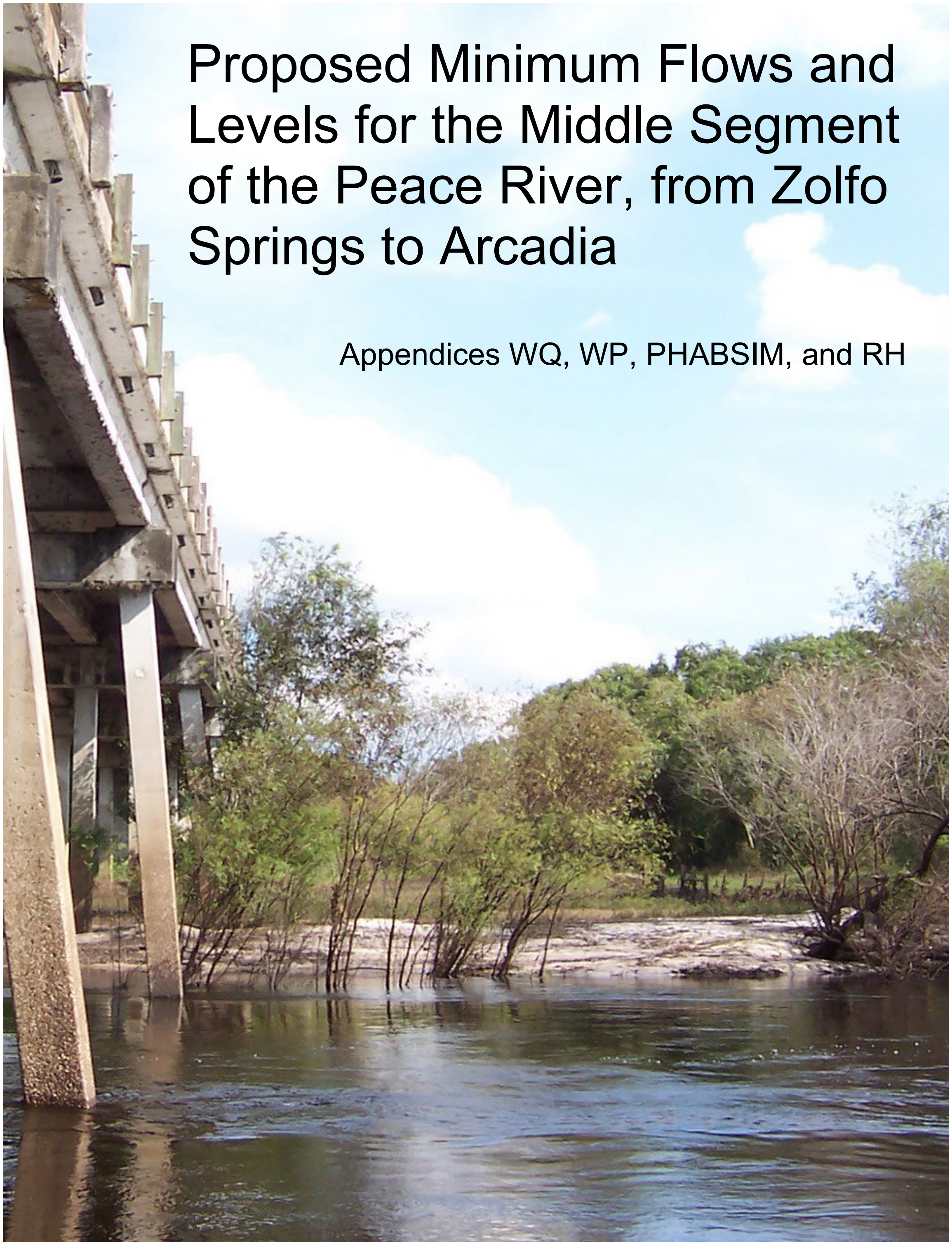
Proposed Minimum Flows and Levels for the Middle Segment of the Peace River, from Zolfo Springs to Arcadia

Appendices WQ, WP, PHABSIM, and RH



Southwest Florida
Water Management District

Proposed Minimum Flows and Levels for the Middle Segment of the Peace River, from Zolfo Springs to Arcadia

Appendices WQ, WP, PHABSIM and RH

October 2005

Ecologic Evaluation Section
Resource Conservation and Development Department
Southwest Florida Water Management District
Brooksville, Florida 34604-6899

Marty Kelly
Adam Munson
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Appendices

APPENDIX WQ – WATER QUALITY ANALYSIS RESULTS

APPENDIX WP – WETTED PERIMETER PLOTS

APPENDIX PHABSIM – PHYSICAL HABITAT SIMULATION ANALYSIS RESULTS

APPENDIX RH – FLOOPLAIN ELEVATIONS INORMATIONS

Note that two additional appendices, Appendix A and Appendix B, are included in the main minimum flows report file for the middle segment of the Peace River and are not included in this appendix file.

APPENDIX A – PEER REVIEW

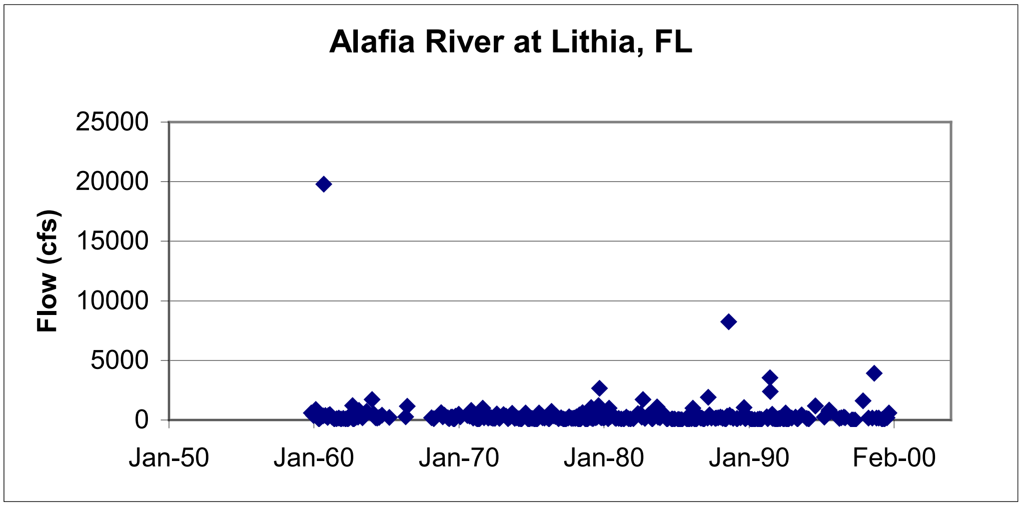
APPENDIX B – STAFF RESPONSE TO PEER REVIEW

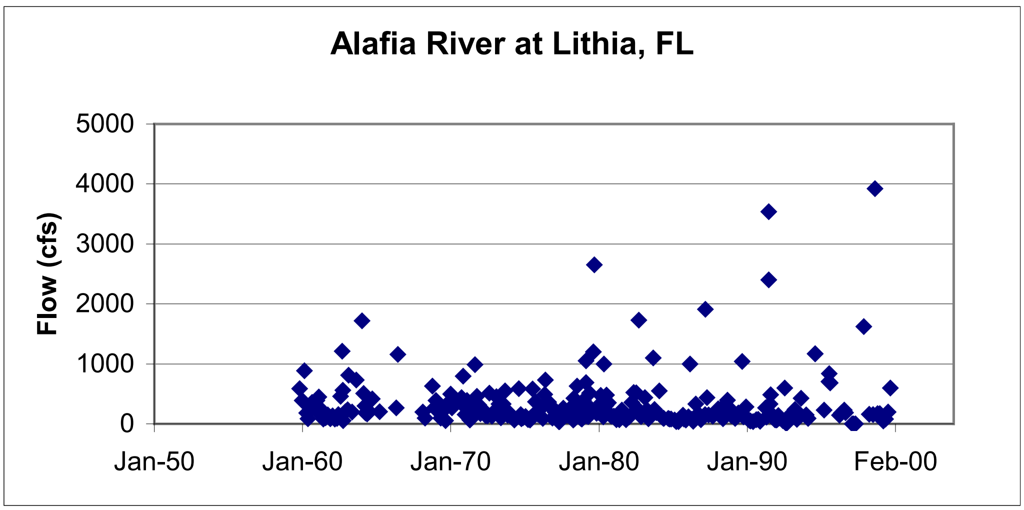
APPENDIX WQ

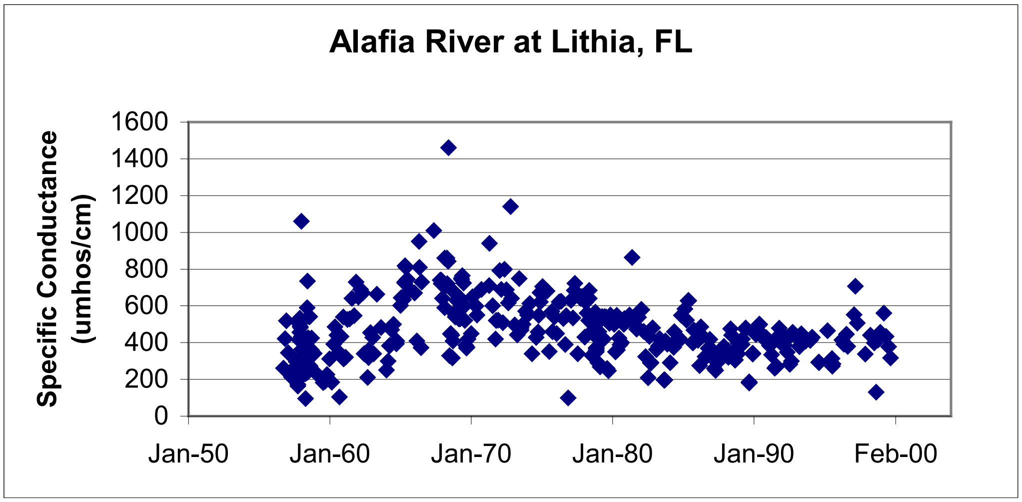
Water Quality – WQ

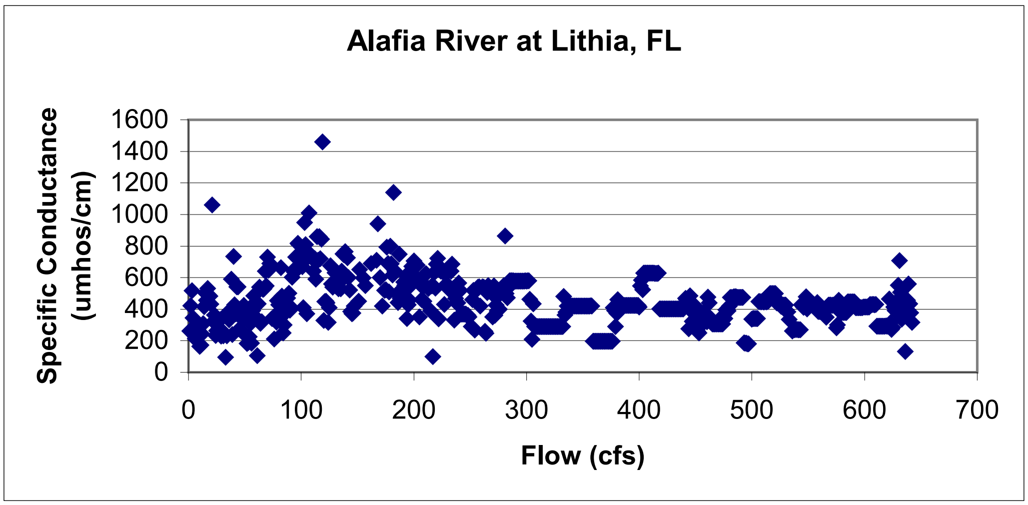
This appendix contains water quality plots for selected physico-chemical parameters for several waterbodies. Plots are given for selected sites on the Alafia, Peace, Myakka and Withlacoochee Rivers. Both the Alafia and Peace Rivers have experienced extremes in a number of parameters due primarily to phosphate mining activities within their respective watersheds. The Withlacoochee River, which exhibits good water quality, is presented as a point of reference when considering what one might expect water quality to be in the absence of major anthropogenic factors. Typically three plots are given for each parameter: 1) time series plot of parameter; 2) plot of parameter versus flow; and 3) times series plot of residuals of parameter regressed against flow.

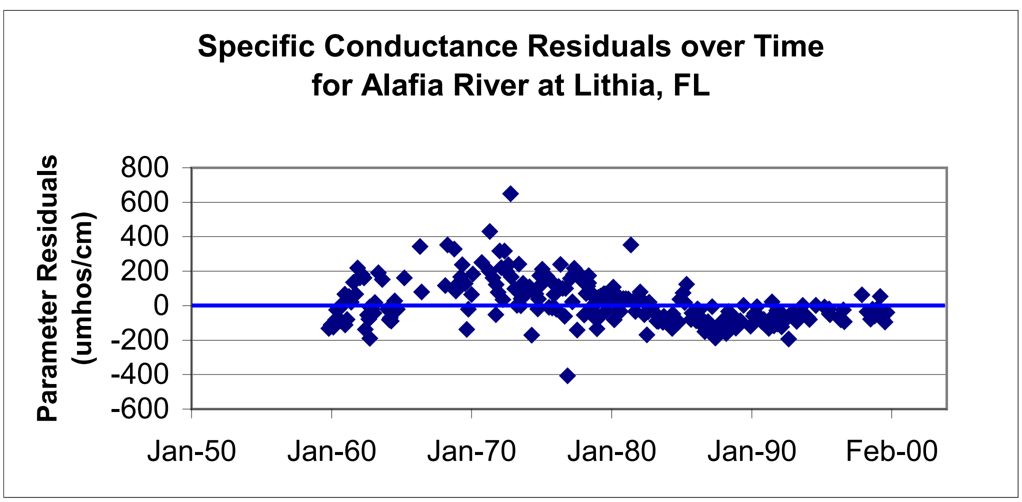
Significant changes in water chemistry are often apparent over time and can be appreciated simply by inspecting time series plots. However, since this document is specifically concerned with flows, chemical parameters were routinely regressed against flow and the resultant residuals plotted against time. This was done to evaluate changes in constituent loading unrelated to flow. This analysis is helpful for appreciating apparent increases or decreases due to anthropogenic factors. The residuals obtained from the regression on an individual parameter against flow were evaluated by subjecting the residuals to a Kendall's tau analysis. Results of this analysis are given in a series of tables beginning on page 182 of this Appendix.

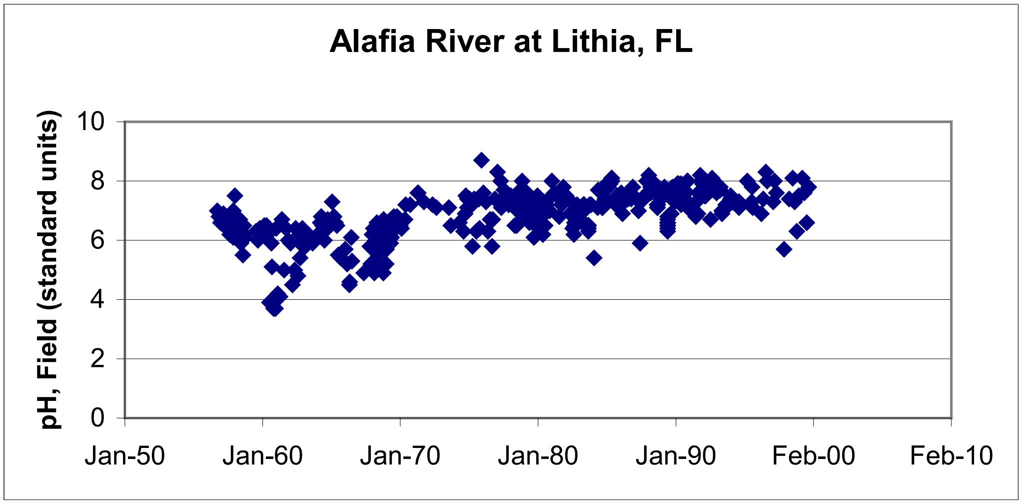

Alafia River at Lithia, FL
Flow (cfs)
25000
20000
15000
10000
5000
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

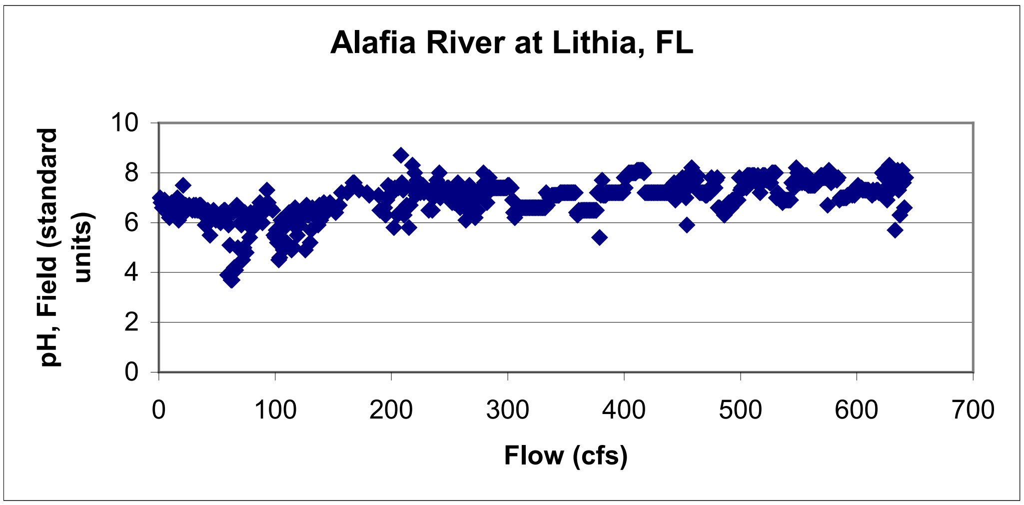

Alafia River at Lithia, FL
Flow (cfs)
5000
4000
3000
2000
1000
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

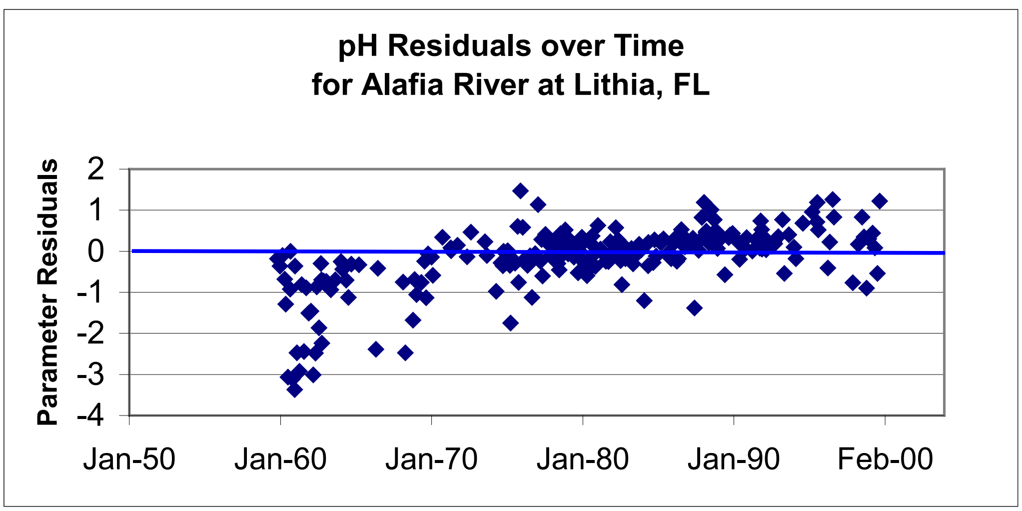

Alafia River at Lithia, FL
Specific Conductance (umhos/cm)
1600
1400
1200
1000
800
600
400
200
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

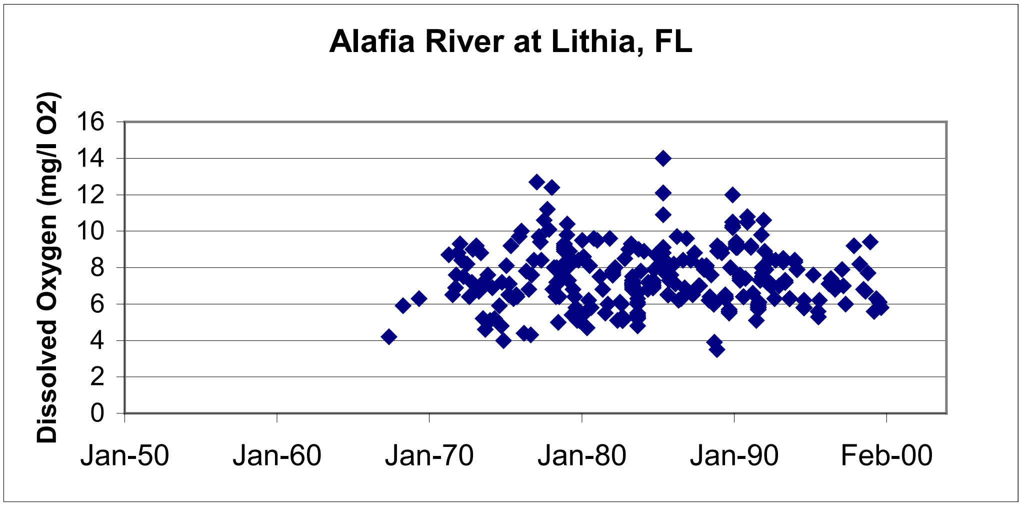

Alafia River at Lithia, FL
Specific Conductance (umhos/cm)
1600
1400
1200
1000
800
600
400
200
0
0
100
200
300
400
500
600
700
Flow (cfs)

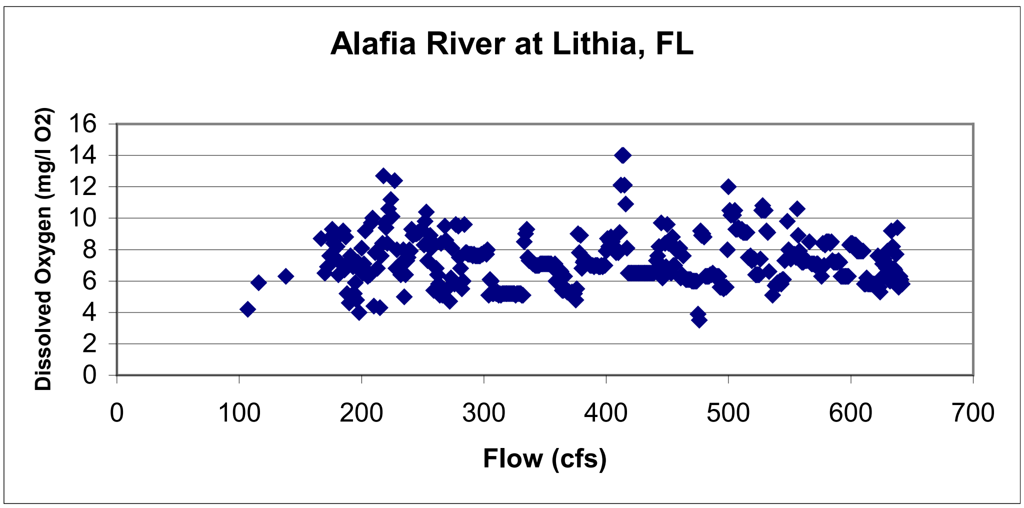

Specific Conductance Residuals over Time for Alafia River at Lithia, FL
Parameter Residuals (umhos/cm)
800
600
400
200
0
-200
-400
-600
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

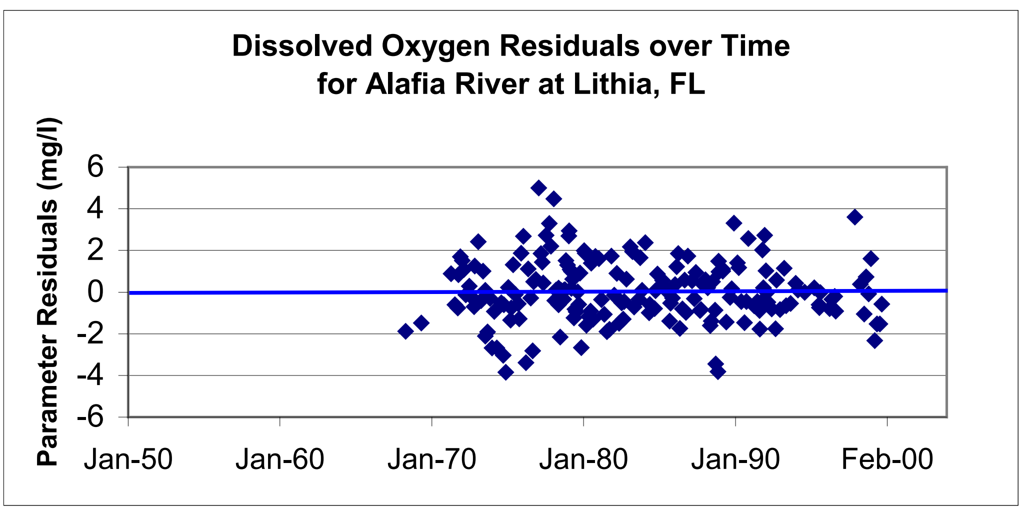

Alafia River at Lithia, FL
pH, Field (standard units)
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

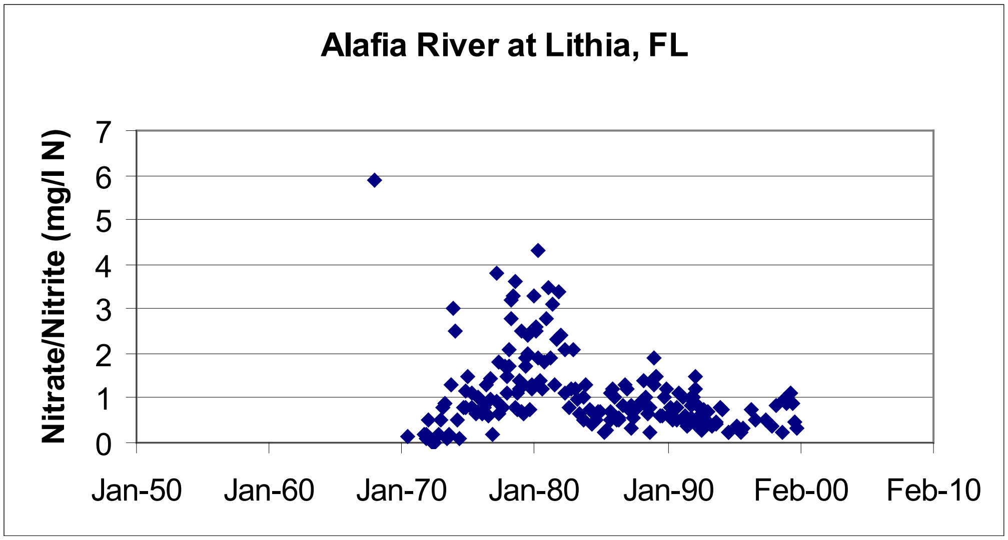

Alafia River at Lithia, FL
pH, Field (standard units)
10
8
6
4
2
0
0
100
200
300
400
500
600
700
Flow (cfs)

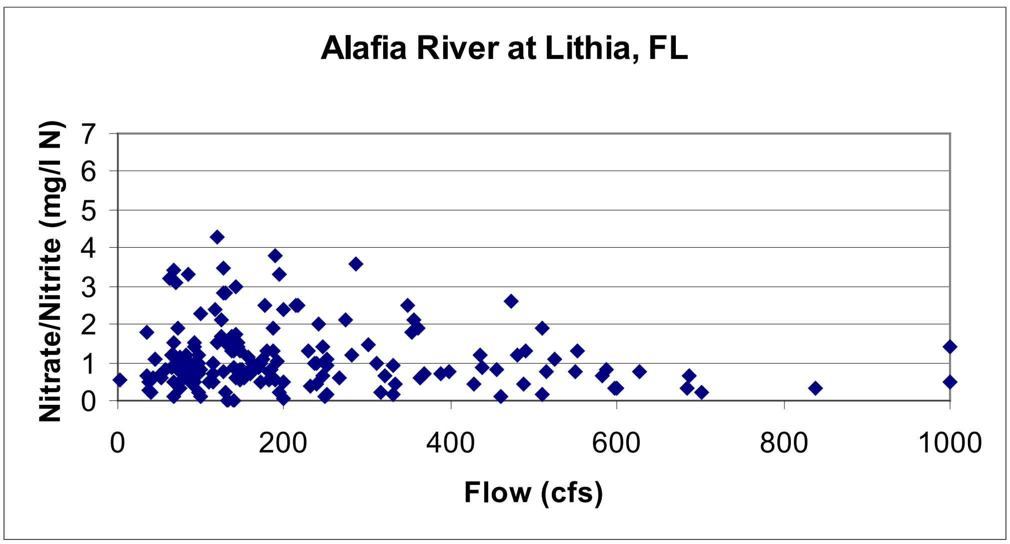

pH Residuals over Time
for Alafia River at Lithia, FL
Parameter Residuals
2
1
0
-1
-2
-3
-4
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

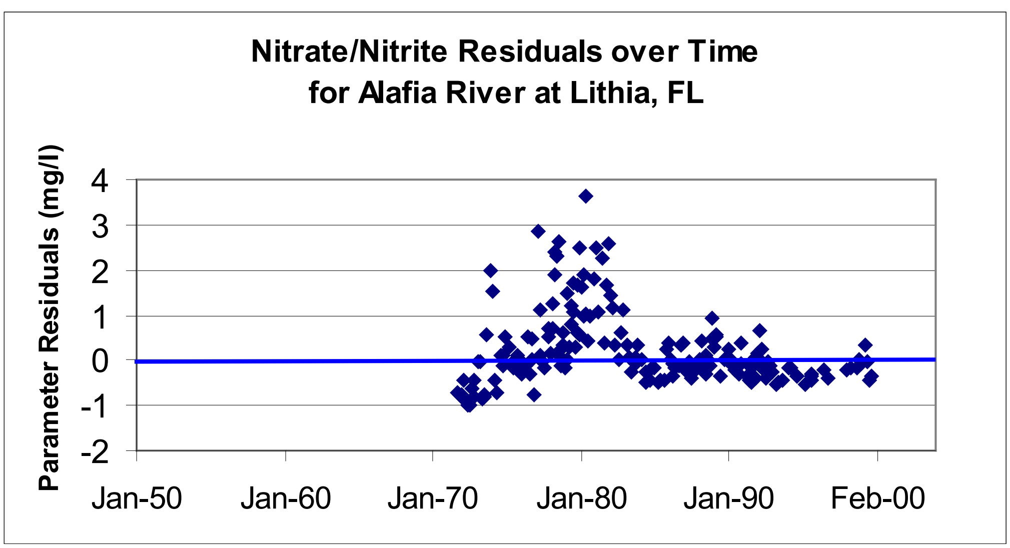

Alafia River at Lithia, FL
Dissolved Oxygen (mg/l O2)
16
14
12
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

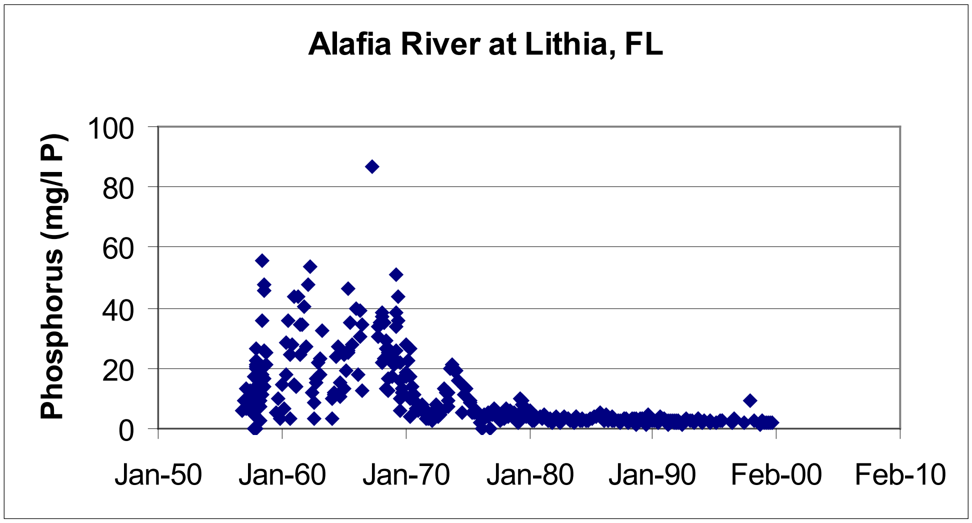

Alafia River at Lithia, FL
Dissolved Oxygen (mg/l O2)
16
14
12
10
8
6
4
2
0
0
100
200
300
400
500
600
700
Flow (cfs)

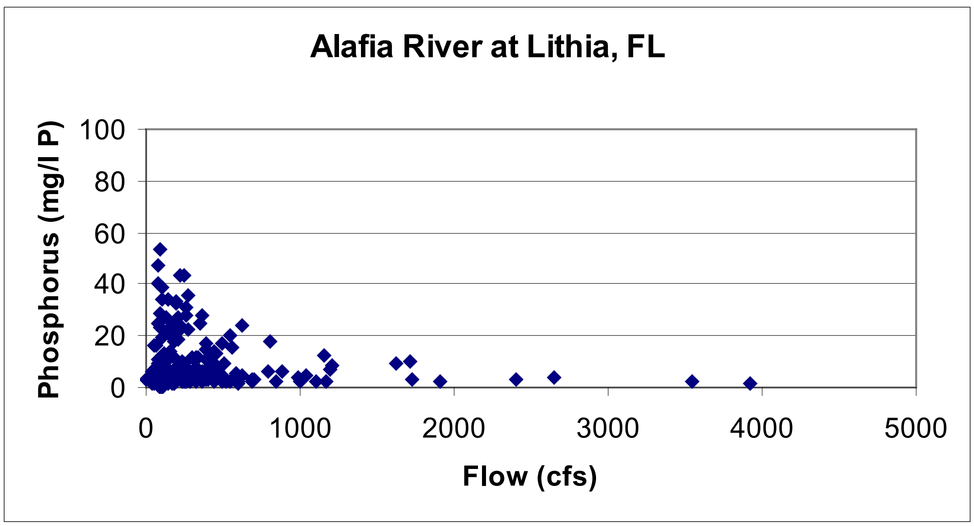

Dissolved Oxygen Residuals over Time
for Alafia River at Lithia, FL
Parameter Residuals (mg/l)
6
4
2
0
-2
-4
-6
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

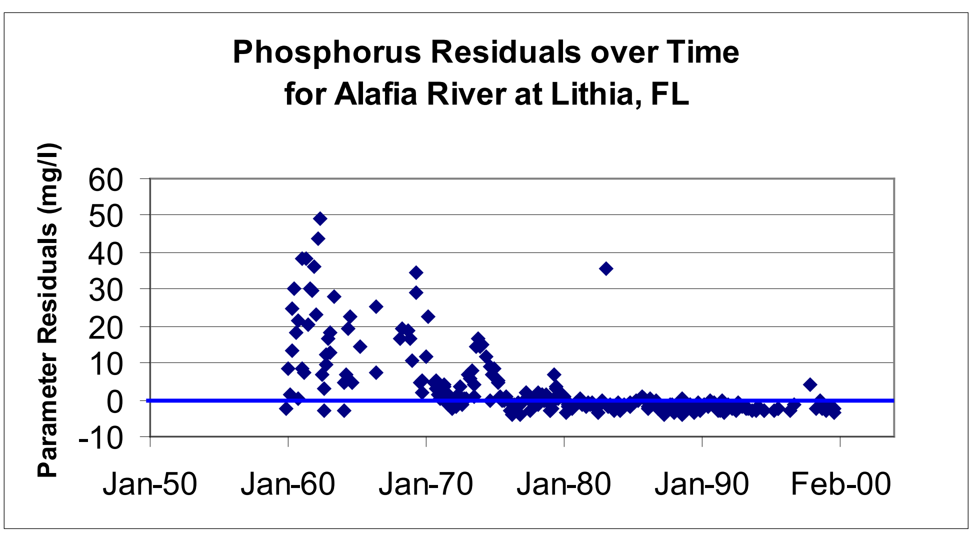

Alafia River at Lithia, FL
Nitrate/Nitrite (mg/l N)
7
6
5
4
3
2
1
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

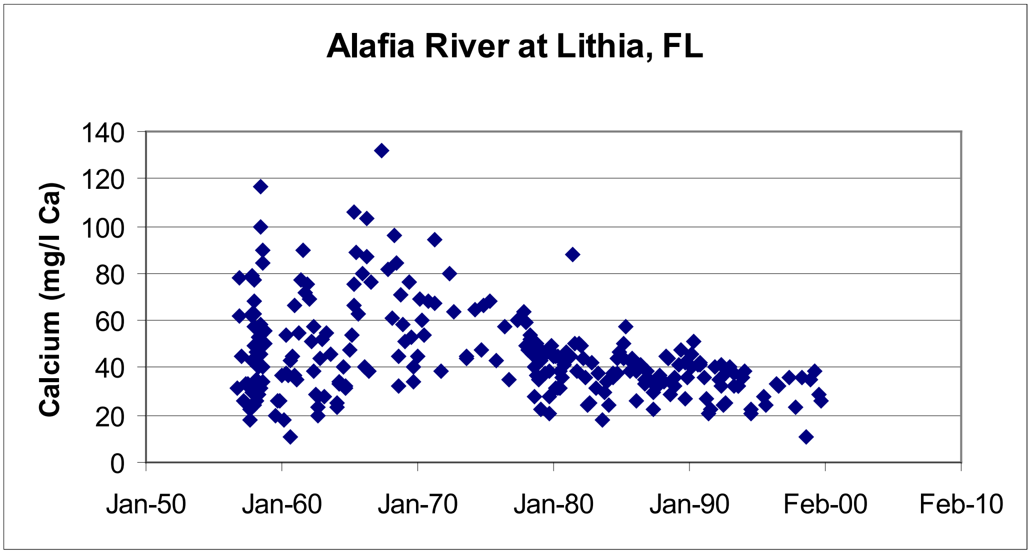

Alafia River at Lithia, FL
Nitrate/Nitrite (mg/l N)
7
6
5
4
3
2
1
0
0
200
400
600
800
1000
Flow (cfs)

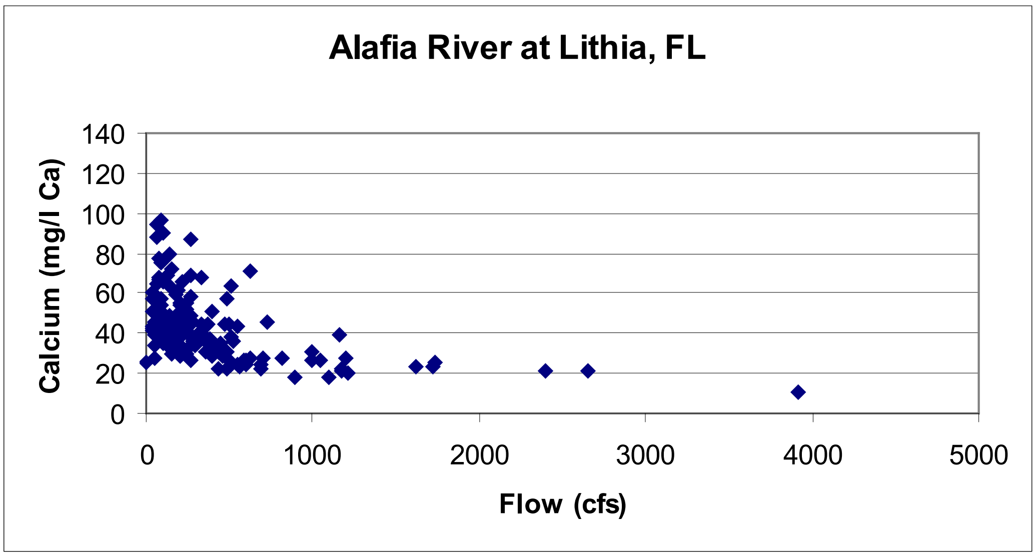

Nitrate/Nitrite Residuals over Time
for Alafia River at Lithia, FL
Parameter Residuals (mg/l)
4
3
2
1
0
-1
-2
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

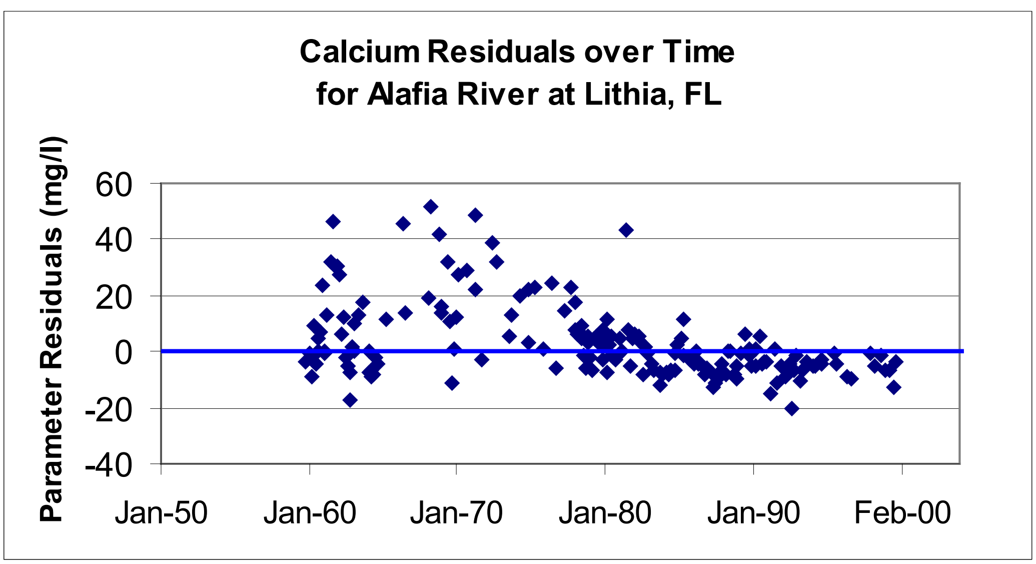

Alafia River at Lithia, FL
Phosphorus (mg/l P)
100
80
60
40
20
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

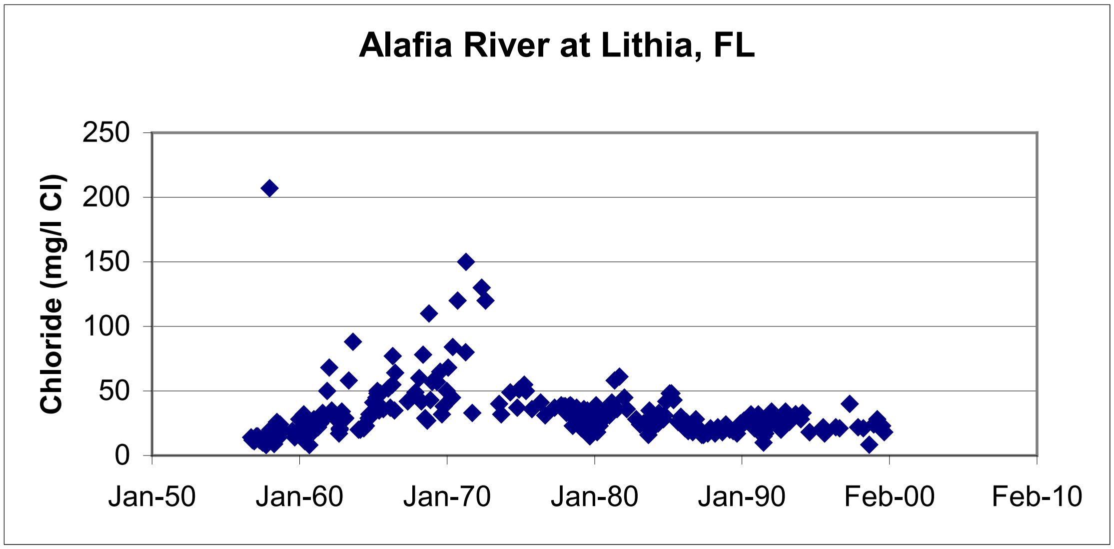

Alafia River at Lithia, FL
Phosphorus (mg/l P)
100
80
60
40
20
0
0
1000
2000
3000
4000
5000
Flow (cfs)

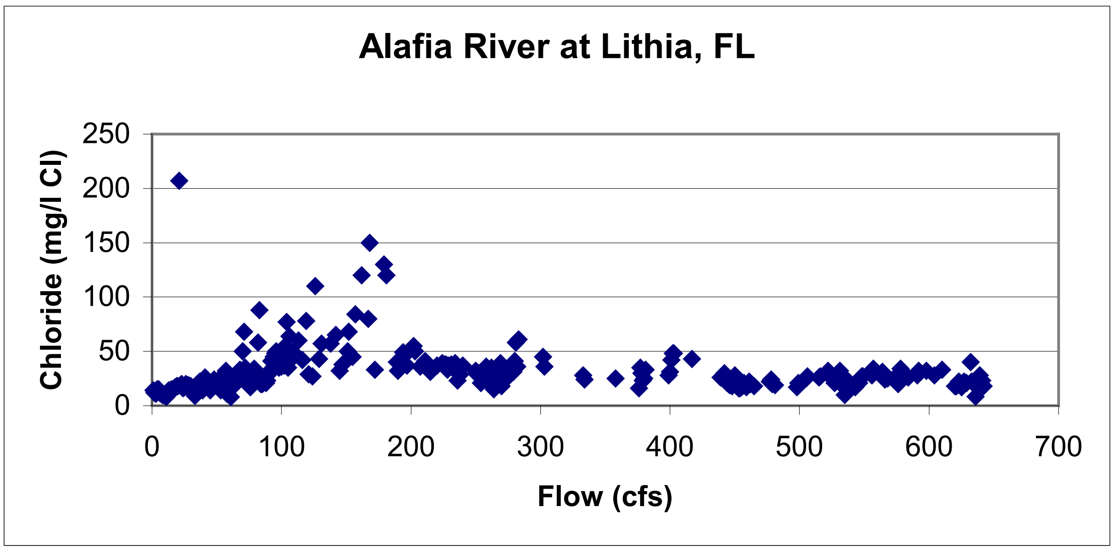

Phosphorus Residuals over Time
for Alafia River at Lithia, FL
Parameter Residuals (mg/l)
60
50
40
30
20
10
0
-10
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

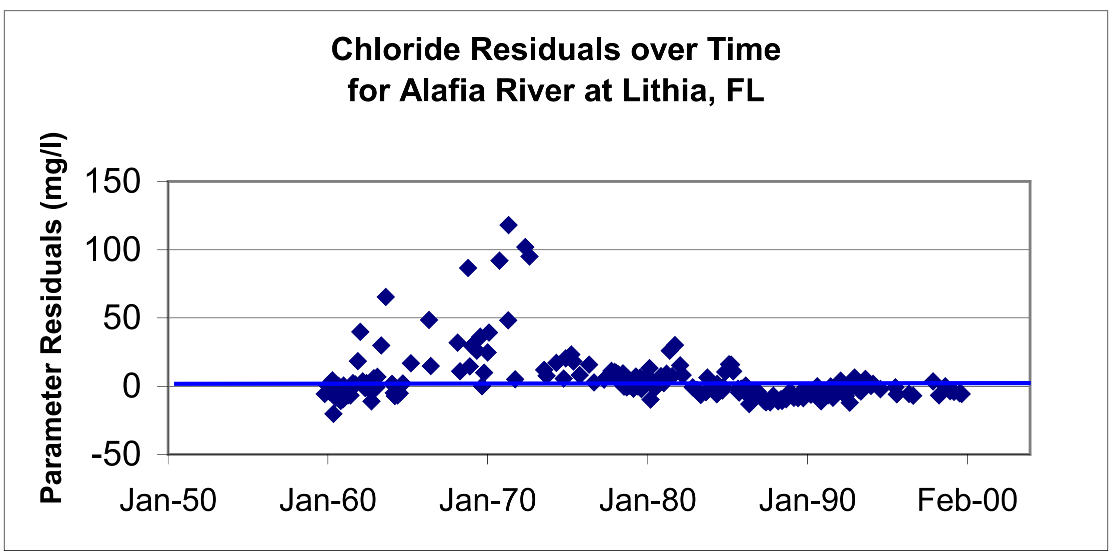

Alafia River at Lithia, FL
Calcium (mg/l Ca)
140
120
100
80
60
40
20
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

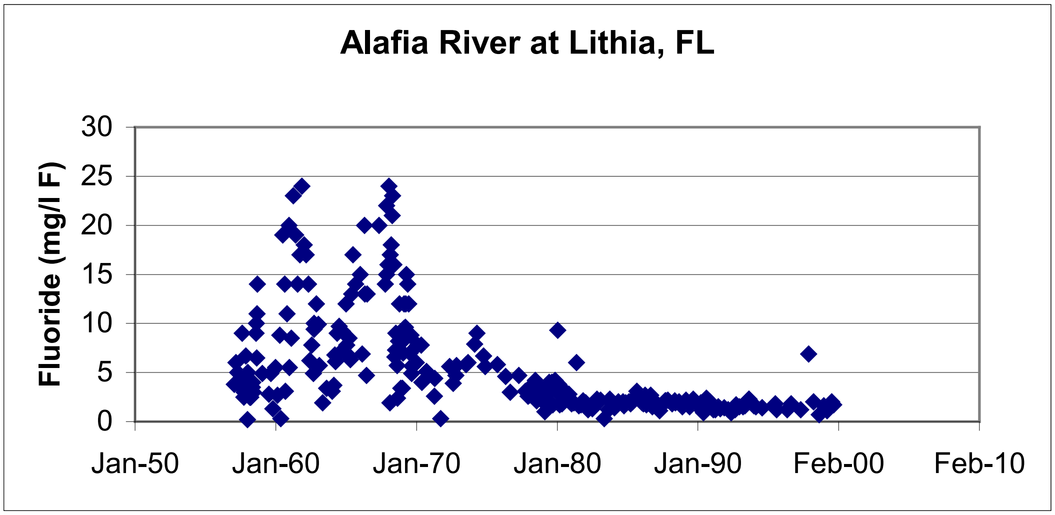

Alafia River at Lithia, FL
Calcium (mg/l Ca)
140
120
100
80
60
40
20
0
0
1000
2000
3000
4000
5000
Flow (cfs)

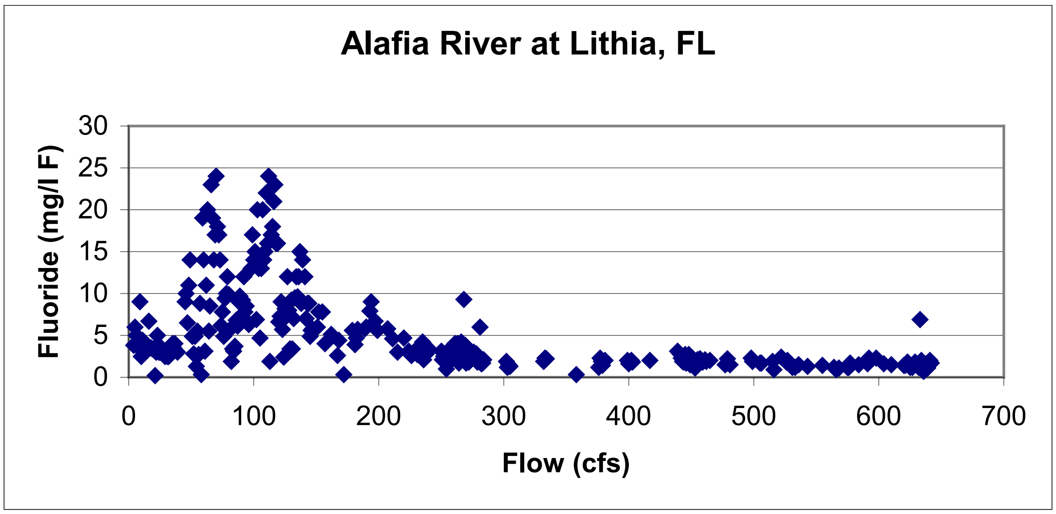

Calcium Residuals over Time
for Alafia River at Lithia, FL
Parameter Residuals (mg/l)
60
40
20
0
-20
-40
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

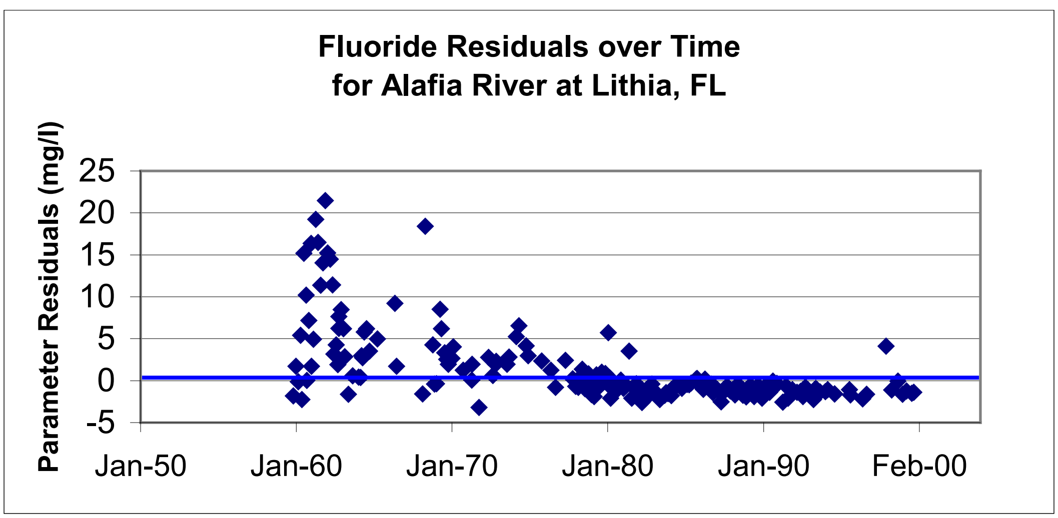

Alafia River at Lithia, FL
Chloride (mg/l Cl)
250
200
150
100
50
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

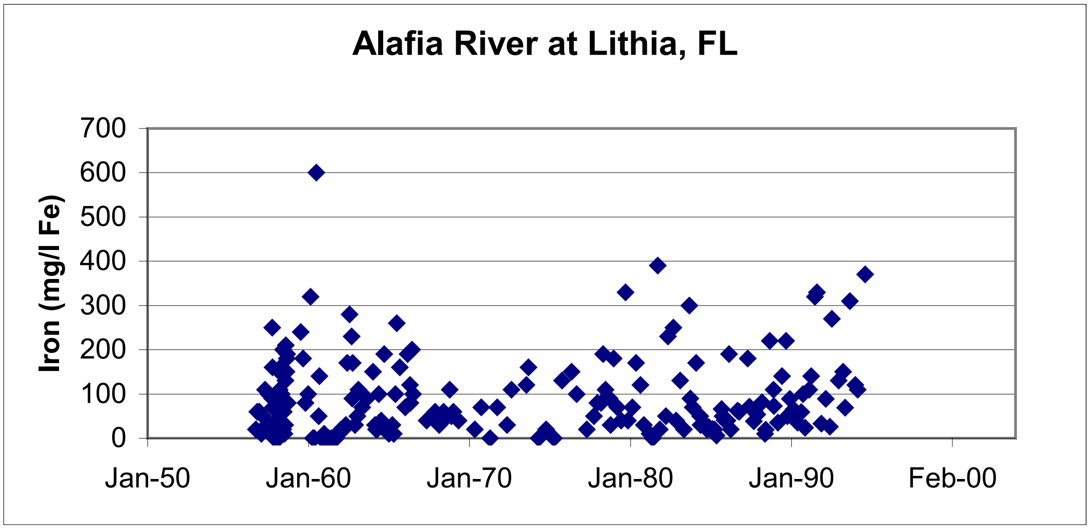

Alafia River at Lithia, FL
Chloride (mg/l Cl)
250
200
150
100
50
0
0
100
200
300
400
500
600
700
Flow (cfs)

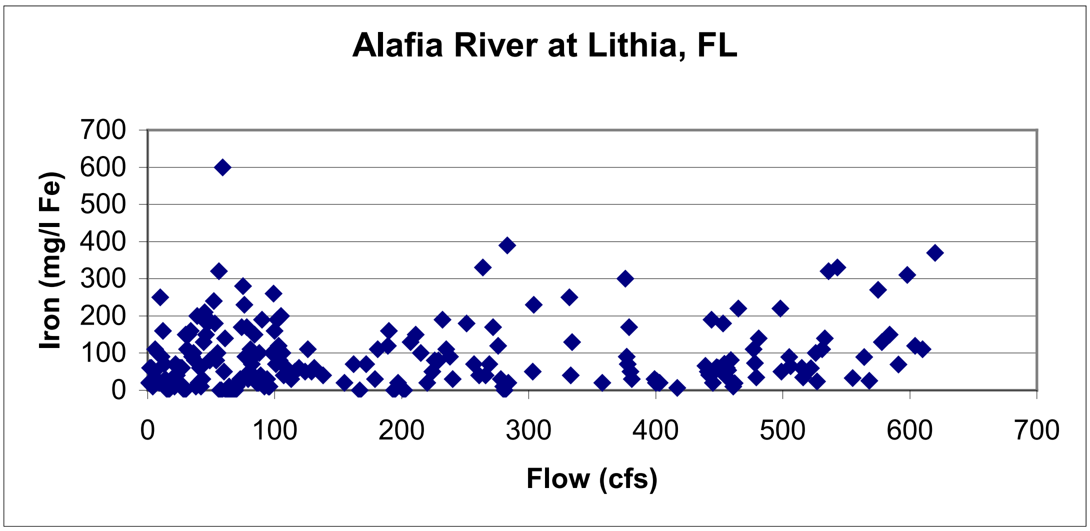

Chloride Residuals over Time
for Alafia River at Lithia, FL
Parameter Residuals (mg/l)
150
100
50
0
-50
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

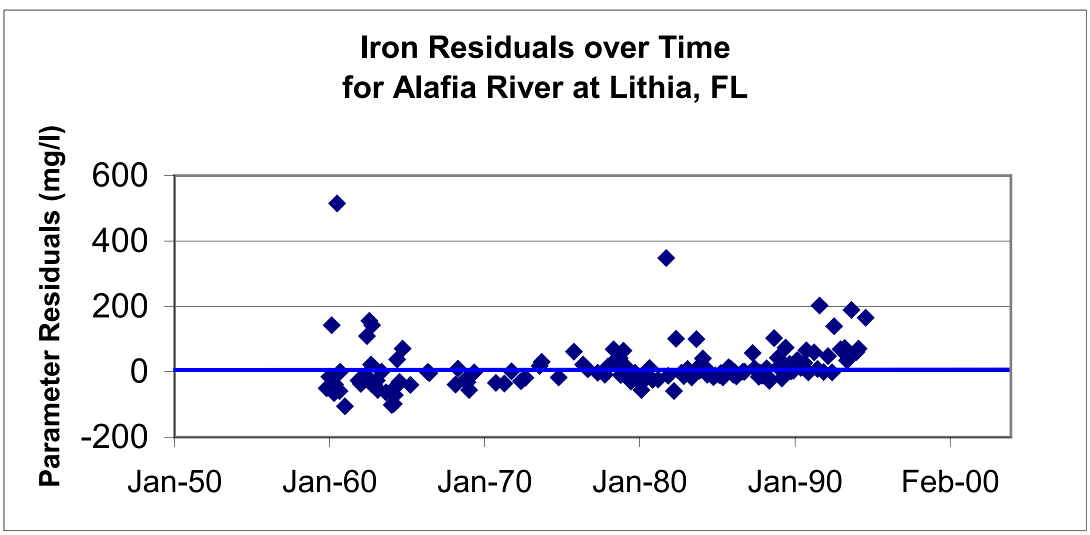

Alafia River at Lithia, FL
Fluoride (mg/l F)
30
25
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

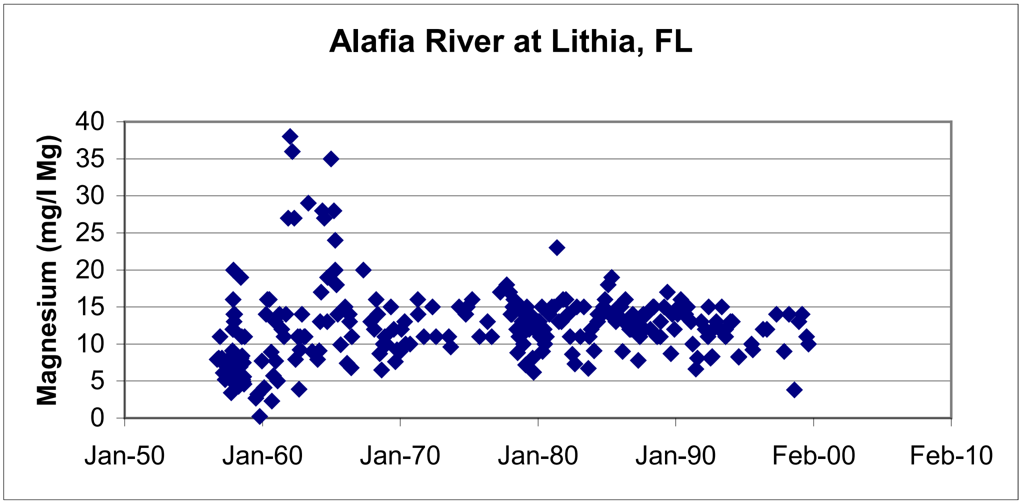

Alafia River at Lithia, FL
Fluoride (mg/l F)
30
25
20
15
10
5
0
0
100
200
300
400
500
600
700
Flow (cfs)

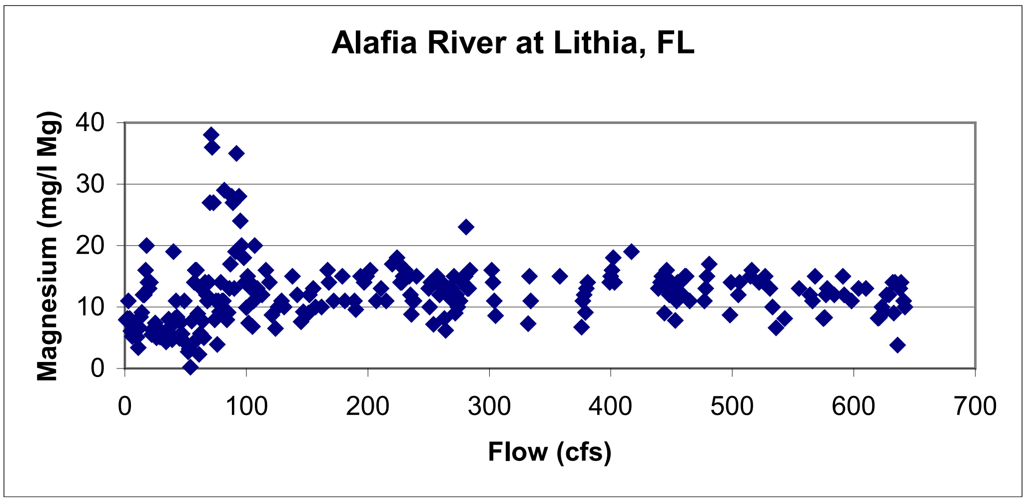

Fluoride Residuals over Time
for Alafia River at Lithia, FL
Parameter Residuals (mg/l)
25
20
15
10
5
0
-5
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

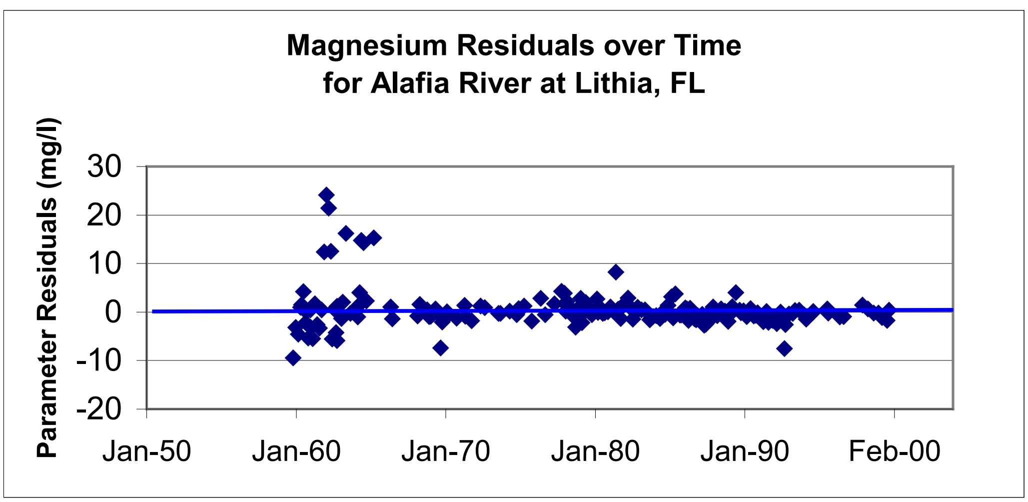

Alafia River at Lithia, FL
Iron (mg/l Fe)
700
600
500
400
300
200
100
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

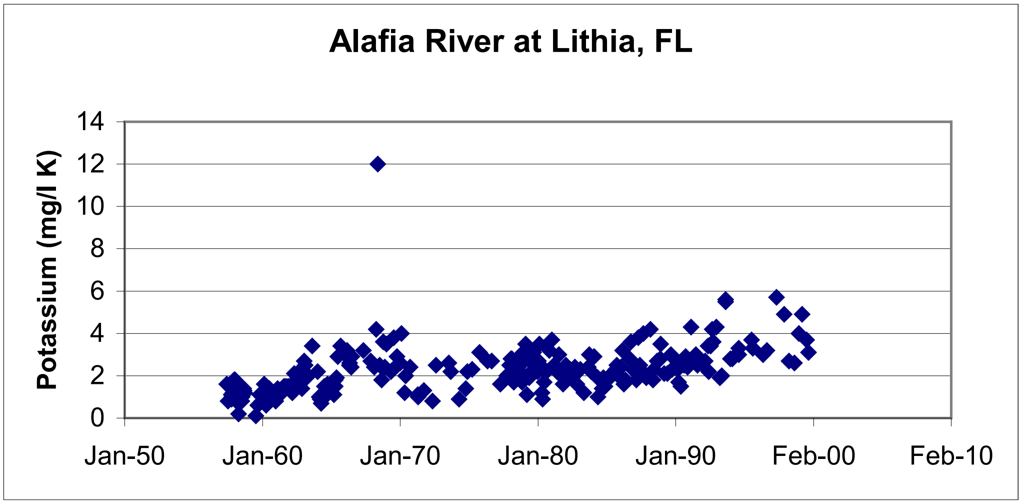

Alafia River at Lithia, FL
Iron (mg/l Fe)
700
600
500
400
300
200
100
0
0
100
200
300
400
500
600
700
Flow (cfs)

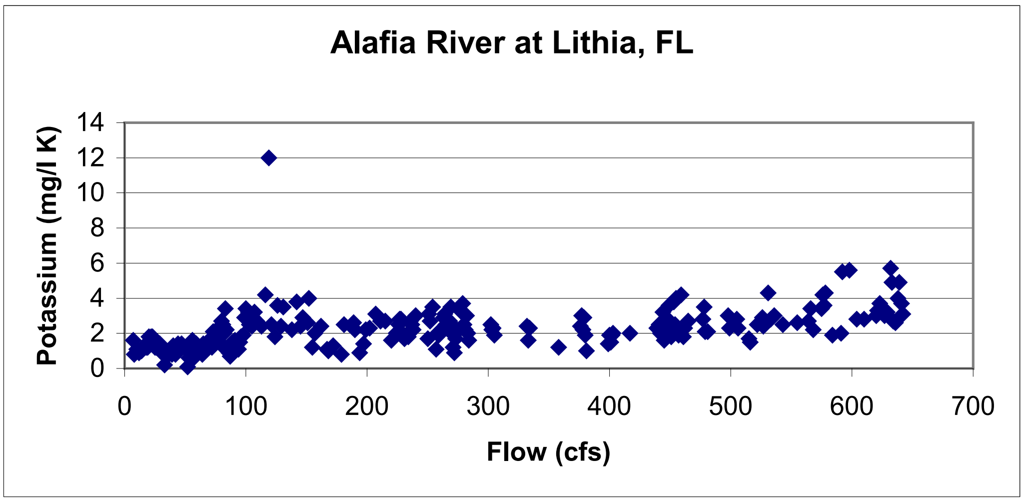

Iron Residuals over Time
for Alafia River at Lithia, FL
Parameter Residuals (mg/l)
600
400
200
0
-200
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

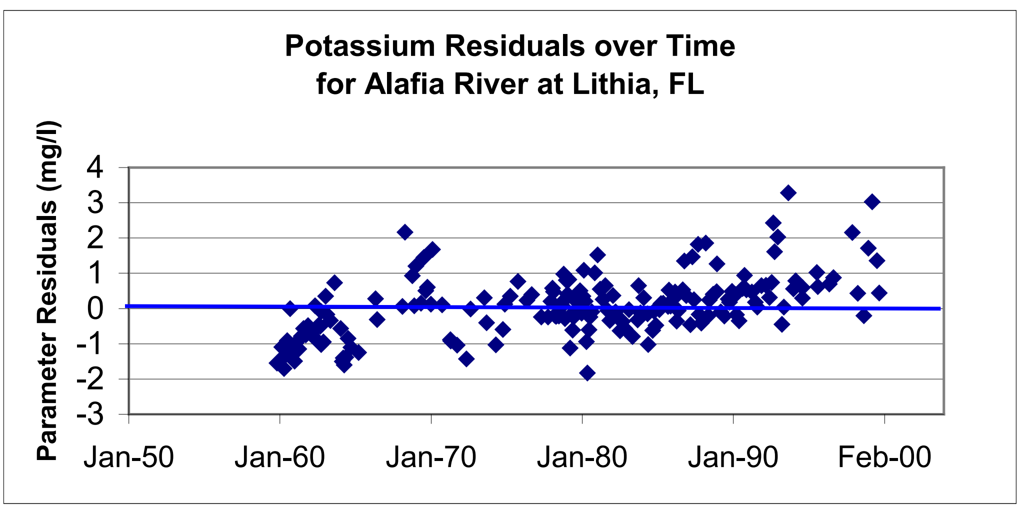

Alafia River at Lithia, FL
Magnesium (mg/l Mg)
40
35
30
25
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

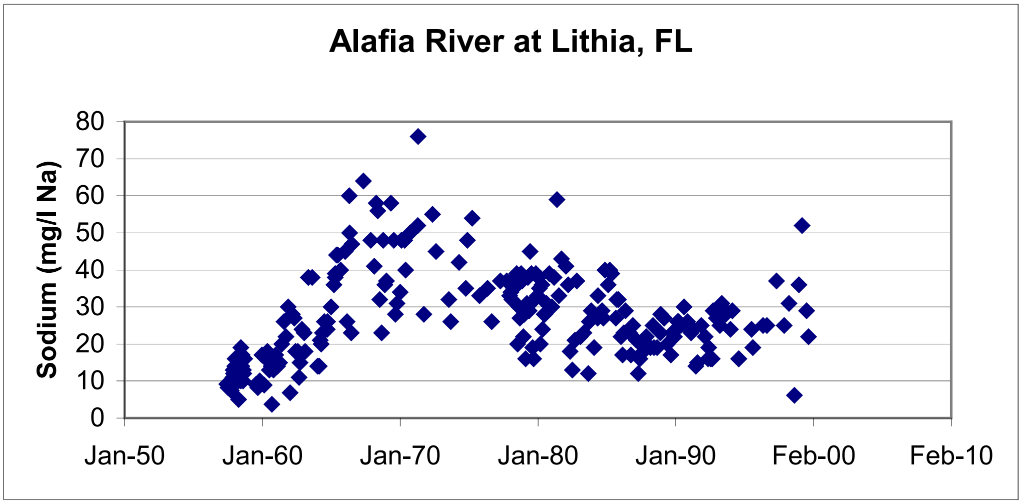

Alafia River at Lithia, FL
Magnesium (mg/l Mg)
40
30
20
10
0
0
100
200
300
400
500
600
700
Flow (cfs)

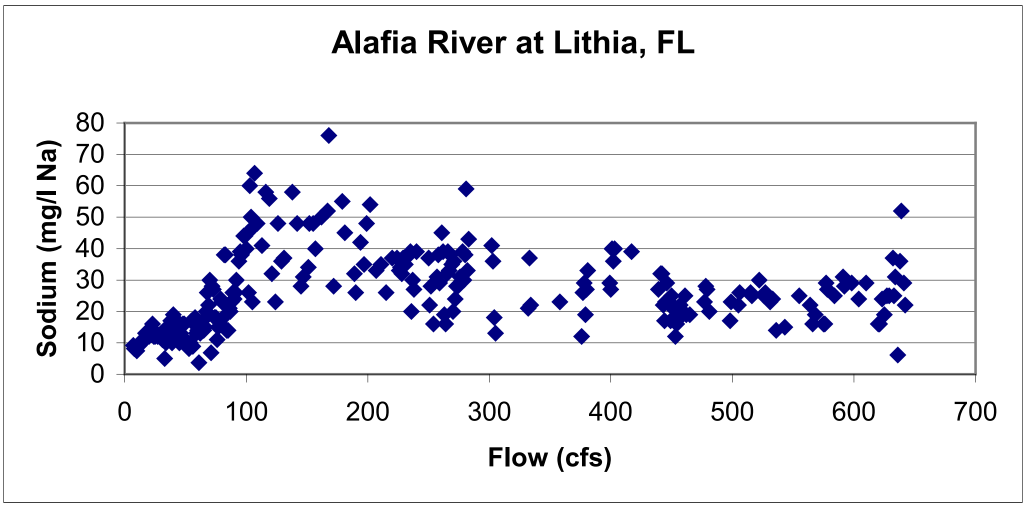

Magnesium Residuals over Time
for Alafia River at Lithia, FL
Parameter Residuals (mg/l)
30
20
10
0
-10
-20
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

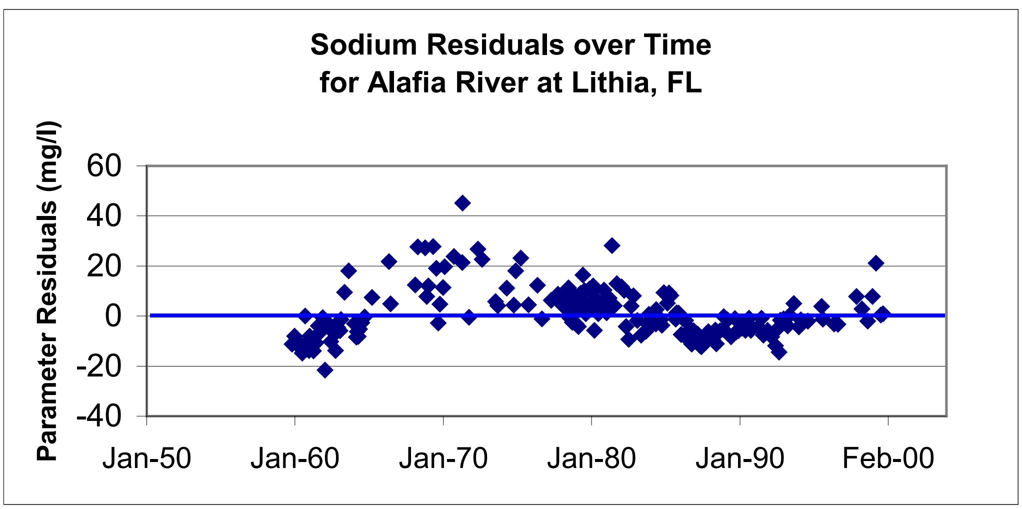

Alafia River at Lithia, FL
Potassium (mg/l K)
14
12
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

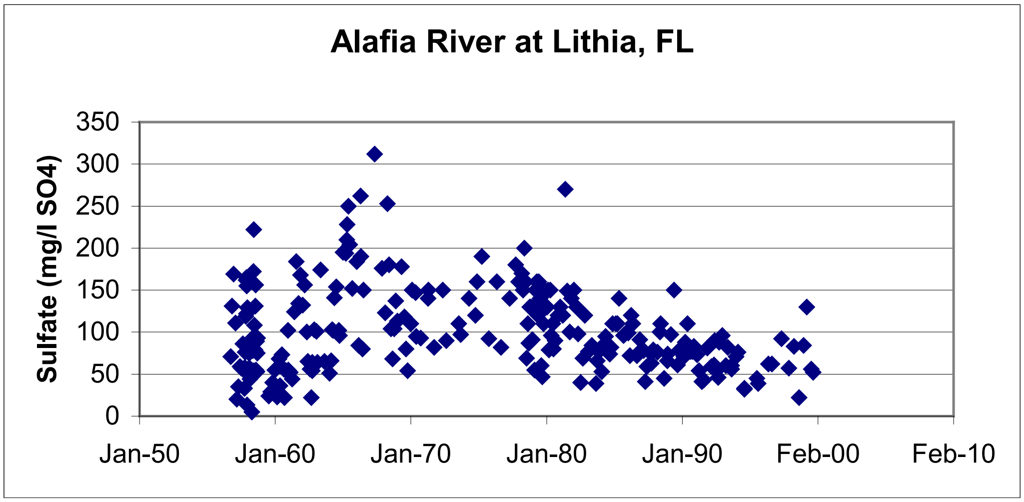

Alafia River at Lithia, FL
Potassium (mg/l K)
14
12
10
8
6
4
2
0
0
100
200
300
400
500
600
700
Flow (cfs)


Potassium Residuals over Time
for Alafia River at Lithia, FL
Parameter Residuals (mg/l)
4
3
2
1
0
-1
-2
-3
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

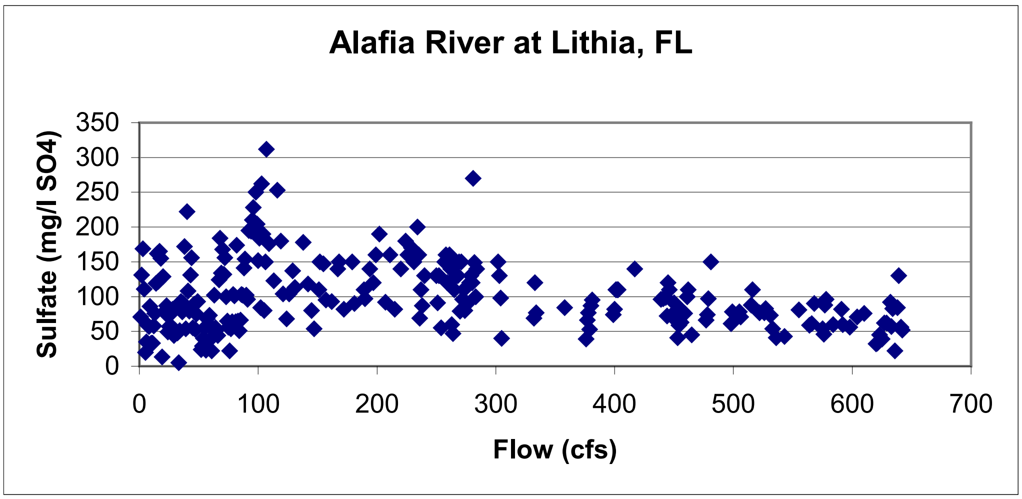

Alafia River at Lithia, FL
Sodium (mg/l Na)
80
70
60
50
40
30
20
10
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10


Alafia River at Lithia, FL
Sodium (mg/l Na)
80
70
60
50
40
30
20
10
0
0
100
200
300
400
500
600
700
Flow (cfs)

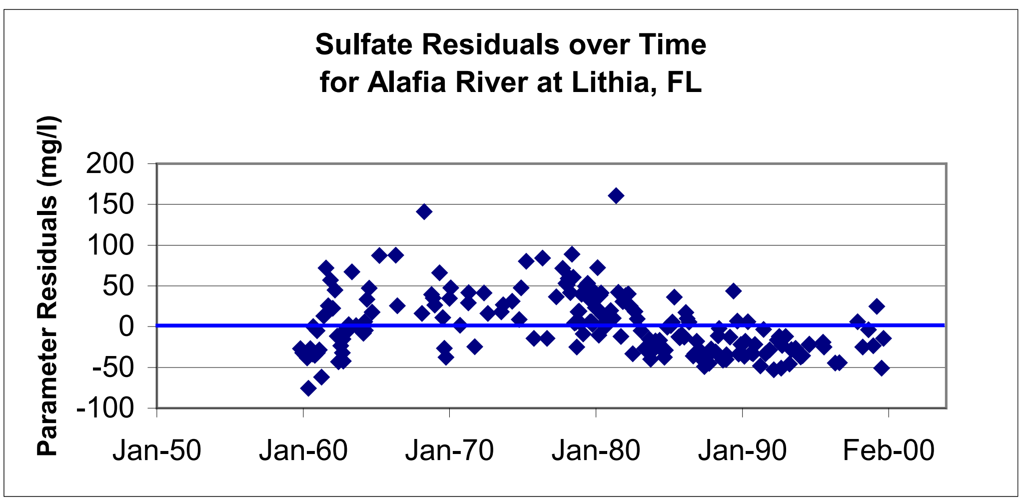

Sodium Residuals over Time
for Alafia River at Lithia, FL
Parameter Residuals (mg/l)
60
40
20
0
-20
-40
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00



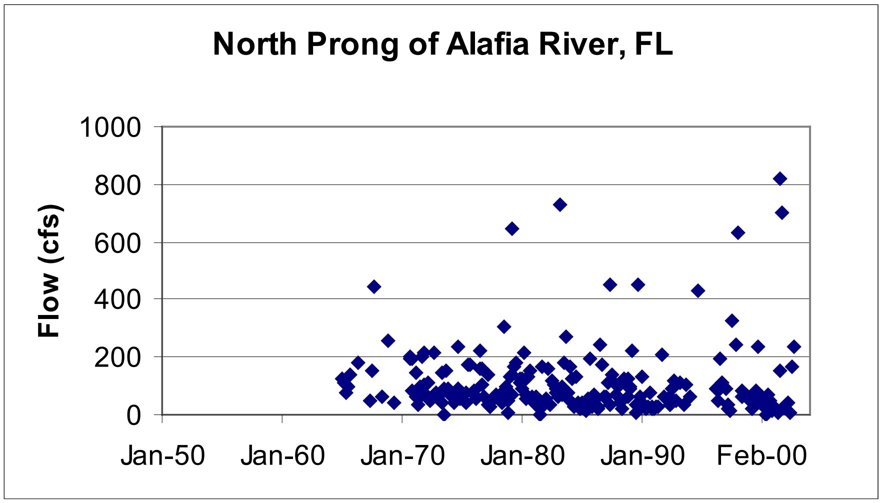
Alafia River at Lithia, FL
Sulfate (mg/l SO4)
350
300
250
200
150
100
50
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

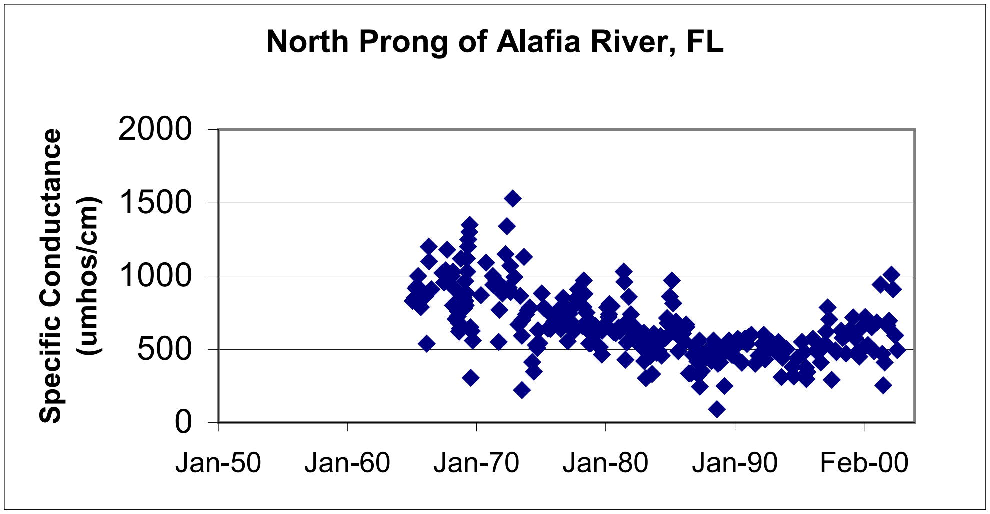


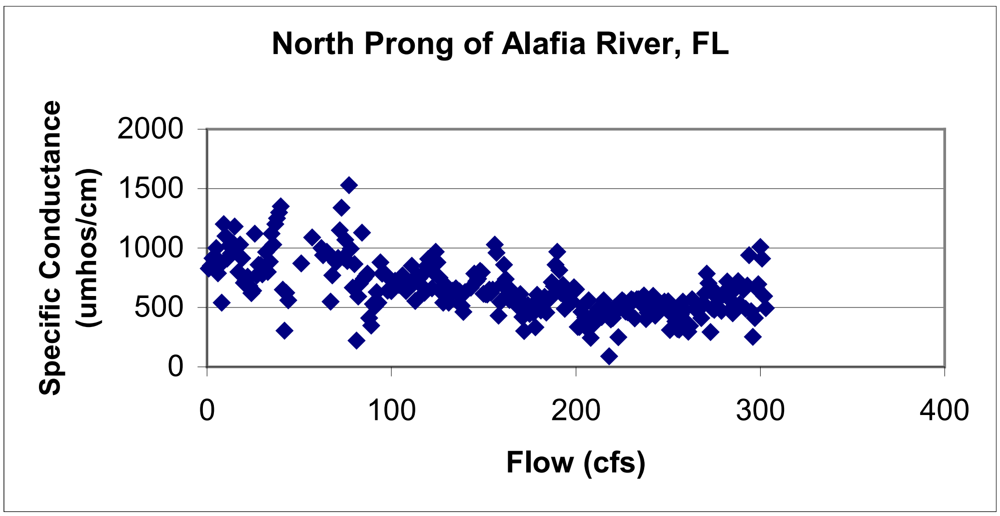
Alafia River at Lithia, FL
Sulfate (mg/l SO4)
350
300
250
200
150
100
50
0
0
100
200
300
400
500
600
700
Flow (cfs)

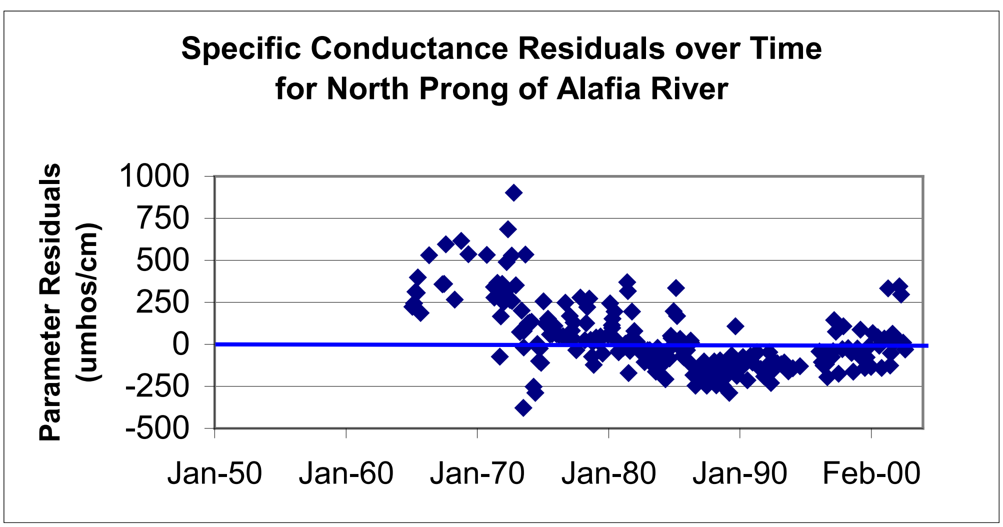


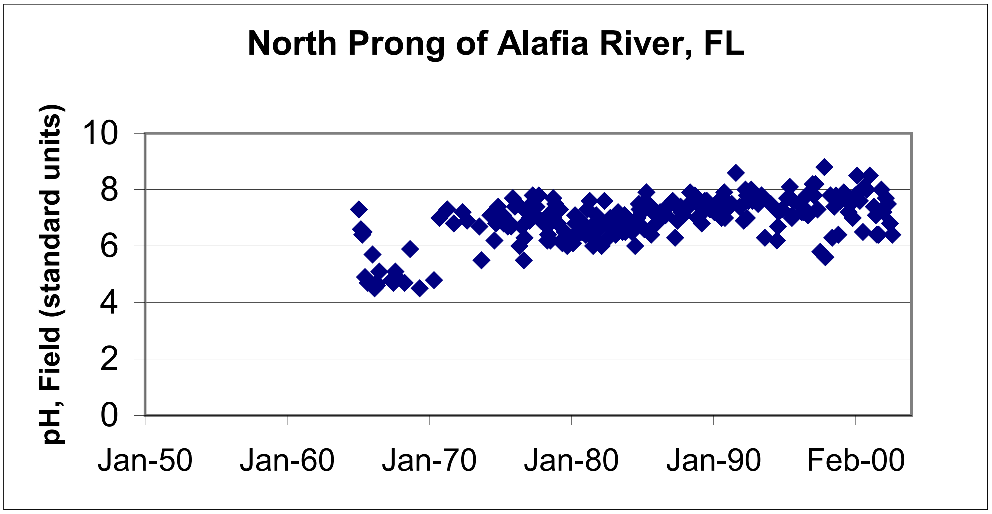
Sulfate Residuals over Time
for Alafia River at Lithia, FL
Parameter Residuals (mg/l)
200
150
100
50
0
-50
-100
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

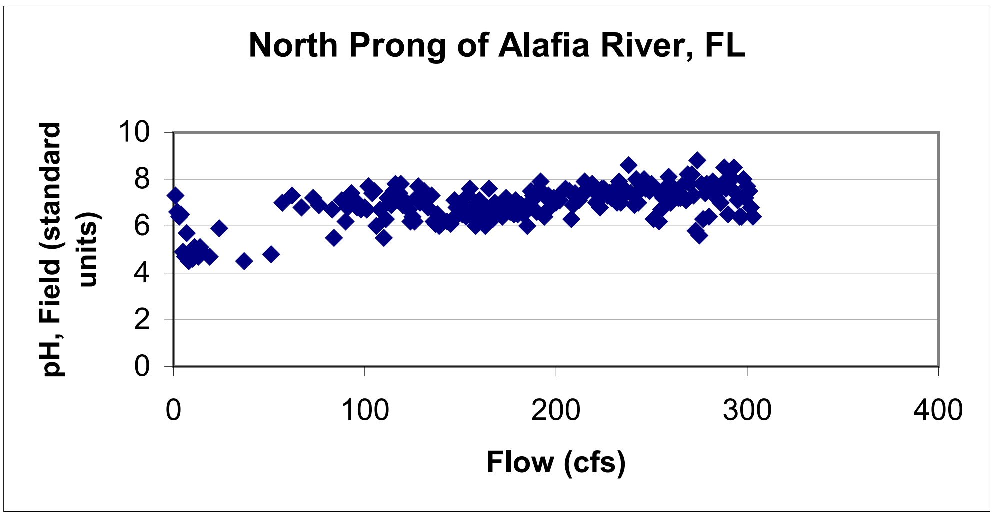

North Prong of Alafia River, FL
1000
800
600
400
200
0
Flow (cfs)
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

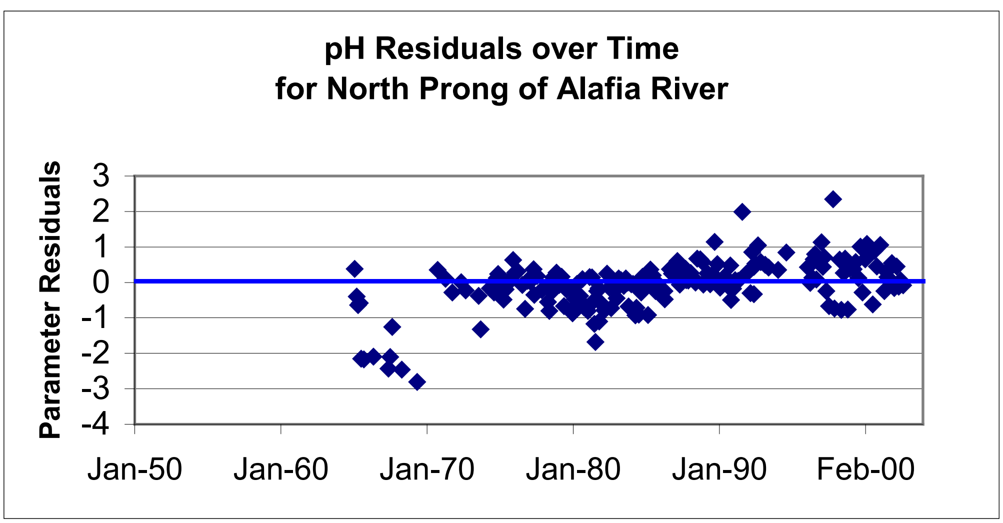

North Prong of Alafia River, FL
Specific Conductance (umhos/cm)
2000
1500
1000
500
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

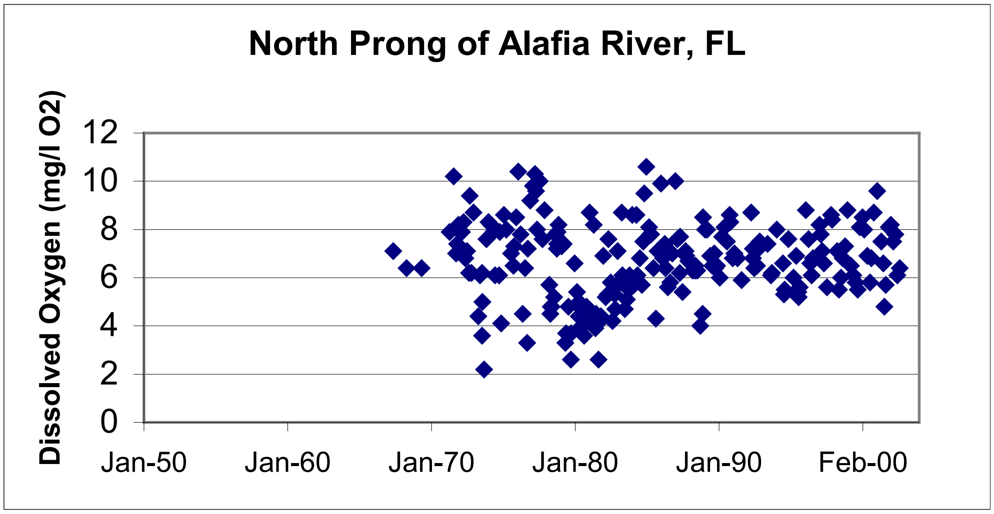

North Prong of Alafia River, FL
Specific Conductance (umhos/cm)
2000
1500
1000
500
0
0
100
200
300
400
Flow (cfs)

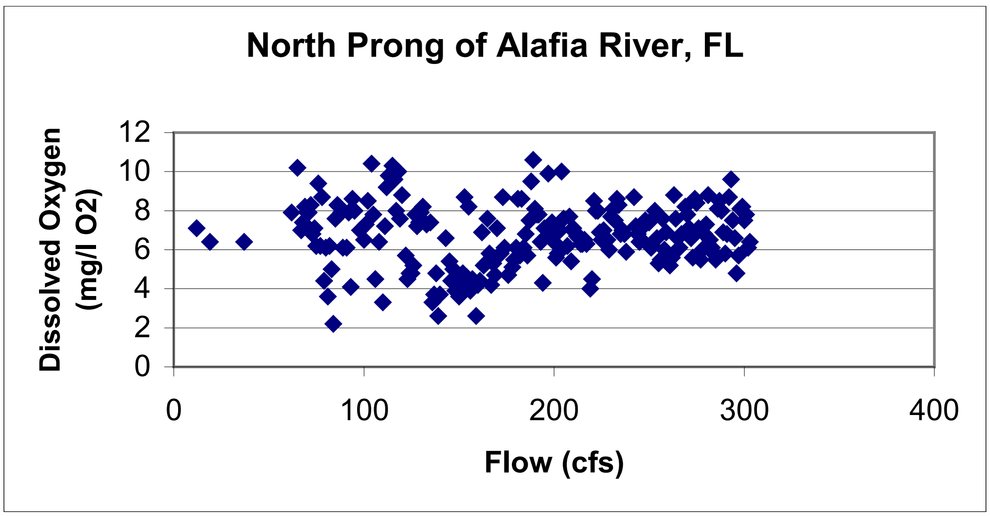

Specific Conductance Residuals over Time for North Prong of Alafia River
Parameter Residuals (umhos/cm)
1000
750
500
250
0
-250
-500
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

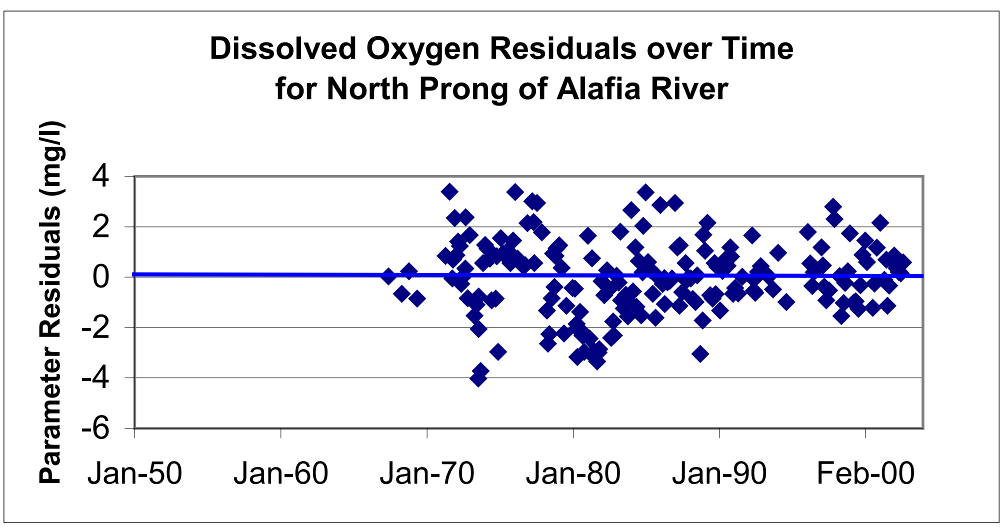

North Prong of Alafia River, FL
pH, Field (standard units)
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

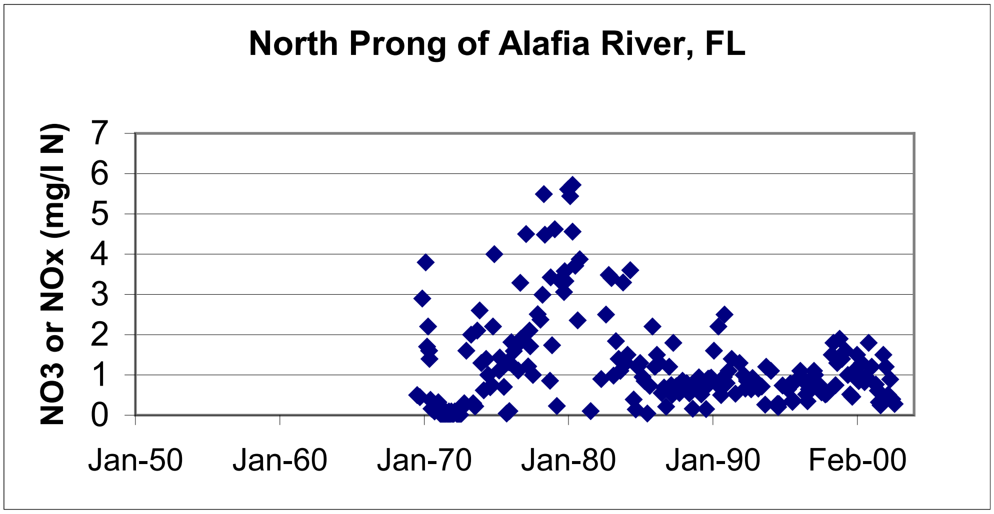

North Prong of Alafia River, FL
pH, Field (standard units)
10
8
6
4
2
0
0
100
200
300
400
Flow (cfs)

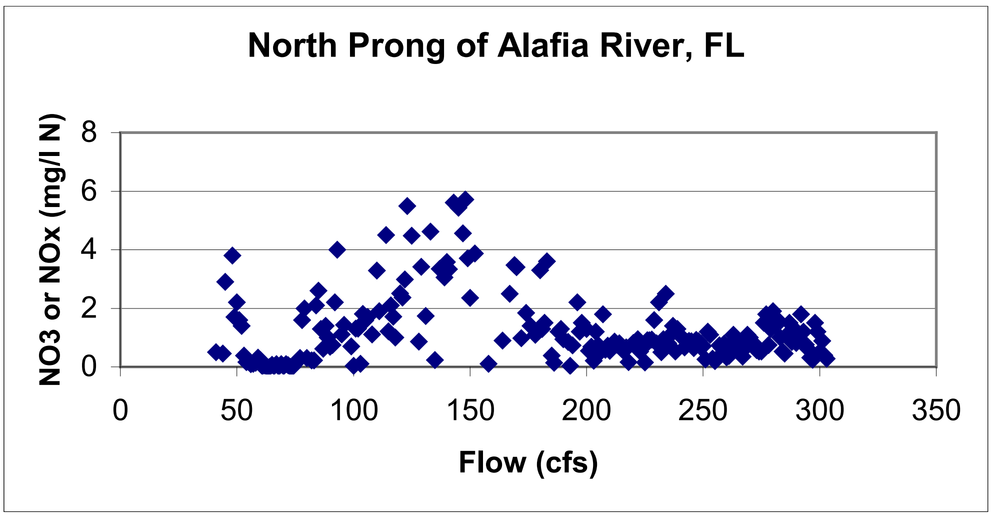

pH Residuals over Time
for North Prong of Alafia River
Parameter Residuals
3
2
1
0
-1
-2
-3
-4
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

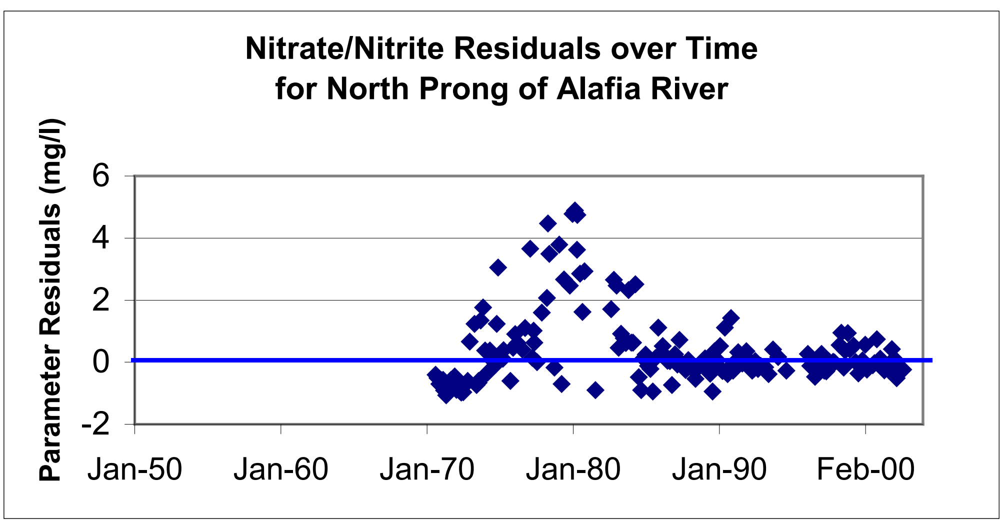

North Prong of Alafia River, FL
Dissolved Oxygen (mg/l O2)
12
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

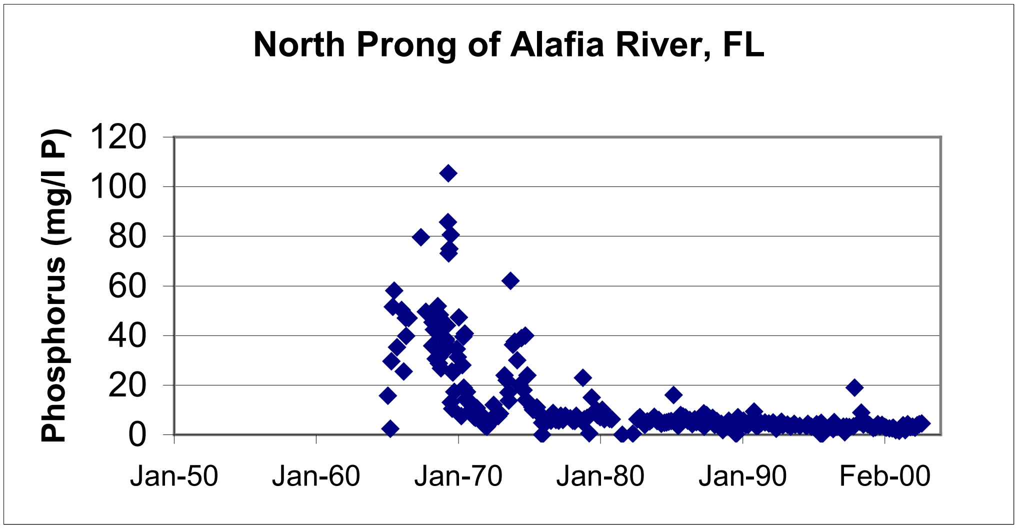

North Prong of Alafia River, FL
Dissolved Oxygen (mg/l O2)
12
10
8
6
4
2
0
0
100
200
300
400
Flow (cfs)

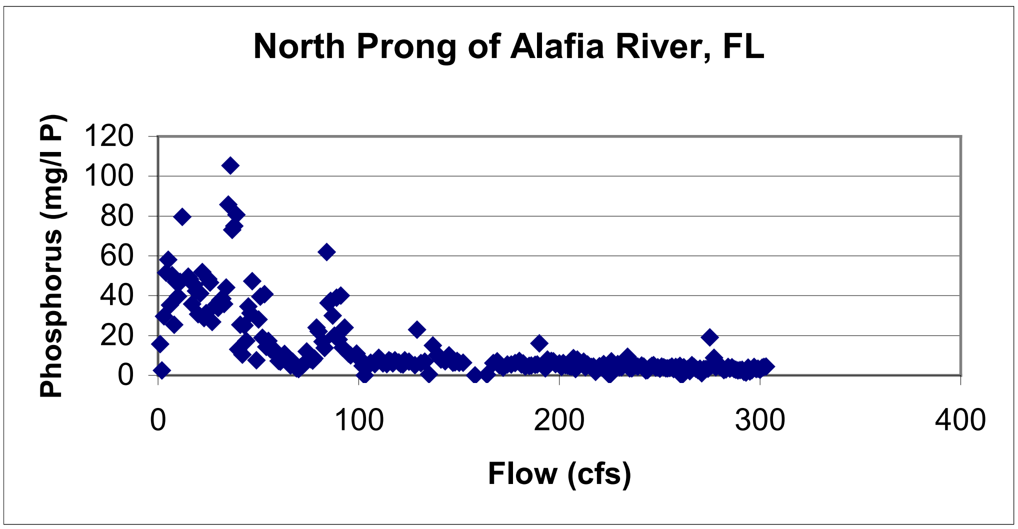

Dissolved Oxygen Residuals over Time for North Prong of Alafia River
Parameter Residuals (mg/l)
4
2
0
-2
-4
-6
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

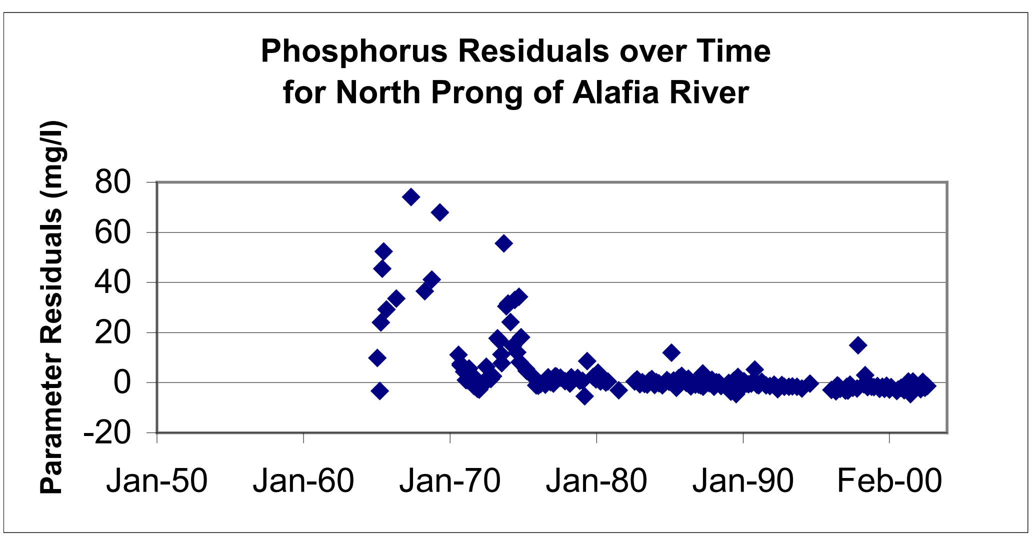

North Prong of Alafia River, FL
NO3 or NOx (mg/l N)
7
6
5
4
3
2
1
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

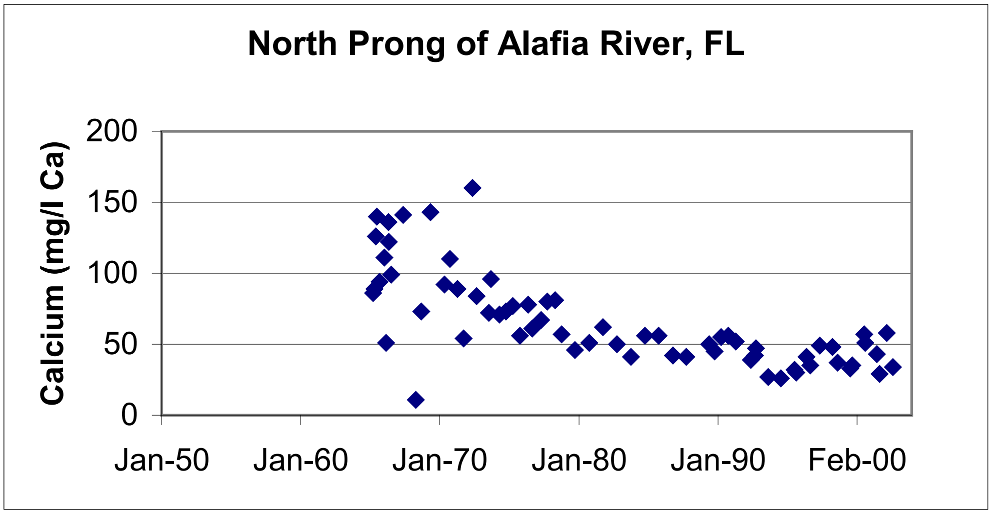

North Prong of Alafia River, FL
NO3 or NOx (mg/l N)
8
6
4
2
0
0
50
100
150
200
250
300
350
Flow (cfs)

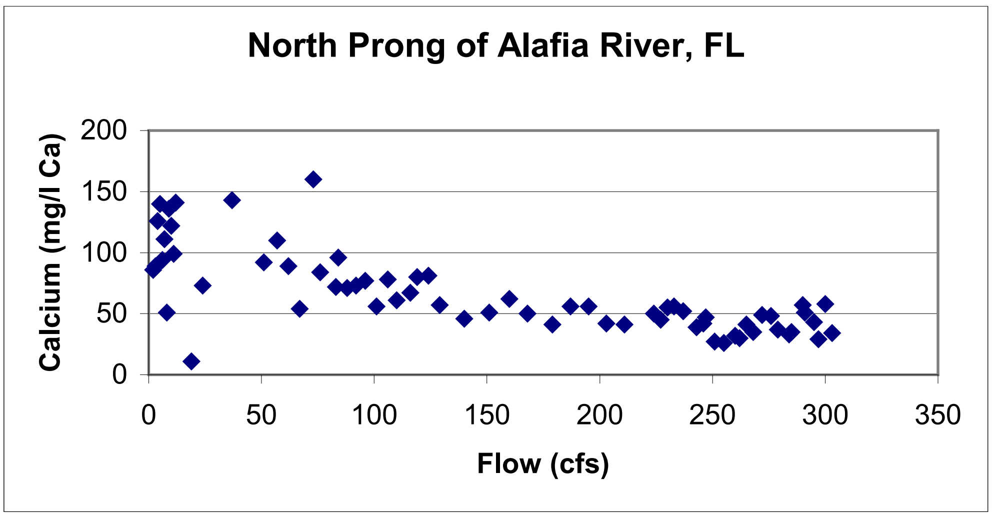

Nitrate/Nitrite Residuals over Time
for North Prong of Alafia River
Parameter Residuals (mg/l)
6
4
2
0
-2
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

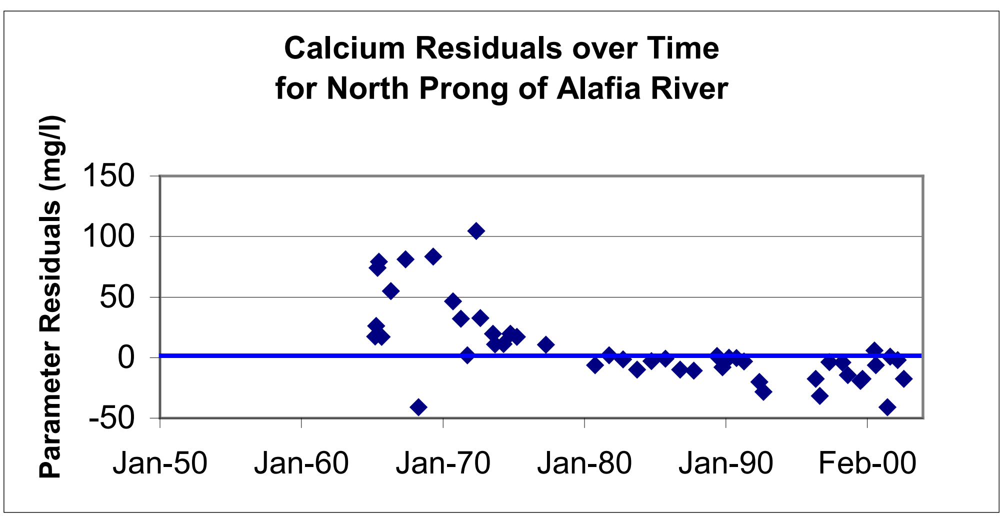

North Prong of Alafia River, FL
Phosphorus (mg/l P)
120
100
80
60
40
20
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

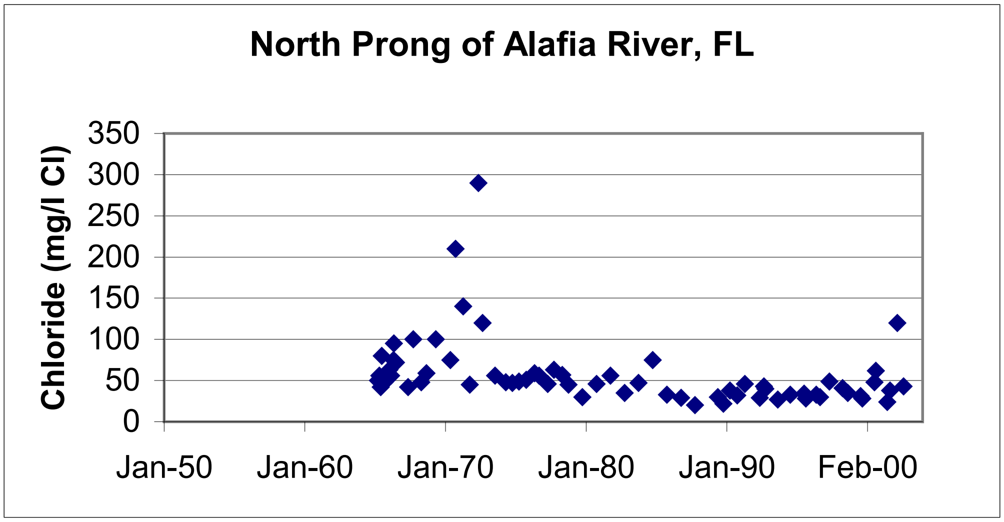

North Prong of Alafia River, FL
Phosphorus (mg/l P)
120
100
80
60
40
20
0
0
100
200
300
400
Flow (cfs)

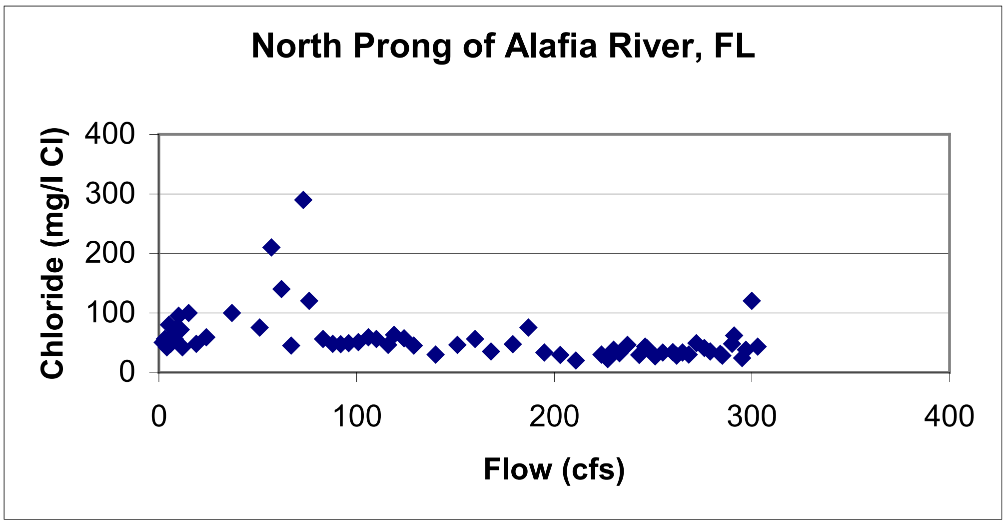

Phosphorus Residuals over Time
for North Prong of Alafia River
Parameter Residuals (mg/l)
80
60
40
20
0
-20
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

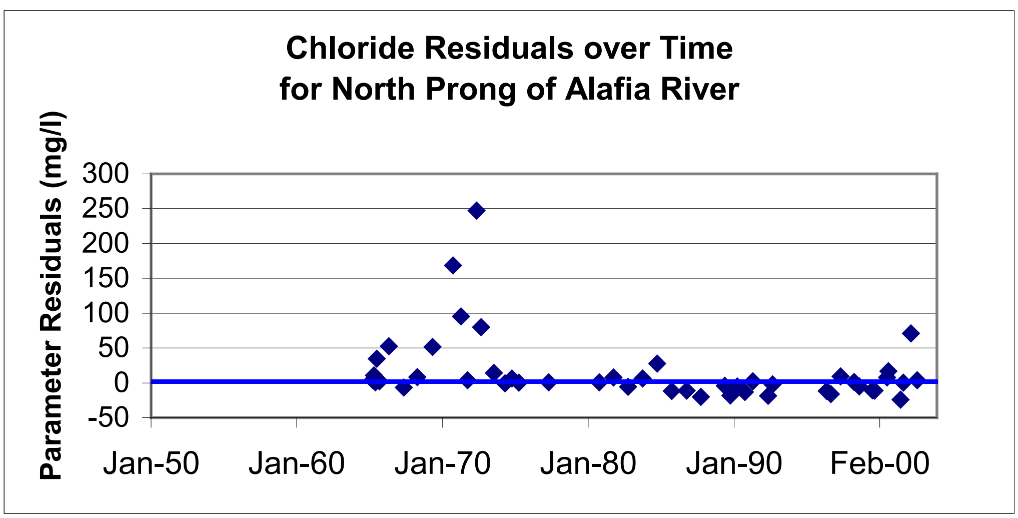

North Prong of Alafia River, FL
Calcium (mg/l Ca)
200
150
100
50
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

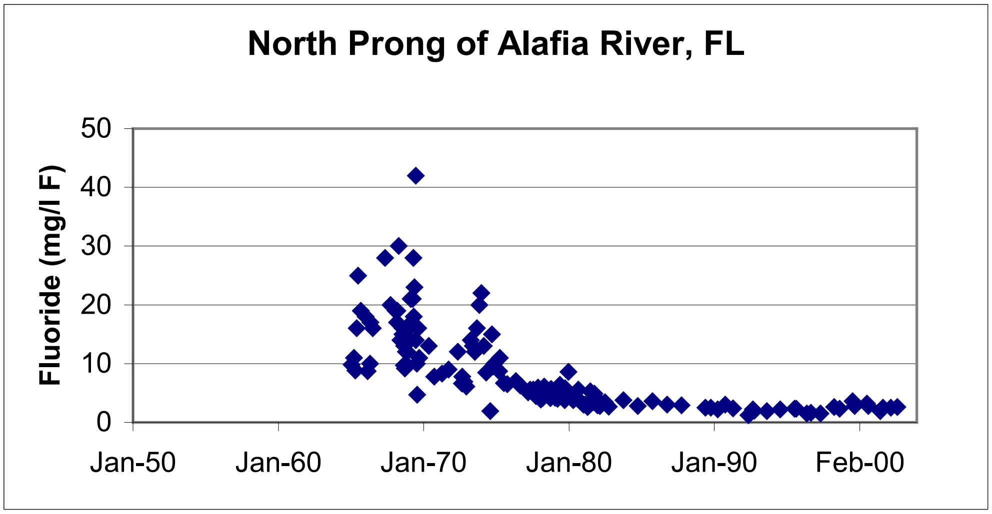

North Prong of Alafia River, FL
Calcium (mg/l Ca)
200
150
100
50
0
0
50
100
150
200
250
300
350
Flow (cfs)

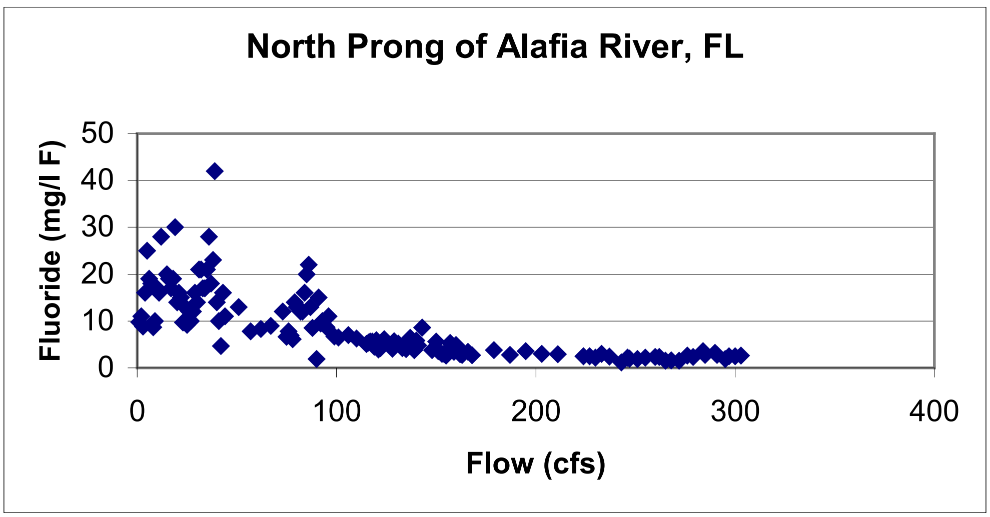

Calcium Residuals over Time
for North Prong of Alafia River
Parameter Residuals (mg/l)
150
100
50
0
-50
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

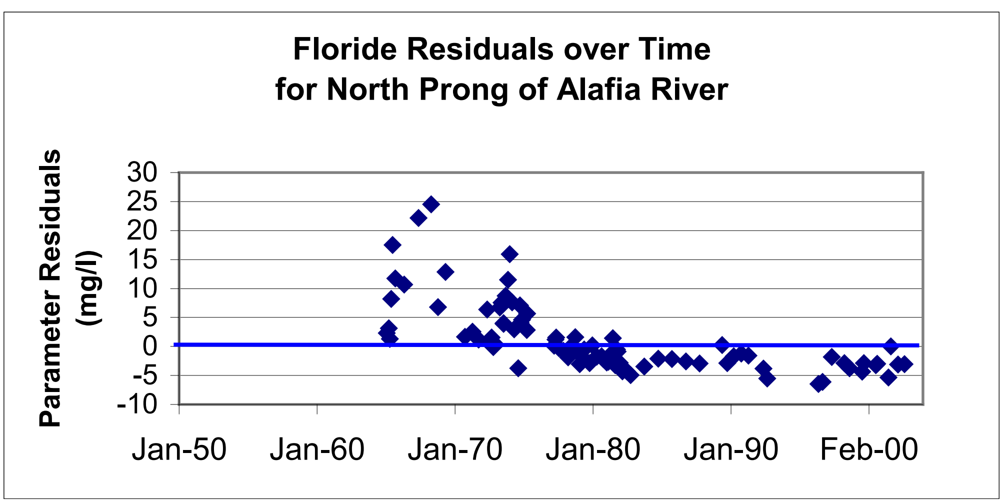

North Prong of Alafia River, FL
Chloride (mg/l Cl)
350
300
250
200
150
100
50
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

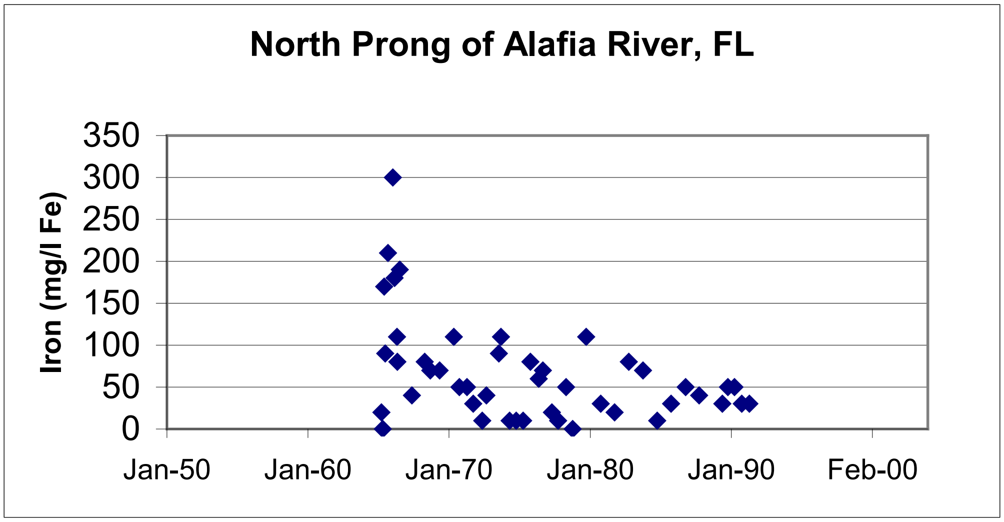

North Prong of Alafia River, FL
Chloride (mg/l Cl)
400
300
200
100
0
0
100
200
300
400
Flow (cfs)

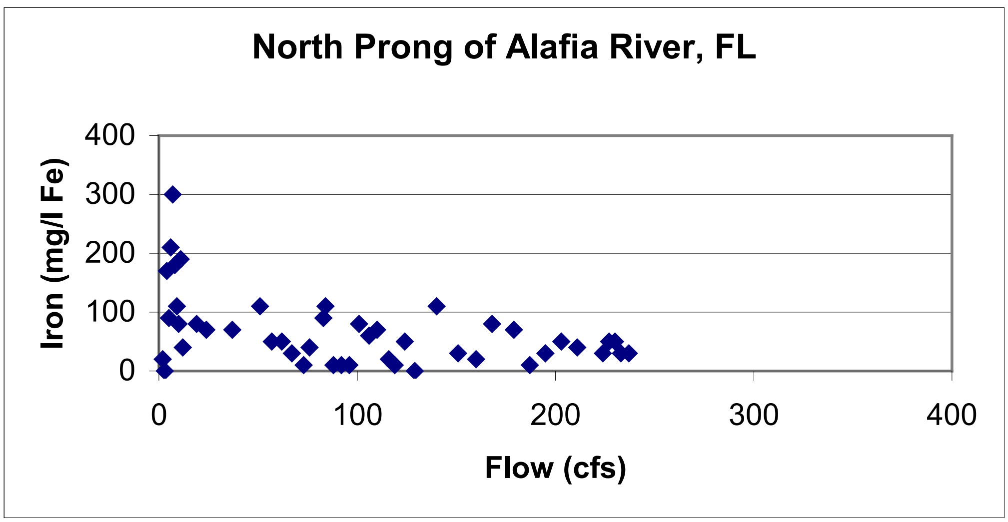

Chloride Residuals over Time
for North Prong of Alafia River
Parameter Residuals (mg/l)
300
250
200
150
100
50
0
-50
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

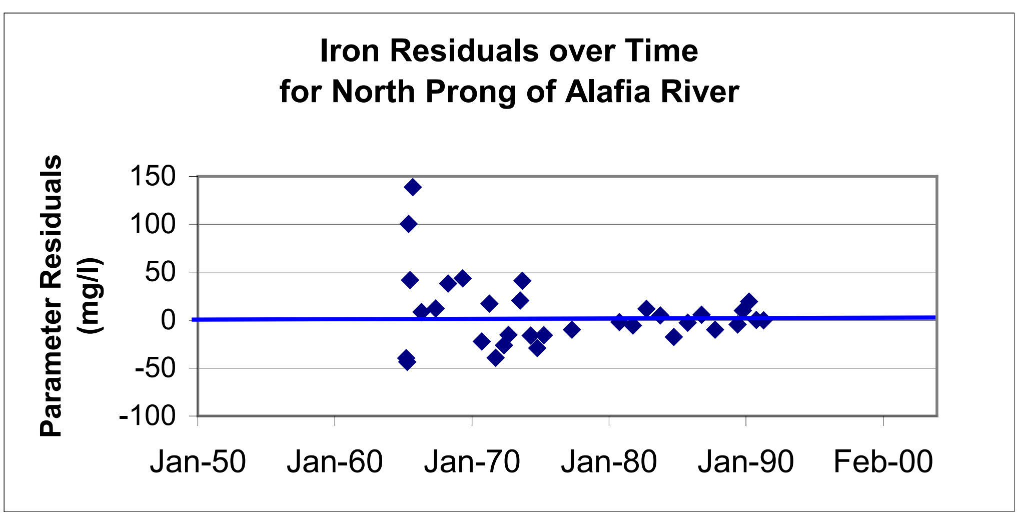

North Prong of Alafia River, FL
Fluoride (mg/l F)
50
40
30
20
10
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

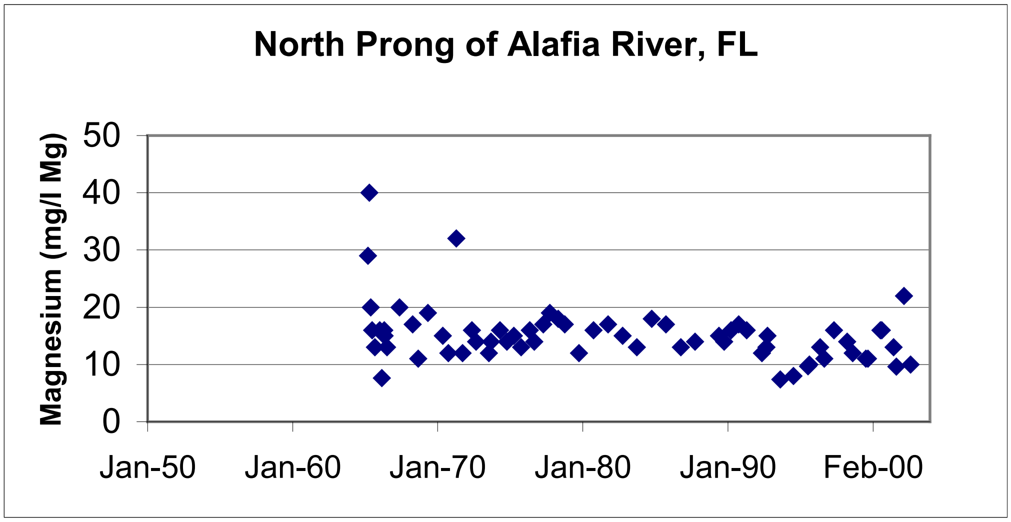

North Prong of Alafia River, FL
Fluoride (mg/l F)
50
40
30
20
10
0
0
100
200
300
400
Flow (cfs)

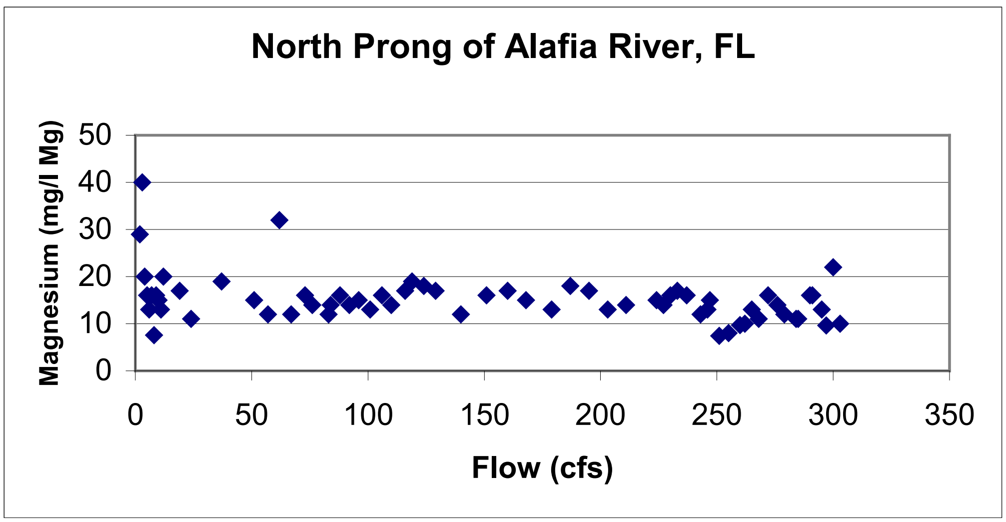

Floride Residuals over Time
for North Prong of Alafia River
Parameter Residuals (mg/l)
30
25
20
15
10
5
0
-5
-10
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

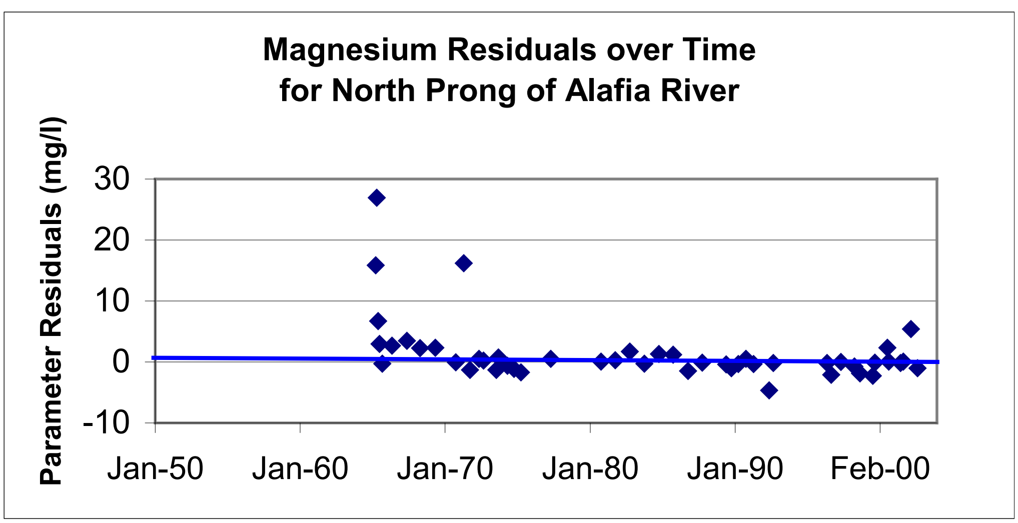

North Prong of Alafia River, FL
Iron (mg/l Fe)
350
300
250
200
150
100
50
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

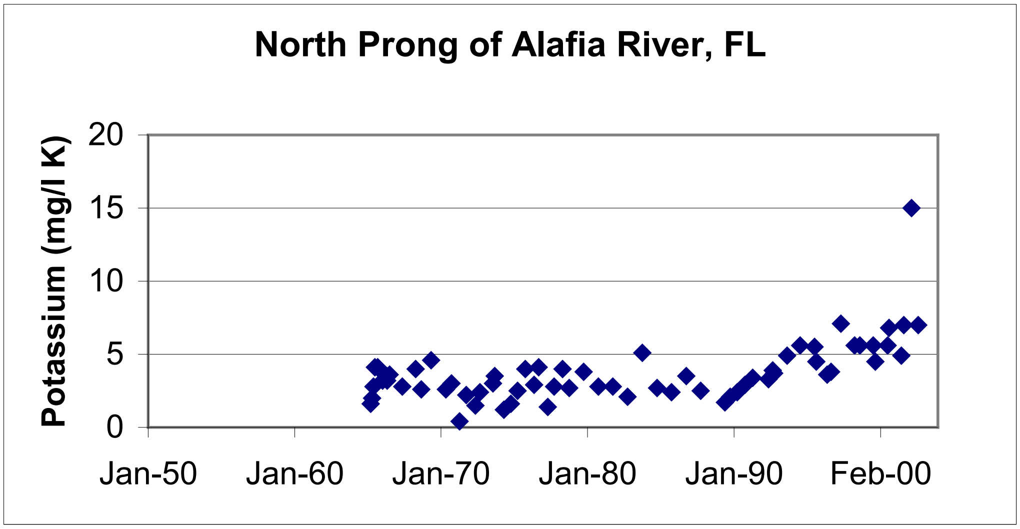

North Prong of Alafia River, FL
Iron (mg/l Fe)
400
300
200
100
0
0
100
200
300
400
Flow (cfs)

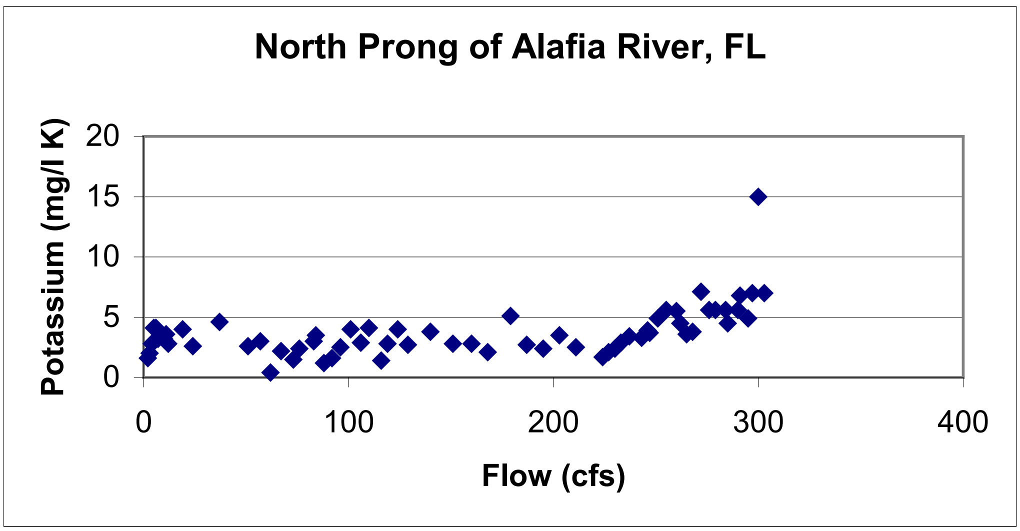

Iron Residuals over Time
for North Prong of Alafia River
Parameter Residuals (mg/l)
150
100
50
0
-50
-100
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

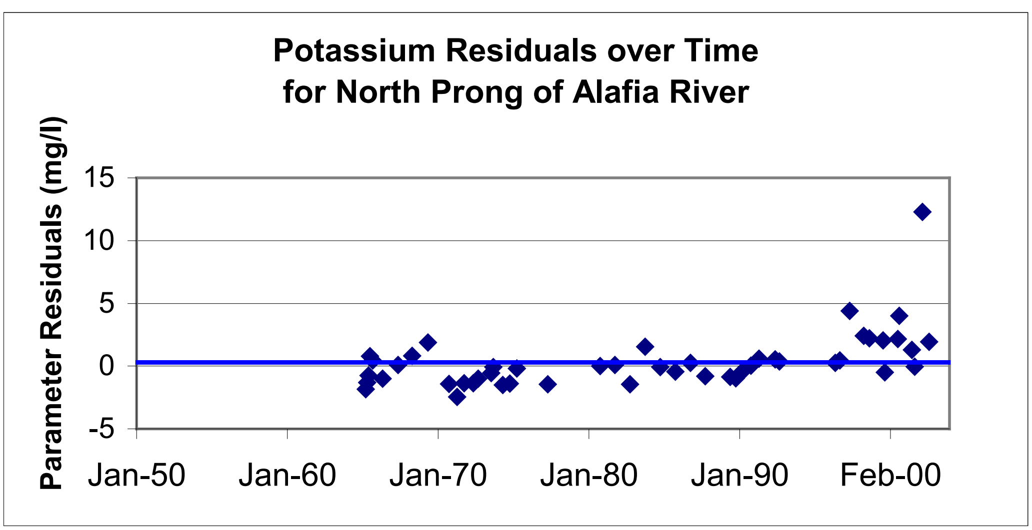

North Prong of Alafia River, FL
Magnesium (mg/l Mg)
0
10
20
30
40
50
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

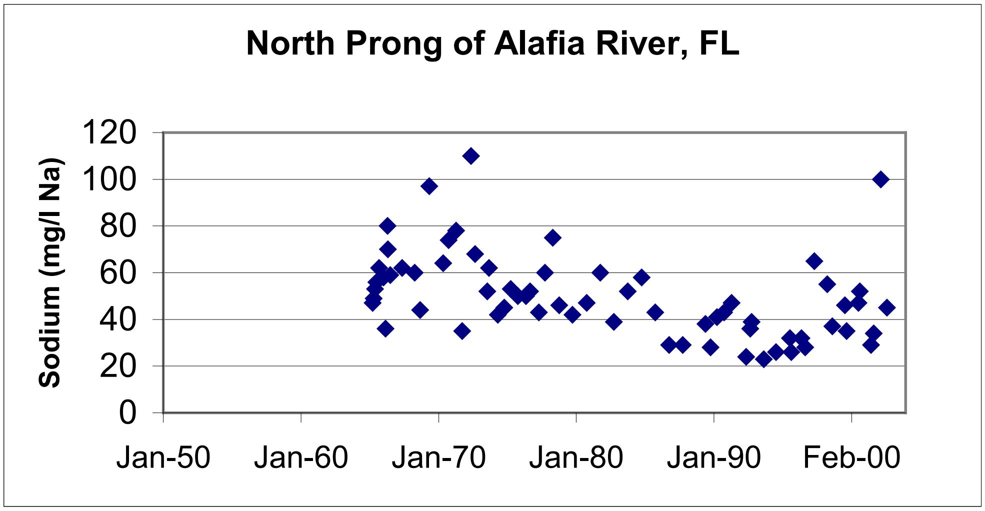

North Prong of Alafia River, FL
Magnesium (mg/l Mg)
0
10
20
30
40
50
0
50
100
150
200
250
300
350
Flow (cfs)

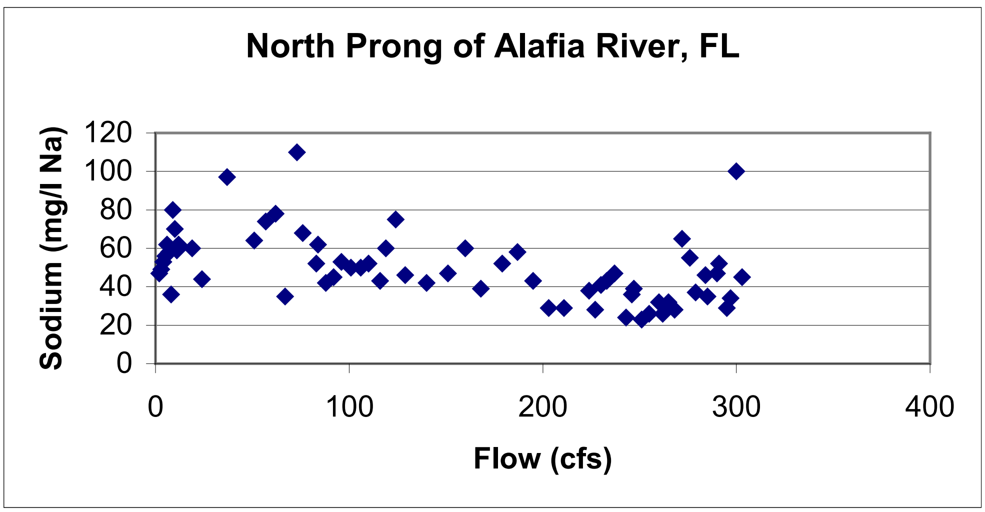

Magnesium Residuals over Time
for North Prong of Alafia River
Parameter Residuals (mg/l)
30
20
10
0
-10
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

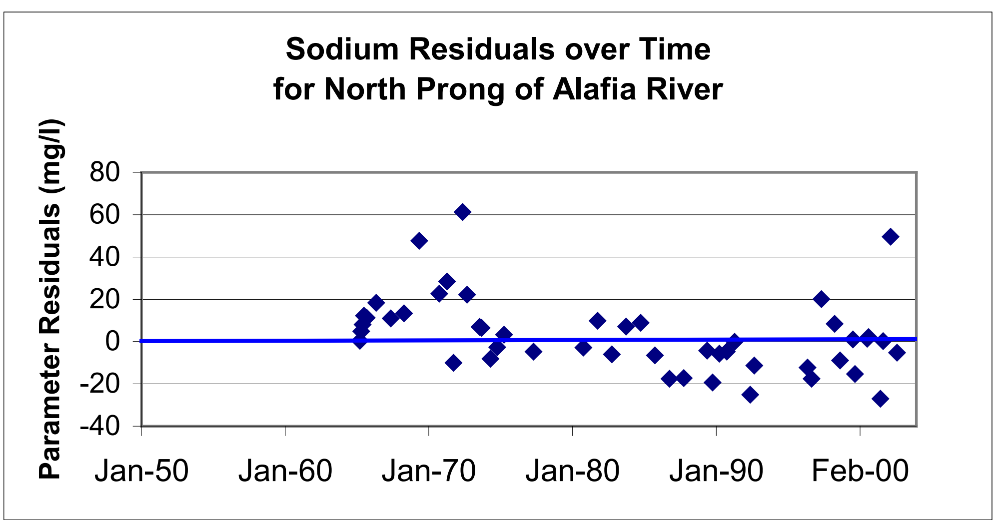

North Prong of Alafia River, FL
Potassium (mg/l K)
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

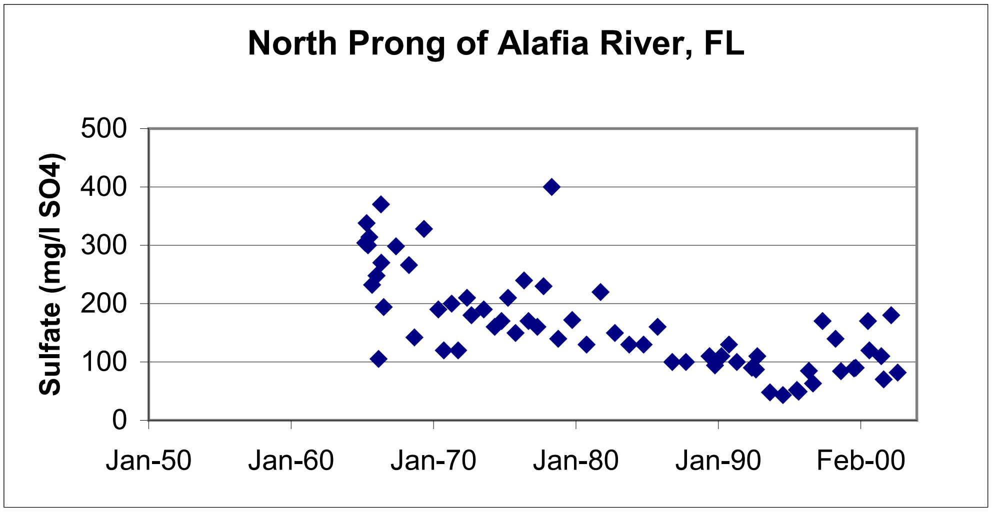

North Prong of Alafia River, FL
Potassium (mg/l K)
20
15
10
5
0
0
100
200
300
400
Flow (cfs)

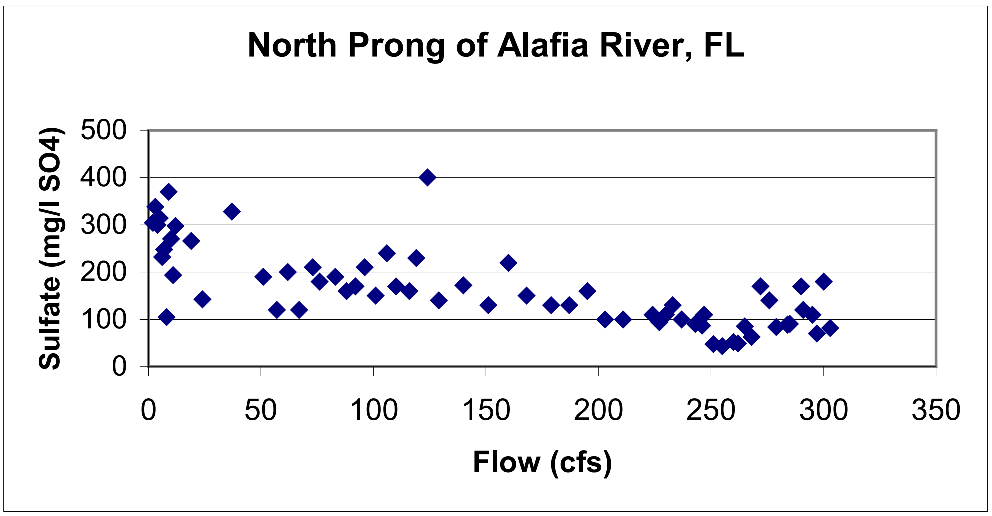

Potassium Residuals over Time
for North Prong of Alafia River
Parameter Residuals (mg/l)
15
10
5
0
-5
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

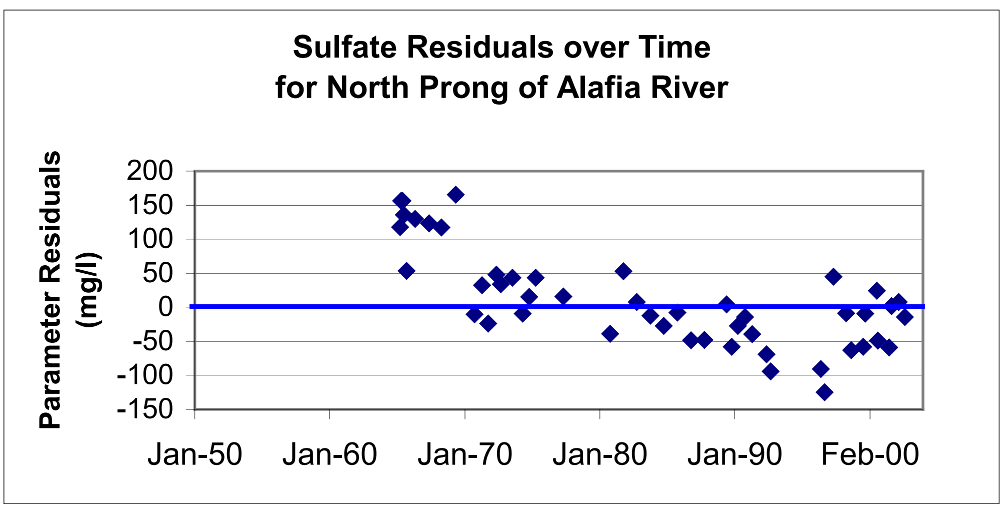

North Prong of Alafia River, FL
Sodium (mg/l Na)
120
100
80
60
40
20
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

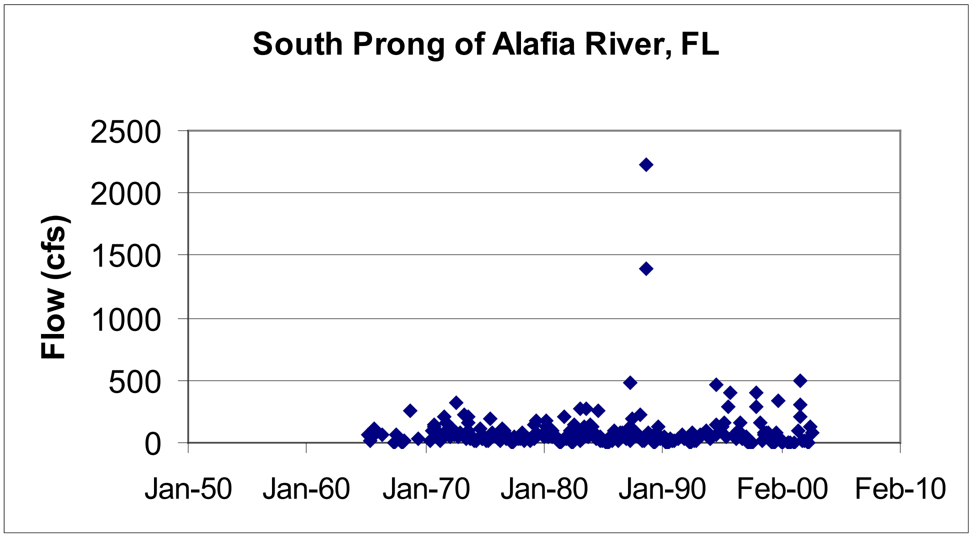

North Prong of Alafia River, FL
Sodium (mg/l Na)
120
100
80
60
40
20
0
0
100
200
300
400
Flow (cfs)

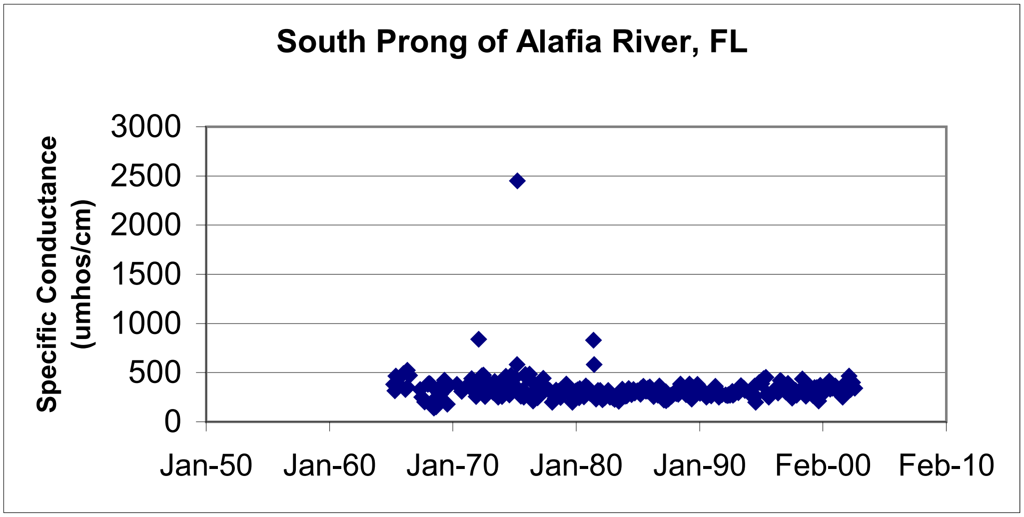

Sodium Residuals over Time
for North Prong of Alafia River
Parameter Residuals (mg/l)
80
60
40
20
0
-20
-40
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

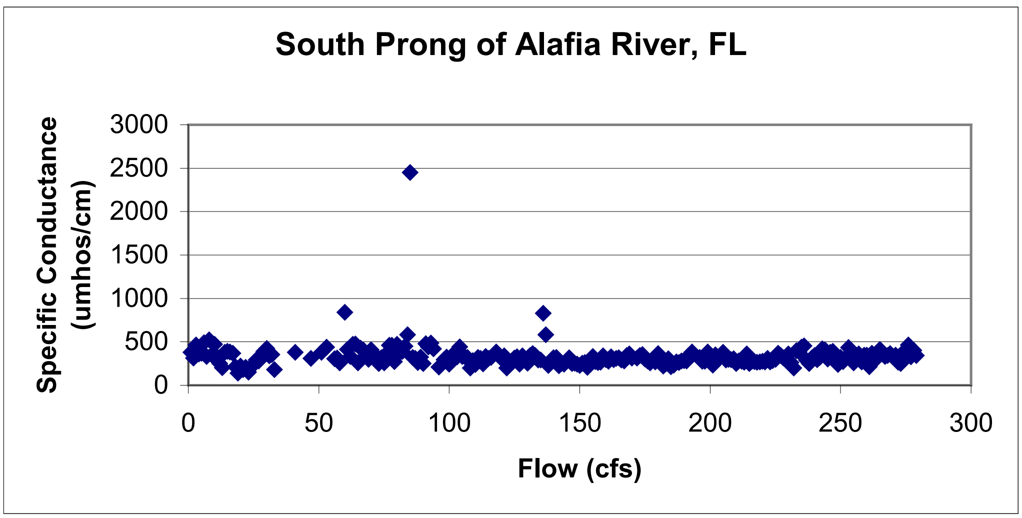

North Prong of Alafia River, FL
Sulfate (mg/l SO4)
500
400
300
200
100
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

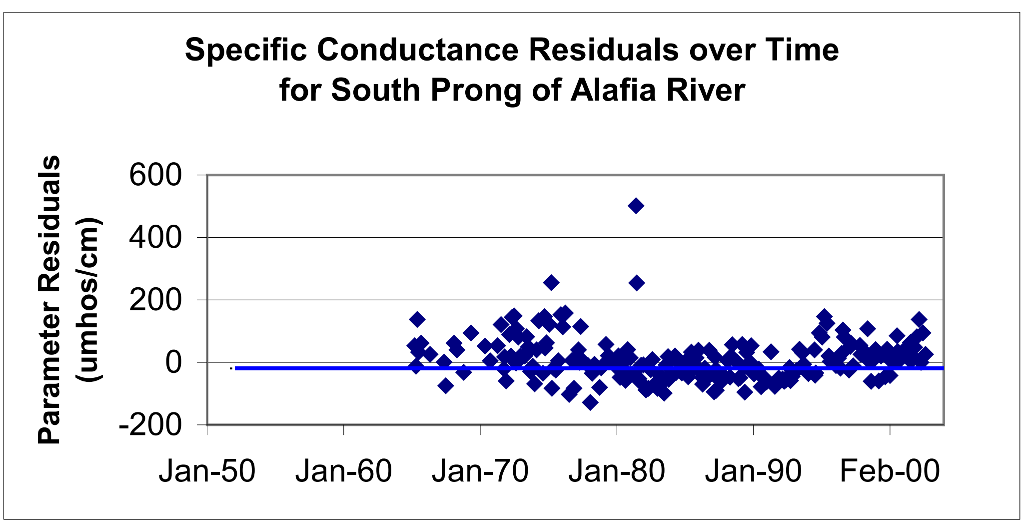

North Prong of Alafia River, FL
Sulfate (mg/l SO4)
500
400
300
200
100
0
0
50
100
150
200
250
300
350
Flow (cfs)

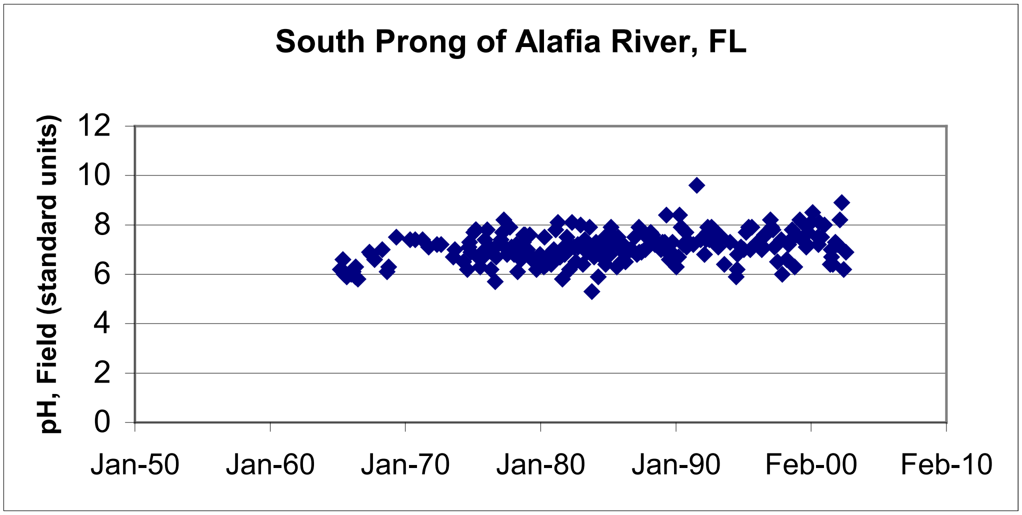

Sulfate Residuals over Time
for North Prong of Alafia River
Parameter Residuals (mg/l)
200
150
100
50
0
-50
-100
-150
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

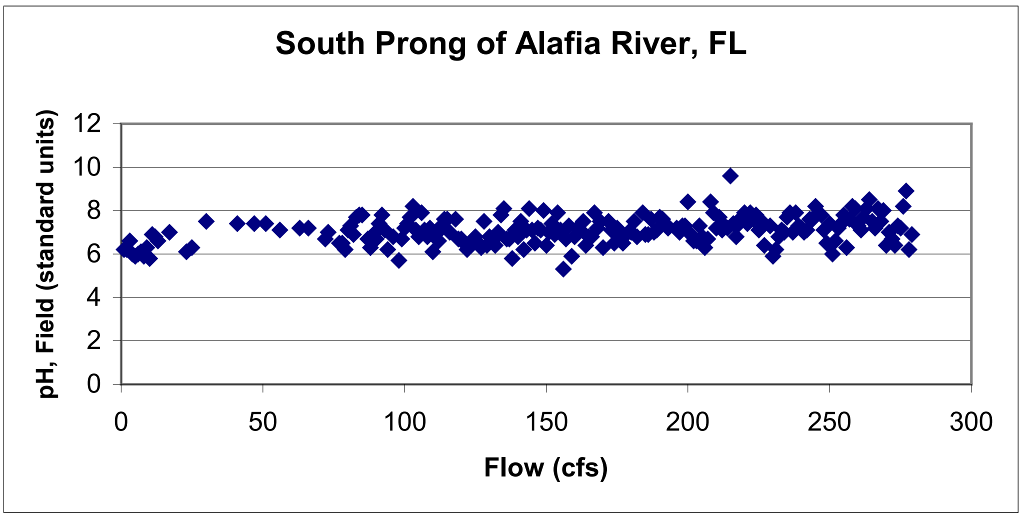

South Prong of Alafia River, FL
Flow (cfs)
2500
2000
1500
1000
500
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

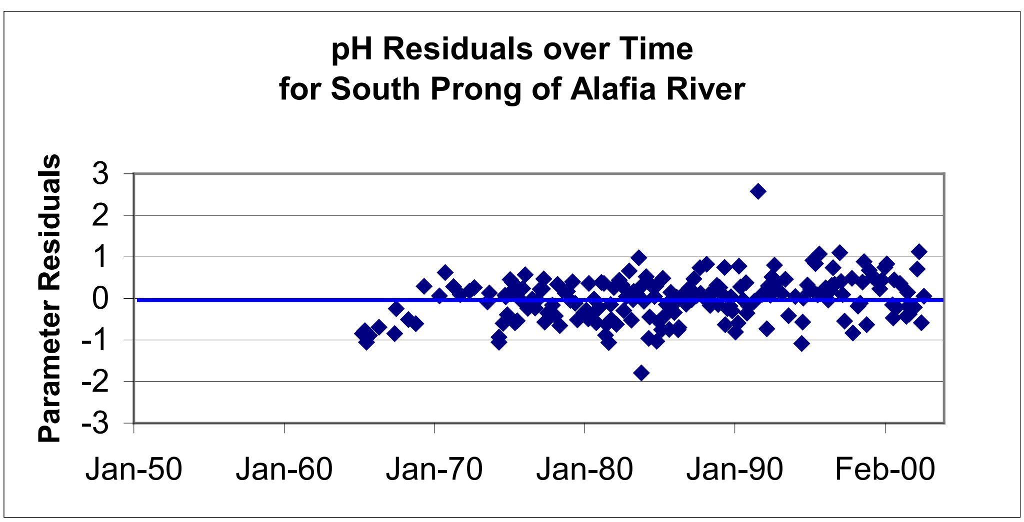

South Prong of Alafia River, FL
Specific Conductance (umhos/cm)
3000
2500
2000
1500
1000
500
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

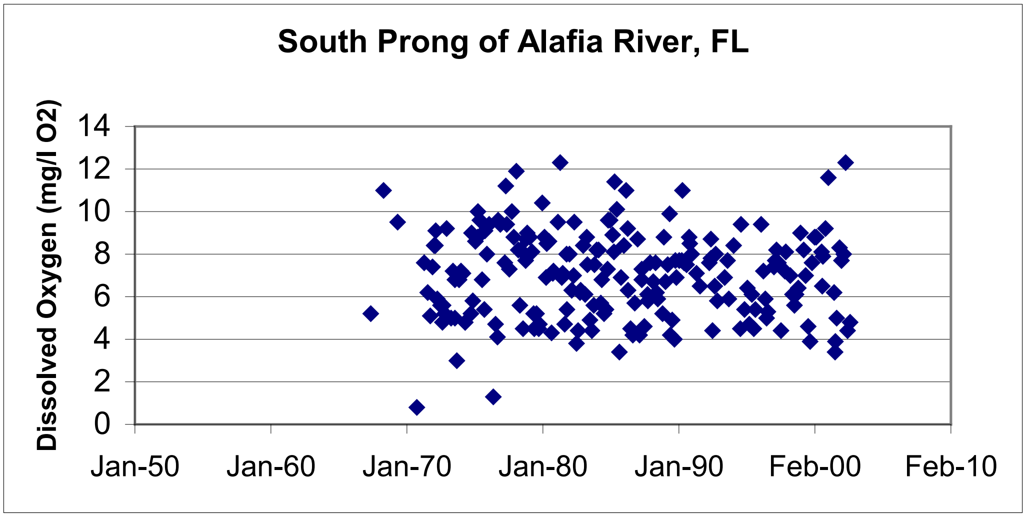

South Prong of Alafia River, FL
Specific Conductance (umhos/cm)
3000
2500
2000
1500
1000
500
0
0
50
100
150
200
250
300
Flow (cfs)

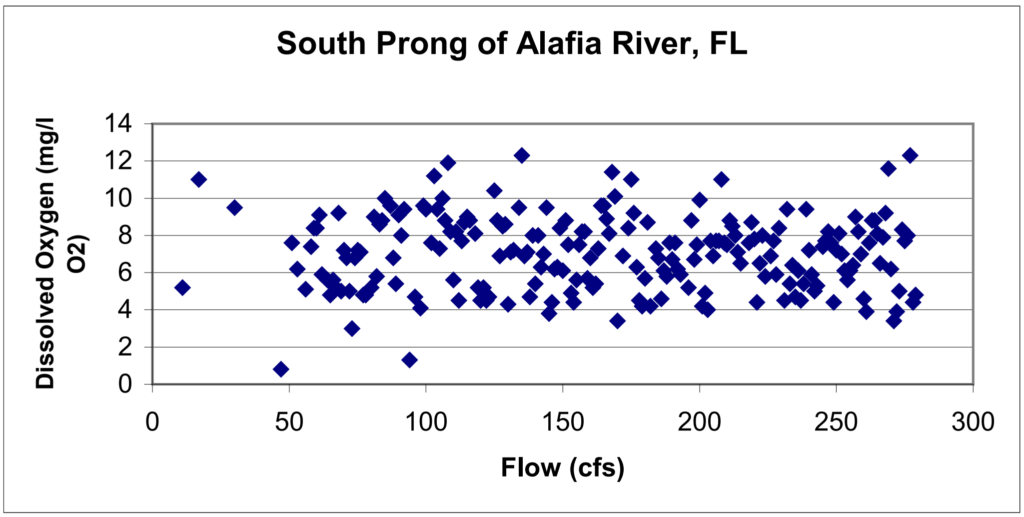

Specific Conductance Residuals over Time for South Prong of Alafia River
Parameter Residuals (umhos/cm)
600
400
200
0
-200
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

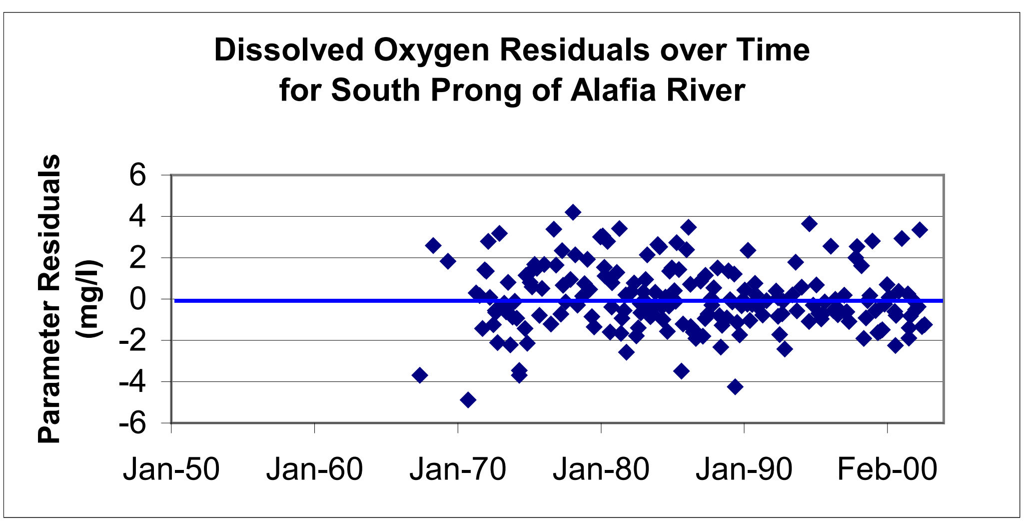

South Prong of Alafia River, FL
pH, Field (standard units)
0
2
4
6
8
10
12
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

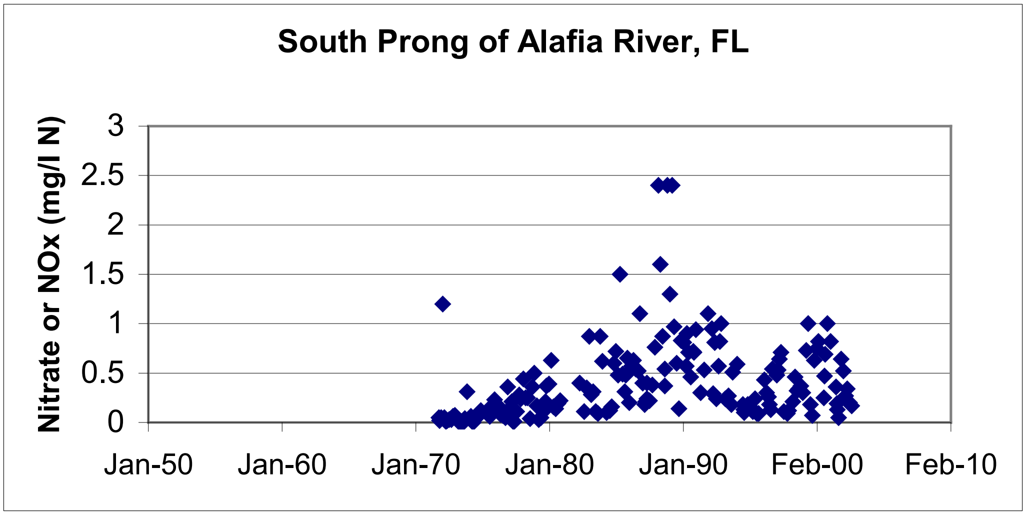

South Prong of Alafia River, FL
pH, Field (standard units)
0
2
4
6
8
10
12
0
50
100
150
200
250
300
Flow (cfs)

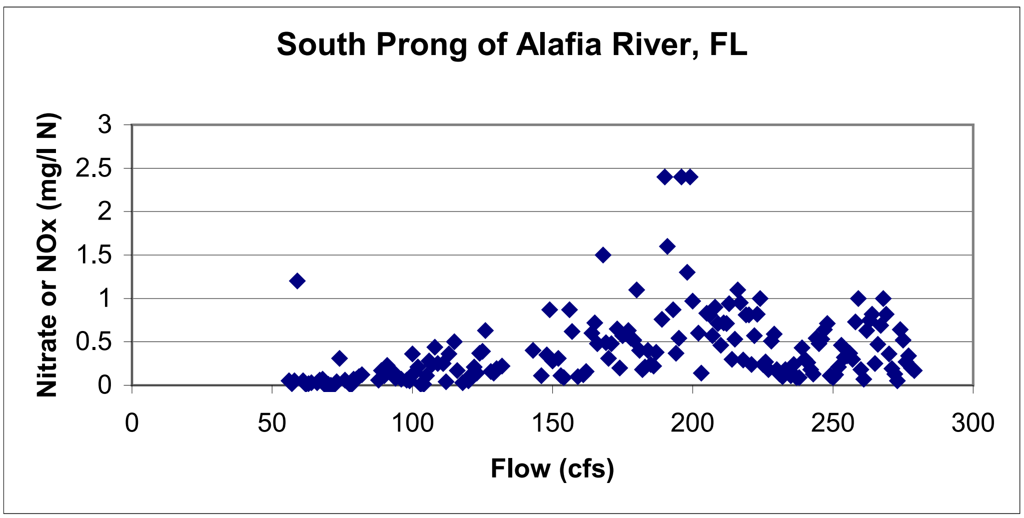

pH Residuals over Time
for South Prong of Alafia River
Parameter Residuals
3
2
1
0
-1
-2
-3
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

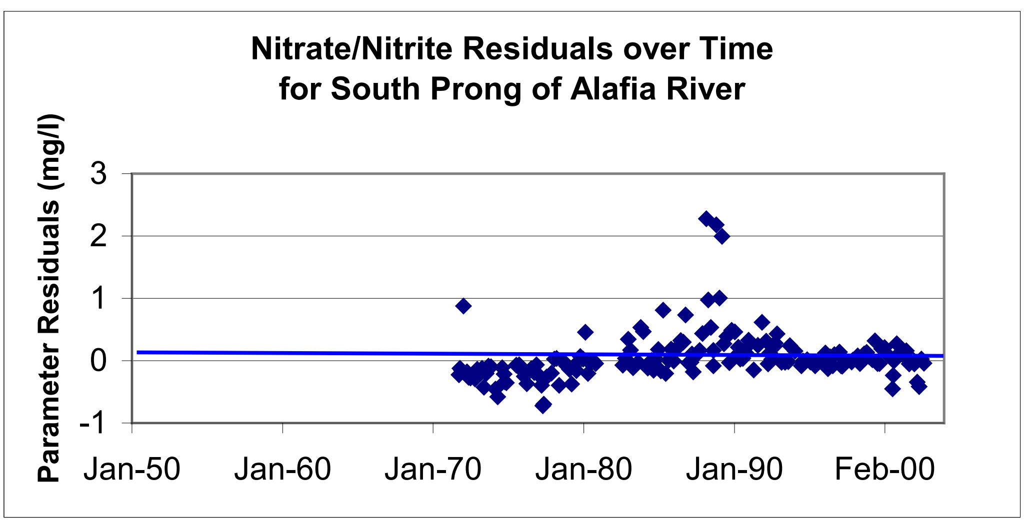

South Prong of Alafia River, FL
Dissolved Oxygen (mg/l O2)
14
12
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

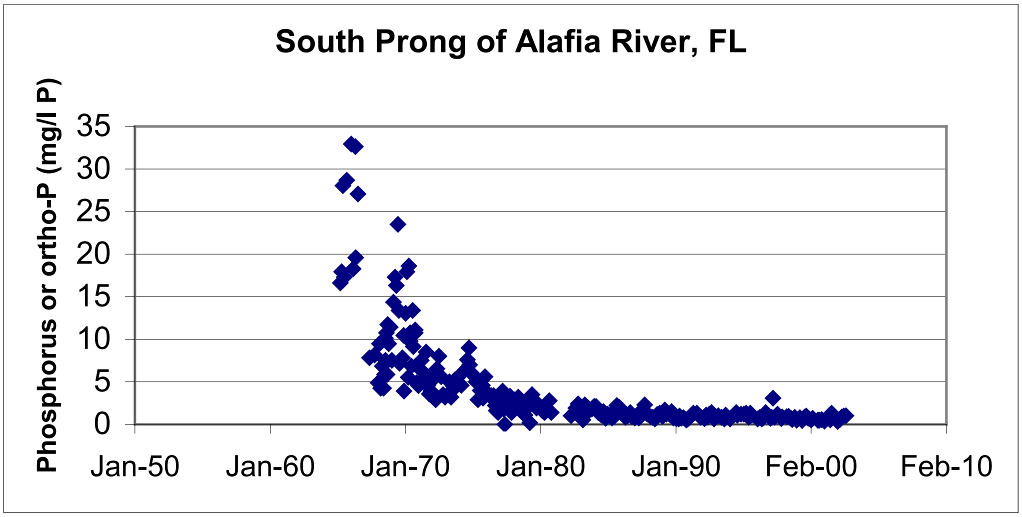

South Prong of Alafia River, FL
Dissolved Oxygen (mg/l O2)
14
12
10
8
6
4
2
0
0
50
100
150
200
250
300
Flow (cfs)

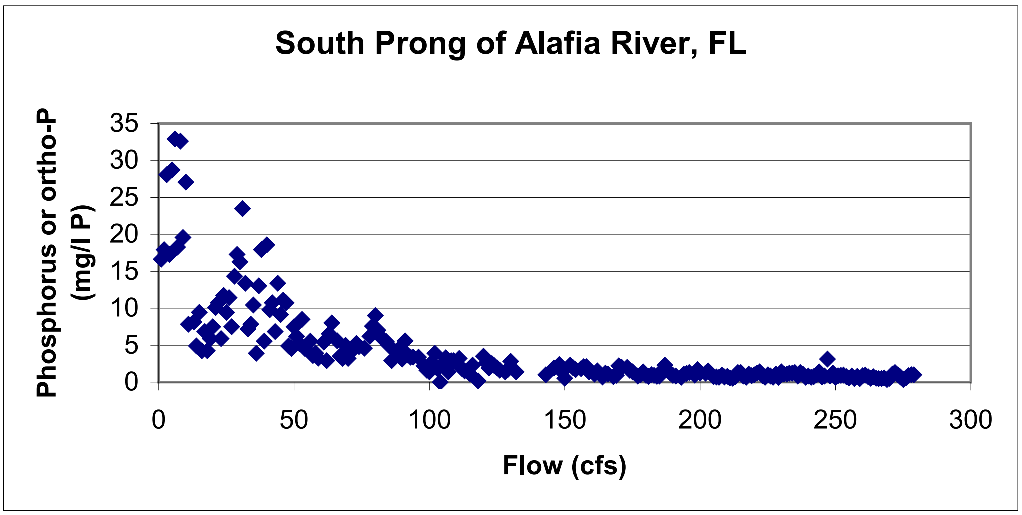

Dissolved Oxygen Residuals over Time for South Prong of Alafia River
Parameter Residuals (mg/l)
6
4
2
0
-2
-4
-6
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

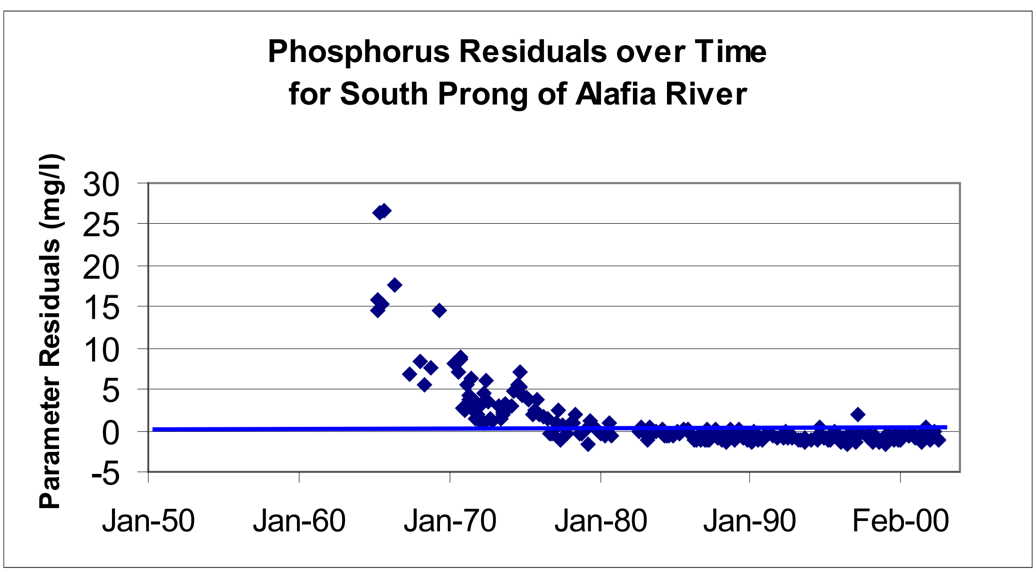

South Prong of Alafia River, FL
Nitrate or NOx (mg/l N)
3
2.5
2
1.5
1
0.5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

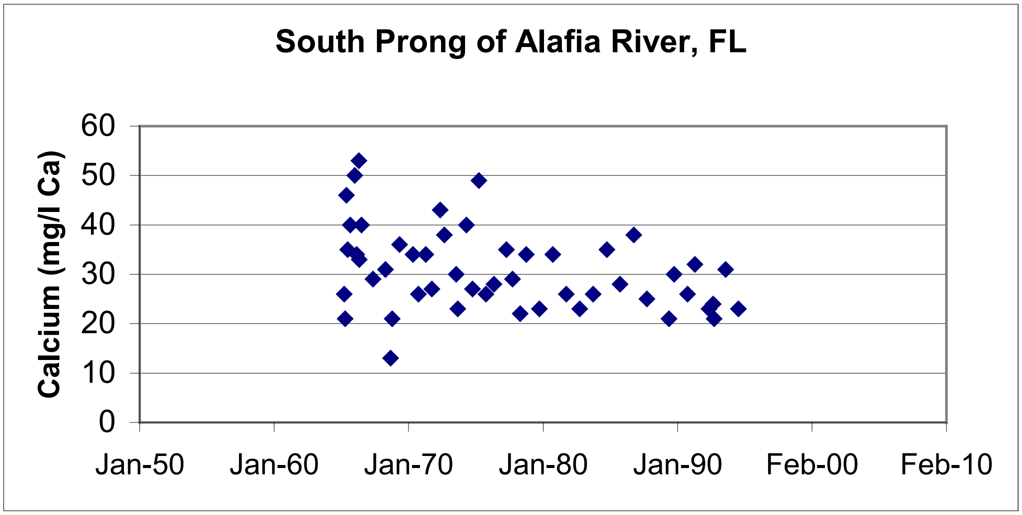

South Prong of Alafia River, FL
Nitrate or NOx (mg/l N)
3
2.5
2
1.5
1
0.5
0
0
50
100
150
200
250
300
Flow (cfs)

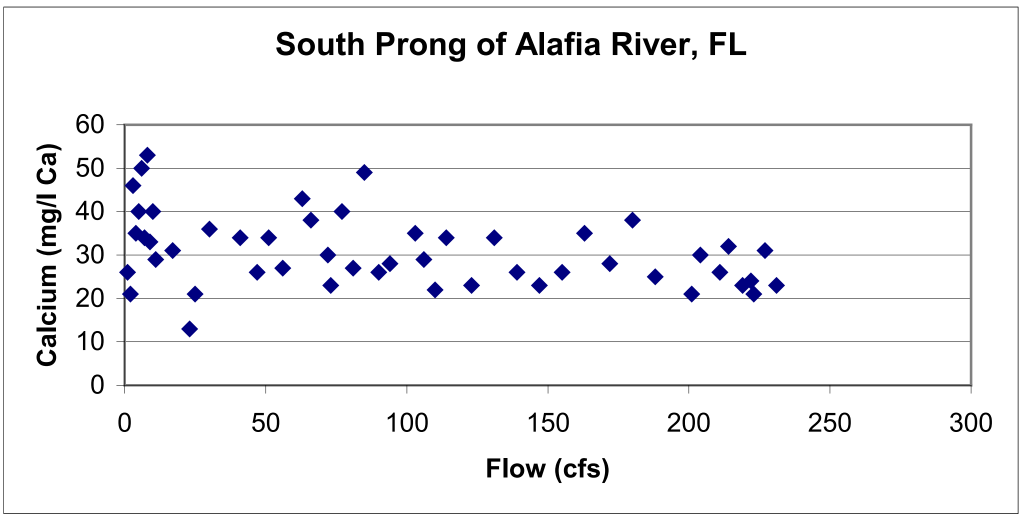

Nitrate/Nitrite Residuals over Time
for South Prong of Alafia River
Parameter Residuals (mg/l)
3
2
1
0
-1
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

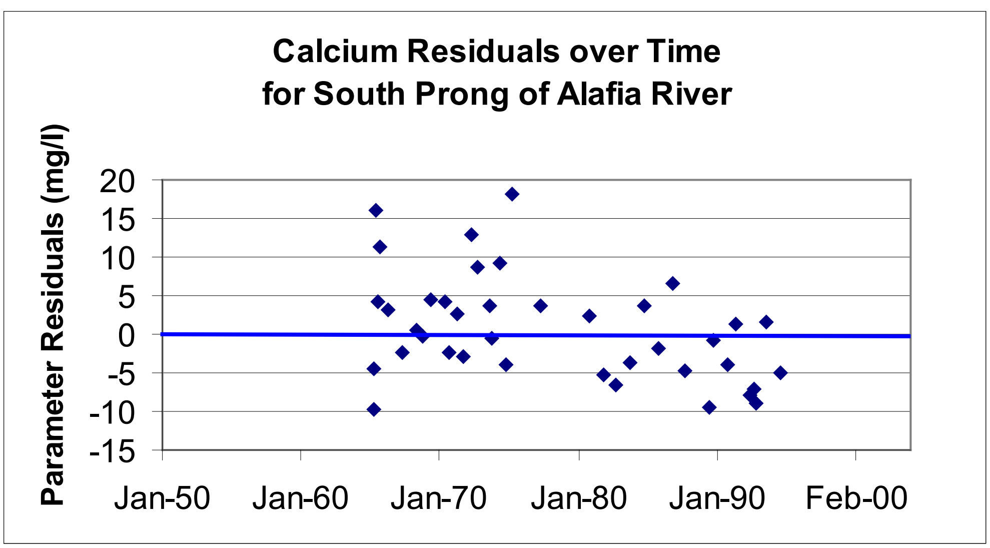

South Prong of Alafia River, FL
Phosphorus or ortho-P (mg/l P)
35
30
25
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

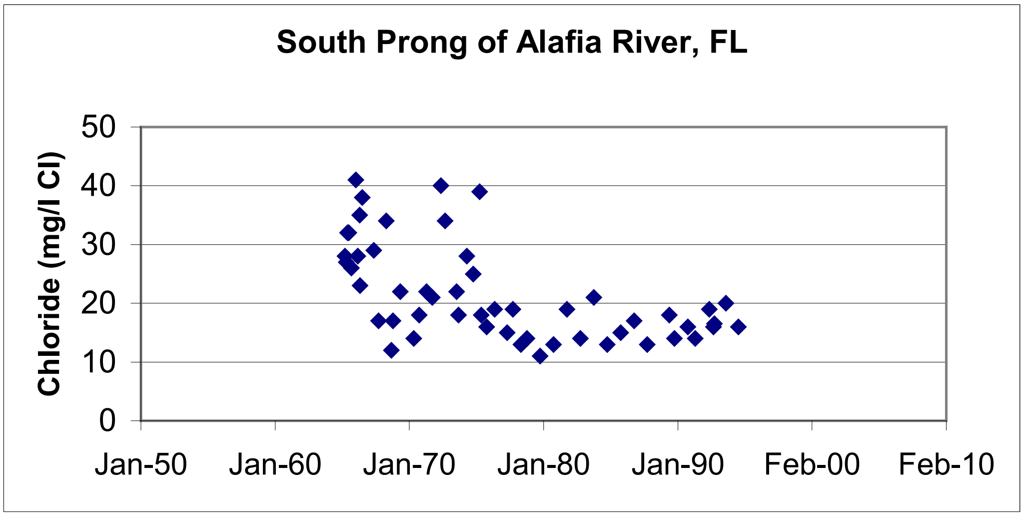

South Prong of Alafia River, FL
Phosphorus or ortho-P (mg/l P)
35
30
25
20
15
10
5
0
0
50
100
150
200
250
300
Flow (cfs)

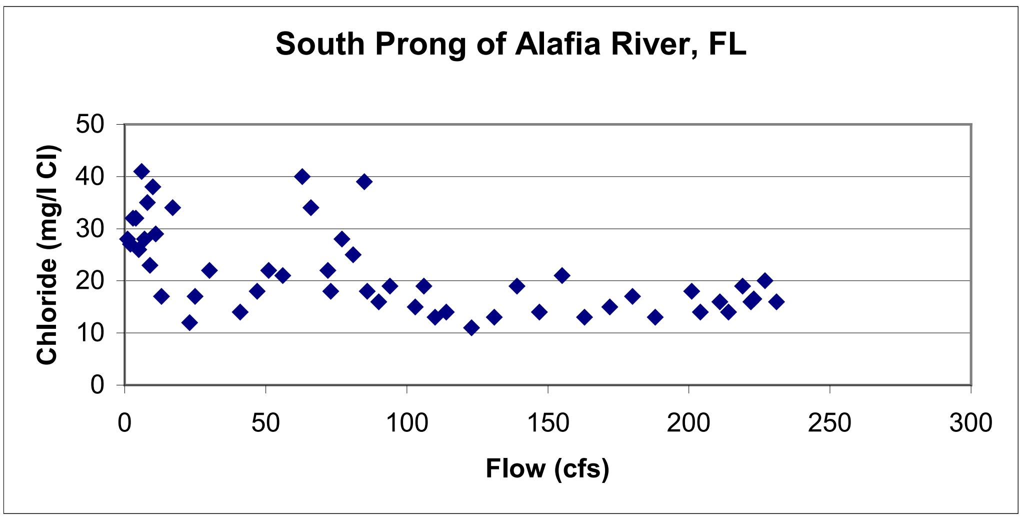

Phosphorus Residuals over Time for South Prong of Alafia River
Parameter Residuals (mg/l)
30
25
20
15
10
5
0
-5
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

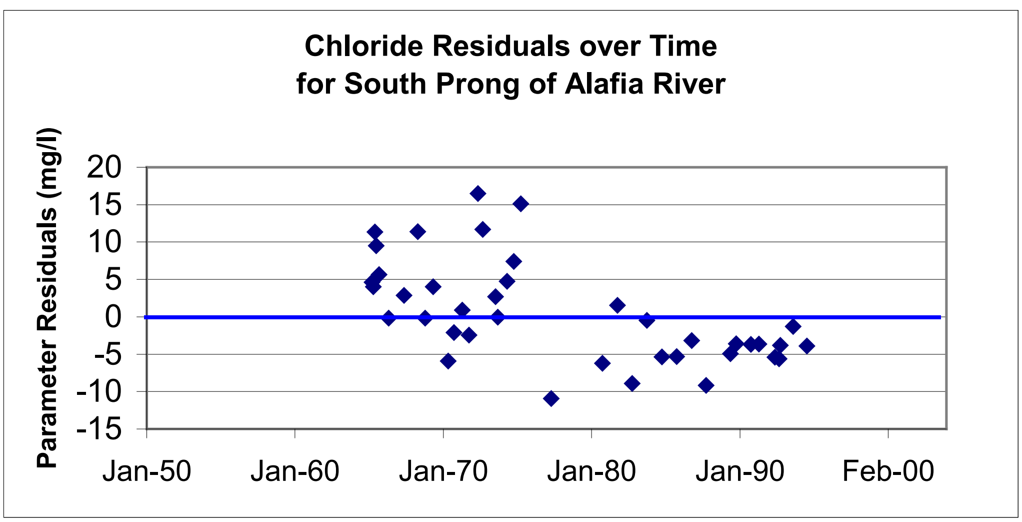

South Prong of Alafia River, FL
Calcium (mg/l Ca)
60
50
40
30
20
10
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

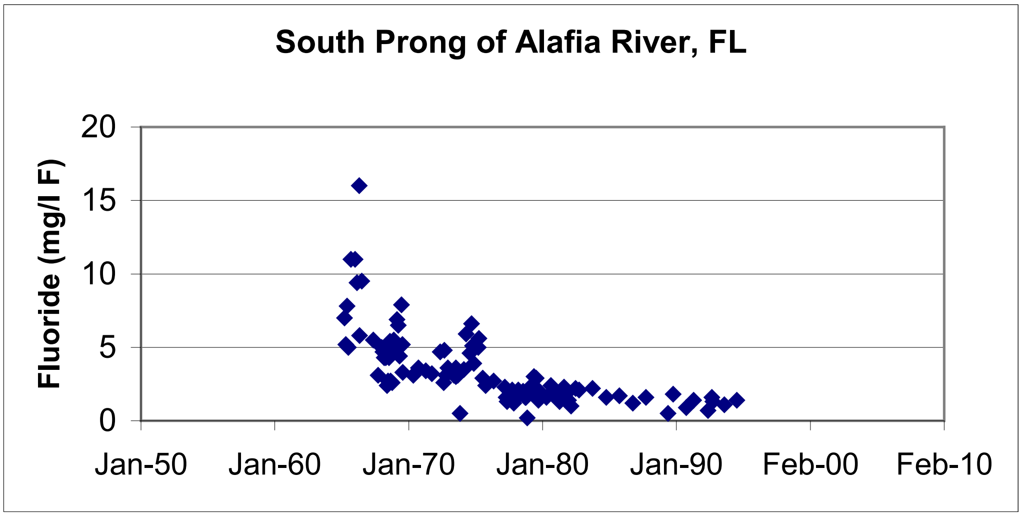

South Prong of Alafia River, FL
Calcium (mg/l Ca)
60
50
40
30
20
10
0
0
50
100
150
200
250
300
Flow (cfs)

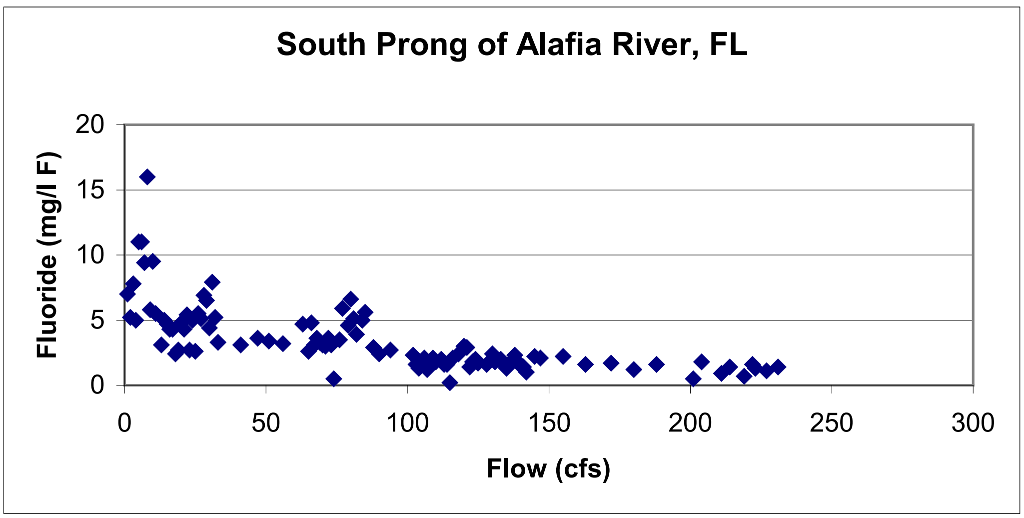

Calcium Residuals over Time
for South Prong of Alafia River
Parameter Residuals (mg/l)
20
15
10
5
0
-5
-10
-15
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

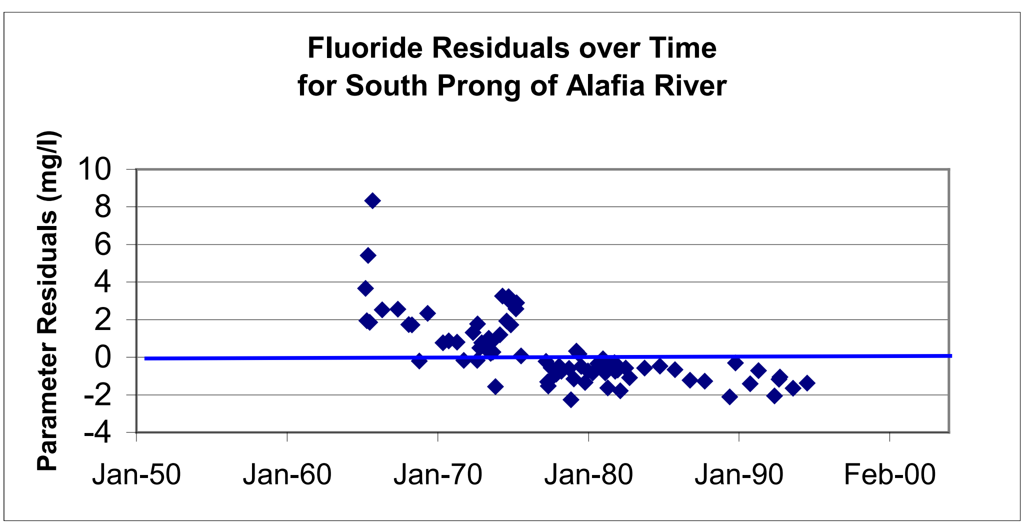

South Prong of Alafia River, FL
Chloride (mg/l Cl)
50
40
30
20
10
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

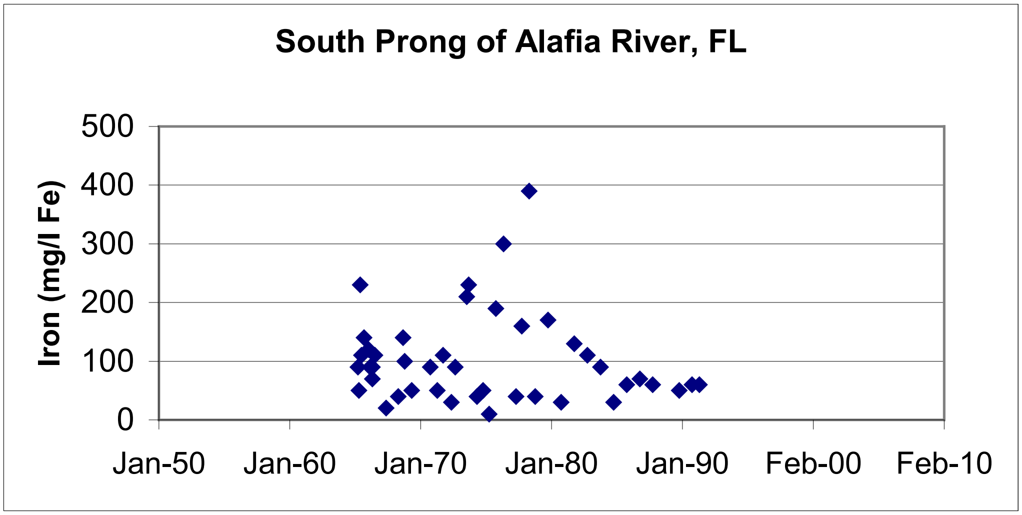

South Prong of Alafia River, FL
Chloride (mg/l Cl)
50
40
30
20
10
0
0
50
100
150
200
250
300
Flow (cfs)

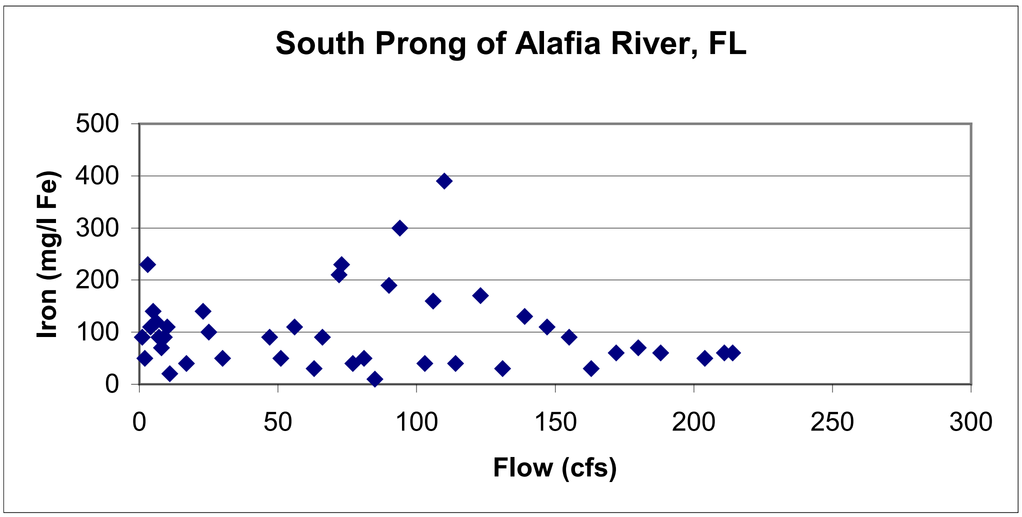

Chloride Residuals over Time
for South Prong of Alafia River
Parameter Residuals (mg/l)
20
15
10
5
0
-5
-10
-15
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

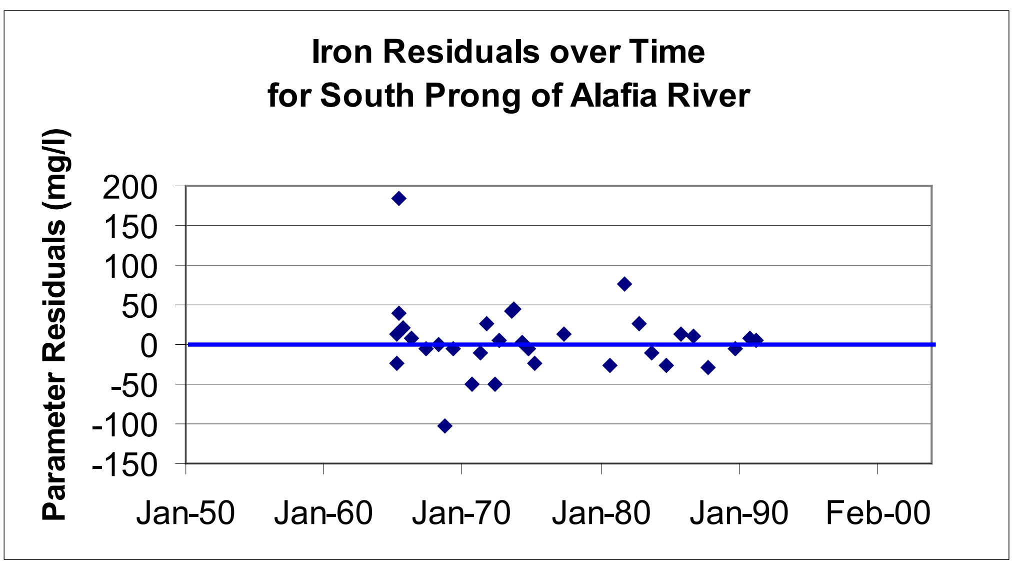

South Prong of Alafia River, FL
Fluoride (mg/l F)
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

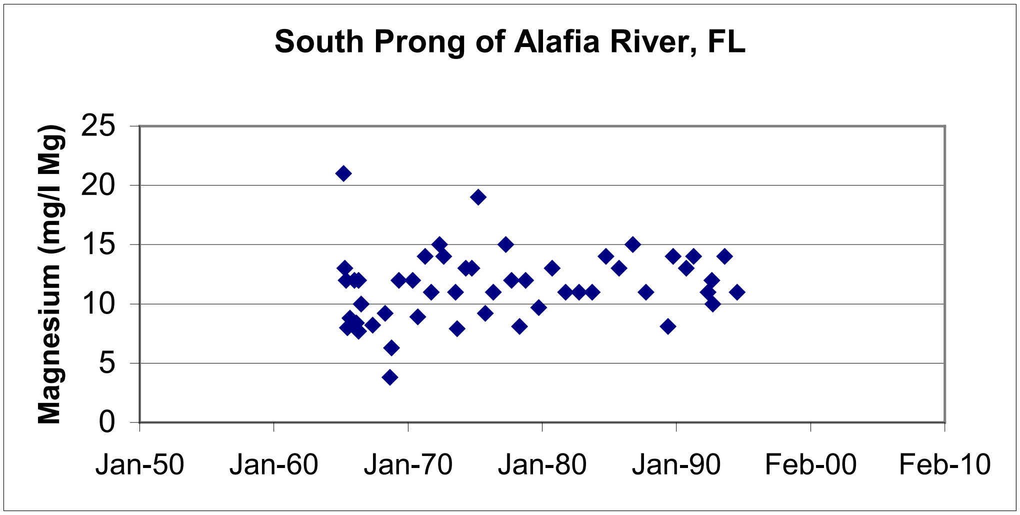

South Prong of Alafia River, FL
Fluoride (mg/l F)
20
15
10
5
0
0
50
100
150
200
250
300
Flow (cfs)


Fluoride Residuals over Time
for South Prong of Alafia River
Parameter Residuals (mg/l)
10
8
6
4
2
0
-2
-4
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

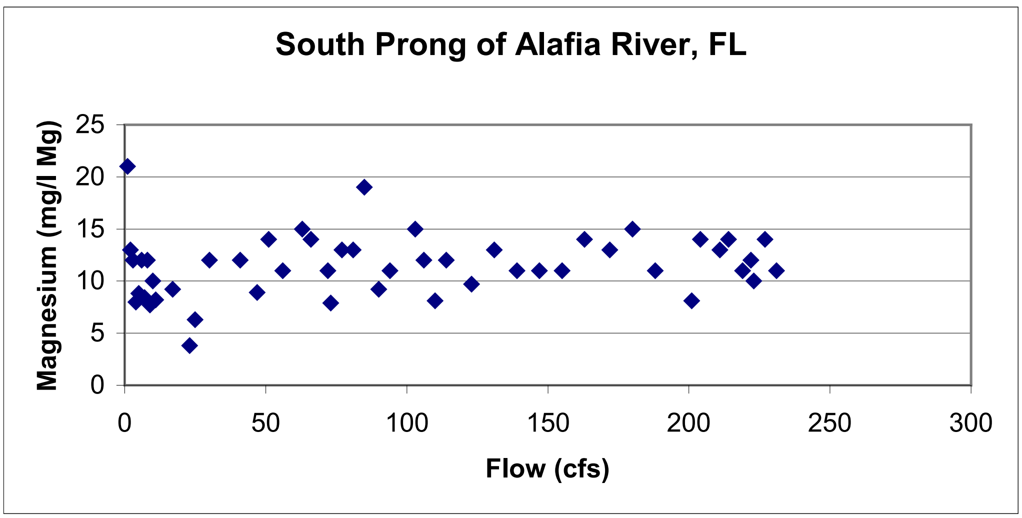

South Prong of Alafia River, FL
Iron (mg/l Fe)
500
400
300
200
100
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10


South Prong of Alafia River, FL
Iron (mg/l Fe)
500
400
300
200
100
0
0
50
100
150
200
250
300
Flow (cfs)

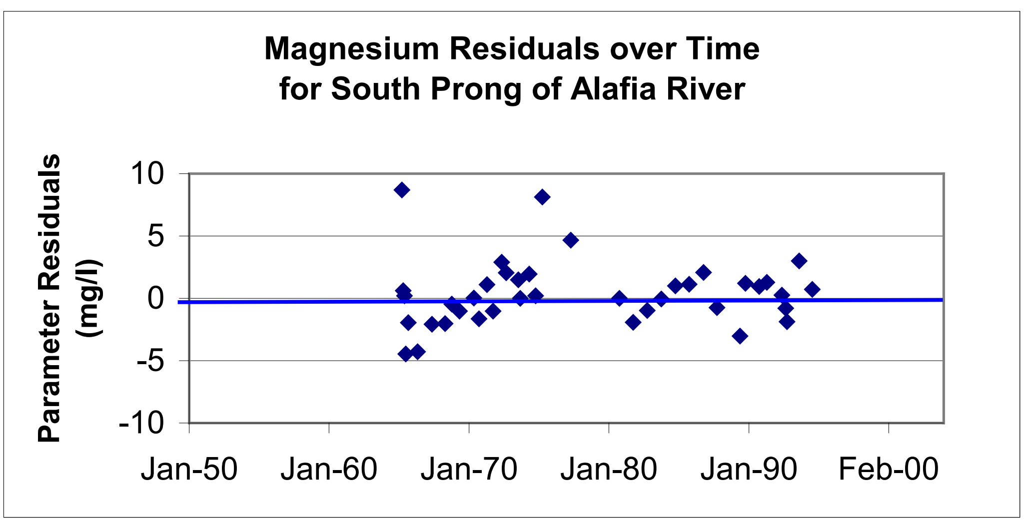

Iron Residuals over Time
for South Prong of Alafia River
Parameter Residuals (mg/l)
200
150
100
50
0
-50
-100
-150
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00



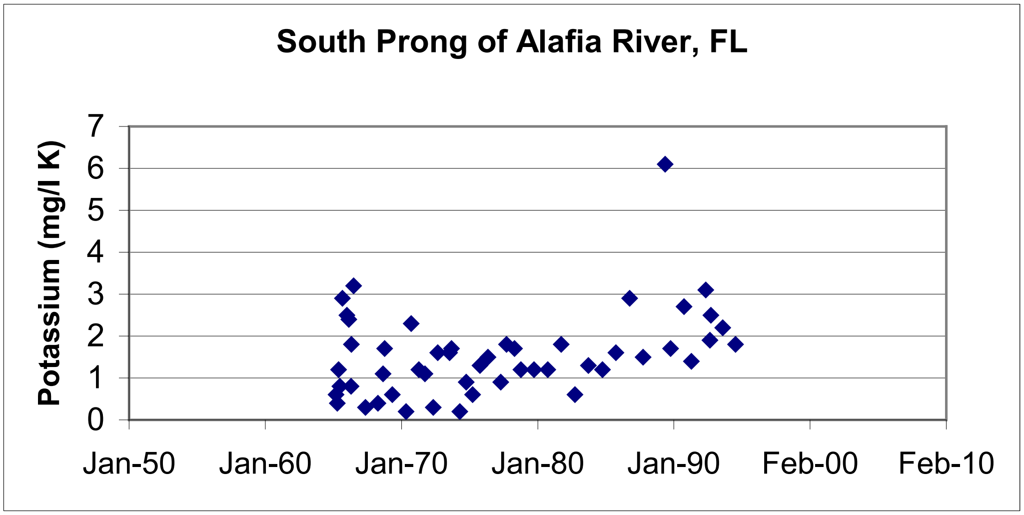
South Prong of Alafia River, FL
Magnesium (mg/l Mg)
25
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

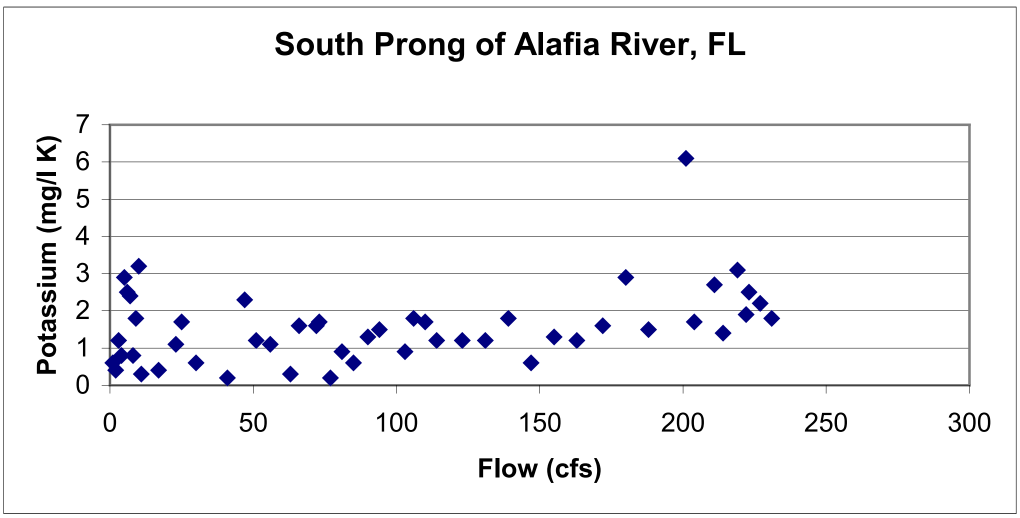


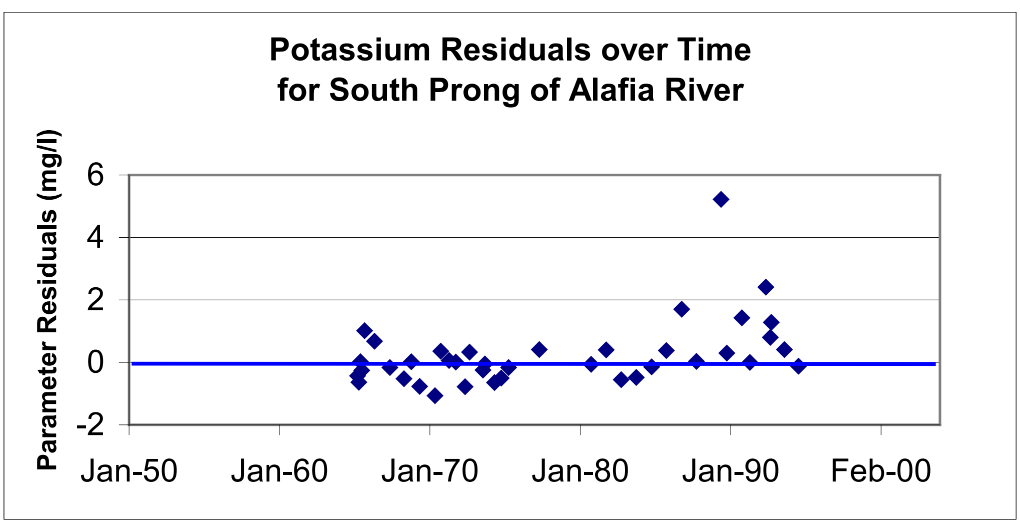
South Prong of Alafia River, FL
Magnesium (mg/l Mg)
25
20
15
10
5
0
0
50
100
150
200
250
300
Flow (cfs)

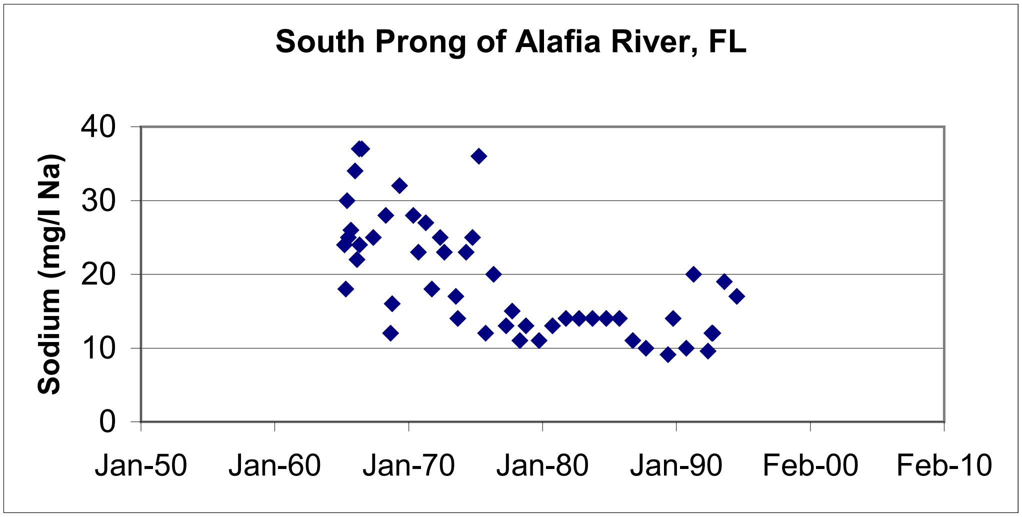


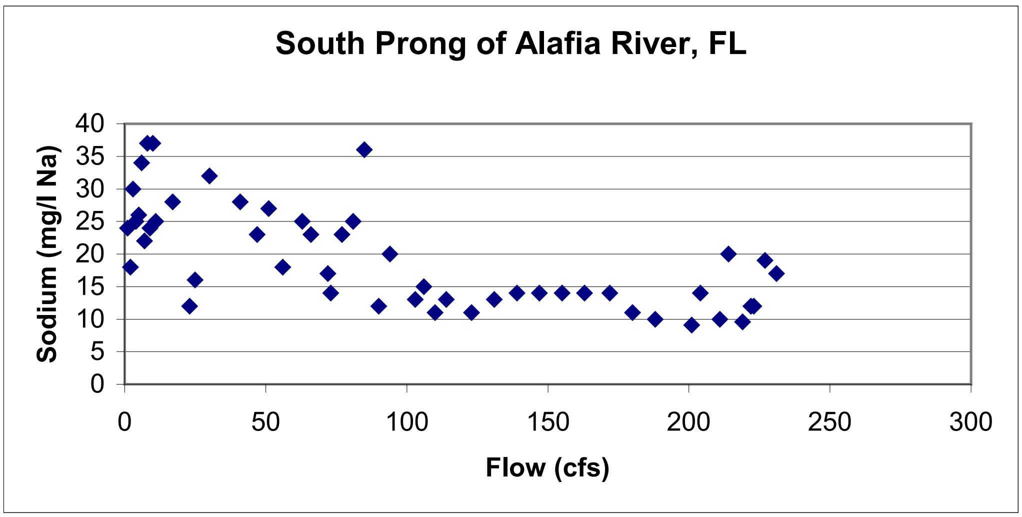
Magnesium Residuals over Time
for South Prong of Alafia River
Parameter Residuals (mg/l)
10
5
0
-5
-10
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

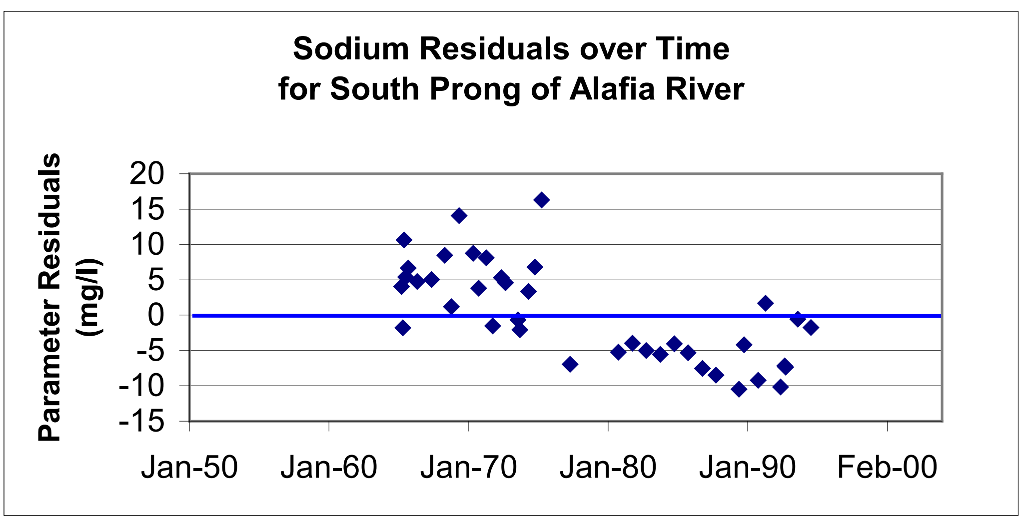

South Prong of Alafia River, FL
Potassium (mg/l K)
0
1
2
3
4
5
6
7
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

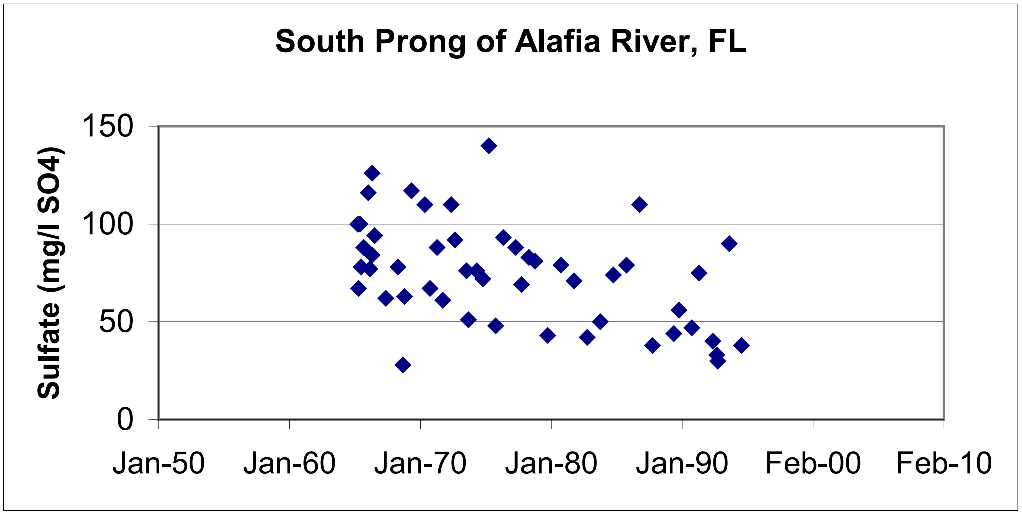

South Prong of Alafia River, FL
Potassium (mg/l K)
0
1
2
3
4
5
6
7
0
50
100
150
200
250
300
Flow (cfs)

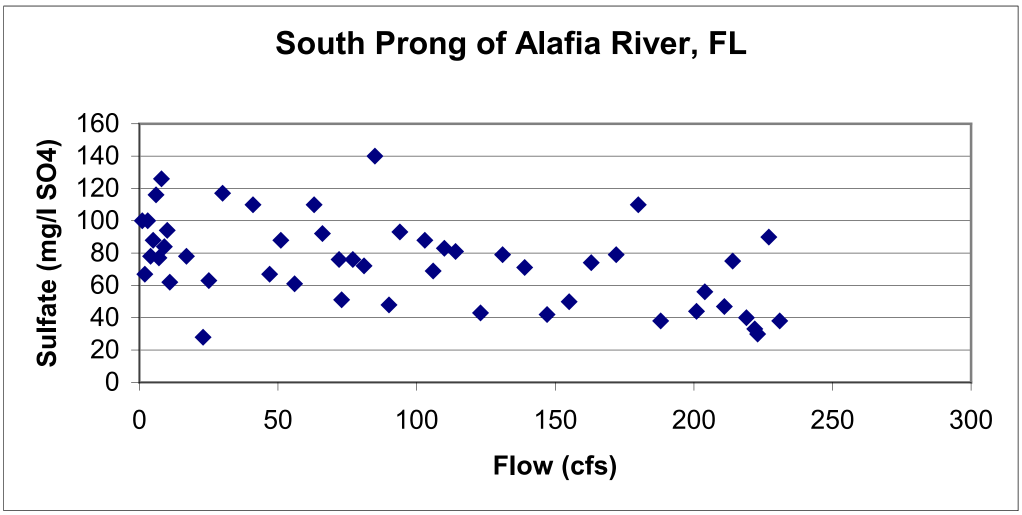

Potassium Residuals over Time
for South Prong of Alafia River
Parameter Residuals (mg/l)
-2
0
2
4
6
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

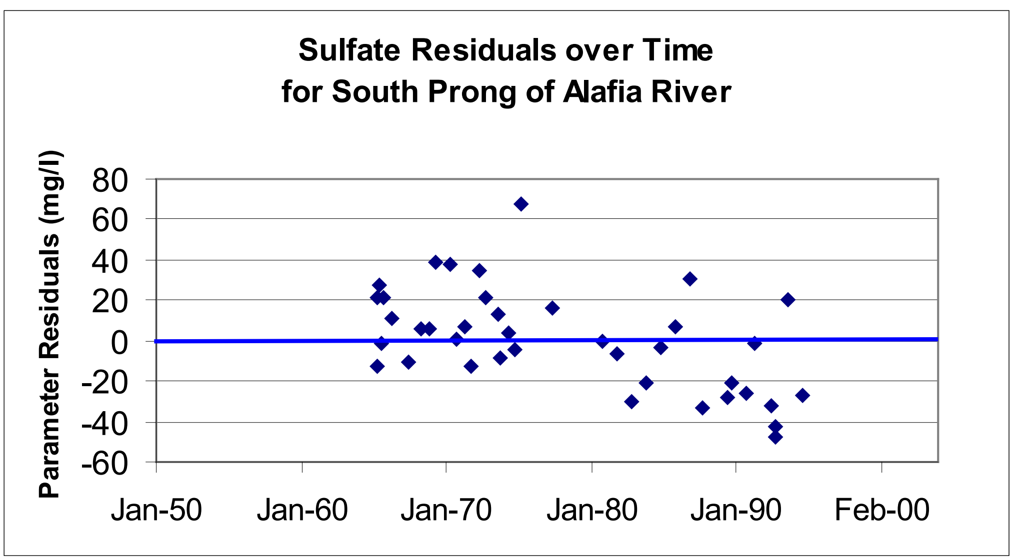

South Prong of Alafia River, FL
Sodium (mg/l Na)
40
30
20
10
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

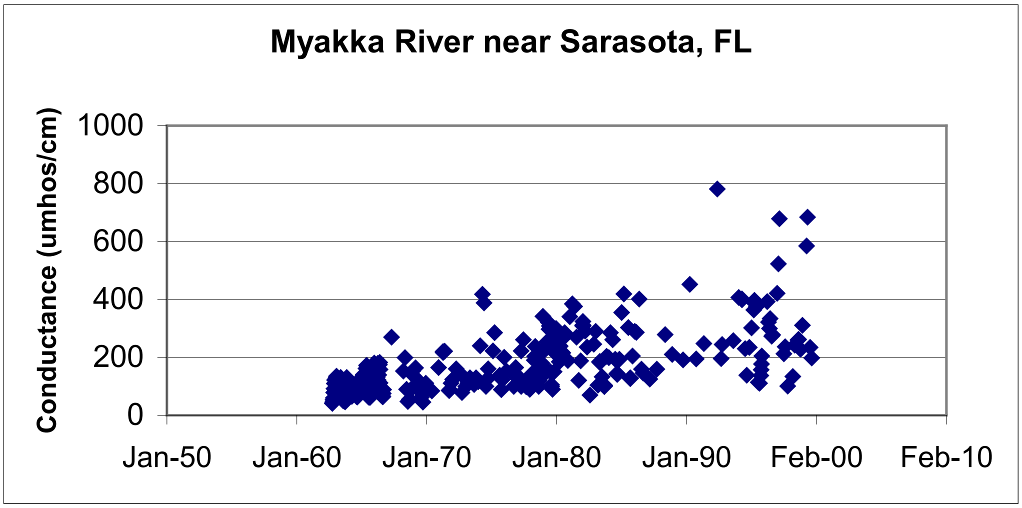

South Prong of Alafia River, FL
Sodium (mg/l Na)
40
35
30
25
20
15
10
5
0
0
50
100
150
200
250
300
Flow (cfs)


Sodium Residuals over Time
for South Prong of Alafia River
Parameter Residuals (mg/l)
20
15
10
5
0
-5
-10
-15
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

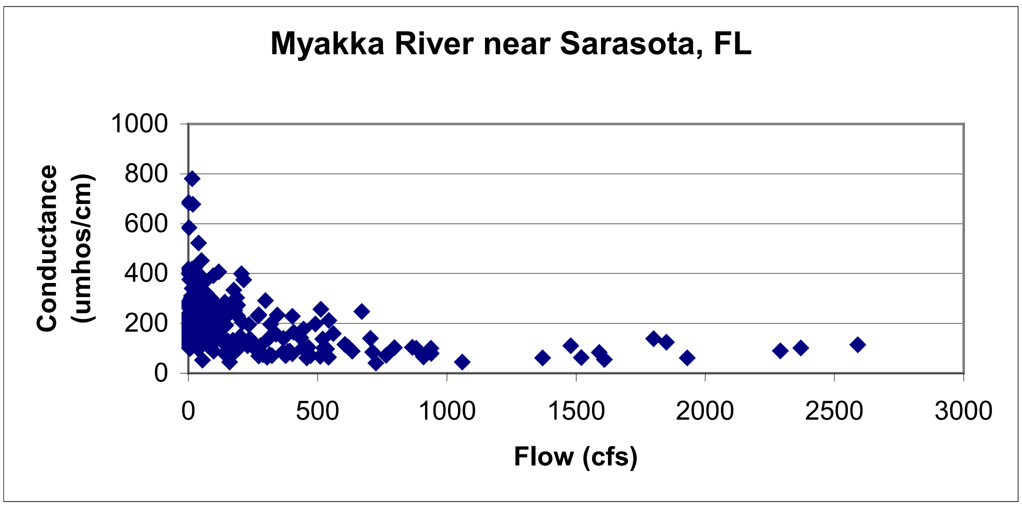

South Prong of Alafia River, FL
Sulfate (mg/l SO4)
150
100
50
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10


South Prong of Alafia River, FL
Sulfate (mg/l SO4)
160
140
120
100
80
60
40
20
0
0
50
100
150
200
250
300
Flow (cfs)

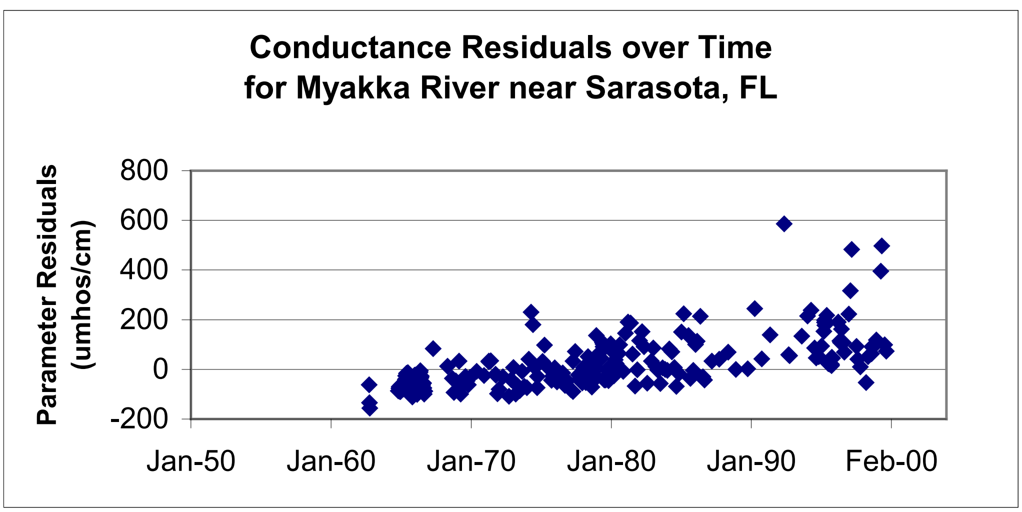

Sulfate Residuals over Time
for South Prong of Alafia River
Parameter Residuals (mg/l)
80
60
40
20
0
-20
-40
-60
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00



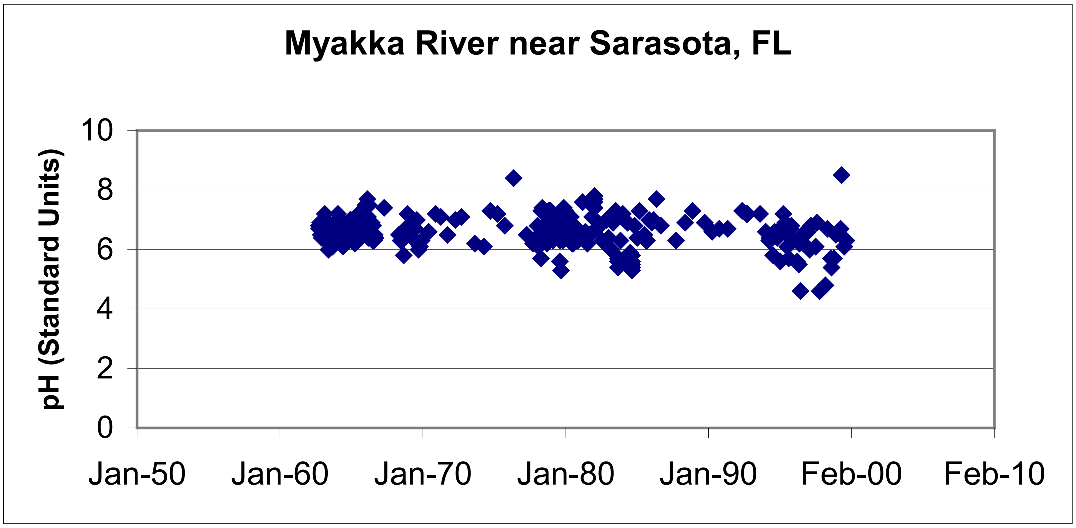
Myakka River near Sarasota, FL
Conductance (umhos/cm)
1000
800
600
400
200
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

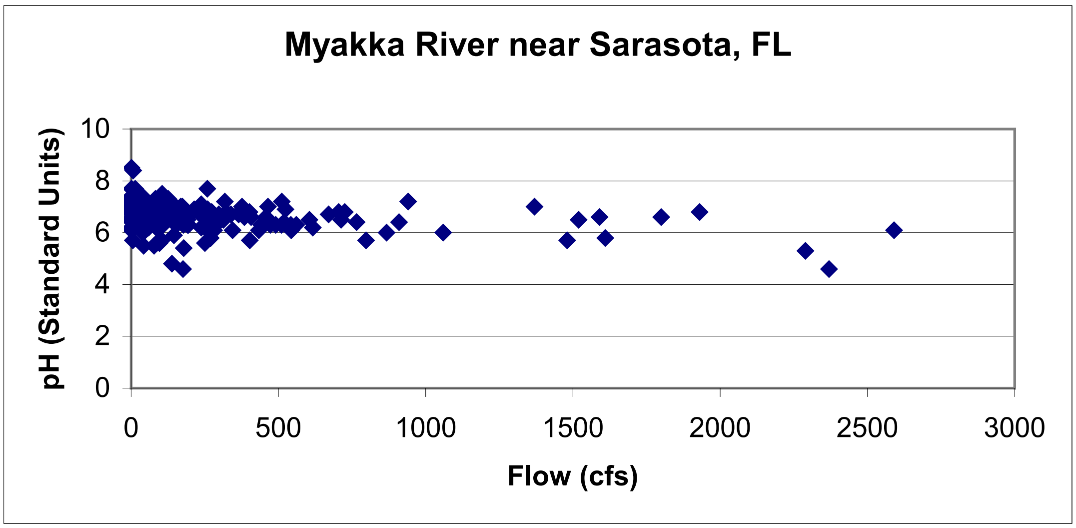


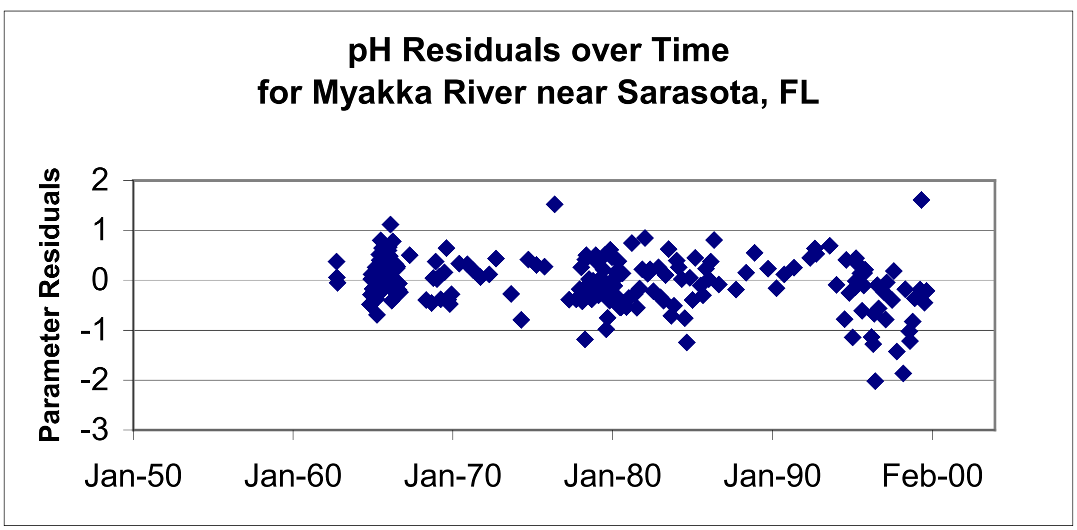
Myakka River near Sarasota, FL
Conductance (umhos/cm)
1000
800
600
400
200
0
0
500
1000
1500
2000
2500
3000
Flow (cfs)

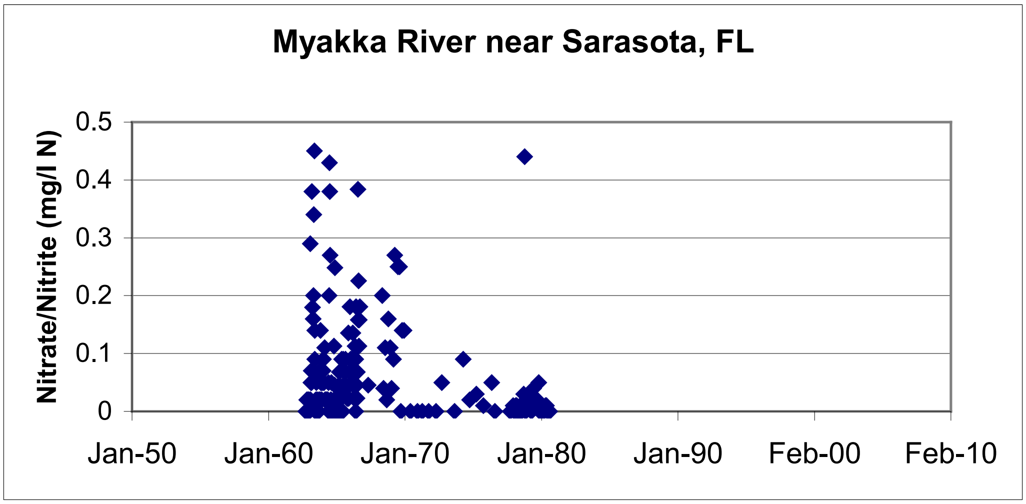


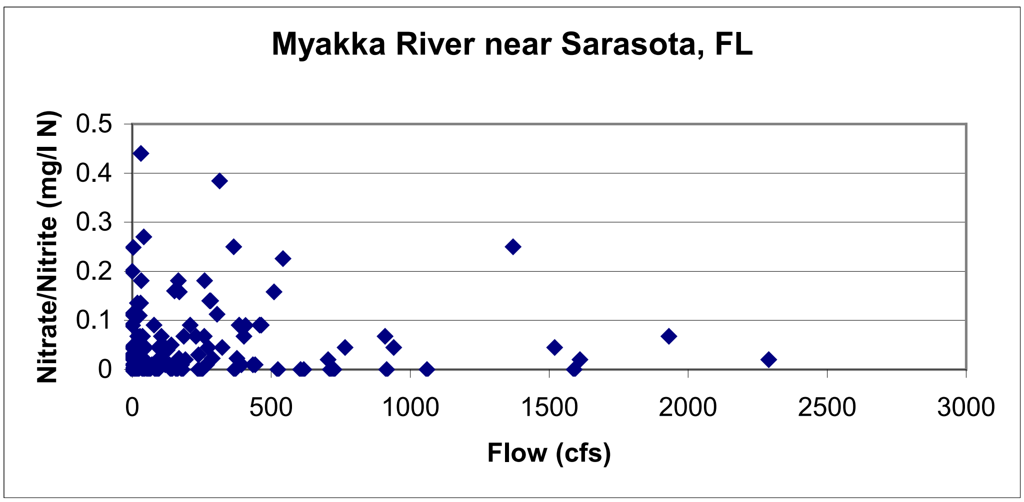
Conductance Residuals over Time
for Myakka River near Sarasota, FL
Parameter Residuals (umhos/cm)
800
600
400
200
0
-200
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

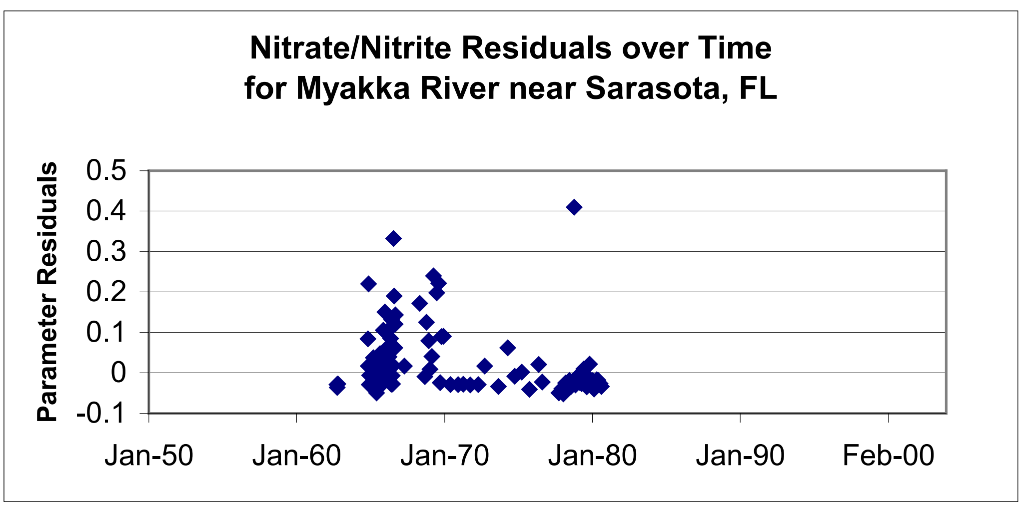

Myakka River near Sarasota, FL
pH (Standard Units)
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

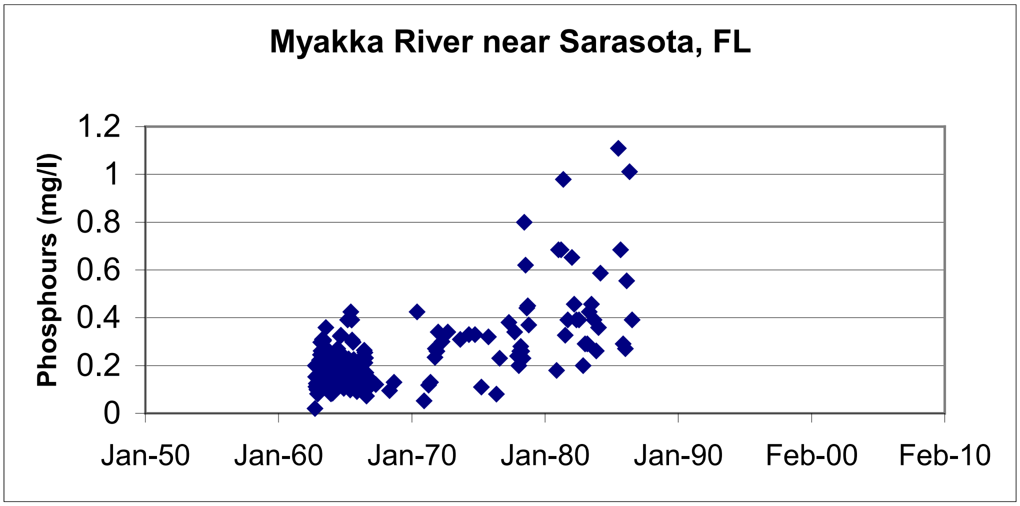

Myakka River near Sarasota, FL
pH (Standard Units)
10
8
6
4
2
0
0
500
1000
1500
2000
2500
3000
Flow (cfs)

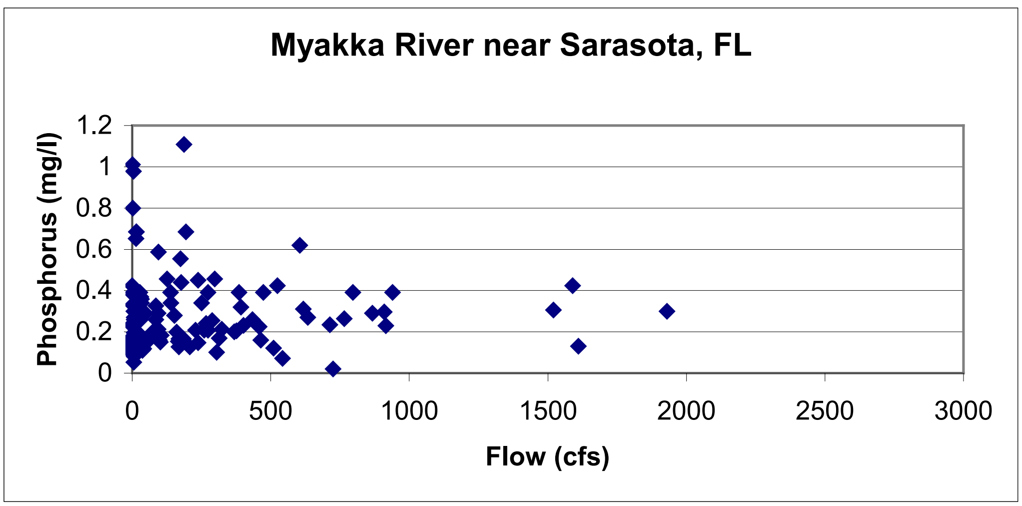

pH Residuals over Time
for Myakka River near Sarasota, FL
Parameter Residuals
2
1
0
-1
-2
-3
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

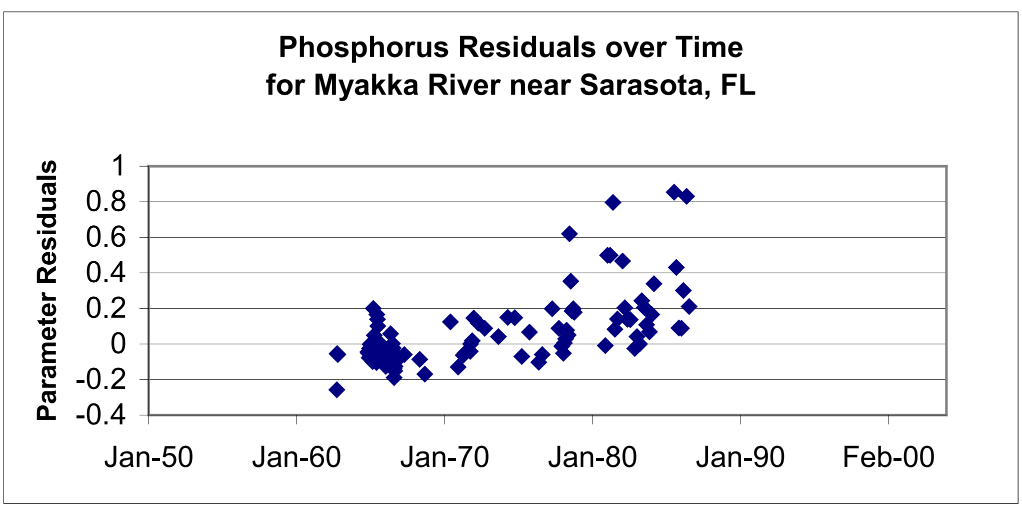

Myakka River near Sarasota, FL
Nitrate/Nitrite (mg/l N)
0.5
0.4
0.3
0.2
0.1
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

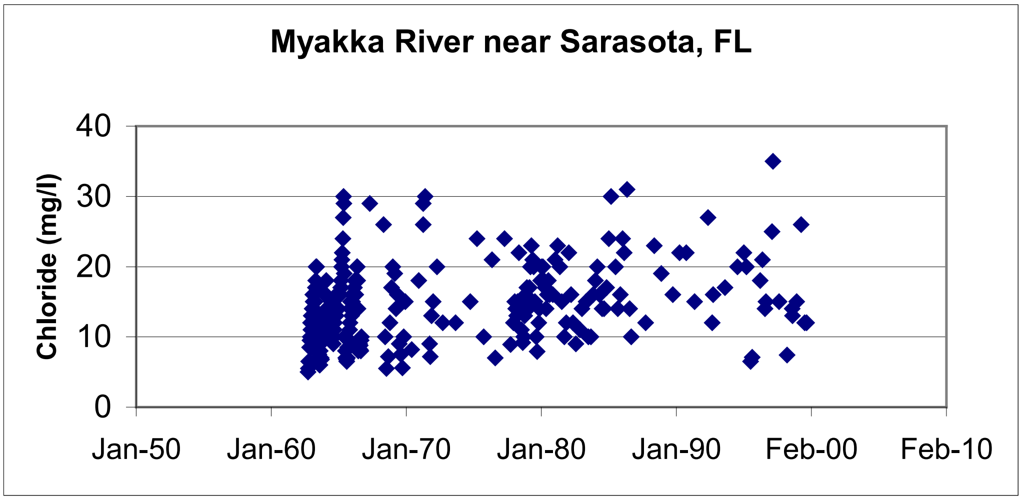

Myakka River near Sarasota, FL
Nitrate/Nitrite (mg/l N)
0.5
0.4
0.3
0.2
0.1
0
0
500
1000
1500
2000
2500
3000
Flow (cfs)

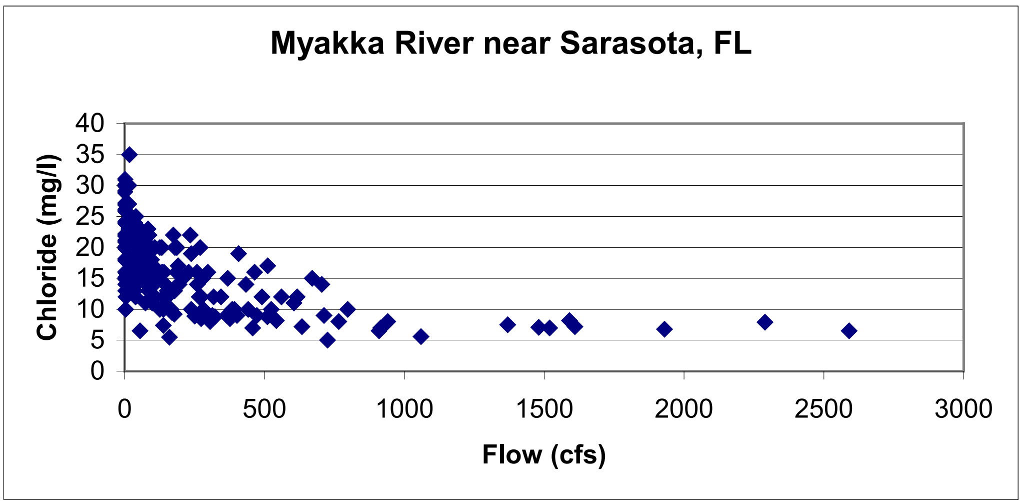

Nitrate/Nitrite Residuals over Time
for Myakka River near Sarasota, FL
Parameter Residuals
0.5
0.4
0.3
0.2
0.1
0
-0.1
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

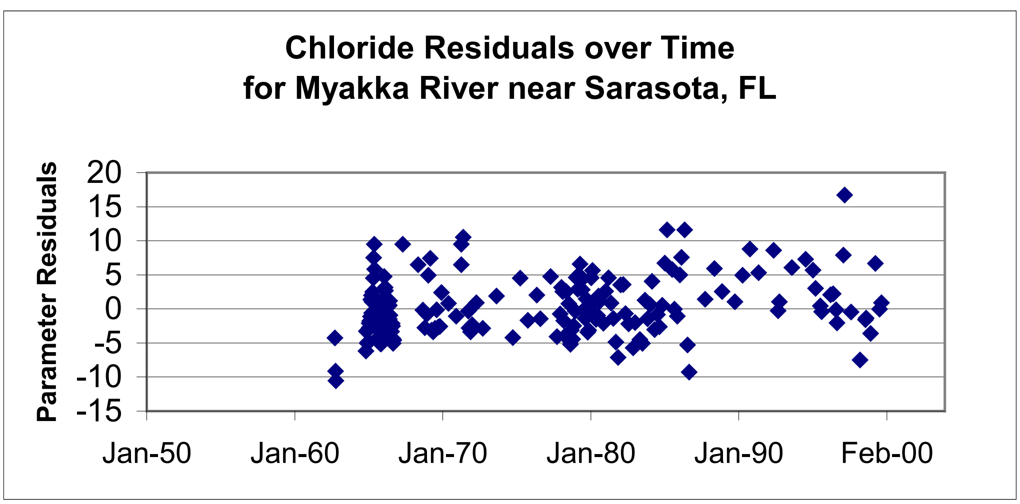

Myakka River near Sarasota, FL
Phosphours (mg/l)
1.2
1
0.8
0.6
0.4
0.2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

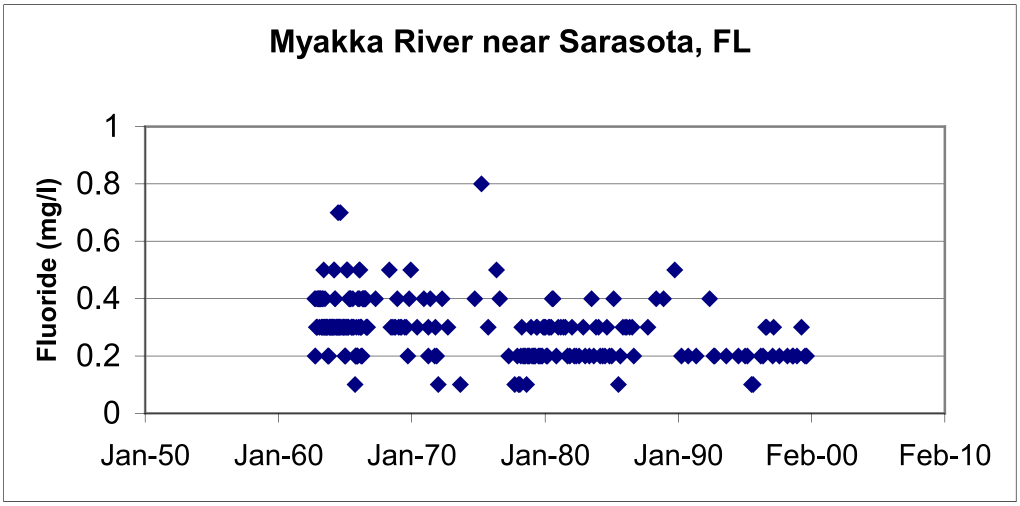

Myakka River near Sarasota, FL
Phosphorus (mg/l)
1.2
1
0.8
0.6
0.4
0.2
0
0
500
1000
1500
2000
2500
3000
Flow (cfs)

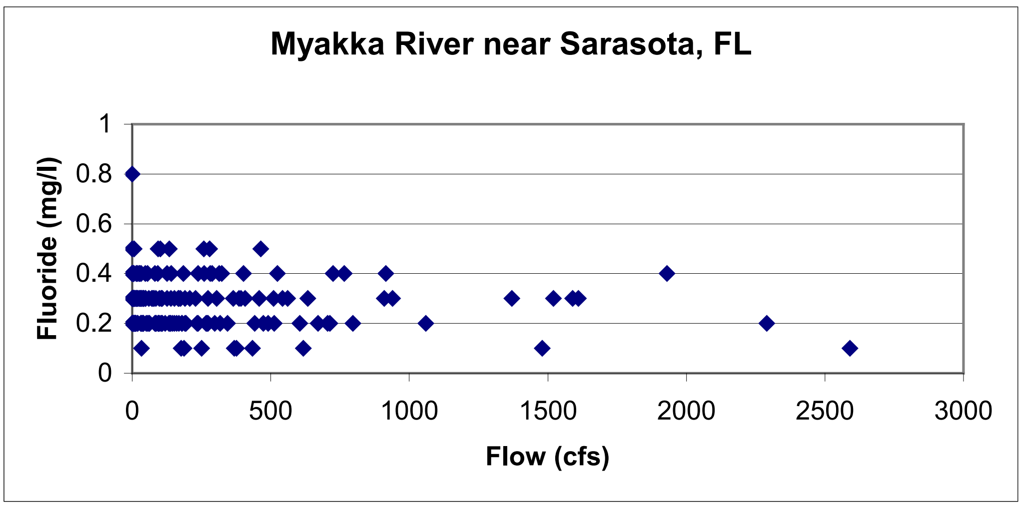

Phosphorus Residuals over Time
for Myakka River near Sarasota, FL
Parameter Residuals
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

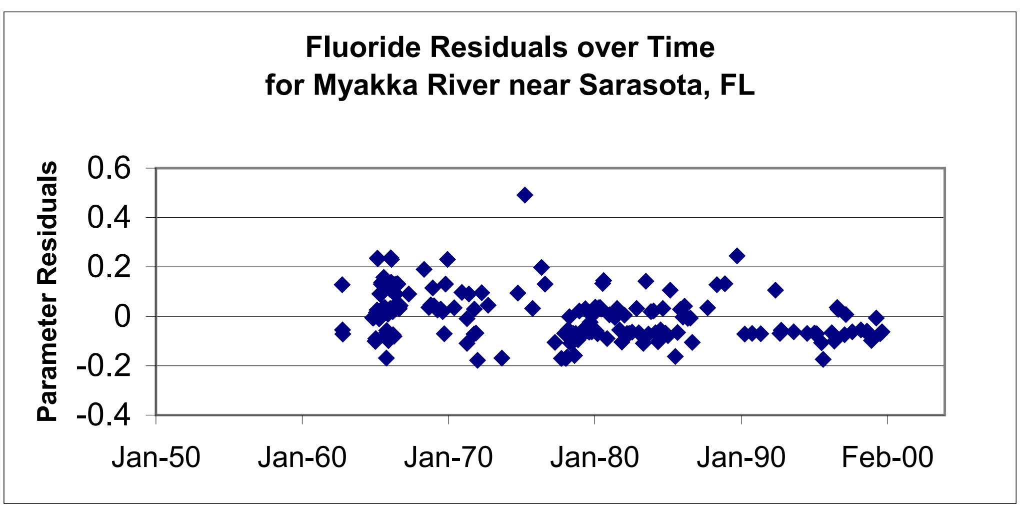

Myakka River near Sarasota, FL
Chloride (mg/l)
40
30
20
10
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

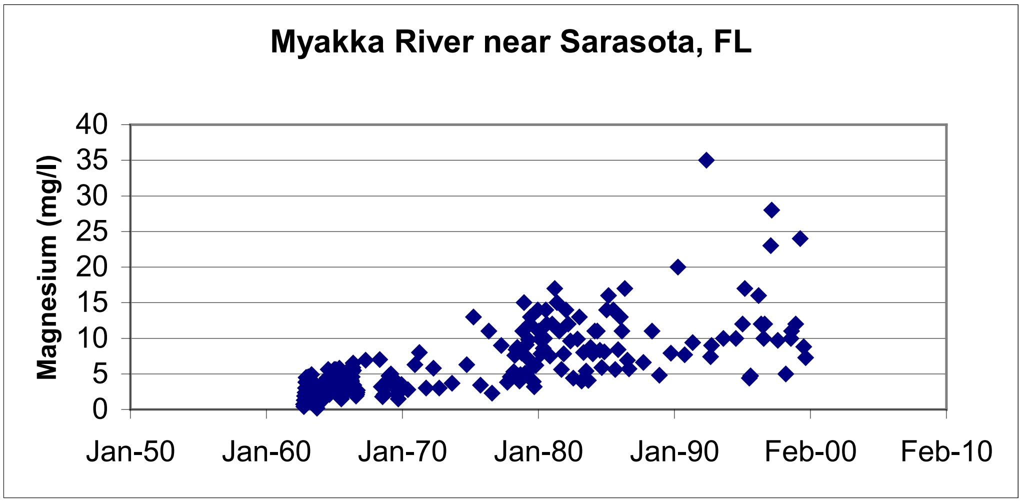

Myakka River near Sarasota, FL
Chloride (mg/l)
40
35
30
25
20
15
10
5
0
0
500
1000
1500
2000
2500
3000
Flow (cfs)

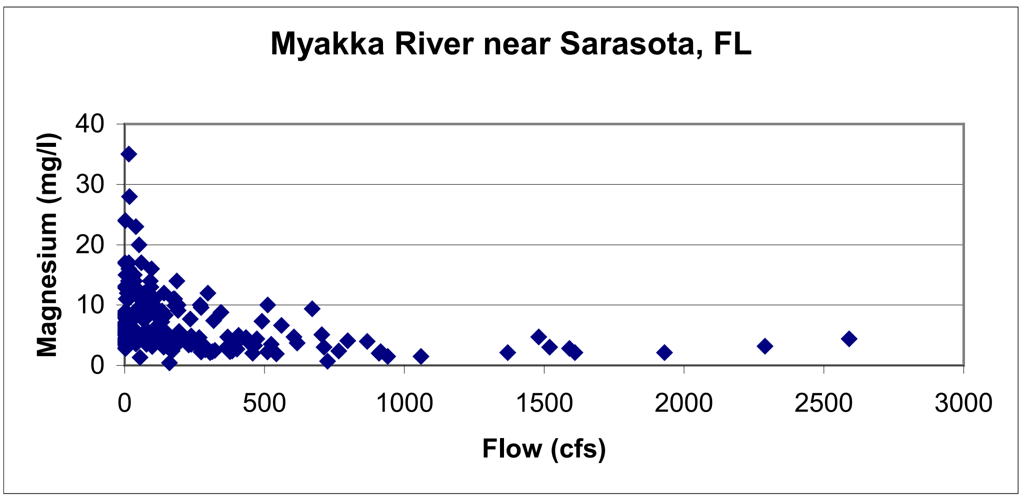

Chloride Residuals over Time
for Myakka River near Sarasota, FL
Parameter Residuals
20
15
10
5
0
-5
-10
-15
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

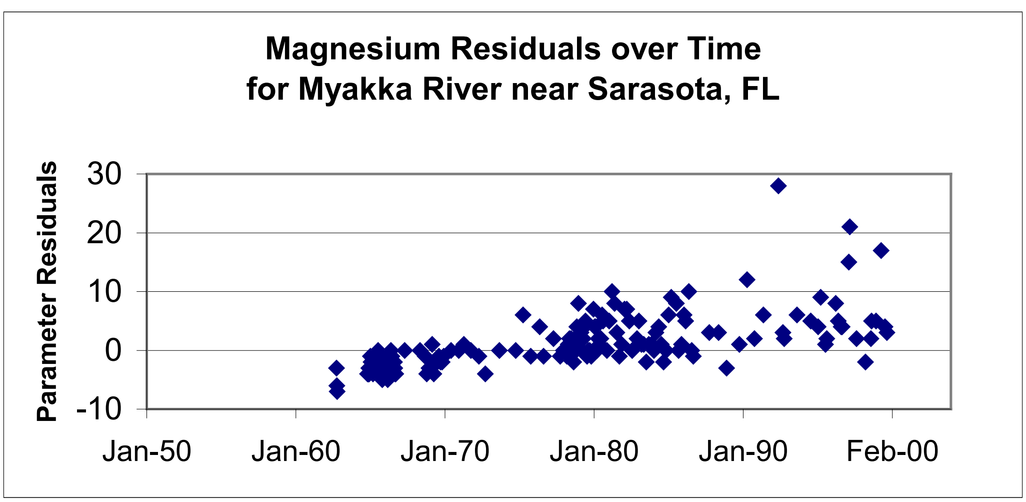

Myakka River near Sarasota, FL
Fluoride (mg/l)
1
0.8
0.6
0.4
0.2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

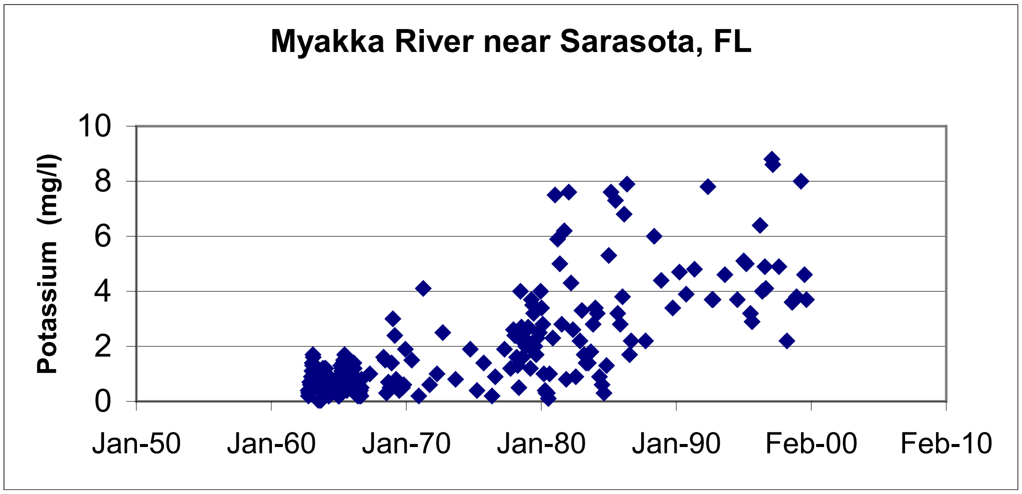

Myakka River near Sarasota, FL
Fluoride (mg/l)
1
0.8
0.6
0.4
0.2
0
0
500
1000
1500
2000
2500
3000
Flow (cfs)

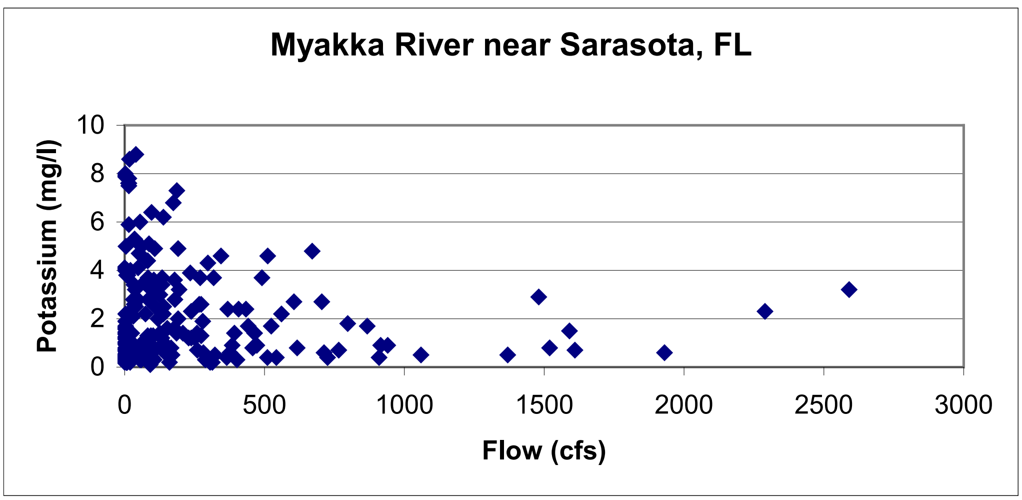

Fluoride Residuals over Time
for Myakka River near Sarasota, FL
Parameter Residuals
0.6
0.4
0.2
0
-0.2
-0.4
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

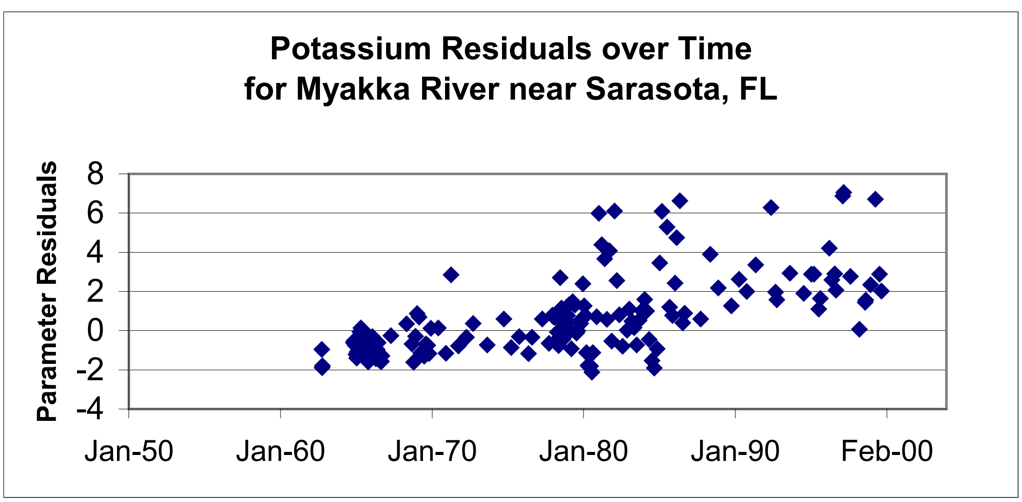

Myakka River near Sarasota, FL
Magnesium (mg/l)
40
35
30
25
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

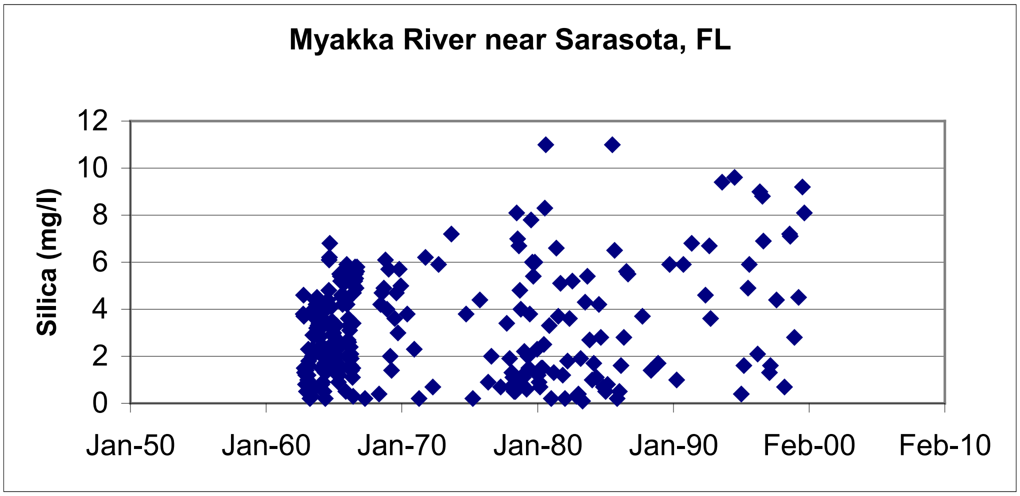

Myakka River near Sarasota, FL
Magnesium (mg/l)
40
30
20
10
0
0
500
1000
1500
2000
2500
3000
Flow (cfs)

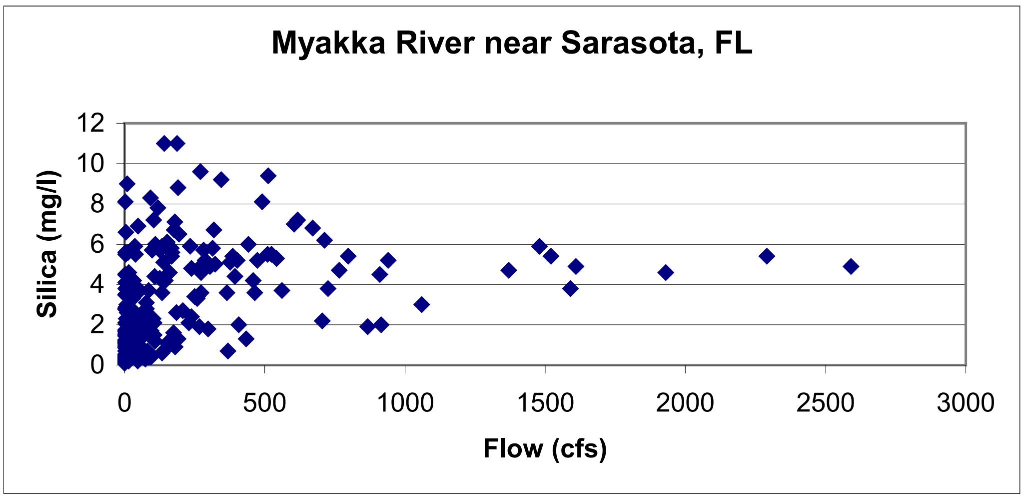

Magnesium Residuals over Time
for Myakka River near Sarasota, FL
Parameter Residuals
30
20
10
0
-10
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

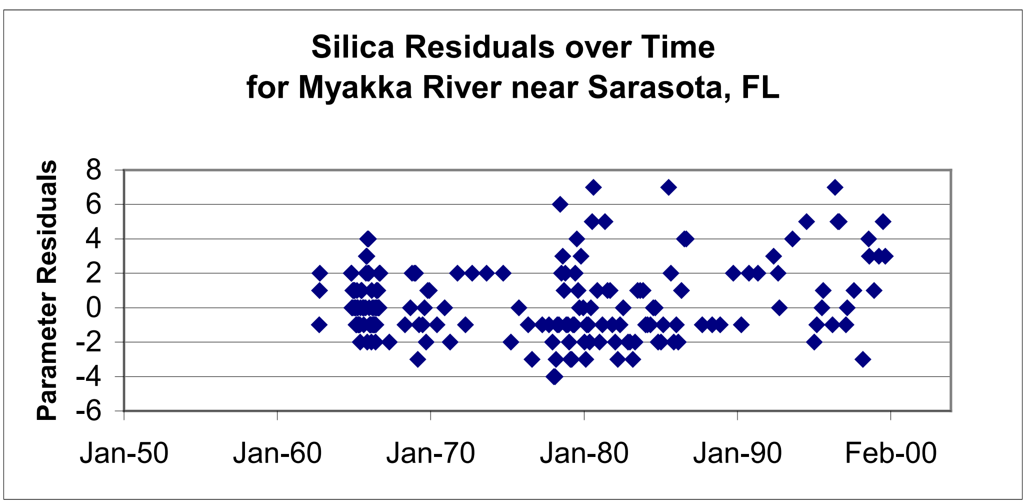

Myakka River near Sarasota, FL
Potassium (mg/l)
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

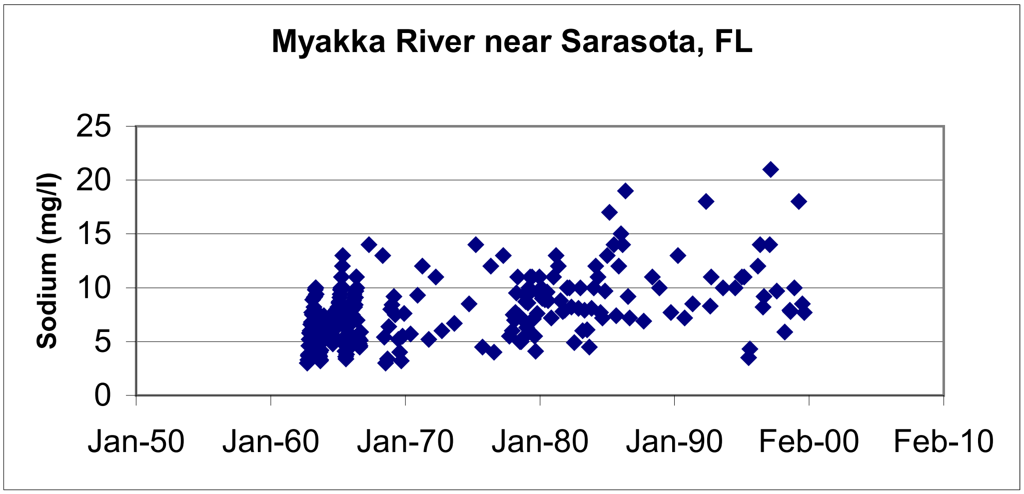

Myakka River near Sarasota, FL
Potassium (mg/l)
10
8
6
4
2
0
0
500
1000
1500
2000
2500
3000
Flow (cfs)

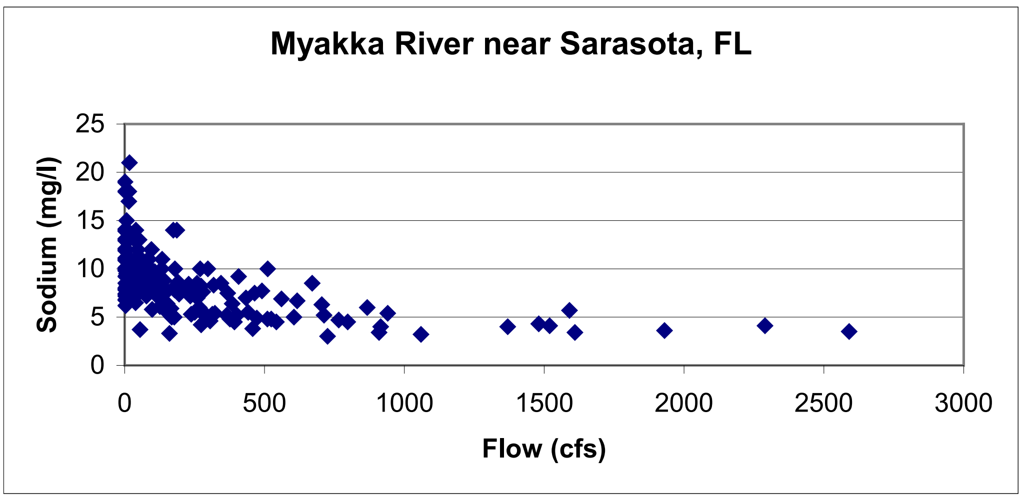

Potassium Residuals over Time
for Myakka River near Sarasota, FL
Parameter Residuals
8
6
4
2
0
-2
-4
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

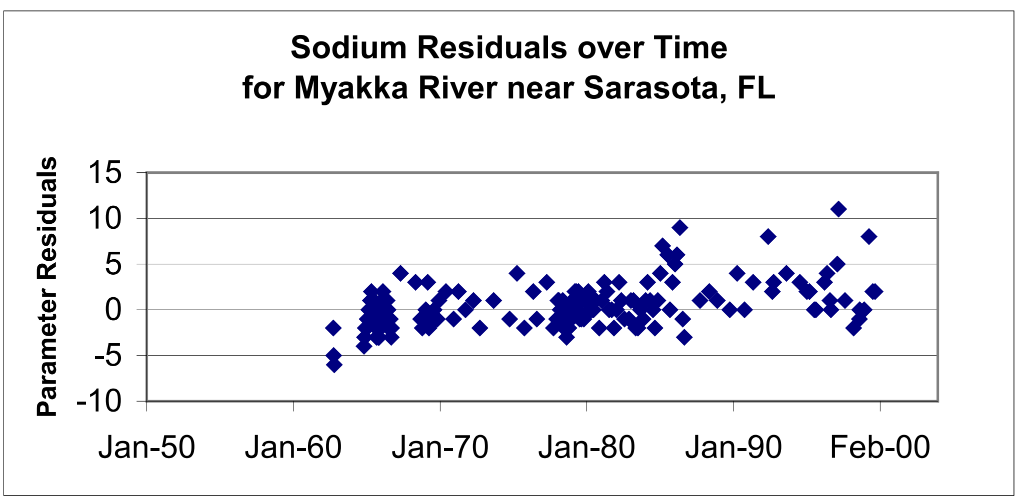

Myakka River near Sarasota, FL
Silica (mg/l)
12
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

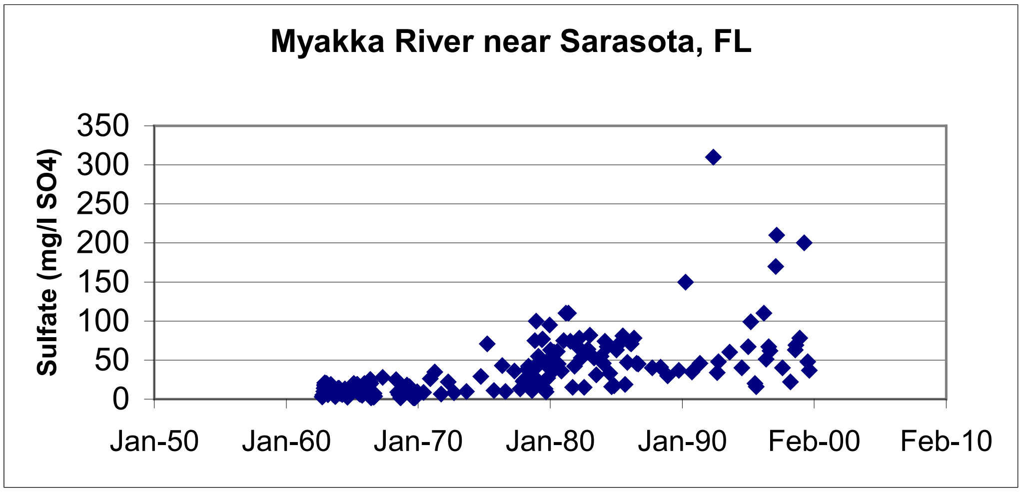

Myakka River near Sarasota, FL
Silica (mg/l)
12
10
8
6
4
2
0
0
500
1000
1500
2000
2500
3000
Flow (cfs)

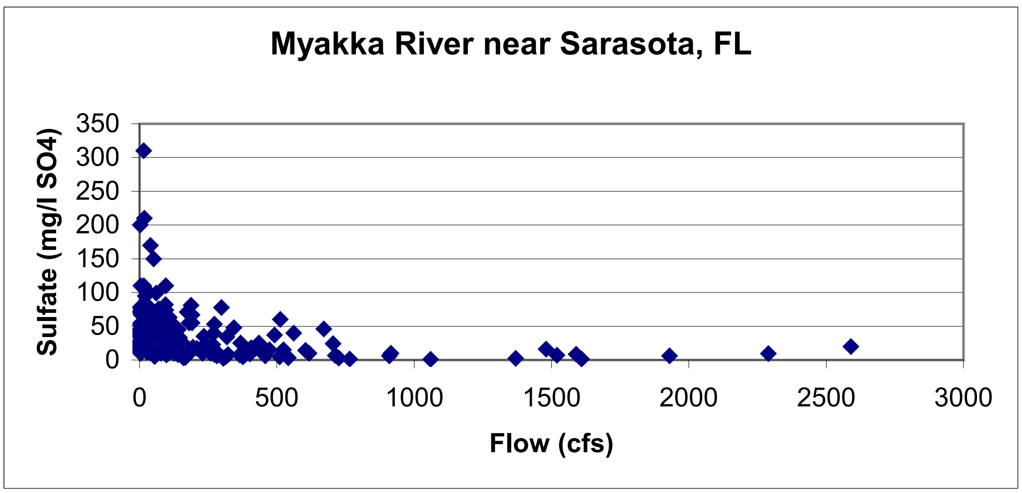

Silica Residuals over Time
for Myakka River near Sarasota, FL
Parameter Residuals
8
6
4
2
0
-2
-4
-6
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

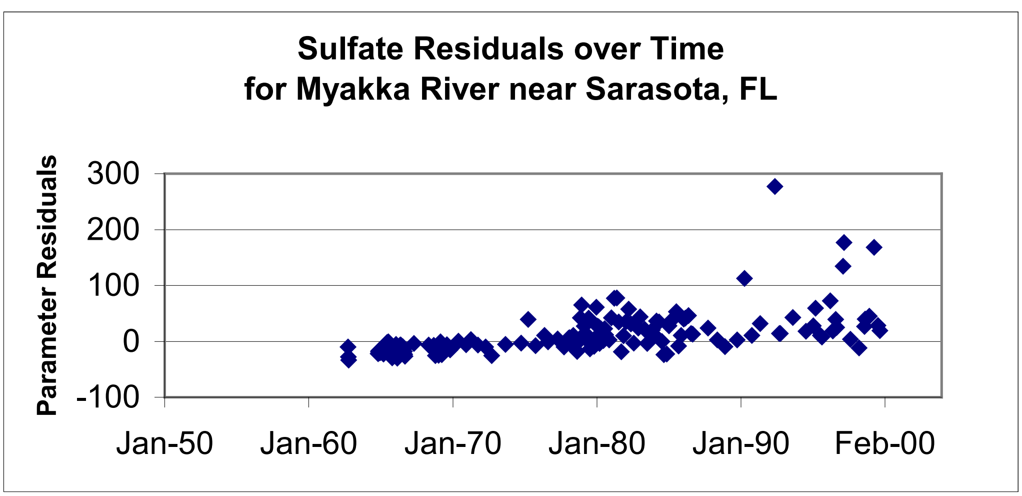

Myakka River near Sarasota, FL
Sodium (mg/l)
25
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

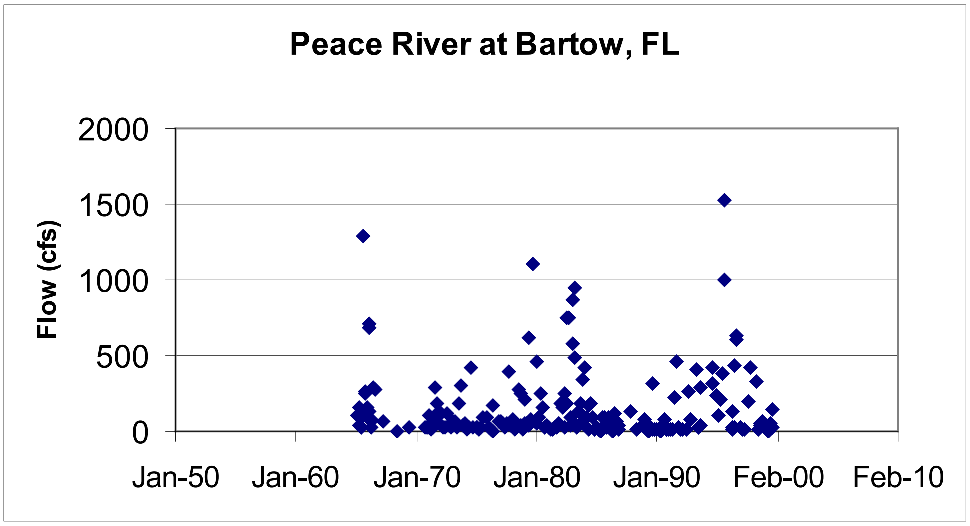

Myakka River near Sarasota, FL
Sodium (mg/l)
25
20
15
10
5
0
0
500
1000
1500
2000
2500
3000
Flow (cfs)

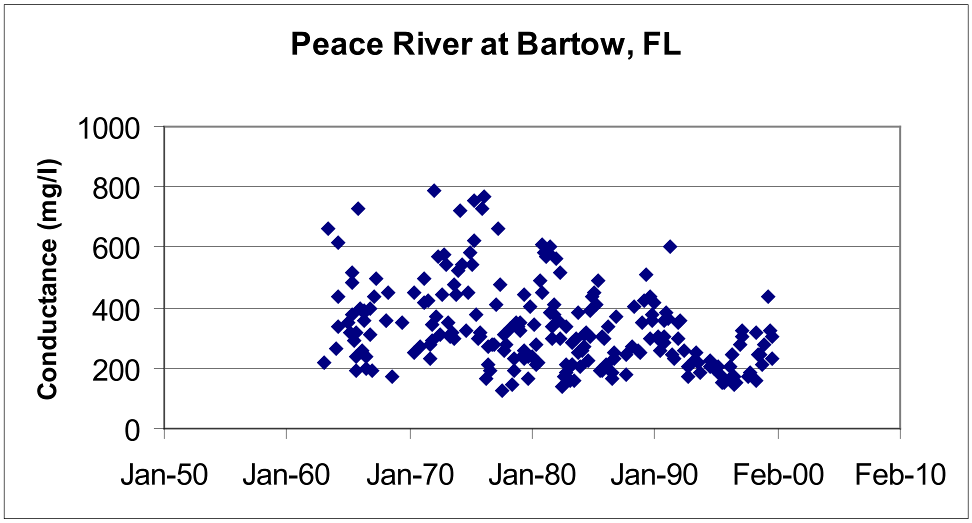

Sodium Residuals over Time
for Myakka River near Sarasota, FL
Parameter Residuals
15
10
5
0
-5
-10
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

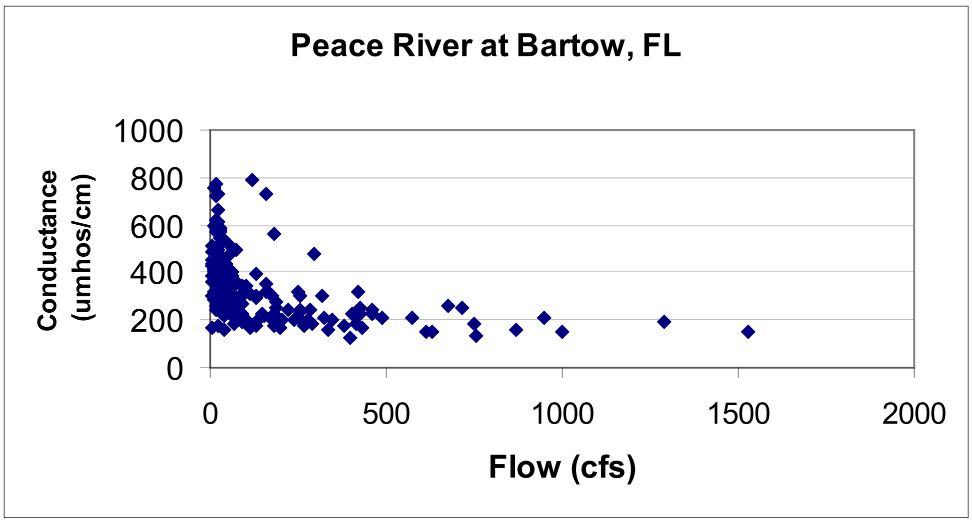

Myakka River near Sarasota, FL
Sulfate (mg/l SO4)
350
300
250
200
150
100
50
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

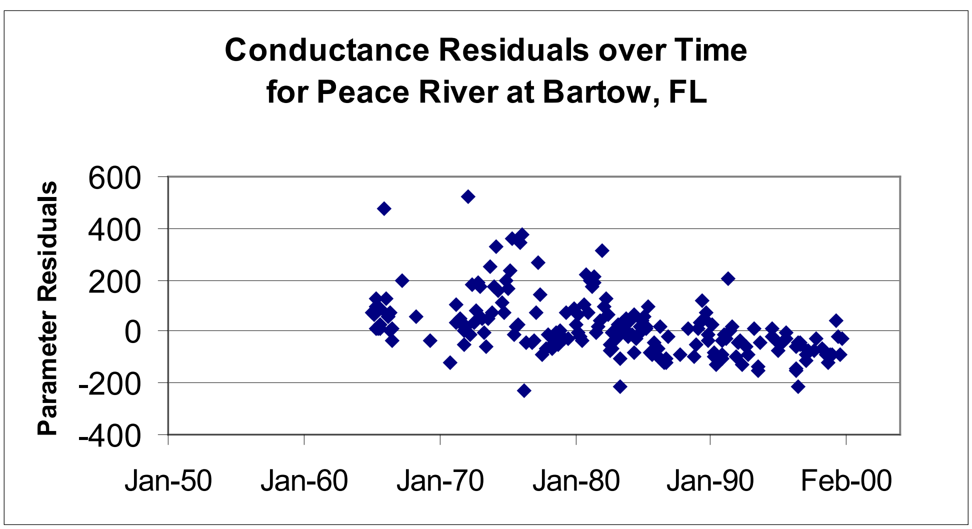

Myakka River near Sarasota, FL
Sulfate (mg/l SO4)
350
300
250
200
150
100
50
0
0
500
1000
1500
2000
2500
3000
Flow (cfs)

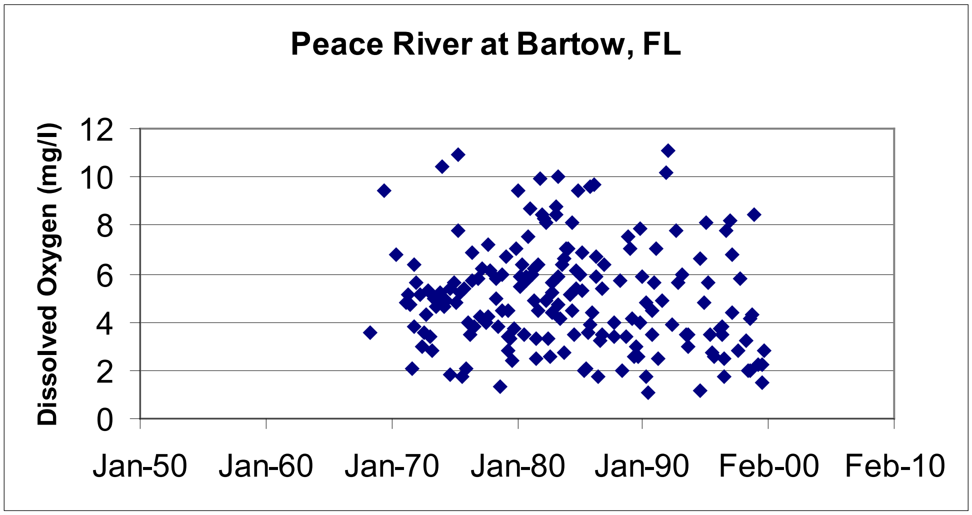

Sulfate Residuals over Time
for Myakka River near Sarasota, FL
Parameter Residuals
300
200
100
0
-100
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

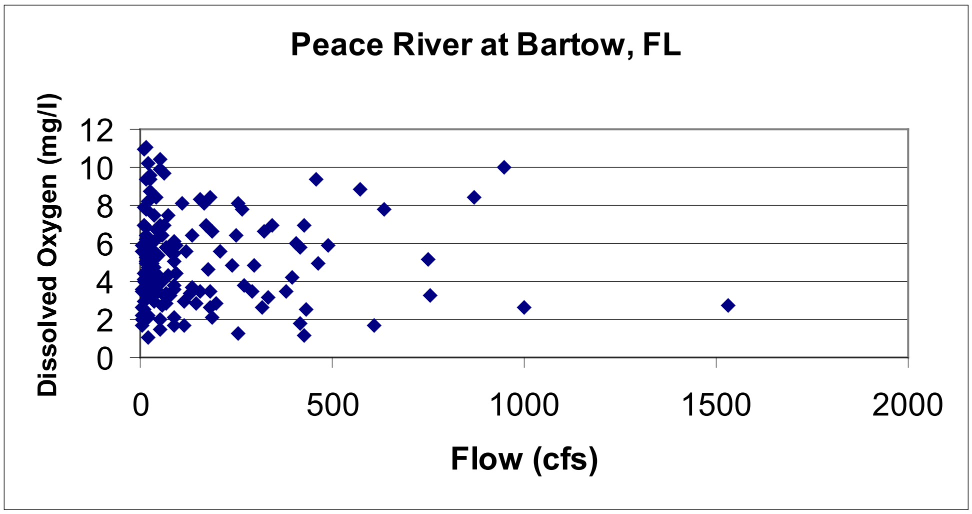

Peace River at Bartow, FL
Flow (cfs)
2000
1500
1000
500
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

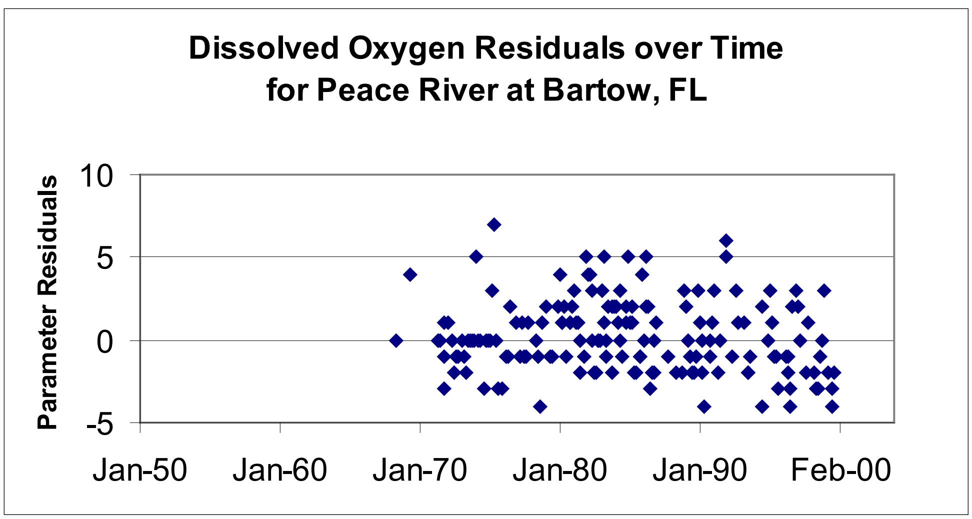

Peace River at Bartow, FL
Conductance (mg/l)
1000
800
600
400
200
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

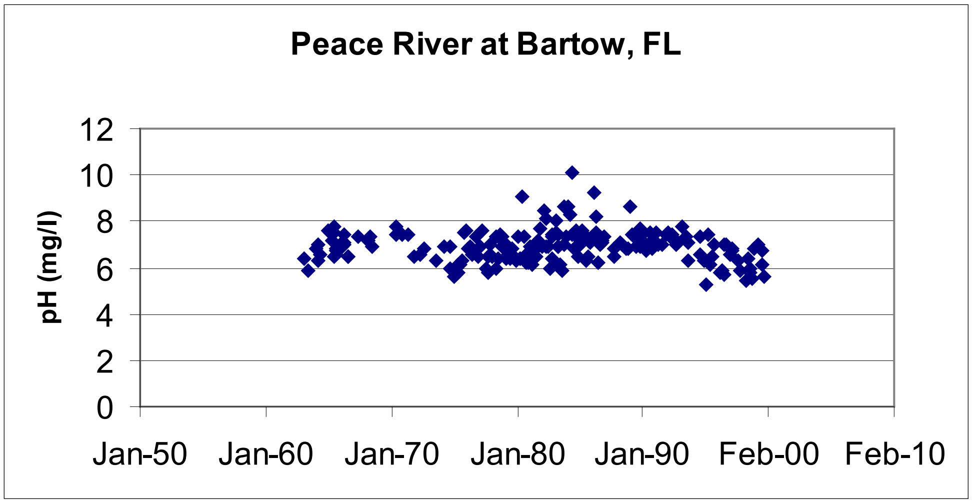

Peace River at Bartow, FL
Conductance (umhos/cm)
1000
800
600
400
200
0
0
500
1000
1500
2000
Flow (cfs)

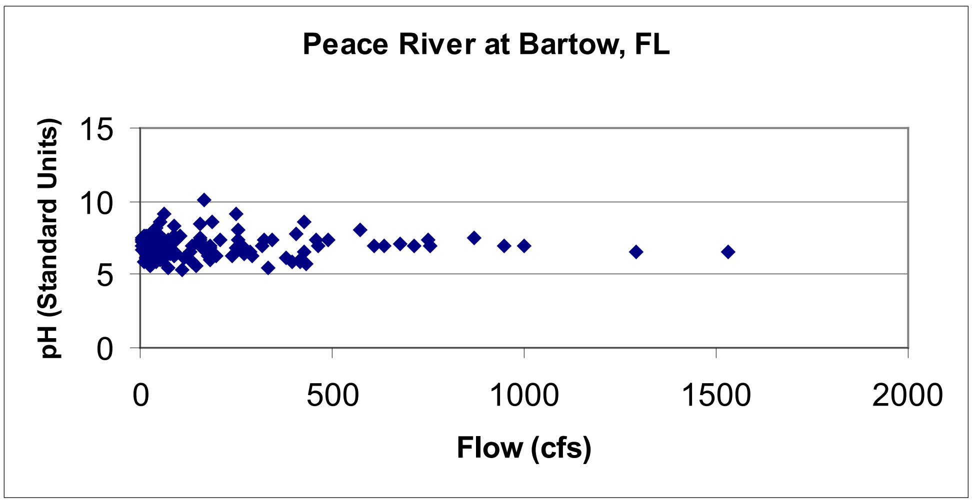

Conductance Residuals over Time for Peace River at Bartow, FL
Parameter Residuals
600
400
200
0
-200
-400
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

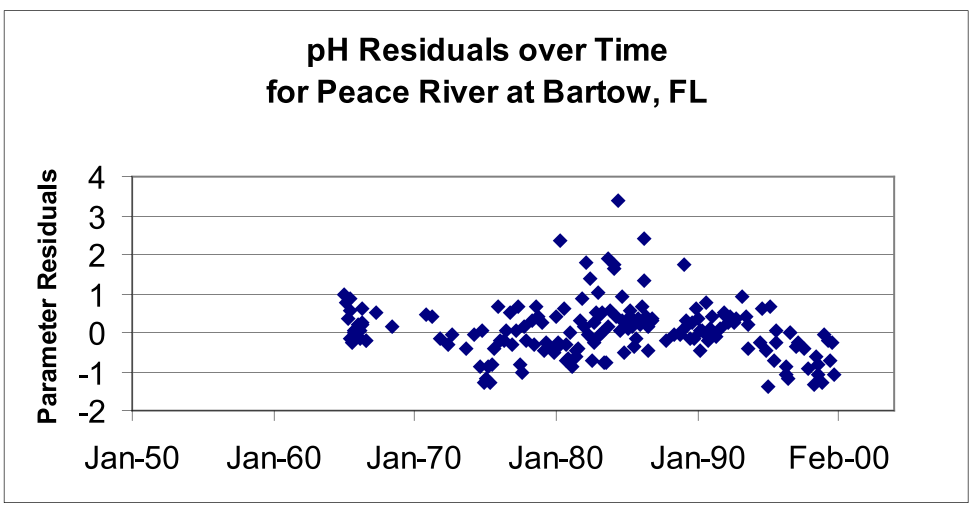

Peace River at Bartow, FL
Dissolved Oxygen (mg/l)
12
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

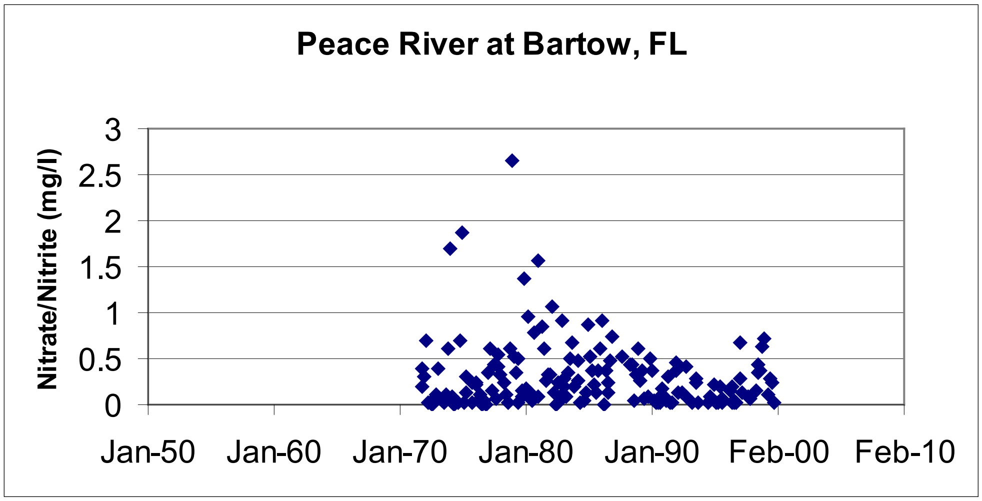

Peace River at Bartow, FL
Dissolved Oxygen (mg/l)
12
10
8
6
4
2
0
0
500
1000
1500
2000
Flow (cfs)

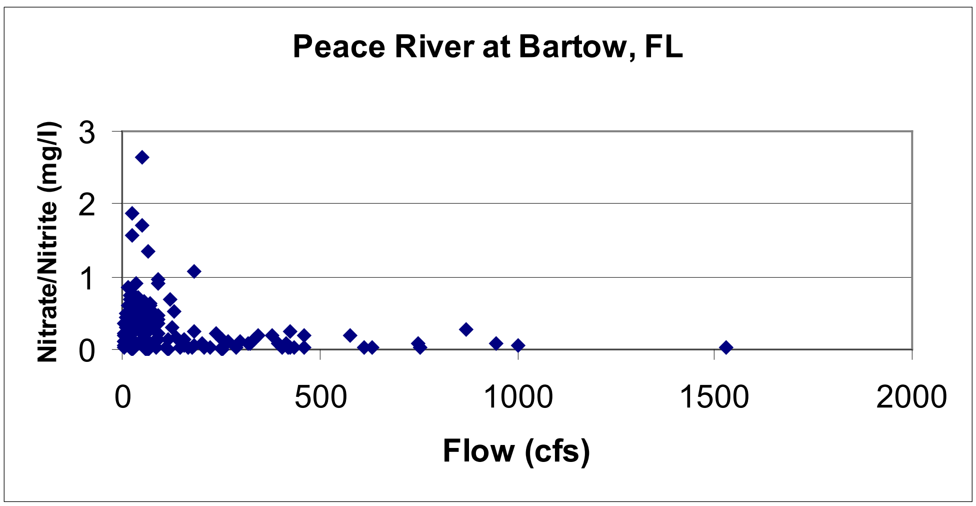

Dissolved Oxygen Residuals over Time
for Peace River at Bartow, FL
Parameter Residuals
10
5
0
-5
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

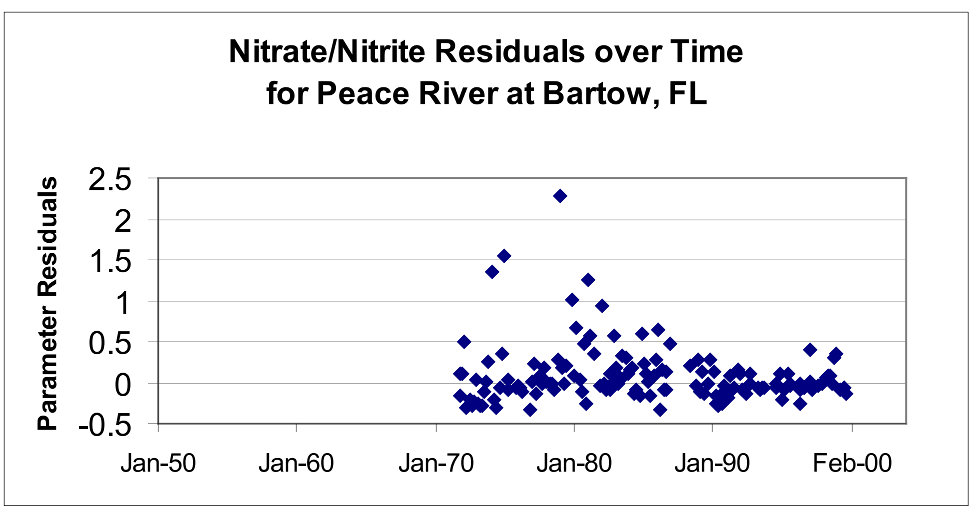

Peace River at Bartow, FL
pH (mg/l)
12
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

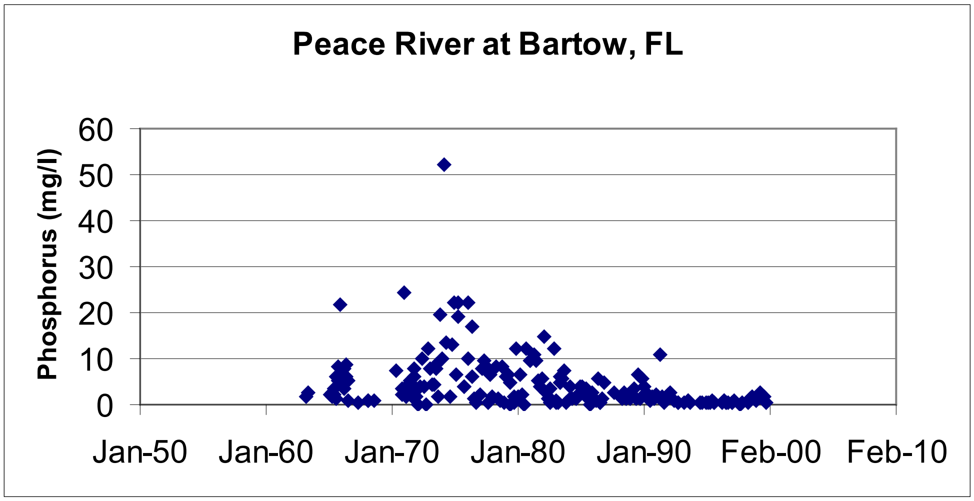

Peace River at Bartow, FL
pH (Standard Units)
15
10
5
0
0
500
1000
1500
2000
Flow (cfs)

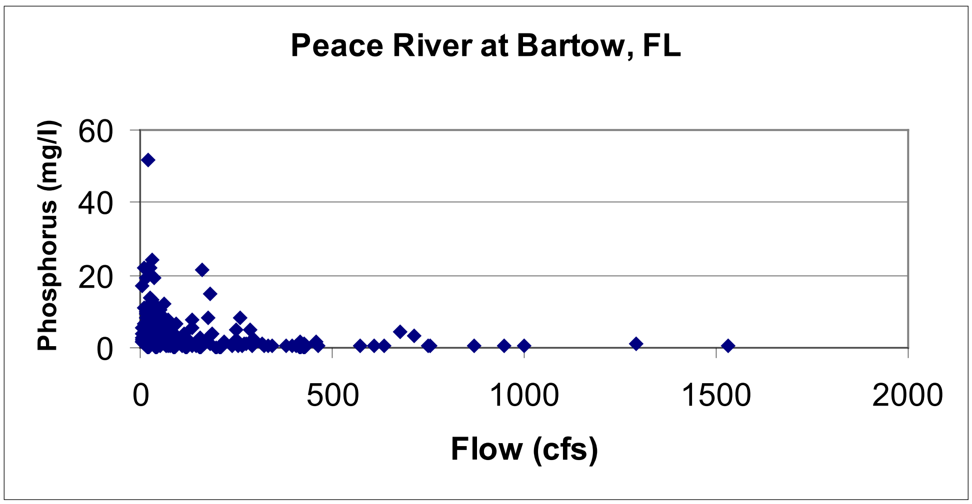

pH Residuals over Time
for Peace River at Bartow, FL
Parameter Residuals
4
3
2
1
0
-1
-2
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

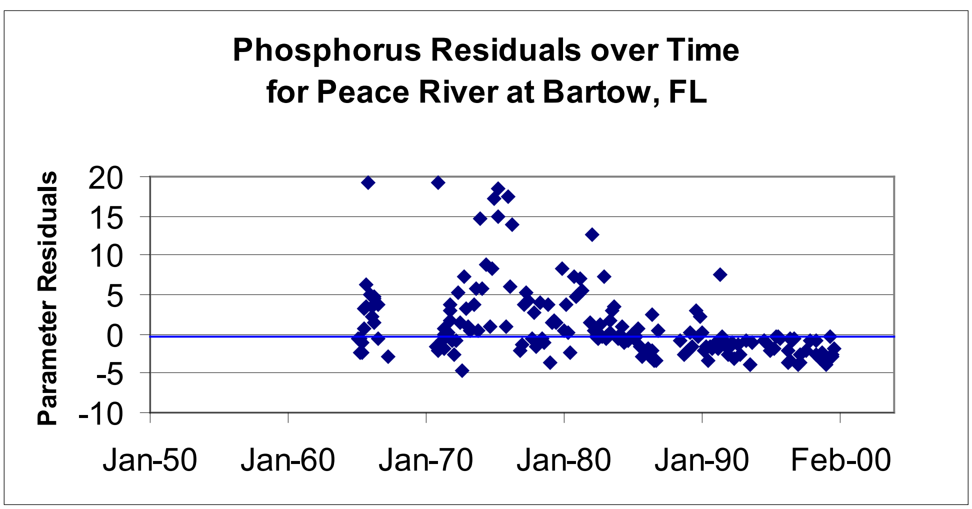

Peace River at Bartow, FL
Nitrate/Nitrite (mg/l)
3
2.5
2
1.5
1
0.5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

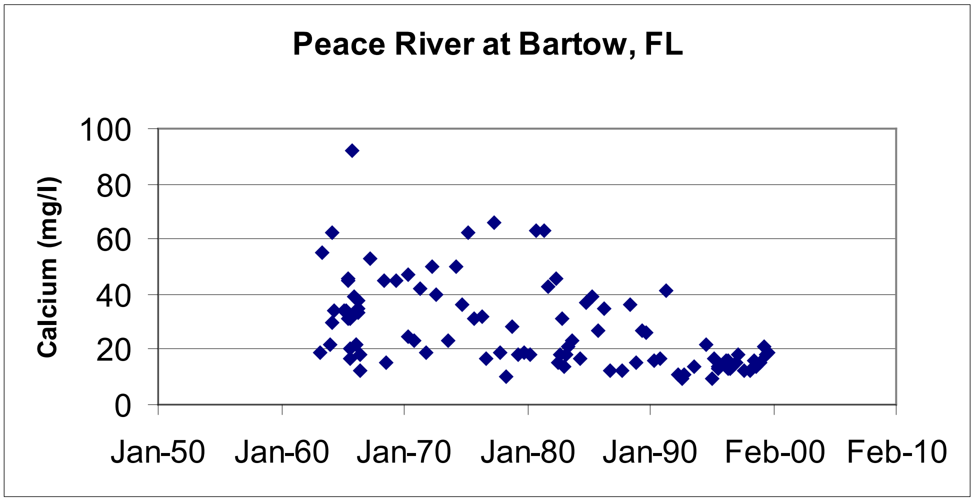

Peace River at Bartow, FL
Nitrate/Nitrite (mg/l)
3
2
1
0
0
500
1000
1500
2000
Flow (cfs)

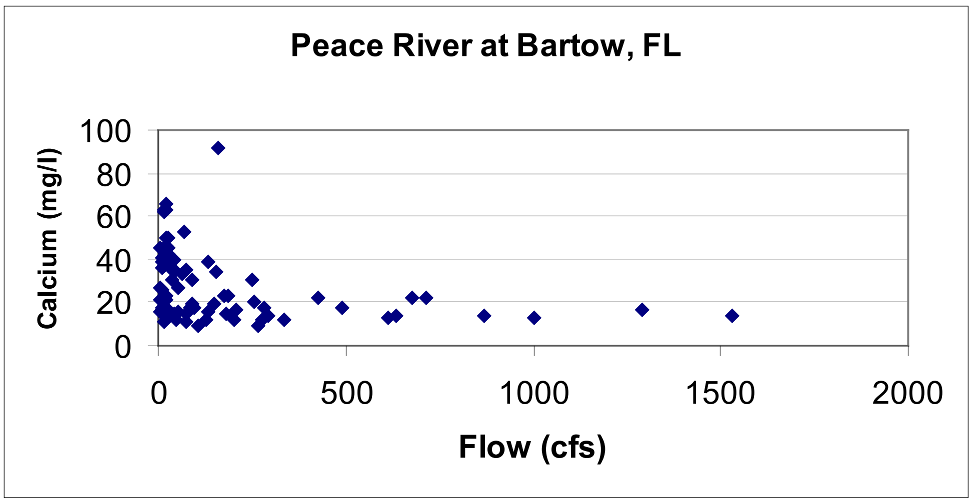

Nitrate/Nitrite Residuals over Time
for Peace River at Bartow, FL
Parameter Residuals
2.5
2
1.5
1
0.5
0
-0.5
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

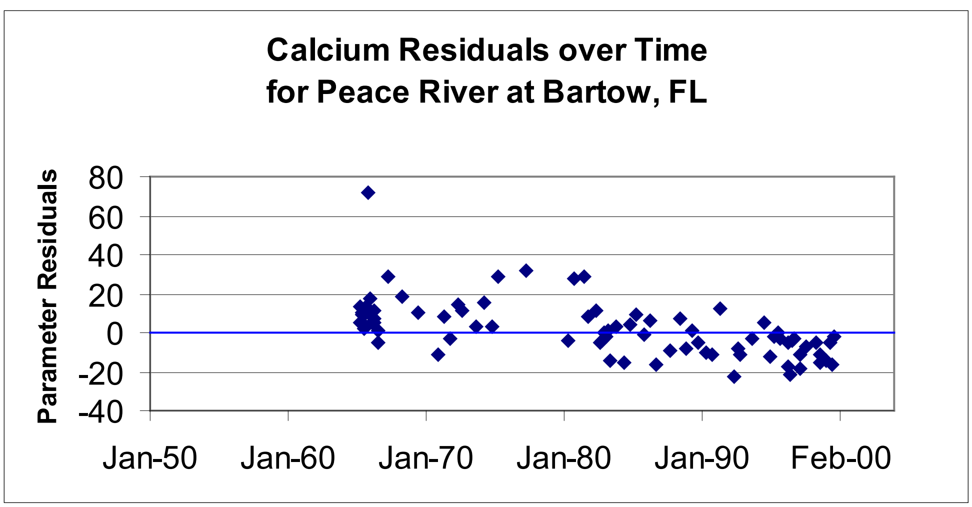

Peace River at Bartow, FL
Phosphorus (mg/l)
60
50
40
30
20
10
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

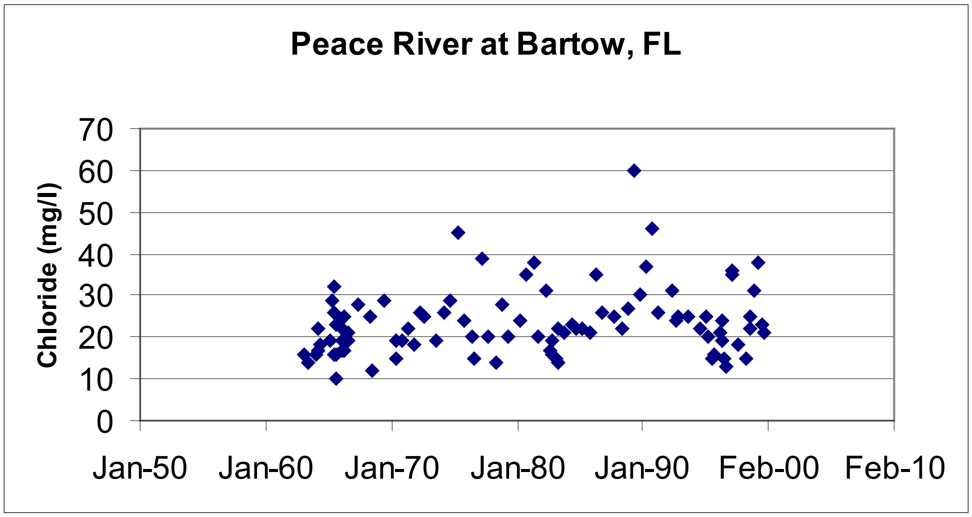

Peace River at Bartow, FL
Phosphorus (mg/l)
60
40
20
0
0
500
1000
1500
2000
Flow (cfs)

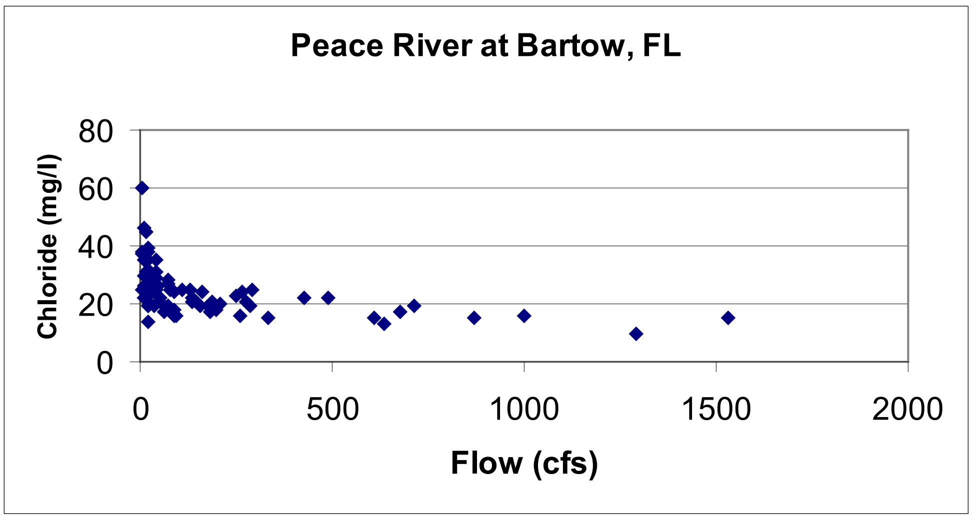

Phosphorus Residuals over Time
for Peace River at Bartow, FL
Parameter Residuals
20
15
10
5
0
-5
-10
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

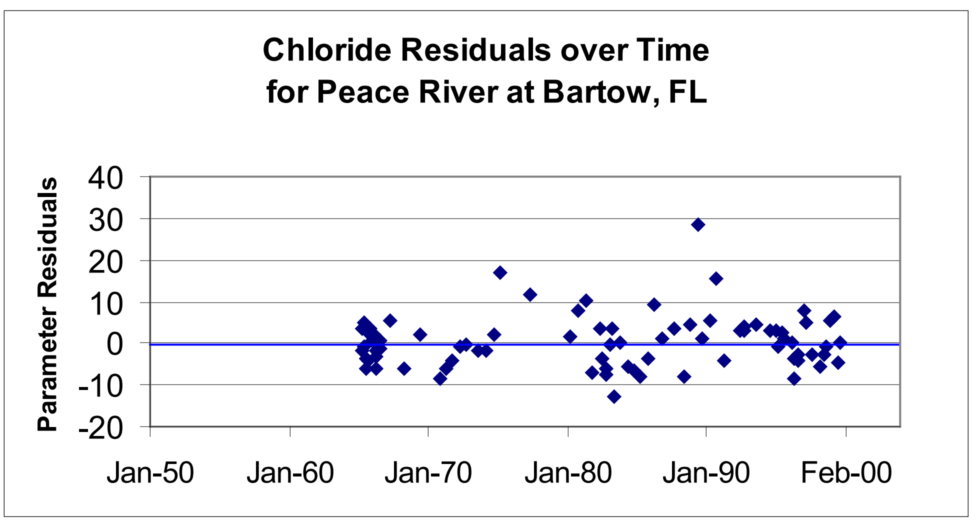

Peace River at Bartow, FL
Calcium (mg/l)
100
80
60
40
20
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10


Peace River at Bartow, FL
Calcium (mg/l)
100
80
60
40
20
0
0
500
1000
1500
2000
Flow (cfs)

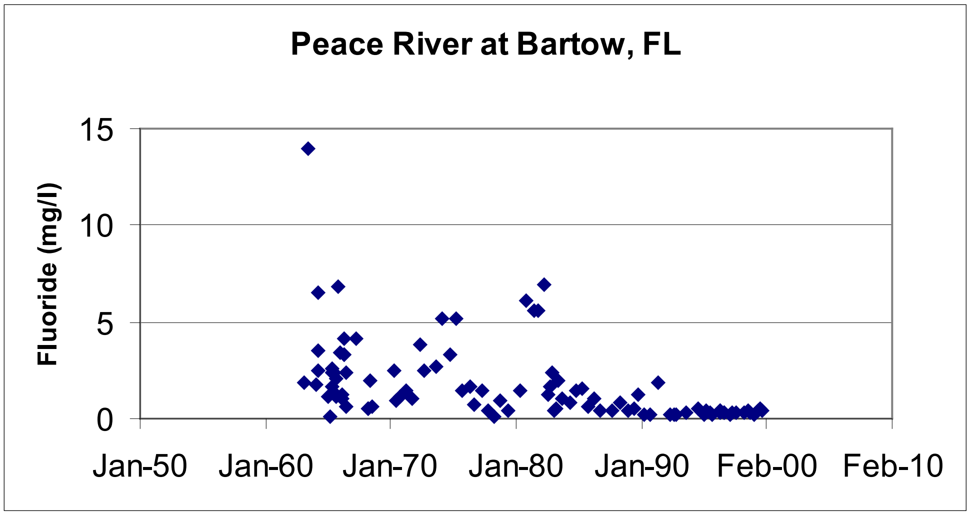

Calcium Residuals over Time
for Peace River at Bartow, FL
Parameter Residuals
80
60
40
20
0
-20
-40
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

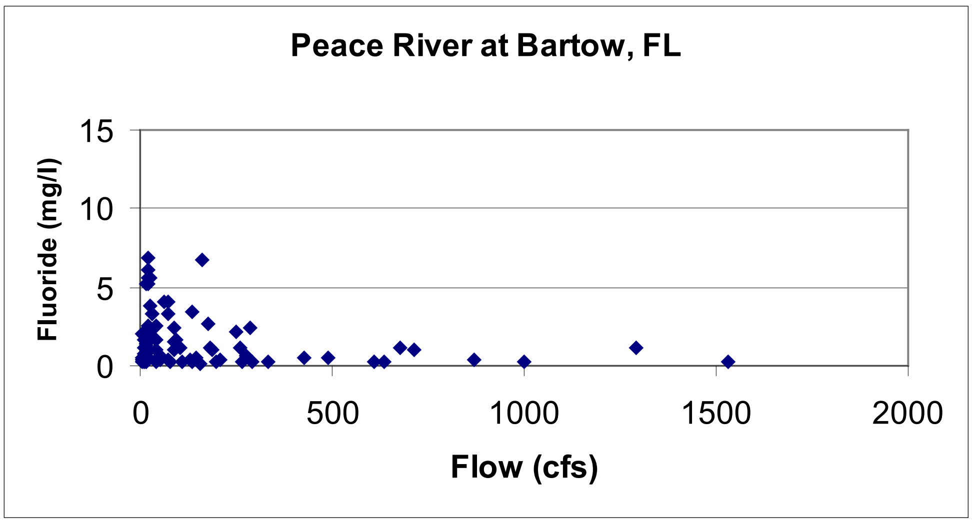

Peace River at Bartow, FL
Chloride (mg/l)
70
60
50
40
30
20
10
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

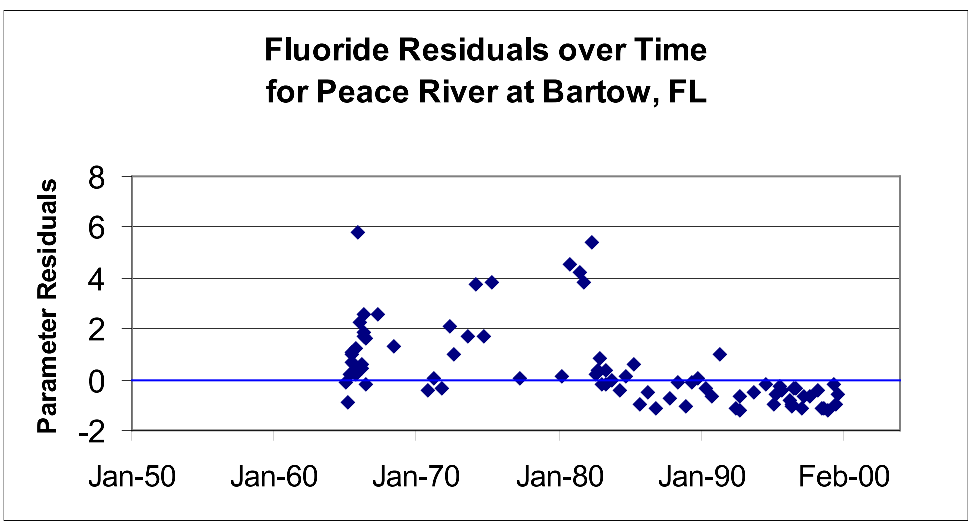

Peace River at Bartow, FL
Chloride (mg/l)
80
60
40
20
0
0
500
1000
1500
2000
Flow (cfs)

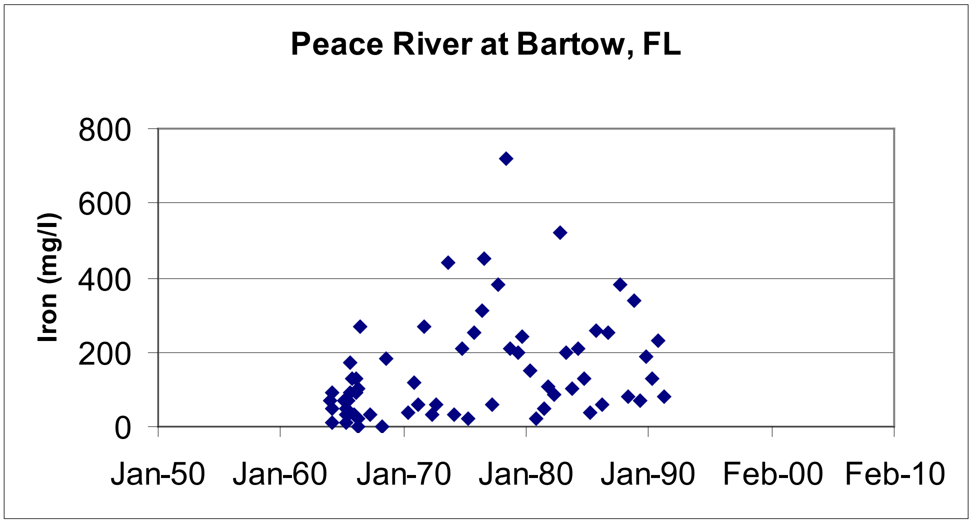

Chloride Residuals over Time
for Peace River at Bartow, FL
Parameter Residuals
40
30
20
10
0
-10
-20
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

0

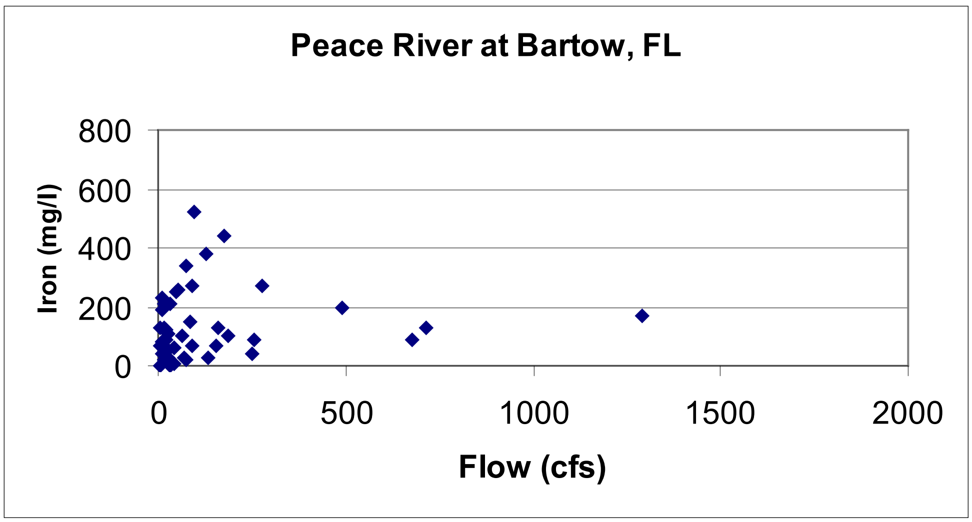

Peace River at Bartow, FL
Fluoride (mg/l)
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10


Peace River at Bartow, FL
Fluoride (mg/l)
15
10
5
0
0
500
1000
1500
2000
Flow (cfs)

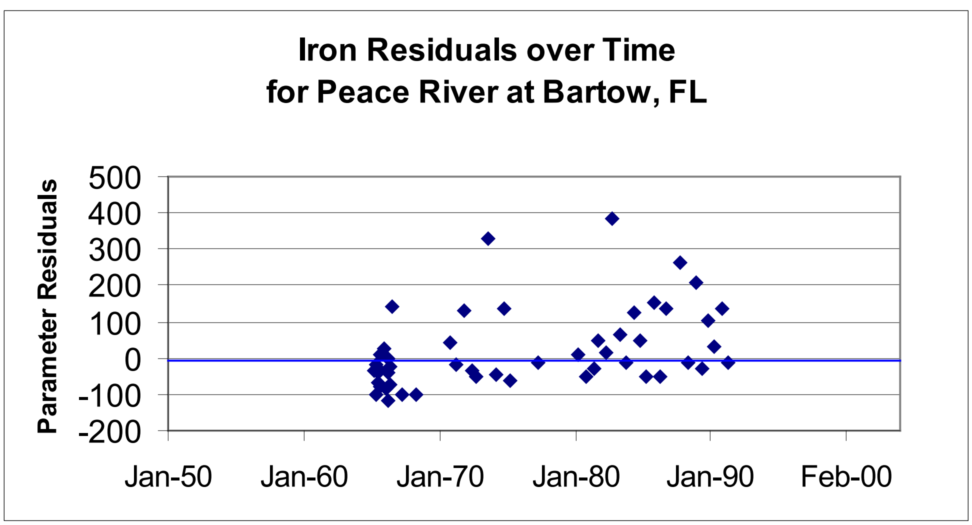

Fluoride Residuals over Time
for Peace River at Bartow, FL
Parameter Residuals
8
6
4
2
0
-2
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00



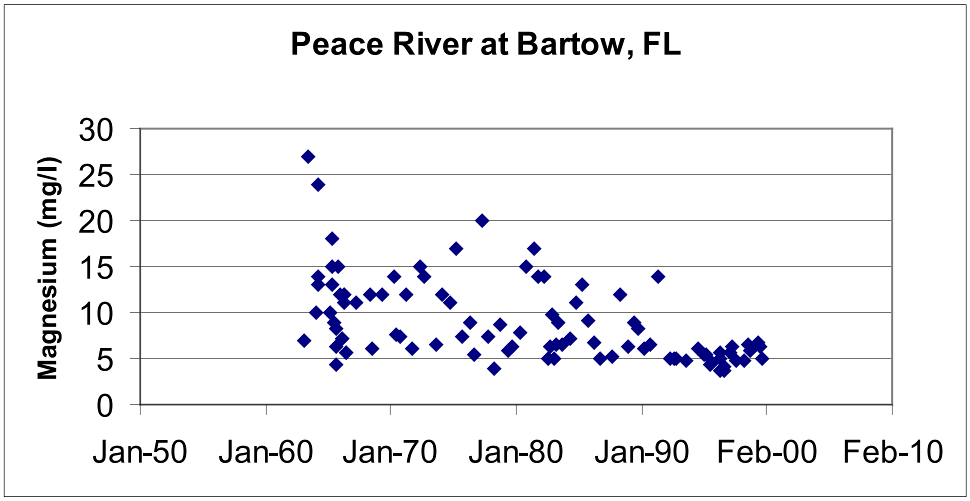
Peace River at Bartow, FL
800
600
400
200
0
Iron (mg/l)
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10



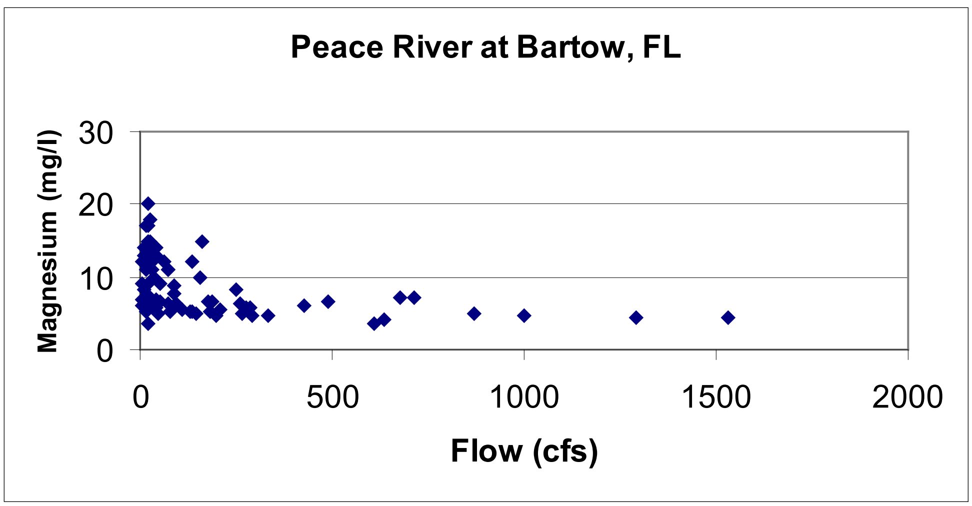
Peace River at Bartow, FL
800
600
400
200
0
Iron (mg/l)
0
500
1000
1500
2000
Flow (cfs)



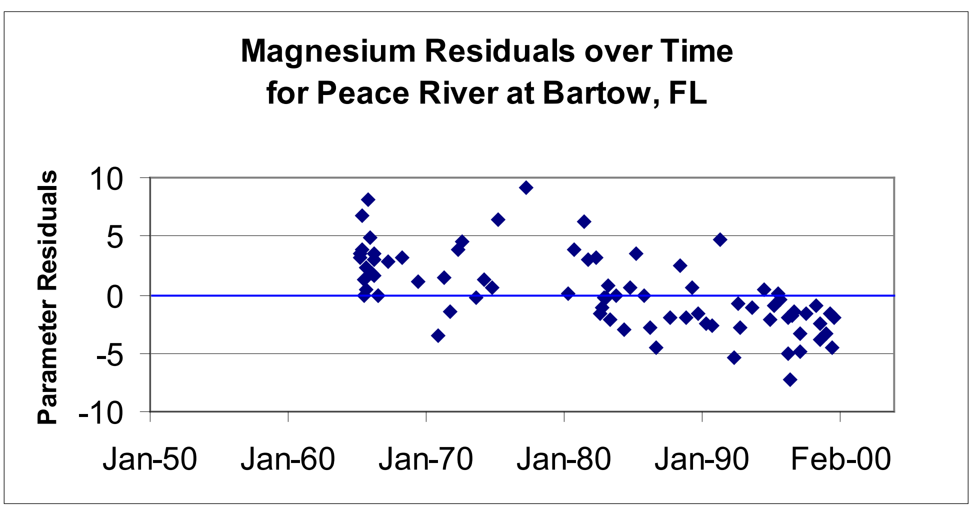
Iron Residuals over Time
for Peace River at Bartow, FL
500
400
300
200
100
0
-100
-200
Parameter Residuals
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00



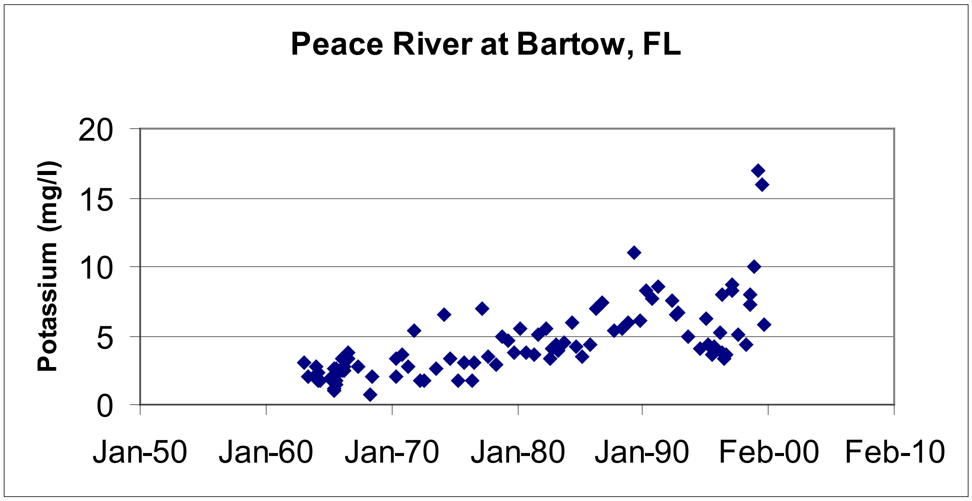
Peace River at Bartow, FL
Magnesium (mg/l)
30
25
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

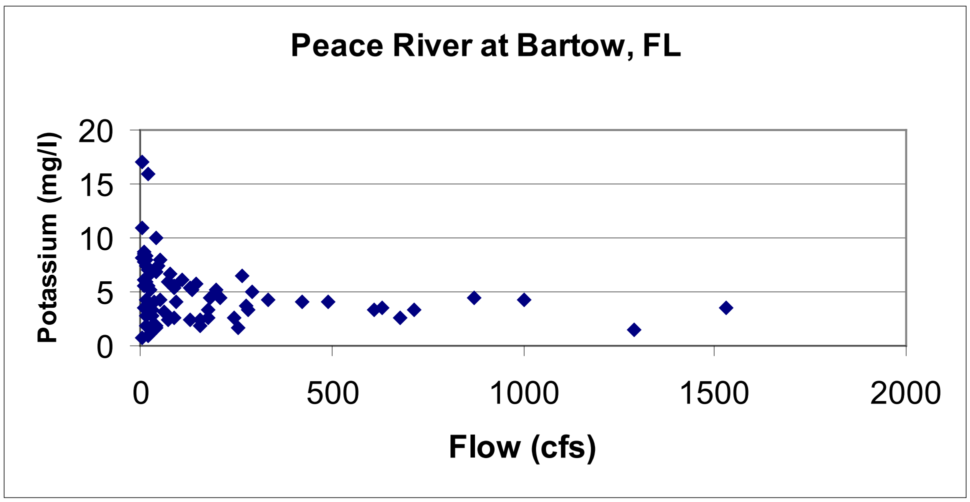


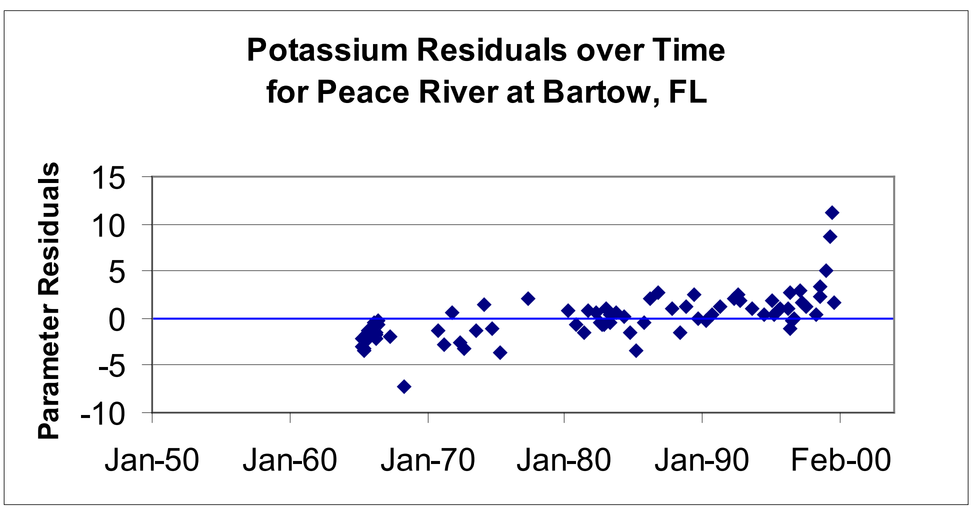
Peace River at Bartow, FL
Magnesium (mg/l)
30
20
10
0
0
500
1000
1500
2000
Flow (cfs)

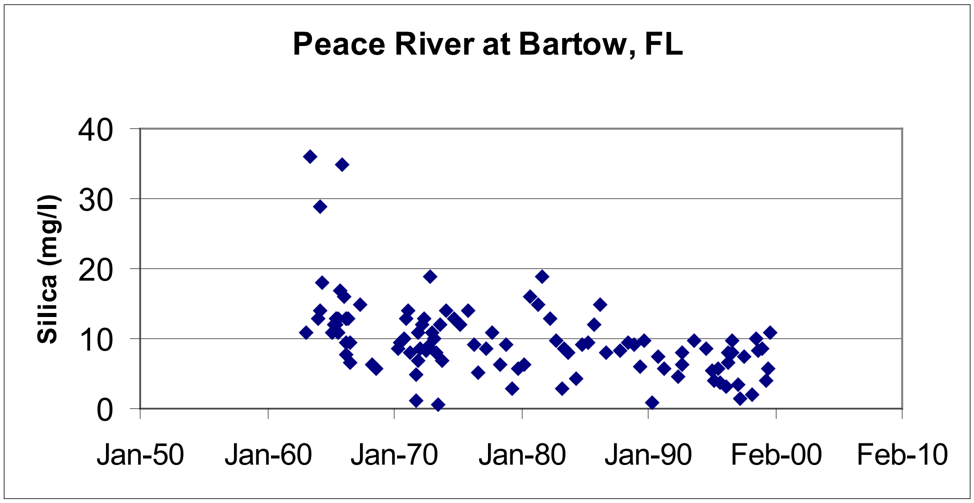


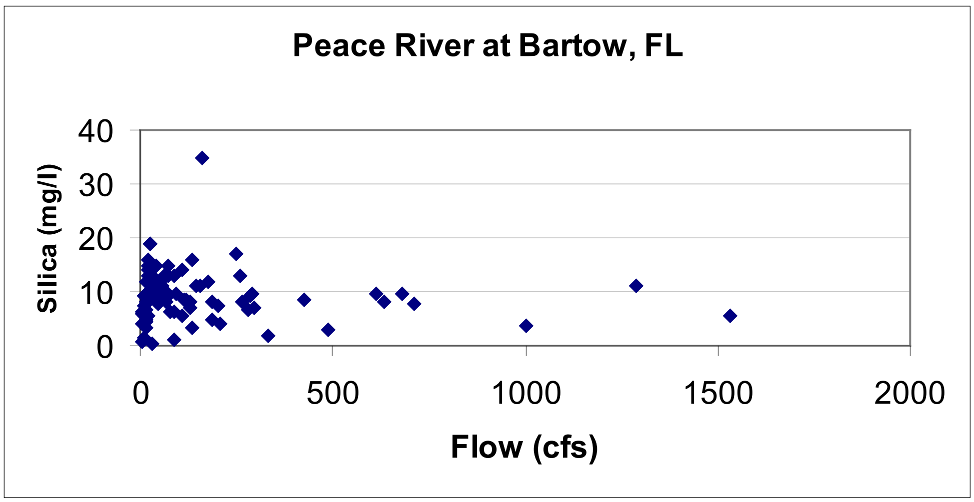
Magnesium Residuals over Time
for Peace River at Bartow, FL
Parameter Residuals
10
5
0
-5
-10
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

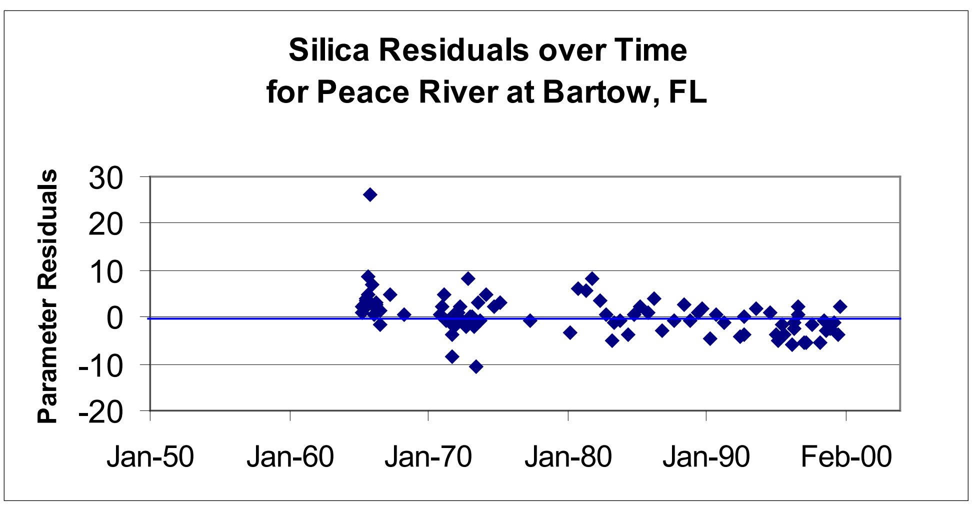

Peace River at Bartow, FL
Potassium (mg/l)
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

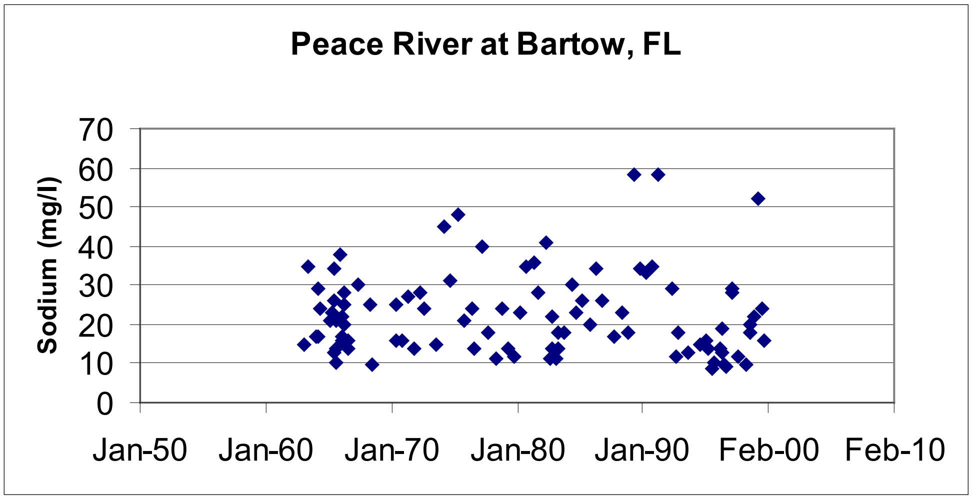

Peace River at Bartow, FL
Potassium (mg/l)
20
15
10
5
0
0
500
1000
1500
2000
Flow (cfs)

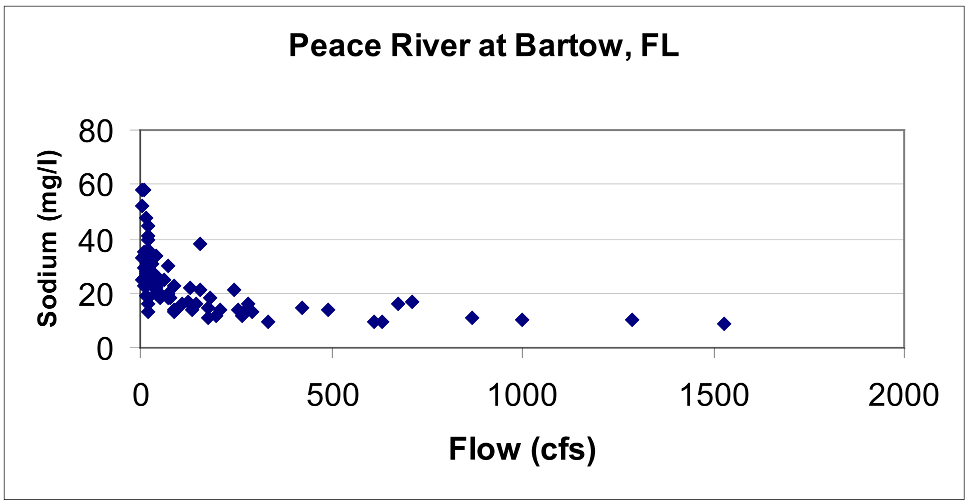

Potassium Residuals over Time
for Peace River at Bartow, FL
Parameter Residuals
15
10
5
0
-5
-10
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

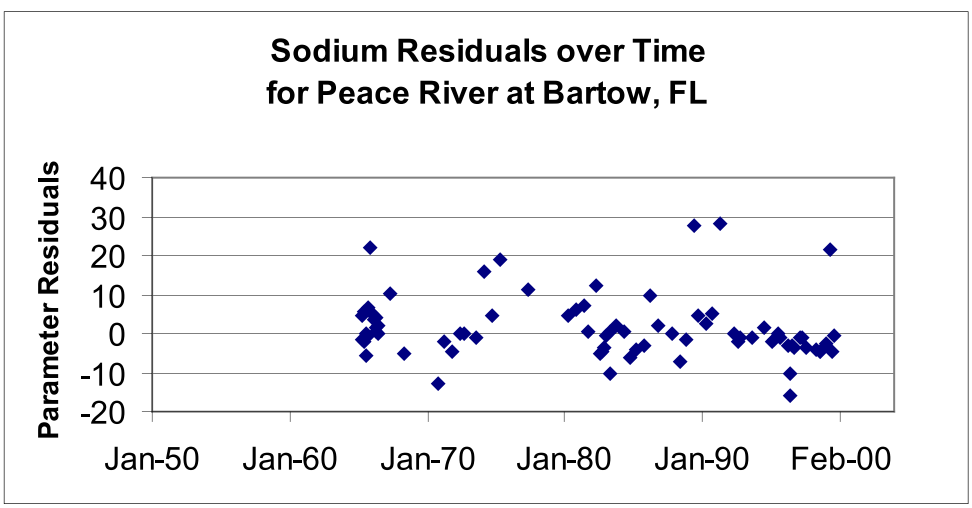

Peace River at Bartow, FL
Silica (mg/l)
40
30
20
10
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

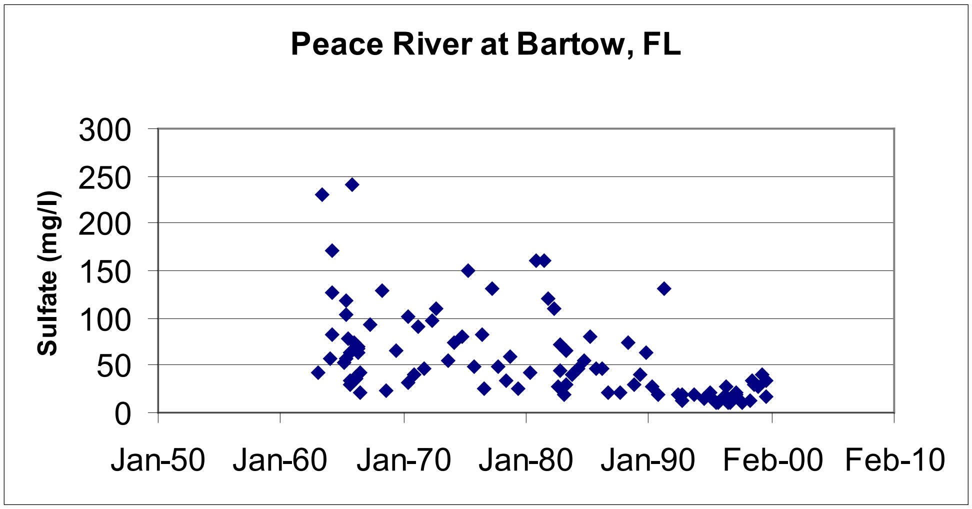

Peace River at Bartow, FL
Silica (mg/l)
40
30
20
10
0
0
500
1000
1500
2000
Flow (cfs)

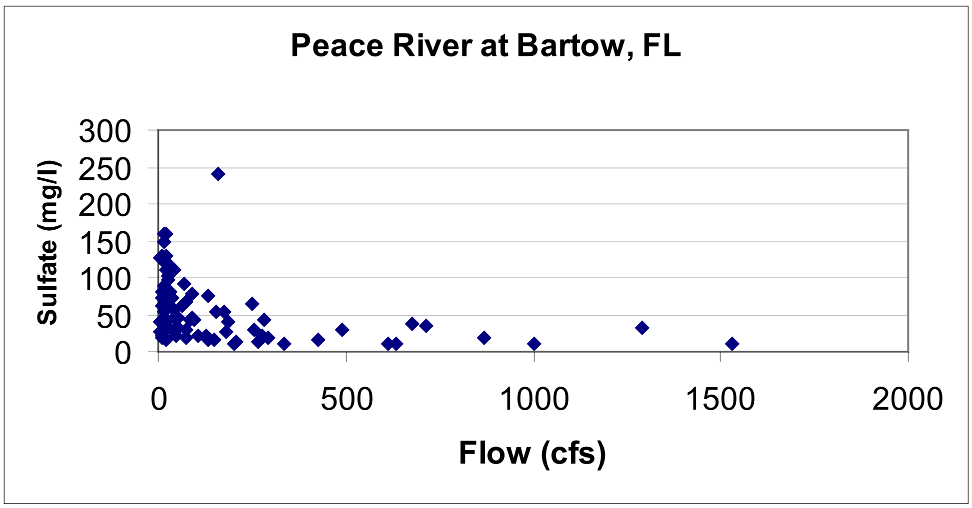

Silica Residuals over Time
for Peace River at Bartow, FL
Parameter Residuals
30
20
10
0
-10
-20
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

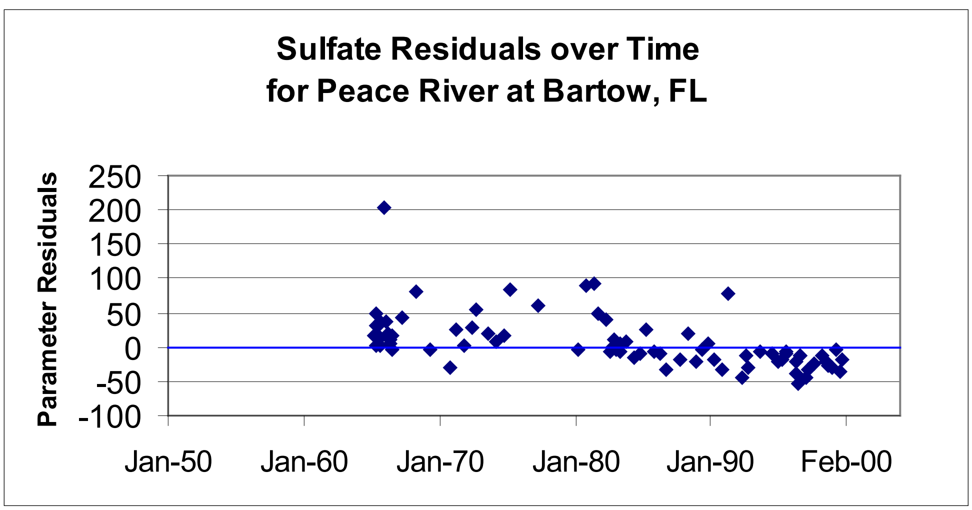

Peace River at Bartow, FL
Sodium (mg/l)
70
60
50
40
30
20
10
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

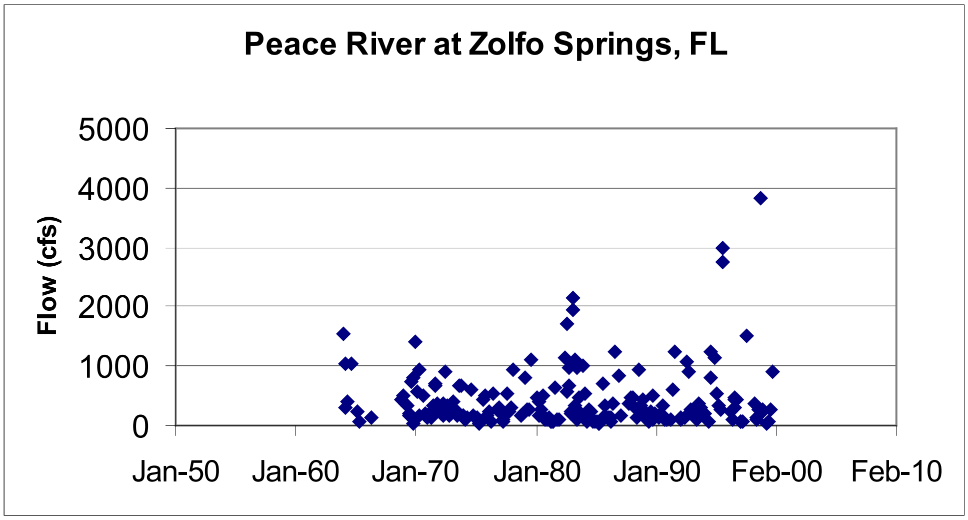

Peace River at Bartow, FL
Sodium (mg/l)
80
60
40
20
0
0
500
1000
1500
2000
Flow (cfs)


Sodium Residuals over Time
for Peace River at Bartow, FL
Parameter Residuals
40
30
20
10
0
-10
-20
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

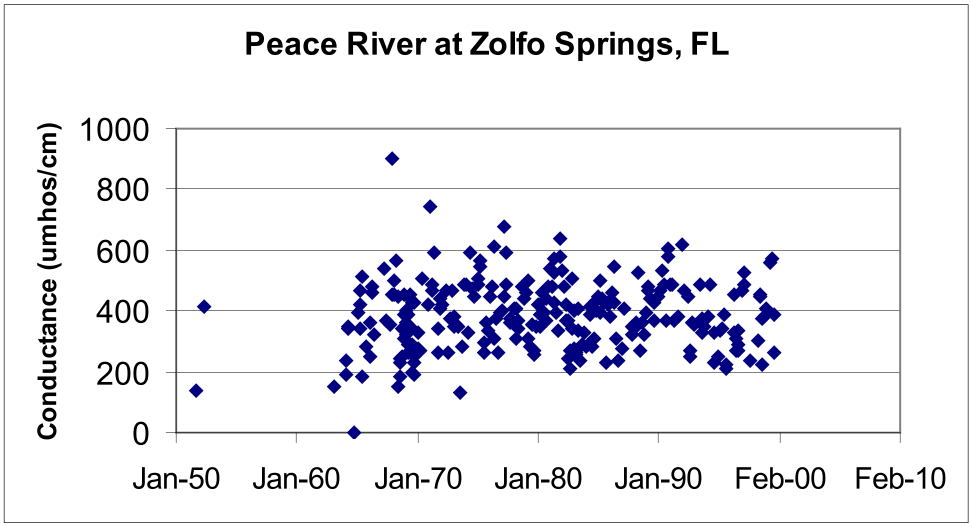

Peace River at Bartow, FL
Sulfate (mg/l)
300
250
200
150
100
50
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

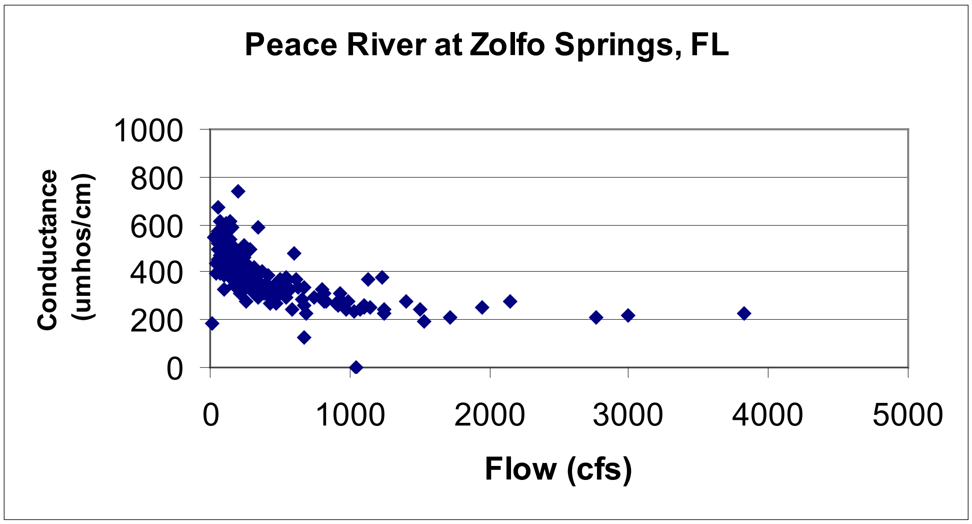

Peace River at Bartow, FL
Sulfate (mg/l)
300
250
200
150
100
50
0
0
500
1000
1500
2000
Flow (cfs)

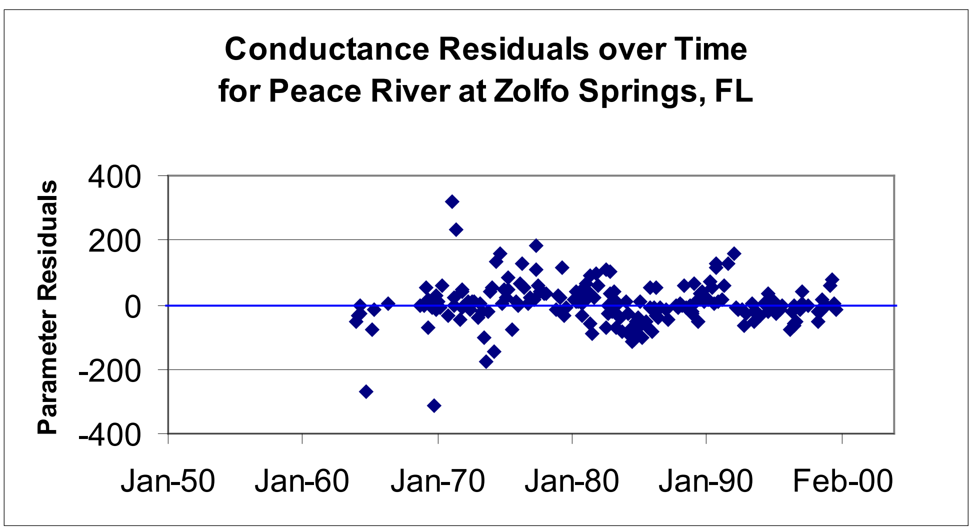

Sulfate Residuals over Time
for Peace River at Bartow, FL
Parameter Residuals
250
200
150
100
50
0
-50
-100
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

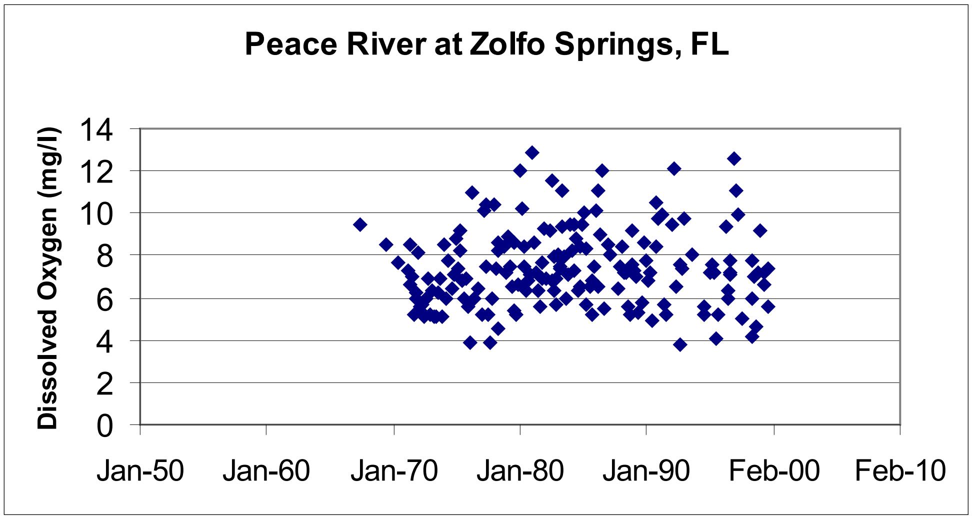


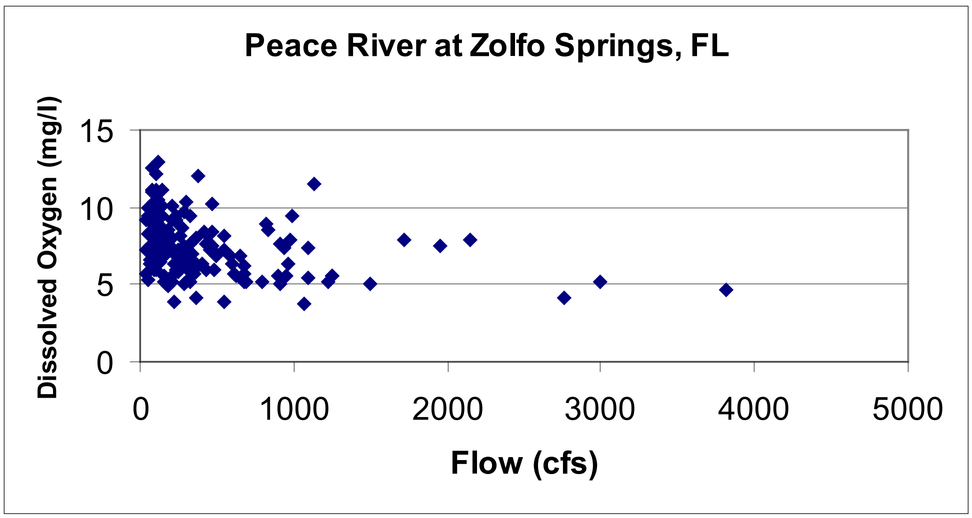
Peace River at Zolfo Springs, FL
Flow (cfs)
5000
4000
3000
2000
1000
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

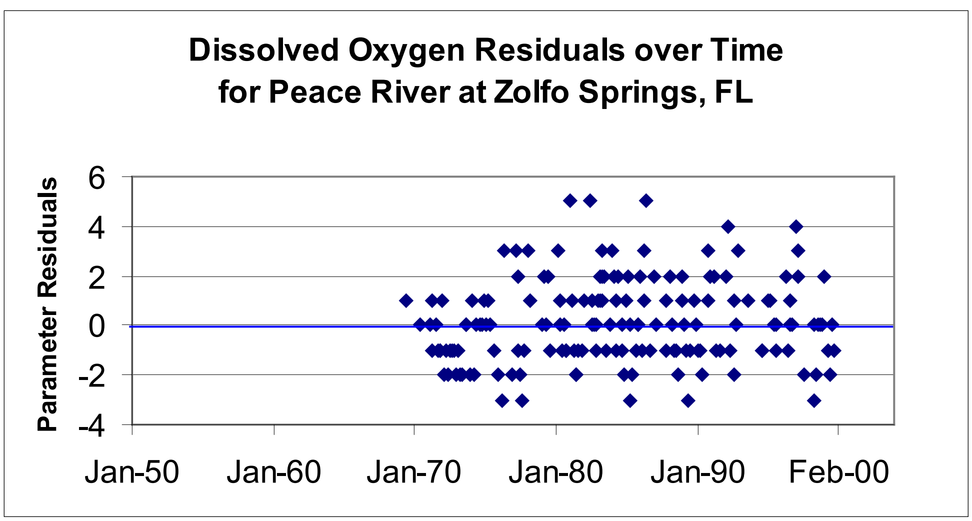

Peace River at Zolfo Springs, FL
Conductance (umhos/cm)
1000
800
600
400
200
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

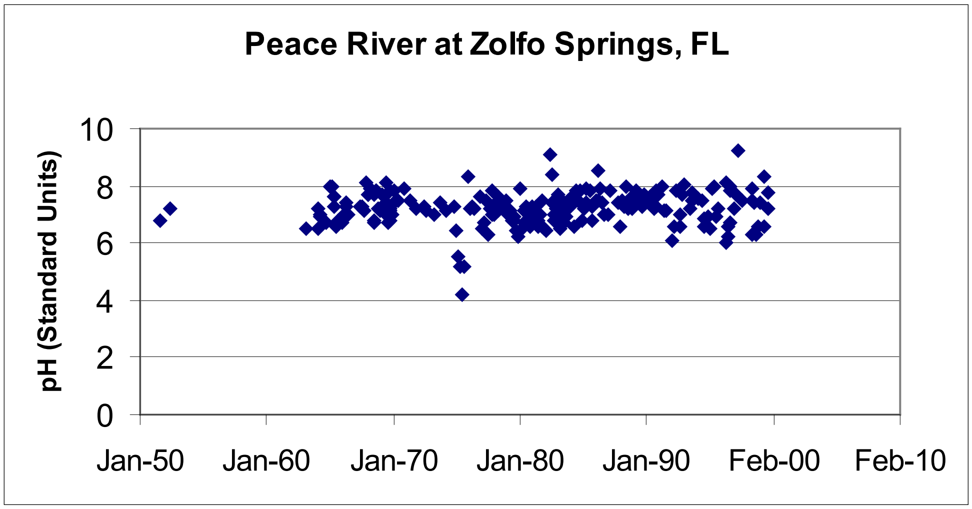

Peace River at Zolfo Springs, FL
Conductance (umhos/cm)
1000
800
600
400
200
0
0
1000
2000
3000
4000
5000
Flow (cfs)

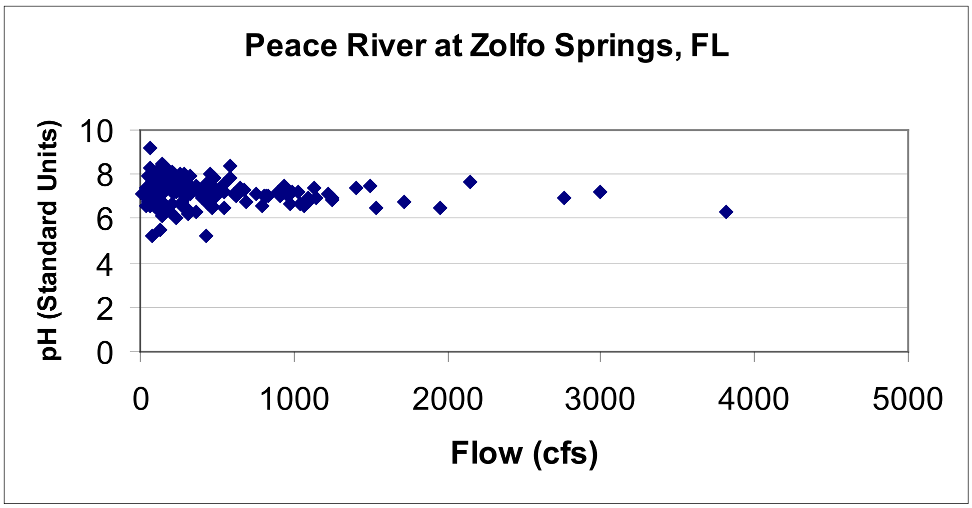

Conductance Residuals over Time for Peace River at Zolfo Springs, FL
Parameter Residuals
400
200
0
-200
-400
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

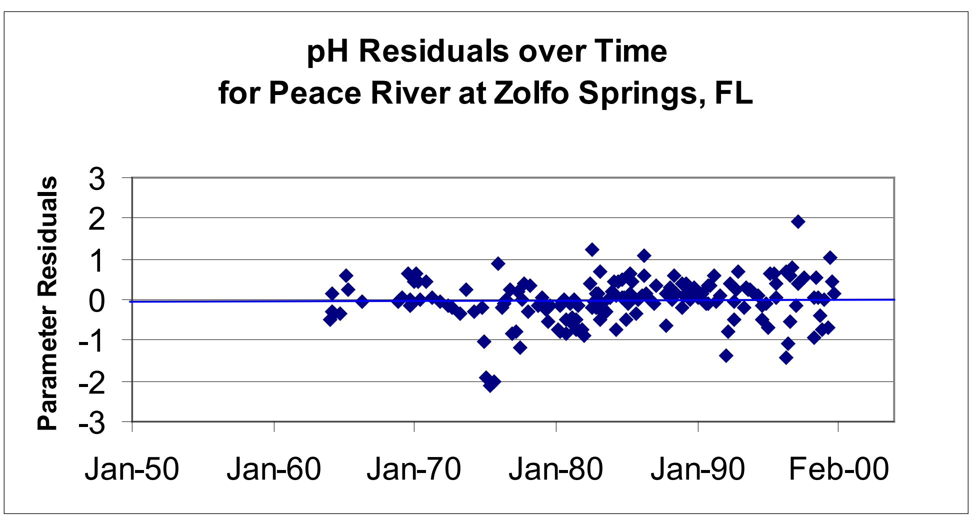

Peace River at Zolfo Springs, FL
Dissolved Oxygen (mg/l)
0
2
4
6
8
10
12
14
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

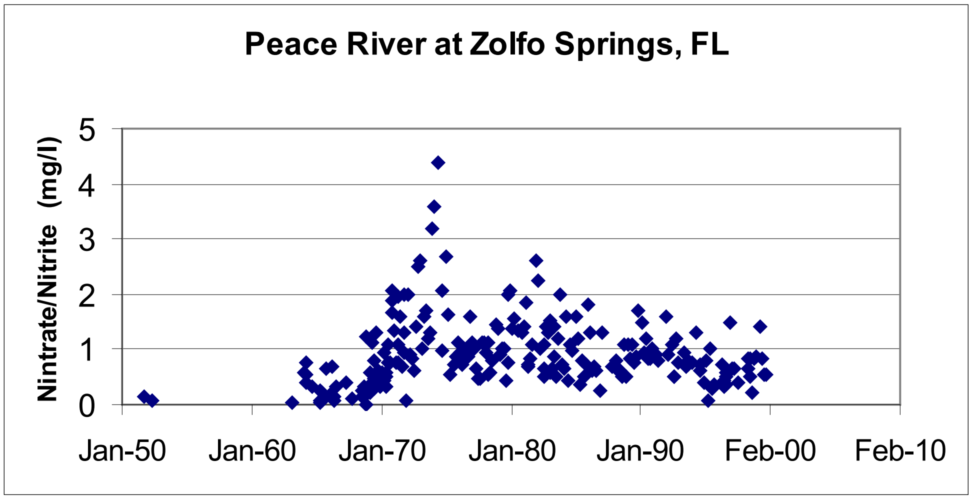

Peace River at Zolfo Springs, FL
Dissolved Oxygen (mg/l)
0
5
10
15
0
1000
2000
3000
4000
5000
Flow (cfs)

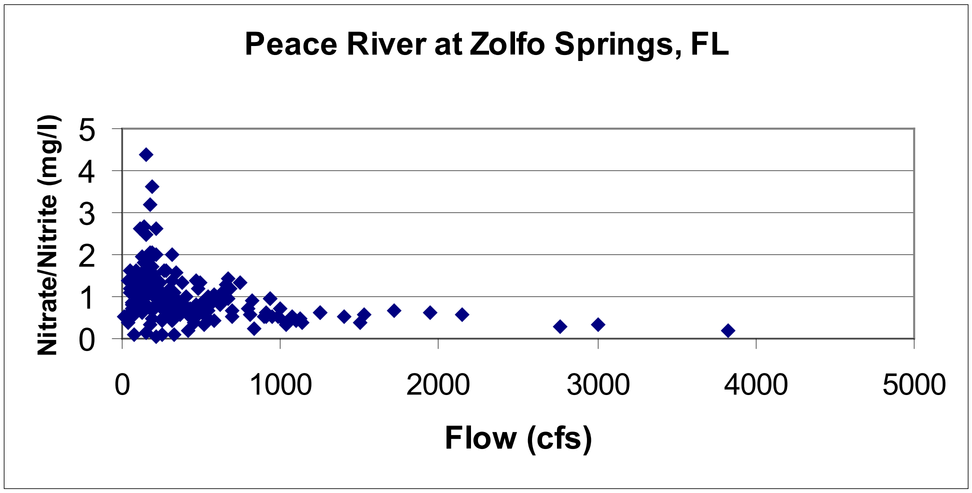

Dissolved Oxygen Residuals over Time
for Peace River at Zolfo Springs, FL
Parameter Residuals
-4
-2
0
2
4
6
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

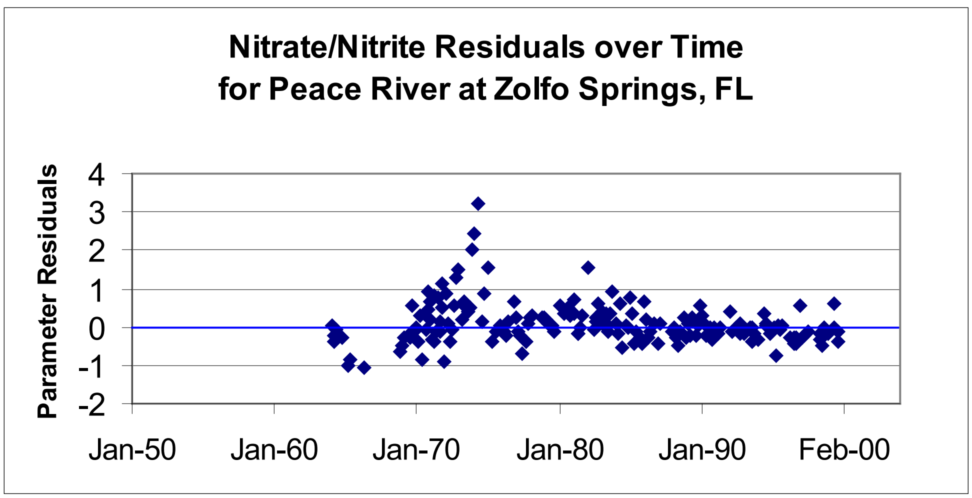

Peace River at Zolfo Springs, FL
pH (Standard Units)
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

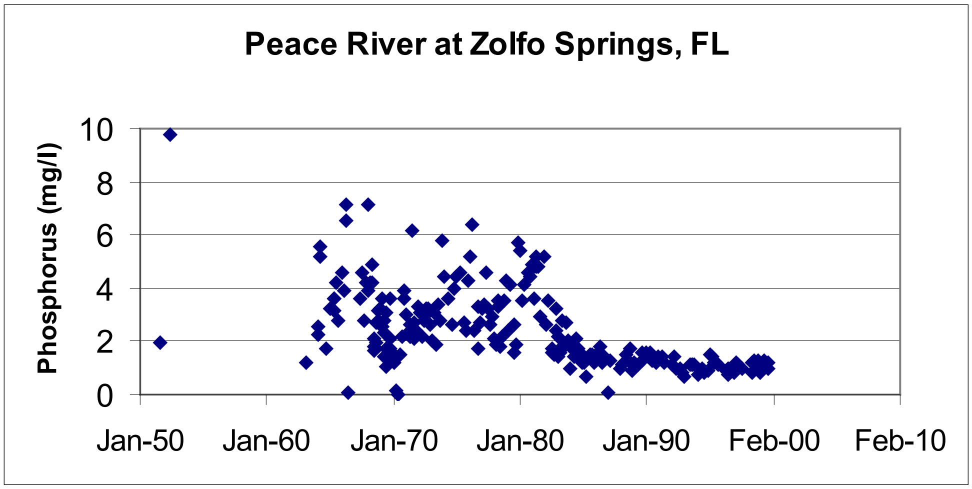

Peace River at Zolfo Springs, FL
pH (Standard Units)
10
8
6
4
2
0
0
1000
2000
3000
4000
5000
Flow (cfs)

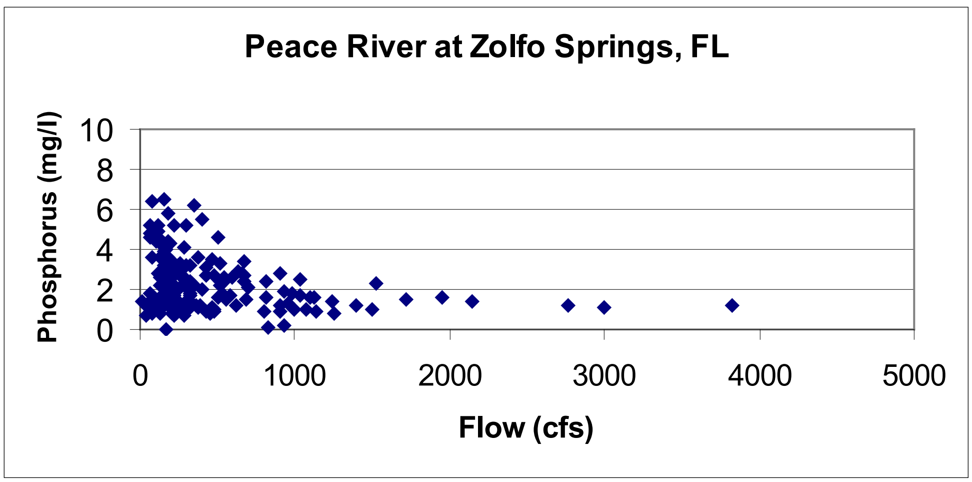

pH Residuals over Time
for Peace River at Zolfo Springs, FL
Parameter Residuals
3
2
1
0
-1
-2
-3
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

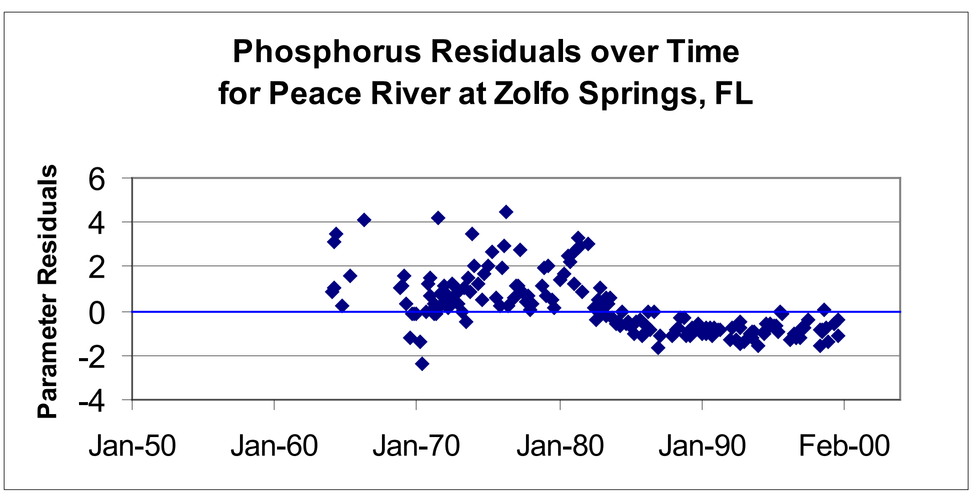

Peace River at Zolfo Springs, FL
Nintrate/Nitrite (mg/l)
5
4
3
2
1
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

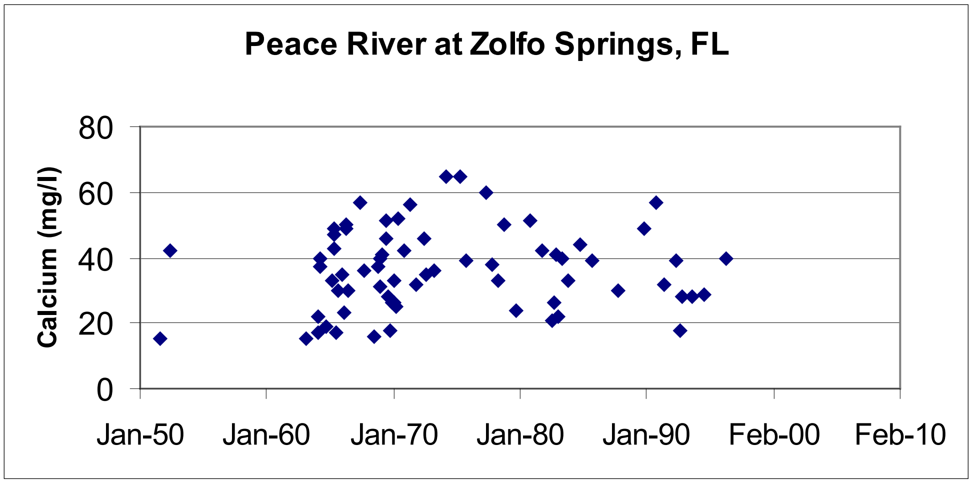

Peace River at Zolfo Springs, FL
Nitrate/Nitrite (mg/l)
5
4
3
2
1
0
0
1000
2000
3000
4000
5000
Flow (cfs)

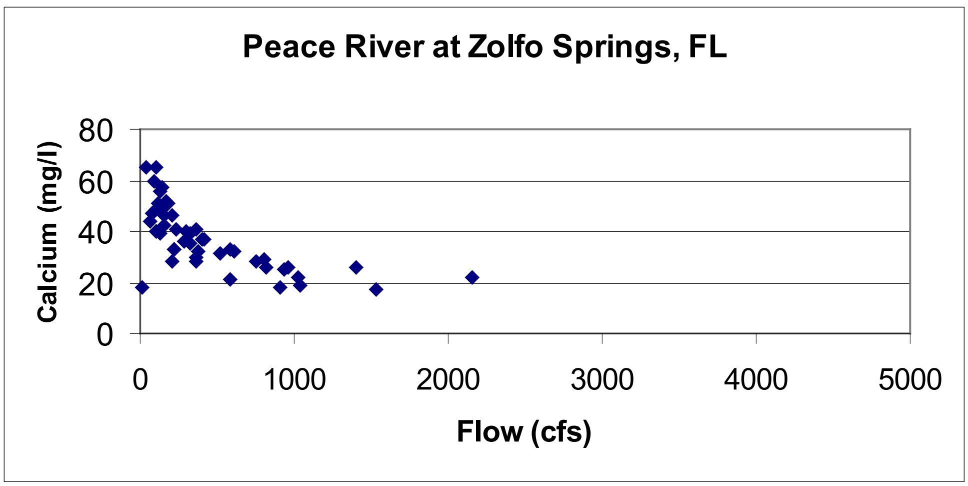

Nitrate/Nitrite Residuals over Time
for Peace River at Zolfo Springs, FL
Parameter Residuals
4
3
2
1
0
-1
-2
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

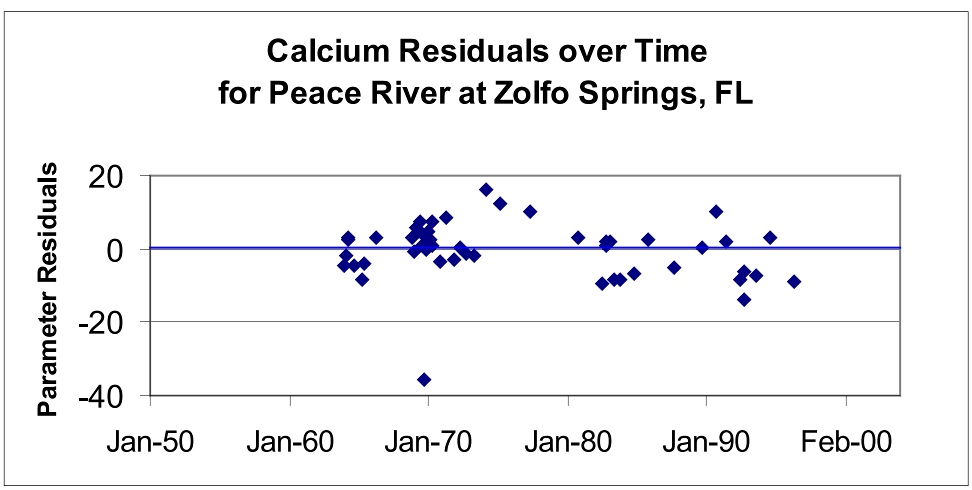

Peace River at Zolfo Springs, FL
Phosphorus (mg/l)
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

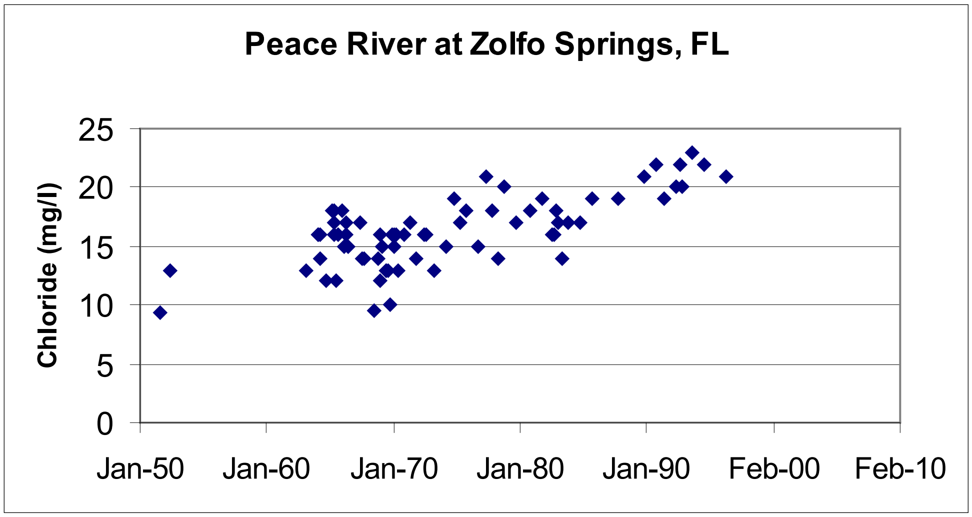

Peace River at Zolfo Springs, FL
Phosphorus (mg/l)
10
8
6
4
2
0
0
1000
2000
3000
4000
5000
Flow (cfs)

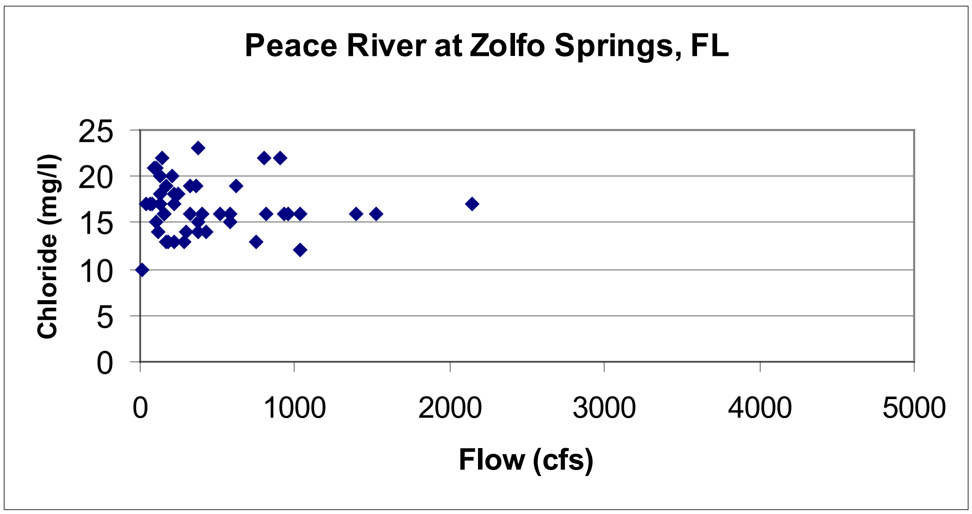

Phosphorus Residuals over Time
for Peace River at Zolfo Springs, FL
Parameter Residuals
6
4
2
0
-2
-4
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

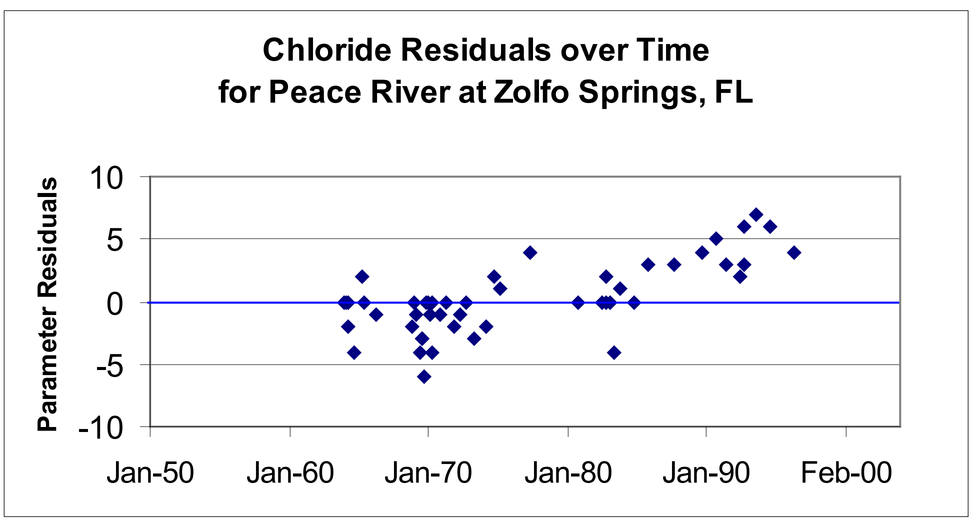

Peace River at Zolfo Springs, FL
Calcium (mg/l)
80
60
40
20
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

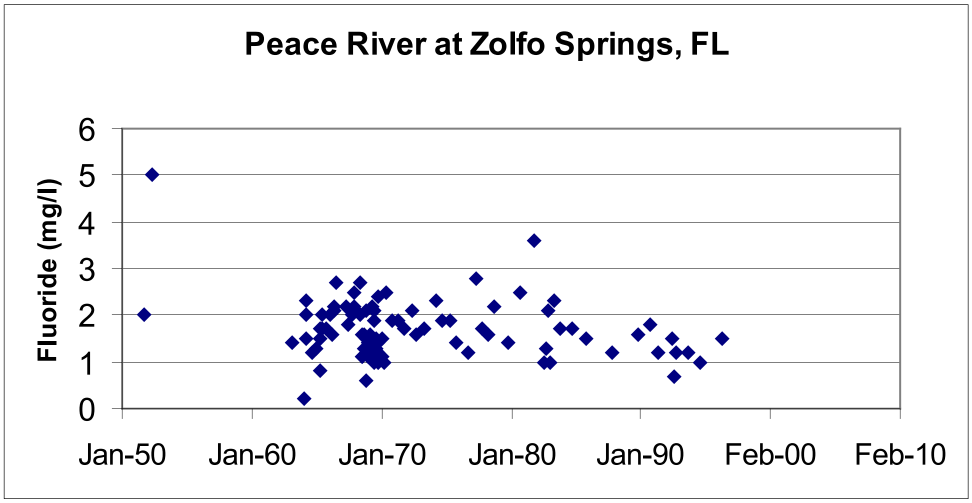

Peace River at Zolfo Springs, FL
Calcium (mg/l)
80
60
40
20
0
0
1000
2000
3000
4000
5000
Flow (cfs)

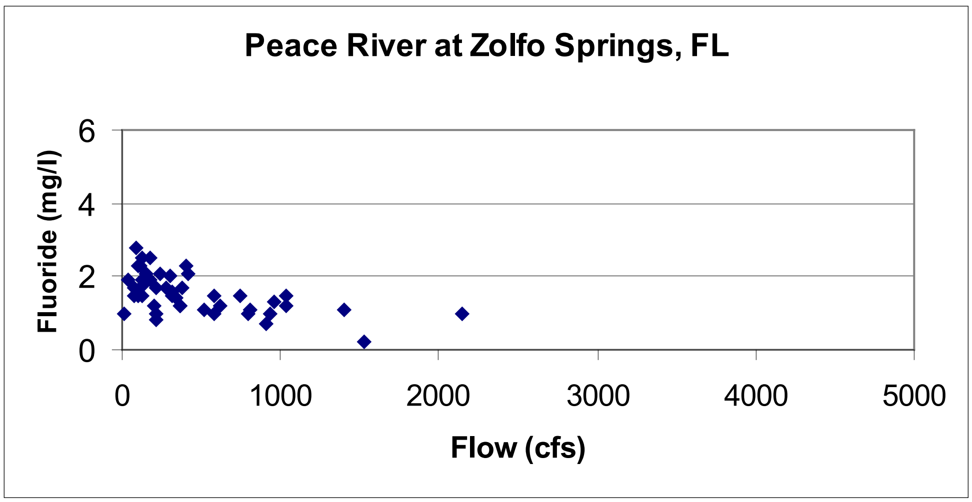

Calcium Residuals over Time
for Peace River at Zolfo Springs, FL
Parameter Residuals
20
0
-20
-40
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

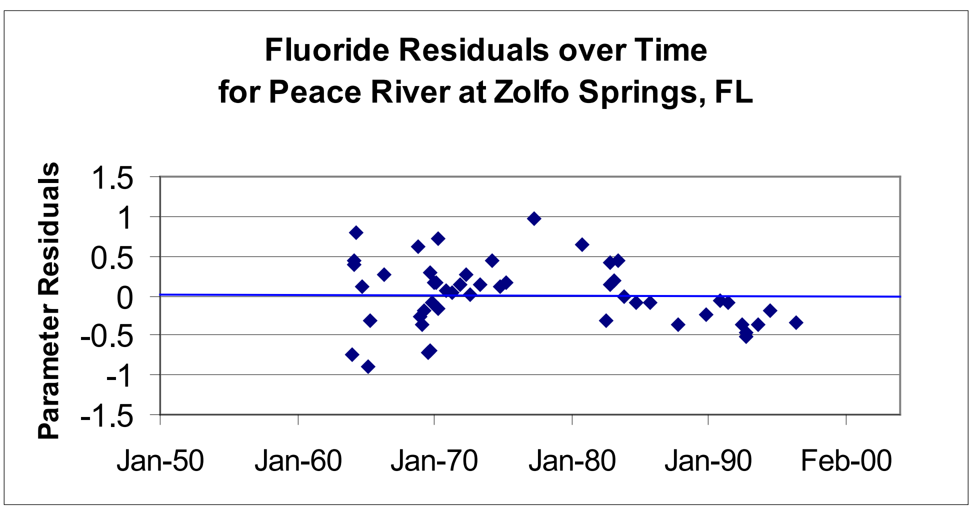

Peace River at Zolfo Springs, FL
Chloride (mg/l)
25
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

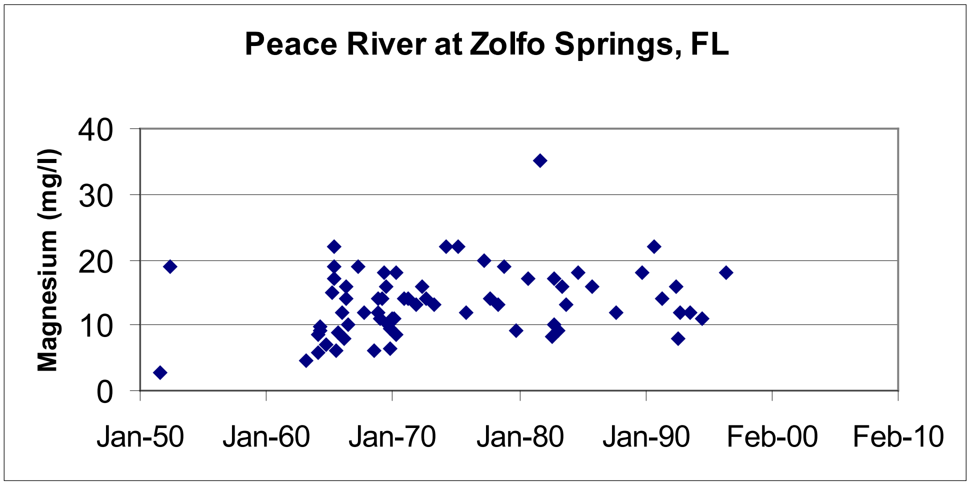

Peace River at Zolfo Springs, FL
Chloride (mg/l)
25
20
15
10
5
0
0
1000
2000
3000
4000
5000
Flow (cfs)

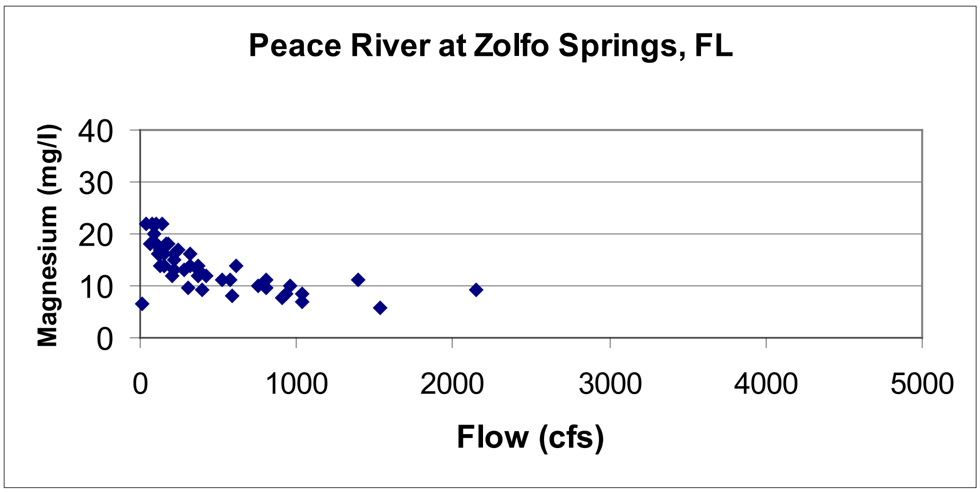

Chloride Residuals over Time
for Peace River at Zolfo Springs, FL
Parameter Residuals
10
5
0
-5
-10
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

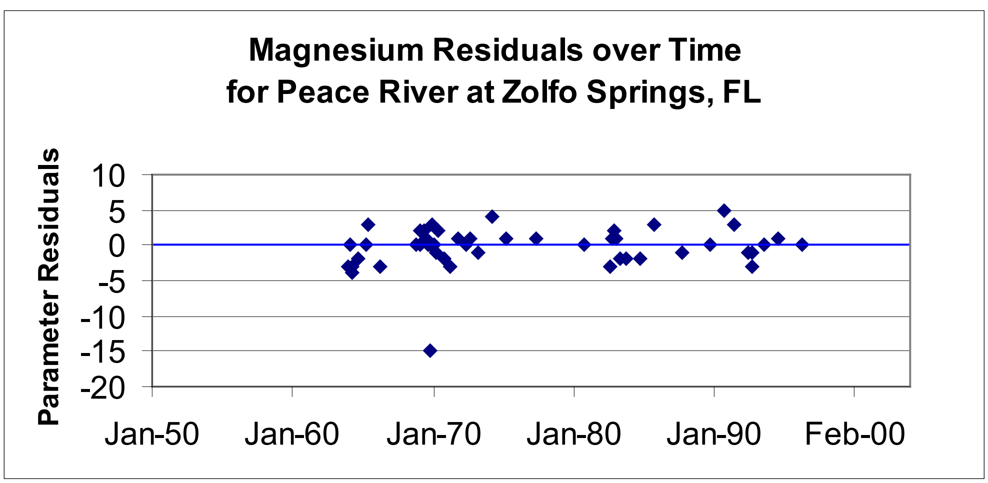

Peace River at Zolfo Springs, FL
Fluoride (mg/l)
6
5
4
3
2
1
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

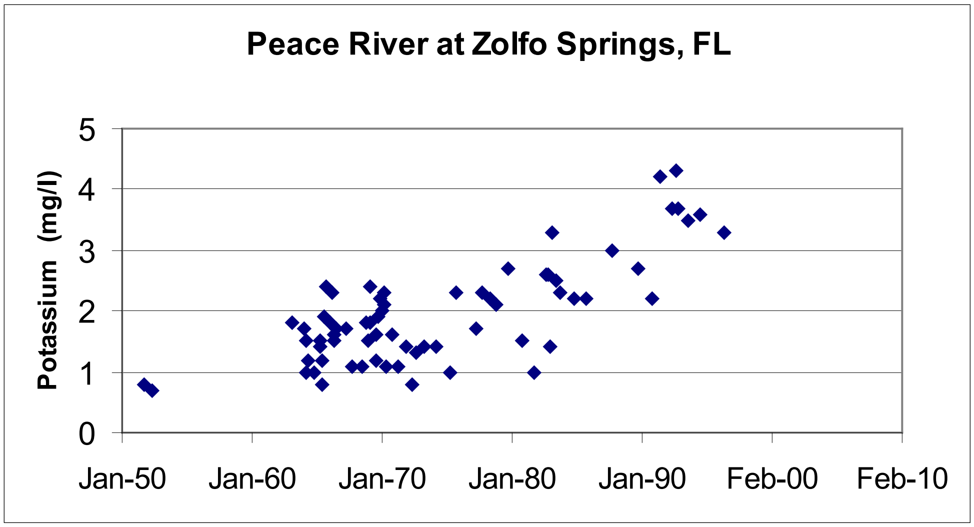

Peace River at Zolfo Springs, FL
Fluoride (mg/l)
6
4
2
0
0
1000
2000
3000
4000
5000
Flow (cfs)

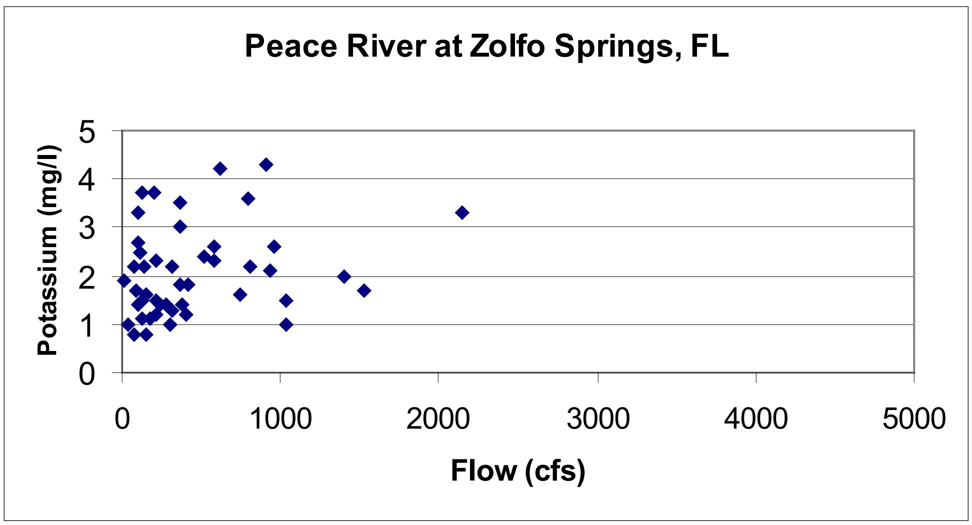

Fluoride Residuals over Time
for Peace River at Zolfo Springs, FL
Parameter Residuals
1.5
1
0.5
0
-0.5
-1
-1.5
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

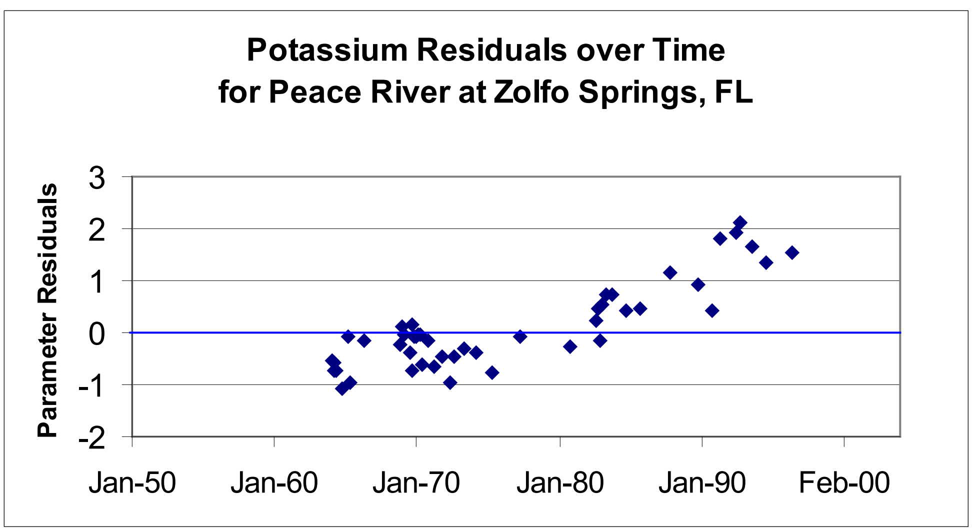

Peace River at Zolfo Springs, FL
Magnesium (mg/l)
40
30
20
10
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

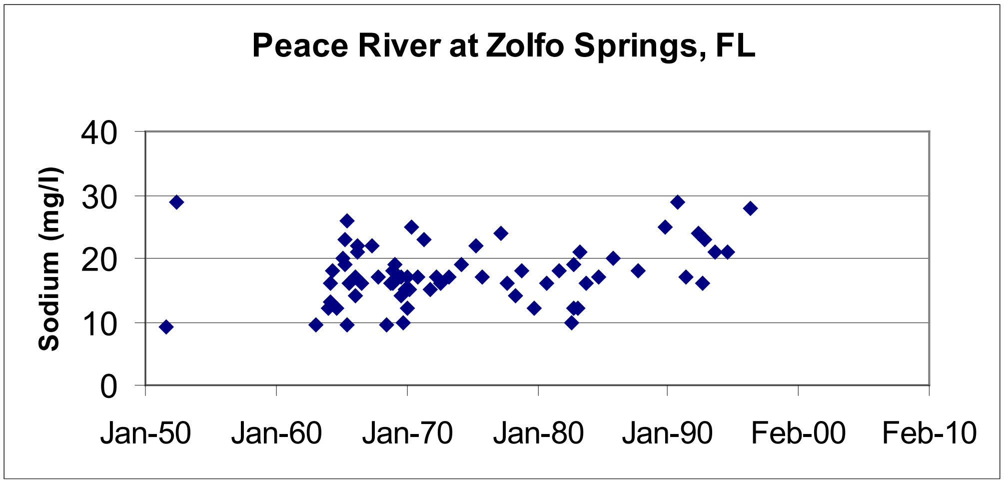

Peace River at Zolfo Springs, FL
Magnesium (mg/l)
40
30
20
10
0
0
1000
2000
3000
4000
5000
Flow (cfs)

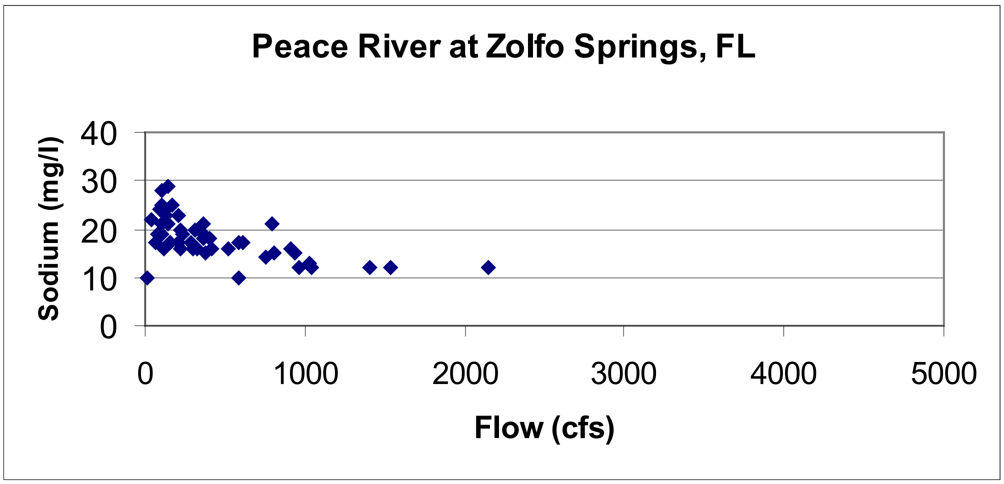

Magnesium Residuals over Time
for Peace River at Zolfo Springs, FL
Parameter Residuals
10
5
0
-5
-10
-15
-20
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

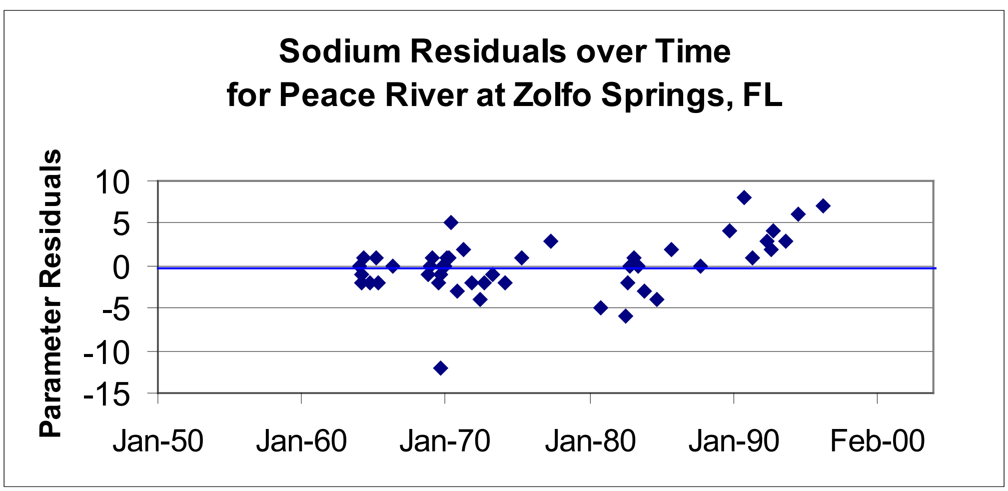

Peace River at Zolfo Springs, FL
Potassium (mg/l)
0
1
2
3
4
5
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

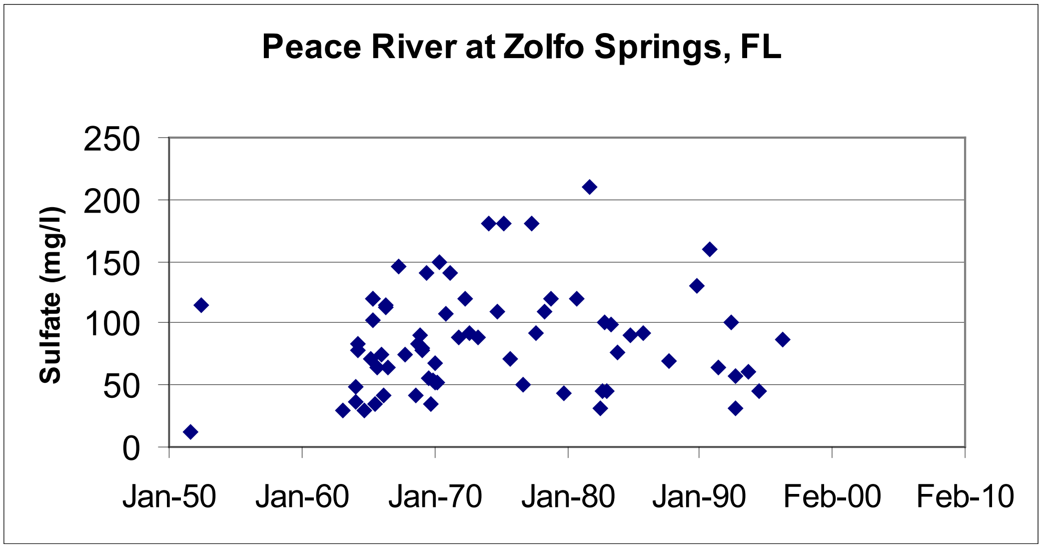

Peace River at Zolfo Springs, FL
Potassium (mg/l)
0
1
2
3
4
5
0
1000
2000
3000
4000
5000
Flow (cfs)

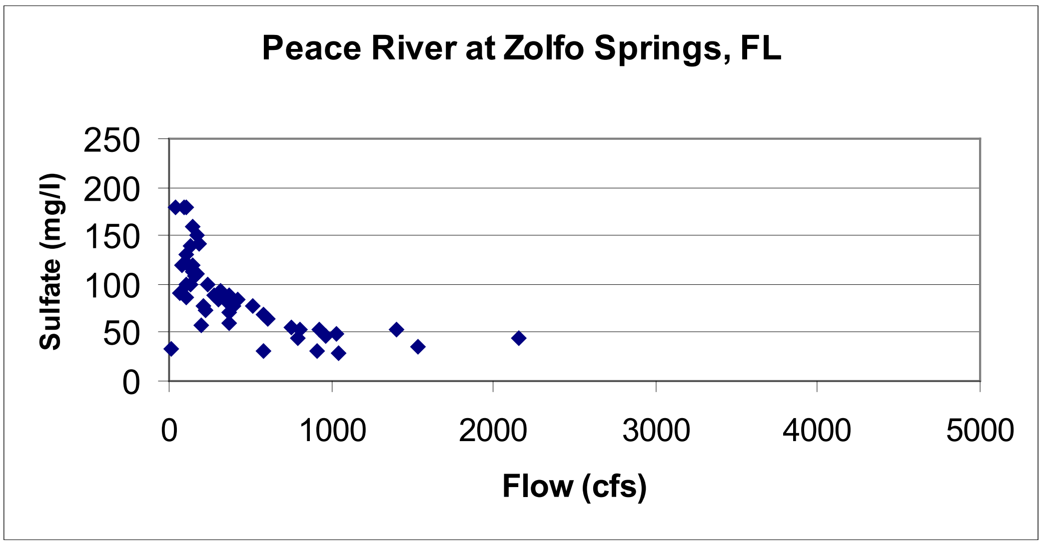

Potassium Residuals over Time
for Peace River at Zolfo Springs, FL
Parameter Residuals
-2
-1
0
1
2
3
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

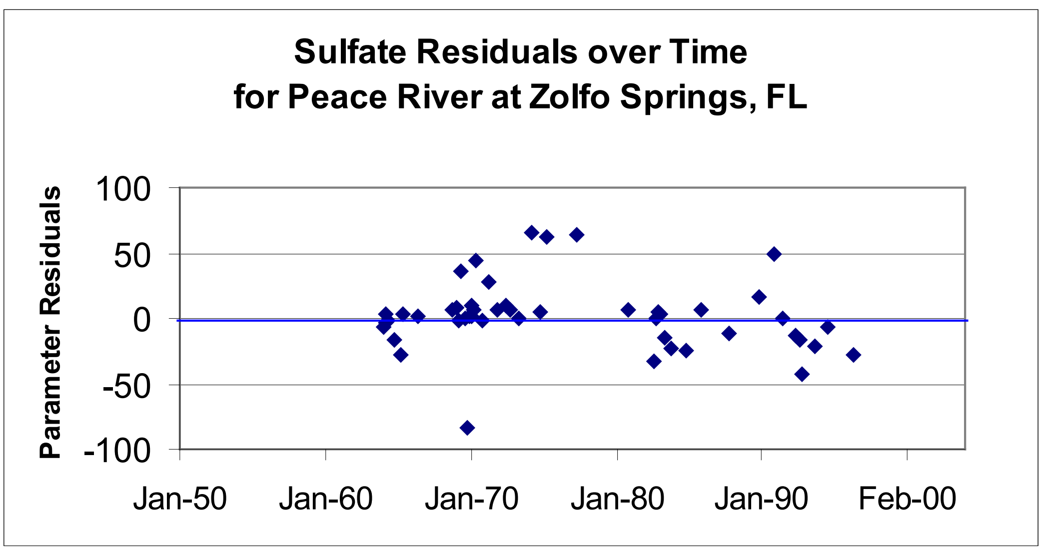

Peace River at Zolfo Springs, FL
Sodium (mg/l)
40
30
20
10
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

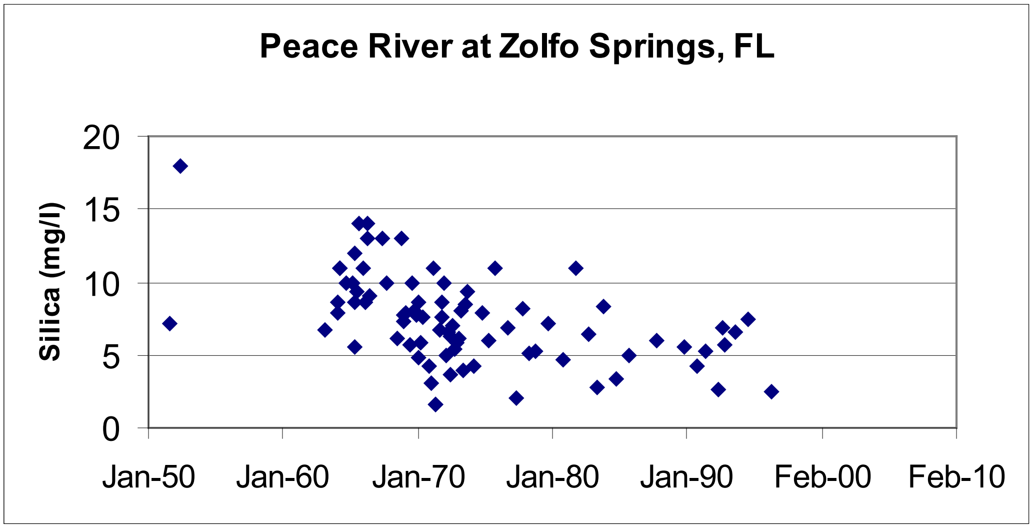

Peace River at Zolfo Springs, FL
Sodium (mg/l)
40
30
20
10
0
0
1000
2000
3000
4000
5000
Flow (cfs)

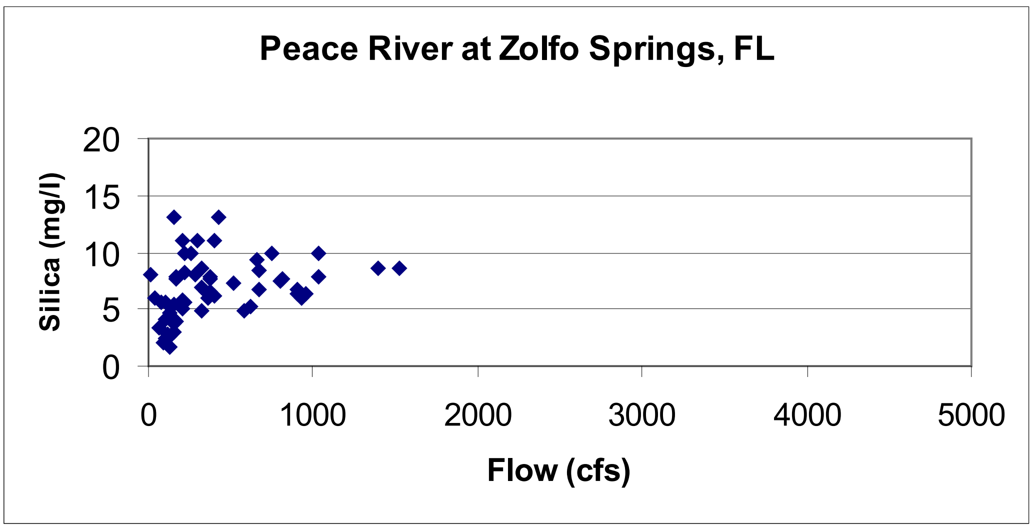

Sodium Residuals over Time
for Peace River at Zolfo Springs, FL
Parameter Residuals
10
5
0
-5
-10
-15
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

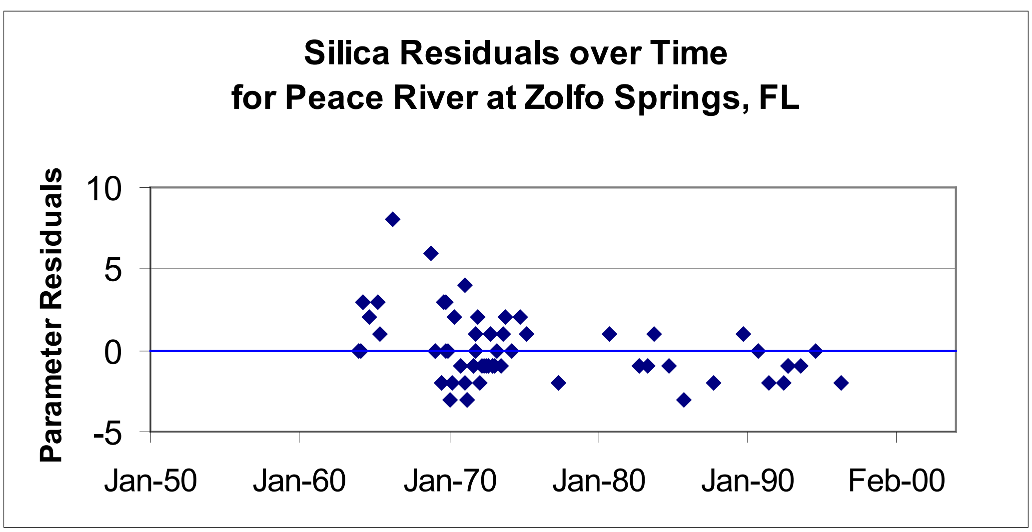

Peace River at Zolfo Springs, FL
Sulfate (mg/l)
250
200
150
100
50
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

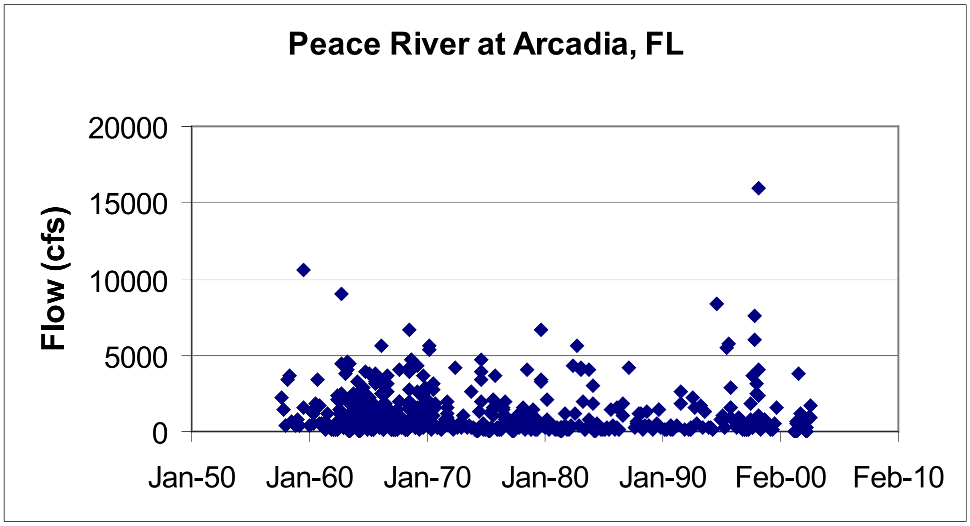

Peace River at Zolfo Springs, FL
Sulfate (mg/l)
250
200
150
100
50
0
0
1000
2000
3000
4000
5000
Flow (cfs)

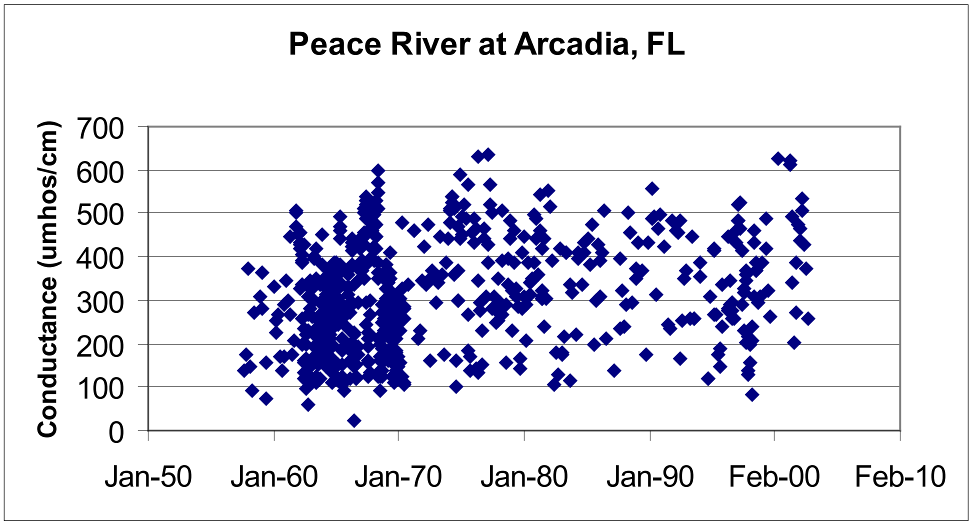

Sulfate Residuals over Time
for Peace River at Zolfo Springs, FL
Parameter Residuals
100
50
0
-50
-100
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

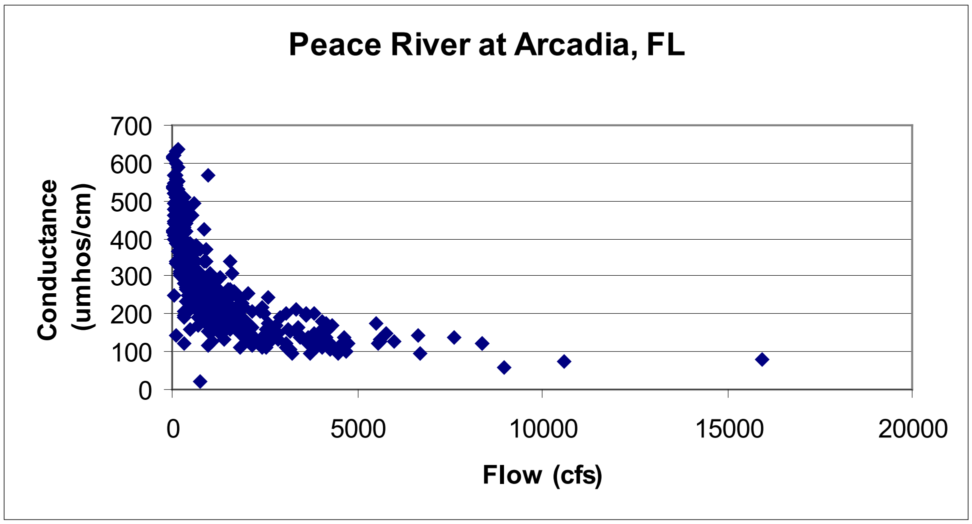

Peace River at Zolfo Springs, FL
Silica (mg/l)
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

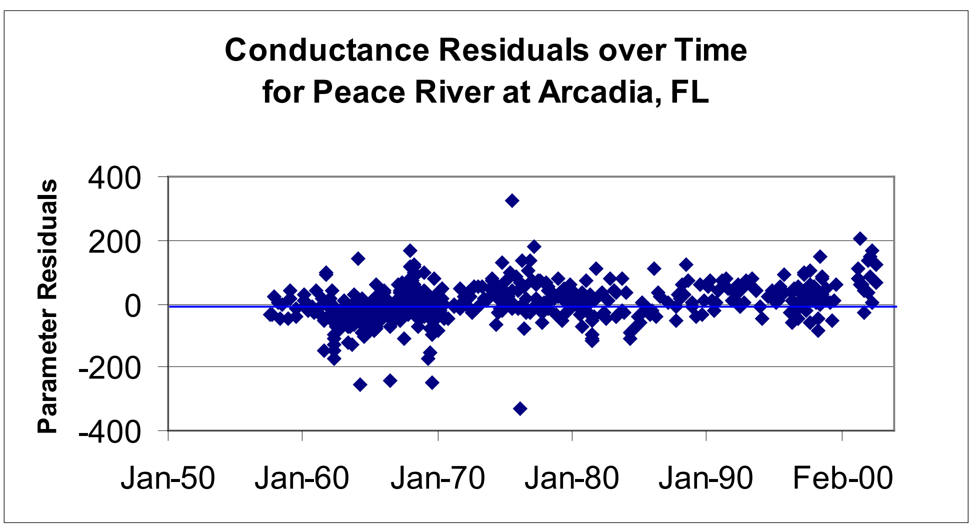

Peace River at Zolfo Springs, FL
Silica (mg/l)
20
15
10
5
0
0
1000
2000
3000
4000
5000
Flow (cfs)

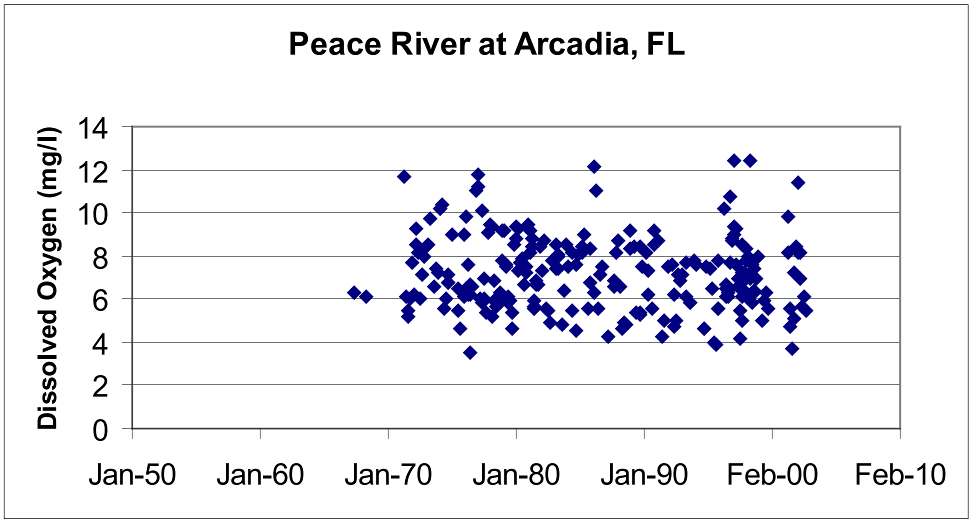

Silica Residuals over Time
for Peace River at Zolfo Springs, FL
Parameter Residuals
10
5
0
-5
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

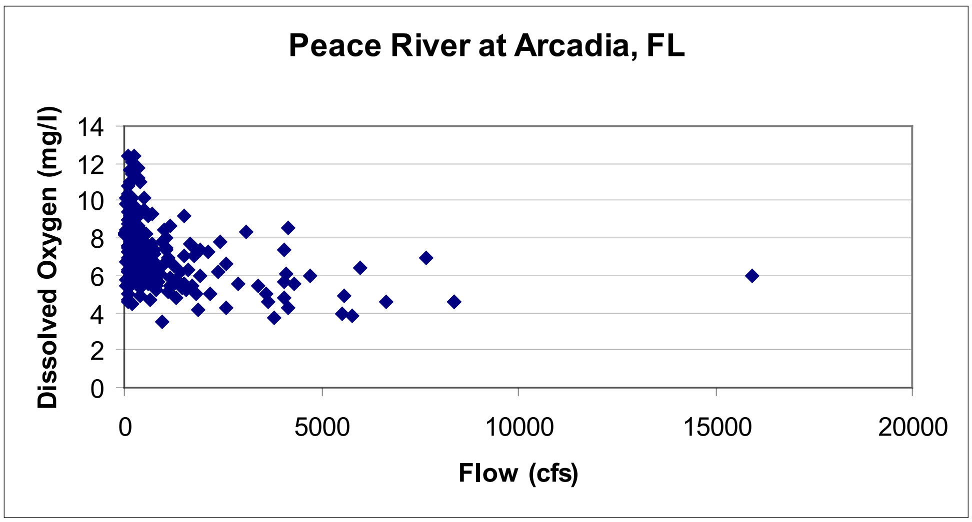

Peace River at Arcadia, FL
Flow (cfs)
20000
15000
10000
5000
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

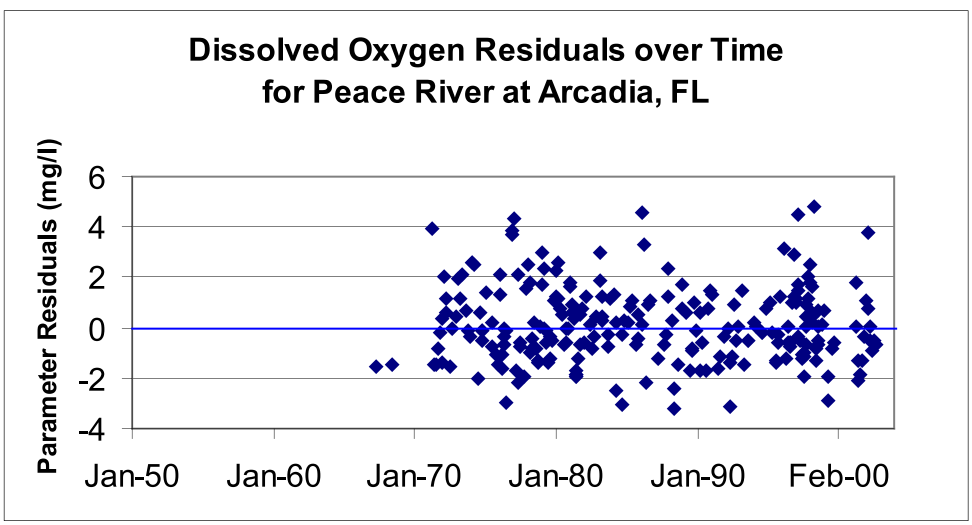

Peace River at Arcadia, FL
Conductance (umhos/cm)
700
600
500
400
300
200
100
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

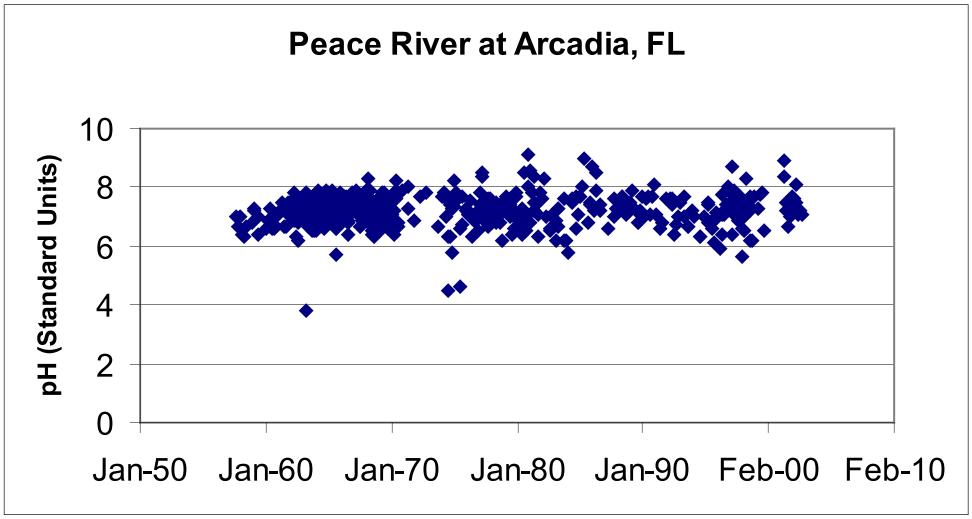

Peace River at Arcadia, FL
Conductance (umhos/cm)
700
600
500
400
300
200
100
0
0
5000
10000
15000
20000
Flow (cfs)


Conductance Residuals over Time for Peace River at Arcadia, FL
Parameter Residuals
400
200
0
-200
-400
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

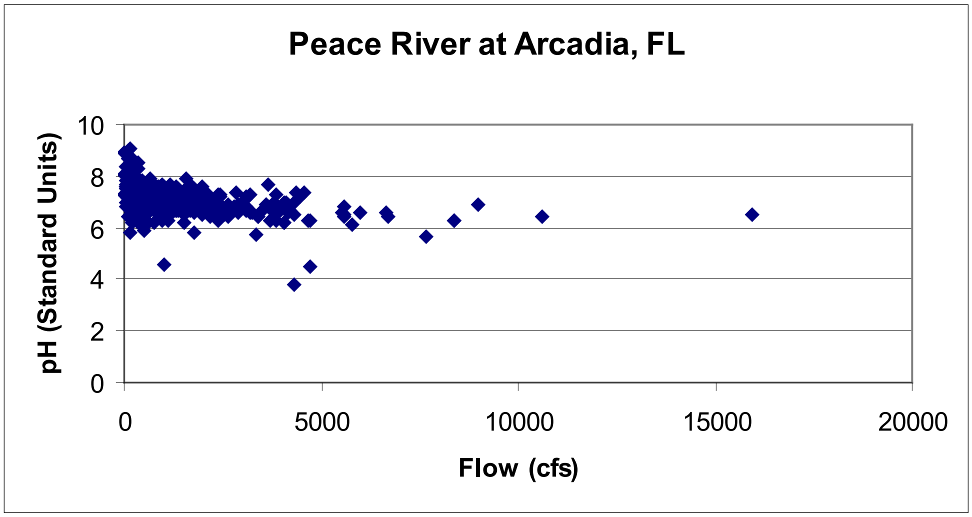

Peace River at Arcadia, FL
Dissolved Oxygen (mg/l)
14
12
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10


Peace River at Arcadia, FL
Dissolved Oxygen (mg/l)
14
12
10
8
6
4
2
0
0
5000
10000
15000
20000
Flow (cfs)

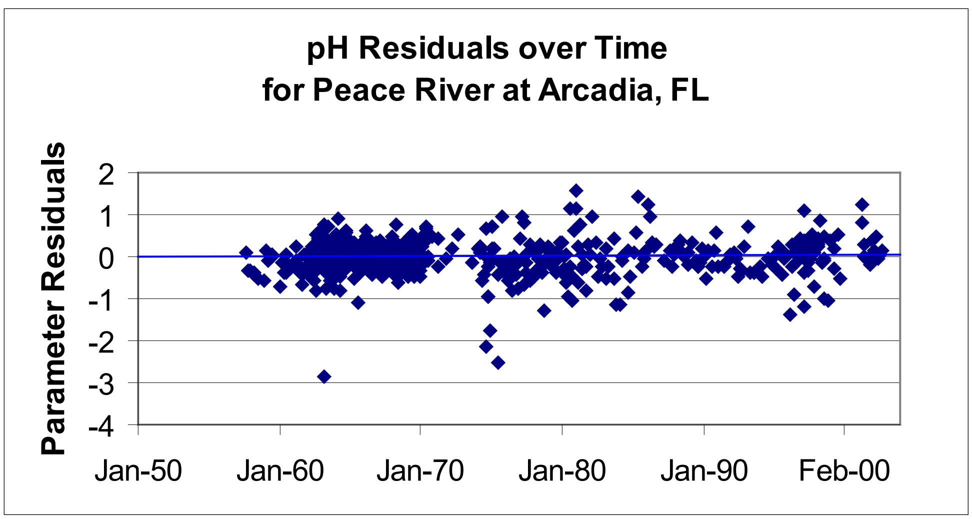

Dissolved Oxygen Residuals over Time
for Peace River at Arcadia, FL
Parameter Residuals (mg/l)
6
4
2
0
-2
-4
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00



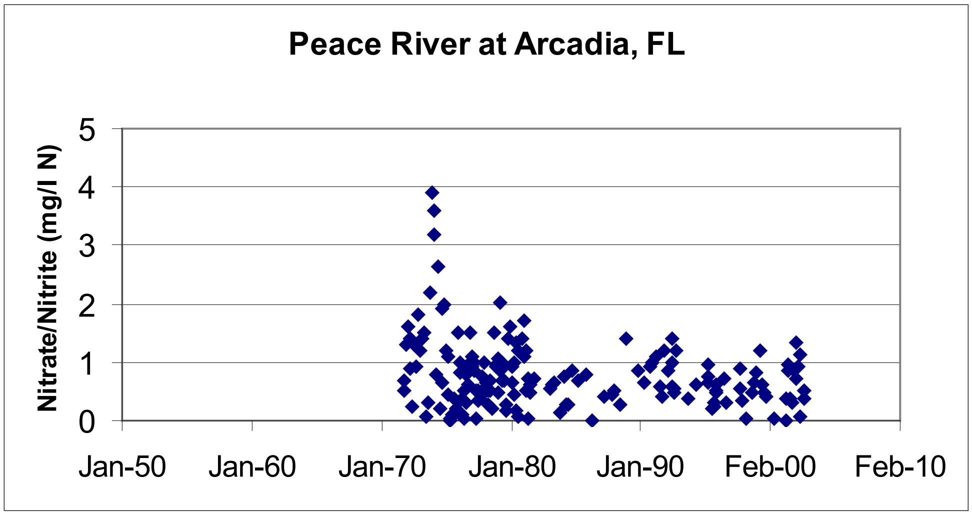
Peace River at Arcadia, FL
pH (Standard Units)
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

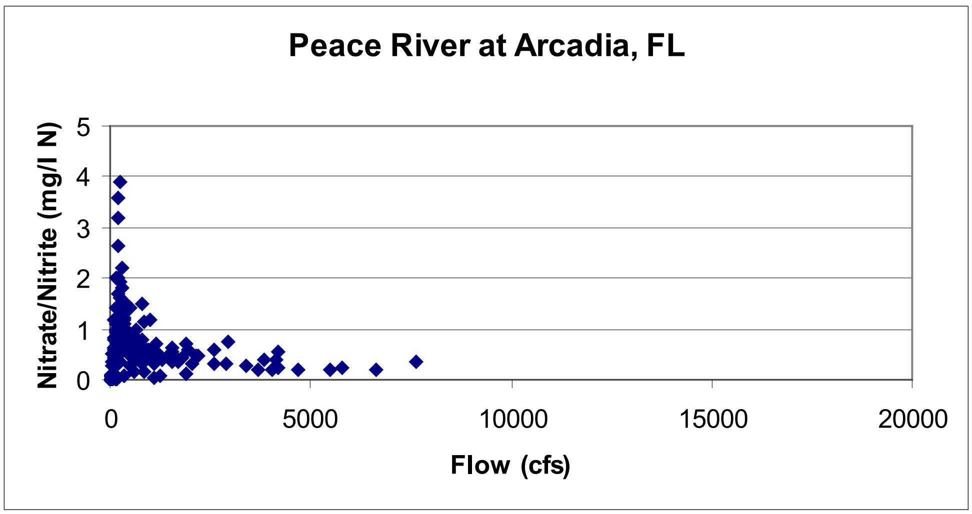


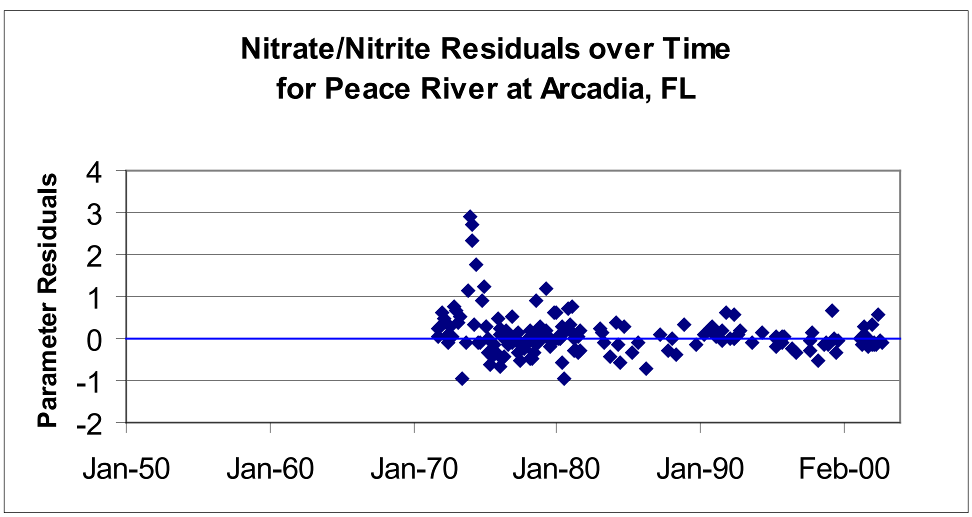
Peace River at Arcadia, FL
pH (Standard Units)
10
8
6
4
2
0
0
5000
10000
15000
20000
Flow (cfs)

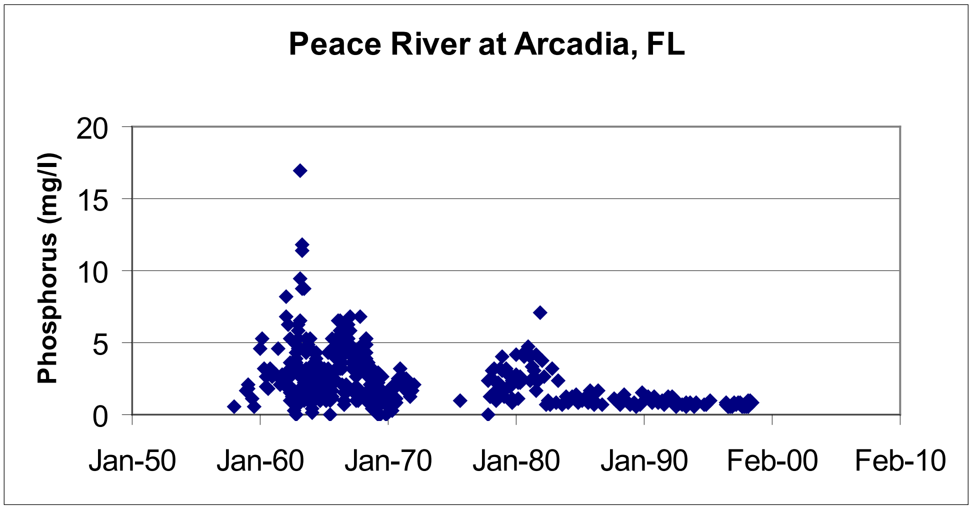


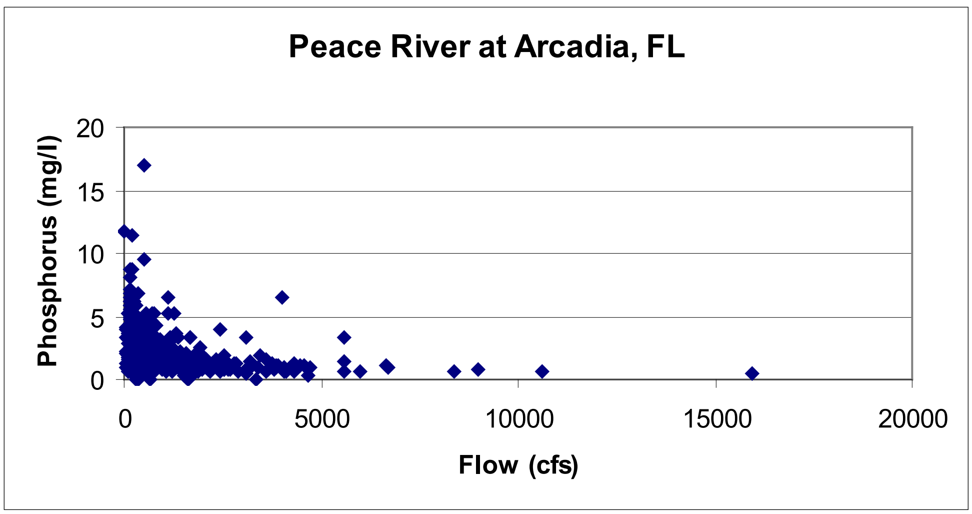
pH Residuals over Time
for Peace River at Arcadia, FL
Parameter Residuals
2
1
0
-1
-2
-3
-4
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

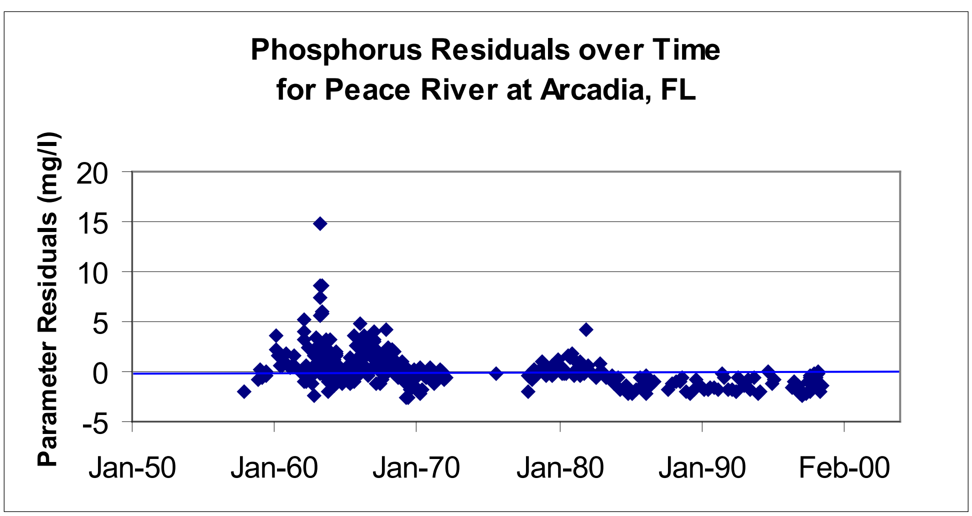

Peace River at Arcadia, FL
Nitrate/Nitrite (mg/l N)
5
4
3
2
1
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

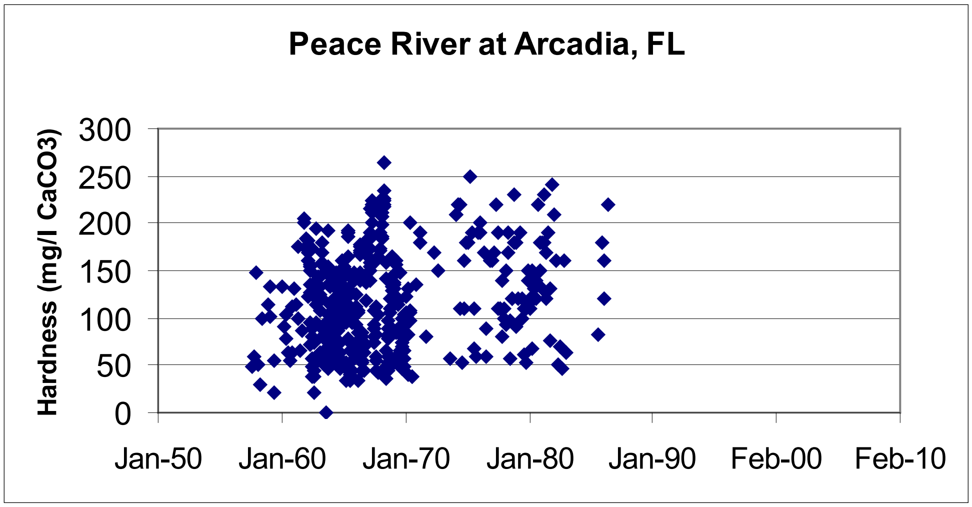

Peace River at Arcadia, FL
Nitrate/Nitrite (mg/l N)
5
4
3
2
1
0
0
5000
10000
15000
20000
Flow (cfs)

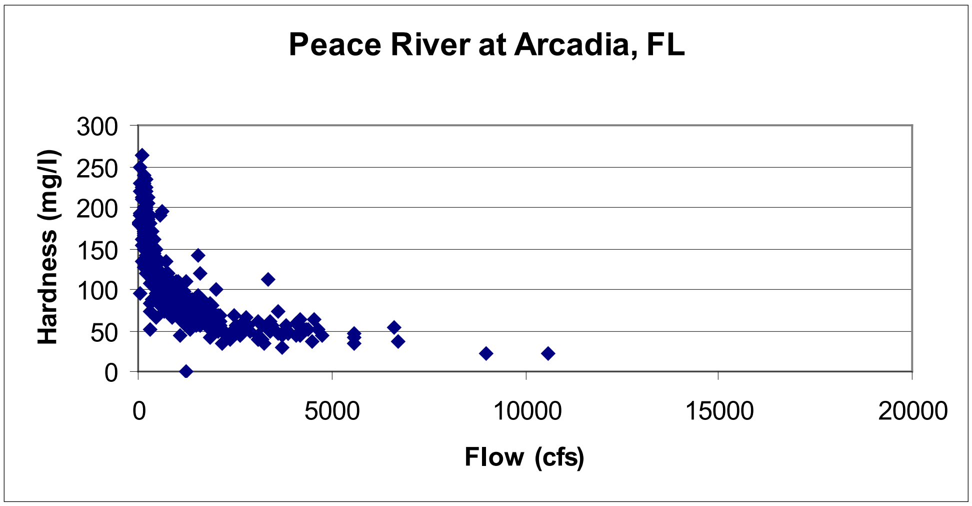

Nitrate/Nitrite Residuals over Time
for Peace River at Arcadia, FL
Parameter Residuals
4
3
2
1
0
-1
-2
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

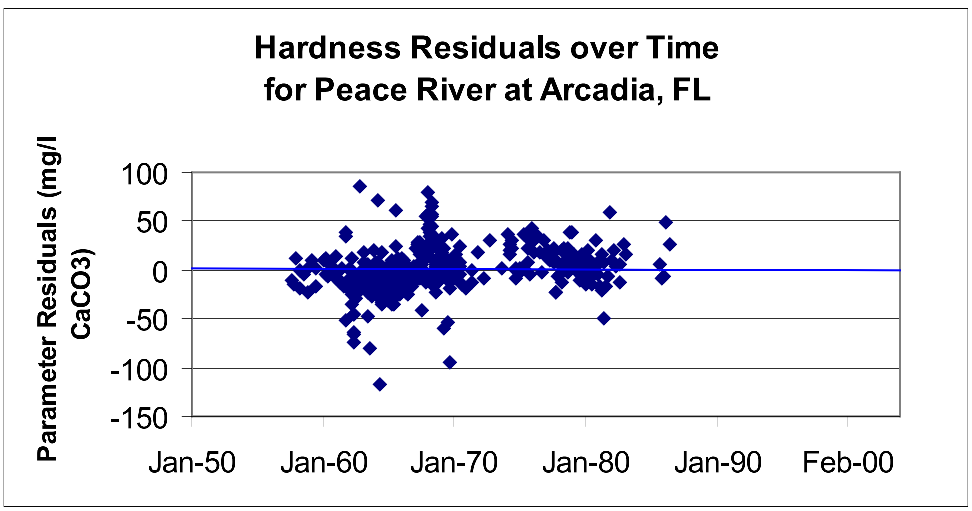

Peace River at Arcadia, FL
Phosphorus (mg/l)
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

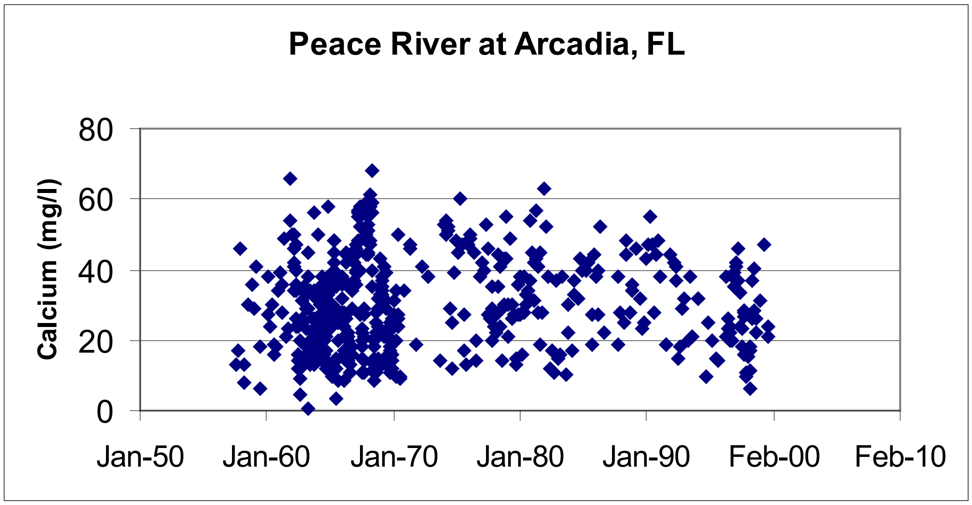

Peace River at Arcadia, FL
Phosphorus (mg/l)
20
15
10
5
0
0
5000
10000
15000
20000
Flow (cfs)

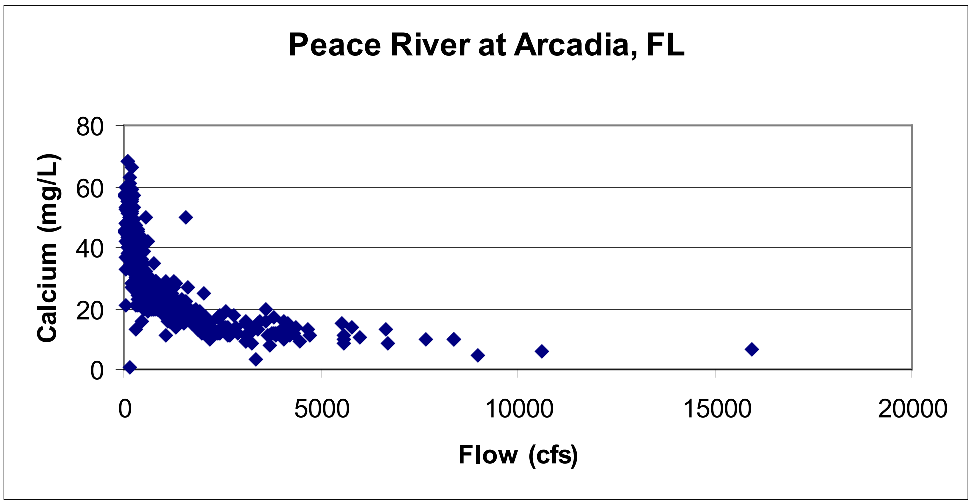

Phosphorus Residuals over Time
for Peace River at Arcadia, FL
Parameter Residuals (mg/l)
20
15
10
5
0
-5
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

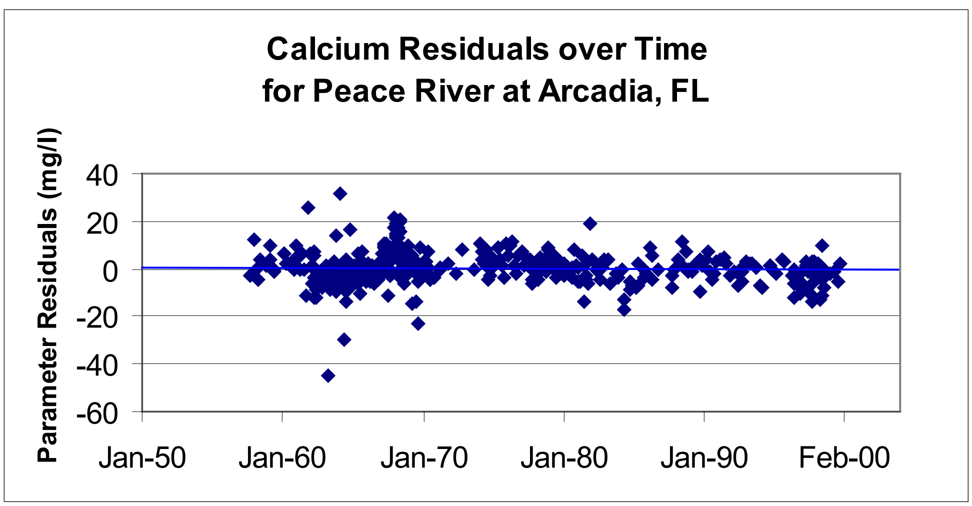

Peace River at Arcadia, FL
Hardness (mg/l CaCO3)
300
250
200
150
100
50
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

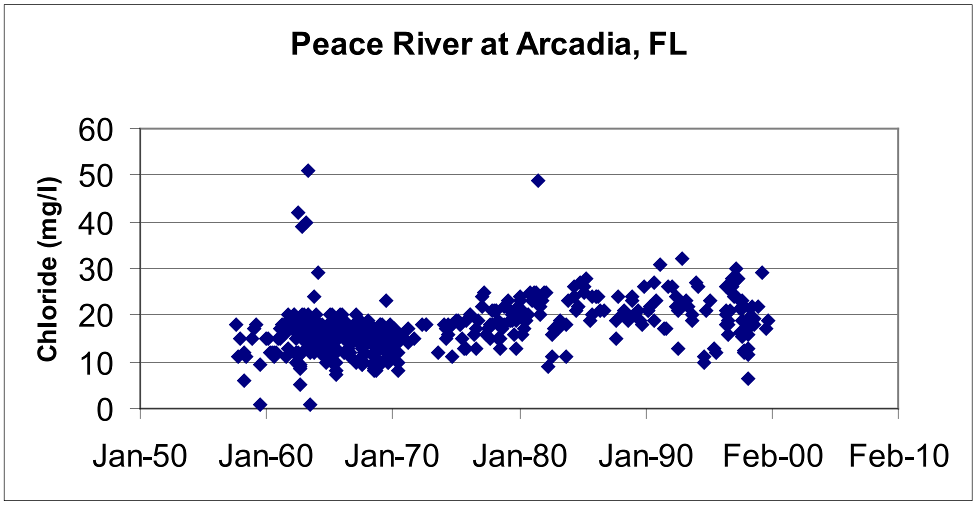

Peace River at Arcadia, FL
Hardness (mg/l)
300
250
200
150
100
50
0
0
5000
10000
15000
20000
Flow (cfs)

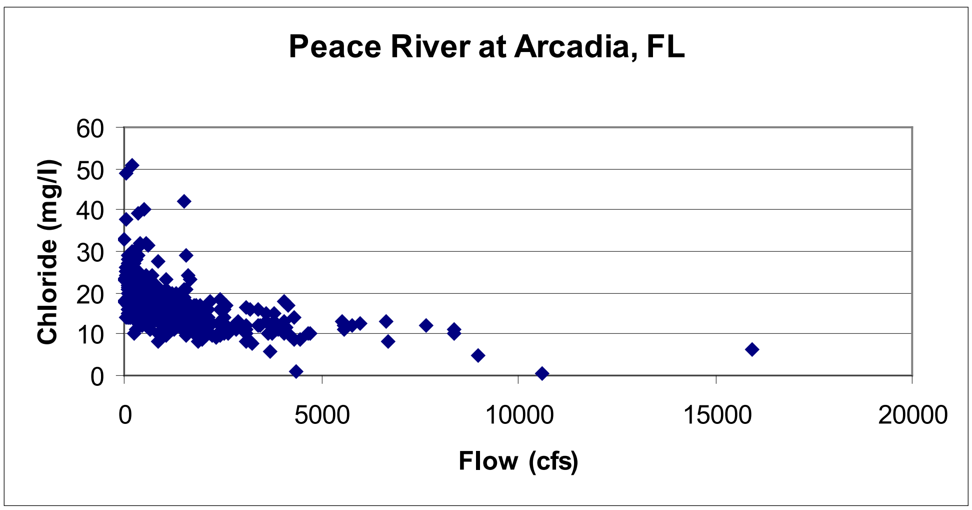

Hardness Residuals over Time
for Peace River at Arcadia, FL
Parameter Residuals (mg/l CaCO3)
100
50
0
-50
-100
-150
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

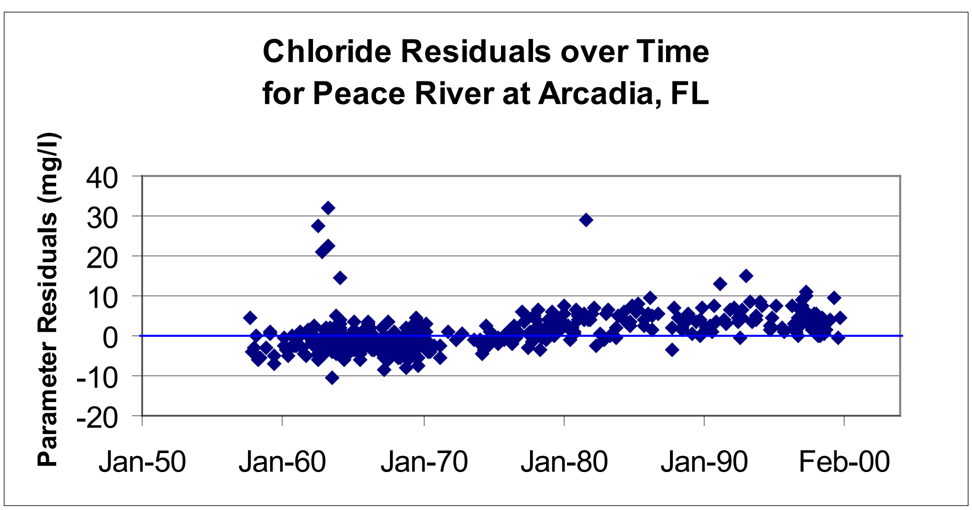

Peace River at Arcadia, FL
Calcium (mg/l)
0
20
40
60
80
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

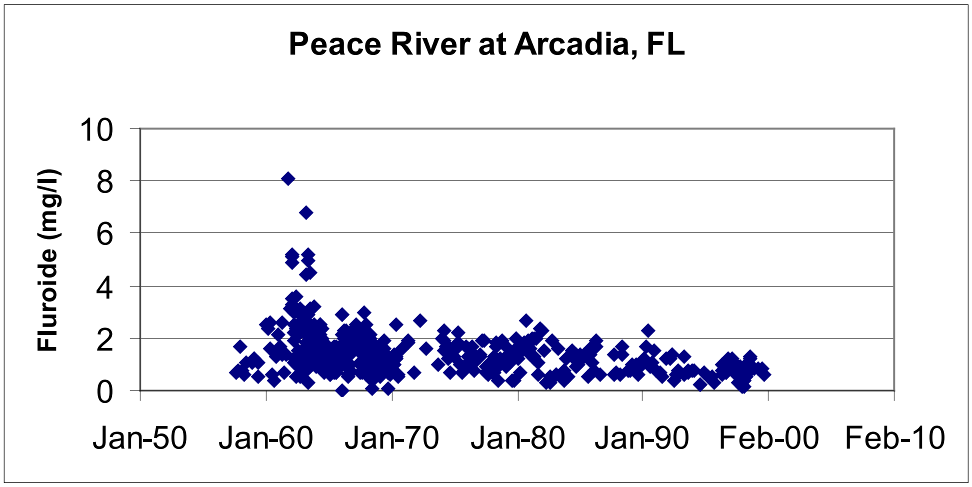

Peace River at Arcadia, FL
Calcium (mg/L)
0
20
40
60
80
0
5000
10000
15000
20000
Flow (cfs)

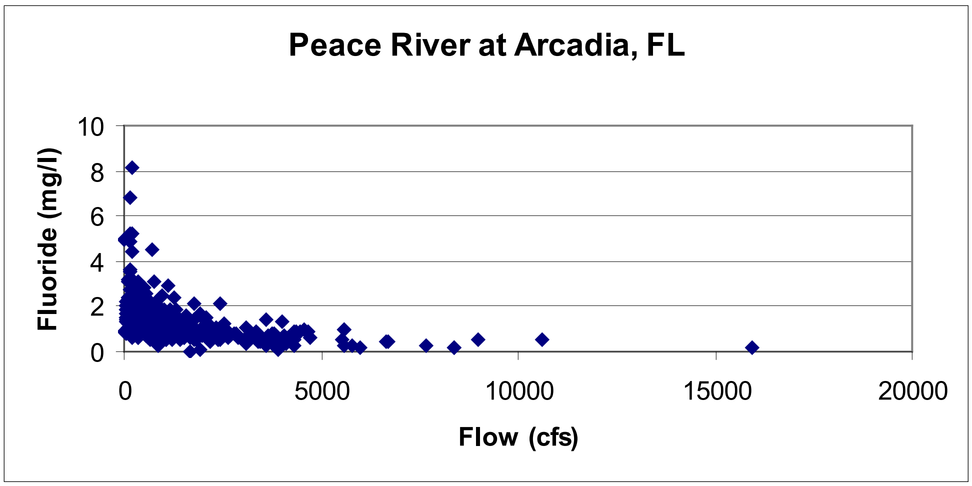

Calcium Residuals over Time
for Peace River at Arcadia, FL
Parameter Residuals (mg/l)
40
20
0
-20
-40
-60
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

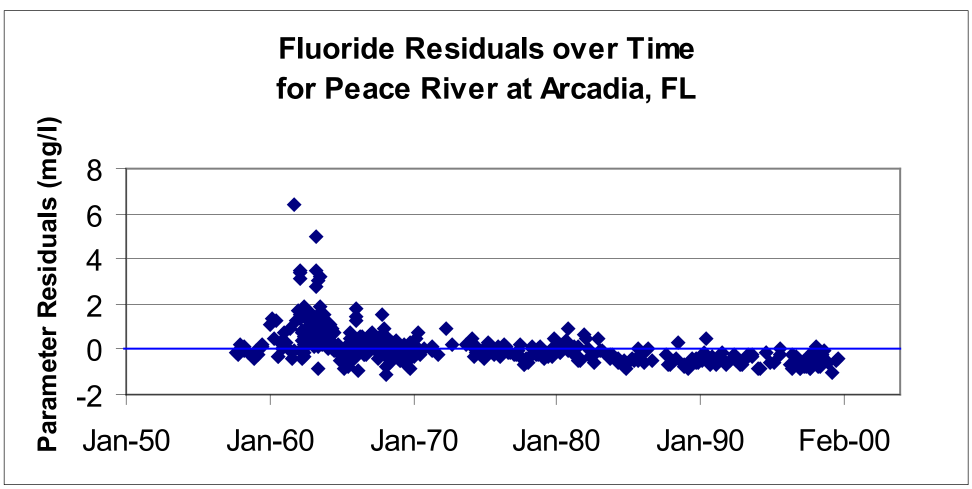

Peace River at Arcadia, FL
Chloride (mg/l)
60
50
40
30
20
10
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

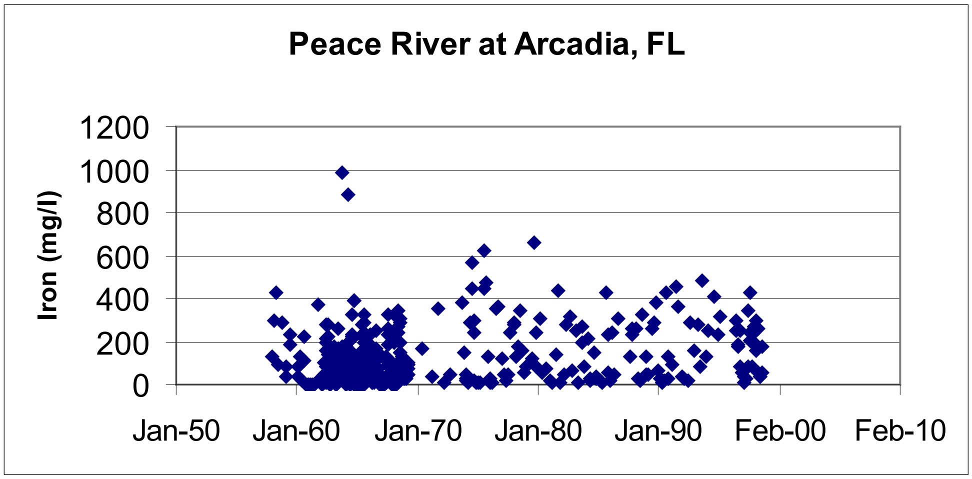

Peace River at Arcadia, FL
Chloride (mg/l)
60
50
40
30
20
10
0
0
5000
10000
15000
20000
Flow (cfs)

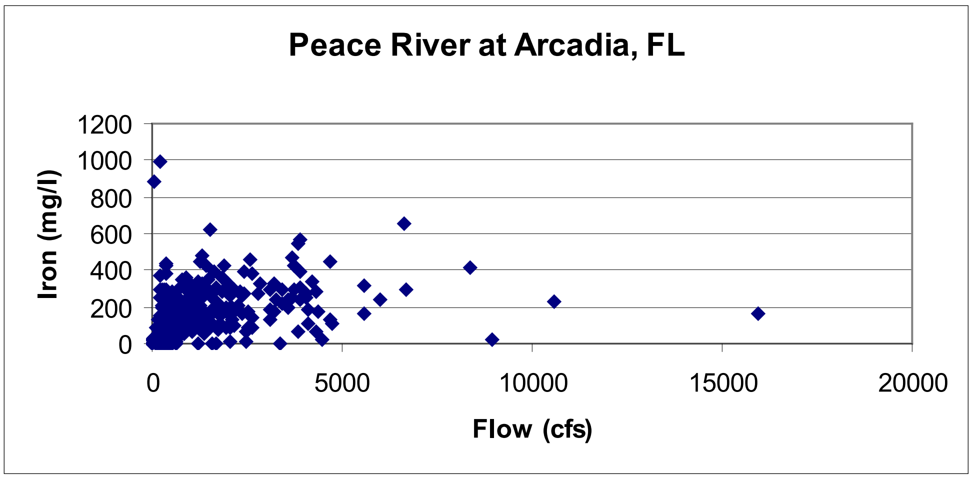

Chloride Residuals over Time
for Peace River at Arcadia, FL
Parameter Residuals (mg/l)
40
30
20
10
0
-10
-20
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

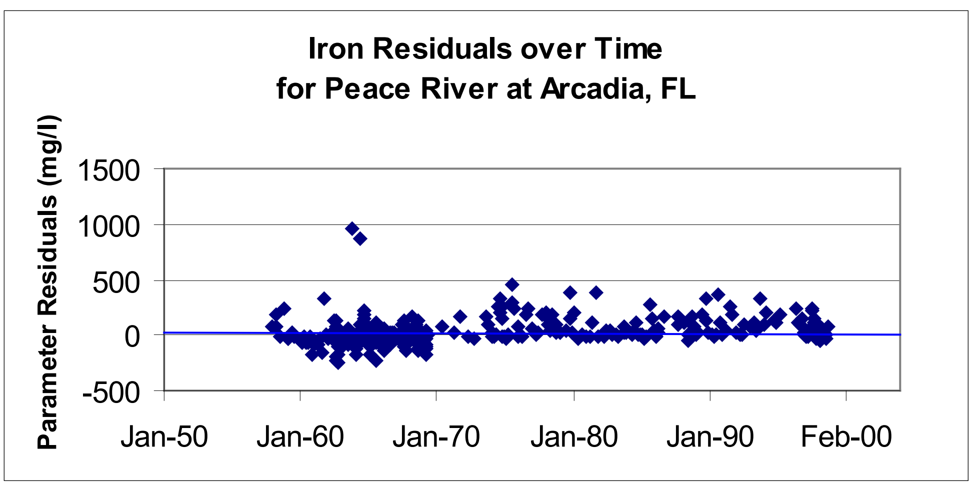

Peace River at Arcadia, FL
Fluroide (mg/l)
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

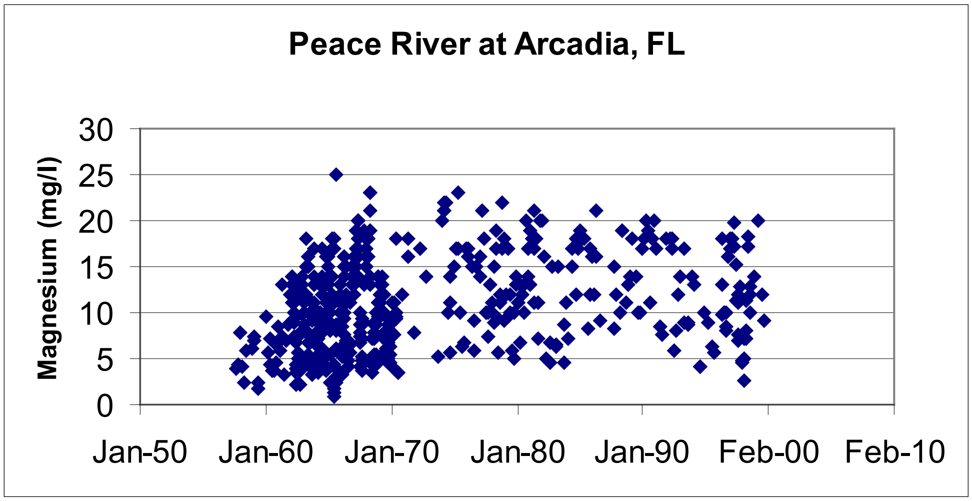

Peace River at Arcadia, FL
Fluoride (mg/l)
10
8
6
4
2
0
0
5000
10000
15000
20000
Flow (cfs)


Fluoride Residuals over Time
for Peace River at Arcadia, FL
Parameter Residuals (mg/l)
8
6
4
2
0
-2
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

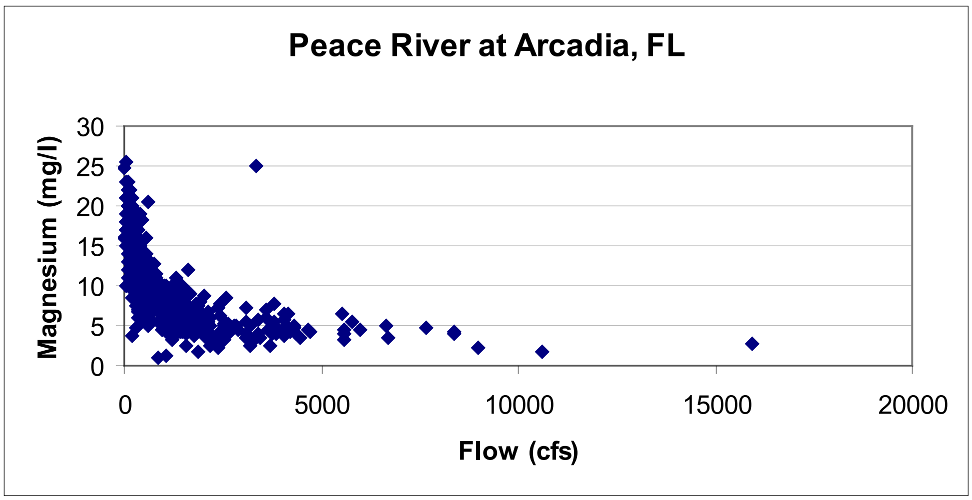

Peace River at Arcadia, FL
Iron (mg/l)
1200
1000
800
600
400
200
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10


Peace River at Arcadia, FL
Iron (mg/l)
1200
1000
800
600
400
200
0
0
5000
10000
15000
20000
Flow (cfs)

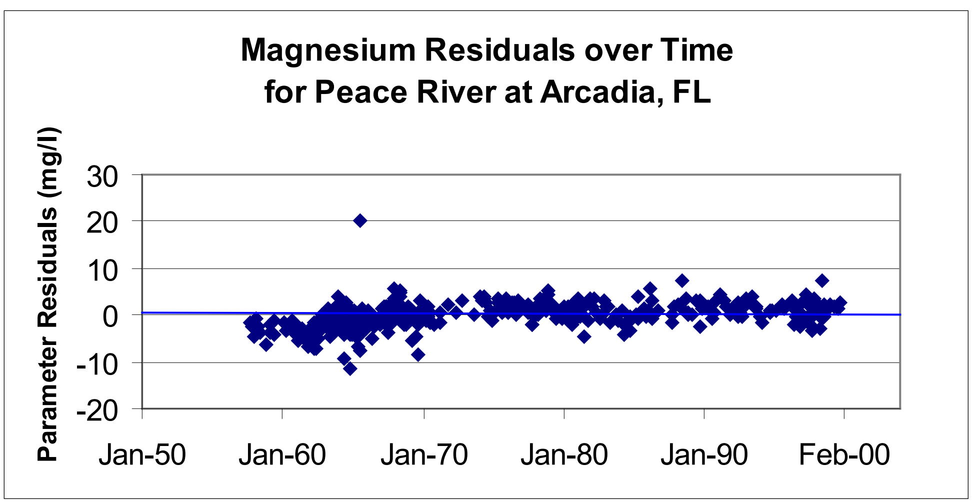

Iron Residuals over Time
for Peace River at Arcadia, FL
Parameter Residuals (mg/l)
1500
1000
500
0
-500
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00



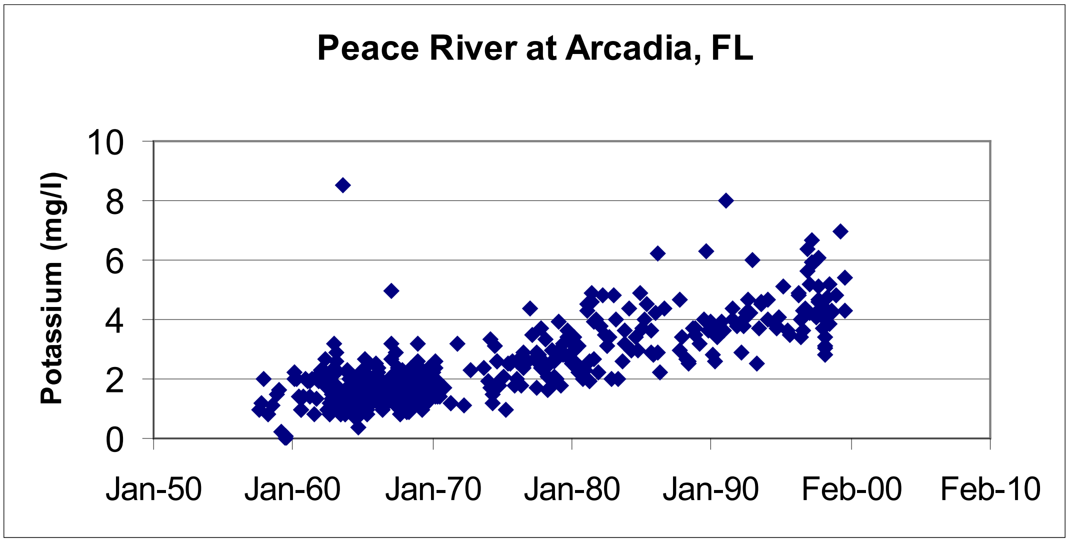
Peace River at Arcadia, FL
Magnesium (mg/l)
30
25
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

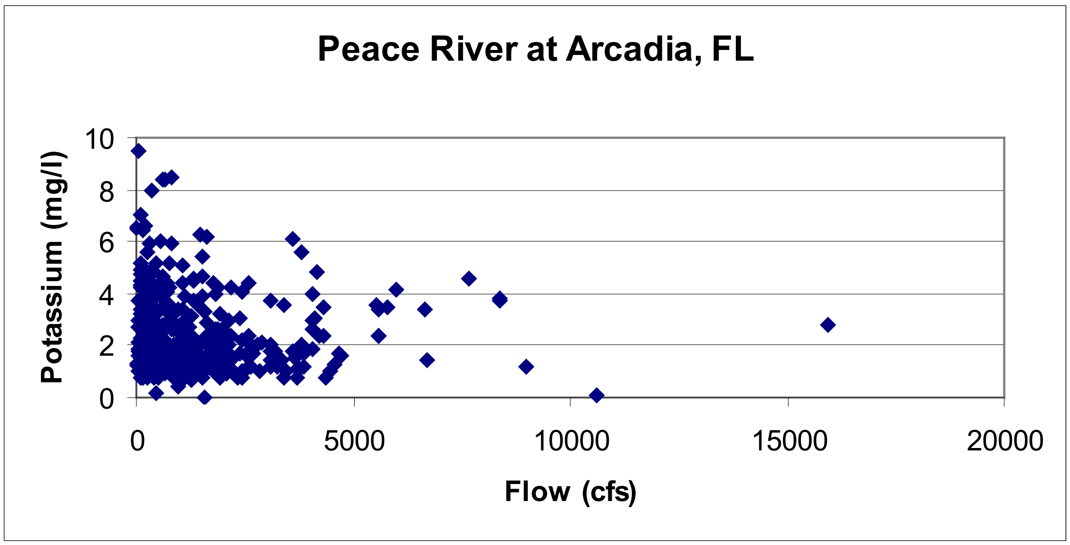


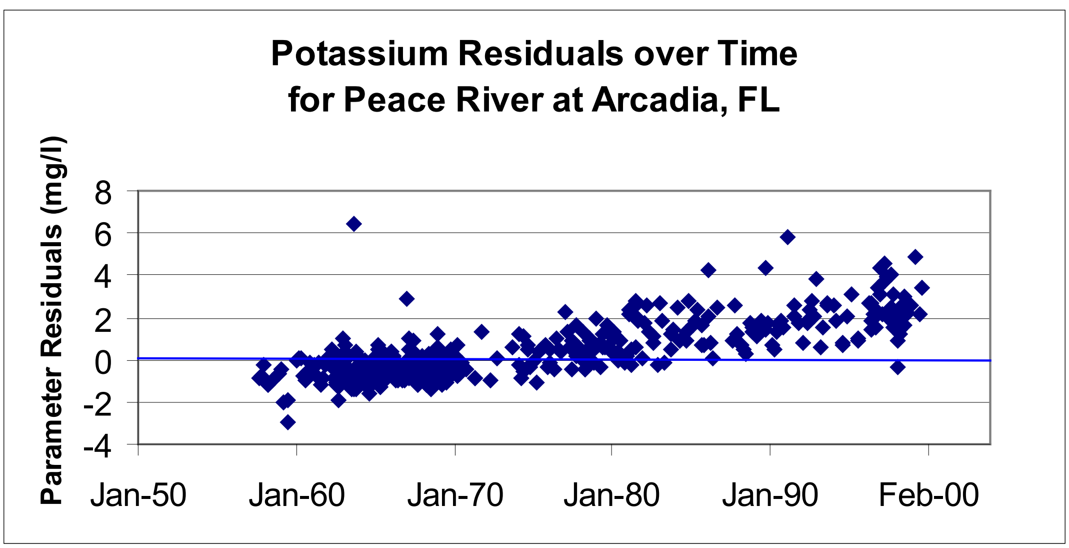
Peace River at Arcadia, FL
Magnesium (mg/l)
30
25
20
15
10
5
0
0
5000
10000
15000
20000
Flow (cfs)

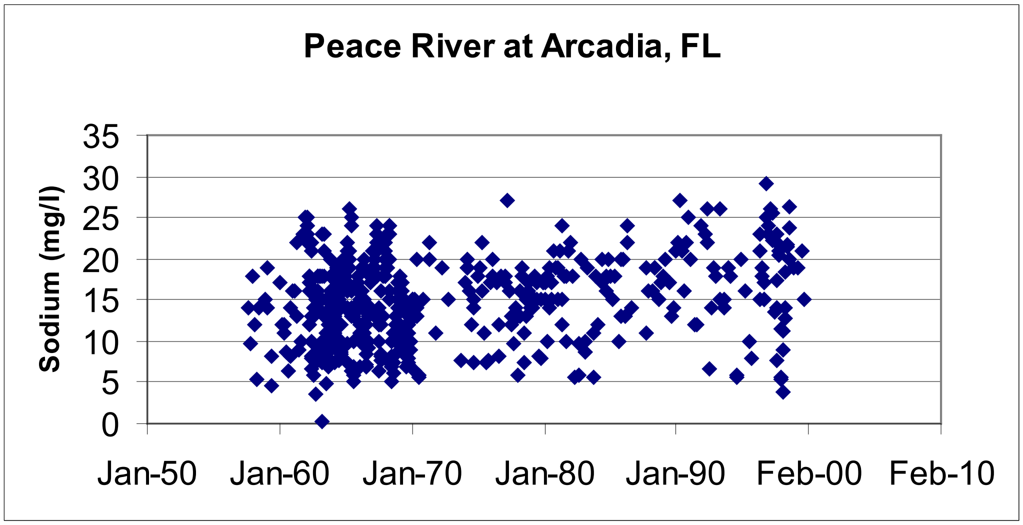


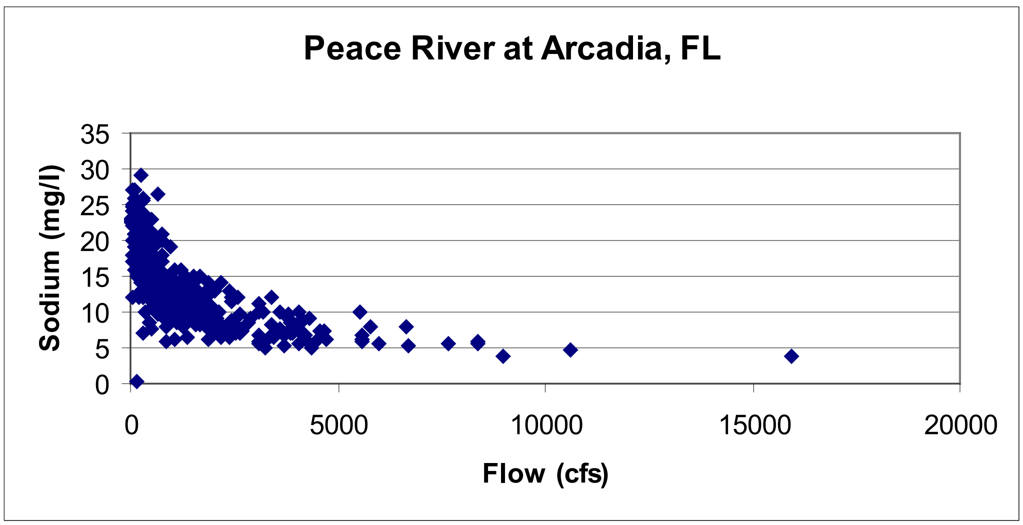
Magnesium Residuals over Time
for Peace River at Arcadia, FL
Parameter Residuals (mg/l)
30
20
10
0
-10
-20
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

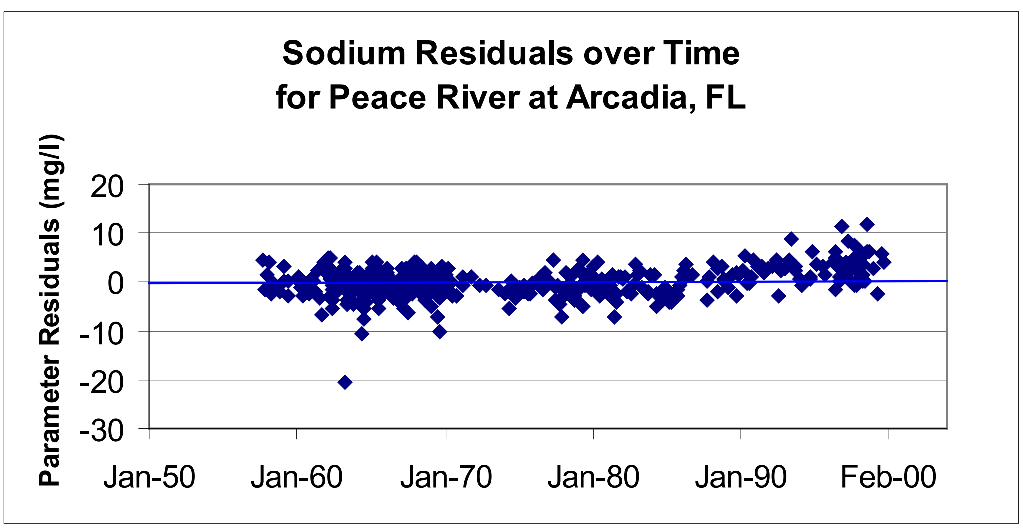

Peace River at Arcadia, FL
Potassium (mg/l)
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

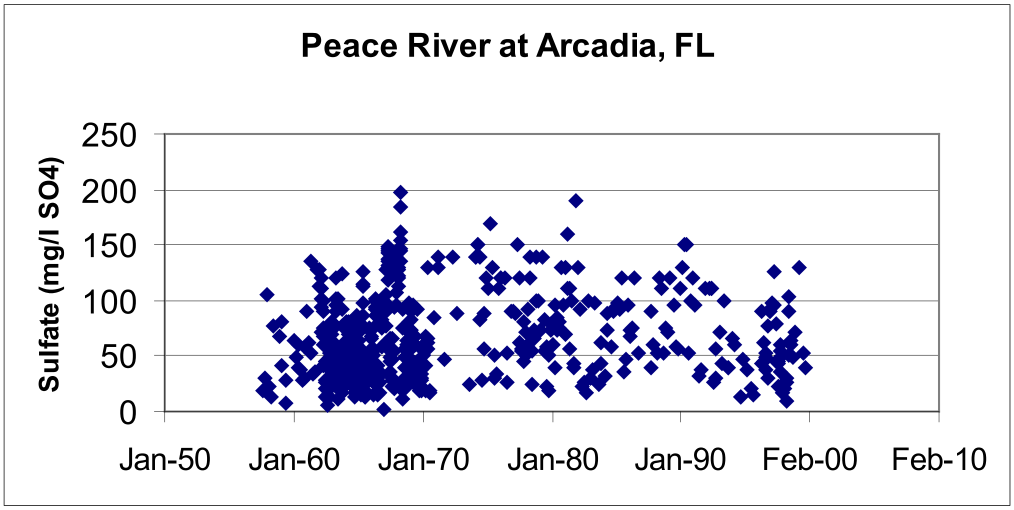

Peace River at Arcadia, FL
Potassium (mg/l)
10
8
6
4
2
0
0
5000
10000
15000
20000
Flow (cfs)


Potassium Residuals over Time
for Peace River at Arcadia, FL
Parameter Residuals (mg/l)
8
6
4
2
0
-2
-4
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

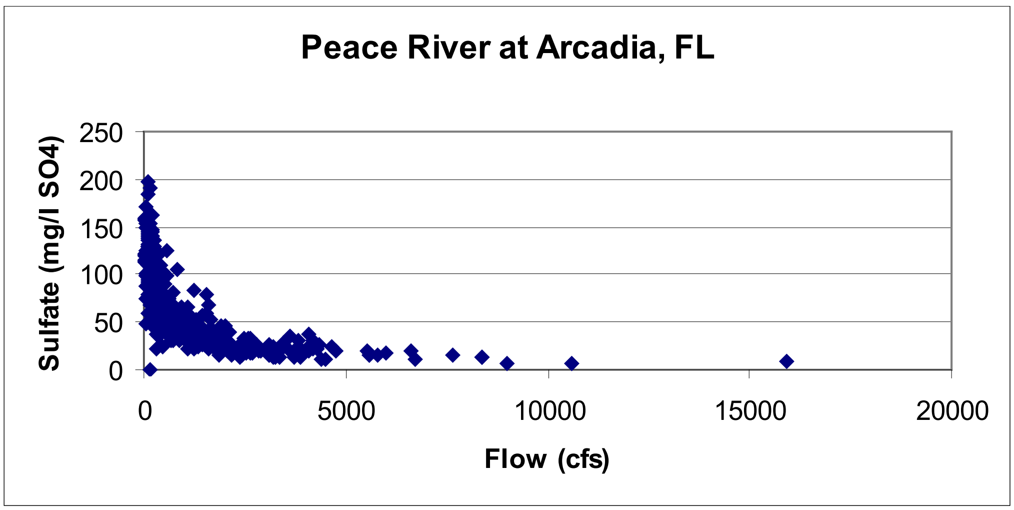

Peace River at Arcadia, FL
Sodium (mg/l)
35
30
25
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10


Peace River at Arcadia, FL
Sodium (mg/l)
35
30
25
20
15
10
5
0
0
5000
10000
15000
20000
Flow (cfs)

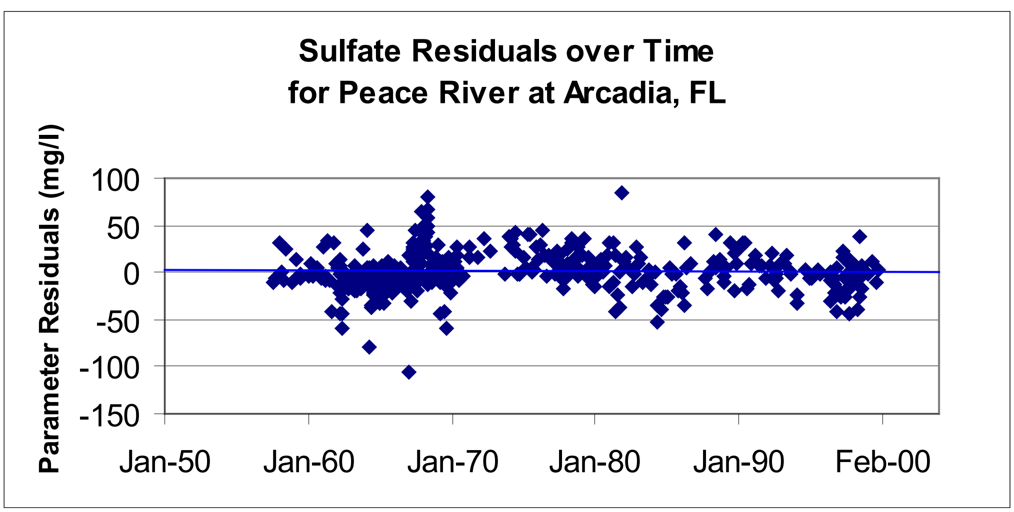

Sodium Residuals over Time
for Peace River at Arcadia, FL
Parameter Residuals (mg/l)
20
10
0
-10
-20
-30
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00



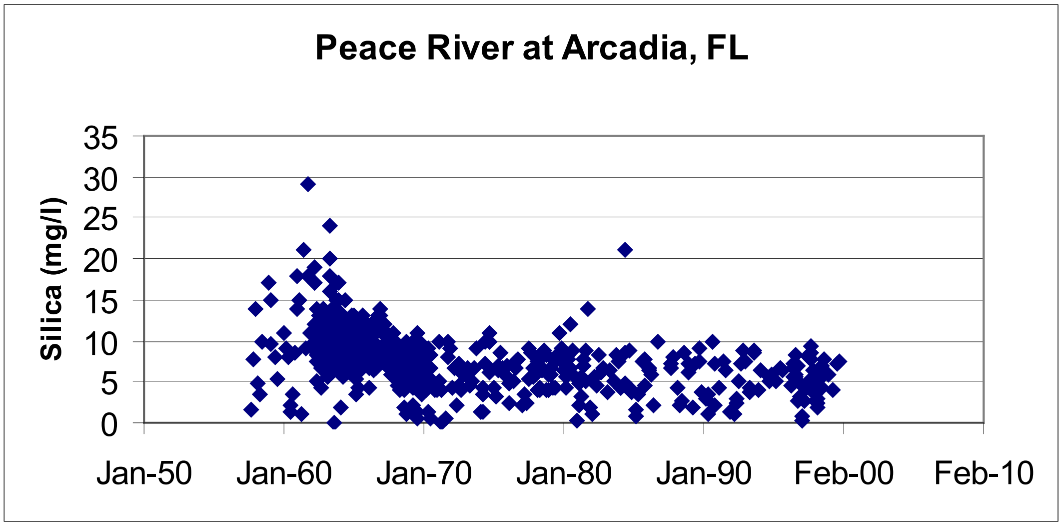
Peace River at Arcadia, FL
Sulfate (mg/l SO4)
250
200
150
100
50
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

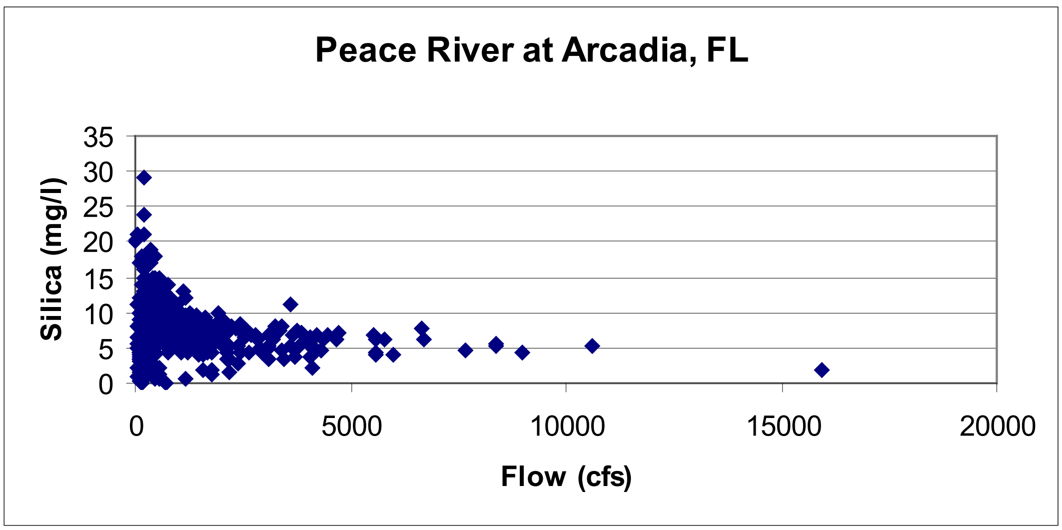


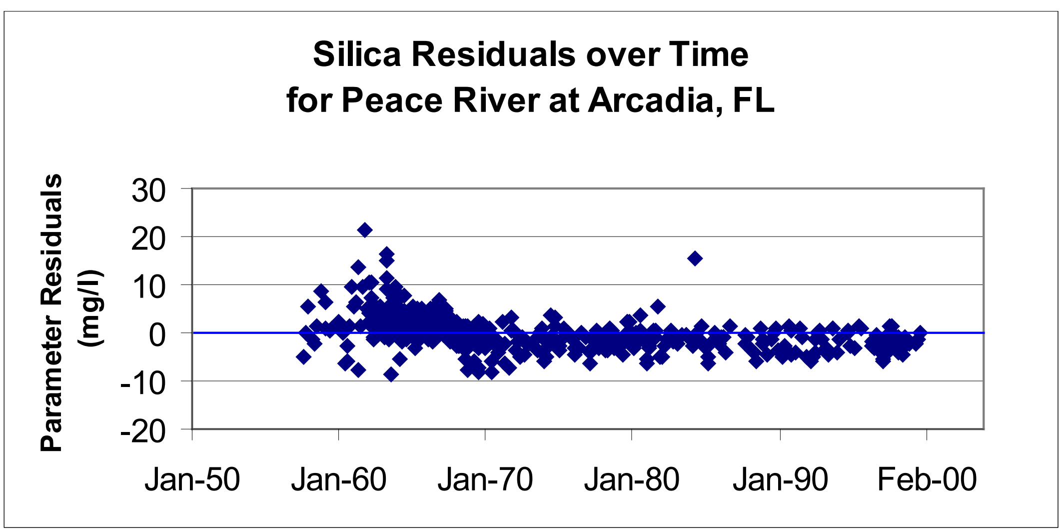
Peace River at Arcadia, FL
Sulfate (mg/l SO4)
250
200
150
100
50
0
0
5000
10000
15000
20000
Flow (cfs)

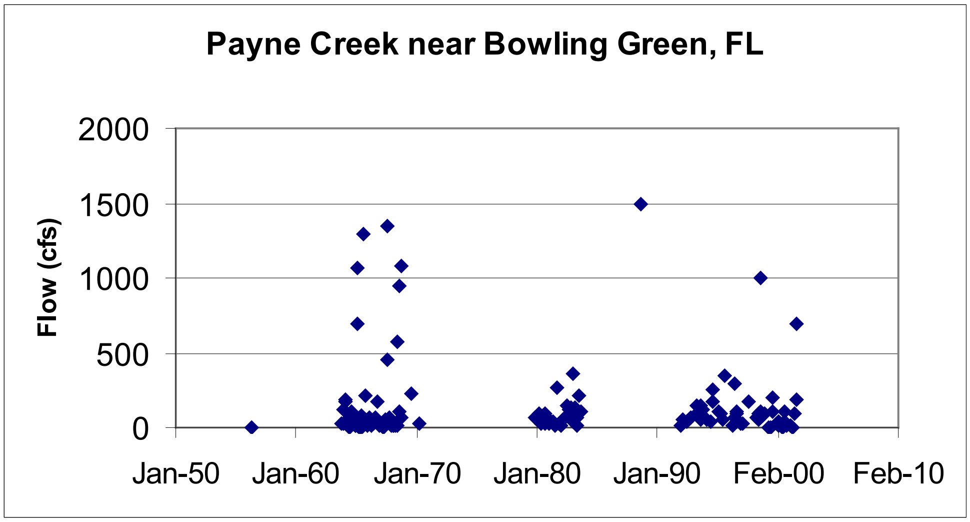


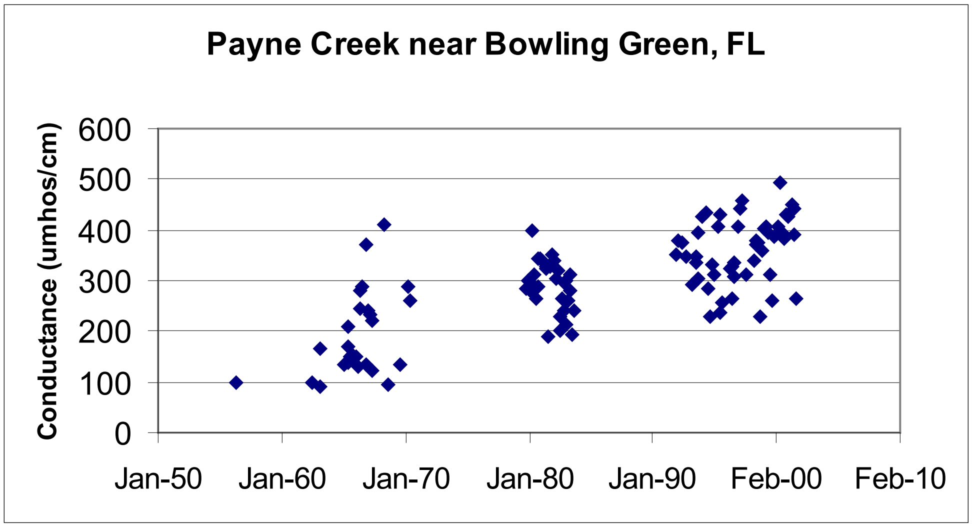
Sulfate Residuals over Time
for Peace River at Arcadia, FL
Parameter Residuals (mg/l)
100
50
0
-50
-100
-150
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

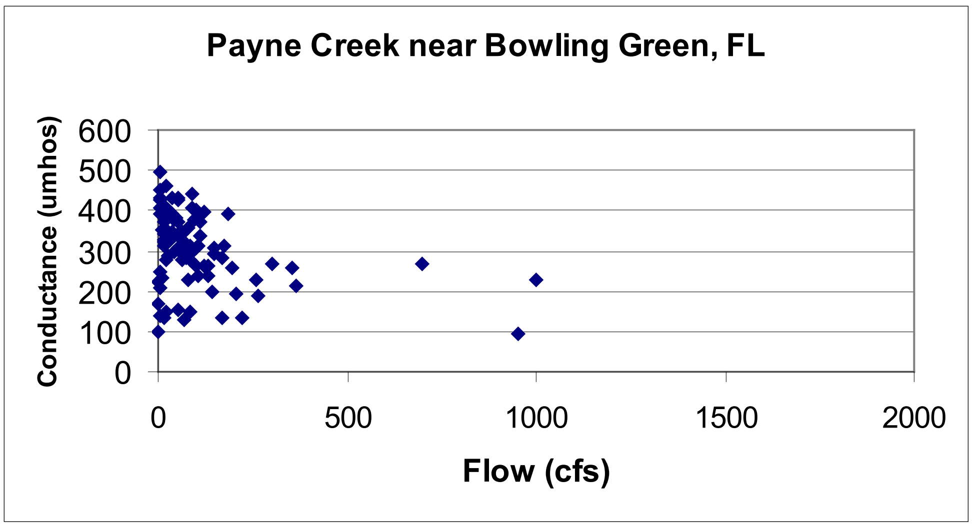

Peace River at Arcadia, FL
Silica (mg/l)
35
30
25
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

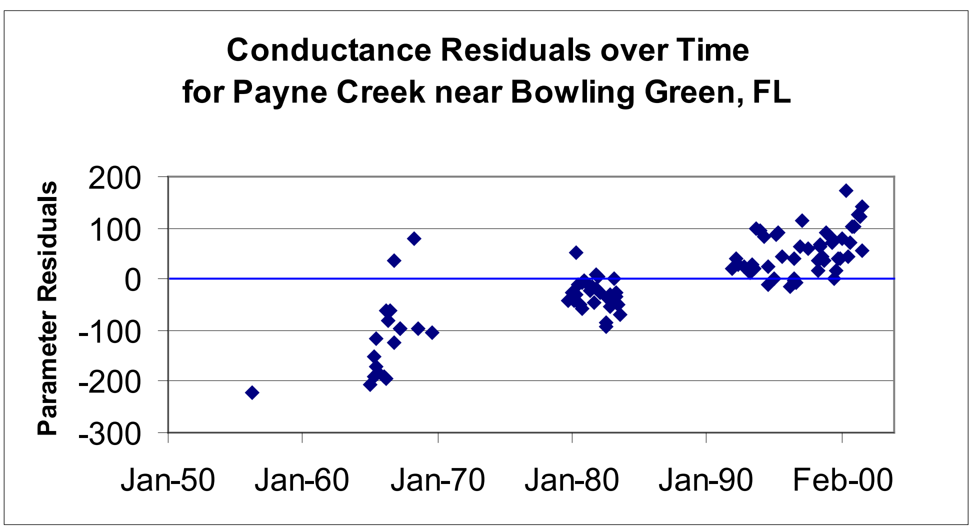

Peace River at Arcadia, FL
Silica (mg/l)
35
30
25
20
15
10
5
0
0
5000
10000
15000
20000
Flow (cfs)

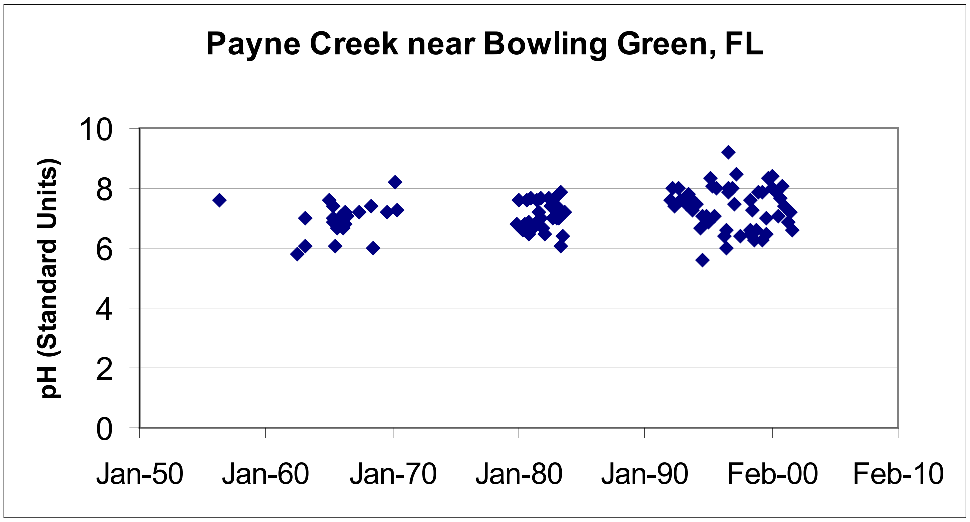

Silica Residuals over Time
for Peace River at Arcadia, FL
Parameter Residuals (mg/l)
30
20
10
0
-10
-20
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

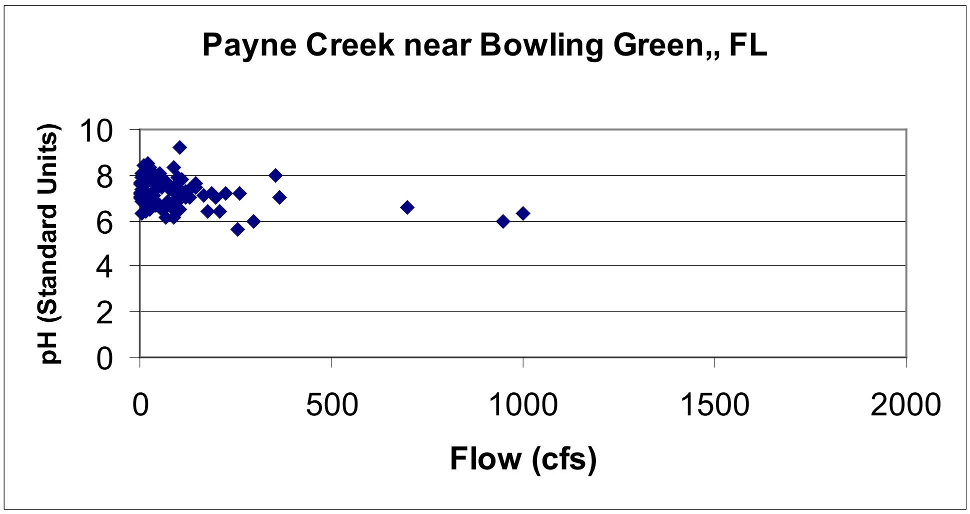

Payne Creek near Bowling Green, FL
Flow (cfs)
2000
1500
1000
500
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

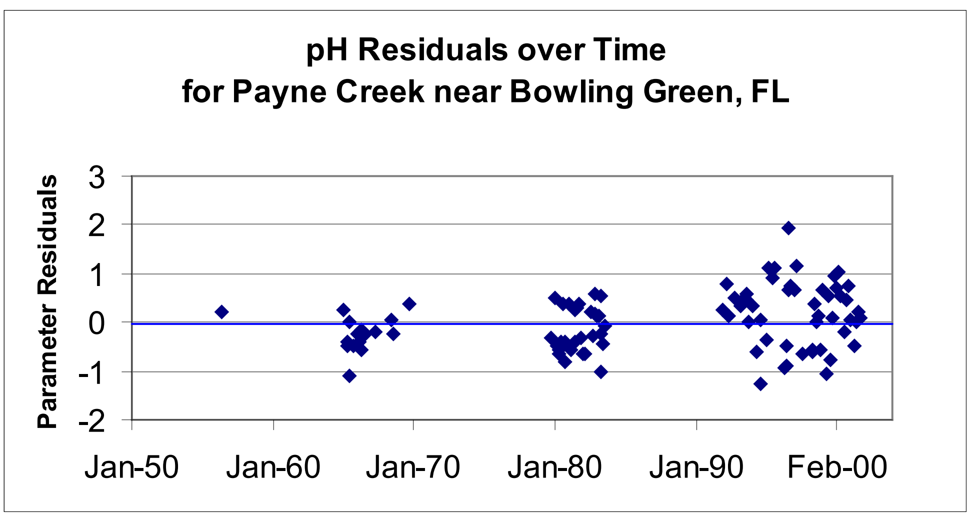

Payne Creek near Bowling Green, FL
Conductance (umhos/cm)
600
500
400
300
200
100
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

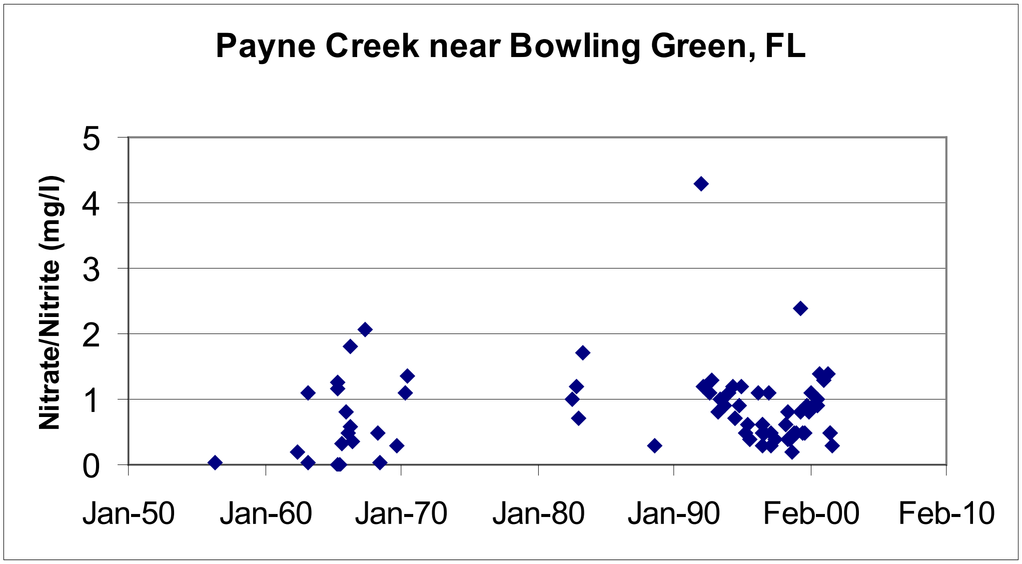

Payne Creek near Bowling Green, FL
Conductance (umhos)
600
500
400
300
200
100
0
0
500
1000
1500
2000
Flow (cfs)

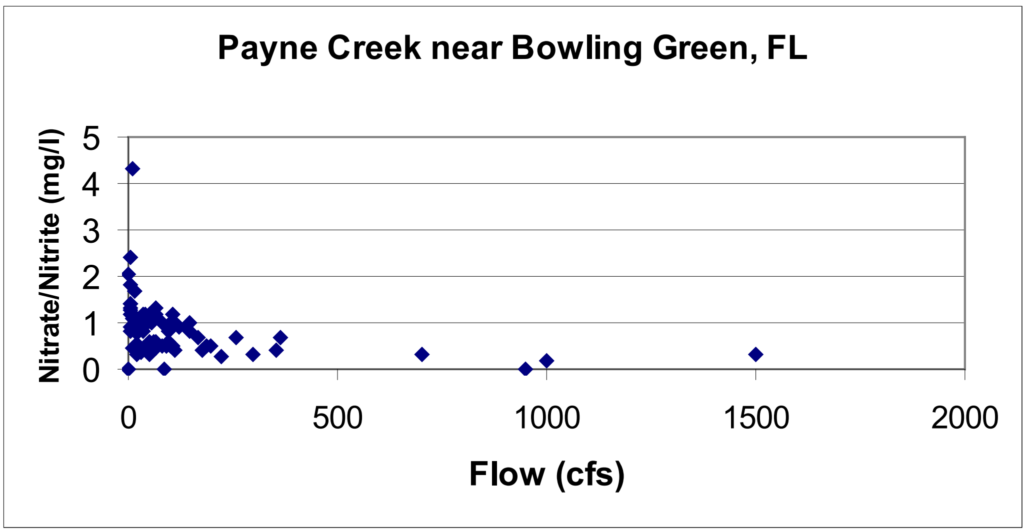

Conductance Residuals over Time
for Payne Creek near Bowling Green, FL
Parameter Residuals
200
100
0
-100
-200
-300
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

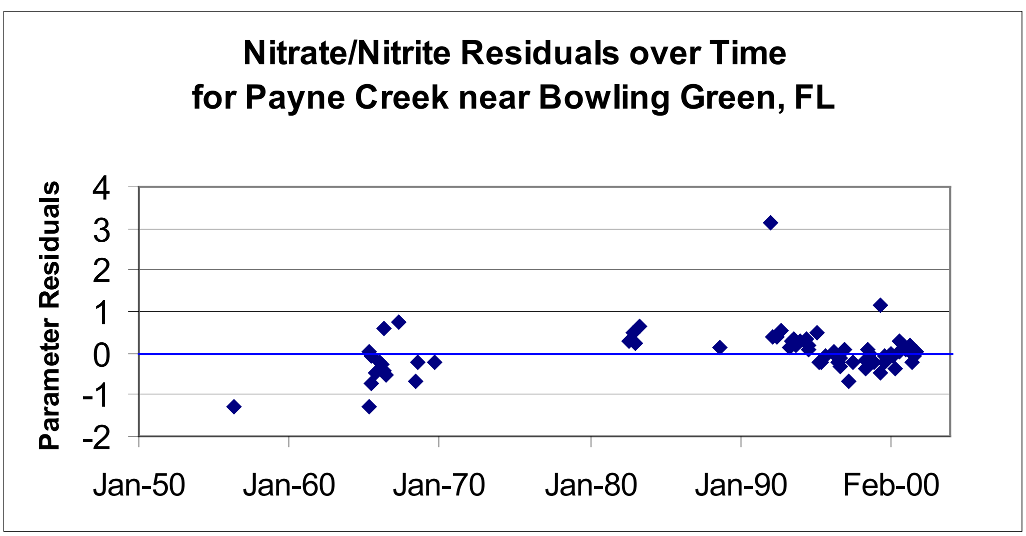

Payne Creek near Bowling Green, FL
pH (Standard Units)
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

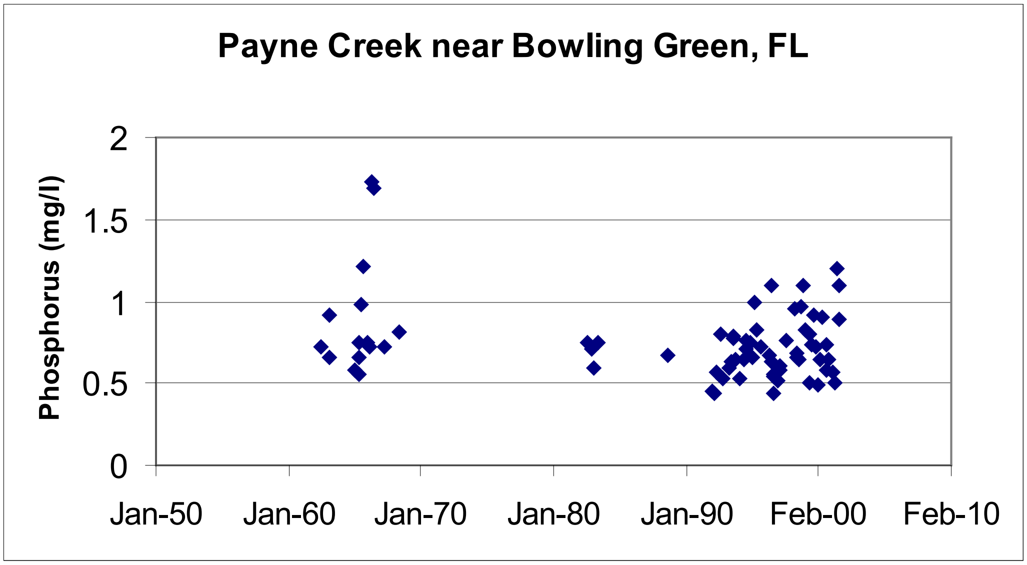

Payne Creek near Bowling Green,, FL
pH (Standard Units)
10
8
6
4
2
0
0
500
1000
1500
2000
Flow (cfs)

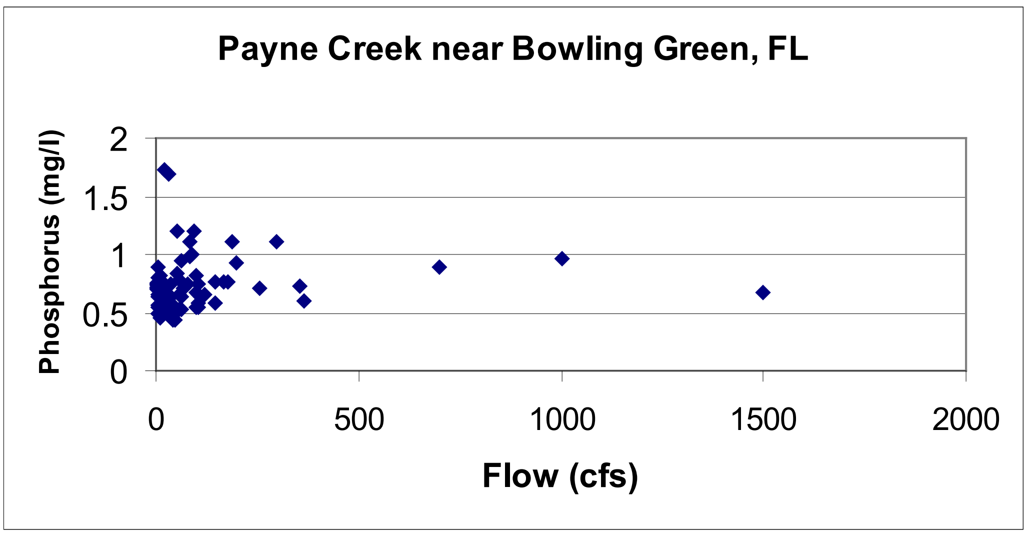

pH Residuals over Time
for Payne Creek near Bowling Green, FL
Parameter Residuals
3
2
1
0
-1
-2
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

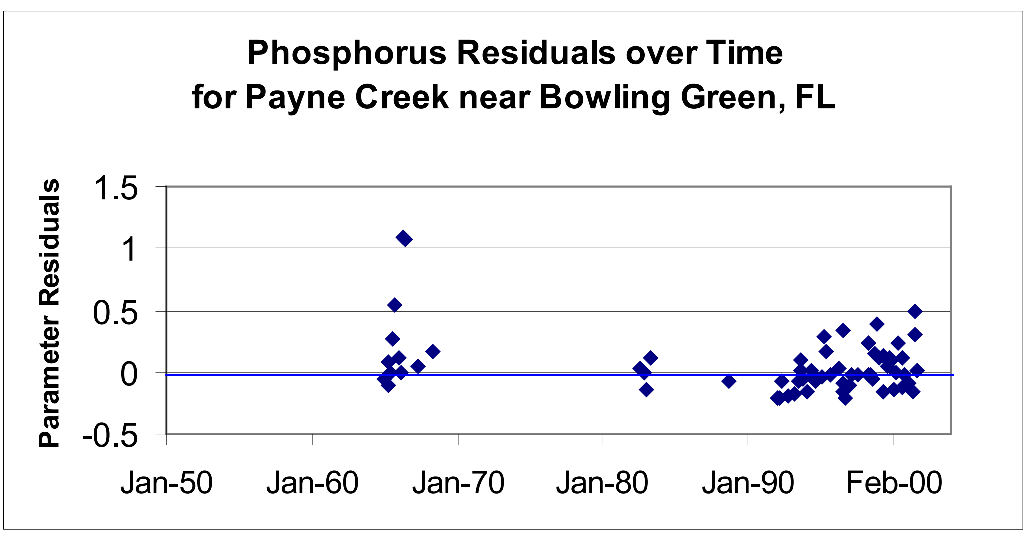

Payne Creek near Bowling Green, FL
Nitrate/Nitrite (mg/l)
0
1
2
3
4
5
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

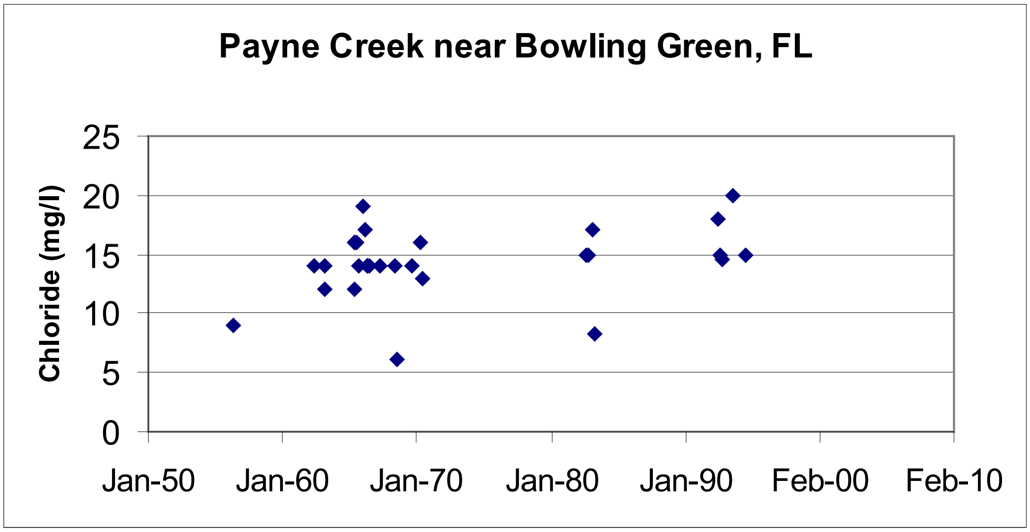

Payne Creek near Bowling Green, FL
Nitrate/Nitrite (mg/l)
0
1
2
3
4
5
0
500
1000
1500
2000
Flow (cfs)

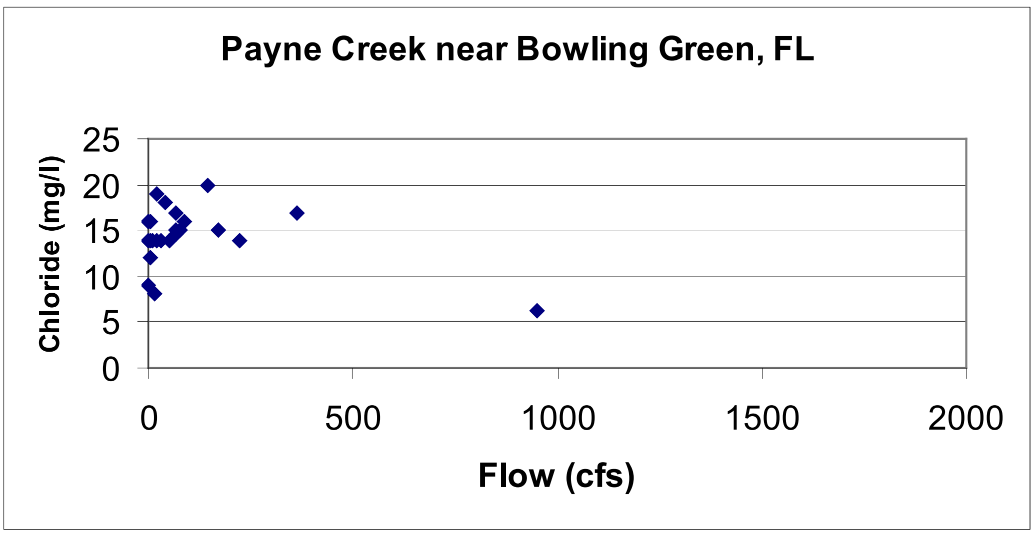

Nitrate/Nitrite Residuals over Time
for Payne Creek near Bowling Green, FL
Parameter Residuals
4
3
2
1
0
-1
-2
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

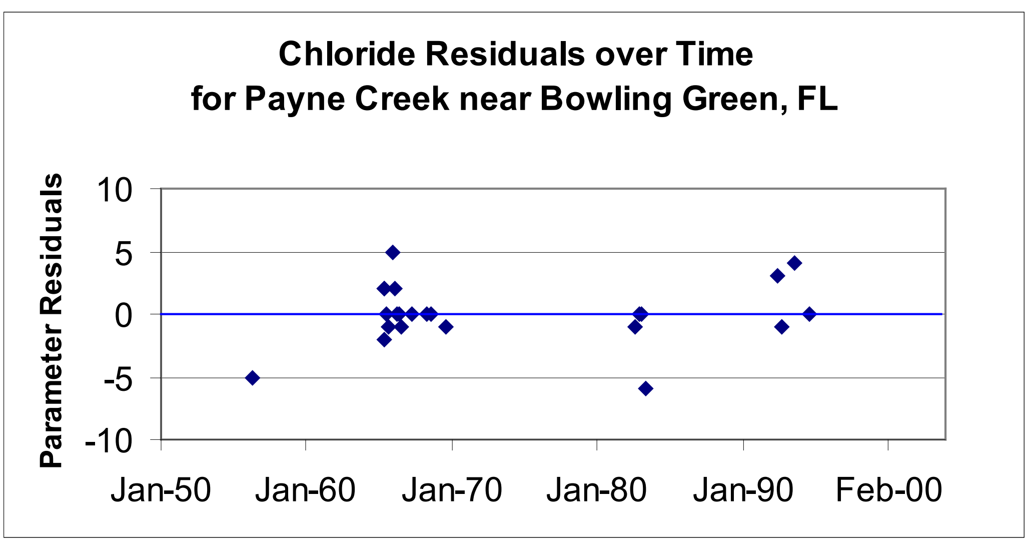

Payne Creek near Bowling Green, FL
Phosphorus (mg/l)
2
1.5
1
0.5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

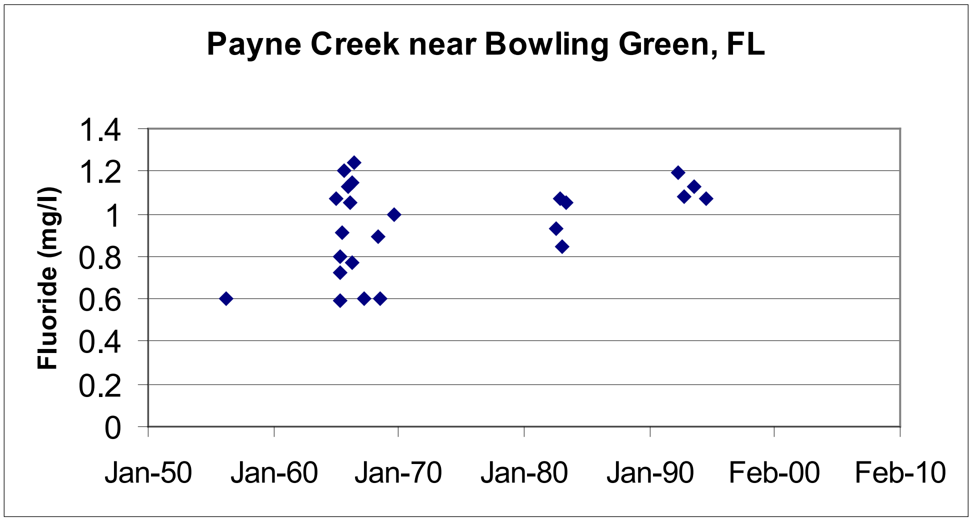

Payne Creek near Bowling Green, FL
Phosphorus (mg/l)
2
1.5
1
0.5
0
0
500
1000
1500
2000
Flow (cfs)

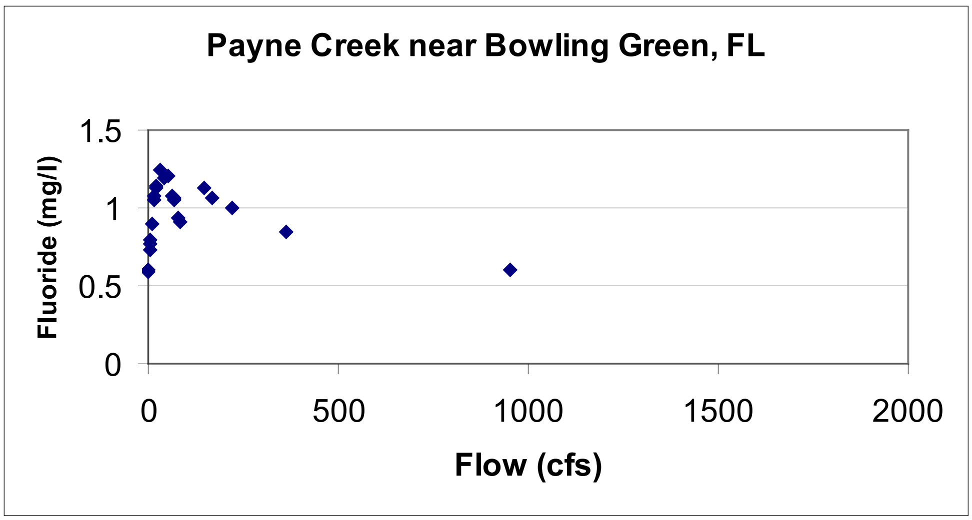

Phosphorus Residuals over Time
for Payne Creek near Bowling Green, FL
Parameter Residuals
1.5
1
0.5
0
-0.5
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

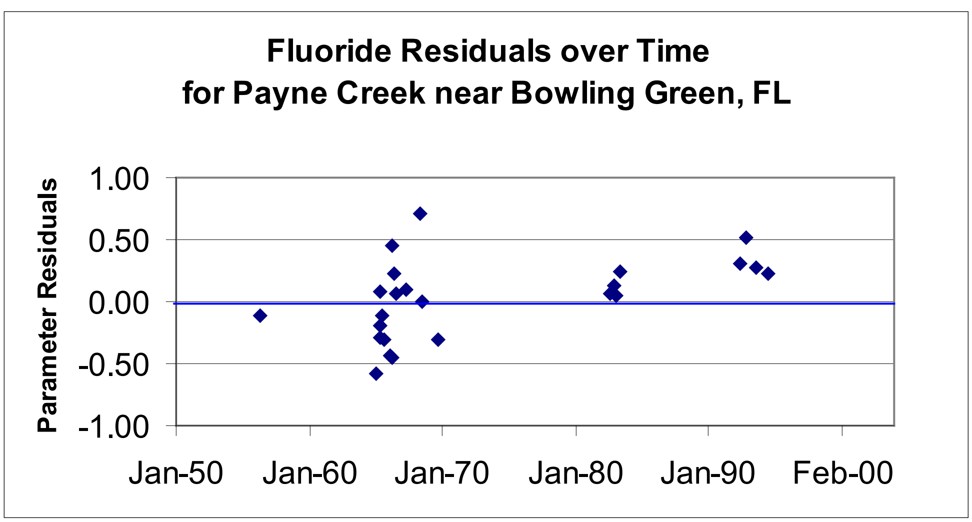

Payne Creek near Bowling Green, FL
Chloride (mg/l)
25
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

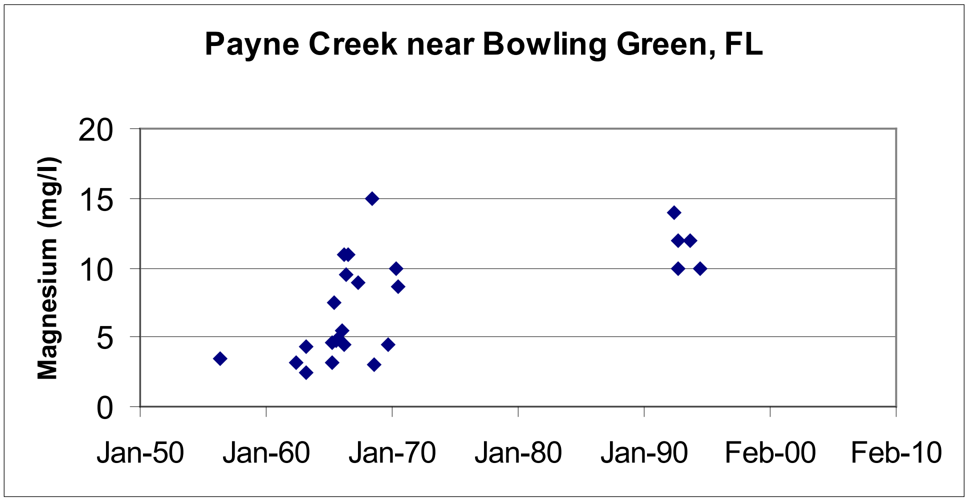

Payne Creek near Bowling Green, FL
Chloride (mg/l)
25
20
15
10
5
0
0
500
1000
1500
2000
Flow (cfs)

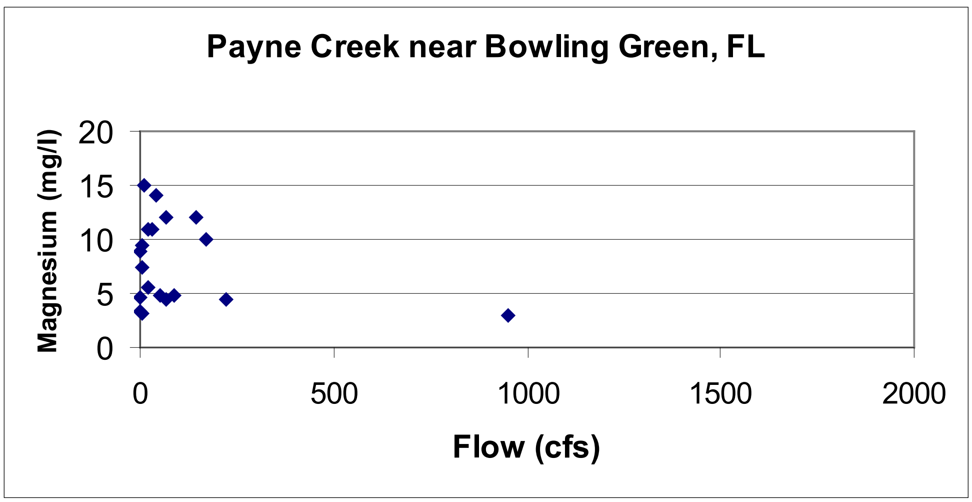

Chloride Residuals over Time
for Payne Creek near Bowling Green, FL
Parameter Residuals
10
5
0
-5
-10
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

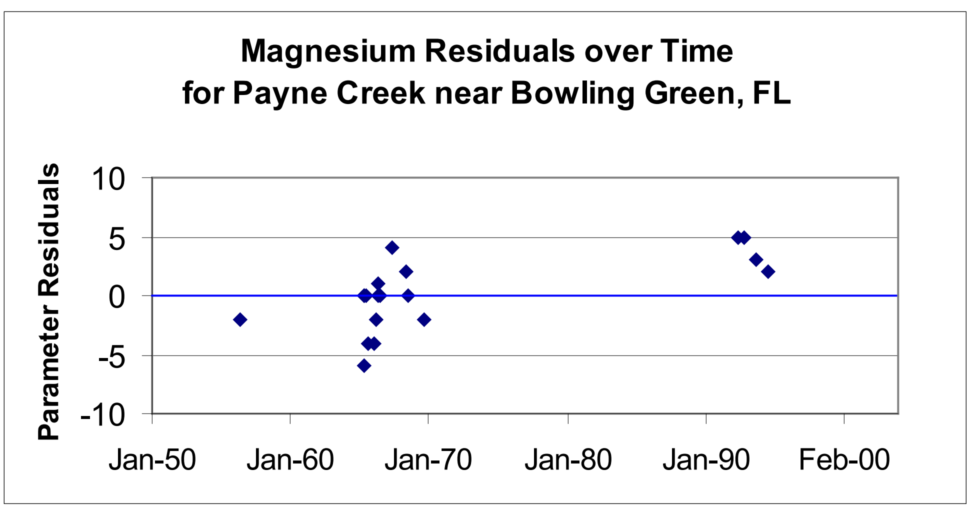

Payne Creek near Bowling Green, FL
Fluoride (mg/l)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

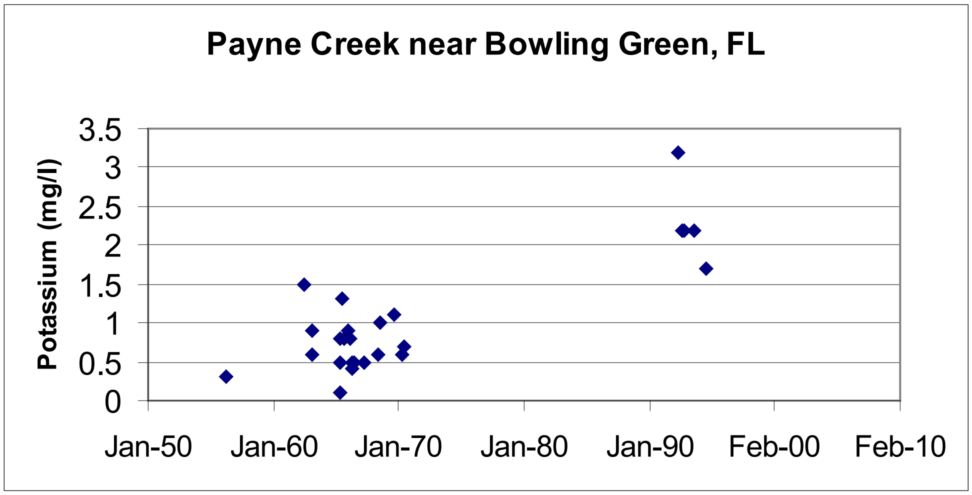

Payne Creek near Bowling Green, FL
Fluoride (mg/l)
1.5
1
0.5
0
0
500
1000
1500
2000
Flow (cfs)

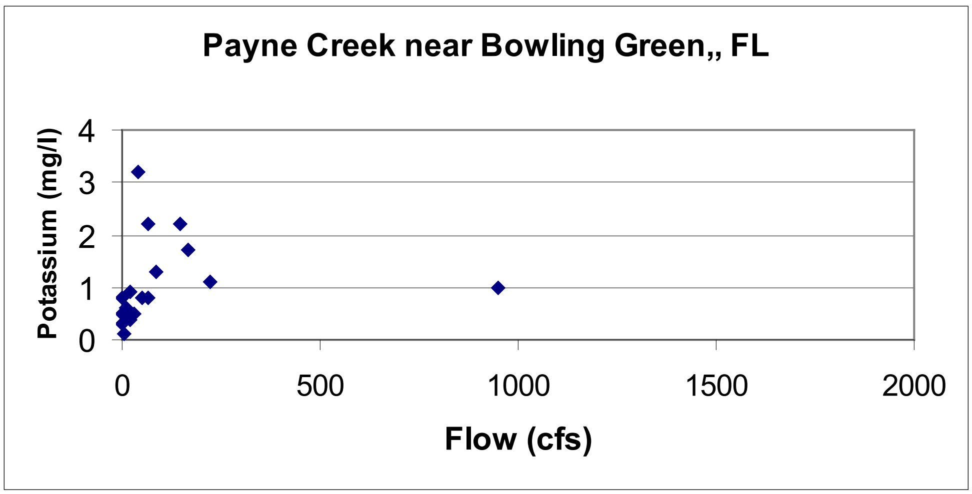

Fluoride Residuals over Time
for Payne Creek near Bowling Green, FL
Parameter Residuals
1.00
0.50
0.00
-0.50
-1.00
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

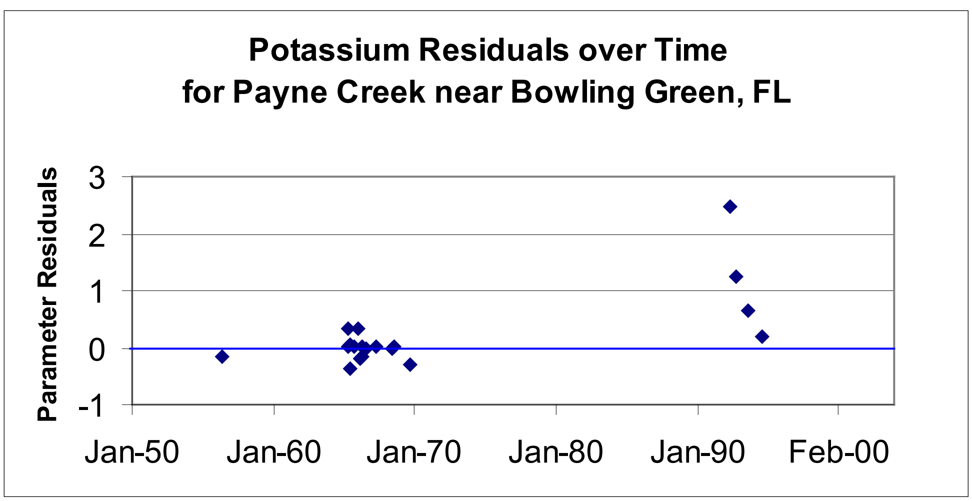

Payne Creek near Bowling Green, FL
Magnesium (mg/l)
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

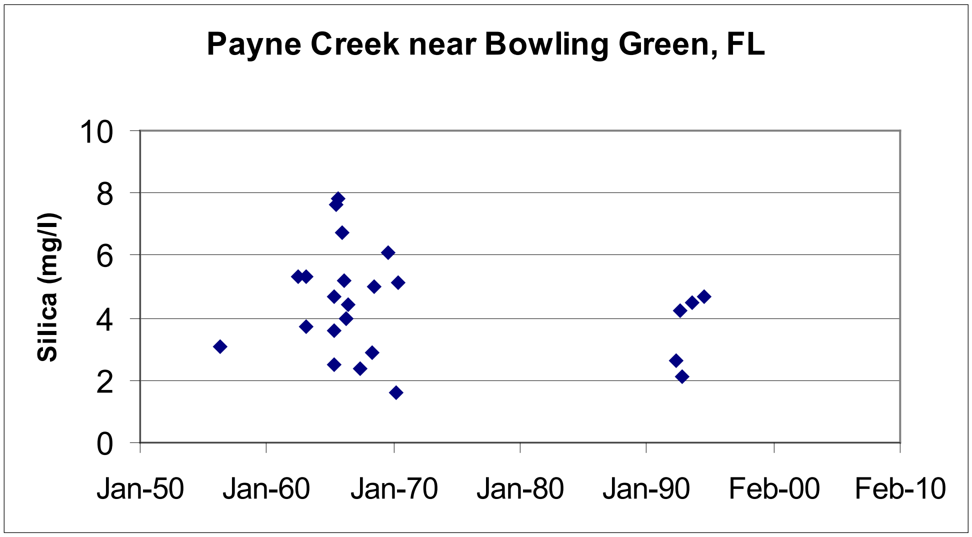

Payne Creek near Bowling Green, FL
Magnesium (mg/l)
20
15
10
5
0
0
500
1000
1500
2000
Flow (cfs)

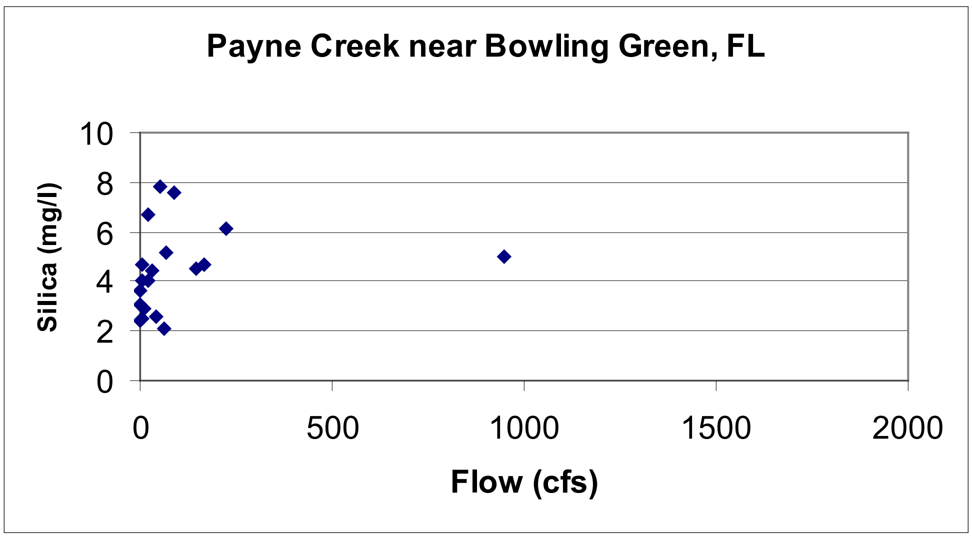

Magnesium Residuals over Time
for Payne Creek near Bowling Green, FL
Parameter Residuals
10
5
0
-5
-10
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

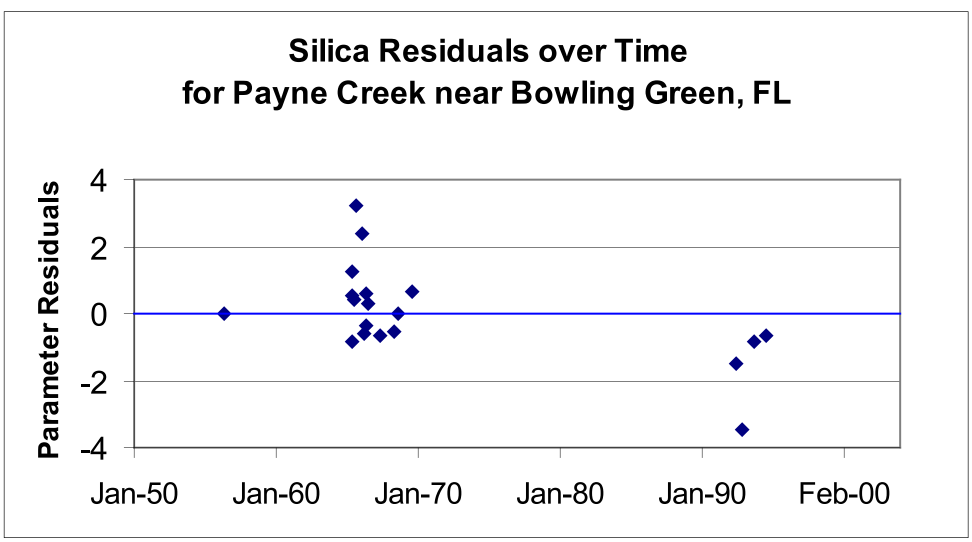

Payne Creek near Bowling Green, FL
Potassium (mg/l)
3.5
3
2.5
2
1.5
1
0.5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

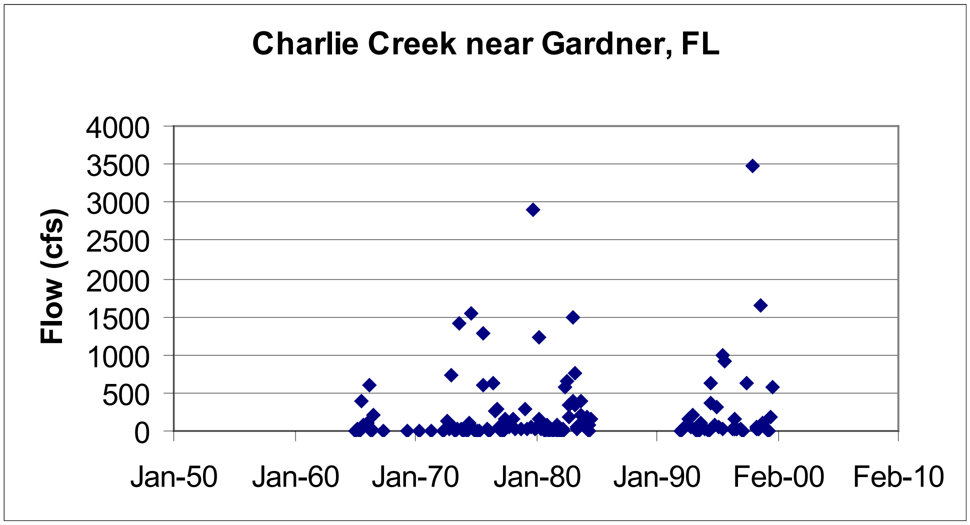

Payne Creek near Bowling Green,, FL
Potassium (mg/l)
4
3
2
1
0
0
500
1000
1500
2000
Flow (cfs)

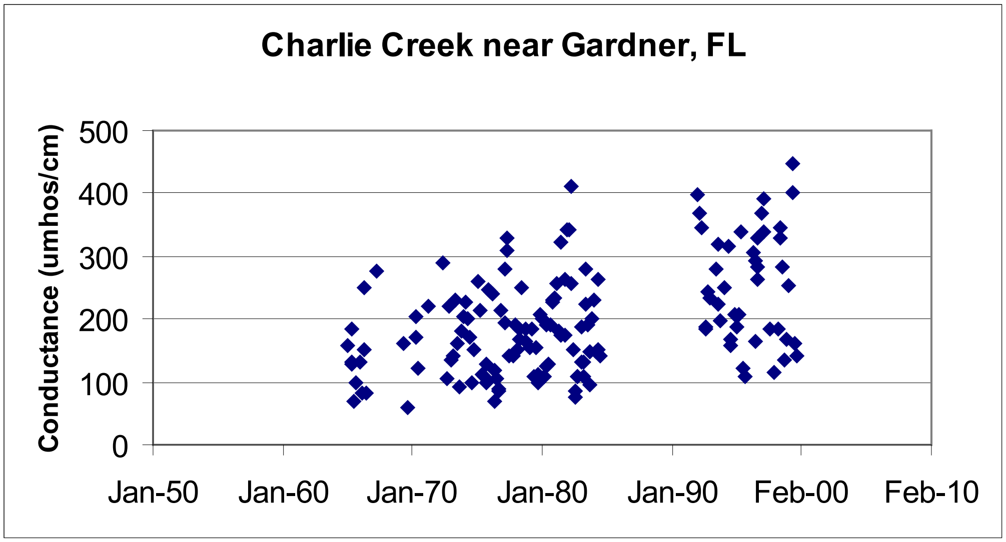

Potassium Residuals over Time
for Payne Creek near Bowling Green, FL
Parameter Residuals
3
2
1
0
-1
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

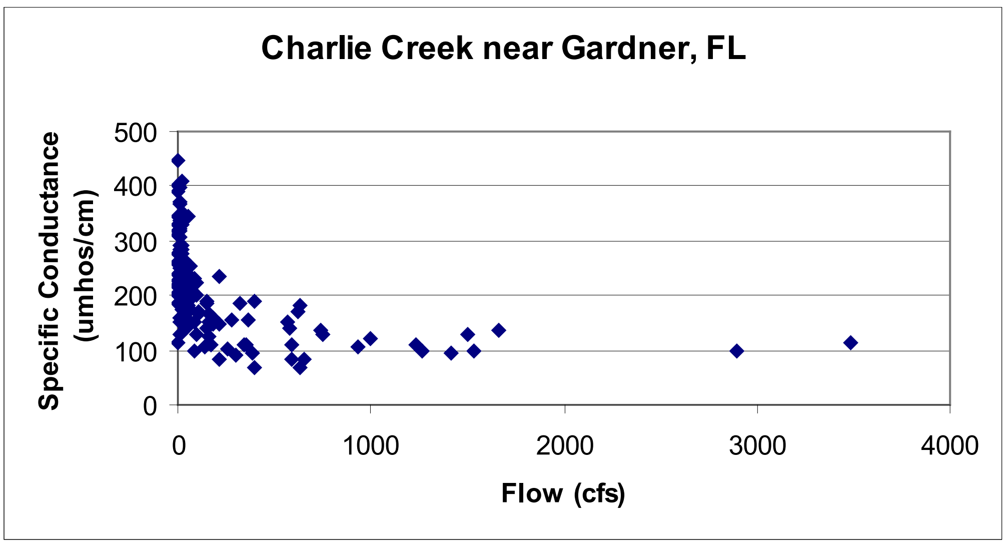

Payne Creek near Bowling Green, FL
Silica (mg/l)
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

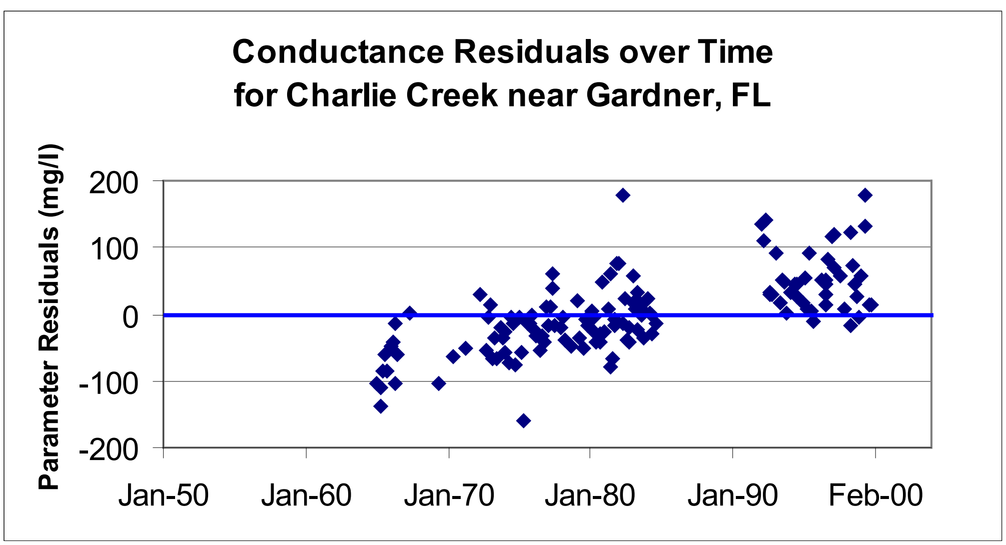

Payne Creek near Bowling Green, FL
Silica (mg/l)
10
8
6
4
2
0
0
500
1000
1500
2000
Flow (cfs)

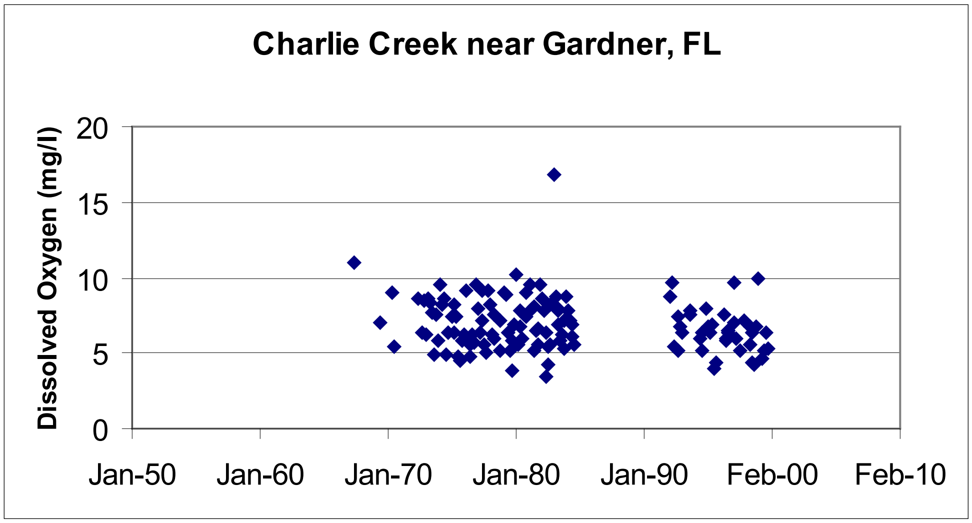

Silica Residuals over Time
for Payne Creek near Bowling Green, FL
Parameter Residuals
4
2
0
-2
-4
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

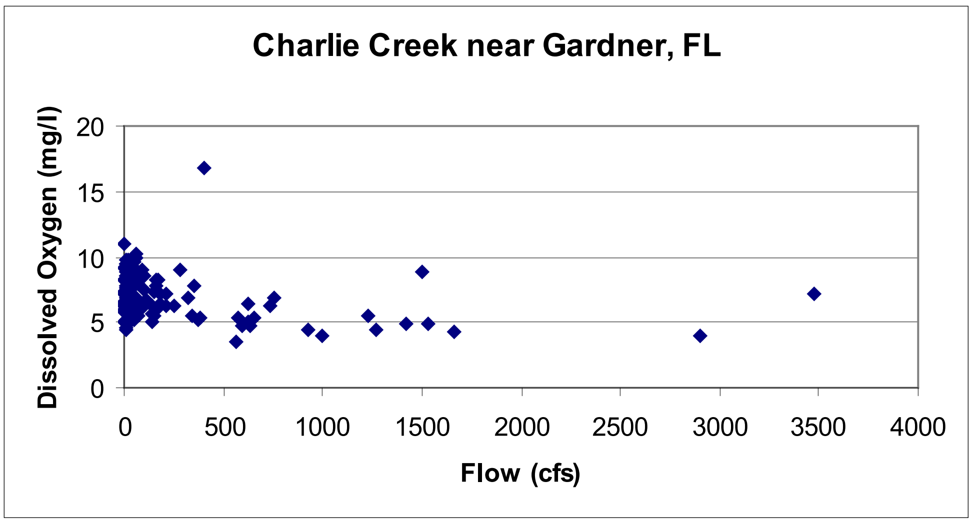

Charlie Creek near Gardner, FL
Flow (cfs)
4000
3500
3000
2500
2000
1500
1000
500
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

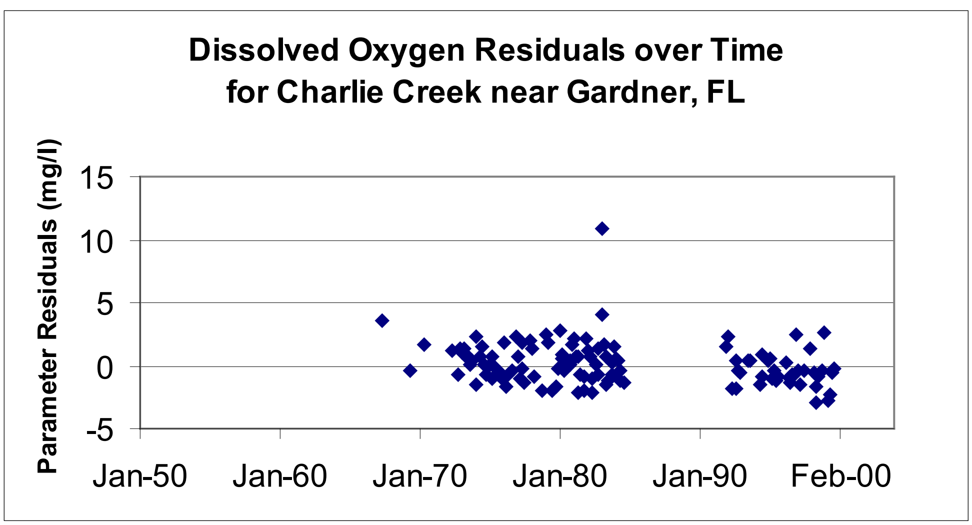

Charlie Creek near Gardner, FL
Conductance (umhos/cm)
500
400
300
200
100
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

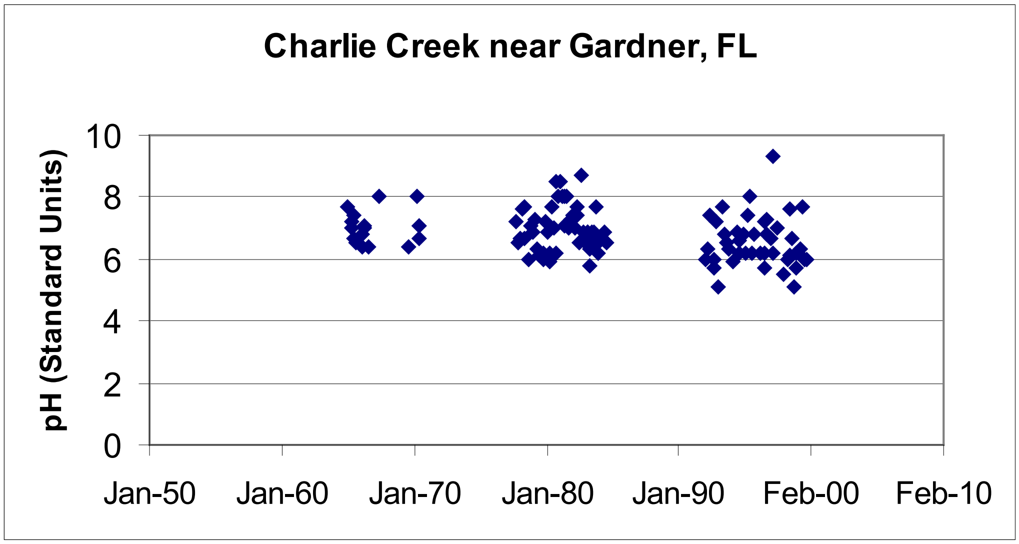

Charlie Creek near Gardner, FL
Specific Conductance (umhos/cm)
500
400
300
200
100
0
0
1000
2000
3000
4000
Flow (cfs)


Conductance Residuals over Time for Charlie Creek near Gardner, FL
Parameter Residuals (mg/l)
200
100
0
-100
-200
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

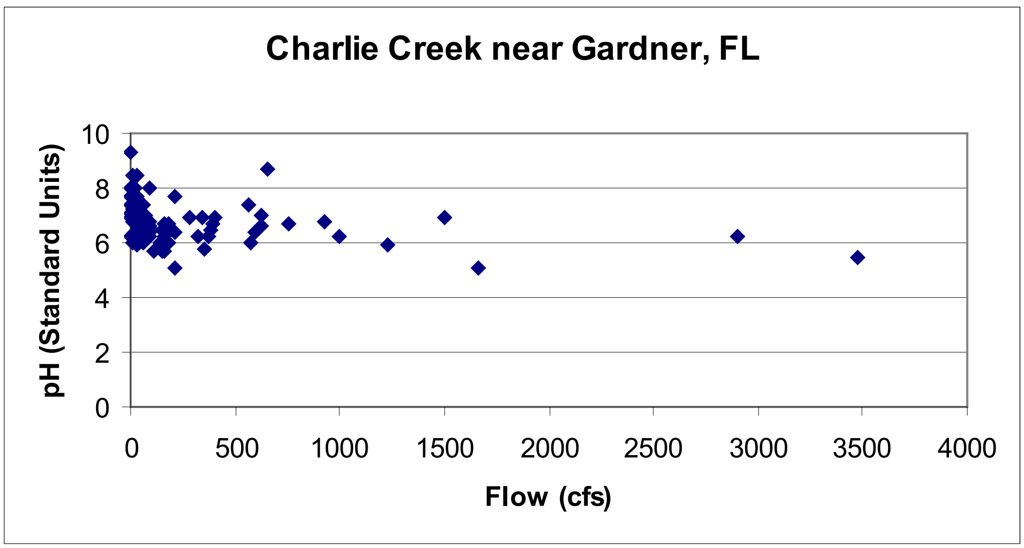

Charlie Creek near Gardner, FL
Dissolved Oxygen (mg/l)
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10


Charlie Creek near Gardner, FL
Dissolved Oxygen (mg/l)
20
15
10
5
0
0
500
1000
1500
2000
2500
3000
3500
4000
Flow (cfs)

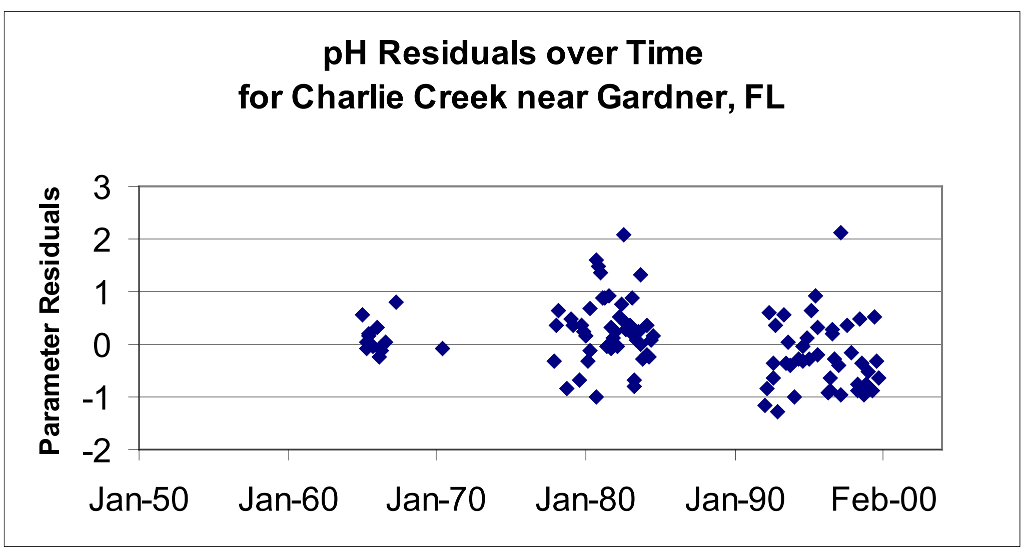

Dissolved Oxygen Residuals over Time
for Charlie Creek near Gardner, FL
Parameter Residuals (mg/l)
15
10
5
0
-5
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00



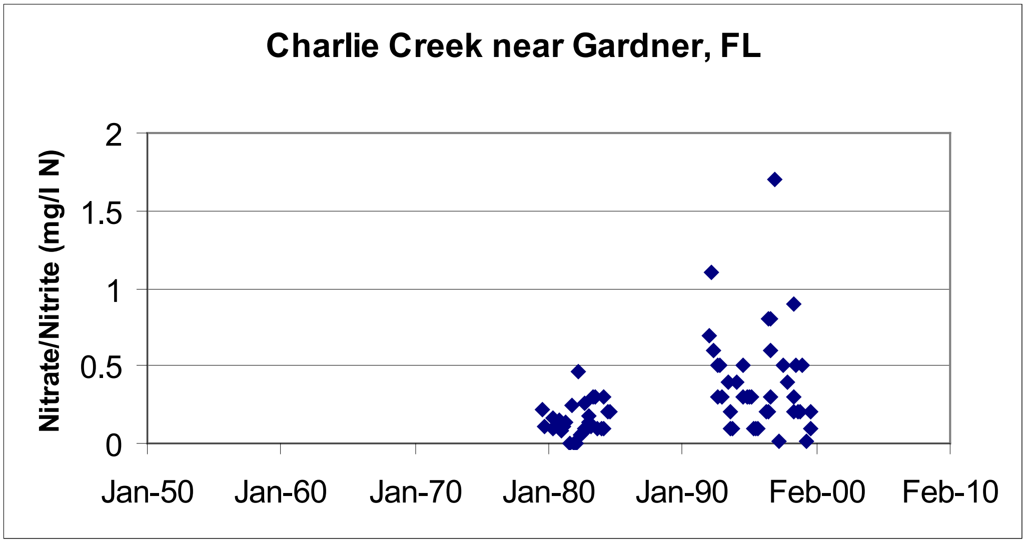
Charlie Creek near Gardner, FL
pH (Standard Units)
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

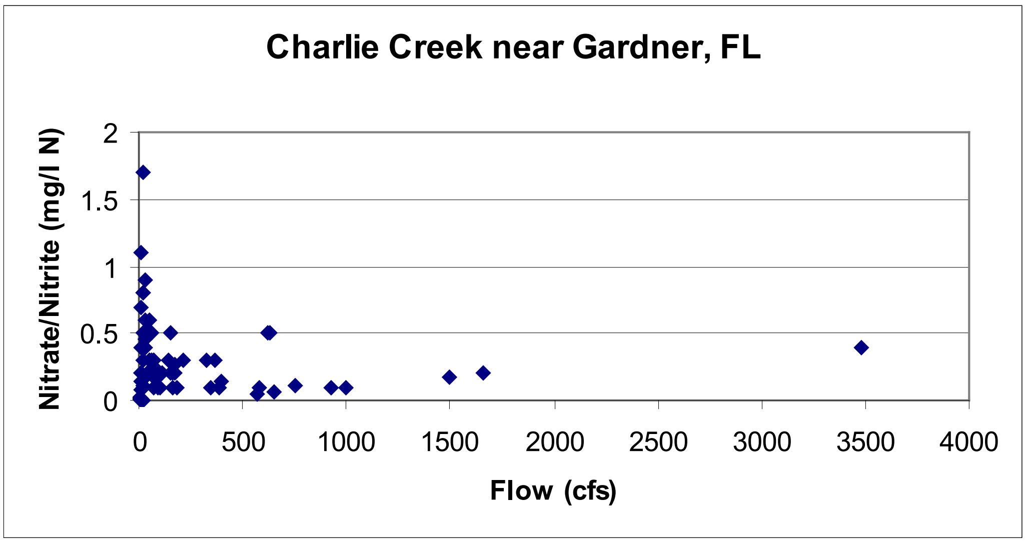


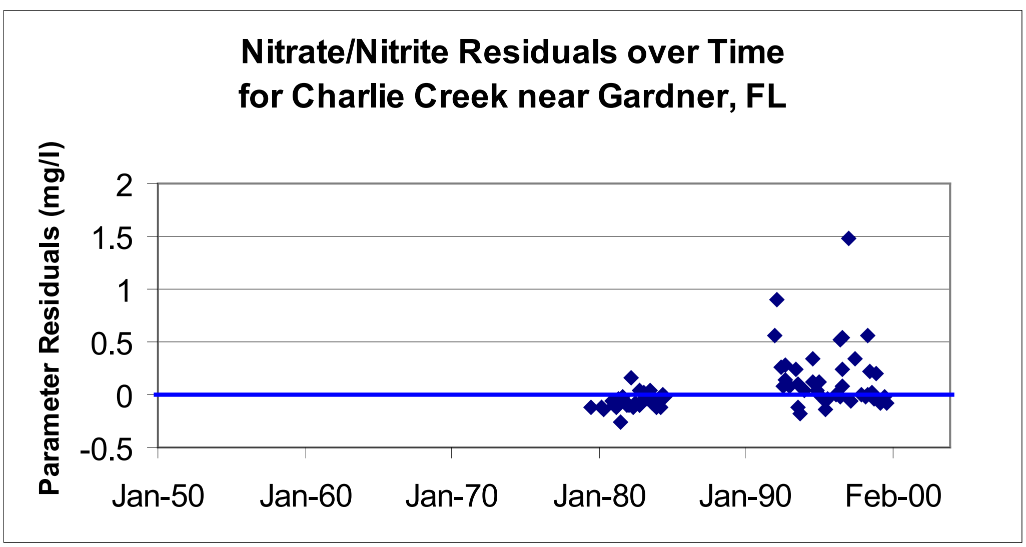
Charlie Creek near Gardner, FL
pH (Standard Units)
10
8
6
4
2
0
0
500
1000
1500
2000
2500
3000
3500
4000
Flow (cfs)

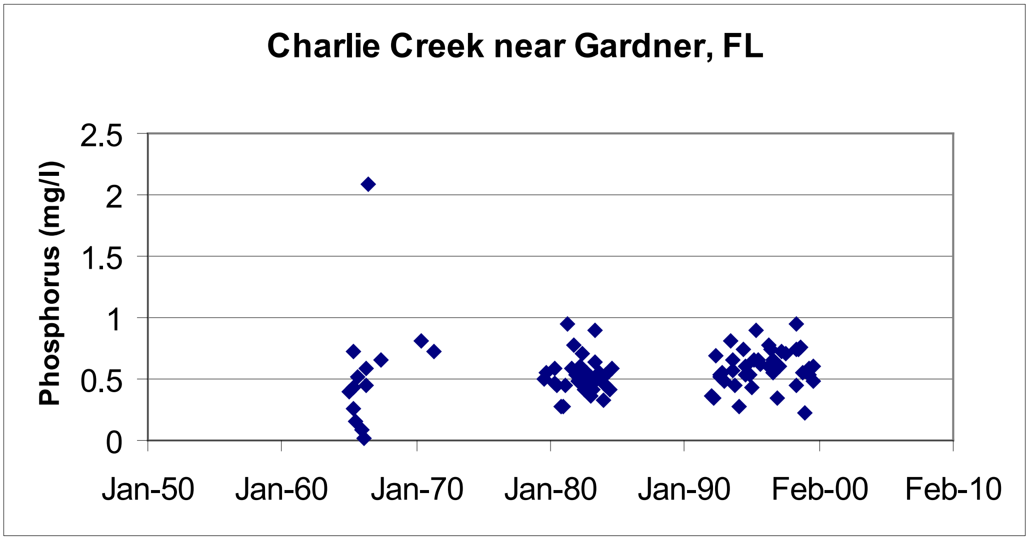


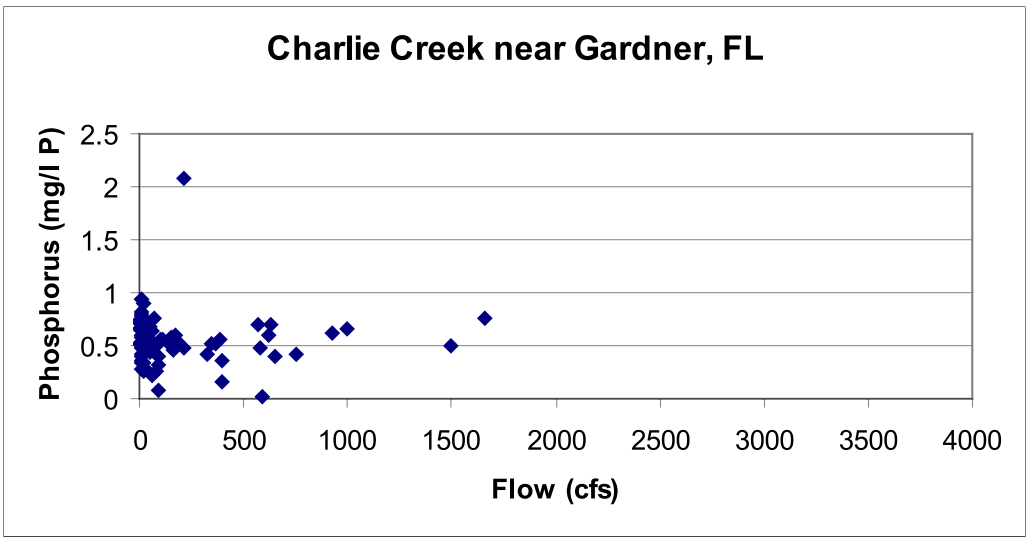
pH Residuals over Time
for Charlie Creek near Gardner, FL
Parameter Residuals
3
2
1
0
-1
-2
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

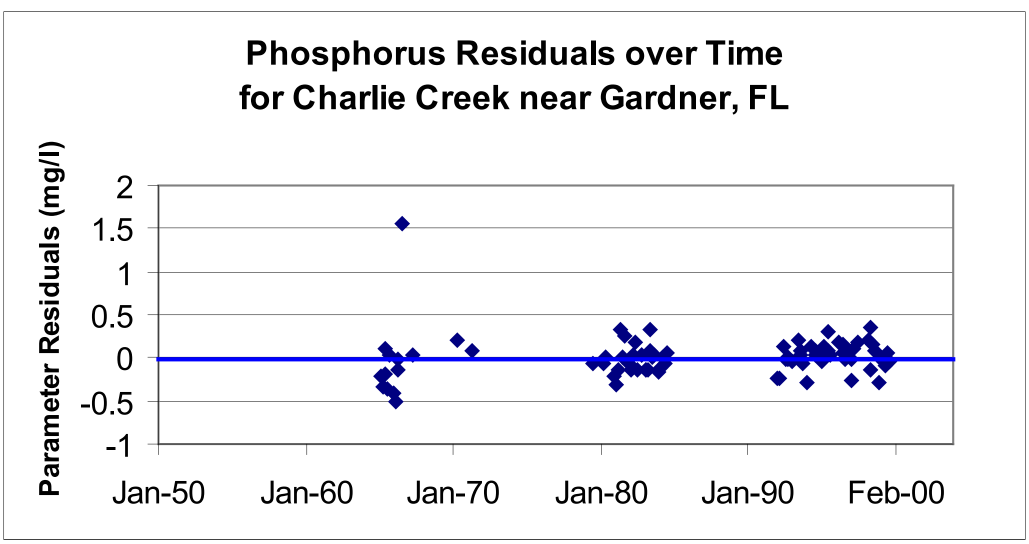

Charlie Creek near Gardner, FL
Nitrate/Nitrite (mg/l N)
2
1.5
1
0.5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

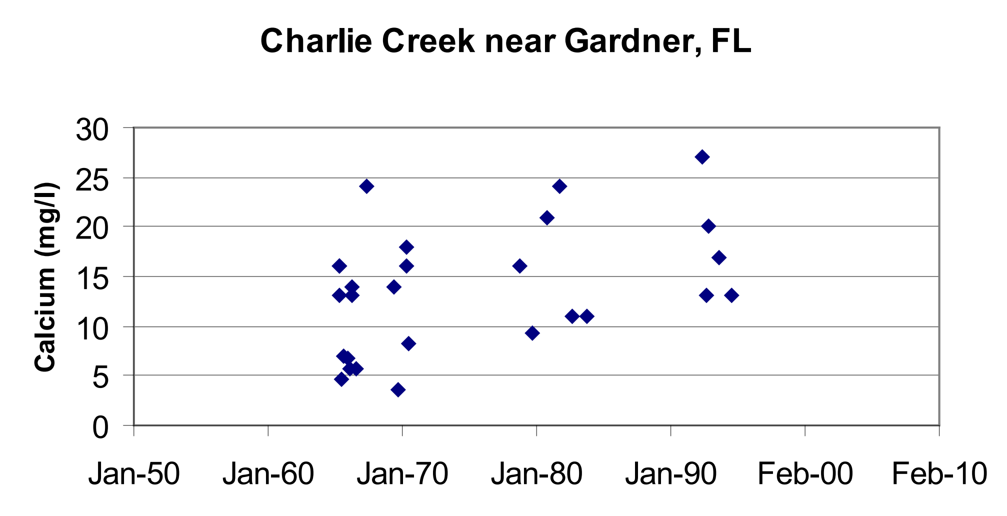

Charlie Creek near Gardner, FL
Nitrate/Nitrite (mg/l N)
2
1.5
1
0.5
0
0
500
1000
1500
2000
2500
3000
3500
4000
Flow (cfs)

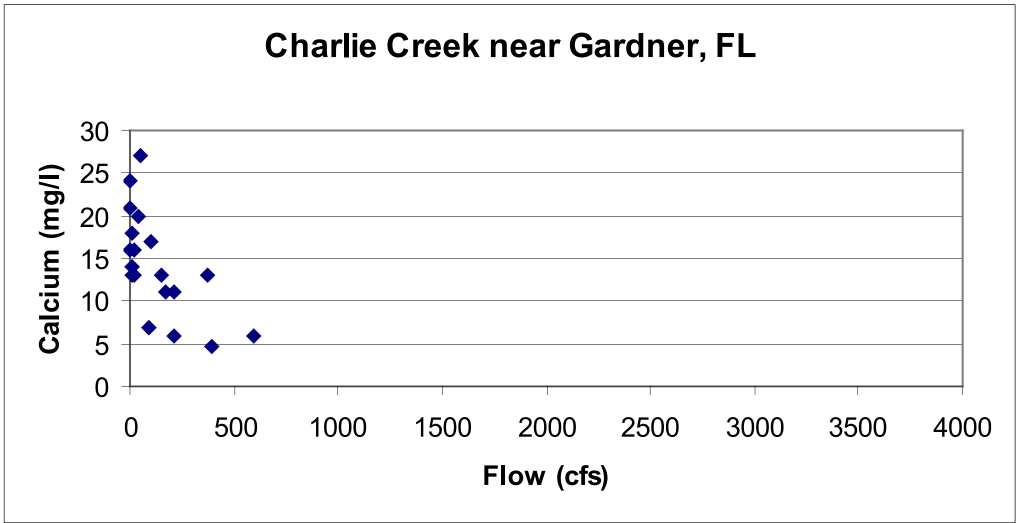

Nitrate/Nitrite Residuals over Time
for Charlie Creek near Gardner, FL
Parameter Residuals (mg/l)
2
1.5
1
0.5
0
-0.5
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

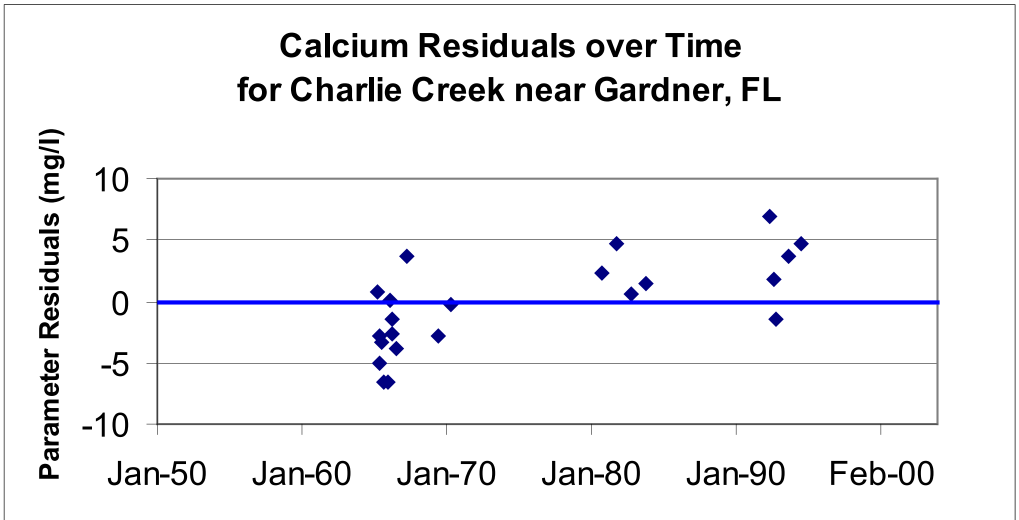

Charlie Creek near Gardner, FL
Phosphorus (mg/l)
2.5
2
1.5
1
0.5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

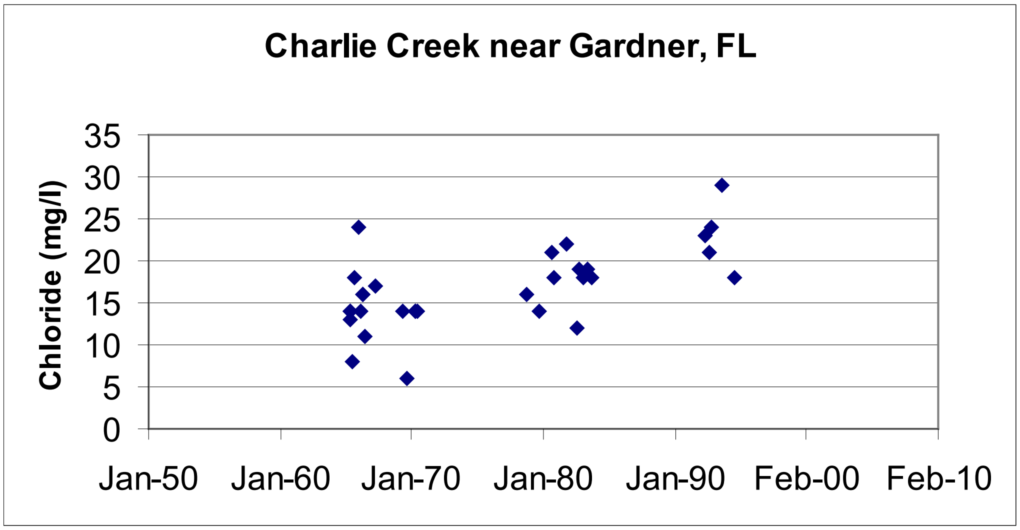

Charlie Creek near Gardner, FL
Phosphorus (mg/l P)
2.5
2
1.5
1
0.5
0
0
500
1000
1500
2000
2500
3000
3500
4000
Flow (cfs)

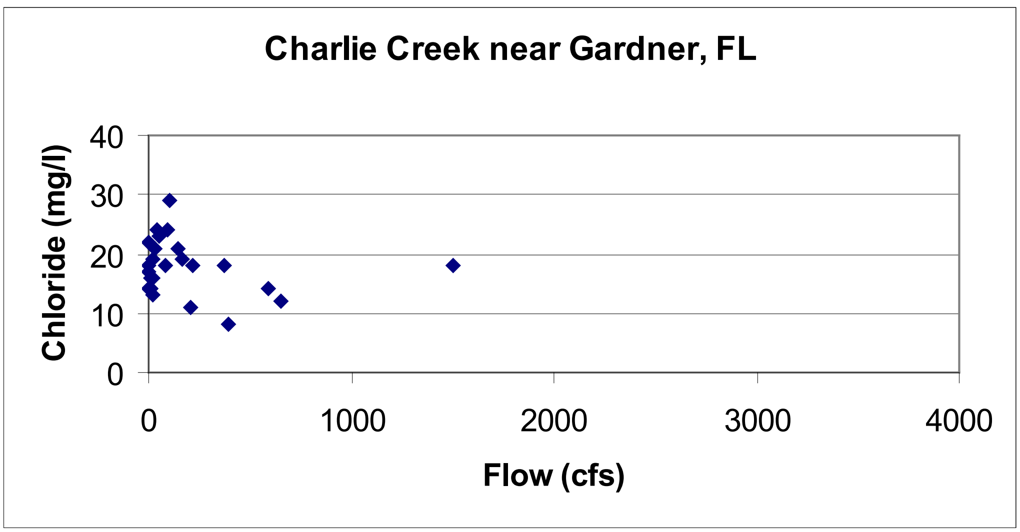

Phosphorus Residuals over Time
for Charlie Creek near Gardner, FL
Parameter Residuals (mg/l)
2
1.5
1
0.5
0
-0.5
-1
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

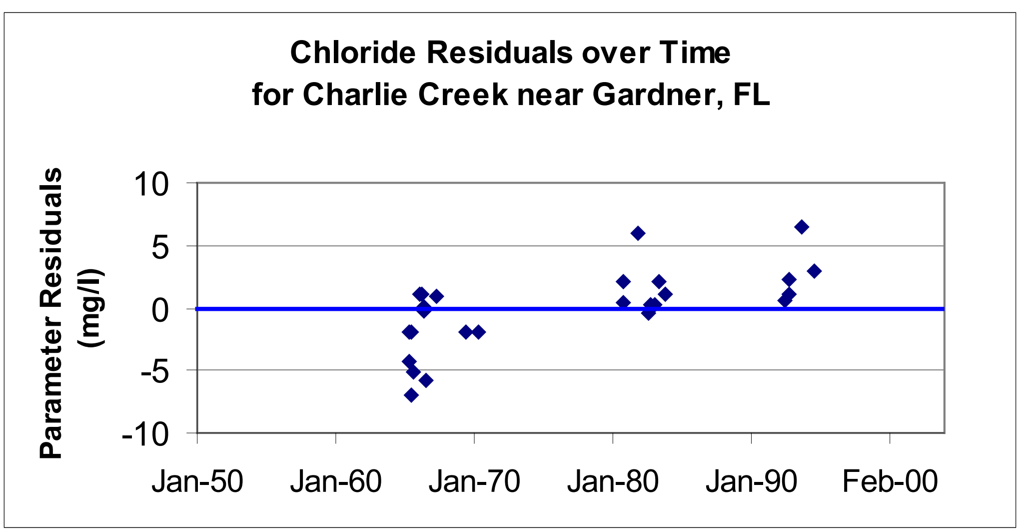

Charlie Creek near Gardner, FL
Calcium (mg/l)
30
25
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

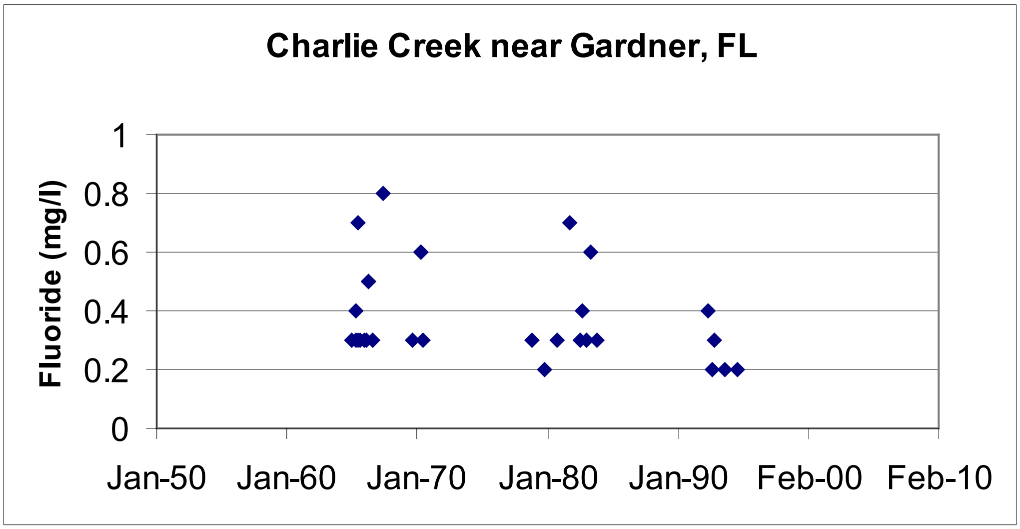

Charlie Creek near Gardner, FL
Calcium (mg/l)
30
25
20
15
10
5
0
0
500
1000
1500
2000
2500
3000
3500
4000
Flow (cfs)

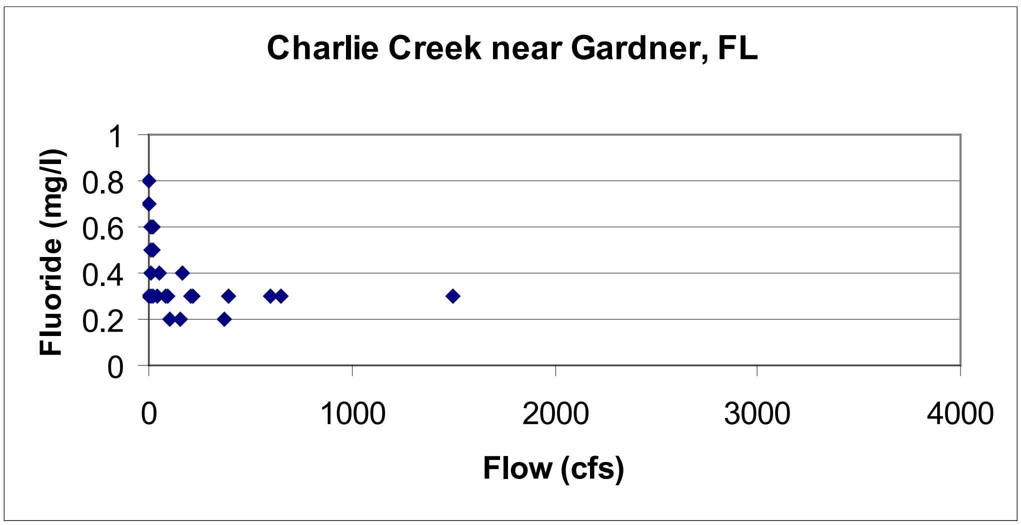

Calcium Residuals over Time
for Charlie Creek near Gardner, FL
Parameter Residuals (mg/l)
10
5
0
-5
-10
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

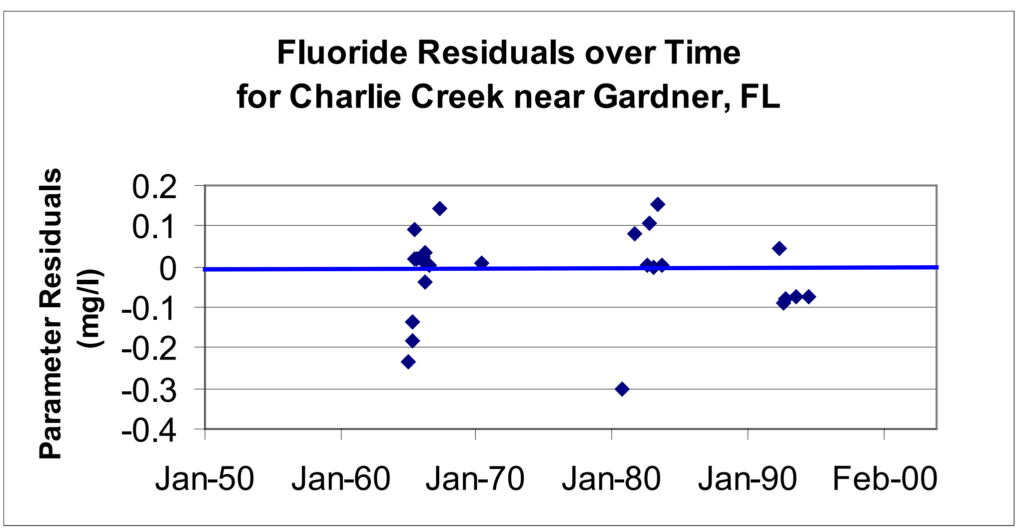

Charlie Creek near Gardner, FL
Chloride (mg/l)
35
30
25
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

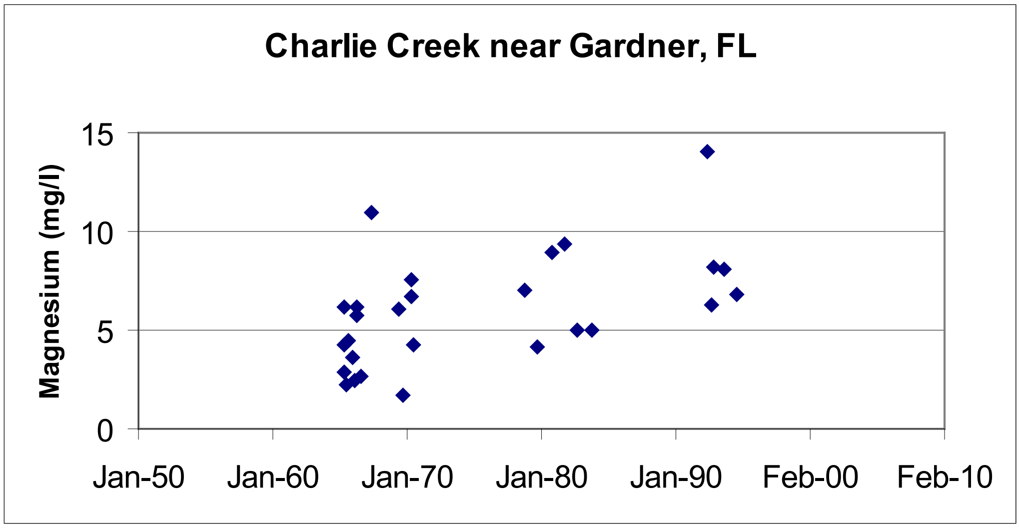

Charlie Creek near Gardner, FL
Chloride (mg/l)
40
30
20
10
0
0
1000
2000
3000
4000
Flow (cfs)

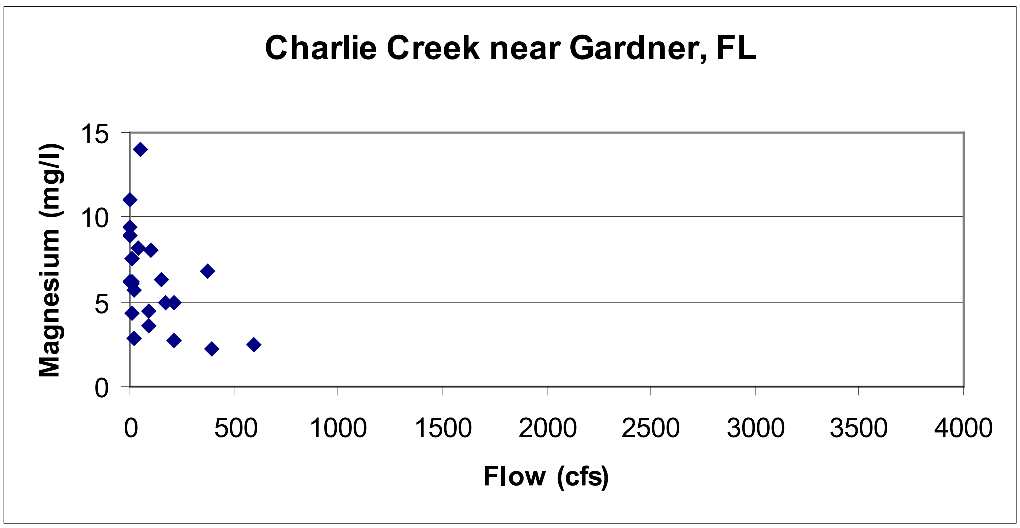

Chloride Residuals over Time
for Charlie Creek near Gardner, FL
Parameter Residuals
(mg/l)
10
5
0
-5
-10
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

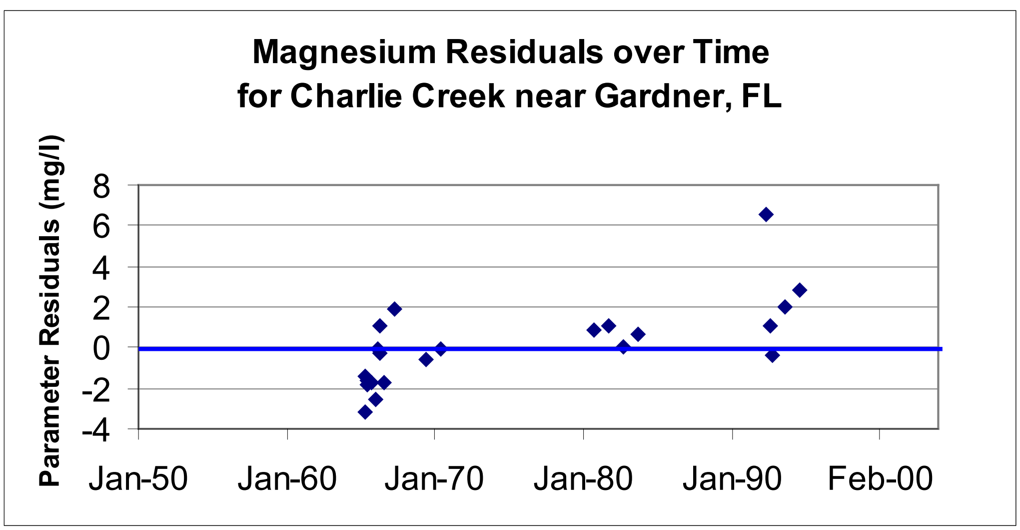

Charlie Creek near Gardner, FL
Fluoride (mg/l)
1
0.8
0.6
0.4
0.2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

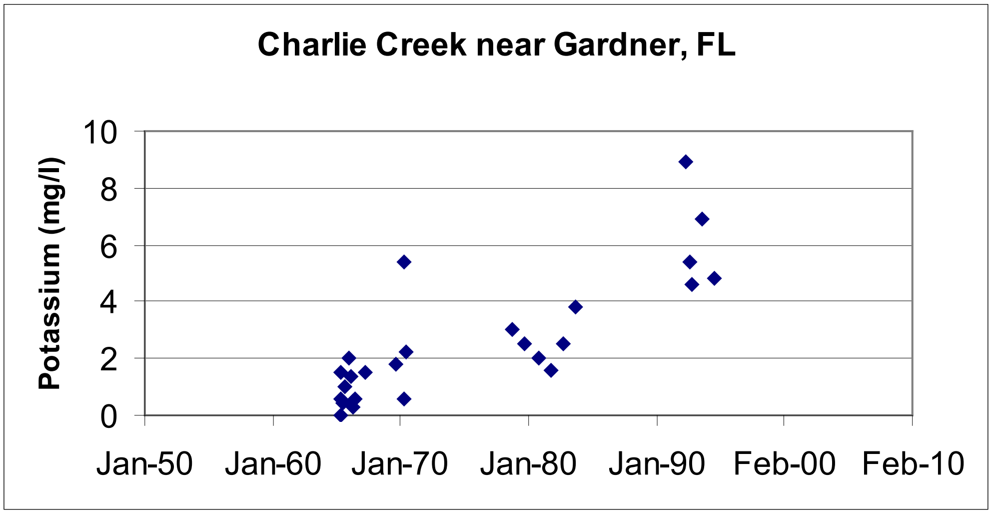

Charlie Creek near Gardner, FL
Fluoride (mg/l)
1
0.8
0.6
0.4
0.2
0
0
1000
2000
3000
4000
Flow (cfs)

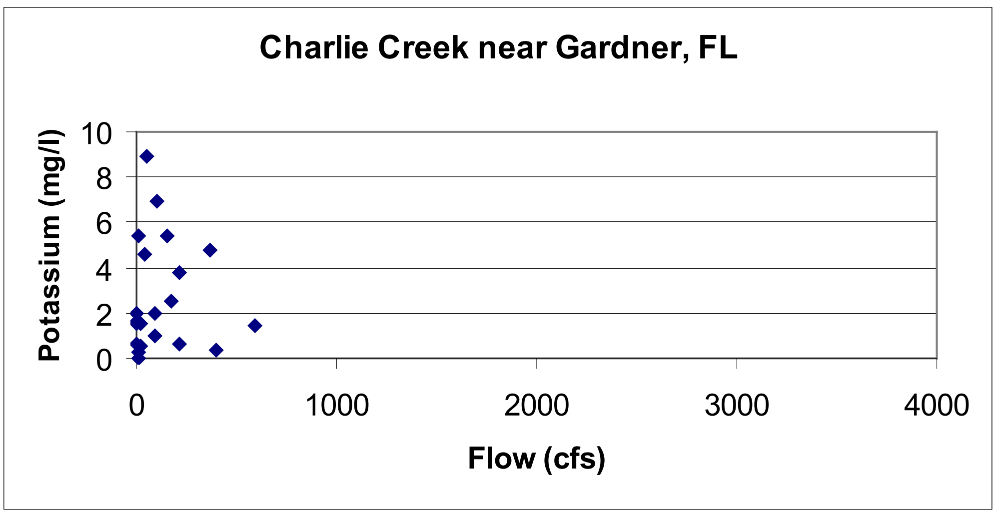

Fluoride Residuals over Time
for Charlie Creek near Gardner, FL
Parameter Residuals (mg/l)
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

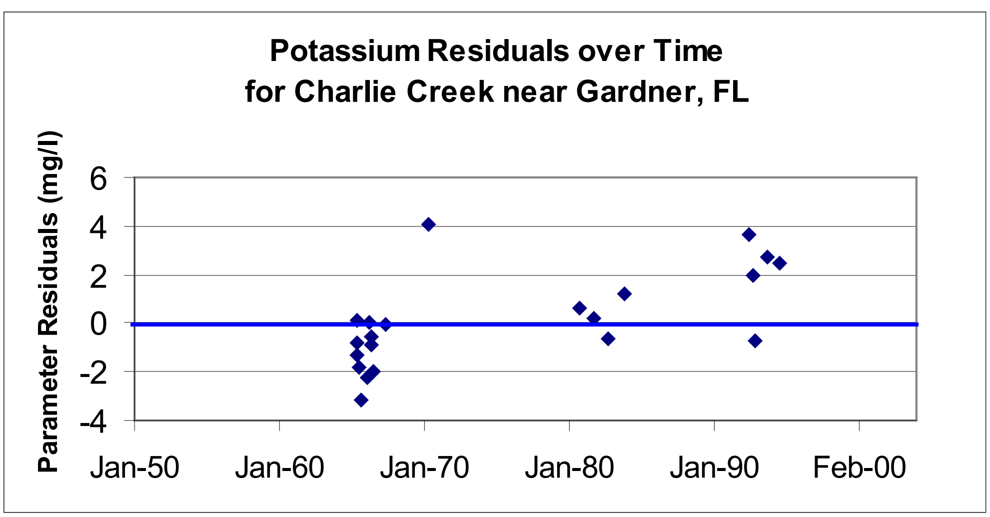

Charlie Creek near Gardner, FL
Magnesium (mg/l)
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

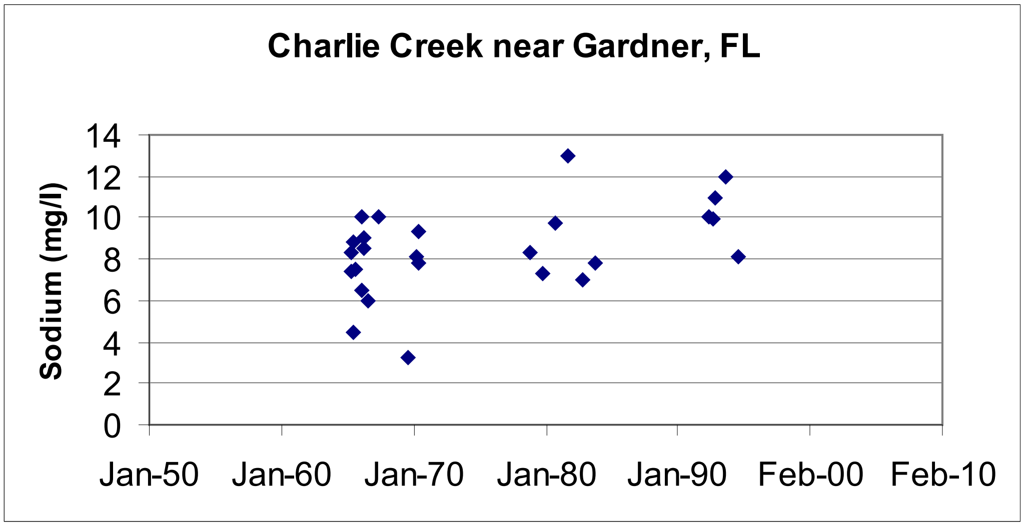

Charlie Creek near Gardner, FL
Magnesium (mg/l)
15
10
5
0
0
500
1000
1500
2000
2500
3000
3500
4000
Flow (cfs)

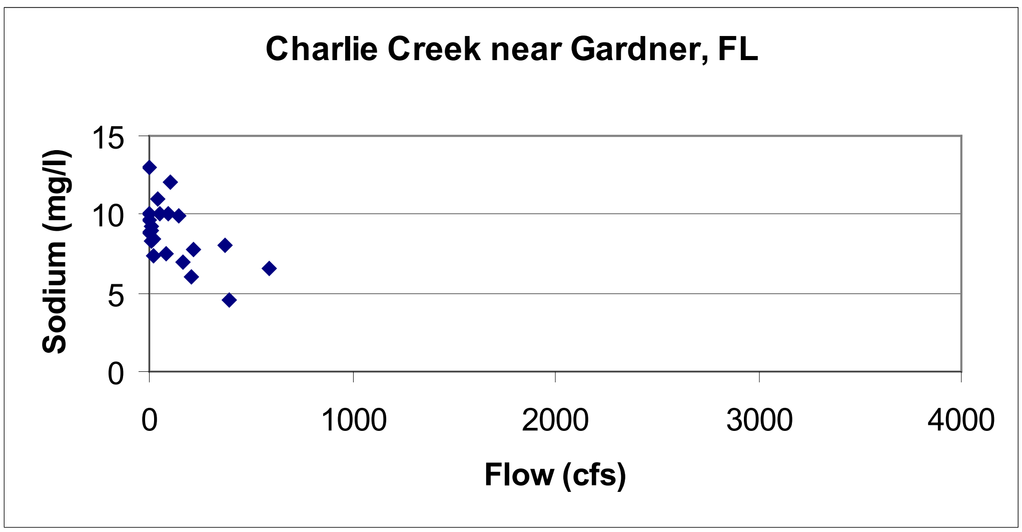

Magnesium Residuals over Time
for Charlie Creek near Gardner, FL
Parameter Residuals (mg/l)
8
6
4
2
0
-2
-4
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

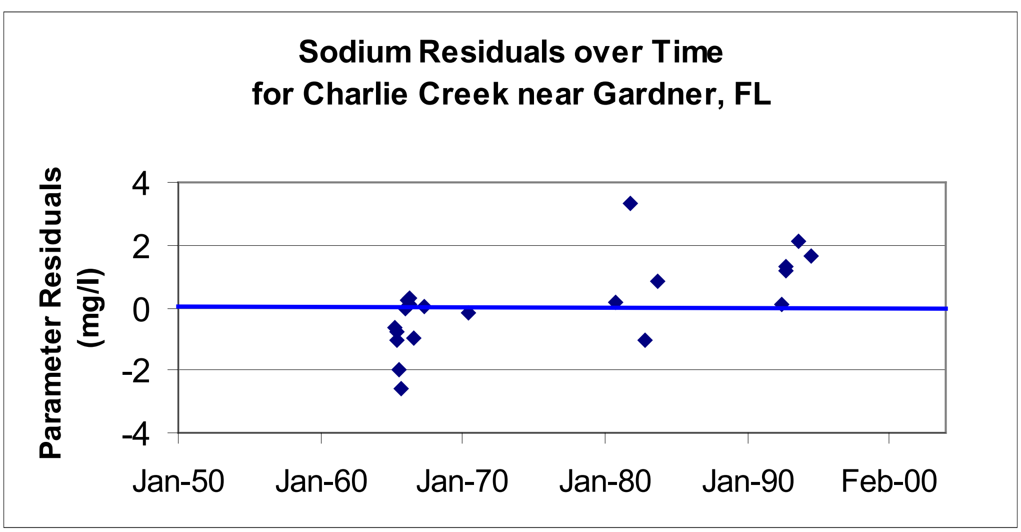

Charlie Creek near Gardner, FL
Potassium (mg/l)
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

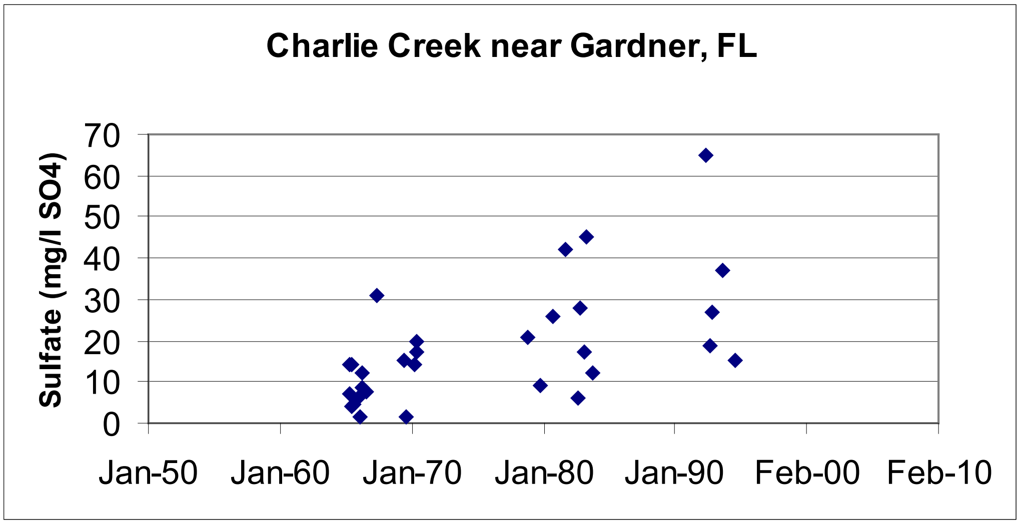

Charlie Creek near Gardner, FL
Potassium (mg/l)
10
8
6
4
2
0
0
1000
2000
3000
4000
Flow (cfs)

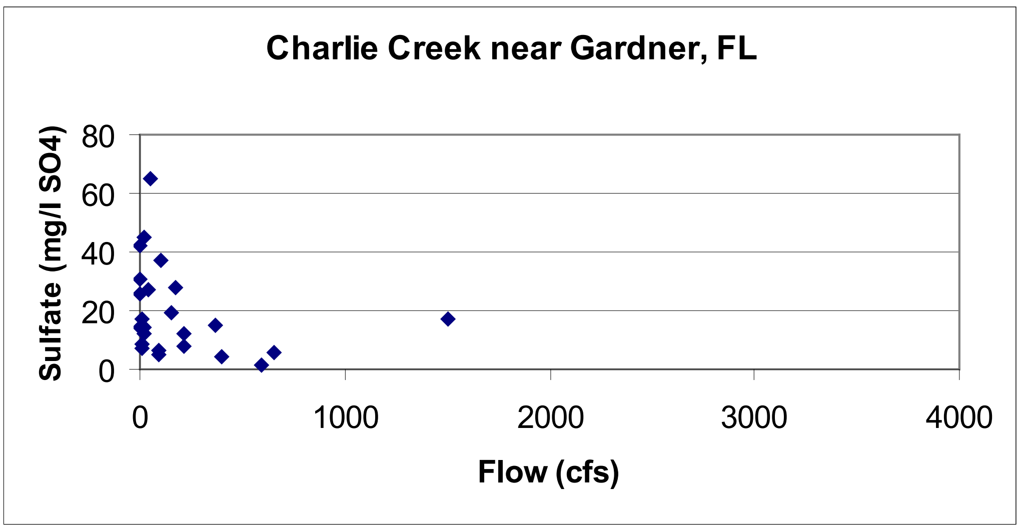

Potassium Residuals over Time
for Charlie Creek near Gardner, FL
Parameter Residuals (mg/l)
6
4
2
0
-2
-4
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

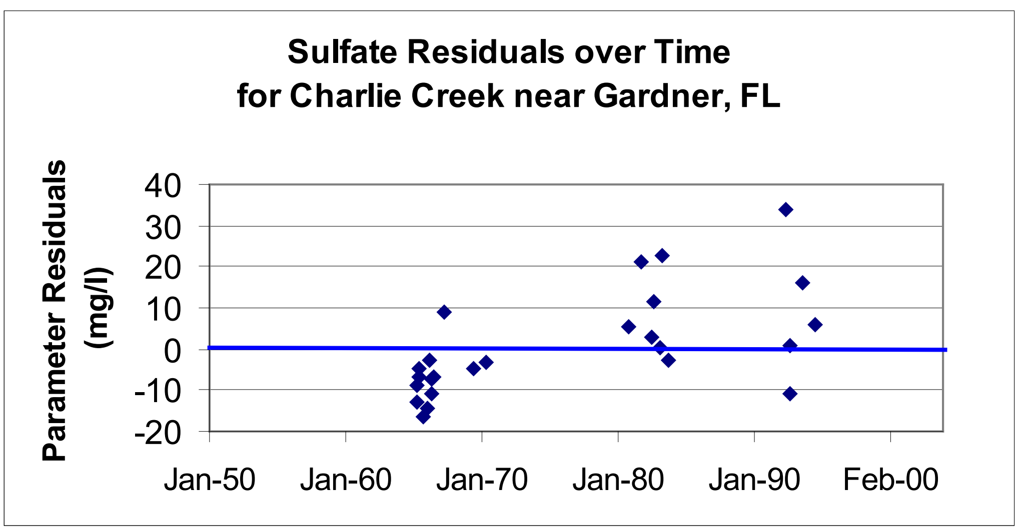

Charlie Creek near Gardner, FL
Sodium (mg/l)
14
12
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

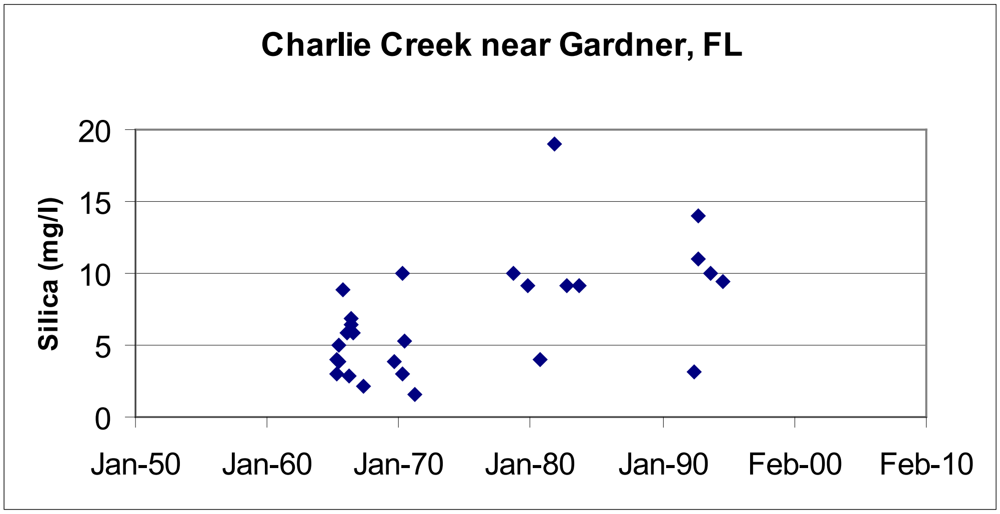

Charlie Creek near Gardner, FL
Sodium (mg/l)
15
10
5
0
0
1000
2000
3000
4000
Flow (cfs)

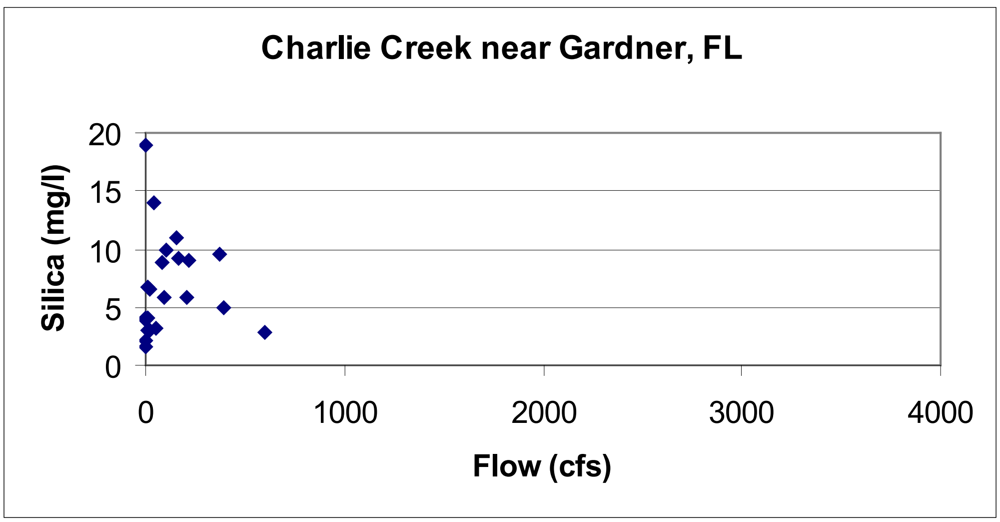

Sodium Residuals over Time
for Charlie Creek near Gardner, FL
Parameter Residuals
(mg/l)
4
2
0
-2
-4
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

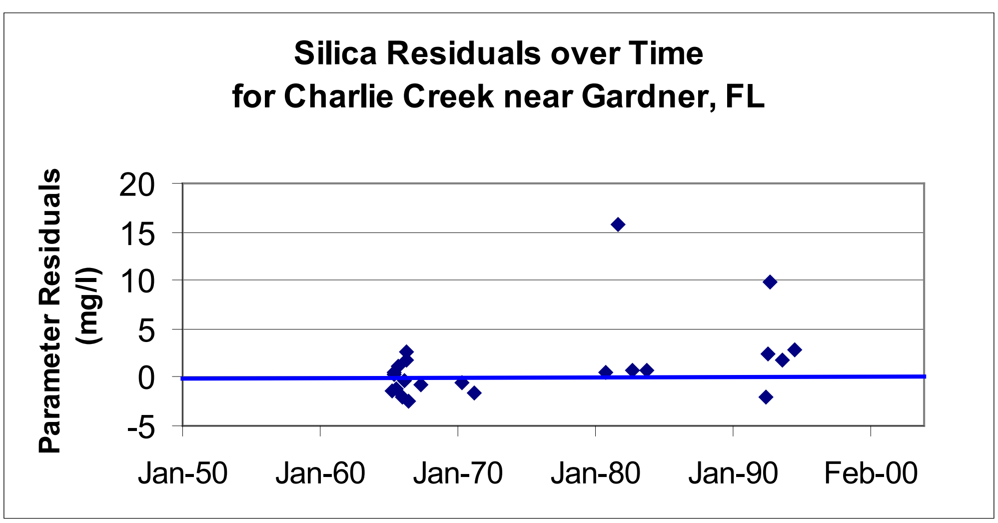

Charlie Creek near Gardner, FL
Sulfate (mg/l SO4)
70
60
50
40
30
20
10
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

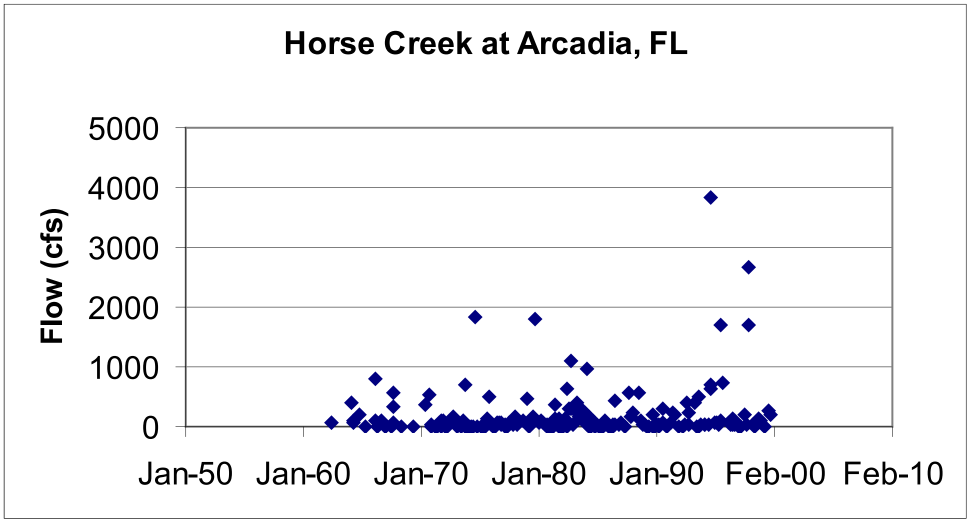

Charlie Creek near Gardner, FL
Sulfate (mg/l SO4)
80
60
40
20
0
0
1000
2000
3000
4000
Flow (cfs)

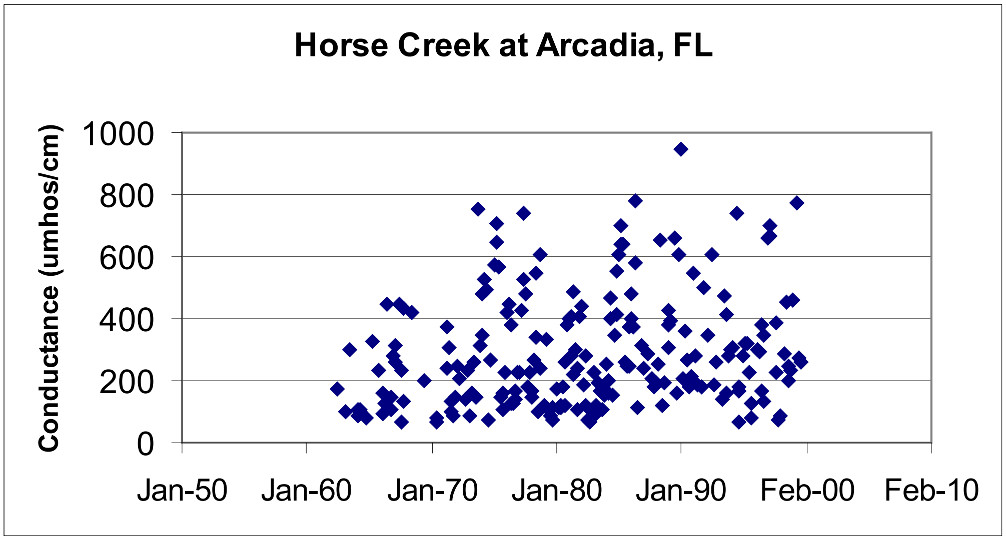

Sulfate Residuals over Time
for Charlie Creek near Gardner, FL
Parameter Residuals
(mg/l)
40
30
20
10
0
-10
-20
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

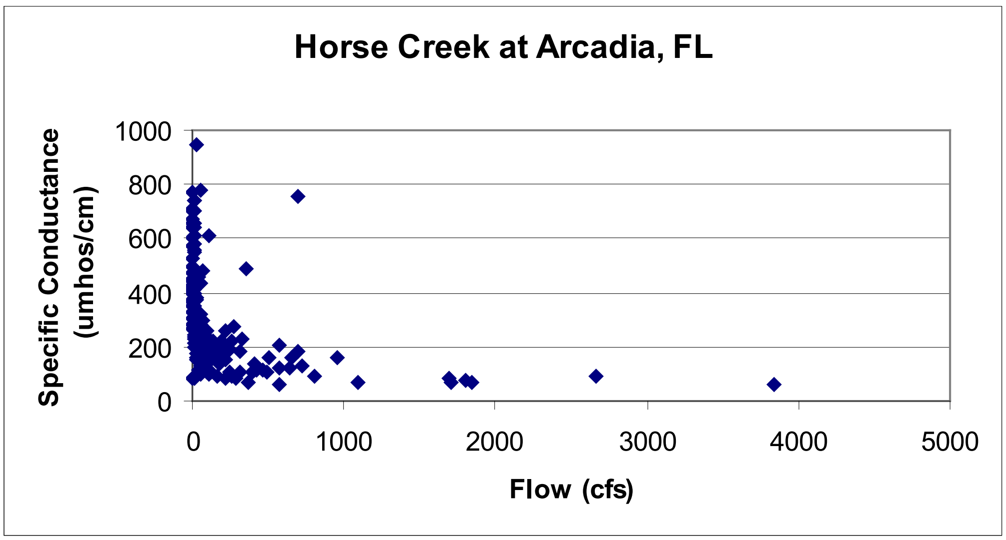

Charlie Creek near Gardner, FL
Silica (mg/l)
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

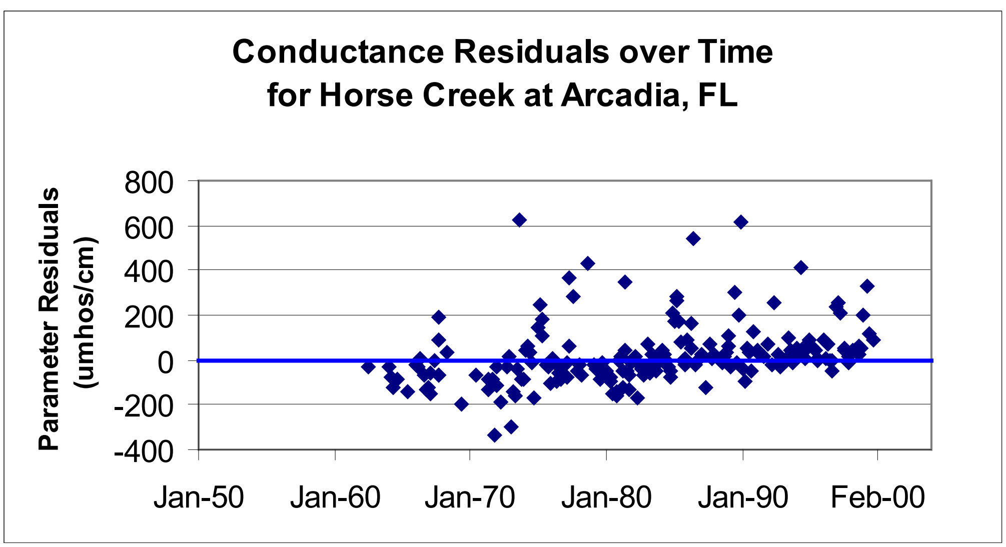

Charlie Creek near Gardner, FL
Silica (mg/l)
20
15
10
5
0
0
1000
2000
3000
4000
Flow (cfs)

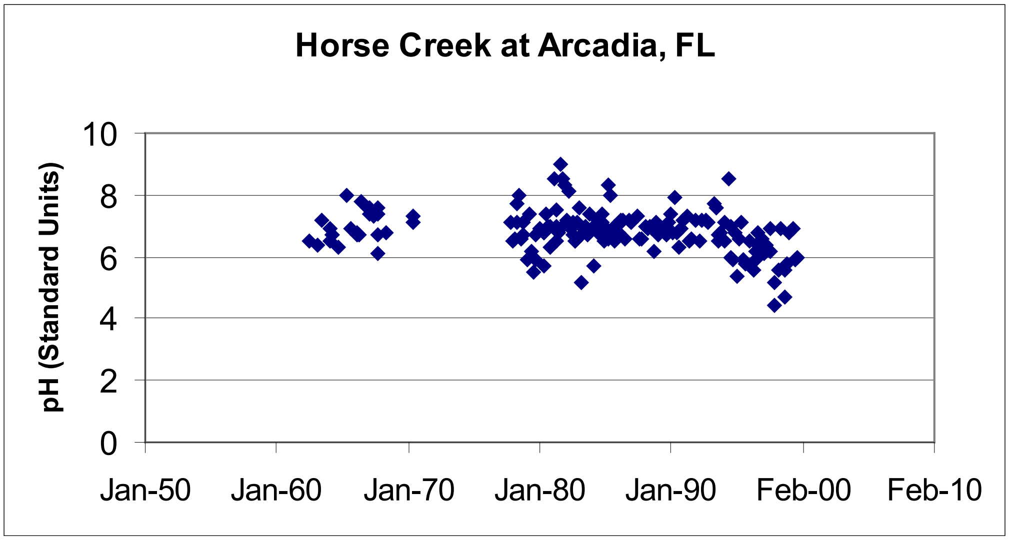

Silica Residuals over Time
for Charlie Creek near Gardner, FL
Parameter Residuals
(mg/l)
20
15
10
5
0
-5
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

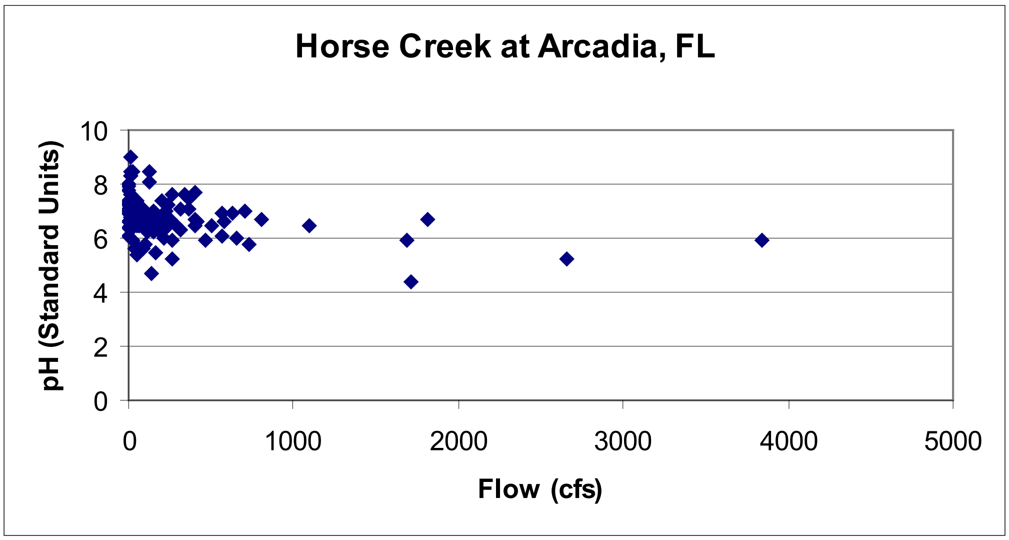

Horse Creek at Arcadia, FL
Flow (cfs)
5000
4000
3000
2000
1000
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

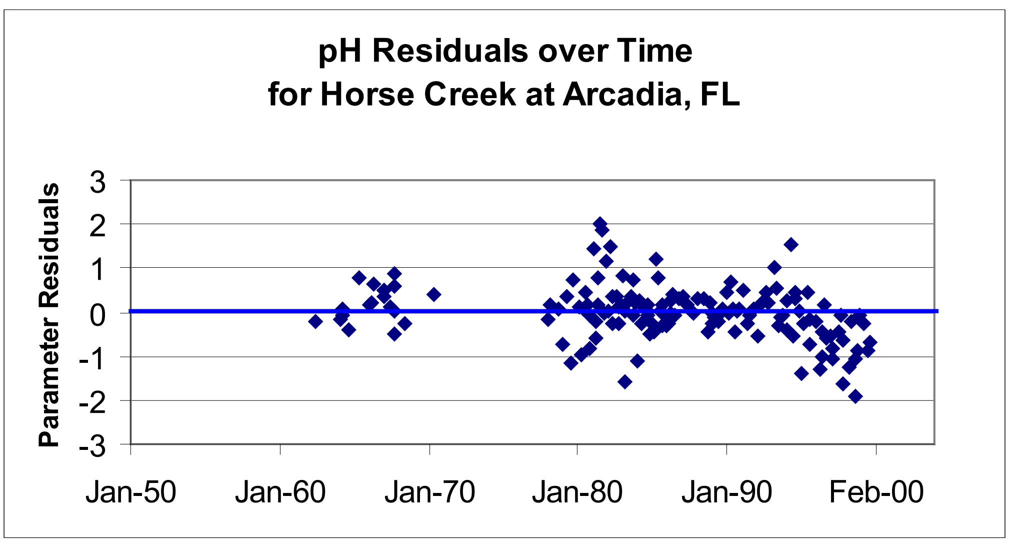

Horse Creek at Arcadia, FL
Conductance (umhos/cm)
1000
800
600
400
200
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

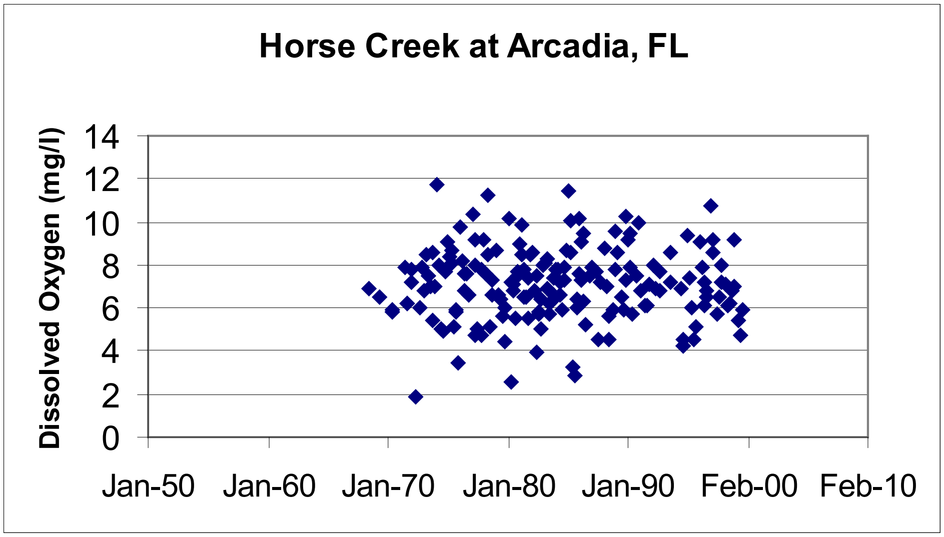

Horse Creek at Arcadia, FL
Specific Conductance (umhos/cm)
1000
800
600
400
200
0
0
1000
2000
3000
4000
5000
Flow (cfs)

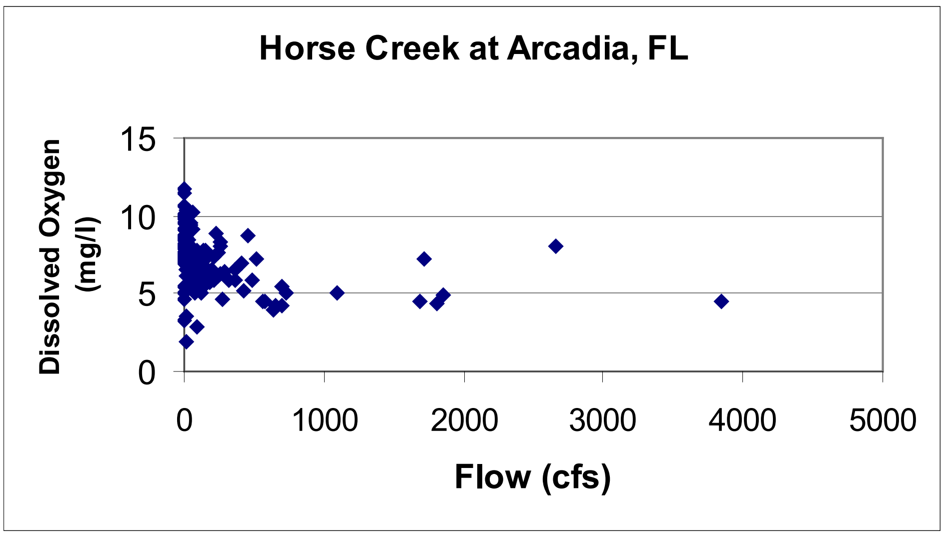

Conductance Residuals over Time
for Horse Creek at Arcadia, FL
Parameter Residuals (umhos/cm)
800
600
400
200
0
-200
-400
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

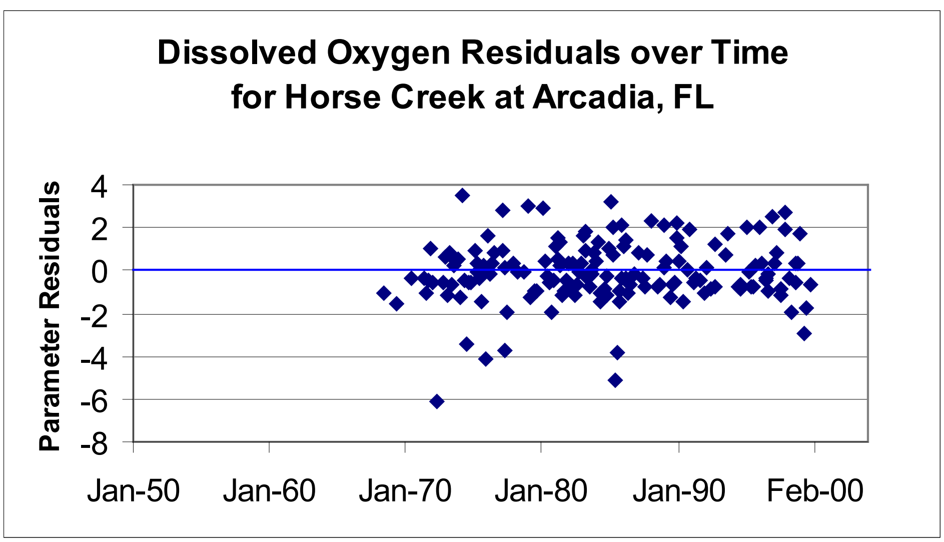

Horse Creek at Arcadia, FL
pH (Standard Units)
0
2
4
6
8
10
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

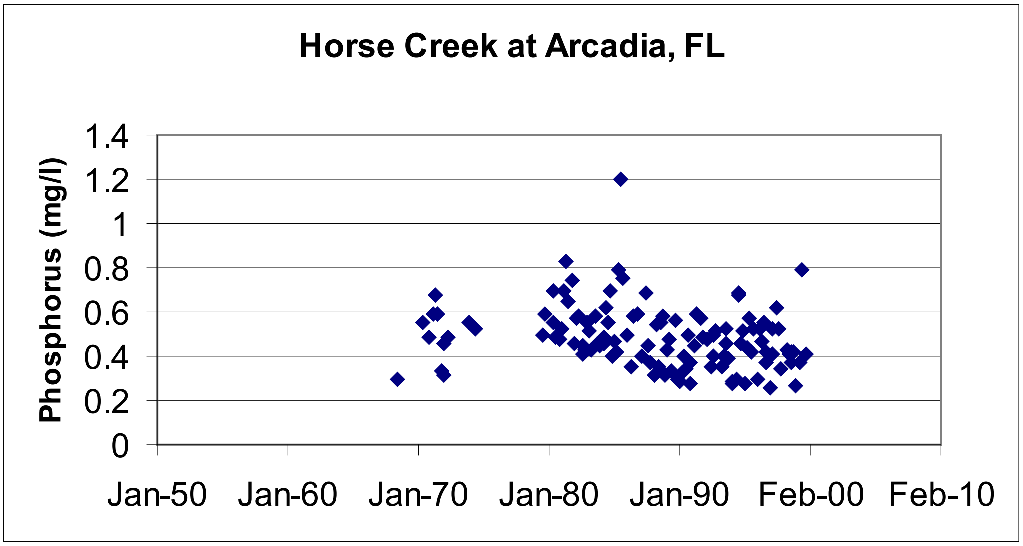

Horse Creek at Arcadia, FL
pH (Standard Units)
0
2
4
6
8
10
0
1000
2000
3000
4000
5000
Flow (cfs)

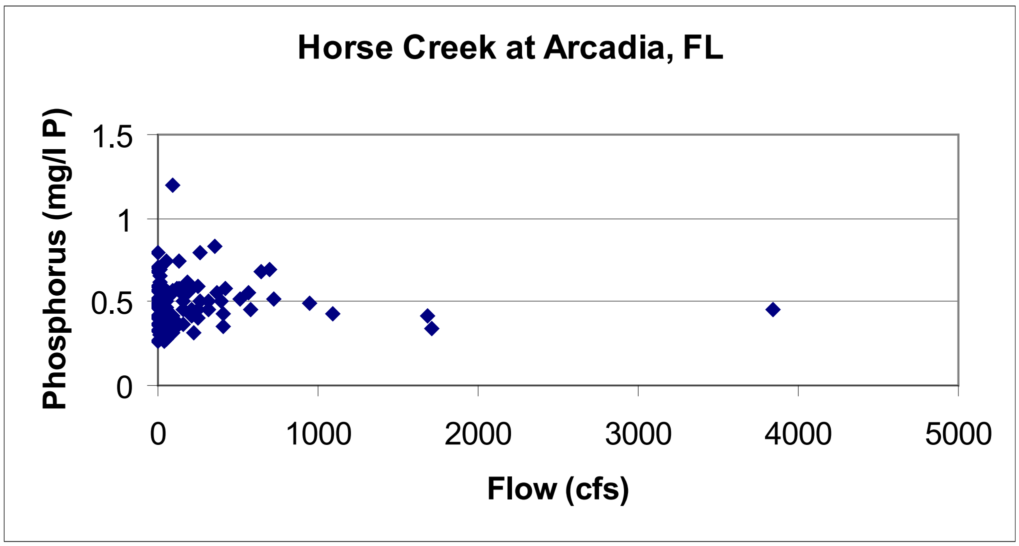

pH Residuals over Time
for Horse Creek at Arcadia, FL
Parameter Residuals
3
2
1
0
-1
-2
-3
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

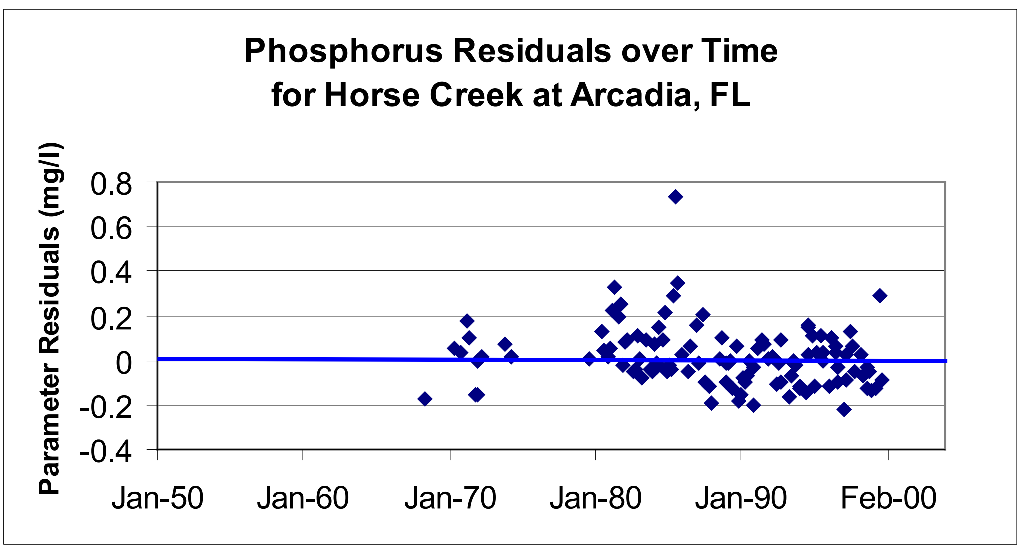

Horse Creek at Arcadia, FL
Dissolved Oxygen (mg/l)
14
12
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

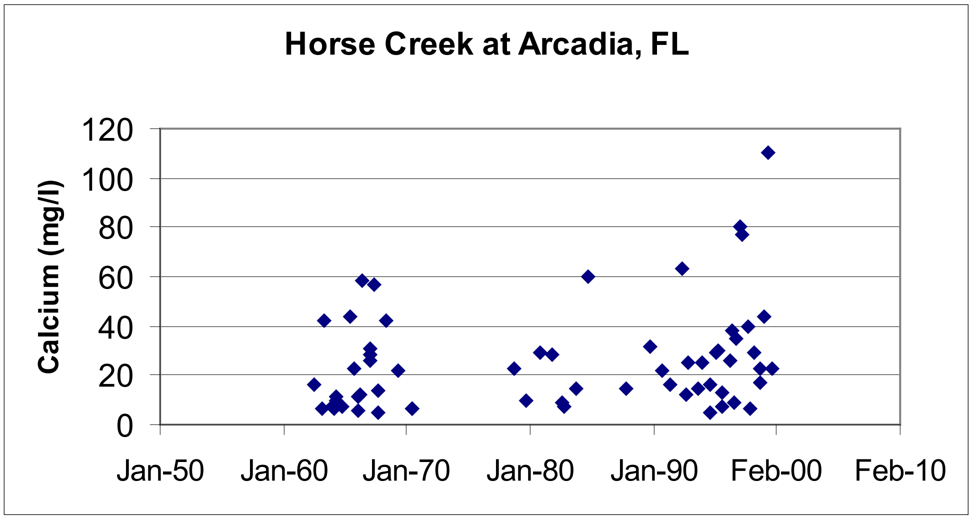

Horse Creek at Arcadia, FL
Dissolved Oxygen (mg/l)
15
10
5
0
0
1000
2000
3000
4000
5000
Flow (cfs)

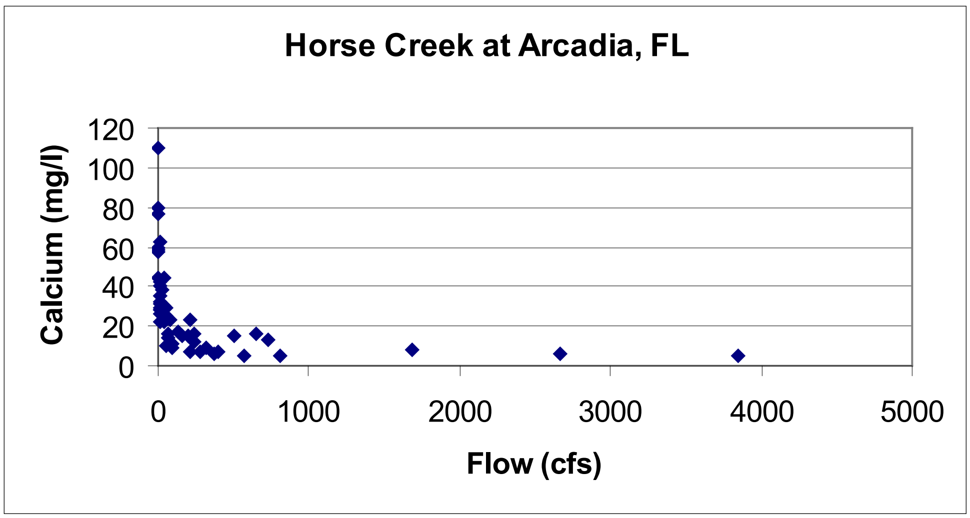

Dissolved Oxygen Residuals over Time for Horse Creek at Arcadia, FL
Parameter Residuals
4
2
0
-2
-4
-6
-8
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

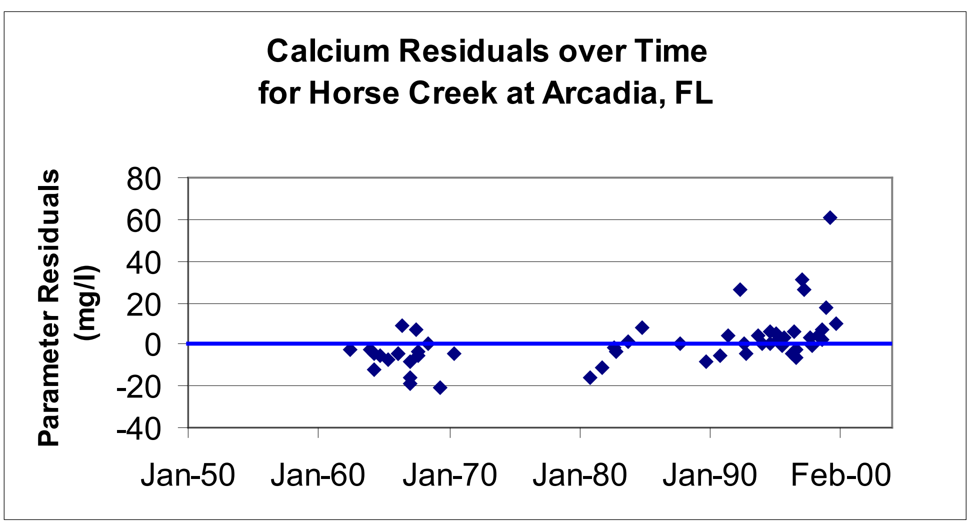

Horse Creek at Arcadia, FL
Phosphorus (mg/l)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

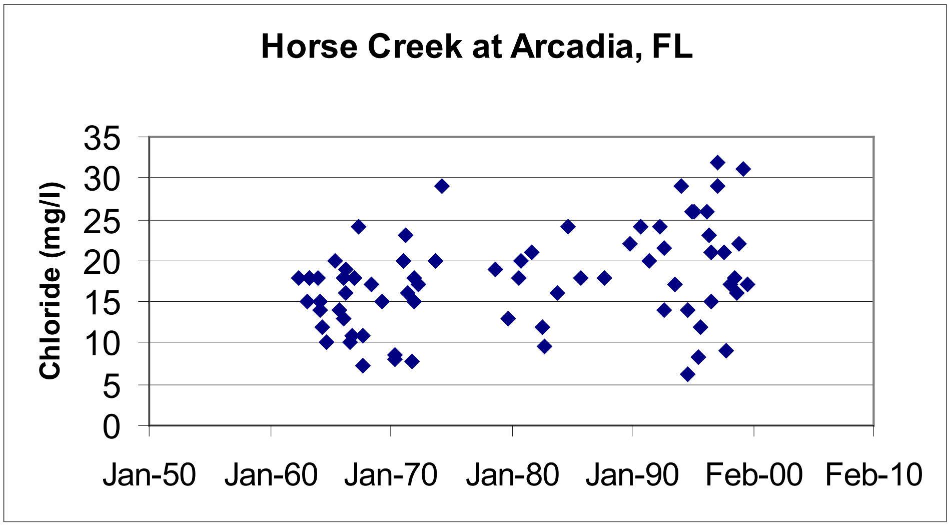

Horse Creek at Arcadia, FL
Phosphorus (mg/l P)
1.5
1
0.5
0
0
1000
2000
3000
4000
5000
Flow (cfs)

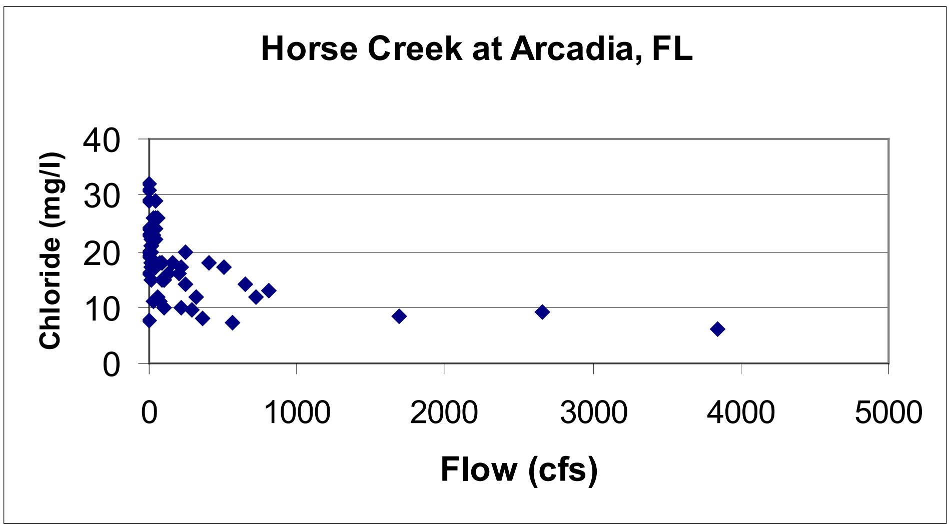

Phosphorus Residuals over Time
for Horse Creek at Arcadia, FL
Parameter Residuals (mg/l)
0.8
0.6
0.4
0.2
0
-0.2
-0.4
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

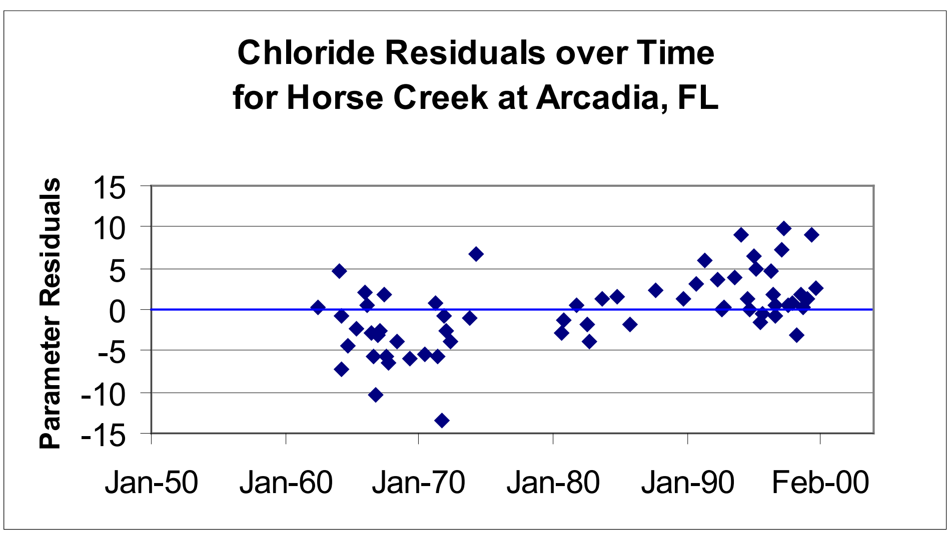

Horse Creek at Arcadia, FL
Calcium (mg/l)
120
100
80
60
40
20
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

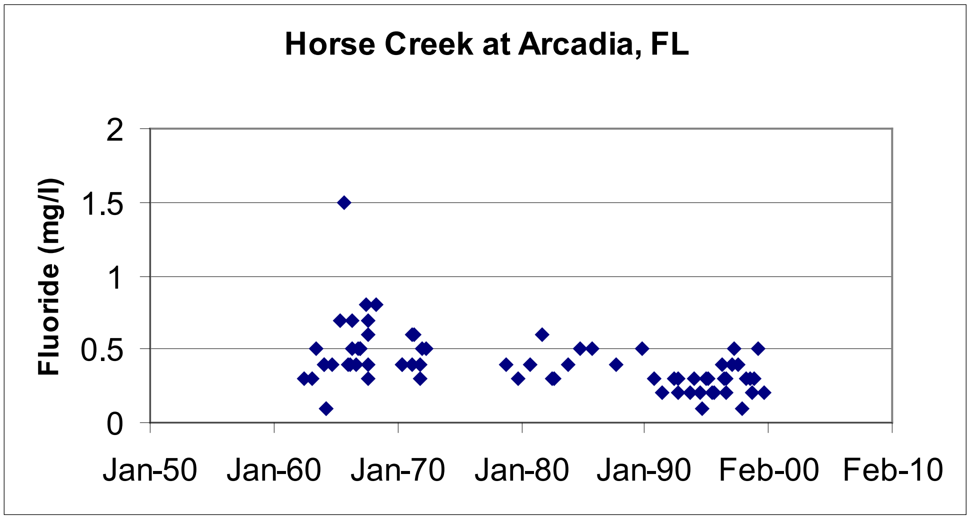

Horse Creek at Arcadia, FL
Calcium (mg/l)
120
100
80
60
40
20
0
0
1000
2000
3000
4000
5000
Flow (cfs)

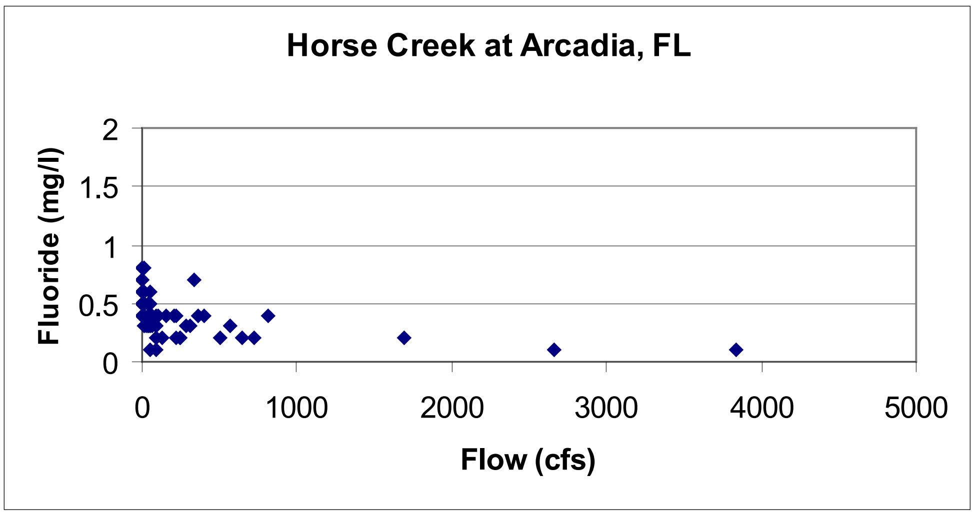

Calcium Residuals over Time
for Horse Creek at Arcadia, FL
Parameter Residuals (mg/l)
80
60
40
20
0
-20
-40
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

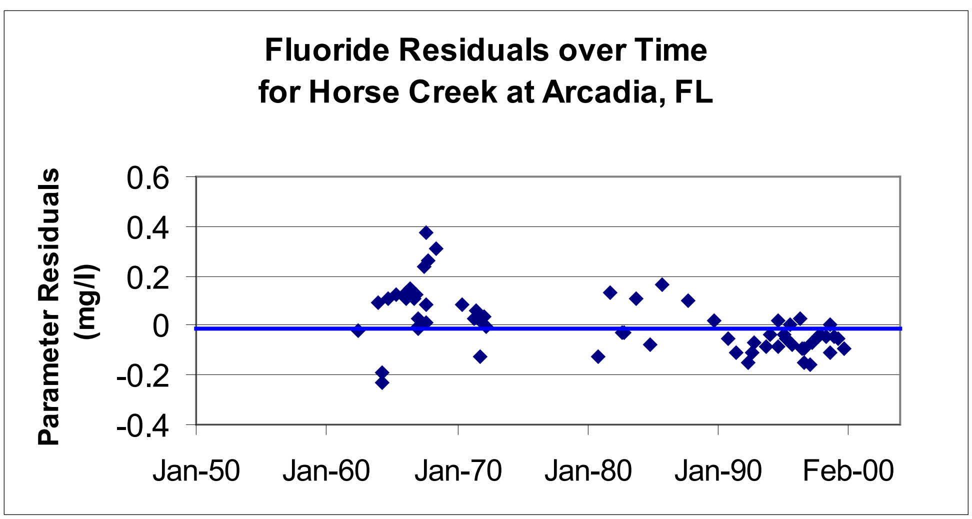

Horse Creek at Arcadia, FL
Chloride (mg/l)
35
30
25
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

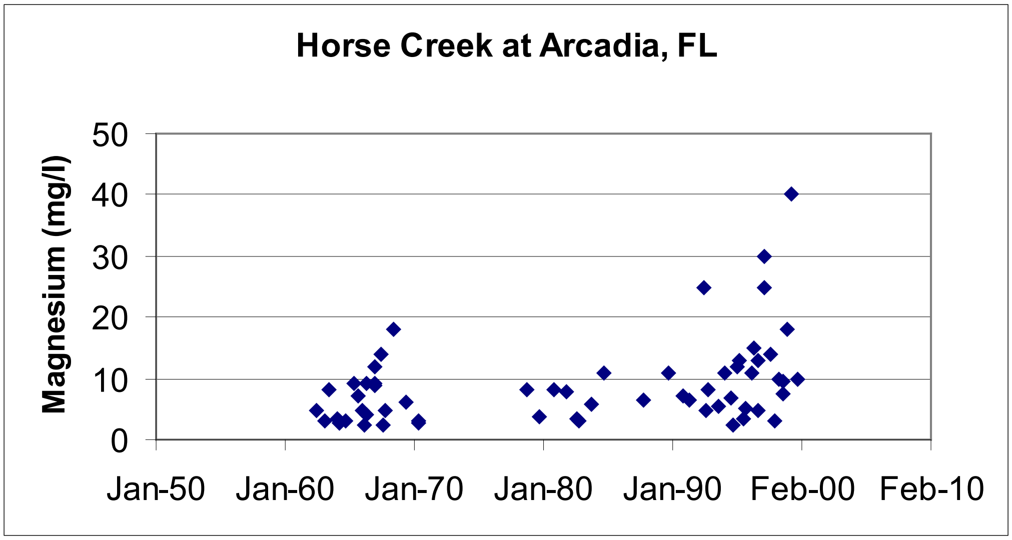

Horse Creek at Arcadia, FL
Chloride (mg/l)
40
30
20
10
0
0
1000
2000
3000
4000
5000
Flow (cfs)

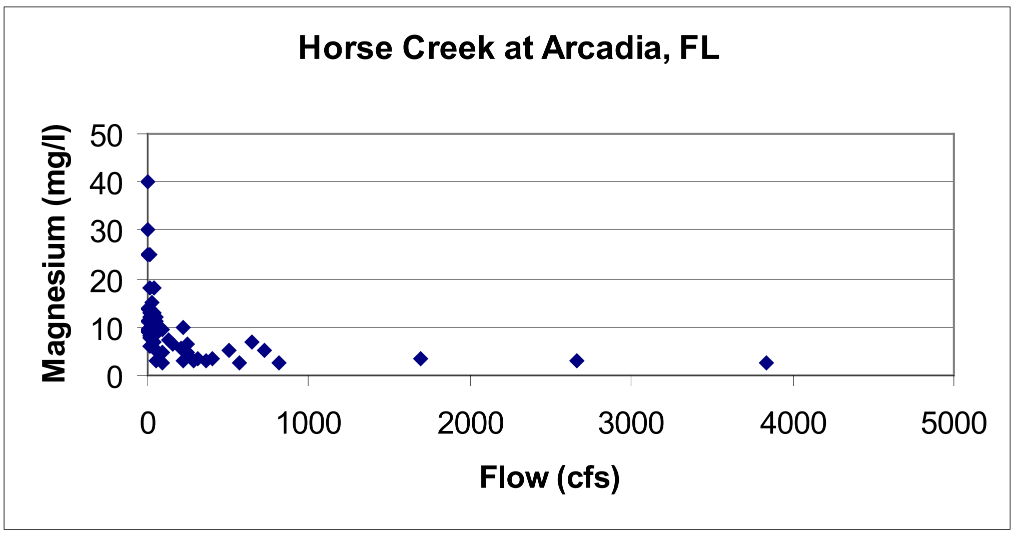

Chloride Residuals over Time
for Horse Creek at Arcadia, FL
Parameter Residuals
15
10
5
0
-5
-10
-15
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

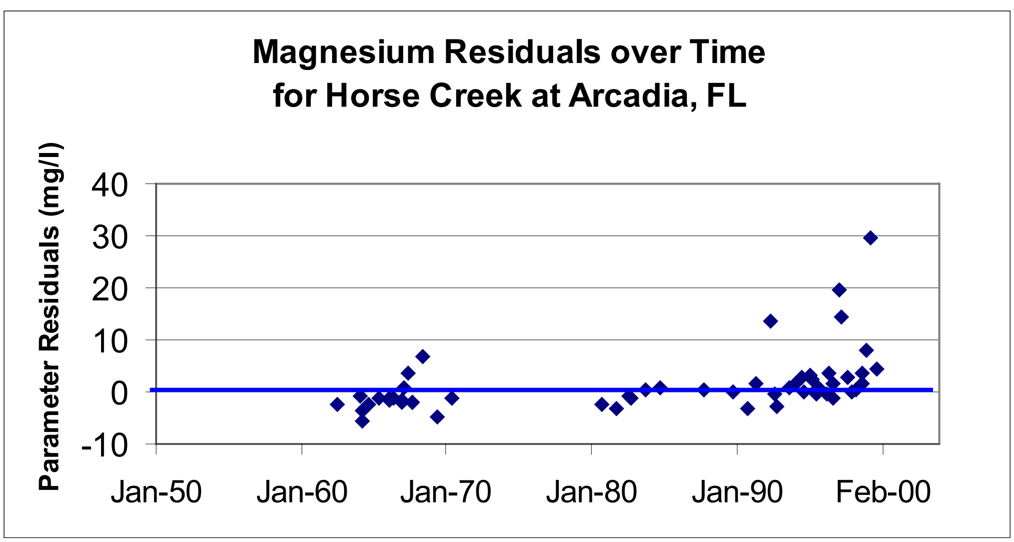

Horse Creek at Arcadia, FL
Fluoride (mg/l)
2
1.5
1
0.5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

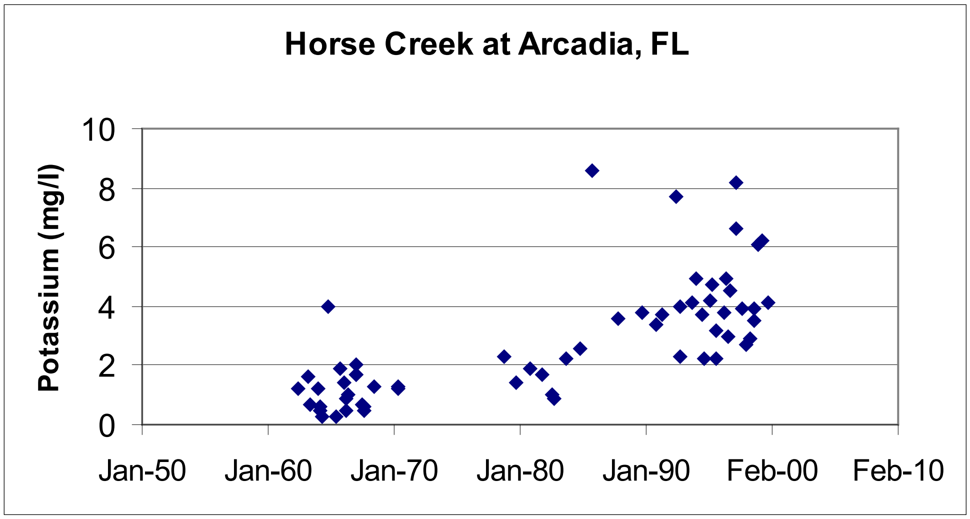

Horse Creek at Arcadia, FL
Fluoride (mg/l)
2
1.5
1
0.5
0
0
1000
2000
3000
4000
5000
Flow (cfs)

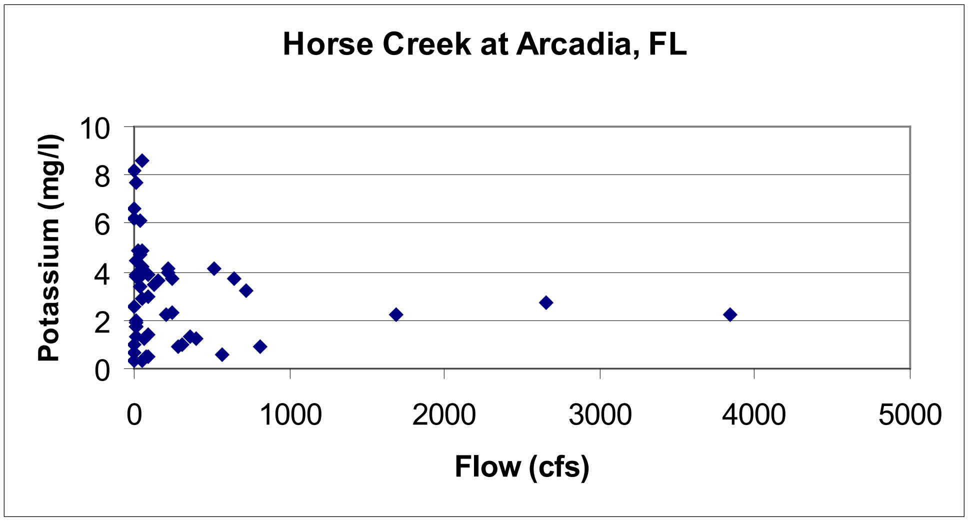

Fluoride Residuals over Time
for Horse Creek at Arcadia, FL
Parameter Residuals
(mg/l)
0.6
0.4
0.2
0
-0.2
-0.4
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

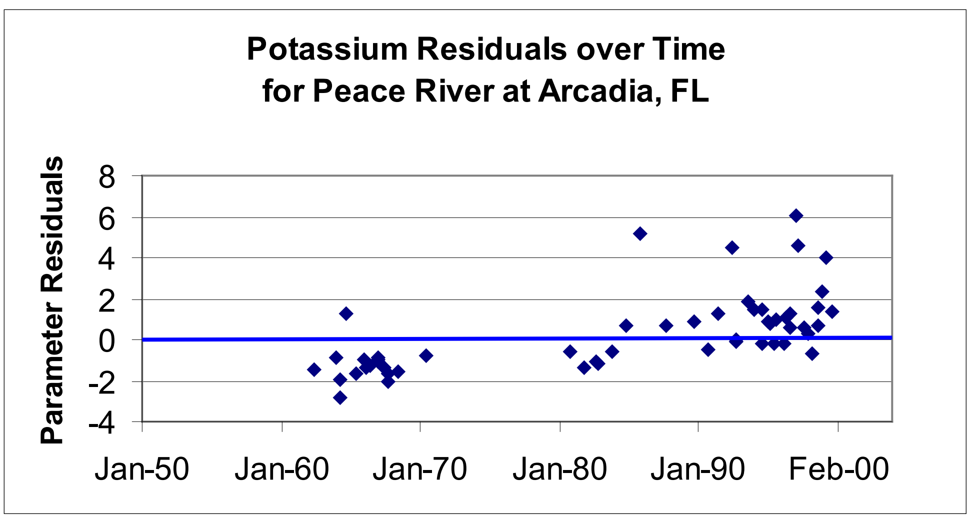

Horse Creek at Arcadia, FL
Magnesium (mg/l)
50
40
30
20
10
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

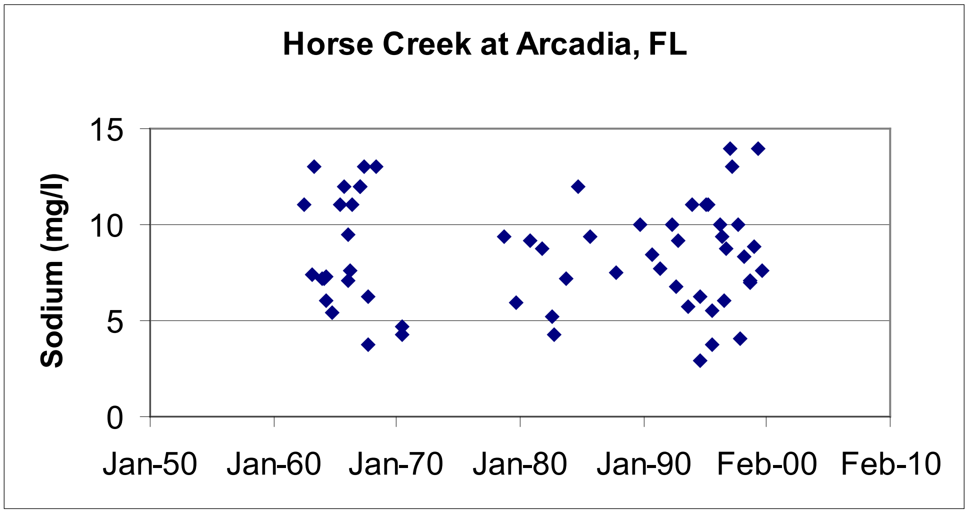

Horse Creek at Arcadia, FL
Magnesium (mg/l)
50
40
30
20
10
0
0
1000
2000
3000
4000
5000
Flow (cfs)

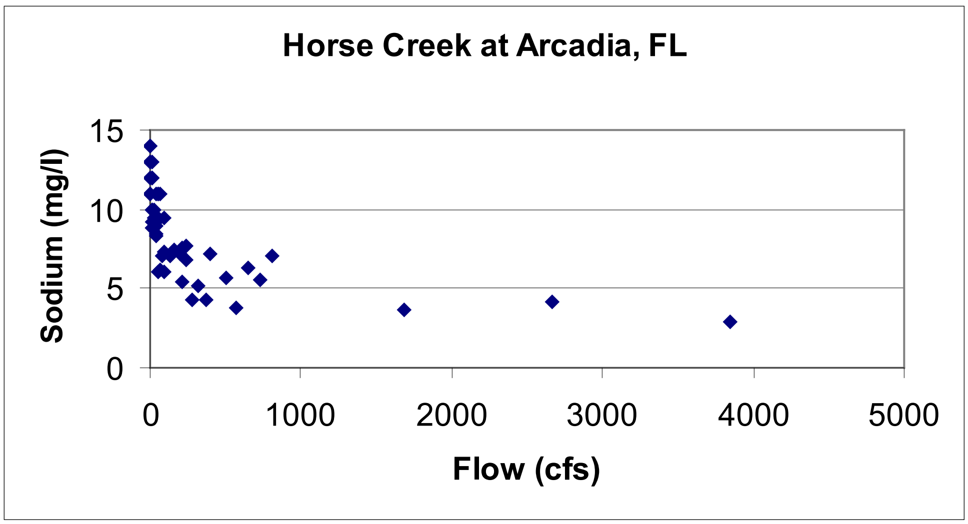

Magnesium Residuals over Time
for Horse Creek at Arcadia, FL
Parameter Residuals (mg/l)
40
30
20
10
0
-10
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

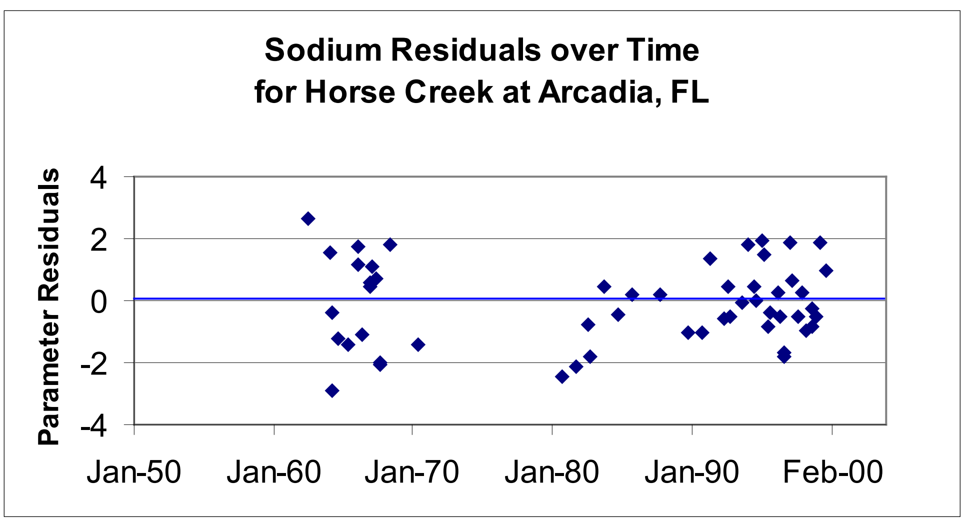

Horse Creek at Arcadia, FL
Potassium (mg/l)
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

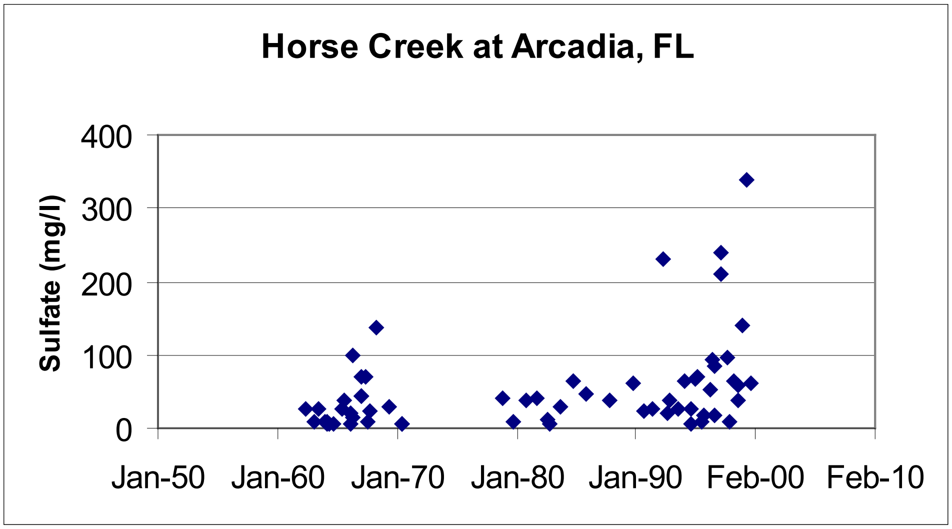

Horse Creek at Arcadia, FL
Potassium (mg/l)
10
8
6
4
2
0
0
1000
2000
3000
4000
5000
Flow (cfs)


Potassium Residuals over Time
for Peace River at Arcadia, FL
Parameter Residuals
8
6
4
2
0
-2
-4
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

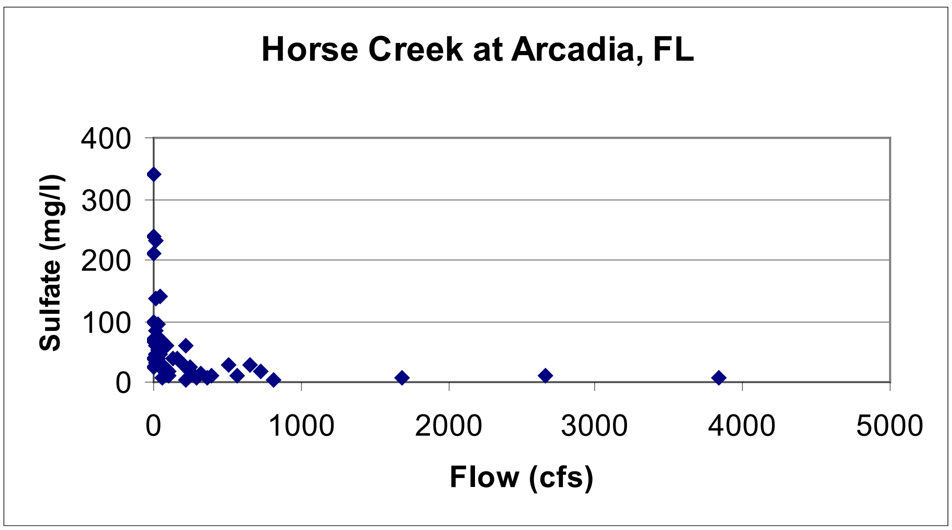

Horse Creek at Arcadia, FL
Sodium (mg/l)
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10


Horse Creek at Arcadia, FL
Sodium (mg/l)
15
10
5
0
0
1000
2000
3000
4000
5000
Flow (cfs)

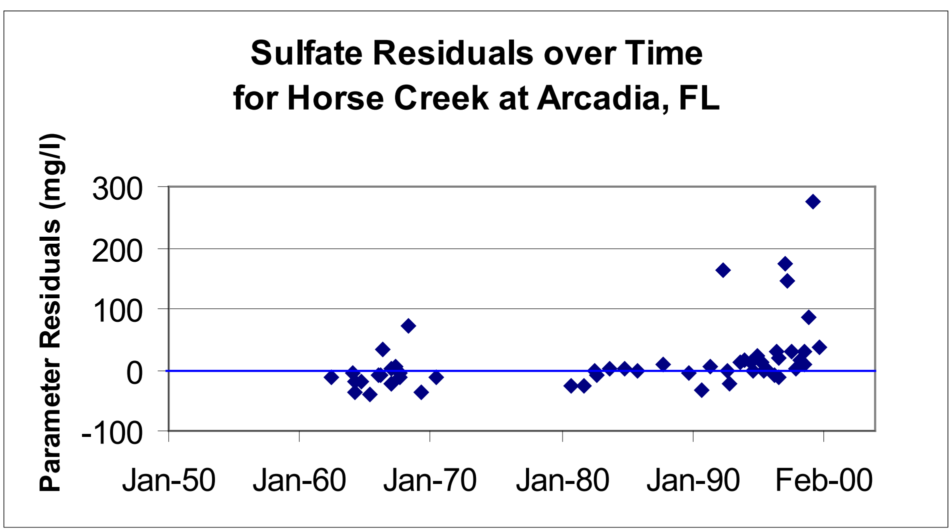

Sodium Residuals over Time
for Horse Creek at Arcadia, FL
Parameter Residuals
4
2
0
-2
-4
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00



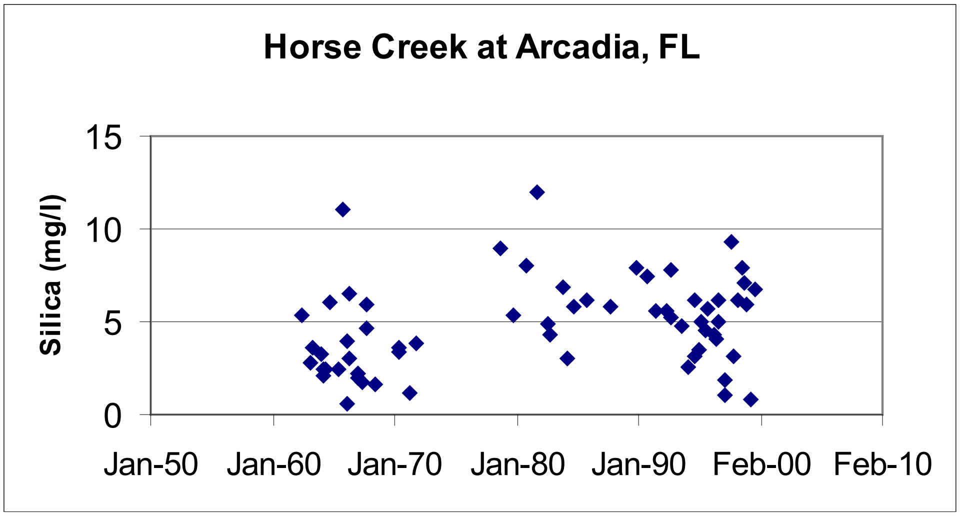
Horse Creek at Arcadia, FL
Sulfate (mg/l)
400
300
200
100
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

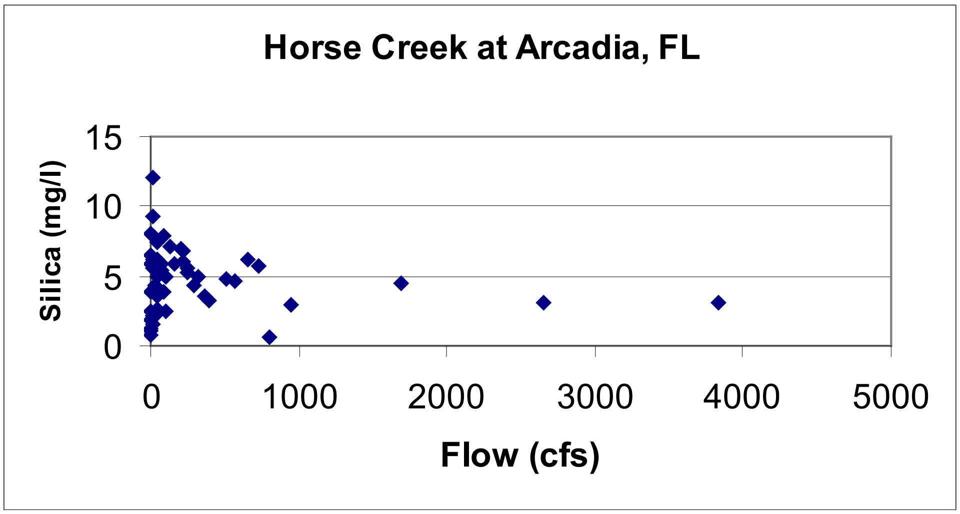


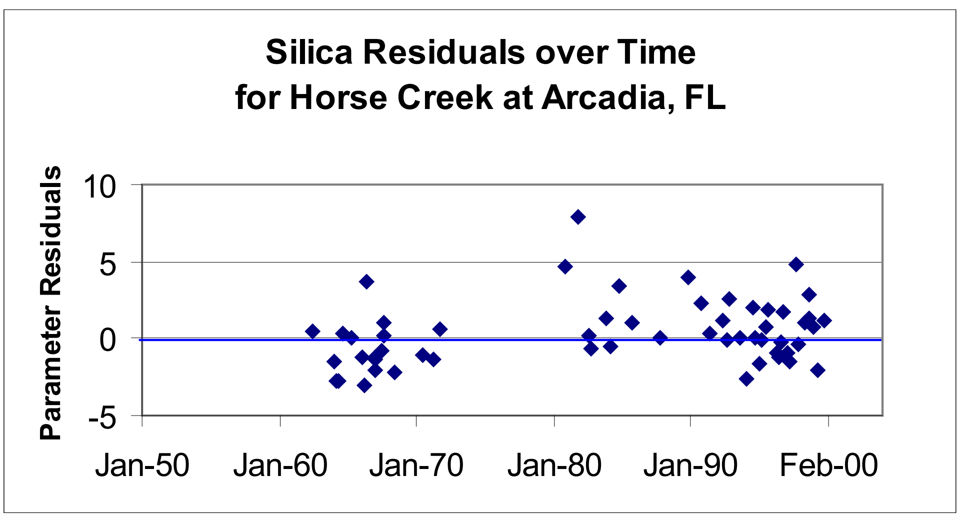
Horse Creek at Arcadia, FL
Sulfate (mg/l)
400
300
200
100
0
0
1000
2000
3000
4000
5000
Flow (cfs)

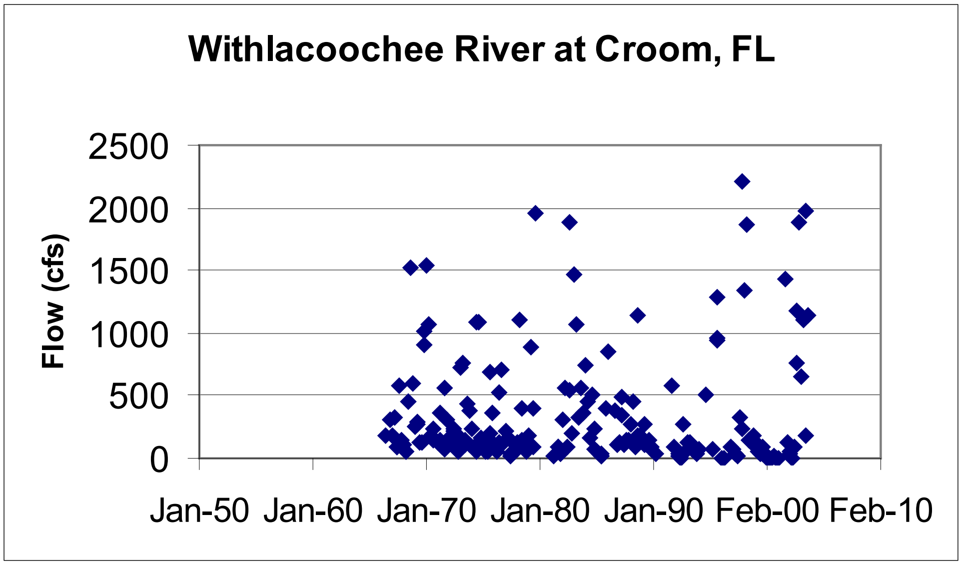


Sulfate Residuals over Time
for Horse Creek at Arcadia, FL
Parameter Residuals (mg/l)
300
200
100
0
-100
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

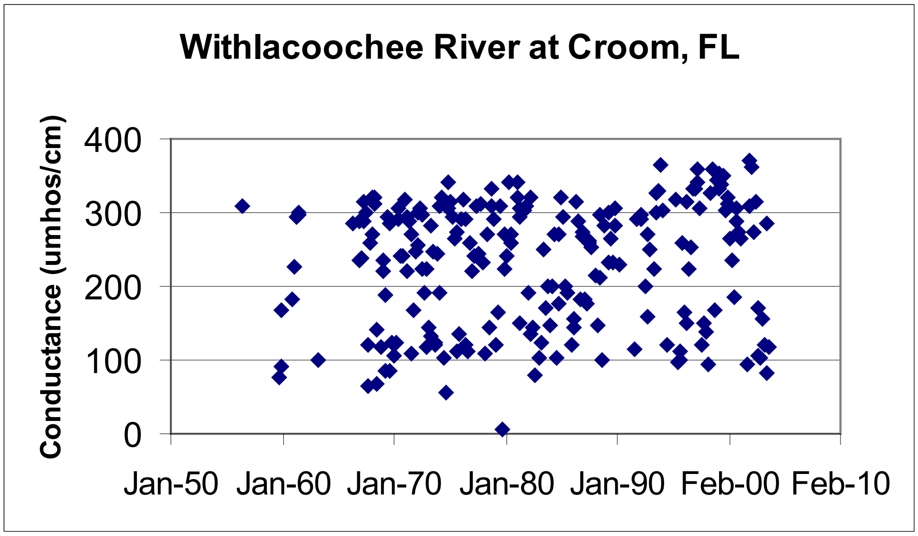

Horse Creek at Arcadia, FL
Silica (mg/l)
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

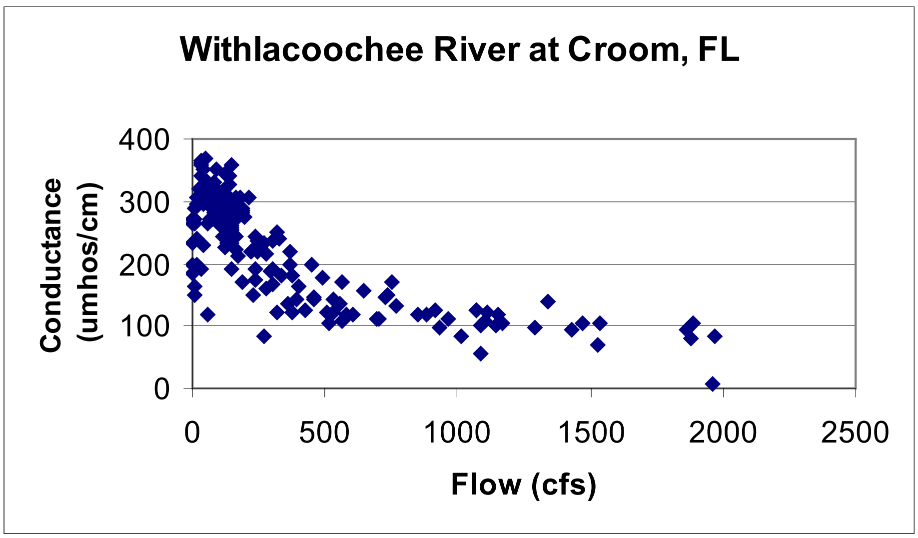

Horse Creek at Arcadia, FL
Silica (mg/l)
15
10
5
0
0
1000
2000
3000
4000
5000
Flow (cfs)

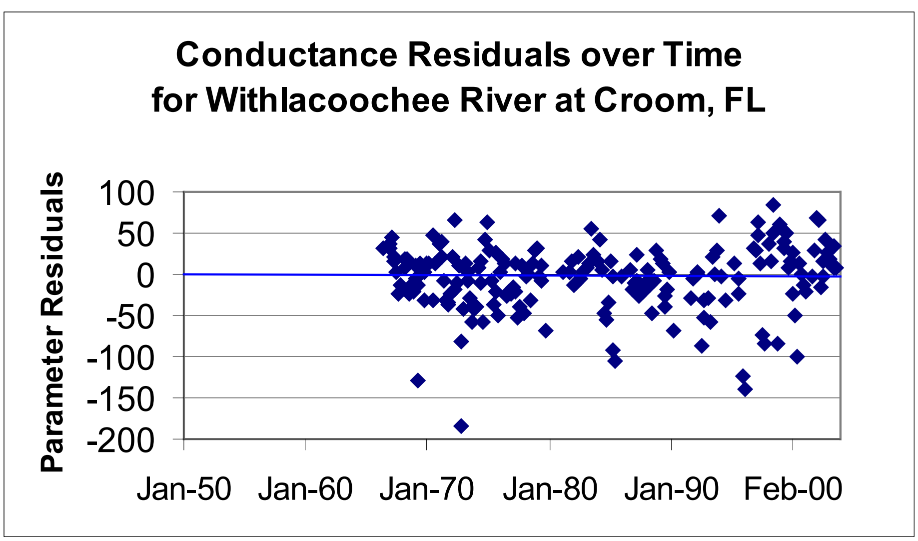

Silica Residuals over Time
for Horse Creek at Arcadia, FL
Parameter Residuals
10
5
0
-5
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

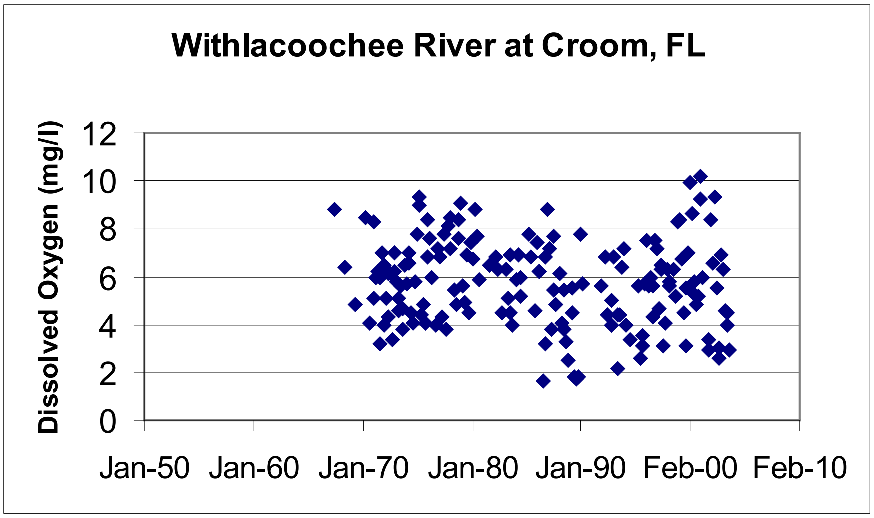


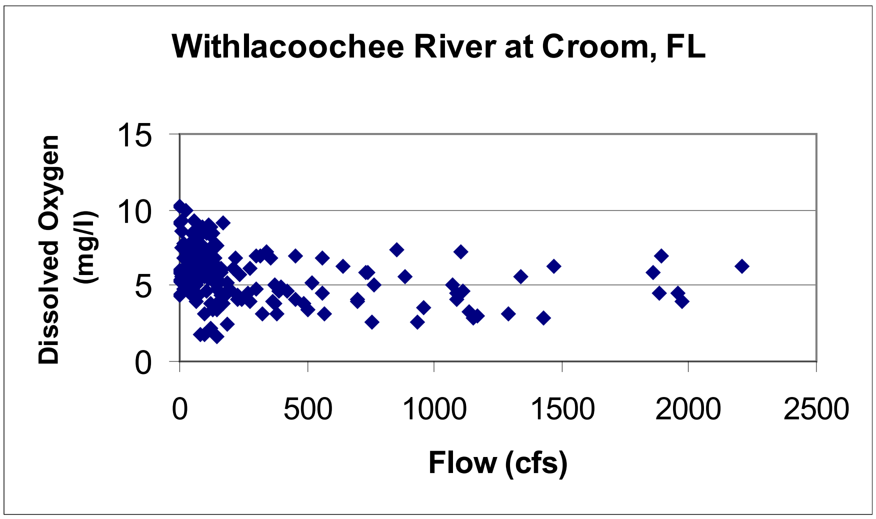
Withlacoochee River at Croom, FL
Flow (cfs)
2500
2000
1500
1000
500
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

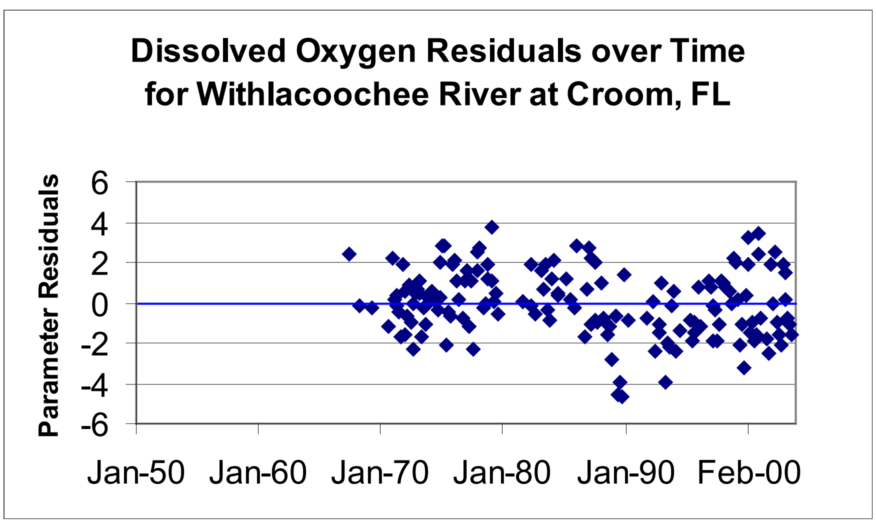

Withlacoochee River at Croom, FL
Conductance (umhos/cm)
400
300
200
100
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

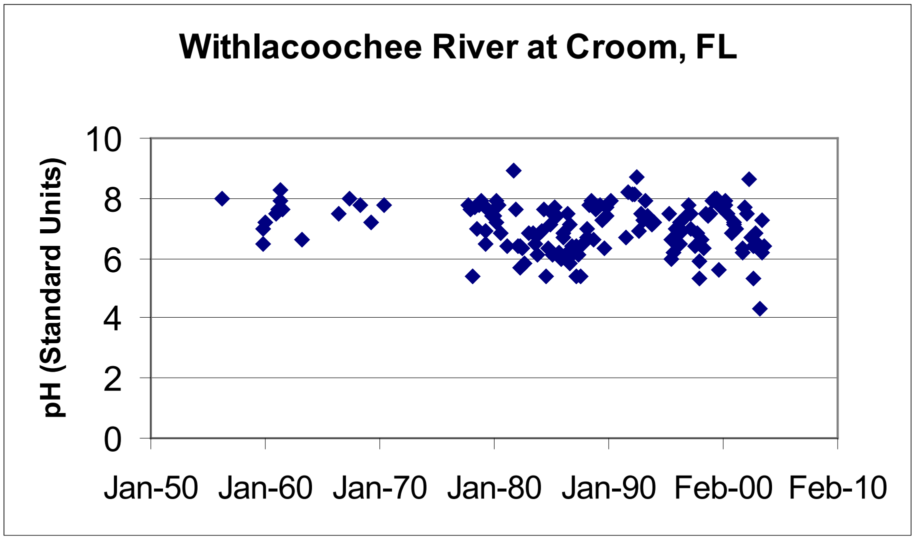

Withlacoochee River at Croom, FL
Conductance (umhos/cm)
400
300
200
100
0
0
500
1000
1500
2000
2500
Flow (cfs)

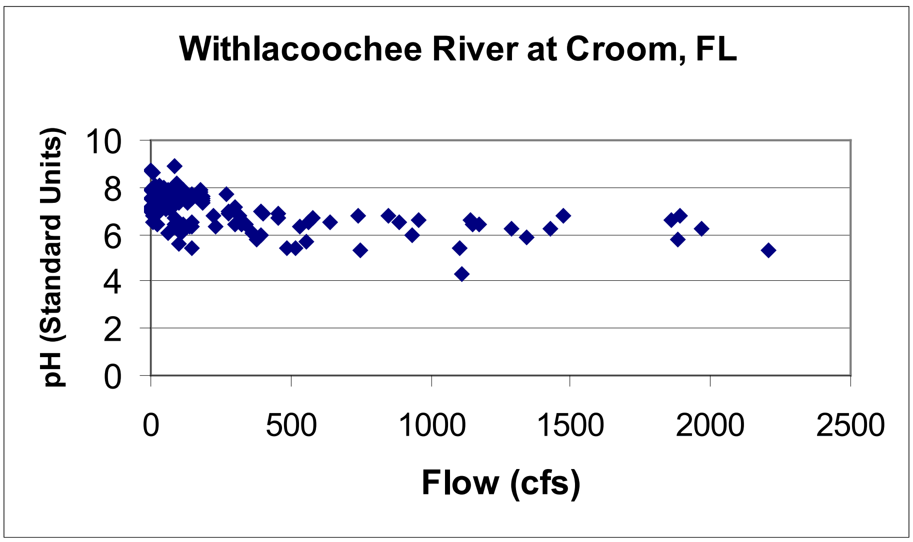

Conductance Residuals over Time for Withlacoochee River at Croom, FL
Parameter Residuals
100
50
0
-50
-100
-150
-200
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

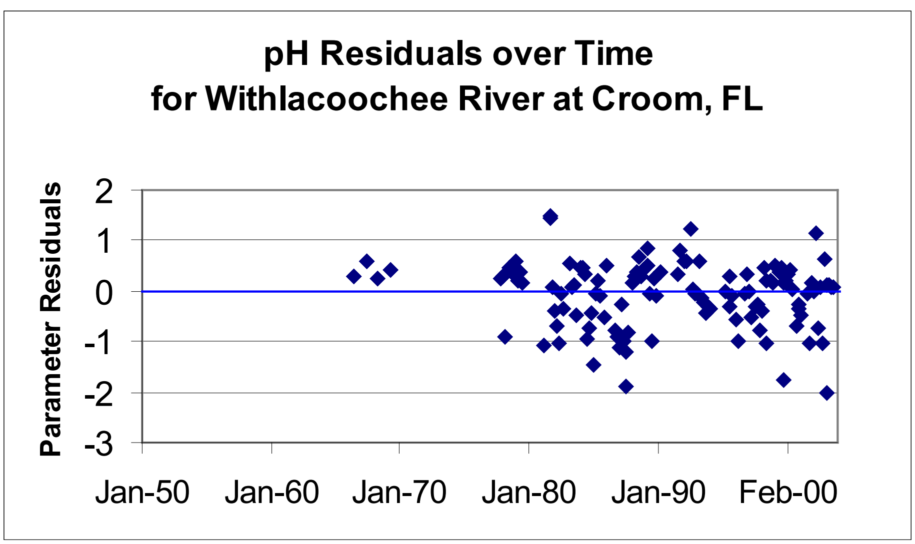

Withlacoochee River at Croom, FL
Dissolved Oxygen (mg/l)
12
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

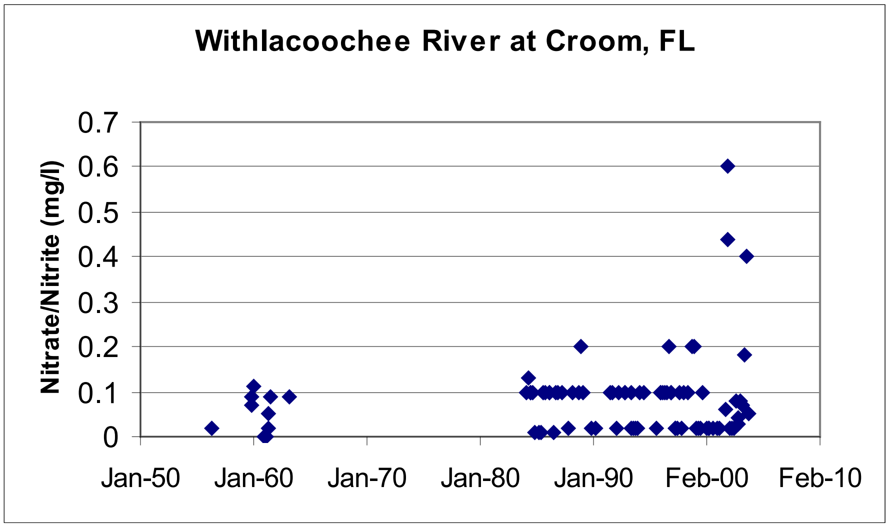

Withlacoochee River at Croom, FL
Dissolved Oxygen (mg/l)
15
10
5
0
0
500
1000
1500
2000
2500
Flow (cfs)

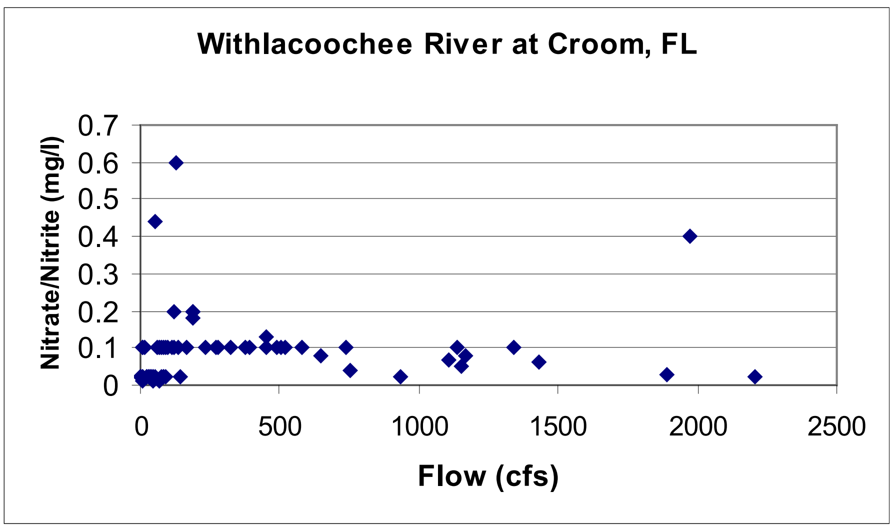

Dissolved Oxygen Residuals over Time for Withlacoochee River at Croom, FL
Parameter Residuals
6
4
2
0
-2
-4
-6
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

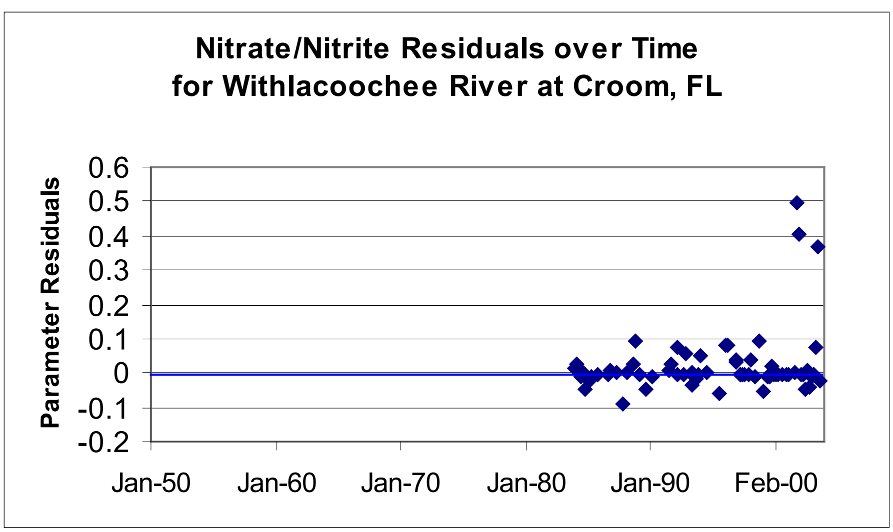

Withlacoochee River at Croom, FL
pH (Standard Units)
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

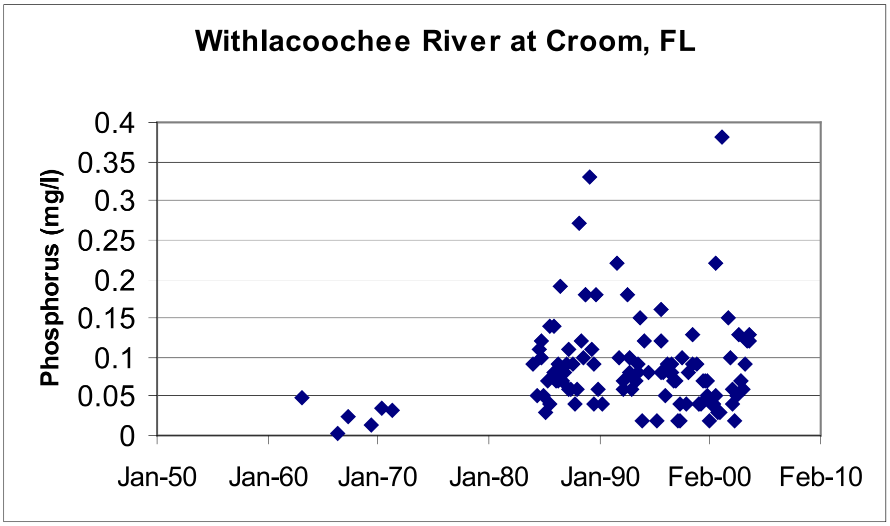

Withlacoochee River at Croom, FL
pH (Standard Units)
10
8
6
4
2
0
0
500
1000
1500
2000
2500
Flow (cfs)

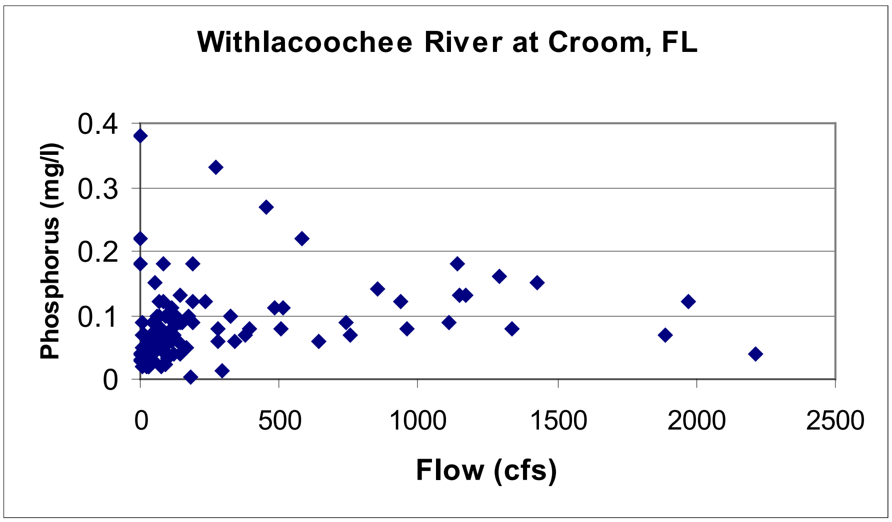

pH Residuals over Time
for Withlacoochee River at Croom, FL
Parameter Residuals
2
1
0
-1
-2
-3
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

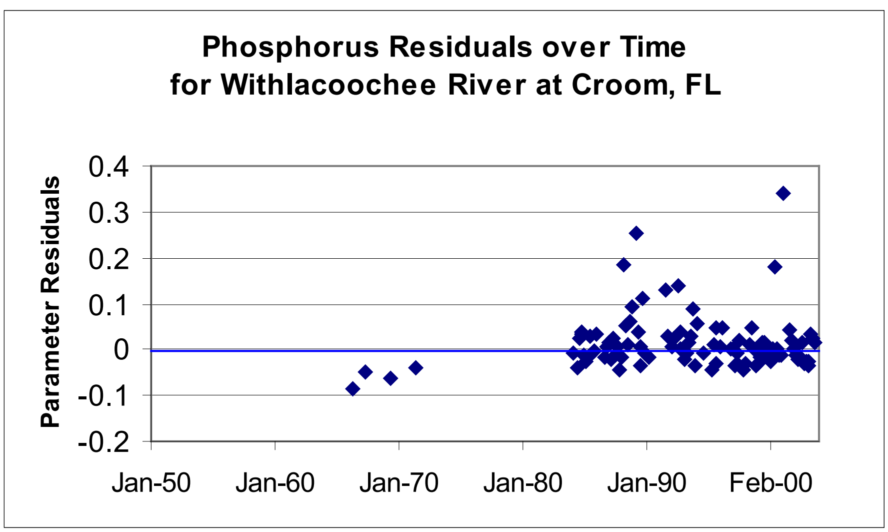

Withlacoochee River at Croom, FL
Nitrate/Nitrite (mg/l)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

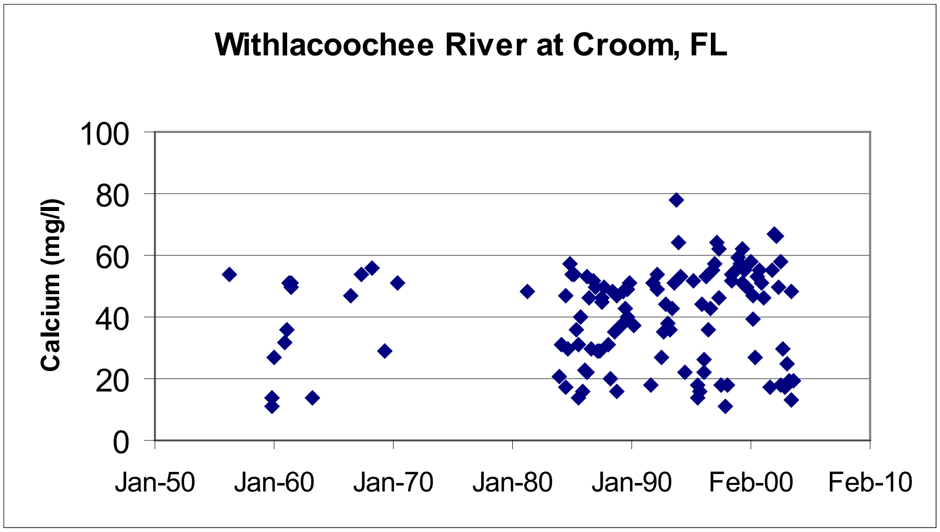

Withlacoochee River at Croom, FL
Nitrate/Nitrite (mg/l)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
500
1000
1500
2000
2500
Flow (cfs)


Nitrate/Nitrite Residuals over Time
for Withlacoochee River at Croom, FL
Parameter Residuals
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

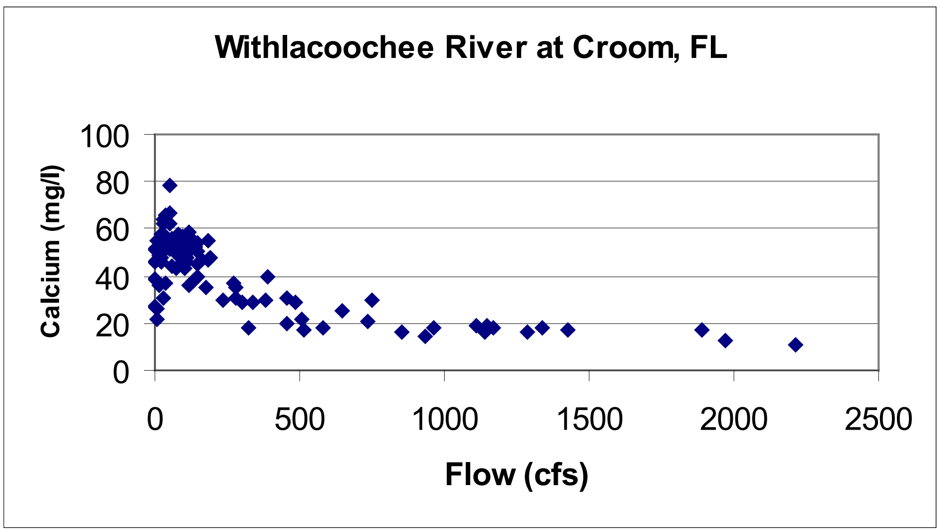

Withlacoochee River at Croom, FL
Phosphorus (mg/l)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10


Withlacoochee River at Croom, FL
Phosphorus (mg/l)
0.4
0.3
0.2
0.1
0
0
500
1000
1500
2000
2500
Flow (cfs)

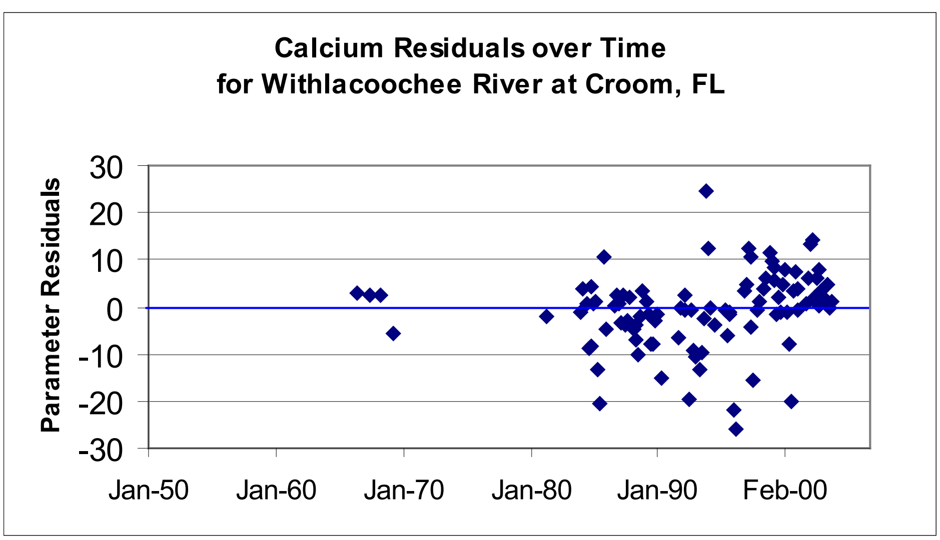

Phosphorus Residuals over Time
for Withlacoochee River at Croom, FL
Parameter Residuals
0.4
0.3
0.2
0.1
0
-0.1
-0.2
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00



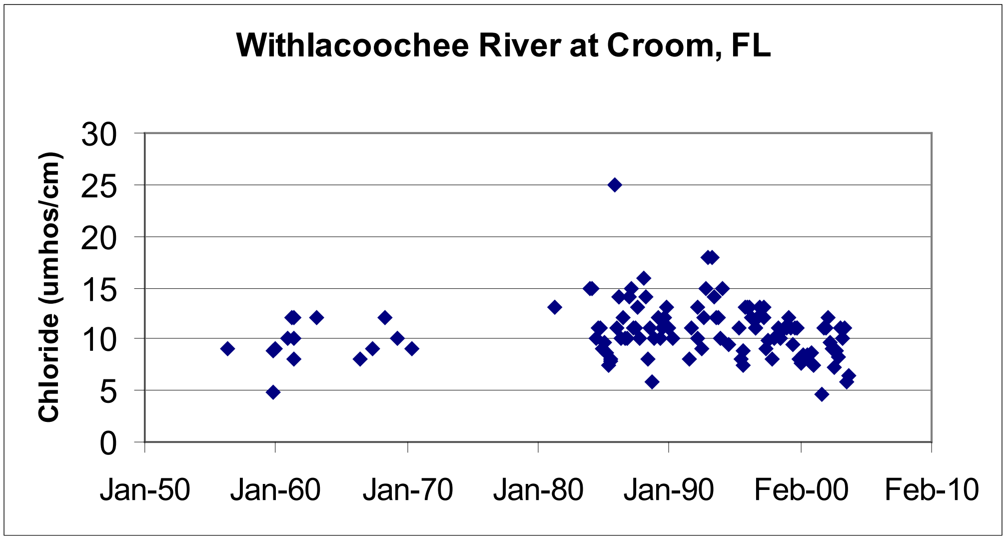
Withlacoochee River at Croom, FL
Calcium (mg/l)
100
80
60
40
20
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

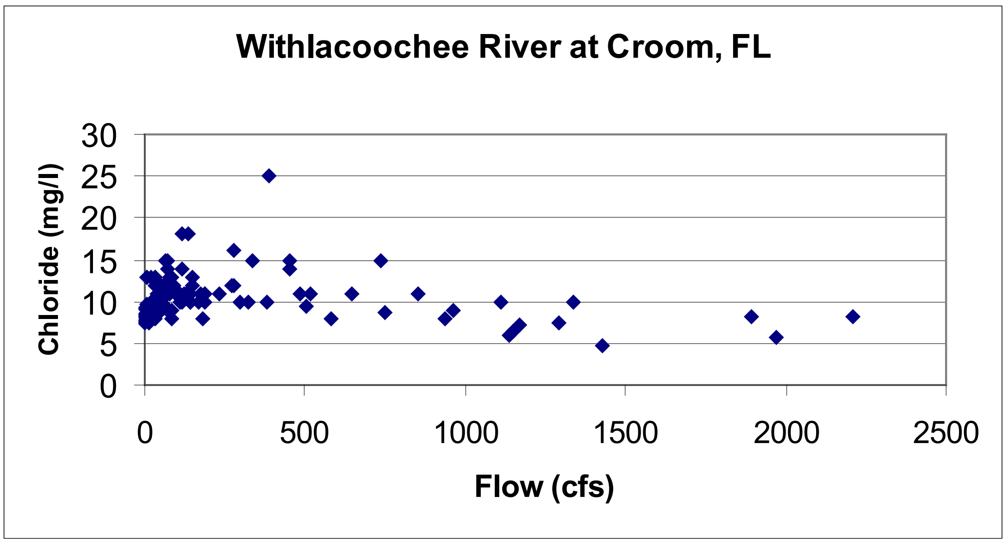


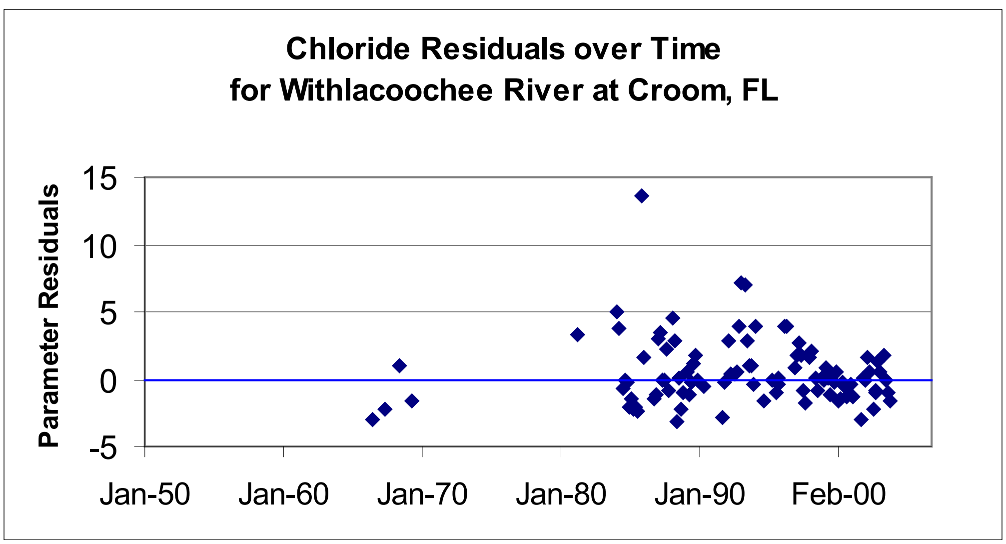
Withlacoochee River at Croom, FL
Calcium (mg/l)
100
80
60
40
20
0
0
500
1000
1500
2000
2500
Flow (cfs)

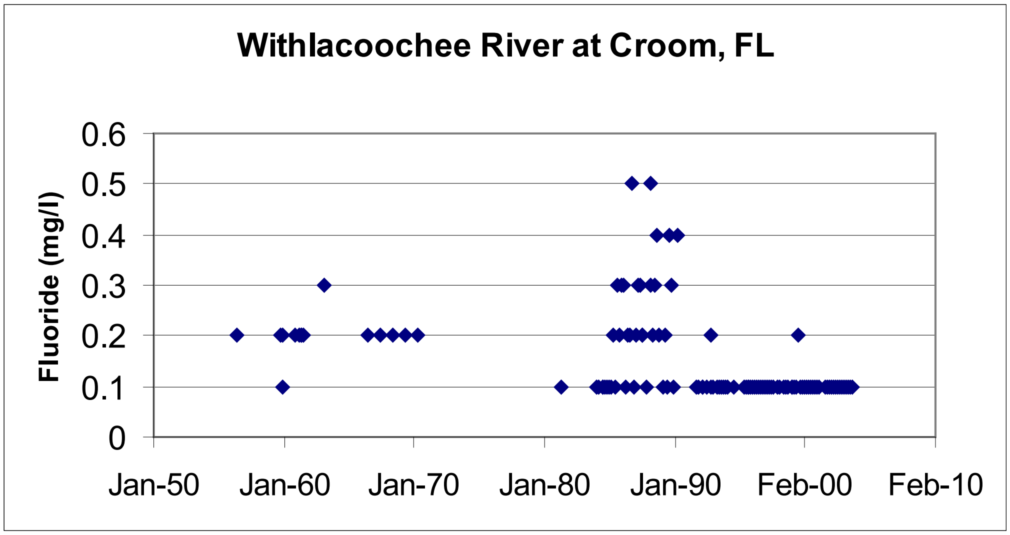


Calcium Residuals over Time
for Withlacoochee River at Croom, FL
Parameter Residuals
30
20
10
0
-10
-20
-30
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

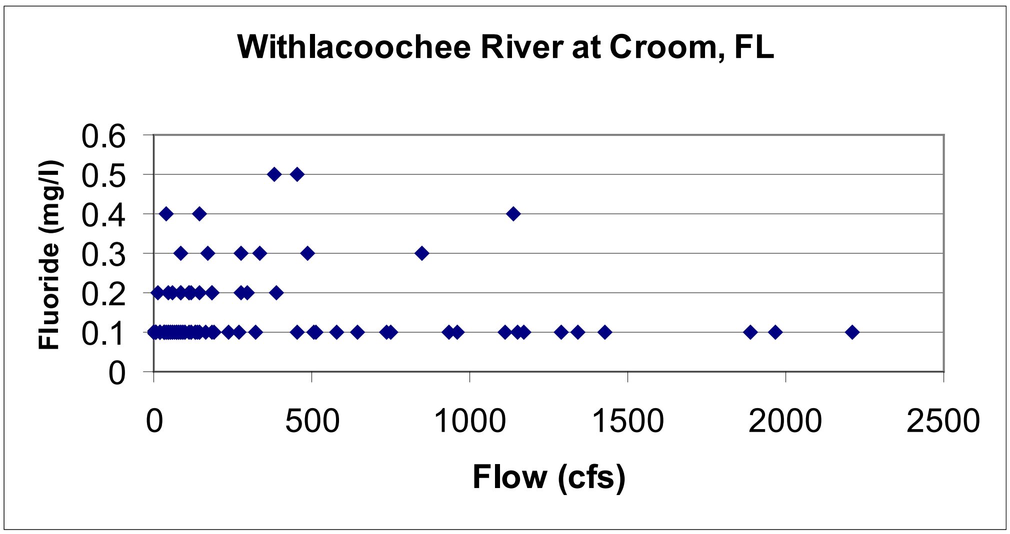

Withlacoochee River at Croom, FL
Chloride (umhos/cm)
30
25
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10


Withlacoochee River at Croom, FL
Chloride (mg/l)
30
25
20
15
10
5
0
0
500
1000
1500
2000
2500
Flow (cfs)

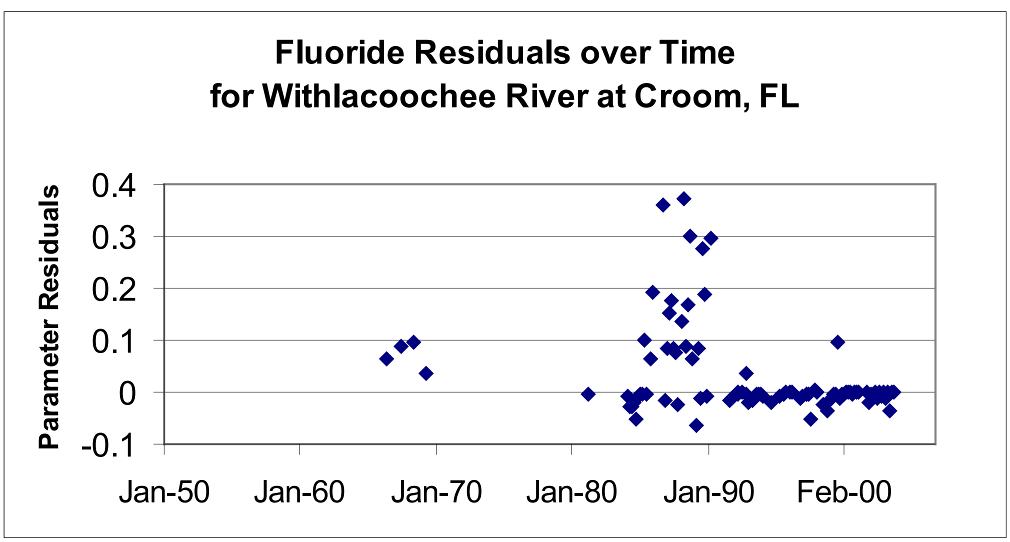

Chloride Residuals over Time
for Withlacoochee River at Croom, FL
Parameter Residuals
15
10
5
0
-5
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00



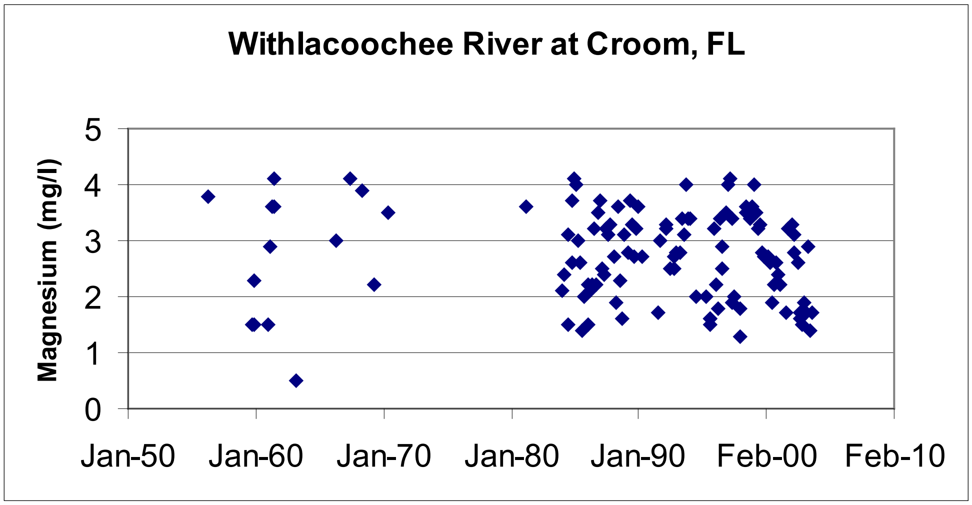
Withlacoochee River at Croom, FL
Fluoride (mg/l)
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

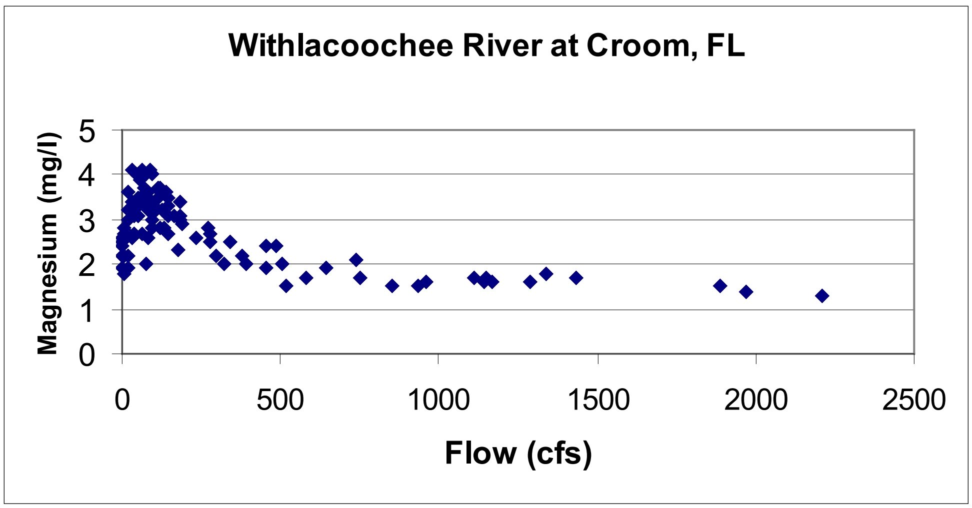


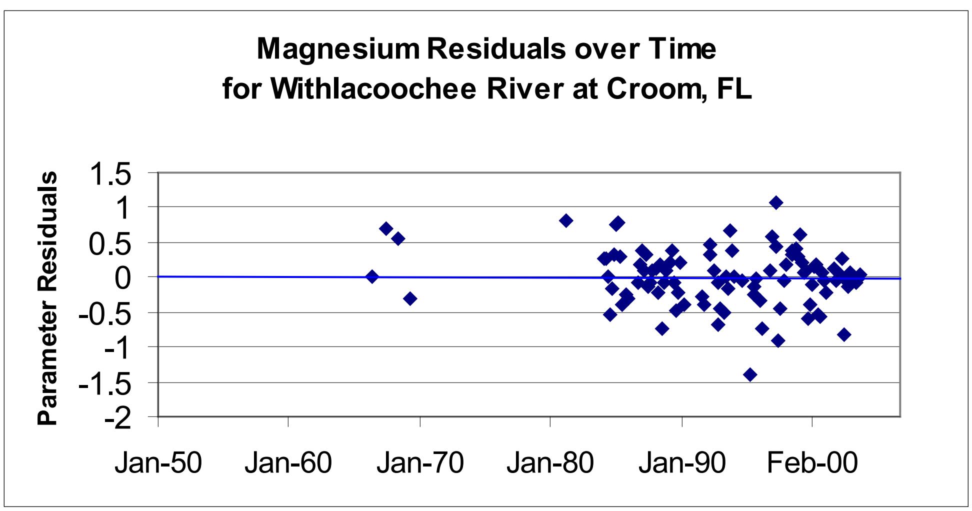
Withlacoochee River at Croom, FL
Fluoride (mg/l)
0.6
0.5
0.4
0.3
0.2
0.1
0
0
500
1000
1500
2000
2500
Flow (cfs)

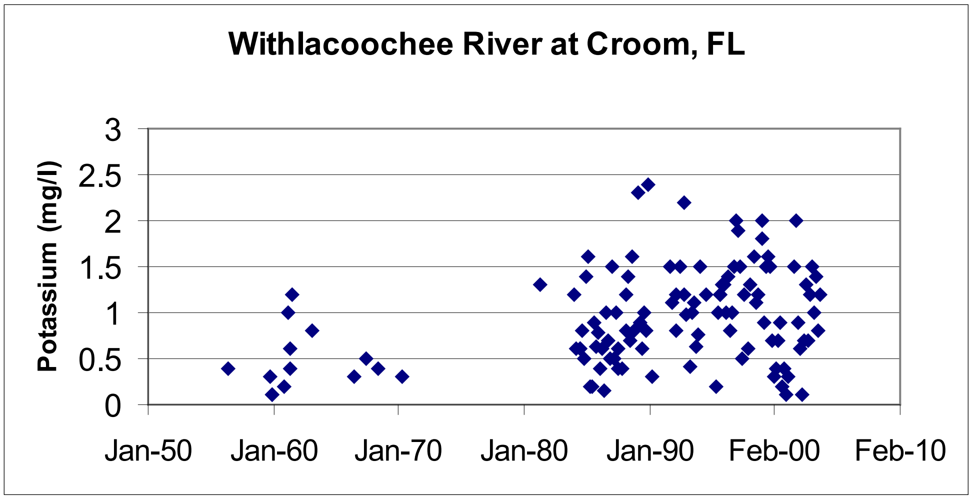


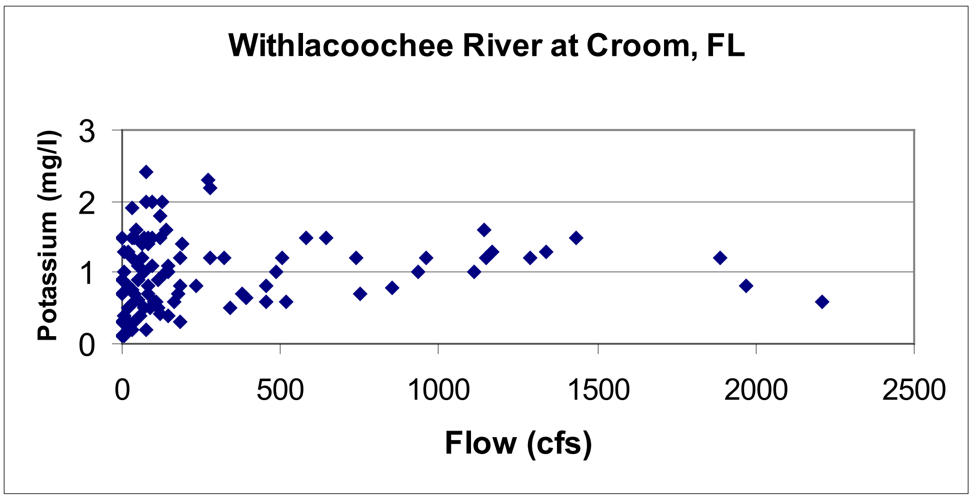
Fluoride Residuals over Time
for Withlacoochee River at Croom, FL
Parameter Residuals
0.4
0.3
0.2
0.1
0
-0.1
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

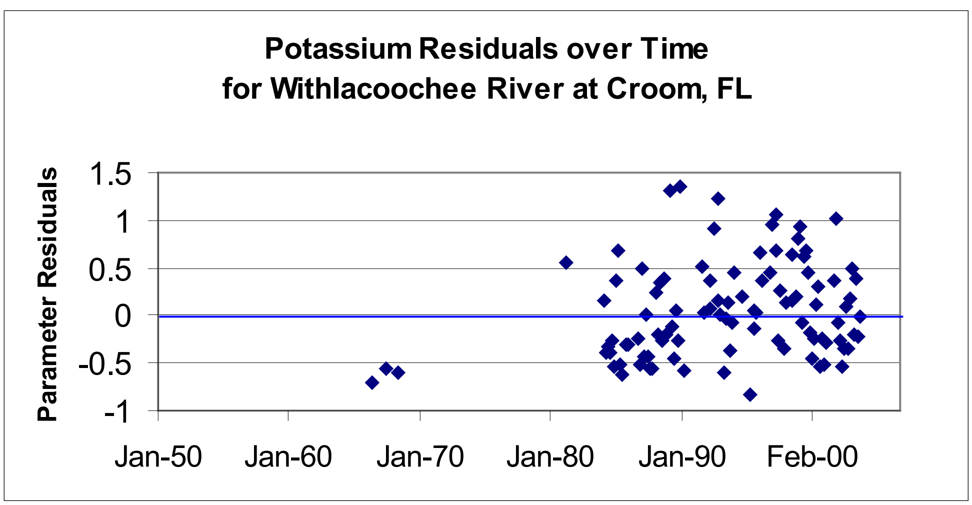

Withlacoochee River at Croom, FL
Magnesium (mg/l)
0
1
2
3
4
5
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

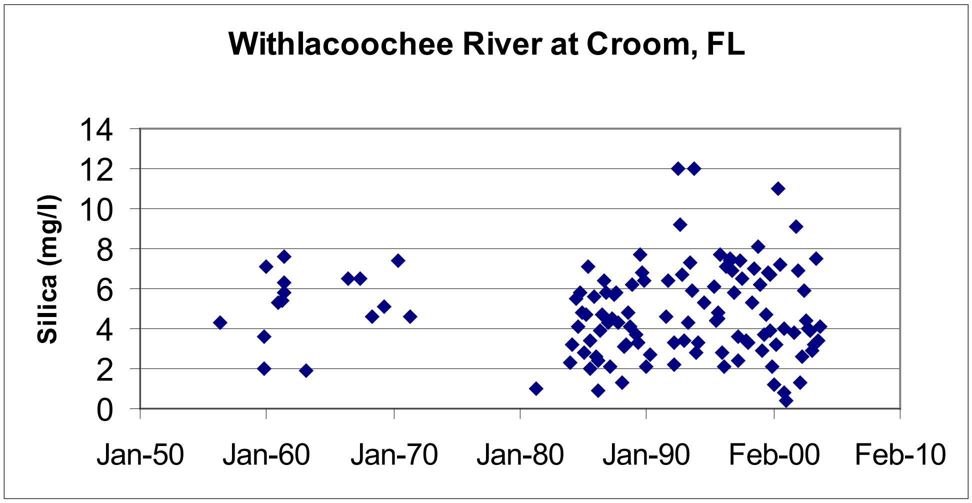

Withlacoochee River at Croom, FL
Magnesium (mg/l)
0
1
2
3
4
5
0
500
1000
1500
2000
2500
Flow (cfs)

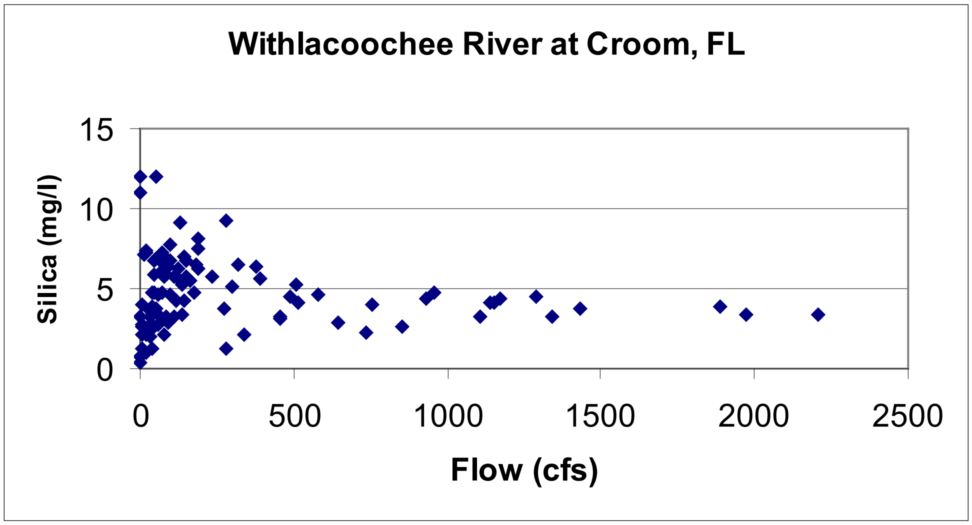

Magnesium Residuals over Time
for Withlacoochee River at Croom, FL
Parameter Residuals
1.5
1
0.5
0
-0.5
-1
-1.5
-2
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

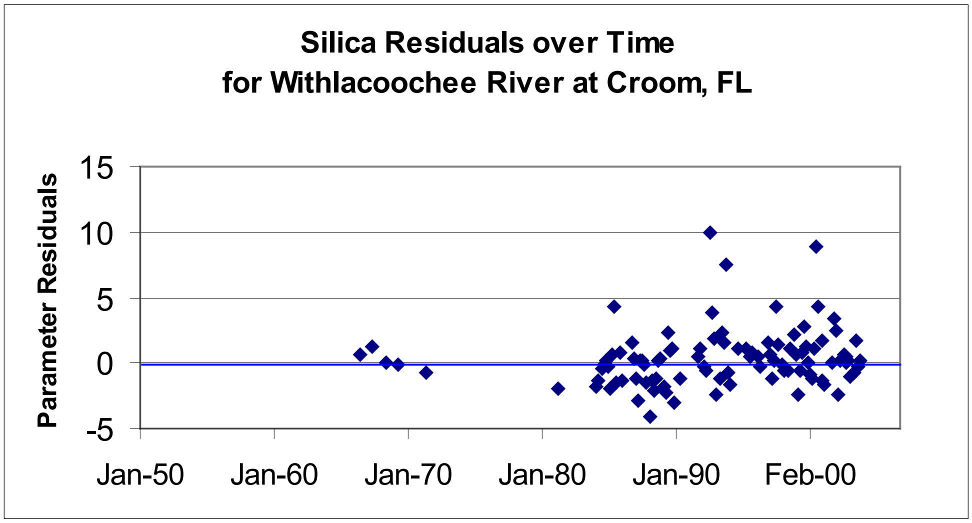

Withlacoochee River at Croom, FL
Potassium (mg/l)
3
2.5
2
1.5
1
0.5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

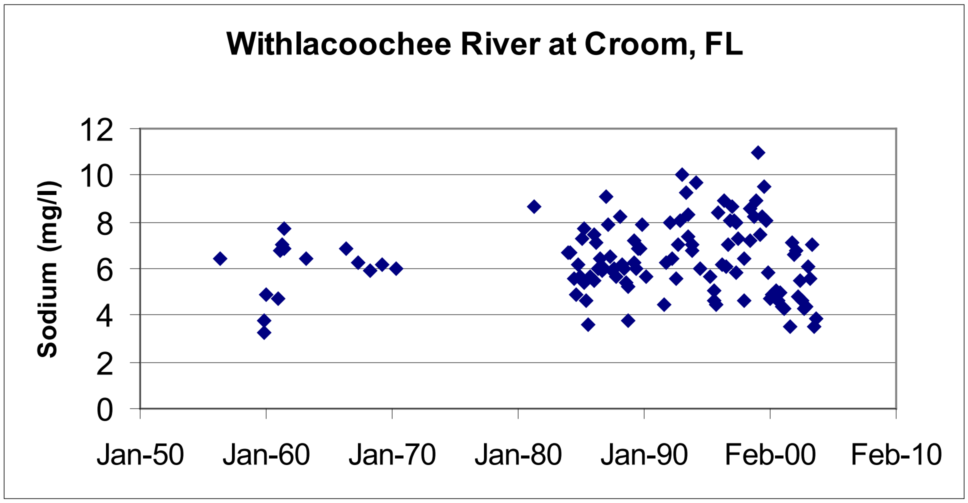

Withlacoochee River at Croom, FL
Potassium (mg/l)
3
2
1
0
0
500
1000
1500
2000
2500
Flow (cfs)

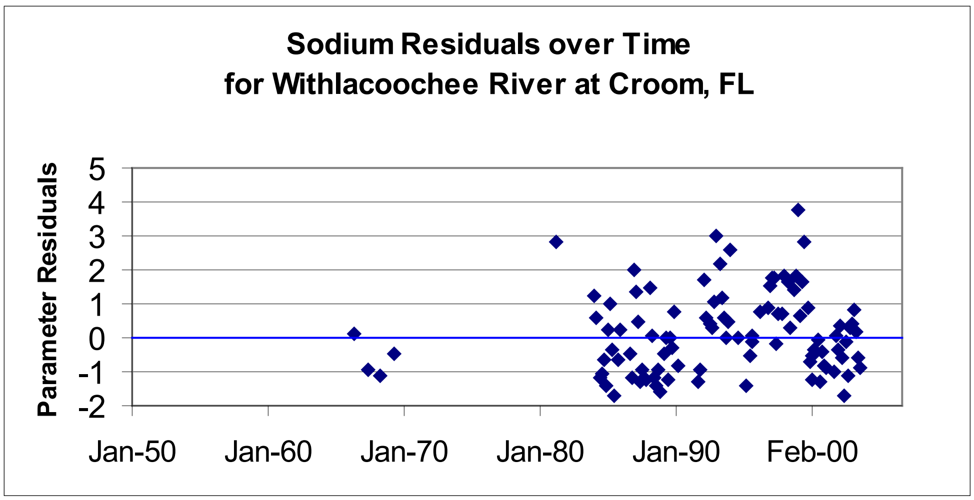

Potassium Residuals over Time
for Withlacoochee River at Croom, FL
Parameter Residuals
1.5
1
0.5
0
-0.5
-1
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

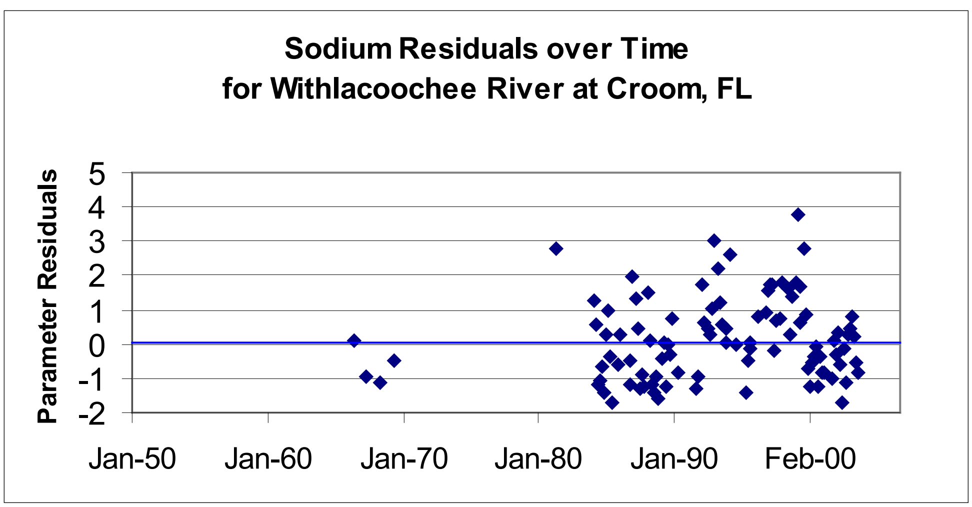

Withlacoochee River at Croom, FL
Silica (mg/l)
14
12
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

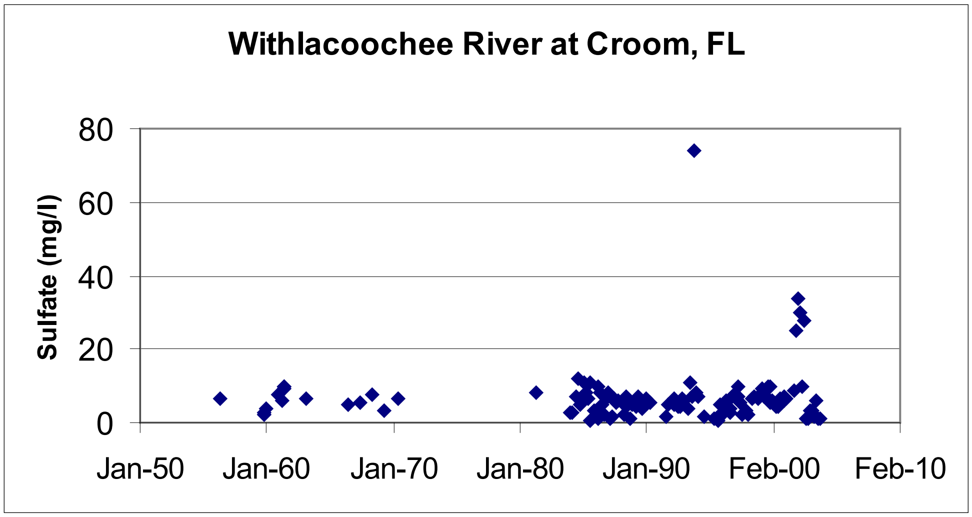

Withlacoochee River at Croom, FL
Silica (mg/l)
15
10
5
0
0
500
1000
1500
2000
2500
Flow (cfs)

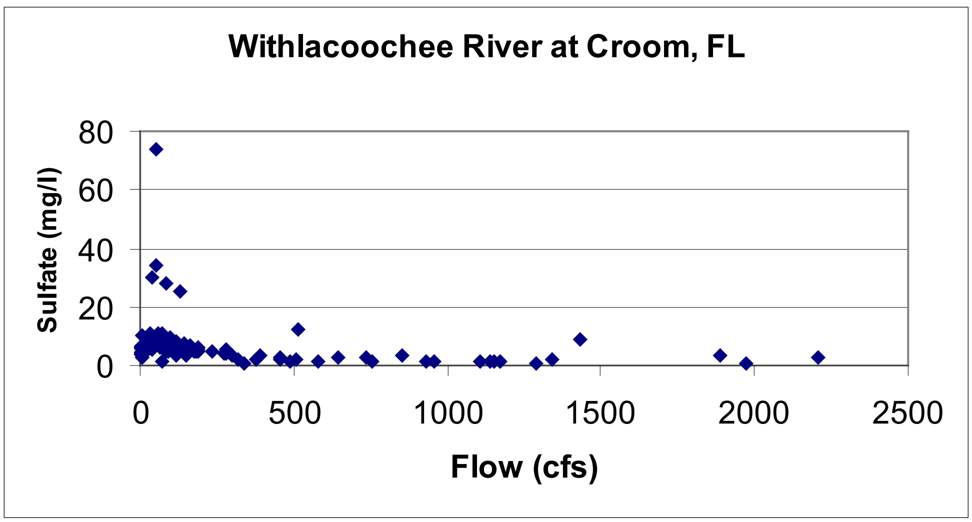

Silica Residuals over Time
for Withlacoochee River at Croom, FL
Parameter Residuals
15
10
5
0
-5
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

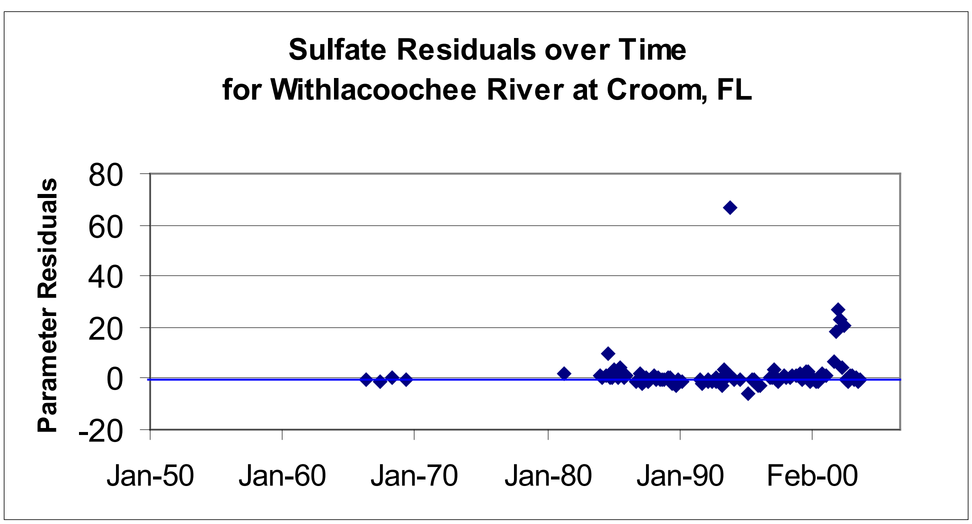

Withlacoochee River at Croom, FL
Sodium (mg/l)
12
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

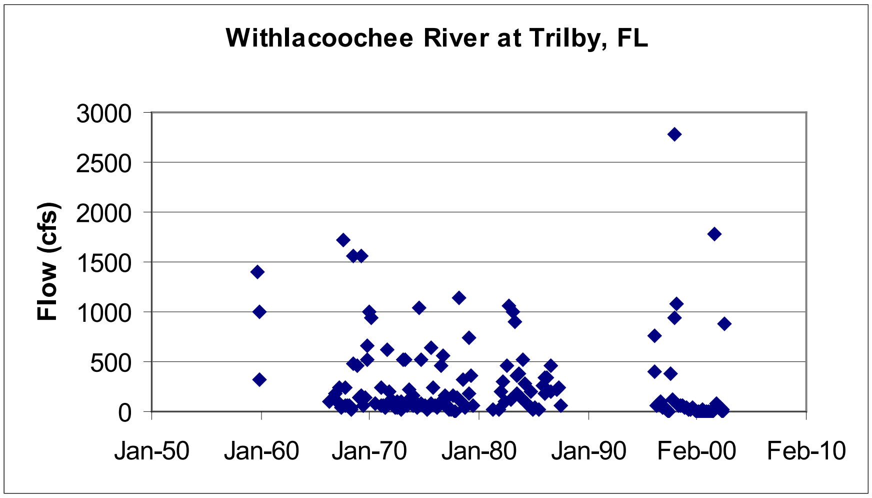

Sodium Residuals over Time
for Withlacoochee River at Croom, FL
Parameter Residuals
5
4
3
2
1
0
-1
-2
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

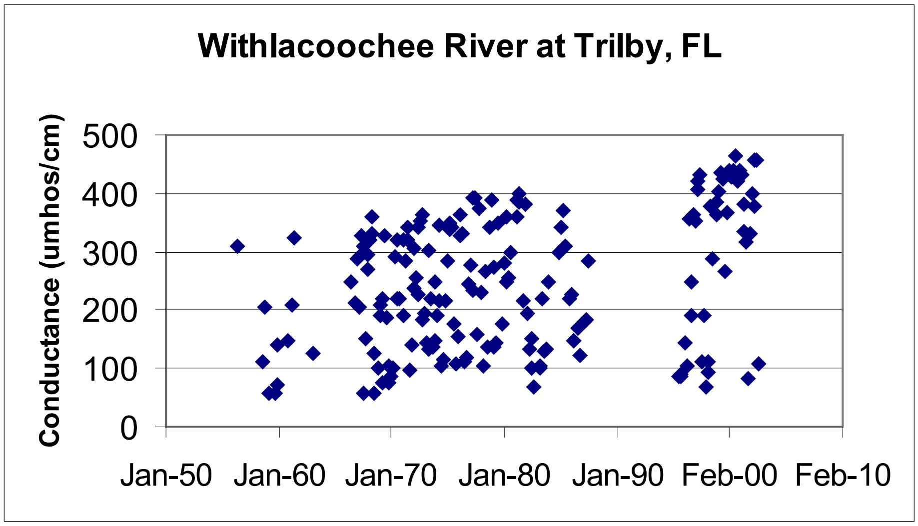

Sodium Residuals over Time
for Withlacoochee River at Croom, FL
Parameter Residuals
5
4
3
2
1
0
-1
-2
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00


Withlacoochee River at Croom, FL
Sulfate (mg/l)
80
60
40
20
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

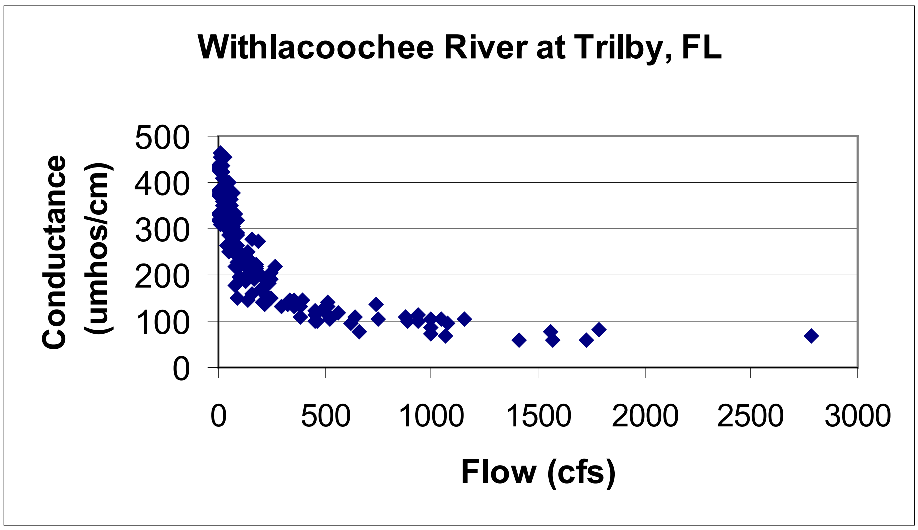

Withlacoochee River at Croom, FL
Sulfate (mg/l)
80
60
40
20
0
0
500
1000
1500
2000
2500
Flow (cfs)


Sulfate Residuals over Time
for Withlacoochee River at Croom, FL
Parameter Residuals
80
60
40
20
0
-20
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

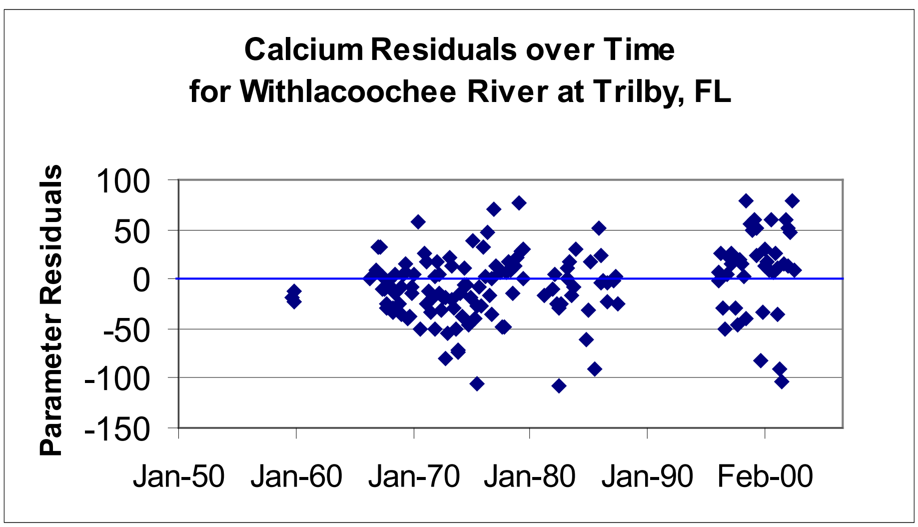

Withlacoochee River at Trilby, FL
3000
2500
2000
1500
1000
500
0
Flow (cfs)
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10



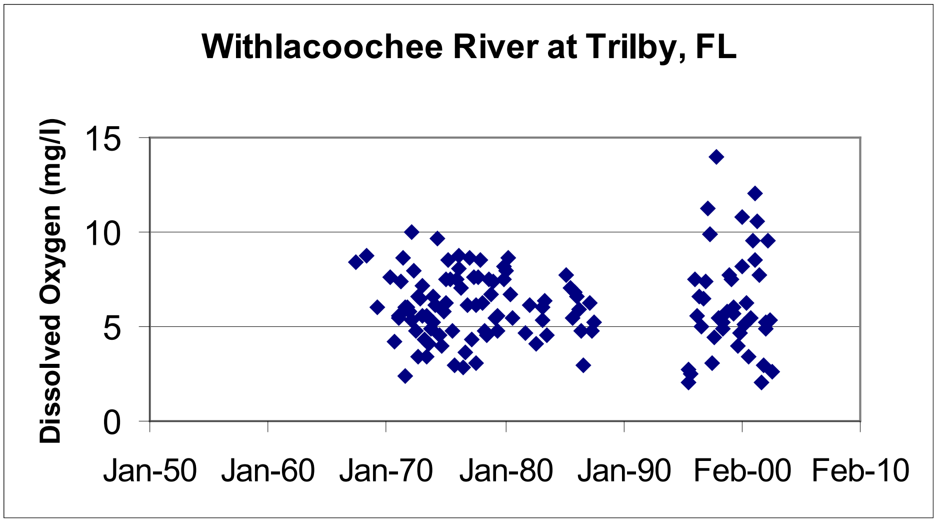
Withlacoochee River at Trilby, FL
Conductance (umhos/cm)
500
400
300
200
100
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10



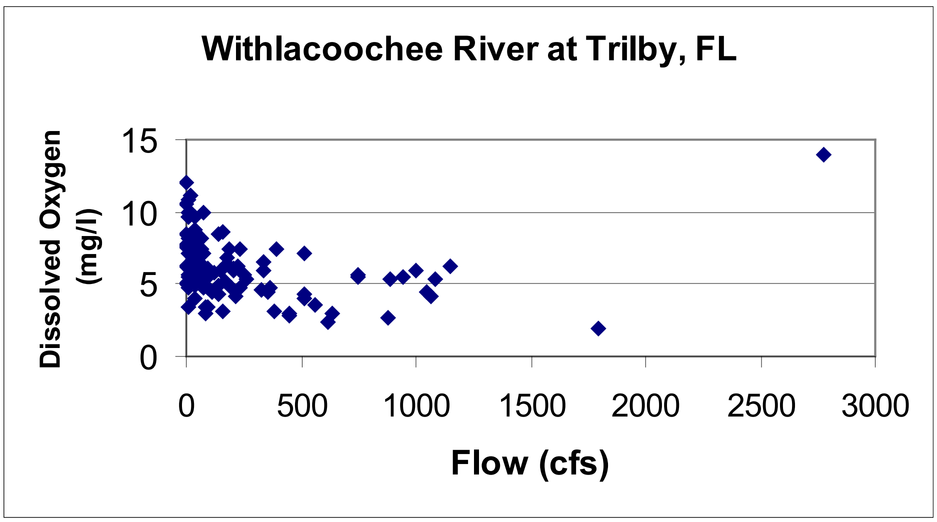
Withlacoochee River at Trilby, FL
Conductance (umhos/cm)
500
400
300
200
100
0
0
500
1000
1500
2000
2500
3000
Flow (cfs)



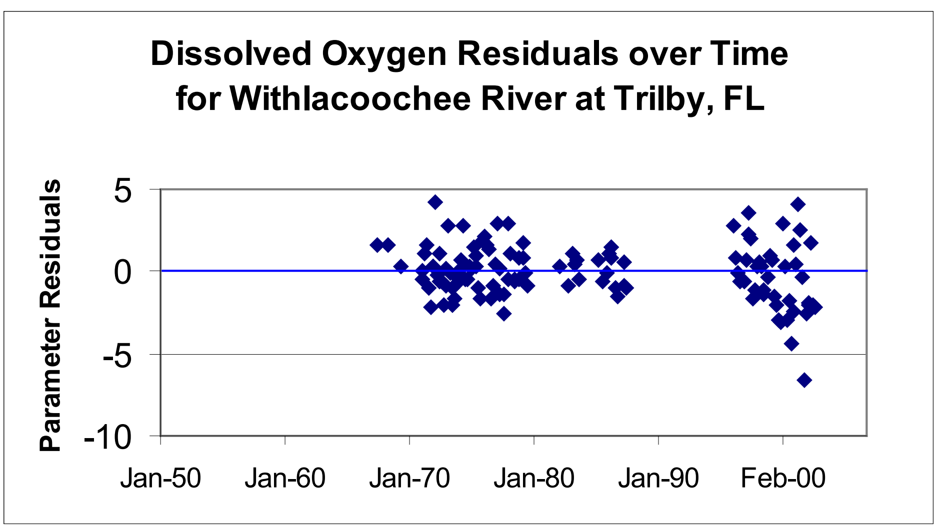
Calcium Residuals over Time
for Withlacoochee River at Trilby, FL
Parameter Residuals
100
50
0
-50
-100
-150
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00



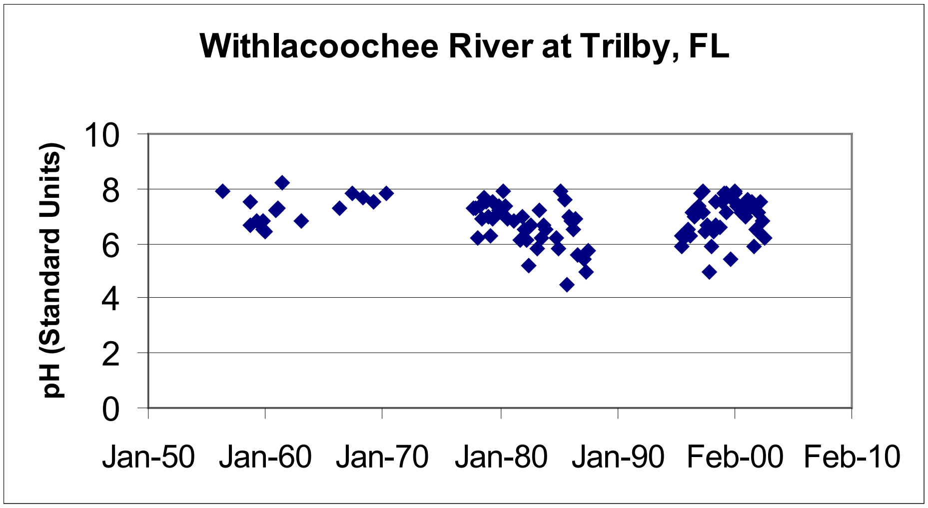
Withlacoochee River at Trilby, FL
Dissolved Oxygen (mg/l)
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

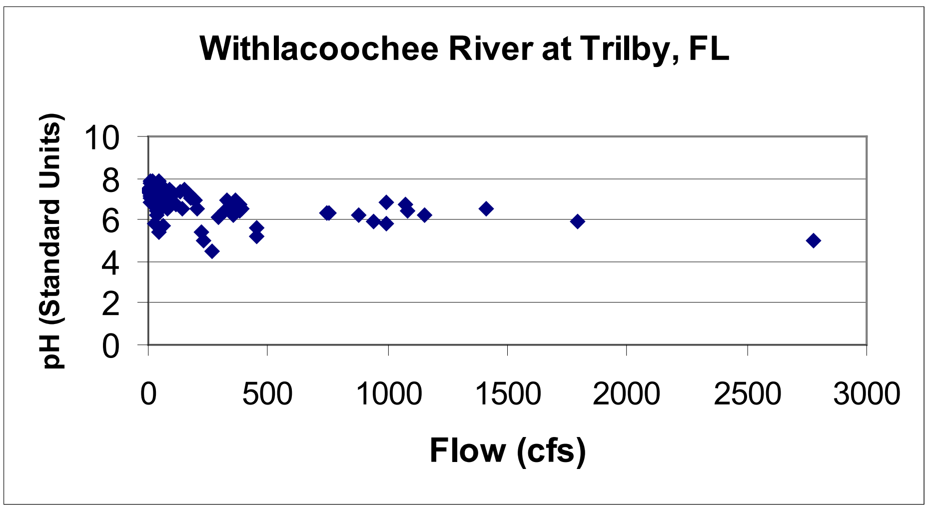


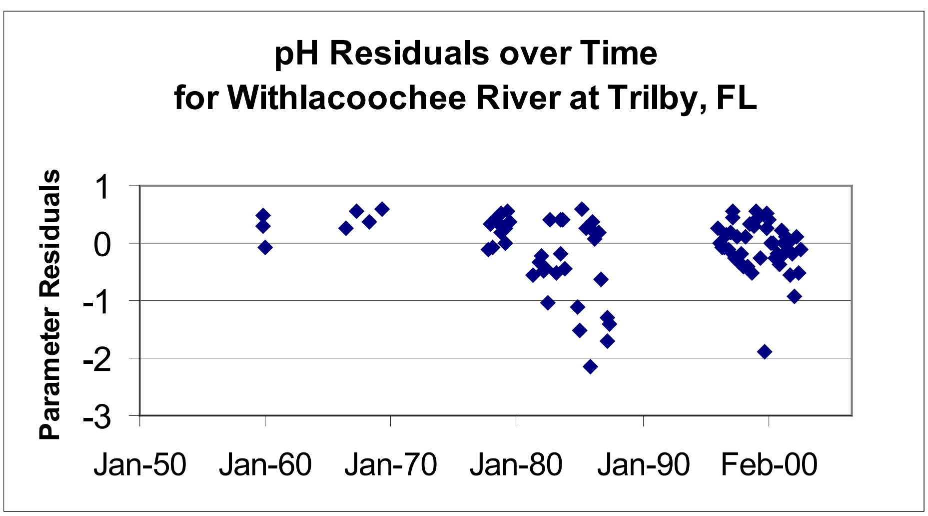
Withlacoochee River at Trilby, FL
Dissolved Oxygen (mg/l)
15
10
5
0
0
500
1000
1500
2000
2500
3000
Flow (cfs)

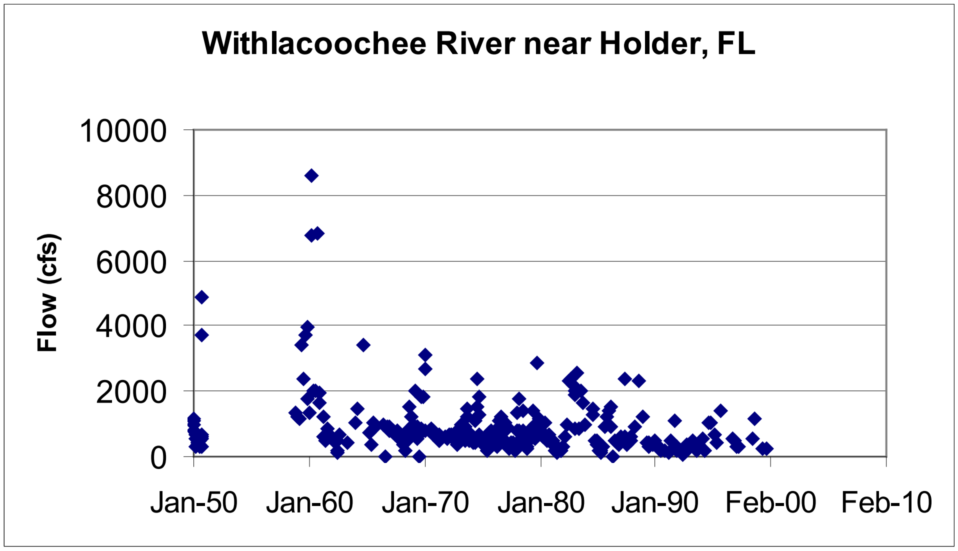


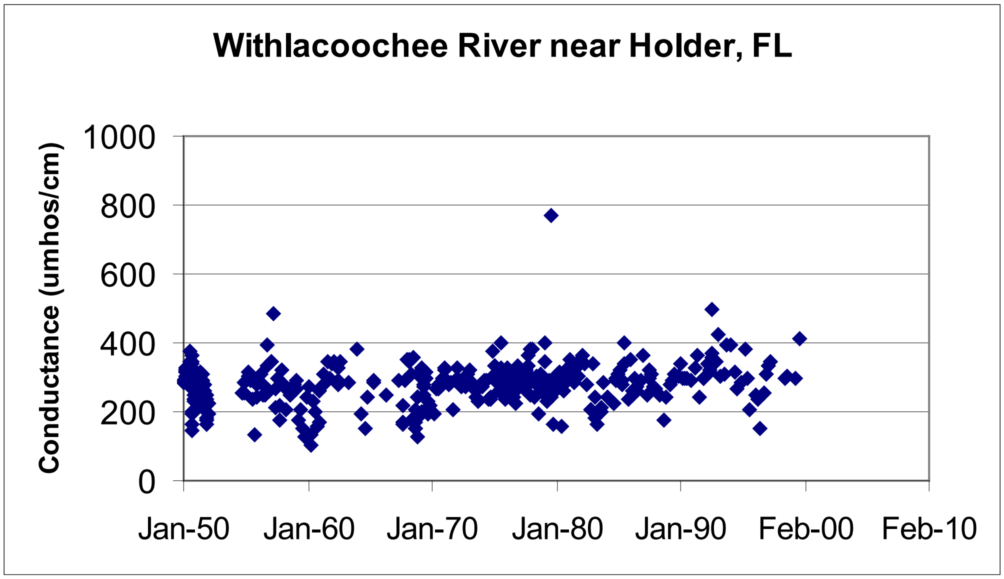
Dissolved Oxygen Residuals over Time for Withlacoochee River at Trilby, FL
Parameter Residuals
5
0
-5
-10
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

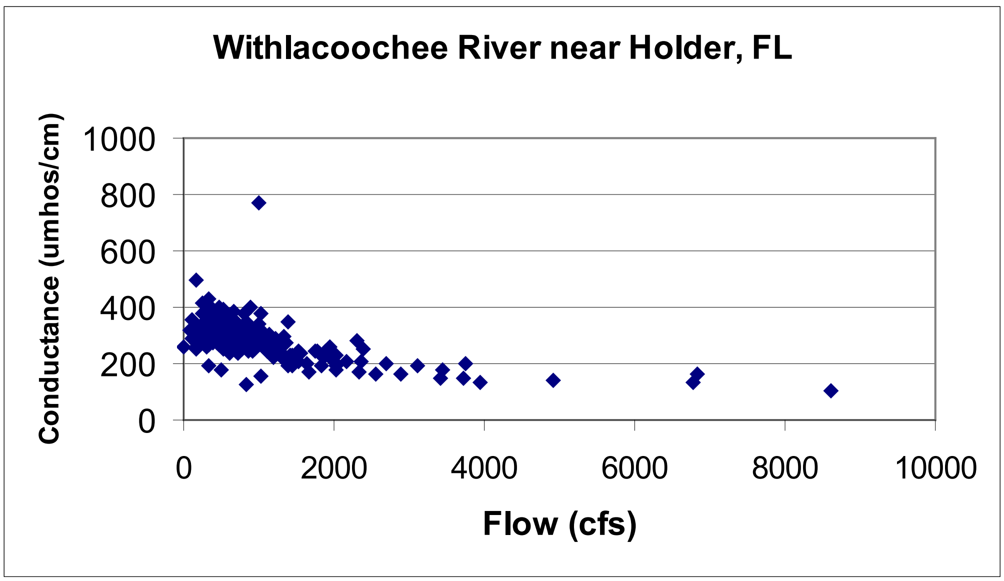

Withlacoochee River at Trilby, FL
pH (Standard Units)
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

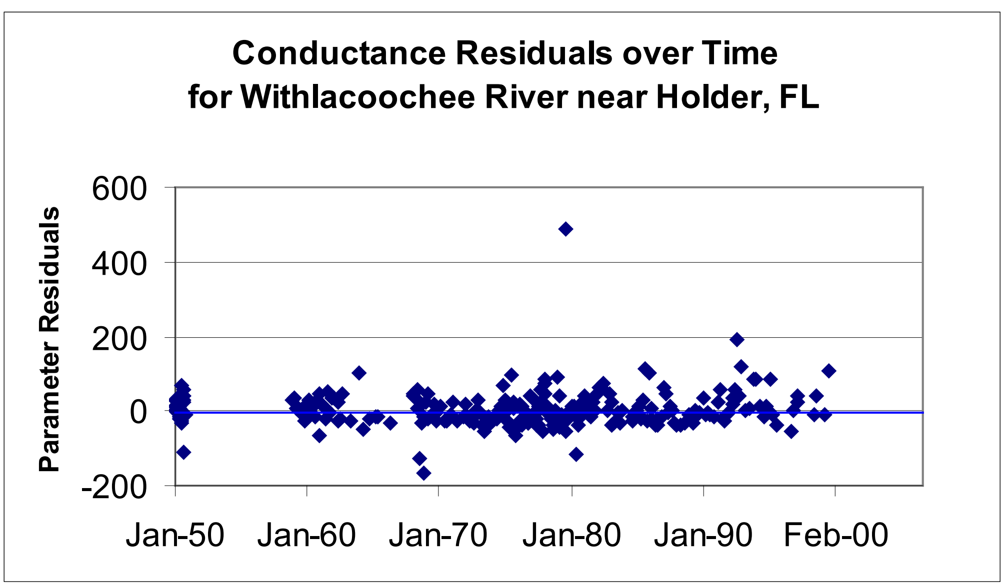

Withlacoochee River at Trilby, FL
pH (Standard Units)
10
8
6
4
2
0
0
500
1000
1500
2000
2500
3000
Flow (cfs)

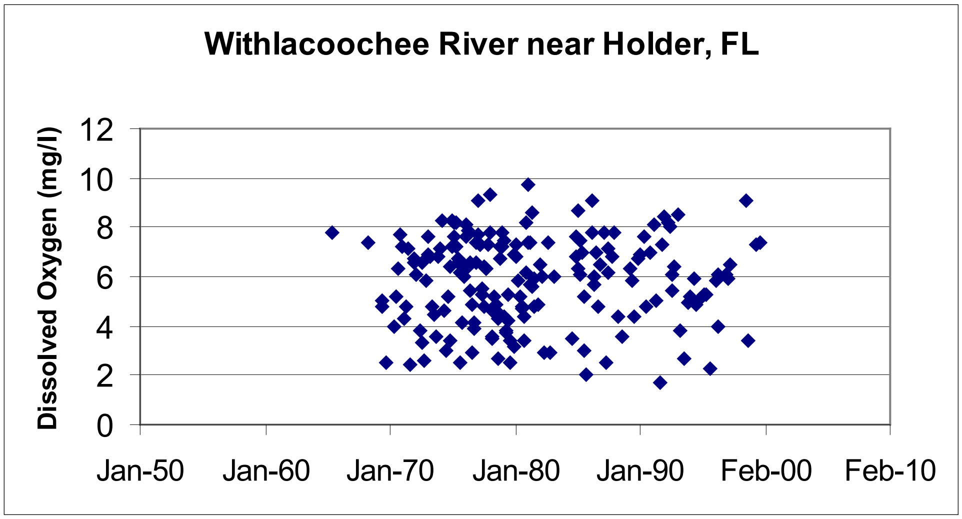

pH Residuals over Time
for Withlacoochee River at Trilby, FL
Parameter Residuals
1
0
-1
-2
-3
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

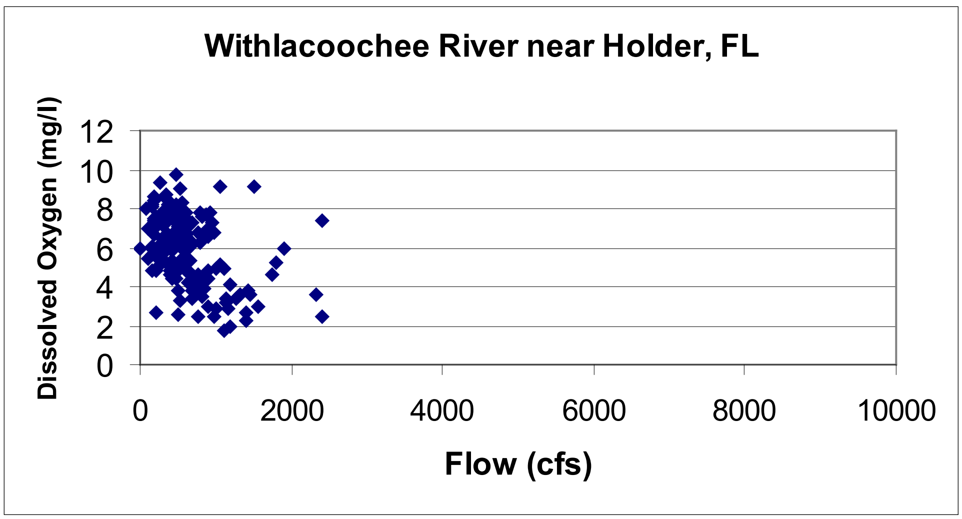

Withlacoochee River near Holder, FL
Flow (cfs)
10000
8000
6000
4000
2000
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

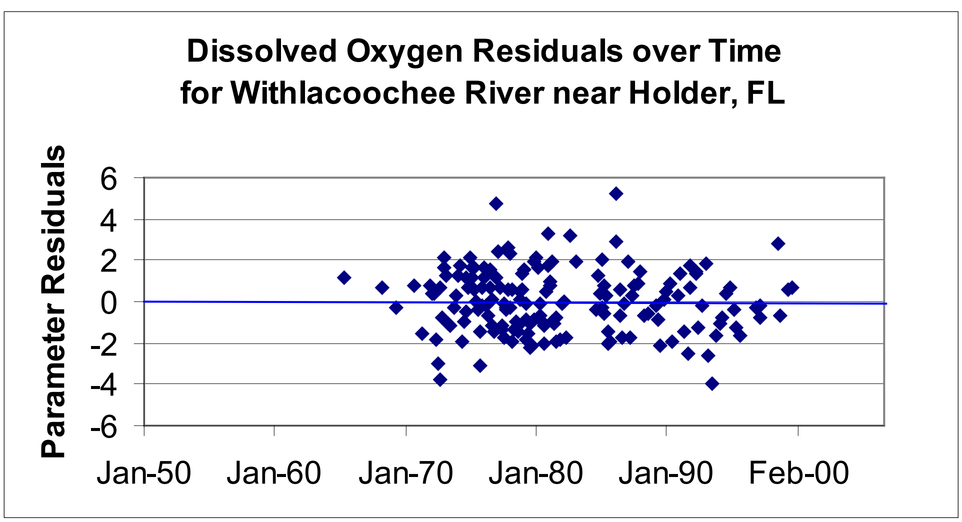

Withlacoochee River near Holder, FL
Conductance (umhos/cm)
1000
800
600
400
200
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

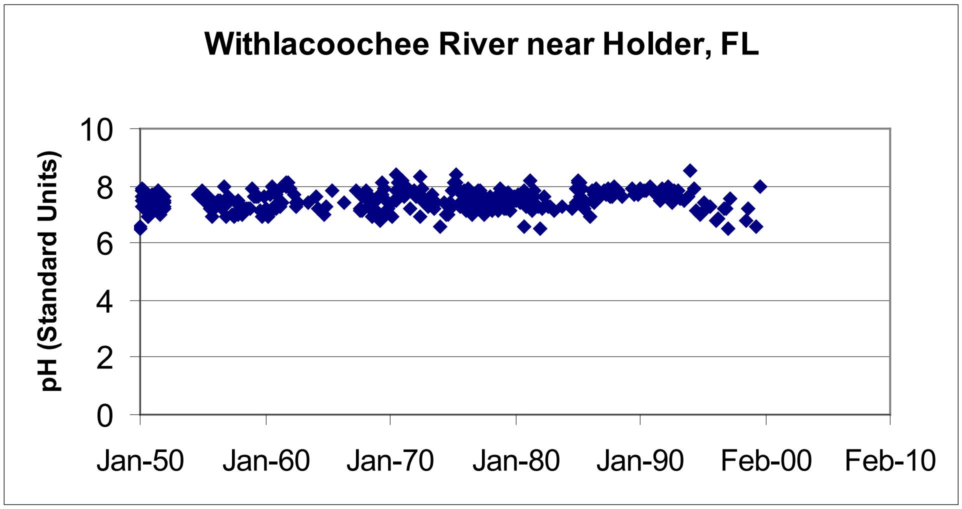

Withlacoochee River near Holder, FL
Conductance (umhos/cm)
1000
800
600
400
200
0
0
2000
4000
6000
8000
10000
Flow (cfs)

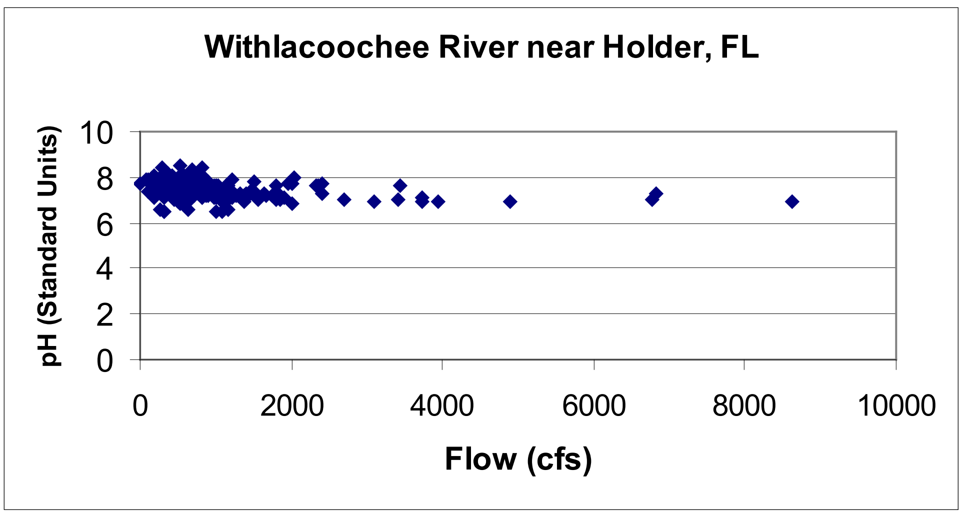

Conductance Residuals over Time
for Withlacoochee River near Holder, FL
Parameter Residuals
600
400
200
0
-200
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

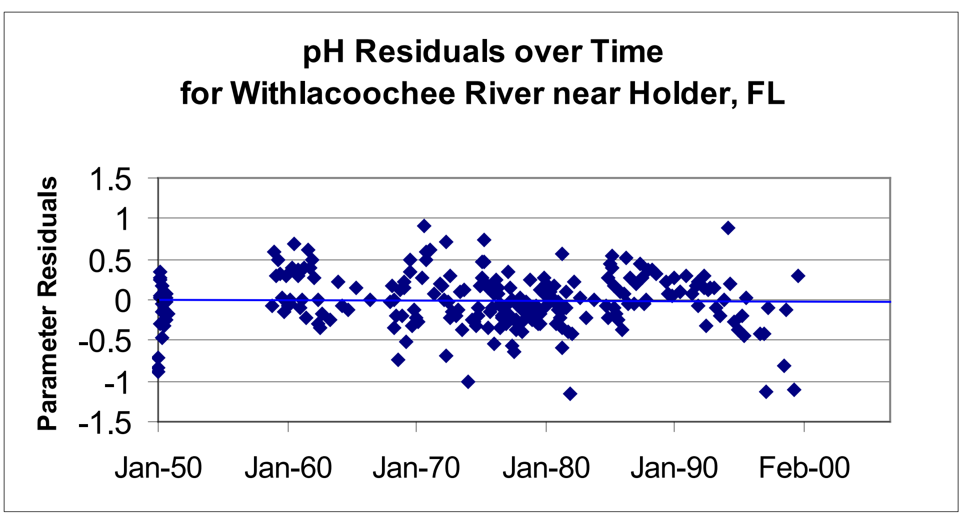

Withlacoochee River near Holder, FL
Dissolved Oxygen (mg/l)
12
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

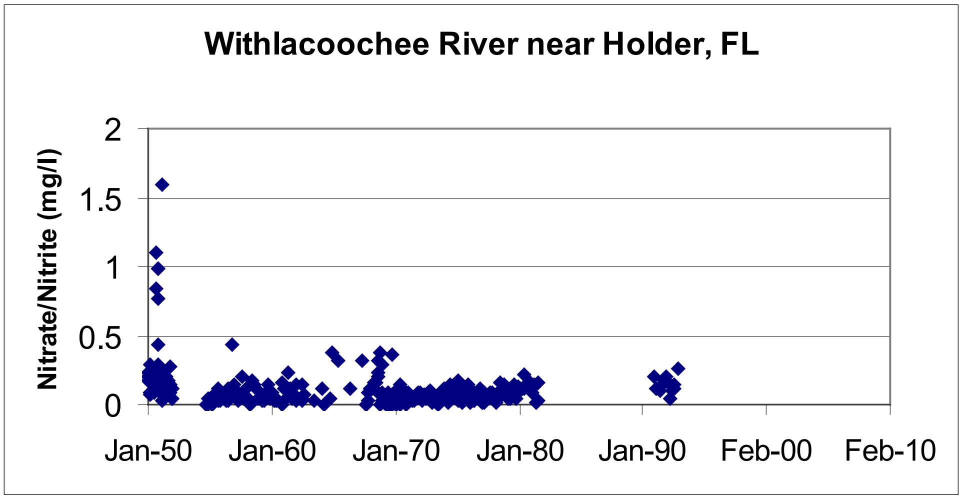

Withlacoochee River near Holder, FL
Dissolved Oxygen (mg/l)
12
10
8
6
4
2
0
0
2000
4000
6000
8000
10000
Flow (cfs)

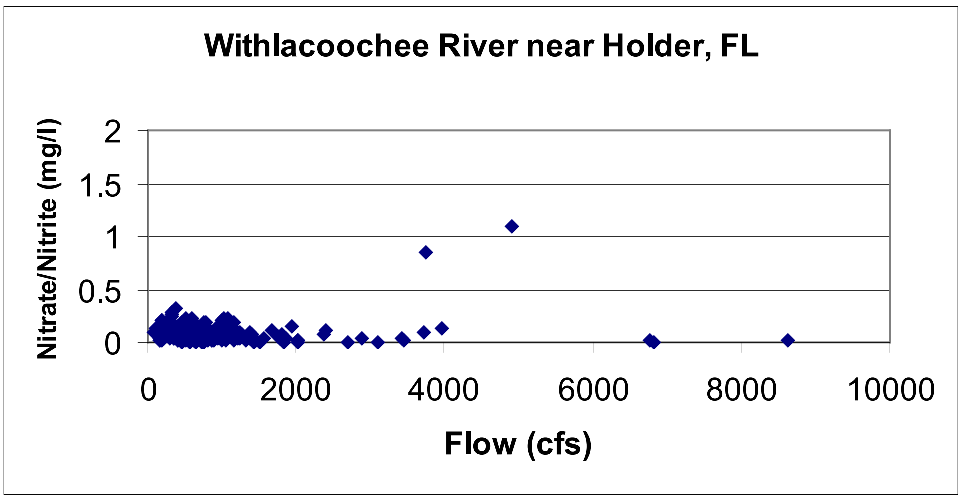

Dissolved Oxygen Residuals over Time
for Withlacoochee River near Holder, FL
Parameter Residuals
6
4
2
0
-2
-4
-6
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

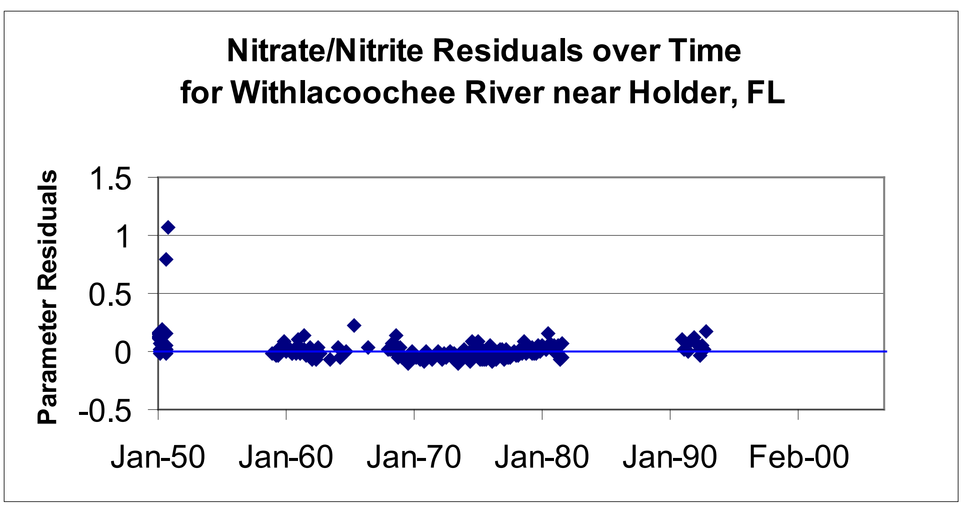

Withlacoochee River near Holder, FL
pH (Standard Units)
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

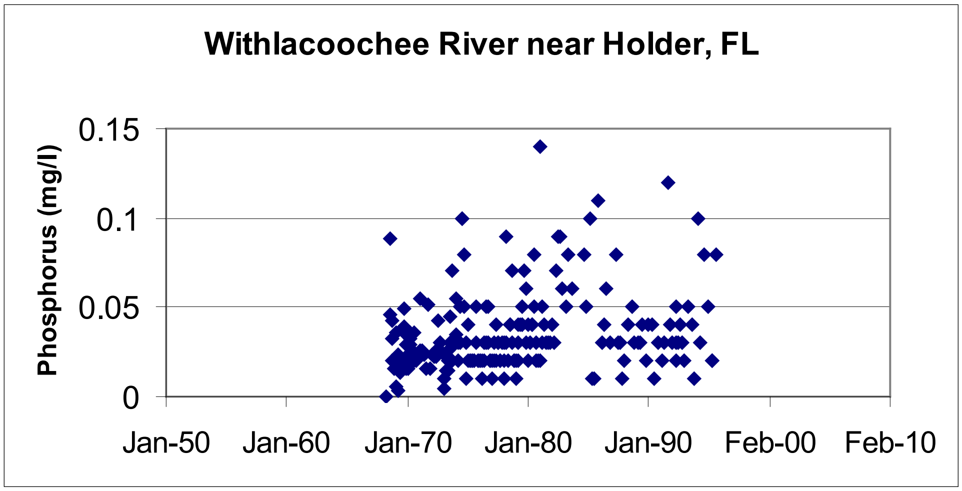

Withlacoochee River near Holder, FL
pH (Standard Units)
10
8
6
4
2
0
0
2000
4000
6000
8000
10000
Flow (cfs)

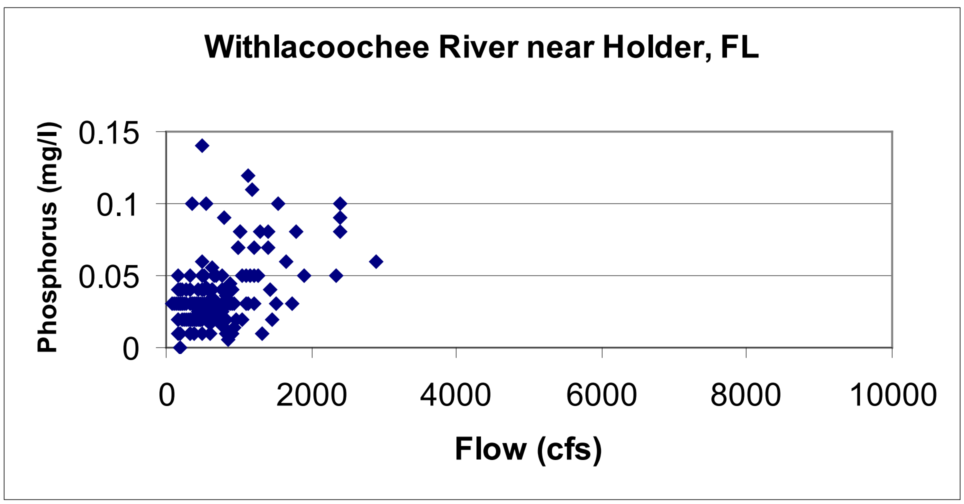

pH Residuals over Time
for Withlacoochee River near Holder, FL
Parameter Residuals
1.5
1
0.5
0
-0.5
-1
-1.5
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

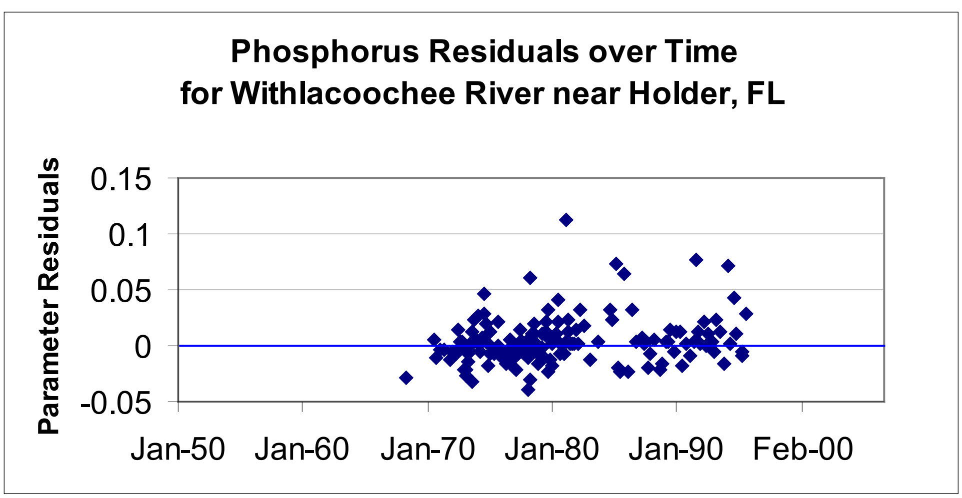

Withlacoochee River near Holder, FL
Nitrate/Nitrite (mg/l)
2
1.5
1
0.5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

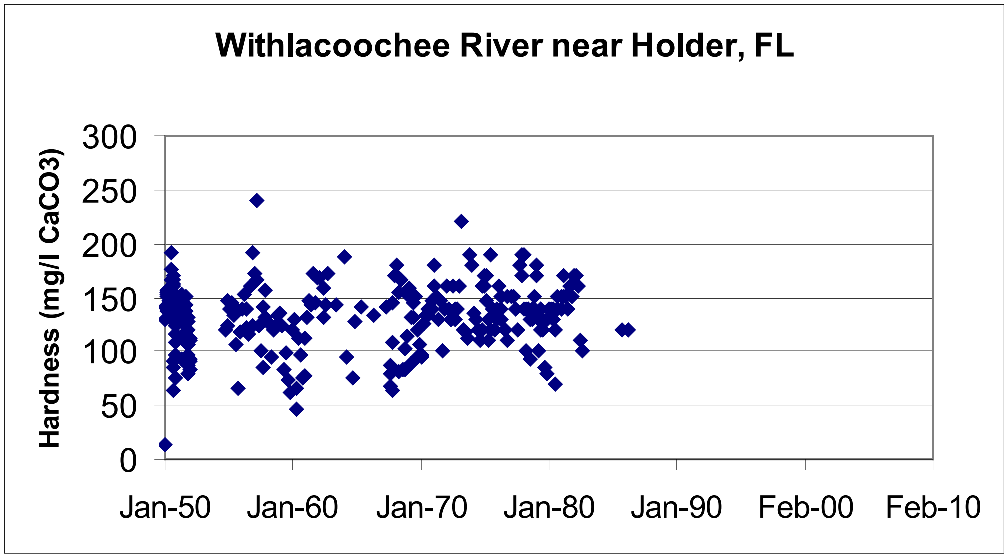

Withlacoochee River near Holder, FL
Nitrate/Nitrite (mg/l)
2
1.5
1
0.5
0
0
2000
4000
6000
8000
10000
Flow (cfs)

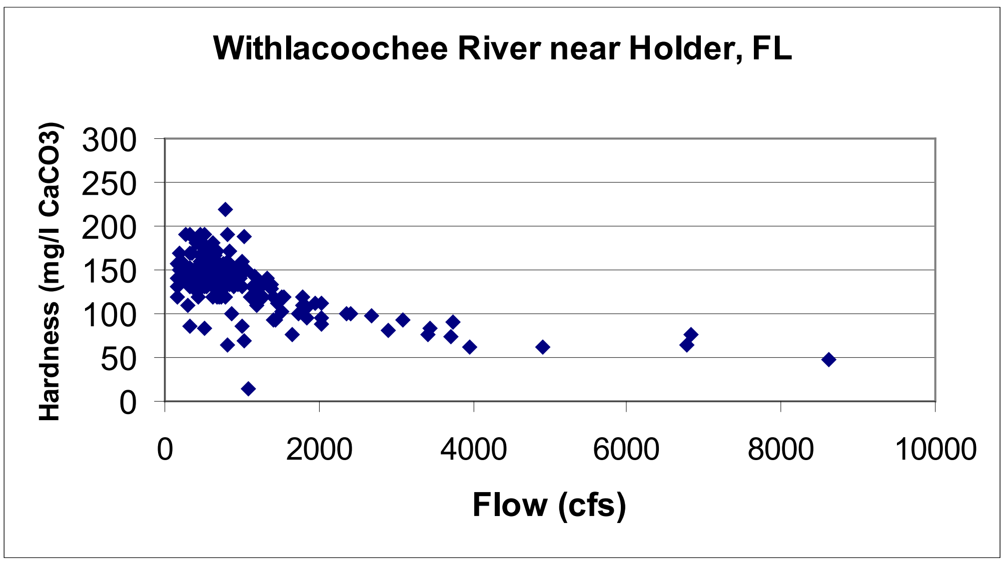

Nitrate/Nitrite Residuals over Time
for Withlacoochee River near Holder, FL
Parameter Residuals
1.5
1
0.5
0
-0.5
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

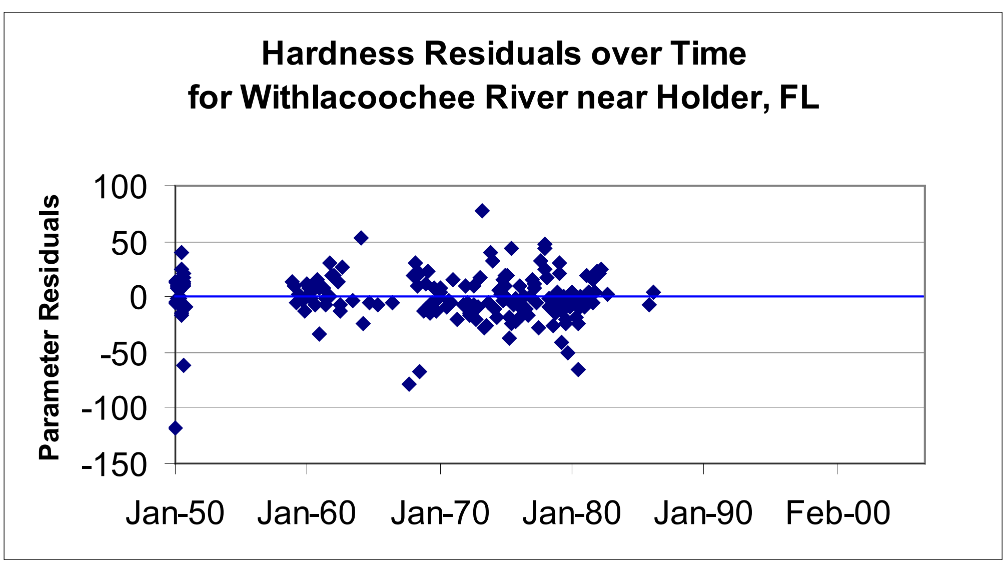

Withlacoochee River near Holder, FL
Phosphorus (mg/l)
0.15
0.1
0.05
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

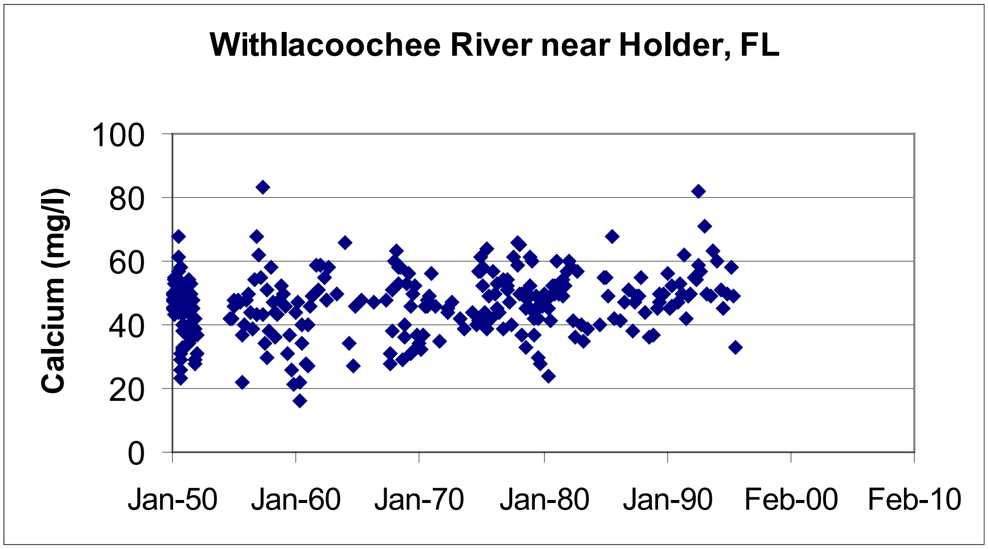

Withlacoochee River near Holder, FL
Phosphorus (mg/l)
0.15
0.1
0.05
0
0
2000
4000
6000
8000
10000
Flow (cfs)


Phosphorus Residuals over Time
for Withlacoochee River near Holder, FL
Parameter Residuals
0.15
0.1
0.05
0
-0.05
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

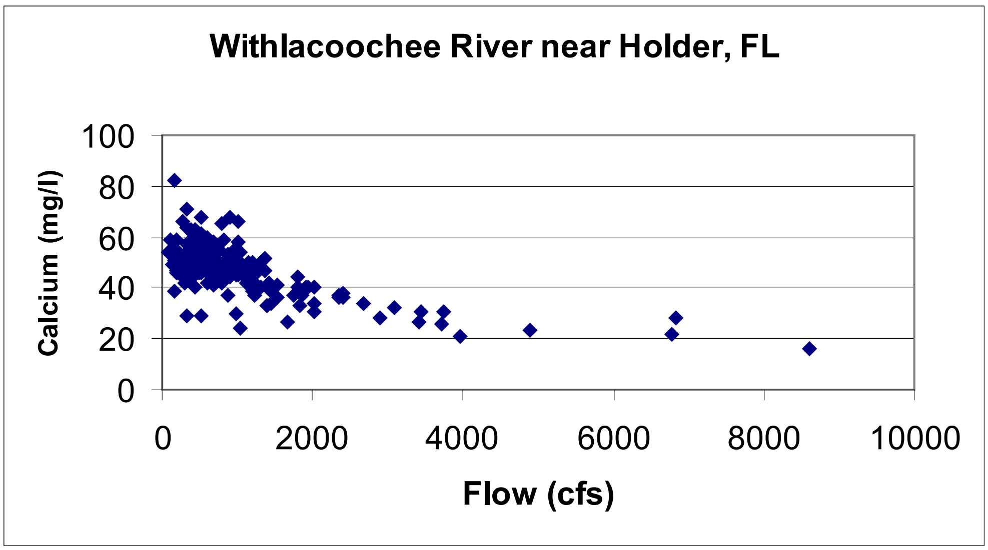

Withlacoochee River near Holder, FL
Hardness (mg/l CaCO3)
300
250
200
150
100
50
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10


Withlacoochee River near Holder, FL
Hardness (mg/l CaCO3)
300
250
200
150
100
50
0
0
2000
4000
6000
8000
10000
Flow (cfs)

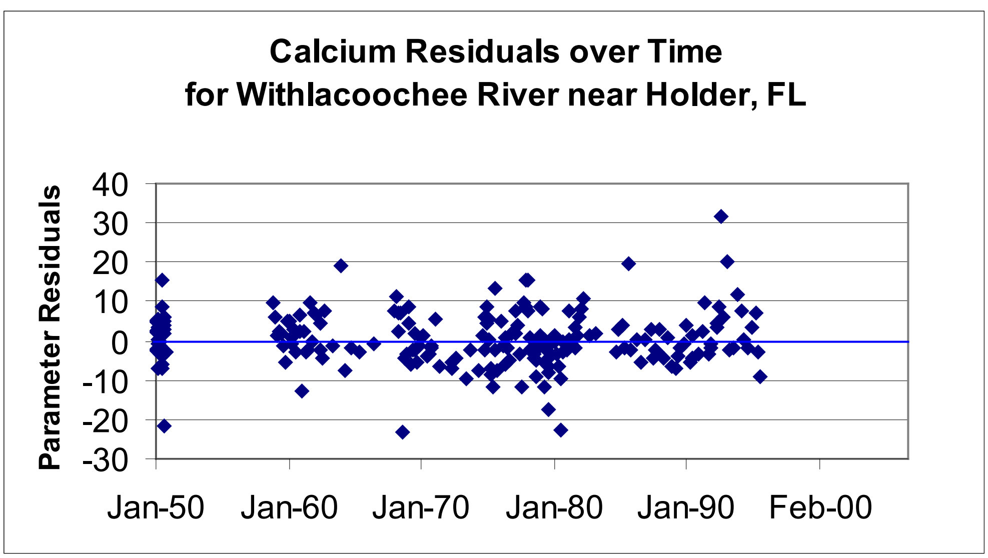

Hardness Residuals over Time
for Withlacoochee River near Holder, FL
Parameter Residuals
100
50
0
-50
-100
-150
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00



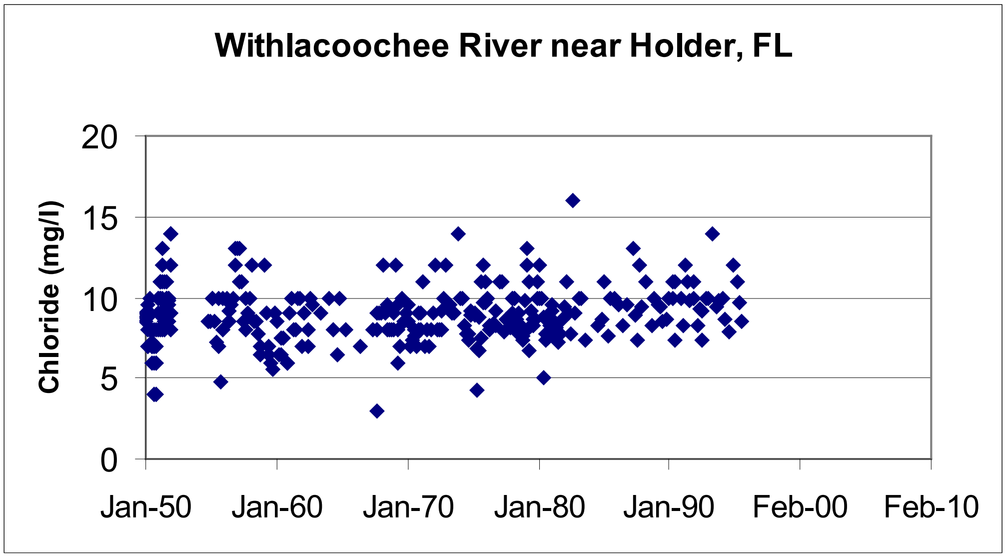
Withlacoochee River near Holder, FL
Calcium (mg/l)
100
80
60
40
20
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10



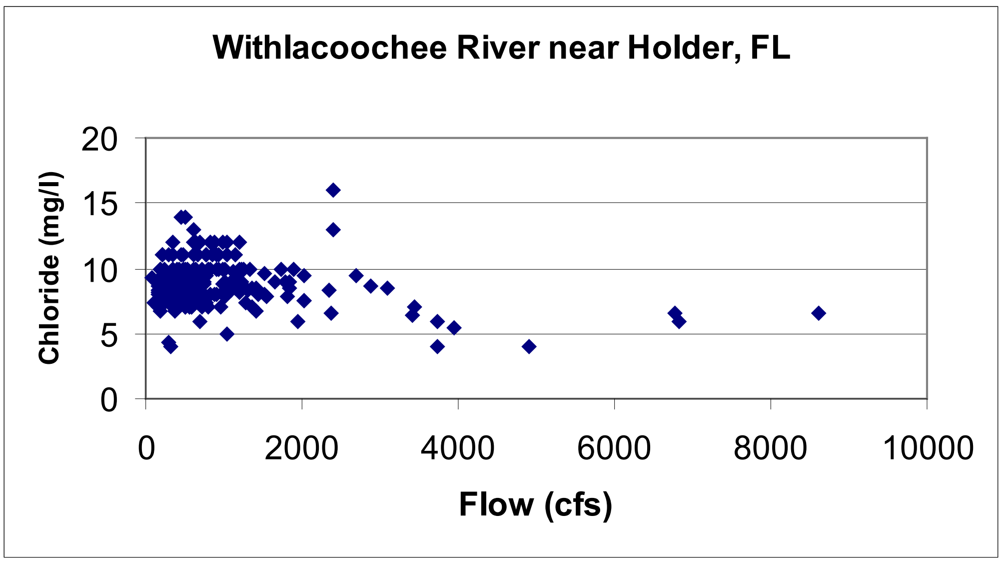
Withlacoochee River near Holder, FL
Calcium (mg/l)
100
80
60
40
20
0
0
2000
4000
6000
8000
10000
Flow (cfs)



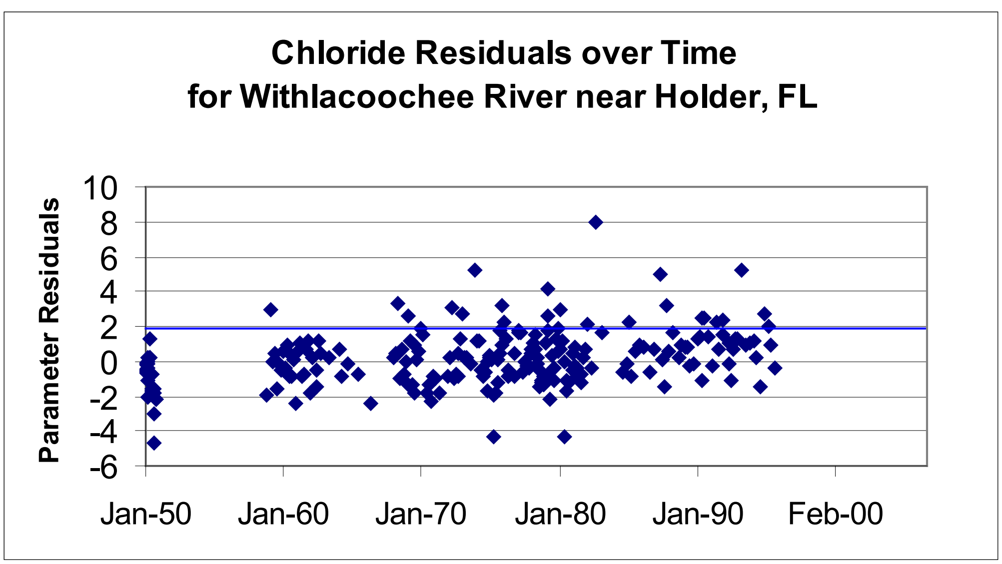
Calcium Residuals over Time
for Withlacoochee River near Holder, FL
Parameter Residuals
40
30
20
10
0
-10
-20
-30
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00



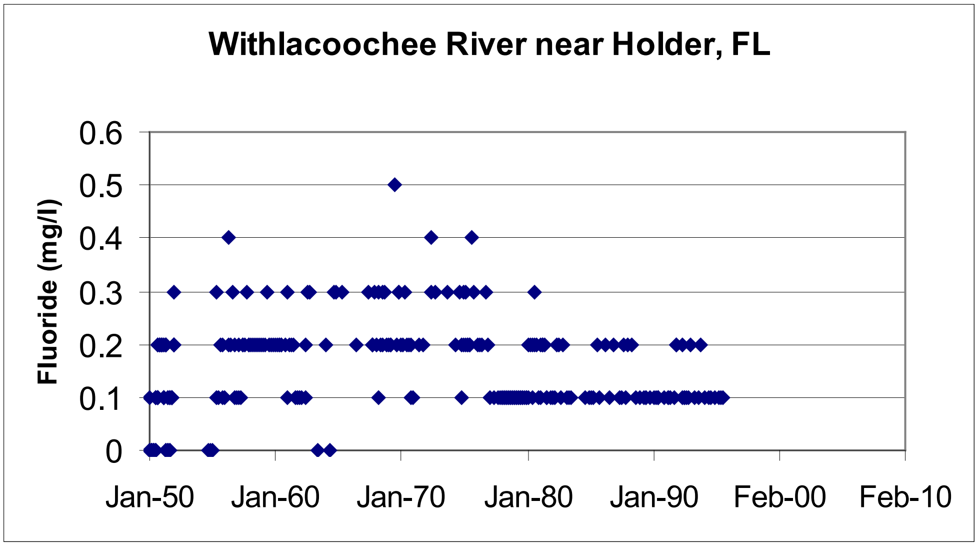
Withlacoochee River near Holder, FL
Chloride (mg/l)
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

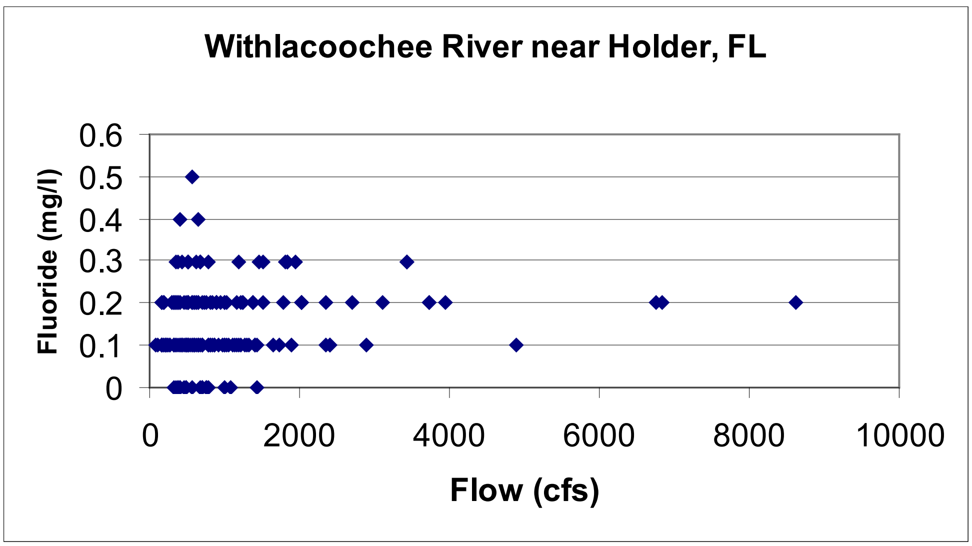


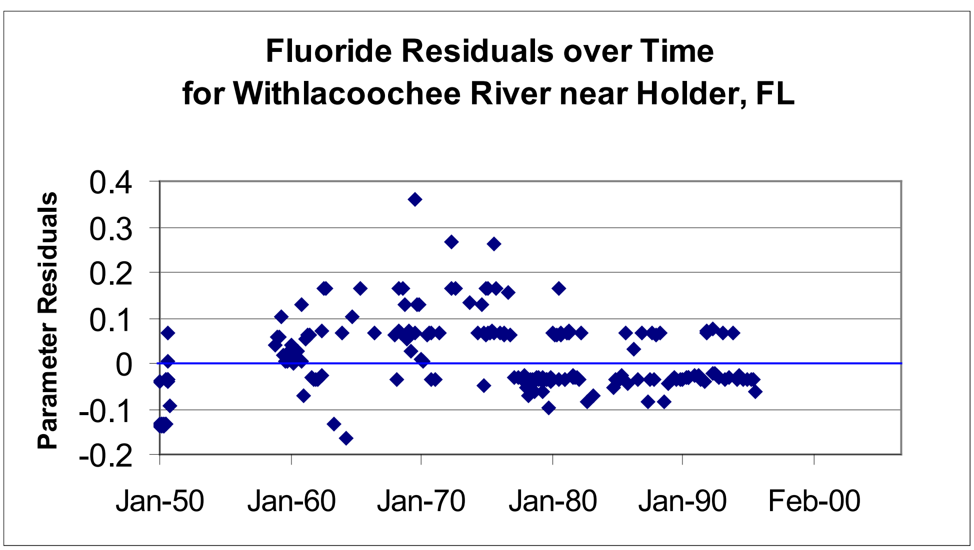
Withlacoochee River near Holder, FL
Chloride (mg/l)
20
15
10
5
0
0
2000
4000
6000
8000
10000
Flow (cfs)

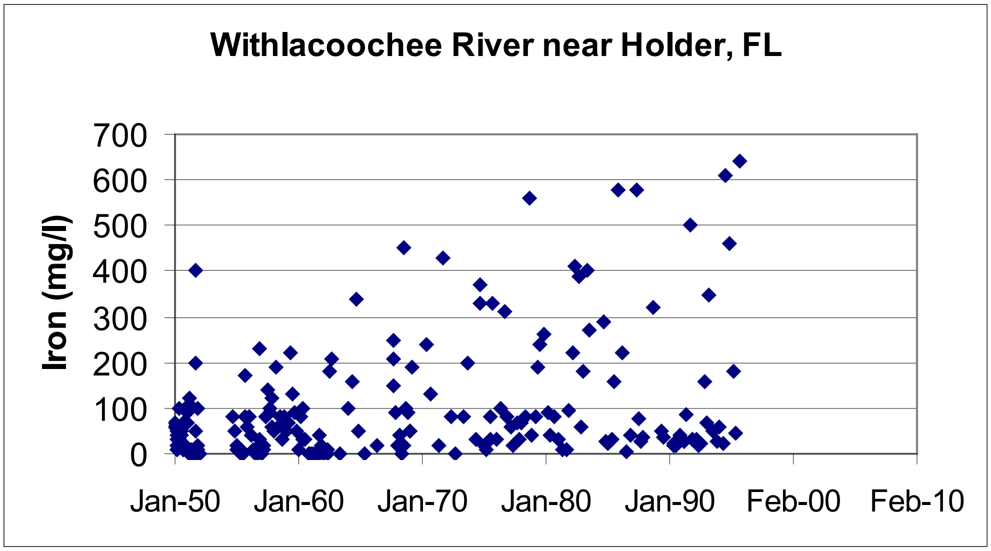


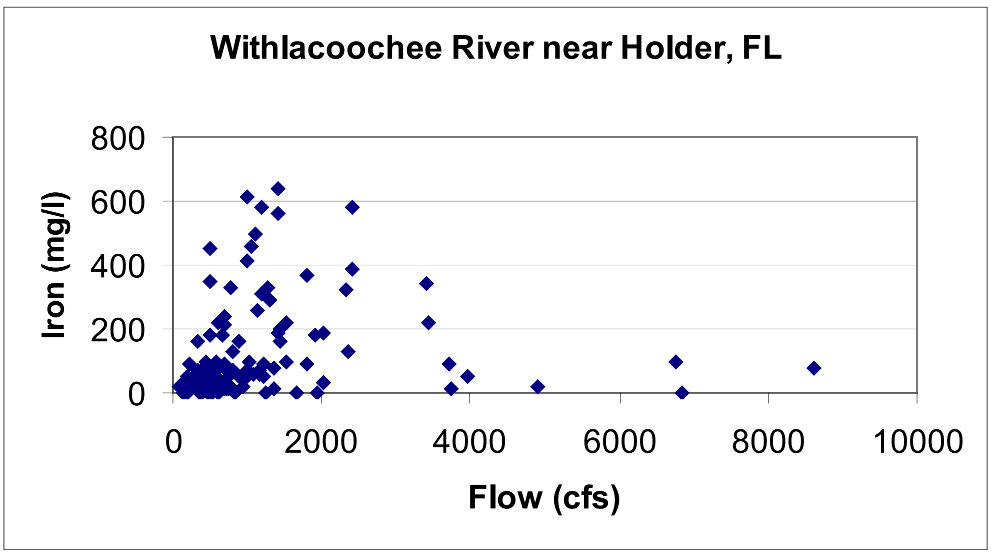
Chloride Residuals over Time
for Withlacoochee River near Holder, FL
Parameter Residuals
10
8
6
4
2
0
-2
-4
-6
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

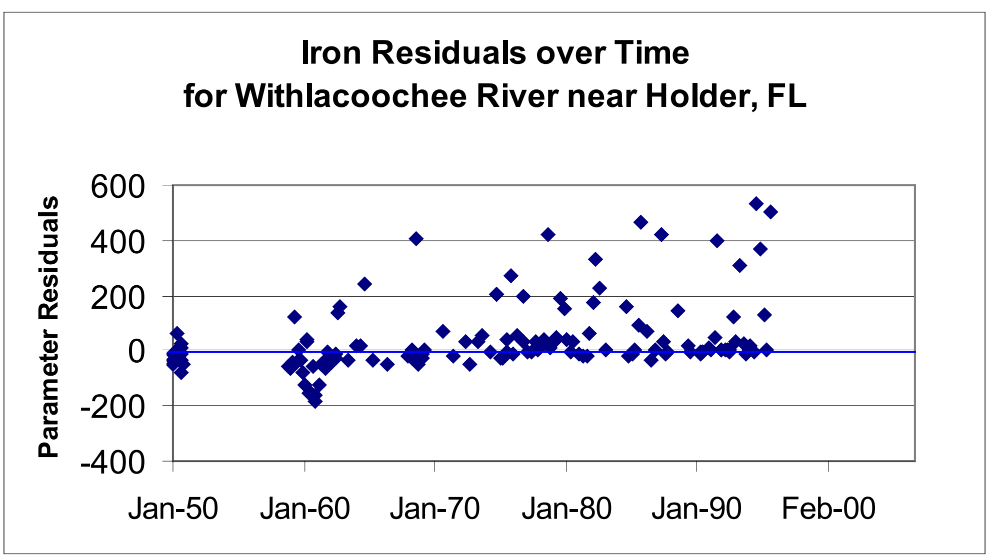

Withlacoochee River near Holder, FL
Fluoride (mg/l)
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

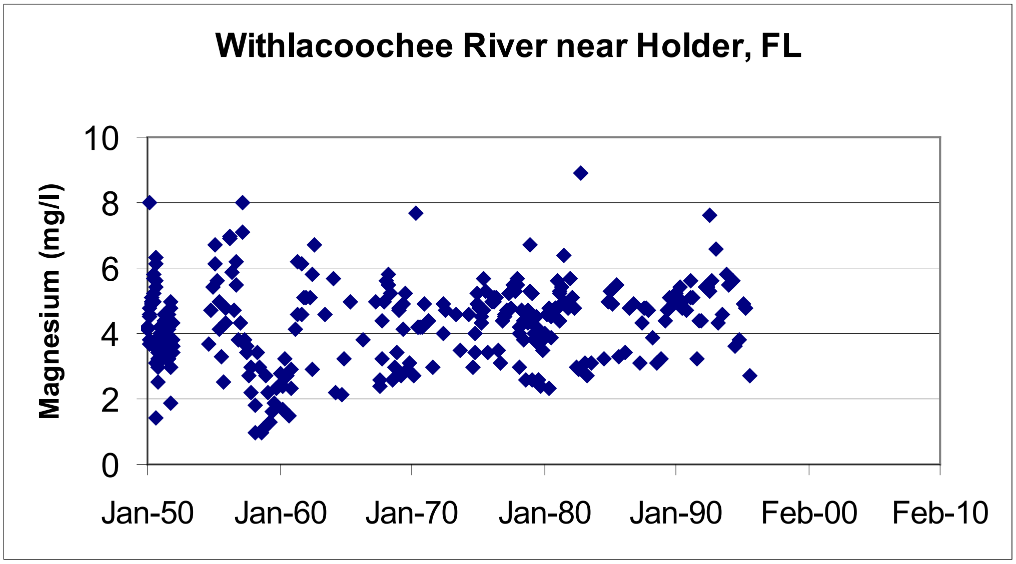

Withlacoochee River near Holder, FL
Fluoride (mg/l)
0.6
0.5
0.4
0.3
0.2
0.1
0
0
2000
4000
6000
8000
10000
Flow (cfs)

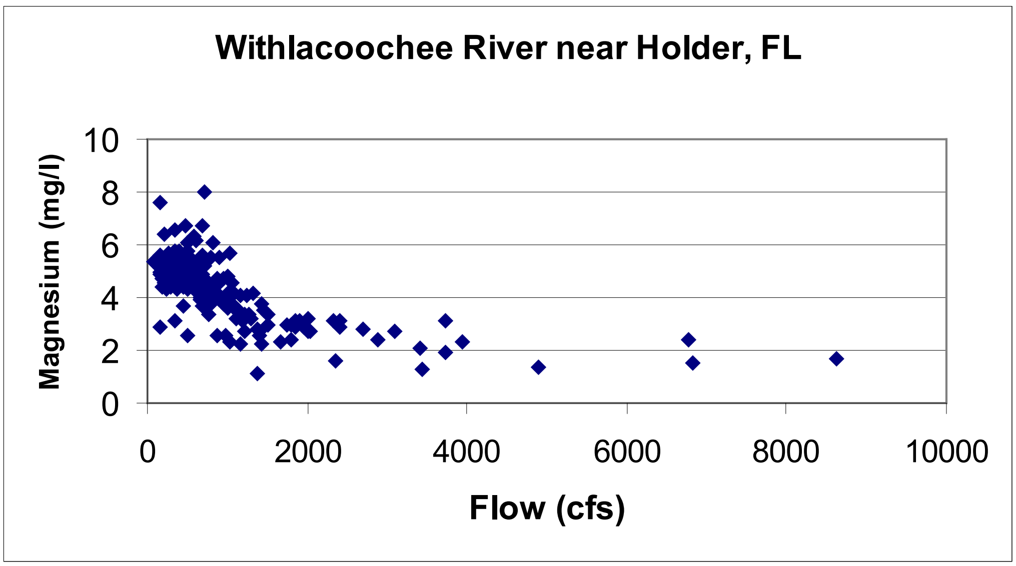

Fluoride Residuals over Time
for Withlacoochee River near Holder, FL
Parameter Residuals
0.4
0.3
0.2
0.1
0
-0.1
-0.2
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

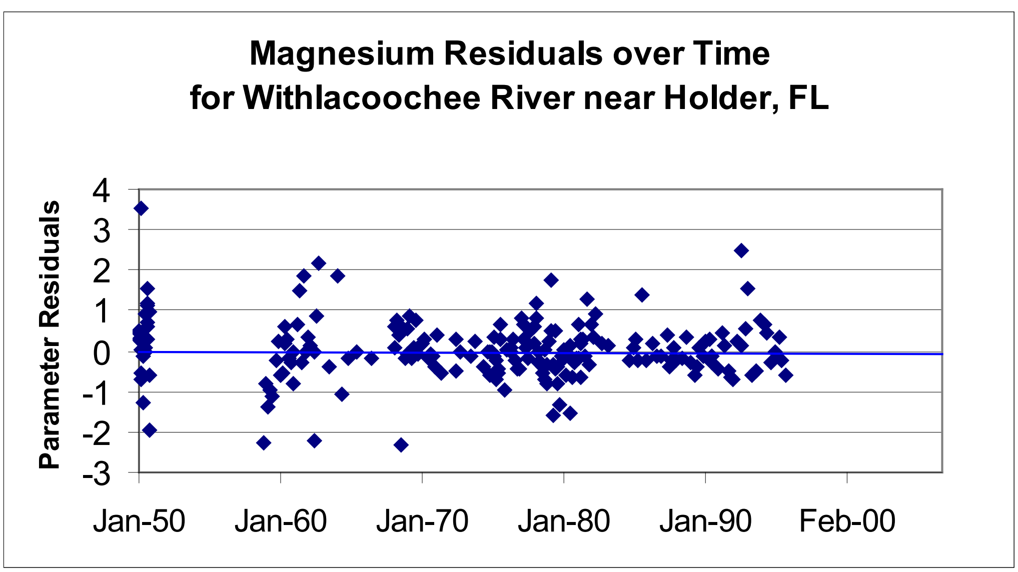

Withlacoochee River near Holder, FL
Iron (mg/l)
700
600
500
400
300
200
100
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

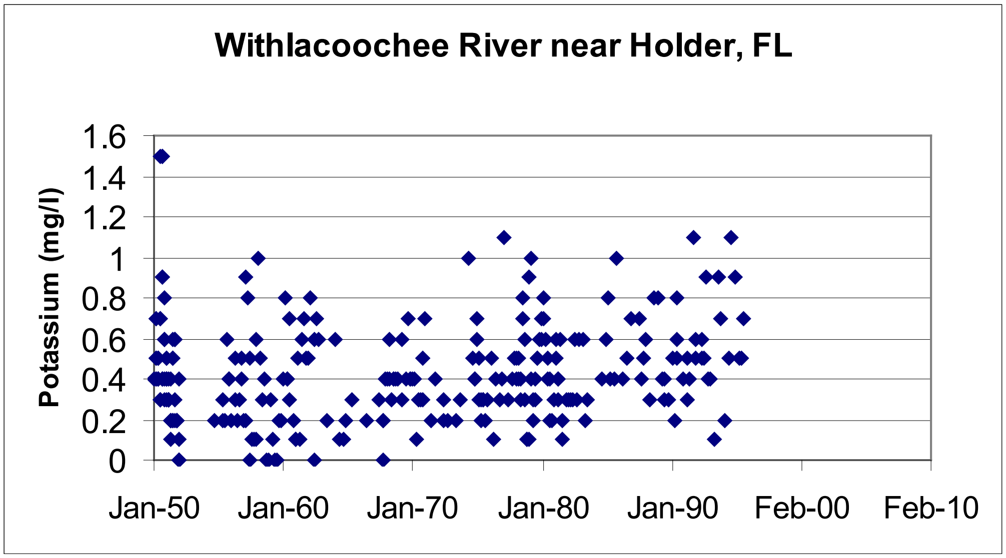

Withlacoochee River near Holder, FL
Iron (mg/l)
800
600
400
200
0
0
2000
4000
6000
8000
10000
Flow (cfs)

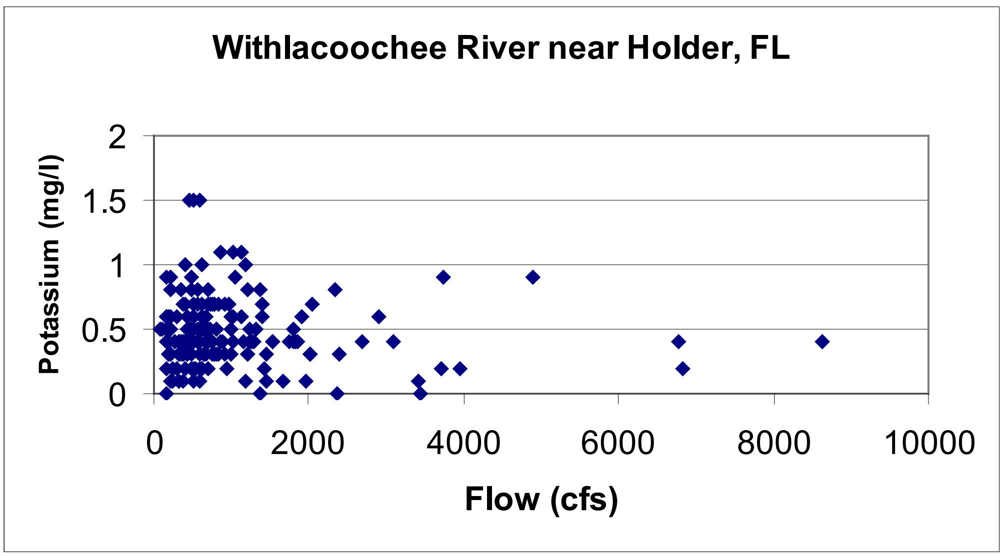

Iron Residuals over Time
for Withlacoochee River near Holder, FL
Parameter Residuals
600
400
200
0
-200
-400
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

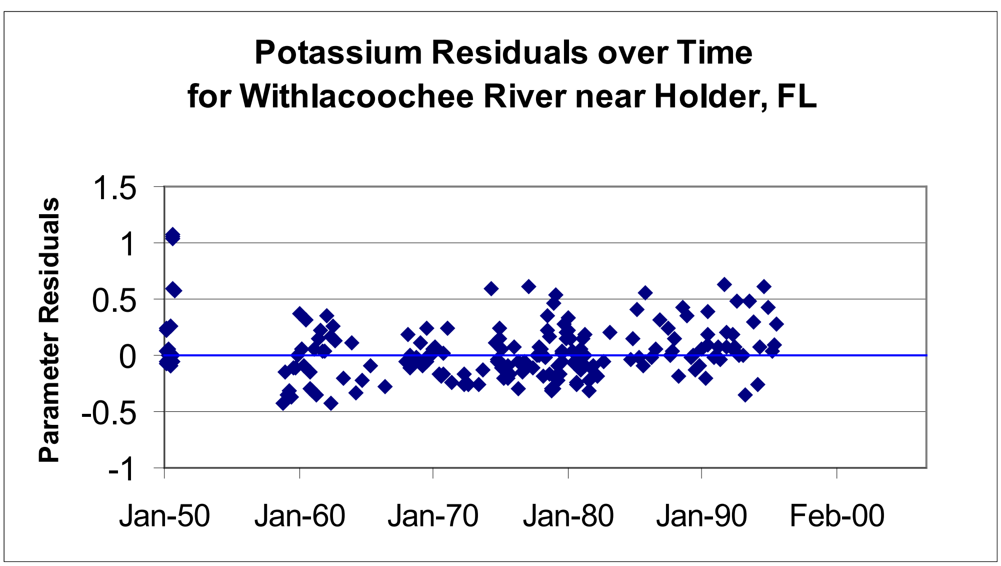

Withlacoochee River near Holder, FL
Magnesium (mg/l)
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

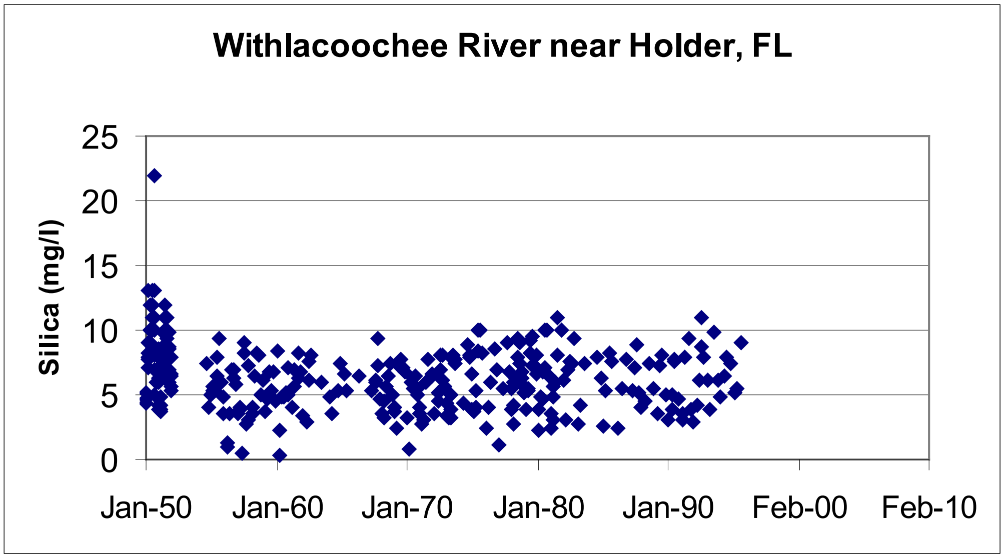

Withlacoochee River near Holder, FL
Magnesium (mg/l)
10
8
6
4
2
0
0
2000
4000
6000
8000
10000
Flow (cfs)

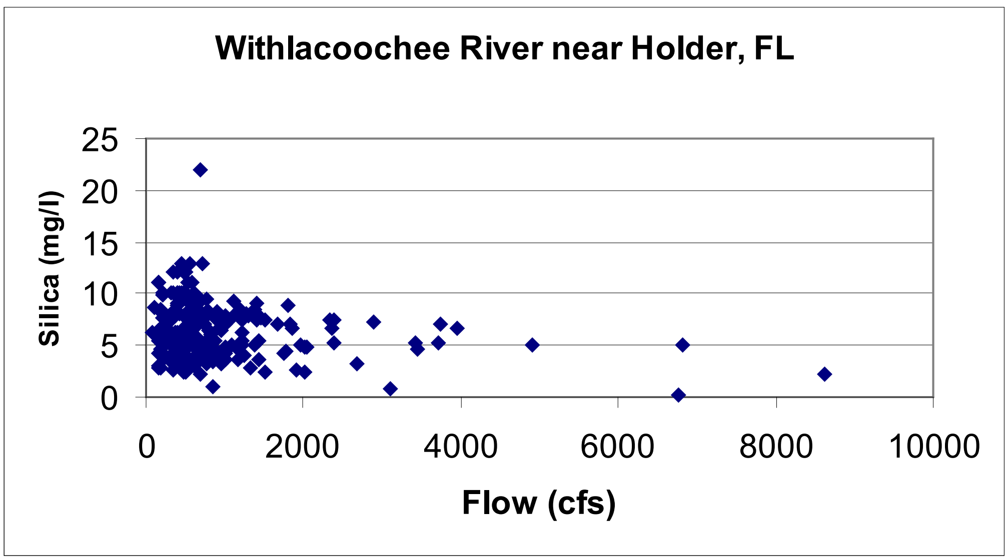

Magnesium Residuals over Time
for Withlacoochee River near Holder, FL
Parameter Residuals
4
3
2
1
0
-1
-2
-3
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

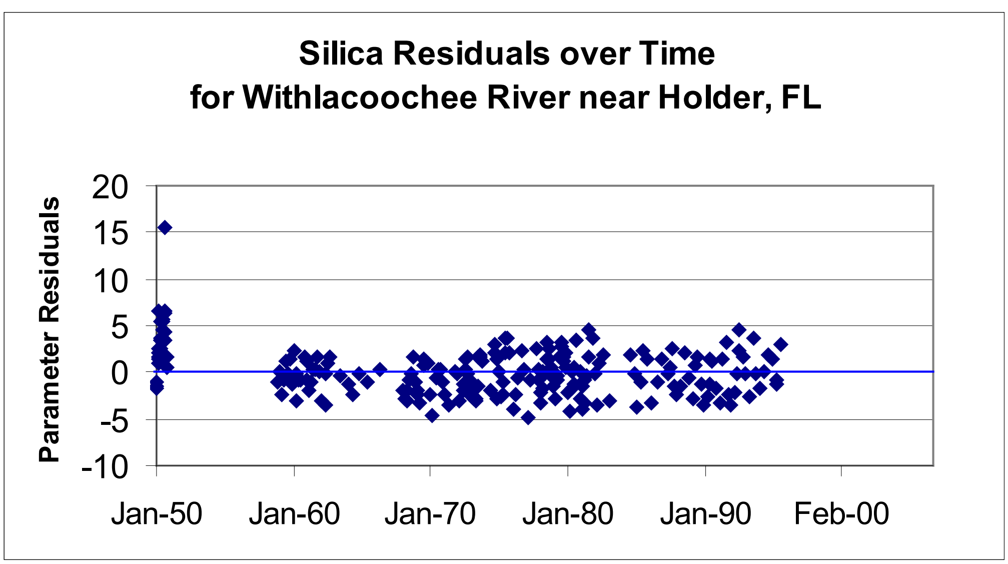

Withlacoochee River near Holder, FL
Potassium (mg/l)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

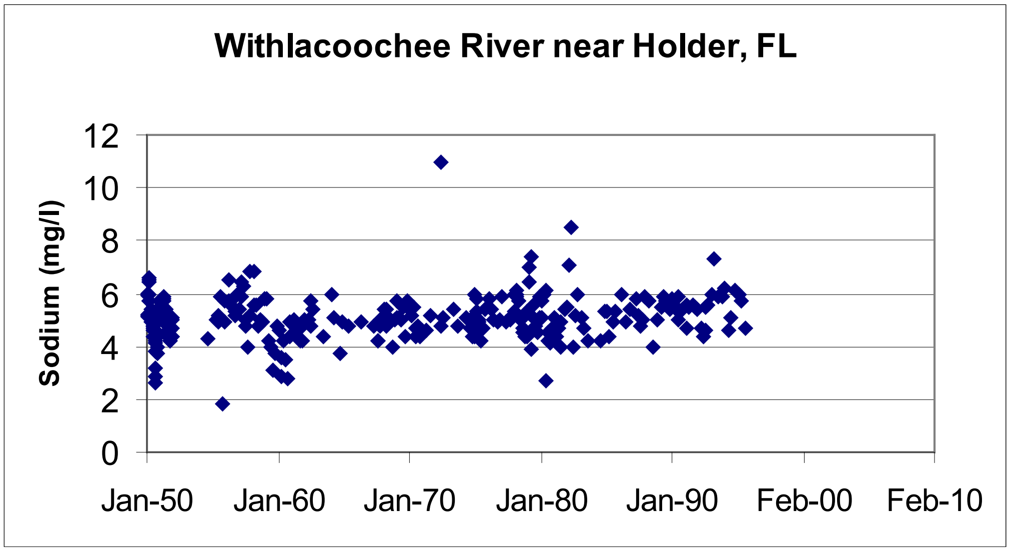

Withlacoochee River near Holder, FL
Potassium (mg/l)
2
1.5
1
0.5
0
0
2000
4000
6000
8000
10000
Flow (cfs)

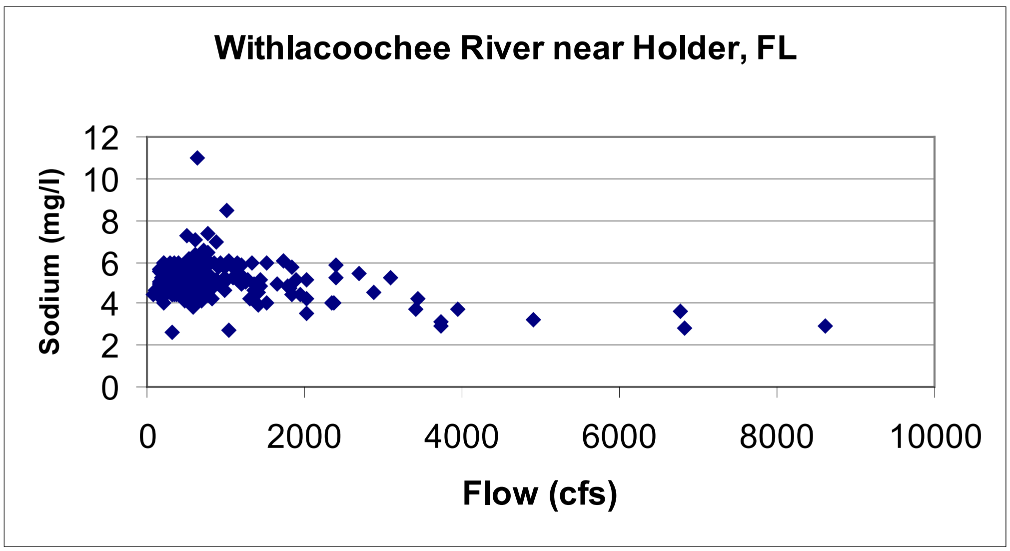

Potassium Residuals over Time
for Withlacoochee River near Holder, FL
Parameter Residuals
1.5
1
0.5
0
-0.5
-1
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

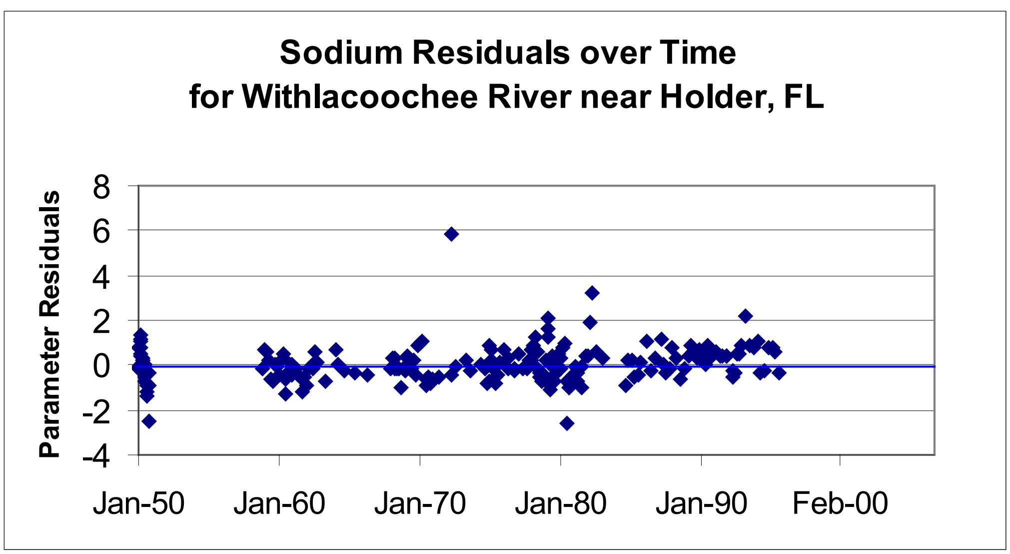

Withlacoochee River near Holder, FL
Silica (mg/l)
25
20
15
10
5
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10

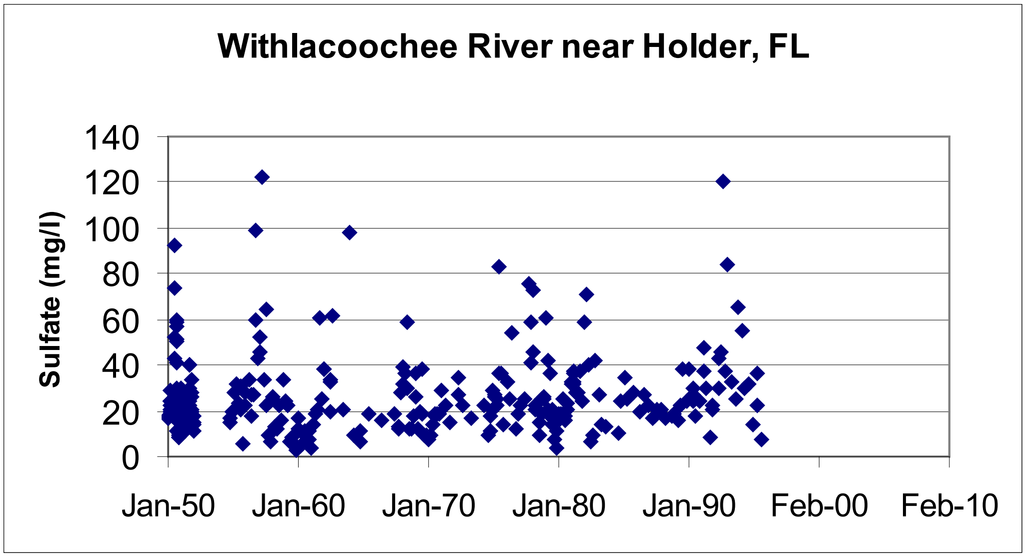

Withlacoochee River near Holder, FL
Silica (mg/l)
25
20
15
10
5
0
0
2000
4000
6000
8000
10000
Flow (cfs)

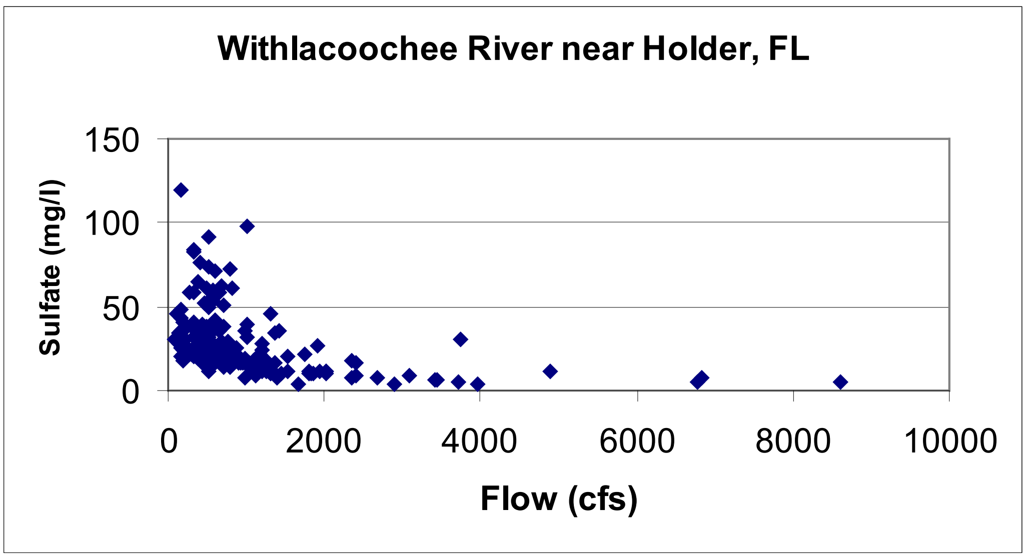

Silica Residuals over Time
for Withlacoochee River near Holder, FL
Parameter Residuals
20
15
10
5
0
-5
-10
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

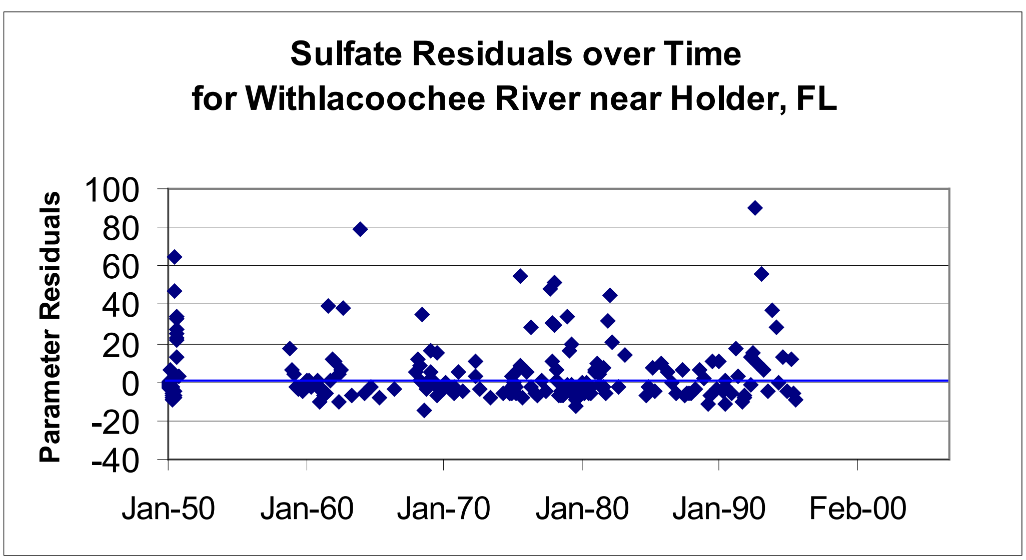

Withlacoochee River near Holder, FL
Sodium (mg/l)
12
10
8
6
4
2
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10


Withlacoochee River near Holder, FL
Sodium (mg/l)
12
10
8
6
4
2
0
0
2000
4000
6000
8000
10000
Flow (cfs)


Sodium Residuals over Time
for Withlacoochee River near Holder, FL
Parameter Residuals
8
6
4
2
0
-2
-4
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00


Withlacoochee River near Holder, FL
Sulfate (mg/l)
140
120
100
80
60
40
20
0
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00
Feb-10


Withlacoochee River near Holder, FL
Sulfate (mg/l)
150
100
50
0
0
2000
4000
6000
8000
10000
Flow (cfs)


Sulfate Residuals over Time
for Withlacoochee River near Holder, FL
Parameter Residuals
100
80
60
40
20
0
-20
-40
Jan-50
Jan-60
Jan-70
Jan-80
Jan-90
Feb-00

ALAFIA AT LITHIA

Parameter Residual	Residual Median	n	p Value	intercept	slope
Conductance	-15.5800	250	0.0000	408.3210	-0.01459
Dissolved Oxygen	-0.0570	194	0.5140	0.6278	-0.00002
pH	-0.0043	234	0.0000	-2.7960	0.00010
Nox	-0.0079	186	0.0168	1.0721	-0.00004
Phosphorus	-0.4750	249	0.0000	22.0165	-0.00064
Hardness	-5.7500	118	0.0131	79.6733	-0.00314
Calcium	-0.4370	188	0.0000	41.1177	-0.00132
Magnesium	0.0210	188	0.0295	2.2041	-0.00007
Sodium	-1.0410	187	0.2962	4.4662	-0.00188
Potassium	0.0583	188	0.0000	-3.3258	0.00012
Chloride	-0.0300	195	0.0000	27.9862	-0.00095
Sulfate	-2.6600	188	0.0000	101.0630	-0.00354
Fluoride	-0.3910	191	0.0000	12.6430	-0.00045
Iron	-0.9400	131	0.0000	-156.5600	0.00527

SOUTH PRONG ALAFIA

Parameter Residual	Residual Median	n	p Value	intercept	slope
Conductance	0.9900	218	0.3902	35.6830	-0.00111
Dissolved Oxygen	-0.1500	196	0.0916	1.6287	-0.00006
pH	0.0451	199	0.0000	-1.3383	0.00004
NOx	-0.0174	171	0.0000	-0.7500	0.00002
Phosphorus	-0.3230	196	0.0000	11.2074	-0.00037
Hardness	2.0700	25	0.9070	-5.7956	0.00030
Calcium	-0.3700	39	0.0111	19.0877	-0.00071
Chloride	-0.4600	39	0.0003	25.6541	-0.00096
Fluoride	-0.2950	78	0.0000	11.1929	-0.00040
Iron	4.4100	32	0.6038	29.8924	-0.00095
Magnesium	0.2060	39	0.1605	-3.1844	0.00035
Potassium	0.0110	39	0.0078	-2.2458	0.00008
Sodium	-0.6500	39	0.0001	35.9532	-0.00134
Sulfate	-0.1700	38	0.0011	102.9050	-0.00377

NORTH PRONG ALAFIA

Parameter Residual	Residual Median	n	p Value	intercept	slope
Conductance	-21.3000	214	0.0000	878.8210	-0.02930
Dissolved Oxygen	0.0170	193	0.6645	-0.4388	0.00001
pH	-0.0012	192	0.0000	-2.4658	0.00008
NOx	0.0147	176	0.8931	-0.0722	0.00000
Phosphorus	0.0930	188	0.0000	17.7527	-0.00057
Hardness	-6.7000	23	0.0013	619.2720	-0.02388
Calcium	-0.1400	48	0.0000	119.9610	-0.00390
Chloride	1.3900	47	0.0066	46.6772	-0.00146
Fluoride	-0.4890	87	0.0000	27.1319	-0.00096
Iron	-0.3000	33	0.8891	8.7662	-0.00033
Magnesium	-0.6980	48	0.0016	5.9995	-0.00020
Potassium	-0.0190	48	0.0000	-5.7432	0.00019
Sodium	0.6700	48	0.0019	44.5403	-0.00142
Sulfate	-7.9000	47	0.0000	323.4700	-0.01070

WITHLACOOCHEE RIVER AT CROOM

Parameter Residual	Residual Median	n	p Value	intercept	slope
Conductance	0.6900	196	0.24695	-20.93220	0.00071
Dissolved Oxygen	-0.0760	161	0.01795	2.49541	-0.00001
pH	0.0823	122	0.14721	0.80572	-0.00002
NOx	-0.0036	70	0.39718	-0.02900	0.00000
Phosphorus	0.0022	97	0.94037	0.00552	0.00000
Hardness	insufficient data (n=7)				
Calcium	-0.0340	99	0.00389	-24.40160	0.00711
Chloride	-0.0270	99	0.54945	1.40672	-0.00004
Fluoride	-0.0023	99	0.17852	0.03435	0.00000
Iron	insufficient data (n=12)				
Magnesium	0.0095	99	0.18848	0.75054	-0.00002
Potassium	-0.0047	99	0.05191	-1.21668	0.00004
Silica	0.1980	100	0.04316	-3.63283	0.00011
Sodium	0.0230	98	0.30529	-1.54163	0.00046
Sulfate	0.0600	99	0.21405	-2.28699	0.00007

WITHLACOOCHEE RIVER AT HOLDER

Parameter Residual	Residual Median	n	p Value	intercept	slope
Conductance	-2.8100	269	0.67368	-8.56307	0.00020
Dissolved Oxygen	-0.0530	170	0.23039	1.51387	-0.00005
pH	-0.0124	249	0.39982	0.09717	0.00000
NOx	-0.0006	205	0.30559	0.03173	-0.00001
Phosphorus	0.0008	168	0.00289	-0.04168	0.00000
Hardness	-1.9200	185	0.23975	8.70238	0.00270
Calcium	-0.4120	214	0.62894	0.76156	-0.00004
Chloride	0.0870	228	0.00000	-2.76800	0.00010
Fluoride	-0.0287	207	0.43782	-0.03258	0.00000
Iron	-2.6000	155	0.00000	-118.59200	0.00431
Magnesium	-0.0256	214	0.38274	0.17967	0.00001
Potassium	0.0023	204	0.03940	-0.17603	0.00001
Silica	-0.0700	223	0.02427	2.19811	-0.00008
Sodium	-0.0356	208	0.00087	-0.93858	0.00003
Sulfate	-1.6400	208	0.82802	-0.90412	-0.00003

MYAKKA RIVER NEAR SARASOTA

Parameter Residual	Residual Median	n	p Value	intercept	slope
Conductance	-10.0000	248	0.00000	-424.30800	0.01456
Dissolved Oxygen	0.0350	120	0.50922	1.46821	-0.00005
pH	-0.0083	215	0.00416	0.63905	-0.00002
NOx	-0.0069	129	0.06248	0.04895	0.00000
Phosphorus	-0.0171	127	0.00000	-0.73127	0.00003
Calcium	-1.0090	193	0.00000	-36.99860	0.00127
Chloride	-0.3290	198	0.00001	-9.87780	0.00034
Fluoride	0.0045	197	0.00027	0.17920	-0.00001
Hardness	-2.9100	146	0.00000	-187.61700	0.00734
Magnesium	-0.4650	193	0.00000	-19.95630	0.00069
Potassium	-0.2810	193	0.00000	-8.17683	0.00028
Silica	0.0850	192	0.77540	-0.23801	0.00001
Sodium	0.0070	192	0.00000	-7.44218	0.00026
Sulfate	-3.7800	191	0.00000	-135.29300	0.00463

PEACE RIVER AT ZOLFO SPRINGS

Parameter Residual	Residual Median	n	p Value	intercept	slope
Conductance	-2.1600	194	0.24105	33.38050	0.00087
Dissolved Oxygen	-0.0110	163	0.10035	-2.16677	0.00007
pH	0.0129	172	0.00716	-0.83519	0.00005
NOx	-0.0257	179	0.00926	0.64039	-0.00002
Phosphorus	-0.0960	176	0.00000	6.15835	-0.00021
Hardness	-1.0800	34	0.09685	-70.09360	0.00270
Calcium	0.4600	48	0.25157	8.88164	-0.00032
Chloride	-0.1780	49	0.00000	-14.12370	0.00053
Fluoride	0.0214	49	0.15745	0.77328	-0.00003
Iron	insufficient data (n=18)				
Magnesium	-0.2170	48	0.35994	-2.83899	0.00010
Potassium	-0.0710	47	0.00000	-4.97350	0.00018
Silica	-0.0820	60	0.00394	6.10975	-0.00023
Sodium	0.1820	47	0.00741	-9.13969	0.00035
Sulfate	1.8600	48	0.47157	18.84010	-0.00064

PEACE RIVER AT ARCADIA

Parameter Residual	Residual Median	n	p Value	intercept	slope
Conductance	-6.0400	642	0.00000	-131.00000	0.00495
Dissolved Oxygen	-0.0791	245	0.57867	0.41129	-0.00002
pH	-0.0064	621	0.95414	-0.00224	0.00000
NOx	0.0059	173	0.01243	0.48939	-0.00002
Phosphorus	-0.0345	495	0.00000	4.00839	-0.00016
Hardness	-3.7300	446	0.00000	-87.03340	0.00341
Calcium	-0.4210	551	0.03372	-3.34403	0.00012
Chloride	-0.2820	560	0.00000	-12.67960	0.00050
Fluoride	-0.0132	570	0.00000	1.83663	-0.00007
Iron	-2.3100	450	0.00000	-153.77200	0.00616
Magnesium	-0.1790	552	0.00000	-8.13830	0.00032
Potassium	-0.1309	548	0.00000	-5.54515	0.00022
Silica	0.1470	563	0.00000	11.16780	-0.00044
Sodium	-0.2390	548	0.00000	-3.74362	0.00014
Sulfate	-1.9490	555	0.00000	-24.41510	0.00090

CHARLIE CREEK NEAR GARDNER

Parameter Residual	Residual Median	n	p Value	intercept	slope
Conductance	-2.8600	136	0.00000	-310.74100	0.01032
Dissolved Oxygen	-0.2350	121	0.00233	3.58942	-0.00013
pH	0.0291	102	0.00138	1.72877	-0.00006
NOx	-0.0158	67	0.00044	-0.78126	0.00002
Phosphorus	0.0151	84	0.00743	-0.40872	0.00001
Hardness	insufficient data (n=16)				
Calcium	-0.1510	21	0.00159	-17.02650	0.00068
Chloride	0.3800	26	0.00013	-13.24990	0.00049
Fluoride	0.0053	25	0.98130	0.01862	0.00001
Iron	insufficient data (n=4)				
Magnesium	-0.1020	22	0.00031	-9.32514	0.00369
Potassium	-0.0270	21	0.00600	-7.68303	0.00031
Silica	0.4760	22	0.02784	-6.99980	0.00030
Sodium	0.0700	21	0.00123	-5.24280	0.00022
Sulfate	-2.6700	25	0.00050	-57.08330	0.00212

HORSE CREEK AT ARCADIA

Parameter Residual	Residual Median	n	p Value	intercept	slope
Conductance	-3.1000	193	0.00000	-386.42100	0.01257
Dissolved Oxygen	-0.2400	162	0.47790	-0.99684	0.00002
pH	0.0192	149	0.00001	1.90689	-0.00006
NOx	-0.0075	125	0.00000	-0.92137	0.00003
Phosphorus	-0.0003	115	0.01138	0.33833	-0.00001
Hardness	insufficient data (n=21)				
Calcium	-0.2200	53	0.00001	-32.70440	0.00098
Chloride	0.1760	65	0.00001	-14.10770	0.00047
Fluoride	-0.0157	63	0.00005	0.34637	-0.00001
Magnesium	-0.0450	53	0.00000	-12.98900	0.00039
Potassium	-0.1360	53	0.00000	-7.27912	0.00022
Sodium	-0.2890	53	0.62347	-1.14148	0.00003
Sulfate	-0.0400	54	0.00000	-105.26500	0.00319
Silica	0.0980	56	0.05545	-3.45960	0.00020

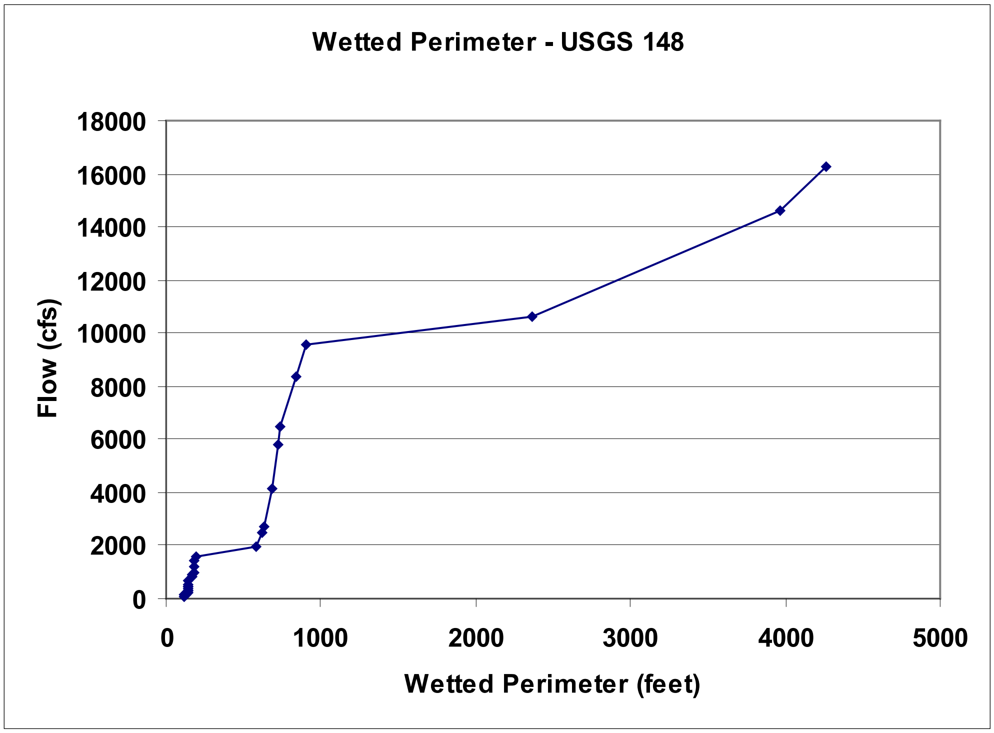
JOSHUA CREEK AT NOCATEE

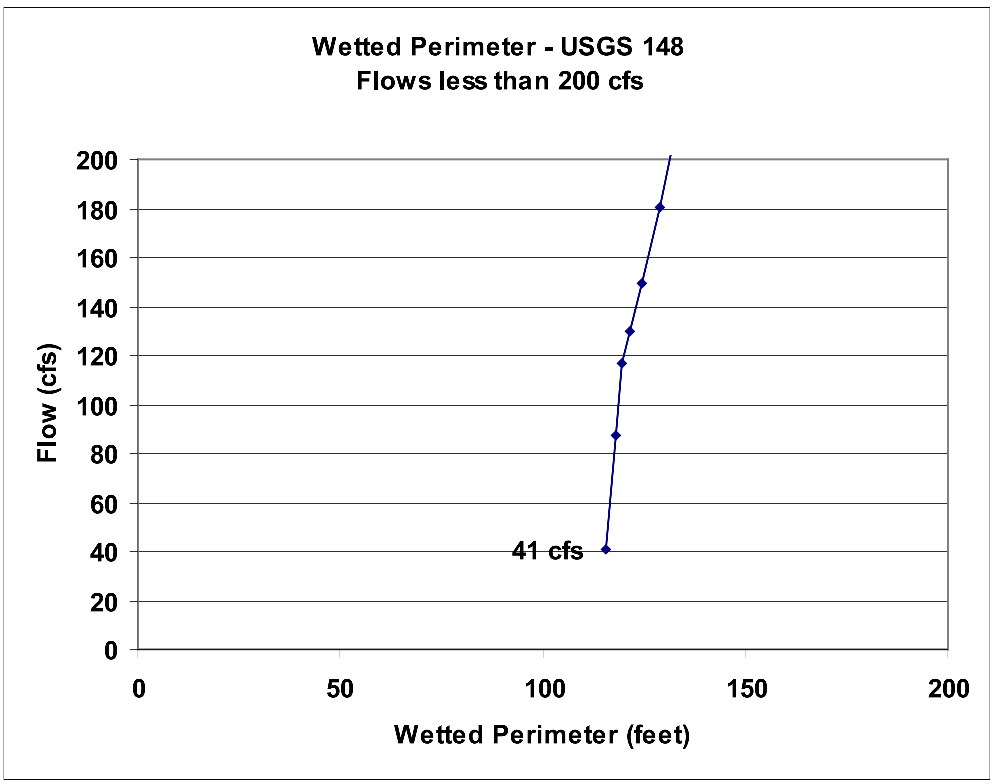
Parameter Residual	Residual Median	n	p Value	intercept	slope
Conductance	-23.4000	135	0.00000	-913.14400	0.02954
Dissolved Oxygen	-0.1360	116	0.24815	-1.60478	0.00005
pH	0.0203	99	0.58218	0.29755	-0.00001
NOx	-0.0130	68	0.00003	-2.23268	0.00007
Phosphorus	-0.0060	70	0.00000	0.76209	-0.00002
Hardness	insufficient data (n=10)				
Calcium	1.9900	34	0.00003	-81.12080	0.00239
Chloride	3.3900	49	0.00000	-186.59200	0.00608
Fluoride	-0.0090	34	0.00832	0.22202	-0.00001
Magnesium	1.1090	34	0.00065	-22.25370	0.00067
Potassium	0.1790	33	0.00279	-9.69056	0.00028
Silica	0.2190	37	0.35310	-1.87070	0.00006
Sodium	1.1800	33	0.00000	-89.25580	0.00260
Sulfate	1.4500	35	0.00059	-132.69900	0.00386

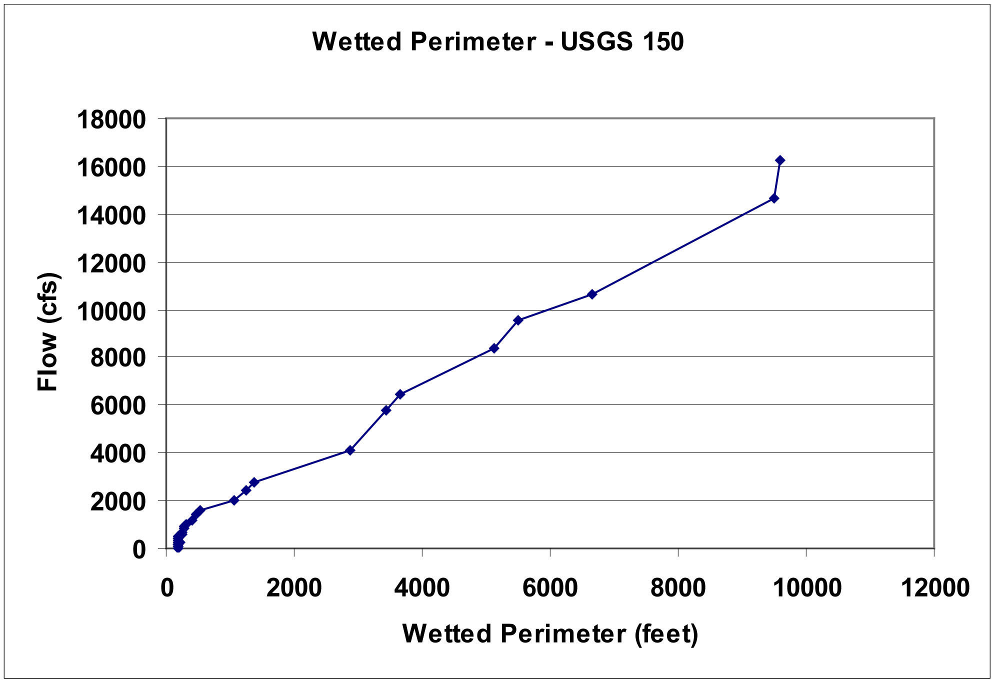
WP

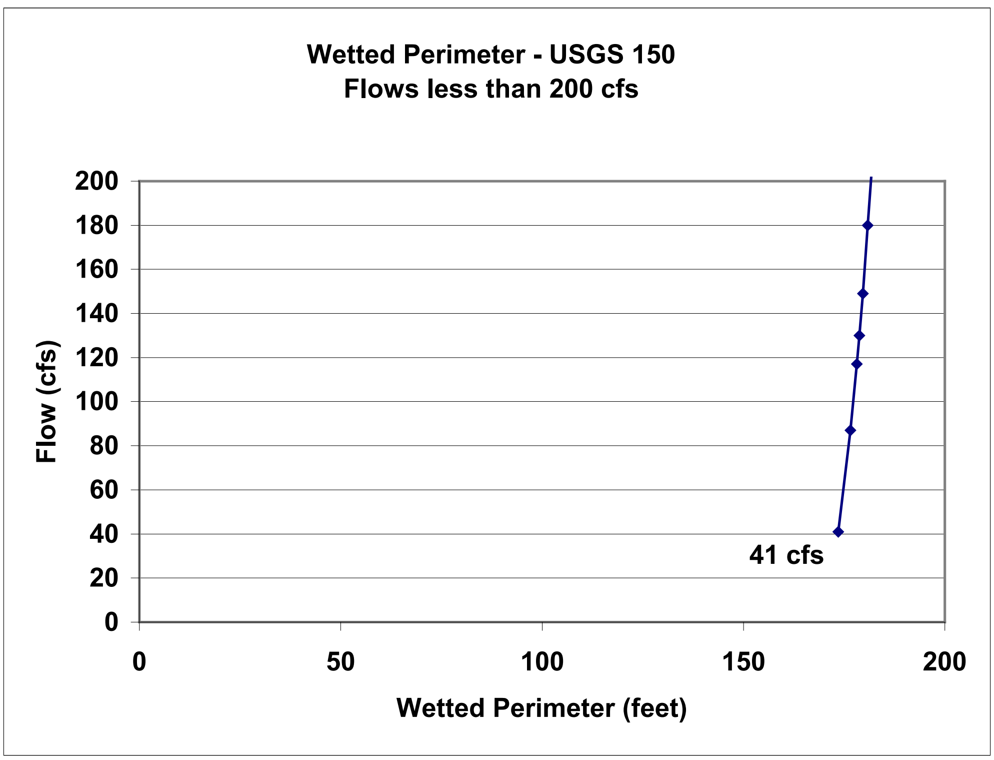
Wetted Perimeter – WP

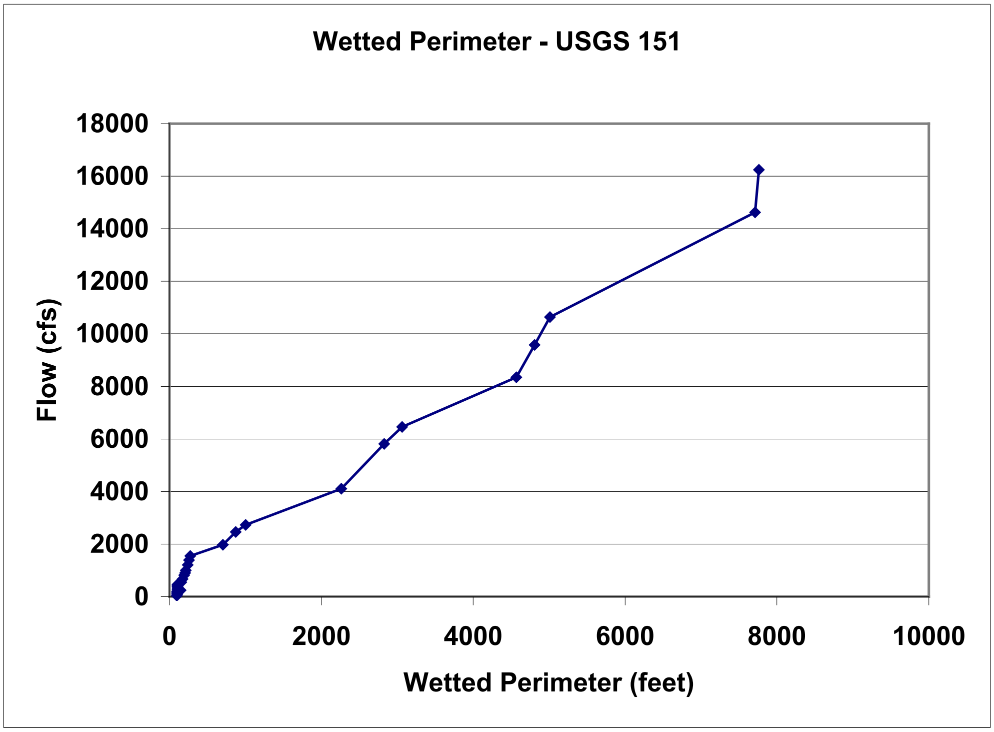
This appendix contains all wetted perimeter plots generated for the Middle Peace River cross sections. Cross sections identified by "USGS #" refer to cross section data obtained from USGS for use in the HEC_RAS model. Cross sections referred to in the form "USGS #.#" identify cross sections inserted between USGS transects. This cross section data was obtained by the SWFWMD for the purpose of this MFL study. In most cases these sites are also identified a corresponding shoal number or vegetative transect number in the format "Shoal #" or "SWFWMD #", respectively.

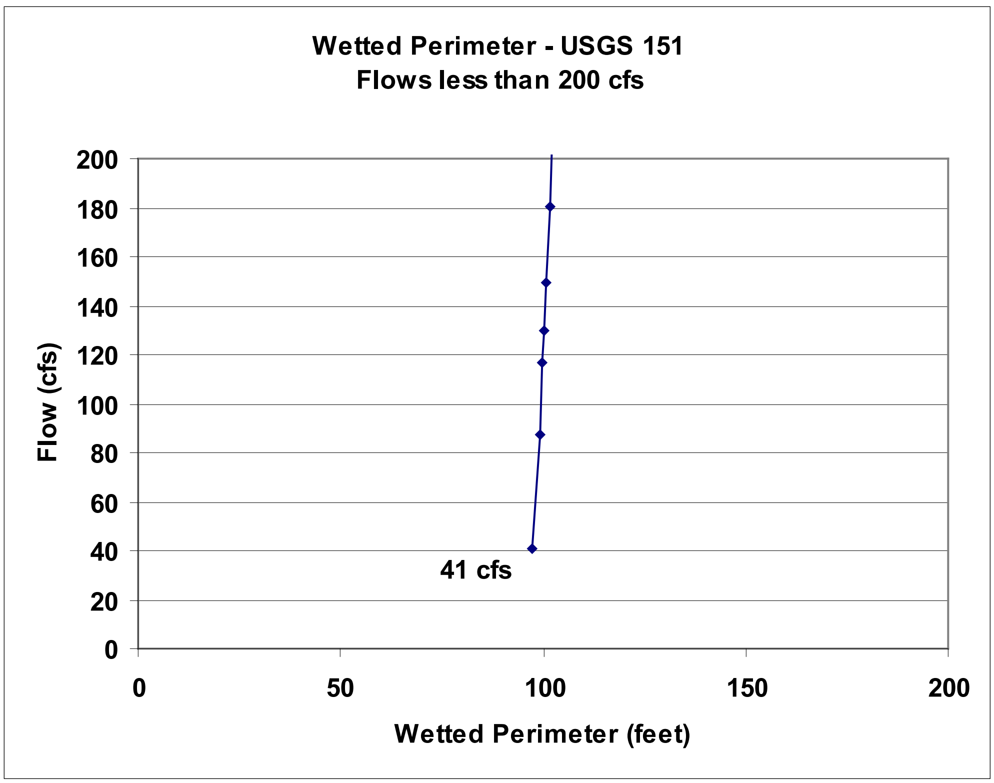

Wetted Perimeter - USGS 148
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
Wetted Perimeter (feet)

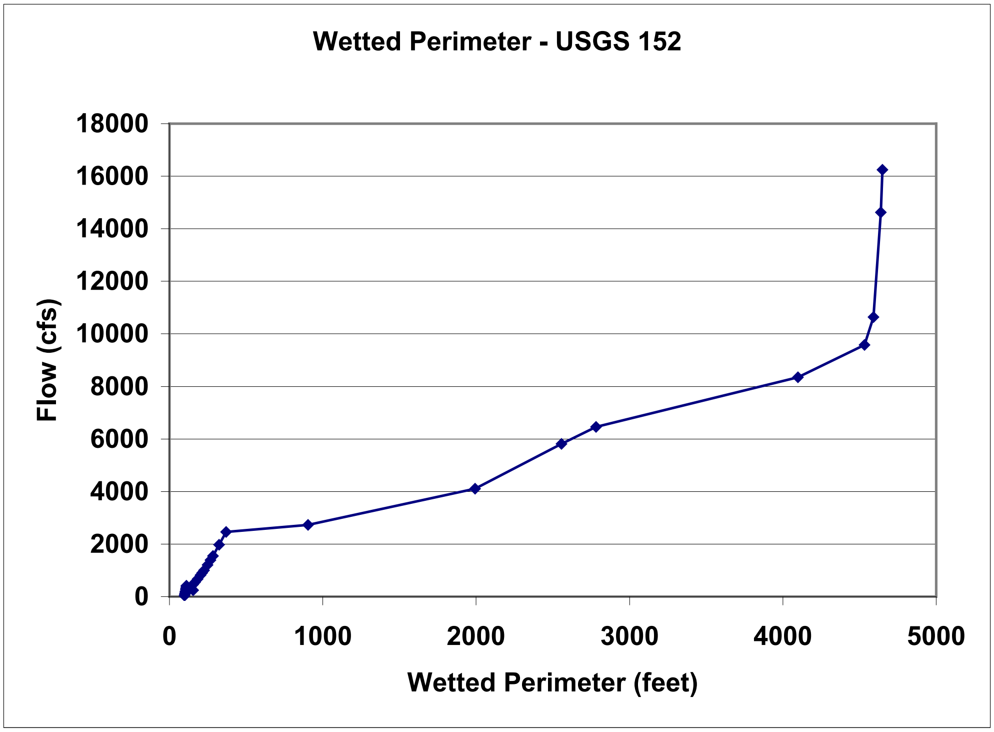

Wetted Perimeter - USGS 148
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
41 cfs
0
50
100
150
200
Wetted Perimeter (feet)

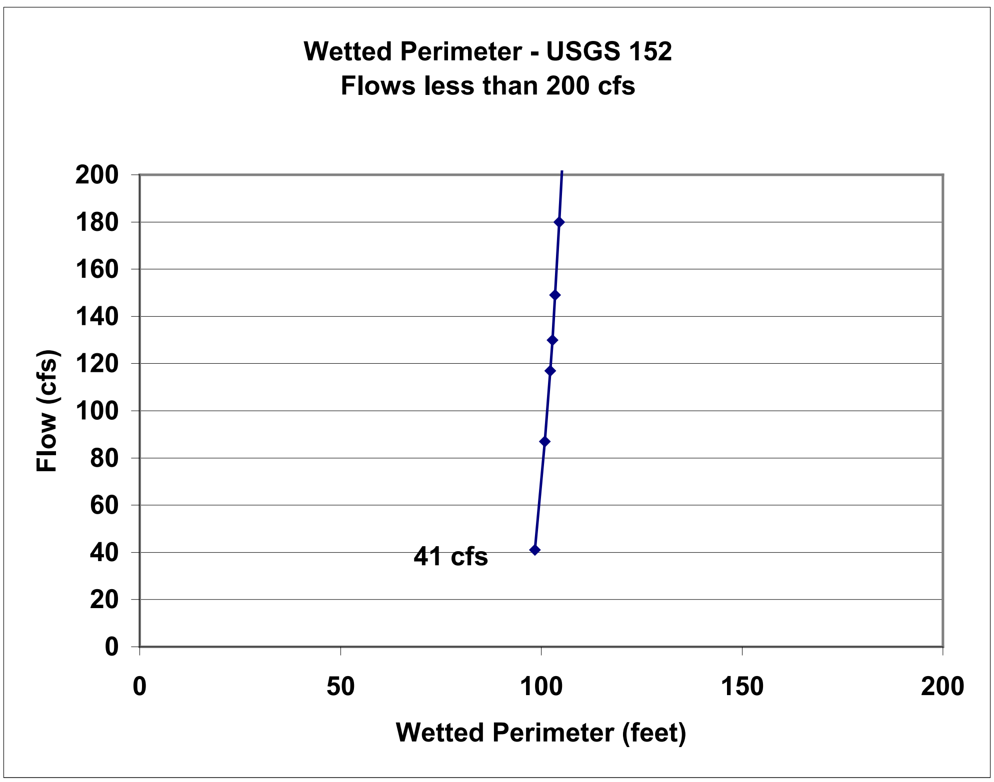

Wetted Perimeter - USGS 150
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
2000
4000
6000
8000
10000
12000
Wetted Perimeter (feet)

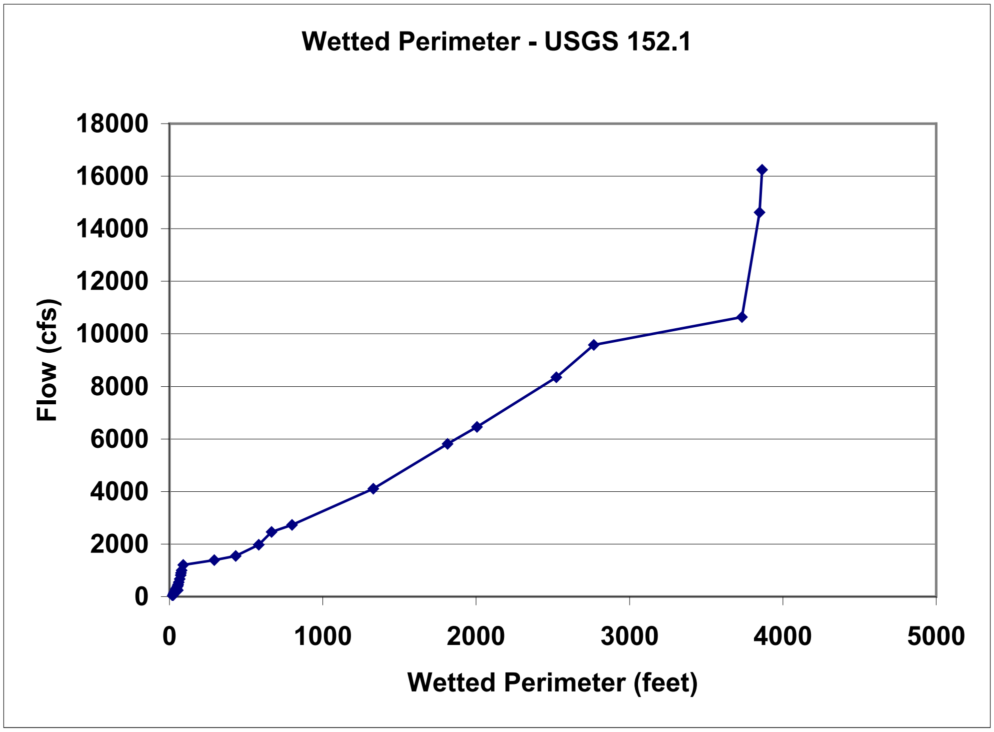

Wetted Perimeter - USGS 150
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
41 cfs
0
50
100
150
200
Wetted Perimeter (feet)

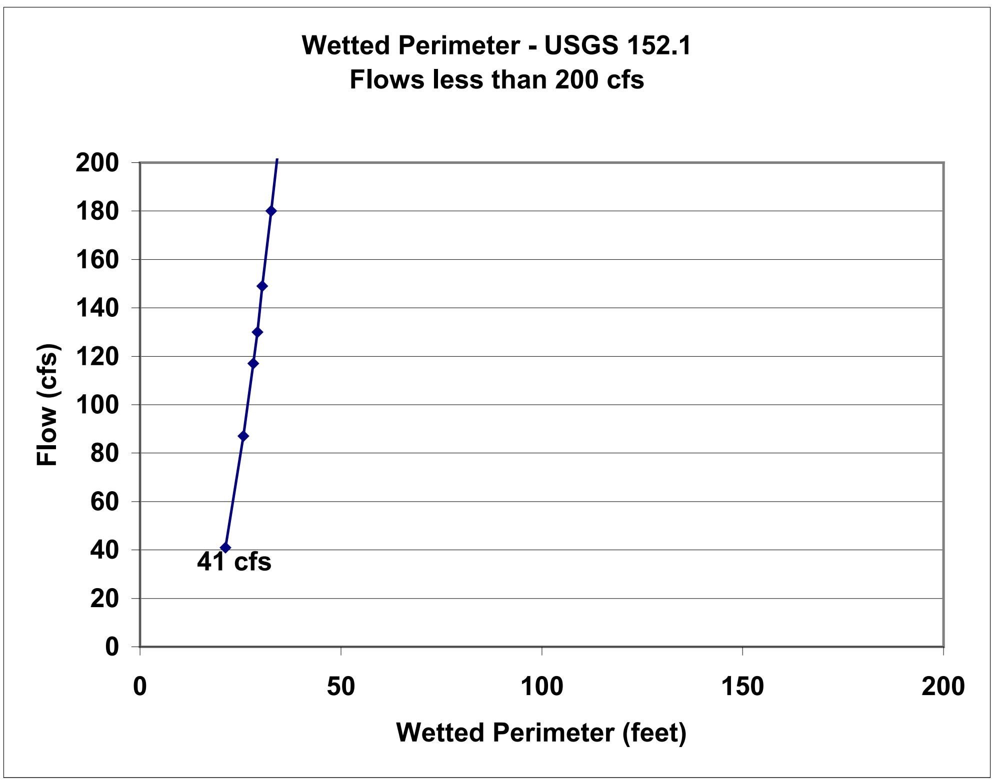

Wetted Perimeter - USGS 151
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
2000
4000
6000
8000
10000
Wetted Perimeter (feet)

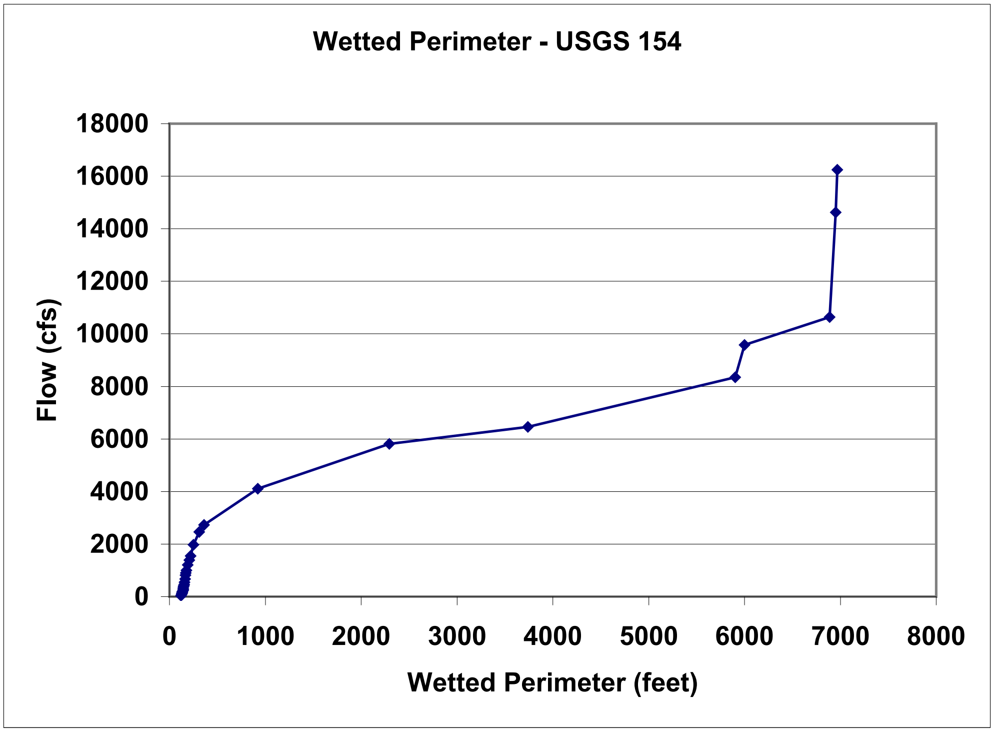

Wetted Perimeter - USGS 151
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
41 cfs
0
50
100
150
200
Wetted Perimeter (feet)

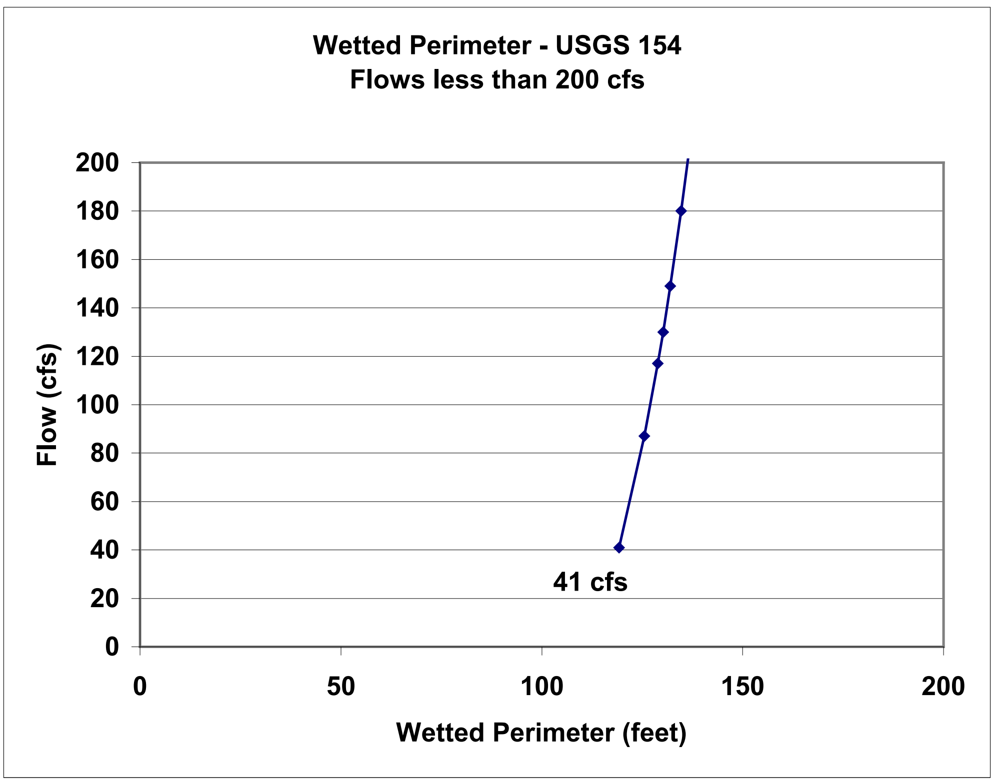

Wetted Perimeter - USGS 152
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
Wetted Perimeter (feet)

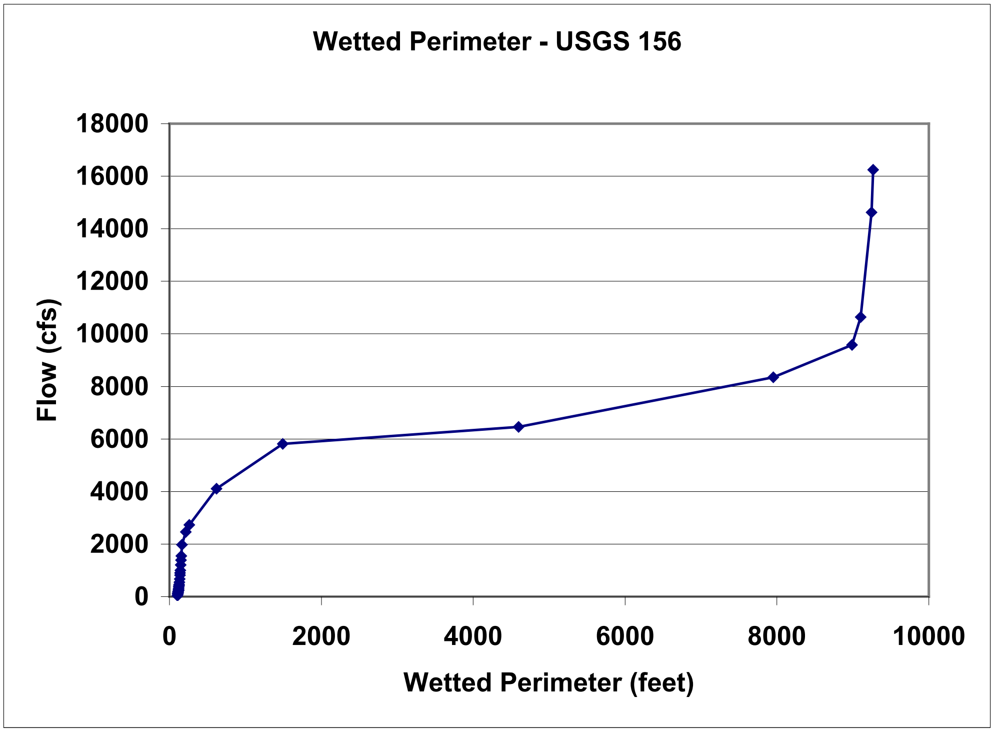

Wetted Perimeter - USGS 152
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
41 cfs
0
50
100
150
200
Wetted Perimeter (feet)

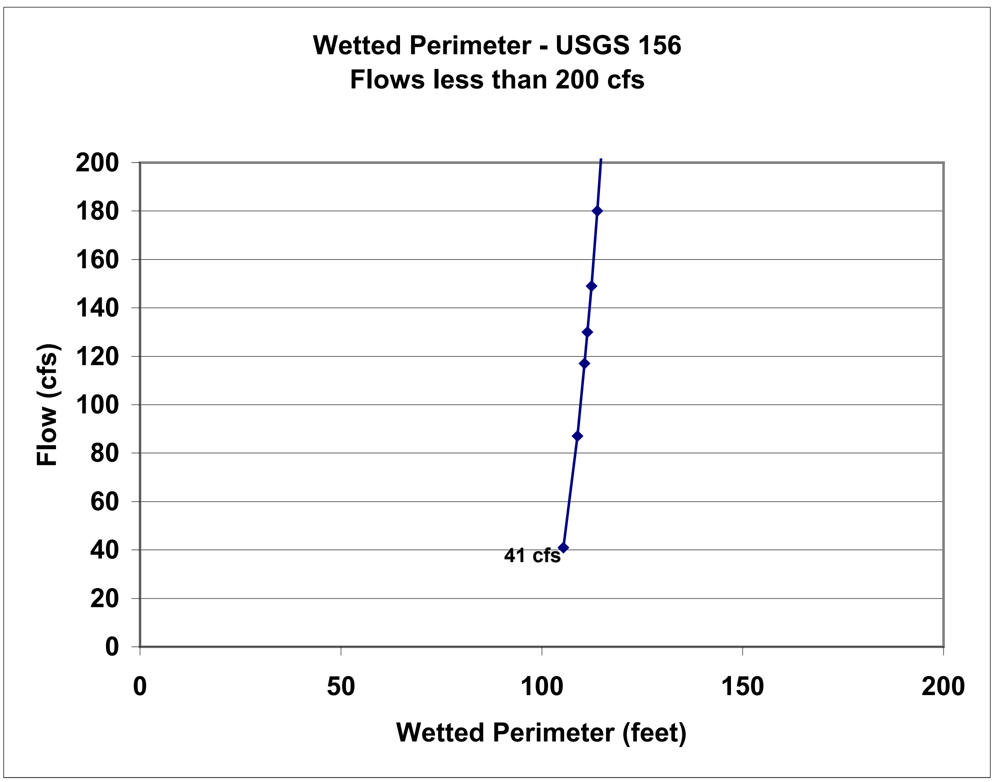

Wetted Perimeter - USGS 152.1
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
Flow (cfs)
Wetted Perimeter (feet)

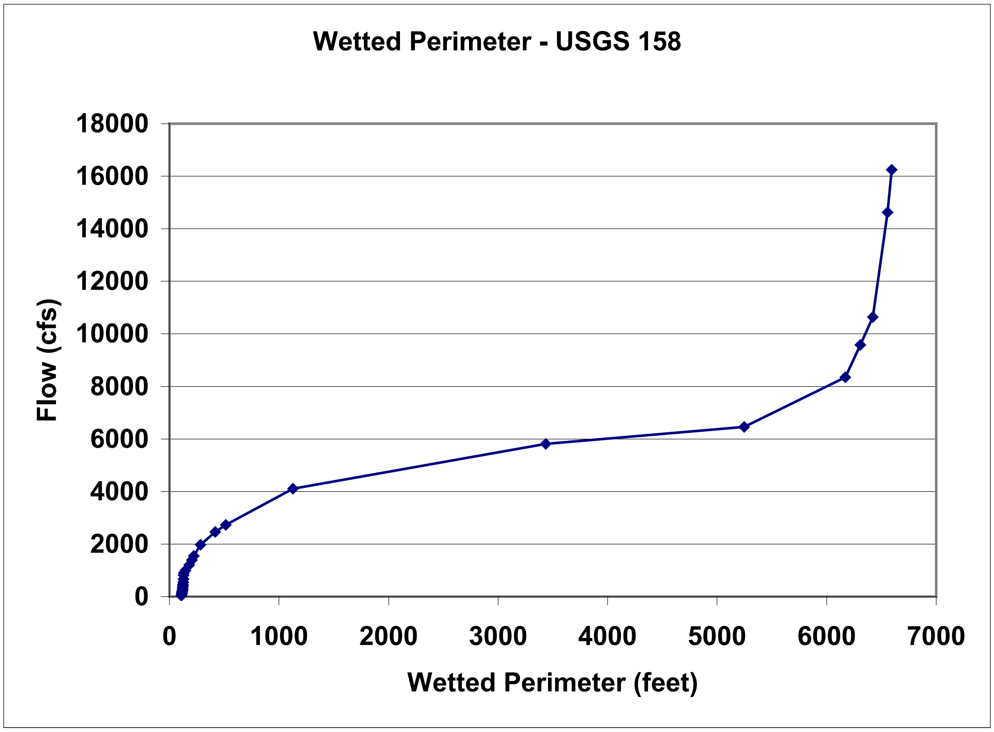

Wetted Perimeter - USGS 152.1
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
41 cfs
0
50
100
150
200
Flow (cfs)
Wetted Perimeter (feet)

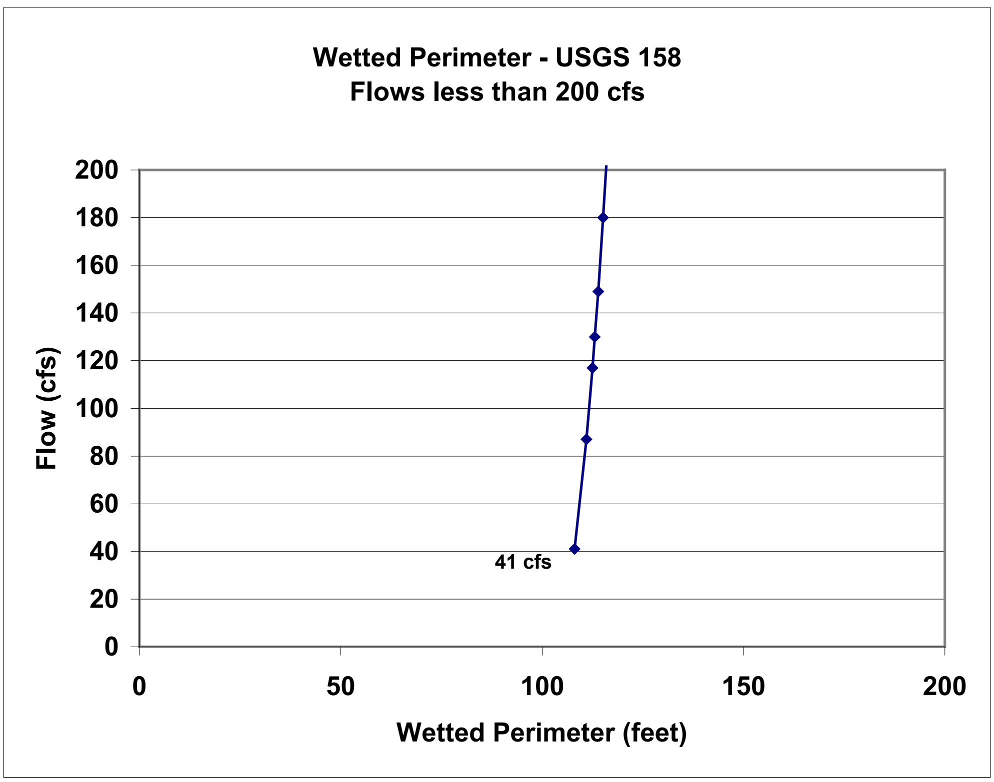

Wetted Perimeter - USGS 154
Flow (cfs)
Wetted Perimeter (feet)
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
1000
3000
5000
7000

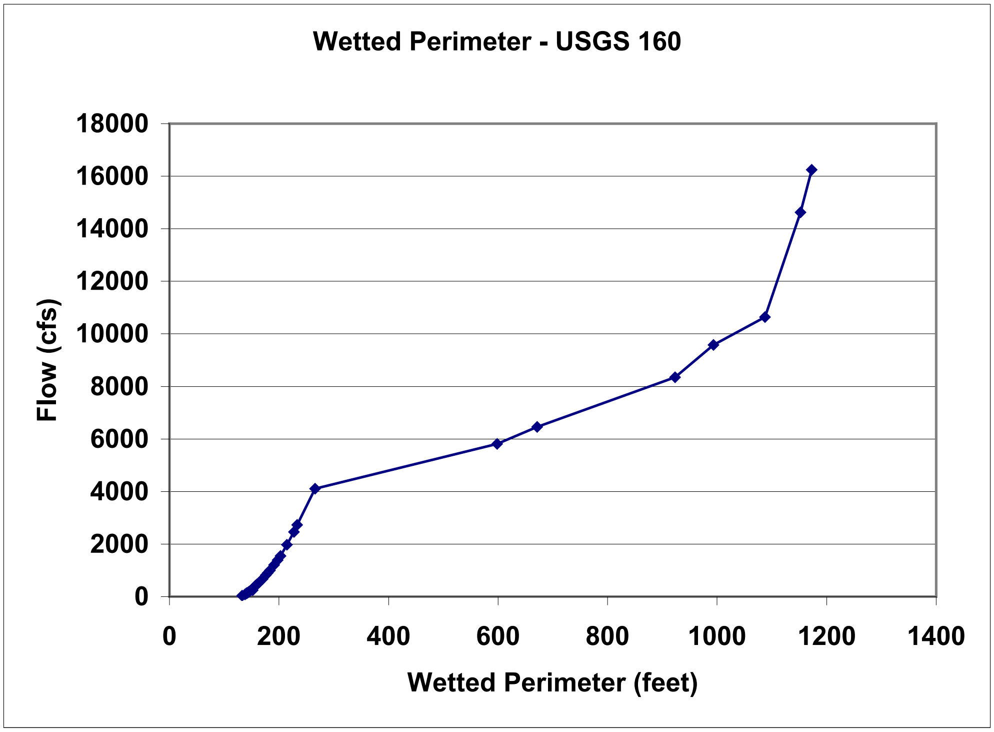

Wetted Perimeter - USGS 154
Flows less than 200 cfs
Flow (cfs)
Wetted Perimeter (feet)
41 cfs
0
20
40
60
80
100
120
140
160
180
200
50
150

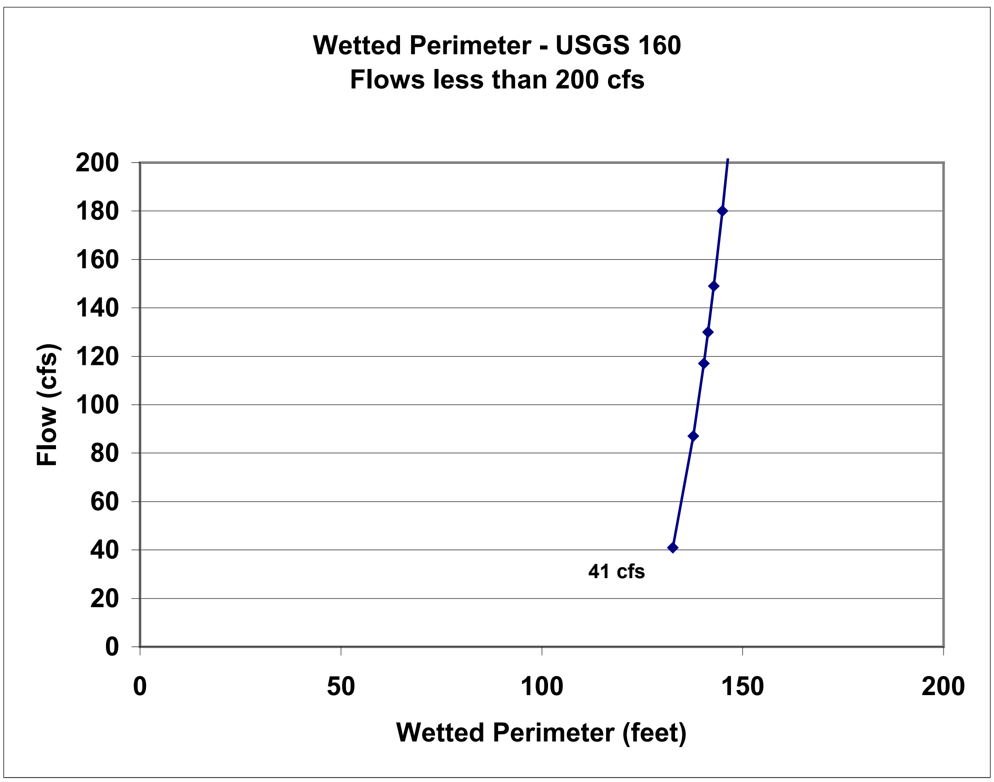

Wetted Perimeter - USGS 156
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
2000
4000
6000
8000
10000
Wetted Perimeter (feet)

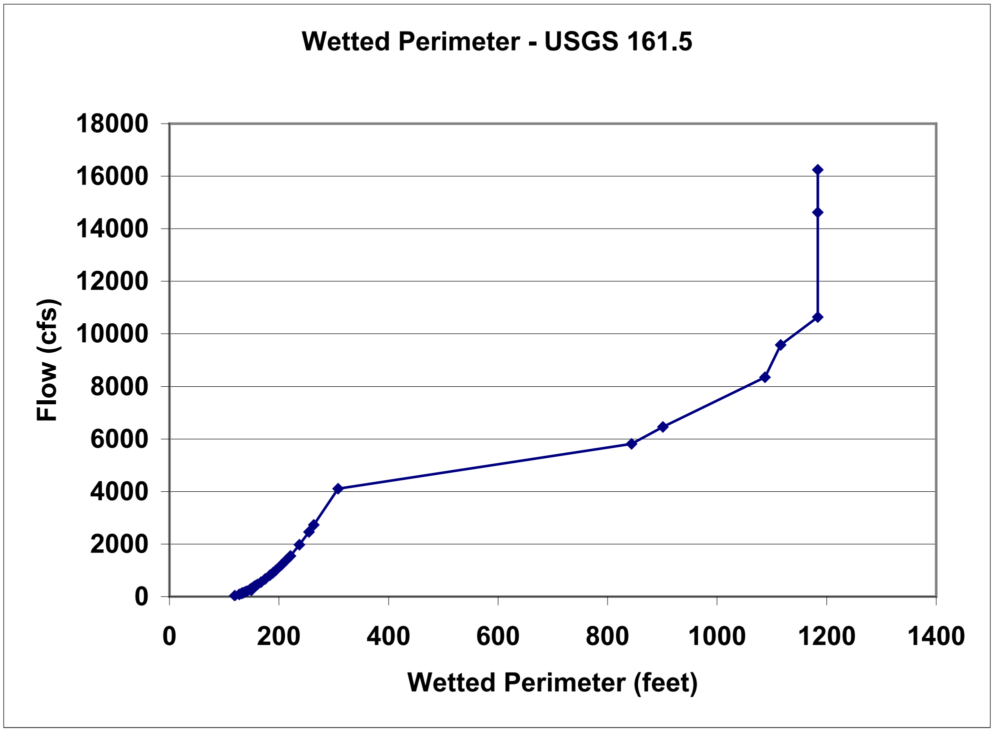

Wetted Perimeter - USGS 156
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
41 cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 158
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
1000
2000
3000
4000
5000
6000
7000
Wetted Perimeter (feet)

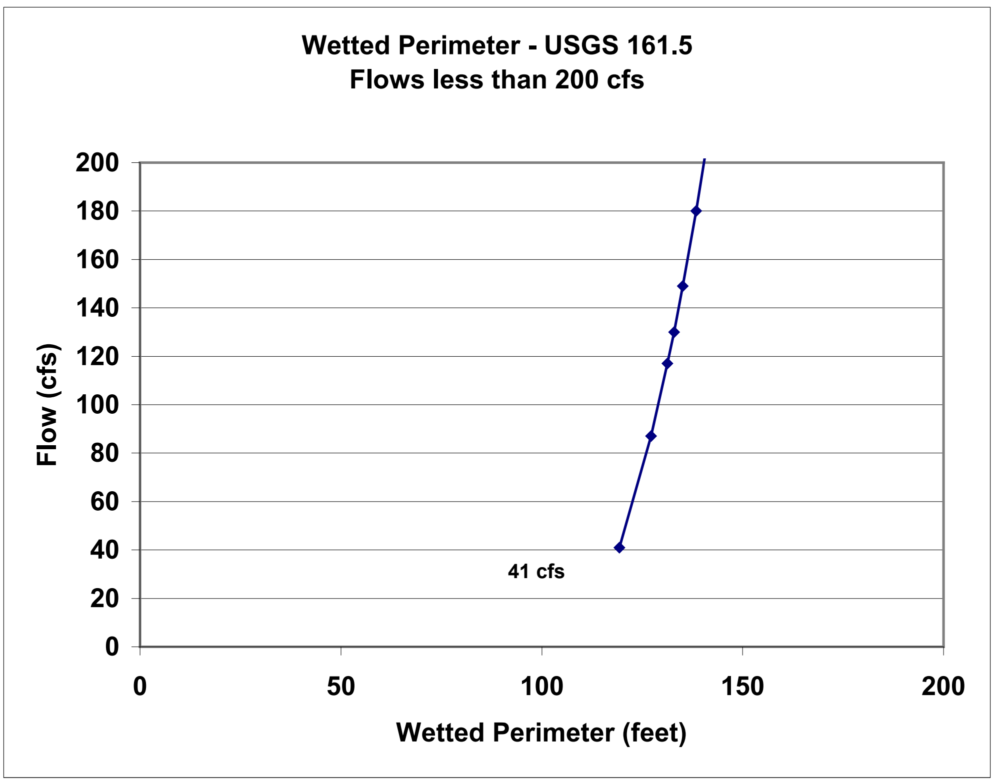

Wetted Perimeter - USGS 158
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
41 cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 160
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
200
400
600
800
1000
1200
1400
Flow (cfs)
Wetted Perimeter (feet)

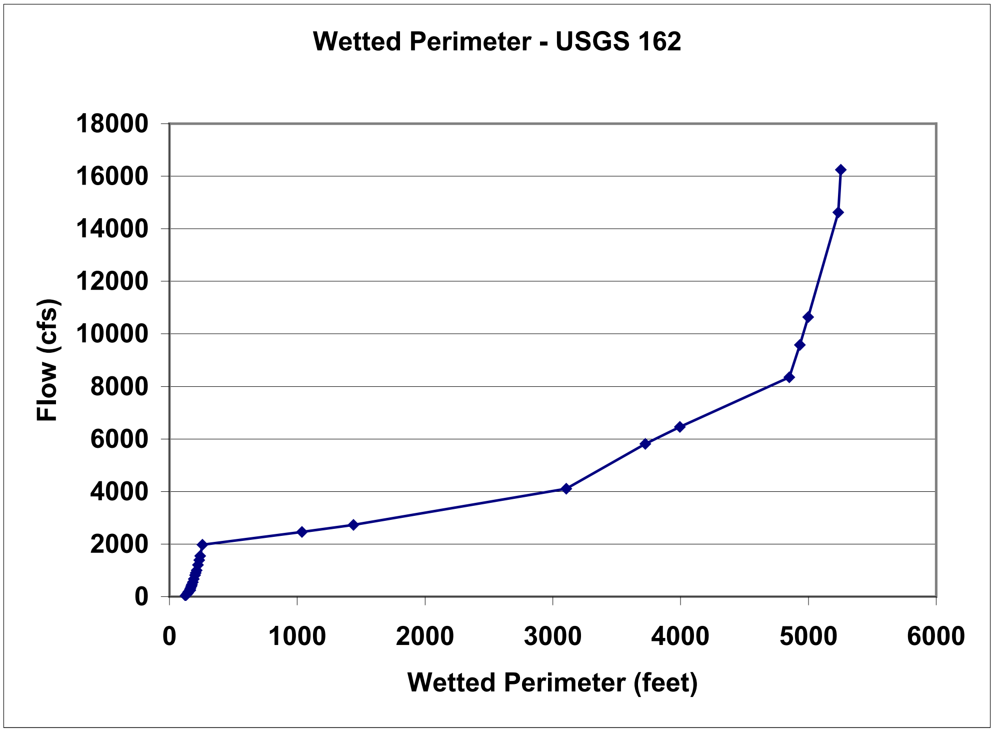

Wetted Perimeter - USGS 160
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
0
50
100
150
200
41 cfs
Flow (cfs)
Wetted Perimeter (feet)

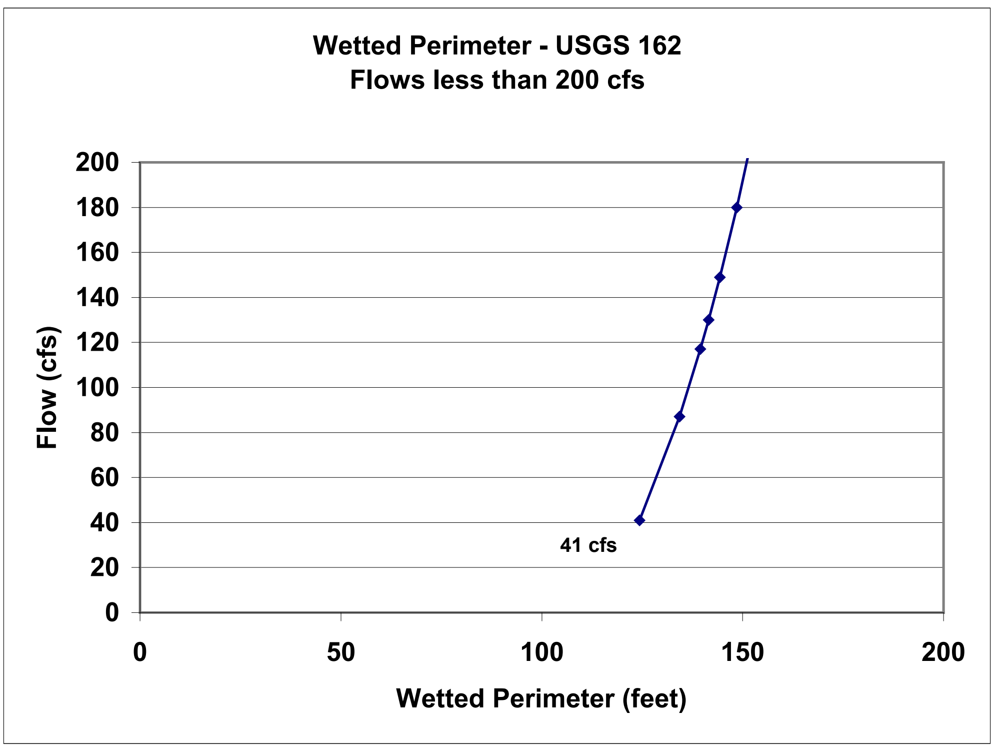


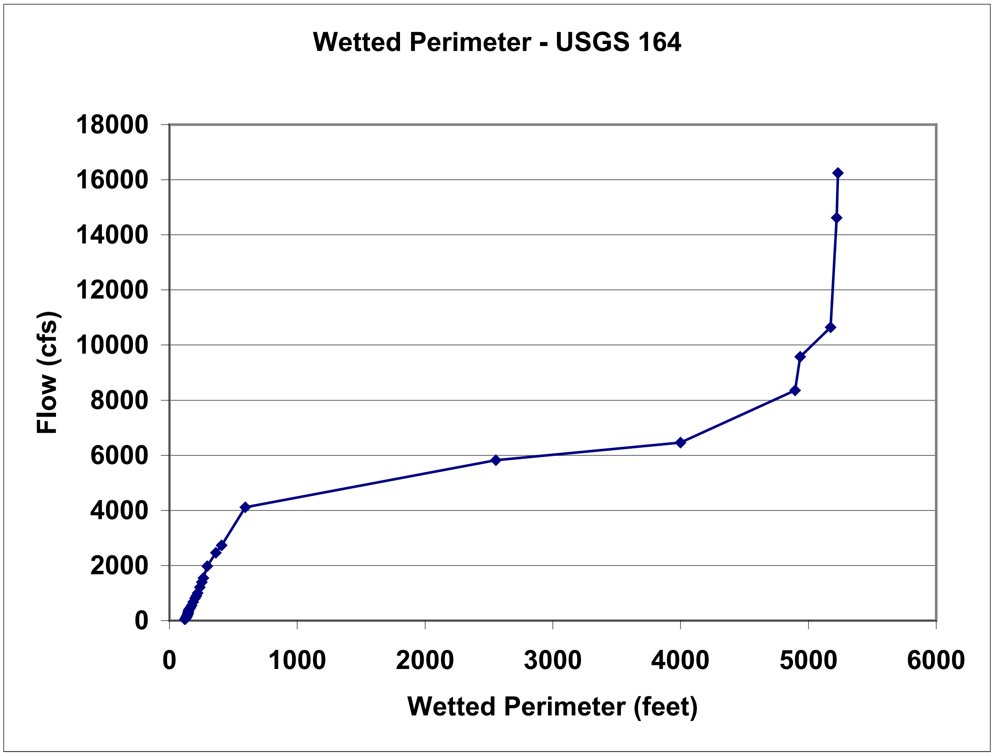
Wetted Perimeter - USGS 161.5
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
200
400
600
800
1000
1200
1400
Wetted Perimeter (feet)

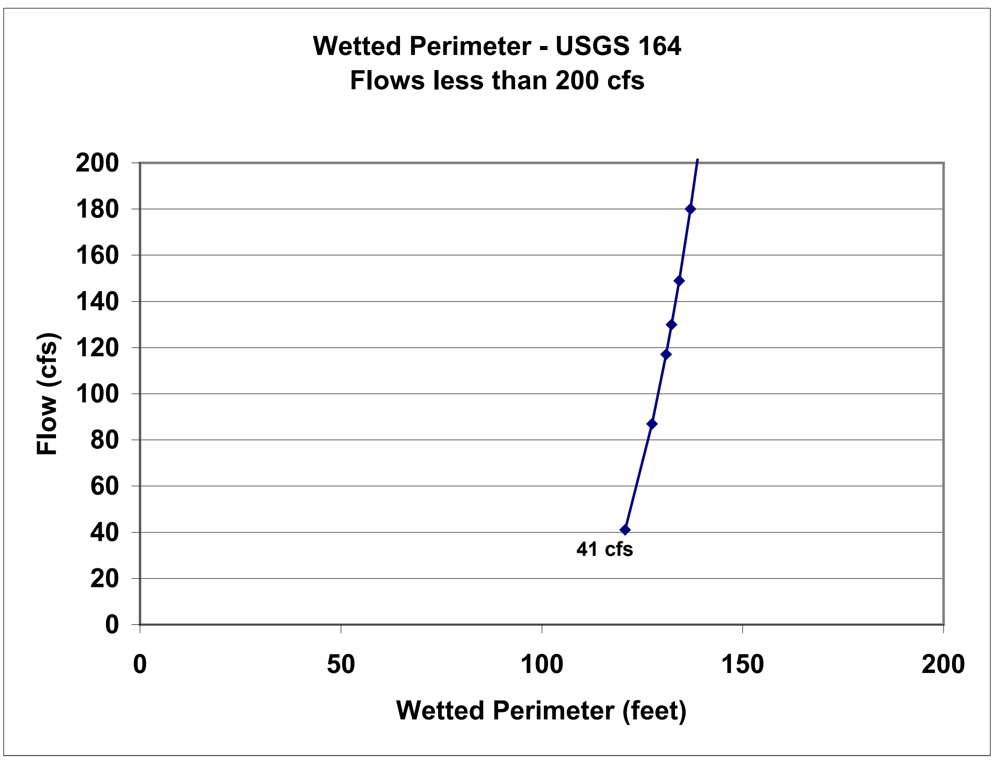


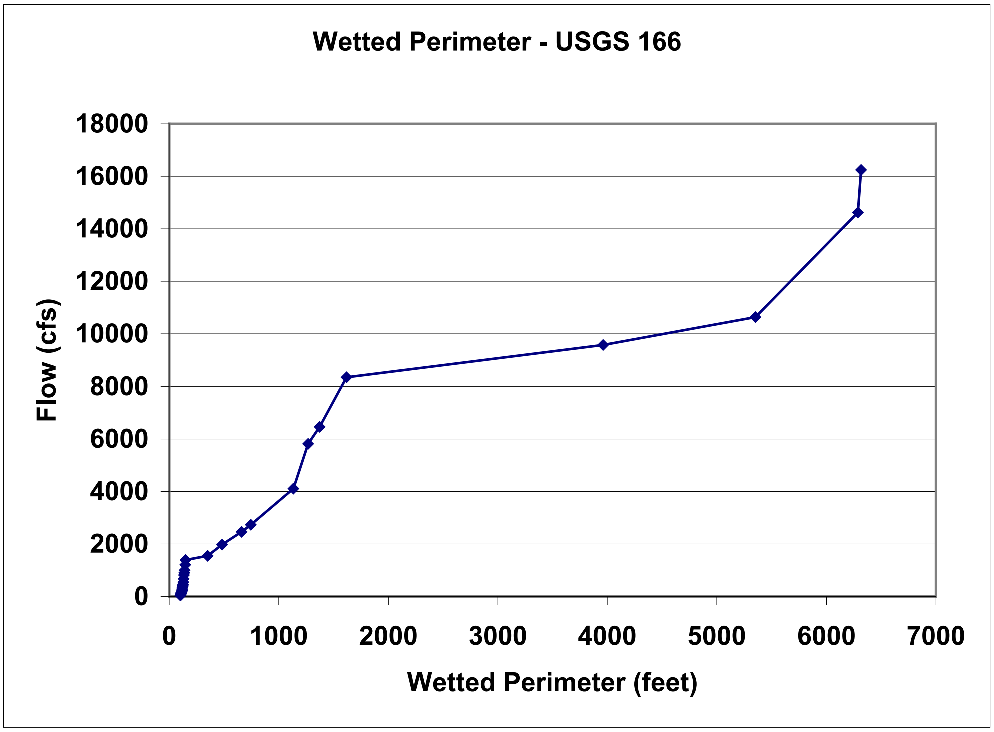
Wetted Perimeter - USGS 161.5
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
41 cfs
0
50
100
150
200
Wetted Perimeter (feet)

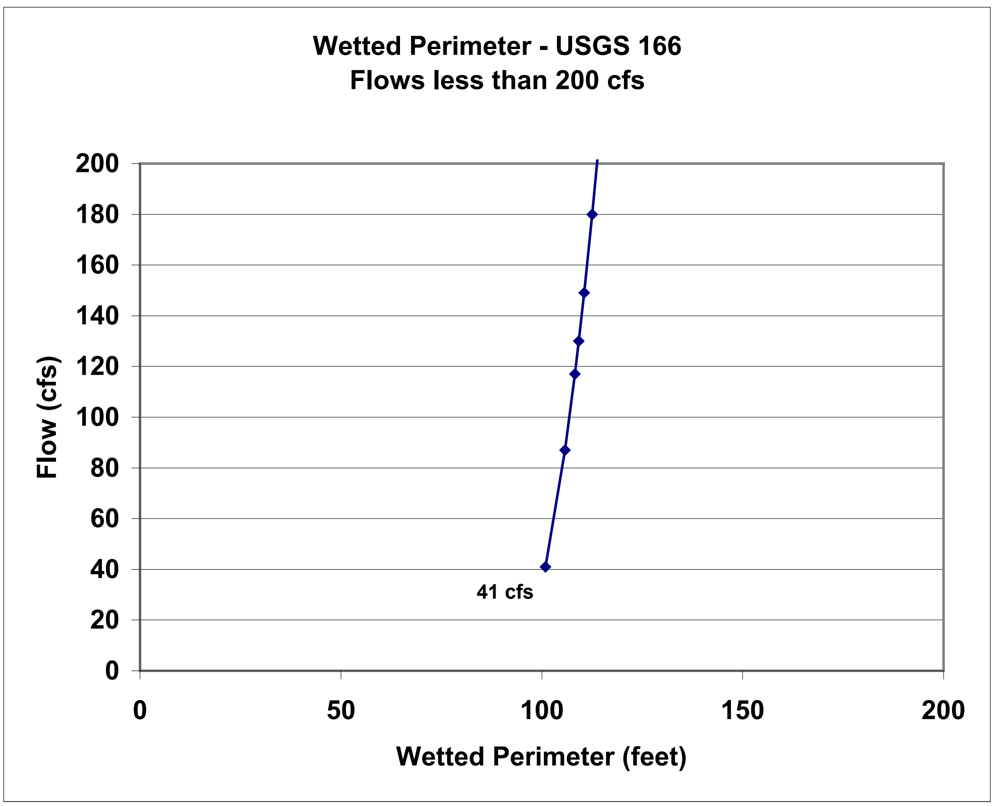

Wetted Perimeter - USGS 162
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
6000
Wetted Perimeter (feet)

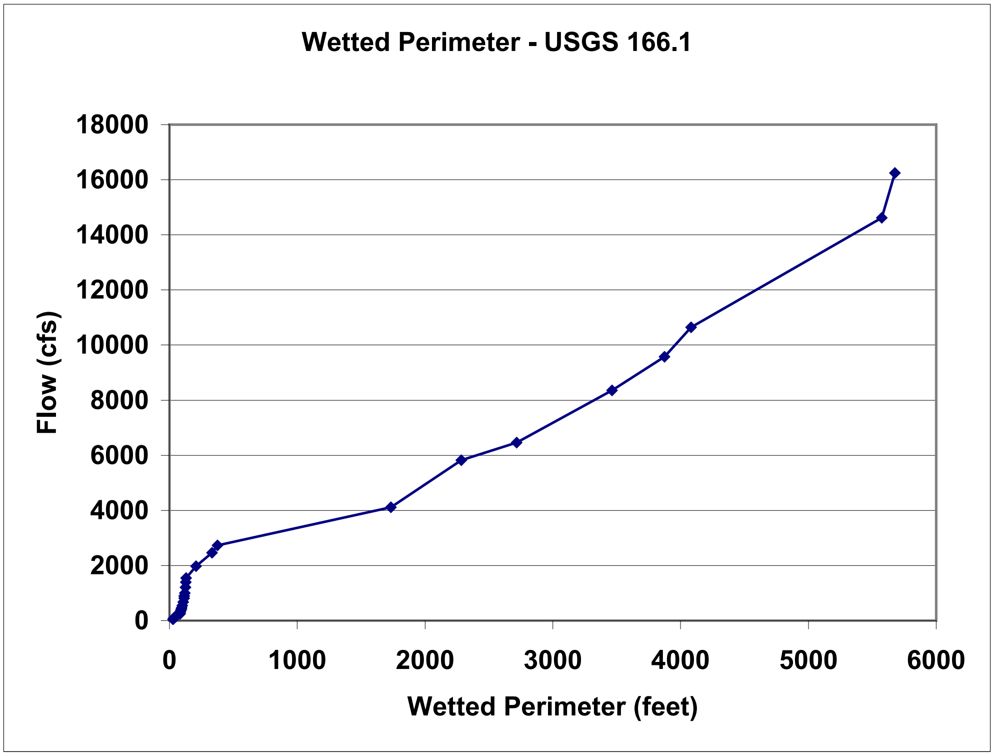

Wetted Perimeter - USGS 162
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
41 cfs
0
50
100
150
200
Wetted Perimeter (feet)

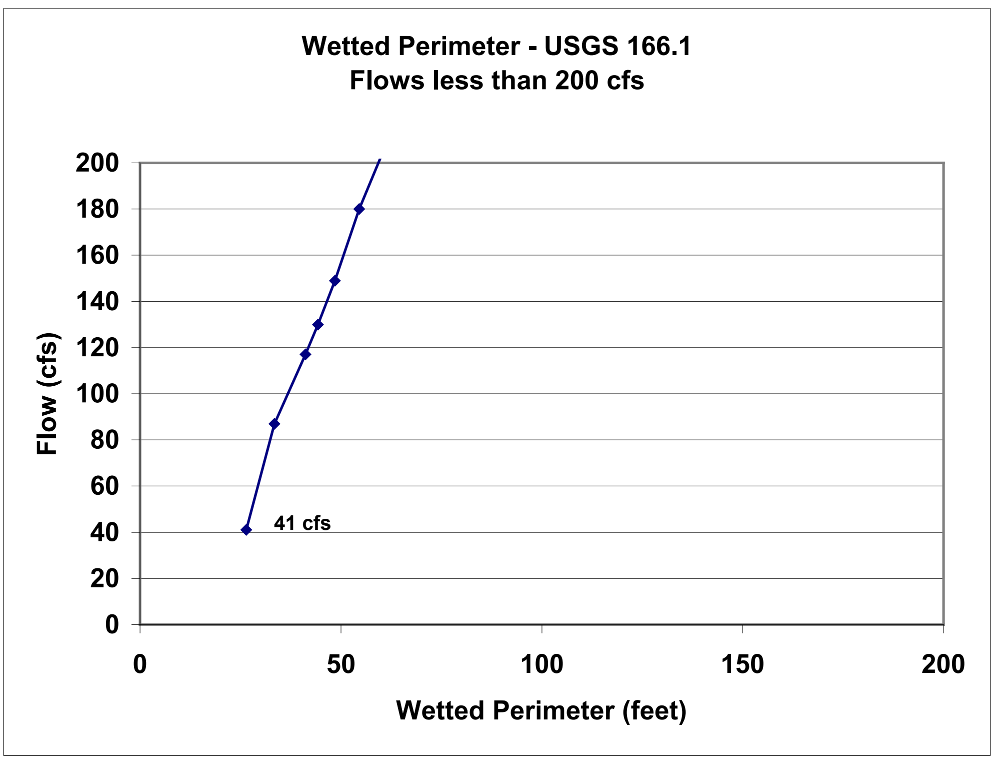

Wetted Perimeter - USGS 164
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
6000
Wetted Perimeter (feet)

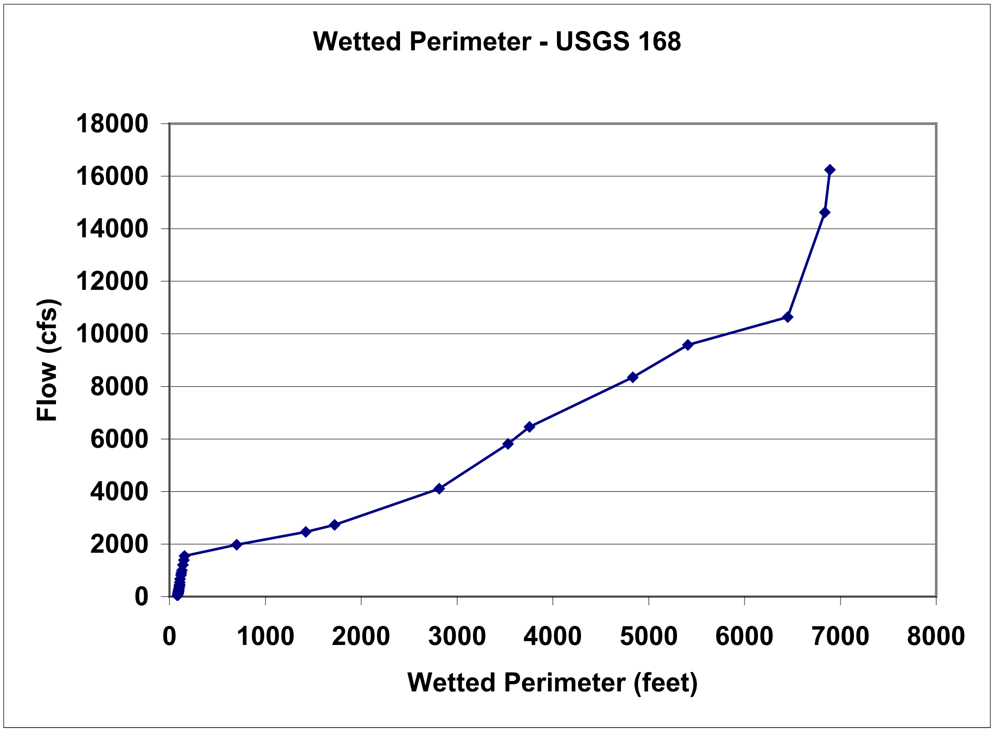

Wetted Perimeter - USGS 164
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
41 cfs
0
50
100
150
200
Wetted Perimeter (feet)

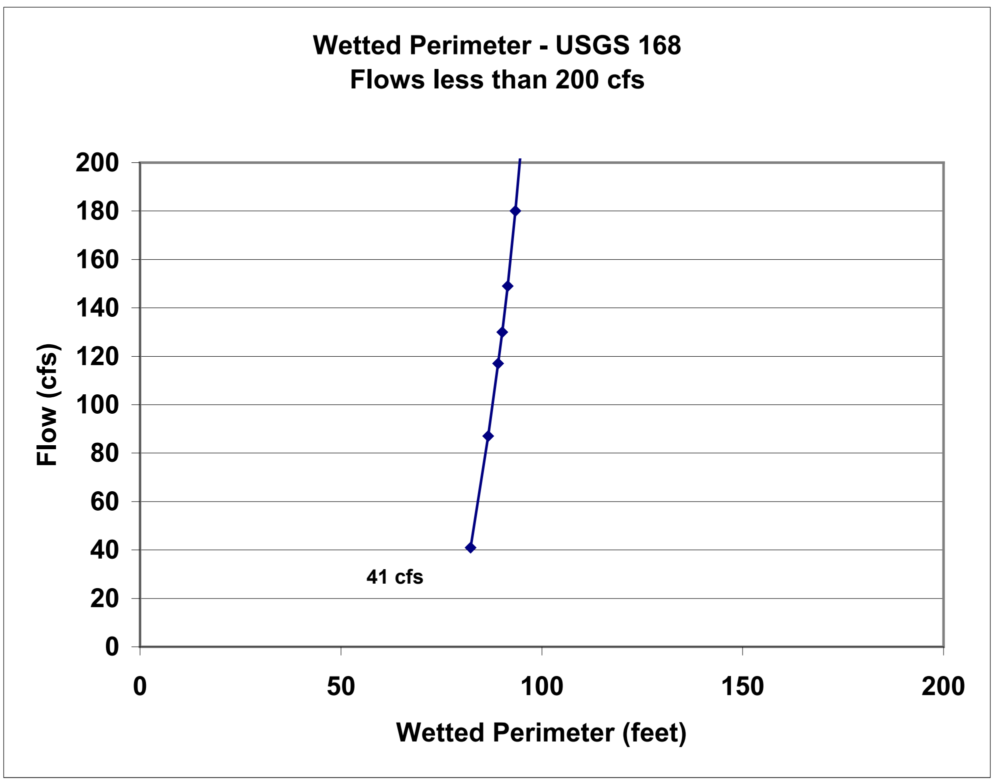

Wetted Perimeter - USGS 166
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
6000
7000
Wetted Perimeter (feet)

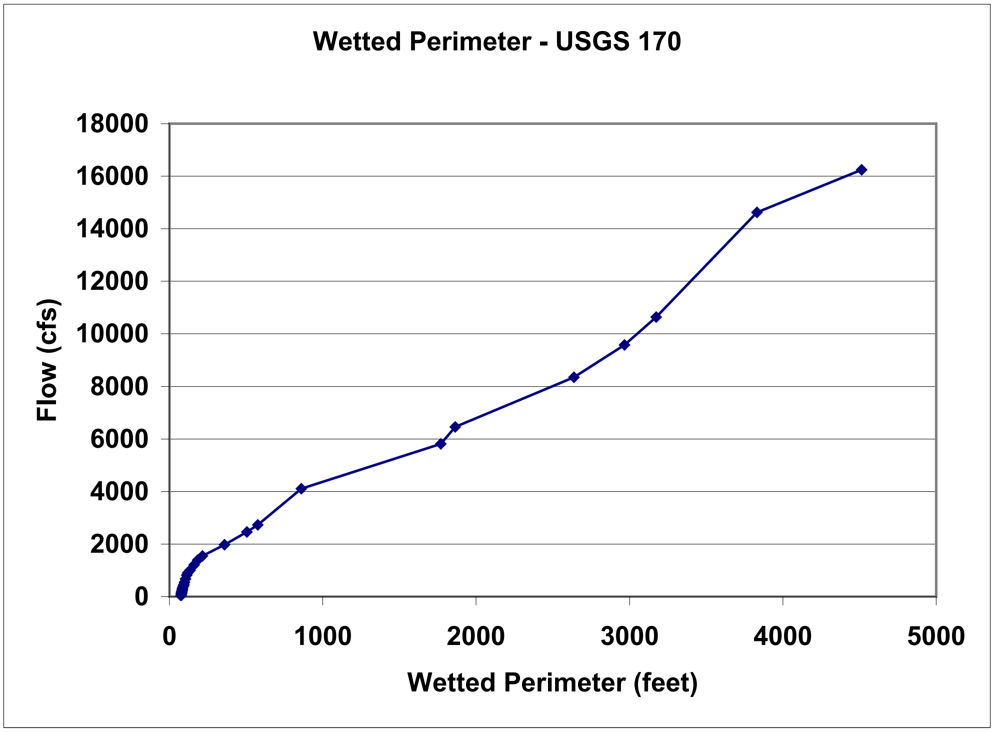

Wetted Perimeter - USGS 166
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
41 cfs
0
50
100
150
200
Wetted Perimeter (feet)

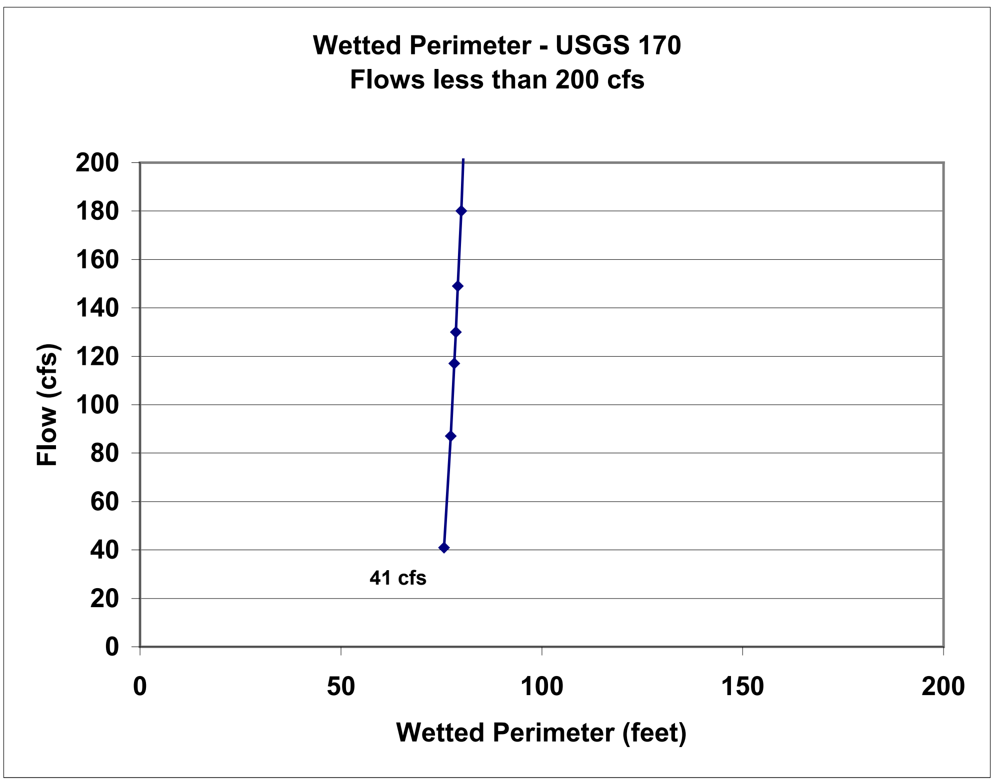

Wetted Perimeter - USGS 166.1
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
6000
Wetted Perimeter (feet)

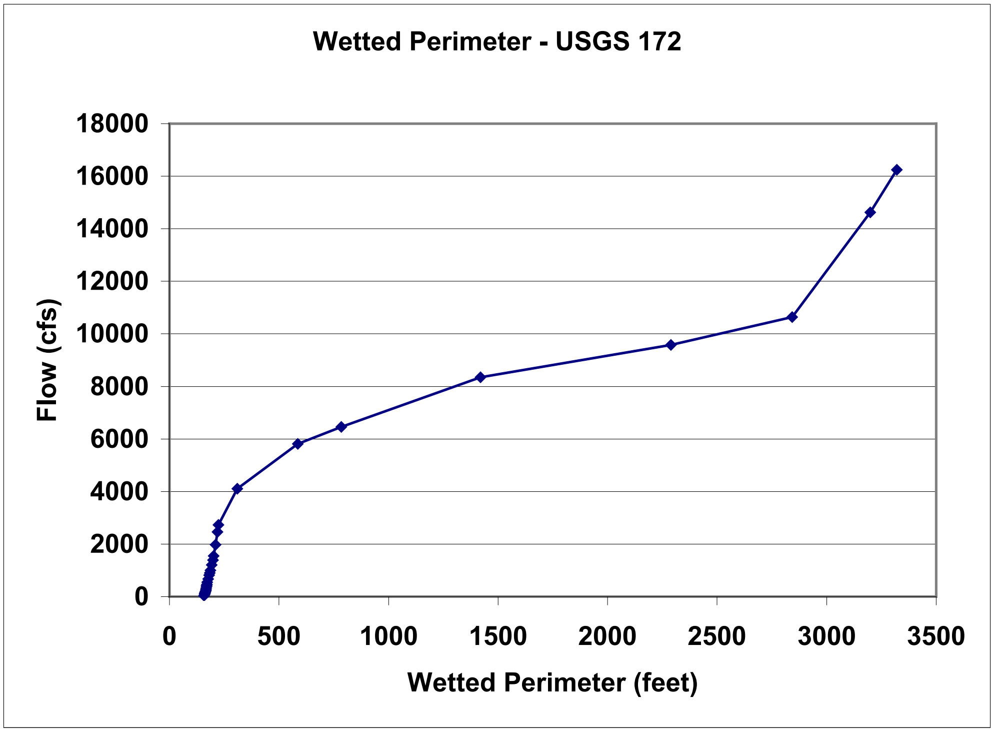

Wetted Perimeter - USGS 166.1
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
41 cfs
0
50
100
150
200
Wetted Perimeter (feet)

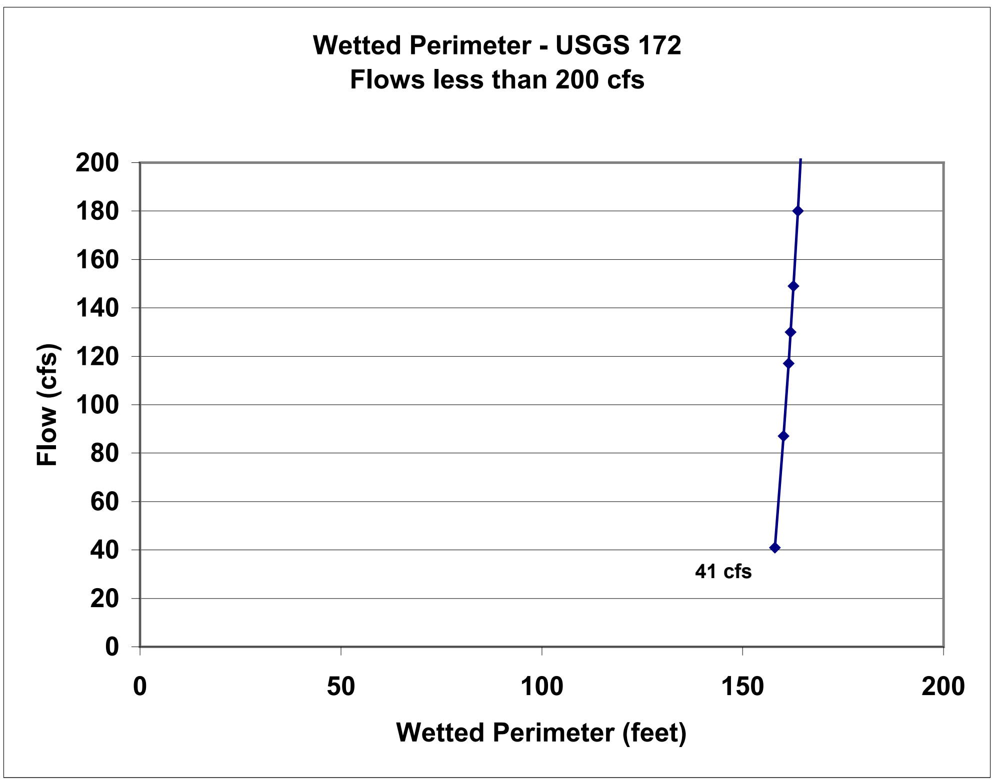

Wetted Perimeter - USGS 168
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
1000
2000
3000
4000
5000
6000
7000
8000
Wetted Perimeter (feet)

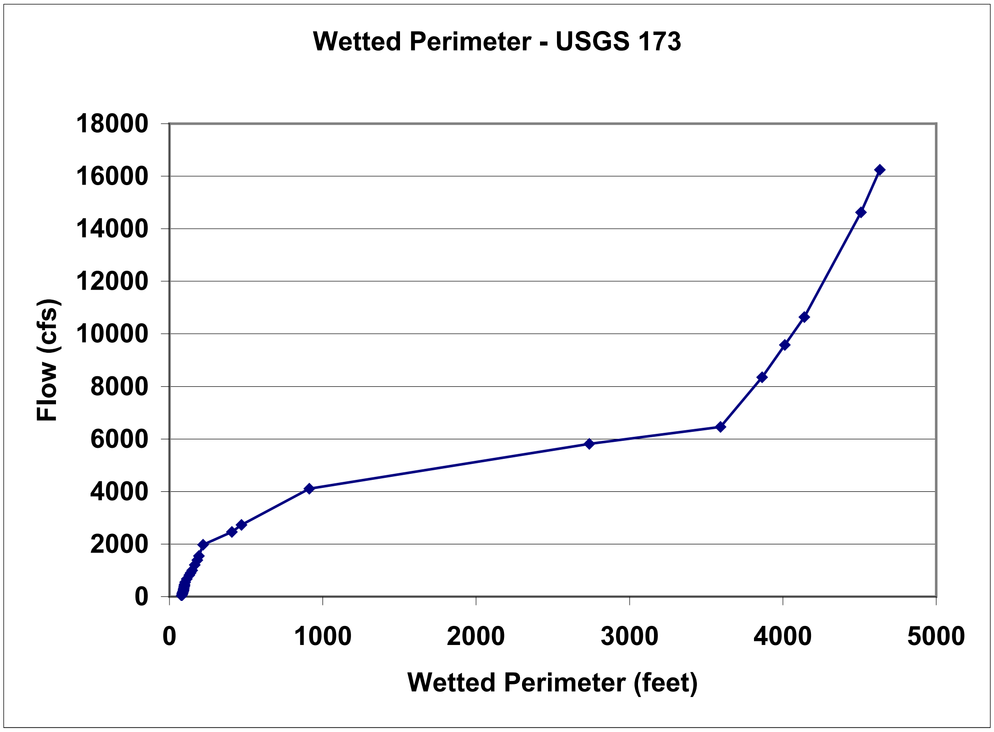

Wetted Perimeter - USGS 168
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
41 cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 170
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
Wetted Perimeter (feet)

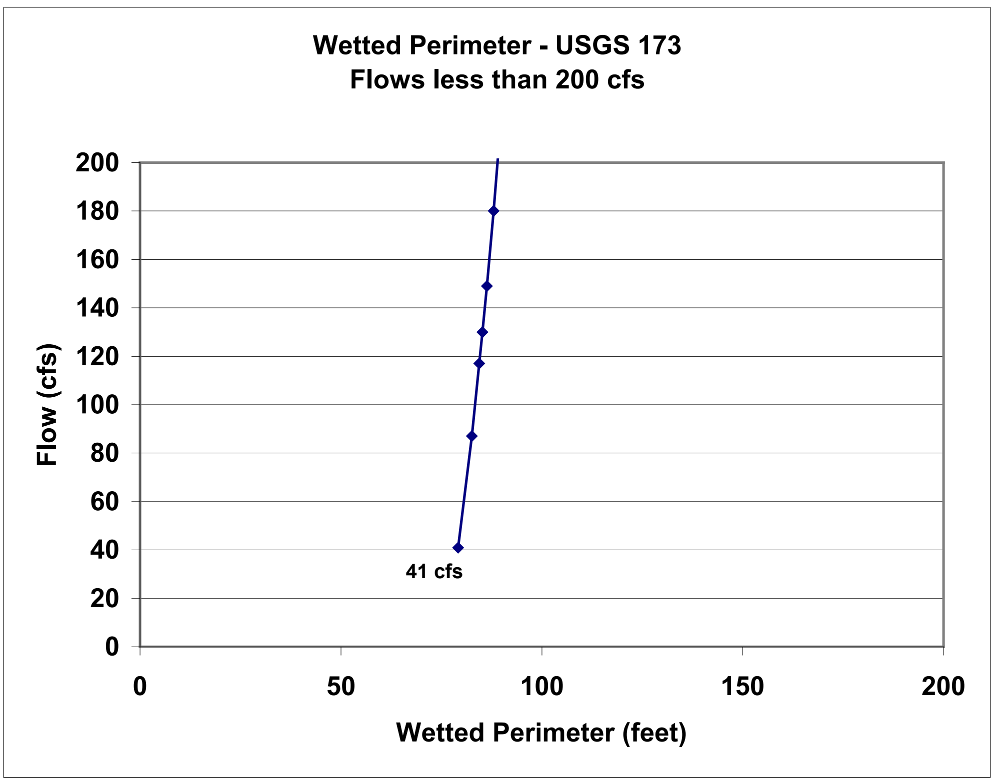

Wetted Perimeter - USGS 170
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
41 cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 172
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
500
1000
1500
2000
2500
3000
3500
Wetted Perimeter (feet)

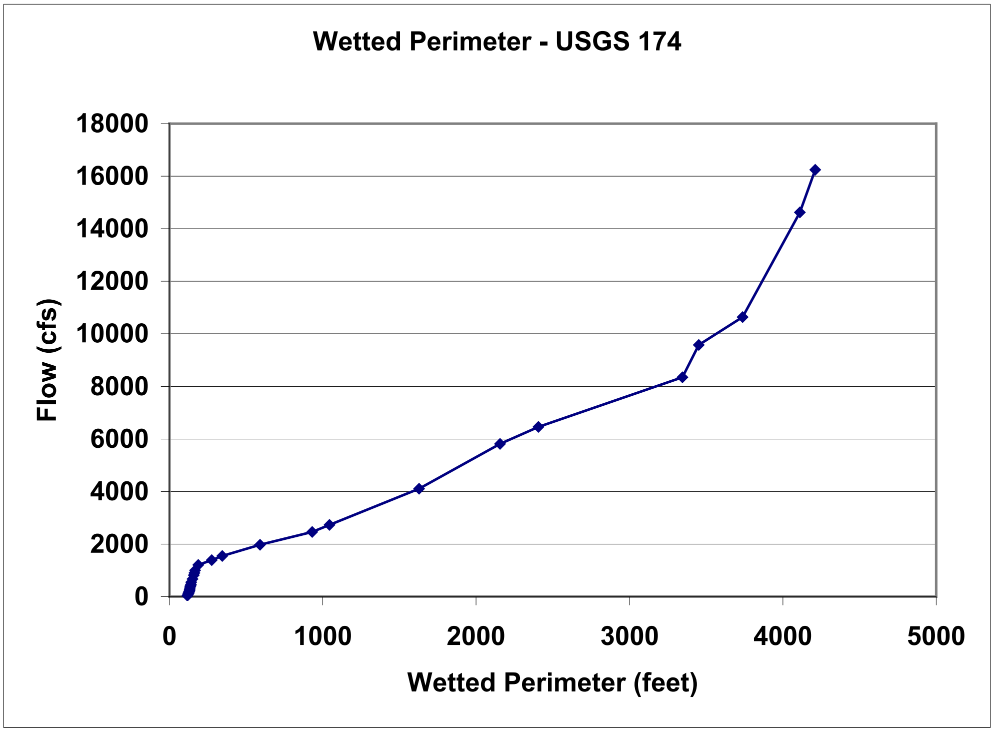

Wetted Perimeter - USGS 172
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
41 cfs
0
50
100
150
200
Wetted Perimeter (feet)

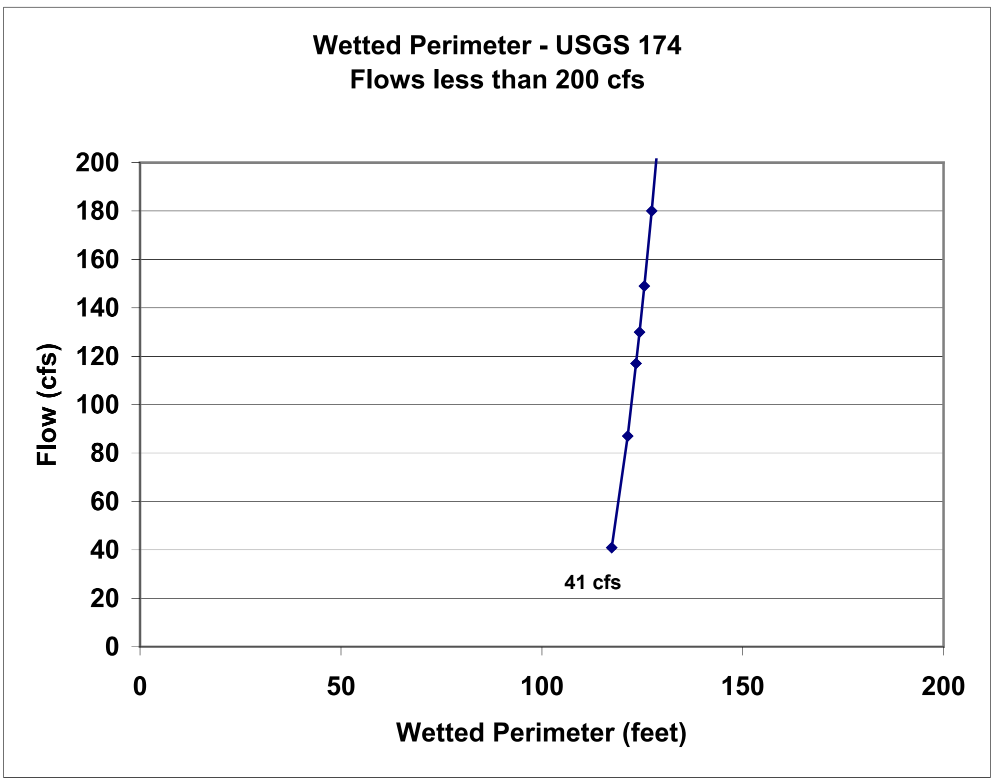


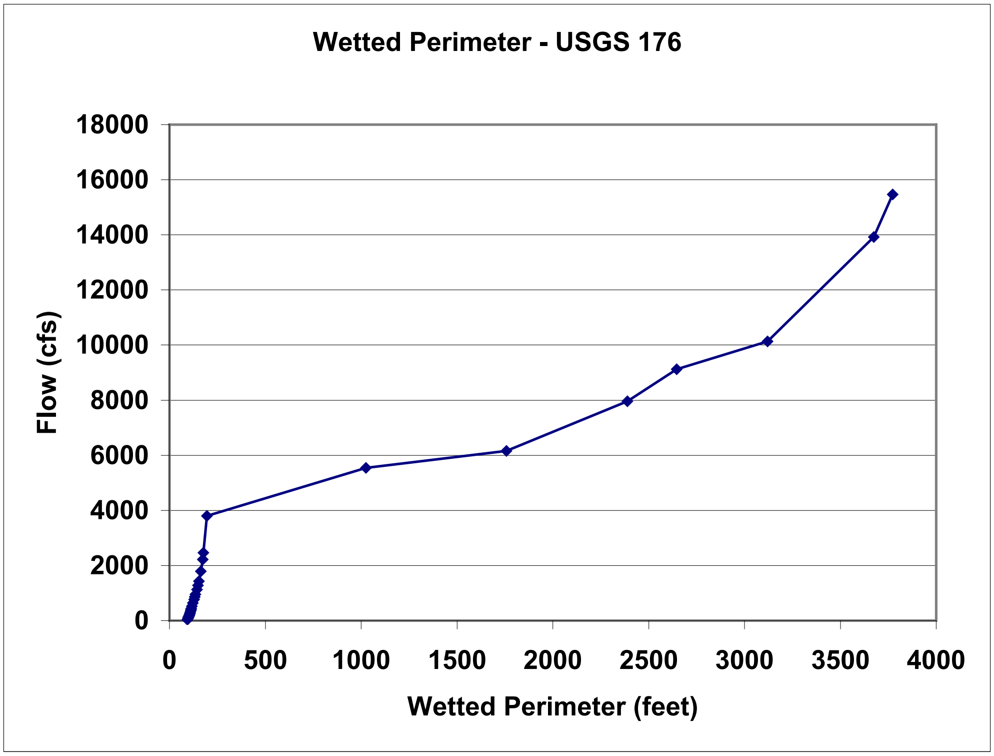
Wetted Perimeter - USGS 173
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
Wetted Perimeter (feet)

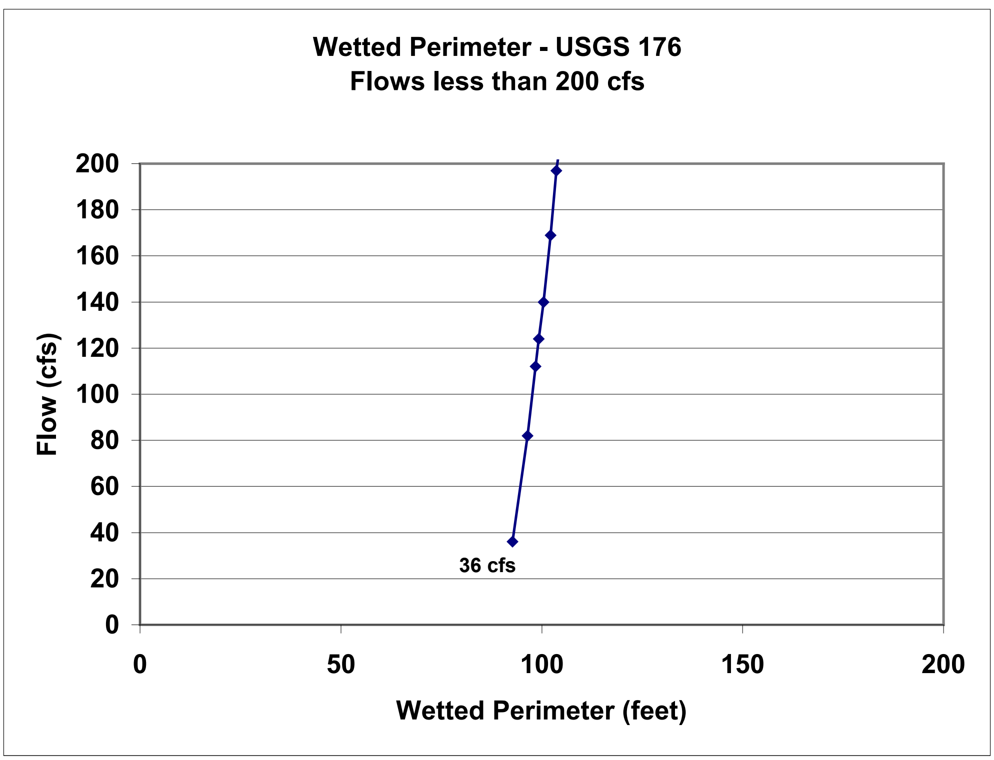


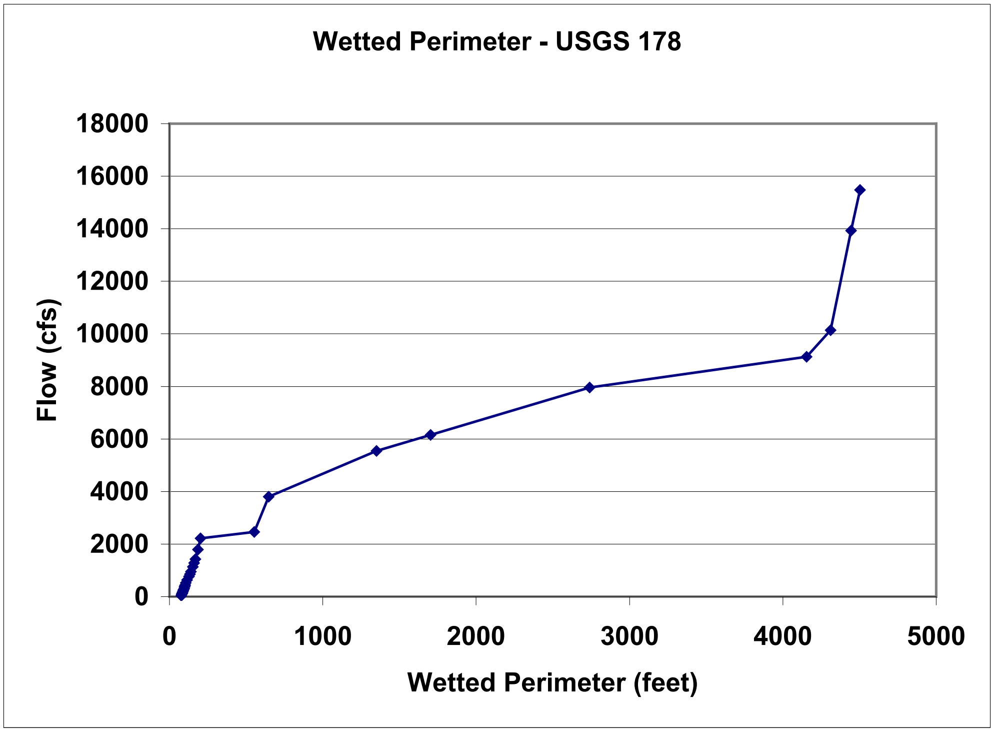
Wetted Perimeter - USGS 173
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
41 cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 174
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
Wetted Perimeter (feet)

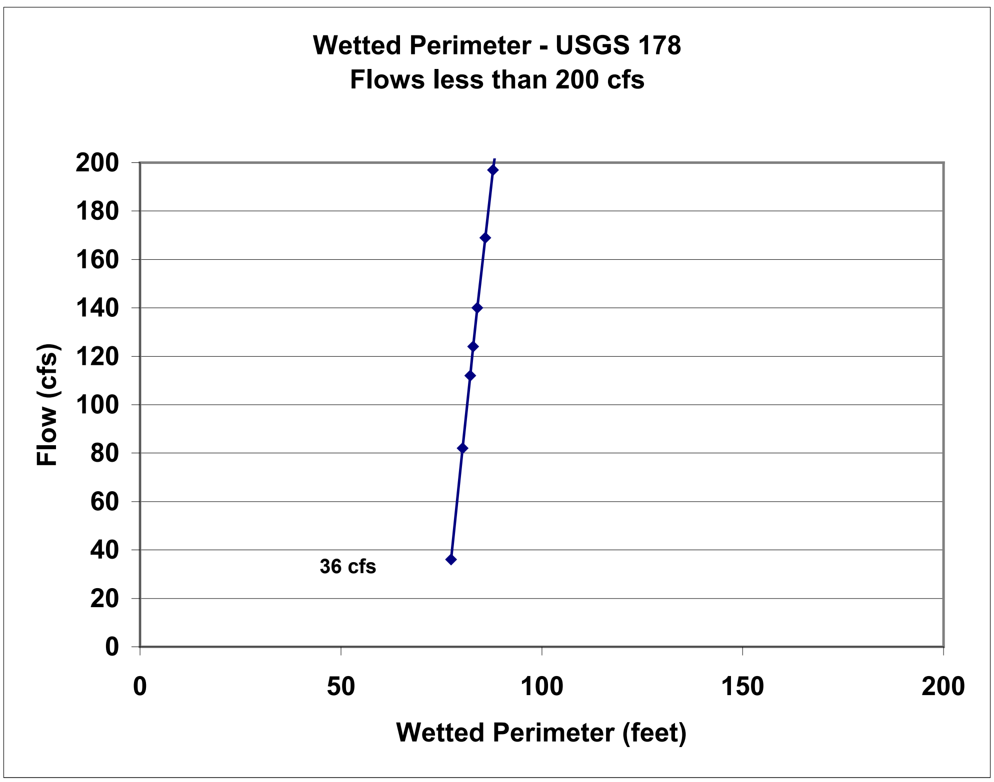

Wetted Perimeter - USGS 174
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
41 cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 176
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
500
1000
1500
2000
2500
3000
3500
4000
Wetted Perimeter (feet)

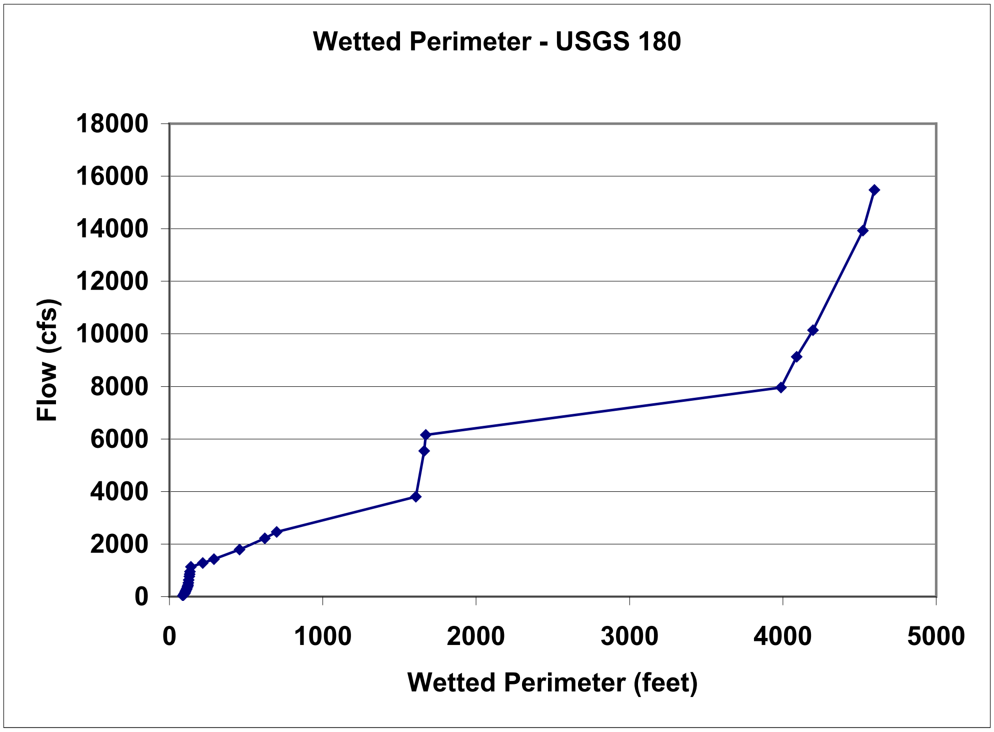

Wetted Perimeter - USGS 176
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
36 cfs
0
50
100
150
200
Wetted Perimeter (feet)



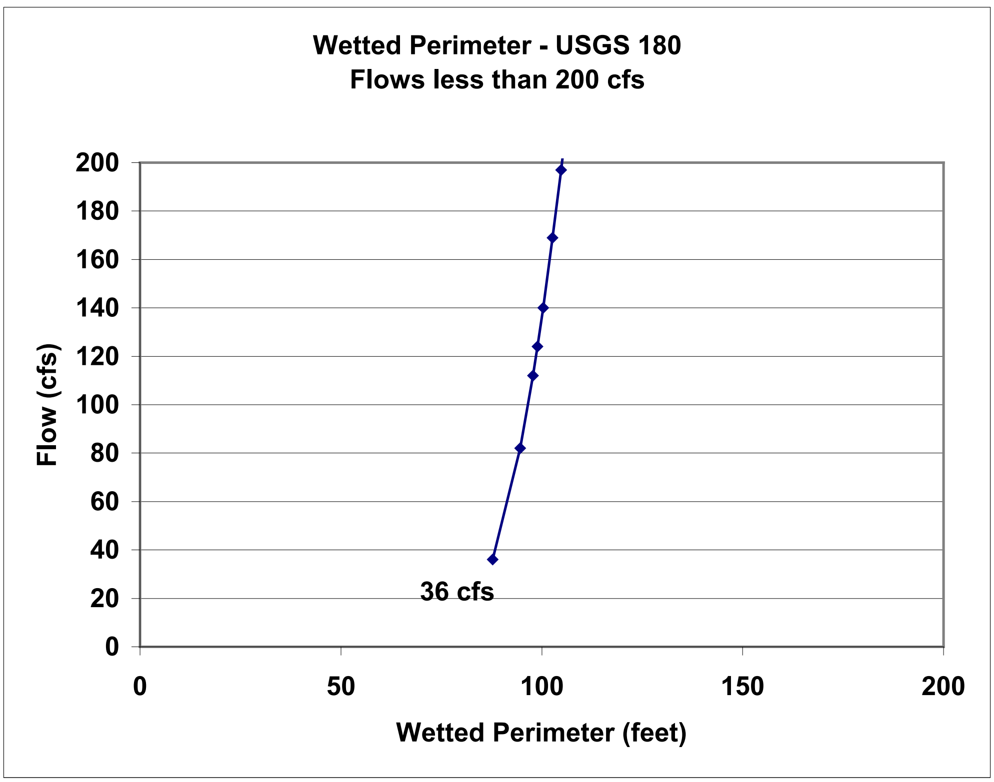
Wetted Perimeter - USGS 178
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
Wetted Perimeter (feet)



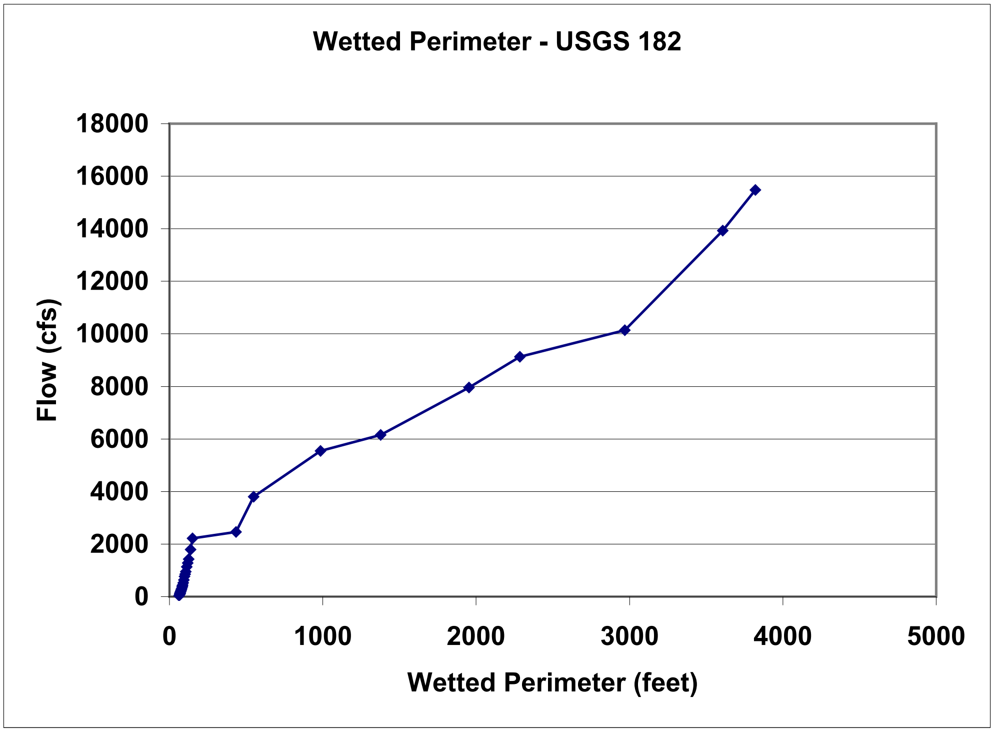
Wetted Perimeter - USGS 178
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
36 cfs
0
50
100
150
200
Wetted Perimeter (feet)

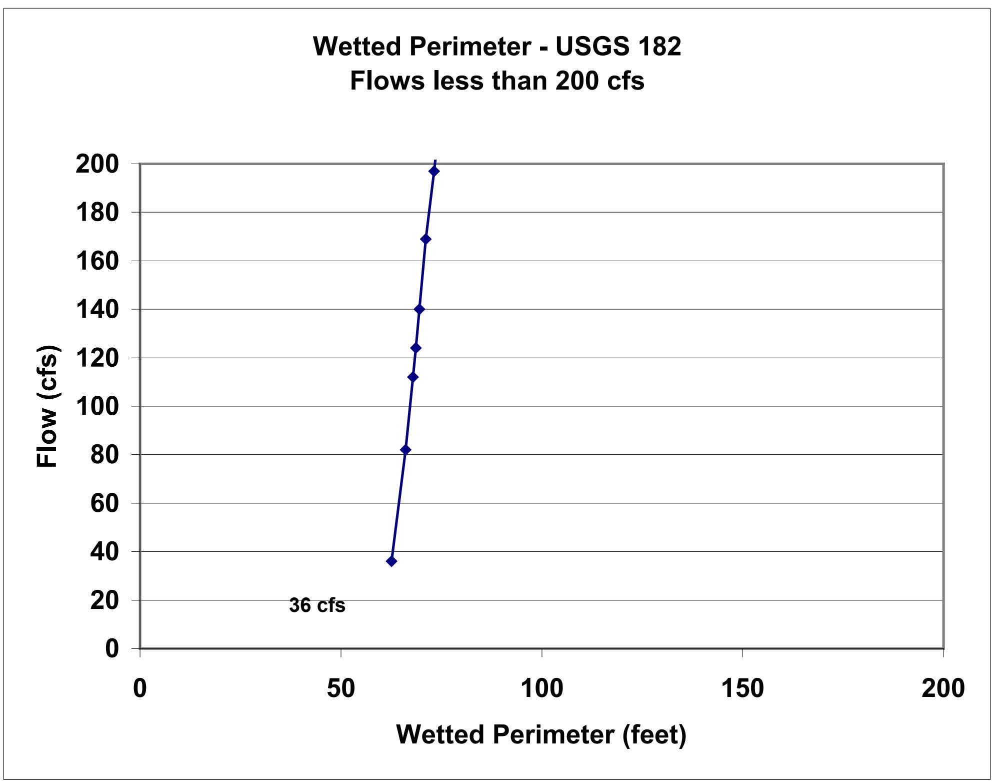


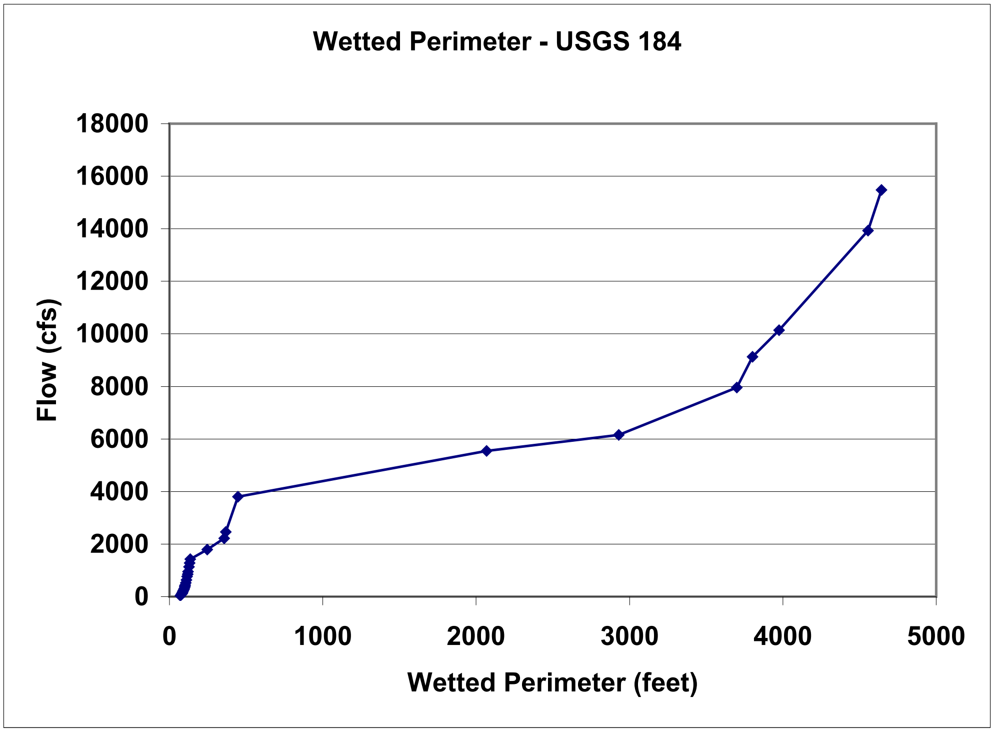
Wetted Perimeter - USGS 180
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
1000
2000
3000
4000
5000
Wetted Perimeter (feet)

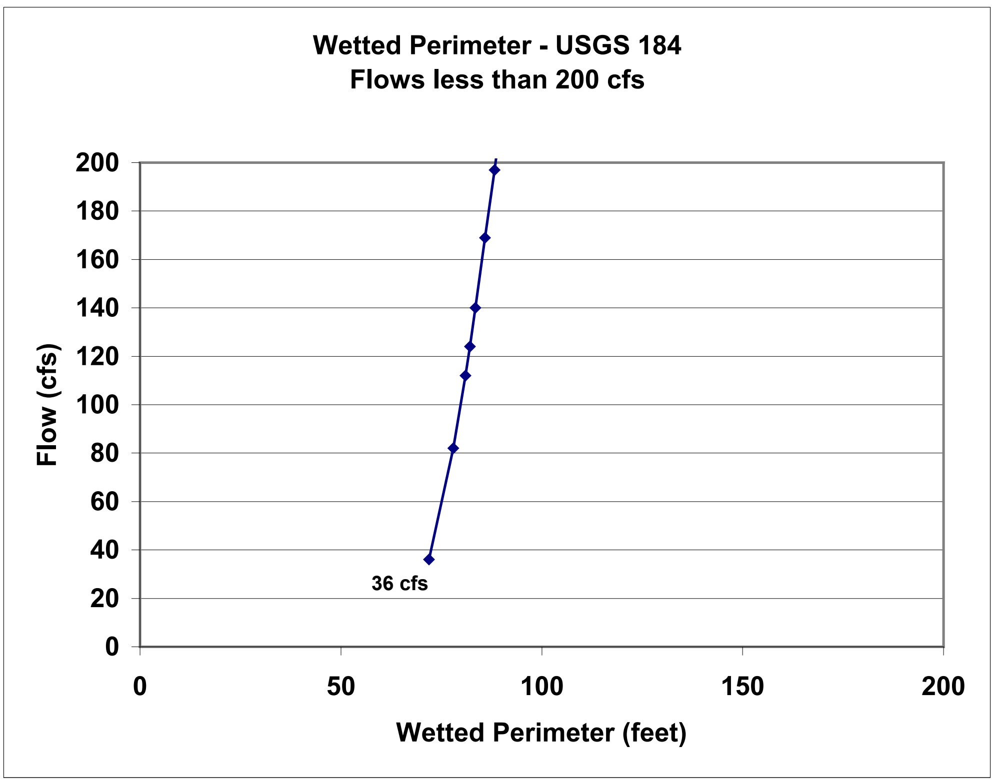


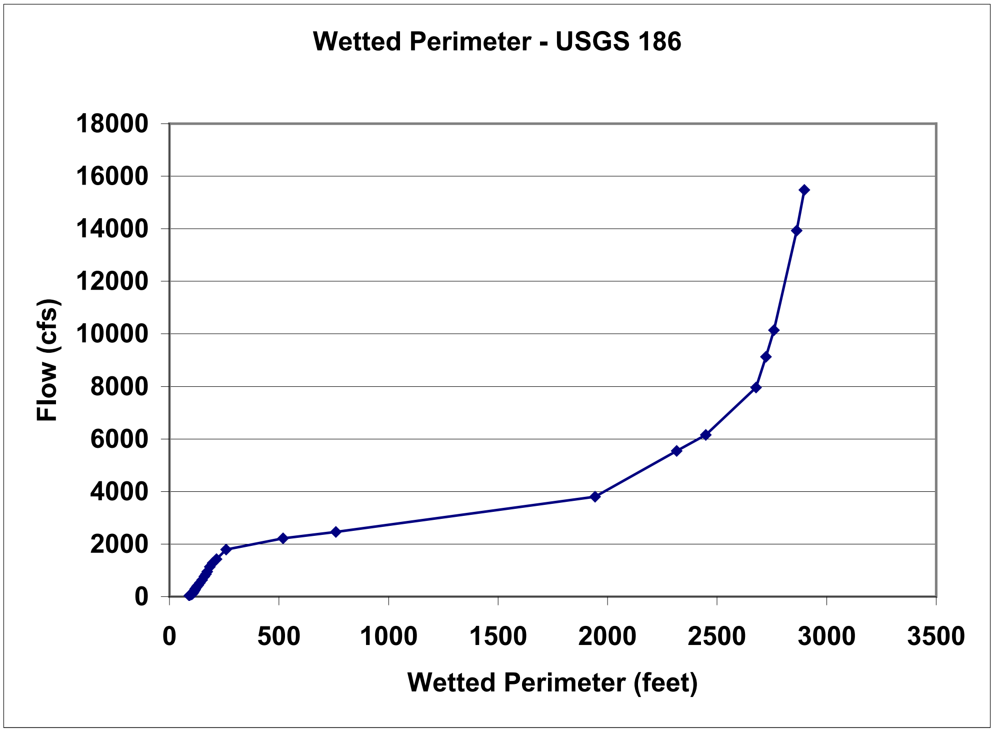
Wetted Perimeter - USGS 180
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
36 cfs
0
50
100
150
200
Wetted Perimeter (feet)

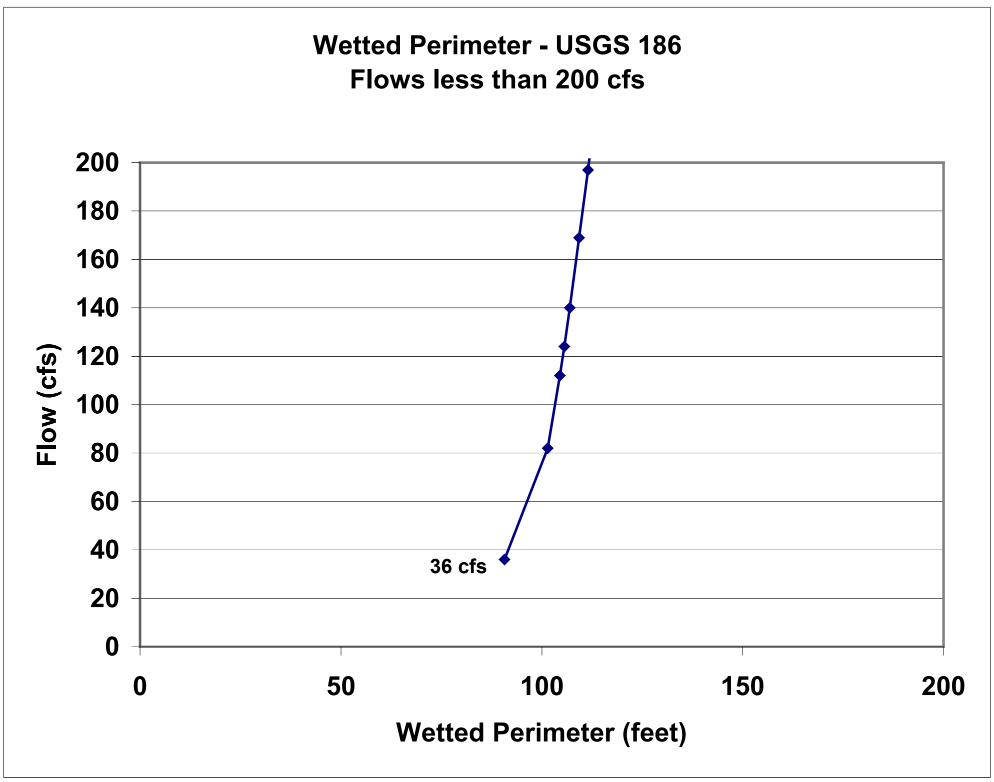

Wetted Perimeter - USGS 182
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
Wetted Perimeter (feet)

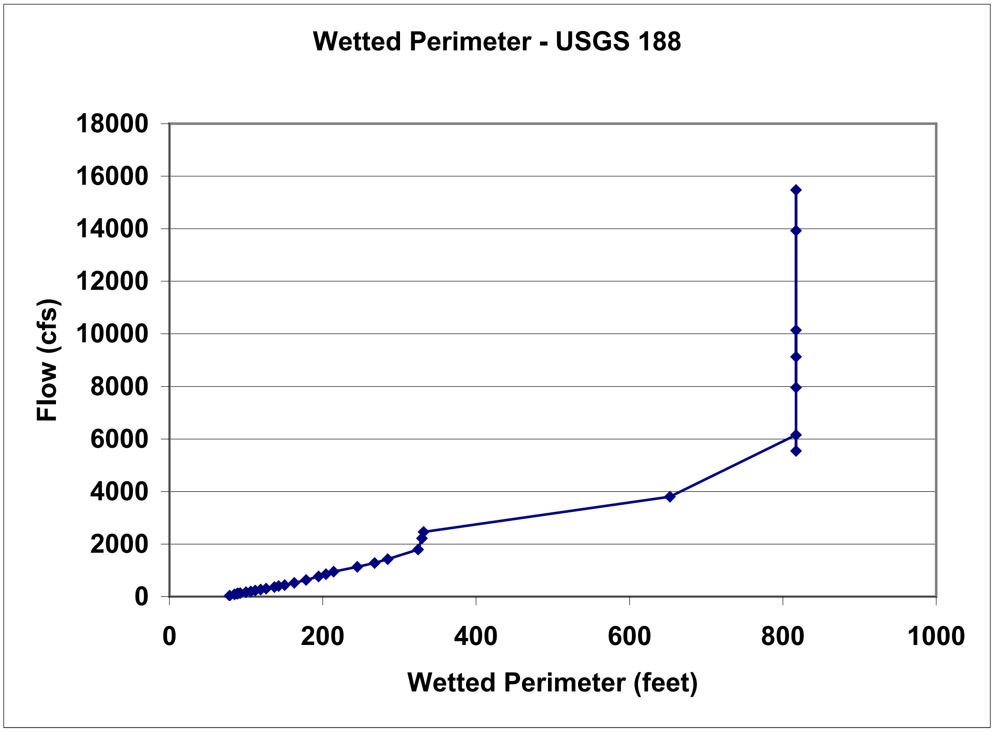

Wetted Perimeter - USGS 182
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
36 cfs
0
50
100
150
200
Wetted Perimeter (feet)

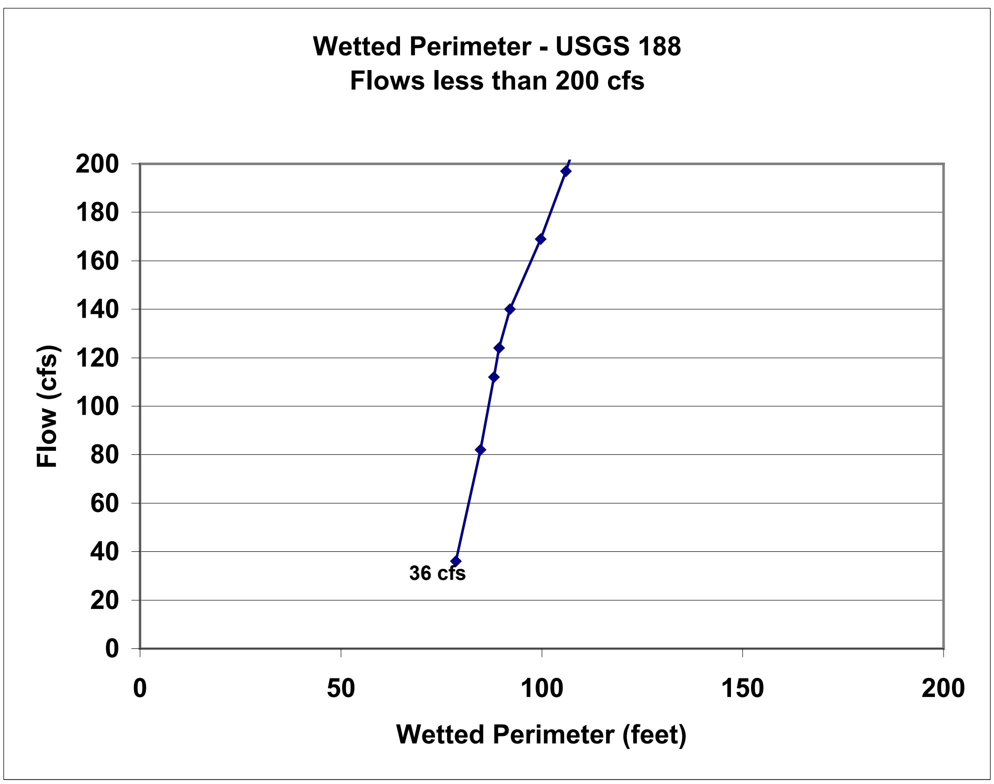

Wetted Perimeter - USGS 184
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
Wetted Perimeter (feet)

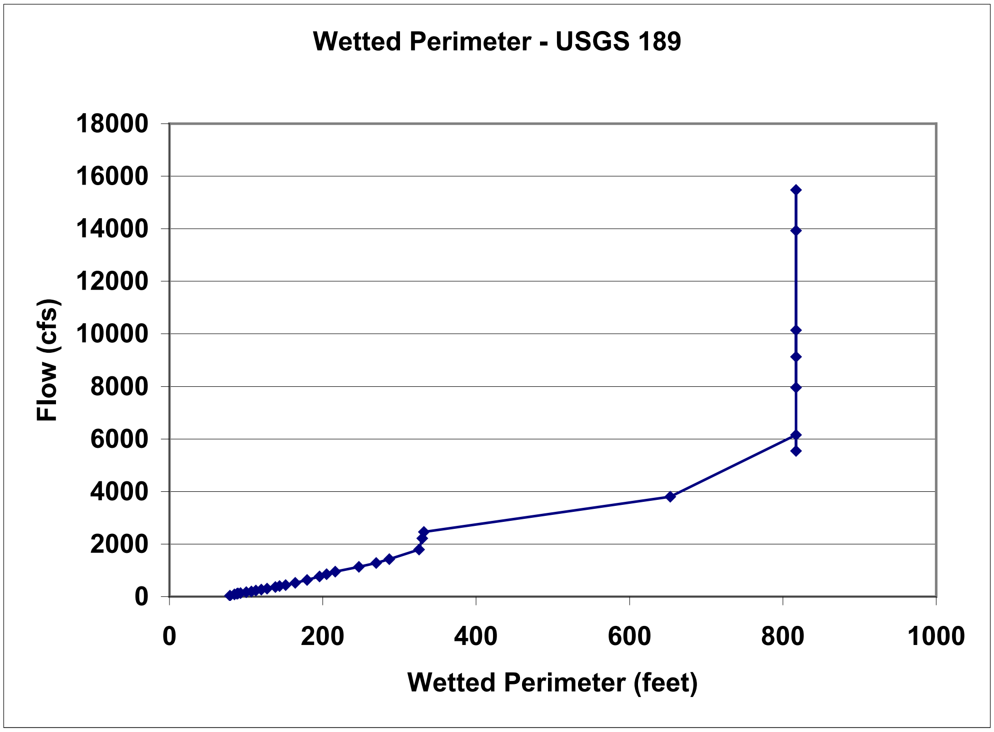

Wetted Perimeter - USGS 184
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
36 cfs
0
50
100
150
200
Wetted Perimeter (feet)

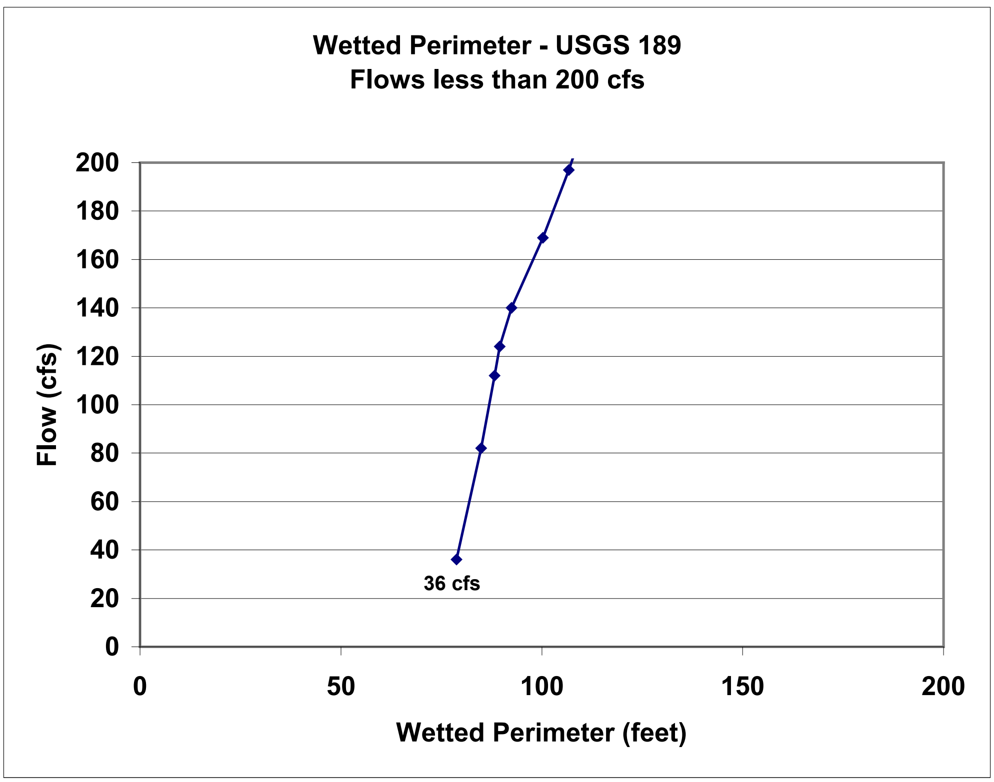

Wetted Perimeter - USGS 186
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
500
1000
1500
2000
2500
3000
3500
Wetted Perimeter (feet)

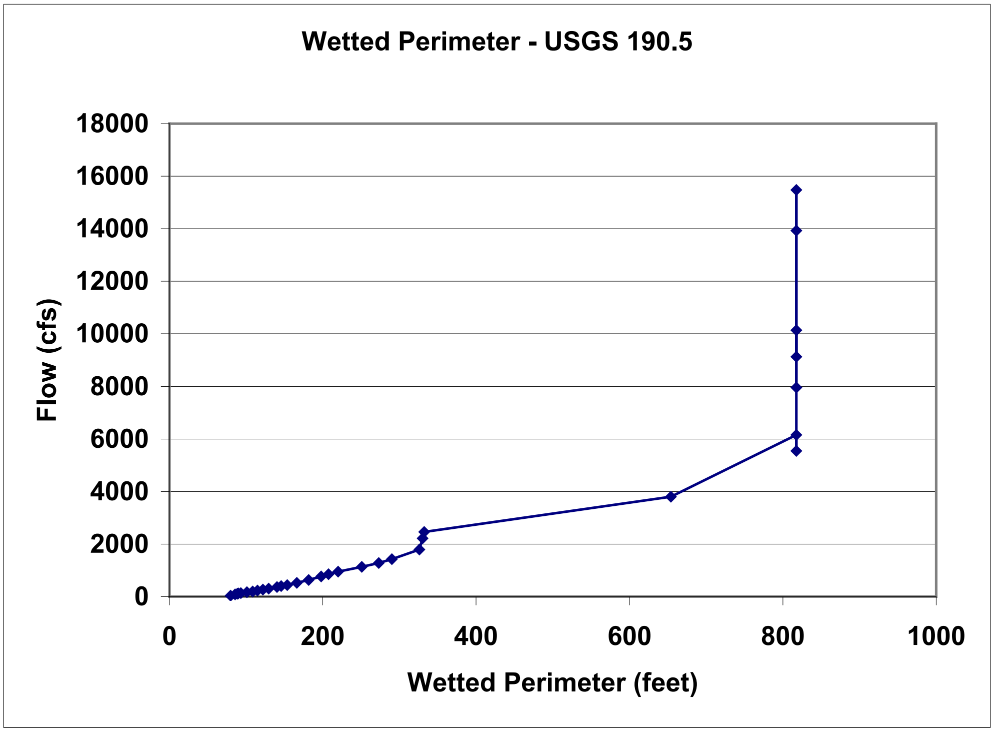

Wetted Perimeter - USGS 186
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
36 cfs
0
50
100
150
200
Wetted Perimeter (feet)

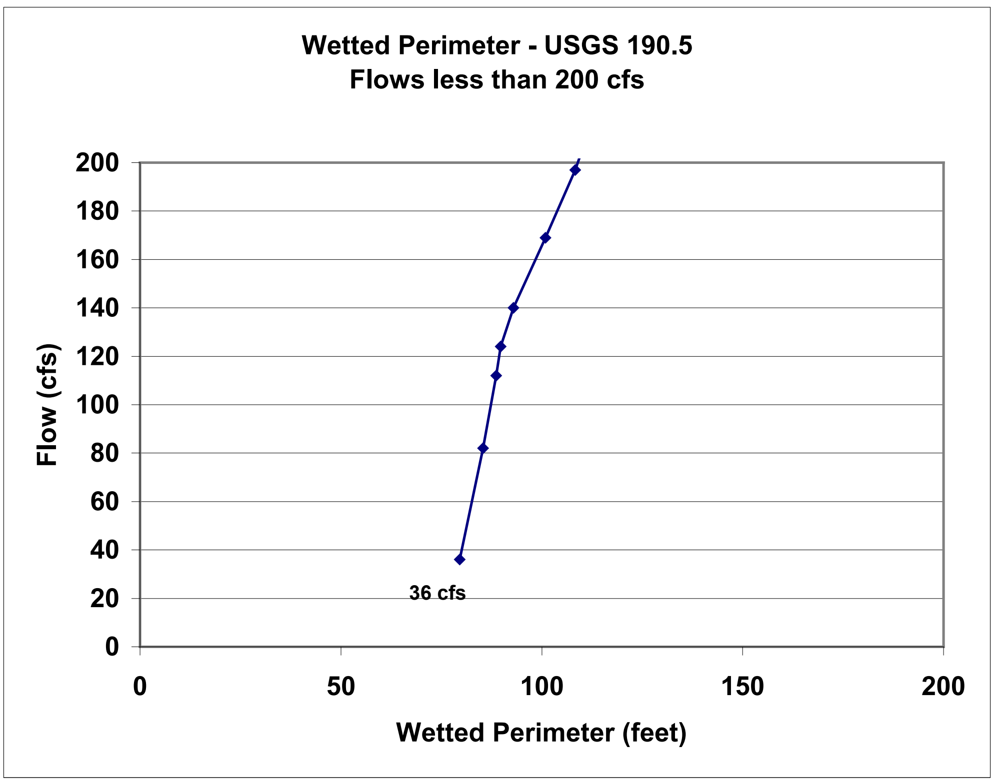

Wetted Perimeter - USGS 188
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
200
400
600
800
1000
Wetted Perimeter (feet)

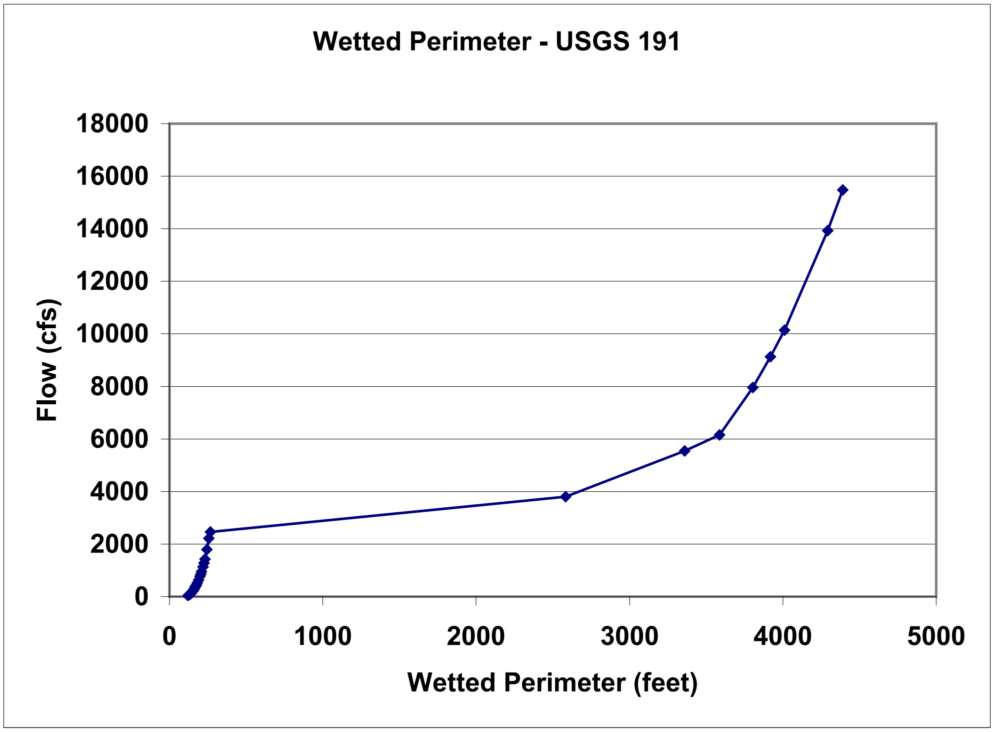

Wetted Perimeter - USGS 188
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
36 cfs
0
50
100
150
200
Wetted Perimeter (feet)

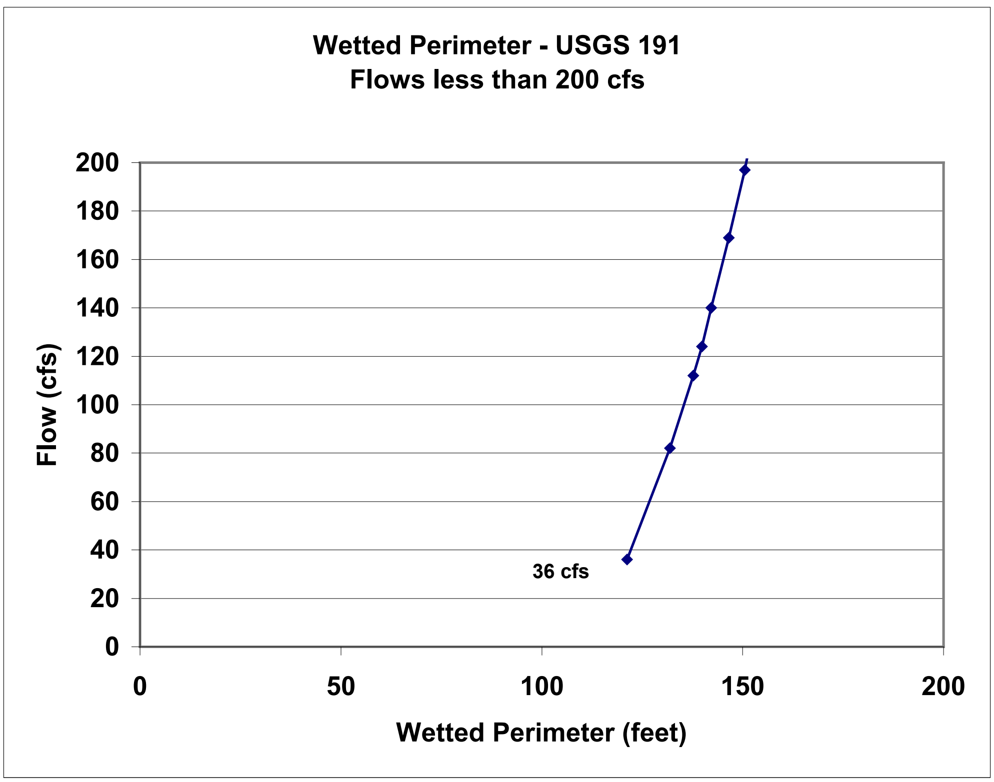

Wetted Perimeter - USGS 189
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
200
400
600
800
1000
Wetted Perimeter (feet)

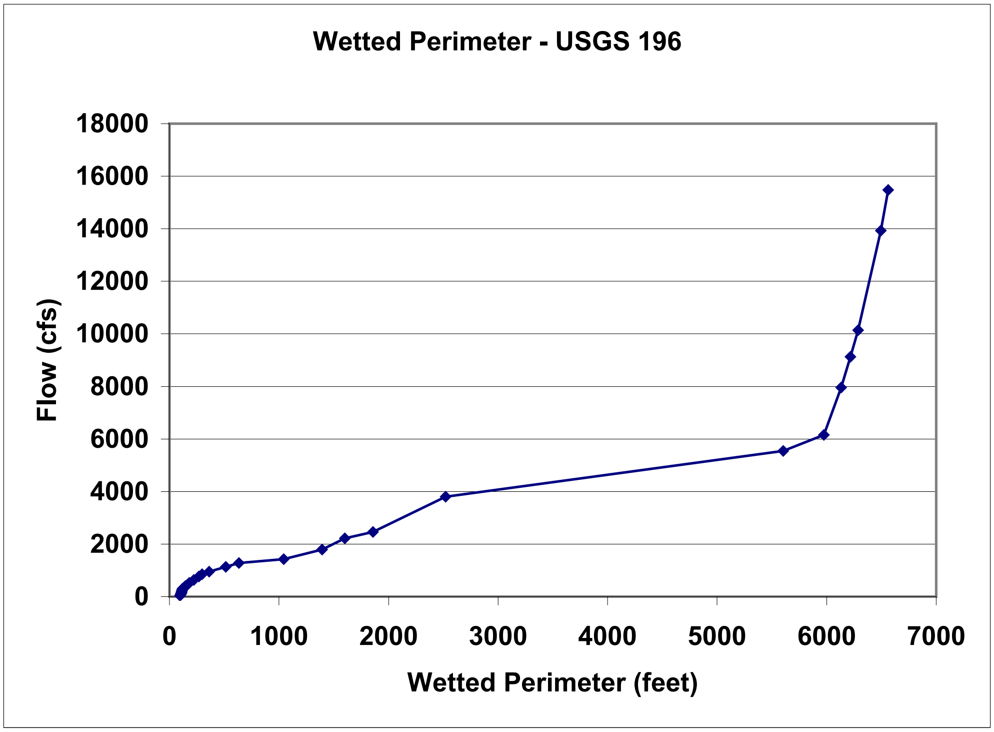

Wetted Perimeter - USGS 189
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
36 cfs
0
50
100
150
200
Wetted Perimeter (feet)

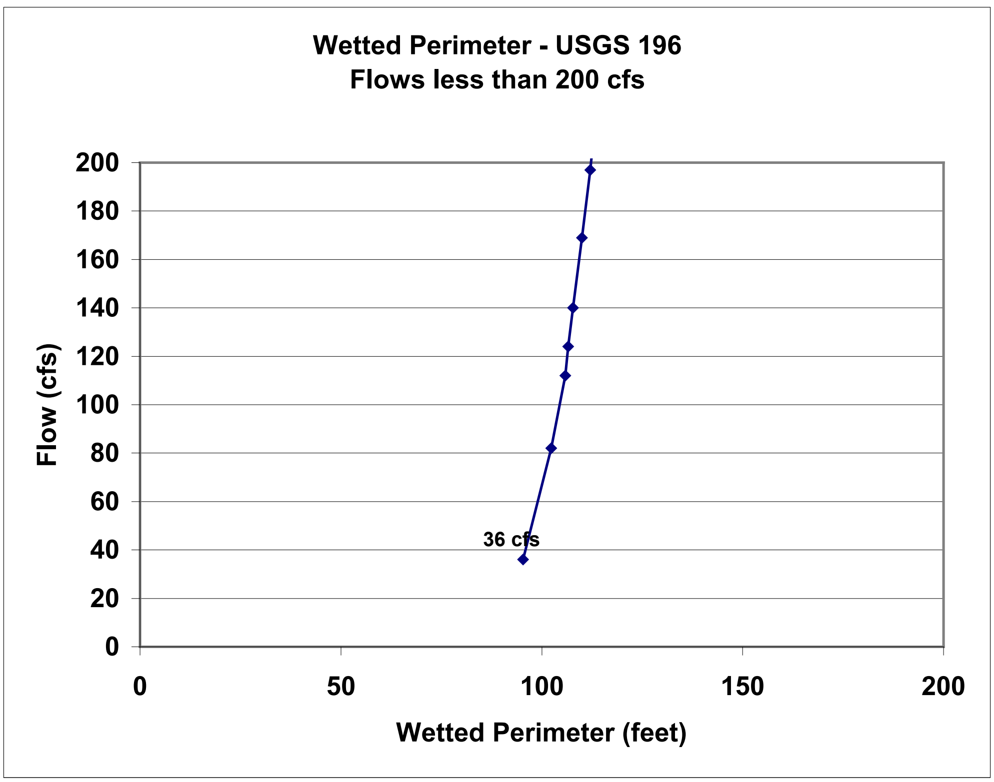

Wetted Perimeter - USGS 190.5
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
200
400
600
800
1000
Wetted Perimeter (feet)

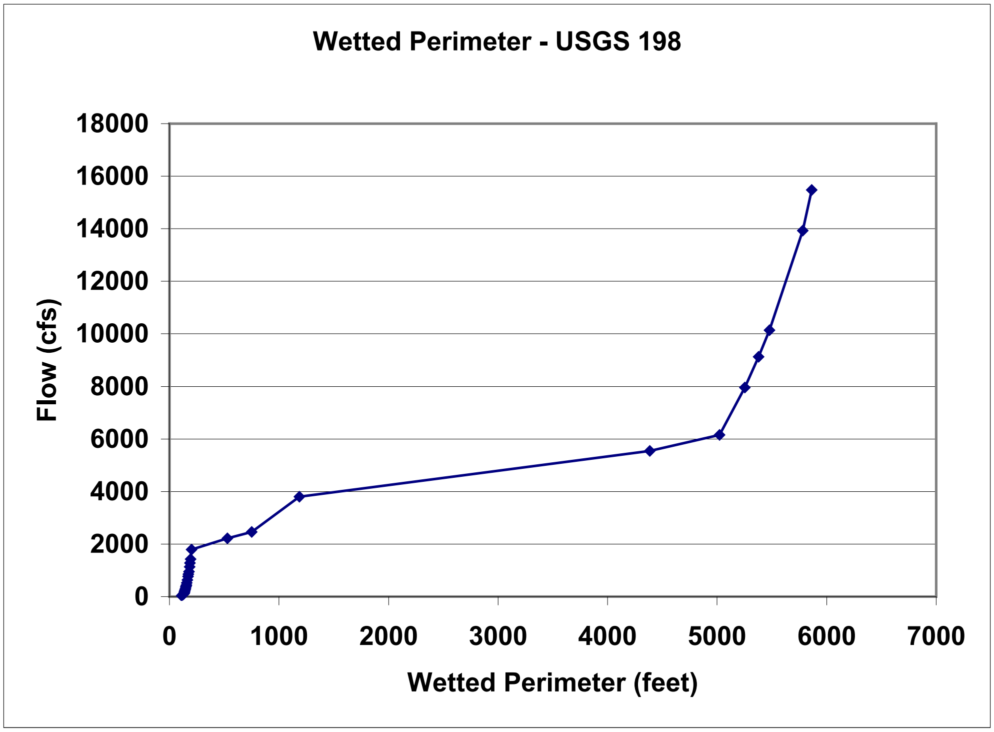

Wetted Perimeter - USGS 190.5
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
36 cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 191
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
1000
2000
3000
4000
5000
Wetted Perimeter (feet)

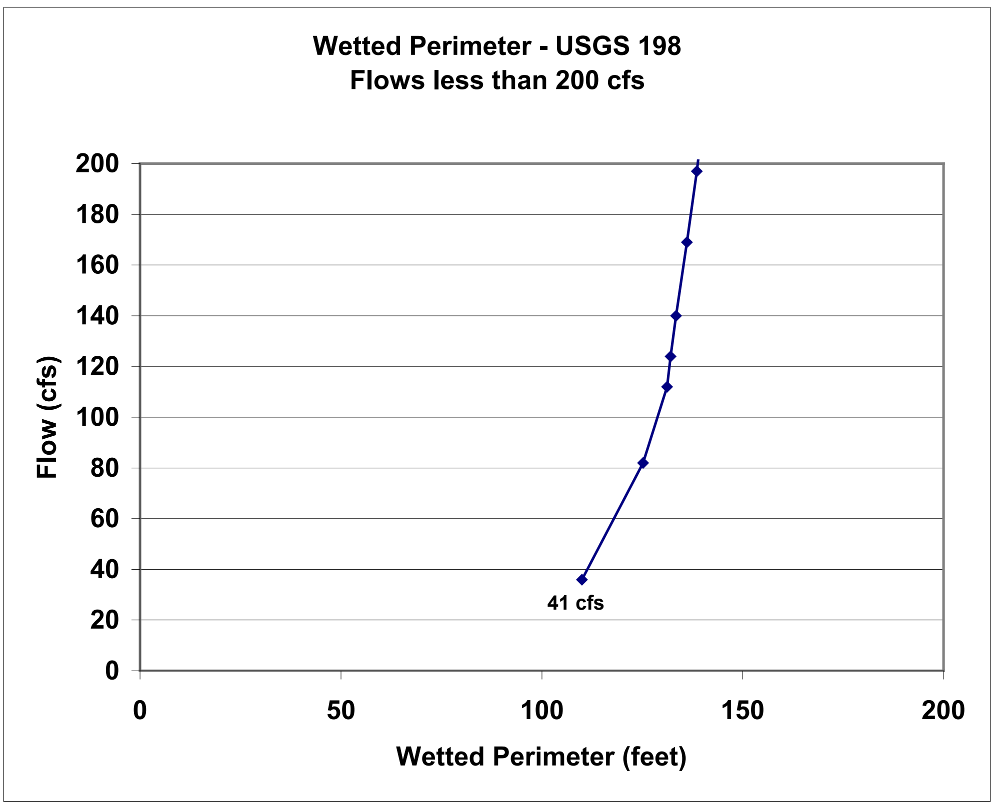

Wetted Perimeter - USGS 191
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
36 cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 196
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
6000
7000
Wetted Perimeter (feet)

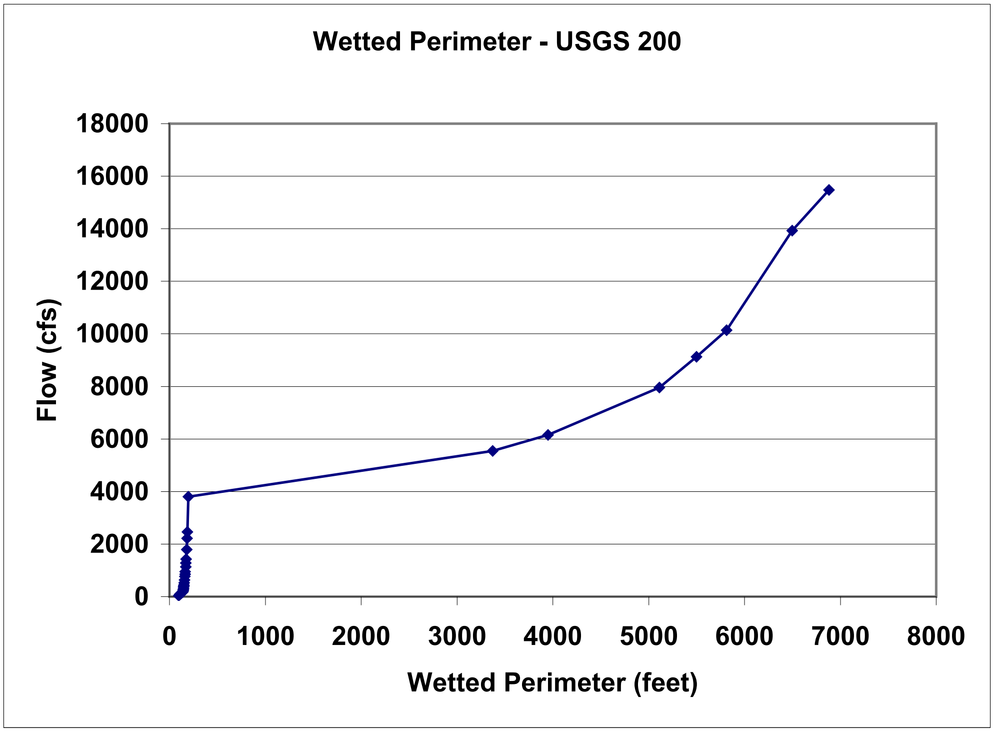

Wetted Perimeter - USGS 196
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
36 cfs
0
50
100
150
200
Wetted Perimeter (feet)

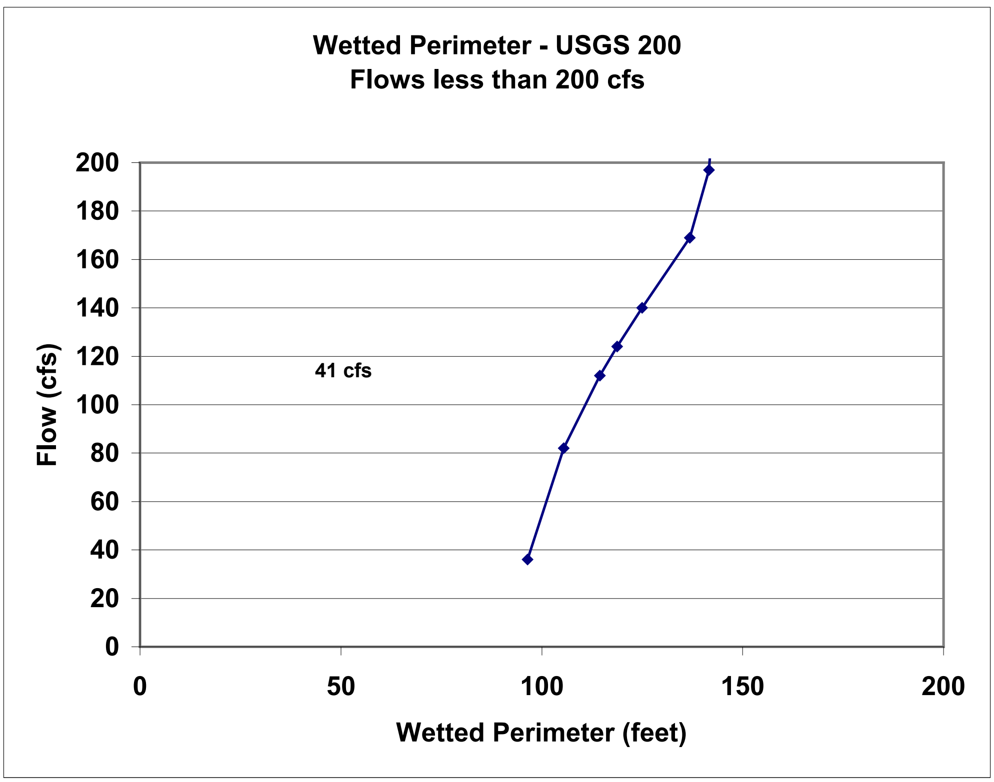


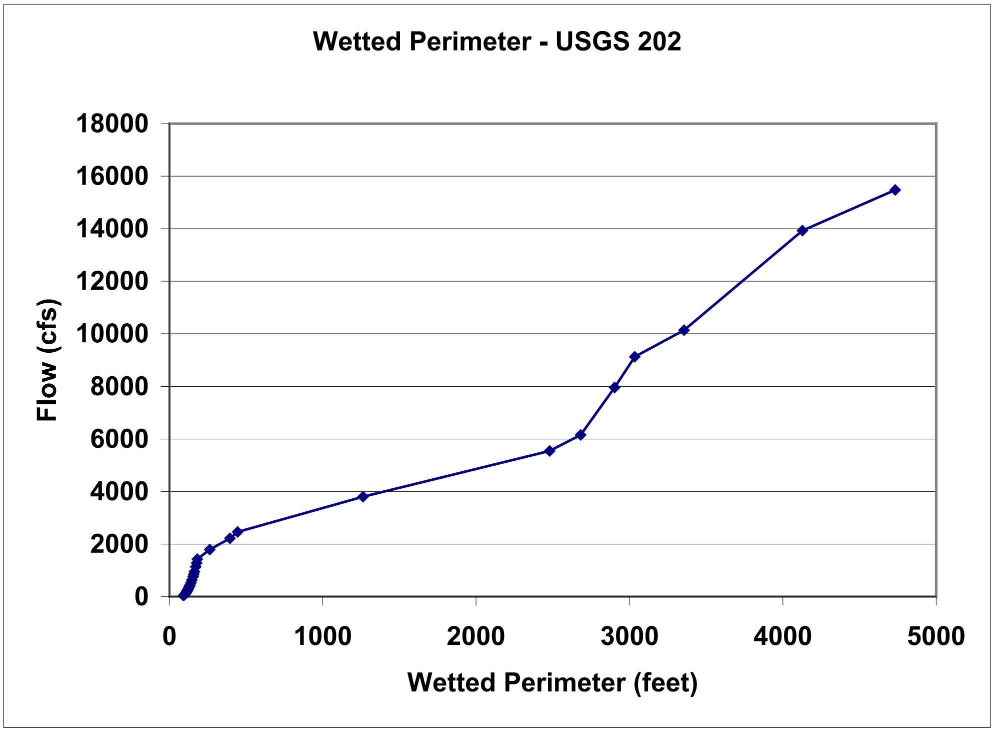
Wetted Perimeter - USGS 198
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
6000
7000
Wetted Perimeter (feet)

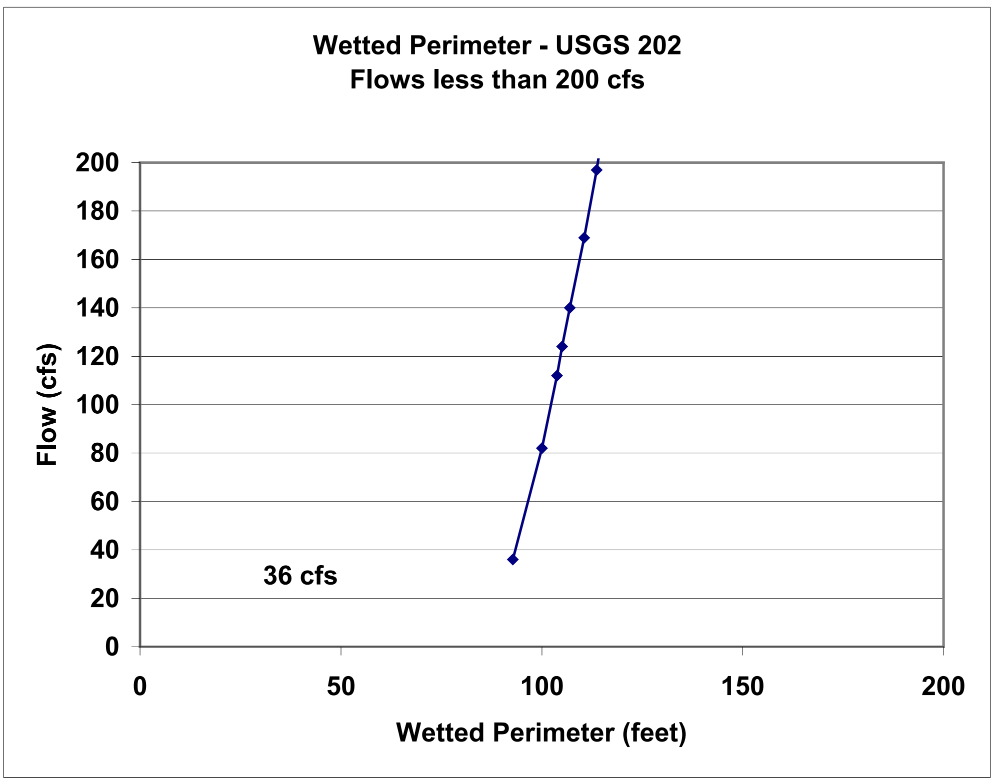


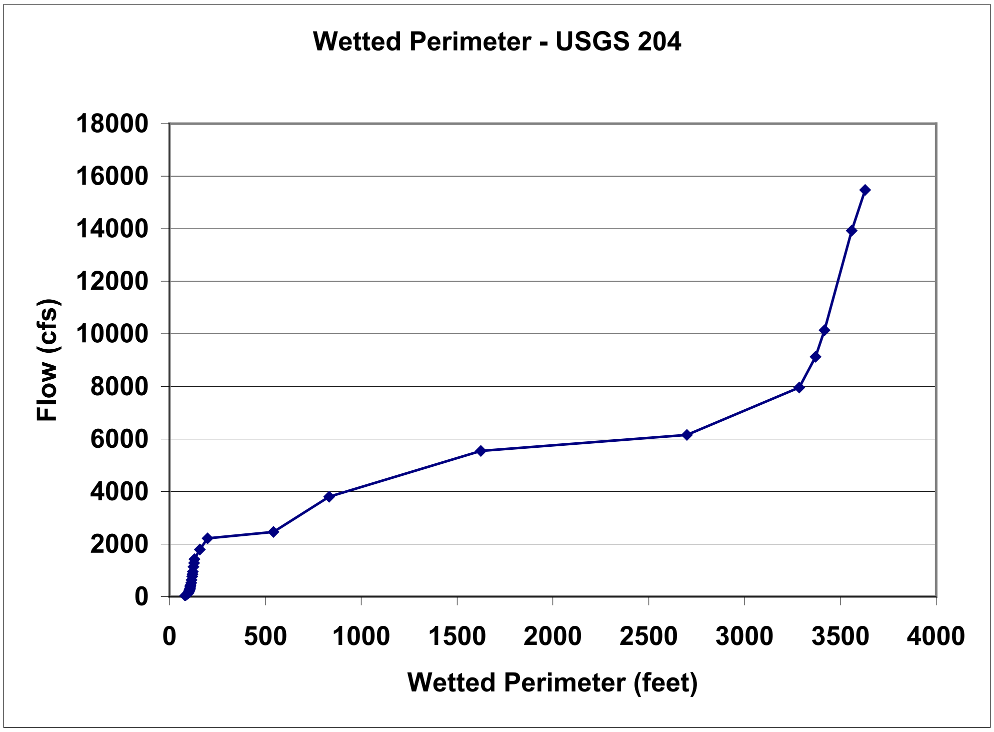
Wetted Perimeter - USGS 198
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
41 cfs
0
50
100
150
200
Wetted Perimeter (feet)

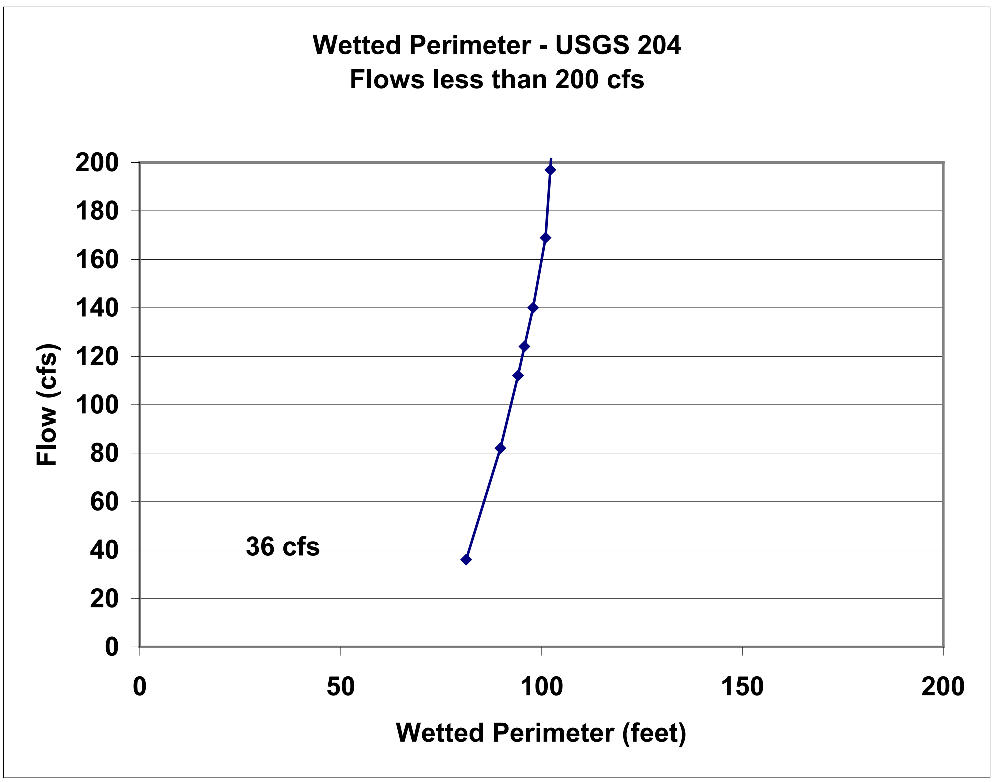

Wetted Perimeter - USGS 200
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
6000
7000
8000
Wetted Perimeter (feet)

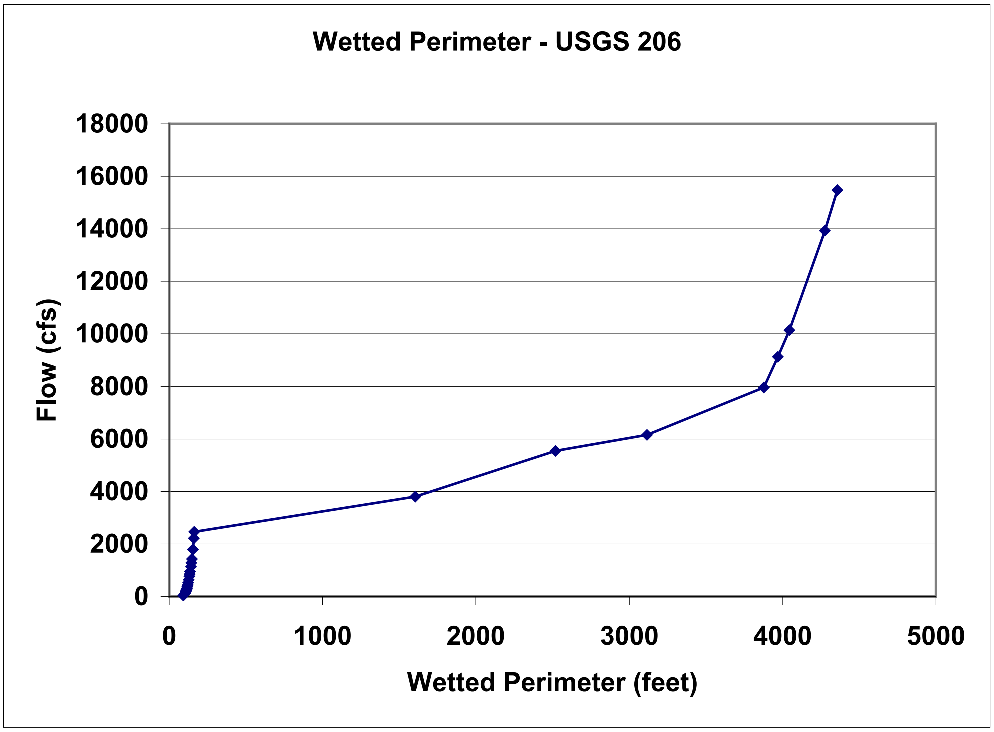

Wetted Perimeter - USGS 200
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
41 cfs
0
50
100
150
200
Wetted Perimeter (feet)

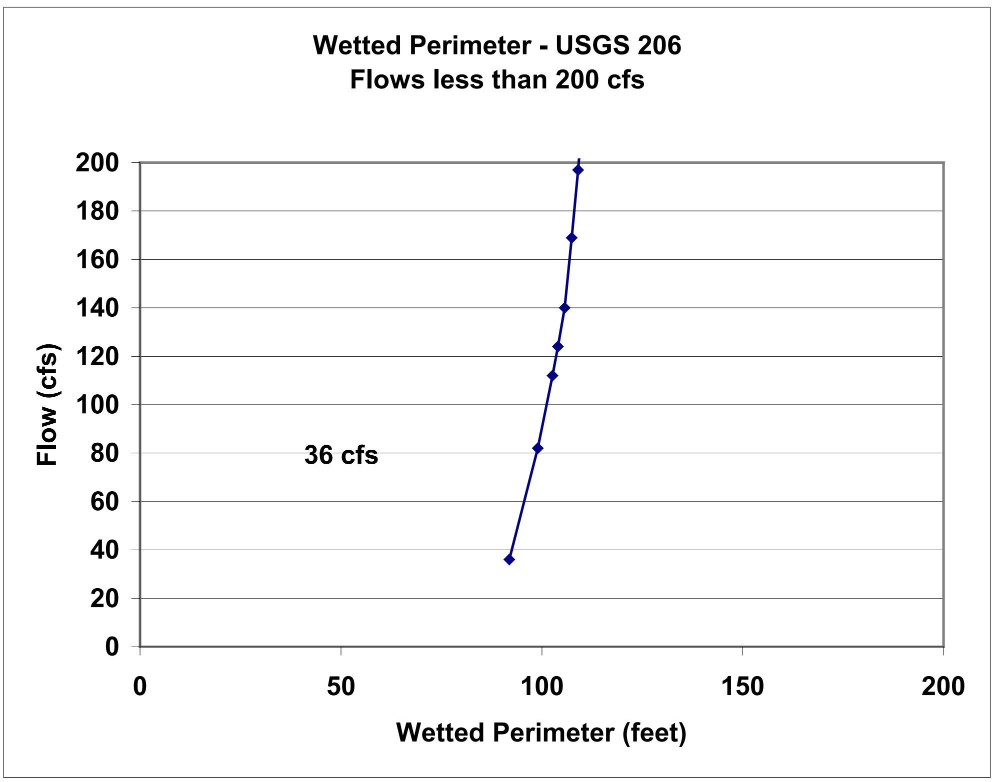

Wetted Perimeter - USGS 202
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
1000
2000
3000
4000
5000
Wetted Perimeter (feet)

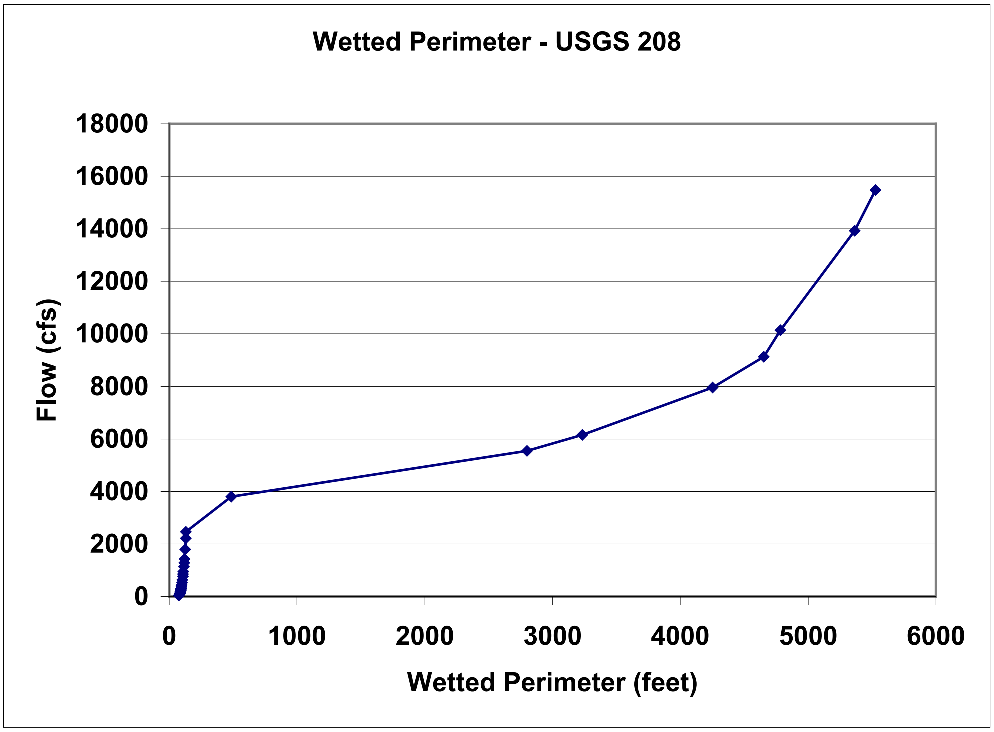

Wetted Perimeter - USGS 202
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
36 cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 204
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
500
1000
1500
2000
2500
3000
3500
4000
Flow (cfs)
Wetted Perimeter (feet)

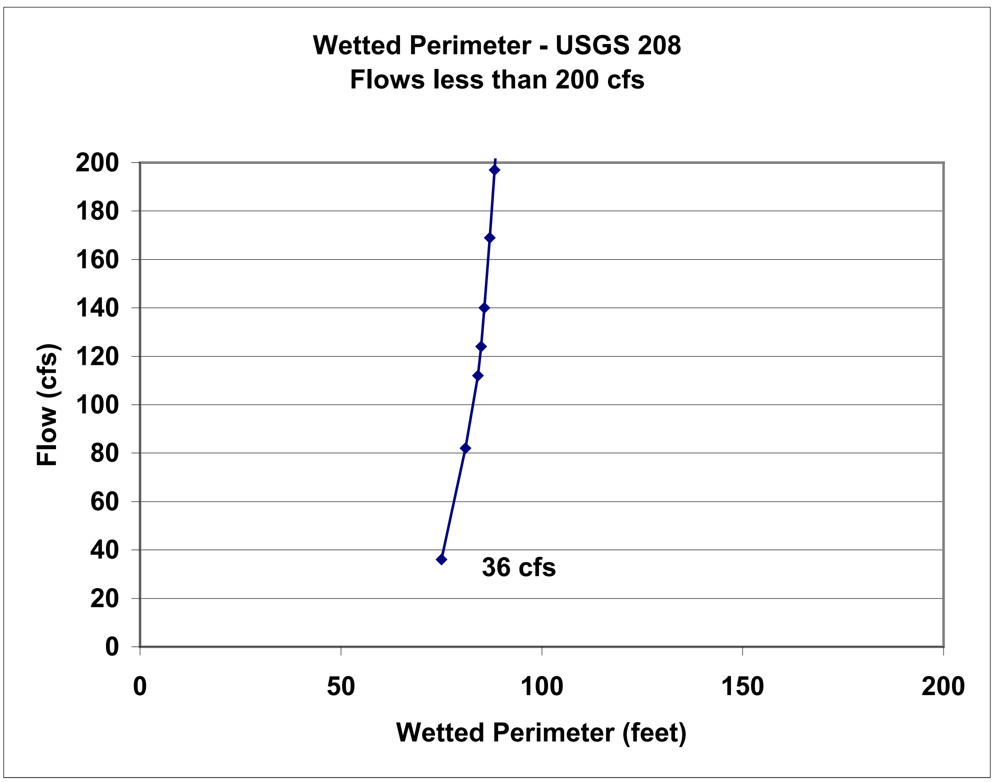

Wetted Perimeter - USGS 204
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
0
50
100
150
200
36 cfs
Flow (cfs)
Wetted Perimeter (feet)


Wetted Perimeter - USGS 206
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
Wetted Perimeter (feet)

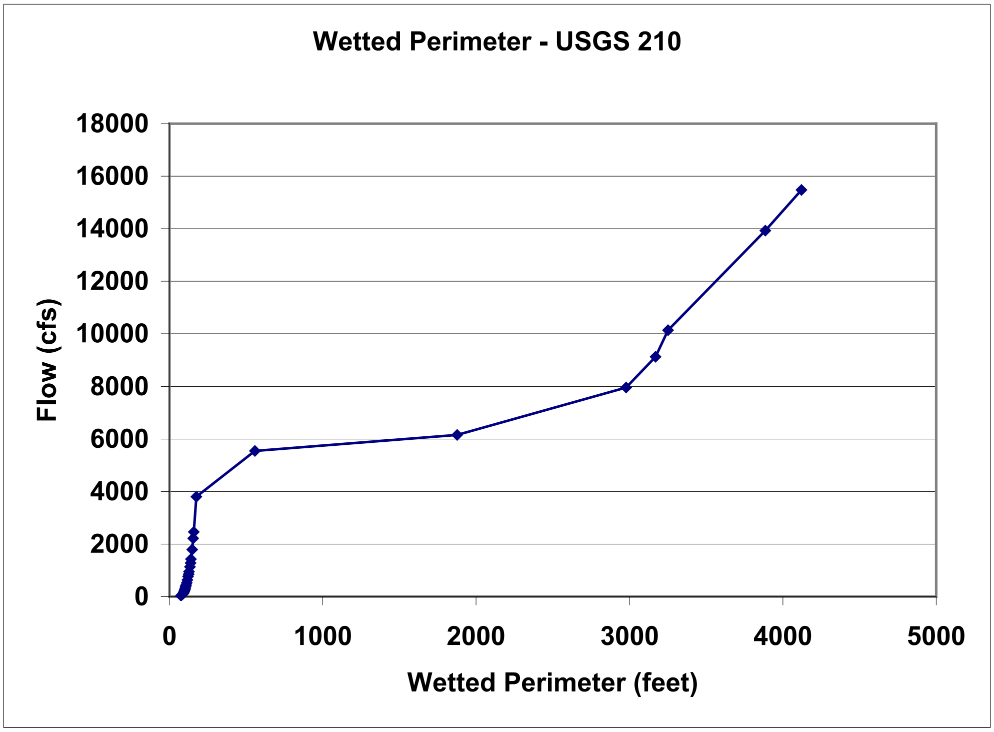

Wetted Perimeter - USGS 206
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
36 cfs
0
50
100
150
200
Wetted Perimeter (feet)

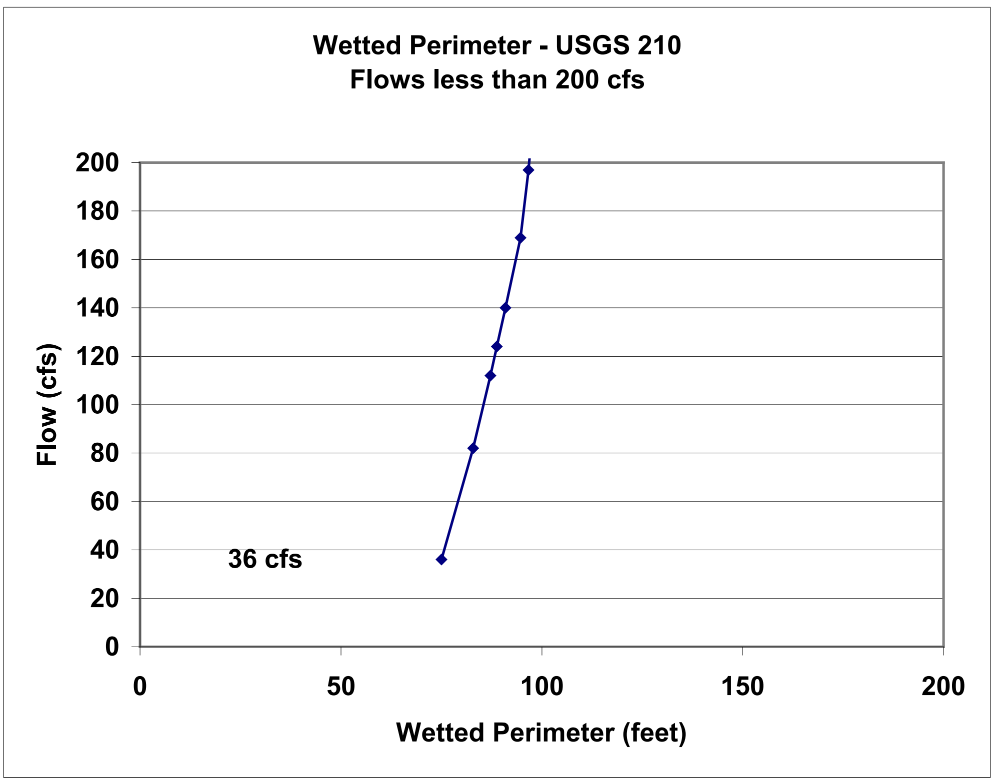


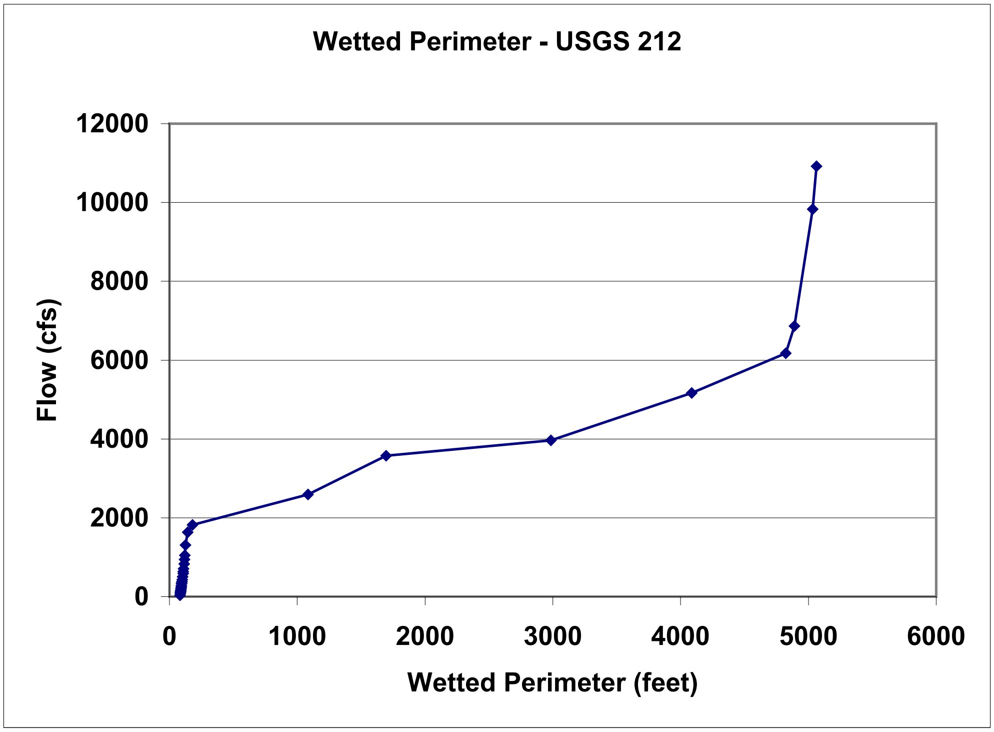
Wetted Perimeter - USGS 208
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
6000
Wetted Perimeter (feet)

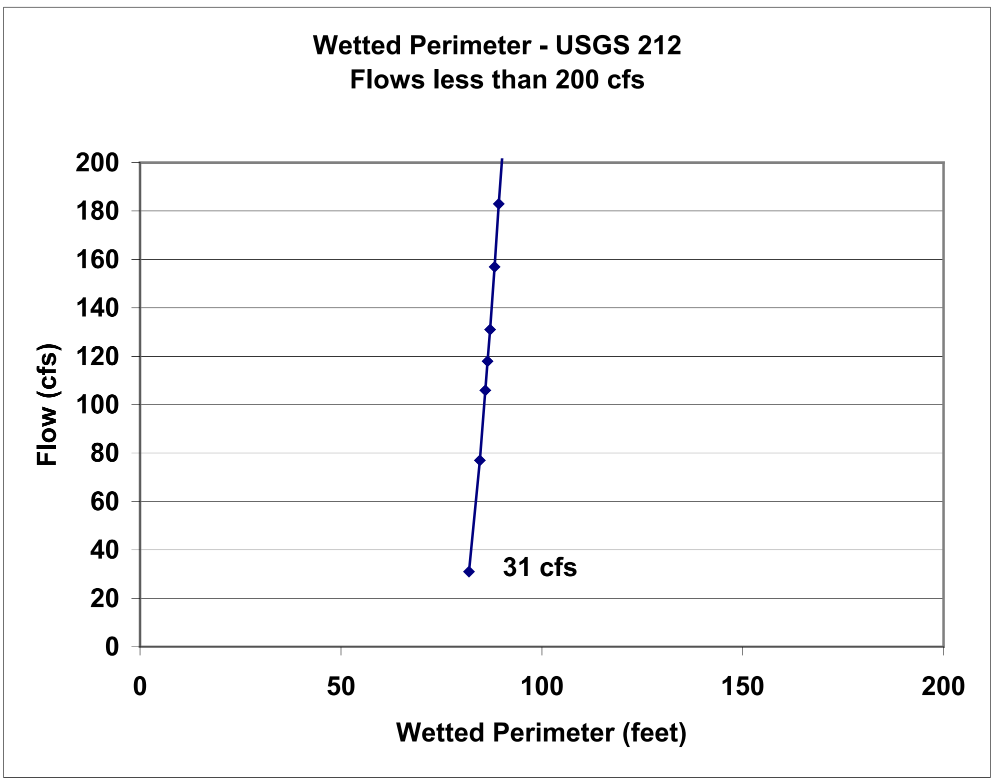


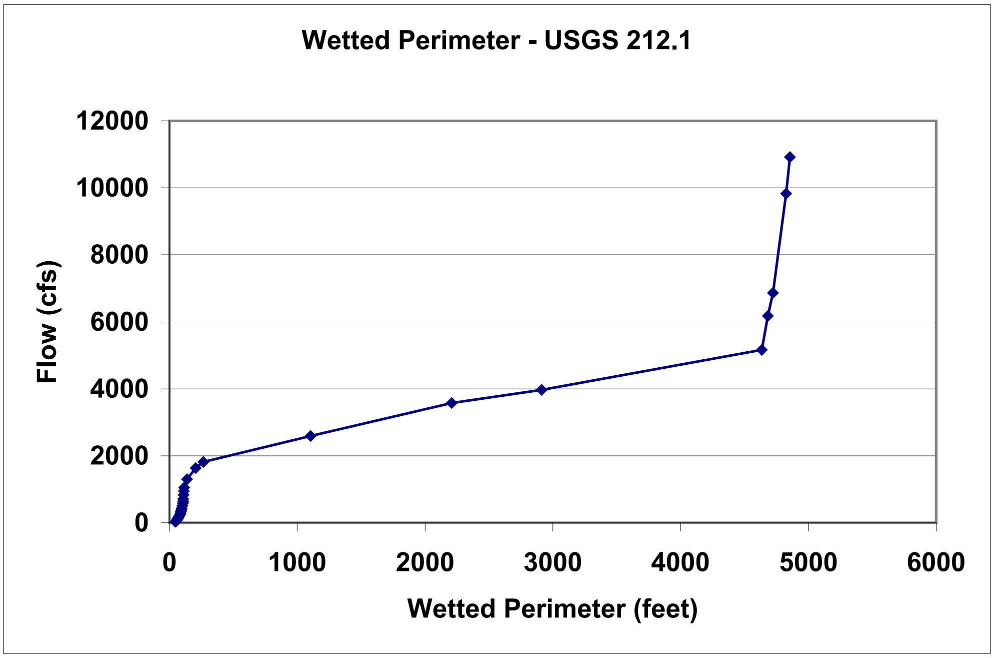
Wetted Perimeter - USGS 208
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
36 cfs
0
50
100
150
200
Wetted Perimeter (feet)

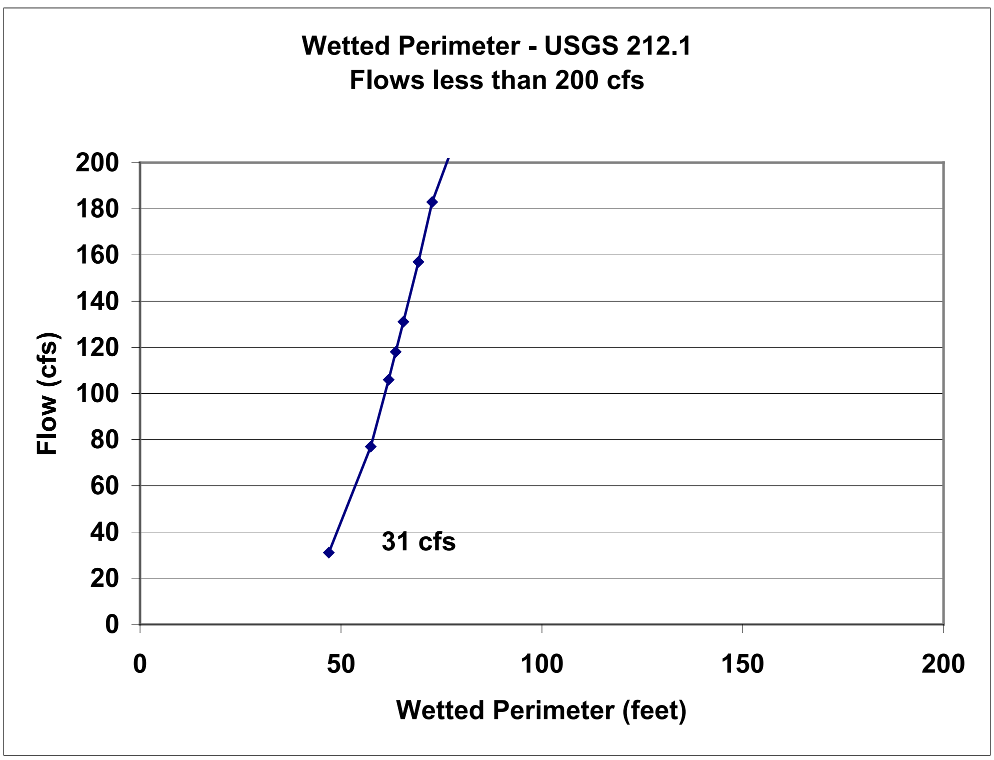

Wetted Perimeter - USGS 210
Flow (cfs)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
Wetted Perimeter (feet)

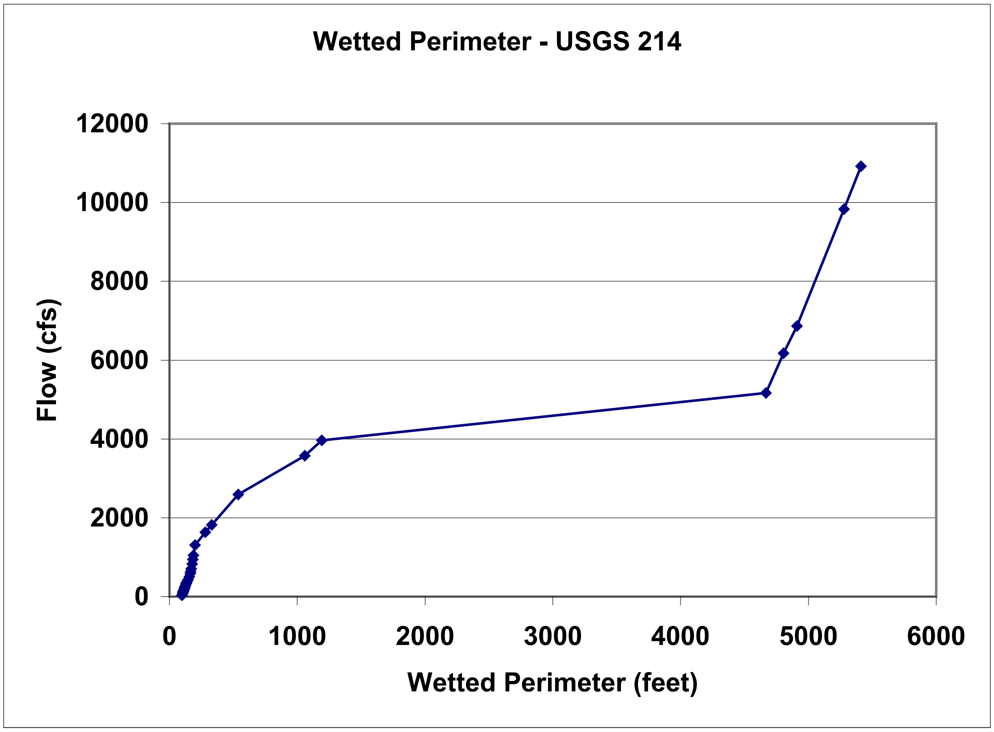

Wetted Perimeter - USGS 210
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
36 cfs
0
50
100
150
200
Wetted Perimeter (feet)

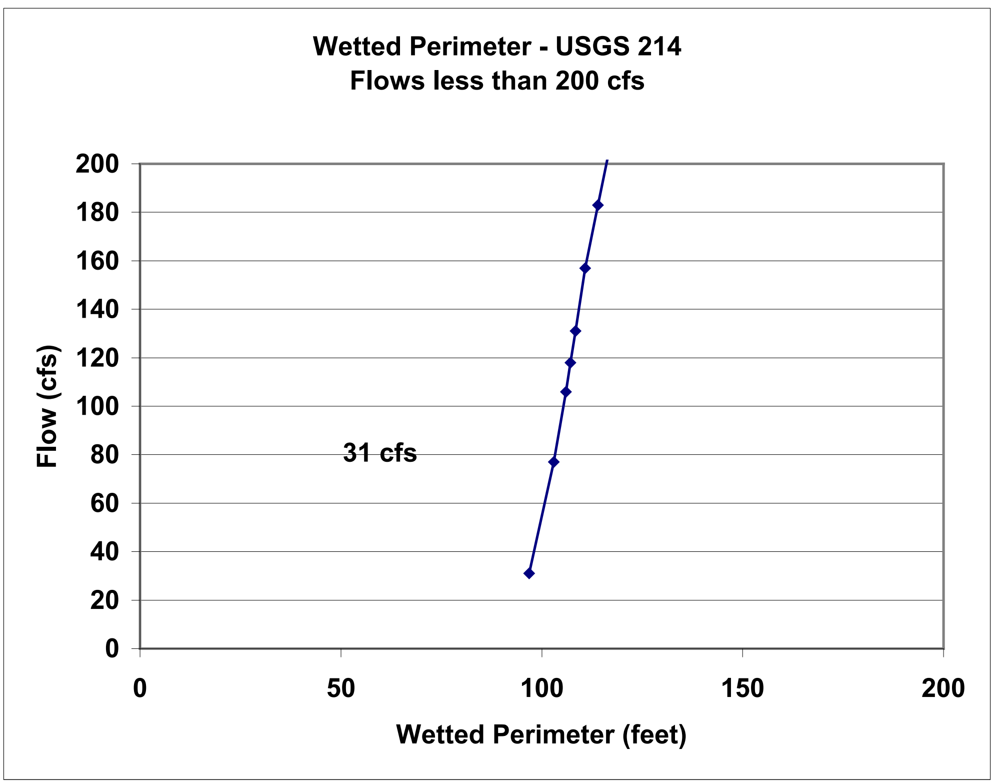

Wetted Perimeter - USGS 212
Flow (cfs)
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
6000
Wetted Perimeter (feet)

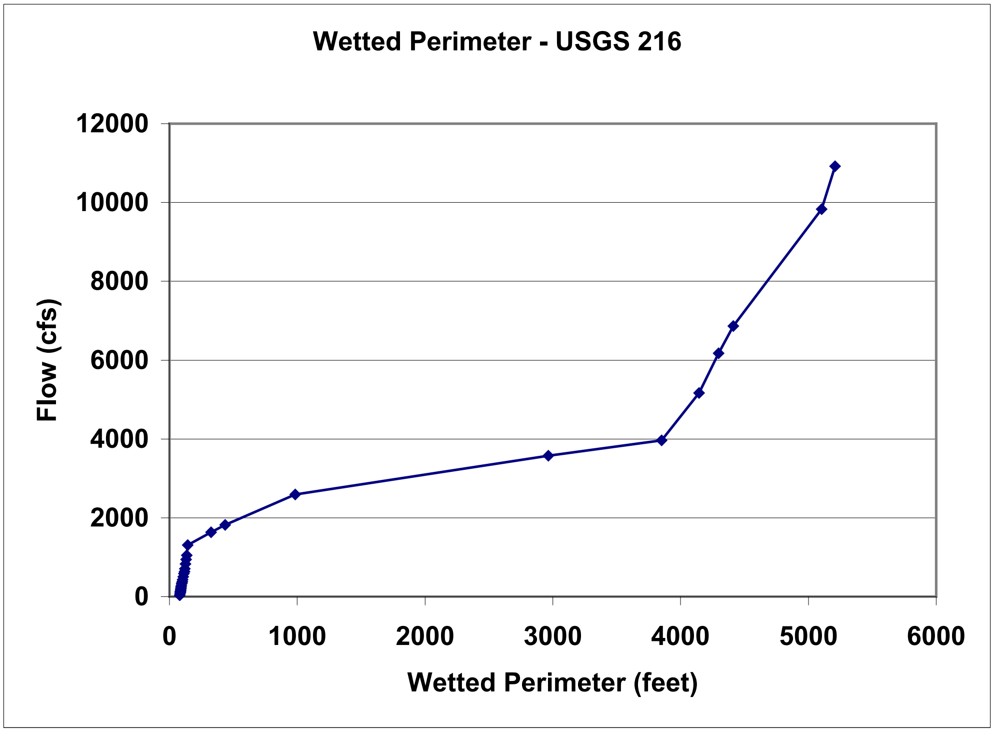

Wetted Perimeter - USGS 212
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)

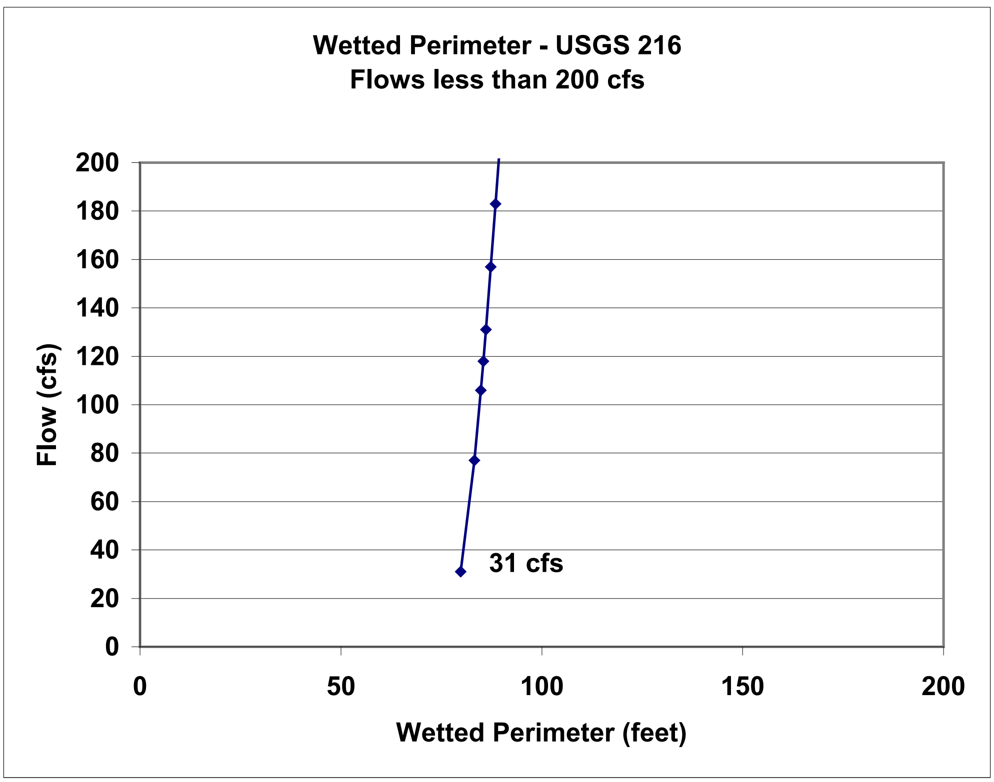

Wetted Perimeter - USGS 212.1
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
1000
2000
3000
4000
5000
6000
Wetted Perimeter (feet)

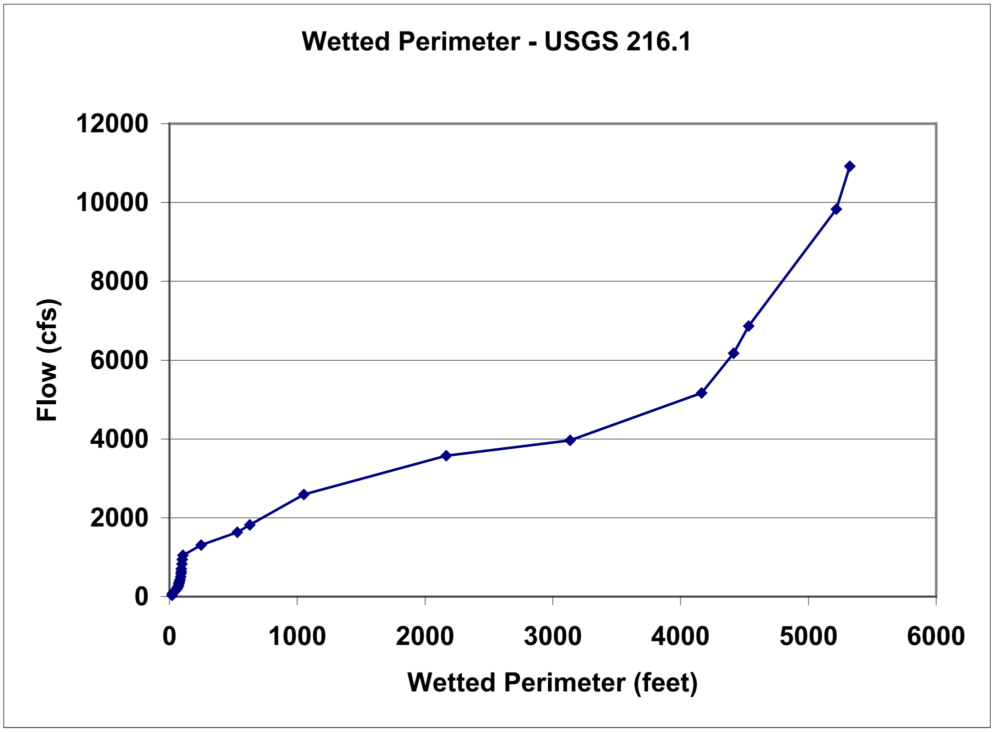

Wetted Perimeter - USGS 212.1
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 214
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
1000
2000
3000
4000
5000
6000
Wetted Perimeter (feet)

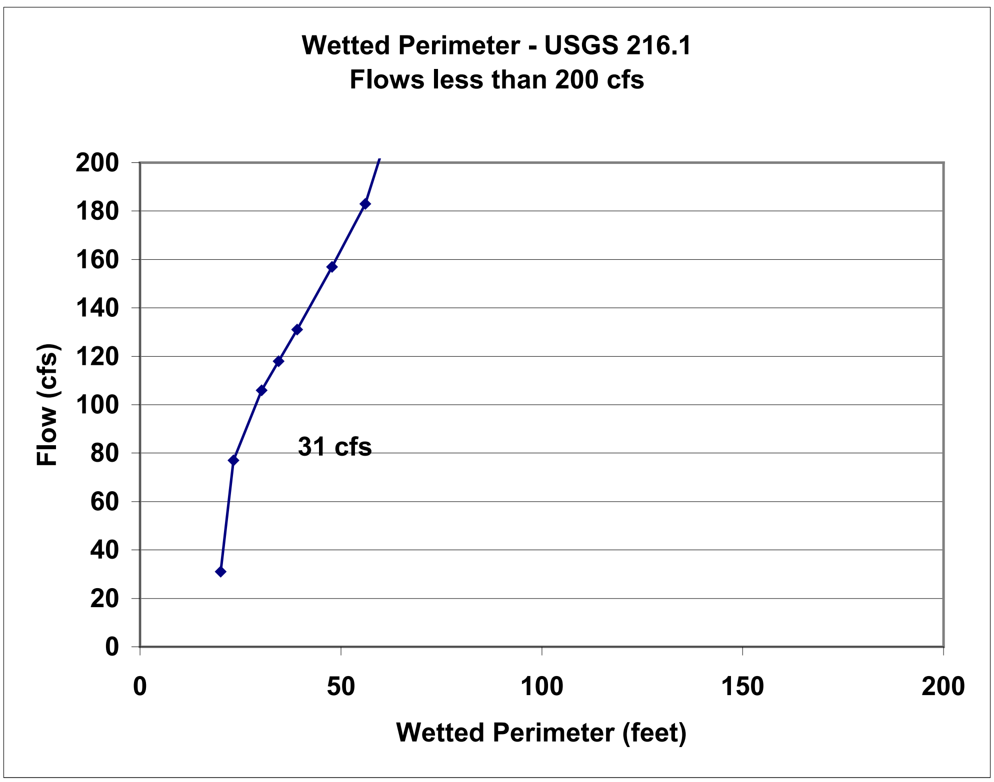

Wetted Perimeter - USGS 214
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 216
Flow (cfs)
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
6000
Wetted Perimeter (feet)

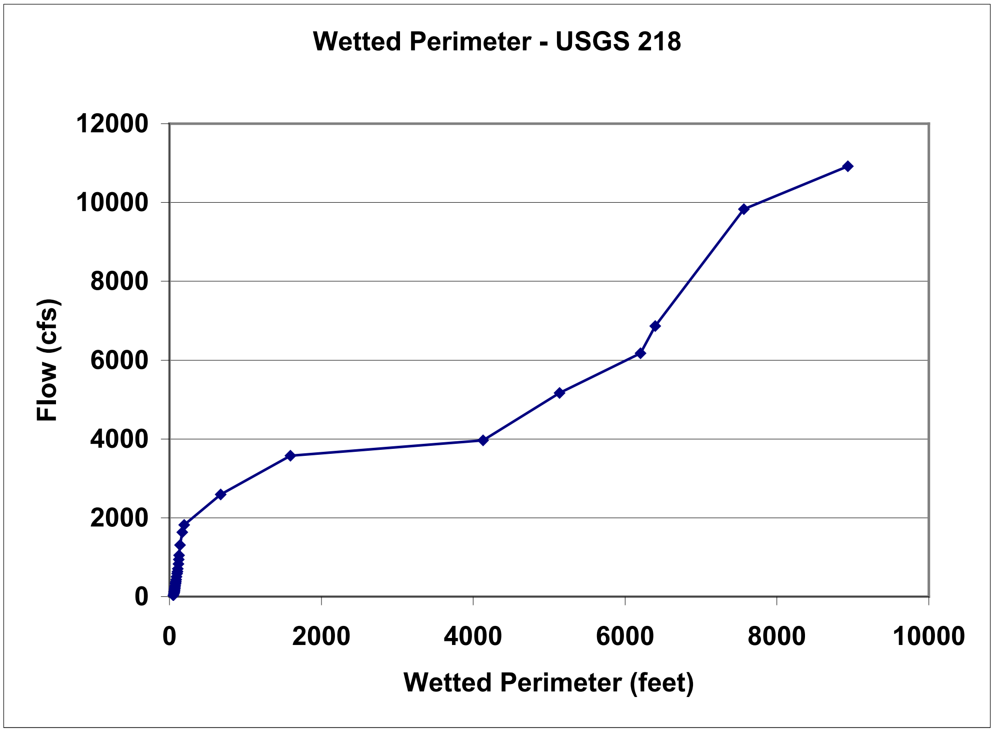

Wetted Perimeter - USGS 216
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)

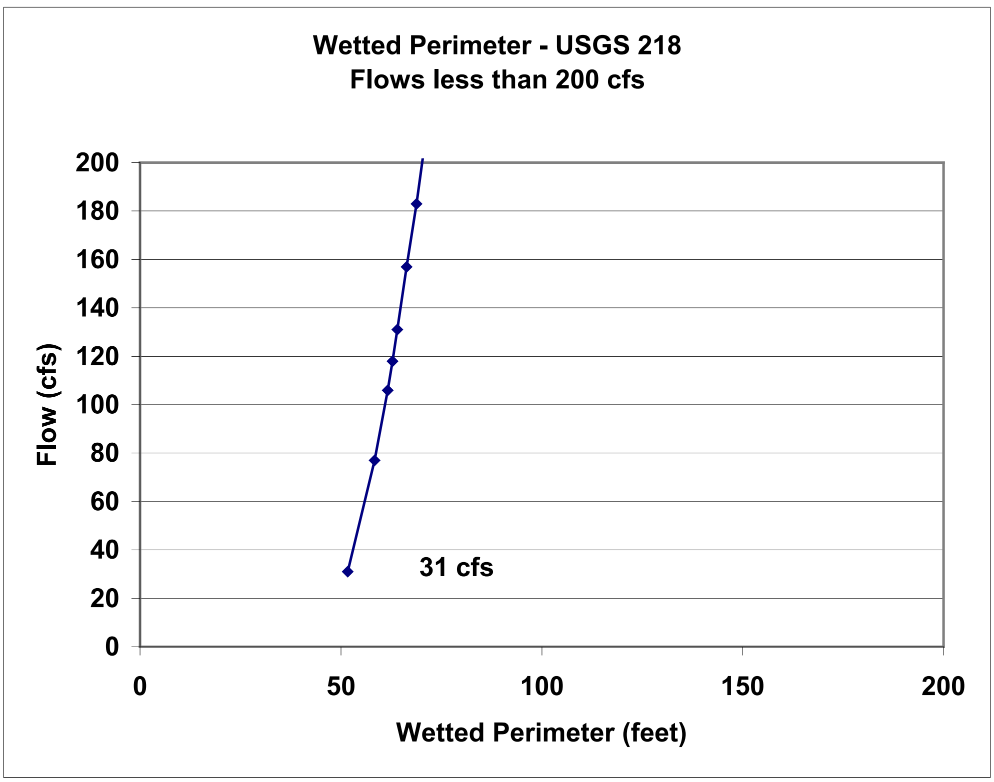


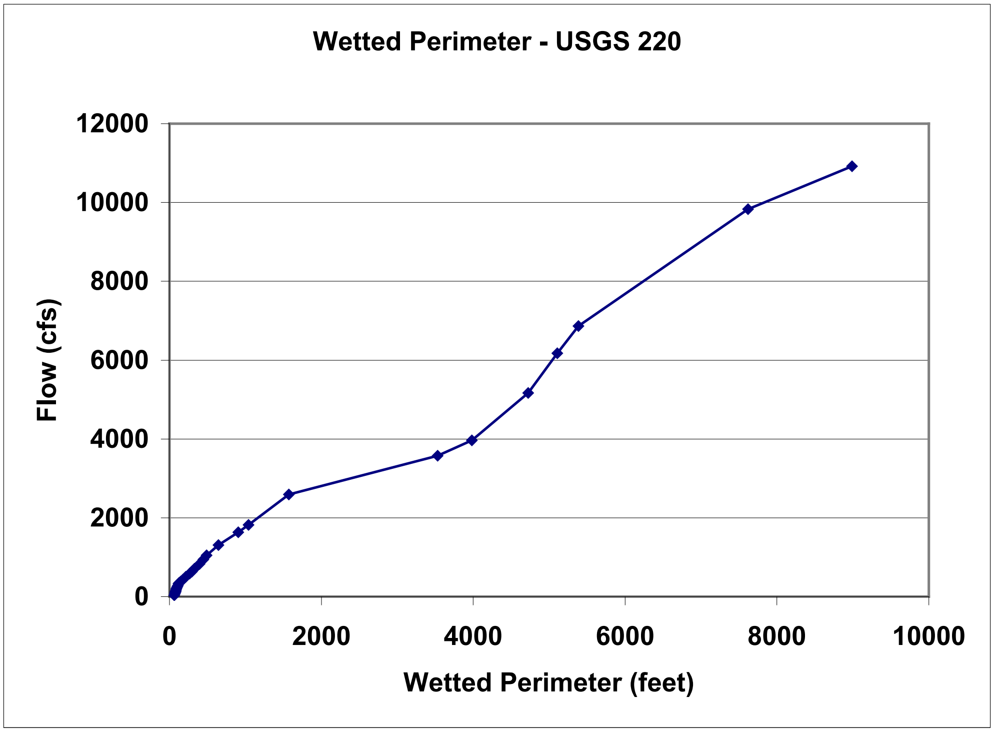
Wetted Perimeter - USGS 216.1
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
1000
2000
3000
4000
5000
6000
Wetted Perimeter (feet)



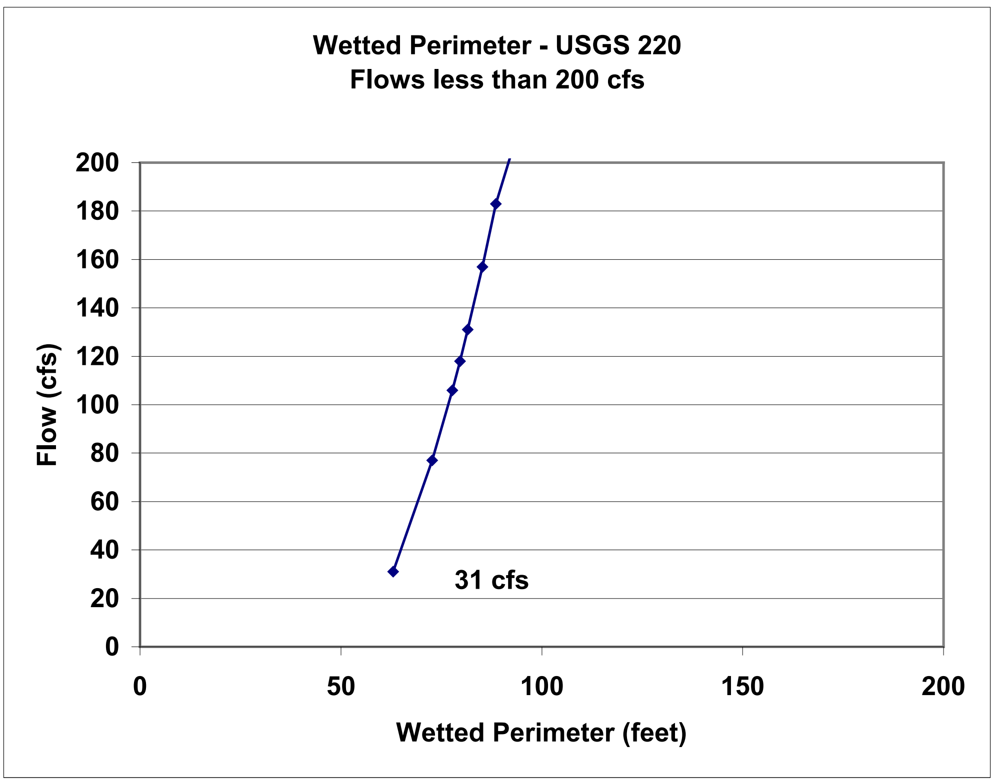
Wetted Perimeter - USGS 216.1
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 218
12000
10000
8000
6000
4000
2000
0
0
2000
4000
6000
8000
10000
Flow (cfs)
Wetted Perimeter (feet)

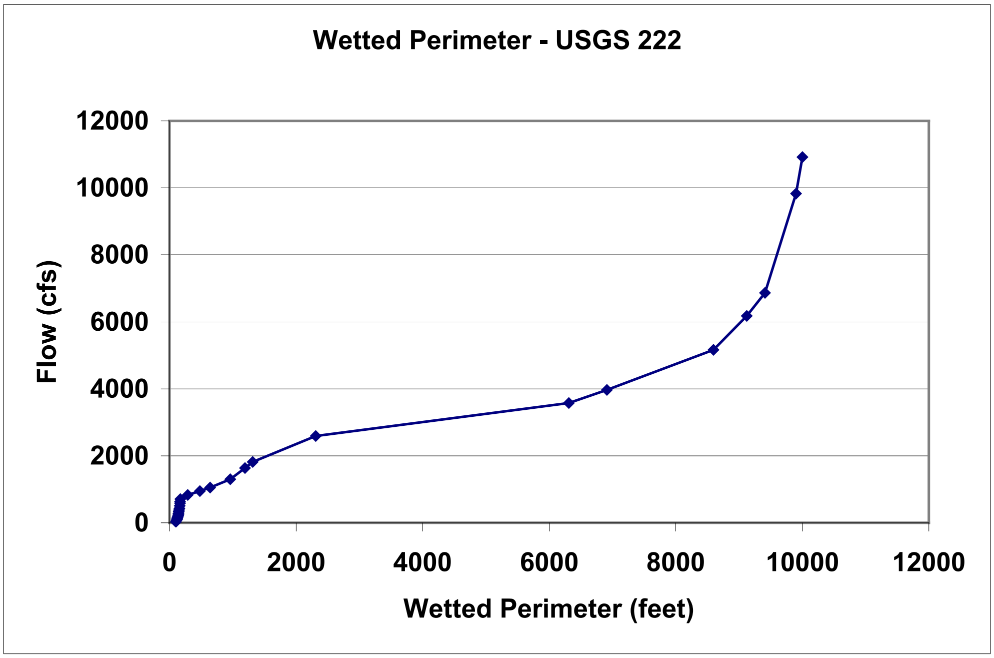

Wetted Perimeter - USGS 218
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
0
50
100
150
200
Flow (cfs)
Wetted Perimeter (feet)
31 cfs

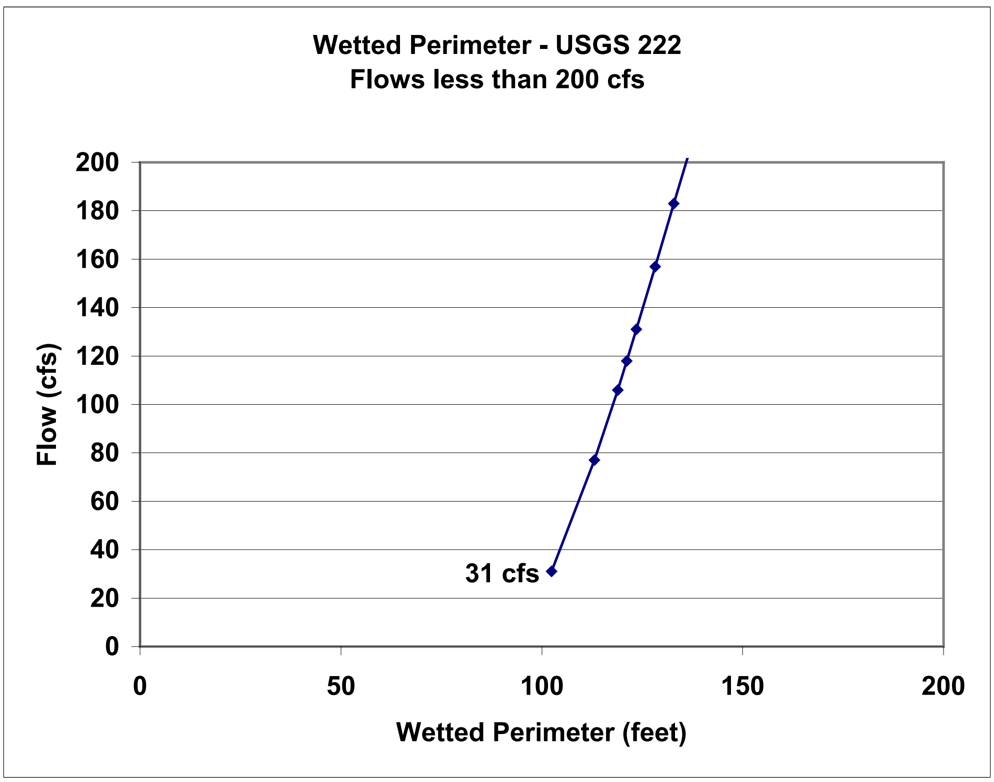


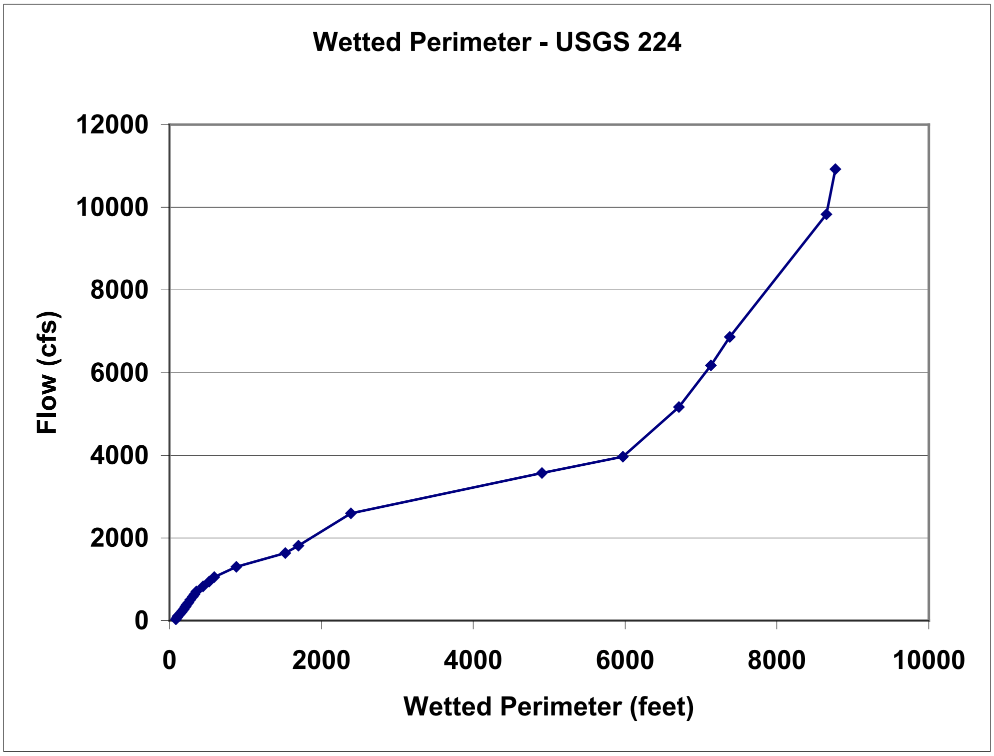
Wetted Perimeter - USGS 220
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
2000
4000
6000
8000
10000
Wetted Perimeter (feet)

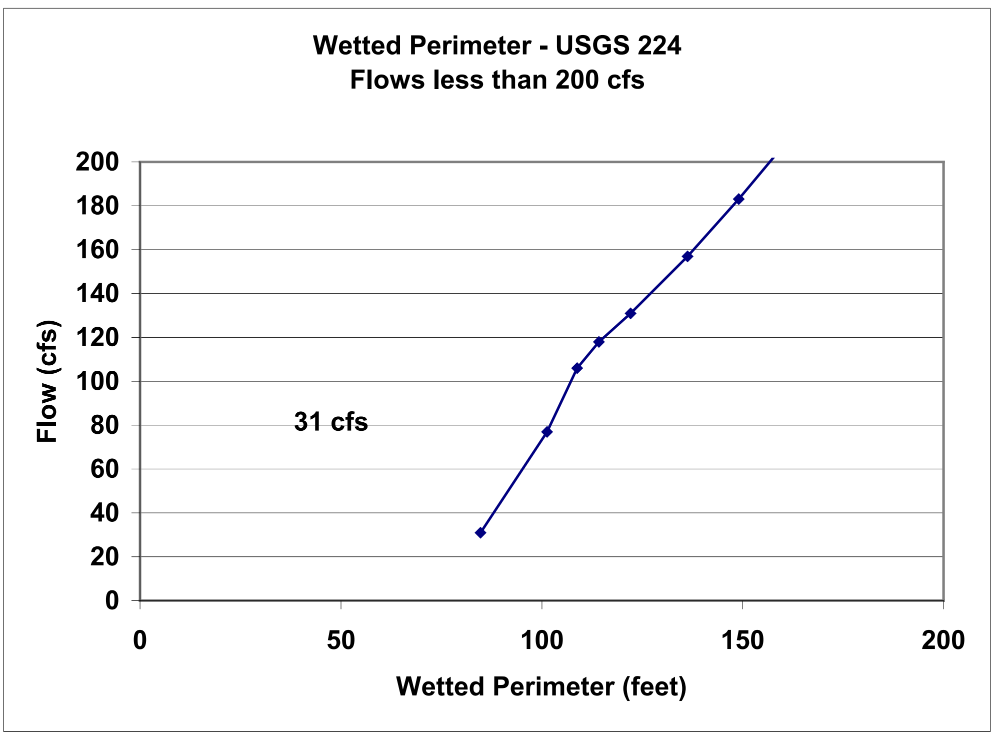


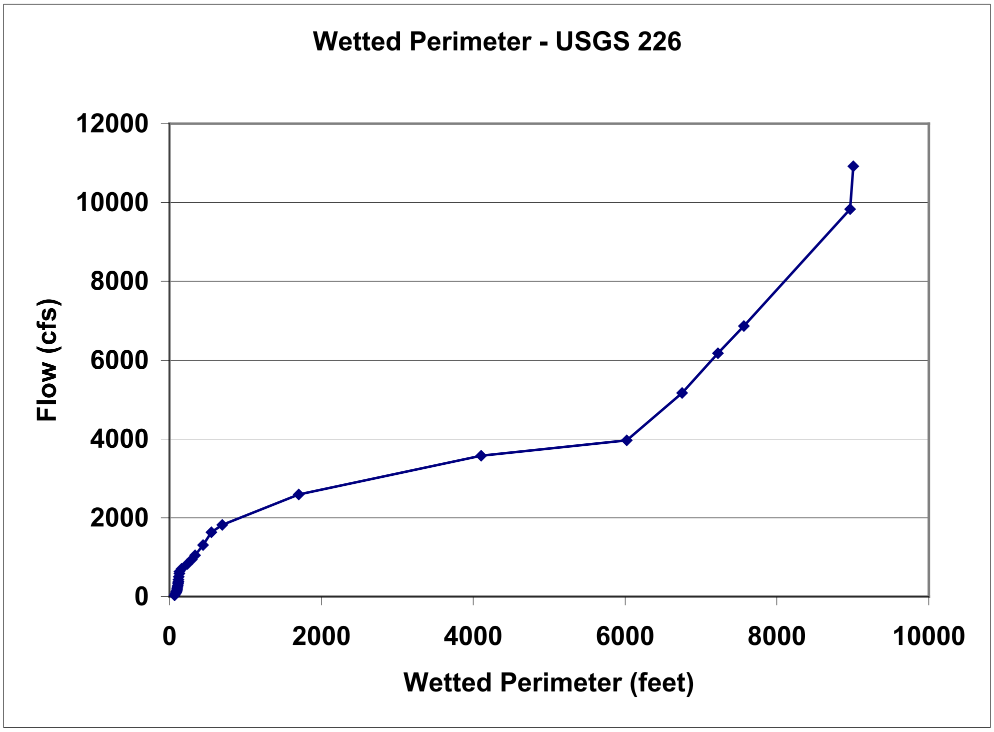
Wetted Perimeter - USGS 220
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)

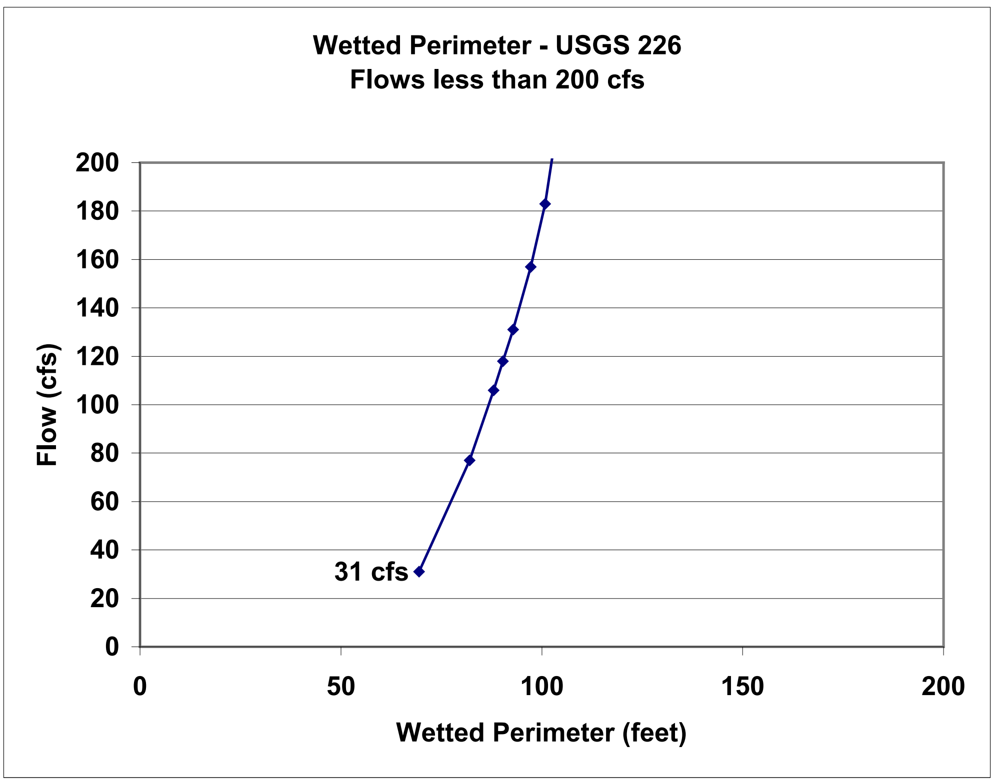

Wetted Perimeter - USGS 222
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
2000
4000
6000
8000
10000
12000
Wetted Perimeter (feet)

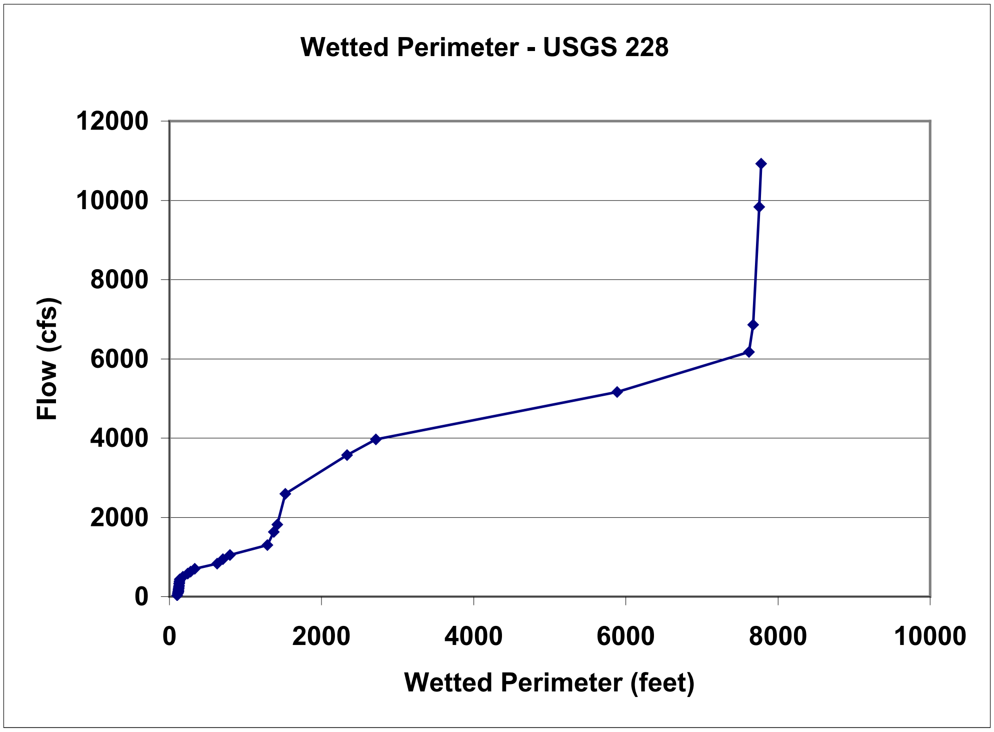

Wetted Perimeter - USGS 222
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)

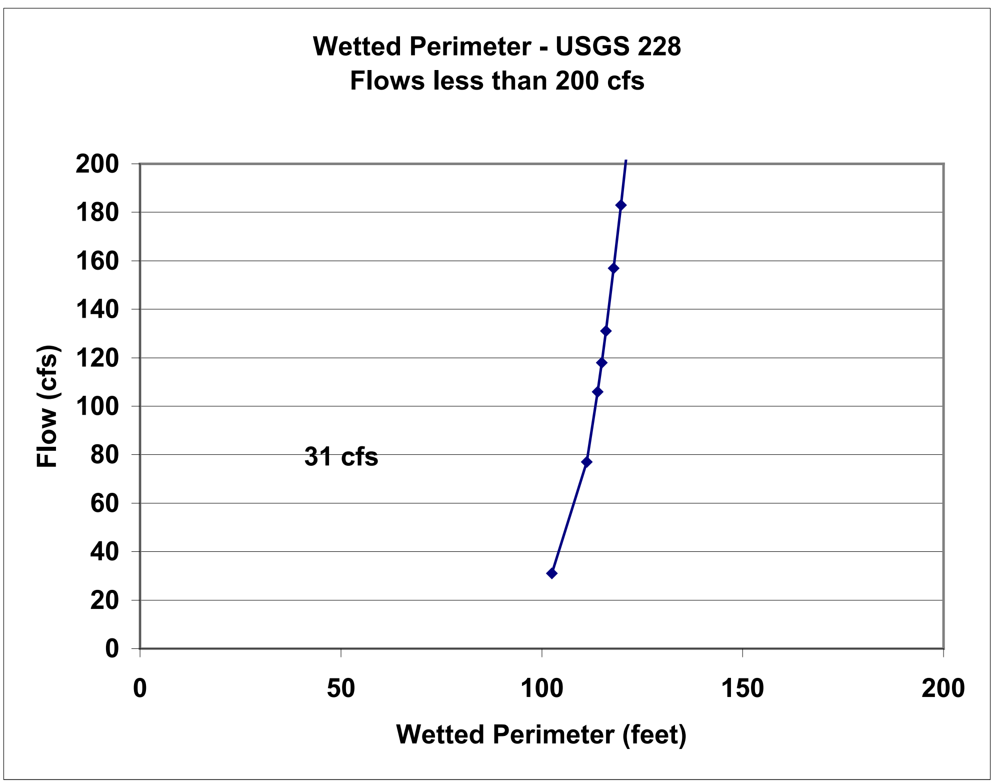

Wetted Perimeter - USGS 224
12000
10000
8000
6000
4000
2000
0
0
2000
4000
6000
8000
10000
Flow (cfs)
Wetted Perimeter (feet)

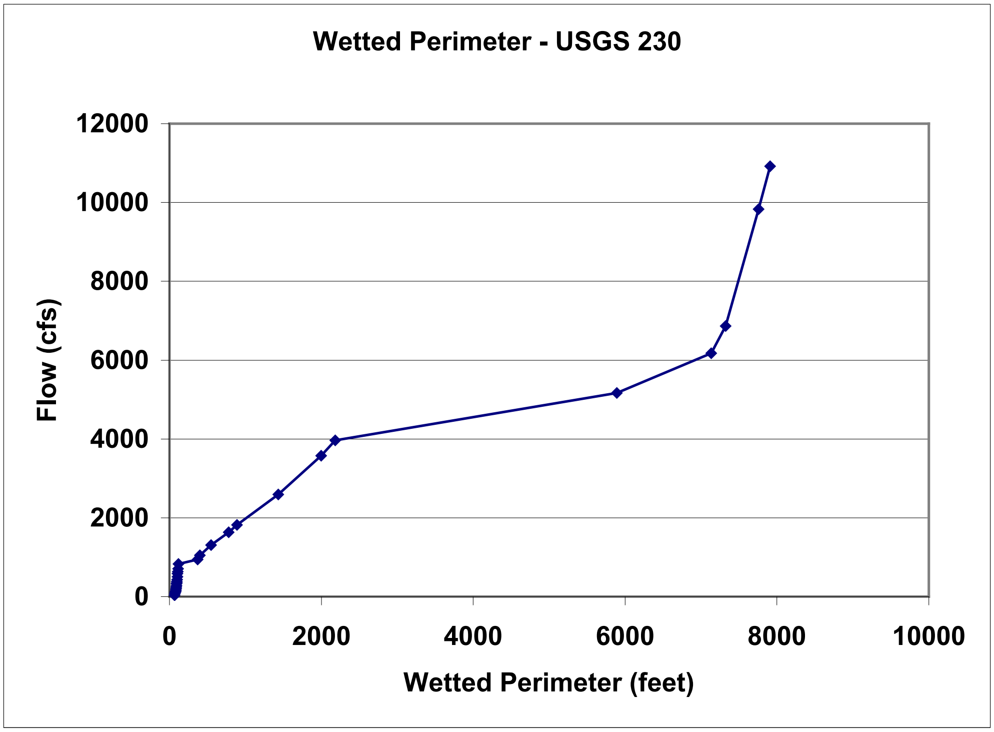

Wetted Perimeter - USGS 224
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
0
50
100
150
200
Flow (cfs)
Wetted Perimeter (feet)
31 cfs

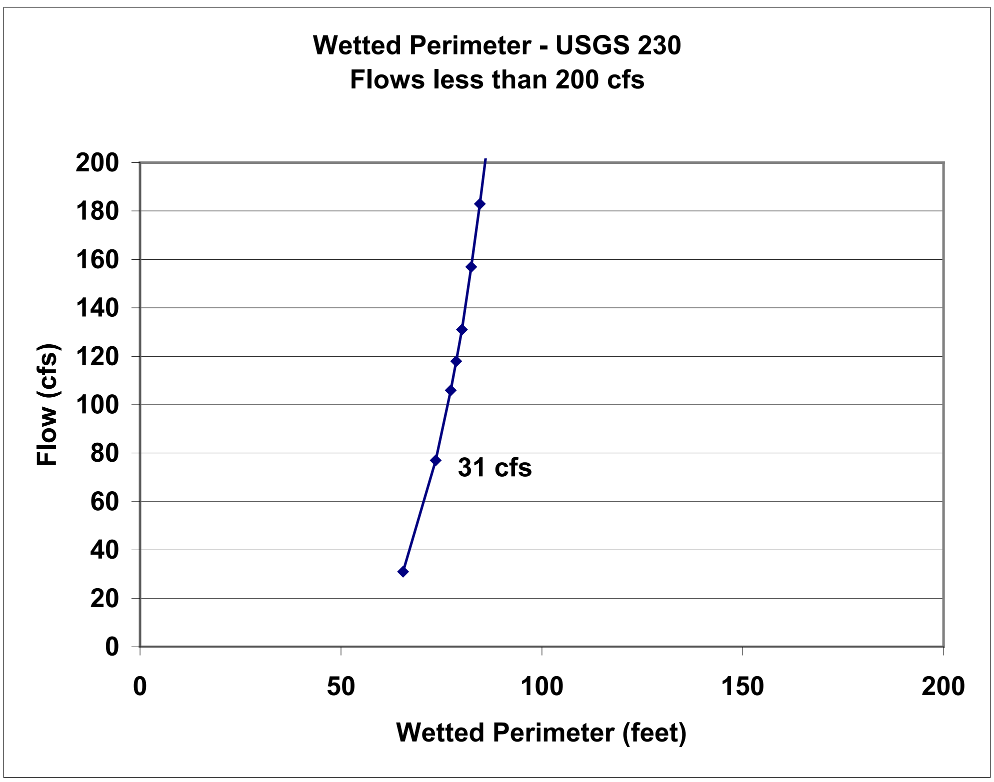

Wetted Perimeter - USGS 226
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
2000
4000
6000
8000
10000
Wetted Perimeter (feet)

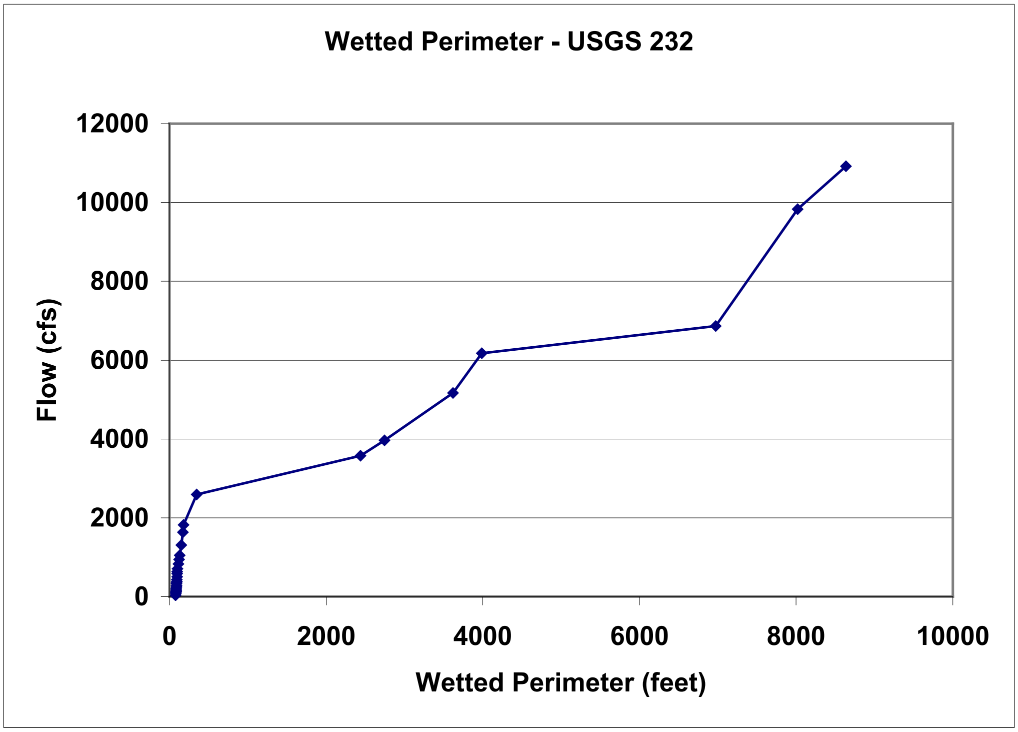

Wetted Perimeter - USGS 226
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)

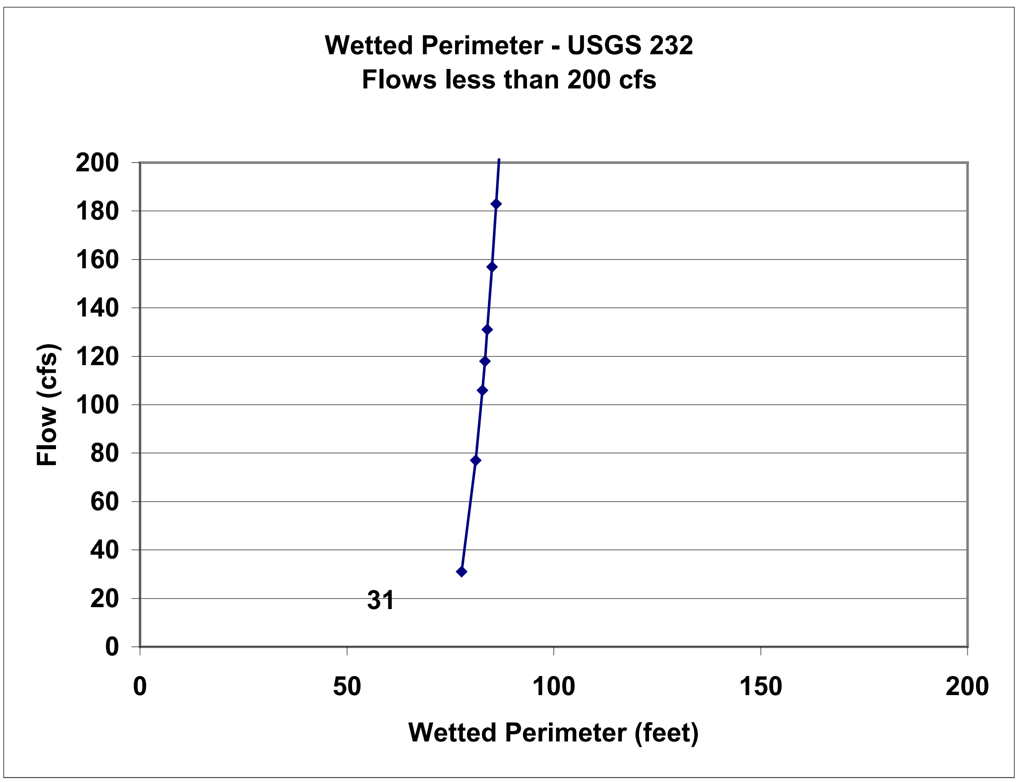

Wetted Perimeter - USGS 228
Flow (cfs)
12000
10000
8000
6000
4000
2000
0
0
2000
4000
6000
8000
10000
Wetted Perimeter (feet)

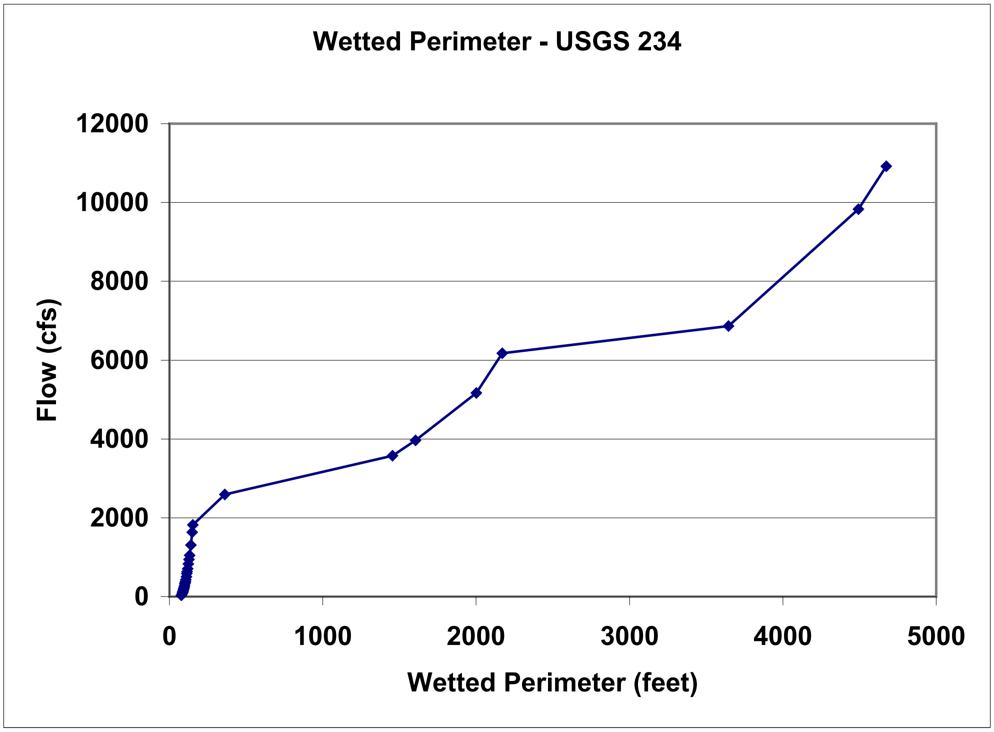

Wetted Perimeter - USGS 228
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)

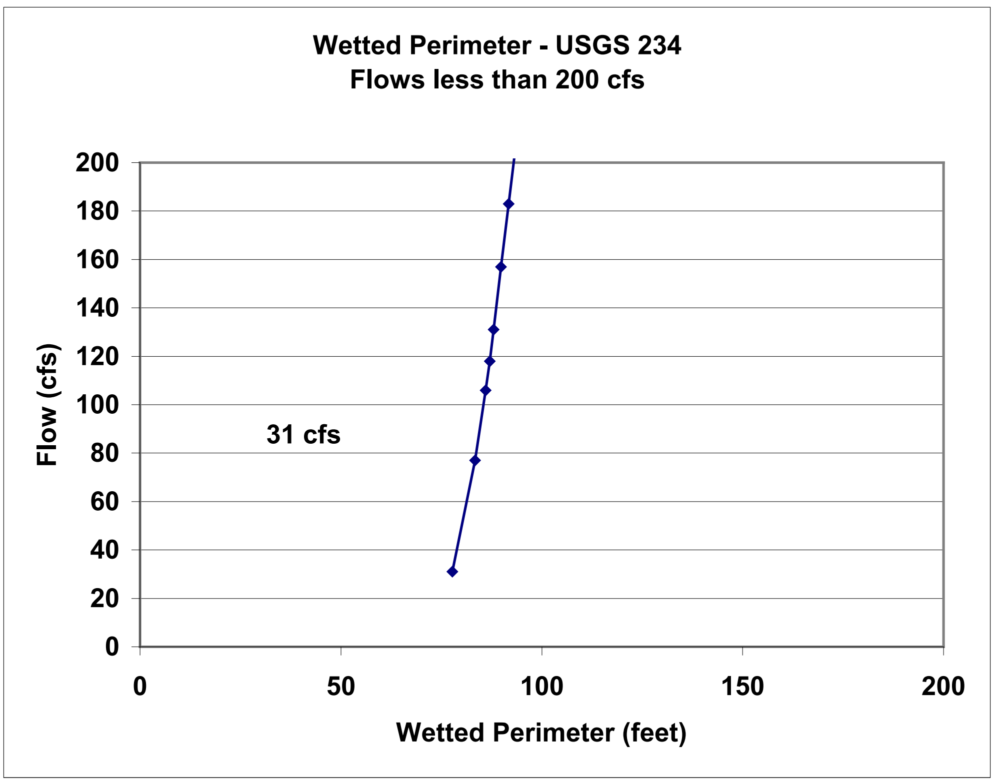

Wetted Perimeter - USGS 230
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
2000
4000
6000
8000
10000
Wetted Perimeter (feet)

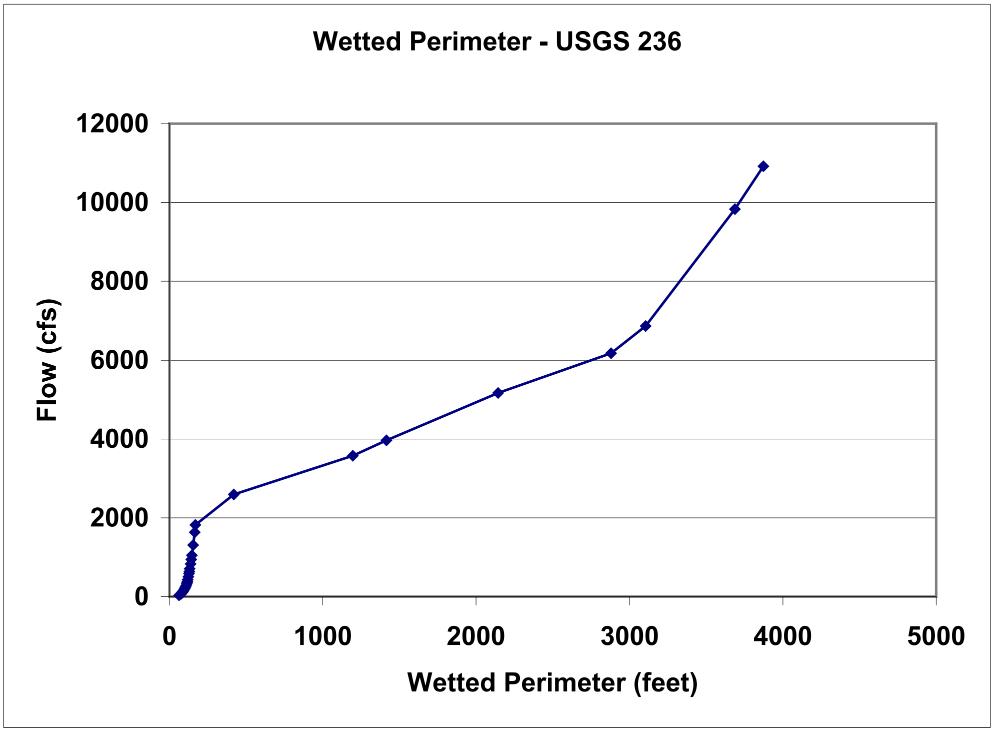

Wetted Perimeter - USGS 230
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)

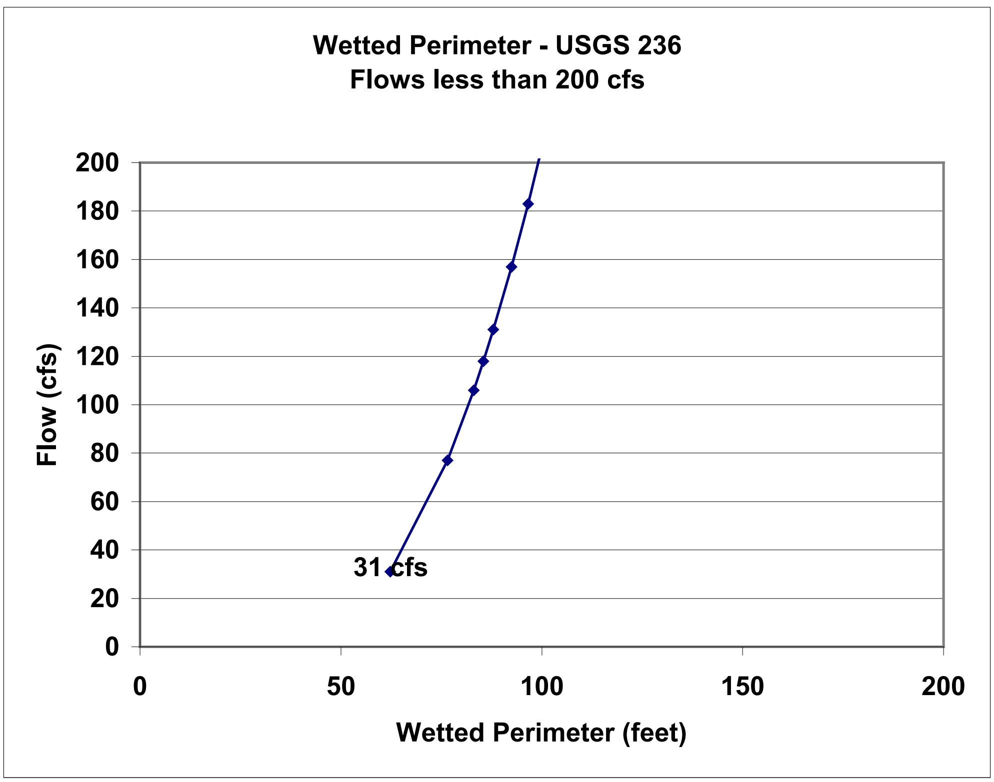

Wetted Perimeter - USGS 232
Flow (cfs)
0
2000
4000
6000
8000
10000
12000
0
2000
4000
6000
8000
10000
Wetted Perimeter (feet)

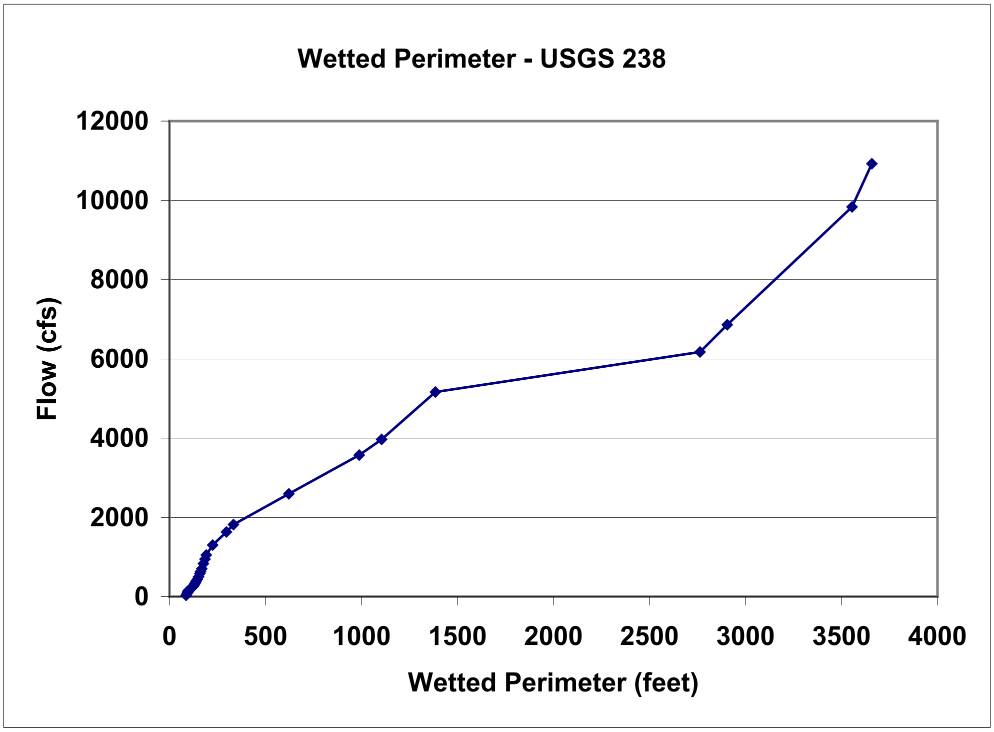

Wetted Perimeter - USGS 232
Flows less than 200 cfs
Flow (cfs)
0
20
40
60
80
100
120
140
160
180
200
31
0
50
100
150
200
Wetted Perimeter (feet)

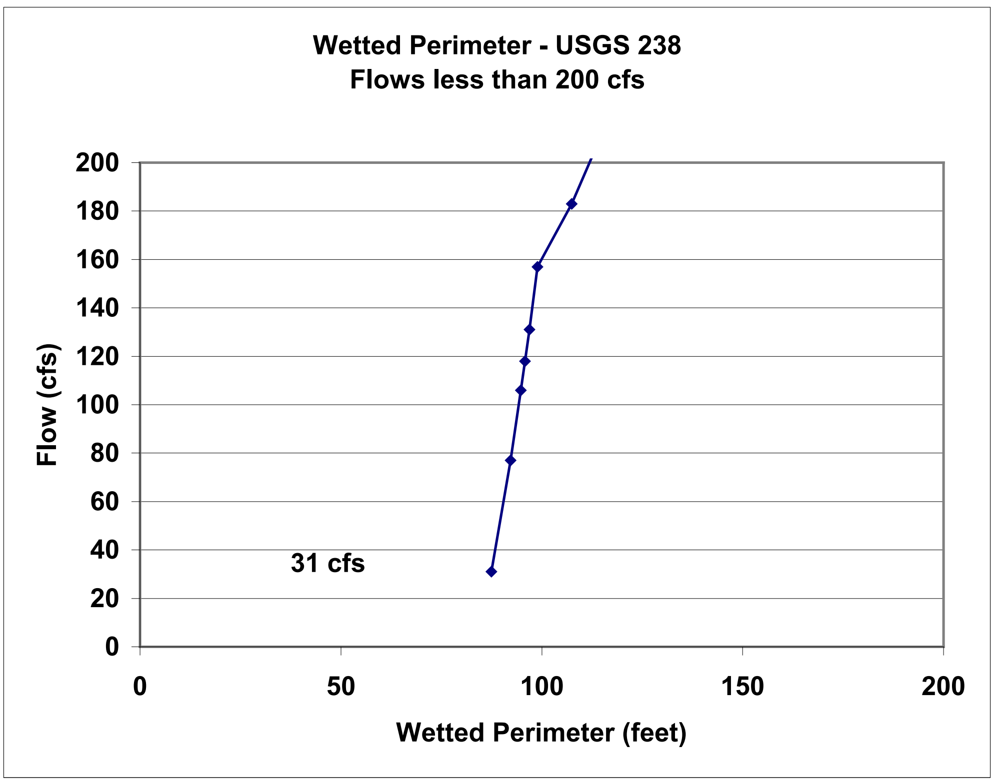

Wetted Perimeter - USGS 234
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
1000
2000
3000
4000
5000
Wetted Perimeter (feet)

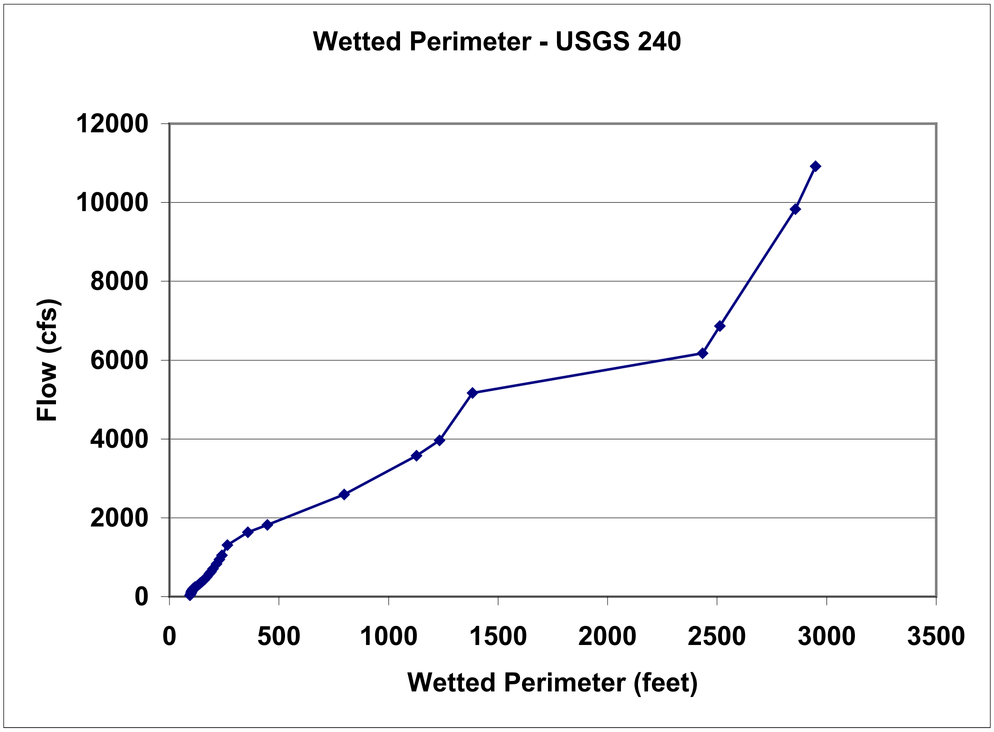

Wetted Perimeter - USGS 234
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)

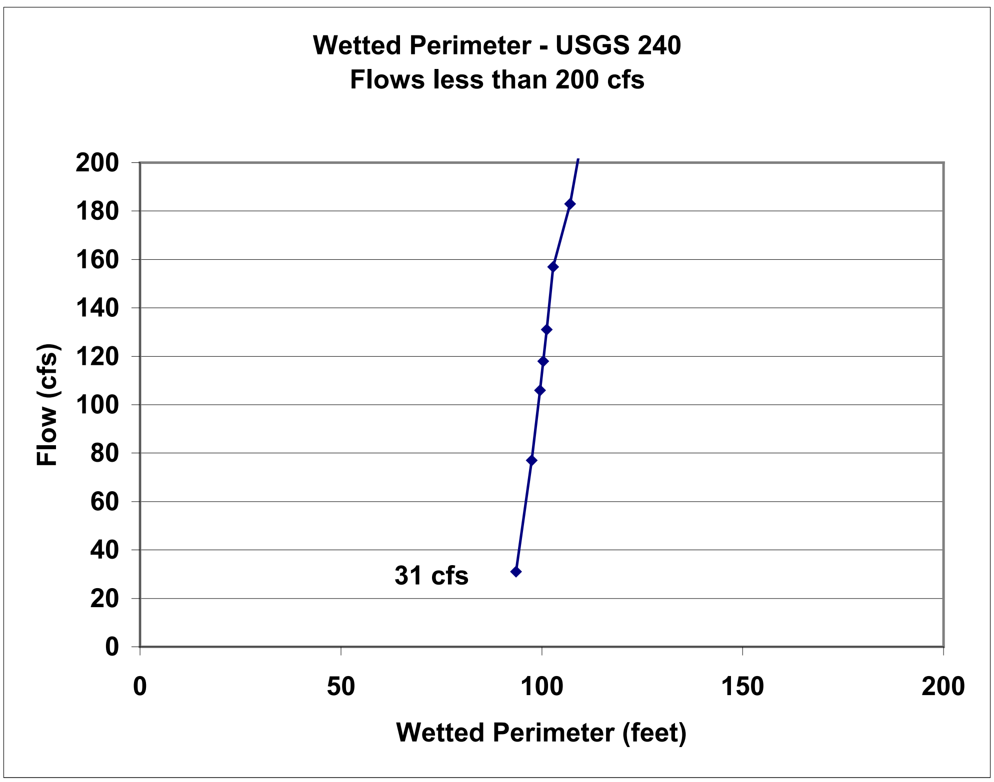

Wetted Perimeter - USGS 236
Flow (cfs)
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
Wetted Perimeter (feet)

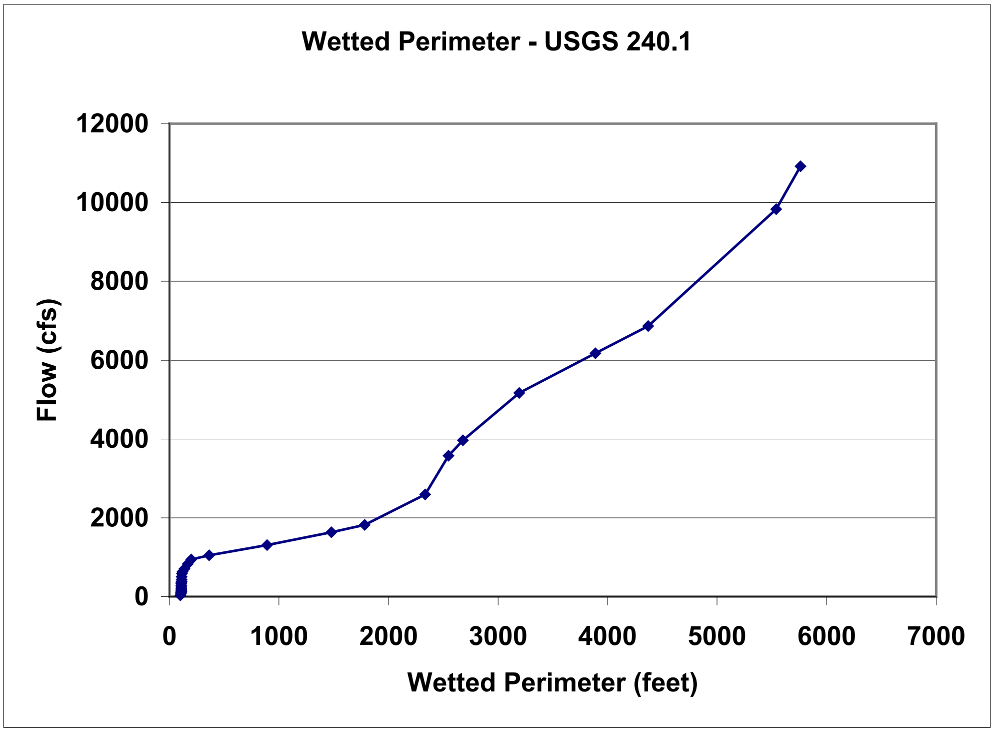

Wetted Perimeter - USGS 236
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)

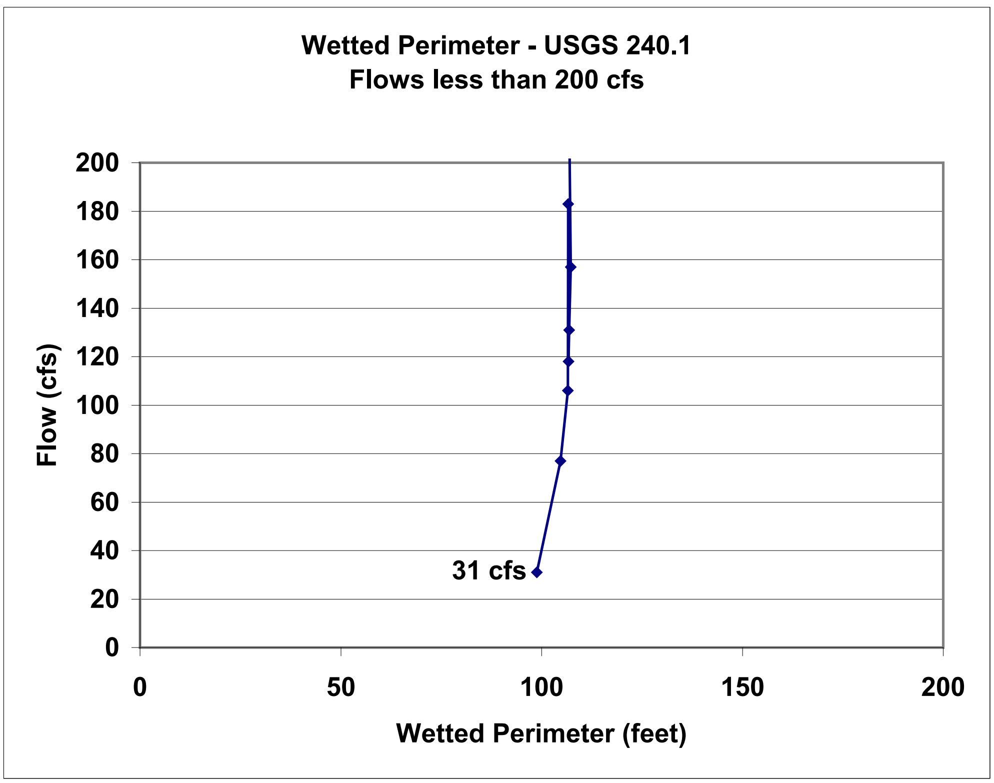

Wetted Perimeter - USGS 238
12000
10000
8000
6000
4000
2000
0
0
500
1000
1500
2000
2500
3000
3500
4000
Flow (cfs)
Wetted Perimeter (feet)

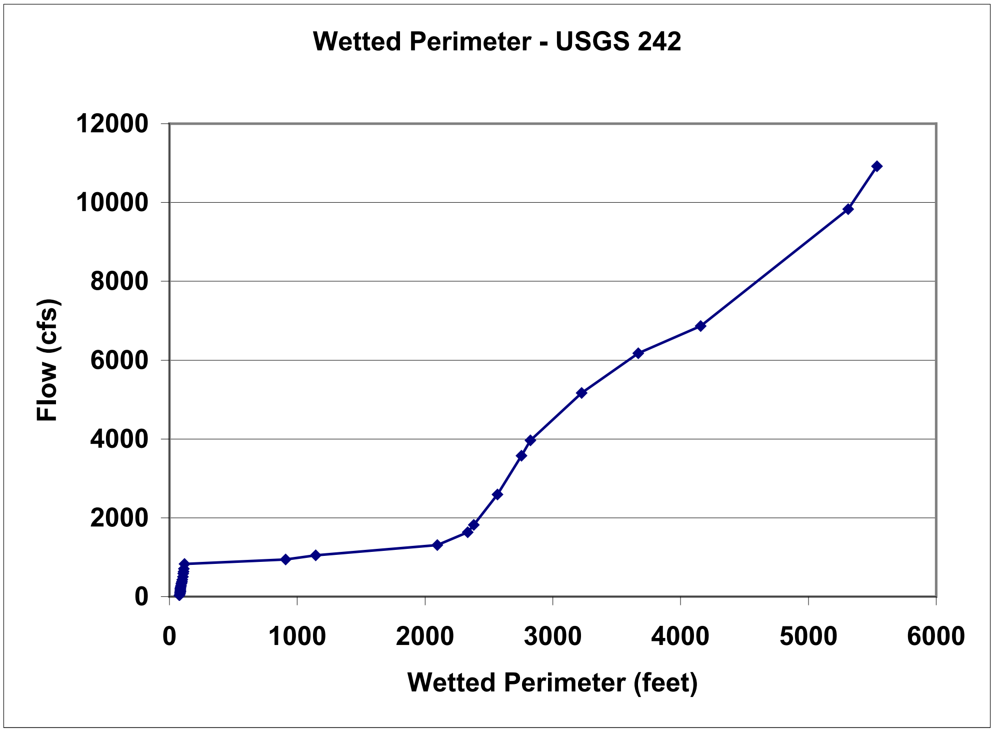

Wetted Perimeter - USGS 238
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
0
50
100
150
200
31 cfs
Flow (cfs)
Wetted Perimeter (feet)

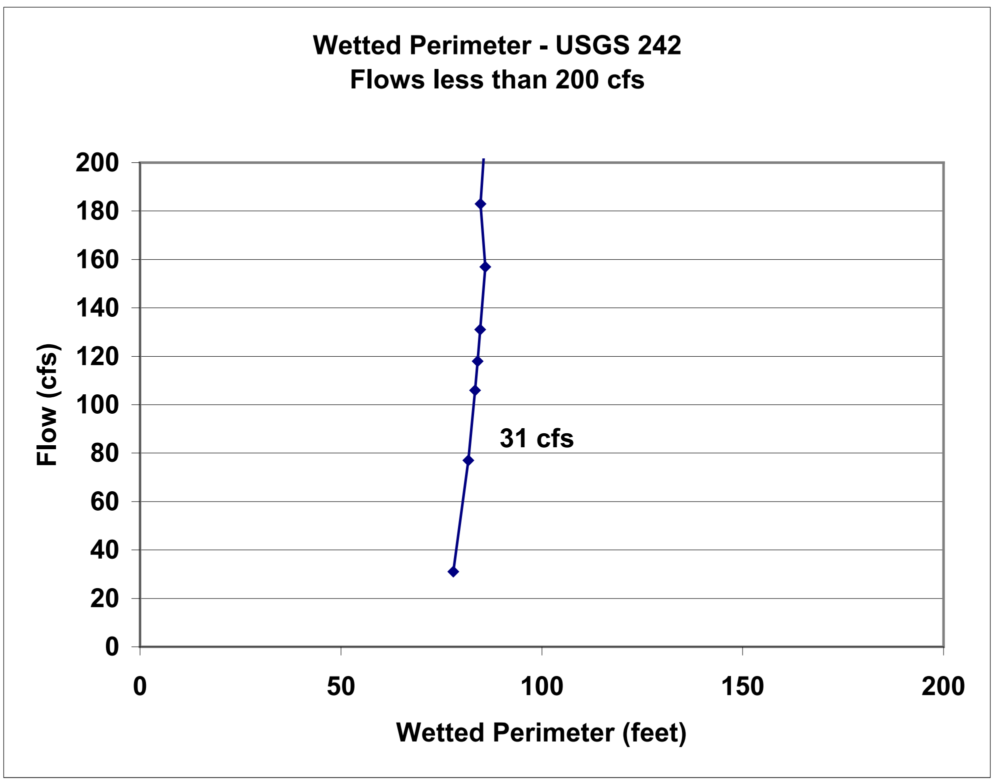

Wetted Perimeter - USGS 240
Flow (cfs)
12000
10000
8000
6000
4000
2000
0
0
500
1000
1500
2000
2500
3000
3500
Wetted Perimeter (feet)

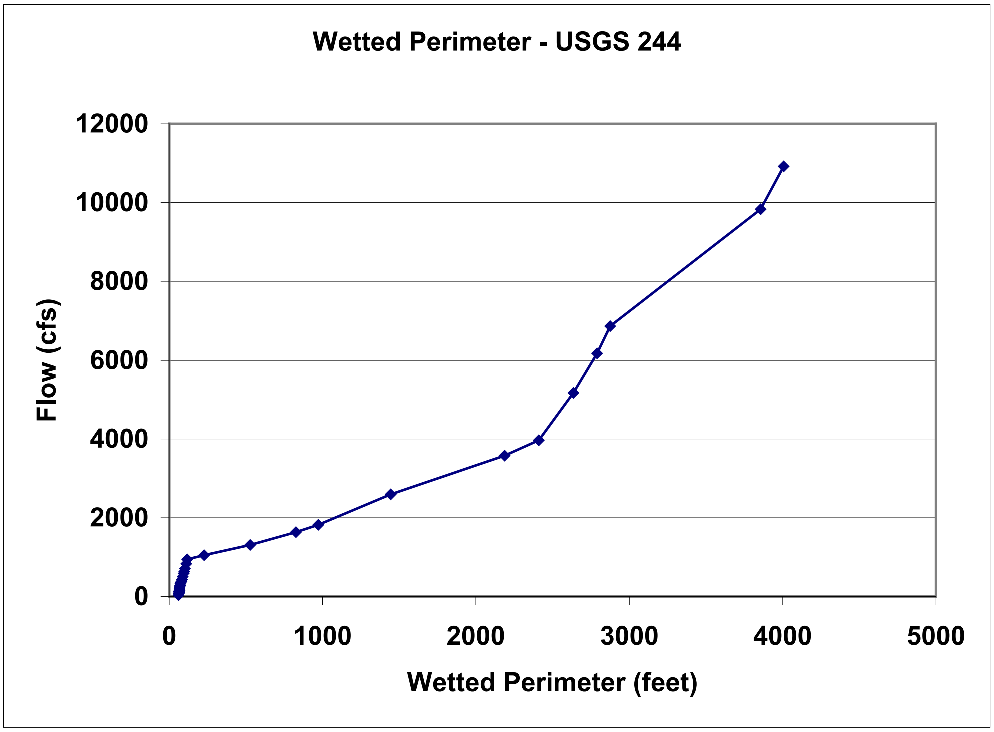

Wetted Perimeter - USGS 240
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)

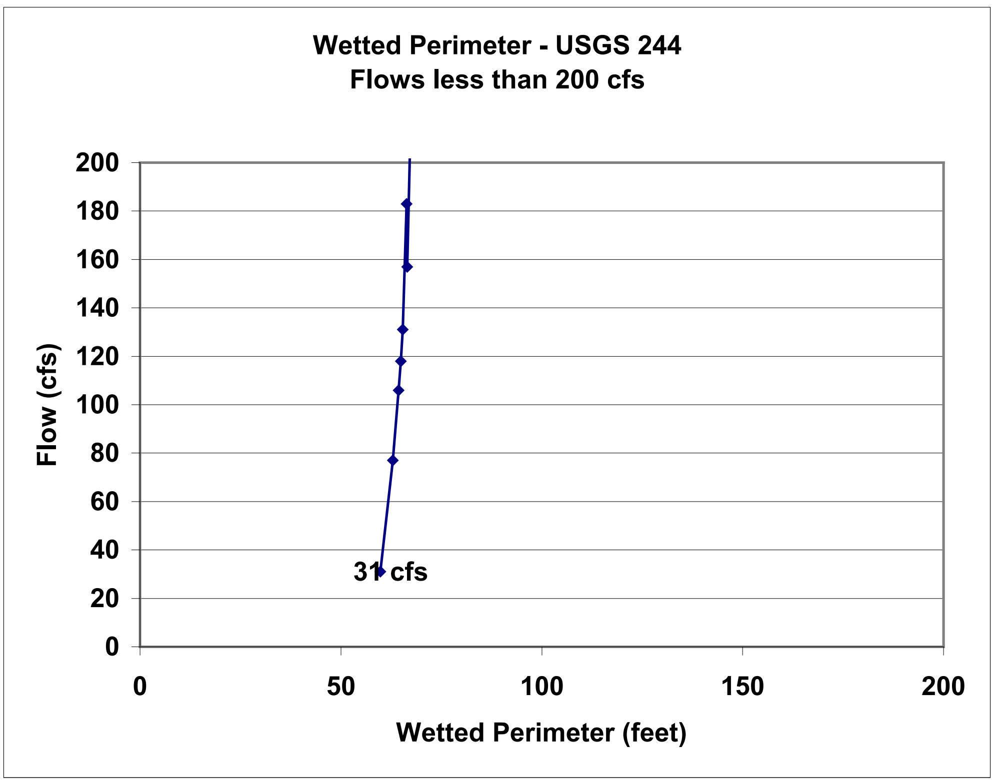

Wetted Perimeter - USGS 240.1
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
1000
2000
3000
4000
5000
6000
7000
Wetted Perimeter (feet)

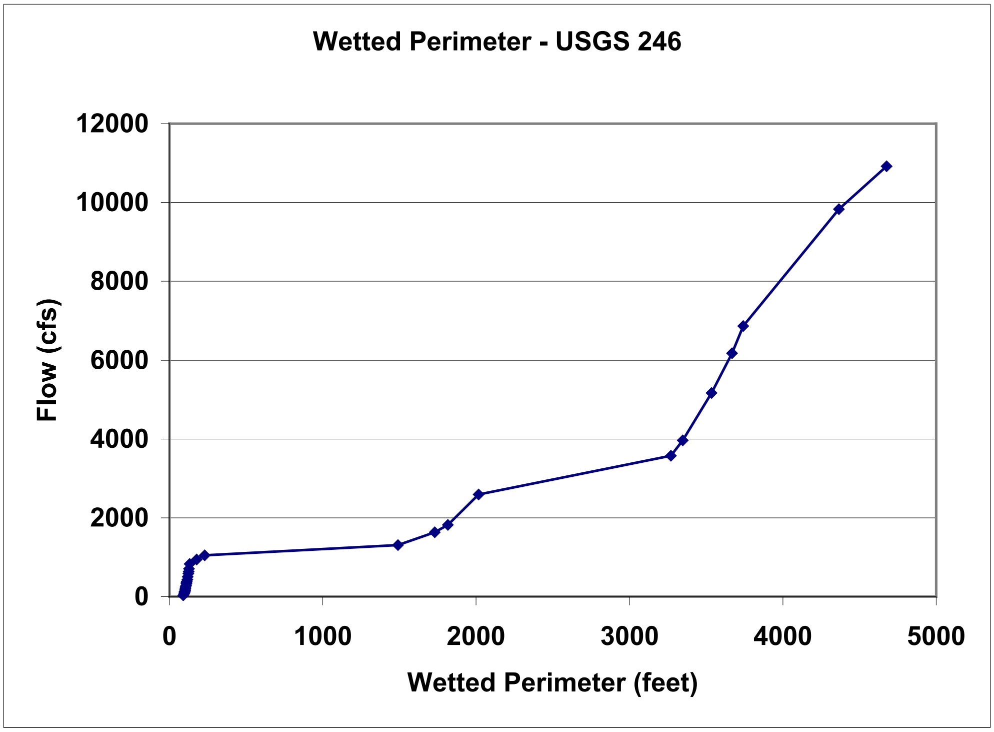

Wetted Perimeter - USGS 240.1
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 242
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
6000
Flow (cfs)
Wetted Perimeter (feet)

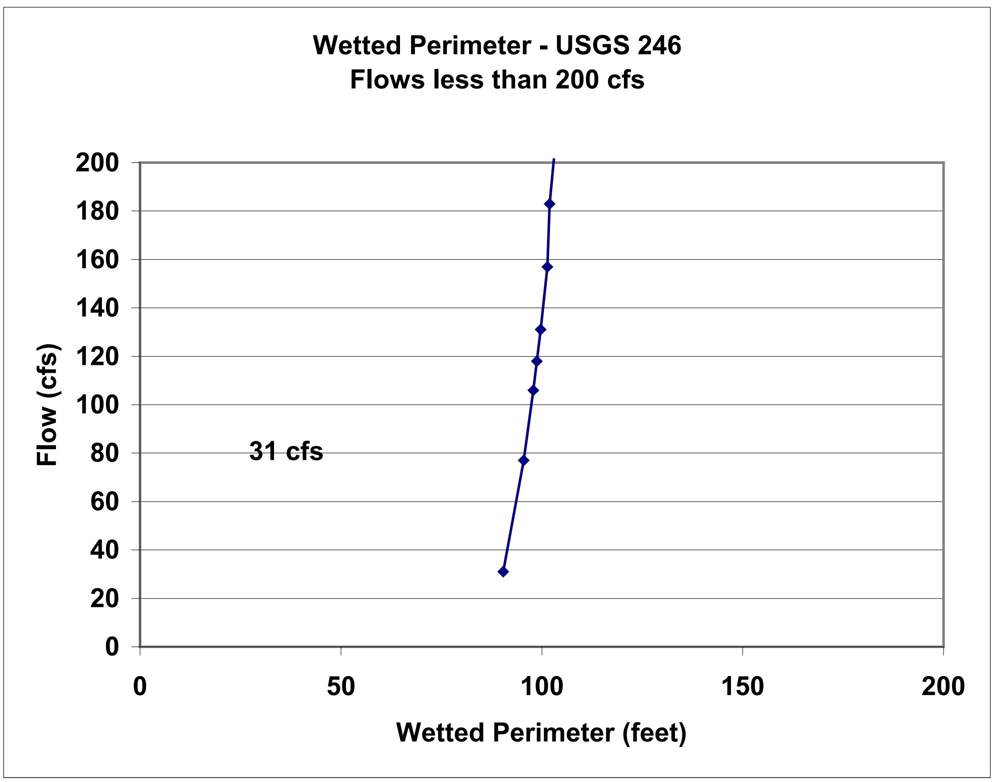

Wetted Perimeter - USGS 242
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
0
50
100
150
200
31 cfs
Flow (cfs)
Wetted Perimeter (feet)


Wetted Perimeter - USGS 244
Flow (cfs)
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
Wetted Perimeter (feet)

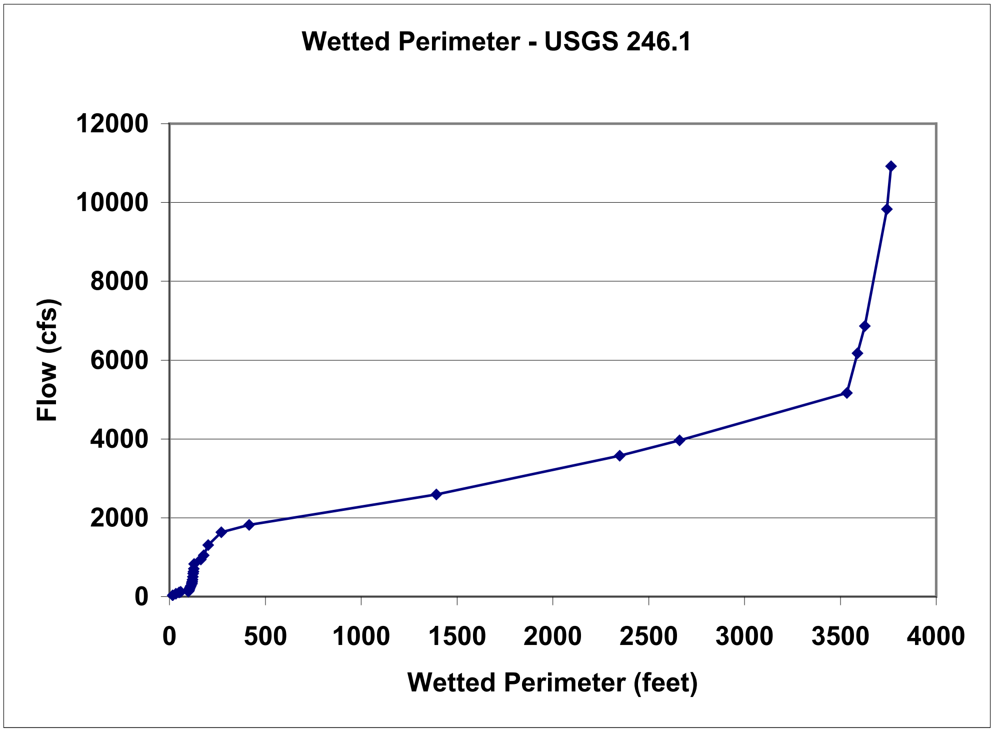

Wetted Perimeter - USGS 244
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)

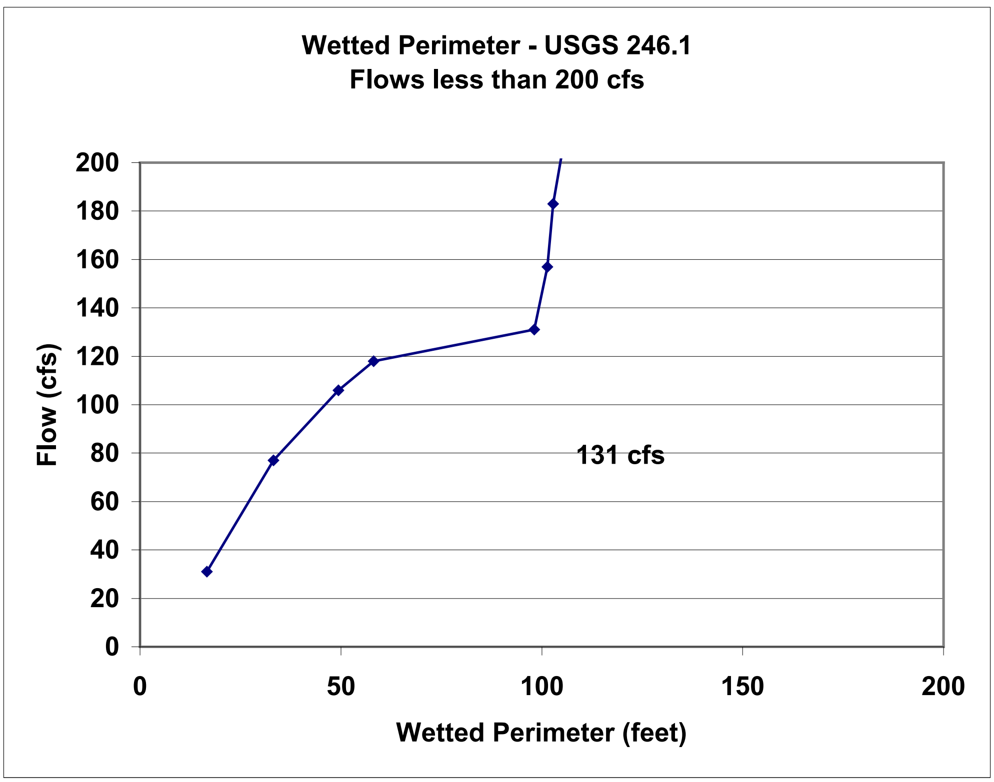


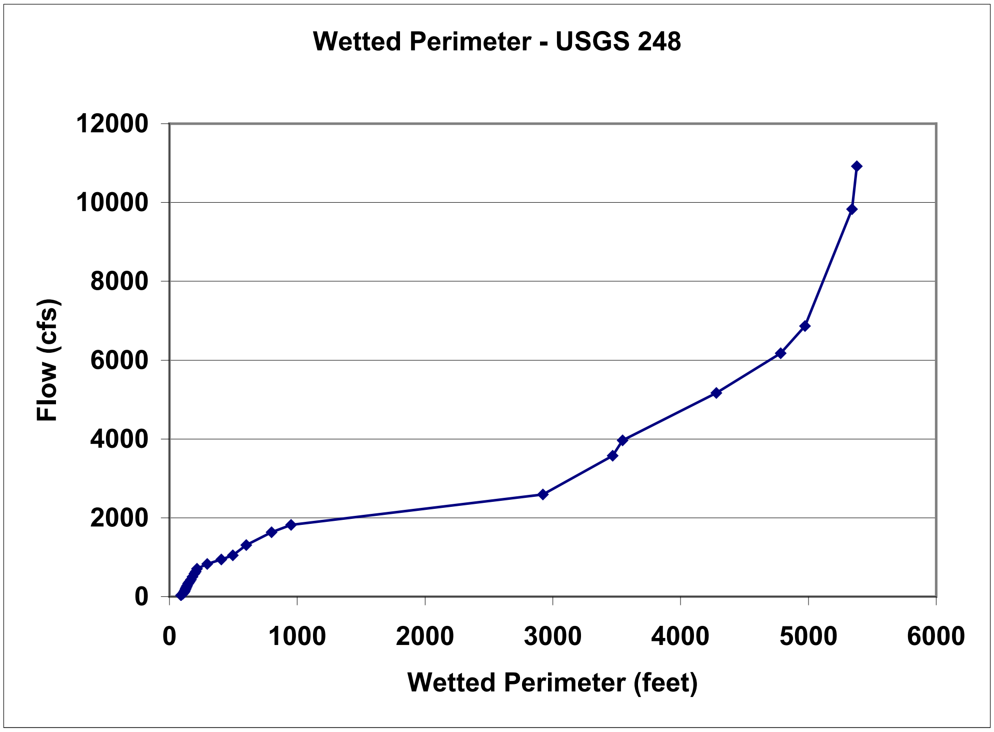
Wetted Perimeter - USGS 246
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
1000
2000
3000
4000
5000
Wetted Perimeter (feet)

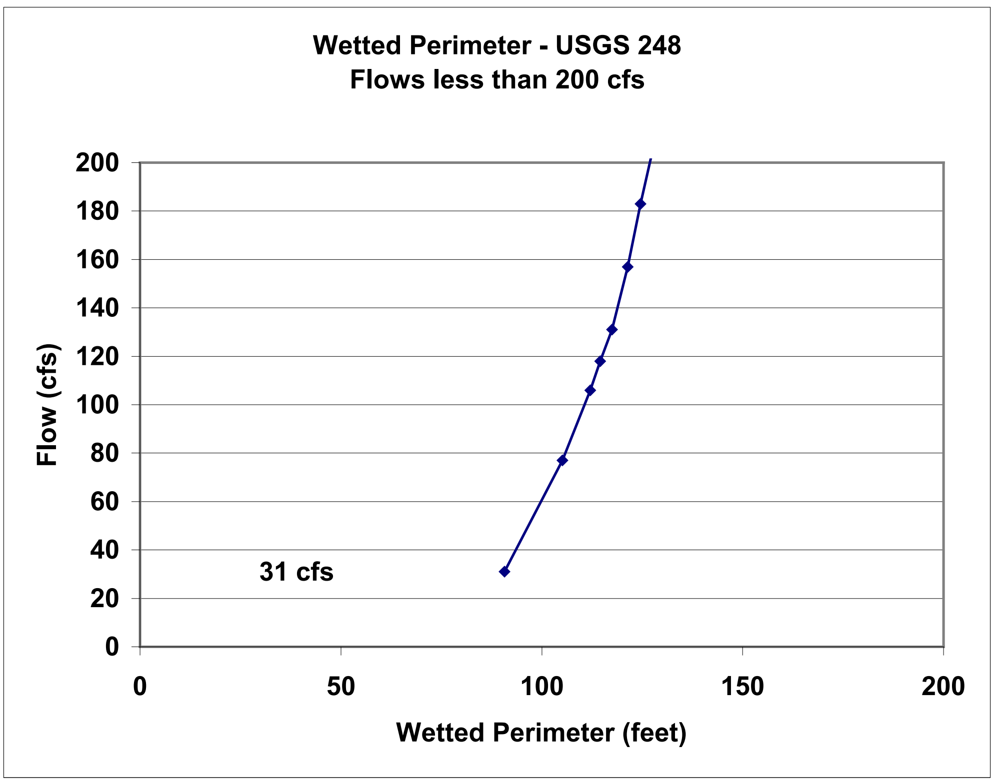


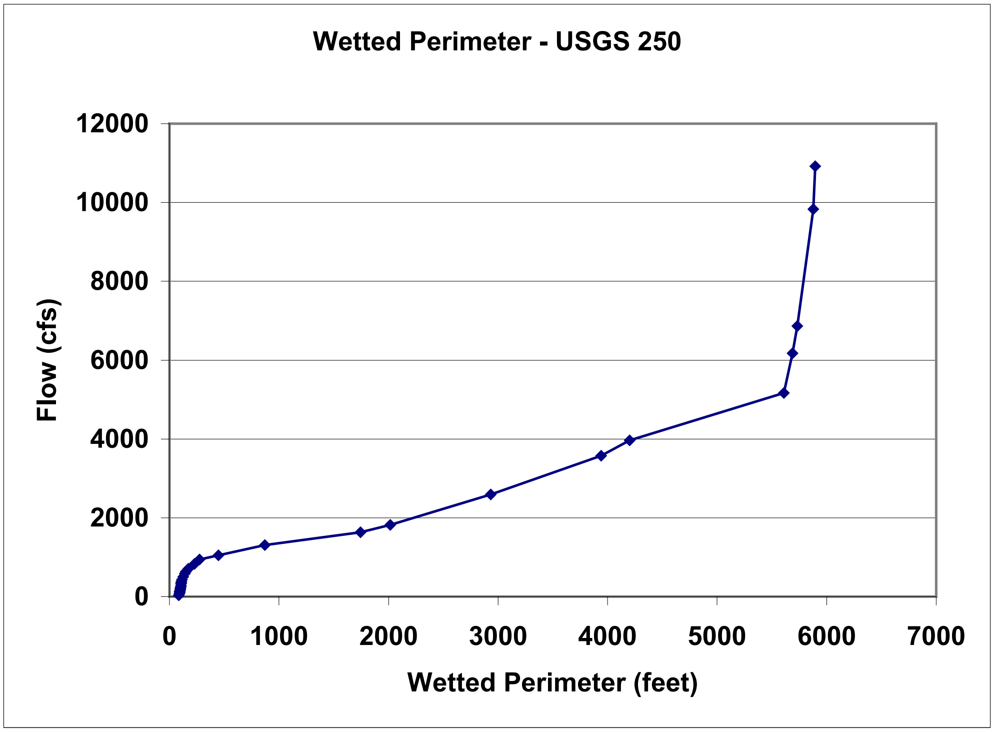
Wetted Perimeter - USGS 246
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 246.1
Flow (cfs)
0
2000
4000
6000
8000
10000
12000
0
500
1000
1500
2000
2500
3000
3500
4000
Wetted Perimeter (feet)

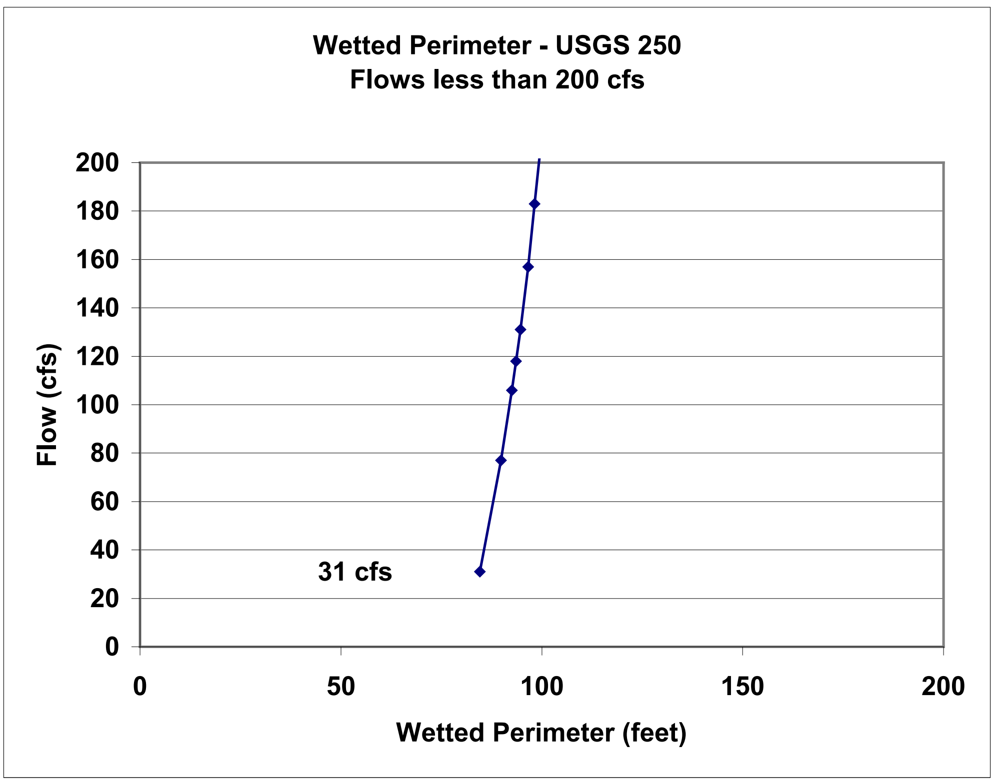

Wetted Perimeter - USGS 246.1
Flows less than 200 cfs
Flow (cfs)
0
20
40
60
80
100
120
140
160
180
200
131 cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 248
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
1000
2000
3000
4000
5000
6000
Wetted Perimeter (feet)

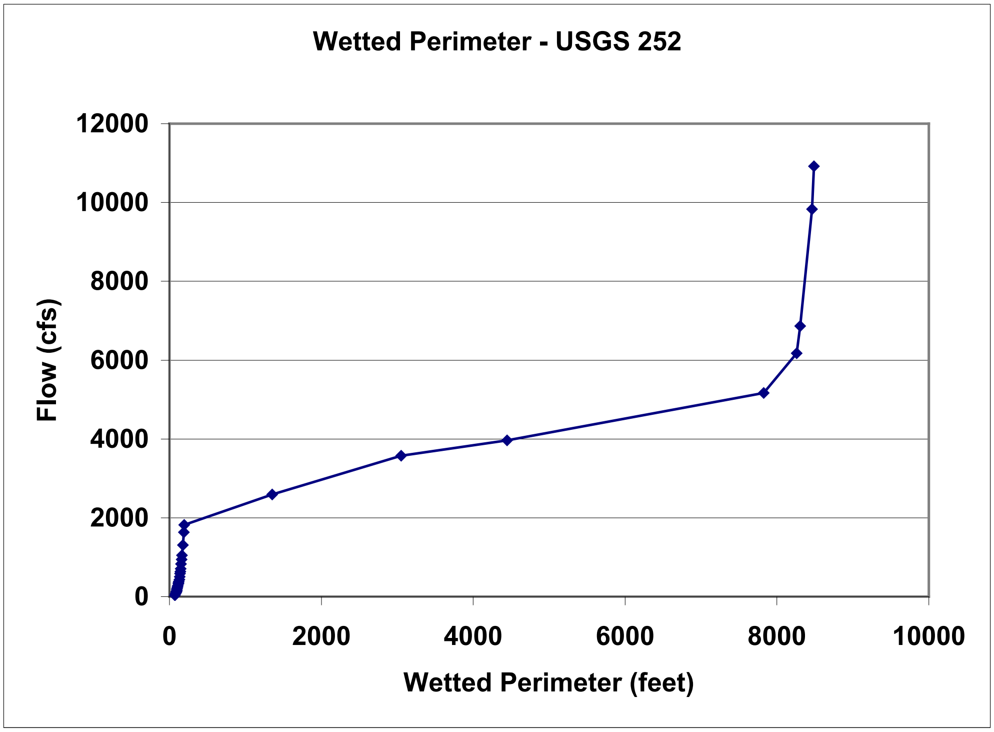

Wetted Perimeter - USGS 248
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)



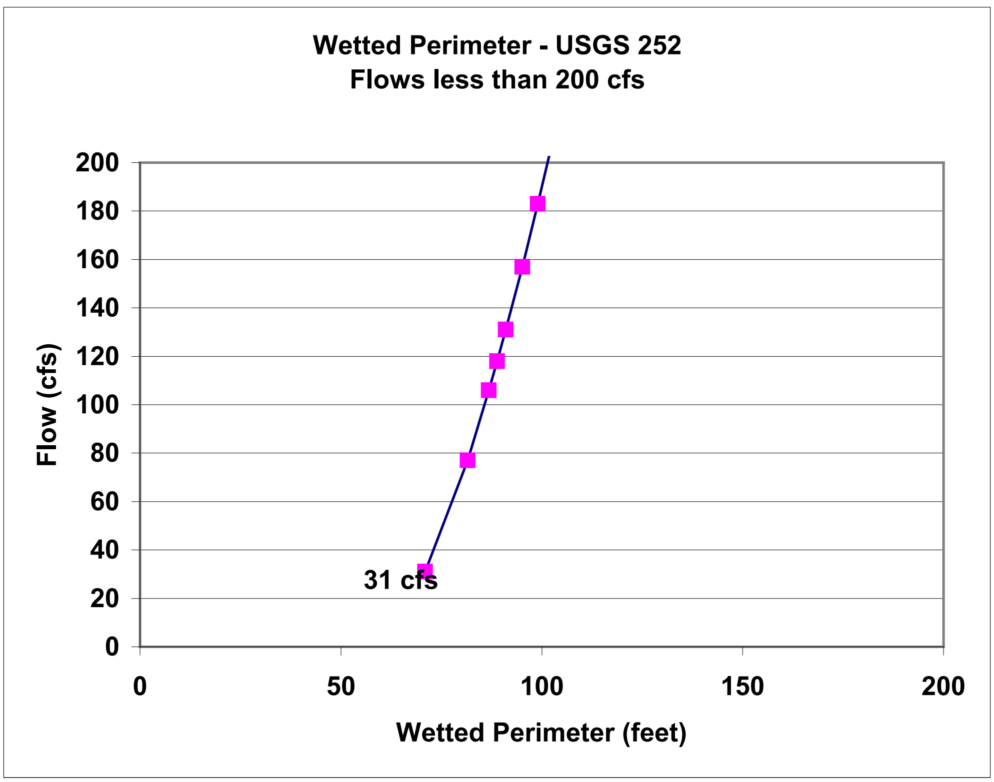
Wetted Perimeter - USGS 250
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
1000
2000
3000
4000
5000
6000
7000
Wetted Perimeter (feet)



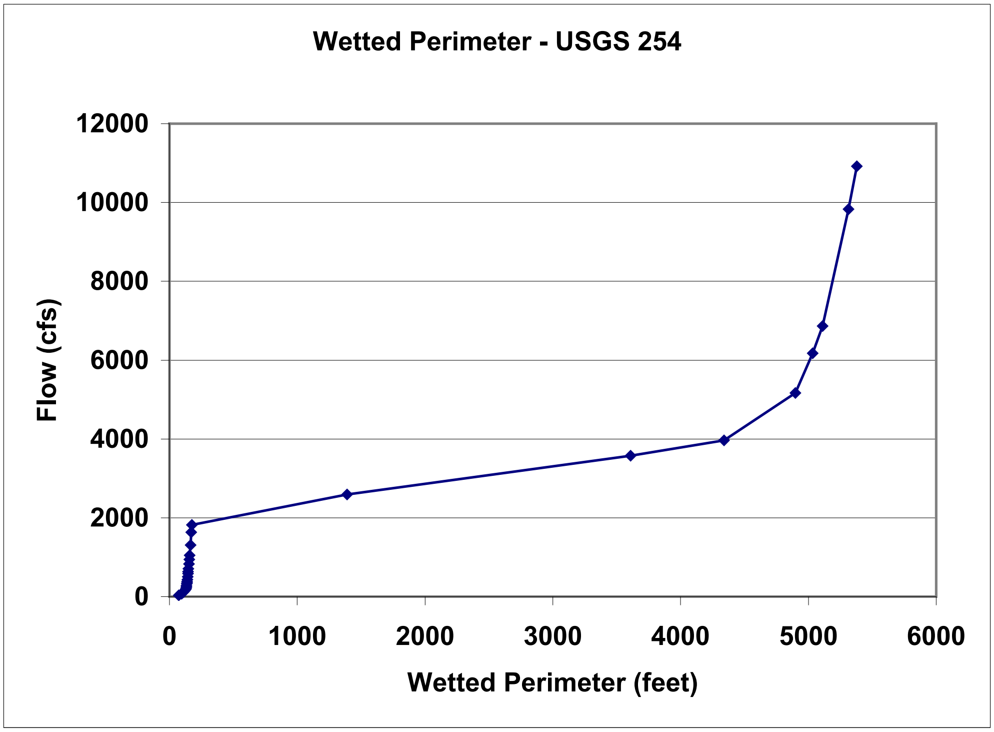
Wetted Perimeter - USGS 250
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)

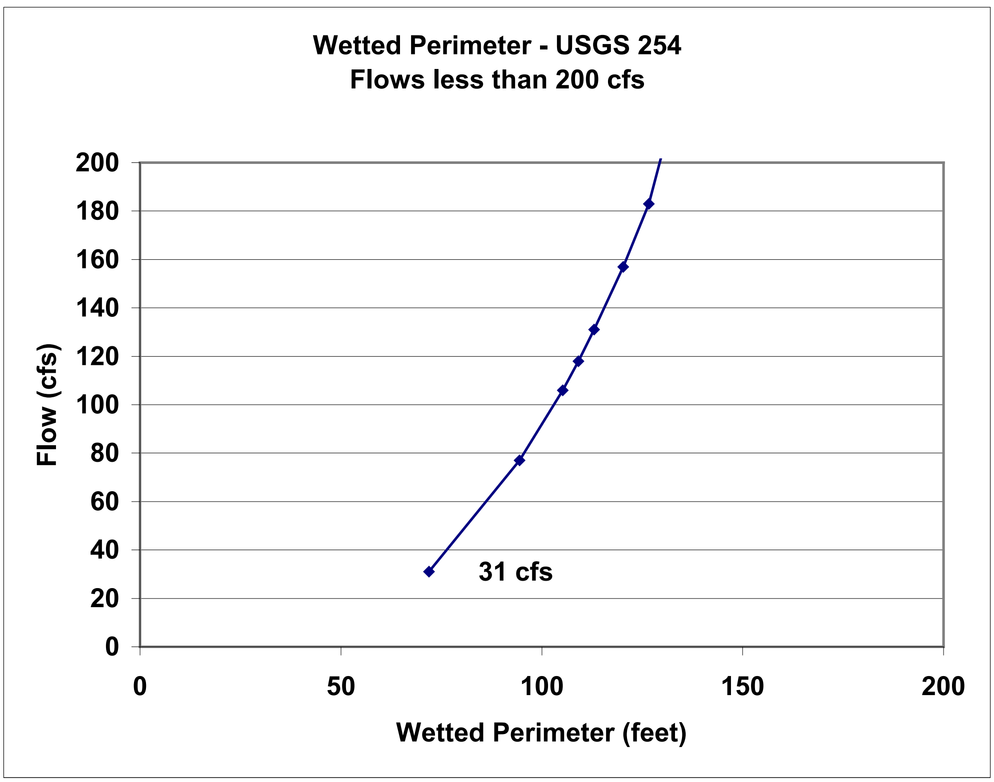


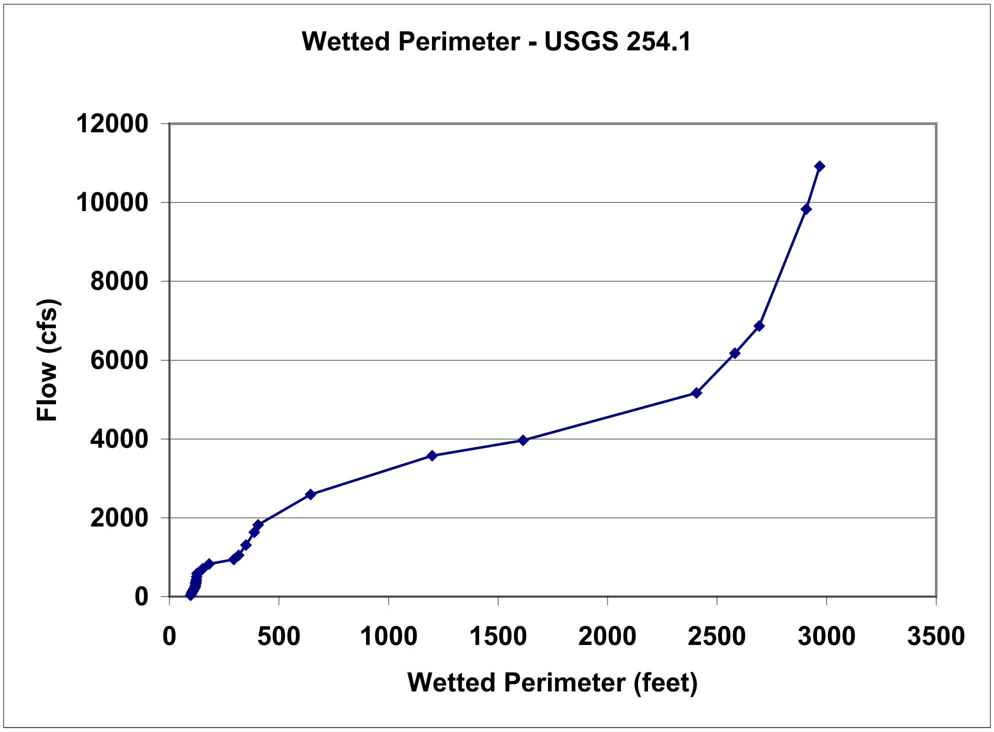
Wetted Perimeter - USGS 252
Flow (cfs)
12000
10000
8000
6000
4000
2000
0
0
2000
4000
6000
8000
10000
Wetted Perimeter (feet)

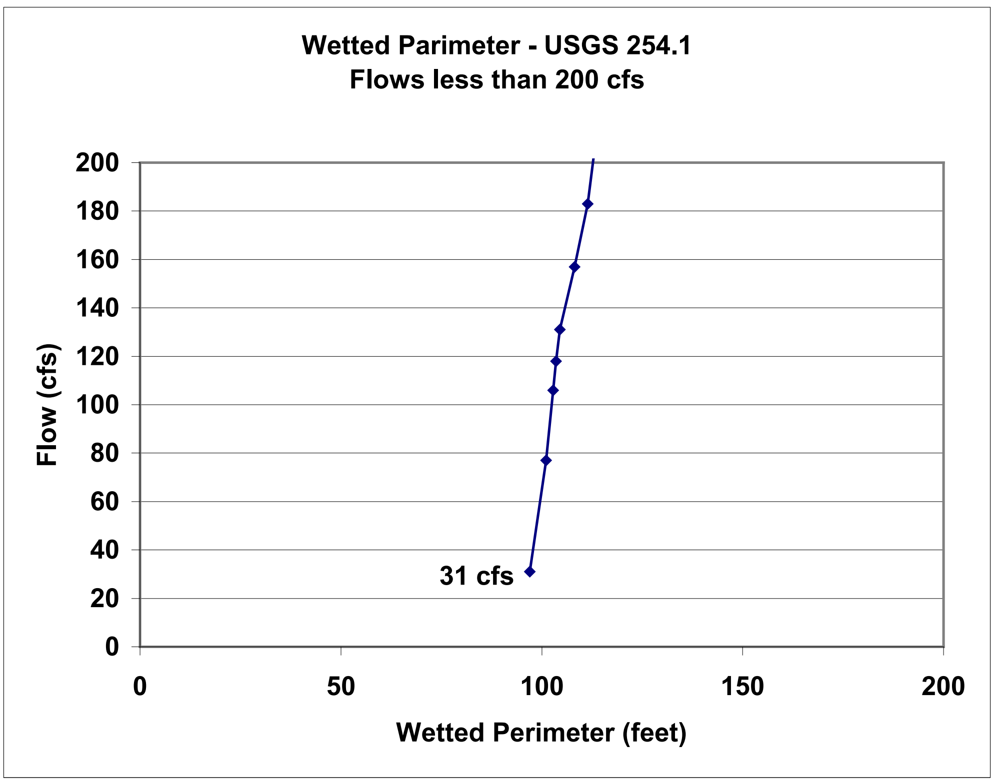


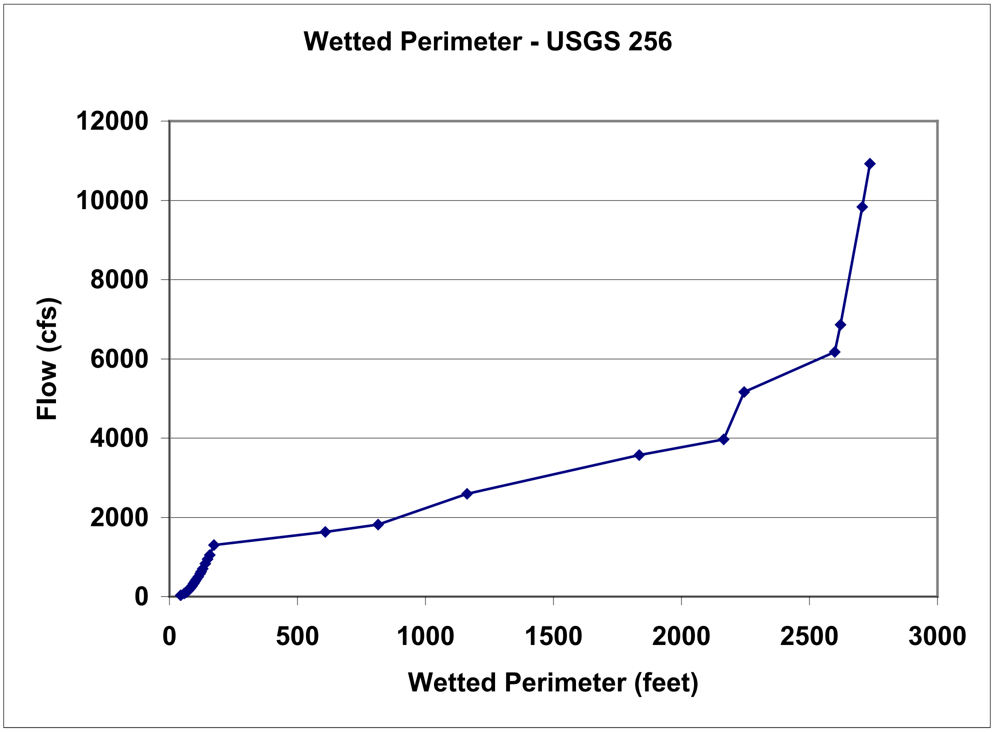
Wetted Perimeter - USGS 252
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)

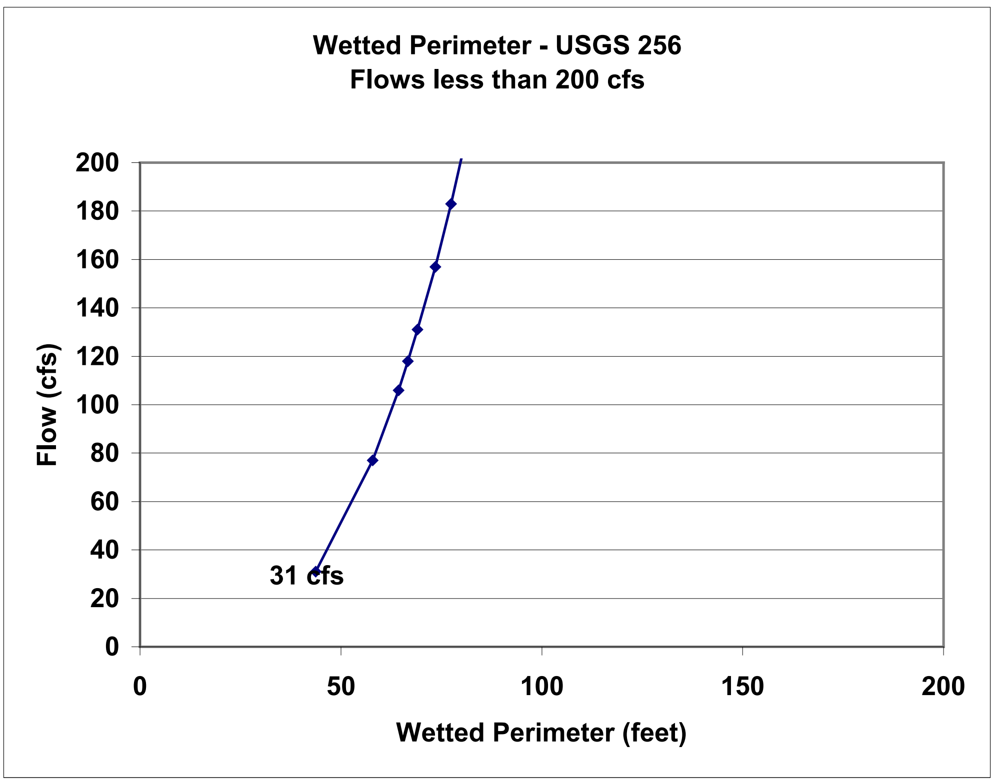

Wetted Perimeter - USGS 254
Flow (cfs)
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
6000
Wetted Perimeter (feet)

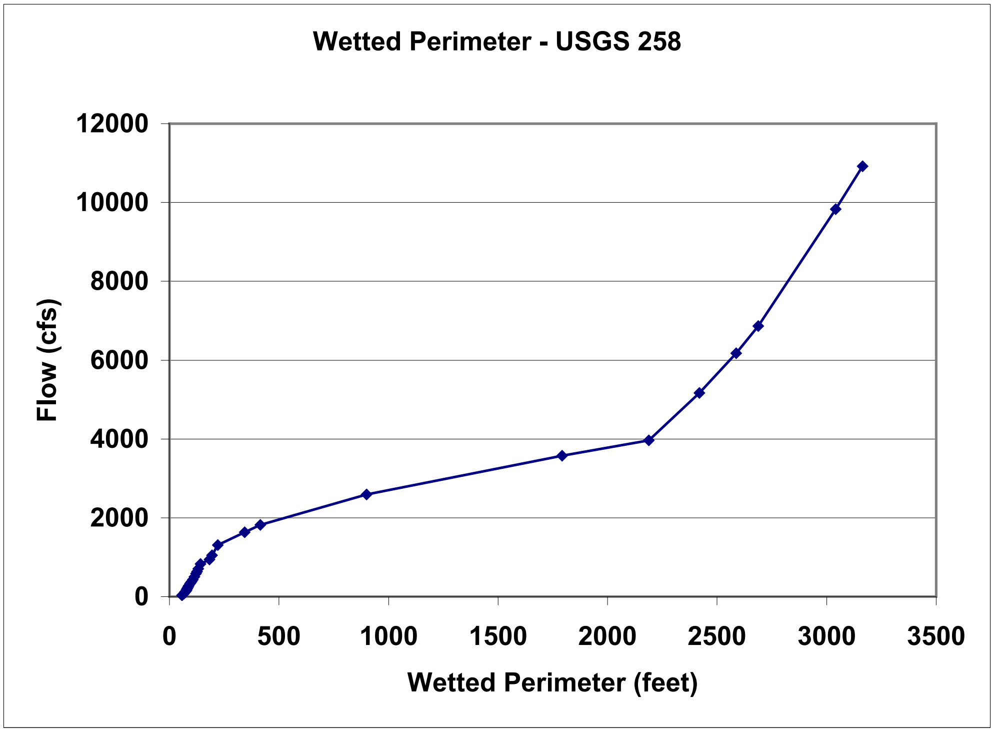

Wetted Perimeter - USGS 254
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)

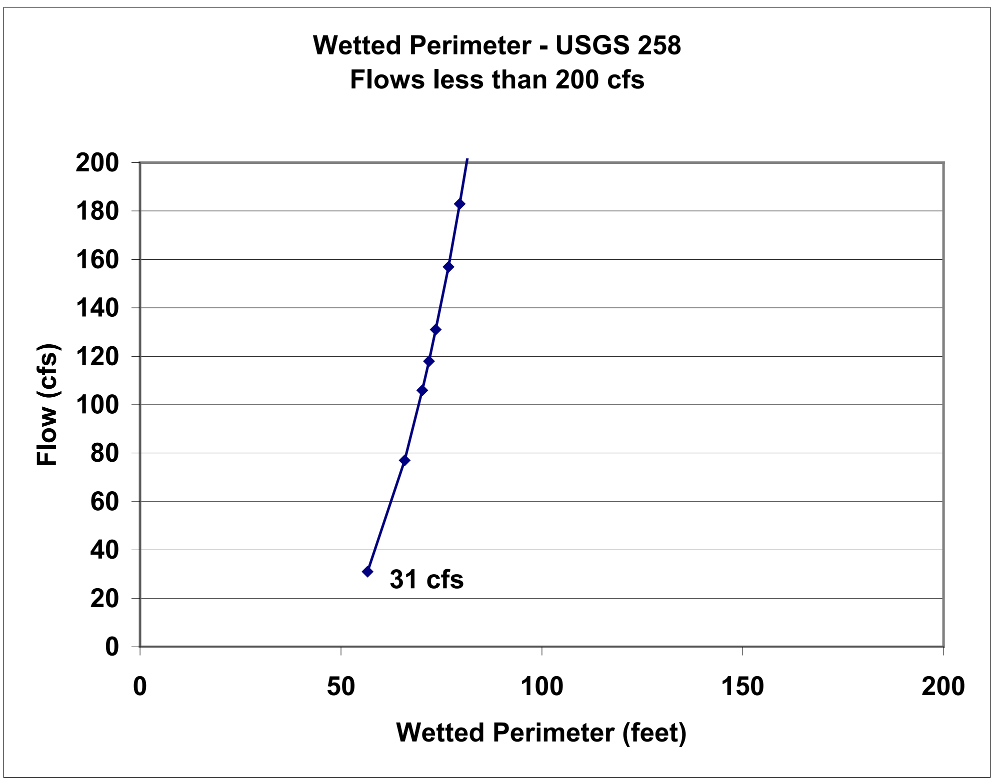

Wetted Perimeter - USGS 254.1
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
500
1000
1500
2000
2500
3000
3500
Wetted Perimeter (feet)

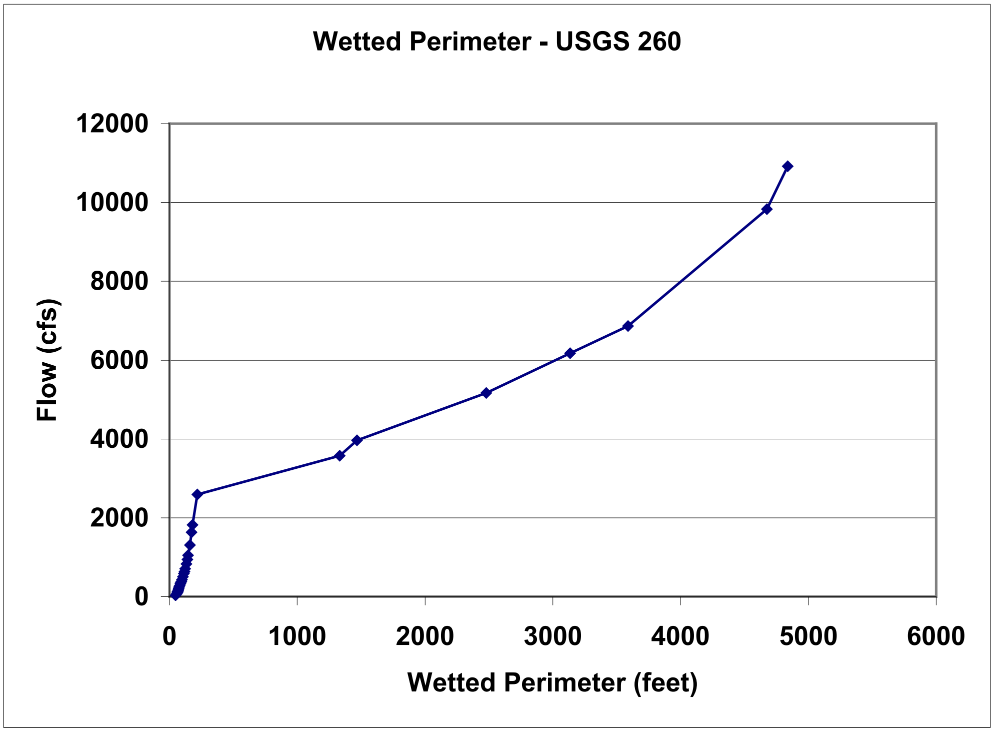

Wetted Perimeter - USGS 254.1
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 256
Flow (cfs)
Wetted Perimeter (feet)
12000
10000
8000
6000
4000
2000
0
0
500
1000
1500
2000
2500
3000

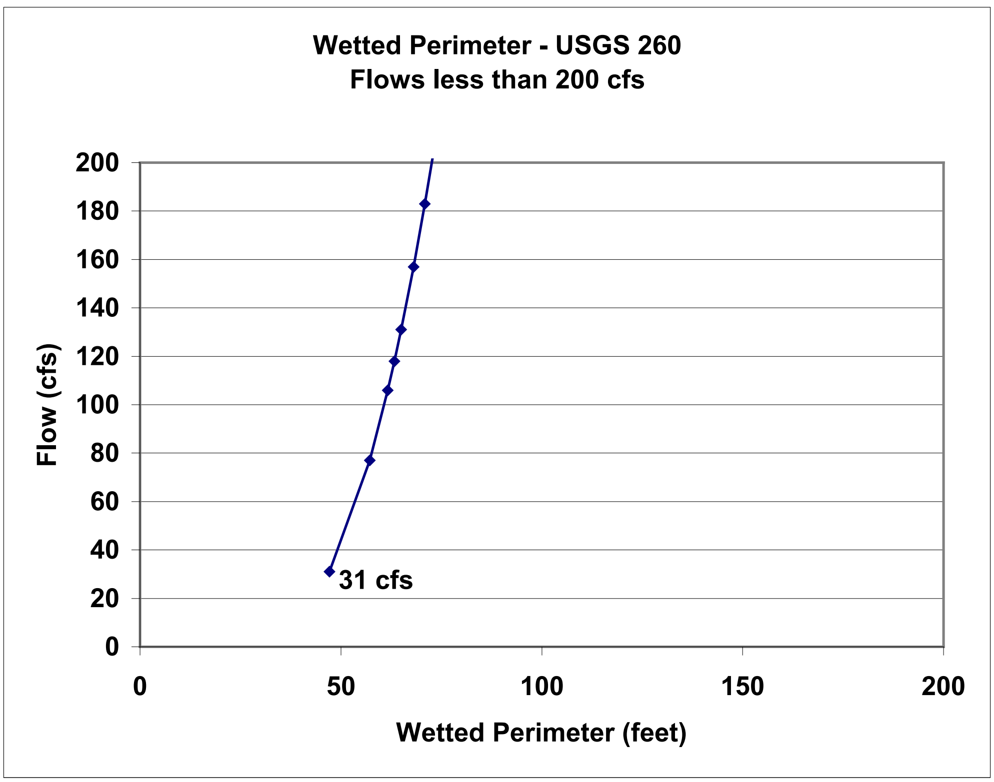

Wetted Perimeter - USGS 256
Flows less than 200 cfs
Flow (cfs)
Wetted Perimeter (feet)
31 cfs
200
180
160
140
120
100
80
60
40
20
0
0
50
100
150
200


Wetted Perimeter - USGS 258
12000
10000
8000
6000
4000
2000
0
0
500
1000
1500
2000
2500
3000
3500
Flow (cfs)
Wetted Perimeter (feet)

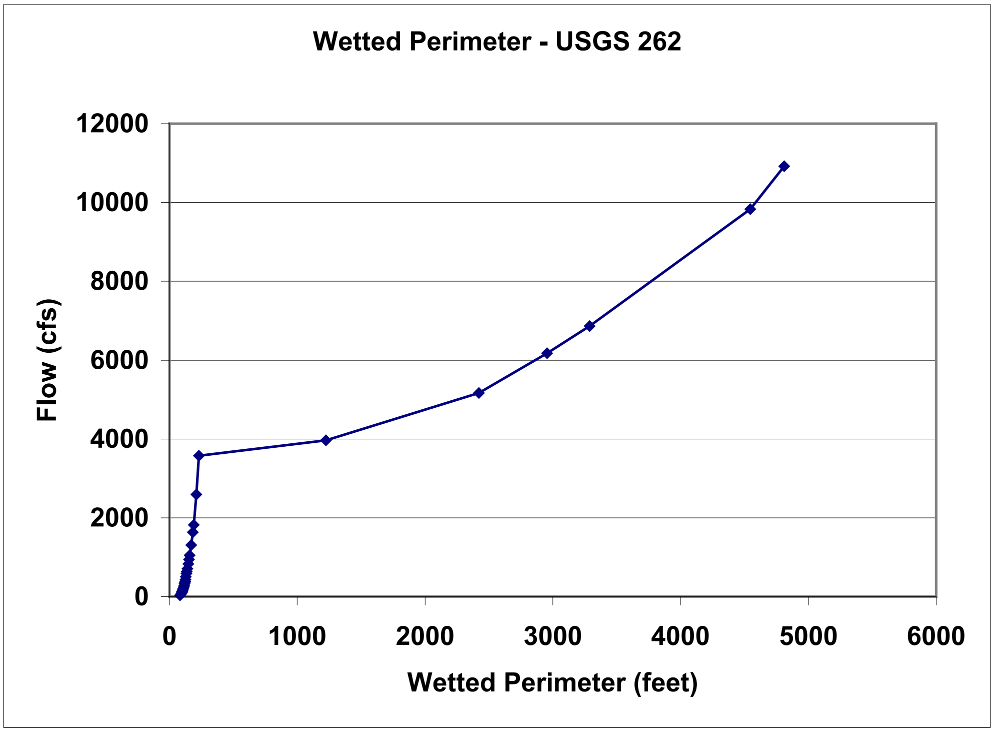

Wetted Perimeter - USGS 258
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
0
50
100
150
200
31 cfs
Flow (cfs)
Wetted Perimeter (feet)

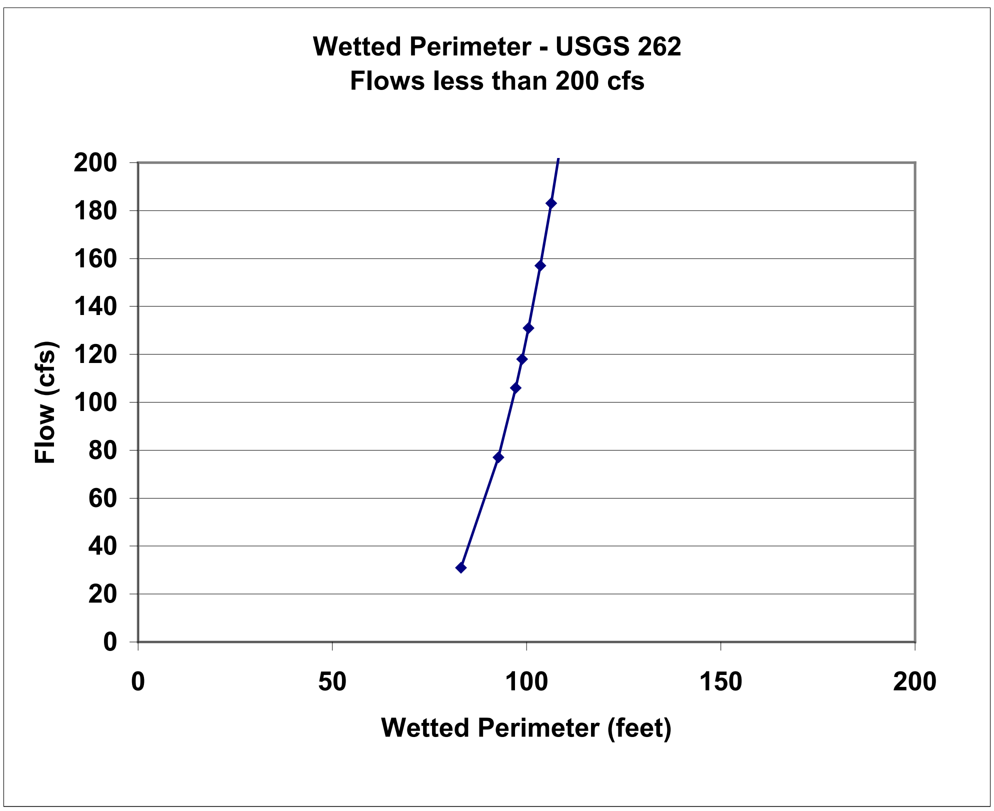


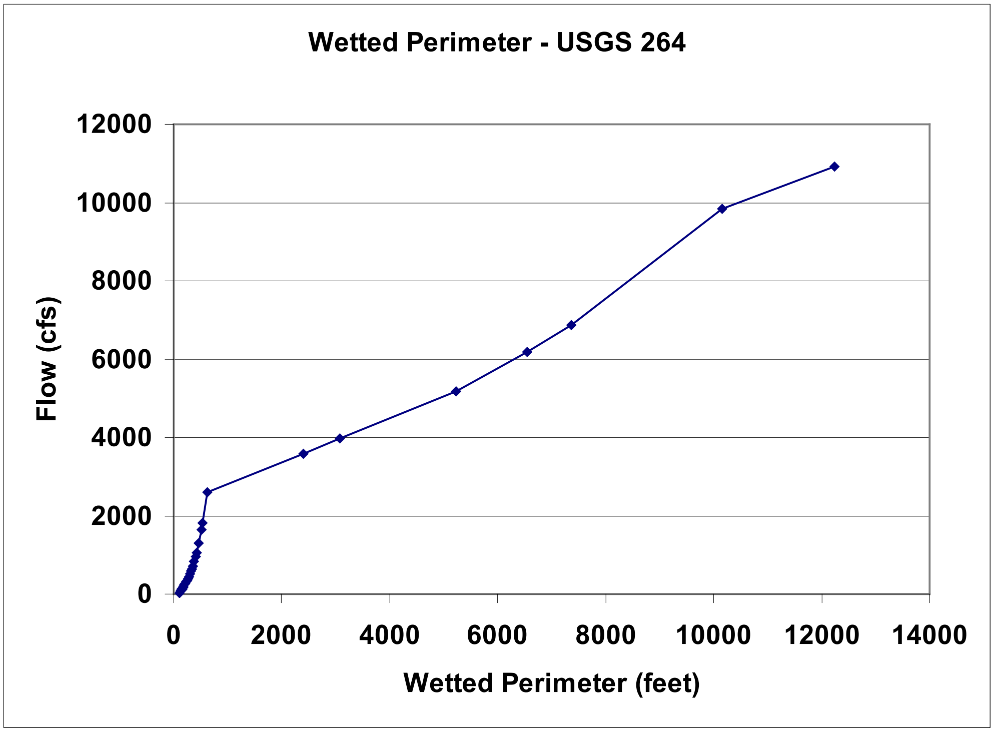
Wetted Perimeter - USGS 260
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
6000
Flow (cfs)
Wetted Perimeter (feet)

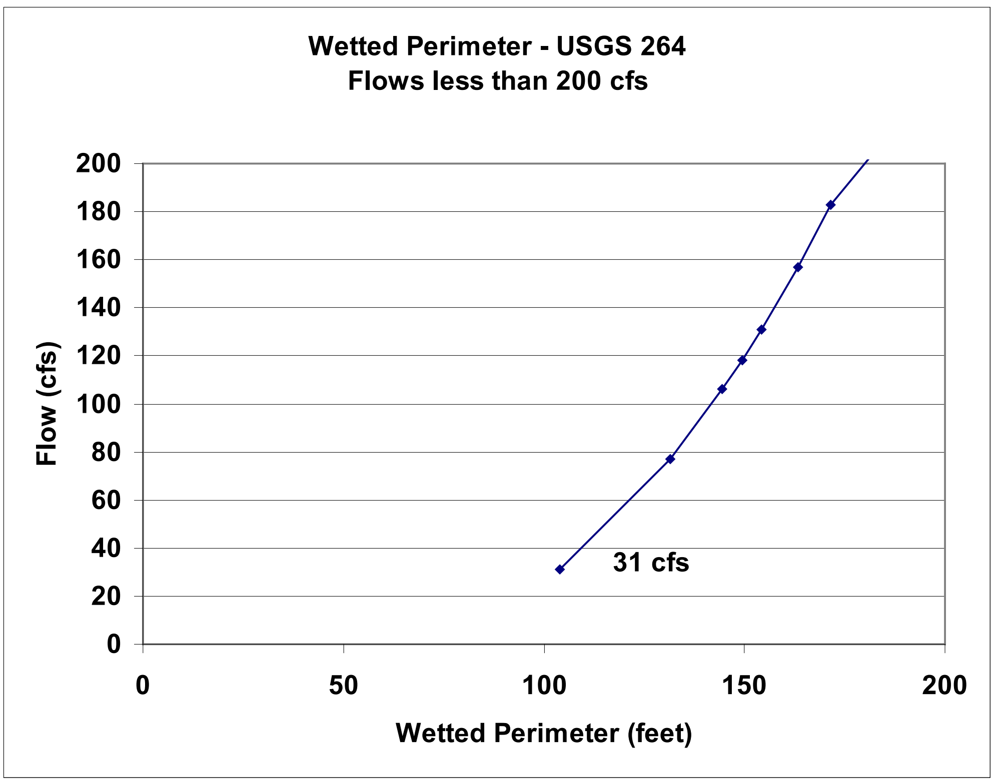


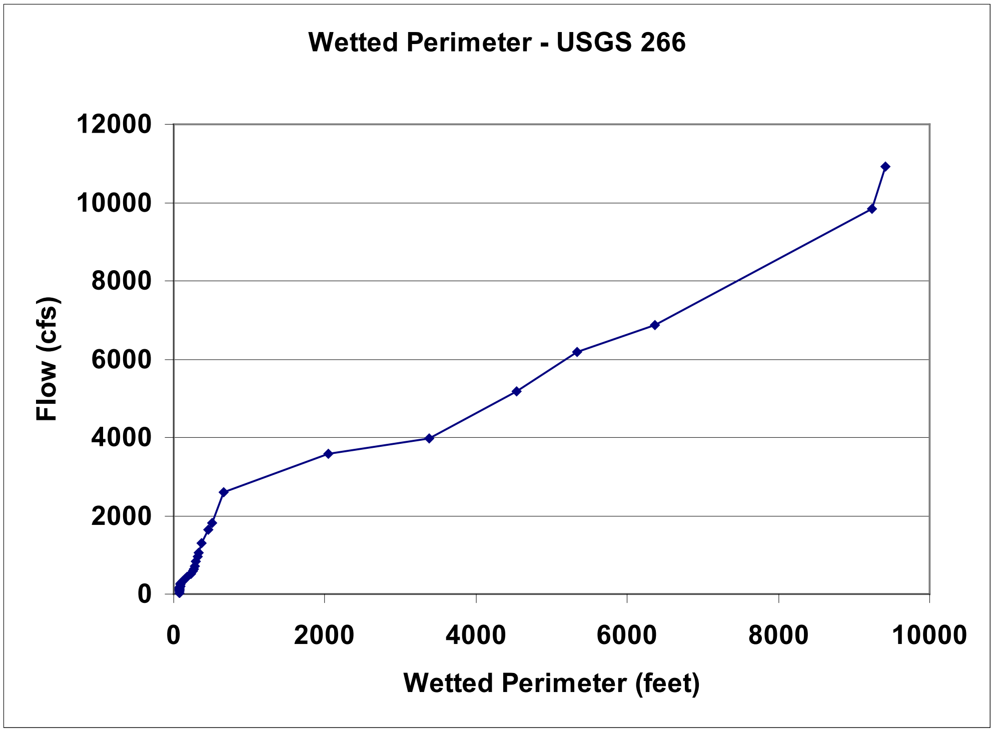
Wetted Perimeter - USGS 260
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
0
50
100
150
200
Flow (cfs)
Wetted Perimeter (feet)
31 cfs

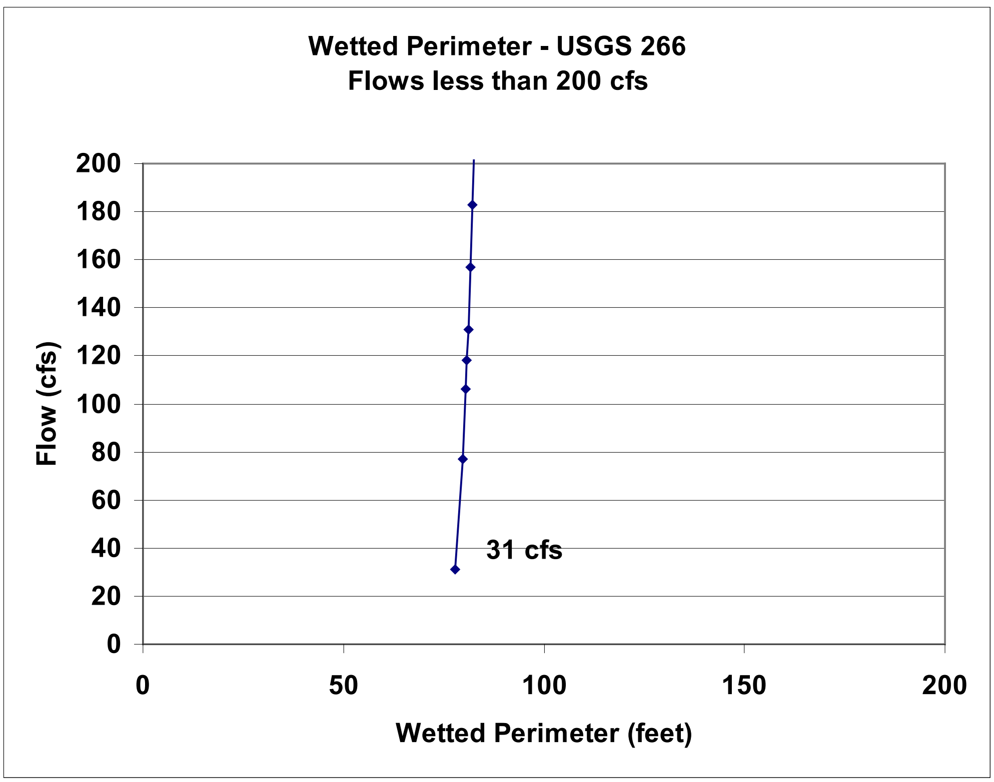

Wetted Perimeter - USGS 262
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
1000
2000
3000
4000
5000
6000
Wetted Perimeter (feet)

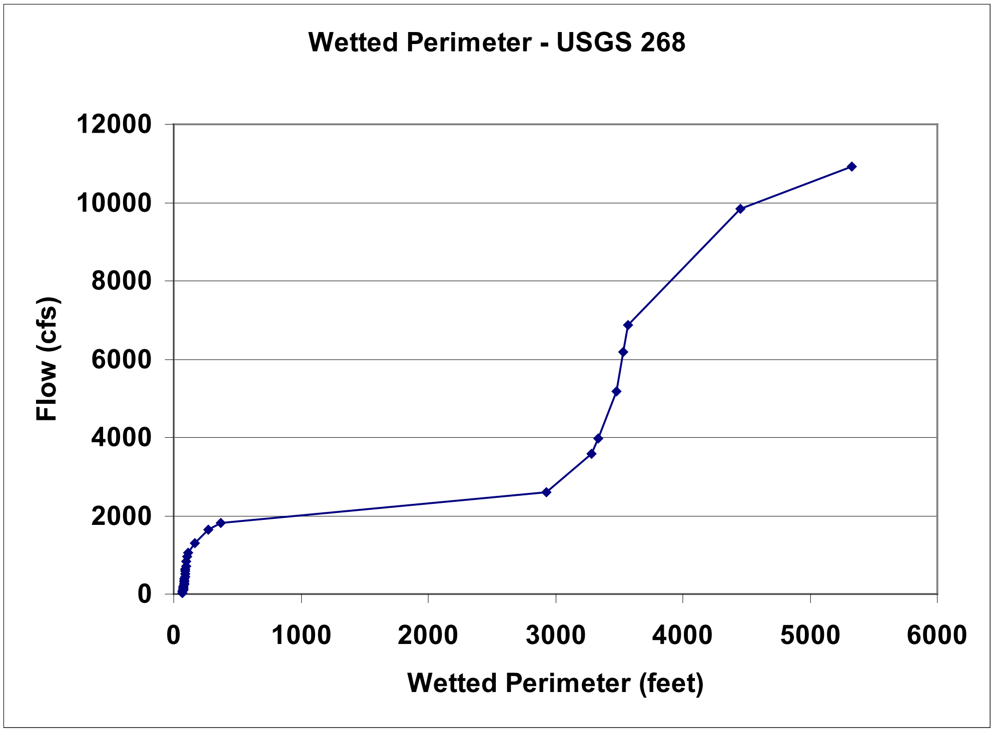

Wetted Perimeter - USGS 262
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
0
50
100
150
200
Wetted Perimeter (feet)

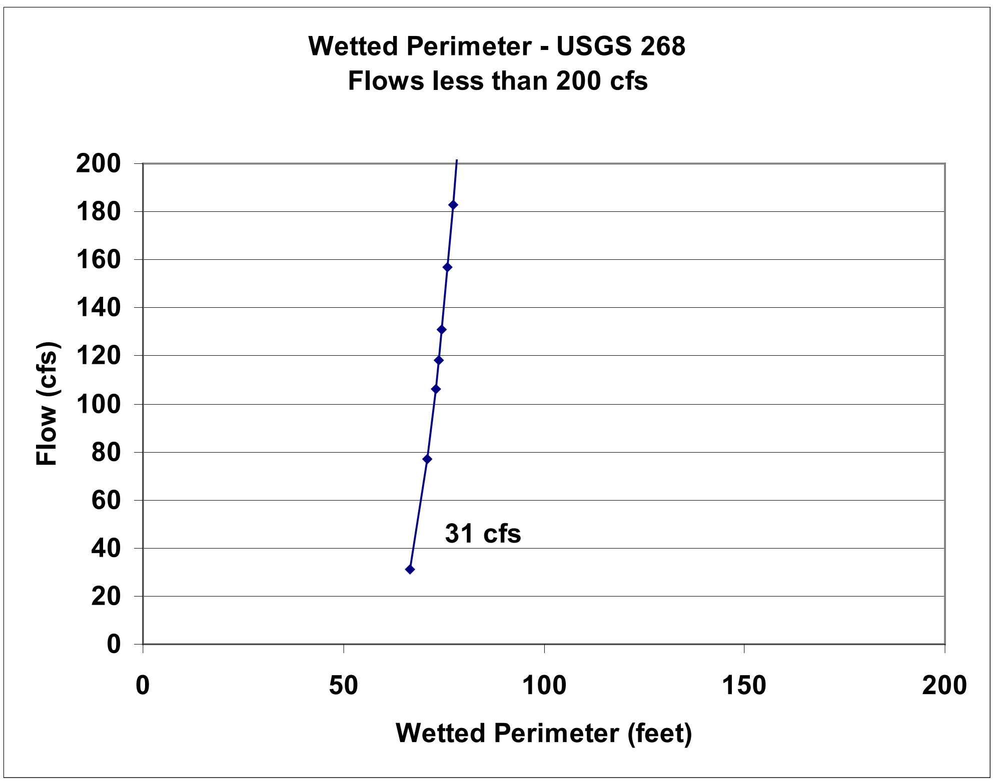

Wetted Perimeter - USGS 264
Flow (cfs)
12000
10000
8000
6000
4000
2000
0
0
2000
4000
6000
8000
10000
12000
14000
Wetted Perimeter (feet)

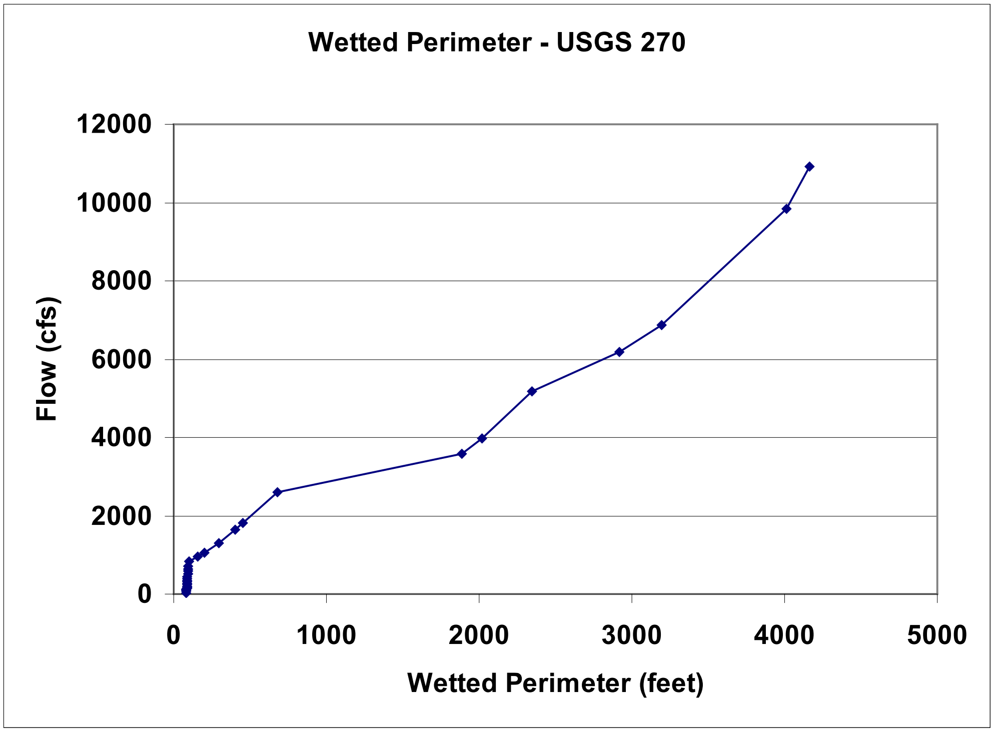

Wetted Perimeter - USGS 264
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)

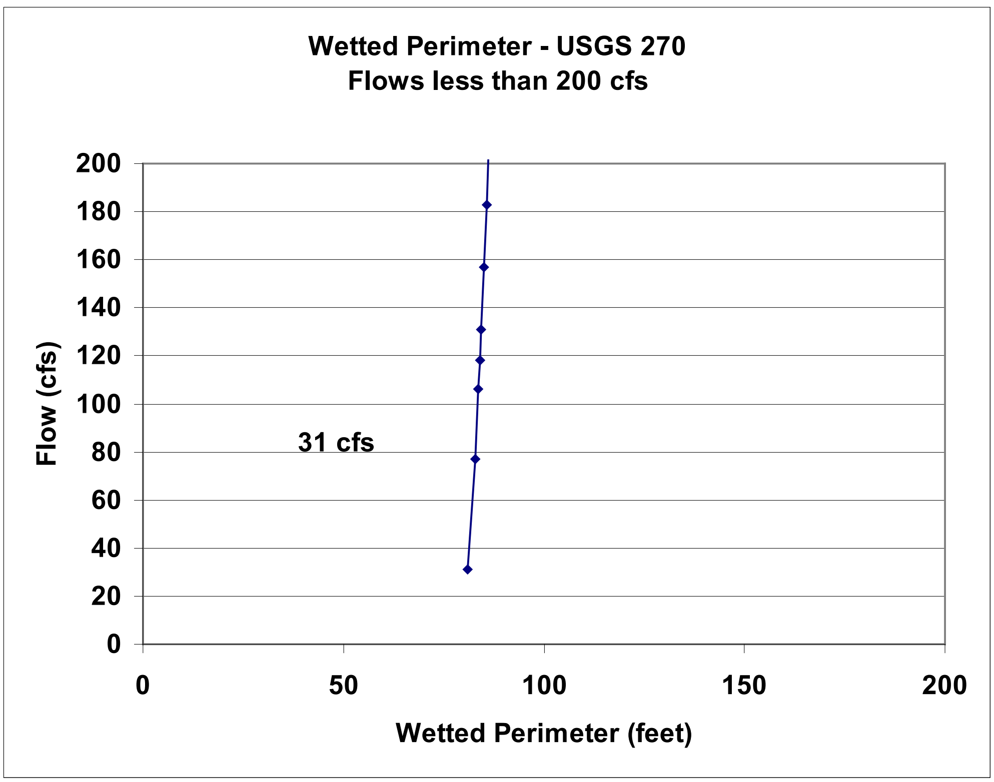

Wetted Perimeter - USGS 266
Flow (cfs)
12000
10000
8000
6000
4000
2000
0
0
2000
4000
6000
8000
10000
Wetted Perimeter (feet)

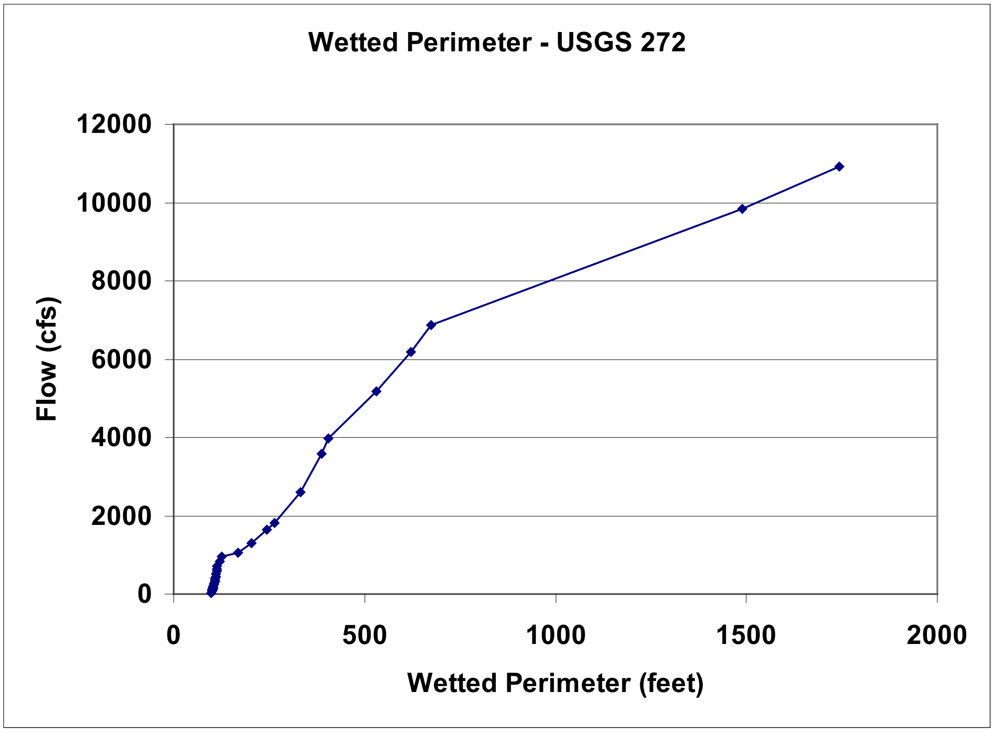

Wetted Perimeter - USGS 266
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)

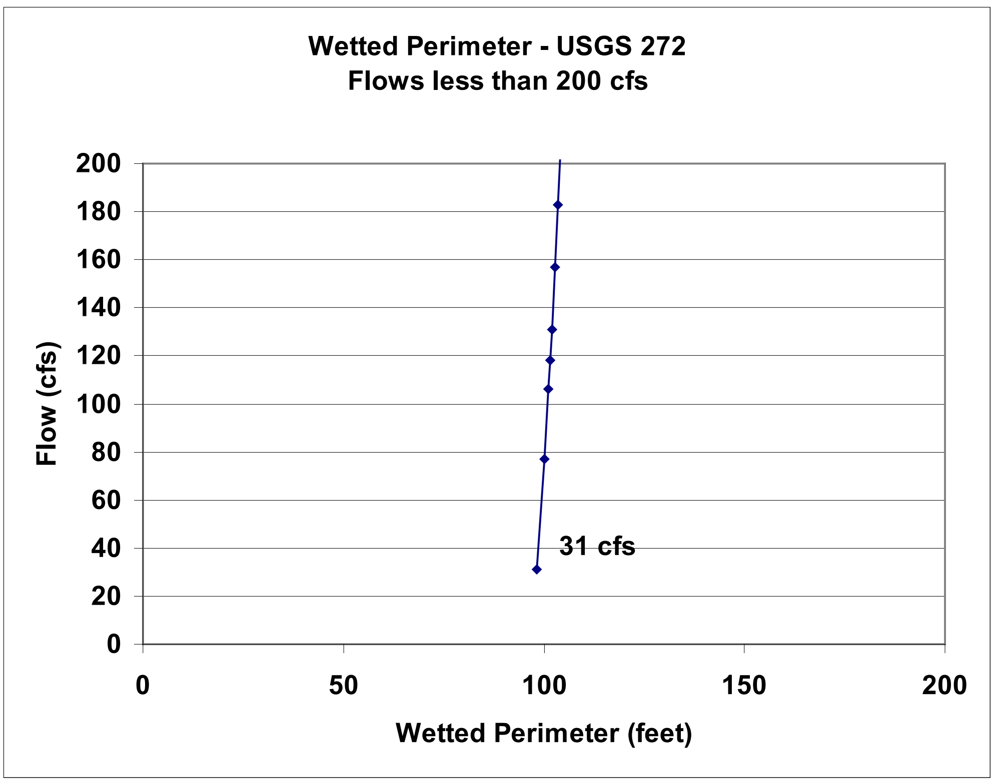

Wetted Perimeter - USGS 268
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
6000
Flow (cfs)
Wetted Perimeter (feet)

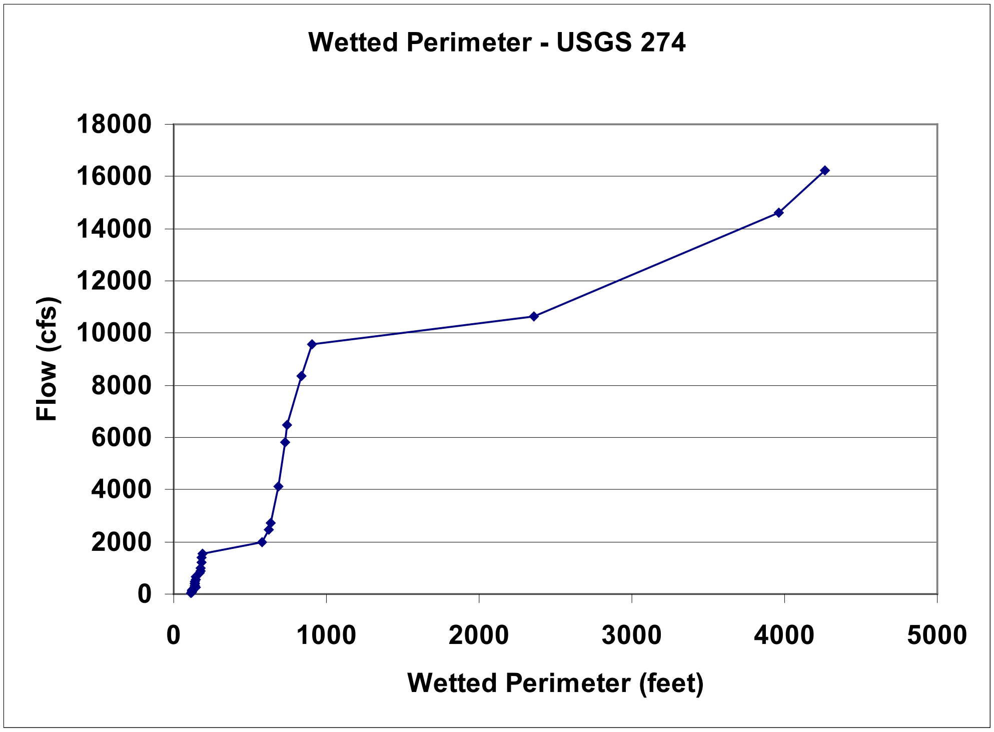

Wetted Perimeter - USGS 268
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
0
50
100
150
200
Flow (cfs)
Wetted Perimeter (feet)
31 cfs

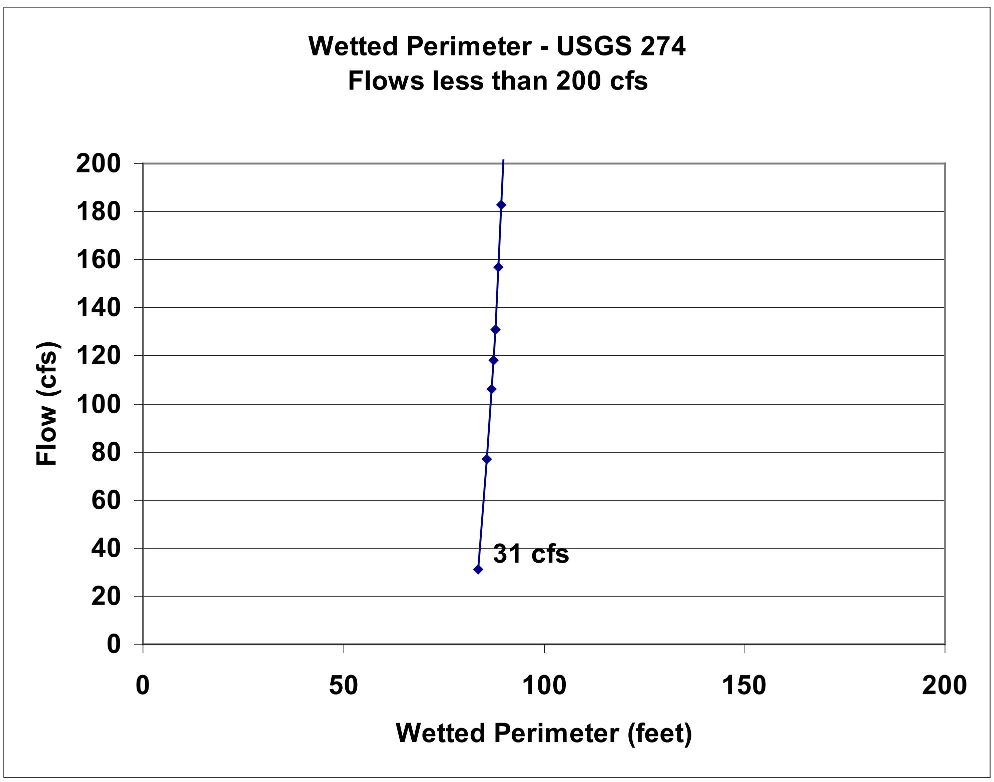

Wetted Perimeter - USGS 270
Flow (cfs)
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
Wetted Perimeter (feet)

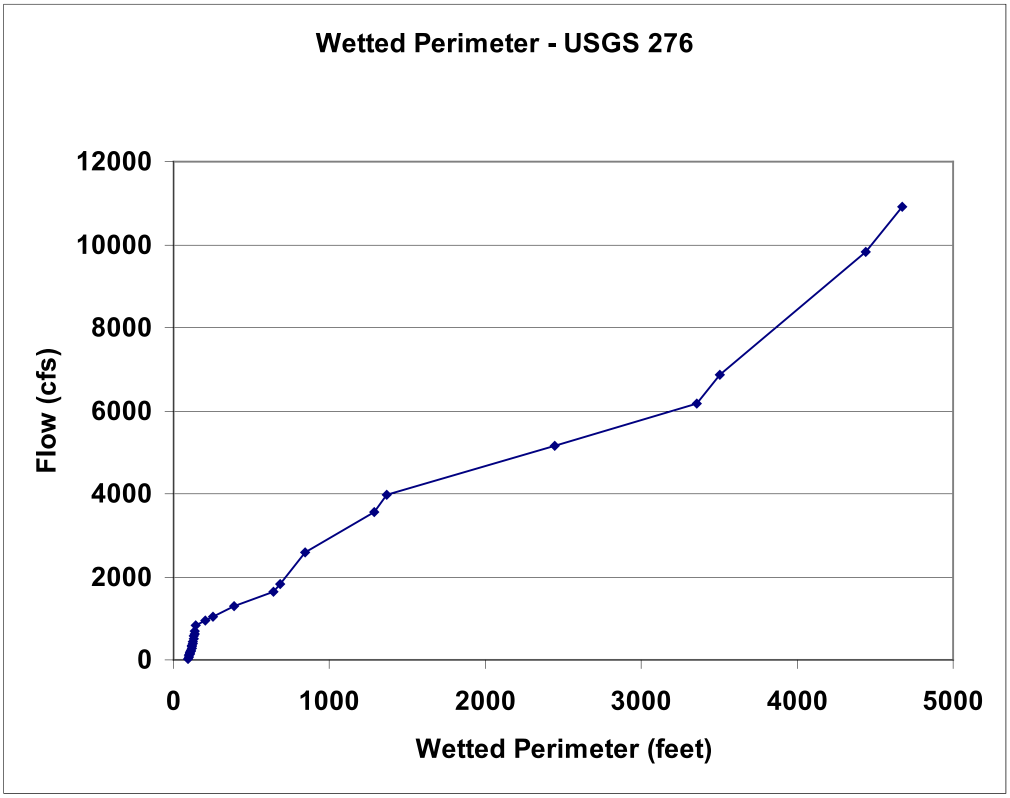

Wetted Perimeter - USGS 270
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 272
Flow (cfs)
12000
10000
8000
6000
4000
2000
0
0
500
1000
1500
2000
Wetted Perimeter (feet)

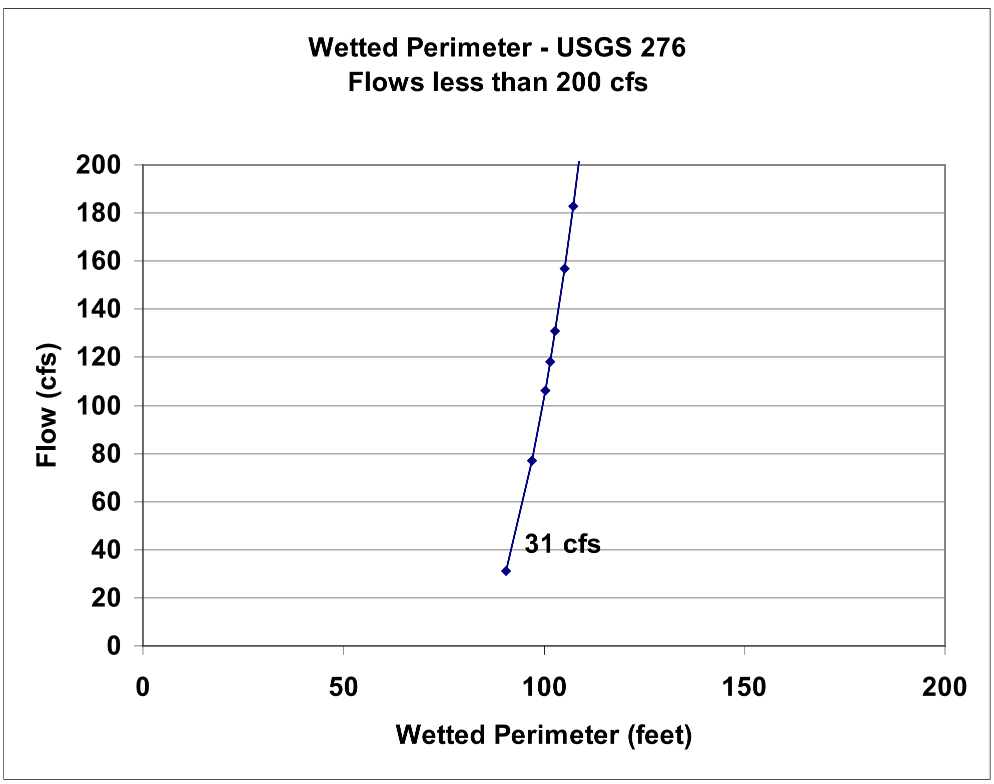

Wetted Perimeter - USGS 272
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 274
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Flow (cfs)
0
1000
2000
3000
4000
5000
Wetted Perimeter (feet)

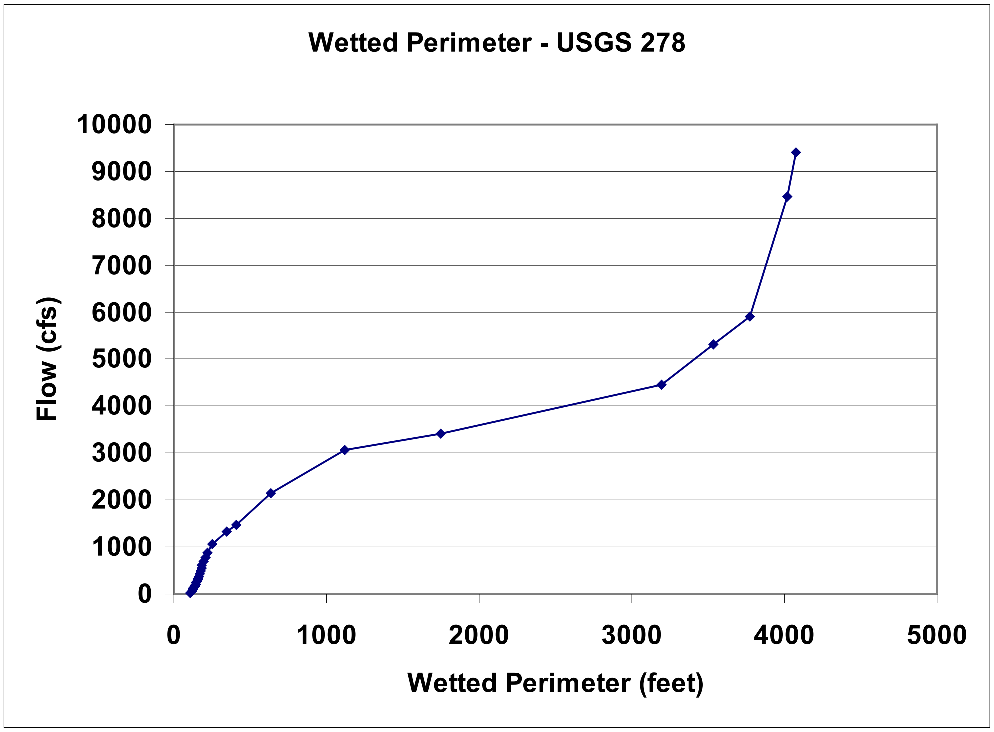

Wetted Perimeter - USGS 274
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)

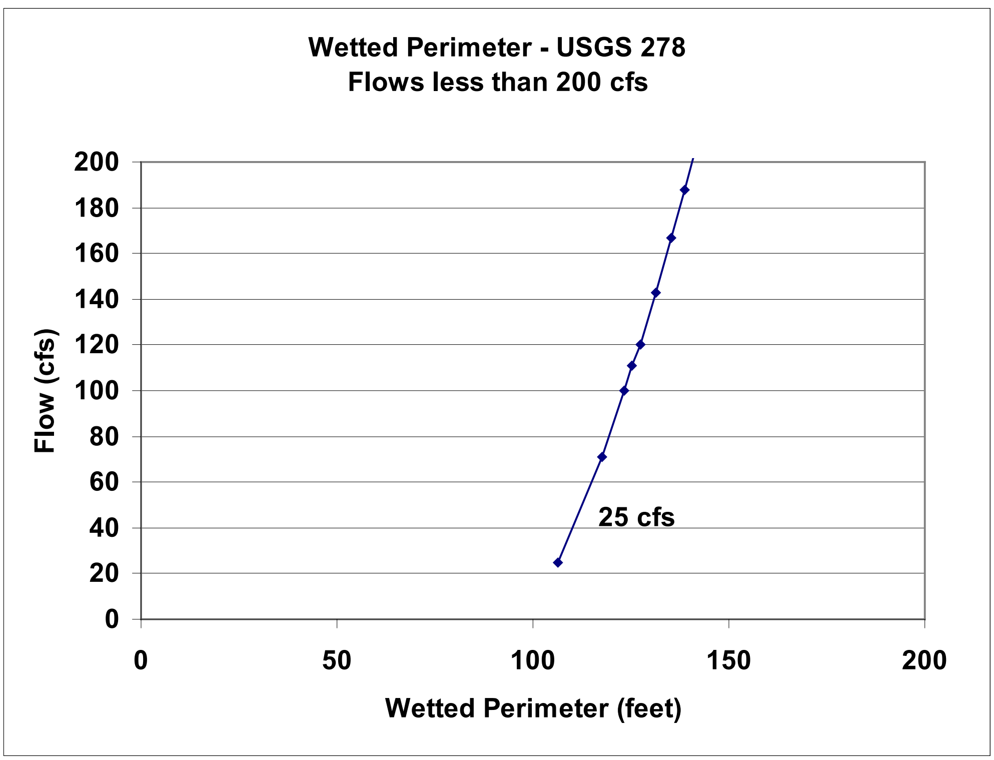


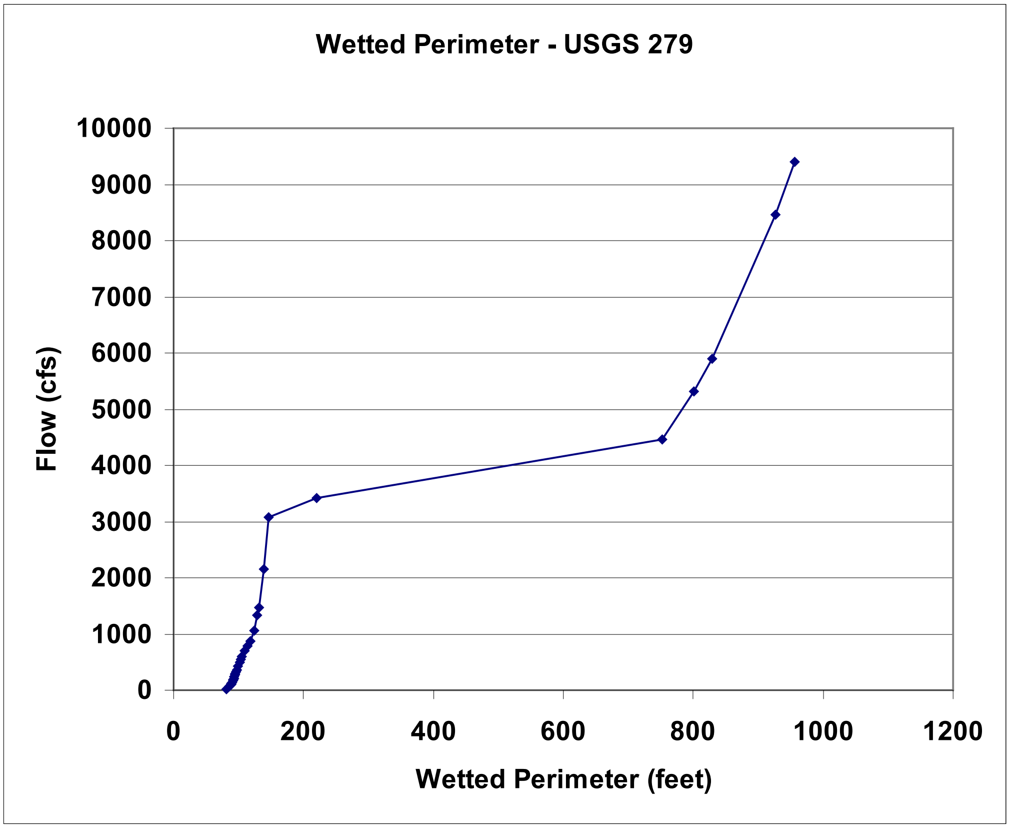
Wetted Perimeter - USGS 276
Flow (cfs)
12000
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
5000
Wetted Perimeter (feet)



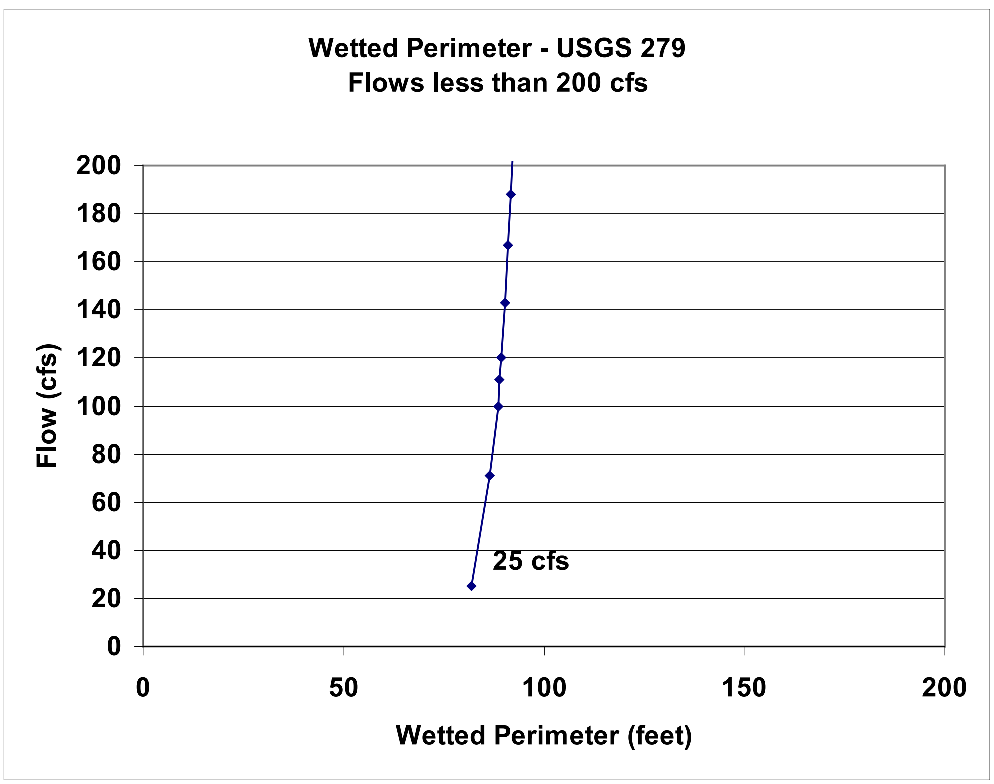
Wetted Perimeter - USGS 276
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
31 cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 278
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0
1000
2000
3000
4000
5000
Flow (cfs)
Wetted Perimeter (feet)

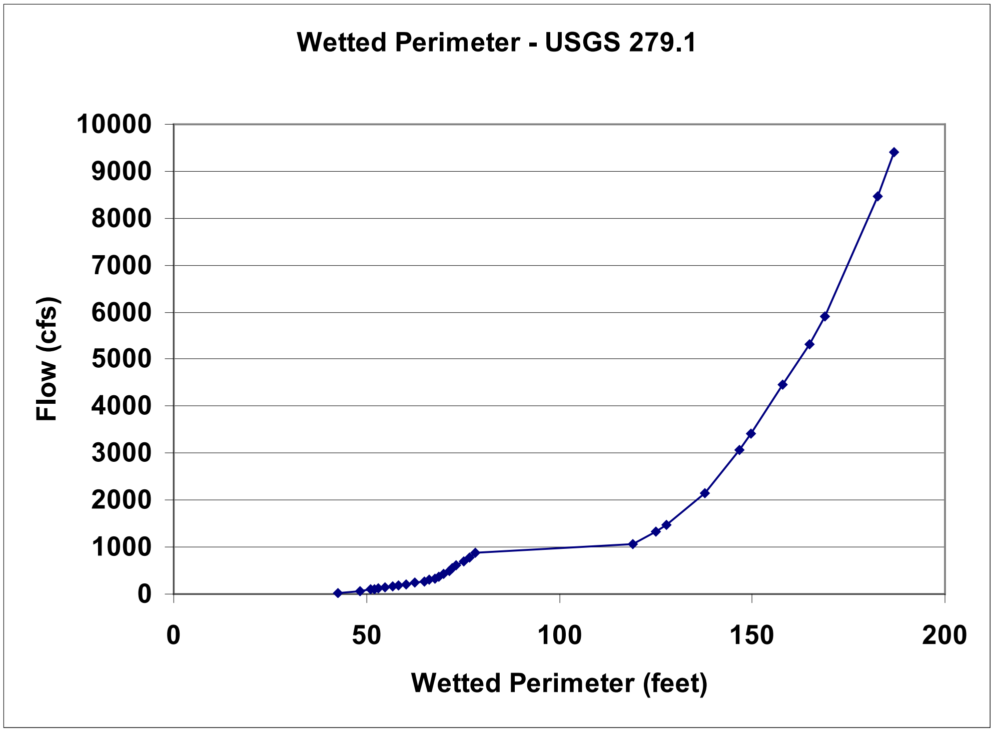

Wetted Perimeter - USGS 278
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
0
50
100
150
200
Flow (cfs)
Wetted Perimeter (feet)
25 cfs

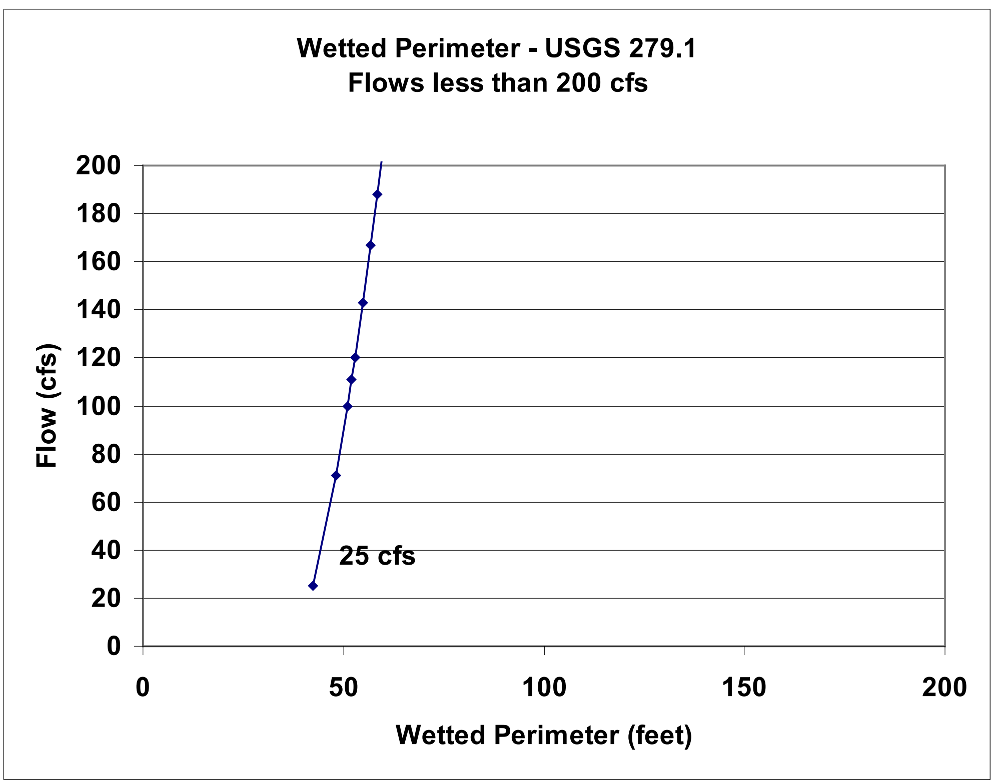


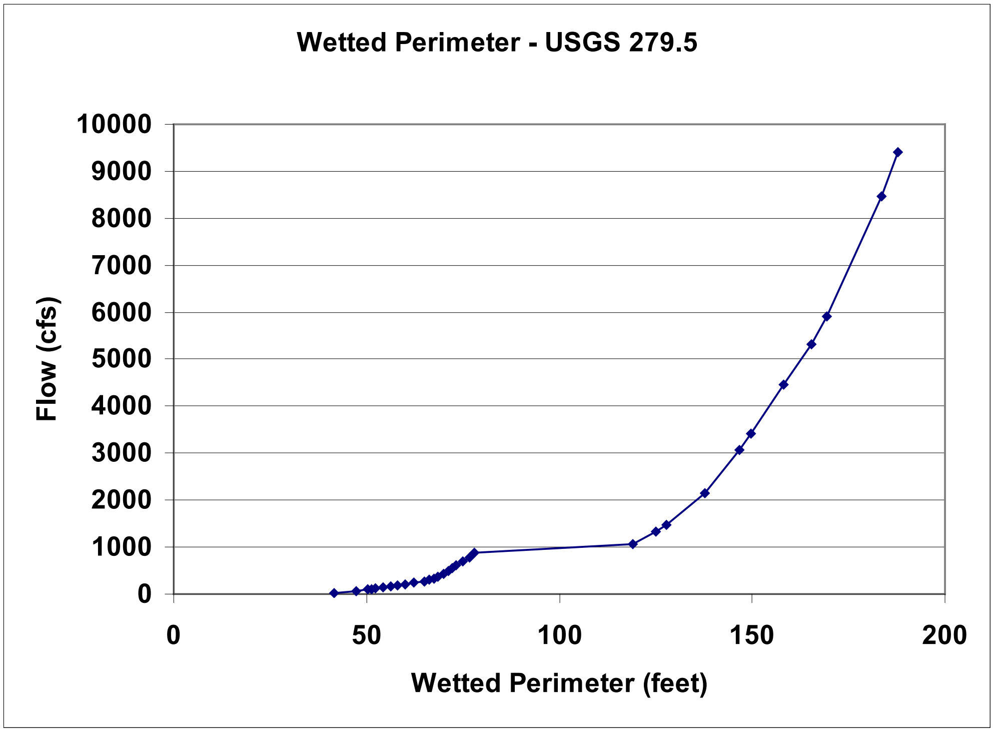
Wetted Perimeter - USGS 279
Flow (cfs)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0
200
400
600
800
1000
1200
Wetted Perimeter (feet)

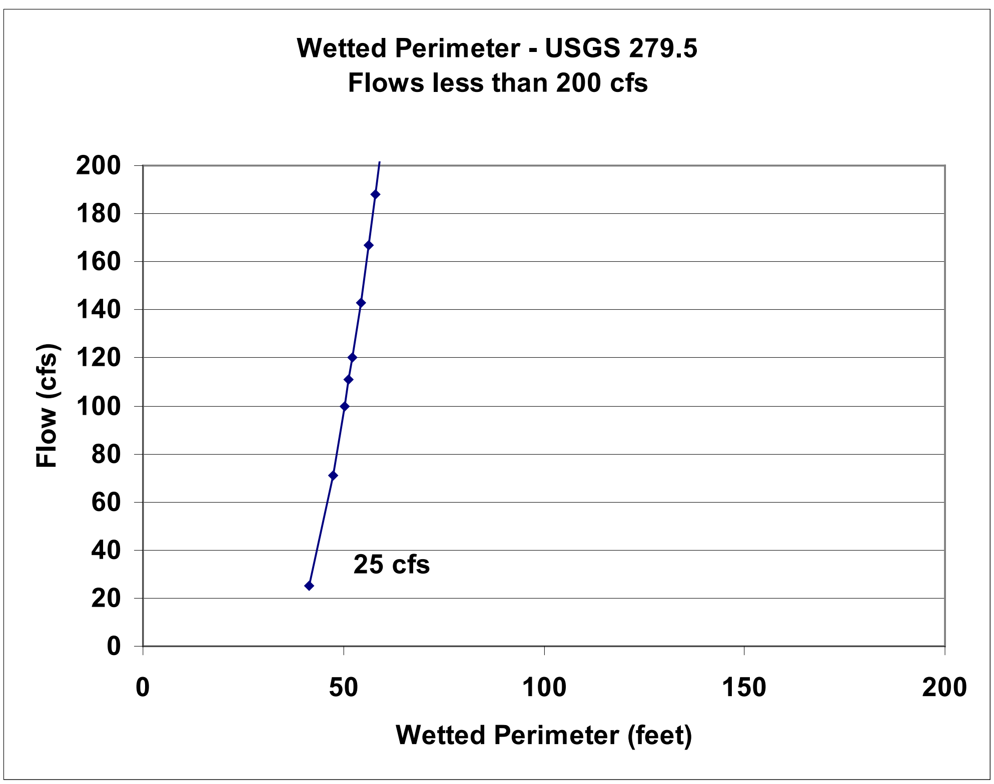


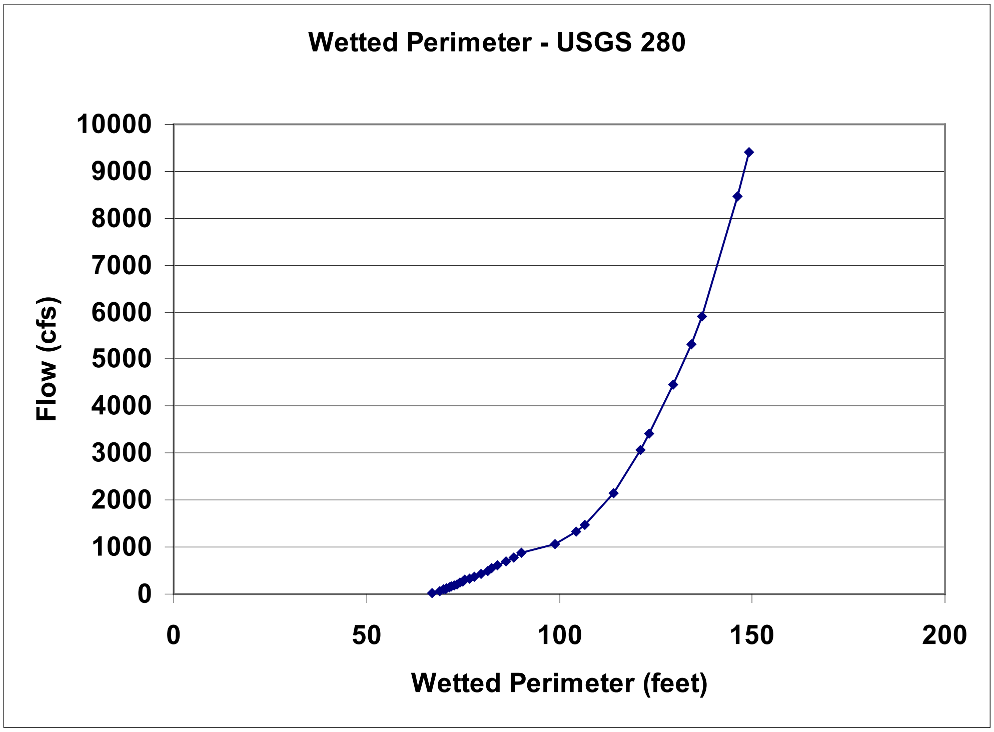
Wetted Perimeter - USGS 279
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
25 cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 279.1
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Flow (cfs)
0
50
100
150
200
Wetted Perimeter (feet)

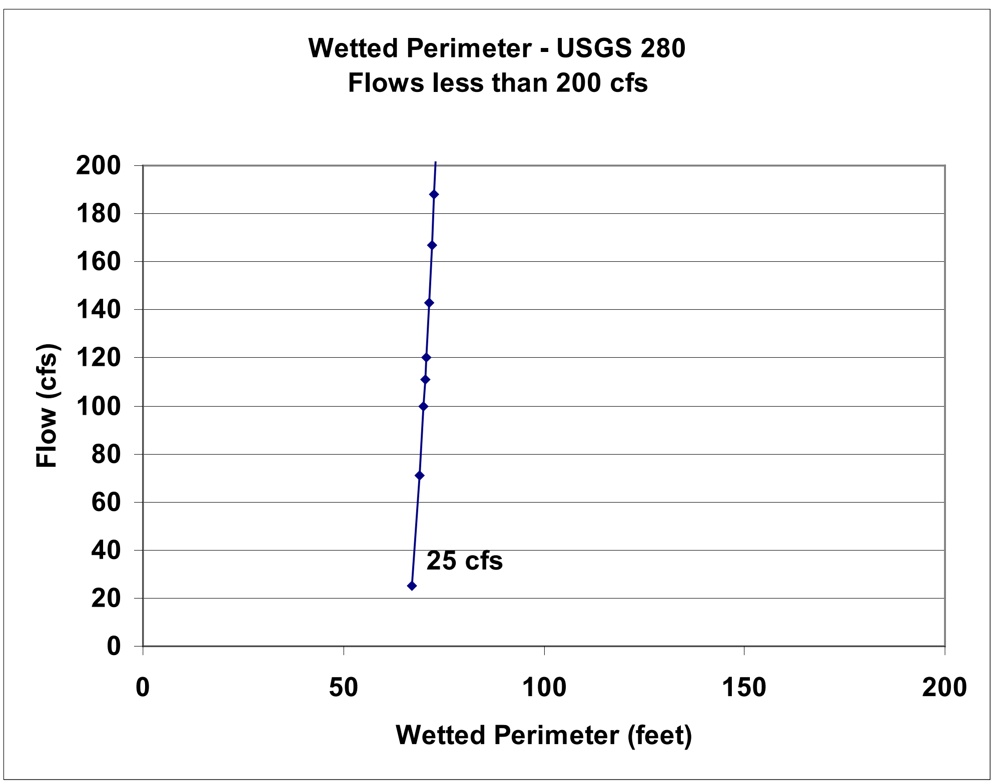

Wetted Perimeter - USGS 279.1
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
25 cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 279.5
Flow (cfs)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0
50
100
150
200
Wetted Perimeter (feet)

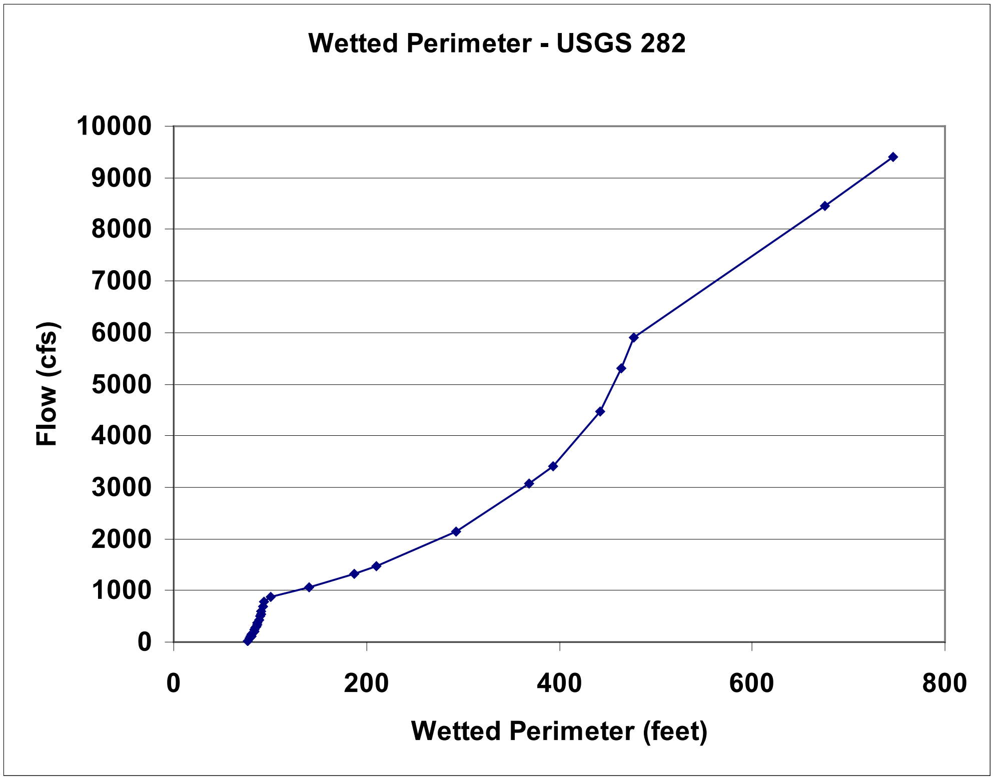

Wetted Perimeter - USGS 279.5
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
25 cfs
0
50
100
150
200
Wetted Perimeter (feet)

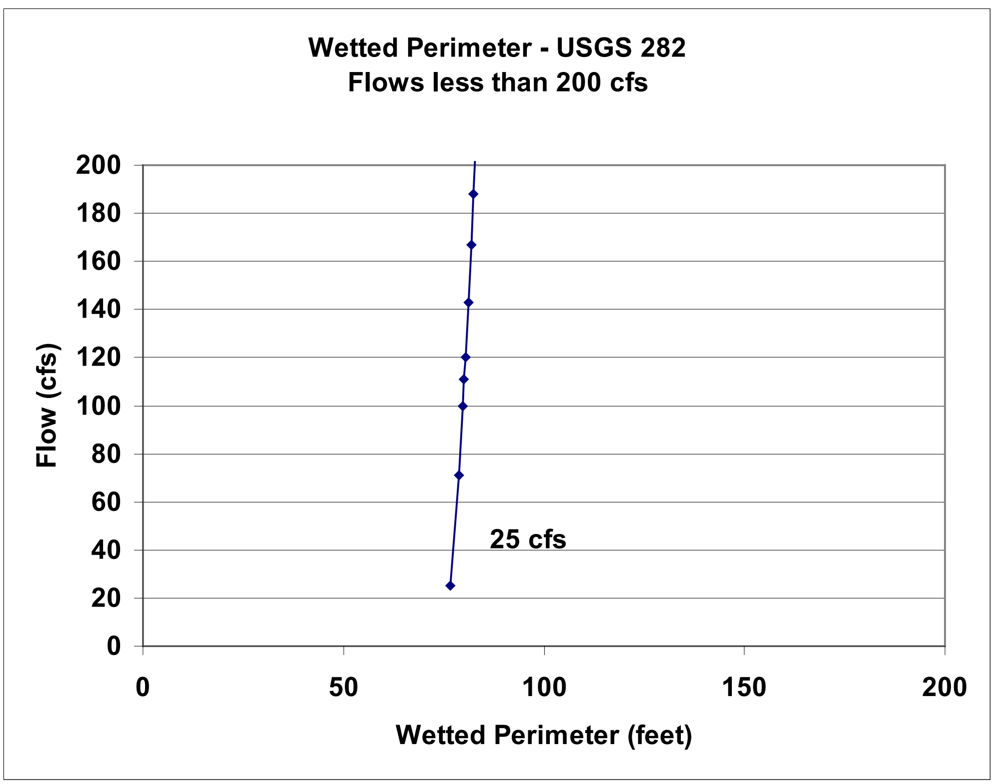


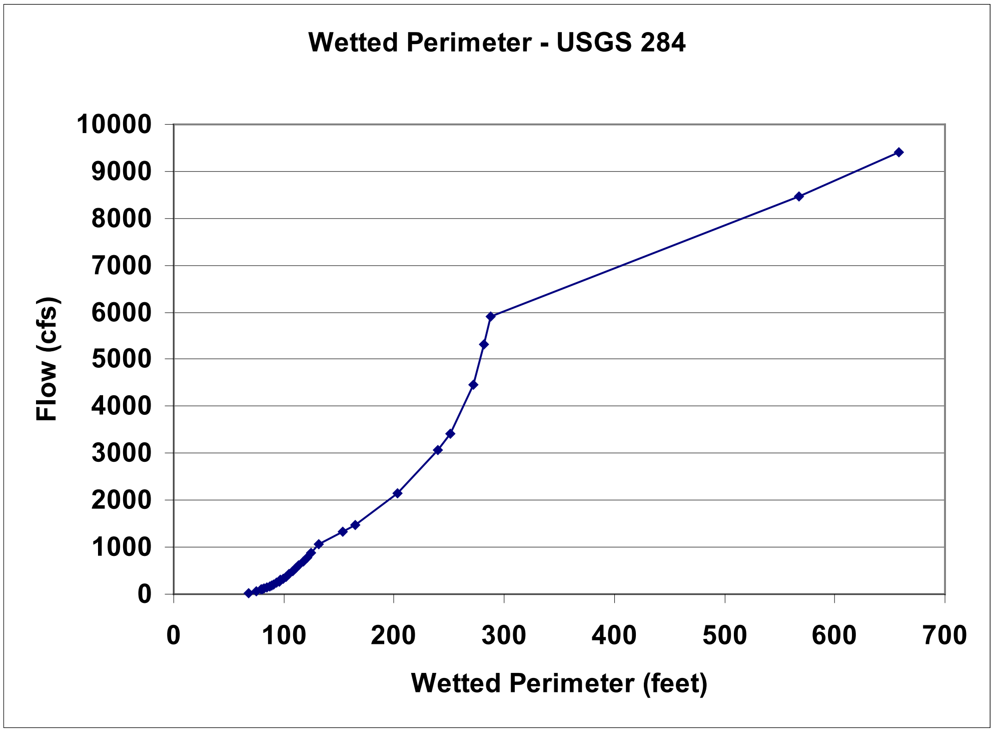
Wetted Perimeter - USGS 280
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Flow (cfs)
0
50
100
150
200
Wetted Perimeter (feet)



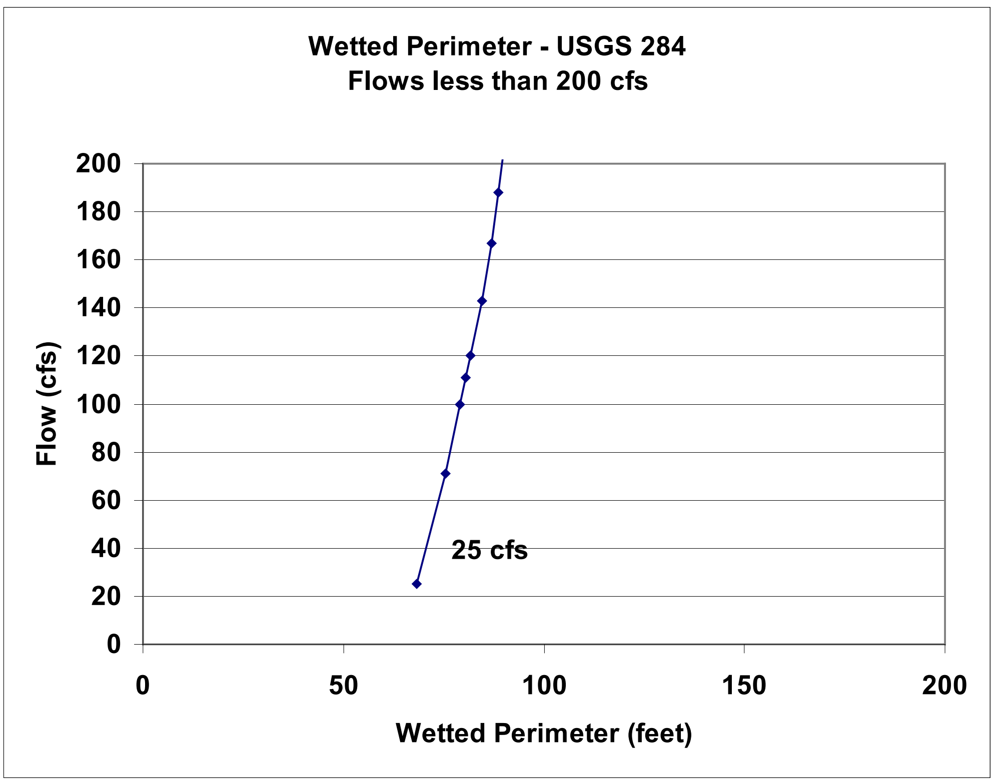
Wetted Perimeter - USGS 280
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
25 cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 282
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Flow (cfs)
0
200
400
600
800
Wetted Perimeter (feet)

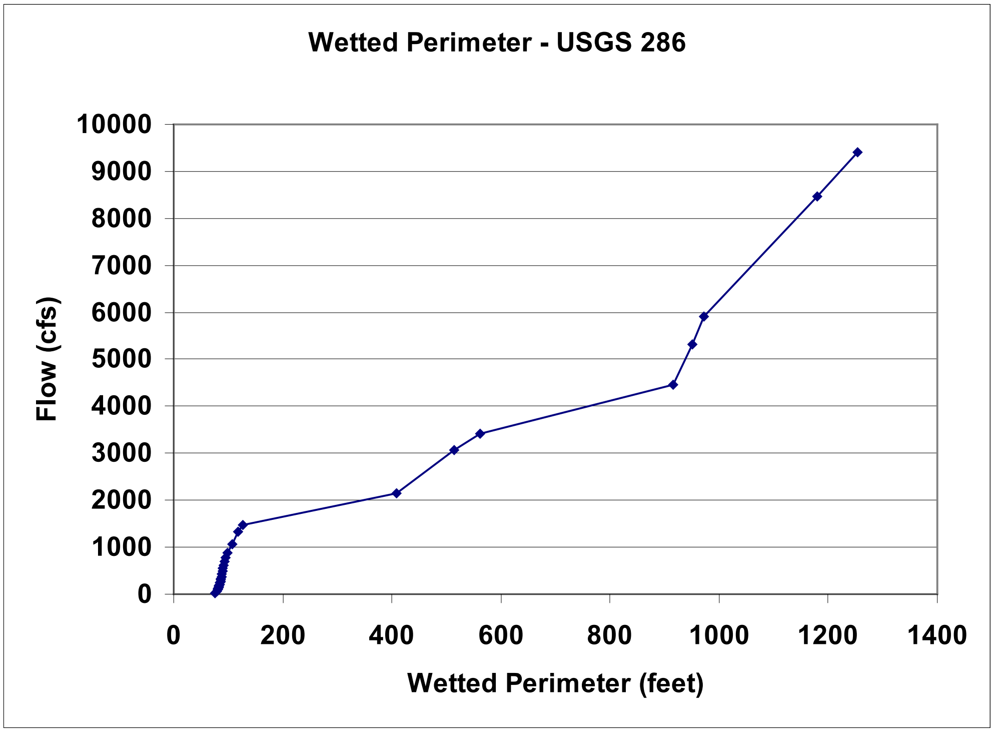

Wetted Perimeter - USGS 282
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
25 cfs
0
50
100
150
200
Wetted Perimeter (feet)

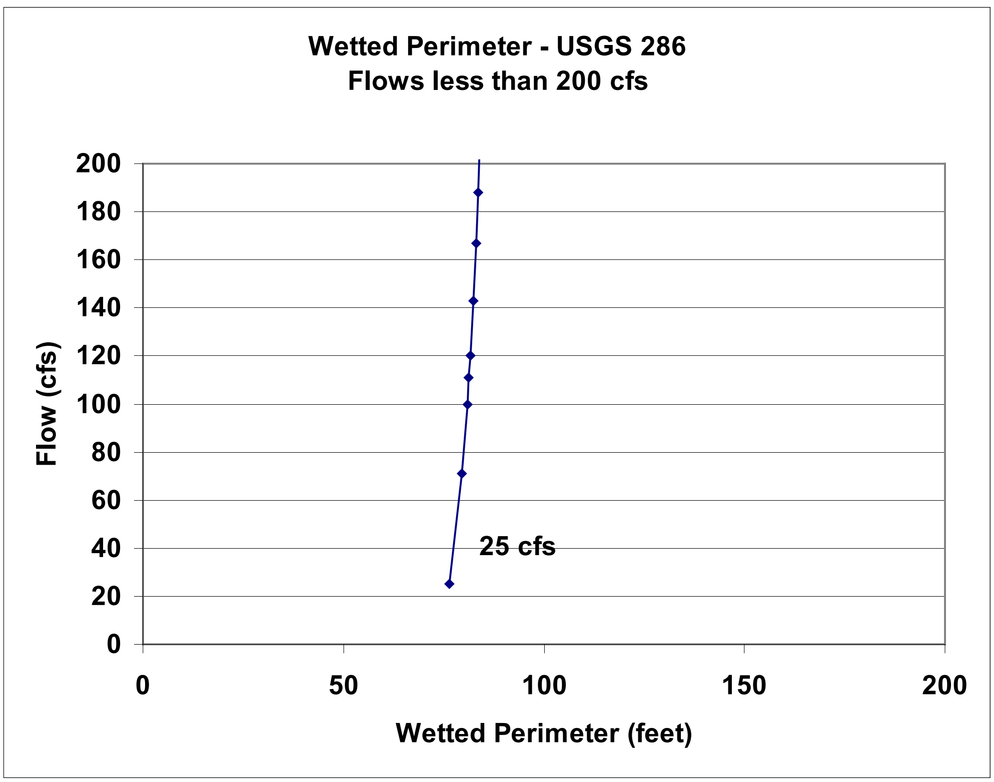


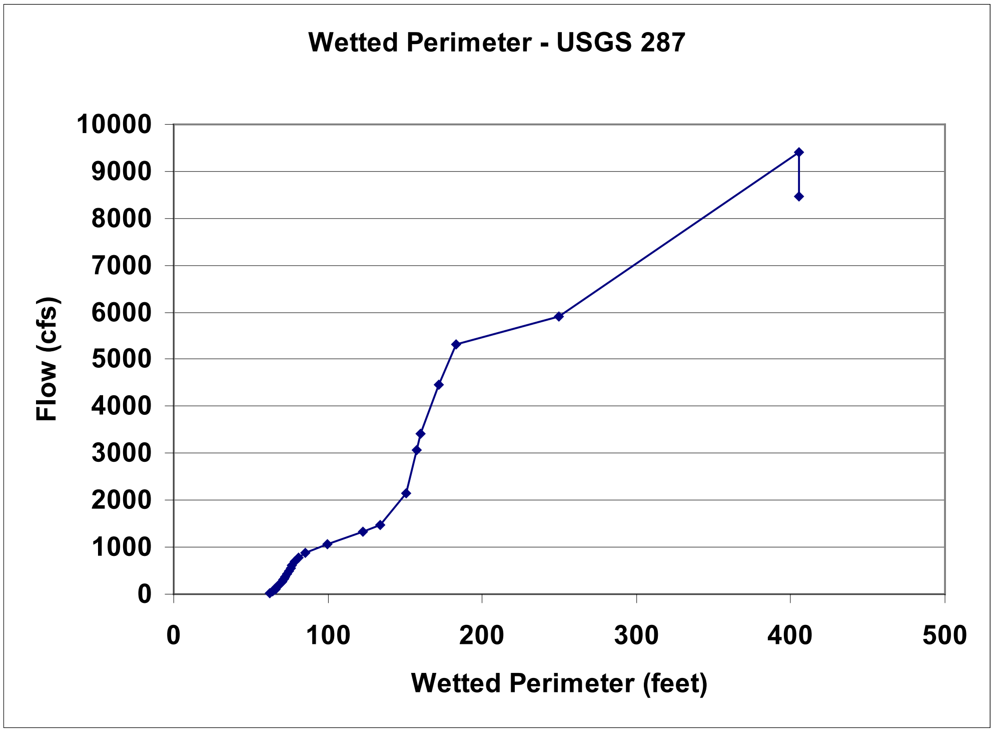
Wetted Perimeter - USGS 284
Flow (cfs)
Wetted Perimeter (feet)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0
100
200
300
400
500
600
700



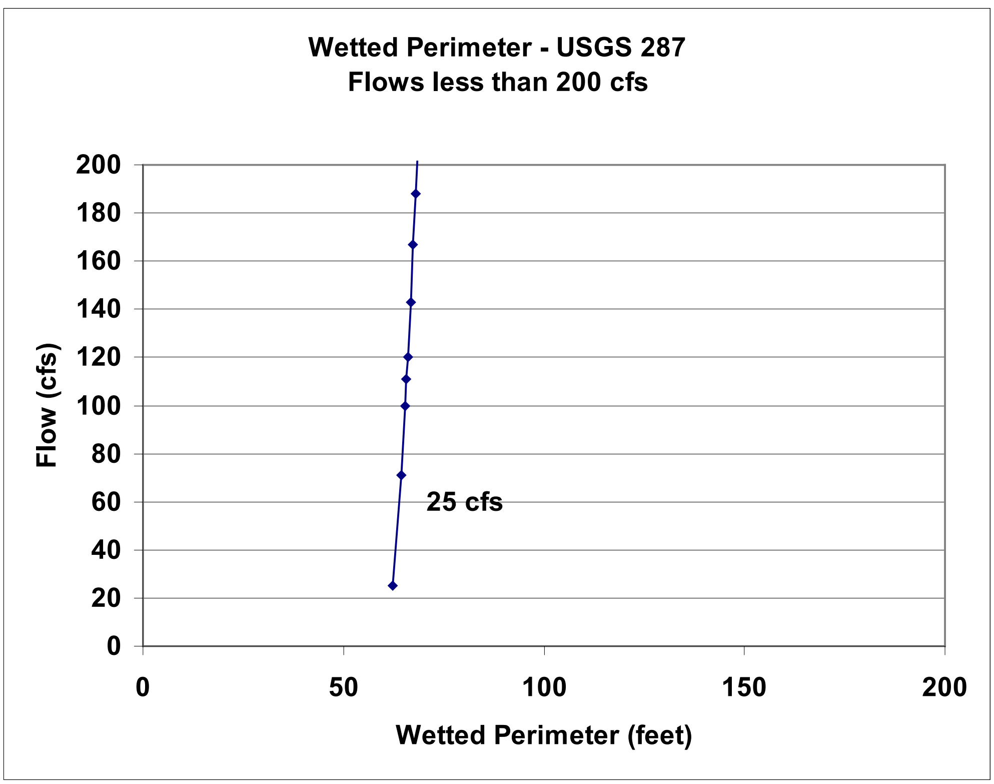
Wetted Perimeter - USGS 284
Flows less than 200 cfs
Flow (cfs)
Wetted Perimeter (feet)
25 cfs
200
180
160
140
120
100
80
60
40
20
0
0
50
100
150
200


Wetted Perimeter - USGS 286
Flow (cfs)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0
200
400
600
800
1000
1200
1400
Wetted Perimeter (feet)

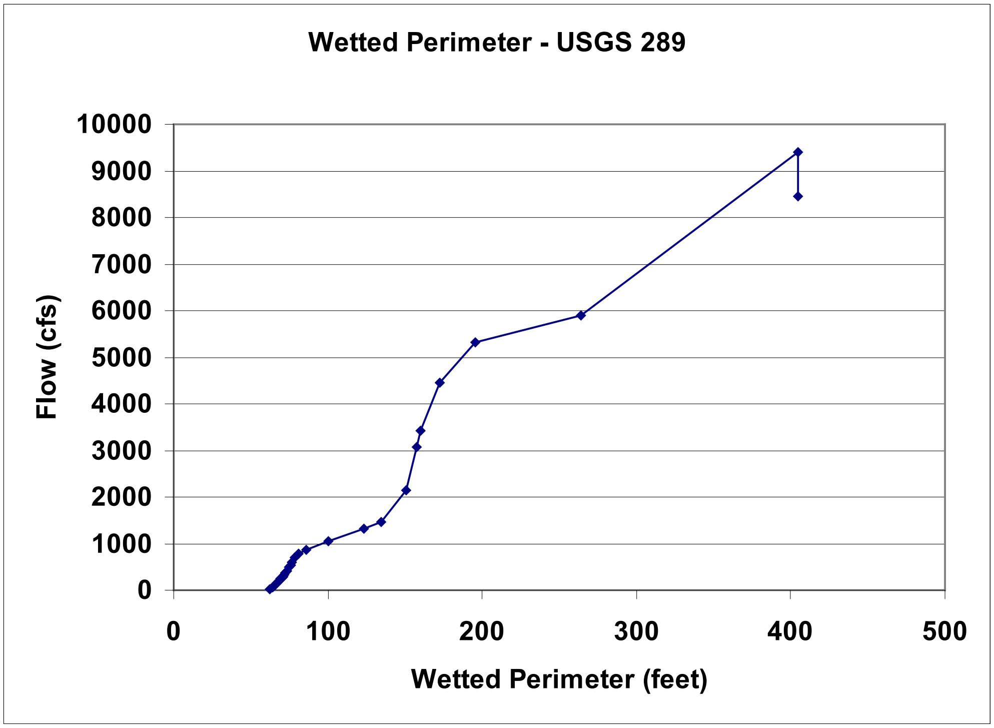

Wetted Perimeter - USGS 286
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
25 cfs
0
50
100
150
200
Wetted Perimeter (feet)

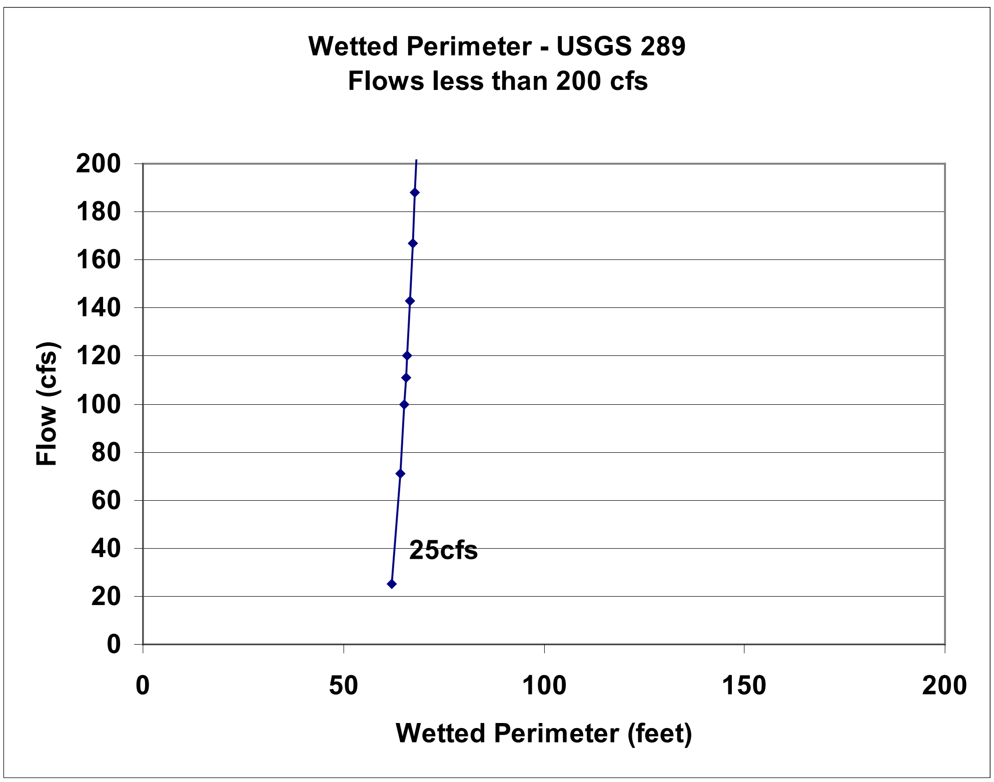


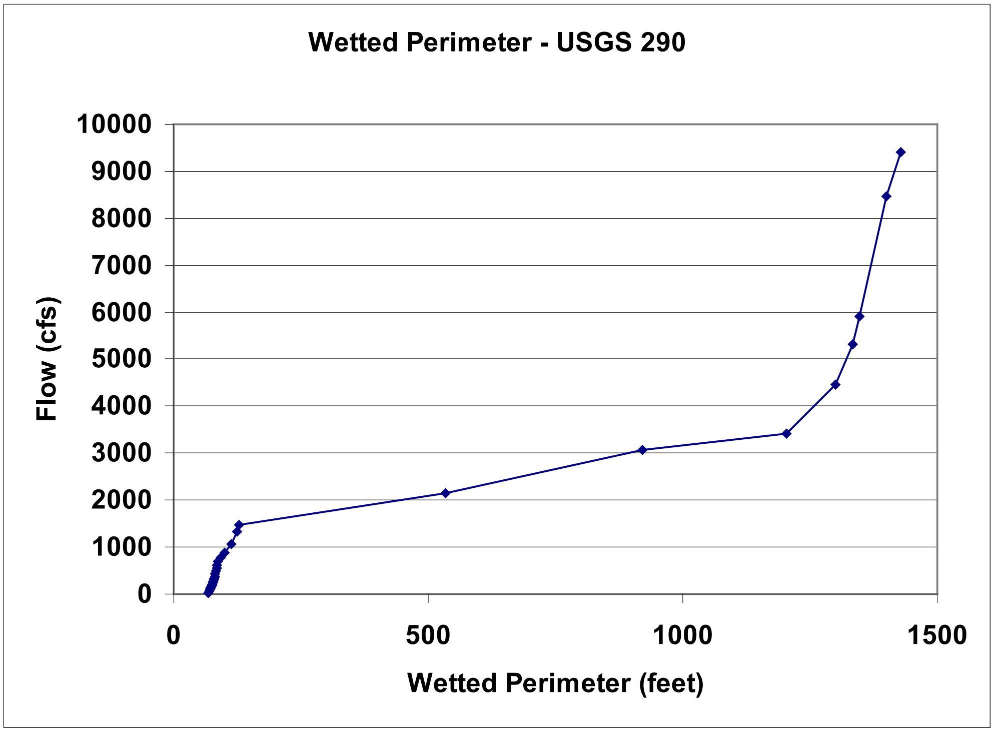
Wetted Perimeter - USGS 287
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Flow (cfs)
0
100
200
300
400
500
Wetted Perimeter (feet)

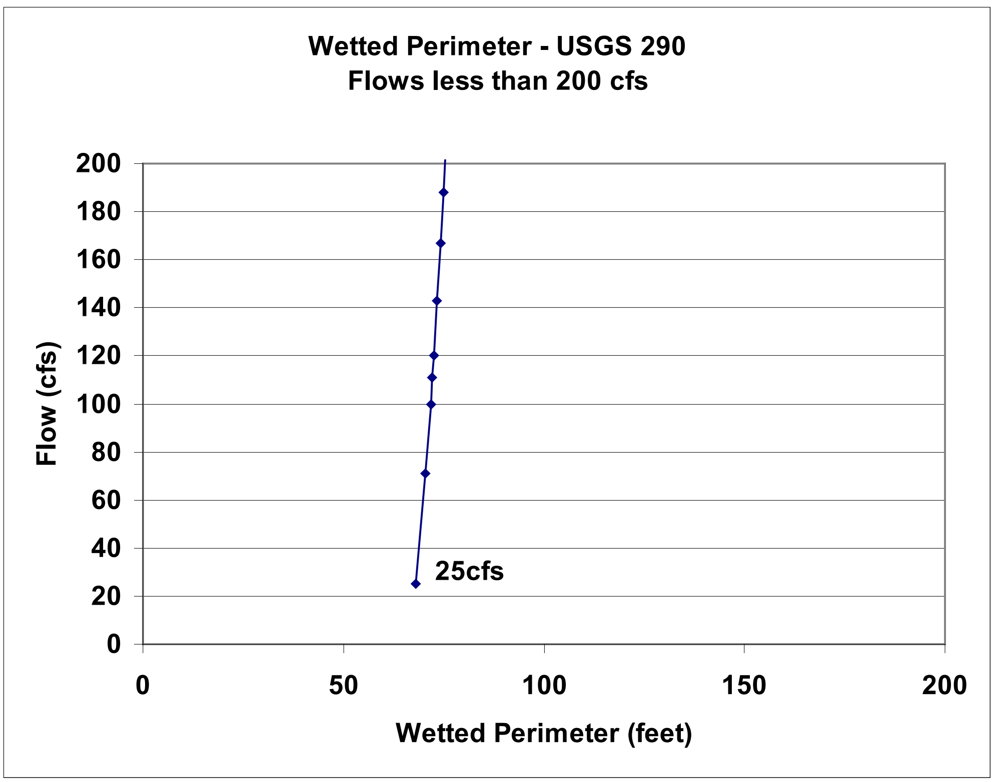


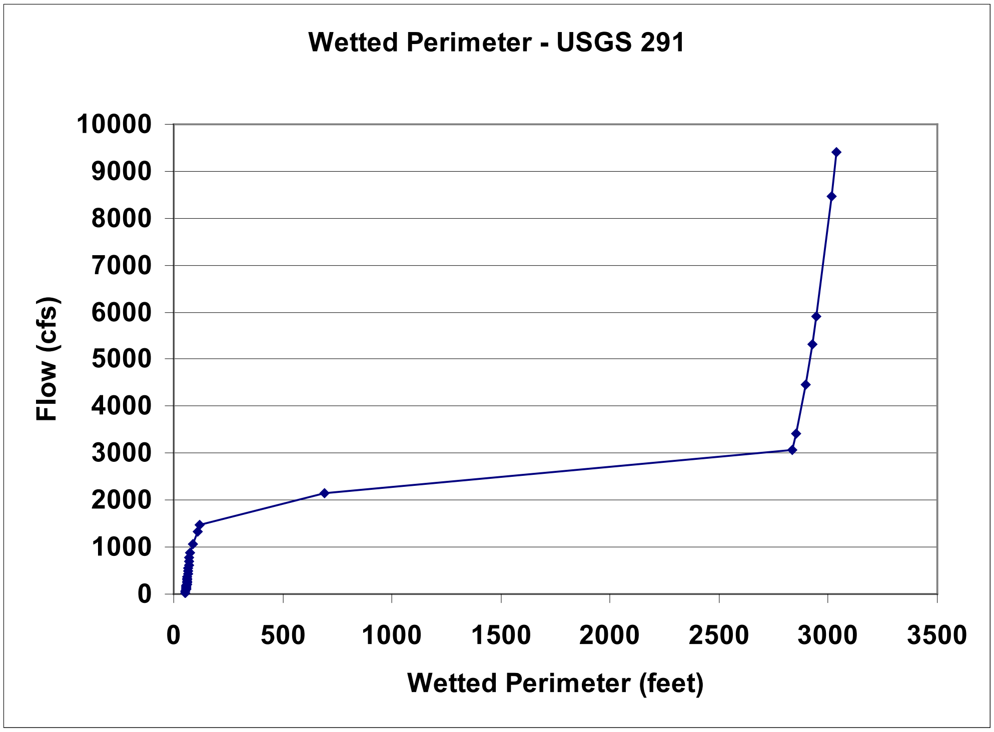
Wetted Perimeter - USGS 287
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
25 cfs
0
50
100
150
200
Wetted Perimeter (feet)

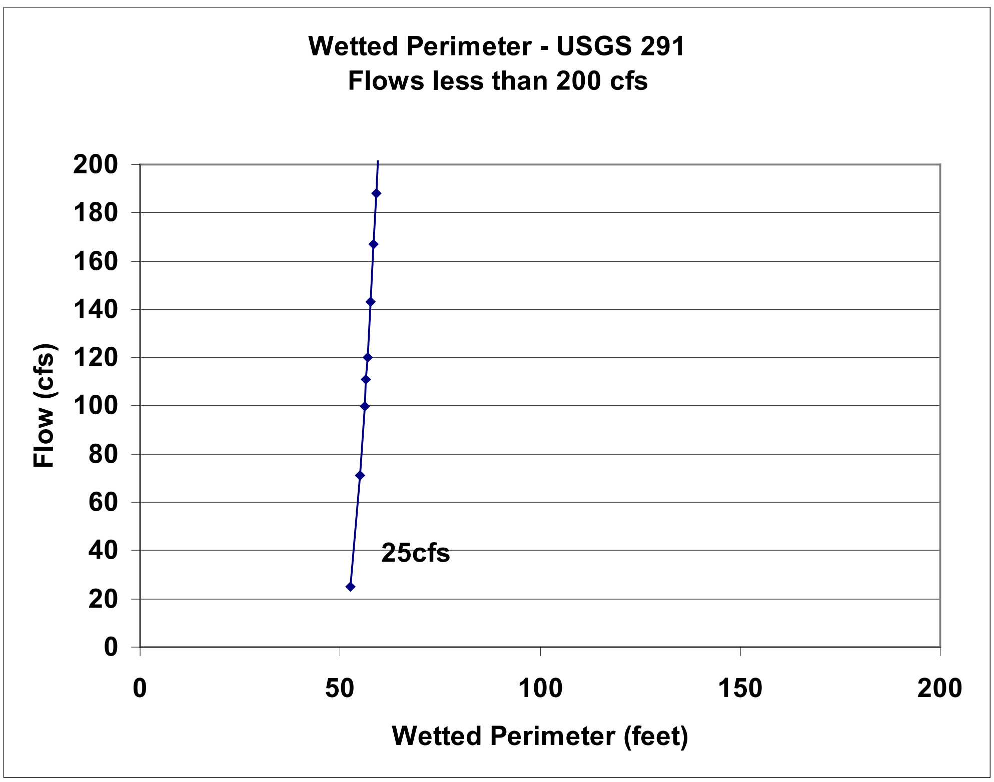

Wetted Perimeter - USGS 289
Flow (cfs)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0
100
200
300
400
500
Wetted Perimeter (feet)

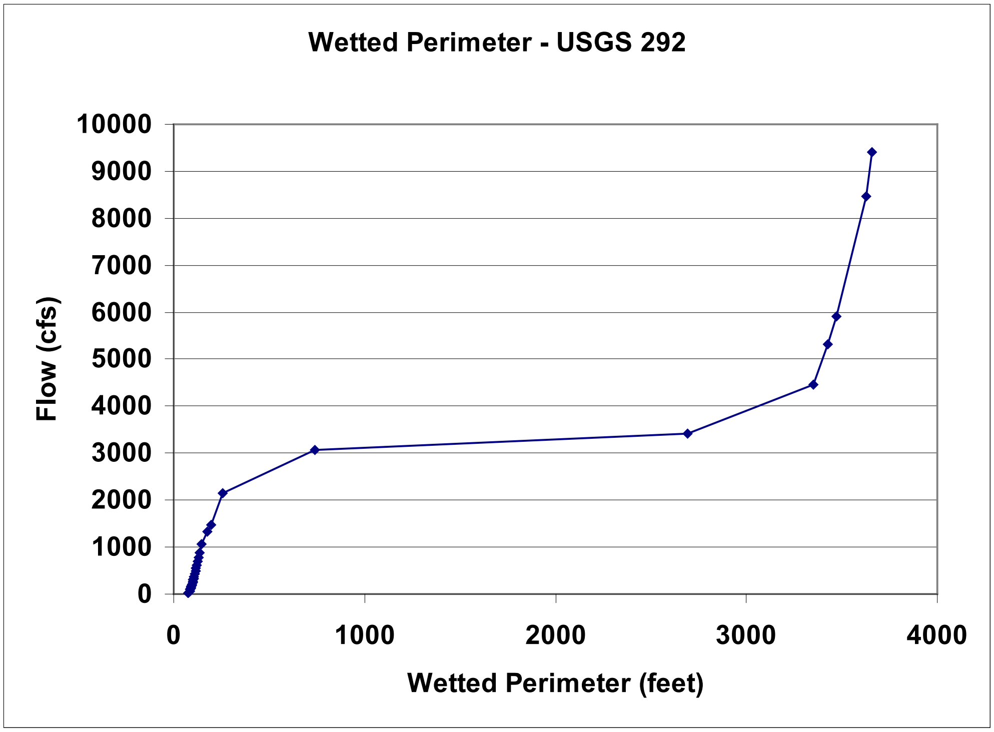

Wetted Perimeter - USGS 289
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
25cfs
0
50
100
150
200
Wetted Perimeter (feet)

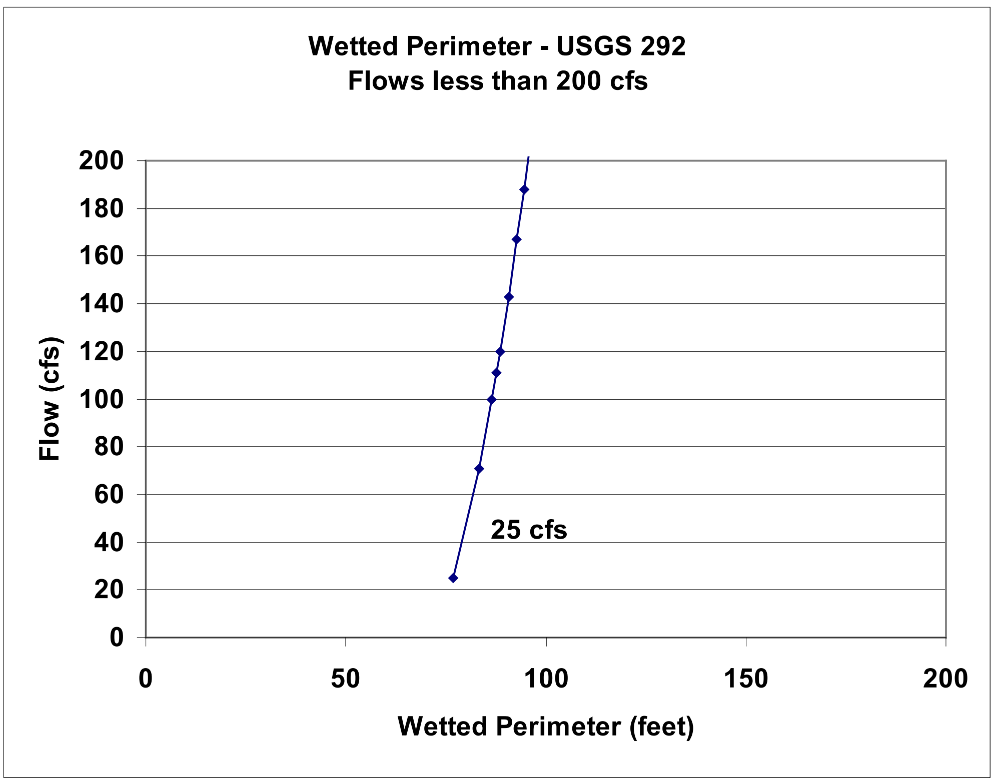

Wetted Perimeter - USGS 290
Flow (cfs)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0
500
1000
1500
Wetted Perimeter (feet)


Wetted Perimeter - USGS 290
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
25cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 291
Flow (cfs)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0
500
1000
1500
2000
2500
3000
3500
Wetted Perimeter (feet)


Wetted Perimeter - USGS 291
Flows less than 200 cfs
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
25cfs
0
50
100
150
200
Wetted Perimeter (feet)


Wetted Perimeter - USGS 292
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Flow (cfs)
0
1000
2000
3000
4000
Wetted Perimeter (feet)

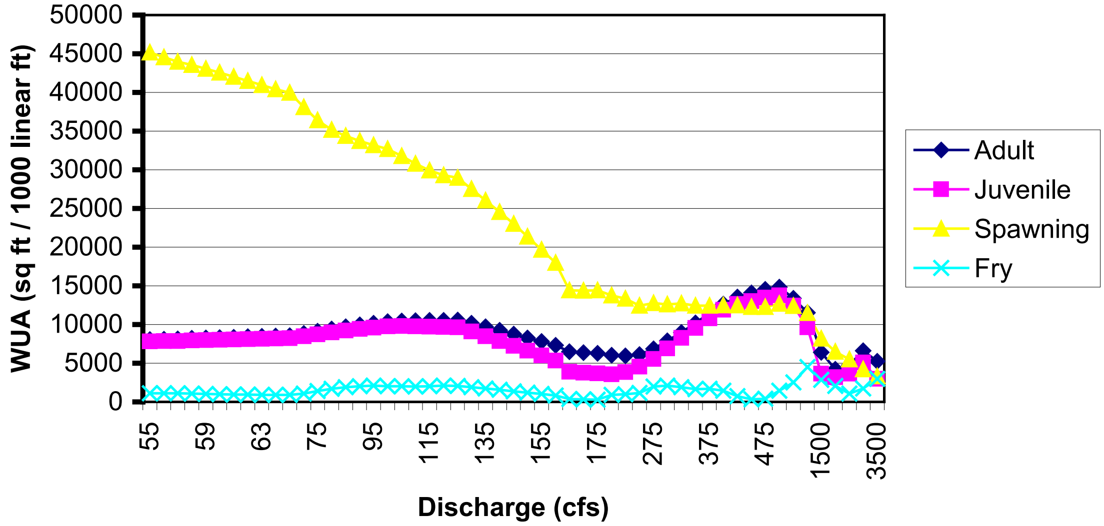

Wetted Perimeter - USGS 292
Flows less than 200 cfs
200
180
160
140
120
100
80
60
40
20
0
Flow (cfs)
25 cfs
0
50
100
150
200
Wetted Perimeter (feet)

APPENDIX PHABSIM

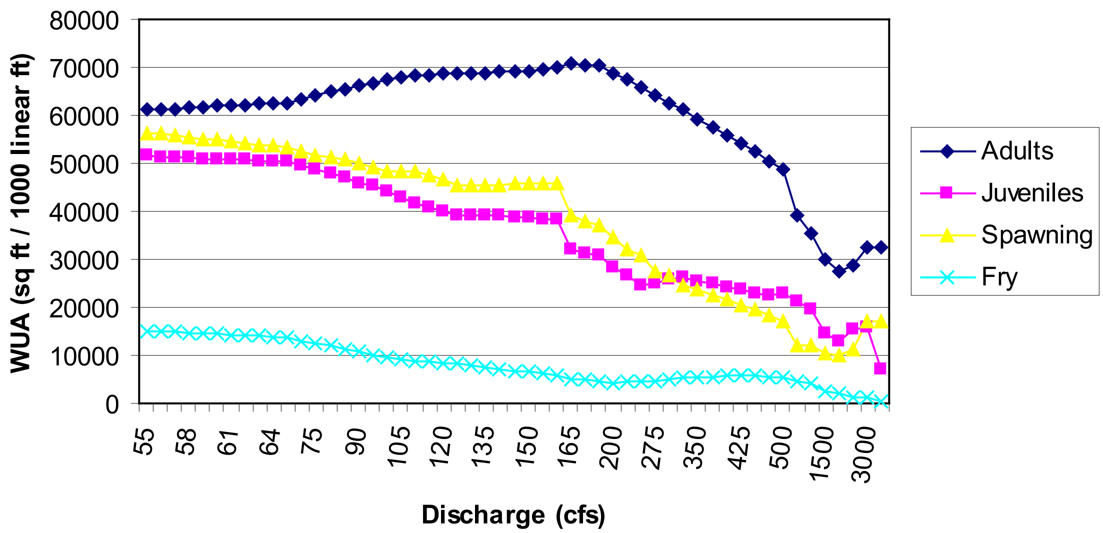
Physical Habitat Simulation Model – PHABSIM

PHABSIM analysis was performed for three locations on the Middle Peace River. Sites corresponded to vegetation transect at Arcadia and Zolfo Springs. This appendix contains all PHABSIM plots generated for the Middle Peace River. These plots were generated form data gathered by SWFWMD staff. Data was then submitted to consultants with expertise in Physical Habitat Simulation Modeling. The first series of plots in this appendix are Weighted Useable Area (WUA) vs. Discharge for each species of interest at sites Arcadia and Zolfo Springs. The second set of plots displays the percent change in predicted WUA for different flow reduction (10, 20, 30, and 40 %) for each month of the year for historic flow conditions from 1940 to 1969 and for 1970 to 1999 for each species of interest.

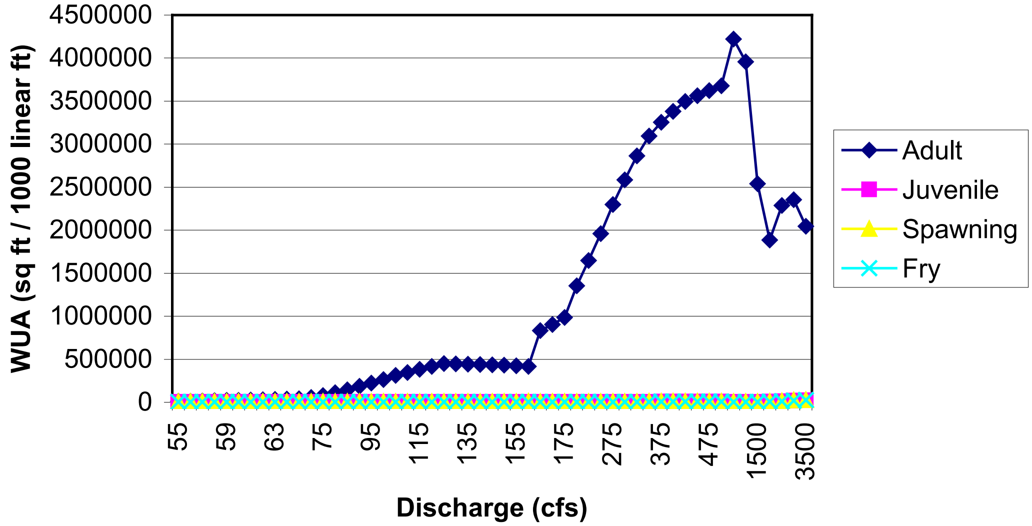
Middle Peace River at Arcadia - Weighted Usable Area versus Discharge for Largemouth Bass



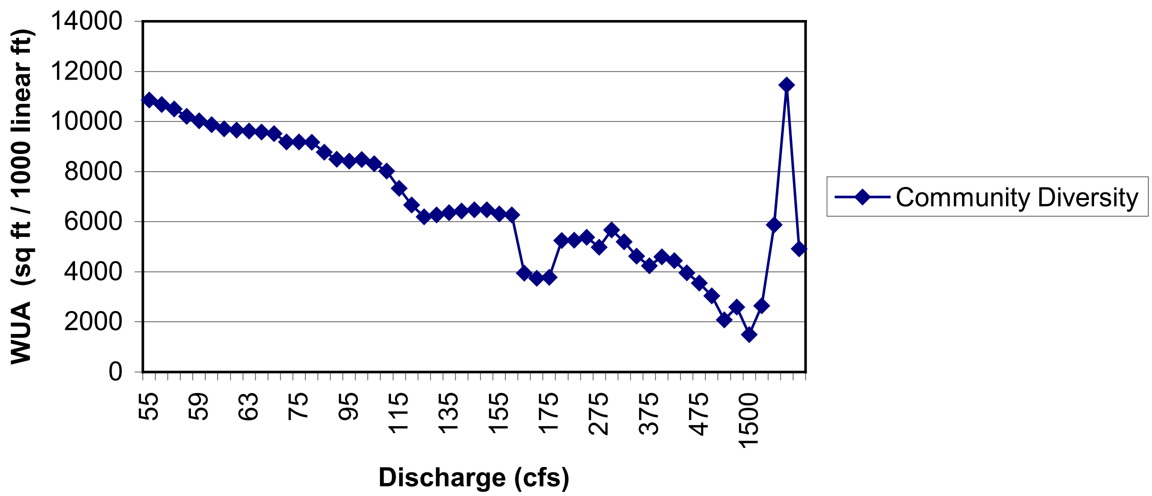
Middle Peace River at Arcadia - Weighted Usable Area versus Discharge for Bluegill Sunfish



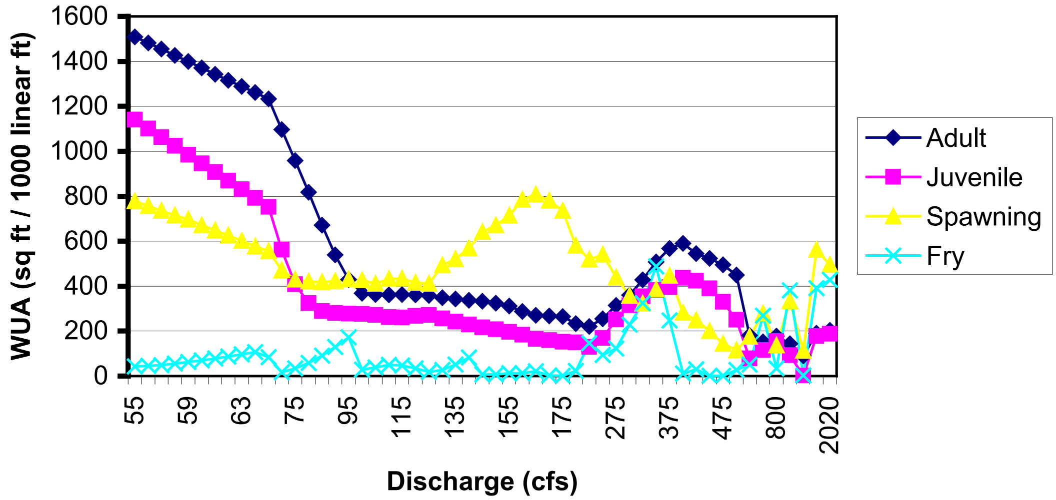
Middle Peace River at Arcadia - Weighted Usable Area versus Discharge for Spotted Sunfish



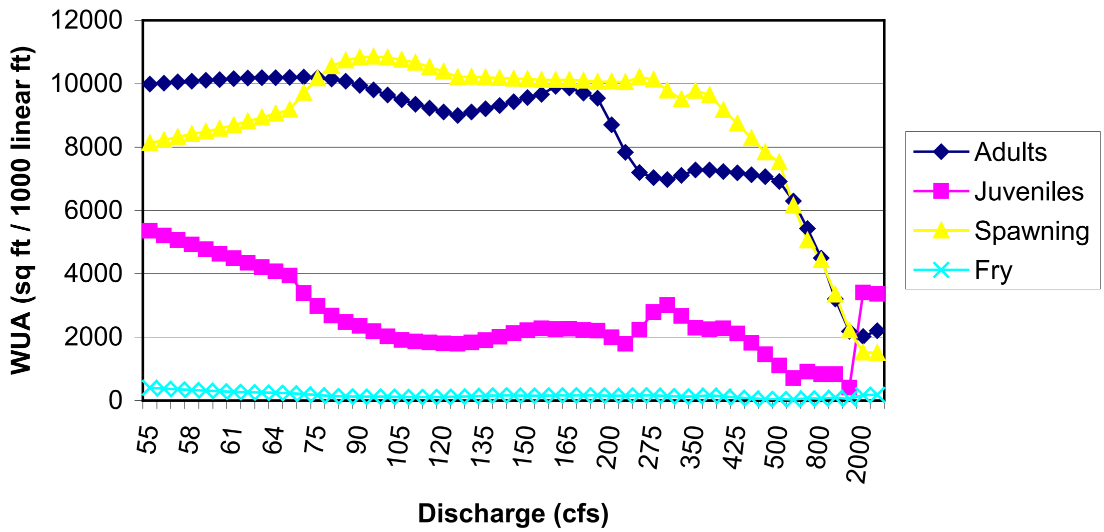
Middle Peace River at Arcadia - Weighted Usable Area versus Discharge for Benthos



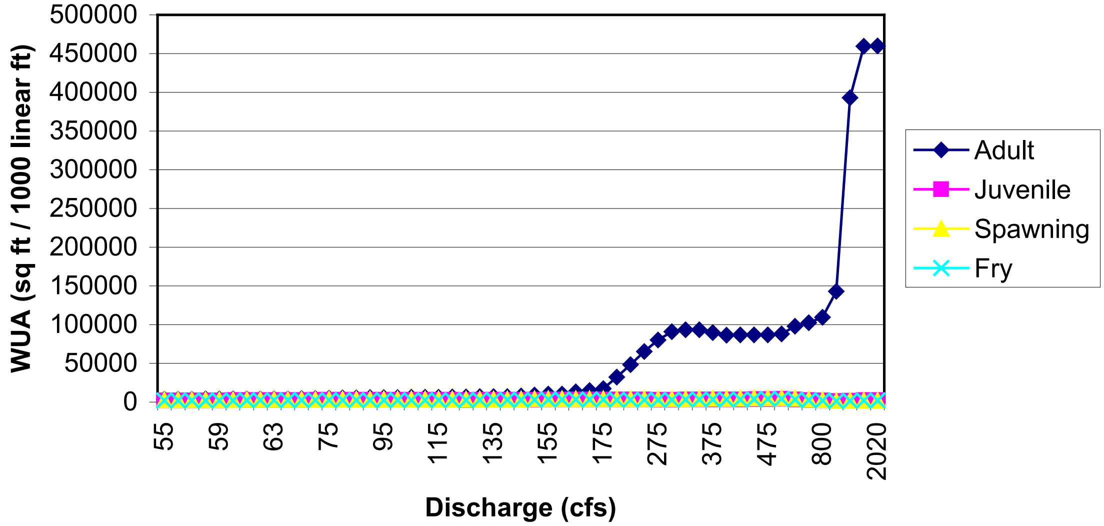
Middle Peace River at Zolfo Springs- Weighted Usable Area vs. Discharge for Largemouth Bass



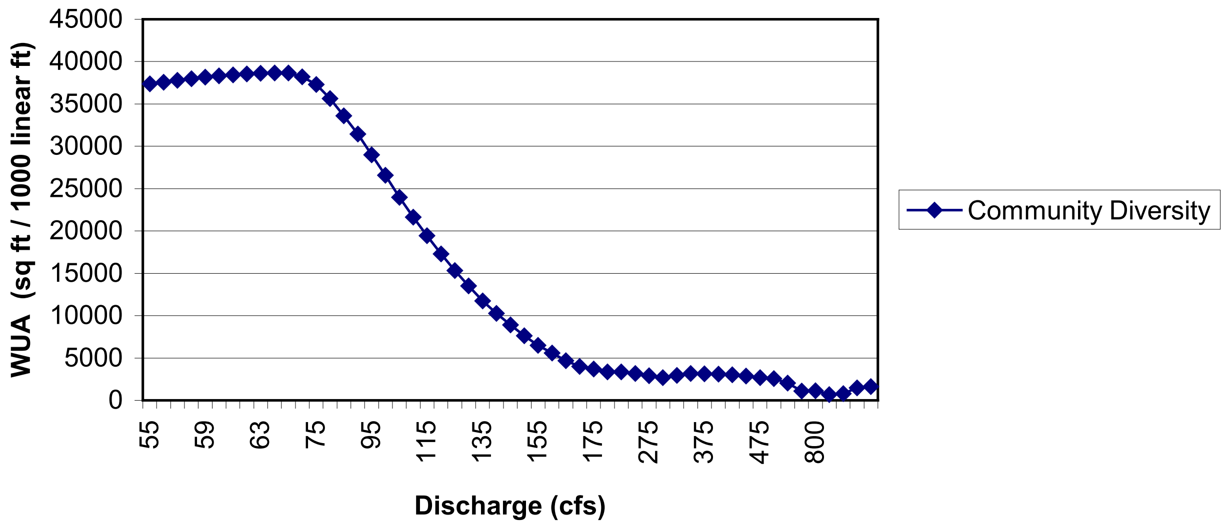
Middle Peace River at Zolfo Springs- Weighted Usable Area vs. Discharge for Bluegill Sunfish



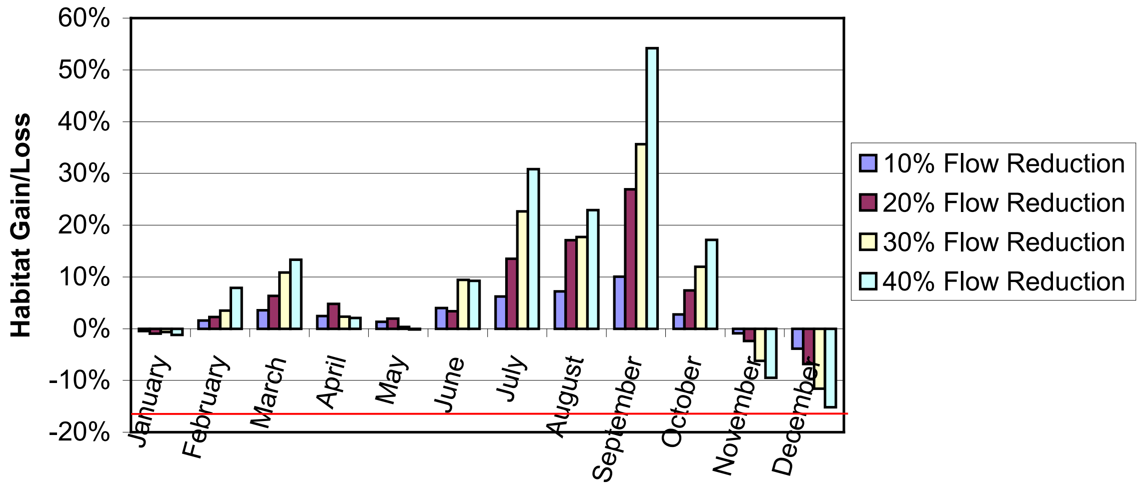
Middle Peace River at Zolfo Springs- Weighted Usable area vs. Discharge for the Spotted Sunfish



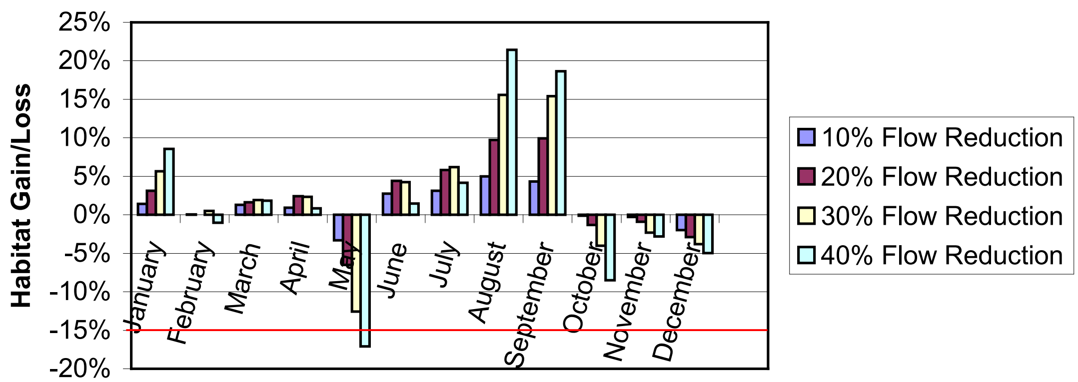
Middle Peace River at Zolfo Springs - Weighted Usable Area vs. Discharge for Benthic Macroinvertebrates



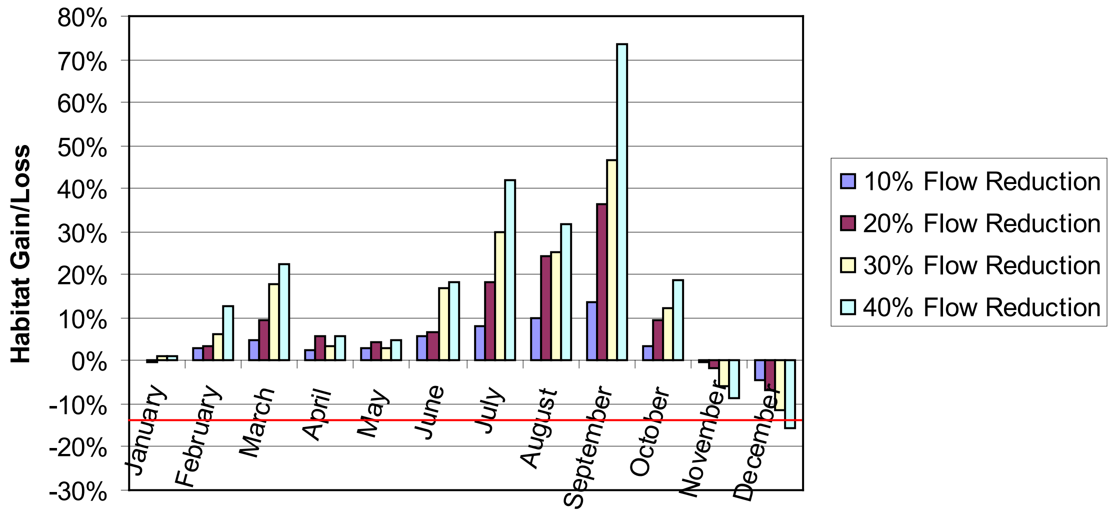
Predicted Habitat Gain/Loss for Largemouth Bass Adults Based on Historic Flow Conditions (1940-1966) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



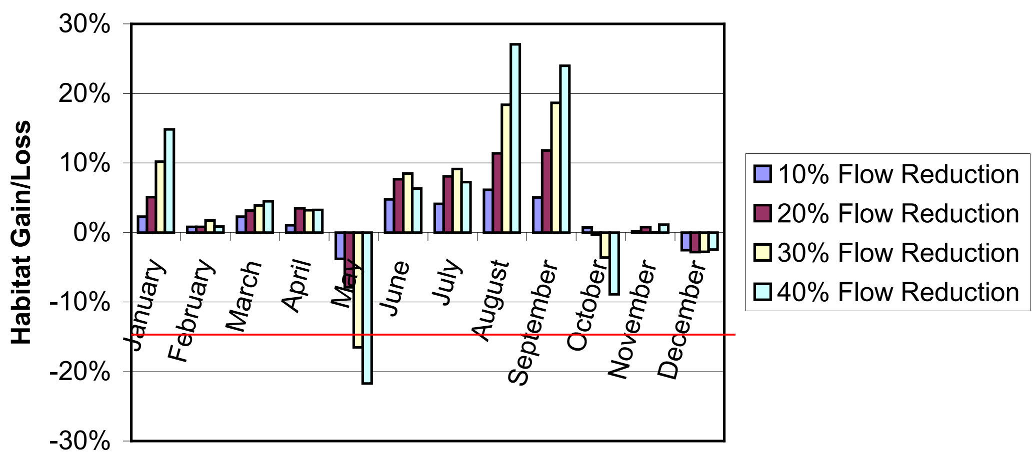
Predicted Habitat Gain/Loss for Largemouth Bass Adults Based on Historic Flow Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



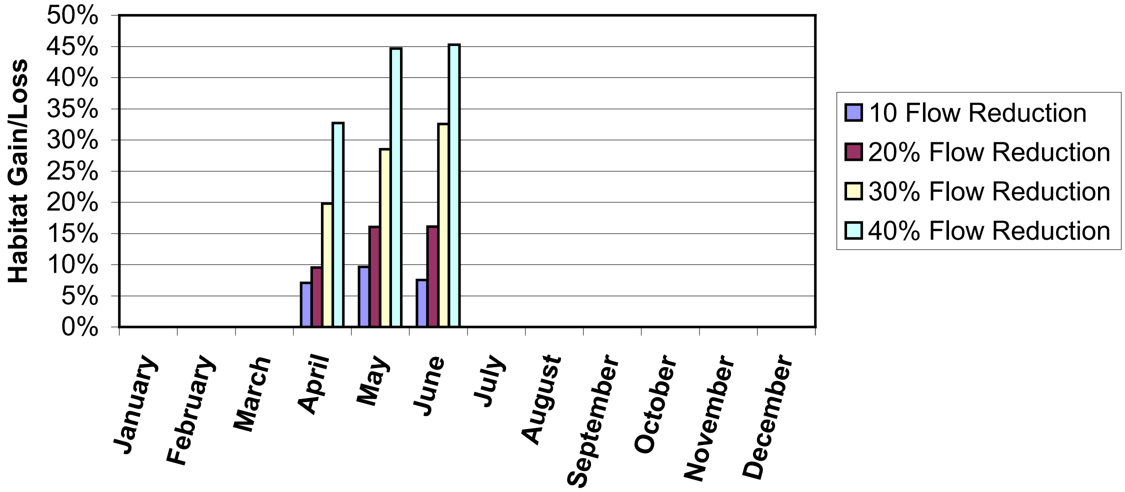
Predicted Habitat Gain/Loss for Largemouth Bass Juveniles Based on Historic Flow Conditions (1940-1966) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



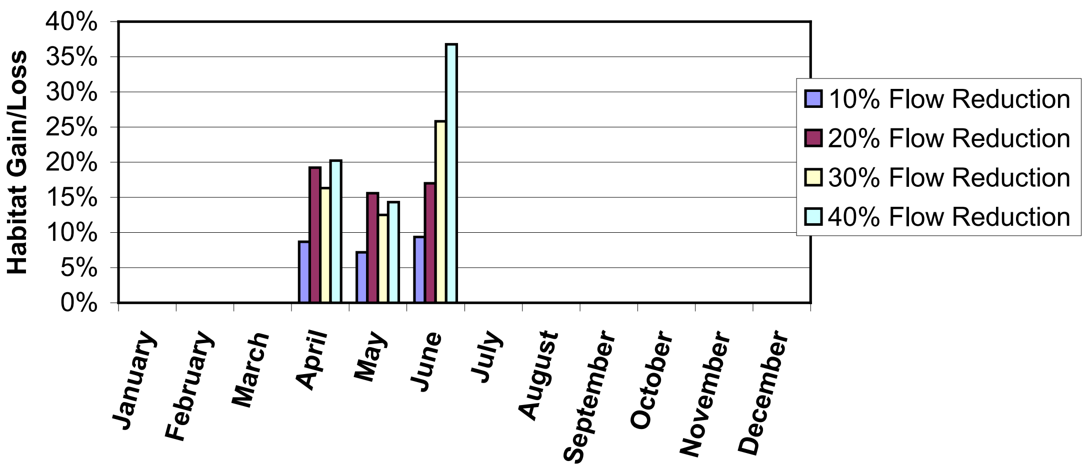
Predicted Habitat Gain/Loss for Largemouth Bass Juveniles Based on Historic Flow Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



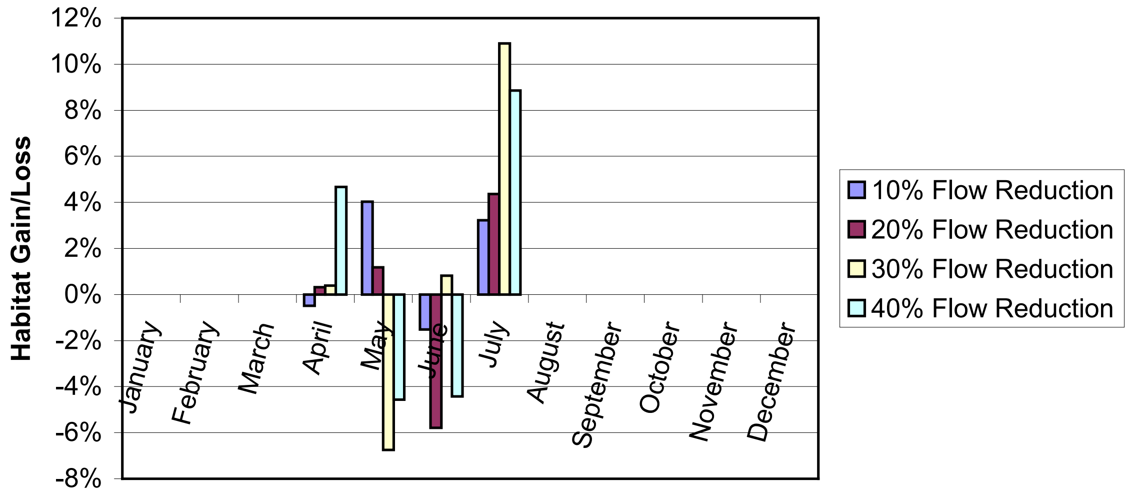
Predicted Habitat Gain/Loss for Largemouth Bass Spawning Based on Historic Flow Conditions (1940-1969) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



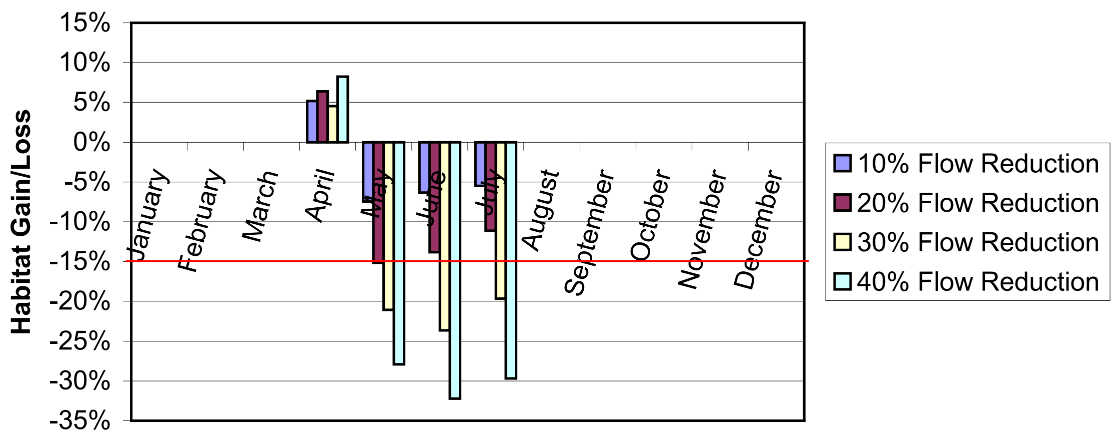
Predicted Habitat Gain/Loss for Largemouth Bass Spawning Based on Historic Flow Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



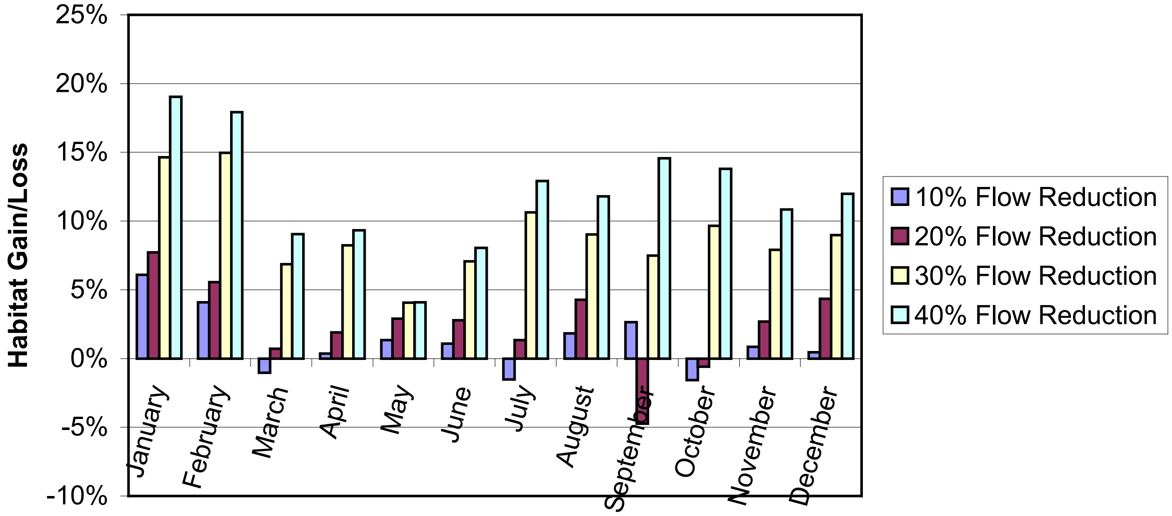
Predicted Habitat Gain/Loss for Largemouth Bass Fry Based on Historic Flow Conditions (1940-1969) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



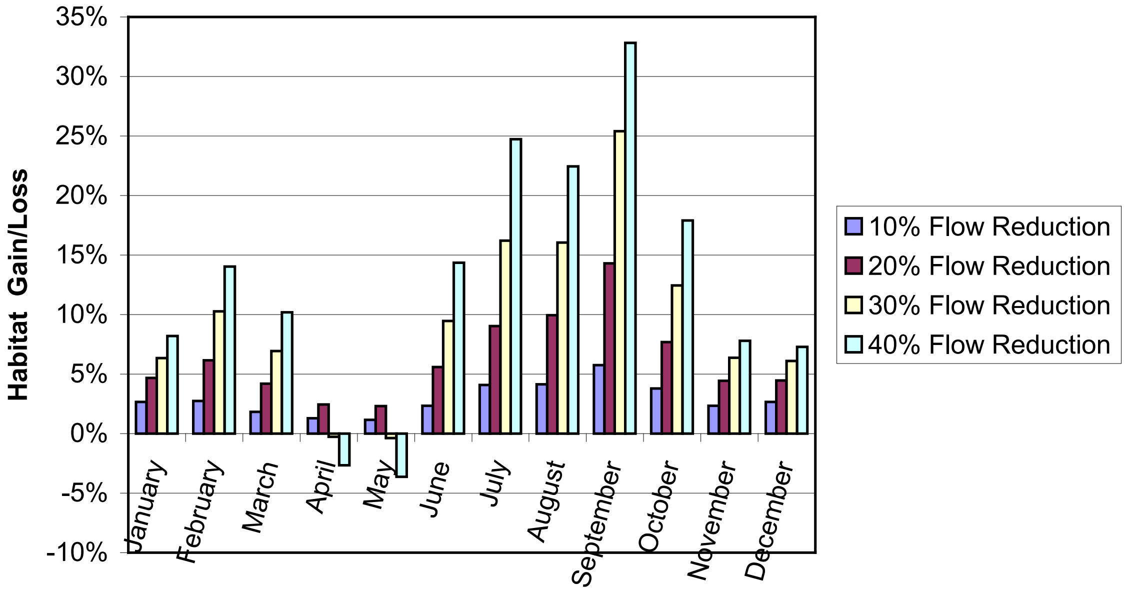
Predicted Habitat Gain/Loss for Largemouth Bass Fry Based on Historic Flow Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



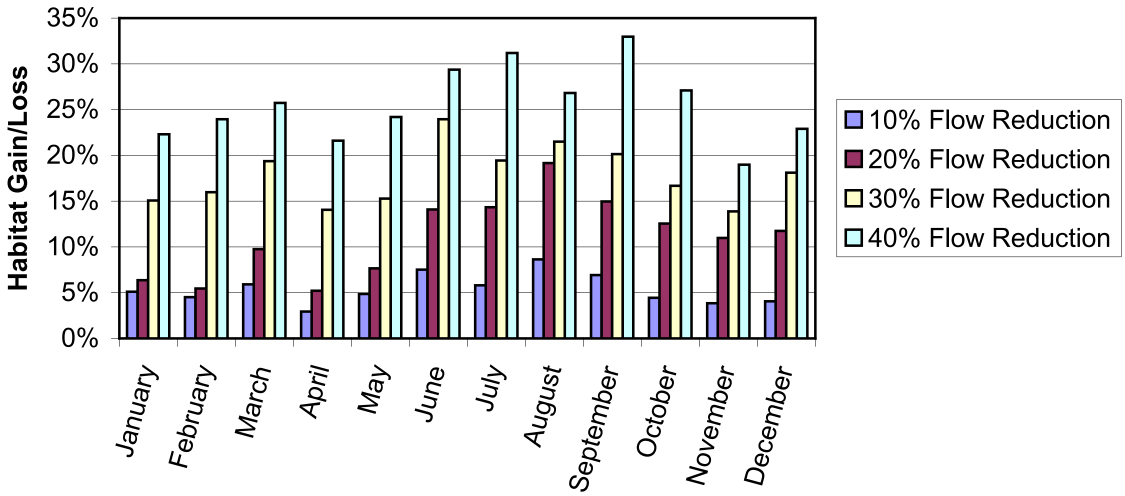
Predicted Habitat Gain/Loss for Bluegill Sunfish Adults Based on Historic Flow Conditions (1940-1969) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



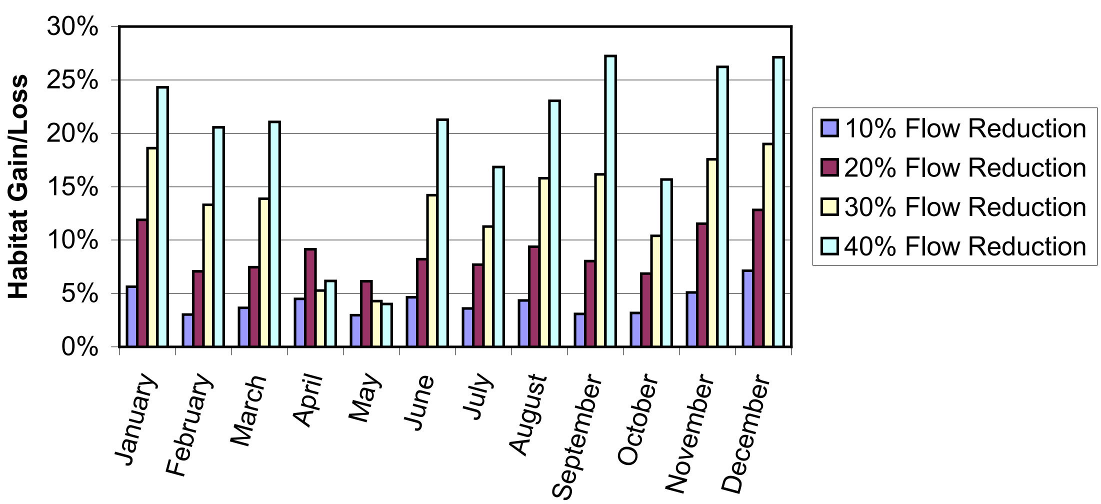
Predicted Habitat Gain/Loss for Bluegill Sunfish Adults Based on Historic Flow Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



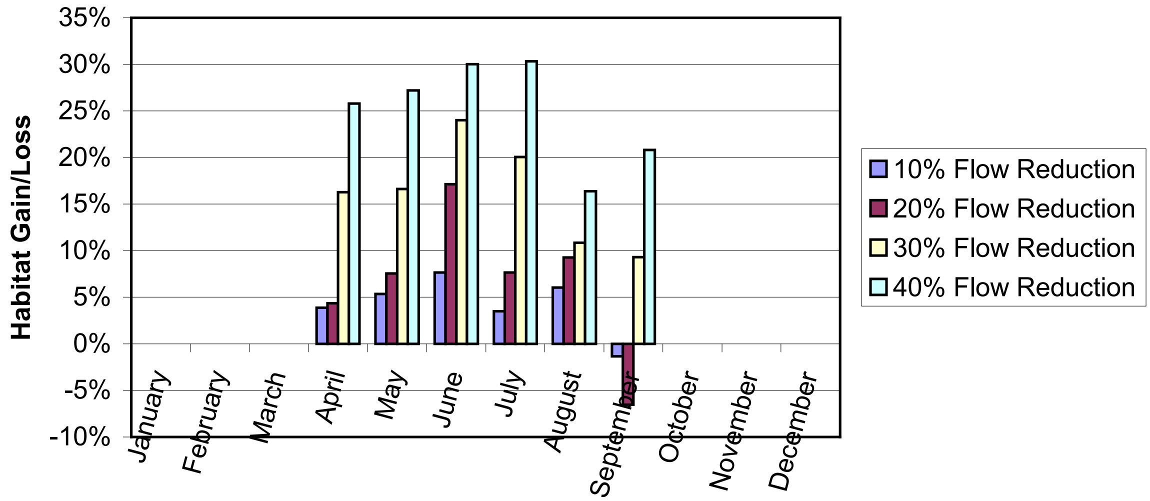
Predicted Habitat Gain/Loss for Bluegill Sunfish Juveniles Based on Historic Flow Conditions (1940-1969) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



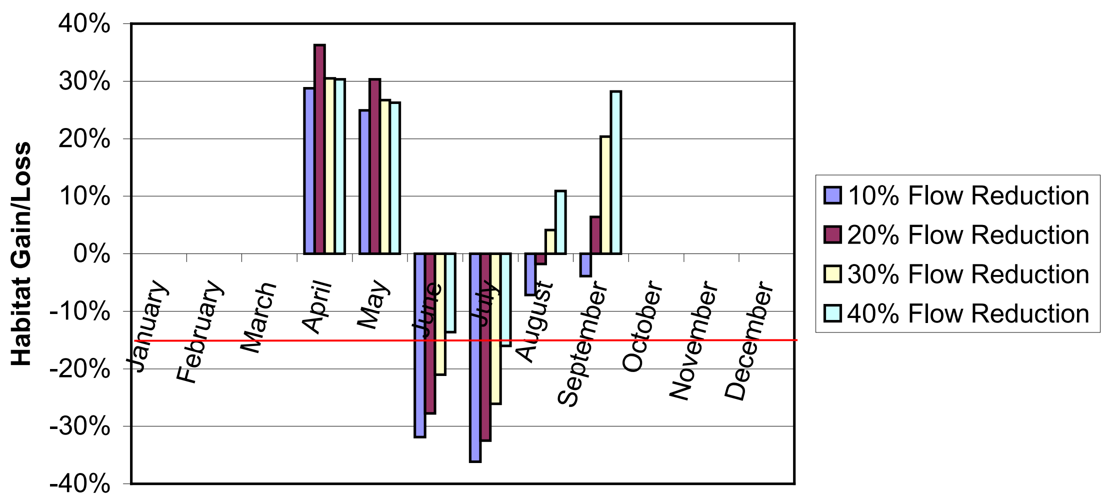
Predicted Habitat Gain/Loss for Bluegill Sunfish Juveniles Based on Historic Flow Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



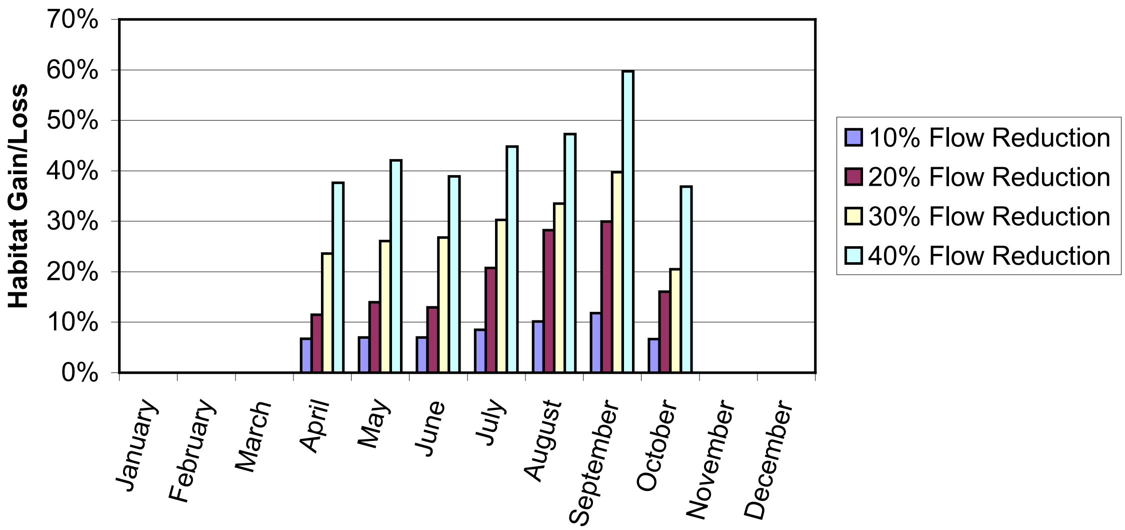
Predicted Habitat Gain/Loss for Bluegill Sunfish Spawning Based on Historic Flow Conditions (1940-1969) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



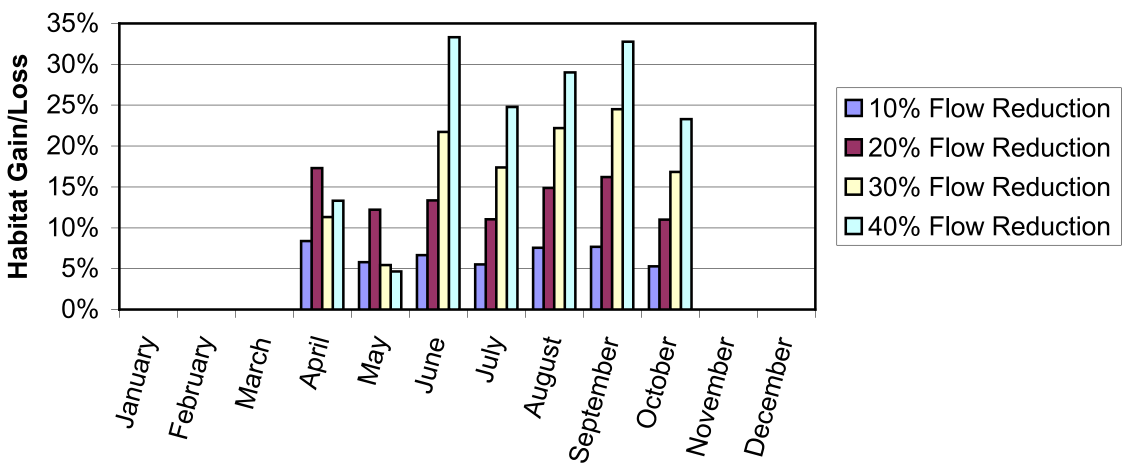
Predicted Habitat Gain/Loss for Bluegill Sunfish Spawning Based on Historic Flow Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



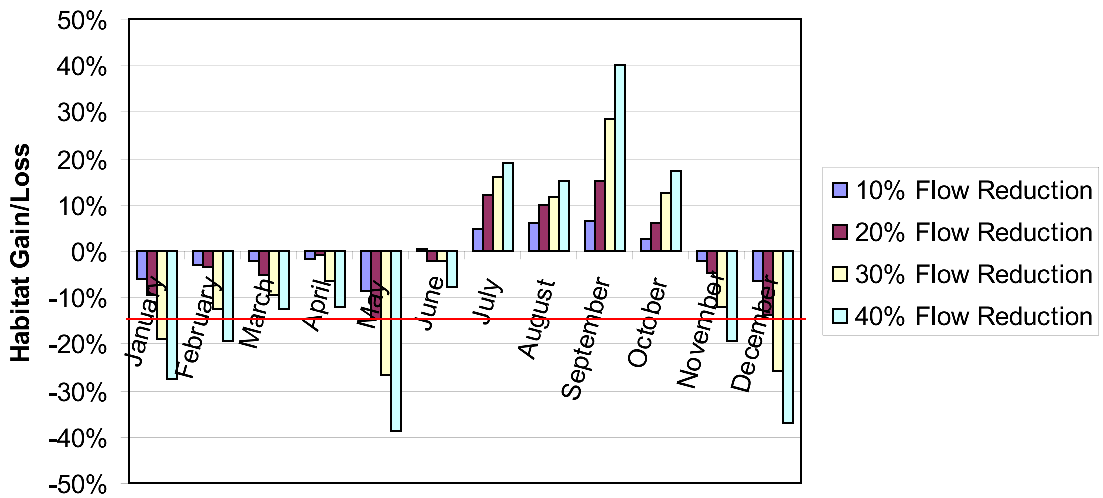
Predicted Habitat Gain/Loss for Bluegill Sunfish Fry Based on Historic Flow Conditions (1940-1969) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



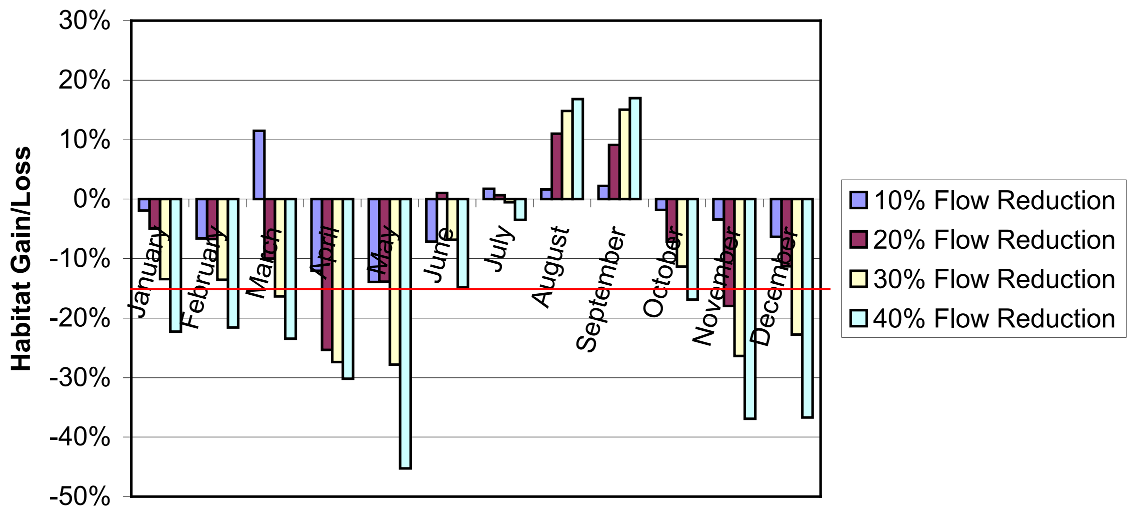
Predicted Habitat Gain/Loss for Bluegill Sunfish Fry Based on Historic Flow Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



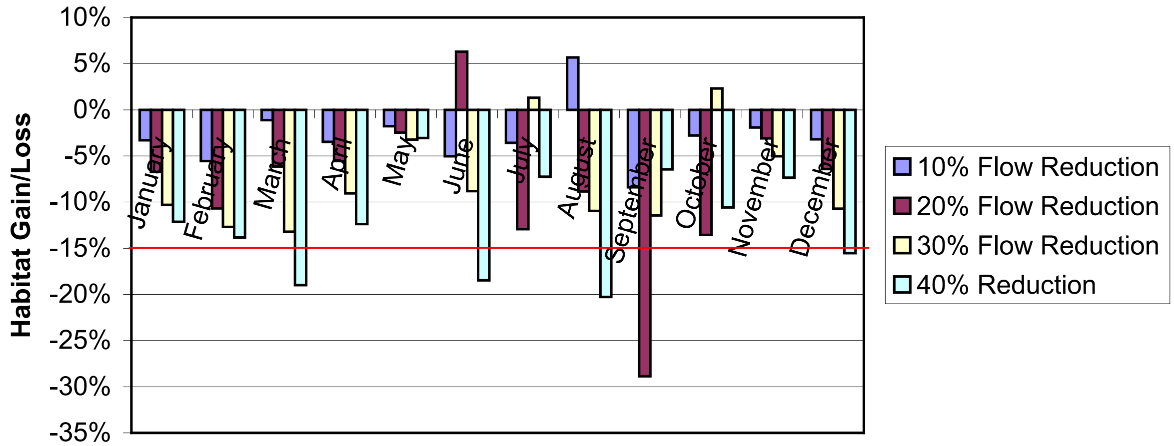
Predicted Habitat Gain/Loss for Adult Spotted Sunfish Based on Historic Flow Conditions (1940-1966) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



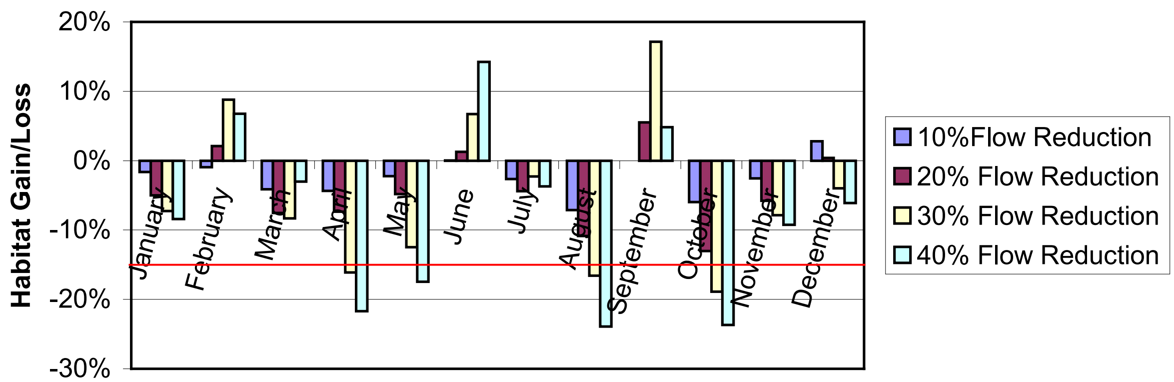
Predicted Habitat Gain/Loss for Adult Spotted Sunfish Based on Historic Flow Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



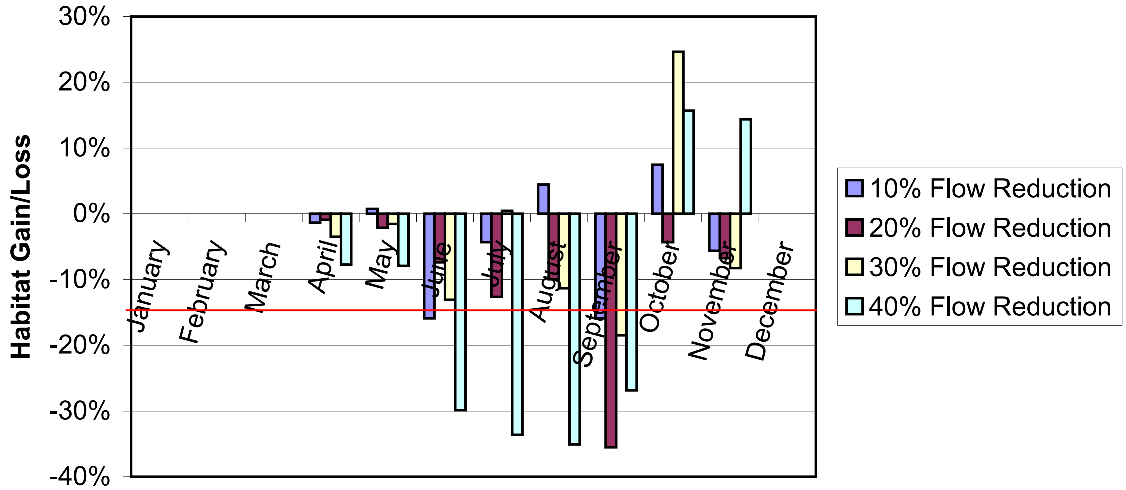
Predicted Habitat Gain/Loss for Spotted Sunfish Juveniles Based on Historic Flow Conditions (1940-1966) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



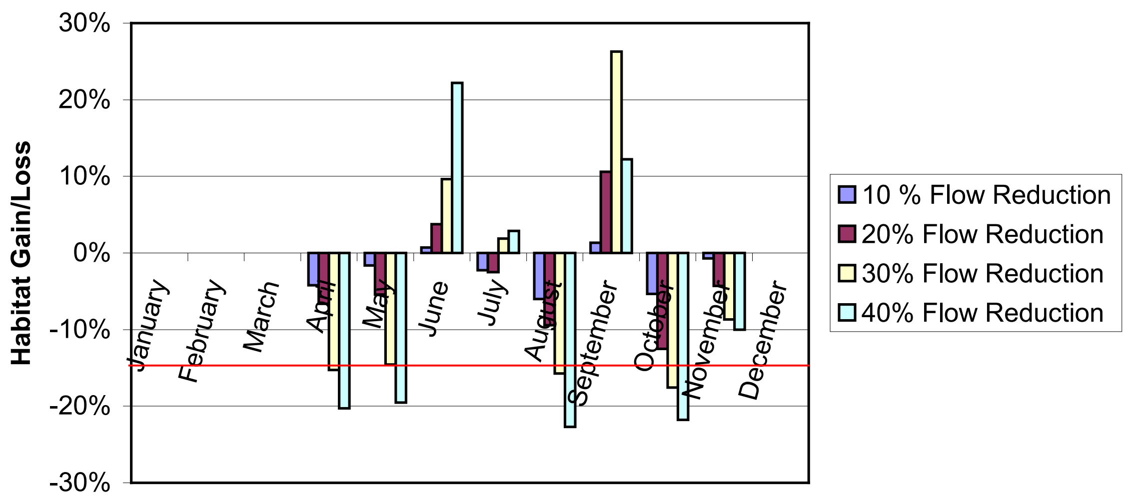
Predicted Habitat Gain/Loss for Spotted Sunfish Juveniles Based on Historic Flow Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



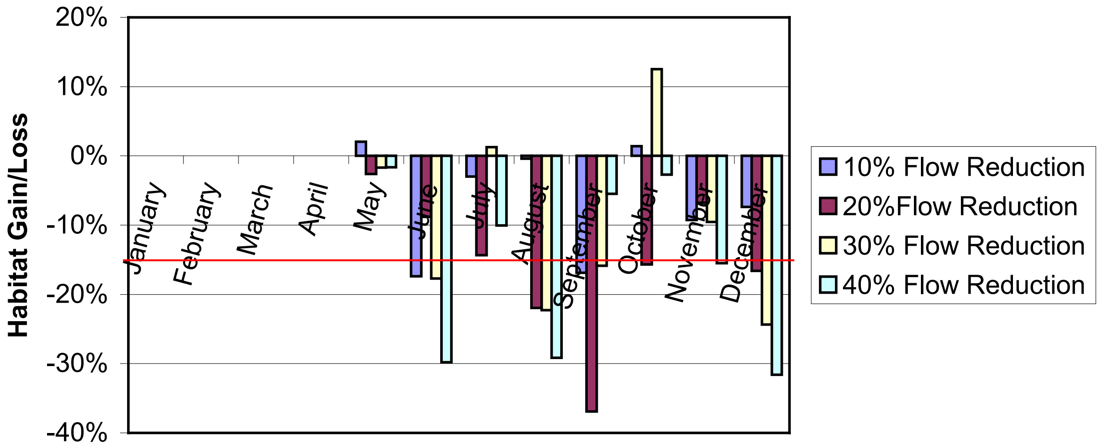
Predicted Habitat Gain/Loss for Spotted Sunfish Spawning Based on Historic Flow Conditions (1940-1966) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



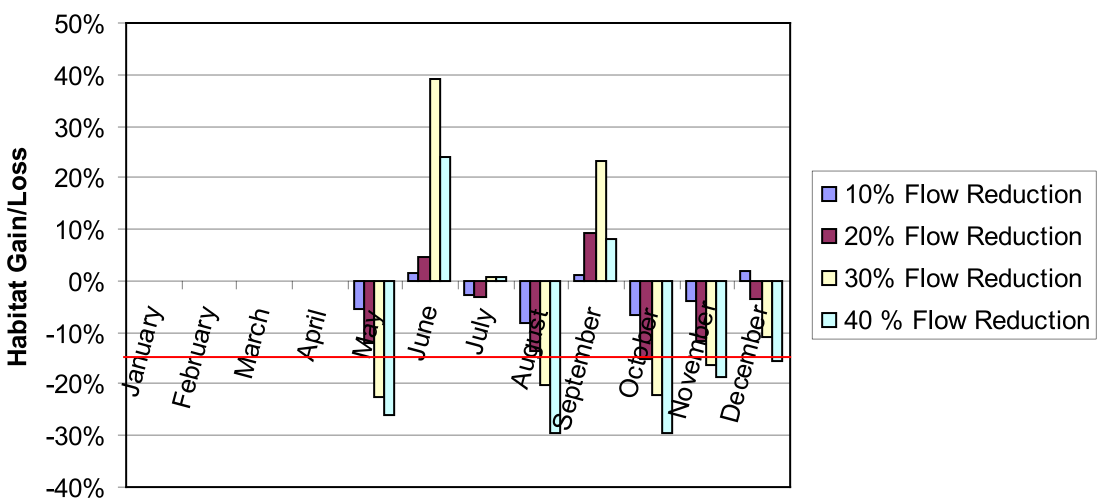
Predicted Habitat Gain/Loss for Spotted Sunfish Spawning Based on Historic Flow Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



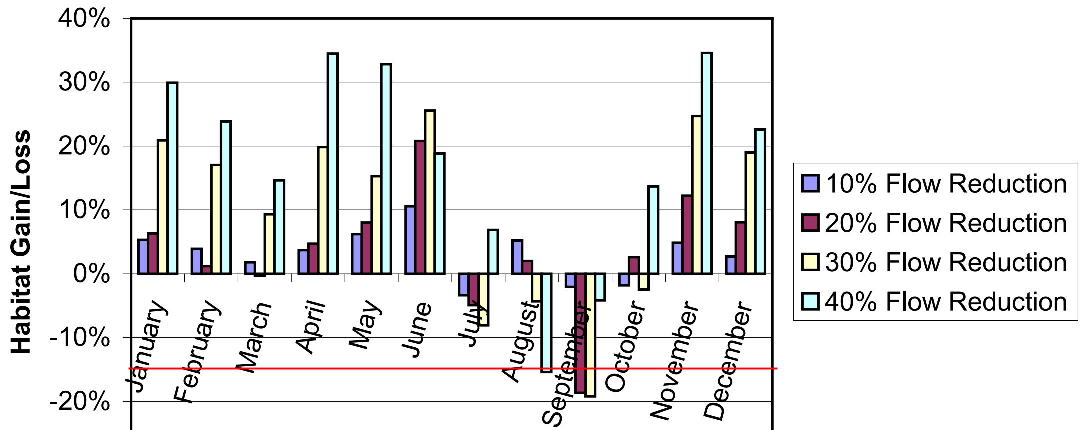
Predicted Habitat Gain/Loss for Spotted Sunfish Fry Based on Historic Flow Conditions (1940-1966) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



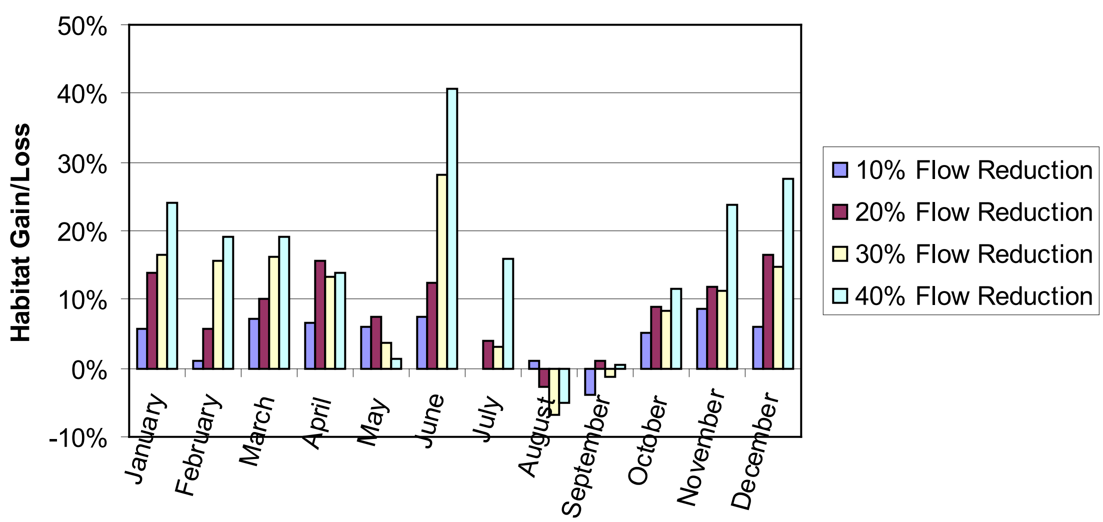
Predicted Habitat Gain/Loss for Spotted Sunfish Fry Based on Historic Flow Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



Predicted Habitat Gain/Loss for Benthic Macroinvertebrates Based on Historic Flow Conditions (1940-1966) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



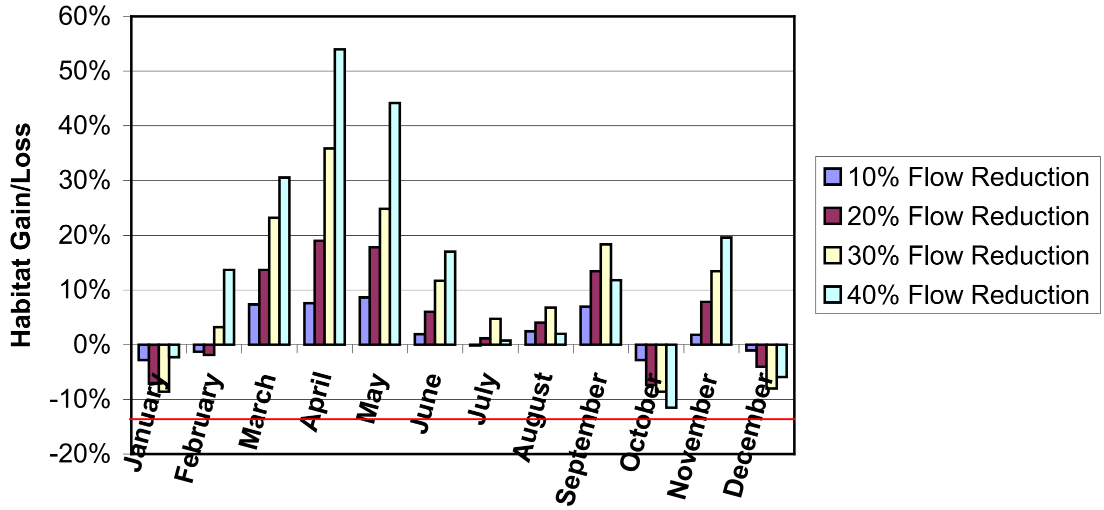
Predicted Habitat Gain/Loss for Benthic Macroinvertebrates Based on Historic Flow Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Arcadia



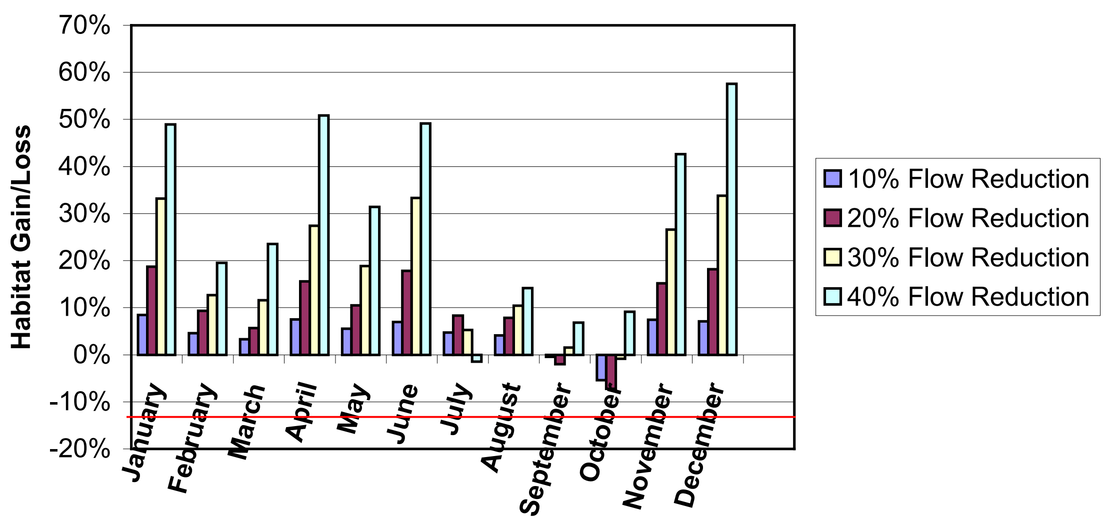
BIOLOGICAL RESTRICTIONS ON FLOW REDUCTIONS ON THE MIDDLE PEACE RIVER AT ARCADIA					
(1970-1999) FLOW RECORDS			**(1940-1969) FLOW RECORDS**		
Month	**Restriction***	**Overriding Consideration**	**Month**	**Restriction***	**Overriding Consideration**
January	30% Flow Reduction	Spotted Sunfish Adults	January	20% Flow Reduction	Spotted Sunfish Adults
February	30% Flow Reduction	Spotted Sunfish Adults	February	30% Flow Reduction	Spotted Sunfish Adults
March	30% Flow Reduction	Spotted Sunfish Adults	March	30% Flow Reduction	Spotted Sunfish Juveniles
April	10% Flow Reduction	Spotted Sunfish Adults	April	None	
May	20% Flow Reduction	Largemouth Bass Fry	May	20% Flow Reduction	Spotted Sunfish Adults
June	No Flow Reductions	Bluegill Sunfish Spawning	June	No Flow Reductions	Spotted Sunfish Spawning & Fry
July	No Flow Reductions	Bluegill Sunfish Spawning	July	30% Flow Reduction	Spotted Sunfish Spawning
August	20% Flow Reduction	Spotted Sunfish Fry	August	10% Flow Reduction	Spotted Sunfish Fry
September	None		September	No Flow Reductions	Spotted Sunfish Spawning & Fry
October	20% Flow Reduction	Spotted Sunfish Fry	October	None	
November	10% Flow Reduction	Spotted Sunfish Adults	November	30% Flow Reduction	Spotted Sunfish Adults
December	20% Flow Reduction	Spotted Sunfish Adults	December	10% Flow Reduction	Spotted Sunfish Fry

***Maximum Flow reduction; If "None" is entered, a maximum 50% reduction is assumed**

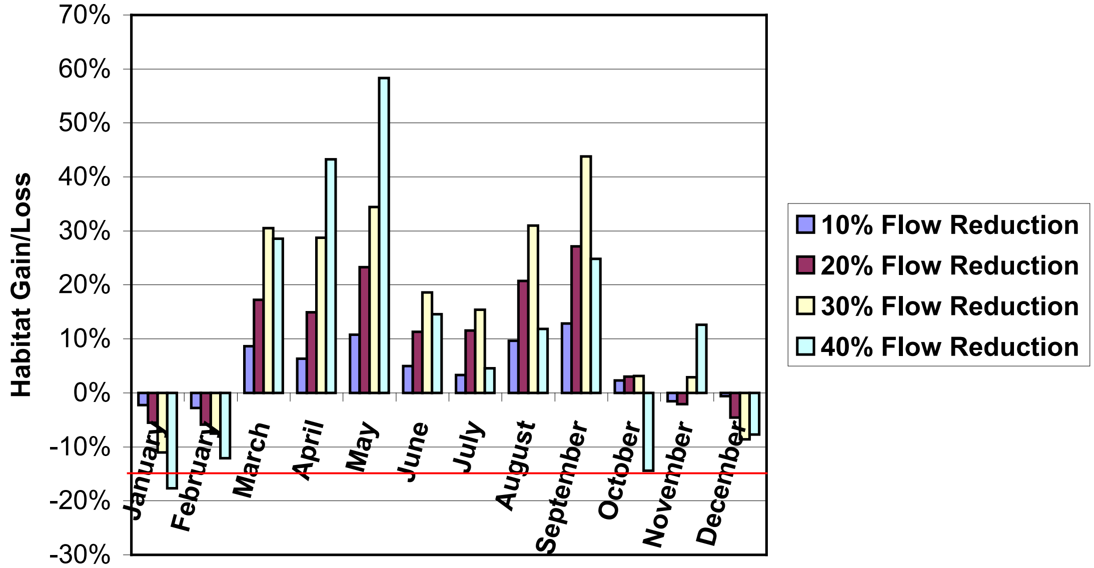
Predicted Habitat Gain/Loss for Largemouth Bass Adults Based on Historic Conditions (1940-1969) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



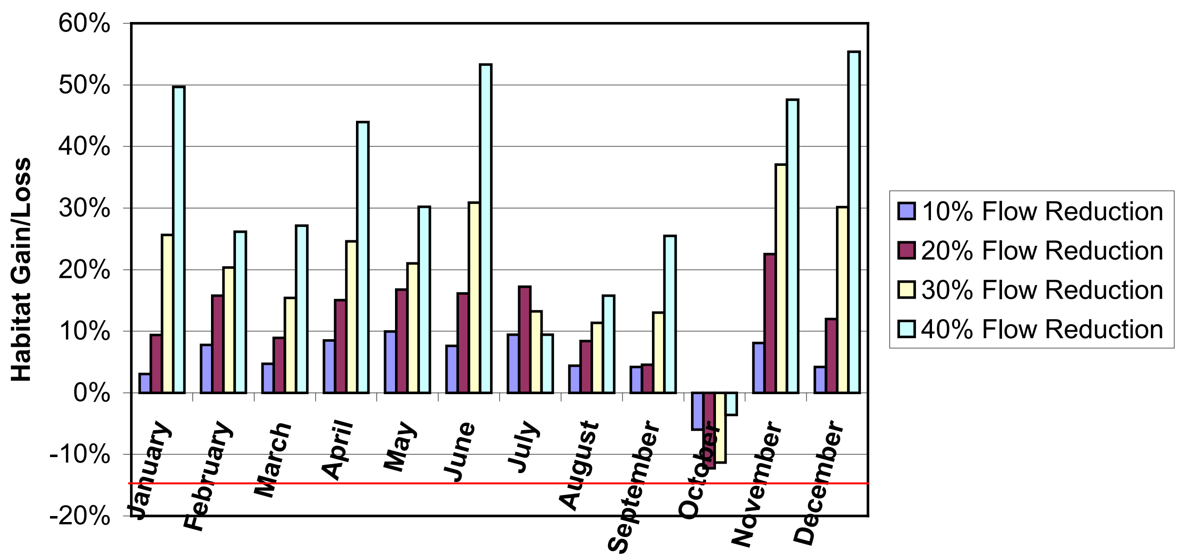
Predicted Habitat Gain/Loss for Largemouth Bass Adults Based on Historic Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



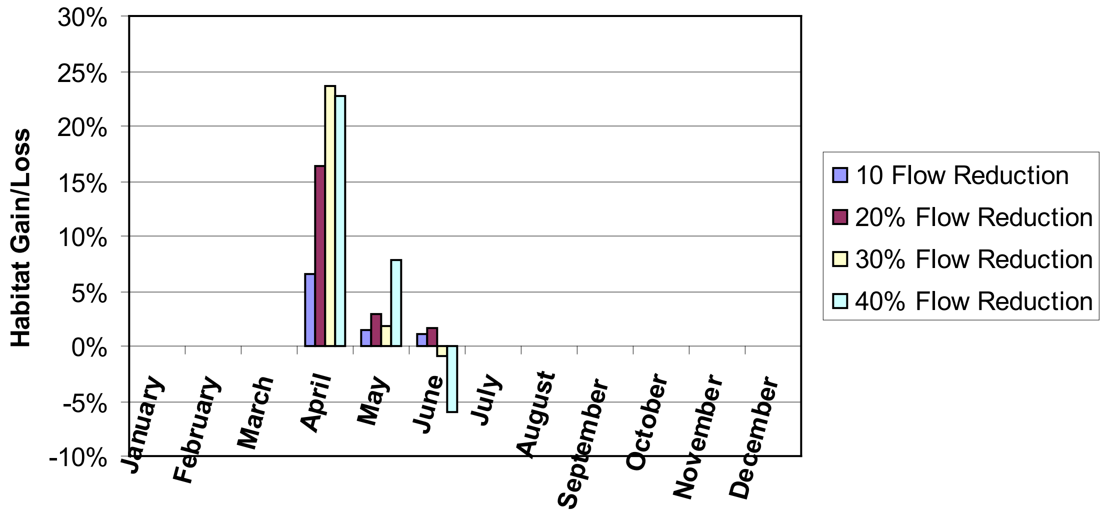
Predicted Habitat Gain/Loss for Largemouth Bass Juveniles Based on Historic Conditions (1940-1969) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



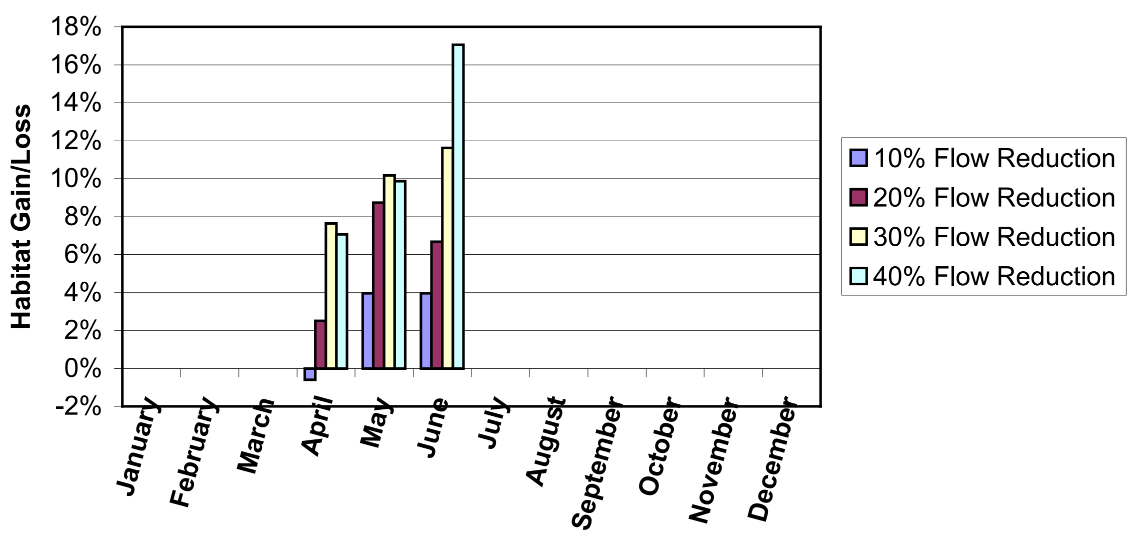
Predicted Habitat Gain/Loss for Largemouth Bass Juveniles Based on Historic Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



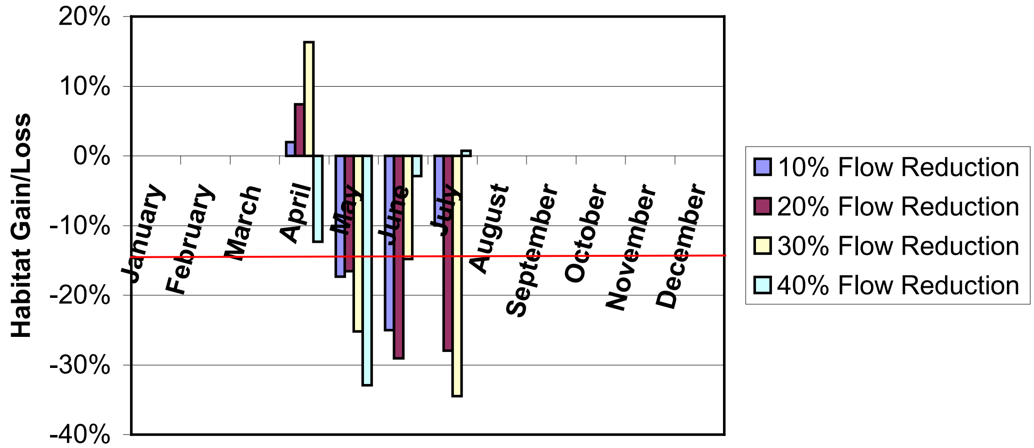
Predicted Habitat Gain/Loss for Largemouth Bass Spawning Based on Historic Conditions (1940-1969) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



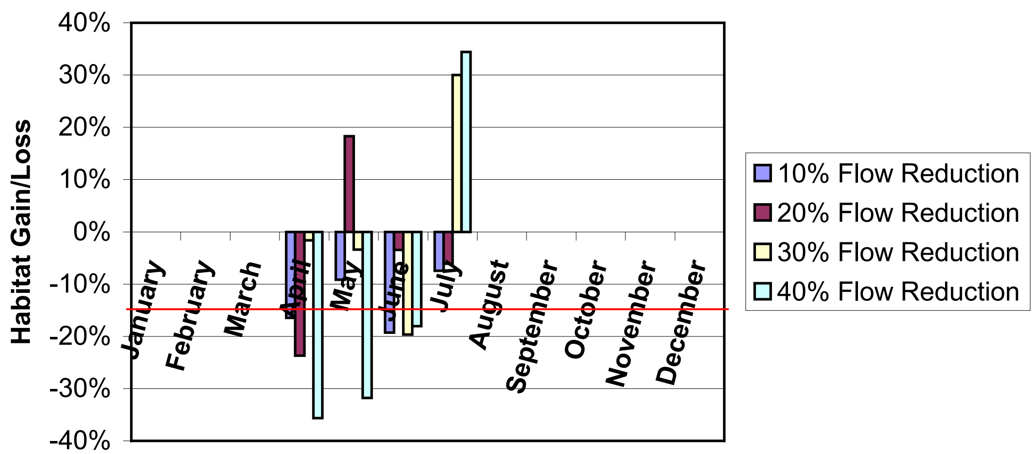
Predicted Habitat Gain/Loss for Largemouth Bass Spawning Based on Historic Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



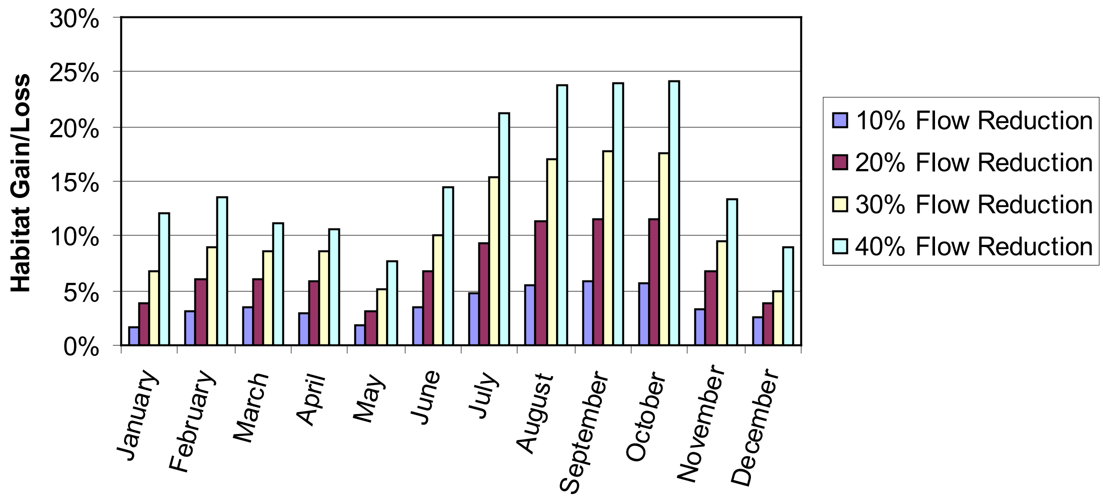
Predicted Habitat Gain/Loss for Largemouth Bass Fry Based on Historic Conditions (1940-1969) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



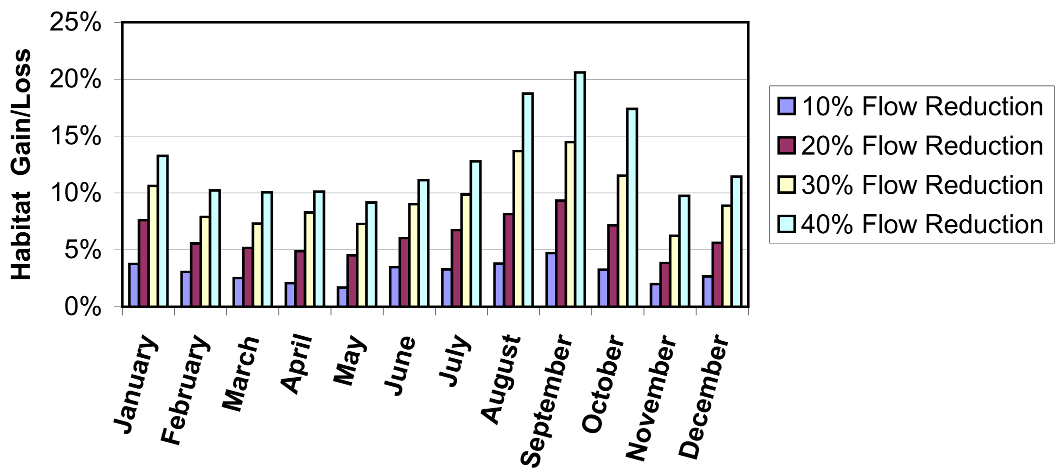
Predicted Habitat Gain/Loss for Largemouth Bass Fry Based on Historic Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



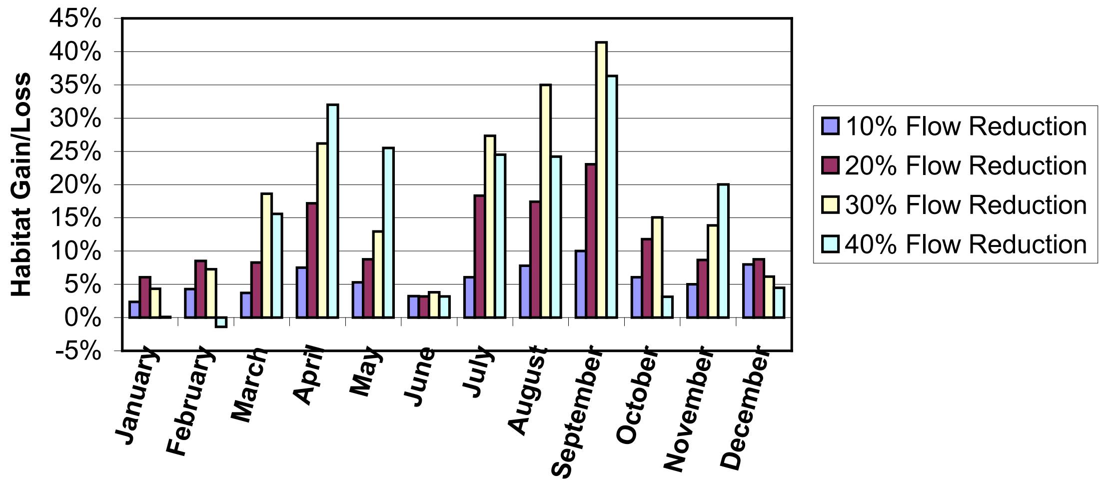
Predicted Habitat Gain/Loss for Bluegill Sunfish Adults Based on Historic Conditions (1940-1969) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



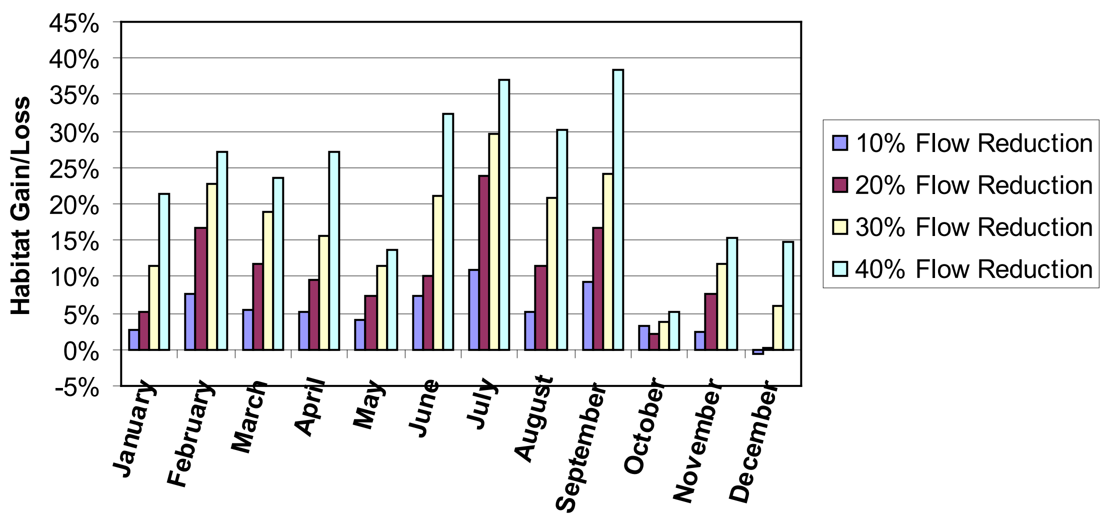
Predicted Habitat Gain/Loss for Bluegill Sunfish Adults Based on Historic Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



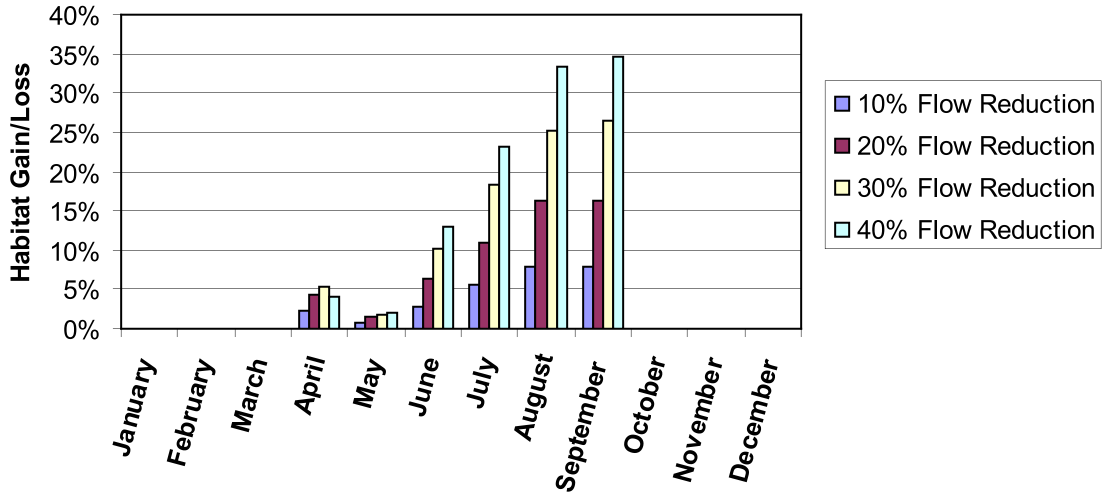
Predicted Habitat Gain/Loss for Bluegill Sunfish Juveniles Based on Historic Conditions (1940-1969) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



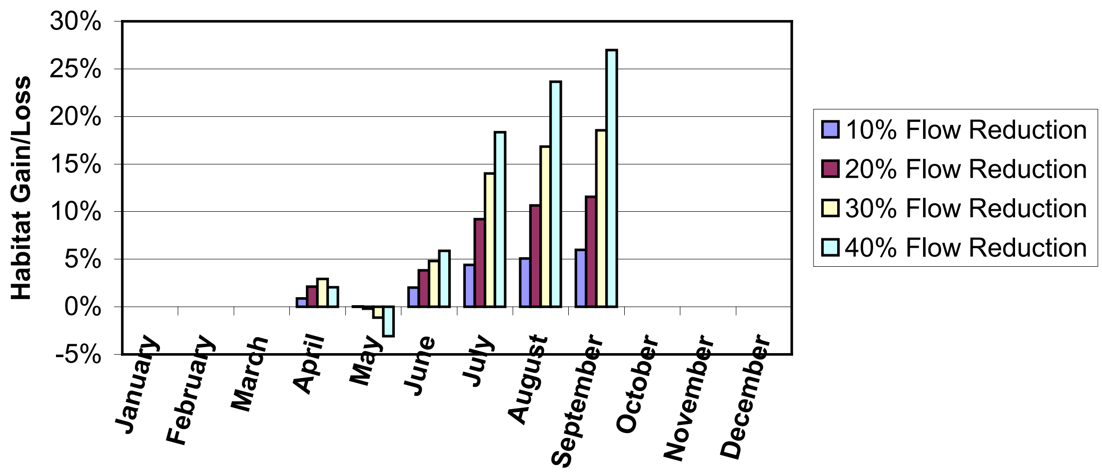
Predicted Habitat Gain/Loss for Bluegill Sunfish Juveniles Based on Historic Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



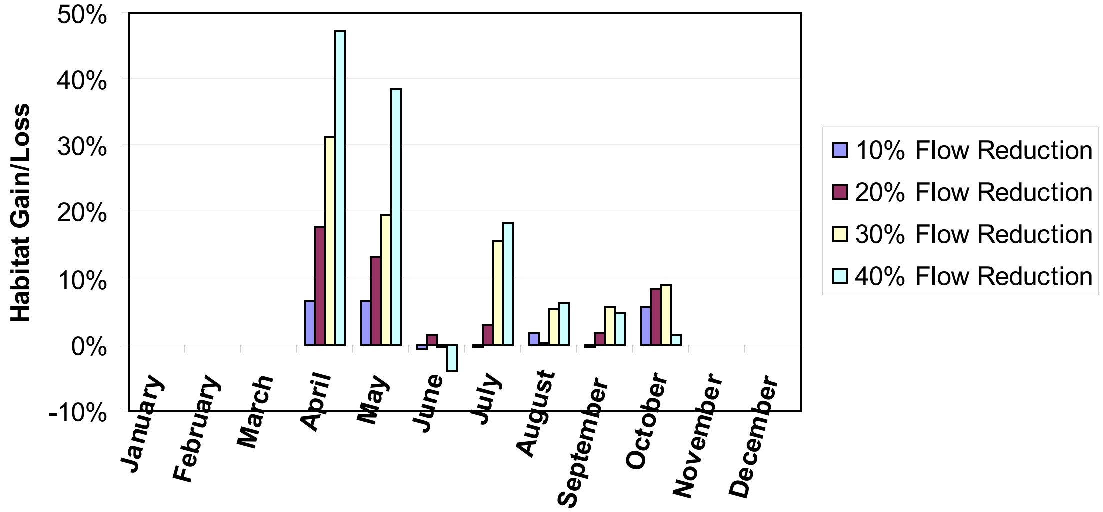
Predicted Habitat Gain/Loss for Bluegill Sunfish Spawning Based on Historic Conditions (1940-1969) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



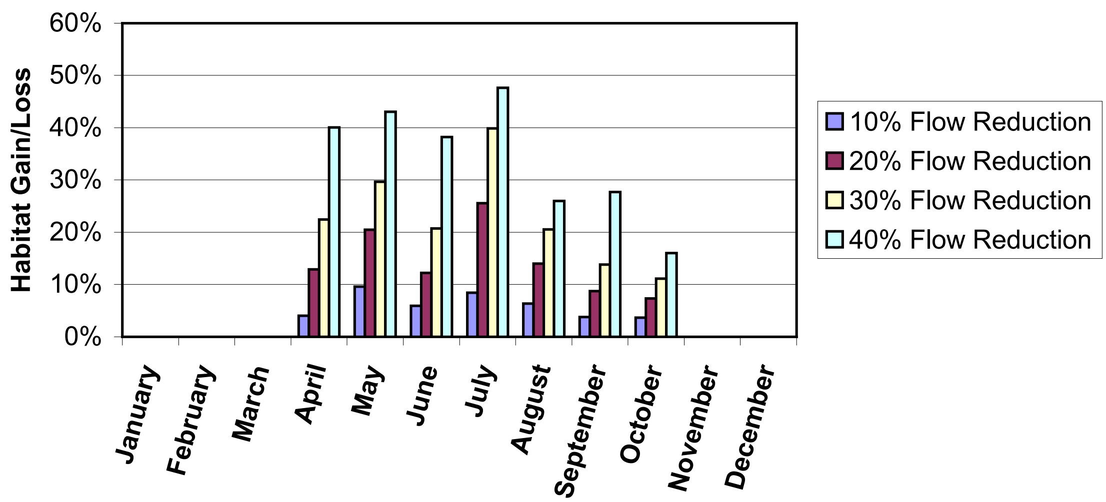
Predicted Habitat Gain/Loss for Bluegill Sunfish Spawning Based on Historic Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



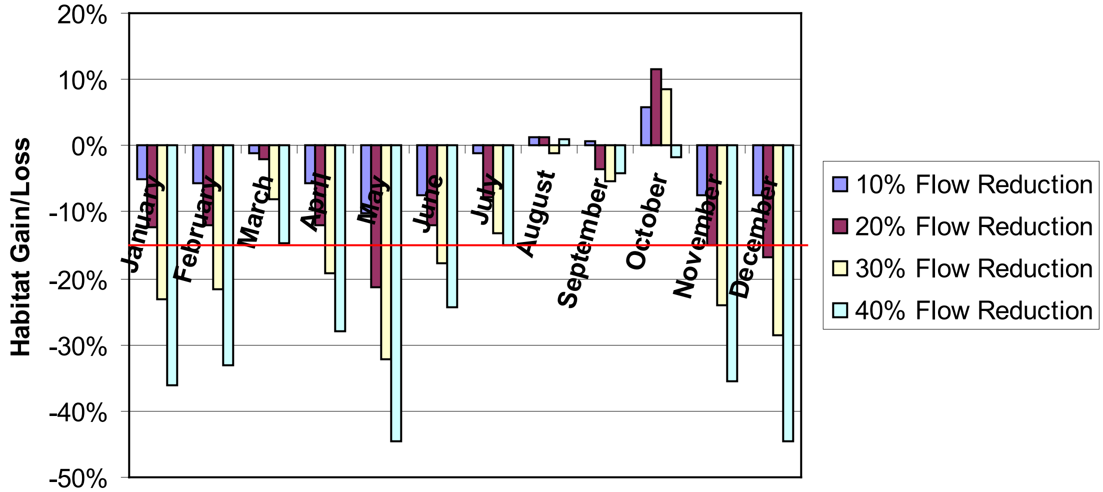
Predicted Habitat Gain/Loss for Bluegill Sunfish Fry Based on Historic Conditions (1940-1969) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



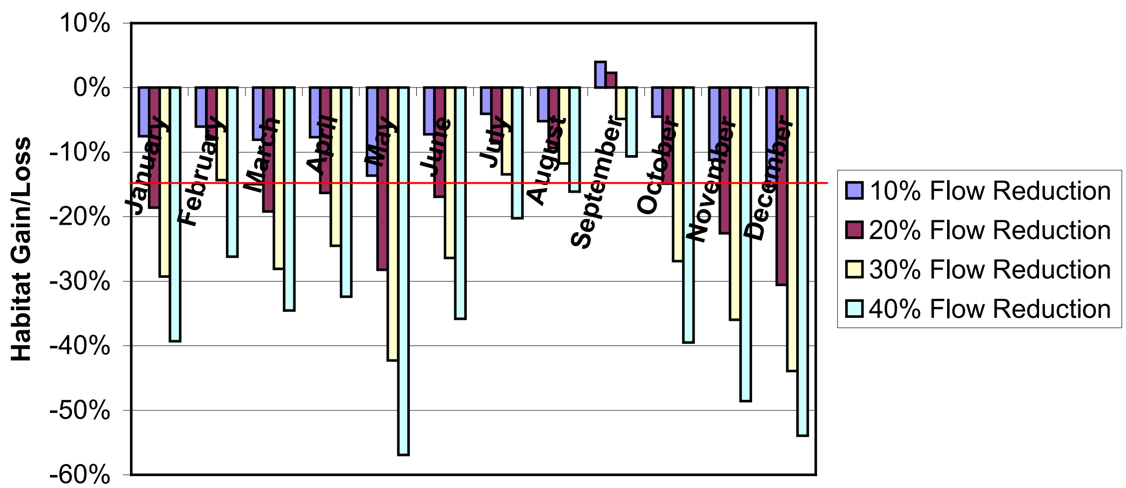
Predicted Habitat Gain/Loss for Bluegill Sunfish Fry Based on Historic Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



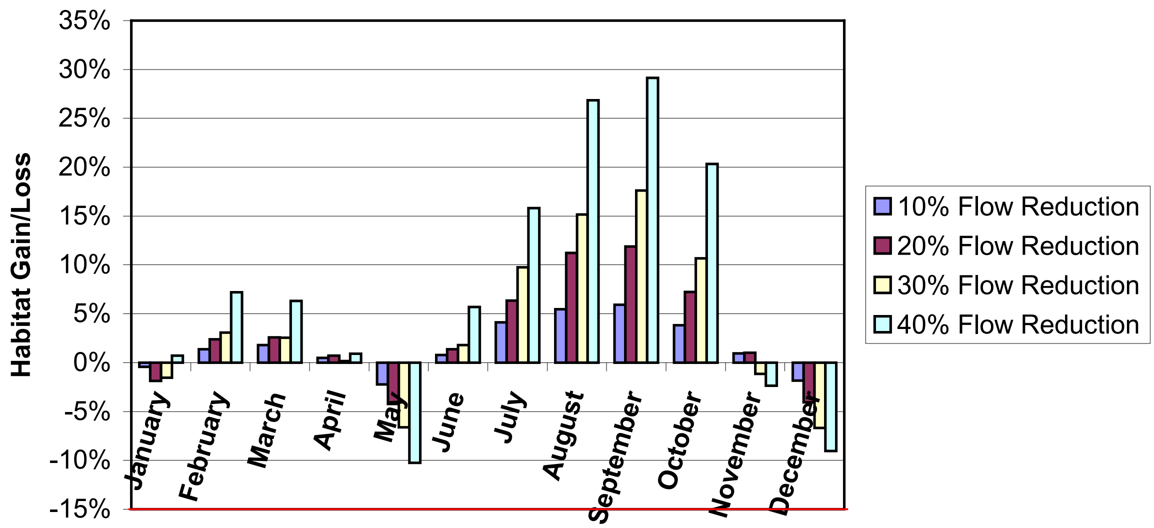
Predicted Habitat Gain/Loss for Adult Spotted Sunfish Based on Historic Conditions (1940-1969) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



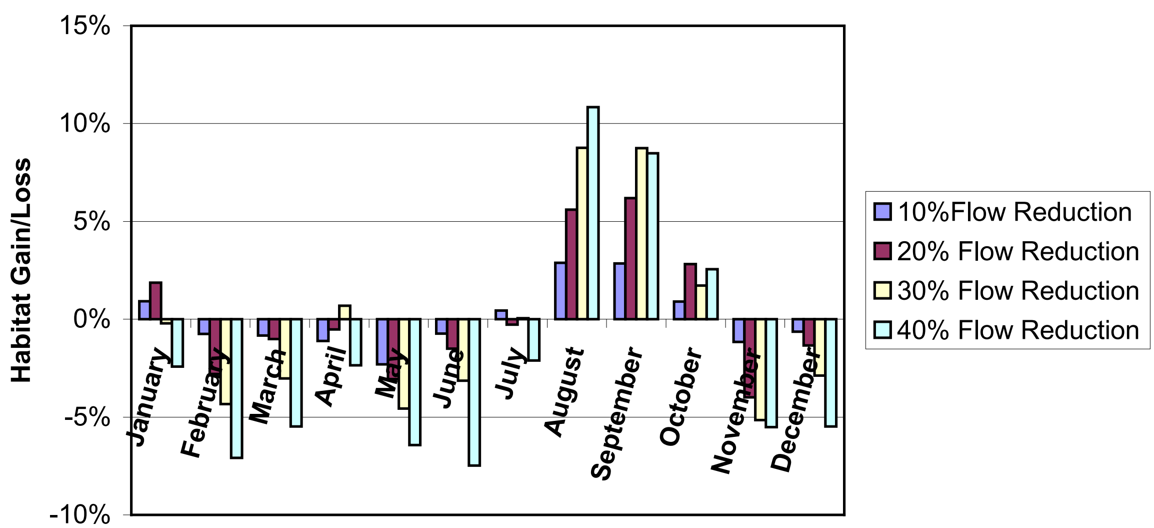
Predicted Habitat Gain/Loss for Spotted Sunfish Adults Based on Historic Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



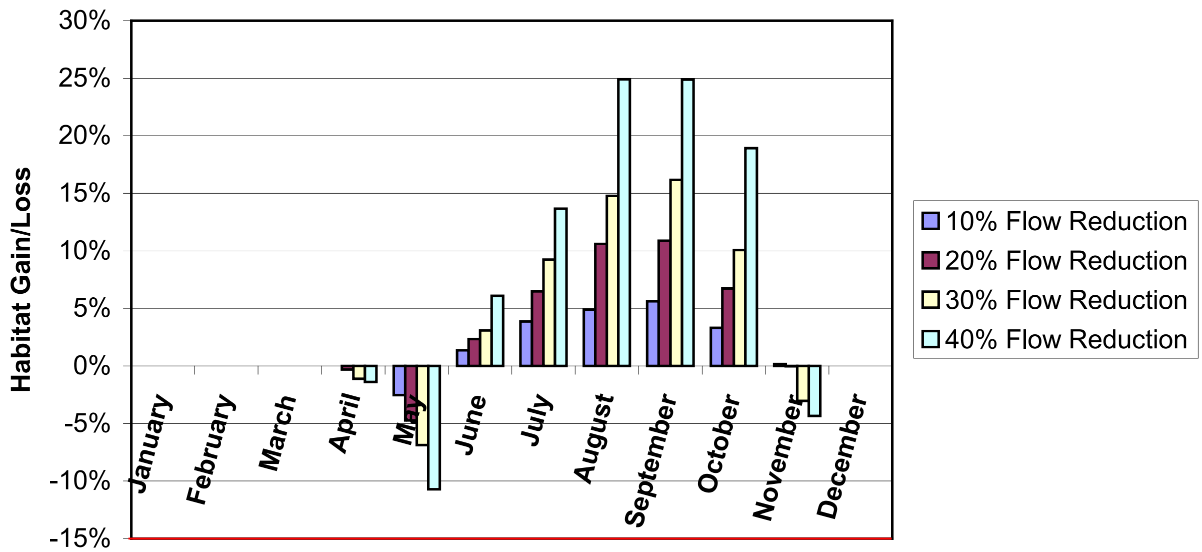
Predicted Habitat Gain/Loss for Juvenile Spotted Sunfish Based on Historic Conditions (1940-1969) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



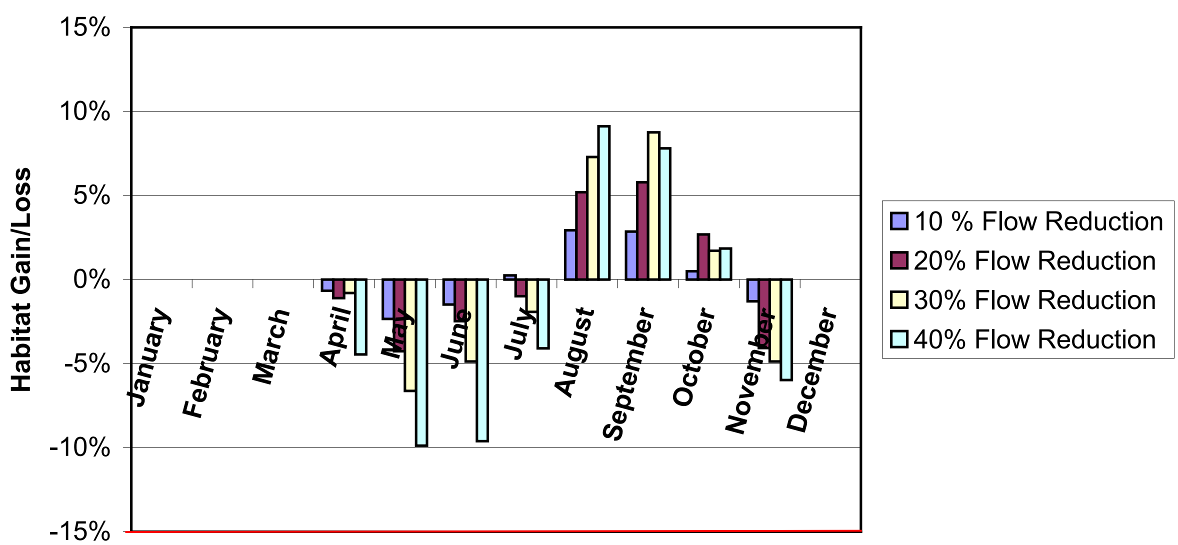
Predicted Habitat Gain/Loss for Juvenile Spotted Sunfish Based on Historic Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



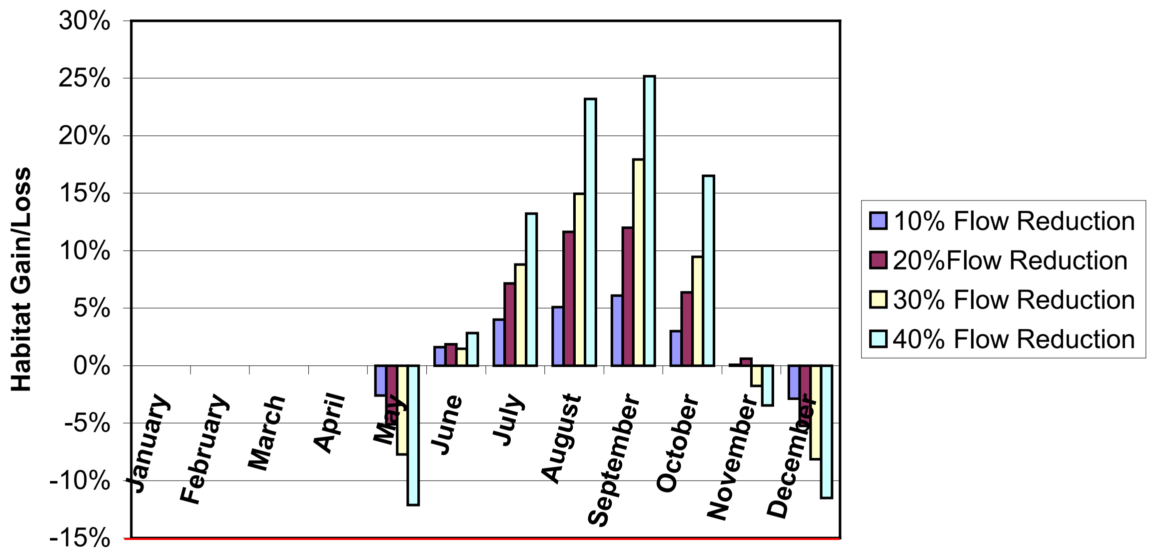
Predicted Habitat Gain/Loss for Spawning Spotted Sunfish Based on Historic Conditions (1940-1969) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



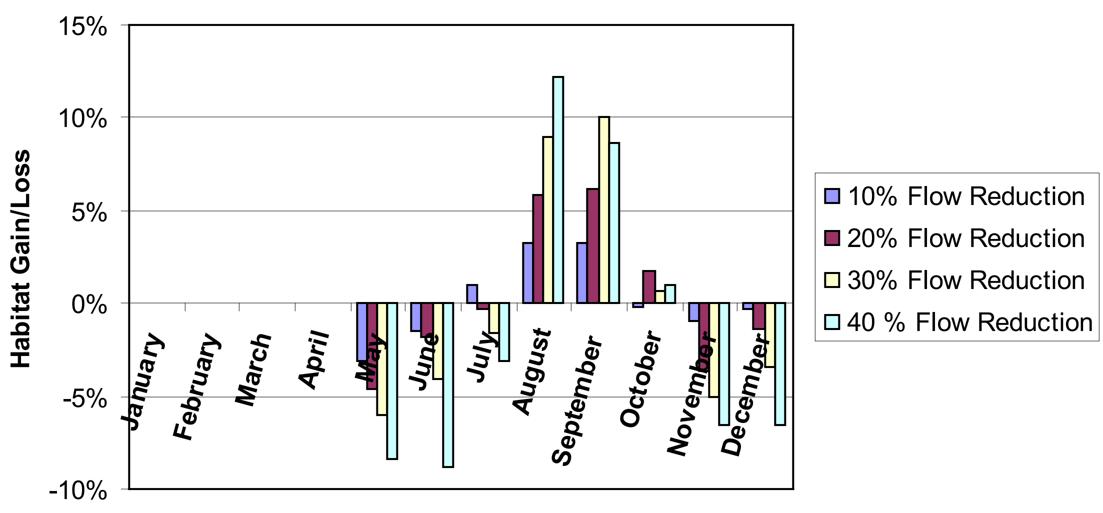
Predicted Habitat Gain/Loss for Spawning Spotted Sunfish Based on Historic Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



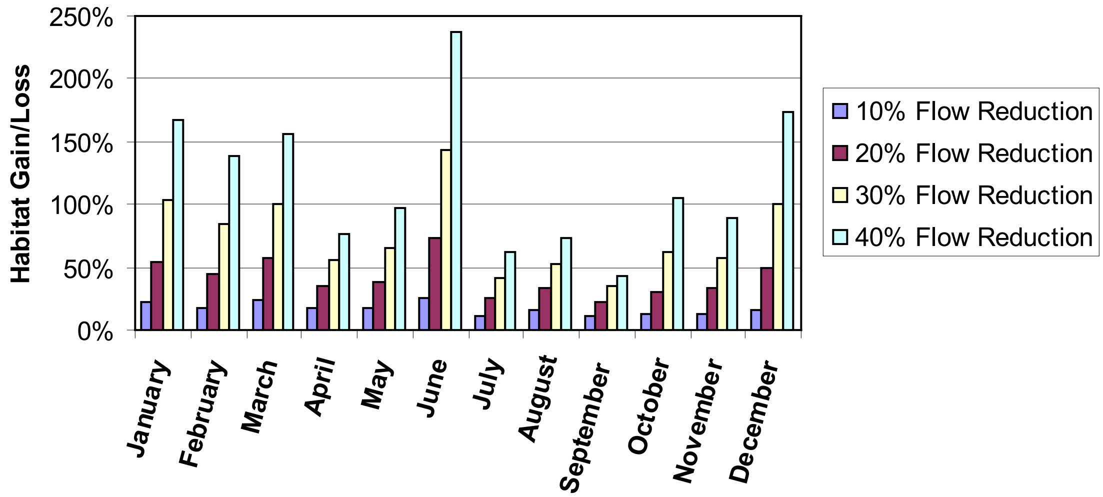
Predicted Habitat Gain/Loss for Spotted Sunfish Fry Based on Historic Conditions (1940-1969) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



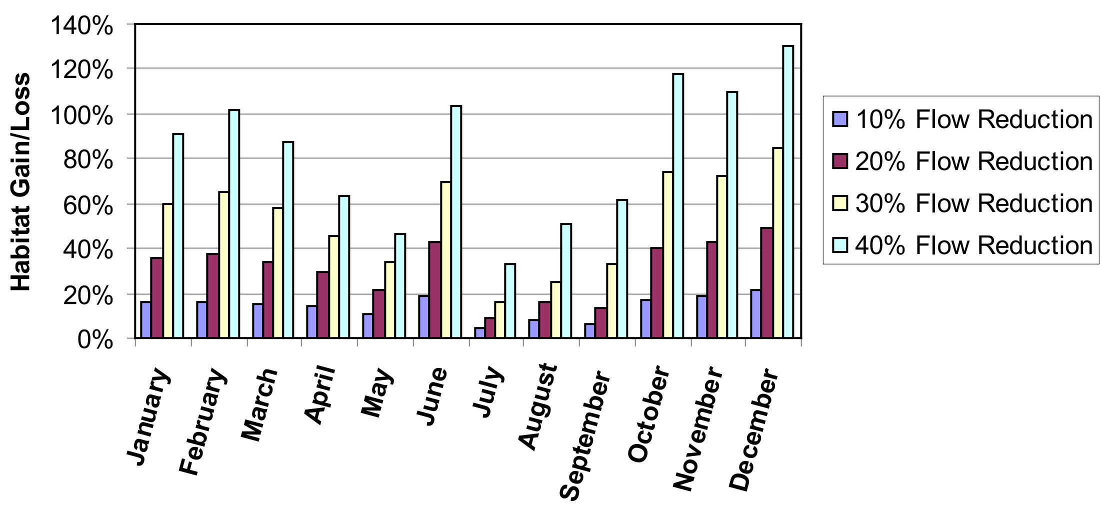
Predicted Habitat Gain/Loss for Spotted Sunfish Fry Based on Historic Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



Predicted Habitat Gain/Loss for Benthic Macroinvertebrates Based on Historic Conditions (1940-1969) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



Predicted Habitat Gain/Loss for Benthic Macroinvertebrates Based on Historic Conditions (1970-1999) being reduced by 10, 20, 30, and 40 percent at Middle Peace River at Zolfo Springs



BIOLOGICAL RESTRICTIONS ON FLOW REDUCTIONS ON THE MIDDLE PEACE RIVER AT ZOLFO SPRINGS					
(1970-1999) FLOW RECORDS			**(1940-1969) FLOW RECORDS**		
Month	**Restriction***	**Overriding Consideration**	**Month**	**Restriction***	**Overriding Consideration**
January	20% flow reduction	Spotted Sunfish Adults	January	30%flow reduction	Spotted Sunfish Adults
February	30% flow reduction	Spotted Sunfish Adults	February	30% flow reduction	Spotted Sunfish Adults
March	20% flow reduction	Spotted Sunfish Adults	March	40% flow reduction	Spotted Sunfish Adults
April	10% flow reduction	Largemouth Bass Fry	April	30% flow reduction	Spotted Sunfish Adults
May	10% flow reduction	Spotted Sunfish Adults	May	10% flow reduction	Largemouth Bass Fry
June	10% flow reduction	Largemouth Bass Fry	June	5% flow reduction	Largemouth Bass Fry
July	40% flow reduction	Spotted Sunfish Adults	July	15% flow reduction	Largemouth Bass Fry
August	40% flow reduction	Spotted Sunfish Adults	August	None	
September	None		September	None	
October	20% flow reduction	Spotted Sunfish Adults	October	40% flow reduction	Largemouth Bass Juveniles
November	20% flow reduction	Spotted Sunfish Adults	November	20% flow reduction	Spotted Sunfish Adults
December	10% flow reduction	Spotted Sunfish Adults	December	20% flow reduction	Spotted Sunfish Adults
*** Maximum Flow restriction; If ‘None’ is entered, a maximum 50% reduction is assumed**					

APPENDIX RH

Riparian Habitats – RH

This appendix contains a number of tables related to critical floodplain elevations on the Middle Peace River as described below.

Figures and Tables PAGE

Table 1. Floodplain Critical Elevations – based on mean elevation of river terrace vegetation zone.

Study Site	River Terrace Mean Elevation (ft NGVD)	Corresponding Flow at Gage (cfs)	Gage	% Exceedance Flow
1BR2	46.2	5142	Arcadia	2.7
2AR	42.2	2381	Arcadia	12.3
3C	36.5	5493	Arcadia	2.2
13	36.6	8020	Arcadia	0.3
4A	30.4	2058	Arcadia	15.6
5B	27.4	3022	Arcadia	7.9
11	-	-	Arcadia	-
7	-	-	Arcadia	-
8D	13.2	1715	Arcadia	19.4
12	-	-	Arcadia	-
	Mean =	3975.9		8.6
	Std. Dev. =	2318.8		7.4

Table 2. Floodplain Critical Elevations – based on mean elevation of wet hardwood hammock vegetation zone.

Study Site	Mean Wet Hardwood Hammock Elevation (ft NGVD)	Corresponding Flow at Gage (cfs)	Gage	% Exceedance Flow
1BR2	48.6	9139	Arcadia	<.3
2AR	45.2	4966	Arcadia	2.7
3C	37.3	6963	Arcadia	0.8
13	34.6	4984	Arcadia	2.7
4A	31.5	2810	Arcadia	9
5B	-	-	Arcadia	-
11	28.3	3792	Arcadia	4.9
7	21.8	6856	Arcadia	1.1
8D	-	-	Arcadia	-
12	-	-	Arcadia	-
	Mean =	5644.3		3.5
	Std. Dev. =	2151.8		3.1

Table 3. Floodplain Critical Elevations – based on mean elevation of cypress vegetation zone.

Study Site	Mean Cypress Elevation (ft NGVD)	Corresponding Flow at Gage (cfs)	Gage	% Exceedance Flow
1BR2	-	-	Arcadia	-
2AR	-	-	Arcadia	-
3C	35.3	3718	Arcadia	5.2
13	32.7	2936	Arcadia	8.5
4A	-	-	Arcadia	-
5B	25.0	1983	Arcadia	16.4
11	-	-	Arcadia	-
7	-	-	Arcadia	-
8D	-	-	Arcadia	-
12	-	-	Arcadia	-
	Mean =	2879		10.0
	Std. Dev. =	868.9		5.8

Table 4. Floodplain Critical Elevations – based on mean elevation of hardwood swamp vegetation zone.

Study Site	Mean Hardwood Swamp Elevation (ft NGVD)	Corresponding Flow at Gage (cfs)	Gage	% Exceedance Flow
1BR2	-	-	Arcadia	-
2AR	44.7	4409	Arcadia	3.55
3C	-	-	Arcadia	-
13	-	-	Arcadia	-
4A	-	-	Arcadia	-
5B	24.5	1799	Arcadia	18.3
11	24.8	2093	Arcadia	15.3
7	18.1	3437	Arcadia	6.0
8D	-	-	Arcadia	-
12	-	-	Arcadia	-
	Mean =	2934.5		10.8
	Std. Dev. =	1214.4		7.1

Table 5. Floodplain Critical Elevations – based on mean elevation of mucky soils.

Study Site	Mean Mucky Soils Elevation (ft NGVD)	Corresponding Flow at Gage (cfs)	Gage	% Exceedance Flow
1BR2	42.6	1288	Arcadia	26.0
2AR	44.1	3807	Arcadia	4.6
3C	-	-	Arcadia	-
13	-	-	Arcadia	-
4A	-	-	Arcadia	-
5B	24.4	1764	Arcadia	18.9
11	27.9	3552	Arcadia	5.7
7	16.2	2360	Arcadia	12.6
8D	12.1	1316	Arcadia	25.4
12	-	-	Arcadia	-
	Mean =	2347.8		15.5
	Std. Dev. =	1105.3		9.4

Table 6. Floodplain Critical Elevations – based on inundating lowest bank top elevation to put water over one side of the floodplain.

Study Site	Lowest LOW BANK Elevation (ft NGVD)	Corresponding Flow at Gage (cfs)	Gage	% Exceedance Flow
1BR2	47	6347	Arcadia	1.4
2AR	43.4	3197	Arcadia	7.1
3C	38.9	10312	Arcadia	< .2
13	33.8	4022	Arcadia	4.37
4A	28.6	1158	Arcadia	28.7
5B	27.4	3023	Arcadia	7.9
11	28.5	3918	Arcadia	4.6
7	18	3362	Arcadia	6.3
8D	12.7	1529	Arcadia	22.1
12	7.7	NA*	Arcadia	NA*
	Mean =	4096.4		10.3
	Std. Dev. =	2771.8		9.7

* - modeled flows were outside the bounds of mean elevations of floodplain criteria

Table 7. Floodplain Critical Elevations – based on inundating the lowest bank top elevation to put water over both sides of the floodplain.

Study Site	Highest LOW BANK Elevation (ft NGVD)	Corresponding Flow at Gage (cfs)	Gage	% Exceedance Flow
1BR2	48.8	9524	Arcadia	< .2
2AR	46.2	6231	Arcadia	1.4
3C	41.6	NA*	Arcadia	NA*
13	34.8	5247	Arcadia	2.5
4A	31.3	2660	Arcadia	10.1
5B	27.8	3228	Arcadia	6.8
11	30.8	5648	Arcadia	1.9
7	20.9	5796	Arcadia	1.9
8D	19.7	6234	Arcadia	1.4
12	10.5	NA*	Arcadia	NA*
	Mean =	5571		3.7
	Std. Dev. =	2091.7		3.4

* - modeled flows were outside the bounds of mean elevations of floodplain criteria

Table 8. Floodplain Critical Elevations – based on inundating the 90th percentile elevation of the river terrace vegetation zone.

Study Site	90th Percentile Elevation of River Terrace (ft NGVD)	Corresponding Flow at Gage (cfs)	Gage	% Exceedance Flow
1BR2	47.5	7165	Arcadia	0.8
2AR	44.4	4099	Arcadia	4.2
3C	36.8	6018	Arcadia	1.7
13	41.9	NA*	Arcadia	NA*
4A	31.2	2587	Arcadia	10.7
5B	29.1	4009	Arcadia	4.4
11	27.5	3327	Arcadia	6.6
7	20.2	5078	Arcadia	2.7
8D	14.8	2368	Arcadia	12.6
12	10.0	NA*	Arcadia	NA*
	Mean =	4331.4		5.5
	Std. Dev. =	1668.9		4.2

* - modeled flows were outside the bounds of mean elevations of floodplain criteria

Table 9. Floodplain Critical Elevations – based on inundating the 90th percentile elevation of the wet hardwood hammock vegetation zone.

Study Site	90th Percentile Elevation of Wet Hardwood Hammock (ft NGVD)	Corresponding Flow at Gage (cfs)	Gage	% Exceedance Flow
1BR2	48.9	9719	Arcadia	< .2
2AR	46.1	6096	Arcadia	1.6
3C	37.8	7998	Arcadia	< .2
13	36.0	7014	Arcadia	0.9
4A	32.2	3386	Arcadia	6.3
5B	-	-	Arcadia	-
11	29.2	4389	Arcadia	3.8
7	23.5	10062	Arcadia	< .2
8D	-	-	Arcadia	-
12	-	-	Arcadia	-
	Mean =	6952		3.1
	Std. Dev. =	2531.3		2.4