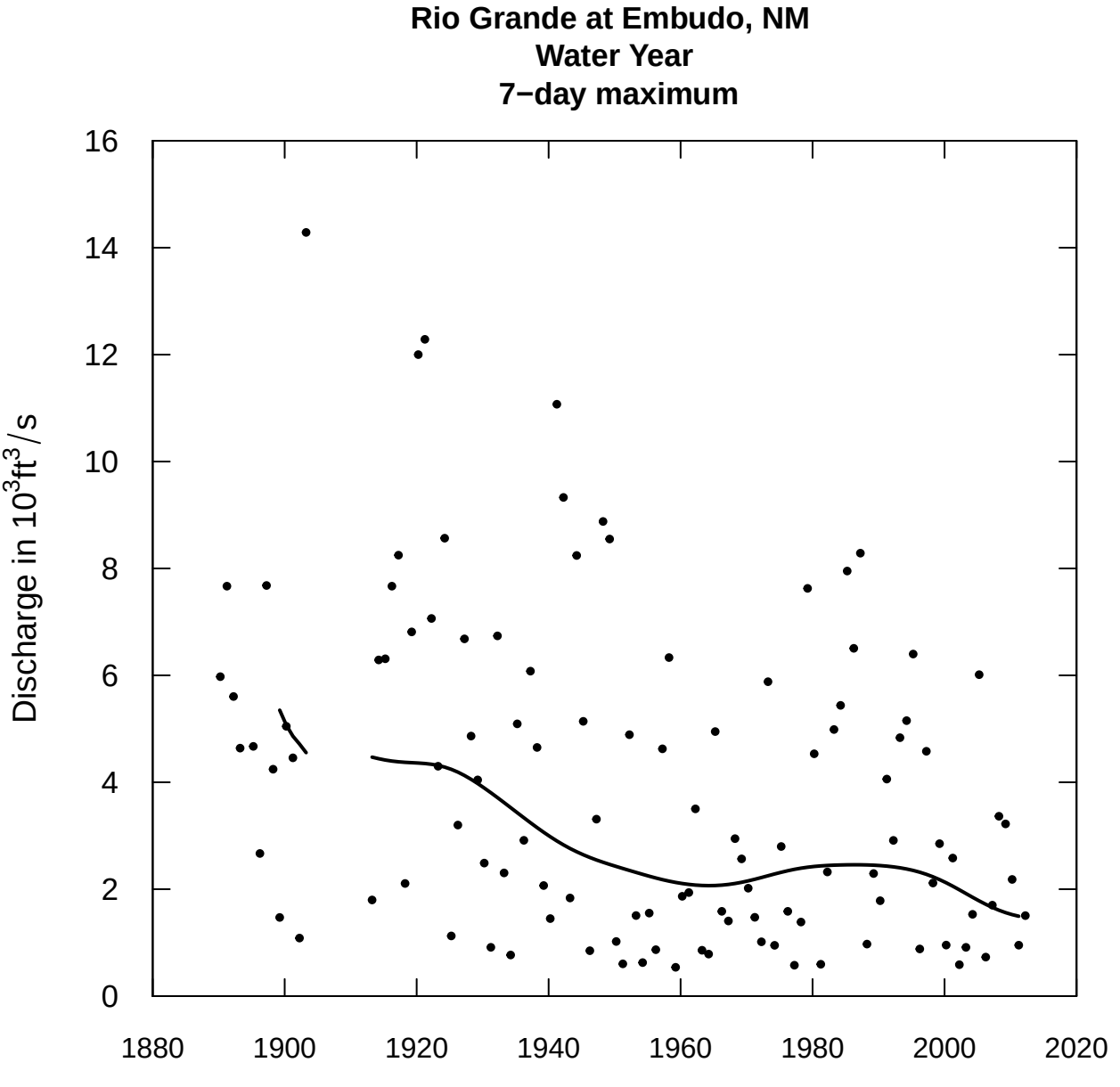
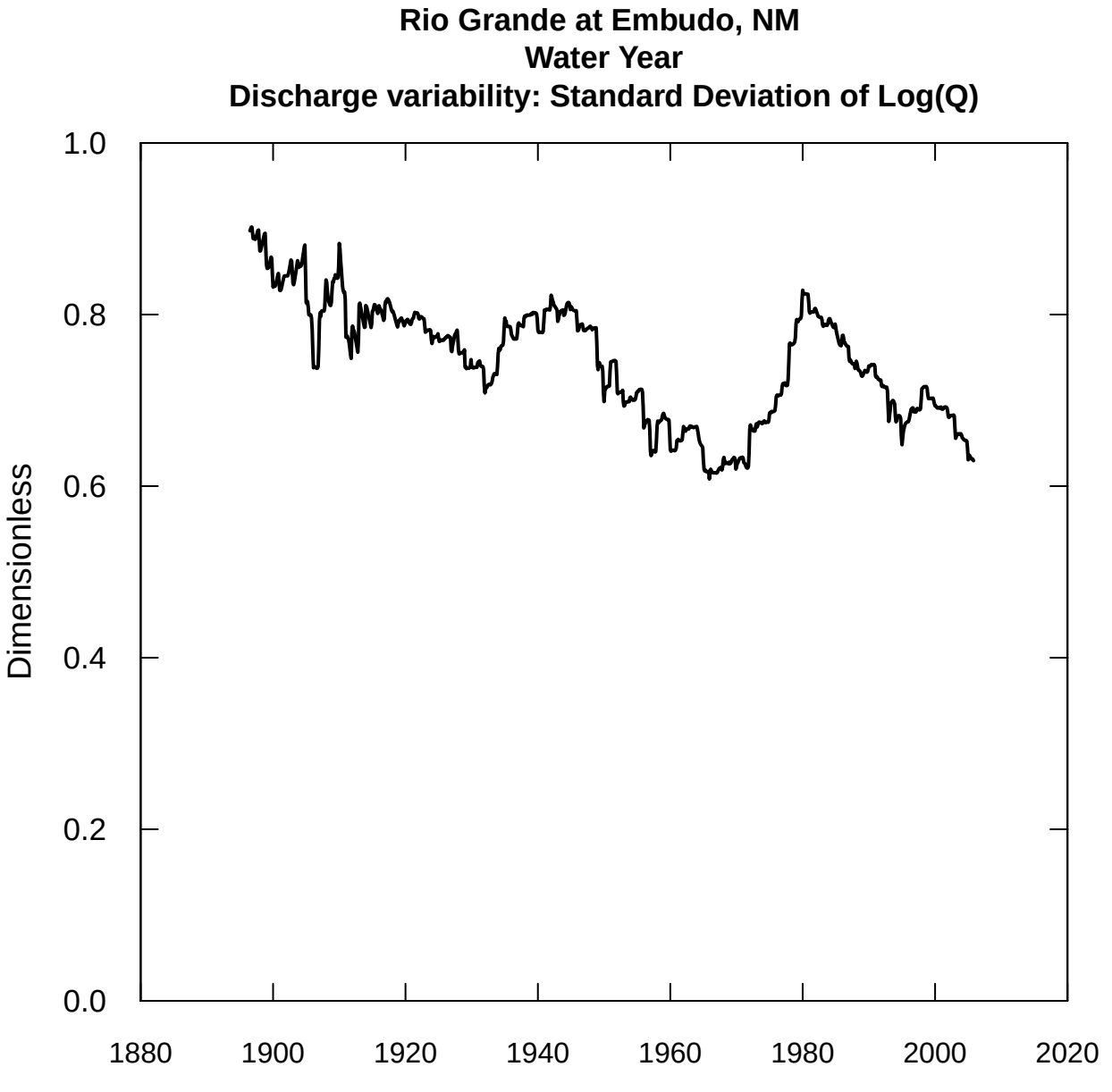
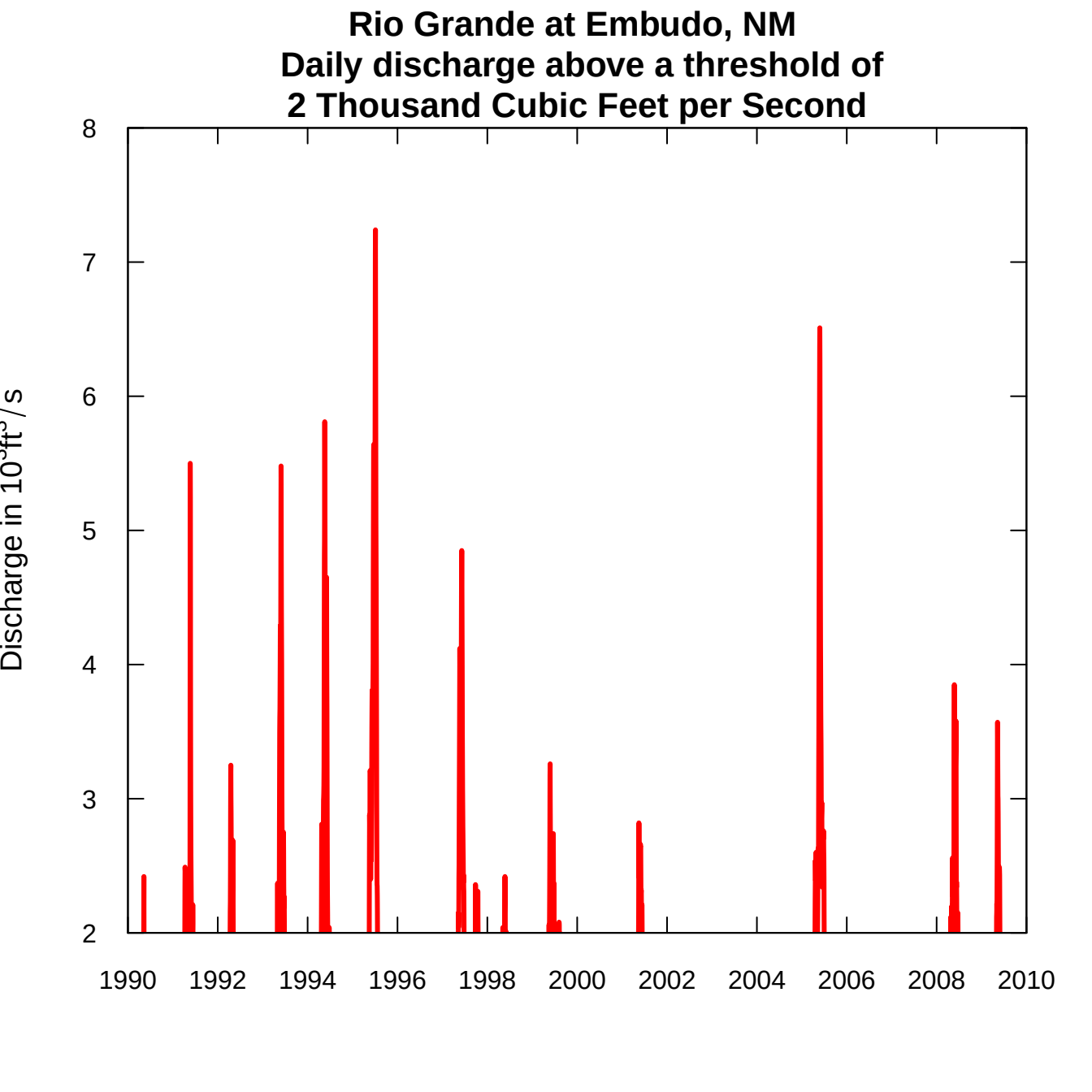
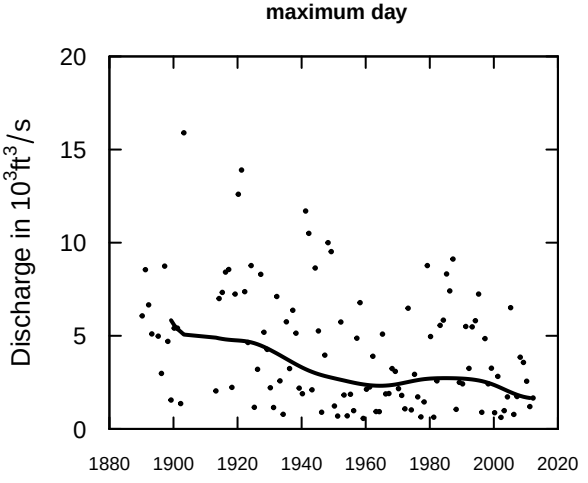
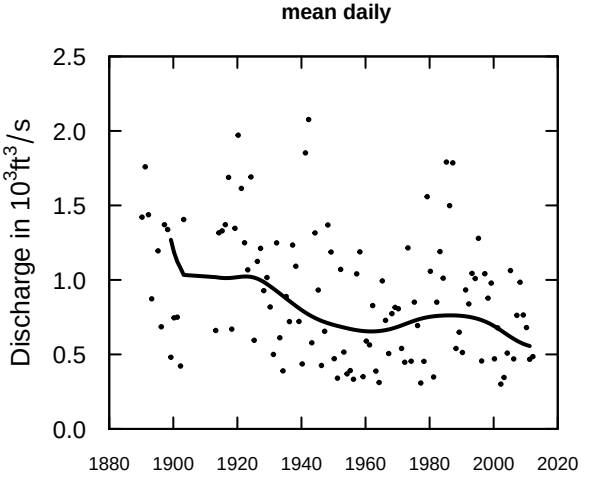

Rio Grande at Embudo, NM
Water Year
7−day maximum
Discharge in $10^3 ft^3/s$
0
2
4
6
8
10
12
14
16
1880
1900
1920
1940
1960
1980
2000
2020

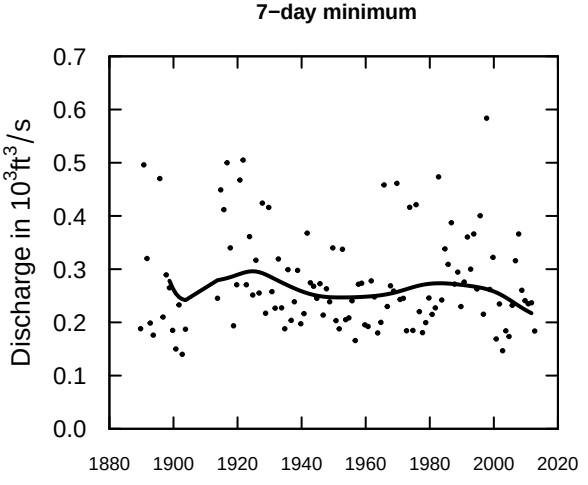

Rio Grande at Embudo, NM
Water Year
Discharge variability: Standard Deviation of Log(Q)
Dimensionless
1.0
0.8
0.6
0.4
0.2
0.0
1880
1900
1920
1940
1960
1980
2000
2020

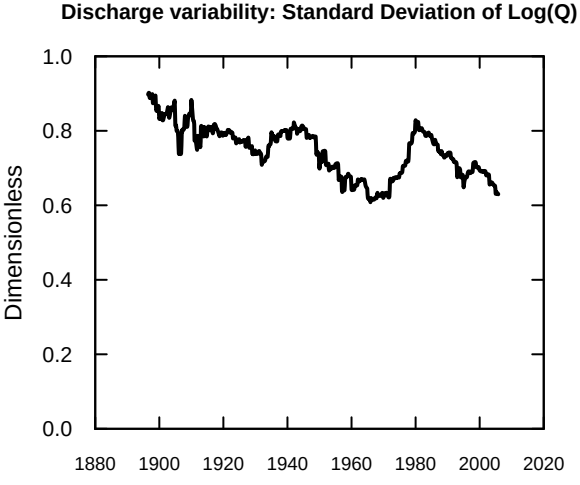

Rio Grande at Embudo, NM
Daily discharge above a threshold of
2 Thousand Cubic Feet per Second
Discharge in $10^3 ft^3/s$
8
7
6
5
4
3
2
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010

Rio Grande at Embudo, NM
Water Year

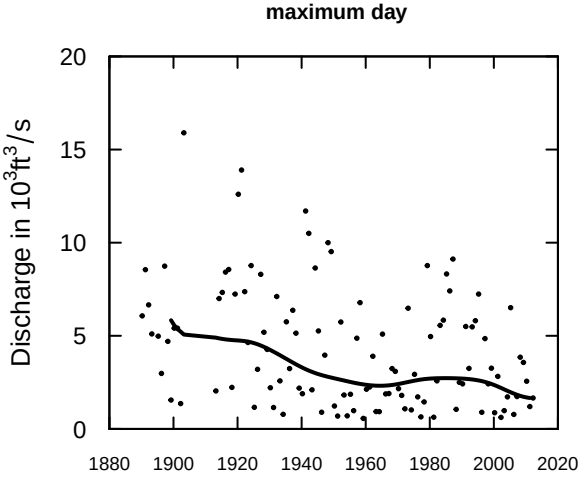


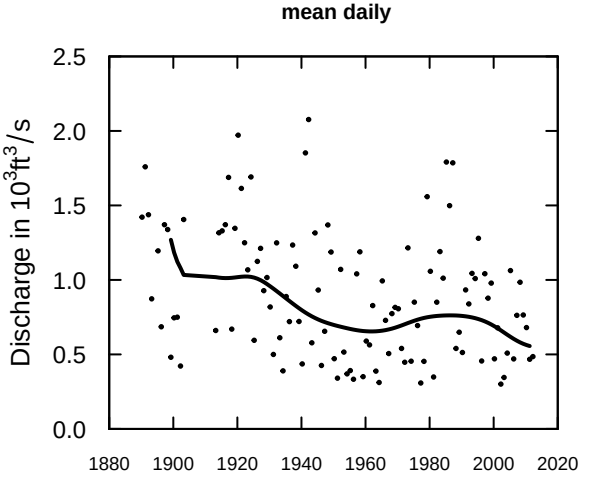


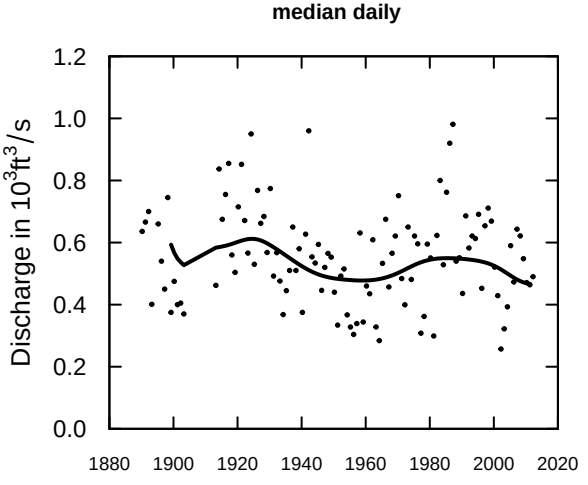


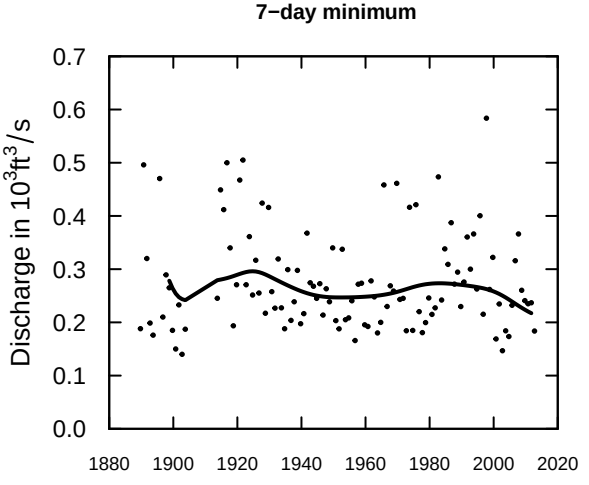


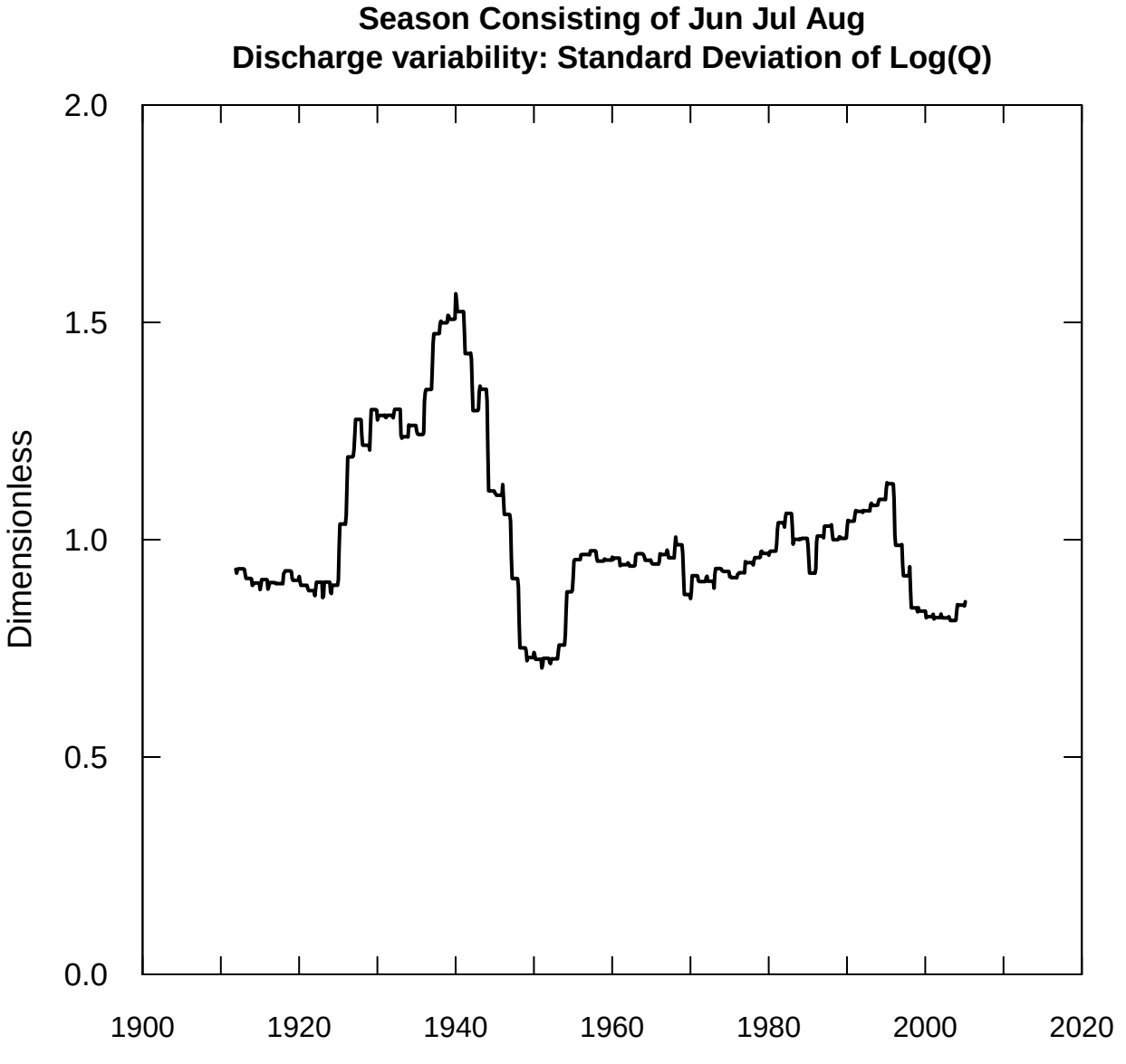
Rio Grande at Embudo, NM
Water Year

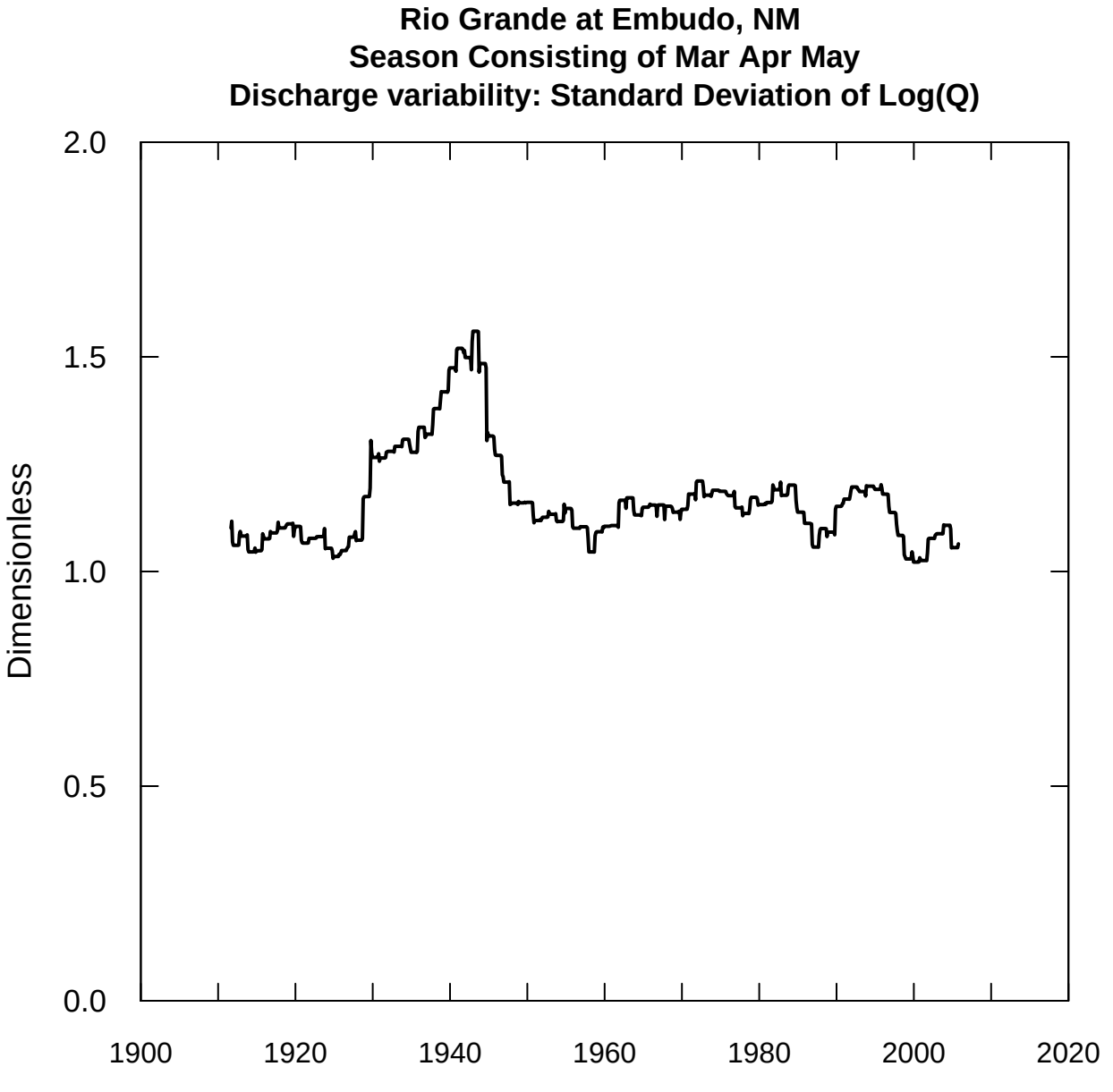


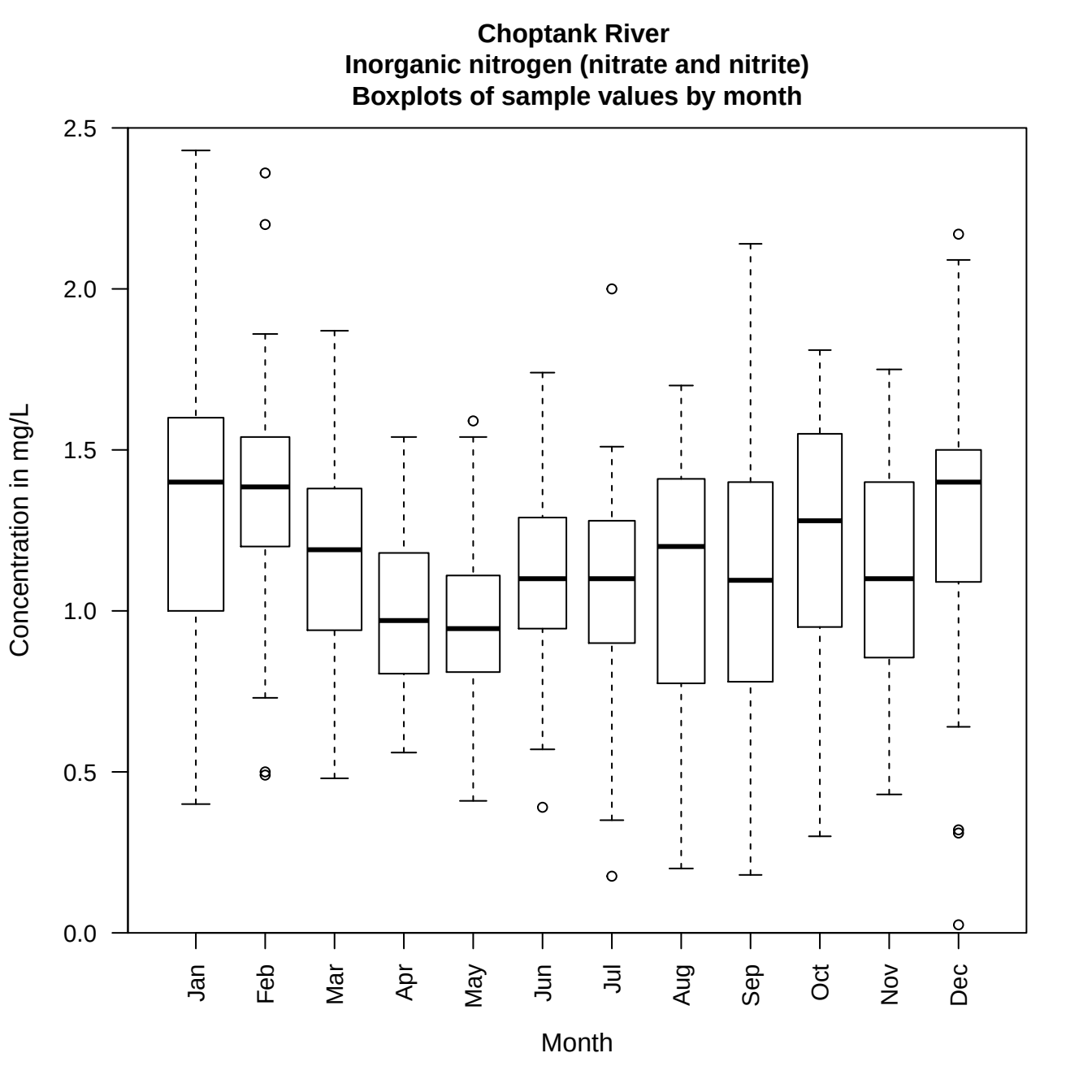


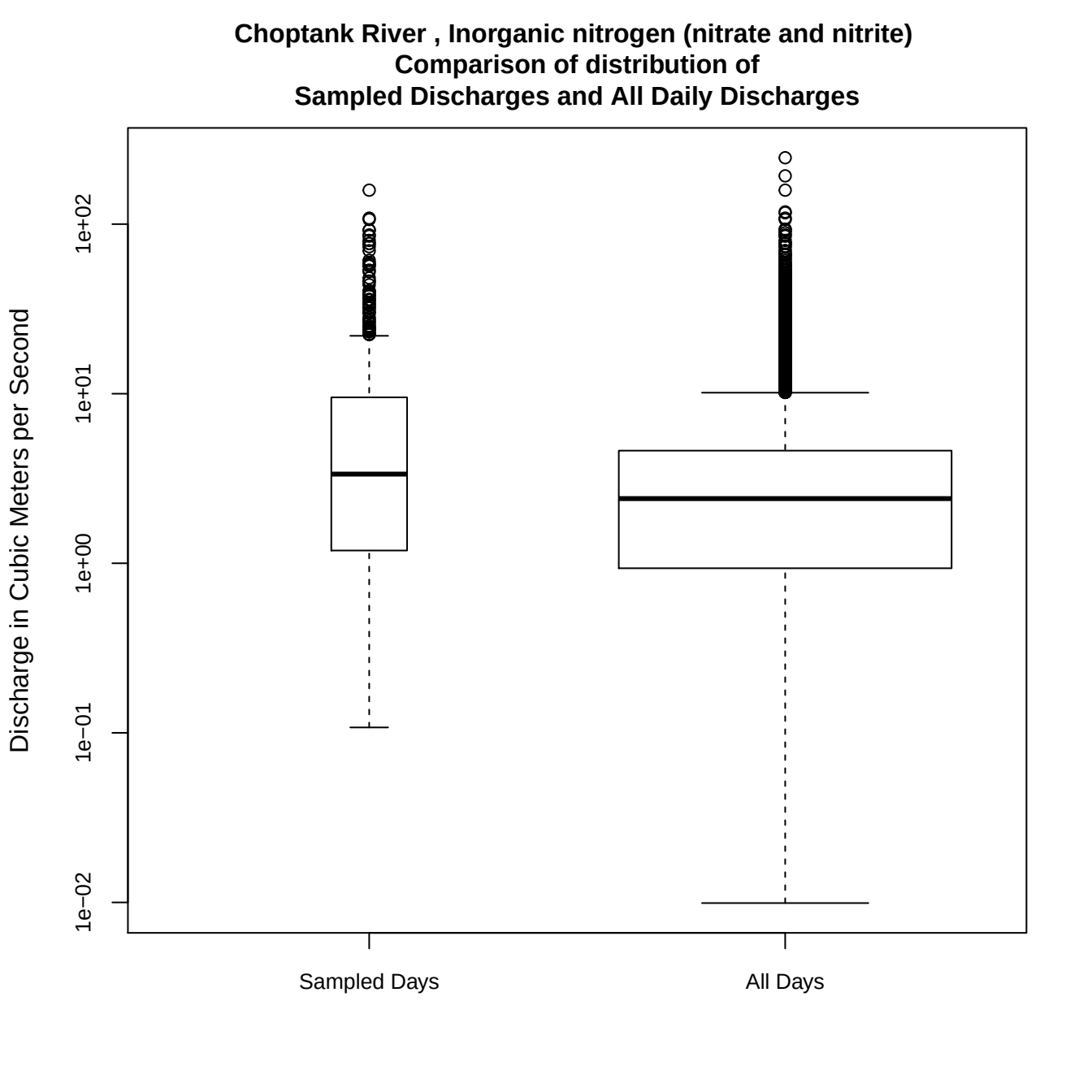


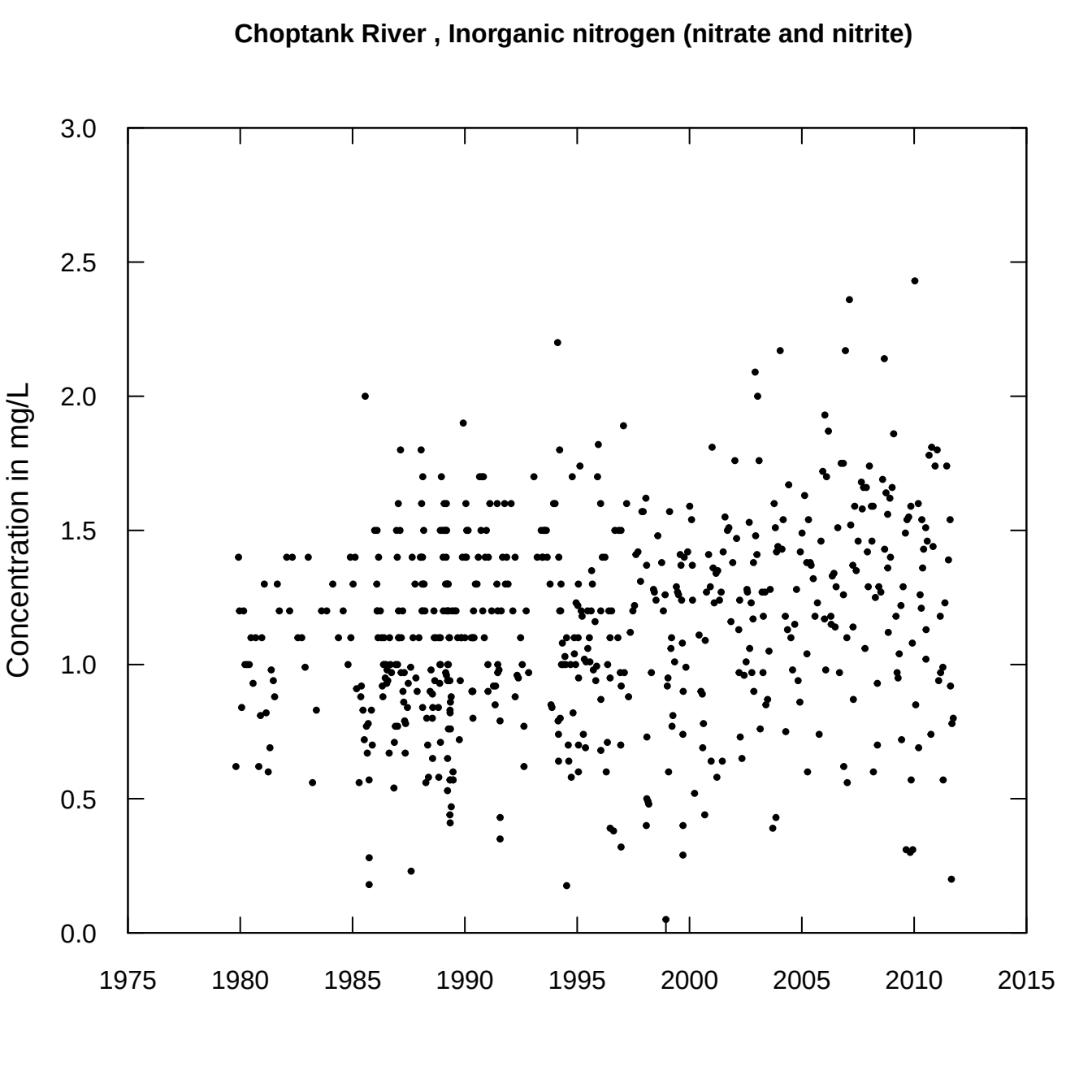


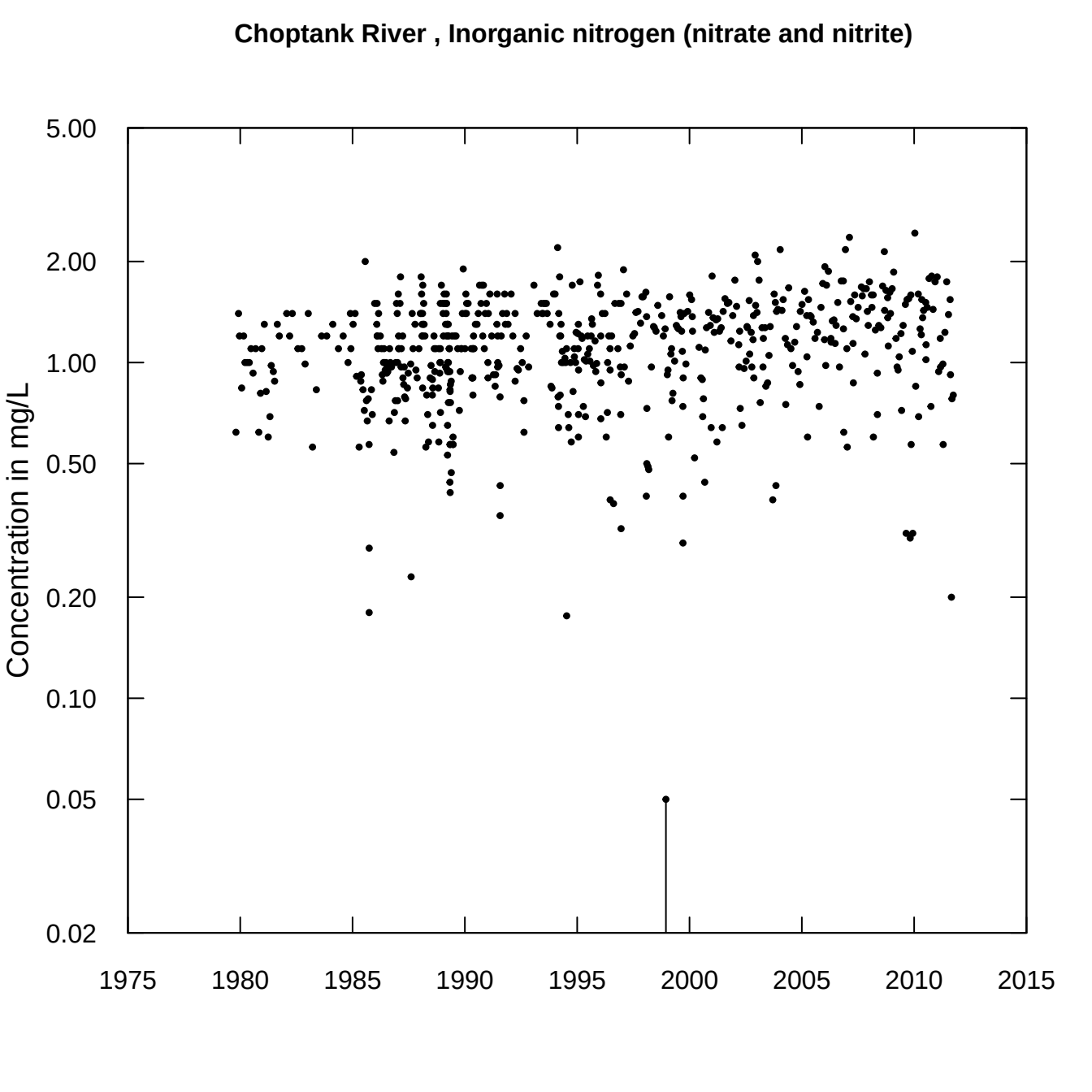

Season Consisting of Jun Jul Aug
Discharge variability: Standard Deviation of Log(Q)
Dimensionless
2.0
1.5
1.0
0.5
0.0
1900
1920
1940
1960
1980
2000
2020

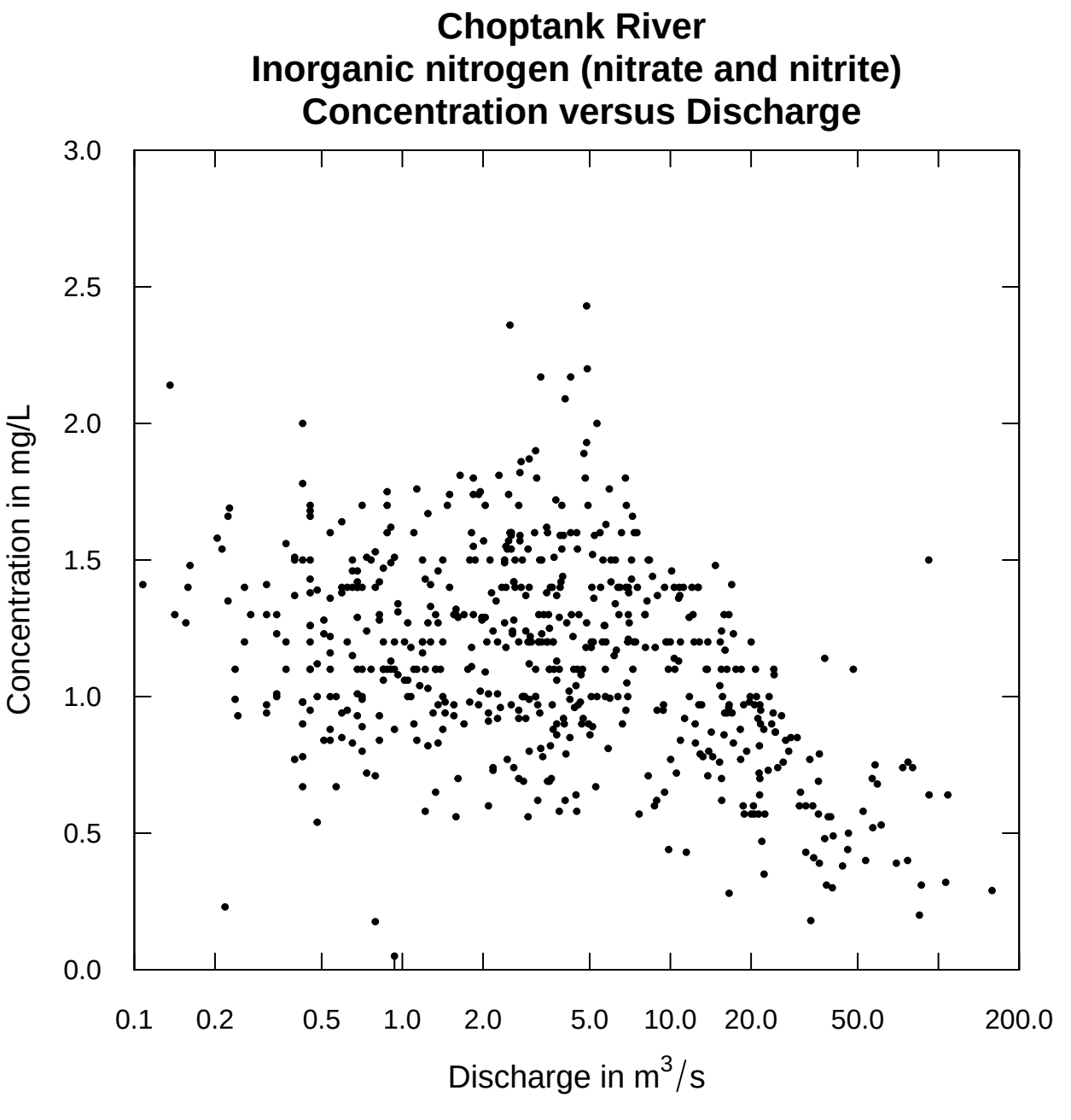

Rio Grande at Embudo, NM
Season Consisting of Mar Apr May
Discharge variability: Standard Deviation of Log(Q)
Dimensionless
2.0
1.5
1.0
0.5
0.0
1900
1920
1940
1960
1980
2000
2020

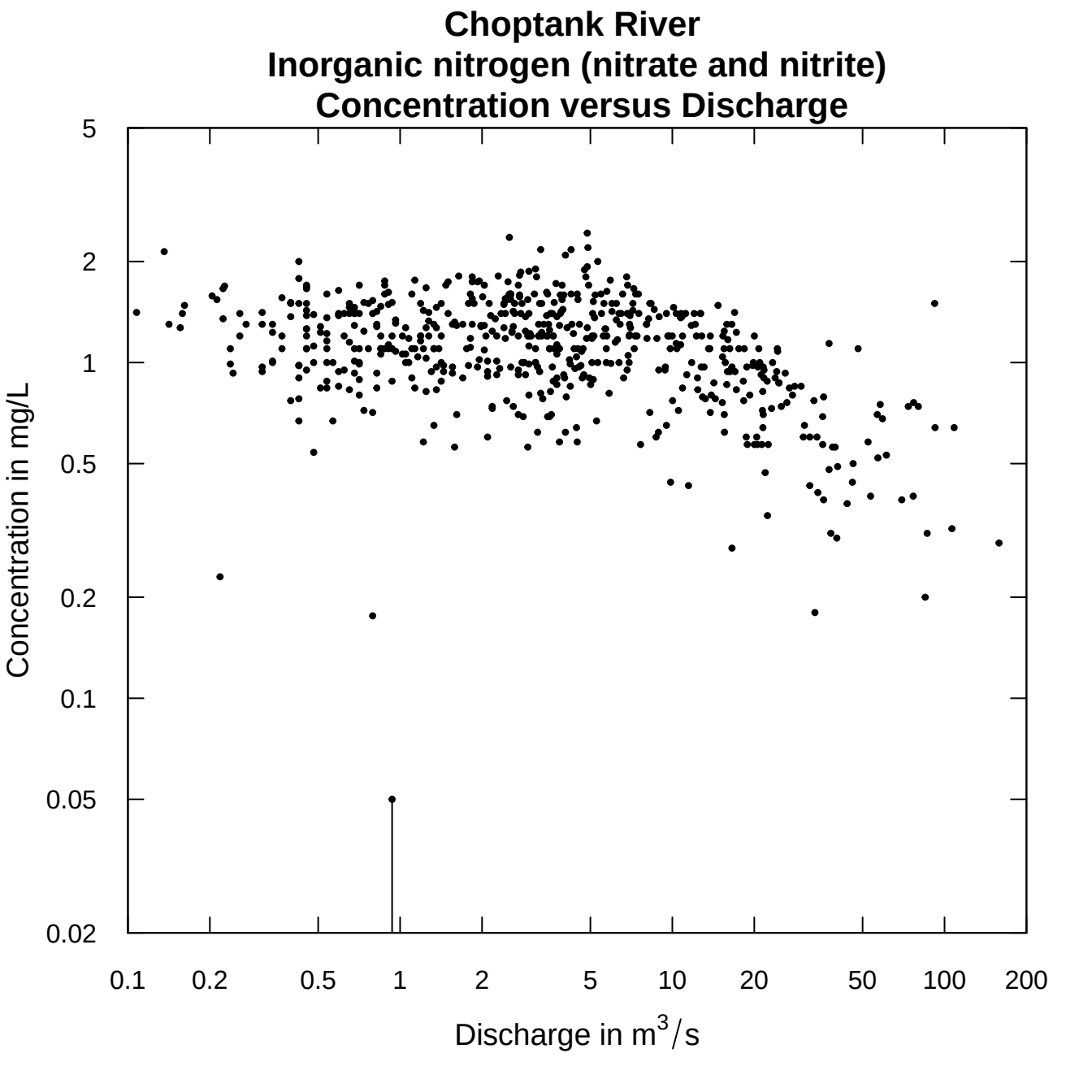

Choptank River
Inorganic nitrogen (nitrate and nitrite)
Boxplots of sample values by month
Concentration in mg/L
2.5
2.0
1.5
1.0
0.5
0.0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month

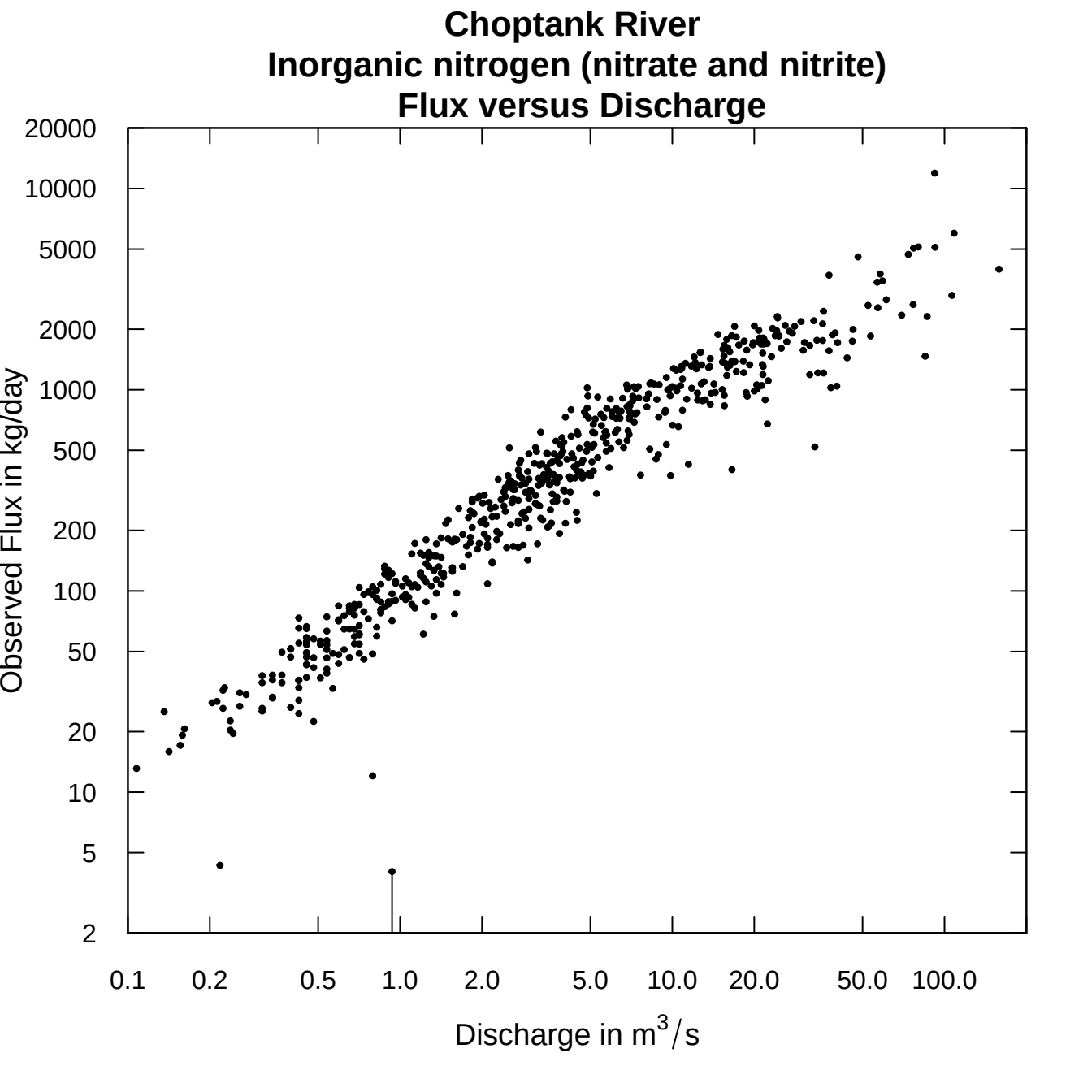

Choptank River , Inorganic nitrogen (nitrate and nitrite)
Comparison of distribution of
Sampled Discharges and All Daily Discharges
Discharge in Cubic Meters per Second
1e−02
1e−01
1e+00
1e+01
1e+02
Sampled Days
All Days


Choptank River , Inorganic nitrogen (nitrate and nitrite)
Concentration in mg/L
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1975
1980
1985
1990
1995
2000
2005
2010
2015

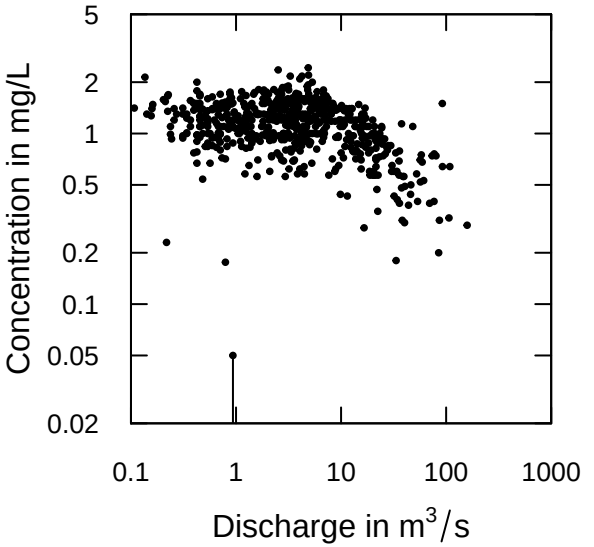

Choptank River , Inorganic nitrogen (nitrate and nitrite)
Concentration in mg/L
5.00
2.00
1.00
0.50
0.20
0.10
0.05
0.02
1975
1980
1985
1990
1995
2000
2005
2010
2015

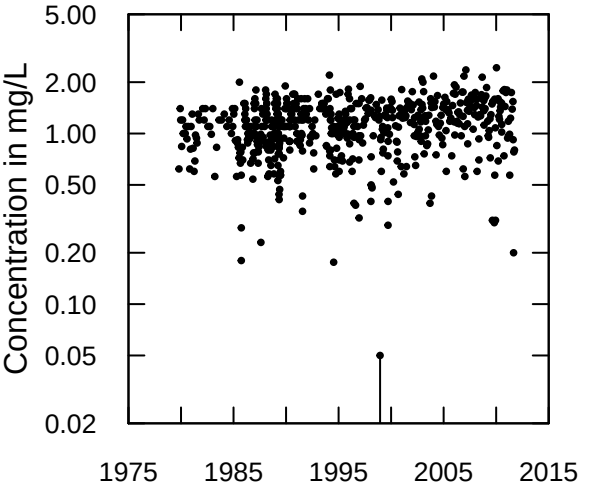

Choptank River
Inorganic nitrogen (nitrate and nitrite)
Concentration versus Discharge
Concentration in mg/L
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.1
0.2
0.5
1.0
2.0
5.0
10.0
20.0
50.0
200.0
Discharge in m3/s

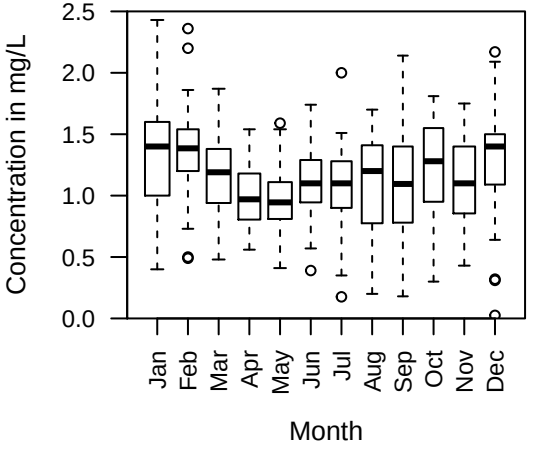

Choptank River
Inorganic nitrogen (nitrate and nitrite)
Concentration versus Discharge
Concentration in mg/L
5
2
1
0.5
0.2
0.1
0.05
0.02
0.1
0.2
0.5
1
2
5
10
20
50
100
200
Discharge in m3/s

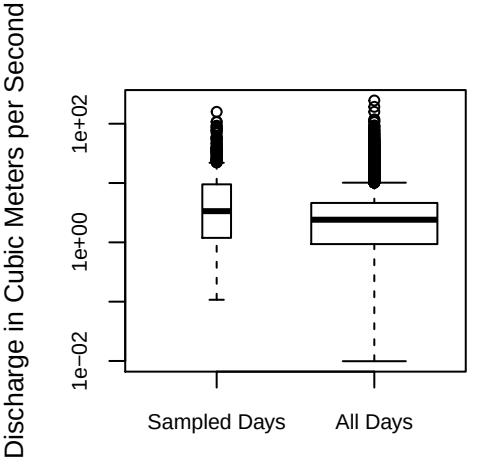

Choptank River
Inorganic nitrogen (nitrate and nitrite)
Flux versus Discharge
Observed Flux in kg/day
20000
10000
5000
2000
1000
500
200
100
50
20
10
5
2
0.1
0.2
0.5
1.0
2.0
5.0
10.0
20.0
50.0
100.0
Discharge in m3/s

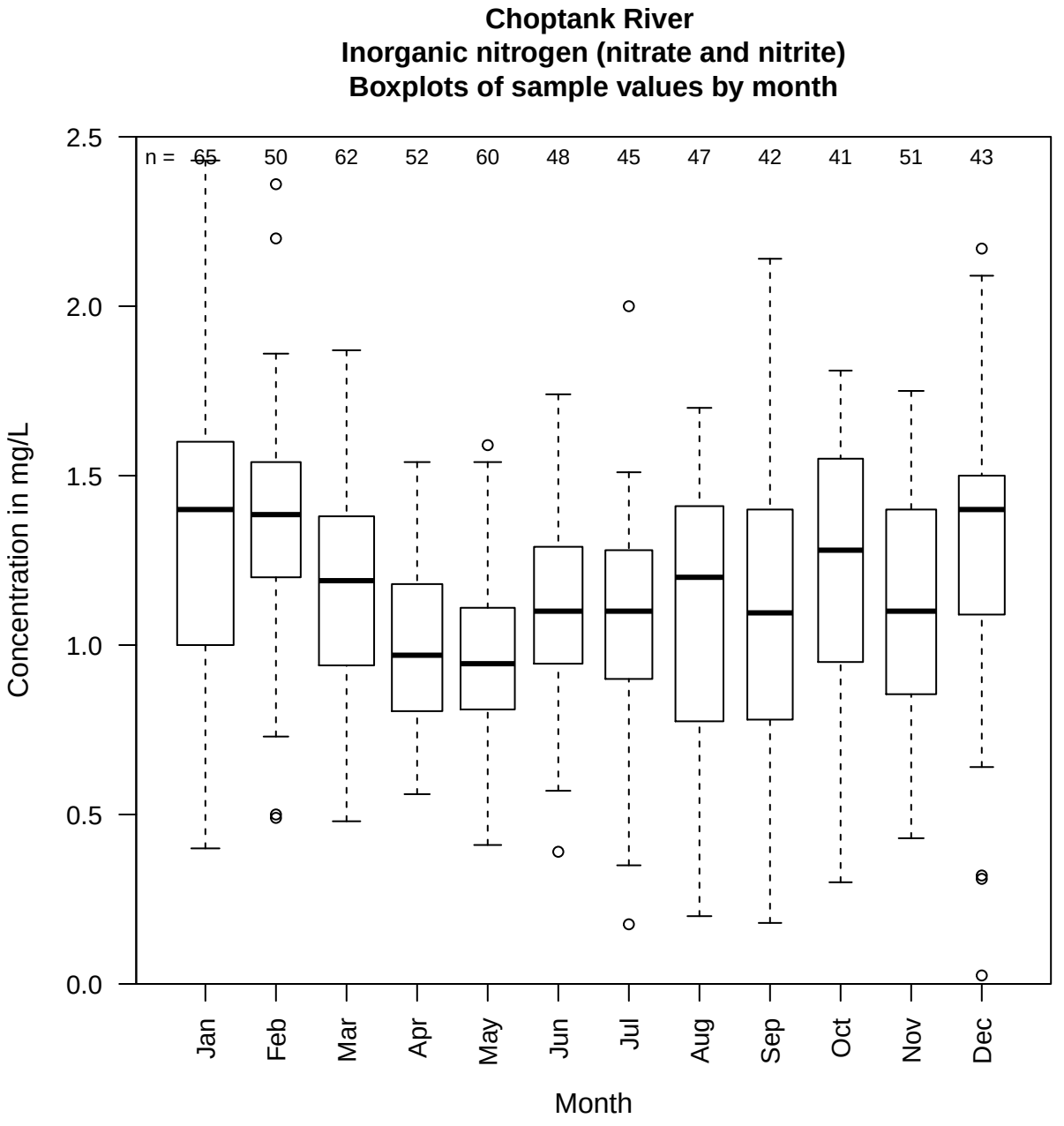
Choptank River
Inorganic nitrogen (nitrate and nitrite)

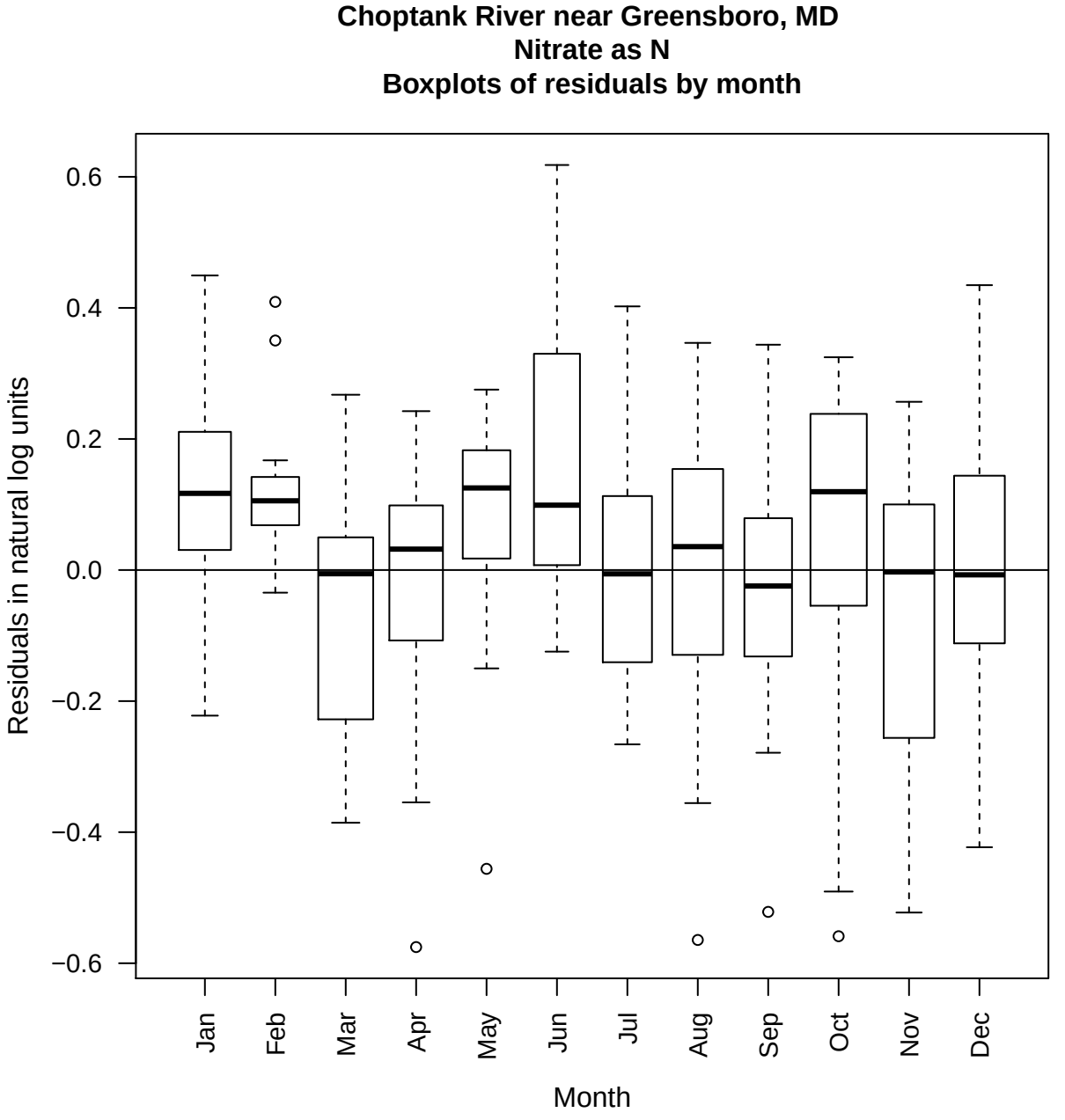


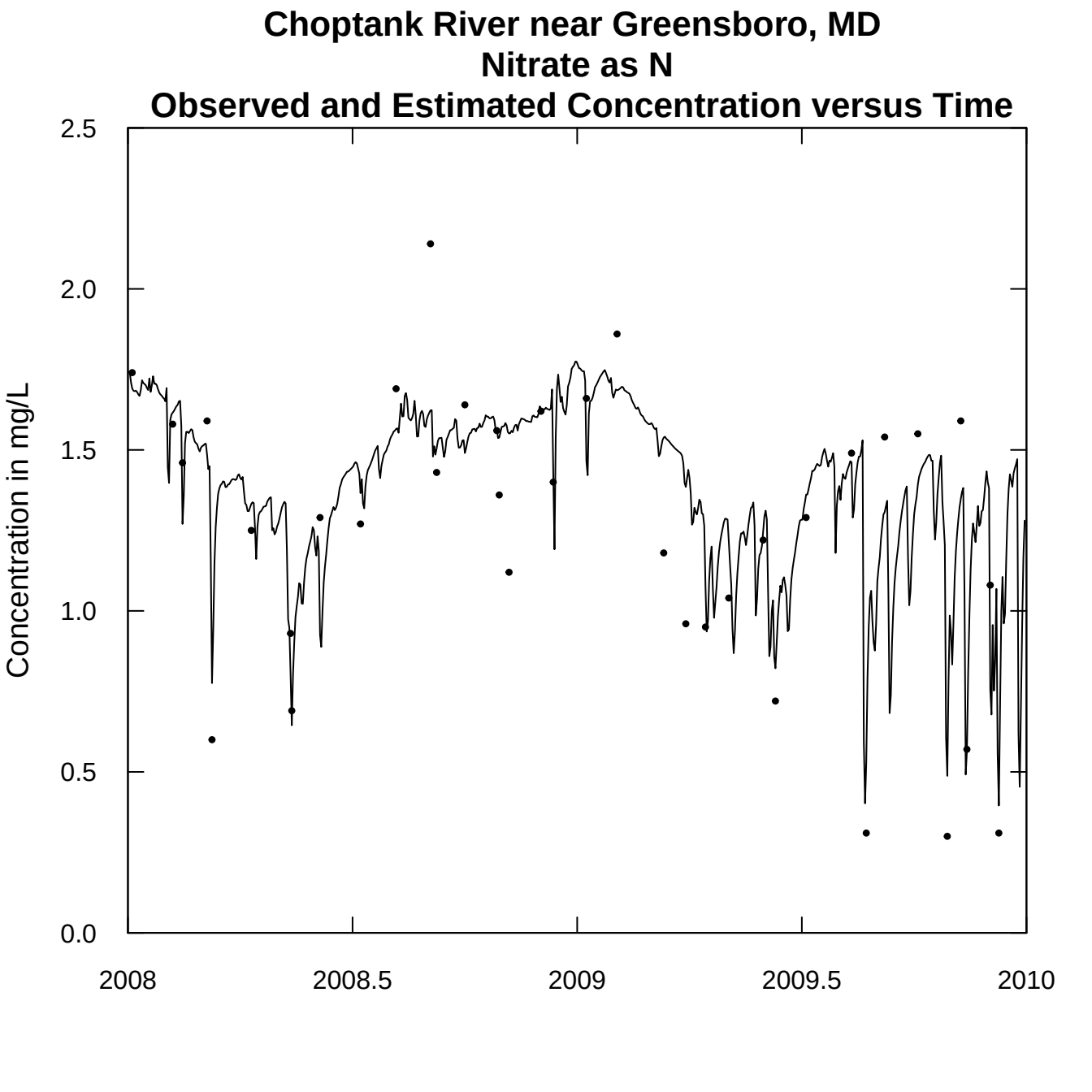


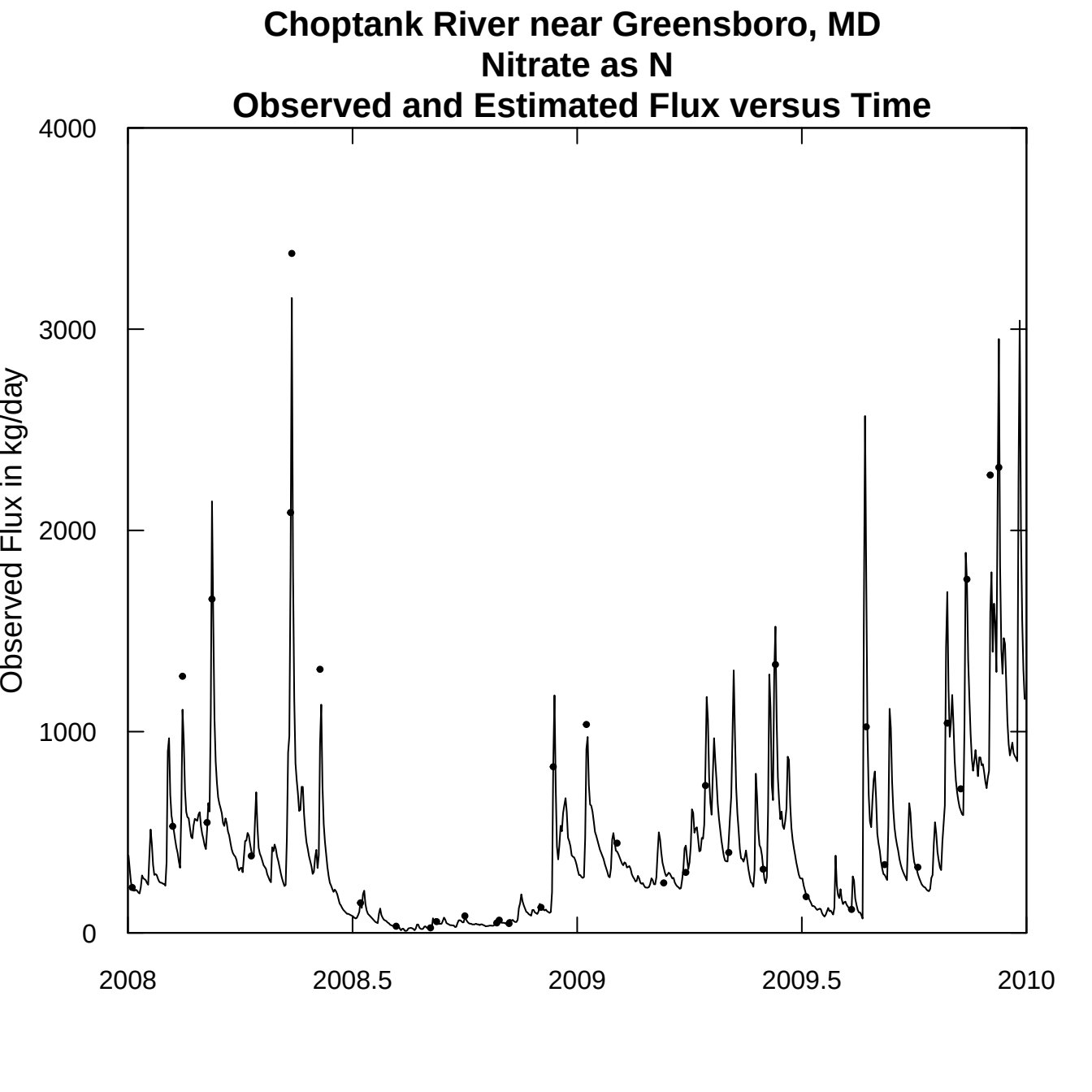


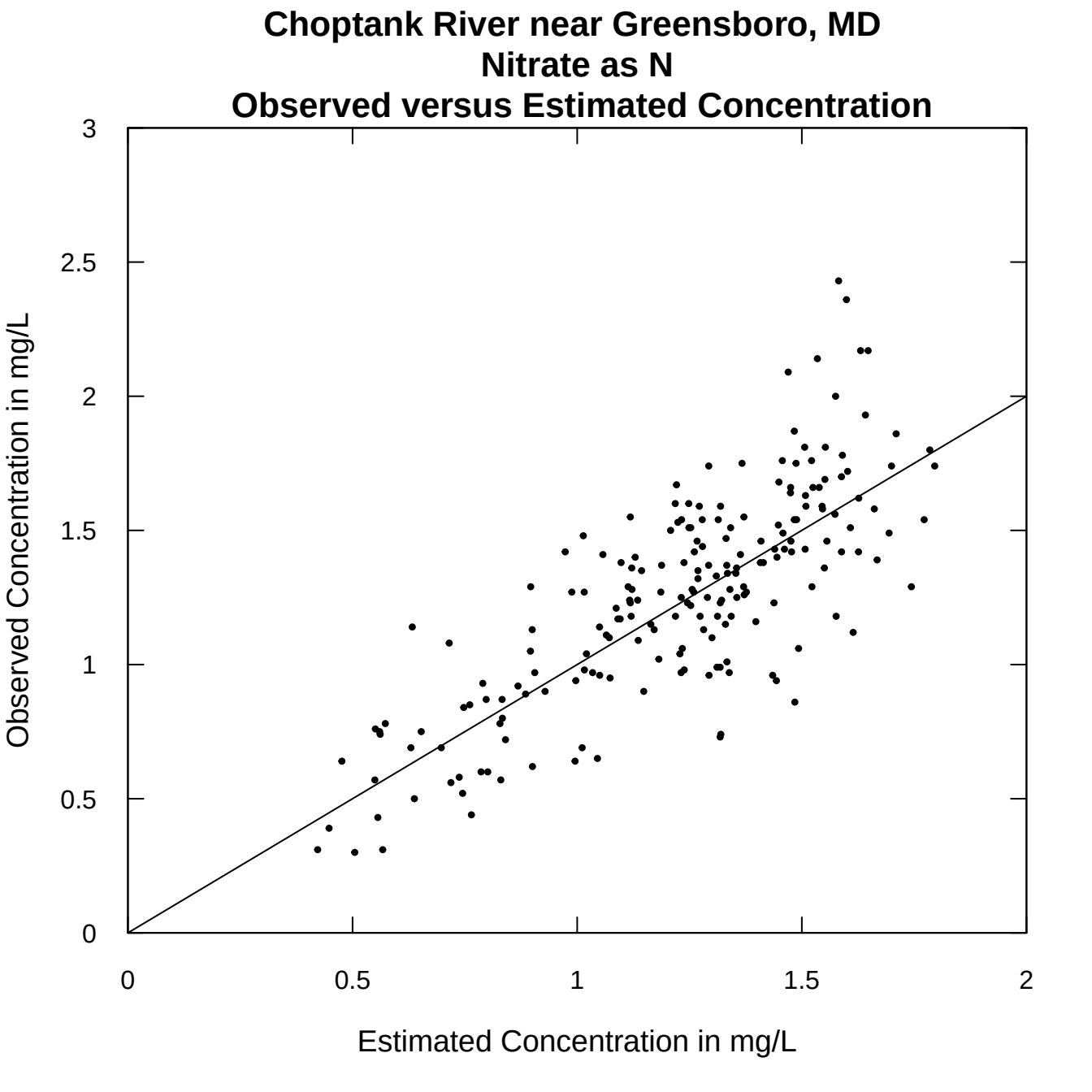


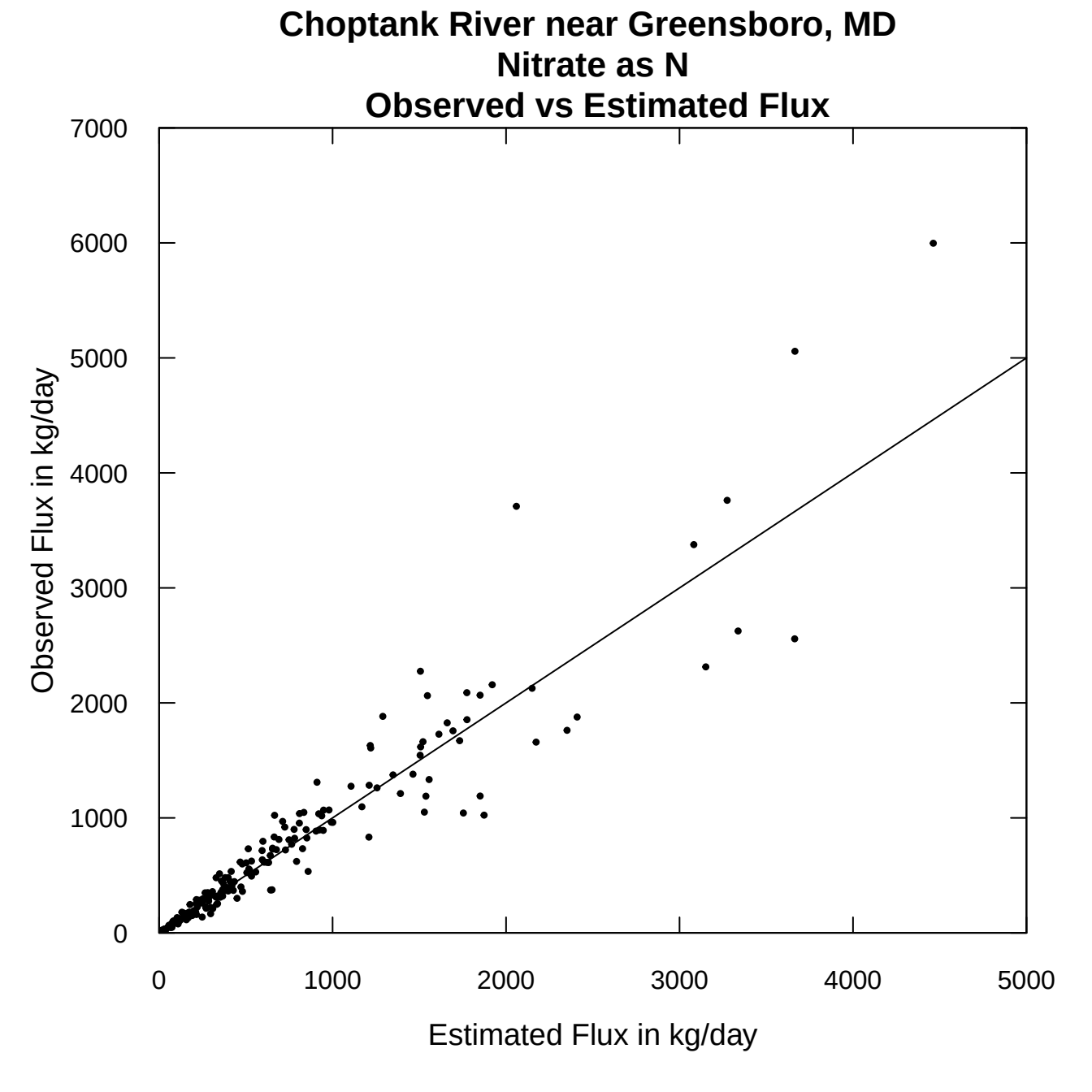

Choptank River
Inorganic nitrogen (nitrate and nitrite)
Boxplots of sample values by month
n = 65 50 62 52 60 48 45 47 42 41 51 43
Concentration in mg/L
0.0
0.5
1.0
1.5
2.0
2.5
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month

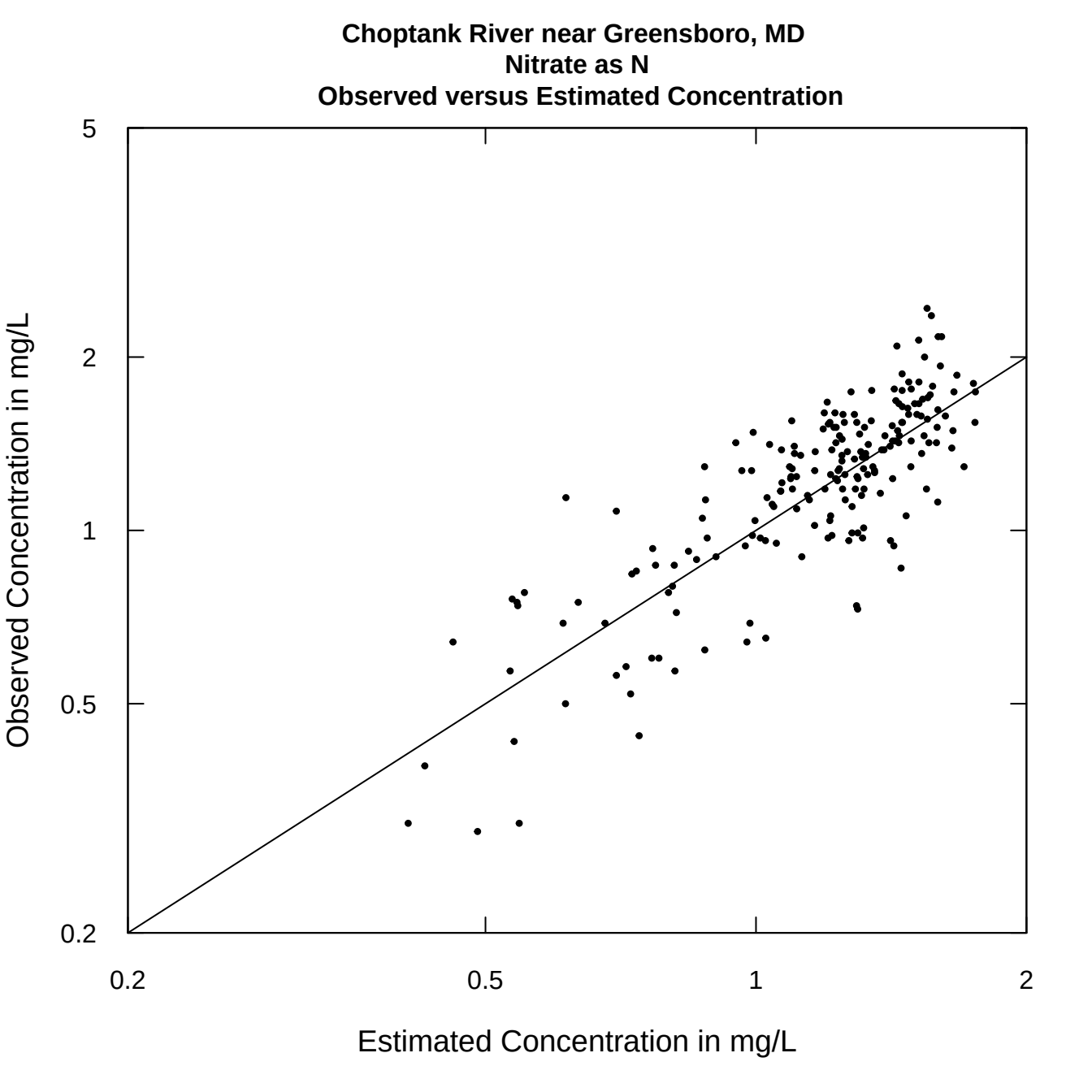

Choptank River near Greensboro, MD
Nitrate as N
Boxplots of residuals by month
Residuals in natural log units
0.6
0.4
0.2
0.0
−0.2
−0.4
−0.6
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month

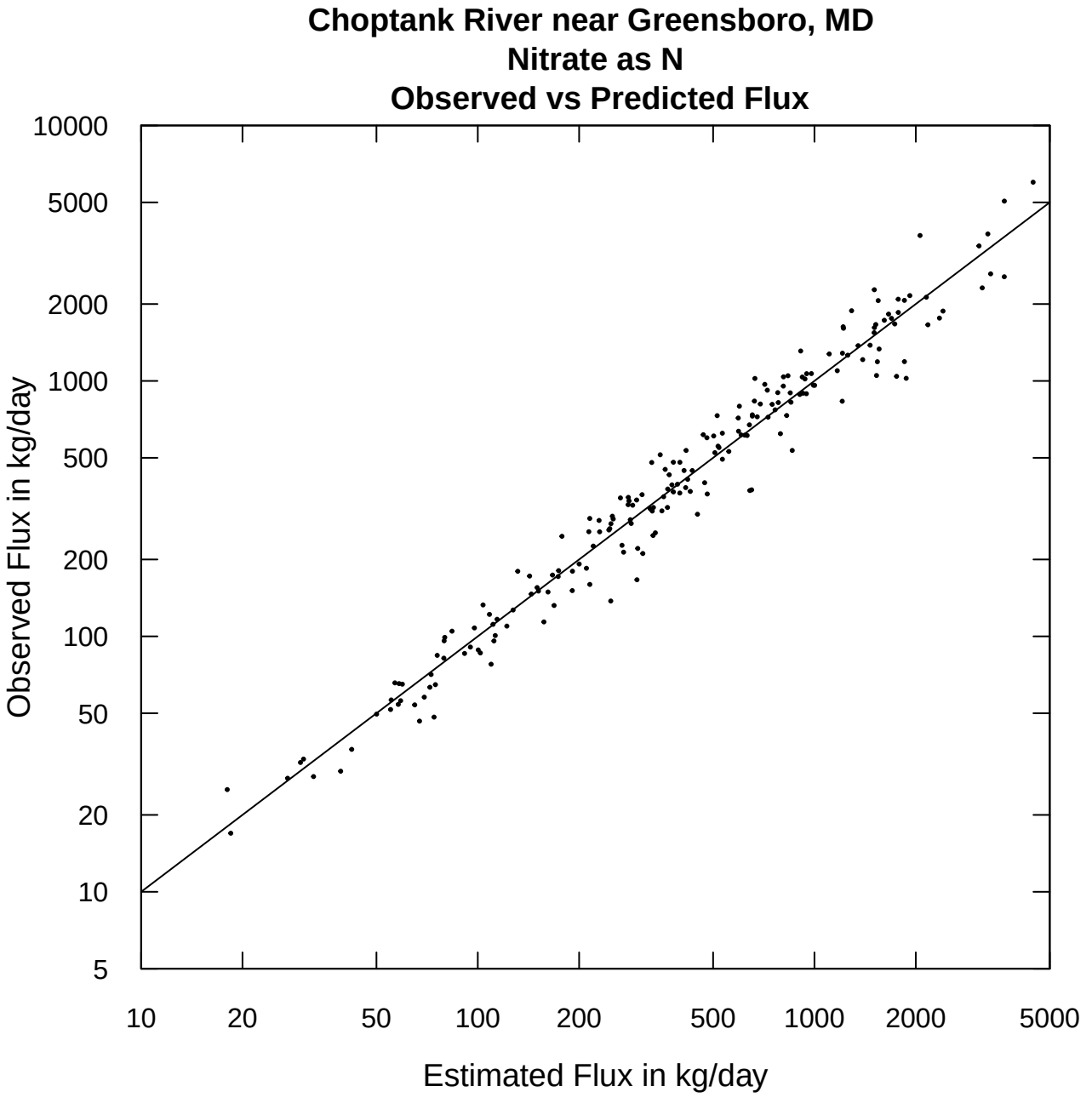

Choptank River near Greensboro, MD
Nitrate as N
Observed and Estimated Concentration versus Time
Concentration in mg/L
2.5
2.0
1.5
1.0
0.5
0.0
2008
2008.5
2009
2009.5
2010

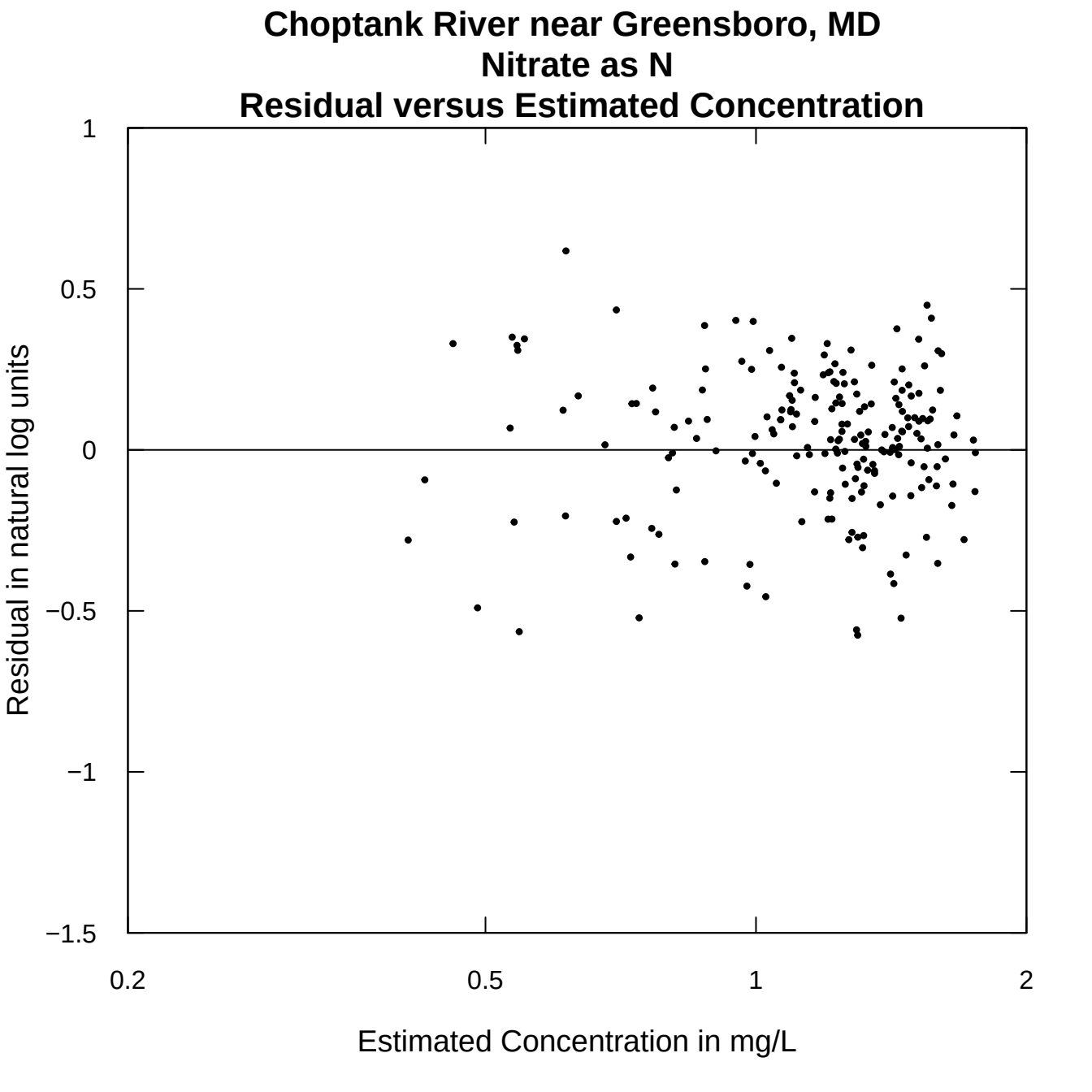

Choptank River near Greensboro, MD
Nitrate as N
Observed and Estimated Flux versus Time
Observed Flux in kg/day
4000
3000
2000
1000
0
2008
2008.5
2009
2009.5
2010

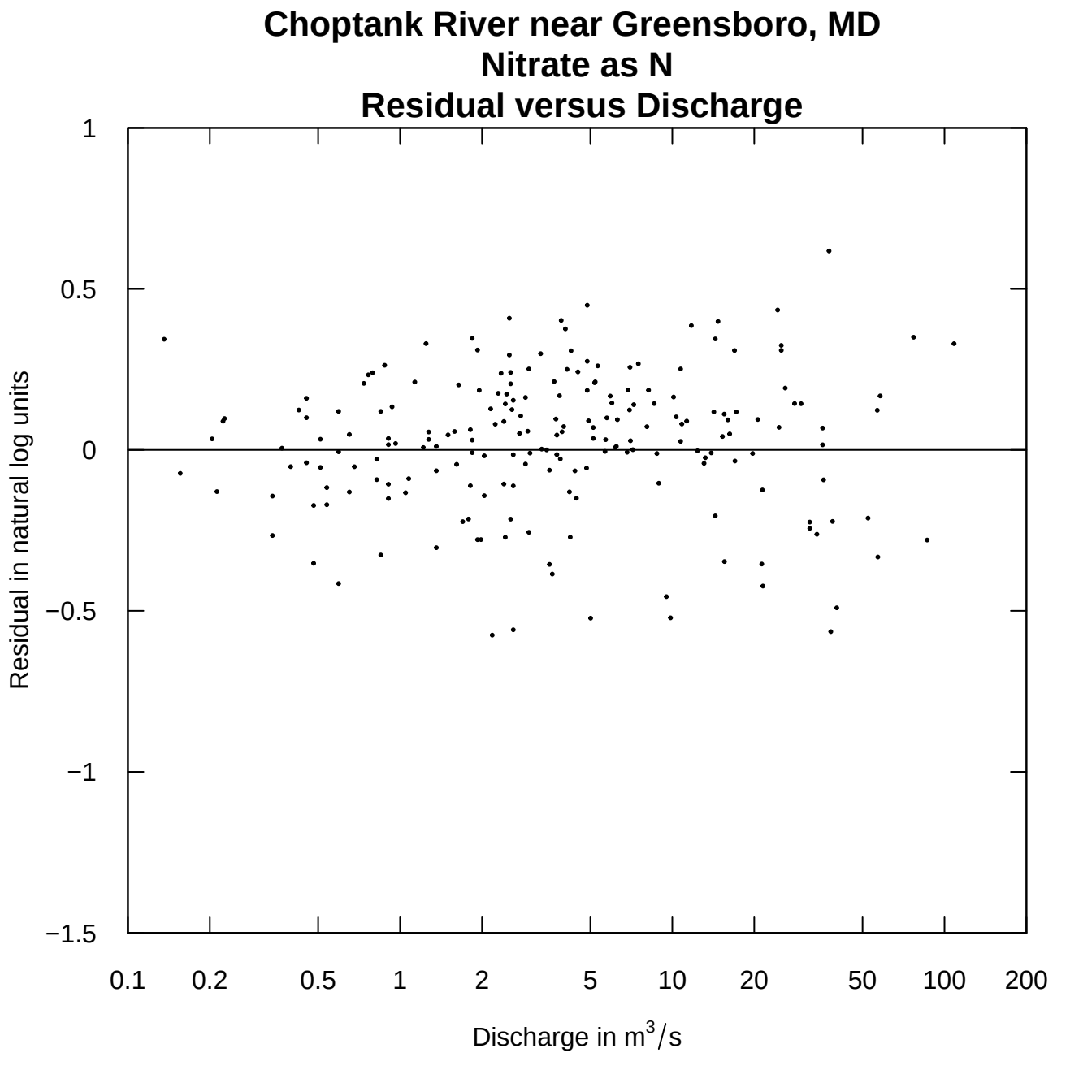

Choptank River near Greensboro, MD
Nitrate as N
Observed versus Estimated Concentration
Observed Concentration in mg/L
Estimated Concentration in mg/L
0
0.5
1
1.5
2
2.5
3

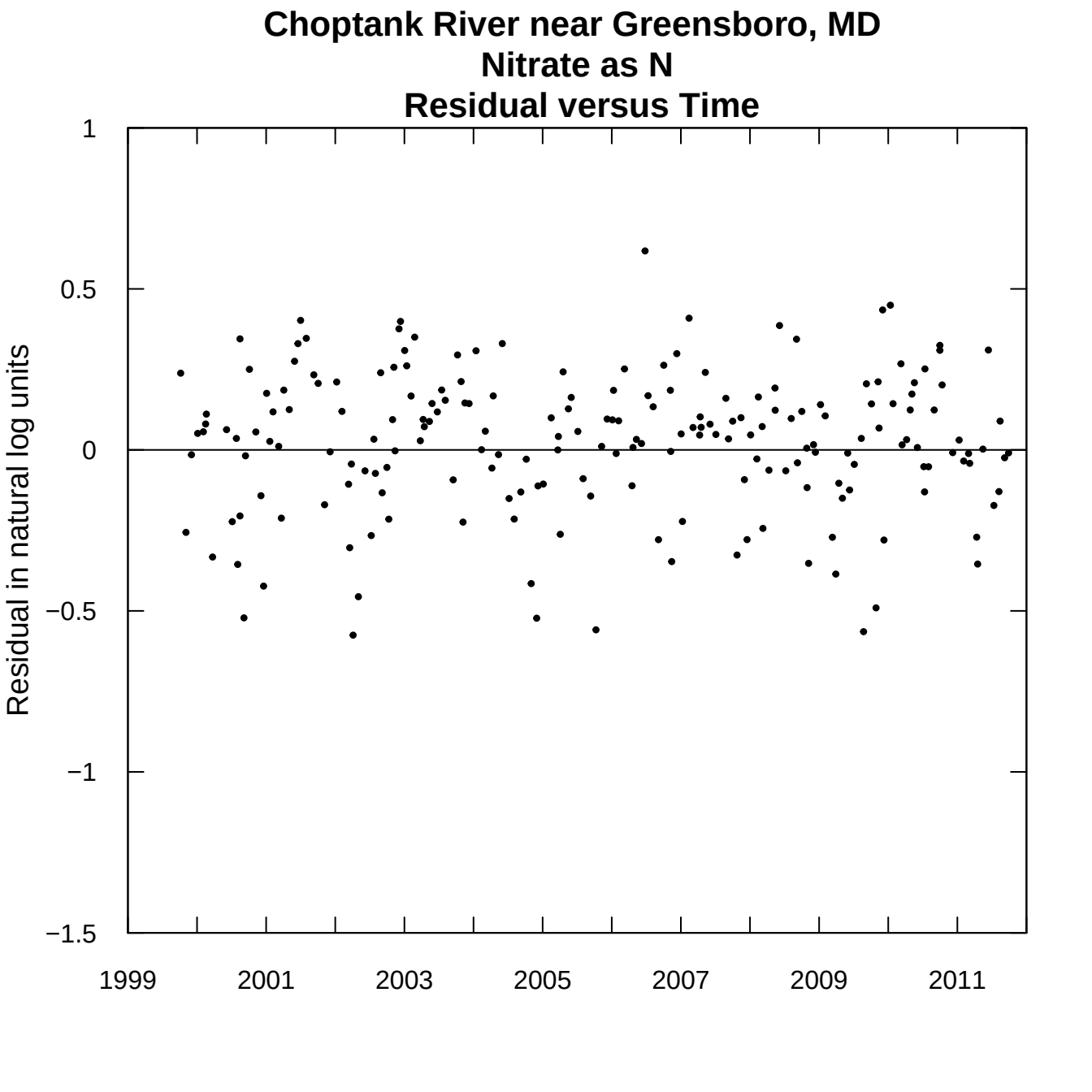

Choptank River near Greensboro, MD
Nitrate as N
Observed vs Estimated Flux
Observed Flux in kg/day
Estimated Flux in kg/day
0
1000
2000
3000
4000
5000
6000
7000

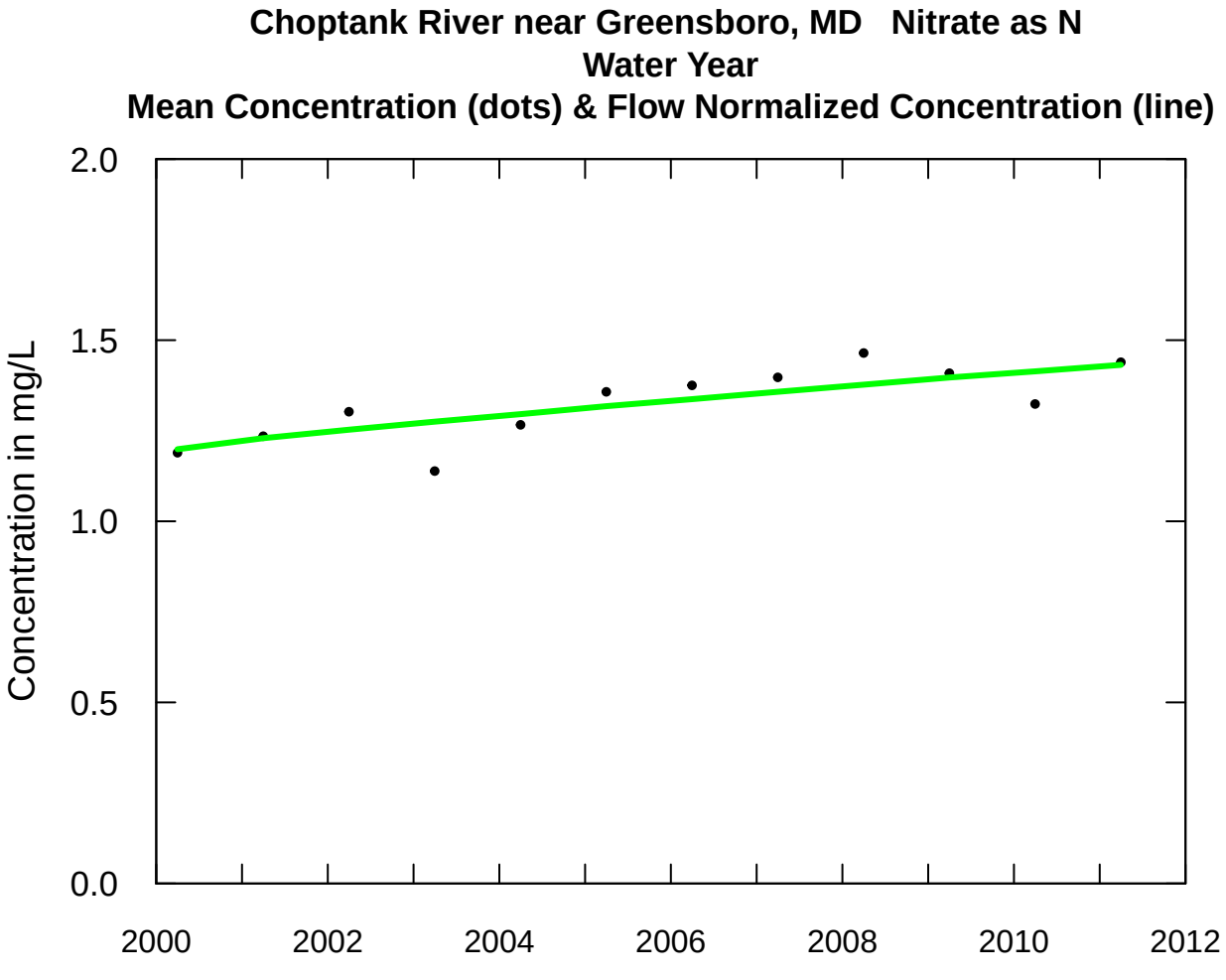

Choptank River near Greensboro, MD
Nitrate as N
Observed versus Estimated Concentration
Observed Concentration in mg/L
Estimated Concentration in mg/L
5
2
1
0.5
0.2
0.2
0.5
1
2

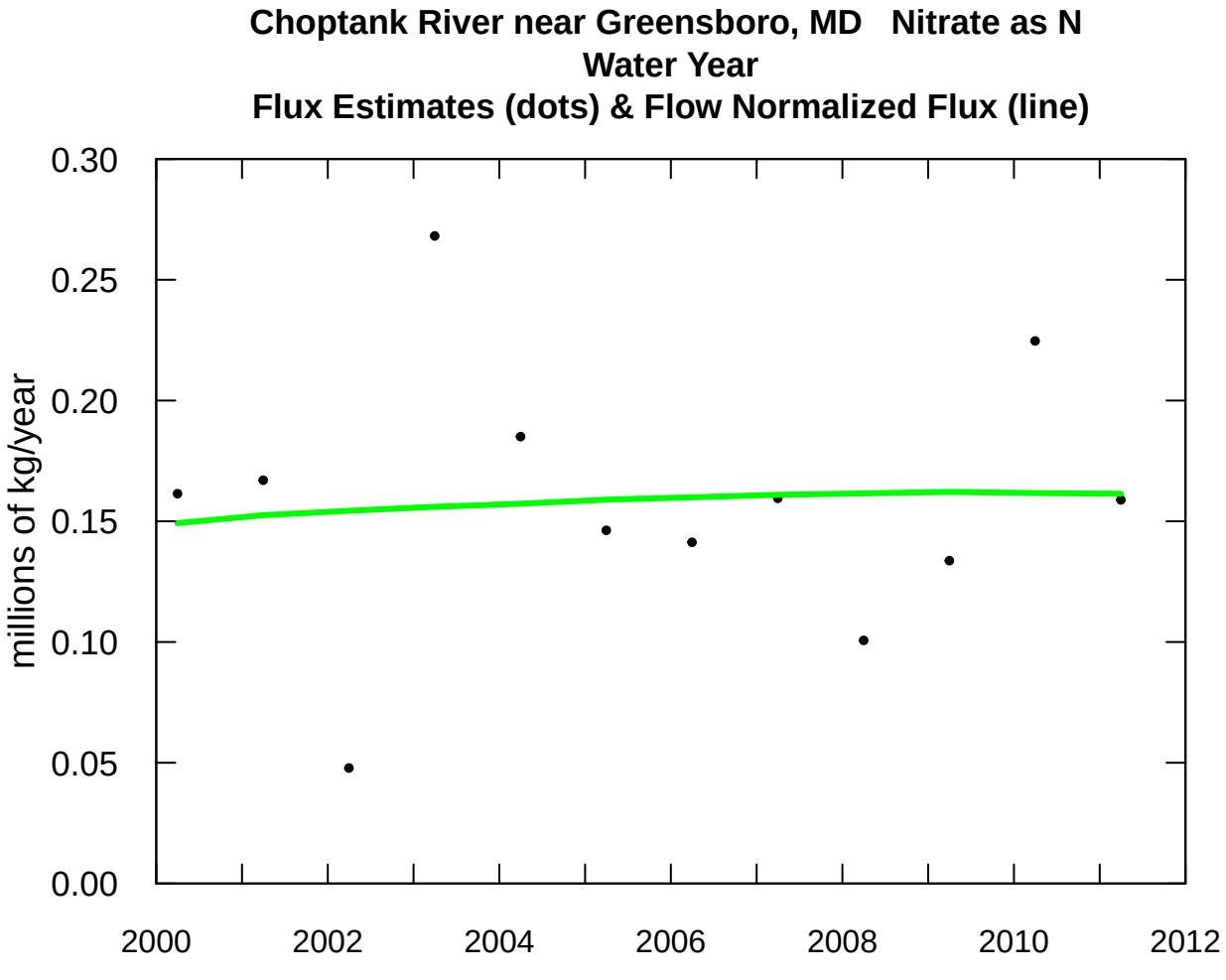

Choptank River near Greensboro, MD
Nitrate as N
Observed vs Predicted Flux
Observed Flux in kg/day
Estimated Flux in kg/day
10000
5000
2000
1000
500
200
100
50
20
10
5
10
20
50
100
200
500
1000
2000
5000

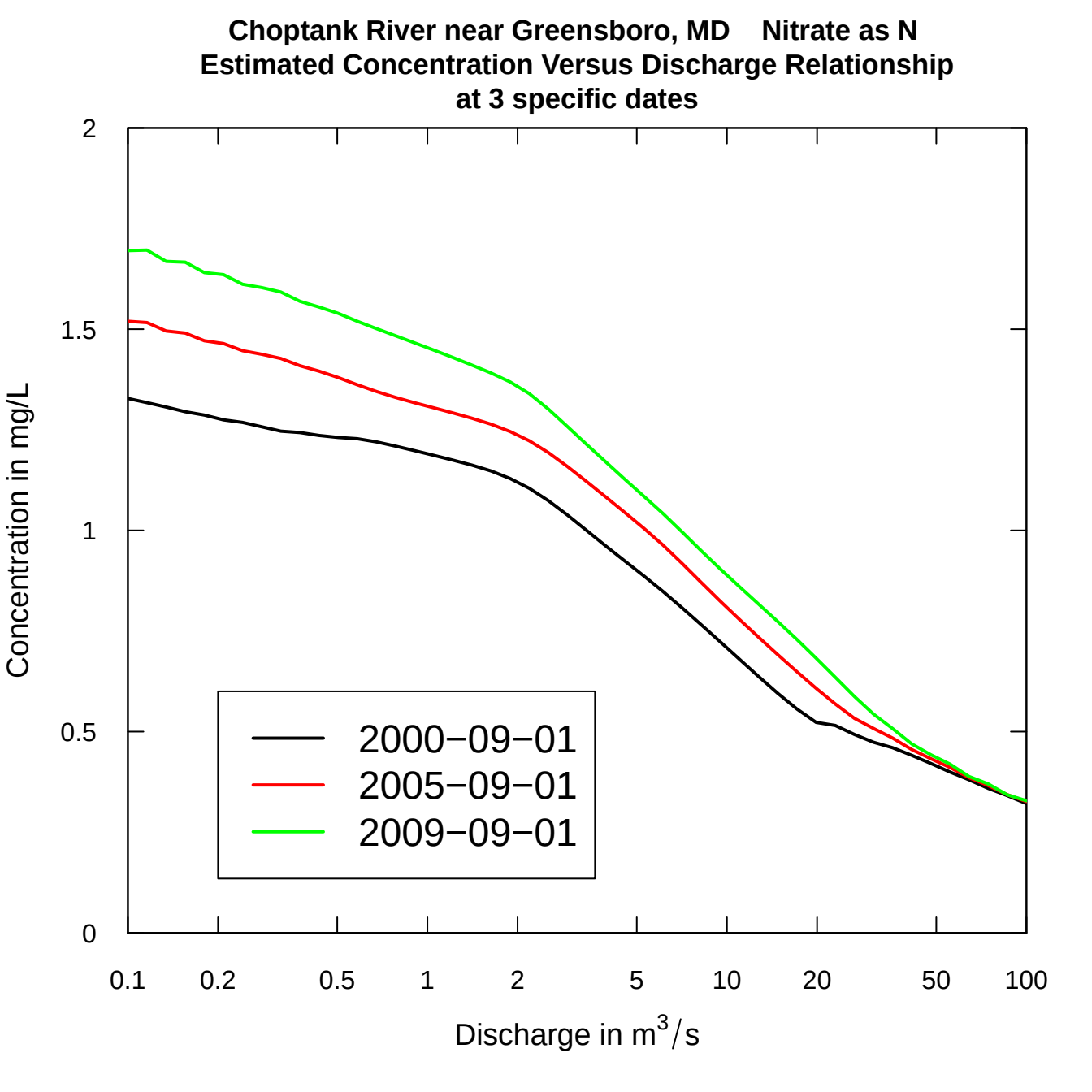

Choptank River near Greensboro, MD
Nitrate as N
Residual versus Estimated Concentration
Residual in natural log units
1
0.5
0
−0.5
−1
−1.5
0.2
0.5
1
2
Estimated Concentration in mg/L

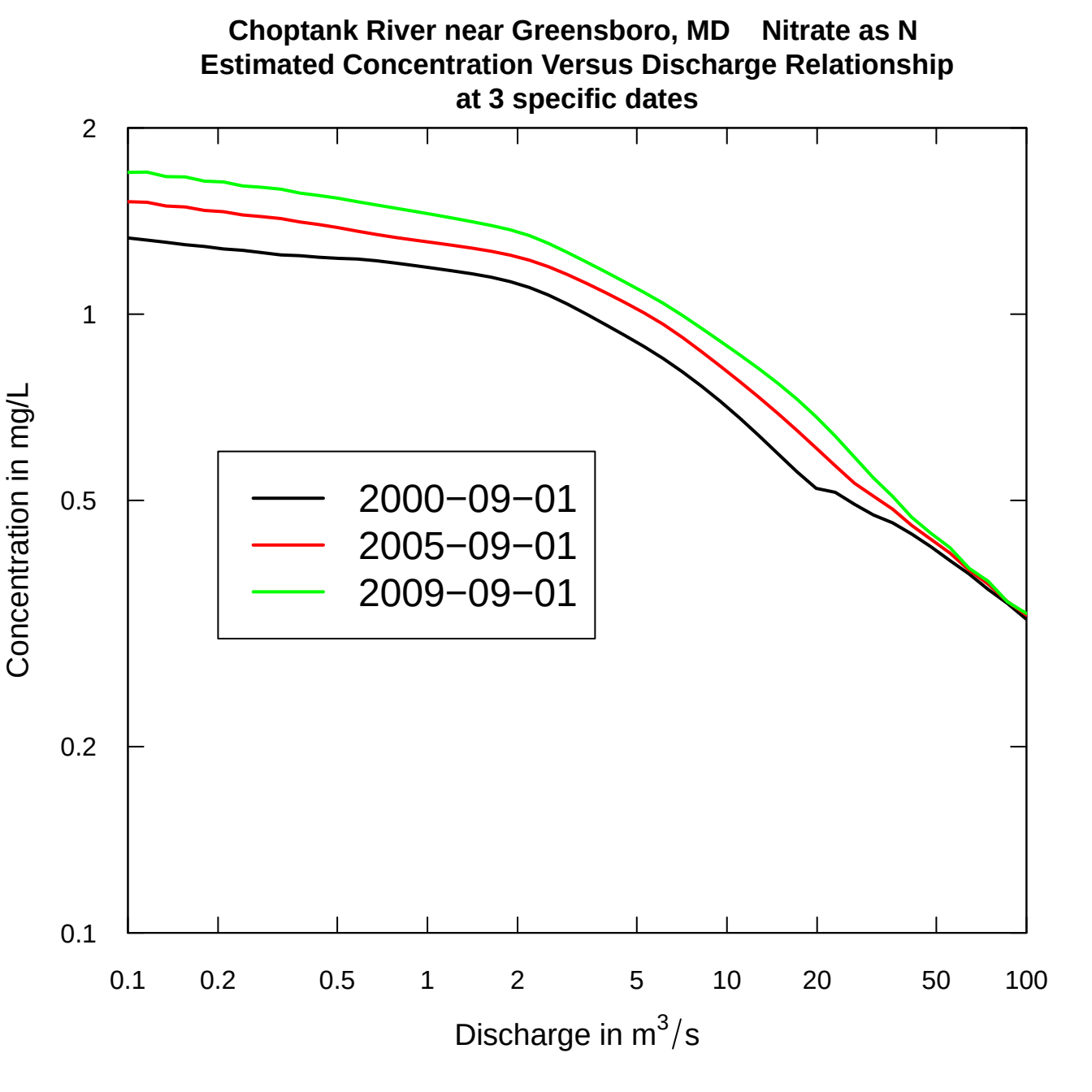

Choptank River near Greensboro, MD
Nitrate as N
Residual versus Discharge
Residual in natural log units
1
0.5
0
−0.5
−1
−1.5
0.1
0.2
0.5
1
2
5
10
20
50
100
200
Discharge in m3/s

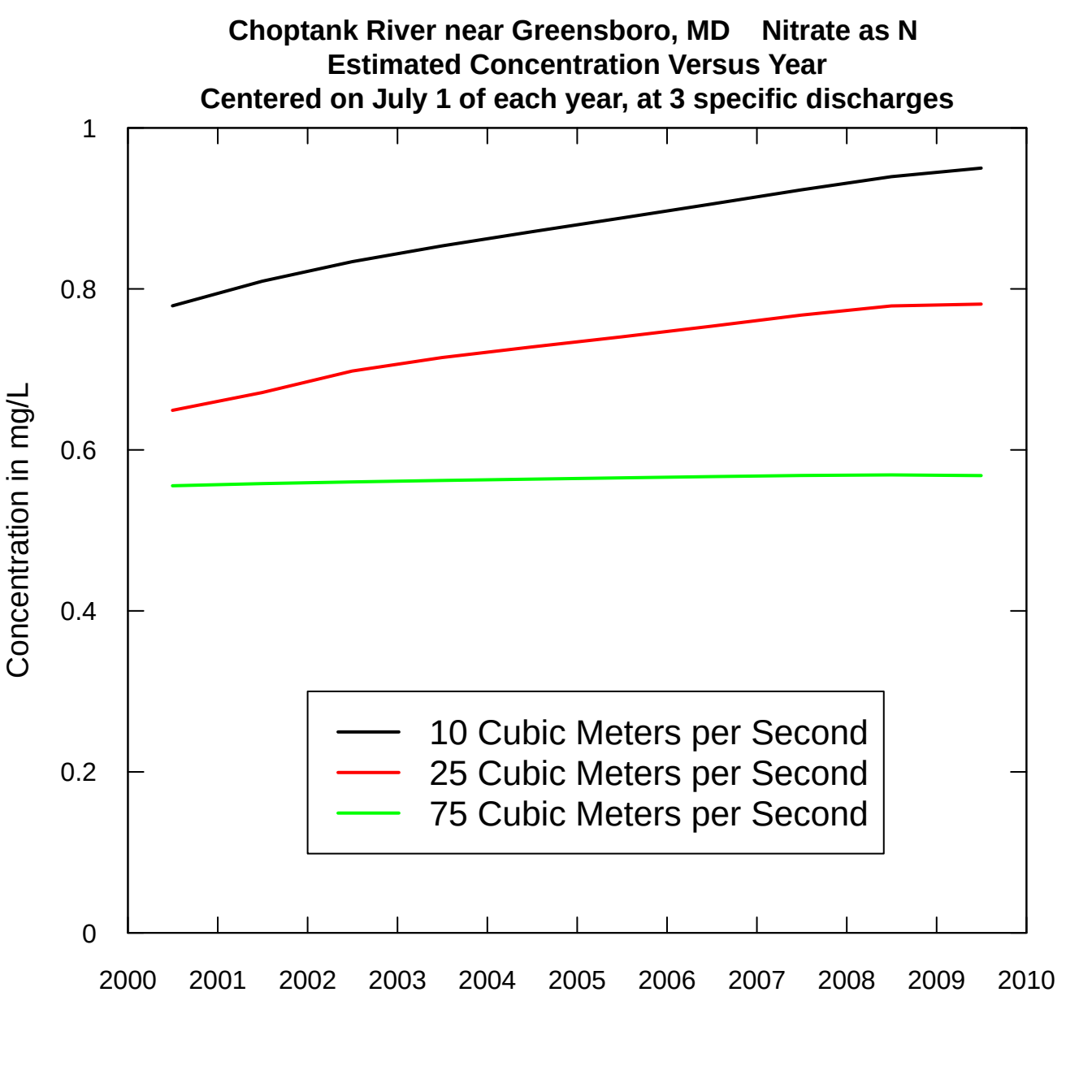

Choptank River near Greensboro, MD
Nitrate as N
Residual versus Time
Residual in natural log units
1
0.5
0
−0.5
−1
−1.5
1999
2001
2003
2005
2007
2009
2011


Choptank River near Greensboro, MD Nitrate as N
Water Year
Mean Concentration (dots) & Flow Normalized Concentration (line)
Concentration in mg/L
2.0
1.5
1.0
0.5
0.0
2000
2002
2004
2006
2008
2010
2012

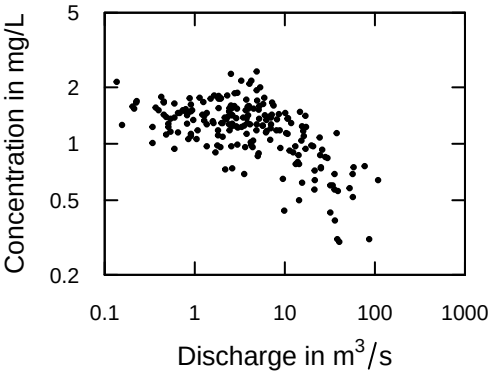

Choptank River near Greensboro, MD Nitrate as N
Water Year
Flux Estimates (dots) & Flow Normalized Flux (line)
millions of kg/year
0.30
0.25
0.20
0.15
0.10
0.05
0.00
2000
2002
2004
2006
2008
2010
2012

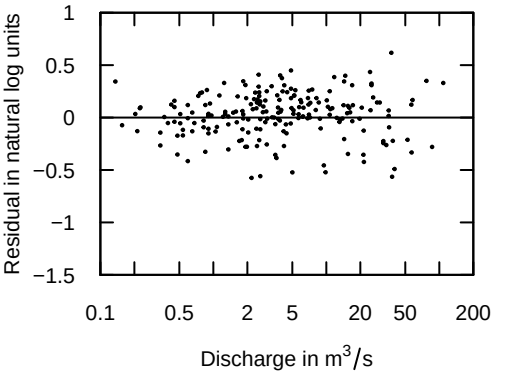

Choptank River near Greensboro, MD Nitrate as N
Estimated Concentration Versus Discharge Relationship
at 3 specific dates
Concentration in mg/L
Discharge in m3/s
2
1.5
1
0.5
0
0.1
0.2
0.5
1
2
5
10
20
50
100
2000−09−01
2005−09−01
2009−09−01

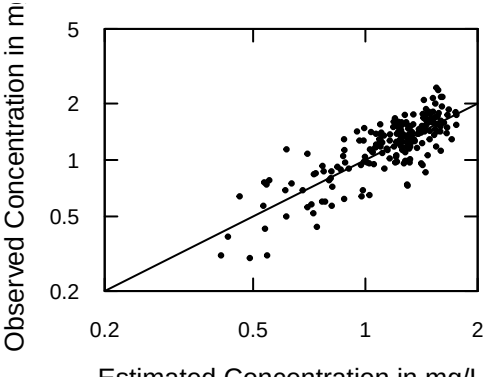

Choptank River near Greensboro, MD Nitrate as N
Estimated Concentration Versus Discharge Relationship
at 3 specific dates
2
1
0.5
0.2
0.1
Concentration in mg/L
2000−09−01
2005−09−01
2009−09−01
0.1
0.2
0.5
1
2
5
10
20
50
100
Discharge in m3/s

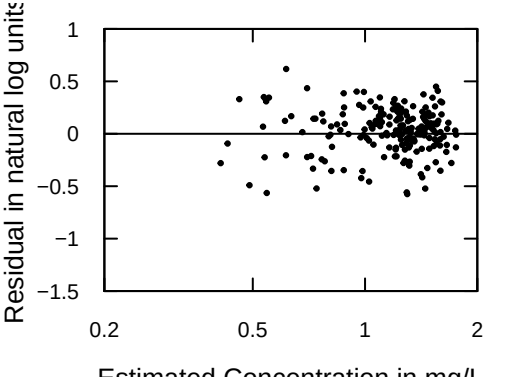

Choptank River near Greensboro, MD Nitrate as N
Estimated Concentration Versus Year
Centered on July 1 of each year, at 3 specific discharges
Concentration in mg/L
1
0.8
0.6
0.4
0.2
0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
10 Cubic Meters per Second
25 Cubic Meters per Second
75 Cubic Meters per Second

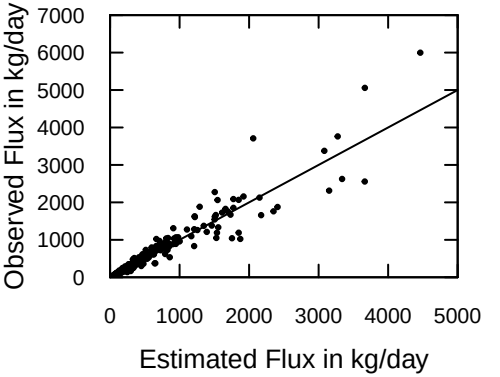
Choptank River near Greensboro, MD Nitrate as N
Flux Bias Statistic −0.03025 (−0.03025 , −0.03025)

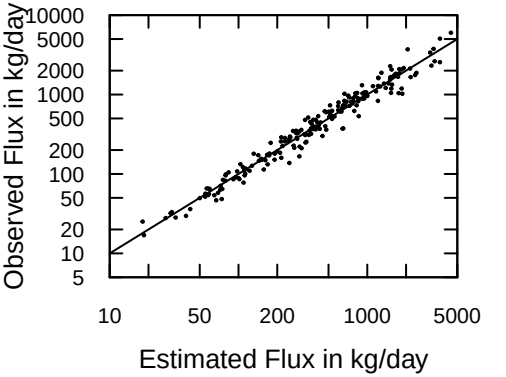


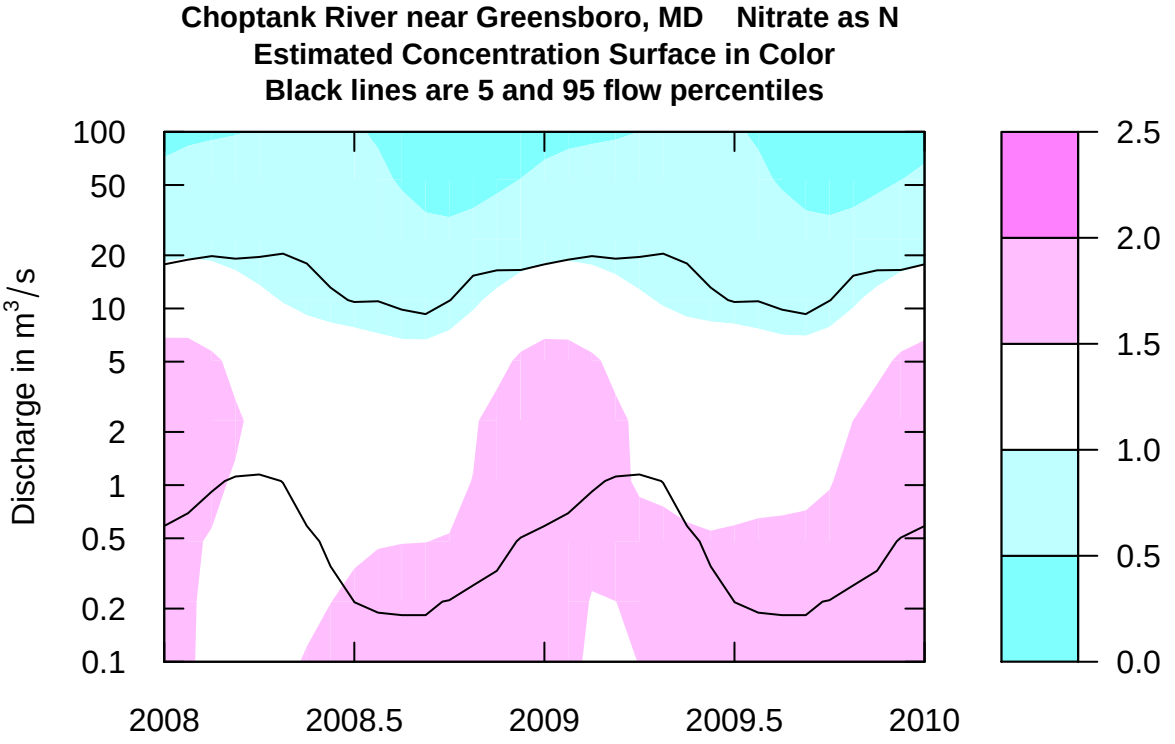


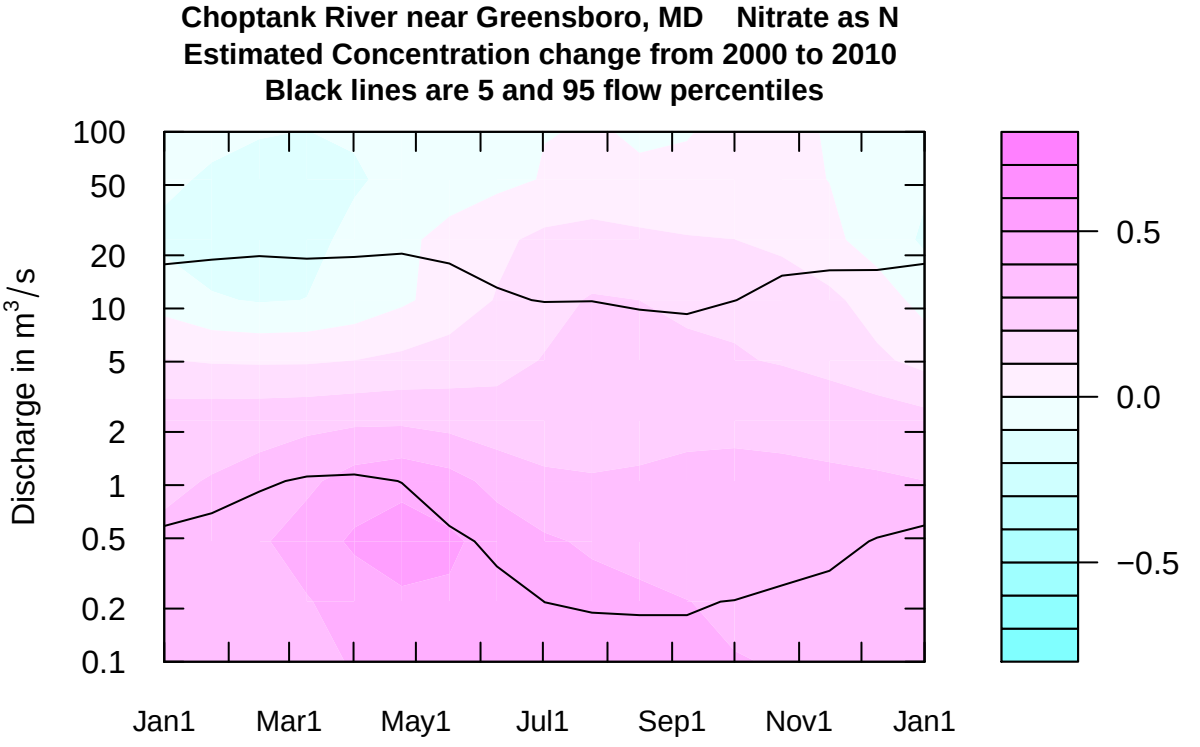









Choptank River near Greensboro, MD Nitrate as N
Estimated Concentration Surface in Color
Black lines are 5 and 95 flow percentiles
Discharge in m3/s
100
50
20
10
5
2
1
0.5
0.2
0.1
2008
2008.5
2009
2009.5
2010
2.5
2.0
1.5
1.0
0.5
0.0


Choptank River near Greensboro, MD Nitrate as N
Estimated Concentration change from 2000 to 2010
Black lines are 5 and 95 flow percentiles
Discharge in m3/s
100
50
20
10
5
2
1
0.5
0.2
0.1
Jan1
Mar1
May1
Jul1
Sep1
Nov1
Jan1
0.5
0.0
−0.5