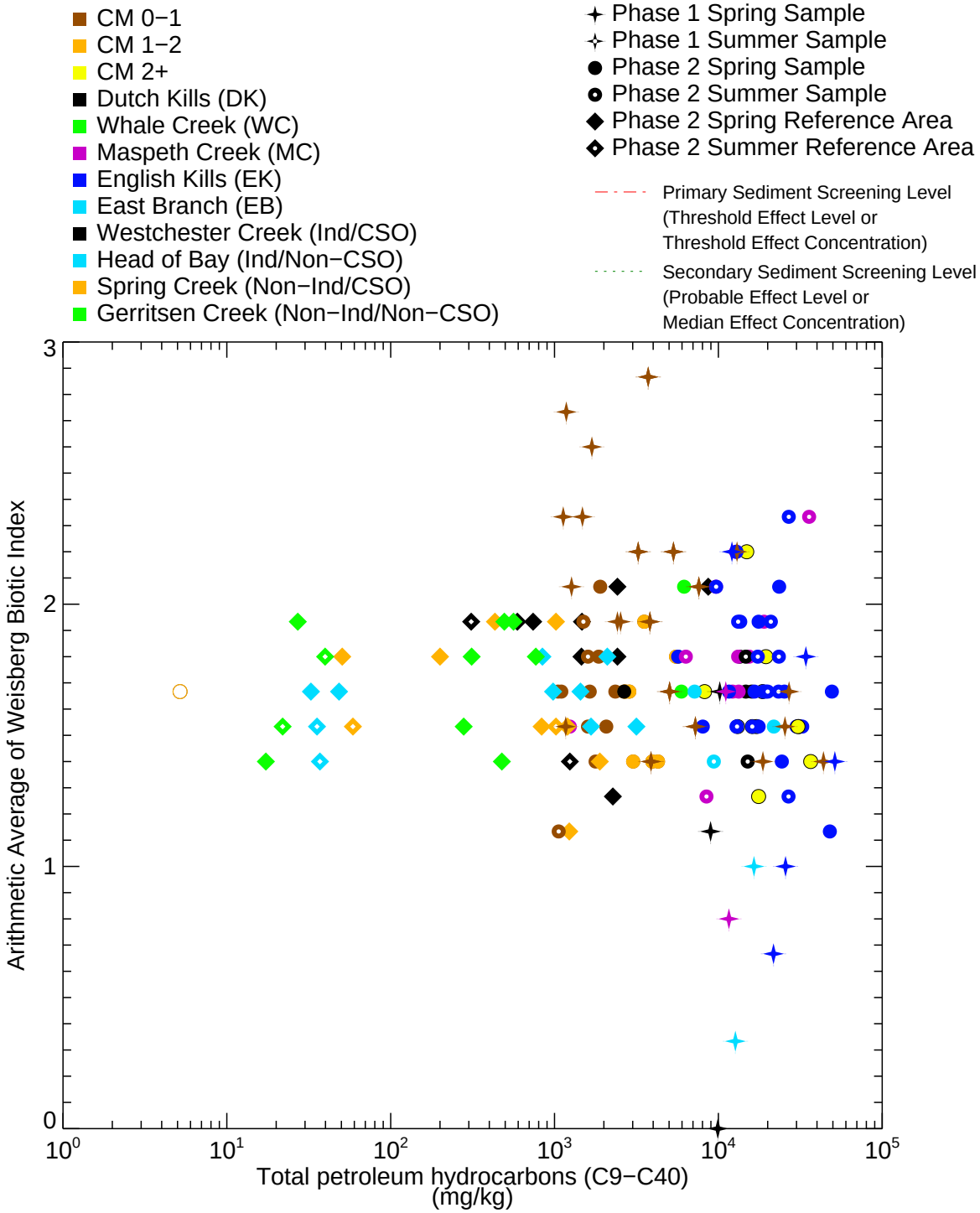

Figure C3−100

Relationship between Benthic Community Weisberg Biotic Index and Sediment Constituents: Total Petroleum Hydrocarbons (C9−C40)
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects shown as open symbols.

ANCHOR QEA

ALL CORRELATIONS, BULK SEDIMENT BASED

```
TEMPORARY.
SELECT IF (SUBFACILITY_CODE2 = 2).
  CORRELATIONS
  /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa
    AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted Cadmium Copper
    SumDDEHighResolutionKMMDL TotalHPAH10of17KMMDL TotalLPAH7of17KMMDL TotalPAH17KMMDL TotalPAH34U12MDL
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```

Correlations

Notes		
Output Created		26-FEB-2018 13:18:22
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\SPSS\All_Years_WBI_DO_02202018_Match_Base.sav
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	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	12
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted
Resources	Processor Time	00:00:00.05
	Elapsed Time	00:00:00.02

Correlations, Dutch Kills, Phase 1 and Phase 2 Data. Did match spring 2012 chemistry data to summer 2012 benthic data

		WBI	Average_of_Richness	Average_of_Percent_Pollution_Indicating_Taxa	AVERAGE_OF_ABUNDANCE_M2	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	DOmgL	@44DDEppDDE	Benzoapyrene	C19C36Aliphaticsunadjusted	Cadmium	Copper	SumDDEHighResolutionKMMDL	TotalHPAH10of17KMMDL	TotalLPAH7of17KMMDL	TotalPAH17KMMDL	TotalPAH34U12MDL
Pearson Correlation	WBI	1	.837**	.759**	0.457	0.570	0.511	0.384	0.119	-0.286	0.135	0.221	0.380	-0.240	0.051	-0.218	0.443
	Average_of_Richness	.837**	1	0.394	.805**	0.555	0.453	0.474	0.101	0.014	0.073	0.069	0.469	-0.197	0.116	-0.170	0.566
	Average_of_Percent_Pollution_Indicating_Taxa	.759**	0.394	1	0.040	0.379	0.453	0.139	0.163	-0.280	0.293	0.386	0.142	-0.285	-0.197	-0.294	0.051
	AVERAGE_OF_ABUNDANCE_M2	0.457	.805**	0.040	1	0.548	0.324	0.544	0.331	0.261	0.033	0.056	0.542	0.164	0.225	0.184	.588*
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	0.570	0.555	0.379	0.548	1	.880**	0.525	0.440	0.779	0.341	0.492	0.527	0.081	0.033	0.081	0.110
	DOmgL	0.511	0.453	0.453	0.324	.880**	1	0.354	0.151	0.512	0.348	0.408	0.357	-0.221	-0.216	-0.237	-0.222
	@44DDEppDDE	0.384	0.474	0.139	0.544	0.525	0.354	1	0.360	.970**	0.515	0.546	1.000**	0.342	-0.306	0.296	0.125
	Benzoapyrene	0.119	0.101	0.163	0.331	0.440	0.151	0.360	1	0.586	0.356	.621*	0.362	.740**	0.318	.738**	0.235
	C19C36Aliphaticsunadjusted	-0.286	0.014	-0.280	0.261	0.779	0.512	.970**	0.586	1	0.667	.832*	.971**	0.551	-0.319	0.503	-0.274
	Cadmium	0.135	0.073	0.293	0.033	0.341	0.348	0.515	0.356	0.667	1	.926**	0.527	0.007	-0.047	0.000	-0.301
	Copper	0.221	0.069	0.386	0.056	0.492	0.408	0.546	.621*	.832*	.926**	1	0.556	0.219	0.007	0.207	-0.230

	SumDDEHighResolutionKMMDL	0.380	0.469	0.142	0.542	0.527	0.357	1.000**	0.362	.971**	0.527	0.556	1	0.338	-0.306	0.293	0.117
	TotalHPAH10of17KMMDL	-0.240	-0.197	-0.285	0.164	0.081	-0.221	0.342	.740**	0.551	0.007	0.219	0.338	1	0.391	.992**	0.325
	TotalLPAH7of17KMMDL	0.051	0.116	-0.197	0.225	0.033	-0.216	-0.306	0.318	-0.319	-0.047	0.007	-0.306	0.391	1	0.502	.621*
	TotalPAH17KMMDL	-0.218	-0.170	-0.294	0.184	0.081	-0.237	0.296	.738**	0.503	0.000	0.207	0.293	.992**	0.502	1	0.389
	TotalPAH34U12MDL	0.443	0.566	0.051	.588*	0.110	-0.222	0.125	0.235	-0.274	-0.301	-0.230	0.117	0.325	.621*	0.389	1
Sig. (2-tailed)	WBI		0.001	0.004	0.135	0.053	0.089	0.273	0.713	0.582	0.675	0.490	0.279	0.453	0.876	0.495	0.150
	Average_of_Richness	0.001		0.205	0.002	0.061	0.139	0.166	0.755	0.979	0.821	0.832	0.171	0.539	0.721	0.598	0.055
	Average_of_Percent_Pollution_Indicating_Taxa	0.004	0.205		0.902	0.225	0.139	0.701	0.613	0.591	0.356	0.216	0.696	0.370	0.540	0.354	0.875
	AVERAGE_OF_ABUNDANCE_M2	0.135	0.002	0.902		0.065	0.305	0.104	0.293	0.618	0.920	0.864	0.106	0.611	0.482	0.567	0.044
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	0.053	0.061	0.225	0.065		0.000	0.119	0.153	0.068	0.277	0.104	0.118	0.802	0.918	0.803	0.733
	DOmgL	0.089	0.139	0.139	0.305	0.000		0.316	0.640	0.300	0.267	0.188	0.312	0.489	0.501	0.458	0.488
	@44DDEppDDE	0.273	0.166	0.701	0.104	0.119	0.316		0.307	0.001	0.128	0.103	0.000	0.334	0.390	0.407	0.730
	Benzoapyrene	0.713	0.755	0.613	0.293	0.153	0.640	0.307		0.222	0.256	0.031	0.304	0.006	0.314	0.006	0.462
	C19C36Aliphaticsunadjusted	0.582	0.979	0.591	0.618	0.068	0.300	0.001	0.222		0.148	0.040	0.001	0.257	0.537	0.309	0.599
	Cadmium	0.675	0.821	0.356	0.920	0.277	0.267	0.128	0.256	0.148		0.000	0.118	0.982	0.885	0.999	0.342
	Copper	0.490	0.832	0.216	0.864	0.104	0.188	0.103	0.031	0.040	0.000		0.095	0.494	0.983	0.519	0.471
	SumDDEHighResolutionKMMDL	0.279	0.171	0.696	0.106	0.118	0.312	0.000	0.304	0.001	0.118	0.095		0.339	0.390	0.412	0.748
	TotalHPAH10of17KMMDL	0.453	0.539	0.370	0.611	0.802	0.489	0.334	0.006	0.257	0.982	0.494	0.339		0.209	0.000	0.302
	TotalLPAH7of17KMMDL	0.876	0.721	0.540	0.482	0.918	0.501	0.390	0.314	0.537	0.885	0.983	0.390	0.209		0.097	0.031
	TotalPAH17KMMDL	0.495	0.598	0.354	0.567	0.803	0.458	0.407	0.006	0.309	0.999	0.519	0.412	0.000	0.097		0.211
	TotalPAH34U12MDL	0.150	0.055	0.875	0.044	0.733	0.488	0.730	0.462	0.599	0.342	0.471	0.748	0.302	0.031	0.211	
N	WBI	12	12	12	12	12	12	10	12	6	12	12	10	12	12	12	12
	Average_of_Richness	12	12	12	12	12	12	10	12	6	12	12	10	12	12	12	12
	Average_of_Percent_Pollution_Indicating_Taxa	12	12	12	12	12	12	10	12	6	12	12	10	12	12	12	12
	AVERAGE_OF_ABUNDANCE_M2	12	12	12	12	12	12	10	12	6	12	12	10	12	12	12	12
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	12	12	12	12	12	12	10	12	6	12	12	10	12	12	12	12
	DOmgL	12	12	12	12	12	12	10	12	6	12	12	10	12	12	12	12
	@44DDEppDDE	10	10	10	10	10	10	10	10	6	10	10	10	10	10	10	10
	Benzoapyrene	12	12	12	12	12	12	10	12	6	12	12	10	12	12	12	12
	C19C36Aliphaticsunadjusted	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
	Cadmium	12	12	12	12	12	12	10	12	6	12	12	10	12	12	12	12
	Copper	12	12	12	12	12	12	10	12	6	12	12	10	12	12	12	12
	SumDDEHighResolutionKMMDL	10	10	10	10	10	10	10	10	6	10	10	10	10	10	10	10
	TotalHPAH10of17KMMDL	12	12	12	12	12	12	10	12	6	12	12	10	12	12	12	12
	TotalLPAH7of17KMMDL	12	12	12	12	12	12	10	12	6	12	12	10	12	12	12	12
	TotalPAH17KMMDL	12	12	12	12	12	12	10	12	6	12	12	10	12	12	12	12
	TotalPAH34U12MDL	12	12	12	12	12	12	10	12	6	12	12	10	12	12	12	12

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

```
TEMPORARY.
SELECT IF (SUBFACILITY_CODE2 = 3).
  CORRELATIONS
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    SumDDEHighResolutionKMMDL TotalHPAH10of17KMMDL TotalLPAH7of17KMMDL TotalPAH17KMMDL TotalPAH34U12MDL
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
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Correlations

Notes	
Output Created	26-FEB-2018 13:19:55
Comments	

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	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	15
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Correlations, Maspeth Creek, Phase 1 and Phase 2 Data. Did match spring 2012 chemistry data to summer 2012 benthic data

		WBI	Average_of_Richness	Average_of_Percent_Pollution_Indicating_Taxa	AVERAGE_OF_ABUNDANCE_M2	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	DOmgL	@44DDEppDDE	Benzoapyrene	C19C36Aliphaticsunadjusted	Cadmium	Copper	SumDDEHighResolutionKMMDL	TotalHPAH10of17KMMDL	TotalLPAH7of17KMMDL	TotalPAH17KMMDL	TotalPAH34U12MDL
Pearson Correlation	WBI	1	.909**	.756**	.519*	.585*	0.155	.631*	0.061	0.557	0.401	0.342	0.634	0.048	0.114	0.085	0.320
	Average_of_Richness	.909**	1	.689**	.621*	0.513	0.050	0.322	0.158	0.261	0.289	0.245	0.127	0.133	0.121	0.168	0.348
	Average_of_Percent_Pollution_Indicating_Taxa	.756**	.689**	1	0.500	0.233	0.241	-0.306	-0.052	0.233	0.206	0.182	-0.169	-0.043	0.028	-0.024	0.122
	AVERAGE_OF_ABUNDANCE_M2	.519*	.621*	0.500	1	0.239	0.032	-0.330	-0.033	-0.376	-0.052	-0.080	-0.153	-0.062	-0.326	-0.105	-0.085
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	.585*	0.513	0.233	0.239	1	-0.192	0.419	-0.137	0.591	.715**	.688**	0.582	-0.092	0.185	-0.029	0.138
	DOmgL	0.155	0.050	0.241	0.032	-0.192	1	0.012	0.183	-0.192	0.005	-0.007	-0.194	0.182	-0.155	0.126	-0.160
	@44DDEppDDE	.631*	0.322	-0.306	-0.330	0.419	0.012	1	0.247	.673*	.683*	.655*	1.000**	0.292	.767**	0.419	.728*
	Benzoapyrene	0.061	0.158	-0.052	-0.033	-0.137	0.183	0.247	1	-0.285	0.048	0.074	-0.240	.986**	0.464	.963**	0.463
	C19C36Aliphaticsunadjusted	0.557	0.261	0.233	-0.376	0.591	-0.192	.673*	-0.285	1	.878**	.862**	.765*	-0.203	.628*	-0.044	0.483
	Cadmium	0.401	0.289	0.206	-0.052	.715**	0.005	.683*	0.048	.878**	1	.991**	.762*	0.128	.581*	0.232	0.438
	Copper	0.342	0.245	0.182	-0.080	.688**	-0.007	.655*	0.074	.862**	.991**	1	.734*	0.165	.582*	0.261	0.393
	SumDDEHighResolutionKMMDL	0.634	0.127	-0.169	-0.153	0.582	-0.194	1.000**	-0.240	.765*	.762*	.734*	1	-0.254	0.630	-0.069	0.595
	TotalHPAH10of17KMMDL	0.048	0.133	-0.043	-0.062	-0.092	0.182	0.292	.986**	-0.203	0.128	0.165	-0.254	1	0.513	.982**	0.449
	TotalLPAH7of17KMMDL	0.114	0.121	0.028	-0.326	0.185	-0.155	.767**	0.464	.628*	.581*	.582*	0.630	0.513	1	.659**	.884**
	TotalPAH17KMMDL	0.085	0.168	-0.024	-0.105	-0.029	0.126	0.419	.963**	-0.044	0.232	0.261	-0.069	.982**	.659**	1	.591*
	TotalPAH34U12MDL	0.320	0.348	0.122	-0.085	0.138	-0.160	.728*	0.463	0.483	0.438	0.393	0.595	0.449	.884**	.591*	1
Sig. (2-tailed)	WBI		0.000	0.001	0.048	0.022	0.581	0.037	0.828	0.075	0.139	0.213	0.091	0.864	0.686	0.762	0.245
	Average_of_Richness	0.000		0.005	0.014	0.051	0.859	0.333	0.575	0.439	0.296	0.378	0.764	0.635	0.667	0.549	0.204
	Average_of_Percent_Pollution_Indicating_Taxa	0.001	0.005		0.058	0.402	0.387	0.361	0.854	0.490	0.461	0.515	0.689	0.878	0.920	0.932	0.664
	AVERAGE_OF_ABUNDANCE_M2	0.048	0.014	0.058		0.390	0.911	0.322	0.906	0.254	0.854	0.776	0.717	0.827	0.235	0.709	0.764
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	0.022	0.051	0.402	0.390		0.493	0.200	0.627	0.056	0.003	0.005	0.130	0.745	0.509	0.918	0.624
	DOmgL	0.581	0.859	0.387	0.911	0.493		0.971	0.513	0.571	0.985	0.980	0.644	0.517	0.582	0.654	0.570
	@44DDEppDDE	0.037	0.333	0.361	0.322	0.200	0.971		0.465	0.023	0.020	0.029	0.000	0.384	0.006	0.200	0.011
	Benzoapyrene	0.828	0.575	0.854	0.906	0.627	0.513	0.465		0.395	0.866	0.793	0.567	0.000	0.081	0.000	0.082

	C19C36Aliphaticsunadjusted	0.075	0.439	0.490	0.254	0.056	0.571	0.023	0.395		0.000	0.001	0.027	0.550	0.039	0.898	0.132
	Cadmium	0.139	0.296	0.461	0.854	0.003	0.985	0.020	0.866	0.000		0.000	0.028	0.650	0.023	0.404	0.102
	Copper	0.213	0.378	0.515	0.776	0.005	0.980	0.029	0.793	0.001	0.000		0.038	0.556	0.023	0.348	0.147
	SumDDEHighResolutionKMMDL	0.091	0.764	0.689	0.717	0.130	0.644	0.000	0.567	0.027	0.028	0.038		0.544	0.094	0.871	0.120
	TotalHPAH10of17KMMDL	0.864	0.635	0.878	0.827	0.745	0.517	0.384	0.000	0.550	0.650	0.556	0.544		0.051	0.000	0.093
	TotalLPAH7of17KMMDL	0.686	0.667	0.920	0.235	0.509	0.582	0.006	0.081	0.039	0.023	0.023	0.094	0.051		0.008	0.000
	TotalPAH17KMMDL	0.762	0.549	0.932	0.709	0.918	0.654	0.200	0.000	0.898	0.404	0.348	0.871	0.000	0.008		0.020
	TotalPAH34U12MDL	0.245	0.204	0.664	0.764	0.624	0.570	0.011	0.082	0.132	0.102	0.147	0.120	0.093	0.000	0.020	
N	WBI	15	15	15	15	15	15	11	15	11	15	15	8	15	15	15	15
	Average_of_Richness	15	15	15	15	15	15	11	15	11	15	15	8	15	15	15	15
	Average_of_Percent_Pollution_Indicating_Taxa	15	15	15	15	15	15	11	15	11	15	15	8	15	15	15	15
	AVERAGE_OF_ABUNDANCE_M2	15	15	15	15	15	15	11	15	11	15	15	8	15	15	15	15
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	15	15	15	15	15	15	11	15	11	15	15	8	15	15	15	15
	DOmgL	15	15	15	15	15	15	11	15	11	15	15	8	15	15	15	15
	@44DDEppDDE	11	11	11	11	11	11	11	11	11	11	11	8	11	11	11	11
	Benzoapyrene	15	15	15	15	15	15	11	15	11	15	15	8	15	15	15	15
	C19C36Aliphaticsunadjusted	11	11	11	11	11	11	11	11	11	11	11	8	11	11	11	11
	Cadmium	15	15	15	15	15	15	11	15	11	15	15	8	15	15	15	15
	Copper	15	15	15	15	15	15	11	15	11	15	15	8	15	15	15	15
	SumDDEHighResolutionKMMDL	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	TotalHPAH10of17KMMDL	15	15	15	15	15	15	11	15	11	15	15	8	15	15	15	15
	TotalLPAH7of17KMMDL	15	15	15	15	15	15	11	15	11	15	15	8	15	15	15	15
	TotalPAH17KMMDL	15	15	15	15	15	15	11	15	11	15	15	8	15	15	15	15
	TotalPAH34U12MDL	15	15	15	15	15	15	11	15	11	15	15	8	15	15	15	15

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

```
TEMPORARY.
SELECT IF (SUBFACILITY_CODE2 = 4).
  CORRELATIONS
  /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa
    AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted Cadmium Copper
    SumDDEHighResolutionKMMDL TotalHPAH10of17KMMDL TotalLPAH7of17KMMDL TotalPAH17KMMDL TotalPAH34U12MDL
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```

Correlations

Notes		
Output Created		26-FEB-2018 13:11:41
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\SPSS\All_Years_WBI_DO_02202018_Match_Base.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	39
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.

Syntax		CORRELATIONS /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Correlations, English Kills, Phase 1 and Phase 2 Data. Did match spring 2012 chemistry data to summer 2012 benthic data

		WBI	Average_of_Richness	Average_of_Percent_Pollution_Indicating_Taxa	AVERAGE_OF_ABUNDANCE_M2	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	DOmgL	@44DDEppDDE	Benzoapyrene	C19C36Aliphaticsunadjusted	Cadmium	Copper	SumDDEHighResolutionKMMDL	TotalHPAH10of17KMMDL	TotalLPAH7of17KMMDL	TotalPAH17KMMDL	TotalPAH34U12MDL
Pearson Correlation	WBI	1	.819**	.531**	0.235	.519**	.711**	-0.289	-0.307	-.431*	-0.284	-0.280	-0.288	-.397*	-0.226	-.348*	-0.117
	Average_of_Richness	.819**	1	.397*	.571**	.458**	.704**	0.066	-0.240	0.010	-0.179	-0.183	0.066	-.317*	-0.184	-0.279	0.025
	Average_of_Percent_Pollution_Indicating_Taxa	.531**	.397*	1	0.153	0.179	.365*	0.074	0.034	0.137	-0.034	-0.033	0.076	-0.094	-0.015	-0.069	0.077
	AVERAGE_OF_ABUNDANCE_M2	0.235	.571**	0.153	1	0.036	.362*	.614**	0.044	.604**	0.189	0.171	.613**	0.003	0.109	0.040	.450**
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	.519**	.458**	0.179	0.036	1	.332*	-0.147	-0.223	-0.096	-0.178	-0.182	-0.145	-0.209	-0.211	-0.214	-0.163
	DOmgL	.711**	.704**	.365*	.362*	.332*	1	-0.002	-.318*	-0.157	-0.232	-0.181	0.000	-.398*	-0.171	-.331*	-0.113
	@44DDEppDDE	-0.289	0.066	0.074	.614**	-0.147	-0.002	1	.613**	.682**	.913**	.863**	1.000**	.689**	.635**	.690**	.717**
	Benzoapyrene	-0.307	-0.240	0.034	0.044	-0.223	-.318*	.613**	1	.473**	.844**	.890**	.614**	.970**	.902**	.972**	.735**
	C19C36Aliphaticsunadjusted	-.431*	0.010	0.137	.604**	-0.096	-0.157	.682**	.473**	1	.720**	.634**	.683**	.557**	.580**	.581**	.787**
	Cadmium	-0.284	-0.179	-0.034	0.189	-0.178	-0.232	.913**	.844**	.720**	1	.979**	.915**	.864**	.773**	.857**	.666**
	Copper	-0.280	-0.183	-0.033	0.171	-0.182	-0.181	.863**	.890**	.634**	.979**	1	.865**	.902**	.846**	.908**	.695**
	SumDDEHighResolutionKMMDL	-0.288	0.066	0.076	.613**	-0.145	0.000	1.000**	.614**	.683**	.915**	.865**	1	.691**	.637**	.693**	.719**
	TotalHPAH10of17KMMDL	-.397*	-.317*	-0.094	0.003	-0.209	-.398*	.689**	.970**	.557**	.864**	.902**	.691**	1	.884**	.988**	.691**
	TotalLPAH7of17KMMDL	-0.226	-0.184	-0.015	0.109	-0.211	-0.171	.635**	.902**	.580**	.773**	.846**	.637**	.884**	1	.947**	.863**
	TotalPAH17KMMDL	-.348*	-0.279	-0.069	0.040	-0.214	-.331*	.690**	.972**	.581**	.857**	.908**	.693**	.988**	.947**	1	.767**
	TotalPAH34U12MDL	-0.117	0.025	0.077	.450**	-0.163	-0.113	.717**	.735**	.787**	.666**	.695**	.719**	.691**	.863**	.767**	1
Sig. (2-tailed)	WBI		0.000	0.001	0.149	0.001	0.000	0.102	0.058	0.020	0.079	0.084	0.104	0.012	0.166	0.030	0.477
	Average_of_Richness	0.000		0.012	0.000	0.003	0.000	0.715	0.141	0.959	0.277	0.264	0.714	0.049	0.263	0.086	0.879
	Average_of_Percent_Pollution_Indicating_Taxa	0.001	0.012		0.353	0.275	0.022	0.682	0.839	0.479	0.839	0.842	0.676	0.571	0.928	0.675	0.643
	AVERAGE_OF_ABUNDANCE_M2	0.149	0.000	0.353		0.828	0.023	0.000	0.789	0.001	0.249	0.297	0.000	0.987	0.507	0.810	0.004
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	0.001	0.003	0.275	0.828		0.039	0.415	0.173	0.622	0.278	0.266	0.421	0.202	0.197	0.191	0.320
	DOmgL	0.000	0.000	0.022	0.023	0.039		0.993	0.048	0.417	0.155	0.271	0.999	0.012	0.298	0.040	0.492
	@44DDEppDDE	0.102	0.715	0.682	0.000	0.415	0.993		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Benzoapyrene	0.058	0.141	0.839	0.789	0.173	0.048	0.000		0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	C19C36Aliphaticsunadjusted	0.020	0.959	0.479	0.001	0.622	0.417	0.000	0.009		0.000	0.000	0.000	0.002	0.001	0.001	0.000
	Cadmium	0.079	0.277	0.839	0.249	0.278	0.155	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000
	Copper	0.084	0.264	0.842	0.297	0.266	0.271	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000
	SumDDEHighResolutionKMMDL	0.104	0.714	0.676	0.000	0.421	0.999	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000
	TotalHPAH10of17KMMDL	0.012	0.049	0.571	0.987	0.202	0.012	0.000	0.000	0.002	0.000	0.000	0.000		0.000	0.000	0.000
	TotalLPAH7of17KMMDL	0.166	0.263	0.928	0.507	0.197	0.298	0.000	0.000	0.001	0.000	0.000	0.000	0.000		0.000	0.000
	TotalPAH17KMMDL	0.030	0.086	0.675	0.810	0.191	0.040	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000		0.000
	TotalPAH34U12MDL	0.477	0.879	0.643	0.004	0.320	0.492	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
N	WBI	39	39	39	39	39	39	33	39	29	39	39	33	39	39	39	39
	Average_of_Richness	39	39	39	39	39	39	33	39	29	39	39	33	39	39	39	39
	Average_of_Percent_Pollution_Indicating_Taxa	39	39	39	39	39	39	33	39	29	39	39	33	39	39	39	39
	AVERAGE_OF_ABUNDANCE_M2	39	39	39	39	39	39	33	39	29	39	39	33	39	39	39	39
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	39	39	39	39	39	39	33	39	29	39	39	33	39	39	39	39

	DOmgL	39	39	39	39	39	39	33	39	29	39	39	33	39	39	39	39
	@44DDEppDDE	33	33	33	33	33	33	33	33	29	33	33	33	33	33	33	33
	Benzoapyrene	39	39	39	39	39	39	33	39	29	39	39	33	39	39	39	39
	C19C36Aliphaticsunadjusted	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
	Cadmium	39	39	39	39	39	39	33	39	29	39	39	33	39	39	39	39
	Copper	39	39	39	39	39	39	33	39	29	39	39	33	39	39	39	39
	SumDDEHighResolutionKMMDL	33	33	33	33	33	33	33	33	29	33	33	33	33	33	33	33
	TotalHPAH10of17KMMDL	39	39	39	39	39	39	33	39	29	39	39	33	39	39	39	39
	TotalLPAH7of17KMMDL	39	39	39	39	39	39	33	39	29	39	39	33	39	39	39	39
	TotalPAH17KMMDL	39	39	39	39	39	39	33	39	29	39	39	33	39	39	39	39
	TotalPAH34U12MDL	39	39	39	39	39	39	33	39	29	39	39	33	39	39	39	39

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

```
TEMPORARY.
SELECT IF (SUBFACILITY_CODE2 = 5).
  CORRELATIONS
  /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa
    AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted Cadmium Copper
    SumDDEHighResolutionKMMDL TotalHPAH10of17KMMDL TotalLPAH7of17KMMDL TotalPAH17KMMDL TotalPAH34U12MDL
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
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Correlations

Notes		
Output Created		26-FEB-2018 14:27:30
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\SPSS\All_Years_WBI_DO_02202018_Match_Base.sav
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	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	7
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted
Resources	Processor Time	00:00:00.05
	Elapsed Time	00:00:00.02

Correlations, East Branch, Phase 1 and Phase 2 Data. Did match spring 2012 chemistry data to summer 2012 benthic data

		WBI	Average_of_Richness	Average_of_Percent_Pollution_Indicating_Taxa	AVERAGE_OF_ABUNDANCE_M2	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	DOmgL	@44DDEppDDE	Benzoapyrene	C19C36Aliphaticsunadjusted	Cadmium	Copper	SumDDEHighResolutionKMMDL	TotalHPAH10of17KMMDL	TotalLPAH7of17KMMDL	TotalPAH17KMMDL	TotalPAH34U12MDL
Pearson Correlation	WBI	1	.918**	0.627	0.722	0.578	0.667	0.745	0.396	-0.798	0.400	0.412	-0.924	0.206	0.067	0.174	0.631
	Average_of_Richness	.918**	1	0.373	.777*	0.584	0.694	.883*	0.439	-0.943	0.602	0.618	-0.191	0.203	0.011	0.158	0.735

	Average_of_Percent_Pollution_Indicating_Taxa	0.627	0.373	1	0.008	-0.119	-0.036	0.173	-0.124	0.331	0.319	0.310	0.981	-0.017	0.082	0.008	0.055
	AVERAGE_OF_ABUNDANCE_M2	0.722	.777*	0.008	1	.958**	.989**	0.380	.861*	-0.725	0.244	0.261	-0.961	0.587	0.311	0.526	.919**
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	0.578	0.584	-0.119	.958**	1	.986**	0.166	.880**	-0.532	-0.026	-0.010	-1.000*	0.609	0.341	0.550	.825*
	DOmgL	0.667	0.694	-0.036	.989**	.986**	1	0.294	.875**	-0.634	0.119	0.137	-0.988	0.589	0.306	0.526	.880**
	SumDDEHighResolutionKMMDL	0.745	.883*	0.173	0.380	0.166	0.294	1	-0.097	0.428	0.482	0.511	0.996	-0.491	-0.760	-0.562	0.252
	Benzoapyrene	0.396	0.439	-0.124	.861*	.880**	.875**	-0.097	1	-0.842	0.197	0.202	-0.892	.881**	0.654	.836*	.916**
	C19C36Aliphaticsunadjusted	-0.798	-0.943	0.331	-0.725	-0.532	-0.634	0.428	-0.842	1	-0.591	-0.594	0.508	-0.924	-0.953	-0.930	-0.960
	Cadmium	0.400	0.602	0.319	0.244	-0.026	0.119	0.482	0.197	-0.591	1	.999**	0.395	0.230	0.172	0.219	0.515
	Copper	0.412	0.618	0.310	0.261	-0.010	0.137	0.511	0.202	-0.594	.999**	1	0.392	0.216	0.145	0.201	0.523
	SumDDEHighResolutionKMMDL	-0.924	-0.191	0.981	-0.961	-1.000*	-0.988	0.996	-0.892	0.508	0.395	0.392	1	-0.798	-0.744	-0.788	-0.727
	TotalHPAH10of17KMMDL	0.206	0.203	-0.017	0.587	0.609	0.589	-0.491	.881**	-0.924	0.230	0.216	-0.798	1	.931**	.996**	.766*
	TotalLPAH7of17KMMDL	0.067	0.011	0.082	0.311	0.341	0.306	-0.760	0.654	-0.953	0.172	0.145	-0.744	.931**	1	.960**	0.530
	TotalPAH17KMMDL	0.174	0.158	0.008	0.526	0.550	0.526	-0.562	.836*	-0.930	0.219	0.201	-0.788	.996**	.960**	1	0.717
	TotalPAH34U12MDL	0.631	0.735	0.055	.919**	.825*	.880**	0.252	.916**	-0.960	0.515	0.523	-0.727	.766*	0.530	0.717	1
Sig. (2-tailed)	WBI		0.003	0.132	0.067	0.174	0.101	0.149	0.380	0.412	0.374	0.359	0.250	0.658	0.887	0.709	0.129
	Average_of_Richness	0.003		0.410	0.040	0.169	0.083	0.047	0.324	0.216	0.153	0.139	0.877	0.663	0.981	0.735	0.060
	Average_of_Percent_Pollution_Indicating_Taxa	0.132	0.410		0.986	0.800	0.938	0.781	0.791	0.785	0.485	0.499	0.124	0.972	0.861	0.987	0.907
	AVERAGE_OF_ABUNDANCE_M2	0.067	0.040	0.986		0.001	0.000	0.528	0.013	0.483	0.597	0.571	0.178	0.166	0.497	0.225	0.003
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	0.174	0.169	0.800	0.001		0.000	0.790	0.009	0.643	0.956	0.984	0.018	0.147	0.455	0.201	0.022
	DOmgL	0.101	0.083	0.938	0.000	0.000		0.632	0.010	0.563	0.800	0.770	0.098	0.164	0.504	0.225	0.009
	@44DDEppDDE	0.149	0.047	0.781	0.528	0.790	0.632		0.877	0.718	0.411	0.379	0.057	0.401	0.136	0.324	0.682
	Benzoapyrene	0.380	0.324	0.791	0.013	0.009	0.010	0.877		0.363	0.672	0.665	0.298	0.009	0.111	0.019	0.004
	C19C36Aliphaticsunadjusted	0.412	0.216	0.785	0.483	0.643	0.563	0.718	0.363		0.597	0.595	0.661	0.250	0.195	0.239	0.180
	Cadmium	0.374	0.153	0.485	0.597	0.956	0.800	0.411	0.672	0.597		0.000	0.741	0.620	0.712	0.638	0.237
	Copper	0.359	0.139	0.499	0.571	0.984	0.770	0.379	0.665	0.595	0.000		0.744	0.642	0.756	0.665	0.228
	SumDDEHighResolutionKMMDL	0.250	0.877	0.124	0.178	0.018	0.098	0.057	0.298	0.661	0.741	0.744		0.411	0.466	0.422	0.481
	TotalHPAH10of17KMMDL	0.658	0.663	0.972	0.166	0.147	0.164	0.401	0.009	0.250	0.620	0.642	0.411		0.002	0.000	0.045
	TotalLPAH7of17KMMDL	0.887	0.981	0.861	0.497	0.455	0.504	0.136	0.111	0.195	0.712	0.756	0.466	0.002		0.001	0.221
	TotalPAH17KMMDL	0.709	0.735	0.987	0.225	0.201	0.225	0.324	0.019	0.239	0.638	0.665	0.422	0.000	0.001		0.070
	TotalPAH34U12MDL	0.129	0.060	0.907	0.003	0.022	0.009	0.682	0.004	0.180	0.237	0.228	0.481	0.045	0.221	0.070	
N	WBI	7	7	7	7	7	7	5	7	3	7	7	3	7	7	7	7
	Average_of_Richness	7	7	7	7	7	7	5	7	3	7	7	3	7	7	7	7
	Average_of_Percent_Pollution_Indicating_Taxa	7	7	7	7	7	7	5	7	3	7	7	3	7	7	7	7
	AVERAGE_OF_ABUNDANCE_M2	7	7	7	7	7	7	5	7	3	7	7	3	7	7	7	7
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	7	7	7	7	7	7	5	7	3	7	7	3	7	7	7	7
	DOmgL	7	7	7	7	7	7	5	7	3	7	7	3	7	7	7	7
	@44DDEppDDE	5	5	5	5	5	5	5	5	3	5	5	3	5	5	5	5
	Benzoapyrene	7	7	7	7	7	7	5	7	3	7	7	3	7	7	7	7
	C19C36Aliphaticsunadjusted	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	Cadmium	7	7	7	7	7	7	5	7	3	7	7	3	7	7	7	7
	Copper	7	7	7	7	7	7	5	7	3	7	7	3	7	7	7	7
	SumDDEHighResolutionKMMDL	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	TotalHPAH10of17KMMDL	7	7	7	7	7	7	5	7	3	7	7	3	7	7	7	7
	TotalLPAH7of17KMMDL	7	7	7	7	7	7	5	7	3	7	7	3	7	7	7	7
	TotalPAH17KMMDL	7	7	7	7	7	7	5	7	3	7	7	3	7	7	7	7
	TotalPAH34U12MDL	7	7	7	7	7	7	5	7	3	7	7	3	7	7	7	7

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

```
TEMPORARY.
SELECT IF (SUBFACILITY_CODE2 = 1).
  CORRELATIONS
  /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa
```

```
  AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted Cadmium Copper
  SumDDEHighResolutionKMMDL TotalHPAH10of17KMMDL TotalLPAH7of17KMMDL TotalPAH17KMMDL TotalPAH34U12MDL
 /PRINT=TWOTAIL NOSIG
 /MISSING=PAIRWISE.
```

Correlations

Notes

Output Created		26-FEB-2018 13:14:46
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\SPSS\All_Years_WBI_DO_02202018_Match_Base.sav
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	Filter	<none>
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Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.02

All Years and Seasond Newtown Creek

Correlations, Newtown Creek, Phase 1 and Phase 2 Data. Did match spring 2012 chemistry data to summer 2012 benthic data

		WBI	Average_of_Richness	Average_of_Percent_Pollution_Indicating_Taxa	AVERAGE_OF_ABUNDANCE_M2	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	DOmgL	@44DDEppDDE	Benzoapyrene	C19C36Aliphaticsunadjusted	Cadmium	Copper	SumDDEHighResolutionKMMDL	TotalHPAH10of17KMMDL	TotalLPAH7of17KMMDL	TotalPAH17KMMDL	TotalPAH34U12MDL
Pearson Correlation	WBI	1	.682**	0.027	-0.124	.367**	.478**	-.536**	-.423**	-0.186	-.477**	-.460**	-.555**	-.430**	-.262*	-.401**	-0.219
	Average_of_Richness	.682**	1	0.176	0.039	0.095	.421**	-.383**	-.311**	0.239	-.387**	-.368**	-.432**	-.330**	-0.216	-.312**	-0.061
	Average_of_Percent_Pollution_Indicating_Taxa	0.027	0.176	1	.309**	-.240*	-0.061	-0.198	-0.086	-0.177	-0.068	-0.072	-0.218	-0.096	-0.063	-0.091	0.029
	AVERAGE_OF_ABUNDANCE_M2	-0.124	0.039	.309**	1	-0.115	-0.171	0.184	0.109	.357*	0.099	0.119	0.273	0.119	0.040	0.102	0.049
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	.367**	0.095	-.240*	-0.115	1	.271*	0.040	0.009	0.315	-0.029	-0.035	0.053	0.011	-0.023	0.002	-0.066
	DOmgL	.478**	.421**	-0.061	-0.171	.271*	1	-0.252	-.235*	0.159	-.229*	-0.209	-0.271	-.235*	-0.210	-.238*	-0.166
	@44DDEppDDE	-.536**	-.383**	-0.198	0.184	0.040	-0.252	1	.864**	.717**	.899**	.890**	1.000**	.866**	.756**	.846**	.734**
	Benzoapyrene	-.423**	-.311**	-0.086	0.109	0.009	-.235*	.864**	1	.632**	.868**	.854**	.860**	.994**	.788**	.979**	.769**
	C19C36Aliphaticsunadjusted	-0.186	0.239	-0.177	.357*	0.315	0.159	.717**	.632**	1	.508**	.457**	.742**	.653**	.436*	.605**	.458**
	Cadmium	-.477**	-.387**	-0.068	0.099	-0.029	-.229*	.899**	.868**	.508**	1	.971**	.897**	.879**	.662**	.856**	.588**
	Copper	-.460**	-.368**	-0.072	0.119	-0.035	-0.209	.890**	.854**	.457**	.971**	1	.884**	.879**	.652**	.853**	.566**
	SumDDEHighResolutionKMMDL	-.555**	-.432**	-0.218	0.273	0.053	-0.271	1.000**	.860**	.742**	.897**	.884**	1	.862**	.753**	.841**	.753**
	TotalHPAH10of17KMMDL	-.430**	-.330**	-0.096	0.119	0.011	-.235*	.866**	.994**	.653**	.879**	.879**	.862**	1	.792**	.985**	.730**
	TotalLPAH7of17KMMDL	-.262*	-0.216	-0.063	0.040	-0.023	-0.210	.756**	.788**	.436*	.662**	.652**	.753**	.792**	1	.887**	.658**
	TotalPAH17KMMDL	-.401**	-.312**	-0.091	0.102	0.002	-.238*	.846**	.979**	.605**	.856**	.853**	.841**	.985**	.887**	1	.741**
	TotalPAH34U12MDL	-0.219	-0.061	0.029	0.049	-0.066	-0.166	.734**	.769**	.458**	.588**	.566**	.753**	.730**	.658**	.741**	1
Sig. (2-tailed)	WBI		0.000	0.818	0.283	0.001	0.000	0.000	0.000	0.301	0.000	0.000	0.000	0.000	0.021	0.000	0.056

	Average_of_Richness	0.000		0.126	0.734	0.409	0.000	0.007	0.006	0.181	0.001	0.001	0.004	0.003	0.059	0.006	0.597
	Average_of_Percent_Pollution_Indicating_Taxa	0.818	0.126		0.006	0.036	0.598	0.172	0.457	0.324	0.557	0.532	0.165	0.407	0.586	0.434	0.801
	AVERAGE_OF_ABUNDANCE_M2	0.283	0.734	0.006		0.319	0.137	0.205	0.344	0.042	0.392	0.303	0.081	0.302	0.731	0.378	0.673
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	0.001	0.409	0.036	0.319		0.017	0.784	0.941	0.074	0.799	0.766	0.738	0.924	0.844	0.987	0.568
	DOmgL	0.000	0.000	0.598	0.137	0.017		0.080	0.040	0.378	0.045	0.068	0.082	0.040	0.067	0.037	0.150
	@44DDEppDDE	0.000	0.007	0.172	0.205	0.784	0.080		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Benzoapyrene	0.000	0.006	0.457	0.344	0.941	0.040	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	C19C36Aliphaticsunadjusted	0.301	0.181	0.324	0.042	0.074	0.378	0.000	0.000		0.003	0.008	0.000	0.000	0.011	0.000	0.007
	Cadmium	0.000	0.001	0.557	0.392	0.799	0.045	0.000	0.000	0.003		0.000	0.000	0.000	0.000	0.000	0.000
	Copper	0.000	0.001	0.532	0.303	0.766	0.068	0.000	0.000	0.008	0.000		0.000	0.000	0.000	0.000	0.000
	SumDDEHighResolutionKMMDL	0.000	0.004	0.165	0.081	0.738	0.082	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000
	TotalHPAH10of17KMMDL	0.000	0.003	0.407	0.302	0.924	0.040	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000
	TotalLPAH7of17KMMDL	0.021	0.059	0.586	0.731	0.844	0.067	0.000	0.000	0.011	0.000	0.000	0.000	0.000		0.000	0.000
	TotalPAH17KMMDL	0.000	0.006	0.434	0.378	0.987	0.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000
	TotalPAH34U12MDL	0.056	0.597	0.801	0.673	0.568	0.150	0.000	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.000	
N	WBI	77	77	77	77	77	77	49	77	33	77	77	42	77	77	77	77
	Average_of_Richness	77	77	77	77	77	77	49	77	33	77	77	42	77	77	77	77
	Average_of_Percent_Pollution_Indicating_Taxa	77	77	77	77	77	77	49	77	33	77	77	42	77	77	77	77
	AVERAGE_OF_ABUNDANCE_M2	77	77	77	77	77	77	49	77	33	77	77	42	77	77	77	77
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	77	77	77	77	77	77	49	77	33	77	77	42	77	77	77	77
	DOmgL	77	77	77	77	77	77	49	77	33	77	77	42	77	77	77	77
	@44DDEppDDE	49	49	49	49	49	49	49	49	33	49	49	42	49	49	49	49
	Benzoapyrene	77	77	77	77	77	77	49	77	33	77	77	42	77	77	77	77
	C19C36Aliphaticsunadjusted	33	33	33	33	33	33	33	33	33	33	33	32	33	33	33	33
	Cadmium	77	77	77	77	77	77	49	77	33	77	77	42	77	77	77	77
	Copper	77	77	77	77	77	77	49	77	33	77	77	42	77	77	77	77
	SumDDEHighResolutionKMMDL	42	42	42	42	42	42	42	42	32	42	42	42	42	42	42	42
	TotalHPAH10of17KMMDL	77	77	77	77	77	77	49	77	33	77	77	42	77	77	77	77
	TotalLPAH7of17KMMDL	77	77	77	77	77	77	49	77	33	77	77	42	77	77	77	77
	TotalPAH17KMMDL	77	77	77	77	77	77	49	77	33	77	77	42	77	77	77	77
	TotalPAH34U12MDL	77	77	77	77	77	77	49	77	33	77	77	42	77	77	77	77

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

```
TEMPORARY.
SELECT IF (SUBFACILITY_CODE2 = 1 and Year = 2012).
  CORRELATIONS
  /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa
    AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted Cadmium Copper
    SumDDEHighResolutionKMMDL TotalHPAH10of17KMMDL TotalLPAH7of17KMMDL TotalPAH17KMMDL TotalPAH34U12MDL
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
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Correlations

Notes		
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Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\SPSS\All_Years_WBI_DO_02202018_Match_Base.sav
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	Split File	<none>
	N of Rows in Working Data File	44
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.02

All of Newtown Creek in 2012

Correlations, Newtown Creek, 2012

		WBI	Average_of_Richness	Average_of_Percent_Pollution_Indicating_Taxa	AVERAGE_OF_ABUNDANCE_M2	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	DOmgL	@44DDEppDDE	Benzoapyrene	C19C36Aliphaticsunadjusted	Cadmium	Copper	SumDDEHighResolutionKMMDL	TotalHPAH10of17KMMDL	TotalLPAH7of17KMMDL	TotalPAH17KMMDL	TotalPAH34U12MDL
Pearson Correlation	WBI	1	.776**	0.014	-0.086	.392**	.756**	-.635**	-.464**	.[a]	-.526**	-.505**	-0.607	-.458**	-0.274	-.428**	-.421**
	Average_of_Richness	.776**	1	0.140	0.061	0.164	.544*	-.523*	-.389**	.[a]	-.440**	-.421**	-0.498	-.391**	-0.237	-.366*	-.340*
	Average_of_Percent_Pollution_Indicating_Taxa	0.014	0.140	1	.436**	-0.204	-0.218	-0.157	-0.046	.[a]	-0.017	-0.017	-0.056	-0.044	-0.041	-0.045	-0.028
	AVERAGE_OF_ABUNDANCE_M2	-0.086	0.061	.436**	1	-0.147	-0.268	0.175	0.104	.[a]	0.085	0.108	0.441	0.108	0.038	0.093	0.144
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	.392**	0.164	-0.204	-0.147	1	.482**	-0.061	-0.012	.[a]	-0.080	-0.087	-0.116	-0.019	-0.041	-0.026	-0.040
	DOmgL	.756**	.544**	-0.218	-0.268	.482**	1	-.515*	-.310*	.[a]	-.347*	-.362*	-0.598	-.311*	-0.236	-.305*	-.312*
	@44DDEppDDE	-.635**	-.523*	-0.157	0.175	-0.061	-.515*	1	.841**	.[a]	.982**	.984**	1.000**	.851**	.744**	.828**	.847**
	Benzoapyrene	-.464**	-.389**	-0.046	0.104	-0.012	-.310*	.841**	1	.[a]	.910**	.907**	.785**	.997**	.758**	.977**	.978**
	C19C36Aliphaticsunadjusted	.[b]	.[b]	.[b]	.[b]	.[b]	.[b]	.[b]	.[b]	.[a]	.[b]	.[b]	.[b]	.[b]	.[b]	.[b]	.[b]
	Cadmium	-.526**	-.440**	-0.017	0.085	-0.080	-.347*	.982**	.910**	.[a]	1	.972**	.980**	.910**	.650**	.880**	.900**
	Copper	-.505**	-.421**	-0.017	0.108	-0.087	-.362*	.984**	.907**	.[a]	.972**	1	.982**	.919**	.658**	.889**	.917**
	SumDDEHighResolutionKMMDL	-0.607	-0.498	-0.056	0.441	-0.116	-0.598	1.000**	.785**	.[a]	.980**	.982**	1	.802**	.682*	.775**	.810**
	TotalHPAH10of17KMMDL	-.458**	-.391**	-0.044	0.108	-0.019	-.311*	.851**	.997**	.[a]	.910**	.919**	.802**	1	.769**	.983**	.982**
	TotalLPAH7of17KMMDL	-0.274	-0.237	-0.041	0.038	-0.041	-0.236	.744**	.758**	.[a]	.650**	.658**	.682*	.769**	1	.874**	.796**
	TotalPAH17KMMDL	-.428**	-.366*	-0.045	0.093	-0.026	-.305*	.828**	.977**	.[a]	.880**	.889**	.775**	.983**	.874**	1	.977**
	TotalPAH34U12MDL	-.421**	-.340*	-0.028	0.144	-0.040	-.312*	.847**	.978**	.[a]	.900**	.917**	.810**	.982**	.796**	.977**	1
Sig. (2-tailed)	WBI		0.000	0.926	0.580	0.009	0.000	0.008	0.002		0.000	0.000	0.063	0.002	0.072	0.004	0.004
	Average_of_Richness	0.000		0.366	0.692	0.287	0.000	0.038	0.009		0.003	0.004	0.143	0.009	0.122	0.015	0.024
	Average_of_Percent_Pollution_Indicating_Taxa	0.926	0.366		0.003	0.184	0.156	0.561	0.765		0.911	0.914	0.879	0.778	0.794	0.772	0.859
	AVERAGE_OF_ABUNDANCE_M2	0.580	0.692	0.003		0.343	0.078	0.517	0.504		0.583	0.486	0.202	0.486	0.806	0.548	0.351
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	0.009	0.287	0.184	0.343		0.001	0.823	0.940		0.606	0.576	0.750	0.902	0.792	0.866	0.795
	DOmgL	0.000	0.000	0.156	0.078	0.001		0.041	0.040		0.021	0.016	0.068	0.040	0.123	0.044	0.039
	@44DDEppDDE	0.008	0.038	0.561	0.517	0.823	0.041		0.000		0.000	0.000	0.000	0.000	0.001	0.000	0.000
	Benzoapyrene	0.002	0.009	0.765	0.504	0.940	0.040	0.000			0.000	0.000	0.007	0.000	0.000	0.000	0.000
	C19C36Aliphaticsunadjusted																
	Cadmium	0.000	0.003	0.911	0.583	0.606	0.021	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000
	Copper	0.000	0.004	0.914	0.486	0.576	0.016	0.000	0.000		0.000		0.000	0.000	0.000	0.000	0.000
	SumDDEHighResolutionKMMDL	0.063	0.143	0.879	0.202	0.750	0.068	0.000	0.007		0.000	0.000		0.005	0.030	0.008	0.004
	TotalHPAH10of17KMMDL	0.002	0.009	0.778	0.486	0.902	0.040	0.000	0.000		0.000	0.000	0.005		0.000	0.000	0.000
	TotalLPAH7of17KMMDL	0.072	0.122	0.794	0.806	0.792	0.123	0.001	0.000		0.000	0.000	0.030	0.000		0.000	0.000
	TotalPAH17KMMDL	0.004	0.015	0.772	0.548	0.866	0.044	0.000	0.000		0.000	0.000	0.008	0.000	0.000		0.000

	TotalPAH34U12MDL	0.004	0.024	0.859	0.351	0.795	0.039	0.000	0.000		0.000	0.000	0.004	0.000	0.000	0.000		
N	WBI	44	44	44	44	44	44	16	44	0	44	44	10	44	44	44	44	
	Average_of_Richness	44	44	44	44	44	44	16	44	0	44	44	10	44	44	44	44	
	Average_of_Percent_Pollution_Indicating_Taxa	44	44	44	44	44	44	16	44	0	44	44	10	44	44	44	44	
	AVERAGE_OF_ABUNDANCE_M2	44	44	44	44	44	44	16	44	0	44	44	10	44	44	44	44	
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	44	44	44	44	44	44	16	44	0	44	44	10	44	44	44	44	
	DOmgL	44	44	44	44	44	44	16	44	0	44	44	10	44	44	44	44	
	@44DDEppDDE	16	16	16	16	16	16	16	16	0	16	16	10	16	16	16	16	
	Benzoapyrene	44	44	44	44	44	44	16	44	0	44	44	10	44	44	44	44	
	C19C36Aliphaticsunadjusted	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Cadmium	44	44	44	44	44	44	16	44	0	44	44	10	44	44	44	44	
	Copper	44	44	44	44	44	44	16	44	0	44	44	10	44	44	44	44	
	SumDDEHighResolutionKMMDL	10	10	10	10	10	10	10	10	0	10	10	10	10	10	10	10	
	TotalHPAH10of17KMMDL	44	44	44	44	44	44	16	44	0	44	44	10	44	44	44	44	
	TotalLPAH7of17KMMDL	44	44	44	44	44	44	16	44	0	44	44	10	44	44	44	44	
	TotalPAH17KMMDL	44	44	44	44	44	44	16	44	0	44	44	10	44	44	44	44	
	TotalPAH34U12MDL	44	44	44	44	44	44	16	44	0	44	44	10	44	44	44	44	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

b. Cannot be computed because at least one of the variables is constant.

```
TEMPORARY.
SELECT IF (SUBFACILITY_CODE2 = 1 and MilesfromMouthofNC > 2).
  CORRELATIONS
  /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa
    AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted Cadmium Copper
    SumDDEHighResolutionKMMDL TotalHPAH10of17KMMDL TotalLPAH7of17KMMDL TotalPAH17KMMDL TotalPAH34U12MDL
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```

Correlations

Notes		
Output Created		26-FEB-2018 16:09:26
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\SPSS\All_Years_WBI_DO_02202018_Match_Base.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	21
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted

Resources	Processor Time	00:00:00.03															
	Elapsed Time	00:00:00.02															

Correlations, Newtown Creek, Upstream of CM 2, Phase 1 and Phase 2. Did match spring 2012 chemistry data to summer 2012 benthic data

		WBI	Average_of_Richness	Average_of_Percent_Pollution_Indicating_Taxa	AVERAGE_OF_ABUNDANCE_M2	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	DOmgL	@44DDEppDDE	Benzoapyrene	C19C36Aliphaticsunadjusted	Cadmium	Copper	SumDDEHighResolutionKMMDL	TotalHPAH10of17KMMDL	TotalLPAH7of17KMMDL	TotalPAH17KMMDL	TotalPAH34U12MDL
Pearson Correlation	WBI	1	.901**	.726**	0.360	0.400	.488*	-.512*	-0.311	-0.240	-0.400	-0.371	-.513*	-0.335	-0.213	-0.304	0.037
	Average_of_Richness	.901**	1	.727**	.487*	0.076	.531*	-.569*	-0.301	-0.122	-.437*	-0.404	-.567*	-0.330	-0.165	-0.287	0.141
	Average_of_Percent_Pollution_Indicating_Taxa	.726**	.727**	1	.622**	-0.082	0.258	-0.120	-0.031	0.110	0.007	-0.004	-0.122	-0.044	0.029	-0.024	0.148
	AVERAGE_OF_ABUNDANCE_M2	0.360	.487*	.622**	1	-0.075	0.112	0.193	0.350	0.440	0.247	0.292	0.198	0.362	0.408	0.379	0.205
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	0.400	0.076	-0.082	-0.075	1	0.215	-0.151	-0.103	0.309	-0.190	-0.186	-0.149	-0.101	-0.126	-0.109	-0.192
	DOmgL	.488*	.531*	0.258	0.112	0.215	1	-.635**	-.518*	-0.223	-.521*	-.463*	-.633**	-.505*	-0.407	-.482*	-0.368
	@44DDEppDDE	-.512*	-.569*	-0.120	0.193	-0.151	-.635**	1	.850**	0.022	.796**	.792**	1.000**	.868**	.746**	.842**	.519*
	Benzoapyrene	-0.311	-0.301	-0.031	0.350	-0.103	-.518*	.850**	1	0.076	.804**	.776**	.866**	.992**	.959**	.994**	.621**
	C19C36Aliphaticsunadjusted	-0.240	-0.122	0.110	0.440	0.309	-0.223	0.022	0.076	1	-0.268	-0.490	0.113	0.026	-0.034	0.005	-0.062
	Cadmium	-0.400	-.437*	0.007	0.247	-0.190	-.521*	.796**	.804**	-0.268	1	.941**	.805**	.831**	.742**	.815**	0.265
	Copper	-0.371	-0.404	-0.004	0.292	-0.186	-.463*	.792**	.776**	-0.490	.941**	1	.792**	.833**	.724**	.811**	0.243
	SumDDEHighResolutionKMMDL	-.513*	-.567*	-0.122	0.198	-0.149	-.633**	1.000**	.866**	0.113	.805**	.792**	1	.875**	.781**	.855**	.590*
	TotalHPAH10of17KMMDL	-0.335	-0.330	-0.044	0.362	-0.101	-.505*	.868**	.992**	0.026	.831**	.833**	.875**	1	.943**	.996**	.555**
	TotalLPAH7of17KMMDL	-0.213	-0.165	0.029	0.408	-0.126	-0.407	.746**	.959**	-0.034	.742**	.724**	.781**	.943**	1	.971**	.698**
	TotalPAH17KMMDL	-0.304	-0.287	-0.024	0.379	-0.109	-.482*	.842**	.994**	0.005	.815**	.811**	.855**	.996**	.971**	1	.602**
	TotalPAH34U12MDL	0.037	0.141	0.148	0.205	-0.192	-0.368	.519*	.621**	-0.062	0.265	0.243	.590*	.555**	.698**	.602**	1
Sig. (2-tailed)	WBI		0.000	0.000	0.109	0.072	0.025	0.036	0.169	0.476	0.073	0.098	0.042	0.137	0.354	0.180	0.874
	Average_of_Richness	0.000		0.000	0.025	0.744	0.013	0.017	0.185	0.721	0.048	0.069	0.022	0.144	0.476	0.207	0.543
	Average_of_Percent_Pollution_Indicating_Taxa	0.000	0.000		0.003	0.725	0.258	0.648	0.893	0.749	0.978	0.986	0.654	0.848	0.899	0.918	0.523
	AVERAGE_OF_ABUNDANCE_M2	0.109	0.025	0.003		0.747	0.630	0.458	0.120	0.176	0.280	0.199	0.462	0.107	0.066	0.090	0.373
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	0.072	0.744	0.725	0.747		0.348	0.564	0.658	0.355	0.409	0.419	0.582	0.662	0.587	0.637	0.405
	DOmgL	0.025	0.013	0.258	0.630	0.348		0.006	0.016	0.509	0.015	0.035	0.008	0.020	0.067	0.027	0.100
	@44DDEppDDE	0.036	0.017	0.648	0.458	0.564	0.006		0.000	0.948	0.000	0.000	0.000	0.000	0.001	0.000	0.033
	Benzoapyrene	0.169	0.185	0.893	0.120	0.658	0.016	0.000		0.825	0.000	0.000	0.000	0.000	0.000	0.000	0.003
	C19C36Aliphaticsunadjusted	0.476	0.721	0.749	0.176	0.355	0.509	0.948	0.825		0.426	0.126	0.757	0.939	0.921	0.988	0.856
	Cadmium	0.073	0.048	0.978	0.280	0.409	0.015	0.000	0.000	0.426		0.000	0.000	0.000	0.000	0.000	0.246
	Copper	0.098	0.069	0.986	0.199	0.419	0.035	0.000	0.000	0.126	0.000		0.000	0.000	0.000	0.000	0.288
	SumDDEHighResolutionKMMDL	0.042	0.022	0.654	0.462	0.582	0.008	0.000	0.000	0.757	0.000	0.000		0.000	0.000	0.000	0.016
	TotalHPAH10of17KMMDL	0.137	0.144	0.848	0.107	0.662	0.020	0.000	0.000	0.939	0.000	0.000	0.000		0.000	0.000	0.009
	TotalLPAH7of17KMMDL	0.354	0.476	0.899	0.066	0.587	0.067	0.001	0.000	0.921	0.000	0.000	0.000	0.000		0.000	0.000
	TotalPAH17KMMDL	0.180	0.207	0.918	0.090	0.637	0.027	0.000	0.000	0.988	0.000	0.000	0.000	0.000	0.000		0.004
	TotalPAH34U12MDL	0.874	0.543	0.523	0.373	0.405	0.100	0.033	0.003	0.856	0.246	0.288	0.016	0.009	0.000	0.004	
N	WBI	21	21	21	21	21	21	17	21	11	21	21	16	21	21	21	21
	Average_of_Richness	21	21	21	21	21	21	17	21	11	21	21	16	21	21	21	21
	Average_of_Percent_Pollution_Indicating_Taxa	21	21	21	21	21	21	17	21	11	21	21	16	21	21	21	21
	AVERAGE_OF_ABUNDANCE_M2	21	21	21	21	21	21	17	21	11	21	21	16	21	21	21	21
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	21	21	21	21	21	21	17	21	11	21	21	16	21	21	21	21
	DOmgL	21	21	21	21	21	21	17	21	11	21	21	16	21	21	21	21
	@44DDEppDDE	17	17	17	17	17	17	17	17	11	17	17	16	17	17	17	17
	Benzoapyrene	21	21	21	21	21	21	17	21	11	21	21	16	21	21	21	21
	C19C36Aliphaticsunadjusted	11	11	11	11	11	11	11	11	11	11	11	10	11	11	11	11
	Cadmium	21	21	21	21	21	21	17	21	11	21	21	16	21	21	21	21
	Copper	21	21	21	21	21	21	17	21	11	21	21	16	21	21	21	21
	SumDDEHighResolutionKMMDL	16	16	16	16	16	16	16	16	10	16	16	16	16	16	16	16
	TotalHPAH10of17KMMDL	21	21	21	21	21	21	17	21	11	21	21	16	21	21	21	21

	TotalLPAH7of17KMMDL	21	21	21	21	21	21	17	21	11	21	21	16	21	21	21	21
	TotalPAH17KMMDL	21	21	21	21	21	21	17	21	11	21	21	16	21	21	21	21
	TotalPAH34U12MDL	21	21	21	21	21	21	17	21	11	21	21	16	21	21	21	21

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

```
GET
  FILE='C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\SPSS\All_Years_WBI_DO_02202018_Match_Base.sav'.
DATASET NAME DataSet1 WINDOW=FRONT.
TEMPORARY.
SELECT IF (SUBFACILITY_CODE2 = 1 and MilesfromMouthofNC < 2).
  CORRELATIONS
  /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa
    AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted Cadmium Copper
    SumDDEHighResolutionKMMDL TotalHPAH10of17KMMDL TotalLPAH7of17KMMDL TotalPAH17KMMDL TotalPAH34U12MDL
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```

Correlations

Notes

Output Created		27-FEB-2018 09:47:20
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\SPSS\All_Years_WBI_DO_02202018_Match_Base.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	56
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

[DataSet1] C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\SPSS\All_Years_WBI_DO_02202018_Match_Base.sav

Correlations, Newtown Creek, Downstream of CM 2, Phase 1 and Phase 2. Did match spring 2012 chemistry data to summer 2012 benthic data

		WBI	Average_of_Richness	Average_of_Percent_Pollution_Indicating_Taxa	AVERAGE_OF_ABUNDANCE_M2	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	DOmgL	@44DDEppDDE	Benzoapyrene	C19C36Aliphaticsunadjusted	Cadmium	Copper	SumDDEHighResolutionKMMDL	TotalHPAH10of17KMMDL	TotalLPAH7of17KMMDL	TotalPAH17KMMDL	TotalPAH34U12MDL
Pearson Correlation	WBI	1	.381*	-.685**	-.494*	.654**	.694*	-0.124	-0.120	-0.189	-0.255	-0.242	0.069	-0.110	-0.006	-0.081	-0.070
	Average_of_Richness	.381**	1	-.352**	-0.257	.274*	.365**	0.149	-0.058	0.104	-0.154	-0.085	0.159	-0.085	-0.103	-0.115	0.005
	Average_of_Percent_Pollution_Indicating_Taxa	-.685**	-.352**	1	0.156	-.580**	-.427**	-0.016	-0.048	-0.017	-0.055	-0.083	0.038	-0.071	-0.093	-0.099	0.135
	AVERAGE_OF_ABUNDANCE_M2	-.494**	-0.257	0.156	1	-0.211	-.428**	.470**	0.092	.439*	.620**	.627**	0.025	0.101	-0.187	-0.027	-0.019

	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	.654**	.274*	-.580**	-0.211	1	.421**	0.275	-0.103	0.230	-0.069	-0.070	0.366	-0.058	0.040	-0.020	-0.135
	DOmgL	.694**	.365**	-.427**	-.428**	.421**	1	-.424*	-0.125	-0.262	-.354**	-.350**	-0.095	-0.122	-0.044	-0.109	0.051
	@44DDEppDDE	-0.124	0.149	-0.016	.470**	0.275	-.424*	1	0.326	0.422	.855**	.858**	1.000**	0.341	0.161	0.307	.374*
	Benzoapyrene	-0.120	-0.058	-0.048	0.092	-0.103	-0.125	0.326	1	0.362	0.139	0.195	0.338	.979**	0.256	.823**	.757**
	C19C36Aliphaticsunadjusted	-0.189	0.104	-0.017	.439*	0.230	-0.262	0.422	0.362	1	0.036	0.111	.424*	.444*	0.271	0.415	0.094
	Cadmium	-0.255	-0.154	-0.055	.620**	-0.069	-.354**	.855**	0.139	0.036	1	.956**	.661**	0.195	0.022	0.149	0.074
	Copper	-0.242	-0.085	-0.083	.627**	-0.070	-.350**	.858**	0.195	0.111	.956**	1	.689**	0.232	-0.061	0.131	0.117
	SumDDEHighResolutionKMMDL	0.069	0.159	0.038	0.025	0.366	-0.095	1.000**	0.338	.424*	.661**	.689**	1	0.359	0.383	0.366	.667**
	TotalHPAH10of17KMMDL	-0.110	-0.085	-0.071	0.101	-0.058	-0.122	0.341	.979**	.444*	0.195	0.232	0.359	1	.307*	.864**	.719**
	TotalLPAH7of17KMMDL	-0.006	-0.103	-0.093	-0.187	0.040	-0.044	0.161	0.256	0.271	0.022	-0.061	0.383	.307*	1	.744**	0.217
	TotalPAH17KMMDL	-0.081	-0.115	-0.099	-0.027	-0.020	-0.109	0.307	.823**	0.415	0.149	0.131	0.366	.864**	.744**	1	.620**
	TotalPAH34U12MDL	-0.070	0.005	0.135	-0.019	-0.135	0.051	.374*	.757**	0.094	0.074	0.117	.667**	.719**	0.217	.620**	1
Sig. (2-tailed)	WBI		0.004	0.000	0.000	0.000	0.000	0.499	0.379	0.399	0.058	0.072	0.736	0.418	0.963	0.552	0.607
	Average_of_Richness	0.004		0.008	0.055	0.041	0.006	0.415	0.673	0.645	0.259	0.536	0.437	0.533	0.450	0.400	0.971
	Average_of_Percent_Pollution_Indicating_Taxa	0.000	0.008		0.250	0.000	0.001	0.930	0.724	0.939	0.687	0.544	0.853	0.601	0.495	0.468	0.321
	AVERAGE_OF_ABUNDANCE_M2	0.000	0.055	0.250		0.119	0.001	0.007	0.499	0.041	0.000	0.000	0.903	0.458	0.168	0.841	0.891
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	0.000	0.041	0.000	0.119		0.001	0.128	0.451	0.303	0.613	0.608	0.066	0.669	0.768	0.884	0.320
	DOmgL	0.000	0.006	0.001	0.001	0.001		0.015	0.358	0.239	0.007	0.008	0.644	0.372	0.749	0.424	0.711
	@44DDEppDDE	0.499	0.415	0.930	0.007	0.128	0.015		0.068	0.051	0.000	0.000	0.000	0.056	0.380	0.087	0.035
	Benzoapyrene	0.379	0.673	0.724	0.499	0.451	0.358	0.068		0.098	0.308	0.149	0.092	0.000	0.057	0.000	0.000
	C19C36Aliphaticsunadjusted	0.399	0.645	0.939	0.041	0.303	0.239	0.051	0.098		0.875	0.623	0.049	0.038	0.223	0.055	0.676
	Cadmium	0.058	0.259	0.687	0.000	0.613	0.007	0.000	0.308	0.875		0.000	0.000	0.149	0.872	0.272	0.587
	Copper	0.072	0.536	0.544	0.000	0.608	0.008	0.000	0.149	0.623	0.000		0.000	0.086	0.653	0.337	0.391
	SumDDEHighResolutionKMMDL	0.736	0.437	0.853	0.903	0.066	0.644	0.000	0.092	0.049	0.000	0.000		0.072	0.054	0.066	0.000
	TotalHPAH10of17KMMDL	0.418	0.533	0.601	0.458	0.669	0.372	0.056	0.000	0.038	0.149	0.086	0.072		0.021	0.000	0.000
	TotalLPAH7of17KMMDL	0.963	0.450	0.495	0.168	0.768	0.749	0.380	0.057	0.223	0.872	0.653	0.054	0.021		0.000	0.108
	TotalPAH17KMMDL	0.552	0.400	0.468	0.841	0.884	0.424	0.087	0.000	0.055	0.272	0.337	0.066	0.000	0.000		0.000
	TotalPAH34U12MDL	0.607	0.971	0.321	0.891	0.320	0.711	0.035	0.000	0.676	0.587	0.391	0.000	0.000	0.108	0.000	
N	WBI	56	56	56	56	56	56	32	56	22	56	56	26	56	56	56	56
	Average_of_Richness	56	56	56	56	56	56	32	56	22	56	56	26	56	56	56	56
	Average_of_Percent_Pollution_Indicating_Taxa	56	56	56	56	56	56	32	56	22	56	56	26	56	56	56	56
	AVERAGE_OF_ABUNDANCE_M2	56	56	56	56	56	56	32	56	22	56	56	26	56	56	56	56
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	56	56	56	56	56	56	32	56	22	56	56	26	56	56	56	56
	DOmgL	56	56	56	56	56	56	32	56	22	56	56	26	56	56	56	56
	@44DDEppDDE	32	32	32	32	32	32	32	32	22	32	32	26	32	32	32	32
	Benzoapyrene	56	56	56	56	56	56	32	56	22	56	56	26	56	56	56	56
	C19C36Aliphaticsunadjusted	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	Cadmium	56	56	56	56	56	56	32	56	22	56	56	26	56	56	56	56
	Copper	56	56	56	56	56	56	32	56	22	56	56	26	56	56	56	56
	SumDDEHighResolutionKMMDL	26	26	26	26	26	26	26	26	22	26	26	26	26	26	26	26
	TotalHPAH10of17KMMDL	56	56	56	56	56	56	32	56	22	56	56	26	56	56	56	56
	TotalLPAH7of17KMMDL	56	56	56	56	56	56	32	56	22	56	56	26	56	56	56	56
	TotalPAH17KMMDL	56	56	56	56	56	56	32	56	22	56	56	26	56	56	56	56
	TotalPAH34U12MDL	56	56	56	56	56	56	32	56	22	56	56	26	56	56	56	56

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

```
TEMPORARY.
SELECT IF (Area2 = 2).
  CORRELATIONS
  /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa
    AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted Cadmium Copper
    SumDDEHighResolutionKMMDL TotalHPAH10of17KMMDL TotalLPAH7of17KMMDL TotalPAH17KMMDL TotalPAH34U12MDL
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```

Correlations

Notes		
Output Created		27-FEB-2018 09:58:39
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\SPSS\All_Years_WBI_DO_02202018_Match_Base.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	96
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Correlations, Newtown Creek, Upstream of CM 2 and Tributaries, Phase 1 and Phase 2. Did match spring 2012 chemistry data to summer 2012 benthic data

		WBI	Average_of_Richness	Average_of_Percent_Pollution_Indicating_Taxa	AVERAGE_OF_ABUNDANCE_M2	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	DOmgL	@44DDEppDDE	Benzoapyrene	C19C36Aliphaticsunadjusted	Cadmium	Copper	SumDDEHighResolutionKMMDL	TotalHPAH10of17KMMDL	TotalLPAH7of17KMMDL	TotalPAH17KMMDL	TotalPAH34U12MDL
Pearson Correlation	WBI	1	.856**	.654**	.338**	.340**	.505**	-0.188	-.204*	0.112	-0.142	-0.169	-0.230	-.266**	-0.150	-.235*	-0.006
	Average_of_Richness	.856**	1	.508**	.593**	0.190	.518**	-0.008	-0.131	0.024	-0.075	-0.104	-0.050	-.201*	-0.095	-0.171	0.117
	Average_of_Percent_Pollution_Indicating_Taxa	.654**	.508**	1	.256*	0.005	.310**	0.010	-0.012	0.197	0.017	0.010	0.037	-0.070	-0.005	-0.052	0.074
	AVERAGE_OF_ABUNDANCE_M2	.338**	.593**	.256*	1	0.051	.242*	.258*	0.179	0.106	0.121	0.183	.266*	0.145	0.175	0.158	.291**
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	.340**	0.190	0.005	0.051	1	.205*	-0.070	-0.016	0.230	-0.073	-0.027	-0.074	-0.037	-0.067	-0.046	-0.066
	DOmgL	.505**	.518**	.310**	.242*	.205*	1	-0.092	-.224*	-0.119	-0.161	-0.176	-0.134	-.290**	-0.195	-.267**	-0.128
	@44DDEppDDE	-0.188	-0.008	0.010	.258*	-0.070	-0.092	1	.547**	.301*	.870**	.429**	1.000**	.591**	.605**	.611**	.624**
	Benzoapyrene	-.204*	-0.131	-0.012	0.179	-0.016	-.224*	.547**	1	0.082	.693**	.743**	.545**	.972**	.900**	.971**	.707**
	C19C36Aliphaticsunadjusted	0.112	0.024	0.197	0.106	0.230	-0.119	.301*	0.082	1	.314*	0.213	.292*	0.142	.286*	0.203	.327**
	Cadmium	-0.142	-0.075	0.017	0.121	-0.073	-0.161	.870**	.693**	.314*	1	.646**	.869**	.737**	.716**	.747**	.591**
	Copper	-0.169	-0.104	0.010	0.183	-0.027	-0.176	.429**	.743**	0.213	.646**	1	.417**	.744**	.658**	.734**	.464**
	SumDDEHighResolutionKMMDL	-0.230	-0.050	0.037	.266*	-0.074	-0.134	1.000**	.545**	.292*	.869**	.417**	1	.592**	.621**	.617**	.641**
	TotalHPAH10of17KMMDL	-.266**	-.201*	-0.070	0.145	-0.037	-.290**	.591**	.972**	0.142	.737**	.744**	.592**	1	.901**	.991**	.661**
	TotalLPAH7of17KMMDL	-0.150	-0.095	-0.005	0.175	-0.067	-0.195	.605**	.900**	.286*	.716**	.658**	.621**	.901**	1	.951**	.819**
	TotalPAH17KMMDL	-.235*	-0.171	-0.052	0.158	-0.046	-.267**	.611**	.971**	0.203	.747**	.734**	.617**	.991**	.951**	1	.724**
	TotalPAH34U12MDL	-0.006	0.117	0.074	.291**	-0.066	-0.128	.624**	.707**	.327**	.591**	.464**	.641**	.661**	.819**	.724**	1
Sig. (2-tailed)	WBI		0.000	0.000	0.001	0.001	0.000	0.100	0.046	0.384	0.166	0.100	0.051	0.009	0.145	0.021	0.956
	Average_of_Richness	0.000		0.000	0.000	0.064	0.000	0.947	0.202	0.855	0.467	0.313	0.674	0.050	0.355	0.096	0.257
	Average_of_Percent_Pollution_Indicating_Taxa	0.000	0.000		0.012	0.963	0.002	0.932	0.910	0.124	0.872	0.922	0.759	0.495	0.963	0.617	0.474

	AVERAGE_OF_ABUNDANCE_M2	0.001	0.000	0.012		0.620	0.017	0.023	0.080	0.411	0.239	0.074	0.024	0.159	0.088	0.123	0.004
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	0.001	0.064	0.963	0.620		0.045	0.541	0.878	0.072	0.481	0.796	0.537	0.718	0.517	0.653	0.524
	DOmgL	0.000	0.000	0.002	0.017	0.045		0.421	0.028	0.357	0.118	0.087	0.261	0.004	0.057	0.009	0.212
	@44DDEppDDE	0.100	0.947	0.932	0.023	0.541	0.421		0.000	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Benzoapyrene	0.046	0.202	0.910	0.080	0.878	0.028	0.000		0.526	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	C19C36Aliphaticsunadjusted	0.384	0.855	0.124	0.411	0.072	0.357	0.017	0.526		0.013	0.096	0.026	0.270	0.024	0.114	0.009
	Cadmium	0.166	0.467	0.872	0.239	0.481	0.118	0.000	0.000	0.013		0.000	0.000	0.000	0.000	0.000	0.000
	Copper	0.100	0.313	0.922	0.074	0.796	0.087	0.000	0.000	0.096	0.000		0.000	0.000	0.000	0.000	0.000
	SumDDEHighResolutionKMMDL	0.051	0.674	0.759	0.024	0.537	0.261	0.000	0.000	0.026	0.000	0.000		0.000	0.000	0.000	0.000
	TotalHPAH10of17KMMDL	0.009	0.050	0.495	0.159	0.718	0.004	0.000	0.000	0.270	0.000	0.000	0.000		0.000	0.000	0.000
	TotalLPAH7of17KMMDL	0.145	0.355	0.963	0.088	0.517	0.057	0.000	0.000	0.024	0.000	0.000	0.000	0.000		0.000	0.000
	TotalPAH17KMMDL	0.021	0.096	0.617	0.123	0.653	0.009	0.000	0.000	0.114	0.000	0.000	0.000	0.000	0.000		0.000
	TotalPAH34U12MDL	0.956	0.257	0.474	0.004	0.524	0.212	0.000	0.000	0.009	0.000	0.000	0.000	0.000	0.000	0.000	
N	WBI	96	96	96	96	96	96	78	96	62	96	96	72	96	96	96	96
	Average_of_Richness	96	96	96	96	96	96	78	96	62	96	96	72	96	96	96	96
	Average_of_Percent_Pollution_Indicating_Taxa	96	96	96	96	96	96	78	96	62	96	96	72	96	96	96	96
	AVERAGE_OF_ABUNDANCE_M2	96	96	96	96	96	96	78	96	62	96	96	72	96	96	96	96
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	96	96	96	96	96	96	78	96	62	96	96	72	96	96	96	96
	DOmgL	96	96	96	96	96	96	78	96	62	96	96	72	96	96	96	96
	@44DDEppDDE	78	78	78	78	78	78	78	78	62	78	78	72	78	78	78	78
	Benzoapyrene	96	96	96	96	96	96	78	96	62	96	96	72	96	96	96	96
	C19C36Aliphaticsunadjusted	62	62	62	62	62	62	62	62	62	62	62	58	62	62	62	62
	Cadmium	96	96	96	96	96	96	78	96	62	96	96	72	96	96	96	96
	Copper	96	96	96	96	96	96	78	96	62	96	96	72	96	96	96	96
	SumDDEHighResolutionKMMDL	72	72	72	72	72	72	72	72	58	72	72	72	72	72	72	72
	TotalHPAH10of17KMMDL	96	96	96	96	96	96	78	96	62	96	96	72	96	96	96	96
	TotalLPAH7of17KMMDL	96	96	96	96	96	96	78	96	62	96	96	72	96	96	96	96
	TotalPAH17KMMDL	96	96	96	96	96	96	78	96	62	96	96	72	96	96	96	96
	TotalPAH34U12MDL	96	96	96	96	96	96	78	96	62	96	96	72	96	96	96	96

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

```
TEMPORARY.
SELECT IF (Area22 = 1).
  CORRELATIONS
  /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa
    AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted Cadmium Copper
    SumDDEHighResolutionKMMDL TotalHPAH10of17KMMDL TotalLPAH7of17KMMDL TotalPAH17KMMDL TotalPAH34U12MDL
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```

Correlations

Notes		
Output Created		27-FEB-2018 12:29:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\SPSS\All_Years_WBI_DO_02202018_Match_Base.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	34
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.

	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.02

Correlations, Newtown Creek, 2012, Downstream of CM 2. Did match spring 2012 chemistry data to summer 2012 benthic data

		WBI	Average_of_Richness	Average_of_Percent_Pollution_Indicating_Taxa	AVERAGE_OF_ABUNDANCE_M2	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	DOmgL	@44DDEppDDE	Benzoapyrene	C19C36Aliphaticsunadjusted	Cadmium	Copper	SumDDEHighResolutionKMMDL	TotalHPAH10of17KMMDL	TotalLPAH7of17KMMDL	TotalPAH17KMMDL	TotalPAH34U12MDL
Pearson Correlation	WBI	1	.505**	-.782**	-.522**	.712**	.782**	-0.343	-0.164	.[b]	-.353*	-0.325	-0.351	-0.154	-0.030	-0.123	-0.183
	Average_of_Richness	.505**	1	-.500**	-0.313	.378*	.469**	0.110	-0.124	.[b]	-0.163	-0.096	-0.671	-0.155	-0.118	-0.175	-0.171
	Average_of_Percent_Pollution_Indicating_Taxa	-.782**	-.500**	1	0.322	-.615**	-.689**	0.036	0.008	.[b]	0.072	0.017	-0.046	0.002	-0.062	-0.034	0.033
	AVERAGE_OF_ABUNDANCE_M2	-.522**	-0.313	0.322	1	-0.294	-.405*	.647*	0.071	.[b]	.668**	.673**	-0.062	0.065	-0.217	-0.078	0.097
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	.712**	.378*	-.615**	-0.294	1	.573**	-0.021	-0.233	.[b]	-0.231	-0.210	-0.873	-0.214	-0.020	-0.159	-0.266
	DOmgL	.782**	.469**	-.689**	-.405*	.573**	1	-0.561	-0.122	.[b]	-0.315	-0.313	-0.023	-0.094	-0.035	-0.085	-0.127
	@44DDEppDDE	-0.343	0.110	0.036	.647*	-0.021	-0.561	1	0.128	.[b]	.939**	.927**	1.000**	0.103	-0.119	0.055	0.105
	Benzoapyrene	-0.164	-0.124	0.008	0.071	-0.233	-0.122	0.128	1	.[b]	0.097	0.161	1.000**	.982**	0.207	.793**	.986**
	C19C36Aliphaticsunadjusted	.[b]	.[b]	.[b]	.[b]	.[b]	.[b]	.[b]	.[b]	.[b]	.[b]	.[b]	.[b]	.[b]	.[b]	.[b]	.[b]
	Cadmium	-.353*	-0.163	0.072	.668**	-0.231	-0.315	.939**	0.097	.[b]	1	.951**	1.000**	0.130	-0.024	0.076	0.171
	Copper	-0.325	-0.096	0.017	.673**	-0.210	-0.313	.927**	0.161	.[b]	.951**	1	1.000**	0.176	-0.114	0.056	0.200
	SumDDEHighResolutionKMMDL	-0.351	-0.671	-0.046	-0.062	-0.873	-0.023	1.000**	1.000**	.[b]	1.000**	1.000**	1	1.000**	1.000**	1.000**	1.000**
	TotalHPAH10of17KMMDL	-0.154	-0.155	0.002	0.065	-0.214	-0.094	0.103	.982**	.[b]	0.130	0.176	1.000**	1	0.257	.833**	.986**
	TotalLPAH7of17KMMDL	-0.030	-0.118	-0.062	-0.217	-0.020	-0.035	-0.119	0.207	.[b]	-0.024	-0.114	1.000**	0.257	1	.748**	0.242
	TotalPAH17KMMDL	-0.123	-0.175	-0.034	-0.078	-0.159	-0.085	0.055	.793**	.[b]	0.076	0.056	1.000**	.833**	.748**	1	.816**
	TotalPAH34U12MDL	-0.183	-0.171	0.033	0.097	-0.266	-0.127	0.105	.986**	.[b]	0.171	0.200	1.000**	.986**	0.242	.816**	1
Sig. (2-tailed)	WBI		0.002	0.000	0.002	0.000	0.000	0.332	0.355		0.041	0.061	0.649	0.386	0.866	0.489	0.300
	Average_of_Richness	0.002		0.003	0.072	0.027	0.005	0.763	0.485		0.359	0.590	0.329	0.381	0.505	0.322	0.332
	Average_of_Percent_Pollution_Indicating_Taxa	0.000	0.003		0.064	0.000	0.000	0.922	0.963		0.684	0.925	0.954	0.991	0.727	0.848	0.855
	AVERAGE_OF_ABUNDANCE_M2	0.002	0.072	0.064		0.091	0.017	0.043	0.690		0.000	0.000	0.938	0.714	0.218	0.659	0.585
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	0.000	0.027	0.000	0.091		0.000	0.955	0.185		0.188	0.233	0.127	0.223	0.908	0.370	0.128
	DOmgL	0.000	0.005	0.000	0.017	0.000		0.092	0.494		0.070	0.071	0.977	0.595	0.846	0.632	0.473
	@44DDEppDDE	0.332	0.763	0.922	0.043	0.955	0.092		0.725		0.000	0.000	0.000	0.778	0.742	0.879	0.773
	Benzoapyrene	0.355	0.485	0.963	0.690	0.185	0.494	0.725			0.586	0.364	0.000	0.000	0.240	0.000	0.000
	C19C36Aliphaticsunadjusted																
	Cadmium	0.041	0.359	0.684	0.000	0.188	0.070	0.000	0.586			0.000	0.000	0.465	0.891	0.669	0.333
	Copper	0.061	0.590	0.925	0.000	0.233	0.071	0.000	0.364		0.000		0.000	0.321	0.520	0.753	0.257
	SumDDEHighResolutionKMMDL	0.649	0.329	0.954	0.938	0.127	0.977	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000
	TotalHPAH10of17KMMDL	0.386	0.381	0.991	0.714	0.223	0.595	0.778	0.000		0.465	0.321	0.000		0.142	0.000	0.000
	TotalLPAH7of17KMMDL	0.866	0.505	0.727	0.218	0.908	0.846	0.742	0.240		0.891	0.520	0.000	0.142		0.000	0.167
	TotalPAH17KMMDL	0.489	0.322	0.848	0.659	0.370	0.632	0.879	0.000		0.669	0.753	0.000	0.000	0.000		0.000
	TotalPAH34U12MDL	0.300	0.332	0.855	0.585	0.128	0.473	0.773	0.000		0.333	0.257	0.000	0.000	0.167	0.000	
N	WBI	34	34	34	34	34	34	10	34	0	34	34	4	34	34	34	34
	Average_of_Richness	34	34	34	34	34	34	10	34	0	34	34	4	34	34	34	34
	Average_of_Percent_Pollution_Indicating_Taxa	34	34	34	34	34	34	10	34	0	34	34	4	34	34	34	34
	AVERAGE_OF_ABUNDANCE_M2	34	34	34	34	34	34	10	34	0	34	34	4	34	34	34	34
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	34	34	34	34	34	34	10	34	0	34	34	4	34	34	34	34
	DOmgL	34	34	34	34	34	34	10	34	0	34	34	4	34	34	34	34
	@44DDEppDDE	10	10	10	10	10	10	10	10	0	10	10	4	10	10	10	10
	Benzoapyrene	34	34	34	34	34	34	10	34	0	34	34	4	34	34	34	34
	C19C36Aliphaticsunadjusted	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Cadmium	34	34	34	34	34	34	10	34	0	34	34	4	34	34	34	34
	Copper	34	34	34	34	34	34	10	34	0	34	34	4	34	34	34	34
	SumDDEHighResolutionKMMDL	4	4	4	4	4	4	4	4	0	4	4	4	4	4	4	4
	TotalHPAH10of17KMMDL	34	34	34	34	34	34	10	34	0	34	34	4	34	34	34	34

	TotalLPAH7of17KMMDL	34	34	34	34	34	34	10	34	0	34	34	4	34	34	34	34
	TotalPAH17KMMDL	34	34	34	34	34	34	10	34	0	34	34	4	34	34	34	34
	TotalPAH34U12MDL	34	34	34	34	34	34	10	34	0	34	34	4	34	34	34	34

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

b. Cannot be computed because at least one of the variables is constant.

```
TEMPORARY.
SELECT IF (Area22 = 2).
  CORRELATIONS
  /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa
    AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted Cadmium Copper
    SumDDEHighResolutionKMMDL TotalHPAH10of17KMMDL TotalLPAH7of17KMMDL TotalPAH17KMMDL TotalPAH34U12MDL
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```

Correlations

Notes

Output Created		27-FEB-2018 12:29:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\SPSS\All_Years_WBI_DO_02202018_Match_Base.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	10
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Correlations, Newtown Creek, 2012, Upstream of CM 2. Did match spring 2012 chemistry data to summer 2012 benthic data

		WBI	Average_of_Richness	Average_of_Percent_Pollution_Indicating_Taxa	AVERAGE_OF_ABUNDANCE_M2	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	DOmgL	@44DDEppDDE	Benzoapyrene	C19C36Aliphaticsunadjusted	Cadmium	Copper	SumDDEHighResolutionKMMDL	TotalHPAH10of17KMMDL	TotalLPAH7of17KMMDL	TotalPAH17KMMDL	TotalPAH34U12MDL
Pearson Correlation	WBI	1	.931*	.773**	0.429	0.609	.804*	0.000	-0.081	.b	-0.130	-0.126	-0.001	-0.084	-0.081	-0.084	-0.087
	Average_of_Richness	.931**	1	.911**	.674*	0.336	0.622	0.133	0.119	.b	0.122	0.089	0.134	0.113	0.110	0.113	0.110
	Average_of_Percent_Pollution_Indicating_Taxa	.773**	.911**	1	.649*	-0.025	0.449	-0.038	0.085	.b	0.209	0.187	-0.039	0.090	0.072	0.085	0.089
	AVERAGE_OF_ABUNDANCE_M2	0.429	.674*	.649*	1	-0.069	-0.042	0.442	0.560	.b	0.502	0.514	0.446	0.563	0.569	0.567	0.571
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	0.609	0.336	-0.025	-0.069	1	.691*	0.471	-0.197	.b	-0.453	-0.408	0.473	-0.208	-0.170	-0.197	-0.207
	DOmgL	.804**	0.622	0.449	-0.042	.691*	1	-0.374	-0.371	.b	-0.497	-0.524	-0.372	-0.390	-0.347	-0.378	-0.387
	@44DDEppDDE	0.000	0.133	-0.038	0.442	0.471	-0.374	1	.925**	.b	.942**	.998**	1.000**	.948**	.877*	.930**	.930**
	Benzoapyrene	-0.081	0.119	0.085	0.560	-0.197	-0.371	.925**	1	.b	.878**	.856**	.931**	.997**	.989**	.997**	.994**
	C19C36Aliphaticsunadjusted	.b	.b	.b	.b	.b	.b	.b	.b	.b	.b	.b	.b	.b	.b	.b	.b
	Cadmium	-0.130	0.122	0.209	0.502	-0.453	-0.497	.942**	.878**	.b	1	.916**	.948**	.878**	.831**	.867**	.867**
	Copper	-0.126	0.089	0.187	0.514	-0.408	-0.524	.998**	.856**	.b	.916**	1	.997**	.888**	.819**	.870**	.880**
	SumDDEHighResolutionKMMDL	-0.001	0.134	-0.039	0.446	0.473	-0.372	1.000**	.931**	.b	.948**	.997**	1	.953**	.885*	.936**	.937**
	TotalHPAH10of17KMMDL	-0.084	0.113	0.090	0.563	-0.208	-0.390	.948**	.997**	.b	.878**	.888**	.953**	1	.984**	.999**	.998**
	TotalLPAH7of17KMMDL	-0.081	0.110	0.072	0.569	-0.170	-0.347	.877*	.989**	.b	.831**	.819**	.885*	.984**	1	.992**	.992**
	TotalPAH17KMMDL	-0.084	0.113	0.085	0.567	-0.197	-0.378	.930**	.997**	.b	.867**	.870**	.936**	.999**	.992**	1	.999**
	TotalPAH34U12MDL	-0.087	0.110	0.089	0.571	-0.207	-0.387	.930**	.994**	.b	.867**	.880**	.937**	.998**	.992**	.999**	1

Sig. (2-tailed)	WBI		0.000	0.009	0.217	0.062	0.005	1.000	0.825		0.721	0.728	0.999	0.817	0.823	0.818	0.810	
	Average_of_Richness	0.000		0.000	0.033	0.343	0.055	0.802	0.744		0.737	0.806	0.800	0.755	0.762	0.757	0.763	
	Average_of_Percent_Pollution_Indicating_Taxa	0.009	0.000		0.042	0.945	0.193	0.942	0.816		0.562	0.605	0.942	0.804	0.844	0.815	0.806	
	AVERAGE_OF_ABUNDANCE_M2	0.217	0.033	0.042		0.850	0.909	0.380	0.092		0.139	0.129	0.375	0.090	0.086	0.087	0.085	
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	0.062	0.343	0.945	0.850		0.027	0.346	0.586		0.188	0.242	0.343	0.564	0.640	0.585	0.567	
	DOmgL	0.005	0.055	0.193	0.909	0.027		0.465	0.292		0.144	0.120	0.467	0.266	0.326	0.281	0.270	
	@44DDEppDDE	1.000	0.802	0.942	0.380	0.346	0.465		0.008		0.005	0.000	0.000	0.004	0.022	0.007	0.007	
	Benzoapyrene	0.825	0.744	0.816	0.092	0.586	0.292	0.008			0.001	0.002	0.007	0.000	0.000	0.000	0.000	
	C19C36Aliphaticsunadjusted																	
	Cadmium	0.721	0.737	0.562	0.139	0.188	0.144	0.005	0.001			0.000	0.004	0.001	0.003	0.001	0.001	
	Copper	0.728	0.806	0.605	0.129	0.242	0.120	0.000	0.002		0.000		0.000	0.001	0.004	0.001	0.001	
	SumDDEHighResolutionKMMDL	0.999	0.800	0.942	0.375	0.343	0.467	0.000	0.007		0.004	0.000		0.003	0.019	0.006	0.006	
	TotalHPAH10of17KMMDL	0.817	0.755	0.804	0.090	0.564	0.266	0.004	0.000		0.001	0.001	0.003		0.000	0.000	0.000	
	TotalLPAH7of17KMMDL	0.823	0.762	0.844	0.086	0.640	0.326	0.022	0.000		0.003	0.004	0.019	0.000		0.000	0.000	
	TotalPAH17KMMDL	0.818	0.757	0.815	0.087	0.585	0.281	0.007	0.000		0.001	0.001	0.006	0.000	0.000		0.000	
	TotalPAH34U12MDL	0.810	0.763	0.806	0.085	0.567	0.270	0.007	0.000		0.001	0.001	0.006	0.000	0.000	0.000		
N	WBI	10	10	10	10	10	10	6	10	0	10	10	6	10	10	10	10	
	Average_of_Richness	10	10	10	10	10	10	6	10	0	10	10	6	10	10	10	10	
	Average_of_Percent_Pollution_Indicating_Taxa	10	10	10	10	10	10	6	10	0	10	10	6	10	10	10	10	
	AVERAGE_OF_ABUNDANCE_M2	10	10	10	10	10	10	6	10	0	10	10	6	10	10	10	10	
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	10	10	10	10	10	10	6	10	0	10	10	6	10	10	10	10	
	DOmgL	10	10	10	10	10	10	6	10	0	10	10	6	10	10	10	10	
	@44DDEppDDE	6	6	6	6	6	6	6	6	0	6	6	6	6	6	6	6	
	Benzoapyrene	10	10	10	10	10	10	6	10	0	10	10	6	10	10	10	10	
	C19C36Aliphaticsunadjusted	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Cadmium	10	10	10	10	10	10	6	10	0	10	10	6	10	10	10	10	
	Copper	10	10	10	10	10	10	6	10	0	10	10	6	10	10	10	10	
	SumDDEHighResolutionKMMDL	6	6	6	6	6	6	6	6	0	6	6	6	6	6	6	6	
	TotalHPAH10of17KMMDL	10	10	10	10	10	10	6	10	0	10	10	6	10	10	10	10	
	TotalLPAH7of17KMMDL	10	10	10	10	10	10	6	10	0	10	10	6	10	10	10	10	
	TotalPAH17KMMDL	10	10	10	10	10	10	6	10	0	10	10	6	10	10	10	10	
	TotalPAH34U12MDL	10	10	10	10	10	10	6	10	0	10	10	6	10	10	10	10	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

b. Cannot be computed because at least one of the variables is constant.

```
TEMPORARY.
SELECT IF (Area22 = 3).
  CORRELATIONS
  /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa
    AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted Cadmium Copper
    SumDDEHighResolutionKMMDL TotalHPAH10of17KMMDL TotalLPAH7of17KMMDL TotalPAH17KMMDL TotalPAH34U12MDL
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```

Correlations

Notes

Output Created		27-FEB-2018 12:29:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\SPSS\All_Years_WBI_DO_02202018_Match_Base.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	22
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.

Syntax		CORRELATIONS /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_ Indicating_Taxa AVERAGE_OF_ABUNDANCE _M2 AVERAGE_OF_PERCENT_C ARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.02

Correlations, Newtown Creek, 2014, Downstream of CM 2

		WBI	Average_of_Richness	Average_of_Percent_Pollution_Indicating_Taxa	AVERAGE_OF_ABUNDANCE_M2	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	DOmgL	@44DDEppDDE	Benzoapyrene	C19C36Aliphaticsunadjusted	Cadmium	Copper	SumDDEHighResolutionKMMDL	TotalHPAH10of17KMMDL	TotalLPAH7of17KMMDL	TotalPAH17KMMDL	TotalPAH34U12MDL
Pearson Correlation	WBI	1	-0.090	-0.179	-.520*	0.228	0.399	0.168	0.043	-0.189	0.052	0.032	0.171	-0.043	0.135	-0.003	0.380
	Average_of_Richness	-0.090	1	-0.228	0.214	0.148	-0.185	0.278	0.319	0.104	0.180	0.223	0.270	0.350	0.248	0.335	0.185
	Average_of_Percent_Pollution_Indicating_Taxa	-0.179	-0.228	1	-.454*	-0.133	0.228	0.024	-0.078	-0.017	0.027	-0.019	0.029	-0.010	0.034	0.000	0.032
	AVERAGE_OF_ABUNDANCE_M2	-.520*	0.214	-.454*	1	-0.024	-.502*	0.005	0.120	.439*	0.043	0.086	0.004	0.142	-0.089	0.092	-0.199
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	0.228	0.148	-0.133	-0.024	1	0.054	.495*	0.363	0.230	0.250	0.228	.492*	0.369	0.415	0.388	.459*
	DOmgL	0.399	-0.185	0.228	-.502*	0.054	1	-0.125	-0.032	-0.262	-0.357	-0.369	-0.118	-0.066	0.134	-0.022	0.287
	@44DDEppDDE	0.168	0.278	0.024	0.005	.495*	-0.125	1	.596**	0.422	.657**	.687**	1.000**	.643**	.638**	.657**	.766**
	Benzoapyrene	0.043	0.319	-0.078	0.120	0.363	-0.032	.596**	1	0.362	0.176	0.237	.596**	.983**	.880**	.982**	.683**
	C19C36Aliphaticsunadjusted	-0.189	0.104	-0.017	.439*	0.230	-0.262	0.422	0.362	1	0.036	0.111	.424*	.444*	0.271	0.415	0.094
	Cadmium	0.052	0.180	0.027	0.043	0.250	-0.357	.657**	0.176	0.036	1	.975**	.655**	0.217	0.077	0.190	0.324
	Copper	0.032	0.223	-0.019	0.086	0.228	-0.369	.687**	0.237	0.111	.975**	1	.685**	0.273	0.133	0.247	0.331
	SumDDEHighResolutionKMMDL	0.171	0.270	0.029	0.004	.492*	-0.118	1.000**	.596**	.424*	.655**	.685**	1	.642**	.636**	.656**	.765**
	TotalHPAH10of17KMMDL	-0.043	0.350	-0.010	0.142	0.369	-0.066	.643**	.983**	.444*	0.217	0.273	.642**	1	.870**	.994**	.665**
	TotalLPAH7of17KMMDL	0.135	0.248	0.034	-0.089	0.415	0.134	.638**	.880**	0.271	0.077	0.133	.636**	.870**	1	.920**	.865**
	TotalPAH17KMMDL	-0.003	0.335	0.000	0.092	0.388	-0.022	.657**	.982**	0.415	0.190	0.247	.656**	.994**	.920**	1	.727**
	TotalPAH34U12MDL	0.380	0.185	0.032	-0.199	.459*	0.287	.766**	.683**	0.094	0.324	0.331	.765**	.665**	.865**	.727**	1
Sig. (2-tailed)	WBI		0.690	0.425	0.013	0.307	0.066	0.454	0.849	0.399	0.819	0.887	0.447	0.848	0.548	0.989	0.081
	Average_of_Richness	0.690		0.308	0.338	0.511	0.409	0.210	0.147	0.645	0.423	0.318	0.225	0.110	0.265	0.128	0.411
	Average_of_Percent_Pollution_Indicating_Taxa	0.425	0.308		0.034	0.555	0.308	0.915	0.731	0.939	0.905	0.932	0.897	0.964	0.879	1.000	0.887
	AVERAGE_OF_ABUNDANCE_M2	0.013	0.338	0.034		0.915	0.017	0.984	0.596	0.041	0.849	0.702	0.986	0.529	0.693	0.684	0.375
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	0.307	0.511	0.555	0.915		0.810	0.019	0.097	0.303	0.261	0.307	0.020	0.091	0.055	0.074	0.031
	DOmgL	0.066	0.409	0.308	0.017	0.810		0.581	0.888	0.239	0.103	0.091	0.602	0.769	0.552	0.923	0.195
	@44DDEppDDE	0.454	0.210	0.915	0.984	0.019	0.581		0.003	0.051	0.001	0.000	0.000	0.001	0.001	0.001	0.000
	Benzoapyrene	0.849	0.147	0.731	0.596	0.097	0.888	0.003		0.098	0.434	0.289	0.003	0.000	0.000	0.000	0.000
	C19C36Aliphaticsunadjusted	0.399	0.645	0.939	0.041	0.303	0.239	0.051	0.098		0.875	0.623	0.049	0.038	0.223	0.055	0.676
	Cadmium	0.819	0.423	0.905	0.849	0.261	0.103	0.001	0.434	0.875		0.000	0.001	0.331	0.733	0.396	0.141
	Copper	0.887	0.318	0.932	0.702	0.307	0.091	0.000	0.289	0.623	0.000		0.000	0.220	0.555	0.268	0.132
	SumDDEHighResolutionKMMDL	0.447	0.225	0.897	0.986	0.020	0.602	0.000	0.003	0.049	0.001	0.000		0.001	0.001	0.001	0.000
	TotalHPAH10of17KMMDL	0.848	0.110	0.964	0.529	0.091	0.769	0.001	0.000	0.038	0.331	0.220	0.001		0.000	0.000	0.001
	TotalLPAH7of17KMMDL	0.548	0.265	0.879	0.693	0.055	0.552	0.001	0.000	0.223	0.733	0.555	0.001	0.000		0.000	0.000
	TotalPAH17KMMDL	0.989	0.128	1.000	0.684	0.074	0.923	0.001	0.000	0.055	0.396	0.268	0.001	0.000	0.000		0.000
	TotalPAH34U12MDL	0.081	0.411	0.887	0.375	0.031	0.195	0.000	0.000	0.676	0.141	0.132	0.000	0.001	0.000	0.000	
N	WBI	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	Average_of_Richness	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	Average_of_Percent_Pollution_Indicating_Taxa	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	AVERAGE_OF_ABUNDANCE_M2	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	DOmgL	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	@44DDEppDDE	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	Benzoapyrene	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	C19C36Aliphaticsunadjusted	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	Cadmium	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	Copper	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	SumDDEHighResolutionKMMDL	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	TotalHPAH10of17KMMDL	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	TotalLPAH7of17KMMDL	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	TotalPAH17KMMDL	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	TotalPAH34U12MDL	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

```
TEMPORARY.
SELECT IF (Area22 = 4).
  CORRELATIONS
  /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa
    AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted Cadmium Copper
    SumDDEHighResolutionKMMDL TotalHPAH10of17KMMDL TotalLPAH7of17KMMDL TotalPAH17KMMDL TotalPAH34U12MDL
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```

Correlations

Notes

Output Created		27-FEB-2018 12:29:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\SPSS\All_Years_WBI_DO_02202018_Match_Base.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	11
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted
Resources	Processor Time	00:00:00.06
	Elapsed Time	00:00:00.02

Correlations, Newtown Creek, 2014, Upstream of CM 2

		WBI	Average_of_Richness	Average_of_Percent_Pollution_Indicating_Taxa	AVERAGE_OF_ABUNDANCE_M2	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	DOmgL	@44DDEppDDE	Benzoapyrene	C19C36Aliphaticsunadjusted	Cadmium	Copper	SumDDEHighResolutionKMMDL	TotalHPAH10of17KMMDL	TotalLPAH7of17KMMDL	TotalPAH17KMMDL	TotalPAH34U12MDL
Pearson Correlation	WBI	1	0.352	-0.186	-0.555	0.569	-0.242	-0.068	-0.201	-0.240	0.101	0.254	-0.042	-0.210	-0.186	-0.205	-0.145
	Average_of_Richness	0.352	1	-.807**	-0.242	0.322	0.042	-0.084	-0.411	-0.122	-0.356	-0.177	0.050	-0.391	-0.529	-0.447	-0.286
	Average_of_Percent_Pollution_Indicating_Taxa	-0.186	-.807**	1	0.156	-0.222	-0.297	0.270	0.319	0.110	0.536	0.353	0.199	0.322	0.437	0.368	0.296
	AVERAGE_OF_ABUNDANCE_M2	-0.555	-0.242	0.156	1	0.214	0.372	-0.270	-0.247	0.440	-0.148	-0.163	-0.231	-0.254	-0.296	-0.273	-0.374
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	0.569	0.322	-0.222	0.214	1	0.133	-0.265	-0.444	0.309	0.007	0.123	-0.215	-0.474	-0.402	-0.456	-0.420
	DOmgL	-0.242	0.042	-0.297	0.372	0.133	1	-0.491	-0.573	-0.223	-0.286	-0.095	-0.464	-0.564	-0.474	-0.542	-0.569
	@44DDEppDDE	-0.068	-0.084	0.270	-0.270	-0.265	-0.491	1	.767**	0.022	0.132	-0.075	1.000**	.775**	.641*	.740**	.833**
	Benzoapyrene	-0.201	-0.411	0.319	-0.247	-0.444	-0.573	.767**	1	0.076	0.309	0.065	.800**	.994**	.931**	.988**	.896**
	C19C36Aliphaticsunadjusted	-0.240	-0.122	0.110	0.440	0.309	-0.223	0.022	0.076	1	-0.268	-0.490	0.113	0.026	-0.034	0.005	-0.062
	Cadmium	0.101	-0.356	0.536	-0.148	0.007	-0.286	0.132	0.309	-0.268	1	.908**	-0.175	0.313	0.552	0.402	0.271
	Copper	0.254	-0.177	0.353	-0.163	0.123	-0.095	-0.075	0.065	-0.490	.908**	1	-0.385	0.096	0.334	0.182	0.097
	SumDDEHighResolutionKMMDL	-0.042	0.050	0.199	-0.231	-0.215	-0.464	1.000**	.800**	0.113	-0.175	-0.385	1	.812**	.738*	.808**	.836**
	TotalHPAH10of17KMMDL	-0.210	-0.391	0.322	-0.254	-0.474	-0.564	.775**	.994**	0.026	0.313	0.096	.812**	1	.928**	.991**	.909**
	TotalLPAH7of17KMMDL	-0.186	-0.529	0.437	-0.296	-0.402	-0.474	.641*	.931**	-0.034	0.552	0.334	.738*	.928**	1	.969**	.875**
	TotalPAH17KMMDL	-0.205	-0.447	0.368	-0.273	-0.456	-0.542	.740**	.988**	0.005	0.402	0.182	.808**	.991**	.969**	1	.912**
	TotalPAH34U12MDL	-0.145	-0.286	0.296	-0.374	-0.420	-0.569	.833**	.896**	-0.062	0.271	0.097	.836**	.909**	.875**	.912**	1
Sig. (2-tailed)	WBI		0.288	0.583	0.076	0.068	0.473	0.843	0.554	0.476	0.767	0.451	0.909	0.535	0.584	0.545	0.670
	Average_of_Richness	0.288		0.003	0.473	0.334	0.902	0.806	0.210	0.721	0.283	0.604	0.891	0.234	0.094	0.169	0.394
	Average_of_Percent_Pollution_Indicating_Taxa	0.583	0.003		0.648	0.511	0.375	0.423	0.339	0.749	0.089	0.287	0.581	0.334	0.179	0.265	0.376

	AVERAGE_OF_ABUNDANCE_M2	0.076	0.473	0.648		0.527	0.260	0.421	0.463	0.176	0.665	0.633	0.521	0.451	0.377	0.417	0.257
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	0.068	0.334	0.511	0.527		0.697	0.431	0.172	0.355	0.984	0.719	0.550	0.141	0.221	0.159	0.198
	DOmgL	0.473	0.902	0.375	0.260	0.697		0.125	0.065	0.509	0.394	0.781	0.177	0.071	0.141	0.085	0.068
	@44DDEppDDE	0.843	0.806	0.423	0.421	0.431	0.125		0.006	0.948	0.698	0.826	0.000	0.005	0.033	0.009	0.001
	Benzoapyrene	0.554	0.210	0.339	0.463	0.172	0.065	0.006		0.825	0.355	0.850	0.005	0.000	0.000	0.000	0.000
	C19C36Aliphaticsunadjusted	0.476	0.721	0.749	0.176	0.355	0.509	0.948	0.825		0.426	0.126	0.757	0.939	0.921	0.988	0.856
	Cadmium	0.767	0.283	0.089	0.665	0.984	0.394	0.698	0.355	0.426		0.000	0.628	0.349	0.079	0.220	0.420
	Copper	0.451	0.604	0.287	0.633	0.719	0.781	0.826	0.850	0.126	0.000		0.271	0.778	0.316	0.592	0.777
	SumDDEHighResolutionKMMDL	0.909	0.891	0.581	0.521	0.550	0.177	0.000	0.005	0.757	0.628	0.271		0.004	0.015	0.005	0.003
	TotalHPAH10of17KMMDL	0.535	0.234	0.334	0.451	0.141	0.071	0.005	0.000	0.939	0.349	0.778	0.004		0.000	0.000	0.000
	TotalLPAH7of17KMMDL	0.584	0.094	0.179	0.377	0.221	0.141	0.033	0.000	0.921	0.079	0.316	0.015	0.000		0.000	0.000
	TotalPAH17KMMDL	0.545	0.169	0.265	0.417	0.159	0.085	0.009	0.000	0.988	0.220	0.592	0.005	0.000	0.000		0.000
	TotalPAH34U12MDL	0.670	0.394	0.376	0.257	0.198	0.068	0.001	0.000	0.856	0.420	0.777	0.003	0.000	0.000	0.000	
N	WBI	11	11	11	11	11	11	11	11	11	11	11	10	11	11	11	11
	Average_of_Richness	11	11	11	11	11	11	11	11	11	11	11	10	11	11	11	11
	Average_of_Percent_Pollution_Indicating_Taxa	11	11	11	11	11	11	11	11	11	11	11	10	11	11	11	11
	AVERAGE_OF_ABUNDANCE_M2	11	11	11	11	11	11	11	11	11	11	11	10	11	11	11	11
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	11	11	11	11	11	11	11	11	11	11	11	10	11	11	11	11
	DOmgL	11	11	11	11	11	11	11	11	11	11	11	10	11	11	11	11
	@44DDEppDDE	11	11	11	11	11	11	11	11	11	11	11	10	11	11	11	11
	Benzoapyrene	11	11	11	11	11	11	11	11	11	11	11	10	11	11	11	11
	C19C36Aliphaticsunadjusted	11	11	11	11	11	11	11	11	11	11	11	10	11	11	11	11
	Cadmium	11	11	11	11	11	11	11	11	11	11	11	10	11	11	11	11
	Copper	11	11	11	11	11	11	11	11	11	11	11	10	11	11	11	11
	SumDDEHighResolutionKMMDL	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	TotalHPAH10of17KMMDL	11	11	11	11	11	11	11	11	11	11	11	10	11	11	11	11
	TotalLPAH7of17KMMDL	11	11	11	11	11	11	11	11	11	11	11	10	11	11	11	11
	TotalPAH17KMMDL	11	11	11	11	11	11	11	11	11	11	11	10	11	11	11	11
	TotalPAH34U12MDL	11	11	11	11	11	11	11	11	11	11	11	10	11	11	11	11

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

```
TEMPORARY.
SELECT IF (Area22 = 5).
  CORRELATIONS
  /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa
    AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted Cadmium Copper
    SumDDEHighResolutionKMMDL TotalHPAH10of17KMMDL TotalLPAH7of17KMMDL TotalPAH17KMMDL TotalPAH34U12MDL
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```

Correlations

Notes		
Output Created		27-FEB-2018 12:29:00
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\SPSS\All_Years_WBI_DO_02202018_Match_Base.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	73
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.

Syntax		CORRELATIONS /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Correlations, Tributaries all years and seasons, Phase 1 and Phase 2

		WBI	Average_of_Richness	Average_of_Percent_Pollution_Indicating_Taxa	AVERAGE_OF_ABUNDANCE_M2	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	DOmgL	@44DDEppDDE	Benzoapyrene	C19C36Aliphaticsunadjusted	Cadmium	Copper	SumDDEHighResolutionKMMDL	TotalHPAH10of17KMMDL	TotalLPAH7of17KMMDL	TotalPAH17KMMDL	TotalPAH34U12MDL
Pearson Correlation	WBI	1	.850**	.646**	.345**	.494**	.548**	-0.093	-0.124	0.124	-0.107	-0.028	-0.146	-0.210	-0.106	-0.180	0.007
	Average_of_Richness	.850**	1	.459**	.630**	.418**	.523**	0.128	-0.068	0.055	-0.022	0.021	0.092	-0.146	-0.070	-0.122	0.111
	Average_of_Percent_Pollution_Indicating_Taxa	.646**	.459**	1	0.140	0.138	.360**	0.023	0.025	0.180	0.013	0.063	0.056	-0.077	-0.008	-0.056	0.067
	AVERAGE_OF_ABUNDANCE_M2	.345**	.630**	0.140	1	0.201	.290*	.287*	0.063	0.110	0.118	0.089	.303*	0.017	0.056	0.032	.309**
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	.494**	.418**	0.138	0.201	1	0.201	-0.068	-0.072	0.236	-0.089	-0.005	-0.075	-0.076	-0.091	-0.081	-0.040
	DOmgL	.548**	.523**	.360**	.290*	0.201	1	0.050	-0.131	-0.117	-0.113	-0.108	0.007	-0.214	-0.115	-0.187	-0.062
	@44DDEppDDE	-0.093	0.128	0.023	.287*	-0.068	0.050	1	.596**	.292*	.879**	.389**	1.000**	.647**	.633**	.670**	.673**
	Benzoapyrene	-0.124	-0.068	0.025	0.063	-0.072	-0.131	.596**	1	0.109	.828**	.642**	.584**	.967**	.891**	.968**	.747**
	C19C36Aliphaticsunadjusted	0.124	0.055	0.180	0.110	0.236	-0.117	.292*	0.109	1	.308*	0.259	0.277	0.151	.317*	0.222	.413**
	Cadmium	-0.107	-0.022	0.013	0.118	-0.089	-0.113	.879**	.828**	.308*	1	.790**	.877**	.845**	.787**	.849**	.684**
	Copper	-0.028	0.021	0.063	0.089	-0.005	-0.108	.389**	.642**	0.259	.790**	1	.375**	.657**	.631**	.667**	.545**
	SumDDEHighResolutionKMMDL	-0.146	0.092	0.056	.303*	-0.075	0.007	1.000**	.584**	0.277	.877**	.375**	1	.653**	.639**	.675**	.670**
	TotalHPAH10of17KMMDL	-0.210	-0.146	-0.077	0.017	-0.076	-0.214	.647**	.967**	0.151	.845**	.657**	.653**	1	.882**	.988**	.705**
	TotalLPAH7of17KMMDL	-0.106	-0.070	-0.008	0.056	-0.091	-0.115	.633**	.891**	.317*	.787**	.631**	.639**	.882**	1	.944**	.868**
	TotalPAH17KMMDL	-0.180	-0.122	-0.056	0.032	-0.081	-0.187	.670**	.968**	0.222	.849**	.667**	.675**	.988**	.944**	1	.777**
	TotalPAH34U12MDL	0.007	0.111	0.067	.309**	-0.040	-0.062	.673**	.747**	.413**	.684**	.545**	.670**	.705**	.868**	.777**	1
Sig. (2-tailed)	WBI		0.000	0.000	0.003	0.000	0.000	0.483	0.297	0.395	0.370	0.816	0.291	0.074	0.373	0.129	0.952
	Average_of_Richness	0.000		0.000	0.000	0.000	0.000	0.335	0.567	0.708	0.850	0.857	0.508	0.217	0.559	0.302	0.350
	Average_of_Percent_Pollution_Indicating_Taxa	0.000	0.000		0.239	0.246	0.002	0.864	0.831	0.216	0.911	0.599	0.685	0.520	0.947	0.639	0.575
	AVERAGE_OF_ABUNDANCE_M2	0.003	0.000	0.239		0.089	0.013	0.028	0.594	0.452	0.322	0.453	0.026	0.886	0.637	0.789	0.008
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	0.000	0.000	0.246	0.089		0.088	0.607	0.546	0.103	0.455	0.967	0.589	0.524	0.443	0.495	0.734
	DOmgL	0.000	0.000	0.002	0.013	0.088		0.709	0.268	0.424	0.339	0.364	0.958	0.069	0.335	0.113	0.605
	@44DDEppDDE	0.483	0.335	0.864	0.028	0.607	0.709		0.000	0.042	0.000	0.002	0.000	0.000	0.000	0.000	0.000
	Benzoapyrene	0.297	0.567	0.831	0.594	0.546	0.268	0.000		0.456	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	C19C36Aliphaticsunadjusted	0.395	0.708	0.216	0.452	0.103	0.424	0.042	0.456		0.031	0.072	0.063	0.300	0.026	0.125	0.003
	Cadmium	0.370	0.850	0.911	0.322	0.455	0.339	0.000	0.000	0.031		0.000	0.000	0.000	0.000	0.000	0.000
	Copper	0.816	0.857	0.599	0.453	0.967	0.364	0.002	0.000	0.072	0.000		0.005	0.000	0.000	0.000	0.000
	SumDDEHighResolutionKMMDL	0.291	0.508	0.685	0.026	0.589	0.958	0.000	0.000	0.063	0.000	0.005		0.000	0.000	0.000	0.000
	TotalHPAH10of17KMMDL	0.074	0.217	0.520	0.886	0.524	0.069	0.000	0.000	0.300	0.000	0.000	0.000		0.000	0.000	0.000
	TotalLPAH7of17KMMDL	0.373	0.559	0.947	0.637	0.443	0.335	0.000	0.000	0.026	0.000	0.000	0.000	0.000		0.000	0.000
	TotalPAH17KMMDL	0.129	0.302	0.639	0.789	0.495	0.113	0.000	0.000	0.125	0.000	0.000	0.000	0.000	0.000		0.000
	TotalPAH34U12MDL	0.952	0.350	0.575	0.008	0.734	0.605	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	
N	WBI	73	73	73	73	73	73	59	73	49	73	73	54	73	73	73	73
	Average_of_Richness	73	73	73	73	73	73	59	73	49	73	73	54	73	73	73	73
	Average_of_Percent_Pollution_Indicating_Taxa	73	73	73	73	73	73	59	73	49	73	73	54	73	73	73	73
	AVERAGE_OF_ABUNDANCE_M2	73	73	73	73	73	73	59	73	49	73	73	54	73	73	73	73
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	73	73	73	73	73	73	59	73	49	73	73	54	73	73	73	73
	DOmgL	73	73	73	73	73	73	59	73	49	73	73	54	73	73	73	73
	@44DDEppDDE	59	59	59	59	59	59	59	59	49	59	59	54	59	59	59	59
	Benzoapyrene	73	73	73	73	73	73	59	73	49	73	73	54	73	73	73	73
	C19C36Aliphaticsunadjusted	49	49	49	49	49	49	49	49	49	49	49	46	49	49	49	49
	Cadmium	73	73	73	73	73	73	59	73	49	73	73	54	73	73	73	73
	Copper	73	73	73	73	73	73	59	73	49	73	73	54	73	73	73	73
	SumDDEHighResolutionKMMDL	54	54	54	54	54	54	54	54	46	54	54	54	54	54	54	54
	TotalHPAH10of17KMMDL	73	73	73	73	73	73	59	73	49	73	73	54	73	73	73	73
	TotalLPAH7of17KMMDL	73	73	73	73	73	73	59	73	49	73	73	54	73	73	73	73
	TotalPAH17KMMDL	73	73	73	73	73	73	59	73	49	73	73	54	73	73	73	73
	TotalPAH34U12MDL	73	73	73	73	73	73	59	73	49	73	73	54	73	73	73	73

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

```
DATASET ACTIVATE DataSet1.

SAVE OUTFILE='C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA '+
    'Comments\SPSS\All_Years_WBI_DO_02202018_Match_Base.sav'
  /COMPRESSED.
TEMPORARY.
SELECT IF (SUBFACILITY_CODE2 > 6).
  CORRELATIONS
  /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa
    AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted Cadmium Copper
    SumDDEHighResolutionKMMDL TotalHPAH10of17KMMDL TotalLPAH7of17KMMDL TotalPAH17KMMDL TotalPAH34U12MDL
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```

Correlations

Notes

Output Created		26-FEB-2018 13:27:19
Comments		
Input	Data	C:\Users\jvolosin\Documents\Newtown\BERA\New 2018 EPA Comments\SPSS\All_Years_WBI_DO_02202018_Match_Base.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	40
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=WBI Average_of_Richness Average_of_Percent_Pollution_Indicating_Taxa AVERAGE_OF_ABUNDANCE_M2 AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES DOmgL @44DDEppDDE Benzoapyrene C19C36Aliphaticsunadjusted
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Correlations, Reference Areas, Spring and Summer 2014

		WBI	Average_of_Richness	Average_of_Percent_Pollution_Indicating_Taxa	AVERAGE_OF_ABUNDANCE_M2	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	DOmgL	@44DDEppDDE	Benzoapyrene	C19C36Aliphaticsunadjusted	Cadmium	Copper	SumDDEHighResolutionKMMDL	TotalHPAH10of17KMMDL	TotalLPAH7of17KMMDL	TotalPAH17KMMDL	TotalPAH34U12MDL
Pearson Correlation	WBI	1	0.010	-.595**	0.068	.357*	-0.052	0.130	0.040	0.216	-0.158	0.059	0.133	0.049	-0.028	0.034	0.062
	Average_of_Richness	0.010	1	0.003	.372*	0.233	-0.275	-0.174	-0.273	-0.076	-0.211	-0.249	-0.207	-0.242	-0.272	-0.254	-0.288
	Average_of_Percent_Pollution_Indicating_Taxa	-.595**	0.003	1	-.410*	-0.005	0.062	-0.248	-.361*	-.512**	0.096	-0.245	-0.264	-.387*	-0.268	-.362*	-.380*
	AVERAGE_OF_ABUNDANCE_M2	0.068	.372*	-.410*	1	0.280	-.342*	0.008	.377*	.766**	0.059	0.310	-0.004	.450**	0.281	.409*	.387*
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	.357*	0.233	-0.005	0.280	1	-0.057	0.095	0.015	0.196	-0.120	-0.020	0.072	0.029	-0.032	0.012	-0.023
	DOmgL	-0.052	-0.275	0.062	-.342*	-0.057	1	-0.168	-0.199	-0.112	-0.023	-0.092	-0.174	-0.195	-0.191	-0.193	-0.151
	@44DDEppDDE	0.130	-0.174	-0.248	0.008	0.095	-0.168	1	0.074	0.063	-0.048	-0.017	1.000**	0.068	0.051	0.066	0.016

	Benzoapyrene	0.040	-0.273	-.361*	.377*	0.015	-0.199	0.074	1	.704**	0.281	.682**	-0.015	.989**	.978**	.993**	.978**
	C19C36Aliphaticsunadjusted	0.216	-0.076	-.512**	.766**	0.196	-0.112	0.063	.704**	1	0.224	.591**	0.023	.776**	.618**	.744**	.753**
	Cadmium	-0.158	-0.211	0.096	0.059	-0.120	-0.023	-0.048	0.281	0.224	1	.818**	-0.294	.317*	0.268	0.311	0.307
	Copper	0.059	-0.249	-0.245	0.310	-0.020	-0.092	-0.017	.682**	.591**	.818**	1	-0.241	.716**	.641**	.704**	.706**
	SumDDEHighResolutionKMMDL	0.133	-0.207	-0.264	-0.004	0.072	-0.174	1.000**	-0.015	0.023	-0.294	-0.241	1	-0.022	-0.032	-0.025	-0.071
	TotalHPAH10of17KMMDL	0.049	-0.242	-.387*	.450**	0.029	-0.195	0.068	.989**	.776**	.317*	.716**	-0.022	1	.963**	.998**	.983**
	TotalLPAH7of17KMMDL	-0.028	-0.272	-0.268	0.281	-0.032	-0.191	0.051	.978**	.618**	0.268	.641**	-0.032	.963**	1	.978**	.973**
	TotalPAH17KMMDL	0.034	-0.254	-.362*	.409*	0.012	-0.193	0.066	.993**	.744**	0.311	.704**	-0.025	.998**	.978**	1	.987**
	TotalPAH34U12MDL	0.062	-0.288	-.380*	.387*	-0.023	-0.151	0.016	.978**	.753**	0.307	.706**	-0.071	.983**	.973**	.987**	1
Sig. (2-tailed)	WBI		0.952	0.000	0.689	0.030	0.758	0.442	0.813	0.198	0.351	0.729	0.534	0.773	0.872	0.841	0.717
	Average_of_Richness	0.952		0.985	0.023	0.166	0.100	0.303	0.103	0.654	0.209	0.137	0.332	0.149	0.109	0.129	0.084
	Average_of_Percent_Pollution_Indicating_Taxa	0.000	0.985		0.012	0.974	0.714	0.139	0.028	0.001	0.571	0.144	0.213	0.018	0.115	0.028	0.020
	AVERAGE_OF_ABUNDANCE_M2	0.689	0.023	0.012		0.093	0.038	0.965	0.022	0.000	0.727	0.061	0.986	0.005	0.096	0.012	0.018
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	0.030	0.166	0.974	0.093		0.739	0.577	0.931	0.246	0.481	0.905	0.737	0.867	0.854	0.942	0.892
	DOmgL	0.758	0.100	0.714	0.038	0.739		0.319	0.237	0.510	0.890	0.590	0.415	0.247	0.263	0.253	0.372
	@44DDEppDDE	0.442	0.303	0.139	0.965	0.577	0.319		0.650	0.700	0.769	0.916	0.000	0.676	0.756	0.686	0.921
	Benzoapyrene	0.813	0.103	0.028	0.022	0.931	0.237	0.650		0.000	0.079	0.000	0.942	0.000	0.000	0.000	0.000
	C19C36Aliphaticsunadjusted	0.198	0.654	0.001	0.000	0.246	0.510	0.700	0.000		0.164	0.000	0.911	0.000	0.000	0.000	0.000
	Cadmium	0.351	0.209	0.571	0.727	0.481	0.890	0.769	0.079	0.164		0.000	0.145	0.046	0.098	0.051	0.054
	Copper	0.729	0.137	0.144	0.061	0.905	0.590	0.916	0.000	0.000	0.000		0.235	0.000	0.000	0.000	0.000
	SumDDEHighResolutionKMMDL	0.534	0.332	0.213	0.986	0.737	0.415	0.000	0.942	0.911	0.145	0.235		0.914	0.876	0.904	0.730
	TotalHPAH10of17KMMDL	0.773	0.149	0.018	0.005	0.867	0.247	0.676	0.000	0.000	0.046	0.000	0.914		0.000	0.000	0.000
	TotalLPAH7of17KMMDL	0.872	0.109	0.115	0.096	0.854	0.263	0.756	0.000	0.000	0.098	0.000	0.876	0.000		0.000	0.000
	TotalPAH17KMMDL	0.841	0.129	0.028	0.012	0.942	0.253	0.686	0.000	0.000	0.051	0.000	0.904	0.000	0.000		0.000
	TotalPAH34U12MDL	0.717	0.084	0.020	0.018	0.892	0.372	0.921	0.000	0.000	0.054	0.000	0.730	0.000	0.000	0.000	
N	WBI	37	37	37	37	37	37	37	37	37	37	37	24	37	36	37	37
	Average_of_Richness	37	37	37	37	37	37	37	37	37	37	37	24	37	36	37	37
	Average_of_Percent_Pollution_Indicating_Taxa	37	37	37	37	37	37	37	37	37	37	37	24	37	36	37	37
	AVERAGE_OF_ABUNDANCE_M2	37	37	37	37	37	37	37	37	37	37	37	24	37	36	37	37
	AVERAGE_OF_PERCENT_CARNIVORES_OMNIVORES	37	37	37	37	37	37	37	37	37	37	37	24	37	36	37	37
	DOmgL	37	37	37	37	37	37	37	37	37	37	37	24	37	36	37	37
	@44DDEppDDE	37	37	37	37	37	37	40	40	40	40	40	26	40	39	40	40
	Benzoapyrene	37	37	37	37	37	37	40	40	40	40	40	26	40	39	40	40
	C19C36Aliphaticsunadjusted	37	37	37	37	37	37	40	40	40	40	40	26	40	39	40	40
	Cadmium	37	37	37	37	37	37	40	40	40	40	40	26	40	39	40	40
	Copper	37	37	37	37	37	37	40	40	40	40	40	26	40	39	40	40
	SumDDEHighResolutionKMMDL	24	24	24	24	24	24	26	26	26	26	26	26	26	26	26	26
	TotalHPAH10of17KMMDL	37	37	37	37	37	37	40	40	40	40	40	26	40	39	40	40
	TotalLPAH7of17KMMDL	36	36	36	36	36	36	39	39	39	39	39	26	39	39	39	39
	TotalPAH17KMMDL	37	37	37	37	37	37	40	40	40	40	40	26	40	39	40	40
	TotalPAH34U12MDL	37	37	37	37	37	37	40	40	40	40	40	26	40	39	40	40

**. Correlation is significant at the 0.01 level (2-tailed).

Notes:

Correlation GROUPS	Variable Code	Location
SUBFACILITY_CODE2	1	Newtown Creek
SUBFACILITY_CODE2	2	Dutch Kills
SUBFACILITY_CODE2	3	Maspeth Creek
SUBFACILITY_CODE2	4	East Branch
SUBFACILITY_CODE2	5	English Kills
SUBFACILITY_CODE2	6	Reference Areas, Spring and Summer 2014
Area2	2	Newtown Creek, Upstream of CM 2 and Tributaries
Area22	1	Newtown Creek, 2012, Downstream of CM 2
Area22	2	Newtown Creek, 2012, Upstream of CM 2
Area22	3	Newtown Creek, 2014, Downstream of CM 2
Area22	4	Newtown Creek, 2014, Upstream of CM 2
Area22	5	Tributaries All Years and Seasons, Phase 1 and Phase 2

ATTACHMENT C5

RELATIONSHIP BETWEEN BENTHIC COMMUNITY WEISBERG BIOTIC INDEX AND DISSOLVED OXYGEN

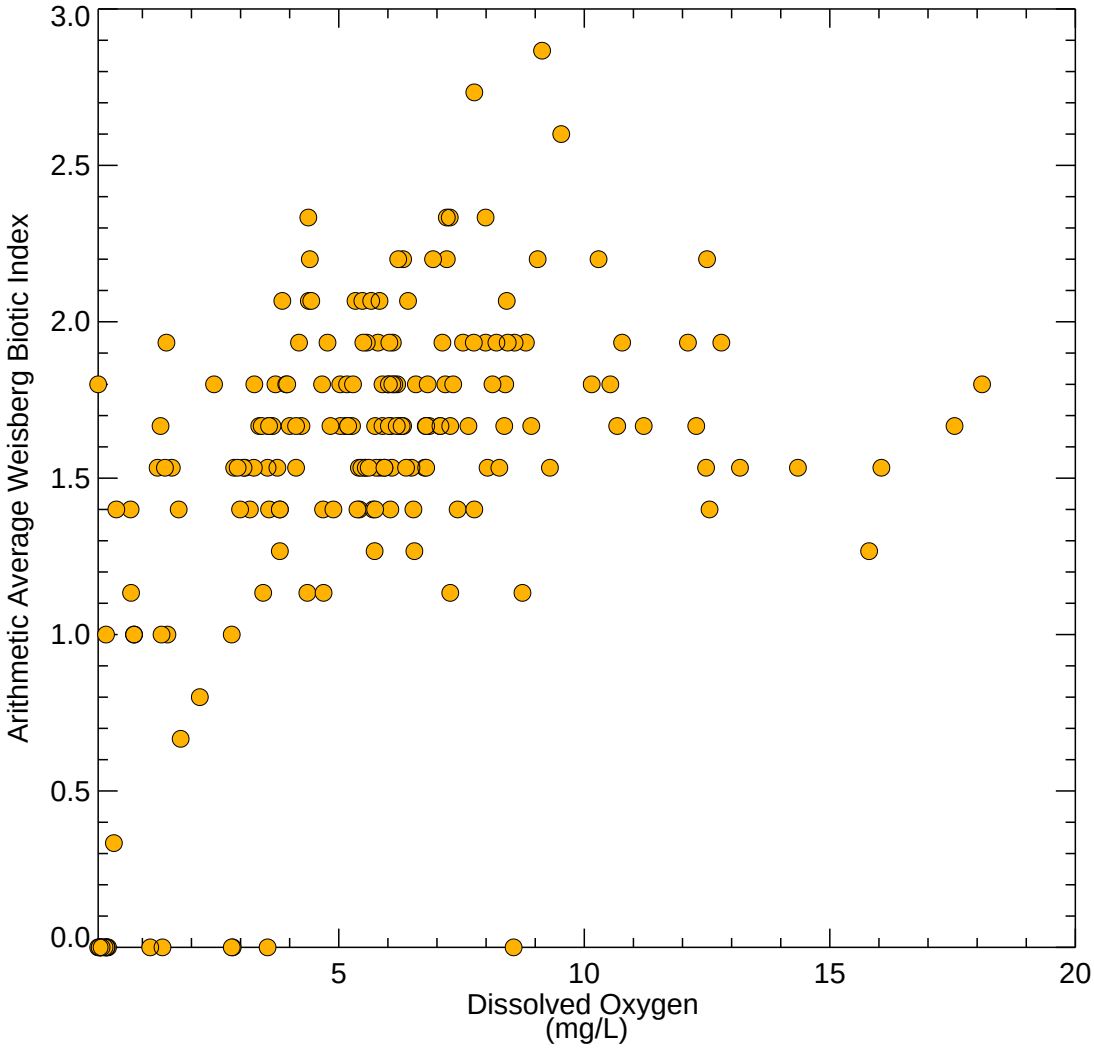


Figure C5-1

Relationship between Benthic Community Weisberg Biotic Index and Dissolved Oxygen:
Phases 1 and 2, Spring and Summer Combined
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

ANCHOR QEA

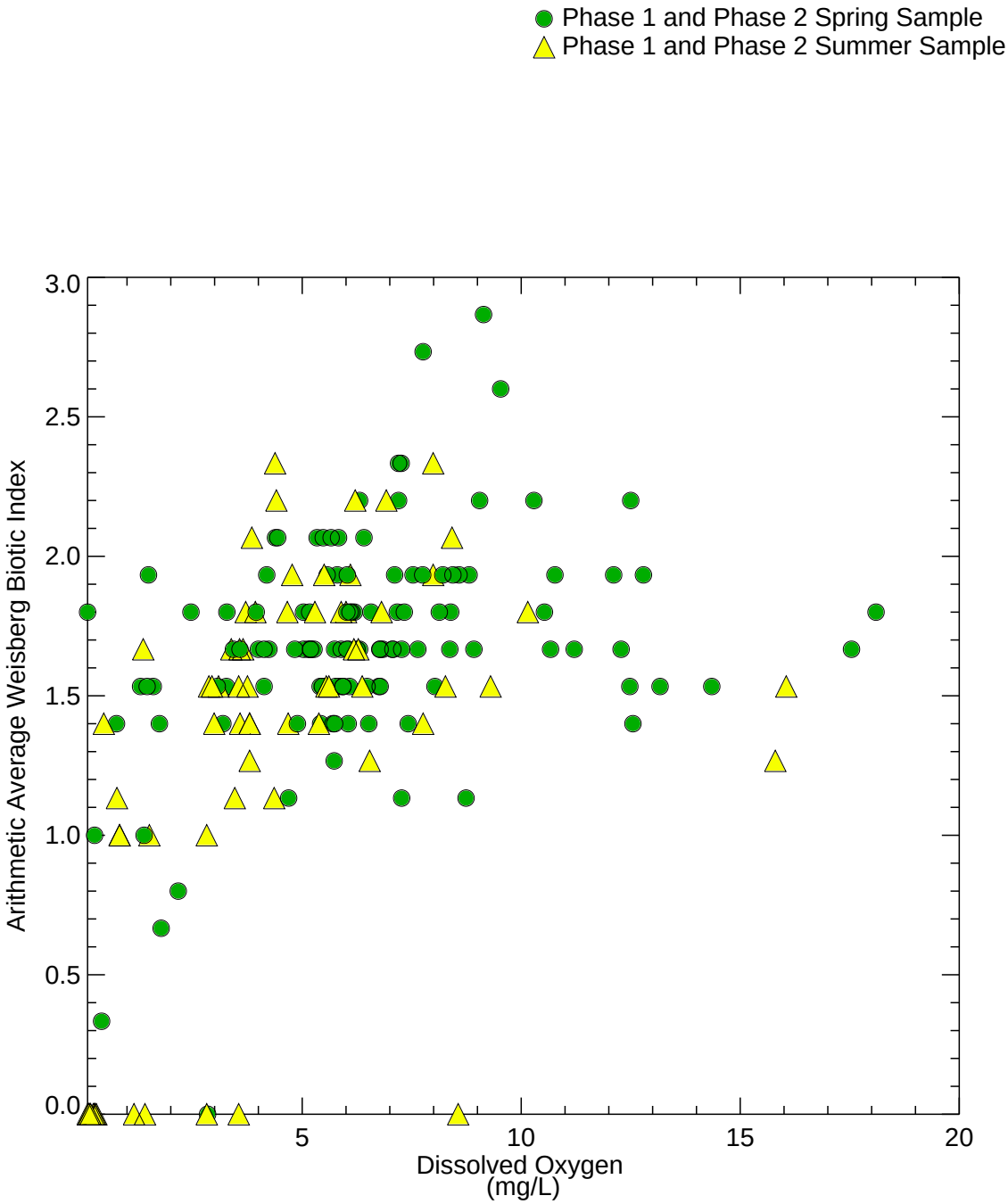


Figure C5-2

Relationship between Benthic Community Weisberg Biotic Index and Dissolved Oxygen by Season
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

ANCHOR QEA

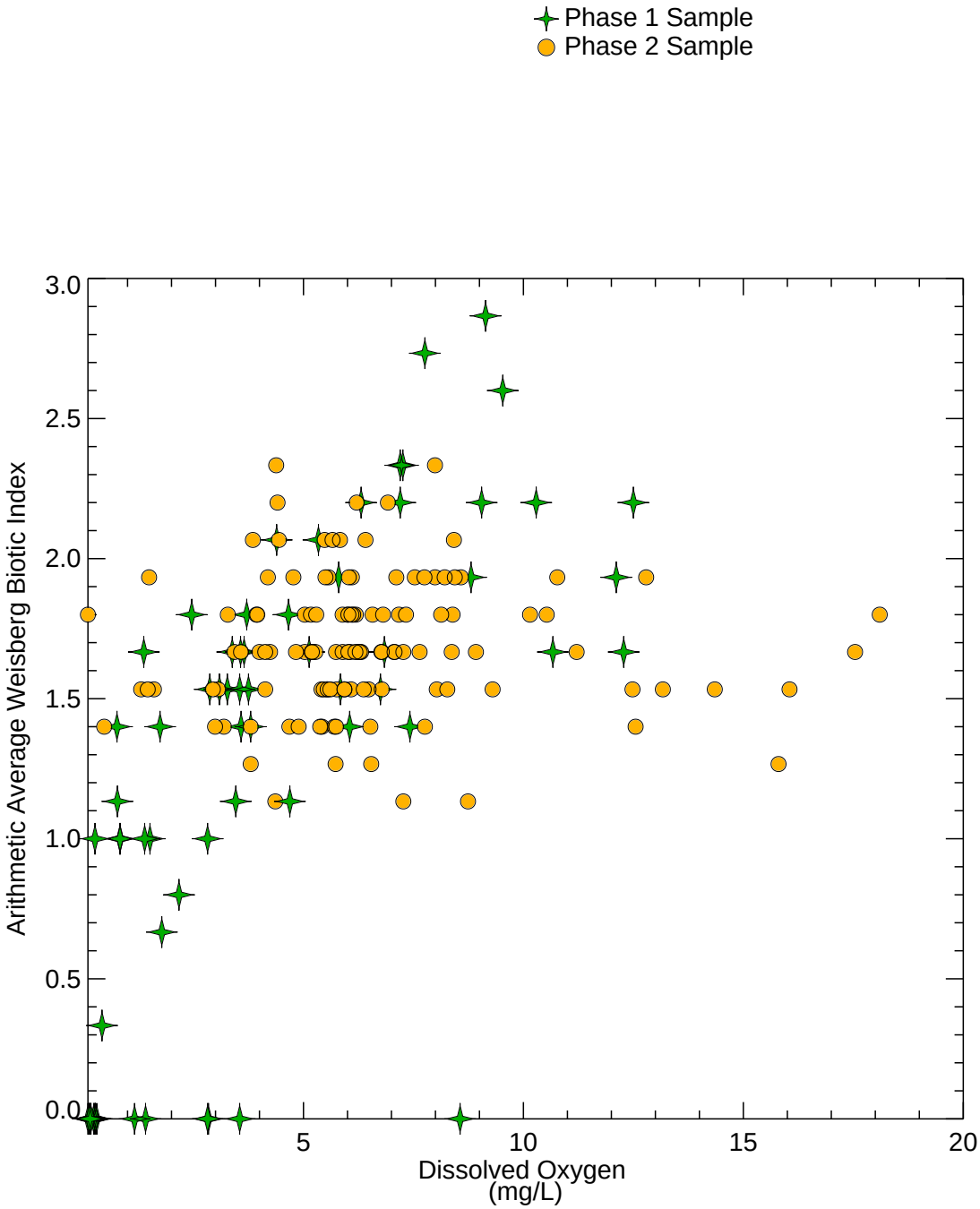


Figure C5-3

Relationship between Benthic Community Weisberg Biotic Index and Dissolved Oxygen by Phase
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

ANCHOR QEA

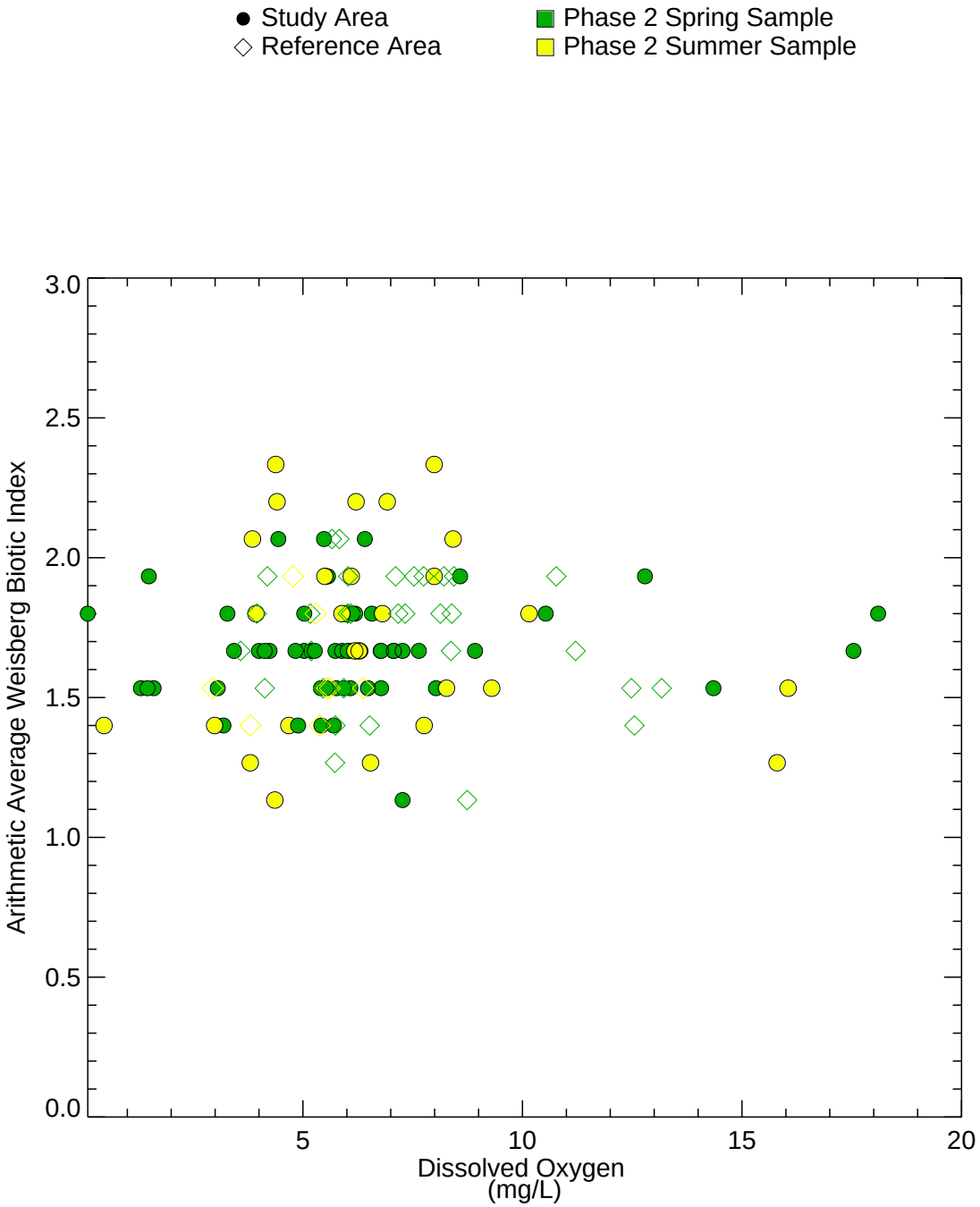


Figure C5-4

Relationship between Benthic Community Weisberg Biotic Index and Dissolved Oxygen: Study Area and Reference Area, Spring and Summer
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

ANCHOR QEA

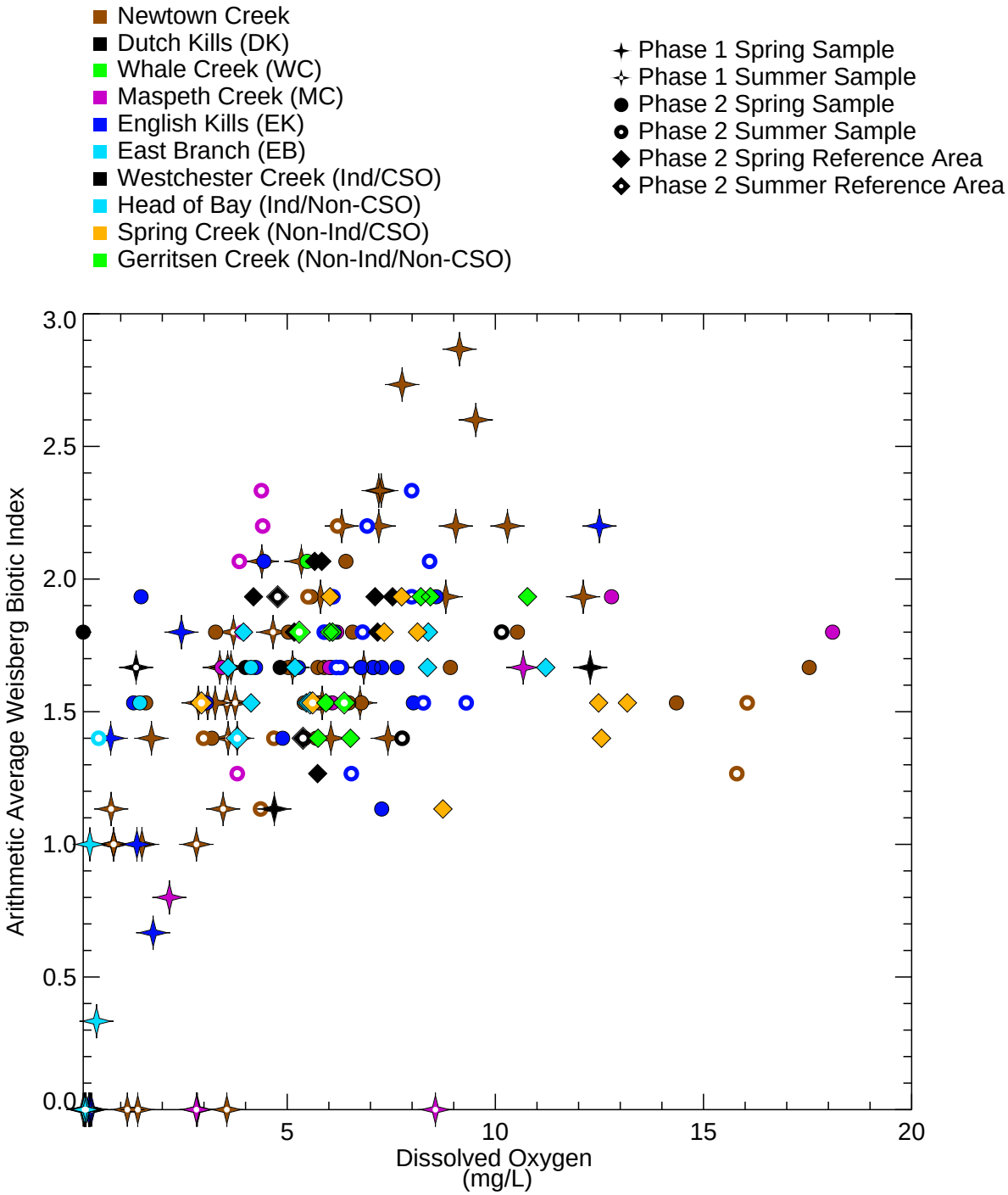


Figure C5-5

Relationship between Benthic Community Weisberg Biotic Index and Dissolved Oxygen by Phase, Location, and Season
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

ANCHOR QEA

ATTACHMENT D

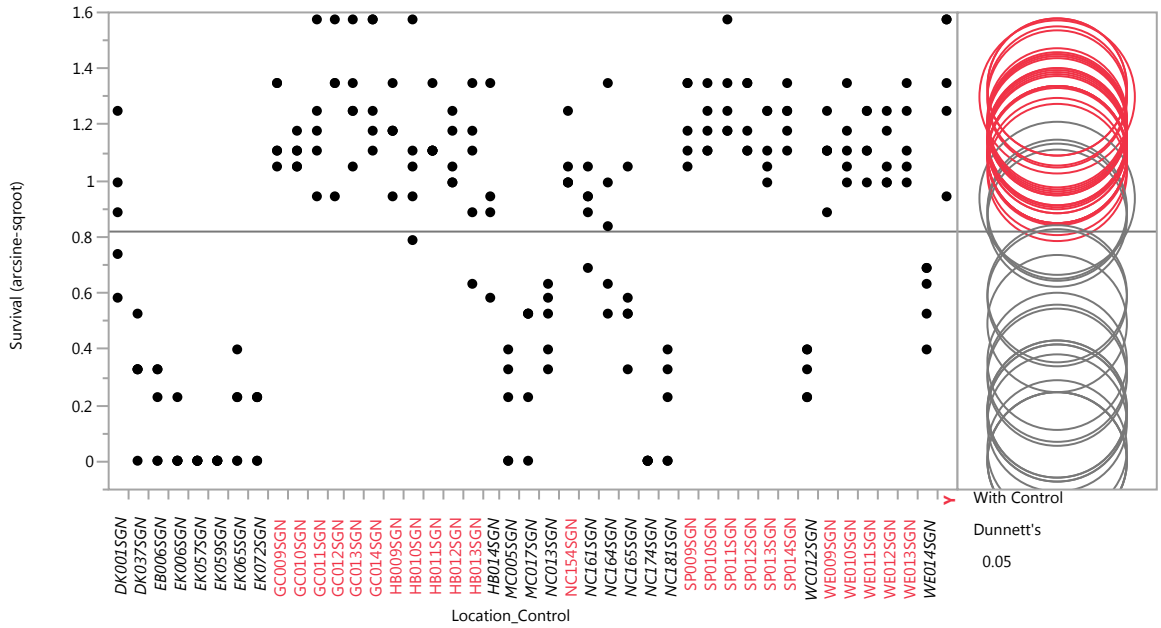
BENTHIC MACROINVERTEBRATE RISK ASSESSMENT SUPPORTING INFORMATION

- Attachment D1a Sediment Quality Triad Reference Envelope Development Data Input and Statistical Software Output Files
- Attachment D1b Reference Envelope Threshold Calculations
- Attachment D1c Summary of Reference Envelope Threshold Values

ATTACHMENT D1A

SEDIMENT QUALITY TRIAD REFERENCE ENVELOPE DEVELOPMENT DATA INPUT AND STATISTICAL SOFTWARE OUTPUT FILES

Oneway Analysis of Leptocheirus Test Results By Location_Control duration=10-d, endpoint=Percent survival, test_batch=24767



Means Comparisons

Comparisons with a control using Dunnett's Method

Control Group =

Y

Confidence Quantile

|d|	Alpha
3.13434	0.05

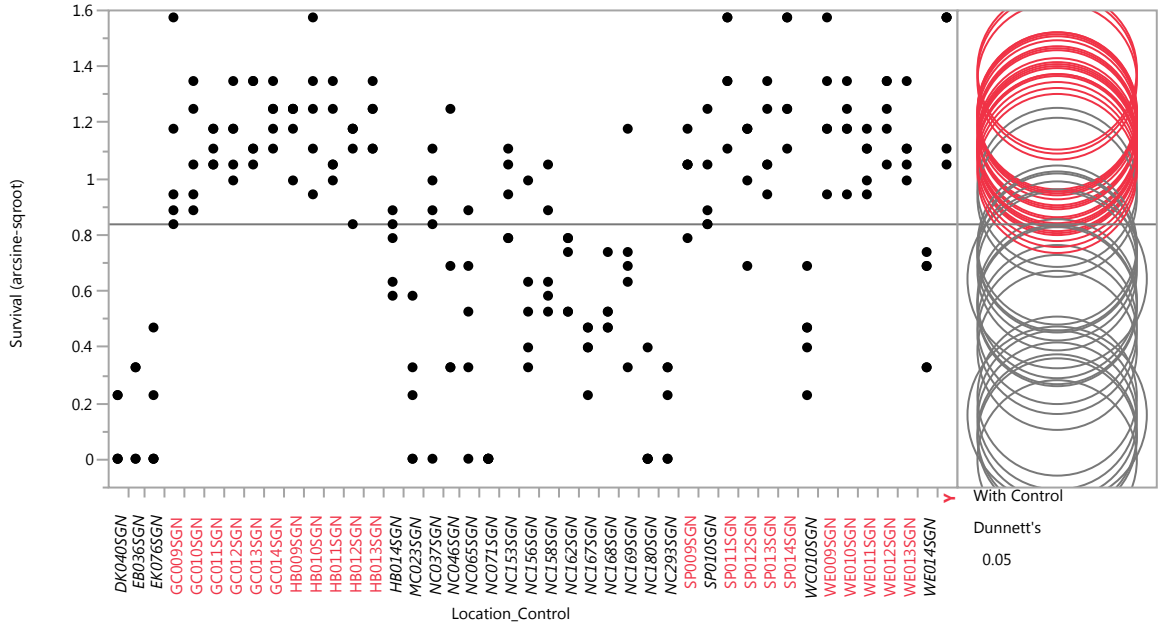
LSD Threshold Matrix

Level	Abs(Dif)-LSD	p-Value
Y	-0.35	1.0000
GC014SGN	-0.35	1.0000
SP011SGN	-0.31	1.0000
GC012SGN	-0.33	1.0000
GC013SGN	-0.3	1.0000
SP014SGN	-0.24	0.9998
SP012SGN	-0.23	0.9989
GC011SGN	-0.22	0.9968
SP009SGN	-0.21	0.9949
SP010SGN	-0.21	0.9889
GC009SGN	-0.2	0.9810
HB009SGN	-0.17	0.8774
HB011SGN	-0.17	0.8451
WE013SGN	-0.16	0.8022
WE011SGN	-0.15	0.7526

Level	Abs(Dif)-LSD	p-Value
WE010SGN	-0.14	0.6954
SP013SGN	-0.14	0.6655
GC010SGN	-0.11	0.4354
WE009SGN	-0.1	0.4033
HB012SGN	-0.1	0.3972
WE012SGN	-0.1	0.3972
HB010SGN	-0.1	0.3930
NC154SGN	-0.07	0.2112
HB013SGN	-0.04	0.1272
HB014SGN	0.031	0.0235*
NC161SGN	0.09	0.0037*
DK001SGN	0.1	0.0027*
NC164SGN	0.123	0.0012*
NC165SGN	0.39	<.0001*
WE014SGN	0.404	<.0001*
NC013SGN	0.498	<.0001*
MC017SGN	0.629	<.0001*
WC012SGN	0.675	<.0001*
DK037SGN	0.691	<.0001*
NC181SGN	0.8	<.0001*
MC005SGN	0.8	<.0001*
EB006SGN	0.815	<.0001*
EK065SGN	0.819	<.0001*
EK072SGN	0.853	<.0001*
EK006SGN	0.944	<.0001*
NC174SGN	0.989	<.0001*
EK057SGN	0.989	<.0001*
EK059SGN	0.989	<.0001*

Positive values show pairs of means that are significantly different.

Oneway Analysis of Leptocheirus Test Results By Location_Control duration=10-d, endpoint=Percent survival, test_batch=24768



Means Comparisons

Comparisons with a control using Dunnett's Method

Control Group =

Y

Confidence Quantile

|d|	Alpha
3.13434	0.05

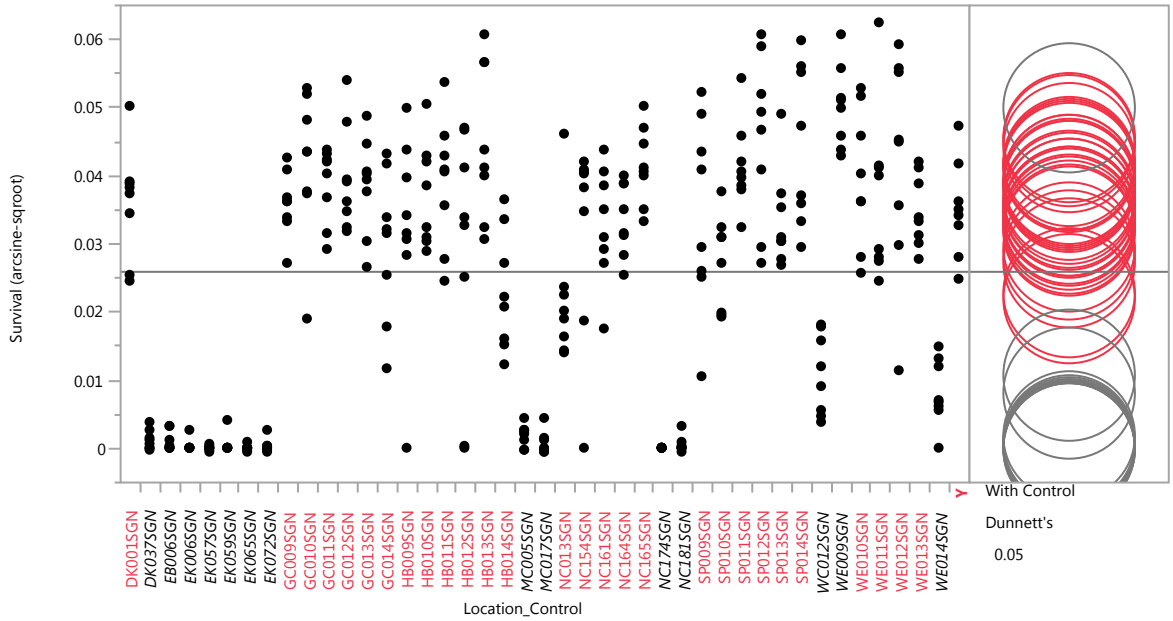
LSD Threshold Matrix

Level	Abs(Dif)-LSD	p-Value
SP011SGN	-0.38	1.0000
Y	-0.4	1.0000
SP014SGN	-0.38	1.0000
HB010SGN	-0.27	0.9995
WE009SGN	-0.27	0.9994
WE012SGN	-0.26	0.9983
GC014SGN	-0.25	0.9961
HB013SGN	-0.24	0.9869
GC013SGN	-0.22	0.9466
HB009SGN	-0.21	0.9198
WE010SGN	-0.2	0.8931
GC012SGN	-0.17	0.7317
HB011SGN	-0.16	0.6685
SP013SGN	-0.15	0.6001
WE013SGN	-0.15	0.5639

Level	Abs(Dif)-LSD	p-Value
GC011SGN	-0.14	0.5020
GC010SGN	-0.12	0.4073
HB012SGN	-0.12	0.4036
GC009SGN	-0.11	0.3430
WE011SGN	-0.09	0.2647
SP012SGN	-0.07	0.1779
SP009SGN	-0.05	0.1266
SP010SGN	0.003	0.0466*
NC153SGN	0.041	0.0193*
NC037SGN	0.21	0.0001*
HB014SGN	0.23	<.0001*
NC158SGN	0.24	<.0001*
NC169SGN	0.264	<.0001*
NC162SGN	0.303	<.0001*
NC046SGN	0.305	<.0001*
NC156SGN	0.4	<.0001*
WE014SGN	0.424	<.0001*
NC168SGN	0.432	<.0001*
NC065SGN	0.491	<.0001*
WC010SGN	0.527	<.0001*
NC167SGN	0.584	<.0001*
MC023SGN	0.749	<.0001*
NC293SGN	0.8	<.0001*
EB036SGN	0.789	<.0001*
EK076SGN	0.836	<.0001*
DK040SGN	0.884	<.0001*
NC180SGN	0.894	<.0001*
NC071SGN	0.974	<.0001*

Positive values show pairs of means that are significantly different.

Oneway Analysis of Leptocheirus Test Results By Location_Control duration=28-d, endpoint=Growth (biomass), test_batch=24769



Means Comparisons

Comparisons with a control using Dunnett's Method

Control Group =

Y

Confidence Quantile

|d|	Alpha
3.11537	0.05

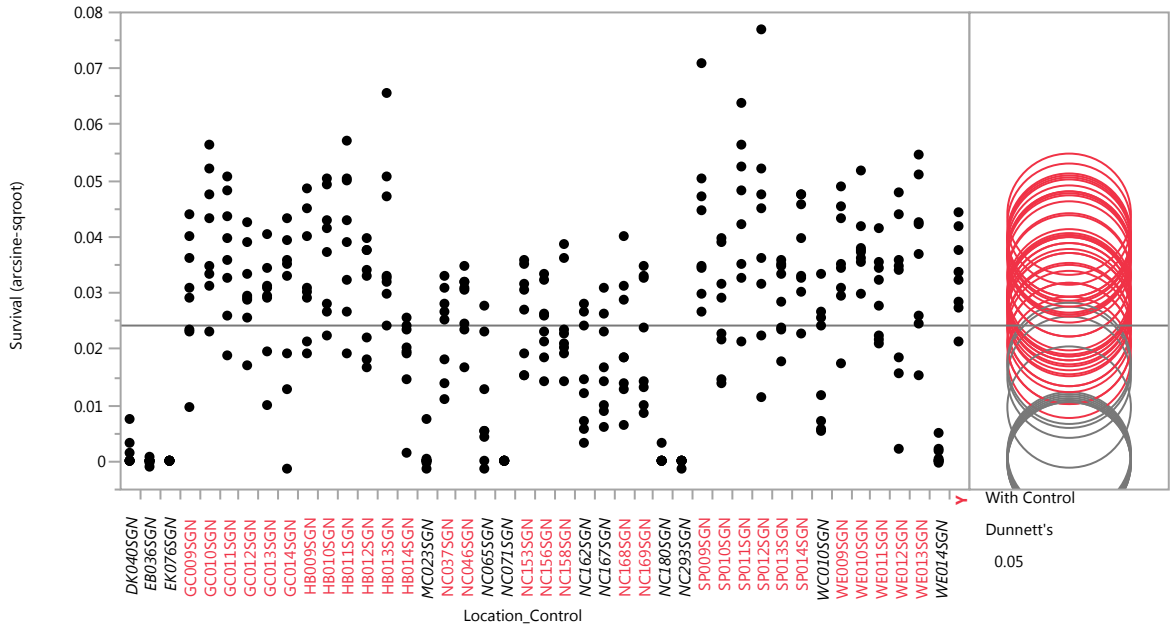
LSD Threshold Matrix

Level	Abs(Dif)-LSD	p-Value
WE009SGN	0.002	0.0147*
SP012SGN	-3e-3	0.2381
HB013SGN	-3e-3	0.2850
SP014SGN	-4e-3	0.4361
WE012SGN	-0.01	0.8204
GC010SGN	-0.01	0.8845
NC165SGN	-0.01	0.9124
SP011SGN	-0.01	0.9224
WE010SGN	-0.01	0.9992
GC012SGN	-0.01	0.9996
HB011SGN	-0.01	0.9999
GC011SGN	-0.01	1.0000
GC013SGN	-0.01	1.0000
HB010SGN	-0.01	1.0000
WE011SGN	-0.01	1.0000

Level	Abs(Dif)-LSD	p-Value
DK001SGN	-0.01	1.0000
GC009SGN	-0.01	1.0000
Y	-0.01	1.0000
WE013SGN	-0.01	1.0000
SP009SGN	-0.01	1.0000
NC164SGN	-0.01	1.0000
SP013SGN	-0.01	1.0000
NC161SGN	-0.01	1.0000
HB009SGN	-0.01	1.0000
NC154SGN	-0.01	1.0000
GC014SGN	-0.01	0.9926
HB012SGN	-0.01	0.9095
SP010SGN	-0.01	0.7200
HB014SGN	-1e-3	0.1205
NC013SGN	-5e-4	0.0697
WC012SGN	0.011	<.0001*
WE014SGN	0.013	<.0001*
MC005SGN	0.02	<.0001*
DK037SGN	0.02	<.0001*
EB006SGN	0.021	<.0001*
MC017SGN	0.021	<.0001*
EK059SGN	0.021	<.0001*
NC181SGN	0.021	<.0001*
EK006SGN	0.021	<.0001*
EK072SGN	0.021	<.0001*
NC174SGN	0.021	<.0001*
EK065SGN	0.021	<.0001*
EK057SGN	0.021	<.0001*

Positive values show pairs of means that are significantly different.

Oneway Analysis of Leptocheirus Test Results By Location_Control duration=28-d, endpoint=Growth (biomass), test_batch=24770



Means Comparisons

Comparisons with a control using Dunnett's Method

Control Group =
Y

Confidence Quantile

|d|	Alpha
3.11537	0.05

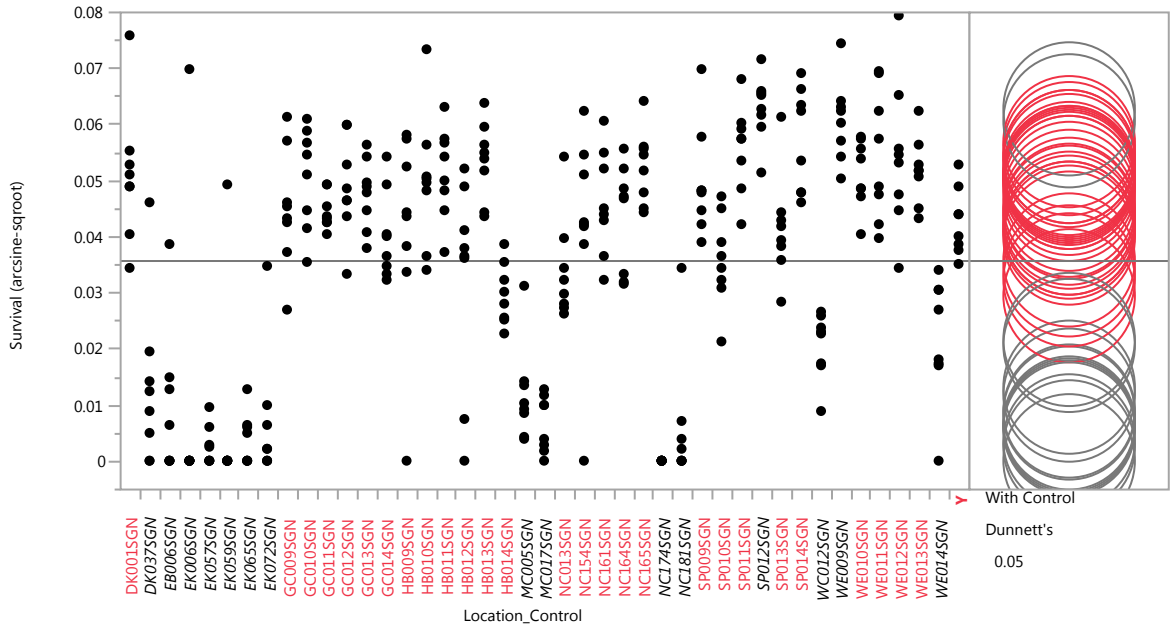
LSD Threshold Matrix

Level	Abs(Dif)-LSD	p-Value
SP011SGN	-5e-3	0.4284
SP009SGN	-0.01	0.6993
SP012SGN	-0.01	0.9484
GC010SGN	-0.01	0.9662
HB011SGN	-0.01	0.9842
HB013SGN	-0.01	0.9936
WE010SGN	-0.01	0.9996
SP014SGN	-0.01	1.0000
HB010SGN	-0.01	1.0000
GC011SGN	-0.01	1.0000
WE013SGN	-0.01	1.0000
WE009SGN	-0.01	1.0000
Y	-0.02	1.0000
HB009SGN	-0.02	1.0000
GC012SGN	-0.01	1.0000

Level	Abs(Dif)-LSD	p-Value
HB012SGN	-0.01	1.0000
GC009SGN	-0.01	1.0000
WE011SGN	-0.01	1.0000
WE012SGN	-0.01	1.0000
SP013SGN	-0.01	1.0000
GC013SGN	-0.01	0.9993
NC046SGN	-0.01	0.9990
GC014SGN	-0.01	0.9891
SP010SGN	-0.01	0.9621
NC153SGN	-0.01	0.9431
NC158SGN	-0.01	0.7111
NC156SGN	-0.01	0.6967
NC037SGN	-0.01	0.5200
NC169SGN	-3e-3	0.2456
NC168SGN	-3e-3	0.2447
HB014SGN	-5e-4	0.0665
WC010SGN	5e-4	0.0374*
NC167SGN	0.001	0.0266*
NC162SGN	0.003	0.0080*
NC065SGN	0.008	<.0001*
DK040SGN	0.016	<.0001*
WE014SGN	0.017	<.0001*
MC023SGN	0.017	<.0001*
NC180SGN	0.018	<.0001*
NC071SGN	0.018	<.0001*
EK076SGN	0.018	<.0001*
EB036SGN	0.018	<.0001*
NC293SGN	0.018	<.0001*

Positive values show pairs of means that are significantly different.

Oneway Analysis of Leptocheirus Test Results By Location_Control duration=28-d, endpoint=Growth (weight), test_batch=24769



Means Comparisons

Comparisons with a control using Dunnett's Method

Control Group =

Y

Confidence Quantile

|d|	Alpha
3.11537	0.05

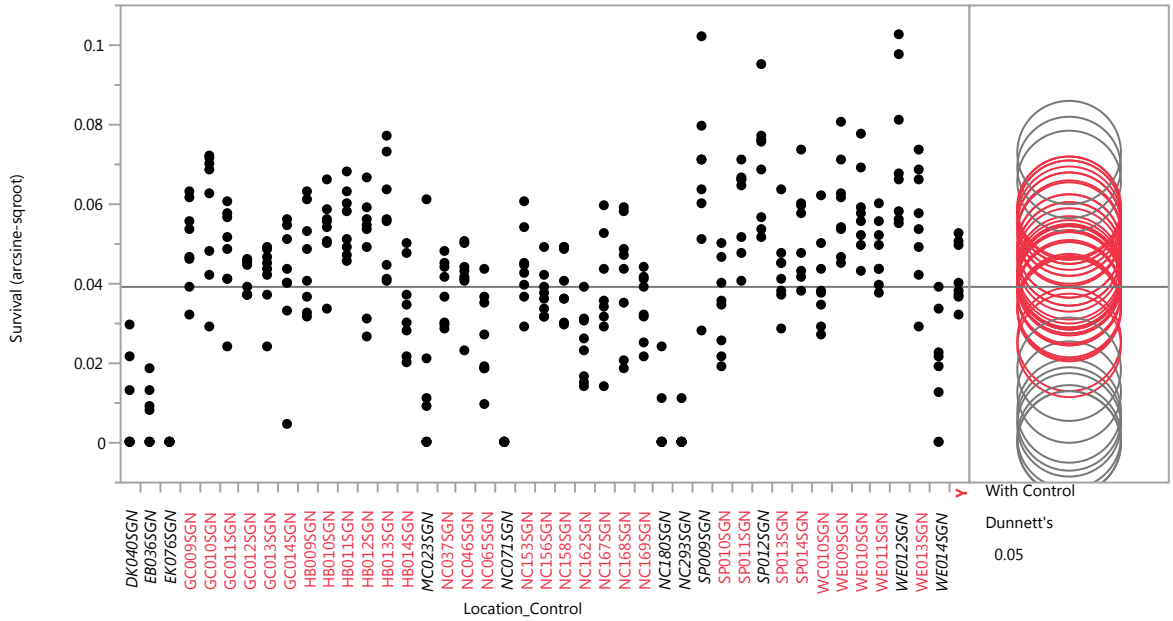
LSD Threshold Matrix

Level	Abs(Dif)-LSD	p-Value
SP012SGN	0.004	0.0062*
WE009SGN	0.001	0.0238*
SP014SGN	-2e-3	0.1516
SP011SGN	-4e-3	0.2503
WE011SGN	-5e-3	0.3897
WE012SGN	-0.01	0.4219
HB013SGN	-0.01	0.5309
NC165SGN	-0.01	0.7028
WE013SGN	-0.01	0.7985
HB011SGN	-0.01	0.8415
WE010SGN	-0.01	0.8702
DK001SGN	-0.01	0.8945
GC010SGN	-0.01	0.9372
HB010SGN	-0.01	0.9725
SP009SGN	-0.01	0.9773

Level	Abs(Dif)-LSD	p-Value
GC012SGN	-0.01	0.9964
GC013SGN	-0.01	1.0000
NC161SGN	-0.01	1.0000
GC009SGN	-0.01	1.0000
GC011SGN	-0.01	1.0000
NC164SGN	-0.02	1.0000
Y	-0.02	1.0000
NC154SGN	-0.02	1.0000
SP013SGN	-0.02	1.0000
HB009SGN	-0.02	1.0000
GC014SGN	-0.01	1.0000
SP010SGN	-0.01	0.9884
NC013SGN	-0.01	0.8673
HB012SGN	-0.01	0.6674
HB014SGN	-4e-3	0.2813
WE014SGN	0.004	0.0046*
WC012SGN	0.005	0.0020*
DK037SGN	0.013	<.0001*
MC005SGN	0.014	<.0001*
EB006SGN	0.017	<.0001*
EK006SGN	0.017	<.0001*
EK072SGN	0.019	<.0001*
MC017SGN	0.019	<.0001*
EK059SGN	0.02	<.0001*
NC181SGN	0.02	<.0001*
EK065SGN	0.022	<.0001*
EK057SGN	0.023	<.0001*
NC174SGN	0.026	<.0001*

Positive values show pairs of means that are significantly different.

Oneway Analysis of Leptocheirus Test Results By Location_Control duration=28-d, endpoint=Growth (weight), test_batch=24770



Means Comparisons
Comparisons with a control using Dunnett's Method
Control Group =
Y

Confidence Quantile

|d|	Alpha
3.11537	0.05

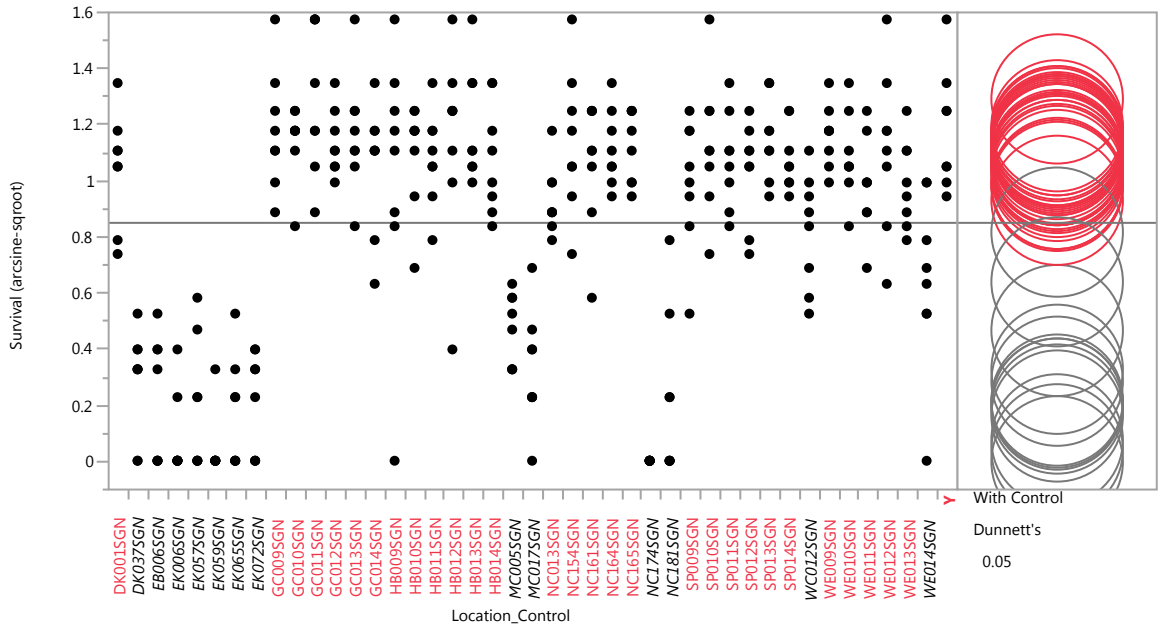
LSD Threshold Matrix

Level	Abs(Dif)-LSD	p-Value
WE012SGN	0.013	<.0001*
SP012SGN	0.009	0.0002*
SP009SGN	0.005	0.0024*
WE009SGN	-1e-3	0.0827
SP011SGN	-1e-3	0.0868
WE010SGN	-2e-3	0.1427
GC010SGN	-2e-3	0.1444
HB013SGN	-4e-3	0.2559
HB011SGN	-0.01	0.3778
WE013SGN	-0.01	0.4097
HB010SGN	-0.01	0.6587
SP014SGN	-0.01	0.7206
HB012SGN	-0.01	0.9842
GC009SGN	-0.01	0.9869
WE011SGN	-0.01	0.9999

Level	Abs(Dif)-LSD	p-Value
GC011SGN	-0.01	0.9999
HB009SGN	-0.01	1.0000
NC153SGN	-0.02	1.0000
SP013SGN	-0.02	1.0000
Y	-0.02	1.0000
GC013SGN	-0.02	1.0000
NC046SGN	-0.02	1.0000
GC012SGN	-0.02	1.0000
NC168SGN	-0.02	1.0000
GC014SGN	-0.02	1.0000
WC010SGN	-0.02	1.0000
NC158SGN	-0.02	1.0000
NC037SGN	-0.01	1.0000
NC156SGN	-0.01	1.0000
NC167SGN	-0.01	1.0000
NC169SGN	-0.01	0.9835
SP010SGN	-0.01	0.9723
HB014SGN	-0.01	0.9473
NC065SGN	-2e-3	0.1320
NC162SGN	-8e-4	0.0711
WE014SGN	0.005	0.0027*
MC023SGN	0.011	<.0001*
DK040SGN	0.016	<.0001*
EB036SGN	0.018	<.0001*
NC180SGN	0.019	<.0001*
NC293SGN	0.022	<.0001*
EK076SGN	0.024	<.0001*
NC071SGN	0.024	<.0001*

Positive values show pairs of means that are significantly different.

Oneway Analysis of Leptocheirus Test Results By Location_Control duration=28-d, endpoint=Percent survival, test_batch=24769



Means Comparisons

Comparisons with a control using Dunnett's Method

Control Group =
Y

Confidence Quantile

|d|	Alpha
3.11537	0.05

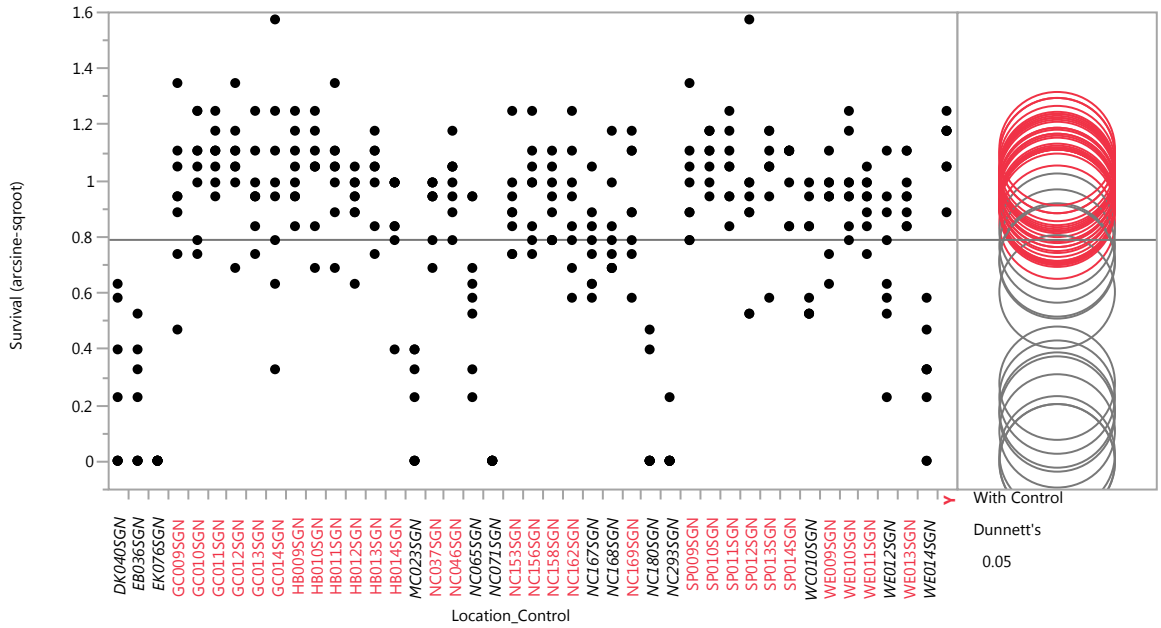
LSD Threshold Matrix

Level	Abs(Dif)-LSD	p-Value
GC011SGN	-0.22	0.9992
HB013SGN	-0.31	1.0000
Y	-0.33	1.0000
GC009SGN	-0.33	1.0000
GC013SGN	-0.32	1.0000
WE009SGN	-0.31	1.0000
SP013SGN	-0.3	1.0000
HB012SGN	-0.29	1.0000
GC010SGN	-0.29	1.0000
NC154SGN	-0.29	1.0000
GC012SGN	-0.28	1.0000
SP010SGN	-0.27	1.0000
NC165SGN	-0.27	1.0000
NC164SGN	-0.26	1.0000
WE012SGN	-0.26	1.0000

Level	Abs(Dif)-LSD	p-Value
HB010SGN	-0.24	1.0000
WE010SGN	-0.23	1.0000
HB014SGN	-0.23	0.9999
SP014SGN	-0.23	0.9999
HB011SGN	-0.23	0.9999
SP011SGN	-0.22	0.9996
NC161SGN	-0.21	0.9975
GC014SGN	-0.2	0.9949
DK001SGN	-0.19	0.9843
SP012SGN	-0.18	0.9575
HB009SGN	-0.17	0.9169
SP009SGN	-0.14	0.7274
WE013SGN	-0.14	0.6974
WE011SGN	-0.13	0.6518
NC013SGN	-0.08	0.2918
WC012SGN	0.033	0.0197*
WE014SGN	0.21	<.0001*
MC005SGN	0.383	<.0001*
MC017SGN	0.524	<.0001*
DK037SGN	0.566	<.0001*
NC181SGN	0.631	<.0001*
EK072SGN	0.643	<.0001*
EB006SGN	0.646	<.0001*
EK057SGN	0.664	<.0001*
EK065SGN	0.689	<.0001*
EK006SGN	0.773	<.0001*
EK059SGN	0.811	<.0001*
NC174SGN	0.851	<.0001*

Positive values show pairs of means that are significantly different.

Oneway Analysis of Leptocheirus Test Results By Location_Control duration=28-d, endpoint=Percent survival, test_batch=24770



Means Comparisons
Comparisons with a control using Dunnett's Method
Control Group =
Y

Confidence Quantile

|d|	Alpha
3.11537	0.05

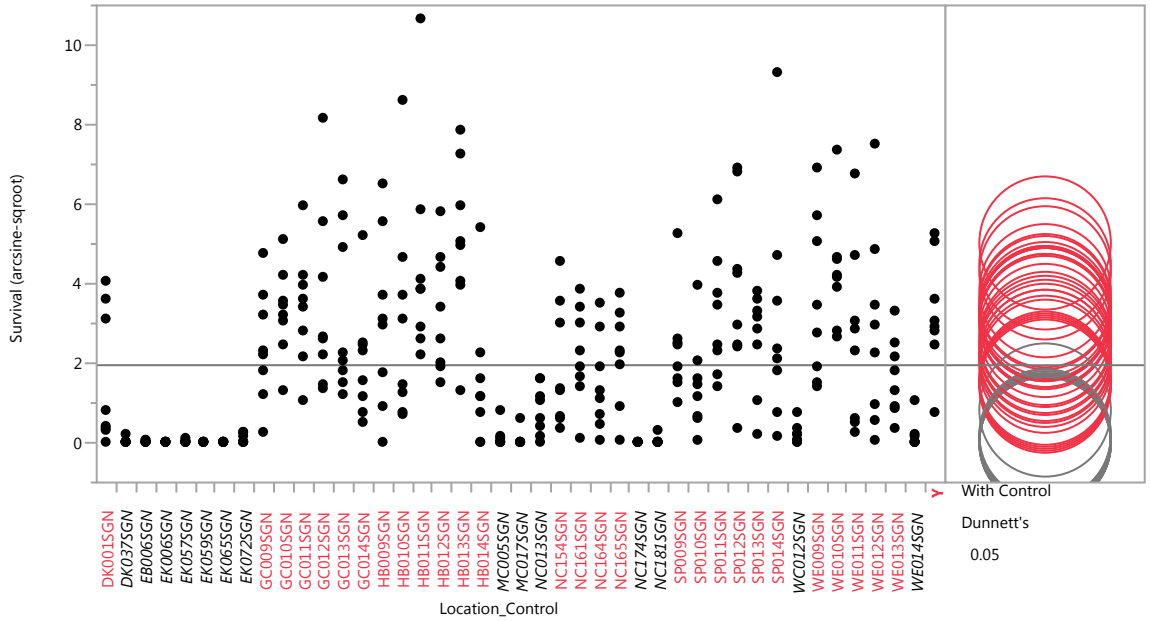
LSD Threshold Matrix

Level	Abs(Dif)-LSD	p-Value
Y	-0.29	1.0000
GC011SGN	-0.26	1.0000
SP010SGN	-0.26	1.0000
GC012SGN	-0.24	1.0000
SP011SGN	-0.21	1.0000
HB009SGN	-0.21	1.0000
GC010SGN	-0.21	1.0000
HB011SGN	-0.2	0.9999
SP014SGN	-0.2	0.9999
HB010SGN	-0.2	0.9998
SP013SGN	-0.19	0.9987
HB013SGN	-0.18	0.9951
NC046SGN	-0.16	0.9694
WE010SGN	-0.16	0.9642
SP009SGN	-0.15	0.9315

Level	Abs(Dif)-LSD	p-Value
NC156SGN	-0.14	0.8647
GC013SGN	-0.14	0.8556
WE013SGN	-0.13	0.7643
GC014SGN	-0.12	0.7192
GC009SGN	-0.1	0.5680
WE011SGN	-0.09	0.4638
NC158SGN	-0.09	0.4277
SP012SGN	-0.09	0.4129
HB012SGN	-0.09	0.4129
WE009SGN	-0.08	0.3765
NC169SGN	-0.08	0.3665
NC037SGN	-0.08	0.3638
NC153SGN	-0.08	0.3633
NC162SGN	-0.07	0.2923
HB014SGN	-0.02	0.1013
NC168SGN	0.006	0.0415*
NC167SGN	0.061	0.0061*
WC010SGN	0.109	0.0008*
WE012SGN	0.118	0.0006*
NC065SGN	0.222	<.0001*
WE014SGN	0.549	<.0001*
DK040SGN	0.598	<.0001*
EB036SGN	0.644	<.0001*
MC023SGN	0.66	<.0001*
NC180SGN	0.72	<.0001*
NC293SGN	0.8	<.0001*
EK076SGN	0.828	<.0001*
NC071SGN	0.828	<.0001*

Positive values show pairs of means that are significantly different.

Oneway Analysis of Leptocheirus Test Results By Location_Control duration=28-d, endpoint=Reproduction per surviving amphipod, test_batch=24769



Means Comparisons

Comparisons with a control using Dunnett's Method

Control Group =

Y

Confidence Quantile

|d|	**Alpha**
3.11537	0.05

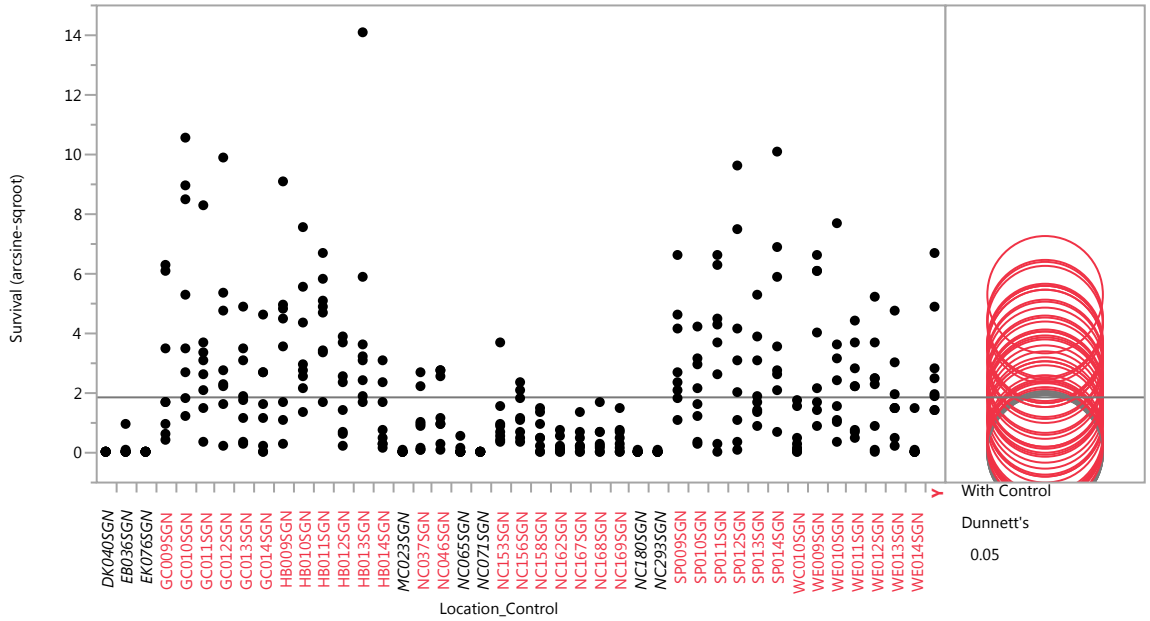
LSD Threshold Matrix

Level	Abs(Dif)-LSD	p-Value
HB013SGN	-0.55	0.2820
HB011SGN	-1.09	0.8136
WE010SGN	-1.3	0.9612
SP012SGN	-1.79	1.0000
WE009SGN	-2.01	1.0000
GC012SGN	-2.08	1.0000
GC011SGN	-2.2	1.0000
GC010SGN	-2.3	1.0000
HB012SGN	-2.31	1.0000
GC013SGN	-2.34	1.0000
Y	-2.36	1.0000
SP011SGN	-2.34	1.0000
SP014SGN	-2.22	1.0000
HB009SGN	-2.19	1.0000
HB010SGN	-2.15	1.0000

Level	Abs(Dif)-LSD	p-Value
WE012SGN	-1.95	1.0000
WE011SGN	-1.75	1.0000
SP013SGN	-1.68	1.0000
GC009SGN	-1.55	0.9993
SP009SGN	-1.48	0.9966
NC161SGN	-1.33	0.9703
NC165SGN	-1.3	0.9587
GC014SGN	-1.18	0.8889
NC154SGN	-1.05	0.7704
WE013SGN	-0.77	0.4781
DK001SGN	-0.7	0.4117
HB014SGN	-0.67	0.3778
NC164SGN	-0.62	0.3352
SP010SGN	-0.57	0.2959
NC013SGN	0.051	0.0412*
WC012SGN	0.67	0.0027*
WE014SGN	0.695	0.0024*
MC005SGN	0.739	0.0019*
EK072SGN	0.789	0.0015*
MC017SGN	0.795	0.0014*
NC181SGN	0.833	0.0012*
DK037SGN	0.845	0.0011*
EK057SGN	0.851	0.0011*
EB006SGN	0.858	0.0010*
NC174SGN	0.87	0.0010*
EK059SGN	0.87	0.0010*
EK065SGN	0.87	0.0010*
EK006SGN	0.87	0.0010*

Positive values show pairs of means that are significantly different.

Oneway Analysis of Leptocheirus Test Results By Location_Control duration=28-d, endpoint=Reproduction per surviving amphipod, test_batch=24770



Means Comparisons
Comparisons with a control using Dunnett's Method
Control Group =
Y

Confidence Quantile

|d|	Alpha
3.11537	0.05

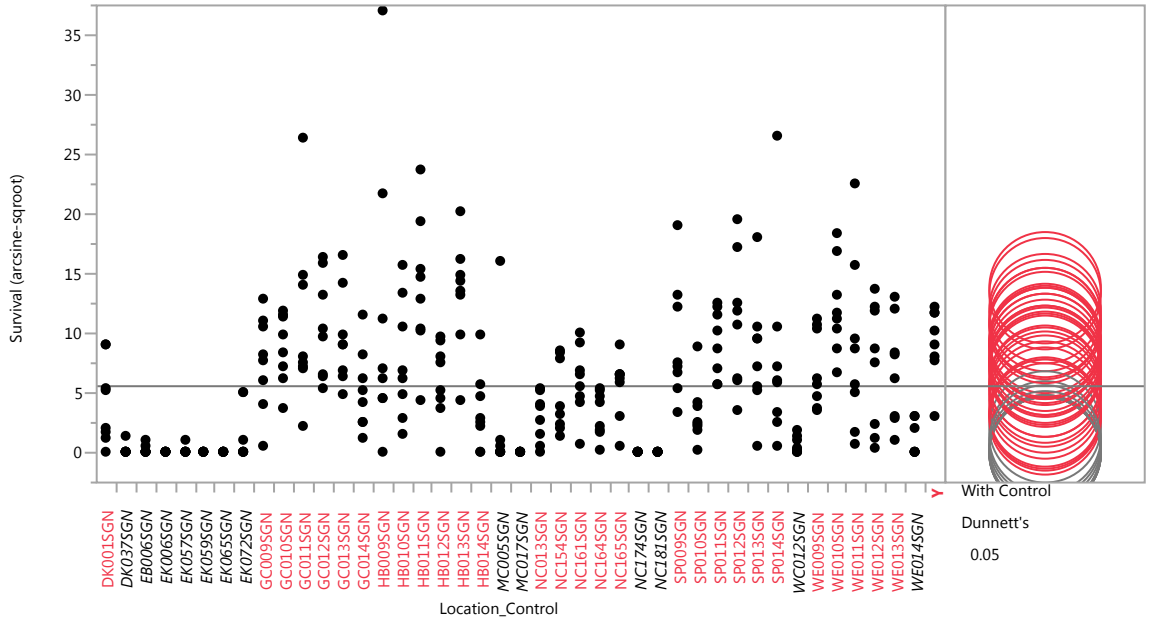
LSD Threshold Matrix

Level	Abs(Dif)-LSD	p-Value
GC010SGN	-0.41	0.1618
HB013SGN	-1.23	0.7687
HB011SGN	-1.28	0.8109
SP014SGN	-1.39	0.8930
HB009SGN	-1.99	1.0000
HB010SGN	-2.06	1.0000
GC012SGN	-2.08	1.0000
WE009SGN	-2.1	1.0000
SP011SGN	-2.19	1.0000
SP012SGN	-2.23	1.0000
SP009SGN	-2.55	1.0000
GC011SGN	-2.6	1.0000
Y	-2.77	1.0000
GC009SGN	-2.47	1.0000
WE010SGN	-2.43	1.0000

Level	Abs(Dif)-LSD	p-Value
SP013SGN	-2.25	1.0000
WE011SGN	-1.98	1.0000
WE012SGN	-1.97	1.0000
GC013SGN	-1.94	0.9999
SP010SGN	-1.82	0.9992
HB012SGN	-1.75	0.9971
WE013SGN	-1.69	0.9927
GC014SGN	-1.45	0.9285
NC046SGN	-1.27	0.8006
NC156SGN	-1.09	0.6436
HB014SGN	-0.97	0.5293
NC153SGN	-0.97	0.5293
NC037SGN	-0.83	0.4132
NC158SGN	-0.45	0.1807
WC010SGN	-0.37	0.1445
NC169SGN	-0.3	0.1223
NC168SGN	-0.29	0.1183
NC167SGN	-0.22	0.0960
NC162SGN	-0.05	0.0593
WE014SGN	-0.04	0.0560
EB036SGN	0.033	0.0451*
NC065SGN	0.076	0.0391*
NC180SGN	0.151	0.0305*
NC293SGN	0.151	0.0305*
MC023SGN	0.158	0.0299*
EK076SGN	0.164	0.0292*
DK040SGN	0.164	0.0292*
NC071SGN	0.164	0.0292*

Positive values show pairs of means that are significantly different.

Oneway Analysis of Leptocheirus Test Results By Location_Control duration=28-d, endpoint=Reproduction per surviving female amphipod, test_batch=24769



Means Comparisons

Comparisons with a control using Dunnett's Method

Control Group =

Y

Confidence Quantile

|d|	Alpha
3.11537	0.05

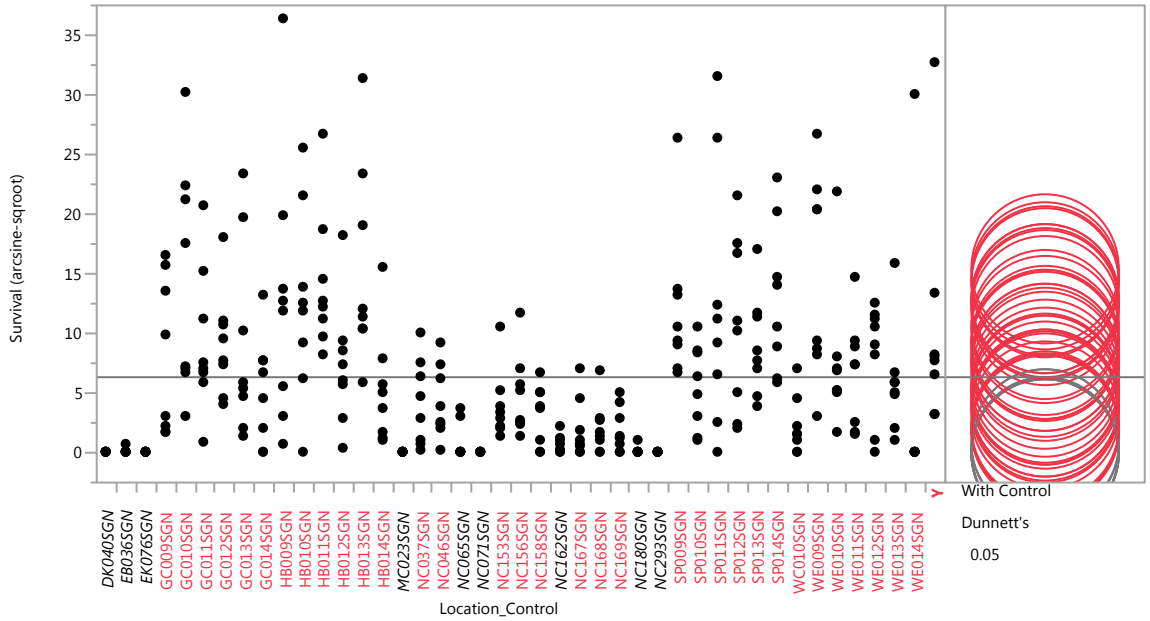
LSD Threshold Matrix

Level	Abs(Dif)-LSD	p-Value
HB011SGN	-1.85	0.3765
HB013SGN	-2.42	0.5794
WE010SGN	-3.61	0.9591
HB009SGN	-4.21	0.9983
SP012SGN	-4.82	1.0000
GC011SGN	-4.83	1.0000
GC012SGN	-5.26	1.0000
GC013SGN	-6.14	1.0000
SP009SGN	-6.43	1.0000
Y	-6.56	1.0000
SP011SGN	-6.55	1.0000
GC010SGN	-6.12	1.0000
WE011SGN	-6.09	1.0000
SP013SGN	-5.62	1.0000
SP014SGN	-5.17	1.0000

Level	Abs(Dif)-LSD	p-Value
HB010SGN	-5.12	1.0000
GC009SGN	-4.99	1.0000
WE012SGN	-4.6	1.0000
WE009SGN	-4.41	0.9997
WE013SGN	-4.22	0.9984
HB012SGN	-3.39	0.9176
NC161SGN	-3.32	0.8992
NC165SGN	-2.92	0.7716
GC014SGN	-2.61	0.6527
NC154SGN	-2.1	0.4610
DK001SGN	-1.57	0.2955
HB014SGN	-0.84	0.1407
SP010SGN	-0.63	0.1105
NC164SGN	-0.58	0.1039
NC013SGN	-0.29	0.0724
MC005SGN	0.412	0.0282*
EK072SGN	1.225	0.0081*
WE014SGN	1.6	0.0043*
WC012SGN	2.006	0.0021*
EB006SGN	2.412	0.0010*
DK037SGN	2.434	0.0009*
EK057SGN	2.475	0.0009*
MC017SGN	2.6	0.0007*
NC174SGN	2.6	0.0007*
NC181SGN	2.6	0.0007*
EK059SGN	2.6	0.0007*
EK065SGN	2.6	0.0007*
EK006SGN	2.6	0.0007*

Positive values show pairs of means that are significantly different.

Oneway Analysis of Leptocheirus Test Results By Location_Control duration=28-d, endpoint=Reproduction per surviving female amphipod, test_batch=24770



Means Comparisons
Comparisons with a control using Dunnett's Method
Control Group =
Y

Confidence Quantile

|d|	Alpha
3.11537	0.05

LSD Threshold Matrix

Level	Abs(Dif)-LSD	p-Value
HB013SGN	-3.69	0.7079
WE009SGN	-4.31	0.8704
GC010SGN	-4.74	0.9459
HB011SGN	-4.91	0.9659
HB009SGN	-6.17	1.0000
SP014SGN	-6.24	1.0000
HB010SGN	-6.57	1.0000
SP011SGN	-6.68	1.0000
SP009SGN	-7.15	1.0000
SP012SGN	-8.38	1.0000
Y	-8.81	1.0000
GC011SGN	-7.85	1.0000
GC012SGN	-7.58	1.0000
GC013SGN	-7.51	1.0000
SP013SGN	-7.45	1.0000

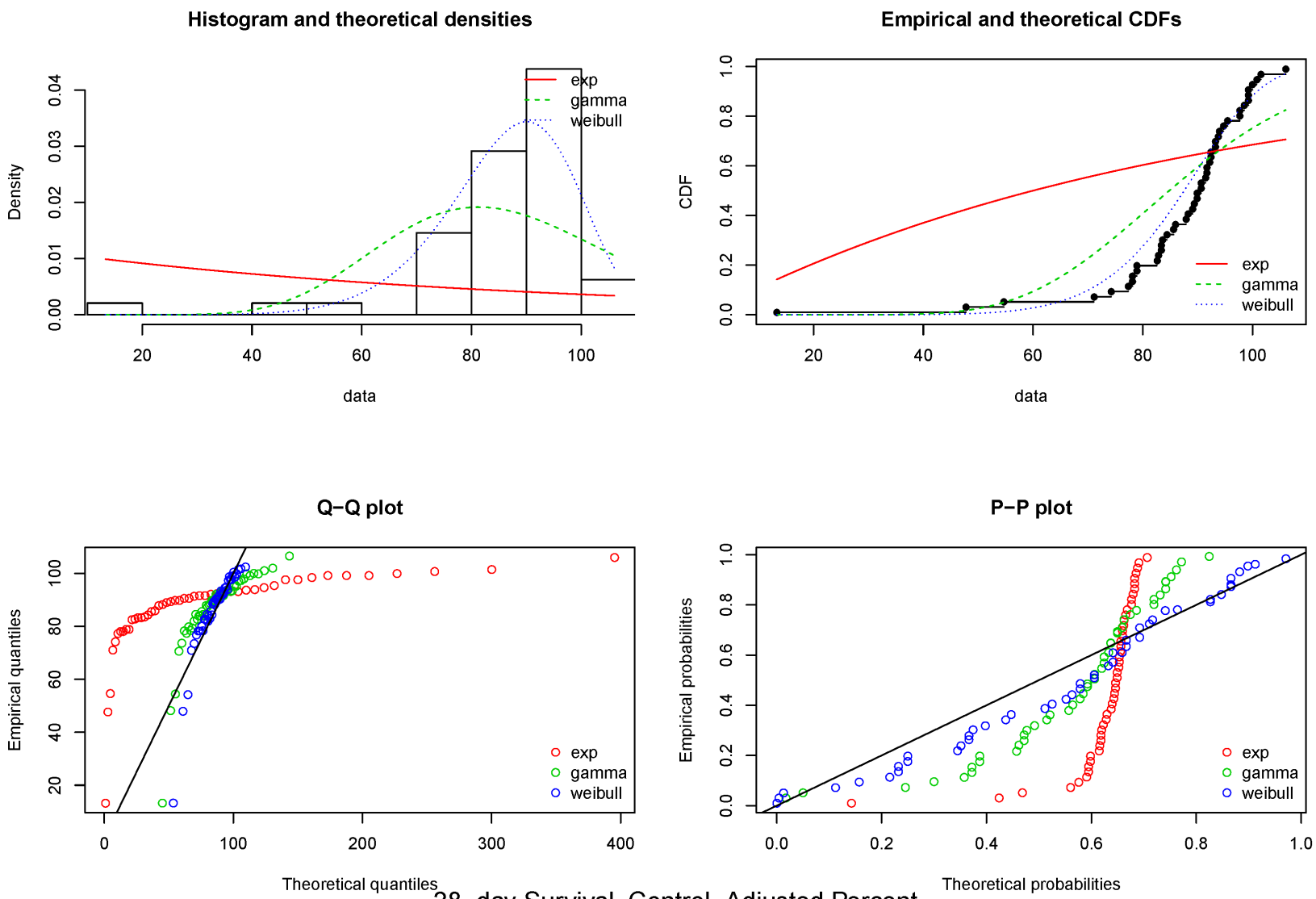
Level	Abs(Dif)-LSD	p-Value
WE012SGN	-6.49	1.0000
GC009SGN	-6.48	1.0000
WE010SGN	-6.1	0.9999
HB012SGN	-5.77	0.9991
WE011SGN	-5.13	0.9828
WE013SGN	-4.36	0.8803
SP010SGN	-3.95	0.7800
GC014SGN	-3.72	0.7158
HB014SGN	-3.68	0.7046
NC156SGN	-3.31	0.5987
NC046SGN	-2.68	0.4234
NC037SGN	-2.63	0.4130
NC153SGN	-2.4	0.3580
WE014SGN	-2.24	0.3210
NC158SGN	-1.63	0.2092
WC010SGN	-0.7	0.0965
NC168SGN	-0.51	0.0816
NC167SGN	-0.41	0.0744
NC169SGN	-0.39	0.0729
NC065SGN	0.68	0.0246*
NC162SGN	0.822	0.0210*
NC180SGN	1.388	0.0110*
EB036SGN	1.43	0.0104*
EK076SGN	1.513	0.0094*
DK040SGN	1.513	0.0094*
MC023SGN	1.513	0.0094*
NC293SGN	1.513	0.0094*
NC071SGN	1.513	0.0094*

Positive values show pairs of means that are significantly different.

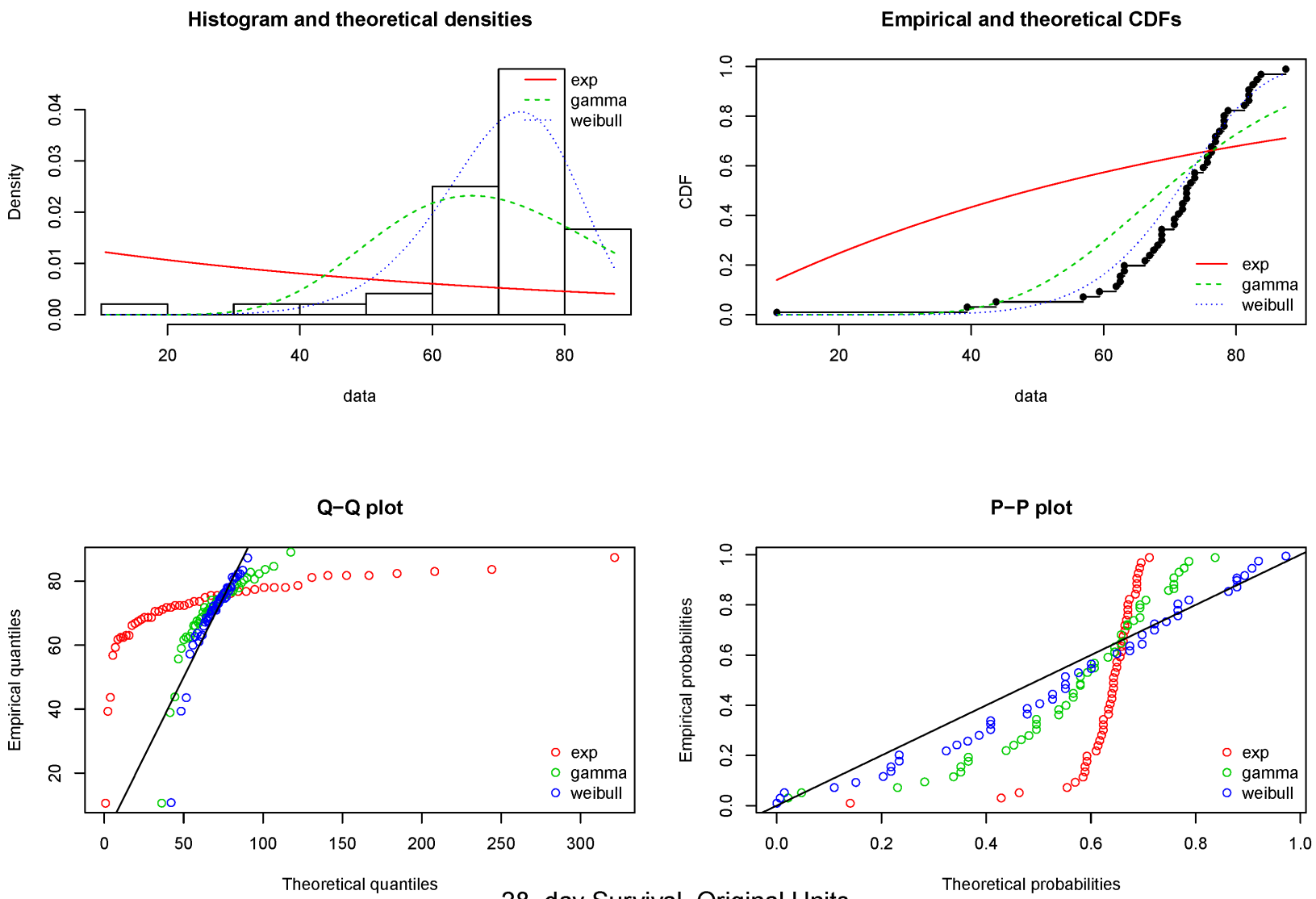
ATTACHMENT D1B

REFERENCE ENVELOPE THRESHOLD CALCULATIONS

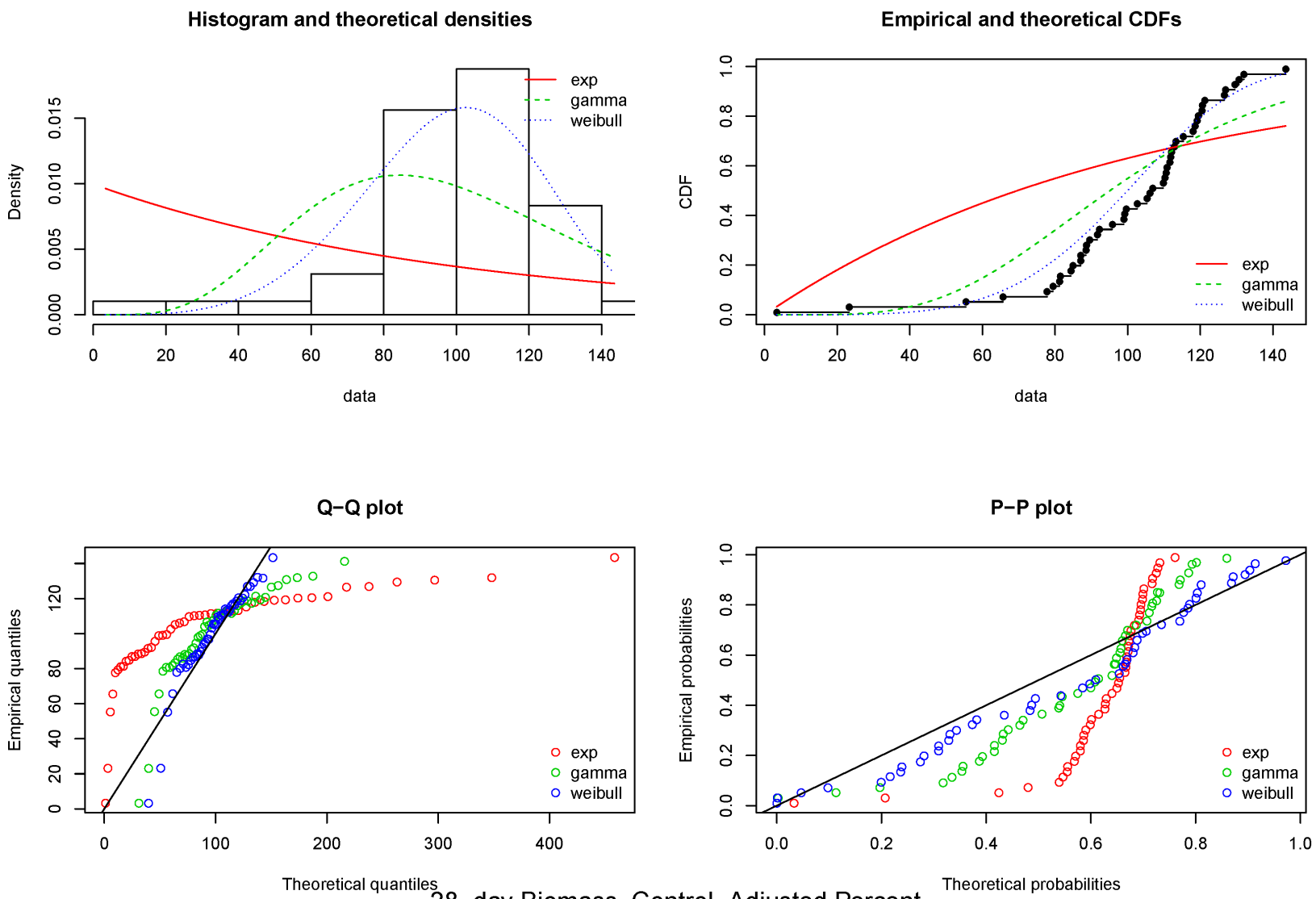
REFERENCE AREA DATA
HISTOGRAMS AND DIAGNOSTIC PLOTS



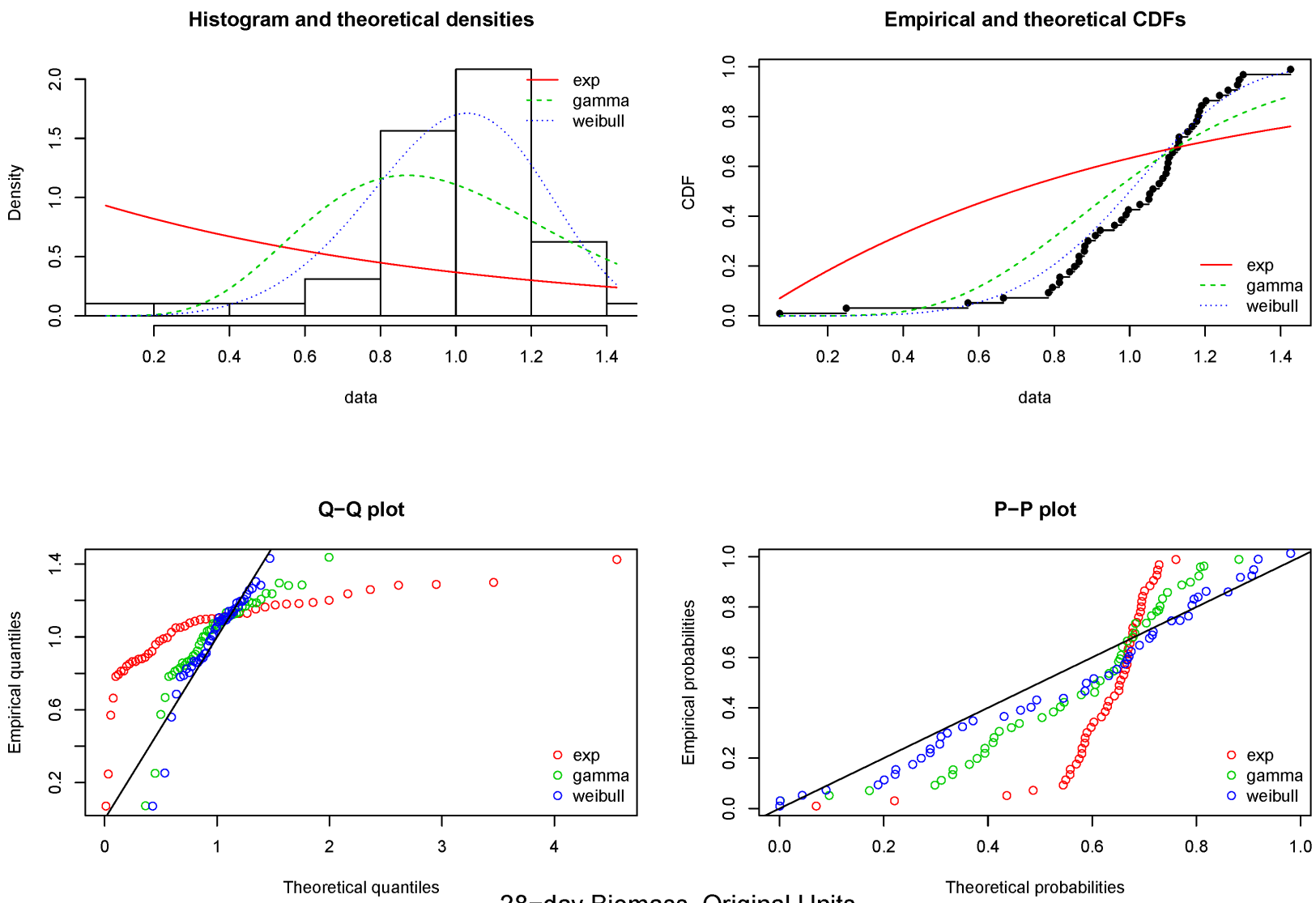
28−day Survival, Control−Adjusted Percent
All Reference Areas (N = 48, 0.2 Percentile)



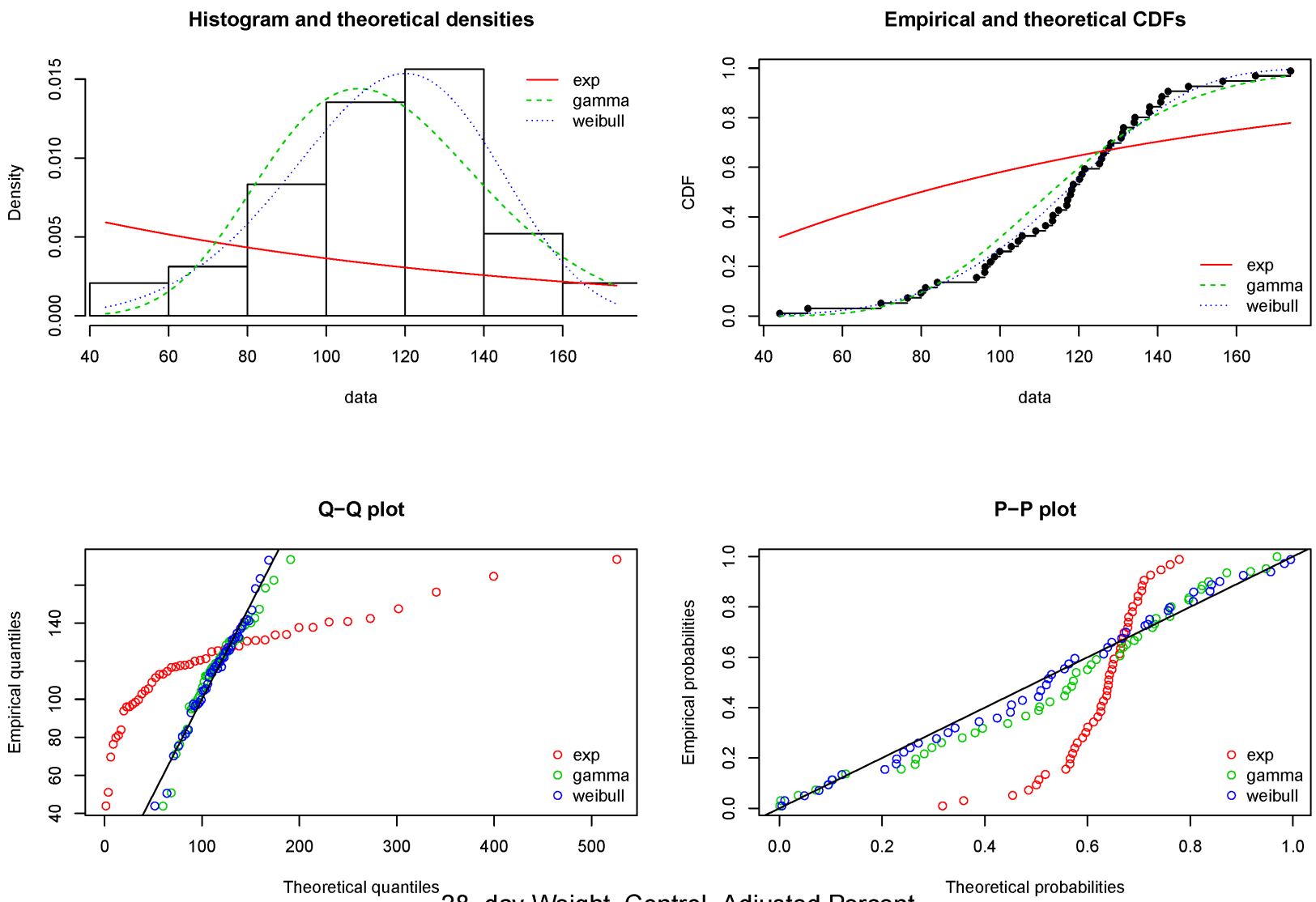
28−day Survival, Original Units
All Reference Areas (N = 48, 0.2 Percentile)



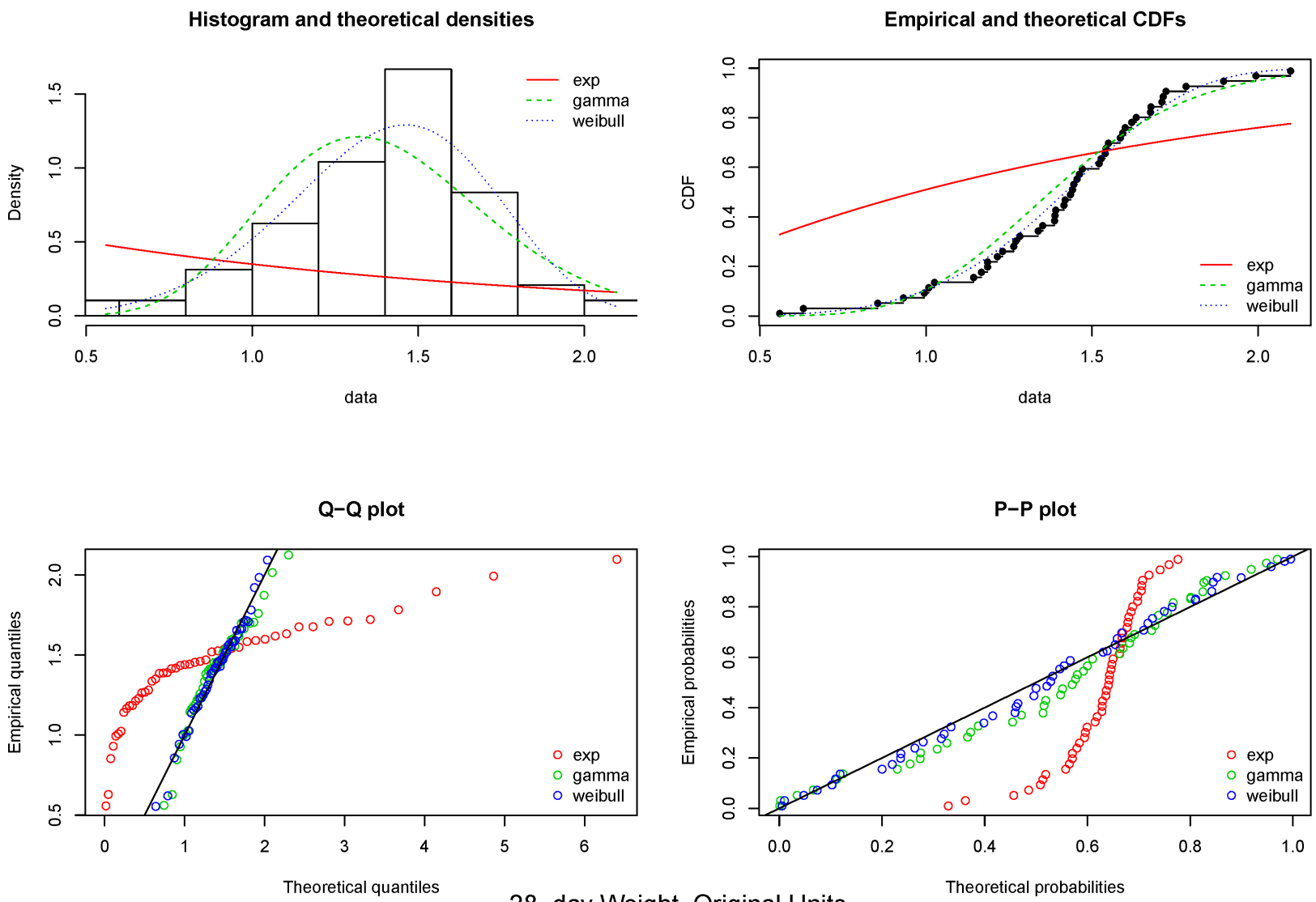
28−day Biomass, Control−Adjusted Percent
All Reference Areas (N = 48, 0.2 Percentile)



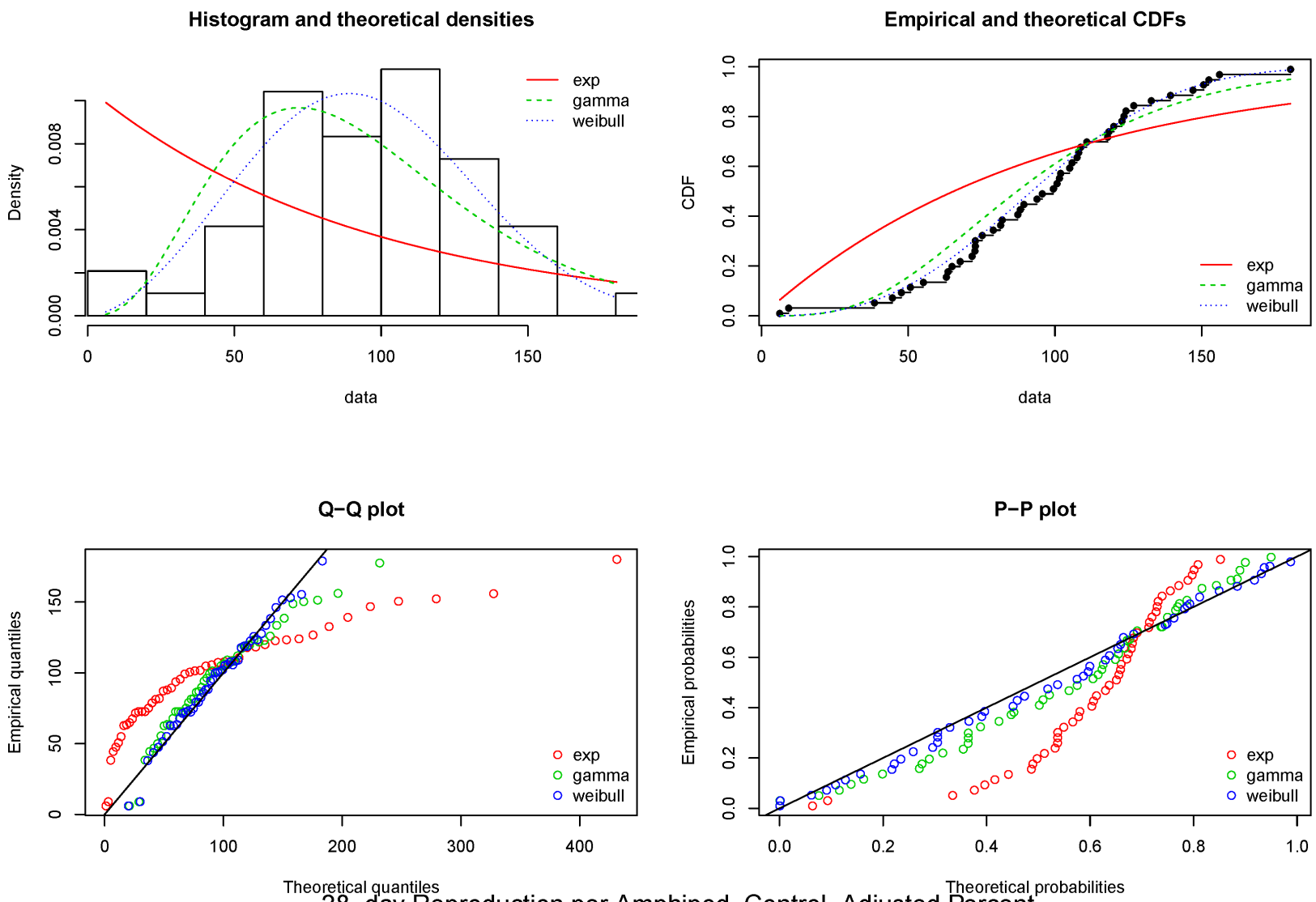
28−day Biomass, Original Units
All Reference Areas (N = 48, 0.2 Percentile)



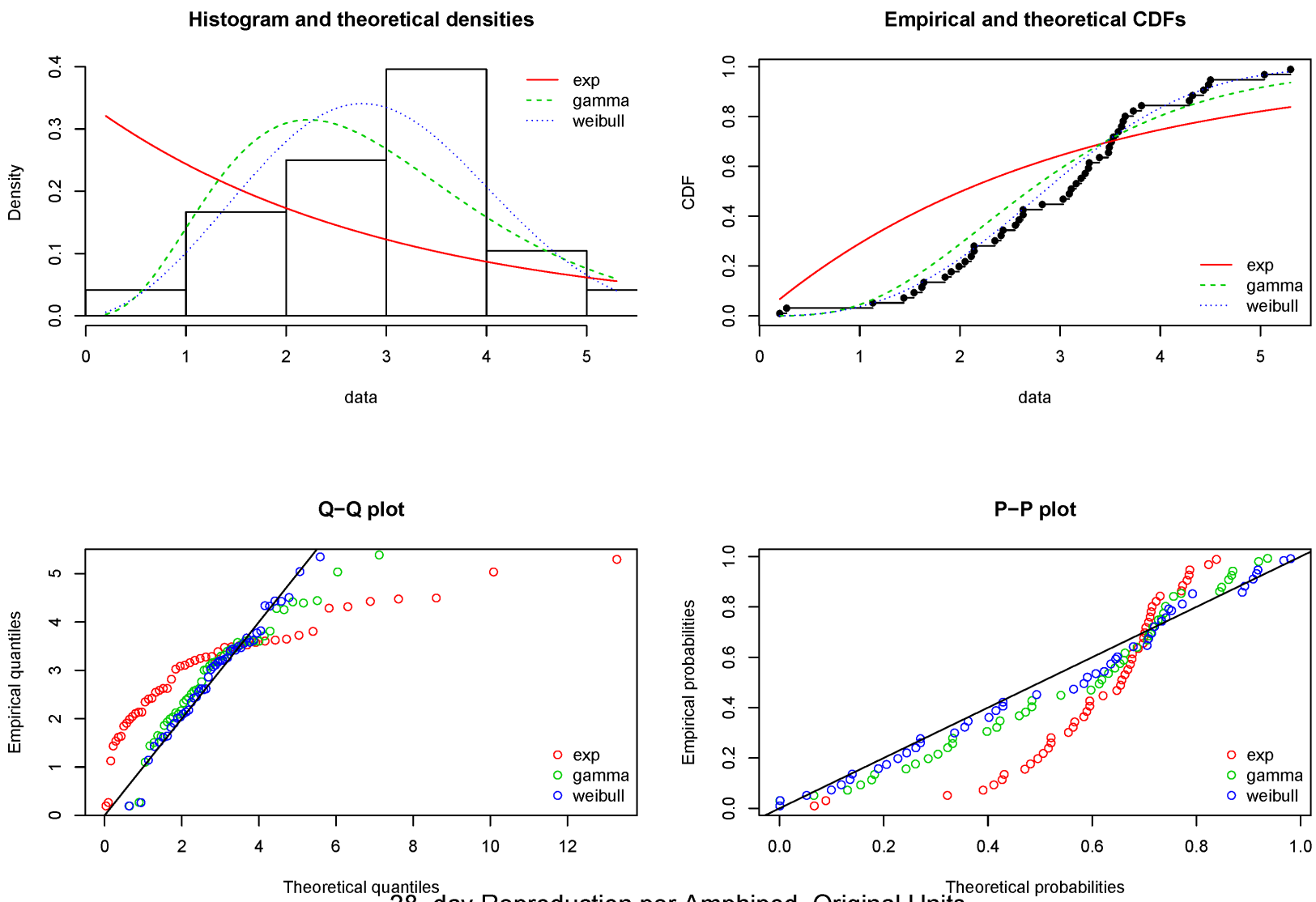
28−day Weight, Control−Adjusted Percent
All Reference Areas (N = 48, 0.2 Percentile)



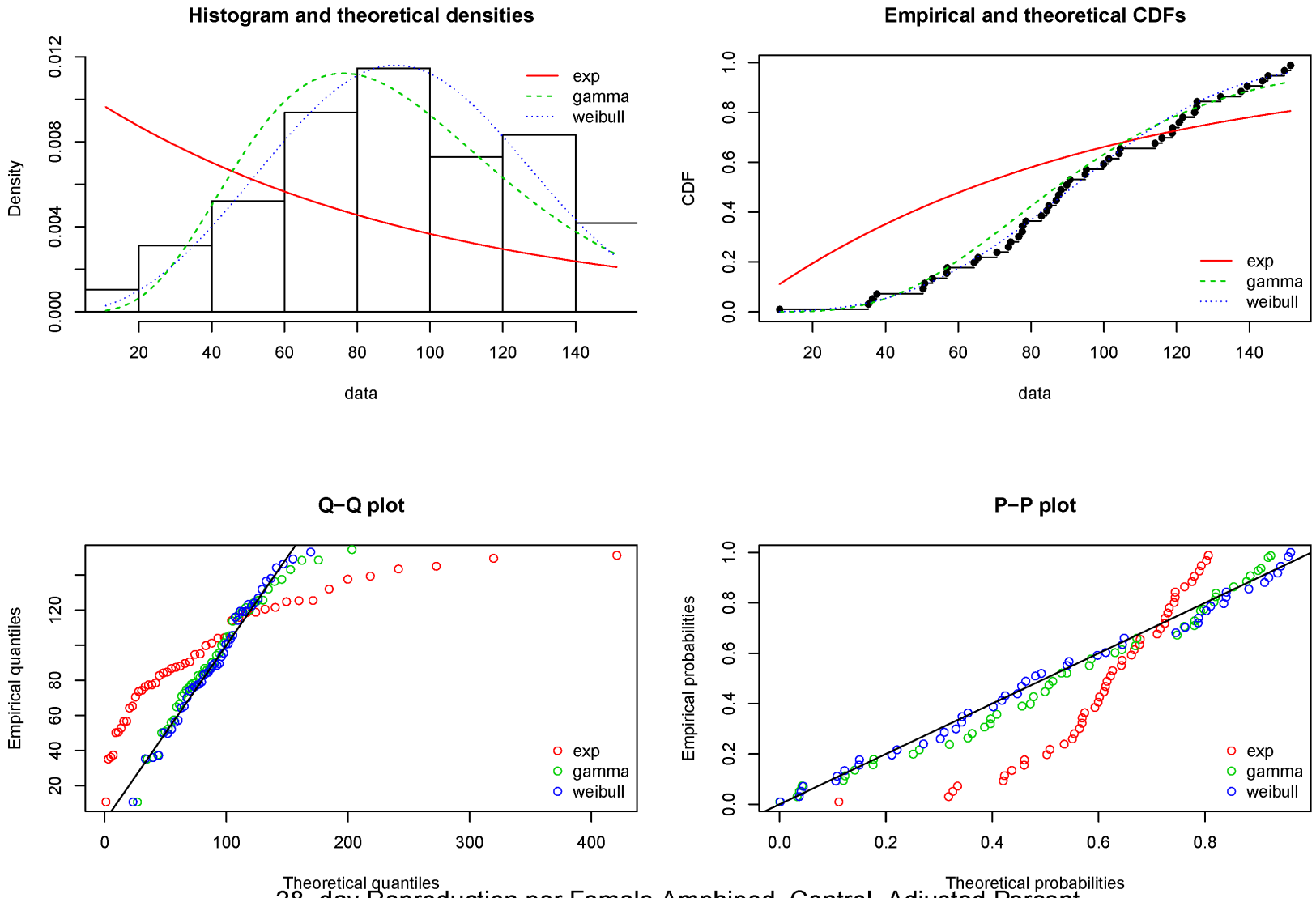
28−day Weight, Original Units
All Reference Areas (N = 48, 0.2 Percentile)



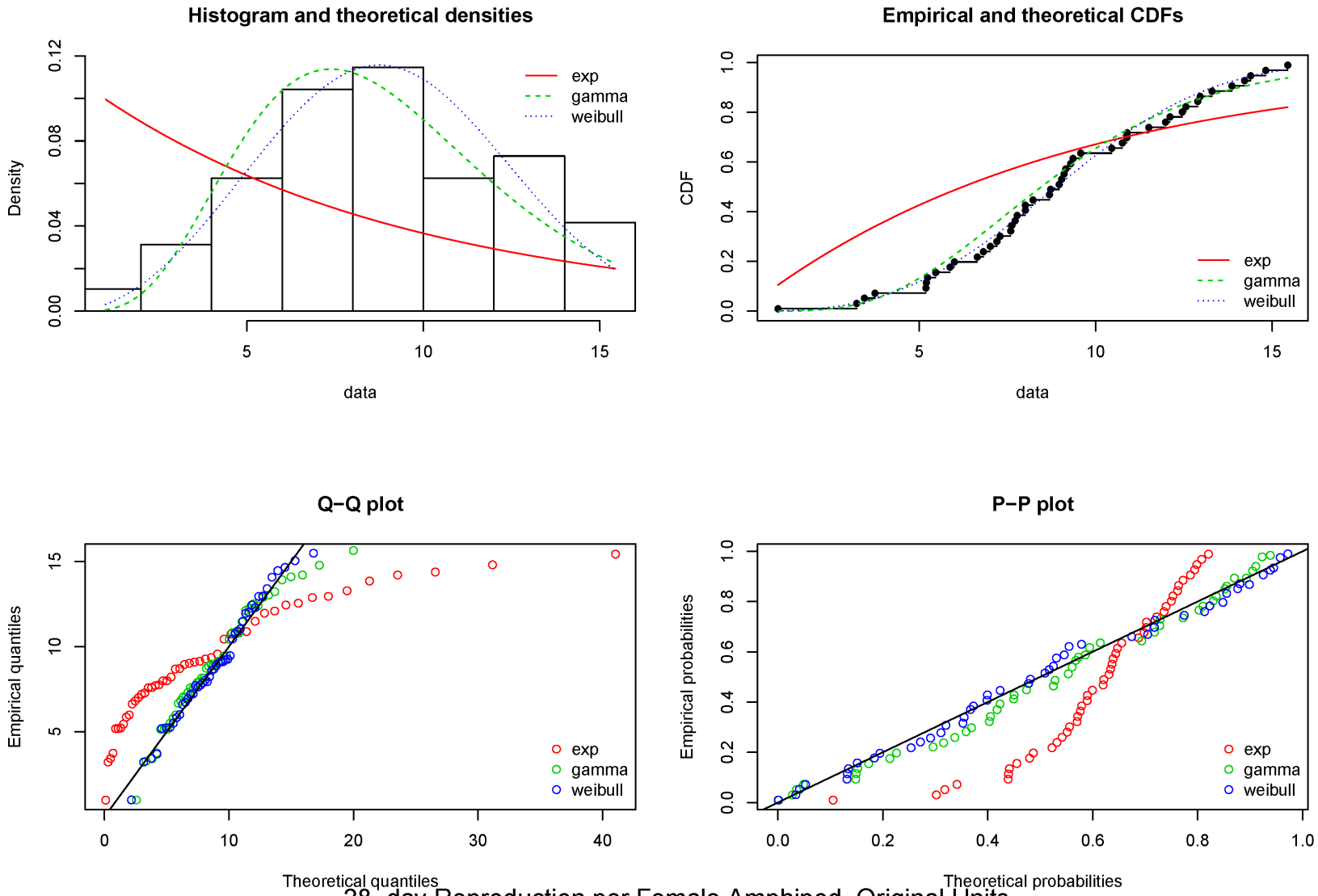
28−day Reproduction per Amphipod, Control−Adjusted Percent
All Reference Areas (N = 48, 0.2 Percentile)



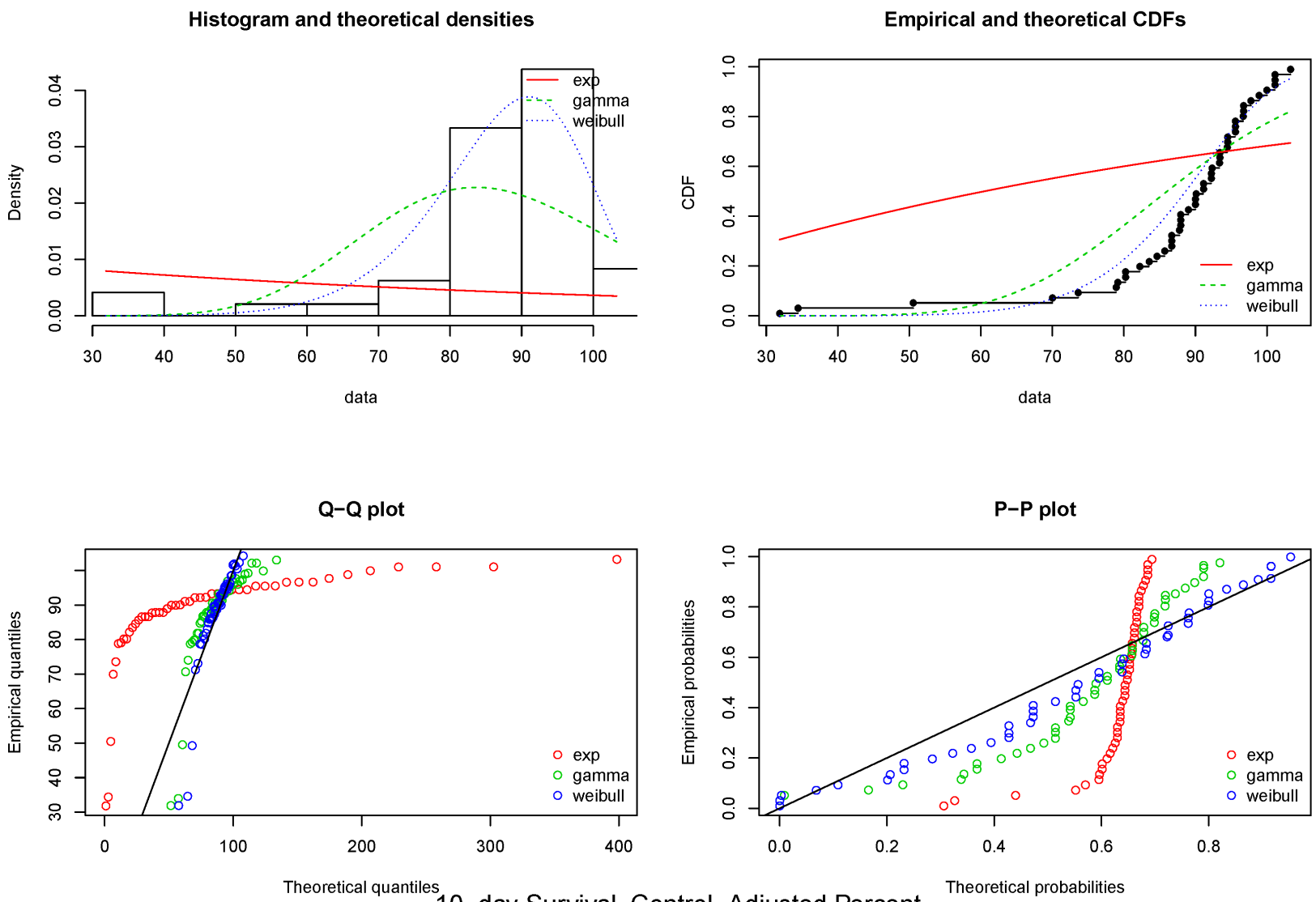
28−day Reproduction per Amphipod, Original Units
All Reference Areas (N = 48, 0.2 Percentile)



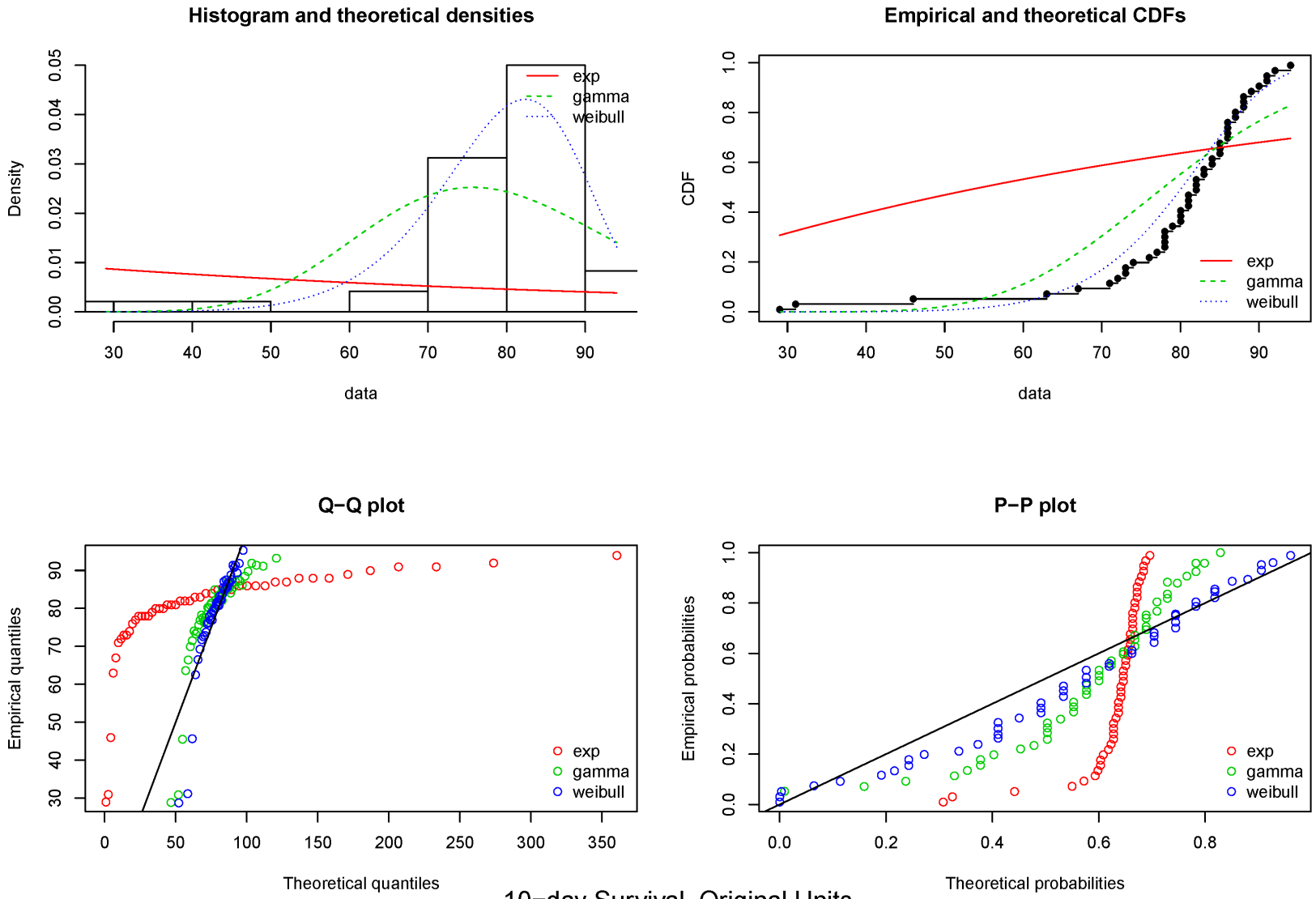
28−day Reproduction per Female Amphipod, Control−Adjusted Percent
All Reference Areas (N = 48, 0.2 Percentile)



28−day Reproduction per Female Amphipod, Original Units
All Reference Areas (N = 48, 0.2 Percentile)



10−day Survival, Control−Adjusted Percent
All Reference Areas (N = 48, 0.2 Percentile)



10−day Survival, Original Units
All Reference Areas (N = 48, 0.2 Percentile)

REFERENCE AREA DATA
GOODNESS-OF-FIT STATISTICS

28-day Survival, Control-Adjusted Percent
All Reference Areas (N = 48, 0.2 Percentile)

	exp	gamma	weibull
Chi-Squared statistic	339.566	46.838	8.26
Kolmogorov-Smirnov statistic	0.498	0.253	0.136
Cramer-von Mises statistic	3.484	1.014	0.237
Anderson-Darling statistic	16.207	5.579	1.577
AIC	526.255	432.058	389.343
BIC	528.127	435.8	393.085

28-day Survival, Original Units
All Reference Areas (N = 48, 0.2 Percentile)

	exp	gamma	weibull
Chi-Squared statistic	273.861	35.343	6.734
Kolmogorov-Smirnov statistic	0.492	0.233	0.124
Cramer-von Mises statistic	3.411	0.884	0.182
Anderson-Darling statistic	15.892	4.959	1.264
AIC	506.411	413.738	374.196
BIC	508.282	417.481	377.939

28-day Biomass, Control-Adjusted Percent
All Reference Areas (N = 48, 0.2 Percentile)

	exp	gamma	weibull
Chi-Squared statistic	173.453	42.969	13.959
Kolmogorov-Smirnov statistic	0.456	0.234	0.133
Cramer-von Mises statistic	2.749	0.809	0.217
Anderson-Darling statistic	12.878	4.681	1.528
AIC	540.492	489.534	458.447
BIC	542.363	493.277	462.189

28-day Biomass, Original Units
All Reference Areas (N = 48, 0.2 Percentile)

	exp	gamma	weibull
Chi-Squared statistic	161.621	29.65	8.048
Kolmogorov-Smirnov statistic	0.461	0.215	0.127
Cramer-von Mises statistic	2.798	0.675	0.167
Anderson-Darling statistic	13.141	4.026	1.223
AIC	97.802	36.643	7.762
BIC	99.673	40.386	11.504

28-day Weight, Control-Adjusted Percent
All Reference Areas (N = 48, 0.2 Percentile)

	exp	gamma	weibull
Chi-Squared statistic	127.511	7.184	2.795
Kolmogorov-Smirnov statistic	0.423	0.13	0.075
Cramer-von Mises statistic	2.806	0.168	0.044
Anderson-Darling statistic	13.406	0.999	0.297
AIC	553.691	459.602	451.889
BIC	555.563	463.344	455.631

28-day Weight, Original Units
All Reference Areas (N = 48, 0.2 Percentile)

	exp	gamma	weibull
Chi-Squared statistic	129.263	6.082	2.002
Kolmogorov-Smirnov statistic	0.425	0.138	0.084
Cramer-von Mises statistic	2.846	0.166	0.045
Anderson-Darling statistic	13.58	0.994	0.302
AIC	130.471	34.111	26.541
BIC	132.342	37.854	30.283

28-day Reproduction per Amphipod, Control-Adjusted Percent
All Reference Areas (N = 48, 0.2 Percentile)

	exp	gamma	weibull
Chi-Squared statistic	49.764	6.619	2.023
Kolmogorov-Smirnov statistic	0.34	0.125	0.075
Cramer-von Mises statistic	1.669	0.201	0.044
Anderson-Darling statistic	8.126	1.396	0.428
AIC	534.63	499.752	488.921
BIC	536.501	503.495	492.663

28-day Reproduction per Amphipod, Original Units
All Reference Areas (N = 48, 0.2 Percentile)

	exp	gamma	weibull
Chi-Squared statistic	56.153	9.804	4.987
Kolmogorov-Smirnov statistic	0.328	0.139	0.106
Cramer-von Mises statistic	1.688	0.235	0.075
Anderson-Darling statistic	8.238	1.577	0.581
AIC	200.508	165.413	153.898
BIC	202.38	169.155	157.64

28-day Reproduction per Female Amphipod, Control-Adjusted
Percent All Reference Areas (N = 48, 0.2 Percentile)

	exp	gamma	weibull
Chi-Squared statistic	48.994	4.068	3.015
Kolmogorov-Smirnov statistic	0.337	0.104	0.078
Cramer-von Mises statistic	1.734	0.095	0.036
Anderson-Darling statistic	8.645	0.682	0.284
AIC	532.309	484.701	477.187
BIC	534.18	488.443	480.93

28-day Reproduction per Female Amphipod, Original Units
All Reference Areas (N = 48, 0.2 Percentile)

	exp	gamma	weibull
Chi-Squared statistic	55.393	5.494	4.417
Kolmogorov-Smirnov statistic	0.355	0.09	0.07
Cramer-von Mises statistic	1.711	0.079	0.036
Anderson-Darling statistic	8.505	0.591	0.264
AIC	308.82	262.424	255.699
BIC	310.692	266.166	259.442

10-day Survival, Control-Adjusted Percent
All Reference Areas (N = 48, 0.2 Percentile)

	exp	gamma	weibull
Chi-Squared statistic	351.048	34.405	5.014
Kolmogorov-Smirnov statistic	0.491	0.243	0.156
Cramer-von Mises statistic	3.524	0.951	0.239
Anderson-Darling statistic	16.498	5.432	1.791
AIC	527.009	415.305	378.379
BIC	528.881	419.047	382.121

10-day Survival, Original Units
All Reference Areas (N = 48, 0.2 Percentile)

	exp	gamma	weibull
Chi-Squared statistic	326.305	31.925	5.422
Kolmogorov-Smirnov statistic	0.489	0.253	0.161
Cramer-von Mises statistic	3.53	0.961	0.243
Anderson-Darling statistic	16.523	5.476	1.807
AIC	517.416	405.51	368.449
BIC	519.288	409.253	372.192

ATTACHMENT D1C

SUMMARY OF REFERENCE ENVELOPE THRESHOLD VALUES

Attachment D1c
Summary of Reference Envelope Threshold Values

Area	Endpoint	Units	N	Percentile	Distribution	Best Fit Percentile Estimate	Bootstrap Percentile Estimate	Bootstrap 95LCL on Percentile
All Reference Areas	10-day Survival	Control-Adjusted Percent	48	0.05	Weibull	67.70	68.06	63.44
All Reference Areas	10-day Survival	Control-Adjusted Percent	48	0.2	Weibull	78.82	79.04	75.48
All Reference Areas	28-day Biomass	Control-Adjusted Percent	48	0.05	Weibull	56.32	57.16	48.99
All Reference Areas	28-day Biomass	Control-Adjusted Percent	48	0.2	Weibull	77.87	78.42	71.19
All Reference Areas	28-day Weight	Control-Adjusted Percent	48	0.05	Weibull	70.11	71.14	61.77
All Reference Areas	28-day Weight	Control-Adjusted Percent	48	0.2	Weibull	93.41	93.86	86.00
All Reference Areas	28-day Survival	Control-Adjusted Percent	48	0.05	Weibull	64.40	64.79	59.71
All Reference Areas	28-day Survival	Control-Adjusted Percent	48	0.2	Weibull	76.59	76.84	72.77
All Reference Areas	28-day Reproduction per Amphipod	Control-Adjusted Percent	48	0.05	Weibull	34.66	35.36	27.30
All Reference Areas	28-day Reproduction per Amphipod	Control-Adjusted Percent	48	0.2	Weibull	59.92	60.50	51.32
All Reference Areas	28-day Reproduction per Female Amphipod	Control-Adjusted Percent	48	0.05	Weibull	39.04	39.74	31.60
All Reference Areas	28-day Reproduction per Female Amphipod	Control-Adjusted Percent	48	0.2	Weibull	63.12	63.63	55.13
All Reference Areas without Confounding Locations	10-day Survival	Control-Adjusted Percent	42	0.05	Weibull	74.15	74.51	70.27
All Reference Areas without Confounding Locations	10-day Survival	Control-Adjusted Percent	42	0.2	Weibull	83.08	83.25	80.14
All Reference Areas without Confounding Locations	28-day Biomass	Control-Adjusted Percent	42	0.05	Weibull	70.58	71.25	63.24
All Reference Areas without Confounding Locations	28-day Biomass	Control-Adjusted Percent	42	0.2	Weibull	88.68	89.19	82.91
All Reference Areas without Confounding Locations	28-day Weight	Control-Adjusted Percent	42	0.05	Weibull	76.59	77.38	68.25
All Reference Areas without Confounding Locations	28-day Weight	Control-Adjusted Percent	42	0.2	Weibull	97.65	98.01	90.66
All Reference Areas without Confounding Locations	28-day Survival	Control-Adjusted Percent	42	0.05	Weibull	74.71	75.05	70.87
All Reference Areas without Confounding Locations	28-day Survival	Control-Adjusted Percent	42	0.2	Weibull	83.53	83.70	80.69
All Reference Areas without Confounding Locations	28-day Reproduction per Amphipod	Control-Adjusted Percent	42	0.05	Weibull	47.38	48.25	38.68
All Reference Areas without Confounding Locations	28-day Reproduction per Amphipod	Control-Adjusted Percent	42	0.2	Weibull	72.58	73.05	63.57
All Reference Areas without Confounding Locations	28-day Reproduction per Female Amphipod	Control-Adjusted Percent	42	0.05	Weibull	47.16	47.94	38.64
All Reference Areas without Confounding Locations	28-day Reproduction per Female Amphipod	Control-Adjusted Percent	42	0.2	Weibull	71.21	71.75	62.50
Gerritsen Creek	10-day Survival	Control-Adjusted Percent	12	0.05	Weibull	80.71	81.62	75.10
Gerritsen Creek	10-day Survival	Control-Adjusted Percent	12	0.2	Weibull	87.56	88.08	83.64
Gerritsen Creek	28-day Biomass	Control-Adjusted Percent	12	0.05	Weibull	76.63	78.45	66.47
Gerritsen Creek	28-day Biomass	Control-Adjusted Percent	12	0.2	Weibull	90.60	91.63	82.48
Gerritsen Creek	28-day Weight	Control-Adjusted Percent	12	0.05	Gamma	91.10	92.18	84.68
Gerritsen Creek	28-day Weight	Control-Adjusted Percent	12	0.2	Gamma	99.55	100.05	94.01
Gerritsen Creek	28-day Survival	Control-Adjusted Percent	12	0.05	Weibull	77.53	78.87	70.65
Gerritsen Creek	28-day Survival	Control-Adjusted Percent	12	0.2	Weibull	86.49	87.07	80.98
Gerritsen Creek	28-day Reproduction per Amphipod	Control-Adjusted Percent	12	0.05	Gamma	54.56	56.97	42.70
Gerritsen Creek	28-day Reproduction per Amphipod	Control-Adjusted Percent	12	0.2	Gamma	72.54	73.92	61.14
Gerritsen Creek	28-day Reproduction per Female Amphipod	Control-Adjusted Percent	12	0.05	Weibull	50.40	52.86	37.57
Gerritsen Creek	28-day Reproduction per Female Amphipod	Control-Adjusted Percent	12	0.2	Weibull	71.23	72.90	58.58
Head of Bay	10-day Survival	Control-Adjusted Percent	12	0.05	Weibull	66.90	68.27	59.10
Head of Bay	10-day Survival	Control-Adjusted Percent	12	0.2	Weibull	76.99	77.81	71.15
Head of Bay	28-day Biomass	Control-Adjusted Percent	12	0.05	Weibull	63.15	65.54	50.50
Head of Bay	28-day Biomass	Control-Adjusted Percent	12	0.2	Weibull	81.84	83.21	70.80
Head of Bay	28-day Weight	Control-Adjusted Percent	12	0.05	Weibull	74.50	76.71	61.60
Head of Bay	28-day Weight	Control-Adjusted Percent	12	0.2	Weibull	93.26	94.64	82.03

Attachment D1c
Summary of Reference Envelope Threshold Values

Area	Endpoint	Units	N	Percentile	Distribution	Best Fit Percentile Estimate	Bootstrap Percentile Estimate	Bootstrap 95LCL on Percentile
Head of Bay	28-day Survival	Control-Adjusted Percent	12	0.05	Weibull	75.48	76.65	69.25
Head of Bay	28-day Survival	Control-Adjusted Percent	12	0.2	Weibull	83.40	83.95	78.64
Head of Bay	28-day Reproduction per Amphipod	Control-Adjusted Percent	12	0.05	Weibull	47.26	50.62	31.81
Head of Bay	28-day Reproduction per Amphipod	Control-Adjusted Percent	12	0.2	Weibull	75.12	77.30	57.42
Head of Bay	28-day Reproduction per Female Amphipod	Control-Adjusted Percent	12	0.05	Weibull	45.42	49.12	30.39
Head of Bay	28-day Reproduction per Female Amphipod	Control-Adjusted Percent	12	0.2	Weibull	72.97	75.40	55.48
Spring Creek	10-day Survival	Control-Adjusted Percent	12	0.05	Weibull	76.24	77.56	69.16
Spring Creek	10-day Survival	Control-Adjusted Percent	12	0.2	Weibull	85.38	86.02	80.02
Spring Creek	28-day Biomass	Control-Adjusted Percent	12	0.05	Weibull	76.55	78.92	63.67
Spring Creek	28-day Biomass	Control-Adjusted Percent	12	0.2	Weibull	94.39	95.75	83.24
Spring Creek	28-day Weight	Control-Adjusted Percent	12	0.05	Weibull	78.02	81.19	61.94
Spring Creek	28-day Weight	Control-Adjusted Percent	12	0.2	Weibull	102.02	103.97	88.01
Spring Creek	28-day Survival	Control-Adjusted Percent	12	0.05	Weibull	78.16	79.08	72.58
Spring Creek	28-day Survival	Control-Adjusted Percent	12	0.2	Weibull	85.04	85.56	81.07
Spring Creek	28-day Reproduction per Amphipod	Control-Adjusted Percent	12	0.05	Weibull	50.40	52.87	36.89
Spring Creek	28-day Reproduction per Amphipod	Control-Adjusted Percent	12	0.2	Weibull	72.83	74.62	59.17
Spring Creek	28-day Reproduction per Female Amphipod	Control-Adjusted Percent	12	0.05	Weibull	54.50	56.80	41.26
Spring Creek	28-day Reproduction per Female Amphipod	Control-Adjusted Percent	12	0.2	Weibull	75.00	76.54	62.76
Westchester Creek	10-day Survival	Control-Adjusted Percent	12	0.05	Weibull	51.97	53.69	41.59
Westchester Creek	10-day Survival	Control-Adjusted Percent	12	0.2	Weibull	67.29	68.32	58.03
Westchester Creek	28-day Biomass	Control-Adjusted Percent	12	0.05	Weibull	26.25	28.83	14.81
Westchester Creek	28-day Biomass	Control-Adjusted Percent	12	0.2	Weibull	51.31	53.61	34.40
Westchester Creek	28-day Weight	Control-Adjusted Percent	12	0.05	Weibull	65.07	68.25	48.57
Westchester Creek	28-day Weight	Control-Adjusted Percent	12	0.2	Weibull	92.11	94.23	75.78
Westchester Creek	28-day Survival	Control-Adjusted Percent	12	0.05	Weibull	38.21	40.47	27.82
Westchester Creek	28-day Survival	Control-Adjusted Percent	12	0.2	Weibull	55.64	56.97	44.87
Westchester Creek	28-day Reproduction per Amphipod	Control-Adjusted Percent	12	0.05	Weibull	15.06	16.85	7.31
Westchester Creek	28-day Reproduction per Amphipod	Control-Adjusted Percent	12	0.2	Weibull	34.85	37.07	21.96
Westchester Creek	28-day Reproduction per Female Amphipod	Control-Adjusted Percent	12	0.05	Weibull	23.60	25.94	13.49
Westchester Creek	28-day Reproduction per Female Amphipod	Control-Adjusted Percent	12	0.2	Weibull	44.78	46.56	30.81
Westchester Creek without Confounding Locations	10-day Survival	Control-Adjusted Percent	6	0.05	Weibull	82.88	84.18	78.25
Westchester Creek without Confounding Locations	10-day Survival	Control-Adjusted Percent	6	0.2	Weibull	86.97	87.51	83.79
Westchester Creek without Confounding Locations	28-day Biomass	Control-Adjusted Percent	6	0.05	Gamma	86.90	90.15	76.13
Westchester Creek without Confounding Locations	28-day Biomass	Control-Adjusted Percent	6	0.2	Gamma	98.32	99.95	88.79
Westchester Creek without Confounding Locations	28-day Weight	Control-Adjusted Percent	6	0.05	Weibull	111.18	114.46	98.91
Westchester Creek without Confounding Locations	28-day Weight	Control-Adjusted Percent	6	0.2	Weibull	122.58	124.31	113.78
Westchester Creek without Confounding Locations	28-day Survival	Control-Adjusted Percent	6	0.05	Gamma	73.59	75.38	67.77

Attachment D1c

Summary of Reference Envelope Threshold Values

Area	Endpoint	Units	N	Percentile	Distribution	Best Fit Percentile Estimate	Bootstrap Percentile Estimate	Bootstrap 95LCL on Percentile
Westchester Creek without Confounding Locations	28-day Survival	Control-Adjusted Percent	6	0.2	Gamma	79.58	80.47	74.57
Westchester Creek without Confounding Locations	28-day Reproduction per Amphipod	Control-Adjusted Percent	6	0.05	Gamma	68.00	72.17	55.01
Westchester Creek without Confounding Locations	28-day Reproduction per Amphipod	Control-Adjusted Percent	6	0.2	Gamma	82.54	84.81	69.92
Westchester Creek without Confounding Locations	28-day Reproduction per Female Amphipod	Control-Adjusted Percent	6	0.05	Weibull	46.97	53.67	28.79
Westchester Creek without Confounding Locations	28-day Reproduction per Female Amphipod	Control-Adjusted Percent	6	0.2	Weibull	71.14	75.22	50.50

Acronym:

95LCL = 95% lower confidence limit

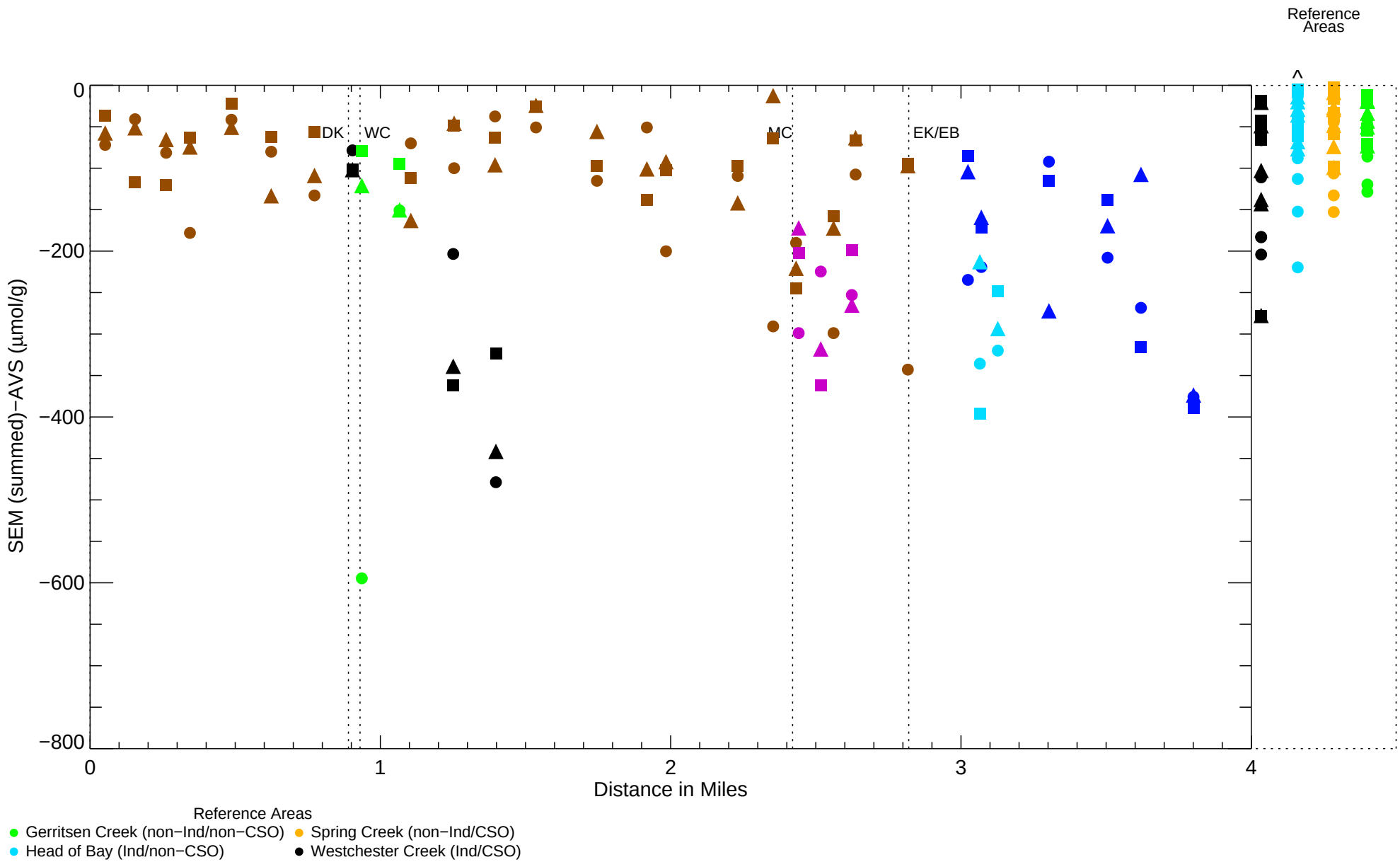
ATTACHMENT E

METAL BIOAVAILABILITY AND SPECIATION SUPPORTING INFORMATION

- Attachment E1a Comparison of In Situ, Pre- and Post-Toxicity Test AVS and SEM Data by Creek Mile
- Attachment E1b Statistical Comparison between In Situ, Pre- and Post-Toxicity Test AVS and SEM Data (see separate Excel file)
- Attachment E2 Metals Speciation Results

ATTACHMENT E1A

COMPARISON OF IN SITU, PRE- AND POST-TOXICITY TEST AVS AND SEM DATA BY CREEK MILE



ANCHOR QEA

Figure E1-1

Simultaneously Extracted Metals (Summed) − Acid Volatile Sulfide
in Study Area and Reference Areas − Phase 2
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects included at method detection limit and plotted with an open symbol only where all values used in calculation were non−detects. Data Bins: NCP2_SurfaceSediment_wKM_20151207.bin

LHB/EG/CF − \\austin2\D_drive\Projects\Newtown_Creek\Data_Review\Sediment\IDL\surfsed_spatial_wallRefAreas_SEMonAVS_wPrePostTest_20150814.pro Thu Jan 21 10:19:28 2016

ATTACHMENT E1B

STATISTICAL COMPARISON BETWEEN IN SITU, PRE- AND POST-TOXICITY TEST AVS AND SEM DATA

See separate Excel file

ATTACHMENT E2
METALS SPECIATION RESULTS

METALS SPECIATION RESULTS
REMEDIAL INVESTIGATION/FEASIBILITY STUDY, NEWTOWN CREEK

Prepared by

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Woodcliff Lake, New Jersey 07677

October 2018

METALS SPECIATION RESULTS
NEWTOWN CREEK RI/FS

Prepared by
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Woodcliff Lake, New Jersey 07677

October 2018

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Table 3 Phase 2 Surface Sediment Triad Samples Total Metals by X-Ray Fluorescence

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Table 5 Phase 1 Archived Cores Samples Total Metals by X-Ray Fluorescence

Table 6 Phase 2 Surface Sediment Triad Sample Sequential Extraction

Table 7 Phase 1 Archived Core Sample Sequential Extraction

Table 8 Surface Sediment Duplicate Sample Reproducibility

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1 INTRODUCTION

Consistent with the *Phase 2 Remedial Investigation Work Plan – Volume* 1 (Phase 2 RI Work Plan Volume 1), *Phase 2 Field Sampling and Analysis Plan – Volume 1* (Phase 2 FSAP Volume 1), and *Phase 2 Quality Assurance Project Plan* (Phase 2 QAPP), metals speciation work—including characterization of mineralogy, sequential extraction, and electron microprobe analysis of select samples—was performed on select Phase 2 benthic triad sediment samples, as well as Phase 1 archive sediment samples (Anchor QEA 2014a, 2014b, 2014c).

2 METALS SPECIATION SAMPLES

Phase 1 archive cores and Phase 2 benthic triad locations were selected as described in the Phase 2 RI Work Plan Volume 1 and Phase 2 FSAP Volume 1.

The following are excerpts from Section 3.3.4.2 of the Phase 2 RI Work Plan Volume 1:

> *To evaluate metal speciation, archived Phase 1 subsurface sediment samples from five stations in the Study Area and from nine of the Phase 2 triad locations will be submitted for mineralogical analysis. The five archived Phase 1 locations are shown on Figure 3-5, with summary information provided in Table 3-6. These stations were selected to include elevated metals concentrations at multiple depths in different portions of the Study Area.*
>
> *In addition to the five sample locations, 9 of the 36 Phase 2 surface sediment triad locations are to be selected for mineralogical analysis; locations will be selected following review of the contaminant concentration data.*
>
> *Based on the results of the XRD analyses, a subset of samples will be selected for electron microprobe analysis and sequential extraction.*

The following is an excerpt from Table B5-4 of the Phase 2 FSAP:

> *It is anticipated that seven sample intervals will be selected from each core for XRD analysis based on the Phase 1 data from the co-located core and the results of the X-ray fluorescence analysis. Following the XRD analysis, select samples will be submitted for EMPA and SX analysis.*

Attachments:

Table 1 Summary of Metals Speciation Samples and Analyses
Figure 1 Selected Metals Speciation Stations

2.1 Mineralogy

Samples were submitted to Activation Laboratories, Ltd., for mineral identification and quantification by X-ray diffraction, as described in the Phase 2 RI Work Plan Volume 1, Phase 2 FSAP Volume 1, and Phase 2 QAPP. Total metals were analyzed by fusion X-ray fluorescence in conjunction with X-ray diffraction as a quality assurance measure and are included in this report.

Attachments:

Table 2 Phase 2 Surface Sediment Triad Samples Mineralogy by X-Ray Diffraction
Table 3 Phase 2 Surface Sediment Triad Samples Total Metals by X-Ray Fluorescence
Table 4 Phase 1 Archived Core Samples Mineralogy by X-Ray Diffraction
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2.2 Sequential Extraction

Sequential extraction is designed to fractionate metals in a sample according to their reactivity/bioavailability by subjecting the sample to a sequence of progressively aggressive chemical treatments that target specific chemical forms. The sequential extraction results are tabulated and presented graphically for select metals, with comparison to the total metals concentrations reported for these samples in the composited triad samples.

Attachments:

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Chart 20 Station NC070 85 – 95 cm Sequential Extraction Results
Chart 21 Station NC070 125 – 136 cm Sequential Extraction Results
Chart 22 Station NC079 15 – 25 cm Sequential Extraction Results
Chart 23 Station NC079 75 – 85 cm Sequential Extraction Results
Chart 24 Station NC079 150 – 160 cm Sequential Extraction Results

2.3 Electron Microprobe Data

Electron microprobe analysis allows determination of grain-scale mineralogy and trace metal distribution to support interpretation of the sequential extraction data. Back-scatter electron (BSE) images were collected of the grains analyzed by the electron microprobe. Average atomic mass and brightness are positively correlated on a BSE image.

Attachments

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Figure 2d	Summary Data and Back-scatter Electron Maps for Station EK006 Points 7 and 8
Figure 2e	Summary Data and Back-scatter Electron Maps for Station EK006 Points 9 and 10
Figure 2f	Summary Data and Back-scatter Electron Maps for Station EK006 Points 11 and 12
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Figure 5b Summary Data and Back-scatter Electron Maps for Station NC070 15 – 25 cm Point 2
Figure 5c Summary Data and Back-scatter Electron Maps for Station NC070 15 – 25 cm Points 4

3 REFERENCES

Anchor QEA (Anchor QEA, LLC), 2014a. *Phase 2 Remedial Investigation Work Plan – Volume 1*. Final. Remedial Investigation/Feasibility Study, Newtown Creek. May 2014.

Anchor QEA, 2014b. *Phase 2 Field Sampling and Analysis Plan – Volume 1*. Final. Remedial Investigation/Feasibility Study, Newtown Creek. May 2014.

Anchor QEA, 2014c. *Phase 2 Quality Assurance Project Plan*. Final. Remedial Investigation/Feasibility Study, Newtown Creek. July 2014.

TABLES

Table 1
Summary of Metals Speciation Samples and Analyses

Sample	Station	Interval (centimeters)	X-Ray Diffraction	X-Ray Fluorescence	Sequential Extraction	Electron Microprobe
Phase 1 Archive Subsurface Cores	DK004SC	15 – 25	Y	Y	Y	
		35 – 45	Y	Y		
		45 – 55	Y	Y	Y	
		85 – 95	Y	Y		
		105 – 115	Y	Y		
		135 – 145	Y	Y	Y	
		185 – 195	Y	Y		
	NC054SC	15 – 25	Y	Y	Y	
		90 – 100	Y	Y		
		155 – 167	Y	Y		
		167 – 180	Y	Y	Y	
		212 – 225	Y	Y		
		295 – 307	Y	Y	Y	
		363 – 375	Y	Y		
	NC064SC	15 – 25	Y	Y	Y	
		25 – 34	Y	Y		
		81 – 91	Y	Y	Y	
		110 – 119	Y	Y		
		142 – 155	Y	Y	Y	Y
		200 – 212	Y	Y		
		282 – 294	Y	Y		
	NC070SC	15 – 25	Y	Y	Y	Y
		25 – 35	Y	Y		
		55 – 65	Y	Y		
		85 – 95	Y	Y	Y	
		115 – 125	Y	Y		
		125 – 136	Y	Y	Y	
		206 – 216	Y	Y		
	NC079SC	15 – 25	Y	Y	Y	
		25 – 35	Y	Y		
		45 – 55	Y	Y		
		75 – 85	Y	Y	Y	
		85 – 95	Y	Y		
		150 – 160	Y	Y	Y	
		348 – 360	Y	Y		

Table 1
Summary of Metals Speciation Samples and Analyses

Sample	Station	Interval (centimeters)	X-Ray Diffraction	X-Ray Fluorescence	Sequential Extraction	Electron Microprobe
Phase 2 Benthic Triad Samples	DK040SG	15 – 25	Y		Y	
	EB036SG	15 – 25	Y		Y	
	EK006SG	15 – 25	Y	Y	Y	Y
	EK059SG	15 – 25	Y	Y	Y	Y
	MC017SG	15 – 25	Y	Y	Y	
	NC046SG	15 – 25	Y	Y	Y	
	NC161SG	15 – 25	Y	Y	Y	
	NC293SG	15 – 25	Y		Y	
	WC012SG	15 – 25	Y	Y	Y	

Notes:

Screening level X-ray fluorescence was performed on the Phase 1 archive cores in 10-centimeter (cm) intervals: DK004 15 – 195 cm; NC054 15 – 550 cm; NC064 15 – 433 cm; NC070 15 – 384 cm; and NC079 15 – 372 cm.

Fusion X-ray fluorescence (Activation Laboratories) was not performed on three benthic triad samples (DK040SG, EB036SG, and NC293SG) due to limited nitrogen atmosphere desiccated material.

Table 2
Phase 2 Surface Sediment Triad Samples Mineralogy by X-Ray Diffraction

Station ID	Sample ID[1]	Amorphous (%)	Quartz (%)	Muscovite (%)	Biotite (%)	Amphibole (%)	Kaolinite (%)	Chlorite (%)	Plagioclase (%)	Potassium feldspar (%)	Calcite (%)	Dolomite (%)	Gypsum (%)	Halite (%)	Pyrite (%)
DK040	DK040SPEC-000015-20141111	29.8	22.2	4.6	2.6	-- U	2.0	1.4	19.0	5.9	0.8	6.5	-- U	5.2	-- U
EB036	EB036SPEC-000015-20141111	42.8	18.0	3.2	0.5	-- U	0.5	0.9	13.6	3.6	1.7	9.0	0.6	5.6	-- U
EK006	EK006SPEC-000015-20141111	28.0	31.2	4.5	1.7	1.1	1.0	1.7	10.0	11.2	-- U	4.3	-- U	3.3	2.0
EK059	EK059SPEC-000015-20141111	35.8	35.2	3.3	0.9	1.2	-- U	1.1	8.6	5.2	-- U	5.0	-- U	2.4	1.3
MC017	MC017SPEC-000015-20141111	33.0	27.9	2.0	2.6	1.5	-- U	1.0	13.3	6.8	-- U	8.6	1	2.3	-- U
NC046	NC161SPEC-000015-20141111	19.5	27.5	18.2	2.2	-- U	3.6	5.5	10.9	6.6	1.0	1.0	3 U	2.9	1.1
NC293	NC046SPEC-000015-20141111	25.0	28.6	13.8	2.3	-- U	4.3	6.0	7.5	6.0	0.5	1.8	0.3	2.7	1.2
NC161	NC293SPEC-000015-20141111	40.3	21.4	10.1	1.6	-- U	2.6	3.2	8.2	4.6	-- U	3.8	-- U	2.7	1.5
WC012	WC012SPEC-000015-20141111	20.0	27.6	15.2	2.3	-- U	4.0	5.1	12.2	7.5	-- U	1.6	-- U	3.5	1.0

Notes:
Only detected minerals are shown.
1 = Surface sediment samples were collected from 0 to 15 centimeters.
% = percent
U= nondetect

Minerals:
quartz = SiO_2
muscovite = $KAl_3Si_3O_{10}(OH)_2$
biotite = $K(Mg,Fe)_3[AlSi_3O_{10}(OH,F)_2$
amphibole = $(Na,K)(Ca,Mg,Fe^{2+})_2(Mg,Fe^{2+},Al^{3+},Fe^{3+})_5(Si^{4+},Al^{3+})_8O_{22}(OH)_2$
kaolinite = $Al_2Si_2O_5(OH)_4$
plagioclase = $(Na,Ca)AlSi_3O_8$
potassium feldspar = $KAlSi_3O_8$
calcite = $CaCO_3$
gypsum = $CaSO_4^{-2}(H_2O)$
dolomite = $CaMg(CO_3)_2$
halite = NaCl
chlorite = $(Fe, Mg, Al)_3(Si, Al)_4O_{10}(OH)_2(Mg, Fe, Al)_3(OH)_6$
pyrite = FeS_2

Table 3
Phase 2 Surface Sediment Triad Samples Total Metals by X-Ray Fluorescence

Station ID	Sample ID[1, 2]	Aluminum (mg/kg)	Calcium (mg/kg)	Chromium (mg/kg)	Cobalt (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Magnesium (mg/kg)	Manganese (mg/kg)	Nickel (mg/kg)	Phosphorus (mg/kg)	Potassium (mg/kg)	Silicon (mg/kg)	Sodium (mg/kg)	Titanium (mg/kg)	Vanadium (mg/kg)
DK040	DK040SPEC-000015-20141111*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB036	EB036SPEC-000015-20141111*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EK006	EK006SPEC-000015-20141111	43,000	14,500	616	40 U	2,380	43,200	11,300	302	566	2,920	12,600	231,000	18,800	3,480	134
EK059	EK059SPEC-000015-20141111	38,300	13,000	958	40 U	3,030	40,600	9,890	287	825	3,270	12,500	216,000	15,400	3,360	140
MC017	MC017SPEC-000015-20141111	38,800	28,400	137	40 U	359	36,500	15,700	263	149	2,140	13,400	186,000	17,700	3,720	84.0
NC046	NC046SPEC-000015-20141111	71,100	11,100	68.4	40 U	256	44,900	14,600	534	94.3	1,660	22,700	249,000	20,400	4,320	84.0
NC293	NC293SPEC-000015-20141111*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NC161	NC161SPEC-000015-20141111	67,600	10,700	137	40 U	264	44,100	13,700	620	173	1,570	23,300	251,000	20,900	4,380	95.2
WC012	WC012SPEC-000015-20141111	69,100	9,650	137	40 U	296	42,200	14,600	457	165	1,310	23,300	244,000	23,900	4,440	106

Notes:
1 = Surface sediment samples were collected from 0 to 15 centimeters.
2 = Reported oxide concentrations converted to metals as mg/kg
* = sample mass insufficient for fusion X-ray fluorescence analysis.
mg/kg = milligram per kilogram
U = nondetect at method detection limit

Table 4
Phase 1 Archived Core Samples Mineralogy by X-Ray Diffraction

Station ID	Sample ID	Sample Depth (cm)	Amorphous (%)	Quartz (%)	Muscovite (%)	Biotite (%)	Amphibole (%)	Plagioclase (%)	Potassium feldspar (%)	Kaolinite (%)	Chlorite (%)	Apatite (%)	Calcite (%)	Dolomite (%)	Gypsum (%)	Halite (%)	Chalcopyrite (%)	Cubanite (%)	Pyrite (%)
DK004	DK004BSPEC-015025-20140922	15 – 25	33.2	24.0	12.1	2.1	0.6	8.6	5.4	2.0	3.9	-- U	-- U	1.7	3.3	2.4	-- U	-- U	0.7
	DK004BSPEC-035045-20140922	35 – 45	43.5	27.3	8.1	1.0	0.9	5.2	3.6	1.9	2.4	--	0.3	1.5	-- U	1.4	-- U	-- U	2.9
	DK004BSPEC-045055-20140922	45 – 55	69.6	17.1	2.6	-- U	-- U	3.9	0.5	-- U	0.9	-- U	0.8	1.1	-- U	0.8	-- U	-- U	2.7
	DK004BSPEC-085095-20140922	85 – 95	52.0	19.2	6.9	1.6	-- U	5.3	4.1	1.4	2.5	1.6	0.5	1.1	-- U	2.5	-- U	-- U	1.3
	DK004BSPEC-105115-20140922	105 – 115	53.0	19.0	6.3	1.9	2.4	6.0	3.3	1.9	2.5	0.4	-- U	1.0	-- U	1.5	-- U	-- U	0.8
	DK004BSPEC-135145-20140922	135 – 145	50.8	20.3	5.3	1.7	-- U	5.5	5.0	0.6	2.8	0.3	-- U	4.3	-- U	2.1	-- U	-- U	1.3
	DK004BSPEC-185195-20140922	185 – 195	46.9	24.5	8.9	1.8	1.7	6.3	3.4	1.6	2.4	0.6	-- U	0.8	-- U	0.6	-- U	-- U	0.5
NC054	NC054ASPEC-015025-20140924	15 – 25	39.4	22.5	14.7	1.2	-- U	7.5	3.3	1.5	3.7	--	-- U	3.0	-- U	2.2	-- U	-- U	1.0
	NC054ASPEC-090100-20140924	90 – 100	47.0	19.7	9.8	1.7	-- U	5.1	4.7	2.1	2.1	-- U	3.0	1.8	1.5	0.8	-- U	-- U	0.7
	NC054ASPEC-155167-20140924	155 – 167	52.5	20.4	9.6	3.4	-- U	4.3	2.1	2.0	4.0	-- U	-- U	0.9	-- U	0.3	-- U	-- U	0.5
	NC054ASPEC-167180-20140924	167 – 180	48.7	17.5	8.4	2.9	-- U	12.3	2.8	2.6	2.3	-- U	-- U	1.6	-- U	-- U	-- U	-- U	0.9
	NC054ASPEC-212225-20140923	212 – 225	47.2	27.1	7.9	2.0	-- U	5.0	3.7	1.9	1.9	0.5	-- U	0.7	-- U	0.6	-- U	-- U	1.5
	NC054ASPEC-295307-20140923	295 – 307	43.8	24.3	8.0	2.6	-- U	9.2	4.3	2.9	2.4	-- U	0.9	1.2	-- U	-- U	-- U	-- U	0.4
	NC054ASPEC-363375-20140922	363 – 375	9.6	58.6	5.6	-- U	-- U	14.2	8.7	0.5	1.2	-- U	-- U	-- U	-- U	-- U	-- U	-- U	1.6
NC064	NC064BSPEC-015025-20140919	15 – 25	37.2	28.7	9.1	-- U	-- U	10.5	4.2	1.8	2.2	--	-- U	3.5	-- U	1.9	-- U	-- U	0.9
	NC064BSPEC-025034-20140919	25 – 34	53.8	19.4	8.2	-- U	-- U	6.4	2.3	1.0	1.7	0.5	-- U	1.3	-- U	2.9	0.6	0.6	1.3
	NC064BSPEC-081091-20140925	81 – 91	46.9	18.6	7.8	1.0	-- U	6.3	6.2	0.9	1.8	2.7	0.3	1.2	-- U	3.1	0.9	1.3	1.0
	NC064BSPEC-110119-20140925	110 – 119	54.9	18.6	7.5	--	-- U	5.7	2.2	1.0	2.3	2.6	-- U	-- U	-- U	3.4	0.4	0.5	0.9
	NC064BSPEC-142155-20140925	142 – 155	43.6	23.6	9.7	1.0	-- U	5.8	6.0	1.3	2.4	3.0	-- U	-- U	-- U	1.7	0.6	0.9	0.4
	NC064BSPEC-200212-20140925	200 – 212	48.2	27.9	6.9	1.5	-- U	5.9	2.6	3.4	2.2	0.3	-- U	0.5	-- U	-- U	-- U	-- U	0.6
	NC064BSPEC-282294-20140922	282 – 294	5.4	24.8	23.9	3.4	1.3	16.6	4.8	4.9	11.2	-- U	1.1	2.1	-- U	-- U	-- U	-- U	0.5
NC070	NC070BSPEC-015025-20140924	15 – 25	48.6	20.5	9.7	2.1	-- U	6.1	3.7	-- U	2.3	-- U	0.5	1.9	-- U	3.0	0.3	0.5	0.8
	NC070BSPEC-025035-20140924	25 – 35	49.5	19.9	7.1	1.3	-- U	8.0	5.0	0.7	2.2	0.5	0.5	1.7	-- U	2.5	0.3	0.3	0.5
	NC070BSPEC-055065-20140924	55 – 65	53.5	21.4	7.5	--	-- U	5.1	3.5	-- U	2.5	0.8	0.7	1.2	-- U	1.8	0.4	0.5	1.1
	NC070BSPEC-085095-20140924	85 – 95	52.9	19.4	6.2	1.0	-- U	5.4	4.2	1.3	2.3	1.0	0.9	1.1	-- U	1.7	0.3	0.7	1.6
	NC070BSPEC-115125-20140922	115 – 125	49.6	18.7	7.9	-- U	-- U	6.5	3.3	2.0	2.3	3.0	0.7	1.1	-- U	3.3	0.3	0.6	0.7
	NC070BSPEC-125136-20140922	125 – 136	48.4	21.4	7.4	1.5	-- U	6.6	3.2	2.1	2.6	1.5	0.7	1.4	-- U	1.9	-- U	0.6	0.7
	NC070BSPEC-206216-20140923	206 – 216	29.7	35.9	10.2	0.9	-- U	8.7	8.2	1.2	3.2	-- U	-- U	-- U	-- U	0.7	-- U	-- U	1.3
NC079	NC079ASPEC-015025-20140919	15 – 25	5.0	47.9	12.9	-- U	2.9	17.2	8.3	-- U	2.6	-- U	-- U	2.2	-- U	-- U	-- U	-- U	1.0
	NC079ASPEC-025035-20140919	25 – 35	9.2	55.6	1.9	2.1	3.1	14.6	8.6	0.5	0.6	-- U	-- U	2.2	-- U	-- U	-- U	-- U	1.6
	NC079ASPEC-045055-20140919	45 – 55	7.8	57.3	2.3	1.3	1.9	20.4	7.0	1.2	0.5	-- U	-- U	-- U	-- U	-- U	-- U	-- U	0.3
	NC079ASPEC-075085-20140919	75 – 85	7.6	34.1	15.6	2.2	2.7	12.7	5.8	12.4	2.3	-- U	-- U	3.9	-- U	-- U	-- U	-- U	0.7
	NC079ASPEC-085095-20140919	85 – 95	7.5	39.2	9.6	2.6	3.3	16.7	8.5	6.0	1.8	-- U	-- U	3.3	-- U	-- U	-- U	-- U	1.5
	NC079ASPEC-150160-20140917	150 – 160	8.7	70.1	1.8	-- U	0.8	10.9	6.7	-- U	0.3	-- U	-- U	0.7	-- U	-- U	-- U	-- U	-- U
	NC079ASPEC-348360-20140917	348 – 360	10.0	60.6	2.4	1.5	2.1	12.4	7.7	-- U	0.7	-- U	-- U	2.6	-- U	-- U	-- U	-- U	-- U

Notes:
Only minerals with detections in this sample set are shown.
% = percent
cm = centimeter
U = nondetect

Minerals:
quartz = SiO_2
muscovite = $KAl_3Si_3O_{10}(OH)_2$
biotite = $K(Mg,Fe)_3(AlSi_3O_{10})(OH,F)_2$
amphibole = $(Na,K)(Ca,Mg,Fe^{2+})_2(Mg,Fe^{2+},Al^{3+},Fe^{3+})_5(Si^{4+},Al^{3+})_8O_{22}(OH)_2$
plagioclase = $(Na,Ca)AlSi_3O_8$
potassium feldspar = $KAlSi_3O_8$
kaolinite = $Al_2Si_2O_5(OH)_4$
chlorite = $(Fe, Mg, Al)_3(Si, Al)_4O_{10}(OH)_2(Mg, Fe, Al)_3(OH)_6$
apatite = $Ca_5(PO_4)_3(OH,F,Cl)$
calcite = $CaCO_3$
dolomite = $CaMg(CO_3)_2$
gypsum = $CaSO_4^{-2}(H_2O)$
halite = NaCl
chalcopyrite = $CuFeS_2$
cubanite = $CuFe_2S_3$
pyrite = FeS_2

Table 5
Phase 1 Archived Core Samples Total Metals by X-Ray Fluorescence

Station ID	Sample ID [1]	Sample Depth (cm)	Cobalt (mg/kg)	Copper (mg/kg)	Nickel (mg/kg)	Silicon (mg/kg)	Aluminum (mg/kg)	Iron (mg/kg)	Manganese (mg/kg)	Magnesium (mg/kg)	Calcium (mg/kg)	Sodium (mg/kg)	Potassium (mg/kg)	Titanium (mg/kg)	Phosphorus (mg/kg)	Chromium (mg/kg)	Vanadium (mg/kg)	Loss on Ignition (%)
DK004	DK004BSPEC-015025-20140922	15 – 25	40 U	375	78.6	234,400	64,900	42,900	434	14,400	12,600	19,800	20,400	4,140	1,180	137	95.2	20.8
	DK004BSPEC-035045-20140922	35 – 45	40 U	2,200	401	240,400	48,600	42,200	364	10,700	12,900	13,700	14,000	3,480	2,270	547	129	24.4
	DK004BSPEC-045055-20140922	45 – 55	40 U	1,170	275	200,600	36,000	32,400	271	7,300	13,400	8,980	8,720	2,580	2,050	479	207	38.4
	DK004BSPEC-085095-20140922	85 – 95	147	2,720	1,010	177,600	51,500	49,400	325	9,110	16,500	17,500	14,000	5,270	6,370	1,030	190	32.8
	DK004BSPEC-105115-20140922	105 – 115	80.8	2,870	841	190,600	53,800	43,600	325	9,230	16,100	16,700	13,700	4,560	7,510	1,640	185	30.9
	DK004BSPEC-135145-20140922	135 – 145	80.8	3,390	849	170,200	55,700	41,500	263	9,650	16,000	16,600	13,700	4,140	9,690	2,260	218	34.3
	DK004BSPEC-185195-20140922	185 – 195	110	1,630	904	209,100	56,100	41,300	318	8,380	12,500	14,100	15,000	4,260	4,320	821	123	28.3
NC054	NC054ASPEC-015025-20140924	15 – 25	40 U	559	86.4	227,100	62,900	42,100	441	20,200	17,200	19,500	21,700	4,080	1,660	137	101	21.9
	NC054ASPEC-090100-20140924	90 – 100	40 U	1,610	354	198,500	49,100	43,200	573	28,500	39,800	13,100	12,700	3,540	4,230	411	112	26.6
	NC054ASPEC-155167-20140924	155 – 167	40 U	5,860	1,520	192,900	55,900	45,300	403	12,000	25,800	8,230	14,800	3,960	9,250	958	179	29.0
	NC054ASPEC-167180-20140924	167 – 180	40 U	5,160	1,380	199,100	52,000	45,800	418	10,600	25,400	7,340	14,900	3,960	8,990	889	162	28.1
	NC054ASPEC-212225-20140923	212 – 225	40 U	2,820	2,010	210,000	45,400	39,500	318	7,060	41,600	6,080	13,000	3,120	17,900	479	118	26.1
	NC054ASPEC-295307-20140923	295 – 307	40 U	2,880	684	210,300	60,100	42,900	511	9,470	15,900	7,050	14,600	4,320	3,930	274	72.8	27.8
	NC054ASPEC-363375-20140922	363 – 375	40 U	599	189	334,300	44,000	30,000	488	7,300	9,650	8,230	15,400	2,940	1,220	205	56.0	9.55
NC064	NC064BSPEC-015025-20140919	15 – 25	40 U	2,370	338	249,600	52,600	38,200	333	13,300	15,500	16,100	16,000	3,720	2,530	342	101	21.3
	NC064BSPEC-025034-20140919	25 – 34	40 U	15,300	3,390	174,000	46,600	42,500	333	9,410	35,600	13,800	13,600	3,480	16,200	889	174	29.9
	NC064BSPEC-081091-20140925	81 – 91	40 U	24,800	3,760	170,100	43,900	44,100	294	8,380	41,500	10,500	11,700	3,240	19,100	821	168	28.9
	NC064BSPEC-110119-20140925	110 – 119	40 U	8,470	2,760	174,100	50,100	42,100	333	8,810	40,400	11,200	13,900	3,540	18,800	889	151	29.2
	NC064BSPEC-142155-20140925	142 – 155	40 U	17,400	2,890	176,100	50,000	43,900	349	7,900	28,200	10,000	11,800	3,420	12,700	479	123	31.5
	NC064BSPEC-200212-20140925	200 – 212	36.7	5,410	1,120	225,300	58,800	40,600	356	9,050	13,400	9,500	14,600	5,330	4,360	274	78.4	25.3
	NC064BSPEC-282294-20140922	282 – 294	40 U	351	70.7	264,000	83,600	50,500	782	20,000	20,800	11,400	27,600	5,690	1,000	68.4	95.2	8.51
NC070	NC070BSPEC-015025-20140924	15 – 25	58.7	12,100	2,040	169,400	49,500	46,100	333	11,800	21,800	15,400	14,900	4,140	9,780	1,230	202	32.6
	NC070BSPEC-025035-20140924	25 – 35	80.8	14,900	3,020	163,700	48,700	48,700	294	10,800	22,300	13,900	14,400	4,320	10,800	1,440	207	33.2
	NC070BSPEC-055065-20140924	55 – 65	125	14,500	3,470	170,800	45,700	45,500	318	9,830	20,400	12,300	12,900	5,330	10,500	1,440	207	33.4
	NC070BSPEC-085095-20140924	85 – 95	95.4	12,200	4,240	161,400	46,400	47,200	333	9,830	21,100	11,700	11,900	5,030	11,100	1,510	213	35.4
	NC070BSPEC-115125-20140922	115 – 125	36.7	18,900	3,890	155,800	46,000	46,400	263	8,740	32,900	11,000	13,700	3,420	16,000	1,090	185	33.4
	NC070BSPEC-125136-20140922	125 – 136	51.4	11,600	4,790	159,400	46,000	50,000	325	9,650	21,900	11,700	12,600	4,080	11,000	1,370	207	35.3
	NC070BSPEC-206216-20140923	206 – 216	40 U	168	70.7	328,800	53,500	29,900	472	8,560	6,360	11,600	19,300	3,480	742	68.4	72.8	8.23
NC079	NC079ASPEC-015025-20140919	15 – 25	40 U	144	314	335,900	55,700	23,500	387	11,100	14,000	12,900	21,200	2,640	655	205	39.2	5.08
	NC079ASPEC-025035-20140919	25 – 35	40 U	40 U	20 U	366,200	46,600	20,900	449	8,930	13,900	11,500	16,400	3,060	611	68.4	33.6	2.50
	NC079ASPEC-045055-20140919	45 – 55	40 U	40 U	20 U	370,200	48,000	22,900	534	7,480	10,400	12,600	16,600	3,240	611	70 U	39.2	1.81
	NC079ASPEC-075085-20140919	75 – 85	40 U	40 U	20 U	290,700	81,000	39,200	573	16,200	15,500	11,100	22,700	5,450	786	68.4	84.0	6.71
	NC079ASPEC-085095-20140919	85 – 95	40 U	40 U	20 U	309,600	69,300	32,300	581	16,000	20,700	12,100	19,500	4,860	786	70 U	78.4	5.61
	NC079ASPEC-150160-20140917	150 – 160	40 U	40 U	31.4	402,400	29,300	11,400	194	5,970	10,400	8,010	12,700	959	175	137	22.4	1.52
	NC079ASPEC-348360-20140917	348 – 360	40 U	40 U	20 U	379,600	36,300	16,100	325	8,440	13,000	9,790	15,200	1,800	305	70 U	33.6	1.85

Notes:
1 = Reported percent oxides converted to mg/kg.
% = percent
cm = centimeter
mg/kg = milligram per kilogram
U = nondetect at method detection limit

Table 6
Phase 2 Surface Sediment Triad Sample Sequential Extraction

Station ID	Sample ID[1]	Sequential Extraction Phase	Aluminum (mg/kg)	Antimony (mg/kg)	Arsenic (mg/kg)	Barium (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Calcium (mg/kg)	Chromium (mg/kg)	Cobalt (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)
DK040	DK040SPEC-000015-20141111-EXCH	Exchangeable	1.3 J	0.4 U	0.1 U	498	0.1 U	0.04 U	1,200	0.1 U	0.3 U	0.246 J	4.6 J	0.1 U
	DK040SPEC-000015-20141112-CARB	Carbonate Bound	130	0.4 U	2.10	197	0.1 U	0.04 U	4,300	3.4	0.503 J	0.229 J	7,800	2.22
	DK040SPEC-000015-20141113-RED	Reducible	780	1.37 J	1.74	68.7	0.078 J	0.251 J	4,100	2.1	0.782 J	0.240 J	3,800	19.0
	DK040SPEC-000015-20141114-OXID	Oxidizable	1,500	0.4 U	1.77	8.77	0.1 U	2.01	270	21	1.94	153	1,700	78.20
	DK040SPEC-000015-20141114-RES	Residual	3,070	9.93	1.89	54.4	0.3 U	0.09 U	1,060 U	7.6	0.993 J	18.6	4,160	39.4
EB036	EB2036SPEC-000015-20141111-EXCH	Exchangeable	11	0.7 U	0.2 U	611	0.1 U	0.06 U	2,700	0.21 J	0.4 U	0.648 J	33	0.2 U
	EB2036SPEC-000015-20141112-CARB	Carbonate Bound	350	0.7 U	3.87	354 J	0.1 U	0.06 U	8,000 J	5.5	1.78	1.34	11,000	92.6
	EB2036SPEC-000015-20141113-RED	Reducible	3,800 J	0.7 U	5.02	394 J	0.19 J	2.74	11,000 J	16 J	2.08	102 J	6,300 J	309
	EB2036SPEC-000015-20141114-OXID	Oxidizable	1,600 J	0.66 J	0.7 U	14.2	0.1 U	0.787	380	31 J	2.48	213 J	1,500	29.2
	EB2036SPEC-000015-20141114-RES	Residual	6,550	5.80	9.55	297	0.2 U	0.0720 J	770 U	21	2.45	48.4	8,020	98.7
EK059	EK059SPEC-000015-20141111-EXCH	Exchangeable	2.3 J	0.7 U	0.2 U	594	0.1 U	0.06 U	1,300	0.2 U	0.5 U	0.459 J	3.6 J	0.2 U
	EK059SPEC-000015-20141112-CARB	Carbonate Bound	200	1.87 J	9.55	427	0.1 U	1.51	3,100	50	0.883 J	2.11	11,000	155
	EK059SPEC-000015-20141113-RED	Reducible	2,800	6.05 J	14.8	318	0.28 J	73.3	4,000	210	1.77 J	57.3	4,700	464
	EK059SPEC-000015-20141114-OXID	Oxidizable	2,300	6 UJ	22.8	15.9	0.1 U	87.3	340	500	11.9	2,410	9,000	354
	EK059SPEC-000015-20141114-RES	Residual	3,530	36.6	16.5	335	0.2 U	1.60	800 U	84	2.20	139	5,610	479
EK006	EK2006SPEC-000015-20141111-EXCH	Exchangeable	14	0.8 U	0.2 U	759	0.1 U	0.100 J	1,500	1.1	0.5 U	2.45	27	1.31
	EK2006SPEC-000015-20141112-CARB	Carbonate Bound	260	1.93 J	12.6	552 J	0.1 U	7.25	9,800 J	31	1.31 J	11.8	9,700	248
	EK2006SPEC-000015-20141113-RED	Reducible	4,100 J	1.25 J	15.5	514 J	0.33 J	43.9	4,900 J	270 J	3.05	592 J	5,700 J	469
	EK2006SPEC-000015-20141114-OXID	Oxidizable	1,100 J	1.04 J	12.3	11.2	0.1 U	22.7	160	210 J	7.97	1,320 J	9,000	113
	EK2006SPEC-000015-20141114-RES	Residual	5,670	13.4	20.2	279	0.2 U	1.52	790 U	75	2.98	111	6,530	175
MC017	MC017SPEC-000015-20141111-EXCH	Exchangeable	2.6 J	0.7 U	0.2 U	611	0.1 U	0.06 U	1,900	0.2 U	0.4 U	0.407 J	12	0.2 U
	MC017SPEC-000015-20141112-CARB	Carbonate Bound	310	0.7 U	3.35	394	0.1 U	0.06 U	7,700	7.3	1.04 J	0.655 J	11,000	28.8
	MC017SPEC-000015-20141113-RED	Reducible	190	0.7 U	3.84	165	0.1 U	0.372 J	12,000	0.88	0.593 J	0.637 J	4,300	9.73
	MC017SPEC-000015-20141114-OXID	Oxidizable	5,000	3.79 J	4.29	16.8	0.30 J	5.61	2,300	64	6.97	536	5,200	86.7
	MC017SPEC-000015-20141114-RES	Residual	2,720	5.93	4.92	124	0.1 U	0.162 J	440 U	14	1.62	37.1	5,000	186
NC046	NC046SPEC-000015-20141111-EXCH	Exchangeable	2 U	0.7 U	0.2 U	724	0.1 U	0.06 U	1,200	0.2 U	0.4 U	0.310 J	9.7	0.2 U
	NC046SPEC-000015-20141112-CARB	Carbonate Bound	120	0.7 U	3.36	211	0.10 J	1.35	3,500	5.3	0.681 J	3.70	4,900	55.2
	NC046SPEC-000015-20141113-RED	Reducible	2,000	0.7 U	3.31	196	0.29 J	1.42	3,100	6.5	1.27 J	40.4	4,100	44.4
	NC046SPEC-000015-20141114-OXID	Oxidizable	2,600	0.81 J	2.84	13.8	0.10 J	0.336 J	160	26	2.71	82.3	5,300	22.9
	NC046SPEC-000015-20141114-RES	Residual	5,760	2.19	3.00	71.2	0.2 U	0.07 U	850 U	12	2.79	13.2	9,590	12.5
NC161	NC161SPEC-000015-20141111-EXCH	Exchangeable	2.1 J	0.9 U	0.2 U	909	0.1 U	0.07 U	1,500	0.2 U	0.5 U	0.372 J	15	0.2 U
	NC161SPEC-000015-20141112-CARB	Carbonate Bound	85.00	0.9 U	3.81	286	0.13 J	0.255 J	4,900	5.0	0.702 J	0.500 J	7,000	42.6
	NC161SPEC-000015-20141113-RED	Reducible	2,600	0.9 U	4.88	193	0.37 J	2.46	3,100	7.2	1.66 J	37.3	5,100	59.7
	NC161SPEC-000015-20141114-OXID	Oxidizable	4,700	0.9 U	6.85	19.3	0.19 J	0.553	210	51	6.05	116	10,000	42.4
	NC161SPEC-000015-20141114-RES	Residual	15,100	10.9	6.08	68.3	0.32 J	0.0560 J	590 U	25	5.78	25.9	23,100	22.9

Table 6
Phase 2 Surface Sediment Triad Sample Sequential Extraction

Station ID	Sample ID[1]	Sequential Extraction Phase	Magnesium (mg/kg)	Manganese (mg/kg)	Mercury (mg/kg)	Nickel (mg/kg)	Potassium (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Sodium (mg/kg)	Thallium (mg/kg)	Tin (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
DK040	DK040SPEC-000015-20141111-EXCH	Exchangeable	130,000	5.08	0.001 U	0.22 U	3,000	0.2 U	0.1 U	18,000	0.2 U	0.6 U	0.0782 J	9.83
	DK040SPEC-000015-20141112-CARB	Carbonate Bound	11,000	29.3	0.001 U	3.20	610	1.03	0.1 U	150,000	0.2 U	0.6 U	2.50	12.1
	DK040SPEC-000015-20141113-RED	Reducible	2,400	18.4	0.001 U	4.92	110 J	0.2 U	0.1 U	12,000	0.2 U	0.6 U	3.21	198
	DK040SPEC-000015-20141114-OXID	Oxidizable	430	23.9	0.1603	9.61	130 J	0.877	0.99	17 U	0.2 U	0.6 U	4.23	282
	DK040SPEC-000015-20141114-RES	Residual	1,080 J	21.7	1.320	4.79	711 J	0.9 U	92	195 J	0.09 U	53	13.9	23.8 J
EB036	EB2036SPEC-000015-20141111-EXCH	Exchangeable	220,000	2.36	0.0008197 UJ	0.3 U	4,800	0.2 U	0.2 U	21,000 J	0.3 U	0.8 U	0.189 J	3.70 J
	EB2036SPEC-000015-20141112-CARB	Carbonate Bound	22,000	28.9	0.0008197 J	8.85	1,300 J	0.836 J	0.2 U	250,000 J	0.3 U	0.98 J	4.86	127
	EB2036SPEC-000015-20141113-RED	Reducible	6,600 J	42.4 J	0.0008197 UJ	9.34	200 J	0.2 U	0.2 U	13,000 J	0.3 U	0.98 J	16.0	763 J
	EB2036SPEC-000015-20141114-OXID	Oxidizable	620	23.7 J	0.0008197 UJ	9.51	170 J	1.67	0.2 U	160 J	0.3 U	52	6.19	243
	EB2036SPEC-000015-20141114-RES	Residual	1,940	52.7	3.914	15.3	956 J	3.49	11	300 J	0.084 J	50	31.6	72.8
EK059	EK059SPEC-000015-20141111-EXCH	Exchangeable	220,000	4.40	0.001 U	1.13 J	4,100	0.3 U	0.2 U	15,000	0.4 U	0.9 U	0.117 J	27.9
	EK059SPEC-000015-20141112-CARB	Carbonate Bound	24,000	28.8	0.001 U	57.5	1,100	2.06	0.2 U	250,000	0.4 U	1.3 J	23.2	542
	EK059SPEC-000015-20141113-RED	Reducible	1,900	30.5	0.001 U	75.3	160 J	1 U	0.35 J	11,000	0.4 U	11	34.7	2,000
	EK059SPEC-000015-20141114-OXID	Oxidizable	660	77.1	2.578	476	200 J	4.28	2.6	27 U	0.4 U	3.8 J	17.7	2,080
	EK059SPEC-000015-20141114-RES	Residual	1,250 J	31.3	4.582	23	790 J	2.44 J	45	137 J	0.097 J	206	30.7	73.1
EK006	EK2006SPEC-000015-20141111-EXCH	Exchangeable	300,000	2.23	0.001000 J	1.02 J	5,900	0.3 U	0.2 U	24,000 J	0.4 U	1 U	0.480 J	6.40
	EK2006SPEC-000015-20141112-CARB	Carbonate Bound	12,000	33.4	0.005000 J	48.3	1,400 J	1.35 J	0.2 U	350,000 J	0.4 U	1.0 J	26.8	1,040
	EK2006SPEC-000015-20141113-RED	Reducible	2,500 J	48.9 J	0.001 UJ	70.6	240 J	0.3 U	0.2 U	8,400 J	0.4 U	10	37.5	1,730 J
	EK2006SPEC-000015-20141114-OXID	Oxidizable	420	69.3 J	0.001000 J	275	130 J	2.78	0.2 U	140 J	0.4 U	30	8.60	800
	EK2006SPEC-000015-20141114-RES	Residual	1,900	49.7	7.172	61.7	1,170 J	1.80 J	24	177 J	0.11 J	90	22.0	81.8
MC017	MC017SPEC-000015-20141111-EXCH	Exchangeable	190,000	7.12	0.001 U	0.4 U	4,200	0.3 U	0.2 U	22,000	0.4 U	0.9 U	0.09 U	20.2
	MC017SPEC-000015-20141112-CARB	Carbonate Bound	20,000	31.2	0.001 U	8.20	1,100	1.99	0.2 U	240,000	0.4 U	1.1 J	4.22	81.3
	MC017SPEC-000015-20141113-RED	Reducible	6,600	25.4	0.001 U	6.85	150 J	0.3 U	0.2 U	16,000	0.4 U	0.9 U	3.76	370
	MC017SPEC-000015-20141114-OXID	Oxidizable	1,300	61.7	0.002655 J	36.8	230	2.27	0.2 U	360	0.4 U	1.6 J	17.9	827
	MC017SPEC-000015-20141114-RES	Residual	840	22.5	2.342	6.56	456 J	0.4 U	4.1	116 J	0.046 J	54	14.3	67.1
NC046	NC046SPEC-000015-20141111-EXCH	Exchangeable	210,000	10.5	0.001 U	0.354 J	4,500	0.3 U	0.2 U	19,000	0.4 U	0.9 U	0.115 J	17.3
	NC046SPEC-000015-20141112-CARB	Carbonate Bound	14,000	87.2	0.001 U	2.94	1,200	1.90	0.2 U	240,000	0.4 U	0.97 J	5.08	132
	NC046SPEC-000015-20141113-RED	Reducible	2,500	70.3	0.001 U	4.40	380	0.3 U	0.2 U	22,000	0.4 U	0.9 U	6.81	172
	NC046SPEC-000015-20141114-OXID	Oxidizable	970	77.1	0.04159	9.91	300	1.51	0.2 U	180	0.4 U	0.9 U	0.973	57.3
	NC046SPEC-000015-20141114-RES	Residual	2,240	79.0	1.242	8.88	1,040 J	0.7 U	4.5	121 U	0.076 J	22	17.6	25.7 J
NC161	NC161SPEC-000015-20141111-EXCH	Exchangeable	240,000	35.3	0.001 U	0.4 U	5,200	0.3 U	0.2 U	23,000	0.4 U	1 U	0.191 J	20.1
	NC161SPEC-000015-20141112-CARB	Carbonate Bound	16,000	171	0.001 U	3.26	1,200	2.14	0.2 U	290,000	0.4 U	1.2 J	7.27	66.0
	NC161SPEC-000015-20141113-RED	Reducible	2,700	100	0.001 U	4.84	450	0.3 U	0.2 U	26,000	0.4 U	1 U	9.35	221
	NC161SPEC-000015-20141114-OXID	Oxidizable	1,800	166	0.1160	18.3	520	2.07	0.2 U	190 J	0.4 U	1 U	1.23	120
	NC161SPEC-000015-20141114-RES	Residual	5,880	158	1.166	18.9	2,410	0.5 U	15	173 J	0.15 J	71	33.7	51.5

Table 6
Phase 2 Surface Sediment Triad Sample Sequential Extraction

Station ID	Sample ID[1]	Sequential Extraction Phase	Aluminum (mg/kg)	Antimony (mg/kg)	Arsenic (mg/kg)	Barium (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Calcium (mg/kg)	Chromium (mg/kg)	Cobalt (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)
NC293	NC293SPEC-000015-20141111-EXCH	Exchangeable	1 U	0.6 U	0.1 U	472	0.1 U	0.05 U	1,300	0.1 U	0.4 U	0.297 J	10	0.1 U
	NC293SPEC-000015-20141112-CARB	Carbonate Bound	200	0.6 U	8.62	326	0.087 J	0.449	3,400	16	0.645 J	1.29	11,000	69.8
	NC293SPEC-000015-20141113-RED	Reducible	470	0.6 U	11.1	171	0.12 J	12.0	6,700	4.5	1.33 J	6.46	4,300	36.3
	NC293SPEC-000015-20141114-OXID	Oxidizable	3,600	1.37 J	13.2	22.3	0.23 J	15.6	870	130	7.32	1,490	4,500	136
	NC293SPEC-000015-20141114-RES	Residual	10,700	2.13	19.5	205	0.26 J	0.599	810 U	41	4.32	122	15,200	308
WC012	WC012SPEC-000015-20141111-EXCH	Exchangeable	2 U	0.6 U	0.2 U	698	0.1 U	0.05 U	1,200	0.2 U	0.4 U	0.209 J	5.7 J	0.2 U
	WC012SPEC-000015-20141112-CARB	Carbonate Bound	170	0.6 U	2.84	298	0.10 J	0.628	3,300	6.2	0.403 J	0.643 J	4,700	55.6
	WC012SPEC-000015-20141113-RED	Reducible	1,900	0.6 U	2.88	86.0	0.21 J	2.87	1,800	7.0	1.04 J	44.2	2,600	51.7
	WC012SPEC-000015-20141114-OXID	Oxidizable	2,500	0.6 U	3.18	10.9	0.093 J	0.736	120	31	3.08	102	5,000	27.9
	WC012SPEC-000015-20141114-RES	Residual	10,800	11.9	3.82	63.4	0.32 J	0.06 U	730 U	21	4.73	27.3	15,200	18.2

Notes:
1 = Surface sediment samples were collected from 0 to 15 centimeters.
J = estimated value
mg/kg = milligram per kilogram
U = nondetect at method detection limit

Table 6
Phase 2 Surface Sediment Triad Sample Sequential Extraction

Station ID	Sample ID[1]	Sequential Extraction Phase	Magnesium (mg/kg)	Manganese (mg/kg)	Mercury (mg/kg)	Nickel (mg/kg)	Potassium (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Sodium (mg/kg)	Thallium (mg/kg)	Tin (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
NC293	NC293SPEC-000015-20141111-EXCH	Exchangeable	170,000	5.38	0.001 U	0.739 J	3,600	0.2 U	0.1 U	18,000	0.3 U	0.7 U	0.0870 J	17.0
	NC293SPEC-000015-20141112-CARB	Carbonate Bound	22,000	40.1	0.001 U	27.0	1,400	1.52	0.1 U	190,000	0.3 U	0.87 J	14.0	341
	NC293SPEC-000015-20141113-RED	Reducible	5,400	39.7	0.001 U	28.6	570	0.2 U	0.1 U	26,000	0.3 U	0.7 U	13.5	942
	NC293SPEC-000015-20141114-OXID	Oxidizable	720	72.5	0.1739	193	180	3.21	0.1 U	190	0.3 U	1.7 J	3.88	739
	NC293SPEC-000015-20141114-RES	Residual	3,420	106	5.276	28.3	1,720	1.22 J	8.0	176 J	0.17 J	31	49.7	68.9
WC012	WC012SPEC-000015-20141111-EXCH	Exchangeable	190,000	6.50	0.001 U	0.3 U	4,100	0.2 U	0.2 U	19,000	0.3 U	0.8 U	0.101 J	12.1
	WC012SPEC-000015-20141112-CARB	Carbonate Bound	17,000	45.9	0.001 U	4.75	1,200	1.67	0.2 U	220,000	0.3 U	0.85 J	7.12	97.7
	WC012SPEC-000015-20141113-RED	Reducible	1,300	44.4	0.001 U	5.26	270	0.2 U	0.2 U	18,000	0.3 U	0.8 U	6.76	207
	WC012SPEC-000015-20141114-OXID	Oxidizable	930	74.7	0.07287	14.7	290	1.36	0.2 U	23 U	0.3 U	0.8 U	1.12	86.8
	WC012SPEC-000015-20141114-RES	Residual	3,970	129	2.524	15.8	1,860	0.6 U	16	163 J	0.14 J	69	28.7	44.3

Notes:
1 = Surface sediment samples were collected from 0 to 15 centimeters.
J = estimated value
mg/kg = milligram per kilogram
U = nondetect at method detection limit

Table 7
Phase 1 Archived Core Samples Sequential Extraction

Station ID	Sample ID	Sample Depth (cm)	Sequential Extraction Phase	Aluminum (mg/kg)	Antimony (mg/kg)	Arsenic (mg/kg)	Barium (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Calcium (mg/kg)	Chromium (mg/kg)	Cobalt (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Magnesium (mg/kg)
DK004B	DK004BSPEC-015025-20141216-EXCH	15 – 25	Exchangeable	18 J	12.8 J	1 UJ	1150	0.5 UJ	0.4 UJ	1,300	1 UJ	2.7 UJ	2.28 J	28 J	1.2 J	350,000
	DK004BSPEC-015025-20141217-CARB		Carbonate Bound	240	4 U	2.88	421 J	0.5 U	2.93	3,300 J	8.0	2.7 U	17.8	5,900	132	8,300
	DK004BSPEC-015025-20141218-RED		Reducible	3,700 J	13.7 J	5.00	376 J	0.5 U	2.01 J	2,500 J	25 J	2.7 U	203 J	5,000 J	93.7	2,100 J
	DK004BSPEC-015025-20141219-OXID		Oxidizable	2,000 J	10.5 J	1.09 U	12.4	0.5 U	0.489 J	130	42 J	3.70 J	71.8 J	6,700	8.59	1,100
	DK004BSPEC-015025-20141219-RES		Residual	6,750	2.42	7.63	65.2	0.268 J	0.178 J	620 U	14.5	3.41	12.5	8,280	8.14	2,640
	DK004BSPEC-045055-20141216-EXCH	45 – 55	Exchangeable	10 J	2.68 J	0.1 UJ	631	0.1 UJ	0.186 J	790	0.79 J	0.4 UJ	1.31 J	8.6	1.54	220,000
	DK004BSPEC-045055-20141217-CARB		Carbonate Bound	210	3.04 J	2.31	328 J	0.1 U	37.9	4,300 J	26	3.85	105	1,600	440	4,100
	DK004BSPEC-045055-20141218-RED		Reducible	2,700 J	1.19 J	7.14	324 J	0.17 J	19.0	4,200 J	150 J	9.00	361 J	4,000 J	488	2,200 J
	DK004BSPEC-045055-20141219-OXID		Oxidizable	710 J	2.96 J	8.07	6.29	0.1 U	17.6	160	120 J	8.43	476 J	13,000	114	260
	DK004BSPEC-045055-20141219-RES		Residual	3,470	20.1	9.15	156	0.2 U	1.25	530 U	49.5	3.77	46.3	5,560	194	1,320
	DK004BSPEC-135145-20141216-EXCH	135 – 145	Exchangeable	29	3.36 J	0.2 UJ	380	0.1 UJ	0.527 J	1,800	3.6	0.5 UJ	4.58	48	1.85 J	310,000
	DK004BSPEC-135145-20141217-CARB		Carbonate Bound	790	7.75 J	11.2	485 J	0.1 U	136	3,200 J	110	6.88	21.9	10,000	235	8,700
	DK004BSPEC-135145-20141218-RED		Reducible	8,200 J	7.55 J	41.1	1,080 J	0.57	147	7,100 J	1,300 J	12.5	1,800 J	10,000 J	856	1,500 J
	DK004BSPEC-135145-20141219-OXID		Oxidizable	1,500 J	3.91 J	4.75	14.8	0.1 U	113	140	400 J	16.9	1,080 J	4,700	77.1	560
	DK004BSPEC-135145-20141219-RES		Residual	7,490	60.6	38.9	502	0.4 J	2.55	1,300 U	105	8.18	78.6	8,110	134	2,380
NC054A	NC054ASPEC-015025-20141216-EXCH	15 – 25	Exchangeable	11 J	0.602 J	0.2 UJ	352	0.1 UJ	0.05 UJ	1,700	0.26 J	0.4 UJ	0.767 J	14	0.158 J	230,000
	NC054ASPEC-015025-20141217-CARB		Carbonate Bound	220	0.6 U	3.43	235 J	0.11 J	0.662	3,500 J	6.3	0.541 J	1.68	5,500	71.3	11,000
	NC054ASPEC-015025-20141218-RED		Reducible	3,600 J	0.6 U	3.67	499 J	0.27 J	3.59	3,900 J	26 J	1.82	227 J	4,400 J	123	2,900 J
	NC054ASPEC-015025-20141219-OXID		Oxidizable	1,700 J	0.6 U	2.23	6.98	0.1 U	0.962	140	45 J	3.36	185 J	5,900	14.2	830
	NC054ASPEC-015025-20141219-RES		Residual	11,200	5.56	9.72	319	0.347 J	0.144 J	750 U	27.8	5.71	39.9	15,300	58.3	4,480
	NC054ASPEC-167180-20141216-EXCH	167 – 180	Exchangeable	13 J	0.69 J	0.5 UJ	595	0.1 UJ	0.0603 J	1,600	0.95 J	0.4 UJ	2.47	20	0.897 J	250,000
	NC054ASPEC-167180-20141217-CARB		Carbonate Bound	260	3.01 J	15.7	441 J	0.1 U	10.9	3,800 J	49	3.11	5.83	10,000	136	8,500
	NC054ASPEC-167180-20141218-RED		Reducible	4,700 J	2.53 J	35.3	434 J	0.46	44.0	10,000 J	360 J	4.06	1,160 J	7,200 J	491	1,900 J
	NC054ASPEC-167180-20141219-OXID		Oxidizable	1,300 J	0.94 J	16.1	14.1	0.1 U	20.5	140	220 J	12.6	2,800 J	5,900	182	530
	NC054ASPEC-167180-20141219-RES		Residual	8,590	17.8	46.4	91.5	0.358 J	0.583 J	1,160 U	78.2	4.49	154	11,200	312	3,390
	NC054ASPEC-295307-20141216-EXCH	295 – 307	Exchangeable	2.9	2.79 J	1 U	1,540	0.1 UJ	0.1 UJ	1,600	0.40 J	0.7 UJ	2.03 J	27	1.47 J	460,000
	NC054ASPEC-295307-20141217-CARB		Carbonate Bound	390	14.9	40.9	616 J	0.1 U	0.786	5,300 J	9.4	2.21 J	8.14	13,000	603	8,900
	NC054ASPEC-295307-20141218-RED		Reducible	5,600 J	1.56 J	55.7	1,030 J	0.37 J	4.11	5,900 J	31 J	3.86	589 J	5,900 J	869	1,700 J
	NC054ASPEC-295307-20141219-OXID		Oxidizable	1,700 J	2.77 J	44.6	23.6	0.1 U	2.59	230	57 J	10.8	1,540 J	5,100	220	690
	NC054ASPEC-295307-20141219-RES		Residual	8,050	54.1	72.1	1,440	0.3 U	0.1 U	1,120 U	35.7	3.90	94.0	8,760	182	2,990

Table 7
Phase 1 Archived Core Samples Sequential Extraction

Station ID	Sample ID	Sample Depth (cm)	Sequential Extraction Phase	Manganese (mg/kg)	Mercury (mg/kg)	Nickel (mg/kg)	Potassium (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Sodium (mg/kg)	Thallium (mg/kg)	Tin (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
DK004B	DK004BSPEC-015025-20141216-EXCH	15 – 25	Exchangeable	3.64 J	0.001 UJ	2 UJ	6,700	1.6 UJ	1 UJ	28,000 J	2 UJ	5 J	0.6 J	4 UJ
	DK004BSPEC-015025-20141217-CARB		Carbonate Bound	40.3	0.001 UJ	7.77 J	1,000 J	1.6 U	1 U	360,000 J	2 U	5 U	10.6	304
	DK004BSPEC-015025-20141218-RED		Reducible	77.6 J	0.001 UJ	10.7 J	400 J	1.6 U	1 U	7,400 J	2 U	7.8 J	13.3	253 J
	DK004BSPEC-015025-20141219-OXID		Oxidizable	100 J	0.001 UJ	18.5	320 J	1.6 U	1 U	160 U	2 U	49	2.28 J	61.1
	DK004BSPEC-015025-20141219-RES		Residual	82.5	1.787	12.4	1,280	0.5 U	13	302 J	0.73	27	18.3	35.4
	DK004BSPEC-045055-20141216-EXCH	45 – 55	Exchangeable	1.93	0.0007 UJ	6.61	4,500	0.2 UJ	0.1 UJ	16,000 J	0.3 UJ	0.7 UJ	0.414 J	5.60 J
	DK004BSPEC-045055-20141217-CARB		Carbonate Bound	29.6	0.0007 UJ	63.9	710 J	0.843 J	0.1 U	260,000 J	0.3 U	0.71 J	17.3	736
	DK004BSPEC-045055-20141218-RED		Reducible	50.4 J	0.0007 UJ	46.8	190 J	0.2 U	0.1 U	4,200 J	0.3 U	10	33.4	625 J
	DK004BSPEC-045055-20141219-OXID		Oxidizable	78.6 J	0.001 J	124	93 J	2	0.1 U	140 J	0.3 U	14	6.63	283
	DK004BSPEC-045055-20141219-RES		Residual	38.4	2.265	17.3	825 J	2.47	18	354 J	0.09 J	93	21.4	50.1
	DK004BSPEC-135145-20141216-EXCH	135 – 145	Exchangeable	7.75	0.001 UJ	8.63	7,000	0.3 UJ	0.2 UJ	25,000 J	0.4 UJ	1 UJ	0.462 J	11.0
	DK004BSPEC-135145-20141217-CARB		Carbonate Bound	42.9	0.001 UJ	189	1,400 J	1.60 J	0.2 U	370,000 J	0.4 U	1.6 J	27.9	1,320
	DK004BSPEC-135145-20141218-RED		Reducible	60.1 J	0.001 UJ	149	520 J	0.3 U	0.2 U	9,300 J	0.4 U	82	65.9	1,620 J
	DK004BSPEC-135145-20141219-OXID		Oxidizable	60.2 J	0.02 J	301	290 J	8.86	0.2 U	250 J	0.4 U	51	18.5	802
	DK004BSPEC-135145-20141219-RES		Residual	61.4	9.090	20.5	1,700 J	8.37	142	876 J	0.24 J	319	34.2	71.6
NC054A	NC054ASPEC-015025-20141216-EXCH	15 – 25	Exchangeable	1.51	0.0008 UJ	0.308 J	5,200	0.2 UJ	0.2 UJ	23,000 J	0.3 UJ	0.8 UJ	0.331 J	1.84 J
	NC054ASPEC-015025-20141217-CARB		Carbonate Bound	33.0	0.0008 UJ	6.83	1,300 J	0.805 J	0.2 U	260,000 J	0.3 U	0.98 J	10.0	123
	NC054ASPEC-015025-20141218-RED		Reducible	66.2 J	0.0008 UJ	11.9	360 J	0.2 U	0.2 U	12,000 J	0.3 U	0.9 J	12.0	307 J
	NC054ASPEC-015025-20141219-OXID		Oxidizable	88.7 J	0.0008 UJ	27.7	220 J	1.22	0.2 U	110 J	0.3 U	23	2.63	88
	NC054ASPEC-015025-20141219-RES		Residual	149	1.816	23.8	1,860	0.6 U	17	278 J	0.18 J	59	30.8	69.9
	NC054ASPEC-167180-20141216-EXCH	167 – 180	Exchangeable	9.22	0.0009 UJ	8.62 J	5,100	0.3 UJ	0.2 UJ	13,000 J	0.3 UJ	0.9 UJ	0.241 J	6.50 J
	NC054ASPEC-167180-20141217-CARB		Carbonate Bound	55.5	0.0009 UJ	221	1,100 J	1.16 J	0.2 U	280,000 J	0.3 U	2 J	25.9	1,510
	NC054ASPEC-167180-20141218-RED		Reducible	75.2 J	0.0009 UJ	182	290 J	0.3 U	0.2 U	9,500 J	0.3 U	12	41.3	1,810 J
	NC054ASPEC-167180-20141219-OXID		Oxidizable	61.8 J	0.004 J	560	170 J	3.95	0.2 U	100 J	0.3 U	25	10.1	879
	NC054ASPEC-167180-20141219-RES		Residual	92.3	14.41	61.6	2,000	5.03	41	331 J	0.23 J	76	30.8	86.6
	NC054ASPEC-295307-20141216-EXCH	295 – 307	Exchangeable	15.6	0.001 UJ	3.34 J	9,100	0.4 UJ	0.3 UJ	19,000 J	0.6 UJ	1.4 UJ	0.300 J	4.96 J
	NC054ASPEC-295307-20141217-CARB		Carbonate Bound	127	0.001 UJ	123	1,400 J	1.91 J	0.3 U	500,000 J	0.6 U	4.1 J	12.9	799
	NC054ASPEC-295307-20141218-RED		Reducible	122 J	0.001 UJ	98.4	830 J	0.4 U	0.3 U	10,000 J	0.6 U	13 J	16.0	989 J
	NC054ASPEC-295307-20141219-OXID		Oxidizable	86.1 J	0.6 J	270	300 J	22.1	0.3 U	190 J	0.6 U	57	2.00	893
	NC054ASPEC-295307-20141219-RES		Residual	82.7	4.325	21.0	1,980	25.8	21	428 J	0.23 J	519	23.0	168

Table 7
Phase 1 Archived Core Samples Sequential Extraction

Station ID	Sample ID	Sample Depth (cm)	Sequential Extraction Phase	Aluminum (mg/kg)	Antimony (mg/kg)	Arsenic (mg/kg)	Barium (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Calcium (mg/kg)	Chromium (mg/kg)	Cobalt (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Magnesium (mg/kg)
NC064B	NC064BSPEC-015025-20141216-EXCH	15 – 25	Exchangeable	17	1.09 J	0.7 U	859	0.1 U	0.102 J	1,300	1.1	0.5 U	8.58	37	1.45	310,000
	NC064BSPEC-015025-20141217-CARB		Carbonate Bound	230	7.3 J	19.8	455 J	0.1 U	14.1	2,700 J	33	1.74 J	48.6	8,000	145	8,800
	NC064BSPEC-015025-20141218-RED		Reducible	4,200 J	1.86 J	37.1	444 J	0.39 J	20.1	11,000 J	200 J	4.03	1,670 J	5,800 J	453	1,900 J
	NC064BSPEC-015025-20141219-OXID		Oxidizable	1,200 J	1.26 J	46.2	12.9	0.1 U	9.93	130	140 J	10.9	4,450 J	6,500	120	510
	NC064BSPEC-015025-20141219-RES		Residual	8,220	38.6	81.6	104	0.312 J	0.3 J	1,100 U	45.6	3.95	182	9,680	238	2,950
	NC064BSPEC-081091-20141216-EXCH	81 – 91	Exchangeable	8.2 J	1.86 J	0.2 U	507	0.1 U	0.719	1,200	1.9	0.816 J	8.67	19	0.693 J	250,000
	NC064BSPEC-081091-20141217-CARB		Carbonate Bound	250	8.15 J	12.3	426 J	0.1 U	21.1	3,700 J	72	7.68	420	3,300	81.7	11,000
	NC064BSPEC-081091-20141218-RED		Reducible	4,300 J	5.32 J	137	554 J	0.43 J	13.1	26,000 J	380 J	4.67	4,590 J	11,000 J	791	1,500 J
	NC064BSPEC-081091-20141219-OXID		Oxidizable	840 J	3.17 J	93	13.9	0.1 U	9.47	180	200 J	14.5	16,400 J	11,000	179	310
	NC064BSPEC-081091-20141219-RES		Residual	7,890	81	172	141	0.28 J	0.523	790 U	76.3	4.75	503	11,600	230	3,120
	NC064BSPEC-142155-20141216-EXCH	142 – 155	Exchangeable	9.1 J	2 J	0.6 U	646	0.1 U	0.06 U	1,100	0.48 J	0.5 U	6.50	22	0.778 J	280,000
	NC064BSPEC-142155-20141217-CARB		Carbonate Bound	230	10.2	31	473 J	0.1 U	7.07	2,600 J	31	4.25	80.8	7,600	127	17,000
	NC064BSPEC-142155-20141218-RED		Reducible	3,600 J	2.76 J	119	483 J	0.44 J	8.64	16,000 J	120 J	4.17	2,920 J	8,200 J	683	1,300 J
	NC064BSPEC-142155-20141219-OXID		Oxidizable	920 J	3.54 J	83.3	12.1	0.1 U	6.15	130	100 J	12.4	10,200 J	9,000	148	320
	NC064BSPEC-142155-20141219-RES		Residual	7,530	70.3	138	290	0.352 J	0.765	770 U	46.1	4.19	465	10,000	158	2,720
NC070B	NC070BSPEC-015025-20141216-EXCH	15 – 25	Exchangeable	29	0.96 J	0.2 U	526	0.1 U	0.149 J	1,700	1.2	0.5 U	5.26	28	1.07	280,000
	NC070BSPEC-015025-20141217-CARB		Carbonate Bound	520	5.69 J	14.3	538 J	0.1 U	43.6	3,400 J	73	9.06	46.3	9,300	220	15,000
	NC070BSPEC-015025-20141218-RED		Reducible	6,800 J	2.95 J	74	662 J	0.58	59.9	11,000 J	510 J	9.9	3,020 J	11,000 J	770	2,500 J
	NC070BSPEC-015025-20141219-OXID		Oxidizable	1,300 J	2.12 J	23.1	19.4	0.1 U	35.3	180	360 J	26.4	6,660 J	6,700	154	520
	NC070BSPEC-015025-20141219-RES		Residual	8,190	117	138	183	0.4 U	1.33	1,400 U	131	8.41	270	11,200	248	3,020
	NC070BSPEC-085095-20141216-EXCH	85 – 95	Exchangeable	13	2.69 J	0.2 U	370	0.1 U	0.156 J	1,600	1.3	0.5 U	5.33	25	0.716 J	260,000
	NC070BSPEC-085095-20141217-CARB		Carbonate Bound	400	15.2	39.1	416 J	0.1 U	14.9	3,200 J	88	7.63	10.5	14,000	150	18,000
	NC070BSPEC-085095-20141218-RED		Reducible	7,000 J	4.64 J	84.4	860 J	0.76	128	11,000 J	690 J	15.8	2,110 J	9,200 J	741	2,000 J
	NC070BSPEC-085095-20141219-OXID		Oxidizable	1,100 J	3.41 J	20.5	28.6	0.1 U	77.7	140	440 J	52	7,860 J	6,200	223	390
	NC070BSPEC-085095-20141219-RES		Residual	7,700	71.9	195	259	0.235 J	1.66	730 U	149	19.6	312	11,700	472	2,800
	NC070BSPEC-125136-20141216-EXCH	125 – 136	Exchangeable	21	3.12 J	0.2 U	720	0.1 U	0.296 J	1,700	2.2	0.6 U	9.37	43	1.67	370,000
	NC070BSPEC-125136-20141217-CARB		Carbonate Bound	440	26.4	40.7	622 J	0.1 U	33.0	3,300 J	100	6.95	19.6	15,000	198	12,000
	NC070BSPEC-125136-20141218-RED		Reducible	6,200 J	5.44 J	88.6	843 J	0.67	107	12,000 J	690 J	8.98	2,860 J	9,400 J	749	1,600 J
	NC070BSPEC-125136-20141219-OXID		Oxidizable	1,100 J	4.78 J	29.6	22	0.1 U	53.2	120	370 J	29.9	6,440 J	6,300	207	440
	NC070BSPEC-125136-20141219-RES		Residual	8,640	53.9	131	178	0.284 J	1.57	800 U	133	6.88	535	13,000	314	3,180

Table 7
Phase 1 Archived Core Samples Sequential Extraction

Station ID	Sample ID	Sample Depth (cm)	Sequential Extraction Phase	Manganese (mg/kg)	Mercury (mg/kg)	Nickel (mg/kg)	Potassium (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Sodium (mg/kg)	Thallium (mg/kg)	Tin (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
NC064B	NC064BSPEC-015025-20141216-EXCH	15 – 25	Exchangeable	2.69	0.001 UJ	4.95	6,000	0.3 U	0.2 U	23,000 J	0.4 U	1 U	0.408 J	9.98
	NC064BSPEC-015025-20141217-CARB		Carbonate Bound	45.9	0.008 J	194	1,400 J	1.55 J	0.2 U	350,000 J	0.4 U	1.5 J	18.7	1,130
	NC064BSPEC-015025-20141218-RED		Reducible	66.4 J	0.001 UJ	274	300 J	0.3 U	0.2 U	9,300 J	0.4 U	9.2 J	28.8	1,190 J
	NC064BSPEC-015025-20141219-OXID		Oxidizable	68.3 J	0.003 J	930	160 J	5.36	0.2 U	110 J	0.4 U	37	8.63	600
	NC064BSPEC-015025-20141219-RES		Residual	80.2	4.934	57.5	1,790	3.96	44	290 J	0.18 J	138	26.8	72.4
	NC064BSPEC-081091-20141216-EXCH	81 – 91	Exchangeable	8.59	0.0009 J	86.7	4,700	0.3 U	0.2 U	16,000 J	0.4 U	0.9 U	0.237 J	33.2
	NC064BSPEC-081091-20141217-CARB		Carbonate Bound	50.5	0.0009 UJ	1110	1,100 J	1.16 J	0.2 U	300,000 J	0.4 U	2 J	11.5	2,890
	NC064BSPEC-081091-20141218-RED		Reducible	75.4 J	0.0009 UJ	518	260 J	0.3 U	0.2 U	12,000 J	0.4 U	19	64.1	1,200 J
	NC064BSPEC-081091-20141219-OXID		Oxidizable	50.8 J	0.006 J	1550	88 J	5.74	0.2 U	110 J	0.4 U	17	10.7	818
	NC064BSPEC-081091-20141219-RES		Residual	91.0	6.253	77.2	1,730	5.84	66	229 J	0.20 J	168	31.3	91.0
	NC064BSPEC-142155-20141216-EXCH	142 – 155	Exchangeable	7.02	0.0009 J	21.8	5,000	0.3 U	0.2 U	17,000 J	0.4 U	0.9 U	0.417 J	8.03
	NC064BSPEC-142155-20141217-CARB		Carbonate Bound	66.4	0.0009 UJ	588	1,300 J	1.05 J	0.2 U	310,000 J	0.4 U	1.6 J	16.1	1,840
	NC064BSPEC-142155-20141218-RED		Reducible	96.3 J	0.0009 UJ	322	270 J	0.3 U	0.2 U	11,000 J	0.4 U	13	29.1	1,370 J
	NC064BSPEC-142155-20141219-OXID		Oxidizable	49.5 J	0.002 J	1150	110 J	11.1	0.2 U	110 J	0.42 J	21	6.44	972
	NC064BSPEC-142155-20141219-RES		Residual	73.9	8.632	43.4	1,620	12.4	35	217 J	0.29 J	198	21.3	128
NC070B	NC070BSPEC-015025-20141216-EXCH	15 – 25	Exchangeable	8.65	0.001 UJ	12.7	5,500	0.3 U	0.2 U	23,000 J	0.4 U	1 U	0.297 J	13.6
	NC070BSPEC-015025-20141217-CARB		Carbonate Bound	51.3	0.001 UJ	358	1,800 J	1.38 J	0.2 U	320,000 J	0.4 U	1.8 J	35.0	3,620
	NC070BSPEC-015025-20141218-RED		Reducible	80.2 J	0.001 UJ	291	390 J	0.3 U	0.2 U	14,000 J	0.4 U	18	65.3	2,650 J
	NC070BSPEC-015025-20141219-OXID		Oxidizable	66.0 J	0.006 J	1030	150 J	8.84	0.2 U	140 J	0.4 U	28	13.2	1,530
	NC070BSPEC-015025-20141219-RES		Residual	85.3	9.995	200	1,780 J	5.48	143	307 J	0.21 J	304	31.0	132
	NC070BSPEC-085095-20141216-EXCH	85 – 95	Exchangeable	7.58	0.0009 UJ	11.2	5,000	0.3 U	0.2 U	21,000 J	0.4 U	0.9 U	0.303 J	11.6
	NC070BSPEC-085095-20141217-CARB		Carbonate Bound	57.9	0.0009 UJ	383	1,900 J	1.28 J	0.2 U	310,000 J	0.4 U	1.9 J	37.0	3,390
	NC070BSPEC-085095-20141218-RED		Reducible	90.3 J	0.0009 UJ	502	460 J	0.3 U	0.2 U	13,000 J	0.4 U	26	68.7	5,410 J
	NC070BSPEC-085095-20141219-OXID		Oxidizable	62.6 J	0.006 J	2480	140 J	7.25	0.2 U	150 J	0.4 U	5 U	20.4	188
	NC070BSPEC-085095-20141219-RES		Residual	84.7	10.08	167	1,620	6.40	77	386 J	0.24 J	193	34.9	146
	NC070BSPEC-125136-20141216-EXCH	125 – 136	Exchangeable	9.51	0.001 J	17.5	6,800	0.4 U	0.3 U	25,000 J	0.5 U	1 U	0.420 J	21.9
	NC070BSPEC-125136-20141217-CARB		Carbonate Bound	66.8	0.001 UJ	616	1,900 J	1.70 J	0.3 U	430,000 J	0.5 U	2.6 J	44.1	4,470
	NC070BSPEC-125136-20141218-RED		Reducible	95.1 J	0.001 UJ	574	370 J	0.4 U	0.3 U	12,000 J	0.5 U	28	63.1	4,800 J
	NC070BSPEC-125136-20141219-OXID		Oxidizable	60.1 J	0.01 J	2480	150 J	6.85	0.3 U	140 J	0.5 U	47	17.5	2,530
	NC070BSPEC-125136-20141219-RES		Residual	94.8	9.189	103	1,730	10.7	86	224 J	0.22 J	192	34.5	160

Table 7
Phase 1 Archived Core Samples Sequential Extraction

Station ID	Sample ID	Sample Depth (cm)	Sequential Extraction Phase	Aluminum (mg/kg)	Antimony (mg/kg)	Arsenic (mg/kg)	Barium (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Calcium (mg/kg)	Chromium (mg/kg)	Cobalt (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Magnesium (mg/kg)
NC079A	NC079ASPEC-015025-20141216-EXCH	15 – 25	Exchangeable	3.6 J	0.8 U	0.2 U	1,310	0.1 U	0.07 U	380	0.96 J	0.5 U	0.824 J	6.3 J	0.196 U	300,000
	NC079ASPEC-015025-20141217-CARB		Carbonate Bound	30	0.8 U	0.2 U	229 J	0.1 U	0.471 J	2,000 J	1.5	0.5 U	9.60	170	4.73	2,400
	NC079ASPEC-015025-20141218-RED		Reducible	680 J	0.8 U	0.6 U	64.5 J	0.1 U	0.07 U	3,400 J	3.8 J	0.784 J	10.6 J	1,100 J	1.54	2,000 J
	NC079ASPEC-015025-20141219-OXID		Oxidizable	690 J	0.8 U	0.2 U	3.78	0.1 U	0.07 U	96	4.1 J	1.94 J	11.2 J	4,600	0.284 J	530
	NC079ASPEC-015025-20141219-RES		Residual	2,970	0.116 J	1.15	18.3	0.1 U	0.04 U	440 U	5.52	1.60	1.63 J	4,080	0.625 J	1,670
	NC079ASPEC-075085-20141216-EXCH	75 – 85	Exchangeable	9 J	0.8 U	0.2 U	1,280	0.1 U	0.07 U	670	0.35 J	0.5 U	0.524 J	11	0.194 U	300,000
	NC079ASPEC-075085-20141217-CARB		Carbonate Bound	43	0.8 U	0.447 J	222 J	0.1 U	0.379 J	4,600 J	0.82 J	0.5 U	0.874 J	150	2.41	8,000
	NC079ASPEC-075085-20141218-RED		Reducible	1,700 J	0.8 U	1.2 U	148 J	0.23 J	0.07 U	2,300 J	7.2 J	2.10	7.06 J	2,700 J	1.90	1,700 J
	NC079ASPEC-075085-20141219-OXID		Oxidizable	1,500 J	0.8 U	0.2 U	11.1	0.1 U	0.07 U	170	7.3 J	4.07	16.6 J	9,200	1.05	970
	NC079ASPEC-075085-20141219-RES		Residual	10,300	0.163 J	3.71	56	0.43 J	0.05 U	695 J	23.5	5.90	7.20	17,000	3.05	5,960
	NC079ASPEC-150160-20141216-EXCH	150 – 160	Exchangeable	5.8 J	0.7 U	0.2 U	1,280	0.1 U	0.06 U	320	0.33 J	0.5 U	0.752 J	19	0.183 U	280,000
	NC079ASPEC-150160-20141217-CARB		Carbonate Bound	17	0.7 U	0.2 U	182 J	0.1 U	0.358 J	570 J	0.23 J	0.5 U	1.58	64	0.385 J	1,500
	NC079ASPEC-150160-20141218-RED		Reducible	240 J	0.7 U	0.2 U	5.17 J	0.1 U	0.06 U	4,600 J	0.74 J	0.5 U	1.92 J	480 J	0.330 J	2,700 J
	NC079ASPEC-150160-20141219-OXID		Oxidizable	280 J	0.7 U	0.2 U	1.17	0.1 U	0.06 U	54	1.2 J	0.587 J	2.31 J	1,300	0.183 U	170
	NC079ASPEC-150160-20141219-RES		Residual	1,280	0.007 U	0.1 U	8.37	0.1 U	0.04 U	420 U	2.01 J	0.634 J	0.696 J	1,460	0.264 U	692
NC064B	NC1064BSPEC-081091-20141216-EXCH	81 – 91	Exchangeable	12	1.19 J	0.6 U	553	0.1 U	0.570	1,200	1.3	0.588 J	17.9	28	1.37	270,000
	NC1064BSPEC-081091-20141217-CARB		Carbonate Bound	200	7.57 J	10.8	426 J	0.1 U	17.5	3,700 J	71	7.15	420	2,800	68.1	9,600
	NC1064BSPEC-081091-20141218-RED		Reducible	3,900 J	5.56 J	132	565 J	0.39 J	11.5	25,000 J	370 J	4.42	4,610 J	11,000 J	771	1,400 J
	NC1064BSPEC-081091-20141219-OXID		Oxidizable	750 J	2.88 J	94.7	13.3	0.1 U	8.74	160	190 J	14.1	15,500 J	11,000	175	290
	NC1064BSPEC-081091-20141219-RES		Residual	7,070	67.1	153	122	0.258 J	0.364 J	720 U	64.6	4.20	489	11,100	148	2,730

Notes:
cm = centimeter
J = estimated value
mg/kg = milligram per kilogram
U = nondetect at method detection limit
UJ = nondetect at method detection limit; estimated value

Table 7
Phase 1 Archived Core Samples Sequential Extraction

Station ID	Sample ID	Sample Depth (cm)	Sequential Extraction Phase	Manganese (mg/kg)	Mercury (mg/kg)	Nickel (mg/kg)	Potassium (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Sodium (mg/kg)	Thallium (mg/kg)	Tin (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
NC079A	NC079ASPEC-015025-20141216-EXCH	15 – 25	Exchangeable	1.43	0.0010 UJ	1.25 J	5,500	0.3 U	0.2 U	11,000 J	0.4 U	1 U	0.539 J	1.81 J
	NC079ASPEC-015025-20141217-CARB		Carbonate Bound	22.5	0.0010 UJ	4.18	560 J	1.32 J	0.2 U	330,000 J	0.4 U	1.4 J	1.62	26.1
	NC079ASPEC-015025-20141218-RED		Reducible	20.8 J	0.0010 UJ	2.48	120 J	0.3 U	0.2 U	1,200 J	0.4 U	1 U	4.12	18.6 J
	NC079ASPEC-015025-20141219-OXID		Oxidizable	89.1 J	0.0010 UJ	6.12	220 J	0.3 U	0.2 U	78 J	0.4 U	41	0.833 J	11.8
	NC079ASPEC-015025-20141219-RES		Residual	33.4	0.0228	3.80	1,160	0.4 U	0.056 J	121 J	0.071 J	0.86	8.52	18.4
	NC079ASPEC-075085-20141216-EXCH	75 – 85	Exchangeable	0.932 J	0.0010 UJ	0.398 J	5,600	0.3 U	0.2 U	12,000 J	0.4 U	1 U	1.17	1.54 J
	NC079ASPEC-075085-20141217-CARB		Carbonate Bound	29.1	0.0010 UJ	0.806 J	750 J	1.10 J	0.2 U	330,000 J	0.4 U	1.7 J	4.14	3.87 J
	NC079ASPEC-075085-20141218-RED		Reducible	46.3 J	0.0010 UJ	4.05	380 J	0.3 U	0.2 U	5,600 J	0.4 U	1 U	13.0	17.4 J
	NC079ASPEC-075085-20141219-OXID		Oxidizable	150 J	0.0010 UJ	8.67	550 J	0.3 U	0.2 U	120 J	0.4 U	37	0.1 U	14.0
	NC079ASPEC-075085-20141219-RES		Residual	148	0.0195	14.8	3,340	0.5 U	0.063 J	189 J	0.23 J	1.2	35.6	54.2
	NC079ASPEC-150160-20141216-EXCH	150 – 160	Exchangeable	2.11	0.0009 UJ	0.422 J	5,000	0.3 U	0.2 U	9,200 J	0.4 U	0.9 U	0.312 J	1.23 J
	NC079ASPEC-150160-20141217-CARB		Carbonate Bound	14.1	0.0009 UJ	0.596 J	460 J	0.972 J	0.2 U	320,000 J	0.4 U	1.7 J	0.615 J	2.75 J
	NC079ASPEC-150160-20141218-RED		Reducible	12.1 J	0.0009 UJ	0.771 J	40 U	0.3 U	0.2 U	700 J	0.4 U	7	1.43	6.60 J
	NC079ASPEC-150160-20141219-OXID		Oxidizable	27.1 J	0.0009 UJ	1.97 J	56 J	0.3 U	0.2 U	60 J	0.4 U	32	1.06	3.76 J
	NC079ASPEC-150160-20141219-RES		Residual	17.6	0.003 J	2.15	176 J	0.3 U	0.010 J	75 J	0.04 U	0.254 J	1.45	4.90 J
NC064B	NC1064BSPEC-081091-20141216-EXCH	81 – 91	Exchangeable	8.21	0.002 J	67.6	5,100	0.3 U	0.2 U	17,000 J	0.4 U	0.9 U	0.342 J	26.8
	NC1064BSPEC-081091-20141217-CARB		Carbonate Bound	51.1	0.0009 UJ	1040	1,100 J	1.04 J	0.2 U	280,000 J	0.4 U	1.8 J	9.56	2,520
	NC1064BSPEC-081091-20141218-RED		Reducible	71.5 J	0.0009 UJ	489	250 J	0.3 U	0.2 U	12,000 J	0.4 U	18	62.1	1,180 J
	NC1064BSPEC-081091-20141219-OXID		Oxidizable	48.6 J	0.008 J	1530	88 J	5.54	0.2 U	84 J	0.4 U	1.8 J	10.4	848
	NC1064BSPEC-081091-20141219-RES		Residual	76.4	6.732	68.6	1,590	6.02	51	192 J	0.23 J	143	27.8	79.3

Notes:
cm = centimeter
J = estimated value
mg/kg = milligram per kilogram
U = nondetect at method detection limit
UJ = nondetect at method detection limit; estimated value

Table 8
Surface Sediment Duplicate Sample Reproducibility

EK006SPEC-000015-20141111	EK006SG F1		Duplicate F1		RPD	EK006SG F2		Duplicate F2		RPD	EK006SG F3		Duplicate F3		RPD	EK006SG F4		Duplicate F4		RPD	EK006SG F5		Duplicate F5		RPD
Aluminum (mg/kg)	1.7	J	1.6	J	2.3	151		170		12.4	2,300		2,250		2.2	1,740		2,090		18.3	1,720		4,590		91.0
Antimony (mg/kg)	0.63	U	0.62	U	--	0.63	U	3.9	J	--	1.1	J	0.62	U	--	0.63	U	2.5	J	--	9.4		2.6		113
Arsenic (mg/kg)	0.16	U	0.15	U	--	6.2		7.1		12.8	13.7		12.7		7.6	14.5		17.8		20.5	4.9		11.9		83.0
Barium (mg/kg)	617		612		0.76	265		296		10.8	225		208		7.7	14.1		14.3		1.6	160		321		66.9
Beryllium (mg/kg)	0.08	U	0.08	U	--	0.08	U	0.08	U	--	0.27	J	0.23	J	14.8	0.10	J	0.08	J	28.3	0.15	U	0.21	U	--
Cadmium (mg/kg)	0.06	U	0.05	U	--	0.36	J	0.43		15.6	27.6		27.2		1.4	27.9		30.0		7.2	0.35		0.57		48.3
Calcium (mg/kg)	1,190		1,160		2.6	3,010		3,250		7.7	3,800		3,410		10.8	452		325		32.5	514	U	718	U	--
Chromium (mg/kg)	0.16	U	0.15	U	--	22.2		24.0		7.9	78.4		77.4		1.3	182		263		36.4	18.4		48.3		89.7
Cobalt (mg/kg)	0.40	U	0.39	U	--	0.46	J	0.50	J	9.1	1.7		1.5	J	13.1	5.8		7.1		20.5	1.3		1.9		36.0
Copper (mg/kg)	0.25	J	0.26	J	3.8	1.2		1.1		11.4	16.5		19.7		18.0	1,046		1,293		21.2	40.1		85.6		72.4
Iron (mg/kg)	3.3	J	3.1	J	7.2	7,210		7,590		5.1	4,440		3,870		13.7	5,940		7,743		26.4	2,530		6,780		91.3
Lead (mg/kg)	0.16	U	0.15	U	--	73.0		82.9		12.6	223		222		0.17	226		235		4.2	108		203		61.1
Magnesium (mg/kg)	206,000		194,000		6.0	13,500		13,900		2.9	2,060		1,860		10.2	459		542		16.5	603	J	1,590		90.0
Manganese (mg/kg)	3.6		3.7		3.1	21.2		22.4		5.3	27.8		24.9		11.2	48.7		65.7		29.7	16.5		35.4		72.8
Mercury (mg/kg)	0.00	U	0.00	U	--	0.00	U	0.00	U	--	0.00	U	0.00	U	--	0.91		1.4		44.7	3.2		7.1		76.4
Nickel (mg/kg)	0.60	J	0.62	J	2.8	21.2		23.8		12.0	41.7		38.2		9.0	185		228		20.5	15.4		20.9		30.3
Potassium (mg/kg)	3,880		3,870		0.26	792		929		15.9	198		170	J	15.0	111	J	155	J	33.1	346	J	952	J	93.4
Selenium (mg/kg)	0.24	U	0.23	U	--	1.6		1.9		14.8	0.24	U	0.23	U	--	2.5		3.3		29.3	0.42	U	1.5	J	--
Silver (mg/kg)	0.16	U	0.15	U	--	0.16	U	0.15	U	--	0.16	U	0.15	U	--	0.55	J	0.85		43.6	10.2		6.9		38.3
Sodium (mg/kg)	17,400		17,800		2.3	190,000		232,000		19.9	17,400		16,300		6.5	23.8	U	23.2	U	--	73.3	J	126	J	52.9
Thallium (mg/kg)	0.32	U	0.31	U	--	0.32	U	0.31	U	--	0.32	U	0.31	U	--	0.32	U	0.31	U	--	0.05	U	0.10	J	--
Tin (mg/kg)	0.79	U	0.77	U	--	0.87	J	2.2	J	85.3	1.2	J	1.2	J	4.2	2.6	J	2.6	J	0.70	62.6		23.6		90.5
Vanadium (mg/kg)	0.12	J	0.15	J	21.3	15.0		16.9		12.0	20.8		19.7		5.4	6.5		7.8		19.0	12.7		27.7		74.3
Zinc (mg/kg)	13.4		10.5		24.6	290		325		11.5	1,545		1,430		7.7	959		1,110		14.6	20.8		51.0		84.1

Notes:

Mass loss was noted for F5 during the EK006 analysis. The sample was re-analyzed and reported as EK2006.

RPD not calculated for nondetect results.

F1 = Exchangeable

F2 = Weak Acid Soluble (Carbonate Bound)

F3 = Reducible (Iron/Manganese Oxide Bound)

F4 = Oxidizable (Sulfide/Organic Matter Bound)

F5 = Residual

J = estimated value

mg/kg = milligram per kilogram

RPD = relative percent difference

U = nondetect at method detection limit

Table 9
Subsurface Sediment Duplicate Sample Reproducibility

NC064BSPEC-081091-20141216	NC064BS F1	Duplicate F1	RPD	NC064BS F2	Duplicate F2	RPD	NC064BS F3	Duplicate F3	RPD	NC064BS F4	Duplicate F4	RPD	NC064BS F5	Duplicate F5	RPD
Aluminum (mg/kg)	8.14 J	12.3	40.4	245	201	19.6	4,286 J	3,938 J	8.47	840 J	744 J	12.1	7,890	7,070	11.0
Antimony (mg/kg)	1.85 J	1.19 J	43.6	8.13 J	7.55 J	7.32	5.31 J	5.55 J	4.39	3.16 J	2.87 J	9.54	81.0	67.1	18.8
Arsenic (mg/kg)	0.175 U	0.630 U	--	12.2	10.8	12.9	136	131	3.88	92.7	94.5	1.91	172	153	11.7
Barium (mg/kg)	506	551	8.65	425 J	425 J	0.043	552 J	564 J	2.08	13.9	13.3	4.46	141	122	14.4
Beryllium (mg/kg)	0.087 U	0.088 U	--	0.087 U	0.088 U	--	0.429 J	0.394 J	8.47	0.087 U	0.088 U	--	0.280	0.258	8.18
Cadmium (mg/kg)	0.717	0.569	23.1	21.0	17.4	18.6	13.0	11.5	12.8	9.45	8.72	8.05	0.523	0.364	35.9
Calcium (mg/kg)	1,230	1,230	0.000	3,670 J	3,676 J	0.151	26,200 J	24,500 J	6.71	175	158	10.5	791	720	9.40
Chromium (mg/kg)	1.92	1.31	37.8	71.7	70.9	1.18	376 J	368 J	2.31	201 J	193 J	4.40	76.3	64.6	16.6
Cobalt (mg/kg)	0.814 J	0.586 J	32.5	7.65	7.13	7.06	4.65	4.41	5.36	14.4	14.1	2.41	4.75	4.20	12.3
Copper (mg/kg)	8.64	17.9	69.5	419	419	0.043	4,575 J	4,594 J	0.425	16,400 J	15,500 J	5.64	503	489	2.82
Iron (mg/kg)	19.2	28.0	37.1	3,324	2,800	17.1	11,372 J	10,502 J	7.96	10,500	10,500	0.000	11,600	11,100	4.41
Lead (mg/kg)	0.691 J	1.37	65.6	81.4	67.9	18.1	789	769	2.54	178	174	2.44	230	148	43.4
Magnesium (mg/kg)	254,000	271,000	6.48	10,500	9,626	8.68	1,487 J	1,400 J	6.02	306	289	5.84	3,120	2,730	13.3
Manganese (mg/kg)	8.56	8.19	4.45	50.4	51.0	1.25	75.1 J	71.3 J	5.21	50.6 J	48.5 J	4.37	91.0	76.4	17.4
Mercury (mg/kg)	0.001 J	0.002 J	66.7	0.001 U	0.001 U	0.043	0.001 U	0.001 U	--	0.006 J	0.008 J	25.0	6.25	6.73	7.38
Nickel (mg/kg)	86.4	67.5	24.6	1,102	1,033	6.51	517	488	5.70	1,548	1,523	1.67	77.2	68.6	11.8
Potassium (mg/kg)	4,720	5,100	7.74	1,050 J	1,138 J	8.04	262 J	254 J	3.35	87.5 J	87.5 J	0.043	1,730	1,590	8.43
Selenium (mg/kg)	0.262 U	0.263 U	--	1.15 J	1.03 J	11.2	0.262 U	0.263 U	--	5.72	5.53	3.38	5.84	6.02	3.04
Silver (mg/kg)	0.175 U	0.175 U	--	0.175 U	0.175 U	0.043	0.175 U	0.175 U	--	0.175 U	0.175 U	--	66.0	50.9	25.8
Sodium (mg/kg)	15,700 J	16,600 J	5.57	297,000 J	280,000 J	5.89	12,200 J	12,300 J	0.816	105 J	84.0 J	22.2	229	192	17.6
Thallium (mg/kg)	0.350 U	0.350 U	--	0.350 U	0.350 U	--	0.350 U	0.350 U	--	0.350 U	0.350 U	--	0.198	0.234	16.7
Tin (mg/kg)	0.875 U	0.875 U	--	2.01 J	1.75 J	13.9	19.2	18.4	4.61	16.6	1.84 J	160	168	143	16.1
Vanadium (mg/kg)	0.236 J	0.341 J	36.4	11.5	9.54	18.3	63.9	62.0	3.15	10.7	10.3	3.29	31.3	27.8	11.8
Zinc (mg/kg)	33.1	26.7	21.3	2,880	2,500	14.1	1,200 J	1,170 J	2.53	816	846	3.62	91.0	79.3	13.7

Notes:
F1 = Exchangeable
F2 = Weak Acid Soluble (Carbonate Bound)
F3 = Reducible (Iron/Manganese Oxide Bound)
F4 = Oxidizable (Sulfide/Organic Matter Bound)
F5 = Residual
J = estimated value
mg/kg = milligram per kilogram
RPD = relative percent difference
U = nondetect at method detection limit

Table 10
Electron Microprobe Narrative Summary

Sample ID	Comments
EK006	Fourteen points were analyzed, identified as quartz (Point 7), various aluminosilicates (Points 3, 4, 5, 8, 9, 10, 11, 12, 13, and 14), and sulfides (Points 2 and 10). Point 1 is likely carbon given the very similar average atomic mass to the epoxy matrix (see Figure 2a). Point 6 is a lead mineral, likely lead carbonate noting the large balance value on this analysis (carbon and oxygen not reported)
EK059	Five points were analyzed, including a quartz grain (Point 4B), three aluminosilicates (Points 3A, 3B, and 4A), and an apparent iron oxide (oxygen not reported). Points 1 and 2 were identified in the original survey; however, the grain appears to have been lost during the final polishing prior to analysis.
NC064 142-155	Sixteen points were analyzed; nine (Points 1B, 2, 3B, 5, 6B, 7, 8, 9, and 13) were identified as copper and iron sulfides (including chalcopyrite, cubanite, and pyrite), one as silica (Point 1A), four aluminosilicates (Points 3A, 4, 6A, and 10A), carbon (Point 11) based on average atomic mass, and a carbon/aluminosilicate interface (Point 12).
NC070 15-25	Seven points were analyzed, including four identified as sulfides (Points 1A, 1B, 2D, and 4), including covellite and chalcopyrite, and three as aluminosilicates (Points 2A, 2B, and 2C). Point 3 was identified in the original survey; however, the grain appears to have been lost during the final polishing prior to analysis.

FIGURES

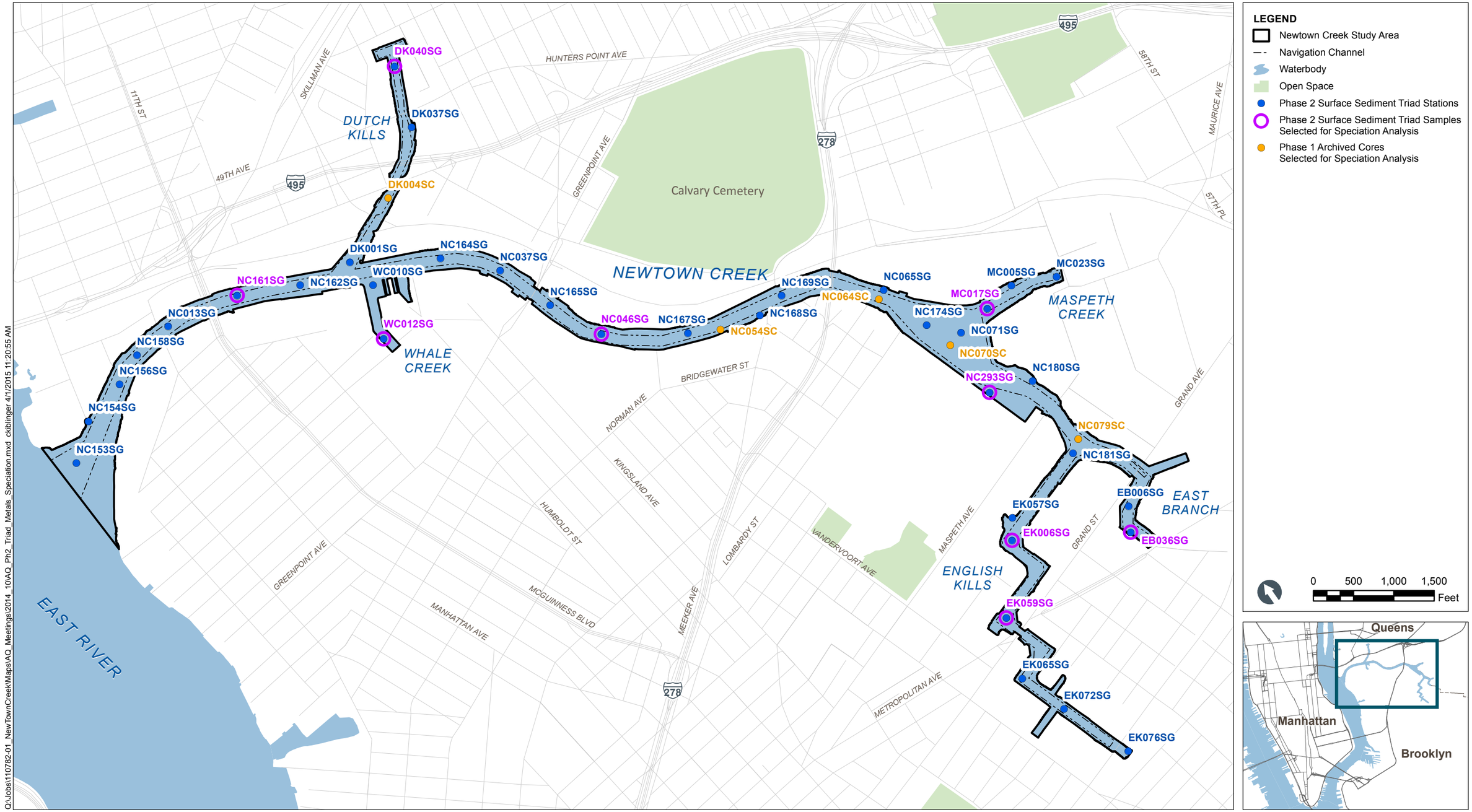

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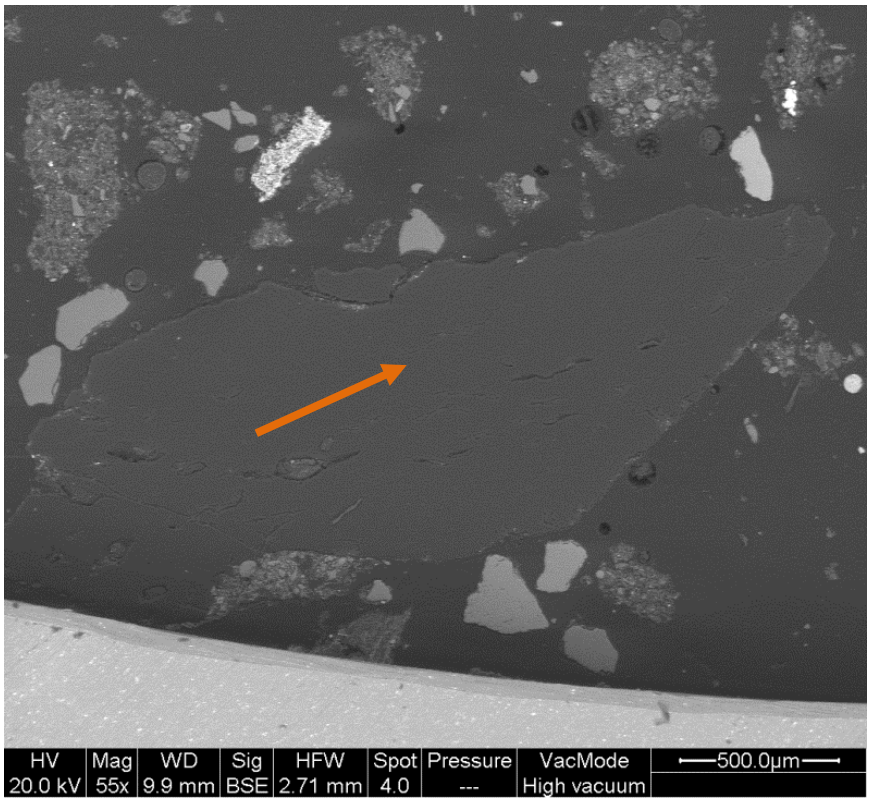
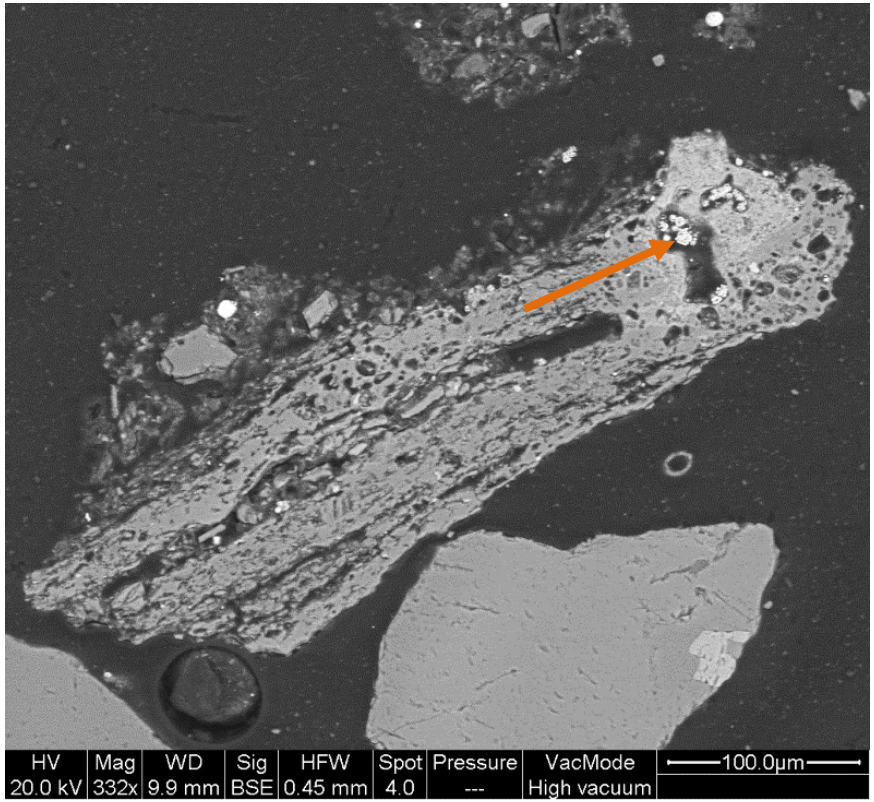
Figure 1
Selected Metals Speciation Stations
Metals Speciation Results
Newtown Creek RI/FS

Point 1



Point 2



Weight Percent	Al	As	Ba	Cd	Ca	Cr	Cu	Fe	Pb	Mg	Mn	Ni	K	Si	Na	S	Ti	V	Zn
EK006 Point 1	0.021	<0.020	0.008	0.011	0.022	0.001	0.005	0.052	0.027	<0.003	0.001	0.010	0.001	0.017	0.003	0.407	0.008	0.000	<0.003
EK006 Point 2	0.313	<0.037	<0.002	<0.010	0.150	0.008	0.042	28.1	<0.010	0.088	0.259	0.018	0.116	0.627	0.035	33.2	0.104	0.009	0.276

Al	Aluminum	Cd	Cadmium	Cu	Copper	Mg	Magnesium	K	Potassium	S	Sulfur	Zn	Zinc
As	Arsenic	Ca	Calcium	Fe	Iron	Mn	Manganese	Si	Silicon	Ti	Titanium		
Ba	Barium	Cr	Chromium	Pb	Lead	Ni	Nickel	Na	Sodium	V	Vanadium		

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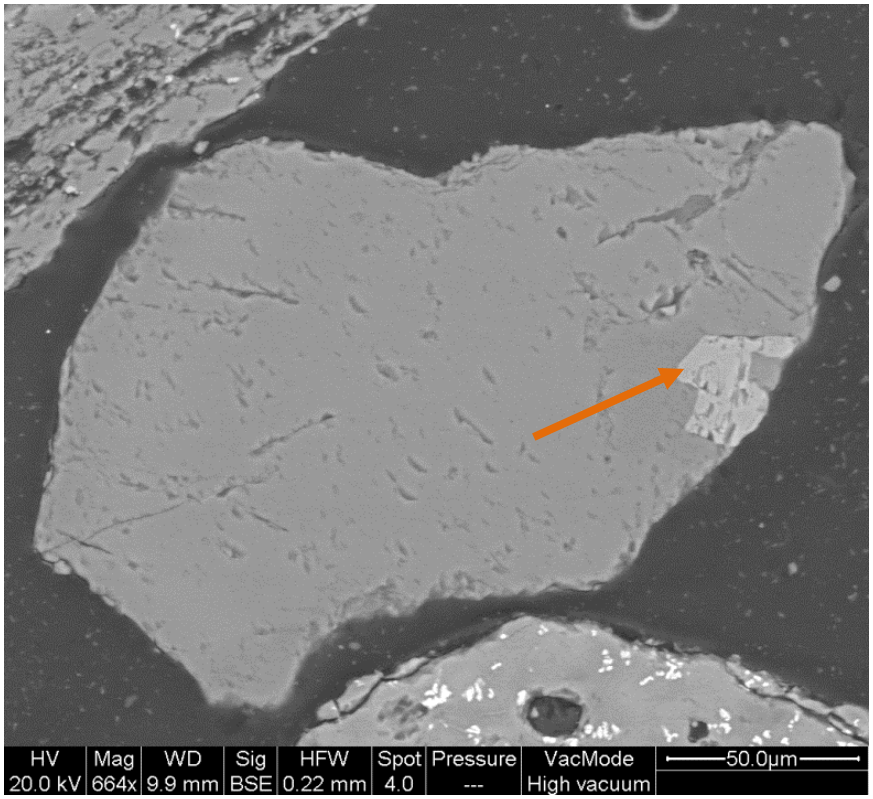
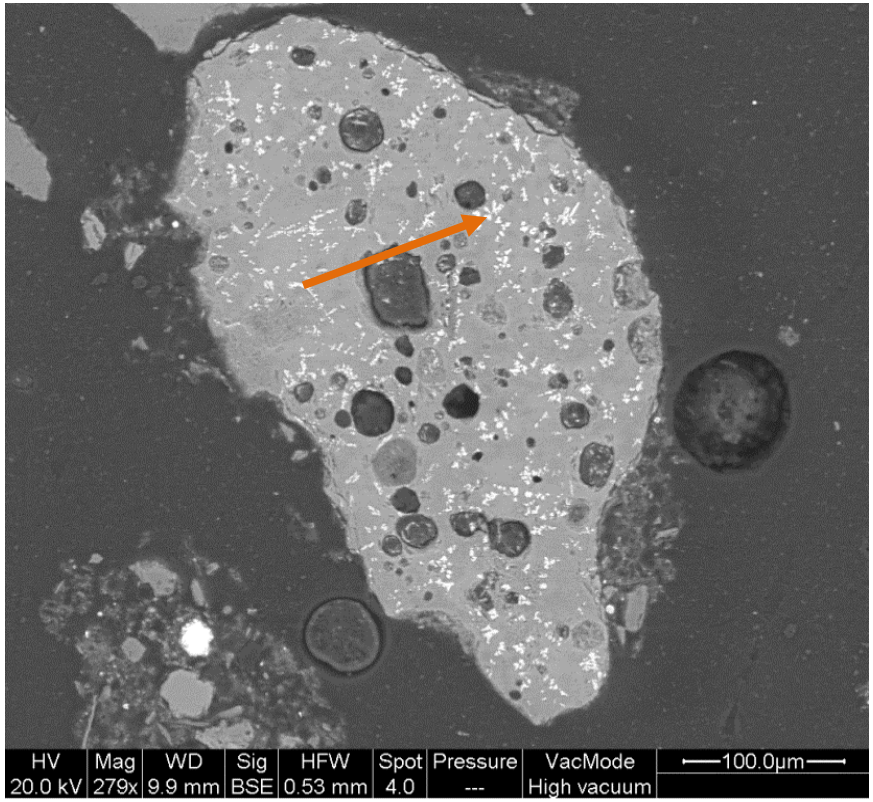
Figure 2a
Summary Data and Back-scatter Electron Maps for Station EK006 Points 1 and 2
Metals Speciation Results
Newtown Creek RI/FS

Point 3



Point 4



Weight Percent	Al	As	Ba	Cd	Ca	Cr	Cu	Fe	Pb	Mg	Mn	Ni	K	Si	Na	S	Ti	V	Zn
EK006 Point 3	13.8	<0.007	<0.002	<0.010	16.6	<0.002	<0.001	8.08	<0.021	<0.003	0.100	<0.001	<0.002	18.0	<0.008	0.134	0.090	<0.002	<0.003
EK006 Point 4	11.2	<0.017	0.707	<0.010	3.50	<0.006	0.048	3.92	<0.010	0.634	0.273	0.014	0.965	23.5	1.00	<0.010	1.66	0.154	<0.009

Al	Aluminum	Cd	Cadmium	Cu	Copper	Mg	Magnesium	K	Potassium	S	Sulfur	Zn	Zinc
As	Arsenic	Ca	Calcium	Fe	Iron	Mn	Manganese	Si	Silicon	Ti	Titanium		
Ba	Barium	Cr	Chromium	Pb	Lead	Ni	Nickel	Na	Sodium	V	Vanadium		

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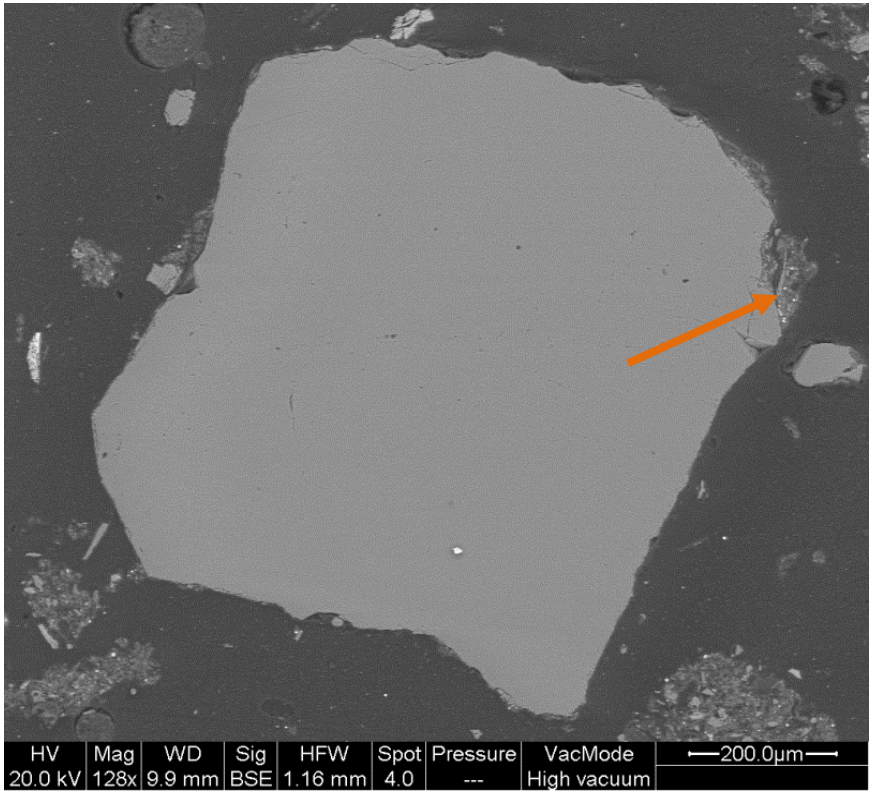
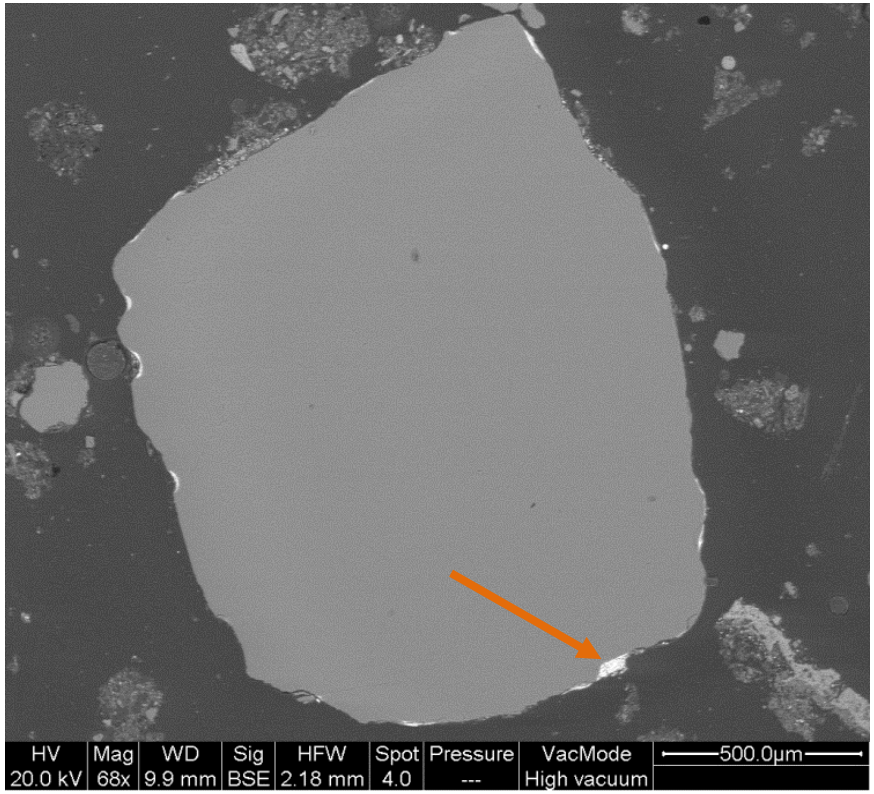
Figure 2b
Summary Data and Back-scatter Electron Maps for Station EK006 Points 3 and 4
Metals Speciation Results
Newtown Creek RI/FS

Point 5



Point 6



Weight Percent	Al	As	Ba	Cd	Ca	Cr	Cu	Fe	Pb	Mg	Mn	Ni	K	Si	Na	S	Ti	V	Zn
EK006 Point 5	0.097	0.033	<0.002	<0.003	0.319	0.056	0.122	0.468	<0.010	0.021	0.005	0.027	0.030	5.96	0.006	0.490	0.046	0.004	0.935
EK006 Point 6	1.50	<0.020	<0.003	<0.001	0.191	<0.002	0.210	2.33	21.4	0.092	0.013	0.014	0.377	9.52	0.497	2.16	<0.010	<0.002	0.781

Al	Aluminum		Cd	Cadmium		Cu	Copper		Mg	Magnesium		K	Potassium		S	Sulfur		Zn	Zinc
As	Arsenic		Ca	Calcium		Fe	Iron		Mn	Manganese		Si	Silicon		Ti	Titanium			
Ba	Barium		Cr	Chromium		Pb	Lead		Ni	Nickel		Na	Sodium		V	Vanadium			

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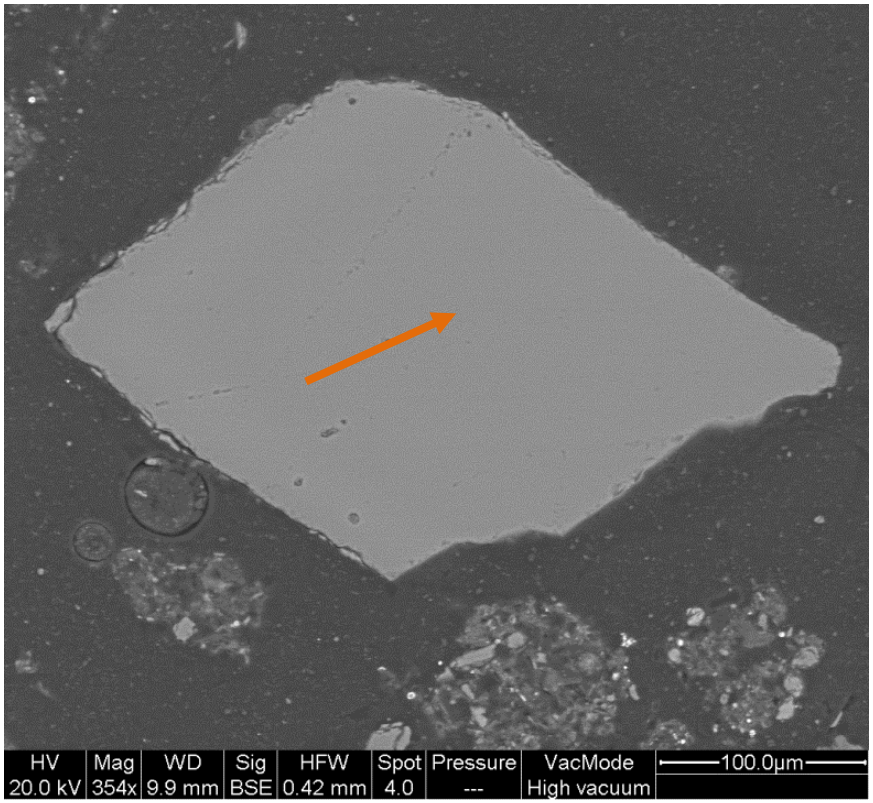
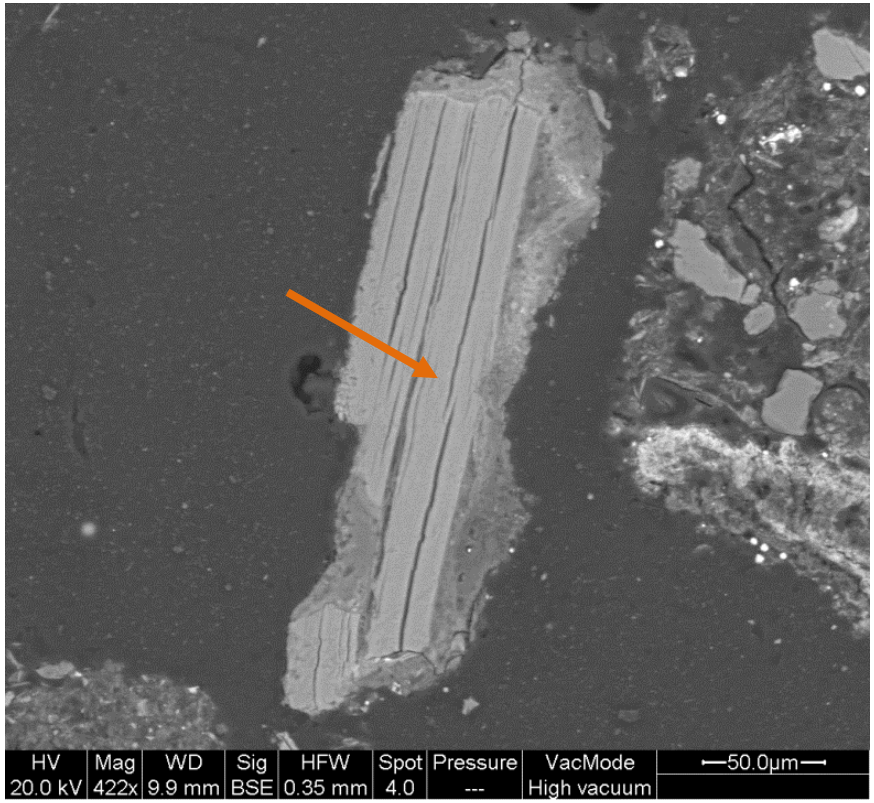
Figure 2c
Summary Data and Back-scatter Electron Maps for Station EK006 Points 5 and 6
Metals Speciation Results
Newtown Creek RI/FS

Point 7



Point 8



Weight Percent	Al	As	Ba	Cd	Ca	Cr	Cu	Fe	Pb	Mg	Mn	Ni	K	Si	Na	S	Ti	V	Zn
EK006 Point 7	<0.001	<0.001	<0.013	<0.007	<0.001	<0.002	<0.001	<0.019	<0.010	<0.003	<0.005	<0.002	<0.002	47.2	<0.008	0.507	0.007	<0.002	<0.009
EK006 Point 8	7.99	<0.033	<0.043	<0.010	0.207	<0.002	0.109	11.7	<0.010	5.46	0.019	<0.007	0.837	11.1	0.818	1.08	2.32	0.140	0.093

Al	Aluminum	Cd	Cadmium	Cu	Copper	Mg	Magnesium	K	Potassium	S	Sulfur	Zn	Zinc
As	Arsenic	Ca	Calcium	Fe	Iron	Mn	Manganese	Si	Silicon	Ti	Titanium		
Ba	Barium	Cr	Chromium	Pb	Lead	Ni	Nickel	Na	Sodium	V	Vanadium		

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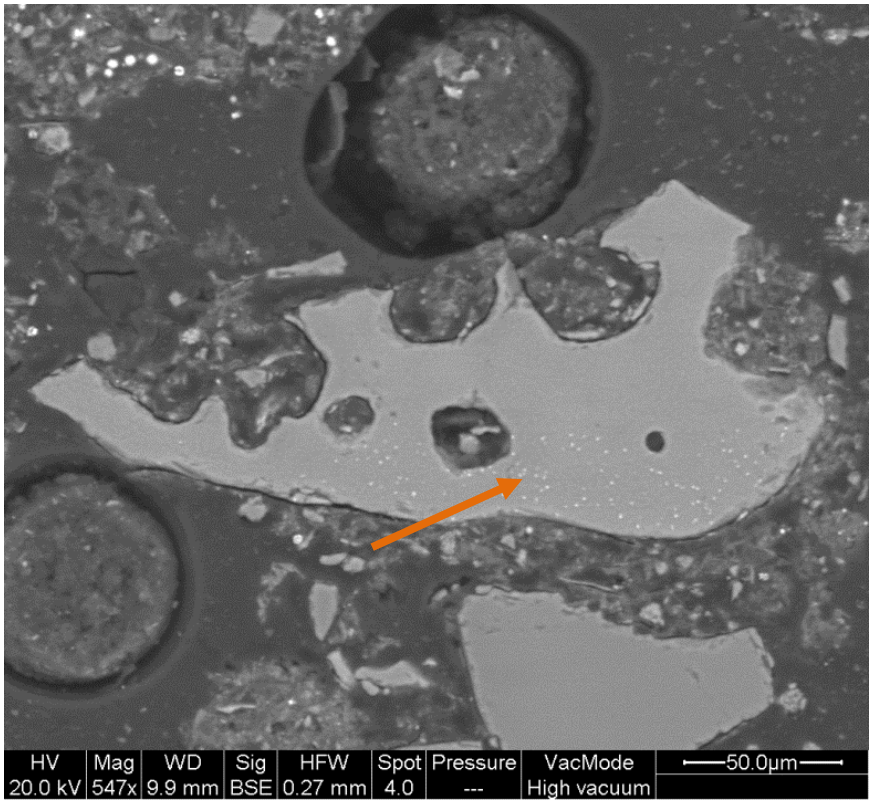
Figure 2d
Summary Data and Back-scatter Electron Maps for Station EK006 Points 7 and 8
Metals Speciation Results
Newtown Creek RI/FS

Point 9



Point 10

Weight Percent	Al	As	Ba	Cd	Ca	Cr	Cu	Fe	Pb	Mg	Mn	Ni	K	Si	Na	S	Ti	V	Zn
EK006 Point 9	17.4	<0.020	0.166	<0.018	1.45	0.020	<0.015	2.65	<0.013	0.696	<0.005	0.019	2.09	25.6	0.743	<0.010	1.02	0.065	<0.010
EK006 Point 10	0.114	<0.020	<0.002	<0.010	0.115	<0.002	0.034	29.0	<0.118	0.033	0.018	0.026	0.034	0.106	0.092	29.9	<0.010	<0.002	0.079

Al	Aluminum	Cd	Cadmium	Cu	Copper	Mg	Magnesium	K	Potassium	S	Sulfur	Zn	Zinc
As	Arsenic	Ca	Calcium	Fe	Iron	Mn	Manganese	Si	Silicon	Ti	Titanium		
Ba	Barium	Cr	Chromium	Pb	Lead	Ni	Nickel	Na	Sodium	V	Vanadium		

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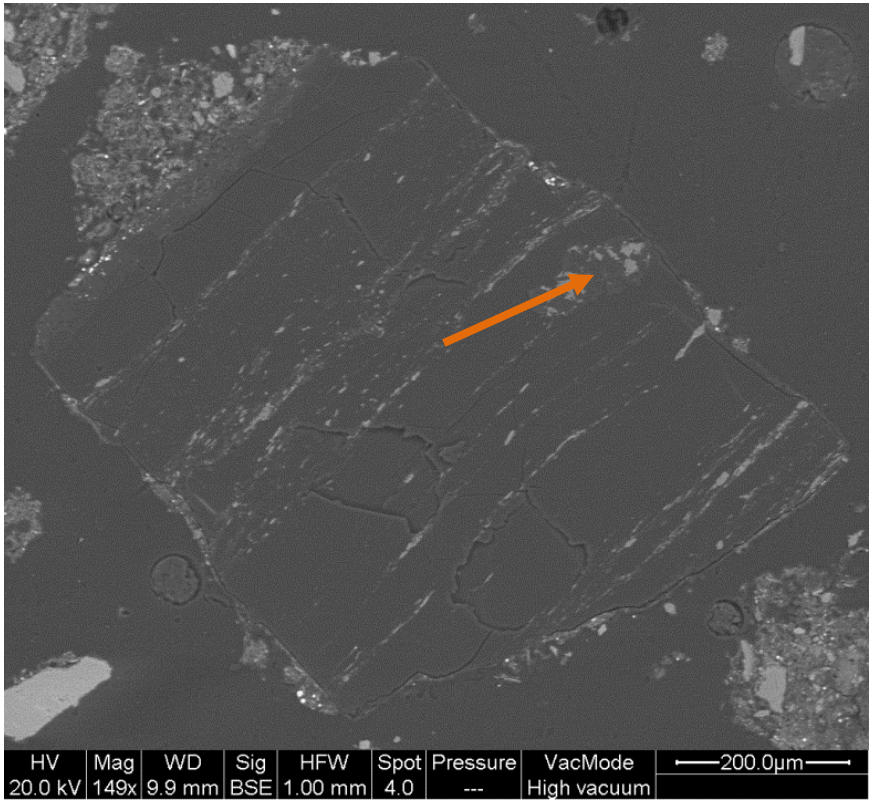
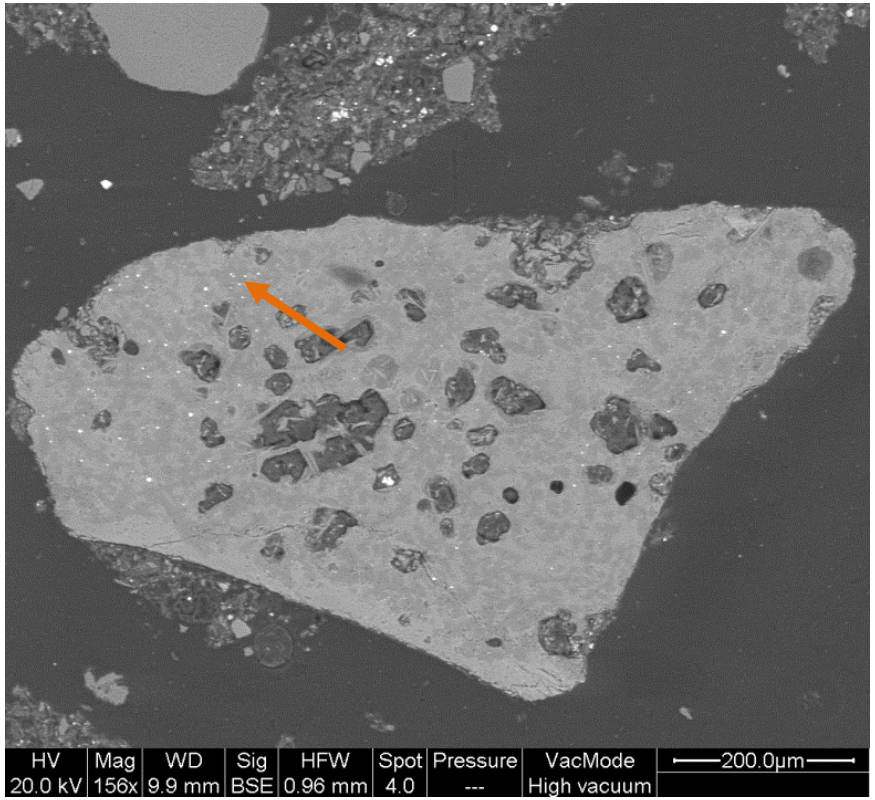
Figure 2e
Summary Data and Back-scatter Electron Maps for Station EK006 Points 9 and 10
Metals Speciation Results
Newtown Creek RI/FS

Point 11



Point 12



Weight Percent	Al	As	Ba	Cd	Ca	Cr	Cu	Fe	Pb	Mg	Mn	Ni	K	Si	Na	S	Ti	V	Zn
EK006 Point 11	18.0	<0.013	<0.004	<0.010	0.018	<0.002	<0.001	0.181	<0.010	0.015	<0.005	<0.005	0.081	16.9	0.017	0.161	0.008	<0.002	<0.014
EK006 Point 12	7.11	<0.029	<0.047	<0.010	0.936	<0.009	<0.002	1.78	<0.010	0.221	0.035	<0.005	0.971	35.2	0.286	<0.010	1.89	0.085	<0.007

Al	Aluminum	Cd	Cadmium	Cu	Copper	Mg	Magnesium	K	Potassium	S	Sulfur	Zn	Zinc
As	Arsenic	Ca	Calcium	Fe	Iron	Mn	Manganese	Si	Silicon	Ti	Titanium		
Ba	Barium	Cr	Chromium	Pb	Lead	Ni	Nickel	Na	Sodium	V	Vanadium		

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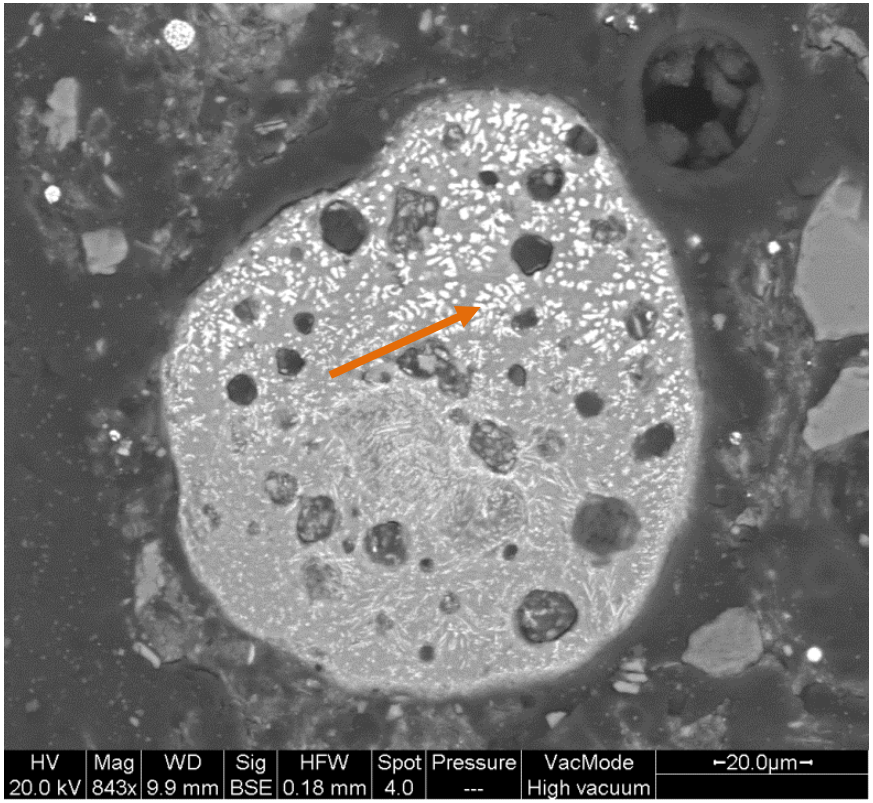
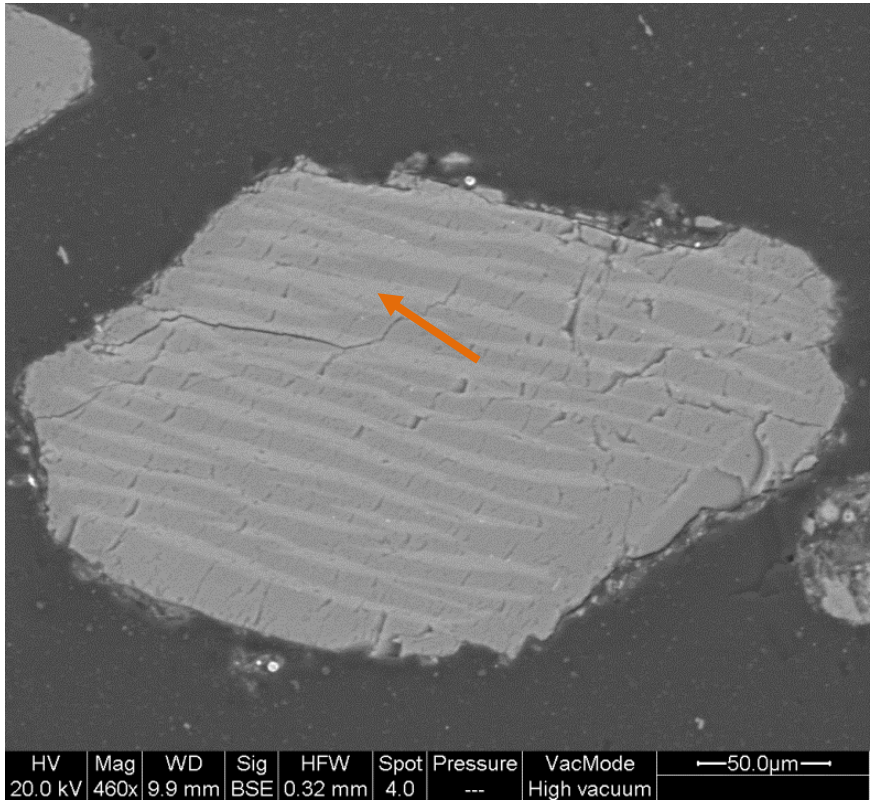
Figure 2f
Summary Data and Back-scatter Electron Maps for Station EK006 Points 11 and 12
Metals Speciation Results
Newtown Creek RI/FS

Point 13



Point 14



Weight Percent	Al	As	Ba	Cd	Ca	Cr	Cu	Fe	Pb	Mg	Mn	Ni	K	Si	Na	S	Ti	V	Zn
EK006 Point 13	17.5	<0.009	0.120	<0.004	1.00	0.105	<0.001	10.9	<0.010	0.285	<0.005	0.103	0.888	19.3	0.288	<0.010	1.61	0.184	<0.012
EK006 Point 14	11.6	<0.020	<0.057	<0.018	0.523	<0.003	<0.001	0.088	<0.010	<0.003	<0.005	<0.006	3.52	32.3	6.92	<0.010	0.008	<0.002	<0.008

Al	Aluminum	Cd	Cadmium	Cu	Copper	Mg	Magnesium	K	Potassium	S	Sulfur	Zn	Zinc
As	Arsenic	Ca	Calcium	Fe	Iron	Mn	Manganese	Si	Silicon	Ti	Titanium		
Ba	Barium	Cr	Chromium	Pb	Lead	Ni	Nickel	Na	Sodium	V	Vanadium		

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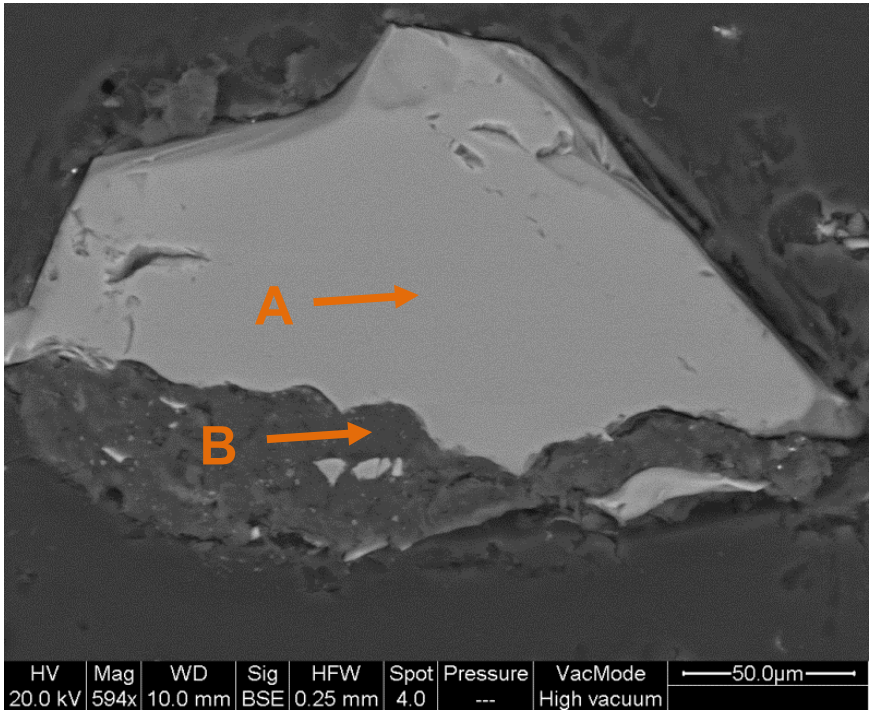
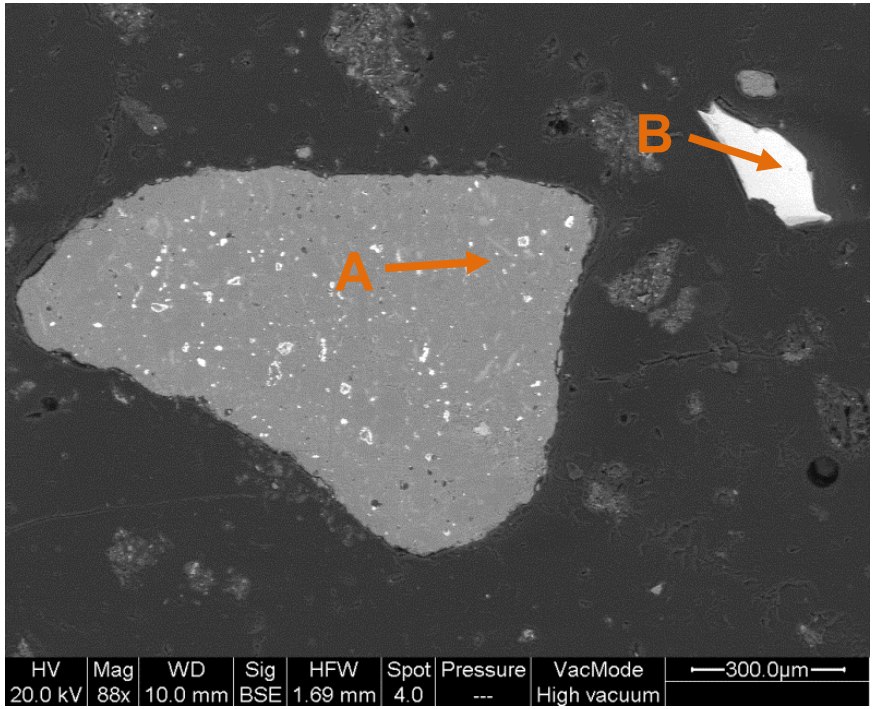
Figure 2g
Summary Data and Back-scatter Electron Maps for Station EK006 Points 13 and 14
Metals Speciation Results
Newtown Creek RI/FS

Point 3



Point 4



Weight Percent	Al	As	Ba	Cd	Ca	Cr	Cu	Fe	Pb	Mg	Mn	Ni	K	Si	Na	S	Ti	V	Zn
EK059 Point 3-A	<0.001	<0.020	<0.006	<0.010	<0.002	<0.004	<0.009	0.024	<0.035	<0.003	<0.005	<0.005	<0.001	47.4	<0.008	<0.010	0.010	<0.002	<0.014
EK059 Point 3-B	1.33	<0.020	<0.002	0.013	0.093	0.013	0.018	0.066	<0.007	<0.003	0.014	0.006	0.012	4.84	0.039	0.188	0.162	0.013	0.023
EK059 Point 4-A	2.55	<0.036	27.8	<0.010	0.251	<0.002	0.021	4.05	<0.010	1.15	<0.005	<0.002	0.421	20.1	0.192	9.09	0.458	<0.002	0.023
EK059 Point 4-B	4.27	<0.067	<0.083	<0.010	4.12	0.022	1.02	30.1	1.16	2.60	0.369	0.840	0.148	14.1	0.612	0.025	0.205	0.013	5.17

Al	Aluminum	Cd	Cadmium	Cu	Copper	Mg	Magnesium	K	Potassium	S	Sulfur	Zn	Zinc
As	Arsenic	Ca	Calcium	Fe	Iron	Mn	Manganese	Si	Silicon	Ti	Titanium		
Ba	Barium	Cr	Chromium	Pb	Lead	Ni	Nickel	Na	Sodium	V	Vanadium		

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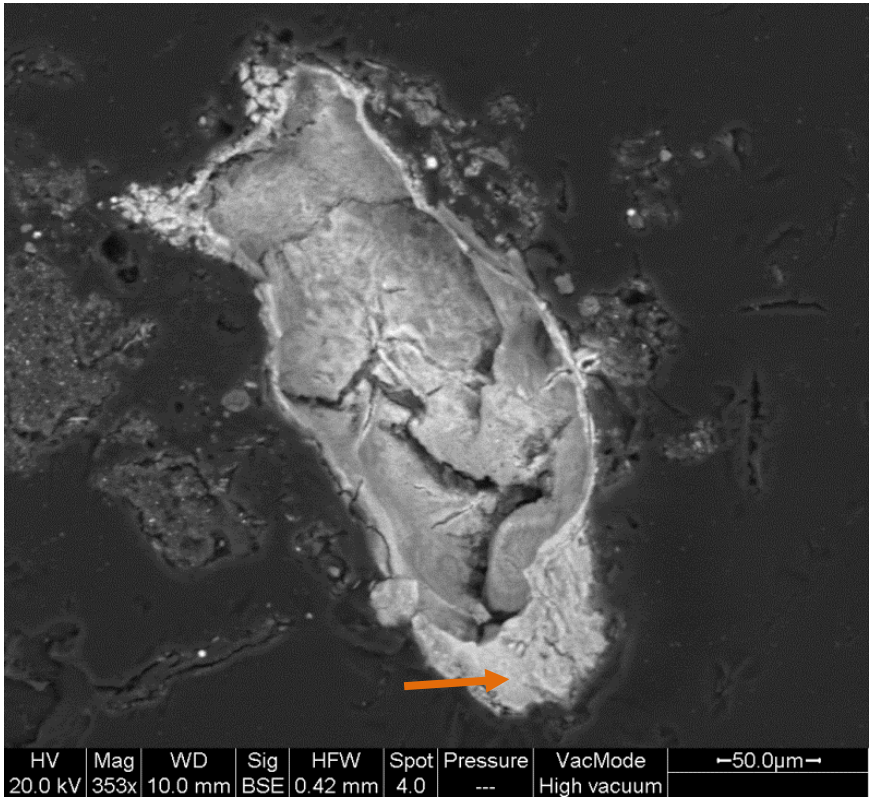
Figure 3a
Summary Data and Back-scatter Electron Maps for Station EK059 Points 3 and 4
Metals Speciation Results
Newtown Creek RI/FS

Point 5



Weight Percent	Al	As	Ba	Cd	Ca	Cr	Cu	Fe	Pb	Mg	Mn	Ni	K	Si	Na	S	Ti	V	Zn
EK059 Point 5	0.244	<0.013	<0.024	<0.033	0.626	0.029	0.566	45.8	<0.250	0.786	0.030	0.447	0.016	1.03	0.033	<0.010	7.76	0.004	1.41

Al	Aluminum	Cd	Cadmium	Cu	Copper	Mg	Magnesium	K	Potassium	S	Sulfur	Zn	Zinc
As	Arsenic	Ca	Calcium	Fe	Iron	Mn	Manganese	Si	Silicon	Ti	Titanium		
Ba	Barium	Cr	Chromium	Pb	Lead	Ni	Nickel	Na	Sodium	V	Vanadium		

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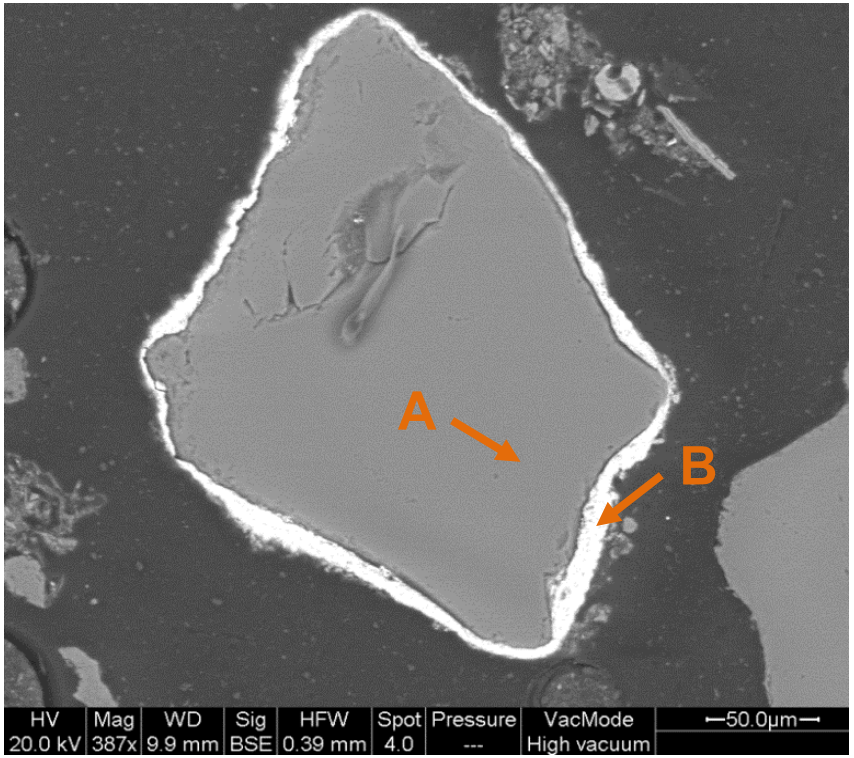
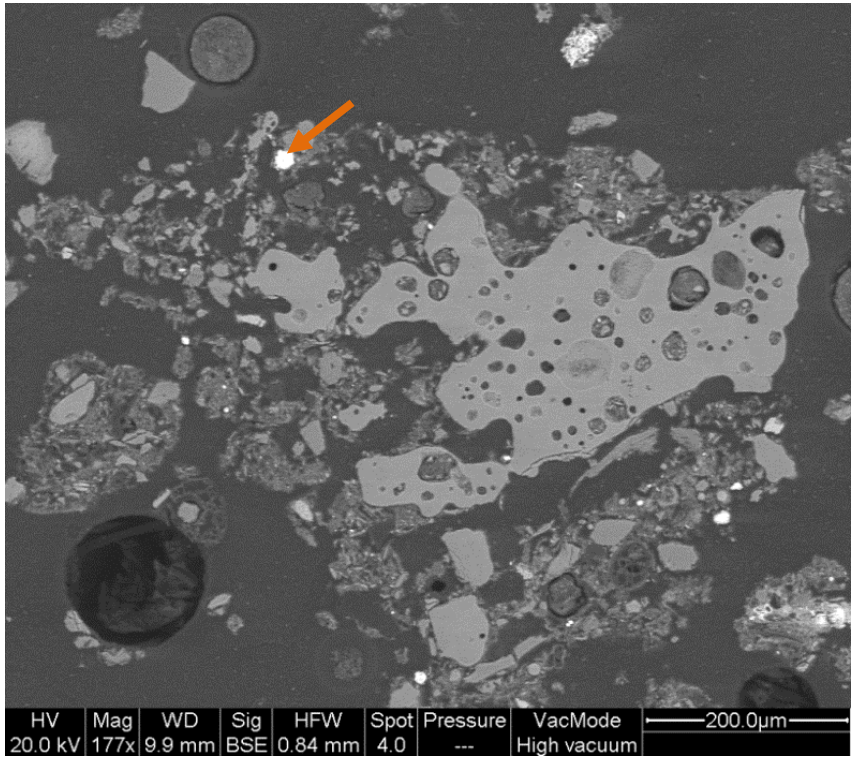
Figure 3b
Summary Data and Back-scatter Electron Maps for Station EK059 Point 5
Metals Speciation Results
Newtown Creek RI/FS

Point 1



Point 2



Weight Percent	Al	As	Ba	Cd	Ca	Cr	Cu	Fe	Pb	Mg	Mn	Ni	K	Si	Na	S	Ti	V	Zn
NC064 142155 Point 1-A	<0.003	<0.020	<0.004	<0.010	<0.001	<0.002	<0.025	0.032	<0.013	<0.003	<0.005	<0.005	<0.002	47.4	<0.008	<0.010	<0.010	<0.002	<0.007
NC064 142155 Point 1-B	0.721	0.299	<0.039	<0.012	0.292	0.019	25.3	24.7	0.301	0.055	<0.005	0.064	0.040	0.296	0.124	31.1	<0.010	<0.002	0.163
NC064 142155 Point 2	0.016	0.084	<0.002	<0.010	0.055	<0.002	26.4	23.5	0.519	0.049	<0.005	0.139	0.007	0.217	<0.008	29.5	<0.010	<0.002	<0.003

Al	Aluminum	Cd	Cadmium	Cu	Copper	Mg	Magnesium	K	Potassium	S	Sulfur	Zn	Zinc
As	Arsenic	Ca	Calcium	Fe	Iron	Mn	Manganese	Si	Silicon	Ti	Titanium		
Ba	Barium	Cr	Chromium	Pb	Lead	Ni	Nickel	Na	Sodium	V	Vanadium		

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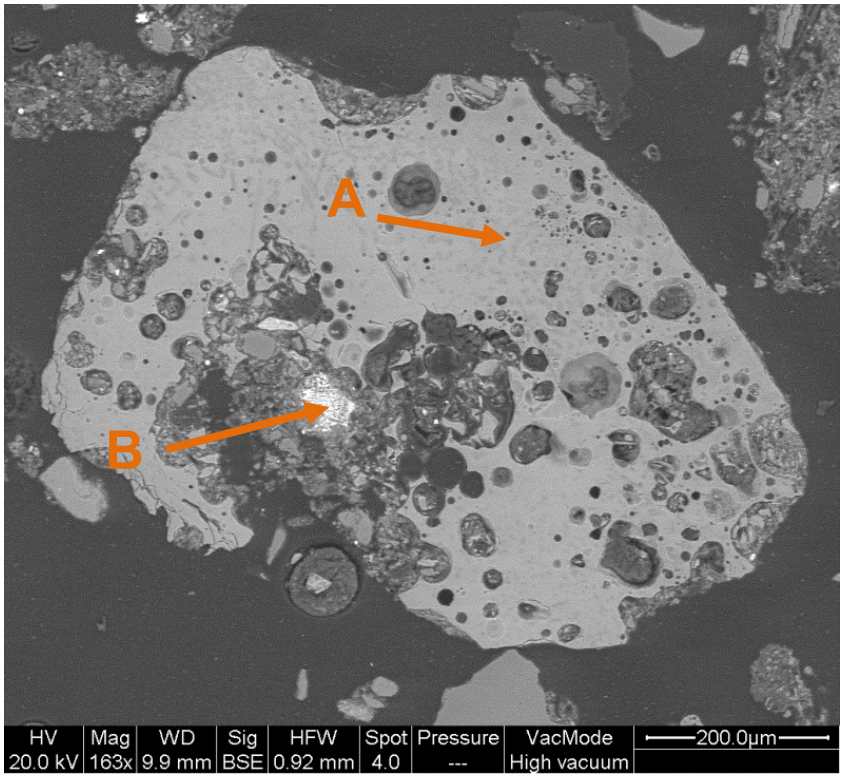
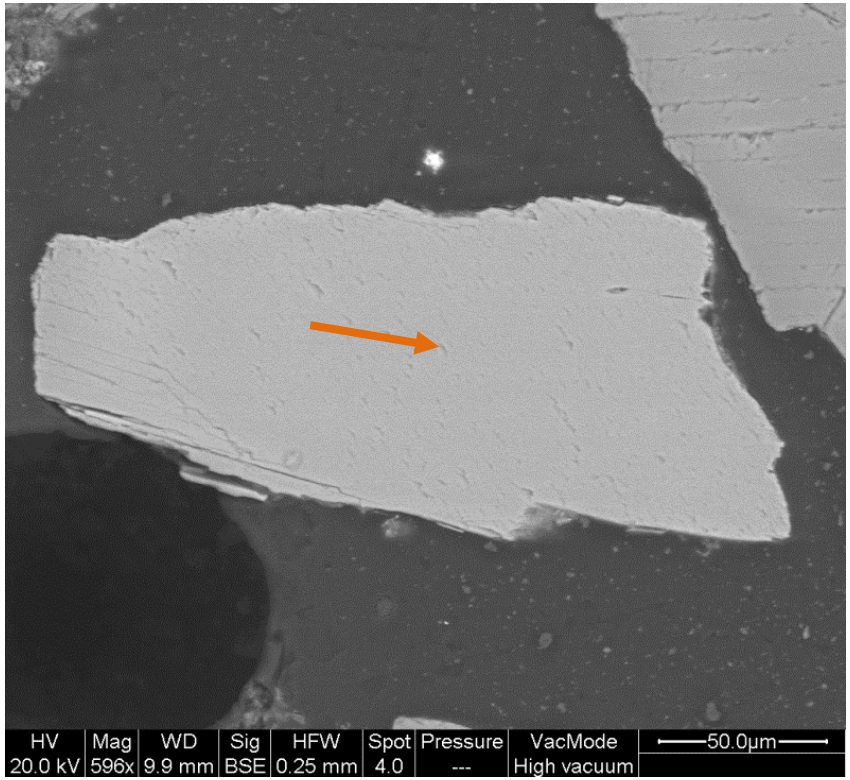
Figure 4a
Summary Data and Back-scatter Electron Maps for Station NC064 142 – 155 cm Points 1 and 2
Metals Speciation Results
Newtown Creek RI/FS

Point 3



Point 4



Weight Percent	Al	As	Ba	Cd	Ca	Cr	Cu	Fe	Pb	Mg	Mn	Ni	K	Si	Na	S	Ti	V	Zn
NC064 142155 Point 3-A	16.0	<0.020	0.160	<0.010	4.64	0.017	<0.001	7.30	<0.030	0.731	0.038	<0.007	1.66	21.4	0.253	0.025	1.51	0.089	<0.010
NC064 142155 Point 3-B	4.76	0.351	0.047	<0.010	0.138	0.013	10.4	16.8	0.184	0.826	0.027	0.259	1.27	8.59	0.219	14.9	0.302	0.016	2.21
NC064 142155 Point 4-A	4.85	<0.020	<0.002	<0.010	7.94	<0.005	<0.009	13.7	<0.025	6.53	0.380	<0.005	0.378	18.3	0.850	<0.010	0.293	0.030	0.043

Al	Aluminum	Cd	Cadmium	Cu	Copper	Mg	Magnesium	K	Potassium	S	Sulfur	Zn	Zinc
As	Arsenic	Ca	Calcium	Fe	Iron	Mn	Manganese	Si	Silicon	Ti	Titanium		
Ba	Barium	Cr	Chromium	Pb	Lead	Ni	Nickel	Na	Sodium	V	Vanadium		

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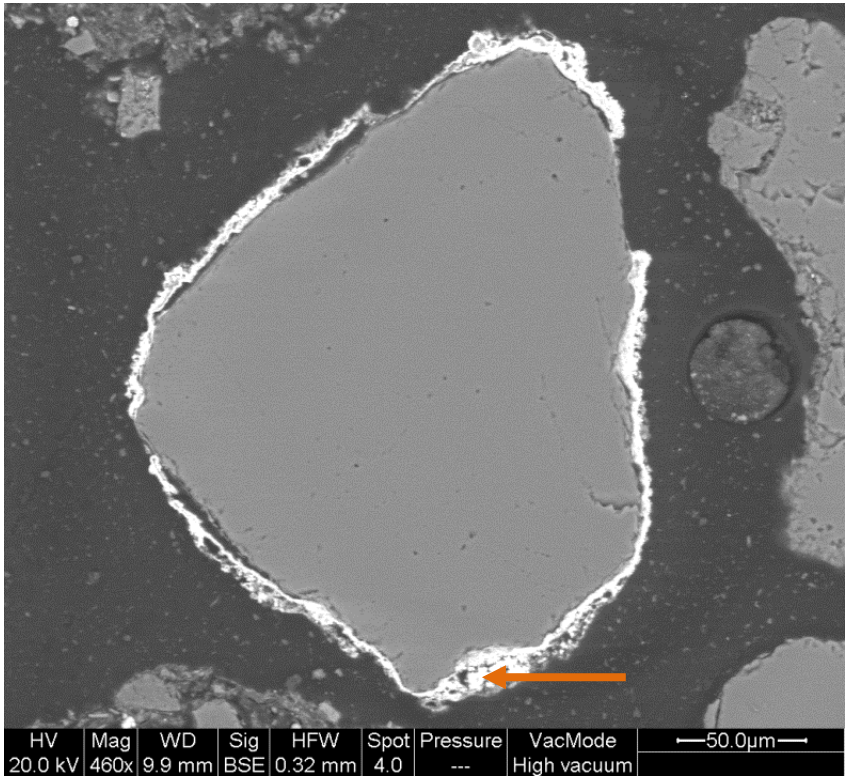
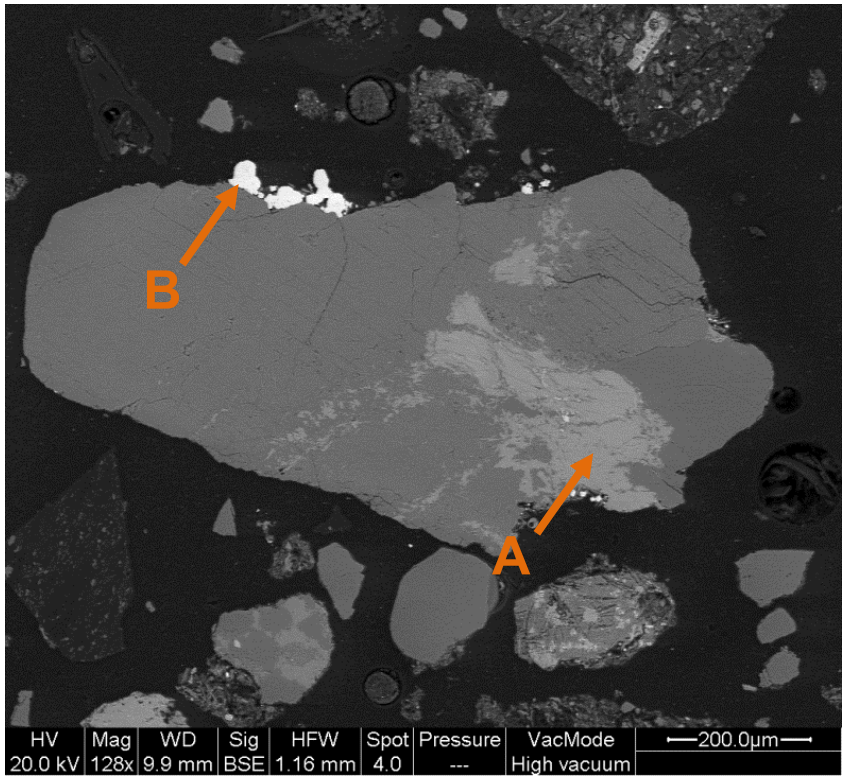
Figure 4b
Summary Data and Back-scatter Electron Maps for Station NC064 142 – 155 cm Points 3 and 4
Metals Speciation Results
Newtown Creek RI/FS

Point 5



Point 6



Weight Percent	Al	As	Ba	Cd	Ca	Cr	Cu	Fe	Pb	Mg	Mn	Ni	K	Si	Na	S	Ti	V	Zn
NC064 142155 Point 5	0.504	0.506	<0.008	<0.035	0.148	0.011	24.0	23.8	<0.010	0.090	<0.005	0.167	0.053	0.780	0.059	27.3	<0.010	0.005	<0.003
NC064 142155 Point 6-A	8.92	<0.020	0.211	<0.010	<0.006	0.024	<0.001	15.2	<0.010	4.75	0.198	<0.003	7.28	15.0	0.038	<0.010	1.50	0.085	0.041
NC064 142155 Point 6-B	0.007	<0.037	<0.002	<0.025	0.038	<0.002	<0.001	43.8	<0.010	0.020	0.134	0.020	0.036	0.087	0.043	52.7	0.138	<0.002	<0.011

Al	Aluminum	Cd	Cadmium	Cu	Copper	Mg	Magnesium	K	Potassium	S	Sulfur	Zn	Zinc
As	Arsenic	Ca	Calcium	Fe	Iron	Mn	Manganese	Si	Silicon	Ti	Titanium		
Ba	Barium	Cr	Chromium	Pb	Lead	Ni	Nickel	Na	Sodium	V	Vanadium		

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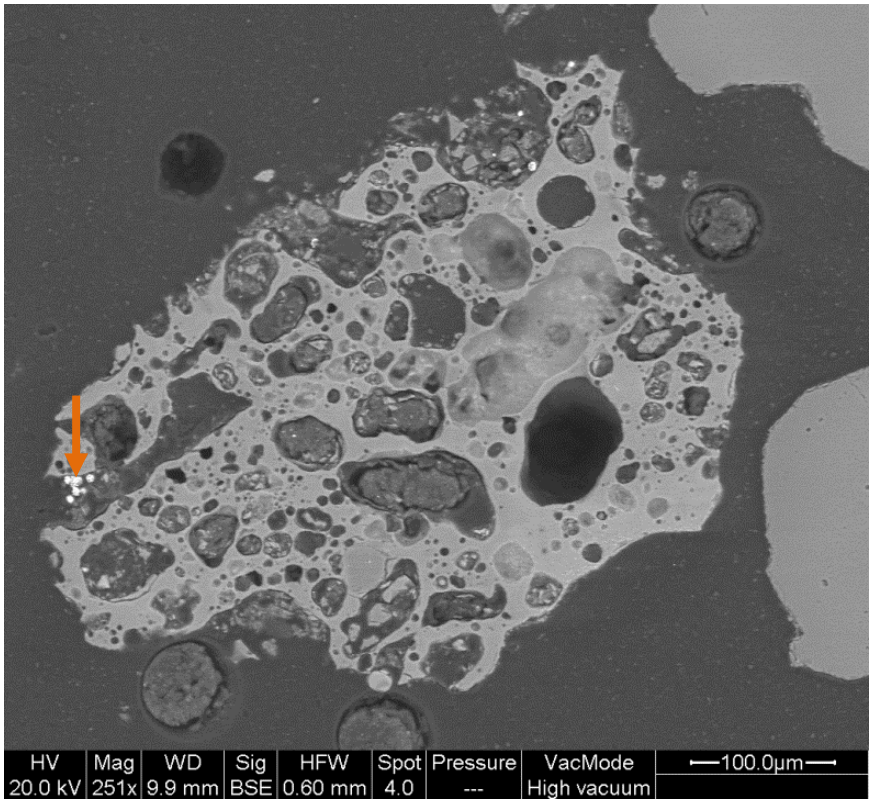
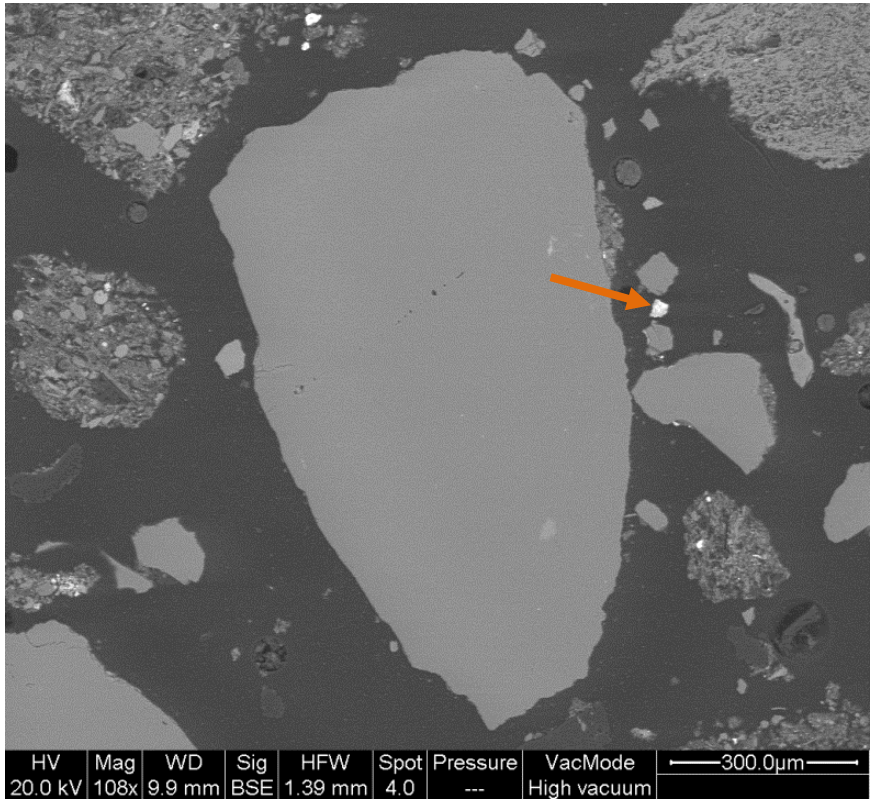
Figure 4c
Summary Data and Back-scatter Electron Maps for Station NC064 142 – 155 cm Points 5 and 6
Metals Speciation Results
Newtown Creek RI/FS

Point 7



Point 8



Weight Percent	Al	As	Ba	Cd	Ca	Cr	Cu	Fe	Pb	Mg	Mn	Ni	K	Si	Na	S	Ti	V	Zn
NC064 142155 Point 7	0.332	<0.020	<0.002	<0.010	0.061	0.006	0.057	34.8	<0.049	0.024	0.205	0.110	0.020	0.425	0.039	42.9	0.160	<0.004	0.057
NC064 142155 Point 8	0.031	<0.009	<0.003	<0.010	0.391	<0.002	<0.013	49.5	<0.039	0.069	<0.008	0.870	0.019	0.140	0.054	37.4	0.120	<0.002	<0.010

Al	Aluminum	Cd	Cadmium	Cu	Copper	Mg	Magnesium	K	Potassium	S	Sulfur	Zn	Zinc
As	Arsenic	Ca	Calcium	Fe	Iron	Mn	Manganese	Si	Silicon	Ti	Titanium		
Ba	Barium	Cr	Chromium	Pb	Lead	Ni	Nickel	Na	Sodium	V	Vanadium		

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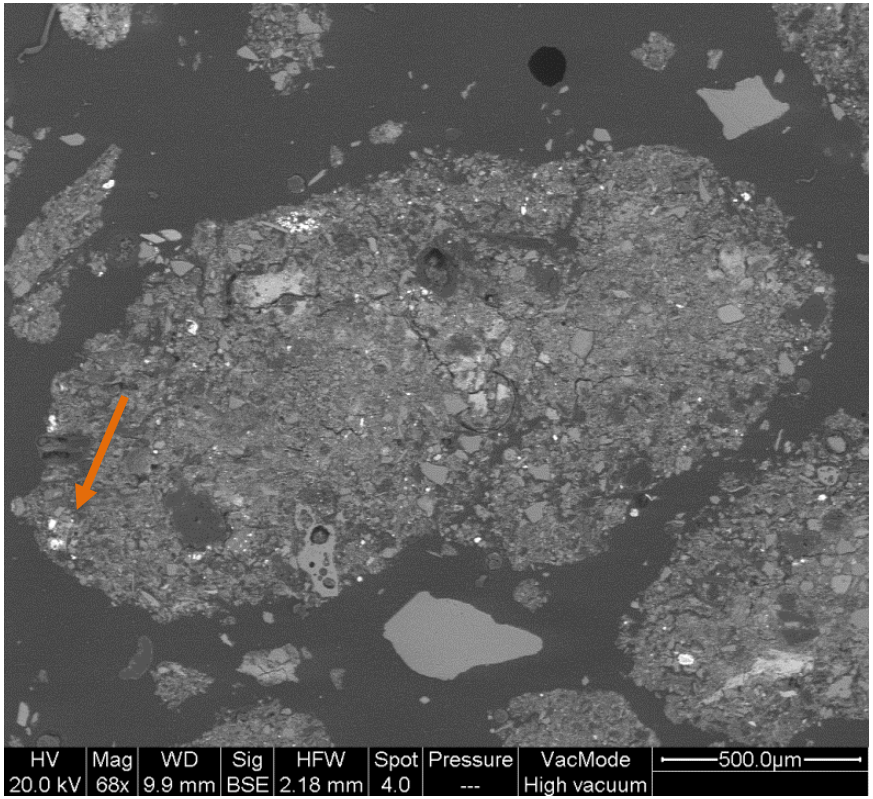
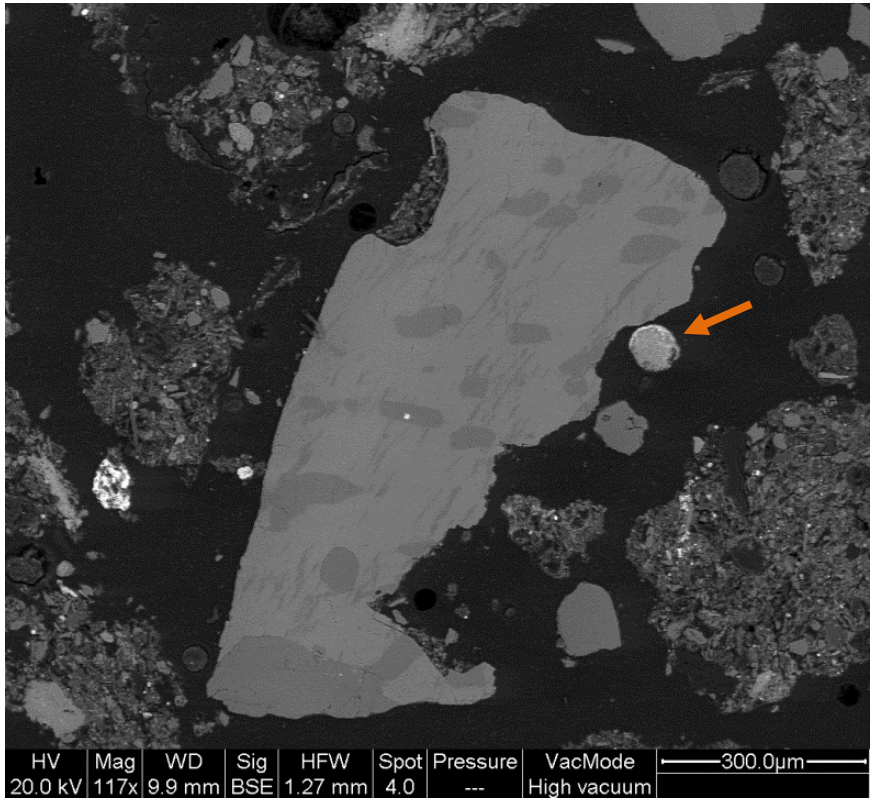
Figure 4d
Summary Data and Back-scatter Electron Maps for Station NC064 142 – 155 cm Points 7 and 8
Metals Speciation Results
Newtown Creek RI/FS

Point 9



Point 10



Weight Percent	Al	As	Ba	Cd	Ca	Cr	Cu	Fe	Pb	Mg	Mn	Ni	K	Si	Na	S	Ti	V	Zn
NC064 142155 Point 9	0.631	0.113	<0.007	<0.010	0.064	<0.002	31.1	27.7	<0.010	0.011	0.022	0.077	0.009	0.147	<0.008	32.3	<0.010	<0.003	<0.003
NC064 142155 Point 10	16.6	<0.031	<0.055	<0.013	1.03	0.035	0.045	20.8	<0.010	0.472	<0.008	<0.005	1.75	16.1	0.436	<0.010	0.709	0.086	<0.018

Al	Aluminum	Cd	Cadmium	Cu	Copper	Mg	Magnesium	K	Potassium	S	Sulfur	Zn	Zinc
As	Arsenic	Ca	Calcium	Fe	Iron	Mn	Manganese	Si	Silicon	Ti	Titanium		
Ba	Barium	Cr	Chromium	Pb	Lead	Ni	Nickel	Na	Sodium	V	Vanadium		

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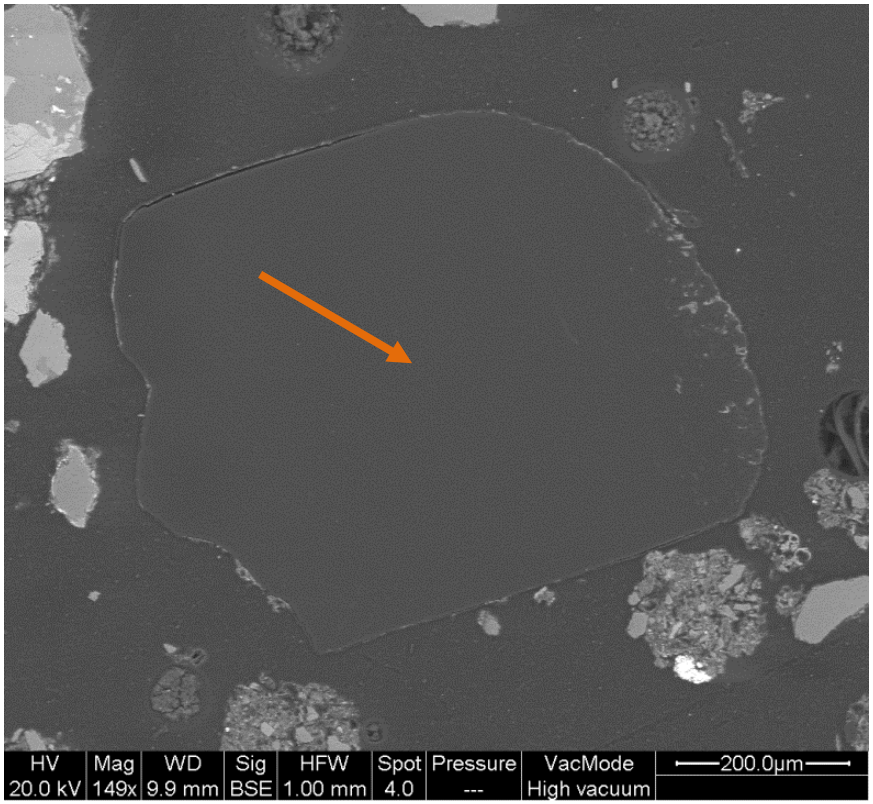
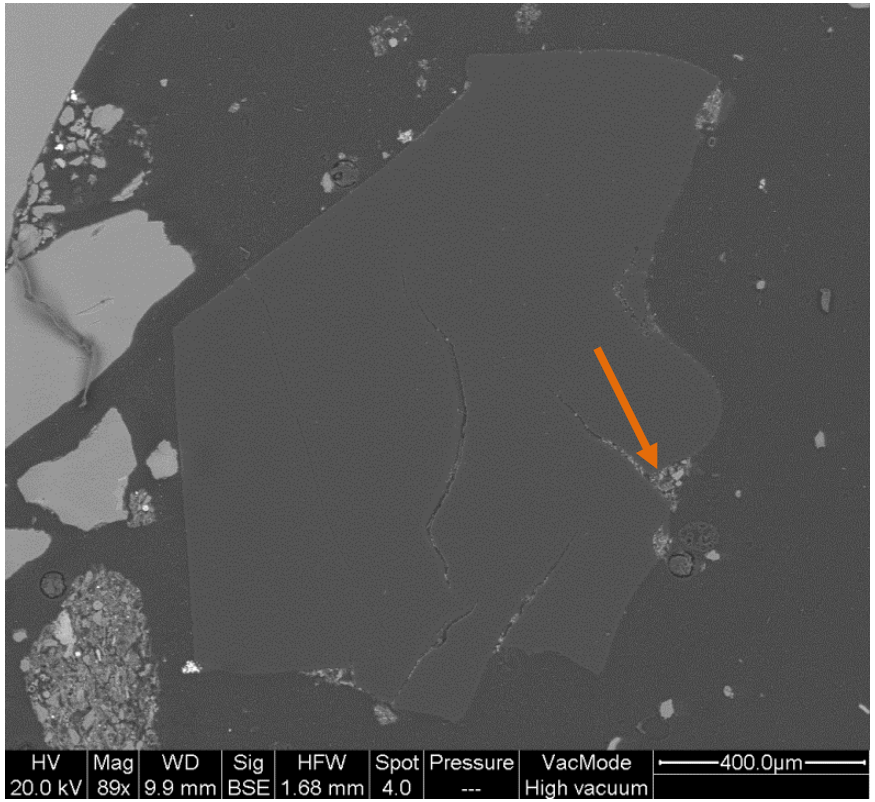
Figure 4e
Summary Data and Back-scatter Electron Maps for Station NC064 142 – 155 cm Points 9 and 10
Metals Speciation Results
Newtown Creek RI/FS

Point 11



Point 12



Weight Percent	Al	As	Ba	Cd	Ca	Cr	Cu	Fe	Pb	Mg	Mn	Ni	K	Si	Na	S	Ti	V	Zn
NC064 142155 Point 11	0.012	<0.020	0.005	0.020	0.007	0.004	<0.001	0.025	<0.010	<0.003	0.003	<0.005	<0.0001	0.043	<0.008	0.876	0.094	0.008	0.001
NC064 142155 Point 12	8.06	<0.044	<0.049	<0.017	0.229	0.028	0.050	2.78	<0.010	0.394	<0.006	0.027	1.64	18.2	0.187	0.816	0.282	0.043	0.073

Al	Aluminum	Cd	Cadmium	Cu	Copper	Mg	Magnesium	K	Potassium	S	Sulfur	Zn	Zinc
As	Arsenic	Ca	Calcium	Fe	Iron	Mn	Manganese	Si	Silicon	Ti	Titanium		
Ba	Barium	Cr	Chromium	Pb	Lead	Ni	Nickel	Na	Sodium	V	Vanadium		

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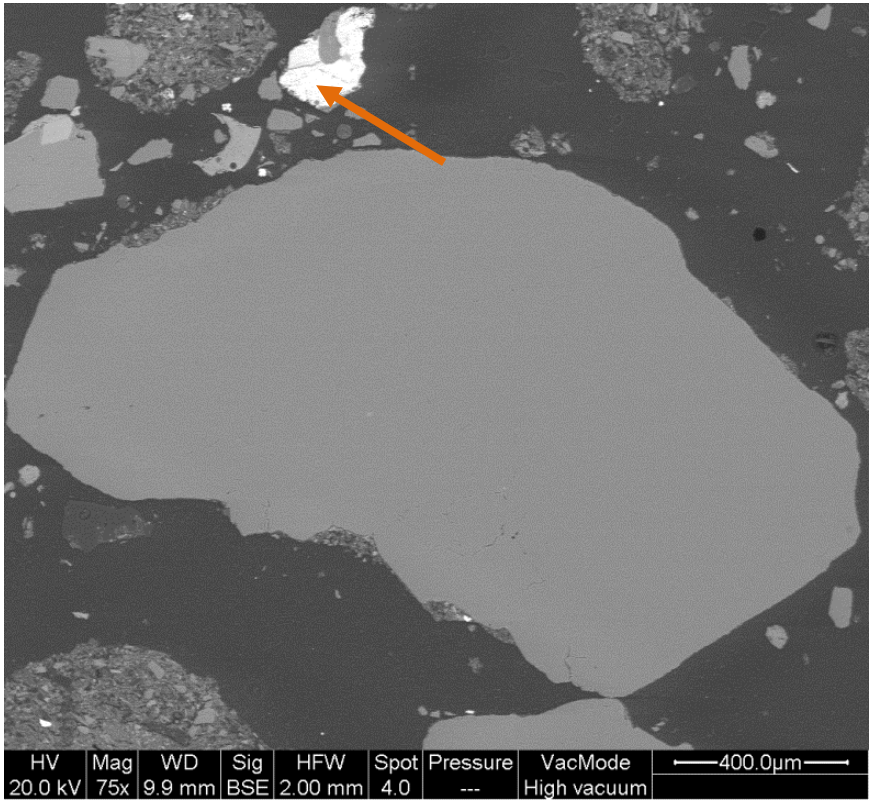
Figure 4f
Summary Data and Back-scatter Electron Maps for Station NC064 142 – 155 cm Points 11 and 12
Metals Speciation Results
Newtown Creek RI/FS

Point 13



Weight Percent	Al	As	Ba	Cd	Ca	Cr	Cu	Fe	Pb	Mg	Mn	Ni	K	Si	Na	S	Ti	V	Zn
NC064 142155 Point 13	0.215	<0.020	0.098	<0.010	1.19	<0.002	<0.001	48.8	<0.032	0.075	0.243	0.011	<0.002	1.01	0.013	12.7	6.88	1.14	0.014

Al	Aluminum	Cd	Cadmium	Cu	Copper	Mg	Magnesium	K	Potassium	S	Sulfur	Zn	Zinc
As	Arsenic	Ca	Calcium	Fe	Iron	Mn	Manganese	Si	Silicon	Ti	Titanium		
Ba	Barium	Cr	Chromium	Pb	Lead	Ni	Nickel	Na	Sodium	V	Vanadium		

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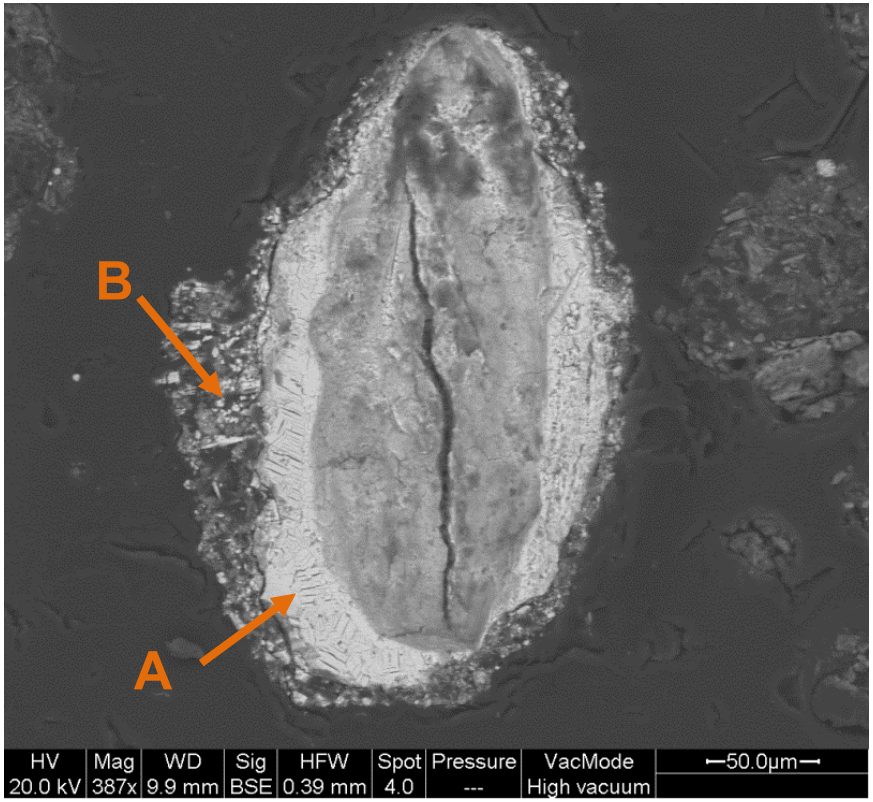
Figure 4g
Summary Data and Back-scatter Electron Maps for Station NC064 142 – 155 cm Point 13
Metals Speciation Results
Newtown Creek RI/FS

Point 1



Weight Percent	Al	As	Ba	Cd	Ca	Cr	Cu	Fe	Pb	Mg	Mn	Ni	K	Si	Na	S	Ti	V	Zn
NC070 015025 Point 1-A	<0.001	0.148	<0.014	<0.007	0.035	<0.004	58.1	0.716	<0.084	0.022	0.023	0.093	0.029	0.083	<0.008	31.2	<0.010	<0.002	0.039
NC070 015025 Point 1-B	1.39	1.78	<0.002	<0.010	0.170	0.015	18.8	8.77	<0.010	0.194	0.006	0.125	0.176	0.996	0.280	16.8	<0.010	0.242	0.199

Al	Aluminum	Cd	Cadmium	Cu	Copper	Mg	Magnesium	K	Potassium	S	Sulfur	Zn	Zinc
As	Arsenic	Ca	Calcium	Fe	Iron	Mn	Manganese	Si	Silicon	Ti	Titanium		
Ba	Barium	Cr	Chromium	Pb	Lead	Ni	Nickel	Na	Sodium	V	Vanadium		

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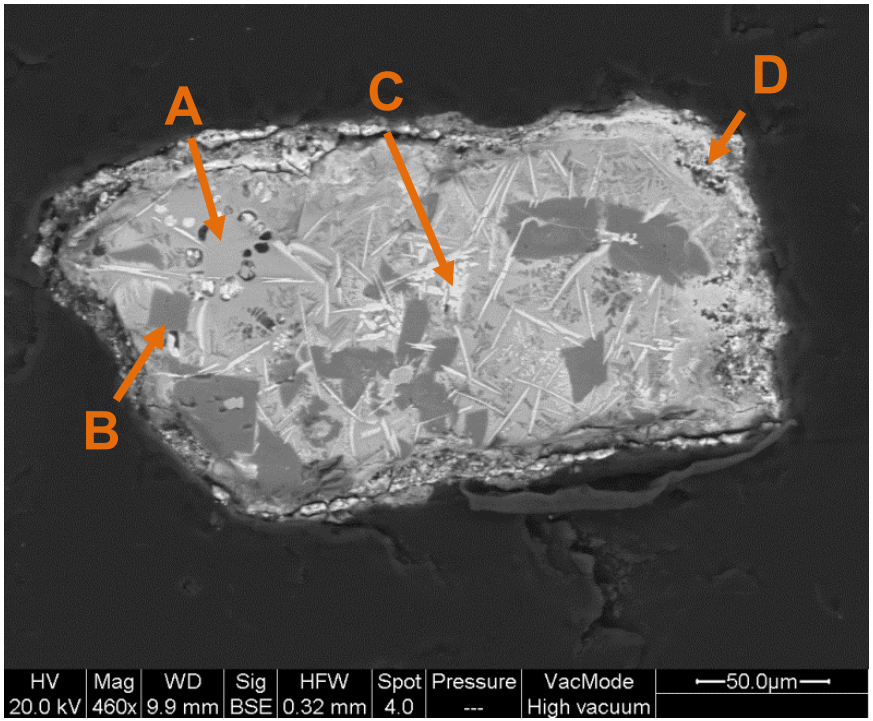
Figure 5a
Summary Data and Back-scatter Electron Maps for Station NC070 15 – 25 cm Point 1
Metals Speciation Results
Newtown Creek RI/FS

Point 2



Weight Percent	Al	As	Ba	Cd	Ca	Cr	Cu	Fe	Pb	Mg	Mn	Ni	K	Si	Na	S	Ti	V	Zn
NC070 015025 Point 2-A	4.60	<0.020	0.120	<0.015	5.42	<0.003	9.33	6.60	8.09	2.82	0.221	0.188	0.522	17.3	0.507	0.051	0.696	0.062	2.11
NC070 015025 Point 2-B	3.02	<0.068	<0.039	<0.010	12.4	<0.005	5.75	5.94	2.60	7.06	0.277	0.241	0.205	21.6	0.331	0.083	0.646	0.048	1.37
NC070 015025 Point 2-C	2.38	0.617	0.114	<0.031	4.55	0.417	17.4	9.64	8.51	2.83	0.292	0.467	0.311	16.1	0.439	<0.010	0.687	0.047	2.55
NC070 015025 Point 2-D	0.877	0.173	<0.005	<0.013	0.426	0.033	14.0	12.8	<0.781	0.141	<0.004	0.073	0.028	3.00	0.124	25.1	0.125	0.046	0.217

Al	Aluminum	Cd	Cadmium	Cu	Copper	Mg	Magnesium	K	Potassium	S	Sulfur	Zn	Zinc
As	Arsenic	Ca	Calcium	Fe	Iron	Mn	Manganese	Si	Silicon	Ti	Titanium		
Ba	Barium	Cr	Chromium	Pb	Lead	Ni	Nickel	Na	Sodium	V	Vanadium		

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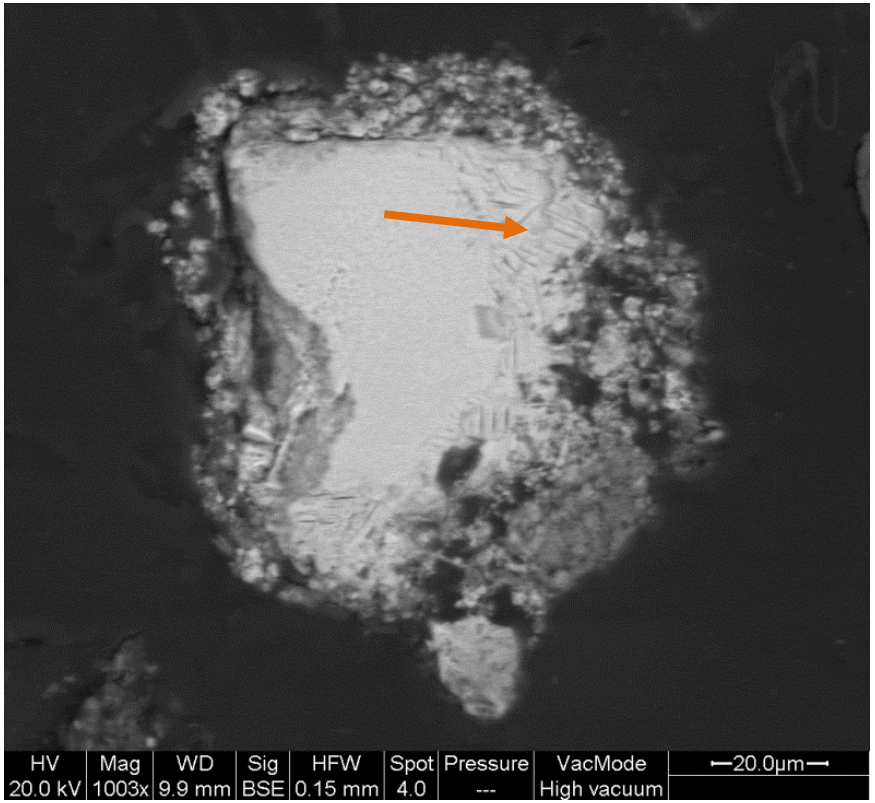
Figure 5b
Summary Data and Back-scatter Electron Maps for Station NC070 15 – 25 cm Point 2
Metals Speciation Results
Newtown Creek RI/FS

Point 4



Weight Percent	Al	As	Ba	Cd	Ca	Cr	Cu	Fe	Pb	Mg	Mn	Ni	K	Si	Na	S	Ti	V	Zn
NC070 015025 Point 4	0.014	0.414	<0.032	<0.010	0.061	<0.002	54.4	1.25	<0.010	0.038	0.097	0.093	0.030	0.144	0.061	28.5	<0.010	0.016	0.396

Al	Aluminum	Cd	Cadmium	Cu	Copper	Mg	Magnesium	K	Potassium	S	Sulfur	Zn	Zinc
As	Arsenic	Ca	Calcium	Fe	Iron	Mn	Manganese	Si	Silicon	Ti	Titanium		
Ba	Barium	Cr	Chromium	Pb	Lead	Ni	Nickel	Na	Sodium	V	Vanadium		

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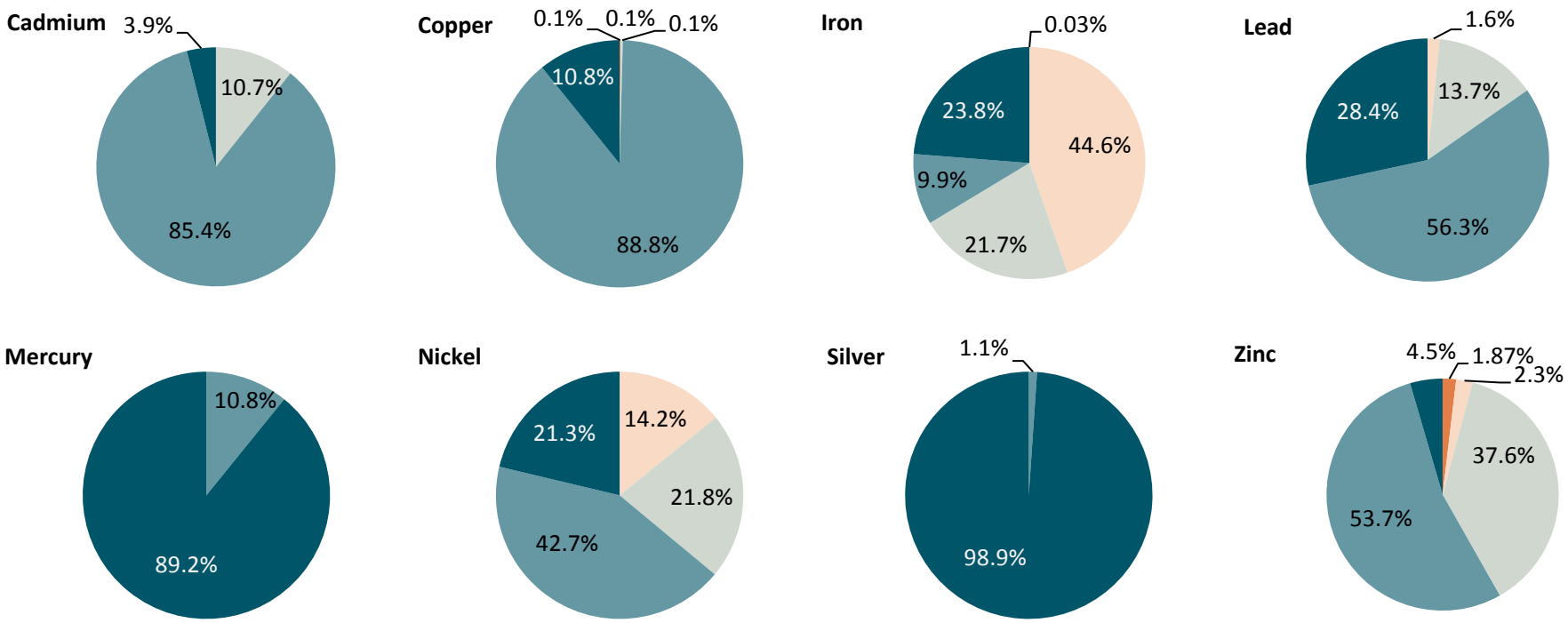
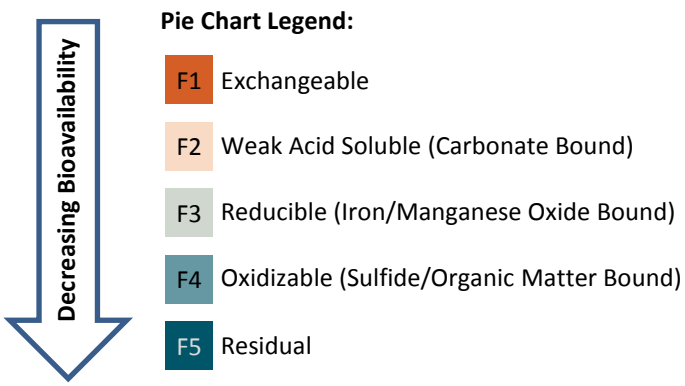
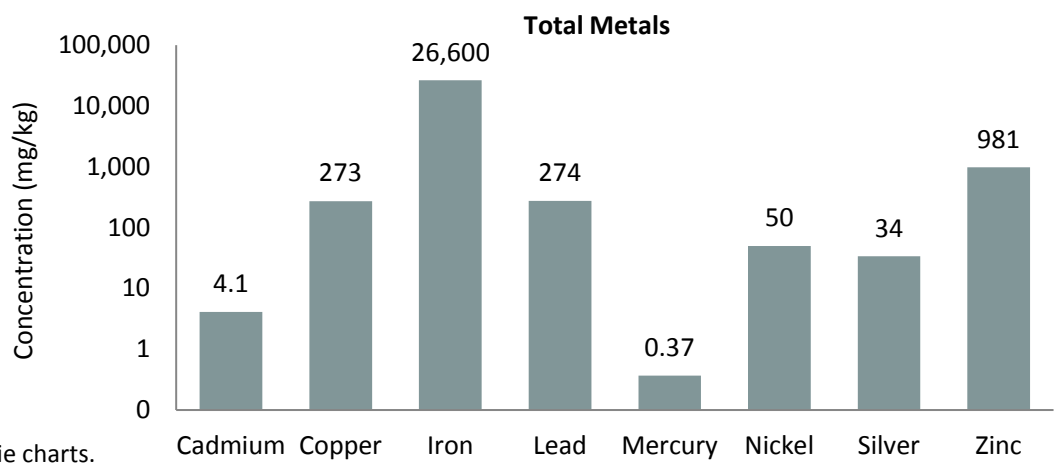
Figure 5c
Summary Data and Back-scatter Electron Maps for Station NC070 15 – 25 cm Point 4
Metals Speciation Results
Newtown Creek RI/FS

CHARTS

Chart 1
Station DK040 Sequential Extraction Results

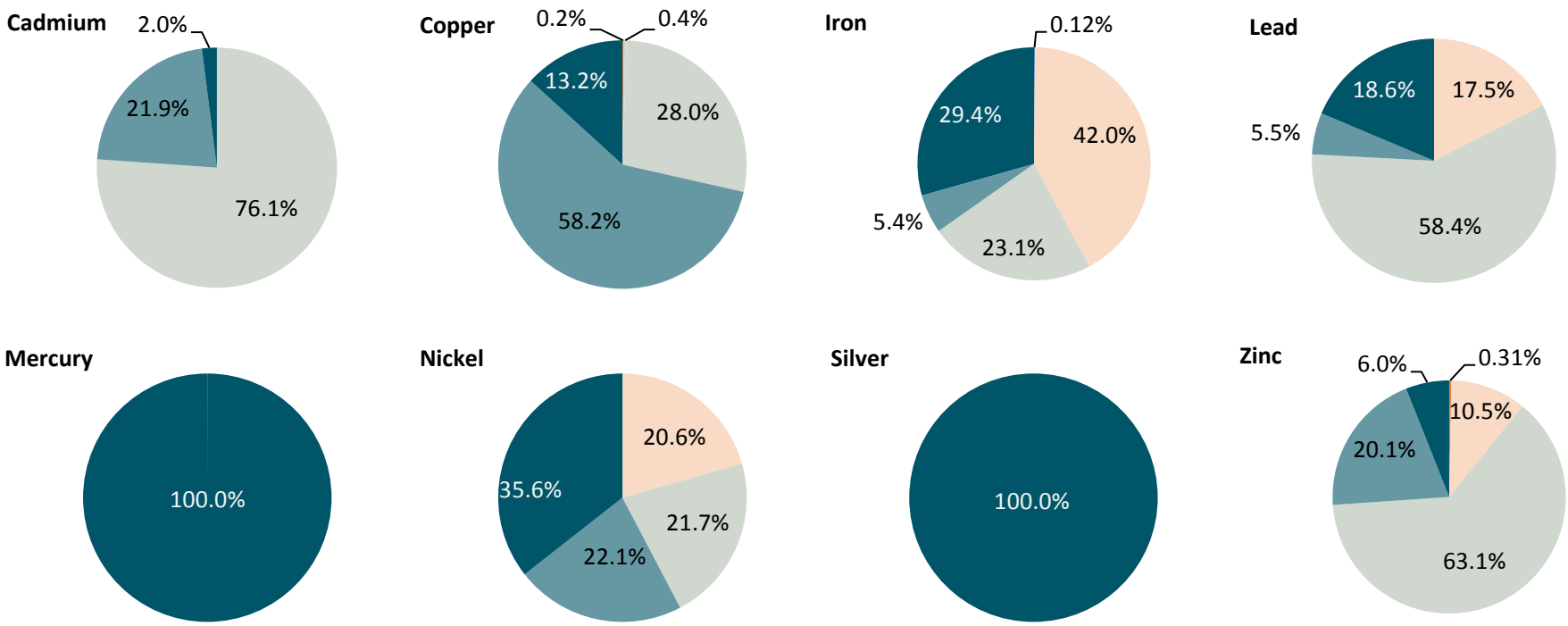


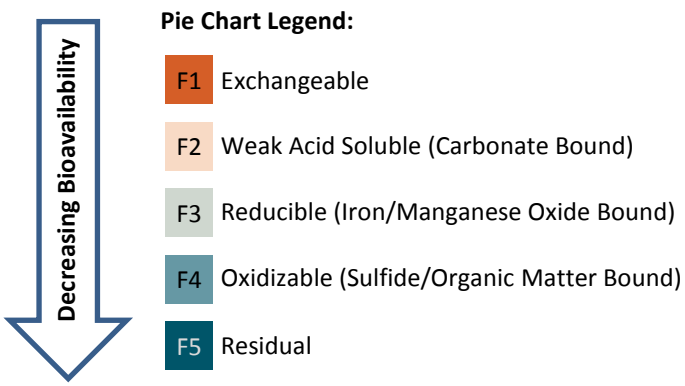


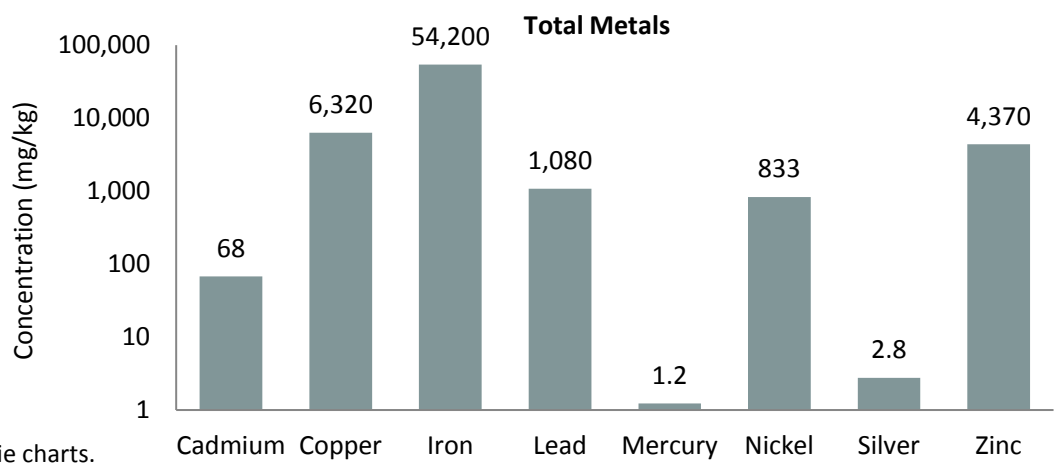


Note: Only fractions with detectable concentrations are shown in the pie charts.

Chart 2
Station EB036 Sequential Extraction Results

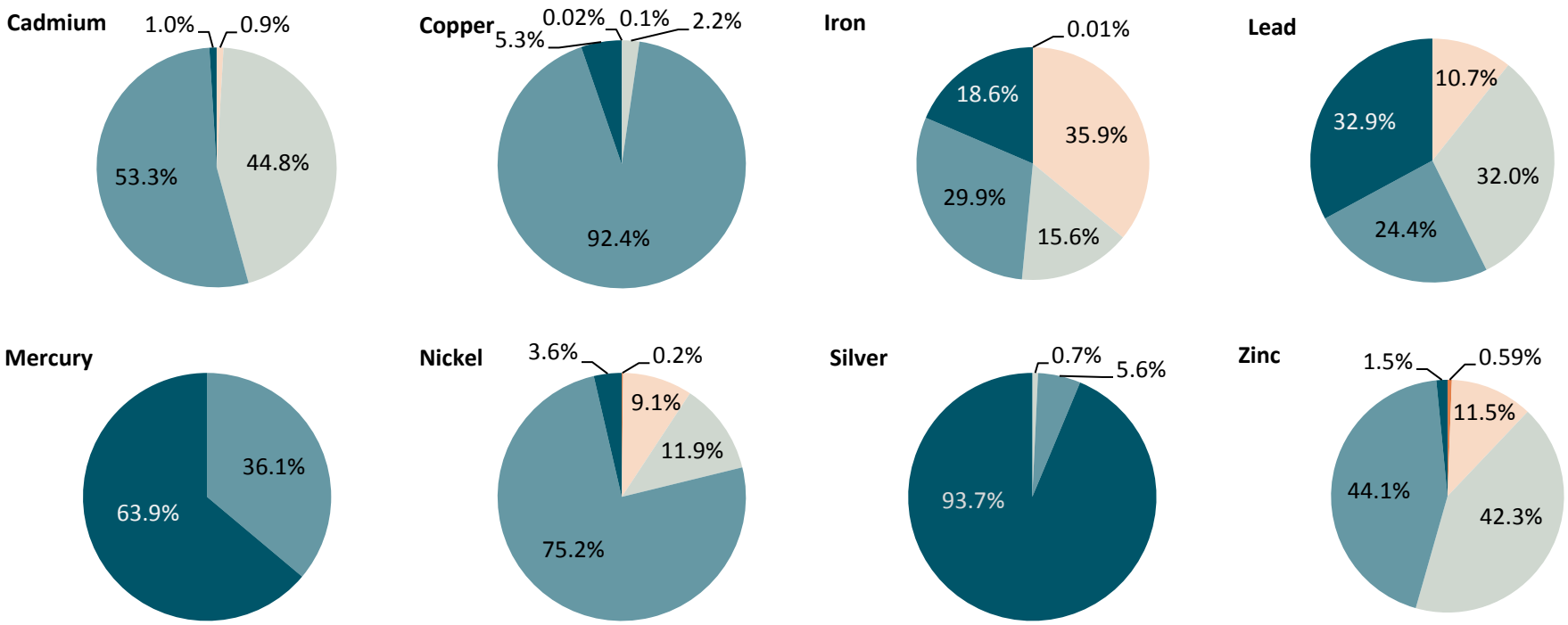


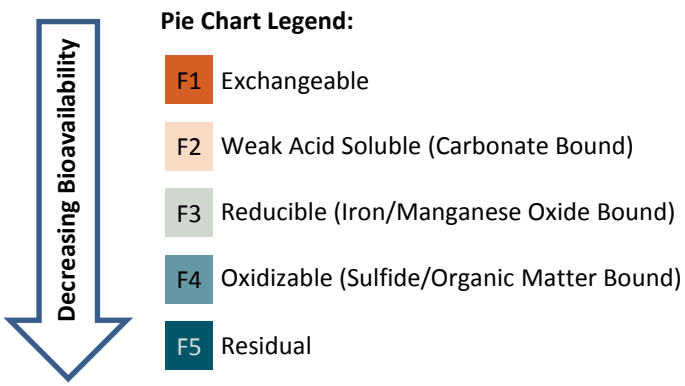


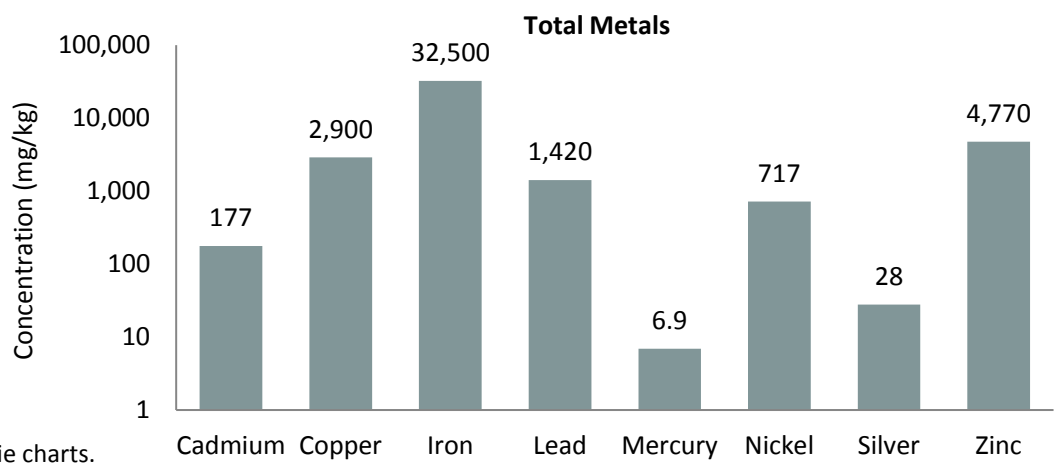


Note: Only fractions with detectable concentrations are shown in the pie charts.

Chart 3
Station EK059 Sequential Extraction Results

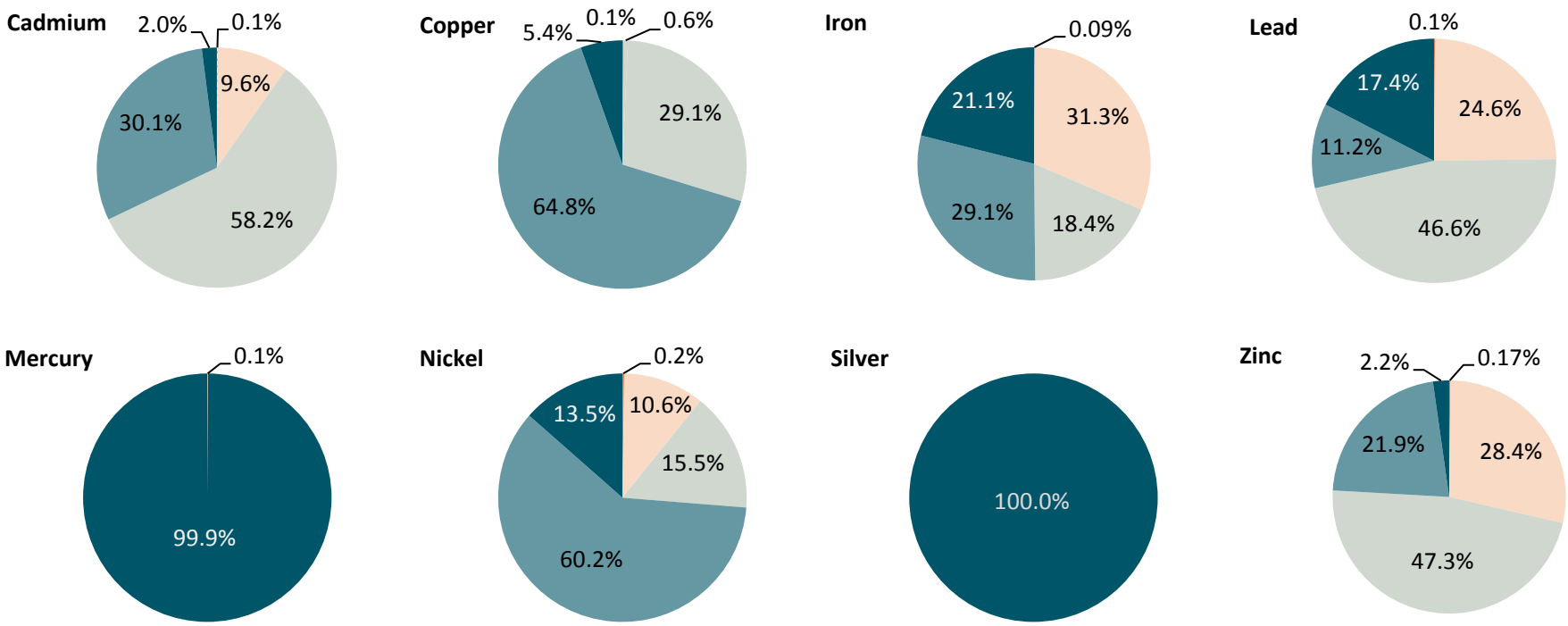


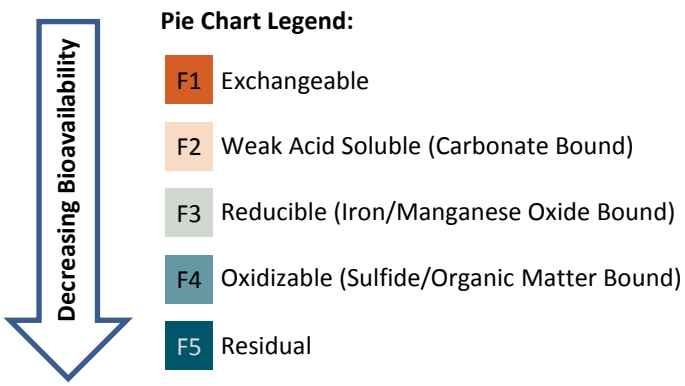


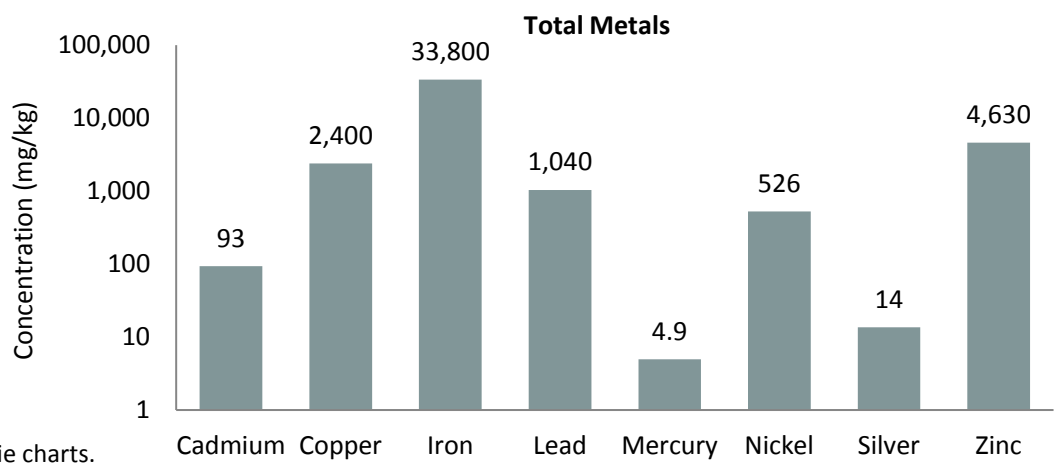


Note: Only fractions with detectable concentrations are shown in the pie charts.

Chart 4
Station EK006 Sequential Extraction Results

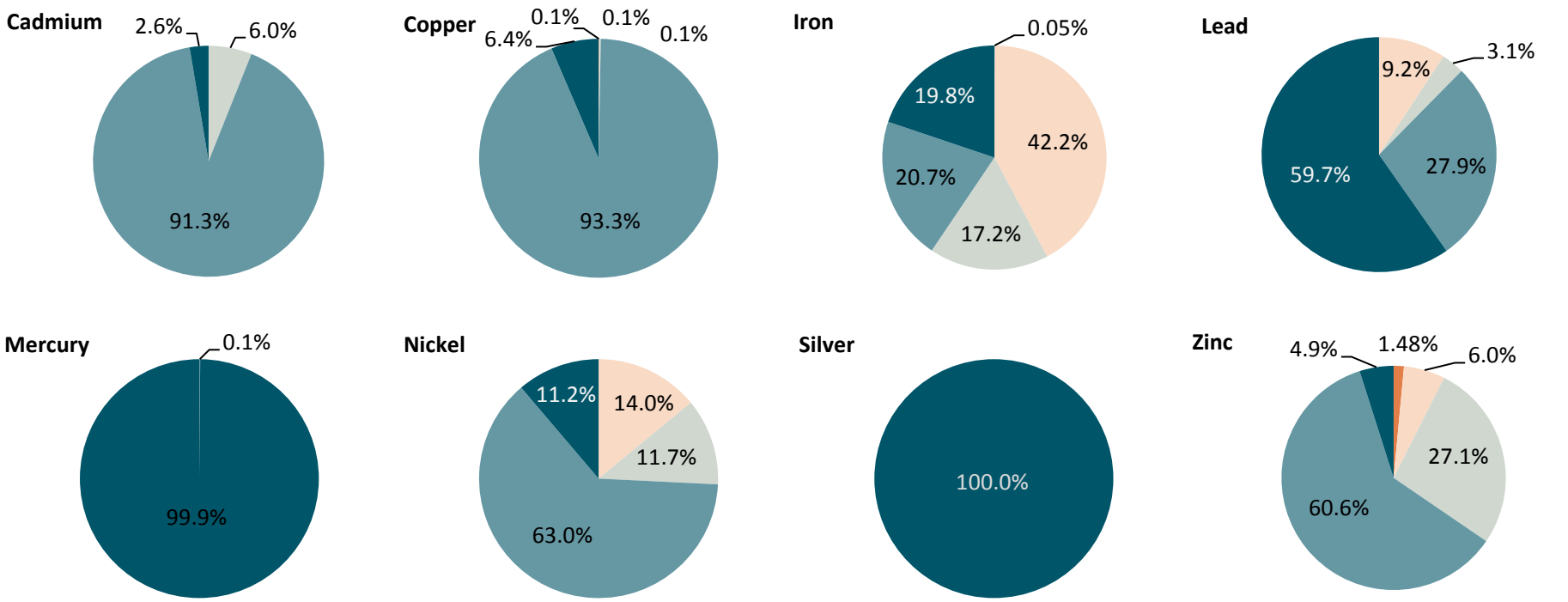


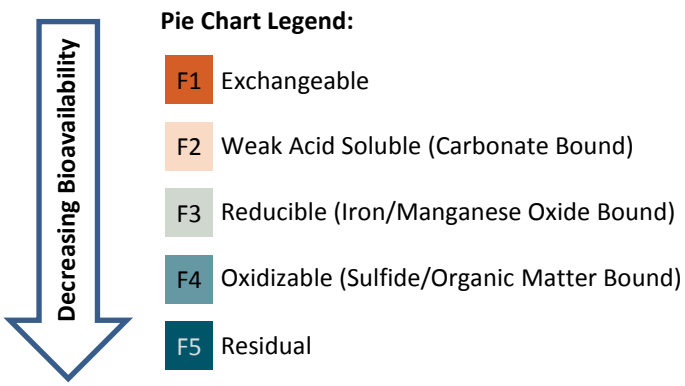


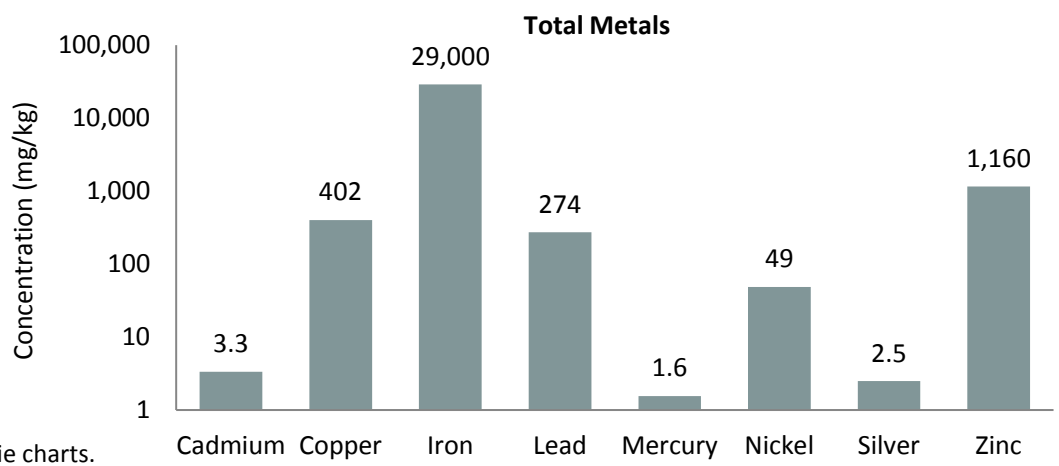


Note: Only fractions with detectable concentrations are shown in the pie charts.

Chart 5
Station MC017 Sequential Extraction Results

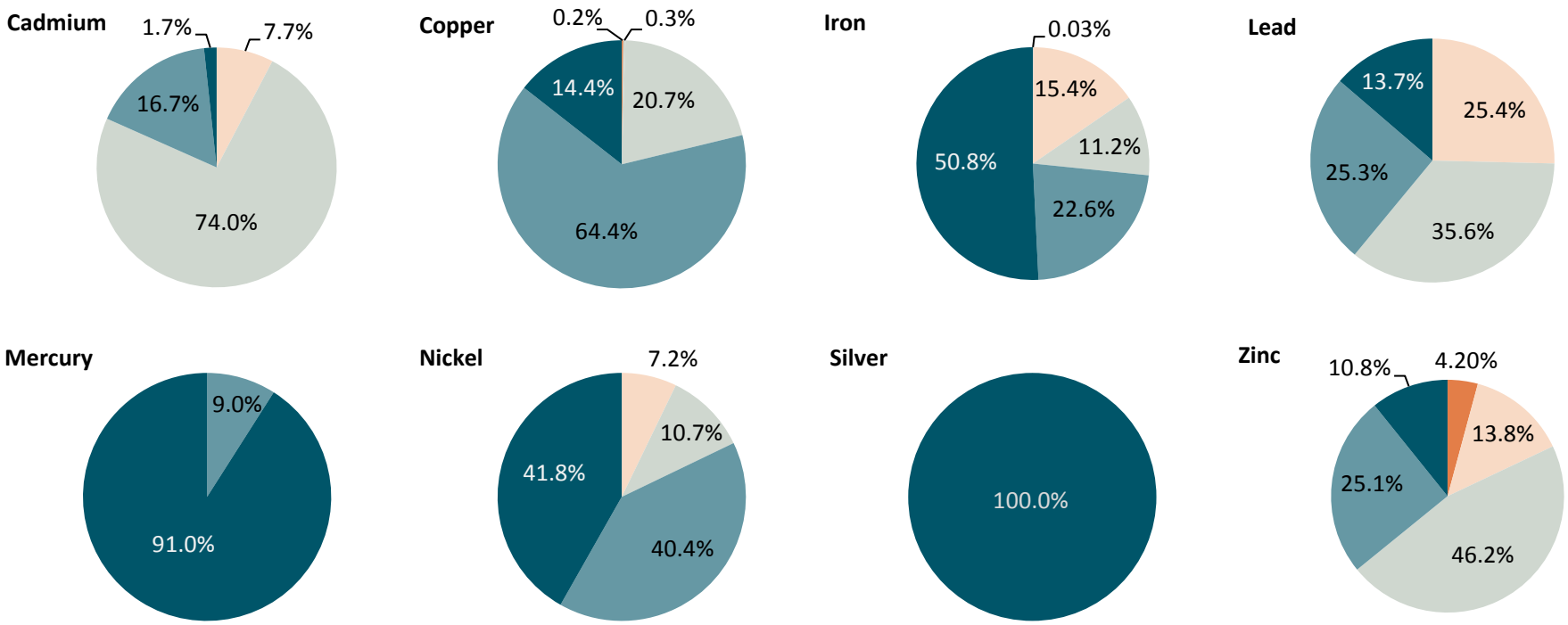


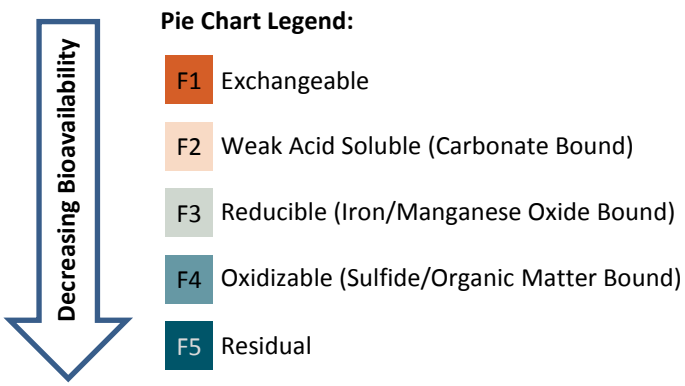


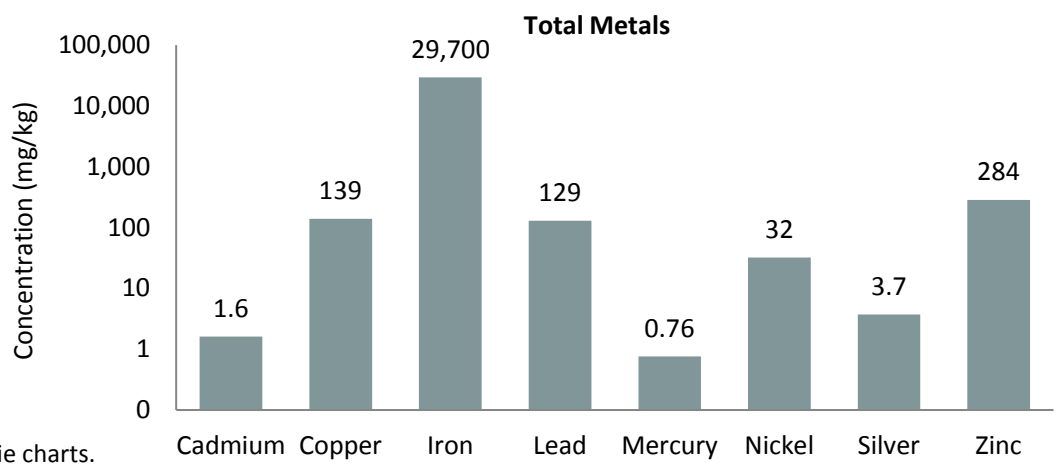


Note: Only fractions with detectable concentrations are shown in the pie charts.

Chart 6
Station NC161 Sequential Extraction Results

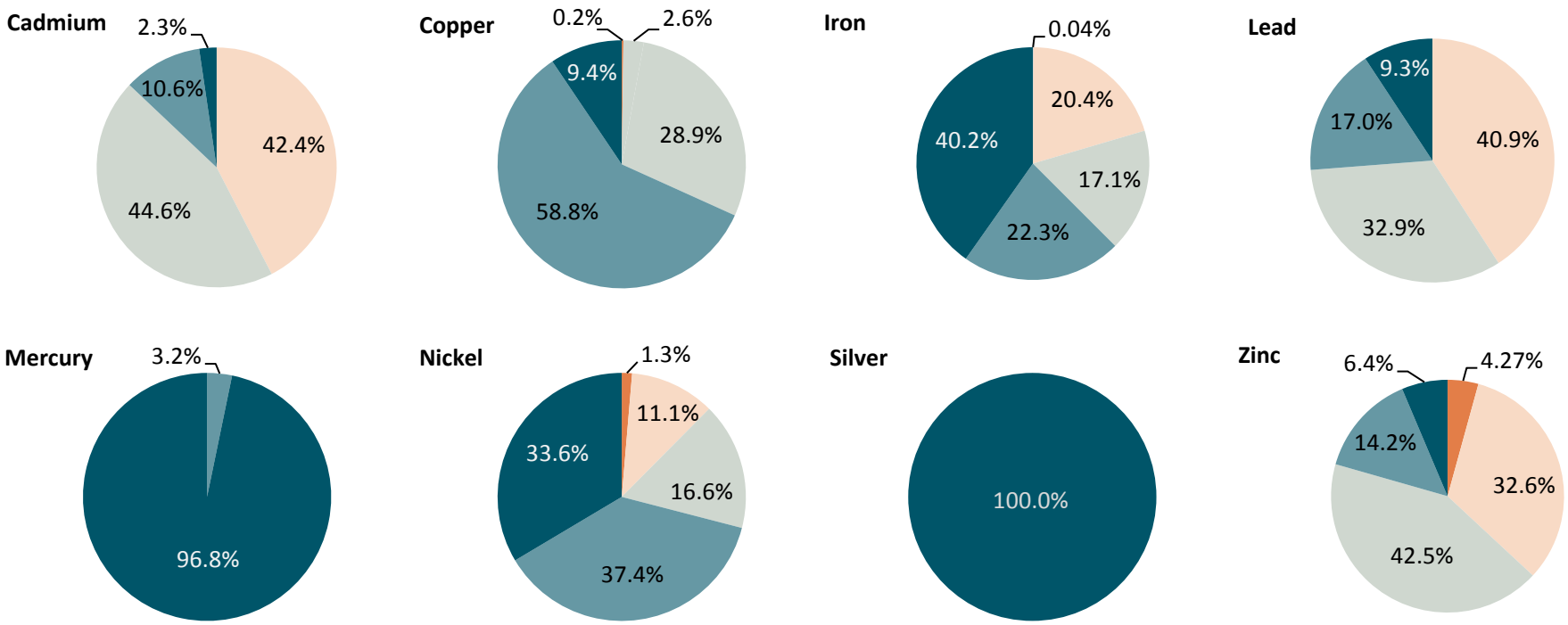


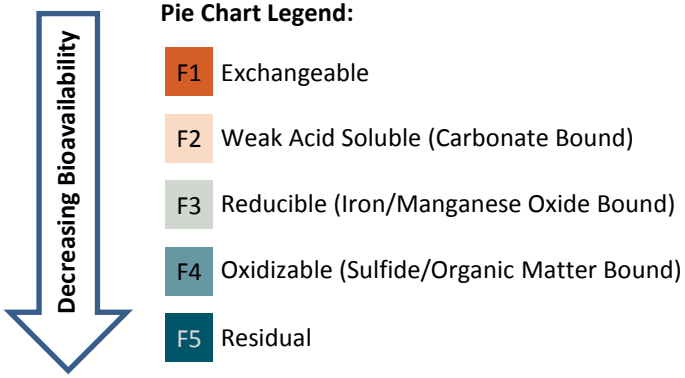


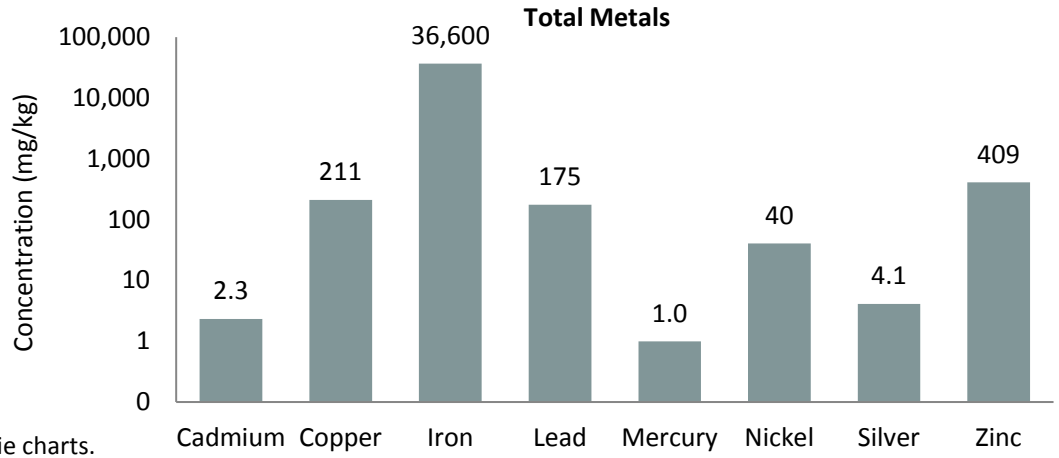


Note: Only fractions with detectable concentrations are shown in the pie charts.

Chart 7
Station NC046 Sequential Extraction Results

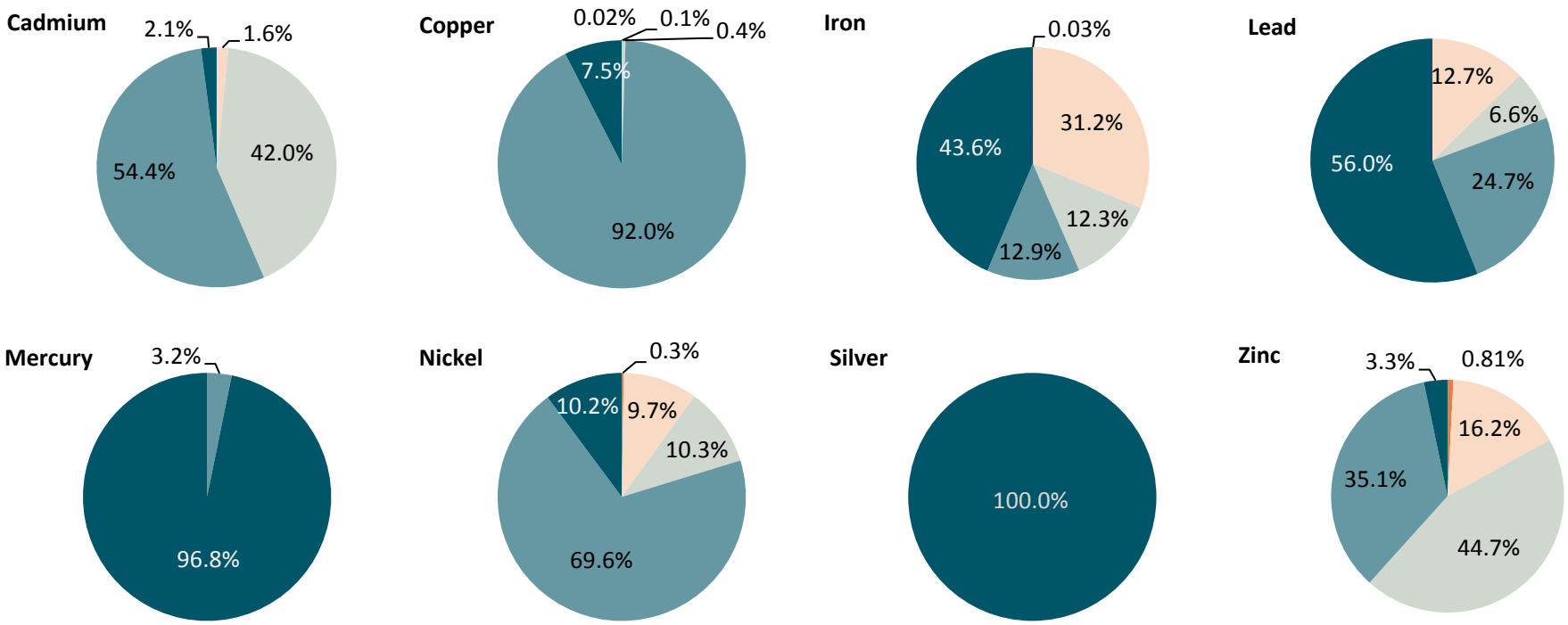


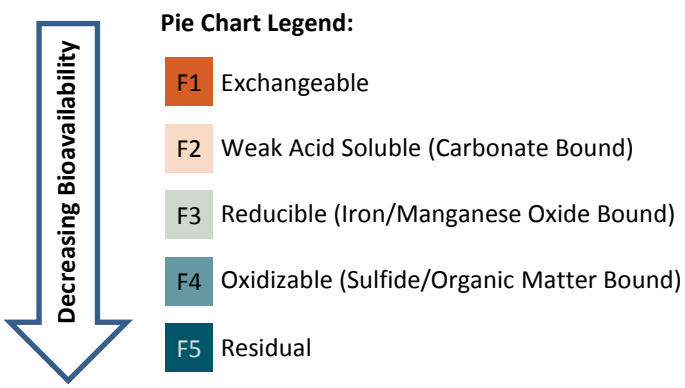


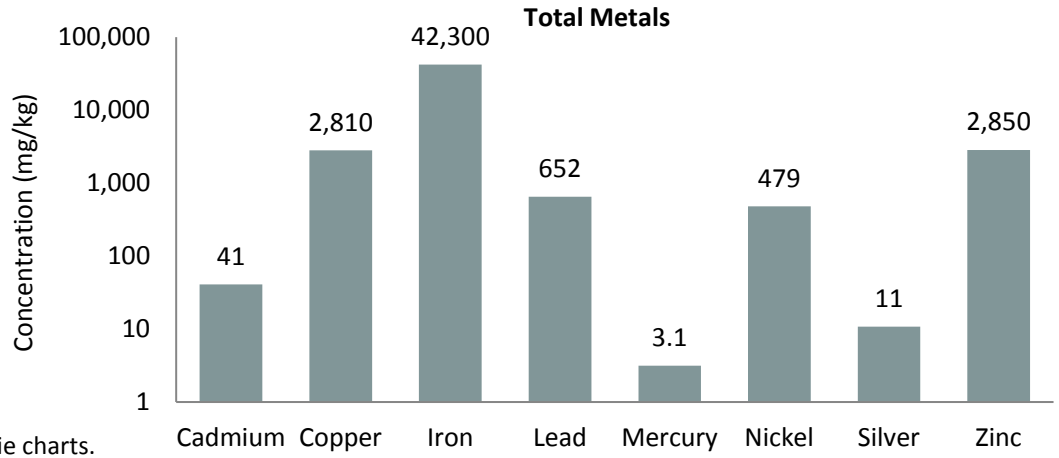


Note: Only fractions with detectable concentrations are shown in the pie charts.

Chart 8
Station NC293 Sequential Extraction Results

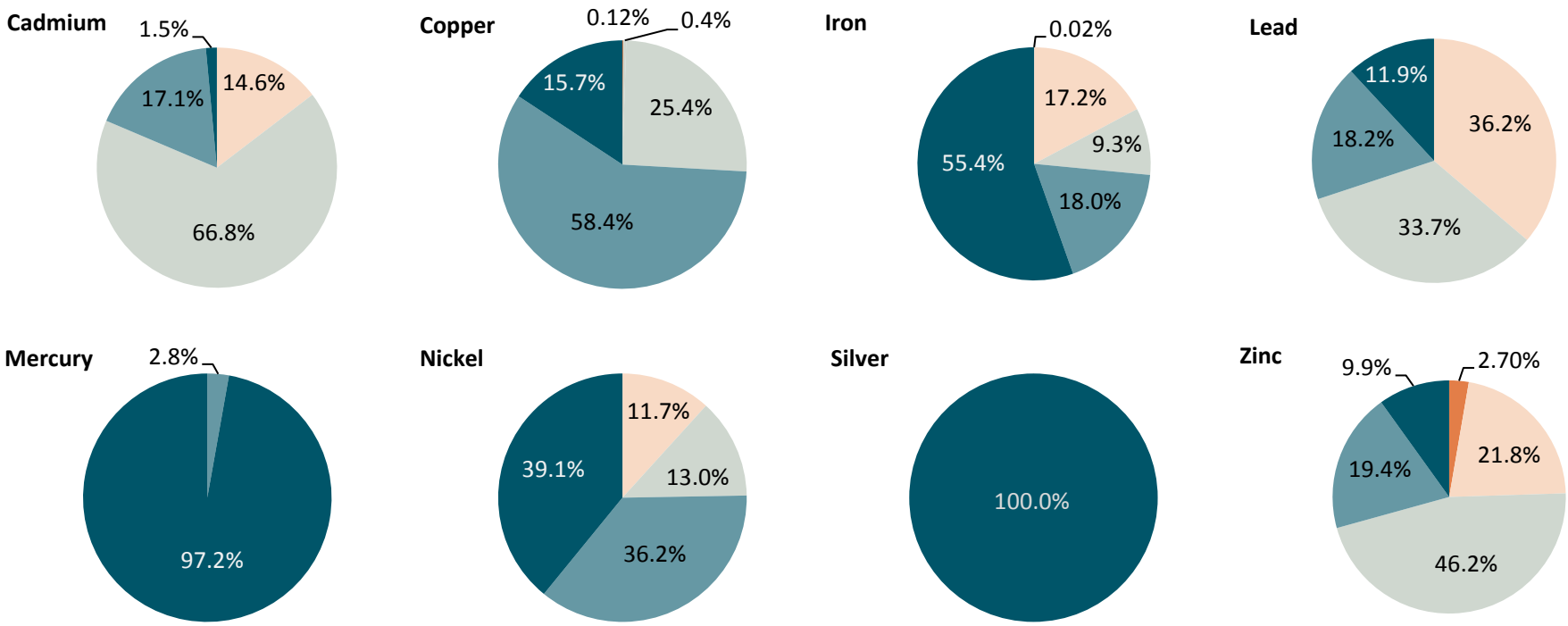


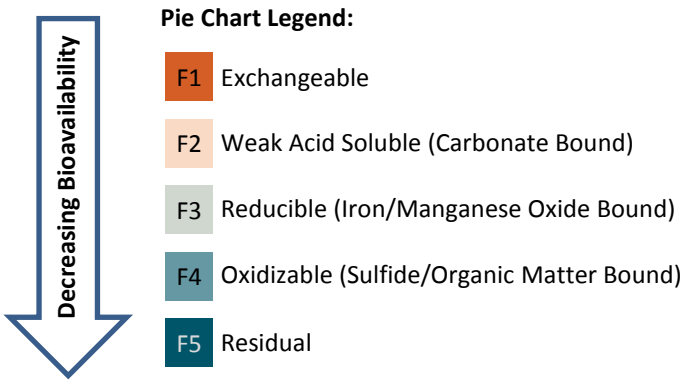


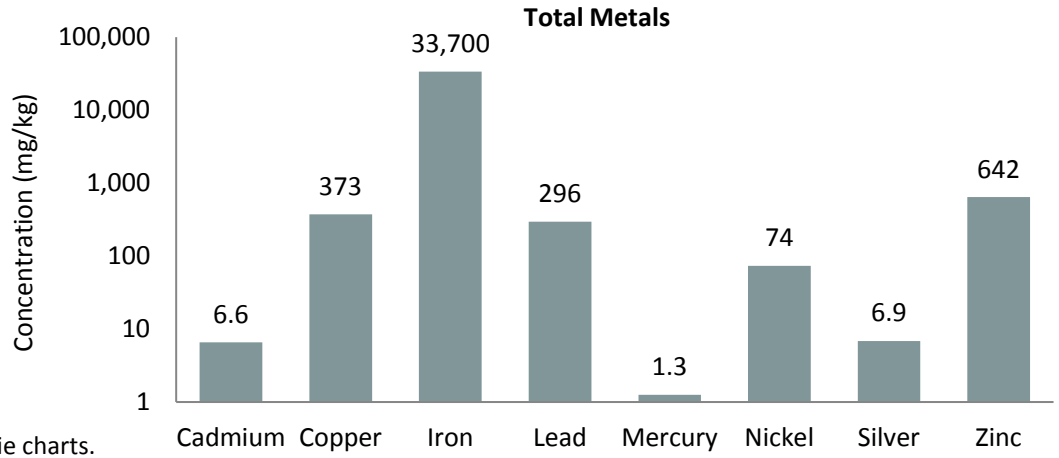


Note: Only fractions with detectable concentrations are shown in the pie charts.

Chart 9
Station WC012 Sequential Extraction Results

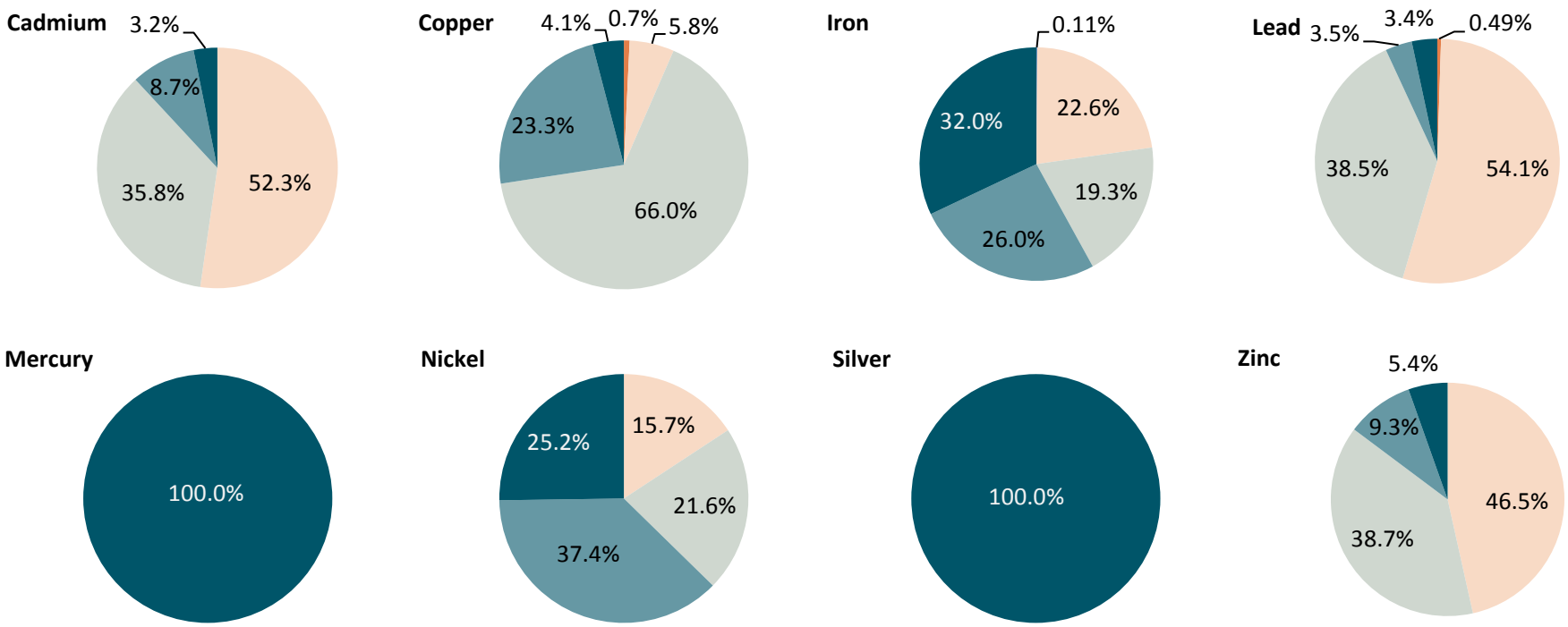


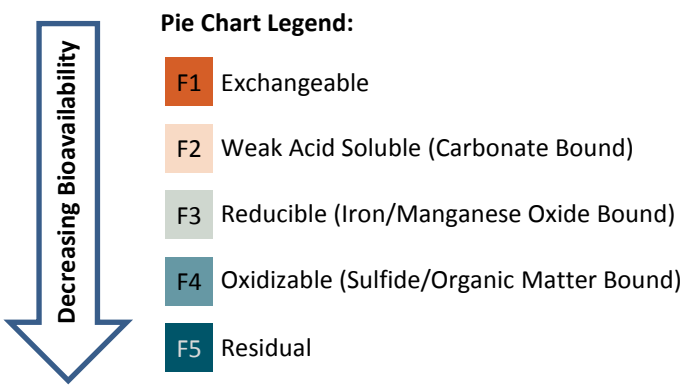


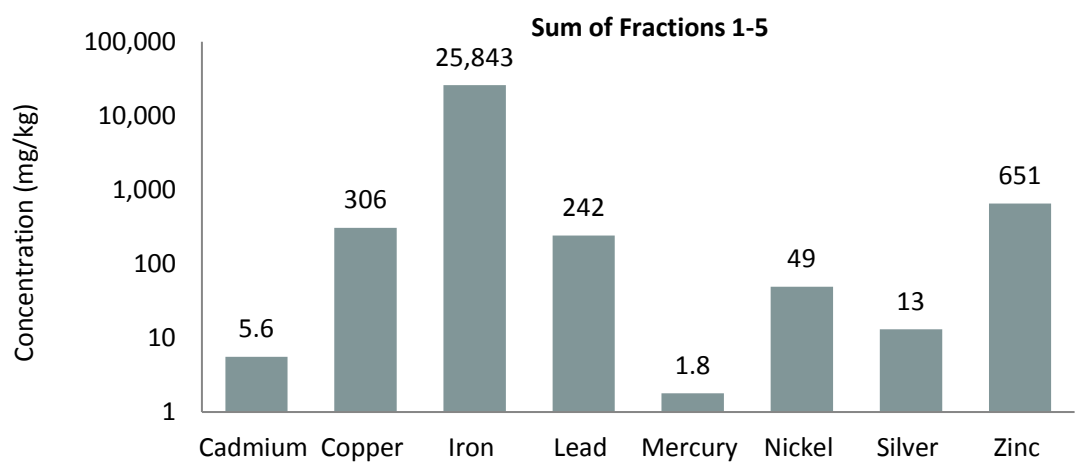


Note: Only fractions with detectable concentrations are shown in the pie charts.

Chart 10
Station DK004 15 – 25 cm Sequential Extraction Results

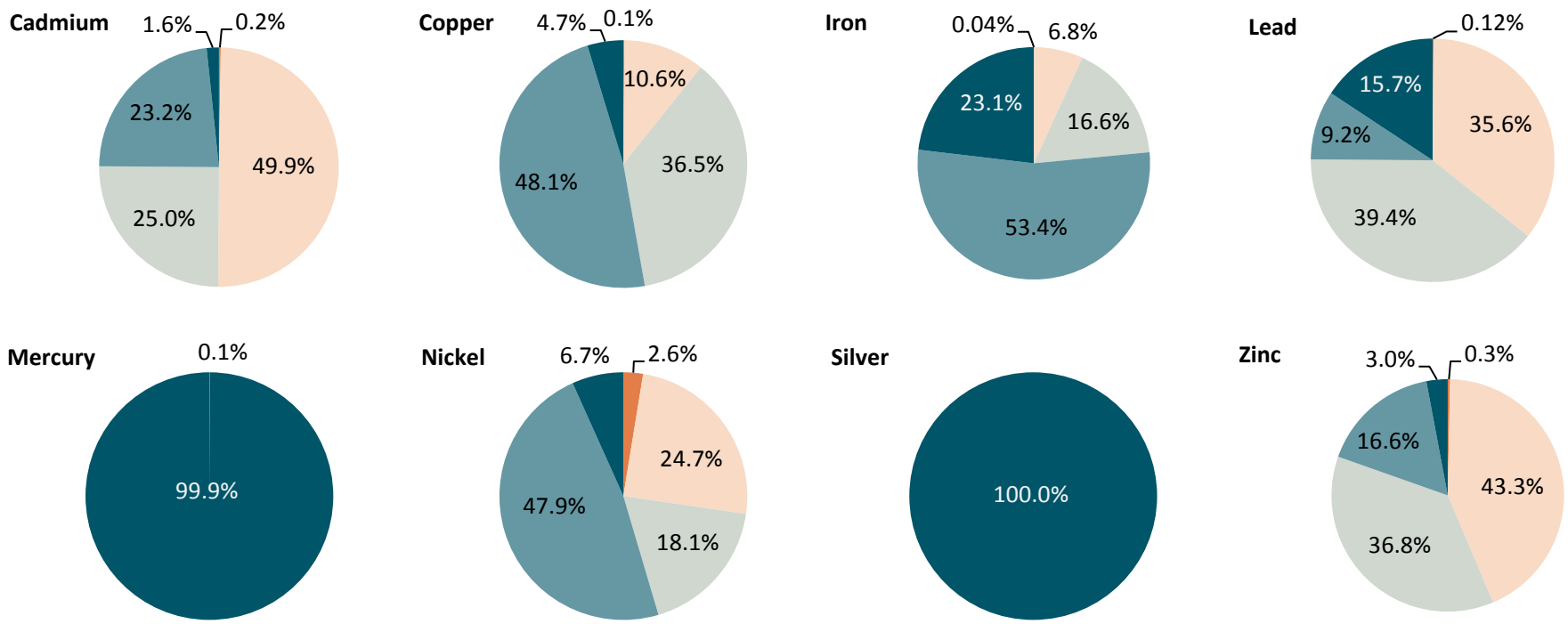


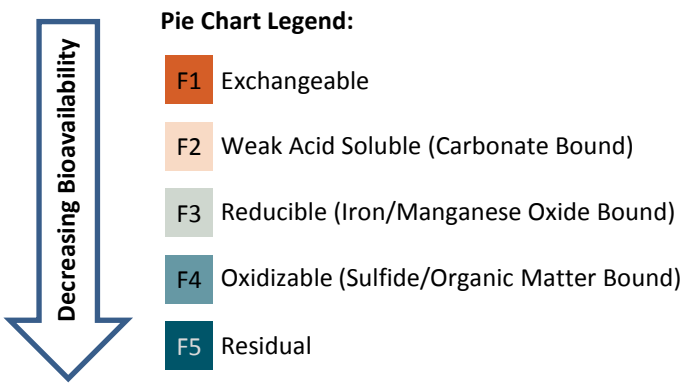


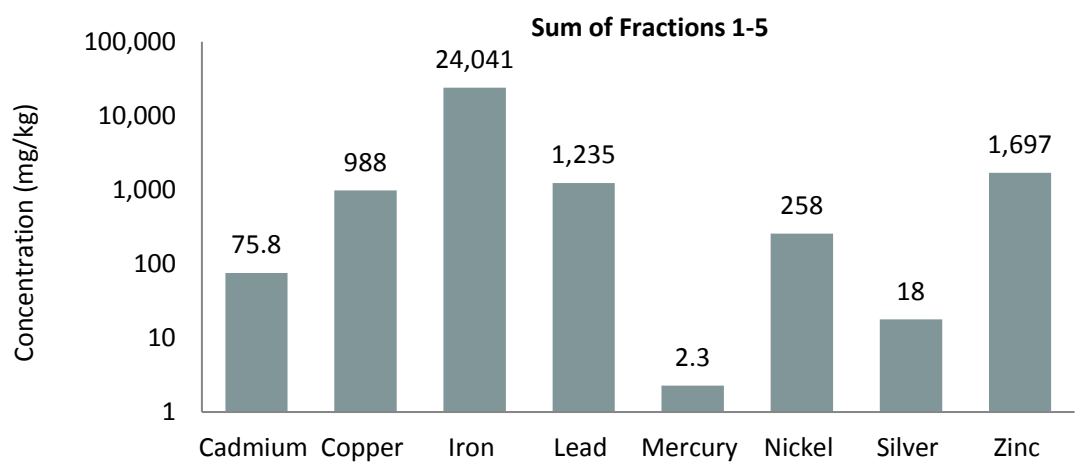


Note: Only detected fractions are shown in the pie charts.

Chart 11
Station DK004 45 – 55 cm Sequential Extraction Results

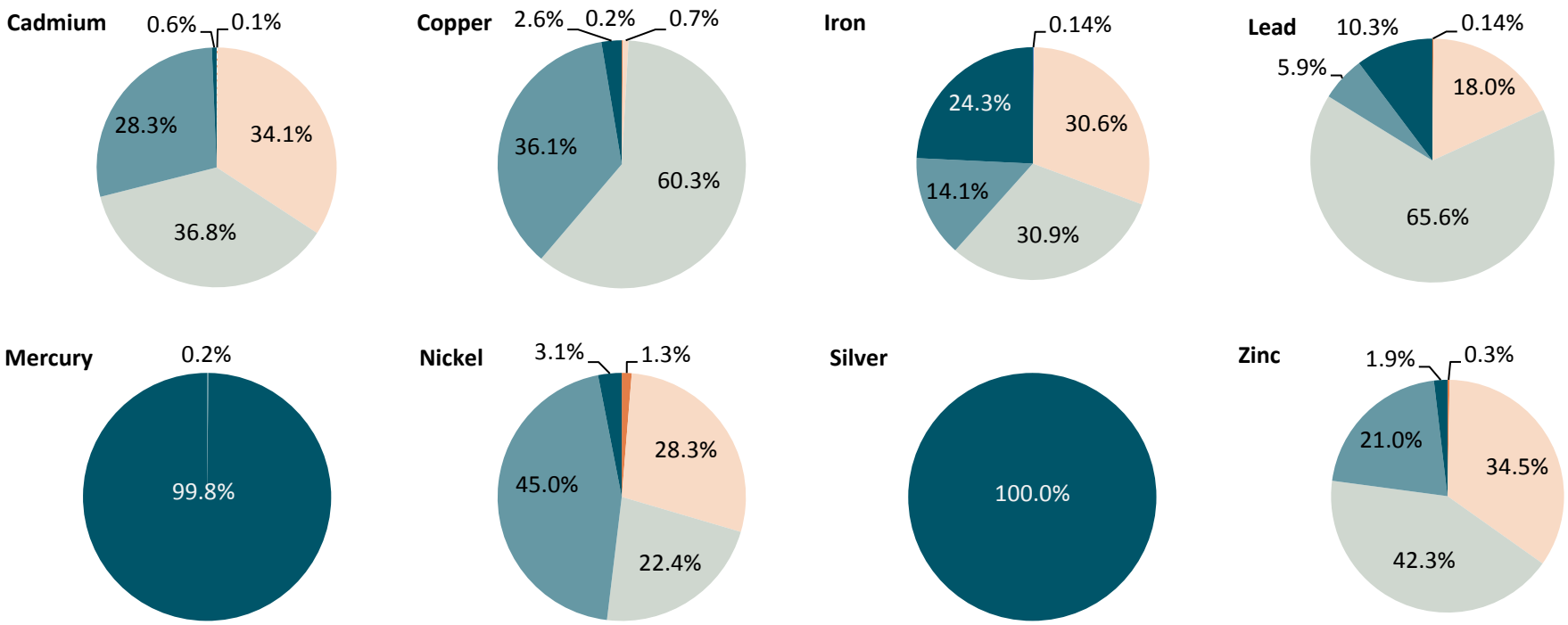


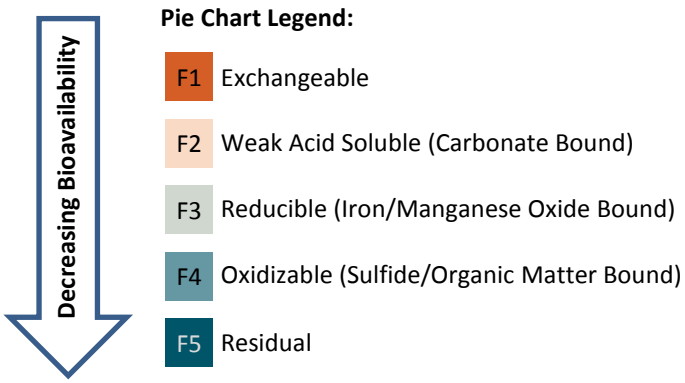


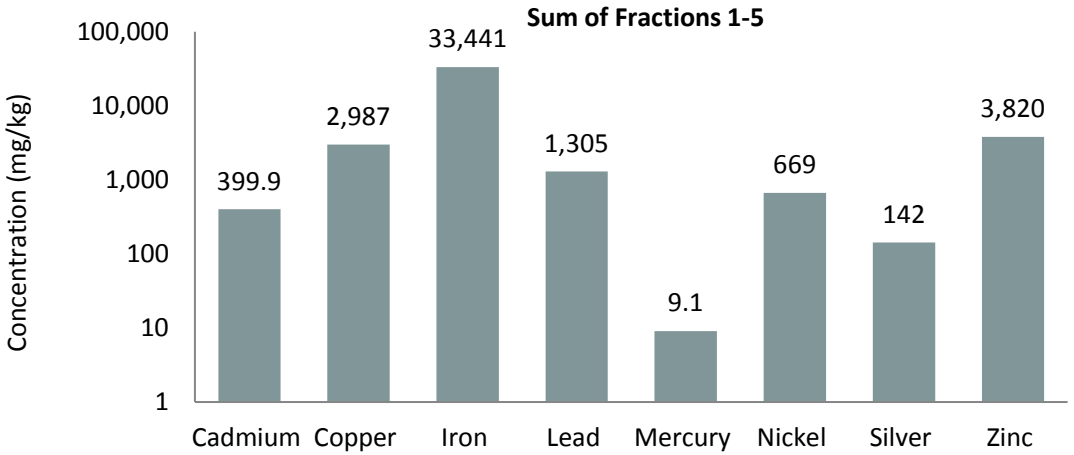


Note: Only detected fractions are shown in the pie charts.

Chart 12
Station DK004 135 – 145 cm Sequential Extraction Results

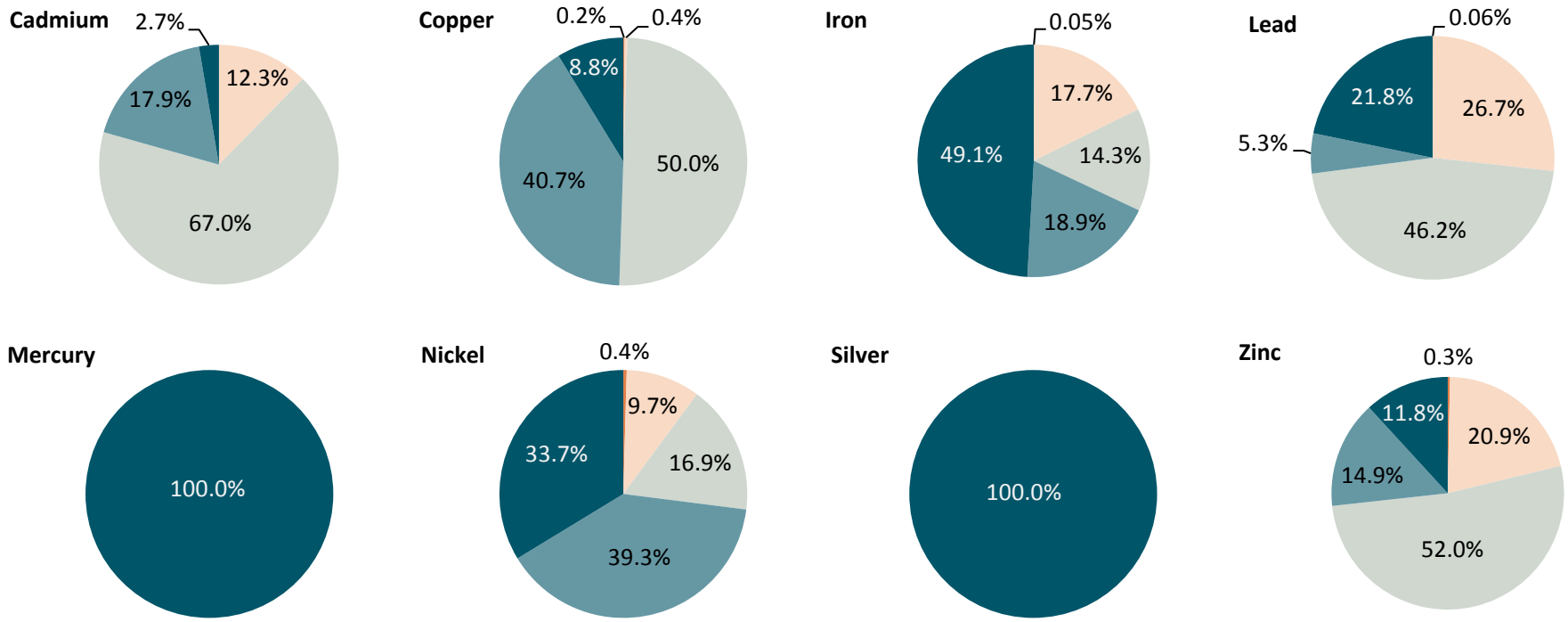


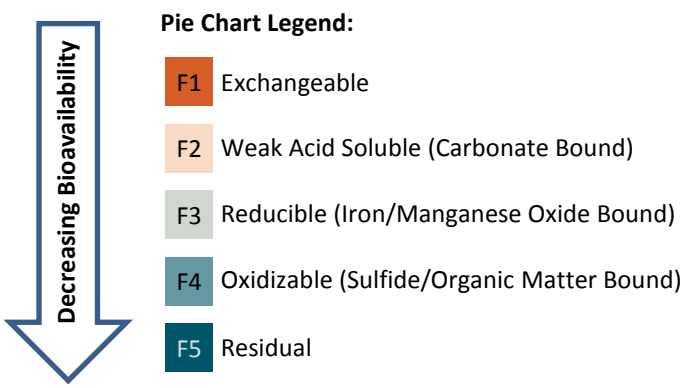


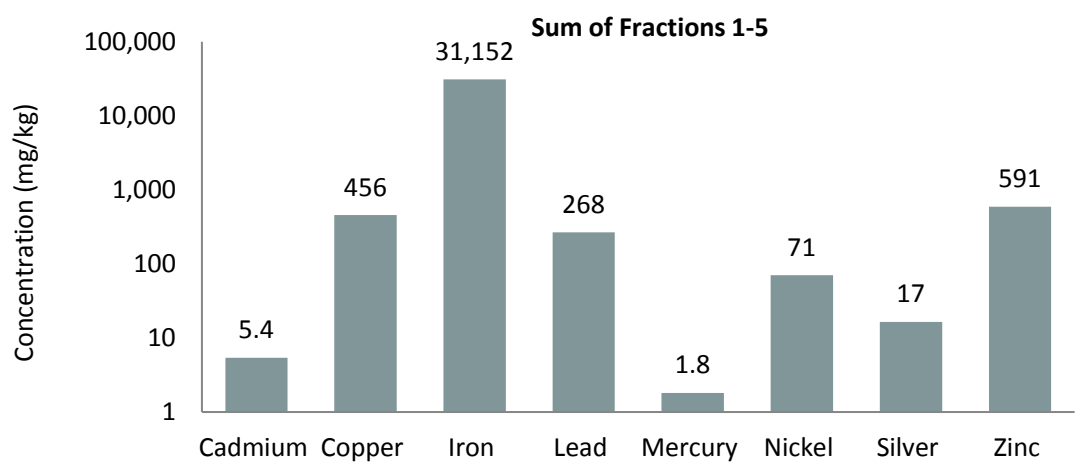


Note: Only detected fractions are shown in the pie charts.

Chart 13
Station NC054 15 – 25 cm Sequential Extraction Results

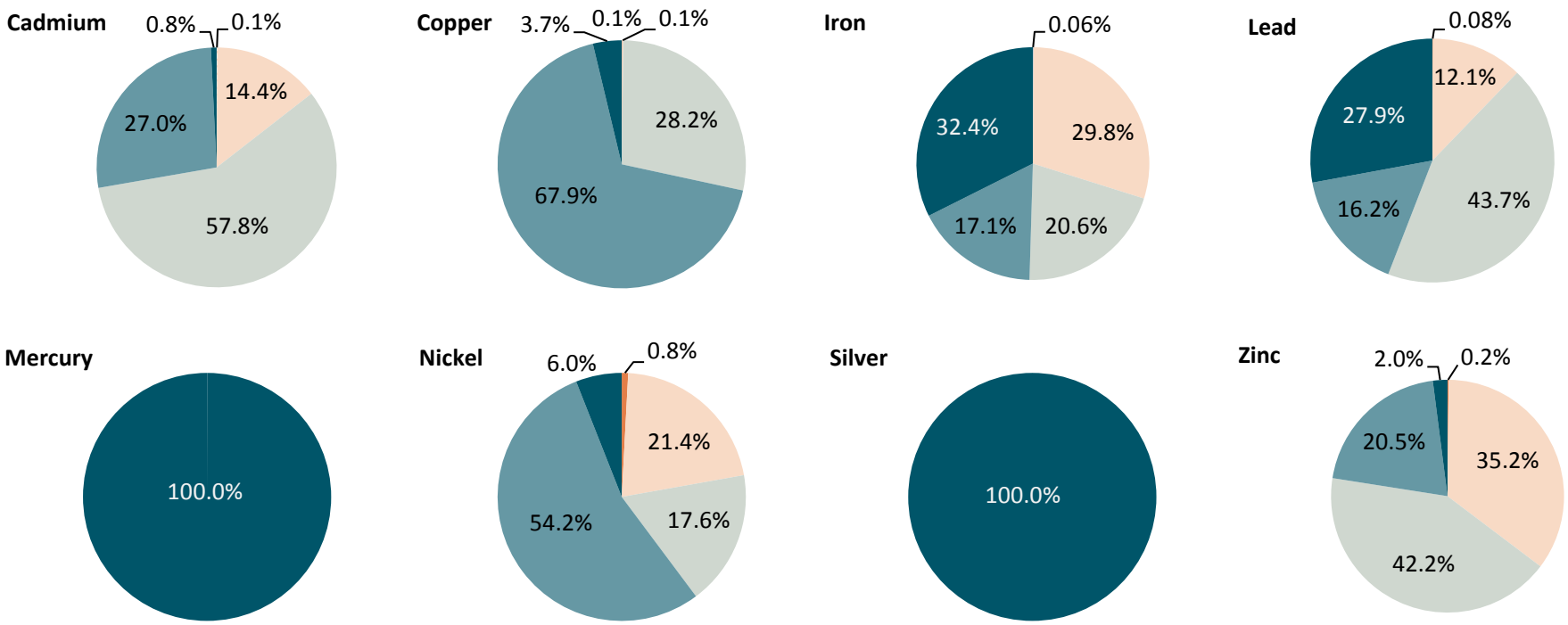


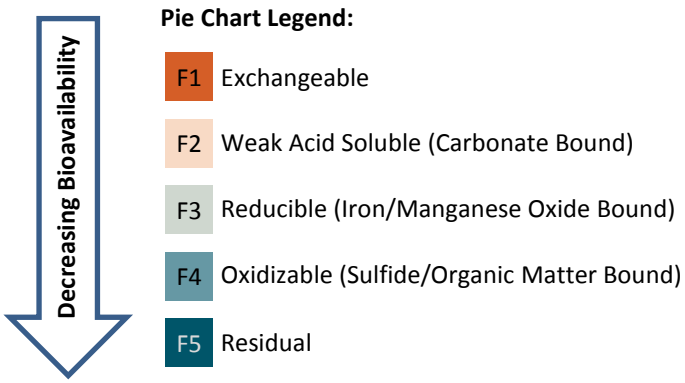


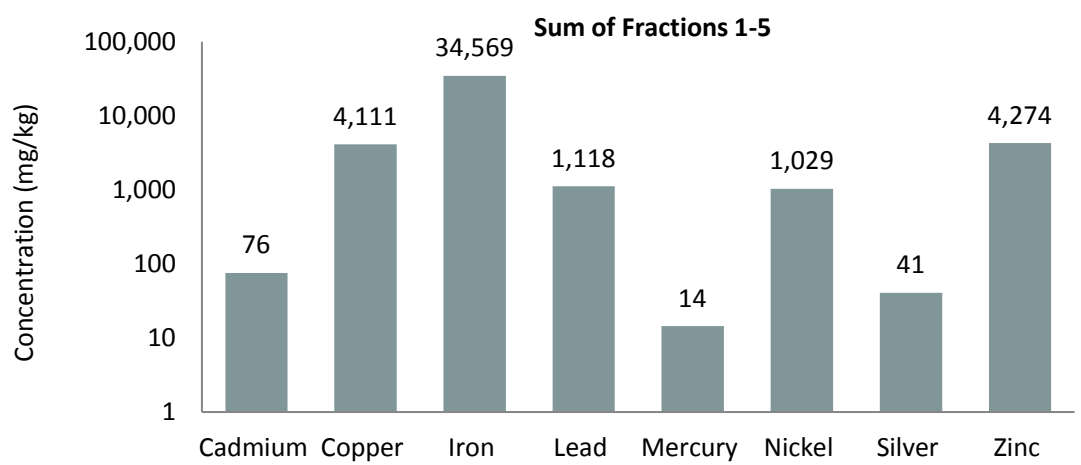


Note: Only detected fractions are shown in the pie charts.

Chart 14
Station NC054 167 – 180 cm Sequential Extraction Results

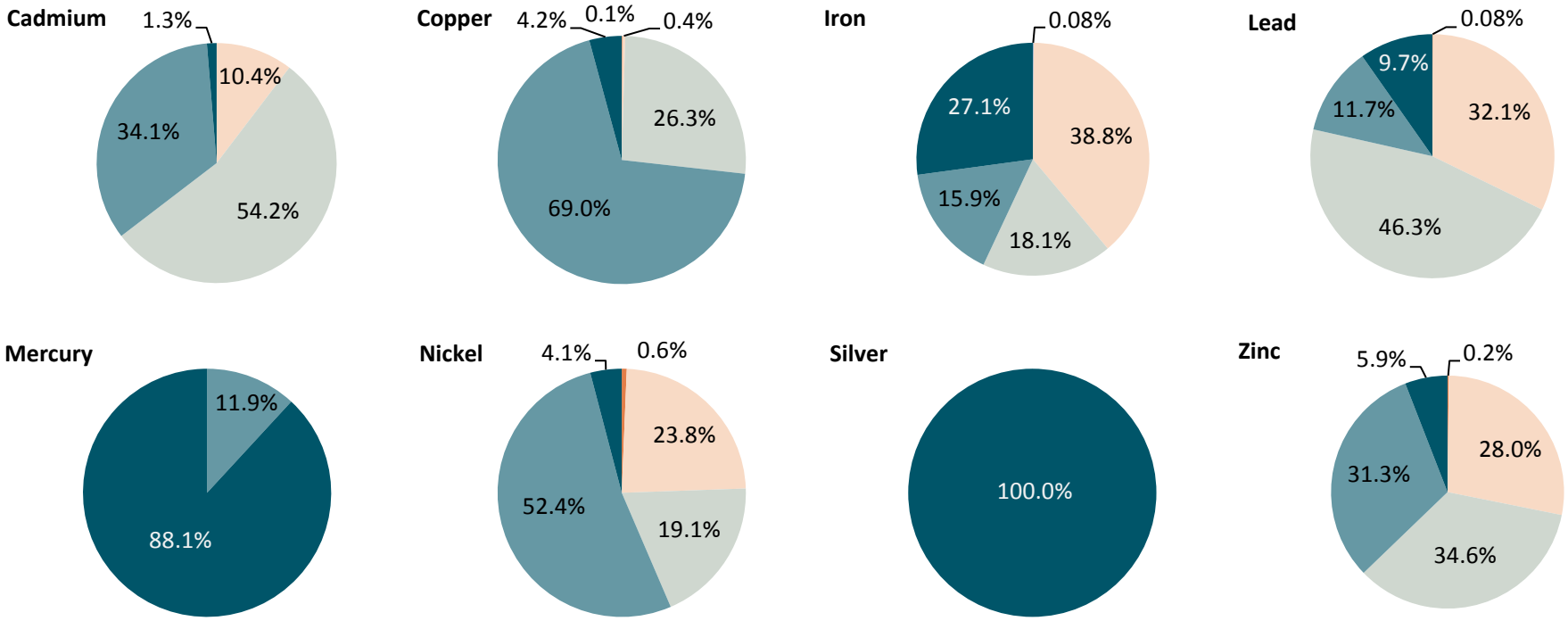


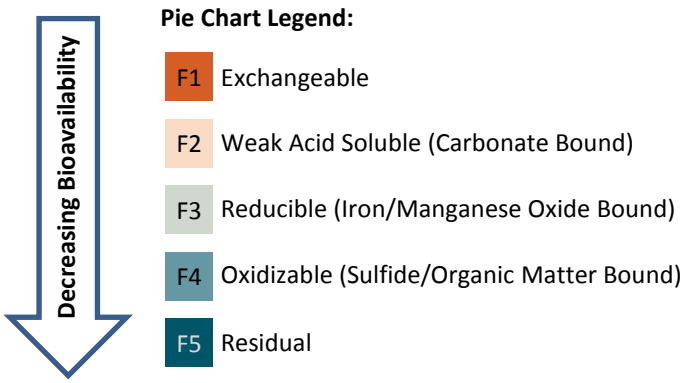


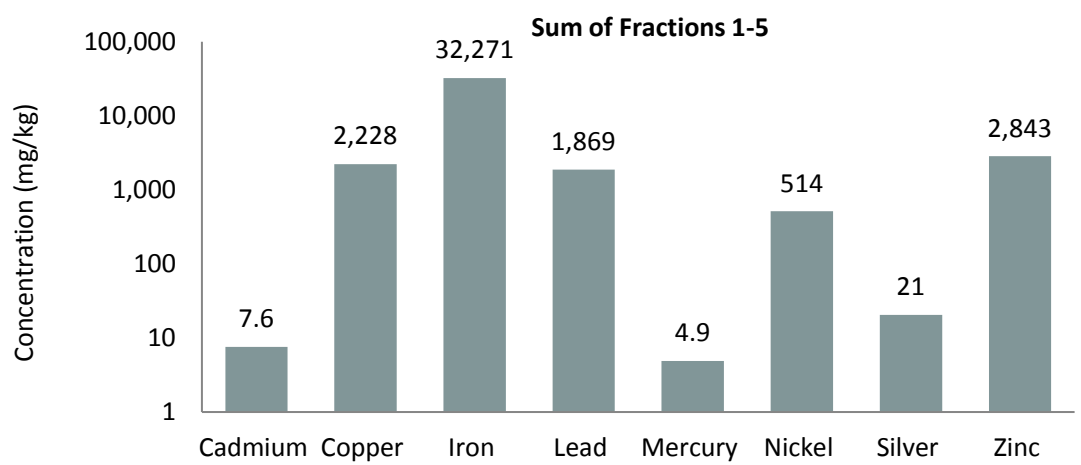


Note: Only detected fractions are shown in the pie charts.

Chart 15
Station NC054 295 – 307 cm Sequential Extraction Results

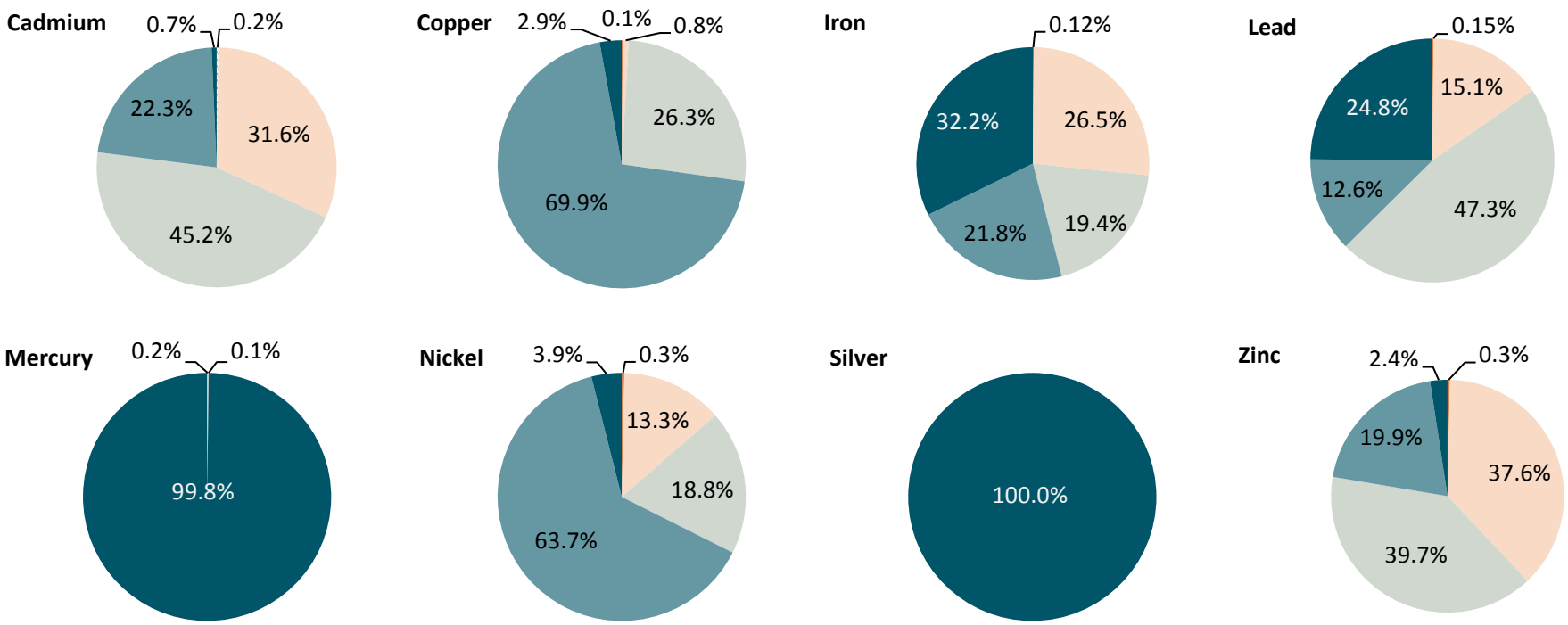


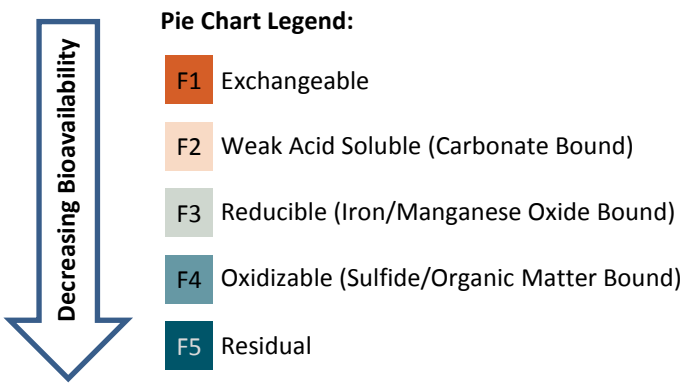


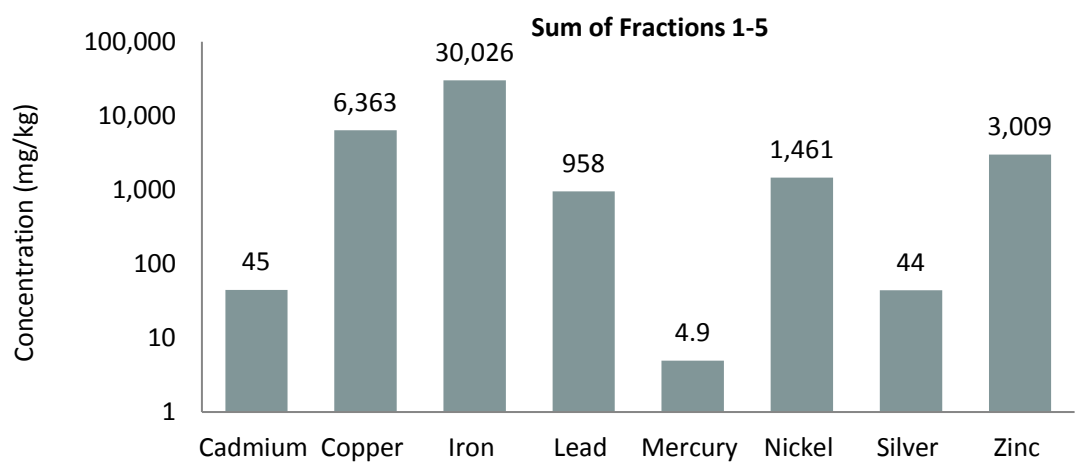


Note: Only detected fractions are shown in the pie charts.

Chart 16
Station NC064 15 – 25 cm Sequential Extraction Results

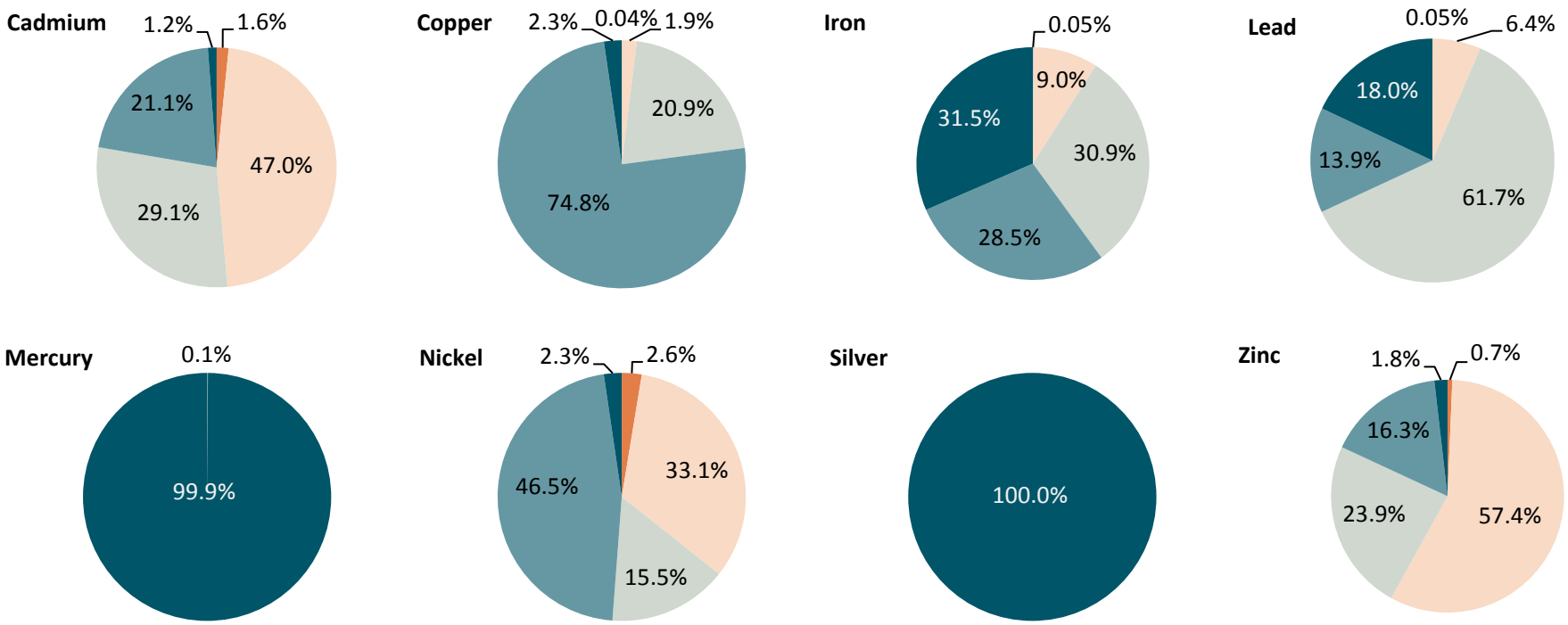


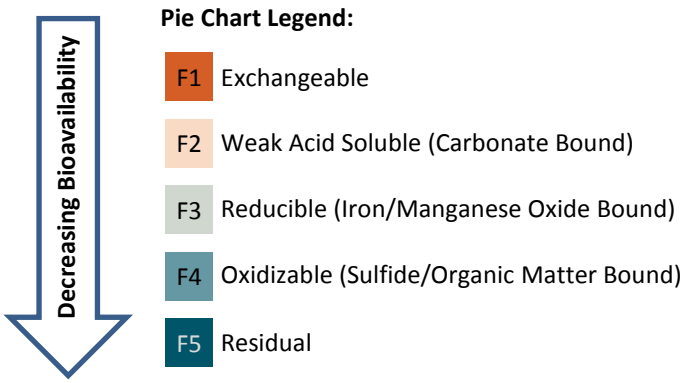


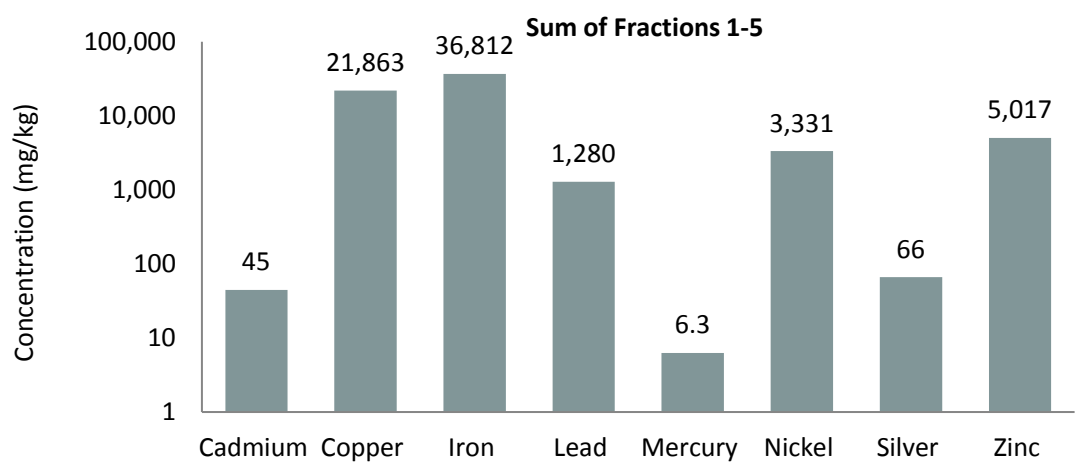


Note: Only detected fractions are shown in the pie charts.

Chart 17
Station NC064 81 – 91 cm Sequential Extraction Results

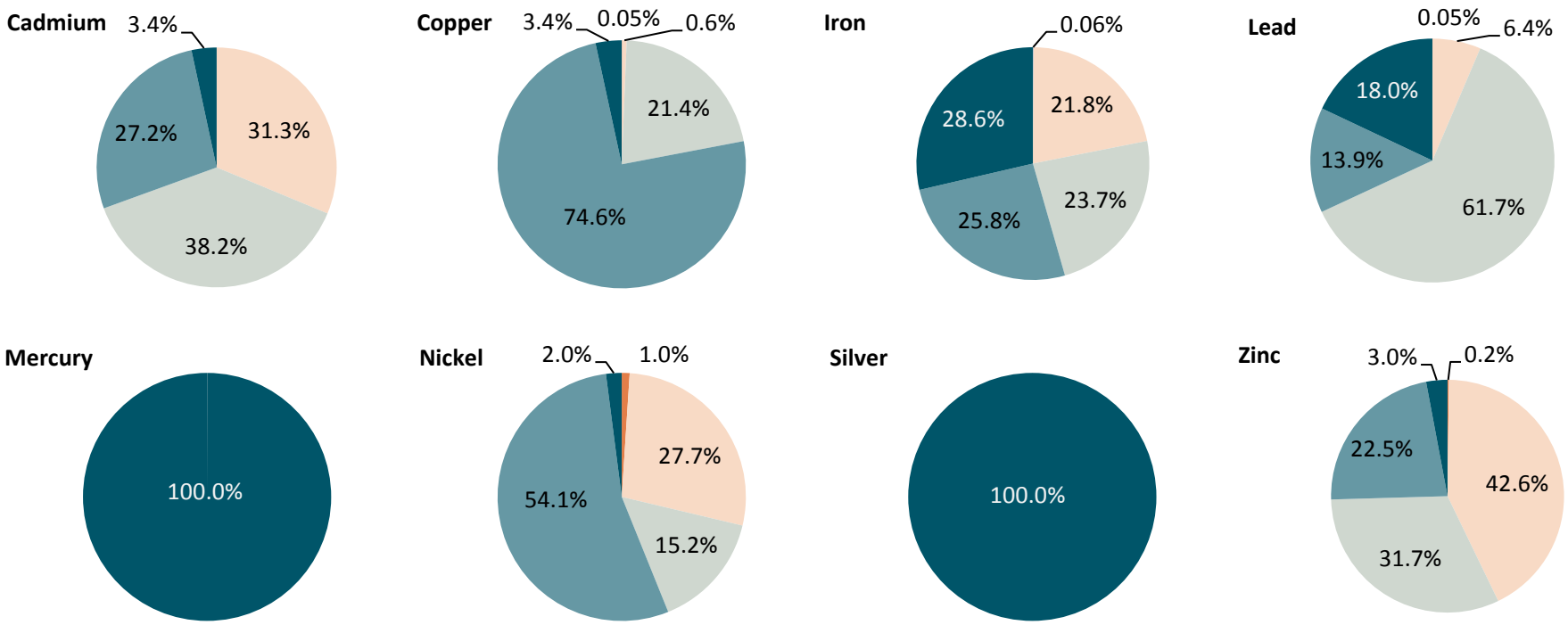


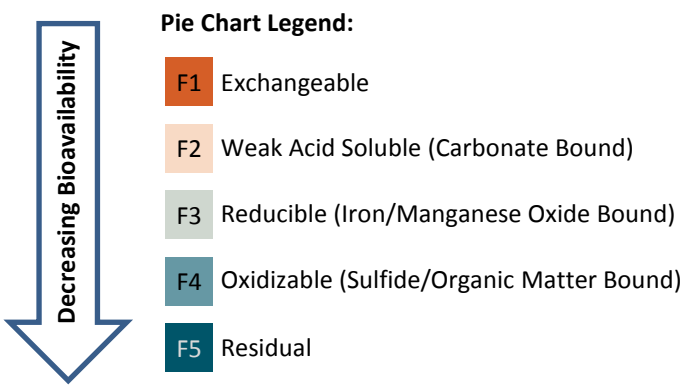


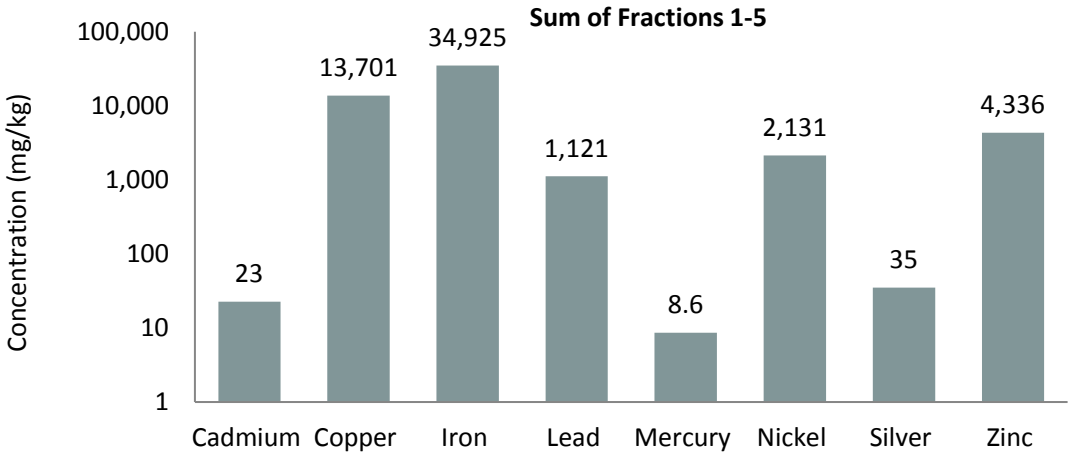


Note: Only detected fractions are shown in the pie charts.

Chart 18
Station NC064 142 – 155 cm Sequential Extraction Results

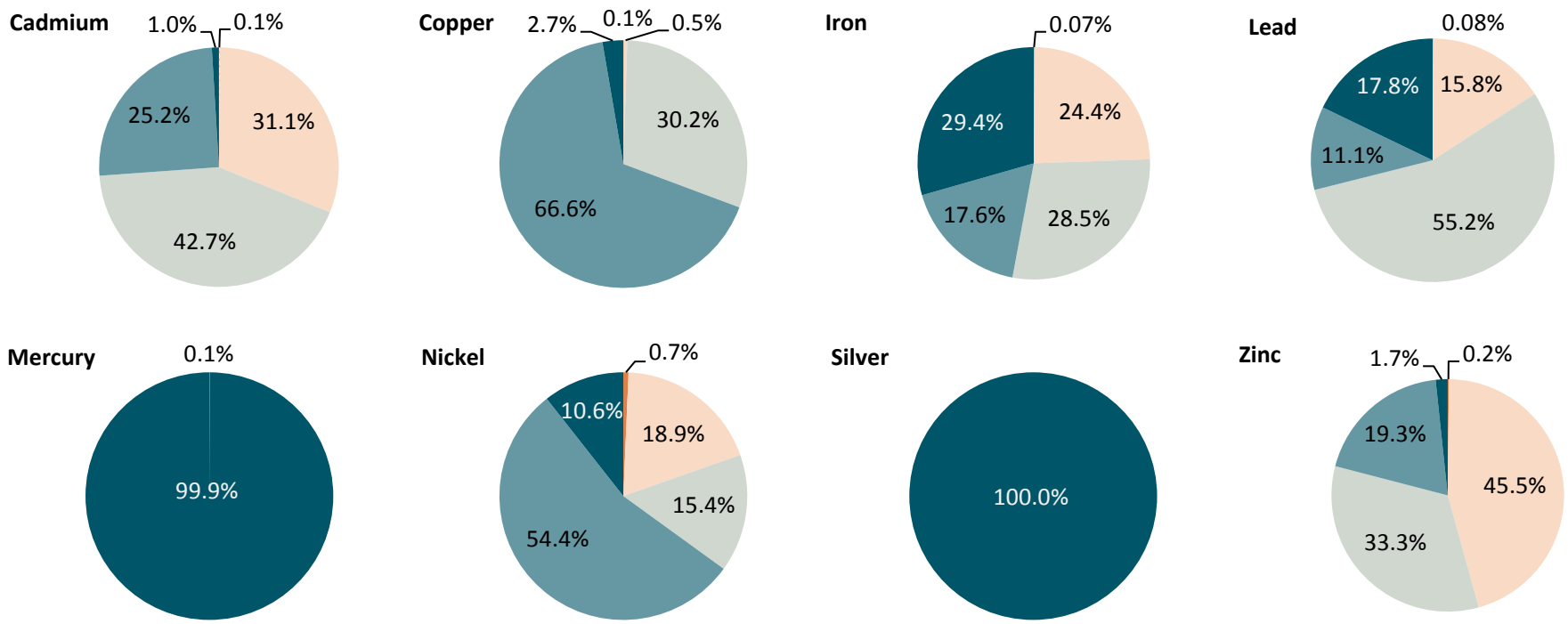


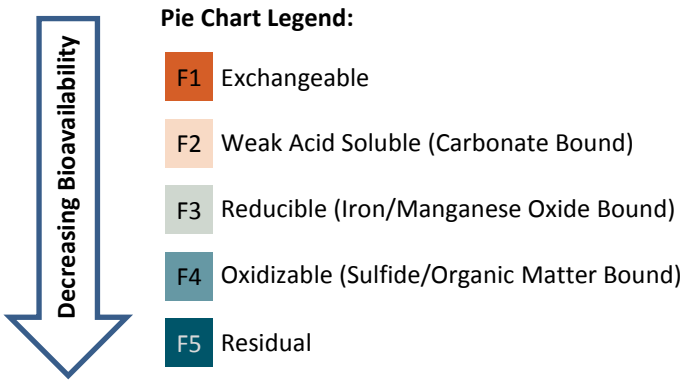


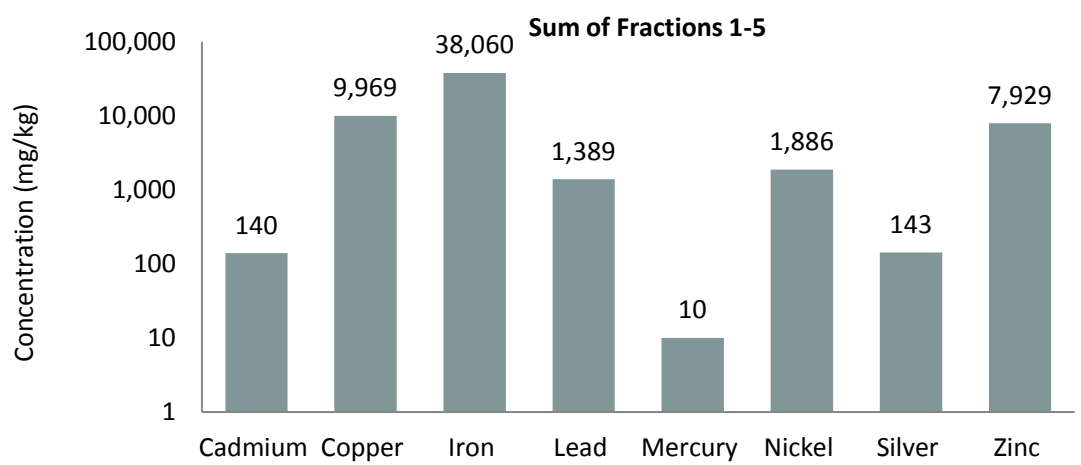


Note: Only detected fractions are shown in the pie charts.

Chart 19
Station NC070 15 – 25 cm Sequential Extraction Results

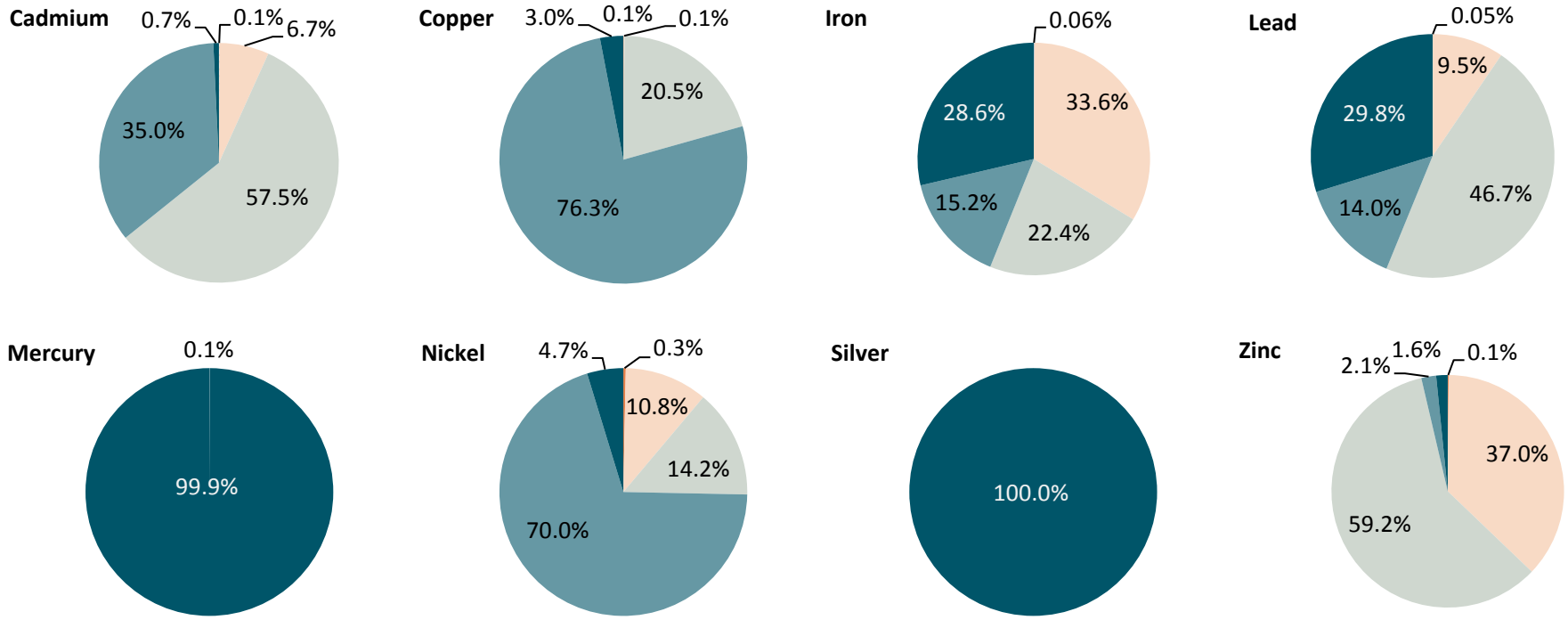


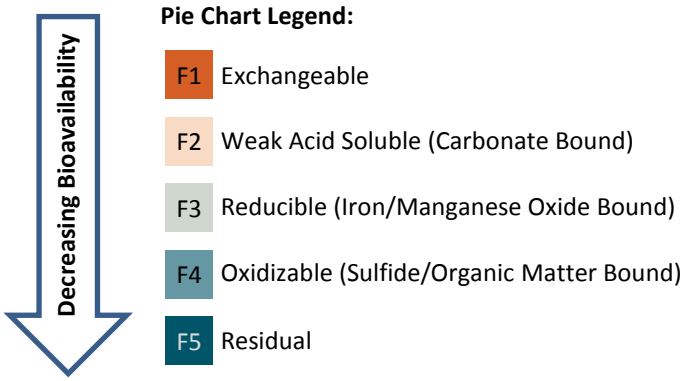


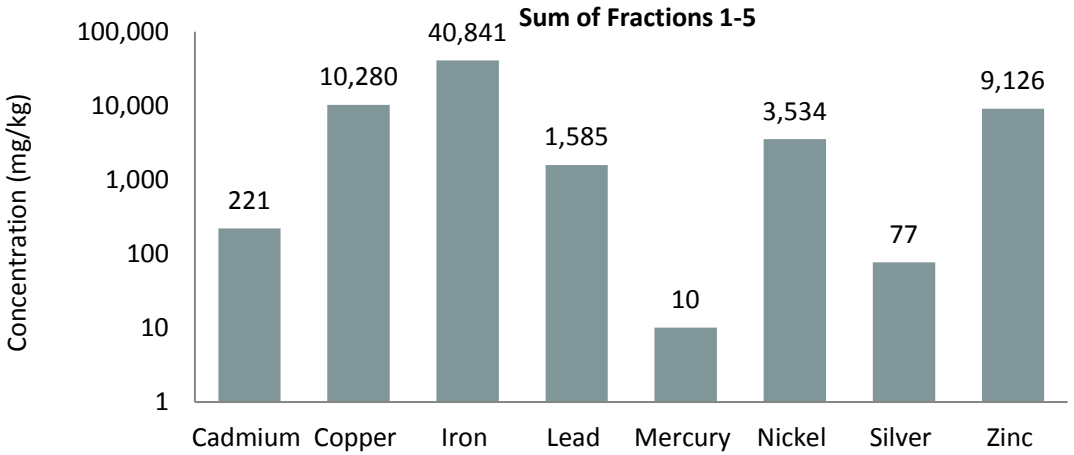


Note: Only detected fractions are shown in the pie charts.

Chart 20
Station NC070 85 – 95 cm Sequential Extraction Results

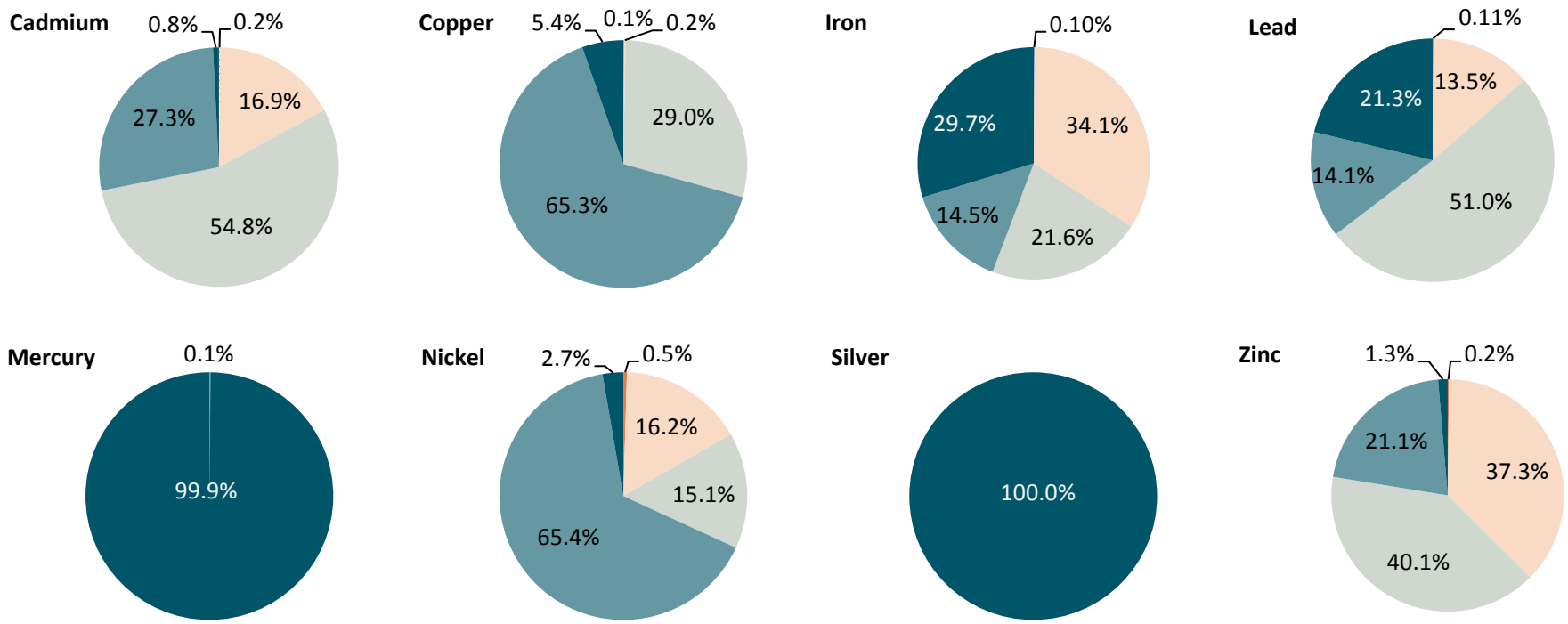


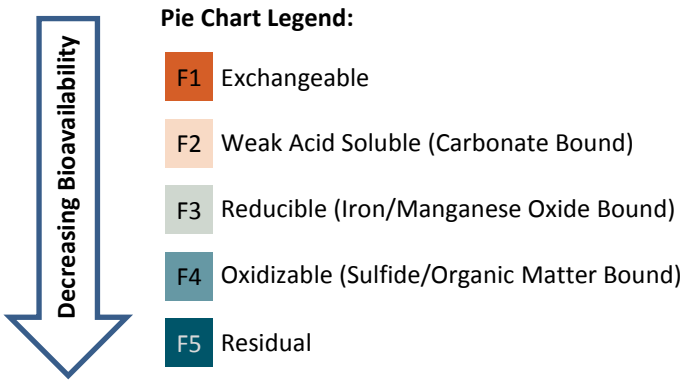


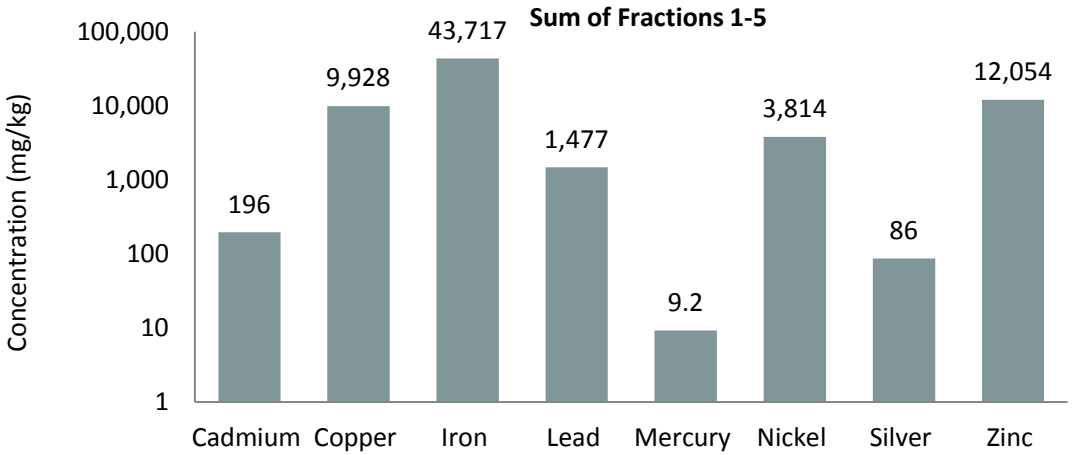


Note: Only detected fractions are shown in the pie charts.

Chart 21
Station NC070 125 – 136 cm Sequential Extraction Results

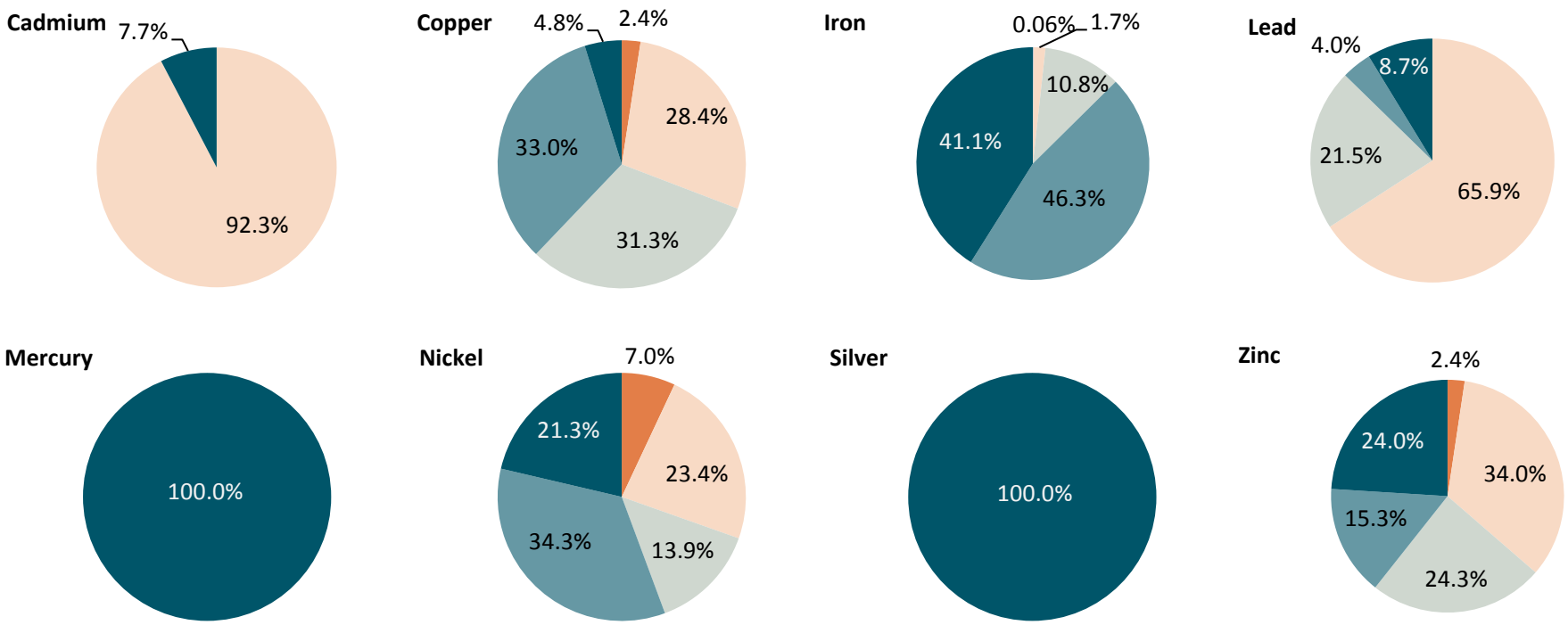


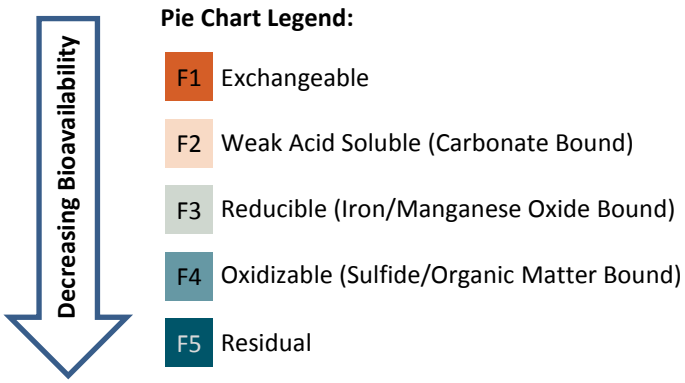


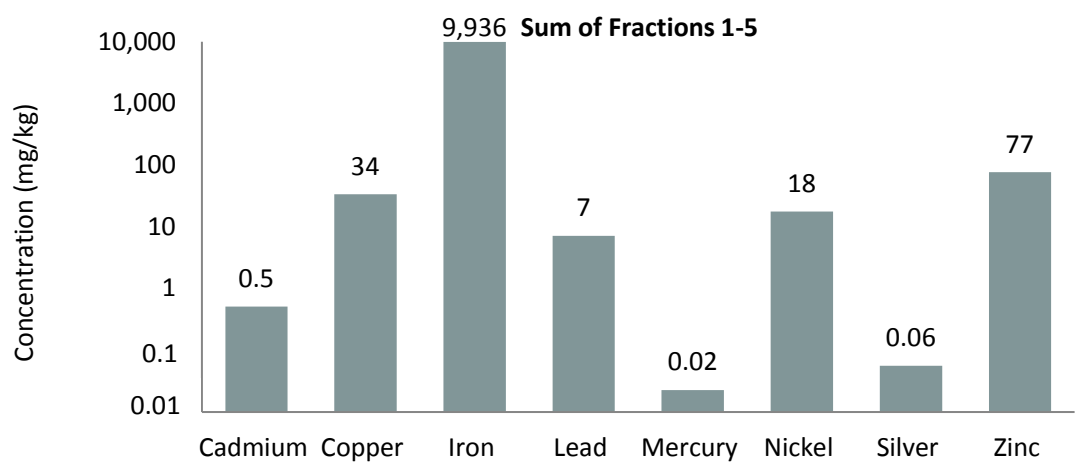


Note: Only detected fractions are shown in the pie charts.

Chart 22
Station NC079 15 – 25 cm Sequential Extraction Results

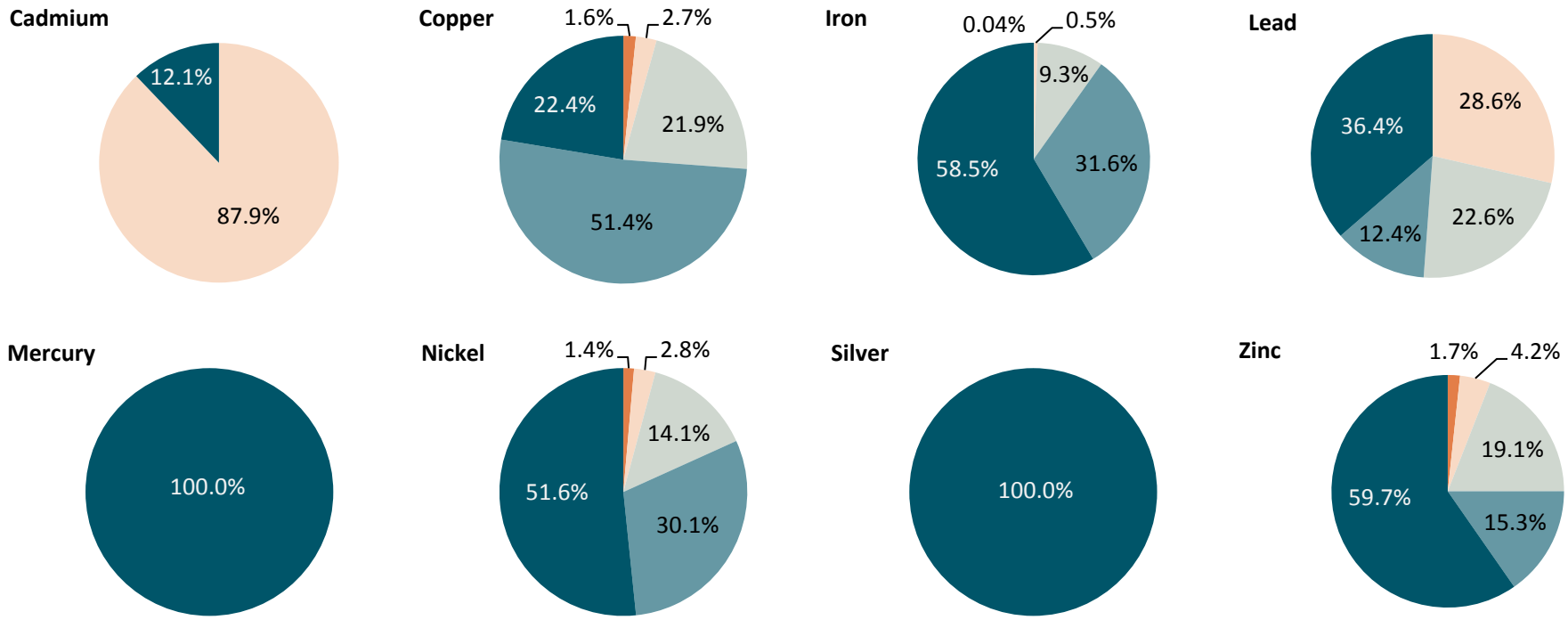


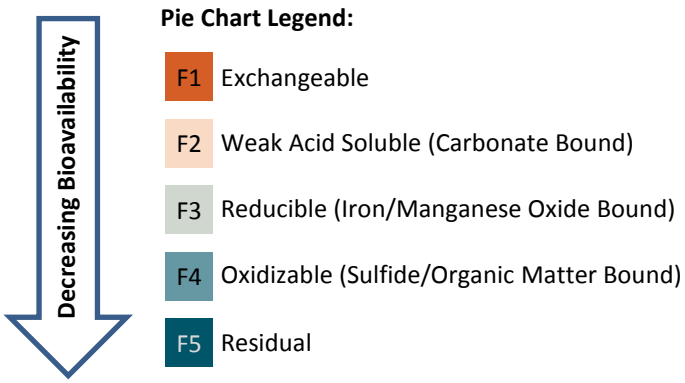


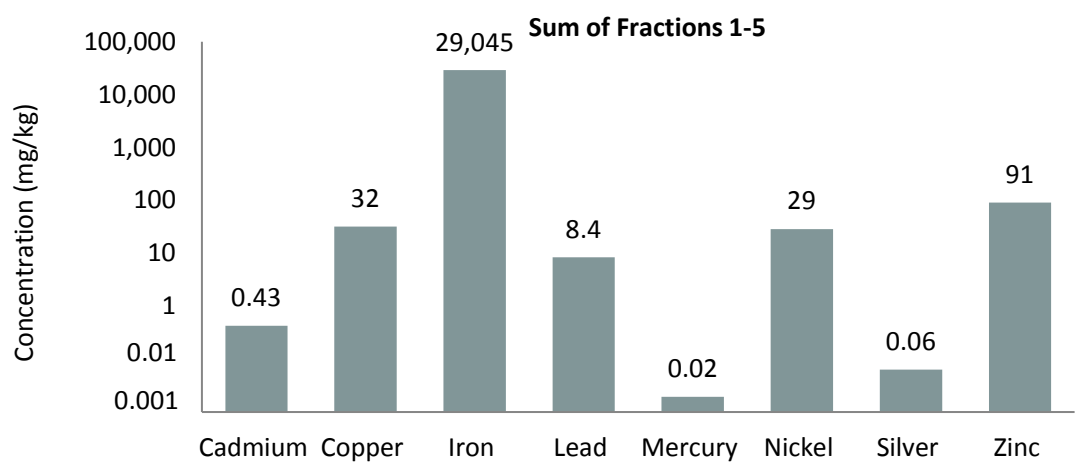


Note: Only detected fractions are shown in the pie charts.

Chart 23
Station NC079 75 – 85 cm Sequential Extraction Results

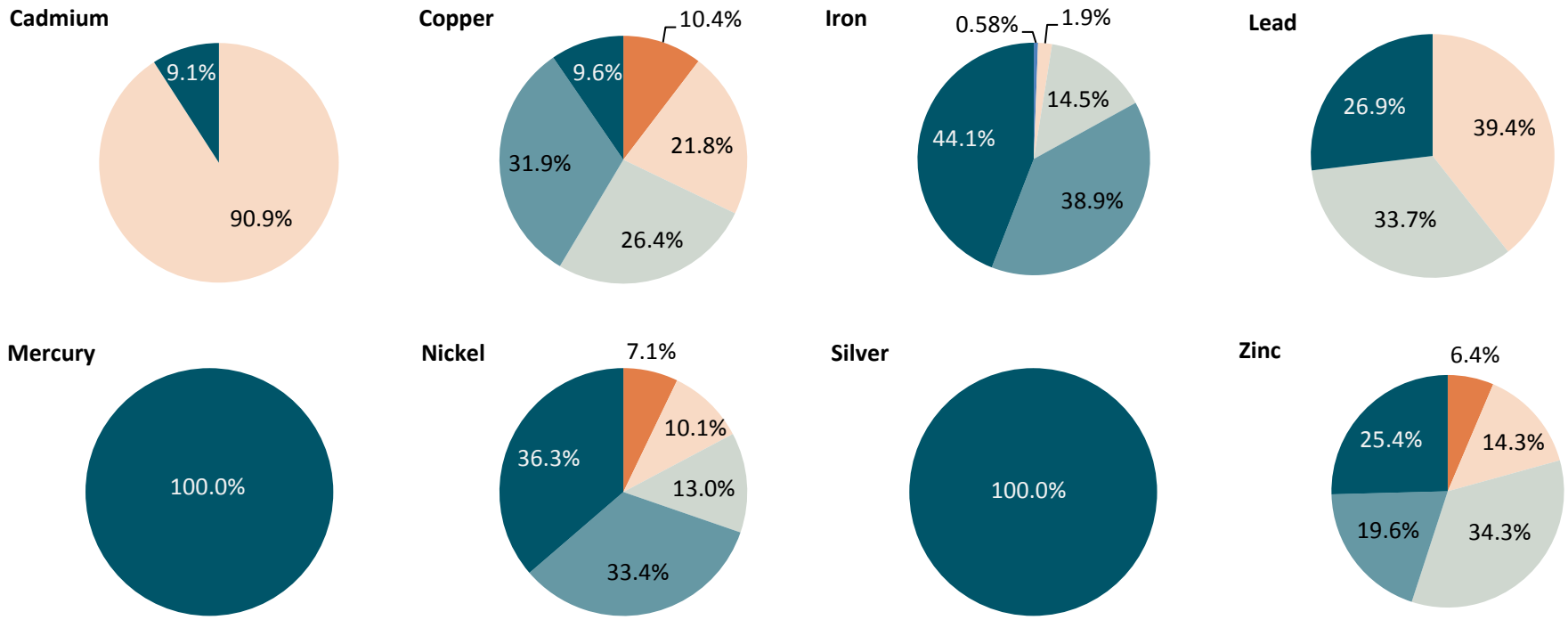


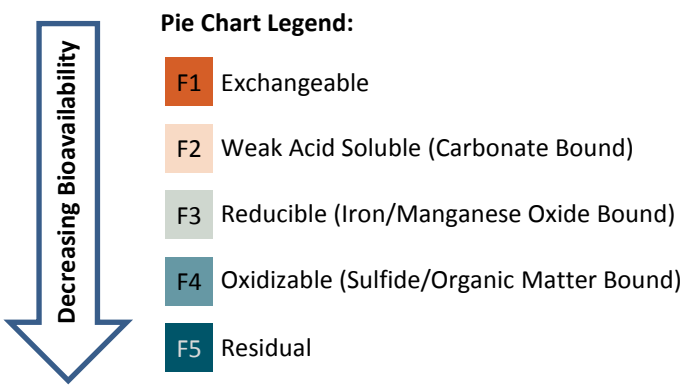


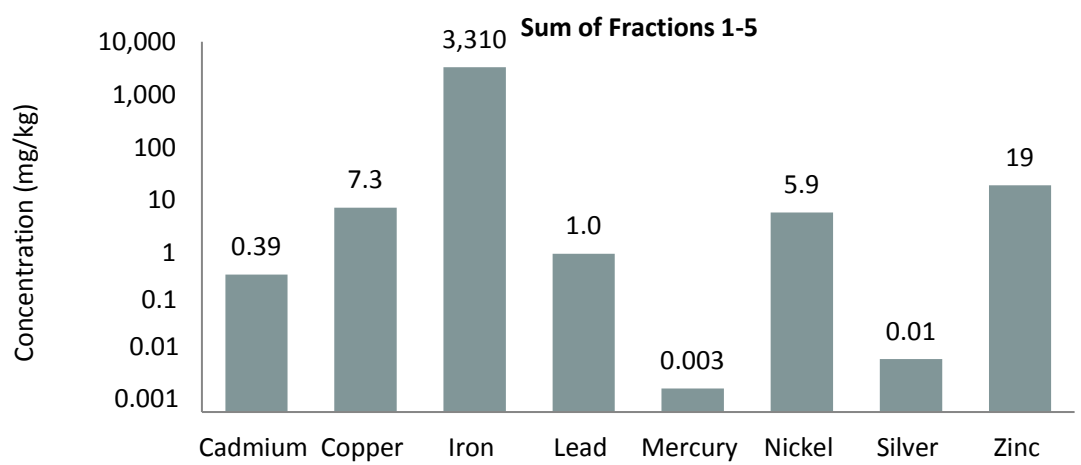


Note: Only detected fractions are shown in the pie charts.

Chart 24
Station NC079 150 – 160 cm Sequential Extraction Results







Note: Only detected fractions are shown in the pie charts.

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  /MISSING=ANALYSIS.
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T-Test

Notes

Output Created		11-Dec-2015 15:13:02
Comments		
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[DataSet2] C:\Users\jvolosin\Documents\Newtown\2014 Events\Data Check\AVS_SEM_Eva

Paired Samples Statistics

		Mean	N
Pair 1	In-Situ, SUM(SEM-AVS)_µmol/gram	-155.482155	60
	Pre-Test, SUM(SEM-AVS)_µmol/gram	-115.349137	60

Paired Samples Correlations

		N	Correlation
Pair 1	In-Situ, SUM(SEM-AVS)_µmol/gram & Pre-Test, SUM(SEM-AVS)_µmol/gram	60	.598

Paired Samples Tes

		Paired Diffe	
		Mean	Std. Deviation
Pair 1	In-Situ, SUM(SEM-AVS)_µmol/gram - Pre-Test, SUM(SEM-AVS)_µmol/gram	-40.1330183	98.2042657

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  /MISSING=ANALYSIS.
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T-Test

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	N of Rows in Working Data File	60
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.

Syntax		T-TEST PAIRS=InSituSUMSEMAVS_µmolgram WITH PostTestSUMSEMAVS_µmolgram (PAIRED) /CRITERIA=CI(.9500) /MISSING=ANALYSIS.
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```
[DataSet2] C:\Users\jvolosin\Documents\Newtown\2014 Events\Data Check\AVS_SEM_Eva
```

Paired Samples Statistics

		Mean	N
Pair 1	In-Situ, SUM(SEM-AVS)_µmol/gram	-155.482155	60
	Post-Test, SUM(SEM-AVS)_µmol/gram	-109.117533	60

Paired Samples Correlations

		N	Correlation
Pair 1	In-Situ, SUM(SEM-AVS)_µmol/gram & Post-Test, SUM(SEM-AVS)_µmol/gram	60	.595

Paired Samples Tes

		Paired Diffe	
		Mean	Std. Deviation
Pair 1	In-Situ, SUM(SEM-AVS)_µmol/gram - Post-Test, SUM(SEM-AVS)_µmol/gram	-46.3646217	100.0741368

```
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T-Test

Notes

Output Created	11-Dec-2015 15:13:02

Comments		
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	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
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	Elapsed Time	00:00:00.000

[DataSet2] C:\Users\jvolosin\Documents\Newtown\2014 Events\Data Check\AVS_SEM_Eva

Paired Samples Statistics

		Mean	N
Pair 1	Pre-Test, SUM(SEM-AVS)_µmol/gram	-115.349137	60
	Post-Test, SUM(SEM-AVS)_µmol/gram	-109.117533	60

Paired Samples Correlations

		N	Correlation
Pair 1	Pre-Test, SUM(SEM-AVS)_µmol/gram & Post-Test, SUM(SEM-AVS)_µmol/gram	60	.848

Paired Samples Tes

	Paired Diffe	

		Mean	Std. Deviation
Pair 1	Pre-Test, SUM(SEM-AVS)_µmol/gram - Post-Test, SUM(SEM-AVS)_µmol/gram	-6.2316033	56.0358235

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  /MISSING=ANALYSIS.
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	N of Rows in Working Data File	60
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST PAIRS=InSituSUMSEMAVSfOC_µmolgramOC WITH PreTestSUMSEMAVSfOC_µmolgramOC (PAIRED) /CRITERIA=CI(.9500) /MISSING=ANALYSIS.
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[DataSet2] C:\Users\jvolosin\Documents\Newtown\2014 Events\Data Check\AVS_SEM_Eva
```

Paired Samples Statistics

		Mean	N
Pair 1	In-Situ, SUM(SEM-AVS)/fOC_µmol/gramOC	-2402.251361	60
	Pre-test, SUM(SEM-AVS)/fOC_µmol/gramOC	-1653.177036	60

Paired Samples Correlations

		N	Correlation
Pair 1	In-Situ, SUM(SEM-AVS)/fOC_µmol/gramOC & Pre-test, SUM(SEM-AVS)/fOC_µmol/gramOC	60	.356

Paired Samples Tes

		Paired Diffe	
		Mean	Std. Deviation
Pair 1	In-Situ, SUM(SEM-AVS)/fOC_µmol/gramOC - Pre-test, SUM(SEM-AVS)/fOC_µmol/gramOC	-749.0743245	1787.9481499

```
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  /MISSING=ANALYSIS.
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T-Test

Notes

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Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST PAIRS=InSituSUMSEMAVSfOC_µmolgramOC WITH PostTestSUMSEMAVSfOC_µmolgramOC (PAIRED) /CRITERIA=CI(.9500) /MISSING=ANALYSIS.
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

```
[DataSet2] C:\Users\jvolosin\Documents\Newtown\2014 Events\Data Check\AVS_SEM_Eva
```

Paired Samples Statistics

		Mean	N
Pair 1	In-Situ, SUM(SEM-AVS)/fOC_µmol/gramOC	-2402.251361	60
	Post-test, SUM(SEM-AVS)/fOC_µmol/gramOC	-1491.984381	60

Paired Samples Correlations

		N	Correlation
Pair 1	In-Situ, SUM(SEM-AVS)/fOC_µmol/gramOC & Post-test, SUM(SEM-AVS)/fOC_µmol/gramOC	60	.224

Paired Samples Test

		Paired Diffe	
		Mean	Std. Deviation
Pair 1	In-Situ, SUM(SEM-AVS)/fOC_µmol/gramOC - Post-test, SUM(SEM-AVS)/fOC_µmol/gramOC	-910.2669797	1901.9540980

```
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  /CRITERIA=CI(.9500)
  /MISSING=ANALYSIS.
```

T-Test

Notes

Output Created		11-Dec-2015 15:13:02
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	N of Rows in Working Data File	60
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST PAIRS=PreTestSUMSEMAVSfOC_µmolgramOC WITH PostTestSUMSEMAVSfOC_µmolgramOC (PAIRED) /CRITERIA=CI(.9500) /MISSING=ANALYSIS.
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[DataSet2] C:\Users\jvolosin\Documents\Newtown\2014 Events\Data Check\AVS_SEM_Eva

Paired Samples Statistics

		Mean	N
Pair 1	Pre-test, SUM(SEM-AVS)/fOC_µmol/gramOC	-1653.177036	60
	Post-test, SUM(SEM-AVS)/fOC_µmol/gramOC	-1491.984381	60

Paired Samples Correlations

		N	Correlation
Pair 1	Pre-test, SUM(SEM-AVS)/fOC_µmol/gramOC & Post-test, SUM(SEM-AVS)/fOC_µmol/gramOC	60	.689

Paired Samples Test

		Paired Diffe	
		Mean	Std. Deviation
Pair 1	Pre-test, SUM(SEM-AVS)/fOC_µmol/gramOC - Post-test, SUM(SEM-AVS)/fOC_µmol/gramOC	-161.1926552	750.6710658

al\AVS_SEM_121215.sav

Std. Deviation	Std. Error Mean
117.1753368	15.1272709
98.7030243	12.7425056

Sig.
.000

t

rences					
	95% Confidence Interval of the Difference				
Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
12.6781162	-65.5018702	-14.7641665	-3.166	59	.002

al\AVS_SEM_121215.sav

Std. Deviation	Std. Error Mean
117.1753368	15.1272709
103.6803887	13.3850806

Sig.
.000

t

rences					
	95% Confidence Interval of the Difference				
Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
12.9195155	-72.2165125	-20.5127308	-3.589	59	.001

al\AVS_SEM_121215.sav

Std. Deviation	Std. Error Mean
98.7030243	12.7425056
103.6803887	13.3850806

Sig.
.000

t

rences				
	95% Confidence Interval of the Difference			

Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
7.2341937	-20.7071915	8.2439848	-.861	59	.392

PAIRED)

al\AVS_SEM_121215.sav

Std. Deviation	Std. Error Mean
1884.6068044	243.3016922
981.9576015	126.7701812

Sig.
.005

t

rences					
	95% Confidence Interval of the Difference				
Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
230.8231136	-1210.9503080	-287.1983410	-3.245	59	.002

(PAIRED)

al\AVS_SEM_121215.sav

Std. Deviation	Std. Error Mean
1884.6068044	243.3016922
916.4782725	118.3168362

Sig.
.085

t

rences					
	95% Confidence Interval of the Difference				
Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
245.5412182	-1401.5938225	-418.9401369	-3.707	59	.000

(PAIRED)

al\AVS_SEM_121215.sav

Std. Deviation	Std. Error Mean
981.9576015	126.7701812
916.4782725	118.3168362

Sig.
.000

t

rences					
	95% Confidence Interval of the Difference				
Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
96.9112179	-355.1115543	32.7262439	-1.663	59	.102

Table E1-1

Statistical Comparison between In Situ, Pre- and Post-Toxicity Test AVS and SEM Data

Test Pair	Sig. (2-tailed)
In situ, ∑(SEM − AVS), µmol/gram compared to pre-test, ∑(SEM − AVS), µmol/gram	0.002
In situ, ∑(SEM − AVS), µmol/gram compared to post-test, ∑(SEM − AVS), µmol/gram	0.001
Pre-test, ∑(SEM − AVS), µmol/gram compared to post-test, ∑(SEM − AVS), µmol/gram	0.392

Acronyms:
µmol/gram = micrograms per gram
∑ = sum
AVS = acid volatile sulfide
SEM = simultaneously extracted metals

ATTACHMENT F

FISH AND CRAB LIFE HISTORY SUMMARIES

- Attachment F1a Newtown Creek Group Fish and Crab Life History Summaries
- Attachment F1b USEPA, NOAA, and USFWS Life History Scenarios for Migratory Species

ATTACHMENT F1A
NEWTOWN CREEK GROUP FISH AND CRAB LIFE HISTORY SUMMARIES

1 STRIPED BASS

1.1 General Life History

Striped bass (*Morone saxatilis*) is an anadromous fish that ranges naturally from the Gulf Coast of the United States to the St. Lawrence River, Canada; in addition, they have been introduced in other regions, including the West Coast. They utilize freshwater, estuarine, and nearshore marine habitats for spawning, foraging, or migratory corridors at various life stages. Along the East Coast, regions that contribute significantly to the coastal abundance of striped bass include the Roanoke River-Albemarle Sound, Chesapeake Bay, Delaware River, and Hudson River. These populations display varying degrees of migratory behavior, from permanent residence in freshwater to coast-wide migrations (Bain and Bain 1982; USFWS 1983; FAO 2002; Gahagan et al. 2015).

Striped bass live up to 30 years and spawn once a year (typically between April and June), multiple times in a lifetime. Adults migrate inshore during the spring to broadcast spawn in turbid, shallow freshwater habitats including rock and gravel substrate. Fertilized eggs drift in currents until larvae hatch and develop the ability to swim. Larvae and juveniles use various nearshore microhabitats and feed on zooplankton, macroinvertebrates, small fish, and other food items, based on availability. In the Lower Hudson River estuary (below the Federal Dam at Troy), spawning typically occurs in freshwater tributaries. In their first year of life, striped bass move downstream in the Lower Hudson River estuary (Dovel 1992).

In the mid-Atlantic region, juvenile male bass range up to 3 years of age and approximately 300 millimeters (mm); juvenile female bass range up to 5 years of age and approximately 500 mm (Bain and Bain 1982; Fay et al. 1983). In a recent evaluation of distribution, movement, and habitat use of small striped bass in New Jersey, researchers classified striped bass less than 200 mm as juveniles, fish between 200 mm and 460 mm as small fish of unknown maturity, and fish greater than 460 mm as adults (Able et al. 2012). These size categories are used in the discussion of striped bass movement patterns presented here.

In the Study Area, 9 of 273 striped bass were less than 200 mm and therefore probably juveniles (3.3%); 57 were greater than 460 mm and therefore probably adults (21%). One fish collected in Newtown Creek had a floy tag from a Hudson River Foundation passive

tagging study; information received from the Hudson River Foundation identified this fish as having been tagged off lower Manhattan 10 years prior to its collection. Finally, 207 were between 200 and 460 mm total length (TL) and therefore of unknown maturity (76%). Based on the published length-at-age data, most of the striped bass collected in Newtown Creek were likely aged 3 or 4 (Able et al. 2012).

Below, movement and migration patterns are described for adults and for smaller bass that are of unknown maturity, because both of these age groupings together represent greater than 97% of the striped bass collected in the Study Area and are therefore relevant to understanding movement patterns of Newtown Creek striped bass.

1.1.1 Diet

Young-of-year (YOY) striped bass consume plankton primarily (Walter et al. 2003). Once the fish reach approximately 50 mm, the diets shift, typically including shrimp, amphipods, and juvenile fishes (Jordan et al. 2003; Hartman and Brandt 1995; Walter et al. 2003). Fish become increasingly more important in the diets of juvenile striped bass larger than approximately 100 mm, and by age 2, striped bass are primarily piscivorous (Setzler-Hamilton and Hall 1991, quoting Bason 1971). Walter et al. (2003) concludes that "in all regions, across most seasons and in most size classes of striped bass, the clupeid fishes; menhaden, anchovies (*Anchoa* spp.) and river herrings (*Alosa* spp,) and Atlantic herring (*Clupea harengus* L.) dominated the diets of striped bass above the first year of life" (see also Manooch 1973).

In the northeast United States, striped bass often feed on sand shrimp and amphipods in winter until alosines (e.g., blueback herring) arrive in the spring and Atlantic menhaden in summer (Walter et al. 2003). However, sand shrimp and amphipods were found only in low numbers in Newton Creek during the field investigation (Anchor QEA 2013). Moreover, during the Phase 2 collection in Newtown Creek, striped bass were frequently observed following and feeding upon a school of Atlantic menhaden; both species were captured at the same locations in the Study Area on 10 of 11 sampling dates in June (91% overlap) when survey crews were specifically targeting striped bass. Thus, striped bass within the size range

observed in Newtown Creek (greater than 300 mm; likely more than 1 year old) are expected to be primarily or completely piscivorous.

The predominance of clupeids in striped bass diet is likely due to similar migratory patterns and abundance of these species along the coast. These prey species are pelagic, wide-ranging filter-feeders (Manooch 1973; Walter et al. 2003). Thus, a substantial portion of the diet consumed by striped bass within Newtown Creek likely includes prey that range widely, over areas larger than the Study Area. That is, not only does the striped bass exhibit wide-ranging movement, but its primary food does as well. Finally, insofar as the primary prey of striped bass are filter feeders consuming plankton, the water column forms a substantial portion of the base of the food web (Manooch 1973; Walter et al. 2003).

1.2 Seasonal Migration and Movement Patterns

1.2.1 Adults: The Contingent Structure

Like other coastal stocks, adult Hudson River striped bass exhibit variable and extensive migration. Clark (1968) proposed migratory contingents—sub-population aggregates that share common migratory pathways—for the Hudson River stock based on tagging recoveries.[1] More recent evaluations based on otolith microchemistry and active telemetry (Secor 1999; Secor et al. 2001; Wingate and Secor 2007, 2008; Gahagan et al. 2015) have confirmed the following three contingents:

- **Upper Estuary Contingent (UEC).** These are "resident" fish that occupy freshwater and oligohaline (0.5 to 5.0 parts per thousand [ppt]) regions of the Hudson River. These fish are characterized by a directed emigration in the fall and winter to brackish water reaches of the river, followed by an upriver migration to spawn and feed in freshwater reaches during spring and summer months.
- **Ocean Contingent (OC).** This is a coastal migratory group that inhabits marine environments and makes annual excursions into freshwater to spawn. Telemetry

[1] "Contingent" is the term used by striped bass researchers to represent the groups of striped bass that inhabit the same estuary but exhibit differing migration patterns (Clark 1968, Waldman et al. 1990, Secor et al. 2001, etc.). "We use the term *population* in this report in its general sense; i.e., to refer to all striped bass that occupy a given area within the range of the species…The term *contingent* is used to describe a group of fish that engage in a common pattern of seasonal migration between feeding areas, wintering areas, and spawning areas" (Clark 1968).

research indicates that this contingent utilizes the estuary as a migratory corridor and that residence is limited and occurs only in spring and summer months. Occupancy in both freshwater and brackish reaches of the Hudson River and estuary is, therefore, the lowest for this contingent.

- **Lower Estuary Contingent (LEC).** These are fish that occupy coastal mesohaline (approximately 5 to 18 ppt) and polyhaline (18 to 30 ppt) waters in the New York City Harbor region and Long Island Sound. (Gahagan et al. [2015] defines this region to include the Hudson River downstream of the George Washington Bridge, New York Harbor to the Verrazano Narrows Bridge and Kill Van Kull, and the East River to just east of Westchester Creek.) This group is analogous to the Hudson River estuary and Hudson-West Sound contingents identified in earlier studies, although that differentiation was based solely on the lack of mixing between fish tagged in the Long Island Sound and fish tagged in the New York Bay. The LEC is characterized by overwintering and spawning in the Hudson River, then moving into the estuary during summer months to feed (Clark 1968).

Adult striped bass found in Newtown Creek may belong to any of the three above-mentioned contingents but most likely are members of the LEC. Of the three contingents, the LEC fish spend the greatest proportion of their time in the New York Harbor, and in addition, nearly all detections at the East River gate (the receiver located in the East River just east of Westchester Creek) were fish from the LEC (Gahagan et al. 2015).[2]

The Gahagan et al. (2015) study demonstrated that adult striped bass in the LEC likely exhibit widespread movement, exceeding the limits of Newtown Creek. LEC fish were observed ranging throughout the harbor, as well as outside the harbor: the median proportion of time LEC fish were detected in New York Harbor did not exceed 30% during any season (Gahagan et al. 2015). Thus, adults collected in Newtown Creek likely exhibit widespread movement both within and outside the New York Harbor estuary.

[2] Although this contingent structure describes movement patterns of the population in general, there is variability among individuals. For example, contingent membership is not static, as otolith tracer studies have shown that adult striped bass can shift their behaviors from resident to migratory or vice versa (Zlokovitz et al. 2003).

1.2.2 Striped Bass of Unknown Maturity

There are several lines of evidence that indicate that striped bass in the 200 to 460 mm TL range, and therefore of unknown maturity, exhibit widespread movement.

First, several studies have shown that fish in this size range can engage in offshore migration. Juveniles often reach adequate size for offshore migration by age 3 (Bain and Bain 1982; USFWS 1983; FAO 2002), although coastal migration can begin even earlier (Able et al. 2012; Fay et al. 1983; Dovel 1992). Dovel indicates that striped bass originating in the Hudson River exhibit a variety of movement patterns through age 2: "Some juveniles begin to move upstream [in the Hudson River] while others continue to emigrate [toward the estuary and ocean]. During March and April yearling bass tend to move upstream while most age 2 fish move out of the Hudson. Some age 2 fish, however, move upstream and there is evidence suggesting that some striped bass may never leave the estuary" (Dovel 1992, p. 276).

Similarly, Able et al. (2012) conclude that Some Hudson River striped bass may leave their natal estuary for the New York Bight and Long Island Sound at age 1 or 2, presumably to take advantage of more favorable environmental conditions or feeding opportunities in the marine environment or lower-salinity regions of non-natal estuaries. The National Marine Fisheries Service and New Jersey Department of Environmental Protection (NJDEP) ocean trawl survey data reported by Able et al. (2012) showed that considerable numbers of striped bass between 200 and 460 mm were captured in the ocean.

In addition, based on a large tagging study, Waldman et al. (1990) found that some of the striped bass within the size range 200 to 399 mm that were tagged within the Hudson River were caught by anglers outside the river, often at great distances (fish that were caught outside the river were found up to an average of 68 kilometers from the mouth of the river, depending on the time of year [Waldman et al. 1990, Table 4]).

Second, elemental fingerprints in otoliths from Hudson River estuary striped bass demonstrate extensive movement of fish 1 to 3 years of age (Secor et al. 2001, Zlokovitz et al. 2003). Secor et al. (2001) and Zlokovitz et al. (2003) measured strontium/calcium (Sr/Ca) ratios in otoliths, which are indicative of salinity exposure. Otoliths grow in annual rings; by measuring the Sr/Ca ratio over the entire width of the otolith, Secor et al. (2001) and

Zlokovitz et al. (2003) were able to characterize the salinity exposure of individual fish during their entire lifespans. Based on such fingerprints, Secor et al. (2001) grouped striped bass into three categories: resident, mesohaline, and ocean. These categories parallel the Gahagan et al. (2015) contingents (UEC, LEC, and OC). As discussed previously, fish collected in Newtown Creek likely belong to the mesohaline contingent (i.e., the LEC). The representative mesohaline fish presented by Secor et al. (2001) and Zlokovitz et al. (2003) experienced a wide range of salinities during the first 3 years of life, spending a significant portion of that period in water with salinity ranging from less than 5 ppt to more than 30 ppt. This is a broader range than observed in Newtown Creek, where salinities typically range from 15 to 24 ppt. Thus, the otolith microchemistry supports the conclusion that striped bass up to the size range of fish collected in Newtown Creek (of unknown maturity) spend time within the estuary but outside of Newtown Creek.

Third, the data Anchor QEA examined from the Gahagan et al. (2015) telemetry study included 4 (of 33 total, or 12%) striped bass that were equal to or less than 460 mm TL (the minimum size was 410 mm). Study Area fish less than 460 mm TL were observed at receivers in no less than four regions, ranging from the Hudson River to the Atlantic Ocean.

Finally, informal observations support a conclusion that striped bass up to the size range of fish collected in Newtown Creek (of unknown maturity) move within the estuary. As Dovel notes, "I have often observed dramatic changes in the occurrence of young bass in the lower estuary over relatively short periods of time" (Dovel 1992).

In summary, several lines of evidence that indicate that striped bass in the 200 to 460 mm TL range, and therefore of unknown maturity, exhibit widespread movement, suggesting that residency in Newtown Creek is part of a larger pattern of movement throughout the estuary, Hudson River, and ocean environments.

1.3 Conceptual Site Model for Striped Bass Exposure to Contaminants of Potential Concern

The striped bass found in Newtown Creek likely include primarily a combination of adults and smaller individuals of unknown maturity. Based on their size distribution, as well as

several independent lines of evidence (trawl surveys, striped bass telemetry, passive tagging, otolith microchemistry), the striped bass of unknown maturity and adults collected in Newtown Creek are part of larger contingents that range throughout the East River, Hudson River, New York Harbor, Long Island Sound, and possibly the coastal ocean. That striped bass were collected in the Study Area indicates they have spent time in Newtown Creek. The multiple lines of evidence presented here indicate the striped bass that enter Newtown Creek also spend time outside the Study Area.

Sediment, surface water, and tissue data collected in the Hudson River and New York Harbor throughout the years by several parties, including the Contaminant Assessment and Reduction Project (CARP) and the New York State Department of Environmental Conservation's annual tissue collections, indicate widespread polychlorinated biphenyl (PCB) contamination throughout the New York/New Jersey harbor area and upstream in the Lower Hudson River. Therefore, all striped bass entering Newtown Creek have already been exposed to PCBs, likely for all of their previous lives. Exposure within Newtown Creek supplements the existing background body burden. In addition, the tissue body burdens in striped bass collected from the Study Area are influenced by the characteristics of their food web, which consists primarily of migratory, planktivorous fish.

The observation of higher PCB concentrations in striped bass from Newtown Creek than from the reference areas indicates site-related exposure for this species. At this stage in the project, the contributions of Study Area and off-site exposures to body burdens of migratory species cannot be estimated. The relative importance of site-related and regional exposure to migratory species will be evaluated during development of the bioaccumulation model, taking into account patterns in the data, natural history information (e.g., general biology, tagging studies), and insights gained from the modeling.

2 BLUE CRAB

2.1 General Life History

Blue crabs (*Callinectes sapidus*) are found in bays and brackish coastal lagoons and estuaries from Massachusetts Bay south to the eastern coast of South America (USFWS 1989a). Adult blue crabs utilize the entire estuary environment, with males more prevalent in creeks and

rivers and females moving to high salinity areas of lower estuaries to spawn after mating. Likewise, younger crabs prefer shallow waters with soft detritus or mud, and older crabs prefer deeper waters with harder substrates (USFWS 1989a). Blue crabs undergo seasonal movements within the estuary as adults, typically between salt and brackish waters.

Adult blue crabs reach sexual maturity after 18 to 20 post-larval molts, typically at the age of 1 to 1.5 years. Males continue to molt and grow after they reach sexual maturity, but females cease to molt and grow when they mature and mate. Female and male blue crabs typically live to 2 and 3 years, respectively (USFWS 1989a). Females only mate once but store sperm for future spawning events that may occur up to three to four times annually (Kenney 2002).

Blue crabs mate in relatively low salinity waters in the upper areas of estuaries/lower portions of rivers. Females subsequently migrate to areas of high salinity prior to releasing fertilized eggs; males tend to remain in the upper estuary (Kenney 2002). Blue crab larvae, termed zoeae, are flushed by wind-driven currents offshore to the continental shelf where they continue to develop. Zoeae develop into megalopae—a 6- to 20-day larval stage—and eventually molt into the juvenile "first crab" stage (USFWS 1989a). These juveniles move into estuaries and utilize intertidal marshes, seagrass beds, and soft-sediment bottoms (USFWS 1989a). The assemblage of blue crab along the mid-Atlantic coast is best considered a metapopulation; larvae from multiple spawning grounds mix in offshore environments, then redistribute into various estuaries. Thus, larval settlement and development does not necessarily occur in the parent estuary (Epifanio 1995).

Although submerged aquatic vegetation is important for juveniles in the Chesapeake Bay, in other systems, soft-bottom substrate with detritus, sand/mud substrate, and salt marsh are important as well (Hines 2007; Rakocinski et al. 2003). Overall, the soft-sediment bottom of Newtown Creek and its tributaries offer potential habitat for larval and mature blue crabs. Both male and female blue crabs are found in Newtown Creek.

Blue crabs are omnivorous and can even be considered both predators and scavengers at various stages of their life cycle. They feed on a variety of items based on their locale, including dead and live fish, crabs, mollusks, shrimp, aquatic plants, and organic detritus.

Blue crabs are also important prey for many different fishes and birds, including summer flounder, striped bass, and herons (USFWS 1989a; Hines 2007).

2.2 Seasonal Migration and Movement Patterns

Adult blue crabs are excellent swimmers and also can move quickly on land. They rarely move from one estuarine system to another after maturing. When they do leave an estuary, they usually remain in adjacent coastal areas, though a few tagged female crabs have been recovered hundreds of kilometers from their release site.

Migrations of blue crabs within estuarine systems are related to phases of their life cycle, to the season, and (to a lesser extent) to searching for favorable environmental conditions. Adult blue crabs, mostly female, move to relatively deeper, warmer waters in winter and return to rivers, tidal creeks, salt marshes, and sounds when conditions become more favorable in the spring, and young blue crabs and male blue crabs tend to burrow into the sediment to overwinter in their summer habitat (USFWS 1989a; Funderburk 1991). During sampling events in 2014, more than 240 blue crabs were individually measured. Approximately two-thirds of the catch was male. Average carapace widths for both sexes suggest there was a large component of age 1 or older individuals sampled.

Blue crabs also will move to avoid severely hypoxic (less than 2 milligrams oxygen per liter [mg oxygen/L]) water (Pihl et al. 1991; Bell et al. 2003). Furthermore, there is evidence that they will move from mildly hypoxic (less than 4 mg oxygen/L) as well (Bell et al. 2003). In 2011, 2012, 2013 and 2014, dissolved oxygen concentrations dropped below 4 mg/L in much or all of the creek (Anchor QEA 2016, Figure 8-11), suggesting the possibility that environmental conditions may influence the movement of Newtown Creek blue crabs.

Thus, the contaminant levels found in adult female blue crab tissues collected within the Study Area represent exposures that may have occurred over a broader geographical area than represented by the boundaries of the Study Area, while young blue crabs and male blue crabs may have exposures that occurred over a smaller geographical area. As noted for striped bass, tissue samples of blue crab collected within the Study Area had higher concentrations of several contaminants than samples from the reference areas. The relative

contributions will be evaluated further as part of the development of the bioaccumulation model.

3 ATLANTIC MENHADEN

3.1 General Life History

Atlantic menhaden are an estuarine-dependent, marine clupeid that are seasonally abundant in the Mid-Atlantic region (Ahrenholz 1991; USFWS 1989b). They are considered to be a single population by commercial fisheries, ranging from Nova Scotia to Florida, and undergo extensive seasonal migrations. Atlantic menhaden school with fish of similar size and age in nearshore marine waters, with greatest abundance near major estuaries (Ahrenholz 1991). In addition, Atlantic menhaden are prey for numerous piscivores, such as striped bass and bluefish.

Atlantic menhaden typically live up to 10 to 12 years. A small percentage of Atlantic menhaden become sexually mature during their second year of life and most are sexually mature by the end of their third year (Ahrenholz 1991). They are multiple spawners and reproductive activity is closely associated with the migratory behavior of adults. Some degree of spawning activity likely occurs every month of the year (Ahrenholz 1991; Anstead et al. 2015). After spawning offshore in deep continental shelf waters, Atlantic menhaden larvae rely on ocean circulatory patterns to migrate to nursery grounds in estuaries (Anstead et al. 2015; Lozano and Houde 2013).

Atlantic menhaden are filter-feeding planktivores, feeding on diatoms as well as small zooplankton and detritus from the water column (Ahrenholz 1991). Phytoplankton consumed are primarily dinoflagellates and diatoms and preferred zooplankton at all life stages of copepods. As the fish grows, diet shifts to larger organisms, primarily zooplankton. Organic material consisting of mud and detritus has also been reported from Atlantic menhaden stomachs (Ahrenholz 1991).

3.2 Seasonal Migrations

Atlantic menhaden make extensive coast-wide migrations based on age and season (Ahrenholz 1991; Anstead et al. 2015). Adults are distributed by size and age throughout

their range during summer months, with greater proportions of older fish in the northern half of their range (Ahrenholz 1991; Anstead et al. 2015; Lozano and Houde 2013). Beginning in September, adults and juveniles from more northerly latitudes move to coastal waters of North Carolina. By January, schools disperse from nearshore waters off the North Carolina coast, and during March or early April, schools reassemble and move rapidly northward. By June, the population is redistributed by size and age throughout their range.

Atlantic menhaden found in the Study Area are seasonal migrants from larger populations. There is no breeding habitat for Atlantic menhaden in the immediate area and adults are only present in considerable numbers from June through September based on commercial harvest statistics (NOAA 2015). Likewise, juveniles in New England enter estuaries at 45 to 60 days of age between May and October but move southward following adults in the fall (Ahrenholz 1991). Consequently, Atlantic menhaden sampled in the Study Area in June are migrants from a large population with an extensive coastal range.

4 MUMMICHOG

4.1 General Life History

Mummichog (*Fundulus heteroclitus*) are an abundant killifish (*Oviparous cyprinodontiform* fishes) found in coastal habitats along the Atlantic Coast of North America from Canada to Florida. Although a few landlocked populations may exist, mummichog are typically found in brackish estuaries, salt marshes, and tidal creeks, seldom upstream of tidal influence. Groups of several hundred individuals are often found, and some populations in the northern parts of their range move upstream to overwinter in the substrate of tidal pools. Mummichog are also known for their hardiness and tolerance of a wide range of salinity, oxygen levels, temperature, and pollution in their environment (USFWS 1978, 1985).

Mummichog typically live 3 to 4 years and may spawn up to eight times per season after reaching maturity during their first or second year of life (USFWS 1978, 1985). Breeding mummichog have been documented in fresh, brackish, and salt water but most commonly in estuarine and salt marsh environments. Spawning season is dependent on latitude but is typically between June and August in the Northeast United States. Eggs are laid during spring high tide on algal mats, in empty mussel shells, or on aquatic plants. Mummichog

eggs require incubation in air and are not submerged until the following spring high tide after they are laid.

Mummichog are opportunistic omnivores best suited for surface feeding but also will feed in mid-water or on the bottom based on prey availability (USFWS 1985). Adults feed on a variety of food sources in the water column, subtidal benthos, and intertidal benthos, with the exception of detritus. The most commonly consumed food items are copepods, amphipods, and polychaetes. Other foods include a wide variety of organisms and plants, such as phytoplankton, mollusks, insect larvae, small fish, fish eggs, beetles, bivalves, and crustaceans (USFWS 1985). Mummichog become increasingly active when water reaches 15 degrees Celsius, and feeding in New England marshes may begin during the first week in April (USFWS 1985).

4.2 Seasonal Migrations

Mummichog exhibit a high degree of site fidelity, with typical summer home ranges reported to be between 36 and 375 meters (m; USFWS 1985; Lotrich 1975; Skinner et al. 2005). However, in a study of mummichog habitat use and movement patterns in a tidal marsh, Teo and Able (2003) estimated a home range of 15 hectares at high tide for adults and large young of the year, which as noted by the authors, is much larger than reported elsewhere. It is noted that the linear distance traveled within that home range was not greater than 600 m. Although inter-annual site fidelity and restricted ranges during summer months is well-documented, there is limited or inconsistent information regarding overwintering behavior of mummichog (USFWS 1985; Skinner et al. 2005). The life history does, however, report that during the winter, adults can migrate downstream to the mouth of the tidal channel, into deeper water, or upstream to burrow in sediments during winter months (USFWS 1985). Mummichog are abundant throughout the Study Area and due to the lack of tidal marsh, likely reside within a limited range (e.g., less than 300 m) during summer months. Although there are no data on mummichog in the Study Area during the winter, it is possible that adults move upstream or downstream for some portion of the year.

5 SPOT

5.1.1 General Life History

Spot (*Leiostomus xanthurus*) is a member of the drum family, which includes weakfish, red drum, black drum, spotted seatrout, and Atlantic croaker. Spot are common along the Atlantic coast from Cape Cod south to the Bay of Campeche, Mexico (Hill 2005). They are most closely associated with tidal creeks and other shallow habitats, which provide prey and refuge from predators such as striped bass, weakfish, and bluefish (Hill 2005). Spot will grow to approximately 11 inches in total length by their third year and have a lifespan of approximately 5 years (Hill 2005).

Spot displays two distinct feeding modes during its life history—larvae are selective plankton-feeders, whereas juveniles and adults commonly consume worms, small crustaceans, and organic detritus from the bottom of the river or estuary (Hill 2005). The diet often reflects prey availability in specific areas (Hales and Van den Avyle 1989 as cited in Hill 2005). In the Chesapeake Bay, Chao and Musick (1977) report that adult spot feed on zooplankton and benthic infauna, with polychaetes most frequently observed in gut contents. Other prey types included amphipods, crustaceans, gastropods, nematodes, mysids, and copepods.

5.1.2 Seasonal Migration

In North America, spot typically migrate offshore and spawn in the relatively deep water of the outer continental shelf from October to March (Lewis and Judy 1983 as cited in Hill 2005). The larvae are passively transported to estuaries. During the first winter, juveniles may remain in the estuary or tidal creeks but move offshore during the following fall to spawn.

6 REFERENCES

Able et al. (Able, K.W., T.M. Grothues, J.T. Turnure, D.M. Byrne, and P. Clerkin), 2012. Distribution, movements, and habitat use of small striped bass (*Morone saxatilis*) across multiple spatial scales. *Fishery Bulletin.* 110:176–192.

Ahrenholz, D.W., 1991. Population Biology and Life History of the North American Menhadens, Brevoortia spp. *Marine Fisheries Review* 53(4):3-19.

Anchor QEA (Anchor QEA, LLC), 2013. *Phase 1 Remedial Investigation Field Program Data Summary Report –Submittal No. 1*. Remedial Investigation/Feasibility Study, Newtown Creek. January 2013.

Anchor QEA. 2016. *Baseline Ecological Risk Assessment*. Draft. Remedial Investigation/Feasibility Study, Newtown Creek. February 2016.

Anstead et al. (Anstead, K.A., J.J. Schaffler, and C.M. Jones), 2015. Coastwide Otolith Signatures of Juvenile Atlantic Menhaden, 2009–2011. *Transactions of the American Fisheries Society* 144(1):96–106.

Bain and Bain (Bain, M.B. and J.L. Bain), 1982. *Habitat Suitability Index Models: Coastal Stocks of Striped Bass*. U.S. Fish and Wildlife Service Biological Report. FWS/OBS-82/10.1. February 1982.

Bason, W.H. 1971. Ecology and early life history of striped bass, Morone saxatilis in the Delaware Estuary. Ichthyol. Assoc. Bull. 4, 122 p.

Chao and Musick (Chao, L.N., and J.A. Musick), 1977. Life History, Feeding Habits, and Functional Morphology of Juvenile Sciaenid Fishes in the York River Estuary, Virginia. Fish Bulletin 75(4):657-702.

Clark, J., 1968. Seasonal Movements of Striped Bass Contingents of Long Island Sound and the New York Bight. *Transactions of the American Fisheries Society* 97(4):320–43.

Dovel, W.L., 1992. Movements of immature striped bass in the Hudson Estuary. *Estuarine Research in the 1980s: Hudson River Environmental Society, Seventh Symposium on Hudson River Ecology*. Edited by C. Lavett Smith. Albany: State University of New York Press. Pages 274-300

Epifanio, C.E., 1995. Transport of Blue Crab (*Callinectes sapidus*) Larvae in the Waters off Mid-Atlantic States. *Bulletin of Marine Science* 57(3):713–25.

FAO (Food and Agriculture Organization of the United Nations), 2002. *The Living Marine Resources of the Western Central Atlantic – Volume 2: Bony Fishes*. Rome: FAO Species Identification Guide for Fishery Purposes and American Society of Ichthyologists and Herpetologists Special Publication No. 5.

Fay et al. (Fay, C.W., R.J. Neves, and G.B. Pardue), 1983. Species Profile: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates (Mid-Atlantic) - Striped Bass. U.S. Army Corps of Engineers Report No. TR EL-82-4.

Funderburk, S.L. (ed.), 1991. *Habitat Requirements for Chesapeake Bay Living Resources*. Prepared for Living Resources Subcommittee Chesapeake Bay Program. Chesapeake Bay: Habitat Objectives Workgroup.

Gahagan et al. (Gahagan, B.I., D.A. Fox, and D.H. Secor), 2015. Partial Migration of Striped Bass: Revisiting the Contingent Hypothesis. *Marine Ecology Progress Series* 525:185-97.

Hartman and Brandt (Hartman, K.L., and S.B. Brandt), 1995. Trophic Resource Partitioning, Diets, and Growth of Sympatric Estuarine Predators. *Transactions of the American Fisheries Society* 124:520-537.

Hill, K., 2005. Smithsonian Marine Station at Fort Pierce, Leiostomus xanthurus. Updated: June 9, 2005. Accessed: February 12, 2013. http://www.sms.si.edu/irlspec/Leiosto_xanthu.htm

Hines, A.H., 2007. *The Blue Crab:* Callinectes sapidus, edited by V.S. Kennedy and L.E. Cronin. College Park: Maryland Sea Grant College.

Jordan et al. (Jordan, R.C., D.V. Howe, T.P. Hurst, and F. Juanes), 2003. Feeding Habits of Age-0 Striped Bass, *Morone saxatilis*, in the Mid-Hudson River Estuary: Temporal, Spatial, and Ontogenetic Variation. *Estuaries* 26(6):1486–1493.

Kenney, G., 2002. *Annual Report on the Commercial Monitoring of the Hudson River Blue Crab Fishery*. New England Interstate Water Pollution Control Commission and New York State Department of Environmental Conservation. March 2002.

Lotrich, V.A., 1975. Summer Home Range and Movement of *Fundulus Heteroclitus* (Pisces: Cyprinodontidae) in a Tidal Creek. *Ecology* 56:191-198.

Lozano and Houde (Lozano, C., and E.D. Houde), 2013. Factors Contributing to Variability in Larval Ingress of Atlantic Menhaden, Brevoortia tyrannus. *Estuarine, Coastal and Shelf Science* 118:1–10.

Manooch, C.S., 1973. Food Habits of Yearling and Adult Striped Bass, *Morone saxatilis* (Walbaum), from Albemarle Sound, North Carolina. *Chesapeake Science* 14(2):73-86.

NOAA (National Oceanic and Atmospheric Administration), 2015. National Oceanic and Atmospheric Administration, Office of Science and Technology, Commercial Fisheries Statistics. Accessed: August 25, 2015. Available from: http://www.st.nmfs.noaa.gov/st1/commercial/index.html.

Rakocinski et al. (Rakocinski, C.F., H.M. Perry, M.A. Abney, and K.M. Larsen), 2003. Soft-Sediment Recruitment Dynamics of Early Blue Crab Stages in Mississippi Sound. *Bulletin of Marine Science* 72(2):393–408.

Secor, D.H., 1999. Specifying Divergent Migrations in the Concept of Stock: the Contingent Hypothesis. *Fisheries Research* 43(1-3):13–34.

Secor et al. (Secor, D.H., J.R. Rooker, E. Zlokovitz, V.S. Zdanowicz), 2001. Identification of Riverine, Estuarine, and Coastal Contingents of Hudson River Striped Bass Based Upon Otolith Elemental Fingerprints. *Marine Ecology Progress Series* 211:245–253.

Setzler-Hamilton, E.M., and Hall Jr, L., 1991. *Striped bass (Morone saxatilis)*. Habitat Requirements for Chesapeake Bay Living Resources. U.S. Environmental Protection Agency, Chesapeake Bay Program.

Skinner et al. (Skinner, M.A., S.C. Courtenay, W.R. Parker, and R.A. Curry), 2005. Site Fidelity of Mummichogs (*Fundulus heteroclitus*) in an *Atlantic Canadian Estuary. Water Quality Research Journal of Canada* 40(3):288–298.

Teo and Able (Teo, S.L.H. and K.W. Able), 2003. Habitat Use and Movement of the Mummichog (*Fundulus heteroclitus*) in a Restored Salt Marsh. *Estuaries* 26(3):720-730.

USFWS (U.S. Fish and Wildlife Service), 1978. *Development of Fishes of the Mid-Atlantic Bight: An Atlas of Egg, Larval, and Juvenile Stages – Volume II – Anguillidae through Syngnathidae*. Biological Services Program. FWS/OBS-78/12. January 1978.

USFWS, 1983. *Species profiles: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates (Mid-Atlantic) Striped Bass*. Division of Biological Services. FWS/OBS-82/11.8. October 1983.

USFWS, 1985. *Species profiles: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates (Mid-Atlantic) Mummichog and Striped Killifish*. Biological Report 82 (11.40). June 1985.

USFWS, 1989a. *Species Profiles: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates (Mid-Atlantic) Blue Crab*. Biological Report 82(11.100). TR EL-82-4. March 1989.

USFWS, 1989b. *Species Profiles: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates (Mid-Atlantic) Atlantic Menhaden*. Biological Report 82(11.108). TR EL-82-4. August 1989.

Waldman et al. (Waldman, J.R., D.J. Dunning, Q.E. Ross, and M.T. Mattson), 1990. Range dynamics of Hudson River striped bass along the Atlantic coast. Transactions of the American Fisheries Society 119: 910-919.

Walter et al. (Walter, J.F., A.S. Overton, K.H. Ferry, and M.E. Mather), 2003. Atlantic Coast Feeding Habits of Striped Bass: A Synthesis Supporting a Coast-Wide Understanding of Trophic Biology. *Fisheries Management and Ecology* 10(5):349–60.

Wingate and Secor (Wingate, R.L. and D.H. Secor), 2007. Intercept Telemetry of the Hudson River Striped Bass Resident Contingent: Migration and Homing Patterns. *Transactions of the American Fisheries Society* 136(1):95–104.

Wingate and Secor (Wingate, R.L. and D.H. Secor), 2008. *Migration Patterns of Resident Hudson River Striped Bass*. University of Maryland Center for Environmental Science. Technical Report Series No. TS-540-08. January 2008.

Zlokovitz et al. (Zlokovitz, E.R., D.H. Secor, and P.M. Piccoli), 2003. Patterns of migration in Hudson River striped bass as determined by otolith microchemistry. *Fisheries Research* 63: 245-259.

ATTACHMENT F1B

USEPA, NOAA, AND USFWS LIFE HISTORY SCENARIOS FOR MIGRATORY SPECIES

Blue Crab

Blue crabs (*Calinectes sapidus*) have a lifespan of approximately 3 years, with males and females having different migration patterns. Males generally remain in the estuary for their lifespan while females will migrate back to the interface of the estuary and ocean to spawn. Female blue crabs carry eggs on their abdomen, and the larvae that hatch from the eggs are dispersed into the water column at the interface of estuaries and the open ocean. The larvae exist as zooplankton and travel to inland estuaries where they develop into their benthic form.

The table below shows the potential timeframes for blue crab use of Newtown Creek and the reference areas. In summary, male blue crabs would have three years of residency in Newtown Creek and the reference areas (their entire lifespan) and female blue crabs would have approximately two years of residency in Newtown Creek.

Life Stage	Month	Duration	Comments
Larvae	June-July	2 months	Zooplankton in water column – ocean
Juvenile	July-June (first year)	1 year	Newtown Creek/Reference Area
Adult – male	July-June (second year)	1 year	Newtown Creek/Reference Area
Adult – male	July-June (third year)	1 year	Newtown Creek/Reference Area
Adult – female	July-October (second year)	4 months	Newtown Creek/Reference Area
Adult – female	November-May (second year)	7 months	Estuary/ocean interface
Adult – female	June-July (second/third year)	2 months	Newtown Creek/Reference Area
Adult – female	August-October (third year)	3 months	Newtown Creek/Reference Area
Adult – female	November-June (third year)	8 months	Estuary/ocean interface

*Information compiled from Van Heukelem – Habitat Requirements for Chesapeake Bay Living Resources. 1991.

Mummichog

Mummichog (*Fundulus heteroclitus*) are resident in Newtown Creek and the Reference Areas. Home range is being derived based on site-specific data.

Atlantic Menhaden

Atlantic menhaden (*Brevoortia tyrannus*) have a life span of greater than 7 years. Atlantic menhaden spawn in the late spring to late summer (May-September) in open ocean or estuarine waters and they spend the first month of their life as ichthyoplankton. The larvae grow into young fish within 6 to 12 months in estuaries and tributaries. Adult fish migrate to the ocean in the winter and return to the estuary in the spring. The table below shows the potential time frames for Atlantic menhaden to be in Newtown Creek or the Reference Areas. In summary, Atlantic menhaden would have a residency of 12 months as juveniles and seven months per year as adults for the next six years.

Life Stage	Month	Duration	Comments
Larvae	May-September (July midpoint)	30 days	Zooplankton in ocean
Juvenile	July-June (first year)	1 year	Newtown Creek/Ref Areas
Adult	April-October (2nd through 7th year)	7 months/year	Newtown Creek/Ref Areas
Adult	November-March (2nd through 7th year)	5 months/year	Ocean

*Information was compiled from Lippson – Habitat Requirements for Chesapeake Bay Living Resources. 1991.

Striped Bass

Striped bass (*Morone saxatilis*) have a lifespan of up to 30 years, with an average of eight years. Striped bass are anadromous, living in estuarine and marine waters and migrating to freshwater to spawn. Eggs are deposited in freshwater in the spring (April-May), and hatch into larvae which become part of the zooplankton for up to 6 months. The larvae and post-larvae drift downstream toward nursery areas located in river deltas and the inland portions of coastal sounds and estuaries in the fall (NYSDEC, www.dec.ny.gov/animals/7018.html). Post-larval and juvenile striped bass remain in the coastal sounds and estuaries for two to three years until becoming adults. Adult striped bass migrate to ocean in the fall and return to the estuaries and freshwater to spawn in the spring.

Gahagan (2015) has suggested three distinct contingents of adult striped bass in the Hudson River system, with one group belonging to an ocean contingent (OC), one to a lower estuary (NY/NJ Harbor) contingent (LEC) and one that belongs to the Upper Hudson contingent (UHC). All three contingents use the upper Hudson River for spawning in the spring, while the LEC remains in the NY/NJ Harbor area for 8 months, and the OC spends the majority of time in the ocean. The table below shows the potential time frames for striped bass to be in Newtown Creek or the Reference Areas.

In summary, striped bass would have a residency of 24 months as juveniles in Newtown Creek or Reference Areas, and some portion of less than or equal to 8 months per year as adults, depending upon contingent. A conservative estimate would indicate the LEC are present in Newtown Creek or the Reference Areas for 8 months out of the year.

Life Stage	Month	Duration	Comments
Larvae	April-September	6 months	Upper Hudson River
Juvenile	October-September (first year)	1 year	Newtown Creek/Reference Areas
Juvenile	October-September (second year)	1 year	Newtown Creek/Reference Areas
Adult – OC	October-March/June-September	10 months	Ocean
	April	>1 month	Newtown Creek/Reference Areas
	May	1 month	Upper Hudson River
Adult – LEC	March-May	3 months	Upper Hudson River
	June-February	≤9 months	Newtown Creek/Reference Areas
Adult – UHC	September-October/April-August	7 months	Upper Hudson River
	November-March	5 months	Newtown Creek/Reference Areas

*Information was compiled from Setzler-Hamilton and Hall – Habitat Requirements for Chesapeake Bay Living Resources. 1991.

Full Citation for William Van Heukelem (blue crab), Robert L. Lippson (Atlantic menhaden), Eileen M. Setzler-Hamilton and Lenwood Hall, Jr. (striped bass): Habitat Requirements for Chesapeake Bay Living Resources. 1991. Revised Edition. Editors: S. L. Funderburk, J.A. Mihursky, S.J. and Jordan, D. Riley. Prepared for Living Resources Subcommittee, Chesapeake Bay Program. Prepared by Chesapeake Research Consortium, Inc., Solomons, MD.

ATTACHMENT G1

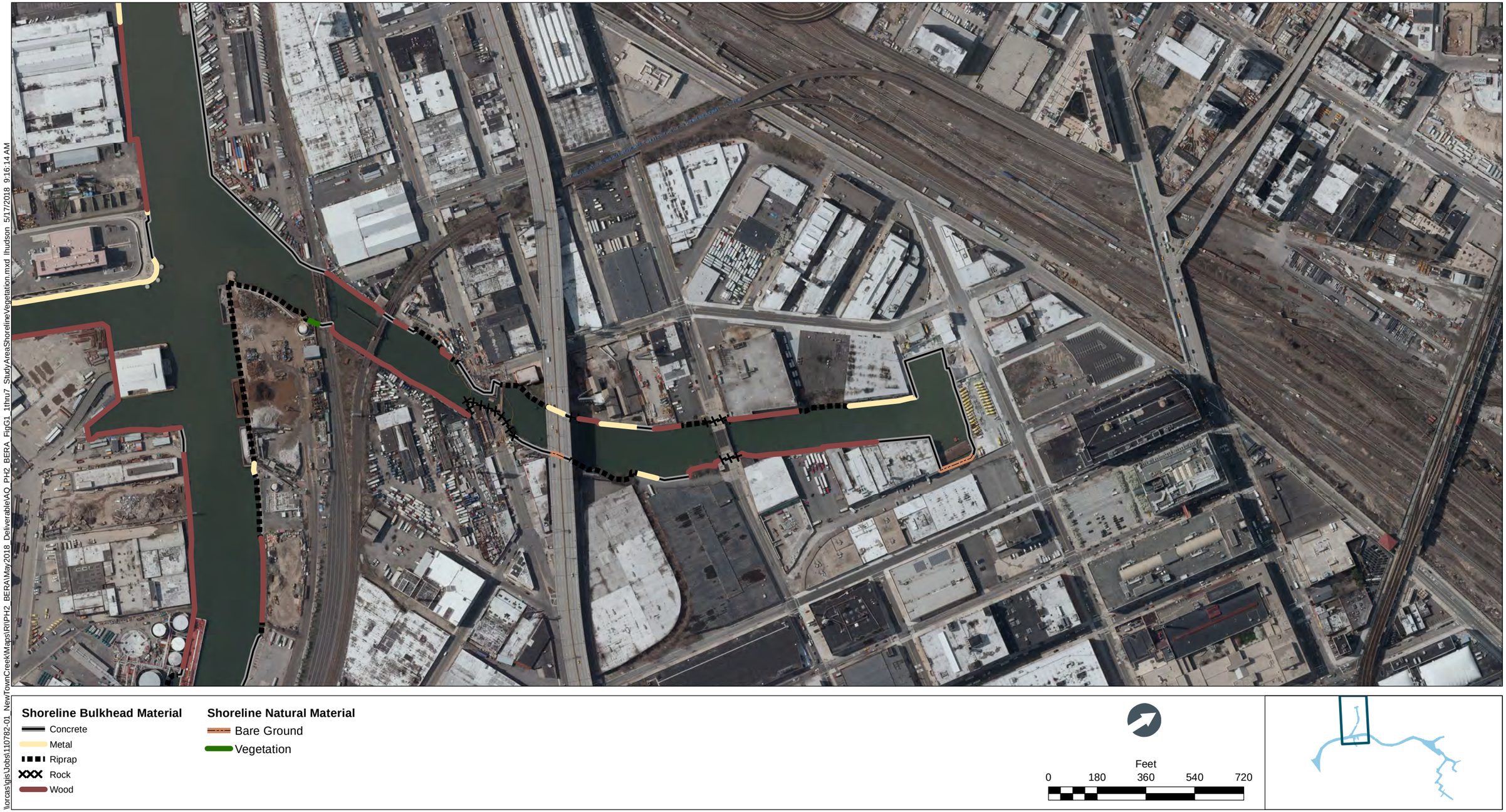
STUDY AREA AND REFERENCE AREA SHORELINE MATERIAL AND VEGETATION HEALTH

- Figures G1-1 through G1-7 Study Area Shoreline Material and Vegetation Health
- Figures G1-8 through G1-30 Reference Area Shoreline Material and Vegetation Health

\\orcas\gis\Jobs\110782-01_NewTownCreek\Maps\RI\PH2_BERA\May2018_Deliverable\AO_PH2_BERA_FigG1_1thru7_StudyAreaShorelineVegetation.mxd lhudson 5/17/2018 9:15:15 AM

ANCHOR QEA

Figure G1-1
Study Area Shoreline Material
Baseline Ecological Risk Assessment
Newtown Creek RI/FS



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ANCHOR QEA

Figure G1-2
Study Area Shoreline Material
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Shoreline Bulkhead Material
- Concrete
- Metal
- Riprap
- Rock
- Wood

Shoreline Natural Material
- Bare Ground
- Vegetation

Feet
0 180 360 540 720

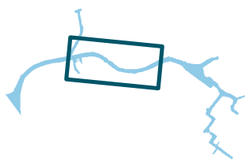

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Figure G1-3
Study Area Shoreline Material
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

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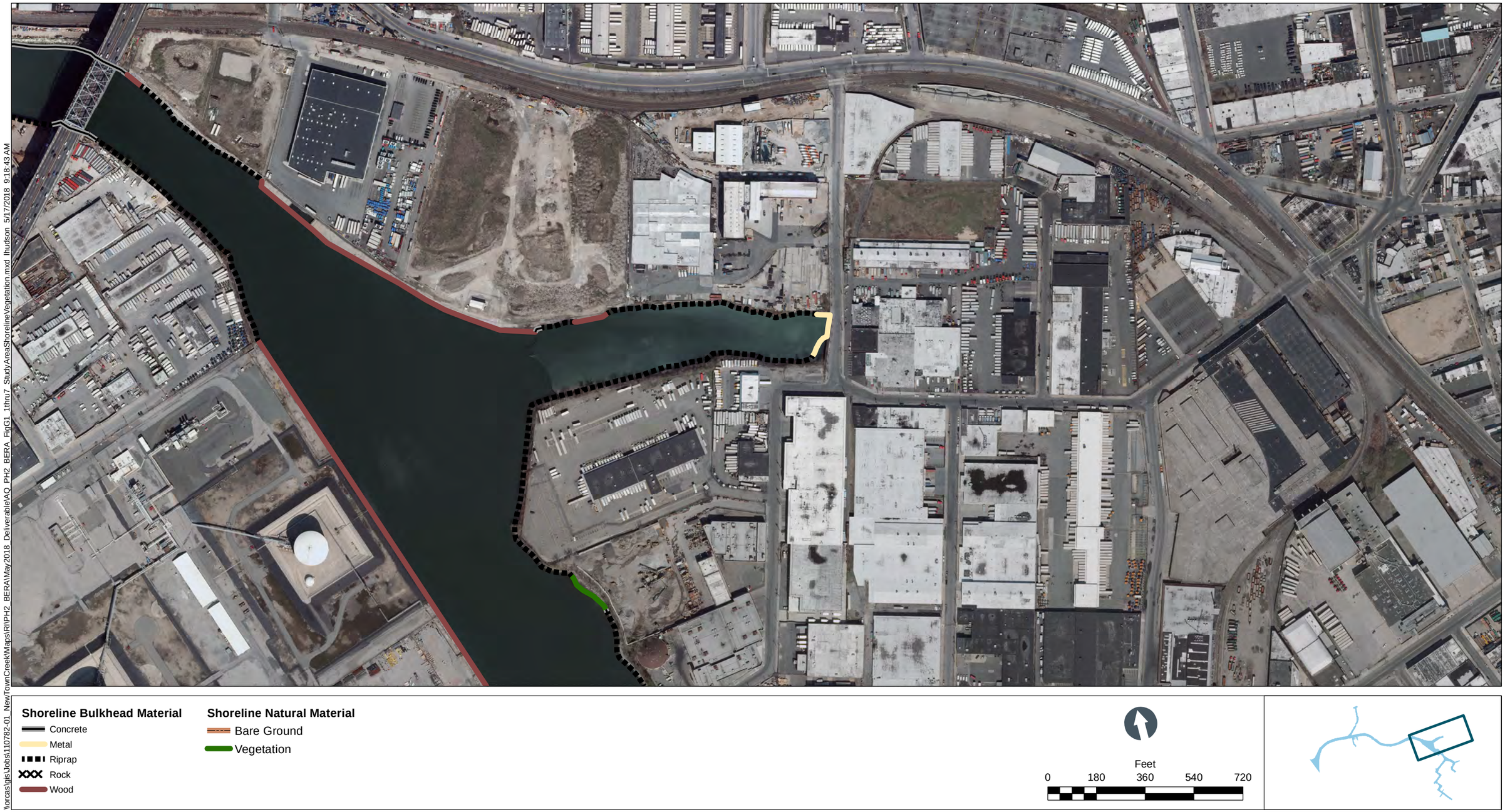
Figure G1-4
Study Area Shoreline Material
Baseline Ecological Risk Assessment
Newtown Creek RI/FS



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ANCHOR QEA

Figure G1-5
Study Area Shoreline Material
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Shoreline Bulkhead Material
- Concrete
- Metal
- Riprap
- Rock
- Wood

Shoreline Natural Material
- Bare Ground
- Vegetation

Feet
0 180 360 540 720

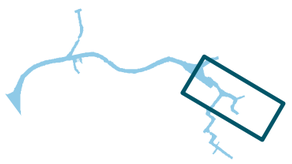

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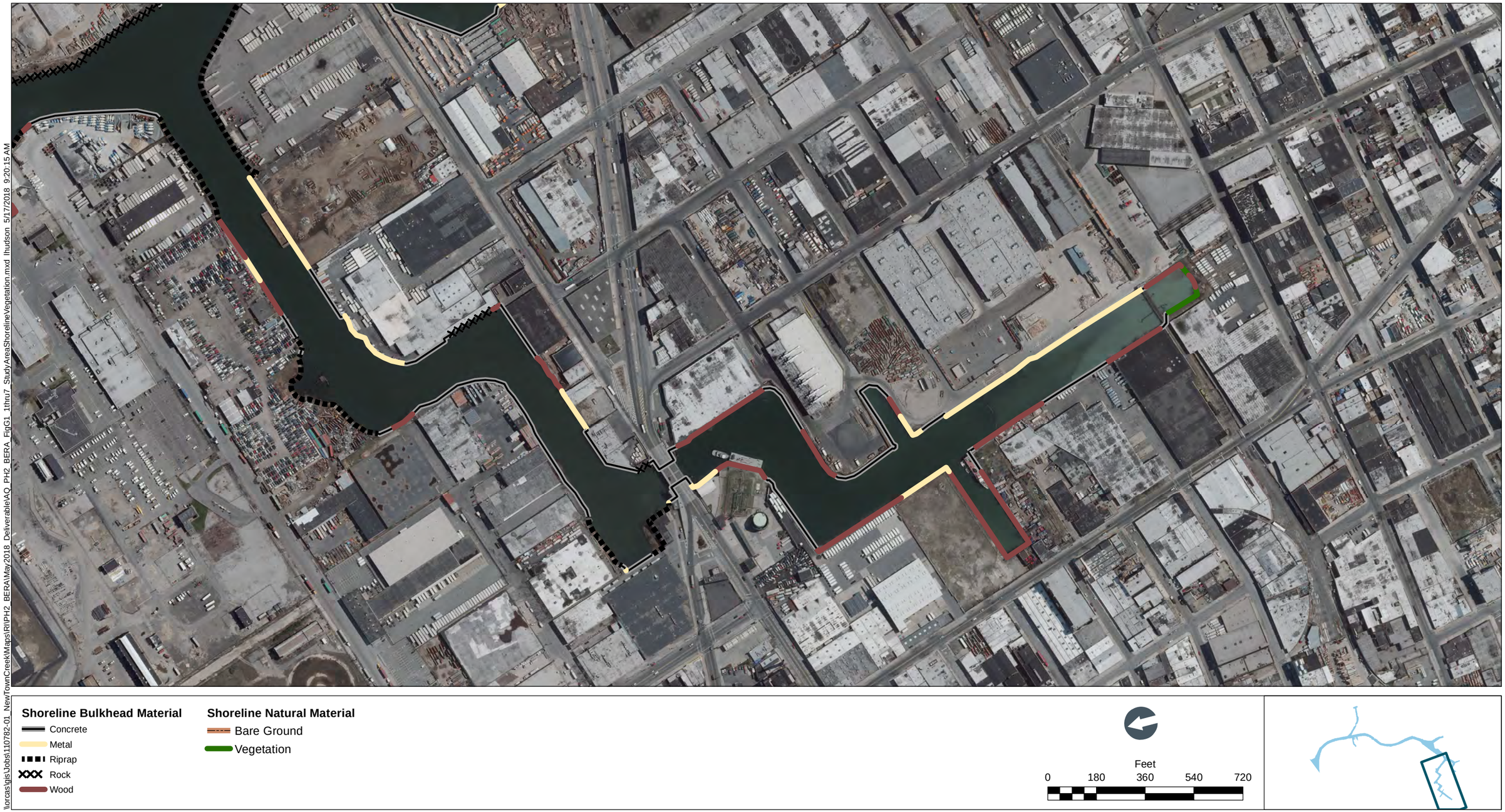
Figure G1-6
Study Area Shoreline Material
Baseline Ecological Risk Assessment
Newtown Creek RI/FS



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ANCHOR QEA

Figure G1-7
Study Area Shoreline Material
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

ATTACHMENT G1

STUDY AREA AND REFERENCE AREA SHORELINE MATERIAL AND VEGETATION HEALTH

- Figures G1-1 through G1-7 Study Area Shoreline Material and Vegetation Health
- Figures G1-8 through G1-30 Reference Area Shoreline Material and Vegetation Health

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ANCHOR QEA

Figure G1-8
Reference Area Shoreline Classification – Westchester Creek
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Shoreline Classification
- Developed
- Vegetated with Development
- Vegetated

Feet
0 100 200 300 400

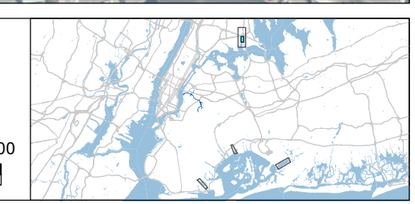

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Figure G1-9
Reference Area Shoreline Classification – Westchester Creek
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

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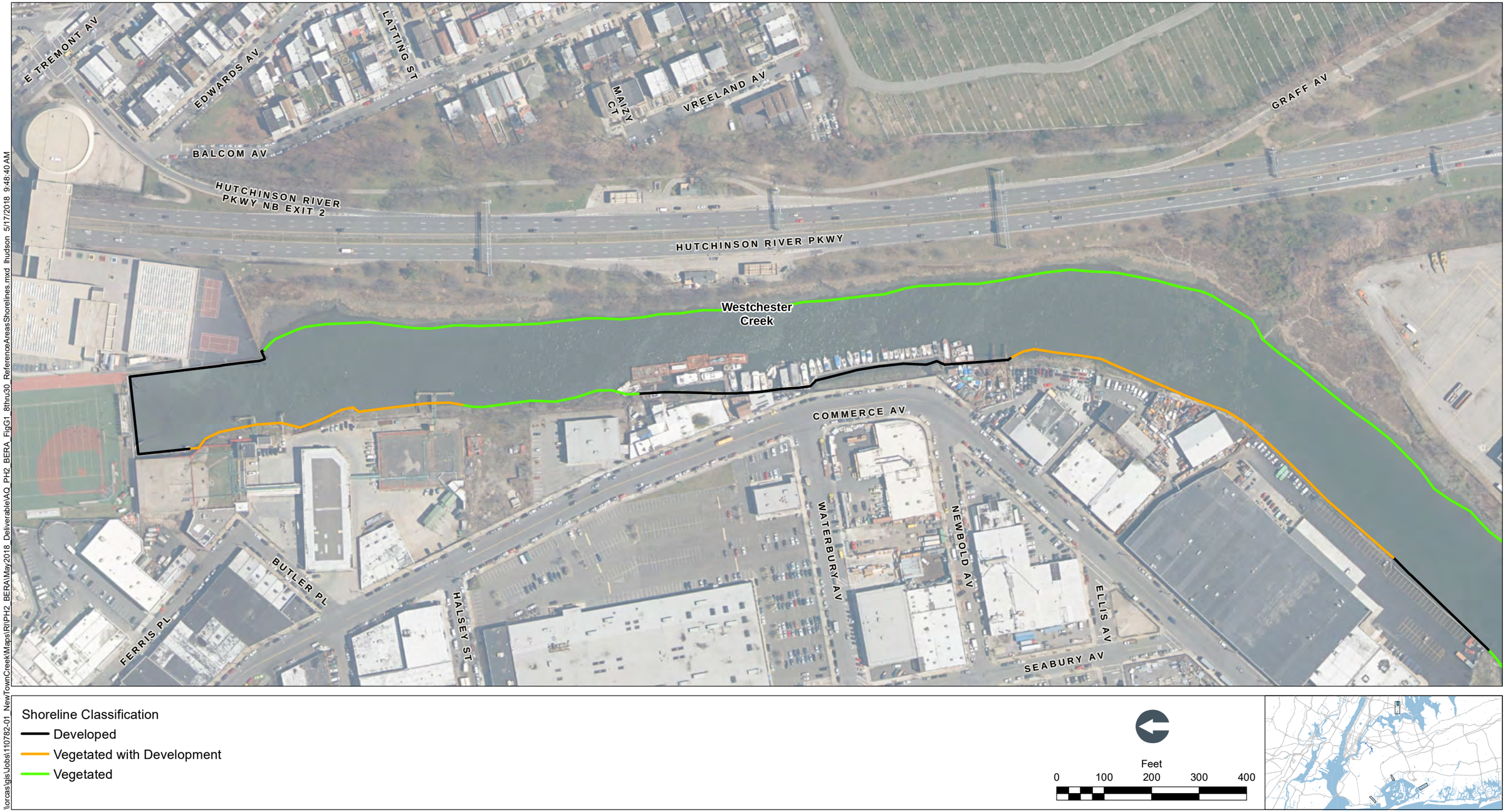
ANCHOR QEA

Figure G1-10
Reference Area Shoreline Classification – Westchester Creek
Baseline Ecological Risk Assessment
Newtown Creek RI/FS



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ANCHOR QEA

Figure G1-11
Reference Area Shoreline Classification – Westchester Creek
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

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ANCHOR QEA

Figure G1-12
Reference Area Shoreline Classification – Westchester Creek
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

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ANCHOR QEA

Figure G1-13
Reference Area Shoreline Classification – Head of Bay
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

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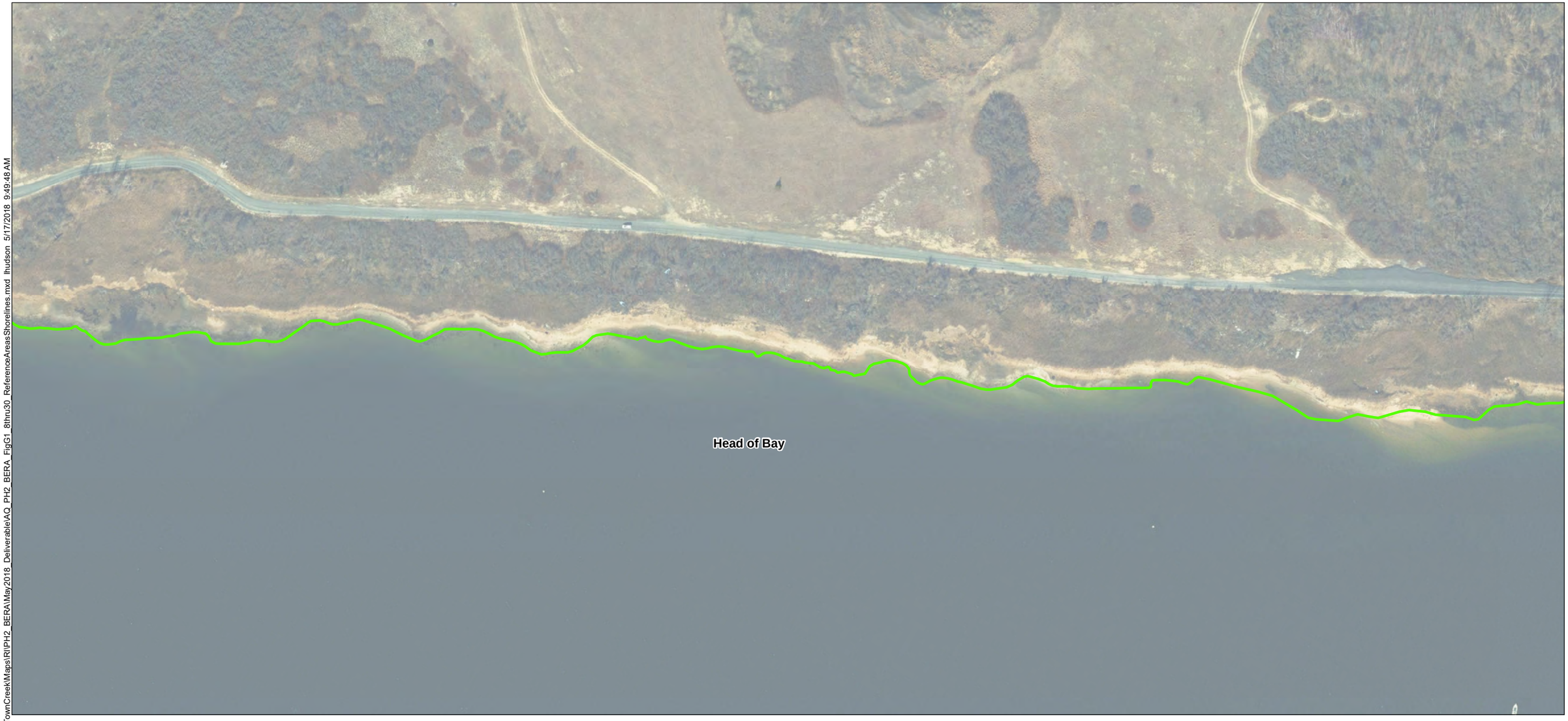
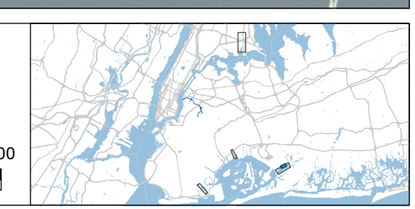
ANCHOR QEA

Figure G1-14
Reference Area Shoreline Classification – Head of Bay
Baseline Ecological Risk Assessment
Newtown Creek RI/FS



Shoreline Classification
- Developed
- Vegetated with Development
- Vegetated

Feet
0 100 200 300 400



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ANCHOR QEA

Figure G1-15
Reference Area Shoreline Classification – Head of Bay
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Shoreline Classification
- Developed
- Vegetated with Development
- Vegetated

Feet
0 100 200 300 400

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ANCHOR QEA

Figure G1-16
Reference Area Shoreline Classification – Head of Bay
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

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ANCHOR QEA

Figure G1-17
Reference Area Shoreline Classification – Head of Bay
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Shoreline Classification
- Developed
- Vegetated with Development
- Vegetated

Feet
0 100 200 300 400

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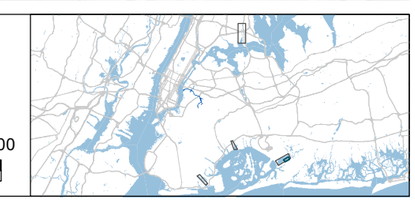
ANCHOR QEA

Figure G1-18
Reference Area Shoreline Classification – Head of Bay
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Shoreline Classification
- Developed
- Vegetated with Development
- Vegetated

Feet
0 100 200 300 400



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ANCHOR QEA

Figure G1-19
Reference Area Shoreline Classification – Head of Bay
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

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ANCHOR QEA

Figure G1-20
Reference Area Shoreline Classification – Head of Bay
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

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ANCHOR QEA

Figure G1-21
Reference Area Shoreline Classification – Head of Bay
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

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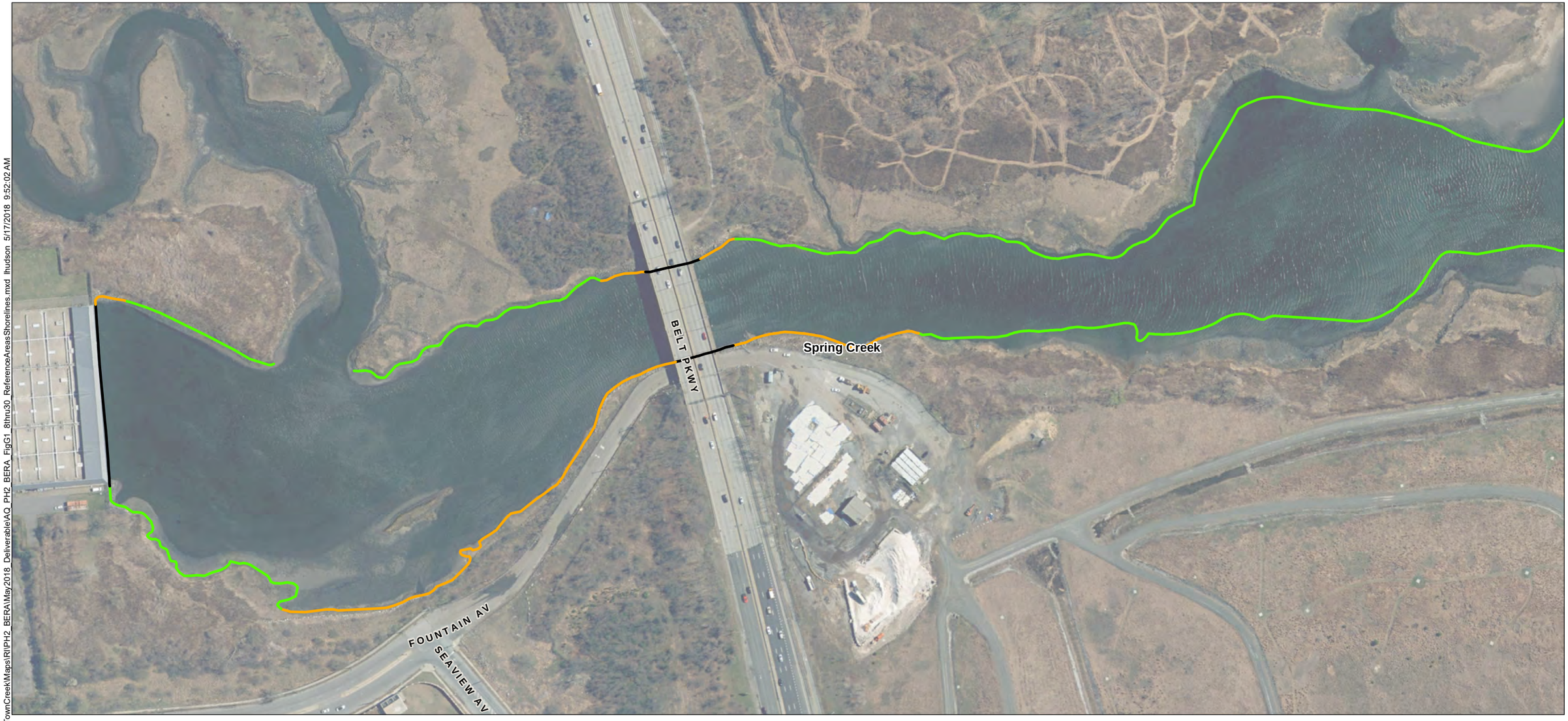
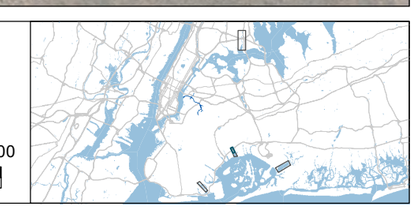
ANCHOR QEA

Figure G1-22
Reference Area Shoreline Classification – Spring Creek
Baseline Ecological Risk Assessment
Newtown Creek RI/FS



Shoreline Classification
- Developed
- Vegetated with Development
- Vegetated

Feet
0 100 200 300 400



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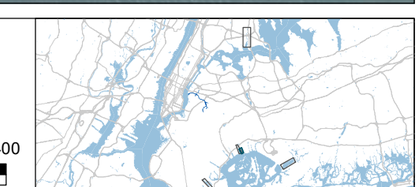
ANCHOR QEA

Figure G1-23
Reference Area Shoreline Classification – Spring Creek
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Shoreline Classification
- Developed
- Vegetated with Development
- Vegetated

Feet
0 100 200 300 400



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ANCHOR QEA

Figure G1-24
Reference Area Shoreline Classification – Spring Creek
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

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ANCHOR QEA

Figure G1-25
Reference Area Shoreline Classification – Spring Creek
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Shoreline Classification
- Developed
- Vegetated with Development
- Vegetated

Feet
0 100 200 300 400

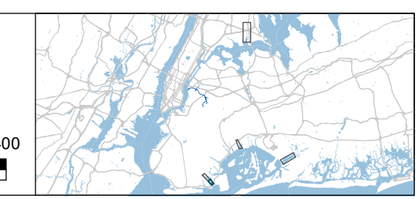

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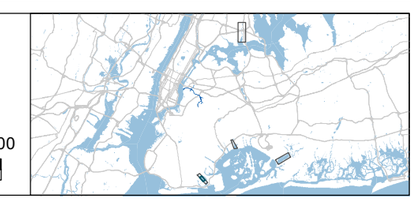
Figure G1-26
Reference Area Shoreline Classification – Gerritsen Creek
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Shoreline Classification
- Developed
- Vegetated with Development
- Vegetated

Feet
0 100 200 300 400



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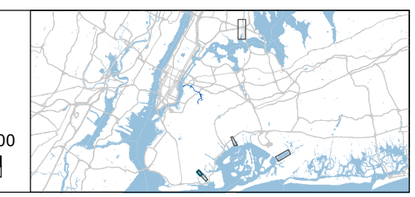
ANCHOR QEA

Figure G1-27
Reference Area Shoreline Classification – Gerritsen Creek
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Shoreline Classification
- Developed
- Vegetated with Development
- Vegetated

Feet
0 100 200 300 400



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ANCHOR QEA

Figure G1-28
Reference Area Shoreline Classification – Gerritsen Creek
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Shoreline Classification
- Developed
- Vegetated with Development
- Vegetated

Feet
0 100 200 300 400

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ANCHOR QEA

Figure G1-29
Reference Area Shoreline Classification – Gerritsen Creek
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

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ANCHOR QEA

Figure G1-30
Reference Area Shoreline Classification – Gerritsen Creek
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

ATTACHMENT G2

STUDY AREA AND REFERENCE AREA SHORELINE/HABITAT PHOTOPLATES

- Figures G2-1a through G2-1c Newtown Creek Photoplates
- Figures G2-2a through G2-2c Westchester Creek Photoplates
- Figures G2-3a through G2-3c Head of Bay Photoplates
- Figures G2-4a through G2-4c Spring Creek Photoplates
- Figures G2-5a through G2-5c Gerritsen Creek Photoplates

Newtown Creek: Lower Mile

Dutch Kills

ANCHOR QEA

Figure G2-1a
Study Area Vegetation (Average width 3.0 feet)
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Newtown Creek: Between Creek Mile 1 and 2

Dutch Kills: Mouth

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Figure G2-1b
Study Area Vegetation (Average width 6.7 feet)
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Maspeth Creek/Turning Basin

Maspeth Creek/Turning Basin

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Figure G2-1c
Study Area Vegetation (Average width 8 feet)
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Developed

Developed

Figure G2-2a
Westchester Creek
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Developed and Vegetated

Developed and Vegetated

ANCHOR QEA

Figure G2-2b
Westchester Creek
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Developed and Vegetated

Vegetated

ANCHOR QEA

Figure G2-2c
Westchester Creek
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Developed

Developed

ANCHOR QEA

Figure G2-3a
Head of Bay
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Developed and Vegetated

Developed and Vegetated

ANCHOR QEA

Figure G2-3b
Head of Bay
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Vegetated

Vegetated

ANCHOR QEA

Figure G2-3c
Head of Bay
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Developed

Developed and Vegetated

ANCHOR QEA

Figure G2-4a
Spring Creek
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Developed and Vegetated

Vegetated

ANCHOR QEA

Figure G2-4b
Spring Creek
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Vegetated

Vegetated

ANCHOR QEA

Figure G2-4c
Spring Creek
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Developed

Developed and Vegetated

ANCHOR QEA

Figure G2-5a
Gerritsen Creek
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Vegetated

Vegetated

ANCHOR QEA

Figure G2-5b
Gerritsen Creek
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Vegetated

Vegetated

ANCHOR QEA

Figure G2-5c
Gerritsen Creek
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

ATTACHMENT G3

STUDY AREA AND REFERENCE AREA WILDLIFE SURVEY DATA

Table G3-1
Study Area and Reference Area Wildlife Survey Data

Common Name	Scientific Name	Feeding Guild	Spring					Summer				
			Study Area	Westchester Creek	Head of Bay	Gerristen Creek	Spring Creek	Study Area	Westchester Creek	Head of Bay	Gerristen Creek	Spring Creek
Birds												
American black duck	*Anas rubripes*	N/A			X	X			X	X	X	X
American crow	*Corvus brachyrhynchos*	N/A	X	X		X	X	X	X	X	X	X
American goldfinch	*Carduelis tristis*	N/A								X		
American kestrel	*Falco sparverius*	Raptor							X		X	
American oystercatcher	*Haematopus palliatus*	Invertivorous			X	X	X		X	X	X	X
American robin	*Turdus migratorius*	N/A	X	X	X	X		X		X		X
Bald eagle	*Haliaeetus leucocephalus*	Raptor								X		
Barn swallow	*Hirundo rustica*	N/A	X	X	X	X	X	X	X	X	X	X
Belted kingfisher	*Ceryle alcyon*	Piscivorous	X					X	X	X	X	X
Black skimmer	*Rynchops niger*	Piscivorous				X				X	X	
Black-bellied plover	*Pluvialis squatarola*	Invertivorous			X		X				X	
Black-capped chickadee	*Parus articapillus*	N/A				X						
Black-crowned night heron	*Nycticorax nycticorax*	Invertivorous/Piscivorous	X	X		X	X	X	X	X	X	X
Brant	*Branta bernicla*	N/A		X	X	X	X					
Broad-winged hawk	*Buteo platypterus*	Raptor							X	X		
Brown-headed cowbird	*Molothrus ater*	N/A		X		X	X		X		X	
Canada goose	*Branta canadensis*	N/A	X	X	X	X	X	X	X	X	X	X
Caspian tern	*Sterna caspia*	Piscivorous		X	X	X	X				X	X
Cedar waxwing	*Bombycilla cedrorum*	N/A										X
Chimney swift	*Chaetura pelagica*	N/A	X								X	
Clapper rail	*Rallus crepitans*	Invertivorous/Piscivorous								X	X	
Cliff swallow	*Petrochelidon pyrrhonota*	N/A		X								
Common goldeneye	*Bucephala clangula*	N/A								X		
Common grackle	*Quiscalus quiscula*	N/A	X	X	X	X	X			X	X	X
Common loon	*Gavia immer*	N/A				X				X	X	
Common tern	*Sterna hirundo*	Piscivorous						X		X		X
Common yellowthroat	*Geothlypis trichas*	N/A		X		X	X					
Double-crested cormorant	*Phalacrocorax auritus*	Piscivorous	X	X	X	X	X	X	X	X	X	X
Downy woodpecker	*Picoides pubescens*	N/A					X				X	
Eastern kingbird	*Tyrannus tyrannus*	N/A		X				X		X		
Eastern phoebe	*Sayornis phoebe*	N/A						X				
Eastern towhee	*Pipilo erythrophthalmus*	N/A									X	
European starling	*Sturnus vulgaris*	N/A	X	X	X	X	X	X	X	X	X	X
Fish crow	*Corvus ossifragus*	N/A		X	X	X	X	X	X		X	X
Forster's tern	*Sterna fosteri*	Piscivorous	X		X	X	X			X	X	X
Gadwall	*Anas strepera*	N/A		X	X	X	X	X	X			
Glaucous-winged gull	*Larus glaucescens*	N/A		X	X	X						
Glossy ibis	*Plegadis falcinellus*	Invertivorous/Piscivorous			X		X				X	
Gray catbird	*Dumetella carolinensis*	N/A	X	X								
Great black-backed gull	*Larus marinus*	N/A	X	X	X	X	X	X	X	X	X	X
Great blue heron	*Ardea herodias*	Invertivorous/Piscivorous				X	X		X	X	X	X

Table G3-1
Study Area and Reference Area Wildlife Survey Data

Common Name	Scientific Name	Feeding Guild	Spring					Summer				
			Study Area	Westchester Creek	Head of Bay	Gerristen Creek	Spring Creek	Study Area	Westchester Creek	Head of Bay	Gerristen Creek	Spring Creek
Great egret	*Ardea alba*	Invertivorous/Piscivorous	X	X	X	X	X	X	X	X	X	X
Greater yellowlegs	*Tringa melanoleuca*	Invertivorous							X	X	X	X
Green heron	*Butorides virescens*	Invertivorous/Piscivorous	X	X		X		X			X	X
Green-winged teal	*Anas crecca*	N/A		X	X	X						X
Herring gull	*Larus smithsonianus*	N/A	X	X	X	X		X	X	X	X	X
House finch	*Haemorhous mexicanus*	N/A						X				
House sparrow	*Passer domesticus*	N/A	X			X		X	X	X		
Killdeer	*Charadrius vociferus*	Invertivorous	X	X	X	X	X	X	X	X	X	
Laughing gull	*Larus atricilla*	N/A	X	X	X	X	X	X	X	X	X	X
Least sandpiper	*Calidris minutilla*	Invertivorous						X	X	X		
Least tern	*Sterna antillarum*	Piscivorous		X	X	X	X			X	X	X
Lesser scaup	*Aythya affinis*	N/A					X			X		
Little blue heron	*Egretta caerulea*	Invertivorous/Piscivorous		X	X		X				X	
Mallard	*Anas platyrhynchos*	N/A	X	X	X	X	X	X	X	X	X	X
Marsh wren	*Cistothorus palustris*	N/A			X	X				X	X	
Mourning dove	*Zenaida macroura*	N/A	X	X		X		X	X	X	X	X
Mute swan	*Cygnus olor*	N/A		X	X	X	X		X	X	X	
Northern cardinal	*Cardinalis cardinalis*	N/A		X	X		X					
Northern flicker	*Colaptes auratus*	N/A							X			
Northern harrier	*Circus cyaneus*	Raptor									X	X
Northern mockingbird	*Mimus polyglottos*	N/A			X	X	X		X	X	X	X
Northern rough winged swallow	*Stelgidopteryx serripennis*	N/A								X		
Northern waterthrush	*Parkesia noveboracensis*	N/A	X					X				
Osprey	*Pandion haliaetus*	Piscivorous			X	X	X		X	X	X	X
Perigrine falcon	*Falco peregrinus*	Raptor	X					X				X
Purple martin	*Progne subis*	N/A									X	
Red-breasted merganser	*Mergus serrator*	N/A			X		X					
Red-tailed hawk	*Buteo jamaicensis*	Raptor			X			X	X	X	X	X
Red-winged blackbird	*Agelaius phoeniceus*	N/A			X	X	X		X	X		X
Ring-billed gull	*Larus delawarensis*	N/A		X	X	X	X	X	X	X	X	
Ring-necked pheasant	*Phasianus colchicus*	N/A					X					X
Rock dove	*Columba livia*	N/A	X	X		X	X	X	X	X		X
Ruddy turnstone	*Arenaria interpres*	Invertivorous			X		X					
Scarlet tanager	*Piranga olivacea*	N/A						X				
Seaside sparrow	*Ammodramus maritimus*	N/A										X
Semipalmated plover	*Charadrius semipalmatus*	Invertivorous			X	X			X	X	X	X
Semipalmated sandpiper	*Calidris pusilla*	Invertivorous			X	X	X		X	X	X	
Sharp-shinned hawk	*Accipiter striatus*	Raptor						X				
Snowy egret	*Egretta thula*	Invertivorous/Piscivorous		X	X	X	X		X	X	X	X
Solitary sandpiper	*Tringa solitaria*	Invertivorous	X			X		X			X	X
Song sparrow	*Melospiza melodia*	N/A	X	X	X	X	X	X		X		X
Spotted sandpiper	*Actitis macularia*	Invertivorous	X	X	X	X	X	X	X	X	X	X
Tree swallow	*Tachycineta bicolor*	N/A		X		X	X			X	X	

Table G3-1
Study Area and Reference Area Wildlife Survey Data

Common Name	Scientific Name	Feeding Guild	Spring					Summer				
			Study Area	Westchester Creek	Head of Bay	Gerristen Creek	Spring Creek	Study Area	Westchester Creek	Head of Bay	Gerristen Creek	Spring Creek
Tri-colored heron	*Egretta tricolor*	Invertivorous/Piscivorous			X							
Turkey vulture	*Cathartes aura*	N/A				X						
Willet	*Catoptrophorus semipalmatus*	Invertivorous			X	X	X		X	X	X	X
Yellow warbler	*Setophaga petechia*	N/A	X									
Yellow-crowned night-heron	*Nyctanassa violacea*	Invertivorous/Piscivorous		X	X	X	X		X	X	X	X
Mammals												
Beaver	*Castor canadensis*	--		X								
Cat	*Felis catus*	--	X	X				X	X	X		
Norway rat	*Rattus norvigicus*	--	X	X				X	X	X		
Raccoon	*Procyon lotor*	--	X	X		X		X			X	
River otter	*Lontra canadensis*	--										X
Squirrel		--		X		X			X			
Reptiles												
Italian wall lizard	*Podarcis sicula*	--							X			
Snapping turtle	*Chelydra serpentina*	--			X		X			X	X	

Note:
N/A = not applicable

ATTACHMENT G4

AVIAN FORAGING OBSERVATIONS BY FEEDING GUILD

- Table G4-1 Number of Individuals Eating Each Prey Type – Invertivorous Species
- Table G4-2 Total Number of Invertivorous Birds Consuming Each Prey Type
- Table G4-3 Number of Individuals Eating Each Prey Type – Invertivorous/Piscivorous Species
- Table G4-4 Total Number of Invertivorous/Piscivorous Birds Consuming Each Prey Type
- Table G4-5 Number of Individual Species Eating Each Prey Type – Piscivorous Species
- Table G4-6 Total Number of Piscivorous Birds Consuming Each Prey Type

Table G4-1
Number of Individuals Eating Each Prey Type – Invertivorous Species

Species	Spring 2014										Summer 2014									
	Study Area						Reference Area				Study Area						Reference Area			
	Dutch Kills	East Branch	English Kills	Maspeth Creek	Newtown Creek	Whale Creek	Gerritsen Creek	Head of Bay	Spring Creek	Westchester Creek	Dutch Kills	East Branch	English Kills	Maspeth Creek	Newtown Creek	Whale Creek	Gerritsen Creek	Head of Bay	Spring Creek	Westchester Creek
American oystercatcher							***54***	***32***	***15***								***33***	***3***	***3***	***1***
Clam							7	2	1								5			
Crab							1													
Invertebrate							46	30	14								27	3	3	1
Fish																	1			
Black-bellied plover								***3***	***3***								***14***			
Invertebrate																	14			
Other prey item								3	3											
Greater yellowlegs																	***26***	***7***	***6***	***17***
Fish																	9	2	2	2
Invertebrate																	17	5	4	15
Killdeer			***1***		***1***		***5***		***7***	***1***			***6***		***1***		***30***			***53***
Invertebrate			1		1		5		7	1			6		1		30			53
Ruddy turnstone								***1***												
Invertebrate								1												
Least sandpiper															***2***			***4***		***1***
Invertebrate															2			4		1
Semipalmated plover							***7***	***1***									***24***	***15***	***10***	***40***
Invertebrate							7	1									24	15	10	40
Semipalmated sandpiper							***7***		***13***								***8***	***8***		***76***
Invertebrate							7		13								8	8		76
Solitary sandpiper			***1***				***1***												***1***	
Invertebrate			1				1												1	
Spotted sandpiper	***37***	***8***	***49***	***43***	***79***		***12***	***13***	***4***	***4***			***42***	***38***	***57***		***15***	***9***	***1***	***2***
Fish					1								8							
Invertebrate	37	8	49	43	78		12	13	4	4			34	38	54		15	9	1	2
Other prey item															3					
Willet							***21***	***29***	***7***								***2***	***5***	***6***	***9***
Crab							1													
Invertebrate							20	29	7								2	5	6	8
Fish																				1

Table G4-2

Total Number of Invertivorous Birds Consuming Each Prey Type

Area	Location	Spring 2014					Summer 2014				
		Total Number of Birds Observed Foraging[1]	Total Number of Birds Consuming Clams	Total Number of Birds Consuming Crabs	Total Number of Birds Consuming Fish	Total Number of Birds Consuming Invertebrates	Total Number of Birds Observed Foraging[1]	Total Number of Birds Consuming Clams	Total Number of Birds Consuming Crabs	Total Number of Birds Consuming Fish	Total Number of Birds Consuming Invertebrates
Study Area	Dutch Kills	37	0	0	0	37	0	0	0	0	0
	East Branch	8	0	0	0	8	0	0	0	0	0
	English Kills	51	0	0	0	51	48	0	0	8	40
	Maspeth Creek	43	0	0	0	43	38	0	0	0	38
	Newtown Creek	80	0	0	1	79	60	0	0	0	57
	Whale Creek	0	0	0	0	0	0	0	0	0	0
Reference Area	Gerritsen Creek	107	7	2	0	98	152	5	0	10	137
	Head of Bay	79	2	0	0	74	51	0	0	2	49
	Spring Creek	49	1	0	0	45	27	0	0	2	25
	Westchester Creek	5	0	0	0	5	199	0	0	3	196

Note:

1 = In a few cases, other prey items included.

Table G4-3

Number of Individuals Eating Each Prey Type – Invertivorous/Piscivorous Species

Species	Spring 2014										Summer 2014									
	Study Area						Reference Area				Study Area						Reference Area			
	Dutch Kills	East Branch	English Kills	Maspeth Creek	Newtown Creek	Whale Creek	Gerritsen Creek	Head of Bay	Spring Creek	Westchester Creek	Dutch Kills	East Branch	English Kills	Maspeth Creek	Newtown Creek	Whale Creek	Gerritsen Creek	Head of Bay	Spring Creek	Westchester Creek
Black-crowned night heron					***3***		***7***		***3***	***14***	***2***				***1***		***3***	***2***		***5***
Fish					2		4			2	2						3	1		5
Invertebrate					1		3		3	12					1			1		
Clapper rail																	***8***	***1***		
Invertebrate																	8	1		
Glossy ibis									***7***								***1***			
Invertebrate									7								1			
Great blue heron																	***11***	***6***		***5***
Fish																	11	5		5
Invertebrate																		1		
Great egret		***2***	***13***	***6***	***9***		***33***	***28***	***18***	***25***		***2***	***11***	***2***	***6***		***35***	***59***	***25***	***28***
Fish		2	13	6	9		31	28	17	20		2	11	2	6		35	58	24	28
Invertebrate							2		1	5								1	1	
Green heron	***1***		***1***		***2***		***2***			***1***			***6***		***2***		***3***		***2***	
Fish	1				1		1						4				3		2	
Invertebrate			1		1		1			1			2		2					
Little blue heron																	***1***			
Fish																	1			
Snowy egret							***42***	***37***	***9***	***20***							***46***	***37***	***9***	***4***
Crab							3													
Fish							34	22	7	13							45	34	9	4
Invertebrate							5	15	2	7								3		
Vegetation																	1			
Tri-colored heron								***1***												
Fish								1												
Yellow-crowned night-heron							***4***		***2***	***17***							**2**	**2**	**7**	**15**
Crab										1										3
Fish							4		1	4							2		3	2
Invertebrate									1	12								1	4	10
Clam																		1		

Table G4-4

Total Number of Invertivorous/Piscivorous Birds Consuming Each Prey Type

Area	Location	Spring 2014					Summer 2014				
		Total Number of Birds Observed Foraging	Total Number of Birds Consuming Clams	Total Number of Birds Consuming Crabs	Total Number of Birds Consuming Fish	Total Number of Birds Consuming Invertebrates	Total Number of Birds Observed Foraging	Total Number of Birds Consuming Clams	Total Number of Birds Consuming Crabs	Total Number of Birds Consuming Fish	Total Number of Birds Consuming Invertebrates
Study Area	Dutch Kills	1	0	0	1	0	2	0	0	2	0
	East Branch	2	0	0	2	0	2	0	0	2	0
	English Kills	14	0	0	13	1	17	0	0	15	2
	Maspeth Creek	6	0	0	6	0	2	0	0	2	0
	Newtown Creek	14	0	0	12	2	9	0	0	6	3
	Whale Creek	0	0	0	0	0	0	0	0	0	0
Reference Area	Gerritsen Creek	88	0	3	74	11	64	0	0	55	9
	Head of Bay	66	0	0	51	15	70	1	0	64	5
	Spring Creek	39	0	0	25	14	34	0	0	29	5
	Westchester Creek	77	0	1	39	37	53	0	3	40	10

Table G4-5

Number of Individual Species Eating Each Prey Type – Piscivorous Species

Species	Spring 2014										Summer 2014									
	Study Area						Reference Area				Study Area						Reference Area			
	Dutch Kills	East Branch	English Kills	Maspeth Creek	Newtown Creek	Whale Creek	Gerritsen Creek	Head of Bay	Spring Creek	Westchester Creek	Dutch Kills	East Branch	English Kills	Maspeth Creek	Newtown Creek	Whale Creek	Gerritsen Creek	Head of Bay	Spring Creek	Westchester Creek
Belted kingfisher				***1***										***1***			***2***		***2***	
Fish				1										1			2		2	
Double-crested cormorant	***14***	***6***	***8***	***1***	***56***	***12***	***21***	***14***	***7***	***14***		***3***	***5***	***3***	***22***		***26***	***32***	***37***	***15***
Crab															2					
Fish	14	6	8	1	54	12	21	14	7	14		3	2	3	20		26	32	37	15
Invertebrate					2								3							
Caspian tern							***20***	***25***	***9***	***11***										
Fish							17	25	9	11										
Invertebrate							1													
Clam							2													
Common tern (Sterna hirundo)															***4***		***2***	***2***	***35***	
Fish															4		2	2	35	
Forster's tern							***12***	***15***	***14***										***1***	
Fish							9	15	12										1	
Invertebrate							3		2											
Least tern							***16***	***17***	***17***	***1***								***3***	***1***	
Fish							16	17	15	1								3	1	
Clam									2											
Osprey					***1***		***14***	***5***	***4***	***1***							***9***	***5***	***5***	***2***
Fish					1		14	5	4	1							4	4	5	1
Invertebrate																	5	1		1
Black skimmer (Rynchops niger)																	***2***	***2***		
Fish																	2	2		

Table G4-6

Total Number of Piscivorous Birds Consuming Each Prey Type

Area	Location	Spring 2014				Summer 2014			
		Total Number of Birds Observed Foraging	Total Number of Birds Consuming Fish	Total Number of Birds Consuming Invertebrates	Total Number of Birds Consuming Clams	Total Number of Birds Observed Foraging	Total Number of Birds Consuming Crab	Total Number of Birds Consuming Fish	Total Number of Birds Consuming Invertebrates
Study Area	Dutch Kills	14	14	0	0	0	0	0	0
	East Branch	6	6	0	0	3	0	3	0
	English Kills	8	8	0	0	5	0	2	3
	Maspeth Creek	1	1	0	0	4	0	4	0
	Newtown Creek	57	55	2	0	26	2	24	0
	Whale Creek	12	12	0	0	0	0	0	0
Reference Area	Gerritsen Creek	83	77	4	2	41	0	36	5
	Head of Bay	76	76	0	0	44	0	43	1
	Spring Creek	51	47	2	2	81	0	81	0
	Westchester Creek	27	27	0	0	17	0	16	1

ATTACHMENT G5
WILDLIFE LIFE HISTORY SUMMARIES

1 SPOTTED SANDPIPER (*ACTITIS MACULARIUS*)

1.1 General

The spotted sandpiper is the most widespread sandpiper in North America. It is typically a shorebird that obtains much of its diet by probing or "mining" soft sediments along shorelines and exposed mud flats in search of terrestrial and aquatic invertebrates (USEPA 1993). They are seldom seen in flocks, often foraging alone or with one or two other birds at most. Its breeding habitat is typically near fresh water, with nests usually built on the ground. They are migratory, wintering along the Pacific Coast in the west, as well as in the southern United States and South America.

1.2 Foraging Behavior

Spotted sandpipers forage mostly in areas such as beaches, where there is a significant amount of open habitat. They will forage anywhere from the shoreline to dense forest but typically will not move beyond 200 meters from the shoreline. Spotted sandpipers prefer to forage in sandy or firm substrate but will also pick insects off aquatic vegetation, plants, and debris. They often forage in temporary sand-spit pools formed by wave action, where there is an abundance of aquatic invertebrates. When inland, they forage on borders of sandy ponds, creeks, streams, and rivers. They will also forage in low vegetation of meadows, fields, and gardens when in agricultural areas (Oring et al. 1997)

Spotted sandpipers were often observed foraging throughout the Study Area in spring 2014. In the summer, site use was slightly reduced because spotted sandpipers were not observed foraging in Dutch Kills or East Branch. Foraging was observed in mudflats and rock/non-native fill substrate in Dutch Kills, English Kills, Maspeth Creek, and Newtown Creek, as well as in gravel substrate in East Branch and Newtown Creek (see Phase 2 DSR for details). Distances traveled (also known as home range) by sandpipers and other insectivorous shore birds to a feeding area range from 1.5 to 9.6 km (Haig et al 2002; MacWhirter et al. 2002).

The most common food items for the spotted sandpiper include terrestrial and aquatic invertebrates such as midges and mayflies. They have also been known to consume house flies, grasshoppers, crickets, mole crickets, beetles, caterpillars, worms, mollusks, crustaceans, small fish, spiders, and carrion (Oring et al. 1997). For the Baseline Ecological Risk

Assessment (BERA), spotted sandpipers were assumed to consume a diet of 100% invertebrates, which was represented by polychaetes when feeding in mudflats, sand, and gravel. However, when feeding in rock/non-native fill substrate (riprap), spotted sandpipers were assumed to be feeding on upland insects, not polychaetes.

1.3 Breeding Habitat

The spotted sandpiper breeds over much of North America (USEPA 1993; Oring et al. 1997). Their breeding range extends from northern Alaska south to California, south Nevada, north Arizona, south Colorado, and all the way to the eastern coast of the United States. Spotted sandpipers become extremely localized and scarce near the southern edge of their breeding range in eastern North America. They will occasionally breed as far south as the northern Gulf states, Arkansas, western Oklahoma, and northern Texas (Oring et al. 1997). Dense vegetation is required for breeding to occur (USEPA 1993). Spotted sandpipers will nest in a variety of semi-open habitats, including sagebrush, grassland, forests, and shoreline, but must be near water. The greatest breeding densities are reached in areas that have restricted numbers of terrestrial predators (e.g., islands surrounded by deep water or broad areas of semi-open cover [Oring et al. 1997]). Nests are always located within 300 meters of the water's edge, but most are within 100 meters. Areas in the shade provided by herbaceous vegetation are preferred (USEPA 1993; Oring et al. 1997). The suitability of nesting habitat varies from year to year in some locations, controlled by precipitation and predators (USEPA 1993).

1.4 Seasonal Migration

The spotted sandpiper spends the winter season in coastal or near coastal portions of Washington, Oregon, and California, in the southern portion of the United States, and south throughout middle America, Bermuda, and the West Indies. They will reside either in the interior or on the coast, as long as water is present. The only locations they may occupy year-round include the coastal areas of California north to southwest British Columbia (Oring et al. 1997). Depending on location, the winter migration can commence as early as June and continues through late September. For the spring migration, spotted sandpipers begin to head north in March, arriving at their destinations in April and May. For the

BERA, spotted sandpipers were assumed to be in the Study Area from March through September.

2 GREEN HERON (*BUTORIDES VIRESCENS*)

2.1 General

The green heron is a common species of wetland thickets throughout much of North America. It is widely distributed among both marine and freshwater coastal habitats. It feeds in swamps, riparian zones along creeks and streams, marshes, ditches, canals, ponds, lake edges, oxbow ponds, salt marshes, mangrove swamps, pastures, and harbors. The green heron prefers thick vegetation throughout its home range; however, it will feed in the open when food is available. In salt marshes, it tends to hug creek banks and avoid the open flats that are frequented by longer-legged herons, such as the great blue heron (Davis and Kushlan 1994).

2.2 Foraging Behavior and Diet

Green herons exhibit opportunistic feeding strategies depending on the availability of food (USEPA 1993). Their prey selection is very broad and includes a variety of fish and invertebrates (Davis and Kushlan 1994). Because green herons are opportunistic feeders, their reported diets vary widely among studies that have examined their diet. However, in all cases, fish tended to make up the greatest percentage of the biomass in their stomach. When green herons were observed feeding on trout from ponds at a California hatchery, the herons fed on fish primarily from 1.5 to 4 inches (3.8 to 10.2 cm) in length (Jurek 1974). Larger fish up to nearly 6 inches long and fry less than 1 inch long were also consumed. However, there was selection toward fish less than 6 inches in length because most of the fish hatchery ponds had fish greater than 6.5 inches (16.5 cm) in length. After fish, crustaceans and insects also make up a significant portion of their diet (Davis and Kushlan 1994).

The most common feeding technique used by green herons is to stand in a crouched position and look into the water for prey. They have the greatest capture success in water that is less than 10 cm deep and poorest success in water deeper than 20 cm. Green herons will often employ the use of various objects such as twigs, leaves, or berries to bait for fish.

Green herons usually feed by wading at the water's edge or in shallow water, less than 10 cm deep. They can also access deeper waters by perching on branches or rocks and plunging into the water after prey. They prefer to feed under the cover of thick vegetation; however, they will feed in the open in exposed mudflats, tidal channels, open marshes, and pond edges (Davis and Kushlan 1994).

The green heron relies heavily on fish as a food source. These include topminnows, minnows, sunfish, catfish, pickerel, carp, perch, gobies, shad, silverside, and eels (Davis and Kushlan 1994). In addition to fish, the green heron will also feed on both aquatic and terrestrial insects, spiders, crabs, crayfish, earthworms, prawns, snails, snakes, lizards, and amphibians (Niethammer and Kaiser 1983; Davis and Kushlan 1994). For the BERA, the green heron was assumed to consume a diet of 90% fish (represented by mummichog), and 10% invertebrates (represented by polychaetes), based on observations made in the Phase 2 surveys (see Phase 2 DSR for details).

2.3 Breeding Habitat

Green herons often nest alone, but in some circumstances, they may nest with conspecifics or other colonial birds (Davis and Kushlan 1994). Birds may nest alone if they can defend a feeding territory, such as one along a stream, but nest in loose aggregations in wetlands where territorial defense is more difficult (Kaiser and Reid 1987). Green herons nest in various habitats but require seclusion and proximity to wetland feeding habitat. They often nest in protected sites within trees or bushes. They will also often nest on islands or tree islands in marshes. Nests are generally located over water but may be up to 0.8 kilometer (km) from standing water (Davis and Kushlan 1994). They place the nest from ground level to 10 meters above ground, and occasionally up to 20 meters. Green herons prefer trees that have branches large enough to support a nest. It is essential that the trees have overhanging branches, which act to conceal the nest. Territoriality is limited to the area around the nest (Davis and Kushlan 1994). Jurek (1974) reported the density of green heron nests to be six nests per km. Because most green herons are solitary nesters and are dispersed widely through marine and freshwater habitats, estimating the population density is difficult. Therefore, few data on population or colony sites exist (Davis and Kushlan 1994). Home

range data, foraging distance, and feeding territory size of green herons are also not available for the same reasons.

Potential tree nesting within the Study Area and surrounding uplands is limited because vegetation communities are present in narrow patches, typically less than 15 feet wide, growing on top of or within bulkhead features, and trees are generally relatively small, growing less than approximately 25 feet tall (Anchor QEA 2013). Wetland habitat is not present within the Study Area or surrounding uplands, so there is no cattail vegetation that could be used by the green heron for breeding habitat. Potential green heron nesting habitat features such as trees and cattail wetlands near bodies of water are located outside the Study Area boundary in New York City and the surrounding vicinity.

2.4 Seasonal Migration

The breeding range of the green heron extends from southeastern Canada and eastern North America south to Florida, west to eastern North Dakota through the Great Plains, through southern Texas, Arizona, and New Mexico. They also breed along the Pacific Coast from British Columbia through Baja California and south throughout Central America. Their range is limited by high latitudes, aridity, and altitude. They also avoid the drier areas of the western United States. Within this broad breeding range, their local distribution is limited by suitable wetlands, either freshwater or marine, for breeding (Davis and Kushlan 1994).

Post-breeding birds often migrate to areas where breeding does not occur. Most of the populations in North America are migratory. Fall migration begins late August to early September; most birds leave by mid-October (Davis and Kushlan 1994). Those from the eastern United States often migrate south to winter along the Gulf of Mexico, from Florida to northern South America, to more favorable foraging areas. Populations that nest in Florida and other southern states appear not to migrate and remain residents; however, more data on migration routes are needed to confirm this (Davis and Kushlan 1994).

Spring migrants begin to arrive in the Northeast United States and California in March to April; in New York, it is “rare before mid-April” (Bull 1974 as cited in Davis and Kushlan

1994). Overall, green heron arrive earlier than larger herons, possibly because feeding habits give green heron a longer feeding day (Davis and Kushlan 1994). For the BERA, green herons were assumed to be in the Study Area from March through October.

3 BLACK-CROWNED NIGHT HERON (*NYCTICORAX NYCTICORAX*)

3.1 General

The black-crowned night heron is the most widespread heron in the world, breeding throughout most of the United States and on every continent except Antarctica and Australia (Hothem et al. 2010). Black-crowned night herons are opportunistic foragers in shallow waters but rely heavily on fish and other freshwater and marine organisms as their primary food source (Day 2007; Hothem et al. 2010). They are most active during dusk and nighttime hours. The black-crowned night herons can be either migratory or not depending on climate and food availability.

3.2 Foraging Behavior and Diet

Black-crowned night heron preferred foraging habitat is shallow water of wetlands, ponds, and other aquatic features with still water near the shoreline, typically near dense vegetation (Ehrlich et al. 1988; Peterson 1980). They will forage in freshwater and brackish habitats (Udvardy 1977). They often feed at dusk or during the night, wading near the shoreline (Cornell 2013; Peterson 1980). They typically remain perfectly still as they wait for prey to swim toward them. Then they thrust their heavy bill into the water, seizing mostly fish or other aquatic prey (Day 2007; Hothem et al. 2010). In general, herons and other carnivorous shore birds may fly 1.5 (yellow-crowned night heron) to 15 (great blue heron) km to a feeding area from their roosting or breeding habitat (Watts 2011; USEPA 1993).

Black-crowned night herons are omnivorous (Cornell 2013; Hothem et al. 2010) and they feed on a wide variety of terrestrial and aquatic organisms such as amphibians, lizards, snakes, small mammals, small birds, eggs, algae, and aquatic plants (Cornell 2013; Day 2007). Analysis of regurgitant collected from ten black-crowned night herons nestlings at Hoffman Island generally support the omnivorous assumptions because fish species comprised the majority of the average bolus (i.e., 55% by weight; Bernick 2004). Main fish species identified in regurgitant included mummichog, Atlantic silverside, winter flounder,

and unidentified sunfish. Other items present in average boluses included unidentified marine shrimp (12%), unidentified crabs (9%), unidentified rodents (8%), and unidentified arthropods (1%). For the BERA, black-crowned night herons were assumed to consume 90% fish (represented by mummichog) and 10% invertebrates (represented by polychaetes), based on observations made in the Phase 2 surveys (see Phase 2 DSR for details).

3.3 Breeding Habitat

Breeding habitat includes various wetland habitats, including salt, brackish, and freshwater marshes, swamps, streams, lakes, and agricultural fields (Ehrlich et al. 1988; Peterson 1980). They build their nests on a platform of sticks placed in trees or cattails. They nest colonially, sometimes with more than a dozen nests in a single tree (Cornell 2013).

Potential tree nesting within the Study Area and surrounding uplands is limited because vegetation communities are present in narrow patches, typically less than 15 feet wide, growing on top of or within bulkhead features, and trees are generally relatively small growing, less than approximately 25 feet tall (Anchor QEA 2013). Wetland habitat is not present within the Study Area or surrounding uplands, so there is no cattail vegetation that could be used by the heron for breeding habitat. Potential black-crowned night heron nesting habitat features such as trees and cattail wetlands near bodies of water are located outside the Study Area boundary in New York City and the surrounding vicinity.

3.4 Seasonal Migration

Black-crowned night herons are year-round residents in many coastal areas (California; Hothem et al. 2010) and parts of the lower Great Lakes. Migration of black-crowned night herons is variable and is dependent on climate and food availability (Hothem et al. 2010). The spring migrations north begin in March and April and continue through May. For the fall migration south, migration begins in September and October and continues to as late as December in Oregon (Hothem et al. 2010). Movements of two radio-telemetry tracked black-crowned night herons near Staten Island suggest that herons leave the non-breeding habitat in October (Bernick 2005). Black-crowned night herons remained in the New York/New Jersey Harbor area after the breeding season; however, radio-telemetry signals were lost after the first major storm system in October (including heavy rain and

northeasterly winds), suggesting migratory movement or dispersal beyond the Study Area and surrounding areas. Wintering herons that do migrate can be found in southern Texas and throughout much of Mexico and Central America (Ehrlich et al. 1988; Peterson 1980). For the BERA, black-crowned night herons were assumed to be in the Study Area from March through November.

4 BELTED KINGFISHER (*CERYLE ALCYON*)

4.1 General

The belted kingfisher is one of the most widespread land birds in North America (Kelly et al. 2009). They range from Alaska during the summer breeding season to central and south America during winter months. The belted kingfisher inhabits a diverse number of aquatic habitats but is dependent upon relatively clear water in order to plunge-dive for fish and other aquatic prey.

4.2 Foraging Behavior and Diet

For belted kingfishers, the most essential habitat requirements to ensure successful foraging are clear waters and an unobstructed view of the prey. They will even abandon a fishing area if the water becomes too turbid after a heavy rainfall. The majority of fish are caught less than 60 cm below the surface (USEPA 1993; Kelly et al. 2009). Docks, pilings, or overhead branches are often used as perches to spot fish that swim by (Kelly et al. 2009). Belted kingfishers prefer stream riffles for foraging sites even when pools are more plentiful because of the higher concentration of fish at riffle edges (USEPA 1993; Kelly et al. 2009). Belted kingfishers do not require that the foraging site be close to the nest. They will nest near suitable fishing areas when possible but will nest away from bodies of water and even feed in bodies of water other than the ones closest to their nest (Kelly et al. 2009). Fishing sites are usually within 1.6 km of nest sites, although a daily flight of 3.2 km is not uncommon (USFWS 1985).

Belted kingfishers are primarily piscivorous but may also consume a variety of aquatic invertebrates including mollusks, crustaceans, and insects. Although belted kingfishers rely heavily on fish as their major food source, they do not prefer any particular fish. Most fish caught from streams by a belted kingfisher in Alabama and Michigan are small, typically less

than 10 cm in length (Imhof 1962 as cited in USFWS 1985; Salyer and Lagler 1946) and as small as 2.5 cm (Salyer and Lagler 1946). Maximum prey lengths have been observed to reach 14 cm when belted kingfishers caught fish from Ohio streams (Davis 1982) and 17.8 cm by belted kingfishers in Michigan (Salyer and Lagler 1946). Belted kingfishers take fishes that are the most abundant and present in shallow water (USFWS 1985; Kelly et al. 2009). Diet varies greatly with location and season (USEPA 1993). Fishes that are abundant in their diet often include sticklebacks, mummichogs, trout, and stonerollers. Crayfish may also make up a significant portion of their diet, especially during periods of high water and high turbidity (Kelly et al. 2009).

Based on the Phase 2 surveys, there is very limited use of the Study Area by belted kingfishers Only two were observed foraging near Maspeth Creek, one in the spring and one in the summer 2014 (see Phase 2 DSR for details).

For the BERA, belted kingfishers were assumed to consume 100% fish, of which 50% were assumed to be mummichog and 50% Atlantic menhaden.

4.3 Breeding Habitat

Belted kingfishers have an extremely broad breeding range. They will breed in suitable habitats throughout all of North America, from western and central Alaska, central Yukon, British Columbia, western and south-central Mackenzie, northern Saskatchewan, central and probably northern Manitoba, northern Ontario, central Quebec, east-central Labrador, and Newfoundland south to southern California, southern Arizona, southern New Mexico, southern Texas, the Gulf Coast, and central Florida (USFWS 1985; USEPA 1993). Breeding has not been confirmed in coastal Texas (Kelly et al. 2009).

The most important requirements for breeding seem to be waters that support aquatic animal populations and nearly vertical exposures of earth that can be excavated to form nesting burrows. Belted kingfishers prefer streams, rivers, ponds, lakes, and estuaries or calm marine waters that provide easy visibility of their prey. Clear water is a necessity, and the birds will avoid turbid water. They prefer waters that are not obscured by vegetation, and will avoid waters that contain masses of emergent vegetation, regardless of the abundance of prey that

may be in the water (USEPA 1993; Kelly et al. 2009). In Minnesota, two out of nine nests were directly over water, three were within 152.4 meters of water, and four were within 0.5 to 1.6 km (USFWS 1985) of water. Local abundance is also greatly affected by the availability of suitable nesting sites (Kelly et al. 2009). Habitat features of the Study Area including the associated shoreline and surrounding uplands provide no breeding habitat for this species. Furthermore, the habitat features of the Study Area including the associated shoreline and surrounding uplands provide little to no suitable non-breeding (foraging, perching) habitat for this species.

4.4 Seasonal Migration

During the winter months, belted kingfishers generally withdraw from most of Canada but will remain year-round throughout most of the United States if open water is available (USEPA 1993; Kelly et al. 2009). They are relatively common inland in places that have a frost-free period of greater than 180 days per year. They are a very common winter resident of coastal Texas. Belted kingfishers that do migrate begin the northward migration in March and April, arriving as early as March in Upstate New York (Kelly et al. 2009). The migration south takes longer, occurring from September to November. Belted kingfishers also spend much of their non-breeding season in Central America and the Caribbean. When in these areas, belted kingfishers will live in coastal swamps, brackish lagoons, oxbows, and bayous. They will also live along the shores of reservoirs but, once again, avoid turbid waters or habitats that lack perches. For the BERA, belted kingfishers are assumed to be in the Study Area from March through November.

5 DOUBLE-CRESTED CORMORANT (*PHALACROCORAX AURITUS*)

5.1 General

Double-crested cormorants are colonial water-birds that seek aquatic habitats large enough to support their almost entirely piscivorous diet. The double-crested cormorant is the most numerous and most widely distributed species of the six North American cormorants. It is the only cormorant to occur in large numbers in the interior as well as along the coasts and is the one most frequently seen in freshwater environments (Hatch and Weseloh 1999). Double-crested cormorants form breeding colonies on the coast, near large inland lakes, or smaller ponds or wetlands and are rarely observed out of sight of land. In addition, double-

crested cormorants need perching areas for the considerable amount of time they spend resting each day.

5.2 Foraging Behavior and Diet

Fish are the primary prey item for double-crested cormorants. They eat a wide variety of fish, with more than 250 species documented (Hatch and Weseloh 1999). Prey species are typically schooling fish or bottom-dwelling fish species (Hatch and Weseloh 1999). Based on studies throughout North America, maximum prey lengths have been observed to reach 40 cm but are commonly less than 15 cm (Wires et al. 2001; Hatch and Weseloh 1999). Adult cormorants feed their young regurgitant (Ehrlich et al. 1988).

Double-crested cormorants feed opportunistically on fish that are readily available and often congregate where the fish are most easily caught. Double-crested cormorants float low on the surface of water and dive to catch small fish. The tip of a double-crested cormorant's upper bill is shaped like a hook, which is helpful for catching prey (Hatch and Weseloh 1999). Double-crested cormorants dive from the surface and hunt their prey underwater using powerful strokes of their totipalmate feet (all four toes are connected by web, as in other pelican-like birds; Hatch and Weseloh 1999). Double-crested cormorants can dive down to 25 feet and stay submerged for several minutes (Day 2007). Double-crested cormorants have less preen oil than other birds, so their feathers can get soaked rather than shedding water like a duck's feathers. This is thought to be an adaptation that helps double-crested cormorants hunt underwater more effectively (Hatch and Weseloh 1999; Fisher and Bezener 1998). After fishing, they stand on, for example, docks, rocks, tree limbs, and ship masts with wings spread to dry off and digest their meals.

For the BERA, double-crested cormorants were assumed to consume 100% fish, of which 50% were assumed to be mummichog and 50% Atlantic menhaden. Distances traveled by double-crested cormorants and other cormorants to a feeding area range from 3 to 37 km (Hatch and Wesseloh 1999; Hatch et al. 2000). For the Study Area, double-crested cormorants were observed flying between the Study Area and a colony on U Thant Island in the East River but were also observed flying north of the Island along the East River, and south of the Island along the East River and past the Study Area (see Phase 2 DSR for details).

Based on these observations, more double-crested cormorants were observed flying between East River locations and U Thant Island than between U Thant Island and the Study Area. For the time period over which the observations were made, the cormorants only traveled to and from the Study Area approximately 25% of the time, spending approximately 75% of their time flying elsewhere. Thus, even though cormorants were observed daily in the Study Area, and were observed foraging, this likely represents only a fraction of their daily dietary requirements.

5.3 Breeding Habitat

Cormorants including double-crested cormorants tend to form breeding colonies in clusters of trees in or near water. Breeding areas can be located up to 40 miles from a feeding area (Hatch and Weseloh 1999). Colonies of nests can be located in trees or on the ground but not both within the same colony (Ehrlich et al. 1988). Nests are bulky, made of finger-size sticks and other materials and lined with grass. Cormorants frequently pick up anthropogenic refuse, such as rope, deflated balloons, fishnet, and plastic debris, to incorporate into the nest. Parts of dead birds are commonly used too. Large pebbles are occasionally found in cormorant nests, and the cormorants treat them as eggs. Nests are 1.5 to 3 feet in diameter and 4 to 17 inches high. Ground nests tend to be wider than tree nests, but tree nests have deeper interiors. Nests are built in the center of a colony first, then expand outward. An excess of cormorant guano may eventually kill and topple the trees, at which point the cormorants may switch to nesting on the ground (Hatch and Weseloh 1999).

In breeding colonies where the nests are placed on the ground, young cormorants leave their nests and congregate into groups with other youngsters (creches). They return to their own nests to be fed (Hatch and Weseloh 1999). These colonies are conspicuous, not only because of the visible whitewash but also, downwind, because of the powerful reek of guano and rotting fish (Hatch and Weseloh 1999). A survey of double-crested cormorant nesting activity between 2004 and 2008 on islands near the New York/New Jersey Harbor system found nesting activity on seven islands, including U Thant Island (Bernick and Craig 2008).

5.4 Seasonal Migration

In North America, double-crested cormorants winter on the coast and inland waters that include foraging habitat features similar to breeding habitat conditions (Peterson 1980; Udvardy 1977). Northward migrating birds should arrive in the Study Area between late March and early April (Hatch and Weseloh 1999). By September, southward migration should be underway (Hatch and Weseloh 1999). For the BERA, double-crested cormorants are assumed to be in the Study Area from March through October.

6 RACCOON (*PROCYON LOTOR*)

6.1 General

Raccoons are a medium-sized omnivorous mammal native to North America and Central America (Tesky 1995). Raccoon are able to live in a diversity of habitats provided they have a readily available food source, water, and protected areas for denning. They are opportunistic feeders and are highly adapted to suburban and urban environments where they can readily feed on garbage and discarded food items. Raccoons typically use cavities in trees, snags, logs, and rocky areas for dens and cover, but they will also use abandoned buildings, culverts, or abandoned cars for their dens. They are usually solitary except for females and young, which tend to move as a family group (Tesky 1995).

6.2 Home Range, Foraging Behavior, and Diet

Raccoons are a generalist species capable of adapting to natural and anthropogenic habitats and dietary sources (McKinney 2002; Bozek et al. 2007). They can utilize a diversity of habitats including rural, suburban, and urban areas as long as certain requirements are present nearby, including food, water, and a protected area for denning (Cadmus Group 2002; USEPA 1993; Prange et al. 2004; Bozek et al. 2007). The home range of a raccoon ranges from 0.05 to 1.6 km^2 (Stuewer 1943; Hoffmann and Gottschang 1977), depending upon habitat resources (Bozek et al. 2007). Home ranges tend to be smaller for urban and suburban raccoons than for rural raccoons (Prange et al. 2004; Bozek et al. 2007), corresponding to more highly clumped food resources (anthropogenic refuse) as well as other factors (Prange et al. 2004; Bozek et al. 2007). Irrespective of the degree of urbanization, raccoons tend to select home ranges with woodland habitat (Bozek et al. 2007). Wooded

areas provide denning opportunities as well as food (Bozek et al. 2007). In more rural conditions, raccoons are often found near aquatic habitats, particularly in hardwood swamps, mangroves, floodplain forests, and freshwater and saltwater marshes (USEPA 1993; Cadmus Group 2002). However, in urban areas, raccoons will preferentially select a home range composed of human use areas over aquatic areas, and will use less of the available aquatic habitat and more of the human use habitat. In a study of habitat use by raccoons, Bozek et al. (2007)[1] found that human use areas were preferentially selected at the second- and third-order level at an urban site, third-order level only at a suburban site, and not selected at a rural site. Additionally, intersexual differences in habitat selection were reduced at the urban site, with both sexes preferentially selecting human use areas as well as woodland habitat areas over aquatic habitat areas. Based on data presented in Bozek et al. (2007), it is estimated that human use areas were selected at least five times as often as aquatic areas.

Raccoons are omnivorous and opportunistic feeders. Raccoons forage along all saline and freshwater riparian habitats, in shallow water, in vegetation, on the ground (Zeiner et al. 1988 – 1990), and on anthropogenic refuse (USEPA 1993; Hoffmann and Gottschang 1977). They are primarily nocturnal; however, they will change their activity period to accommodate the availability of food and water (USEPA 1993). They will consume virtually any animal and vegetable matter (USEPA 1993).

The proportion of different foods in the raccoon diet depends greatly on location, degree of urbanization, and season, although generally vegetable matter is a more important component of their diet (USEPA 1993). Animal matter is consumed more frequently in the spring and early summer; however, raccoons rely more on grains, nuts, acorns, and fruits in late summer and fall (Zeiner et al. 1988 – 1990; Cadmus Group 2002). The percentage of plant matter in a raccoon diet can range from 0 to 93% and the percentage of animal matter in a raccoon diet can range from 7 to 98% (USEPA 1993). Raccoons will also feed on garbage and carrion (USEPA 1993). Anthropogenic food sources are important for raccoons in the urban environment (Prange et al. 2003). Raccoon populations in urban environments tend to be higher than those in rural environments, and anthropogenic sources of food is an

[1]Second-order selection examines composition of home ranges relative to the Study Area, whereas third-order selection examines habitat locations relative to home range composition.

important factor related to the success of urban raccoons (Prange et al. 2003). The stomach contents of raccoons caught in a suburban environment (Village of Glendale, near Cincinnati, Ohio) included seeds that represented 46 different species of plants. Animal remains were also found including eastern cottontail (*Sylvilagus floridanus*), Norway rat (*Rattus norvegicus*), snails, beetles, and crayfish. The presence of aluminum foil, cellophane wrappers, string, paper, cloth, bits of plastic, and rubber bands in the scat indicated that the raccoons were also eating garbage (Hoffmann and Gottschang 1977). The exact volumes of these various food items were not determined. The wide range in the raccoon dietary food items is due to location and season (USEPA 1993).

In urbanized environments, artificial food resources are often reliable and can be spatially fixed (e.g., refuse containers; Prange et al. 2004). Urban sites that have high public use result in specific foraging patches that can be in the form of refuse containers. Therefore, the stability of the food resource removes the need for changes in size or location of home range to obtain other food sources.

6.3 Breeding Habitat

Raccoons use cavities in trees, snags, logs, and rocky areas for dens and cover. They may also use abandoned buildings, culverts, or abandoned cars for their dens (Zeiner et al. 1988 – 1990). Dens serve as a nesting site for sleeping during the daylight hours (Texas Tech University 1997). While breeding, raccoons prefer to nest in secure dens in hollow trees or logs. Their nests are generally located 6.1 to 12.2 meters above the ground (Zeiner et al. 1988 – 1990).

6.4 Seasonal Migration

Raccoons do not migrate and occupy similar habitats year-round.

7 REFERENCES

Anchor QEA (Anchor QEA, LLC), 2013. *Phase 1 Remedial Investigation Field Program Data Summary Report – Submittal No. 2*. Remedial Investigation/Feasibility Study, Newtown Creek. April 2013.

Bernick, A.J., 2004. Foraging Ecology of Black-crowned Night Herons (*Nycticorax nycticorax*) in the New York City Area. In *Final Reports of the Tibor T. Polgar Fellowship Program*, edited by J.R. Waldman and W.C. Neider. Hudson River Foundation, 23 pp.

Bernick, A. J., 2005. Using Telemetry to Assess Foraging Ecology and Habitat Use of Black-crowned Night Herons (*Nycticorax nycticorax*) in New York City. In *Final Reports of the Tibor T. Polgar Fellowship Program*, edited by W.C. Neider and J.R. Waldman. Hudson River Foundation, 30 pp.

Bernick and Craig (Bernick, A.J. and E. Craig), 2008. New York City Audubon's Harbor Herons Project: 2008 Interim Nesting Survey. Prepared for New York City Audubon. December 2008.

Bozek et al. (Bozek, C.K., S. Prange, and S.D. Gehrt), 2007. The Influence of Anthropogenic Resources on Multi-scale Habitat Selection by Raccoons. *Urban Ecosystems* 10:413-425.

Cadmus Group, 2002. *Calcasieu Estuary Remedial Investigation/Feasibility Study (RI/FS): Baseline Ecological Risk Assessment (BERA)*. Appendix I1: Assessment of Risks to Omnivorous Mammals in the Calcasieu Estuary. Contract No. 68-W5-0022. October 2002.

Cornell (Cornell Lab of Ornithology), 2013. Cornell Lab of Ornithology - All About Birds: Black-crowned Night Heron. Accessed: January 22, 2013. Available from: http://www.allaboutbirds.org/guide/Black-crowned_Night-Heron on.

Davis and Kushlan (Davis, W.E. Jr. and J.A. Kushlan), 1994. Green Heron. In *Birds of North America, No. 129*, edited by A. Poole and F. Gill. The Birds of North America Online. Available from: http://bna.birds.cornell.edu/bna/species/129/articles/introduction.

Day, Leslie. 2007. *Field Guide to the Natural World of New York City*. Baltimore: John Hopkins University Press.

Davis, W.J., 1982. Territory Size in *Megaceryle alcyon* Along a Stream Habitat. *The Auk* 99:353-362.

Day, Leslie. 2007. Field Guide to the Natural World of New York City. New York City Department of Parks and Recreation, John Hopkins University Press, Baltimore, Maryland.

Ehrlich et al. (Ehrlich, P., D. Dobkin, and D. Wheye), 1988. *The Birder's Handbook: A Field Guide to the Natural History of North American Birds*. New York: Simon & Schuster, Inc.

Fisher and Bezener (Fisher, C. and A. Bezener), 1998. *Birds of New York City*. Renton: Lone Pine Publishing.

Haig et al. (Haig S.M., L.W. Oring, P.M. Sanzenbacher, and O.W. Taft), 2002. Space Use, Migratory Connectivity, and Population Segregation among Willets Breeding in the Western Great Basin. The Condor 104:620–630.

Hatch and Weseloh (Hatch, J.J. and D.V. Weseloh), 1999. Double-crested Cormorant (*Phalacrocoraxauritus*). In *Birds of North America, No. 441*, edited by A. Poole and F. Gill. The Birds of North America Online. Available from: http://bna.birds.cornell.edu/bna/species/441/articles/introduction.

Hatch et al. (Hatch, J.J., K.M. Brown, G.G. Hogan, and R.D. Morris), 2000. Great Cormorant (*Phalacrocorax carbo*). In *Birds of North America, No. 553*, edited by A. Poole. The Birds of North America Online. Available from: http://bna.birds.cornell.edu/bna/species/553/articles/introduction.

Hoffmann and Gottschang (Hoffmann, C.O. and J.L. Gottschang), 1977. Numbers, Distribution, and Movements of a Raccoon Population in a Suburban Residential Community. *Journal of Mammalogy* 58(4):623-636.

Hothem et al. (Hothem, R.L., B.E. Brussee, and W.E. Davis, Jr.), 2010. Black-crowned Night-Heron (*Nycticorax nycticorax*). In *Birds of North America,* edited by A. Poole. The Birds of North America Online. Available from: http://bna.birds.cornell.edu/bna/species/074/articles/introduction.

Jurek, R.M., 1974. American River Green Heron Study. California U.S. Department of Fish and Game. Project W-54-R-6.

Kaiser and Reid (Kaiser, M.S., and F.A. Reid), 1987. A Comparison of Green-Backed Heron Nesting in Two Freshwater Ecosystems. *Colonial Waterbirds* 10(1):78-83.

Kelly et al (Kelly, J.F., E.S. Bridge, and M.J. Hamas), 2009. Belted Kingfisher (*Megaceryle alcyon*). In *Birds of North America, No. 84*, edited by A. Poole. The Birds of North America Online. Available from: http://bna.birds.cornell.edu/bna/species/084/articles/introduction.

MacWhirter et al. (Macwhirter B., P. Austin-Smith, Jr., D. Kroodsma), 2002. Sanderling (*Calidris alba*). In *Birds of North America, No. 653*, edited by A. Poole and F. Gill. The Birds of North America Online. Available from: http://bna.birds.cornell.edu/bna/species/653/articles/introduction.

McKinney, M.L., 2002. Urbanization, biodiversity, and conservation. *BioSciences* 52:883-890.

Niethammer and Kaiser (Niethammer, K.R. and M.S. Kaiser), 1983. Late Summer Food Habits of Three Heron Species in Northeastern Louisiana. *Colonial Waterbirds* 6(1):148-153.

Oring et al. (Oring, L.W., E.M. Gray and J.M. Reed), 1997. Spotted Sandpiper (*Actitis macularius*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; from the Birds of North America Available at: http://bna.birds.cornell.edu/bna/species/289.

Peterson, R., 1980. *A Field Guide to the Birds: A Completely New Guide to all the Birds of Eastern and Central America*. New York: National Audubon Society and National Wildlife Federation.

Prange et al. (Prange, S., S.D. Gehrt, and E.P. Wiggers,) 2003. Demographic Factors Contributing to High Raccoon Densities in Urban Landscapes. *Journal of Wildlife Management* 67(2):324-333.

Prange et al. (Prange, S., S.D. Gehrt, and E.P. Wiggers), 2004. *Influences of Anthropogenic Resources on Raccoon (*Procyon lotor*) Movements and Spatial Distribution*. Journal of Mammalogy 85(3):483-490.

Salyer and Lagler (Salyer, J.C. and K.F. Lagler), 1946. The Eastern Belted Kingfisher, *Megaceryle alcyon alcyon* (Linnaeus) in Relation to Fish Management. *Transactions of the American Fisheries Society* 76(1):97-117.

Stuewer, F.W., 1943. Raccoons: Their Habits and Management in Michigan. *Ecology Monographs* 13:203–257.

Tesky, J.L., 1995. Fire Effects Information System Online. Procyon lotor. Available from: http://www.fs.fed.us/database/feis/animals/mammal/prlo/all.html.

Texas Tech University, 1997. The Mammals of Texas – Online Edition. Available from: http://www.nsrl.ttu.edu/tmot1/Default.htm.

Udvardy, M., 1977. *The Audubon Society Field Guide to North American Birds*. New York: Alfred A. Knopf, Inc.

USEPA (U.S. Environmental Protection Agency), 1993. *Wildlife Exposure Factors Handbook*. USEPA/600/R-93/187. December 1993.

USFWS (U.S. Fish Wildlife Services), 1985. *Habitat Suitability Index Models: Belted Kingfisher Models*. Biological Report 82(10.87). August 1985.

Watts, B.D., 2011. Yellow-crowned Night-Heron (*Nyctanassa violacea*). In *Birds of North America, No. 161*, edited by A. Poole and F. Gill. The Birds of North America Online. Available from: http://bna.birds.cornell.edu/bna/species/161/articles/introduction.

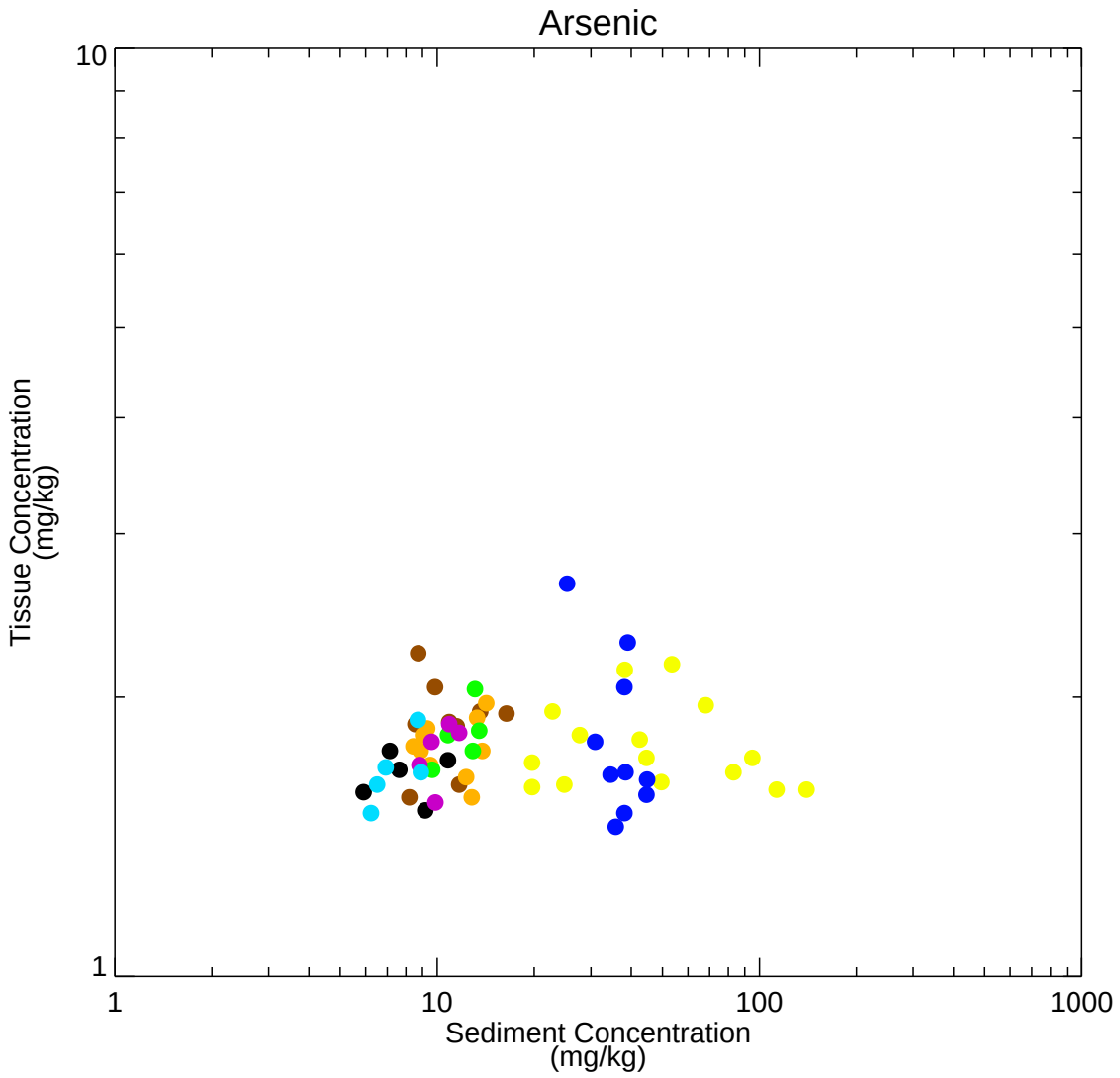
Wires et al. (Wires, L.R., F.J. Cuthbert, D.R. Trexel, and A.R. Joshi), 2001. *Status of the Double-crested Cormorant (*Phalacrocorax auritus*) in North America*. Prepared for U.S. Fish and Wildlife Service. May 2001.

Zeiner et al. (Zeiner, D.C., W.F. Laudenslayer, K.E. Mayer, and M. White), 1988 to 1990. *California's Wildlife Volumes I – III*. 1988 to 1990 eds. Sacramento: California Department of Fish and Game.

ATTACHMENT G6

RELATIONSHIP BETWEEN STUDY AREA SEDIMENT AND POLYCHAETE TISSUE DATA

- Figure G6-1 Relationship between Study Area Sediment and Polychaete Tissue Data: Arsenic
- Figure G6-2 Relationship between Study Area Sediment and Polychaete Tissue Data: Arsenic, Inorganic (III & V)
- Figure G6-3 Relationship between Study Area Sediment and Polychaete Tissue Data: Cadmium
- Figure G6-4 Relationship between Study Area Sediment and Polychaete Tissue Data: Chromium
- Figure G6-5 Relationship between Study Area Sediment and Polychaete Tissue Data: Copper
- Figure G6-6 Relationship between Study Area Sediment and Polychaete Tissue Data: Lead
- Figure G6-7 Relationship between Study Area Sediment and Polychaete Tissue Data: Mercury
- Figure G6-8 Relationship between Study Area Sediment and Polychaete Tissue Data: Nickel
- Figure G6-9 Relationship between Study Area Sediment and Polychaete Tissue Data: Selenium
- Figure G6-10 Relationship between Study Area Sediment and Polychaete Tissue Data: Silver
- Figure G6-11 Relationship between Study Area Sediment and Polychaete Tissue Data: Zinc
- Figure G6-12 Relationship between Study Area Sediment and Polychaete Tissue Data: Methyl Mercury



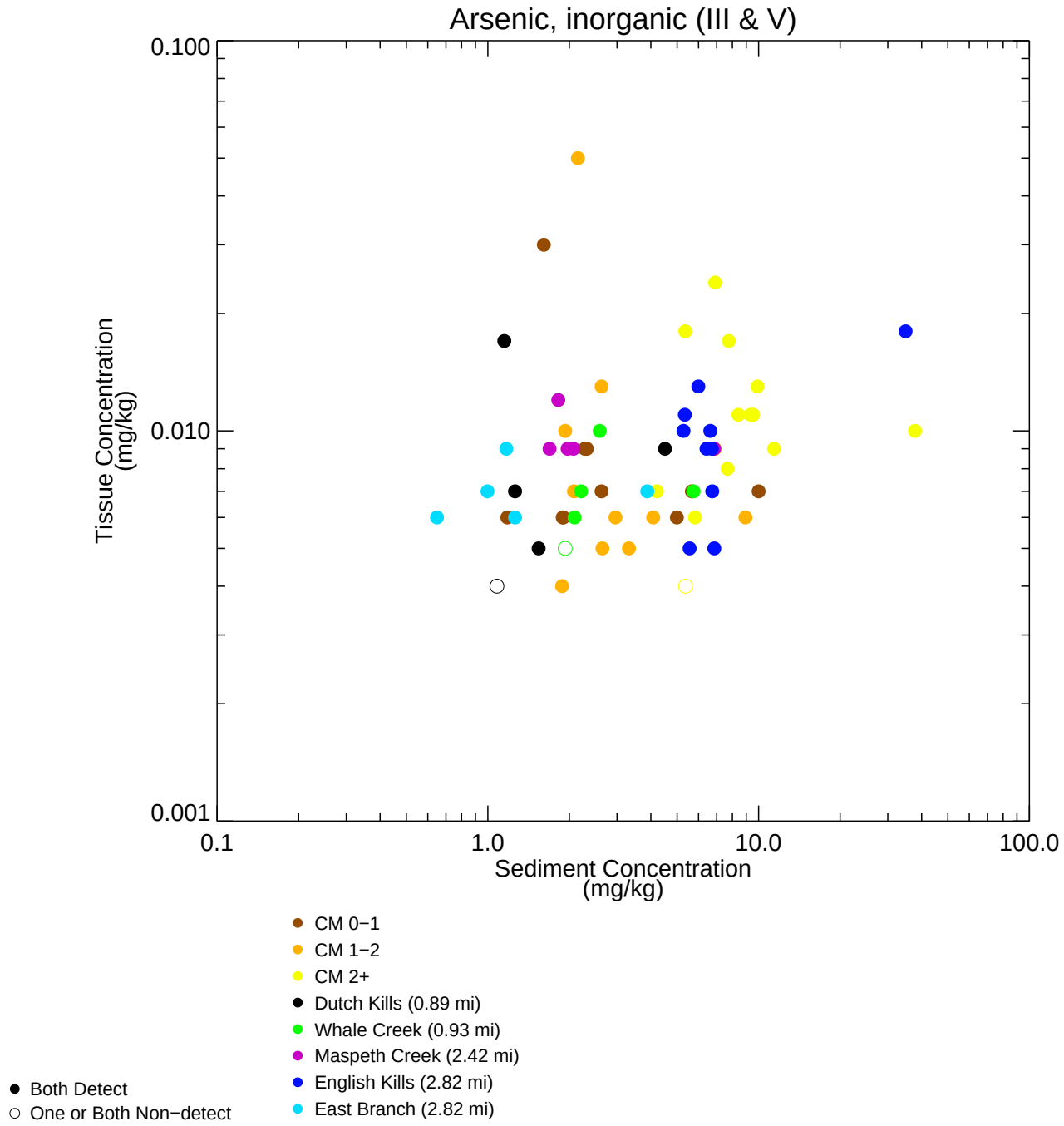
- CM 0−1
- CM 1−2
- CM 2+
- Dutch Kills (0.89 mi)
- Whale Creek (0.93 mi)
- Maspeth Creek (2.42 mi)
- English Kills (2.82 mi)
- East Branch (2.82 mi)

● Both Detect
○ One or Both Non−detect

Attachment G6−1

Relationship Between Study Area Sediment and Polychaete Tissue Data : Arsenic
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

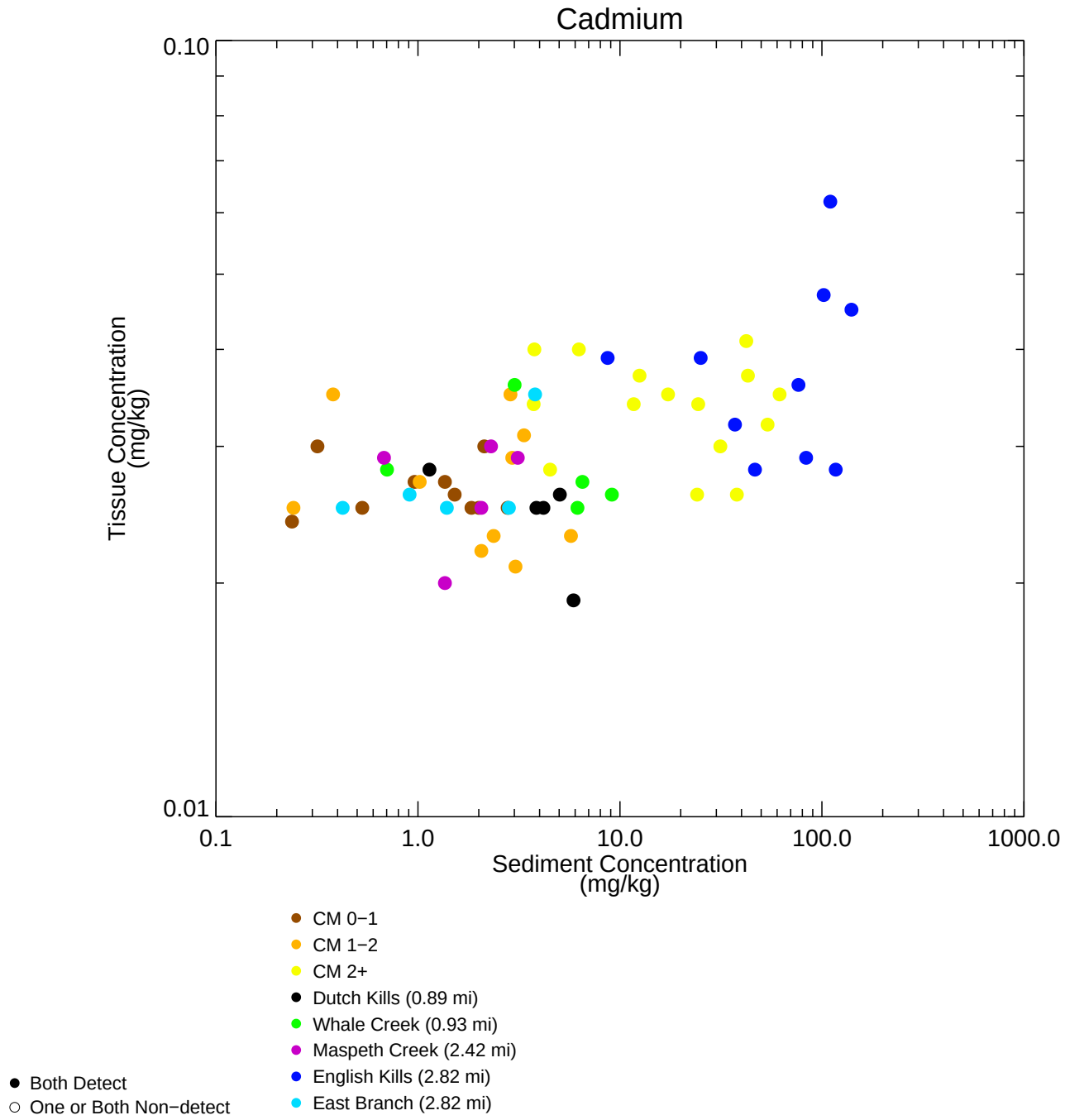
Notes: Non−detects included at MDL and plotted with an open symbol.
Sediment plotted on a dry−weight basis, tissue plotted on a wet−weight basis.
Some Kaplan−Meier sample totals rejected due to not enough uncensored values, replaced with U = 0 MDL.



Attachment G6−2

Relationship Between Study Area Sediment and Polychaete Tissue Data :
Arsenic, Inorganic (III & V)
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects included at MDL and plotted with an open symbol.
Sediment plotted on a dry−weight basis, tissue plotted on a wet−weight basis.
Some Kaplan−Meier sample totals rejected due to not enough uncensored values, replaced with U = 0 MDL.



Attachment G6−3

Relationship Between Study Area Sediment and Polychaete Tissue Data : Cadmium
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects included at MDL and plotted with an open symbol.
Sediment plotted on a dry−weight basis, tissue plotted on a wet−weight basis.
Some Kaplan−Meier sample totals rejected due to not enough uncensored values, replaced with U = 0 MDL.

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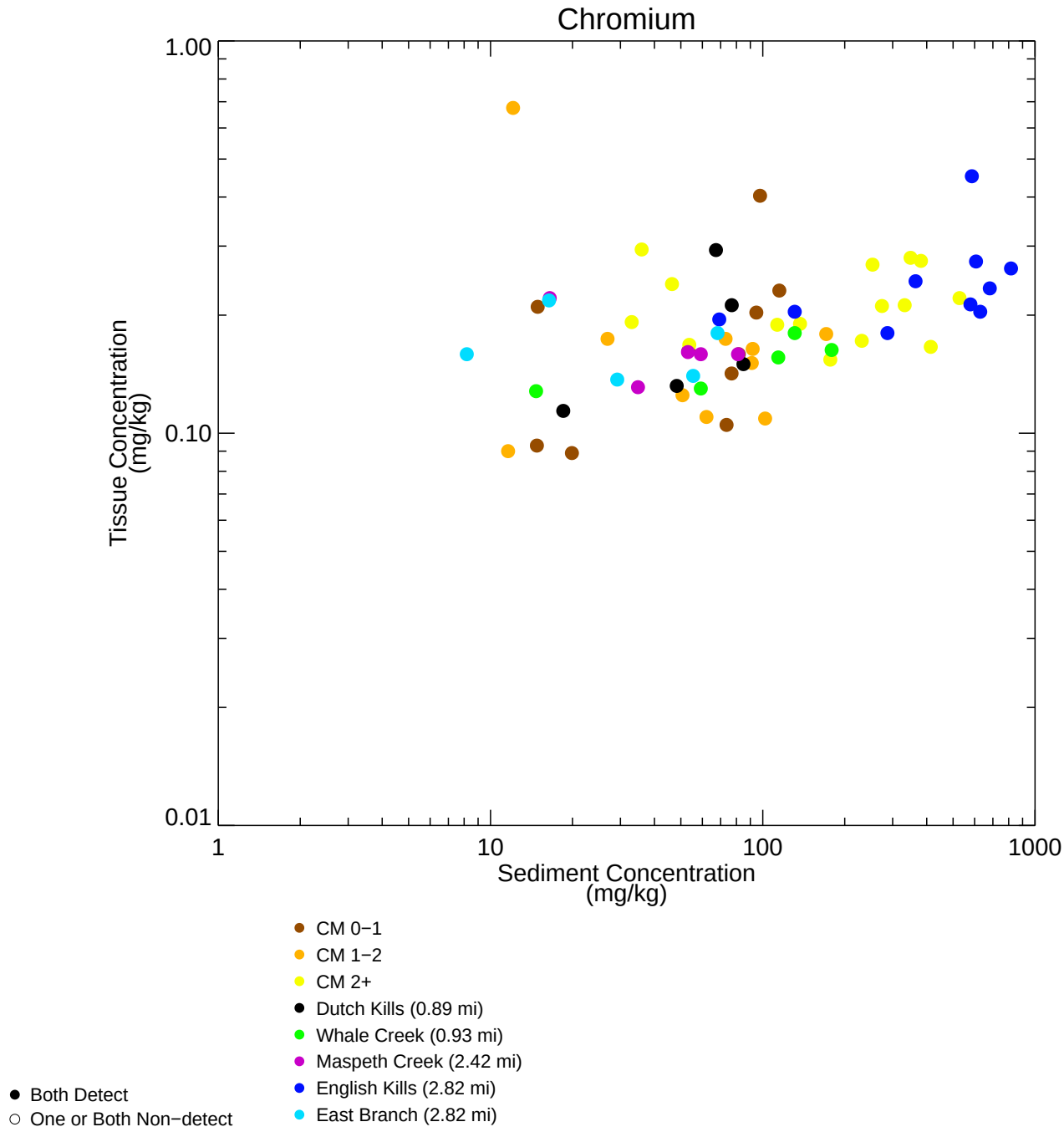

Attachment G6−4

Relationship Between Study Area Sediment and Polychaete Tissue Data : Chromium
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects included at MDL and plotted with an open symbol.
Sediment plotted on a dry−weight basis, tissue plotted on a wet−weight basis.
Some Kaplan−Meier sample totals rejected due to not enough uncensored values, replaced with U = 0 MDL.

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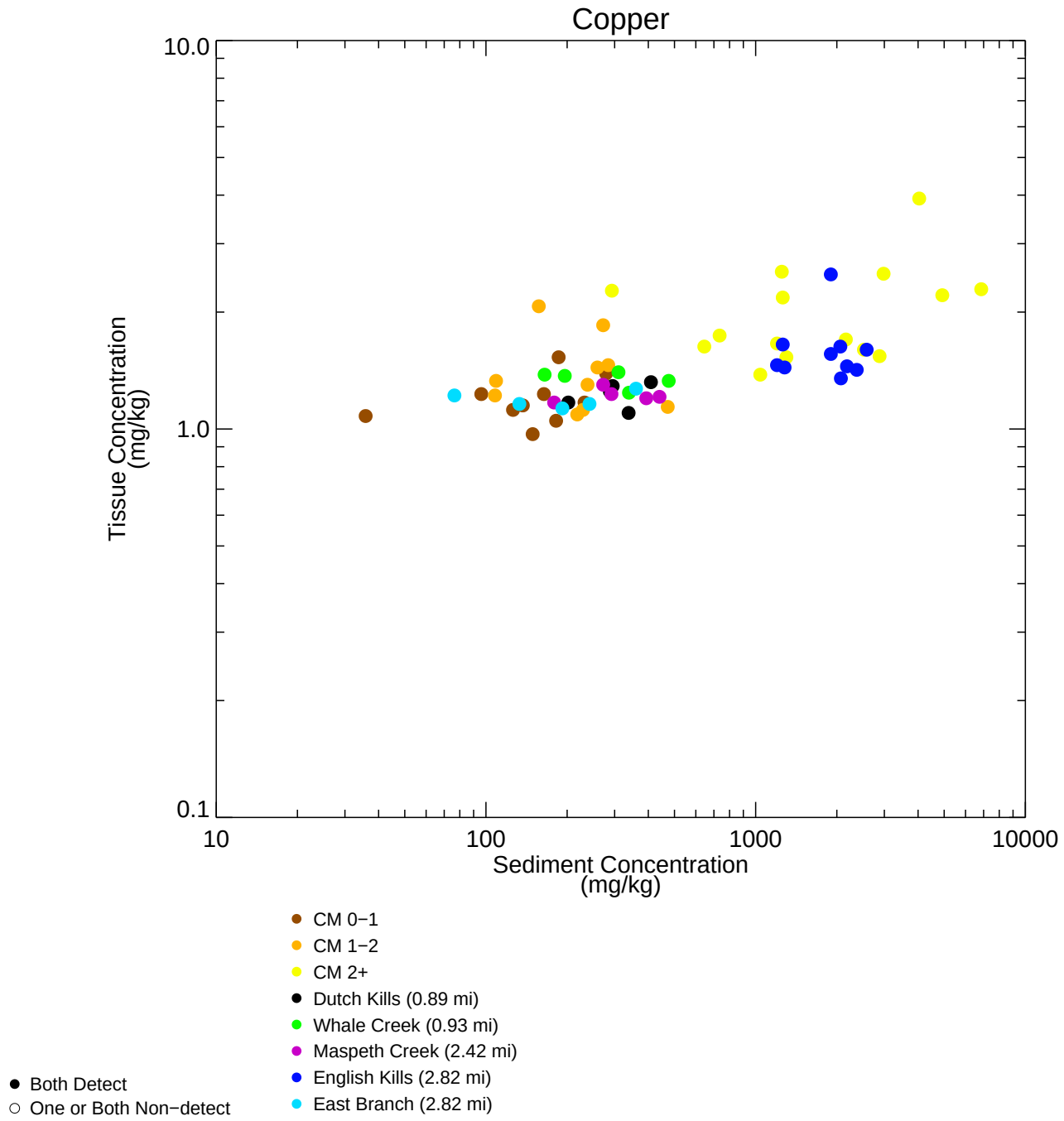

Attachment G6−5

Relationship Between Study Area Sediment and Polychaete Tissue Data : Copper
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects included at MDL and plotted with an open symbol.
Sediment plotted on a dry−weight basis, tissue plotted on a wet−weight basis.
Some Kaplan−Meier sample totals rejected due to not enough uncensored values, replaced with U = 0 MDL.

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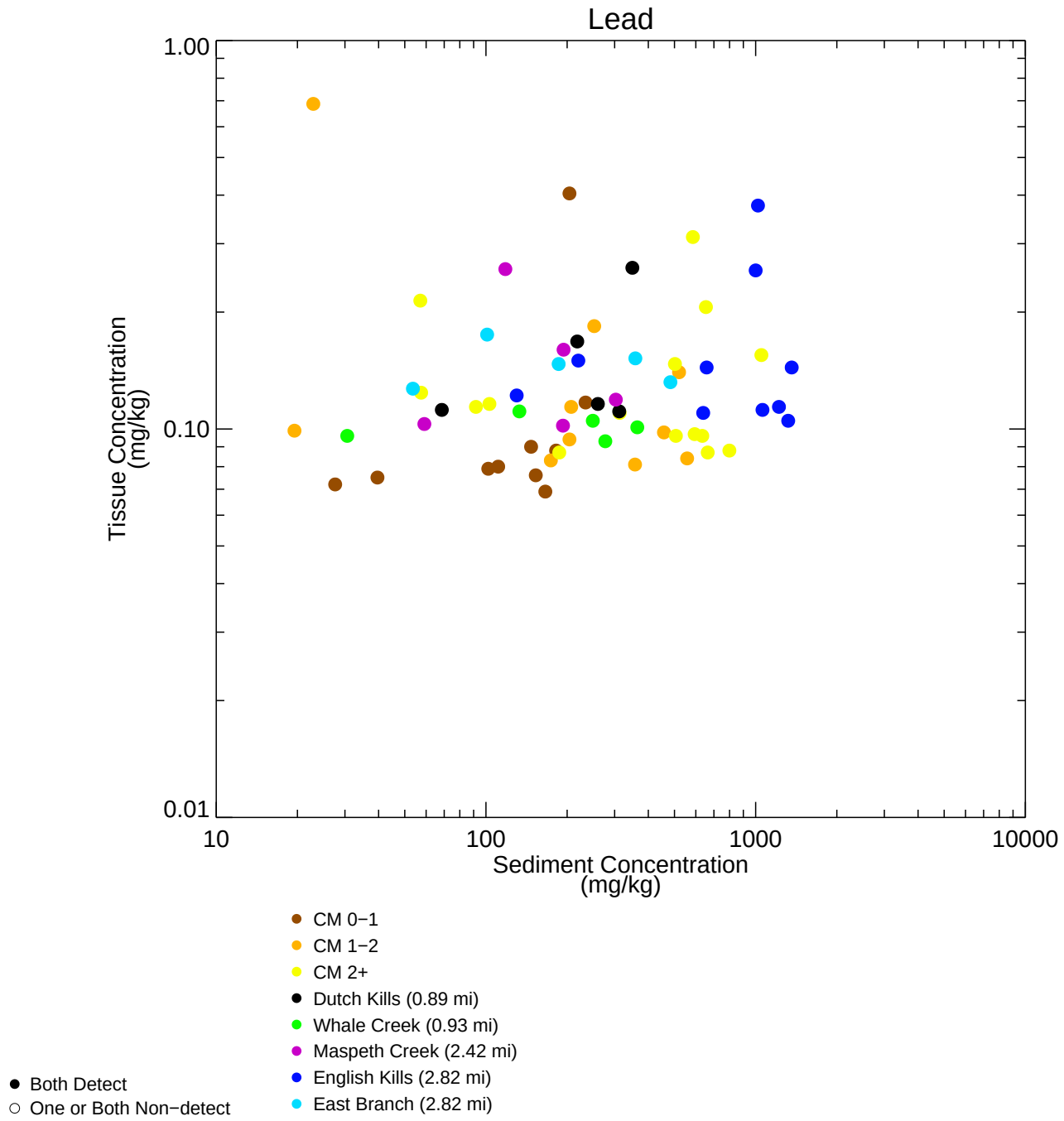

Attachment G6−6

Relationship Between Study Area Sediment and Polychaete Tissue Data : Lead
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects included at MDL and plotted with an open symbol.
Sediment plotted on a dry−weight basis, tissue plotted on a wet−weight basis.
Some Kaplan−Meier sample totals rejected due to not enough uncensored values, replaced with U = 0 MDL.

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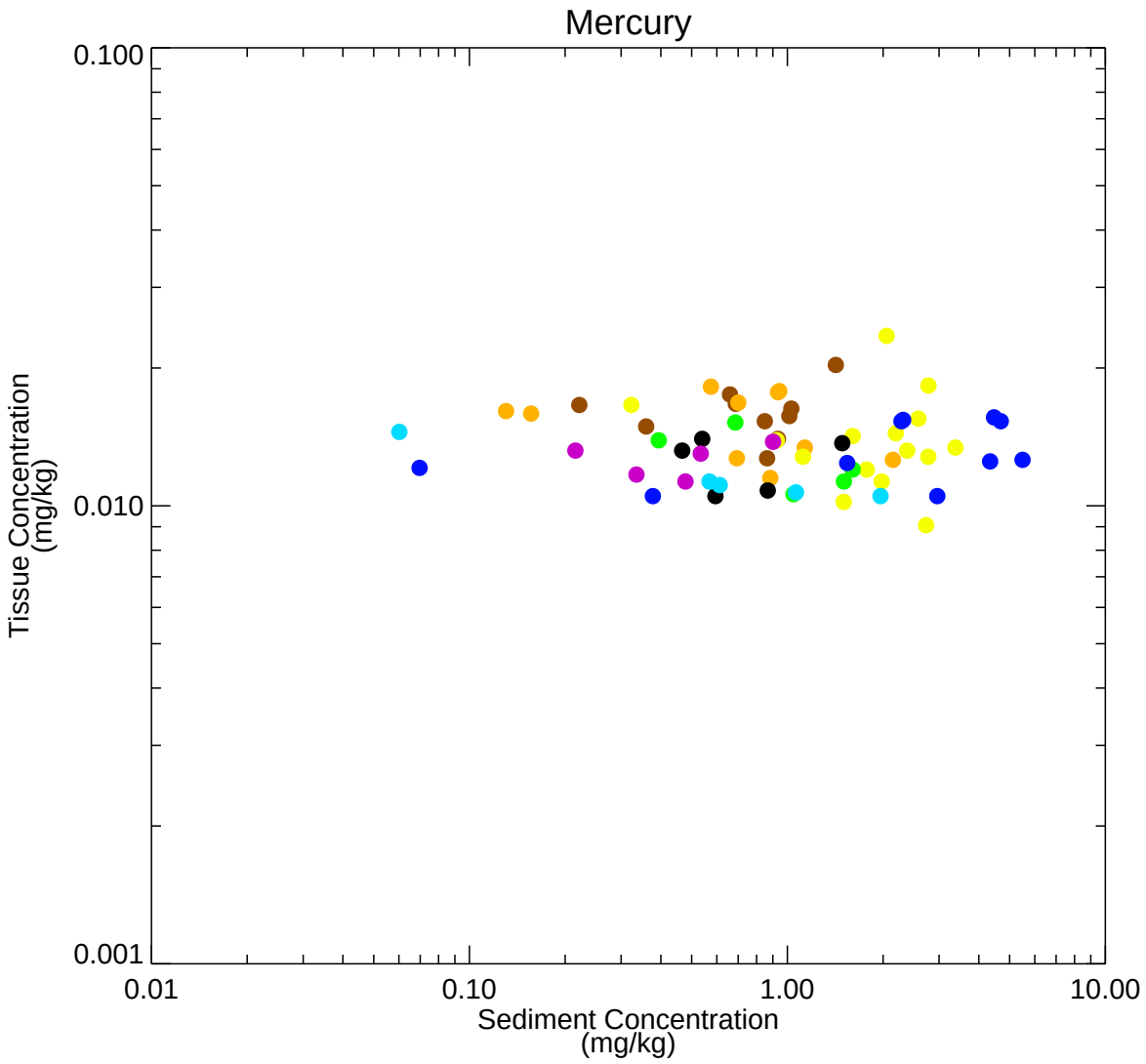

- CM 0−1
- CM 1−2
- CM 2+
- Dutch Kills (0.89 mi)
- Whale Creek (0.93 mi)
- Maspeth Creek (2.42 mi)
- English Kills (2.82 mi)
- East Branch (2.82 mi)

● Both Detect
○ One or Both Non−detect

Attachment G6−7

Relationship Between Study Area Sediment and Polychaete Tissue Data : Mercury
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects included at MDL and plotted with an open symbol.
Sediment plotted on a dry−weight basis, tissue plotted on a wet−weight basis.
Some Kaplan−Meier sample totals rejected due to not enough uncensored values, replaced with U = 0 MDL.

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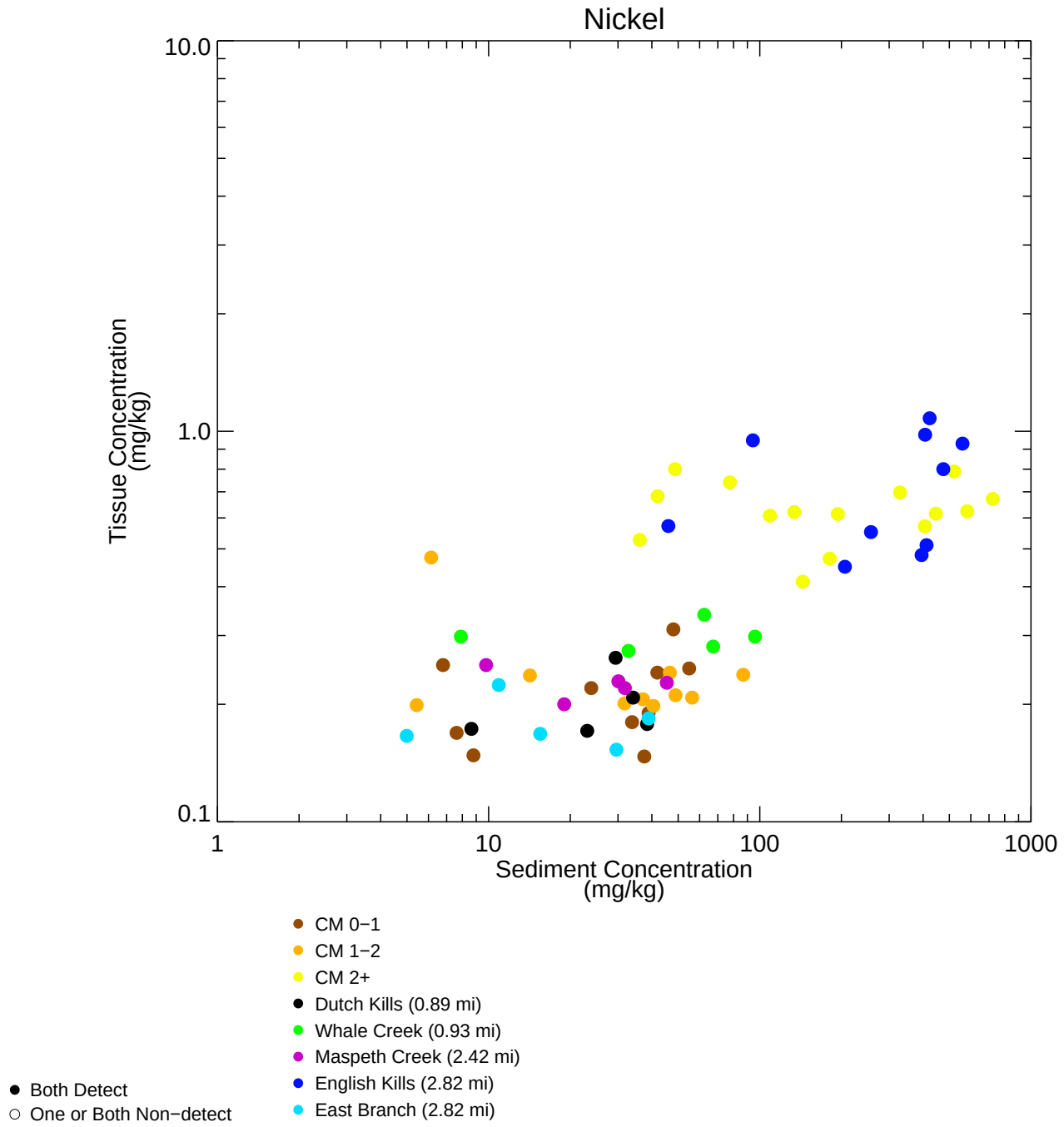

Attachment G6−8

Relationship Between Study Area Sediment and Polychaete Tissue Data : Nickel
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects included at MDL and plotted with an open symbol.
Sediment plotted on a dry−weight basis, tissue plotted on a wet−weight basis.
Some Kaplan−Meier sample totals rejected due to not enough uncensored values, replaced with U = 0 MDL.

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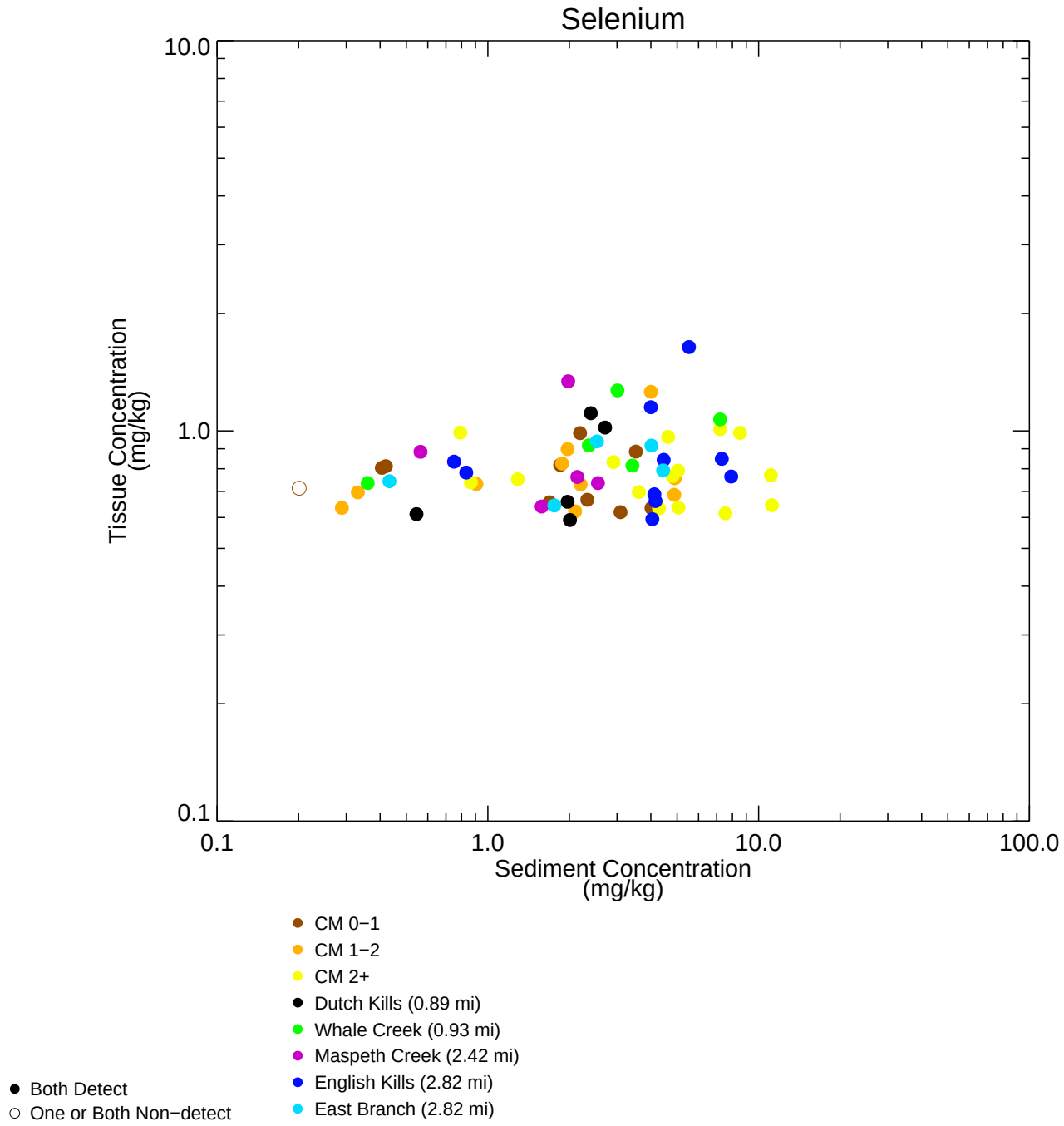

Attachment G6−9

Relationship Between Study Area Sediment and Polychaete Tissue Data : Selenium
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects included at MDL and plotted with an open symbol.
Sediment plotted on a dry−weight basis, tissue plotted on a wet−weight basis.
Some Kaplan−Meier sample totals rejected due to not enough uncensored values, replaced with U = 0 MDL.

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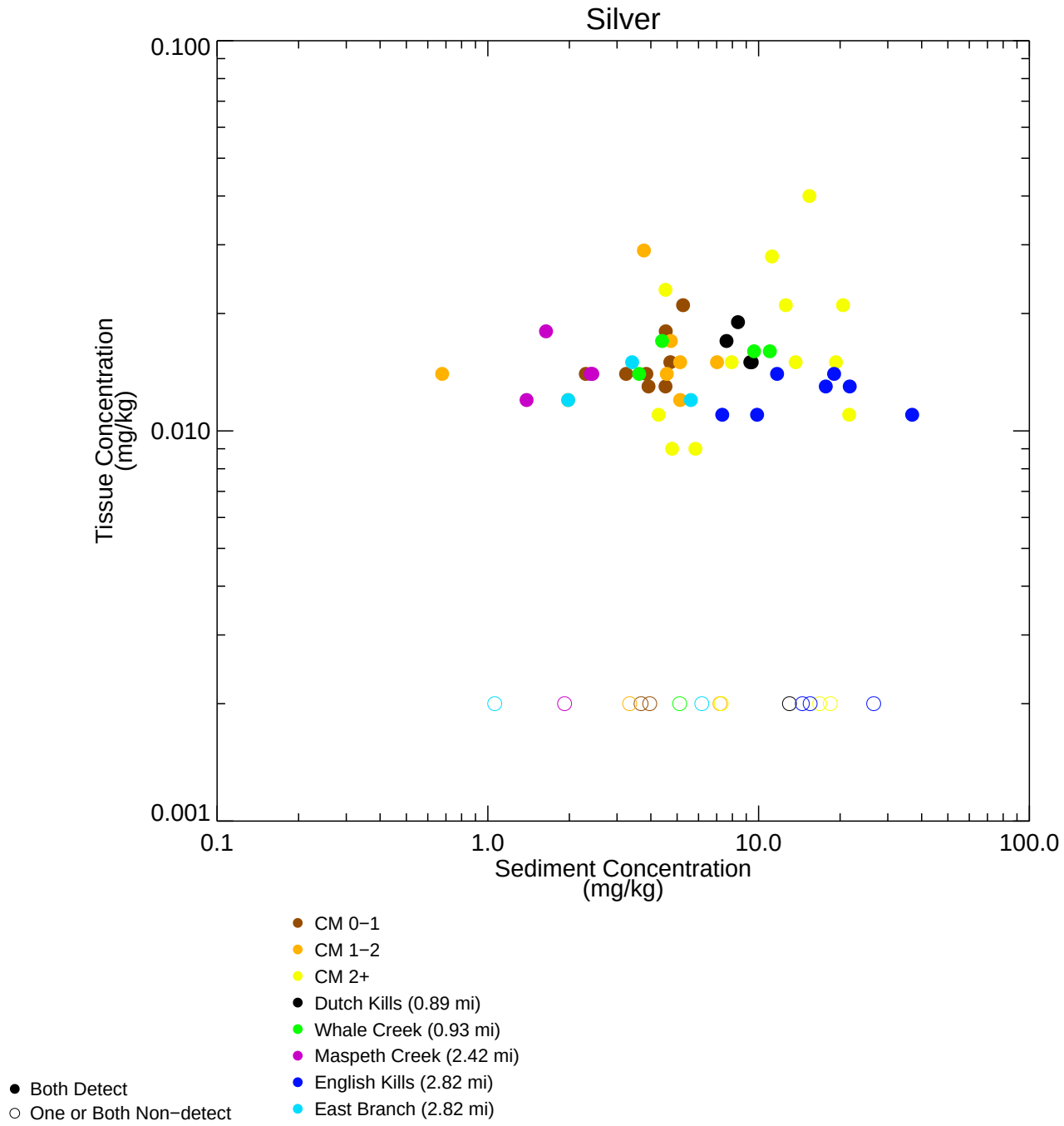

Attachment G6−10

Relationship Between Study Area Sediment and Polychaete Tissue Data : Silver
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects included at MDL and plotted with an open symbol.
Sediment plotted on a dry−weight basis, tissue plotted on a wet−weight basis.
Some Kaplan−Meier sample totals rejected due to not enough uncensored values, replaced with U = 0 MDL.

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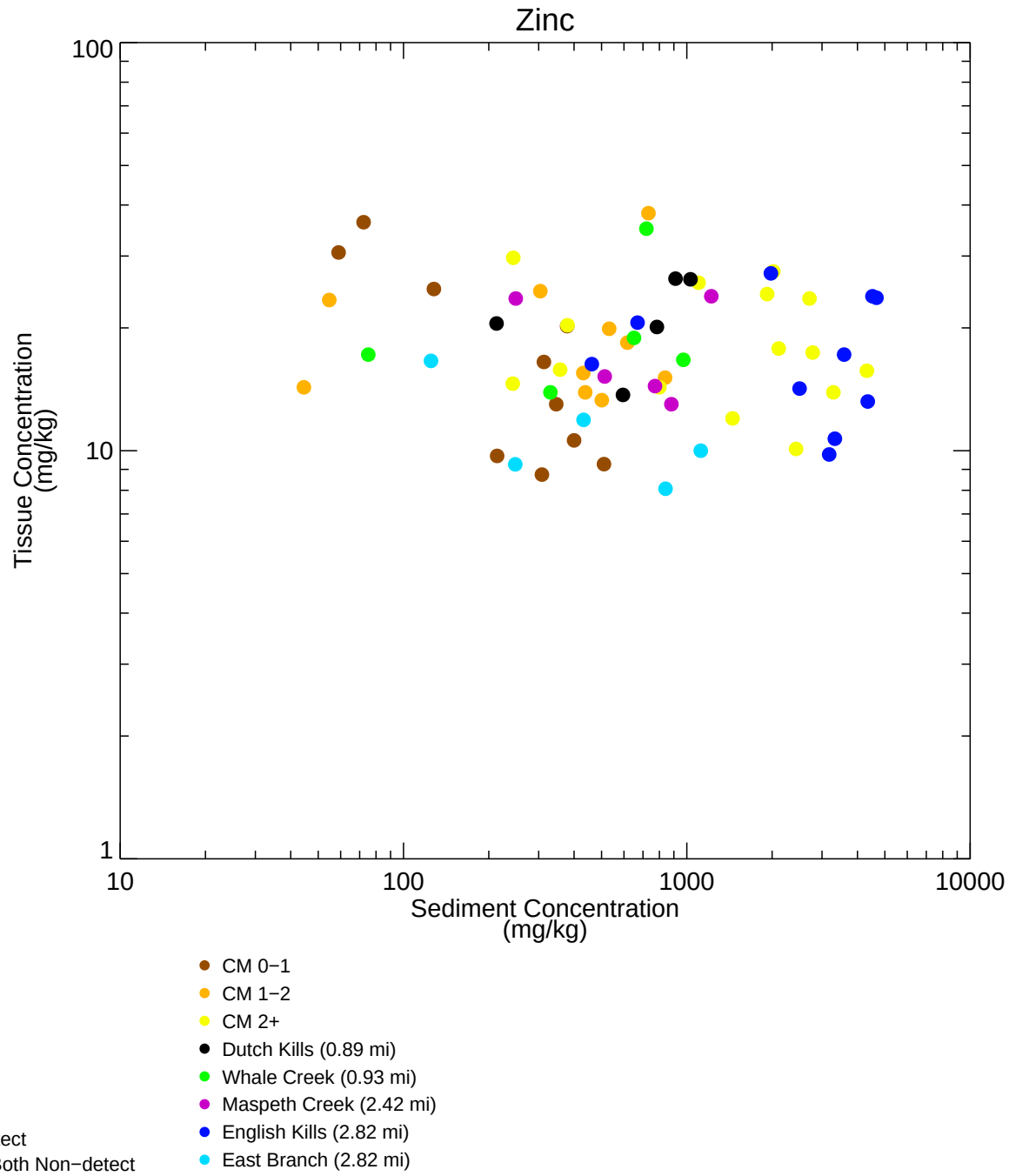

Attachment G6−11

Relationship Between Study Area Sediment and Polychaete Tissue Data : Zinc
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects included at MDL and plotted with an open symbol.
Sediment plotted on a dry−weight basis, tissue plotted on a wet−weight basis.
Some Kaplan−Meier sample totals rejected due to not enough uncensored values, replaced with U = 0 MDL.

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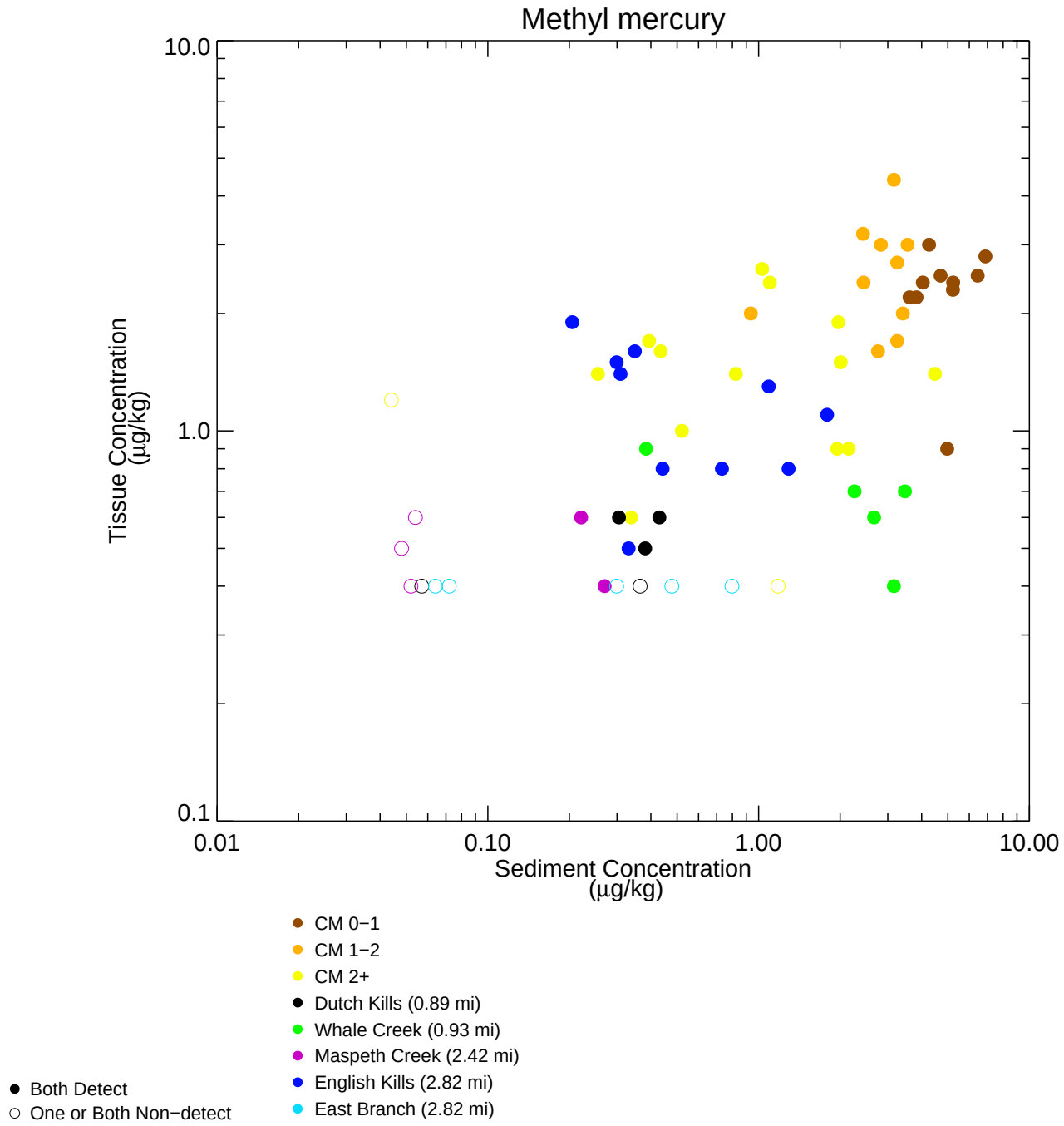

Attachment G6−12

Relationship Between Study Area Sediment and Polychaete Tissue Data : Methyl Mercury
Baseline Ecological Risk Assessment
Newtown Creek RI/FS

Notes: Non−detects included at MDL and plotted with an open symbol.
Sediment plotted on a dry−weight basis, tissue plotted on a wet−weight basis.
Some Kaplan−Meier sample totals rejected due to not enough uncensored values, replaced with U = 0 MDL.

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