

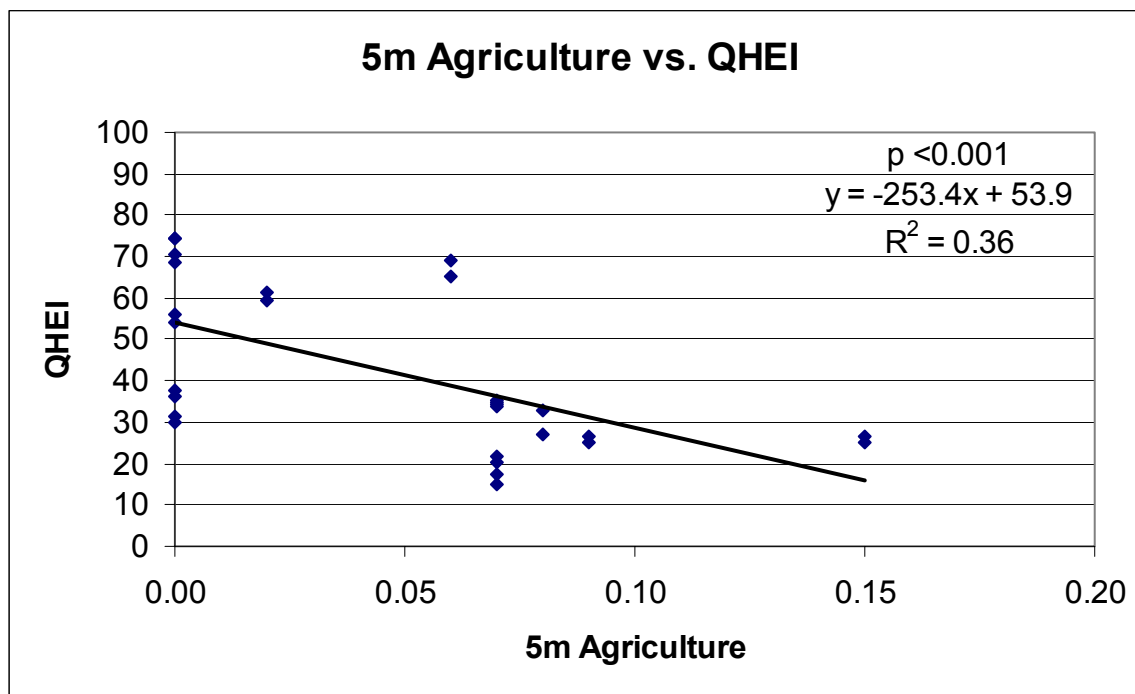
APPENDIX F

Regression Analysis Tables and Graphs

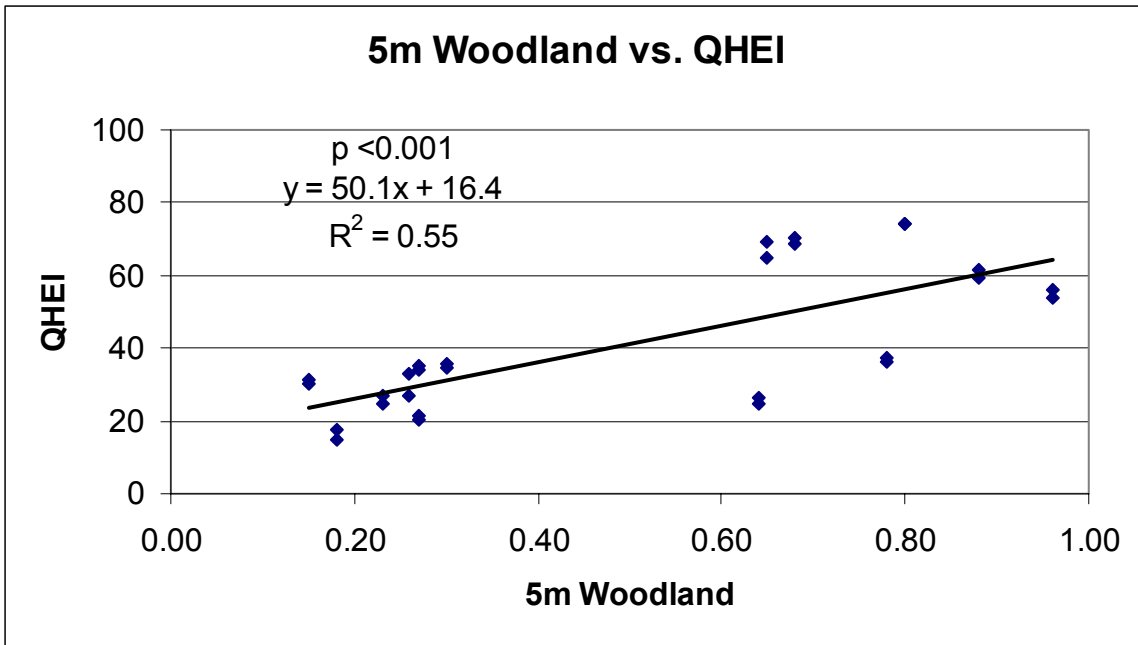
Regression Statistics for Significant Relationships between Spatial Land Use and 2002-2003 Averaged Biological Index Scores.

Independent	Dependent	Probability>F (p-value)	R²	Slope	Intercept
5m Agriculture	QHEI	<0.001	0.36	-253.4	53.9
5m Woodland	QHEI	<0.001	0.55	50.1	16.4
30m Woodland	QHEI	0.004	0.28	48.6	27.3
Sub-sub Agriculture	QHEI	0.01	0.21	-50.2	76.4
5m Agriculture	IBI	<0.001	0.41	-87.9	33.6
5m Woodland	IBI	<0.001	0.49	15.2	21.7
30m Woodland	IBI	0.006	0.25	15.0	24.9
Sub-sub Agriculture	IBI	0.01	0.22	-16.7	40.9

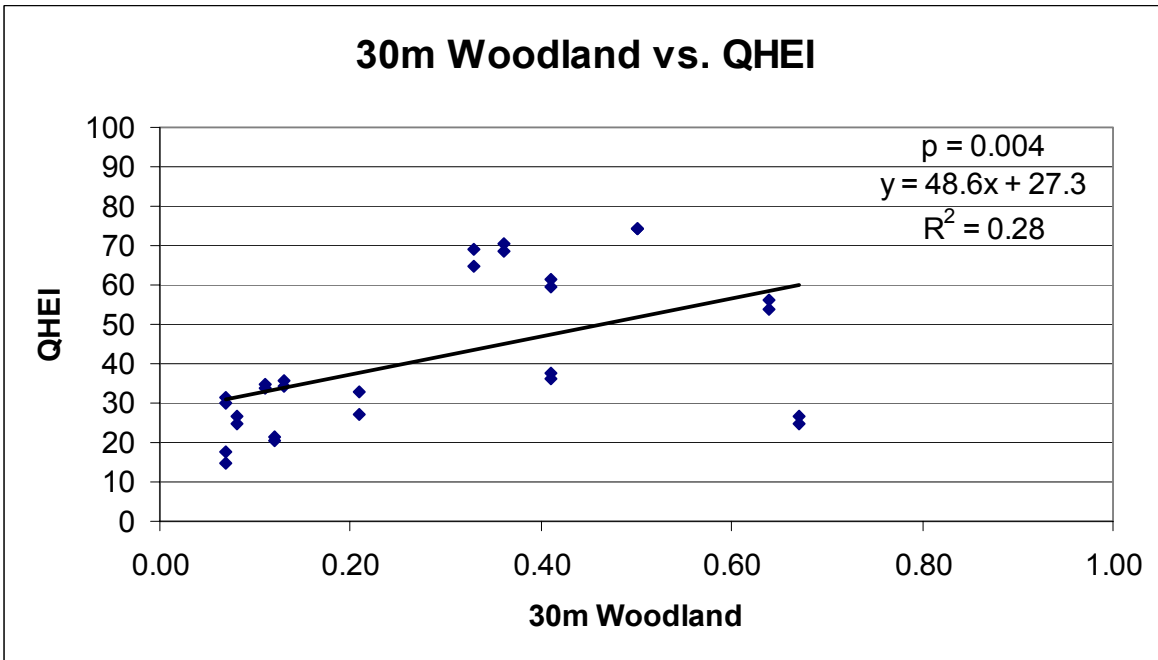
The scatterplot graphs below represent the significant relationships determined by the regression analyses. In addition to the scatter plot, a trendline has been added showing the equation and R² value for the line.



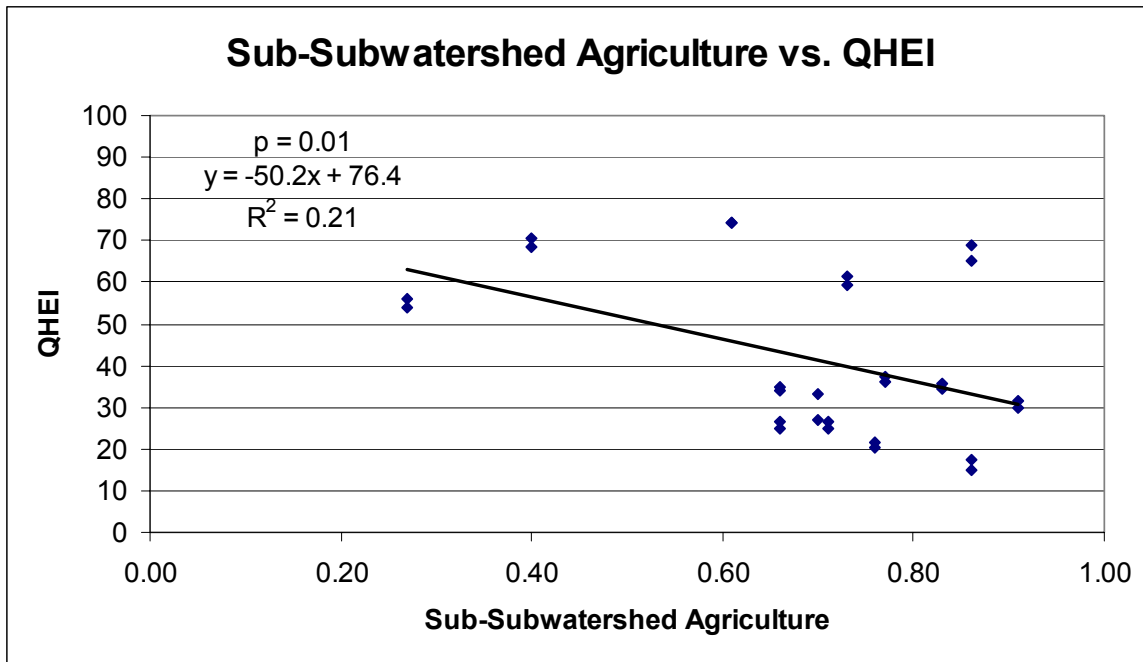
Relationship between Five Meter Agriculture vs. Qualitative Habitat Evaluation Index (QHEI)



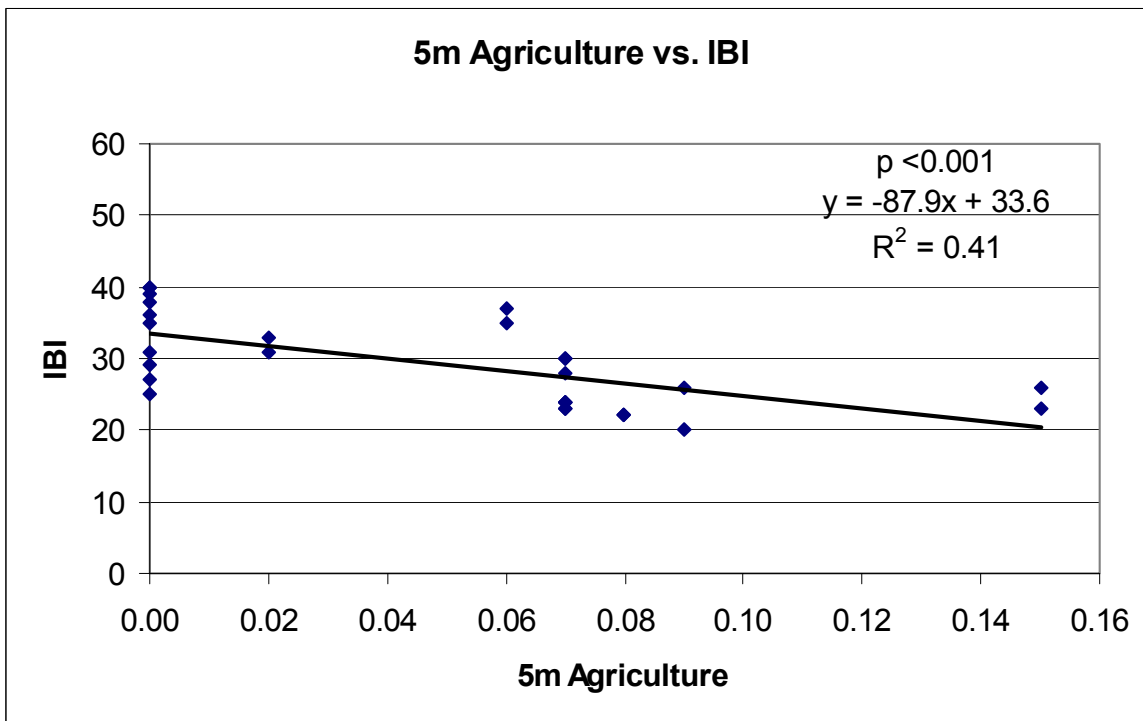
Relationship between Five Meter Woodland vs. Qualitative Habitat Evaluation Index (QHEI)



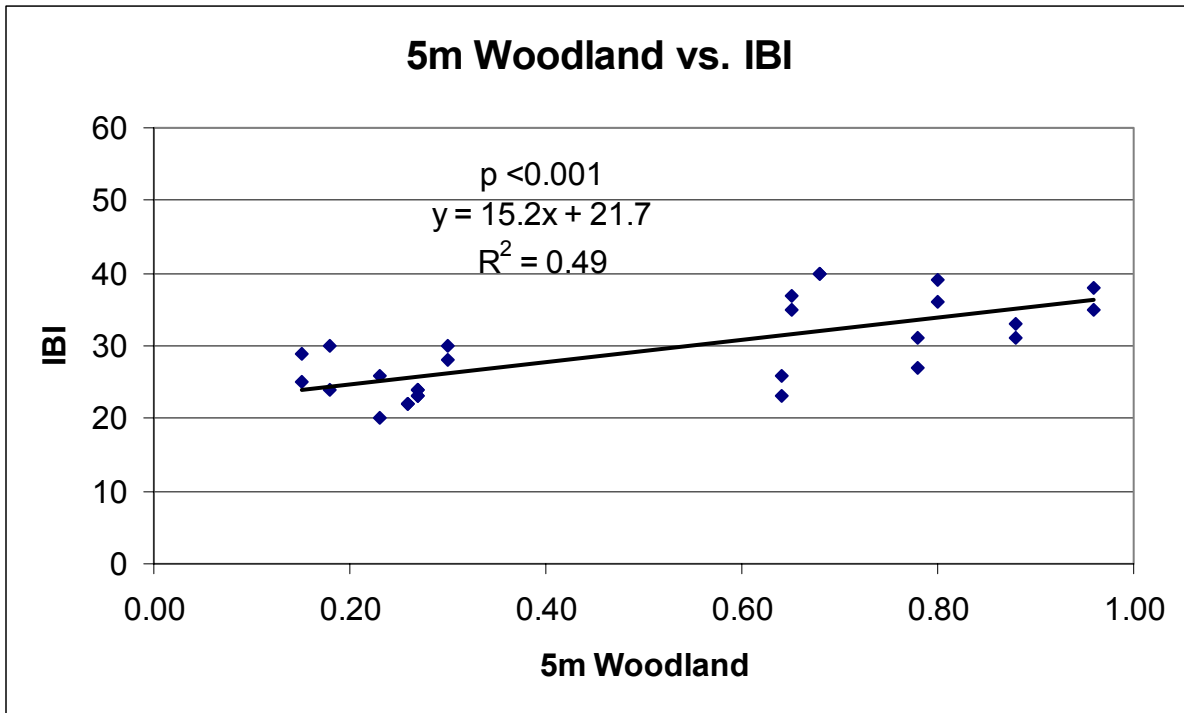
Relationship between Thirty Meter Woodland vs. Qualitative Habitat Evaluation Index (QHEI)



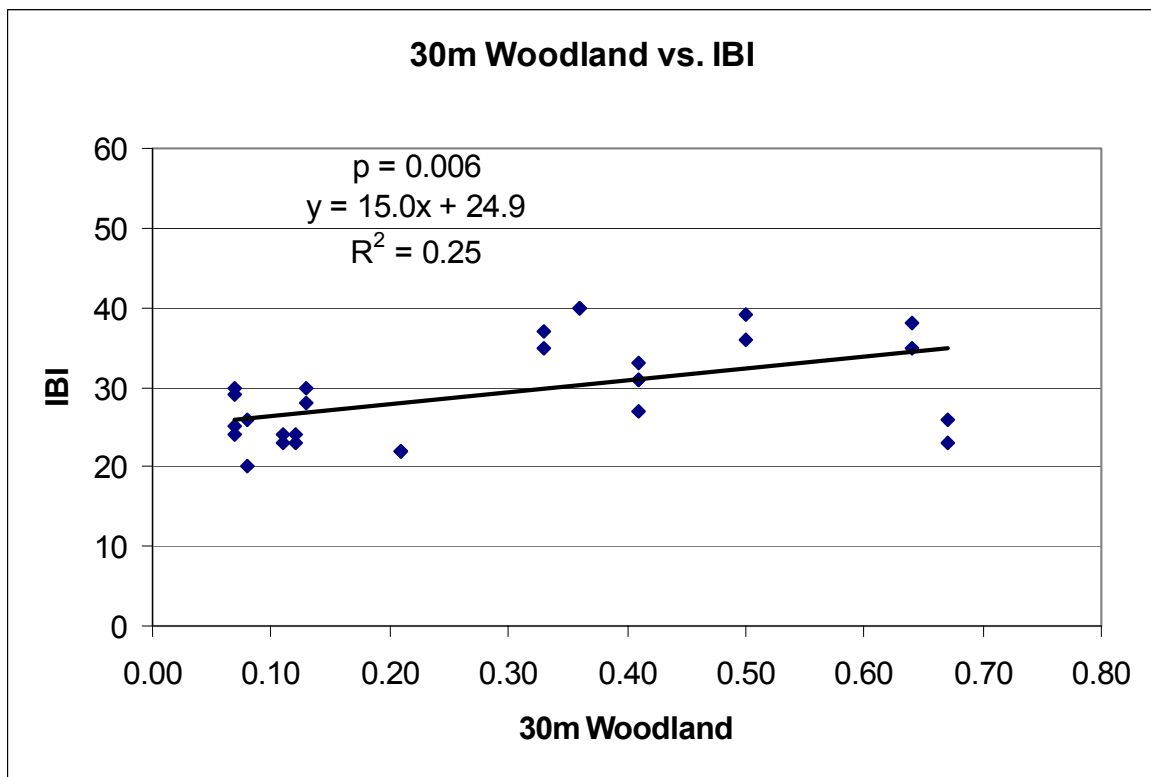
Relationship between Sub-Subwatershed Agriculture vs. Qualitative Habitat Evaluation Index (QHEI)



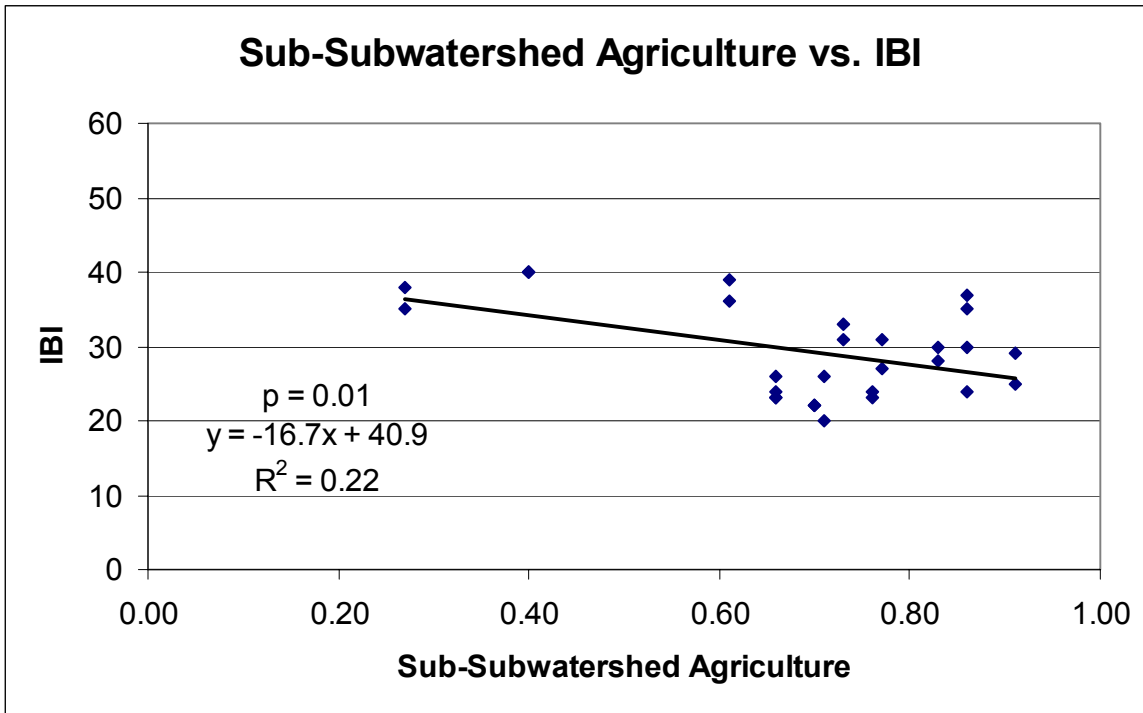
Relationship between Five Meter Agriculture vs. Index of Biological Integrity (IBI)



Relationship between Five Meter Woodland vs. Index of Biological Integrity (IBI)



Relationship between Thirty Meter Woodland vs. Index of Biological Integrity (IBI)

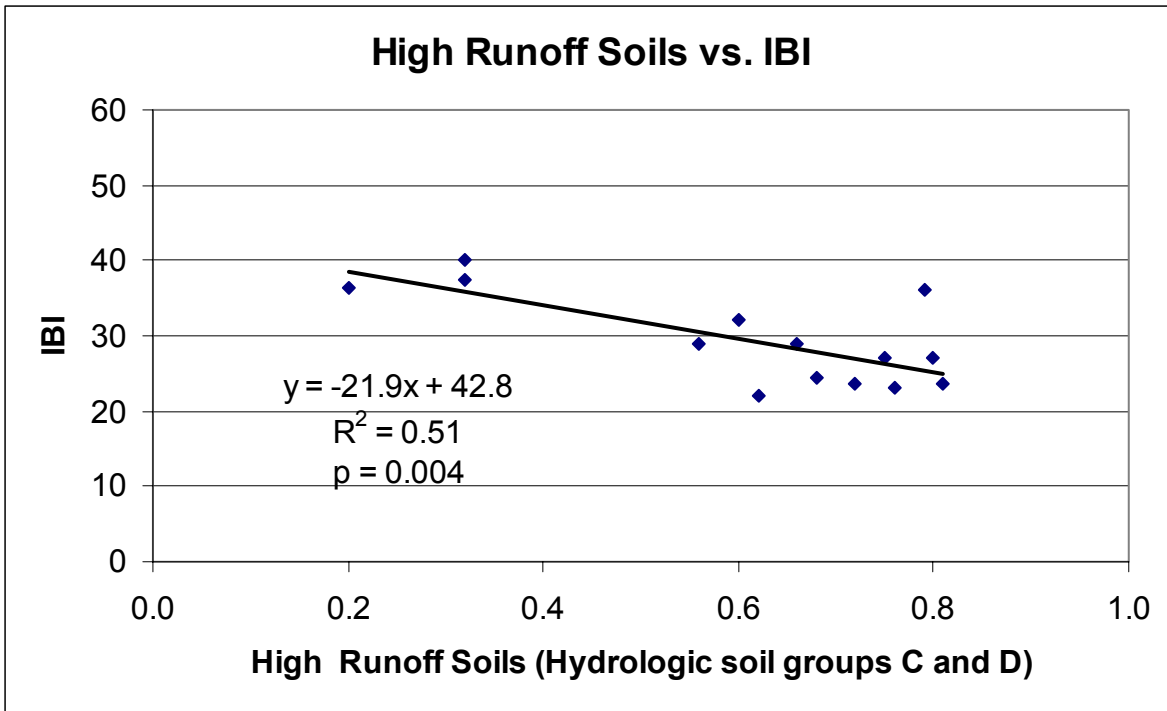


Relationship between Sub-Subwatershed Agriculture vs. Index of Biological Integrity (IBI)

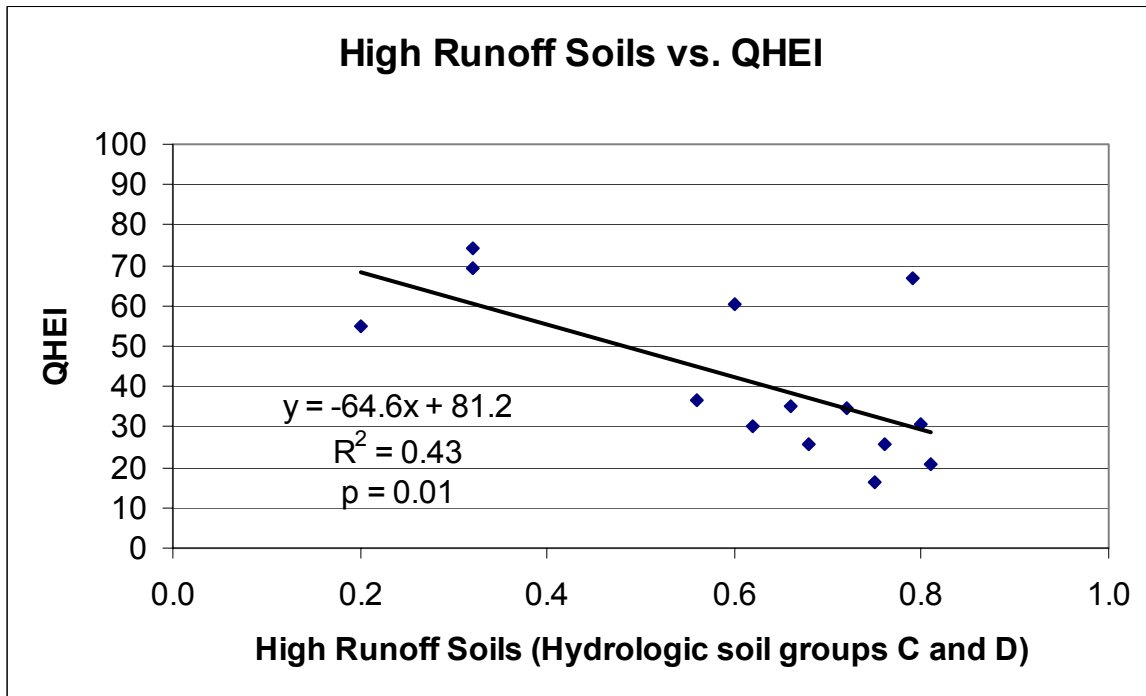
Regression Statistics for Significant Relationships of Soil Runoff Potential and 2002-2003 Averaged Biological Index Scores

Independent	Dependent	Probability>F (p-value)	R ²	Slope	Intercept
High Runoff Soils (C and D)	IBI	0.004	0.51	-21.9	42.8
High Runoff Soils (C and D)	QHEI	0.01	0.43	-64.6	81.2

Note: NRCS SSURGO (1999) soil hydrologic groups A & B (low-runoff soils) and C & D (high-runoff soils)



Relationship between High Runoff Soils vs. Index of Biological Integrity (IBI)

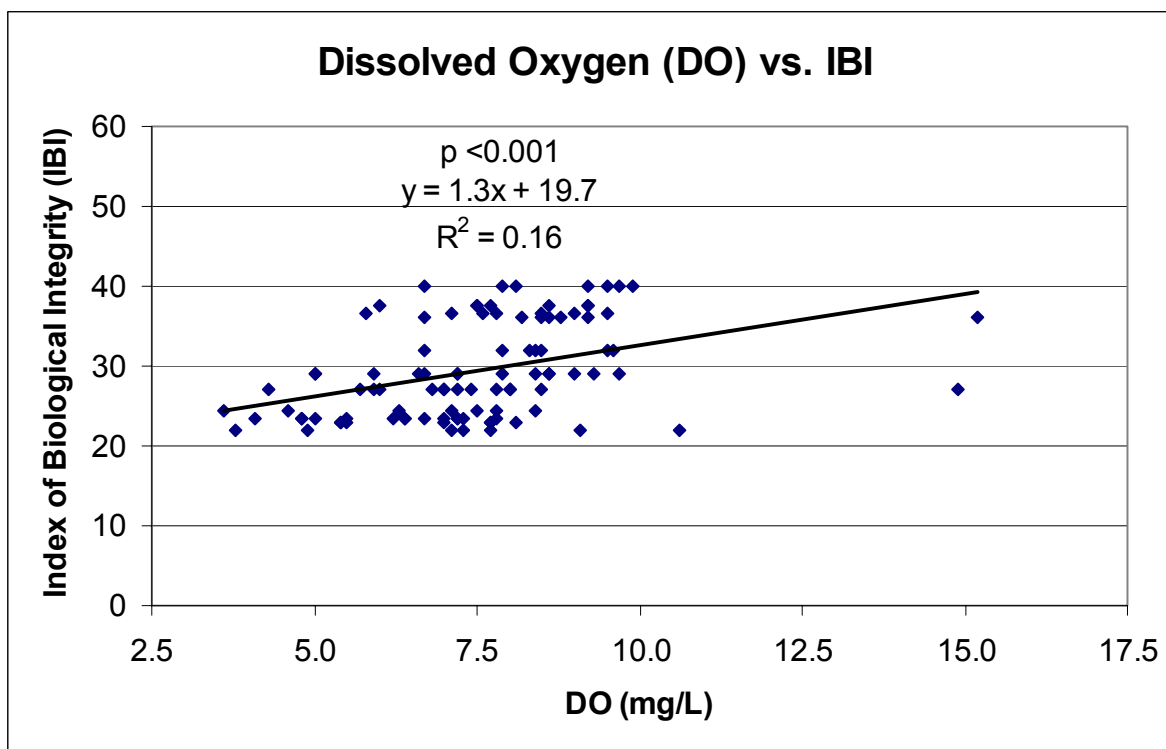


Relationship between High Runoff Soils vs. Qualitative Habitat Evaluation Index (QHEI)

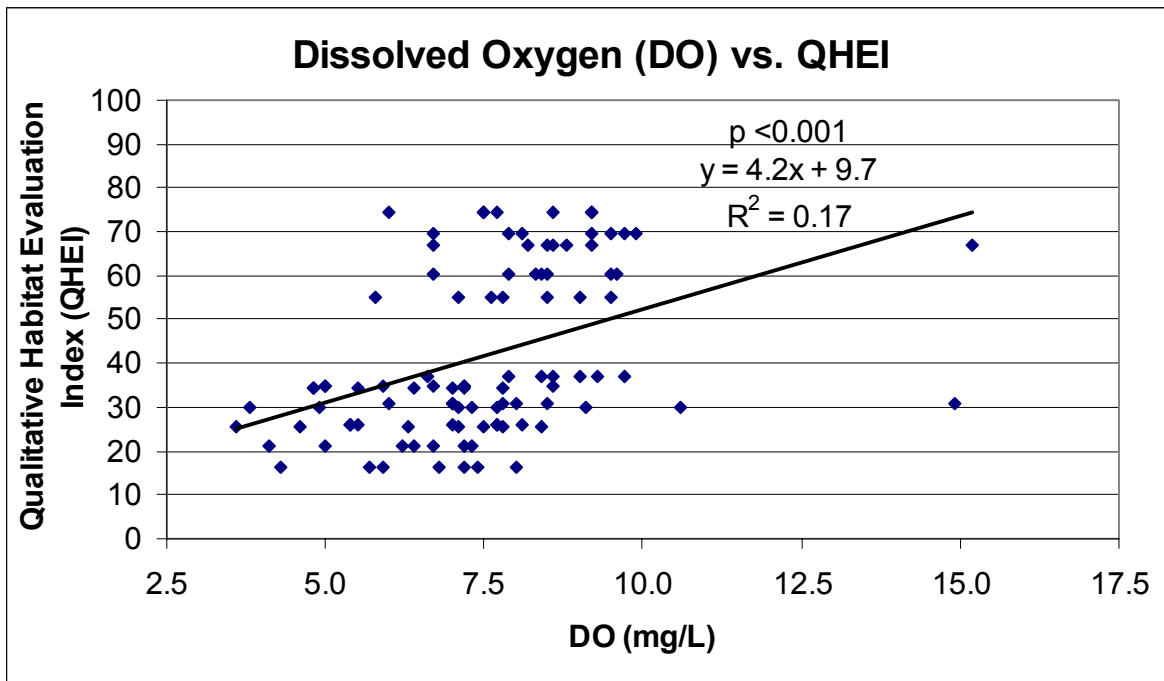
Regression Statistics for Significant Relationships of Chemical Parameters and 2002-2003 Averaged Biological Index Scores

Independent	Dependent	Probability>F (p-value)	R ²	Slope	Intercept
TSS	IBI	0.05	0.03	-0.01	29.9
NH ₃	IBI	0.004	0.08	-7.1	31.0
Ortho-P	IBI	0.01	0.06	-12.7	30.6
DO	IBI	<0.001	0.16	1.3	19.7
pH	IBI	<0.001	0.15	5.9	-13.1
TSS	QHEI	0.04	0.04	-0.02	43.6
NH ₃	QHEI	0.02	0.04	-17.8	45.9
Ortho-P	QHEI	0.04	0.04	-33.6	45.0
DO	QHEI	<0.001	0.17	4.2	9.7
pH	QHEI	<0.001	0.11	16.9	-79.4

Note: Index of Biologic Integrity (IBI), Qualitative Habitat Evaluation Index (QHEI)



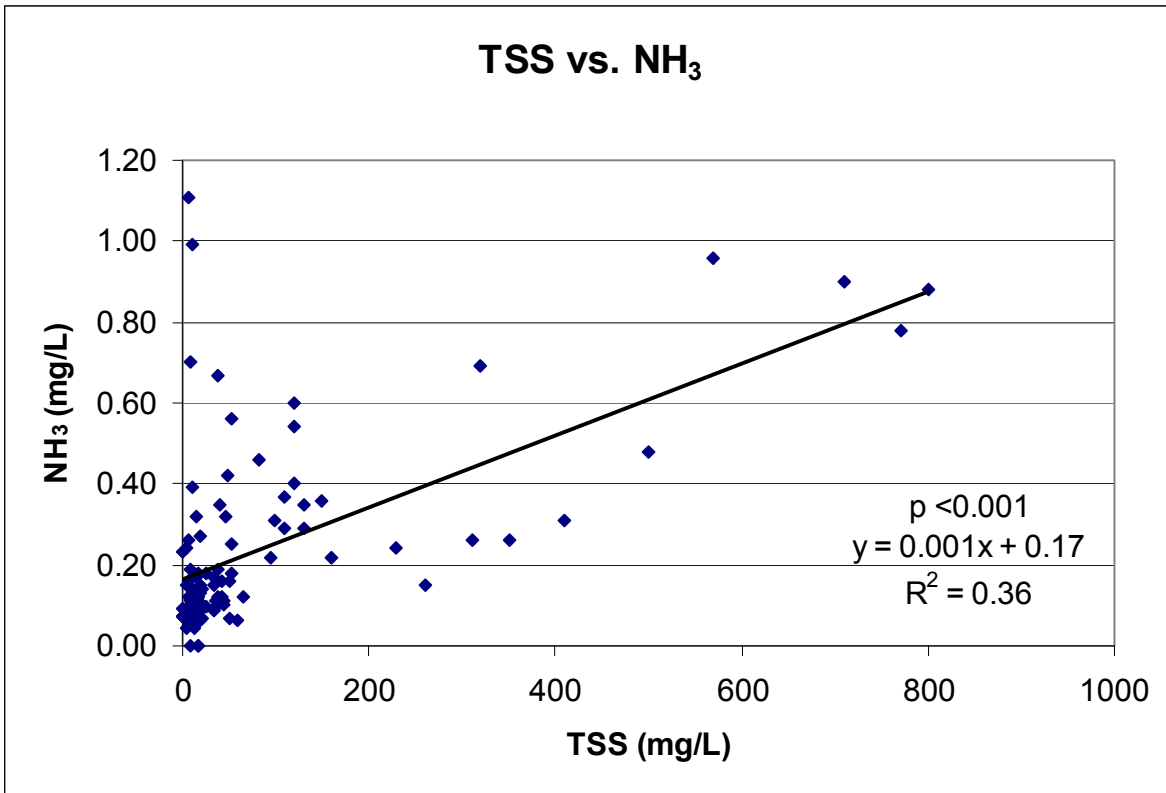
Relationship of Dissolved Oxygen (DO) to Index of Biological Integrity (IBI)



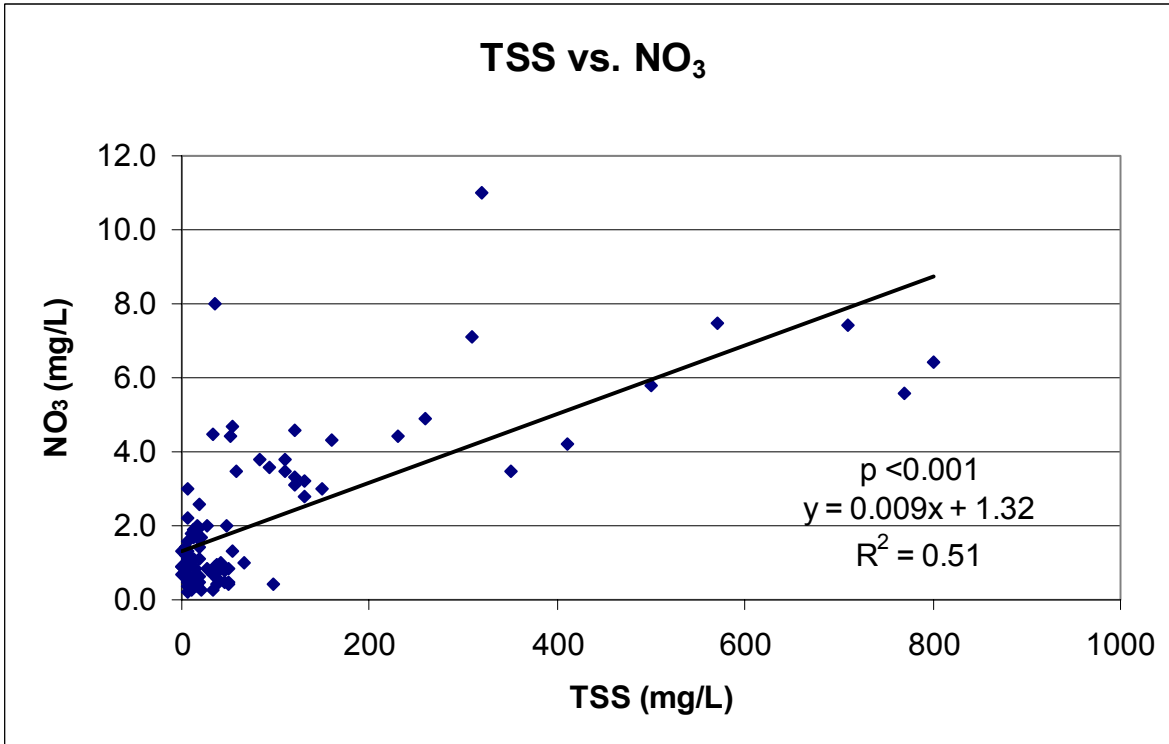
Relationship of Dissolved Oxygen (DO) to Qualitative Habitat Evaluation Index (QHEI)

Regression Statistics for Significant Relationships between Chemical Parameters

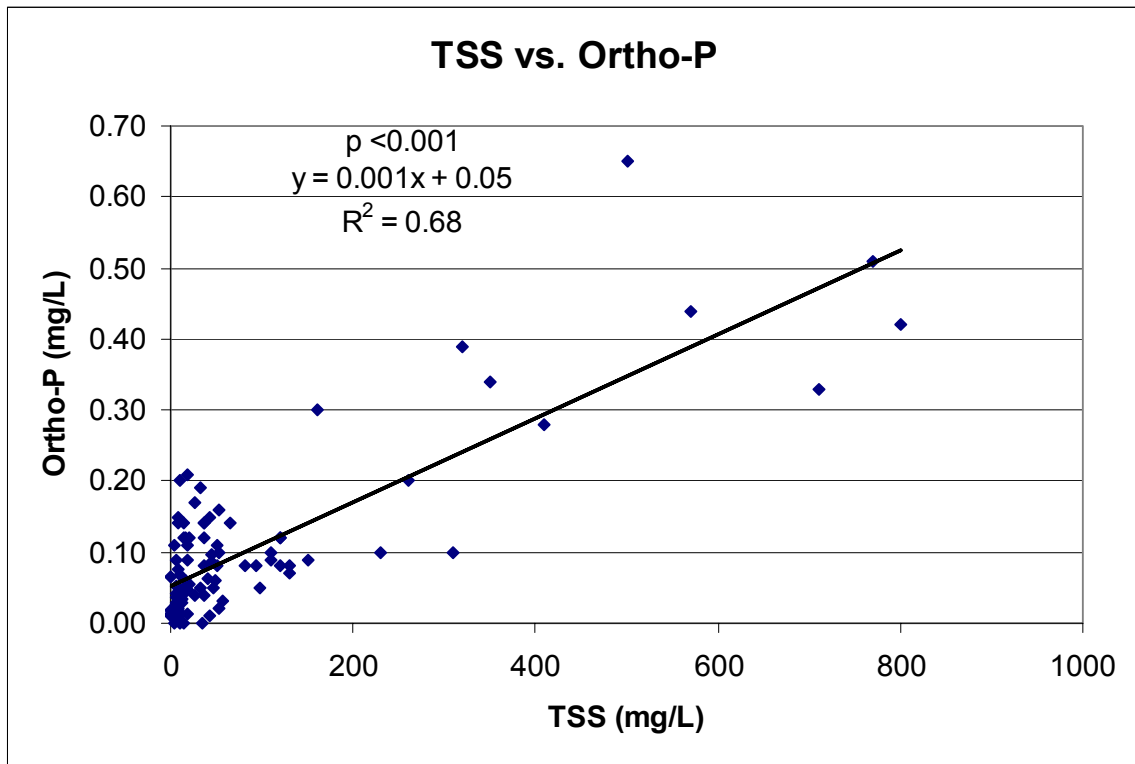
Independent	Dependent	Probability>F (p-value)	R ²	Slope	Intercept
TSS	NH ₃	<0.001	0.36	0.001	0.17
TSS	NO ₃	<0.001	0.51	0.01	1.32
TSS	Ortho-P	<0.001	0.68	0.001	0.05
TSS	<i>E.coli</i>	0.05	0.04	14.90	4436
NH ₃	NO ₃	<0.001	0.19	3.78	1.18
NH ₃	Ortho-P	<0.001	0.32	0.27	0.04
NH ₃	<i>E.coli</i>	0.003	0.09	14618	2160
NO ₃	Ortho-P	<0.001	0.40	0.04	0.03
NO ₃	<i>E.coli</i>	0.01	0.06	1418	2712
Ortho-P	<i>E.coli</i>	0.05	0.04	20147	3631



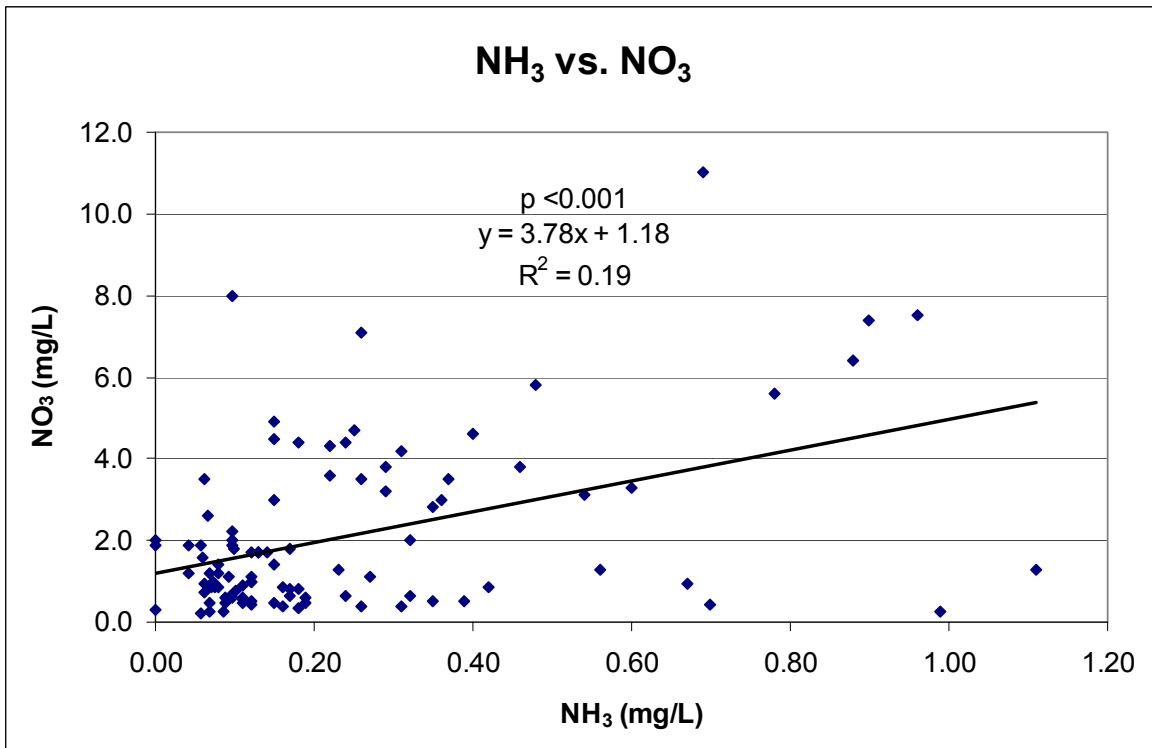
Relationship between Total Suspended Solids (TSS) vs. Ammonia as N (NH₃)



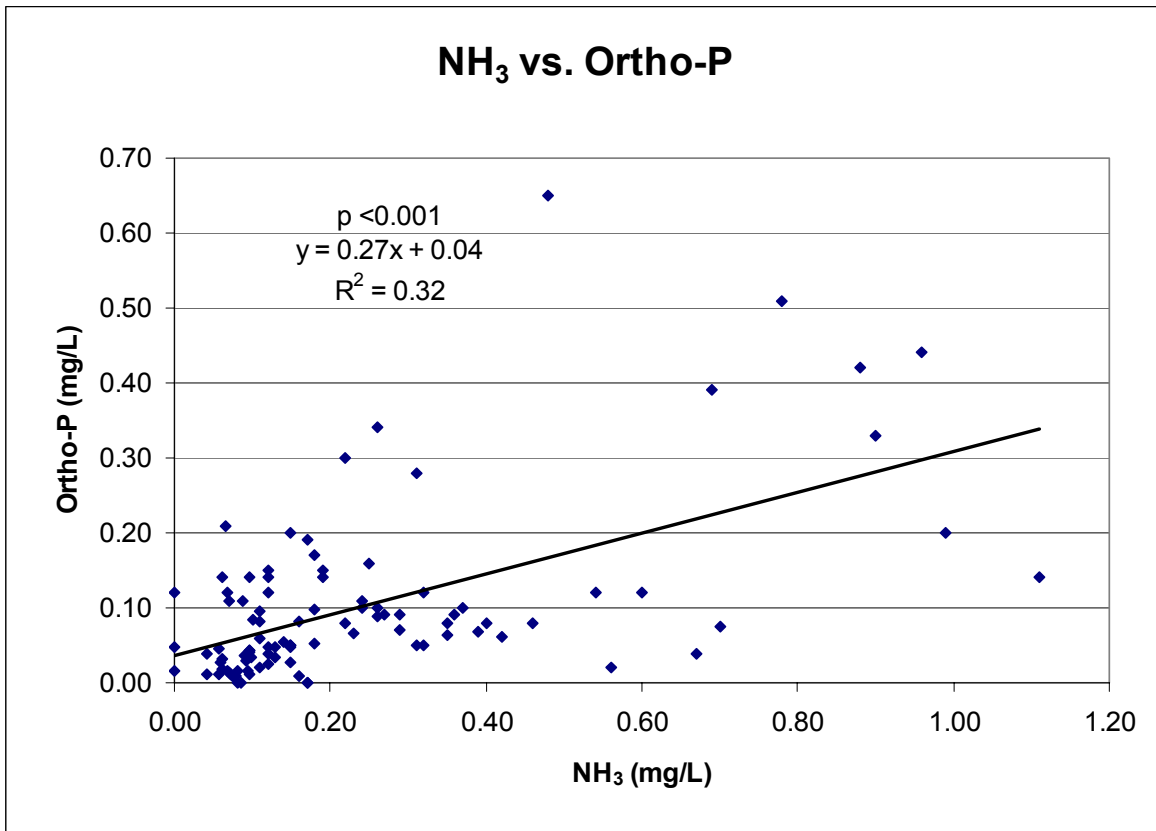
Relationship between Total Suspended Solids (TSS) vs. Nitrate + Nitrite (NO₃)



Relationship between Total Suspended Solids (TSS) vs. Orthophosphate as P (Ortho-P)



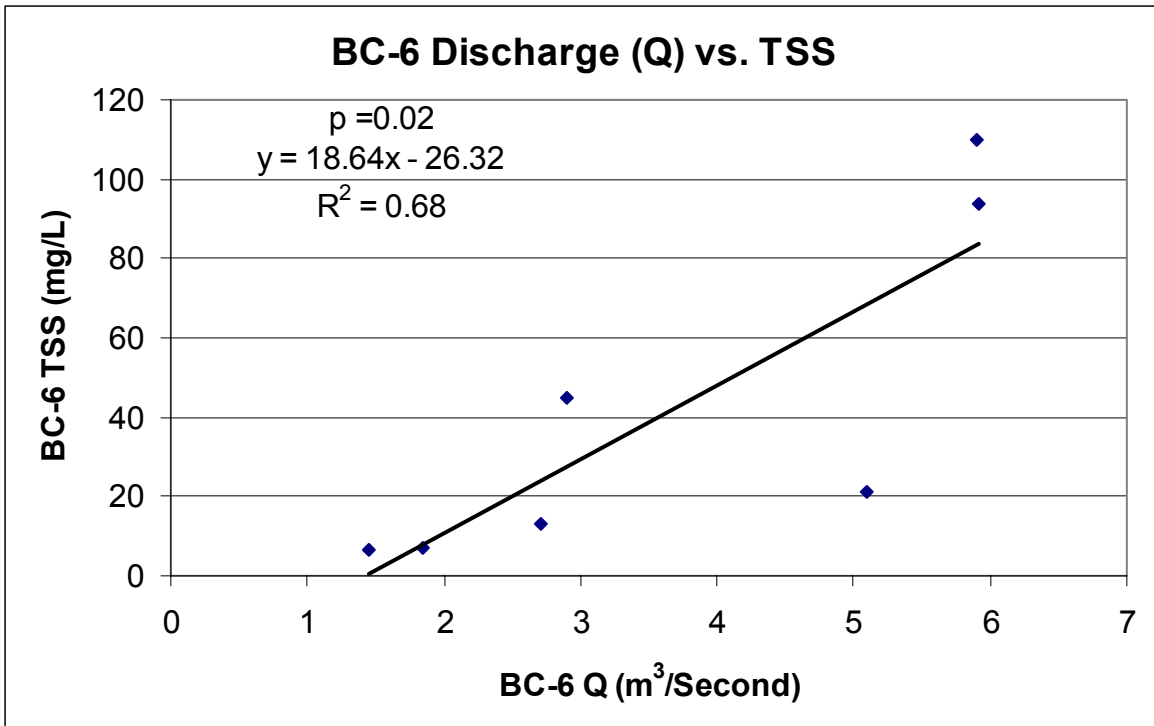
Relationship between Ammonia as N (NH₃) vs. Nitrate + Nitrite (NO₃)



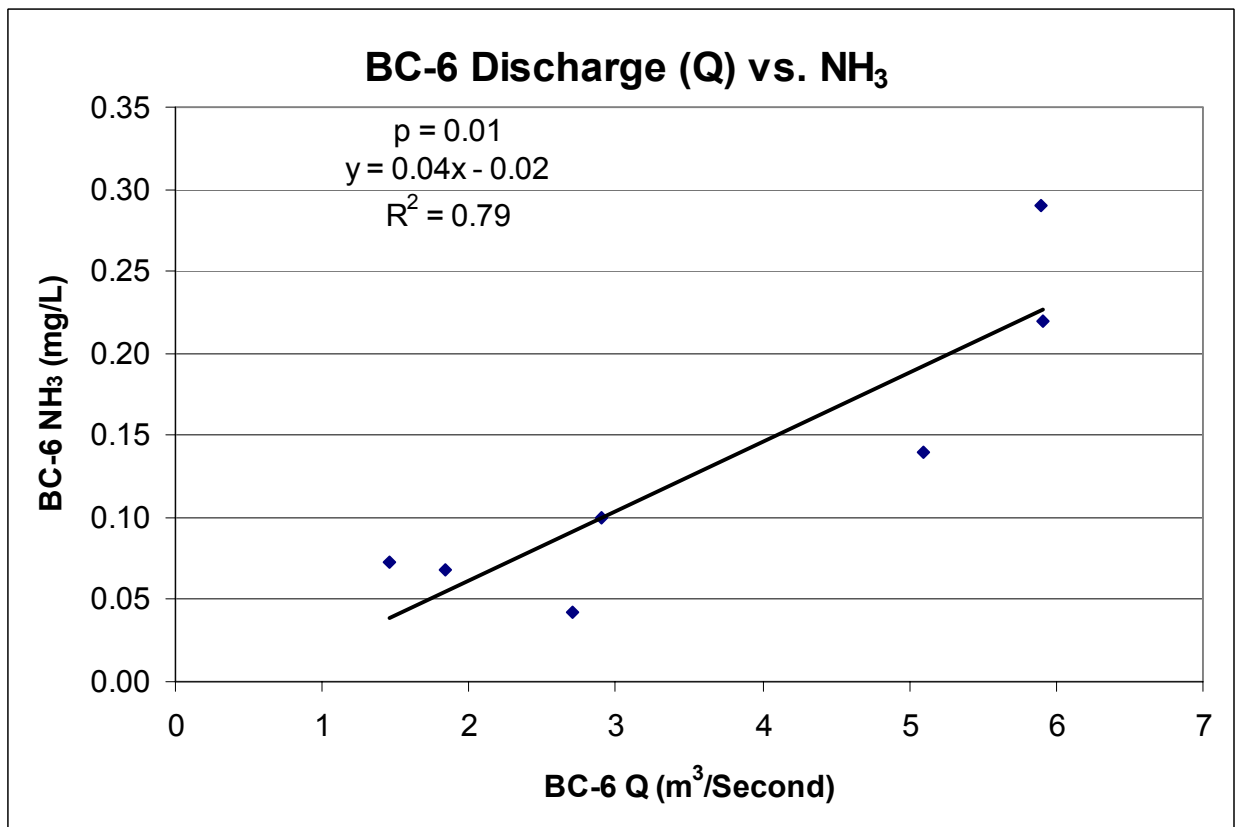
Relationship between Ammonia as N (NH₃) vs. Orthophosphate as P (Ortho-P)

Regression Statistics for Significant Relationships between Sampling Site BC-6 Discharge (Q) and Chemical Parameters

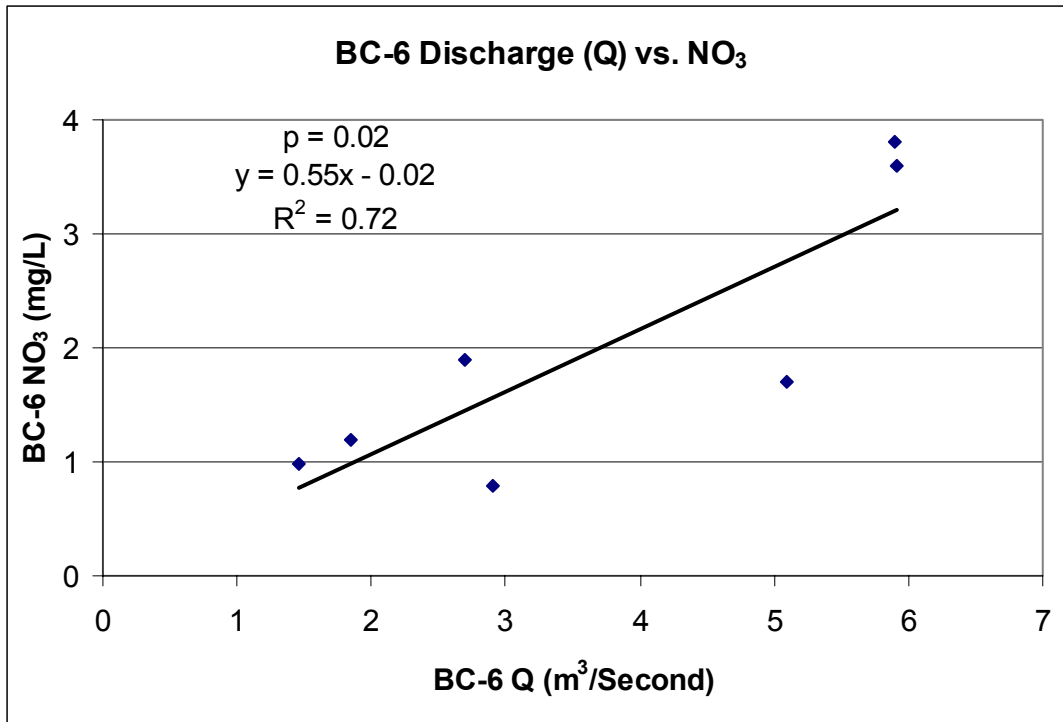
Independent	Dependent	Probability >F	R ²	Slope	Intercept
BC-6 Q	TSS	0.02	0.68	18.64	-26.32
BC-6 Q	NH ₃	0.01	0.79	0.04	-0.02
BC-6 Q	NO ₃	0.02	0.72	0.55	-0.02
BC-6 Q	Ortho-P	0.04	0.61	0.01	0.004
BC-6 Q	E.coli	0.05	0.56	1843	-3036



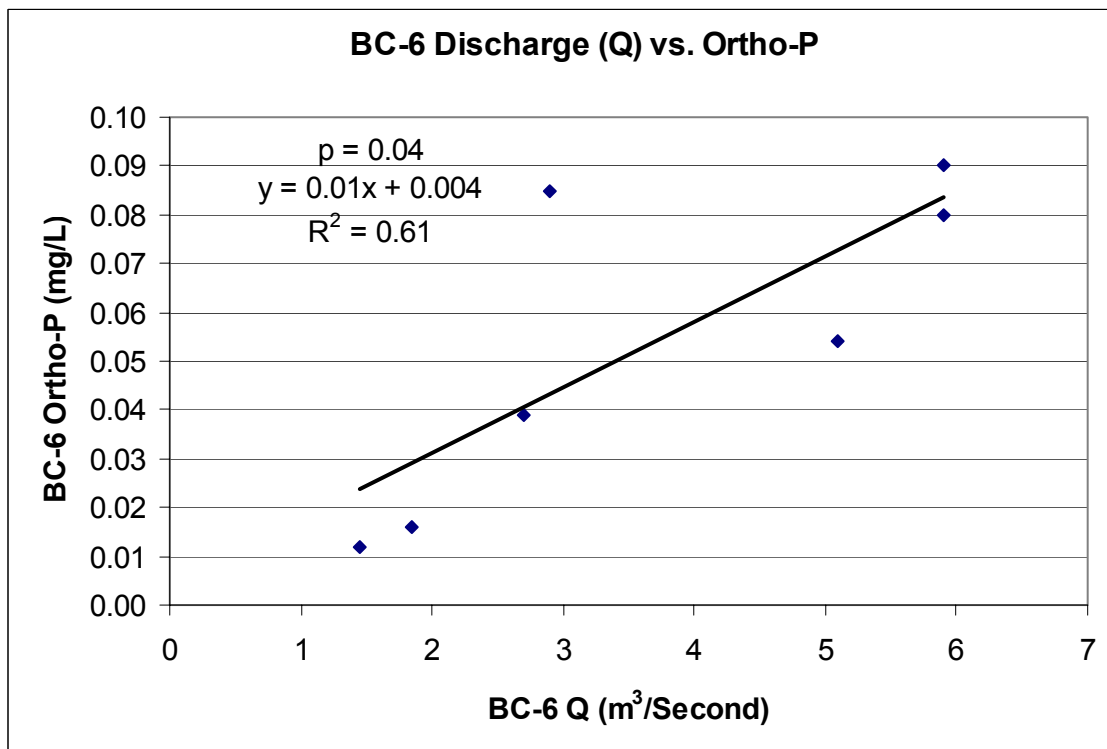
Relationship between BC-6 Discharge (Q) vs. BC-6 TSS



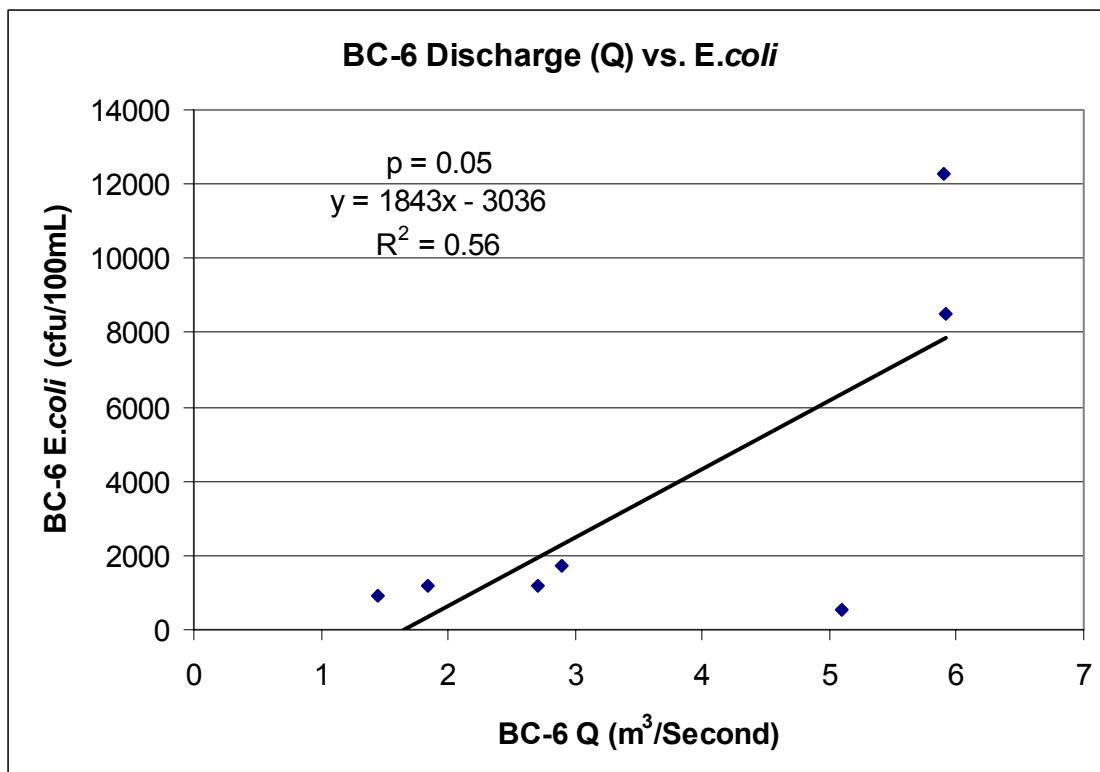
Relationship between BC-6 Discharge (Q) vs. BC-6 NH₃



Relationship between BC-6 Discharge (Q) vs. BC-6 NO₃



Relationship between BC-6 Discharge (Q) vs. BC-6 Orthophosphate as P (Ortho-P)

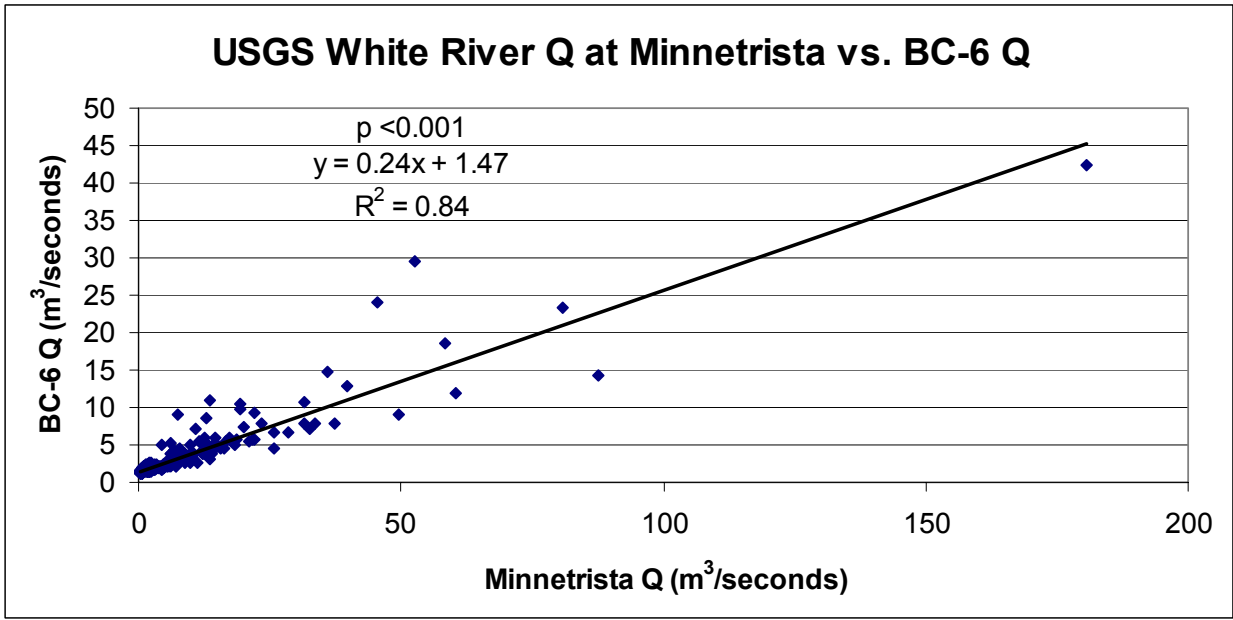


Relationship between BC-6 Discharge (Q) vs. BC-6 E. coli

Regression Statistics for Significant Relationships between Discharge (Q) at USGS White River gauging station at Minnetrista and BC-6 Q, BC-3 Q; and between KB-1A (Q) and KB-1 (Q)

Independent	Dependent	Probability >F (p-value)	R ²	Slope	Intercept
White River Q	BC-6 Q	<0.001	0.84	0.24	1.47
White River Q	BC-3 Q	<0.001	0.84	0.07	1.44
White River Q	KB-1A	<0.001	0.74	0.05	0.44
KB-1A	KB-1	<0.001	0.96	0.63	0.05

Note: United States Geological Survey (USGS) gauging station located on White River at Minnetrista was used to obtain stream discharge data which was used in regression analysis



Relationship between White River Discharge (Q) at Minnetrista and BC-6 Discharge (Q)

Note: Regression equation used to estimate discharge (Q) at BC-6 for days that did not have water level data to use in rating curve prediction of Q