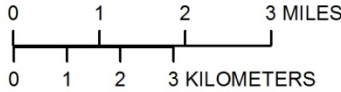


Base map from U.S. Geological Survey digital data, 1:24,000, 2012
 Albers Conic Equal-Area projection,
 Standard parallels 29°30' and 45°30', central meridian -96°

Land cover from 2013 Mid-America Regional Council's (MARC)
 Natural Resources Inventory (NRI) layer



EXPLANATION

- Impervious surface
- Watershed boundary
- Subwatershed boundary
- Municipal wastewater-treatment facility (WWTF) and project identifier
- U.S. Geological Survey study site and site identifier (table 1)

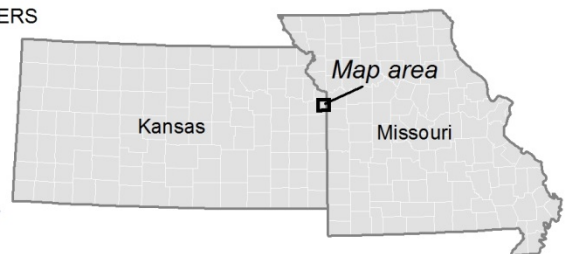


Figure 1. Map showing loctation of municipal wastewater treatment facilities and study sites in the Indian Creek Basin.

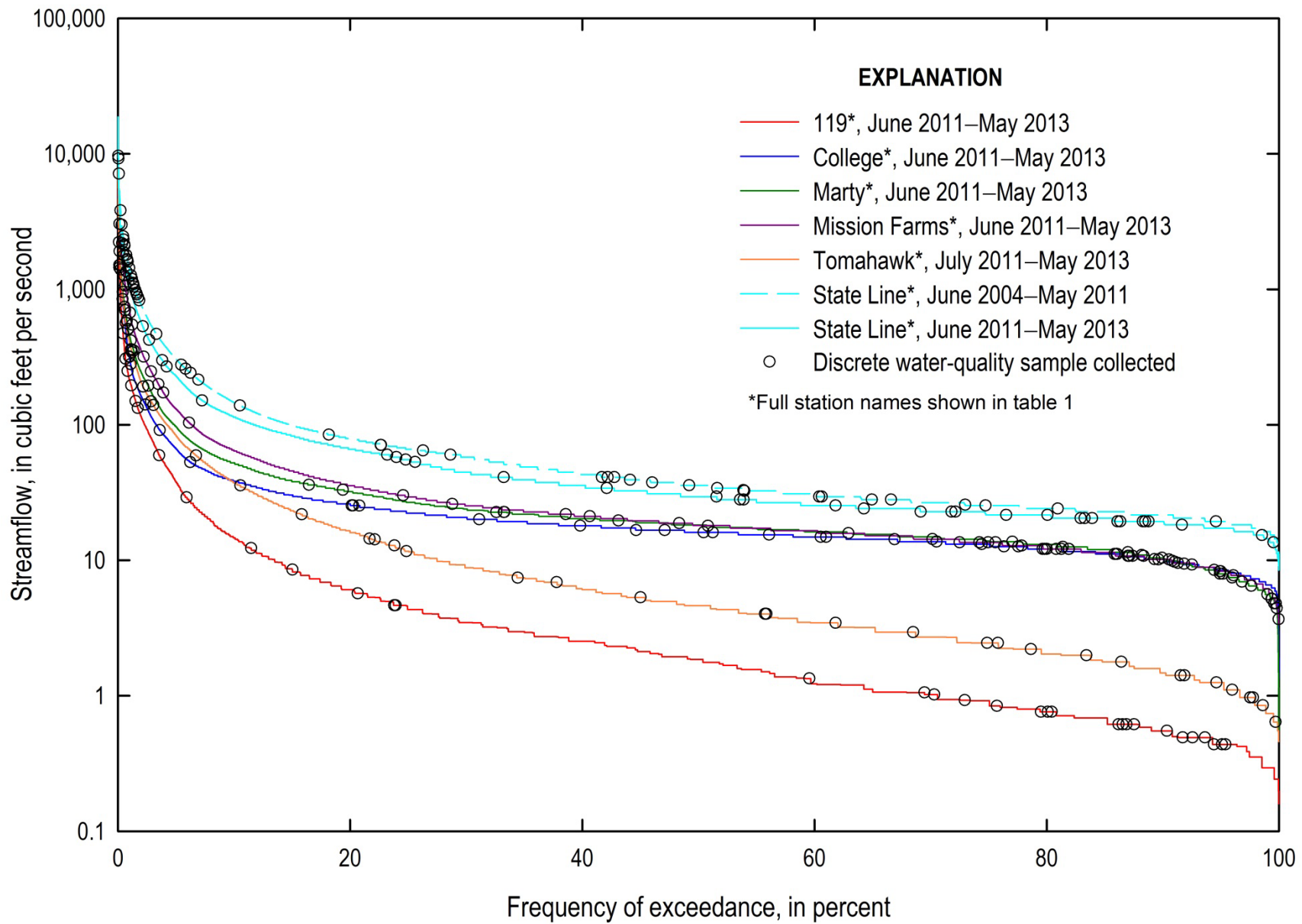


Figure 2. Continuous streamflow duration curves and discrete water-quality samples collected at the Indian Creek study sites during June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGANC ~ LOGTBY, data = ANC.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1339	-0.07365	-0.0236	0.02169	0.3083

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	2.2498	0.0431	52.1605	0.0000
LOGTBY	-0.1891	0.0251	-7.5223	0.0000

Residual standard error: 0.1096 on 16 degrees of freedom

Multiple R-Squared: 0.7796 Adjusted R-squared: 0.7658

F-statistic: 56.59 on 1 and 16 degrees of freedom, the p-value is 1.221e-006

Correlation of Coefficients:

(Intercept)	
LOGTBY	-0.8009

Analysis of Variance Table

Response: LOGANC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	0.6793088	0.6793088	56.58517	1.221091e-006
Residuals	16	0.1920811	0.0120051		

Figure 3. S+® output of regression model development using turbidity (TBY) as the explanatory variable for acid neutralizing capacity (ANC) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

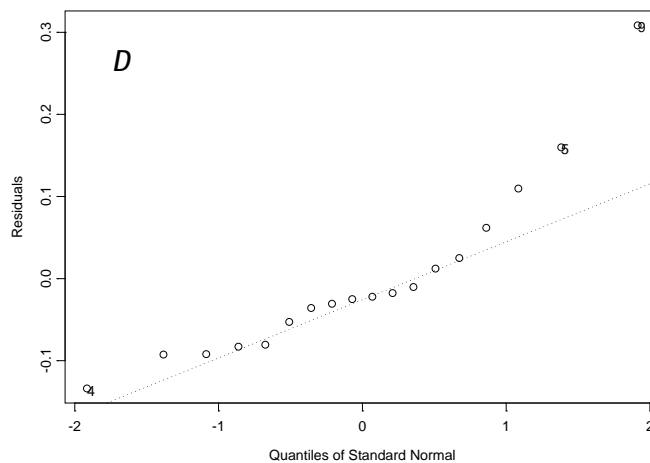
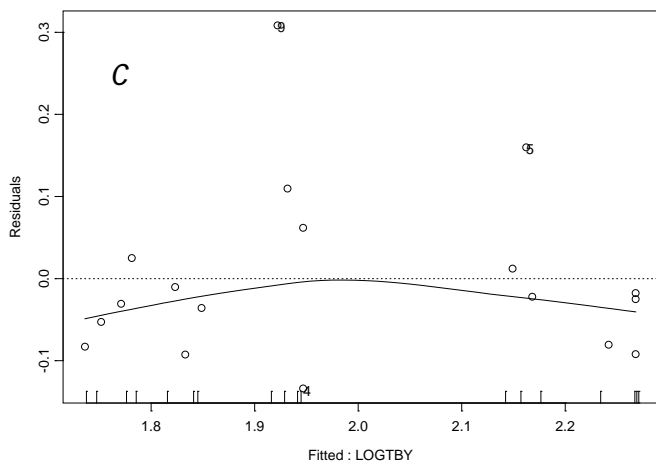
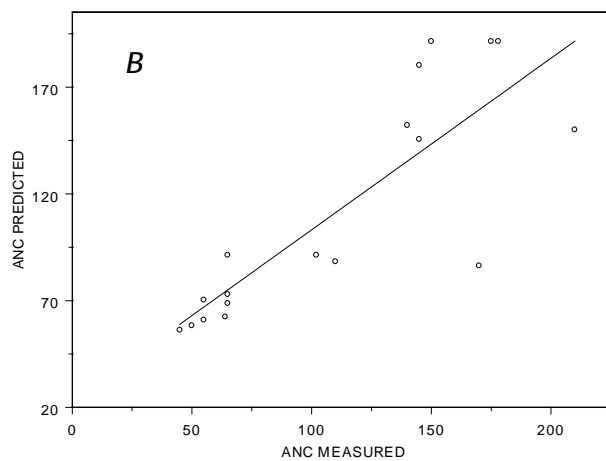
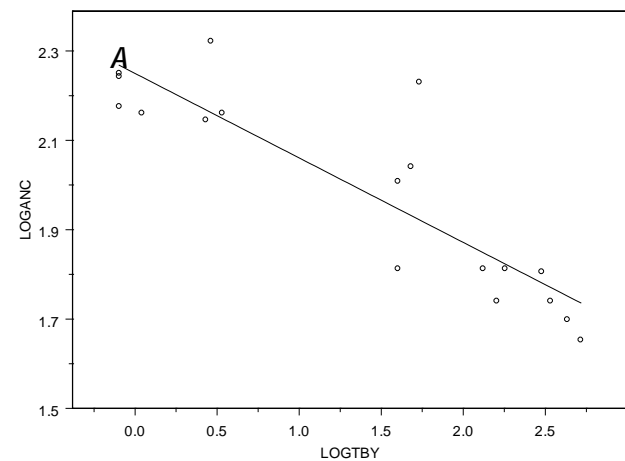


Figure 4. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed acid neutralizing capacity (ANC) concentrations; *B*, measured versus predicted ANC concentrations; *C*, computed log-transformed ANC concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGANC ~ LOGSC + TBY, data = ANC.COLL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1227	-0.04465	-0.004025	0.05165	0.1129

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.9276	0.2198	4.2212	0.0010
LOGSC	0.3821	0.0750	5.0959	0.0002
TBY	-0.0002	0.0001	-2.2160	0.0452

Residual standard error: 0.07916 on 13 degrees of freedom

Multiple R-Squared: 0.8041 Adjusted R-squared: 0.7739

F-statistic: 26.68 on 2 and 13 degrees of freedom, the p-value is 0.00002503

Correlation of Coefficients:

	(Intercept)	LOGSC
LOGSC	-0.9935	
TBY	-0.5293	0.4710

Analysis of Variance Table

Response: LOGANC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	0.3036026	0.3036026	48.44409	0.00000991
TBY	1	0.0307752	0.0307752	4.91062	0.04515062
Residuals	13	0.0814719	0.0062671		

Figure 5. S+® output of regression model development using specific conductance (SC) and turbidity (TBY) as explanatory variables for acid neutralizing capacity (ANC) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

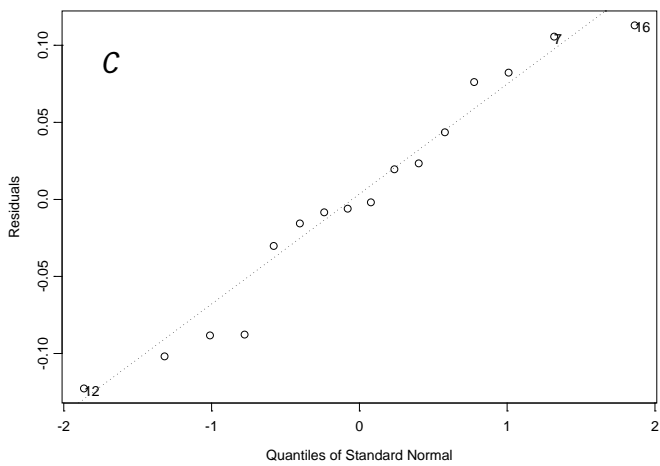
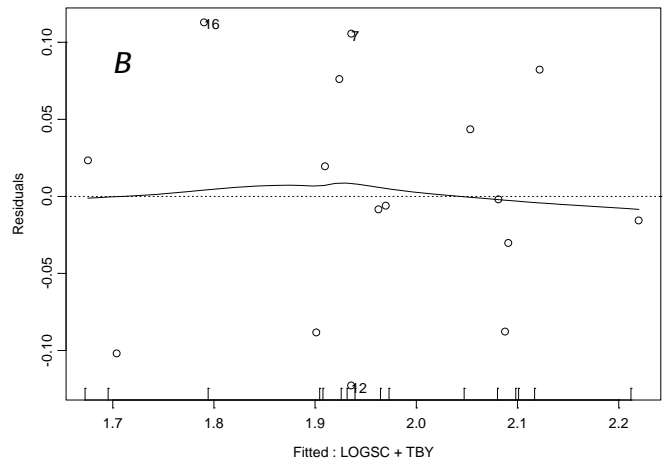
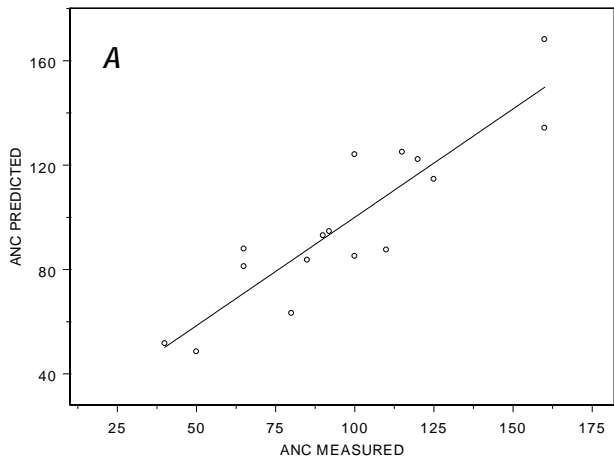


Figure 6. S+® output graphs from simple linear regression analysis using log-transformed specific conductance (SC) and turbidity (TBX) as explanatory variables for log-transformed acid neutralizing capacity (ANC) concentrations showing *A*, measured versus predicted ANC concentrations; *B*, computed log-transformed ANC concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

```

*** Linear Model ***

Call: lm(formula = LOGANC ~ SIN + COS + LOGTBY, data = ANC.MART.SPLUS, na.action =
na.exclude)
Residuals:
    Min       1Q   Median       3Q      Max
-0.1204 -0.03211 0.01222 0.03972 0.08327

Coefficients:
            Value Std. Error  t value Pr(>|t|)
(Intercept)  2.1668   0.0331   65.5079  0.0000
          SIN   0.0828   0.0249    3.3200  0.0068
          COS   0.0486   0.0251    1.9372  0.0788
        LOGTBY -0.1417   0.0181   -7.8137  0.0000

Residual standard error: 0.06412 on 11 degrees of freedom
Multiple R-Squared: 0.8719    Adjusted R-squared: 0.837
F-statistic: 24.97 on 3 and 11 degrees of freedom, the p-value is 0.00003284
1 observations deleted due to missing values

Correlation of Coefficients:
      (Intercept)      SIN      COS
SIN  -0.2029
COS   0.2470      -0.1631
LOGTBY -0.8497      0.0506 -0.3104

Analysis of Variance Table

Response: LOGANC

Terms added sequentially (first to last)
      Df Sum of Sq  Mean Sq  F Value    Pr(F)
    SIN  1 0.0558267 0.0558267 13.57887 0.0035947
    COS  1 0.0010856 0.0010856  0.26406 0.6175084
    LOGTBY 1 0.2510117 0.2510117 61.05424 0.0000082
Residuals 11 0.0452242 0.004111

```

Figure 7. S+® output of regression model development using season (SIN and COS) and turbidity (TBY) as explanatory variables for acid neutralizing capacity (ANC) for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through April 2013.

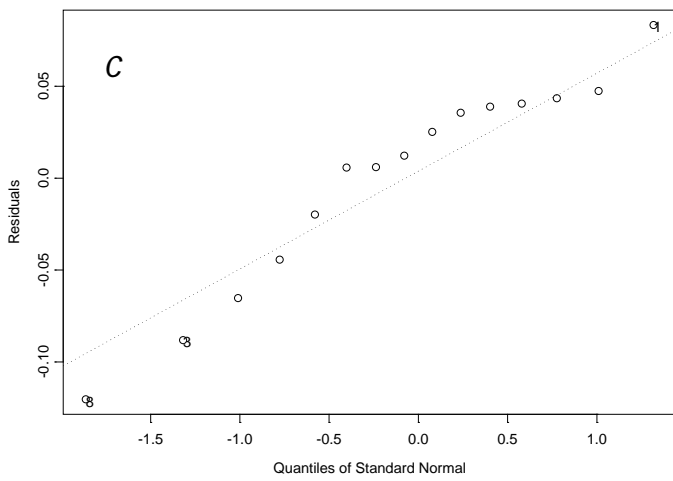
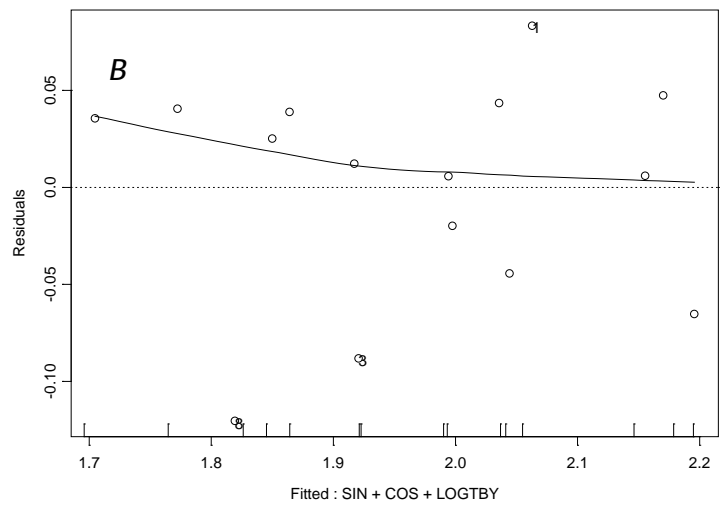
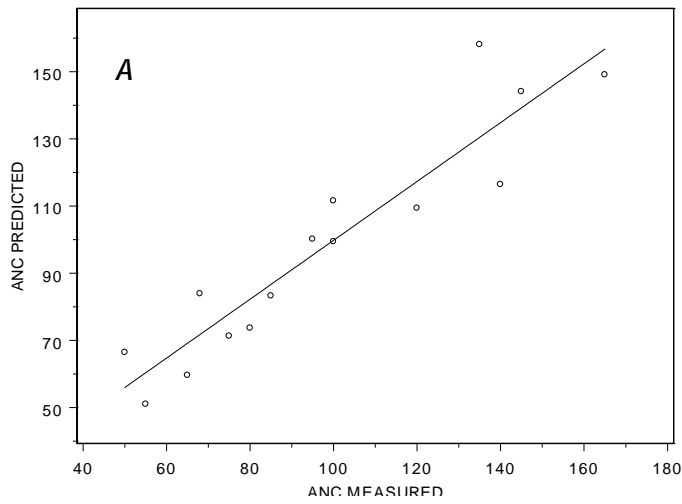


Figure 8. S+® output graphs from simple linear regression analysis using season (SIN and COS) and log-transformed turbidity (TBY) as explanatory variables for log-transformed acid neutralizing capacity (ANC) concentrations showing *A*, measured versus predicted ANC concentrations; *B*, computed log-transformed ANC concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through April 2013.

*** Linear Model ***

Call: lm(formula = ANC ~ SIN + COS + LOGTBY, data = ANC.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-13.06	-8.48	-2.371	8.733	22.17

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	154.4289	6.7979	22.7172	0.0000
SIN	35.4593	5.0628	7.0039	0.0000
COS	2.0437	4.1874	0.4881	0.6351
LOGTBY	-40.6119	4.0217	-10.0982	0.0000

Residual standard error: 11.92 on 11 degrees of freedom

Multiple R-Squared: 0.9234 Adjusted R-squared: 0.9025

F-statistic: 44.19 on 3 and 11 degrees of freedom, the p-value is 1.994e-006

438 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	SIN	COS
SIN	-0.0447		
COS	0.1786	-0.0705	
LOGTBY	-0.8715	-0.1529	-0.1251

Analysis of Variance Table

Response: ANC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SIN	1	4264.14	4264.14	29.9942	0.0001929
COS	1	86.73	86.73	0.6100	0.4512554
LOGTBY	1	14497.05	14497.05	101.9730	0.0000007
Residuals	11	1563.82	142.17		

Figure 9. S+® output of regression model development using season (SIN and COS) and turbidity (TBY) as explanatory variables for acid neutralizing capacity (ANC) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

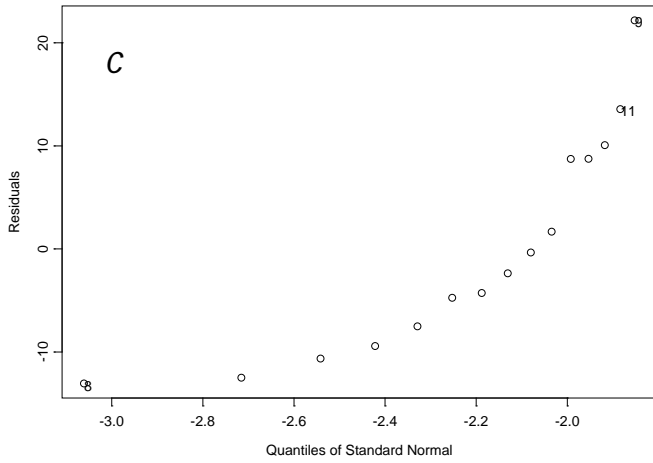
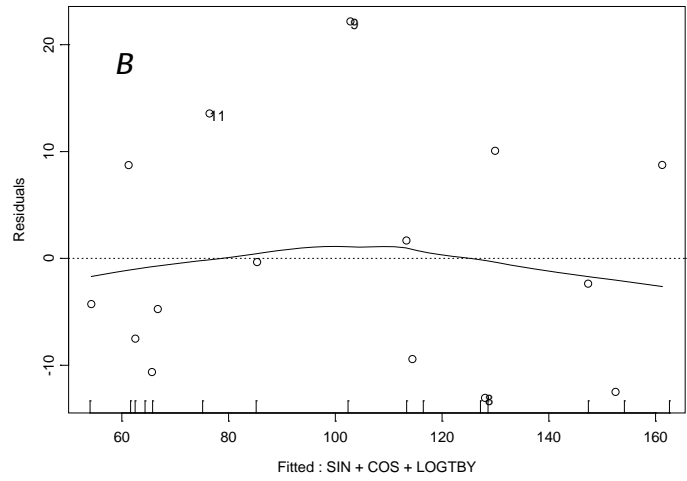
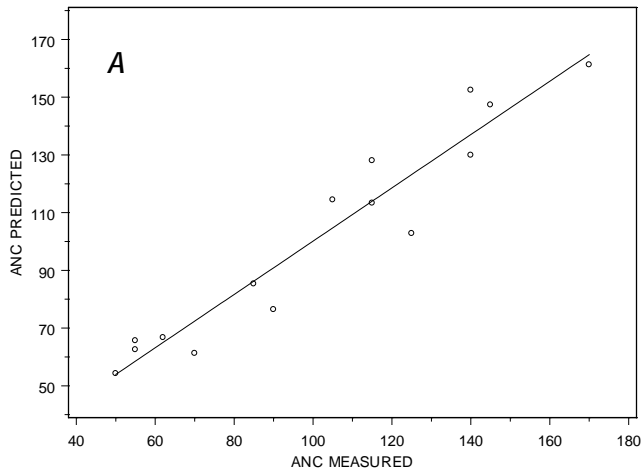


Figure 10. S+® output graphs from simple linear regression analysis using season (SIN and COS) and log-transformed turbidity (TBY) as explanatory variables for acid neutralizing capacity (ANC) concentrations showing *A*, measured versus predicted ANC concentrations; *B*, computed ANC concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = ANC ~ SIN + COS + LOGQ, data = ANC.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-26.46	-13.83	5.153	9.699	19.57

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	203.8141	8.2687	24.6489	0.0000
SIN	27.9941	7.0711	3.9589	0.0027
COS	12.6731	6.5996	1.9203	0.0838
LOGQ	-48.8061	4.7020	-10.3798	0.0000

Residual standard error: 16.55 on 10 degrees of freedom

Multiple R-Squared: 0.9153 Adjusted R-squared: 0.8899

F-statistic: 36.02 on 3 and 10 degrees of freedom, the p-value is 0.00001137
1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	SIN	COS
SIN	0.1729		
COS	0.2040	0.0054	
LOGQ	-0.8268	-0.4017	-0.2320

Analysis of Variance Table

Response: ANC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SIN	1	21.51	21.51	0.0785	0.7850002
COS	1	68.76	68.76	0.2511	0.6271672
LOGQ	1	29508.37	29508.37	107.7400	0.0000011
Residuals	10	2738.85	273.89		

Figure 11. S+® output of regression model development using season (SIN and COS) and streamflow (Q) as explanatory variables for acid neutralizing capacity (ANC) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), November 2011 through May 2013.

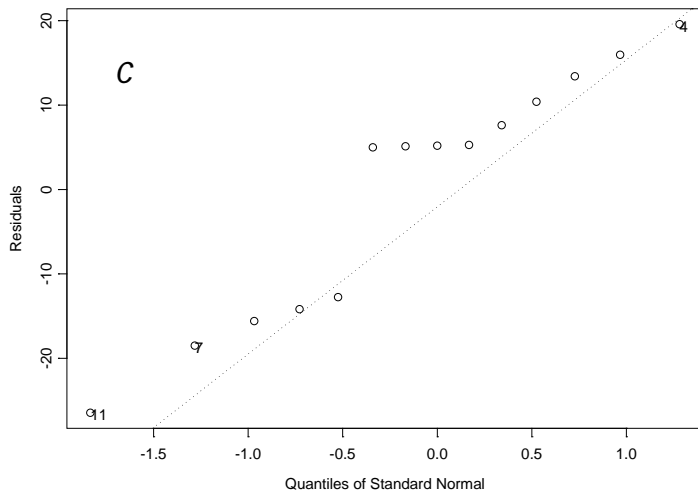
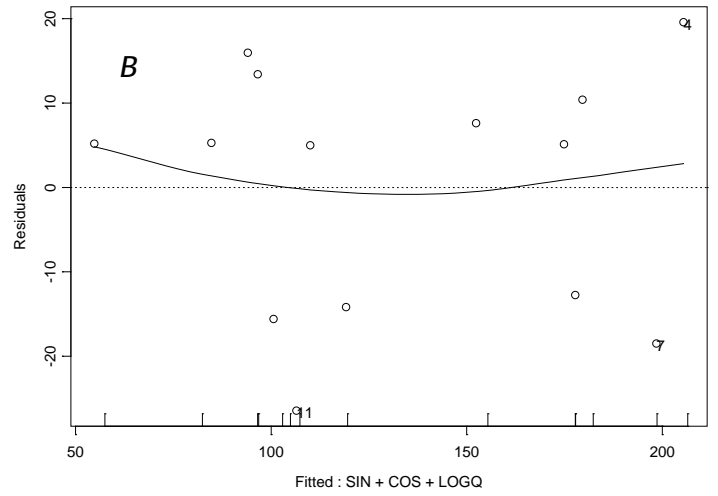
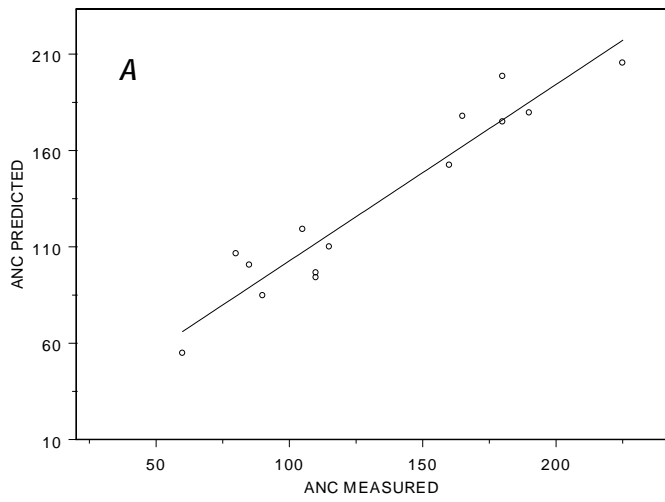


Figure 12. S+® output graphs from simple linear regression analysis using season (SIN and COS) and log-transformed streamflow (Q) as explanatory variables for acid neutralizing capacity (ANC) concentrations showing A, measured versus predicted ANC concentrations; B, computed ANC concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), November 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGANC ~ LOGQ + LOGSC, data = ANC.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1759	-0.07079	-0.005176	0.05496	0.2822

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.3950	0.2389	5.8388	0.0000
LOGQ	-0.0702	0.0239	-2.9326	0.0054
LOGSC	0.2803	0.0708	3.9606	0.0003

Residual standard error: 0.09995 on 42 degrees of freedom

Multiple R-Squared: 0.6041 Adjusted R-squared: 0.5853

F-statistic: 32.05 on 2 and 42 degrees of freedom, the p-value is 3.533e-009

Correlation of Coefficients:

	(Intercept)	LOGQ
LOGQ	-0.7687	
LOGSC	-0.9780	0.6275

Analysis of Variance Table

Response: LOGANC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	0.4836611	0.4836611	48.41404	0.0000000167
LOGSC	1	0.1567067	0.1567067	15.68620	0.0002836927
Residuals	42	0.4195842	0.0099901		

Figure 13. S+® output of regression model development using streamflow (Q) and specific conductance (SC) as explanatory variables for acid neutralizing capacity (ANC) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

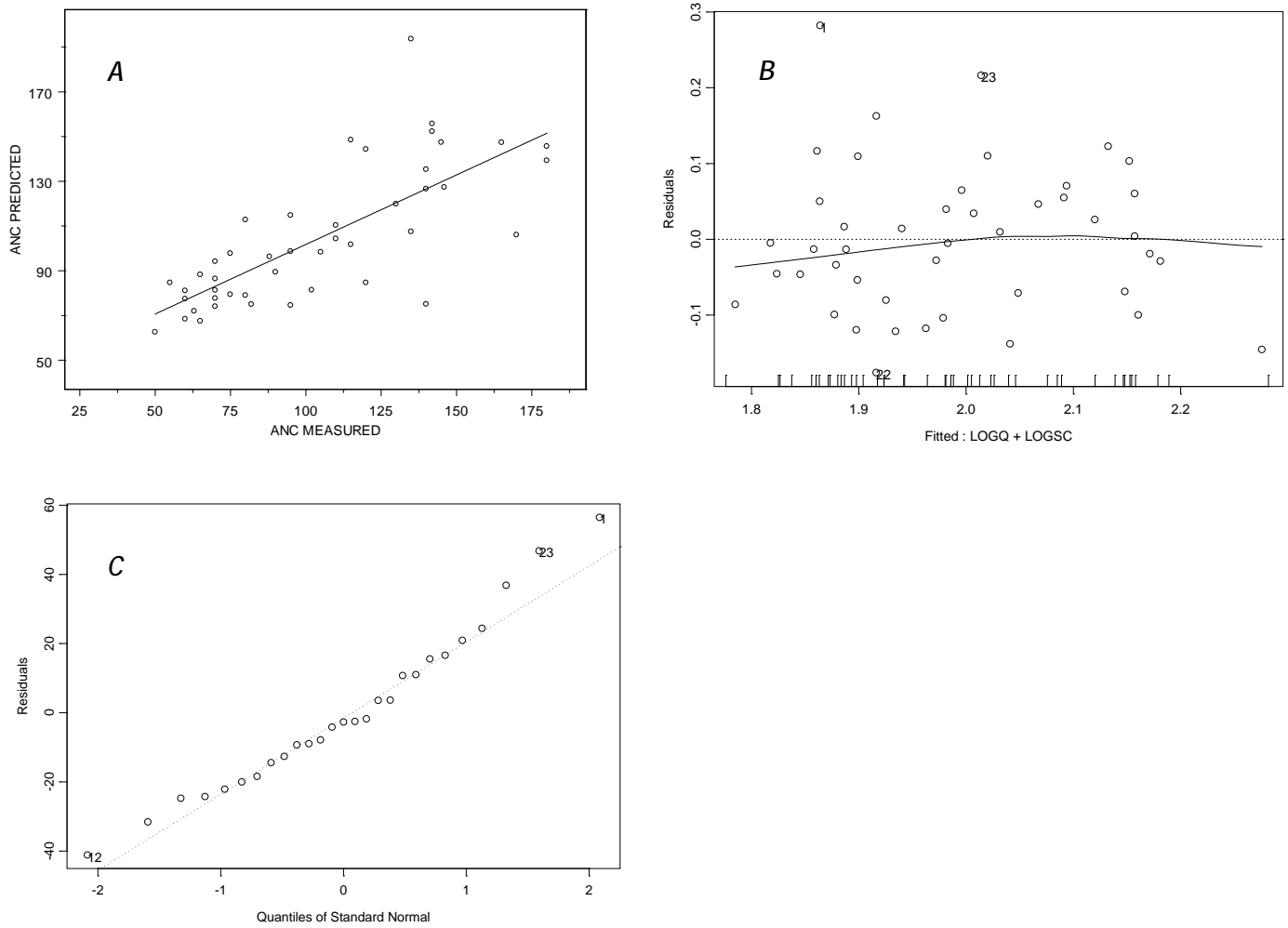


Figure 14. S+® output graphs from simple linear regression analysis using log-transformed streamflow (Q) and log-transformed specific conductance (SC) as explanatory variables for log-transformed acid neutralizing capacity (ANC) concentrations showing *A*, measured versus predicted ANC concentrations; *B*, computed log-transformed ANC concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = ANC ~ Q + SC, data = ANC.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-41.15	-16.42	-2.68	13.27	56.47

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	74.6850	10.9542	6.8179	0.0000
Q	-0.0072	0.0023	-3.0552	0.0054
SC	0.0688	0.0140	4.9082	0.0001

Residual standard error: 24.41 on 24 degrees of freedom

Multiple R-Squared: 0.6561 Adjusted R-squared: 0.6274

F-statistic: 22.89 on 2 and 24 degrees of freedom, the p-value is 2.737e-006

Correlation of Coefficients:

(Intercept)	Q
Q	-0.5350
SC	-0.8508
	0.2867

Analysis of Variance Table

Response: ANC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
Q	1	12923.66	12923.66	21.69720	0.00009907725
SC	1	14348.90	14348.90	24.09001	0.00005247108
Residuals	24	14295.29	595.64		

Figure 15. S+® output of regression model development using streamflow (Q) and specific conductance (SC) as explanatory variables for acid neutralizing capacity (ANC) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

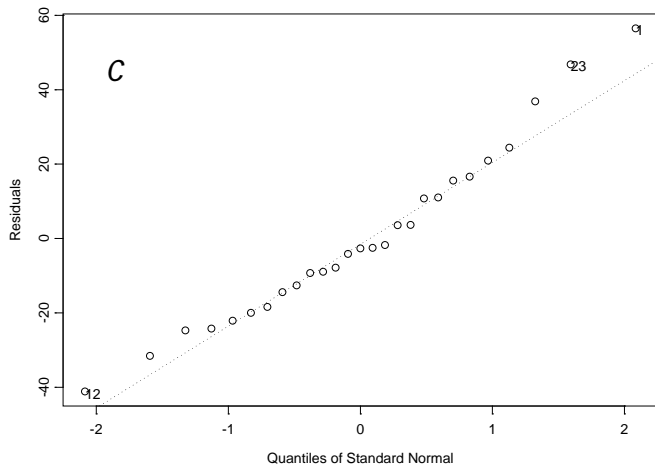
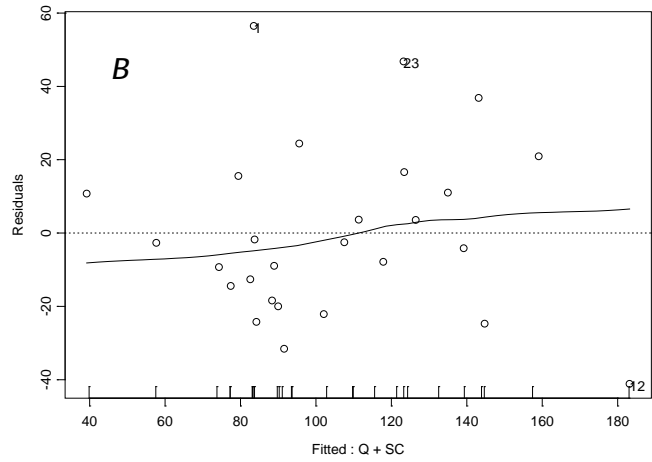
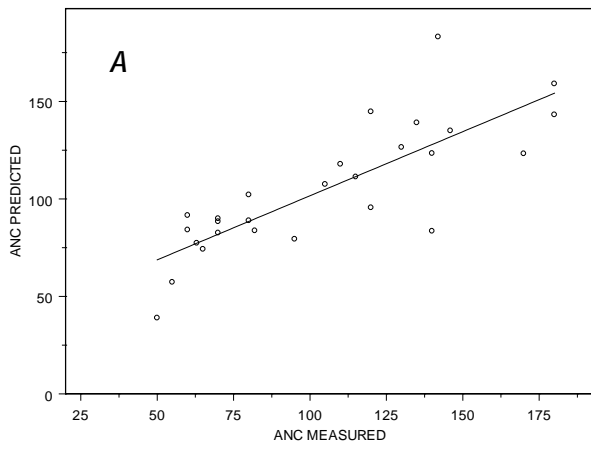


Figure 16. S+® output graphs from simple linear regression analysis using streamflow (Q) and specific conductance (SC) as explanatory variables for acid neutralizing capacity (ANC) concentrations showing *A*, measured versus predicted ANC concentrations; *B*, computed ANC concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = ANC ~ SIN + COS + LOGTBY, data = ANC.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-13.9	-6.984	-1.116	6.185	20.89

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	149.3588	5.7730	25.8720	0.0000
SIN	27.4054	4.7678	5.7481	0.0001
COS	1.7476	3.8069	0.4591	0.6532
LOGTBY	-35.0136	3.3181	-10.5523	0.0000

Residual standard error: 11.43 on 14 degrees of freedom

Multiple R-Squared: 0.8941 Adjusted R-squared: 0.8714

F-statistic: 39.38 on 3 and 14 degrees of freedom, the p-value is 4.484e-007

Correlation of Coefficients:

	(Intercept)	SIN	COS
SIN	0.0269		
COS	0.1675	0.0474	
LOGTBY	-0.8388	-0.3103	-0.0484

Analysis of Variance Table

Response: ANC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SIN	1	886.80	886.80	6.7891	0.0207507
COS	1	0.35	0.35	0.0027	0.9594822
LOGTBY	1	14545.08	14545.08	111.3520	0.0000000
Residuals	14	1828.72	130.62		

Figure 17. S+® output of regression model development using season (SIN and COS) and turbidity (TBY) as explanatory variables for acid neutralizing capacity (ANC) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

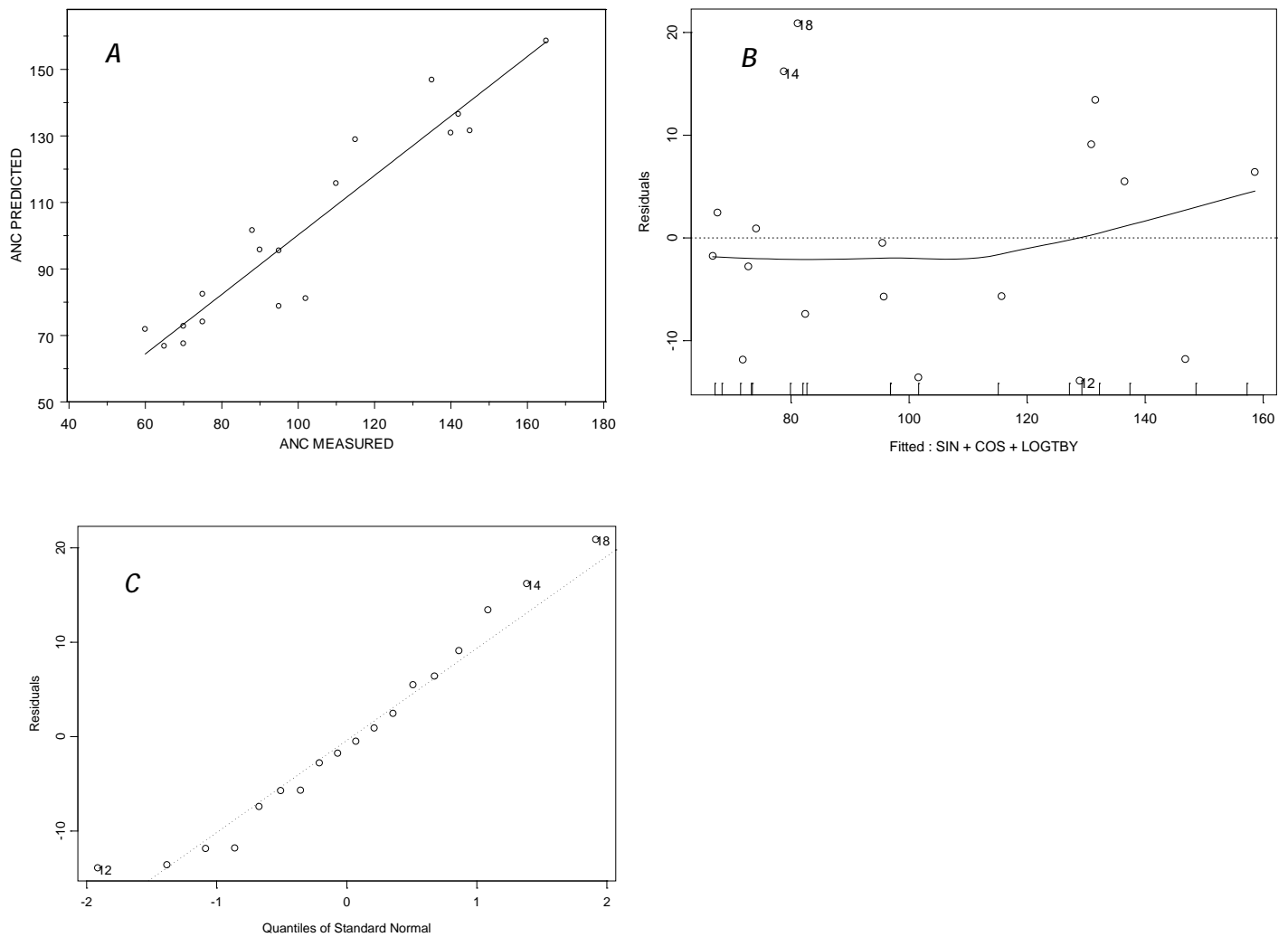


Figure 18. S+® output graphs from simple linear regression analysis using season (SIN and COS) and log-transformed turbidity (TBY) as explanatory variables for acid neutralizing capacity (ANC) concentrations showing *A*, measured versus predicted ANC concentrations; *B*, computed ANC concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = DS ~ SC, data = DS.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-71.83	-22.44	3.781	14.1	78.63

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	10.0712	10.7773	0.9345	0.3624
SC	0.5709	0.0091	62.5165	0.0000

Residual standard error: 34.61 on 18 degrees of freedom

Multiple R-Squared: 0.9954 Adjusted R-squared: 0.9952

F-statistic: 3908 on 1 and 18 degrees of freedom, the p-value is 0

Correlation of Coefficients:

(Intercept)
SC -0.6961

Analysis of Variance Table

Response: DS

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SC	1	4680282	4680282	3908.316	0
Residuals	18	21555	1198		

Figure 19. S+® output of regression model development using specific conductance (SC) as the explanatory variable for dissolved solids (DS) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), June 2011 through May 2013.

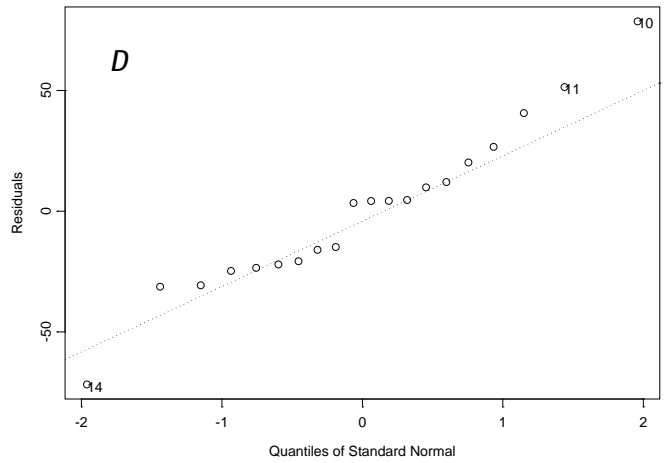
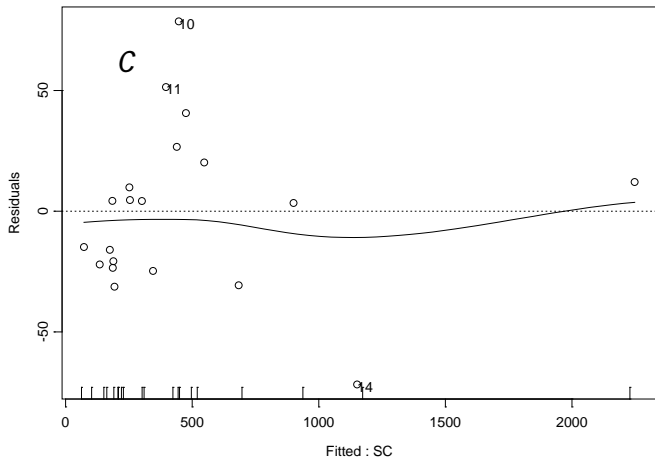
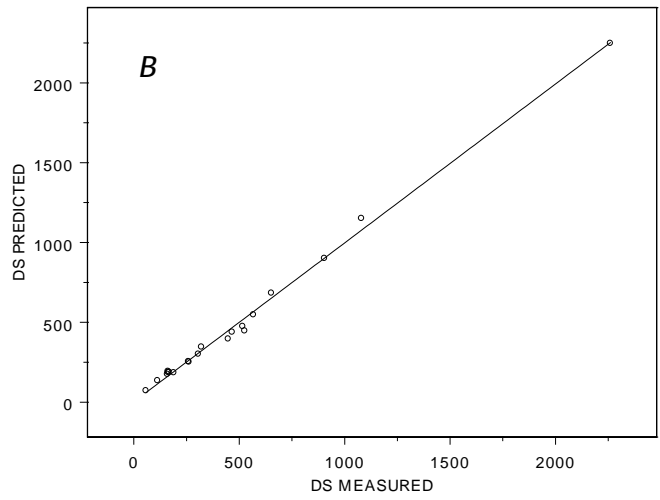
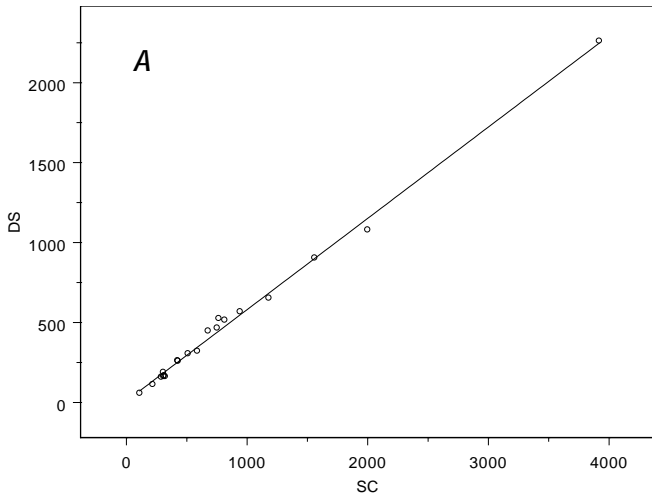


Figure 20. S+® output graphs from simple linear regression analysis showing *A*, specific conductance (SC) versus dissolved solids (DS) concentrations; *B*, measured versus predicted DS concentrations; *C*, computed DS concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGDS ~ LOGSC, data = DS.COLLSPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1514	-0.01461	0.009468	0.02226	0.09788

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.5403	0.1478	-3.6558	0.0023
LOGSC	1.1042	0.0521	21.2075	0.0000

Residual standard error: 0.06456 on 15 degrees of freedom

Multiple R-Squared: 0.9677 Adjusted R-squared: 0.9656

F-statistic: 449.8 on 1 and 15 degrees of freedom, the p-value is 1.347e-012

Correlation of Coefficients:

(Intercept)
LOGSC -0.9944

Analysis of Variance Table

Response: LOGDS

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	1.874463	1.874463	449.7569	1.347145e-012
Residuals	15	0.062516	0.004168		

Figure 21. S+® output of regression model development using specific conductance (SC) as the explanatory variable for dissolved solids (DS) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

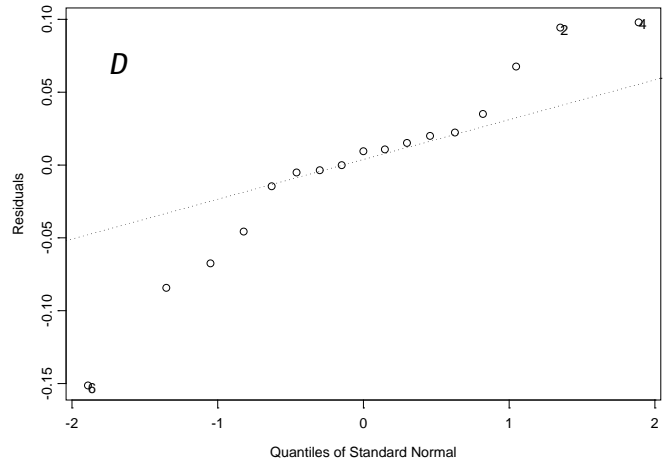
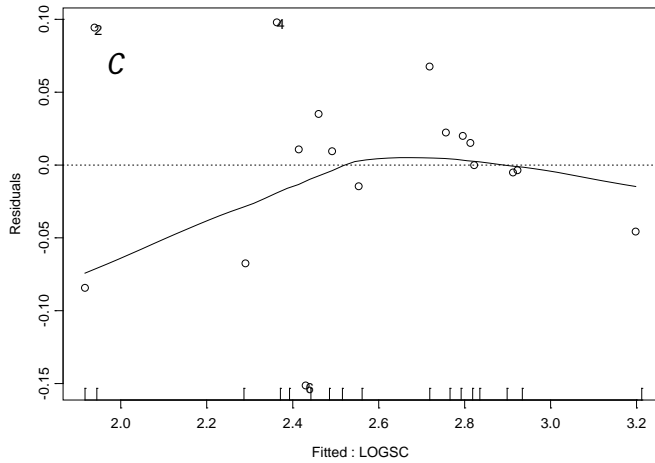
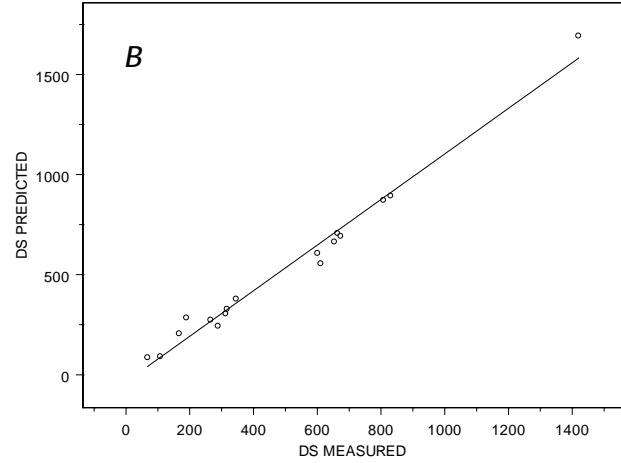
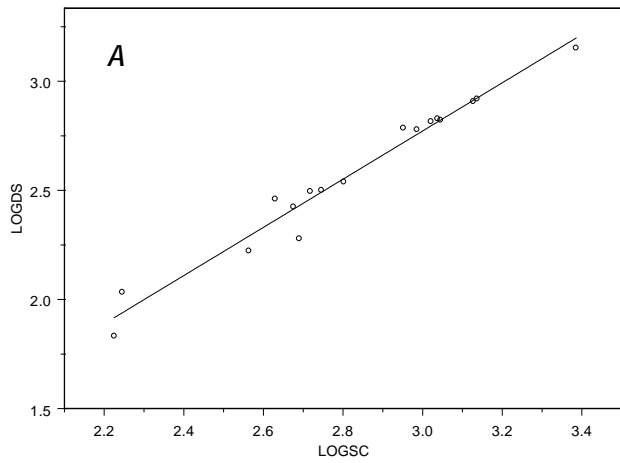


Figure 22. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed dissolved solids (DS) concentrations; *B*, measured versus predicted DS concentrations; *C*, computed DS concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGDS ~ LOGSC, data = DS.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1062	-0.02659	0.002935	0.02786	0.1104

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.2360	0.1110	-2.1251	0.0495
LOGSC	1.0000	0.0392	25.4906	0.0000

Residual standard error: 0.05272 on 16 degrees of freedom

Multiple R-Squared: 0.976 Adjusted R-squared: 0.9745

F-statistic: 649.8 on 1 and 16 degrees of freedom, the p-value is 2.209e-014

Correlation of Coefficients:

(Intercept)	
LOGSC	-0.9937

Analysis of Variance Table

Response: LOGDS

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	1.805836	1.805836	649.771	2.209344e-014
Residuals	16	0.044467	0.002779		

Figure 23. S+® output of regression model development using specific conductance (SC) as the explanatory variable for dissolved solids (DS) for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

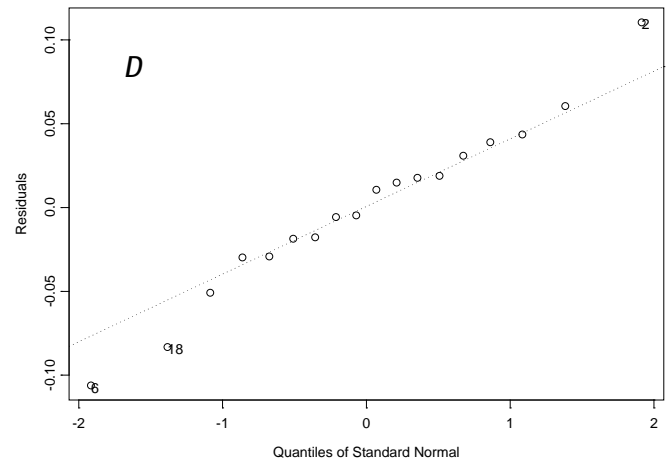
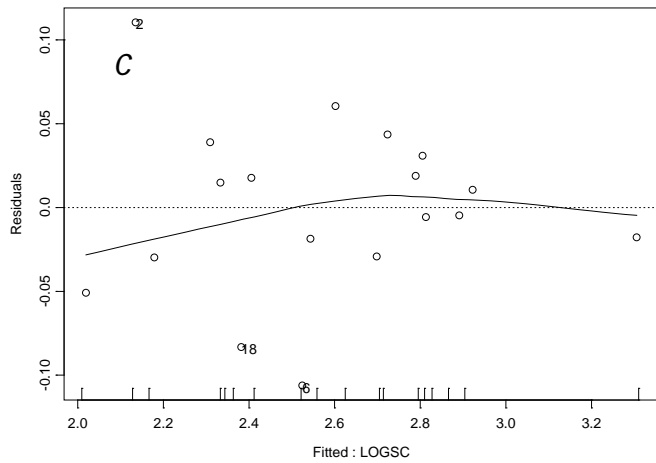
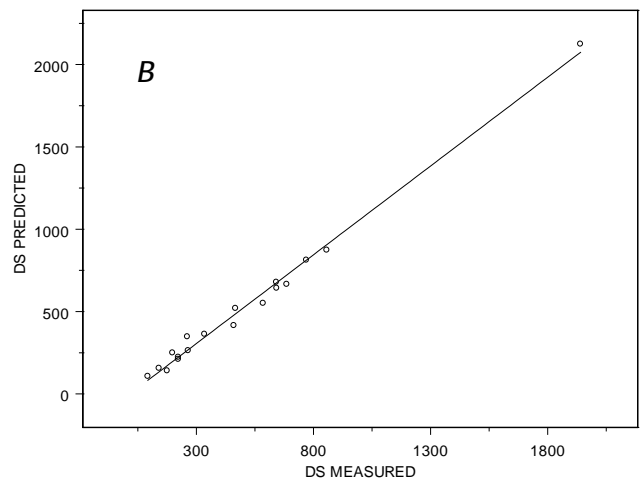
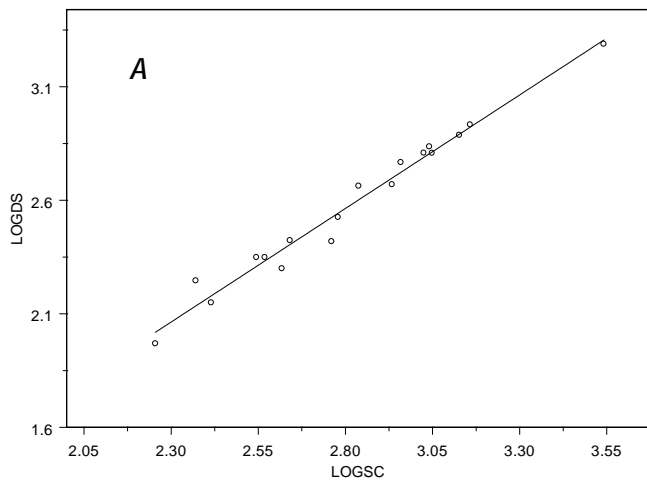


Figure 24. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed dissolved solids (DS) concentrations; *B*, measured versus predicted DS concentrations; *C*, computed DS concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = DS ~ SC, data = DS.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-50.87	-24.76	-2.922	8.255	86.06

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	17.5301	13.0708	1.3412	0.1986
SC	0.5567	0.0098	56.8091	0.0000

Residual standard error: 36.9 on 16 degrees of freedom

Multiple R-Squared: 0.9951 Adjusted R-squared: 0.9948

F-statistic: 3227 on 1 and 16 degrees of freedom, the p-value is 0

438 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)

SC -0.7464

Analysis of Variance Table

Response: DS

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SC	1	4395145	4395145	3227.27	0
Residuals	16	21790	1362		

Figure 25. S+® output of regression model development using specific conductance (SC) as the explanatory variable for dissolved solids (DS) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

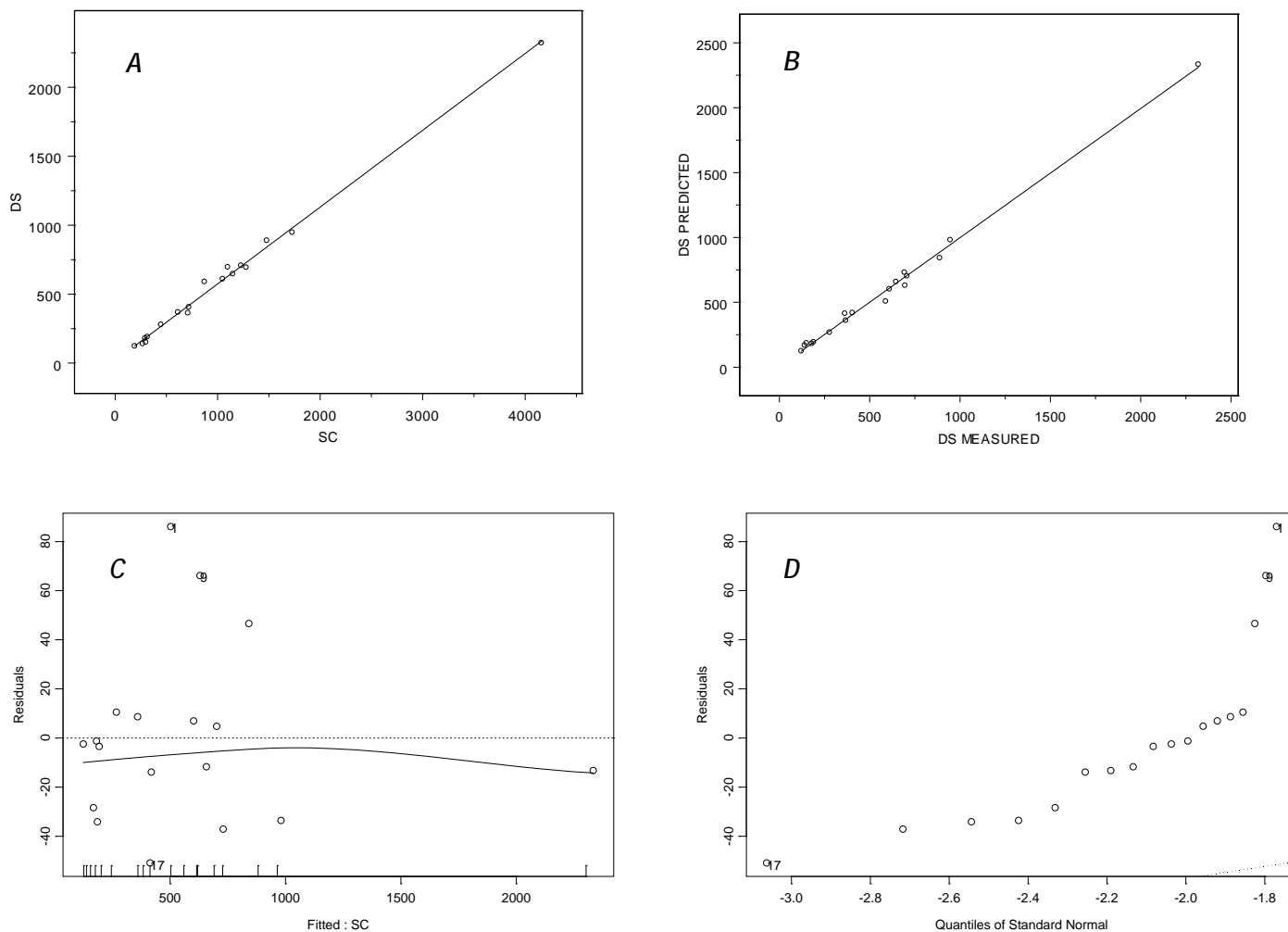


Figure 26. S+® output graphs from simple linear regression analysis showing *A*, specific conductance (SC) versus dissolved solids (DS) concentrations; *B*, measured versus predicted DS concentrations; *C*, computed DS concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = DS ~ SC, data = DS.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-73.24	-25.96	-2.813	21.23	117

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	24.1513	18.8009	1.2846	0.2184
SC	0.5506	0.0152	36.1535	0.0000

Residual standard error: 46.85 on 15 degrees of freedom

Multiple R-Squared: 0.9887 Adjusted R-squared: 0.9879

F-statistic: 1307 on 1 and 15 degrees of freedom, the p-value is 5.551e-016

Correlation of Coefficients:

(Intercept)	
SC	-0.7967

Analysis of Variance Table

Response: DS

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SC	1	2868520	2868520	1307.075	5.551115e-016
Residuals	15	32919	2195		

Figure 27. S+® output of regression model development using specific conductance (SC) as the explanatory variable for dissolved solids (DS) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

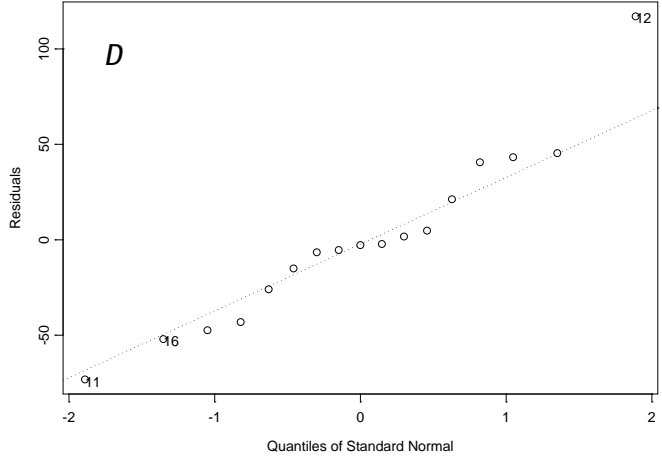
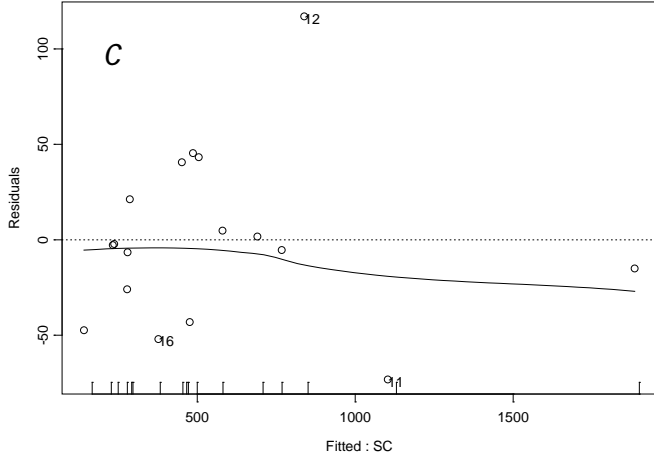
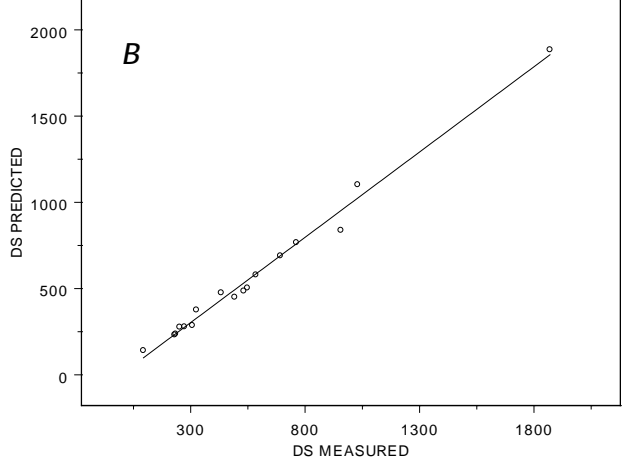
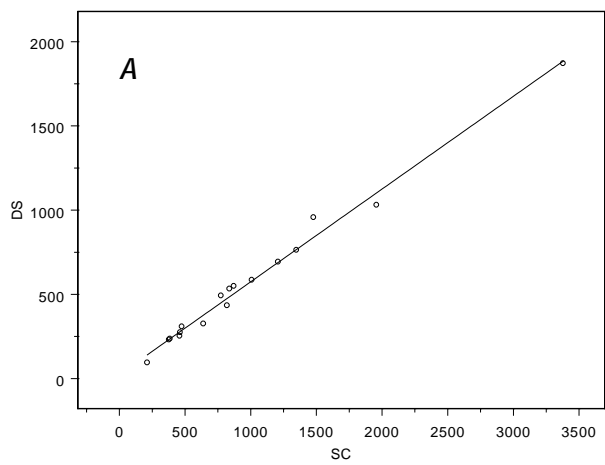


Figure 28. S+® output graphs from simple linear regression analysis showing *A*, specific conductance (SC) versus dissolved solids (DS) concentrations; *B*, measured versus predicted DS concentrations; *C*, computed DS concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGDS ~ LOGSC, data = DS.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.4809	-0.02787	0.00653	0.0309	0.1654

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.2356	0.1073	-2.1945	0.0328
LOGSC	0.9990	0.0381	26.2345	0.0000

Residual standard error: 0.08913 on 51 degrees of freedom

Multiple R-Squared: 0.931 Adjusted R-squared: 0.9297

F-statistic: 688.2 on 1 and 51 degrees of freedom, the p-value is 0

Correlation of Coefficients:

(Intercept)	
LOGSC	-0.9935

Analysis of Variance Table

Response: LOGDS

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	5.467209	5.467209	688.2464	0
Residuals	51	0.405128	0.007944		

Figure 29. S+® output of regression model development using specific conductance (SC) as the explanatory variable for dissolved solids (DS) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

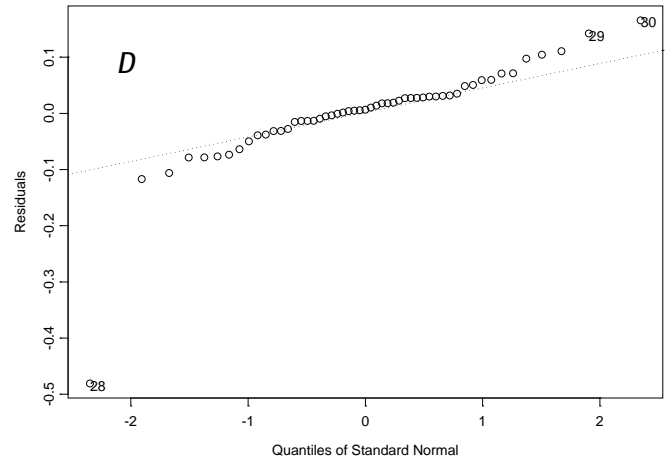
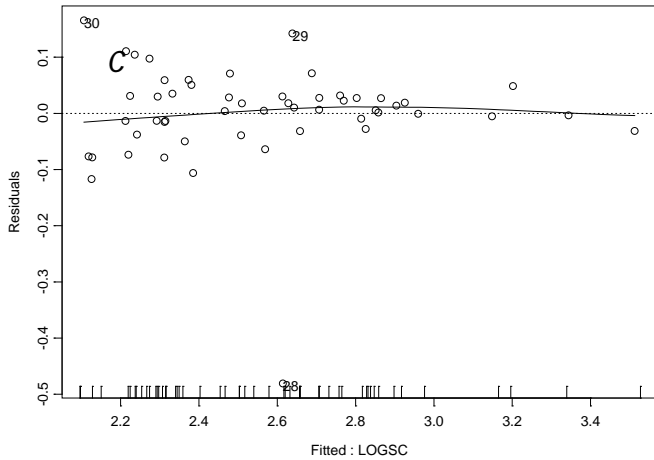
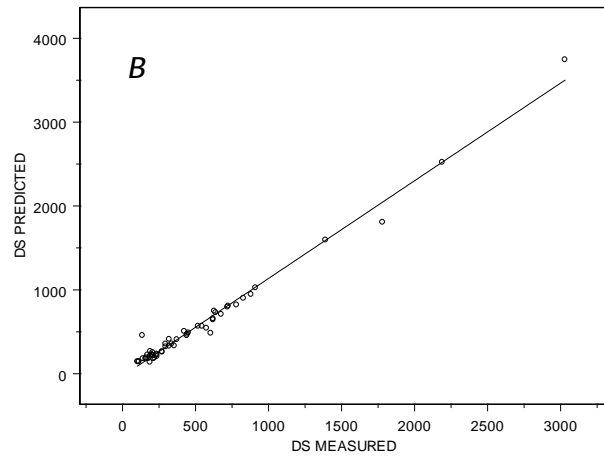
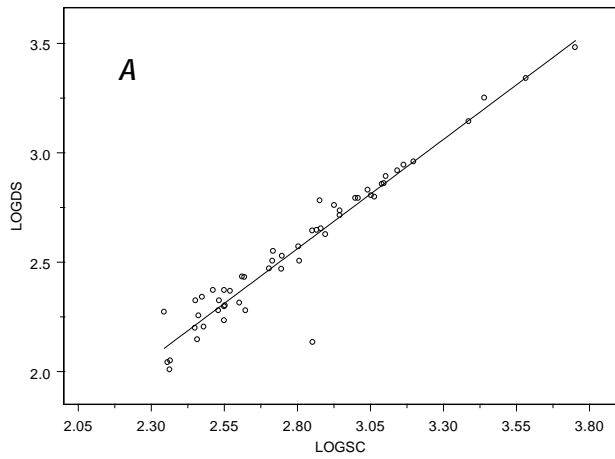


Figure 30. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed dissolved solids (DS) concentrations; *B*, measured versus predicted DS concentrations; *C*, computed DS concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGDS ~ LOGSC, data = DS.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.4718	-0.03169	0.01184	0.03912	0.1705

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.2224	0.1576	-1.4115	0.1681
LOGSC	0.9912	0.0565	17.5482	0.0000

Residual standard error: 0.1096 on 31 degrees of freedom

Multiple R-Squared: 0.9085 Adjusted R-squared: 0.9056

F-statistic: 307.9 on 1 and 31 degrees of freedom, the p-value is 0

Correlation of Coefficients:

(Intercept)
LOGSC -0.9926

Analysis of Variance Table

Response: LOGDS

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	3.696933	3.696933	307.9386	0
Residuals	31	0.372168	0.012005		

Figure 31. S+® output of regression model development using specific conductance (SC) as the explanatory variable for dissolved solids (DS) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

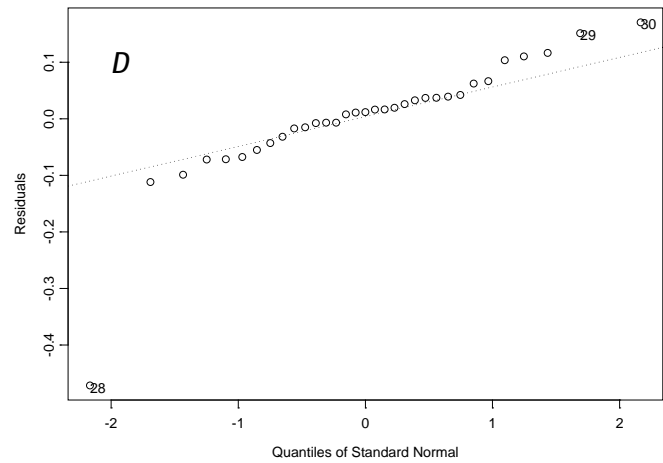
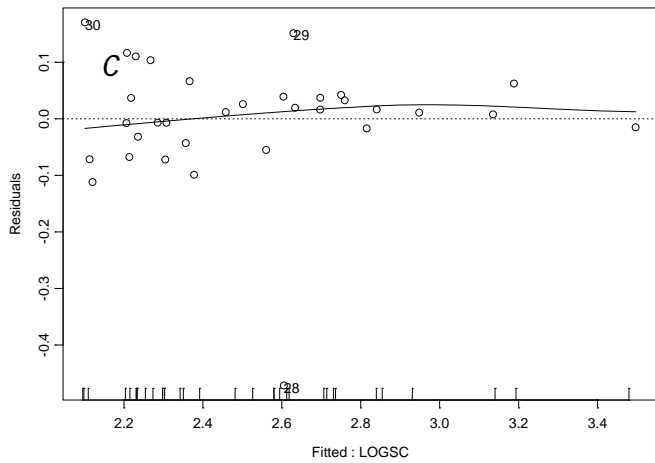
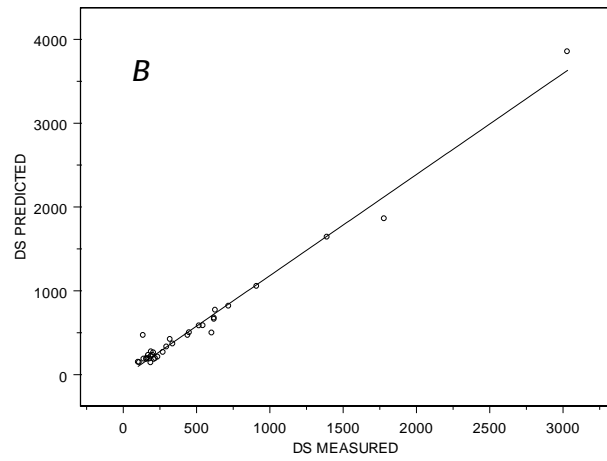
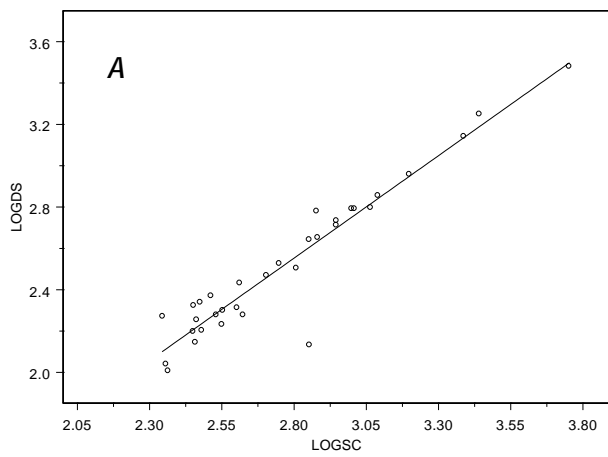


Figure 32. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed dissolved solids (DS) concentrations; *B*, measured versus predicted DS concentrations; *C*, computed DS concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = LOGDS ~ LOGSC, data = DS.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.09036	-0.02126	0.003921	0.01827	0.05748

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.2325	0.0862	-2.6966	0.0148
LOGSC	1.0028	0.0301	33.3360	0.0000

Residual standard error: 0.03839 on 18 degrees of freedom

Multiple R-Squared: 0.9841 Adjusted R-squared: 0.9832

F-statistic: 1111 on 1 and 18 degrees of freedom, the p-value is 0

Correlation of Coefficients:

(Intercept)	
LOGSC	-0.995

Analysis of Variance Table

Response: LOGDS

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	1.638059	1.638059	1111.29	0
Residuals	18	0.026532	0.001474		

Figure 33. S+® output of regression model development using specific conductance (SC) as the explanatory variable for dissolved solids (DS) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

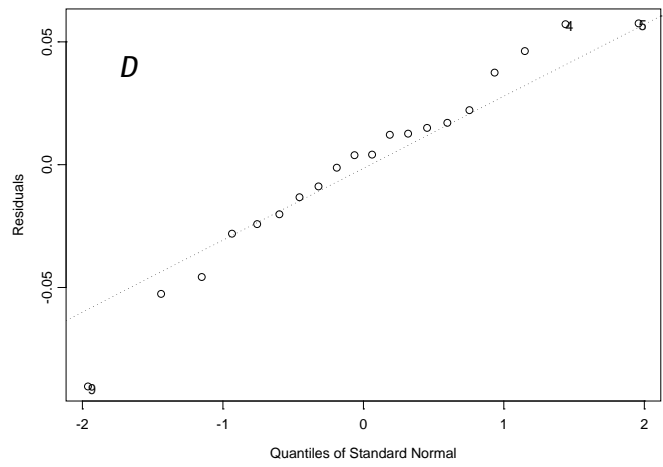
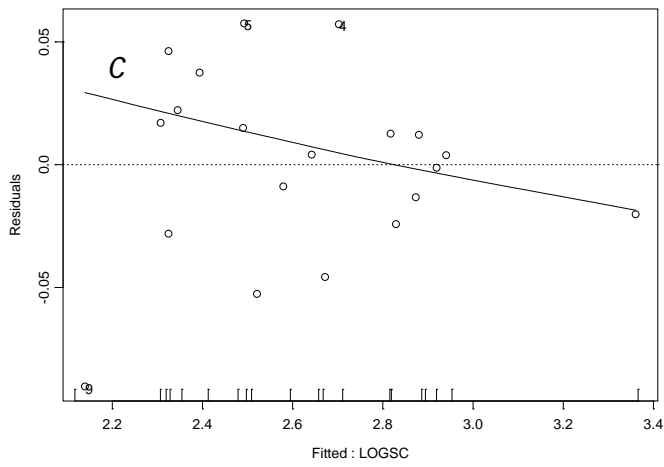
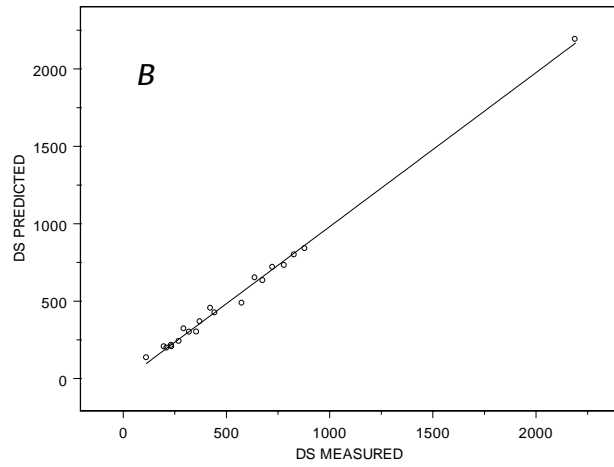
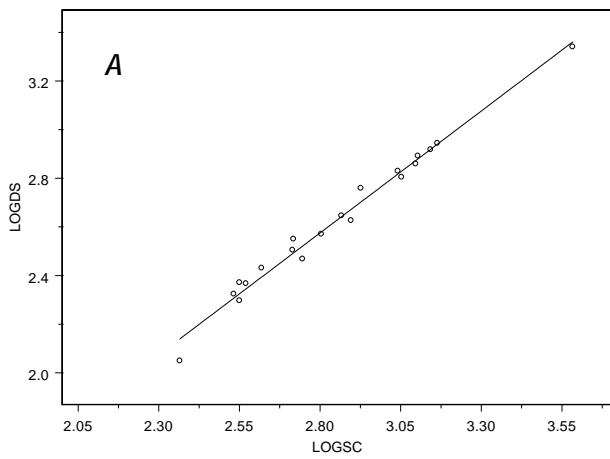


Figure 34. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed dissolved solids (DS) concentrations; *B*, measured versus predicted DS concentrations; *C*, computed DS concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGCA ~ LOGQ + LOGSC, data = CA.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1644	-0.04879	-0.006455	0.05127	0.1685

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.4335	0.2761	1.5705	0.1359
LOGQ	-0.1264	0.0276	-4.5832	0.0003
LOGSC	0.5024	0.0896	5.6070	0.0000

Residual standard error: 0.09655 on 16 degrees of freedom

Multiple R-squared: 0.9221 Adjusted R-squared: 0.9124

F-statistic: 94.73 on 2 and 16 degrees of freedom, the p-value is 1.352e-009

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	LOGQ
LOGQ	-0.7847	
LOGSC	-0.9923	0.7255

Analysis of Variance Table

Response: LOGCA

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	1.473029	1.473029	158.0276	0.00000000105
LOGSC	1	0.293043	0.293043	31.4379	0.00003933697
Residuals	16	0.149141	0.009321		

Figure 35. S+® output of regression model development using streamflow (Q) and specific conductance (SC) as explanatory variables for calcium (CA) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

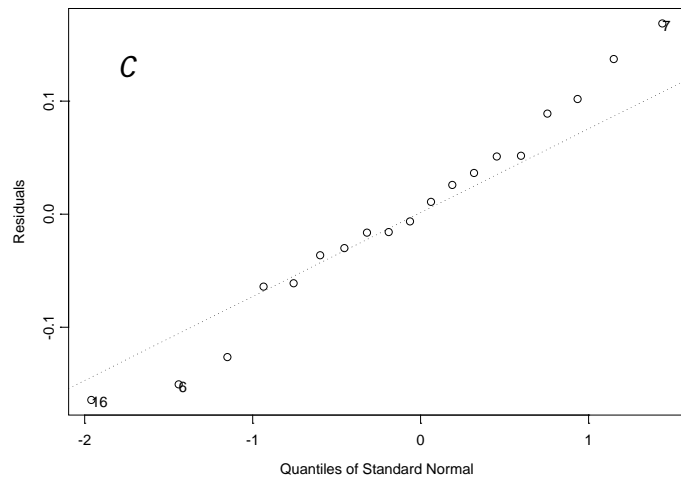
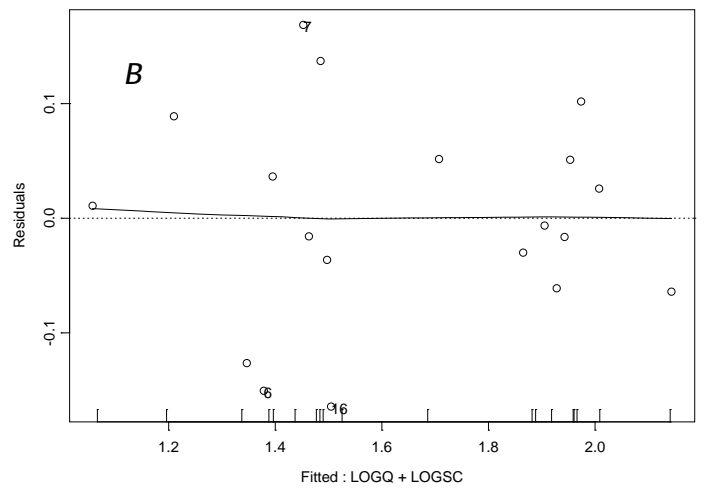
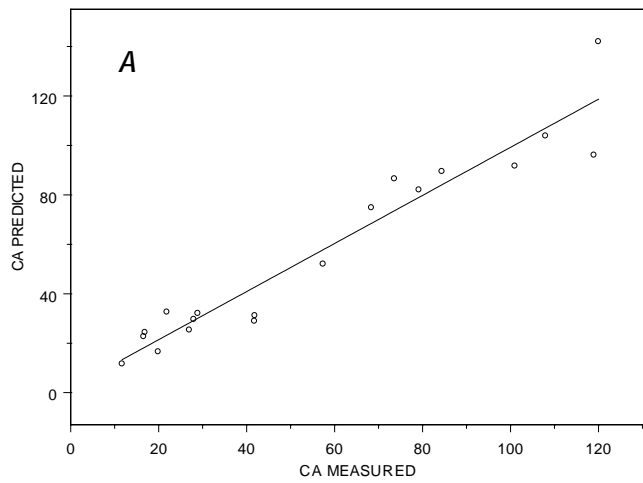


Figure 36. S+® output graphs from simple linear regression analysis using log-transformed streamflow (Q) and log-transformed specific conductance (SC) as explanatory variables for calcium (CA) concentrations showing *A*, measured versus predicted CA concentrations; *B*, computed CA concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGCA ~ LOGSC, data = CA.COLLSPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.2113	-0.0337	-0.01568	0.09043	0.1477

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.4250	0.2400	-1.7709	0.0969
LOGSC	0.7226	0.0845	8.5463	0.0000

Residual standard error: 0.1048 on 15 degrees of freedom

Multiple R-Squared: 0.8296 Adjusted R-squared: 0.8183

F-statistic: 73.04 on 1 and 15 degrees of freedom, the p-value is 3.782e-007

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGSC	-0.9944

Analysis of Variance Table

Response: LOGCA

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	0.8027215	0.8027215	73.03944	3.78192e-007
Residuals	15	0.1648537	0.0109902		

Figure 37. S+® output of regression model development using specific conductance (SC) as the explanatory variable for calcium (CA) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

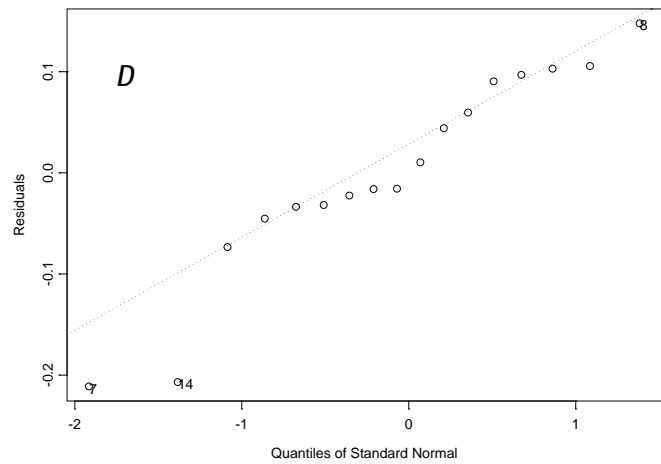
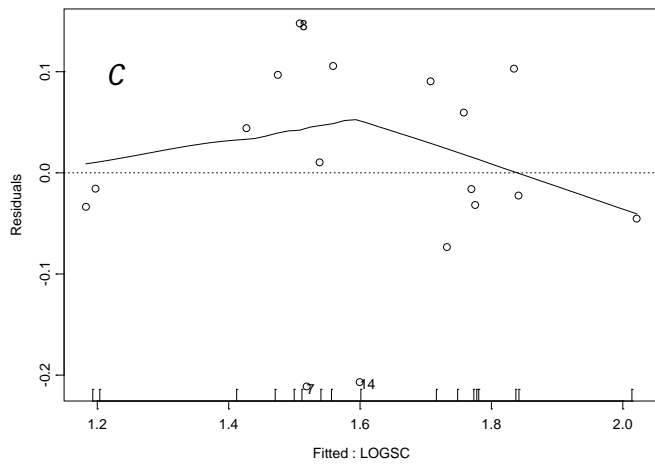
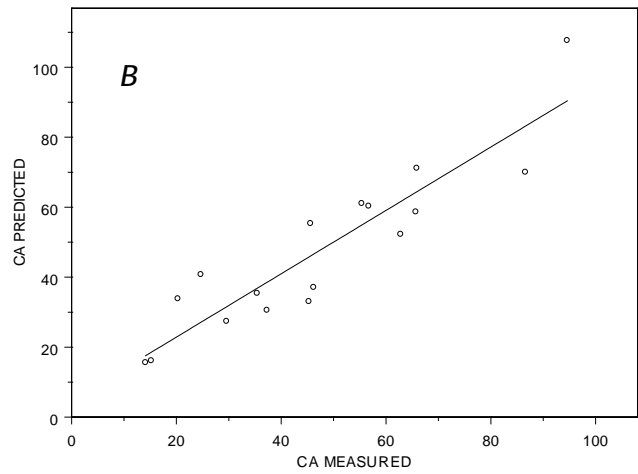
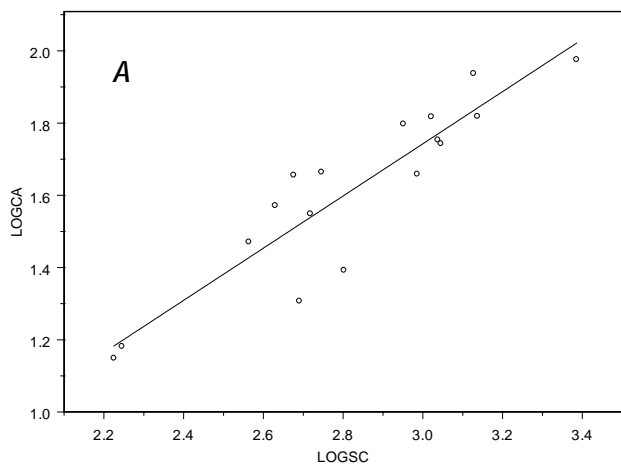


Figure 38. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed calcium (CA) concentrations; *B*, measured versus predicted CA concentrations; *C*, computed log-transformed CA concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGCA ~ LOGSC, data = CA.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1799	-0.04483	0.006803	0.05845	0.1244

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.2047	0.1811	-1.1306	0.2749
LOGSC	0.6513	0.0640	10.1803	0.0000

Residual standard error: 0.08597 on 16 degrees of freedom

Multiple R-Squared: 0.8663 Adjusted R-squared: 0.8579

F-statistic: 103.6 on 1 and 16 degrees of freedom, the p-value is 2.141e-008

Correlation of Coefficients:

(Intercept)	
LOGSC	-0.9937

Analysis of Variance Table

Response: LOGCA

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	0.766059	0.7660590	103.638	2.141041e-008
Residuals	16	0.118267	0.0073917		

Figure 39. S+® output of regression model development using specific conductance (SC) as the explanatory variable for calcium (CA) for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

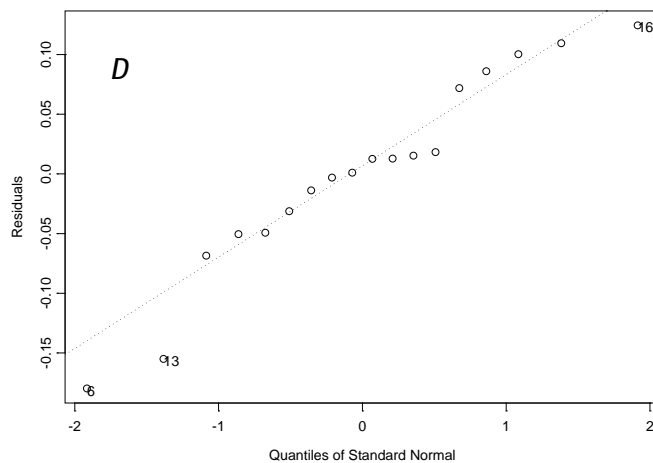
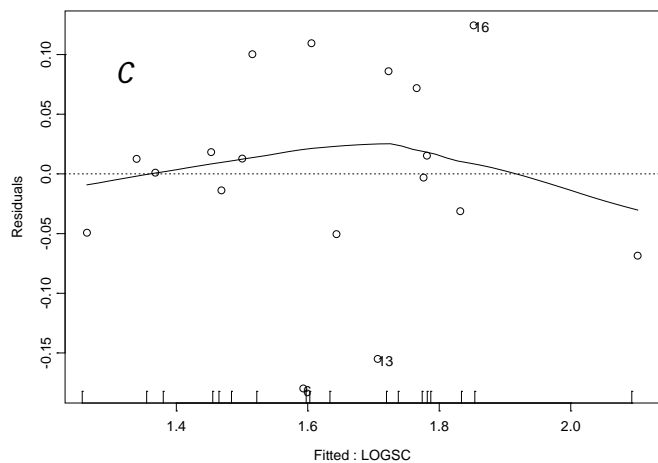
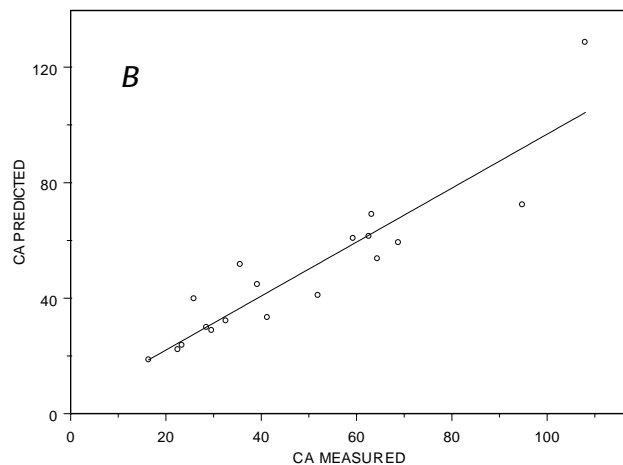
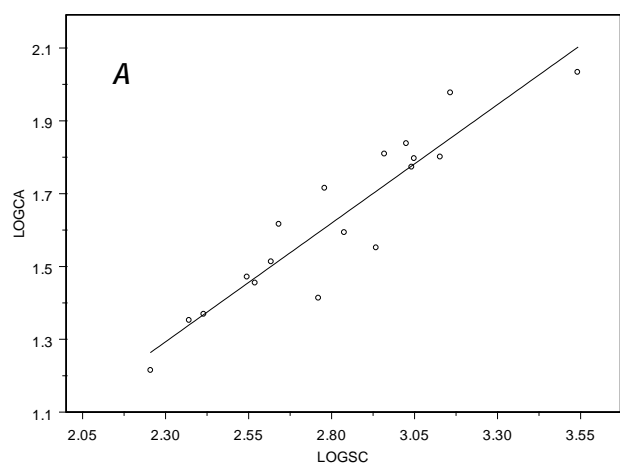


Figure 40. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed calcium (CA) concentrations; *B*, measured versus predicted CA concentrations; *C*, computed log-transformed CA concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

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*** Linear Model ***

Call: lm(formula = LOGCA ~ LOGSC + LOGTBY, data = CA.MF.SPLUS, na.action =
na.exclude)
Residuals:
    Min       1Q   Median       3Q      Max
-0.0895 -0.04732 -0.01254  0.02899  0.1415

Coefficients:
            Value Std. Error t value Pr(>|t|)
(Intercept)  0.4374  0.2042     2.1422  0.0490
      LOGSC   0.4739  0.0625     7.5821  0.0000
      LOGTBY -0.0853  0.0251    -3.4041  0.0039

Residual standard error: 0.07009 on 15 degrees of freedom
Multiple R-Squared:  0.9155    Adjusted R-squared:  0.9042
F-statistic: 81.25 on 2 and 15 degrees of freedom, the p-value is 8.947e-009
438 observations deleted due to missing values

Correlation of Coefficients:
      (Intercept)  LOGSC
LOGSC -0.9868
LOGTBY -0.7180      0.6159

Analysis of Variance Table

Response: LOGCA

Terms added sequentially (first to last)
      Df Sum of Sq  Mean Sq  F Value    Pr(F)
LOGSC  1  0.7414242  0.7414242  150.9129 0.000000003
LOGTBY  1  0.0569304  0.0569304   11.5879 0.003924644
Residuals 15  0.0736939  0.0049129

```

Figure 41. S+® output of regression model development using specific conductance (SC) and turbidity (TBY) as explanatory variables for calcium (CA) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

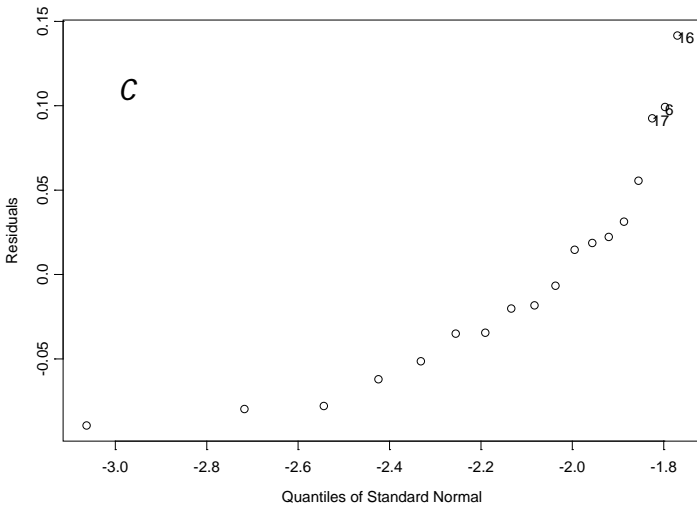
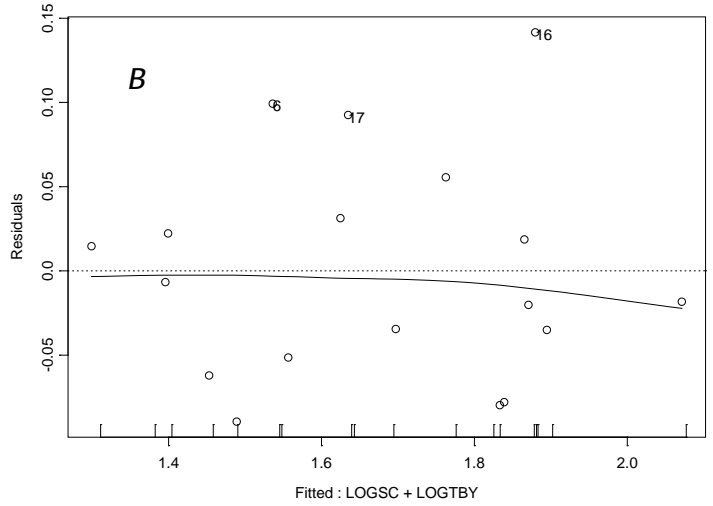
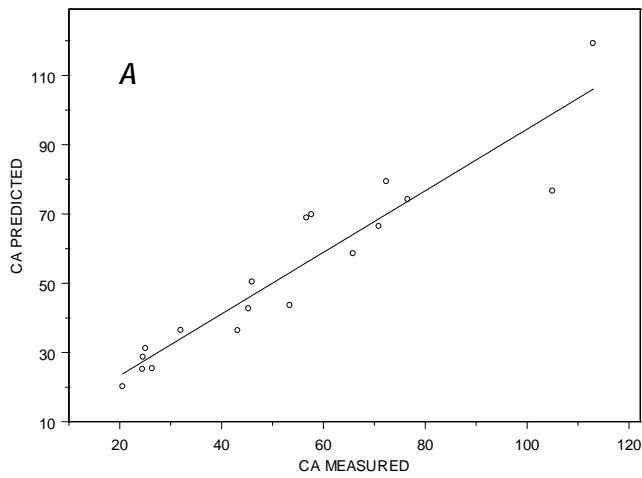


Figure 42. S+® output graphs from simple linear regression analysis using log-transformed specific conductance (SC) and log-transformed turbidity (TBY) as explanatory variables for log-transformed calcium (CA) concentrations showing A, measured versus predicted CA concentrations; B, computed log-transformed CA concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGCA ~ LOGSC + LOGTBY, data = CA.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.09142	-0.01862	0.005044	0.0268	0.06064

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.5647	0.1424	3.9657	0.0014
LOGSC	0.4559	0.0460	9.9013	0.0000
LOGTBY	-0.1078	0.0145	-7.4180	0.0000

Residual standard error: 0.04771 on 14 degrees of freedom

Multiple R-Squared: 0.9551 Adjusted R-squared: 0.9486

F-statistic: 148.8 on 2 and 14 degrees of freedom, the p-value is 3.7e-010

Correlation of Coefficients:

	(Intercept)	LOGSC
LOGSC	-0.9918	
LOGTBY	-0.5746	0.4924

Analysis of Variance Table

Response: LOGCA

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	0.5521345	0.5521345	242.5265	3.10000e-010
LOGTBY	1	0.1252731	0.1252731	55.0265	3.26176e-006
Residuals	14	0.0318723	0.0022766		

Figure 43. S+® output of regression model development using specific conductance (SC) and turbidity (TBY) as explanatory variables for calcium (CA) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

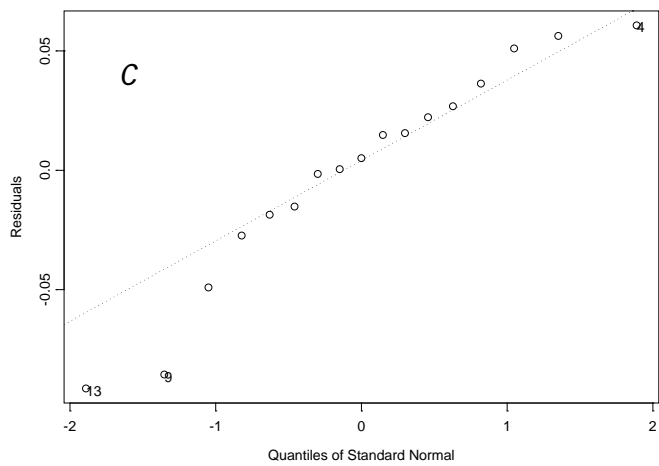
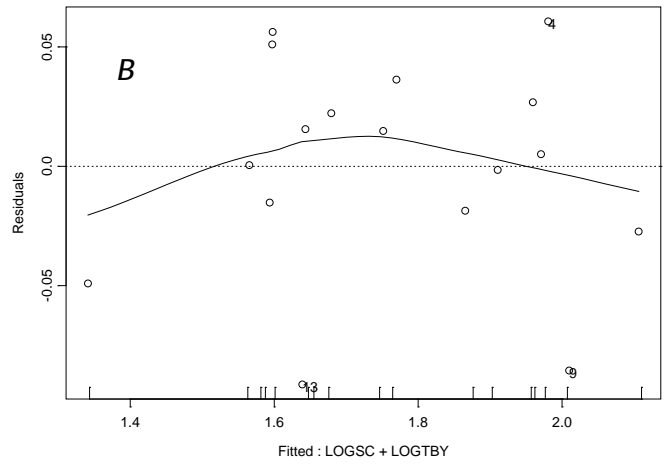
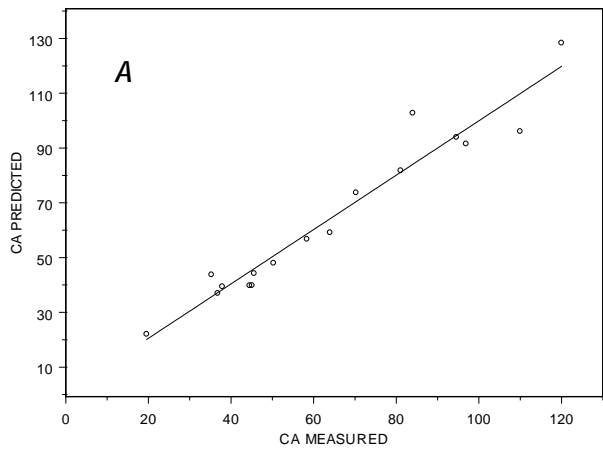


Figure 44. S+® output graphs from simple linear regression analysis using log-transformed specific conductance (SC) and log-transformed turbidity (TBY) as explanatory variables for log-transformed calcium (CA) concentrations showing A, measured versus predicted CA concentrations; B, computed log-transformed CA concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = CA ~ LOGSC, data = CA.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-60.11	-4.855	-0.187	6.421	34.69

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-168.4480	17.7631	-9.4831	0.0000
LOGSC	77.9183	6.2814	12.4045	0.0000

Residual standard error: 14.99 on 52 degrees of freedom

Multiple R-Squared: 0.7474 Adjusted R-squared: 0.7426

F-statistic: 153.9 on 1 and 52 degrees of freedom, the p-value is 0

Correlation of Coefficients:

(Intercept)	
LOGSC	-0.9934

Analysis of Variance Table

Response: CA

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	34570.43	34570.43	153.8726	0
Residuals	52	11682.80	224.67		

Figure 45. S+® output of regression model development using specific conductance (SC) as the explanatory variable for calcium (CA) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

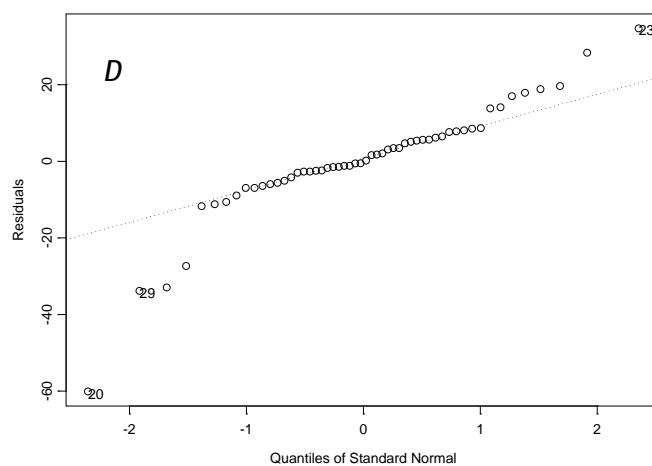
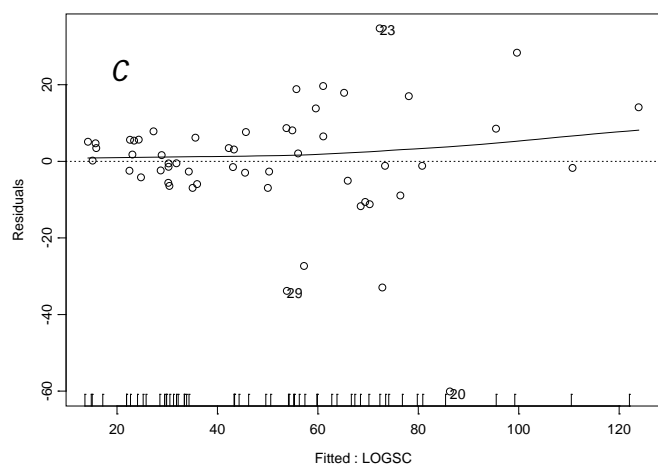
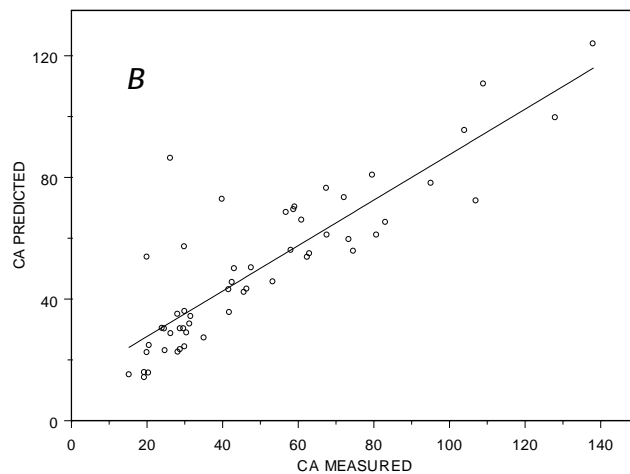
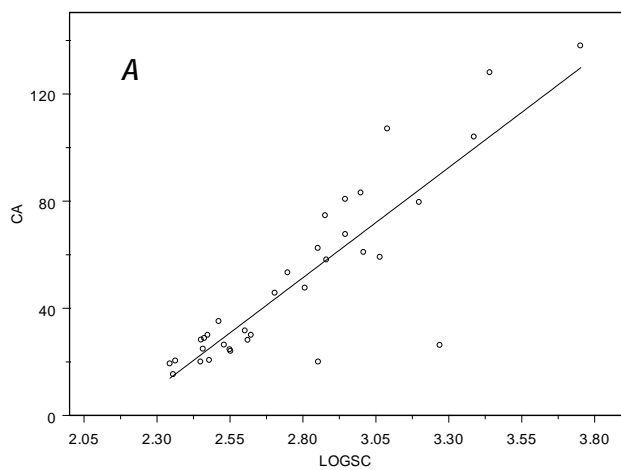


Figure 46. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus calcium (CA) concentrations; *B*, measured versus predicted CA concentrations; *C*, computed CA concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = CA ~ LOGSC, data = CA.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-63.87	-4.6	1.848	5.963	31.71

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-179.0296	23.0772	-7.7579	0.0000
LOGSC	82.3055	8.2276	10.0035	0.0000

Residual standard error: 16.47 on 32 degrees of freedom

Multiple R-Squared: 0.7577 Adjusted R-squared: 0.7501

F-statistic: 100.1 on 1 and 32 degrees of freedom, the p-value is 2.248e-011

Correlation of Coefficients:

(Intercept)	
LOGSC	-0.9925

Analysis of Variance Table

Response: CA

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	27136.72	27136.72	100.0707	2.247613e-011
Residuals	32	8677.62	271.18		

Figure 47. S+® output of regression model development using specific conductance (SC) as the explanatory variable for calcium (CA) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

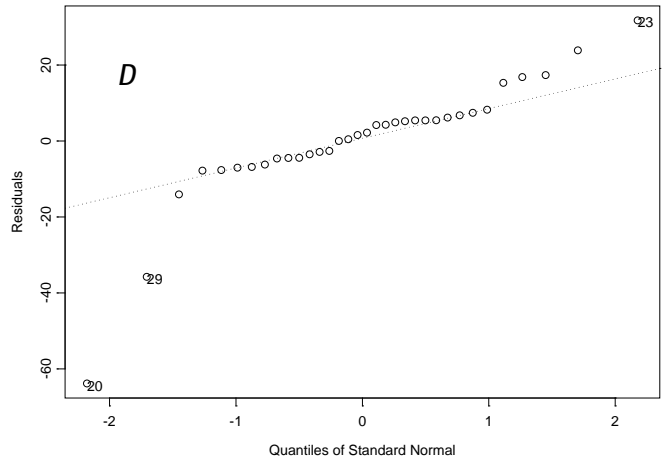
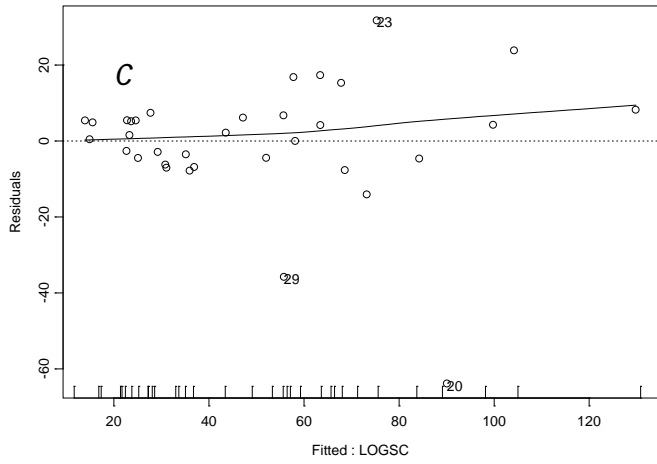
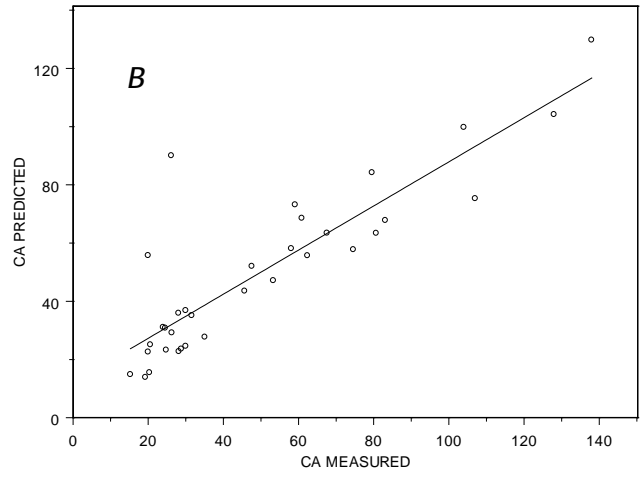
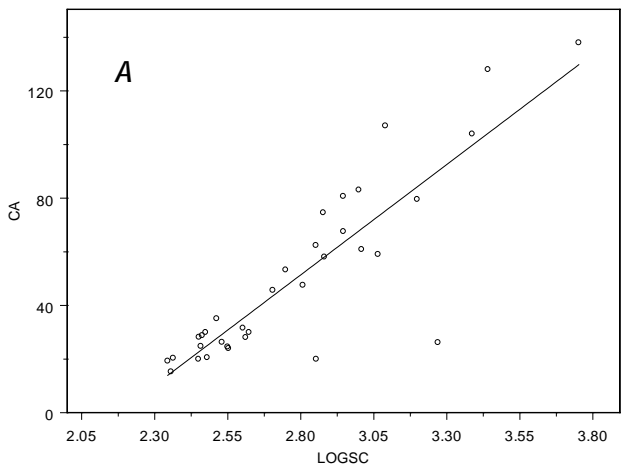


Figure 48. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus calcium (CA) concentrations; *B*, measured versus predicted CA concentrations; *C*, computed CA concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = LOGCA ~ LOGSC + TBY, data = CA.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1069	-0.05554	-0.0058	0.05026	0.102

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.5085	0.1874	2.7137	0.0153
LOGSC	0.4340	0.0627	6.9193	0.0000
TBY	-0.0006	0.0001	-4.6747	0.0003

Residual standard error: 0.0688 on 16 degrees of freedom

Multiple R-Squared: 0.8889 Adjusted R-squared: 0.875

F-statistic: 63.98 on 2 and 16 degrees of freedom, the p-value is 2.328e-008

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	LOGSC
LOGSC	-0.9930	
TBY	-0.5370	0.4676

Analysis of Variance Table

Response: LOGCA

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	0.5022349	0.5022349	106.1074	0.0000000182
TBY	1	0.1034350	0.1034350	21.8528	0.0002536761
Residuals	16	0.0757323	0.0047333		

Figure 49. S+® output of regression model development using specific conductance (SC) and turbidity (TBY) as explanatory variables for calcium (CA) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

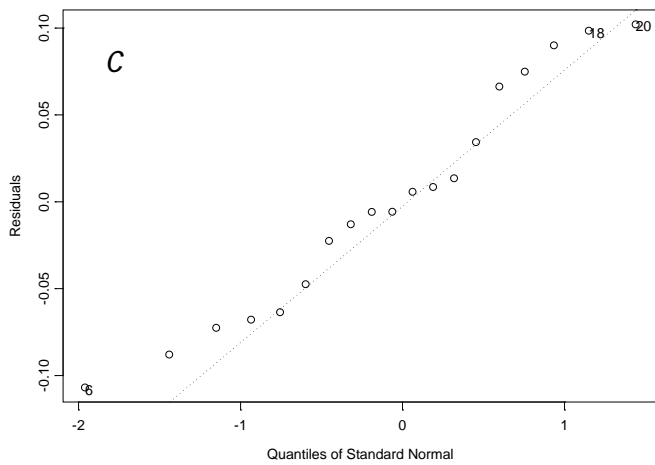
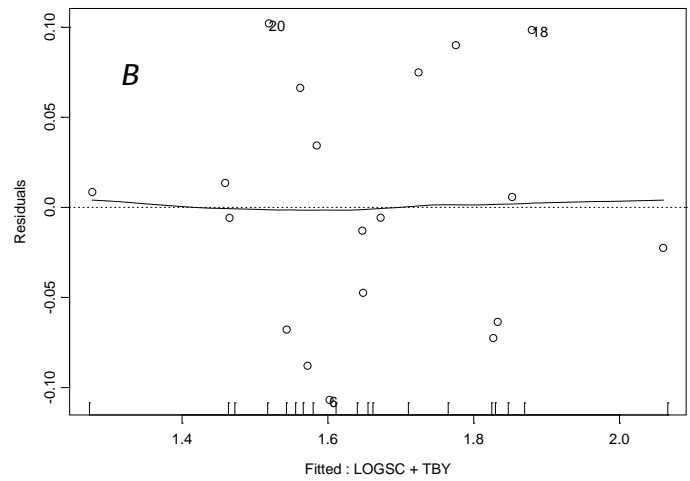
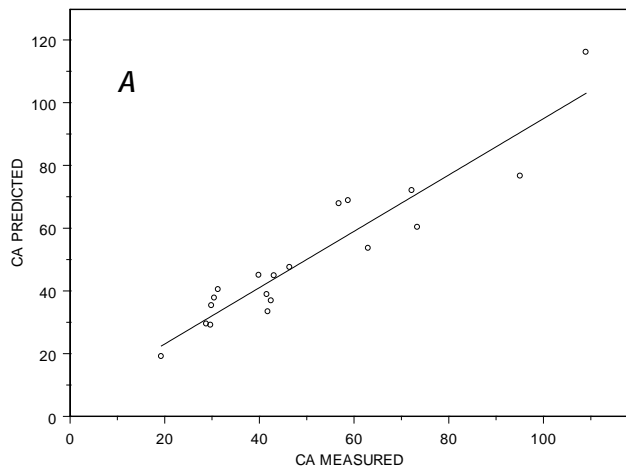


Figure 50. S+® output graphs from simple linear regression analysis using log-transformed specific conductance (SC) and turbidity (TBY) as explanatory variables for log-transformed calcium (CA) concentrations showing A, measured versus predicted CA concentrations; B, computed log-transformed CA concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

```

*** Linear Model ***

Call: lm(formula = LOGMG ~ LOGQ + LOGSC, data = MG.119.SPLUS, na.action = na.exclude
)
Residuals:
    Min       1Q   Median       3Q      Max
-0.169 -0.06301 -0.008162  0.05866  0.2129

Coefficients:
            Value Std. Error t value Pr(>|t|)
(Intercept) -0.3857   0.3123   -1.2350  0.2346
          LOGQ -0.1749   0.0312   -5.6065  0.0000
          LOGSC  0.5234   0.1014    5.1633  0.0001

Residual standard error: 0.1092 on 16 degrees of freedom
Multiple R-Squared:  0.9296    Adjusted R-squared:  0.9208
F-statistic: 105.7 on 2 and 16 degrees of freedom, the p-value is 6.016e-010
1 observations deleted due to missing values

Correlation of Coefficients:
      (Intercept)      LOGQ
LOGQ  -0.7847
LOGSC -0.9923      0.7255

Analysis of Variance Table

Response: LOGMG

Terms added sequentially (first to last)
      Df Sum of Sq  Mean Sq  F Value    Pr(F)
LOGQ   1  2.203889  2.203889  184.6959 0.000000000033
LOGSC   1  0.318120  0.318120   26.6599 0.00009428451
Residuals 16  0.190920  0.011933

```

Figure 51. S+® output of regression model development using streamflow (Q) and specific conductance (SC) as explanatory variables for magnesium (MG) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

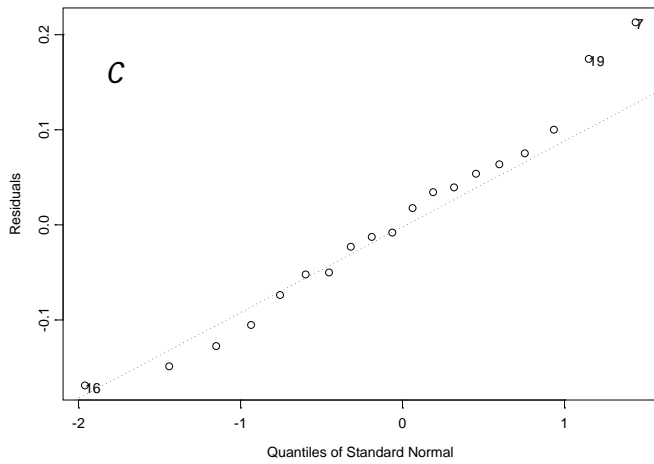
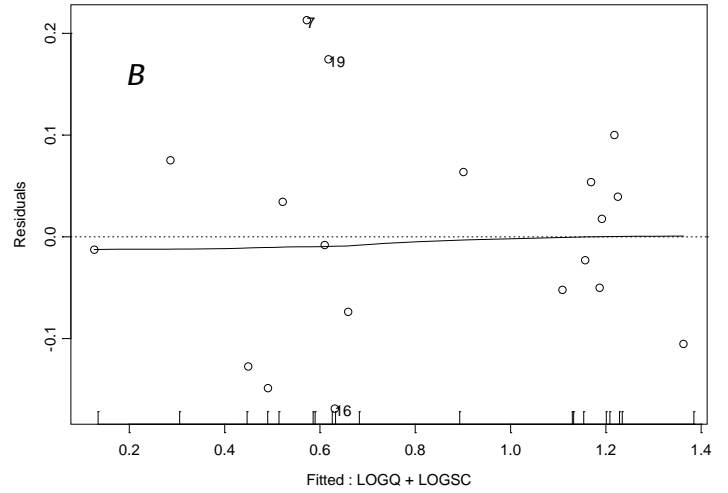
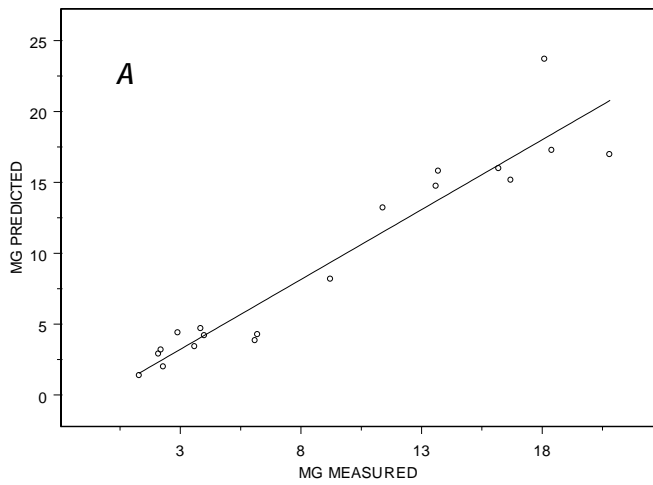


Figure 52. S+® output graphs from simple linear regression analysis using log-transformed streamflow (Q) and log-transformed specific conductance (SC) as explanatory variables for log-transformed magnesium (MG) concentrations showing A, measured versus predicted MG concentrations; B, computed log-transformed MG concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

```

*** Linear Model ***

Call: lm(formula = LOGMG ~ LOGSC + LOGTBY, data = MG.COLL.SPLUS, na.action =
na.exclude)
Residuals:
    Min       1Q   Median       3Q      Max
-0.1291 -0.06931  0.002869  0.08277  0.1166

Coefficients:
            Value Std. Error t value Pr(>|t|)
(Intercept) -0.7042  0.3456   -2.0377  0.0609
      LOGSC  0.6476  0.1086    5.9627  0.0000
      LOGTBY -0.1672  0.0340   -4.9175  0.0002

Residual standard error: 0.09413 on 14 degrees of freedom
Multiple R-Squared:  0.937    Adjusted R-squared:  0.928
F-statistic: 104.1 on 2 and 14 degrees of freedom, the p-value is 3.952e-009

Correlation of Coefficients:
      (Intercept)  LOGSC
LOGSC -0.9925
LOGTBY -0.7818    0.7152

Analysis of Variance Table

Response: LOGMG

Terms added sequentially (first to last)
      Df Sum of Sq Mean Sq F Value Pr(F)
LOGSC  1  1.629747  1.629747 183.9382 0.0000000019
LOGTBY  1  0.214260  0.214260  24.1821 0.0002267572
Residuals 14  0.124044  0.008860

```

Figure 53. S+® output of regression model development using specific conductance (SC) and turbidity (TBY) as explanatory variables for magnesium (MG) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

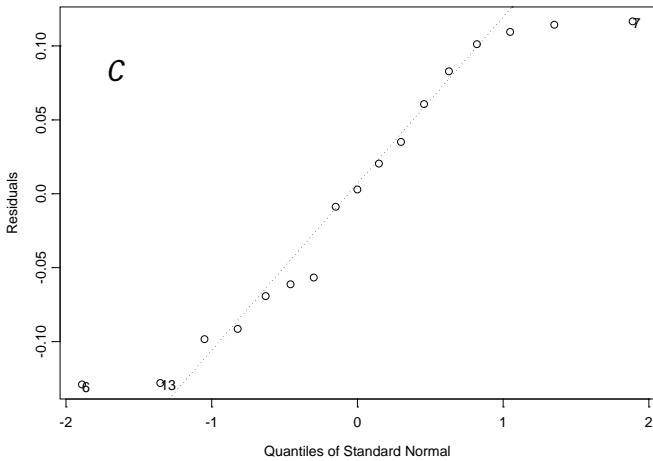
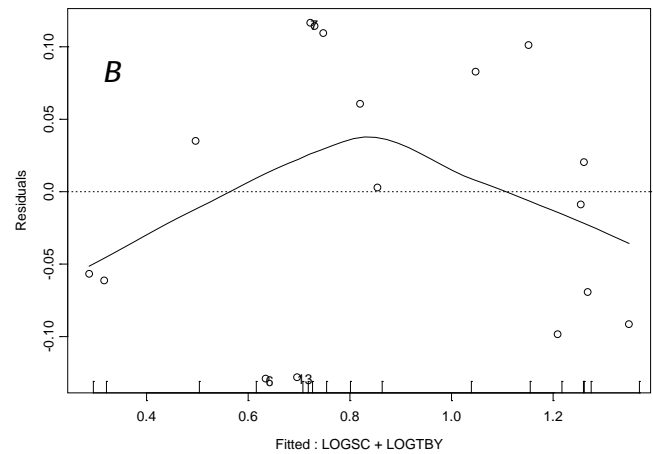
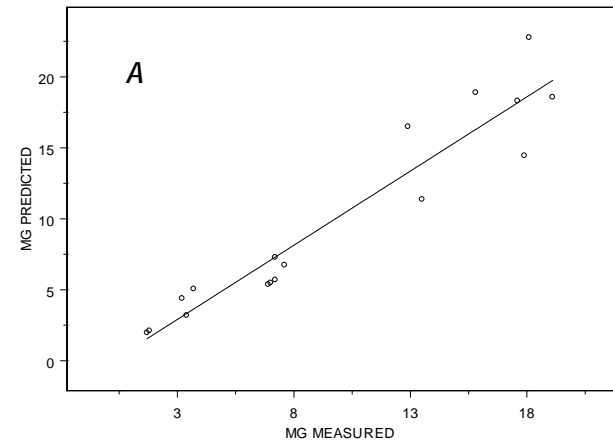


Figure 54. S+® output graphs from simple linear regression analysis using log-transformed specific conductance (SC) and log-transformed turbidity (TBY) as explanatory variables for log-transformed magnesium (MG) concentrations showing *A*, measured versus predicted MG concentrations; *B*, computed log-transformed MG concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGMG ~ LOGSC + LOGTBY, data = MG.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1369	-0.05468	0.02653	0.04322	0.1108

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.5777	0.2769	-2.0863	0.0557
LOGSC	0.5962	0.0857	6.9605	0.0000
LOGTBY	-0.1322	0.0287	-4.5995	0.0004

Residual standard error: 0.07865 on 14 degrees of freedom

Multiple R-squared: 0.9454 Adjusted R-squared: 0.9377

F-statistic: 121.3 on 2 and 14 degrees of freedom, the p-value is 1.438e-009

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	LOGSC
LOGSC	-0.9913	
LOGTBY	-0.7942	0.7228

Analysis of Variance Table

Response: LOGMG

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	1.370116	1.370116	221.4734	0.0000000006
LOGTBY	1	0.130872	0.130872	21.1550	0.0004128922
Residuals	14	0.086609	0.006186		

Figure 55. S+® output of regression model development using specific conductance (SC) and turbidity (TBY) as explanatory variables for magnesium (MG) for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through April 2013.

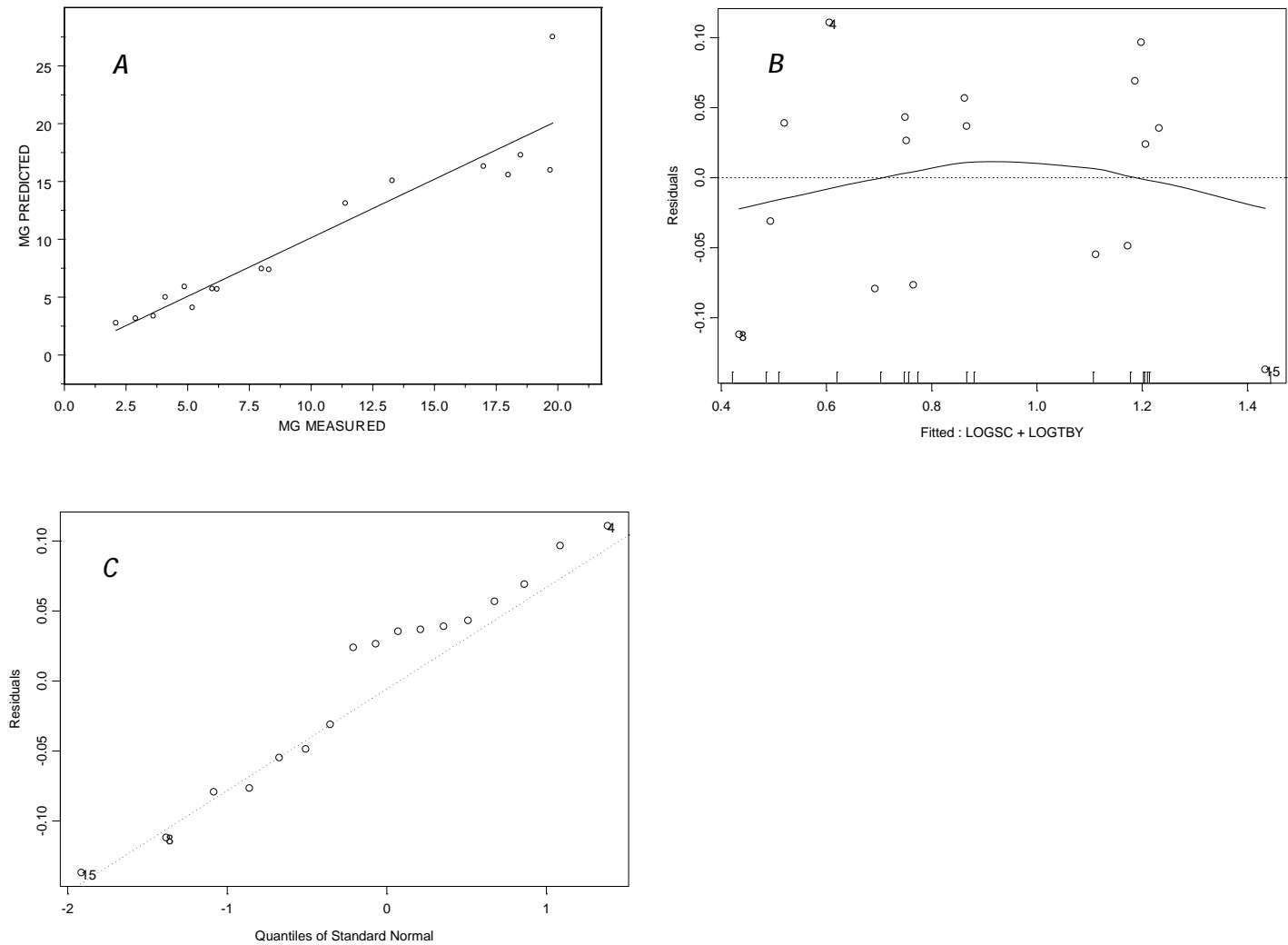


Figure 56. S+® output graphs from simple linear regression analysis using log-transformed specific conductance (SC) and log-transformed turbidity (TBY) as explanatory variables for log-transformed magnesium (MG) concentrations showing *A*, measured versus predicted MG concentrations; *B*, computed log-transformed MG concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through April 2013.

*** Linear Model ***

Call: lm(formula = LOGMG ~ LOGSC + LOGTBY, data = MG.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1315	-0.04649	0.003624	0.0653	0.103

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.4402	0.2193	-2.0073	0.0631
LOGSC	0.5549	0.0671	8.2674	0.0000
LOGTBY	-0.1613	0.0269	-5.9912	0.0000

Residual standard error: 0.07527 on 15 degrees of freedom

Multiple R-Squared: 0.9467 Adjusted R-squared: 0.9396

F-statistic: 133.1 on 2 and 15 degrees of freedom, the p-value is 2.836e-010

438 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	LOGSC
LOGSC	-0.9868	
LOGTBY	-0.7180	0.6159

Analysis of Variance Table

Response: LOGMG

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	1.304930	1.304930	230.3331	0.00000000016
LOGTBY	1	0.203355	0.203355	35.8941	0.00002471771
Residuals	15	0.084981	0.005665		

Figure 57. S+® output of regression model development using specific conductance (SC) and turbidity (TBY) as explanatory variables for magnesium (MG) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

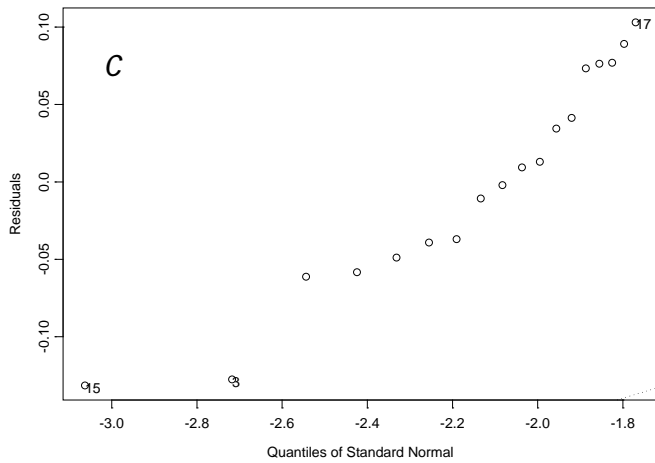
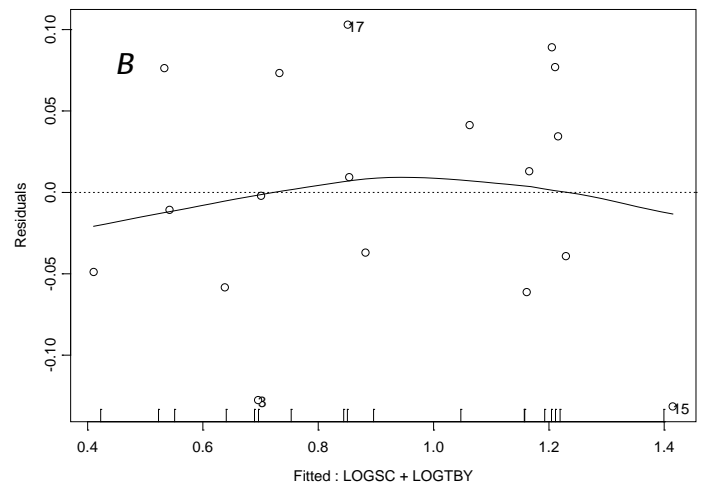
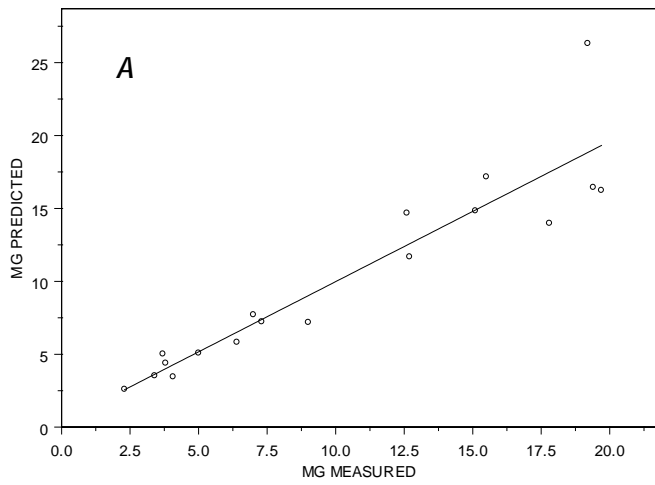


Figure 58. S+® output graphs from simple linear regression analysis using log-transformed specific conductance (SC) and log-transformed turbidity (TBY) as explanatory variables for log-transformed magnesium (MG) concentrations showing *A*, measured versus predicted MG concentrations; *B*, computed log-transformed MG concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

```

*** Linear Model ***

Call: lm(formula = LOGMG ~ LOGSC + LOGTBY, data = MG.TOM.SPLUS, na.action =
na.exclude)

Residuals:
    Min       1Q   Median       3Q      Max
-0.1014 -0.04259  0.01612  0.03541  0.1039

Coefficients:
            Value Std. Error t value Pr(>|t|)
(Intercept) -0.3311   0.1747   -1.8947  0.0790
      LOGSC   0.5241   0.0565    9.2739  0.0000
      LOGTBY -0.1453   0.0178   -8.1483  0.0000

Residual standard error: 0.05855 on 14 degrees of freedom
Multiple R-Squared:  0.9553    Adjusted R-squared:  0.949
F-statistic: 149.7 on 2 and 14 degrees of freedom, the p-value is 3.547e-010

Correlation of Coefficients:
      (Intercept)  LOGSC
LOGSC  -0.9918
LOGTBY -0.5746    0.4924

Analysis of Variance Table

Response: LOGMG

Terms added sequentially (first to last)
      Df Sum of Sq  Mean Sq  F Value    Pr(F)
LOGSC  1  0.7989818  0.7989818  233.0391 4.030000e-010
LOGTBY  1  0.2276362  0.2276362   66.3947 1.105126e-006
Residuals 14  0.0479994  0.0034285

```

Figure 59. S+® output of regression model development using specific conductance (SC) and turbidity (TBY) as explanatory variables for magnesium (MG) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through April 2013.

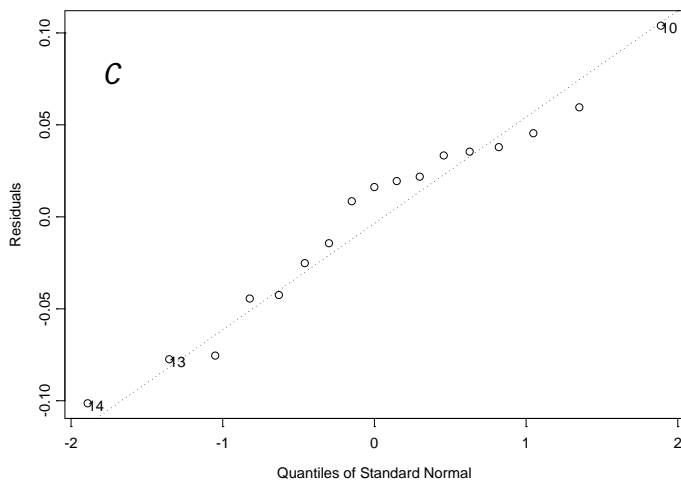
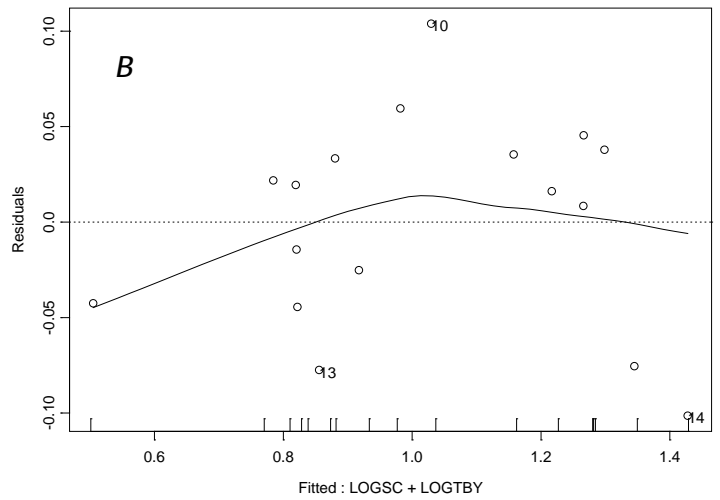
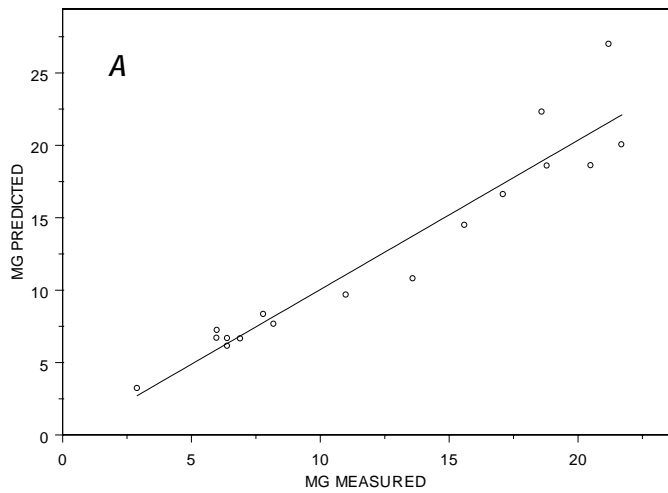


Figure 60. S+® output graphs from simple linear regression analysis using log-transformed specific conductance (SC) and log-transformed turbidity (TBY) as explanatory variables for log-transformed magnesium (MG) concentrations showing *A*, measured versus predicted MG concentrations; *B*, computed log-transformed MG concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through April 2013.

*** Linear Model ***

Call: lm(formula = MG ~ LOGSC + LOGTBY, data = MG.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-11.14	-0.7585	0.3229	0.9996	4.365

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-18.8423	4.5165	-4.1719	0.0001
LOGSC	11.2784	1.3775	8.1874	0.0000
LOGTBY	-2.3409	0.5212	-4.4918	0.0000

Residual standard error: 2.463 on 50 degrees of freedom

Multiple R-Squared: 0.8252 Adjusted R-squared: 0.8182

F-statistic: 118 on 2 and 50 degrees of freedom, the p-value is 0

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	LOGSC
LOGSC	-0.9856	
LOGTBY	-0.7587	0.6534

Analysis of Variance Table

Response: MG

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	1310.049	1310.049	215.8923	0.000000000000
LOGTBY	1	122.431	122.431	20.1762	0.00004185235
Residuals	50	303.403	6.068		

Figure 61. S+® output of regression model development using specific conductance (SC) and turbidity (TBY) as explanatory variables for magnesium (MG) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

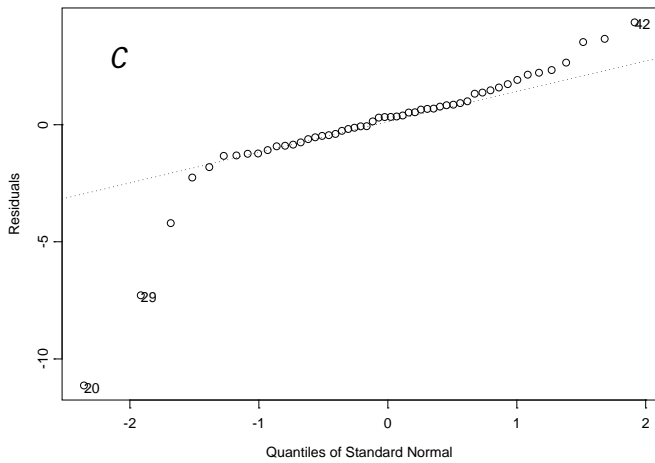
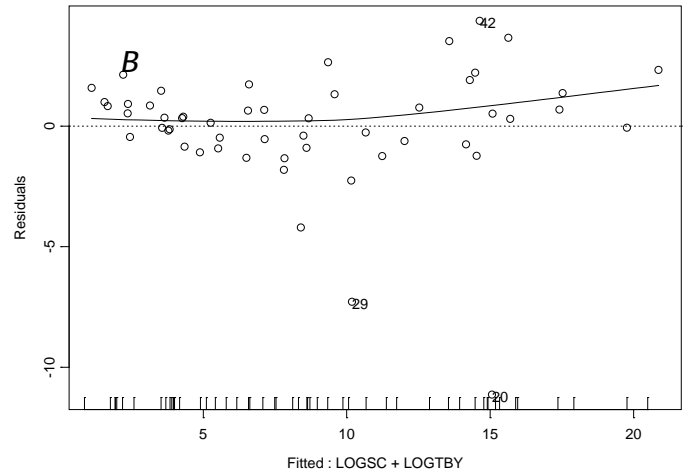
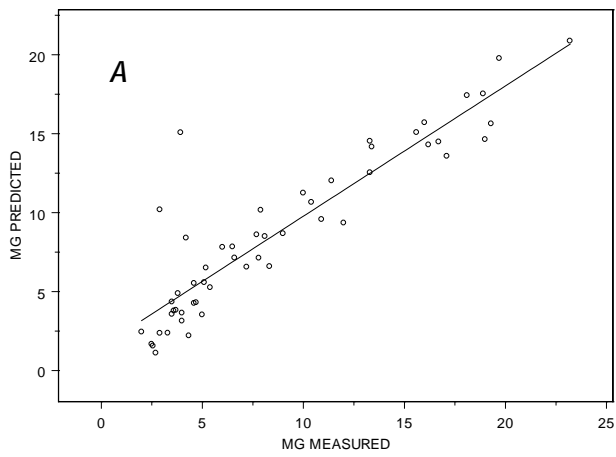


Figure 62. S+® output graphs from simple linear regression analysis using log-transformed specific conductance (SC) and log-transformed turbidity (TBY) as explanatory variables for magnesium (MG) concentrations showing A, measured versus predicted MG concentrations; B, computed MG concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = MG ~ LOGSC, data = MG.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-11.44	-0.9245	0.2968	0.9984	5.724

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-32.9158	4.2238	-7.7928	0.0000
LOGSC	14.7681	1.5059	9.8067	0.0000

Residual standard error: 3.014 on 32 degrees of freedom

Multiple R-Squared: 0.7503 Adjusted R-squared: 0.7425

F-statistic: 96.17 on 1 and 32 degrees of freedom, the p-value is 3.647e-011

Correlation of Coefficients:

(Intercept)	
LOGSC	-0.9925

Analysis of Variance Table

Response: MG

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	873.6768	873.6768	96.1721	3.646627e-011
Residuals	32	290.7045	9.0845		

Figure 63. S+® output of regression model development using specific conductance (SC) as the explanatory variable for magnesium (MG) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

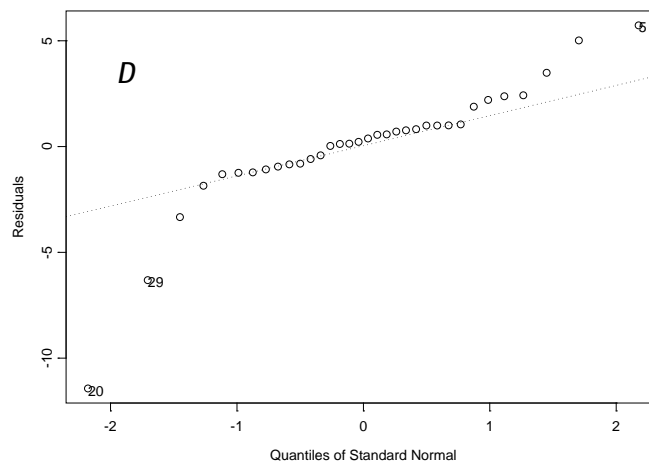
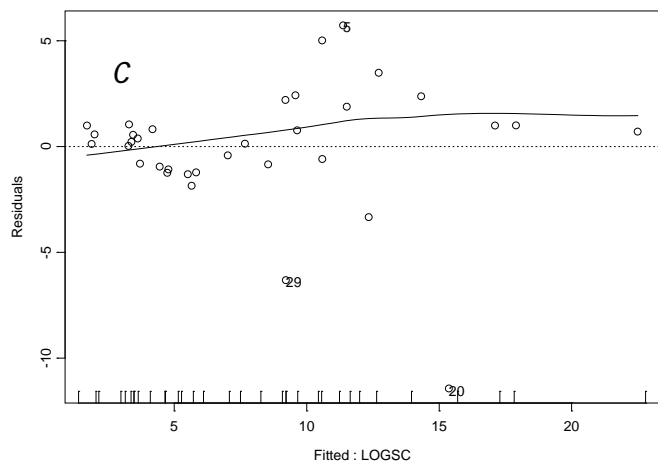
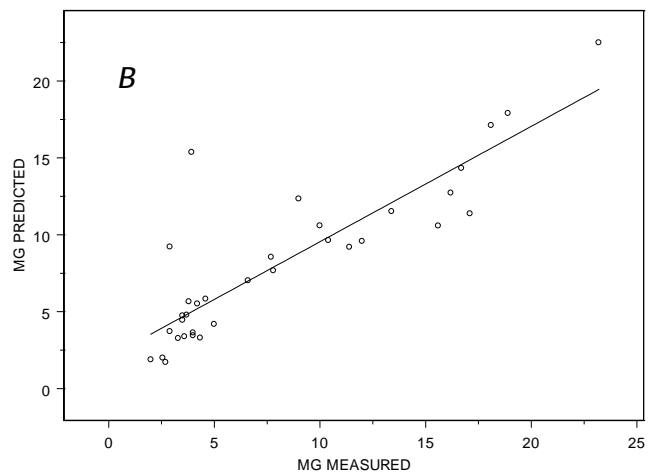
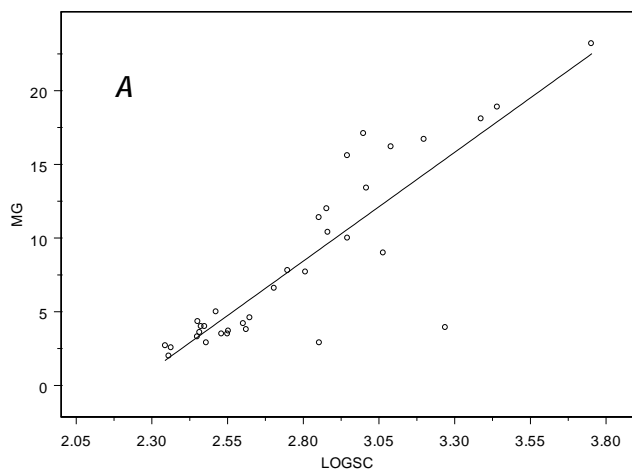


Figure 64. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus magnesium (MG) concentrations; *B*, measured versus predicted MG concentrations; *C*, computed MG concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = LOGMG ~ LOGTBY, data = MG.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.2777	-0.07689	-0.01619	0.115	0.1975

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.3078	0.0711	18.3967	0.0000
LOGTBY	-0.2401	0.0387	-6.2090	0.0000

Residual standard error: 0.1432 on 17 degrees of freedom

Multiple R-Squared: 0.694 Adjusted R-squared: 0.676

F-statistic: 38.55 on 1 and 17 degrees of freedom, the p-value is 9.527e-006

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGTBY	-0.8869

Analysis of Variance Table

Response: LOGMG

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	0.7901191	0.7901191	38.5512	9.527467e-006
Residuals	17	0.3484204	0.0204953		

Figure 65. S+® output of regression model development using turbidity (TBY) as an explanatory variable for magnesium (MG) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

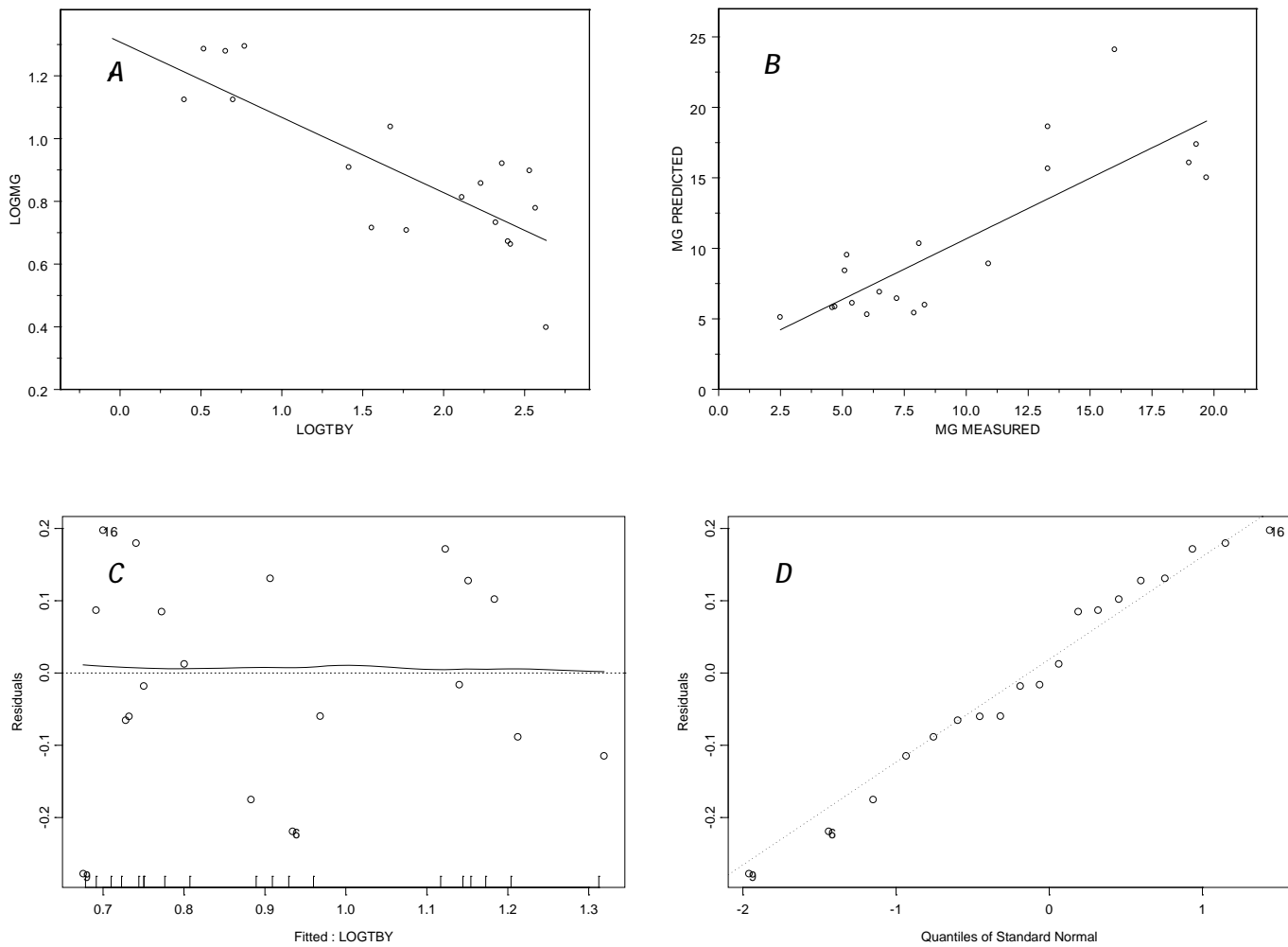


Figure 66. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed magnesium (MG) concentrations; *B*, measured versus predicted MG concentrations; *C*, computed MG concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = K ~ LOGQ, data = K.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.8259	-0.5555	-0.009618	0.4188	1.413

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	3.7449	0.2475	15.1301	0.0000
LOGQ	-0.5324	0.1376	-3.8685	0.0012

Residual standard error: 0.7001 on 17 degrees of freedom

Multiple R-Squared: 0.4682 Adjusted R-squared: 0.4369

F-statistic: 14.97 on 1 and 17 degrees of freedom, the p-value is 0.001233

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.7609

Analysis of Variance Table

Response: K

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	7.334505	7.334505	14.96526	0.001233175
Residuals	17	8.331737	0.490102		

Figure 67. S+® output of regression model development using streamflow (Q) as the explanatory variable for potassium (K) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

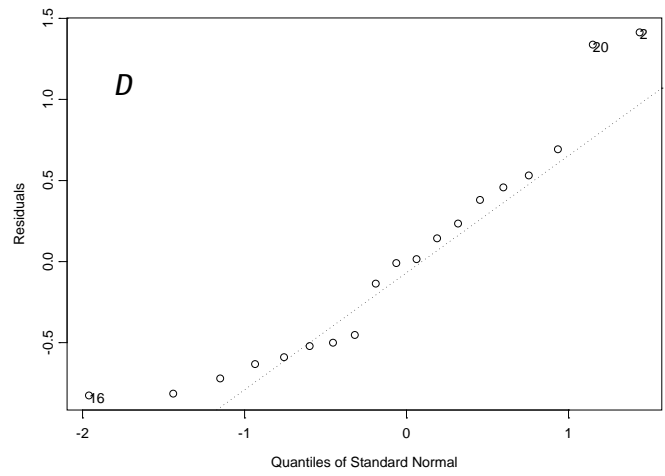
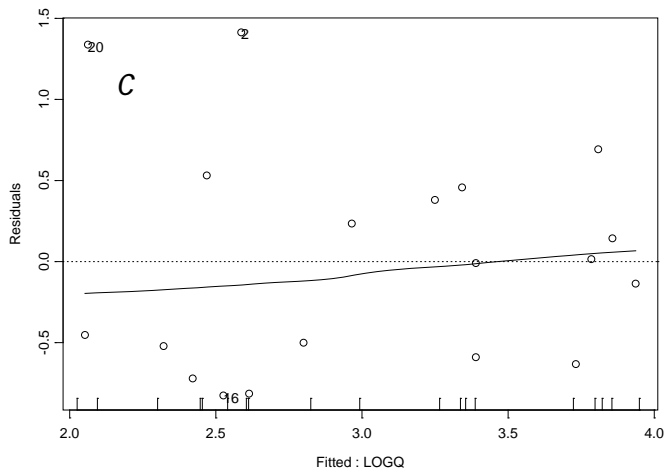
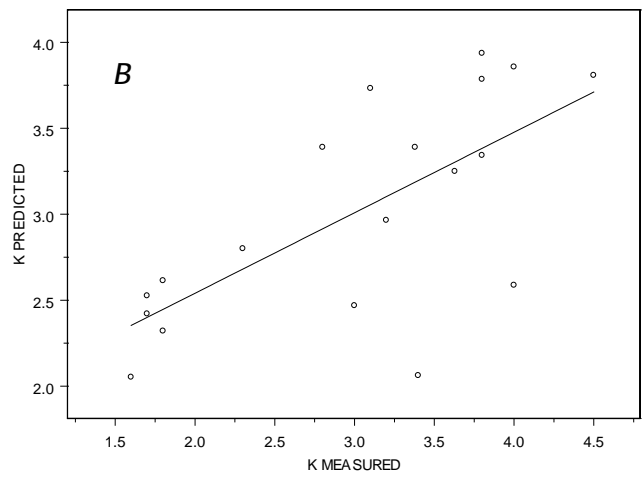
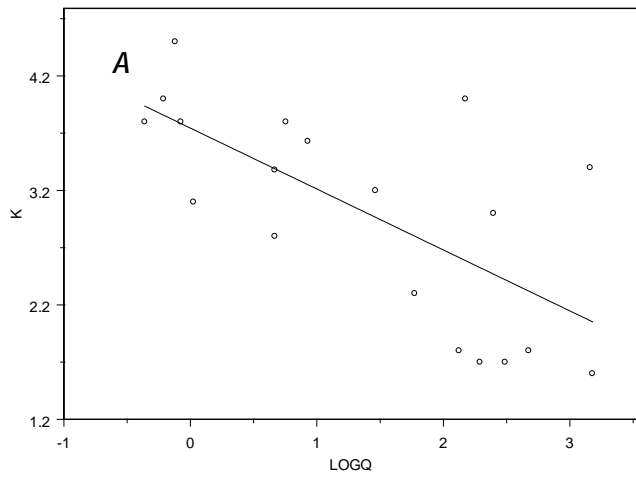


Figure 68. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus potassium (K) concentrations; *B*, measured versus predicted K concentrations; *C*, computed K concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGK ~ Q + LOGQ, data = K.COLLSPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.08643	-0.06977	0.005228	0.04501	0.1981

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.8935	0.0766	24.7346	0.0000
Q	0.0003	0.0001	5.4628	0.0001
LOGQ	-0.6092	0.0462	-13.1993	0.0000

Residual standard error: 0.08111 on 14 degrees of freedom

Multiple R-Squared: 0.9541 Adjusted R-squared: 0.9475

F-statistic: 145.4 on 2 and 14 degrees of freedom, the p-value is 4.305e-010

Correlation of Coefficients:

	(Intercept)	Q
Q	0.7174	
LOGQ	-0.9516	-0.8478

Analysis of Variance Table

Response: LOGK

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
Q	1	0.767499	0.767499	116.6603	3.567989e-008
LOGQ	1	1.146185	1.146185	174.2206	2.728850e-009
Residuals	14	0.092105	0.006579		

Figure 69. S+® output of regression model development using streamflow (Q) as an explanatory variable for potassium (K) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

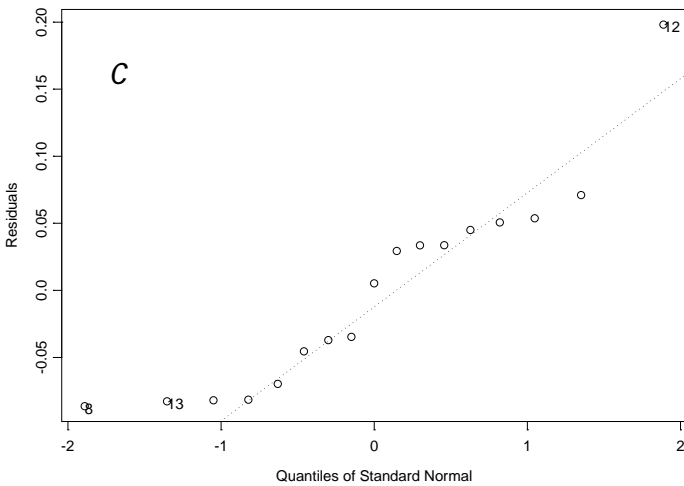
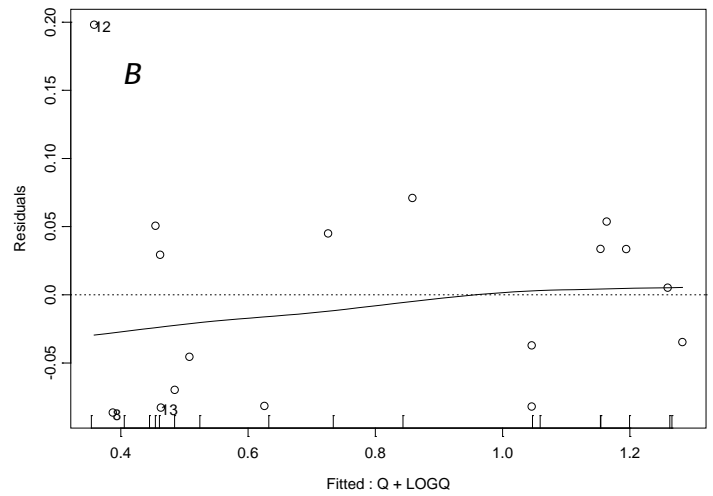
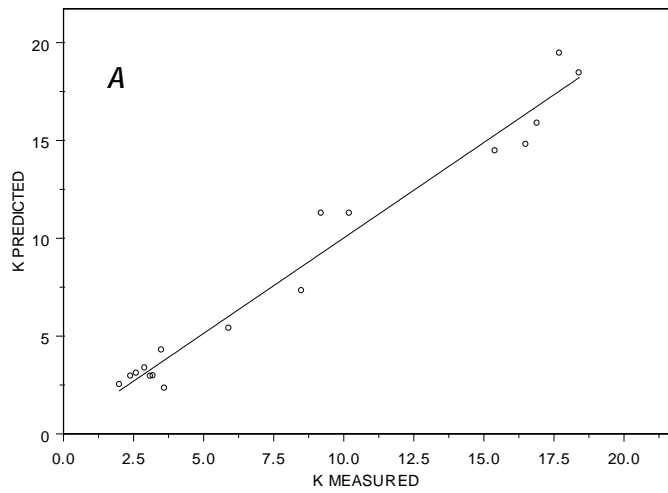


Figure 70. S+® output graphs from simple linear regression analysis using streamflow (Q) and log-transformed Q as explanatory variables for log-transformed potassium (K) concentrations showing *A*, measured versus predicted K concentrations; *B*, computed log-transformed K concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGK ~ LOGQ, data = K.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.2198	-0.07468	-0.02531	0.04213	0.3271

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.5480	0.0899	17.2140	0.0000
LOGQ	-0.3721	0.0417	-8.9308	0.0000

Residual standard error: 0.1347 on 16 degrees of freedom

Multiple R-Squared: 0.8329 Adjusted R-squared: 0.8225

F-statistic: 79.76 on 1 and 16 degrees of freedom, the p-value is 1.293e-007

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9356

Analysis of Variance Table

Response: LOGK

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	1.446472	1.446472	79.75962	1.292922e-007
Residuals	16	0.290166	0.018135		

Figure 71. S+® output of regression model development using streamflow (Q) as the explanatory variable for potassium (K) for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

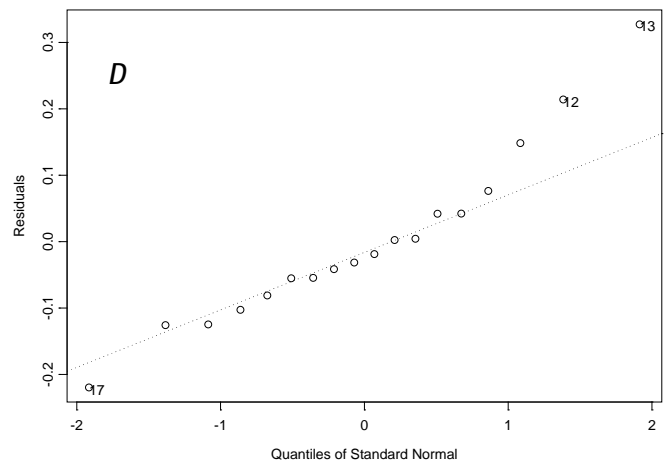
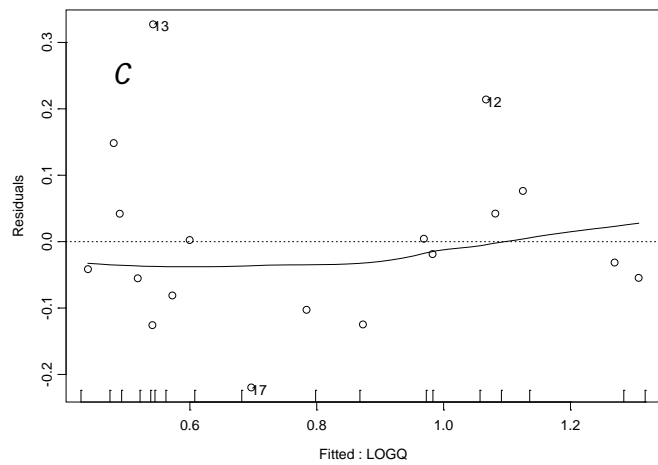
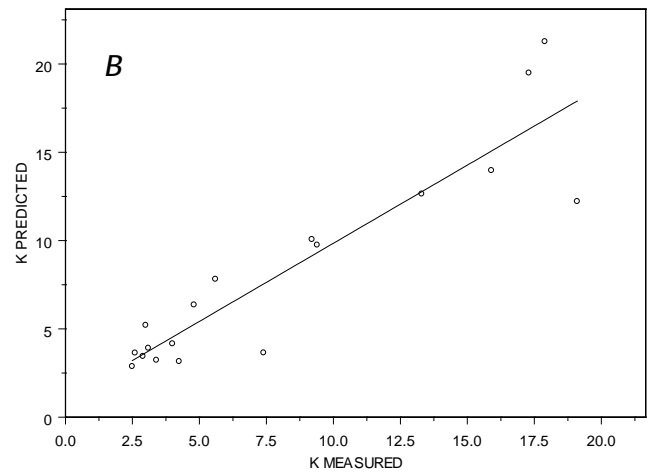
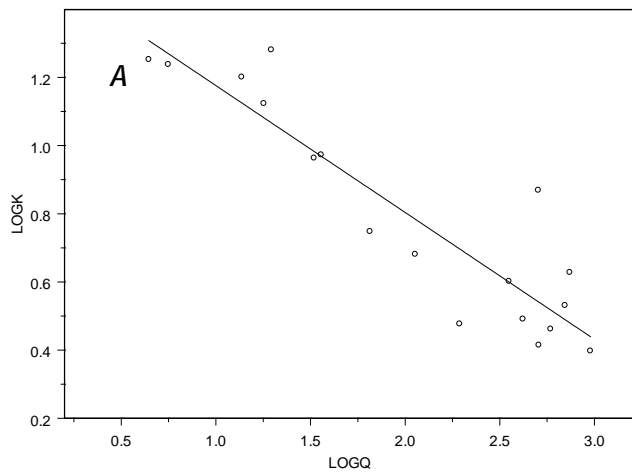


Figure 72. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus log-transformed potassium (K) concentrations; *B*, measured versus predicted K concentrations; *C*, computed log-transformed K concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGK ~ Q + LOGQ, data = K.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.2037	-0.06513	-0.01311	0.04834	0.2113

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.6481	0.0850	19.3976	0.0000
Q	0.0002	0.0001	3.6327	0.0025
LOGQ	-0.4720	0.0487	-9.6951	0.0000

Residual standard error: 0.1079 on 15 degrees of freedom

Multiple R-Squared: 0.8957 Adjusted R-squared: 0.8818

F-statistic: 64.4 on 2 and 15 degrees of freedom, the p-value is 4.342e-008

438 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	Q
Q	0.6047	
LOGQ	-0.9377	-0.7659

Analysis of Variance Table

Response: LOGK

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
Q	1	0.405020	0.405020	34.79644	0.00002922366
LOGQ	1	1.094084	1.094084	93.99590	0.00000007498
Residuals	15	0.174595	0.011640		

Figure 73. S+® output of regression model development using streamflow (Q) as an explanatory variable for potassium (K) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

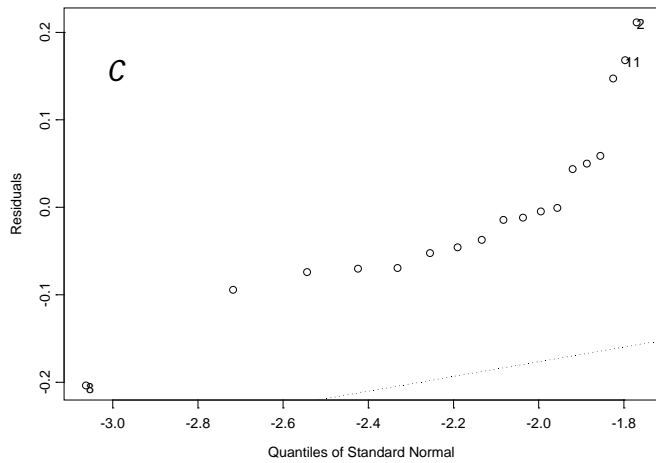
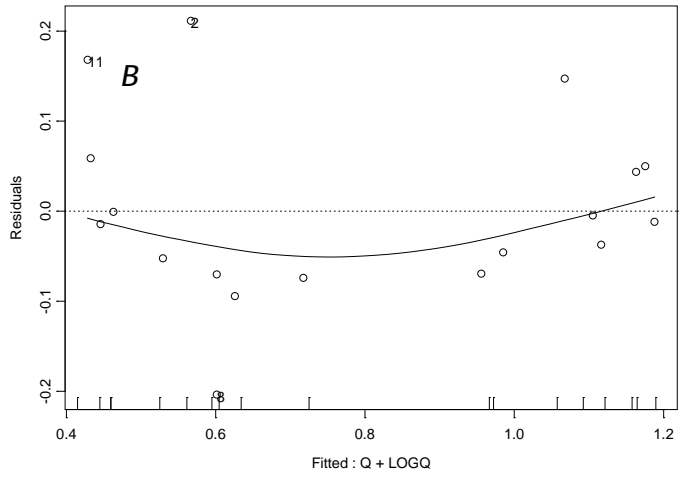
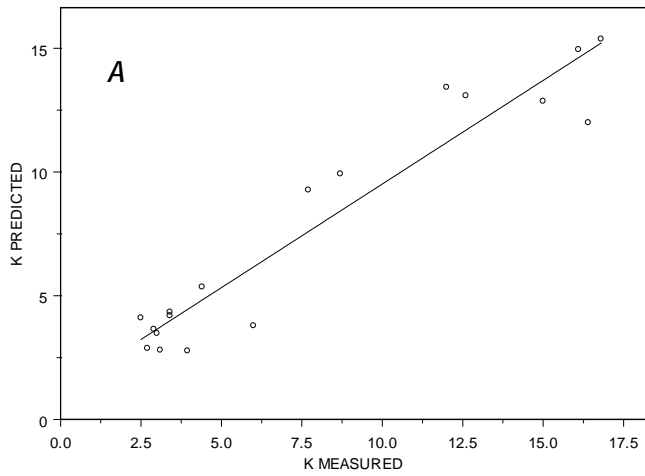


Figure 74. S+® output graphs from simple linear regression analysis using streamflow (Q) and log-transformed Q as explanatory variables for log-transformed potassium (K) concentrations showing *A*, measured versus predicted K concentrations; *B*, computed log-transformed K concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = K ~ SIN + COS + SC, data = K.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.6831	-0.1466	-0.03427	0.2839	0.6078

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	2.7568	0.1724	15.9939	0.0000
SIN	-0.9230	0.1494	-6.1761	0.0000
COS	-0.3195	0.1508	-2.1183	0.0540
SC	0.0007	0.0002	4.4825	0.0006

Residual standard error: 0.4031 on 13 degrees of freedom

Multiple R-Squared: 0.7823 Adjusted R-squared: 0.7321

F-statistic: 15.58 on 3 and 13 degrees of freedom, the p-value is 0.0001358

Correlation of Coefficients:

	(Intercept)	SIN	COS
SIN	0.1276		
COS	0.3232	0.0199	
SC	-0.8147	-0.2977	-0.3928

Analysis of Variance Table

Response: K

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SIN	1	4.302612	4.302612	26.48124	0.0001880
COS	1	0.024598	0.024598	0.15139	0.7035051
SC	1	3.264673	3.264673	20.09304	0.0006167
Residuals	13	2.112211	0.162478		

Figure 75. S+® output of regression model development using season (SIN and COS) and specific conductance (SC) as explanatory variables for potassium (K) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

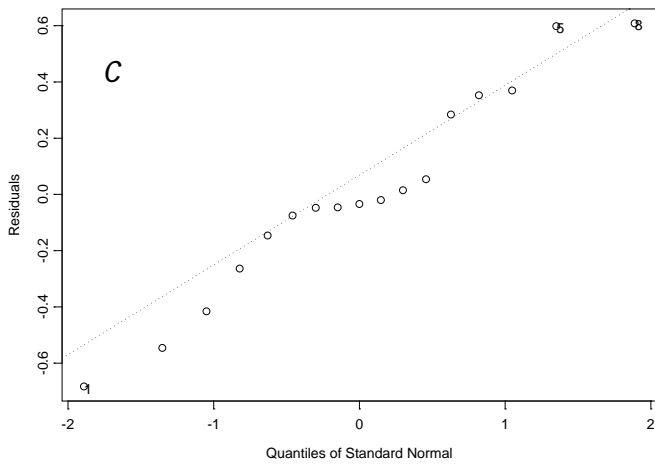
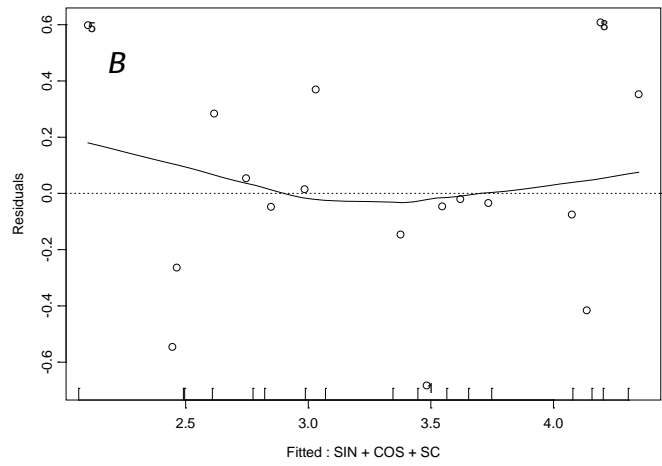
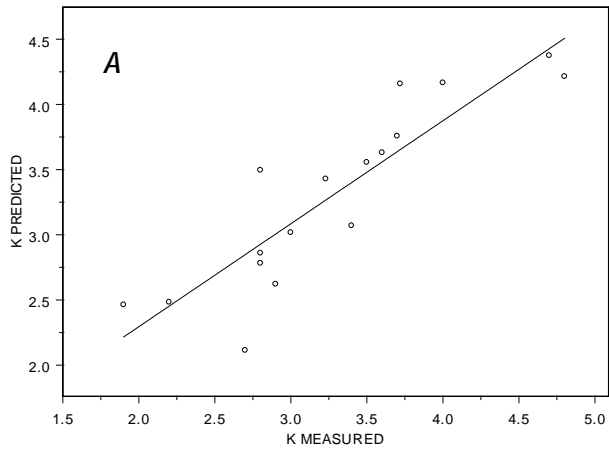


Figure 76. S+® output graphs from simple linear regression analysis using season (SIN and COS) and specific conductance (SC) as explanatory variables for potassium (K) concentrations showing *A*, measured versus predicted K concentrations; *B*, computed K concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGK ~ LOGTBY, data = K.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.3588	-0.08661	-0.02275	0.1027	0.3258

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.0484	0.0445	23.5601	0.0000
LOGTBY	-0.2055	0.0230	-8.9359	0.0000

Residual standard error: 0.1436 on 51 degrees of freedom

Multiple R-Squared: 0.6102 Adjusted R-squared: 0.6026

F-statistic: 79.85 on 1 and 51 degrees of freedom, the p-value is 5.17e-012

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGTBY	-0.8963

Analysis of Variance Table

Response: LOGK

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	1.647312	1.647312	79.85049	5.169531e-012
Residuals	51	1.052128	0.020630		

Figure 77. S+® output of regression model development using turbidity (TBY) as the explanatory variable for potassium (K) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

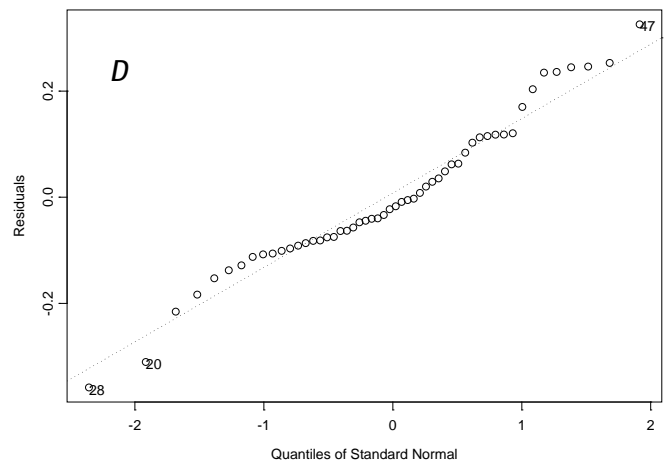
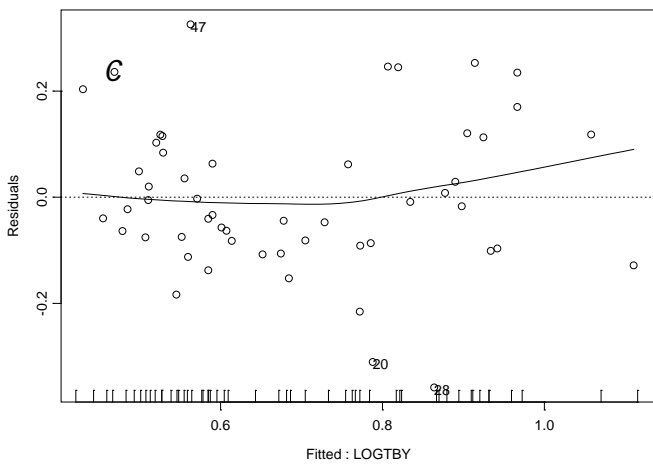
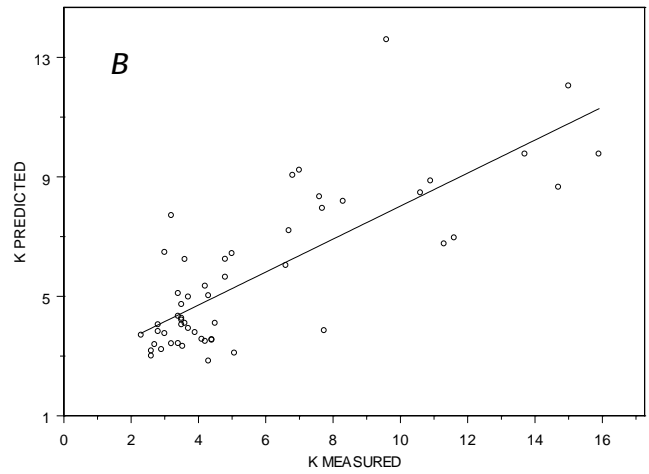
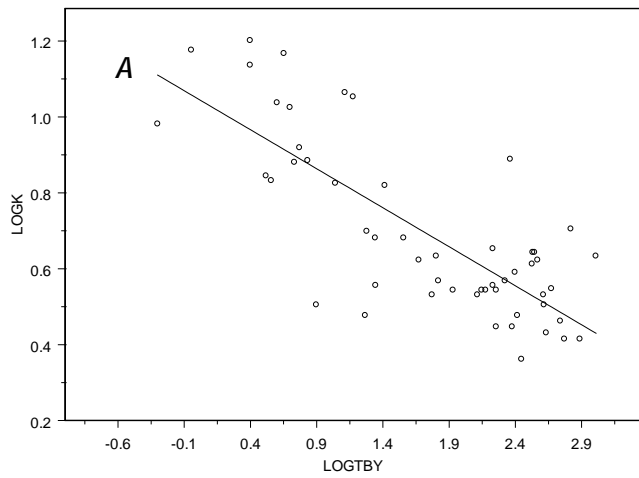


Figure 78. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed potassium (K) concentrations; *B*, measured versus predicted K concentrations; *C*, computed log-transformed K concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGK ~ SC + LOGTBY, data = K.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.3179	-0.05884	-0.007763	0.04349	0.2678

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.8619	0.0697	12.3622	0.0000
SC	0.0001	0.0000	2.5989	0.0142
LOGTBY	-0.1471	0.0297	-4.9552	0.0000

Residual standard error: 0.1331 on 31 degrees of freedom

Multiple R-Squared: 0.631 Adjusted R-squared: 0.6072

F-statistic: 26.5 on 2 and 31 degrees of freedom, the p-value is 1.948e-007

Correlation of Coefficients:

	(Intercept)	SC
SC	-0.6512	
LOGTBY	-0.9018	0.4414

Analysis of Variance Table

Response: LOGK

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SC	1	0.5039788	0.5039788	28.45000	0.00000824470
LOGTBY	1	0.4349555	0.4349555	24.55358	0.00002442243
Residuals	31	0.5491510	0.0177145		

Figure 79. S+® output of regression model development using specific conductance (SC) and turbidity (TBY) as explanatory variables for potassium (K) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

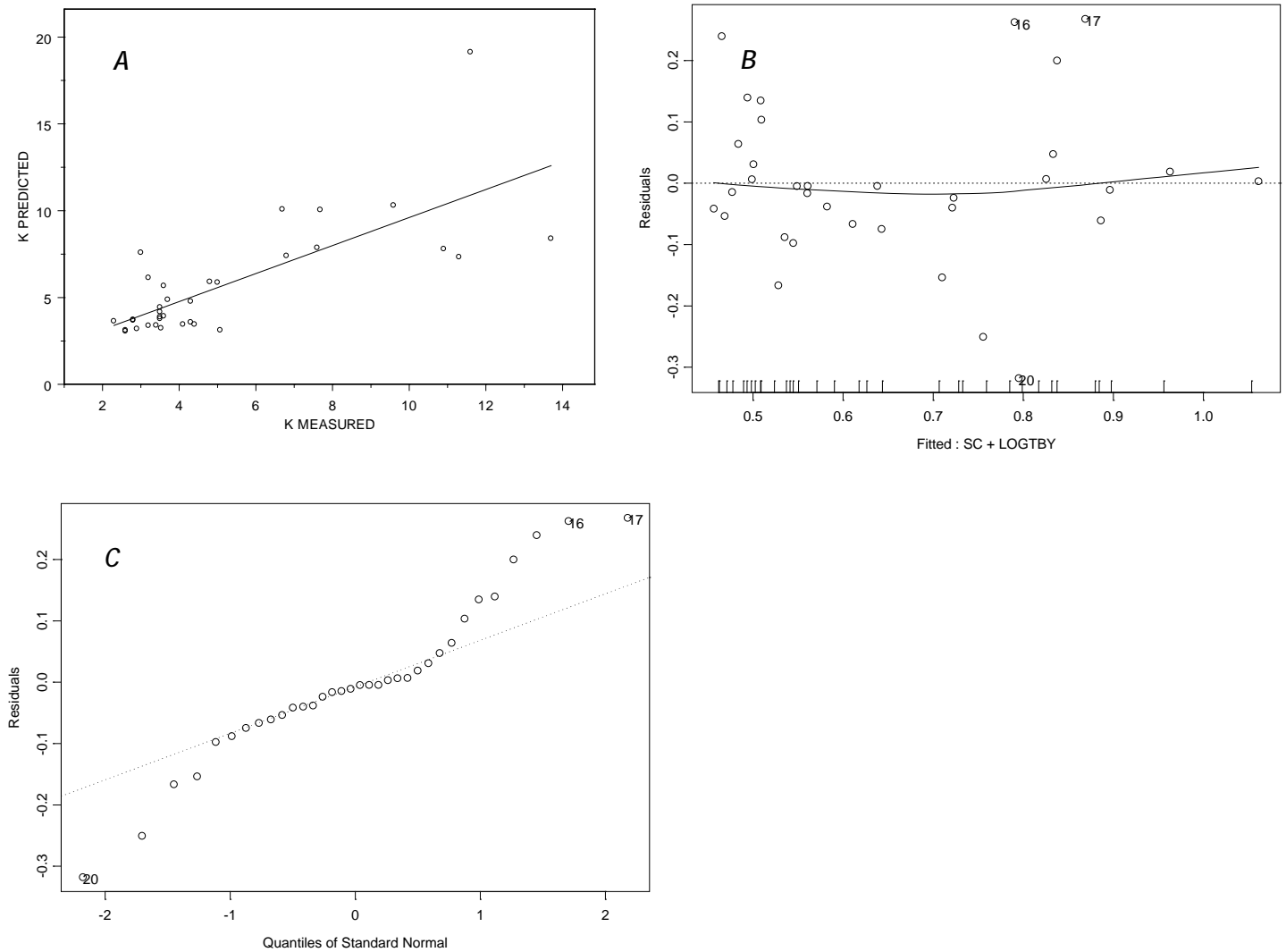


Figure 80. S+® output graphs from simple linear regression analysis using specific conductance (SC) and log-transformed turbidity (TBY) as explanatory variables for log-transformed potassium (K) concentrations showing *A*, measured versus predicted K concentrations; *B*, computed log-transformed K concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = K ~ Q + LOGQ, data = K.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-2.889	-1.743	0.1264	1.104	4.104

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	24.8255	2.4652	10.0704	0.0000
Q	0.0041	0.0014	2.8786	0.0104
LOGQ	-8.5381	1.3546	-6.3030	0.0000

Residual standard error: 2.074 on 17 degrees of freedom

Multiple R-Squared: 0.8153 Adjusted R-squared: 0.7936

F-statistic: 37.52 on 2 and 17 degrees of freedom, the p-value is 5.82e-007

Correlation of Coefficients:

	(Intercept)	Q
Q	0.7738	
LOGQ	-0.9650	-0.8888

Analysis of Variance Table

Response: K

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
Q	1	151.8703	151.8703	35.31382	0.00001606212
LOGQ	1	170.8552	170.8552	39.72832	0.00000794084
Residuals	17	73.1100	4.3006		

Figure 81. S+® output of regression model development using streamflow (Q) as an explanatory variable for potassium (K) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

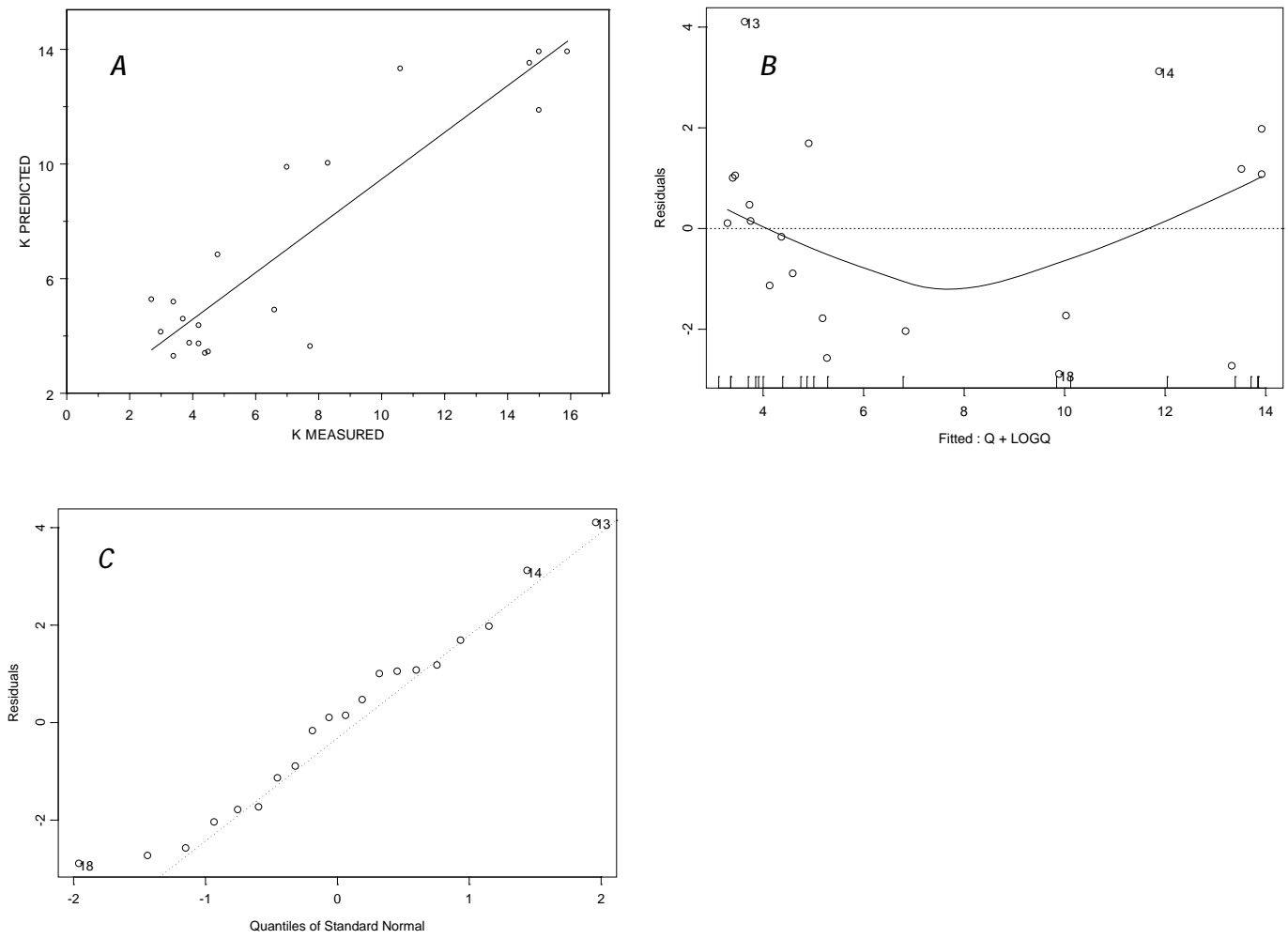


Figure 82. S+® output graphs from simple linear regression analysis using streamflow (Q) and log-transformed Q as explanatory variables for potassium (K) concentrations showing *A*, measured versus predicted K concentrations; *B*, computed K concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGNA ~ LOGSC, data = NA.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1589	-0.08359	-0.01915	0.05143	0.2411

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-1.8246	0.2018	-9.0397	0.0000
LOGSC	1.2802	0.0726	17.6453	0.0000

Residual standard error: 0.1142 on 18 degrees of freedom

Multiple R-Squared: 0.9453 Adjusted R-squared: 0.9423

F-statistic: 311.4 on 1 and 18 degrees of freedom, the p-value is 8.273e-013

Correlation of Coefficients:

(Intercept)
LOGSC -0.992

Analysis of Variance Table

Response: LOGNA

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	4.057620	4.057620	311.357	8.273382e-013
Residuals	18	0.234577	0.013032		

Figure 83. S+® output of regression model development using specific conductance (SC) as the explanatory variable for sodium (NA) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), June 2011 through May 2013.

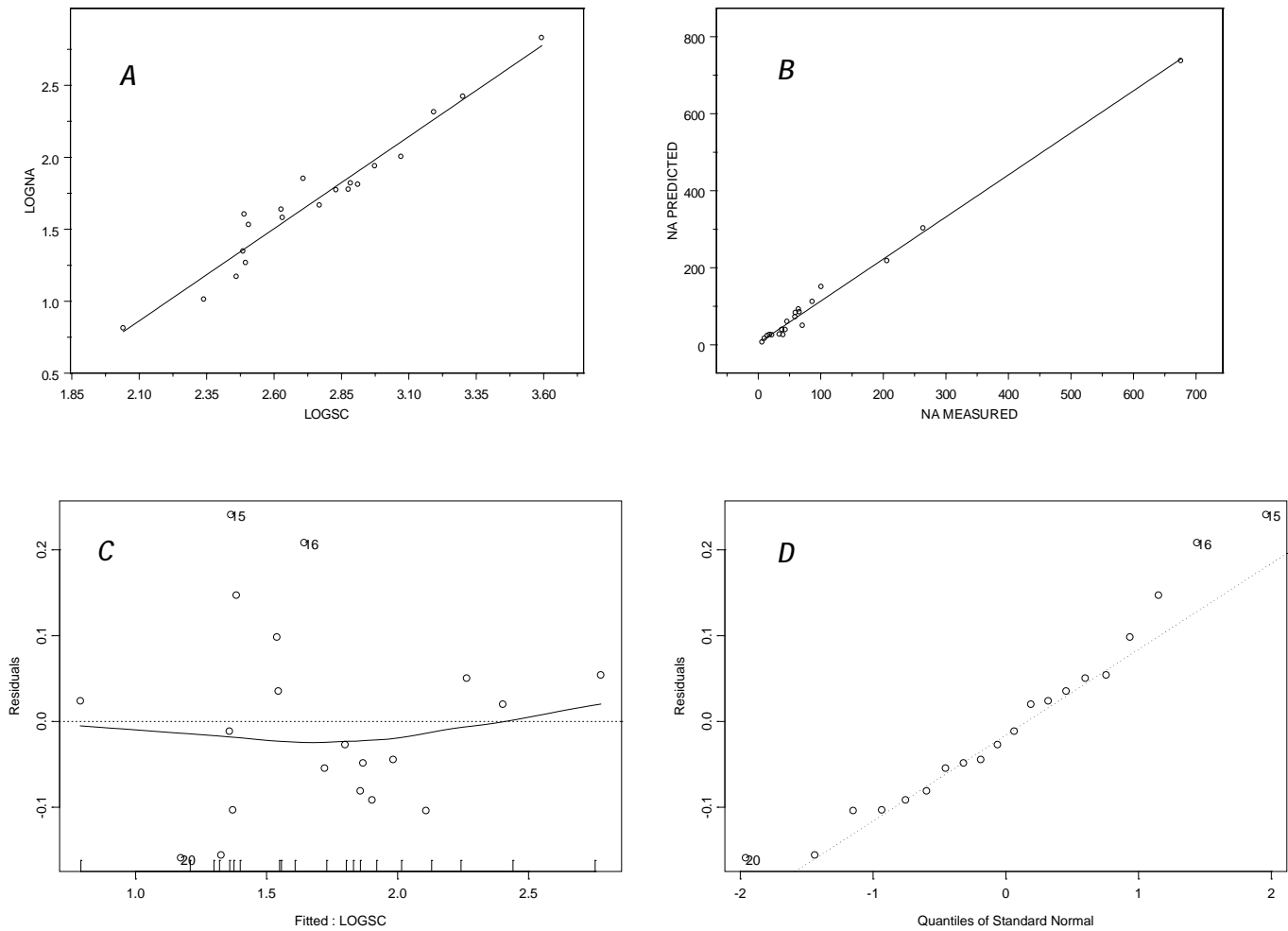


Figure 84. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed sodium (NA) concentrations; *B*, measured versus predicted NA concentrations; *C*, computed NA concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGNA ~ LOGSC, data = NA.COLL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1602	-0.02823	-0.01313	0.04054	0.1454

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-2.2408	0.1795	-12.4810	0.0000
LOGSC	1.4381	0.0632	22.7381	0.0000

Residual standard error: 0.07842 on 15 degrees of freedom

Multiple R-Squared: 0.9718 Adjusted R-squared: 0.9699

F-statistic: 517 on 1 and 15 degrees of freedom, the p-value is 4.879e-013

Correlation of Coefficients:

(Intercept)
LOGSC -0.9944

Analysis of Variance Table

Response: LOGNA

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	3.179794	3.179794	517.0223	4.87943e-013
Residuals	15	0.092253	0.006150		

Figure 85. S+® output of regression model development using specific conductance (SC) as the explanatory variable for sodium (NA) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

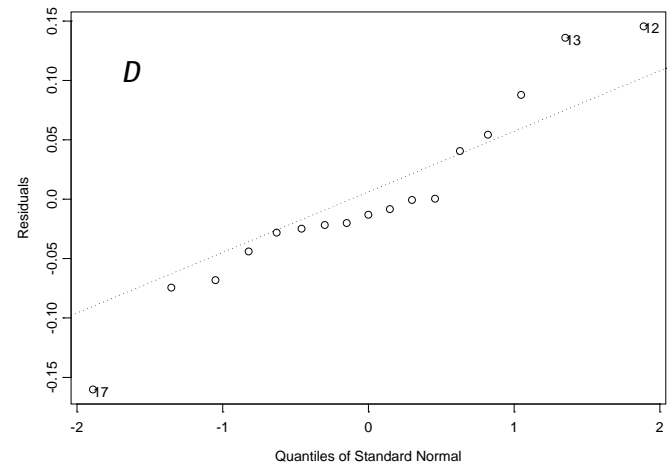
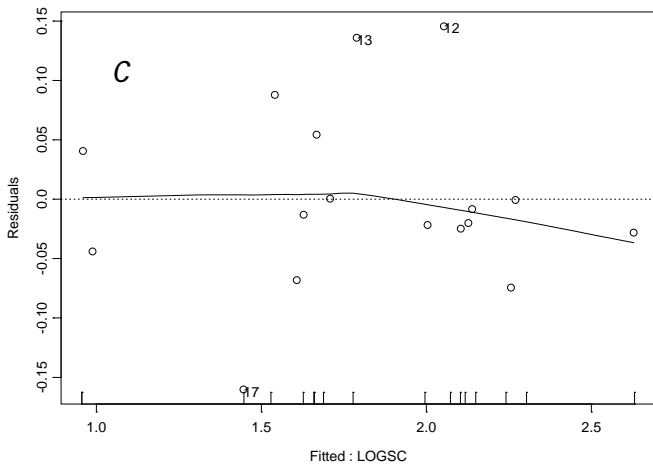
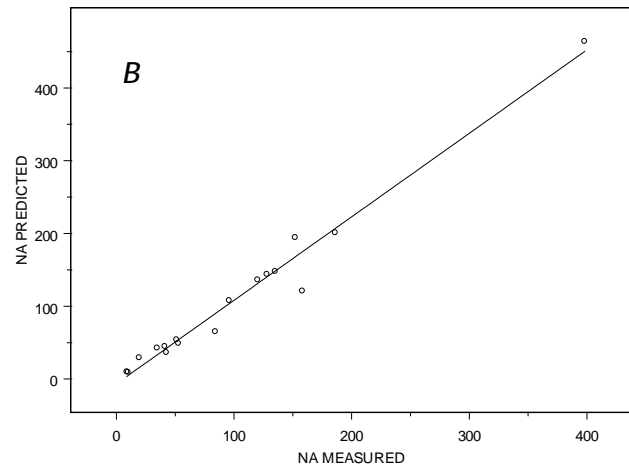
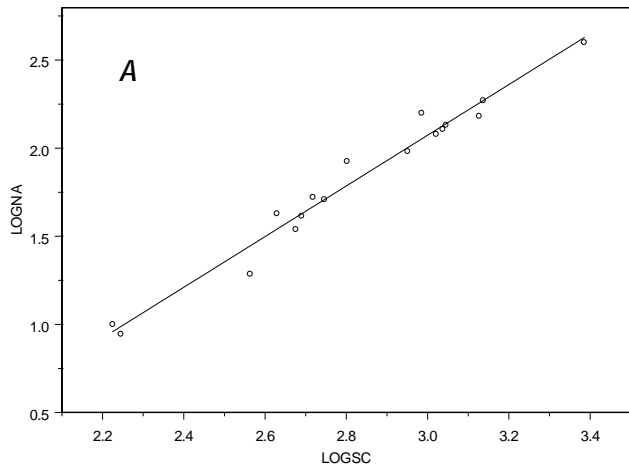


Figure 86. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed sodium (NA) concentrations; *B*, measured versus predicted NA concentrations; *C*, computed NA concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGNA ~ LOGSC, data = NA.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1364	-0.02374	-0.002101	0.02162	0.1586

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-1.8722	0.1335	-14.0206	0.0000
LOGSC	1.3115	0.0472	27.7997	0.0000

Residual standard error: 0.06339 on 16 degrees of freedom

Multiple R-Squared: 0.9797 Adjusted R-squared: 0.9784

F-statistic: 772.8 on 1 and 16 degrees of freedom, the p-value is 5.662e-015

Correlation of Coefficients:

(Intercept)
LOGSC -0.9937

Analysis of Variance Table

Response: LOGNA

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	3.105809	3.105809	772.8256	5.662137e-015
Residuals	16	0.064300	0.004019		

Figure 87. S+® output of regression model development using specific conductance (SC) as the explanatory variable for sodium (NA) for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

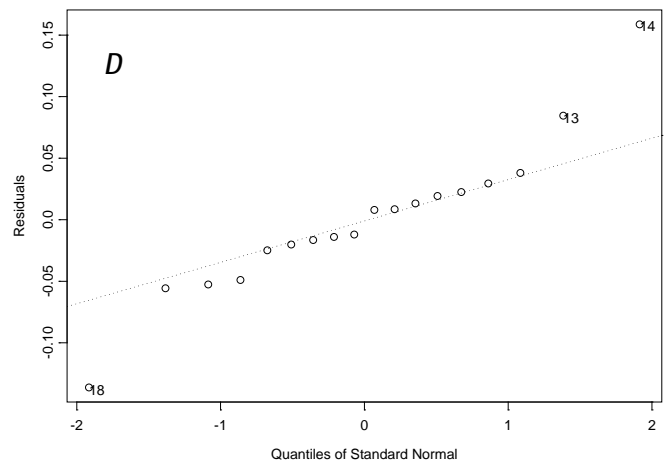
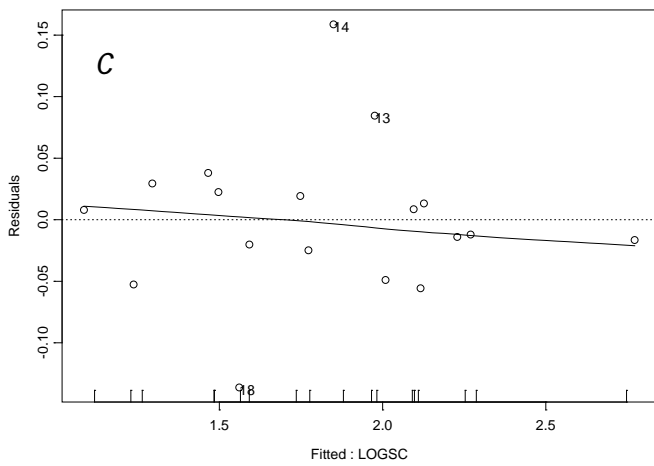
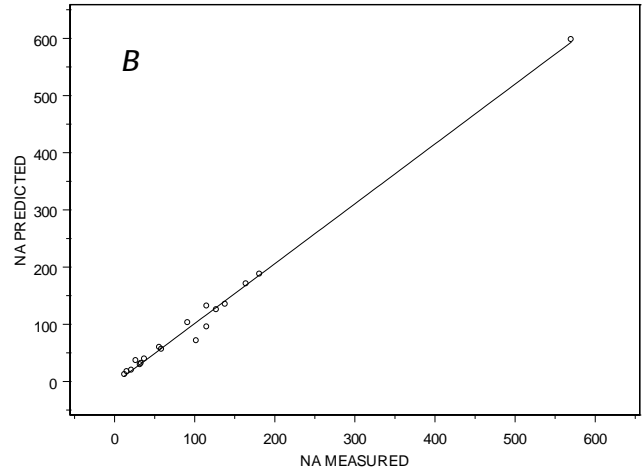
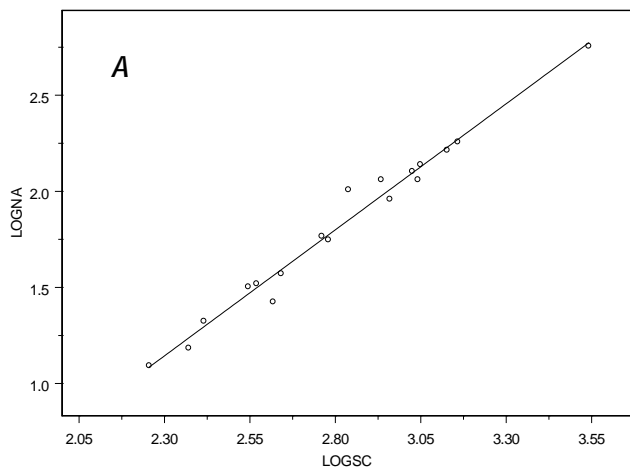


Figure 88. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed sodium (NA) concentrations; *B*, measured versus predicted NA concentrations; *C*, computed NA concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGNA ~ LOGSC, data = NA.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1065	-0.02975	0.007909	0.0206	0.1429

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-1.8425	0.1186	-15.5318	0.0000
LOGSC	1.2975	0.0411	31.5698	0.0000

Residual standard error: 0.0585 on 16 degrees of freedom

Multiple R-Squared: 0.9842 Adjusted R-squared: 0.9832

F-statistic: 996.6 on 1 and 16 degrees of freedom, the p-value is 7.772e-016

438 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGSC	-0.9932

Analysis of Variance Table

Response: LOGNA

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	3.411108	3.411108	996.6495	7.771561e-016
Residuals	16	0.054761	0.003423		

Figure 89. S+® output of regression model development using specific conductance (SC) as the explanatory variable for sodium (NA) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

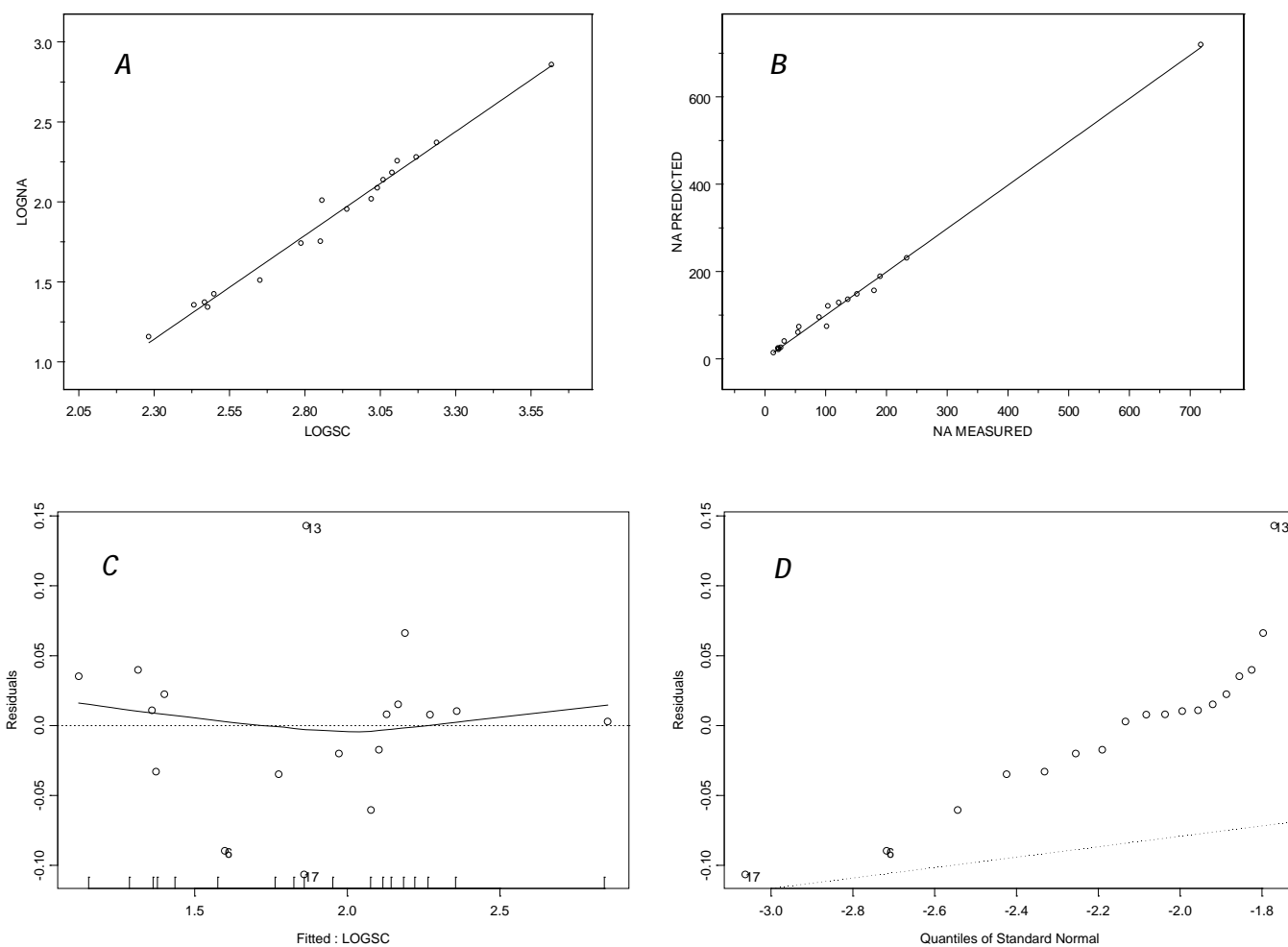


Figure 90. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed sodium (NA) concentrations; *B*, measured versus predicted NA concentrations; *C*, computed NA concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGNA ~ LOGSC, data = NA.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.125	-0.04721	-0.01029	0.009531	0.221

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-2.2380	0.2323	-9.6351	0.0000
LOGSC	1.4174	0.0799	17.7448	0.0000

Residual standard error: 0.0951 on 15 degrees of freedom

Multiple R-Squared: 0.9545 Adjusted R-squared: 0.9515

F-statistic: 314.9 on 1 and 15 degrees of freedom, the p-value is 1.772e-011

Correlation of Coefficients:

(Intercept)
LOGSC -0.9951

Analysis of Variance Table

Response: LOGNA

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	2.847499	2.847499	314.8789	1.772482e-011
Residuals	15	0.135647	0.009043		

Figure 91. S+® output of regression model development using specific conductance (SC) as the explanatory variable for sodium (NA) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

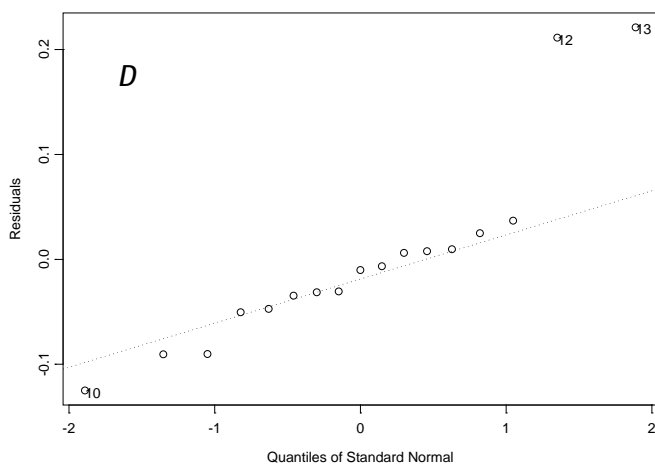
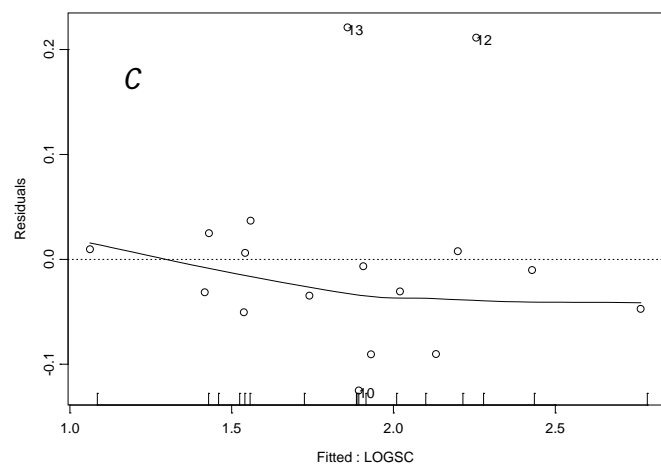
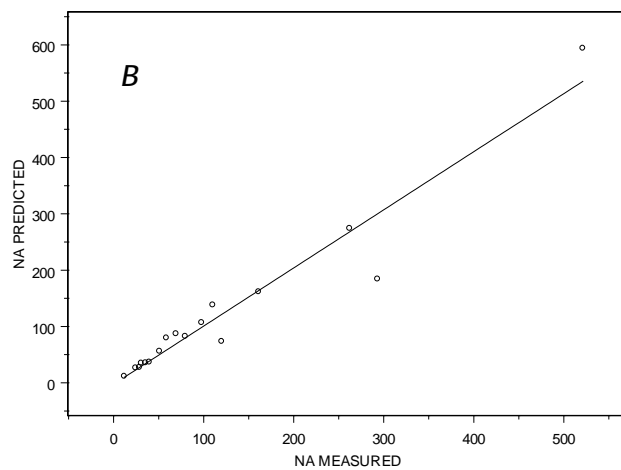
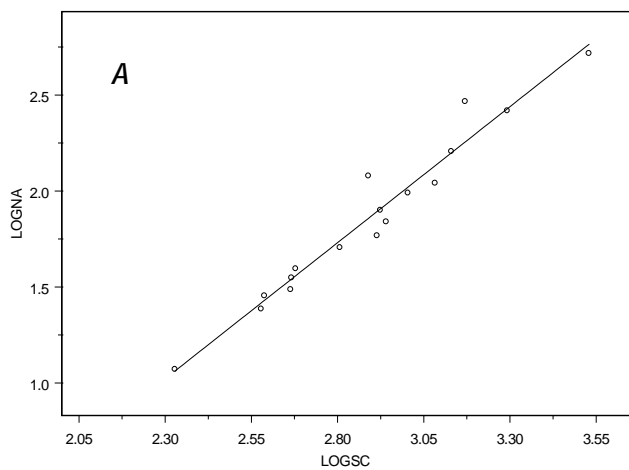


Figure 92. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed sodium (NA) concentrations; *B*, measured versus predicted NA concentrations; *C*, computed NA concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGNA ~ LOGSC, data = NA.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.7913	-0.06226	0.03585	0.08818	0.2438

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-2.1822	0.1964	-11.1106	0.0000
LOGSC	1.3913	0.0695	20.0318	0.0000

Residual standard error: 0.1657 on 52 degrees of freedom

Multiple R-Squared: 0.8853 Adjusted R-squared: 0.8831

F-statistic: 401.3 on 1 and 52 degrees of freedom, the p-value is 0

Correlation of Coefficients:

(Intercept)
LOGSC -0.9934

Analysis of Variance Table

Response: LOGNA

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	11.02238	11.02238	401.2747	0
Residuals	52	1.42836	0.02747		

Figure 93. S+® output of regression model development using specific conductance (SC) as the explanatory variable for sodium (NA) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

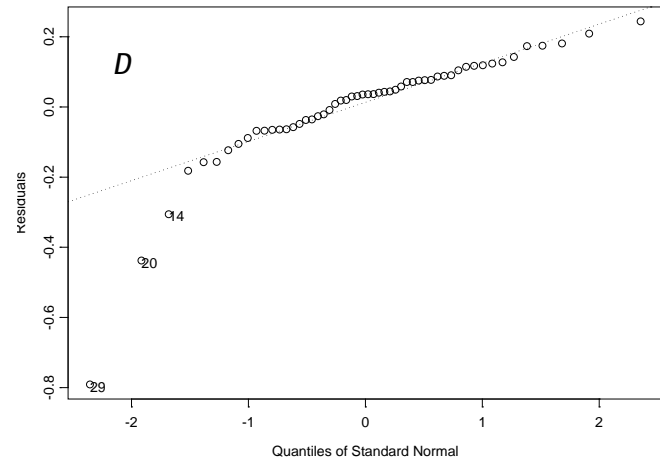
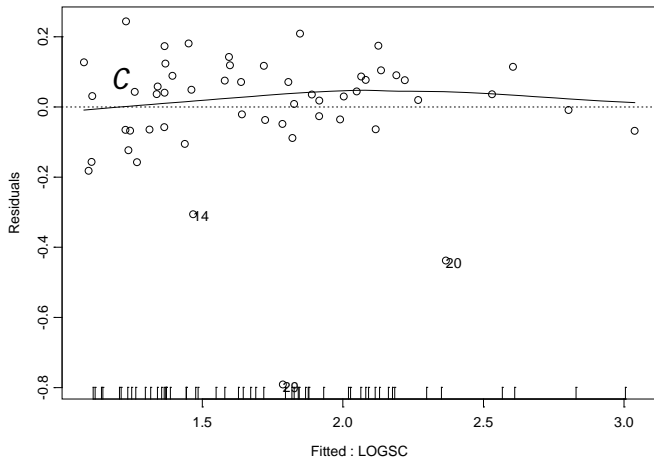
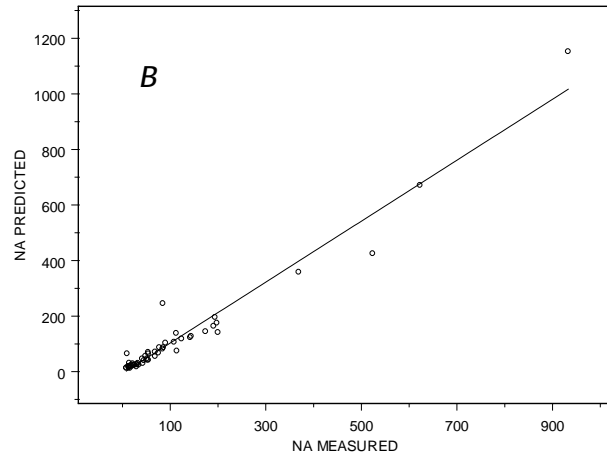
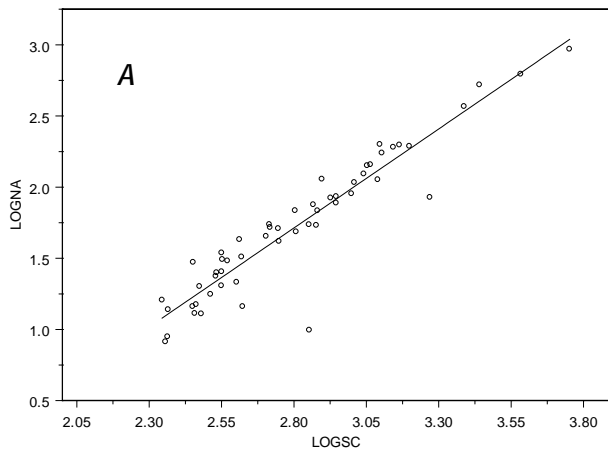


Figure 94. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed sodium (NA) concentrations; *B*, measured versus predicted NA concentrations; *C*, computed NA concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGNA ~ LOGSC, data = NA.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.7376	-0.03152	0.01828	0.0879	0.2885

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-2.1721	0.2621	-8.2864	0.0000
LOGSC	1.3689	0.0935	14.6479	0.0000

Residual standard error: 0.1871 on 32 degrees of freedom

Multiple R-Squared: 0.8702 Adjusted R-squared: 0.8662

F-statistic: 214.6 on 1 and 32 degrees of freedom, the p-value is 9.992e-016

Correlation of Coefficients:

(Intercept)	
LOGSC	-0.9925

Analysis of Variance Table

Response: LOGNA

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	7.507107	7.507107	214.5617	9.992007e-016
Residuals	32	1.119619	0.034988		

Figure 95. S+® output of regression model development using specific conductance (SC) as the explanatory variable for sodium (NA) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

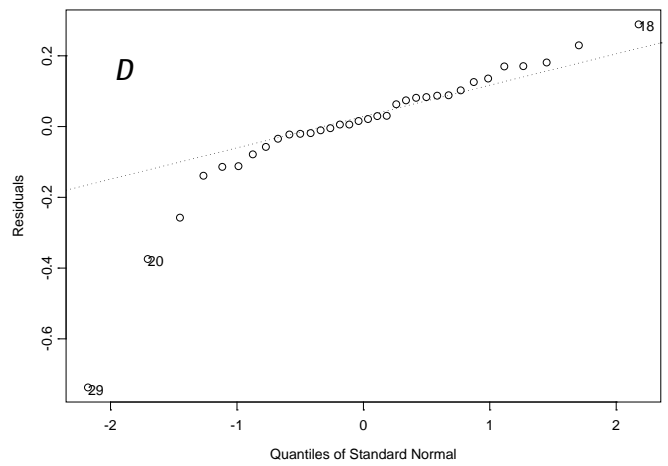
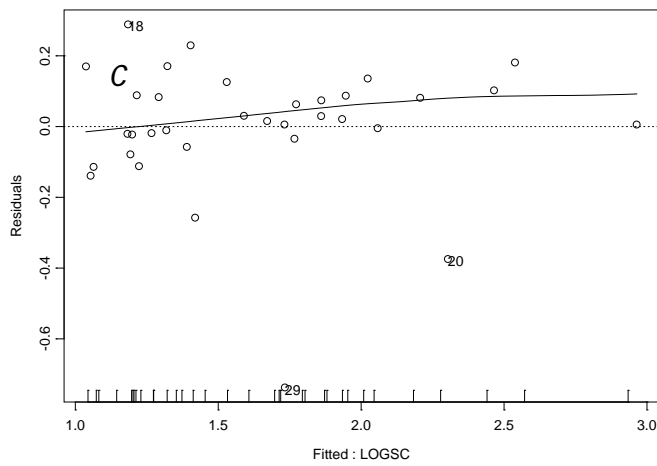
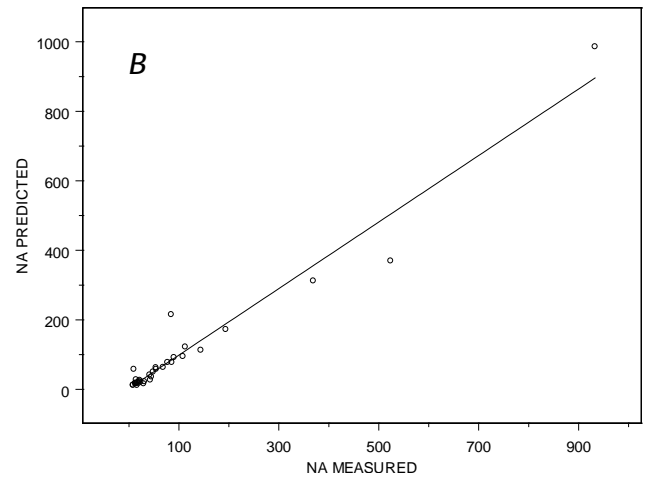
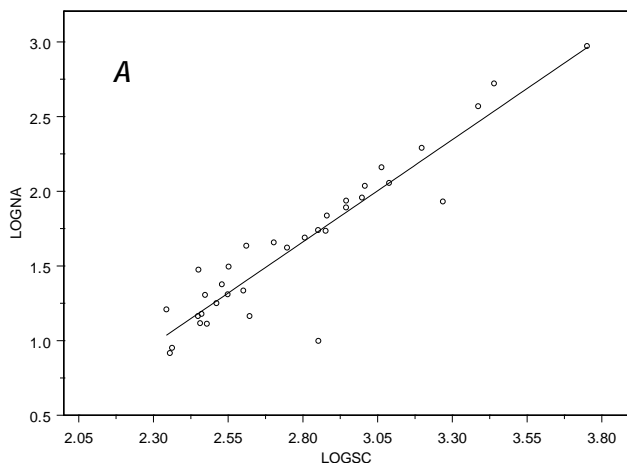


Figure 96. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed sodium (NA) concentrations; *B*, measured versus predicted NA concentrations; *C*, computed NA concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = LOGNA ~ LOGSC, data = NA.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.08291	-0.04172	-0.005872	0.02748	0.1214

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-2.0375	0.1258	-16.1917	0.0000
LOGSC	1.3716	0.0439	31.2469	0.0000

Residual standard error: 0.05603 on 18 degrees of freedom

Multiple R-Squared: 0.9819 Adjusted R-squared: 0.9809

F-statistic: 976.4 on 1 and 18 degrees of freedom, the p-value is 0

Correlation of Coefficients:

(Intercept)
LOGSC -0.995

Analysis of Variance Table

Response: LOGNA

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	3.064689	3.064689	976.3696	0
Residuals	18	0.056500	0.003139		

Figure 97. S+® output of regression model development using specific conductance (SC) as the explanatory variable for sodium (NA) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

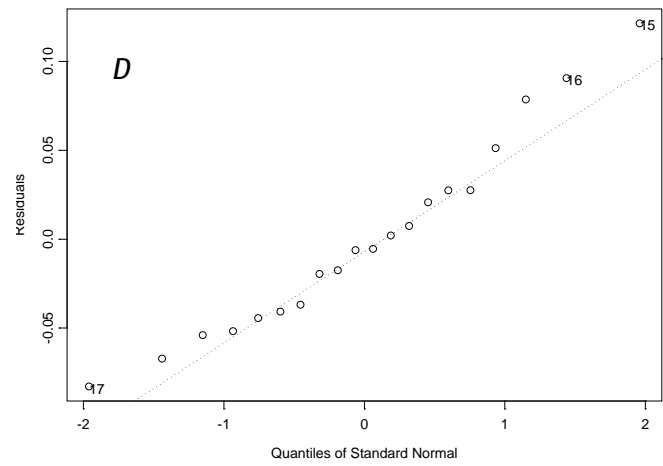
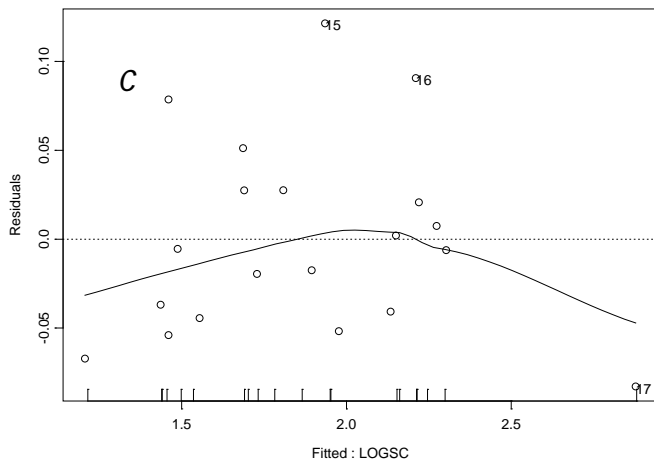
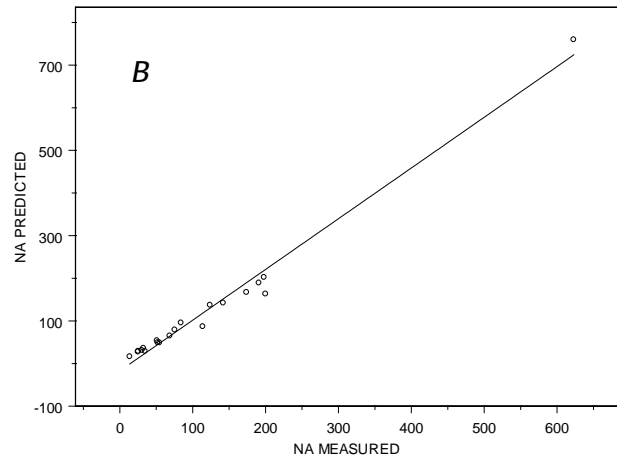
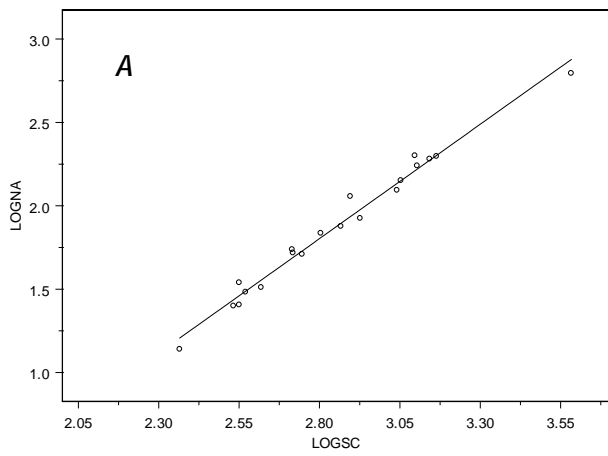


Figure 98. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed sodium (NA) concentrations; *B*, measured versus predicted NA concentrations; *C*, computed NA concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGCL ~ LOGSC, data = CL.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1962	-0.07929	-0.02077	0.05524	0.2293

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-1.9161	0.2088	-9.1760	0.0000
LOGSC	1.3780	0.0751	18.3579	0.0000

Residual standard error: 0.1181 on 18 degrees of freedom

Multiple R-Squared: 0.9493 Adjusted R-squared: 0.9465

F-statistic: 337 on 1 and 18 degrees of freedom, the p-value is 4.204e-013

129 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGSC	-0.992

Analysis of Variance Table

Response: LOGCL

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	4.700796	4.700796	337.0128	4.204415e-013
Residuals	18	0.251072	0.013948		

Figure 99. S+® output of regression model development using specific conductance (SC) as the explanatory variable for chloride (CL) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), June 2011 through May 2013.

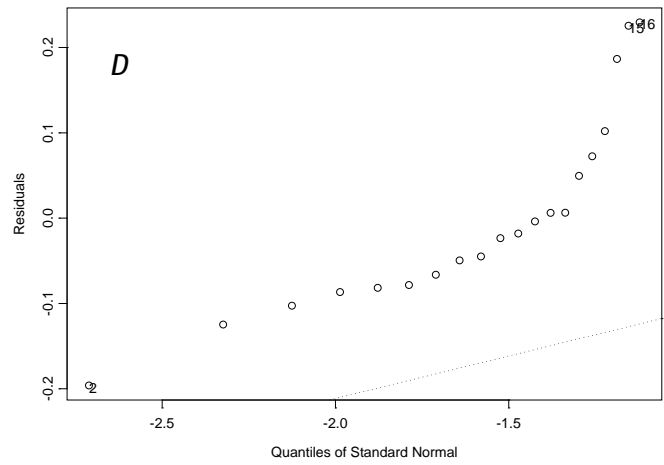
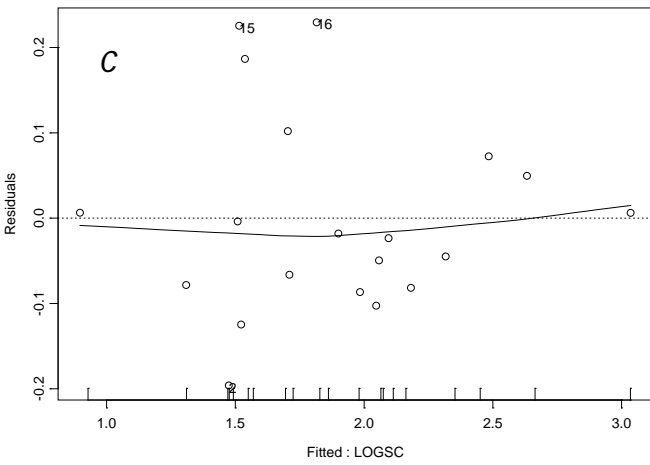
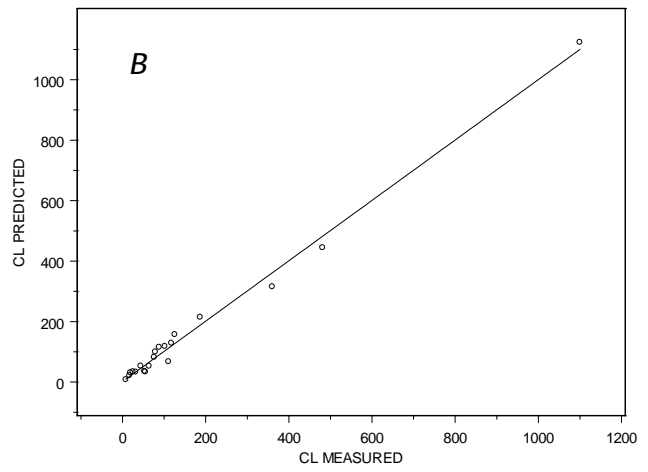
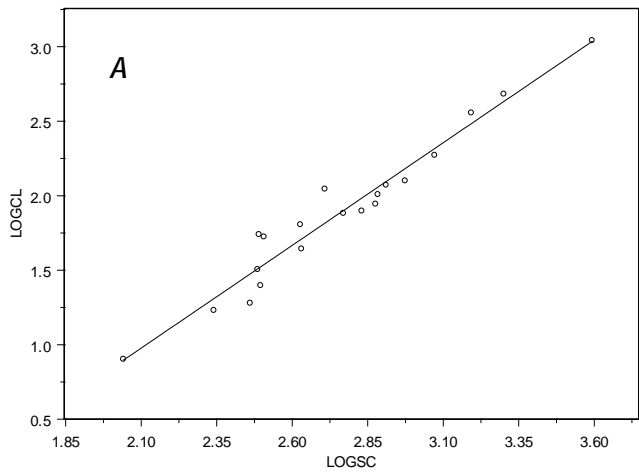


Figure 100. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed chloride (CL) concentrations; *B*, measured versus predicted CL concentrations; *C*, computed CL concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGCL ~ LOGSC, data = CL.COLL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1667	-0.06061	0.002856	0.05089	0.2119

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-2.4119	0.2523	-9.5578	0.0000
LOGSC	1.5407	0.0889	17.3318	0.0000

Residual standard error: 0.1102 on 15 degrees of freedom

Multiple R-Squared: 0.9524 Adjusted R-squared: 0.9493

F-statistic: 300.4 on 1 and 15 degrees of freedom, the p-value is 2.485e-011

132 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)
LOGSC -0.9944

Analysis of Variance Table

Response: LOGCL

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	3.649637	3.649637	300.3909	2.484801e-011
Residuals	15	0.182244	0.012150		

Figure 101. S+® output of regression model development using specific conductance (SC) as the explanatory variable for chloride (CL) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

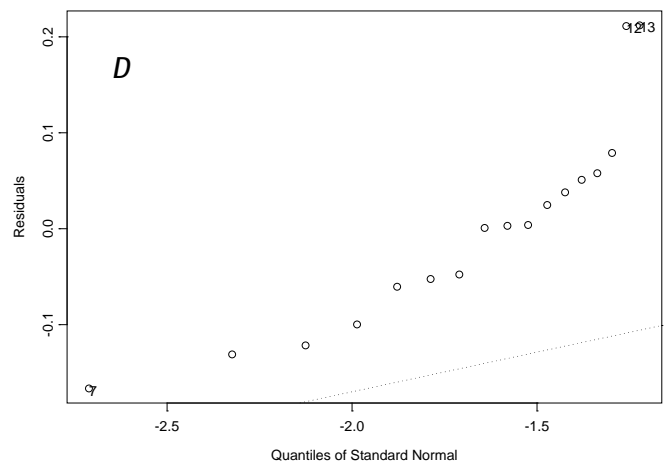
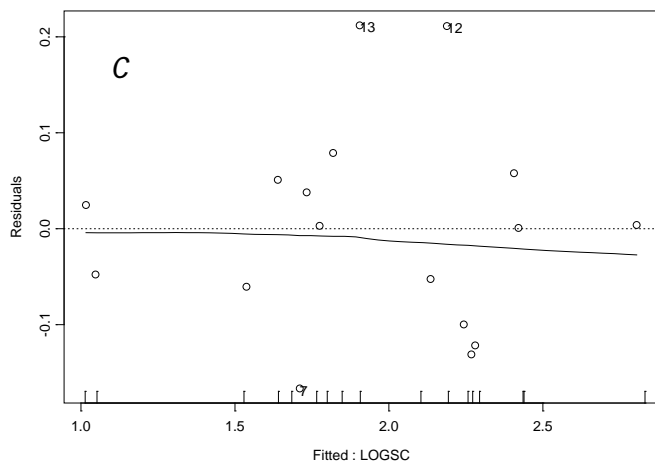
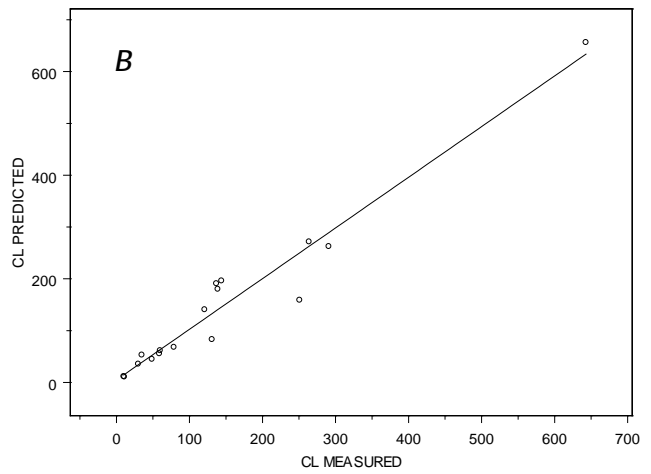
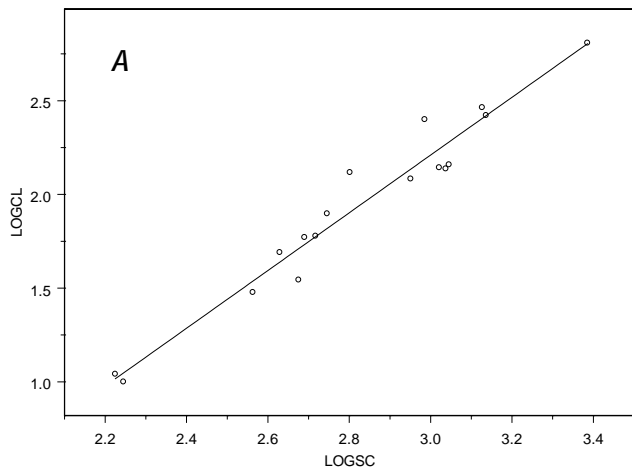


Figure 102. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed chloride (CL) concentrations; *B*, measured versus predicted CL concentrations; *C*, computed log-transformed CL concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGCL ~ LOGSC, data = CL.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.0981	-0.05214	-0.01027	0.03166	0.2234

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-1.8886	0.1648	-11.4611	0.0000
LOGSC	1.3652	0.0582	23.4510	0.0000

Residual standard error: 0.07823 on 16 degrees of freedom

Multiple R-Squared: 0.9717 Adjusted R-squared: 0.97

F-statistic: 549.9 on 1 and 16 degrees of freedom, the p-value is 8.116e-014

131 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGSC	-0.9937

Analysis of Variance Table

Response: LOGCL

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	3.365553	3.365553	549.9484	8.11573e-014
Residuals	16	0.097916	0.006120		

Figure 103. S+® output of regression model development using specific conductance (SC) as the explanatory variable for chloride (CL) for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

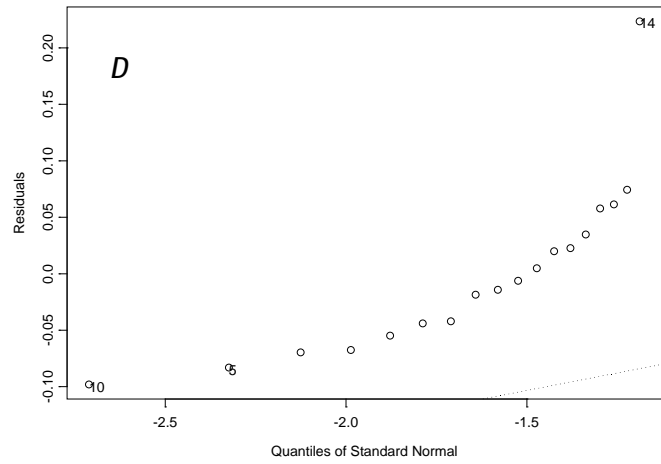
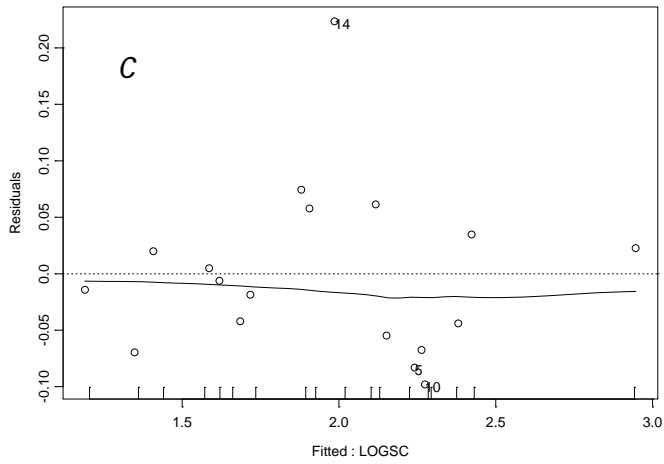
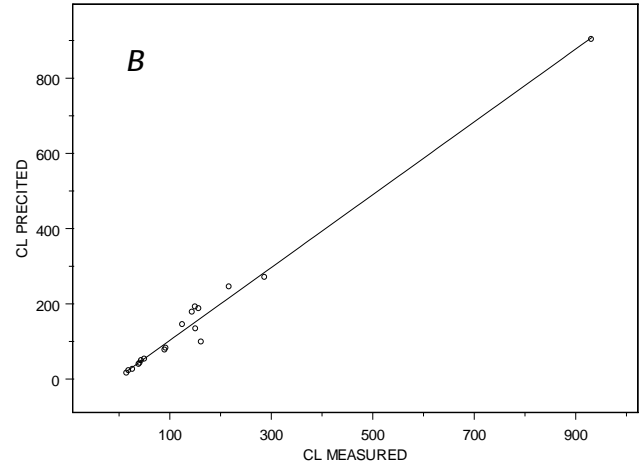
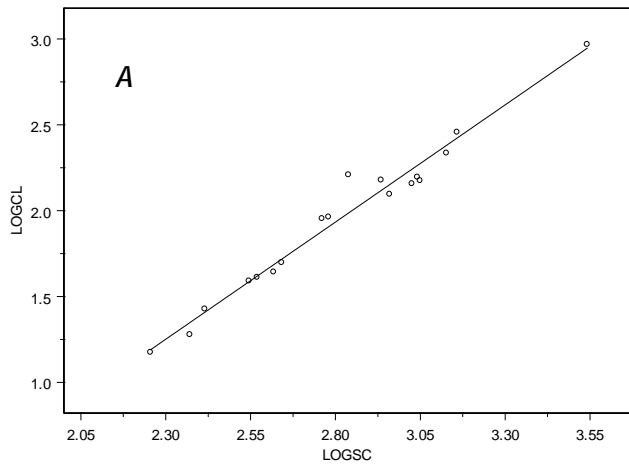


Figure 104. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed chloride (CL) concentrations; *B*, measured versus predicted CL concentrations; *C*, computed CL concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGCL ~ LOGSC, data = CL.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.09982	-0.04015	-0.01665	0.01912	0.177

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-1.7271	0.1493	-11.5687	0.0000
LOGSC	1.3098	0.0517	25.3221	0.0000

Residual standard error: 0.07363 on 16 degrees of freedom

Multiple R-Squared: 0.9757 Adjusted R-squared: 0.9741

F-statistic: 641.2 on 1 and 16 degrees of freedom, the p-value is 2.454e-014

438 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGSC	-0.9932

Analysis of Variance Table

Response: LOGCL

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	3.475975	3.475975	641.208	2.453593e-014
Residuals	16	0.086736	0.005421		

Figure 105. S+® output of regression model development using specific conductance (SC) as the explanatory variable for chloride (CL) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

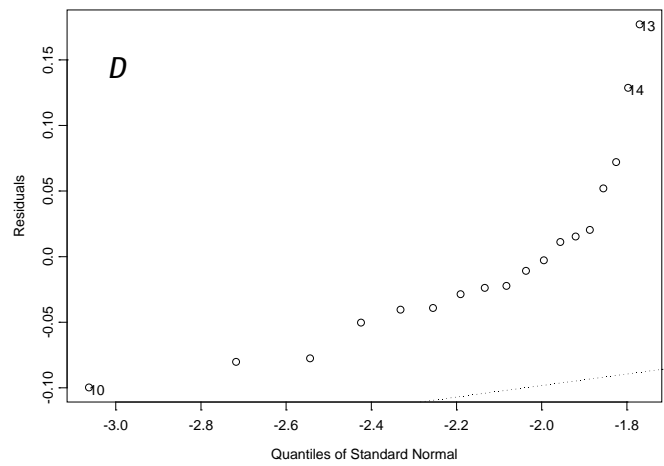
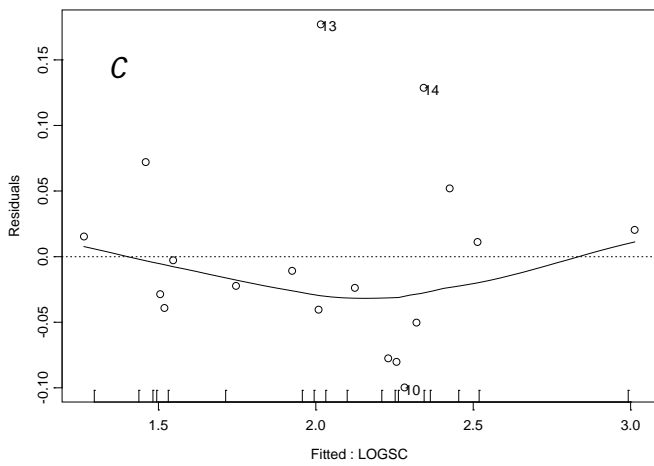
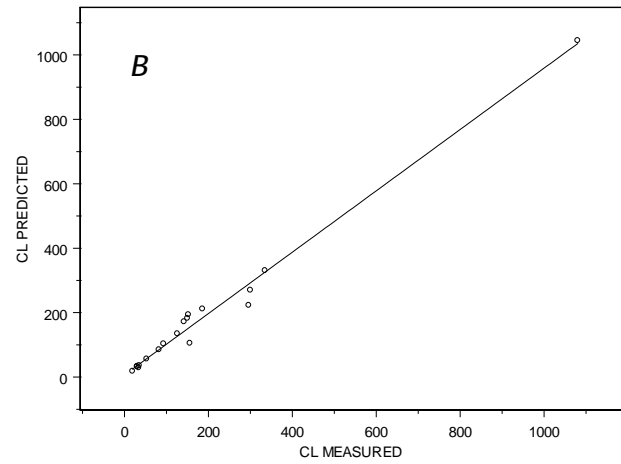
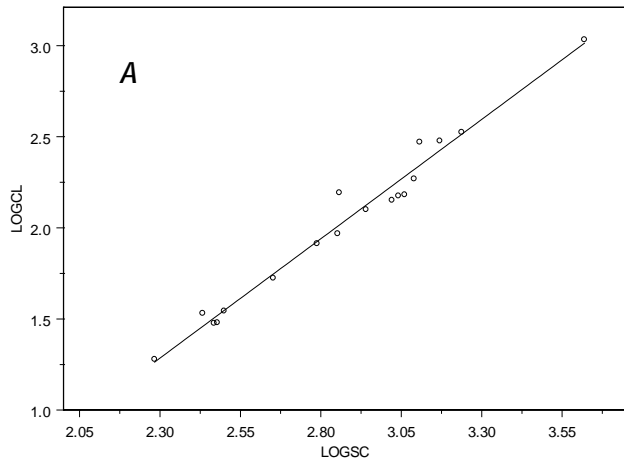


Figure 106. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed chloride (CL) concentrations; *B*, measured versus predicted CL concentrations; *C*, computed CL concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGCL ~ LOGSC, data = CL.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.167	-0.04484	-0.009514	0.02664	0.2525

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-2.4673	0.2700	-9.1380	0.0000
LOGSC	1.5468	0.0929	16.6586	0.0000

Residual standard error: 0.1105 on 15 degrees of freedom

Multiple R-Squared: 0.9487 Adjusted R-squared: 0.9453

F-statistic: 277.5 on 1 and 15 degrees of freedom, the p-value is 4.379e-011

132 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGSC	-0.9951

Analysis of Variance Table

Response: LOGCL

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	3.390981	3.390981	277.5086	4.378908e-011
Residuals	15	0.183291	0.012219		

Figure 107. S+® output of regression model development using specific conductance (SC) as the explanatory variable for chloride (CL) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

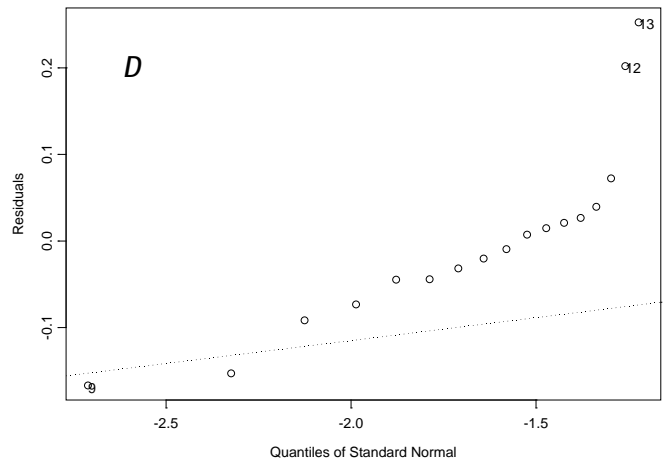
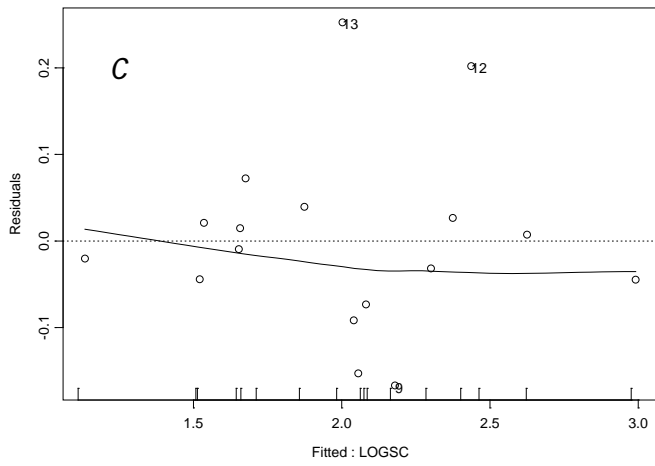
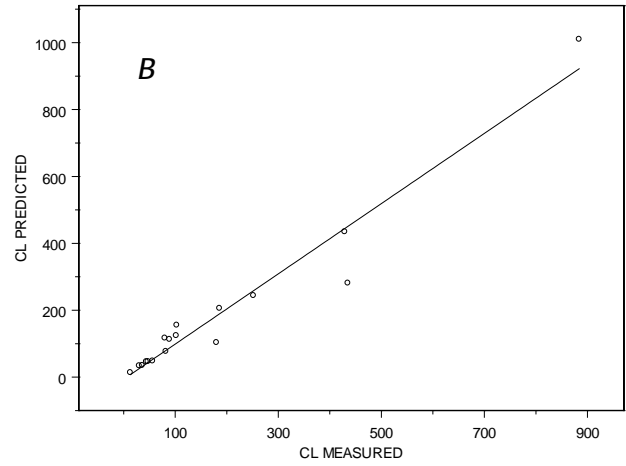
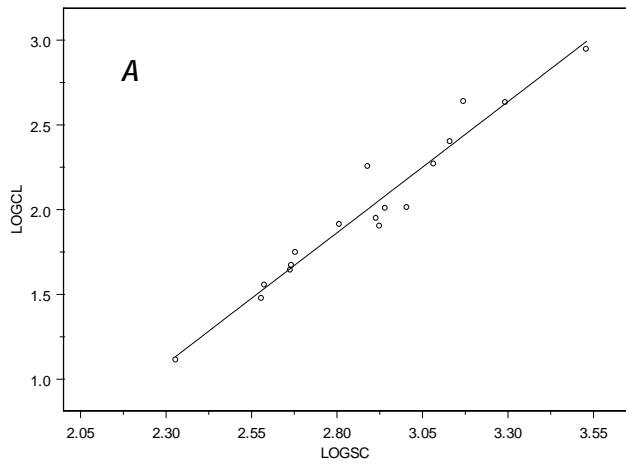


Figure 108. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed chloride (CL) concentrations; *B*, measured versus predicted CL concentrations; *C*, computed CL concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGCL ~ LOGSC, data = CL.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.8661	-0.08299	0.03404	0.1024	0.2574

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-2.5114	0.2077	-12.0902	0.0000
LOGSC	1.5622	0.0727	21.5011	0.0000

Residual standard error: 0.1836 on 57 degrees of freedom

Multiple R-Squared: 0.8902 Adjusted R-squared: 0.8883

F-statistic: 462.3 on 1 and 57 degrees of freedom, the p-value is 0

90 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGSC	-0.9934

Analysis of Variance Table

Response: LOGCL

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	15.57512	15.57512	462.2985	0
Residuals	57	1.92037	0.03369		

Figure 109. S+® output of regression model development using specific conductance (SC) as the explanatory variable for chloride (CL) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

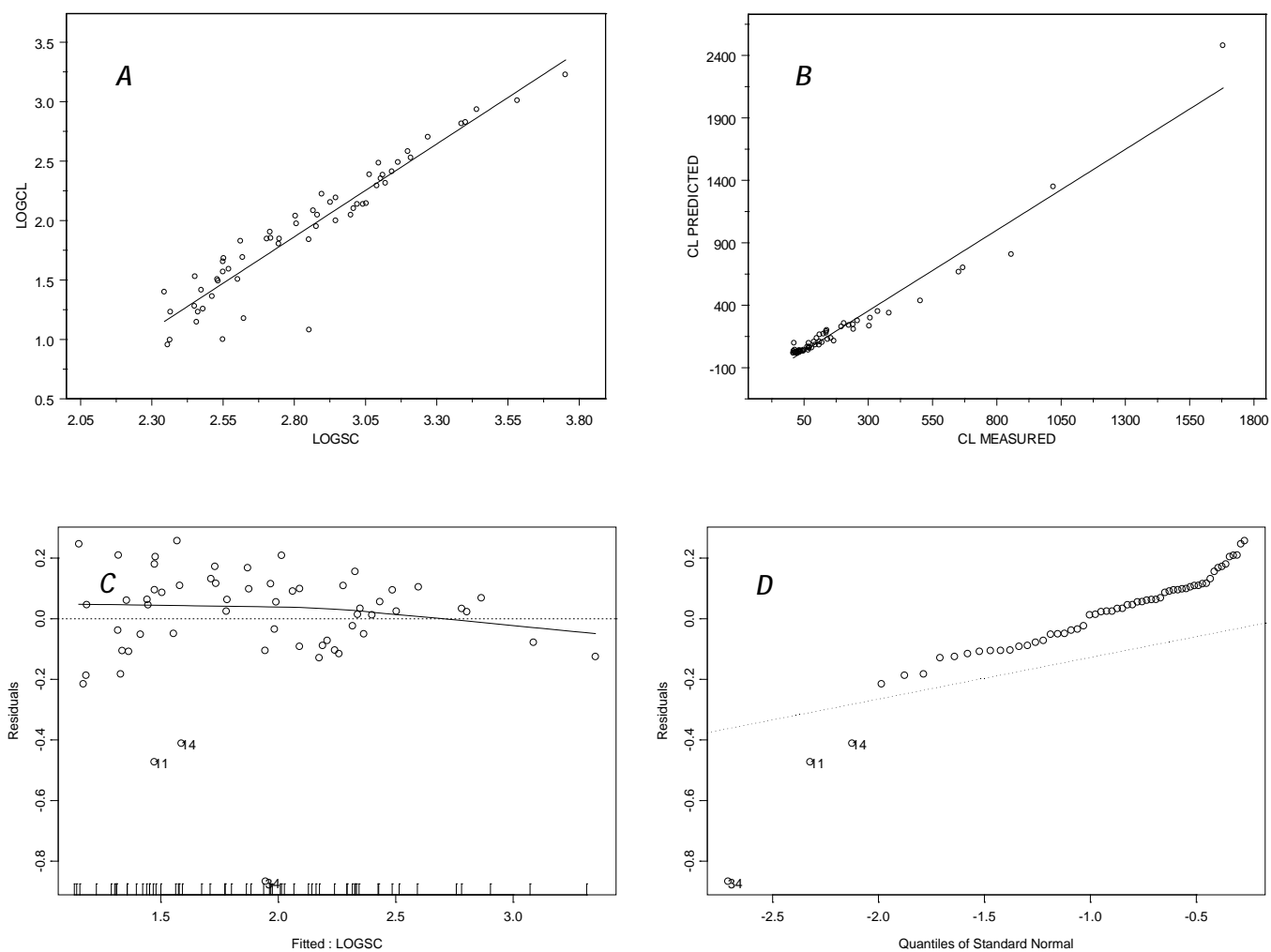


Figure 110. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed chloride (CL) concentrations; *B*, measured versus predicted CL concentrations; *C*, computed CL concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGCL ~ LOGSC, data = CL.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.8308	-0.0601	0.01571	0.1144	0.305

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-2.6747	0.2723	-9.8224	0.0000
LOGSC	1.6071	0.0954	16.8495	0.0000

Residual standard error: 0.2078 on 37 degrees of freedom

Multiple R-Squared: 0.8847 Adjusted R-squared: 0.8816

F-statistic: 283.9 on 1 and 37 degrees of freedom, the p-value is 0

Correlation of Coefficients:

(Intercept)
LOGSC -0.9925

Analysis of Variance Table

Response: LOGCL

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	12.26374	12.26374	283.9045	0
Residuals	37	1.59828	0.04320		

Figure 111. S+® output of regression model development using specific conductance (SC) as the explanatory variable for chloride (CL) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

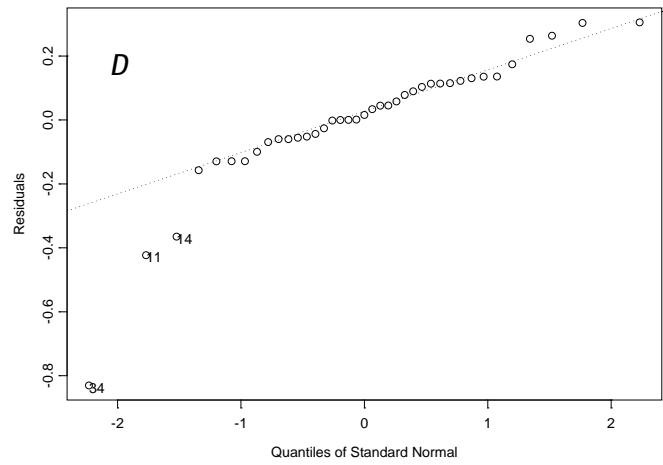
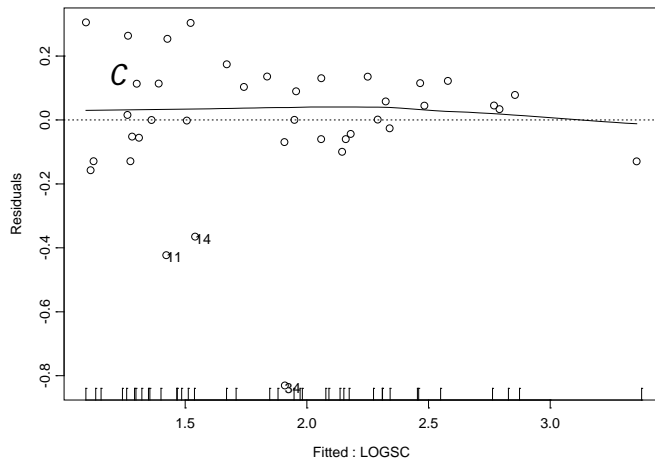
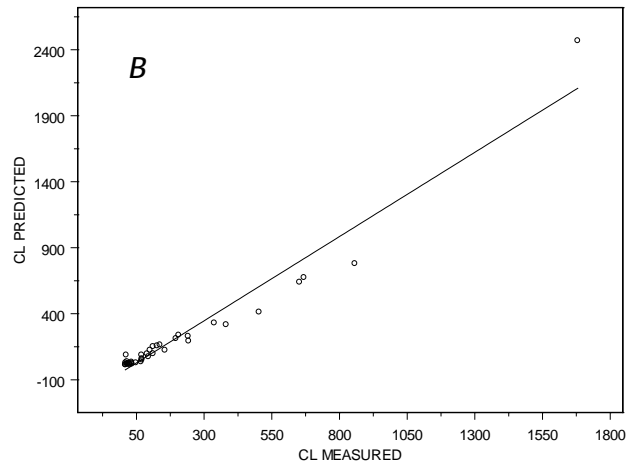
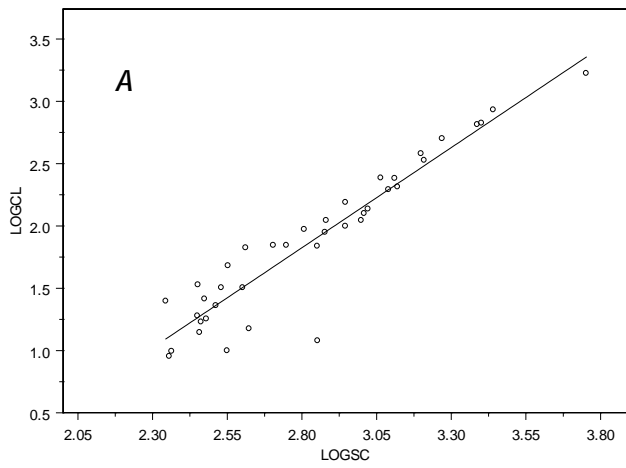


Figure 112. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed chloride (CL) concentrations; *B*, measured versus predicted CL concentrations; *C*, computed CL concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = LOGCL ~ LOGSC, data = CL.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1561	-0.04575	-0.004754	0.05182	0.1452

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-2.0215	0.1887	-10.7153	0.0000
LOGSC	1.4152	0.0658	21.5033	0.0000

Residual standard error: 0.084 on 18 degrees of freedom

Multiple R-Squared: 0.9625 Adjusted R-squared: 0.9604

F-statistic: 462.4 on 1 and 18 degrees of freedom, the p-value is 2.742e-014

Correlation of Coefficients:

(Intercept)
LOGSC -0.995

Analysis of Variance Table

Response: LOGCL

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	3.262240	3.262240	462.3906	2.742251e-014
Residuals	18	0.126993	0.007055		

Figure 113. S+® output of regression model development using specific conductance (SC) as the explanatory variable for chloride (CL) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

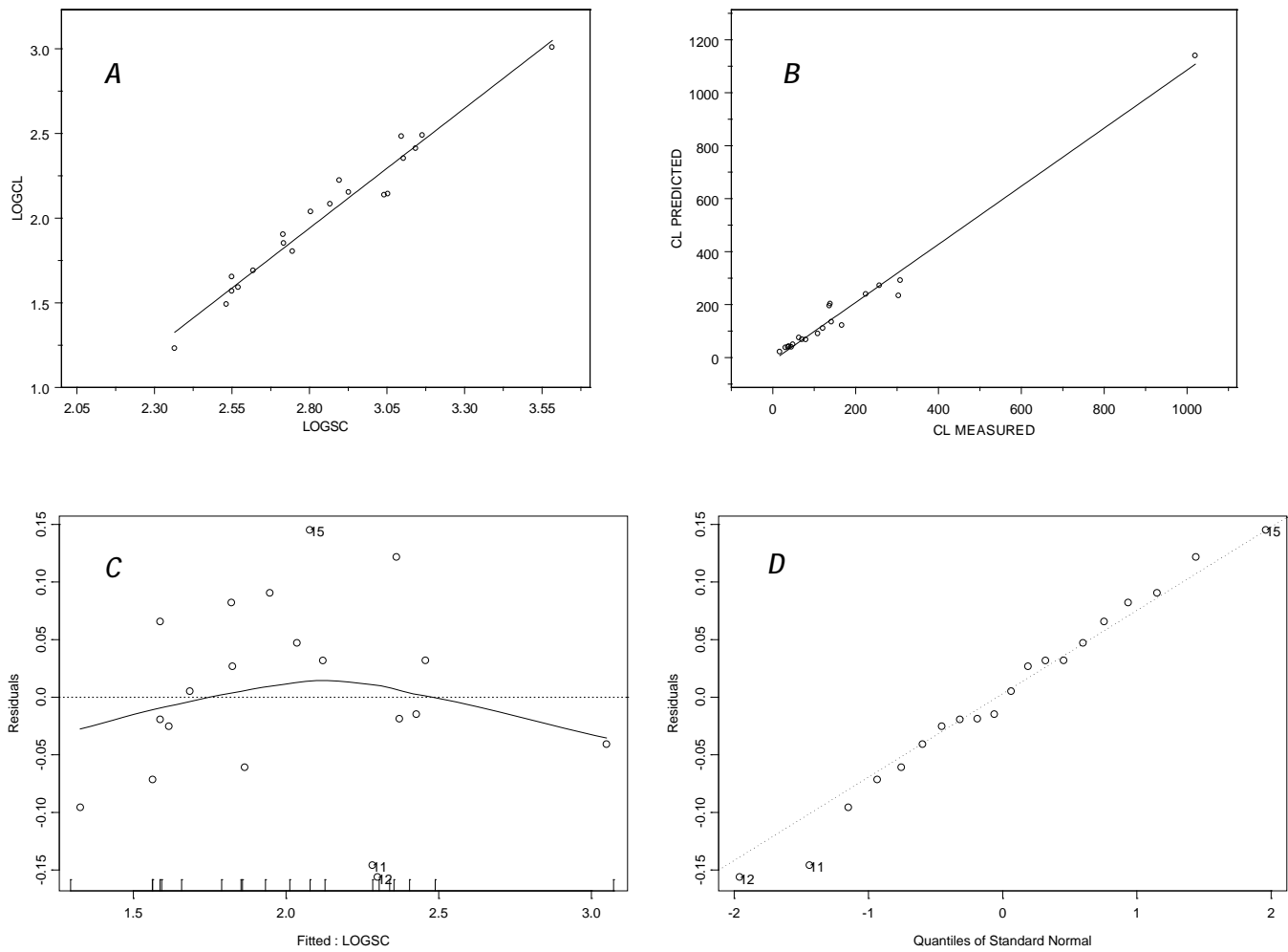


Figure 114. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed chloride (CL) concentrations; *B*, measured versus predicted CL concentrations; *C*, computed CL concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = F ~ LOGQ, data = F.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.06335	-0.03492	-0.01282	0.03679	0.1076

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.2492	0.0182	13.6604	0.0000
LOGQ	-0.0586	0.0101	-5.7802	0.0000

Residual standard error: 0.05159 on 17 degrees of freedom

Multiple R-Squared: 0.6628 Adjusted R-squared: 0.6429

F-statistic: 33.41 on 1 and 17 degrees of freedom, the p-value is 0.00002218

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.7609

Analysis of Variance Table

Response: F

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	0.08892983	0.08892983	33.41075	0.00002218272
Residuals	17	0.04524912	0.00266171		

Figure 115. S+® output of regression model development using streamflow (Q) as the explanatory variable for fluoride (F) for Indian Creek at 119th Street, Overland Park, KS (119th, site 3854460944304700), August 2011 through May 2013.

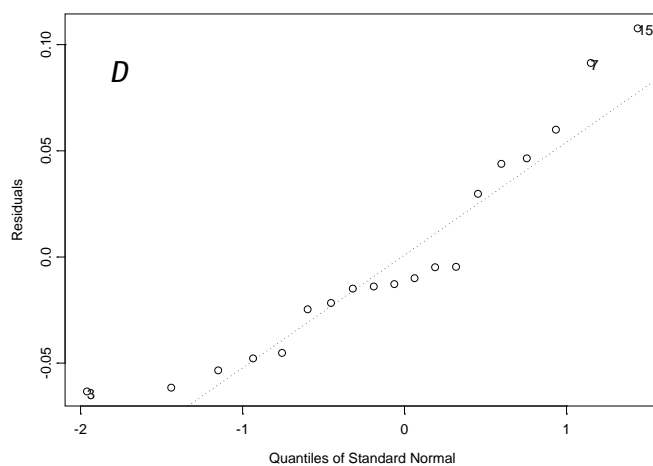
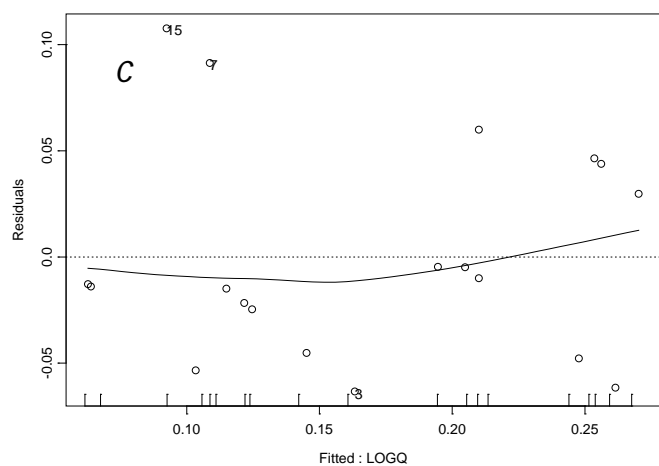
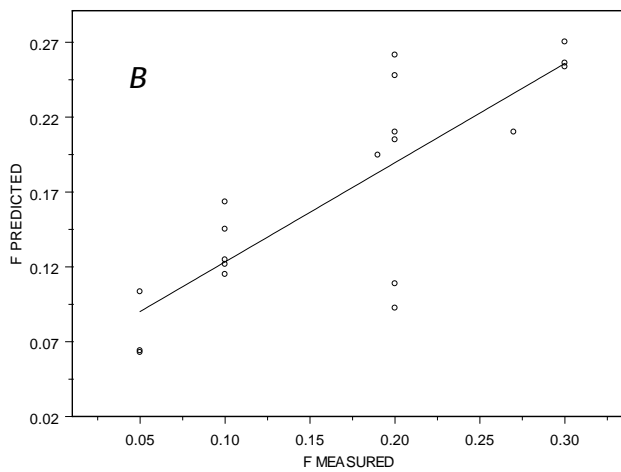
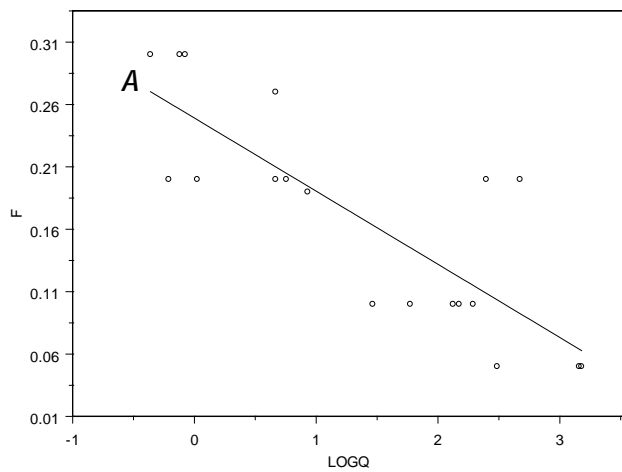


Figure 116. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus fluoride (F) concentrations; *B*, measured versus predicted F concentrations; *C*, computed F concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGF ~ LOGTBY, data = F.COLLSPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1491	-0.07679	-0.0379	0.02647	0.3193

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.2135	0.0584	-3.6593	0.0023
LOGTBY	-0.2794	0.0328	-8.5200	0.0000

Residual standard error: 0.1299 on 15 degrees of freedom

Multiple R-Squared: 0.8287 Adjusted R-squared: 0.8173

F-statistic: 72.59 on 1 and 15 degrees of freedom, the p-value is 3.931e-007

Correlation of Coefficients:

(Intercept)	
LOGTBY	-0.8418

Analysis of Variance Table

Response: LOGF

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	1.224525	1.224525	72.59101	3.931361e-007
Residuals	15	0.253032	0.016869		

Figure 117. S+® output of regression model development using turbidity (TBY) as the explanatory variable for fluoride (F) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

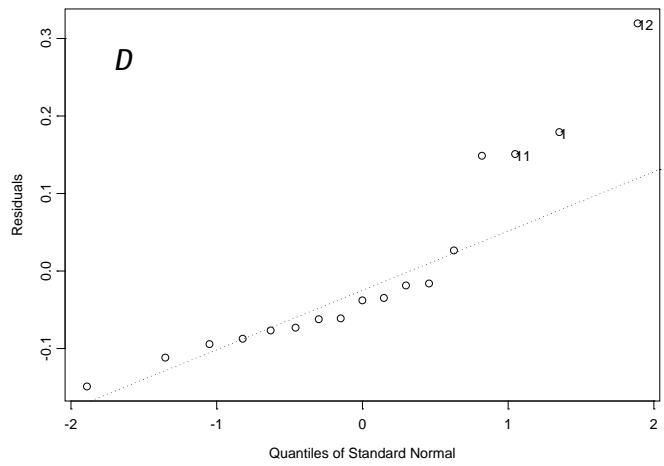
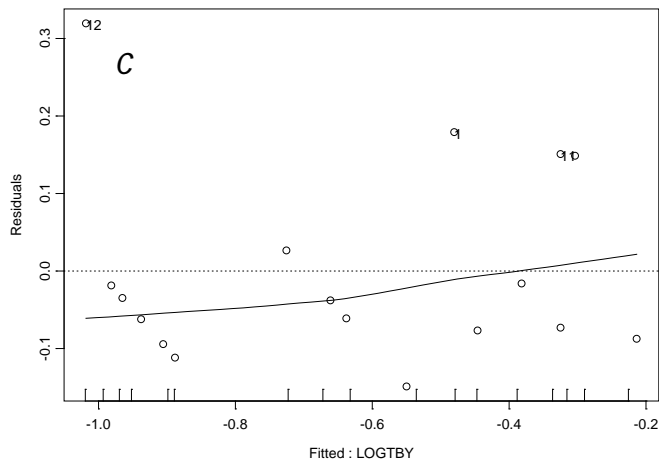
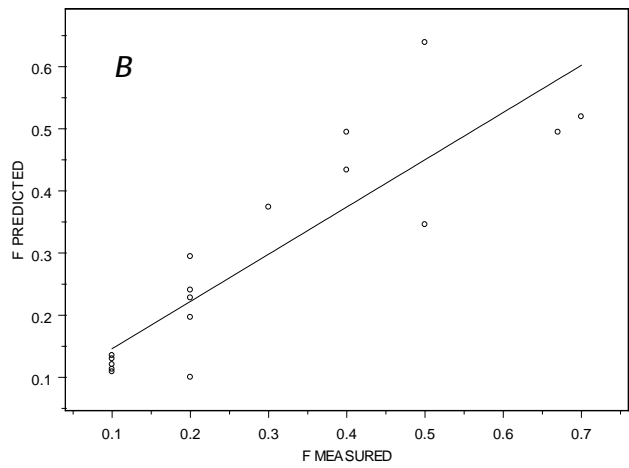
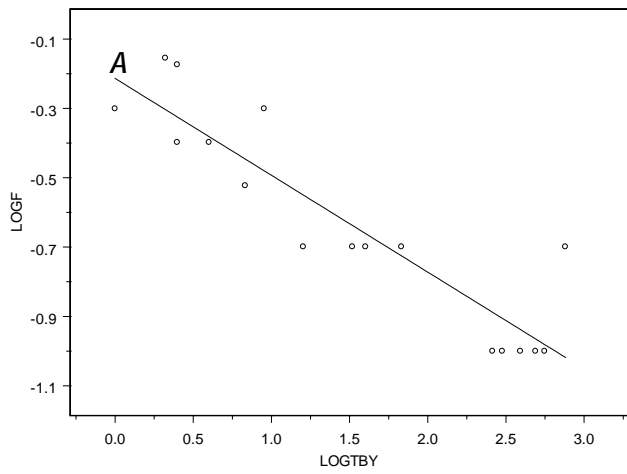


Figure 118. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed fluoride (F) concentrations; *B*, measured versus predicted F concentrations; *C*, computed log-transformed F concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = F ~ LOGQ, data = F.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1471	-0.08344	-0.01367	0.05114	0.2702

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.7390	0.0727	10.1652	0.0000
LOGQ	-0.2160	0.0337	-6.4133	0.0000

Residual standard error: 0.1089 on 16 degrees of freedom

Multiple R-Squared: 0.7199 Adjusted R-squared: 0.7024

F-statistic: 41.13 on 1 and 16 degrees of freedom, the p-value is 8.58e-006

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9356

Analysis of Variance Table

Response: F

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	0.4875163	0.4875163	41.13089	8.579632e-006
Residuals	16	0.1896448	0.0118528		

Figure 119. S+® output of regression model development using streamflow (Q) as the explanatory variable for fluoride (F) for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

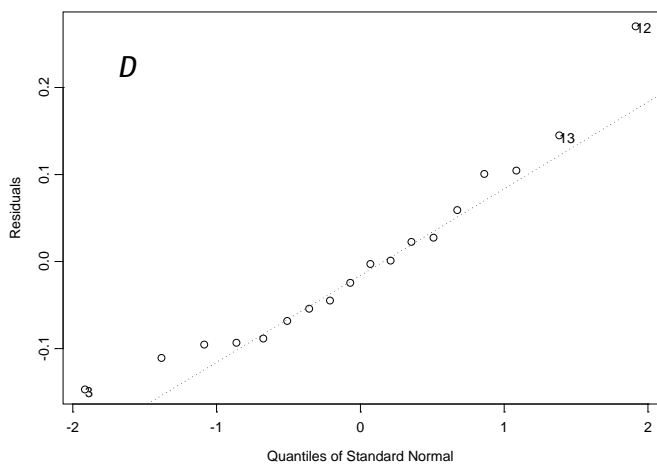
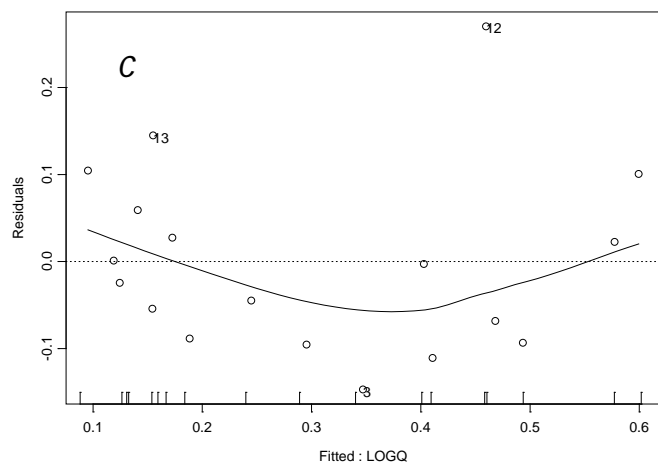
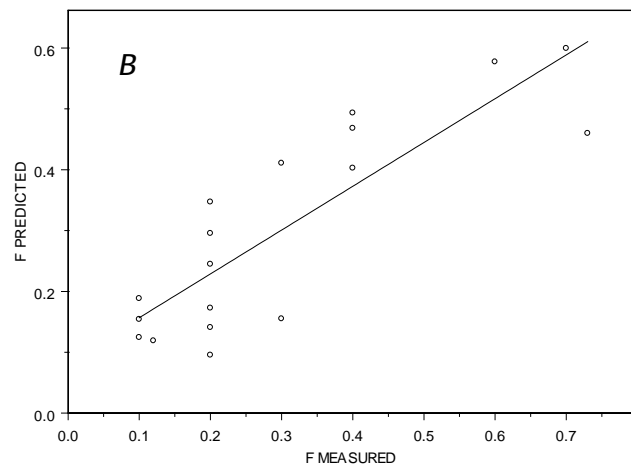
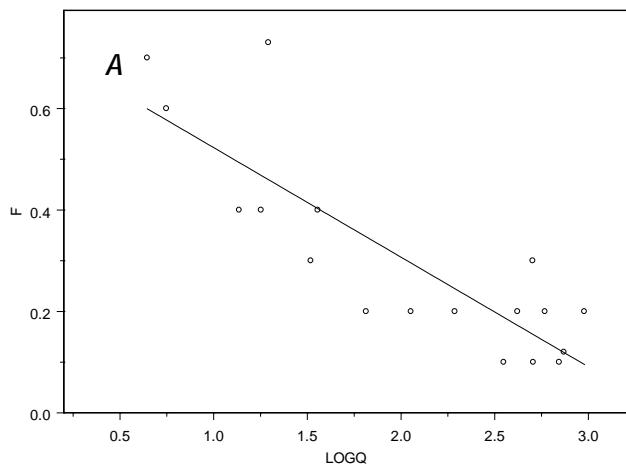


Figure 120. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (*Q*) versus fluoride (*F*) concentrations; *B*, measured versus predicted *F* concentrations; *C*, computed *F* concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGF ~ LOGTBY, data = F.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.3299	-0.08593	-0.007417	0.06077	0.2833

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.1785	0.0771	-2.3152	0.0342
LOGTBY	-0.3159	0.0461	-6.8486	0.0000

Residual standard error: 0.1637 on 16 degrees of freedom

Multiple R-Squared: 0.7456 Adjusted R-squared: 0.7297

F-statistic: 46.9 on 1 and 16 degrees of freedom, the p-value is 3.913e-006

438 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGTBY	-0.8658

Analysis of Variance Table

Response: LOGF

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	1.256519	1.256519	46.9031	3.912973e-006
Residuals	16	0.428635	0.026790		

Figure 121. S+® output of regression model development using turbidity (TBY) as the explanatory variable for fluoride (F) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

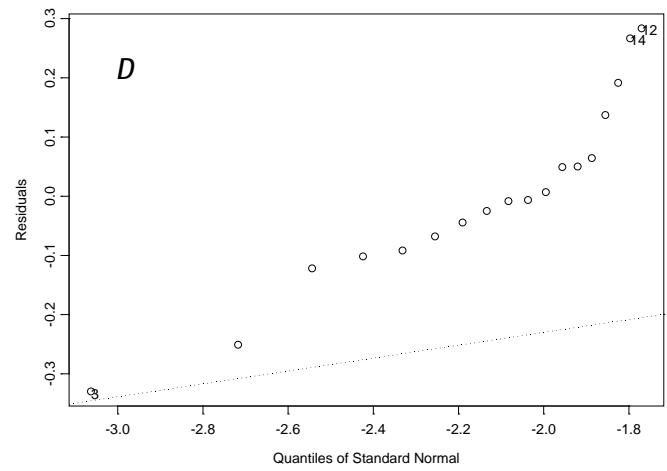
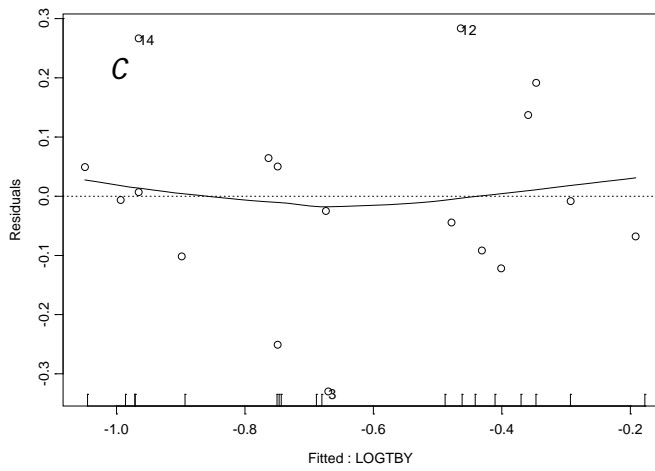
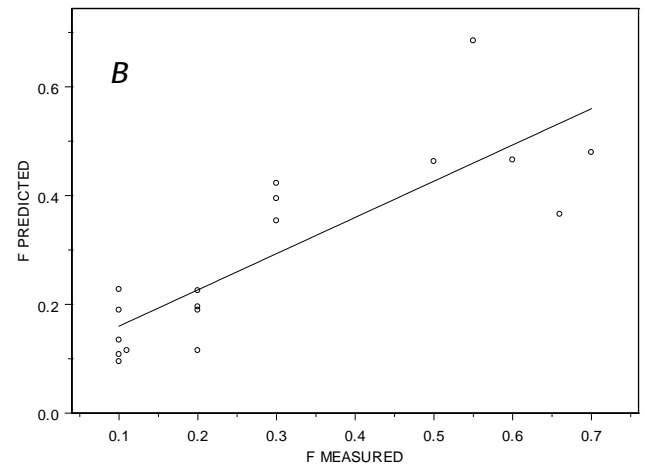
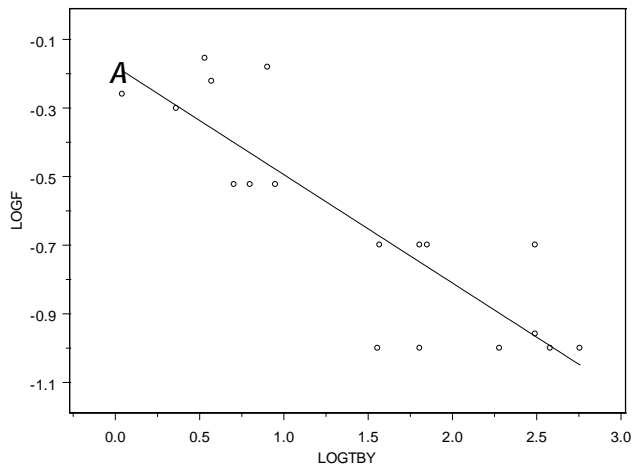


Figure 122. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed fluoride (F) concentrations; *B*, measured versus predicted F concentrations; *C*, computed log-transformed F concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = F ~ LOGQ, data = F.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1026	-0.04818	0.01156	0.03629	0.0689

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.3302	0.0247	13.3482	0.0000
LOGQ	-0.0710	0.0134	-5.2899	0.0001

Residual standard error: 0.0541 on 14 degrees of freedom

Multiple R-Squared: 0.6665 Adjusted R-squared: 0.6427

F-statistic: 27.98 on 1 and 14 degrees of freedom, the p-value is 0.0001142

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.8373

Analysis of Variance Table

Response: F

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	0.08191276	0.08191276	27.98319	0.000114243
Residuals	14	0.04098099	0.00292721		

Figure 123. S+® output of regression model development using streamflow (Q) as the explanatory variable for fluoride (F) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), November 2011 through May 2013.

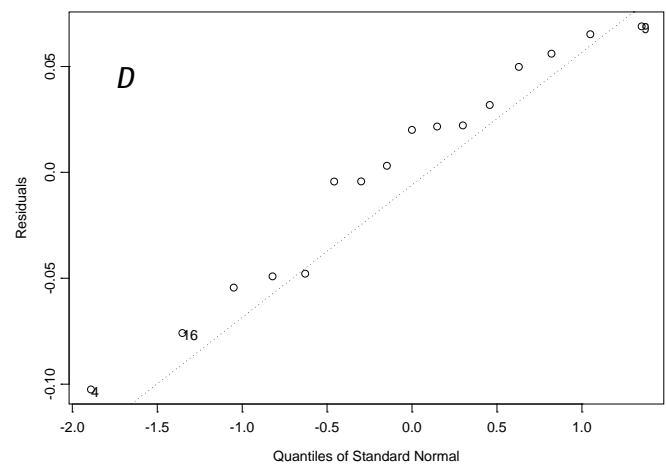
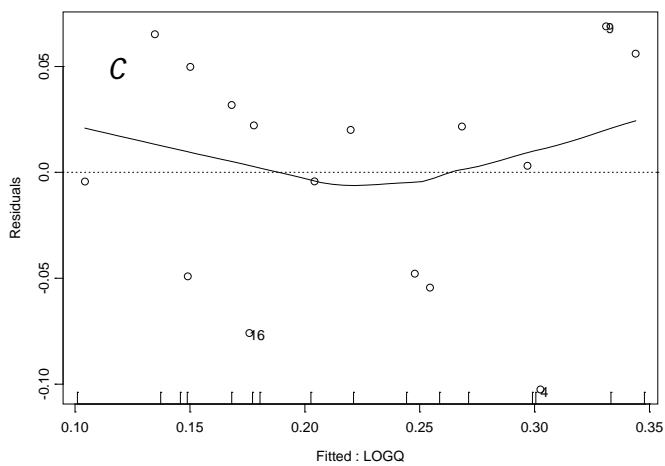
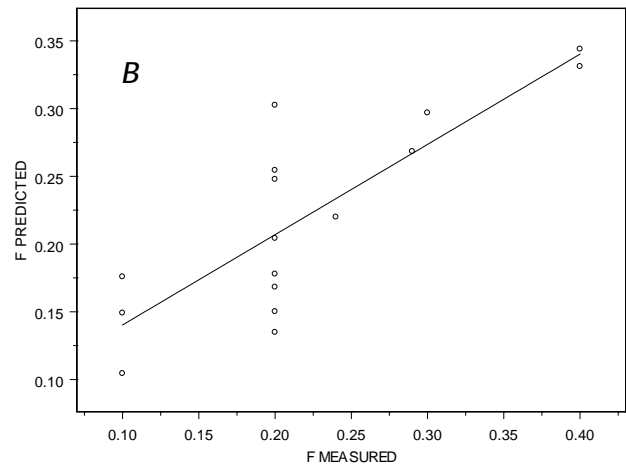
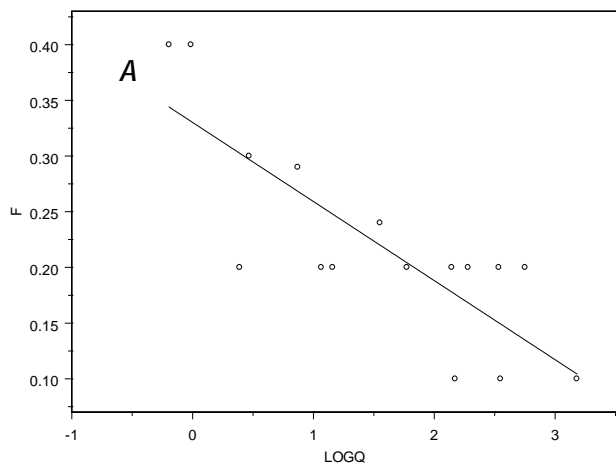


Figure 124. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (*Q*) versus fluoride (*F*) concentrations; *B*, measured versus predicted *F* concentrations; *C*, computed *F* concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), November 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = F ~ TBY + LOGTBY, data = F.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1764	-0.06092	-0.006665	0.03689	0.2315

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.5423	0.0290	18.6747	0.0000
TBY	0.0003	0.0001	3.3934	0.0014
LOGTBY	-0.1872	0.0215	-8.7145	0.0000

Residual standard error: 0.08137 on 50 degrees of freedom

Multiple R-Squared: 0.6873 Adjusted R-squared: 0.6748

F-statistic: 54.95 on 2 and 50 degrees of freedom, the p-value is 2.39e-013

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	TBY
TBY	0.4963	
LOGTBY	-0.8666	-0.7950

Analysis of Variance Table

Response: F

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	0.2247714	0.2247714	33.95094	4.063711e-007
LOGTBY	1	0.5027745	0.5027745	75.94232	1.330000e-011
Residuals	50	0.3310239	0.0066205		

Figure 125. S+® output of regression model development using turbidity (TBY) as an explanatory variable for fluoride (F) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

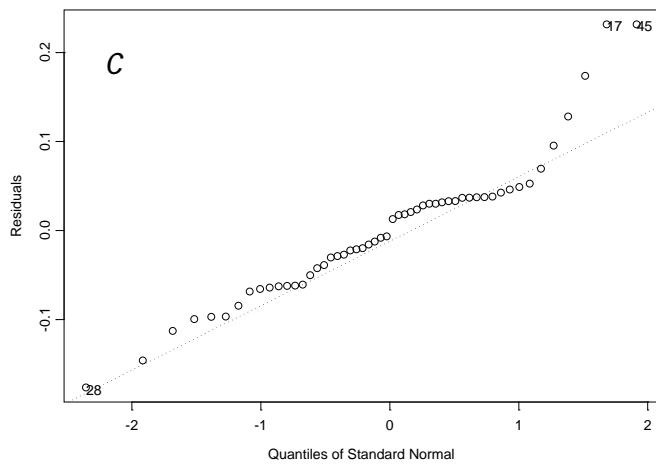
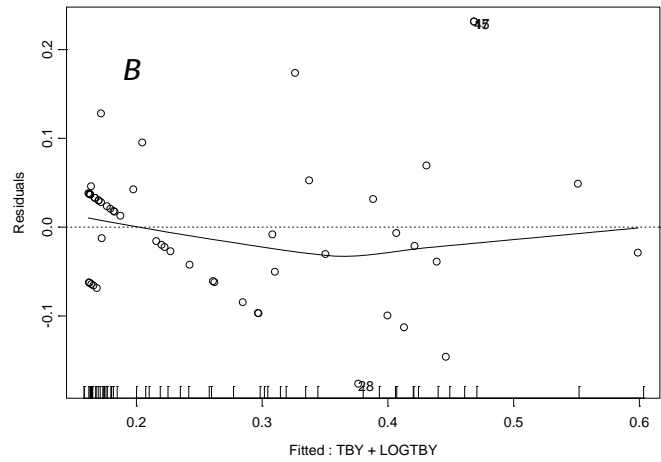
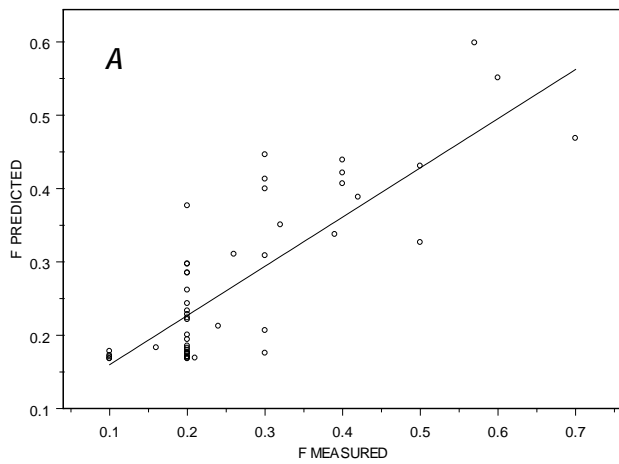


Figure 126. S+® output graphs from simple linear regression analysis using turbidity (TBY) and log-transformed TBY as explanatory variables for fluoride (F) concentrations showing *A*, measured versus predicted F concentrations; *B*, computed F concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGF ~ TBY + LOGTBY, data = F.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.2526	-0.04073	0.002886	0.01408	0.2023

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.2590	0.0452	-5.7323	0.0000
TBY	0.0002	0.0001	2.1704	0.0378
LOGTBY	-0.2108	0.0327	-6.4471	0.0000

Residual standard error: 0.09629 on 31 degrees of freedom

Multiple R-Squared: 0.6872 Adjusted R-squared: 0.667

F-statistic: 34.05 on 2 and 31 degrees of freedom, the p-value is 1.502e-008

Correlation of Coefficients:

	(Intercept)	TBY
TBY	0.5314	
LOGTBY	-0.8798	-0.8077

Analysis of Variance Table

Response: LOGF

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	0.2460899	0.2460899	26.54016	0.00001390206
LOGTBY	1	0.3854122	0.3854122	41.56570	0.00000034608
Residuals	31	0.2874432	0.0092724		

Figure 127. S+® output of regression model development using turbidity (TBY) as an explanatory variable for fluoride (F) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

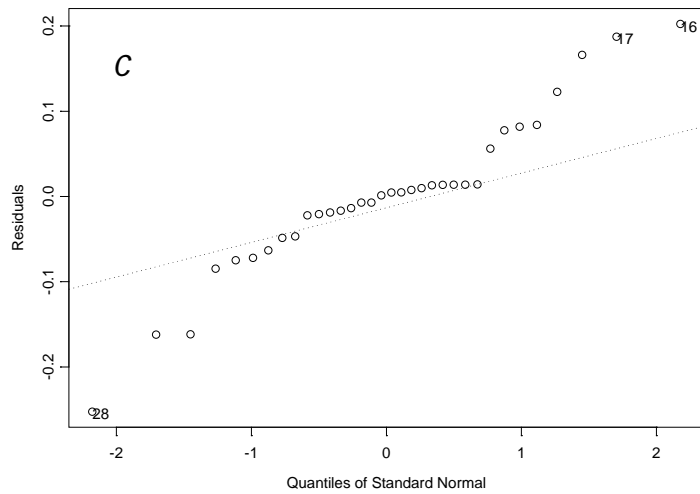
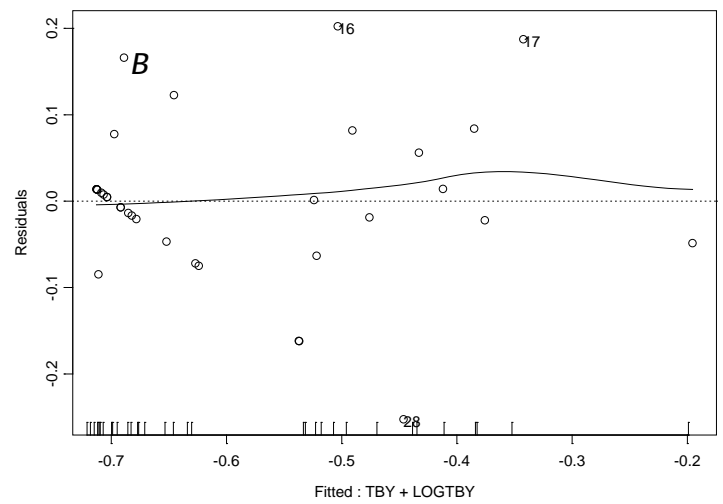
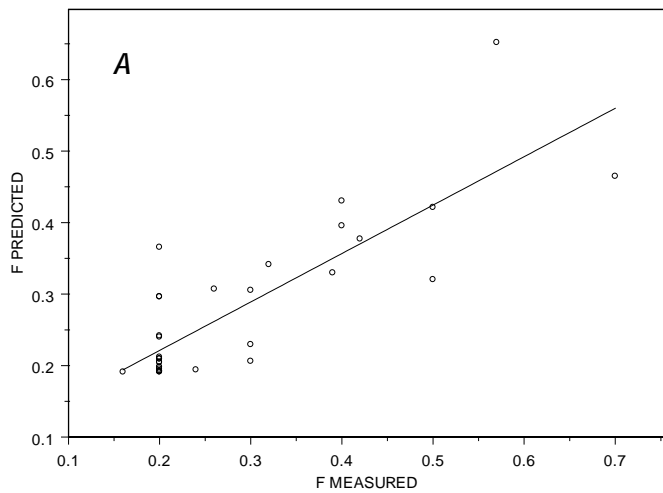


Figure 128. S+® output graphs from simple linear regression analysis using turbidity (TBY) and log-transformed TBY as explanatory variables for fluoride (F) concentrations showing *A*, measured versus predicted F concentrations; *B*, computed F concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = LOGF ~ LOGTBY, data = F.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1428	-0.08101	-0.03838	0.06778	0.212

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.2610	0.0602	-4.3341	0.0005
LOGTBY	-0.2568	0.0328	-7.8398	0.0000

Residual standard error: 0.1213 on 17 degrees of freedom

Multiple R-Squared: 0.7833 Adjusted R-squared: 0.7706

F-statistic: 61.46 on 1 and 17 degrees of freedom, the p-value is 4.802e-007

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)
LOGTBY	-0.8869

Analysis of Variance Table

Response: LOGF

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	0.9037926	0.9037926	61.46305	4.801651e-007
Residuals	17	0.2499790	0.0147046		

Figure 129. S+® output of regression model development using turbidity (TBY) as the explanatory variable for fluoride (F) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

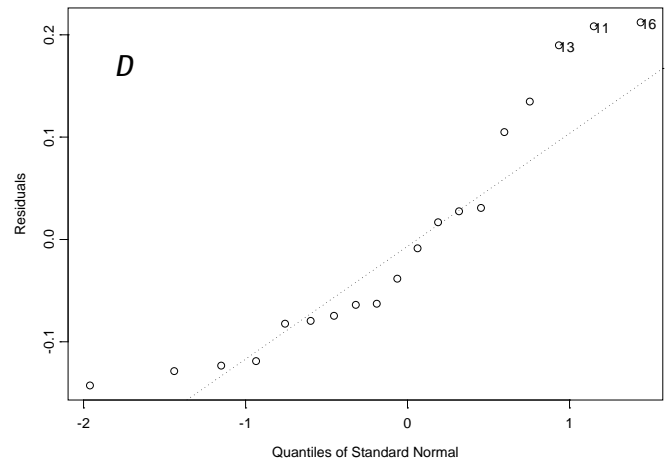
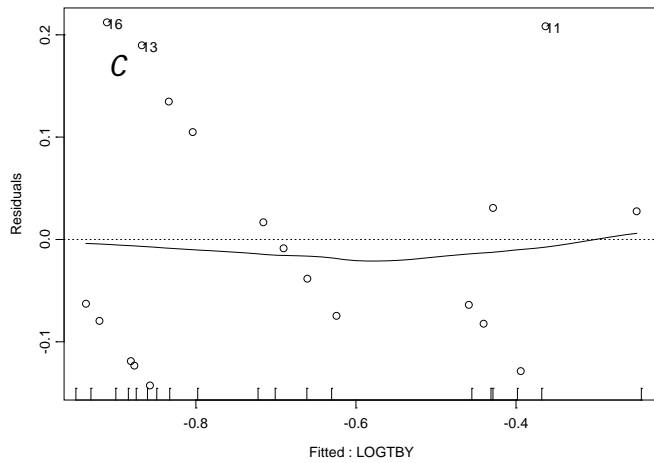
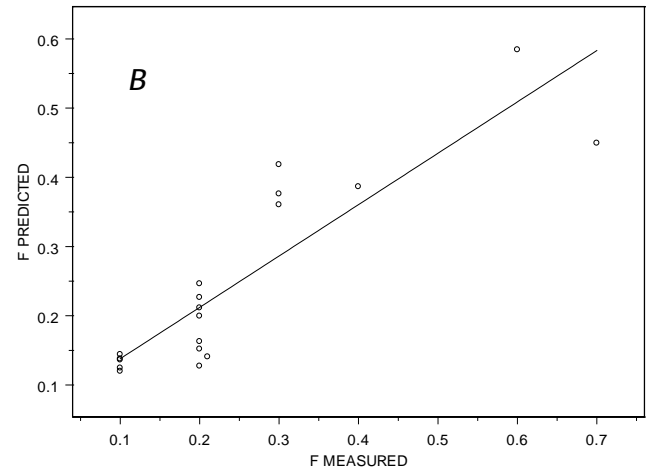
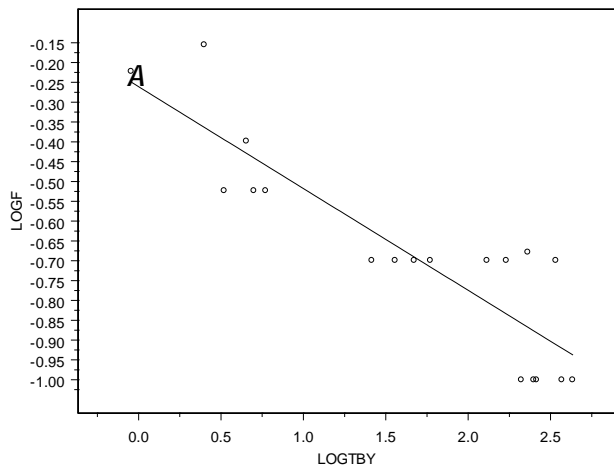


Figure 130. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed fluoride (F) concentrations; *B*, measured versus predicted F concentrations; *C*, computed log-transformed F concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = SO4 ~ LOGQ + LOGTBY, data = SO4.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-19.95	-6.151	0.8342	6.436	16.24

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	95.6370	4.0435	23.6518	0.0000
LOGQ	-14.1061	3.7701	-3.7416	0.0018
LOGTBY	-18.5338	4.5702	-4.0554	0.0009

Residual standard error: 9.985 on 16 degrees of freedom

Multiple R-Squared: 0.9285 Adjusted R-squared: 0.9196

F-statistic: 104 on 2 and 16 degrees of freedom, the p-value is 6.799e-010

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	LOGQ
LOGQ	0.0704	
LOGTBY	-0.4876	-0.8538

Analysis of Variance Table

Response: SO4

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	19090.05	19090.05	191.4602	0.0000000003
LOGTBY	1	1639.79	1639.79	16.4460	0.0009186962
Residuals	16	1595.32	99.71		

Figure 131. S+® output of regression model development using streamflow (Q) and turbidity (TBY) as explanatory variables for sulfate (SO4) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

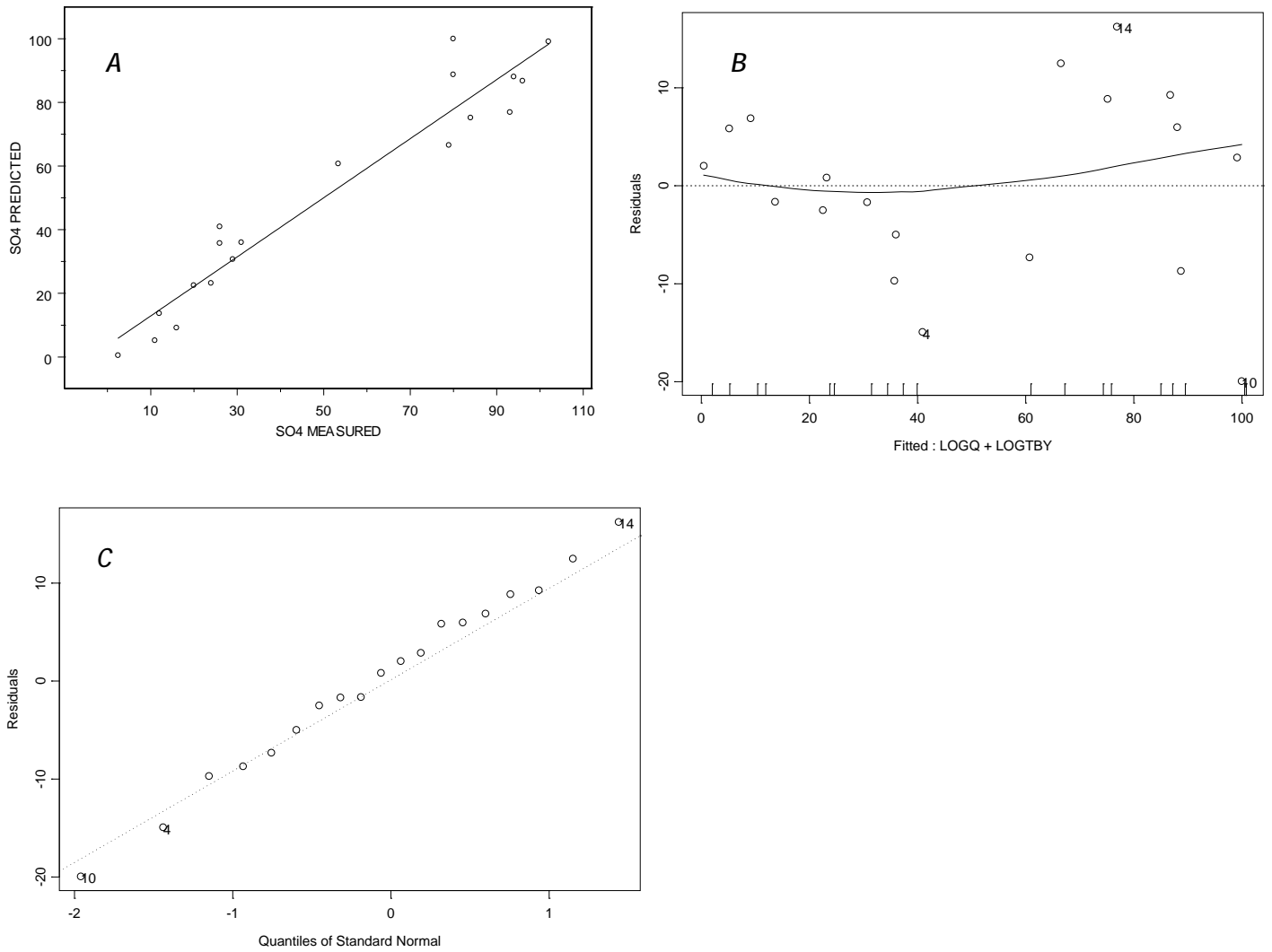


Figure 132. S+® output graphs from simple linear regression analysis using log-transformed streamflow (Q) and log-transformed turbidity (TBY) as explanatory variables for sulfate (SO4) concentrations showing A, measured versus predicted SO4 concentrations; B, computed SO4 concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = SO4 ~ TBY + LOGTBY, data = SO4.COLL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-12.95	-9.103	1.848	7.291	14.46

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	155.0973	4.9636	31.2469	0.0000
TBY	0.1050	0.0188	5.5886	0.0001
LOGTBY	-68.7900	4.5954	-14.9691	0.0000

Residual standard error: 9.334 on 14 degrees of freedom

Multiple R-Squared: 0.9681 Adjusted R-squared: 0.9635

F-statistic: 212.3 on 2 and 14 degrees of freedom, the p-value is 3.372e-011

Correlation of Coefficients:

	(Intercept)	TBY
TBY	0.5349	
LOGTBY	-0.8239	-0.8585

Analysis of Variance Table

Response: SO4

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	17479.08	17479.08	200.6046	1.084732e-009
LOGTBY	1	19524.13	19524.13	224.0753	5.230000e-010
Residuals	14	1219.85	87.13		

Figure 133. S+® output of regression model development using turbidity (TBY) as an explanatory variable for sulfate (SO4) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

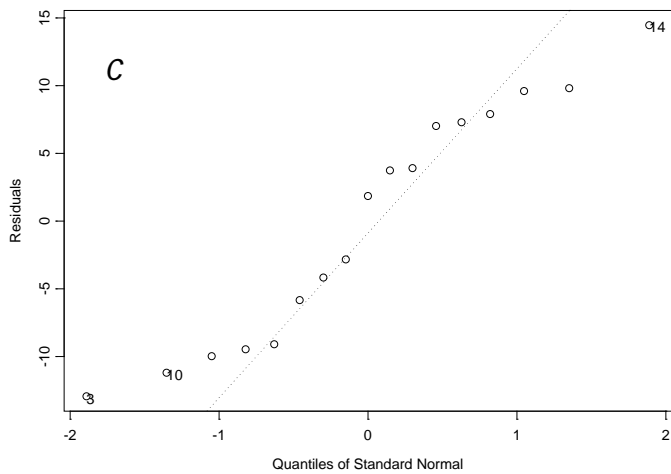
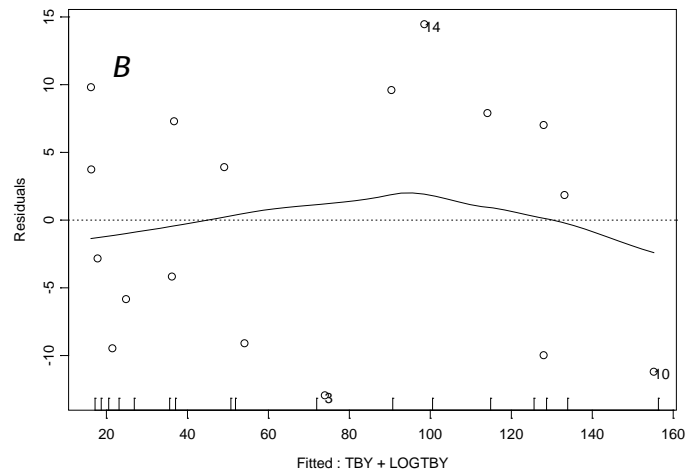
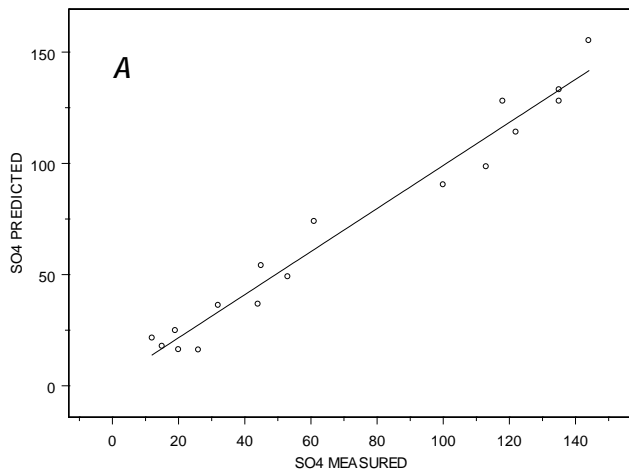


Figure 134. S+® output graphs from simple linear regression analysis using turbidity (TBY) and log-transformed turbidity (TBY) as explanatory variables for sulfate (SO4) concentrations showing *A*, measured versus predicted SO4 concentrations; *B*, computed SO4 concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGS04 ~ LOGQ + LOGSC, data = SO4.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1791	-0.03538	0.008332	0.03583	0.1551

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.6866	0.2696	2.5468	0.0223
LOGQ	-0.2339	0.0327	-7.1442	0.0000
LOGSC	0.5345	0.0787	6.7890	0.0000

Residual standard error: 0.08083 on 15 degrees of freedom

Multiple R-Squared: 0.948 Adjusted R-squared: 0.9411

F-statistic: 136.9 on 2 and 15 degrees of freedom, the p-value is 2.329e-010

Correlation of Coefficients:

	(Intercept)	LOGQ
LOGQ	-0.7753	
LOGSC	-0.9798	0.6453

Analysis of Variance Table

Response: LOGS04

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	1.487019	1.487019	227.6179	1.790000e-010
LOGSC	1	0.301109	0.301109	46.0907	6.105505e-006
Residuals	15	0.097994	0.006533		

Figure 135. S+® output of regression model development using streamflow (Q) and specific conductance (SC) as explanatory variables for sulfate (SO4) for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

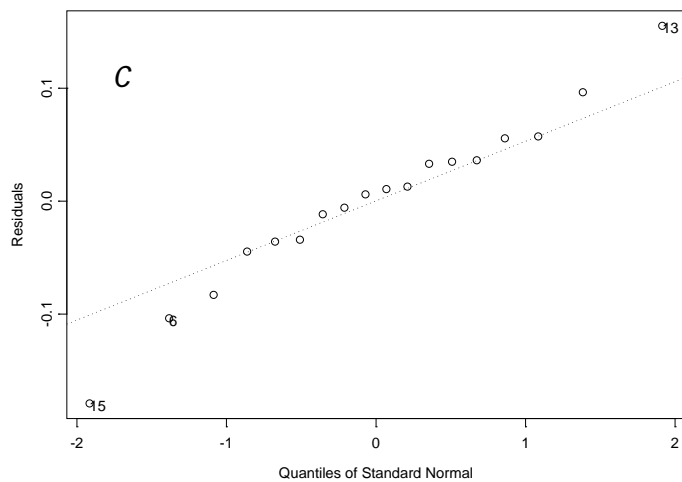
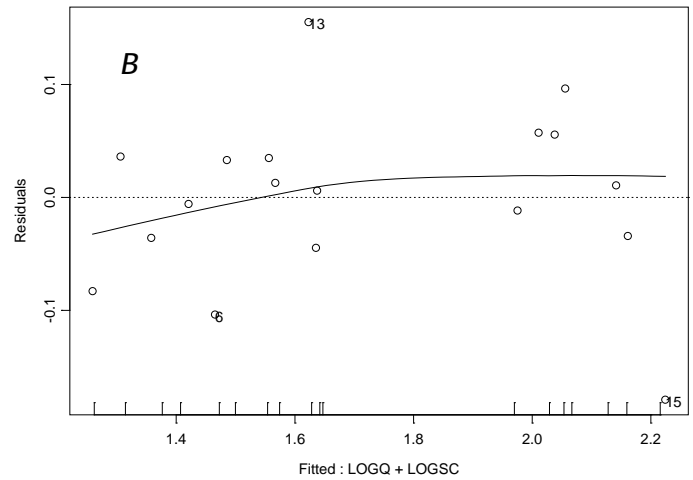
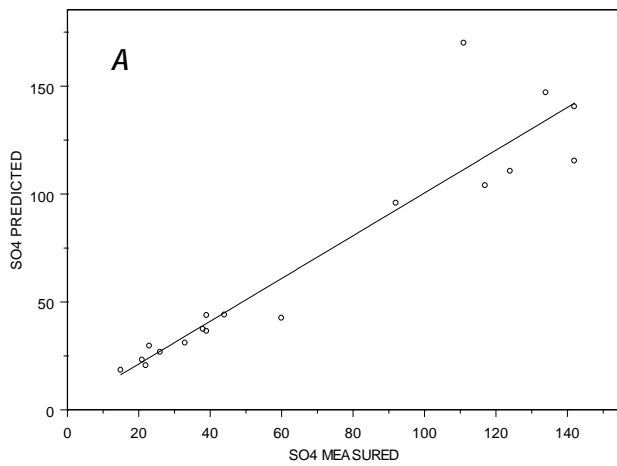


Figure 136. S+® output graphs from simple linear regression analysis using log-transformed streamflow (Q) and log-transformed specific conductance (SC) as explanatory variables for log-transformed sulfate (SO4) concentrations showing A, measured versus predicted SO4 concentrations; B, computed log-transformed SO4 concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGSO4 ~ LOGSC + LOGTBY, data = SO4.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1726	-0.04396	0.005375	0.03695	0.1202

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.7628	0.2155	3.5396	0.0030
LOGSC	0.4604	0.0660	6.9802	0.0000
LOGTBY	-0.2348	0.0265	-8.8737	0.0000

Residual standard error: 0.07397 on 15 degrees of freedom

Multiple R-Squared: 0.9563 Adjusted R-squared: 0.9505

F-statistic: 164.1 on 2 and 15 degrees of freedom, the p-value is 6.36e-011

438 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	LOGSC
LOGSC	-0.9868	
LOGTBY	-0.7180	0.6159

Analysis of Variance Table

Response: LOGSO4

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	1.365203	1.365203	249.5201	9.330000e-011
LOGTBY	1	0.430830	0.430830	78.7434	2.349105e-007
Residuals	15	0.082070	0.005471		

Figure 137. S+® output of regression model development using specific conductance (SC) and turbidity as explanatory variables for sulfate (SO4) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

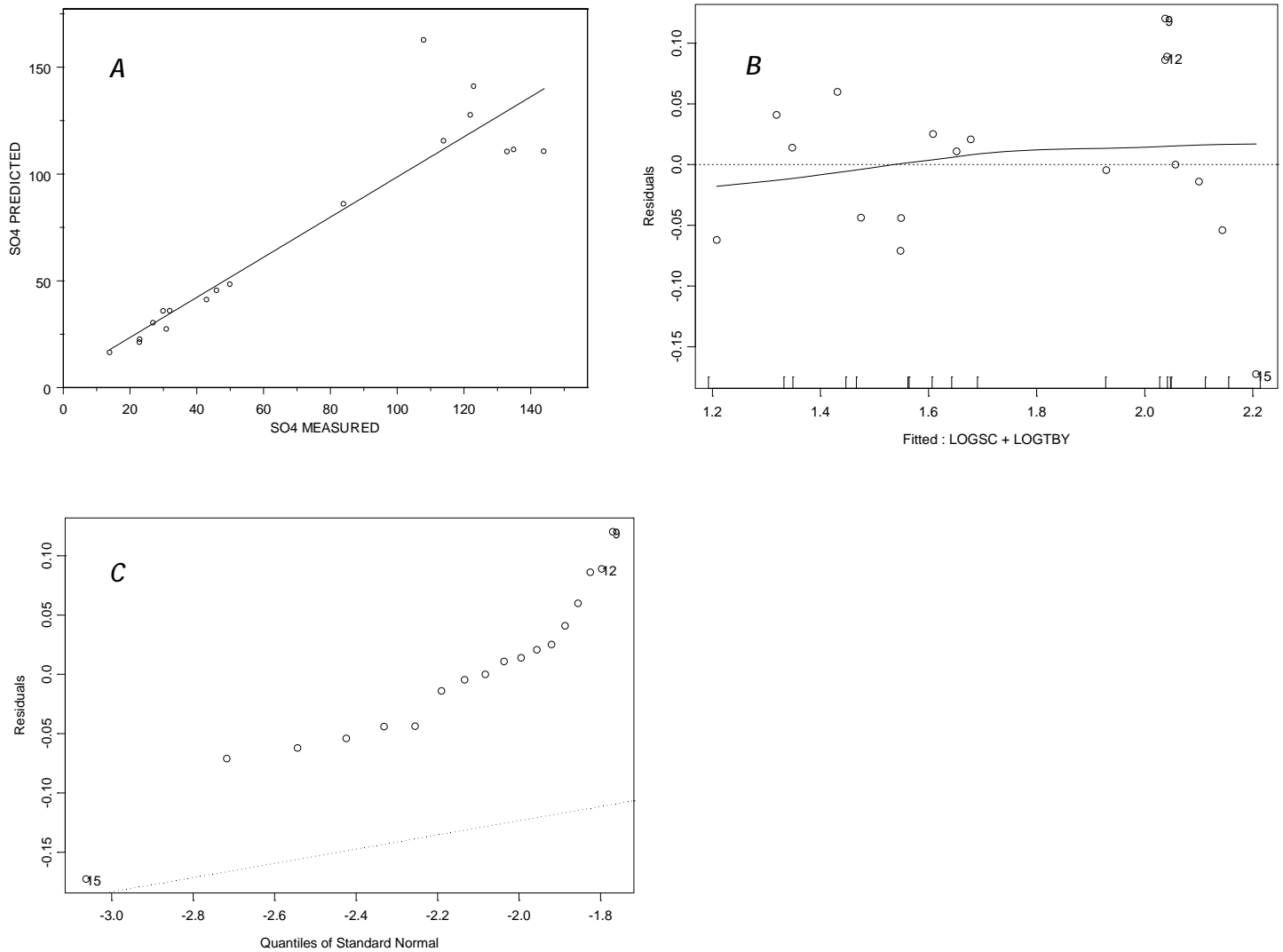


Figure 138. S+® output graphs from simple linear regression analysis using log-transformed specific conductance (SC) and log-transformed turbidity (TBY) as explanatory variables for log-transformed sulfate (SO4) concentrations showing A, measured versus predicted SO4 concentrations; B, computed log-transformed SO4 concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGSO4 ~ LOGQ + LOGSC, data = SO4.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.09752	-0.05907	-0.006053	0.05561	0.1882

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.0991	0.2717	4.0459	0.0014
LOGQ	-0.1756	0.0249	-7.0630	0.0000
LOGSC	0.3379	0.0857	3.9446	0.0017

Residual standard error: 0.0858 on 13 degrees of freedom

Multiple R-Squared: 0.9081 Adjusted R-squared: 0.894

F-statistic: 64.24 on 2 and 13 degrees of freedom, the p-value is 1.824e-007

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	LOGQ
LOGQ	-0.6145	
LOGSC	-0.9895	0.5164

Analysis of Variance Table

Response: LOGSO4

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	0.8313226	0.8313226	112.9267	0.000000088
LOGSC	1	0.1145431	0.1145431	15.5595	0.001678707
Residuals	13	0.0957010	0.0073616		

Figure 139. S+® output of regression model development using streamflow (Q) and specific conductance (SC) as explanatory variables for sulfate (SO4) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), November 2011 through May 2013.

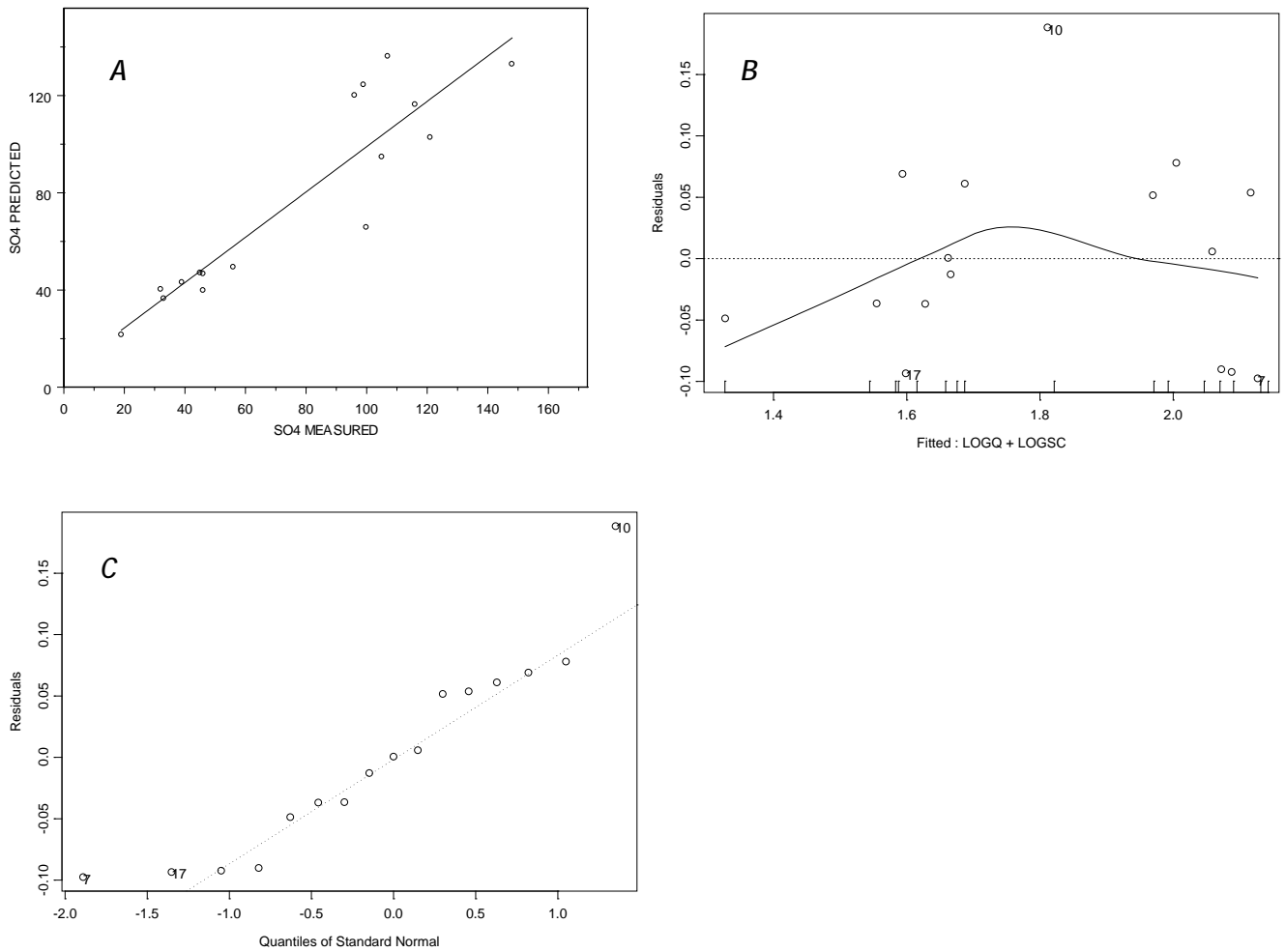


Figure 140. S+® output graphs from simple linear regression analysis using log-transformed streamflow (Q) and log-transformed specific conductance (SC) as explanatory variables for log-transformed sulfate (SO4) concentrations showing *A*, measured versus predicted SO4 concentrations; *B*, computed log-transformed SO4 concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), November 2011 through May 2013.

```

*** Linear Model ***

Call: lm(formula = LOGSO4 ~ LOGQ + LOGSC, data = SO4.STL.SPLUS, na.action =
na.exclude)

Residuals:
    Min       1Q   Median       3Q      Max
-0.5205 -0.07817  0.0191  0.09444  0.2816

Coefficients:
            Value Std. Error t value Pr(>|t|)
(Intercept)  0.7910   0.2663    2.9705  0.0045
          LOGQ -0.1935   0.0288   -6.7139  0.0000
          LOGSC  0.4844   0.0755    6.4139  0.0000

Residual standard error: 0.1336 on 52 degrees of freedom
Multiple R-Squared:  0.8347    Adjusted R-squared:  0.8283
F-statistic: 131.3 on 2 and 52 degrees of freedom, the p-value is 0

Correlation of Coefficients:
      (Intercept)      LOGQ
LOGQ  -0.8041
LOGSC -0.9777      0.6718

Analysis of Variance Table

Response: LOGSO4

Terms added sequentially (first to last)
      Df Sum of Sq  Mean Sq  F Value    Pr(F)
LOGQ   1  3.954252  3.954252  221.4104 0.00000e+000
LOGSC   1  0.734711  0.734711   41.1387 4.24958e-008
Residuals 52  0.928688  0.017859

```

Figure 141. S+® output of regression model development using streamflow (Q) and specific conductance (SC) as explanatory variables for sulfate (SO4) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

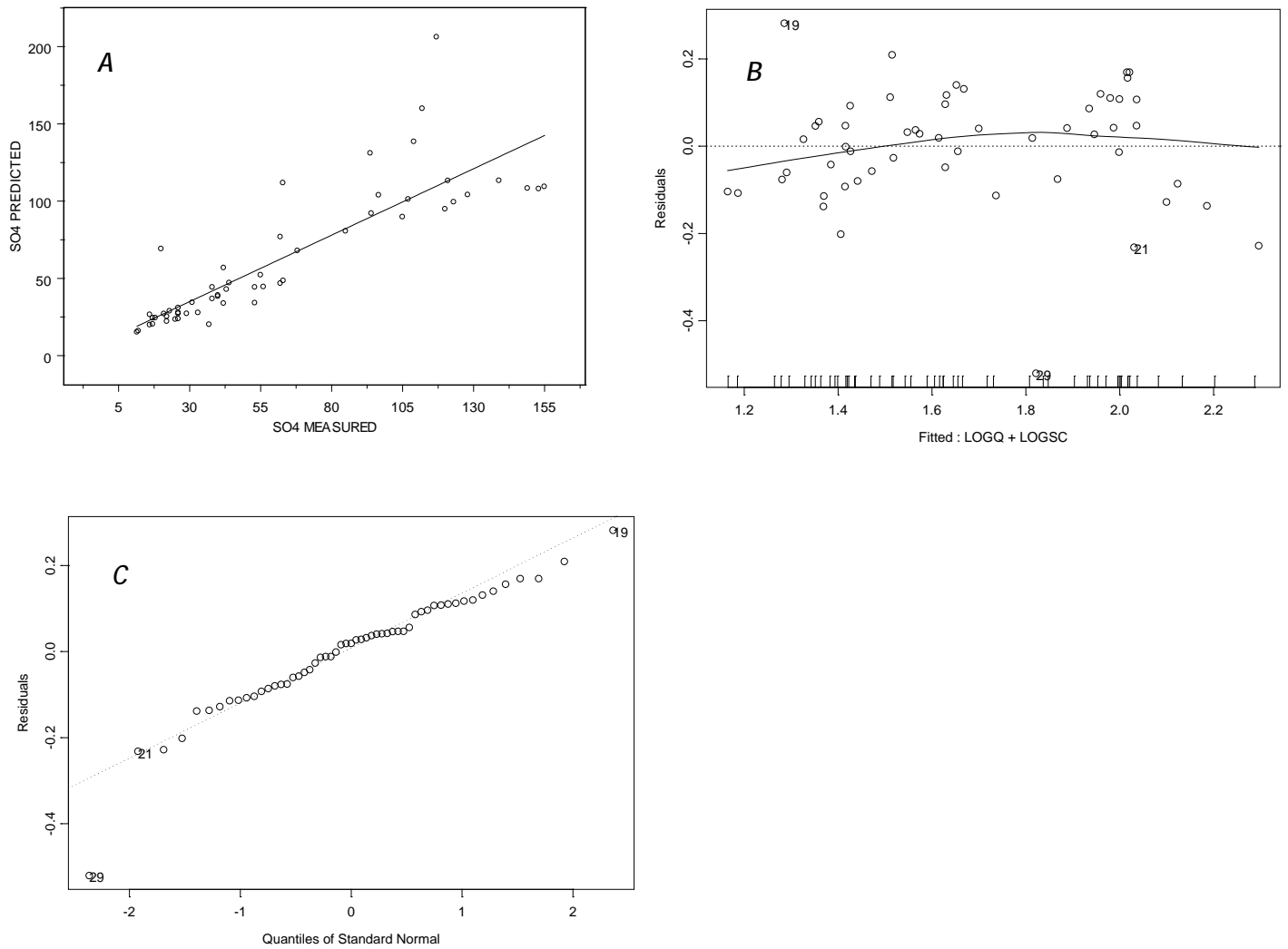


Figure 142. S+® output graphs from simple linear regression analysis using log-transformed streamflow (Q) and log-transformed specific conductance (SC) as explanatory variables for log-transformed sulfate (SO4) concentrations showing *A*, measured versus predicted SO4 concentrations; *B*, computed log-transformed SO4 concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGS04 ~ LOGQ + LOGSC, data = SO4.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.463	-0.0732	-0.008205	0.09022	0.3053

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.7225	0.3450	2.0939	0.0443
LOGQ	-0.1795	0.0372	-4.8313	0.0000
LOGSC	0.4822	0.0977	4.9356	0.0000

Residual standard error: 0.1413 on 32 degrees of freedom

Multiple R-Squared: 0.8294 Adjusted R-squared: 0.8187

F-statistic: 77.77 on 2 and 32 degrees of freedom, the p-value is 5.167e-013

Correlation of Coefficients:

	(Intercept)	LOGQ
LOGQ	-0.8195	
LOGSC	-0.9781	0.6933

Analysis of Variance Table

Response: LOGS04

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	2.617452	2.617452	131.1711	0.0000000000
LOGSC	1	0.486088	0.486088	24.3598	0.0000239624
Residuals	32	0.638544	0.019954		

Figure 143. S+® output of regression model development using streamflow (Q) and specific conductance (SC) as explanatory variables for sulfate (SO4) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

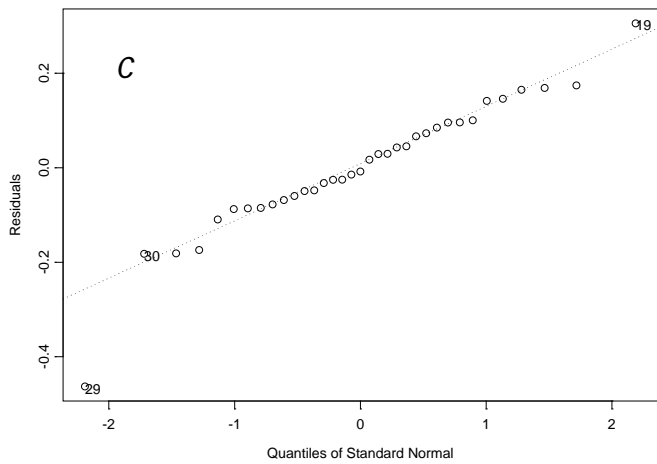
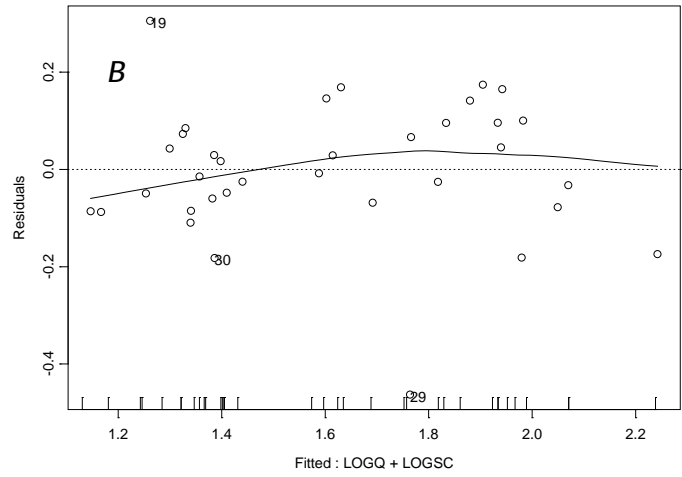
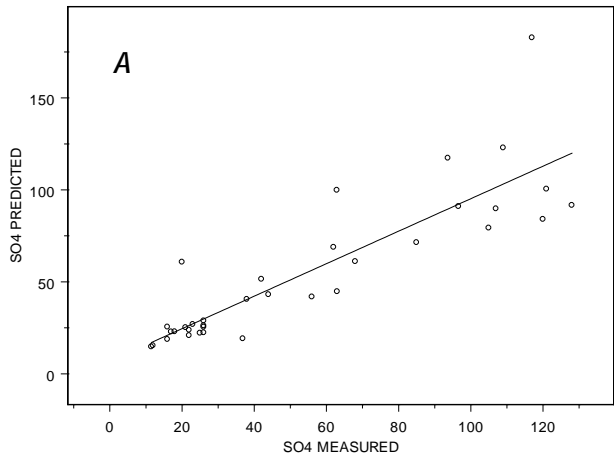


Figure 144. S+® output graphs from simple linear regression analysis using log-transformed streamflow (Q) and log-transformed specific conductance (SC) as explanatory variables for log-transformed sulfate (SO4) concentrations showing A, measured versus predicted SO4 concentrations; B, computed log-transformed SO4 concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = LOGSO4 ~ LOGSC + LOGTBY, data = SO4.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1744	-0.02798	-0.007336	0.03565	0.1534

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.9734	0.2663	3.6556	0.0021
LOGSC	0.3927	0.0828	4.7446	0.0002
LOGTBY	-0.2036	0.0277	-7.3389	0.0000

Residual standard error: 0.07977 on 16 degrees of freedom

Multiple R-Squared: 0.9257 Adjusted R-squared: 0.9164

F-statistic: 99.67 on 2 and 16 degrees of freedom, the p-value is 9.29e-010

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	LOGSC
LOGSC	-0.9889	
LOGTBY	-0.7254	0.6299

Analysis of Variance Table

Response: LOGSO4

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	0.9257582	0.9257582	145.4775	1.911000e-009
LOGTBY	1	0.3427398	0.3427398	53.8596	1.666517e-006
Residuals	16	0.1018173	0.0063636		

Figure 145. S+® output of regression model development using specific conductance (SC) and turbidity (TBY) as explanatory variables for sulfate (SO4) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

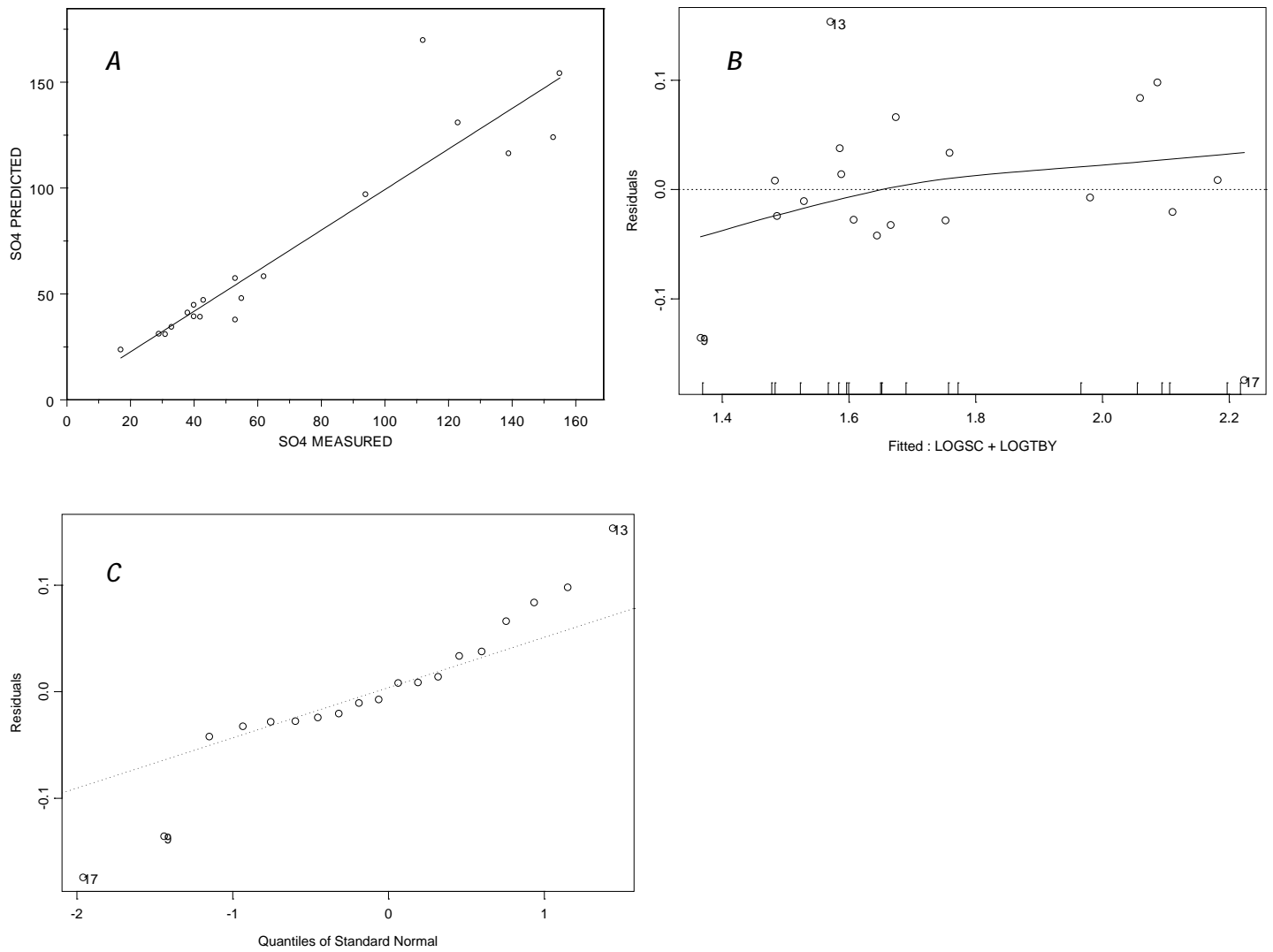


Figure 146. S+® output graphs from simple linear regression analysis using log-transformed specific conductance (SC) and log-transformed turbidity (TBY) as explanatory variables for log-transformed sulfate (SO4) concentrations showing *A*, measured versus predicted SO4 concentrations; *B*, computed log-transformed SO4 concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGFE ~ LOGQ, data = FE.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.8173	-0.07916	-0.01326	0.1748	0.3844

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.1129	0.0962	11.5649	0.0000
LOGQ	0.2832	0.0535	5.2938	0.0001

Residual standard error: 0.2722 on 17 degrees of freedom

Multiple R-Squared: 0.6224 Adjusted R-squared: 0.6002

F-statistic: 28.02 on 1 and 17 degrees of freedom, the p-value is 0.00005954

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.7609

Analysis of Variance Table

Response: LOGFE

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	2.076139	2.076139	28.02426	0.00005954104
Residuals	17	1.259422	0.074084		

Figure 147. S+® output of regression model development using streamflow (Q) as the explanatory variable for iron (FE) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

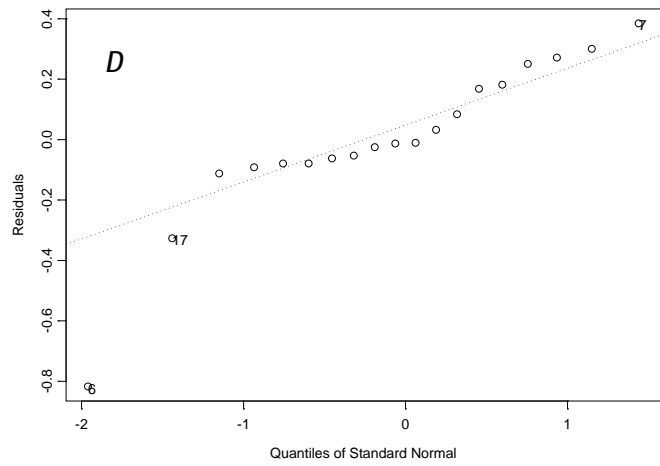
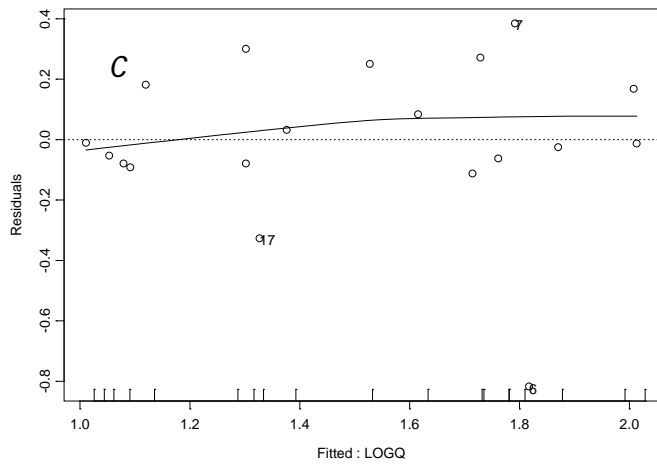
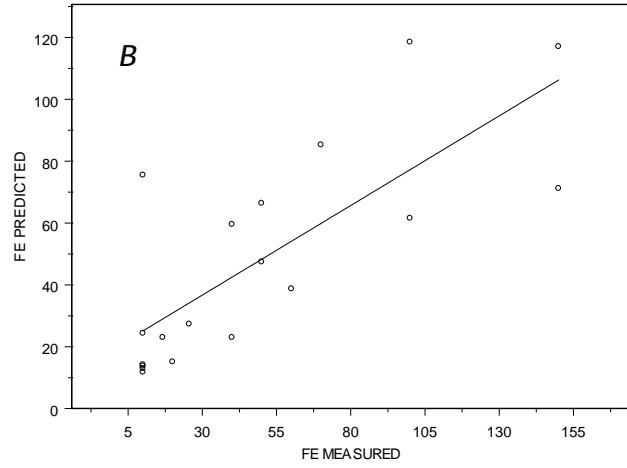
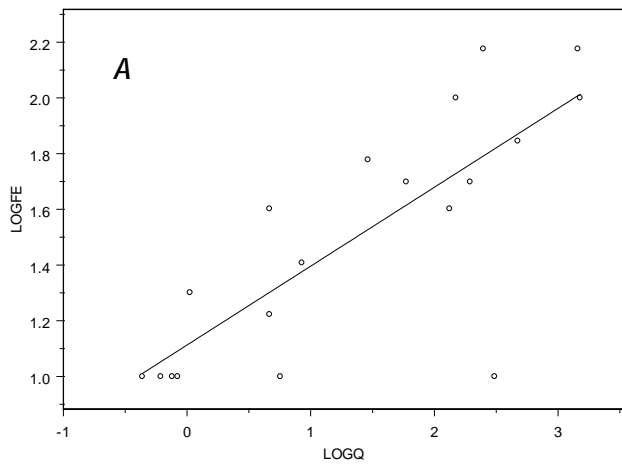


Figure 148. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus log-transformed iron (FE) concentrations; *B*, measured versus predicted FE concentrations; *C*, computed log-transformed FE concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = FE ~ SIN + COS + Q, data = FE.COLL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-27.37	-15.85	-1.691	14.23	36.42

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	54.9826	6.9833	7.8734	0.0000
SIN	-23.6755	8.3785	-2.8258	0.0143
COS	-19.4529	7.9462	-2.4481	0.0293
Q	0.0207	0.0083	2.4913	0.0270

Residual standard error: 21.83 on 13 degrees of freedom

Multiple R-Squared: 0.7076 Adjusted R-squared: 0.6401

F-statistic: 10.49 on 3 and 13 degrees of freedom, the p-value is 0.0008874

Correlation of Coefficients:

	(Intercept)	SIN	COS
SIN	-0.3241		
COS	-0.2359	-0.1004	
Q	-0.5781	0.0497	0.3758

Analysis of Variance Table

Response: FE

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SIN	1	5678.685	5678.685	11.91563	0.00429242
COS	1	6355.571	6355.571	13.33594	0.00292702
Q	1	2957.864	2957.864	6.20651	0.02702916
Residuals	13	6195.470	476.575		

Figure 149. S+® output of regression model development using season (SIN and COS) and streamflow (Q) as explanatory variables for iron (FE) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

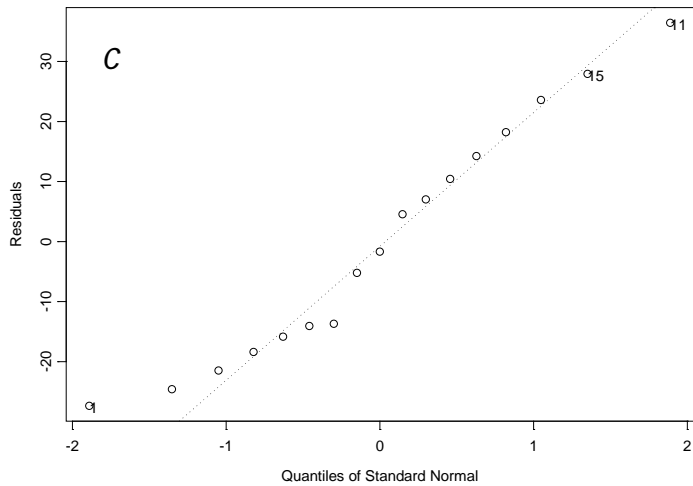
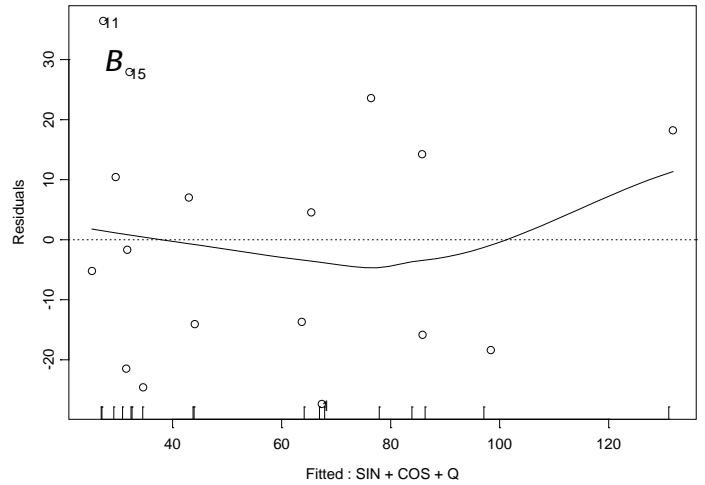
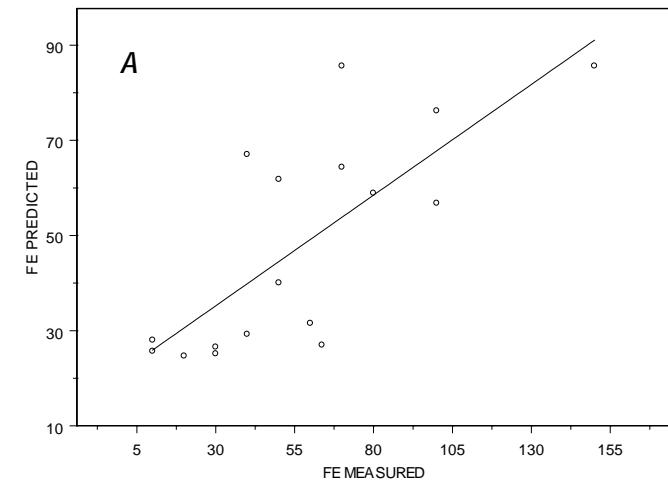


Figure 150. S+® output graphs from simple linear regression analysis using season (SIN and COS) and streamflow (Q) as explanatory variables for iron (FE) concentrations showing *A*, measured versus predicted FE concentrations; *B*, computed FE concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

```

*** Linear Model ***

Call: lm(formula = LOGFE ~ LOGSC, data = FE.MART.SPLUS, na.action = na.exclude)
Residuals:
    Min       1Q   Median       3Q      Max
-0.6283 -0.07923 0.007922 0.2003 0.3395

Coefficients:
            Value Std. Error t value Pr(>|t|)
(Intercept)  3.8678   0.5561     6.9548  0.0000
      LOGSC  -0.8113   0.1965    -4.1293  0.0008

Residual standard error: 0.264 on 16 degrees of freedom
Multiple R-Squared:  0.5159    Adjusted R-squared:  0.4856
F-statistic: 17.05 on 1 and 16 degrees of freedom, the p-value is 0.0007868

Correlation of Coefficients:
      (Intercept)
LOGSC -0.9937

Analysis of Variance Table

Response: LOGFE

Terms added sequentially (first to last)
      Df Sum of Sq Mean Sq F Value    Pr(F)
LOGSC  1  1.188524 1.188524 17.05093 0.0007867562
Residuals 16  1.115270 0.069704

```

Figure 151. S+® output of regression model development using specific conductance (SC) as the explanatory variable for iron (FE) for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

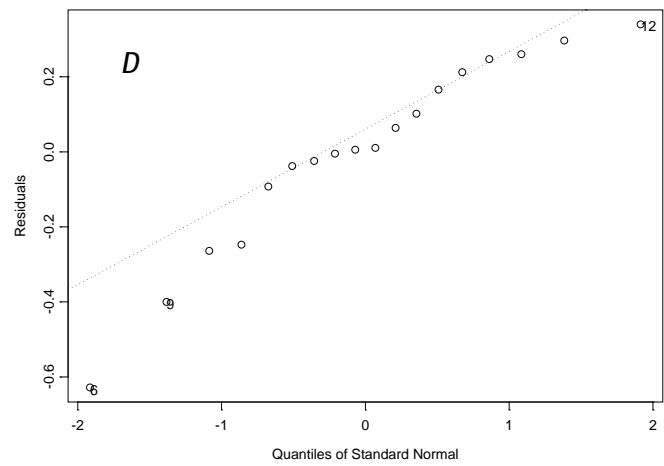
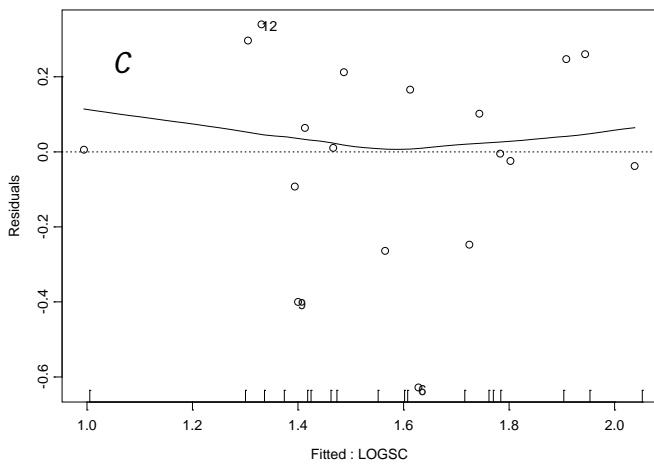
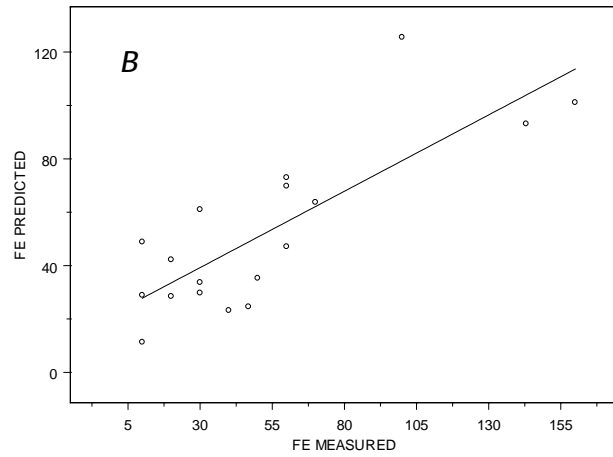
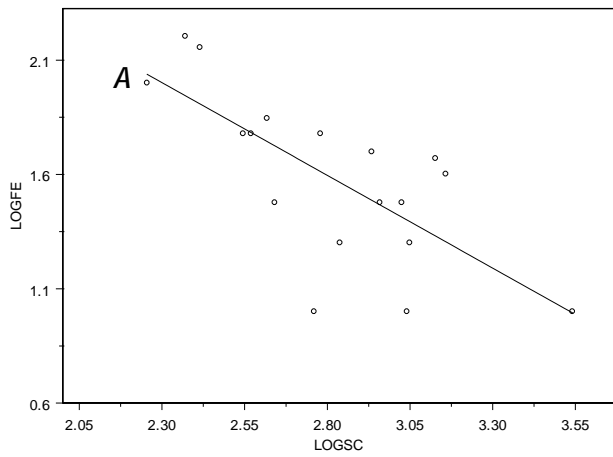


Figure 152. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed iron (FE) concentrations; *B*, measured versus predicted FE concentrations; *C*, computed FE concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = FE ~ SC + LOGSC, data = FE.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-35.73	-11.01	-1.54	13.15	38.65

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	520.6594	80.2888	6.4848	0.0000
SC	0.0394	0.0114	3.4419	0.0040
LOGSC	-178.1903	31.2325	-5.7053	0.0001

Residual standard error: 20.36 on 14 degrees of freedom

Multiple R-Squared: 0.7542 Adjusted R-squared: 0.7191

F-statistic: 21.48 on 2 and 14 degrees of freedom, the p-value is 0.00005416

438 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	SC
SC	0.8378	
LOGSC	-0.9956	-0.8760

Analysis of Variance Table

Response: FE

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SC	1	4315.91	4315.91	10.41362	0.006084670
LOGSC	1	13490.41	13490.41	32.55028	0.000054349
Residuals	14	5802.28	414.45		

Figure 153. S+® output of regression model development using specific conductance (SC) as an explanatory variable for iron (FE) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

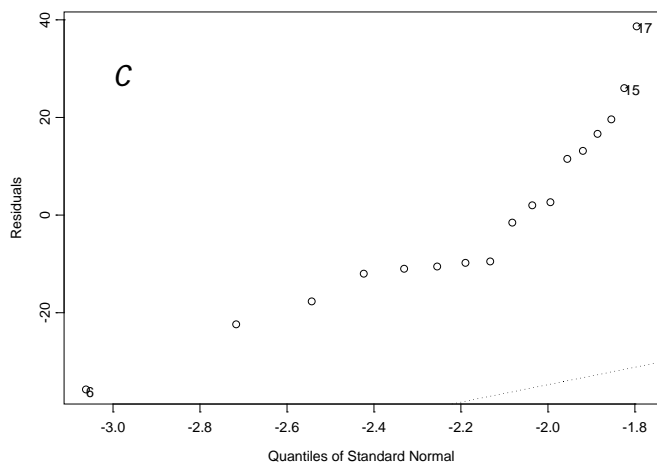
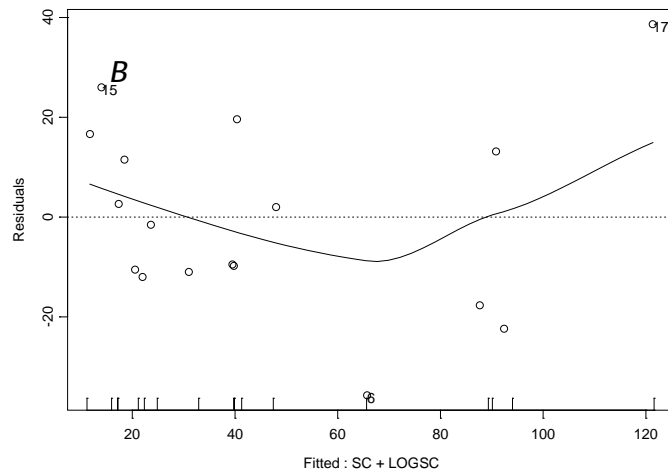
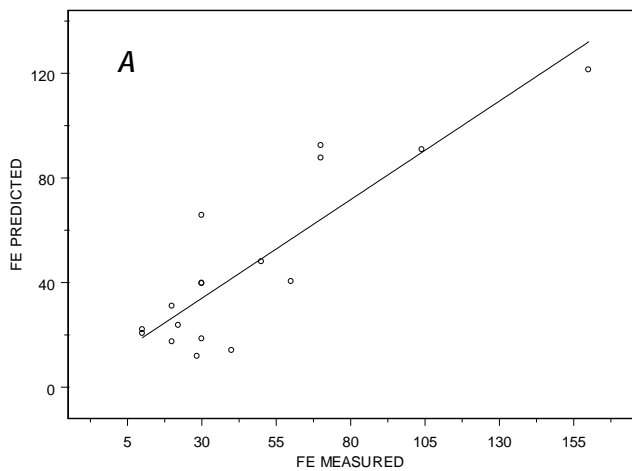


Figure 154. S+® output graphs from simple linear regression analysis using specific conductance (SC) and log-transformed SC as explanatory variables for iron (FE) concentrations showing *A*, measured versus predicted FE concentrations; *B*, computed FE concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGFE ~ LOGSC, data = FE.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.4441	-0.01323	0.05178	0.08413	0.6796

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	3.7853	0.6750	5.6083	0.0000
LOGSC	-0.8102	0.2321	-3.4903	0.0033

Residual standard error: 0.2763 on 15 degrees of freedom

Multiple R-Squared: 0.4482 Adjusted R-squared: 0.4114

F-statistic: 12.18 on 1 and 15 degrees of freedom, the p-value is 0.003288

Correlation of Coefficients:

(Intercept)	
LOGSC	-0.9951

Analysis of Variance Table

Response: LOGFE

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	0.930253	0.9302527	12.18251	0.003288028
Residuals	15	1.145395	0.0763597		

Figure 155. S+® output of regression model development using specific conductance (SC) as the explanatory variable for iron (FE) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

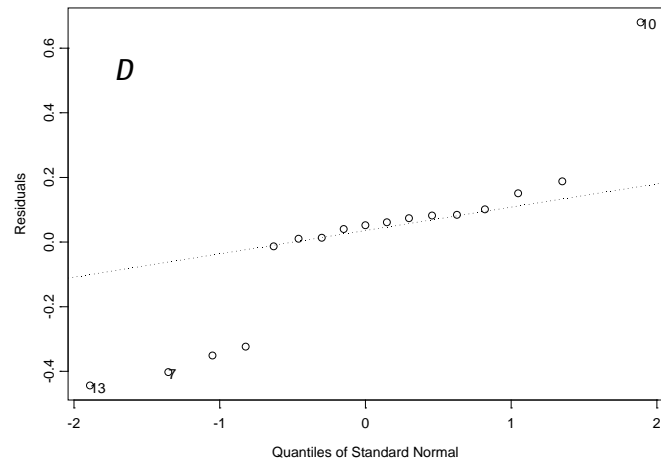
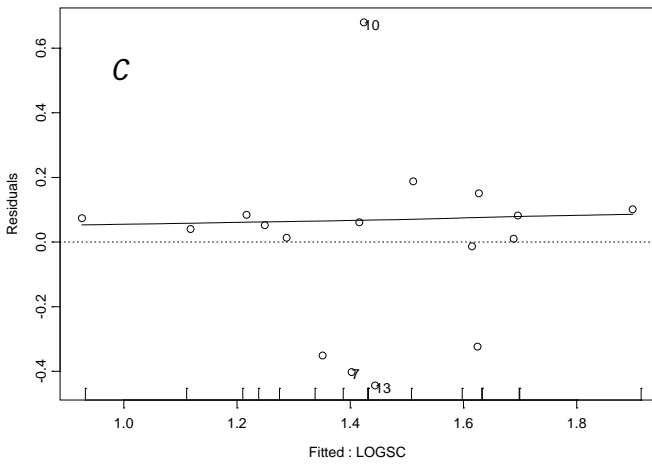
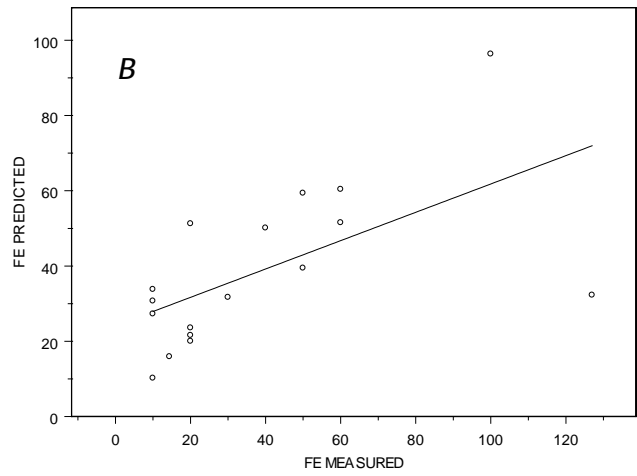
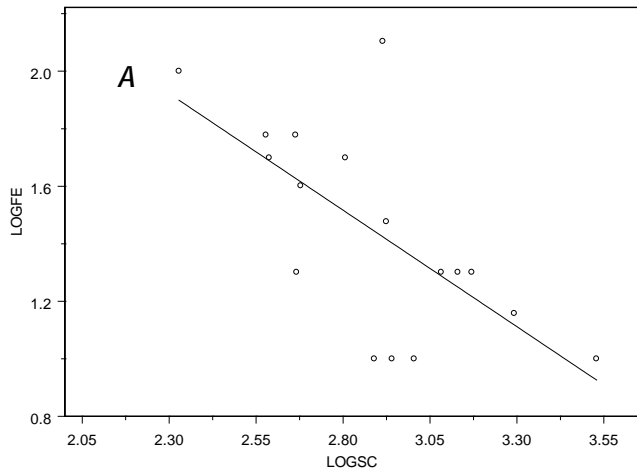


Figure 156. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed iron (FE) concentrations; *B*, measured versus predicted FE concentrations; *C*, computed log-transformed FE concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGTSS ~ LOGTBY, data = TSS.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-1.055	-0.06179	0.09154	0.2207	0.7255

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.3485	0.1558	2.2368	0.0382
LOGTBY	0.9663	0.0943	10.2495	0.0000

Residual standard error: 0.4187 on 18 degrees of freedom

Multiple R-Squared: 0.8537 Adjusted R-squared: 0.8456

F-statistic: 105.1 on 1 and 18 degrees of freedom, the p-value is 6.104e-009

Correlation of Coefficients:

(Intercept)	
LOGTBY	-0.7992

Analysis of Variance Table

Response: LOGTSS

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	18.41994	18.41994	105.0524	6.103892e-009
Residuals	18	3.15613	0.17534		

Figure 157. S+® output of regression model development using turbidity (TBY) as the explanatory variable for total suspended solids (TSS) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), June 2011 through May 2013.

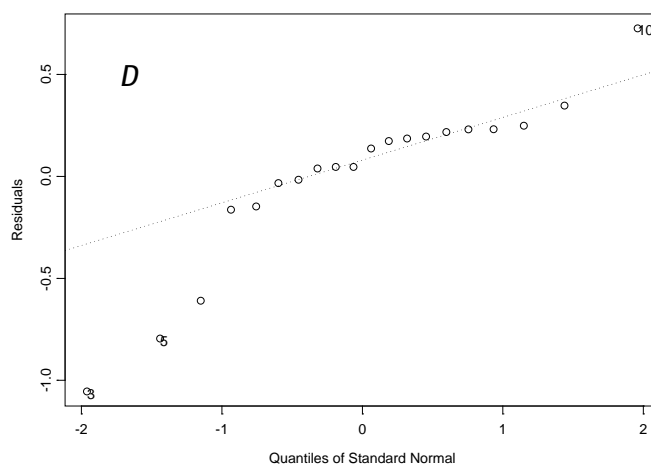
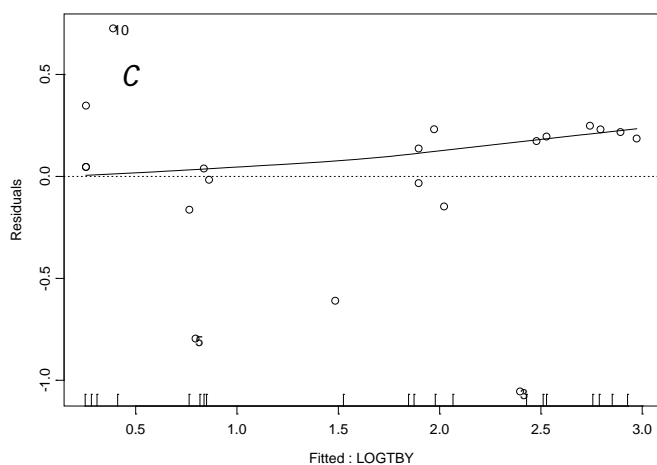
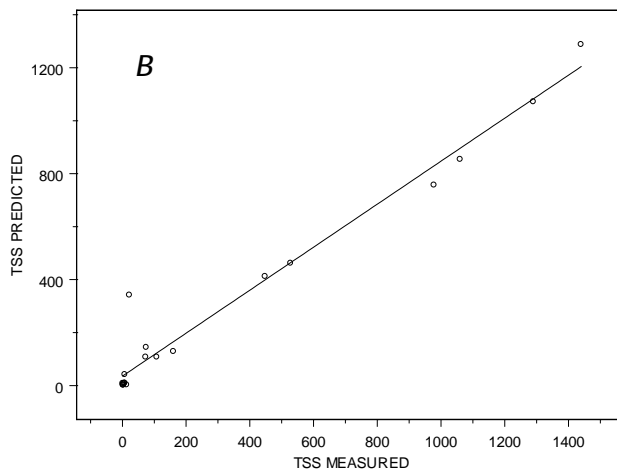
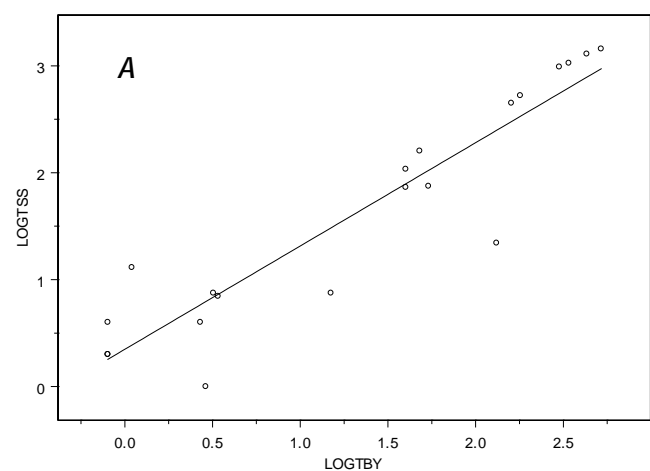


Figure 158. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed total suspended solids (TSS) concentrations; *B*, measured versus predicted TSS concentrations; *C*, computed TSS concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGTSS ~ LOGTBY, data = TSS.COLLE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.9158	-0.02986	0.03729	0.1009	0.4092

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.1929	0.1332	1.4478	0.1682
LOGTBY	1.0730	0.0749	14.3329	0.0000

Residual standard error: 0.2965 on 15 degrees of freedom

Multiple R-Squared: 0.932 Adjusted R-squared: 0.9274

F-statistic: 205.4 on 1 and 15 degrees of freedom, the p-value is 3.683e-010

Correlation of Coefficients:

(Intercept)	
LOGTBY	-0.8418

Analysis of Variance Table

Response: LOGTSS

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	18.06576	18.06576	205.4331	3.6832e-010
Residuals	15	1.31910	0.08794		

Figure 159. S+® output of regression model development using turbidity (TBY) as the explanatory variable for total suspended solids (TSS) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

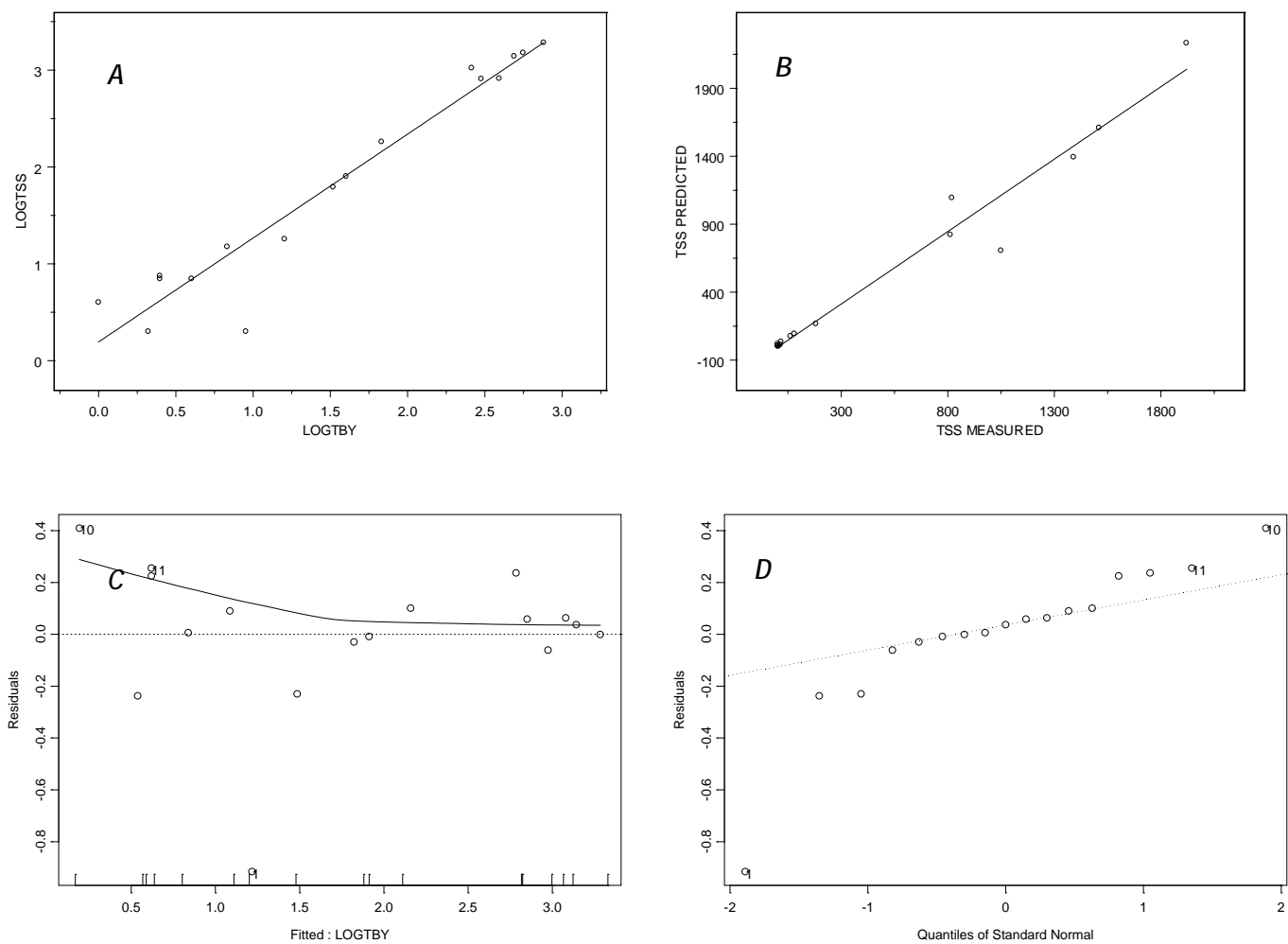


Figure 160. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed total suspended solids (TSS) concentrations; *B*, measured versus predicted TSS concentrations; *C*, computed TSS concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGTSS ~ LOGQ + LOGTBY, data = TSS.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.4635	-0.1369	-0.009871	0.1686	0.6678

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.0896	0.2507	-0.3576	0.7260
LOGQ	0.6156	0.2594	2.3732	0.0325
LOGTBY	0.4552	0.2042	2.2290	0.0427

Residual standard error: 0.2886 on 14 degrees of freedom

Multiple R-Squared: 0.92 Adjusted R-squared: 0.9086

F-statistic: 80.48 on 2 and 14 degrees of freedom, the p-value is 2.1e-008

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	LOGQ
LOGQ	-0.8451	
LOGTBY	0.6269	-0.9342

Analysis of Variance Table

Response: LOGTSS

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	12.99126	12.99126	155.9990	0.00000001
LOGTBY	1	0.41376	0.41376	4.9685	0.04270933
Residuals	14	1.16589	0.08328		

Figure 161. S+® output of regression model development using streamflow (Q) and turbidity (TBY) as explanatory variables for total suspended solids (TSS) for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through April 2013.

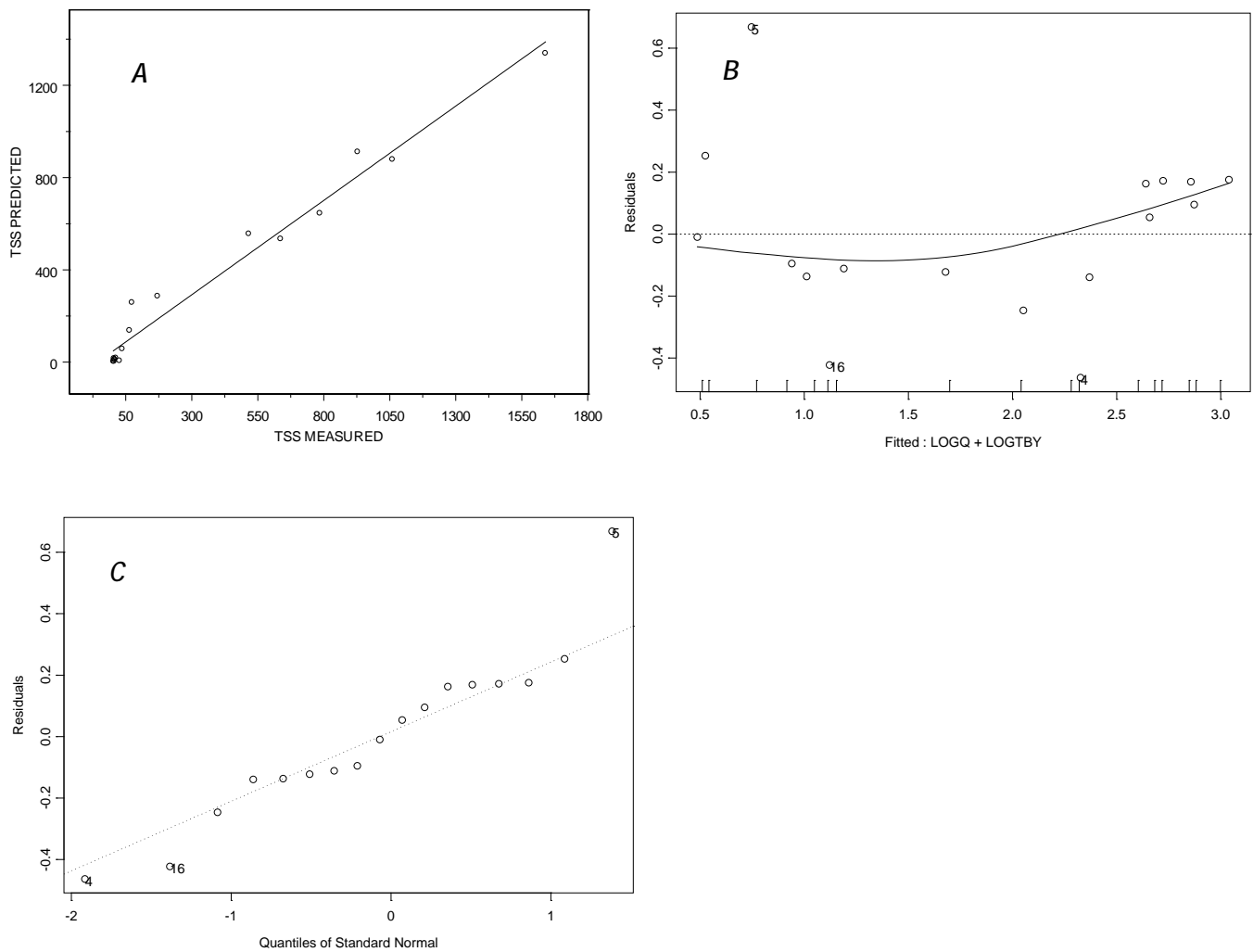


Figure 162. S+® output graphs from simple linear regression analysis using log-transformed streamflow (Q) and log-transformed turbidity (TBY) as explanatory variables for log-transformed total suspended solids (TSS) concentrations showing A, measured versus predicted TSS concentrations; B, computed TSS concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through April 2013.

*** Linear Model ***

Call: lm(formula = LOGTSS ~ LOGTBY, data = TSS.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1451	-0.101	-0.0344	0.05989	0.4432

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.3911	0.0677	5.7773	0.0000
LOGTBY	0.9843	0.0405	24.3012	0.0000

Residual standard error: 0.1437 on 16 degrees of freedom

Multiple R-Squared: 0.9736 Adjusted R-squared: 0.972

F-statistic: 590.5 on 1 and 16 degrees of freedom, the p-value is 4.663e-014

438 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)
LOGTBY	-0.8658

Analysis of Variance Table

Response: LOGTSS

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	12.19898	12.19898	590.5463	4.662937e-014
Residuals	16	0.33051	0.02066		

Figure 163. S+® output of regression model development using turbidity (TBY) as the explanatory variable for total suspended solids (TSS) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

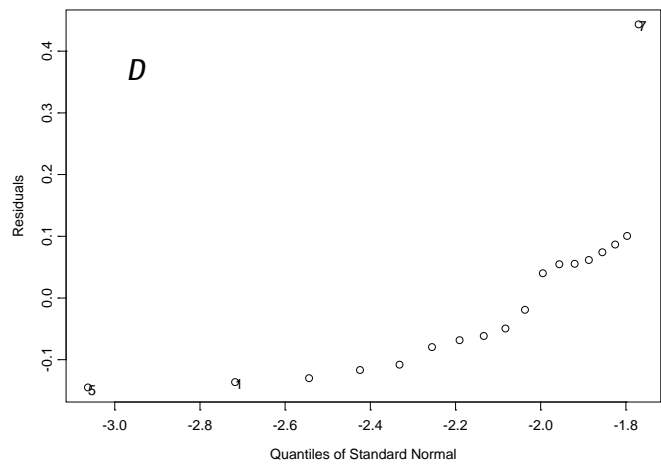
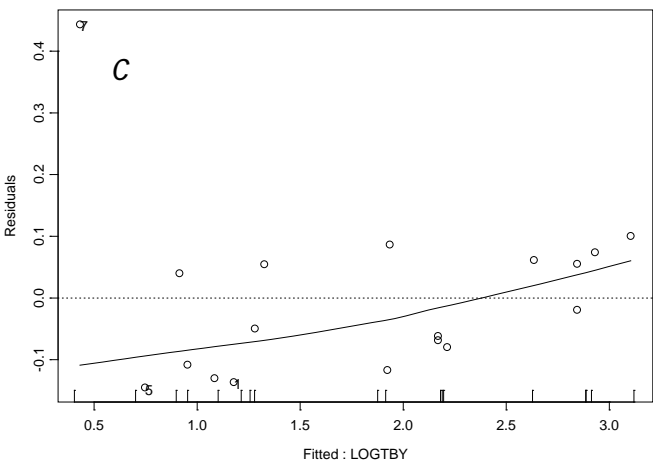
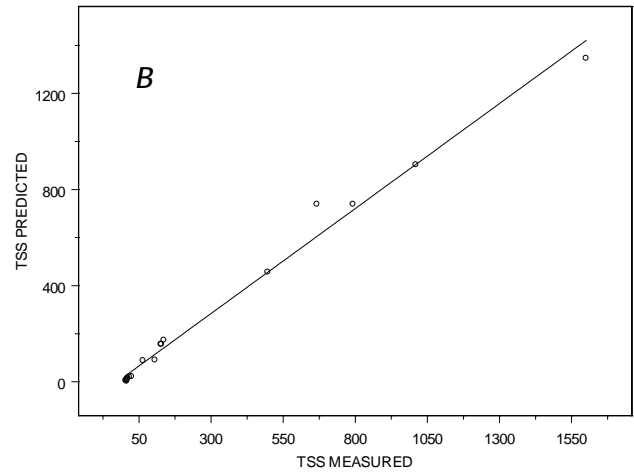
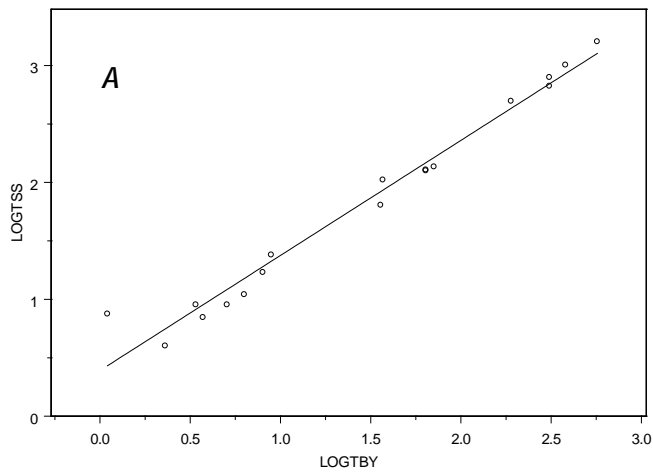


Figure 164. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed total suspended solids (TSS) concentrations; *B*, measured versus predicted TSS concentrations; *C*, computed TSS concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGTSS ~ LOGTBY, data = TSS.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.6173	-0.1688	-0.02225	0.1533	0.8222

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.4888	0.1311	3.7296	0.0020
LOGTBY	0.8756	0.0909	9.6375	0.0000

Residual standard error: 0.3427 on 15 degrees of freedom

Multiple R-Squared: 0.861 Adjusted R-squared: 0.8517

F-statistic: 92.88 on 1 and 15 degrees of freedom, the p-value is 8.104e-008

Correlation of Coefficients:

(Intercept)	
LOGTBY	-0.7732

Analysis of Variance Table

Response: LOGTSS

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	10.90889	10.90889	92.88177	8.104031e-008
Residuals	15	1.76174	0.11745		

Figure 165. S+® output of regression model development using turbidity (TBY) as the explanatory variable for total suspended solids (TSS) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

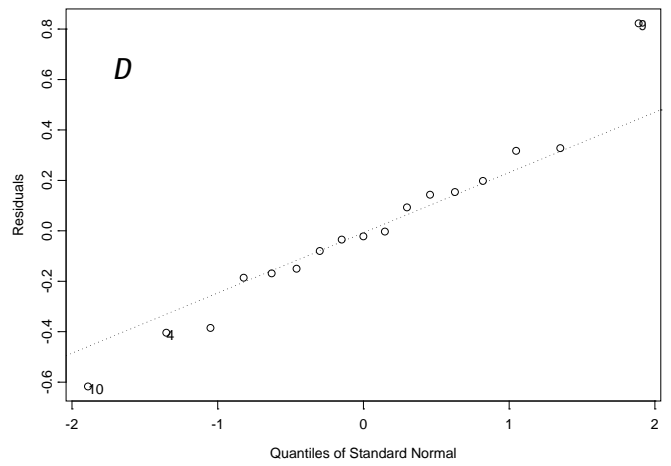
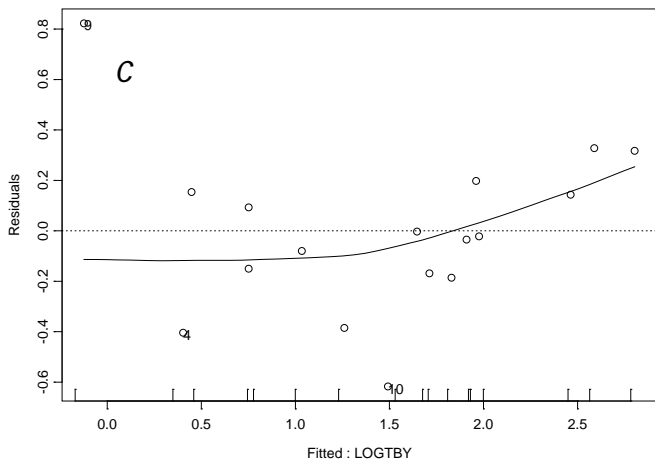
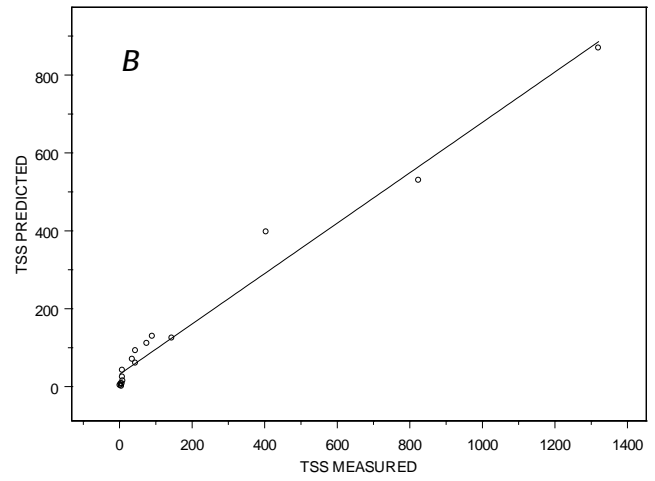
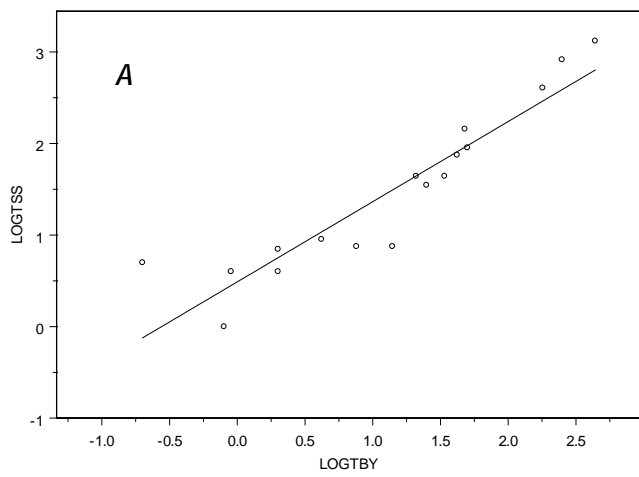


Figure 166. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed total suspended solids (TSS) concentrations; *B*, measured versus predicted TSS concentrations; *C*, computed TSS concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGTSS ~ LOGTBY, data = TSS.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.4573	-0.1696	-0.02277	0.06994	1.631

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.4499	0.1115	4.0334	0.0002
LOGTBY	0.9331	0.0561	16.6342	0.0000

Residual standard error: 0.341 on 47 degrees of freedom

Multiple R-Squared: 0.8548 Adjusted R-squared: 0.8517

F-statistic: 276.7 on 1 and 47 degrees of freedom, the p-value is 0

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGTBY	-0.8996

Analysis of Variance Table

Response: LOGTSS

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	32.16862	32.16862	276.6965	0
Residuals	47	5.46420	0.11626		

Figure 167. S+® output of regression model development using turbidity (TBY) as the explanatory variable for total suspended solids (TSS) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

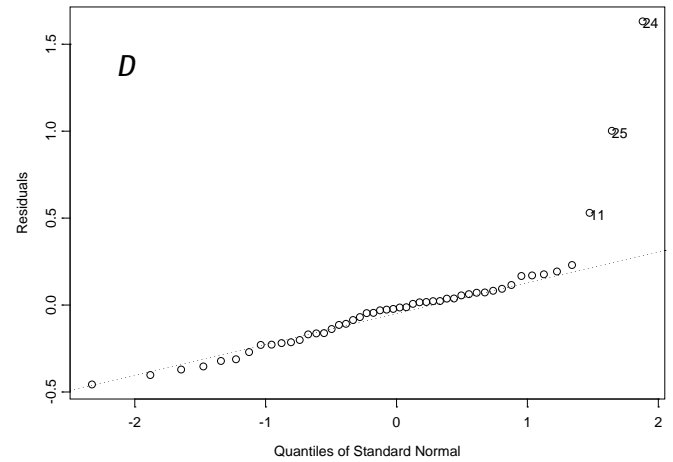
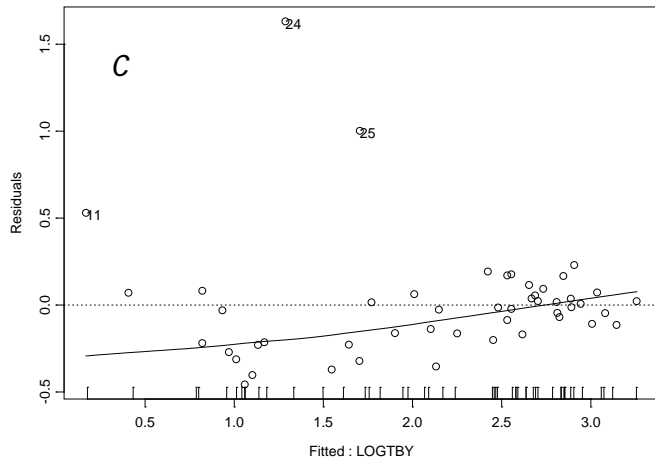
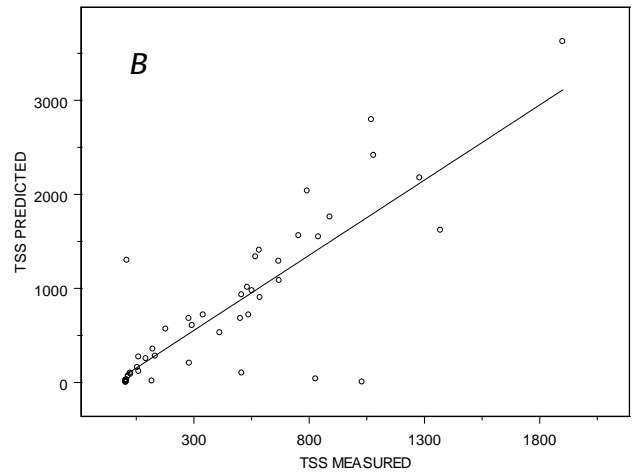
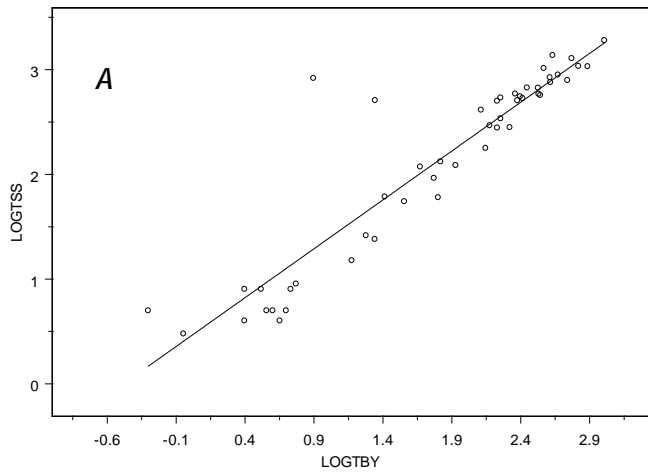


Figure 168. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed total suspended solids (TSS) concentrations; *B*, measured versus predicted TSS concentrations; *C*, computed log-transformed TSS concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGTSS ~ LOGTBY, data = TSS.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.4334	-0.2625	-0.02679	0.06621	1.55

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.5904	0.1793	3.2926	0.0027
LOGTBY	0.8665	0.0863	10.0403	0.0000

Residual standard error: 0.409 on 28 degrees of freedom

Multiple R-Squared: 0.7826 Adjusted R-squared: 0.7749

F-statistic: 100.8 on 1 and 28 degrees of freedom, the p-value is 8.807e-011

Correlation of Coefficients:

(Intercept)	
LOGTBY	-0.9091

Analysis of Variance Table

Response: LOGTSS

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	16.86543	16.86543	100.8071	8.806911e-011
Residuals	28	4.68451	0.16730		

Figure 169. S+® output of regression model development using turbidity (TBY) as the explanatory variable for total suspended solids (TSS) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

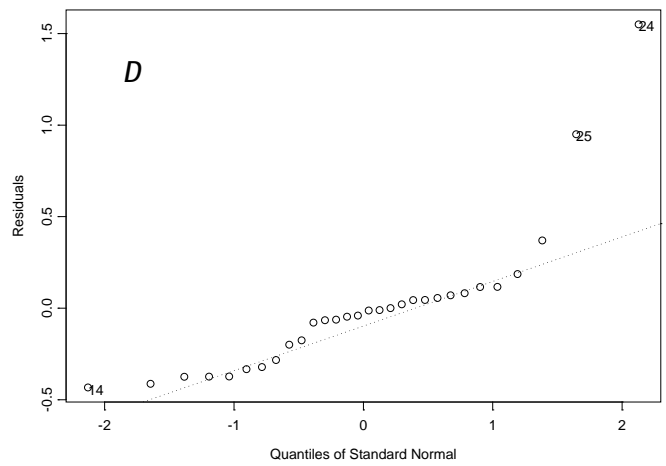
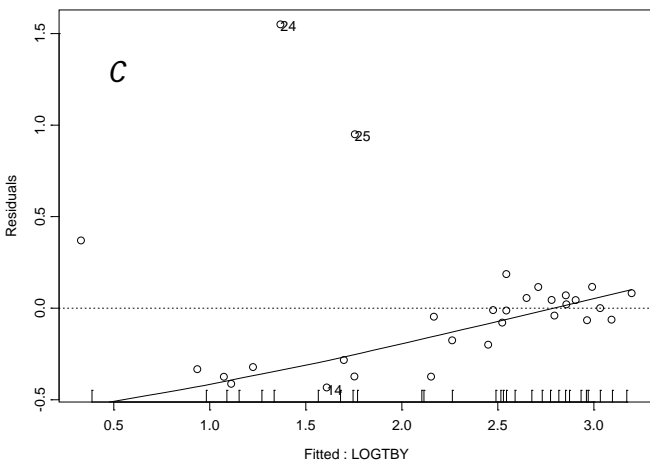
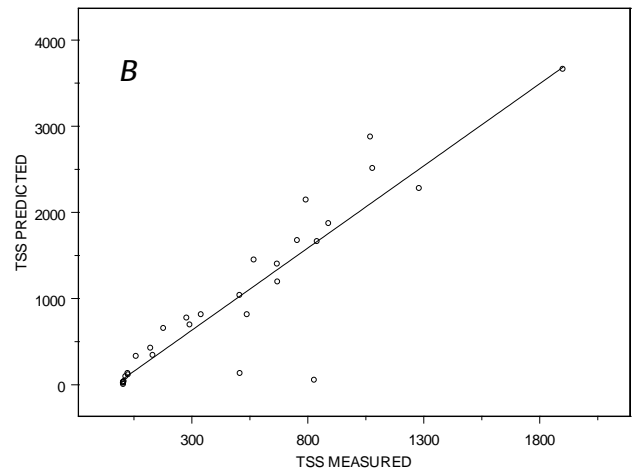
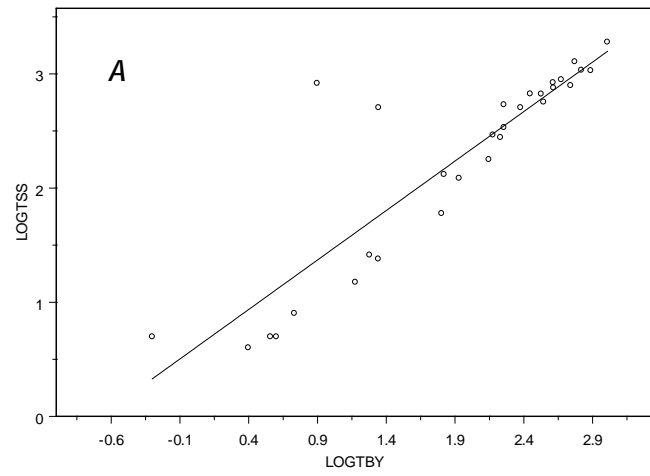


Figure 170. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed total suspended solids (TSS) concentrations; *B*, measured versus predicted TSS concentrations; *C*, computed TSS concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

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*** Linear Model ***

Call: lm(formula = LOGTSS ~ LOGTBY, data = TSS.STL.POST.SPLUS, na.action =
na.exclude)

Residuals:
    Min       1Q   Median       3Q      Max
-0.3356 -0.1212  0.06015  0.1186  0.2622

Coefficients:
            Value Std. Error t value Pr(>|t|)
(Intercept)  0.2623   0.0872     3.0082  0.0079
      LOGTBY  1.0339   0.0474    21.8031  0.0000

Residual standard error: 0.1756 on 17 degrees of freedom
Multiple R-Squared:  0.9655    Adjusted R-squared:  0.9634
F-statistic: 475.4 on 1 and 17 degrees of freedom, the p-value is 7.272e-014
1 observations deleted due to missing values

Correlation of Coefficients:
      (Intercept)
LOGTBY -0.8869

Analysis of Variance Table

Response: LOGTSS

Terms added sequentially (first to last)
      Df Sum of Sq  Mean Sq  F Value    Pr(F)
LOGTBY  1  14.65362  14.65362  475.3745  7.271961e-014
Residuals 17   0.52403   0.03083

```

Figure 171. S+® output of regression model development using turbidity (TBY) as the explanatory variable for total suspended solids (TSS) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

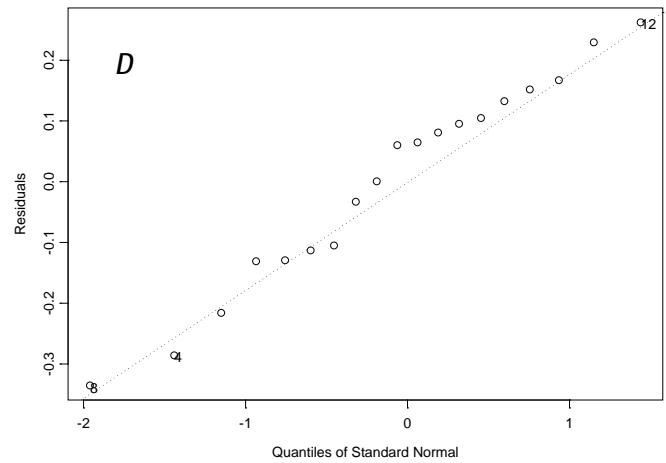
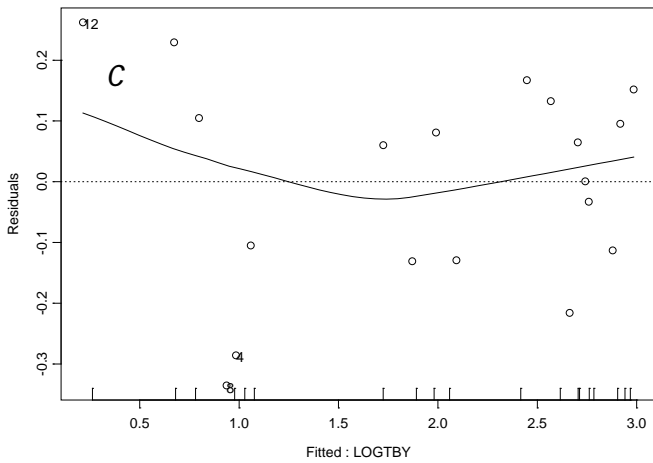
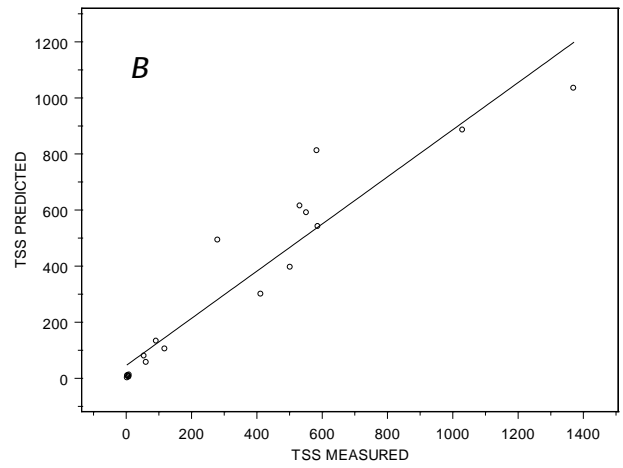
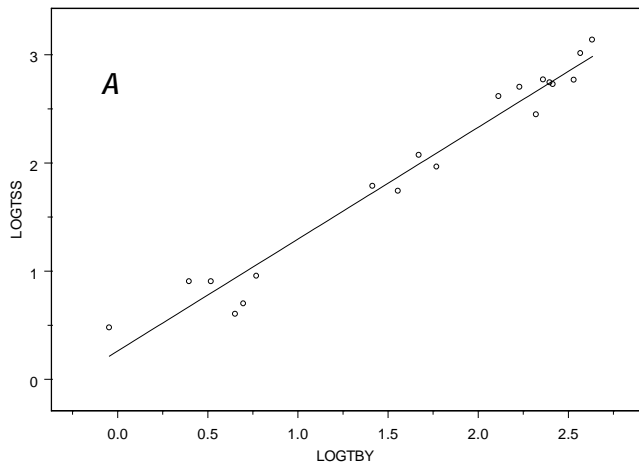


Figure 172. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed total suspended solids (TSS) concentrations; *B*, measured versus predicted TSS concentrations; *C*, computed log-transformed TSS concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGSSC ~ LOGTBY, data = SSC.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-1.043	-0.1941	0.04592	0.2439	0.9522

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.7090	0.1521	4.6624	0.0002
LOGTBY	0.8402	0.0920	9.1297	0.0000

Residual standard error: 0.4088 on 18 degrees of freedom

Multiple R-Squared: 0.8224 Adjusted R-squared: 0.8125

F-statistic: 83.35 on 1 and 18 degrees of freedom, the p-value is 3.557e-008

Correlation of Coefficients:

(Intercept)	
LOGTBY	-0.7992

Analysis of Variance Table

Response: LOGSSC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	13.92699	13.92699	83.35127	3.557477e-008
Residuals	18	3.00758	0.16709		

Figure 173. S+® output of regression model development using turbidity (TBY) as the explanatory variable for suspended sediment (SSC) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), June 2011 through May 2013.

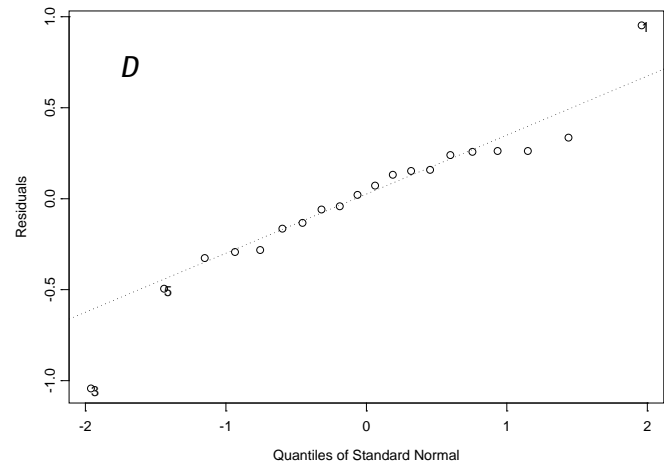
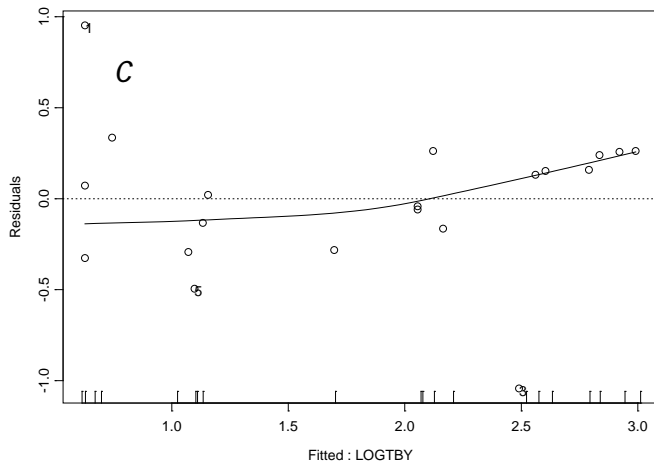
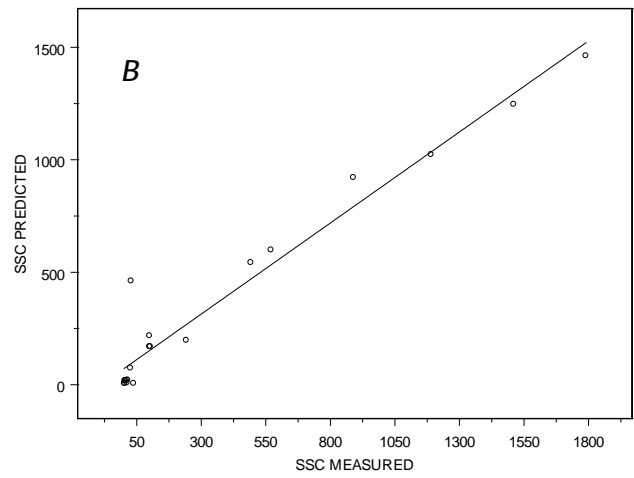
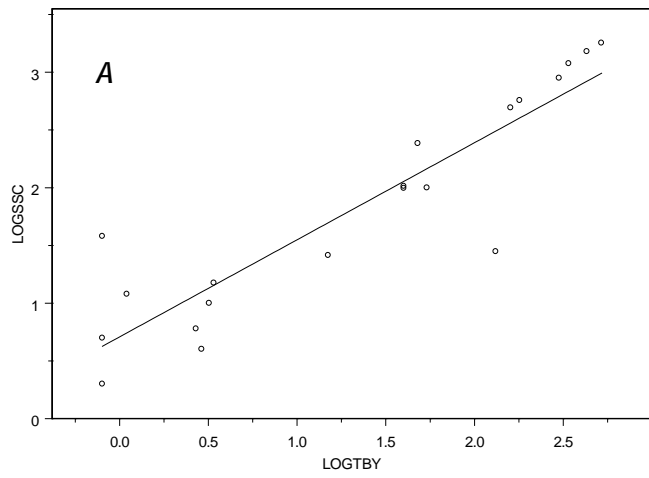


Figure 174. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed suspended-sediment (SSC) concentrations; *B*, measured versus predicted SSC concentrations; *C*, computed SSC concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGSSC ~ LOGQ, data = SSC.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.6325	-0.3013	-0.1246	0.2772	1.294

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.8560	0.1656	5.1689	0.0001
LOGQ	0.7127	0.0921	7.7406	0.0000

Residual standard error: 0.4684 on 17 degrees of freedom

Multiple R-Squared: 0.779 Adjusted R-squared: 0.766

F-statistic: 59.92 on 1 and 17 degrees of freedom, the p-value is 5.701e-007

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.7609

Analysis of Variance Table

Response: LOGSSC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	13.14492	13.14492	59.91663	5.700723e-007
Residuals	17	3.72958	0.21939		

Figure 175. S+® output of regression model development using streamflow (Q) as the explanatory variable for suspended sediment (SSC) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

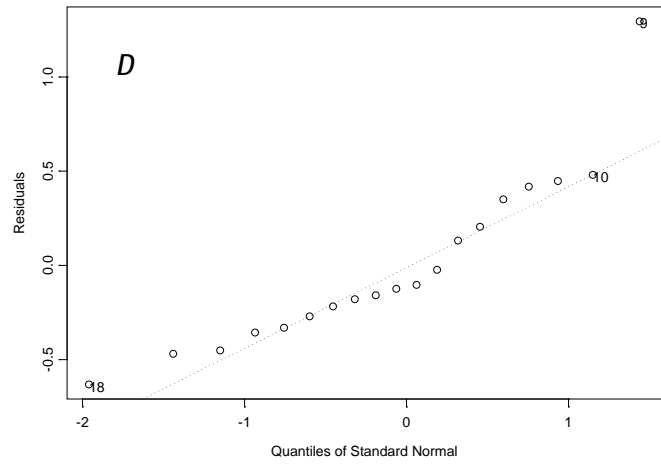
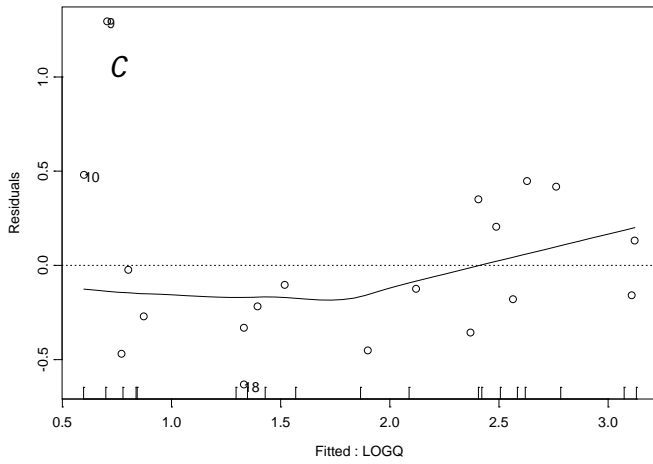
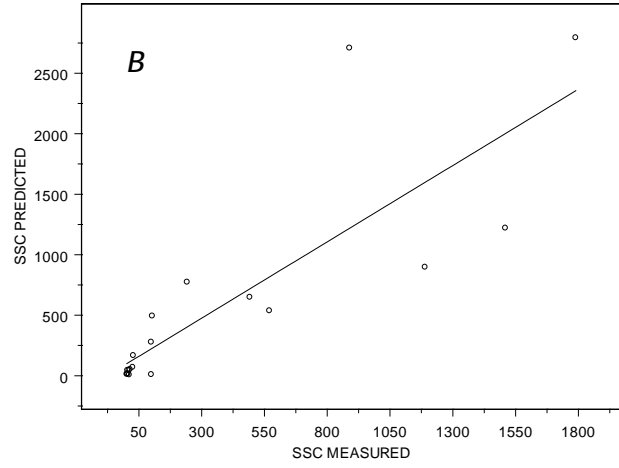
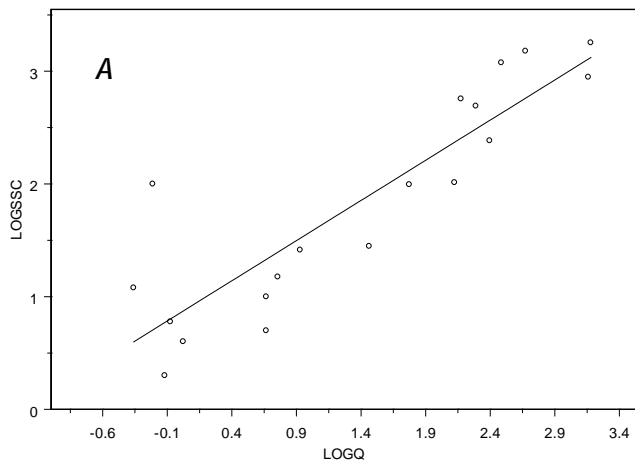


Figure 176. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (*Q*) versus log-transformed suspended-sediment (*SSC*) concentrations; *B*, measured versus predicted *SSC* concentrations; *C*, computed log-transformed *SSC* concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGSSC ~ LOGTBY, data = SSC.COLL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.2684	-0.07623	0.02593	0.07658	0.2815

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.4175	0.0709	5.8857	0.0000
LOGTBY	1.0182	0.0399	25.5464	0.0000

Residual standard error: 0.1579 on 15 degrees of freedom

Multiple R-Squared: 0.9775 Adjusted R-squared: 0.976

F-statistic: 652.6 on 1 and 15 degrees of freedom, the p-value is 8.871e-014

Correlation of Coefficients:

(Intercept)	
LOGTBY	-0.8418

Analysis of Variance Table

Response: LOGSSC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	16.26627	16.26627	652.6207	8.870682e-014
Residuals	15	0.37387	0.02492		

Figure 177. S+® output of regression model development using turbidity (TBY) as the explanatory variable for suspended sediment (SSC) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

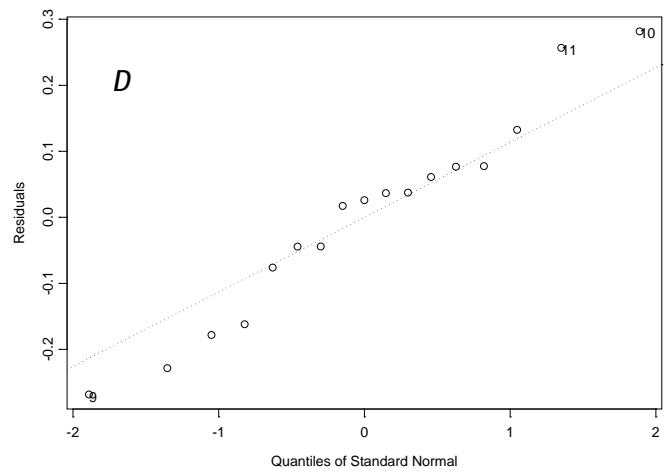
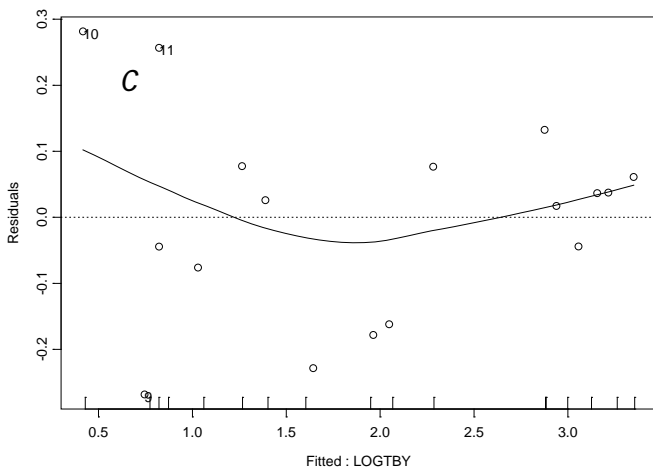
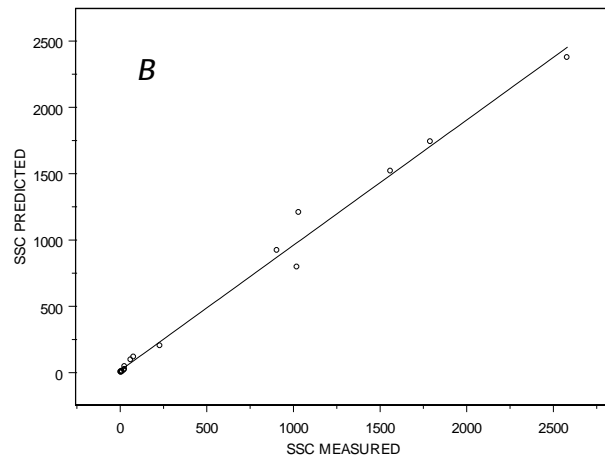
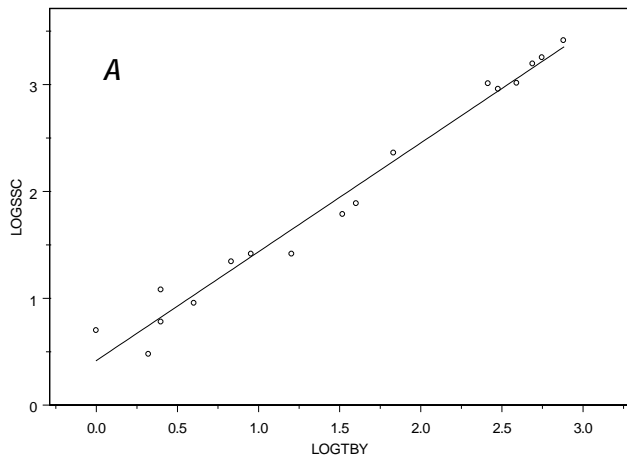


Figure 178. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed suspended-sediment (SSC) concentrations; *B*, measured versus predicted SSC concentrations; *C*, computed SSC concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGSSC ~ LOGQ, data = SSC.COLL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.4787	-0.1758	-0.06149	0.1556	0.5719

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.4277	0.2144	-1.9944	0.0646
LOGQ	1.1704	0.0984	11.8930	0.0000

Residual standard error: 0.3261 on 15 degrees of freedom

Multiple R-Squared: 0.9041 Adjusted R-squared: 0.8977

F-statistic: 141.4 on 1 and 15 degrees of freedom, the p-value is 4.885e-009

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9295

Analysis of Variance Table

Response: LOGSSC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	15.04467	15.04467	141.4445	4.884919e-009
Residuals	15	1.59547	0.10636		

Figure 179. S+® output of regression model development using streamflow (Q) as the explanatory variable for suspended sediment (SSC) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

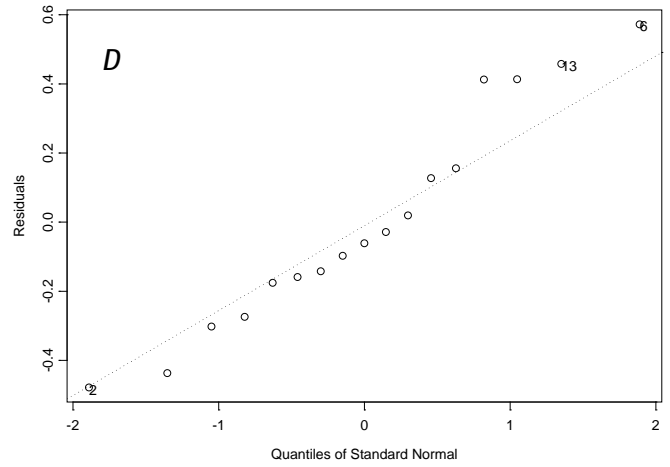
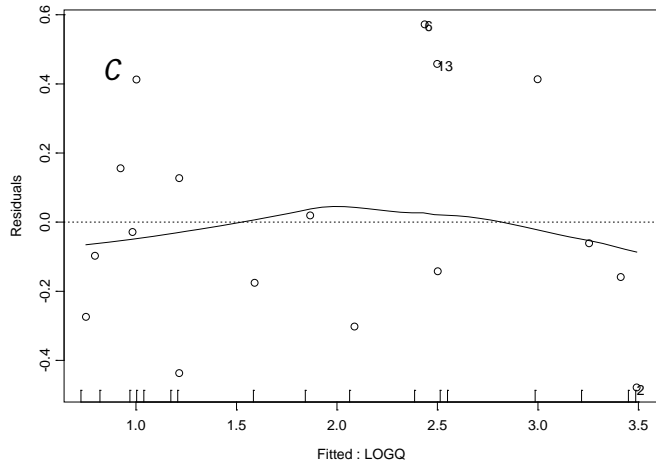
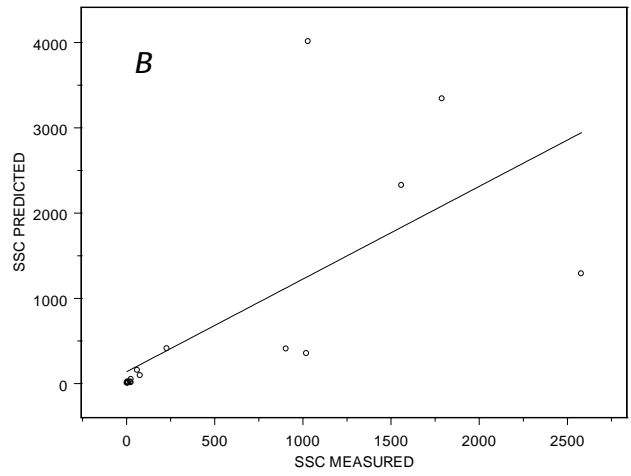
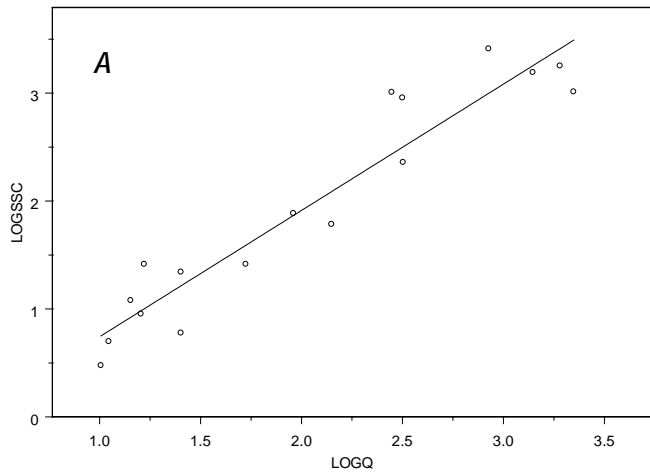


Figure 180. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (*Q*) versus log-transformed suspended-sediment (SSC) concentrations; *B*, measured versus predicted SSC concentrations; *C*, computed log-transformed SSC concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGSSC ~ LOGQ + LOGTBY, data = SSC.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.6856	-0.2055	-0.02509	0.2602	0.9066

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.0384	0.3649	0.1053	0.9176
LOGQ	0.8717	0.3775	2.3090	0.0367
LOGTBY	0.1234	0.2972	0.4152	0.6843

Residual standard error: 0.42 on 14 degrees of freedom

Multiple R-squared: 0.8037 Adjusted R-squared: 0.7757

F-statistic: 28.66 on 2 and 14 degrees of freedom, the p-value is 0.00001123

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	LOGQ
LOGQ	-0.8451	
LOGTBY	0.6269	-0.9342

Analysis of Variance Table

Response: LOGSSC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	10.08181	10.08181	57.15111	0.0000026
LOGTBY	1	0.03040	0.03040	0.17236	0.6843177
Residuals	14	2.46969	0.17641		

Figure 181. S+® output of regression model development using streamflow (Q) and turbidity (TBY) as explanatory variables for suspended sediment (SSC) for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

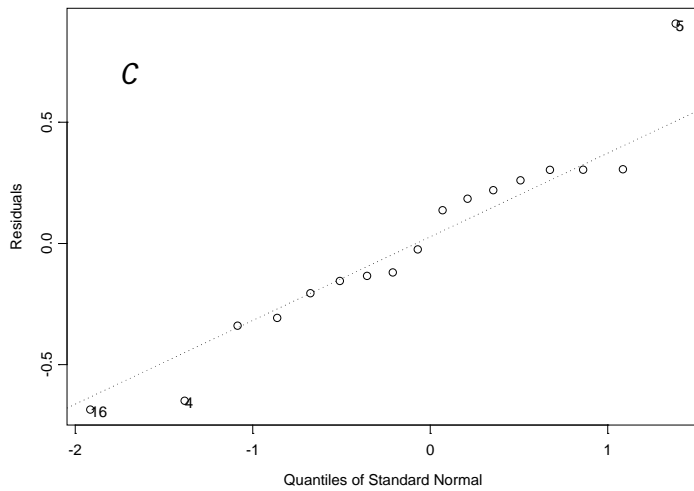
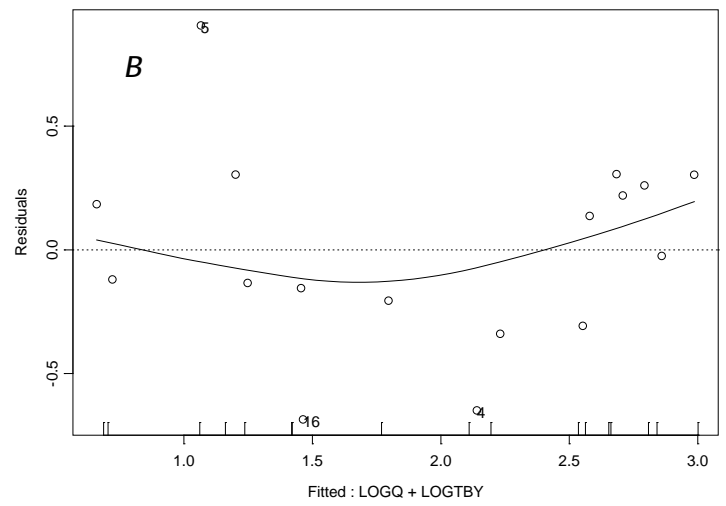
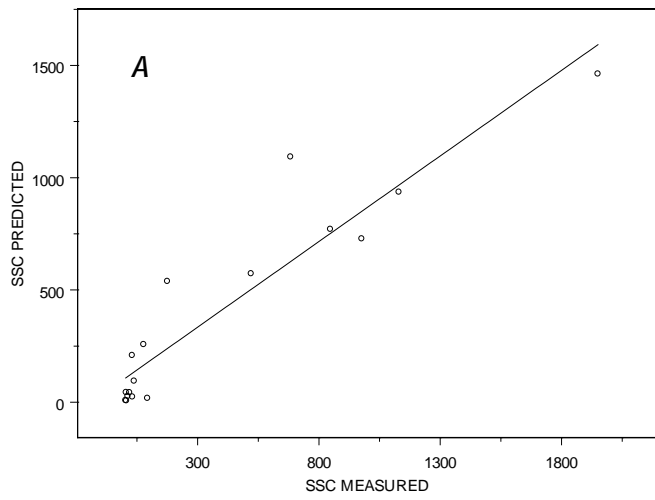


Figure 182. S+® output graphs from simple linear regression analysis using log-transformed streamflow (Q) and log-transformed turbidity (TBY) as explanatory variables for log-transformed suspended-sediment (SSC) concentrations showing *A*, measured versus predicted SSC concentrations; *B*, computed SSC concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGSSC ~ LOGQ, data = SSC.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.7468	-0.1916	-0.06054	0.2754	0.87

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.0399	0.2652	-0.1504	0.8823
LOGQ	1.0054	0.1228	8.1845	0.0000

Residual standard error: 0.3971 on 16 degrees of freedom

Multiple R-Squared: 0.8072 Adjusted R-squared: 0.7951

F-statistic: 66.99 on 1 and 16 degrees of freedom, the p-value is 4.12e-007

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9356

Analysis of Variance Table

Response: LOGSSC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	10.56157	10.56157	66.98632	4.120158e-007
Residuals	16	2.52268	0.15767		

Figure 183. S+® output of regression model development using streamflow (Q) as the explanatory variable for suspended sediment (SSC) for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

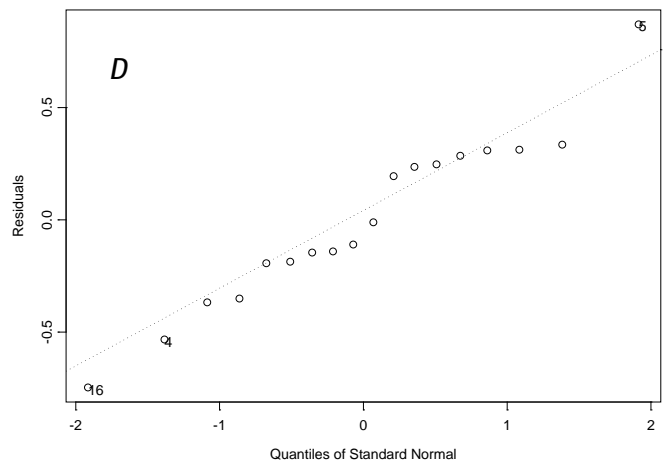
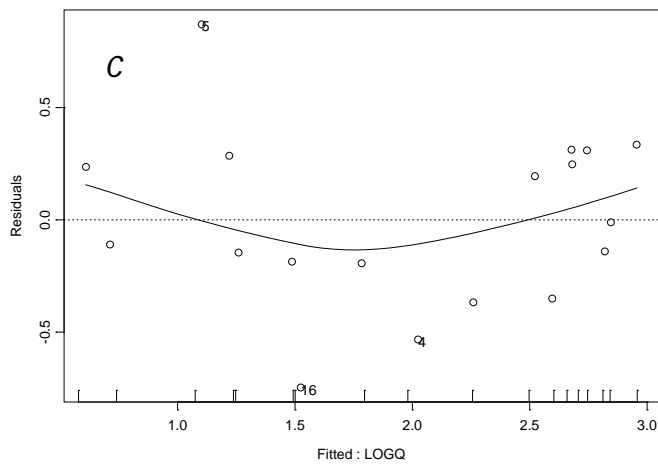
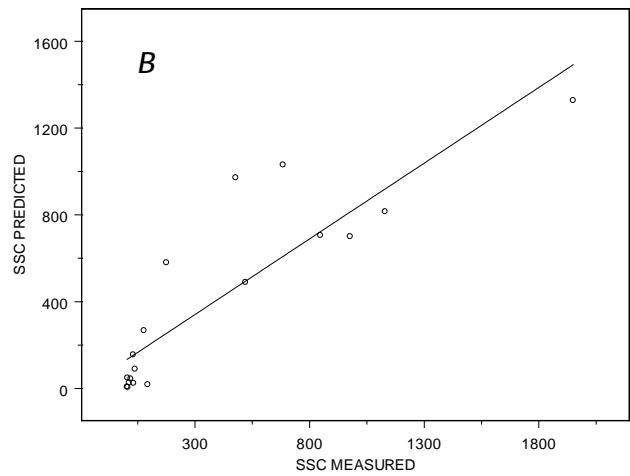
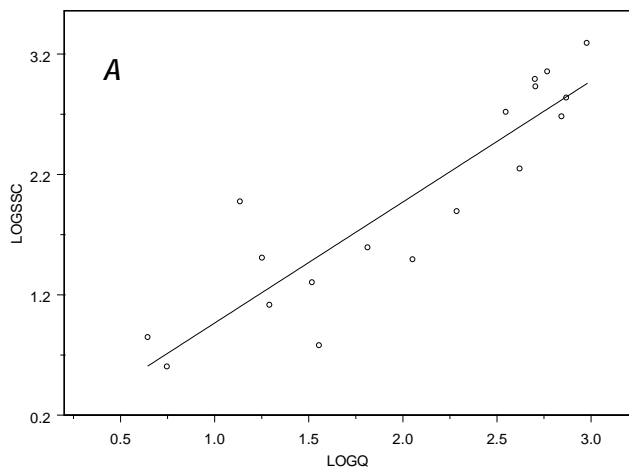


Figure 184. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (*Q*) versus log-transformed suspended-sediment (SSC) concentrations; *B*, measured versus predicted SSC concentrations; *C*, computed log-transformed SSC concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGSSC ~ LOGTBY, data = SSC.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.5054	-0.1449	0.0212	0.1458	1.139

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.6443	0.1785	3.6088	0.0024
LOGTBY	0.8835	0.1068	8.2712	0.0000

Residual standard error: 0.379 on 16 degrees of freedom

Multiple R-Squared: 0.8105 Adjusted R-squared: 0.7986

F-statistic: 68.41 on 1 and 16 degrees of freedom, the p-value is 3.589e-007

438 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGTBY	-0.8658

Analysis of Variance Table

Response: LOGSSC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	9.828660	9.828660	68.41273	3.588734e-007
Residuals	16	2.298674	0.143667		

Figure 185. S+® output of regression model development using turbidity (TBY) as the explanatory variable for suspended sediment (SSC) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

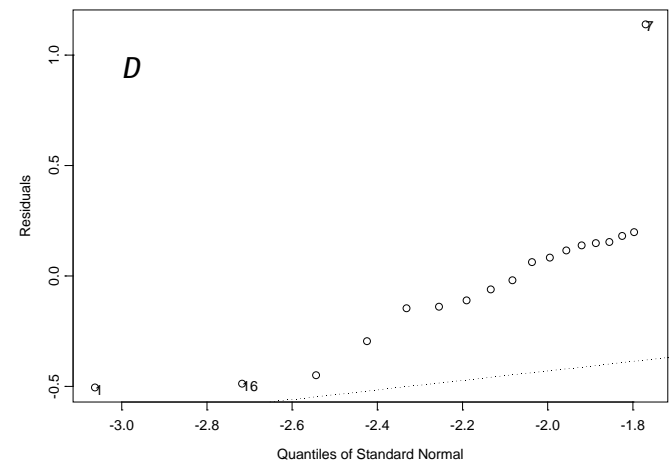
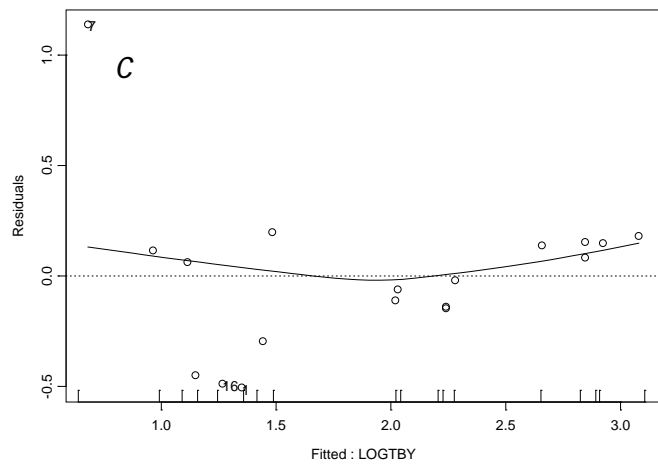
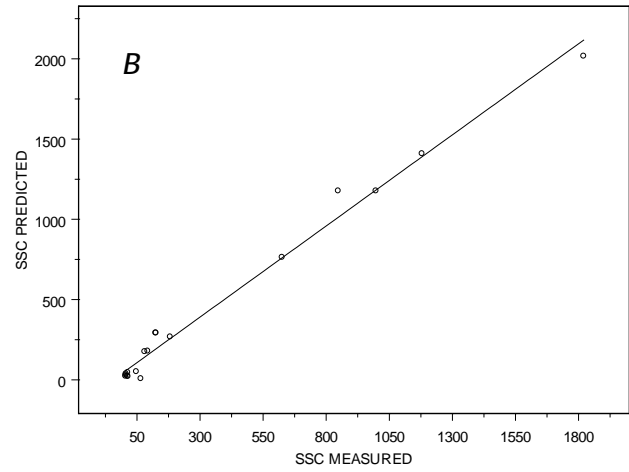
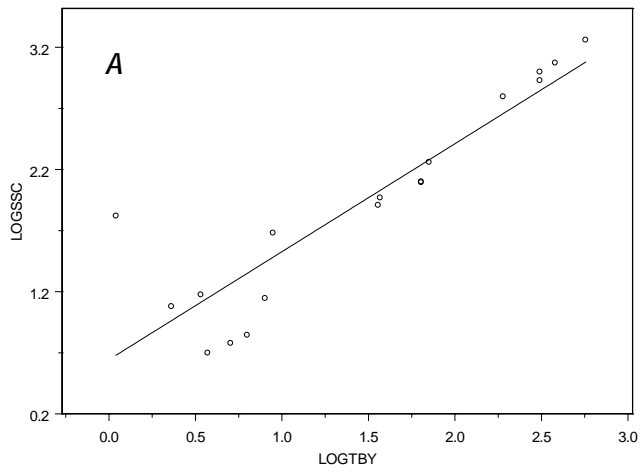


Figure 186. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed suspended-sediment (SSC) concentrations; *B*, measured versus predicted SSC concentrations; *C*, computed SSC concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGSSC ~ LOGQ, data = SSC.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.6636	-0.2851	-0.03099	0.2657	0.674

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.0849	0.2289	0.3709	0.7156
LOGQ	0.9174	0.1059	8.6644	0.0000

Residual standard error: 0.3649 on 16 degrees of freedom

Multiple R-Squared: 0.8243 Adjusted R-squared: 0.8133

F-statistic: 75.07 on 1 and 16 degrees of freedom, the p-value is 1.941e-007

438 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)
LOGQ	-0.9267

Analysis of Variance Table

Response: LOGSSC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	9.996735	9.996735	75.07173	1.940569e-007
Residuals	16	2.130599	0.133162		

Figure 187. S+® output of regression model development using streamflow (Q) as the explanatory variable for suspended sediment (SSC) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

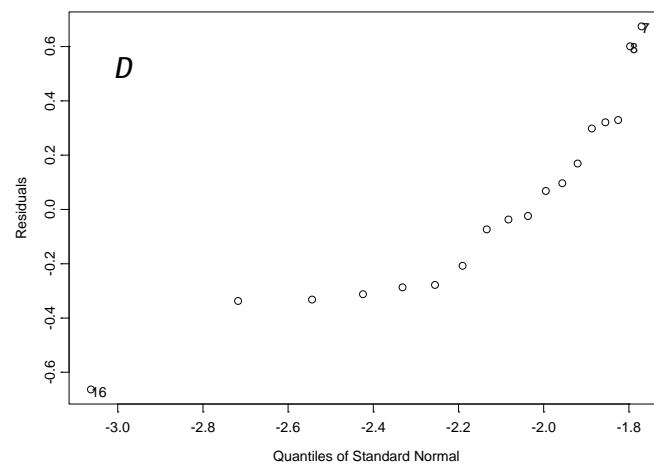
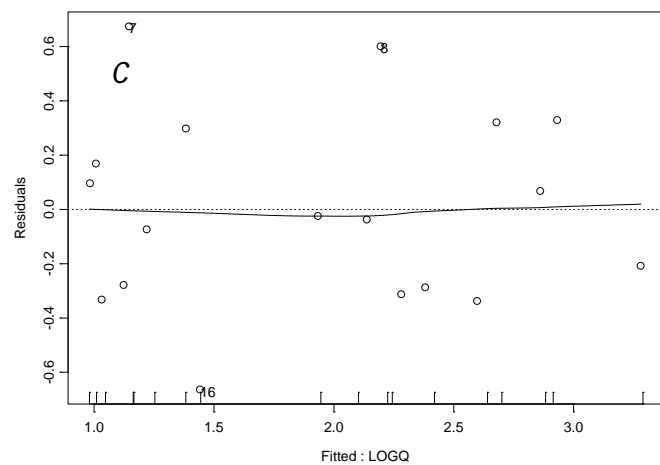
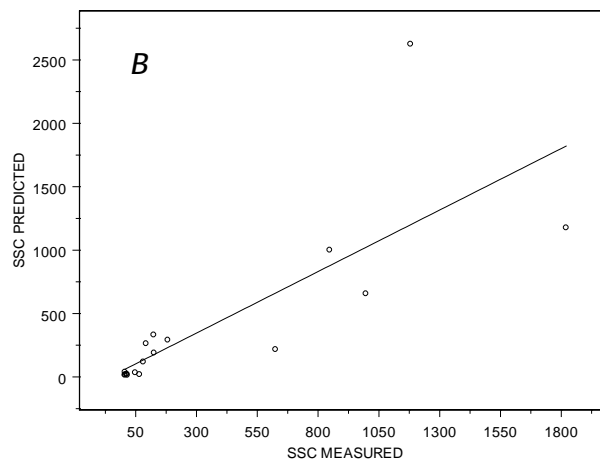
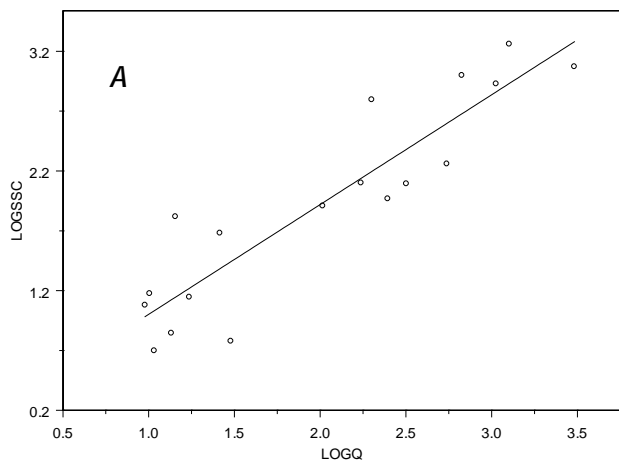


Figure 188. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (*Q*) versus log-transformed suspended-sediment (SSC) concentrations; *B*, measured versus predicted SSC concentrations; *C*, computed log-transformed SSC concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGSSC ~ LOGTBY, data = SSC.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.4971	-0.1715	0.005955	0.118	0.4617

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.6984	0.0972	7.1836	0.0000
LOGTBY	0.7984	0.0643	12.4100	0.0000

Residual standard error: 0.2532 on 15 degrees of freedom

Multiple R-squared: 0.9112 Adjusted R-squared: 0.9053

F-statistic: 154 on 1 and 15 degrees of freedom, the p-value is 2.727e-009

Correlation of Coefficients:

(Intercept)	
LOGTBY	-0.7753

Analysis of Variance Table

Response: LOGSSC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	9.870815	9.870815	154.0092	2.727359e-009
Residuals	15	0.961385	0.064092		

Figure 189. S+® output of regression model development using turbidity (TBY) as the explanatory variable for suspended sediment (SSC) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), November 2011 through May 2013.

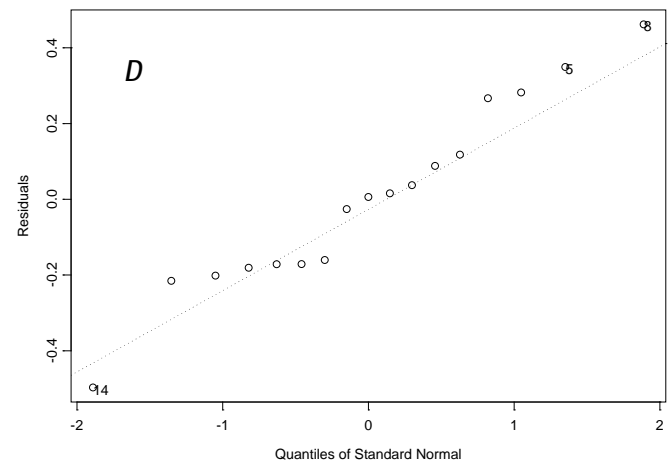
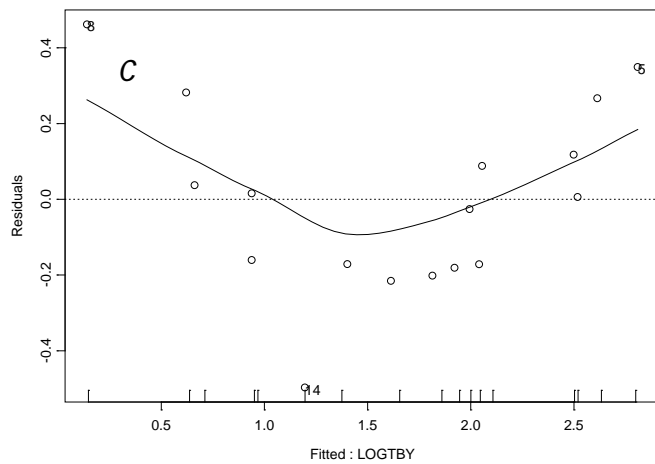
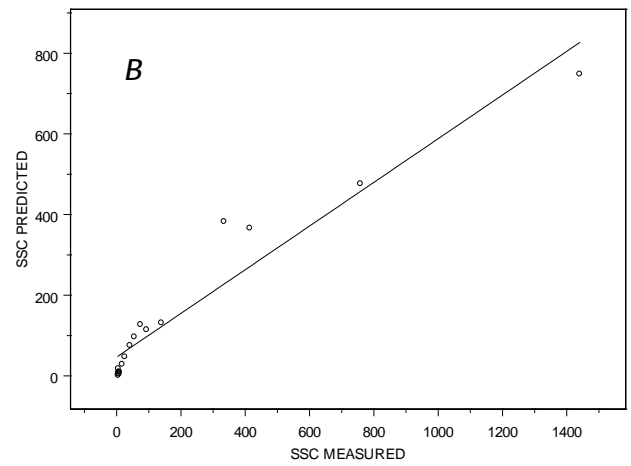
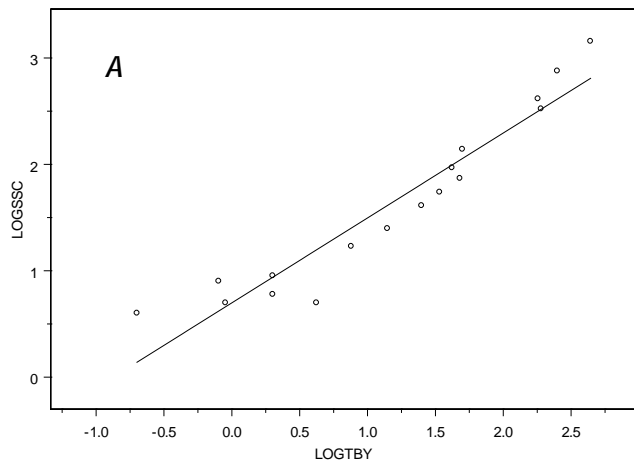


Figure 190. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed suspended-sediment (SSC) concentrations; *B*, measured versus predicted SSC concentrations; *C*, computed SSC concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), November 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGSSC ~ LOGQ, data = SSC.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.6086	-0.1987	0.1357	0.1871	0.3997

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.4540	0.1442	3.1476	0.0066
LOGQ	0.7363	0.0762	9.6602	0.0000

Residual standard error: 0.3162 on 15 degrees of freedom

Multiple R-Squared: 0.8615 Adjusted R-squared: 0.8523

F-statistic: 93.32 on 1 and 15 degrees of freedom, the p-value is 7.859e-008

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.8469

Analysis of Variance Table

Response: LOGSSC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	9.332178	9.332178	93.3204	7.858896e-008
Residuals	15	1.500022	0.100001		

Figure 191. S+® output of regression model development using streamflow (Q) as the explanatory variable for suspended sediment (SSC) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), November 2011 through May 2013.

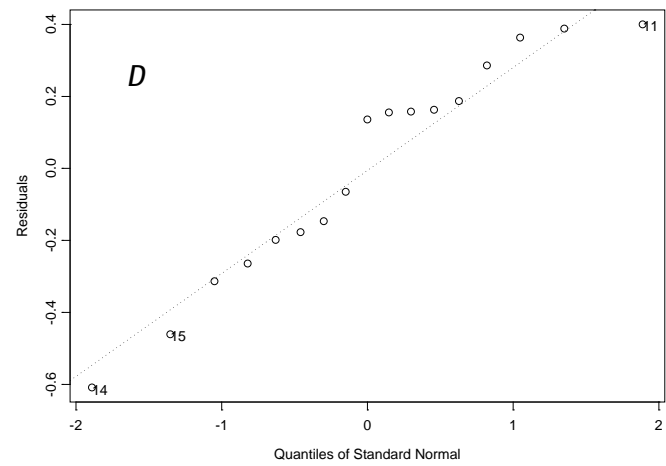
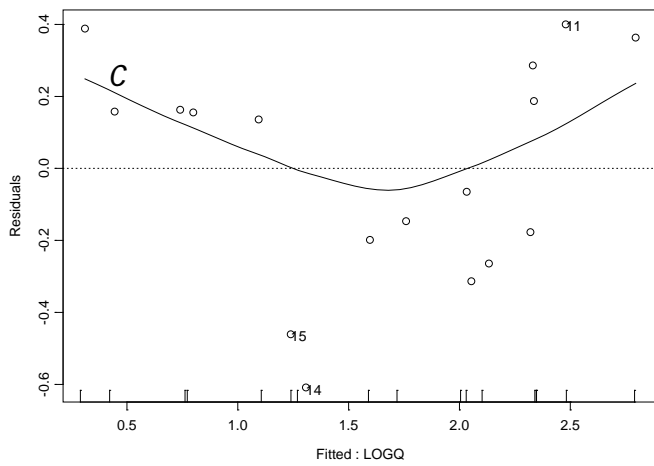
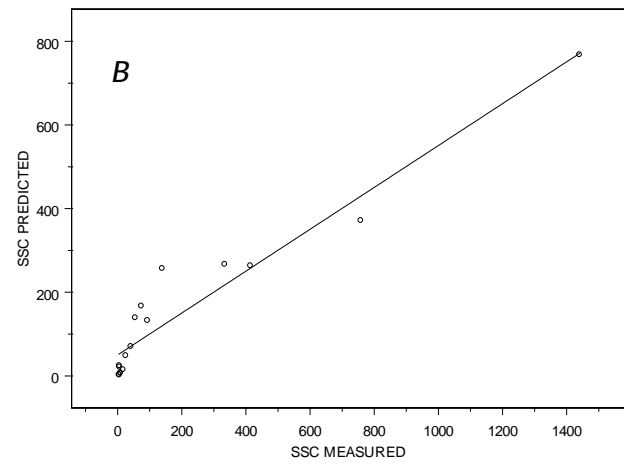
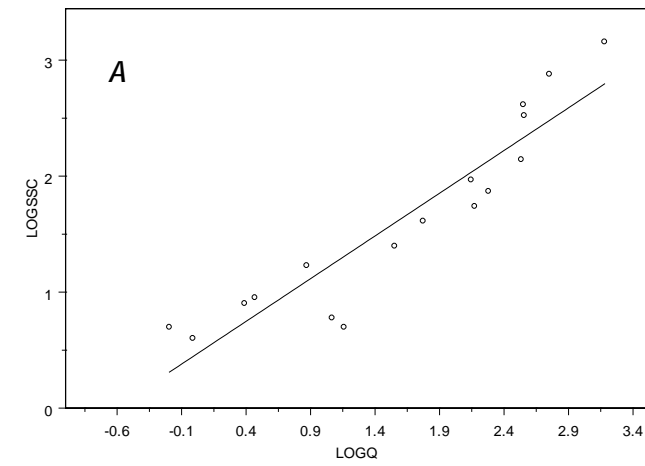


Figure 192. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus log-transformed suspended-sediment (SSC) concentrations; *B*, measured versus predicted SSC concentrations; *C*, computed SSC concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), November 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGSSC ~ LOGTBY, data = SSC.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.5612	-0.1551	-0.03746	0.1103	1.588

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.4864	0.1121	4.3398	0.0001
LOGTBY	0.9445	0.0558	16.9156	0.0000

Residual standard error: 0.3466 on 52 degrees of freedom

Multiple R-Squared: 0.8462 Adjusted R-squared: 0.8433

F-statistic: 286.1 on 1 and 52 degrees of freedom, the p-value is 0

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGTBY	-0.9071

Analysis of Variance Table

Response: LOGSSC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	34.38173	34.38173	286.1372	0
Residuals	52	6.24823	0.12016		

Figure 193. S+® output of regression model development using turbidity (TBY) as the explanatory variable for suspended sediment (SSC) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

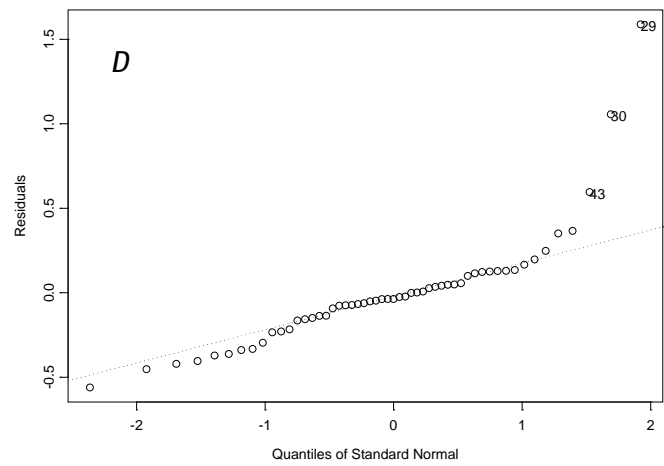
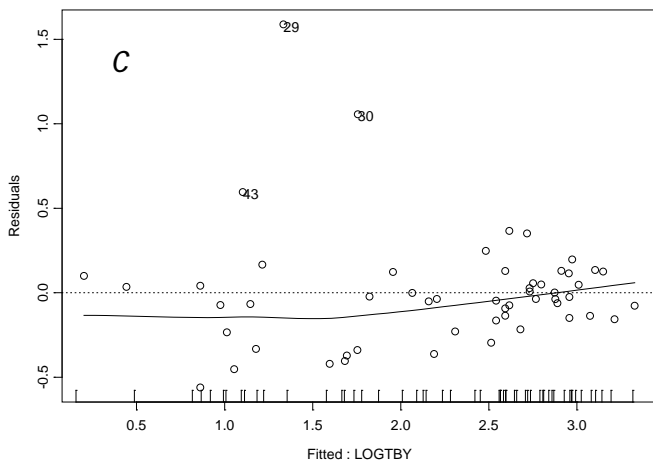
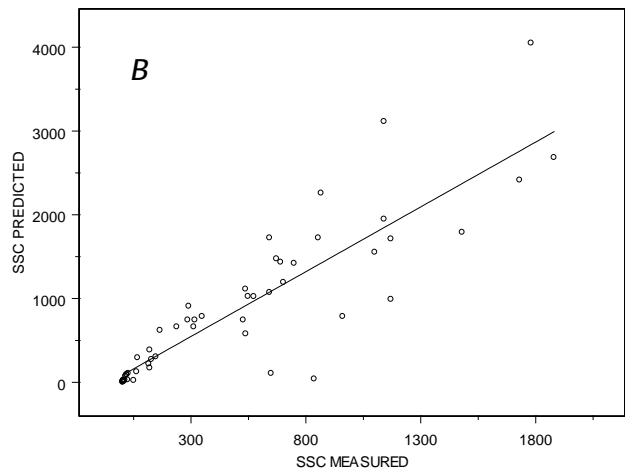
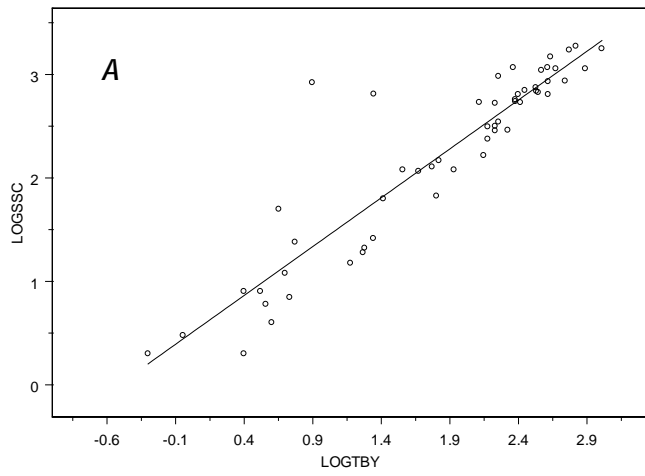


Figure 194. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed suspended-sediment (SSC) concentrations; *B*, measured versus predicted SSC concentrations; *C*, computed log-transformed SSC concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGSSC ~ LOGQ, data = SSC.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.6659	-0.2661	0.02499	0.1884	2.052

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.2444	0.1863	-1.3122	0.1951
LOGQ	0.9389	0.0686	13.6874	0.0000

Residual standard error: 0.417 on 53 degrees of freedom

Multiple R-Squared: 0.7795 Adjusted R-squared: 0.7753

F-statistic: 187.3 on 1 and 53 degrees of freedom, the p-value is 0

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9533

Analysis of Variance Table

Response: LOGSSC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	32.58310	32.58310	187.3455	0
Residuals	53	9.21775	0.17392		

Figure 195. S+® output of regression model development using streamflow (Q) as the explanatory variable for suspended sediment (SSC) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

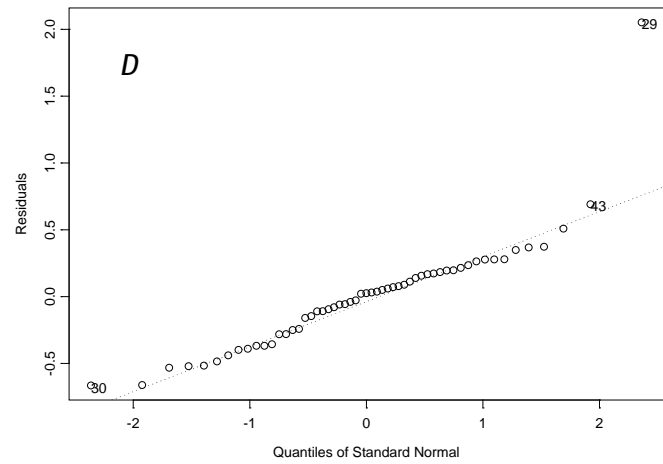
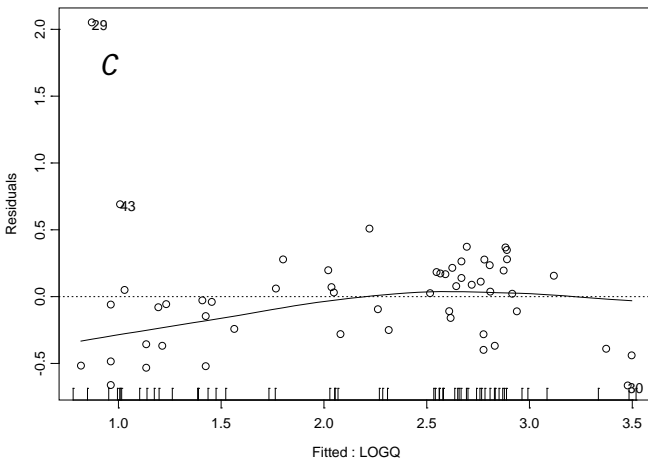
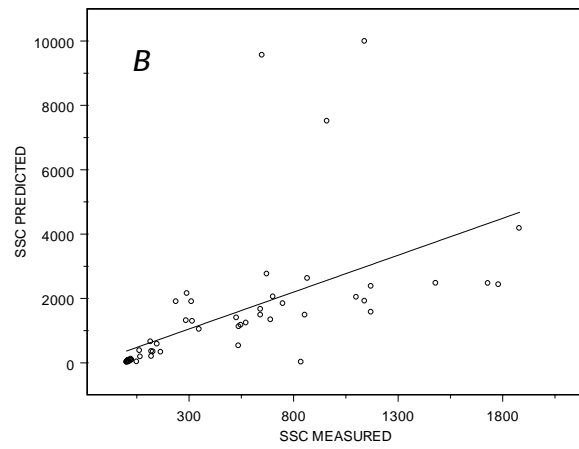
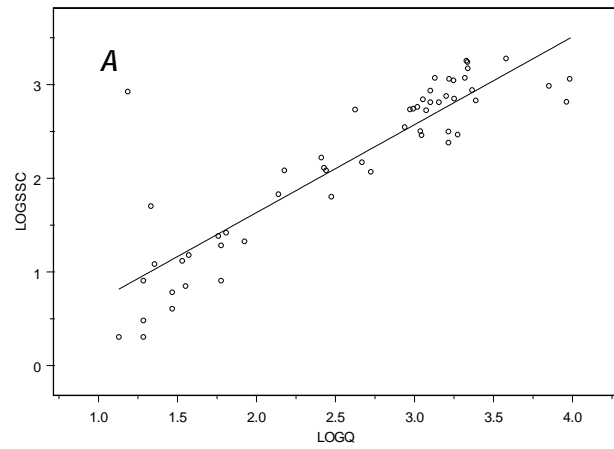


Figure 196. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (*Q*) versus log-transformed suspended-sediment (*SSC*) concentrations; *B*, measured versus predicted *SSC* concentrations; *C*, computed log-transformed *SSC* concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGSSC ~ LOGQ + LOGTBY, data = SSC.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.4552	-0.1506	-0.08273	0.06595	1.878

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.0299	0.2218	0.1349	0.8935
LOGQ	0.3639	0.1496	2.4330	0.0207
LOGTBY	0.6486	0.1525	4.2538	0.0002

Residual standard error: 0.3789 on 32 degrees of freedom

Multiple R-Squared: 0.8343 Adjusted R-squared: 0.8239

F-statistic: 80.54 on 2 and 32 degrees of freedom, the p-value is 3.24e-013

Correlation of Coefficients:

	(Intercept)	LOGQ
LOGQ	-0.6800	
LOGTBY	0.2417	-0.8604

Analysis of Variance Table

Response: LOGSSC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	20.52278	20.52278	142.9880	0.000000000
LOGTBY	1	2.59712	2.59712	18.0949	0.000170792
Residuals	32	4.59290	0.14353		

Figure 197. S+® output of regression model development using streamflow (Q) and turbidity (TBY) as explanatory variables for suspended sediment (SSC) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

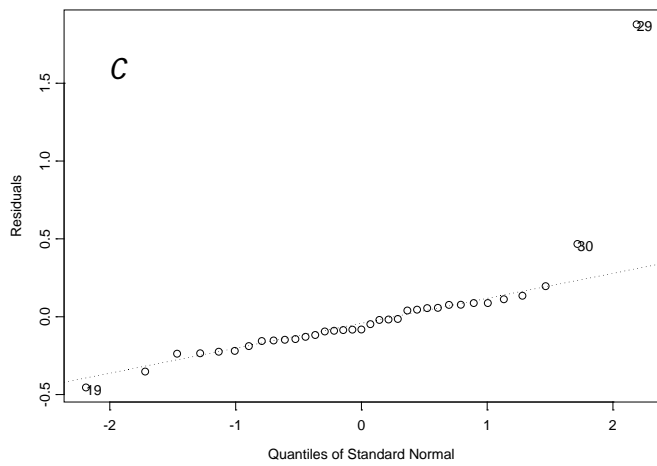
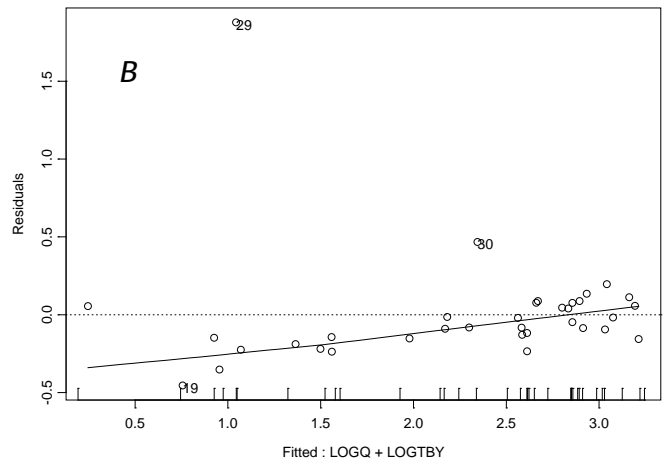
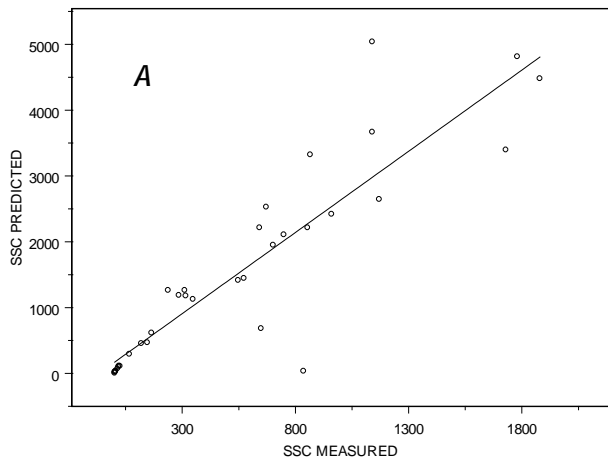


Figure 198. S+® output graphs from simple linear regression analysis using log-transformed streamflow (Q) and log-transformed turbidity (TBY) as explanatory variables for log-transformed suspended-sediment (SSC) concentrations showing *A*, measured versus predicted SSC concentrations; *B*, computed SSC concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = LOGSSC ~ LOGQ, data = SSC.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.6734	-0.286	-0.03658	0.2053	2.038

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.1981	0.2652	-0.7469	0.4604
LOGQ	0.9115	0.0939	9.7053	0.0000

Residual standard error: 0.4668 on 33 degrees of freedom

Multiple R-Squared: 0.7406 Adjusted R-squared: 0.7327

F-statistic: 94.19 on 1 and 33 degrees of freedom, the p-value is 3.406e-011

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9547

Analysis of Variance Table

Response: LOGSSC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	20.52278	20.52278	94.19331	3.405543e-011
Residuals	33	7.19002	0.21788		

Figure 199. S+® output of regression model development using streamflow (Q) as the explanatory variable for suspended sediment (SSC) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

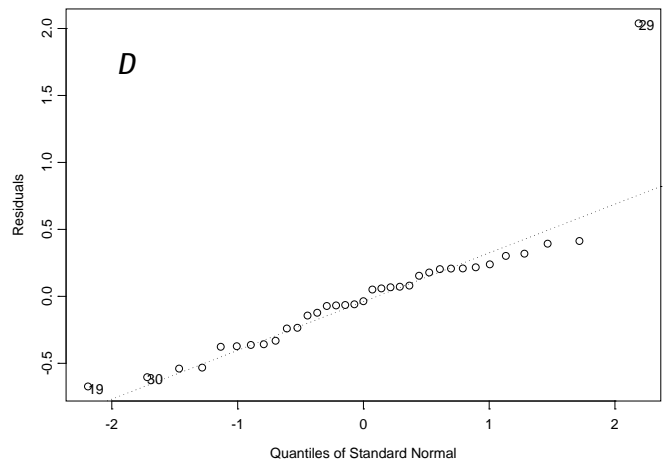
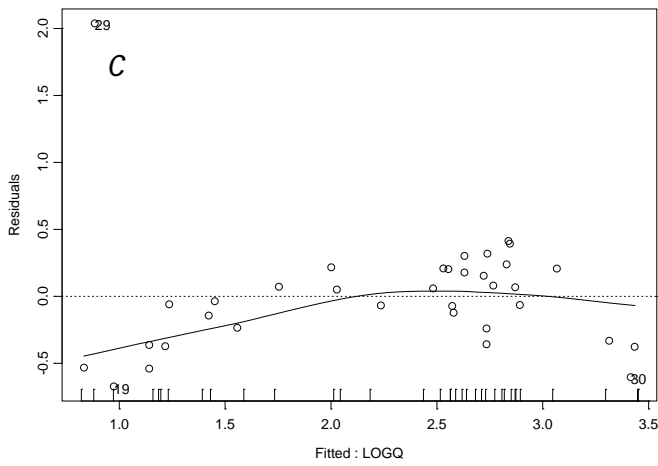
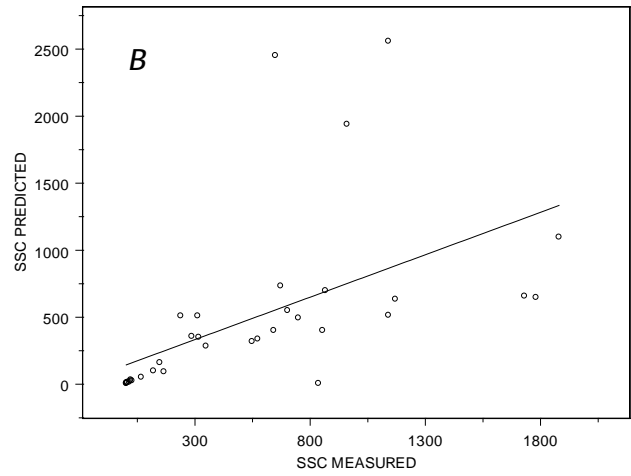
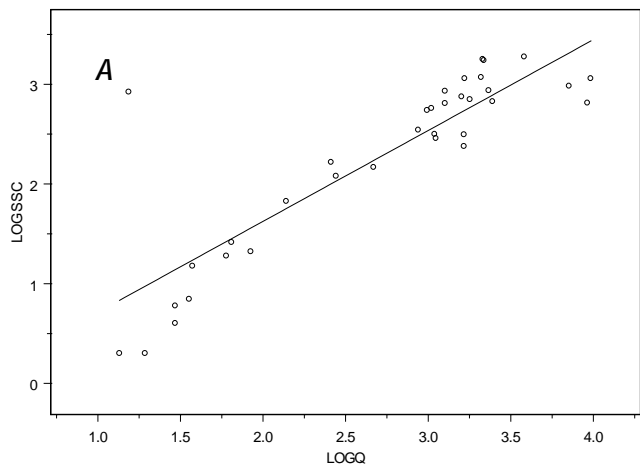


Figure 200. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus log-transformed suspended-sediment (SSC) concentrations; *B*, measured versus predicted SSC concentrations; *C*, computed log-transformed SSC concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

```

*** Linear Model ***

Call: lm(formula = LOGSSC ~ LOGTBY, data = SSC.STL.POST.SPLUS, na.action =
na.exclude)

Residuals:
    Min       1Q   Median       3Q      Max
-0.2944 -0.1139 -0.05004  0.06578  0.5066

Coefficients:
            Value Std. Error t value Pr(>|t|)
(Intercept)  0.5801  0.0929      6.2467  0.0000
      LOGTBY  0.9373  0.0505     18.5571  0.0000

Residual standard error: 0.187 on 17 degrees of freedom
Multiple R-Squared:  0.953      Adjusted R-squared:  0.9502
F-statistic: 344.4 on 1 and 17 degrees of freedom, the p-value is 1.014e-012
1 observations deleted due to missing values

Correlation of Coefficients:
      (Intercept)
LOGTBY -0.8869

Analysis of Variance Table

Response: LOGSSC

Terms added sequentially (first to last)
      Df Sum of Sq  Mean Sq  F Value    Pr(F)
LOGTBY  1  12.04438  12.04438  344.3652  1.013745e-012
Residuals 17   0.59459   0.03498

```

Figure 201. S+® output of regression model development using turbidity (TBY) as the explanatory variable for suspended sediment (SSC) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

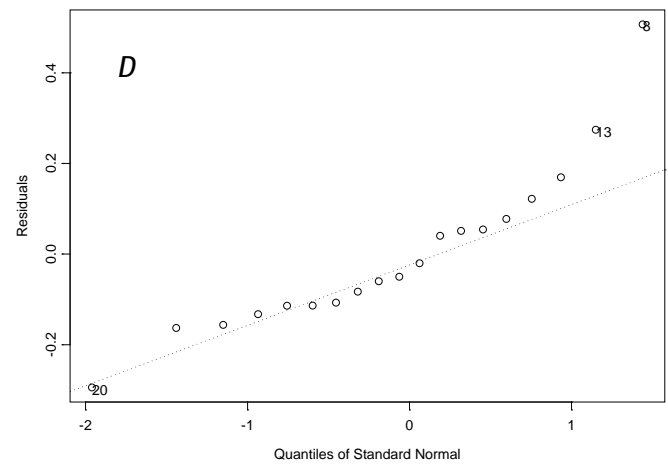
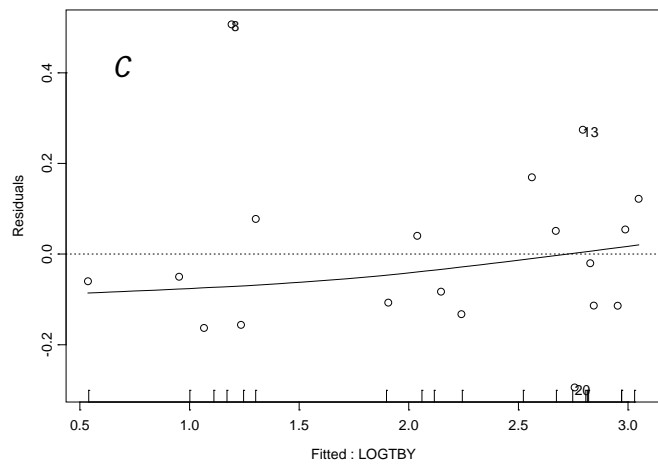
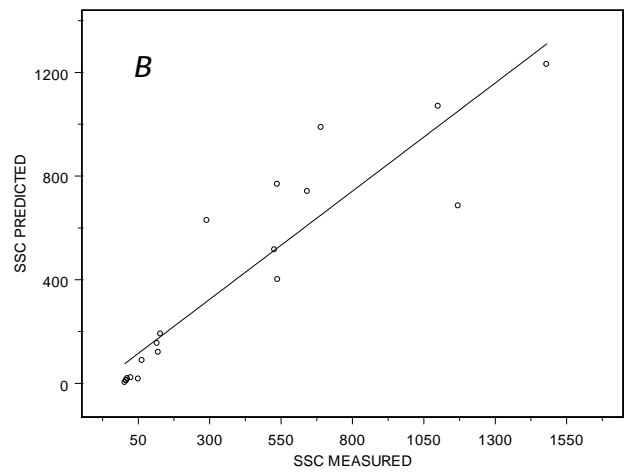
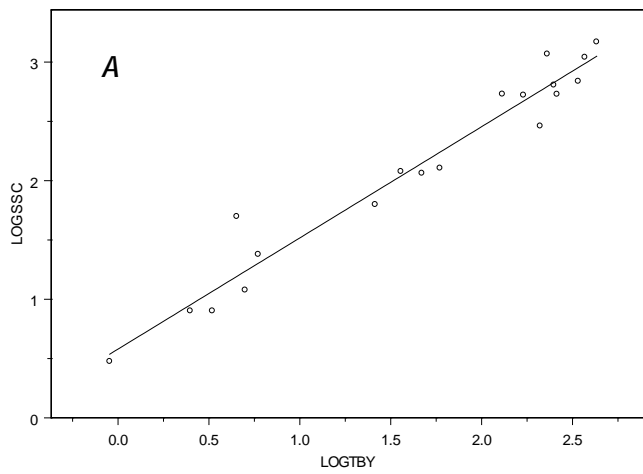


Figure 202. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed suspended-sediment (SSC) concentrations; *B*, measured versus predicted SSC concentrations; *C*, computed log-transformed SSC concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGSSC ~ LOGQ, data = SSC.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.5166	-0.1224	0.003736	0.1223	0.7342

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.4032	0.2416	-1.6689	0.1124
LOGQ	1.0251	0.0960	10.6732	0.0000

Residual standard error: 0.3208 on 18 degrees of freedom

Multiple R-Squared: 0.8636 Adjusted R-squared: 0.856

F-statistic: 113.9 on 1 and 18 degrees of freedom, the p-value is 3.247e-009

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9549

Analysis of Variance Table

Response: LOGSSC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	11.72598	11.72598	113.9172	3.247118e-009
Residuals	18	1.85282	0.10293		

Figure 203. S+® output of regression model development using streamflow (Q) as the explanatory variable for suspended sediment (SSC) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

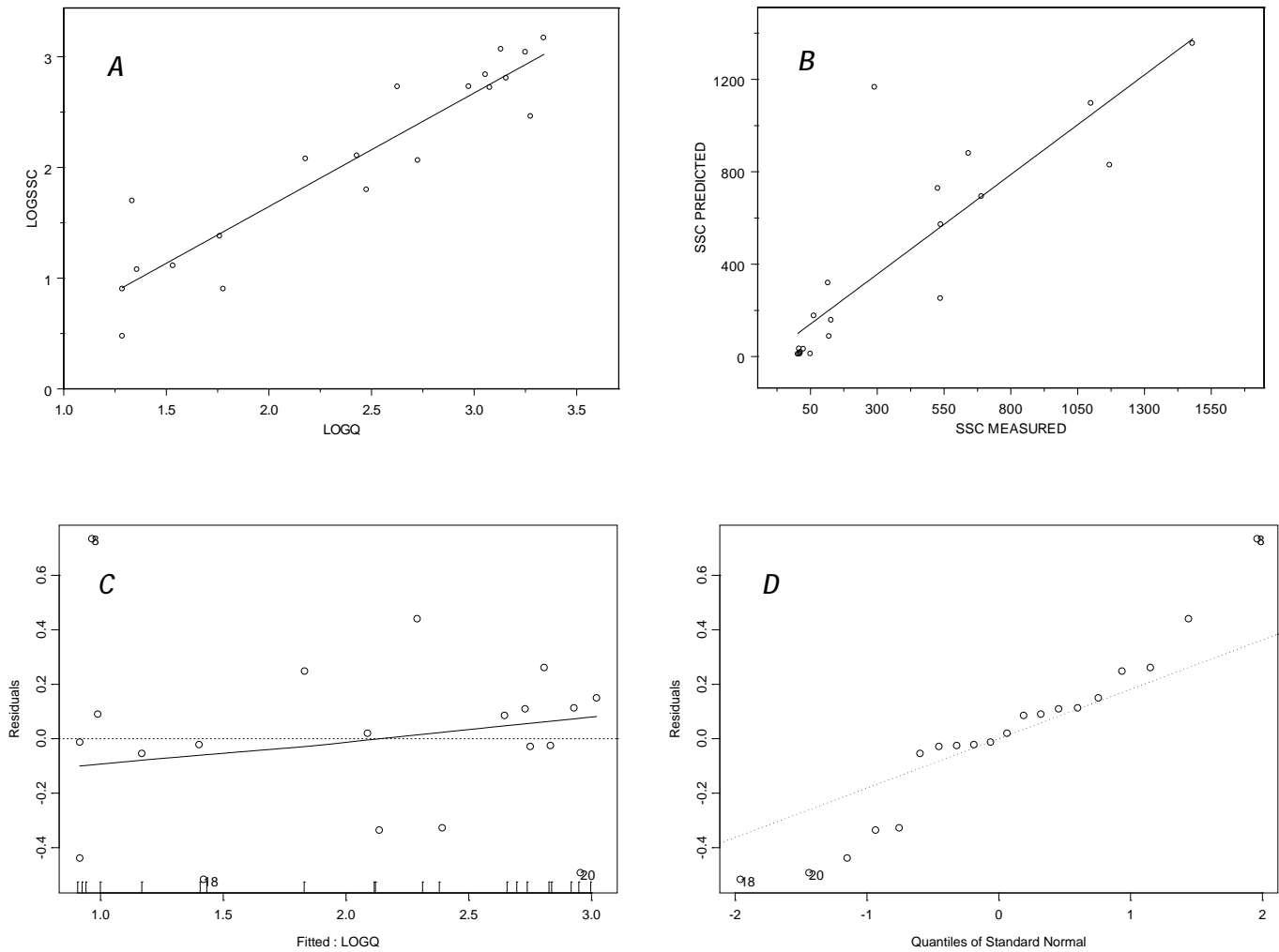


Figure 204. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus log-transformed suspended-sediment (SSC) concentrations; *B*, measured versus predicted SSC concentrations; *C*, computed log-transformed SSC concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGTN ~ TBY + LOGNITRATA, data = TN.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1793	-0.08021	0.01797	0.08672	0.1473

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.1946	0.0430	4.5227	0.0009
TBY	0.0009	0.0002	4.7066	0.0006
LOGNITRATA	0.8331	0.1025	8.1317	0.0000

Residual standard error: 0.1159 on 11 degrees of freedom

Multiple R-Squared: 0.9087 Adjusted R-squared: 0.8921

F-statistic: 54.73 on 2 and 11 degrees of freedom, the p-value is 1.918e-006
6 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	TBY
TBY	-0.5759	
LOGNITRATA	0.5008	-0.2123

Analysis of Variance Table

Response: LOGTN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	0.5825038	0.5825038	43.34139	0.00003951734
LOGNITRATA	1	0.8887109	0.8887109	66.12483	0.00000559086
Residuals	11	0.1478389	0.0134399		

Figure 205. S+® output of regression model development using turbidity (TBY) and nitrate (NITRATA) as explanatory variables for total nitrogen (TN) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), March 2012 through May 2013.

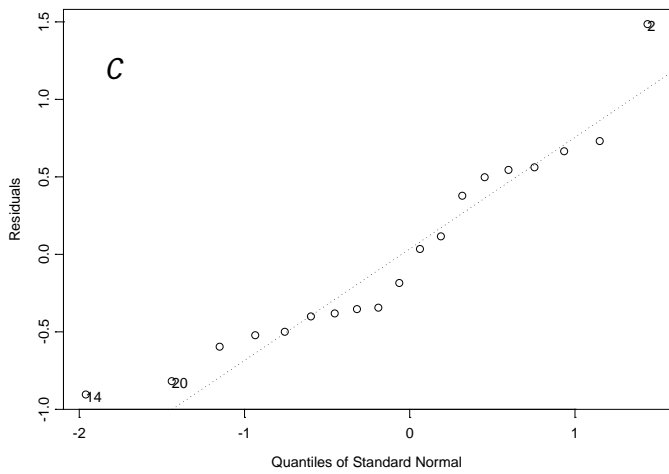
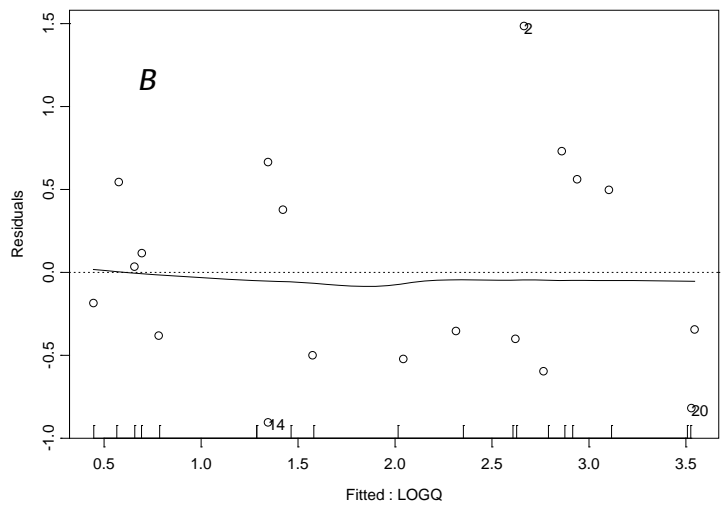
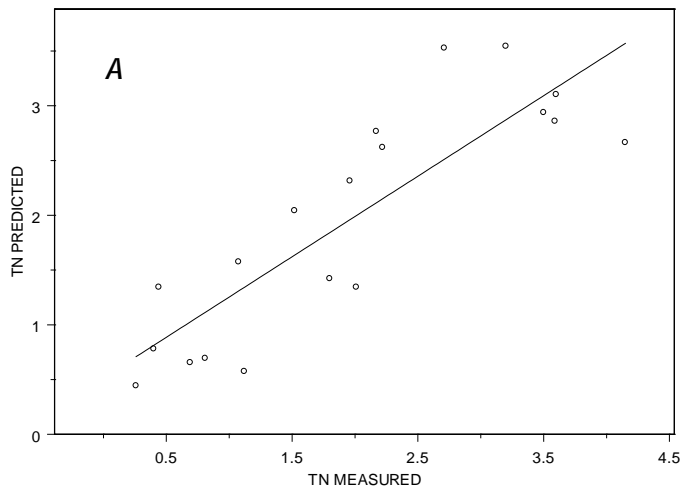


Figure 206. S+® output graphs from simple linear regression analysis using turbidity and log-transformed nitrate (NITRATAx) as explanatory variables for log-transformed total nitrogen (TN) concentrations showing A, measured versus predicted TN concentrations; B, computed log-transformed TN concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), March 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = TN ~ LOGQ, data = TN.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.905	-0.4506	-0.1852	0.5207	1.485

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.7605	0.2293	3.3170	0.0041
LOGQ	0.8760	0.1275	6.8718	0.0000

Residual standard error: 0.6485 on 17 degrees of freedom

Multiple R-Squared: 0.7353 Adjusted R-squared: 0.7197

F-statistic: 47.22 on 1 and 17 degrees of freedom, the p-value is 2.709e-006

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.7609

Analysis of Variance Table

Response: TN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	19.85716	19.85716	47.2211	2.708638e-006
Residuals	17	7.14875	0.42051		

Figure 207. S+® output of regression model development using streamflow (Q) as the explanatory variable for total nitrogen (TN) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

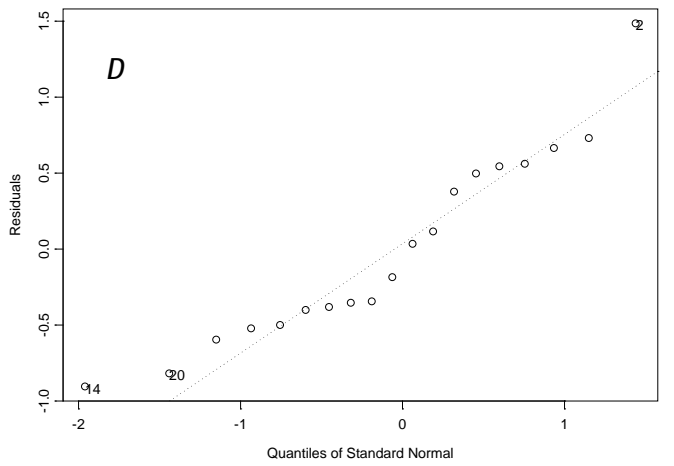
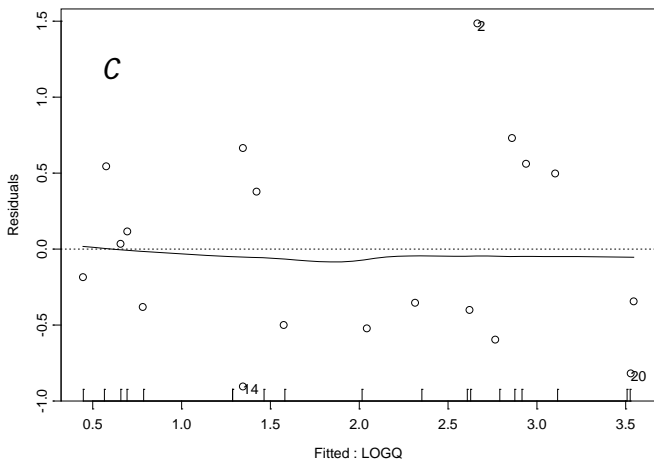
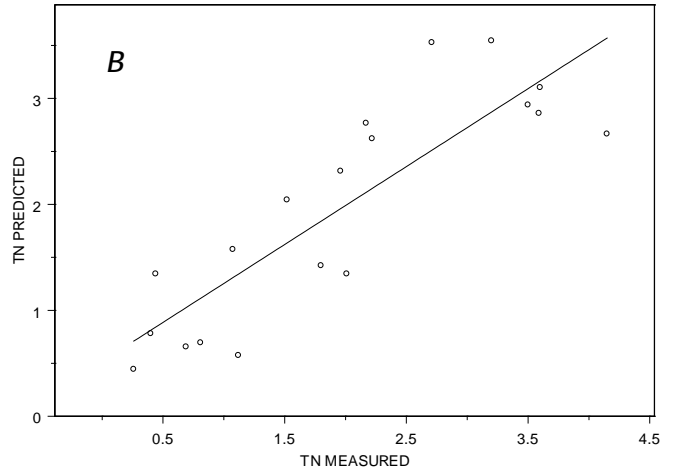
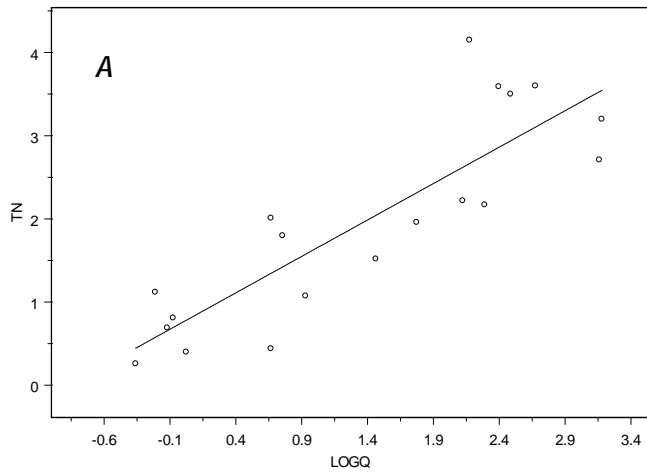


Figure 208. S+® output graphs from simple linear regression analysis showing A, log-transformed streamflow (Q) versus total nitrogen (TN) concentrations; B, measured versus predicted TN concentrations; C, computed TN concentrations versus regression residuals; and D, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = TN ~ TBY + NITRATAX, data = TN.COLL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-1.301	-0.3058	0.04104	0.295	1.104

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.4341	0.5512	2.6017	0.0353
TBY	0.0035	0.0011	3.1647	0.0158
NITRATAX	0.8644	0.0807	10.7102	0.0000

Residual standard error: 0.7449 on 7 degrees of freedom

Multiple R-Squared: 0.9491 Adjusted R-squared: 0.9346

F-statistic: 65.3 on 2 and 7 degrees of freedom, the p-value is 0.0000297

7 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	TBY
TBY	-0.7384	
NITRATAX	-0.8586	0.5947

Analysis of Variance Table

Response: TN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	8.81695	8.81695	15.8903	0.005281570
NITRATAX	1	63.64719	63.64719	114.7075	0.000013587
Residuals	7	3.88406	0.55487		

Figure 209. S+® output of regression model development using turbidity (TBY) and nitrate (NITRATAX) as explanatory variables for total nitrogen (TN) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), March 2012 through May 2013.

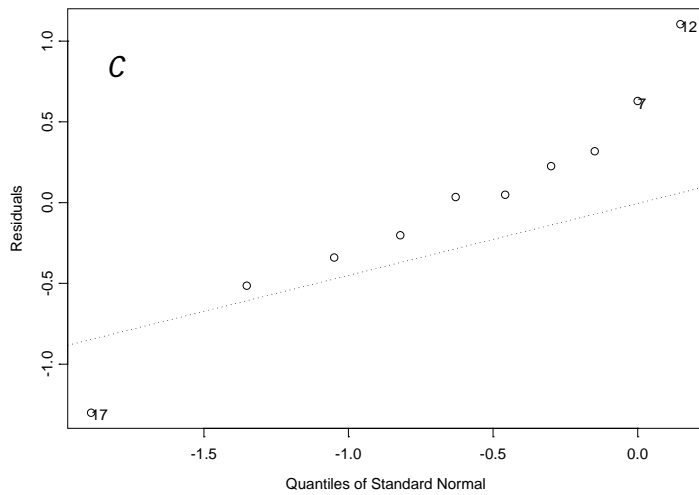
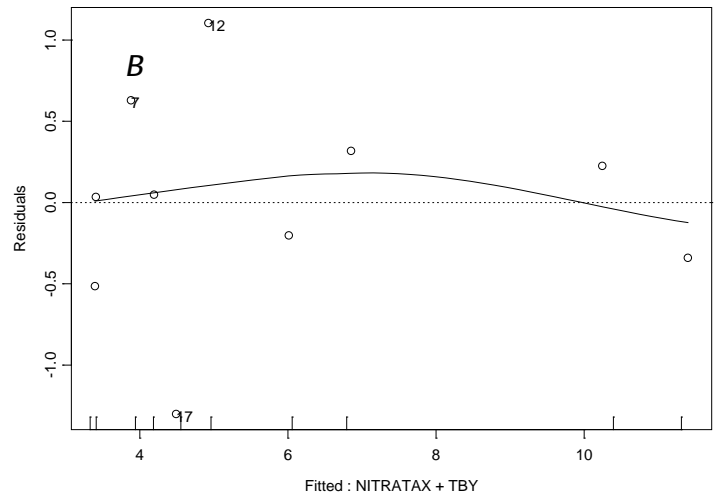
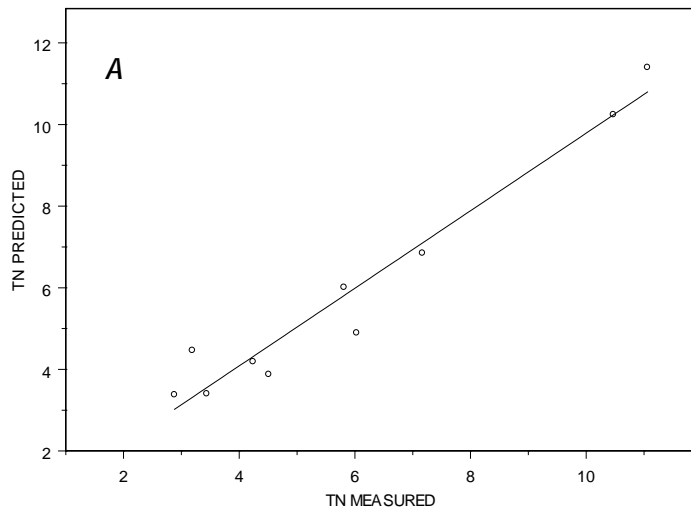


Figure 210. S+® output graphs from simple linear regression analysis using turbidity (TBY) and nitrate (NITRATAX) as explanatory variables for total nitrogen (TN) concentrations showing *A*, measured versus predicted TN concentrations; *B*, computed TN concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), March 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGTN ~ LOGQ, data = TN.COLLSPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.2289	-0.09206	-0.008448	0.09814	0.2039

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.1135	0.0970	11.4800	0.0000
LOGQ	-0.1833	0.0445	-4.1172	0.0009

Residual standard error: 0.1475 on 15 degrees of freedom

Multiple R-Squared: 0.5305 Adjusted R-squared: 0.4992

F-statistic: 16.95 on 1 and 15 degrees of freedom, the p-value is 0.0009139

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9295

Analysis of Variance Table

Response: LOGTN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	0.368876	0.3688760	16.95114	0.000913886
Residuals	15	0.326417	0.0217611		

Figure 211. S+® output of regression model development using streamflow (Q) as the explanatory variable for total nitrogen (TN) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

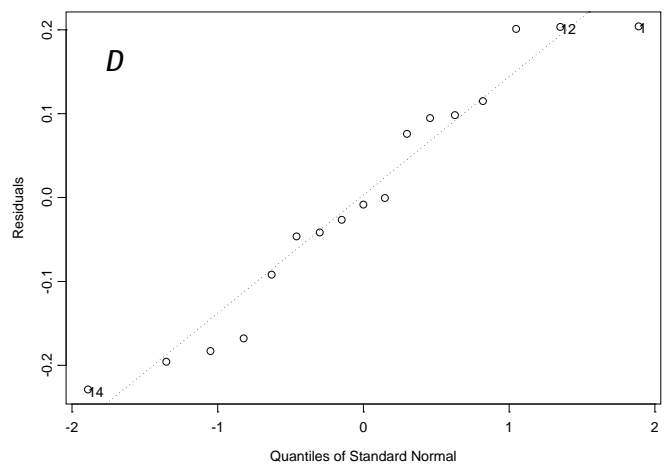
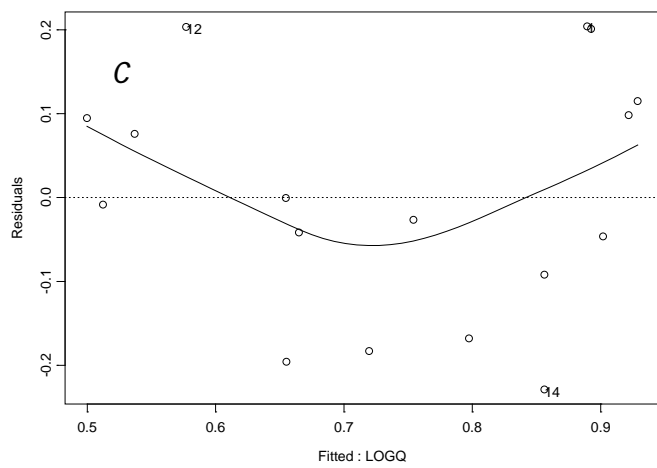
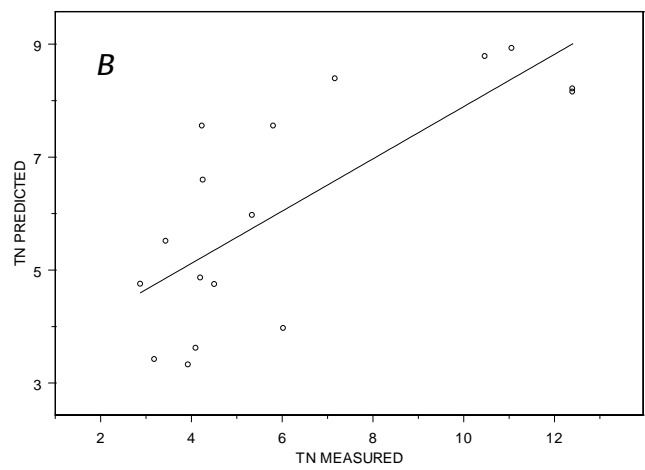
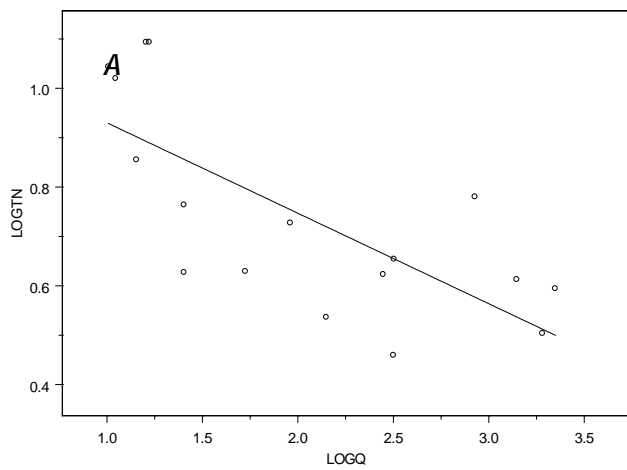


Figure 212. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus log-transformed total nitrogen (TN) concentrations; *B*, measured versus predicted TN concentrations; *C*, computed log-transformed TN concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = TN ~ LOGTBY + NITRATAX, data = TN.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.6582	-0.5284	-0.05347	0.3891	1.088

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-1.1359	1.0877	-1.0444	0.3310
LOGTBY	1.6263	0.4156	3.9134	0.0058
NITRATAX	1.0578	0.1158	9.1374	0.0000

Residual standard error: 0.6551 on 7 degrees of freedom

Multiple R-Squared: 0.9487 Adjusted R-squared: 0.934

F-statistic: 64.71 on 2 and 7 degrees of freedom, the p-value is 0.00003061

8 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	LOGTBY
LOGTBY	-0.9434	
NITRATAX	-0.9374	0.8356

Analysis of Variance Table

Response: TN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	19.70482	19.70482	45.92188	0.0002586633
NITRATAX	1	35.82573	35.82573	83.49148	0.0000386507
Residuals	7	3.00366	0.42909		

Figure 213. S+® output of regression model development using turbidity (TBY) and nitrate (NITRATAX) as explanatory variables for total nitrogen (TN) for Indian Creek at Overland Park, KS (Marty, site 06893300), March 2012 through April 2013.

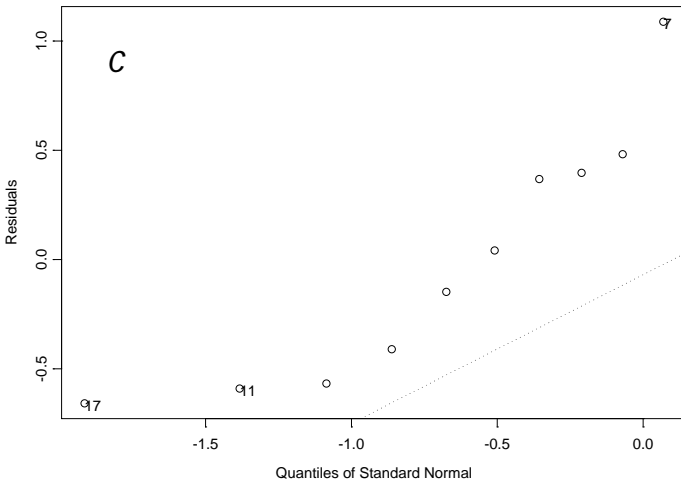
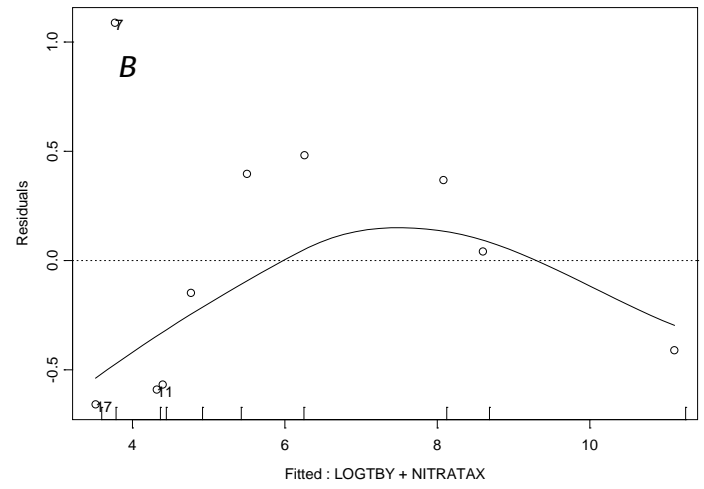
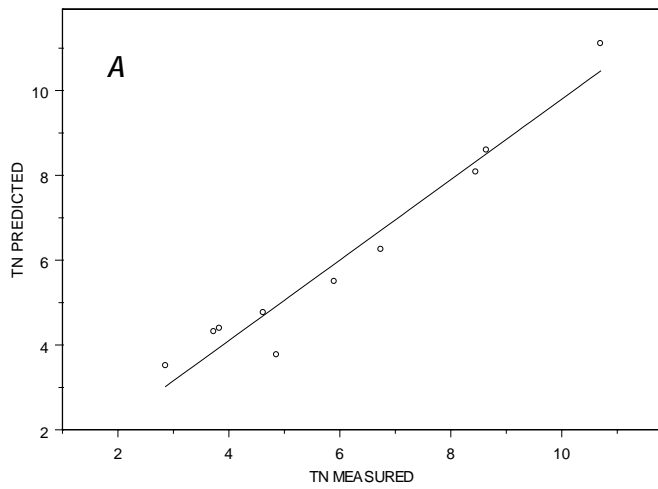


Figure 214. S+® output graphs from simple linear regression analysis using log-transformed turbidity (TBY) and nitrate (NITRATAX) as explanatory variables for total nitrogen (TN) concentrations showing *A*, measured versus predicted TN concentrations; *B*, computed TN concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), March 2012 through April 2013.

*** Linear Model ***

Call: lm(formula = TN ~ Q + LOGQ, data = TN.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-2.323	-0.9313	0.1747	0.5948	3.06

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	13.4401	1.4448	9.3027	0.0000
Q	0.0081	0.0025	3.1787	0.0062
LOGQ	-5.1162	0.9992	-5.1203	0.0001

Residual standard error: 1.489 on 15 degrees of freedom

Multiple R-Squared: 0.6999 Adjusted R-squared: 0.6599

F-statistic: 17.49 on 2 and 15 degrees of freedom, the p-value is 0.00012

Correlation of Coefficients:

	(Intercept)	Q
Q	0.7256	
LOGQ	-0.9407	-0.8874

Analysis of Variance Table

Response: TN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
Q	1	19.43852	19.43852	8.77034	0.009704390
LOGQ	1	58.10788	58.10788	26.21731	0.000125554
Residuals	15	33.24591	2.21639		

Figure 215. S+® output of regression model development using streamflow (Q) as the explanatory variable for total nitrogen (TN) for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

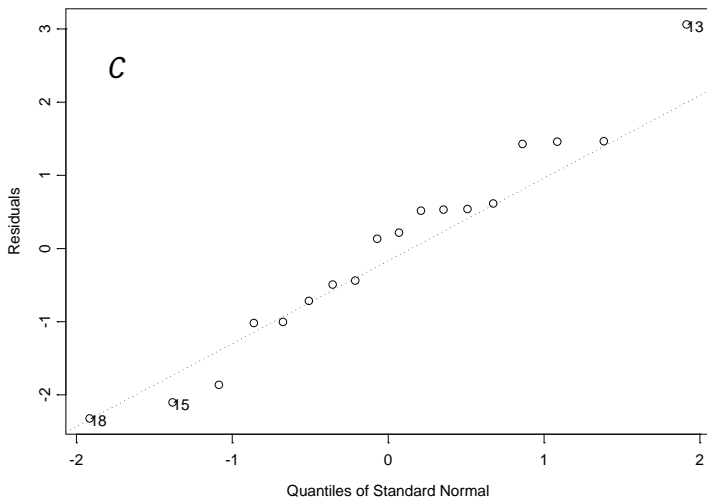
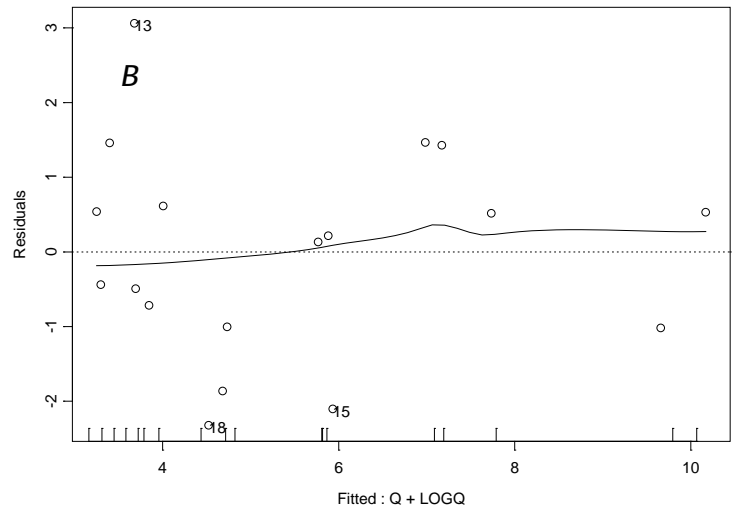
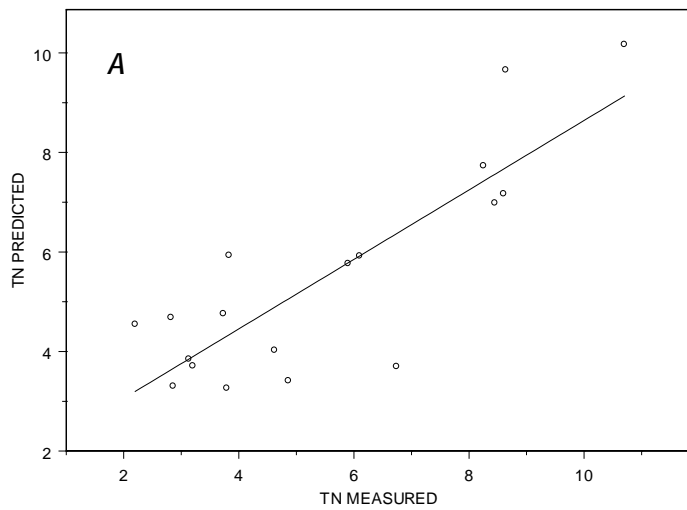


Figure 216. S+® output graphs from simple linear regression analysis using log-transformed streamflow (Q) versus total nitrogen (TN) concentrations showing *A*, measured versus predicted TN concentrations; *B*, computed TN concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = TN ~ TBY + LOGTBY, data = TN.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-2.276	-0.6901	-0.1098	0.4785	2.39

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	9.1373	0.7538	12.1214	0.0000
TBY	0.0147	0.0035	4.1917	0.0008
LOGTBY	-3.9828	0.6792	-5.8637	0.0000

Residual standard error: 1.334 on 15 degrees of freedom

Multiple R-Squared: 0.7056 Adjusted R-squared: 0.6663

F-statistic: 17.97 on 2 and 15 degrees of freedom, the p-value is 0.0001041

438 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	TBY
TBY	0.5526	
LOGTBY	-0.8596	-0.8329

Analysis of Variance Table

Response: TN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	2.78327	2.78327	1.56433	0.2301910
LOGTBY	1	61.17410	61.17410	34.38277	0.0000312
Residuals	15	26.68812	1.77921		

Figure 217. S+® output of regression model development using turbidity (TBY) as an explanatory variable for total nitrogen (TN) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

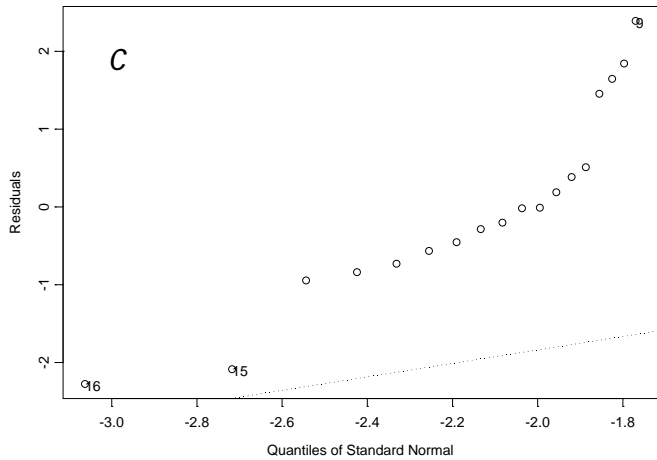
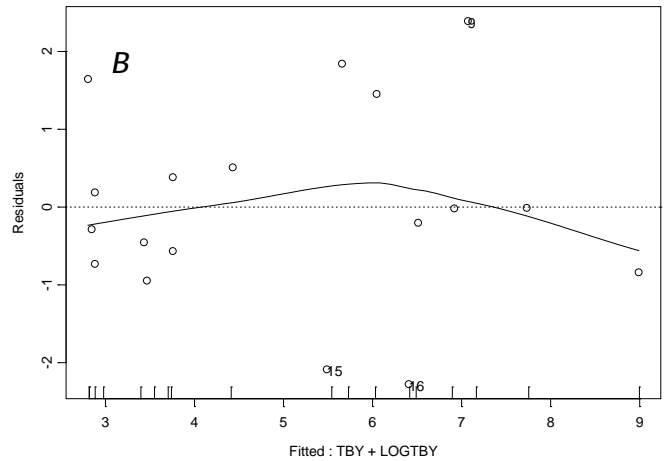
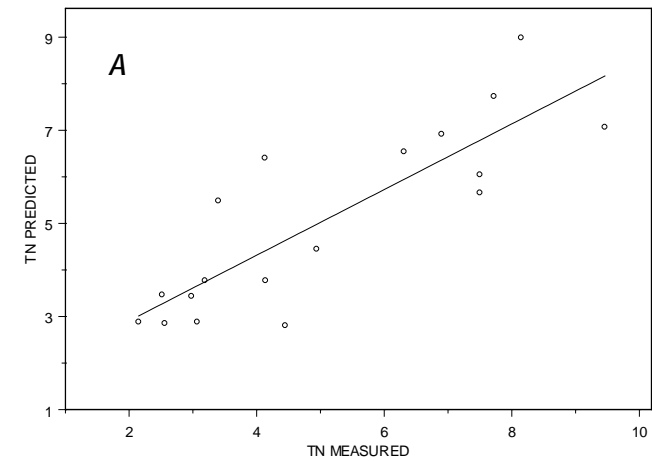


Figure 218. S+® output graphs from simple linear regression analysis using turbidity (TBY) and log-transformed TBY as explanatory variables for total nitrogen (TN) concentrations showing *A*, measured versus predicted TN concentrations; *B*, computed TN concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = TN ~ TBY + NITRATAX, data = TN.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.8695	-0.263	0.1576	0.3148	0.763

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.7822	0.4516	1.7321	0.1173
TBY	0.0076	0.0012	6.2199	0.0002
NITRATAX	0.9319	0.0743	12.5380	0.0000

Residual standard error: 0.5674 on 9 degrees of freedom

Multiple R-Squared: 0.9494 Adjusted R-squared: 0.9381

F-statistic: 84.38 on 2 and 9 degrees of freedom, the p-value is 1.479e-006

444 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	TBY
TBY	-0.8276	
NITRATAX	-0.8819	0.6919

Analysis of Variance Table

Response: TN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	3.72125	3.72125	11.5577	0.007877459
NITRATAX	1	50.61404	50.61404	157.2010	0.000000530
Residuals	9	2.89773	0.32197		

Figure 219. S+® output of regression model development using turbidity (TBY) and nitrate (NITRATAX) as explanatory variables for total nitrogen (TN) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), April 2012 through May 2013.

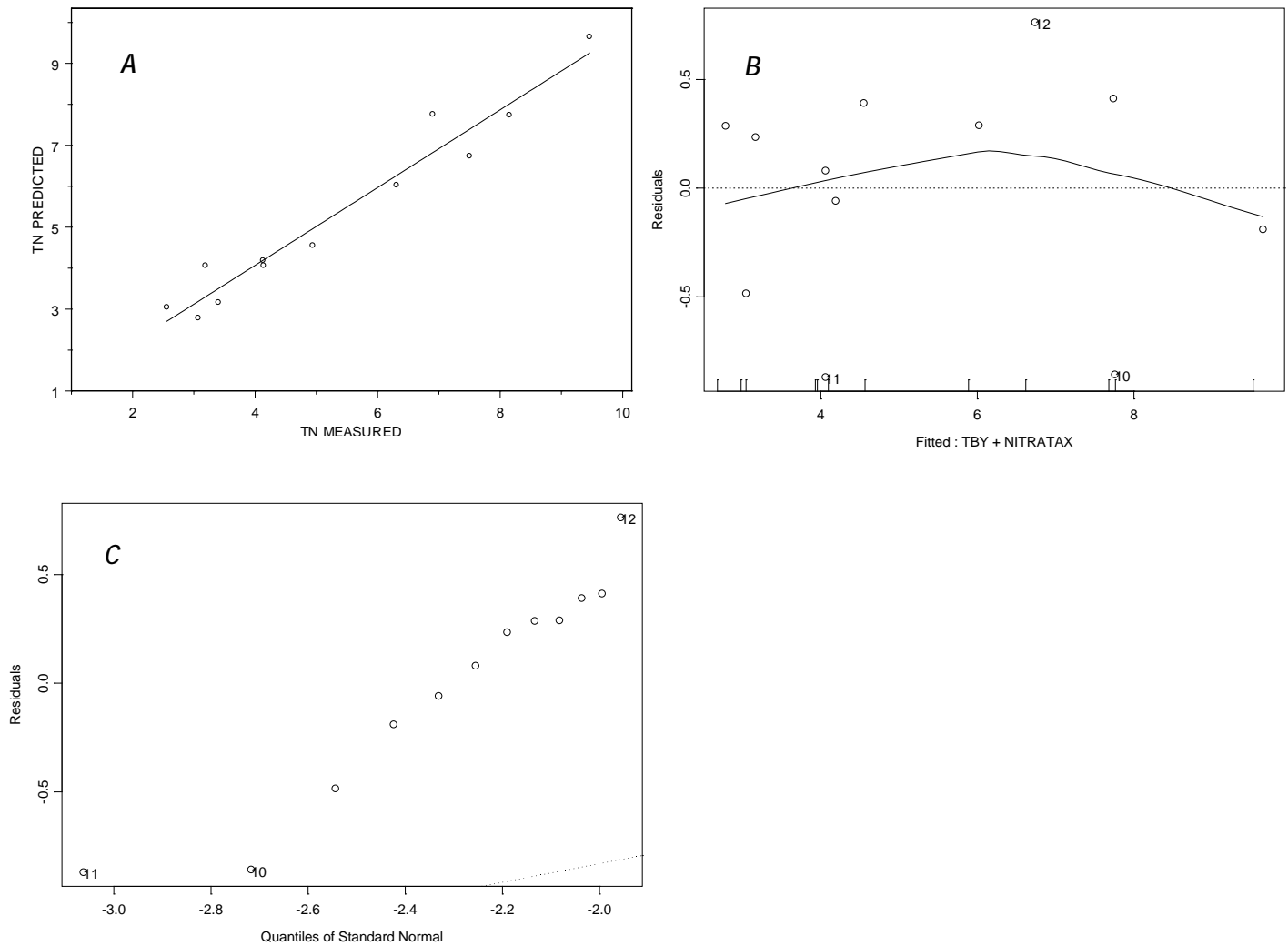


Figure 220. S+® output graphs from simple linear regression analysis using turbidity (TBY) and nitrate (NITRATAX) as explanatory variables for total nitrogen (TN) concentrations showing *A*, measured versus predicted TN concentrations; *B*, computed TN concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), April 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = TN ~ Q + LOGQ, data = TN.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-2.613	-1.32	-0.07905	1.115	2.848

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	10.5154	1.2522	8.3974	0.0000
Q	0.0023	0.0008	2.9218	0.0105
LOGQ	-3.2247	0.7175	-4.4942	0.0004

Residual standard error: 1.59 on 15 degrees of freedom

Multiple R-Squared: 0.5816 Adjusted R-squared: 0.5258

F-statistic: 10.43 on 2 and 15 degrees of freedom, the p-value is 0.001451

438 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	Q
Q	0.6047	
LOGQ	-0.9377	-0.7659

Analysis of Variance Table

Response: TN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
Q	1	1.65553	1.65553	0.65481	0.4310479
LOGQ	1	51.06599	51.06599	20.19803	0.0004282
Residuals	15	37.92398	2.52827		

Figure 221. S+® output of regression model development using streamflow (Q) as an explanatory variable for total nitrogen (TN) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

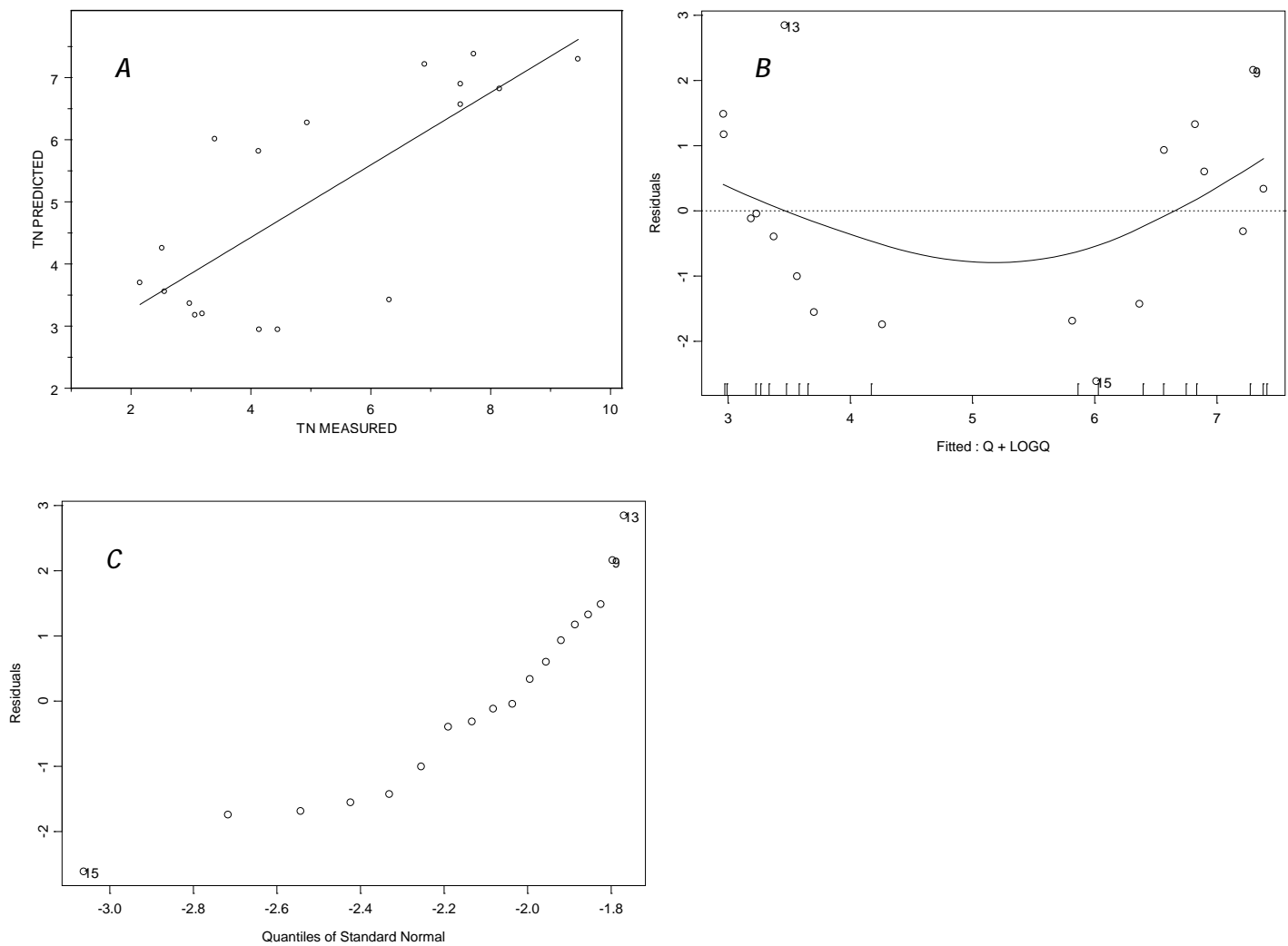


Figure 222. S+® output graphs from simple linear regression analysis using streamflow (Q) and log-transformed Q as explanatory variables for total nitrogen (TN) concentrations showing *A*, measured versus predicted TN concentrations; *B*, computed TN concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = TN ~ TBY + LOGNITRATA, data = TN.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.2814	-0.1208	-0.007136	0.1051	0.343

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.6108	0.0672	23.9590	0.0000
TBY	0.0075	0.0007	10.7752	0.0000
LOGNITRATA	2.1698	0.1812	11.9756	0.0000

Residual standard error: 0.1813 on 9 degrees of freedom

Multiple R-Squared: 0.9736 Adjusted R-squared: 0.9678

F-statistic: 166.3 on 2 and 9 degrees of freedom, the p-value is 7.83e-008

5 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	TBY
TBY	-0.5693	
LOGNITRATA	0.3834	-0.2203

Analysis of Variance Table

Response: TN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	6.215203	6.215203	189.0969	2.394172e-007
LOGNITRATA	1	4.713753	4.713753	143.4154	7.834437e-007
Residuals	9	0.295810	0.032868		

Figure 223. S+® output of regression model development using turbidity (TBY) and nitrate (NITRATA) as explanatory variables for total nitrogen (TN) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), March 2012 through May 2013.

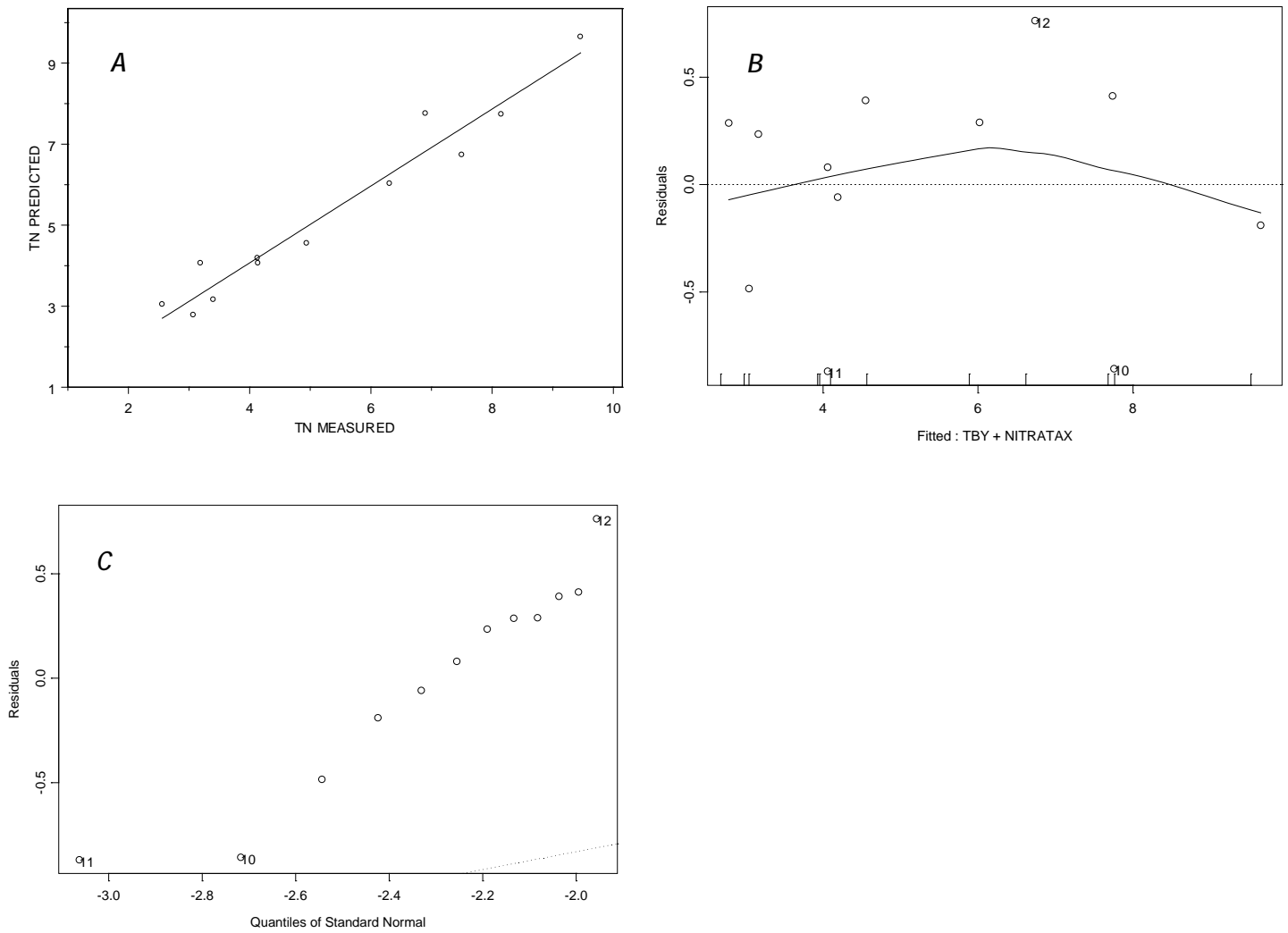


Figure 224. S+® output graphs from simple linear regression analysis using turbidity (TBY) and log-transformed nitrate (NITRATAX) as explanatory variables for total nitrogen (TN) concentrations showing *A*, measured versus predicted TN concentrations; *B*, computed TN concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), March 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = TN ~ LOGQ, data = TN.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.7195	-0.2065	-0.02081	0.2954	0.6607

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.3662	0.1794	2.0409	0.0606
LOGQ	0.9689	0.0974	9.9507	0.0000

Residual standard error: 0.3925 on 14 degrees of freedom

Multiple R-Squared: 0.8761 Adjusted R-squared: 0.8673

F-statistic: 99.02 on 1 and 14 degrees of freedom, the p-value is 9.93e-008

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.8373

Analysis of Variance Table

Response: TN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	15.25349	15.25349	99.01742	9.930154e-008
Residuals	14	2.15668	0.15405		

Figure 225. S+® output of regression model development using streamflow (Q) as an explanatory variable for total nitrogen (TN) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

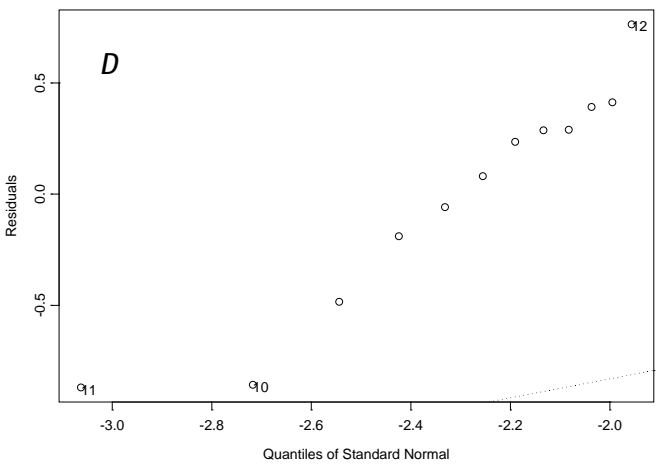
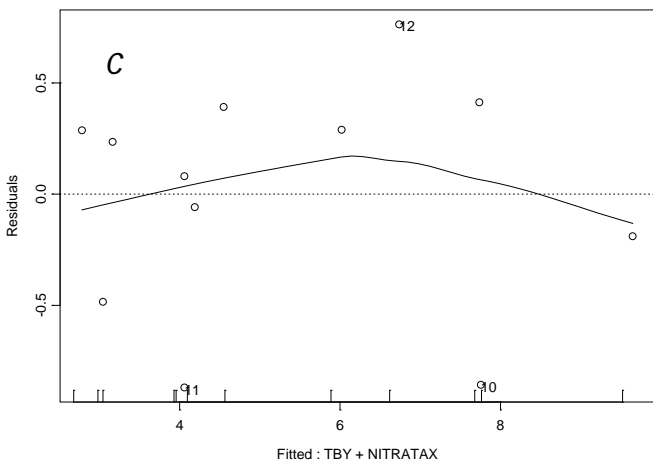
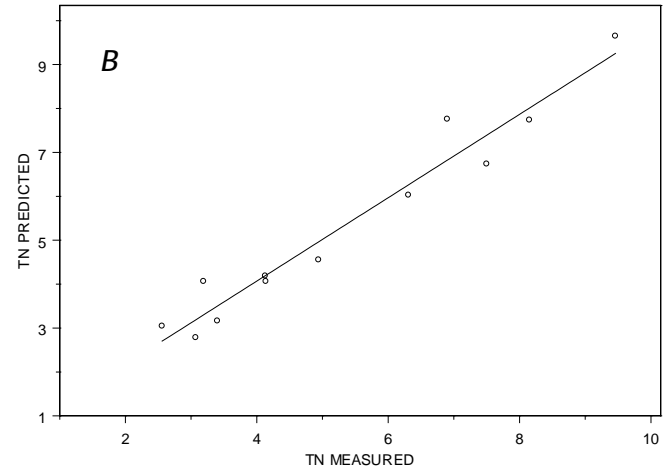
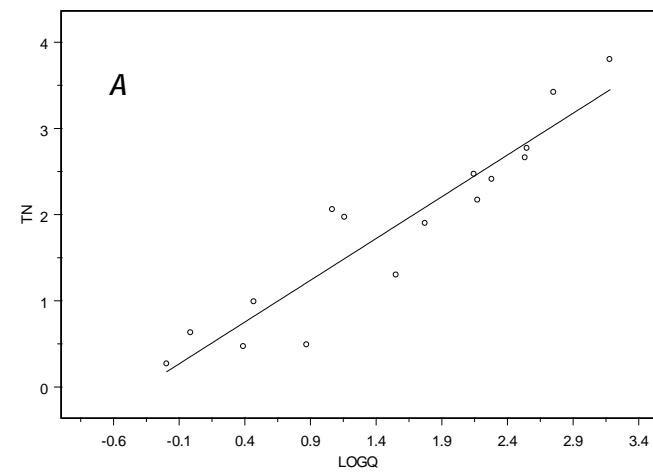


Figure 226. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (*Q*) versus total nitrogen (TN) concentrations; *B*, measured versus predicted TN concentrations; *C*, computed TN concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGTN ~ TBY + LOGTBY, data = TN.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.3624	-0.09348	-0.01644	0.0902	0.3559

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.0124	0.0541	18.7102	0.0000
TBY	0.0007	0.0002	4.4063	0.0001
LOGTBY	-0.2727	0.0400	-6.8124	0.0000

Residual standard error: 0.1516 on 50 degrees of freedom

Multiple R-Squared: 0.4959 Adjusted R-squared: 0.4757

F-statistic: 24.59 on 2 and 50 degrees of freedom, the p-value is 3.663e-008

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	TBY
TBY	0.4963	
LOGTBY	-0.8666	-0.7950

Analysis of Variance Table

Response: LOGTN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	0.063666	0.063666	2.76963	0.1023241
LOGTBY	1	1.066813	1.066813	46.40873	0.0000000
Residuals	50	1.149366	0.022987		

Figure 227. S+® output of regression model development using turbidity (TBY) as an explanatory variable for total nitrogen (TN) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

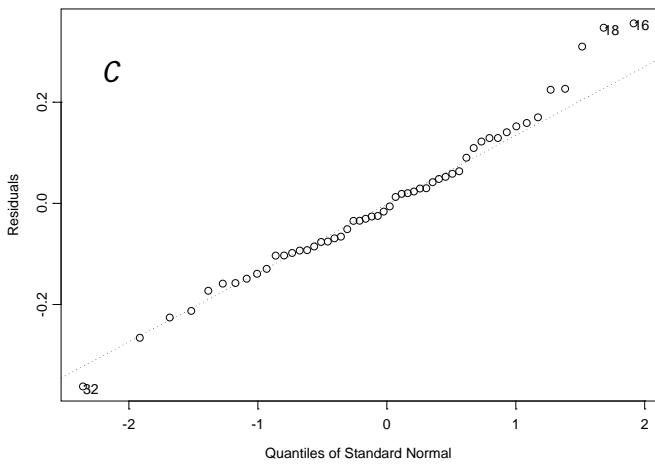
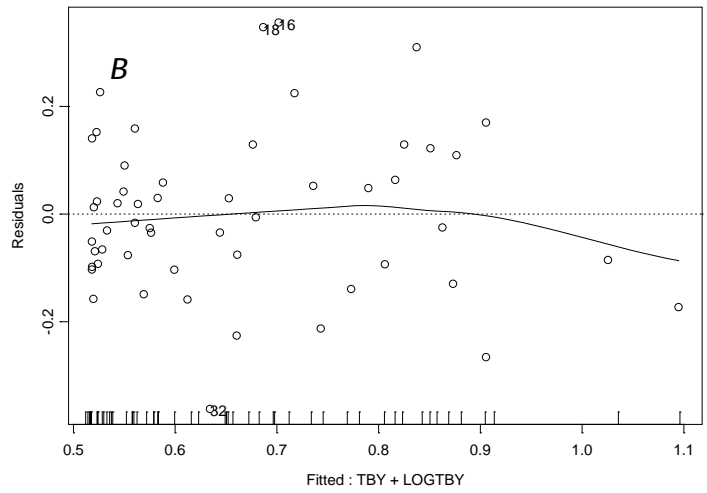
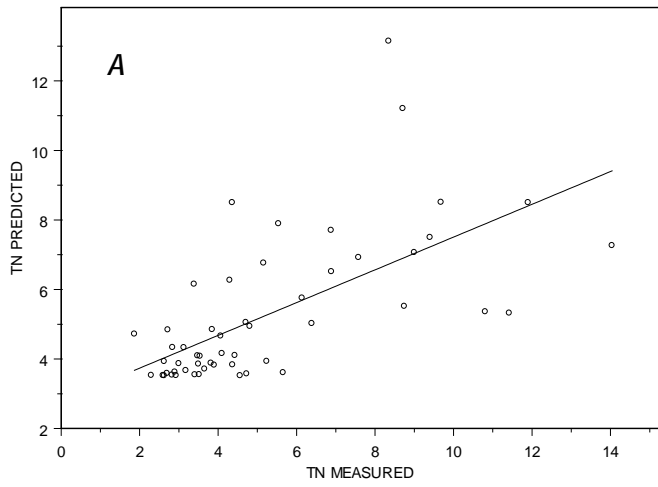


Figure 228. S+® output graphs from simple linear regression analysis using turbidity (TBY) and log-transformed TBY as explanatory variables for total nitrogen (TN) concentrations showing *A*, measured versus predicted TN concentrations; *B*, computed TN concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGTN ~ TBY + LOGTBY, data = TN.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:
Min 1Q Median 3Q Max
-0.3346 -0.07077 -0.002076 0.06807 0.3754

Coefficients:
Value Std. Error t value Pr(>|t|)
(Intercept) 1.0106 0.0739 13.6779 0.0000
TBY 0.0007 0.0002 3.9352 0.0004
LOGTBY -0.2881 0.0535 -5.3901 0.0000

Residual standard error: 0.1575 on 31 degrees of freedom
Multiple R-squared: 0.4881 Adjusted R-squared: 0.4551
F-statistic: 14.78 on 2 and 31 degrees of freedom, the p-value is 0.00003109

Correlation of Coefficients:
(Intercept) TBY
TBY 0.5314
LOGTBY -0.8798 -0.8077

Analysis of Variance Table

Response: LOGTN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	0.0124948	0.0124948	0.50396	0.4830699
LOGTBY	1	0.7203131	0.7203131	29.05303	0.0000070
Residuals	31	0.7685843	0.0247930		

Figure 229. S+® output of regression model development using turbidity (TBY) as an explanatory variable for total nitrogen (TN) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

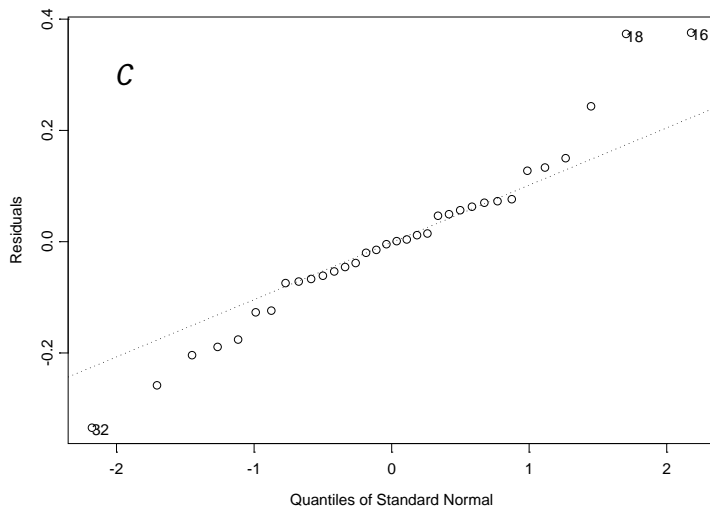
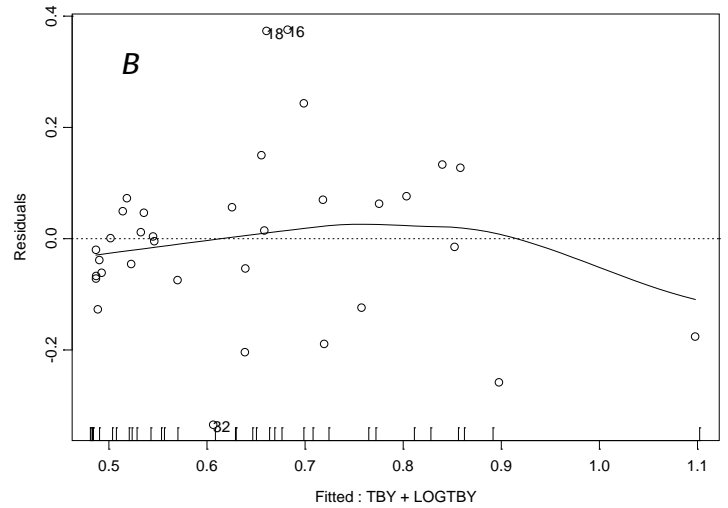
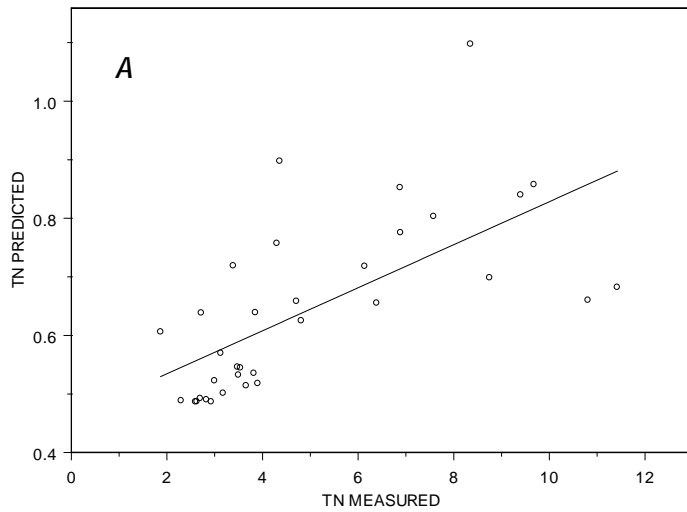


Figure 230. S+® output graphs from simple linear regression analysis using turbidity (TBY) and log-transformed TBY as explanatory variables for total nitrogen (TN) concentrations showing A, measured versus predicted TN concentrations; B, computed TN concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = TN ~ LOGTBY + NITRATAX, data = TN.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-1.021	-0.3022	-0.04948	0.2961	1.029

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.6507	1.1335	-0.5740	0.5817
LOGTBY	1.2661	0.4102	3.0869	0.0150
NITRATAX	1.0638	0.1240	8.5816	0.0000

Residual standard error: 0.6136 on 8 degrees of freedom

Multiple R-Squared: 0.9554 Adjusted R-squared: 0.9443

F-statistic: 85.71 on 2 and 8 degrees of freedom, the p-value is 3.952e-006

9 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	LOGTBY
LOGTBY	-0.9678	
NITRATAX	-0.9478	0.8885

Analysis of Variance Table

Response: TN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	36.81404	36.81404	97.78305	0.00000922855
NITRATAX	1	27.72575	27.72575	73.64332	0.00002626093
Residuals	8	3.01190	0.37649		

Figure 231. S+® output of regression model development using turbidity (TBY) and nitrate (NITRATAX) as explanatory variables for total nitrogen (TN) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), May 2012 through May 2013.

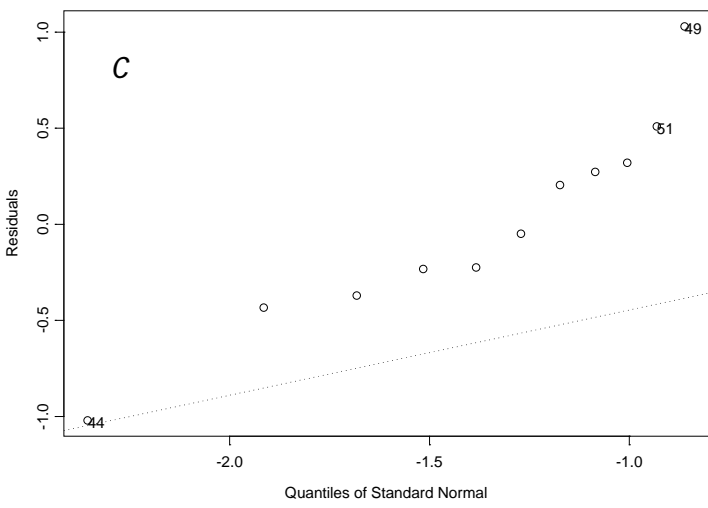
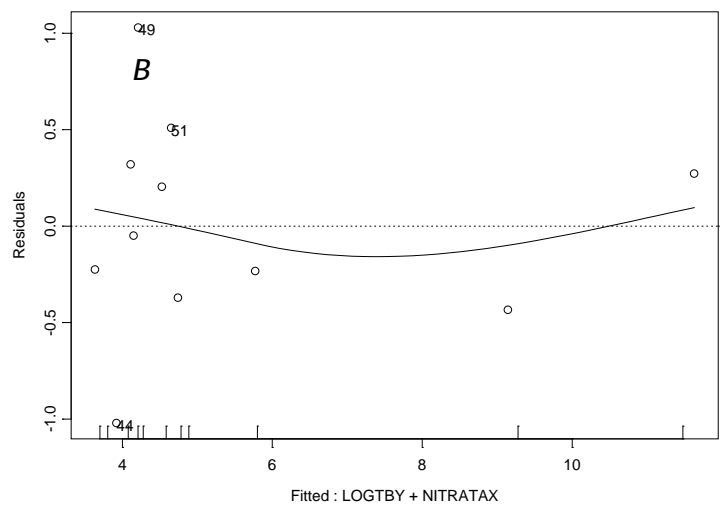
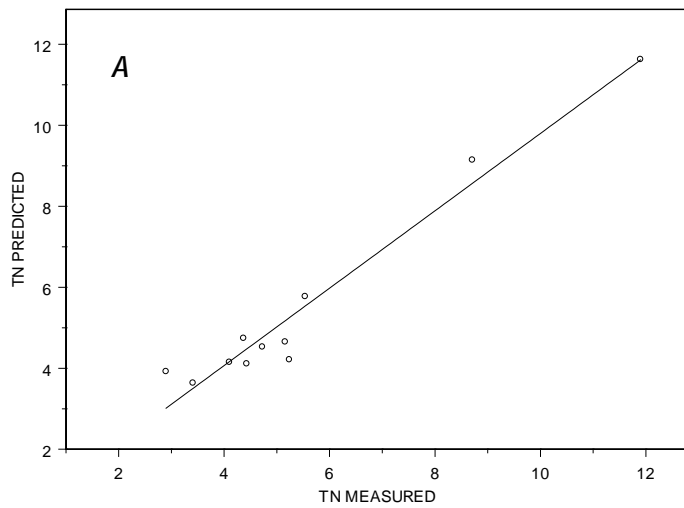


Figure 232. S+® output graphs from simple linear regression analysis using log-transformed turbidity (TBY) and nitrate (NITRATAX) as explanatory variables for total nitrogen (TN) concentrations showing *A*, measured versus predicted TN concentrations; *B*, computed TN concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), May 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = TN ~ Q + LOGQ, data = TN.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-2.286	-1.679	0.3695	1.146	3.928

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	18.8406	2.0998	8.9728	0.0000
Q	0.0042	0.0012	3.4452	0.0031
LOGQ	-6.6084	1.1538	-5.7276	0.0000

Residual standard error: 1.766 on 17 degrees of freedom

Multiple R-Squared: 0.7288 Adjusted R-squared: 0.6969

F-statistic: 22.85 on 2 and 17 degrees of freedom, the p-value is 0.00001522

Correlation of Coefficients:

	(Intercept)	Q
Q	0.7738	
LOGQ	-0.9650	-0.8888

Analysis of Variance Table

Response: TN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
Q	1	40.2168	40.2168	12.88981	0.002256203
LOGQ	1	102.3532	102.3532	32.80501	0.000024649
Residuals	17	53.0408	3.1200		

Figure 233. S+® output of regression model development using streamflow (Q) as an explanatory variable for total nitrogen (TN) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

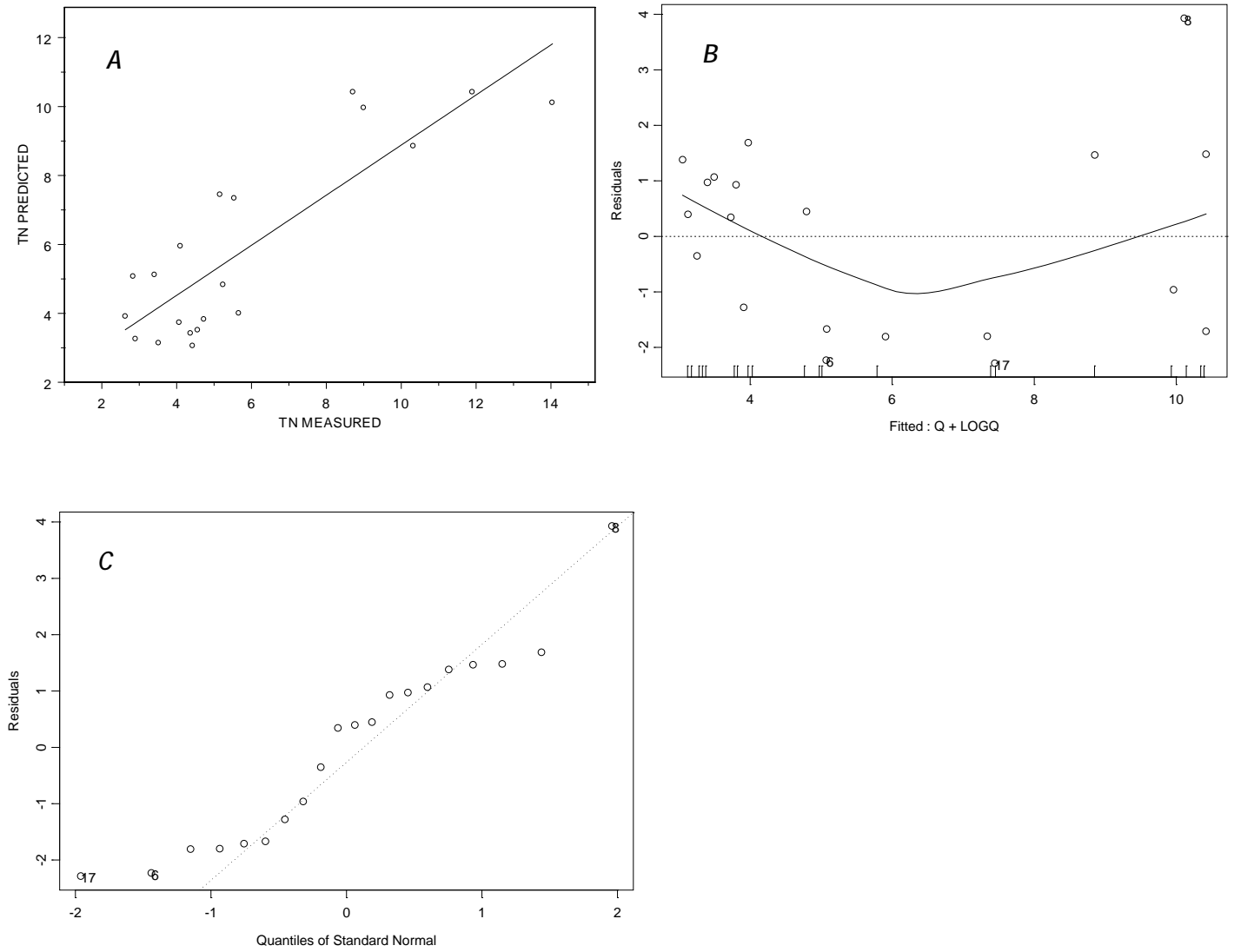


Figure 234. S+® output graphs from simple linear regression analysis using streamflow (Q) and log-transformed Q as explanatory variables for total nitrogen (TN) concentrations showing A, measured versus predicted TN concentrations; B, computed TN concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = DTKN ~ LOGSC + NO3NO2, data = DTKN.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.19	-0.1049	-0.003989	0.08364	0.2387

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.3132	0.2933	4.4767	0.0009
LOGSC	-0.3313	0.1015	-3.2649	0.0075
NO3NO2	0.2531	0.0749	3.3807	0.0061

Residual standard error: 0.1445 on 11 degrees of freedom

Multiple R-Squared: 0.6646 Adjusted R-squared: 0.6036

F-statistic: 10.9 on 2 and 11 degrees of freedom, the p-value is 0.002458
6 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	LOGSC
LOGSC	-0.9671	
NO3NO2	-0.2046	-0.0135

Analysis of Variance Table

Response: DTKN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	0.2165214	0.2165214	10.36639	0.008163597
NO3NO2	1	0.2387231	0.2387231	11.42934	0.006134628
Residuals	11	0.2297555	0.0208869		

Figure 235. S+® output of regression model development using specific conductance (SC) and nitrate (NO3NO2) as explanatory variables for dissolved total Kjeldahl nitrogen (DTKN) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), March 2012 through May 2013.

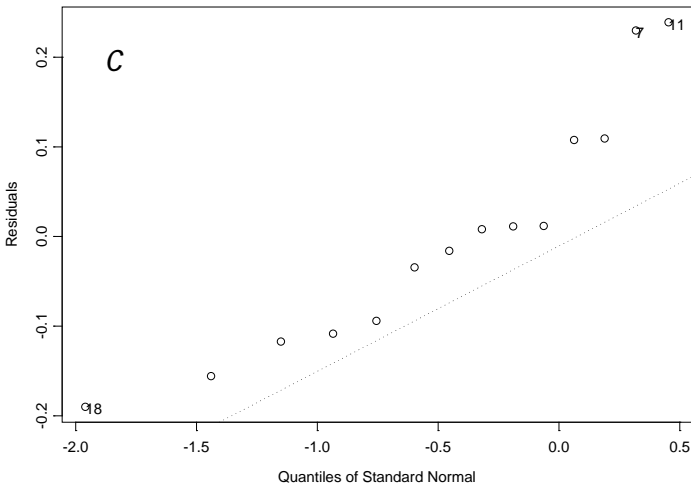
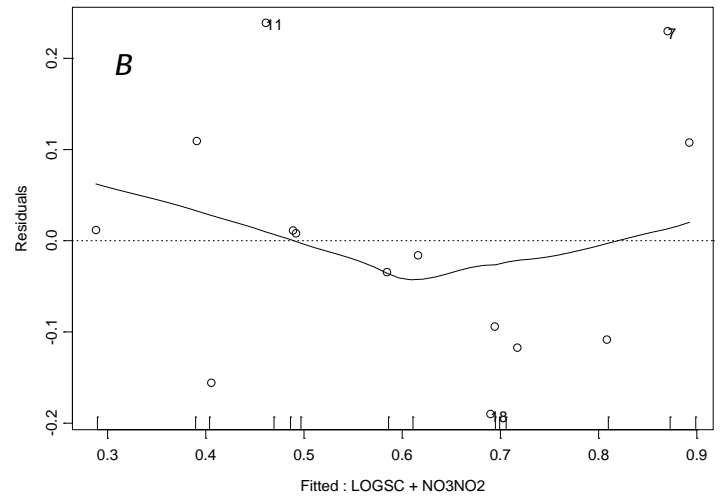
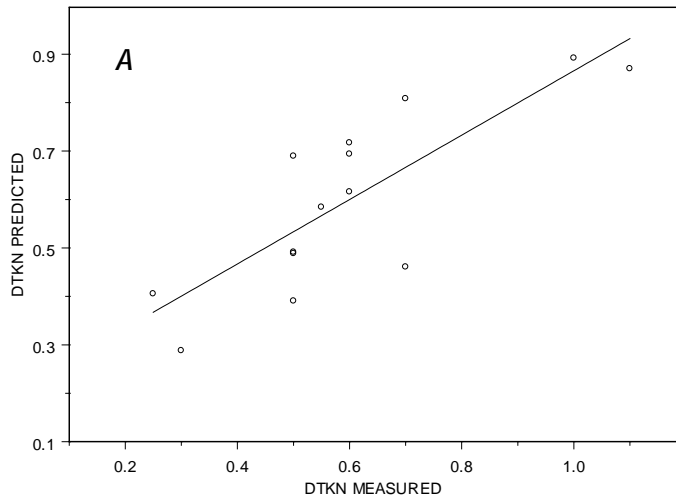


Figure 236. S+® output graphs from simple linear regression analysis using log-transformed specific conductance (SC) and nitrate (NO₃NO₂) as explanatory variables for dissolved total Kjeldahl nitrogen (DTKN) concentrations showing *A*, measured versus predicted DTKN concentrations; *B*, computed DTKN concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), March 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = DTKN ~ SC + LOGNO3NO2, data = DTKN.COLL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.2704	-0.04883	0.01922	0.08825	0.2045

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.6940	0.1122	6.1875	0.0005
SC	0.0001	0.0001	0.7249	0.4920
LOGNO3NO2	0.4116	0.1505	2.7352	0.0291

Residual standard error: 0.165 on 7 degrees of freedom

Multiple R-Squared: 0.6198 Adjusted R-squared: 0.5112

F-statistic: 5.706 on 2 and 7 degrees of freedom, the p-value is 0.03388

7 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	SC
SC	-0.6479	
LOGNO3NO2	-0.2942	-0.3995

Analysis of Variance Table

Response: DTKN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SC	1	0.1069683	0.1069683	3.931247	0.08782669
LOGNO3NO2	1	0.2035633	0.2035633	7.481258	0.02911970
Residuals	7	0.1904684	0.0272098		

Figure 237. S+® output of regression model development using specific conductance (SC) and nitrate (NO3NO2) as explanatory variables for dissolved total Kjeldahl nitrogen (DTKN) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), March 2012 through May 2013.

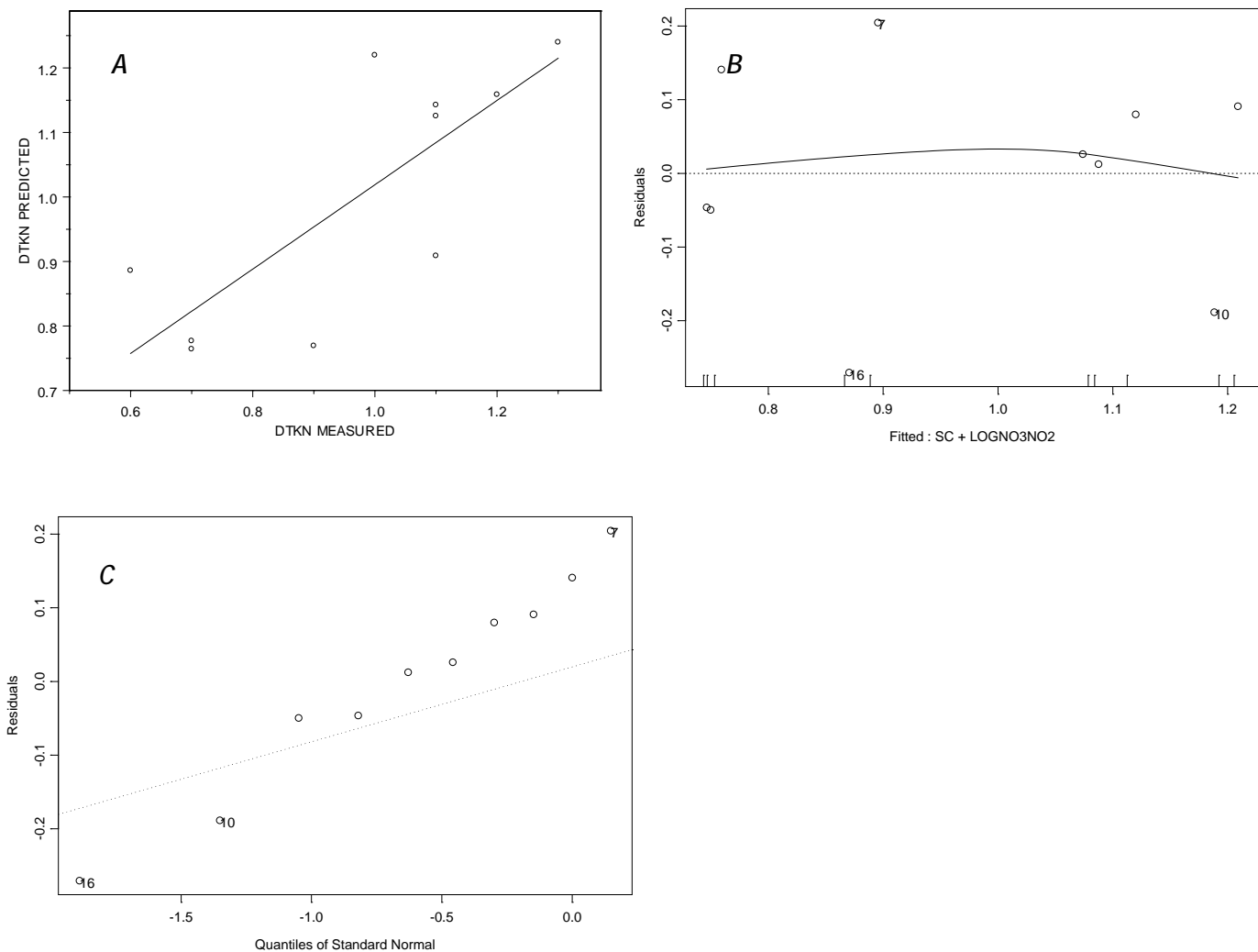


Figure 238. S+® output graphs from simple linear regression analysis using specific conductance (SC) and log-transformed nitrate (NO3NO2) as explanatory variables for dissolved total Kjeldahl nitrogen (DTKN) concentrations showing A, measured versus predicted DTKN concentrations; B, computed DTKN concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), March 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGDTKN ~ NO3NO2 + LOGNO3NO2, data = DTKN.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.0871	-0.01946	-0.01566	0.02172	0.1109

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.1250	0.0374	-3.3371	0.0103
NO3NO2	-0.1124	0.0232	-4.8418	0.0013
LOGNO3NO2	1.1680	0.2242	5.2092	0.0008

Residual standard error: 0.06526 on 8 degrees of freedom

Multiple R-Squared: 0.7755 Adjusted R-squared: 0.7194

F-statistic: 13.82 on 2 and 8 degrees of freedom, the p-value is 0.002541

7 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	NO3NO2
NO3NO2	0.2680	
LOGNO3NO2	-0.4704	-0.9650

Analysis of Variance Table

Response: LOGDTKN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
NO3NO2	1	0.0021164	0.0021164	0.49688	0.5008772
LOGNO3NO2	1	0.1155784	0.1155784	27.13532	0.0008133
Residuals	8	0.0340747	0.0042593		

Figure 239. S+® output of regression model development using nitrate (NO3NO2) as an explanatory variable for dissolved total Kjeldahl nitrogen (DTKN) for Indian Creek at Overland Park, KS (Marty, site 06893300), March 2012 through May 2013.

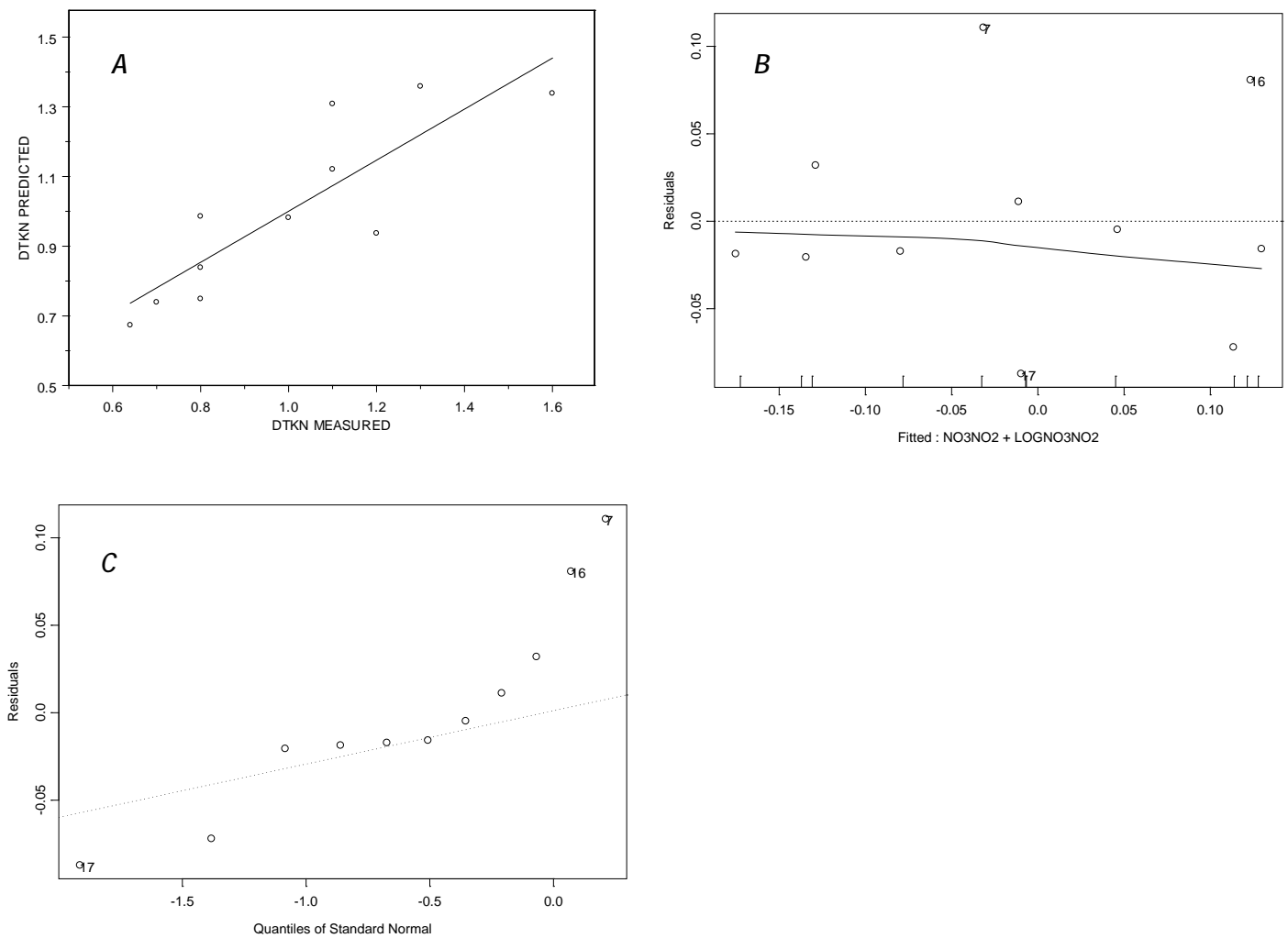


Figure 240. S+® output graphs from simple linear regression analysis using nitrate (NO3NO2) and log-transformed NO3NO2 as explanatory variables for log-transformed dissolved total Kjeldahl nitrogen (DTKN) concentrations showing *A*, measured versus predicted DTKN concentrations; *B*, computed log-transformed DTKN concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), March 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGDTKN ~ NO3NO2 + LOGNO3NO2, data = DTKN.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1193	-0.05729	-0.01669	0.04885	0.1456

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.6891	0.2801	2.4603	0.0361
NO3NO2	-0.7582	0.2431	-3.1184	0.0123
LOGNO3NO2	1.8643	0.4361	4.2748	0.0021

Residual standard error: 0.09395 on 9 degrees of freedom

Multiple R-Squared: 0.8295 Adjusted R-squared: 0.7917

F-statistic: 21.9 on 2 and 9 degrees of freedom, the p-value is 0.0003486

5 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	NO3NO2
NO3NO2	-0.9948	
LOGNO3NO2	0.9795	-0.9777

Analysis of Variance Table

Response: LOGDTKN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
NO3NO2	1	0.2253036	0.2253036	25.52321	0.000688426
LOGNO3NO2	1	0.1613086	0.1613086	18.27362	0.002065786
Residuals	9	0.0794466	0.0088274		

Figure 241. S+® output of regression model development using nitrate (NO3NO2) as an explanatory variable for dissolved total Kjeldahl nitrogen (DTKN) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), March 2012 through May 2013.

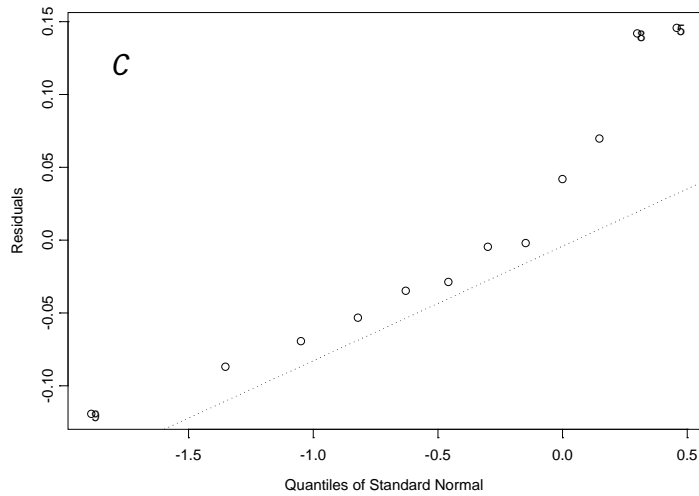
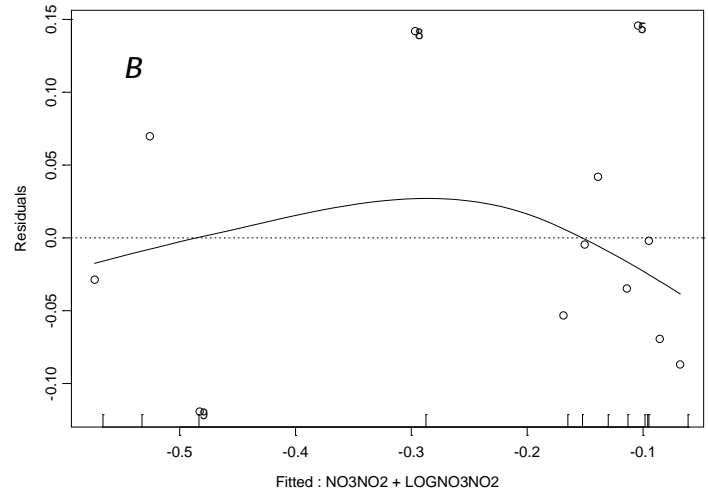
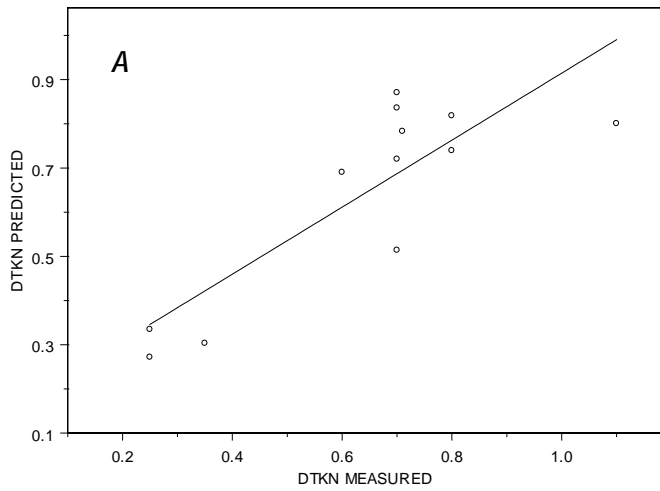


Figure 242. S+® output graphs from simple linear regression analysis using nitrate (NO3NO2) and log-transformed NO3NO2 as explanatory variables for log-transformed dissolved total Kjeldahl nitrogen (DTKN) concentrations showing *A*, measured versus predicted DTKN concentrations; *B*, computed log-transformed DTKN concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), March 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGDTKN ~ LOGNO3NO2, data = DTKN.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1948	-0.05549	-0.02345	0.01827	0.3138

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.1473	0.0656	-2.2448	0.0486
LOGNO3NO2	0.4035	0.1118	3.6084	0.0048

Residual standard error: 0.1279 on 10 degrees of freedom

Multiple R-Squared: 0.5656 Adjusted R-squared: 0.5222

F-statistic: 13.02 on 1 and 10 degrees of freedom, the p-value is 0.004781

8 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)
LOGNO3NO2	-0.8267

Analysis of Variance Table

Response: LOGDTKN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGNO3NO2	1	0.2130883	0.2130883	13.02026	0.004781104
Residuals	10	0.1636591	0.0163659		

Figure 243. S+® output of regression model development using nitrate (NO3NO2) as the explanatory variable for dissolved total Kjeldahl nitrogen (DTKN) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), May 2012 through May 2013.

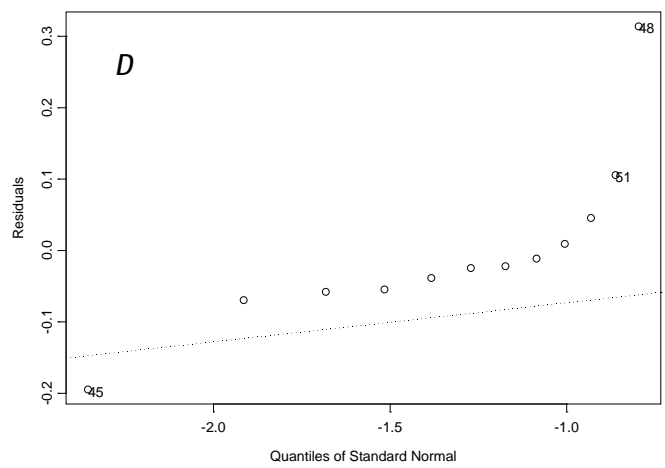
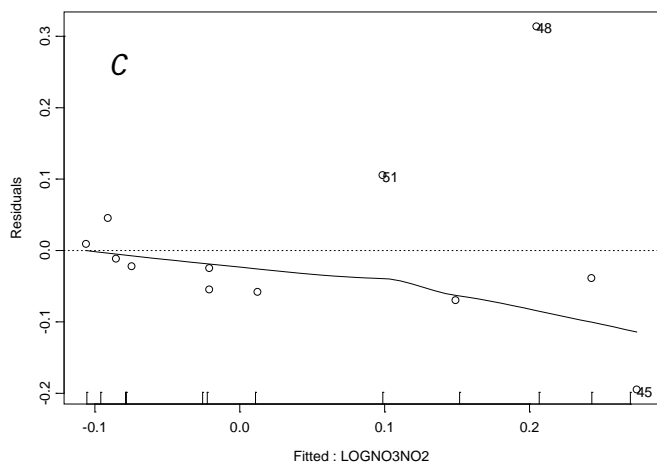
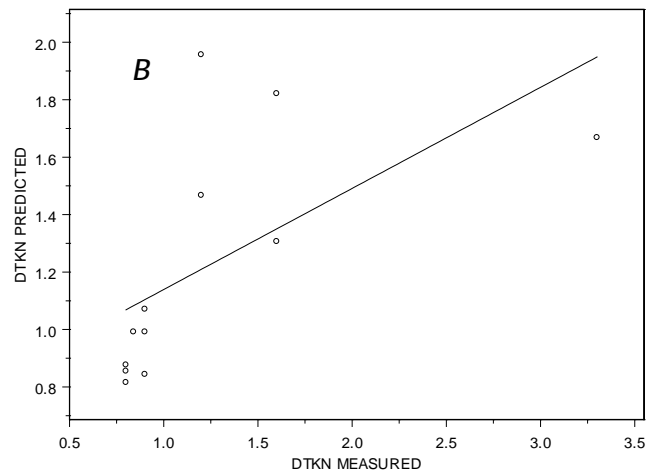
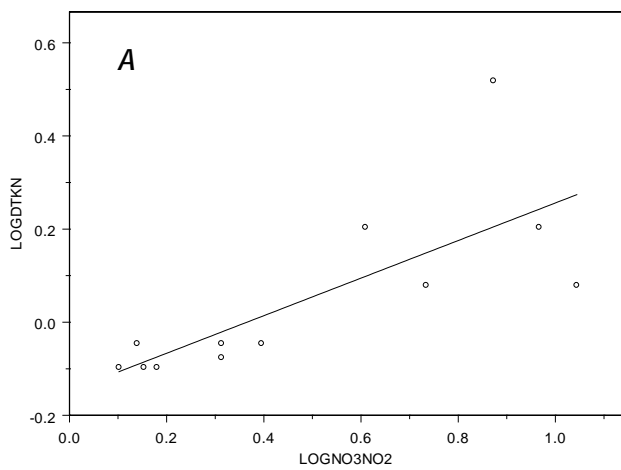


Figure 244. S+® output graphs from simple linear regression analysis showing *A*, log-transformed nitrate (NO₃NO₂) versus log-transformed dissolved total Kjeldahl nitrogen (DTKN) concentrations; *B*, measured versus predicted DTKN concentrations; *C*, computed log-transformed DTKN concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), May 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGTKN ~ LOGQ + LOGTBY, data = TKN.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.2614	-0.1371	-0.02393	0.1144	0.2629

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.4157	0.0636	-6.5358	0.0000
LOGQ	0.1439	0.0593	2.4266	0.0274
LOGTBY	0.1548	0.0719	2.1527	0.0469

Residual standard error: 0.1571 on 16 degrees of freedom

Multiple R-Squared: 0.8176 Adjusted R-squared: 0.7948

F-statistic: 35.86 on 2 and 16 degrees of freedom, the p-value is 1.224e-006

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	LOGQ
LOGQ	0.0704	
LOGTBY	-0.4876	-0.8538

Analysis of Variance Table

Response: LOGTKN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	1.655214	1.655214	67.09286	0.00000041
LOGTBY	1	0.114331	0.114331	4.63433	0.04694304
Residuals	16	0.394728	0.024670		

Figure 245. S+® output of regression model development using streamflow (Q) and turbidity (TBY) as explanatory variables for total Kjeldahl nitrogen (TKN) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

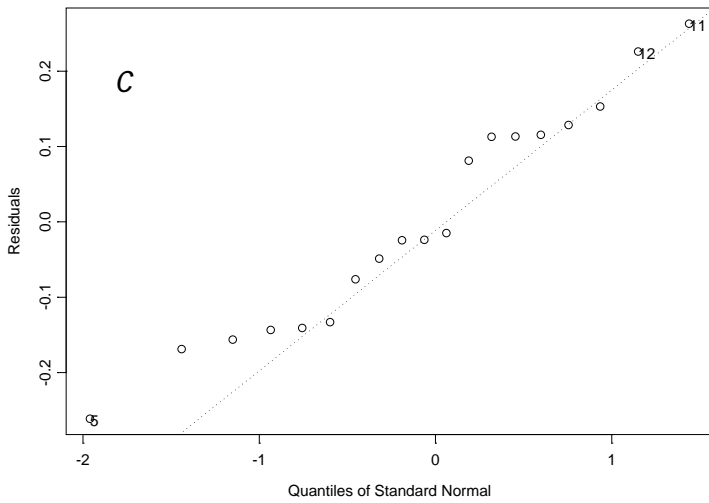
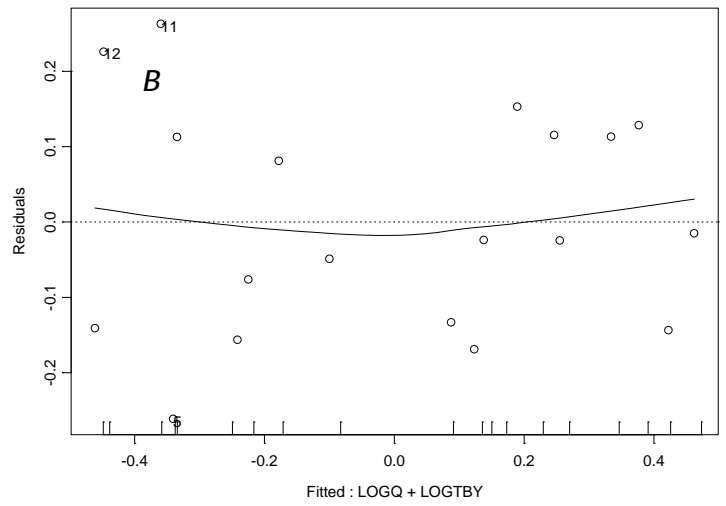
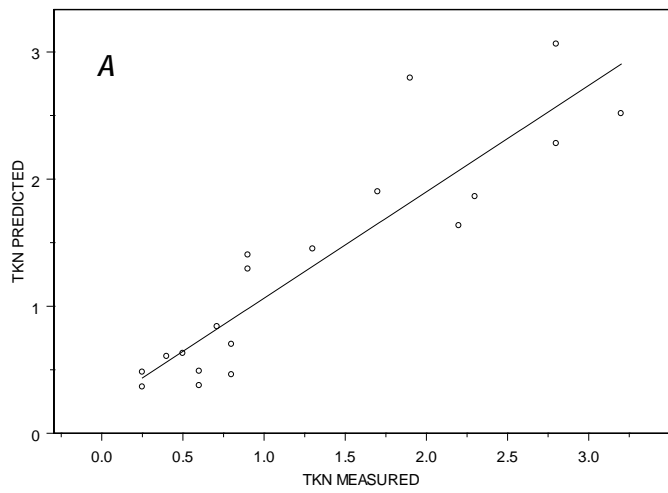


Figure 246. S+® output graphs from simple linear regression analysis using log-transformed streamflow (Q) and log-transformed turbidity (TBY) as explanatory variables for log-transformed total Kjeldahl nitrogen (TKN) concentrations showing A, measured versus predicted TKN concentrations; B, computed log-transformed TKN concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGTKN ~ LOGQ, data = TKN.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.2592	-0.1443	-0.03504	0.159	0.3054

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.3489	0.0612	-5.7035	0.0000
LOGQ	0.2529	0.0340	7.4348	0.0000

Residual standard error: 0.173 on 17 degrees of freedom

Multiple R-Squared: 0.7648 Adjusted R-squared: 0.751

F-statistic: 55.28 on 1 and 17 degrees of freedom, the p-value is 9.753e-007

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.7609

Analysis of Variance Table

Response: LOGTKN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	1.655214	1.655214	55.27578	9.753169e-007
Residuals	17	0.509059	0.029945		

Figure 247. S+® output of regression model development using streamflow (Q) as an explanatory variable for total Kjeldahl nitrogen (TKN) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

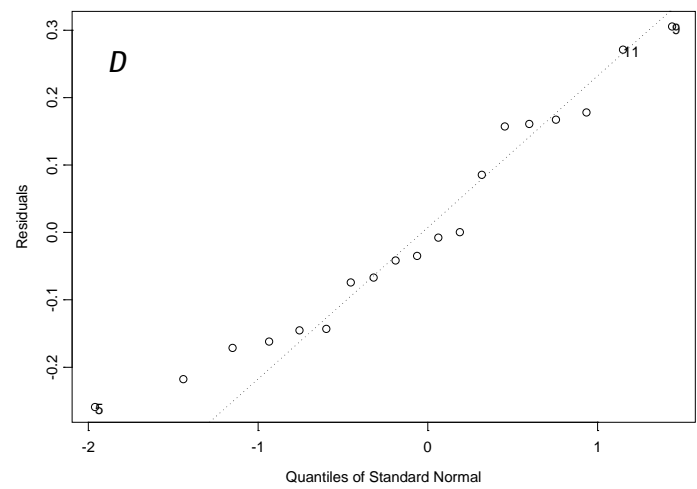
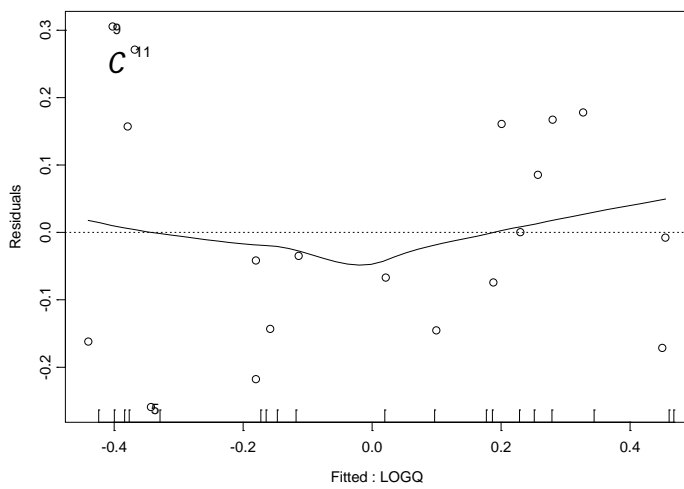
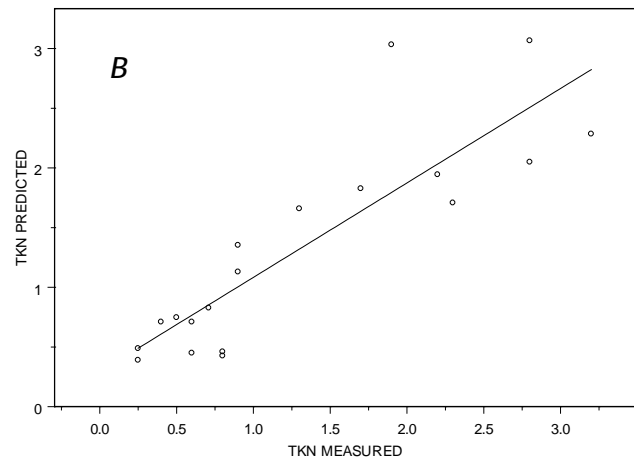
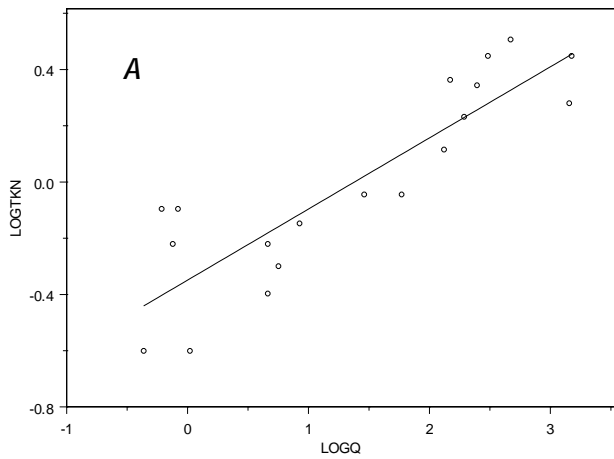


Figure 248. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (*Q*) versus log-transformed total Kjeldahl nitrogen (TKN) concentrations; *B*, measured versus predicted TKN concentrations; *C*, computed log-transformed TKN concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGTKN ~ LOGTBY, data = TKN.COLL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1764	-0.05725	0.006588	0.04944	0.2102

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.0066	0.0481	-0.1368	0.8930
LOGTBY	0.1863	0.0271	6.8869	0.0000

Residual standard error: 0.1072 on 15 degrees of freedom

Multiple R-Squared: 0.7597 Adjusted R-squared: 0.7437

F-statistic: 47.43 on 1 and 15 degrees of freedom, the p-value is 5.174e-006

Correlation of Coefficients:

(Intercept)	
LOGTBY	-0.8418

Analysis of Variance Table

Response: LOGTKN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	0.5446737	0.5446737	47.4295	5.173922e-006
Residuals	15	0.1722579	0.0114839		

Figure 249. S+® output of regression model development using turbidity (TBY) as the explanatory variable for total Kjeldahl nitrogen (TKN) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

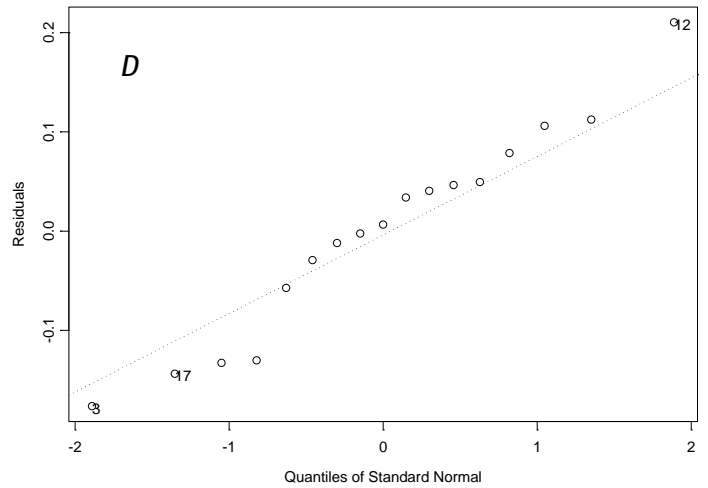
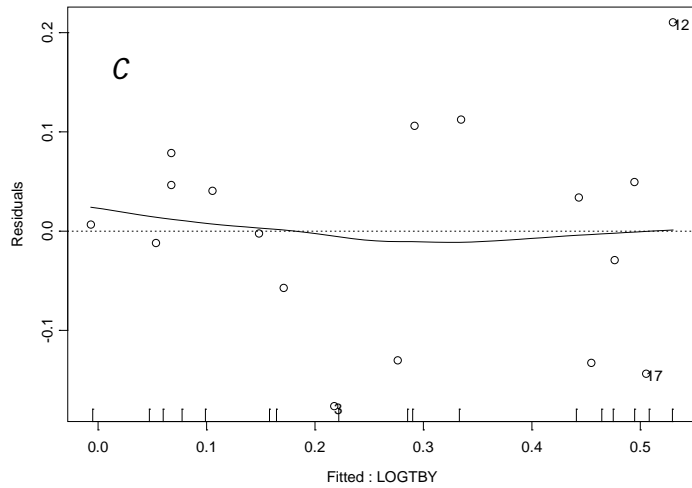
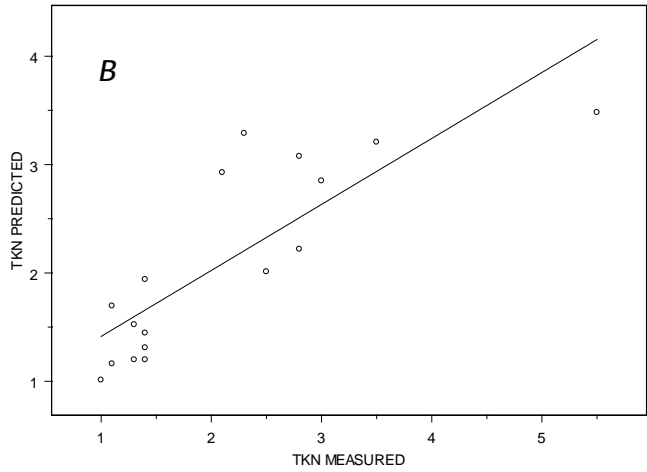
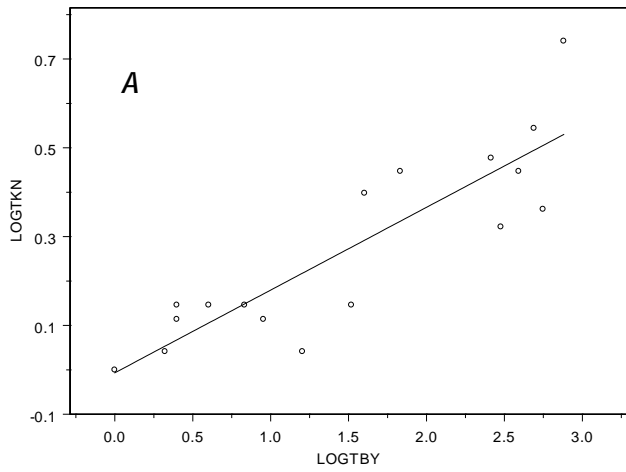


Figure 250. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed total Kjeldahl nitrogen (TKN) concentrations; *B*, measured versus predicted TKN concentrations; *C*, computed log-transformed TKN concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGTKN ~ LOGQ, data = TKN.COLLSPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1779	-0.06411	0.005878	0.04805	0.2759

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.1584	0.0796	-1.9913	0.0650
LOGQ	0.2128	0.0365	5.8274	0.0000

Residual standard error: 0.121 on 15 degrees of freedom

Multiple R-Squared: 0.6936 Adjusted R-squared: 0.6732

F-statistic: 33.96 on 1 and 15 degrees of freedom, the p-value is 0.00003329

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9295

Analysis of Variance Table

Response: LOGTKN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	0.4972792	0.4972792	33.95907	0.00003329162
Residuals	15	0.2196523	0.0146435		

Figure 251. S+® output of regression model development using streamflow (Q) as the explanatory variable for total Kjeldahl nitrogen (TKN) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

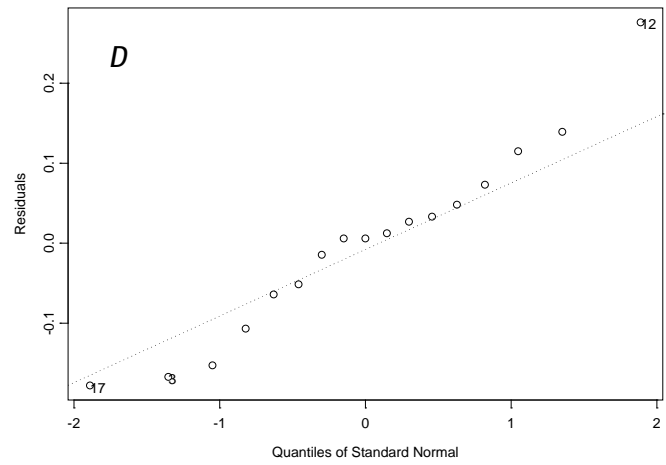
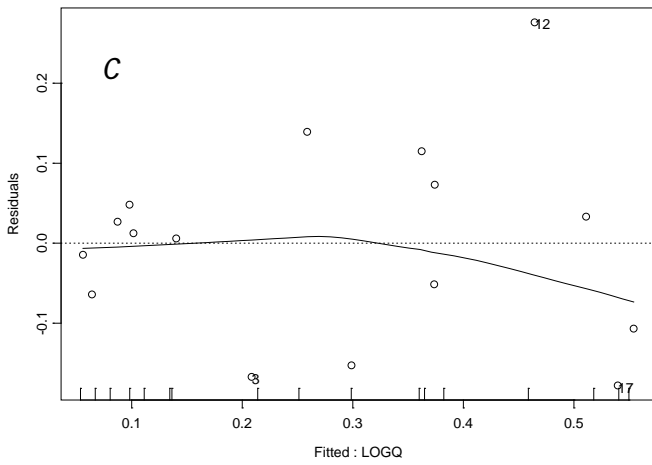
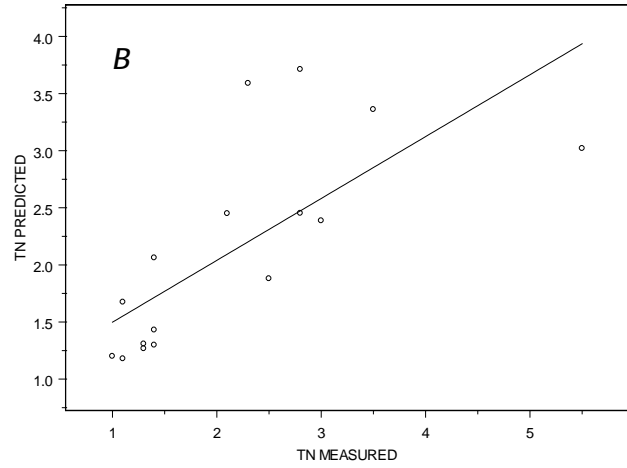
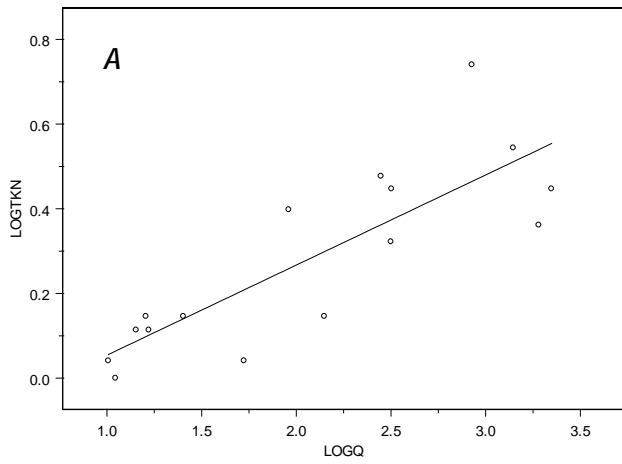


Figure 252. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus log-transformed total Kjeldahl nitrogen (TKN) concentrations; *B*, measured versus predicted TKN concentrations; *C*, computed log-transformed TKN concentrations versus regression residuals, and *D*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = TKN ~ Q, data = TKN.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-2.218	-0.3464	0.05349	0.1809	1.231

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.0839	0.2514	4.3112	0.0005
Q	0.0033	0.0006	5.5671	0.0000

Residual standard error: 0.7636 on 16 degrees of freedom

Multiple R-Squared: 0.6595 Adjusted R-squared: 0.6382

F-statistic: 30.99 on 1 and 16 degrees of freedom, the p-value is 0.0000425

Correlation of Coefficients:

(Intercept)
Q -0.6982

Analysis of Variance Table

Response: TKN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
Q	1	18.07281	18.07281	30.99315	0.00004250295
Residuals	16	9.32996	0.58312		

Figure 253. S+® output of regression model development using streamflow (Q) as the explanatory variable for total Kjeldahl nitrogen (TKN) for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

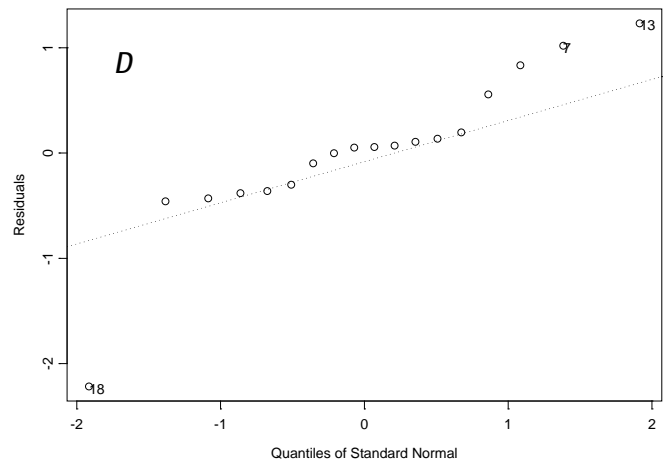
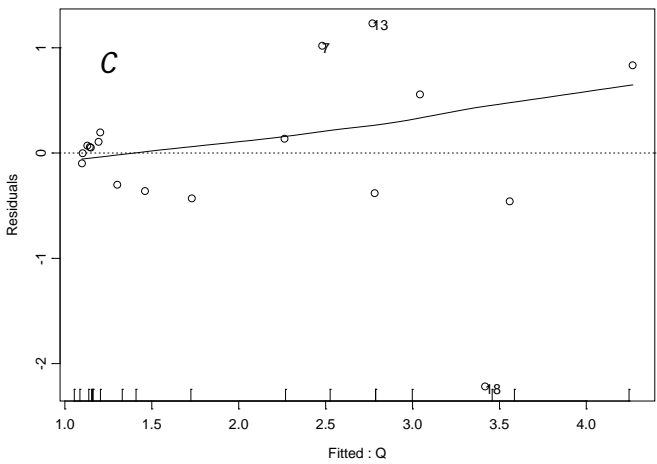
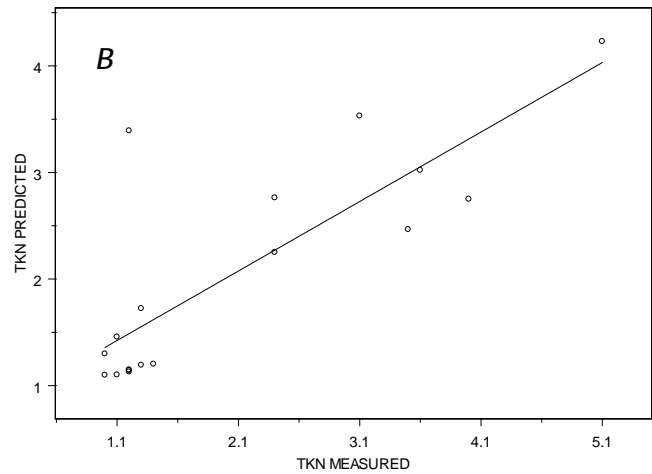
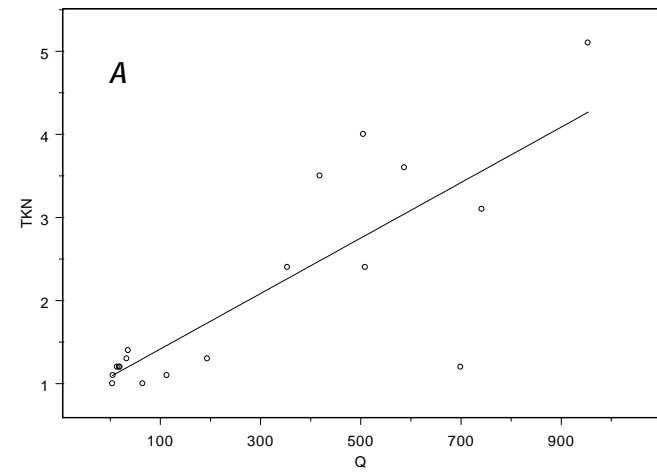


Figure 254. S+® output graphs from simple linear regression analysis showing *A*, streamflow (Q) versus total Kjeldahl nitrogen (TKN) concentrations; *B*, measured versus predicted TKN concentrations; *C*, computed TKN concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = TKN ~ TBY, data = TKN.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.7261	-0.1308	-0.05473	0.0957	1.528

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.0206	0.1401	7.2837	0.0000
TBY	0.0078	0.0007	11.0269	0.0000

Residual standard error: 0.4852 on 16 degrees of freedom

Multiple R-Squared: 0.8837 Adjusted R-squared: 0.8764

F-statistic: 121.6 on 1 and 16 degrees of freedom, the p-value is 6.935e-009

438 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)
TBY -0.5777

Analysis of Variance Table

Response: TKN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	28.63093	28.63093	121.5922	6.934673e-009
Residuals	16	3.76747	0.23547		

Figure 255. S+® output of regression model development using turbidity (TBY) as the explanatory variable for total Kjeldahl nitrogen (TKN) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

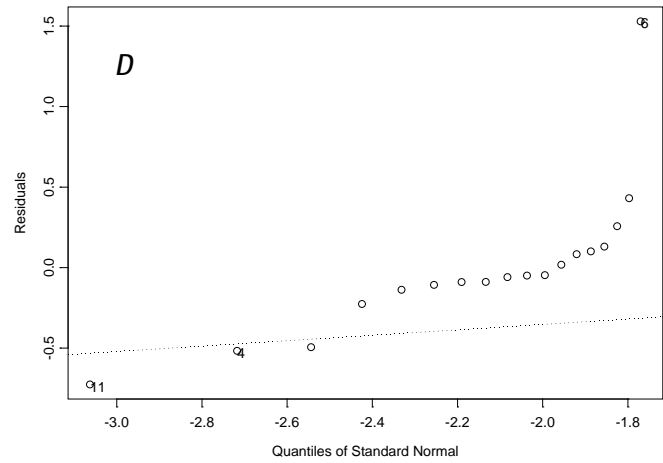
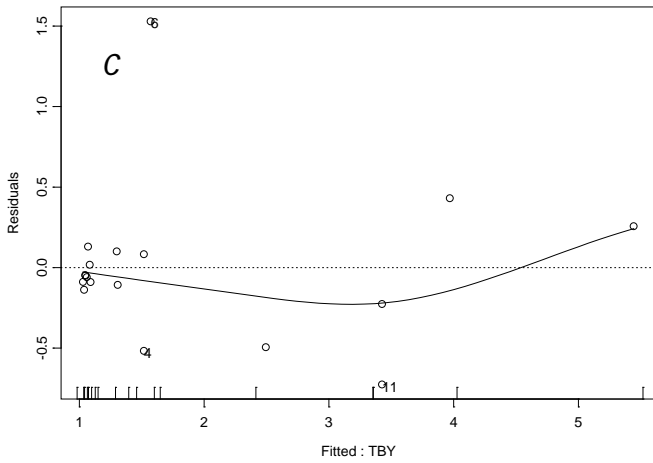
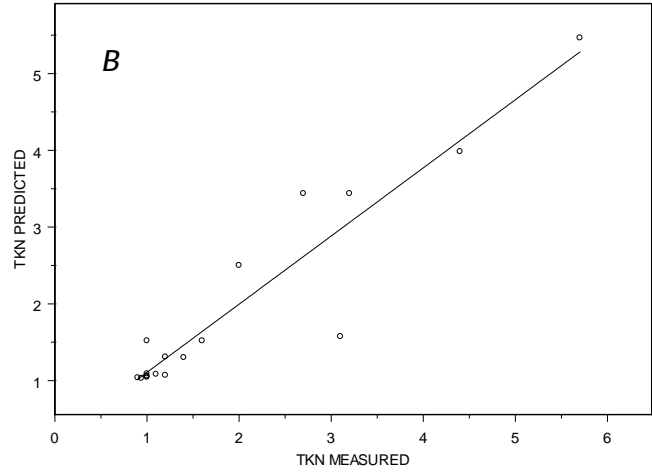
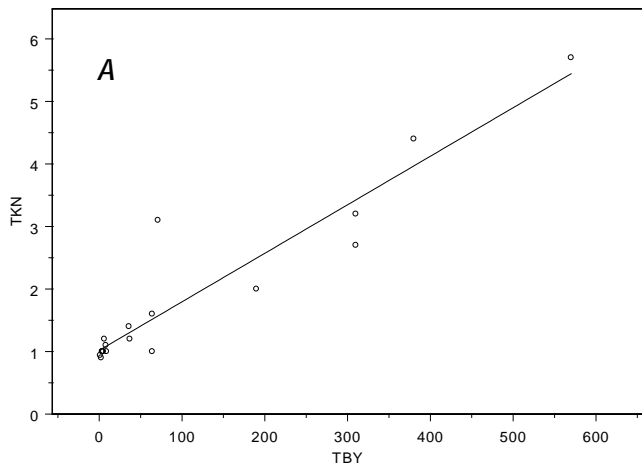


Figure 256. S+® output graphs from simple linear regression analysis showing *A*, turbidity (TBY) versus total Kjeldahl nitrogen (TKN) concentrations; *B*, measured versus predicted TKN concentrations; *C*, computed TKN concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGTKN ~ LOGQ, data = TKN.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.2633	-0.05385	0.02512	0.06616	0.2601

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.3383	0.0796	-4.2474	0.0006
LOGQ	0.2688	0.0368	7.2970	0.0000

Residual standard error: 0.127 on 16 degrees of freedom

Multiple R-Squared: 0.7689 Adjusted R-squared: 0.7545

F-statistic: 53.25 on 1 and 16 degrees of freedom, the p-value is 1.79e-006

438 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)
LOGQ	-0.9267

Analysis of Variance Table

Response: LOGTKN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	0.8585456	0.8585456	53.24693	1.790224e-006
Residuals	16	0.2579816	0.0161239		

Figure 257. S+® output of regression model development using streamflow (Q) as the explanatory variable for total Kjeldahl nitrogen (TKN) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

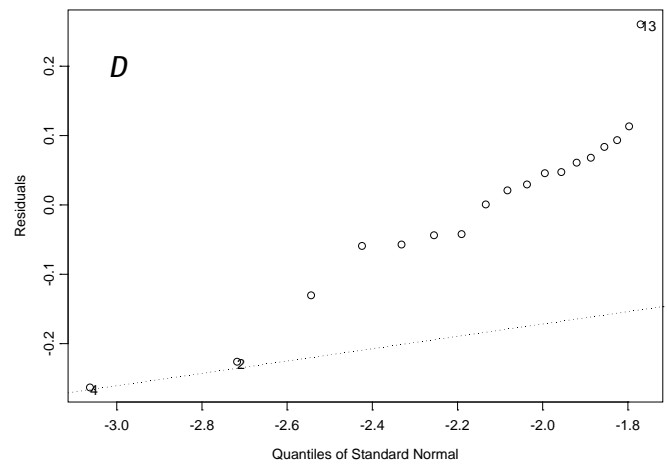
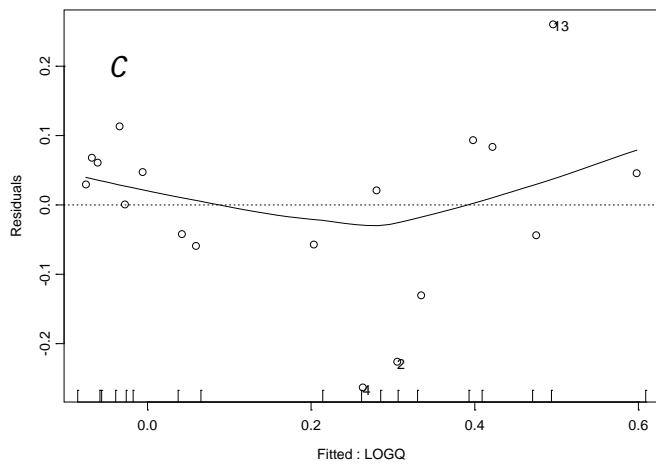
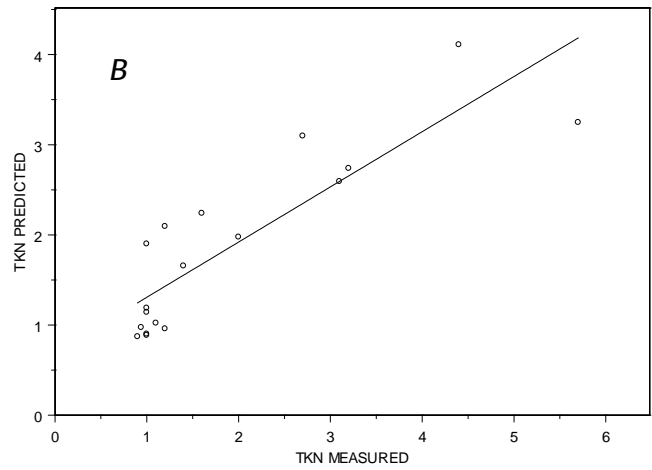
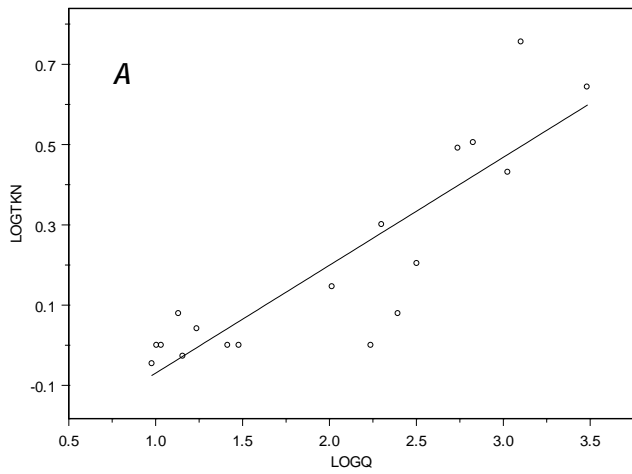


Figure 258. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus log-transformed total Kjeldahl nitrogen (TKN) concentrations; *B*, measured versus predicted TKN concentrations; *C*, computed TKN concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = TKN ~ LOGQ + TBY, data = TKN.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.3401	-0.2195	-0.01392	0.1504	0.6066

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.3270	0.1420	2.3026	0.0385
LOGQ	0.4287	0.1012	4.2371	0.0010
TBY	0.0039	0.0009	4.5546	0.0005

Residual standard error: 0.291 on 13 degrees of freedom

Multiple R-Squared: 0.9085 Adjusted R-squared: 0.8944

F-statistic: 64.55 on 2 and 13 degrees of freedom, the p-value is 1.773e-007

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	LOGQ
LOGQ	-0.8050	
TBY	0.3502	-0.7006

Analysis of Variance Table

Response: TKN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	9.175080	9.175080	108.3563	0.0000001127
TBY	1	1.756544	1.756544	20.7445	0.0005405728
Residuals	13	1.100776	0.084675		

Figure 259. S+® output of regression model development using streamflow (Q) and turbidity (TBY) as explanatory variables for total Kjeldahl nitrogen (TKN) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), November 2011 through May 2013.

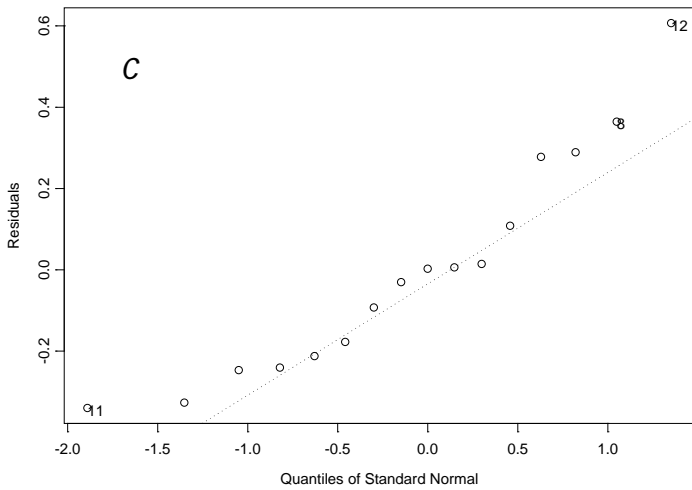
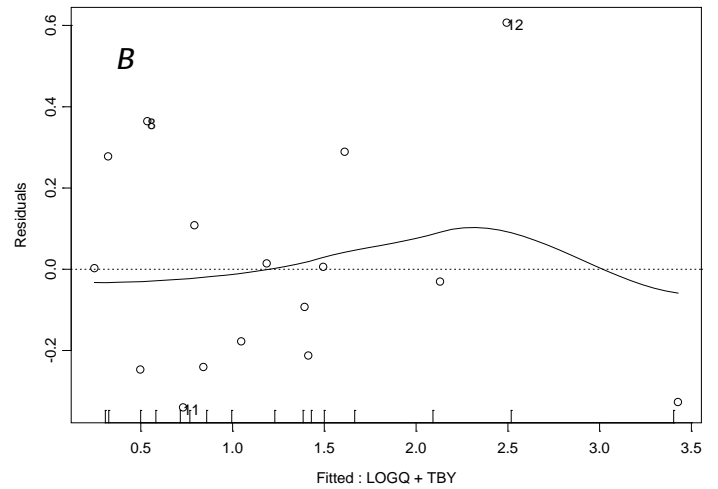
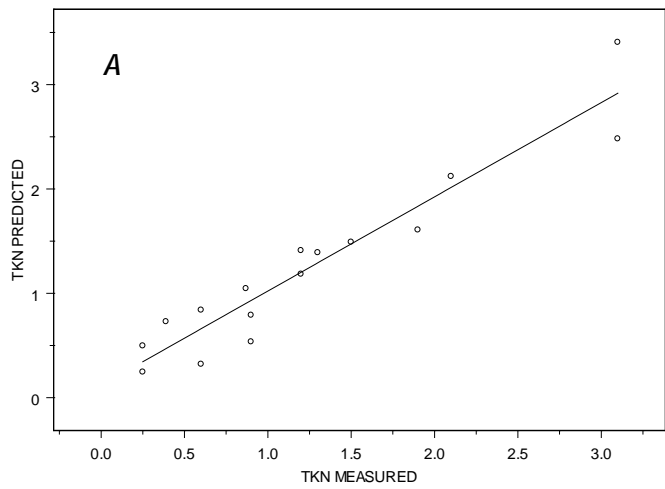


Figure 260. S+® output graphs from simple linear regression analysis using log-transformed streamflow (Q) and turbidity (TBY) as explanatory variables for total Kjeldahl nitrogen (TKN) concentrations showing *A*, measured versus predicted TKN concentrations; *B*, computed TKN concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), November 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGTKN ~ LOGQ, data = TKN.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.2513	-0.08144	-0.0162	0.05405	0.2815

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.4653	0.0679	-6.8482	0.0000
LOGQ	0.2944	0.0369	7.9852	0.0000

Residual standard error: 0.1486 on 14 degrees of freedom

Multiple R-Squared: 0.82 Adjusted R-squared: 0.8071

F-statistic: 63.76 on 1 and 14 degrees of freedom, the p-value is 1.399e-006

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.8373

Analysis of Variance Table

Response: LOGTKN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	1.408244	1.408244	63.76325	1.399309e-006
Residuals	14	0.309197	0.022086		

Figure 261. S+® output of regression model development using streamflow (Q) as the explanatory variable for total Kjeldahl nitrogen (TKN) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), November 2011 through May 2013.

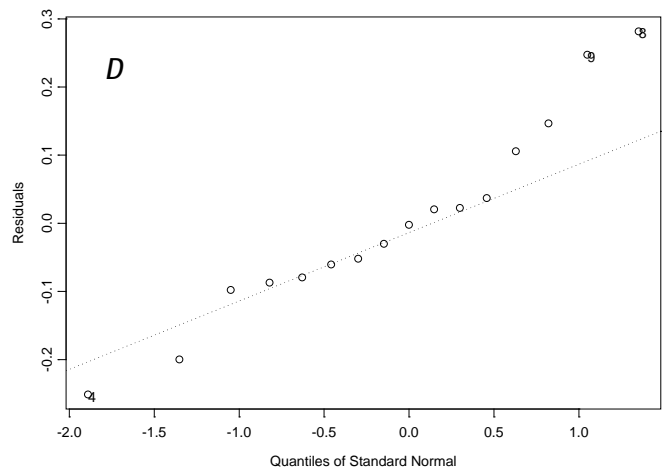
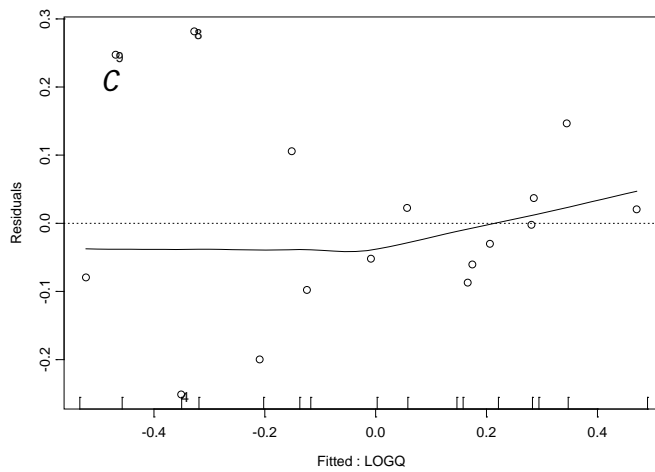
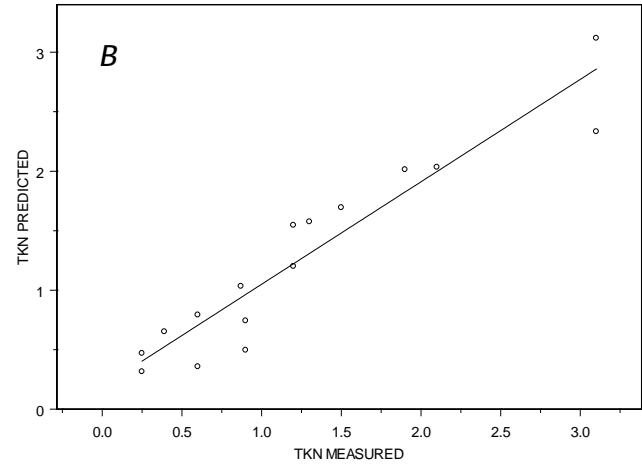
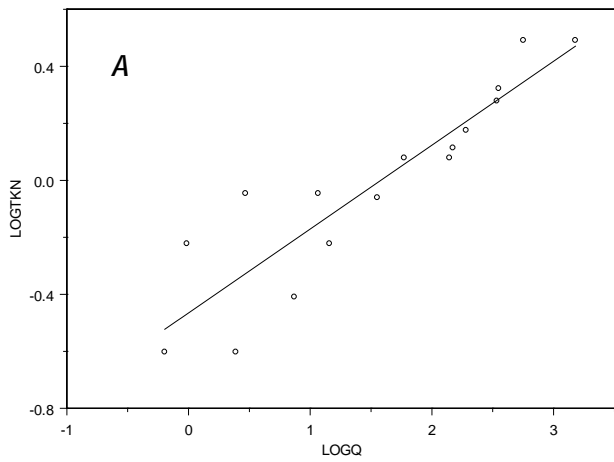


Figure 262. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus log-transformed total Kjeldahl nitrogen (TKN) concentrations; *B*, measured versus predicted TKN concentrations; *C*, computed TKN concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), November 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = TKN ~ TBY, data = TKN.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-2.623	-0.5941	-0.118	0.2121	3.223

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.6504	0.1795	9.1943	0.0000
TBY	0.0041	0.0006	6.7253	0.0000

Residual standard error: 1.008 on 51 degrees of freedom

Multiple R-Squared: 0.47 Adjusted R-squared: 0.4596

F-statistic: 45.23 on 1 and 51 degrees of freedom, the p-value is 1.478e-008

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)
TBY -0.6364

Analysis of Variance Table

Response: TKN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	45.95468	45.95468	45.23017	1.478294e-008
Residuals	51	51.81693	1.01602		

Figure 263. S+® output of regression model development using turbidity (TBY) as the explanatory variable for total Kjeldahl nitrogen (TKN) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

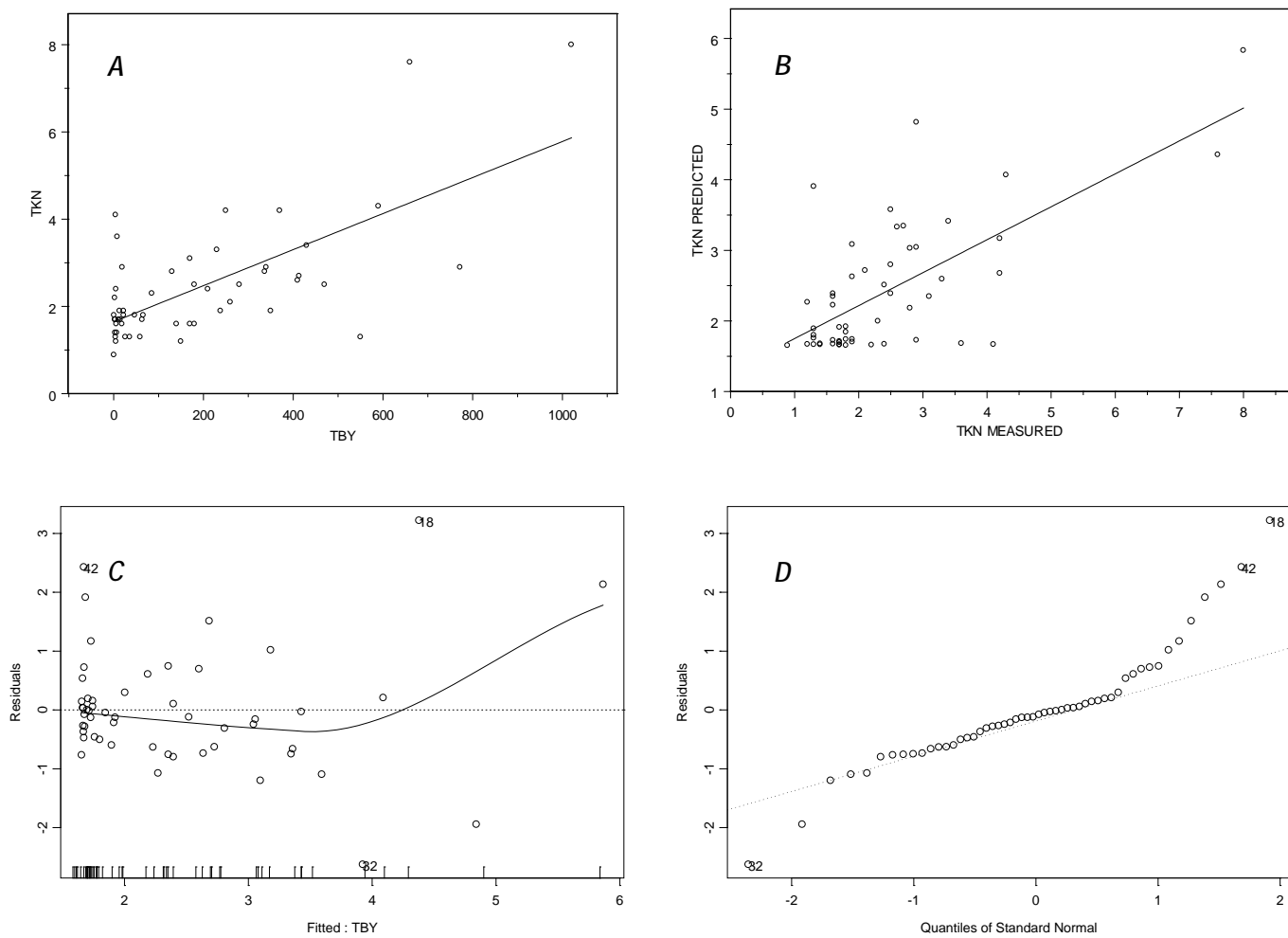


Figure 264. S+® output graphs from simple linear regression analysis showing *A*, turbidity (TBY) versus total Kjeldahl nitrogen (TKN) concentrations; *B*, measured versus predicted TKN concentrations; *C*, computed log-transformed TKN concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = TKN ~ TBY, data = TKN.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-2.511	-0.6287	-0.05422	0.3022	3.334

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.5345	0.2467	6.2202	0.0000
TBY	0.0041	0.0007	5.6145	0.0000

Residual standard error: 1.106 on 32 degrees of freedom

Multiple R-Squared: 0.4962 Adjusted R-squared: 0.4805

F-statistic: 31.52 on 1 and 32 degrees of freedom, the p-value is 3.323e-006

Correlation of Coefficients:

(Intercept)	
TBY	-0.6395

Analysis of Variance Table

Response: TKN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	38.55086	38.55086	31.52216	3.323215e-006
Residuals	32	39.13524	1.22298		

Figure 265. S+® output of regression model development using turbidity (TBY) as the explanatory variable for total Kjeldahl nitrogen (TKN) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

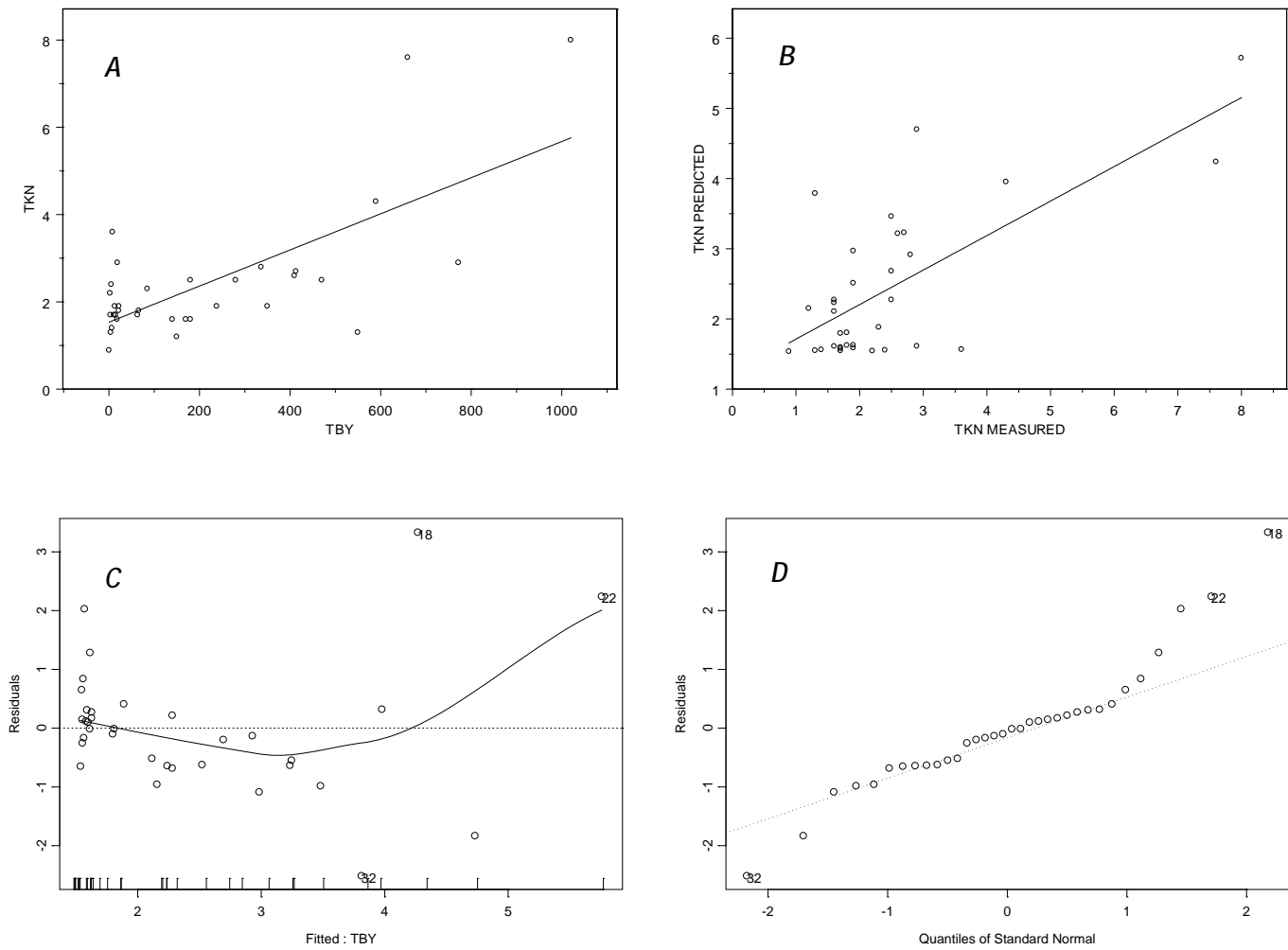


Figure 266. S+® output graphs from simple linear regression analysis showing *A*, turbidity (TBY) versus total Kjeldahl nitrogen (TKN) concentrations; *B*, measured versus predicted TKN concentrations; *C*, computed TKN concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = TKN ~ LOGQ, data = TKN.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-1.594	-0.7278	-0.3154	0.01775	5.141

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.9629	0.7725	1.2464	0.2217
LOGQ	0.5693	0.2852	1.9958	0.0545

Residual standard error: 1.469 on 32 degrees of freedom

Multiple R-Squared: 0.1107 Adjusted R-squared: 0.0829

F-statistic: 3.983 on 1 and 32 degrees of freedom, the p-value is 0.05453

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9453

Analysis of Variance Table

Response: TKN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	8.59943	8.599429	3.983138	0.0545285
Residuals	32	69.08667	2.158958		

Figure 267. S+® output of regression model development using streamflow (Q) as the explanatory variable for total Kjeldahl nitrogen (TKN) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

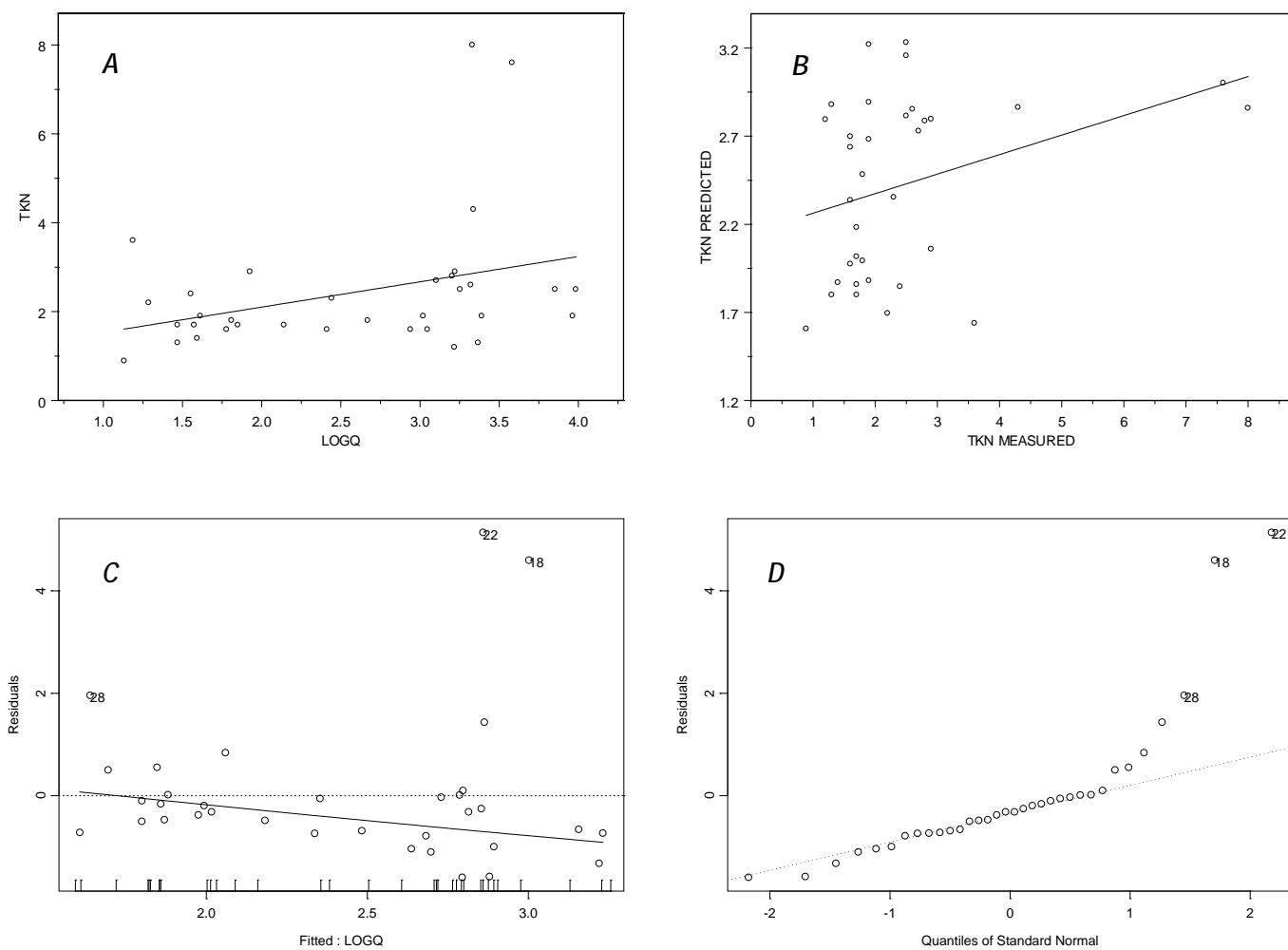


Figure 268. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (*Q*) versus total Kjeldahl nitrogen (TKN) concentrations; *B*, measured versus predicted TKN concentrations; *C*, computed log-transformed TKN concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = LOGTKN ~ TBY + LOGNO3NO2, data = TKN.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.0992	-0.04974	-0.002649	0.02584	0.1153

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.1608	0.0939	1.7123	0.1252
TBY	0.0010	0.0002	3.9656	0.0041
LOGNO3NO2	0.0670	0.1193	0.5615	0.5898

Residual standard error: 0.07324 on 8 degrees of freedom

Multiple R-Squared: 0.8247 Adjusted R-squared: 0.7809

F-statistic: 18.82 on 2 and 8 degrees of freedom, the p-value is 0.0009444

9 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	TBY
TBY	-0.9149	
LOGNO3NO2	-0.9375	0.8190

Analysis of Variance Table

Response: LOGTKN

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	0.2002163	0.2002163	37.32033	0.0002866
LOGNO3NO2	1	0.0016917	0.0016917	0.31533	0.5898101
Residuals	8	0.0429185	0.0053648		

Figure 269. S+® output of regression model development using turbidity (TBY) and nitrate (NO3NO2) as explanatory variables for total Kjeldahl nitrogen (TKN) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), May 2012 through May 2013.

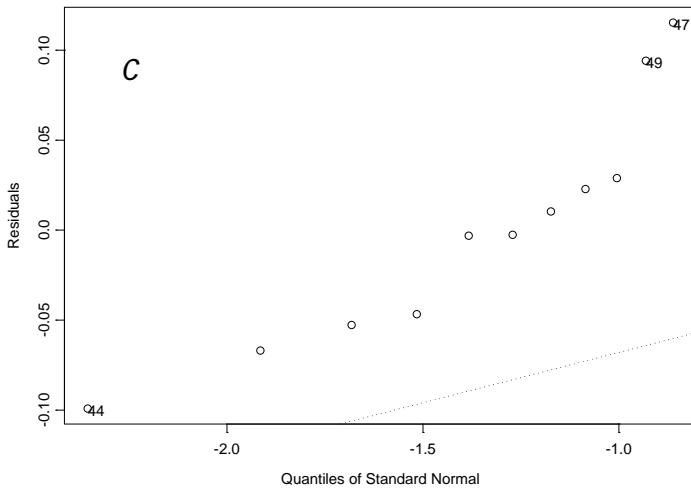
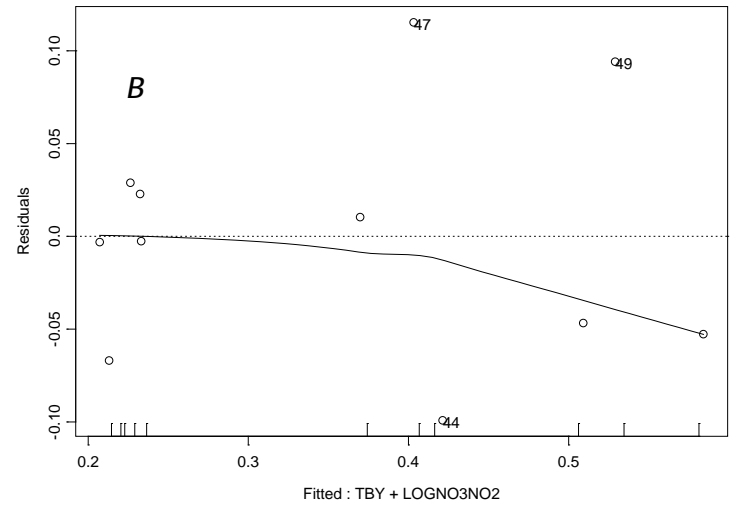
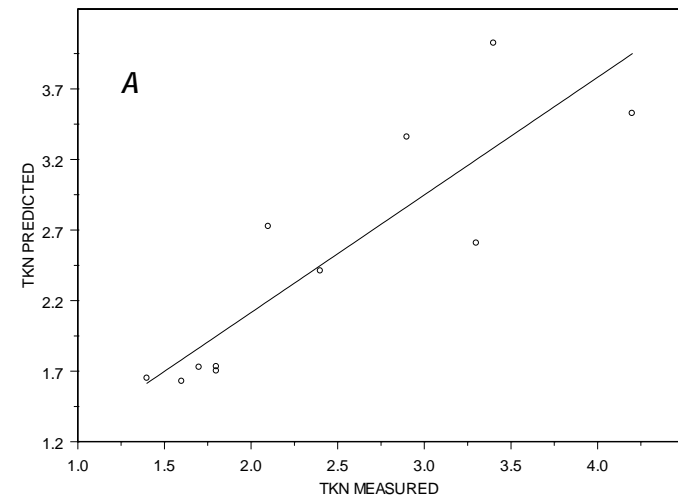


Figure 270. S+® output graphs from simple linear regression analysis using turbidity (TBY) and log-transformed nitrate (NO3NO2) as explanatory variables for log-transformed total Kjeldahl nitrogen (TKN) concentrations showing A, measured versus predicted TKN concentrations; B, computed log-transformed TKN concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), May 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGNH4 ~ LOGTBY, data = NH4.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.8303	-0.05122	0.07543	0.1656	0.4606

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-1.8918	0.1139	-16.6043	0.0000
LOGTBY	0.4130	0.0690	5.9901	0.0000

Residual standard error: 0.3062 on 18 degrees of freedom

Multiple R-Squared: 0.6659 Adjusted R-squared: 0.6474

F-statistic: 35.88 on 1 and 18 degrees of freedom, the p-value is 0.0000115

Correlation of Coefficients:

(Intercept)	
LOGTBY	-0.7992

Analysis of Variance Table

Response: LOGNH4

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	3.365147	3.365147	35.88124	0.000011501
Residuals	18	1.688143	0.093786		

Figure 271. S+® output of regression model development using turbidity (TBY) as the explanatory variable for ammonia (NH4) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), June 2011 through May 2013.

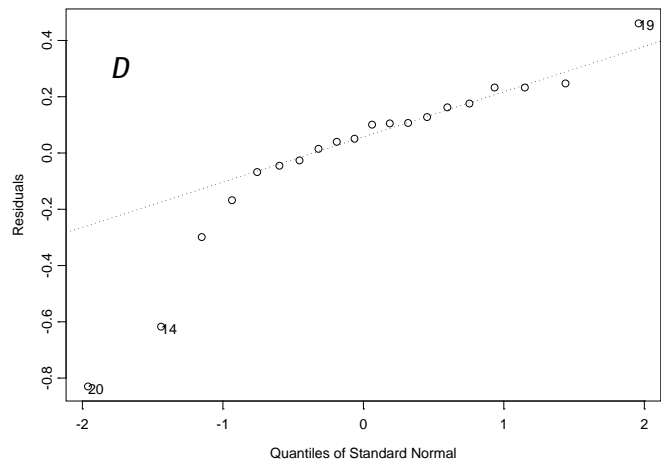
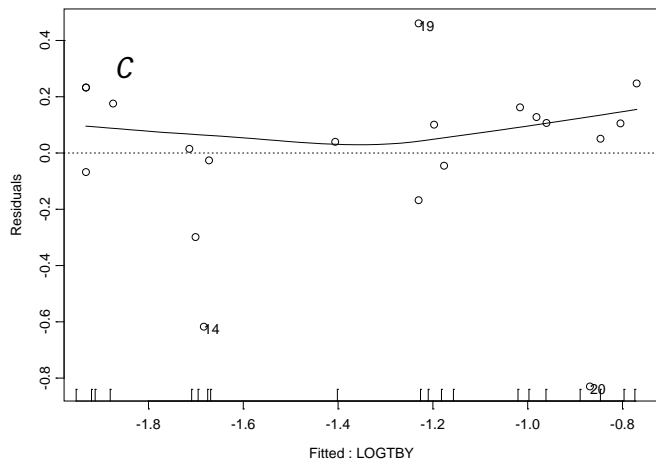
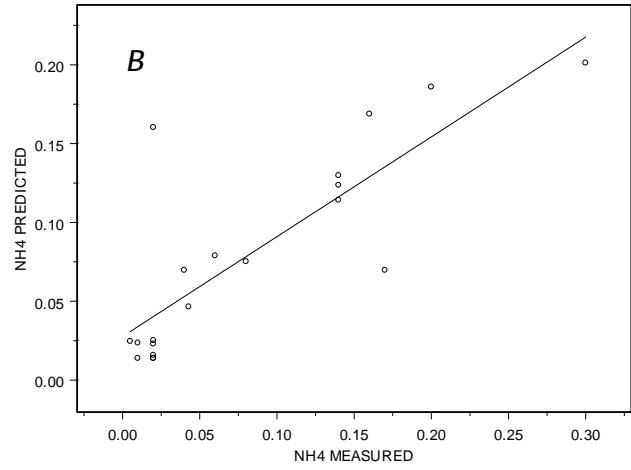
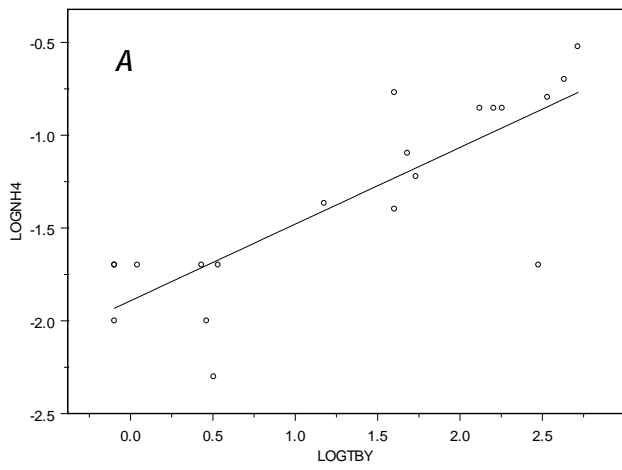


Figure 272. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed ammonia (NH4) concentrations; *B*, measured versus predicted NH4 concentrations; *C*, computed log-transformed NH4 concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = NH4 ~ LOGSC, data = NH4.COLLSPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1143	-0.02257	0.001589	0.02933	0.0785

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.4957	0.1210	4.0973	0.0010
LOGSC	-0.1410	0.0426	-3.3078	0.0048

Residual standard error: 0.05284 on 15 degrees of freedom

Multiple R-Squared: 0.4218 Adjusted R-squared: 0.3832

F-statistic: 10.94 on 1 and 15 degrees of freedom, the p-value is 0.004781

Correlation of Coefficients:

(Intercept)	
LOGSC	-0.9944

Analysis of Variance Table

Response: NH4

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	0.03055346	0.03055346	10.94175	0.004781498
Residuals	15	0.04188560	0.00279237		

Figure 273. S+® output of regression model development using specific conductance (SC) as the explanatory variable for ammonia (NH4) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

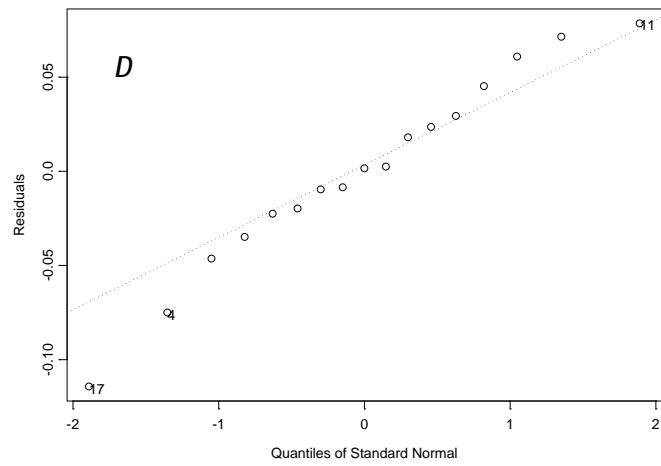
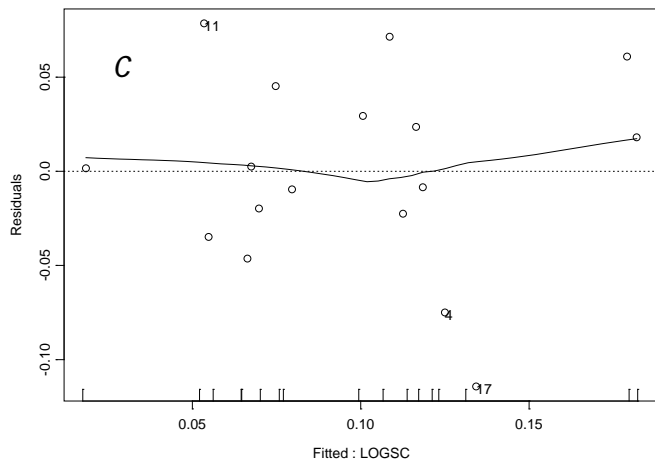
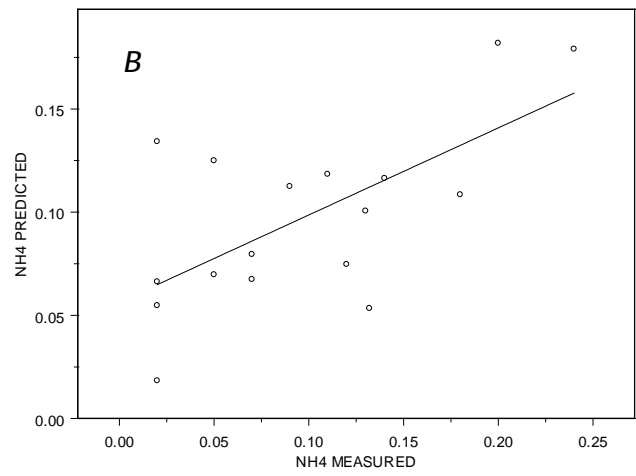
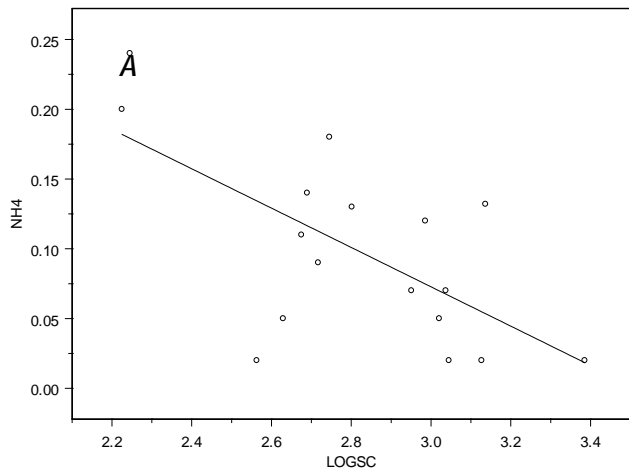


Figure 274. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus ammonia (NH4) concentrations; *B*, measured versus predicted NH4 concentrations; *C*, computed NH4 concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = NH4 ~ LOGTBY, data = NH4.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.07247	-0.02466	-0.007144	0.03185	0.07901

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.0160	0.0151	1.0553	0.3080
LOGTBY	0.0537	0.0105	5.1222	0.0001

Residual standard error: 0.03953 on 15 degrees of freedom

Multiple R-Squared: 0.6362 Adjusted R-squared: 0.612

F-statistic: 26.24 on 1 and 15 degrees of freedom, the p-value is 0.0001251

Correlation of Coefficients:

(Intercept)	
LOGTBY	-0.7732

Analysis of Variance Table

Response: NH4

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	0.04098981	0.04098981	26.23666	0.0001250992
Residuals	15	0.02343466	0.00156231		

Figure 275. S+® output of regression model development using turbidity (TBY) as the explanatory variable for ammonia (NH4) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

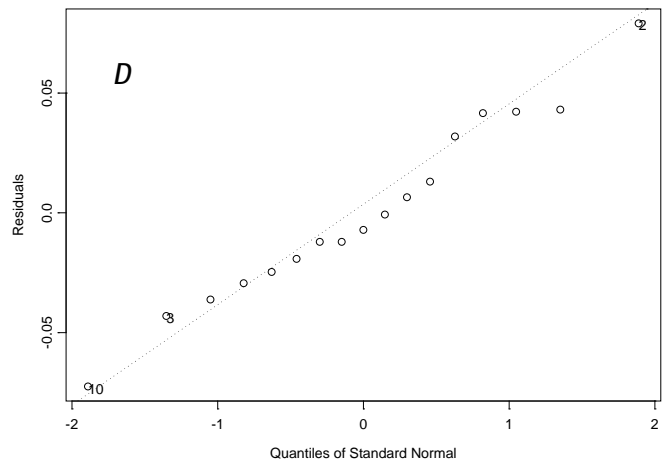
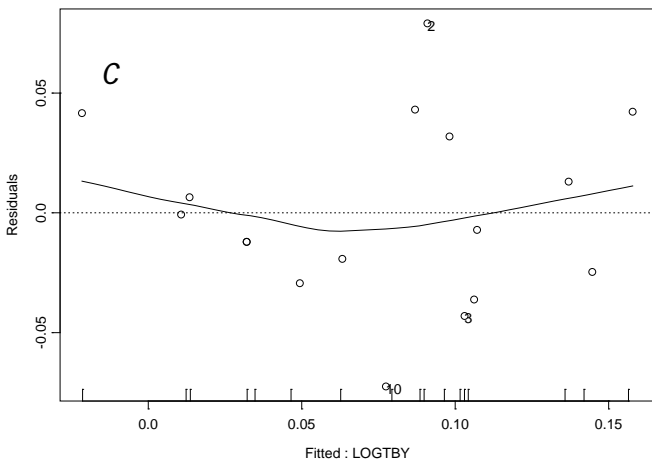
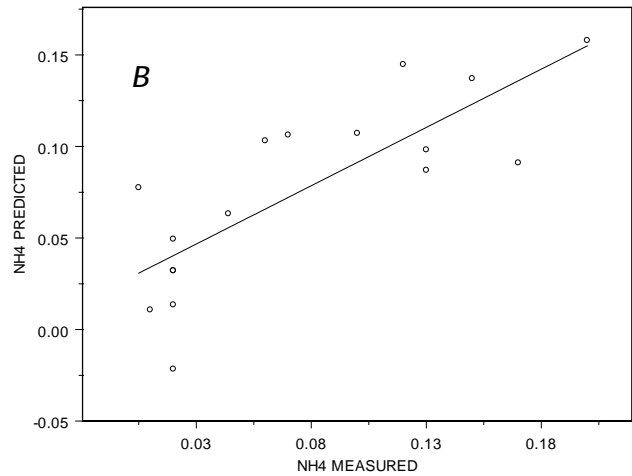
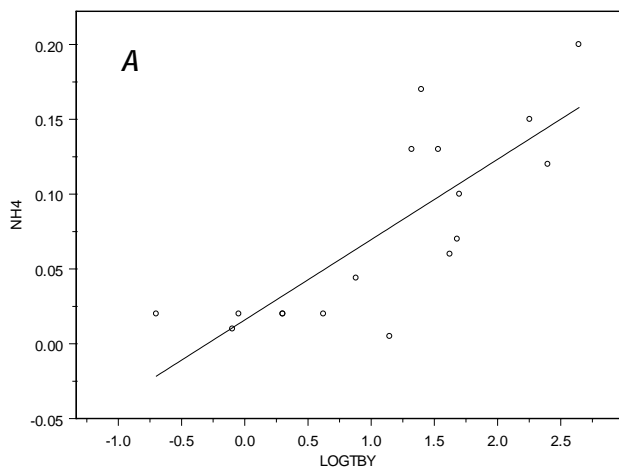


Figure 276. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus ammonia (NH4) concentrations; *B*, measured versus predicted NH4 concentrations; *C*, computed NH4 concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = NH4 ~ LOGSC, data = NH4.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.4367	-0.1589	-0.01229	0.103	0.7129

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-1.2084	0.3405	-3.5495	0.0012
LOGSC	0.5653	0.1214	4.6576	0.0001

Residual standard error: 0.2429 on 32 degrees of freedom

Multiple R-Squared: 0.404 Adjusted R-squared: 0.3854

F-statistic: 21.69 on 1 and 32 degrees of freedom, the p-value is 0.00005362

Correlation of Coefficients:

(Intercept)	
LOGSC	-0.9925

Analysis of Variance Table

Response: NH4

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	1.280319	1.280319	21.69279	0.00005361586
Residuals	32	1.888656	0.059021		

Figure 277. S+® output of regression model development using specific conductance (SC) as the explanatory variable for ammonia (NH4) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

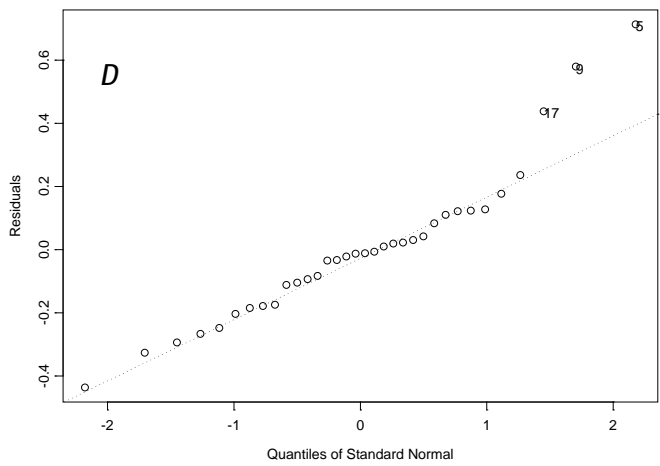
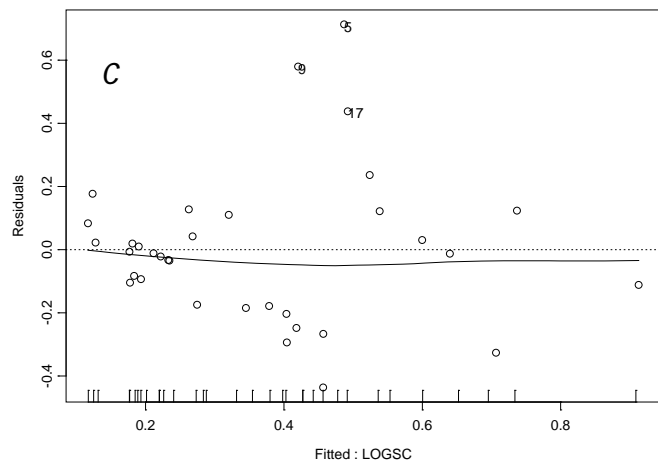
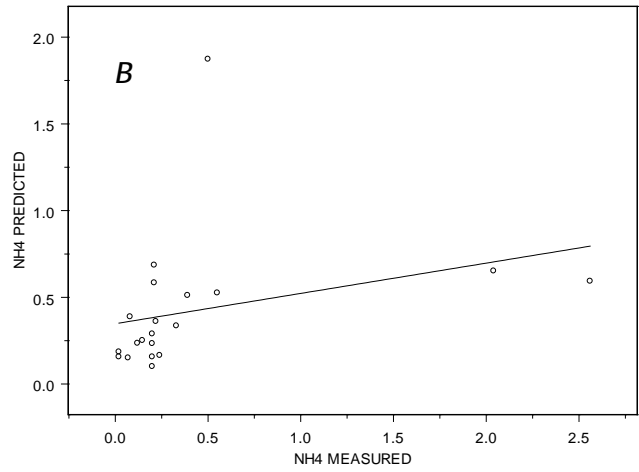
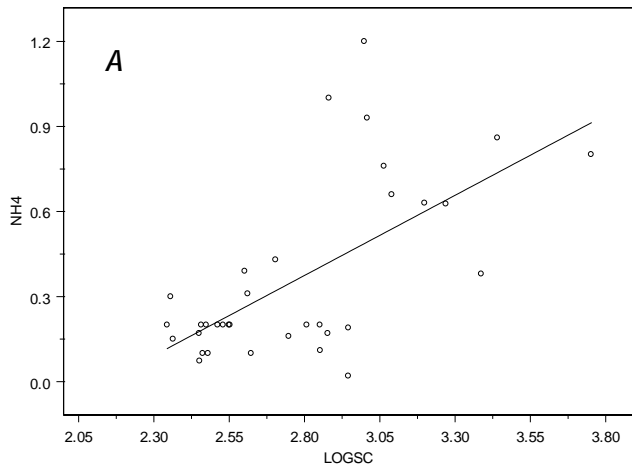


Figure 278. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus ammonia (NH4) concentrations; *B*, measured versus predicted NH4 concentrations; *C*, computed NH4 concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = NO3NO2 ~ NITRATAX, data = NO3NO2.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.2709	-0.06381	0.03506	0.06168	0.1771

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.2213	0.0602	-3.6762	0.0028
NITRATAX	0.9297	0.0611	15.2215	0.0000

Residual standard error: 0.1179 on 13 degrees of freedom

Multiple R-Squared: 0.9469 Adjusted R-squared: 0.9428

F-statistic: 231.7 on 1 and 13 degrees of freedom, the p-value is 1.152e-009

6 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)
NITRATAX	-0.8626

Analysis of Variance Table

Response: NO3NO2

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
NITRATAX	1	3.221932	3.221932	231.6941	1.151985e-009
Residuals	13	0.180778	0.013906		

Figure 279. S+® output of regression model development using nitrate (NITRATAX) as the explanatory variable for nitrate plus nitrite (NO3NO2) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), March 2012 through May 2013.

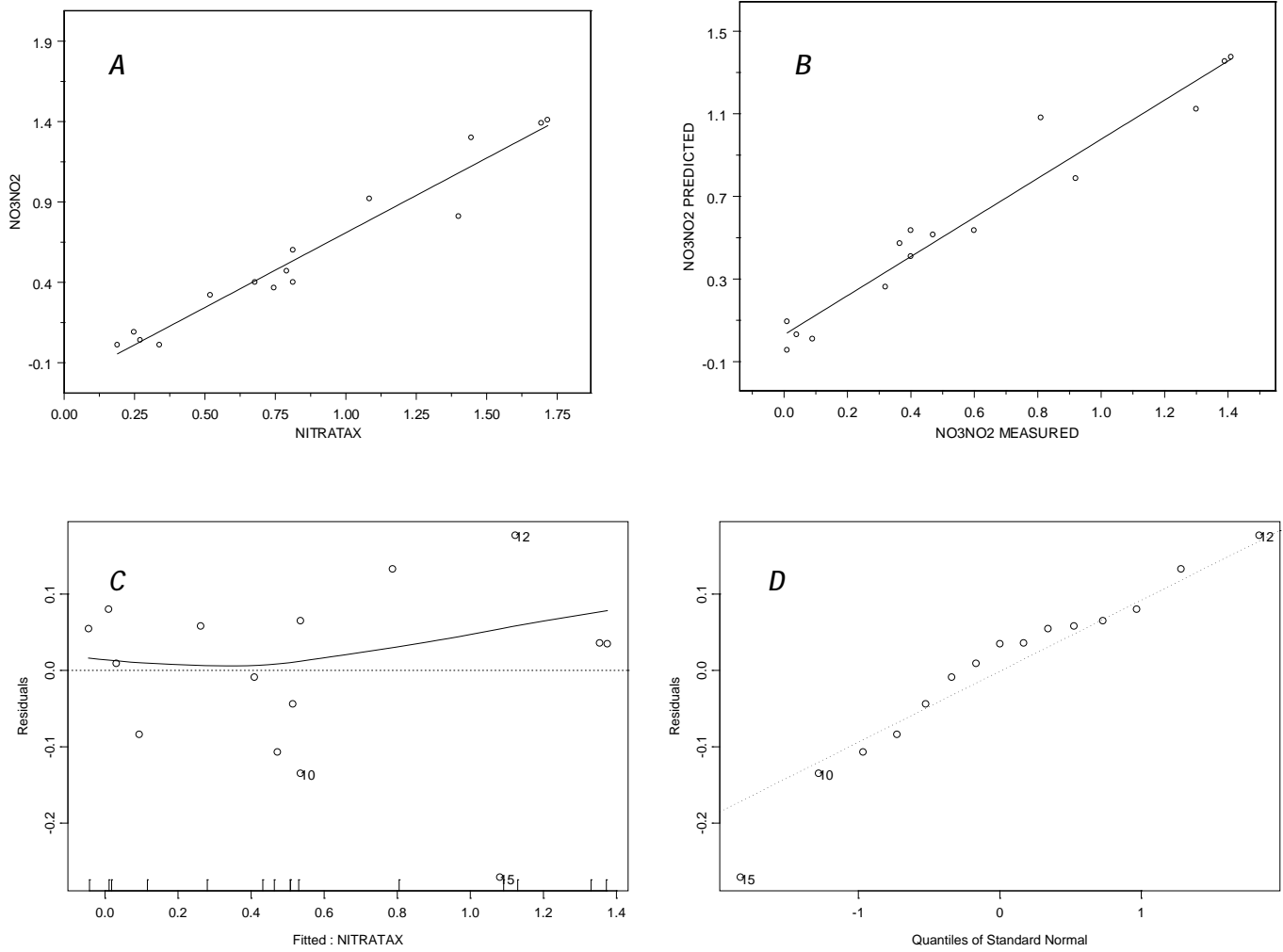


Figure 280. S+® output graphs from simple linear regression analysis showing *A*, nitrate (NITRATAX) versus nitrate plus nitrite (NO3NO2) concentrations; *B*, measured versus predicted NO3NO2 concentrations; *C*, computed NO3NO2 concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), March 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGNO3NO2 ~ Q + LOGQ, data = NO3NO2.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.9185	-0.2831	0.06002	0.2352	0.8314

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-1.0402	0.1823	-5.7046	0.0000
Q	-0.0007	0.0004	-1.8965	0.0750
LOGQ	0.5413	0.1402	3.8607	0.0013

Residual standard error: 0.5047 on 17 degrees of freedom

Multiple R-Squared: 0.4895 Adjusted R-squared: 0.4295

F-statistic: 8.152 on 2 and 17 degrees of freedom, the p-value is 0.003293

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	Q
Q	0.2747	
LOGQ	-0.7143	-0.7077

Analysis of Variance Table

Response: LOGNO3NO2

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
Q	1	0.356254	0.356254	1.39883	0.2531967
LOGQ	1	3.795957	3.795957	14.90485	0.0012543
Residuals	17	4.329548	0.254679		

Figure 281. S+® output of regression model development using streamflow (Q) as an explanatory variable for nitrate plus nitrite (NO3NO2) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), June 2011 through May 2013.

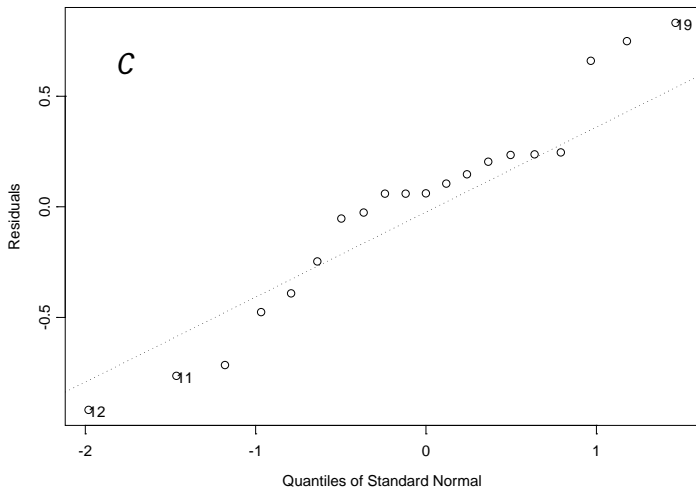
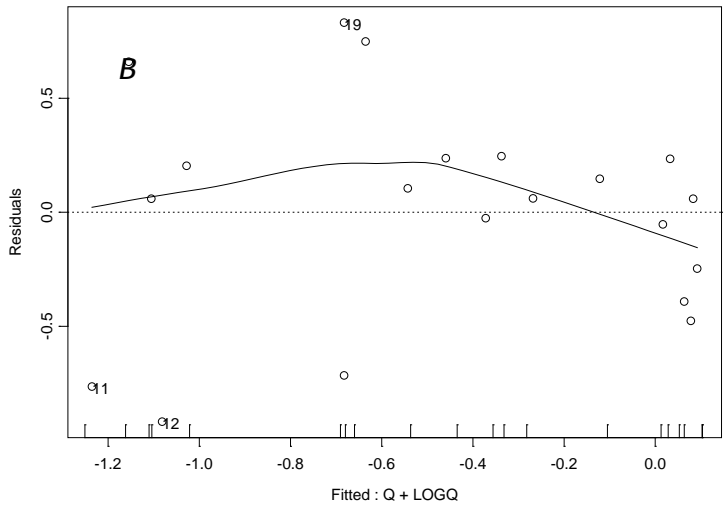
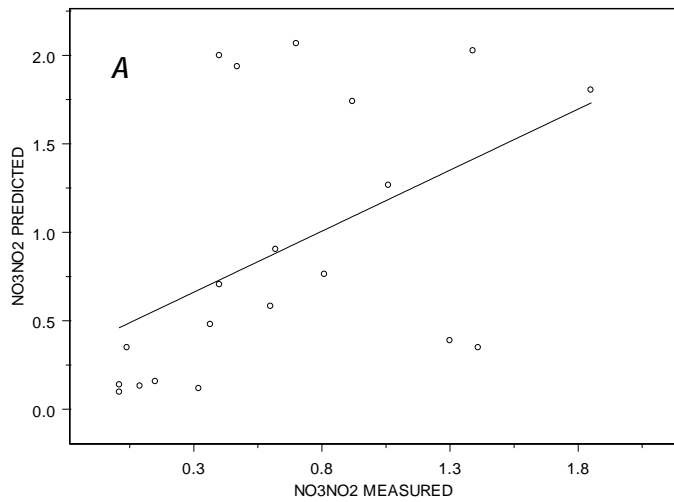


Figure 282. S+® output graphs from simple linear regression analysis using streamflow (Q) and log-transformed Q as explanatory variables for log-transformed nitrate plus nitrite (NO₃NO₂) concentrations showing A, measured versus predicted NO₃NO₂ concentrations; B, computed log-transformed NO₃NO₂ concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = NO3NO2 ~ NITRATAX, data = NO3NO2.COLL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.4763	-0.1882	0.03245	0.2675	0.3387

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.2130	0.1549	-1.3753	0.2023
NITRATAX	0.9243	0.0262	35.3202	0.0000

Residual standard error: 0.3103 on 9 degrees of freedom

Multiple R-Squared: 0.9928 Adjusted R-squared: 0.992

F-statistic: 1248 on 1 and 9 degrees of freedom, the p-value is 5.779e-011

7 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)
NITRATAX	-0.7968

Analysis of Variance Table

Response: NO3NO2

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
NITRATAX	1	120.1308	120.1308	1247.52	5.779432e-011
Residuals	9	0.8667	0.0963		

Figure 283. S+® output of regression model development using nitrate (NITRATAX) as the explanatory variable for nitrate plus nitrite (NO3NO2) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), March 2012 through May 2013.

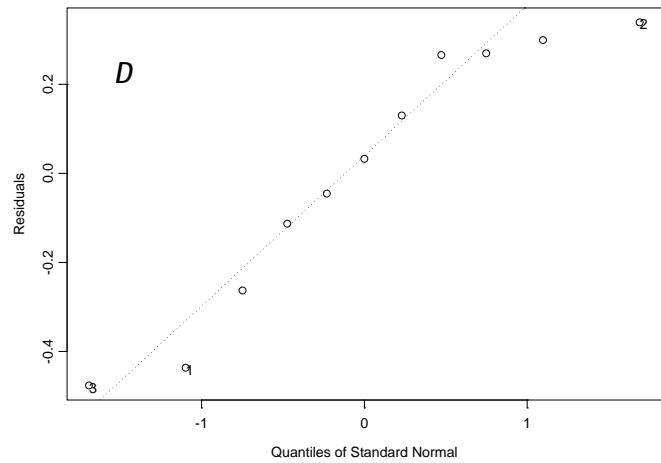
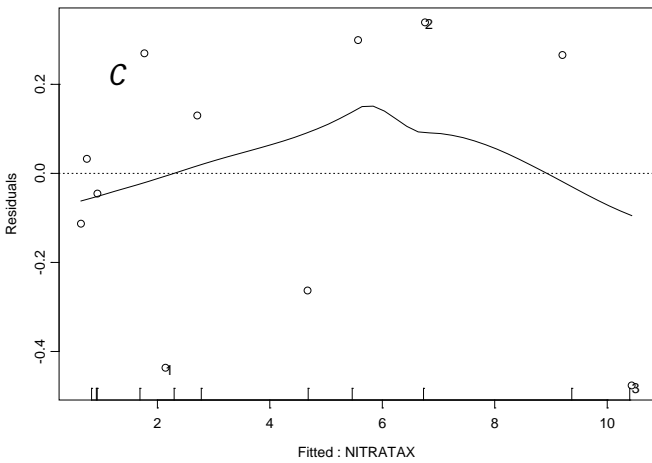
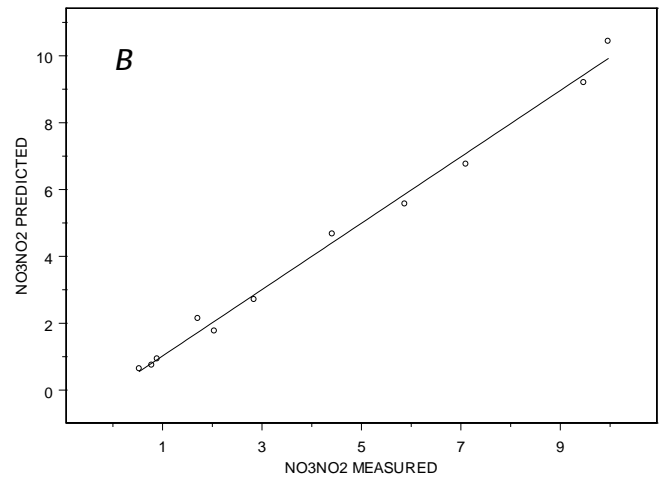
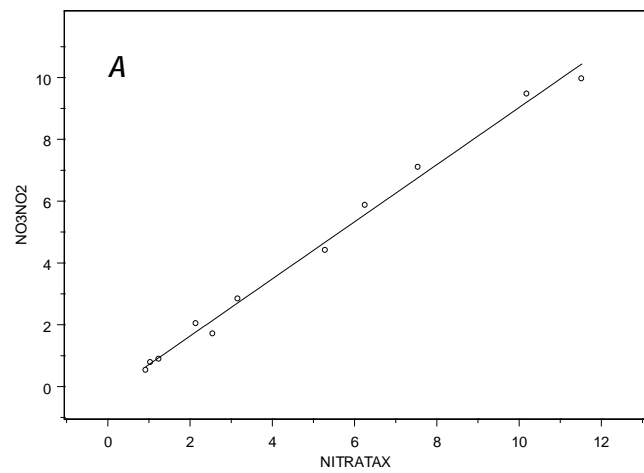


Figure 284. S+® output graphs from simple linear regression analysis showing A, nitrate (NITRATAx) versus nitrate plus nitrite (NO3NO2) concentrations; B, measured versus predicted NO3NO2 concentrations; C, computed NO3NO2 concentrations versus regression residuals; and D, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), March 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGNO3NO2 ~ LOGQ, data = NO3NO2.COLLSPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.2746	-0.08305	-0.01228	0.0704	0.3183

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.4405	0.1095	13.1581	0.0000
LOGQ	-0.5094	0.0512	-9.9490	0.0000

Residual standard error: 0.174 on 16 degrees of freedom

Multiple R-Squared: 0.8608 Adjusted R-squared: 0.8522

F-statistic: 98.98 on 1 and 16 degrees of freedom, the p-value is 2.949e-008

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9272

Analysis of Variance Table

Response: LOGNO3NO2

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	2.995422	2.995422	98.98165	2.949453e-008
Residuals	16	0.484198	0.030262		

Figure 285. S+® output of regression model development using streamflow (Q) as the explanatory variable for nitrate plus nitrite (NO3NO2) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

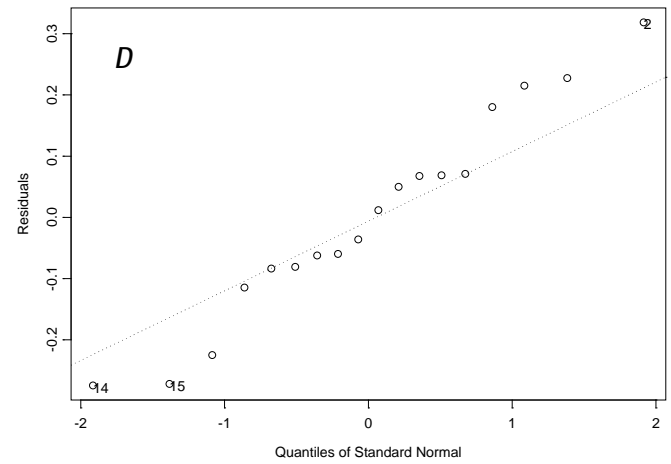
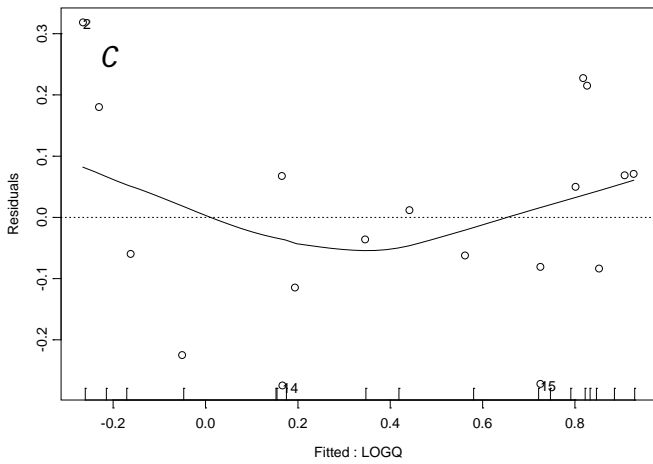
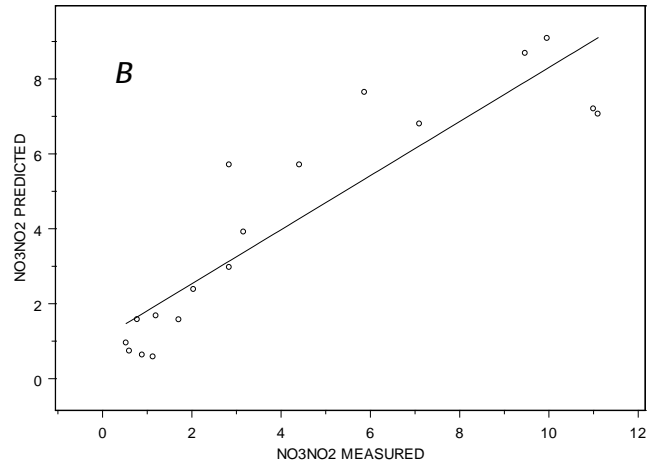
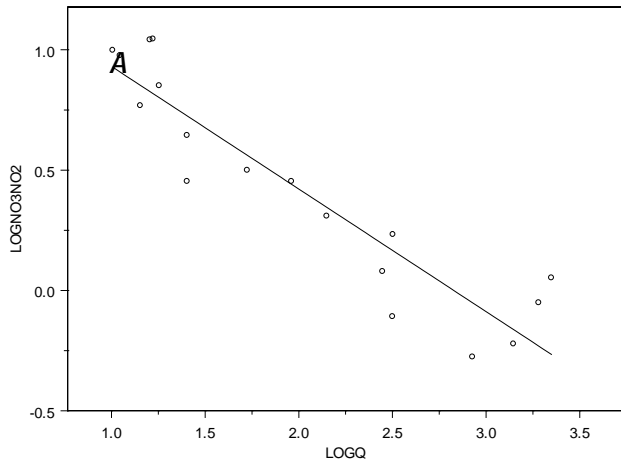


Figure 286. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus log-transformed nitrate plus nitrite (NO3NO2) concentrations; *B*, measured versus predicted NO3NO2 concentrations; *C*, computed log-transformed NO3NO2 concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

```

*** Linear Model ***

Call: lm(formula = NO3NO2 ~ NITRATAX, data = NO3NO2.MART.SPLUS, na.action =
na.exclude)

Residuals:
    Min       1Q   Median       3Q      Max
-0.8458 -0.0618 -0.001206  0.2001  0.4837

Coefficients:
            Value Std. Error t value Pr(>|t|)
(Intercept) -0.4386   0.1797  -2.4414  0.0348
NITRATAX     0.9381   0.0318  29.4982  0.0000

Residual standard error: 0.3555 on 10 degrees of freedom
Multiple R-Squared:  0.9886    Adjusted R-squared:  0.9875
F-statistic: 870.1 on 1 and 10 degrees of freedom, the p-value is 4.682e-011
7 observations deleted due to missing values

Correlation of Coefficients:
      (Intercept)
NITRATAX -0.8207

Analysis of Variance Table

Response: NO3NO2

Terms added sequentially (first to last)
      Df Sum of Sq Mean Sq F Value Pr(F)
NITRATAX  1  109.9936 109.9936 870.1467 4.681566e-011
Residuals 10    1.2641   0.1264

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Figure 287. S+® output of regression model development using nitrate (NITRATAX) as the explanatory variable for nitrate plus nitrite (NO3NO2) for Indian Creek at Overland Park, KS (Marty, site 06893300), March 2012 through May 2013.

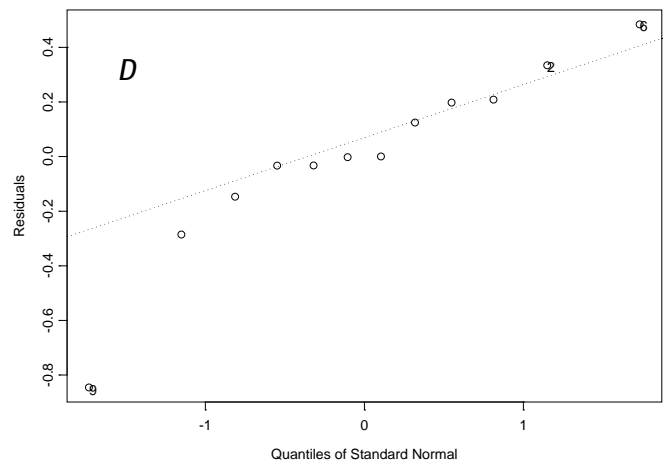
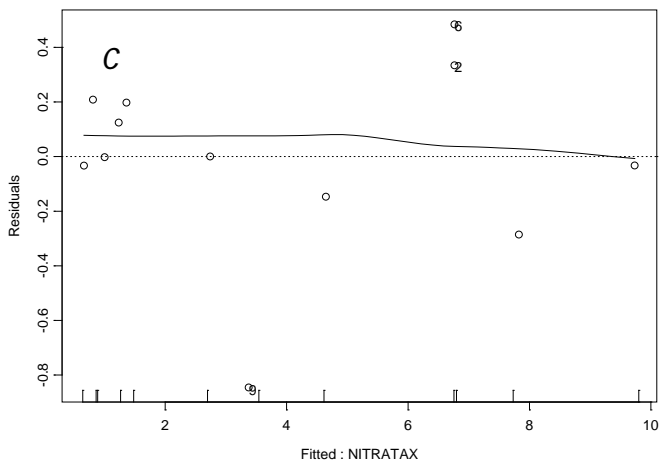
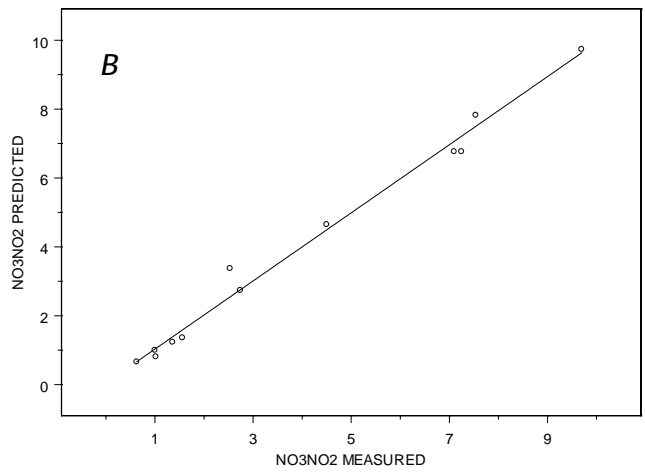
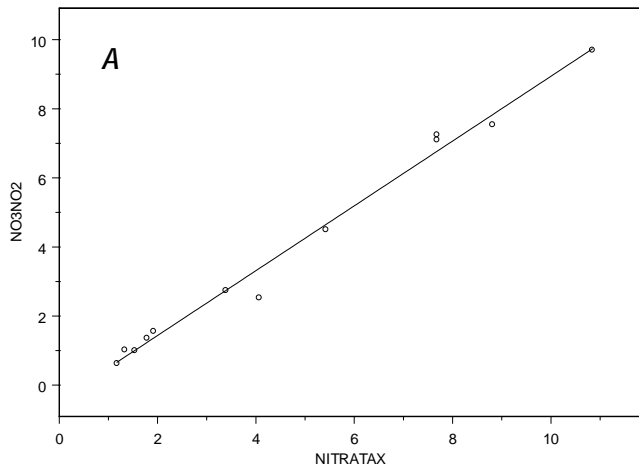


Figure 288. S+® output graphs from simple linear regression analysis showing *A*, nitrate (NITRATAx) versus nitrate plus nitrite (NO3NO2) concentrations; *B*, measured versus predicted NO3NO2 concentrations; *C*, computed NO3NO2 concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), March 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = NO3NO2 ~ LOGQ, data = NO3NO2.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-2.723	-0.5356	0.1731	1.062	1.69

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	10.6454	0.8113	13.1213	0.0000
LOGQ	-3.5497	0.3820	-9.2918	0.0000

Residual standard error: 1.259 on 17 degrees of freedom

Multiple R-Squared: 0.8355 Adjusted R-squared: 0.8258

F-statistic: 86.34 on 1 and 17 degrees of freedom, the p-value is 4.493e-008

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9344

Analysis of Variance Table

Response: NO3NO2

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	136.9177	136.9177	86.33749	4.493491e-008
Residuals	17	26.9593	1.5858		

Figure 289. S+® output of regression model development using streamflow (Q) as the explanatory variable for nitrate plus nitrite (NO3NO2) for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

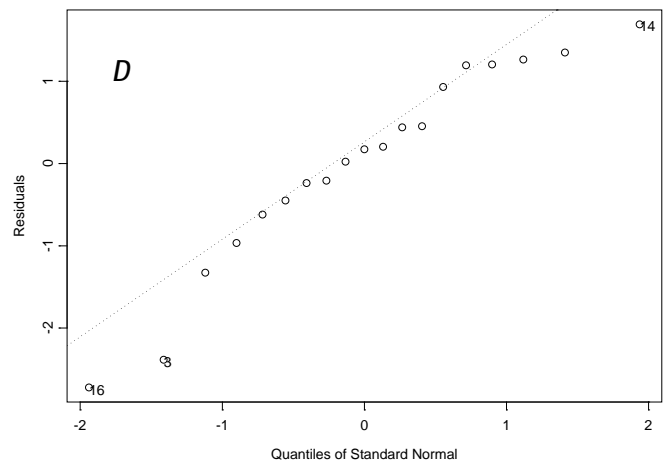
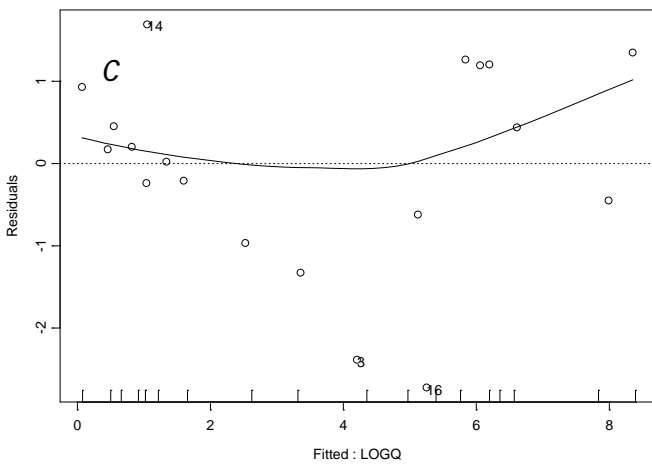
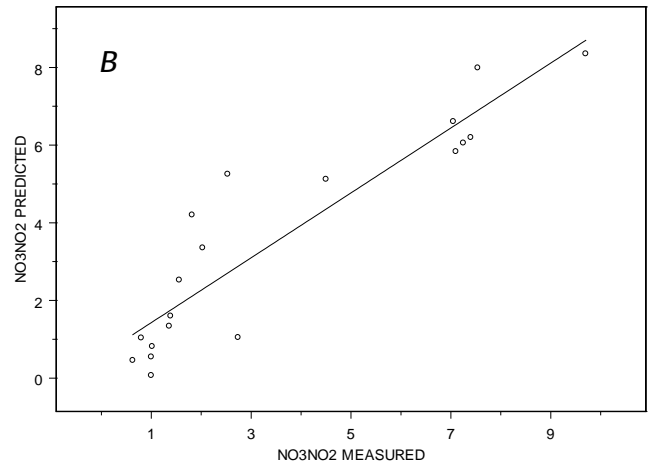
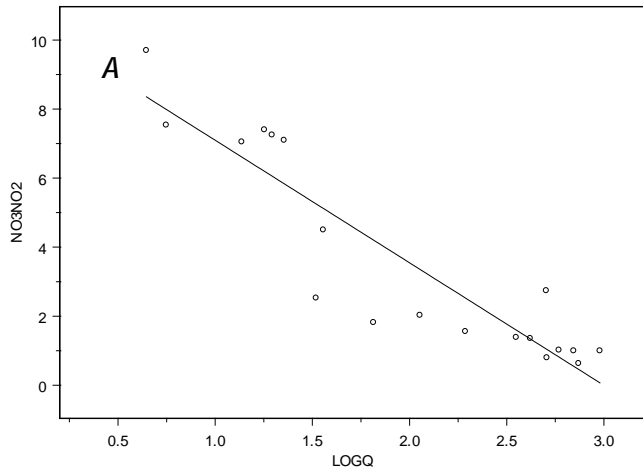


Figure 290. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (*Q*) versus nitrate plus nitrite (NO₃NO₂) concentrations; *B*, measured versus predicted NO₃NO₂ concentrations; *C*, computed NO₃NO₂ concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = NO3NO2 ~ NITRATAX, data = NO3NO2.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.927	-0.1808	-0.09265	0.2375	0.6331

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.1697	0.1869	-0.9076	0.3835
NITRATAX	0.9386	0.0386	24.3134	0.0000

Residual standard error: 0.4185 on 11 degrees of freedom

Multiple R-Squared: 0.9817 Adjusted R-squared: 0.9801

F-statistic: 591.1 on 1 and 11 degrees of freedom, the p-value is 6.517e-011

444 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)

NITRATAX -0.7839

Analysis of Variance Table

Response: NO3NO2

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
NITRATAX	1	103.5490	103.5490	591.1434	6.517498e-011
Residuals	11	1.9268	0.1752		

Figure 291. S+® output of regression model development using nitrate (NITRATAX) as the explanatory variable for nitrate plus nitrite (NO3NO2) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), April 2012 through May 2013.

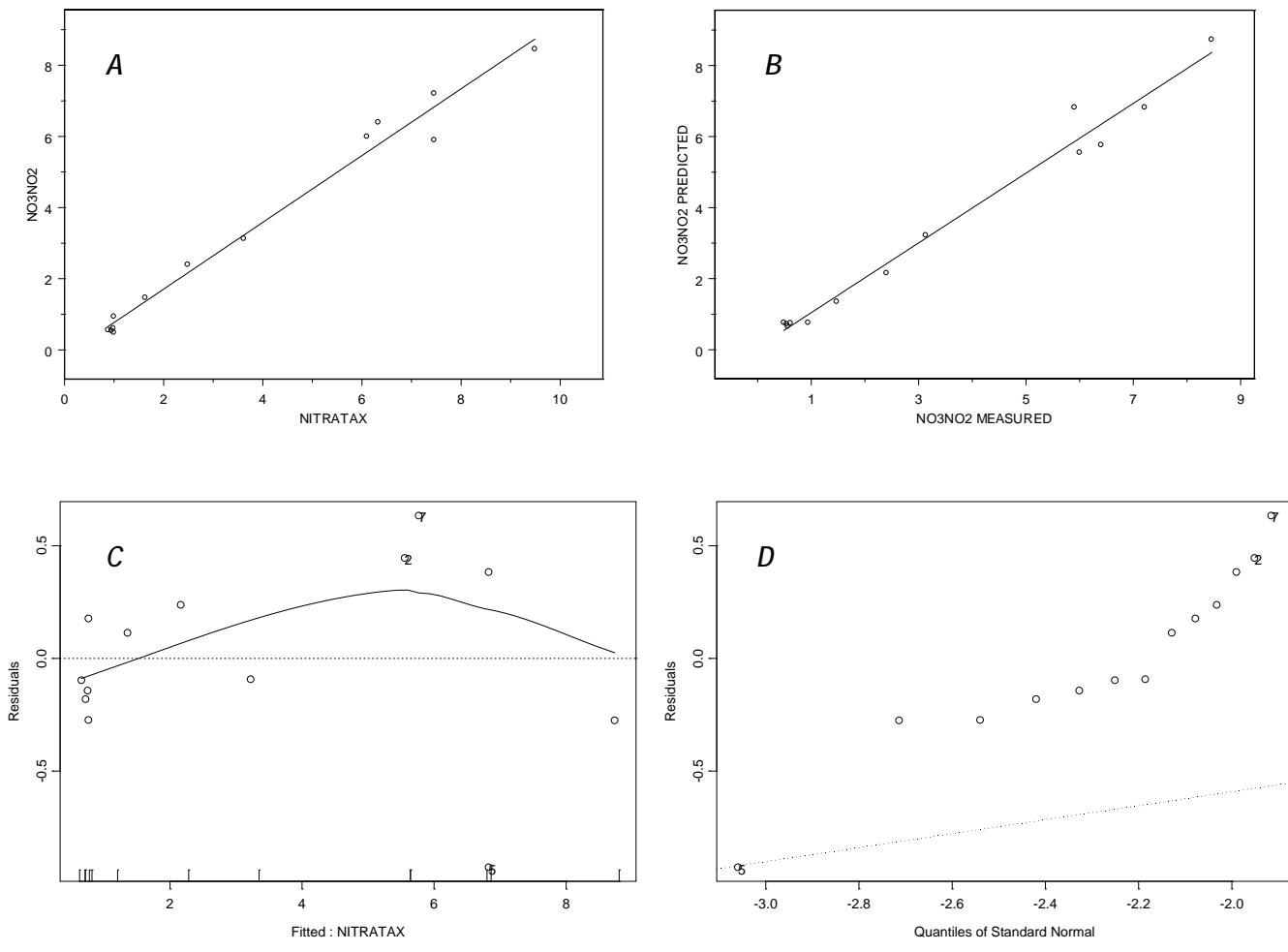


Figure 292. S+® output graphs from simple linear regression analysis showing *A*, nitrate (NITRATAX) versus nitrate plus nitrite (NO3NO2) concentrations; *B*, measured versus predicted NO3NO2 concentrations; *C*, computed NO3NO2 concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), April 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGNO3NO2 ~ LOGQ, data = NO3NO2.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.415	-0.09407	0.05643	0.1243	0.1848

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.3048	0.1019	12.8016	0.0000
LOGQ	-0.4963	0.0479	-10.3521	0.0000

Residual standard error: 0.1682 on 17 degrees of freedom

Multiple R-Squared: 0.8631 Adjusted R-squared: 0.855

F-statistic: 107.2 on 1 and 17 degrees of freedom, the p-value is 9.302e-009

438 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9255

Analysis of Variance Table

Response: LOGNO3NO2

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	3.033305	3.033305	107.1652	9.301656e-009
Residuals	17	0.481184	0.028305		

Figure 293. S+® output of regression model development using streamflow (Q) as the explanatory variable for nitrate plus nitrite (NO3NO2) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

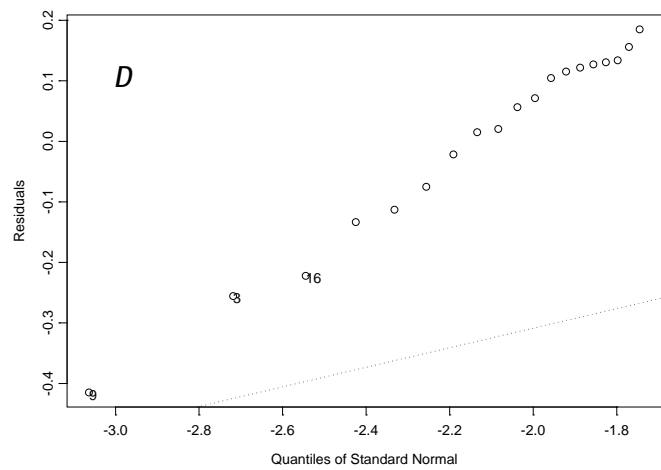
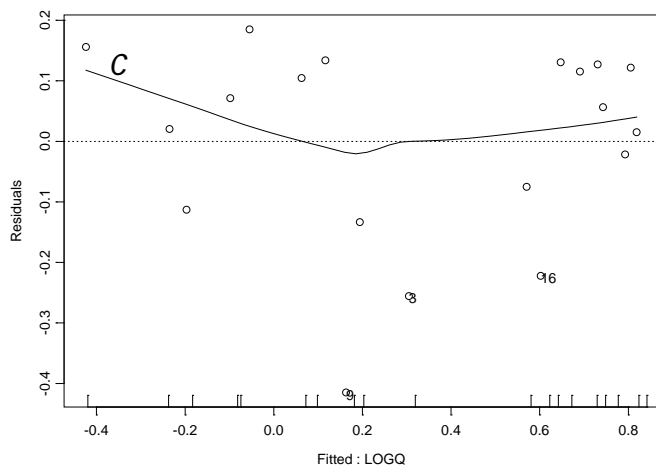
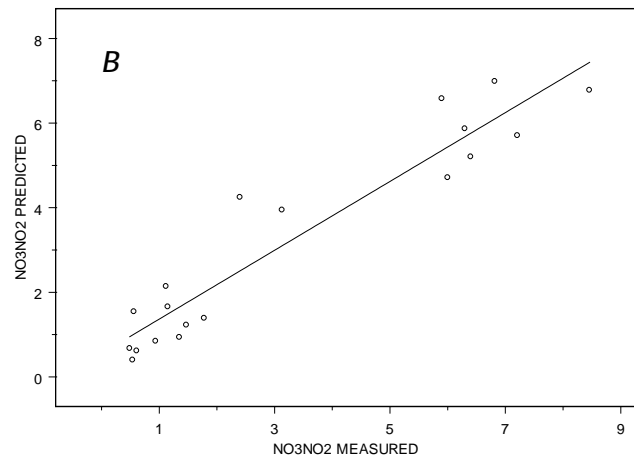
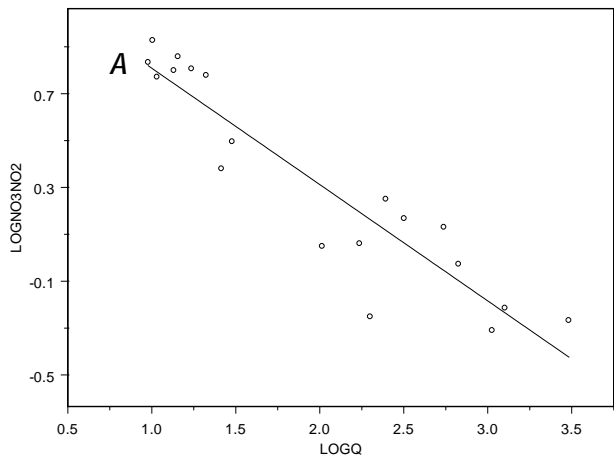


Figure 294. S+® output graphs from simple linear regression analysis showing *A*, streamflow (*Q*) versus nitrate plus nitrite (NO3NO2) concentrations; *B*, measured versus predicted NO3NO2 concentrations; *C*, computed NO3NO2 concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = NO3NO2 ~ NITRATAX, data = NO3NO2.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.177	-0.06865	0.005769	0.03603	0.2701

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.2034	0.0751	-2.7091	0.0203
NITRATAX	0.8013	0.0691	11.5894	0.0000

Residual standard error: 0.1276 on 11 degrees of freedom

Multiple R-Squared: 0.9243 Adjusted R-squared: 0.9174

F-statistic: 134.3 on 1 and 11 degrees of freedom, the p-value is 1.663e-007

5 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)
NITRATAX	-0.8818

Analysis of Variance Table

Response: NO3NO2

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
NITRATAX	1	2.188475	2.188475	134.3131	1.662507e-007
Residuals	11	0.179232	0.016294		

Figure 295. S+® output of regression model development using nitrate (NITRATAX) as the explanatory variable for nitrate plus nitrite (NO3NO2) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), March 2012 through May 2013.

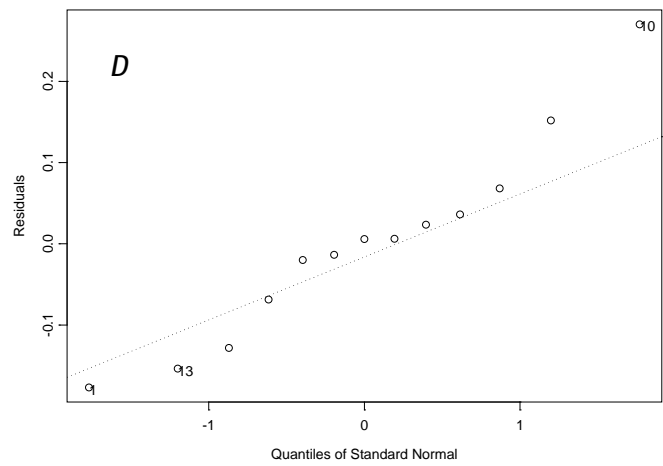
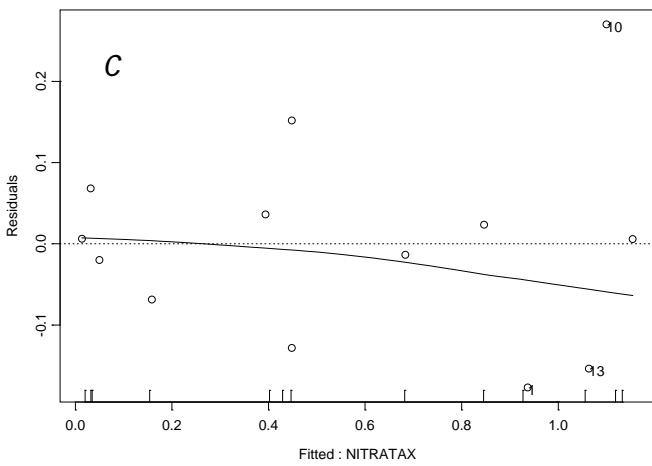
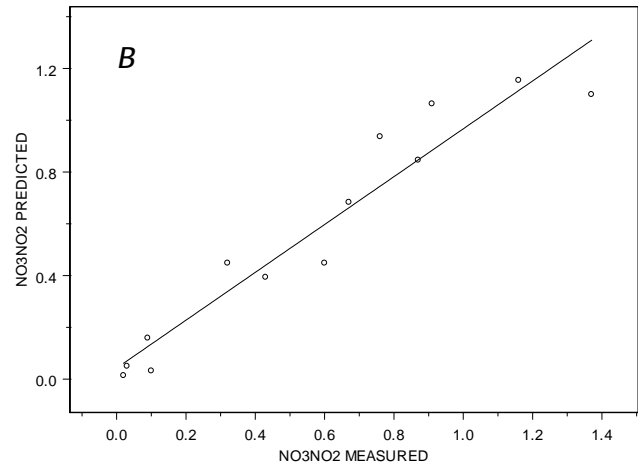
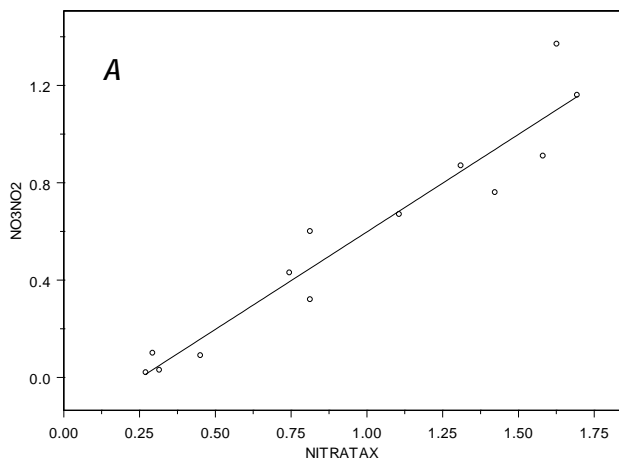


Figure 296. S+® output graphs from simple linear regression analysis showing *A*, nitrate (NITRATAx) versus nitrate plus nitrite (NO3NO2) concentrations; *B*, measured versus predicted NO3NO2 concentrations; *C*, computed NO3NO2 concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), March 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGNO3NO2 ~ Q + LOGQ, data = NO3NO2.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.5147	-0.229	-0.05751	0.1959	0.6553

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-1.1959	0.1731	-6.9092	0.0000
Q	-0.0007	0.0003	-2.2370	0.0421
LOGQ	0.5934	0.1228	4.8305	0.0003

Residual standard error: 0.357 on 14 degrees of freedom

Multiple R-Squared: 0.6476 Adjusted R-squared: 0.5973

F-statistic: 12.86 on 2 and 14 degrees of freedom, the p-value is 0.0006747

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	Q
Q	0.3708	
LOGQ	-0.8207	-0.6938

Analysis of Variance Table

Response: LOGNO3NO2

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
Q	1	0.305328	0.305328	2.39564	0.1439771
LOGQ	1	2.973909	2.973909	23.33365	0.0002668
Residuals	14	1.784321	0.127451		

Figure 297. S+® output of regression model development using streamflow (Q) as an explanatory variable for nitrate plus nitrite (NO3NO2) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), November 2011 through May 2013.

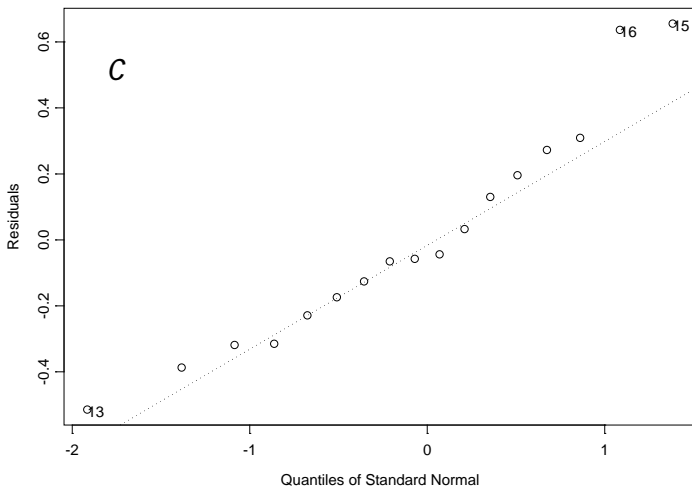
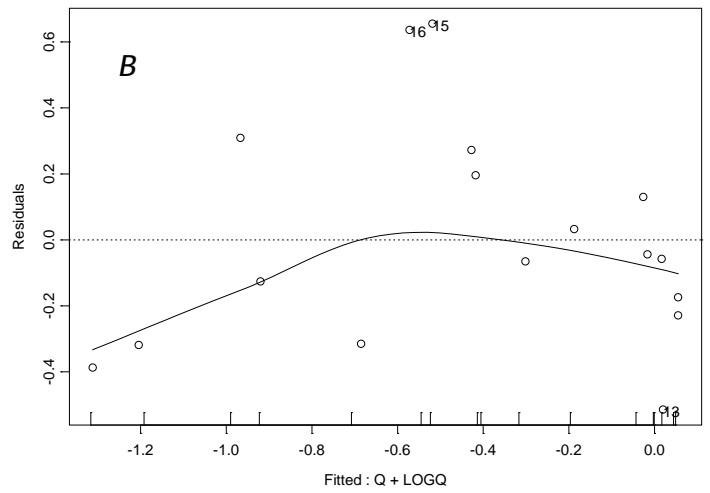
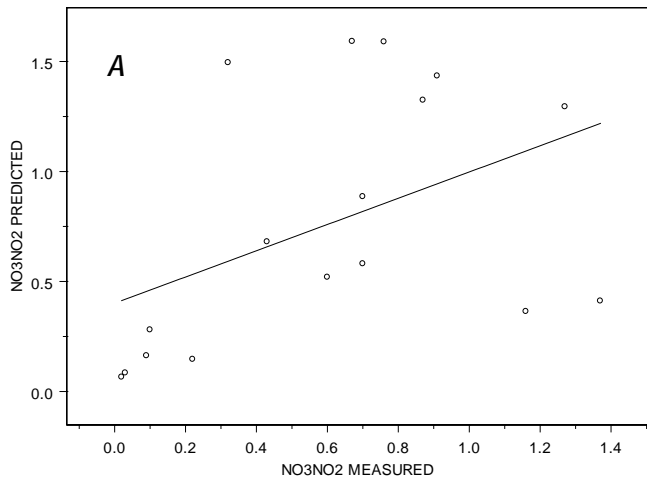


Figure 298. S+® output graphs from simple linear regression analysis using streamflow (Q) and log-transformed Q as explanatory variables for log-transformed nitrate plus nitrite (NO₃NO₂) concentrations showing A, measured versus predicted NO₃NO₂ concentrations; B, computed log-transformed NO₃NO₂ concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), November 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGNO3NO2 ~ LOGQ, data = NO3NO2.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.9361	-0.1583	0.03592	0.1276	0.6404

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.2349	0.0996	12.3945	0.0000
LOGQ	-0.3821	0.0380	-10.0664	0.0000

Residual standard error: 0.2359 on 53 degrees of freedom

Multiple R-Squared: 0.6566 Adjusted R-squared: 0.6501

F-statistic: 101.3 on 1 and 53 degrees of freedom, the p-value is 6.672e-014

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9477

Analysis of Variance Table

Response: LOGNO3NO2

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	5.637064	5.637064	101.333	6.67244e-014
Residuals	53	2.948343	0.055629		

Figure 299. S+® output of regression model development using streamflow (Q) as an explanatory variable for nitrate plus nitrite (NO3NO2) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

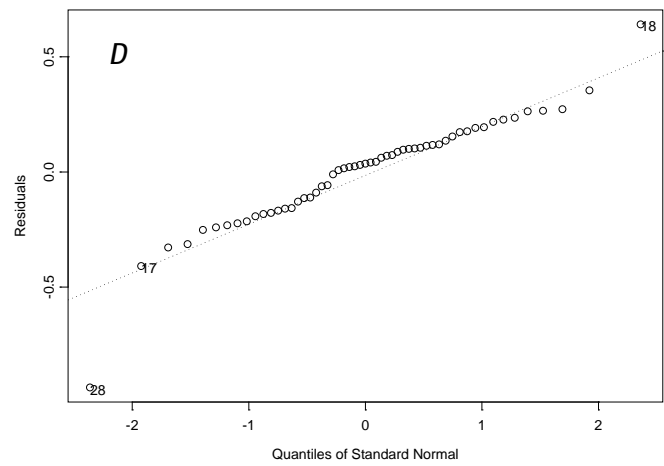
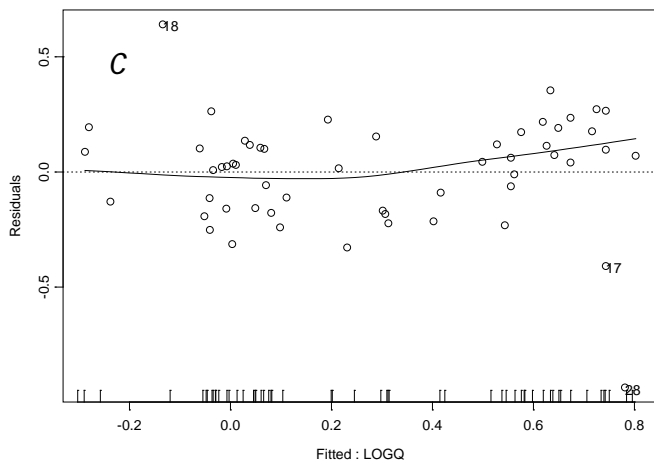
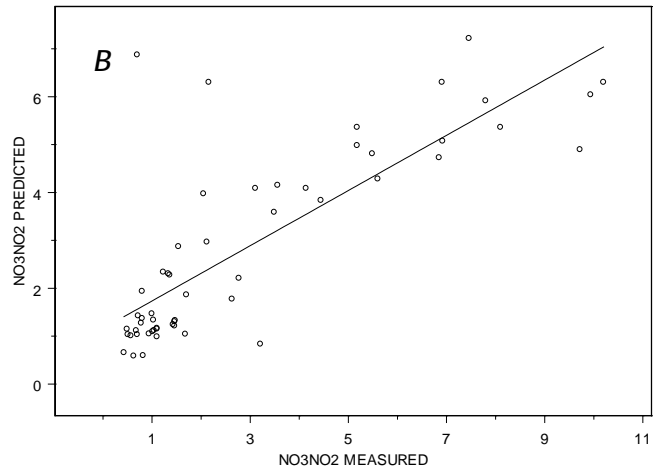
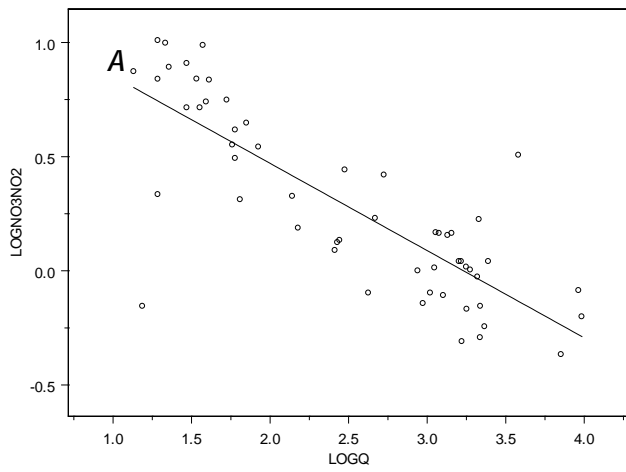


Figure 300. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (*Q*) versus log-transformed nitrate plus nitrite (NO3NO2) concentrations; *B*, measured versus predicted NO3NO2 concentrations; *C*, computed log-transformed NO3NO2 concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGNO3NO2 ~ LOGQ, data = NO3NO2.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.8447	-0.1592	0.01785	0.1582	0.6251

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.0907	0.1386	7.8718	0.0000
LOGQ	-0.3376	0.0512	-6.5987	0.0000

Residual standard error: 0.2635 on 32 degrees of freedom

Multiple R-Squared: 0.5764 Adjusted R-squared: 0.5632

F-statistic: 43.54 on 1 and 32 degrees of freedom, the p-value is 1.94e-007

Correlation of Coefficients:

	(Intercept)
LOGQ	-0.9453

Analysis of Variance Table

Response: LOGNO3NO2

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	3.024102	3.024102	43.54347	1.940461e-007
Residuals	32	2.222406	0.069450		

Figure 301. S+® output of regression model development using streamflow (Q) as an explanatory variable for nitrate plus nitrite (NO3NO2) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

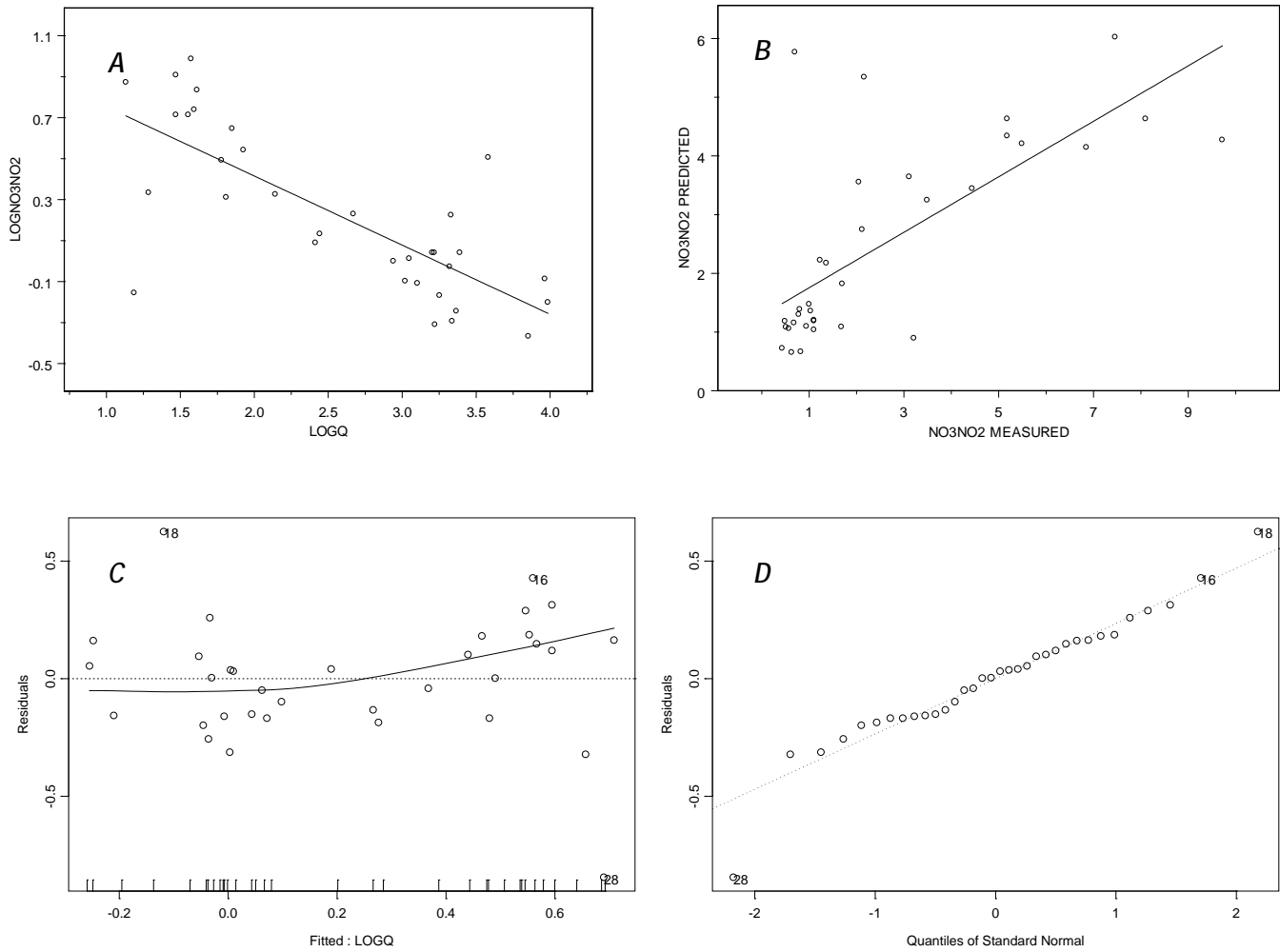


Figure 302. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (*Q*) versus log-transformed nitrate plus nitrite (NO3NO2) concentrations; *B*, measured versus predicted NO3NO2 concentrations; *C*, computed log-transformed NO3NO2 concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = NO3NO2 ~ NITRATAX, data = NO3NO2.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-1.144	-0.2089	-0.05009	0.3887	0.6669

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.2701	0.2354	-1.1474	0.2756
NITRATAX	0.8987	0.0442	20.3509	0.0000

Residual standard error: 0.5075 on 11 degrees of freedom

Multiple R-Squared: 0.9741 Adjusted R-squared: 0.9718

F-statistic: 414.2 on 1 and 11 degrees of freedom, the p-value is 4.434e-010

8 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)

NITRATAX -0.8015

Analysis of Variance Table

Response: NO3NO2

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
NITRATAX	1	106.6849	106.6849	414.1582	4.43432e-010
Residuals	11	2.8335	0.2576		

Figure 303. S+® output of regression model development using nitrate (NITRATAX) as the explanatory variable for nitrate plus nitrite (NO3NO2) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), May 2012 through May 2013.

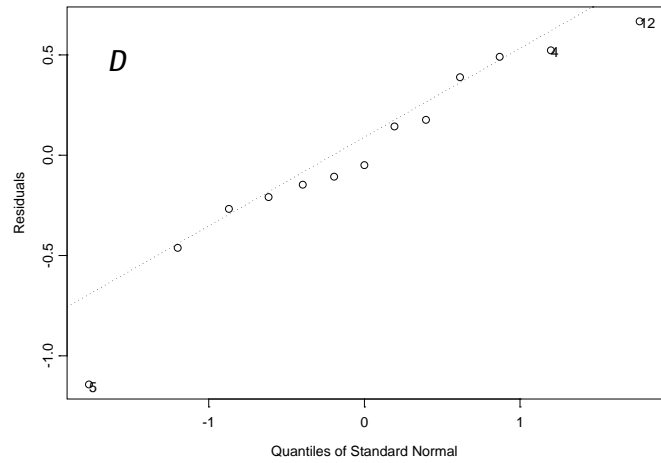
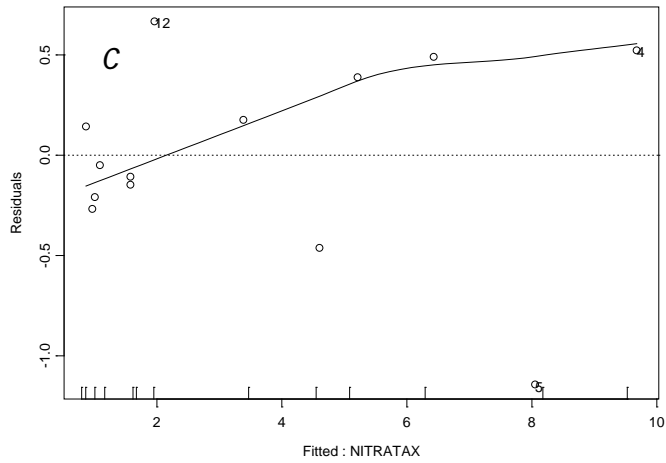
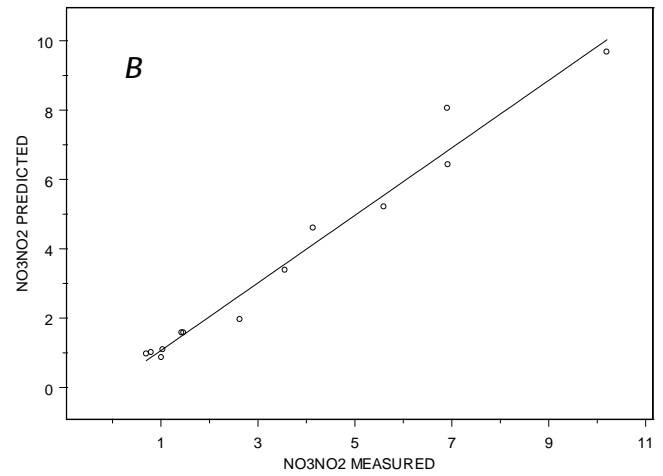
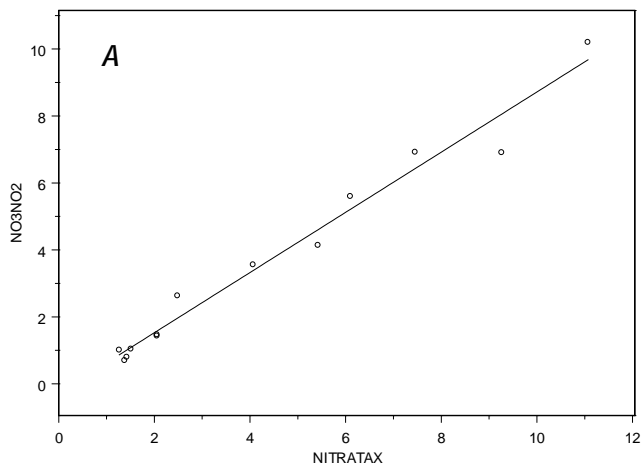


Figure 304. S+® output graphs from simple linear regression analysis showing *A*, nitrate (NITRATAx) versus nitrate plus nitrite (NO3NO2) concentrations; *B*, measured versus predicted NO3NO2 concentrations; *C*, computed NO3NO2 concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), May 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGNO3NO2 ~ LOGQ, data = NO3NO2.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.3551	-0.08003	0.04996	0.1161	0.2084

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.4854	0.1193	12.4554	0.0000
LOGQ	-0.4672	0.0480	-9.7282	0.0000

Residual standard error: 0.1635 on 19 degrees of freedom

Multiple R-Squared: 0.8328 Adjusted R-squared: 0.824

F-statistic: 94.64 on 1 and 19 degrees of freedom, the p-value is 8.188e-009

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9542

Analysis of Variance Table

Response: LOGNO3NO2

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	2.530832	2.530832	94.63792	8.188459e-009
Residuals	19	0.508103	0.026742		

Figure 305. S+® output of regression model development using streamflow (Q) as an explanatory variable for nitrate plus nitrite (NO3NO2) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

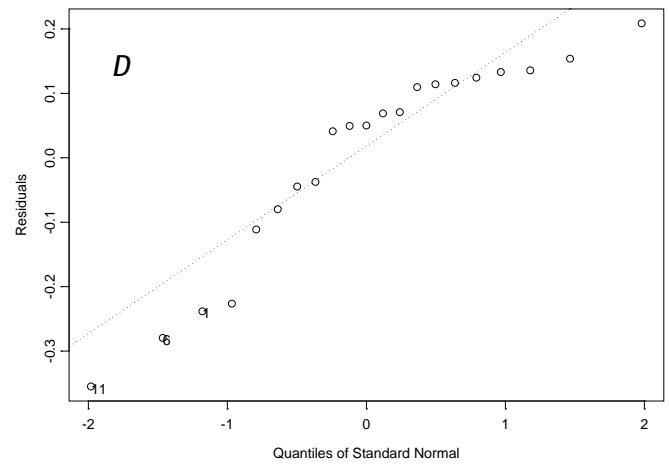
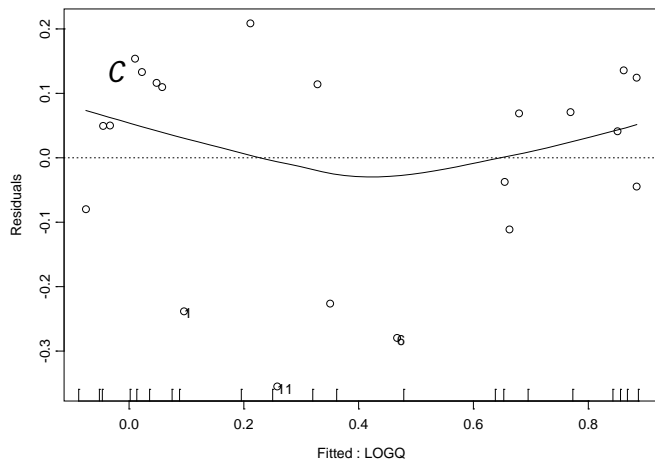
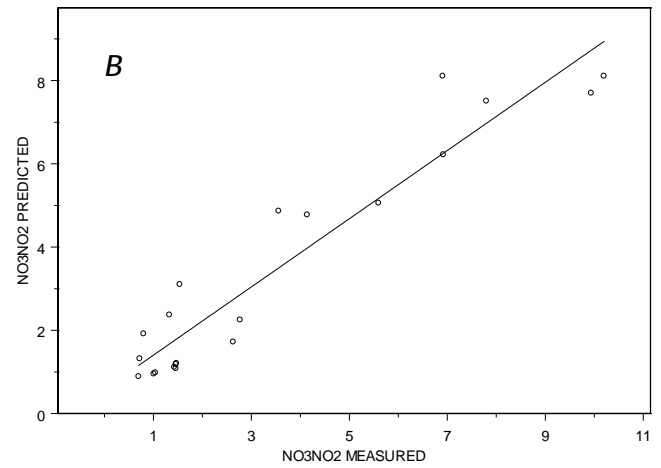
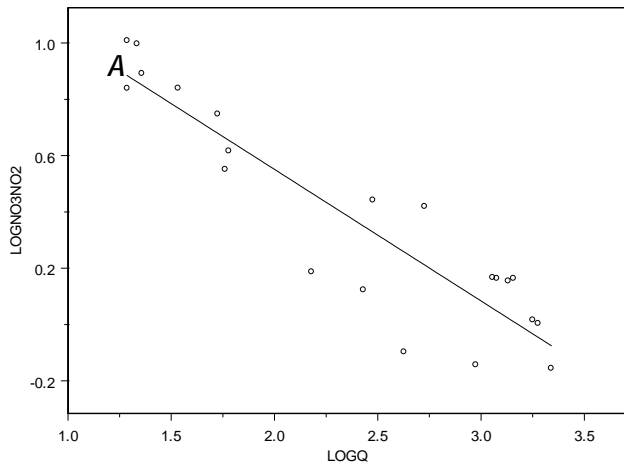


Figure 306. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (*Q*) versus log-transformed nitrate plus nitrite (*NO3NO2*) concentrations; *B*, measured versus predicted *NO3NO2* concentrations; *C*, computed *NO3NO2* concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGNO3 ~ LOGNO3NO2, data = NO3.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.9899	-0.1057	0.03903	0.1575	0.394

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.2081	0.0641	-3.2455	0.0028
LOGNO3NO2	1.7063	0.1595	10.6999	0.0000

Residual standard error: 0.2815 on 31 degrees of freedom

Multiple R-Squared: 0.7869 Adjusted R-squared: 0.78

F-statistic: 114.5 on 1 and 31 degrees of freedom, the p-value is 6.217e-012

6 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)
LOGNO3NO2	0.6451

Analysis of Variance Table

Response: LOGNO3

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGNO3NO2	1	9.070040	9.070040	114.4873	6.217471e-012
Residuals	31	2.455917	0.079223		

Figure 307. S+® output of regression model development using nitrate (NO3NO2) as the explanatory variable for nitrate (NO3) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), March 2012 through May 2013.

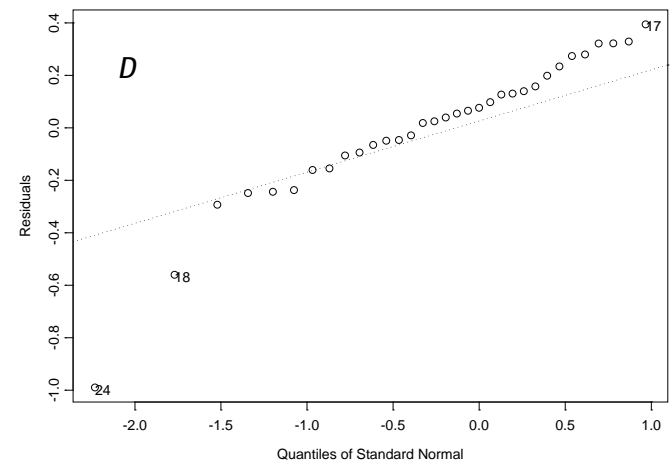
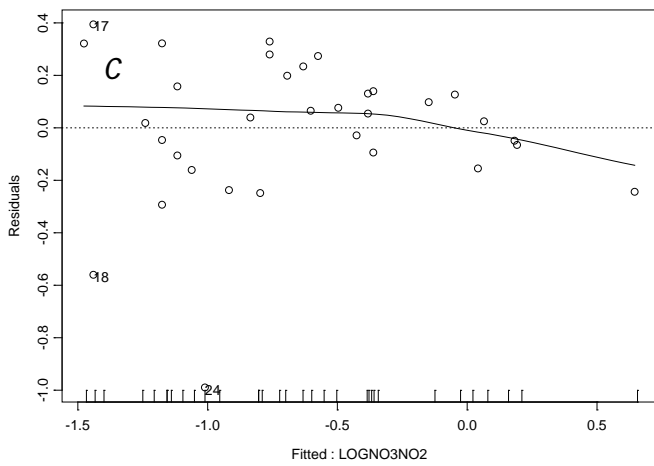
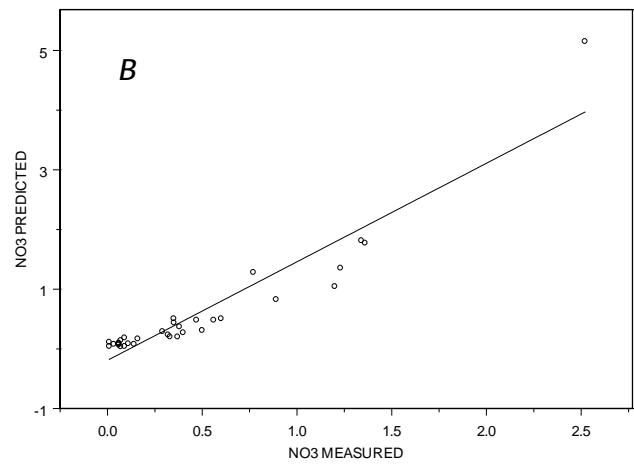
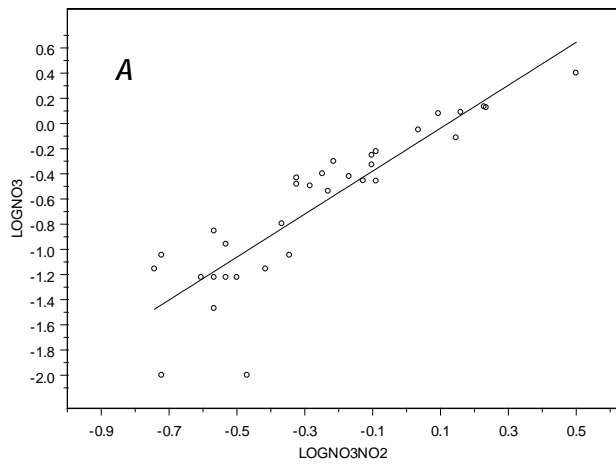


Figure 308. S+® output graphs from simple linear regression analysis showing *A*, log-transformed nitrate (NO3NO2) versus log-transformed nitrate (NO3) concentrations; *B*, measured versus predicted NO3 concentrations; *C*, computed NO3 concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), March 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = NO3 ~ NO3NO2, data = NO3.COLLSPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-3.832	-0.1106	0.1023	0.359	1.192

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.3233	0.3826	-0.8450	0.4056
NO3NO2	0.9441	0.0443	21.3210	0.0000

Residual standard error: 0.8464 on 27 degrees of freedom

Multiple R-Squared: 0.9439 Adjusted R-squared: 0.9419

F-statistic: 454.6 on 1 and 27 degrees of freedom, the p-value is 0

7 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
NO3NO2	-0.9117

Analysis of Variance Table

Response: NO3

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
NO3NO2	1	325.6805	325.6805	454.5846	0
Residuals	27	19.3438	0.7164		

Figure 309. S+® output of regression model development using nitrate (NO3NO2) as the explanatory variable for nitrate (NO3) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), March 2012 through May 2013.

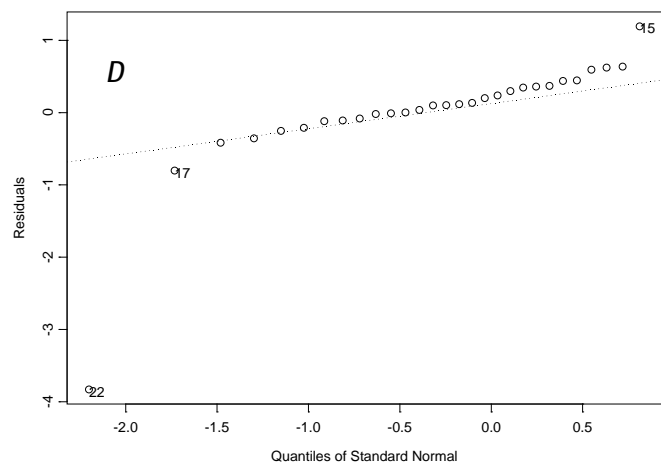
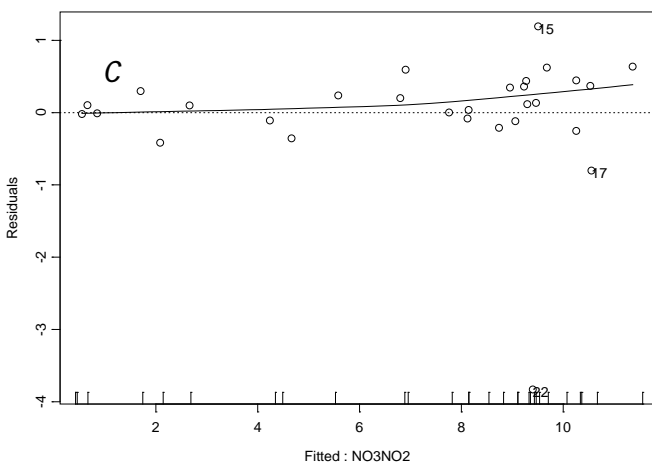
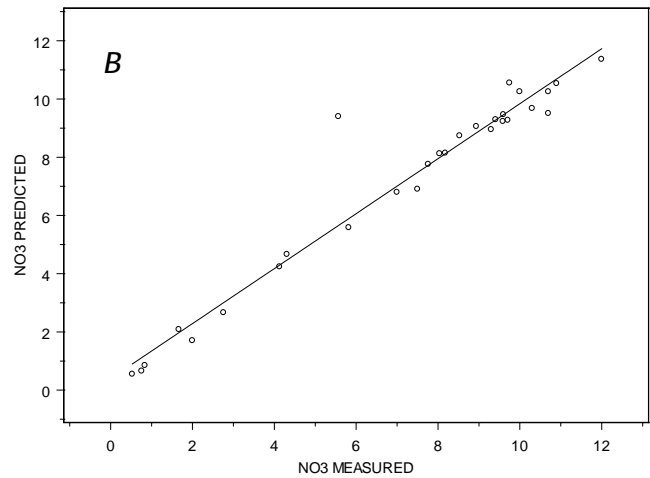
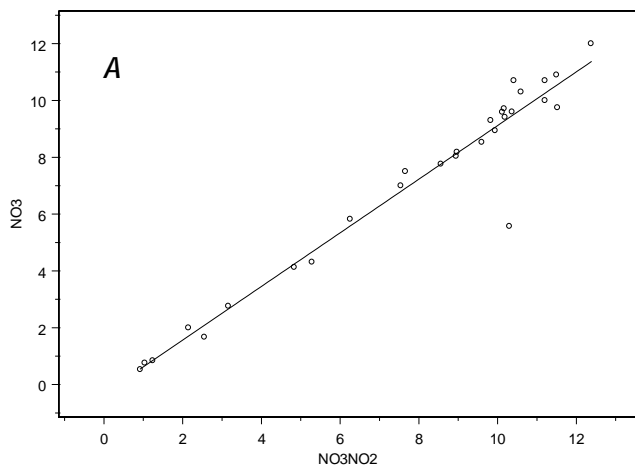


Figure 310. S+® output graphs from simple linear regression analysis showing A, nitrate (NO3NO2) versus nitrate (NO3) concentrations; B, measured versus predicted NO3 concentrations; C, computed NO3 concentrations versus regression residuals; and D, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), March 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = NO3 ~ NO3NO2, data = NO3.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-3.699	-0.01856	0.1151	0.3166	0.8551

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.5386	0.3904	-1.3798	0.1804
NO3NO2	0.9256	0.0508	18.2374	0.0000

Residual standard error: 0.8317 on 24 degrees of freedom

Multiple R-Squared: 0.9327 Adjusted R-squared: 0.9299

F-statistic: 332.6 on 1 and 24 degrees of freedom, the p-value is 1.443e-015

11 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
NO3NO2	-0.9085

Analysis of Variance Table

Response: NO3

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
NO3NO2	1	230.0477	230.0477	332.6035	1.44329e-015
Residuals	24	16.5998	0.6917		

Figure 311. S+® output of regression model development using nitrate (NO3NO2) as the explanatory variable for nitrate (NO3) for Indian Creek at Overland Park, KS (Marty, site 06893300), March 2012 through May 2013.

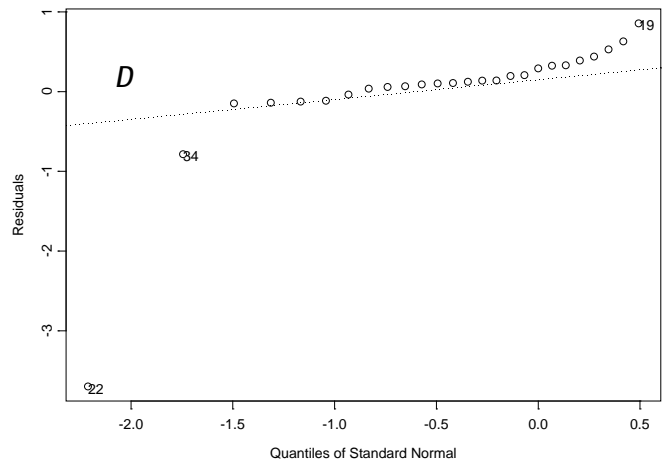
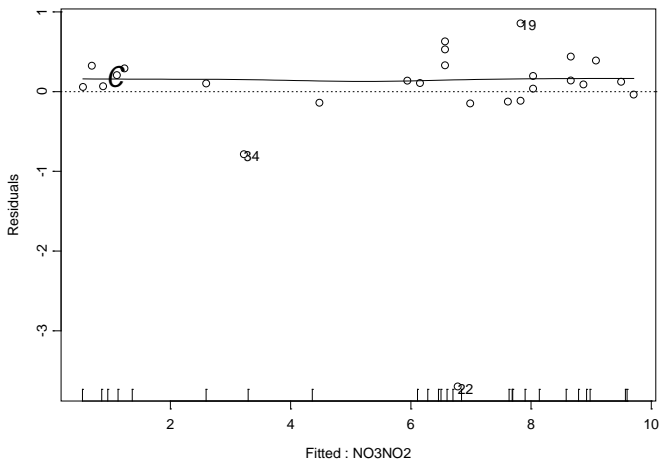
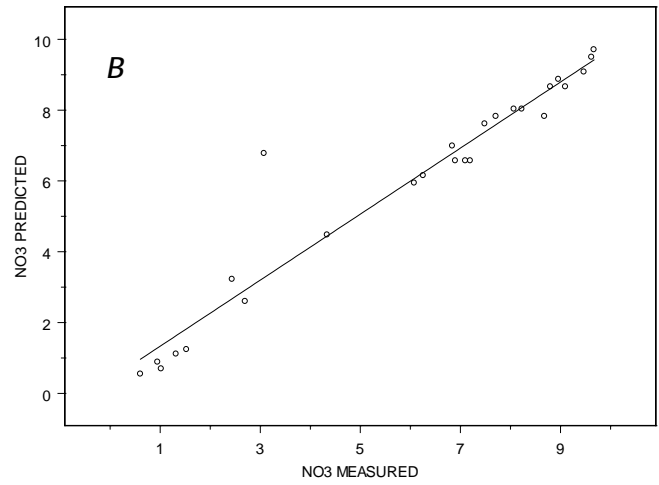
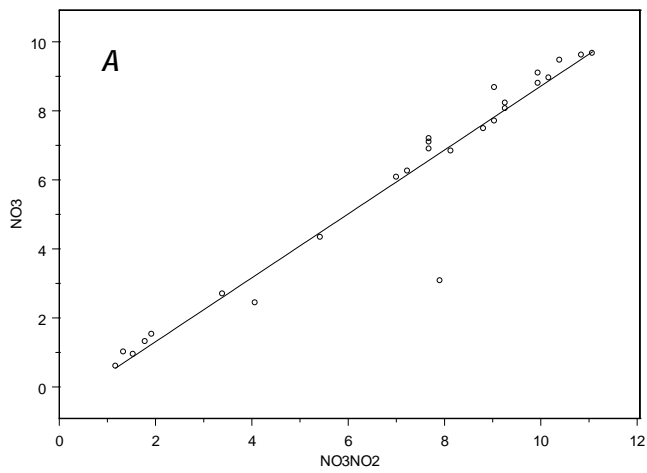


Figure 312. S+® output graphs from simple linear regression analysis showing A, nitrate (NO3NO2) versus nitrate (NO3) concentrations; B, measured versus predicted NO3 concentrations; C, computed NO3 concentrations versus regression residuals; and D, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), March 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = NO3 ~ NO3NO2, data = NO3.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-1.26	-0.1133	-0.04469	0.1745	0.776

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.2354	0.1570	-1.4989	0.1451
NO3NO2	0.9200	0.0246	37.4232	0.0000

Residual standard error: 0.3891 on 28 degrees of freedom

Multiple R-Squared: 0.9804 Adjusted R-squared: 0.9797

F-statistic: 1400 on 1 and 28 degrees of freedom, the p-value is 0

444 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
NO3NO2	-0.8918

Analysis of Variance Table

Response: NO3

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
NO3NO2	1	212.0222	212.0222	1400.499	0
Residuals	28	4.2389	0.1514		

Figure 313. S+® output of regression model development using nitrate (NO3NO2) as the explanatory variable for nitrate (NO3) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), April 2012 through May 2013.

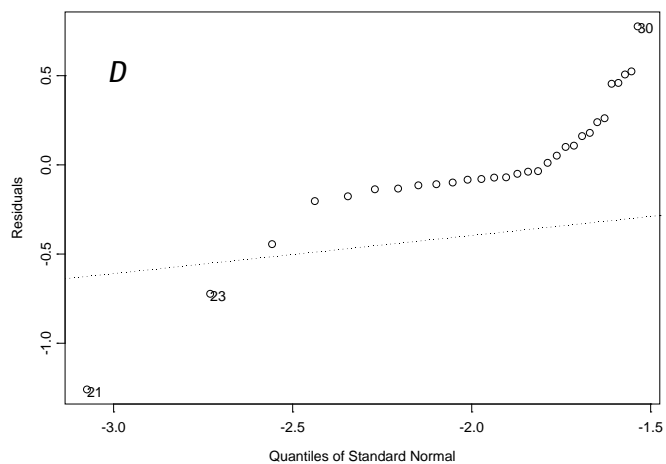
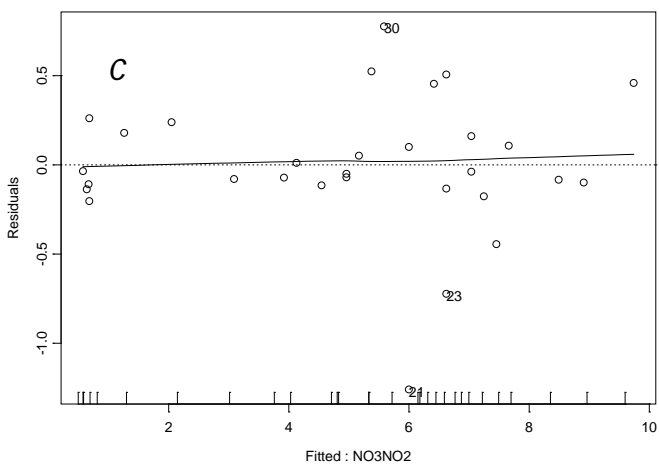
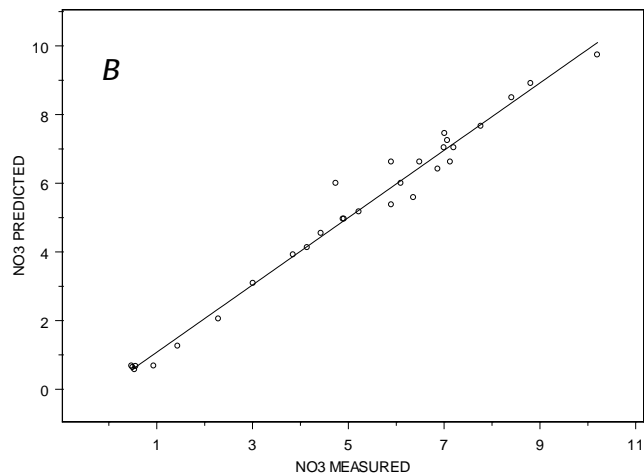
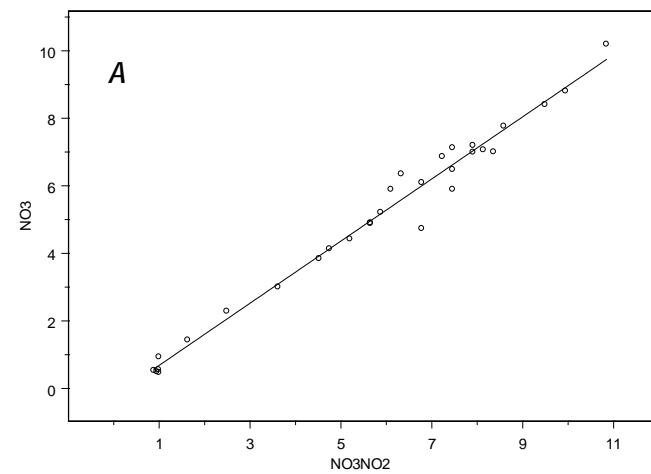


Figure 314. S+® output graphs from simple linear regression analysis showing *A*, nitrate (NO3NO2) versus nitrate (NO3) concentrations; *B*, measured versus predicted NO3 concentrations; *C*, computed NO3 concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), April 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = NO3 ~ NO3NO2, data = NO3.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.2226	-0.06072	-0.01829	0.0852	0.1918

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.1546	0.0328	-4.7150	0.0001
NO3NO2	0.7887	0.0326	24.2027	0.0000

Residual standard error: 0.1068 on 28 degrees of freedom

Multiple R-Squared: 0.9544 Adjusted R-squared: 0.9528

F-statistic: 585.8 on 1 and 28 degrees of freedom, the p-value is 0

6 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
NO3NO2	-0.804

Analysis of Variance Table

Response: NO3

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
NO3NO2	1	6.679133	6.679133	585.7704	0
Residuals	28	0.319265	0.011402		

Figure 315. S+® output of regression model development using nitrate (NO3NO2) as the explanatory variable for nitrate (NO3) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), March 2012 through May 2013.

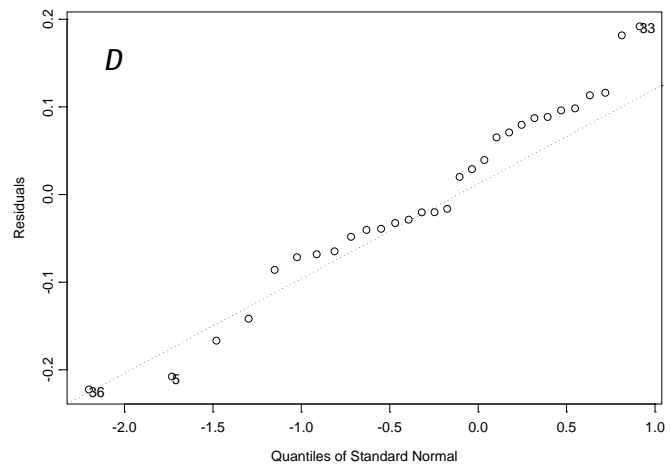
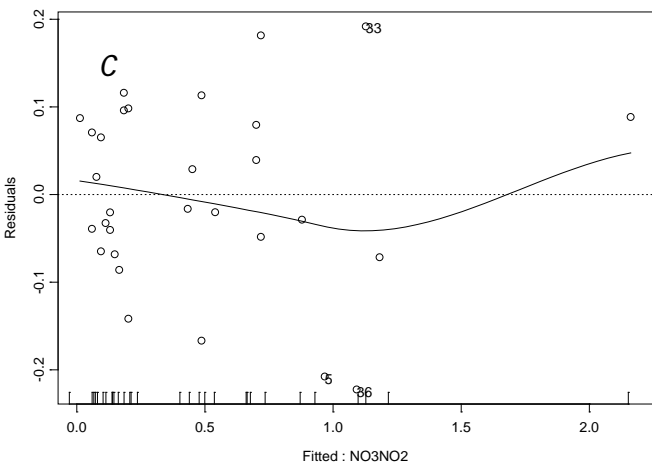
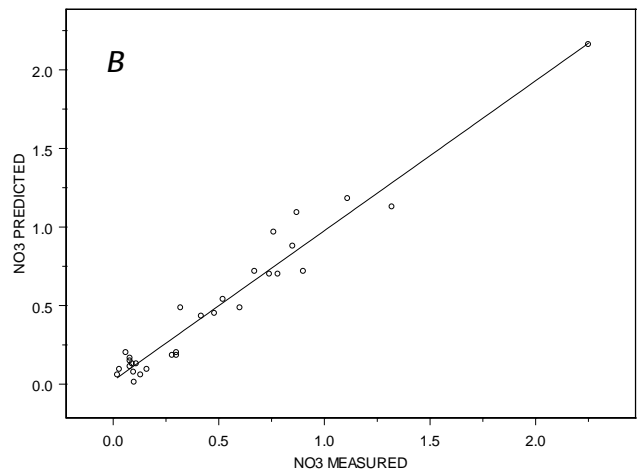
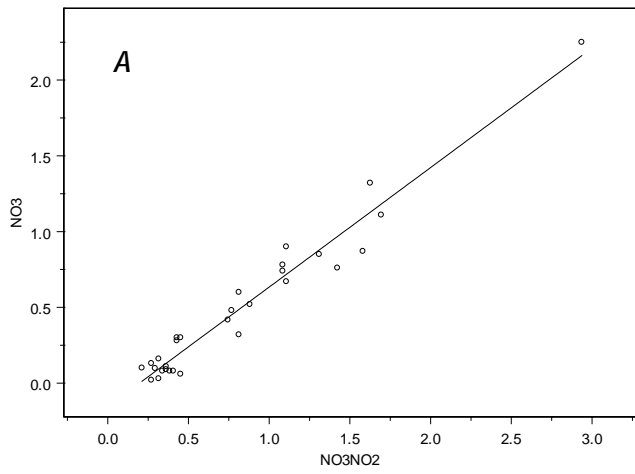


Figure 316. S+® output graphs from simple linear regression analysis showing *A*, nitrate (NO3NO2) versus nitrate (NO3) concentrations; *B*, measured versus predicted NO3 concentrations; *C*, computed NO3 concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), March 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGNO3 ~ LOGTBY, data = NO3.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.7717	-0.1064	-0.01484	0.1159	0.6607

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.9342	0.0432	21.6466	0.0000
LOGTBY	-0.3894	0.0259	-15.0409	0.0000

Residual standard error: 0.221 on 70 degrees of freedom

Multiple R-Squared: 0.7637 Adjusted R-squared: 0.7603

F-statistic: 226.2 on 1 and 70 degrees of freedom, the p-value is 0

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGTBY	-0.7974

Analysis of Variance Table

Response: LOGNO3

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	11.04804	11.04804	226.2297	0
Residuals	70	3.41848	0.04884		

Figure 317. S+® output of regression model development using turbidity (TBY) as the explanatory variable for nitrate (NO3) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

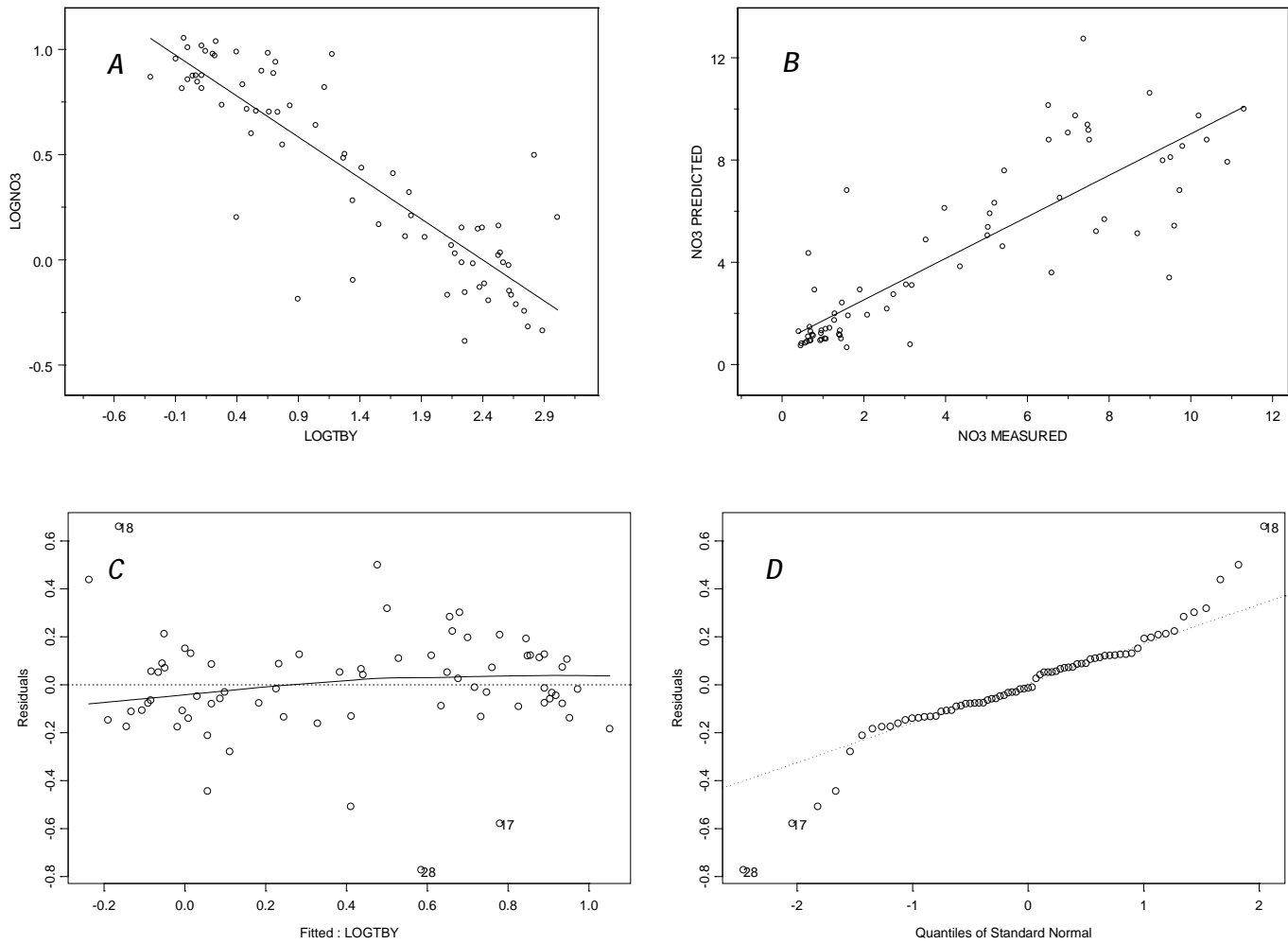


Figure 318. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed nitrate (NO_3) concentrations; *B*, measured versus predicted NO_3 concentrations; *C*, computed NO_3 concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGNO3 ~ LOGQ + LOGSC, data = NO3.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.5056	-0.116	-0.05464	0.1307	0.672

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-1.0935	0.5718	-1.9123	0.0651
LOGQ	-0.1673	0.0624	-2.6788	0.0117
LOGSC	0.6190	0.1607	3.8510	0.0006

Residual standard error: 0.2309 on 31 degrees of freedom

Multiple R-Squared: 0.6949 Adjusted R-squared: 0.6752

F-statistic: 35.31 on 2 and 31 degrees of freedom, the p-value is 1.019e-008

Correlation of Coefficients:

	(Intercept)	LOGQ
LOGQ	-0.8245	
LOGSC	-0.9772	0.6964

Analysis of Variance Table

Response: LOGNO3

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	2.973786	2.973786	55.78442	0.0000000205
LOGSC	1	0.790561	0.790561	14.82991	0.0005518030
Residuals	31	1.652565	0.053309		

Figure 319. S+® output of regression model development using streamflow (Q) and specific conductance (SC) as explanatory variables for nitrate (NO3) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), May 2004 through June 2010.

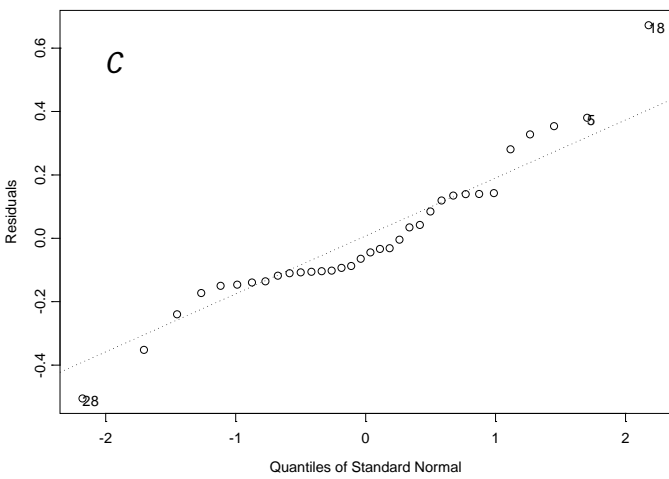
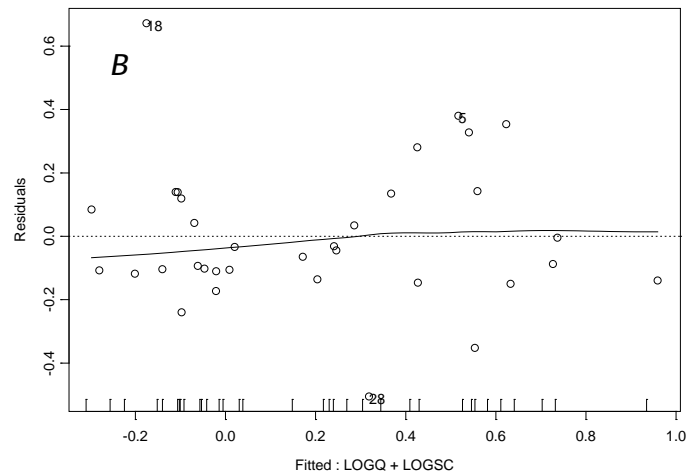
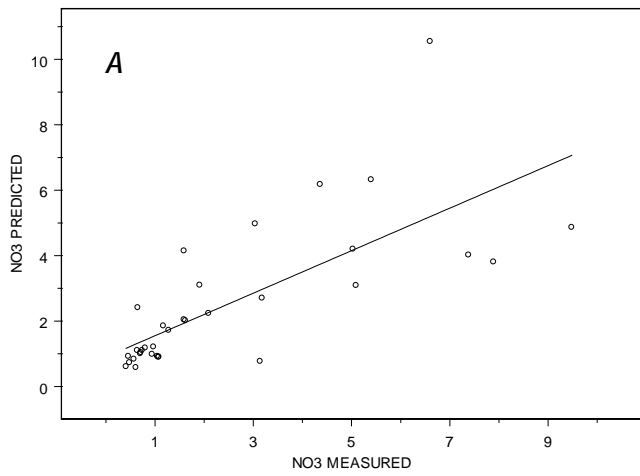


Figure 320. S+® output graphs from simple linear regression analysis using log-transformed streamflow (Q) and log-transformed specific conductance (SC) as explanatory variables for log-transformed nitrate (NO3) concentrations showing *A*, measured versus predicted NO3 concentrations; *B*, computed log-transformed NO3 concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), May 2004 through June 2010.

*** Linear Model ***

Call: lm(formula = NO3 ~ NO3NO2, data = NO3.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-1.534	-0.2467	0.00392	0.2567	1.801

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.5168	0.2738	-1.8872	0.0692
NO3NO2	0.9254	0.0337	27.4228	0.0000

Residual standard error: 0.6577 on 29 degrees of freedom

Multiple R-Squared: 0.9629 Adjusted R-squared: 0.9616

F-statistic: 752 on 1 and 29 degrees of freedom, the p-value is 0

8 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
NO3NO2	-0.9022

Analysis of Variance Table

Response: NO3

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
NO3NO2	1	325.2989	325.2989	752.012	0
Residuals	29	12.5446	0.4326		

Figure 321. S+® output of regression model development using nitrate (NO3NO2) as the explanatory variable for nitrate (NO3) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), May 2012 through May 2013.

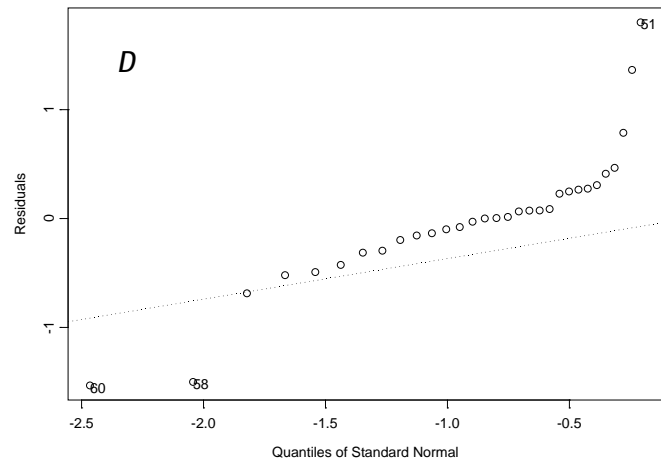
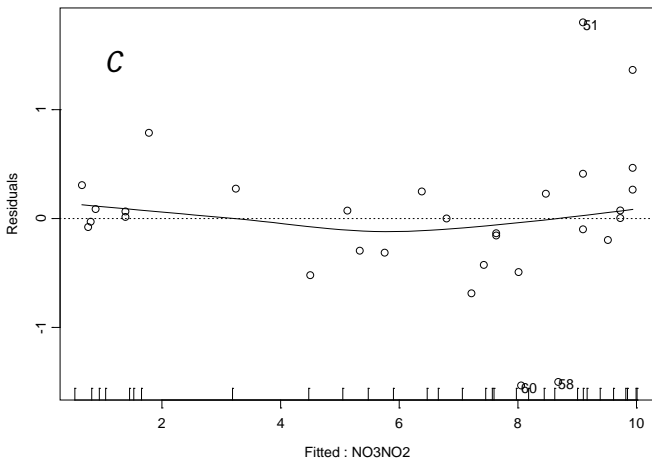
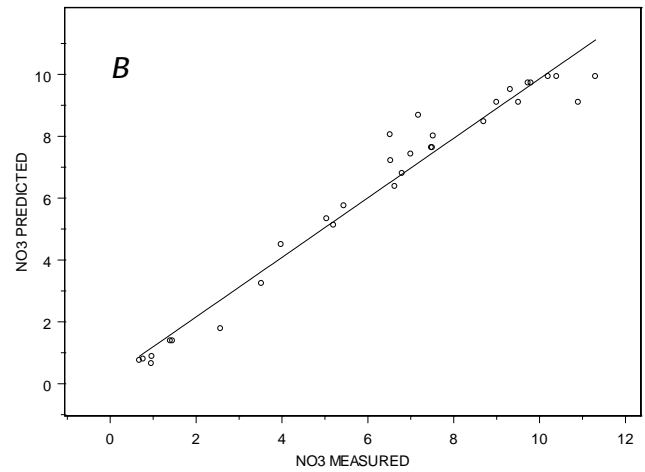
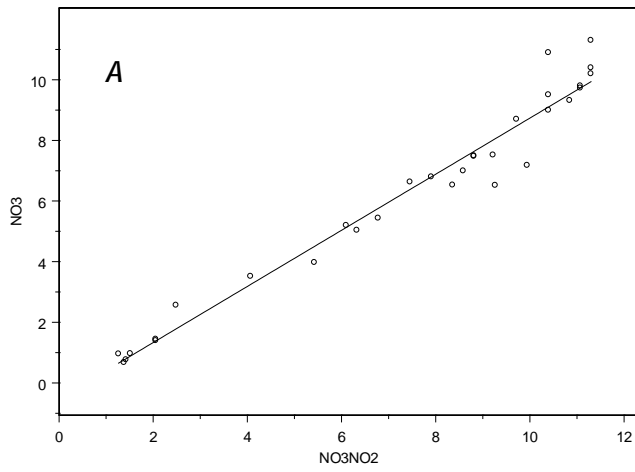


Figure 322. S+® output graphs from simple linear regression analysis showing *A*, nitrate (NO3NO2) versus nitrate (NO3) concentrations; *B*, measured versus predicted NO3 concentrations; *C*, computed NO3 concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), May 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = NO2 ~ NO3NO2, data = NO2.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.02539	-0.009621	-0.004658	0.01612	0.02212

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.0042	0.0082	0.5092	0.6192
NO3NO2	0.0302	0.0083	3.6375	0.0030

Residual standard error: 0.01605 on 13 degrees of freedom

Multiple R-Squared: 0.5044 Adjusted R-squared: 0.4663

F-statistic: 13.23 on 1 and 13 degrees of freedom, the p-value is 0.003008

6 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)
NO3NO2	-0.8626

Analysis of Variance Table

Response: NO2

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
NO3NO2	1	0.003406686	0.003406686	13.23164	0.003008122
Residuals	13	0.003347048	0.000257465		

Figure 323. S+® output of regression model development using nitrate (NO3NO2) as the explanatory variable for nitrite (NO2) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), March 2012 through May 2013.

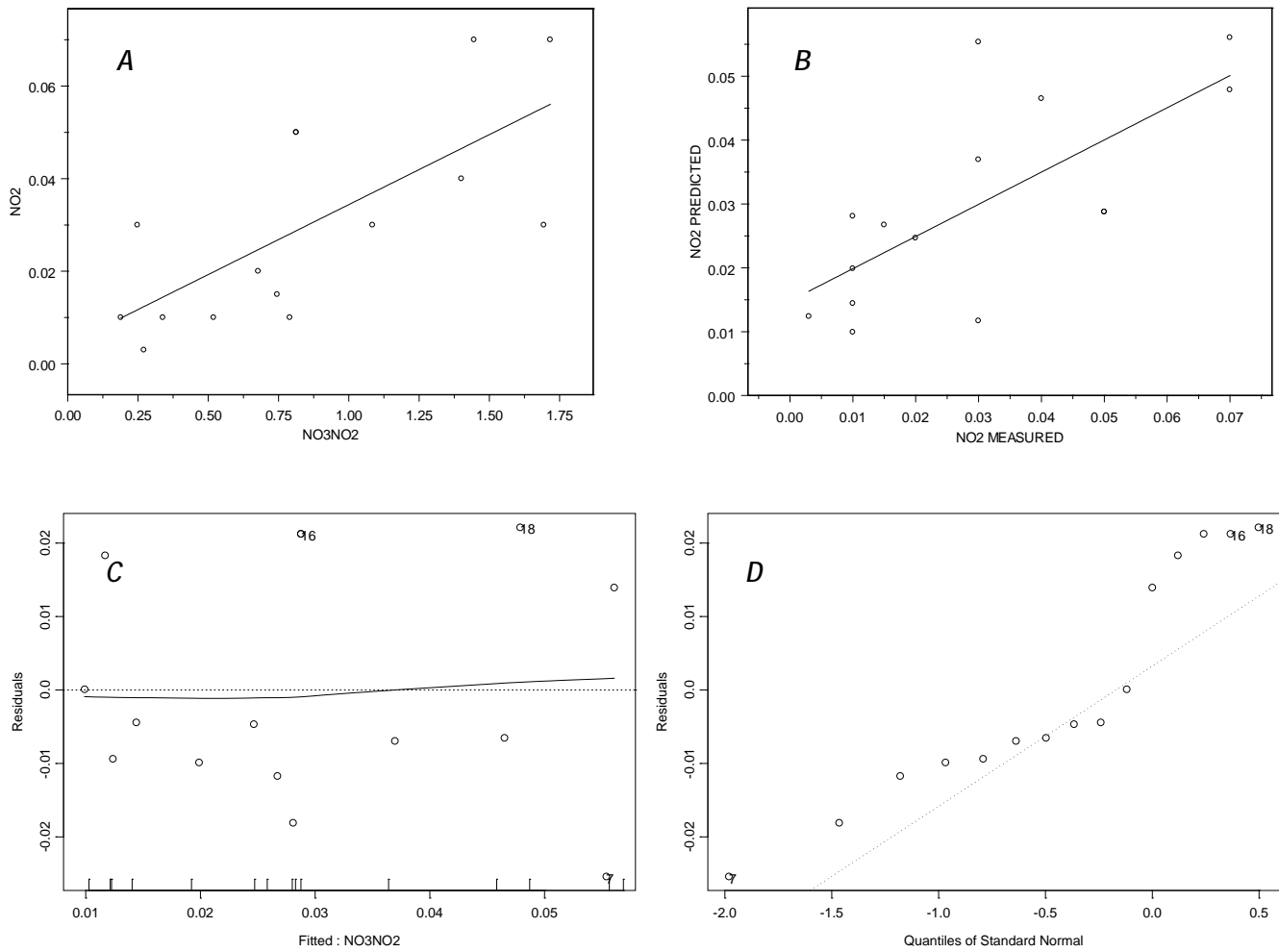


Figure 324. S+® output graphs from simple linear regression analysis showing *A*, nitrate (NO₃NO₂) versus nitrite (NO₂) concentrations; *B*, measured versus predicted NO₂ concentrations; *C*, computed NO₂ concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), March 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGNO2 ~ LOGNO3NO2, data = NO2.COLLSPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.305	-0.1573	0.02777	0.1707	0.2998

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-1.6704	0.1165	-14.3380	0.0000
LOGNO3NO2	0.7378	0.1800	4.0982	0.0027

Residual standard error: 0.2253 on 9 degrees of freedom

Multiple R-Squared: 0.6511 Adjusted R-squared: 0.6123

F-statistic: 16.79 on 1 and 9 degrees of freedom, the p-value is 0.002684

7 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)
LOGNO3NO2	-0.8124

Analysis of Variance Table

Response: LOGNO2

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGNO3NO2	1	0.8524468	0.8524468	16.79491	0.00268408
Residuals	9	0.4568062	0.0507562		

Figure 325. S+® output of regression model development using nitrate (NO3NO2) as the explanatory variable for nitrite (NO2) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), March 2012 through May 2013.

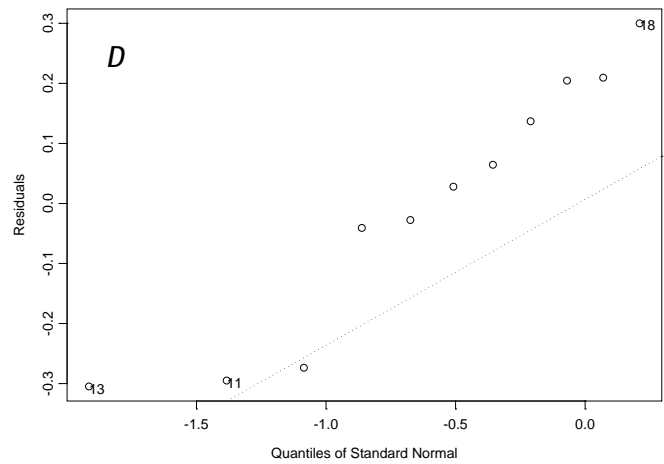
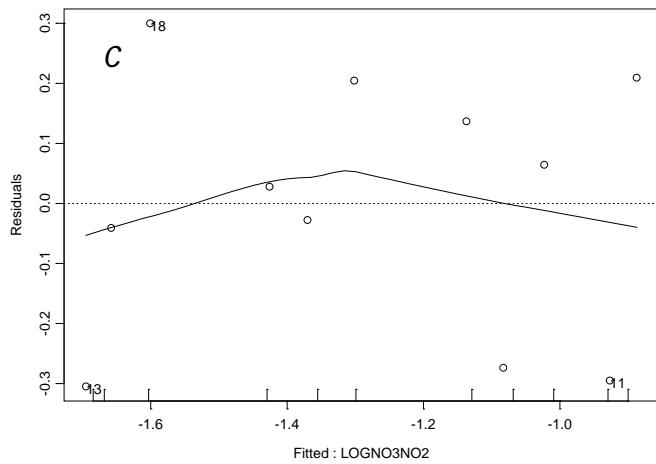
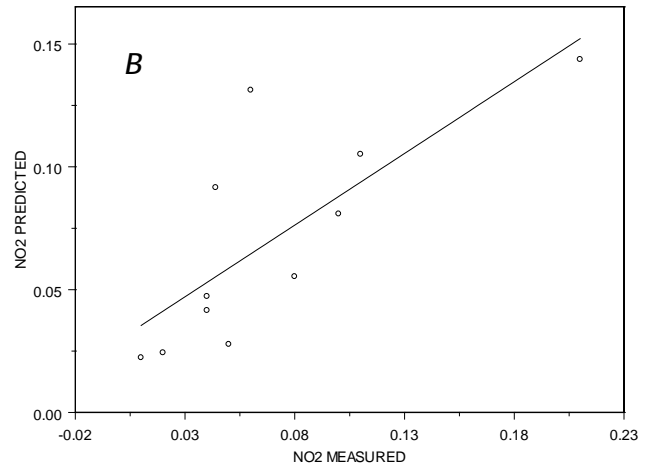
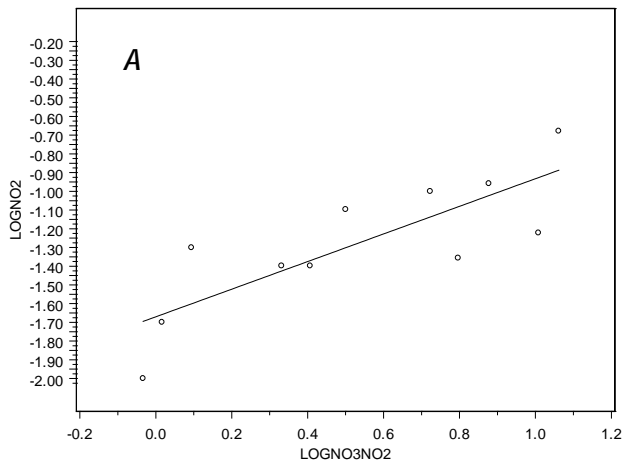


Figure 326. S+® output graphs from simple linear regression analysis showing *A*, log-transformed nitrate (NO₃NO₂) versus log-transformed nitrite (NO₂) concentrations; *B*, measured versus predicted NO₂ concentrations; *C*, computed log-transformed NO₂ concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), March 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGNO2 ~ TBY + LOGNO3NO2, data = NO2.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.2403	-0.1492	-0.05038	0.1286	0.3316

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-1.3494	0.2267	-5.9527	0.0003
TBY	-0.0010	0.0005	-2.0329	0.0765
LOGNO3NO2	0.3075	0.2893	1.0627	0.3189

Residual standard error: 0.2175 on 8 degrees of freedom

Multiple R-Squared: 0.694 Adjusted R-squared: 0.6175

F-statistic: 9.071 on 2 and 8 degrees of freedom, the p-value is 0.008769
8 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	TBY
TBY	-0.8148	
LOGNO3NO2	-0.9387	0.7319

Analysis of Variance Table

Response: LOGNO2

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	0.8048696	0.8048696	17.01325	0.0033226
LOGNO3NO2	1	0.0534300	0.0534300	1.12940	0.3189283
Residuals	8	0.3784673	0.0473084		

Figure 327. S+® output of regression model development using turbidity (TBY) and nitrate (NO3NO2) as explanatory variables for nitrite (NO2) for Indian Creek at Overland Park, KS (Marty, site 06893300), March 2012 through April 2013.

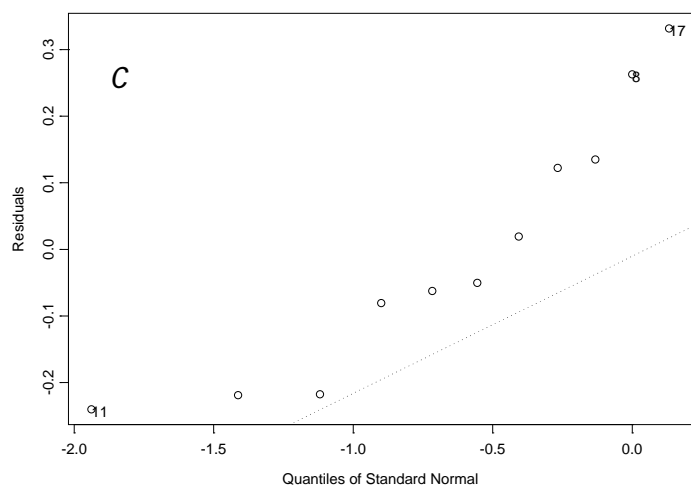
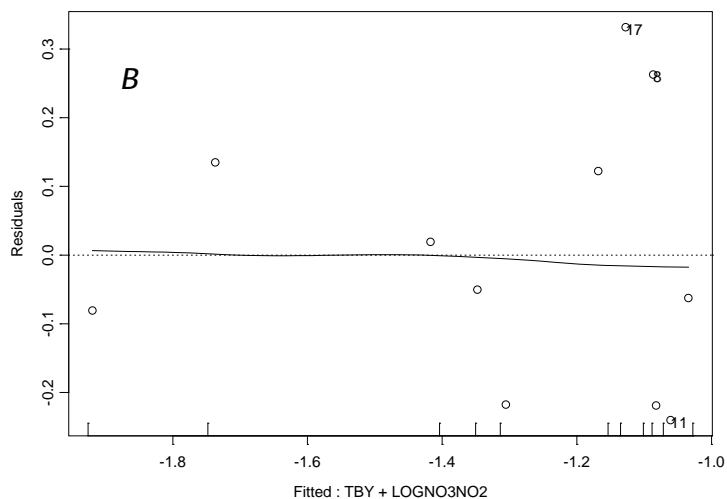
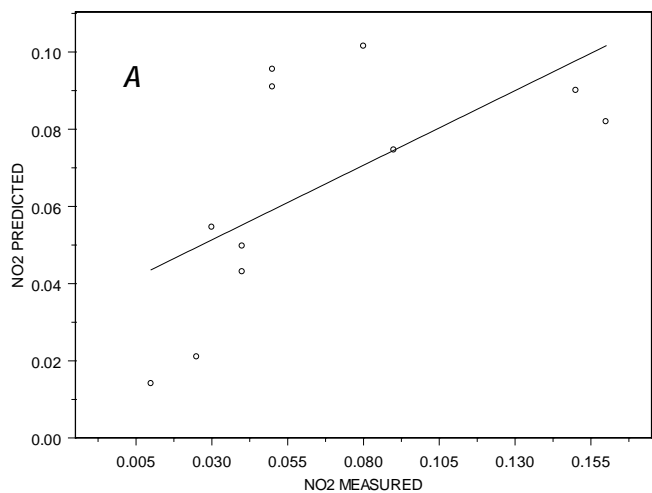


Figure 328. S+® output graphs from simple linear regression analysis using turbidity (TBY) and log-transformed nitrate (NO₃NO₂) as explanatory variables for log-transformed nitrite (NO₂) concentrations showing *A*, measured versus predicted NO₂ concentrations; *B*, computed log-transformed NO₂ concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), March 2012 through April 2013.

*** Linear Model ***

Call: lm(formula = LOGNO2 ~ SIN + COS + LOGNO3NO2, data = NO2.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.5198	-0.1358	0.08381	0.2425	0.3033

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-1.7408	0.1303	-13.3588	0.0000
SIN	0.4592	0.1404	3.2699	0.0097
COS	-0.0224	0.1196	-0.1875	0.8554
LOGNO3NO2	0.3778	0.2128	1.7755	0.1095

Residual standard error: 0.2922 on 9 degrees of freedom

Multiple R-Squared: 0.6144 Adjusted R-squared: 0.4858

F-statistic: 4.779 on 3 and 9 degrees of freedom, the p-value is 0.02937

444 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	SIN	COS
SIN	-0.4191		
COS	-0.0658	-0.0975	
LOGNO3NO2	-0.6454	-0.0299	0.2602

Analysis of Variance Table

Response: LOGNO2

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SIN	1	0.9165881	0.9165881	10.73346	0.0095873
COS	1	0.0386382	0.0386382	0.45246	0.5180639
LOGNO3NO2	1	0.2692042	0.2692042	3.15244	0.1095496
Residuals	9	0.7685587	0.0853954		

Figure 329. S+® output of regression model development using season (SIN and COS) and nitrate (NO3NO2) as explanatory variables for nitrite (NO2) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), April 2012 through May 2013.

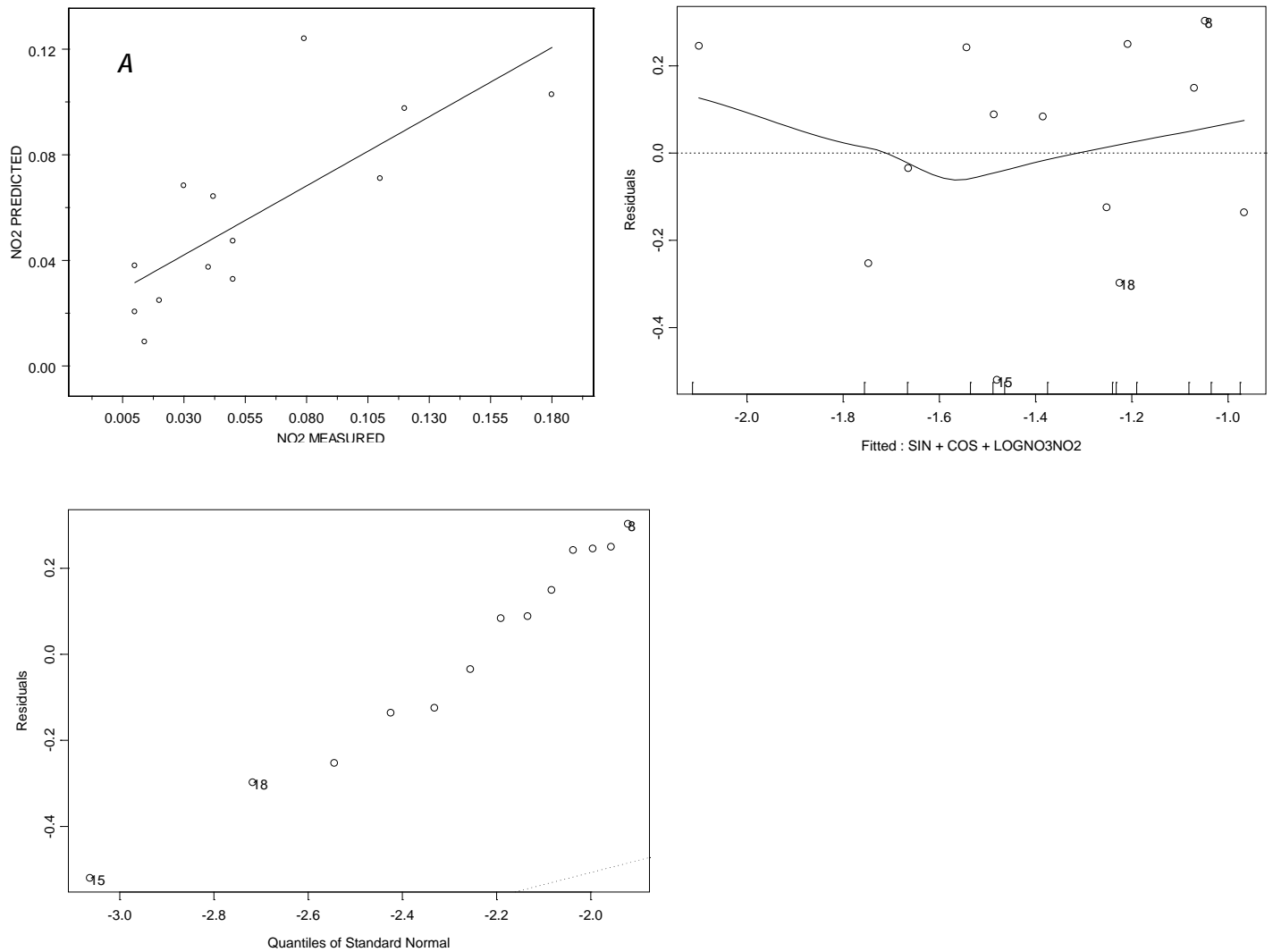


Figure 330. S+® output graphs from simple linear regression analysis using season (SIN and COS) and log-transformed nitrate (NO₃NO₂) as explanatory variables for log-transformed nitrite (NO₂) concentrations showing A, measured versus predicted NO₂ concentrations; B, computed log-transformed NO₂ concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), April 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = NO2 ~ LOGTBY + LOGNO3NO2, data = NO2.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.01706	-0.005151	0.0005647	0.005737	0.01152

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.0410	0.0051	8.1030	0.0000
LOGTBY	-0.0131	0.0037	-3.5704	0.0051
LOGNO3NO2	0.0539	0.0114	4.7398	0.0008

Residual standard error: 0.009911 on 10 degrees of freedom

Multiple R-Squared: 0.7063 Adjusted R-squared: 0.6475

F-statistic: 12.02 on 2 and 10 degrees of freedom, the p-value is 0.002186

223 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	LOGTBY
LOGTBY	-0.8179	
LOGNO3NO2	0.5937	-0.5282

Analysis of Variance Table

Response: NO2

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	0.000155093	0.000155093	1.57900	0.2374650
LOGNO3NO2	1	0.002206680	0.002206680	22.46608	0.0007923
Residuals	10	0.000982227	0.000098223		

Figure 331. S+® output of regression model development using turbidity (TBY) and nitrate (NO3NO2) as explanatory variables for nitrite (NO2) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), March 2012 through May 2013.

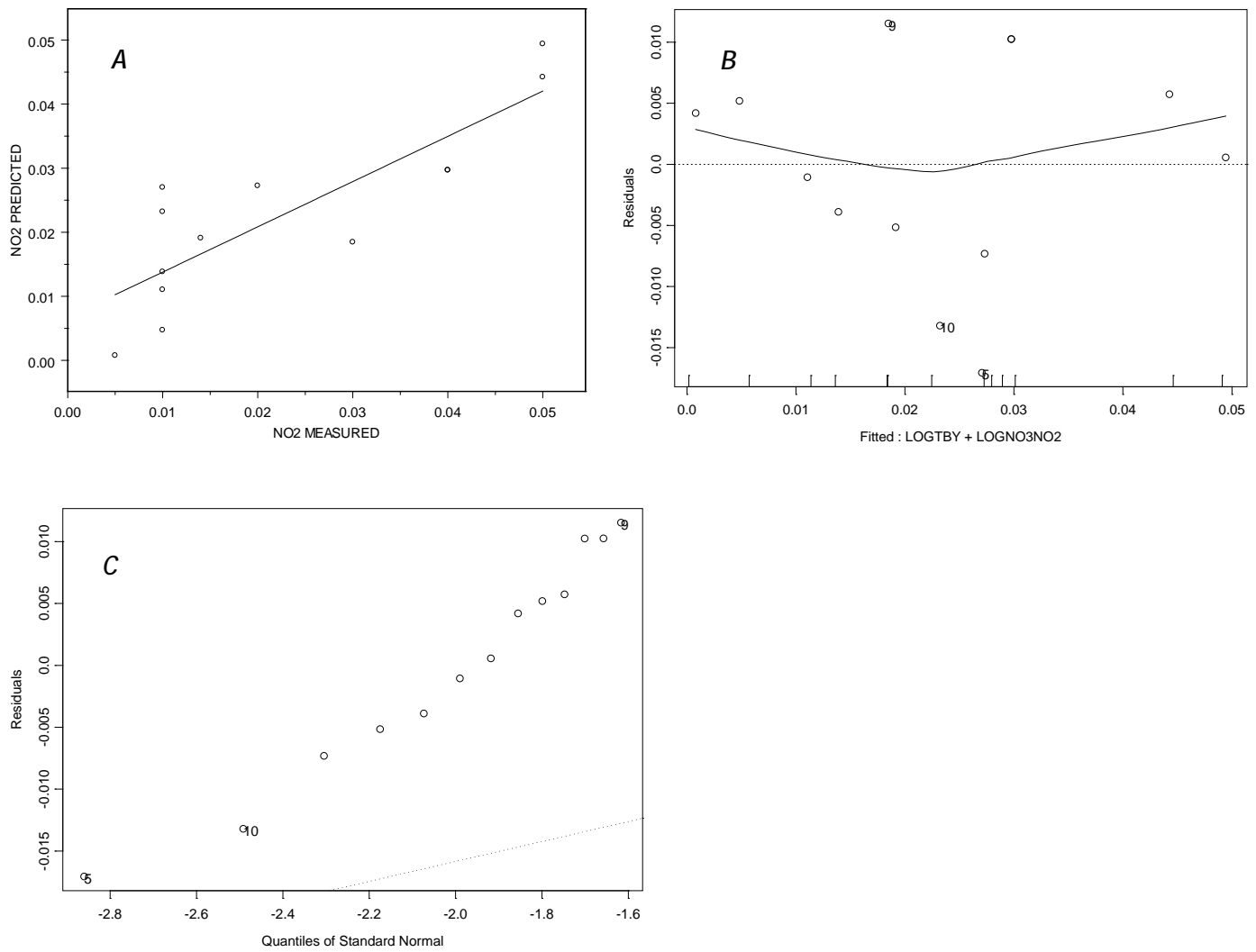


Figure 332. S+® output graphs from simple linear regression analysis using log-transformed turbidity (TBY) and log-transformed nitrate (NO₃NO₂) as explanatory variables for nitrite (NO₂) concentrations showing *A*, measured versus predicted NO₂ concentrations; *B*, computed NO₂ concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), March 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGNO2 ~ LOGQ, data = NO2.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.6192	-0.2078	0.01074	0.1792	0.8078

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.2423	0.1259	-1.9245	0.0597
LOGQ	-0.3701	0.0480	-7.7158	0.0000

Residual standard error: 0.298 on 53 degrees of freedom

Multiple R-Squared: 0.529 Adjusted R-squared: 0.5201

F-statistic: 59.53 on 1 and 53 degrees of freedom, the p-value is 3.189e-010

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9477

Analysis of Variance Table

Response: LOGNO2

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	5.288012	5.288012	59.53334	3.188582e-010
Residuals	53	4.707693	0.088824		

Figure 333. S+® output of regression model development using streamflow (Q) as the explanatory variable for nitrite (NO2) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

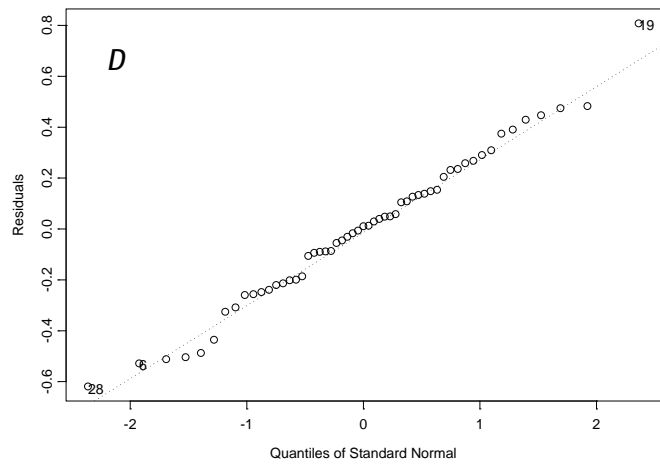
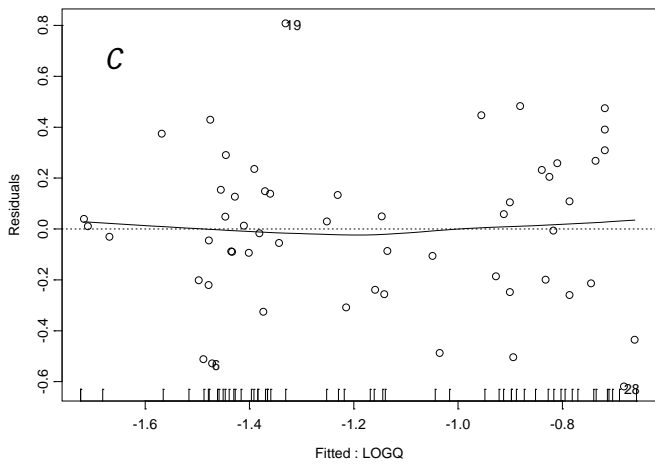
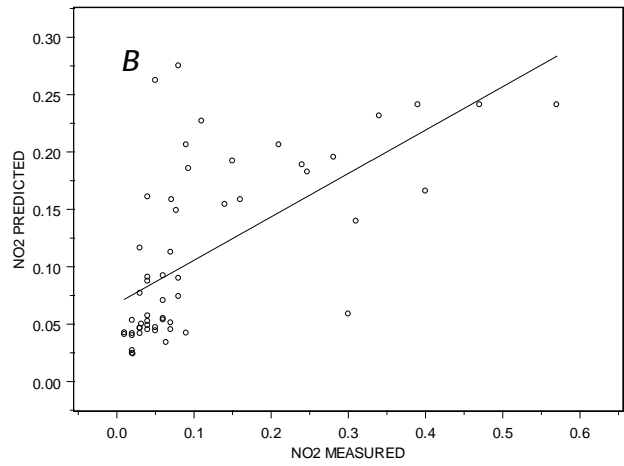
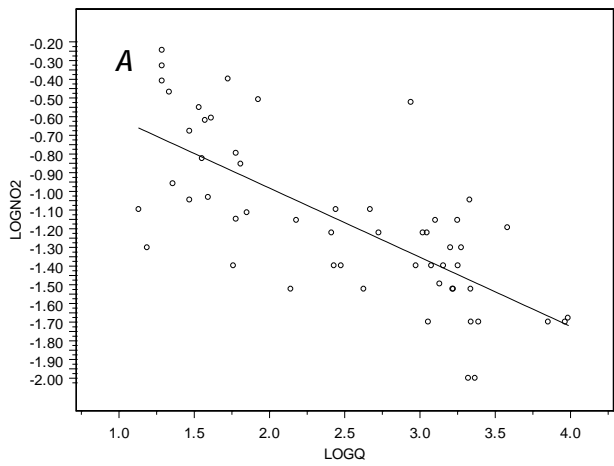


Figure 334. S+® output graphs from simple linear regression analysis showing A, log-transformed streamflow (Q) versus log-transformed nitrite (NO2) concentrations; B, measured versus predicted NO2 concentrations; C, computed NO2 concentrations versus regression residuals; and D, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGNO2 ~ LOGQ, data = NO2.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.5678	-0.1521	-0.01052	0.1532	0.7875

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.3697	0.1664	-2.2215	0.0335
LOGQ	-0.3199	0.0614	-5.2069	0.0000

Residual standard error: 0.3165 on 32 degrees of freedom

Multiple R-Squared: 0.4587 Adjusted R-squared: 0.4417

F-statistic: 27.11 on 1 and 32 degrees of freedom, the p-value is 0.00001089

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9453

Analysis of Variance Table

Response: LOGNO2

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	2.715660	2.715660	27.11177	0.00001088523
Residuals	32	3.205291	0.100165		

Figure 335. S+® output of regression model development using streamflow (Q) as the explanatory variable for nitrite (NO2) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

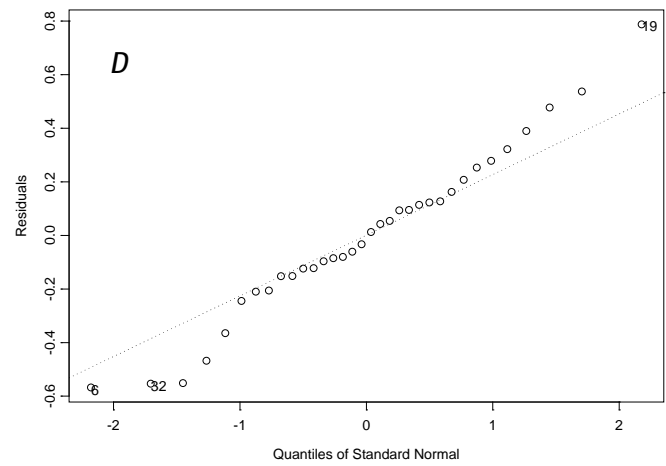
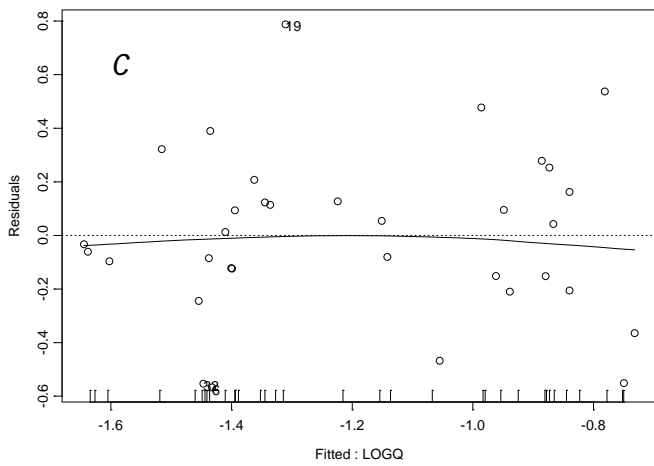
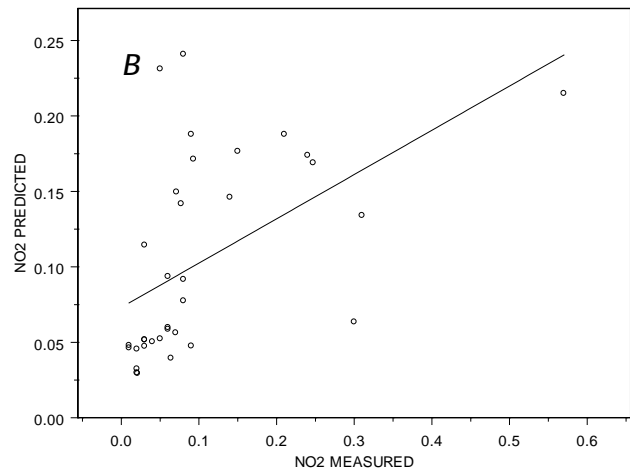
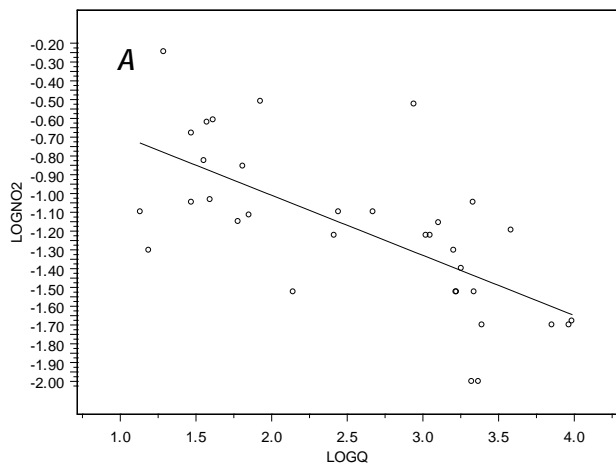


Figure 336. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus log-transformed nitrite (NO2) concentrations; *B*, measured versus predicted NO2 concentrations; *C*, computed log-transformed NO2 concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = NO2 ~ NO3NO2, data = NO2.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1059	-0.02469	-0.006169	0.008802	0.1582

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.0459	0.0294	-1.5620	0.1466
NO3NO2	0.0472	0.0055	8.5515	0.0000

Residual standard error: 0.06339 on 11 degrees of freedom

Multiple R-Squared: 0.8692 Adjusted R-squared: 0.8574

F-statistic: 73.13 on 1 and 11 degrees of freedom, the p-value is 3.447e-006

8 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
NO3NO2	-0.8015

Analysis of Variance Table

Response: NO2

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
NO3NO2	1	0.2938706	0.2938706	73.12775	3.446681e-006
Residuals	11	0.0442045	0.0040186		

Figure 337. S+® output of regression model development using nitrate (NO3NO2) as the explanatory variable for nitrite (NO2) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), May 2012 through May 2013.

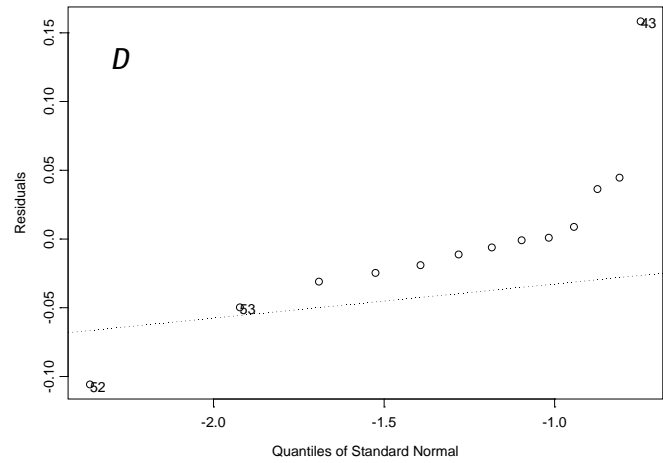
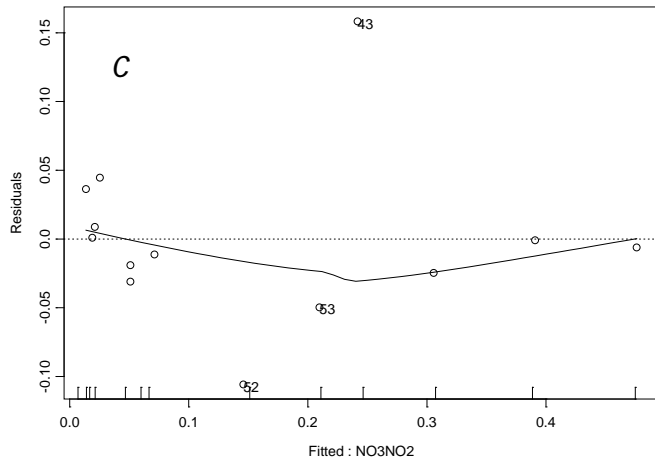
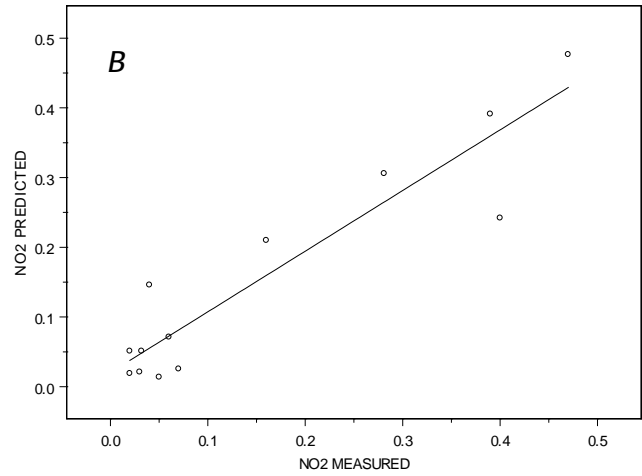
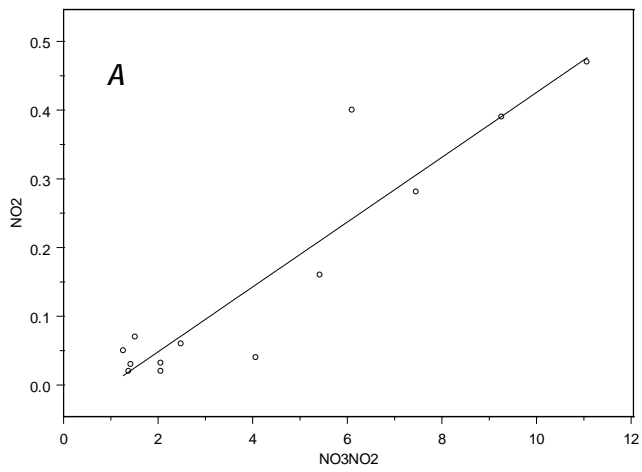


Figure 338. S+® output graphs from simple linear regression analysis showing *A*, nitrate (NO₃NO₂) versus nitrite (NO₂) concentrations; *B*, measured versus predicted NO₂ concentrations; *C*, computed NO₂ concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), May 2012 through May 2013.

*** Linear Model ***

Call: lm(formula = TP ~ TBY, data = TP.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.2258	-0.0405	-0.008283	0.07146	0.2352

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.0595	0.0332	1.7945	0.0896
TBY	0.0020	0.0002	11.4820	0.0000

Residual standard error: 0.1199 on 18 degrees of freedom

Multiple R-Squared: 0.8799 Adjusted R-squared: 0.8732

F-statistic: 131.8 on 1 and 18 degrees of freedom, the p-value is 1.023e-009

Correlation of Coefficients:

(Intercept)
TBY -0.5893

Analysis of Variance Table

Response: TP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	1.894296	1.894296	131.8363	1.023399e-009
Residuals	18	0.258634	0.014369		

Figure 339. S+® output of regression model development using turbidity (TBY) as the explanatory variable for total phosphorus (TP) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), June 2011 through May 2013.

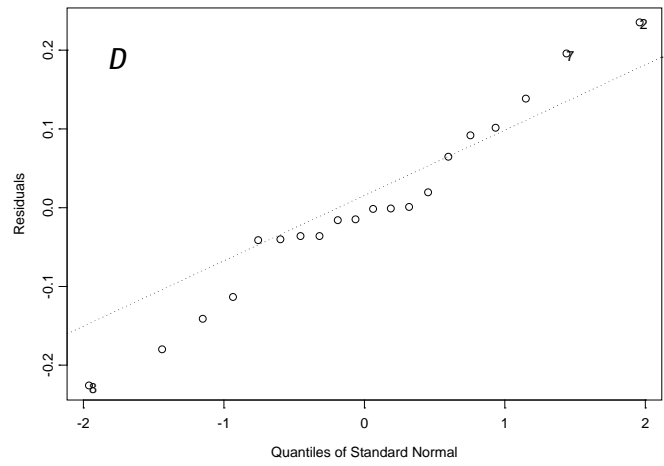
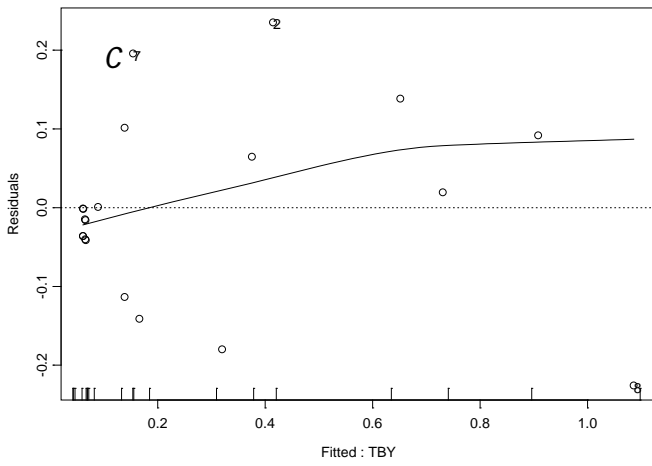
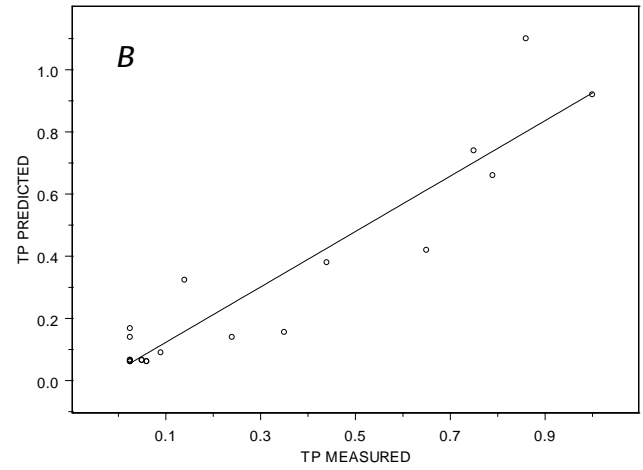
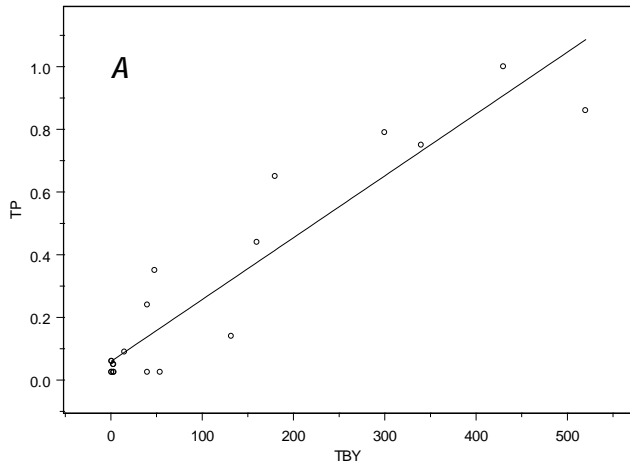


Figure 340. S+® output graphs from simple linear regression analysis showing *A*, turbidity (TBY) versus total phosphorus (TP) concentrations; *B*, measured versus predicted TP concentrations; *C*, computed TP concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGTP ~ LOGQ, data = TP.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-1.033	-0.05316	0.01372	0.1961	0.4607

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-1.5212	0.1221	-12.4609	0.0000
LOGQ	0.4483	0.0679	6.6042	0.0000

Residual standard error: 0.3453 on 17 degrees of freedom

Multiple R-Squared: 0.7195 Adjusted R-squared: 0.703

F-statistic: 43.61 on 1 and 17 degrees of freedom, the p-value is 4.469e-006

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.7609

Analysis of Variance Table

Response: LOGTP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	5.200410	5.200410	43.61485	4.46853e-006
Residuals	17	2.026993	0.119235		

Figure 341. S+® output of regression model development using streamflow (Q) as the explanatory variable for total phosphorus (TP) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

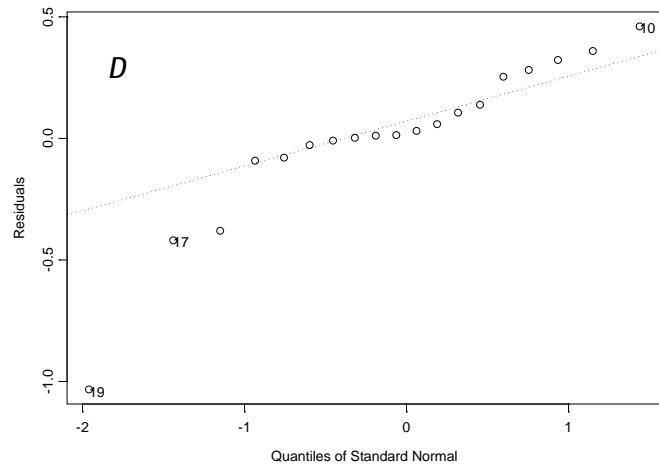
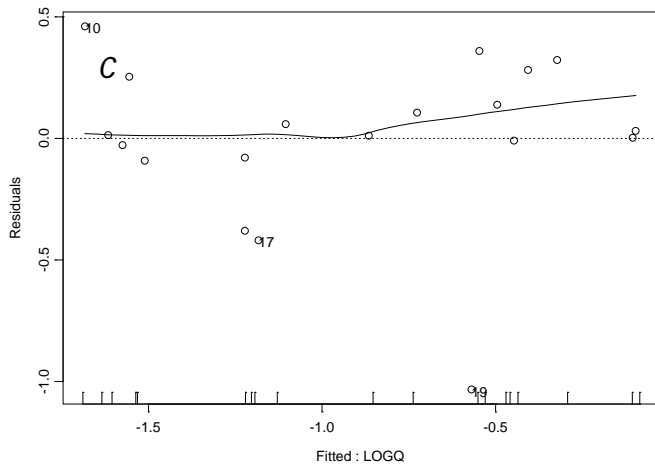
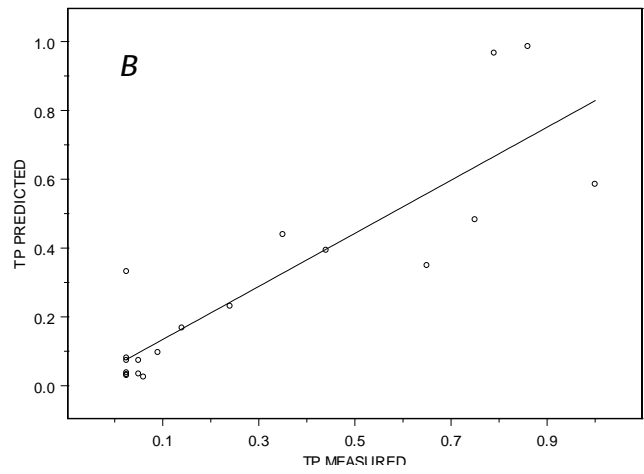
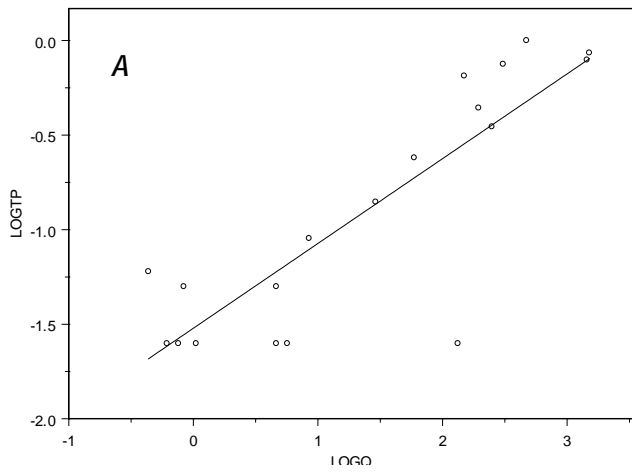


Figure 342. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus log-transformed total phosphorus (TP) concentrations; *B*, measured versus predicted TP concentrations; *C*, computed log-transformed TP concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGTP ~ LOGTBY, data = TP.COLLSPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.4862	-0.09861	-0.05487	0.1644	0.3311

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.4346	0.1665	-2.6106	0.0282
LOGTBY	0.1916	0.0787	2.4348	0.0377

Residual standard error: 0.2495 on 9 degrees of freedom

Multiple R-Squared: 0.3971 Adjusted R-squared: 0.3301

F-statistic: 5.928 on 1 and 9 degrees of freedom, the p-value is 0.03768

Correlation of Coefficients:

(Intercept)	
LOGTBY	-0.8921

Analysis of Variance Table

Response: LOGTP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	0.3691670	0.3691670	5.928343	0.03768352
Residuals	9	0.5604437	0.0622715		

Figure 343. S+® output of regression model development using turbidity (TBY) as the explanatory variable for total phosphorus (TP) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), August 2011 through May 2013.

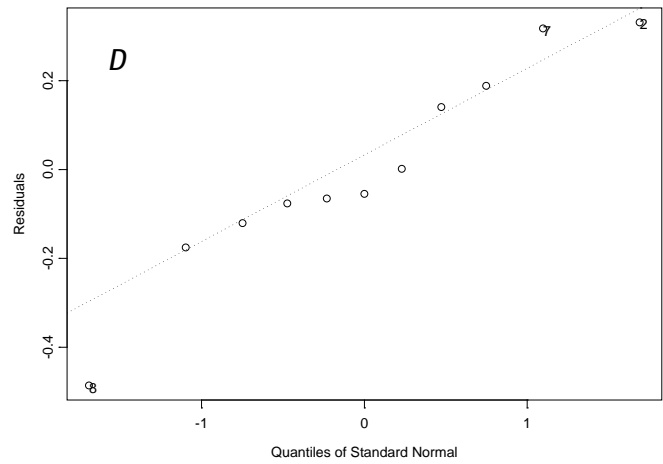
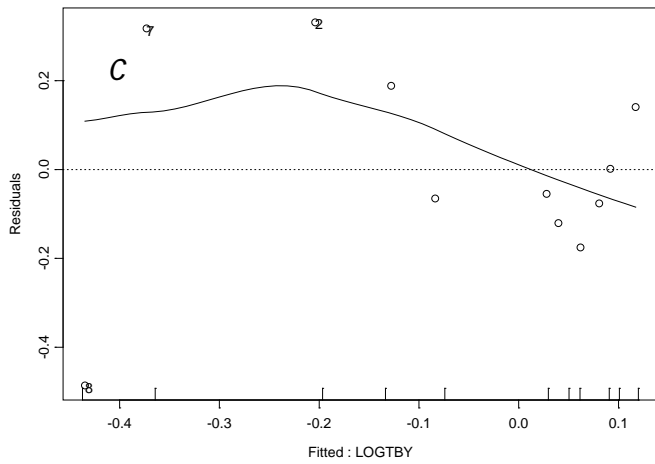
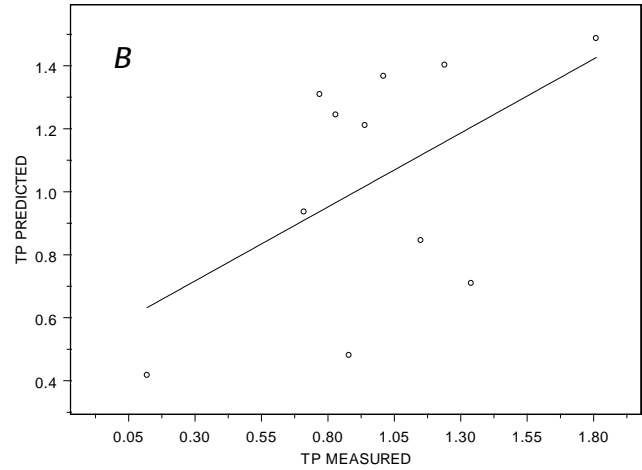
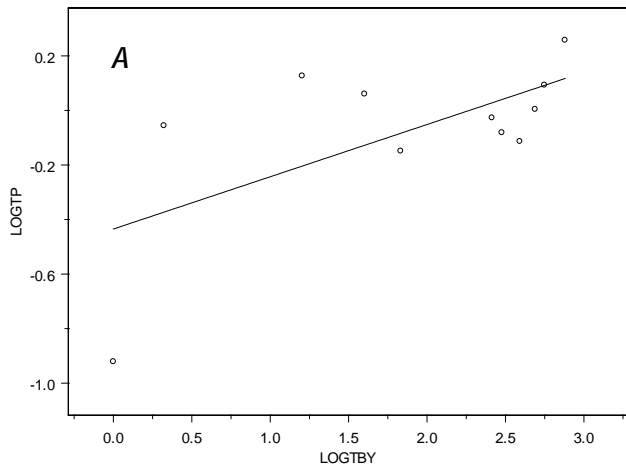


Figure 344. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed total phosphorus (TP) concentrations; *B*, measured versus predicted TP concentrations; *C*, computed log-transformed TP concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), August 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGTP ~ SIN + COS + LOGQ, data = TP.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.4018	-0.1199	0.02139	0.1313	0.2699

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-0.3309	0.1896	-1.7453	0.1149
SIN	0.1664	0.1073	1.5509	0.1553
COS	0.2583	0.0899	2.8741	0.0184
LOGQ	0.0886	0.0884	1.0027	0.3422

Residual standard error: 0.2309 on 9 degrees of freedom

Multiple R-squared: 0.6635 Adjusted R-squared: 0.5513

F-statistic: 5.915 on 3 and 9 degrees of freedom, the p-value is 0.01637

Correlation of Coefficients:

	(Intercept)	SIN	COS
SIN	0.3061		
COS	0.0711	-0.1459	
LOGQ	-0.9383	-0.3812	-0.1149

Analysis of Variance Table

Response: LOGTP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SIN	1	0.4095493	0.4095493	7.684903	0.0216766
COS	1	0.4825890	0.4825890	9.055441	0.0147343
LOGQ	1	0.0535791	0.0535791	1.005374	0.3422084
Residuals	9	0.4796344	0.0532927		

Figure 345. S+® output of regression model development using season (SIN and COS) and streamflow (Q) as explanatory variables for total phosphorus (TP) for Indian Creek at Overland Park, KS (Marty, site 06893300), August 2011 through May 2013.

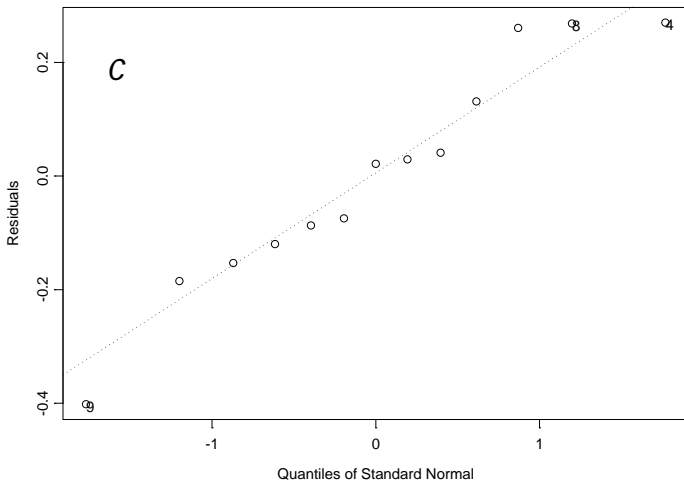
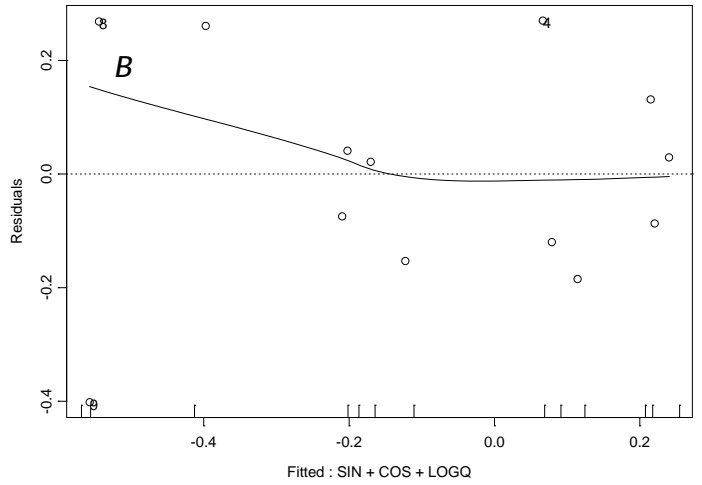
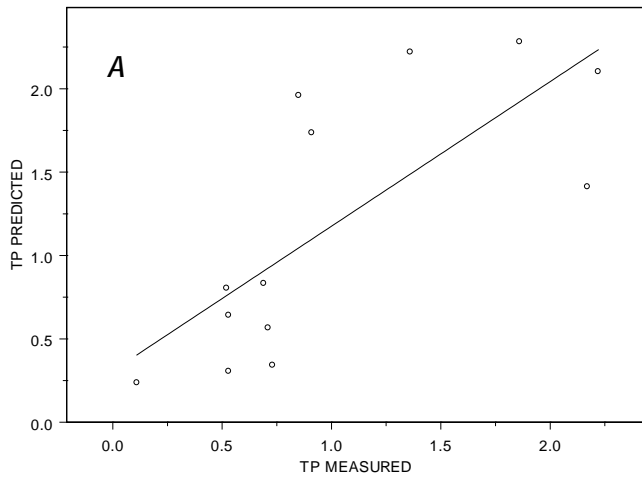


Figure 346. S+® output graphs from simple linear regression analysis using season (SIN and COS) and log-transformed streamflow (Q) as explanatory variables for log-transformed total phosphorus (TP) concentrations showing A, measured versus predicted TP concentrations; B, computed log-transformed TP concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), August 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = TP ~ TBY, data = TP.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.089	-0.01462	-0.004673	0.01521	0.128

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.0376	0.0137	2.7462	0.0150
TBY	0.0022	0.0001	21.7215	0.0000

Residual standard error: 0.04892 on 15 degrees of freedom

Multiple R-Squared: 0.9692 Adjusted R-squared: 0.9671

F-statistic: 471.8 on 1 and 15 degrees of freedom, the p-value is 9.507e-013

Correlation of Coefficients:

(Intercept)
TBY -0.4987

Analysis of Variance Table

Response: TP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	1.129164	1.129164	471.823	9.50684e-013
Residuals	15	0.035898	0.002393		

Figure 347. S+® output of regression model development using turbidity (TBY) as the explanatory variable for total phosphorus (TP) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

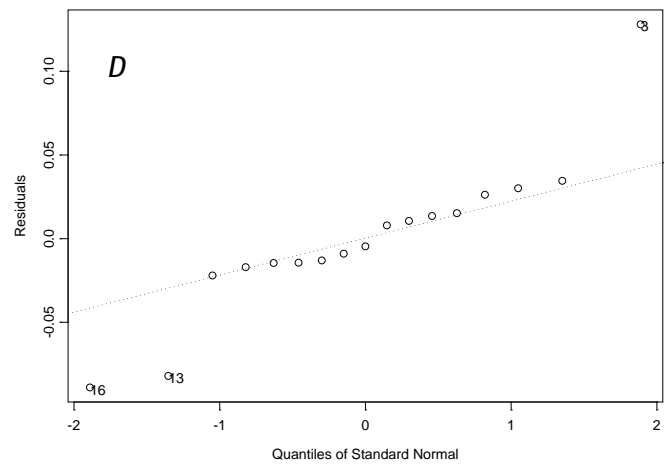
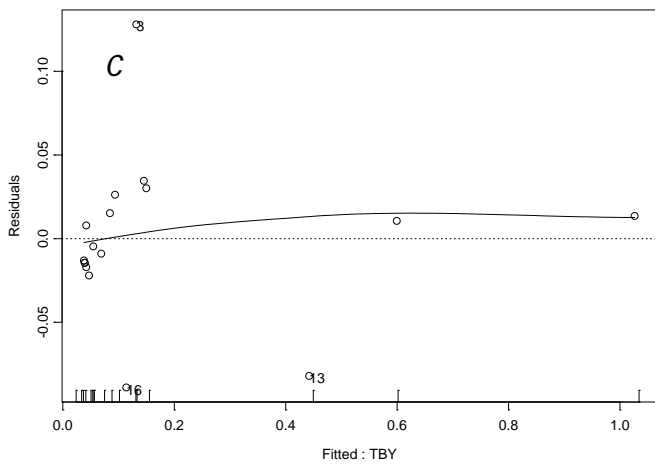
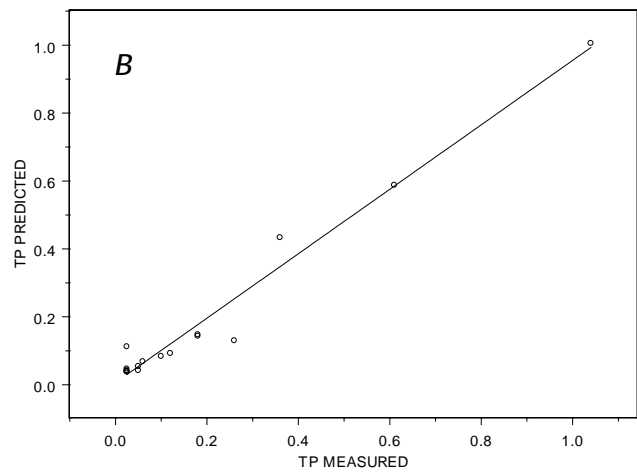
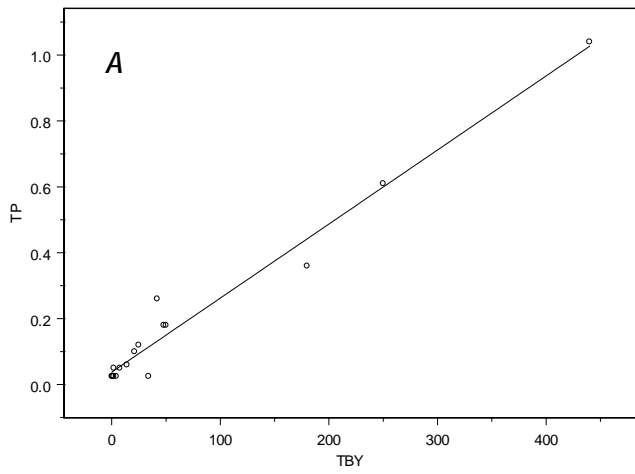


Figure 348. S+® output graphs from simple linear regression analysis showing *A*, turbidity (TBY) versus total phosphorus (TP) concentrations; *B*, measured versus predicted TP concentrations; *C*, computed TP concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = TP ~ Q, data = TP.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1224	-0.02729	-0.01383	0.01194	0.1732

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.0437	0.0220	1.9874	0.0668
Q	0.0007	0.0001	13.5666	0.0000

Residual standard error: 0.07644 on 14 degrees of freedom

Multiple R-Squared: 0.9293 Adjusted R-squared: 0.9243

F-statistic: 184.1 on 1 and 14 degrees of freedom, the p-value is 1.907e-009

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)
Q -0.4946

Analysis of Variance Table

Response: TP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
Q	1	1.075423	1.075423	184.0539	1.907285e-009
Residuals	14	0.081802	0.005843		

Figure 349. S+® output of regression model development using streamflow (Q) as the explanatory variable for total phosphorus (TP) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), November 2011 through May 2013.

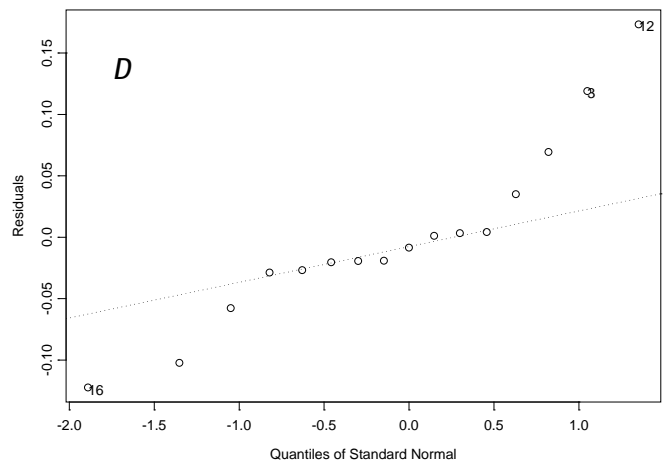
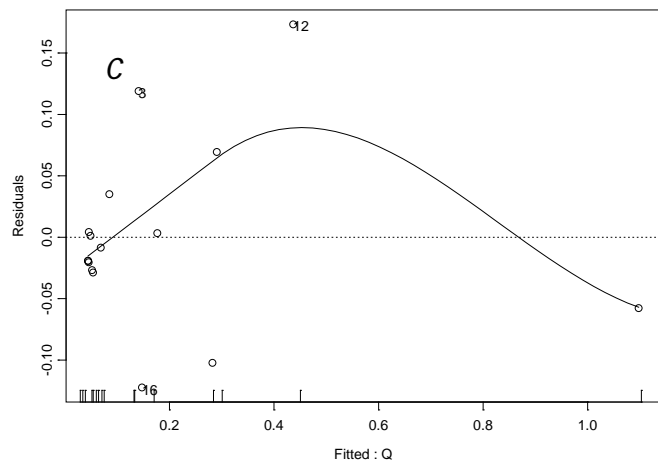
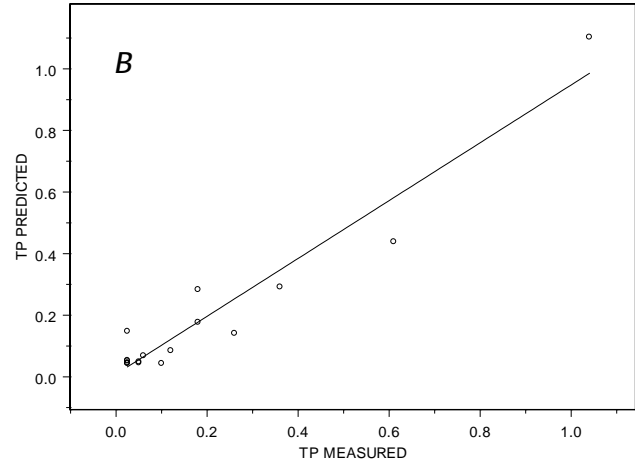
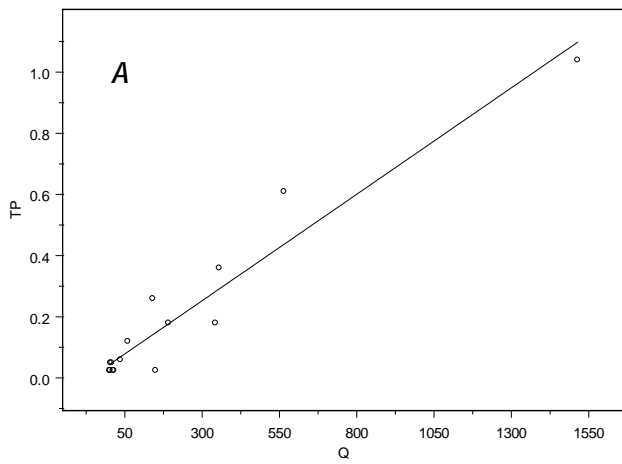


Figure 350. S+® output graphs from simple linear regression analysis showing *A*, streamflow (Q) versus total phosphorus (TP) concentrations; *B*, measured versus predicted TP concentrations; *C*, computed TP concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), November 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = TP ~ SIN + COS + LOGQ, data = TP.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.607	-0.1426	0.01852	0.254	0.5463

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.4965	0.2845	5.2603	0.0002
SIN	0.4465	0.1511	2.9547	0.0112
COS	0.2793	0.1060	2.6347	0.0206
LOGQ	-0.2347	0.1138	-2.0634	0.0596

Residual standard error: 0.3357 on 13 degrees of freedom

Multiple R-Squared: 0.5244 Adjusted R-squared: 0.4147

F-statistic: 4.778 on 3 and 13 degrees of freedom, the p-value is 0.01857

Correlation of Coefficients:

	(Intercept)	SIN	COS
SIN	0.3022		
COS	0.1063	0.1766	
LOGQ	-0.9545	-0.3828	-0.0722

Analysis of Variance Table

Response: TP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SIN	1	0.435619	0.4356194	3.866050	0.07099680
COS	1	0.699858	0.6998579	6.211123	0.02698203
LOGQ	1	0.479754	0.4797536	4.257734	0.05963382
Residuals	13	1.464816	0.1126782		

Figure 351. S+® output of regression model development using season (SIN and COS) and streamflow (Q) as explanatory variables for total phosphorus (TP) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

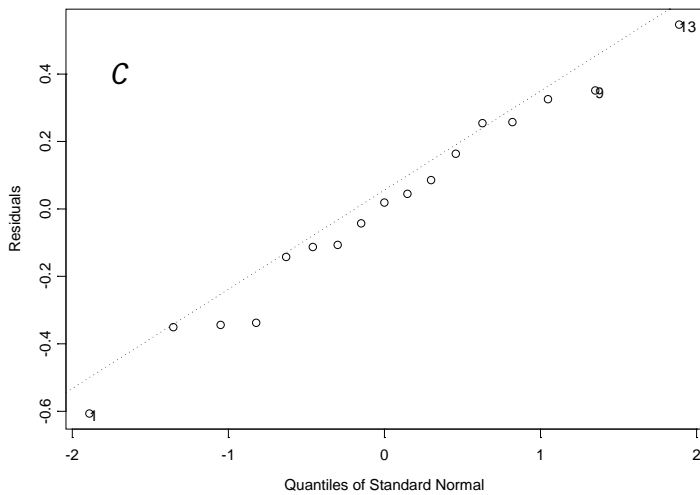
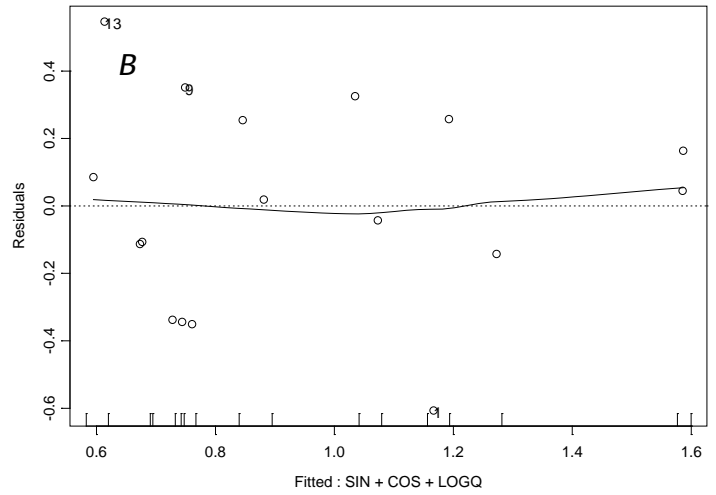
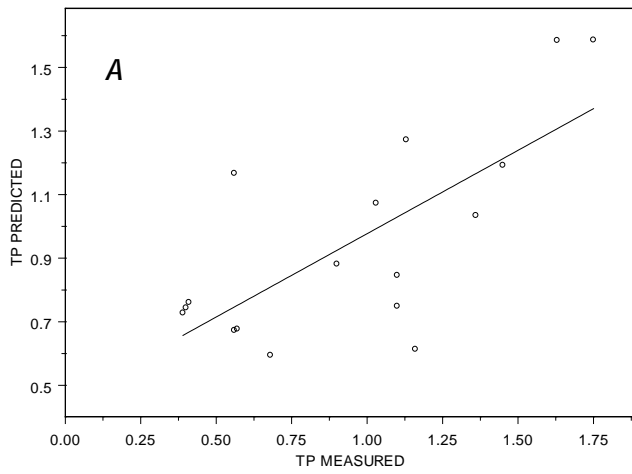


Figure 352. S+® output graphs from simple linear regression analysis using season (SIN and COS) and log-transformed streamflow (Q) as explanatory variables for total phosphorus (TP) concentrations showing *A*, measured versus predicted TP concentrations; *B*, computed TP concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGOP ~ LOGQ, data = OP.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.8963	-0.2731	0.0856	0.2451	0.5827

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.5799	0.2836	2.0451	0.0634
LOGQ	-0.5589	0.1311	-4.2620	0.0011

Residual standard error: 0.4013 on 12 degrees of freedom

Multiple R-Squared: 0.6022 Adjusted R-squared: 0.569

F-statistic: 18.16 on 1 and 12 degrees of freedom, the p-value is 0.001104

438 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)
LOGQ	-0.9257

Analysis of Variance Table

Response: LOGOP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	2.925812	2.925812	18.16449	0.001103638
Residuals	12	1.932879	0.161073		

Figure 353. S+® output of regression model development using streamflow (Q) as an explanatory variable for orthophosphate (OP) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

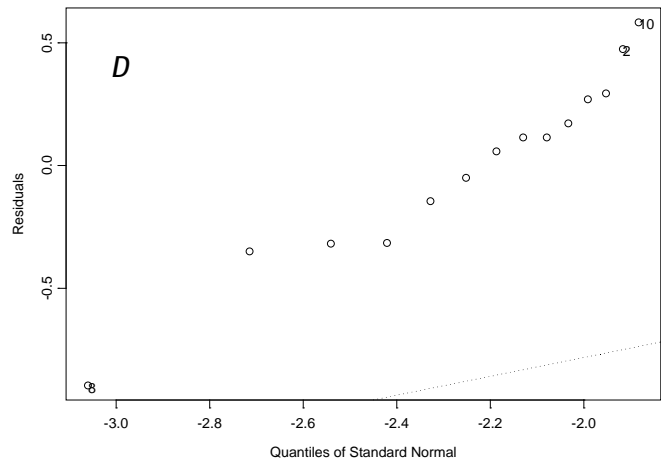
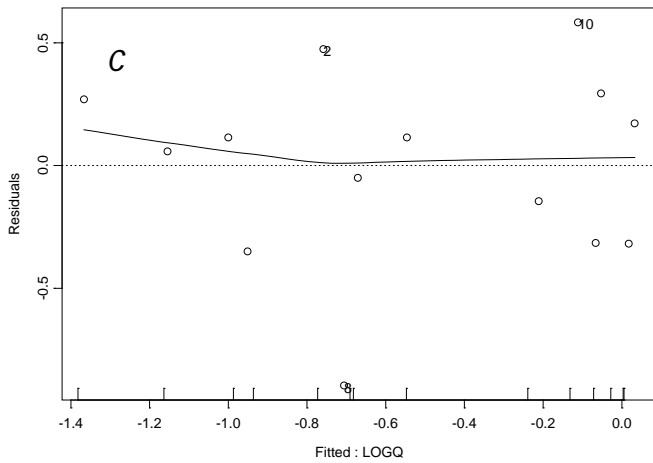
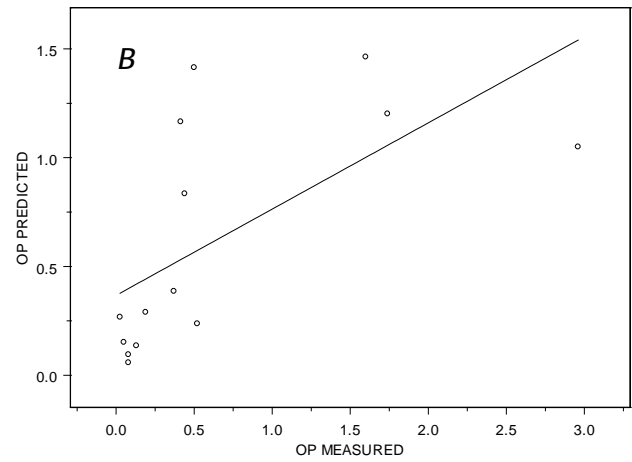
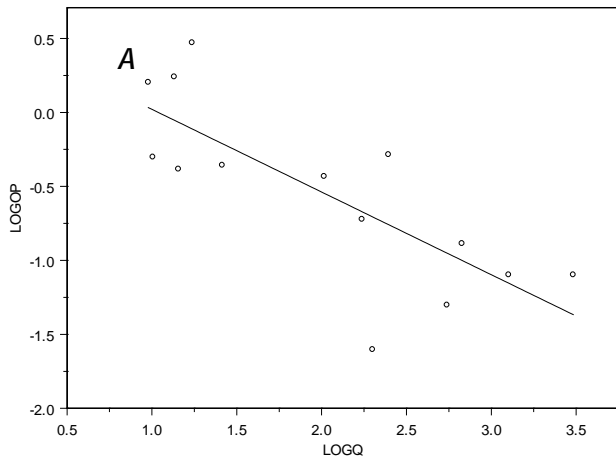


Figure 354. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus log-transformed orthophosphate (OP) concentrations; *B*, measured versus predicted OP concentrations; *C*, computed log-transformed OP concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGOP ~ SIN + COS + LOGTBY, data = OP.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.6512	-0.1527	0.03979	0.1331	0.7534

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.1778	0.1001	1.7762	0.0828
SIN	-0.0233	0.0686	-0.3389	0.7363
COS	0.2217	0.0619	3.5818	0.0009
LOGTBY	-0.3900	0.0510	-7.6432	0.0000

Residual standard error: 0.2964 on 43 degrees of freedom

Multiple R-Squared: 0.6469 Adjusted R-squared: 0.6223

F-statistic: 26.26 on 3 and 43 degrees of freedom, the p-value is 8.233e-010

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	SIN	COS
SIN	-0.0127		
COS	0.0644	-0.0209	
LOGTBY	-0.8778	-0.1591	0.0844

Analysis of Variance Table

Response: LOGOP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SIN	1	0.209173	0.209173	2.38079	0.1301640
COS	1	1.580725	1.580725	17.99163	0.0001157
LOGTBY	1	5.132641	5.132641	58.41915	0.0000000
Residuals	43	3.777932	0.087859		

Figure 355. S+® output of regression model development using season (SIN and COS) and turbidity (TBY) as explanatory variables for orthophosphate (OP) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

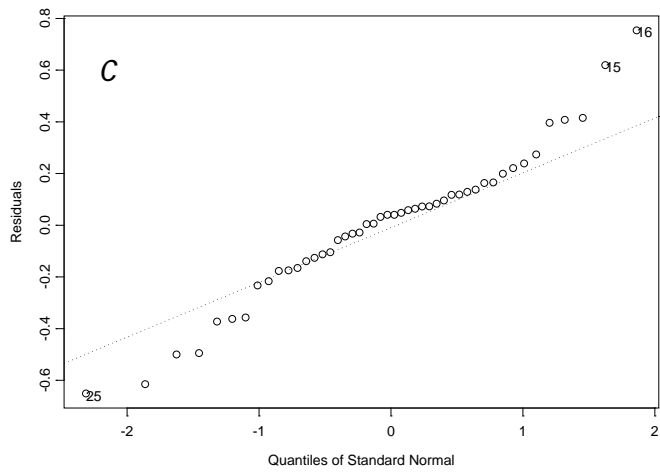
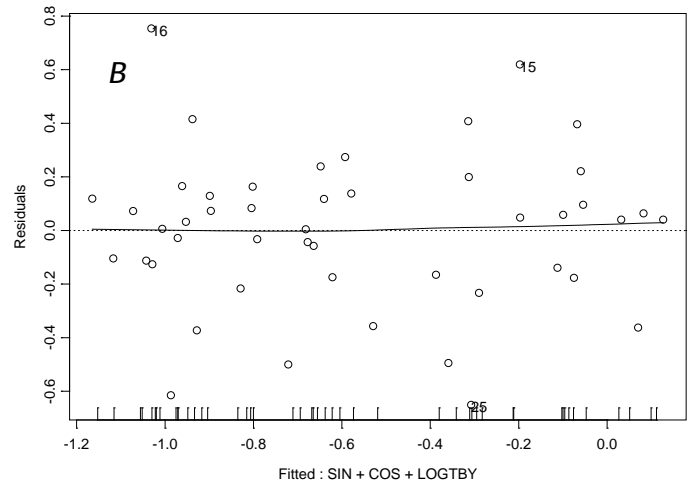
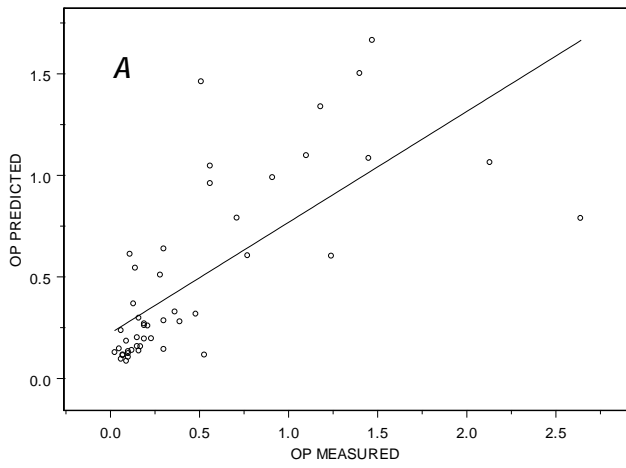


Figure 356. S+® output graphs from simple linear regression analysis using season (SIN and COS) and log-transformed turbidity (TBY) as explanatory variables for log-transformed orthophosphate (OP) concentrations showing *A*, measured versus predicted OP concentrations; *B*, computed log-transformed OP concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGOP ~ SIN + COS + LOGTBY, data = OP.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.6332	-0.1508	0.001371	0.1048	0.6491

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.2150	0.1135	1.8949	0.0689
SIN	-0.0905	0.0751	-1.2054	0.2385
COS	0.2268	0.0749	3.0262	0.0054
LOGTBY	-0.3846	0.0573	-6.7130	0.0000

Residual standard error: 0.2688 on 27 degrees of freedom

Multiple R-Squared: 0.7173 Adjusted R-squared: 0.6858

F-statistic: 22.83 on 3 and 27 degrees of freedom, the p-value is 1.435e-007

Correlation of Coefficients:

	(Intercept)	SIN	COS
SIN	-0.1516		
COS	-0.0343	-0.1429	
LOGTBY	-0.8696	-0.0556	0.2361

Analysis of Variance Table

Response: LOGOP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SIN	1	0.065898	0.065898	0.91232	0.3479748
COS	1	1.626515	1.626515	22.51815	0.0000604
LOGTBY	1	3.255061	3.255061	45.06442	0.0000003
Residuals	27	1.950245	0.072231		

Figure 357. S+® output of regression model development using season (SIN and COS) and turbidity (TBY) as explanatory variables for orthophosphate (OP) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

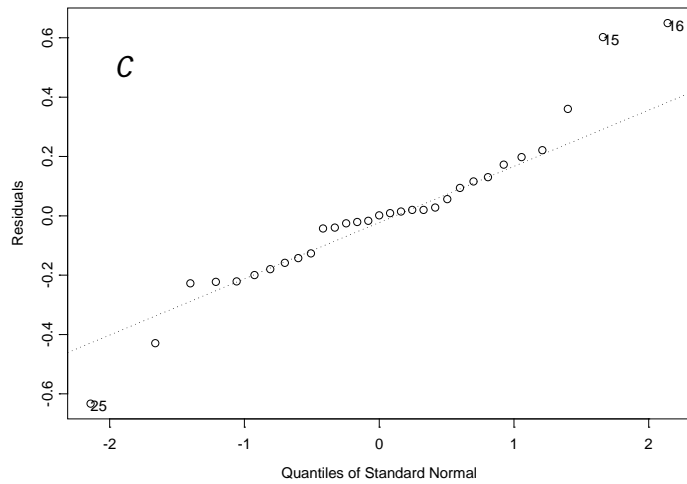
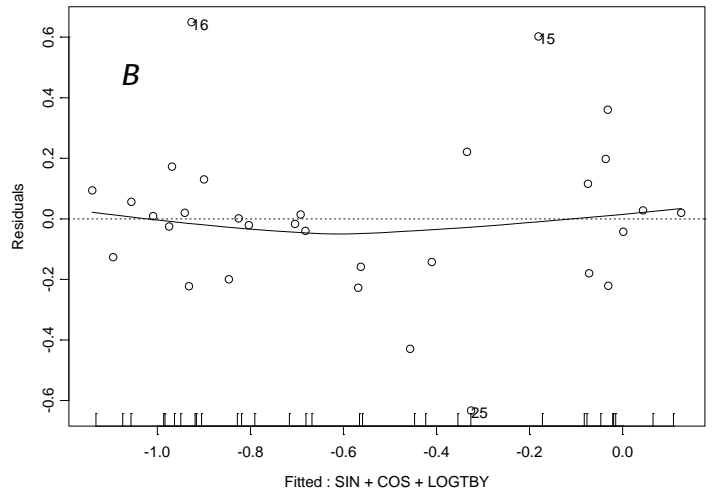
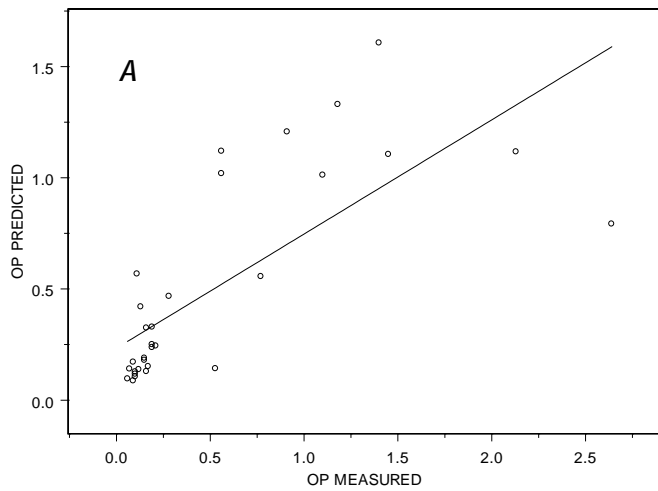


Figure 358. S+® output graphs from simple linear regression analysis using season (SIN and COS) and log-transformed turbidity (TBY) as explanatory variables for log-transformed orthophosphate (OP) concentrations showing A, measured versus predicted OP concentrations; B, computed log-transformed OP concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = OP ~ LOGQ + SC, data = OP.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.5625	-0.1985	-0.001895	0.1636	0.4435

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.7699	0.4224	1.8227	0.0898
LOGQ	-0.2886	0.1162	-2.4848	0.0262
SC	0.0006	0.0002	2.4583	0.0276

Residual standard error: 0.2868 on 14 degrees of freedom

Multiple R-Squared: 0.7048 Adjusted R-squared: 0.6626

F-statistic: 16.71 on 2 and 14 degrees of freedom, the p-value is 0.0001956

Correlation of Coefficients:

	(Intercept)	LOGQ
LOGQ	-0.9345	
SC	-0.8367	0.6344

Analysis of Variance Table

Response: OP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	2.251096	2.251096	27.37466	0.00012693
SC	1	0.496944	0.496944	6.04314	0.02760051
Residuals	14	1.151260	0.082233		

Figure 359. S+® output of regression model development using streamflow (Q) and specific conductance (SC) as explanatory variables for orthophosphate (OP) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

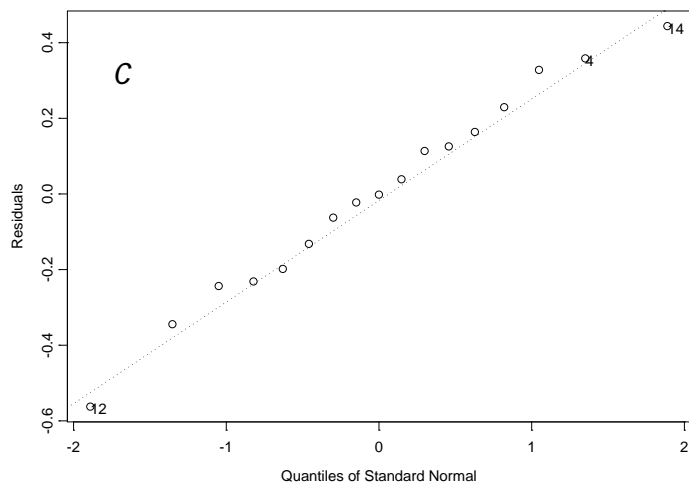
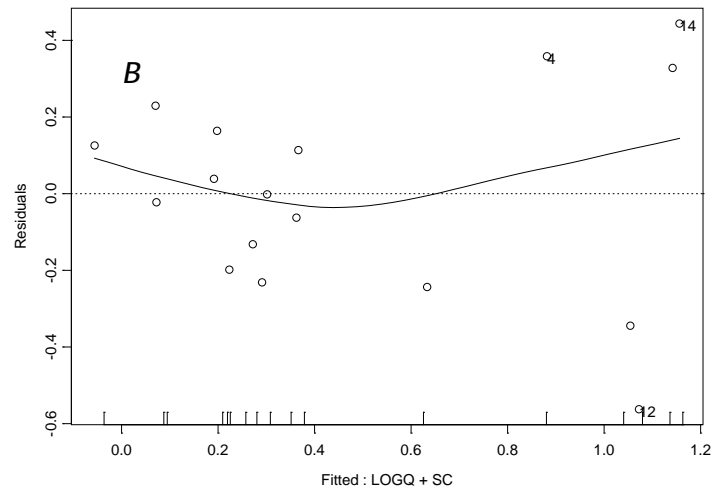
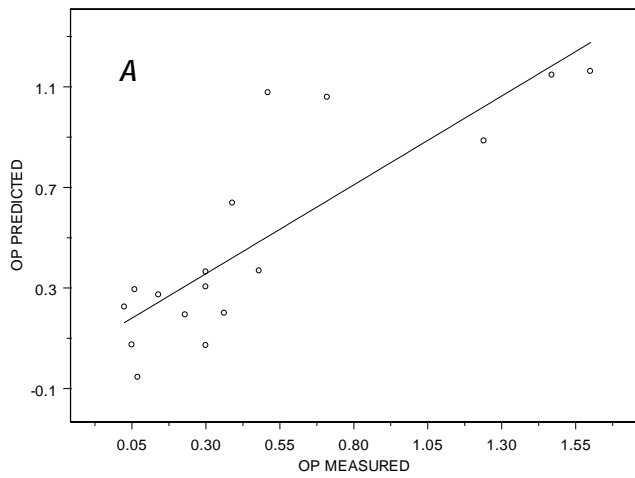


Figure 360. S+® output graphs from simple linear regression analysis using log-transformed streamflow (Q) and specific conductance (SC) as explanatory variables for orthophosphate (OP) concentrations showing *A*, measured versus predicted OP concentrations; *B*, computed OP concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGDP ~ LOGQ, data = DP.COLL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.6969	-0.1692	0.03013	0.1895	0.6267

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.0148	0.3504	0.0423	0.9672
LOGQ	-0.3040	0.1411	-2.1549	0.0596

Residual standard error: 0.3714 on 9 degrees of freedom

Multiple R-Squared: 0.3403 Adjusted R-squared: 0.267

F-statistic: 4.643 on 1 and 9 degrees of freedom, the p-value is 0.05956

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9476

Analysis of Variance Table

Response: LOGDP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	0.640498	0.6404978	4.643414	0.05956389
Residuals	9	1.241432	0.1379368		

Figure 361. S+® output of regression model development using streamflow (Q) as the explanatory variable for dissolved phosphorus (DP) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), August 2011 through May 2013.

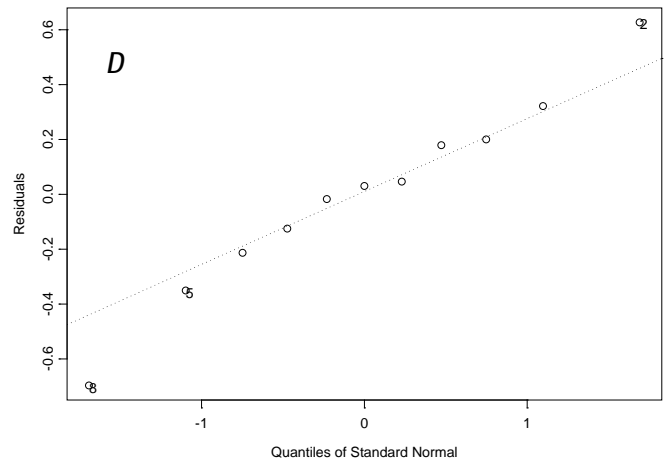
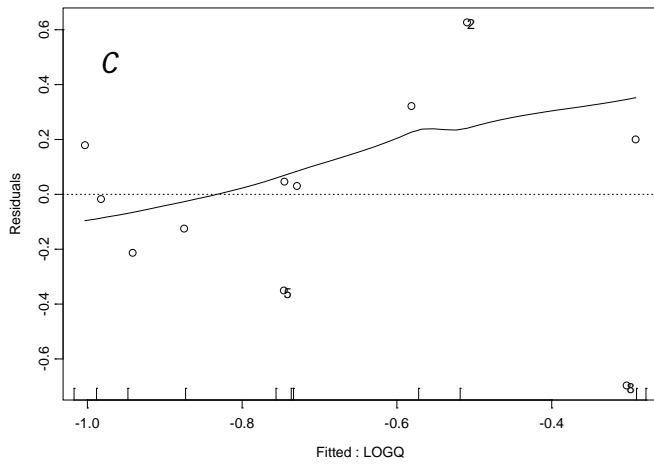
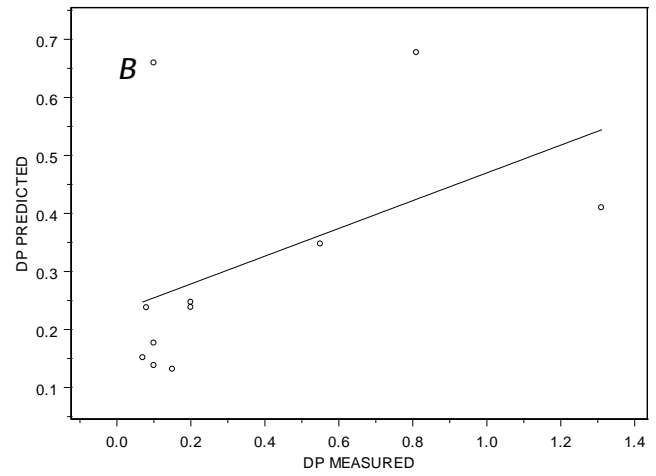
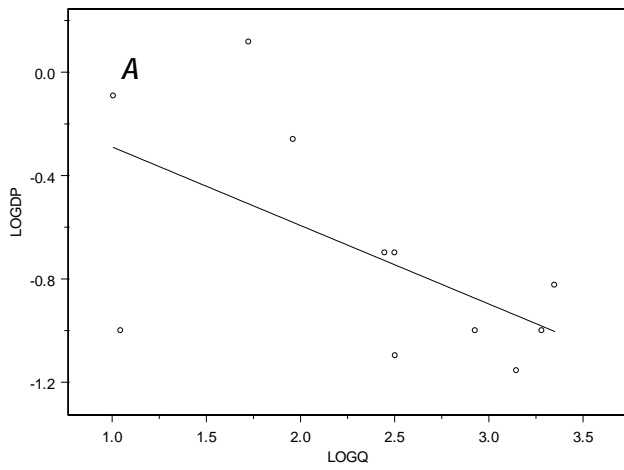


Figure 362. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus log-transformed dissolved phosphorus (DP) concentrations; *B*, measured versus predicted DP concentrations; *C*, computed log-transformed DP concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), August 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = DP ~ SIN + COS + Q, data = DP.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.5004	-0.2502	-0.007353	0.1595	0.5921

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.7265	0.1564	4.6453	0.0012
SIN	0.1923	0.1809	1.0631	0.3154
COS	0.3517	0.1419	2.4790	0.0350
Q	-0.0009	0.0004	-2.2891	0.0478

Residual standard error: 0.3668 on 9 degrees of freedom

Multiple R-Squared: 0.57 Adjusted R-squared: 0.4267

F-statistic: 3.977 on 3 and 9 degrees of freedom, the p-value is 0.04664

Correlation of Coefficients:

	(Intercept)	SIN	COS
SIN	0.2723		
COS	-0.0920	-0.1936	
Q	-0.7459	-0.4905	0.0279

Analysis of Variance Table

Response: DP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SIN	1	0.029327	0.0293268	0.218011	0.6516564
COS	1	0.870603	0.8706025	6.471921	0.0315035
Q	1	0.704868	0.7048680	5.239877	0.0478468
Residuals	9	1.210680	0.1345199		

Figure 363. S+® output of regression model development using season (SIN and COS) and streamflow (Q) as explanatory variables for dissolved phosphorus (DP) for Indian Creek at Overland Park, KS (Marty, site 06893300), August 2011 through May 2013.

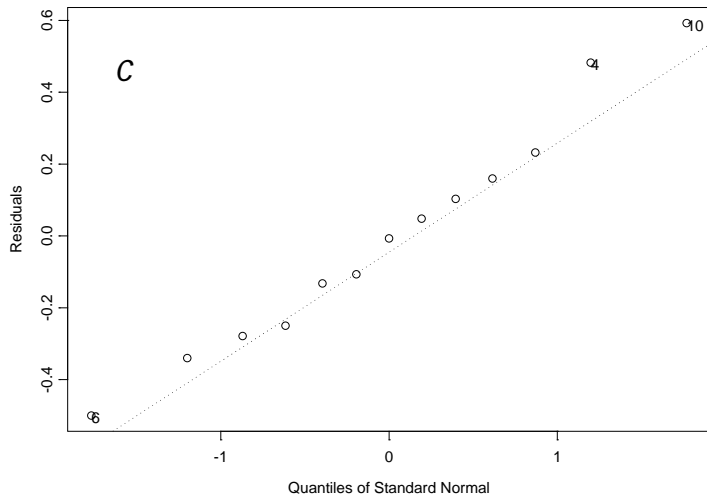
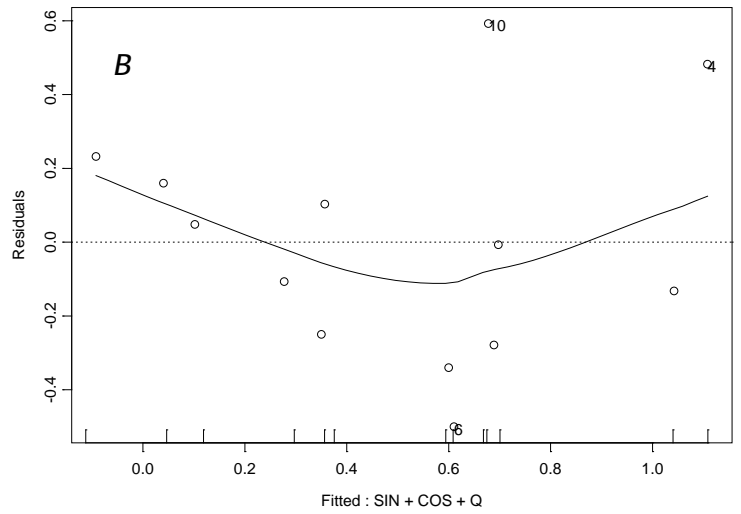
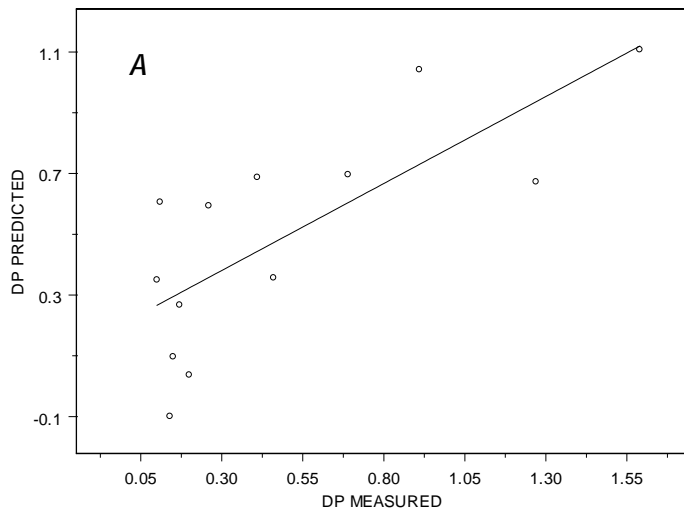


Figure 364. S+® output graphs from simple linear regression analysis using season (SIN and COS) and streamflow (Q) as explanatory variables for dissolved phosphorus (DP) concentrations showing *A*, measured versus predicted DP concentrations; *B*, computed DP concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), August 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGDP ~ LOGQ, data = DP.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.994	-0.1161	0.02086	0.2518	0.5496

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.5442	0.2805	1.9397	0.0763
LOGQ	-0.5009	0.1297	-3.8606	0.0023

Residual standard error: 0.3971 on 12 degrees of freedom

Multiple R-Squared: 0.554 Adjusted R-squared: 0.5168

F-statistic: 14.9 on 1 and 12 degrees of freedom, the p-value is 0.002266

438 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)
LOGQ	-0.9257

Analysis of Variance Table

Response: LOGDP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	2.349828	2.349828	14.90424	0.002266166
Residuals	12	1.891940	0.157662		

Figure 365. S+® output of regression model development using streamflow (Q) as the explanatory variable for dissolved phosphorus (DP) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

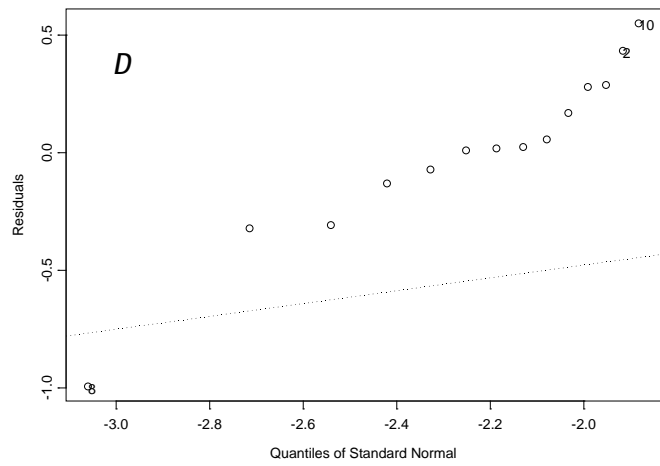
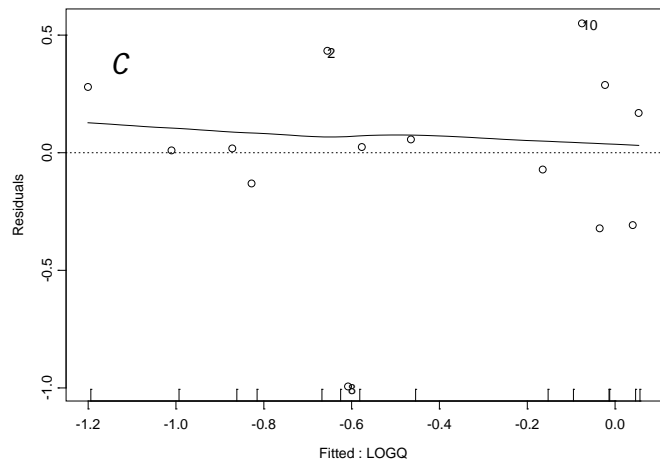
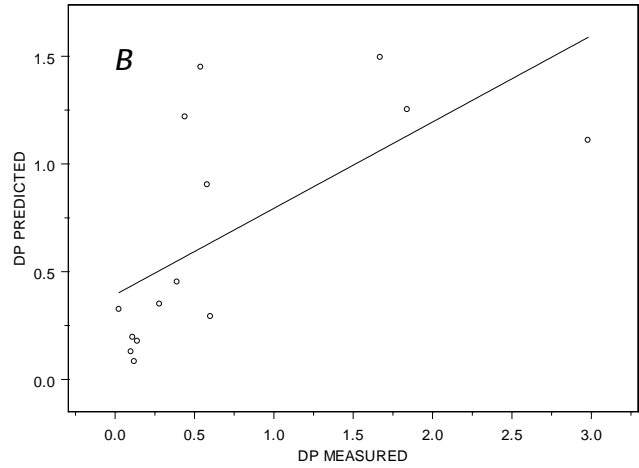
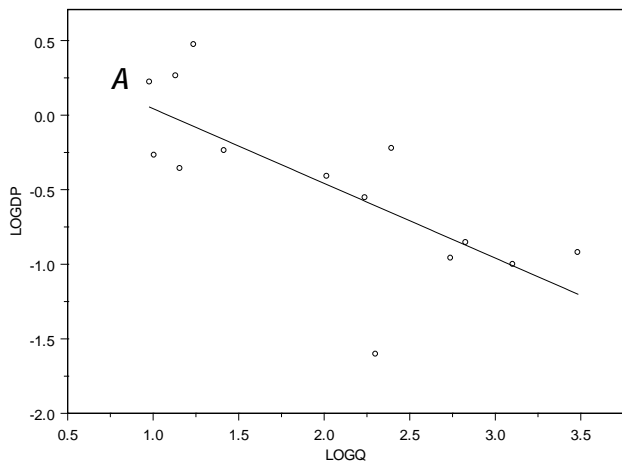


Figure 366. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus log-transformed dissolved phosphorus (DP) concentrations; *B*, measured versus predicted DP concentrations; *C*, computed log-transformed DP concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGDP ~ SIN + COS + LOGTBY, data = DP.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.5432	-0.1516	0.01043	0.109	0.6498

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.2021	0.0849	2.3790	0.0219
SIN	-0.0091	0.0583	-0.1570	0.8760
COS	0.1841	0.0525	3.5045	0.0011
LOGTBY	-0.3620	0.0433	-8.3594	0.0000

Residual standard error: 0.2516 on 43 degrees of freedom

Multiple R-Squared: 0.6765 Adjusted R-squared: 0.6539

F-statistic: 29.97 on 3 and 43 degrees of freedom, the p-value is 1.287e-010

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	SIN	COS
SIN	-0.0127		
COS	0.0644	-0.0209	
LOGTBY	-0.8778	-0.1591	0.0844

Analysis of Variance Table

Response: LOGDP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SIN	1	0.137564	0.137564	2.17354	0.1476865
COS	1	1.129618	1.129618	17.84822	0.0001220
LOGTBY	1	4.422706	4.422706	69.87975	0.0000000
Residuals	43	2.721480	0.063290		

Figure 367. S+® output of regression model development using season (SIN and COS) and turbidity (TBY) as explanatory variables for dissolved phosphorus (DP) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

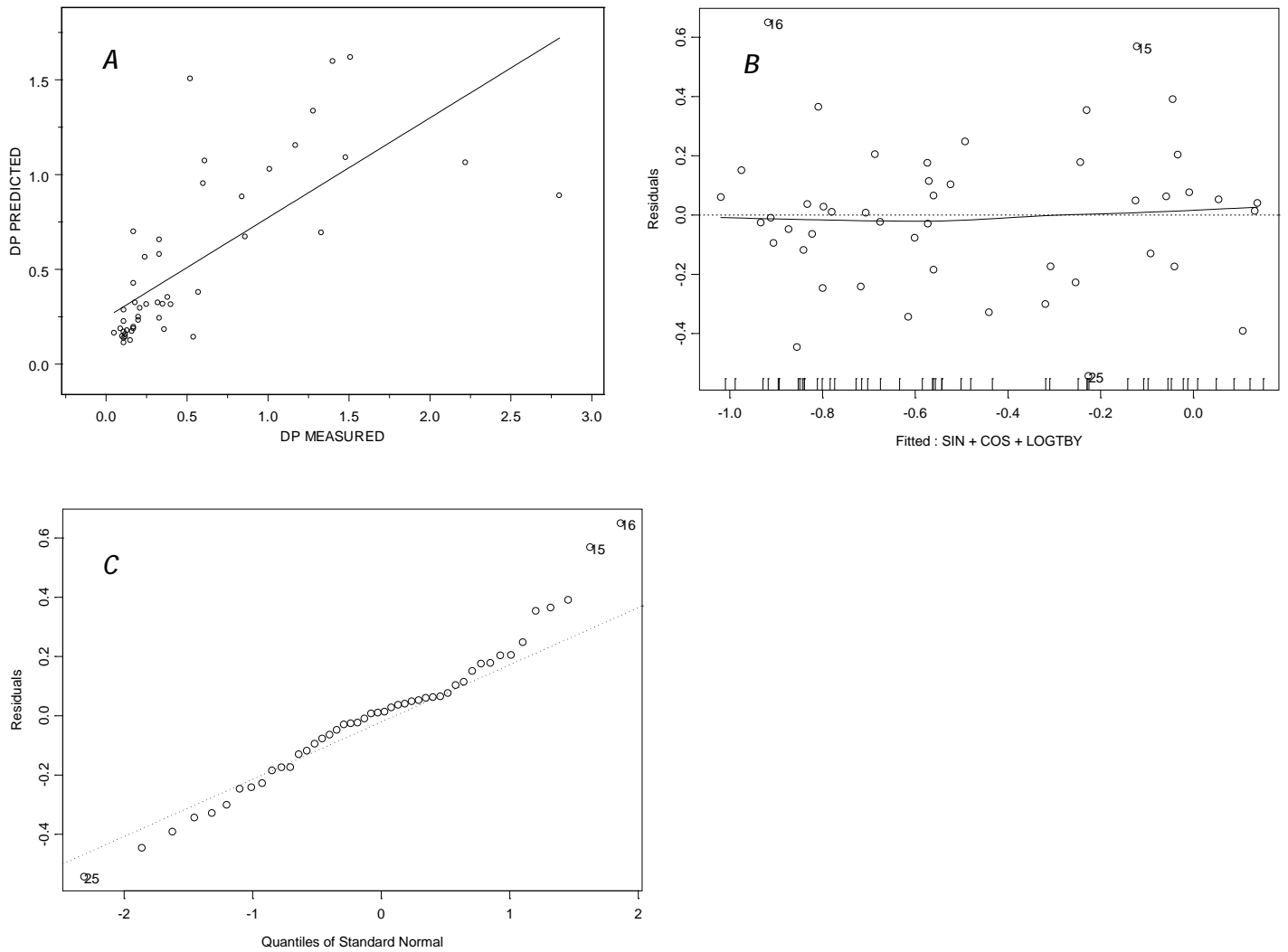


Figure 368. S+® output graphs from simple linear regression analysis using season (SIN and COS) and log-transformed turbidity (TBY) as explanatory variables for log-transformed dissolved phosphorus (DP) concentrations showing A, measured versus predicted DP concentrations; B, computed log-transformed DP concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGDP ~ LOGQ, data = DP.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.8135	-0.2155	0.003668	0.2045	0.6034

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.4977	0.1287	3.8667	0.0003
LOGQ	-0.3821	0.0479	-7.9802	0.0000

Residual standard error: 0.2849 on 46 degrees of freedom

Multiple R-Squared: 0.5806 Adjusted R-squared: 0.5715

F-statistic: 63.68 on 1 and 46 degrees of freedom, the p-value is 3.163e-010

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9476

Analysis of Variance Table

Response: LOGDP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	5.168570	5.16857	63.68348	3.163182e-010
Residuals	46	3.733374	0.08116		

Figure 369. S+® output of regression model development using streamflow (Q) as the explanatory variable for dissolved phosphorus (DP) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

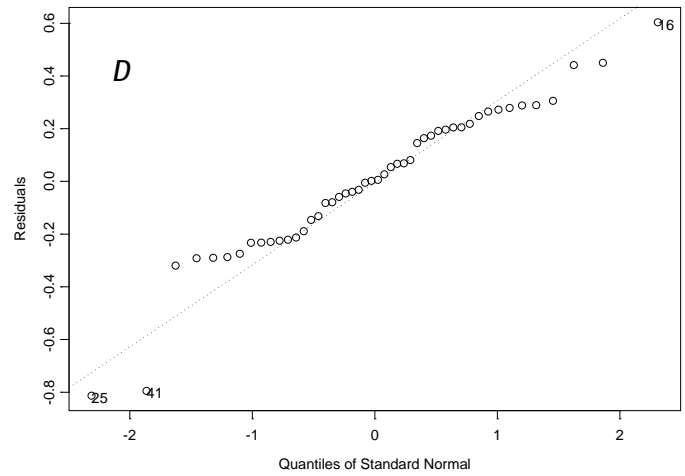
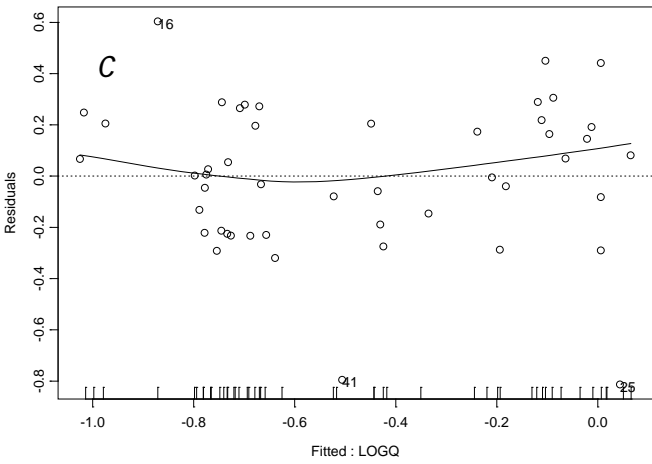
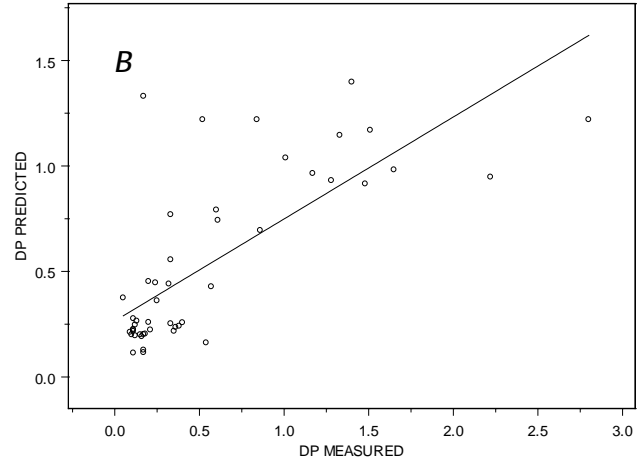
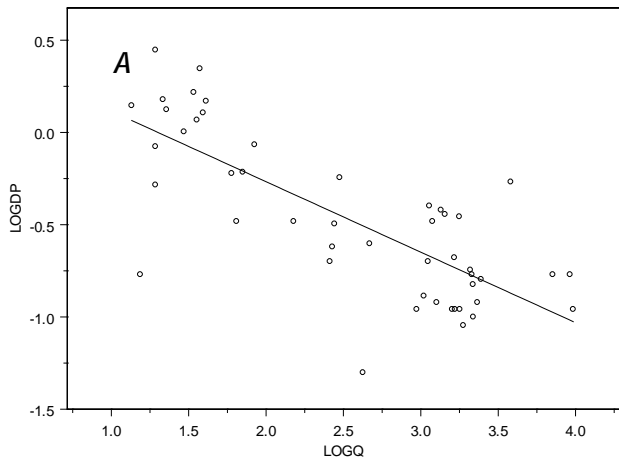


Figure 370. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus log-transformed dissolved phosphorus (DP) concentrations; *B*, measured versus predicted DP concentrations; *C*, computed log-transformed DP concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGDP ~ SIN + COS + LOGTBY, data = DP.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.5217	-0.1176	-0.02215	0.08193	0.5741

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.2442	0.1014	2.4079	0.0231
SIN	-0.0741	0.0671	-1.1052	0.2788
COS	0.1896	0.0670	2.8313	0.0087
LOGTBY	-0.3678	0.0512	-7.1817	0.0000

Residual standard error: 0.2402 on 27 degrees of freedom

Multiple R-Squared: 0.7329 Adjusted R-squared: 0.7032

F-statistic: 24.69 on 3 and 27 degrees of freedom, the p-value is 6.73e-008

Correlation of Coefficients:

	(Intercept)	SIN	COS
SIN	-0.1516		
COS	-0.0343	-0.1429	
LOGTBY	-0.8696	-0.0556	0.2361

Analysis of Variance Table

Response: LOGDP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SIN	1	0.045902	0.045902	0.79547	0.3803312
COS	1	1.252325	1.252325	21.70234	0.0000762
LOGTBY	1	2.976208	2.976208	51.57663	0.0000001
Residuals	27	1.558024	0.057705		

Figure 371. S+® output of regression model development using season (SIN and COS) and turbidity (TBY) as explanatory variables for dissolved phosphorus (DP) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

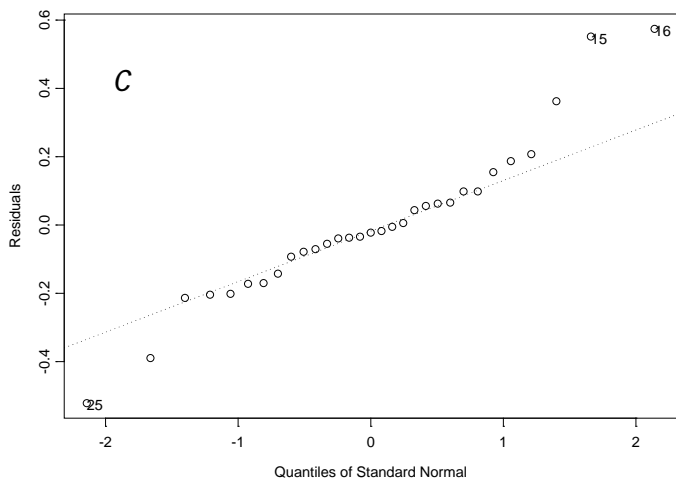
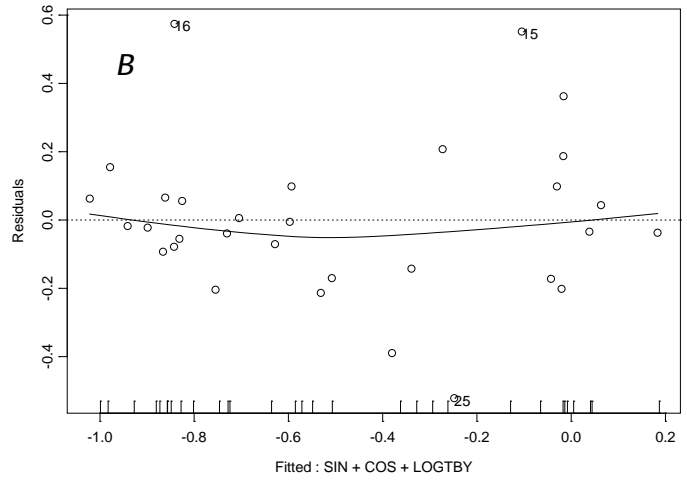
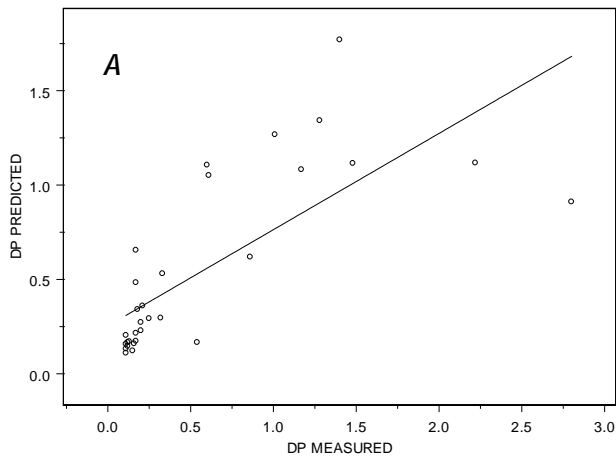


Figure 372. S+® output graphs from simple linear regression analysis using season (SIN and COS) and turbidity (TBY) as explanatory variables for log-transformed dissolved phosphorus (DP) concentrations showing *A*, measured versus predicted DP concentrations; *B*, computed log-transformed DP concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = LOGDP ~ LOGQ, data = DP.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.82	-0.1787	-0.004112	0.1621	0.5975

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.5045	0.1507	3.3479	0.0023
LOGQ	-0.3823	0.0548	-6.9715	0.0000

Residual standard error: 0.2742 on 29 degrees of freedom

Multiple R-Squared: 0.6263 Adjusted R-squared: 0.6134

F-statistic: 48.6 on 1 and 29 degrees of freedom, the p-value is 1.154e-007

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9451

Analysis of Variance Table

Response: LOGDP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	3.652858	3.652858	48.60197	1.154009e-007
Residuals	29	2.179601	0.075159		

Figure 373. S+® output of regression model development using streamflow (Q) as the explanatory variable for dissolved phosphorus (DP) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

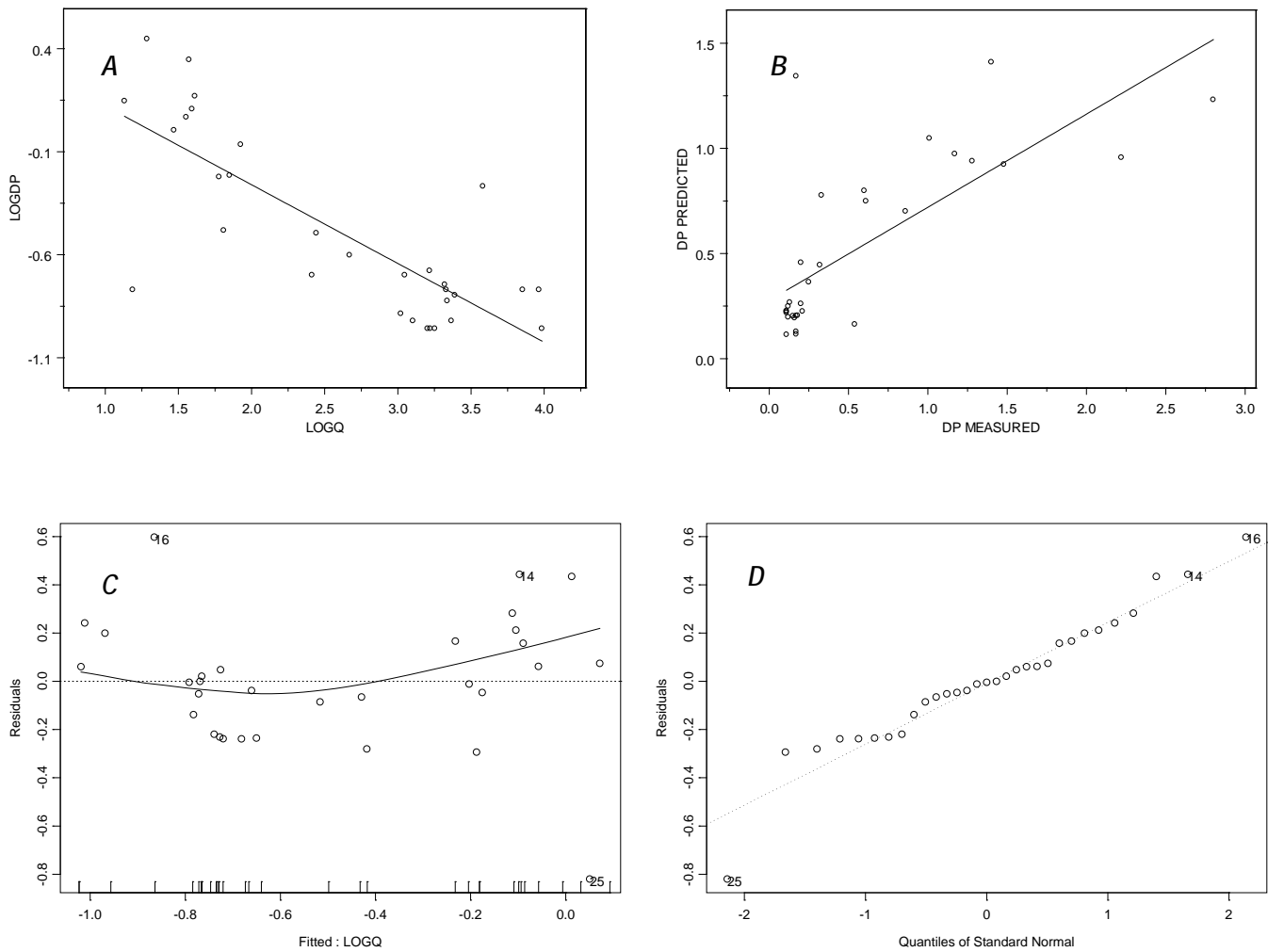


Figure 374. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus log-transformed dissolved phosphorus (DP) concentrations; *B*, measured versus predicted DP concentrations; *C*, computed log-transformed DP concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = DP ~ SIN + COS + LOGQ, data = DP.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.3861	-0.1482	-0.05028	0.1794	0.3726

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.9381	0.2083	9.3032	0.0000
SIN	0.3404	0.1107	3.0759	0.0088
COS	0.2086	0.0776	2.6863	0.0187
LOGQ	-0.5797	0.0833	-6.9585	0.0000

Residual standard error: 0.2458 on 13 degrees of freedom

Multiple R-Squared: 0.8037 Adjusted R-squared: 0.7584

F-statistic: 17.74 on 3 and 13 degrees of freedom, the p-value is 0.00007019

Correlation of Coefficients:

	(Intercept)	SIN	COS
SIN	0.3022		
COS	0.1063	0.1766	
LOGQ	-0.9545	-0.3828	-0.0722

Analysis of Variance Table

Response: DP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SIN	1	0.000529	0.000529	0.00875	0.9268901
COS	1	0.289667	0.289667	4.79405	0.0473997
LOGQ	1	2.925691	2.925691	48.42074	0.0000099
Residuals	13	0.785489	0.060422		

Figure 375. S+® output of regression model development using season (SIN and COS) and streamflow (Q) as explanatory variables for dissolved phosphorus (DP) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

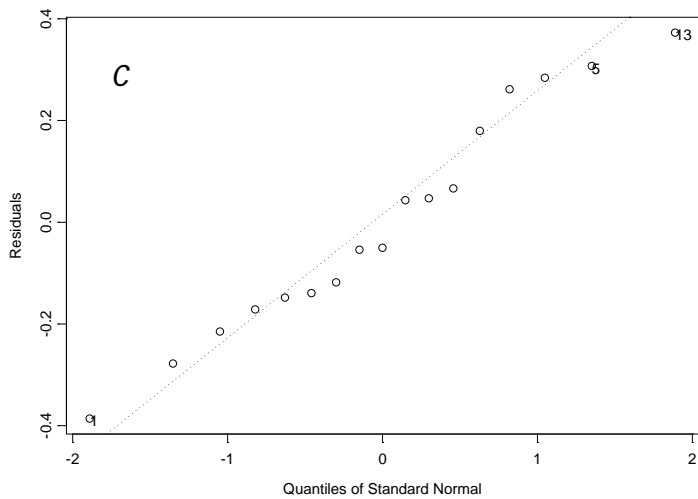
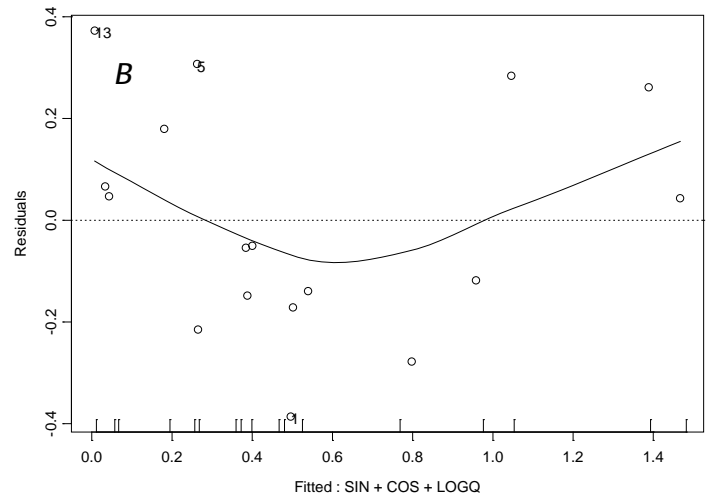
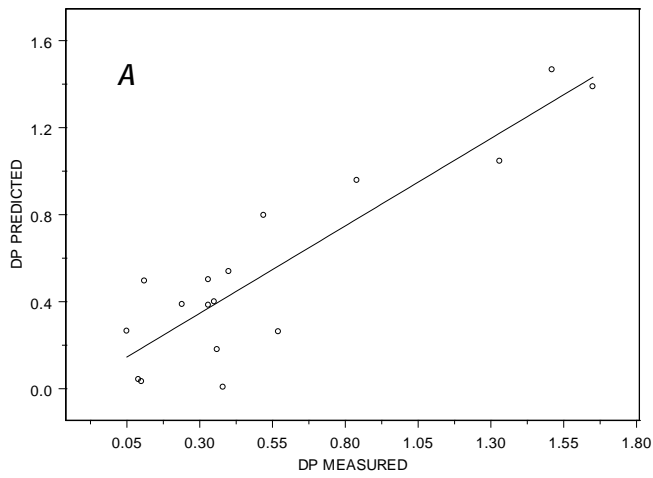


Figure 376. S+® output graphs from simple linear regression analysis using season (SIN and COS) and log-transformed streamflow (Q) as explanatory variables for dissolved phosphorus (DP) concentrations showing A, measured versus predicted DP concentrations; B, computed DP concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = PP ~ TBY, data = PP.COLLSPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.2553	-0.1425	-0.08423	0.1401	0.3447

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.1848	0.0953	1.9388	0.0845
TBY	0.0018	0.0003	6.7209	0.0001

Residual standard error: 0.2181 on 9 degrees of freedom

Multiple R-Squared: 0.8339 Adjusted R-squared: 0.8154

F-statistic: 45.17 on 1 and 9 degrees of freedom, the p-value is 0.00008646

Correlation of Coefficients:

(Intercept)
TBY -0.7236

Analysis of Variance Table

Response: PP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	2.149486	2.149486	45.17022	0.00008645884
Residuals	9	0.428277	0.047586		

Figure 377. S+® output of regression model development using turbidity (TBY) as the explanatory variable for particulate phosphorus (PP) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), August 2011 through May 2013.

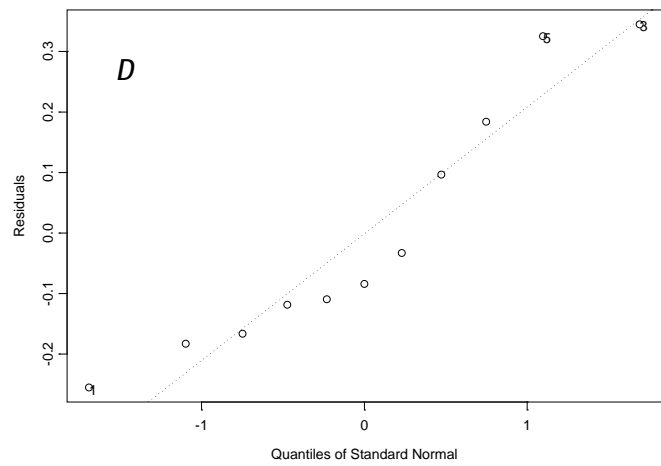
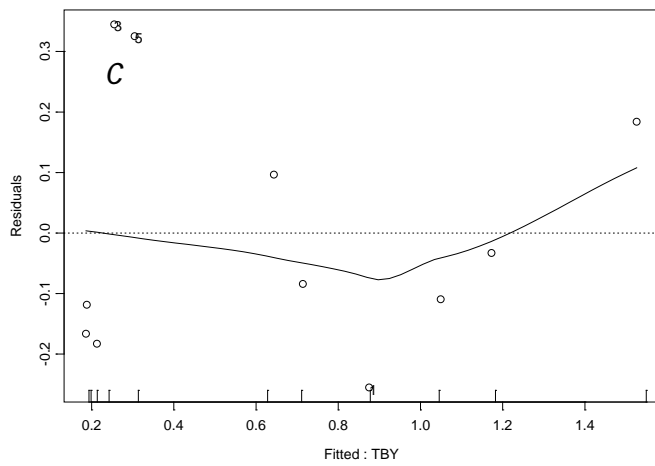
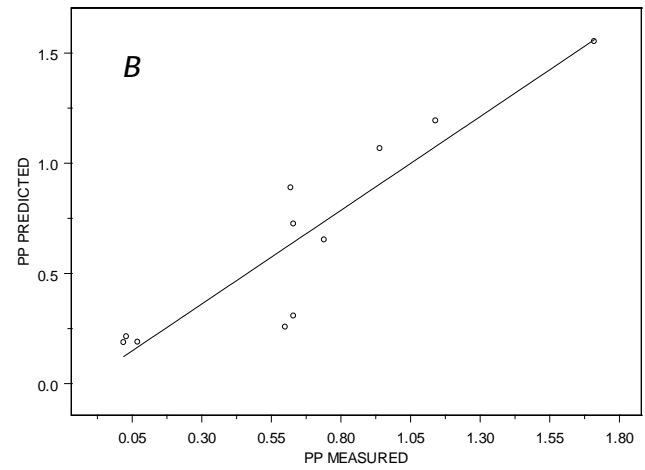
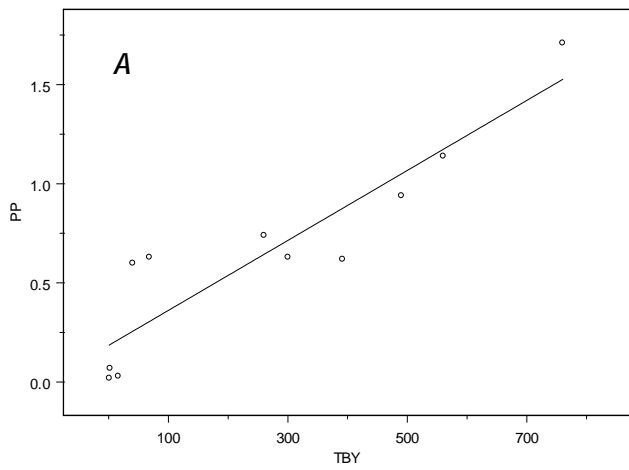


Figure 378. S+® output graphs from simple linear regression analysis showing *A*, turbidity (TBY) versus particulate phosphorus (PP) concentrations; *B*, measured versus predicted PP concentrations; *C*, computed PP concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), August 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGPP ~ LOGQ, data = PP.COLLSPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.6339	-0.2302	0.1593	0.2442	0.5067

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-2.0606	0.3511	-5.8693	0.0002
LOGQ	0.6794	0.1413	4.8072	0.0010

Residual standard error: 0.3721 on 9 degrees of freedom

Multiple R-Squared: 0.7197 Adjusted R-squared: 0.6886

F-statistic: 23.11 on 1 and 9 degrees of freedom, the p-value is 0.000964

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9476

Analysis of Variance Table

Response: LOGPP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	3.199798	3.199798	23.10901	0.0009640224
Residuals	9	1.246188	0.138465		

Figure 379. S+® output of regression model development using streamflow (Q) as the explanatory variable for particulate phosphorus (PP) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), August 2011 through May 2013.

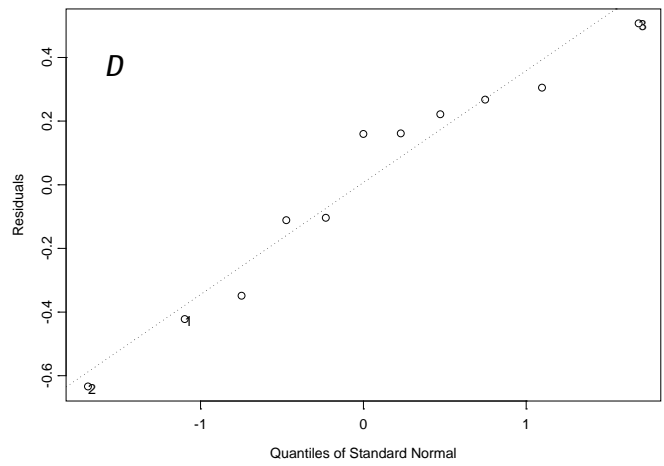
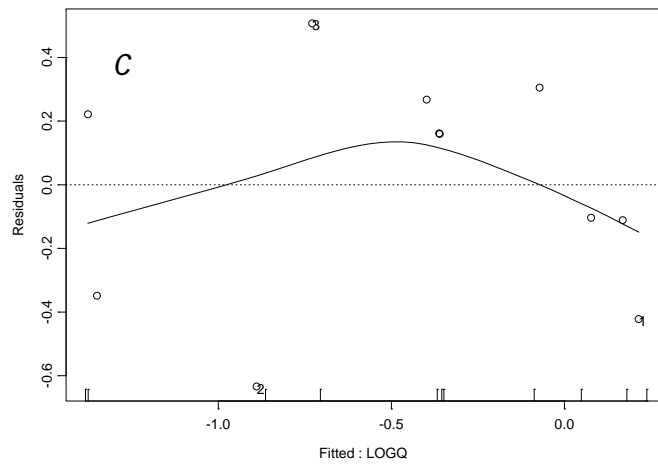
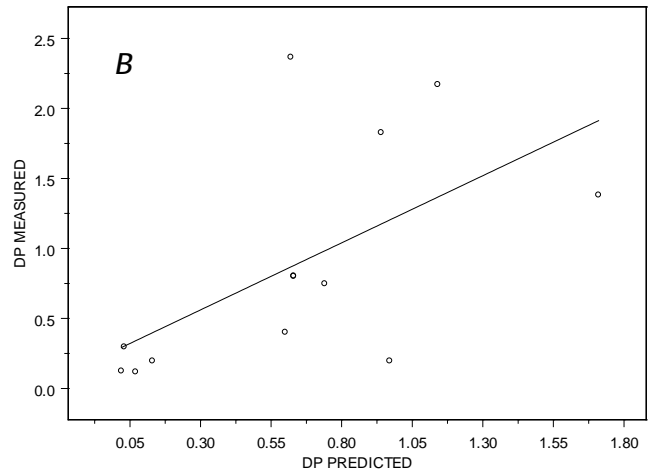
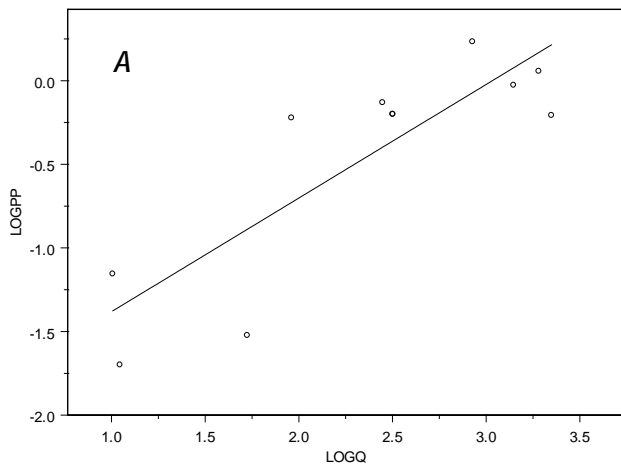


Figure 380. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus log-transformed particulate phosphorus (PP) concentrations; *B*, measured versus predicted PP concentrations; *C*, computed PP concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), August 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = PP ~ Q + LOGTBY, data = PP.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.2928	-0.1012	-0.003829	0.09351	0.3989

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.2012	0.1204	1.6705	0.1292
Q	0.0020	0.0003	6.2500	0.0001
LOGTBY	-0.1591	0.0970	-1.6408	0.1353

Residual standard error: 0.1958 on 9 degrees of freedom

Multiple R-Squared: 0.8882 Adjusted R-squared: 0.8633

F-statistic: 35.74 on 2 and 9 degrees of freedom, the p-value is 0.00005227

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	Q
Q	0.3157	
LOGTBY	-0.7441	-0.8041

Analysis of Variance Table

Response: PP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
Q	1	2.636594	2.636594	68.79655	0.0000166
LOGTBY	1	0.103177	0.103177	2.69220	0.1352594
Residuals	9	0.344921	0.038325		

Figure 381. S+® output of regression model development using streamflow (Q) and turbidity (TBY) as explanatory variables for particulate phosphorus (PP) for Indian Creek at Overland Park, KS (Marty, site 06893300), August 2011 through March 2013.

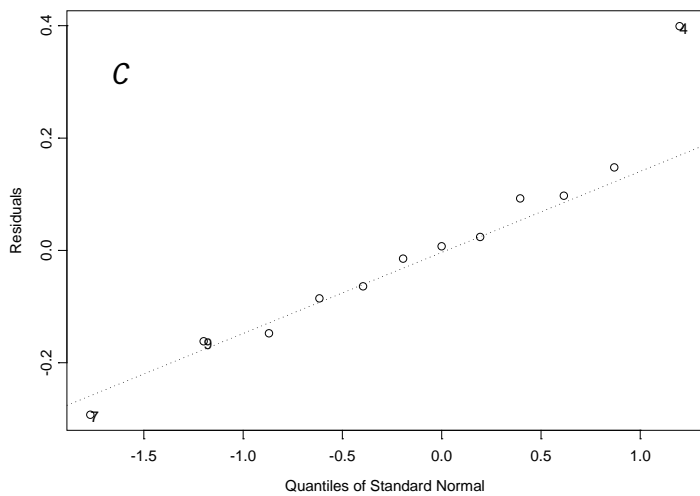
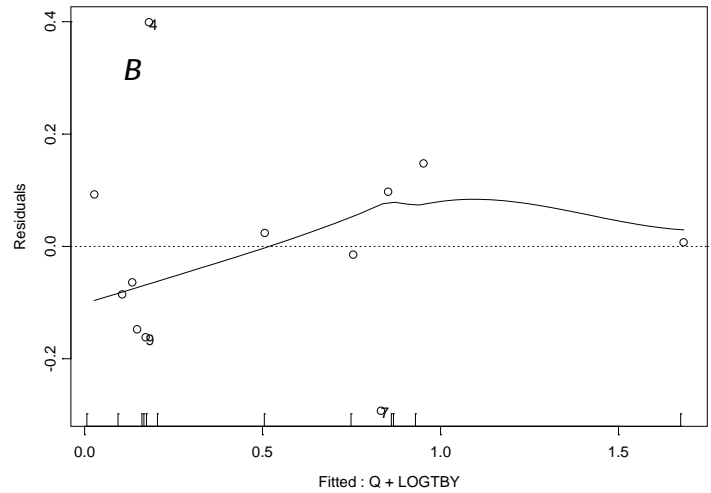
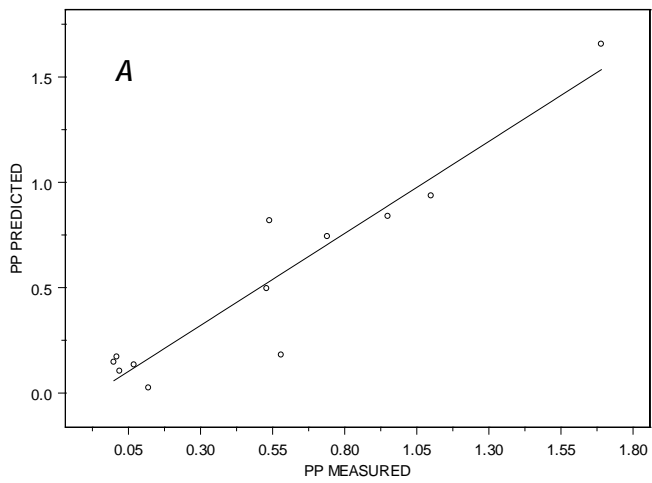


Figure 382. S+® output graphs from simple linear regression analysis using streamflow (Q) and log-transformed turbidity (TBY) as explanatory variables for particulate phosphorus (PP) concentrations showing *A*, measured versus predicted PP concentrations; *B*, computed PP concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), August 2011 through March 2013.

*** Linear Model ***

Call: lm(formula = PP ~ Q, data = PP.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.6394	-0.1197	-0.02257	0.193	0.4864

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.0751	0.1208	0.6214	0.5470
Q	0.0014	0.0003	4.9751	0.0004

Residual standard error: 0.2947 on 11 degrees of freedom

Multiple R-Squared: 0.6923 Adjusted R-squared: 0.6643

F-statistic: 24.75 on 1 and 11 degrees of freedom, the p-value is 0.0004187

Correlation of Coefficients:

(Intercept)

Q -0.7364

Analysis of Variance Table

Response: PP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
Q	1	2.149812	2.149812	24.75139	0.0004186842
Residuals	11	0.955419	0.086856		

Figure 383. S+® output of regression model development using streamflow (Q) as the explanatory variable for particulate phosphorus (PP) for Indian Creek at Overland Park, KS (Marty, site 06893300), August 2011 through May 2013.

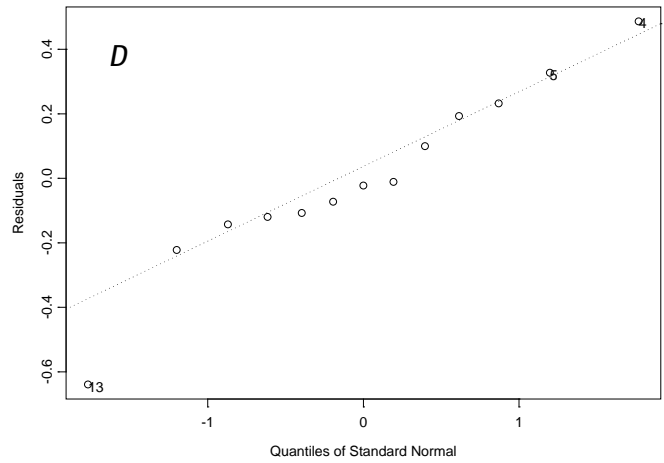
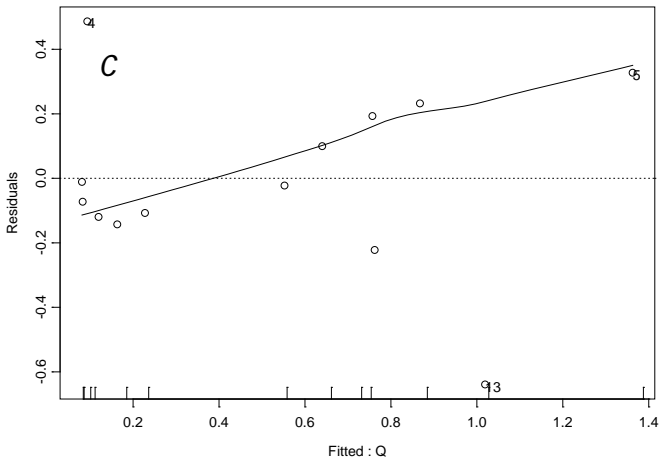
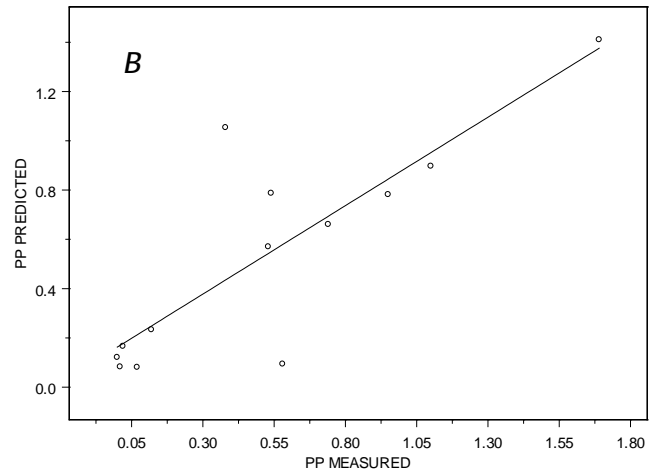
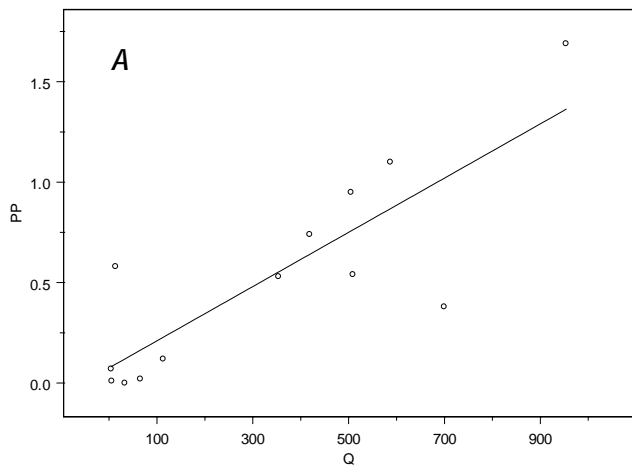


Figure 384. S+® output graphs from simple linear regression analysis showing *A*, streamflow (Q) versus particulate phosphorus (PP) concentrations; *B*, measured versus predicted PP concentrations; *C*, computed PP concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), August 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = PP ~ TBY, data = PP.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1622	-0.03927	-0.01953	0.008223	0.2924

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.0272	0.0368	0.7377	0.4749
TBY	0.0028	0.0002	16.0444	0.0000

Residual standard error: 0.1126 on 12 degrees of freedom

Multiple R-Squared: 0.9555 Adjusted R-squared: 0.9517

F-statistic: 257.4 on 1 and 12 degrees of freedom, the p-value is 1.796e-009

438 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)
TBY -0.576

Analysis of Variance Table

Response: PP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	3.266468	3.266468	257.4226	1.795781e-009
Residuals	12	0.152270	0.012689		

Figure 385. S+® output of regression model development using turbidity (TBY) as the explanatory variable for particulate phosphorus (PP) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

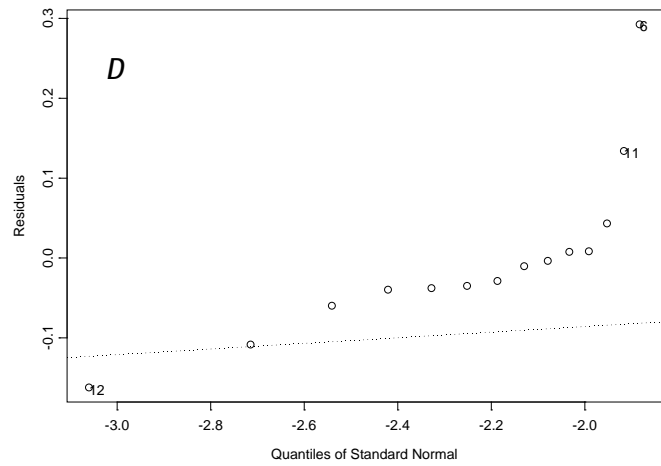
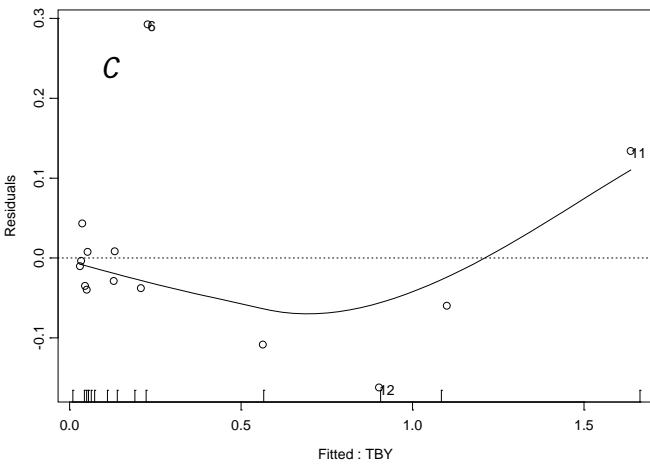
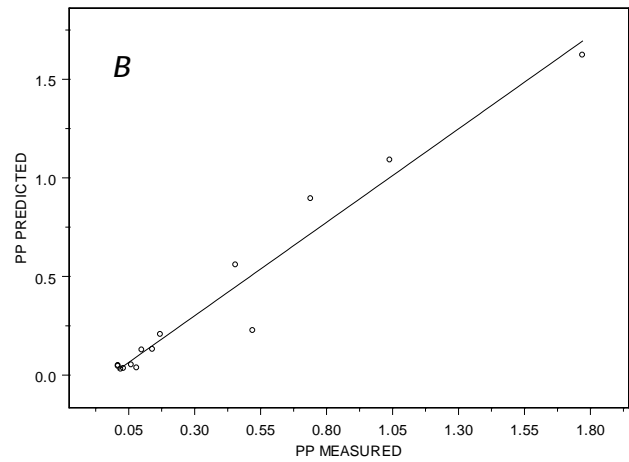
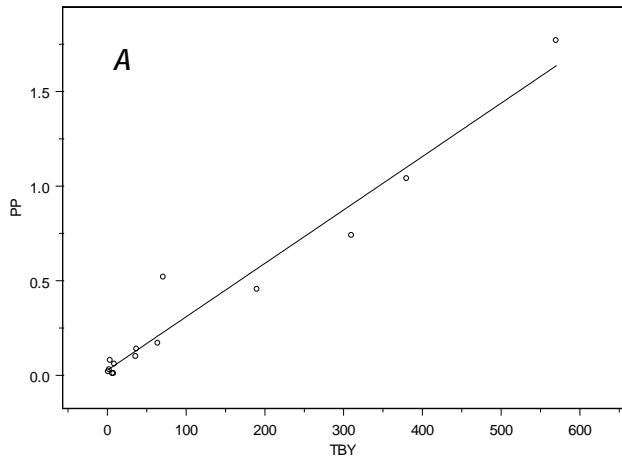


Figure 386. S+® output graphs from simple linear regression analysis showing *A*, turbidity (TBY) versus particulate phosphorus (PP) concentrations; *B*, measured versus predicted PP concentrations; *C*, computed PP concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGPP ~ LOGQ, data = PP.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.4902	-0.2205	-0.00839	0.1801	0.5961

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-2.4898	0.2216	-11.2344	0.0000
LOGQ	0.7922	0.1025	7.7297	0.0000

Residual standard error: 0.3137 on 12 degrees of freedom

Multiple R-Squared: 0.8327 Adjusted R-squared: 0.8188

F-statistic: 59.75 on 1 and 12 degrees of freedom, the p-value is 5.336e-006

438 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9257

Analysis of Variance Table

Response: LOGPP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	5.878348	5.878348	59.74876	5.335878e-006
Residuals	12	1.180613	0.098384		

Figure 387. S+® output of regression model development using streamflow (Q) as the explanatory variable for particulate phosphorus (PP) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

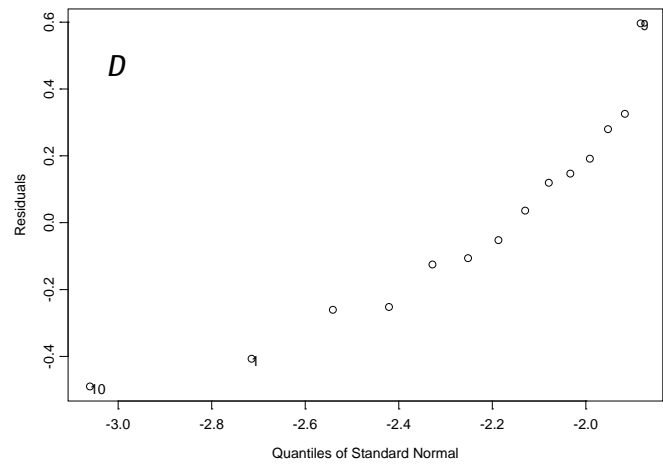
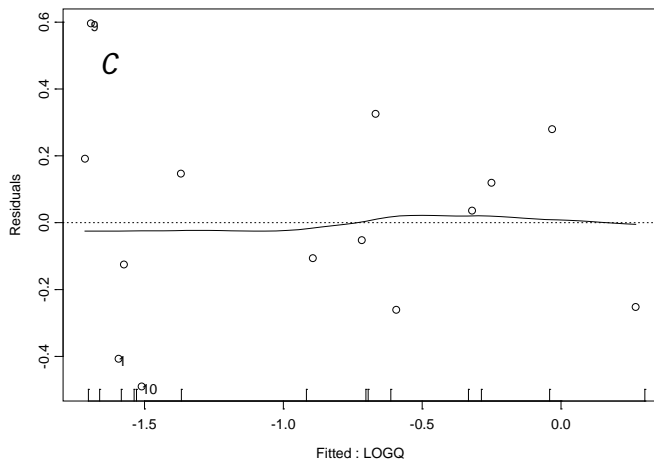
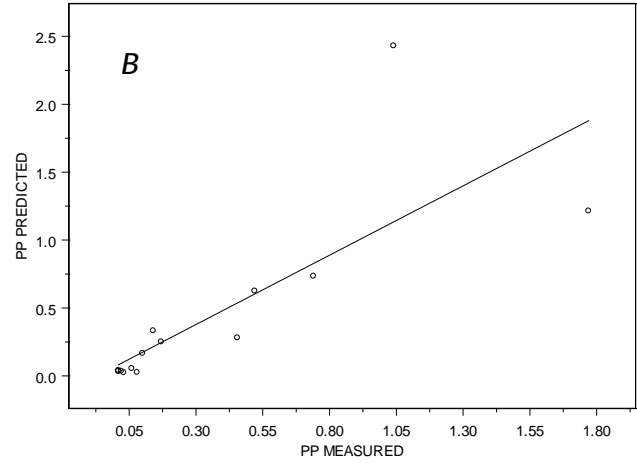
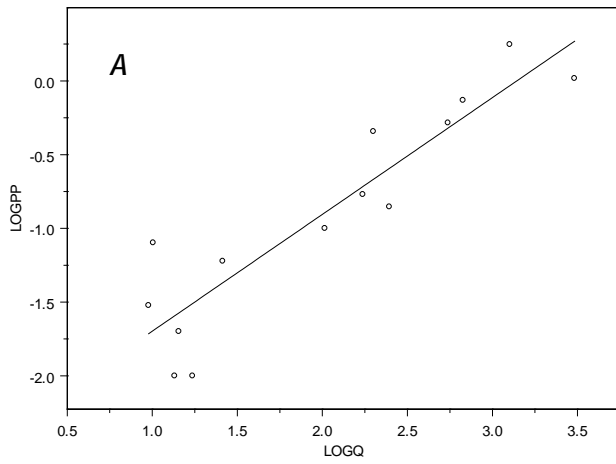


Figure 388. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus log-transformed particulate phosphorus (PP) concentrations; *B*, measured versus predicted PP concentrations; *C*, computed PP concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = PP ~ TBY, data = PP.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.8312	-0.09556	-0.04674	0.08504	0.8675

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.1149	0.0546	2.1037	0.0410
TBY	0.0017	0.0002	9.8336	0.0000

Residual standard error: 0.2821 on 45 degrees of freedom

Multiple R-Squared: 0.6824 Adjusted R-squared: 0.6754

F-statistic: 96.7 on 1 and 45 degrees of freedom, the p-value is 8.774e-013

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)
TBY -0.6578

Analysis of Variance Table

Response: PP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	7.693985	7.693985	96.69916	8.774093e-013
Residuals	45	3.580479	0.079566		

Figure 389. S+® output of regression model development using turbidity (TBY) as the explanatory variable for particulate phosphorus (PP) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

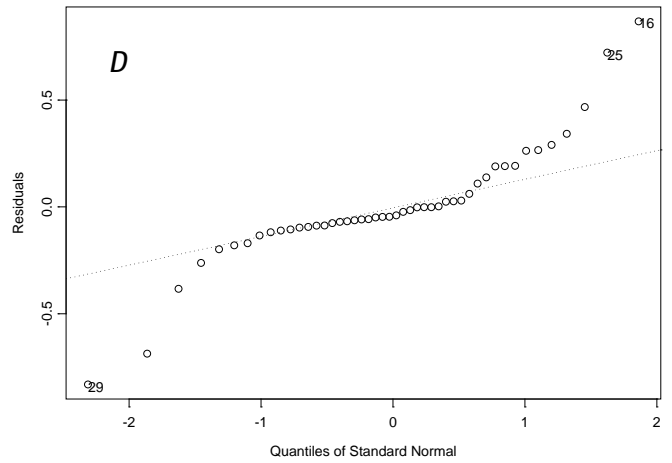
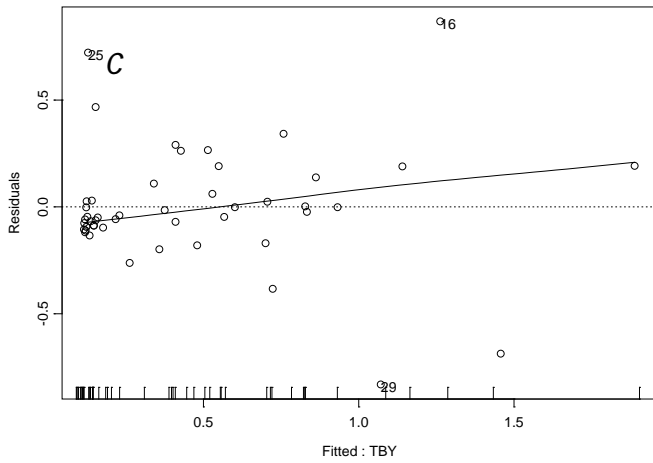
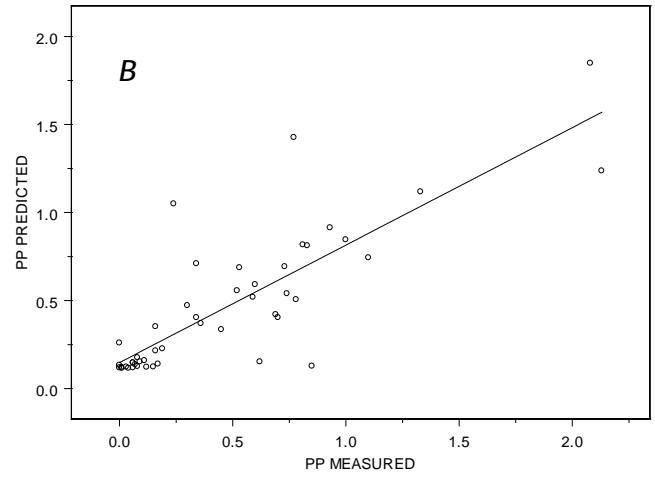
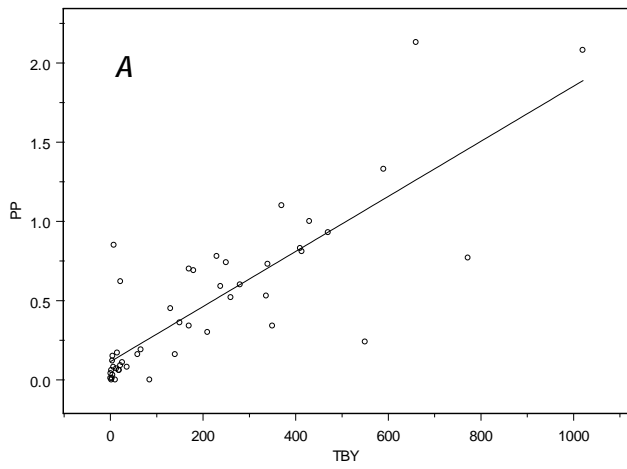


Figure 390. S+® output graphs from simple linear regression analysis showing *A*, turbidity (TBY) versus particulate phosphorus (PP) concentrations; *B*, measured versus predicted PP concentrations; *C*, computed PP concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGPP ~ LOGQ, data = PP.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-1.27	-0.1994	0.04459	0.2277	1.384

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-2.1405	0.1905	-11.2388	0.0000
LOGQ	0.5776	0.0709	8.1522	0.0000

Residual standard error: 0.4216 on 46 degrees of freedom

Multiple R-Squared: 0.591 Adjusted R-squared: 0.5821

F-statistic: 66.46 on 1 and 46 degrees of freedom, the p-value is 1.766e-010

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9476

Analysis of Variance Table

Response: LOGPP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	11.81066	11.81066	66.45777	1.766178e-010
Residuals	46	8.17497	0.17772		

Figure 391. S+® output of regression model development using streamflow (Q) as the explanatory variable for particulate phosphorus (PP) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

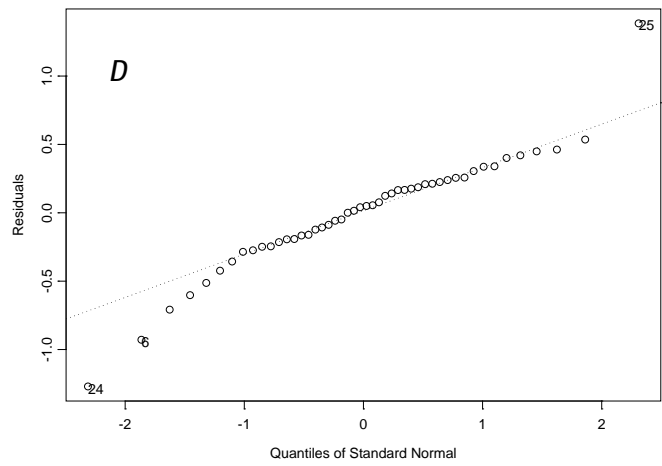
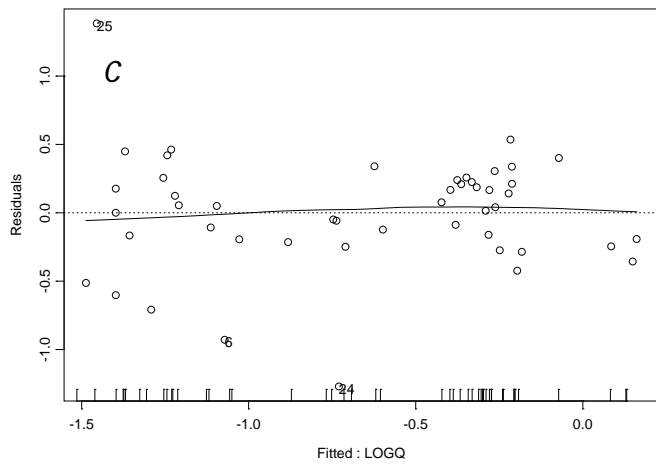
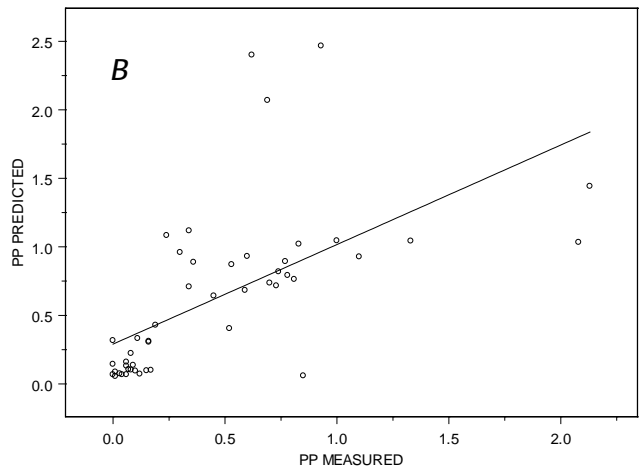
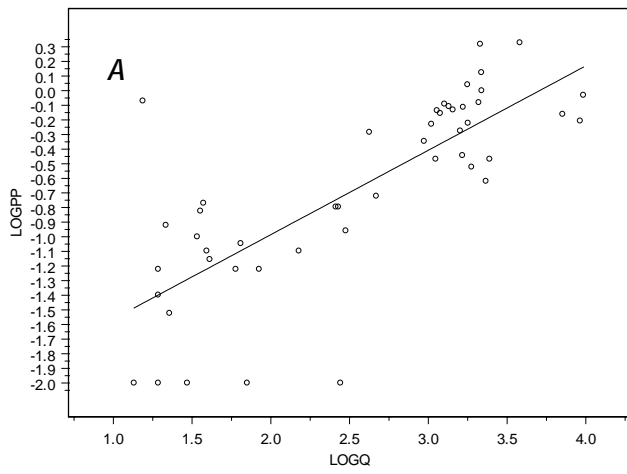


Figure 392. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus log-transformed particulate phosphorus (PP) concentrations; *B*, measured versus predicted PP concentrations; *C*, computed PP concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = PP ~ TBY, data = PP.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.7866	-0.1083	-0.0395	0.03706	0.9197

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.1081	0.0779	1.3887	0.1755
TBY	0.0017	0.0002	7.4788	0.0000

Residual standard error: 0.3295 on 29 degrees of freedom

Multiple R-Squared: 0.6586 Adjusted R-squared: 0.6468

F-statistic: 55.93 on 1 and 29 degrees of freedom, the p-value is 3.047e-008

Correlation of Coefficients:

(Intercept)	
TBY	-0.6501

Analysis of Variance Table

Response: PP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	6.071793	6.071793	55.93306	3.046909e-008
Residuals	29	3.148085	0.108555		

Figure 393. S+® output of regression model development using turbidity (TBY) as the explanatory variable for particulate phosphorus (PP) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

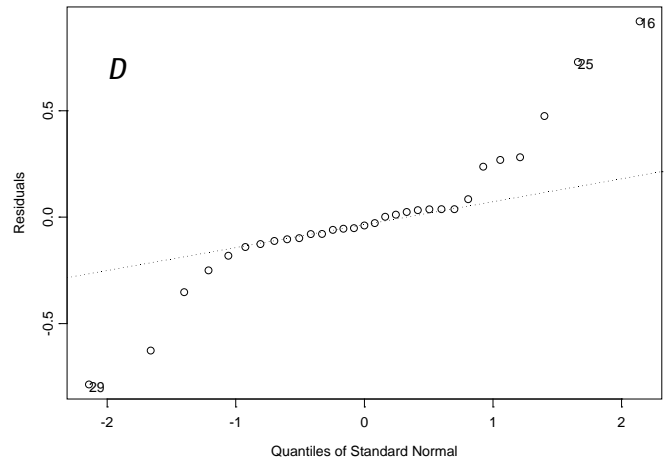
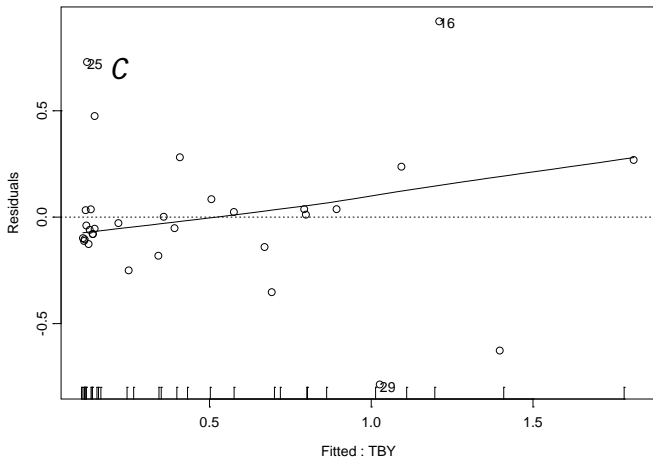
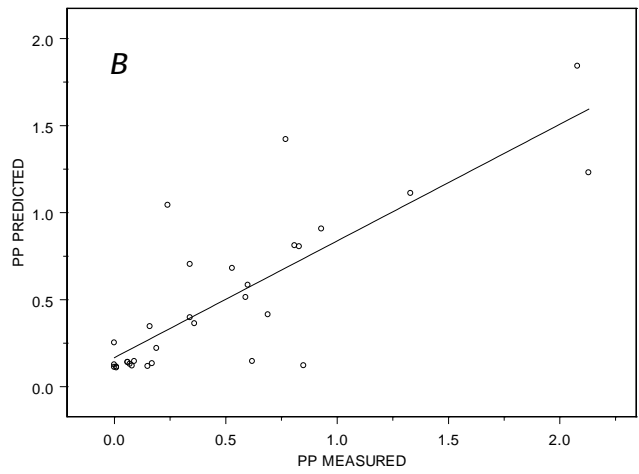
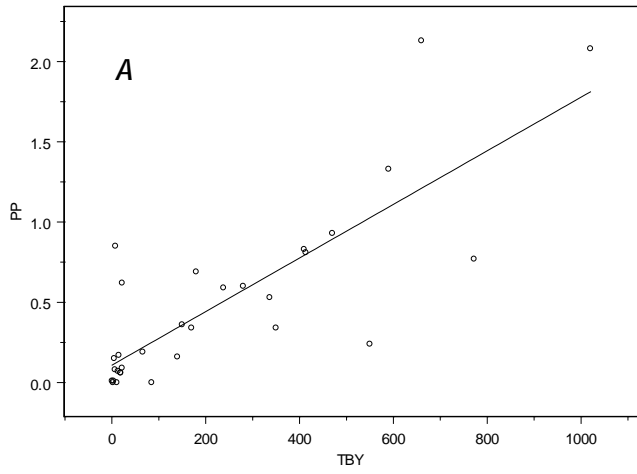


Figure 394. S+® output graphs from simple linear regression analysis showing *A*, turbidity (TBY) versus particulate phosphorus (PP) concentrations; *B*, measured versus predicted PP concentrations; *C*, computed PP concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = LOGPP ~ LOGQ, data = PP.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-1.215	-0.2149	0.006505	0.2196	1.444

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-2.2047	0.2724	-8.0927	0.0000
LOGQ	0.5811	0.0992	5.8609	0.0000

Residual standard error: 0.4957 on 29 degrees of freedom

Multiple R-Squared: 0.5422 Adjusted R-squared: 0.5264

F-statistic: 34.35 on 1 and 29 degrees of freedom, the p-value is 2.335e-006

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9451

Analysis of Variance Table

Response: LOGPP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	8.438976	8.438976	34.34976	2.334642e-006
Residuals	29	7.124658	0.245678		

Figure 395. S+® output of regression model development using streamflow (Q) as the explanatory variable for particulate phosphorus (PP) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

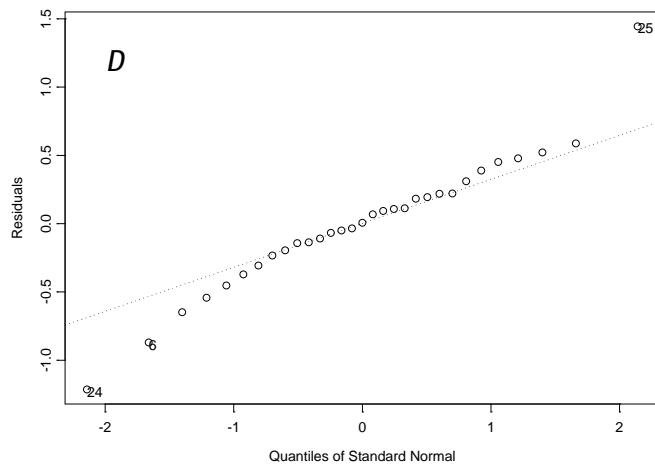
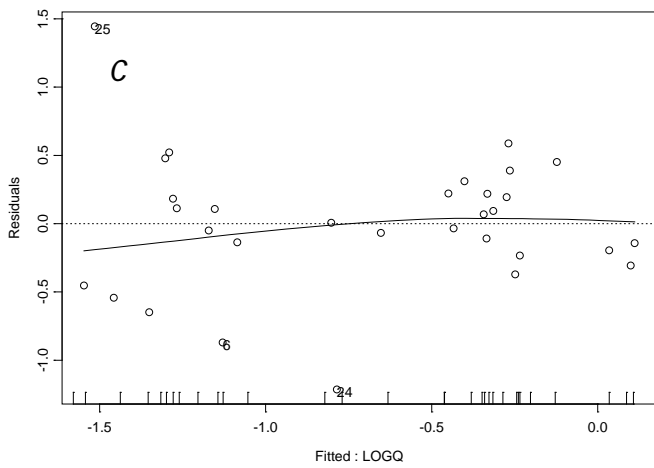
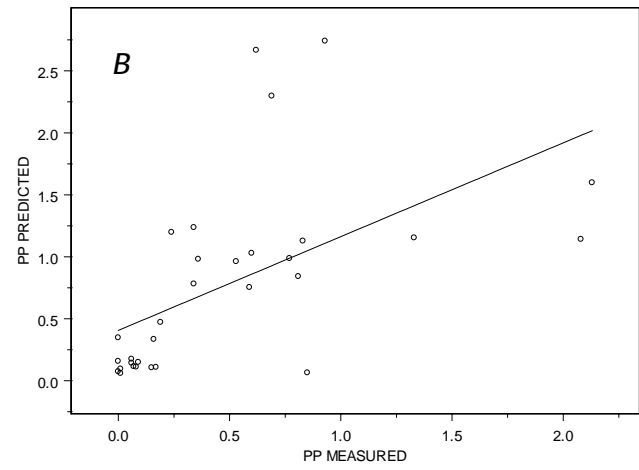
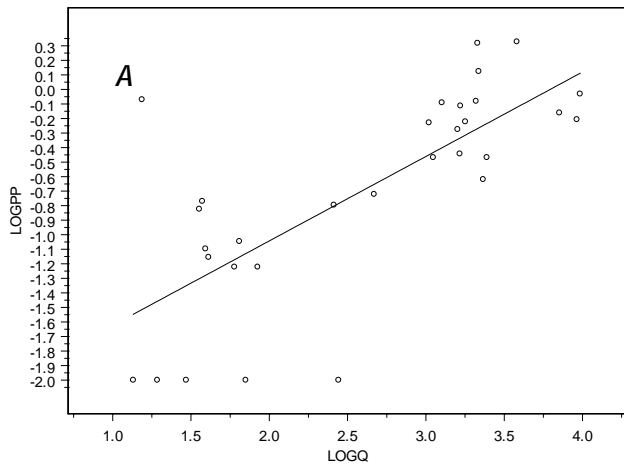


Figure 396. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus log-transformed particulate phosphorus (PP) concentrations; *B*, measured versus predicted PP concentrations; *C*, computed PP concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = PP ~ TBY, data = PP.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.2558	-0.06764	-0.01694	0.08467	0.2386

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.0602	0.0505	1.1911	0.2534
TBY	0.0024	0.0002	9.8777	0.0000

Residual standard error: 0.1347 on 14 degrees of freedom

Multiple R-Squared: 0.8745 Adjusted R-squared: 0.8656

F-statistic: 97.57 on 1 and 14 degrees of freedom, the p-value is 1.088e-007

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)
TBY -0.7458

Analysis of Variance Table

Response: PP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	1.769583	1.769583	97.56813	1.08777e-007
Residuals	14	0.253917	0.018137		

Figure 397. S+® output of regression model development using turbidity (TBY) as the explanatory variable for particulate phosphorus (PP) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

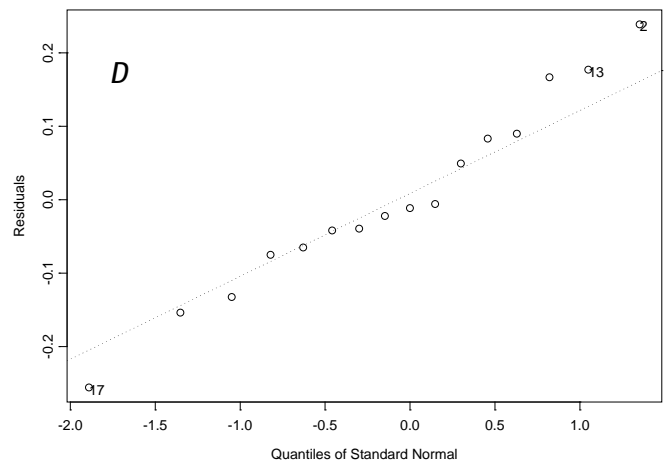
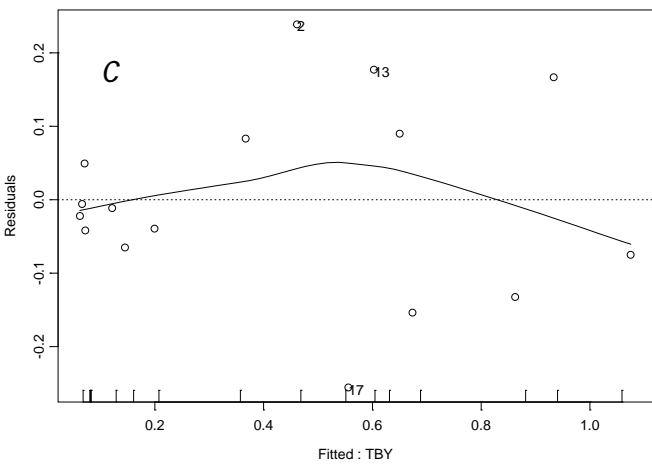
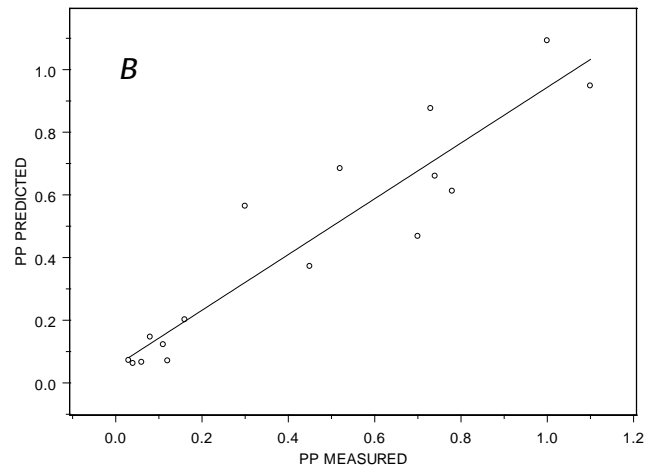
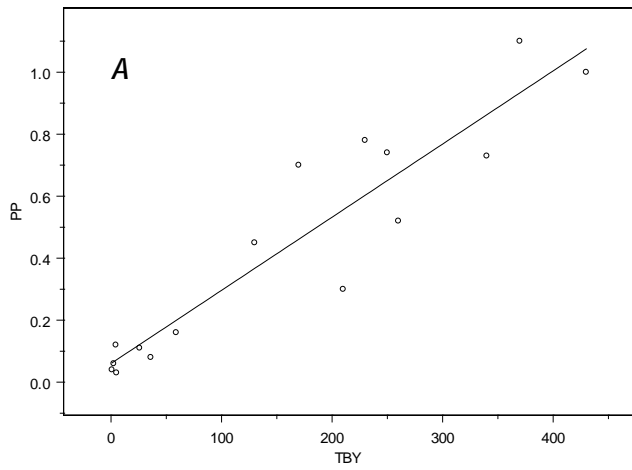


Figure 398. S+® output graphs from simple linear regression analysis showing *A*, turbidity (TBY) versus particulate phosphorus (PP) concentrations; *B*, measured versus predicted PP concentrations; *C*, computed PP concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGPP ~ LOGQ, data = PP.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.3868	-0.1585	0.09242	0.1298	0.365

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-2.0761	0.1843	-11.2664	0.0000
LOGQ	0.5922	0.0715	8.2795	0.0000

Residual standard error: 0.2285 on 15 degrees of freedom

Multiple R-Squared: 0.8205 Adjusted R-squared: 0.8085

F-statistic: 68.55 on 1 and 15 degrees of freedom, the p-value is 5.627e-007

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9537

Analysis of Variance Table

Response: LOGPP

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	3.577914	3.577914	68.54971	5.627147e-007
Residuals	15	0.782917	0.052194		

Figure 399. S+® output of regression model development using streamflow (Q) as the explanatory variable for particulate phosphorus (PP) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

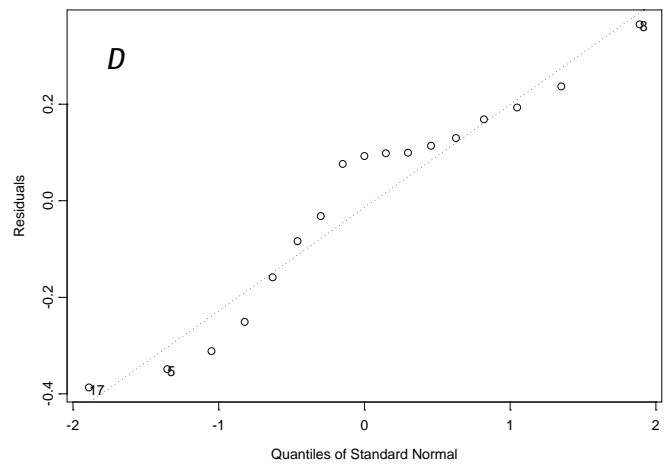
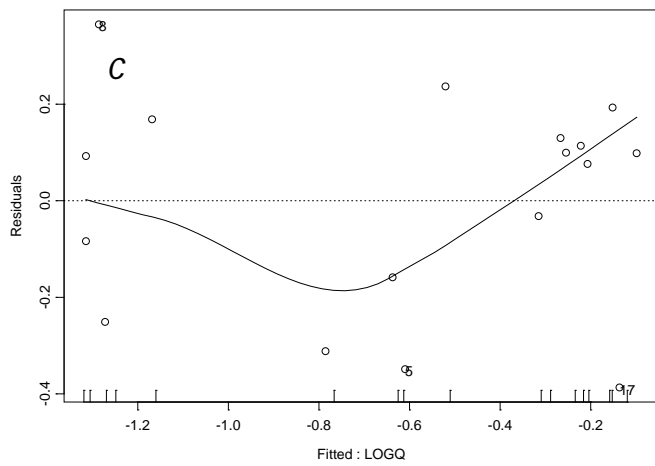
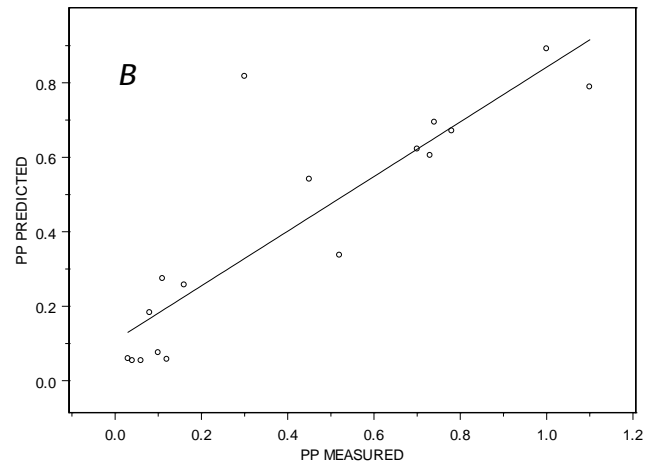
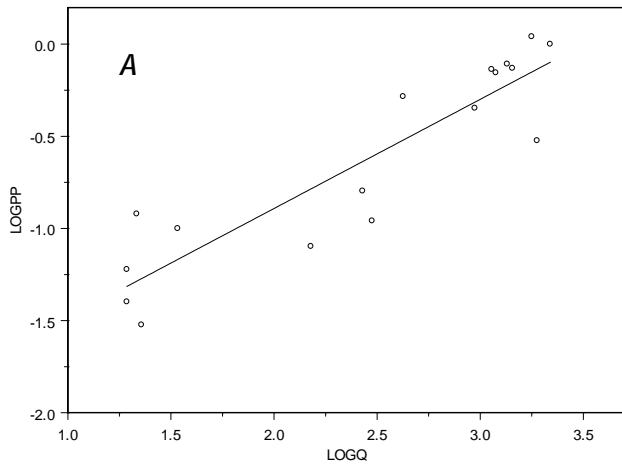


Figure 400. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus log-transformed particulate phosphorus (PP) concentrations; *B*, measured versus predicted PP concentrations; *C*, computed PP concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGENT ~ LOGQ + LOGSC, data = ENT.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.8349	-0.4183	0.104	0.3922	0.6824

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	9.1197	1.5409	5.9183	0.0000
LOGQ	0.4604	0.1473	3.1258	0.0074
LOGSC	-2.4730	0.5057	-4.8901	0.0002

Residual standard error: 0.5037 on 14 degrees of freedom

Multiple R-Squared: 0.8958 Adjusted R-squared: 0.8809

F-statistic: 60.18 on 2 and 14 degrees of freedom, the p-value is 1.334e-007

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	LOGQ
LOGQ	-0.7894	
LOGSC	-0.9924	0.7311

Analysis of Variance Table

Response: LOGENT

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	24.46410	24.46410	96.43880	0.0000001169
LOGSC	1	6.06603	6.06603	23.91263	0.0002386894
Residuals	14	3.55145	0.25367		

Figure 401. S+® output of regression model development using streamflow (Q) and specific conductance (SC) as explanatory variables for enterococci bacteria (ENT) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

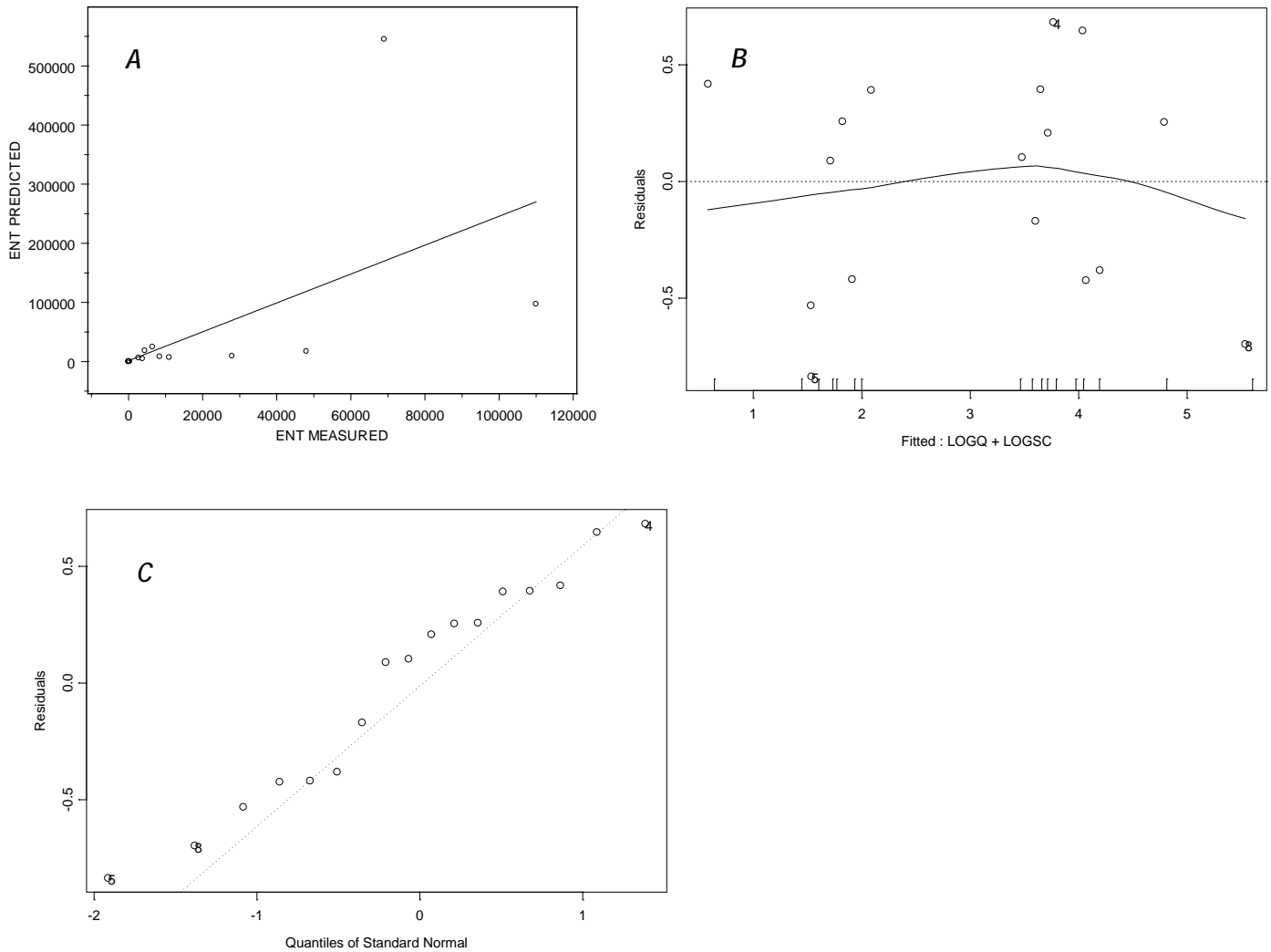


Figure 402. S+® output graphs from simple linear regression analysis using log-transformed streamflow (Q) and log-transformed specific conductance (SC) as explanatory variables for log-transformed enterococci bacteria (ENT) showing A, measured versus predicted ENT concentrations; B, computed log-transformed ENT concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGENT ~ LOGQ + LOGSC, data = ENT.COLLSPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.4839	-0.2341	-0.02221	0.0839	0.7476

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	5.3720	1.6926	3.1739	0.0073
LOGQ	0.7474	0.1843	4.0542	0.0014
LOGSC	-1.2591	0.4913	-2.5626	0.0236

Residual standard error: 0.3757 on 13 degrees of freedom

Multiple R-squared: 0.8802 Adjusted R-squared: 0.8618

F-statistic: 47.77 on 2 and 13 degrees of freedom, the p-value is 1.022e-006

Correlation of Coefficients:

	(Intercept)	LOGQ
LOGQ	-0.8525	
LOGSC	-0.9879	0.7693

Analysis of Variance Table

Response: LOGENT

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	12.55692	12.55692	88.96293	0.00000035
LOGSC	1	0.92694	0.92694	6.56714	0.02362056
Residuals	13	1.83492	0.14115		

Figure 403. S+® output of regression model development using streamflow (Q) and specific conductance (SC) as explanatory variables for enterococci bacteria (ENT) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

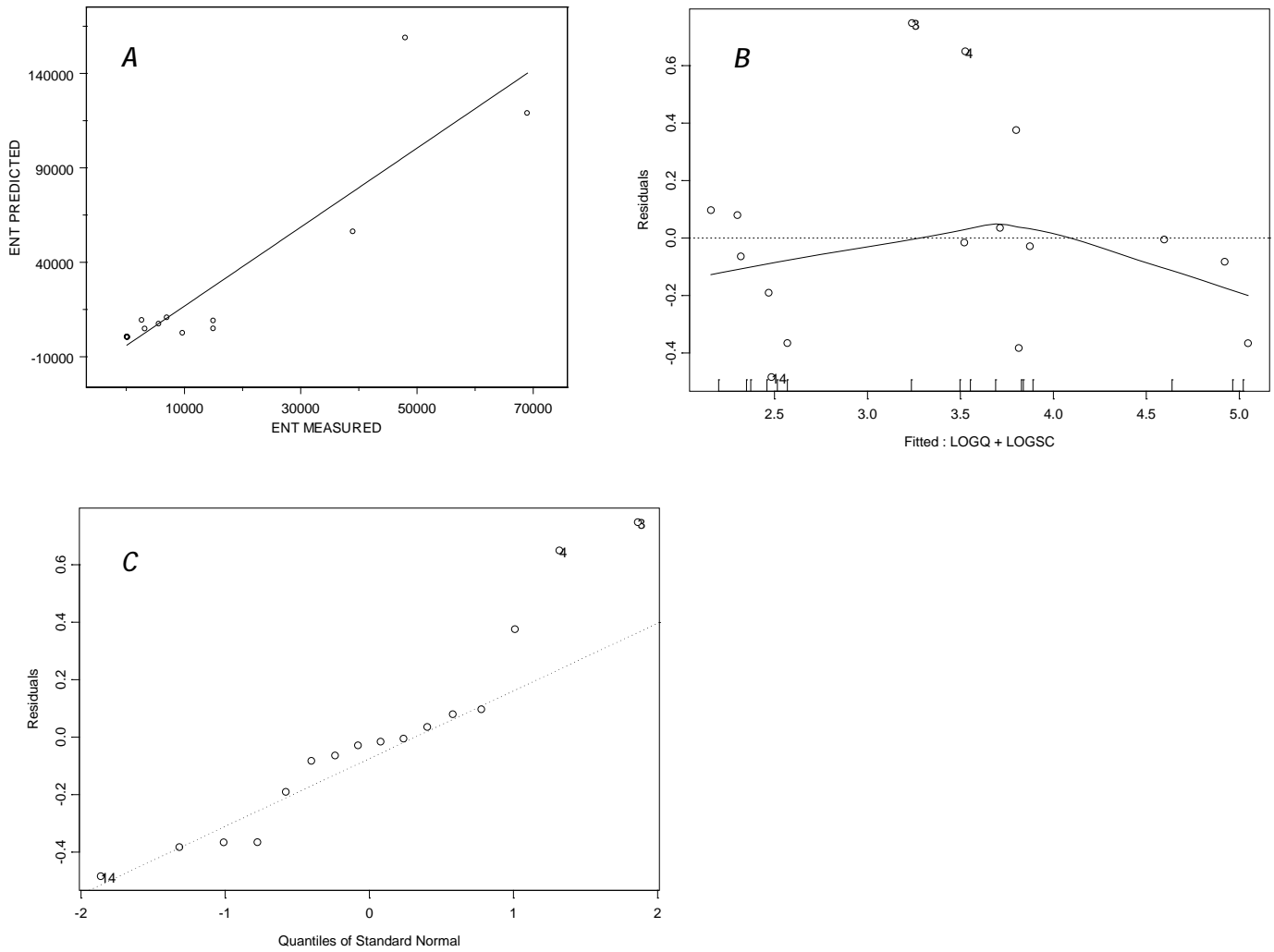


Figure 404. S+® output graphs from simple linear regression analysis using log-transformed streamflow (Q) and log-transformed specific conductance (SC) as explanatory variables for log-transformed enterococci bacteria (ENT) showing *A*, measured versus predicted ENT concentrations; *B*, computed log-transformed ENT concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGENT ~ LOGSC + LOGTBY, data = ENT.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.7353	-0.2209	-0.05486	0.3399	0.677

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	6.2730	1.6006	3.9191	0.0020
LOGSC	-1.5960	0.4982	-3.2038	0.0076
LOGTBY	0.8024	0.1643	4.8837	0.0004

Residual standard error: 0.447 on 12 degrees of freedom

Multiple R-squared: 0.8963 Adjusted R-squared: 0.879

F-statistic: 51.84 on 2 and 12 degrees of freedom, the p-value is 1.246e-006

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	LOGSC
LOGSC	-0.9905	
LOGTBY	-0.7612	0.6820

Analysis of Variance Table

Response: LOGENT

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	15.95534	15.95534	79.83744	0.0000011916
LOGTBY	1	4.76639	4.76639	23.85009	0.0003761891
Residuals	12	2.39817	0.19985		

Figure 405. S+® output of regression model development using specific conductance (SC) and turbidity (TBY) as explanatory variables for enterococci bacteria (ENT) for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through April 2013.

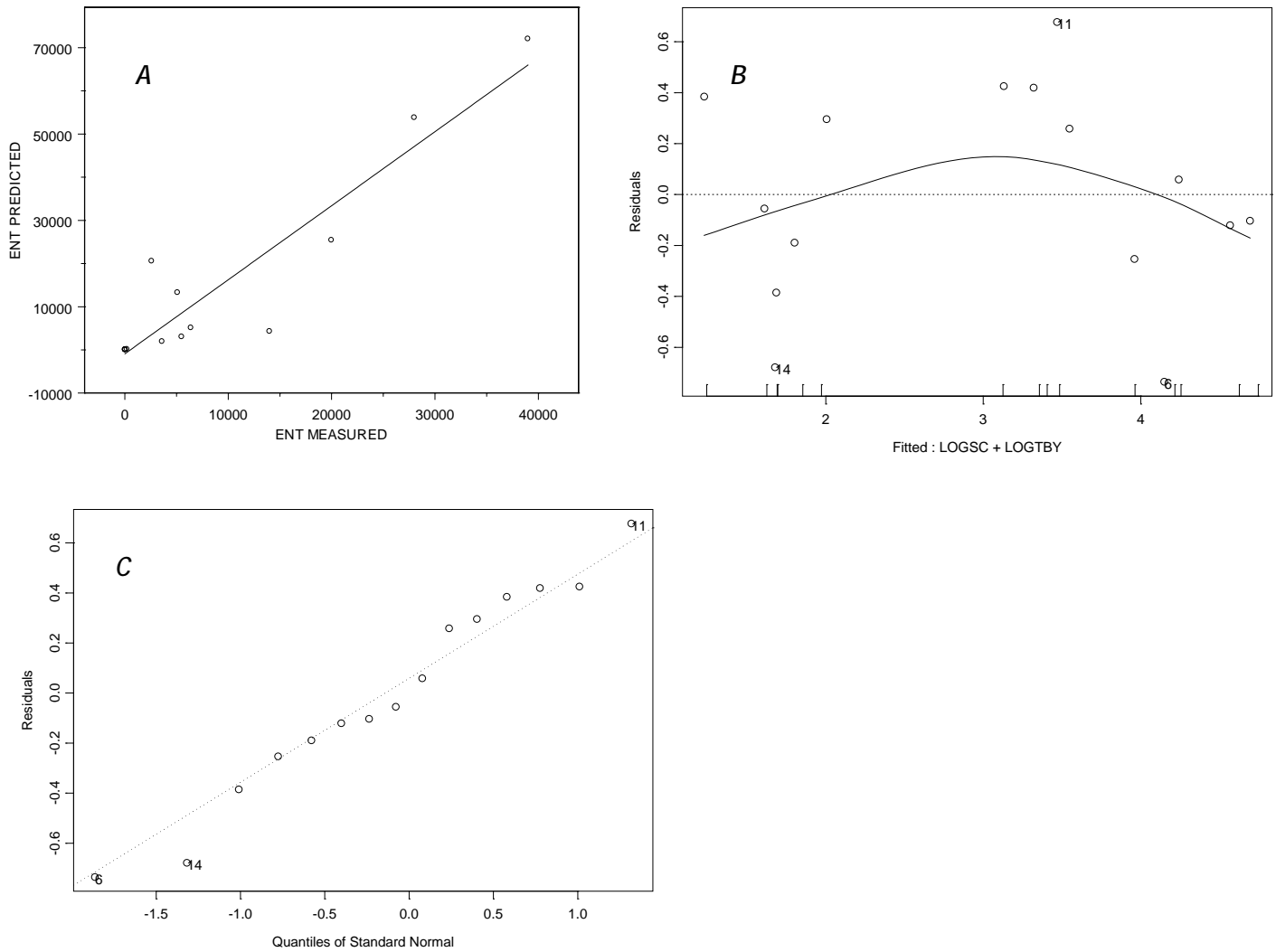


Figure 406. S+® output graphs from simple linear regression analysis using log-transformed specific conductance (SC) and log-transformed turbidity (TBY) as explanatory variables for log-transformed enterococci bacteria (ENT) showing *A*, measured versus predicted ENT concentrations; *B*, computed log-transformed ENT concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through April 2013.

*** Linear Model ***

Call: lm(formula = LOGENT ~ TBY + LOGTBY, data = ENT.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.8155	-0.3661	-0.1397	0.4582	0.7703

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.1500	0.3810	0.3937	0.7007
TBY	-0.0048	0.0015	-3.1499	0.0084
LOGTBY	2.3099	0.3232	7.1478	0.0000

Residual standard error: 0.5469 on 12 degrees of freedom

Multiple R-Squared: 0.8634 Adjusted R-squared: 0.8406

F-statistic: 37.91 on 2 and 12 degrees of freedom, the p-value is 6.508e-006

438 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	TBY
TBY	0.5936	
LOGTBY	-0.8914	-0.8294

Analysis of Variance Table

Response: LOGENT

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	7.39594	7.39594	24.73176	0.0003235763
LOGTBY	1	15.27842	15.27842	51.09050	0.0000116785
Residuals	12	3.58855	0.29905		

Figure 407. S+® output of regression model development using turbidity (TBY) as an explanatory variable for enterococci bacteria (ENT) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

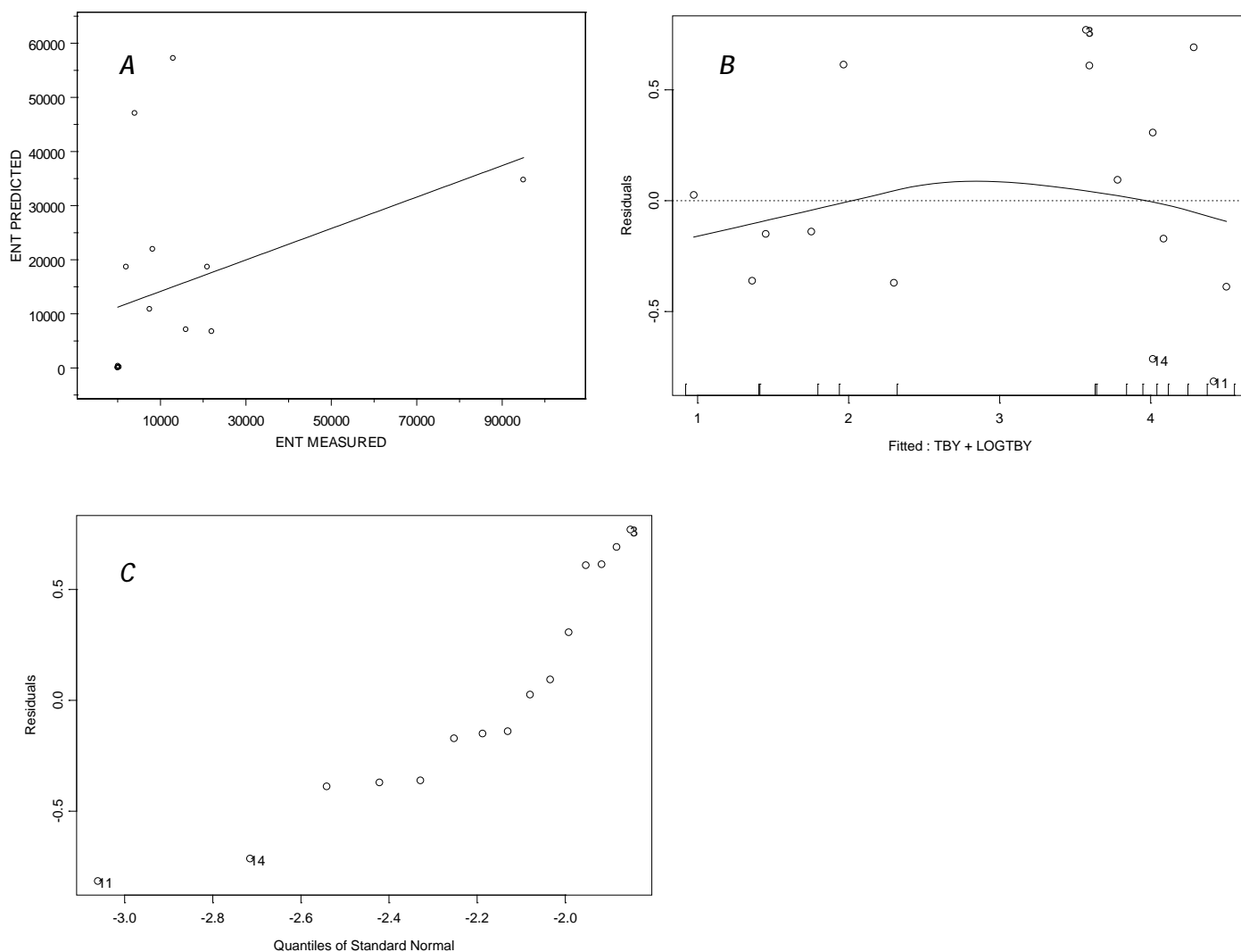


Figure 408. S+® output graphs from simple linear regression analysis using turbidity (TBY) and log-transformed TBY as explanatory variables for log-transformed enterococci bacteria (ENT) showing *A*, measured versus predicted ENT concentrations; *B*, computed ENT concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGENT ~ LOGSC + LOGTBY, data = ENT.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.5452	-0.3025	-0.08049	0.2351	0.7191

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	9.3036	1.3062	7.1228	0.0000
LOGSC	-2.4548	0.4272	-5.7467	0.0001
LOGTBY	0.7054	0.1267	5.5686	0.0001

Residual standard error: 0.4122 on 12 degrees of freedom

Multiple R-Squared: 0.9148 Adjusted R-squared: 0.9005

F-statistic: 64.38 on 2 and 12 degrees of freedom, the p-value is 3.838e-007

Correlation of Coefficients:

	(Intercept)	LOGSC
LOGSC	-0.9922	
LOGTBY	-0.5807	0.5028

Analysis of Variance Table

Response: LOGENT

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	16.60788	16.60788	97.75589	0.0000004048
LOGTBY	1	5.26823	5.26823	31.00941	0.0001220929
Residuals	12	2.03870	0.16989		

Figure 409. S+® output of regression model development using specific conductance (SC) and turbidity (TBY) as explanatory variables for enterococci bacteria (ENT) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

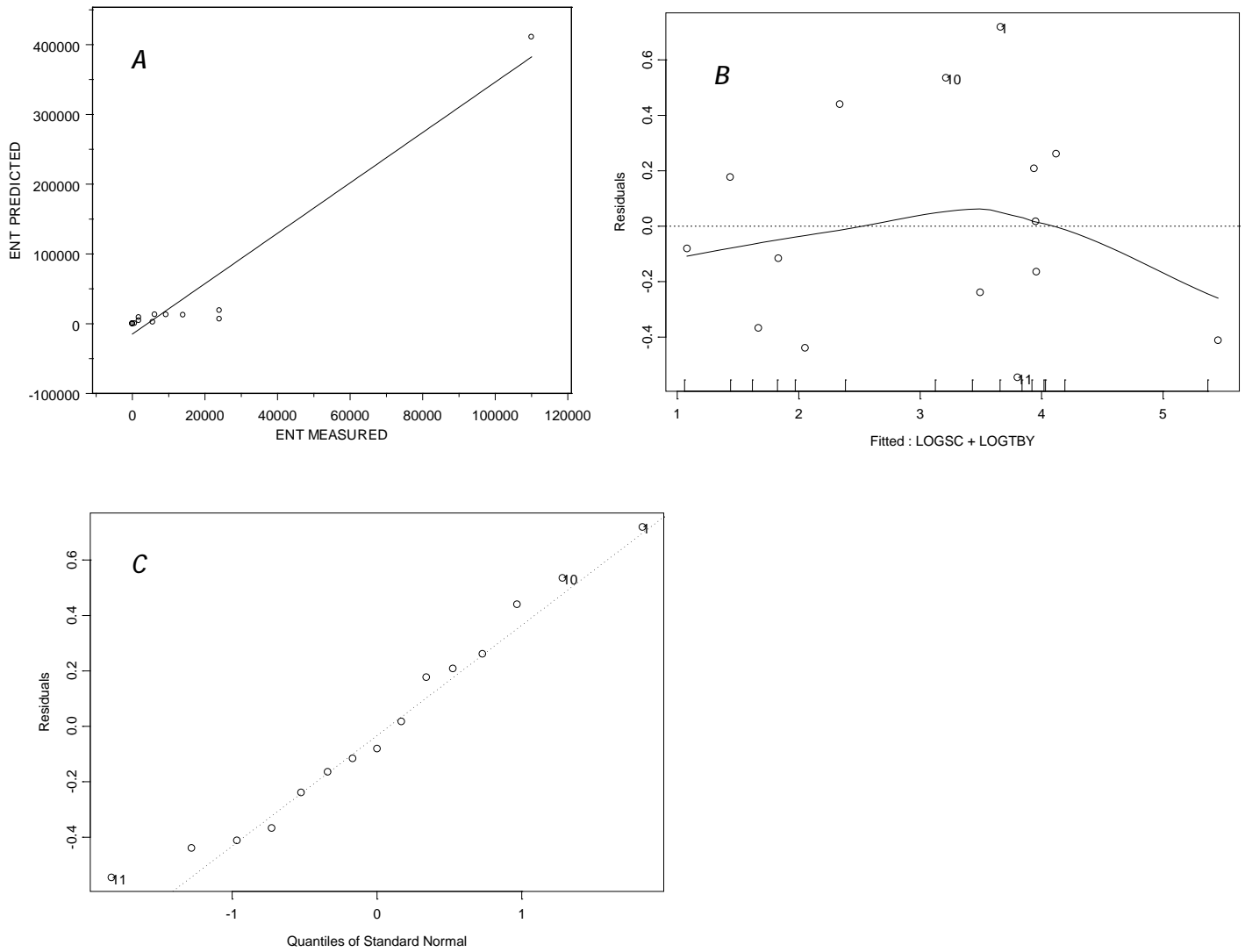


Figure 410. S+® output graphs from simple linear regression analysis using log-transformed specific conductance (SC) and log-transformed turbidity (TBY) as explanatory variables for log-transformed enterococci bacteria (ENT) showing *A*, measured versus predicted ENT concentrations; *B*, computed log-transformed ENT concentrations versus regression residuals, and *C*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGENT ~ SIN + COS + LOGTBY, data = ENT.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-1.664	-0.3831	0.02669	0.3019	1.629

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.1483	0.2444	4.6978	0.0000
SIN	-0.1670	0.1593	-1.0486	0.3007
COS	-0.5470	0.1529	-3.5776	0.0009
LOGTBY	1.1897	0.1265	9.4051	0.0000

Residual standard error: 0.6847 on 40 degrees of freedom

Multiple R-squared: 0.7312 Adjusted R-squared: 0.711

F-statistic: 36.27 on 3 and 40 degrees of freedom, the p-value is 1.722e-011

Correlation of Coefficients:

	(Intercept)	SIN	COS
SIN	-0.0623		
COS	0.0402	0.0444	
LOGTBY	-0.8823	-0.1077	0.0964

Analysis of Variance Table

Response: LOGENT

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SIN	1	0.02149	0.02149	0.04583	0.8315712
COS	1	9.51546	9.51546	20.29790	0.0000564
LOGTBY	1	41.46703	41.46703	88.45541	0.0000000
Residuals	40	18.75161	0.46879		

Figure 411. S+® output of regression model development using season (SIN and COS) and turbidity (TBY) as explanatory variables for enterococci bacteria (ENT) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

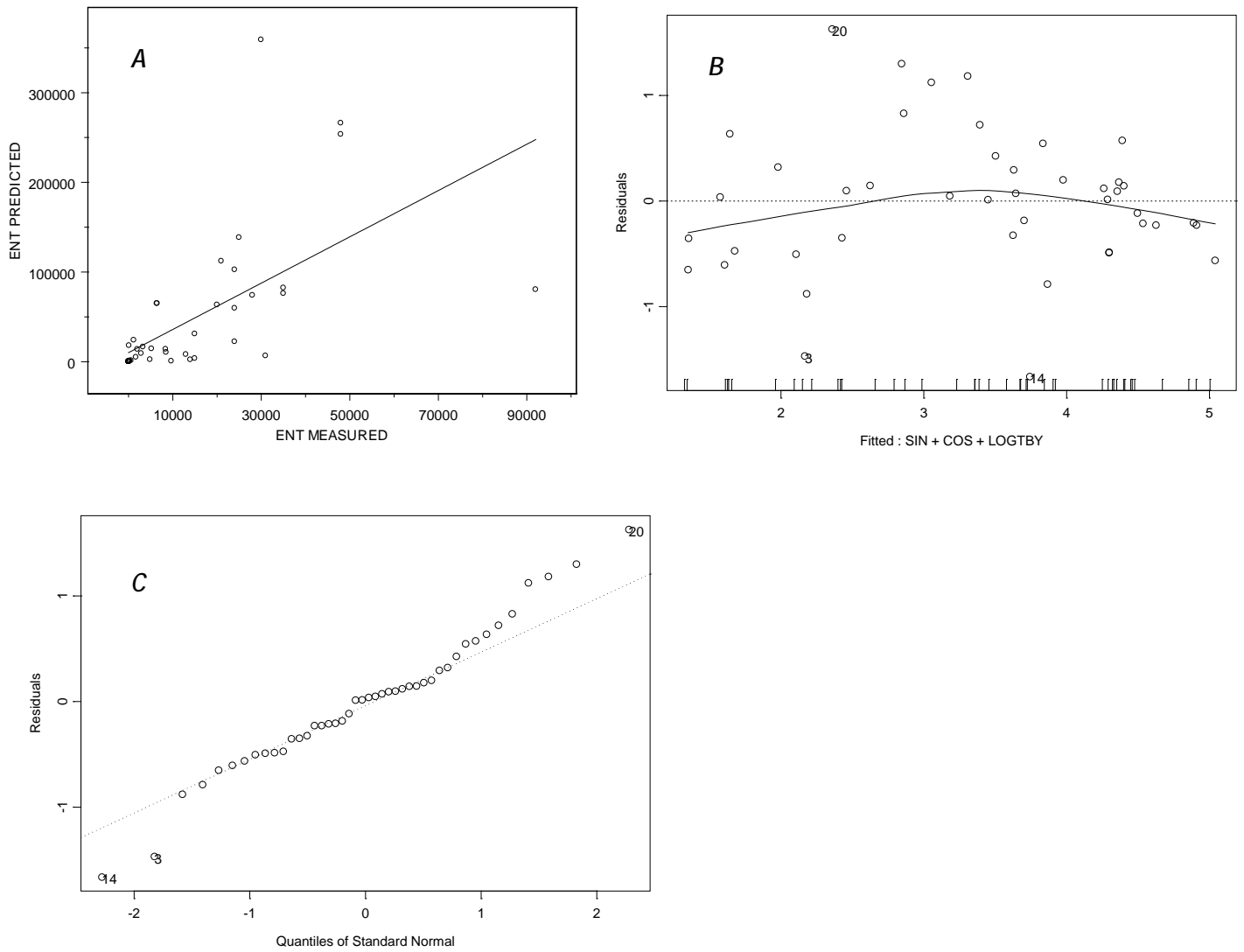


Figure 412. S+® output graphs from simple linear regression analysis using season (SIN and COS) and log-transformed turbidity (TBY) as explanatory variables for log-transformed enterococci bacteria (ENT) showing *A*, measured versus predicted ENT concentrations; *B*, computed log-transformed ENT concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGENT ~ SIN + COS + LOGTBY, data = ENT.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-1.224	-0.4233	-0.03086	0.3483	1.397

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.0878	0.3677	2.9588	0.0073
SIN	0.0886	0.2038	0.4347	0.6680
COS	-0.7408	0.2176	-3.4045	0.0025
LOGTBY	1.1603	0.1828	6.3479	0.0000

Residual standard error: 0.7116 on 22 degrees of freedom

Multiple R-squared: 0.7457 Adjusted R-squared: 0.7111

F-statistic: 21.51 on 3 and 22 degrees of freedom, the p-value is 9.725e-007

Correlation of Coefficients:

	(Intercept)	SIN	COS
SIN	-0.1107		
COS	-0.0744	0.0706	
LOGTBY	-0.9096	0.0025	0.2122

Analysis of Variance Table

Response: LOGENT

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SIN	1	0.29985	0.29985	0.59210	0.4497919
COS	1	11.97119	11.97119	23.63916	0.0000736
LOGTBY	1	20.40614	20.40614	40.29539	0.0000022
Residuals	22	11.14110	0.50641		

Figure 413. S+® output of regression model development using season (SIN and COS) and turbidity (TBY) as explanatory variables for enterococci bacteria (ENT) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

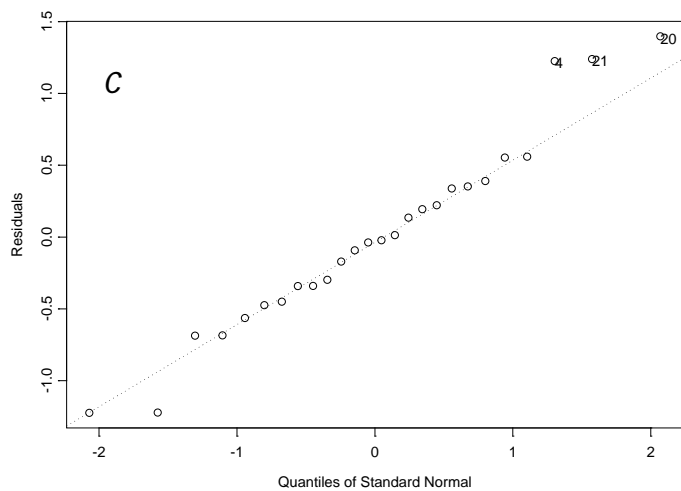
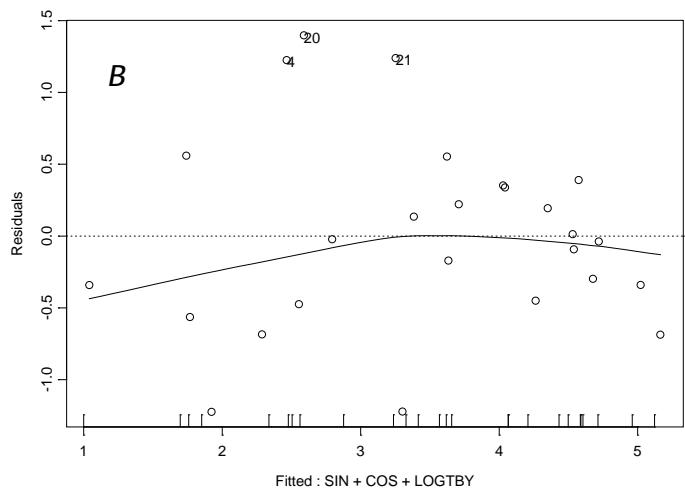
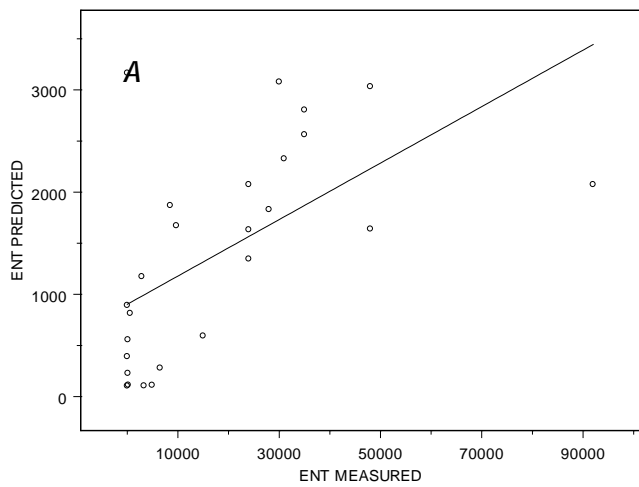


Figure 414. S+® output graphs from simple linear regression analysis using season (SIN and COS) and log-transformed turbidity (TBY) as explanatory variables for log-transformed enterococci bacteria (ENT) showing A, measured versus predicted ENT concentrations; B, computed log-transformed ENT concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = LOGENT ~ SIN + COS + LOGTBY, data = ENT.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.8069	-0.3037	-0.1238	0.38	0.8441

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.2192	0.2655	4.5916	0.0004
SIN	-0.7340	0.2193	-3.3471	0.0048
COS	-0.3133	0.1751	-1.7896	0.0952
LOGTBY	1.3055	0.1526	8.5549	0.0000

Residual standard error: 0.5257 on 14 degrees of freedom

Multiple R-squared: 0.8437 Adjusted R-squared: 0.8102

F-statistic: 25.18 on 3 and 14 degrees of freedom, the p-value is 6.664e-006

Correlation of Coefficients:

	(Intercept)	SIN	COS
SIN	0.0269		
COS	0.1675	0.0474	
LOGTBY	-0.8388	-0.3103	-0.0484

Analysis of Variance Table

Response: LOGENT

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SIN	1	0.12853	0.12853	0.46516	0.5063504
COS	1	0.52406	0.52406	1.89663	0.1900776
LOGTBY	1	20.22212	20.22212	73.18613	0.0000006
Residuals	14	3.86835	0.27631		

Figure 415. S+® output of regression model development using season (SIN and COS) and turbidity (TBY) as explanatory variables for enterococci bacteria (ENT) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

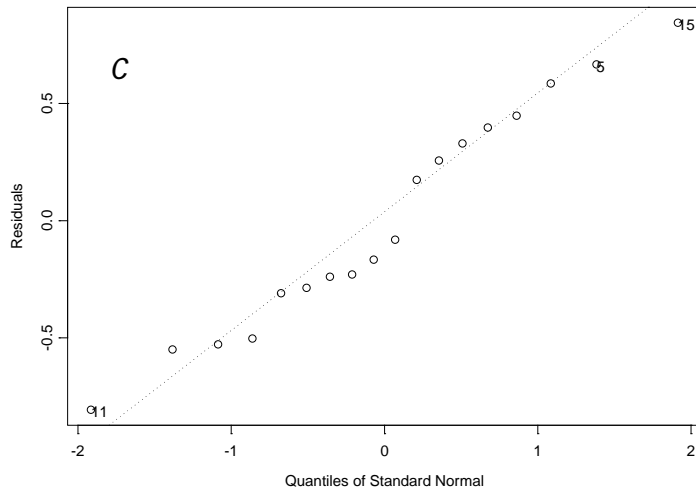
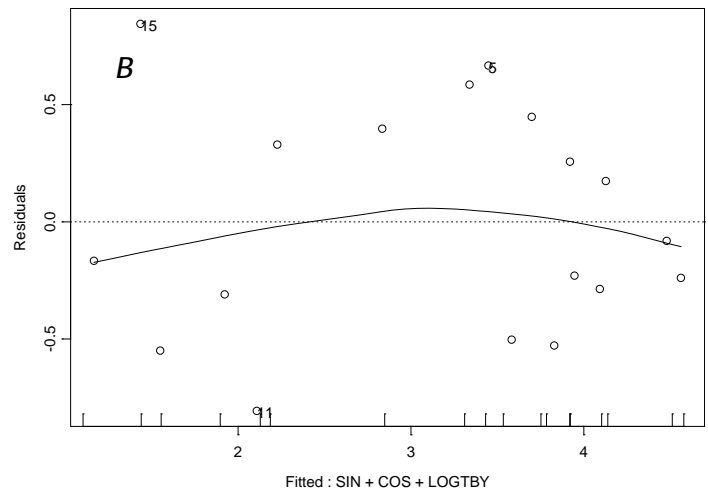
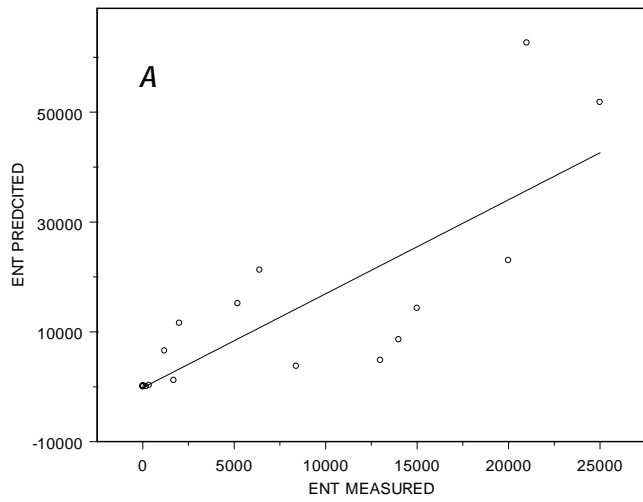


Figure 416. S+® output graphs from simple linear regression analysis using season (SIN and COS) and log-transformed turbidity (TBY) as explanatory variables for log-transformed enterococci bacteria (ENT) showing A, measured versus predicted ENT concentrations; B, computed log-transformed ENT concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGEC ~ LOGQ, data = EC.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-1.038	-0.5021	-0.08055	0.5908	0.8238

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.7151	0.2452	6.9936	0.0000
LOGQ	0.9104	0.1304	6.9829	0.0000

Residual standard error: 0.6534 on 15 degrees of freedom

Multiple R-Squared: 0.7647 Adjusted R-squared: 0.7491

F-statistic: 48.76 on 1 and 15 degrees of freedom, the p-value is 4.404e-006

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.7632

Analysis of Variance Table

Response: LOGEC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	20.81905	20.81905	48.76066	4.404263e-006
Residuals	15	6.40446	0.42696		

Figure 417. S+® output of regression model development using streamflow (Q) as the explanatory variable for *Escherichia coli* bacteria (EC) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

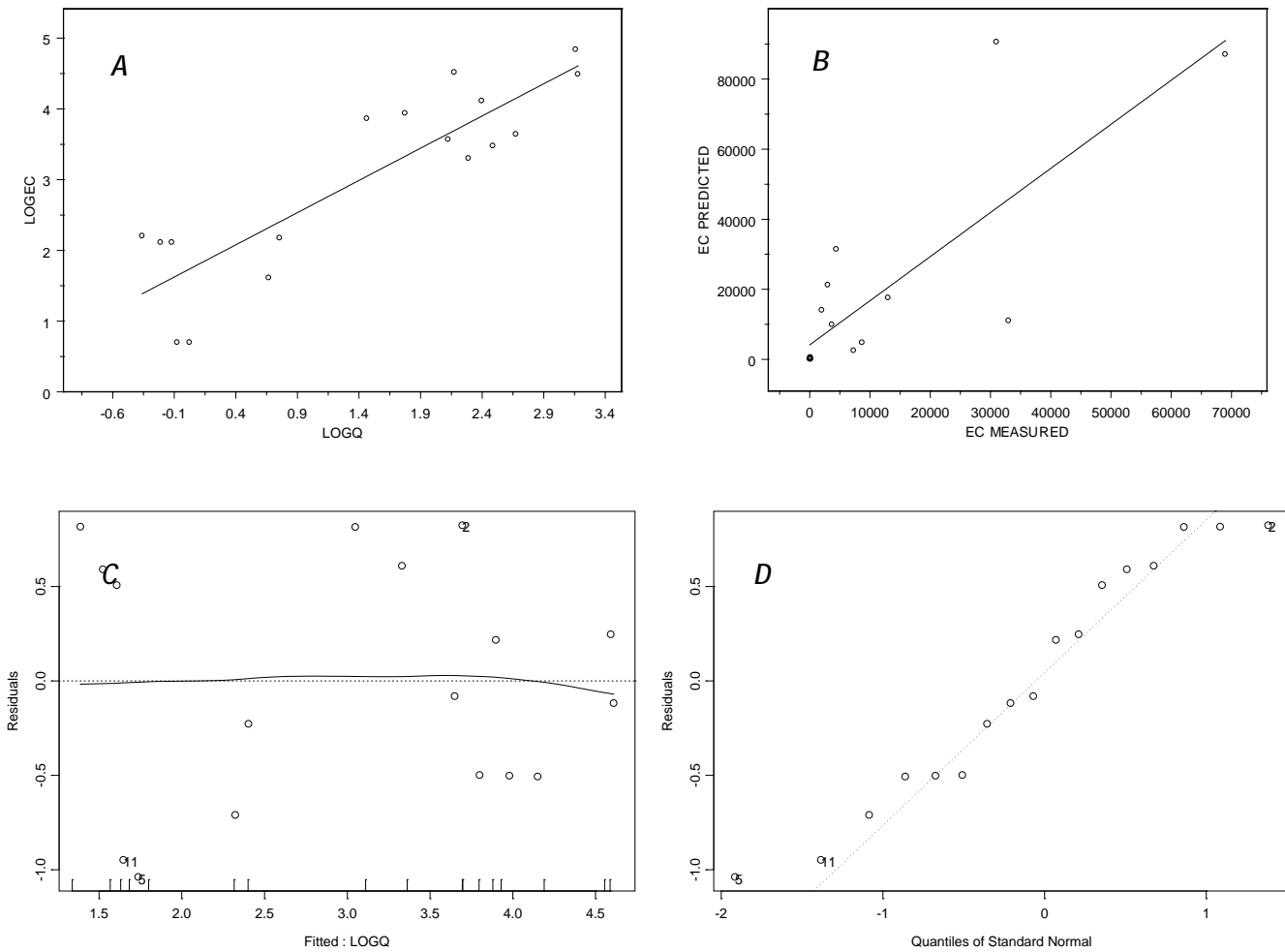


Figure 418. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (*Q*) versus log-transformed *Escherichia coli* bacteria (*EC*); *B*, measured versus predicted *EC* concentrations; *C*, computed log-transformed *EC* concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGEC ~ LOGQ + LOGTBY, data = EC.COLLSPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.5144	-0.1299	-0.05464	0.06224	0.8068

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.5844	0.3623	1.6131	0.1307
LOGQ	1.9661	0.3861	5.0916	0.0002
LOGTBY	-0.8159	0.3246	-2.5140	0.0259

Residual standard error: 0.363 on 13 degrees of freedom

Multiple R-Squared: 0.8733 Adjusted R-squared: 0.8538

F-statistic: 44.8 on 2 and 13 degrees of freedom, the p-value is 1.474e-006

Correlation of Coefficients:

	(Intercept)	LOGQ
LOGQ	-0.8753	
LOGTBY	0.7145	-0.9556

Analysis of Variance Table

Response: LOGEC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	10.97452	10.97452	83.27354	0.00000051
LOGTBY	1	0.83291	0.83291	6.32005	0.02589712
Residuals	13	1.71326	0.13179		

Figure 419. S+® output of regression model development using streamflow (Q) and specific conductance (SC) as explanatory variables for *Escherichia coli* bacteria (EC) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

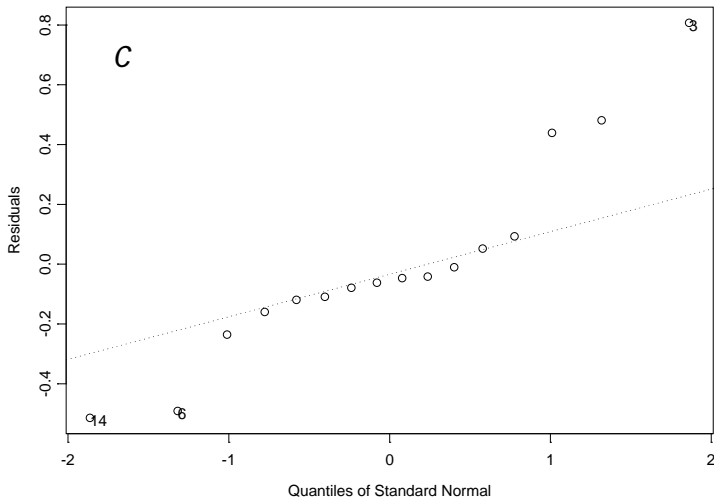
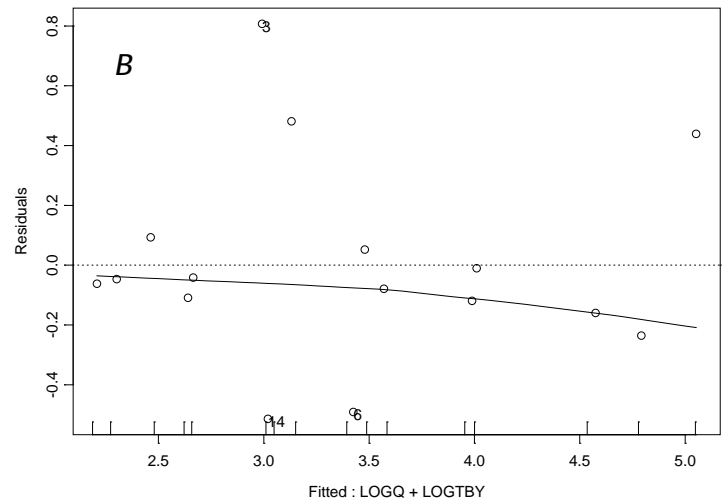
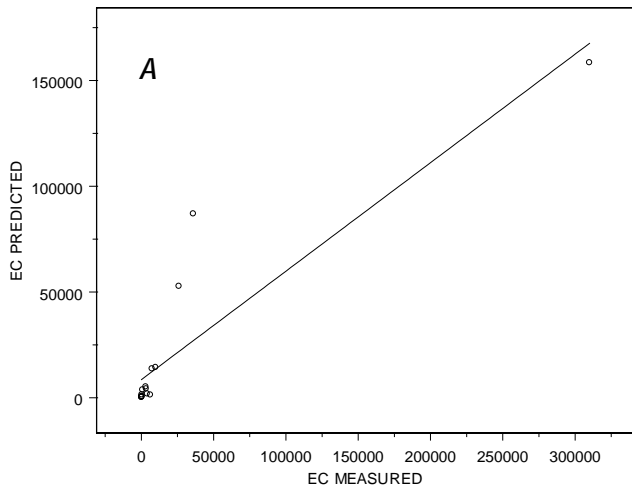


Figure 420. S+® output graphs from simple linear regression analysis using log-transformed streamflow (Q) and log-transformed specific conductance (SC) as explanatory variables for log-transformed *Escherichia coli* bacteria (EC) showing A, measured versus predicted EC concentrations; B, computed log-transformed EC concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGEC ~ TBY + LOGTBY, data = EC.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.6077	-0.2144	-0.08087	0.1868	0.8942

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.8288	0.2263	8.0818	0.0000
TBY	-0.0032	0.0009	-3.5898	0.0037
LOGTBY	1.3224	0.2083	6.3486	0.0000

Residual standard error: 0.3886 on 12 degrees of freedom

Multiple R-Squared: 0.8201 Adjusted R-squared: 0.7901

F-statistic: 27.35 on 2 and 12 degrees of freedom, the p-value is 0.0000339

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	TBY
TBY	0.5334	
LOGTBY	-0.8227	-0.8652

Analysis of Variance Table

Response: LOGEC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	2.174180	2.174180	14.40038	0.002553932
LOGTBY	1	6.085154	6.085154	40.30418	0.000036722
Residuals	12	1.811769	0.150981		

Figure 421. S+® output of regression model development using turbidity (TBY) as an explanatory variable for *Escherichia coli* bacteria (EC) for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through April 2013.

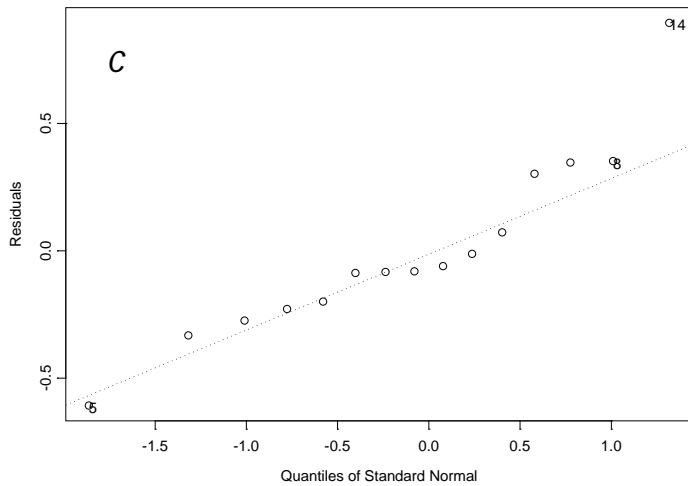
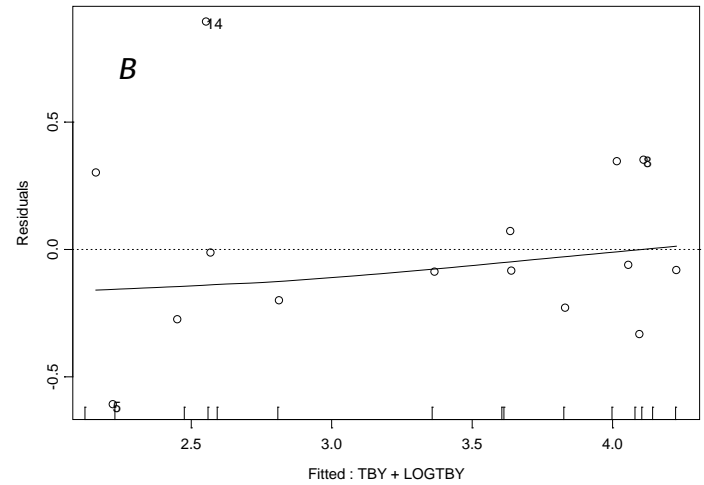
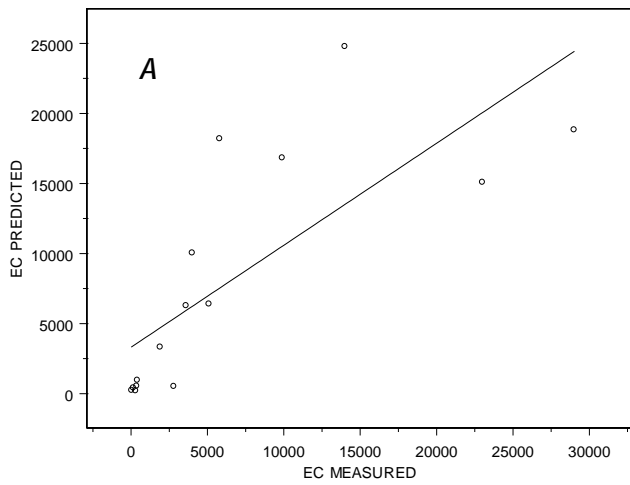


Figure 422. S+® output graphs from simple linear regression analysis using turbidity (TBY) and log-transformed TBY as explanatory variables for *Escherichia coli* bacteria (EC) showing *A*, measured versus predicted EC concentrations; *B*, computed EC concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through April 2013.

*** Linear Model ***

Call: lm(formula = LOGEC ~ TBY + LOGTBY, data = EC.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.7767	-0.3247	0.05657	0.2581	0.7191

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.7861	0.3156	2.4908	0.0284
TBY	-0.0036	0.0013	-2.8845	0.0137
LOGTBY	1.8130	0.2677	6.7727	0.0000

Residual standard error: 0.453 on 12 degrees of freedom

Multiple R-Squared: 0.8533 Adjusted R-squared: 0.8288

F-statistic: 34.9 on 2 and 12 degrees of freedom, the p-value is 9.972e-006

438 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	TBY
TBY	0.5936	
LOGTBY	-0.8914	-0.8294

Analysis of Variance Table

Response: LOGEC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	4.908960	4.908960	23.92407	0.0003714080
LOGTBY	1	9.411911	9.411911	45.86943	0.0000197858
Residuals	12	2.462270	0.205189		

Figure 423. S+® output of regression model development using turbidity (TBY) as an explanatory variable for *Escherichia coli* bacteria (EC) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

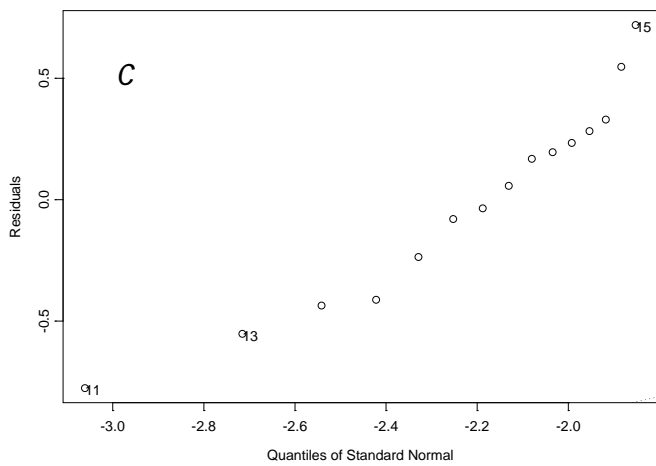
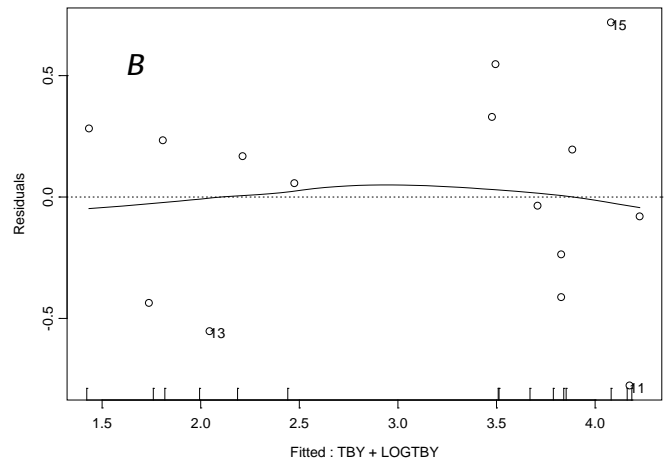
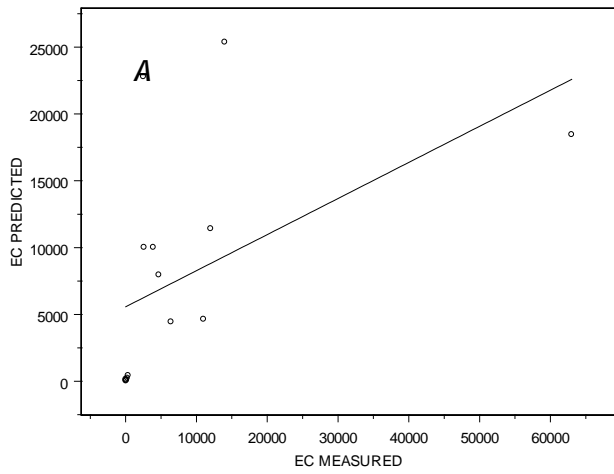


Figure 424. S+® output graphs from simple linear regression analysis using turbidity (TBY) and log-transformed TBY as explanatory variables for log-transformed *Escherichia coli* bacteria (EC) showing *A*, measured versus predicted EC concentrations; *B*, computed EC concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGEC ~ LOGSC + LOGTBY, data = EC.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.8919	-0.02954	0.1538	0.244	0.4848

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	7.4943	1.4329	5.2301	0.0002
LOGSC	-1.8914	0.4686	-4.0362	0.0017
LOGTBY	0.7487	0.1390	5.3877	0.0002

Residual standard error: 0.4522 on 12 degrees of freedom

Multiple R-Squared: 0.8823 Adjusted R-squared: 0.8626

F-statistic: 44.96 on 2 and 12 degrees of freedom, the p-value is 2.664e-006

Correlation of Coefficients:

	(Intercept)	LOGSC
LOGSC	-0.9922	
LOGTBY	-0.5807	0.5028

Analysis of Variance Table

Response: LOGEC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	12.44936	12.44936	60.88940	0.0000048477
LOGTBY	1	5.93497	5.93497	29.02774	0.0001632937
Residuals	12	2.45350	0.20446		

Figure 425. S+® output of regression model development using specific conductance (SC) and turbidity (TBY) as explanatory variables for *Escherichia coli* bacteria (EC) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

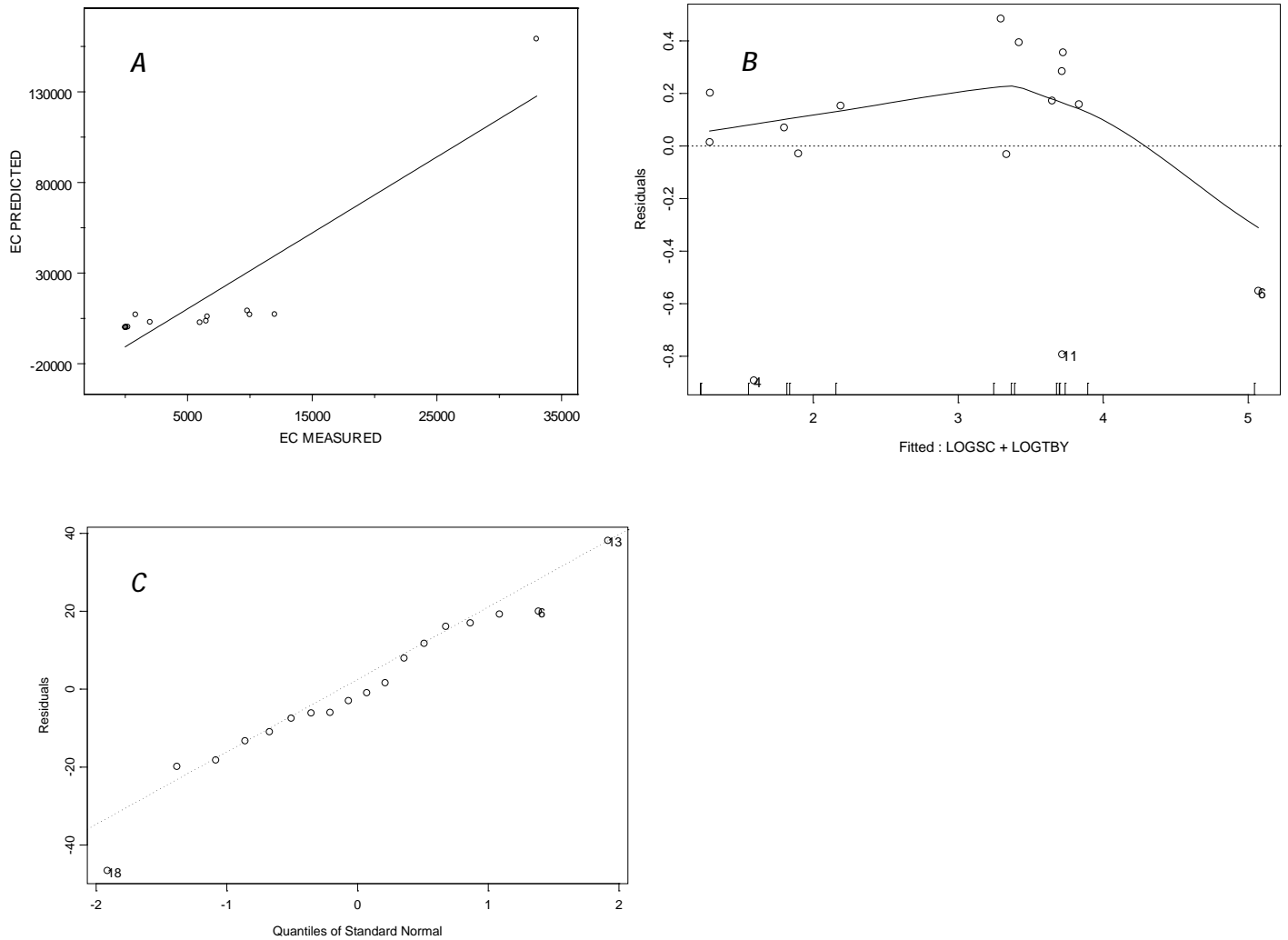


Figure 426. S+® output graphs from simple linear regression analysis using log-transformed specific conductance (SC) and log-transformed turbidity (TBY) as explanatory variables for log-transformed *Escherichia coli* bacteria (EC) showing A, measured versus predicted EC concentrations; B, computed EC concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGEC ~ LOGSC + LOGTBY, data = EC.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-1.956	-0.1969	0.05498	0.2703	1.486

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	5.2082	1.4953	3.4832	0.0012
LOGSC	-1.0860	0.4693	-2.3142	0.0257
LOGTBY	0.6954	0.1550	4.4858	0.0001

Residual standard error: 0.6354 on 41 degrees of freedom

Multiple R-Squared: 0.6304 Adjusted R-squared: 0.6124

F-statistic: 34.96 on 2 and 41 degrees of freedom, the p-value is 1.377e-009

Correlation of Coefficients:

	(Intercept)	LOGSC
LOGSC	-0.9885	
LOGTBY	-0.7575	0.6625

Analysis of Variance Table

Response: LOGEC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	20.11042	20.11042	49.80350	0.00000001369
LOGTBY	1	8.12547	8.12547	20.12273	0.00005759935
Residuals	41	16.55561	0.40380		

Figure 427. S+® output of regression model development using specific conductance (SC) and turbidity (TBY) as explanatory variables for *Escherichia coli* bacteria (EC) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

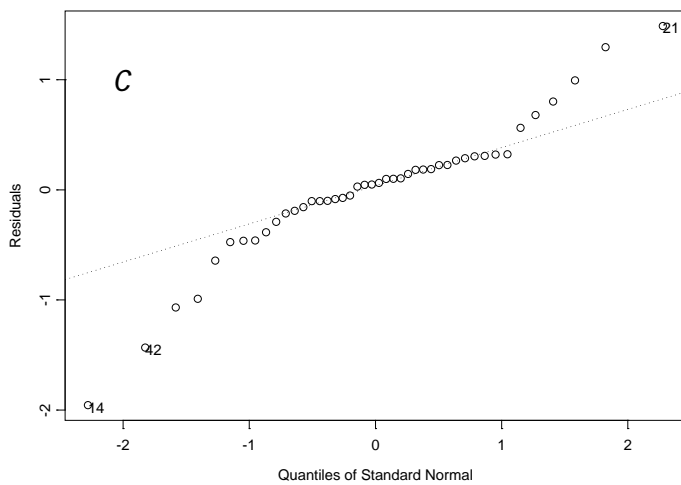
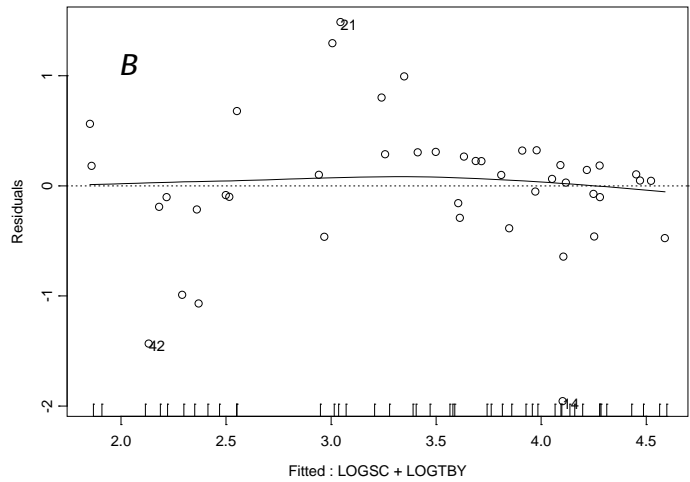
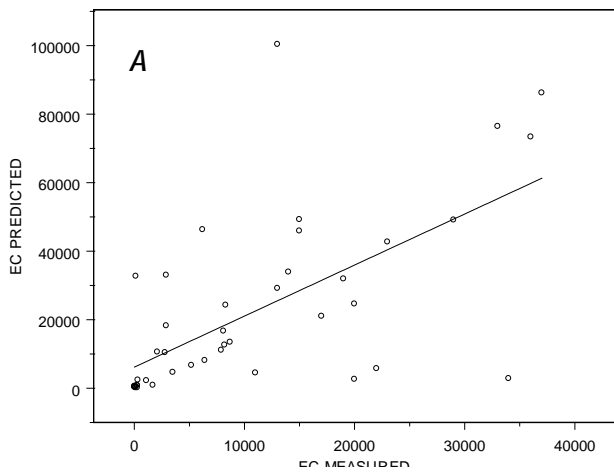


Figure 428. S+® output graphs from simple linear regression analysis using log-transformed specific conductance (SC) and log-transformed turbidity (TBY) as explanatory variables for log-transformed *Escherichia coli* bacteria (EC) showing A, measured versus predicted EC concentrations; B, computed log-transformed EC concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGEC ~ SIN + COS + LOGTBY, data = EC.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-1.355	-0.3195	-0.06277	0.2974	1.238

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	2.1244	0.3179	6.6833	0.0000
SIN	0.0071	0.1762	0.0401	0.9683
COS	-0.5515	0.1881	-2.9315	0.0077
LOGTBY	0.7202	0.1580	4.5574	0.0002

Residual standard error: 0.6153 on 22 degrees of freedom

Multiple R-Squared: 0.6258 Adjusted R-squared: 0.5747

F-statistic: 12.26 on 3 and 22 degrees of freedom, the p-value is 0.00006323

Correlation of Coefficients:

	(Intercept)	SIN	COS
SIN	-0.1107		
COS	-0.0744	0.0706	
LOGTBY	-0.9096	0.0025	0.2122

Analysis of Variance Table

Response: LOGEC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SIN	1	0.037714	0.037714	0.09963	0.7552477
COS	1	6.024399	6.024399	15.91493	0.0006190
LOGTBY	1	7.862317	7.862317	20.77024	0.0001546
Residuals	22	8.327826	0.378538		

Figure 429. S+® output of regression model development using season (SIN and COS) and turbidity (TBY) as explanatory variables for *Escherichia coli* bacteria (EC) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

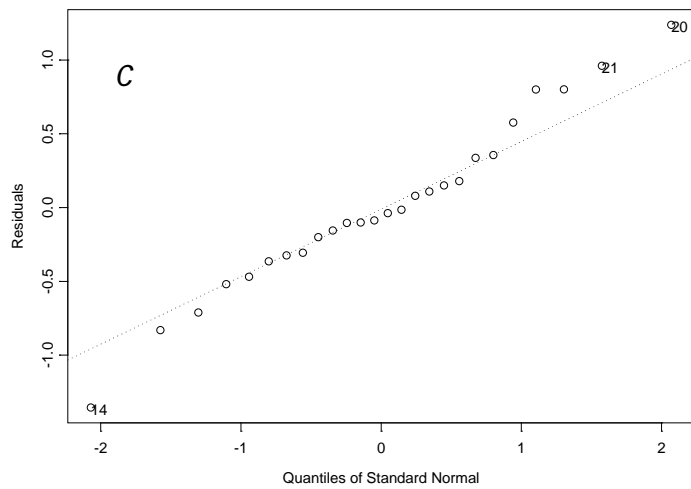
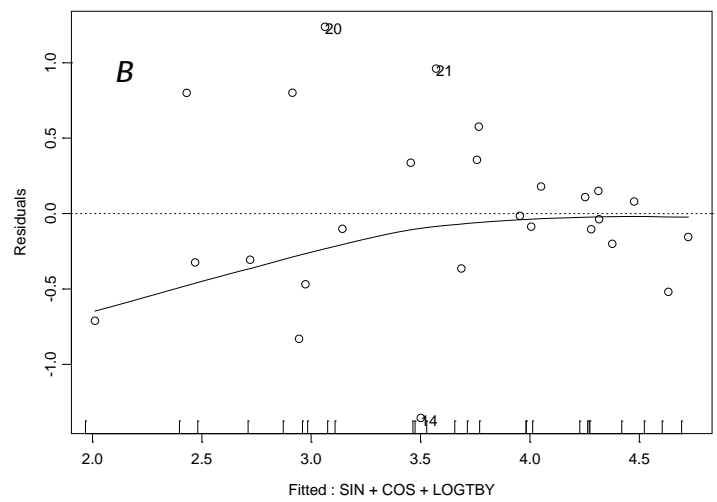
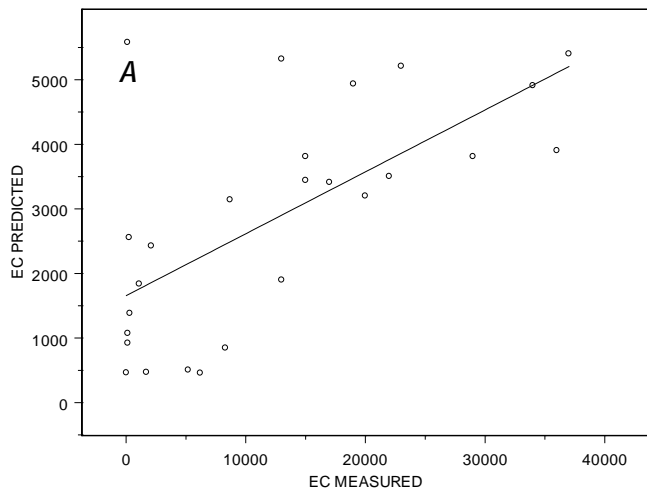


Figure 430. S+® output graphs from simple linear regression analysis using season (SIN and COS) and log-transformed turbidity (TBY) as explanatory variables for log-transformed *Escherichia coli* bacteria (EC) showing A, measured versus predicted EC concentrations; B, computed log-transformed EC concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = LOGEC ~ SIN + COS + LOGTBY, data = EC.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.735	-0.3398	0.001419	0.257	0.8009

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.4261	0.2425	5.8819	0.0000
SIN	-0.6077	0.2002	-3.0348	0.0089
COS	-0.3858	0.1599	-2.4132	0.0301
LOGTBY	1.1773	0.1394	8.4481	0.0000

Residual standard error: 0.48 on 14 degrees of freedom

Multiple R-Squared: 0.8436 Adjusted R-squared: 0.8101

F-statistic: 25.18 on 3 and 14 degrees of freedom, the p-value is 6.673e-006

Correlation of Coefficients:

	(Intercept)	SIN	COS
SIN	0.0269		
COS	0.1675	0.0474	
LOGTBY	-0.8388	-0.3103	-0.0484

Analysis of Variance Table

Response: LOGEC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SIN	1	0.03098	0.03098	0.13446	0.7193370
COS	1	0.92781	0.92781	4.02671	0.0644989
LOGTBY	1	16.44473	16.44473	71.37066	0.0000007
Residuals	14	3.22578	0.23041		

Figure 431. S+® output of regression model development using season (SIN and COS) and turbidity (TBY) as explanatory variables for *Escherichia coli* bacteria (EC) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

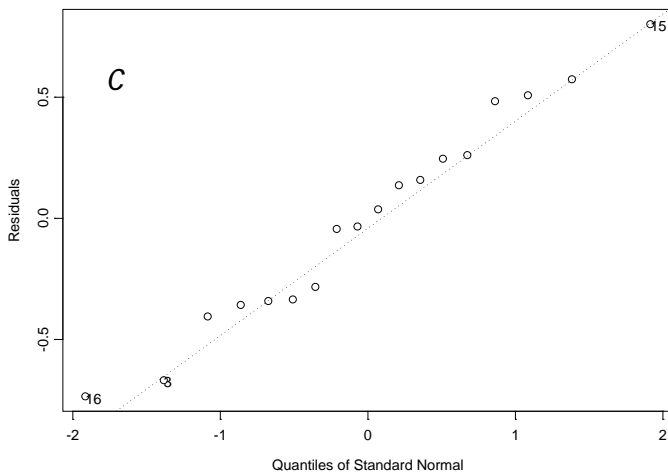
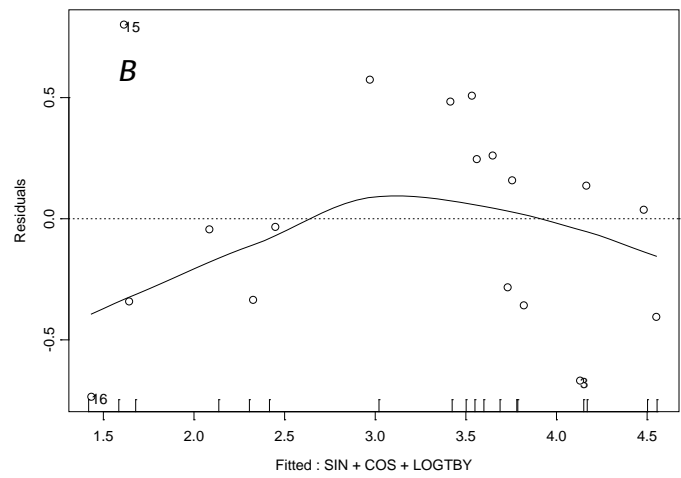
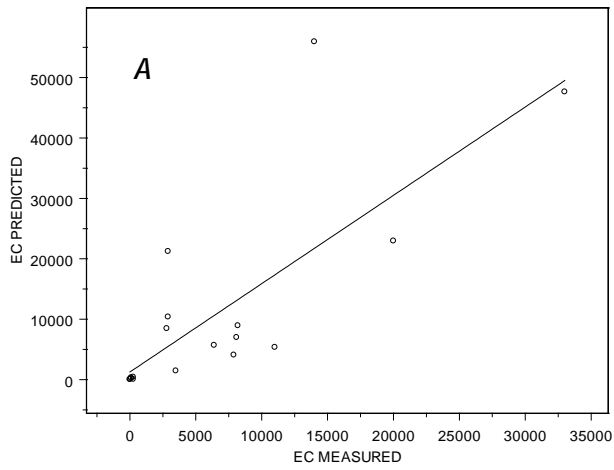


Figure 432. S+® output graphs from simple linear regression analysis using season (SIN and COS) and log-transformed turbidity (TBY) as explanatory variables for log-transformed *Escherichia coli* bacteria (EC) showing A, measured versus predicted EC concentrations; B, computed log-transformed EC concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGFC ~ LOGSC, data = FC.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-1.29	-0.5142	-0.1093	0.5576	1.395

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	9.6985	1.2071	8.0344	0.0000
LOGSC	-2.4117	0.4339	-5.5581	0.0000

Residual standard error: 0.6827 on 18 degrees of freedom

Multiple R-Squared: 0.6318 Adjusted R-squared: 0.6114

F-statistic: 30.89 on 1 and 18 degrees of freedom, the p-value is 0.0000282

Correlation of Coefficients:

(Intercept)
LOGSC -0.992

Analysis of Variance Table

Response: LOGFC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	14.39906	14.39906	30.89252	0.00002820497
Residuals	18	8.38983	0.46610		

Figure 433. S+® output of regression model development using specific conductance (SC) as the explanatory variable for fecal coliform bacteria (FC) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), June 2011 through May 2013.

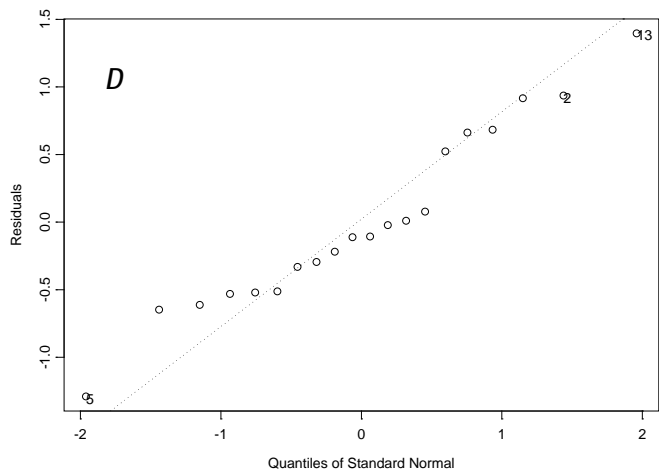
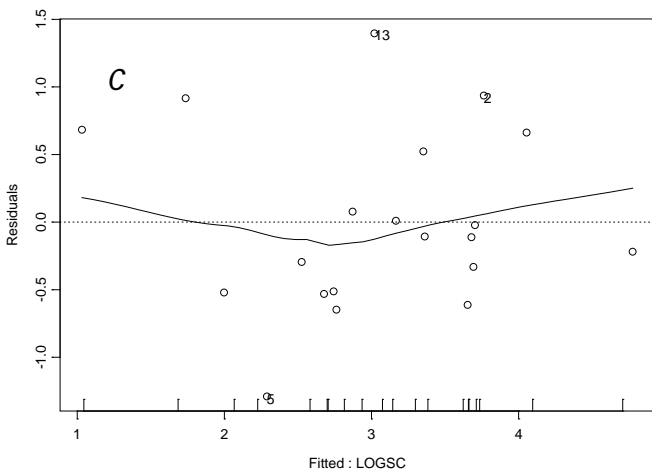
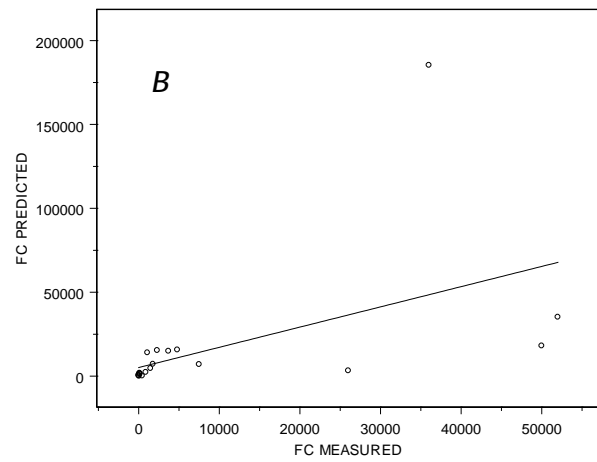
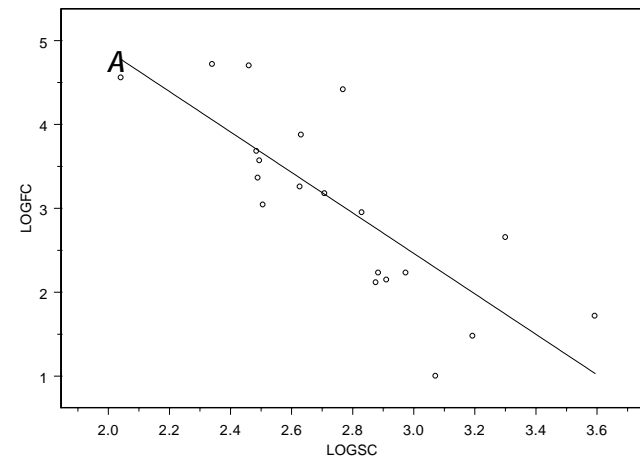


Figure 434. S+® output graphs from simple linear regression analysis showing *A*, log-transformed specific conductance (SC) versus log-transformed fecal coliform bacteria (FC); *B*, measured versus predicted FC concentrations; *C*, computed log-transformed FC concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGFC ~ LOGQ, data = FC.COLLSPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.7509	-0.3419	0.04572	0.1906	0.639

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.1390	0.2586	4.4049	0.0005
LOGQ	0.9853	0.1187	8.3029	0.0000

Residual standard error: 0.3933 on 15 degrees of freedom

Multiple R-Squared: 0.8213 Adjusted R-squared: 0.8094

F-statistic: 68.94 on 1 and 15 degrees of freedom, the p-value is 5.432e-007

Correlation of Coefficients:

(Intercept)	
LOGQ	-0.9295

Analysis of Variance Table

Response: LOGFC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	10.6616	10.66160	68.93883	5.432042e-007
Residuals	15	2.3198	0.15465		

Figure 435. S+® output of regression model development using streamflow (Q) as the explanatory variable for fecal coliform bacteria (FC) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

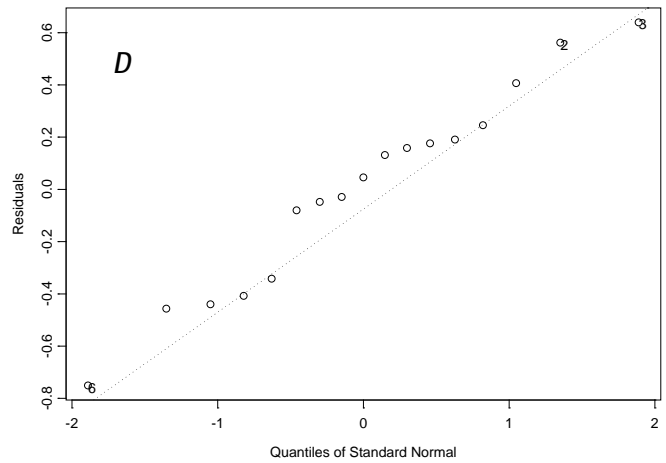
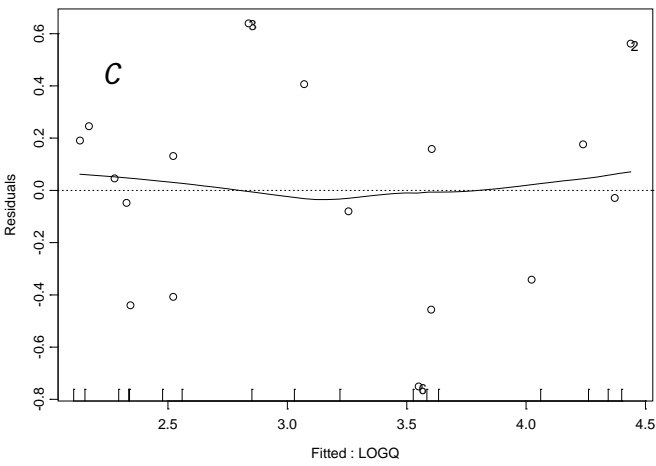
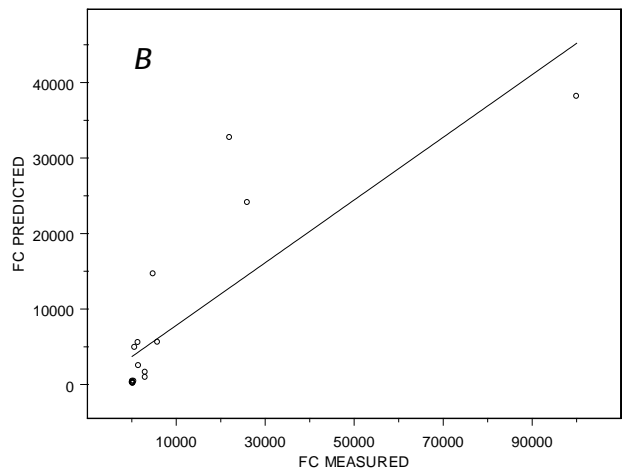
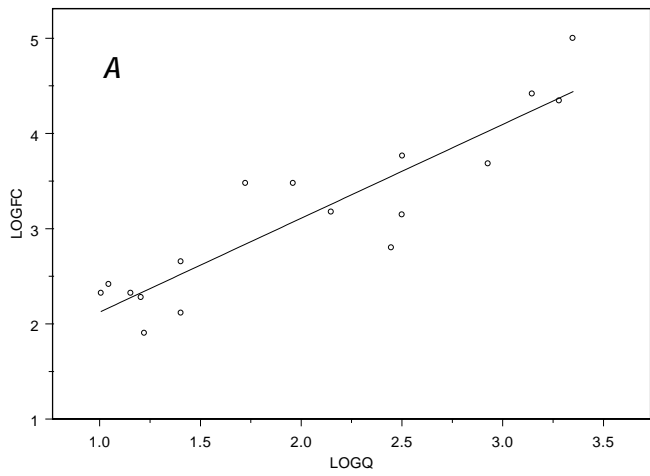


Figure 436. S+® output graphs from simple linear regression analysis showing *A*, log-transformed streamflow (Q) versus log-transformed fecal coliform bacteria (FC); *B*, measured versus predicted FC concentrations; *C*, computed log-transformed FC concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGFC ~ LOGQ + LOGSC, data = FC.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.952	-0.1991	-0.04065	0.3169	1.255

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	5.5777	1.8152	3.0727	0.0077
LOGQ	0.5433	0.2204	2.4647	0.0263
LOGSC	-1.1659	0.5302	-2.1992	0.0440

Residual standard error: 0.5442 on 15 degrees of freedom

Multiple R-Squared: 0.6717 Adjusted R-squared: 0.6279

F-statistic: 15.34 on 2 and 15 degrees of freedom, the p-value is 0.0002357

Correlation of Coefficients:

	(Intercept)	LOGQ
LOGQ	-0.7753	
LOGSC	-0.9798	0.6453

Analysis of Variance Table

Response: LOGFC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	7.656153	7.656153	25.84898	0.00013459
LOGSC	1	1.432513	1.432513	4.83650	0.04396226
Residuals	15	4.442818	0.296188		

Figure 437. S+® output of regression model development using streamflow (Q) and specific conductance (SC) as explanatory variables for fecal coliform bacteria (FC) for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

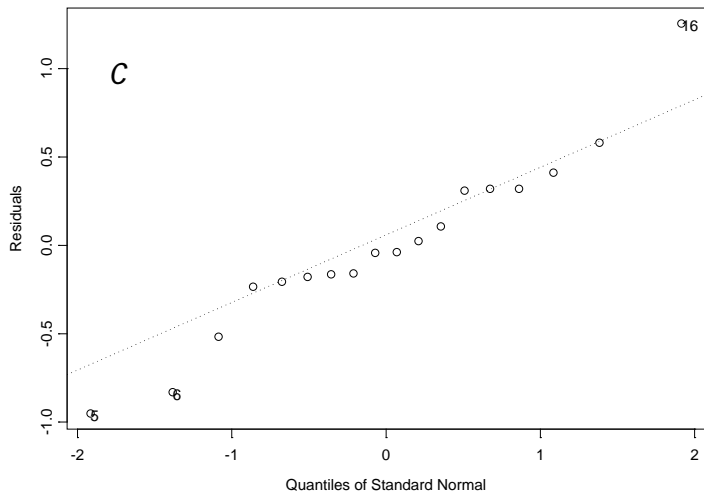
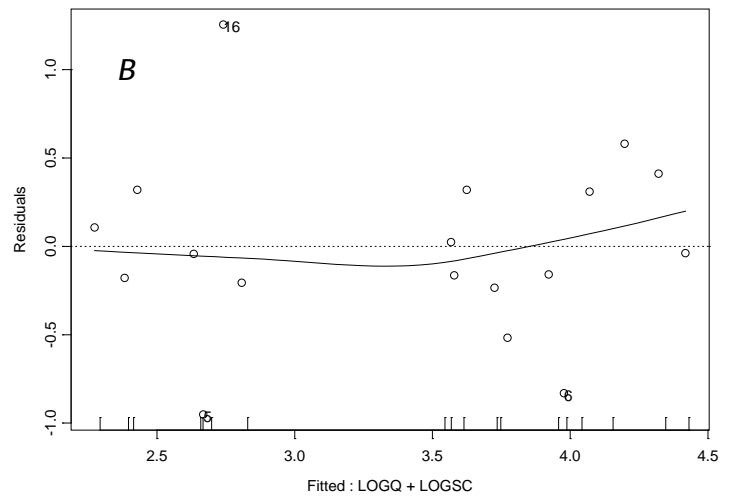
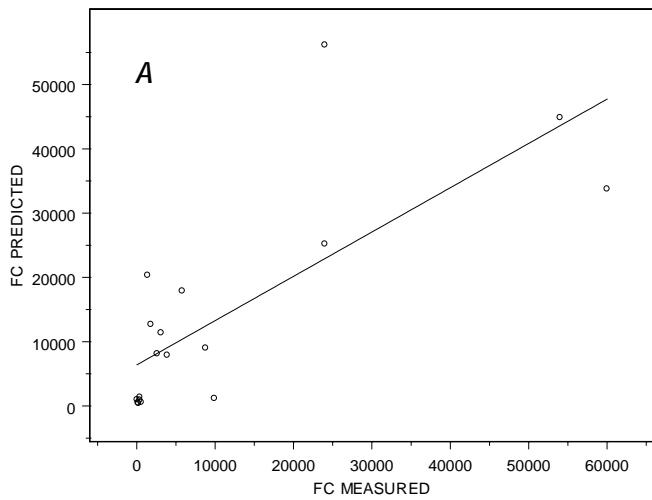


Figure 438. S+® output graphs from simple linear regression analysis using log-transformed streamflow (Q) and log-transformed specific conductance (SC) as explanatory variables for log-transformed fecal coliform bacteria (FC) showing A, measured versus predicted FC concentrations; B, computed log-transformed FC concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGFC ~ TBY + LOGTBY, data = FC.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-1.003	-0.3472	-0.04751	0.3954	0.7622

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.9604	0.2993	3.2084	0.0059
TBY	-0.0037	0.0014	-2.6931	0.0167
LOGTBY	1.7182	0.2697	6.3704	0.0000

Residual standard error: 0.5297 on 15 degrees of freedom

Multiple R-Squared: 0.8074 Adjusted R-squared: 0.7817

F-statistic: 31.44 on 2 and 15 degrees of freedom, the p-value is 4.319e-006

438 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	TBY
TBY	0.5526	
LOGTBY	-0.8596	-0.8329

Analysis of Variance Table

Response: LOGFC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	6.25318	6.25318	22.28945	0.0002730846
LOGTBY	1	11.38503	11.38503	40.58195	0.0000125781
Residuals	15	4.20816	0.28054		

Figure 439. S+® output of regression model development using turbidity (TBY) as an explanatory variable for fecal coliform bacteria (FC) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

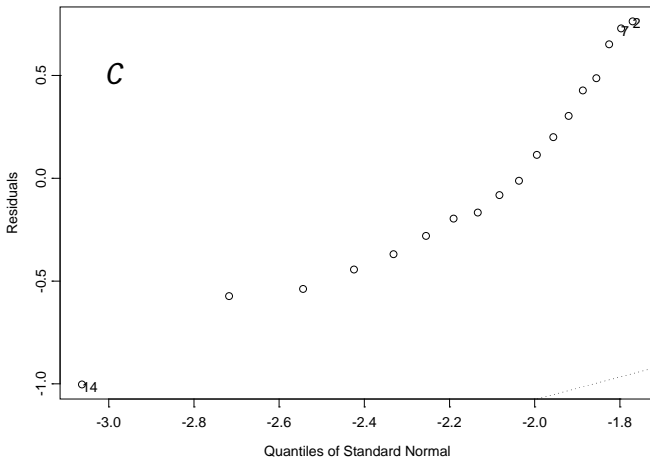
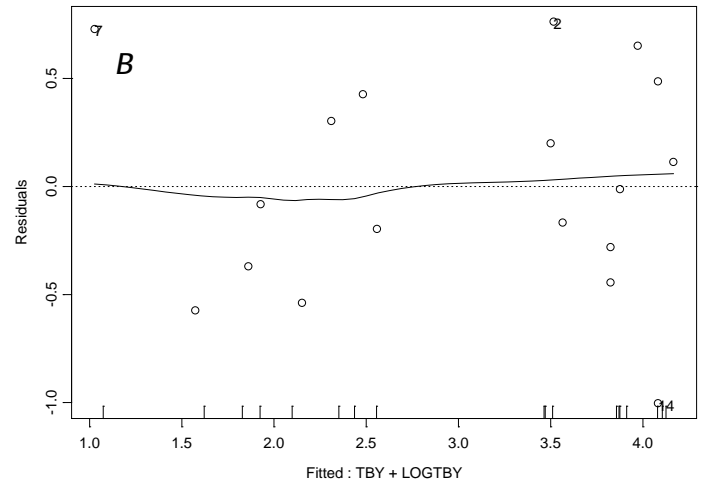
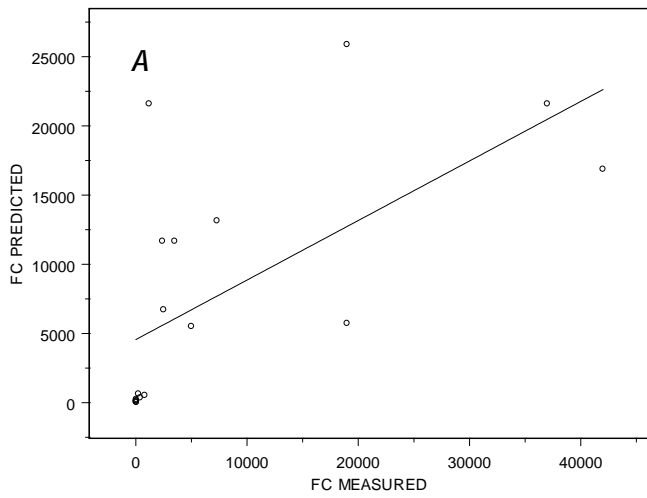


Figure 440. S+® output graphs from simple linear regression analysis using turbidity (TBY) and log-transformed TBY as explanatory variables for log-transformed fecal coliform bacteria (FC) showing *A*, measured versus predicted FC concentrations; *B*, computed log-transformed FC concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGFC ~ LOGSC + LOGTBY, data = FC.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-1.3	-0.2313	-0.1212	0.3357	1.226

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	8.2332	2.1983	3.7452	0.0022
LOGSC	-2.0346	0.7109	-2.8620	0.0125
LOGTBY	0.5531	0.2244	2.4651	0.0272

Residual standard error: 0.7366 on 14 degrees of freedom

Multiple R-Squared: 0.6667 Adjusted R-squared: 0.6191

F-statistic: 14 on 2 and 14 degrees of freedom, the p-value is 0.0004566

Correlation of Coefficients:

	(Intercept)	LOGSC
LOGSC	-0.9918	
LOGTBY	-0.5746	0.4924

Analysis of Variance Table

Response: LOGFC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	11.89938	11.89938	21.93140	0.00035228
LOGTBY	1	3.29707	3.29707	6.07674	0.02724016
Residuals	14	7.59602	0.54257		

Figure 441. S+® output of regression model development using specific conductance (SC) and turbidity (TBY) as explanatory variables for fecal coliform bacteria (FC) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

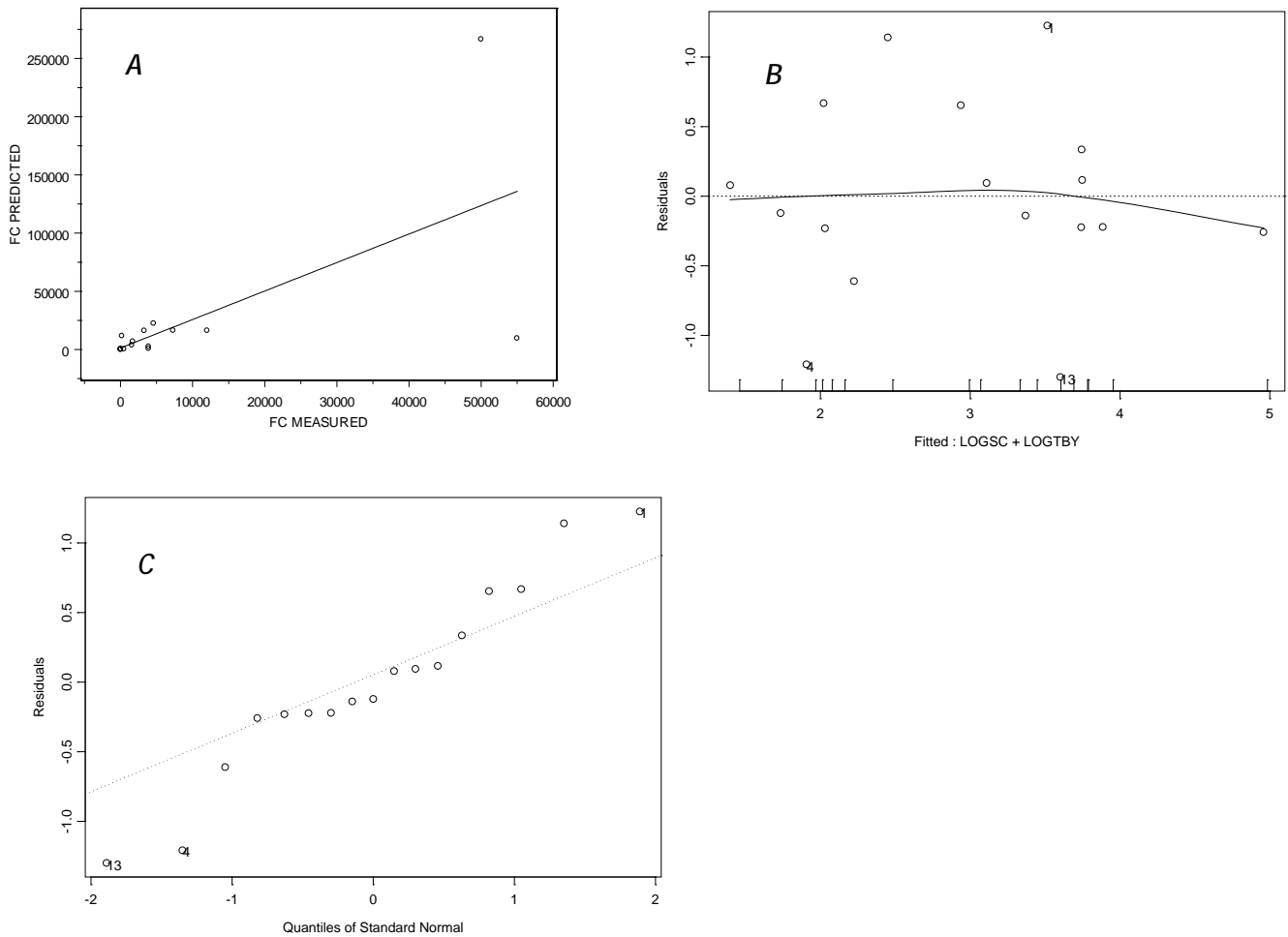


Figure 442. S+® output graphs from simple linear regression analysis using log-transformed specific conductance (SC) and log-transformed turbidity (TBY) as explanatory variables for log-transformed fecal coliform bacteria (FC) showing *A*, measured versus predicted FC concentrations; *B*, computed log-transformed FC concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), July 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGFC ~ LOGSC + LOGTBY, data = FC.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-1.542	-0.328	-0.05525	0.3402	1.546

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	9.2124	1.3944	6.6065	0.0000
LOGSC	-2.3446	0.4418	-5.3070	0.0000
LOGTBY	0.4677	0.1373	3.4055	0.0014

Residual standard error: 0.6182 on 45 degrees of freedom

Multiple R-Squared: 0.7218 Adjusted R-squared: 0.7094

F-statistic: 58.36 on 2 and 45 degrees of freedom, the p-value is 3.159e-013

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	LOGSC
LOGSC	-0.9894	
LOGTBY	-0.7612	0.6718

Analysis of Variance Table

Response: LOGFC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGSC	1	40.18008	40.18008	105.1318	0.000000000
LOGTBY	1	4.43237	4.43237	11.5974	0.001399325
Residuals	45	17.19845	0.38219		

Figure 443. S+® output of regression model development using specific conductance (SC) and turbidity (TBY) as explanatory variables for fecal coliform bacteria (FC) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

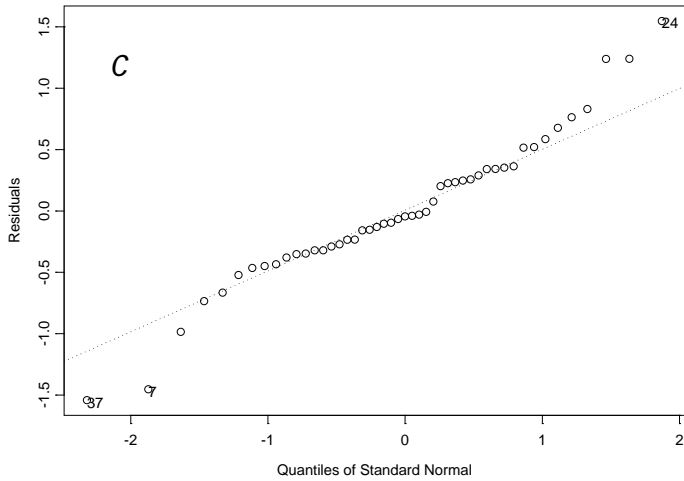
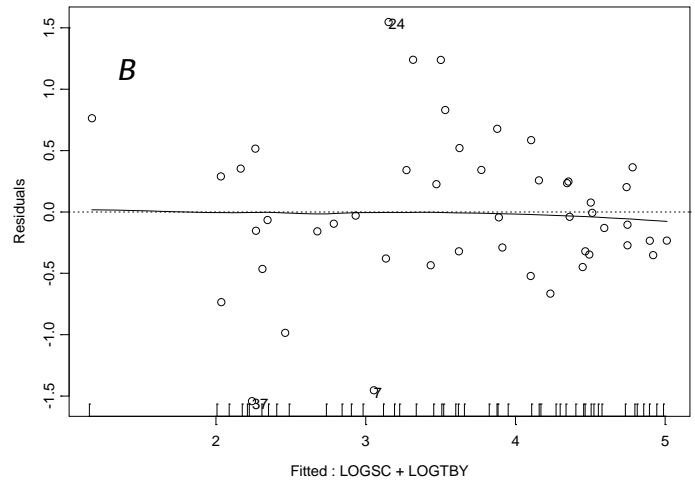
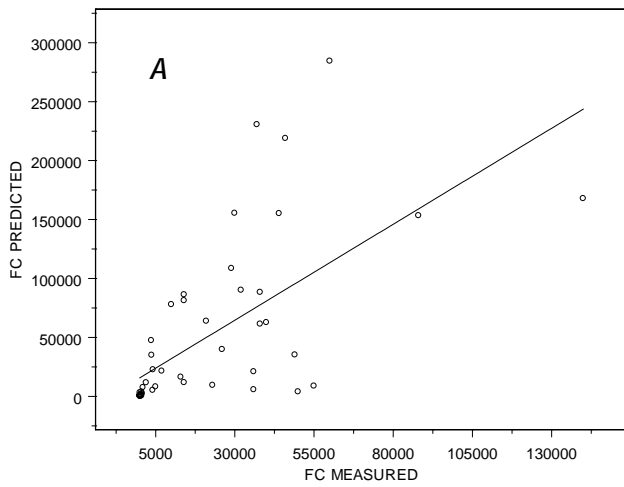


Figure 444. S+® output graphs from simple linear regression analysis using log-transformed specific conductance (SC) and log-transformed turbidity (TBY) as explanatory variables for log-transformed fecal coliform bacteria (FC) showing A, measured versus predicted FC concentrations; B, computed log-transformed FC concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGFC ~ LOGQ + LOGSC, data = FC.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-1.409	-0.2831	-0.04967	0.4037	1.18

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	8.3882	2.0540	4.0839	0.0004
LOGQ	0.4784	0.1750	2.7342	0.0111
LOGSC	-2.1859	0.6291	-3.4747	0.0018

Residual standard error: 0.5992 on 26 degrees of freedom

Multiple R-Squared: 0.714 Adjusted R-squared: 0.692

F-statistic: 32.46 on 2 and 26 degrees of freedom, the p-value is 8.55e-008

Correlation of Coefficients:

	(Intercept)	LOGQ
LOGQ	-0.8077	
LOGSC	-0.9852	0.7024

Analysis of Variance Table

Response: LOGFC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	18.97157	18.97157	52.84823	0.000000101
LOGSC	1	4.33428	4.33428	12.07380	0.001808535
Residuals	26	9.33354	0.35898		

Figure 445. S+® output of regression model development using streamflow (Q) and specific conductance (SC) as explanatory variables for fecal coliform bacteria (FC) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

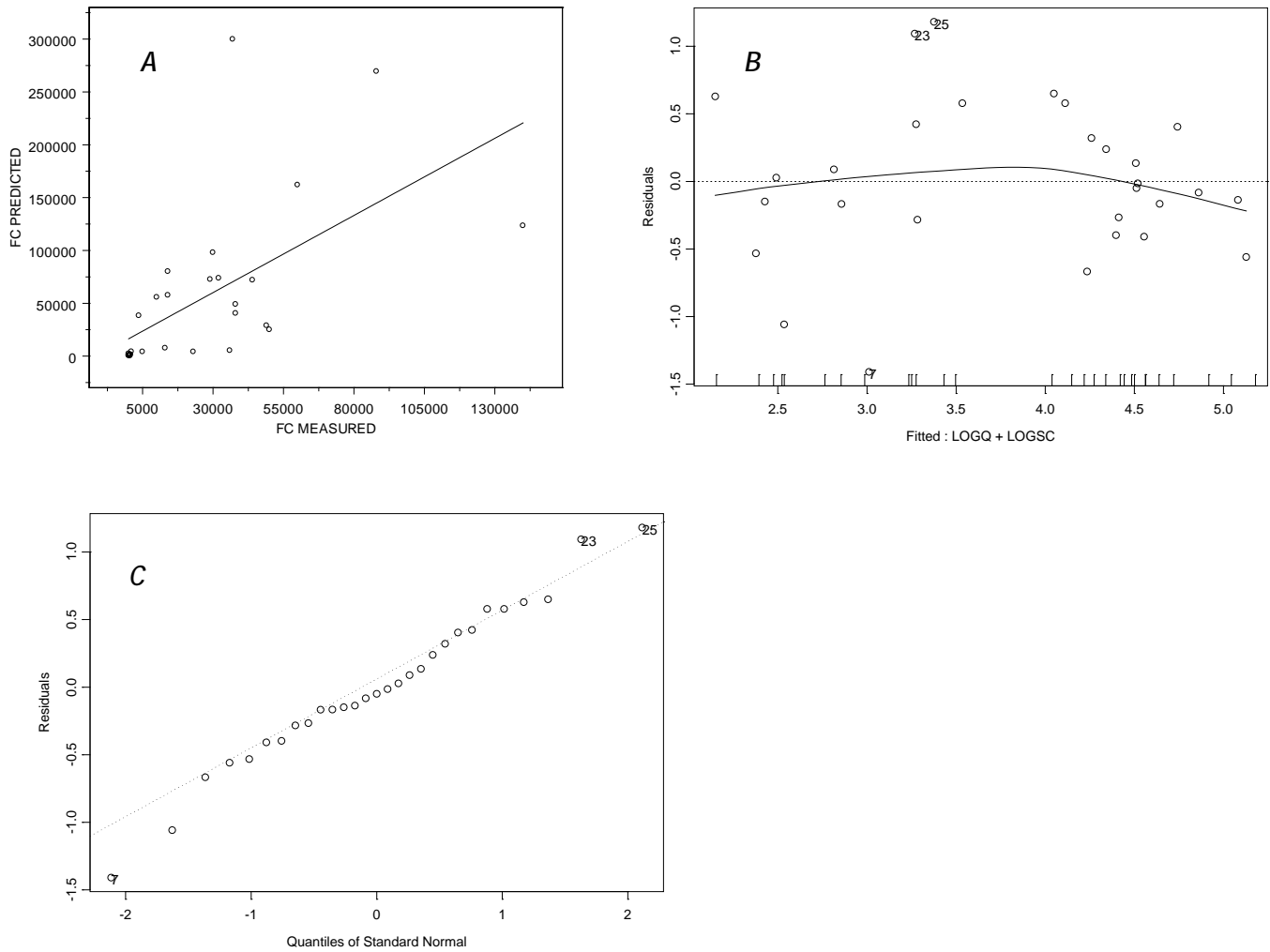


Figure 446. S+® output graphs from simple linear regression analysis using log-transformed streamflow (Q) and log-transformed specific conductance (SC) as explanatory variables for log-transformed fecal coliform bacteria (FC) showing A, measured versus predicted FC concentrations; B, computed log-transformed FC concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), June 2004 through May 2010.

*** Linear Model ***

Call: lm(formula = LOGFC ~ LOGQ + LOGSC, data = FC.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-1.162	-0.3696	0.04512	0.2806	1.148

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	7.4652	1.9537	3.8210	0.0014
LOGQ	0.7910	0.2135	3.7052	0.0018
LOGSC	-2.1456	0.5587	-3.8401	0.0013

Residual standard error: 0.5645 on 17 degrees of freedom

Multiple R-Squared: 0.8115 Adjusted R-squared: 0.7893

F-statistic: 36.59 on 2 and 17 degrees of freedom, the p-value is 6.922e-007

Correlation of Coefficients:

	(Intercept)	LOGQ
LOGQ	-0.7608	
LOGSC	-0.9760	0.6110

Analysis of Variance Table

Response: LOGFC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	18.62183	18.62183	58.43648	0.000000674
LOGSC	1	4.69930	4.69930	14.74668	0.001311445
Residuals	17	5.41736	0.31867		

Figure 447. S+® output of regression model development using streamflow (Q) and specific conductance (SC) as explanatory variables for fecal coliform bacteria (FC) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

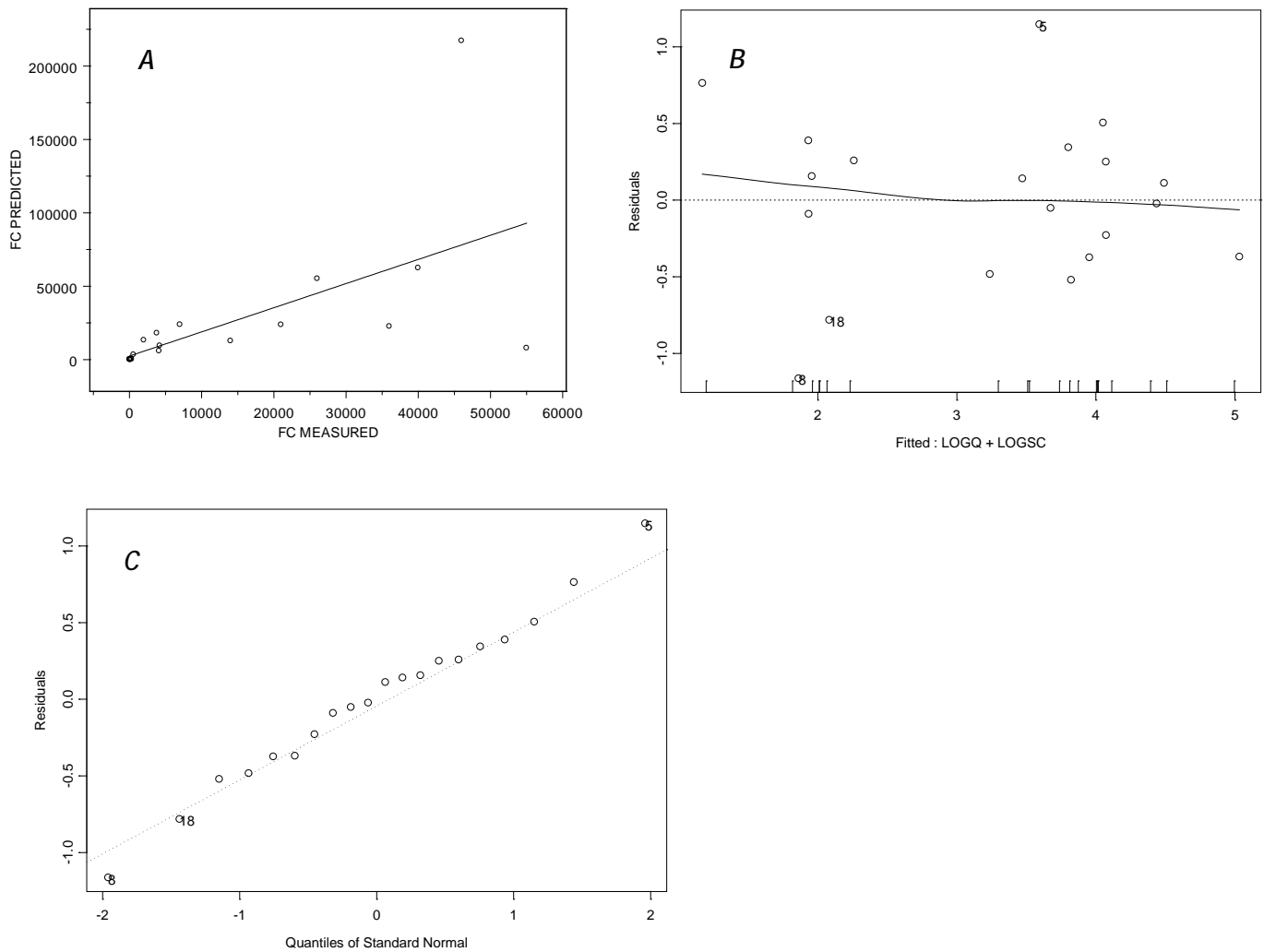


Figure 448. S+® output graphs from simple linear regression analysis using log-transformed streamflow (Q) and log-transformed specific conductance (SC) as explanatory variables for log-transformed fecal coliform bacteria (FC) showing A, measured versus predicted FC concentrations; B, computed log-transformed FC concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = TOC ~ LOGQ + TBY, data = TOC.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-5.184	-1.79	-0.1795	1.843	5.296

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	4.9369	1.0459	4.7204	0.0002
LOGQ	1.6729	0.9105	1.8373	0.0848
TBY	0.0329	0.0067	4.8902	0.0002

Residual standard error: 2.923 on 16 degrees of freedom

Multiple R-Squared: 0.8661 Adjusted R-squared: 0.8494

F-statistic: 51.76 on 2 and 16 degrees of freedom, the p-value is 1.031e-007

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	LOGQ
LOGQ	-0.5935	
TBY	0.1534	-0.7757

Analysis of Variance Table

Response: TOC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGQ	1	680.2803	680.2803	79.61306	0.0000001309
TBY	1	204.3434	204.3434	23.91426	0.0001634119
Residuals	16	136.7173	8.5448		

Figure 449. S+® output of regression model development using streamflow (Q) and turbidity (TBY) as explanatory variables for total organic carbon (TOC) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

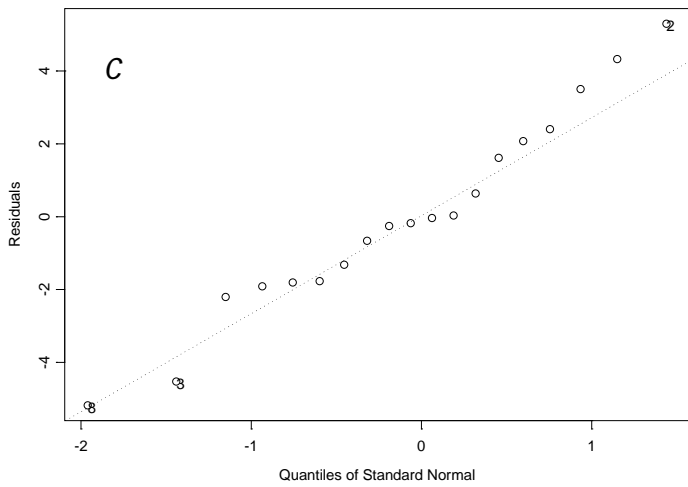
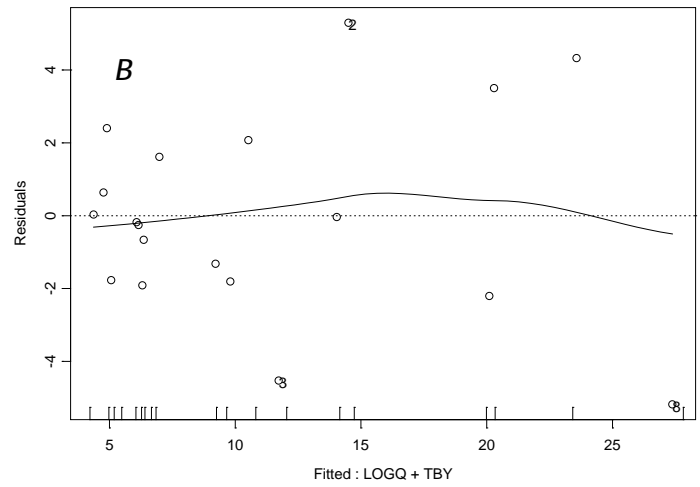
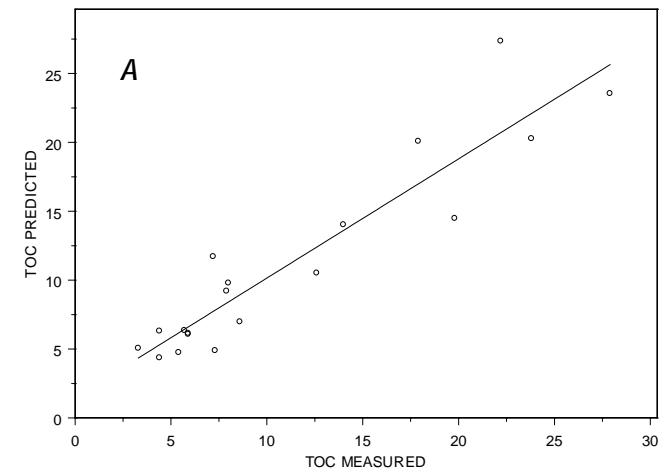


Figure 450. S+® output graphs from simple linear regression analysis using log-transformed streamflow (Q) and turbidity (TBV) as explanatory variables for total organic carbon (TOC) showing *A*, measured versus predicted TOC concentrations; *B*, computed TOC concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), August 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = TOC ~ TBY, data = TOC.COLL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-7.745	-1.058	-0.7756	0.6402	7.639

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	7.9808	1.1037	7.2309	0.0000
TBY	0.0434	0.0039	11.1582	0.0000

Residual standard error: 3.823 on 16 degrees of freedom

Multiple R-Squared: 0.8861 Adjusted R-squared: 0.879

F-statistic: 124.5 on 1 and 16 degrees of freedom, the p-value is 5.857e-009

Correlation of Coefficients:

(Intercept)	
TBY	-0.5776

Analysis of Variance Table

Response: TOC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	1819.225	1819.225	124.5059	5.857349e-009
Residuals	16	233.785	14.612		

Figure 451. S+® output of regression model development using turbidity (TBY) as the explanatory variable for total organic carbon (TOC) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

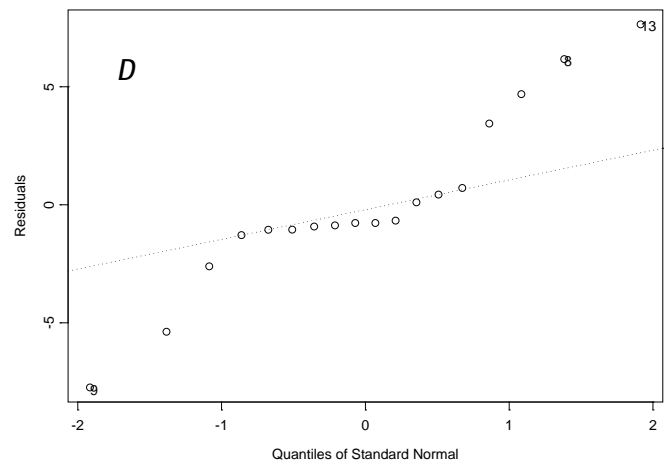
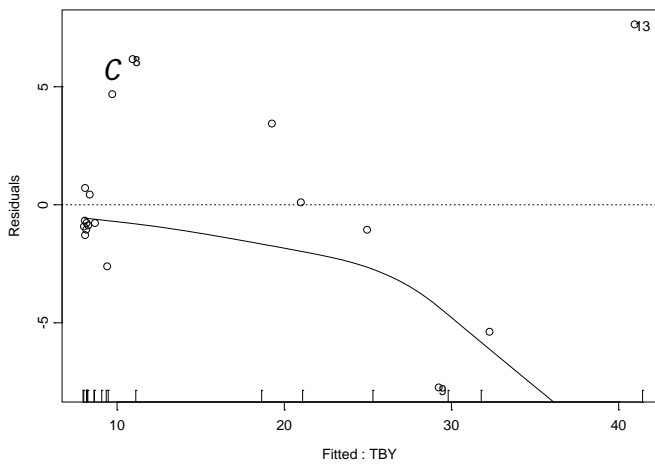
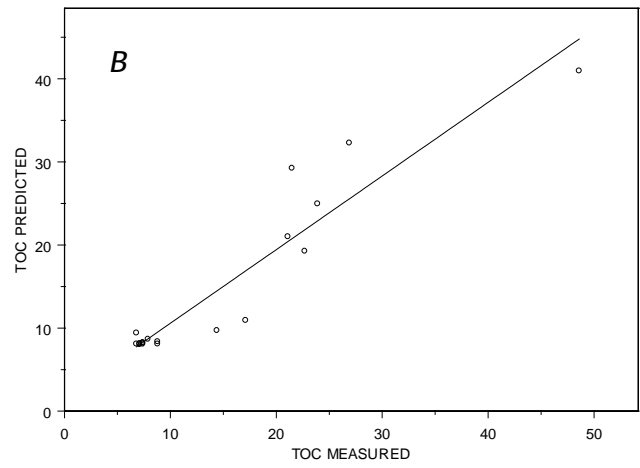
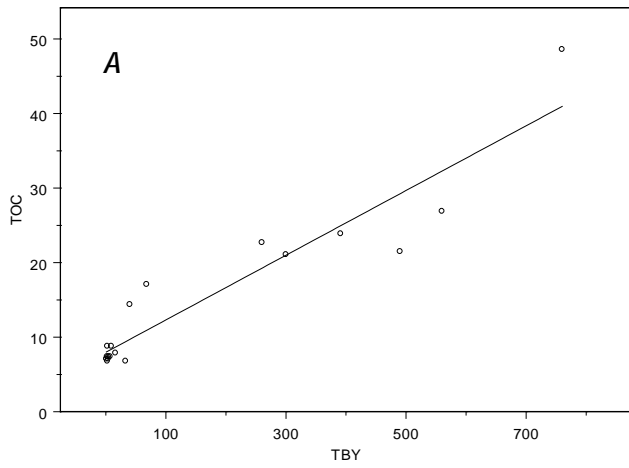


Figure 452. S+® output graphs from simple linear regression analysis showing *A*, turbidity (TBY) versus total organic carbon (TOC); *B*, measured versus predicted TOC concentrations; *C*, computed TOC concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = TOC ~ Q, data = TOC.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-7.905	-1.131	0.009754	1.268	9

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	5.9224	1.3225	4.4783	0.0004
Q	0.0350	0.0032	11.1009	0.0000

Residual standard error: 4.017 on 16 degrees of freedom

Multiple R-Squared: 0.8851 Adjusted R-squared: 0.8779

F-statistic: 123.2 on 1 and 16 degrees of freedom, the p-value is 6.304e-009

Correlation of Coefficients:

(Intercept)

Q -0.6982

Analysis of Variance Table

Response: TOC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
Q	1	1988.229	1988.229	123.2307	6.303812e-009
Residuals	16	258.147	16.134		

Figure 453. S+® output of regression model development using streamflow (Q) as the explanatory variable for total organic carbon (TOC) for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

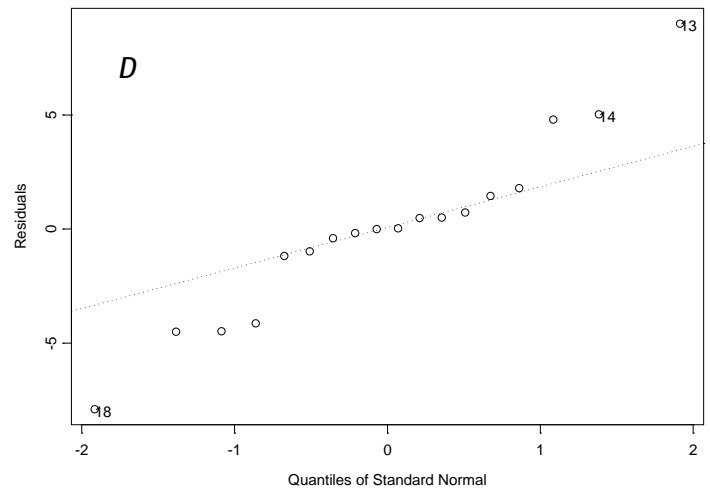
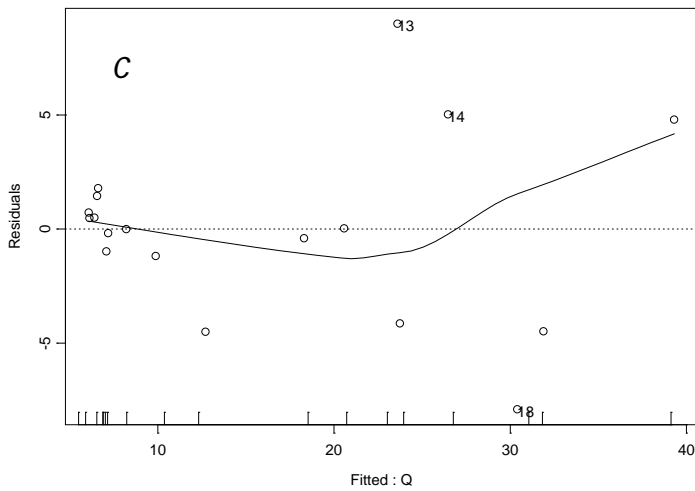
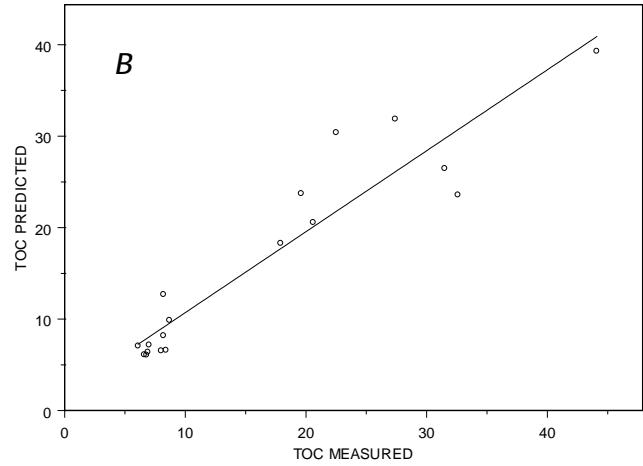
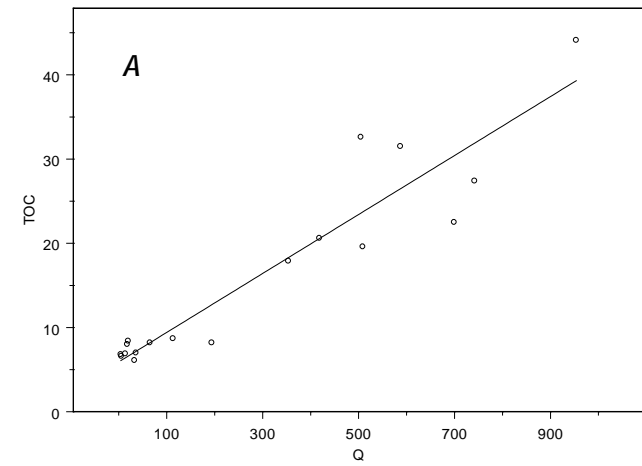


Figure 454. S+® output graphs from simple linear regression analysis showing *A*, streamflow (Q) versus total organic carbon (TOC); *B*, measured versus predicted TOC concentrations; *C*, computed TOC concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = TOC ~ Q + TBY, data = TOC.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-5.558	-1.947	-0.8007	0.6086	8.748

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	7.7531	1.0760	7.2057	0.0000
Q	-0.0087	0.0019	-4.6448	0.0003
TBY	0.0771	0.0084	9.1449	0.0000

Residual standard error: 3.72 on 15 degrees of freedom

Multiple R-Squared: 0.8666 Adjusted R-squared: 0.8489

F-statistic: 48.74 on 2 and 15 degrees of freedom, the p-value is 2.74e-007

438 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	Q
Q	-0.0586	
TBY	-0.3241	-0.7683

Analysis of Variance Table

Response: TOC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
Q	1	191.541	191.541	13.84426	0.002049941
TBY	1	1157.048	1157.048	83.62954	0.000000160
Residuals	15	207.531	13.835		

Figure 455. S+® output of regression model development using streamflow (Q) and turbidity (TBY) as explanatory variables for total organic carbon (TOC) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through April 2013.

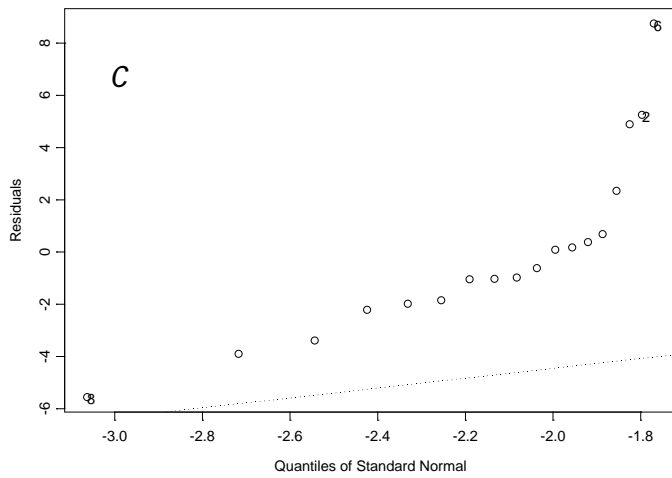
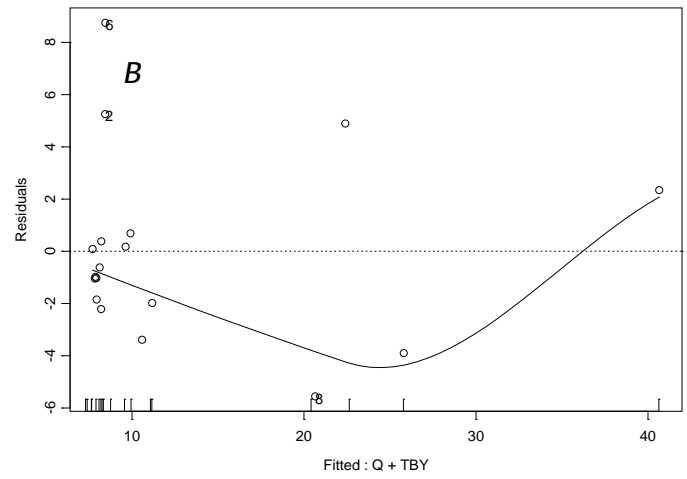
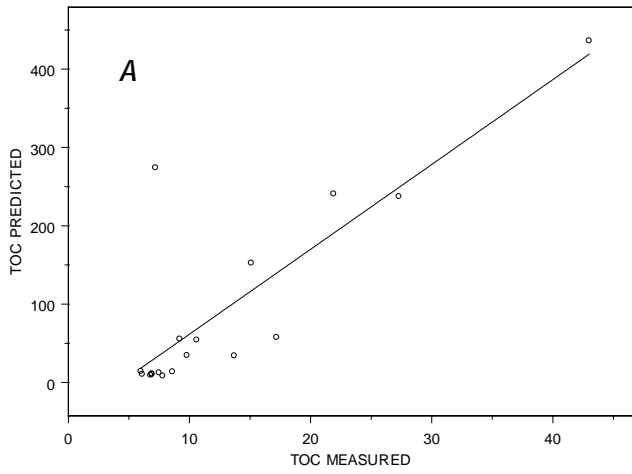


Figure 456. S+® output graphs from simple linear regression analysis using streamflow (Q) and turbidity (TBY) as explanatory variables for total organic carbon (TOC) showing *A*, measured versus predicted TOC concentrations; *B*, computed TOC concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through April 2013.

*** Linear Model ***

Call: lm(formula = TOC ~ TBY, data = TOC.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-3.761	-1.753	-0.5201	1.25	8.296

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	6.0985	0.8250	7.3923	0.0000
TBY	0.0608	0.0062	9.7543	0.0000

Residual standard error: 2.948 on 15 degrees of freedom

Multiple R-Squared: 0.8638 Adjusted R-squared: 0.8547

F-statistic: 95.15 on 1 and 15 degrees of freedom, the p-value is 6.925e-008

Correlation of Coefficients:

(Intercept)	
TBY	-0.4987

Analysis of Variance Table

Response: TOC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	827.0523	827.0523	95.14704	6.924522e-008
Residuals	15	130.3854	8.6924		

Figure 457. S+® output of regression model development using turbidity (TBY) as the explanatory variable for total organic carbon (TOC) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), June 2011 through May 2013.

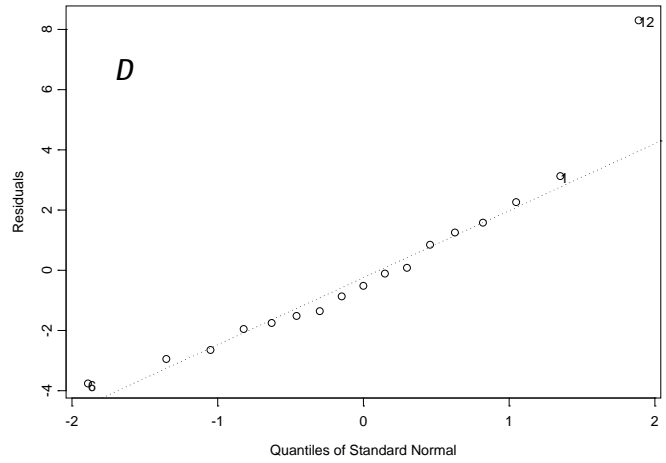
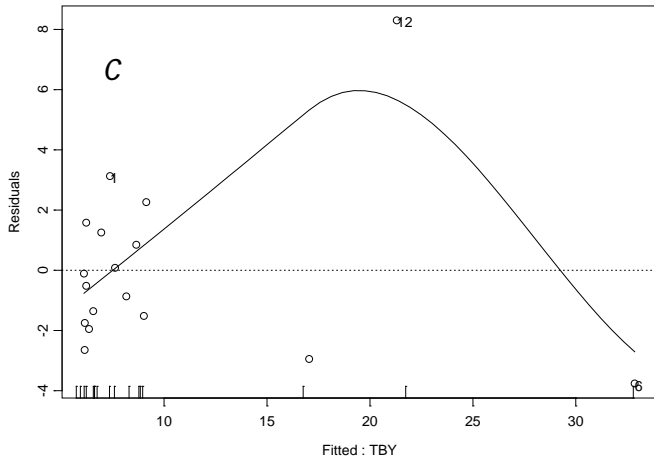
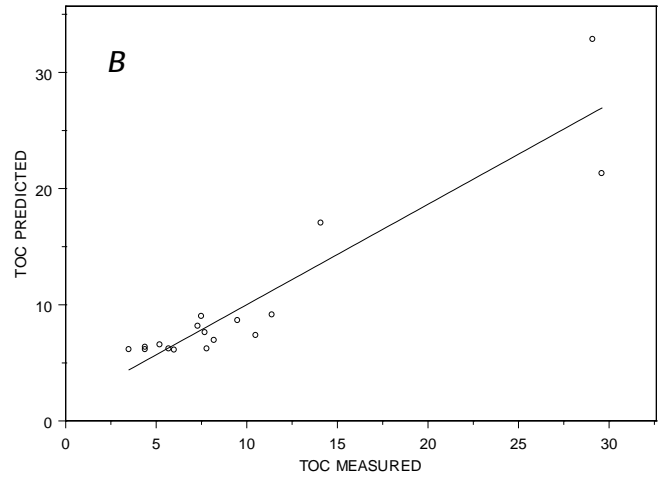
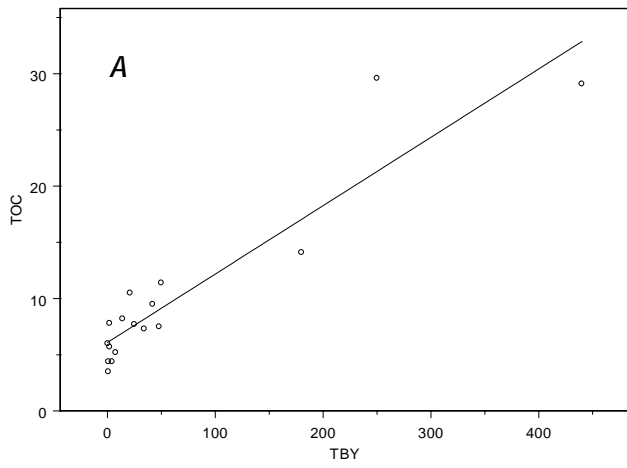


Figure 458. S+® output graphs from simple linear regression analysis showing *A*, turbidity (TBY) versus total organic carbon (TOC); *B*, measured versus predicted TOC concentrations; *C*, computed TOC concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGTOC ~ LOGTBY, data = TOC.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.2141	-0.1156	0.00893	0.1067	0.2958

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	0.8143	0.0668	12.1905	0.0000
LOGTBY	0.2078	0.0349	5.9509	0.0000

Residual standard error: 0.1483 on 25 degrees of freedom

Multiple R-Squared: 0.5862 Adjusted R-squared: 0.5696

F-statistic: 35.41 on 1 and 25 degrees of freedom, the p-value is 3.266e-006

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
LOGTBY	-0.9041

Analysis of Variance Table

Response: LOGTOC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
LOGTBY	1	0.7792776	0.7792776	35.41298	3.265835e-006
Residuals	25	0.5501356	0.0220054		

Figure 459. S+® output of regression model development using turbidity (TBY) as the explanatory variable for total organic carbon (TOC) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2008 through May 2013.

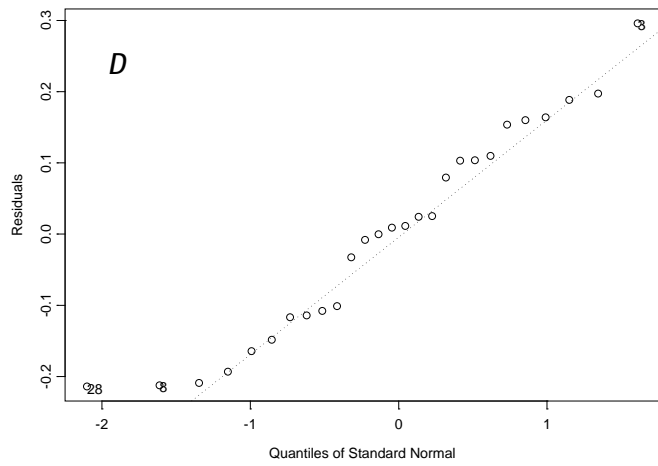
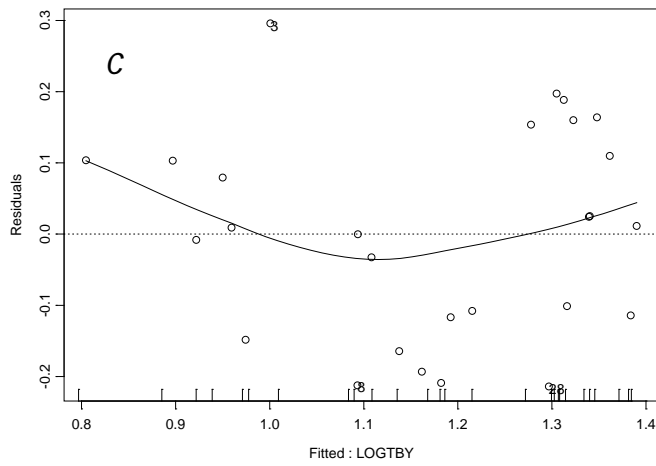
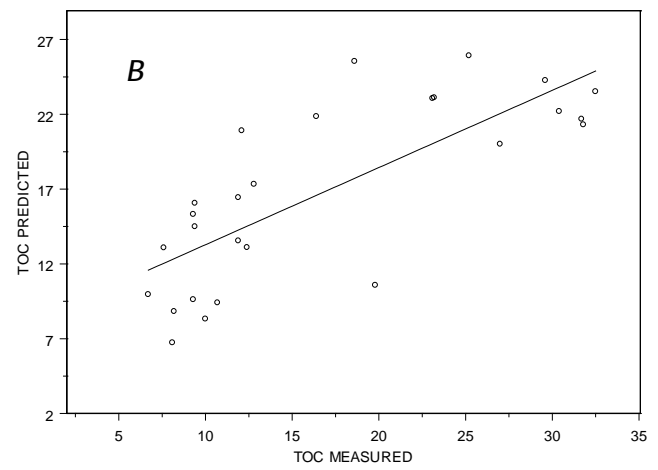
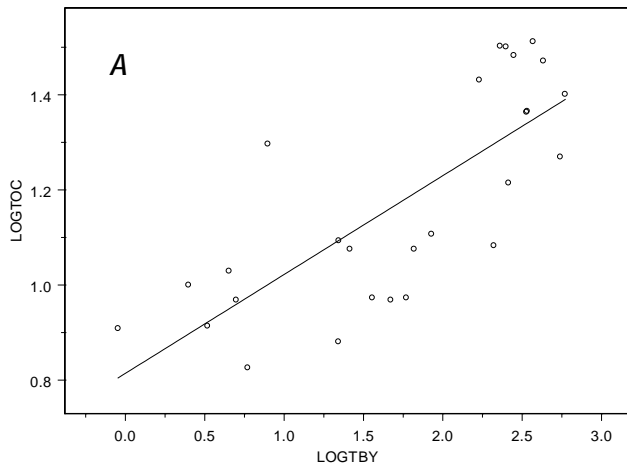


Figure 460. S+® output graphs from simple linear regression analysis showing *A*, log-transformed turbidity (TBY) versus log-transformed total organic carbon (TOC); *B*, measured versus predicted TOC concentrations; *C*, computed log-transformed TOC concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2008 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGTOC ~ SC, data = TOC.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1047	-0.06066	0.002422	0.02967	0.2013

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.5750	0.0811	19.4225	0.0000
SC	-0.0007	0.0001	-4.8068	0.0020

Residual standard error: 0.09909 on 7 degrees of freedom

Multiple R-Squared: 0.7675 Adjusted R-squared: 0.7343

F-statistic: 23.11 on 1 and 7 degrees of freedom, the p-value is 0.001951

Correlation of Coefficients:

(Intercept)
SC -0.9133

Analysis of Variance Table

Response: LOGTOC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SC	1	0.2268762	0.2268762	23.10521	0.001950943
Residuals	7	0.0687348	0.0098193		

Figure 461. S+® output of regression model development using specific conductance (SC) as the explanatory variable for total organic carbon (TOC) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2008 through May 2010.

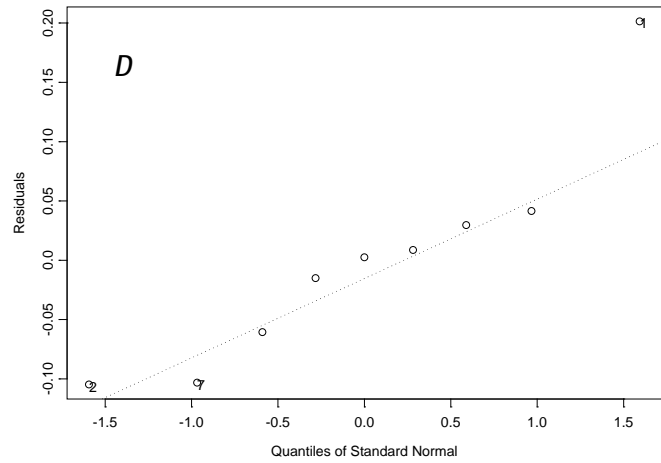
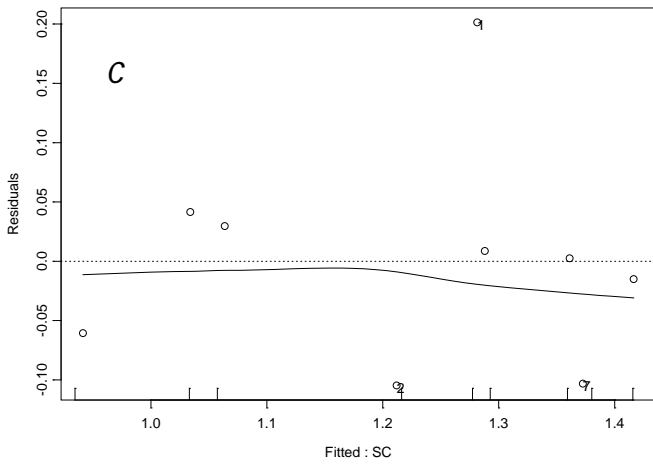
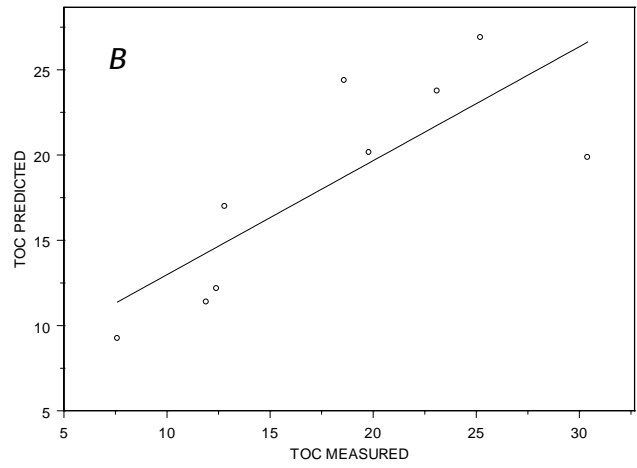
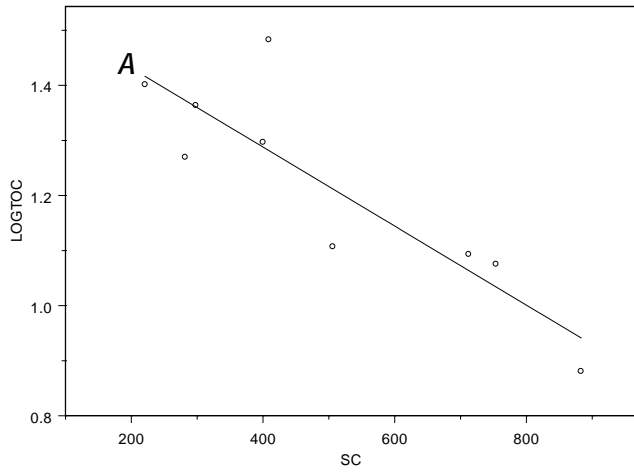


Figure 462. S+® output graphs from simple linear regression analysis showing *A*, specific conductance (SC) versus log-transformed total organic carbon (TOC); *B*, measured versus predicted TOC concentrations; *C*, computed log-transformed TOC concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2008 through May 2010.

*** Linear Model ***

Call: lm(formula = TOC ~ TBY, data = TOC.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-8.564	-2.717	-0.8429	1.571	10.01

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	8.8750	1.7176	5.1671	0.0001
TBY	0.0561	0.0087	6.4510	0.0000

Residual standard error: 5.277 on 16 degrees of freedom

Multiple R-Squared: 0.7223 Adjusted R-squared: 0.7049

F-statistic: 41.61 on 1 and 16 degrees of freedom, the p-value is 8.009e-006

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)	
TBY	-0.6897

Analysis of Variance Table

Response: TOC

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	1158.765	1158.765	41.6148	8.008581e-006
Residuals	16	445.520	27.845		

Figure 463. S+® output of regression model development using turbidity (TBY) as the explanatory variable for total organic carbon (TOC) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

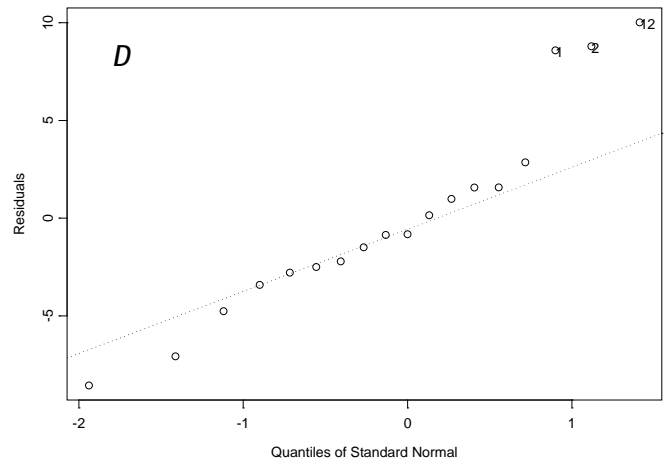
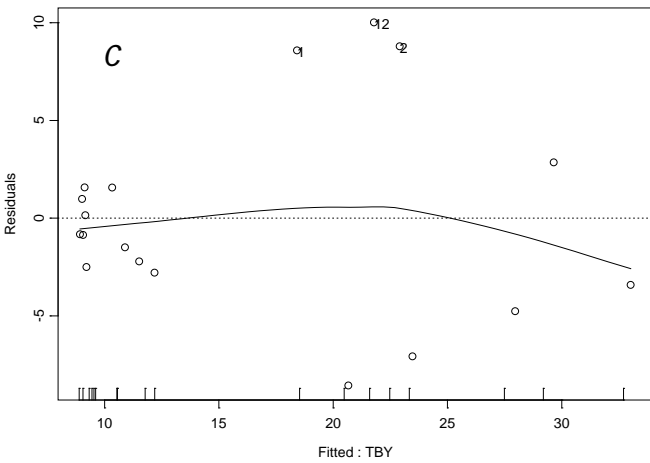
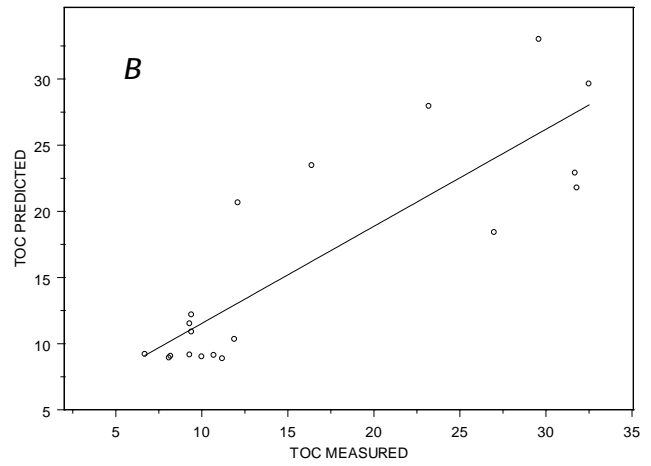
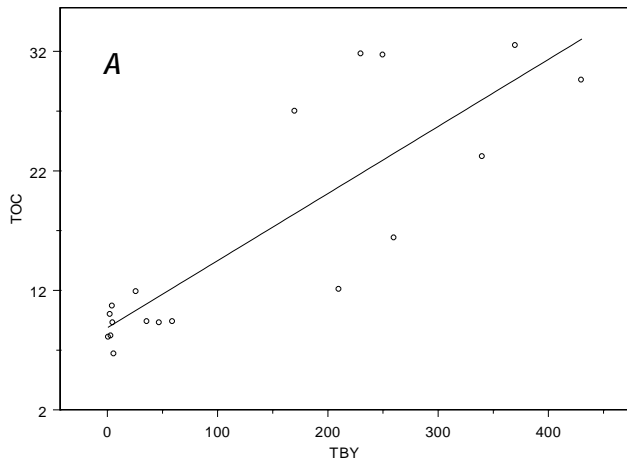


Figure 464. S+® output graphs from simple linear regression analysis showing *A*, turbidity (TBY) versus total organic carbon (TOC); *B*, measured versus predicted TOC concentrations; *C*, computed TOC concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = COD ~ TBY, data = COD.119.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-23.45	-8.948	1.54	12.39	18.26

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	23.1254	3.6840	6.2772	0.0000
TBY	0.1796	0.0191	9.4083	0.0000

Residual standard error: 13.31 on 18 degrees of freedom

Multiple R-Squared: 0.831 Adjusted R-squared: 0.8216

F-statistic: 88.52 on 1 and 18 degrees of freedom, the p-value is 2.264e-008

Correlation of Coefficients:

(Intercept)
TBY -0.5893

Analysis of Variance Table

Response: COD

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	15683.64	15683.64	88.51604	2.263964e-008
Residuals	18	3189.31	177.18		

Figure 465. S+® output of regression model development using turbidity (TBY) as the explanatory variable for chemical oxygen demand (COD) for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), June 2011 through May 2013.

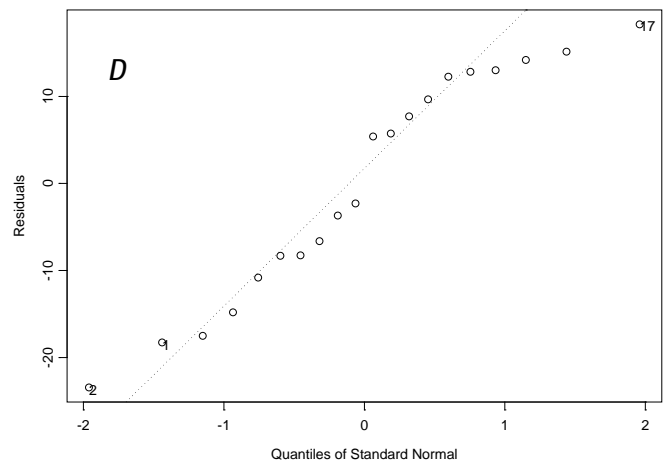
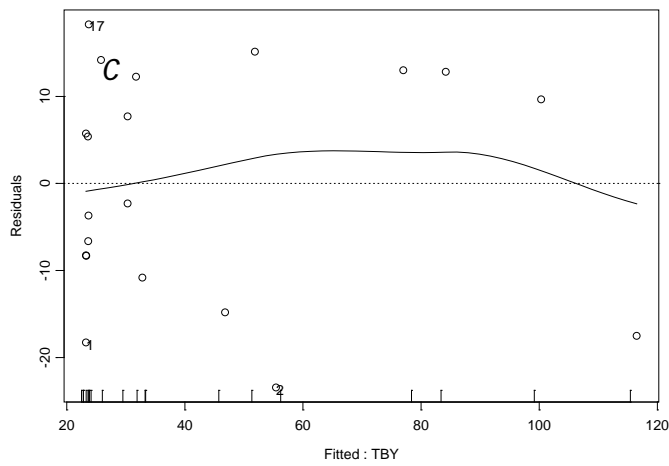
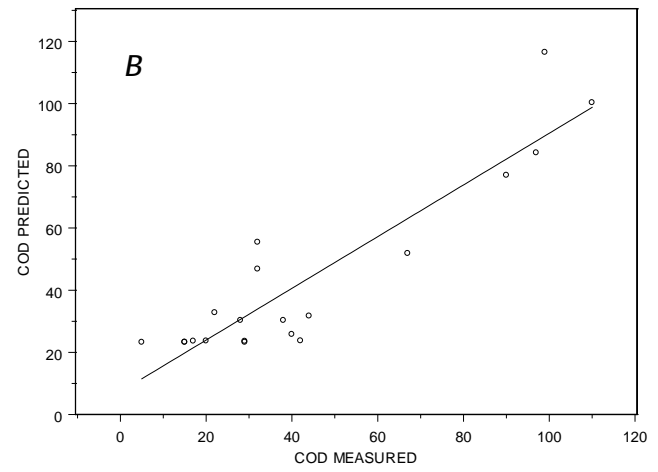
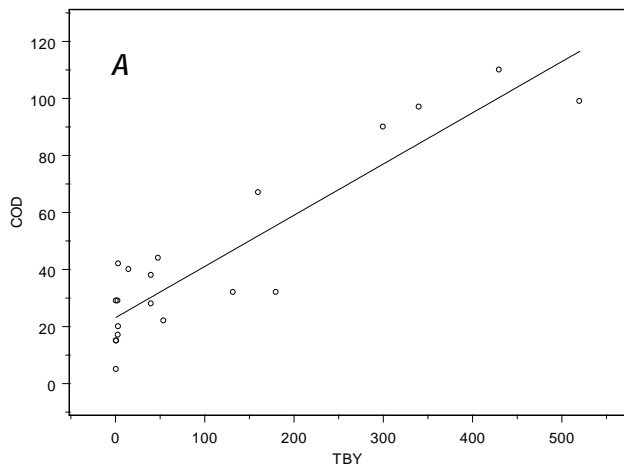


Figure 466. S+® output graphs from simple linear regression analysis showing *A*, turbidity (TBY) versus chemical oxygen demand (COD); *B*, measured versus predicted COD concentrations; *C*, computed COD concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at 119th Street, Overland Park, KS (119th, site 385446094430700), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = COD ~ Q + TBY, data = COD.COLL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-15.19	-6.456	0.07452	5.81	23.65

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	30.5020	3.1095	9.8093	0.0000
Q	-0.0461	0.0061	-7.6029	0.0000
TBY	0.2724	0.0166	16.3937	0.0000

Residual standard error: 10.22 on 13 degrees of freedom

Multiple R-Squared: 0.9591 Adjusted R-squared: 0.9528

F-statistic: 152.3 on 2 and 13 degrees of freedom, the p-value is 9.505e-010

Correlation of Coefficients:

(Intercept)	Q
Q	-0.1337
TBY	-0.2900
	-0.7181

Analysis of Variance Table

Response: COD

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
Q	1	3745.54	3745.54	35.8948	0.00004510013
TBY	1	28043.88	28043.88	268.7543	0.00000000046
Residuals	13	1356.52	104.35		

Figure 467. S+® output of regression model development using streamflow (Q) and turbidity (TBY) as explanatory variables for chemical oxygen demand (COD) for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through April 2013.

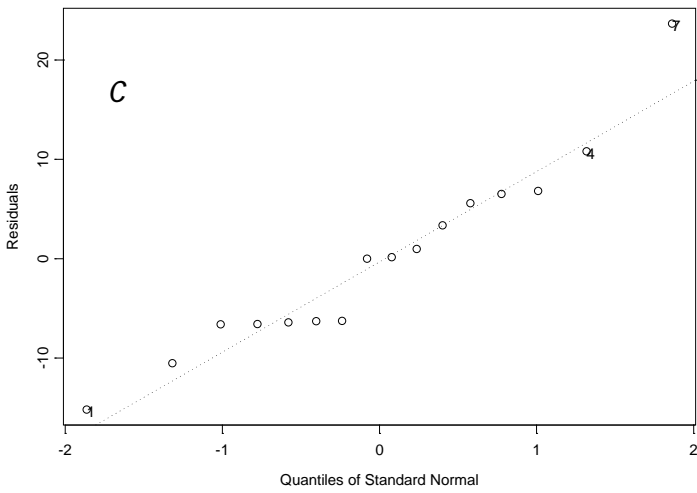
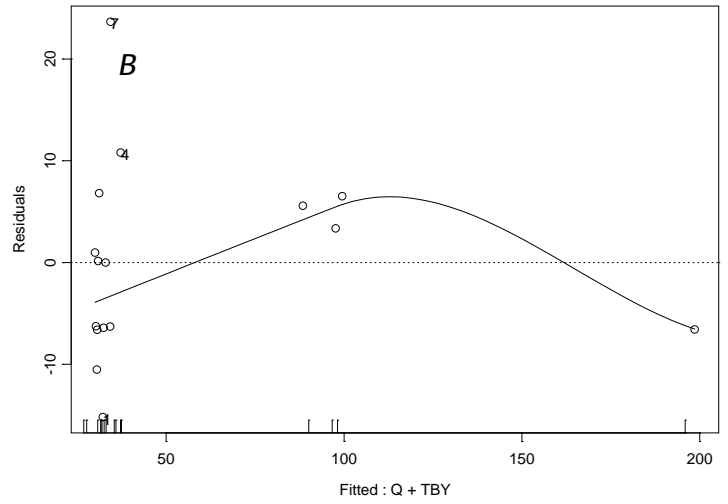
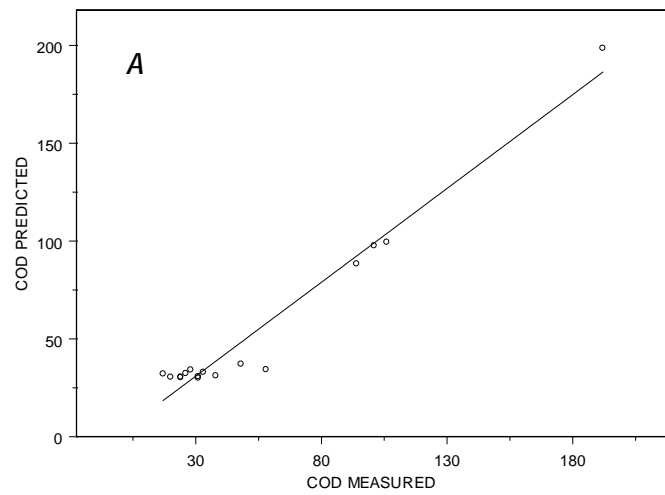


Figure 468. S+® output graphs from simple linear regression analysis using streamflow (Q) and turbidity (TBY) as explanatory variables for chemical oxygen demand (COD) showing *A*, measured versus predicted COD concentrations; *B*, computed COD concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at College Boulevard, Overland Park, KS (College, site 385520094420000), June 2011 through April 2013.

*** Linear Model ***

Call: lm(formula = COD ~ Q + LOGSC, data = COD.MART.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-46.53	-10.04	-1.939	15.04	38.17

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	-124.9692	54.2790	-2.3024	0.0361
Q	0.1552	0.0191	8.1364	0.0000
LOGSC	48.8722	18.0816	2.7029	0.0164

Residual standard error: 20.5 on 15 degrees of freedom

Multiple R-Squared: 0.8237 Adjusted R-squared: 0.8002

F-statistic: 35.04 on 2 and 15 degrees of freedom, the p-value is 2.221e-006

Correlation of Coefficients:

(Intercept)	Q
Q	-0.6058
LOGSC	-0.9922 0.5367

Analysis of Variance Table

Response: COD

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
Q	1	26390.87	26390.87	62.78354	0.00000097
LOGSC	1	3070.87	3070.87	7.30555	0.01636406
Residuals	15	6305.21	420.35		

Figure 469. S+® output of regression model development using streamflow (Q) and specific conductance (SC) as explanatory variables for chemical oxygen demand (COD) for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

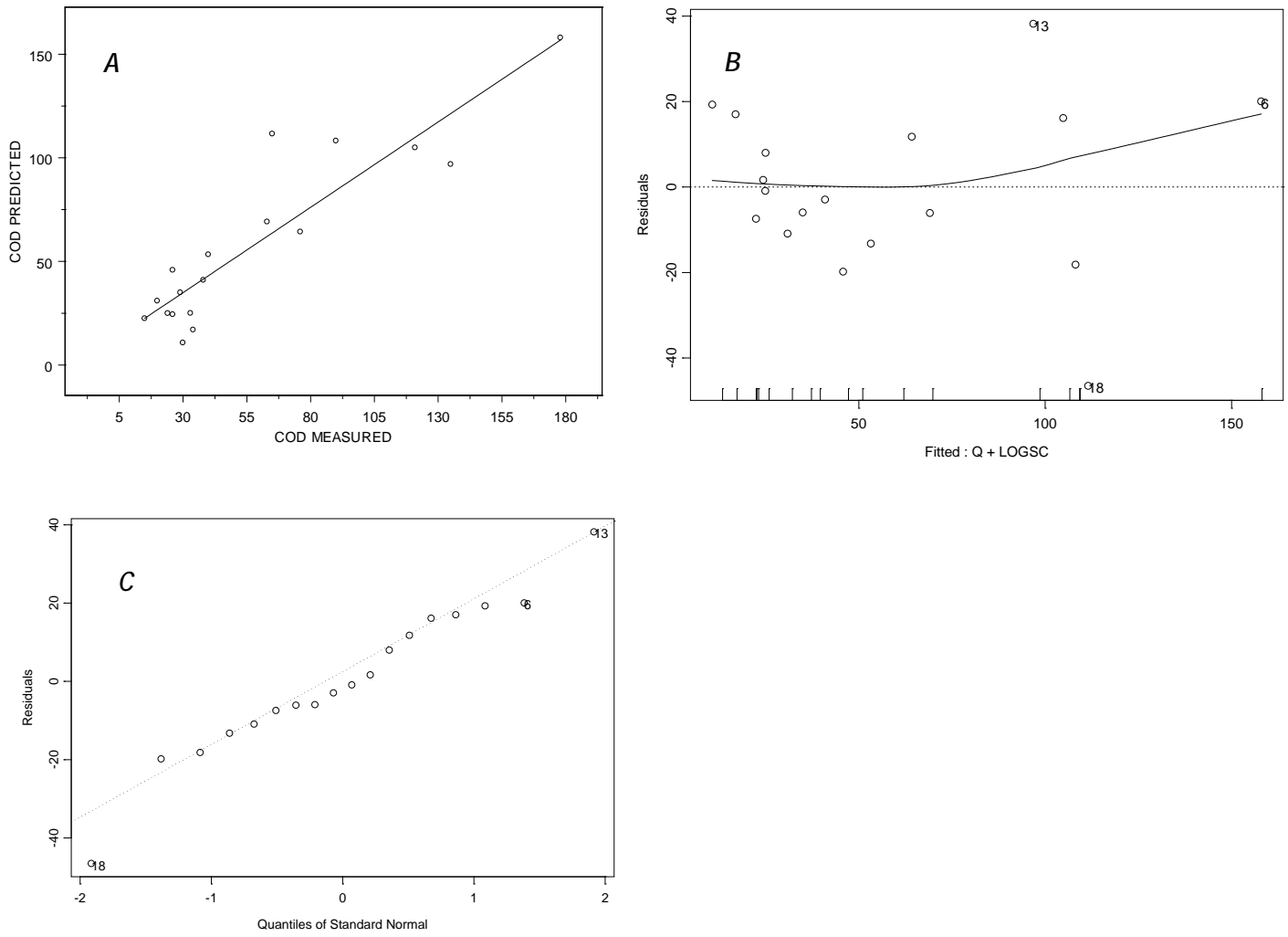


Figure 470. S+® output graphs from simple linear regression analysis using streamflow (Q) and log-transformed specific conductance (SC) as explanatory variables for chemical oxygen demand (COD) showing A, measured versus predicted COD concentrations; B, computed COD concentrations versus regression residuals; and C, standard normal quantiles versus regression residuals for Indian Creek at Overland Park, KS (Marty, site 06893300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = COD ~ TBY, data = COD.MF.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-11.36	-8.432	0.1851	5.529	24.04

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	27.8859	2.8920	9.6423	0.0000
TBY	0.2333	0.0145	16.0616	0.0000

Residual standard error: 10.01 on 16 degrees of freedom

Multiple R-Squared: 0.9416 Adjusted R-squared: 0.938

F-statistic: 258 on 1 and 16 degrees of freedom, the p-value is 2.729e-011

438 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)
TBY -0.5777

Analysis of Variance Table

Response: COD

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	25874.82	25874.82	257.9762	2.728584e-011
Residuals	16	1604.79	100.30		

Figure 471. S+® output of regression model development using turbidity (TBY) as the explanatory variable for chemical oxygen demand (COD) for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

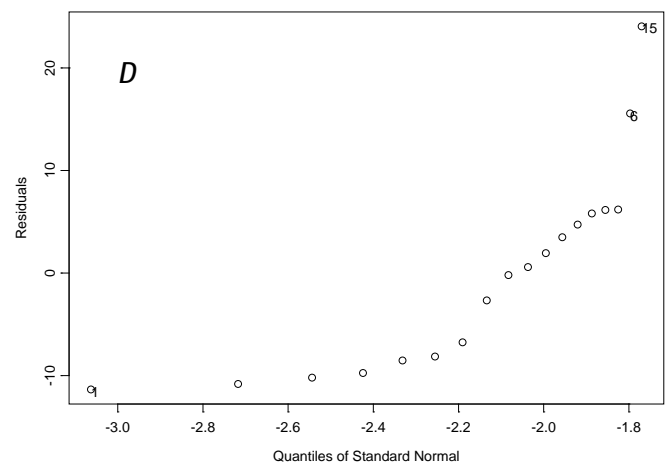
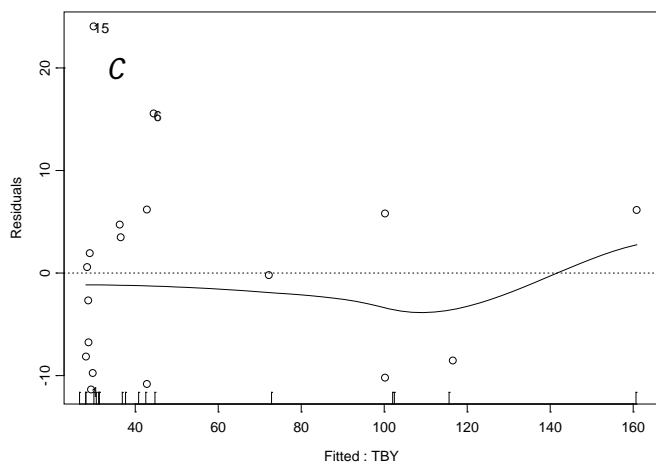
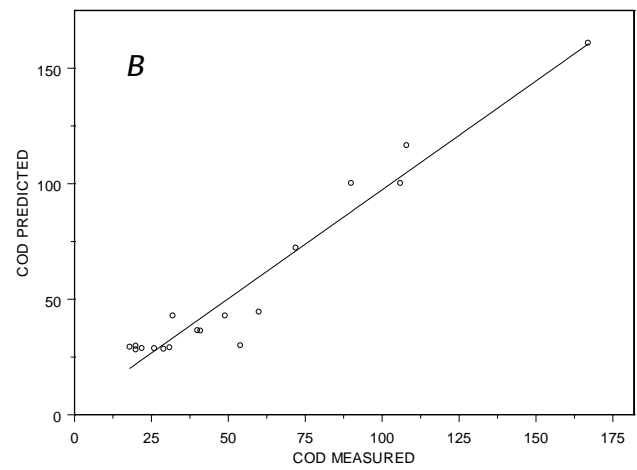
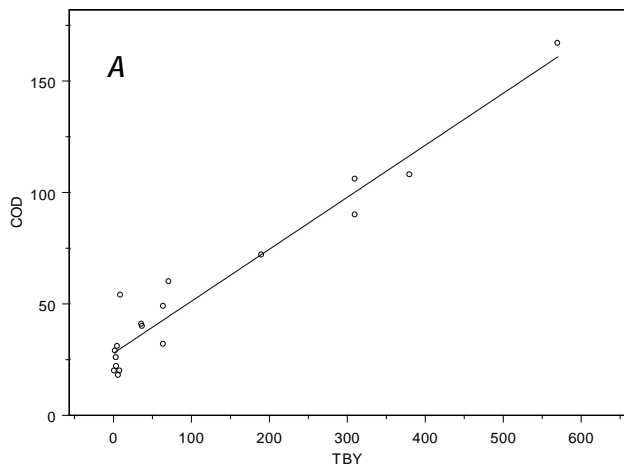


Figure 472. S+® output graphs from simple linear regression analysis showing *A*, turbidity (TBY) versus chemical oxygen demand (COD); *B*, measured versus predicted COD concentrations; *C*, computed COD concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at Indian Creek Parkway, Overland Park, KS (Mission Farms, site 385608094380300), June 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = COD ~ Q + TBY, data = COD.TOM.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-12.51	-8.262	-1.228	5.54	18.56

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	27.1352	3.0897	8.7826	0.0000
Q	-0.0909	0.0278	-3.2713	0.0061
TBY	0.4825	0.0880	5.4855	0.0001

Residual standard error: 10.67 on 13 degrees of freedom

Multiple R-Squared: 0.8762 Adjusted R-squared: 0.8572

F-statistic: 46.02 on 2 and 13 degrees of freedom, the p-value is 1.264e-006

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	Q
Q	-0.0137	
TBY	-0.1169	-0.9662

Analysis of Variance Table

Response: COD

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
Q	1	7049.602	7049.602	61.95170	0.0000026708
TBY	1	3424.041	3424.041	30.09037	0.0001047014
Residuals	13	1479.295	113.792		

Figure 473. S+® output of regression model development using streamflow (Q) and turbidity (TBY) as explanatory variables for chemical oxygen demand (COD) for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), November 2011 through May 2013.

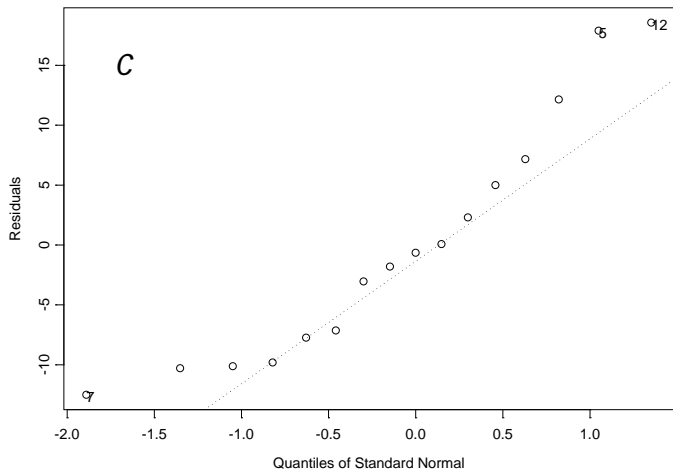
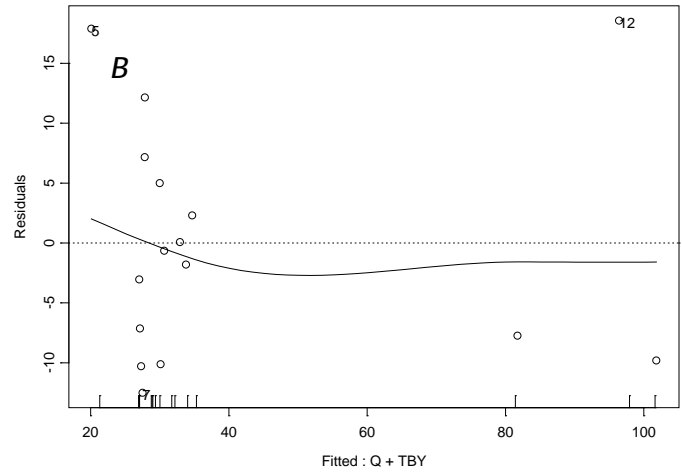
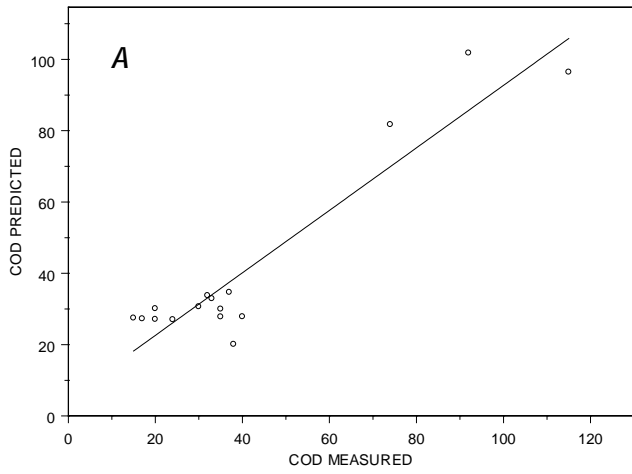


Figure 474. S+® output graphs from simple linear regression analysis using streamflow (Q) and turbidity (TBY) as explanatory variables for chemical oxygen demand (COD) showing *A*, measured versus predicted COD concentrations; *B*, computed COD concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Tomahawk Creek near Overland Park, KS (Tomahawk, site 06893350), November 2011 through May 2013.

*** Linear Model ***

Call: lm(formula = COD ~ TBY, data = COD.STL.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-48.83	-19.38	-11.38	17.76	80.86

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	43.5723	8.7146	4.9999	0.0000
TBY	0.1987	0.0357	5.5637	0.0000

Residual standard error: 32.52 on 24 degrees of freedom

Multiple R-Squared: 0.5633 Adjusted R-squared: 0.5451

F-statistic: 30.95 on 1 and 24 degrees of freedom, the p-value is 0.00001005

1 observations deleted due to missing values

Correlation of Coefficients:

(Intercept)
TBY -0.6815

Analysis of Variance Table

Response: COD

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
TBY	1	32734.47	32734.47	30.95496	0.00001005169
Residuals	24	25379.69	1057.49		

Figure 475. S+® output of regression model development using turbidity (TBY) as the explanatory variable for chemical oxygen demand (COD) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2008 through May 2013.

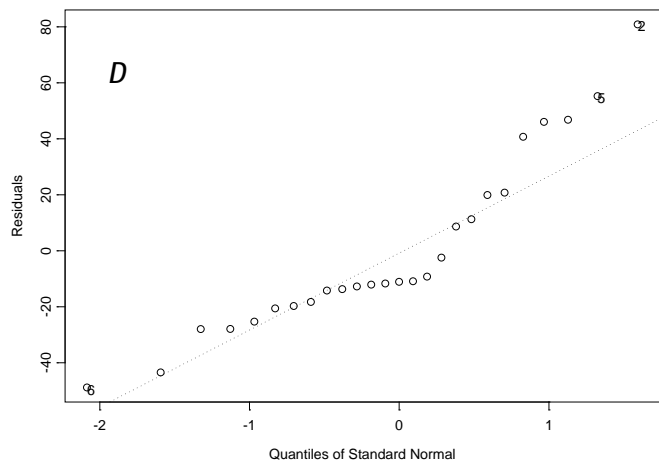
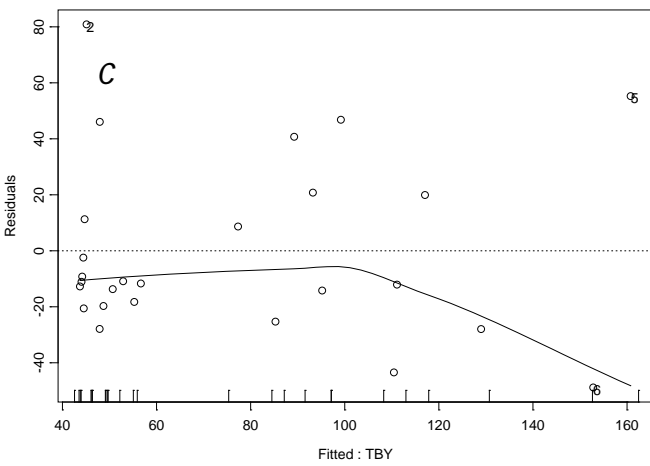
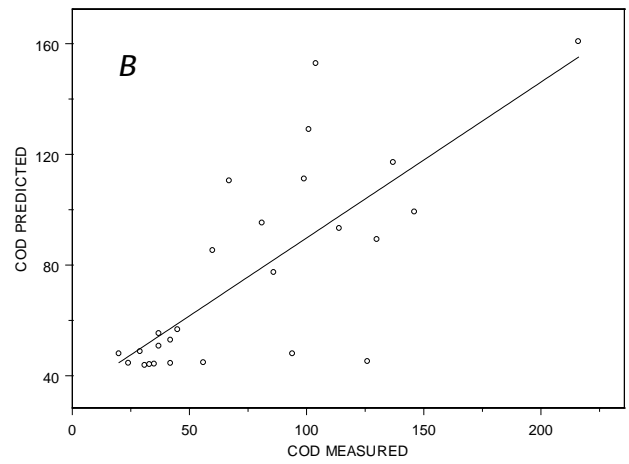
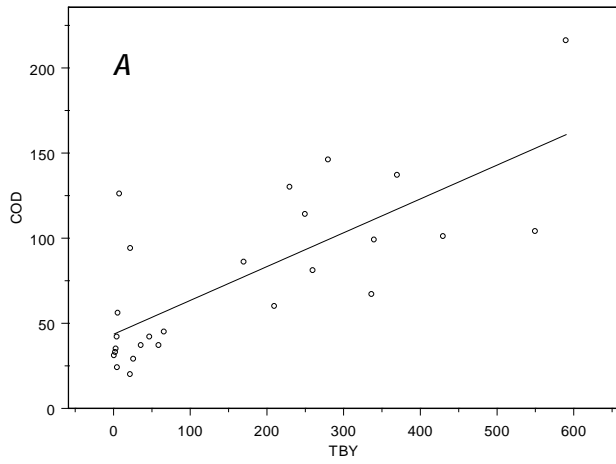


Figure 476. S+® output graphs from simple linear regression analysis showing *A*, turbidity (TBY) versus chemical oxygen demand (COD); *B*, measured versus predicted COD concentrations; *C*, computed COD concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2008 through May 2013.

*** Linear Model ***

Call: lm(formula = LOGCOD ~ SC, data = COD.STL.PRE.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.297	-0.1474	0.03967	0.1381	0.2749

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	2.4284	0.1772	13.7067	0.0000
SC	-0.0010	0.0003	-3.1685	0.0194

Residual standard error: 0.2147 on 6 degrees of freedom

Multiple R-Squared: 0.6259 Adjusted R-squared: 0.5636

F-statistic: 10.04 on 1 and 6 degrees of freedom, the p-value is 0.01936

Correlation of Coefficients:

(Intercept)

SC -0.9036

Analysis of Variance Table

Response: LOGCOD

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SC	1	0.4627792	0.4627792	10.03924	0.01935609
Residuals	6	0.2765823	0.0460971		

Figure 477. S+® output of regression model development using specific conductance (SC) as the explanatory variable for chemical oxygen demand (COD) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2008 through May 2010.

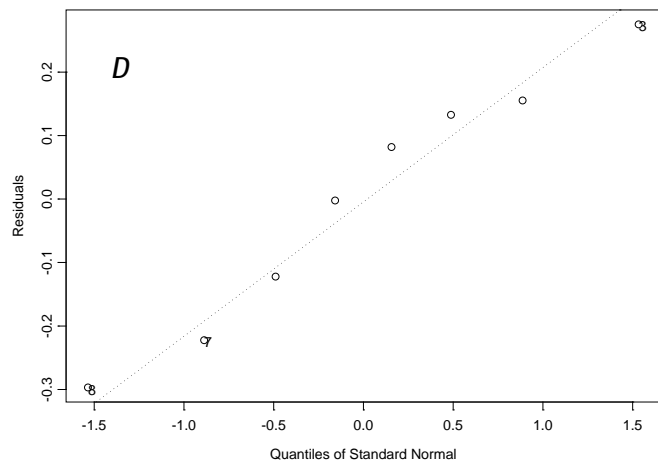
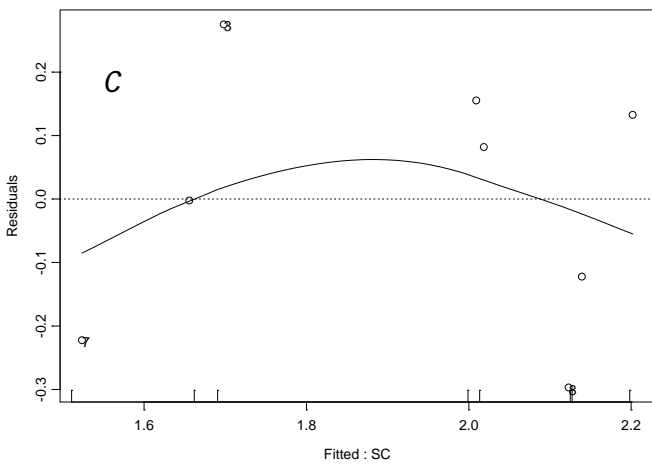
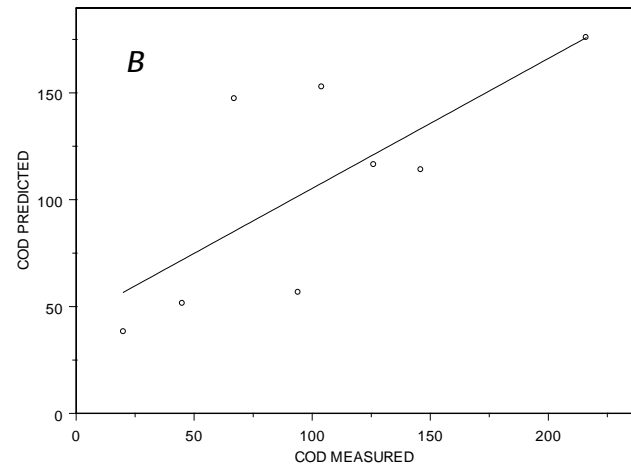
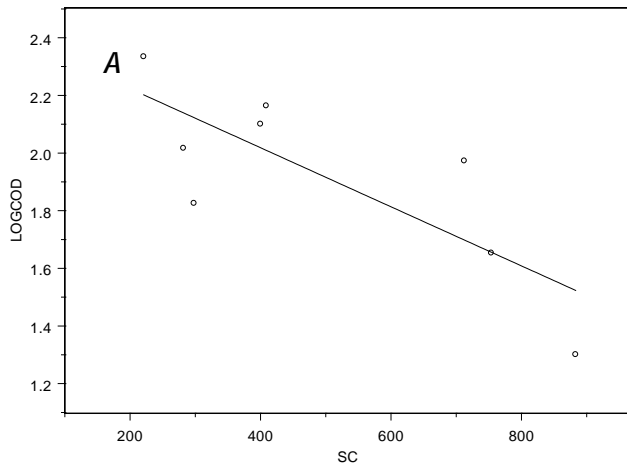


Figure 478. S+® output graphs from simple linear regression analysis showing *A*, specific conductance (SC) versus log-transformed chemical oxygen demand (COD); *B*, measured versus predicted COD concentrations; *C*, computed COD concentrations versus regression residuals; and *D*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2008 through May 2010.

*** Linear Model ***

Call: lm(formula = LOGCOD ~ SC + TBY, data = COD.STL.POST.SPLUS, na.action = na.exclude)

Residuals:

Min	1Q	Median	3Q	Max
-0.1767	-0.05744	-0.01309	0.0291	0.2357

Coefficients:

	Value	Std. Error	t value	Pr(> t)
(Intercept)	1.4722	0.0559	26.3308	0.0000
SC	0.0001	0.0000	1.7372	0.1028
TBY	0.0016	0.0002	8.0453	0.0000

Residual standard error: 0.113 on 15 degrees of freedom

Multiple R-Squared: 0.816 Adjusted R-squared: 0.7915

F-statistic: 33.26 on 2 and 15 degrees of freedom, the p-value is 3.061e-006

1 observations deleted due to missing values

Correlation of Coefficients:

	(Intercept)	SC
SC	-0.7530	
TBY	-0.7007	0.3708

Analysis of Variance Table

Response: LOGCOD

Terms added sequentially (first to last)

	Df	Sum of Sq	Mean Sq	F Value	Pr(F)
SC	1	0.0230043	0.0230043	1.80051	0.1996112
TBY	1	0.8269876	0.8269876	64.72706	0.0000008
Residuals	15	0.1916480	0.0127765		

Figure 479. S+® output of regression model development using specific conductance (SC) and turbidity (TBY) as explanatory variables for chemical oxygen demand (COD) for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.

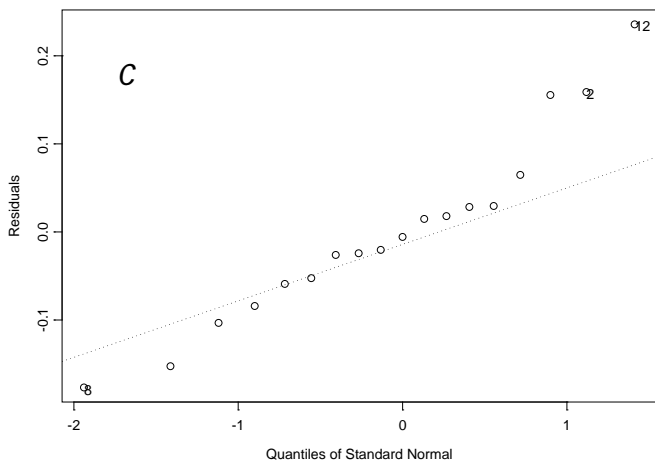
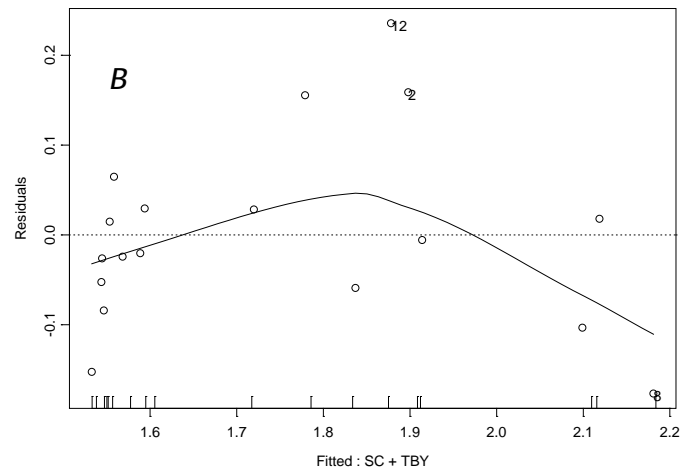
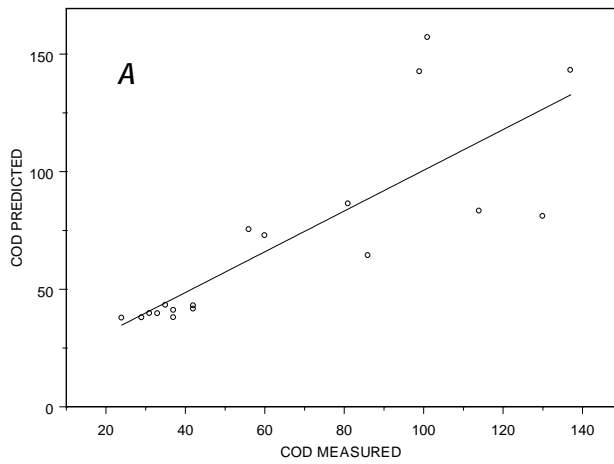


Figure 480. S+® output graphs from simple linear regression analysis using specific conductance (SC) and turbidity (TBY) as explanatory variables for log-transformed chemical oxygen demand (COD) showing *A*, measured versus predicted COD concentrations; *B*, computed log-transformed COD concentrations versus regression residuals; and *C*, standard normal quantiles versus regression residuals for Indian Creek at State Line Road, Leawood, KS (State Line, site 06893390), April 2011 through May 2013.