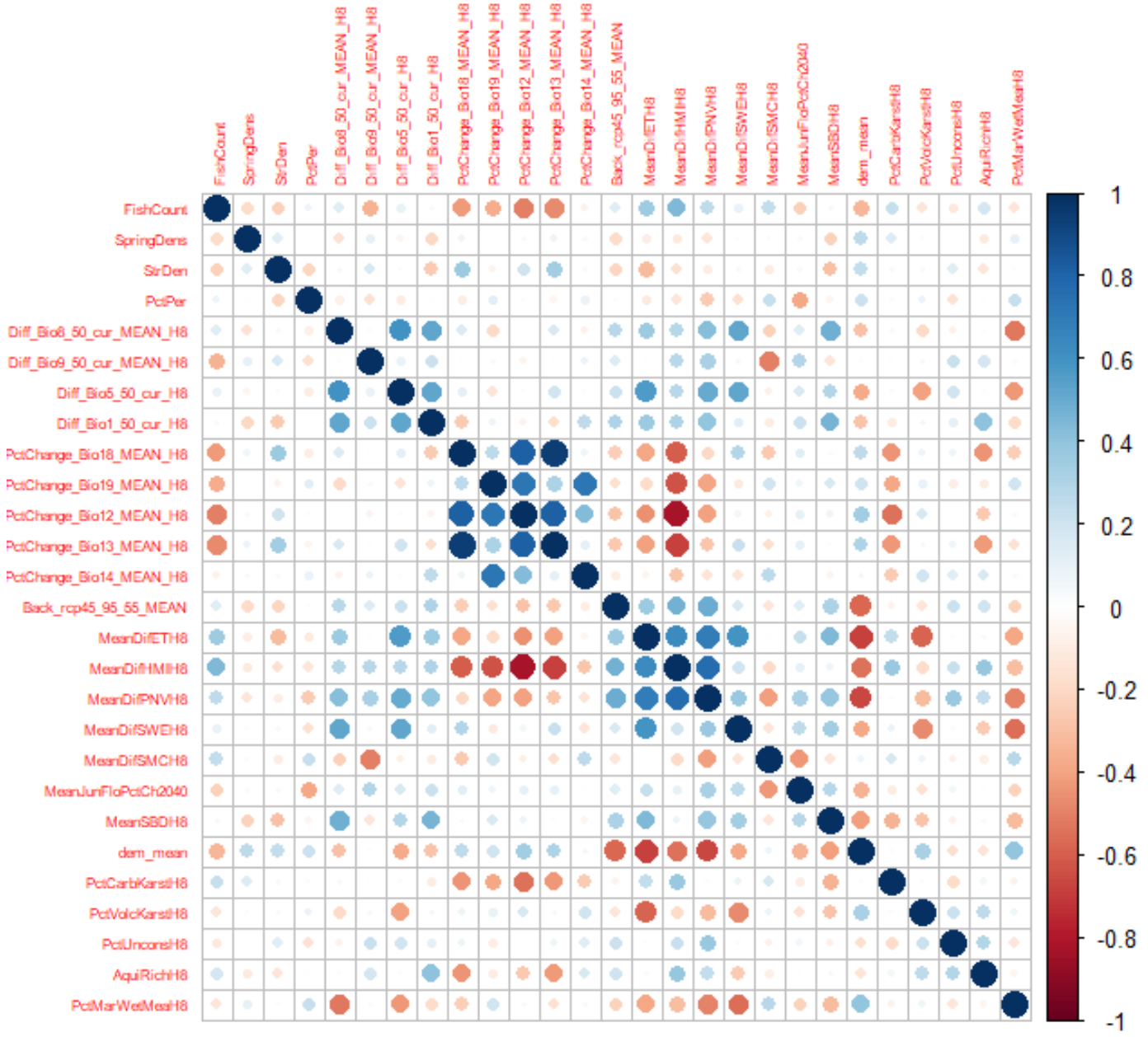
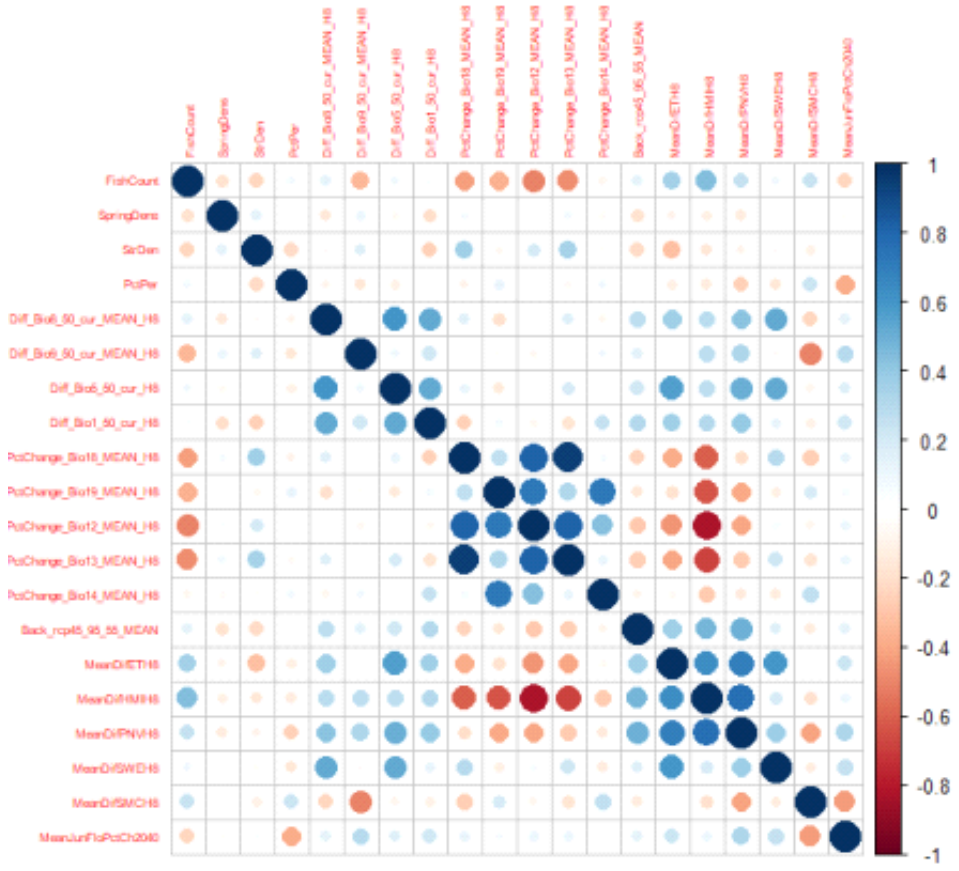
Correlations

Monday, January 13, 2025 6:14 PM

Pearson correlations between variables considered for assessment of perennial streams




FishCount
SpringDens
StrDen
PctPer
Diff_Bio8_50_cur_MEAN_HI
Diff_Bio9_50_cur_MEAN_HI
Diff_Bio5_50_cur_HI
Diff_Bio1_50_cur_HI
PctChange_Bio18_MEAN_HI
PctChange_Bio19_MEAN_HI
PctChange_Bio12_MEAN_HI
PctChange_Bio13_MEAN_HI
PctChange_Bio14_MEAN_HI
Back_rcp45_95_55_MEAN
MeanDifETHI
MeanDifHMHI
MeanDifPNVHI
MeanDifSWDHI
MeanDifSMCHI
MeanJunFloPctCh2040
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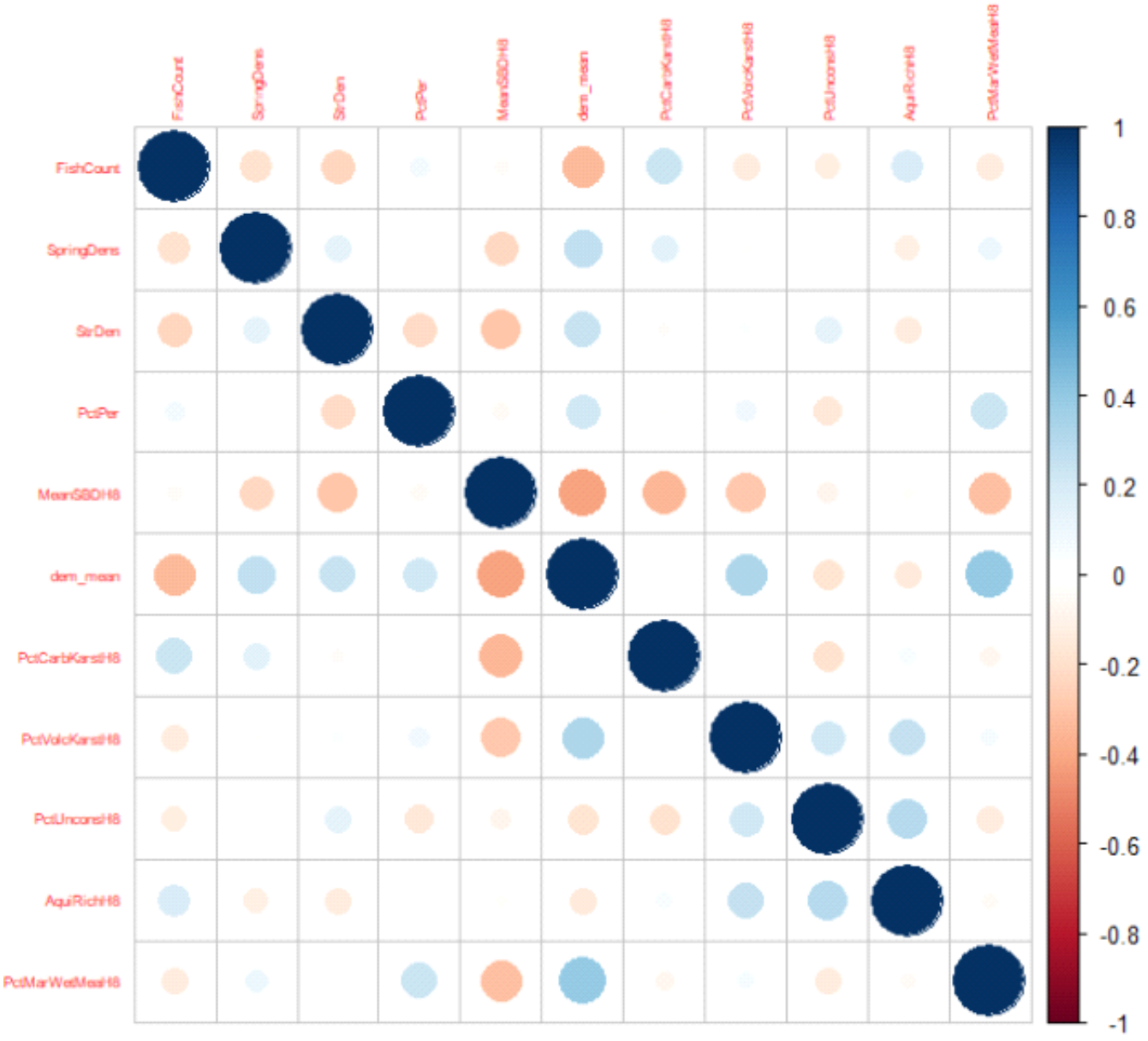
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1


FishCount
SpringDens
StrDen
PctPer
MeanSBDH8
dem_mean
PctCarbKarstH8
PctVolcKarstH8
PctUnconsH8
AquiRichH8
PctMarWetMeanH8
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1

FBBCR

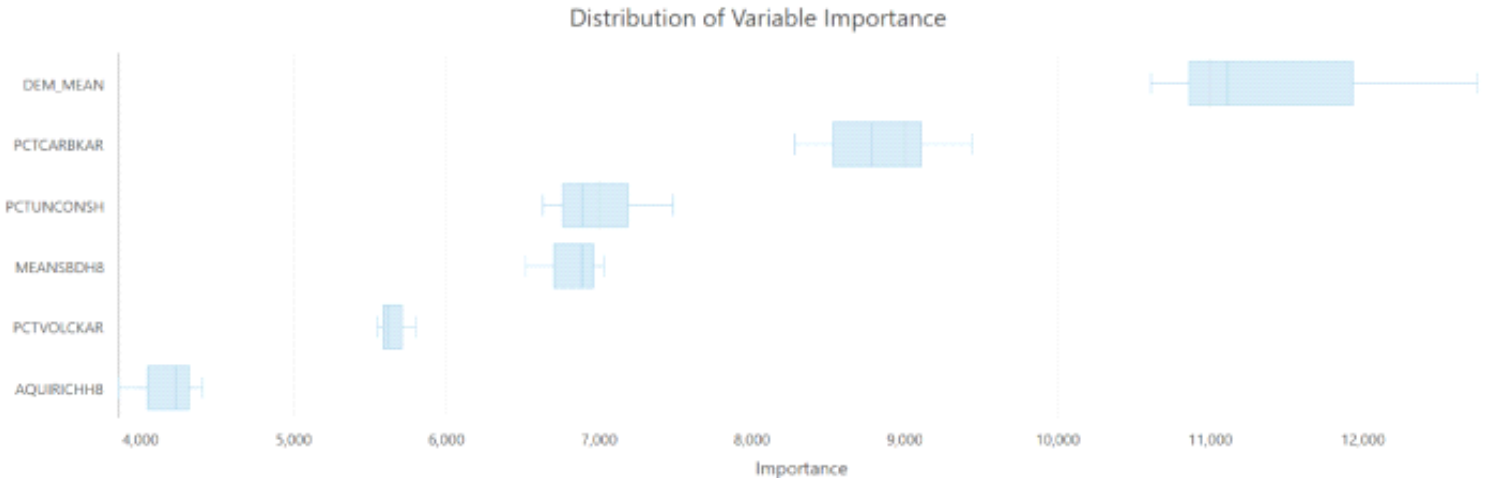
Monday, April 7, 2025 3:54 PM

Forest-Based and Boosted Classification results for perennial streams. Lithology, soil, and topography variables were assessed for their ability to predict species richness and percent of streams classified as perennial.

Predicting species richness

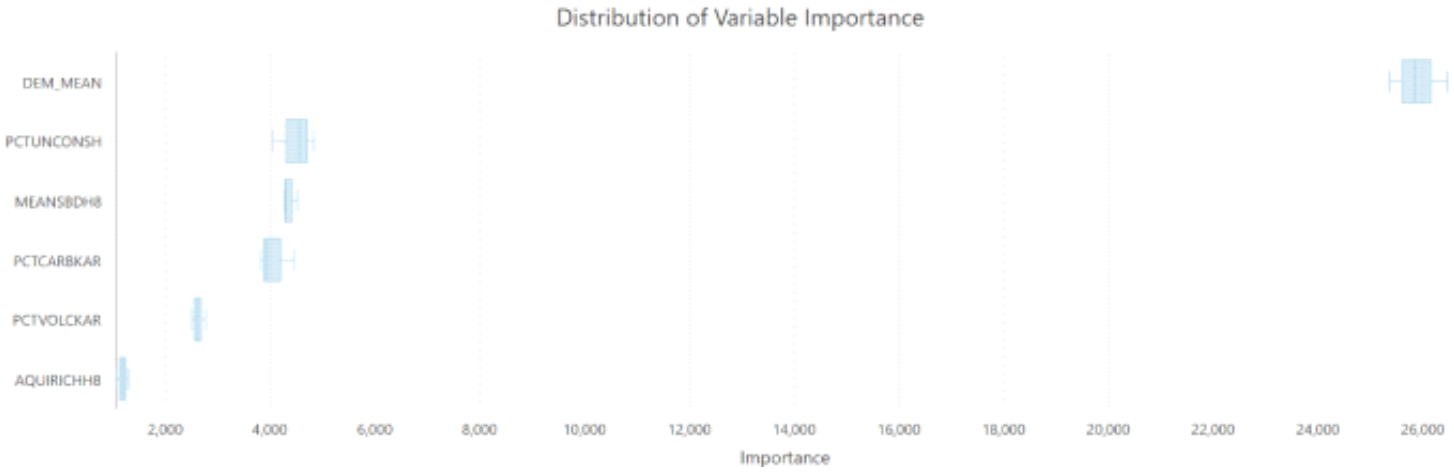
Top Variable Importance

Variable	Importance	%
dem_mean	11112.72	26
PctCarbKarstH8	8780.16	20
MeanSBDH8	7030.79	16
PctUnconsH8	6631.31	15
PctVolcKarstH8	5620.09	13
AquiRichH8	4403.90	10



Predicting Percent Perennial

Variable	Importance	%
dem_mean	25369.25	61
MeanSBDH8	4521.30	11
PctUnconsH8	4050.89	10
PctCarbKarstH8	3937.32	9
PctVolcKarstH8	2601.48	6
AquiRichH8	1065.60	3


Distribution of Variable Importance
DEM_MEAN
PCTUNCONSH
MEANSBDH8
PCTCARBKAR
PCTVOLCKAR
AQUIRICHH8
2,000
4,000
6,000
8,000
10,000
12,000
14,000
16,000
18,000
20,000
22,000
24,000
26,000
Importance

Exploratory Regression

Monday, February 3, 2025 3:09 PM

Assessment of lithology, soil, and topography variables
Response variable: fish species richness

Choose 1 of 7 Summary

Highest Adjusted R-Squared Results

AdjR2	AICc	JB	K(BP)	VIF	SA	Model
0.11	6993.08	0.00	0.00	1.00	0.00	-DEM_MEAN***
0.06	7053.89	0.00	0.00	1.00	0.00	+PCTCARBKARSTH8***
0.03	7077.48	0.00	0.00	1.00	0.00	+AQUIRICHH8***

Passing Models

AdjR2	AICc	JB	K(BP)	VIF	SA	Model

Choose 2 of 7 Summary

Highest Adjusted R-Squared Results

AdjR2	AICc	JB	K(BP)	VIF	SA	Model
0.17	6923.45	0.00	0.00	1.00	0.00	-DEM_MEAN*** +PCTCARBKARSTH8***
0.15	6044.56	0.00	0.00	1.21	0.00	-MEANSBDH8*** -DEM_MEAN***
0.14	6954.07	0.00	0.00	1.03	0.00	-DEM_MEAN*** -PCTUNCONSH8***

Passing Models

AdjR2	AICc	JB	K(BP)	VIF	SA	Model

Choose 3 of 7 Summary

Highest Adjusted R-Squared Results

AdjR2	AICc	JB	K(BP)	VIF	SA	Model
0.20	6882.72	0.00	0.02	1.28	0.00	-MEANSBDH8*** -DEM_MEAN*** -PCTUNCONSH8***
0.19	6899.16	0.00	0.00	1.07	0.00	-DEM_MEAN*** +PCTCARBKARSTH8*** -PCTUNCONSH8***
0.19	6905.62	0.02	0.00	1.02	0.00	-DEM_MEAN*** +PCTCARBKARSTH8*** +AQUIRICHH8***

Passing Models

AdjR2	AICc	JB	K(BP)	VIF	SA	Model

Choose 4 of 7 Summary

Highest Adjusted R-Squared Results

AdjR2	AICc	JB	K(BP)	VIF	SA	Model
0.24	6839.34	0.00	0.00	1.29	0.00	-MEANSBDH8*** -DEM_MEAN*** -PCTUNCONSH8*** +AQUIRICHH8***
0.22	6861.19	0.11	0.00	1.17	0.00	-DEM_MEAN*** +PCTCARBKARSTH8*** -PCTUNCONSH8*** +AQUIRICHH8***
0.22	6864.31	0.00	0.00	1.50	0.00	-MEANSBDH8*** -DEM_MEAN*** +PCTCARBKARSTH8*** -PCTUNCONSH8***

Passing Models

AdjR2	AICc	JB	K(BP)	VIF	SA	Model

Choose 5 of 7 Summary

Highest Adjusted R-Squared Results

AdjR2	AICc	JB	K(BP)	VIF	SA	Model
0.25	6825.80	0.00	0.00	1.50	0.00	-MEANSBDH8*** -DEM_MEAN*** +PCTCARBKARSTH8*** -PCTUNCONSH8*** +AQUIRICHH8***
0.24	6834.72	0.00	0.00	1.41	0.00	-MEANSBDH8*** -DEM_MEAN*** -PCTUNCONSH8*** +AQUIRICHH8*** -PCTMARWETMEAH8***
0.24	6837.71	0.00	0.00	1.46	0.00	-MEANSBDH8*** -DEM_MEAN*** -PCTVOLCKARSTH8** -PCTUNCONSH8*** +AQUIRICHH8***

Passing Models

AdjR2	AICc	JB	K(BP)	VIF	SA	Model

Writing Results to Output Table....

Exploratory Regression Global Summary (FISHCOUNT)

Percentage of Search Criteria Passed

Search Criterion	Cutoff	Trials	# Passed	% Passed
Min Adjusted R-Squared	> 0.50	119	0	0.00
Max Coefficient p-value	< 0.05	119	72	60.50
Max VIF Value	< 7.50	119	119	100.00
Min Jarque-Bera p-value	> 0.10	119	3	2.52
Min Spatial Autocorrelation p-value	> 0.10	17	0	0.00

Exploratory Regression Global Summary (FISHCOUNT)

Percentage of Search Criteria Passed

Search Criterion	Cutoff	Trials	# Passed	% Passed
Min Adjusted R-Squared	> 0.50	119	0	0.00
Max Coefficient p-value	< 0.05	119	72	60.50
Max VIF Value	< 7.50	119	119	100.00
Min Jarque-Bera p-value	> 0.10	119	3	2.52
Min Spatial Autocorrelation p-value	> 0.10	17	0	0.00

Summary of Variable Significance

Variable	% Significant	% Negative	% Positive
DEM_MEAN	100.00	100.00	0.00
PCTCARBKARSTH8	100.00	0.00	100.00
AQUIRICHH8	100.00	0.00	100.00
PCTUNCONSH8	96.49	100.00	0.00
PCTVOLCKARSTH8	75.44	92.98	7.02
MEANSBDH8	71.93	92.98	7.02
PCTMARWETMEAH8	63.16	89.47	10.53

Summary of Multicollinearity

Variable	VIF	Violations	Covariates
MEANSBDH8	1.62	0	--------
DEM_MEAN	1.54	0	--------
PCTCARBKARSTH8	1.31	0	--------
PCTVOLCKARSTH8	1.33	0	--------
PCTUNCONSH8	1.24	0	--------
AQUIRICHH8	1.20	0	--------
PCTMARWETMEAH8	1.30	0	--------

Summary of Residual Normality (JB)

JB	AdjR2	AICc	K(BP)	VIF	SA	Model
0.120479	0.219940	6863.210160	0.000000	1.226925	0.000000	-DEM_MEAN*** +PCTCARBKARSTH8*** -PCTUNCONSH8*** +AQUIRICHH8*** -PCTMARWETMEAH8
0.118325	0.221021	6861.792612	0.000000	1.318418	0.000000	-DEM_MEAN*** +PCTCARBKARSTH8*** -PCTVOLCKARSTH8 -PCTUNCONSH8*** +AQUIRICHH8***
0.114020	0.220700	6861.191762	0.000000	1.166450	0.000000	-DEM_MEAN*** +PCTCARBKARSTH8*** -PCTUNCONSH8*** +AQUIRICHH8***

Summary of Residual Spatial Autocorrelation (SA)

SA	AdjR2	AICc	JB	K(BP)	VIF	Model
0.000000	0.247976	6825.802834	0.000625	0.000000	1.504650	-MEANSBDH8*** -DEM_MEAN*** +PCTCARBKARSTH8*** -PCTUNCONSH8*** +AQUIRICHH8***
0.000000	0.241388	6834.716538	0.000280	0.000000	1.407582	-MEANSBDH8*** -DEM_MEAN*** -PCTUNCONSH8*** +AQUIRICHH8*** -PCTMARWETMEAH8***
0.000000	0.239165	6837.706549	0.000009	0.000001	1.459326	-MEANSBDH8*** -DEM_MEAN*** -PCTVOLCKARSTH8** -PCTUNCONSH8*** +AQUIRICHH8***

Climate variables

Response variable: fish species richness

Choose 1 of 16 Summary

Highest Adjusted R-Squared Results

AdjR2	AICc	JB	K(BP)	VIF	SA	Model
0.25	6814.53	0.00	0.00	1.00	0.00	-PCTCHANGE_BIO12_MEAN_H8***
0.23	6848.82	0.18	0.00	1.00	0.00	-PCTCHANGE_BIO13_MEAN_H8***
0.19	6893.66	0.00	0.00	1.00	0.00	+MEANDIFHMIH8***

Passing Models

AdjR2	AICc	JB	K(BP)	VIF	SA	Model

Choose 2 of 16 Summary

Highest Adjusted R-Squared Results

AdjR2	AICc	JB	K(BP)	VIF	SA	Model
0.43	6544.50	0.00	0.00	1.08	0.00	-DIFF_BIO9_50_CUR_MEAN_H8*** +MEANDIFHMIH8***
0.39	6604.36	0.00	0.00	1.00	0.00	-DIFF_BIO9_50_CUR_MEAN_H8*** -PCTCHANGE_BIO12_MEAN_H8***
0.35	6677.05	0.00	0.00	1.00	0.00	-DIFF_BIO9_50_CUR_MEAN_H8*** -PCTCHANGE_BIO13_MEAN_H8***

Passing Models

AdjR2	AICc	JB	K(BP)	VIF	SA	Model

Choose 3 of 16 Summary

Highest Adjusted R-Squared Results

AdjR2	AICc	JB	K(BP)	VIF	SA	Model
0.45	6504.82	0.00	0.00	1.17	0.00	-DIFF_BIO9_50_CUR_MEAN_H8*** +MEANDIFHMIH8*** -MEANJUNFLOPCTCH2040***
0.44	6516.50	0.00	0.00	1.20	0.00	-DIFF_BIO9_50_CUR_MEAN_H8*** +PCTCHANGE_BIO14_MEAN_H8*** +MEANDIFHMIH8***
0.44	6518.98	0.00	0.00	1.41	0.00	-DIFF_BIO9_50_CUR_MEAN_H8*** +MEANDIFHMIH8*** +MEANDIFSMCH8***

Passing Models

AdjR2	AICc	JB	K(BP)	VIF	SA	Model

Choose 4 of 16 Summary

Highest Adjusted R-Squared Results

AdjR2	AICc	JB	K(BP)	VIF	SA	Model
0.47	6462.82	0.00	0.00	2.41	0.00	-DIFF_BIO9_50_CUR_MEAN_H8*** -PCTCHANGE_BIO19_MEAN_H8*** -PCTCHANGE_BIO13_MEAN_H8*** +PCTCHANGE_BIO14_MEAN_H8***
0.47	6465.72	0.00	0.00	1.46	0.00	-DIFF_BIO9_50_CUR_MEAN_H8*** -PCTCHANGE_BIO12_MEAN_H8*** +PCTCHANGE_BIO14_MEAN_H8*** +MEANDIFPNWH8***
0.47	6468.21	0.00	0.00	3.71	0.00	-DIFF_BIO9_50_CUR_MEAN_H8*** -PCTCHANGE_BIO19_MEAN_H8*** +PCTCHANGE_BIO14_MEAN_H8*** +MEANDIFHMIH8***

Passing Models

AdjR2	AICc	JB	K(BP)	VIF	SA	Model

Choose 5 of 16 Summary

Highest Adjusted R-Squared Results

AdjR2	AICc	JB	K(BP)	VIF	SA	Model
0.50	6416.20	0.00	0.00	2.72	0.00	-DIFF_BIO9_50_CUR_MEAN_H8*** -PCTCHANGE_BIO19_MEAN_H8*** -PCTCHANGE_BIO13_MEAN_H8*** +PCTCHANGE_BIO14_MEAN_H8*** +MEANDIFPNVH8***
0.50	6416.47	0.00	0.00	2.44	0.00	-DIFF_BIO9_50_CUR_MEAN_H8*** -PCTCHANGE_BIO19_MEAN_H8*** -PCTCHANGE_BIO13_MEAN_H8*** +PCTCHANGE_BIO14_MEAN_H8*** +MEANDIFSWEH8***
0.49	6419.22	0.00	0.00	2.43	0.00	-DIFF_BIO9_50_CUR_MEAN_H8*** -PCTCHANGE_BIO19_MEAN_H8*** -PCTCHANGE_BIO13_MEAN_H8*** +PCTCHANGE_BIO14_MEAN_H8*** +MEANDIFETH8***

Passing Models

AdjR2	AICc	JB	K(BP)	VIF	SA	Model

Writing Results to Output Table....

Exploratory Regression Global Summary (FISHCOUNT)

Percentage of Search Criteria Passed

Search Criterion	Cutoff	Trials	# Passed	% Passed
Min Adjusted R-Squared	> 0.50	6884	0	0.00
Max Coefficient p-value	< 0.05	6884	2392	34.75
Max VIF Value	< 7.50	6884	6114	88.81
Min Jarque-Bera p-value	> 0.10	6884	311	4.52
Min Spatial Autocorrelation p-value	> 0.10	18	0	0.00

Summary of Variable Significance

Variable	% Significant	% Negative	% Positive
DIFF_BIO9_50_CUR_MEAN_H8	100.00	100.00	0.00
MEANJUNFLOPCTCH2040	99.90	100.00	0.00
PCTCHANGE_BIO13_MEAN_H8	98.25	99.64	0.36
PCTCHANGE_BIO12_MEAN_H8	93.66	96.65	3.35
MEANDIFSMCH8	92.89	3.81	96.19
PCTCHANGE_BIO19_MEAN_H8	84.90	92.38	7.62
MEANDIFETH8	84.80	3.61	96.39
PCTCHANGE_BIO18_MEAN_H8	83.41	68.88	31.12
MEANDIFSWEH8	80.22	19.32	80.68
DIFF_BIO8_50_CUR_MEAN_H8	77.18	7.11	92.89
MEANDIFHMIH8	75.89	12.73	87.27
PCTCHANGE_BIO14_MEAN_H8	67.54	34.67	65.33
MEANDIFPMVH8	67.49	21.17	78.83
DIFF_BIO1_50_CUR_H8	57.29	77.54	22.46
DIFF_BIO5_50_CUR_H8	54.77	31.53	68.47
BACK_RCP45_95_55_MEAN	49.67	62.65	37.35

Summary of Multicollinearity

Variable	VIF	Violations	Covariates
DIFF_BIO8_50_CUR_MEAN_H8	2.55	0	--------
DIFF_BIO9_50_CUR_MEAN_H8	1.69	0	--------
DIFF_BIO5_50_CUR_H8	3.53	0	--------
DIFF_BIO1_50_CUR_H8	2.74	0	--------
PCTCHANGE_BIO18_MEAN_H8	16.92	549	PCTCHANGE_BIO13_MEAN_H8 (99.79), PCTCHANGE_BIO12_MEAN_H8 (19.96), PCTCHANGE_BIO19_MEAN_H8 (4.25), MEANDIFHMIH8 (0.64)
PCTCHANGE_BIO19_MEAN_H8	8.78	20	PCTCHANGE_BIO18_MEAN_H8 (4.25), PCTCHANGE_BIO12_MEAN_H8 (4.25), PCTCHANGE_BIO13_MEAN_H8 (0.21)
PCTCHANGE_BIO12_MEAN_H8	31.34	207	PCTCHANGE_BIO18_MEAN_H8 (19.96), PCTCHANGE_BIO19_MEAN_H8 (4.25), PCTCHANGE_BIO13_MEAN_H8 (3.61), MEANDIFHMIH8 (1.06)
PCTCHANGE_BIO13_MEAN_H8	16.34	472	PCTCHANGE_BIO18_MEAN_H8 (99.79), PCTCHANGE_BIO12_MEAN_H8 (3.61), MEANDIFHMIH8 (0.42), PCTCHANGE_BIO19_MEAN_H8 (0.21)
PCTCHANGE_BIO14_MEAN_H8	2.69	0	--------
BACK_RCP45_95_55_MEAN	1.43	0	--------
MEANDIFETH8	6.20	0	--------
MEANDIFHMIH8	11.10	115	PCTCHANGE_BIO12_MEAN_H8 (1.06), PCTCHANGE_BIO18_MEAN_H8 (0.64), PCTCHANGE_BIO13_MEAN_H8 (0.42)
MEANDIFPNVH8	5.20	0	--------
MEANDIFSWEH8	3.85	0	--------
MEANDIFSMCH8	2.22	0	--------
MEANJUNFLOPCTCH2040	1.42	0	--------

Summary of Residual Normality (JB)

JB	AdjR2	AICc	K(BP)	VIF	SA	Model
0.952351	0.239082	6837.819030	0.000000	2.271925	0.000000	+DIFF_BIO8_50_CUR_MEAN_H8*** -DIFF_BIO5_50_CUR_H8 -PCTCHANGE_BIO18_MEAN_H8*** -BACK_RCP45_95_55_MEAN** +MEANDIFETH8***
0.937411	0.223995	6856.861182	0.000000	2.246581	0.000000	-PCTCHANGE_BIO18_MEAN_H8*** -BACK_RCP45_95_55_MEAN** +MEANDIFETH8*** +MEANDIFPNVH8**
0.935501	0.223235	6858.883976	0.000000	2.890950	0.000000	+DIFF_BIO5_50_CUR_H8 -PCTCHANGE_BIO18_MEAN_H8*** -BACK_RCP45_95_55_MEAN** +MEANDIFETH8*** +MEANDIFPNVH8**

Summary of Residual Spatial Autocorrelation (SA)

SA	AdjR2	AICc	JB	K(BP)	VIF	Model
0.000000	0.496297	6416.204526	0.000000	0.000000	2.716980	-DIFF_BIO9_50_CUR_MEAN_H8*** -PCTCHANGE_BIO19_MEAN_H8*** -PCTCHANGE_BIO13_MEAN_H8*** +PCTCHANGE_BIO14_MEAN_H8*** +MEANDIFPNVH8***
0.000000	0.496165	6416.472129	0.000000	0.000000	2.443206	-DIFF_BIO9_50_CUR_MEAN_H8*** -PCTCHANGE_BIO19_MEAN_H8*** -PCTCHANGE_BIO13_MEAN_H8*** +PCTCHANGE_BIO14_MEAN_H8*** +MEANDIFSWEH8***
0.000000	0.494809	6419.218572	0.000000	0.000000	2.428505	-DIFF_BIO9_50_CUR_MEAN_H8*** -PCTCHANGE_BIO19_MEAN_H8*** -PCTCHANGE_BIO13_MEAN_H8*** +PCTCHANGE_BIO14_MEAN_H8*** +MEANDIFETH8***

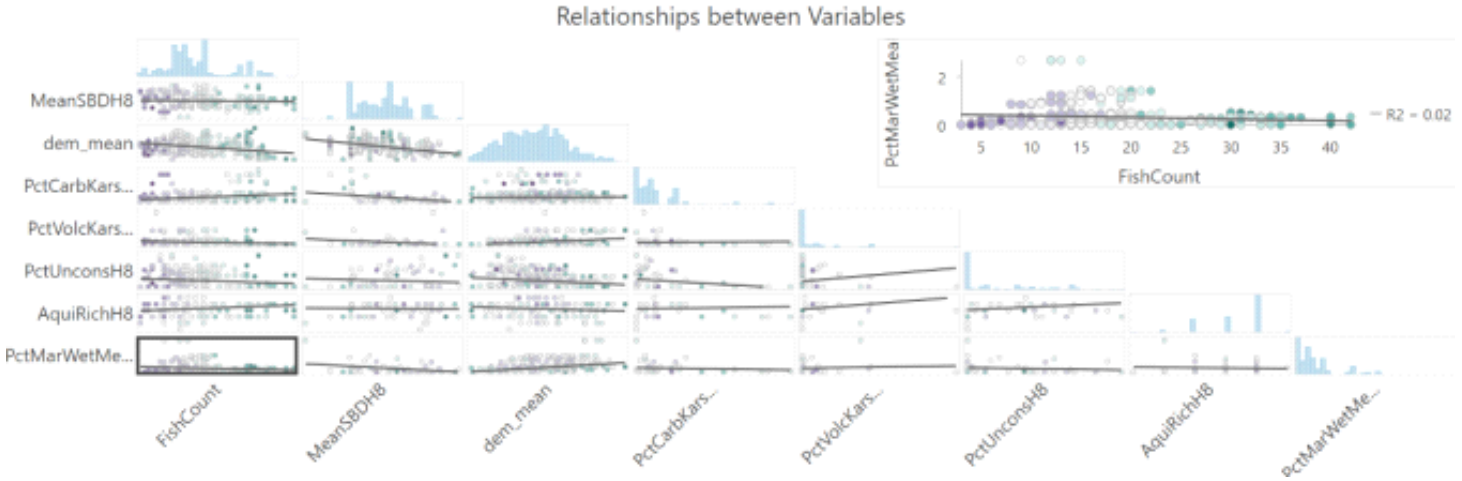
Generalized Linear Regression assessment of lithology, soil, and topography variables
Response variable: fish species richness

Summary of GLR Results [Model Type: Continuous (Gaussian/OLS)]

Variable	Coefficient[a]	StdError	t-Statistic	Probability[b]	Robust_SE	Robust_t	Robust_Pr[b]	VIF[c]
Intercept	113.687205	13.844745	8.211578	0.000000*	14.580113	7.797416	0.000000*	--------
MEANSBDH8	-58.907411	8.865874	-6.644287	0.000000*	9.149855	-6.438071	0.000000*	1.645421
DEM_MEAN	-0.006319	0.000544	-11.624231	0.000000*	0.000687	-9.197565	0.000000*	1.624030
PCTCARBKARSTH8	0.061105	0.017837	3.425760	0.000653*	0.020892	2.924793	0.003531*	1.324055
PCTVOLCKARSTH8	-0.100112	0.047887	-2.090574	0.036803*	0.041664	-2.402864	0.016432*	1.347796
PCTUNCONSH8	-0.080082	0.009993	-8.013848	0.000000*	0.010702	-7.483135	0.000000*	1.318537
AQUIRICHH8	1.728075	0.253806	6.808648	0.000000*	0.246223	7.018335	0.000000*	1.203817
PCTMARWETMEAH8	-1.262060	0.635211	-1.986835	0.047202*	0.556040	-2.269729	0.023418*	1.315211

GLR Diagnostics

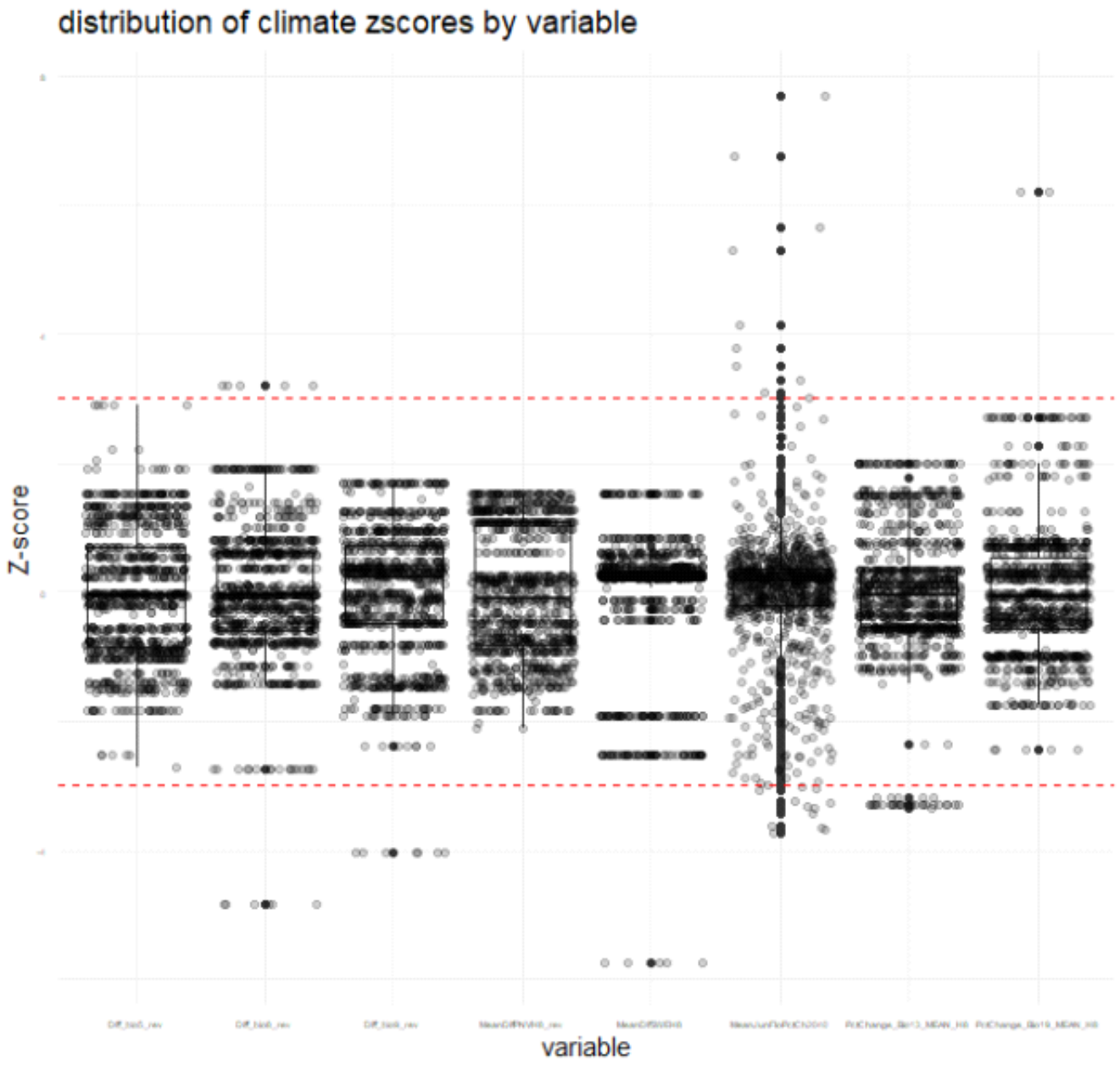
Input Features	HUC12LowTribMainPer2	Dependent Variable	FISHCOUNT
Number of Observations	1022	Akaike's Information Criterion (AICc)[d]	6822.275220
Multiple R-Squared[d]	0.257199	Adjusted R-Squared[d]	0.252071
Joint F-Statistic[e]	50.157648	Prob(>F), (7,1014) degrees of freedom	0.000000*
Joint Wald Statistic[e]	260.864018	Prob(>chi-squared), (7) degrees of freedom	0.000000*
Koenker (BP) Statistic[f]	113.044345	Prob(>chi-squared), (7) degrees of freedom	0.000000*
Jarque-Bera Statistic[g]	14.586705	Prob(>chi-squared), (2) degrees of freedom	0.000680*



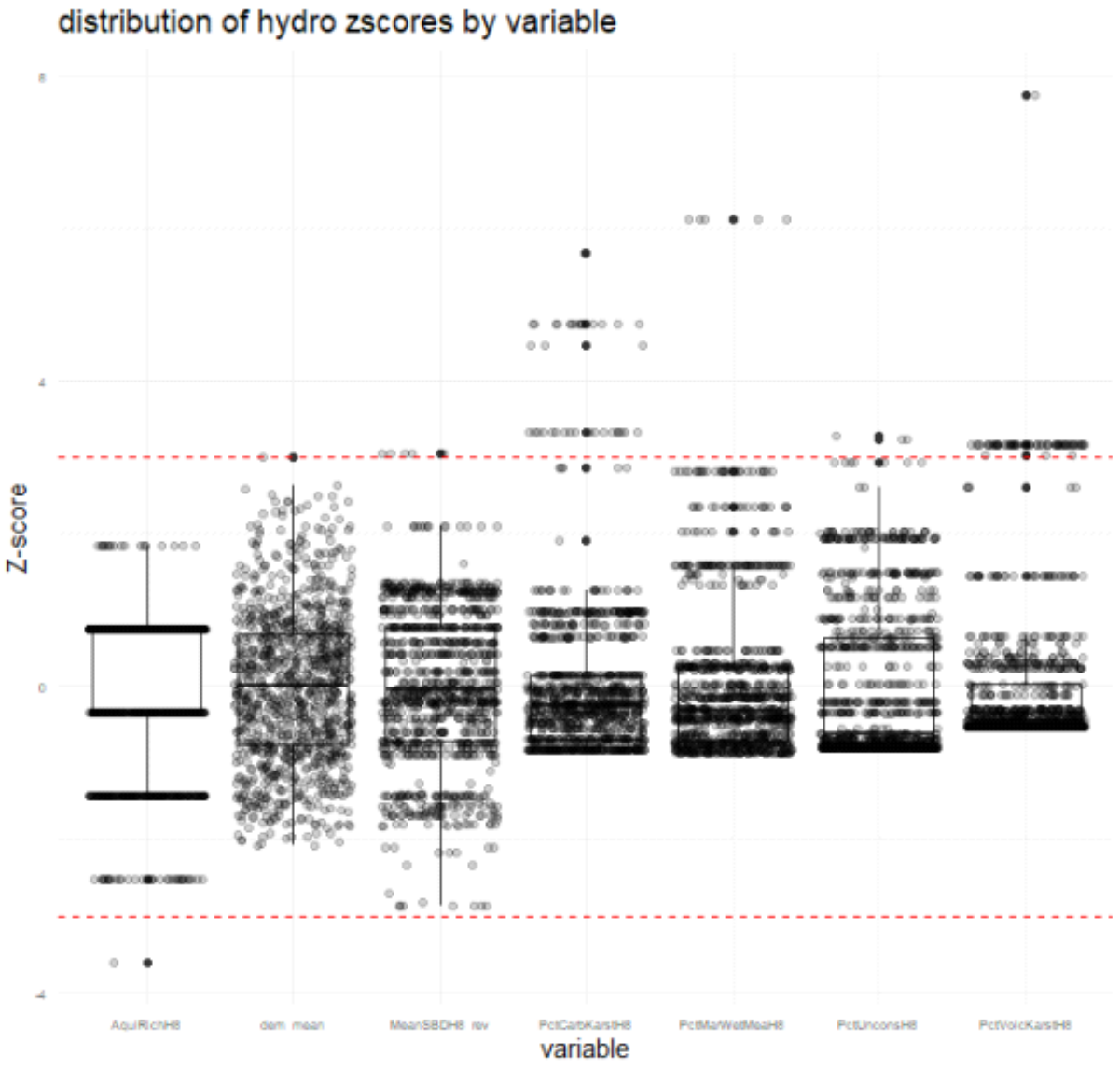
Z Scores

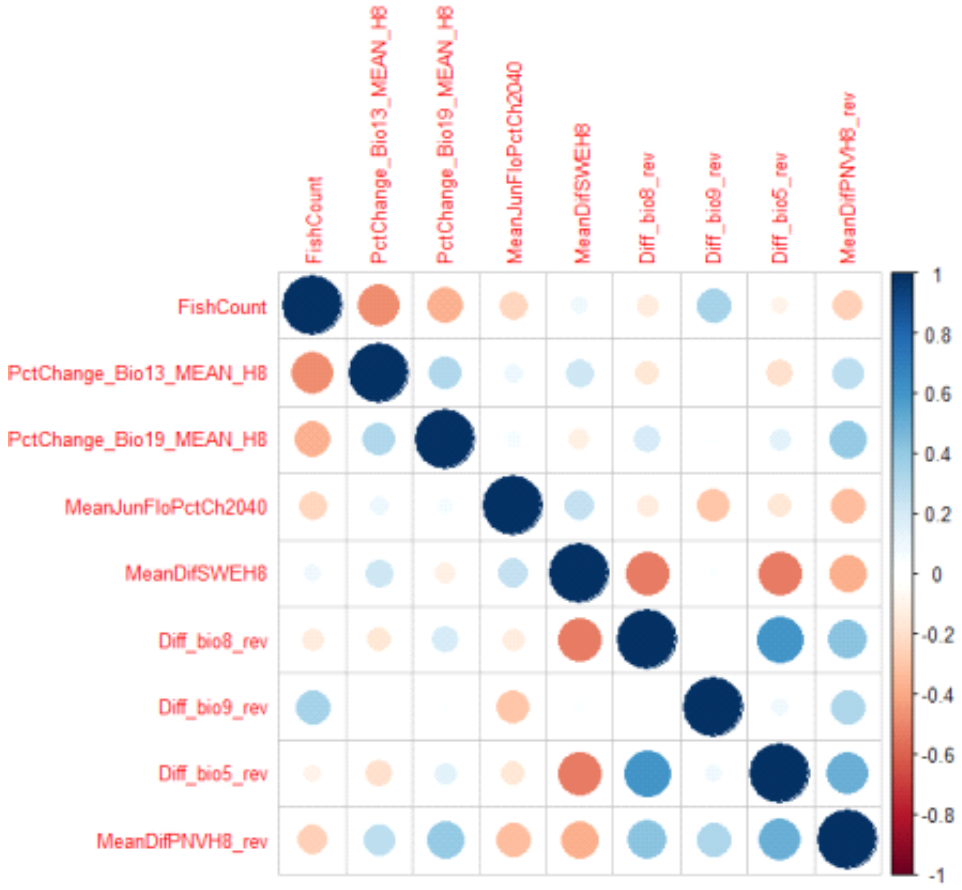
Monday, January 27, 2025 6:12 PM

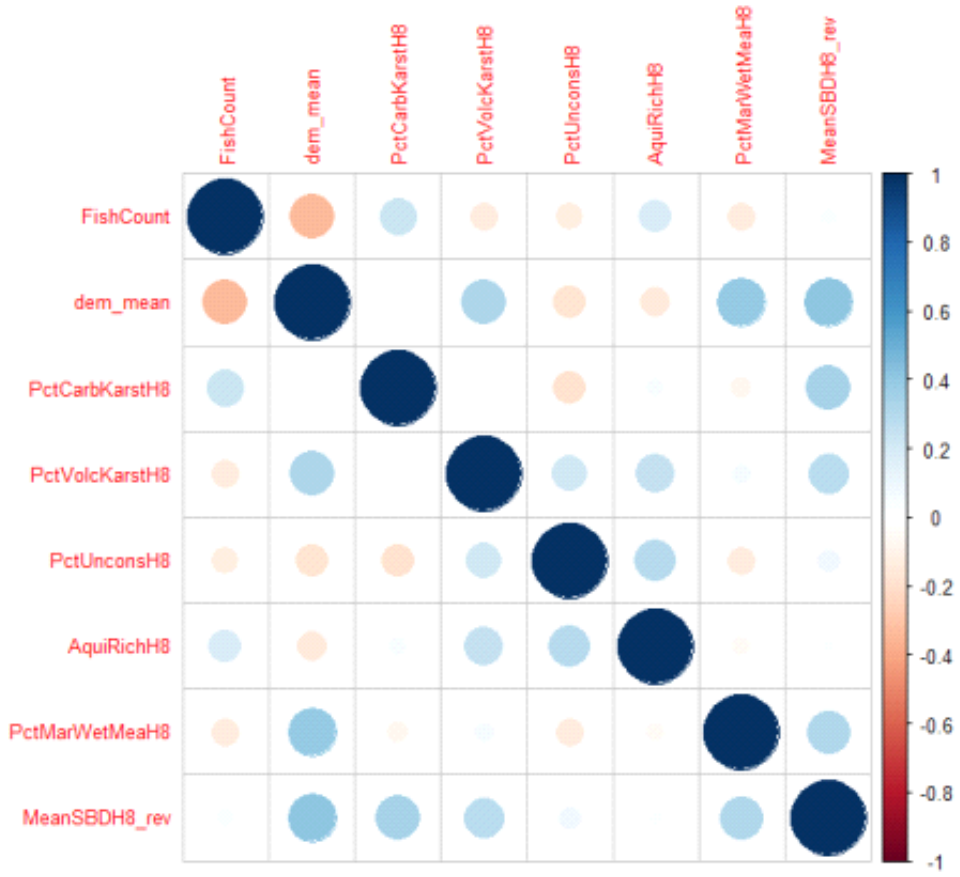
Distribution of Z scores calculated for climate indicators of perennial streams



Distribution of Z scores calculated for lithology, soil, topography, and vegetation indicators


distribution of hydro zscores by variable
Z-score
variable
AquRichH8
dem_mean
MeanSBDH8_rev
PctCarbKarstH8
PctMarWetMeaH8
PctUnconsH8
PctVolcKarstH8


FishCount
PctChange_Bio13_MEAN_H8
PctChange_Bio19_MEAN_H8
MeanJunFloPctCh2040
MeanDifSWEH8
Diff_bio8_rev
Diff_bio9_rev
Diff_bio5_rev
MeanDifPNVH8_rev
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1


FishCount
dem_mean
PctCarbKarstH8
PctVolcKarstH8
PctUnconsH8
AquiRichH8
PctMarWetMeaH8
MeanSBDH8_rev
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1

Indicator Weights

Monday, February 3, 2025 4:29 PM

```
Weights calculated for lithology, soil, topography, and vegetation indicators
Weights and Z scores were multiplied and then summed to calculate a composite index for each HUC12 watershed.


Optimization Parameters:
Number of variables: 7
Minimum weight: 0.05
Maximum weight: 0.3
Initial weights check:
Min weight: 0.08624094
Max weight: 0.1522932
Sum of weights: 1
Optimized Weights and Variable Characteristics:
                    variable     weight  variance mean_correlation        cv
dem_mean            dem_mean 0.08634946 0.3333333        1.0000000 0.1849312
PctCarbKarstH8 PctCarbKarstH8 0.11182801 0.3333333        0.0000000 1.0000000
PctVolcKarstH8 PctVolcKarstH8 0.30000000 1.0000000        0.5851697 0.9732498
PctUnconsH8       PctUnconsH8 0.05000000 0.0000000        0.4811327 0.0285215
AquiRichH8         AquiRichH8 0.05854256 1.0000000        0.1711695 0.0000000
PctMarWetMeaH8 PctMarWetMeaH8 0.29574627 1.0000000        0.4365805 0.7624981
MeanSBDH8_rev   MeanSBDH8_rev 0.09753371 0.3333333        0.9836662 0.2238152
Weight Statistics:
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
0.05000 0.07245 0.09753 0.14286 0.20379 0.30000
```

From <http://127.0.0.1:22347/>

```
Weights calculated for climate indicators
Weights and Z scores were multiplied and then summed to calculate a composite index for each HUC12
watershed.


Optimization Parameters:
Number of variables: 8
Minimum weight: 0.05
Maximum weight: 0.3
Initial weights check:
Min weight: 0.125
Max weight: 0.125
Sum of weights: 1
Optimized Weights and Variable Characteristics:
                                  variable     weight variance mean_correlation        cv
PctChange_Bio13_MEAN_H8 PctChange_Bio13_MEAN_H8 0.15912455        1        0.2623056 0.4792054
PctChange_Bio19_MEAN_H8 PctChange_Bio19_MEAN_H8 0.12994226        1        0.2497312 0.3933016
MeanJunFloPctCh2040         MeanJunFloPctCh2040 0.06161188        0        0.3003346 1.0000000
MeanDiffSWEH8                 MeanDiffSWEH8 0.05206146        0        0.6967827 0.7944675
Diff_bio8_rev                 Diff_bio8_rev 0.21537803        1        0.6915414 0.4210407
Diff_bio9_rev                 Diff_bio9_rev 0.06761010        1        0.0000000 0.2229096
Diff_bio5_rev                 Diff_bio5_rev 0.14856470        1        0.7885182 0.1128328
MeanDiffPNVH8_rev         MeanDiffPNVH8_rev 0.16570702        1        1.0000000 0.0000000
Weight Statistics:
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
0.05206 0.06611 0.13925 0.12500 0.16077 0.21538
```

From <http://127.0.0.1:22347/>