

Attachment A: R Code for correlation and significance testing

```
> cor.test(Water.Yield$LittleR, Water.Yield$ElkR)
Pearson's product-moment correlation

data: Water.Yield$LittleR and Water.Yield$ElkR
t = 6.5991, df = 8, p-value = 0.0001695
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 0.6871920 0.9810282
sample estimates:
      cor
0.9191331

> cor.test(Peak.Flow$LittleR, Peak.Flow$ElkR)
Pearson's product-moment correlation

data: Peak.Flow$LittleR and Peak.Flow$ElkR
t = 2.0101, df = 8, p-value = 0.07926
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
-0.07922755 0.88582616
sample estimates:
      cor
0.5792962

# indQ is an index that matches time periods for Elk River and Little River
# gage data
> cor.test(litQ$q[indQ], LittleR, elkQ$q)
Pearson's product-moment correlation

data: litQ$q[indQ] and elkQ$q
t = 112.8524, df = 3650, p-value < 2.2e-16
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 0.8741769 0.8886387
sample estimates:
      cor
0.8816146

> cor.test(Water.Yield$LittleR, Water.Yield$ElkR, method='kendall')
Kendall's rank correlation tau

data: Water.Yield$LittleR and Water.Yield$ElkR
T = 40, p-value = 0.0009463
alternative hypothesis: true tau is not equal to 0
sample estimates:
      tau
0.7777778

> cor.test(Peak.Flow$LittleR, Peak.Flow$ElkR, method='kendall')
Kendall's rank correlation tau
data: Peak.Flow$LittleR and Peak.Flow$ElkR
T = 31, p-value = 0.1557
alternative hypothesis: true tau is not equal to 0
sample estimates:
```

```
tau  
0.3777778
```

```
> cor.test(litQ$q[indQ], elkQ$q, method='kendall')
```

```
Kendall's rank correlation tau  
data: litQ$q[indQ] and elkQ$q  
z = 77.8789, p-value < 2.2e-16  
alternative hypothesis: true tau is not equal to 0  
sample estimates:  
tau  
0.8649752
```