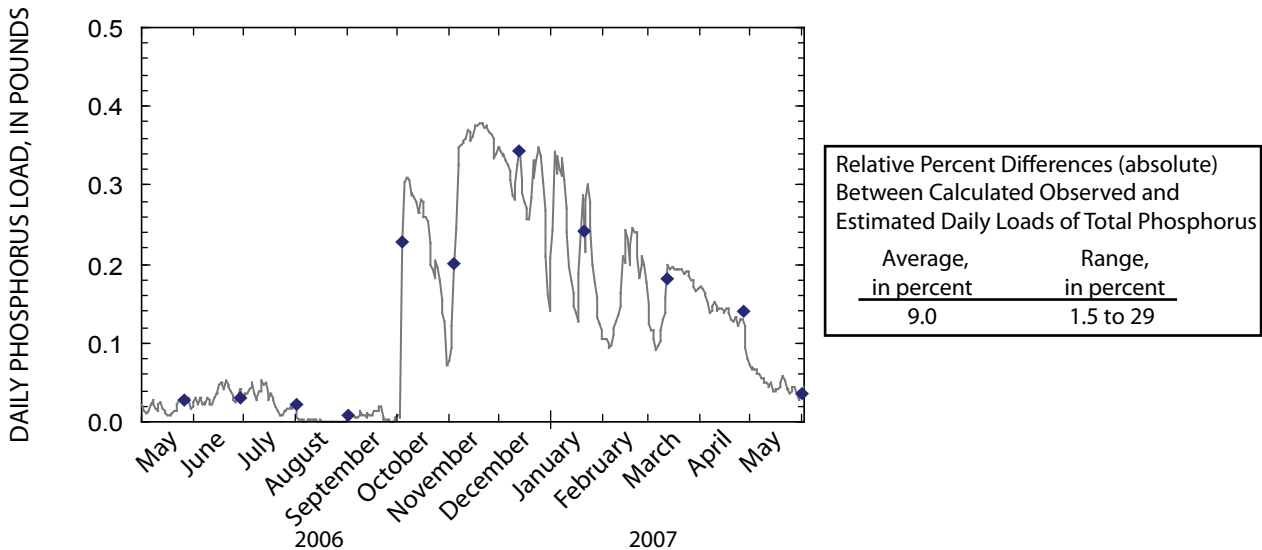
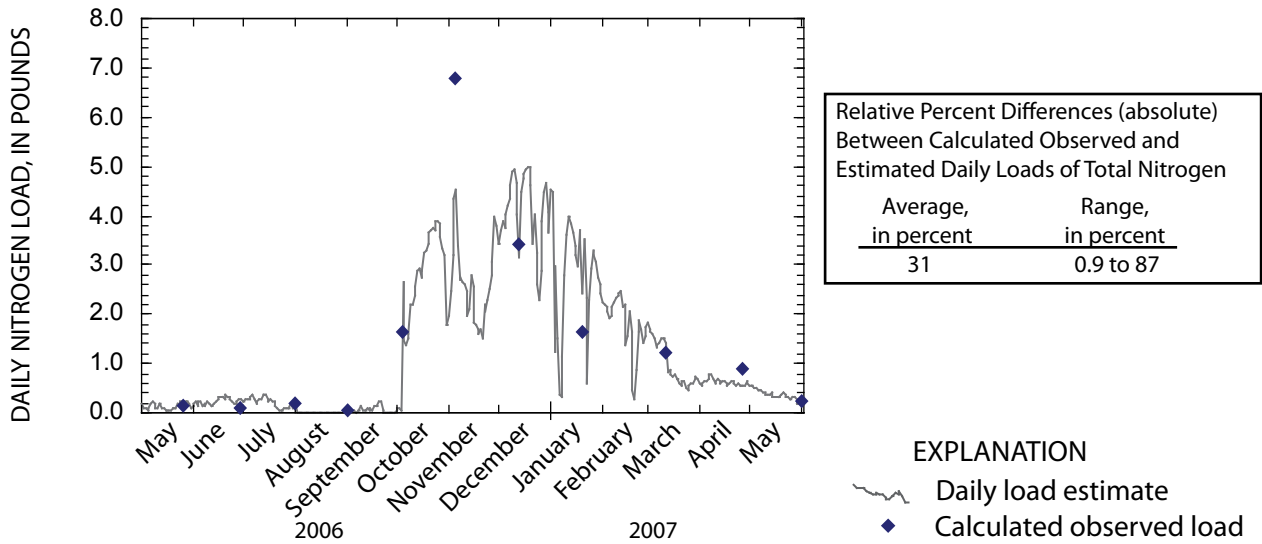


## **Appendix F. Estimated and Observed Daily Total Nitrogen and Total Phosphorus Loads and LOADEST Model Parameters**



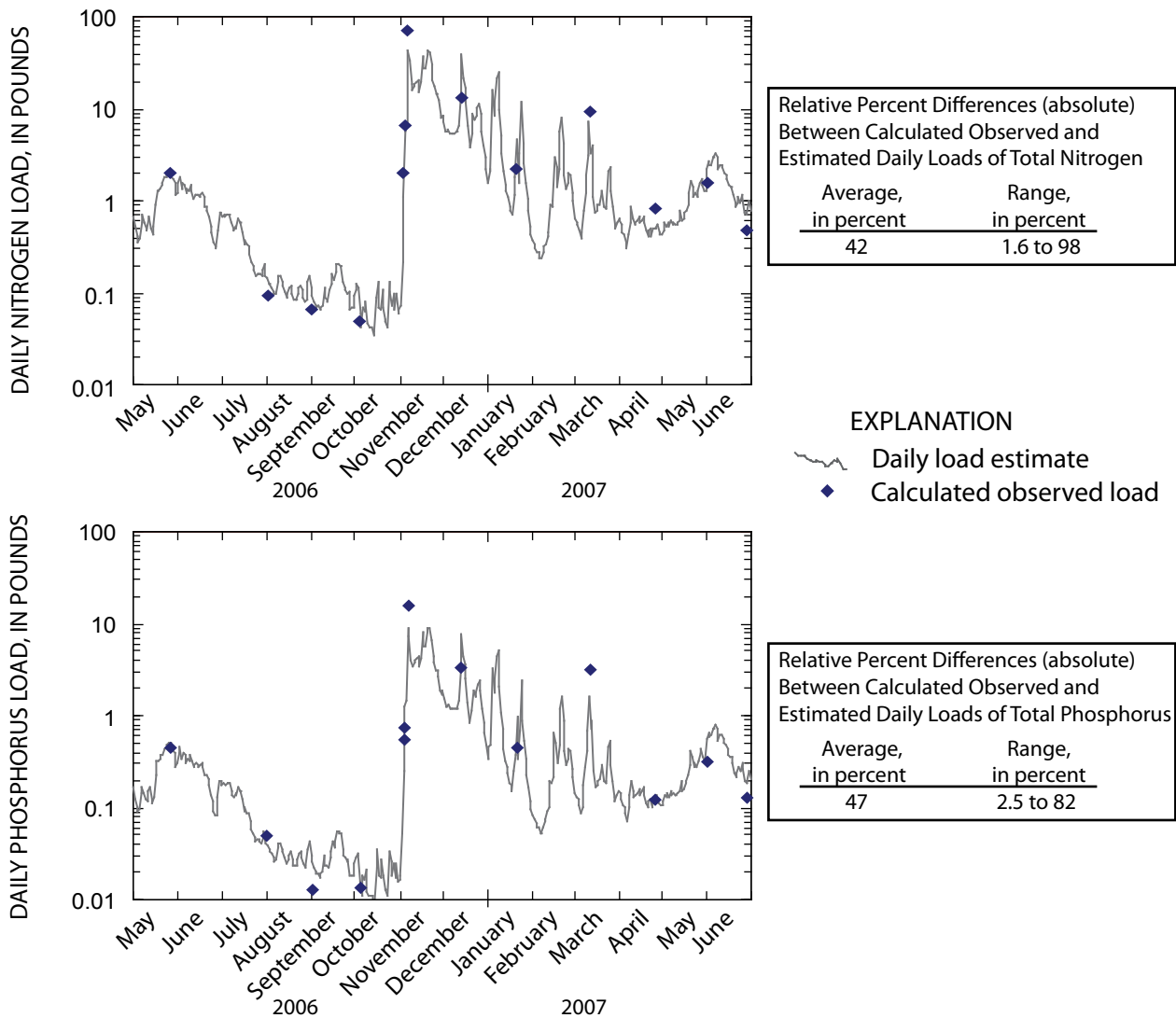
Nitrogen Model 6:  $a_0 + a_1 \ln Q + a_2 \ln Q^2 + a_3 \sin(2\pi d \text{time}) + a_4 \cos(2\pi d \text{time})$   
 R-squared of the regression = 95.84

	Coefficient	Std. Dev.	P-value
Intercept	0.177	0.306	0.422
lnQ	0.713	0.268	0.003
lnQ <sup>2</sup>	-0.541	0.148	0.0003
sin.DECTIME	-0.517	0.242	0.011
cos.DECTIME	1.129	0.454	0.005

Phosphorus Model 6:  $a_0 + a_1 \ln Q + a_2 \ln Q^2 + a_3 \sin(2\pi d \text{time}) + a_4 \cos(2\pi d \text{time})$   
 R-squared of the regression = 99.53

	Coefficient	Std. Dev.	P-value
Intercept	-2.476	0.085	7.40e-013
lnQ	0.948	0.074	3.06e-009
lnQ <sup>2</sup>	-0.211	0.041	1.78e-005
sin.DECTIME	-0.282	0.067	1.01e-004
cos.DECTIME	0.351	0.126	2.17e-003

Figure F1. Fairholm Creek time-series of estimated and observed total nitrogen and total phosphorus loads and LOADEST model parameters.



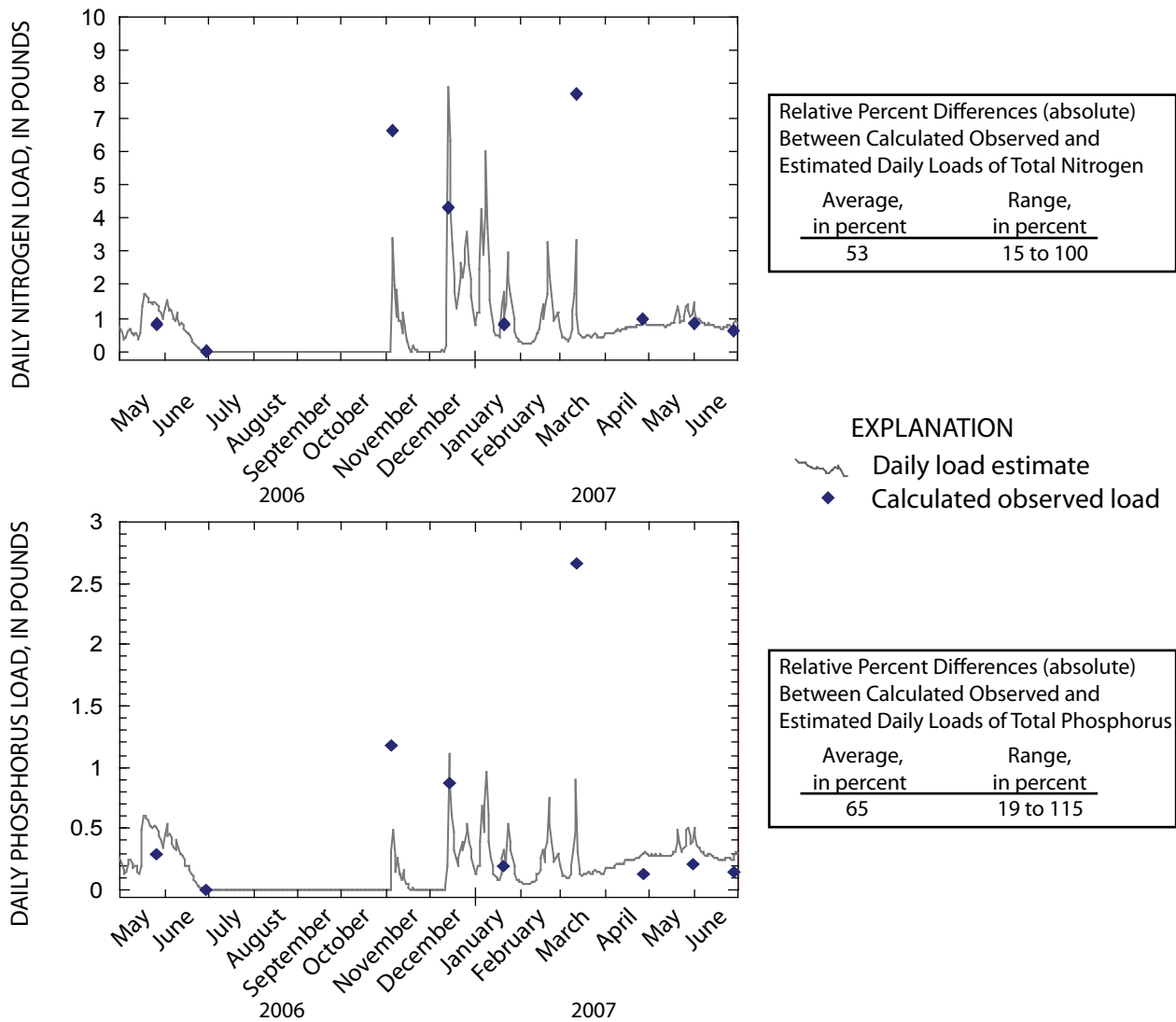
Nitrogen Model 4:  $a_0 + a_1 \ln Q + a_2 \sin(2\pi d \text{time}) + a_3 \cos(2\pi d \text{time})$   
 R-squared of the regression = 94.49

	Coefficient	Std. Dev.	P-value
Intercept	-0.369	0.198	3.95e-002
lnQ	1.340	0.152	6.04e-008
sin.DECTIME	-0.983	0.335	3.12e-003
cos.DECTIME	0.253	0.316	3.46e-001

Phosphorus Model 4:  $a_0 + a_1 \ln Q + a_2 \sin(2\pi d \text{time}) + a_3 \cos(2\pi d \text{time})$   
 R-squared of the regression = 92.84

	Coefficient	Std. Dev.	P-value
Intercept	-1.814	0.217	1.10e-007
lnQ	1.306	0.167	2.47e-007
sin.DECTIME	-0.994	0.367	5.41e-003
cos.DECTIME	0.168	0.347	5.63e-001

Figure F2. Lapoel Creek time series of estimated and observed total nitrogen and total phosphorus loads and LOADEST model parameters.



Nitrogen Model 4:  $a_0 + a_1 \ln Q + a_2 \sin(2\pi d \text{time}) + a_3 \cos(2\pi d \text{time})$

R-squared of the regression = 96.45

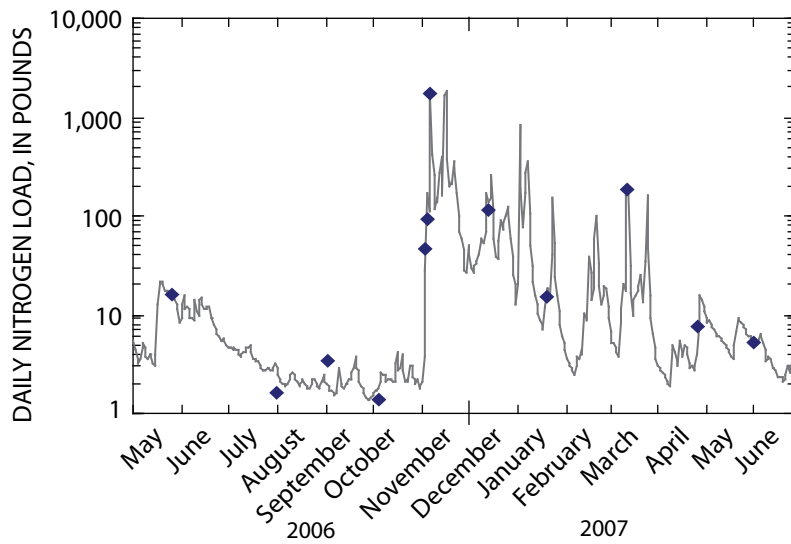
	Coefficient	Std. Dev.	P-value
Intercept	-3.507	0.280	1.75e-009
lnQ	1.080	0.087	1.95e-009
sin.DECTIME	-0.323	0.424	3.62e-001
cos.DECTIME	0.356	0.314	1.82e-001

Phosphorus Model 1:  $a_0 + a_1 \ln Q$

R-squared of the regression = 94.68

	Coefficient	Std. Dev.	P-value
Intercept	-5.405	0.291	1.37e-010
lnQ	1.068	0.080	3.02e-009

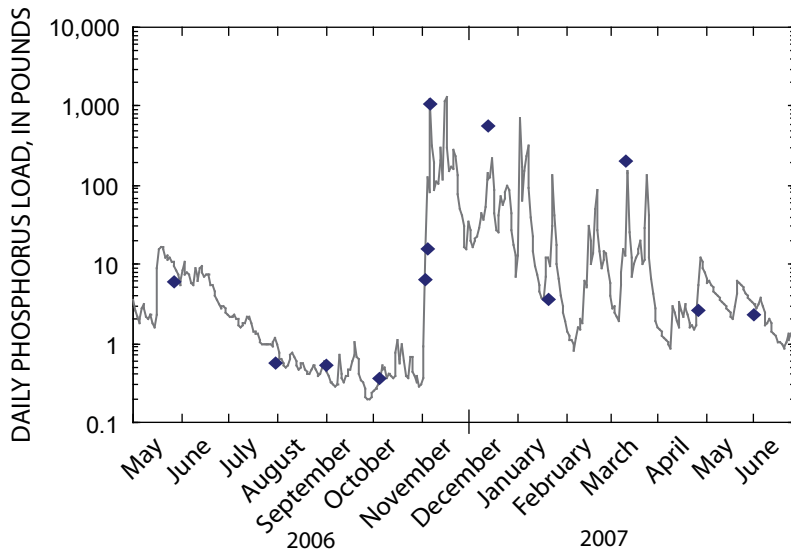
Figure F3. Smith Creek time series of estimated and observed total nitrogen and total phosphorus loads and LOADEST model parameters.



Relative Percent Differences (absolute) Between Calculated Observed and Estimated Daily Loads of Total Nitrogen	
Average, in percent	Range, in percent
23	4.2 to 57

**EXPLANATION**

- Daily load estimate
- Calculated observed load



Relative Percent Differences (absolute) Between Calculated Observed and Estimated Daily Loads of Total Phosphorus	
Average, in percent	Range, in percent
63	14 to 135

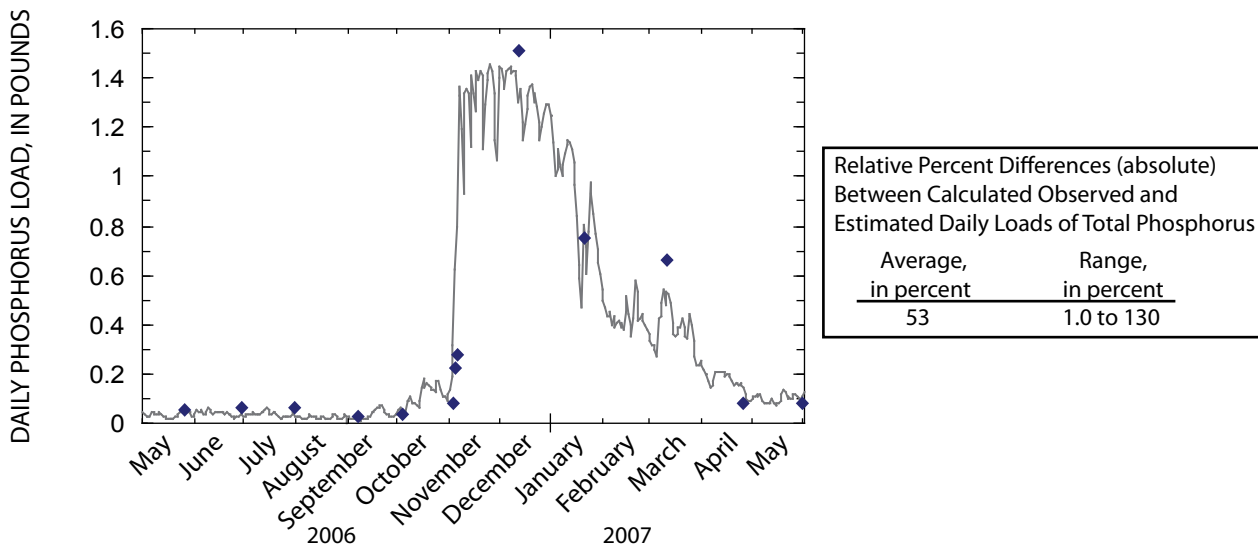
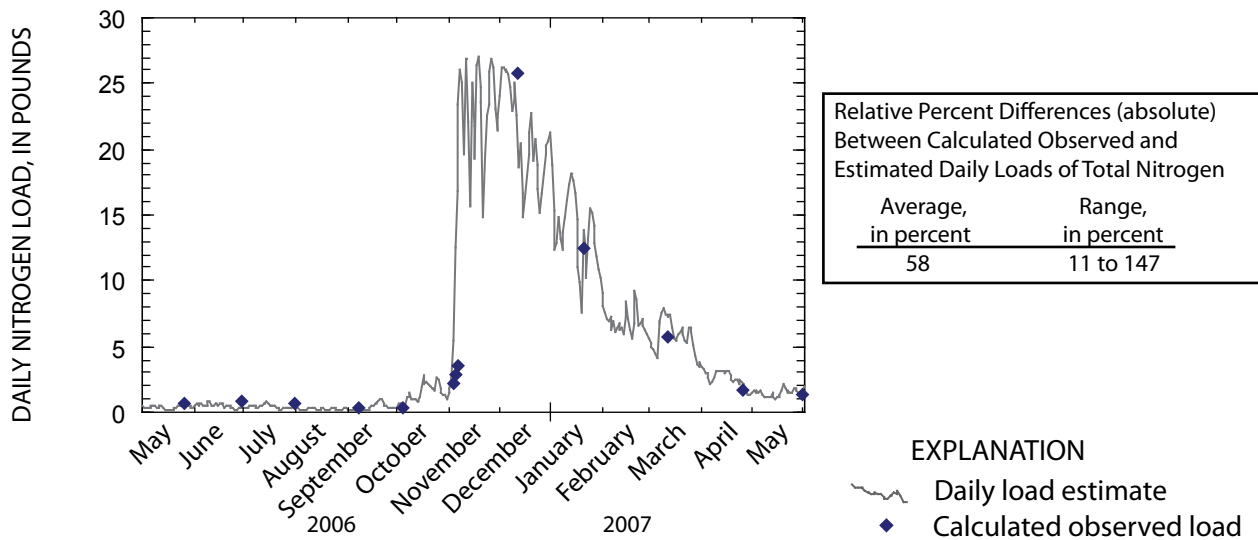
Nitrogen Model 6:  $a_0 + a_1 \ln Q + a_2 \ln Q^2 + a_3 \sin(2\pi d \text{time}) + a_4 \cos(2\pi d \text{time})$   
 R-squared of the regression = 98.19

	Coefficient	Std. Dev.	P-value
Intercept	2.563	0.133	1.40e-012
lnQ	1.375	0.098	8.16e-011
lnQ <sup>2</sup>	0.079	0.049	5.79e-002
sin.DECTIME	-0.880	0.193	4.50e-005
cos.DECTIME	0.473	0.187	5.69e-003

Phosphorus Model 4:  $a_0 + a_1 \ln Q + a_2 \sin(2\pi d \text{time}) + a_3 \cos(2\pi d \text{time})$   
 R-squared of the regression = 90.82

	Coefficient	Std. Dev.	P-value
Intercept	1.805	0.272	1.57e-006
lnQ	1.662	0.253	1.81e-006
sin.DECTIME	-0.781	0.461	5.83e-002
cos.DECTIME	0.579	0.491	1.72e-001

Figure F4. Barnes Creek time series of estimated and observed total nitrogen and total phosphorus loads and LOADEST model parameters.



Nitrogen Model 6:  $a_0+a_1 \ln Q+a_2 \ln Q^2+a_3 \sin(2\pi dtime)+a_4 \cos(2\pi dtime)$

R-squared of the regression = 96.81

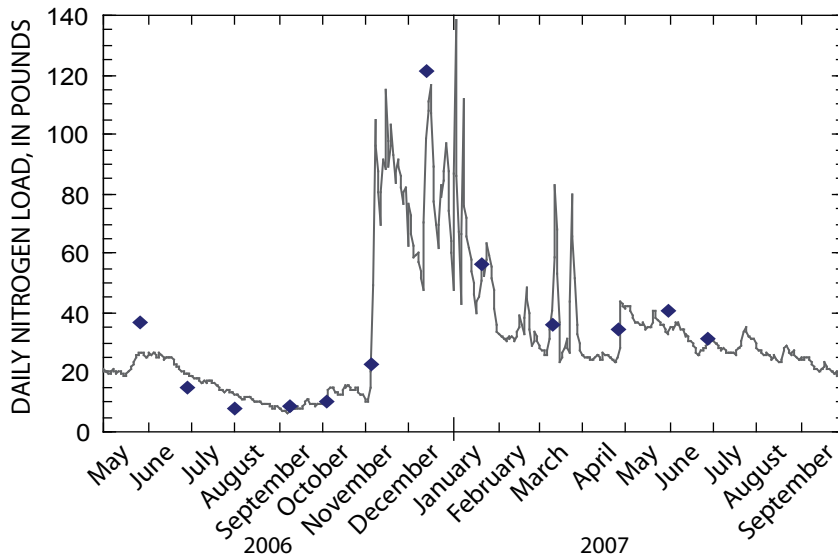
	Coefficient	Std. Dev.	P-value
Intercept	1.818	0.164	9.09e-010
lnQ	0.919	0.112	4.54e-008
lnQ <sup>2</sup>	-0.374	0.077	2.19e-005
sin.DECTIME	-0.652	0.210	1.42e-003
cos.DECTIME	0.636	0.162	1.89e-004

Phosphorus Model 6:  $a_0+a_1 \ln Q+a_2 \ln Q^2+a_3 \sin(2\pi dtime)+a_4 \cos(2\pi dtime)$

R-squared of the regression = 93.67

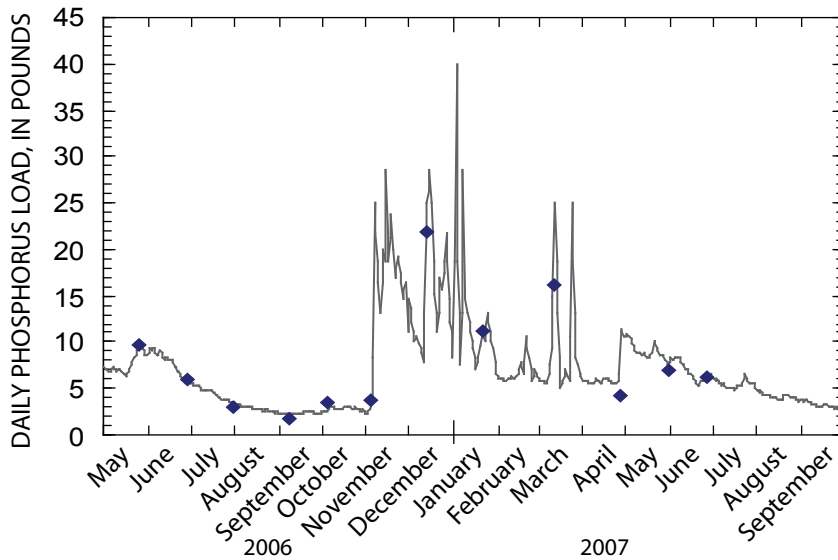
	Coefficient	Std. Dev.	P-value
Intercept	-1.083	0.218	1.76e-005
lnQ	0.798	0.149	7.54e-006
lnQ <sup>2</sup>	-0.256	0.102	6.63e-003
sin.DECTIME	-0.484	0.279	4.47e-002
cos.DECTIME	0.655	0.215	1.67e-003

Figure F5. Piedmont Creek time series of estimated and observed total nitrogen and total phosphorus loads and LOADEST model parameters.



Relative Percent Differences (absolute) Between Calculated Observed and Estimated Daily Loads of Total Nitrogen	
Average, in percent	Range, in percent
31	0.9 to 87

**EXPLANATION**  
 Daily load estimate  
 Calculated observed load



Relative Percent Differences (absolute) Between Calculated Observed and Estimated Daily Loads of Total Phosphorus	
Average, in percent	Range, in percent
9.0	1.5 to 29

Nitrogen Model 7:  $a_0 + a_1 \ln Q + a_2 \text{dtime} + a_3 \sin(2\pi \text{dtime}) + a_4 \cos(2\pi \text{dtime})$   
 R-squared of the regression = 89.38

	Coefficient	Std. Dev.	P-value
Intercept	3.268	0.103	1.21e-018
lnQ	0.860	0.168	1.75e-005
DECTIME	0.385	0.172	1.50e-002
sin.DECTIME	-0.204	0.178	2.00e-001
cos.DECTIME	0.185	0.147	1.54e-001

Phosphorus Model 2:  $a_0 + a_1 \ln Q + a_2 \ln^2 Q$   
 R-squared of the regression = 86.65

	Coefficient	Std. Dev.	P-value
Intercept	1.587	0.080	4.45e-015
lnQ	0.829	0.083	9.25e-010
lnQ <sup>2</sup>	0.193	0.088	2.53e-002

Figure F6. Lyre River time series of estimated and observed total nitrogen and total phosphorus loads and LOADEST model parameters.